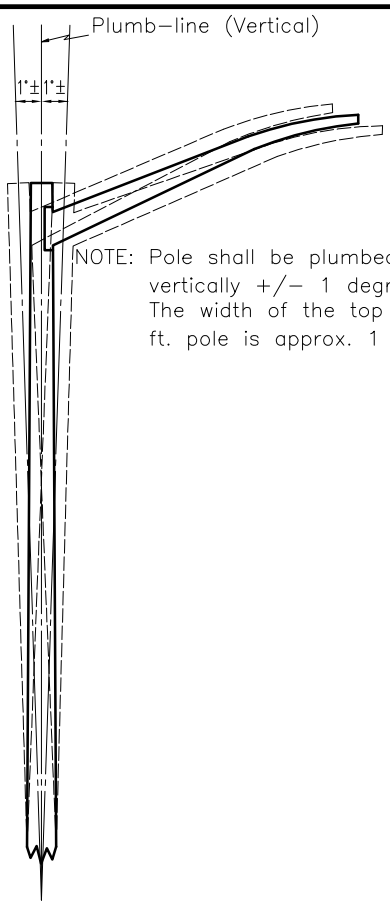
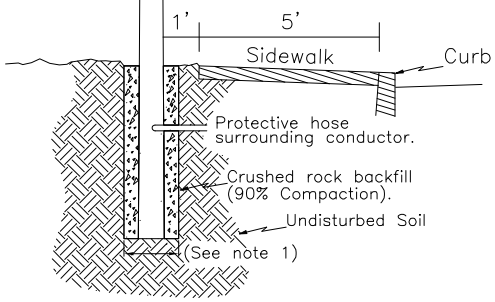
CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS
STANDARD DRAWINGS

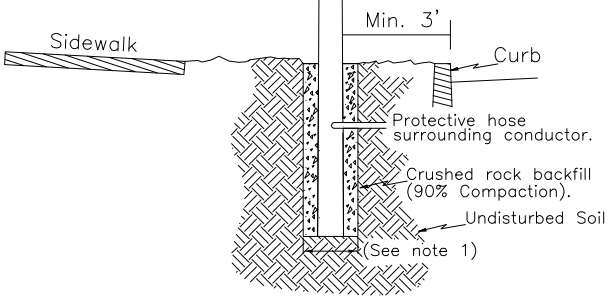
TABLE OF CONTENTS



NOTE: Pole shall be plumbed vertically +/– 1 degree. The width of the top of a 25 ft. pole is approx. 1 degree.



Typical Lamp Post Cross Section (Type One)



Typical Lamp Post Cross Section (Type Two)

NOTES:
1. MINIMUM DIMENSION EQUAL TO TWICE POLE BASE DIAMETER. IF POLE IS SET IN DISTURBED SOIL, MINIMUM HOLE DIAMETER EQUAL TO 4 TIMES POLE BASE DIAMETER.
2. LUMINAIRE WATTAGE, MOUNTING HEIGHT, AND ARM LENGTH AS DETAILED BY ENGINEER.
3. MINIMUM DIRECT BURIAL DEPTH EQUAL TO 5' OR GREATER AS PER MANUFACTURER SPECIFICATIONS.

Approved Karl O. Sturgeon City Engineer 9–15–99 Date

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN

TYPICAL LAMP POST INSTALLATION

No.	Description	Date	By	Appr
	ADDED SPECIFICATION FOR MIN. HOLE DIA.			
	ADDED PROTECTIVE HOSE AROUND CONDUCTOR			

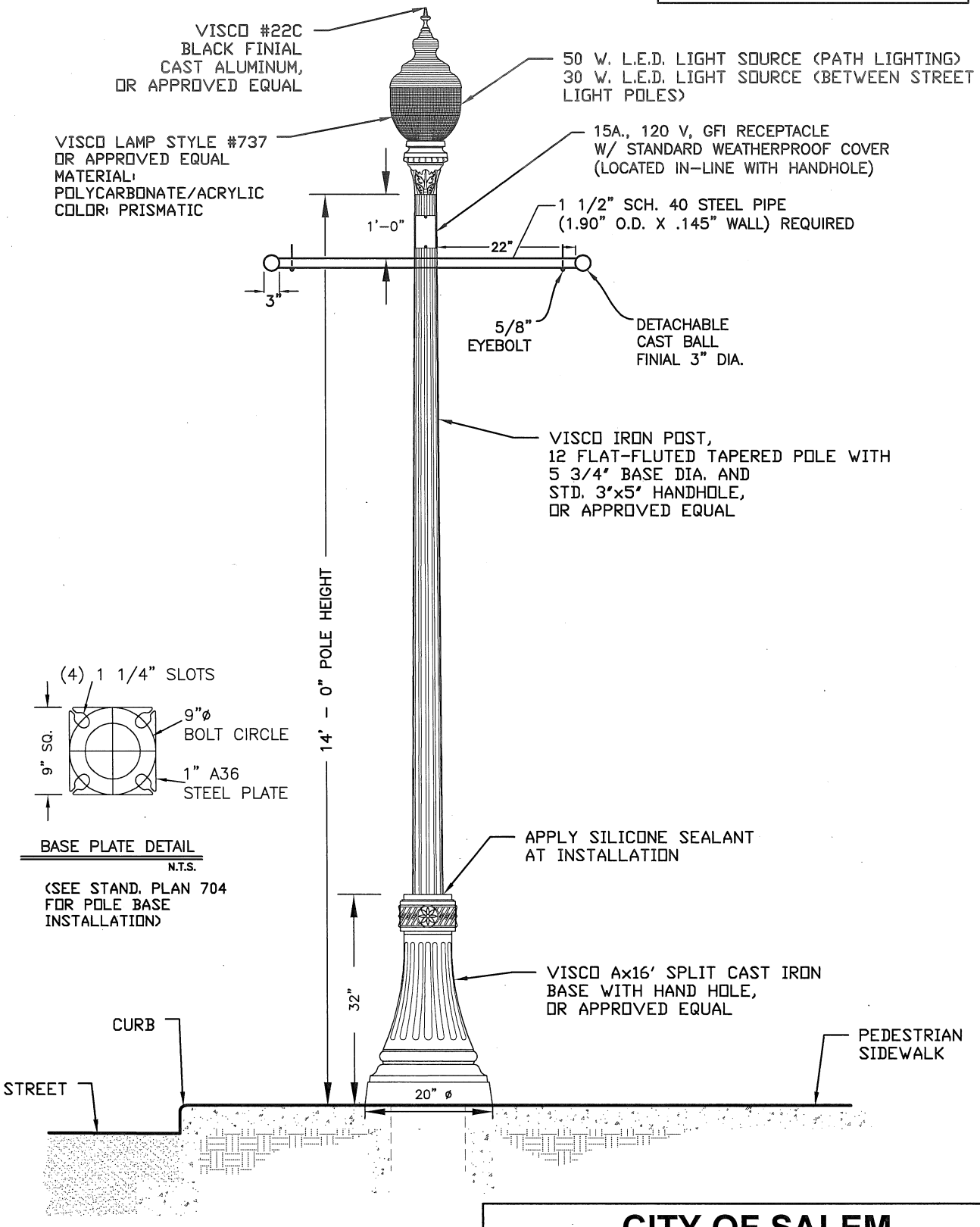
REVISION

DRAWN BY KPB, SGP

CHECKED BY D.W.

NO.701

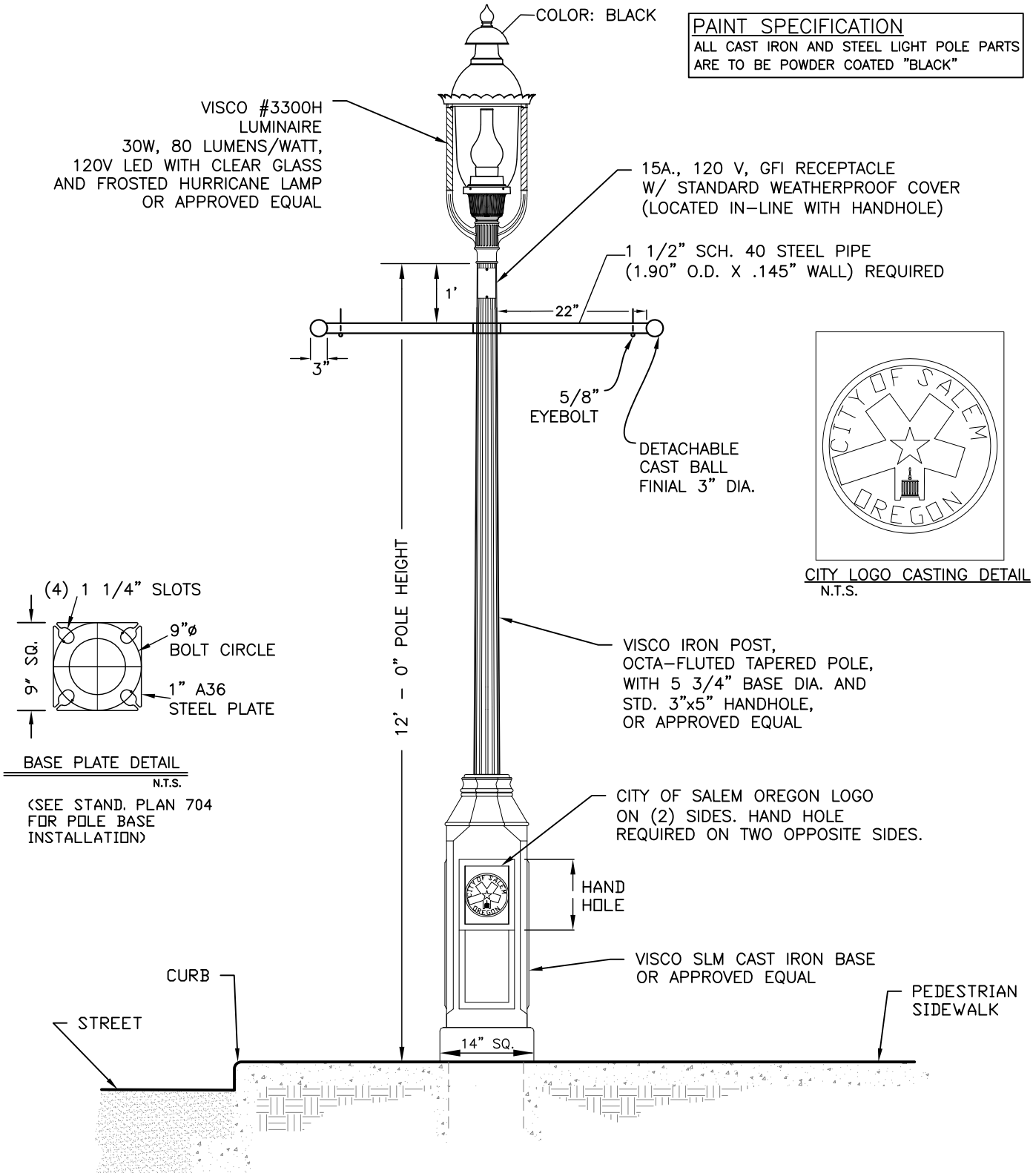
PAINT SPECIFICATION
ALL CAST IRON AND STEEL LIGHT POLE PARTS ARE TO BE POWDER COATED "BLACK"



CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
STREETSCAPE LAMP POST DETAIL
ACORN LAMP STYLE

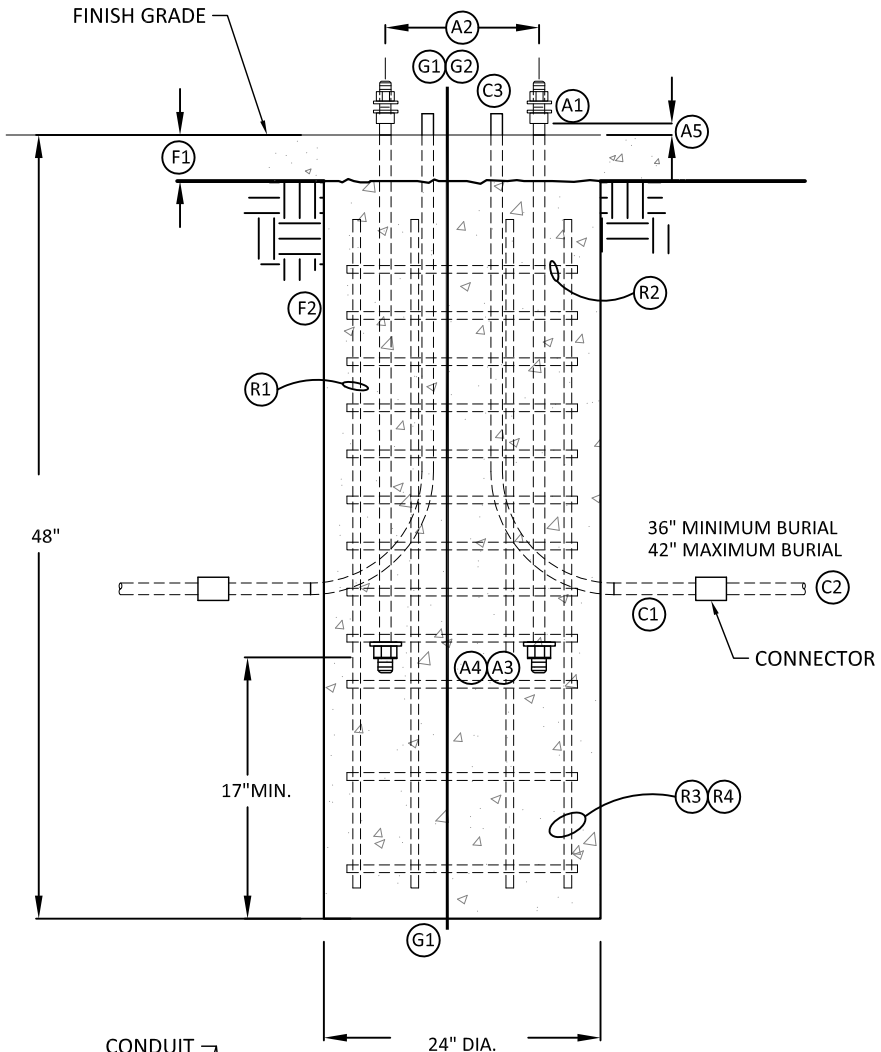
APPROVED	James L. Brent	5/13/15	DRAWN BY	ALT	04/2015	**NO. 702**
	CITY ENGINEER	DATE	CHECKED BY	KLR	04/2015	

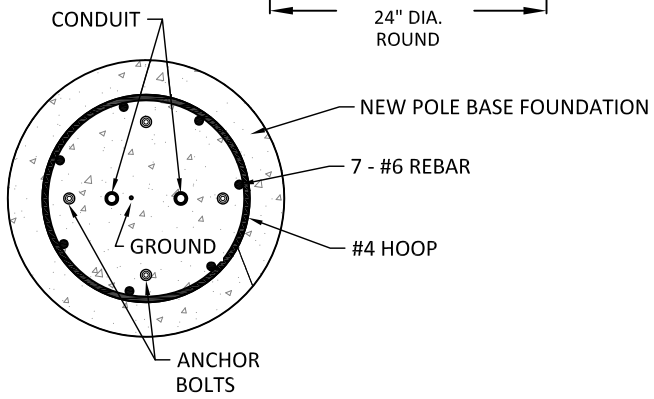


CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
STREETSCAPE LAMP POST DETAIL
GAS LAMP STYLE

APPROVED	James L. Sprent	1/1/14	DRAWN BY	ALT	07/2013	**NO. 703**
	CITY ENGINEER	DATE	CHECKED BY	CJS	07/2013	





ANCHOR BOLTS:

A1. (4) ASTM F 1554 GRADE 36 ANCHOR BOLTS. BOLT DIAMETER AS RECOMMENDED BY POLE MANUFACTURER.

A2. BOLT CIRCLE DIAMETER TO MATCH POLE BASEPLATE.

A3. ANCHOR BOLTS SHALL HAVE HEADS, OR NUTS WITH THE THREADS STAKED AT TWO PLACES BELOW THE NUT OR TACK WELDED, EMBEDDED IN FOUNDATION.

A4. ANCHOR BOLTS SHALL BE 39" LONG WITH 33" EMBENDMENT IN CONCRETE.

A5. BOLT PROJECTION AS RECOMMENDED BY THE MANUFACTURER.

CONDUIT:

C1. CONDUIT SHALL BE COATED RIGID GALVANIZED STEEL IN CONCRETE WITH 6" MINIMUM STUB-OUT.

C2. SERVICE AND FEED CONDUITS SHALL BE SCH. 80 PVC.

C3. STUB UP TO WITHIN 4" FROM HAND HOLE.

FOUNDATION:

F1. THE TOP 3.5" OF ROUND FOUNDATIONS SHALL BE INTEGRATED INTO SIDEWALK OR POURED AS A SQUARE PAD, LARGE ENOUGH TO FULLY SUPPORT THE POLE BASE PLATE AND NUT COVERS.

F2. THE FOUNDATION SHALL CURE A MIN. OF FOURTEEN (14) DAYS PRIOR TO POLE INSTALLATION OR TORQUING OF THE ANCHOR BOLTS.

GROUND ROD:

G1. GROUND ROD SHALL BE MIN. 5/8" DIA. x 8 FT. LONG, COPPER CLAD.

G2. STUB UP WITHIN 4" FROM HAND HOLE. MIN. 3" EXPOSURE AT TOP OF FOUNDATION, WITHIN BOLT CIRCLE.

REINFORCEMENT:

R1. VERTICAL REBAR SHALL BE 7 #6 EQUALLY SPACED INSIDE OF HOOPS.

R2. HOOPS SHALL BE #4 x 18" O.D., SPACED 4" O.C.FROM TOP OF FOUNDATION TO END OF ANCHOR BOLTS.

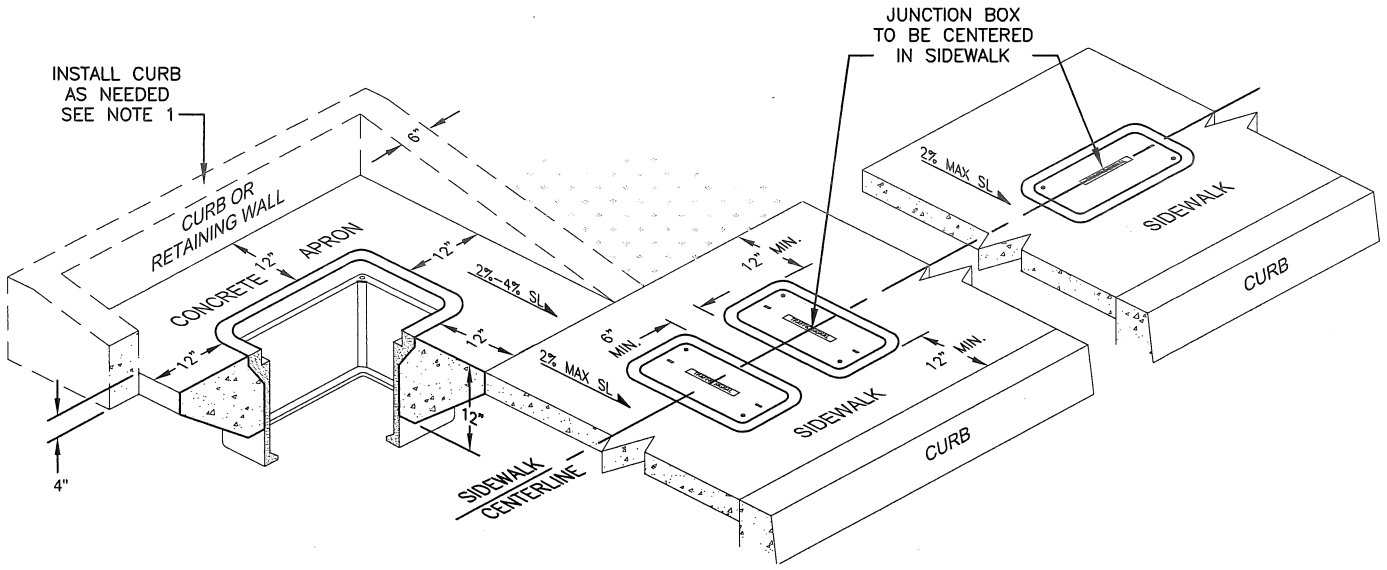
R3. HOOPS SHALL BE #4 x 18" O.D., SPACED 12" MIN. FROM THE ANCHOR BOLTS TO BOTTOM OF FOUNDATION.

R4. ALL REBAR SHALL HAVE 3" MIN. COVERING.

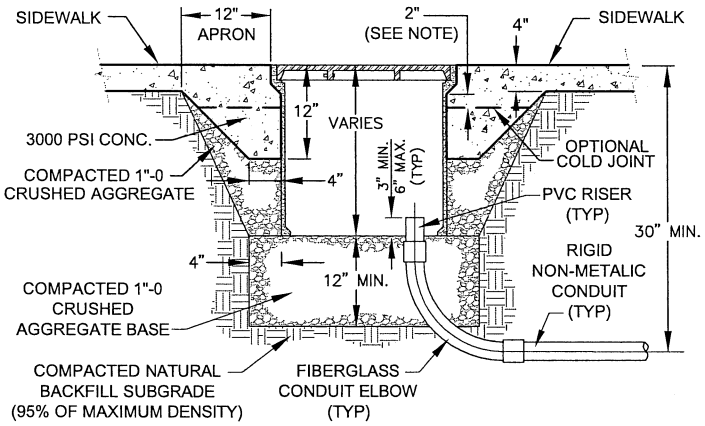
CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
POLE BASE DETAIL

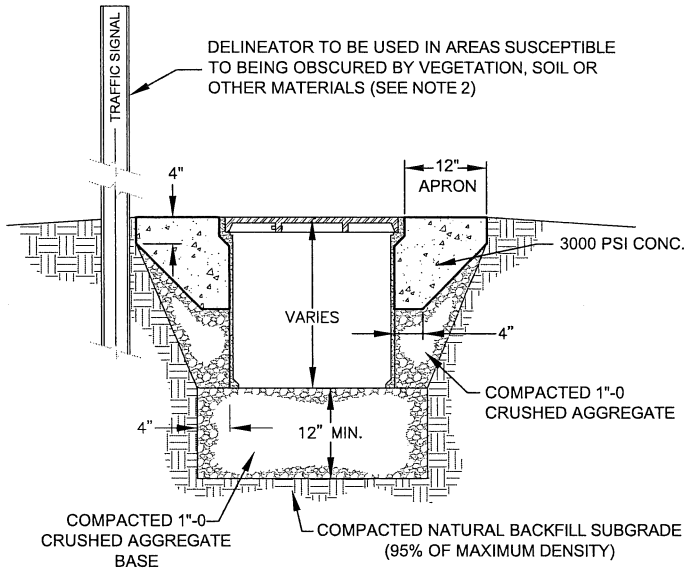
APPROVED	Jeremy Bent	1/1/14	DRAWN BY	ALT	11/2013	**NO. 704**
	CITY ENGINEER	DATE	CHECKED BY	CJS	11/2013	



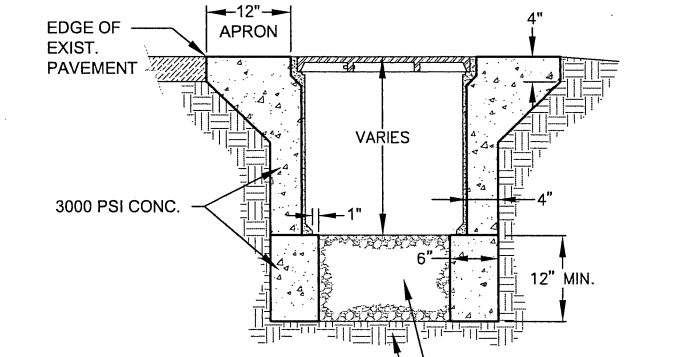
NOTE: SIDEWALK MAY BE POURED EITHER MONOLITHICALLY WITH APRON, OR SEPARATELY, AS LONG AS COLD JOINT IS LOW ENOUGH TO PROVIDE A MINIMUM OF 2" BELOW TAPERED PORTION OF UNDERGROUND ENCLOSURE IN A CONTINUOUS POUR WITH THE SIDEWALK AS INDICATED BY DASHED LINE.



IN SIDEWALK
NO SCALE



IN UNPAVED AREA
NO SCALE



ON HIGHWAY SHOULDER
NO SCALE

NOTES:

1. UNDERGROUND ENCLOSURES INSTALLED IN PAVED AREAS SHALL MATCH THE SLOPE AND ELEVATION OF THE SURROUNDING SIDEWALK OR PAVEMENT IN ALL DIRECTIONS. UNDERGROUND ENCLOSURES LOCATED OUTSIDE PAVED AREAS HAVING A SLOPE EXCEEDING 4% SHALL HAVE A MIN. 6" WIDE CURB OR APPROVED BLOCK RETAINING WALL BEYOND THE 12" WIDE CONCRETE APRON TO PREVENT ENCROACHMENT OF THE SURROUNDING SOILS OR GROUND COVER. BOTTOM OF CURB OR RETAINING WALL SHALL EXTEND A MINIMUM OF 4" BELOW FINISH GRADE OF THE APRON. THE TOP OF CURB OR RETAINING WALL SHALL FOLLOW THE CONTOUR OF THE ADJACENT GROUND. CURBS EXTENDING LESS THAN 6" ABOVE THE FINISH GRADE OF THE APRON MAY BE REDUCED TO 4" WIDE.
2. UTILITY MARKERS SHALL BE USED IN AREAS WHERE UNDERGROUND ENCLOSURES ARE PRONE TO BEING OBSCURED BY SURROUNDING SOILS, GROUNDCOVERS, MULCH OR VEGETATION. MARKER SHALL BE MADE OF WHITE FIBERGLASS OR FIBERGLASS/PLASTIC HYBRID AND CLEARLY IDENTIFIED ON BOTH SIDES WITH BLUE REFLECTIVE DECALS STATING THE APPROPRIATE UTILITY, "STREET LIGHT" OR "TRAFFIC SIGNAL".
3. ALL UNDERGROUND ENCLOSURES TO BE POLYMER CONCRETE (PREFERRED) OR FIBERGLASS POLYMER CONCRETE AND HAVE A HEAVY DUTY COVER WITH THE APPROPRIATE LOGO, "STREET LIGHT" OR "TRAFFIC SIGNAL".

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

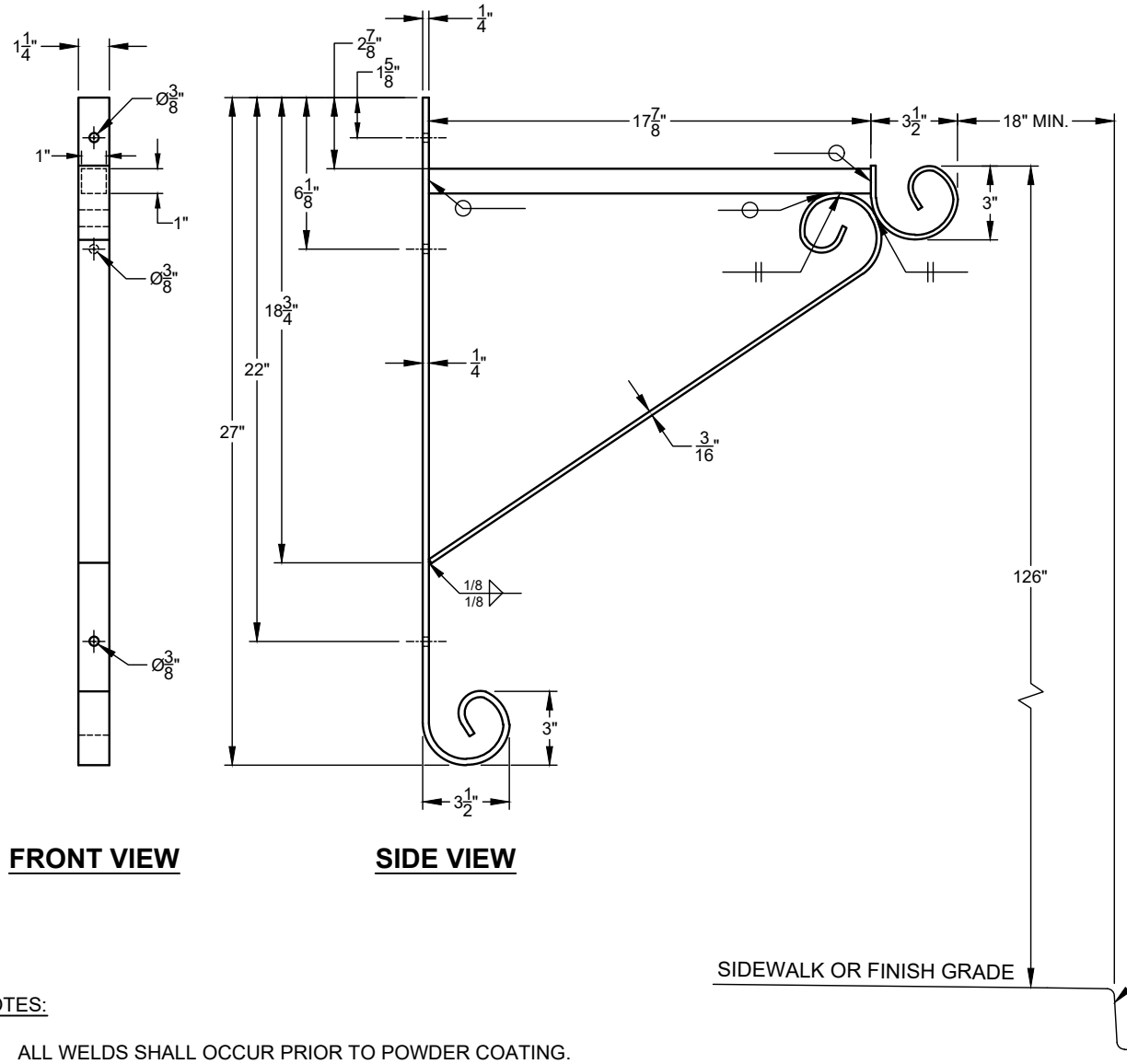
STANDARD PLAN

JUNCTION BOX DETAILS

APPROVED		4/23/2015	DRAWN BY	DTN	1/2014	NO.705
	CITY ENGINEER	DATE	CHECKED BY	RLB	1/2014	

MATERIALS LIST

QUANTITY	MATERIAL
17 7/8"	1" X 1" X .109" (12 GAUGE) SQUARE TUBE (ASTM A513)
30 3/4"	3/16" X 1 1/4" FLAT BAR (ASTM A569)
10 7/8"	3/16" X 1 1/4" FLAT BAR (ASTM A569)
35 1/4"	1/4" X 1 1/4" FLAT BAR (ASTM A36)



FRONT VIEW **SIDE VIEW**

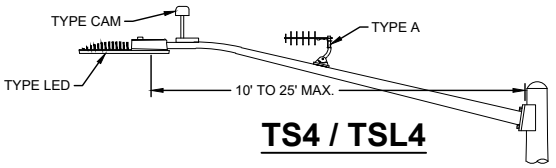
NOTES:

1. ALL WELDS SHALL OCCUR PRIOR TO POWDER COATING.
2. HANGER SHALL BE BLACK PER AAMA 2604-98.
3. HANGERS SHALL BE MOUNTED USING 3/4" BAND-IT® AT THE LOCATION OF EACH OF THE THREE HOLES. THE BANDS AND BUCKLES SHALL BE STAINLESS STEEL.
4. HANGER SHALL BE ORIENTED TOWARD THE STREET AND BE ROTATED TO AVOID ANY OTHER POLE APPURTENANCE. WHEN CLEARANCE TO THE CURB IS LESS THAN 18", ROTATE AS NECESSARY TO ACHIVE CLEARANCE.

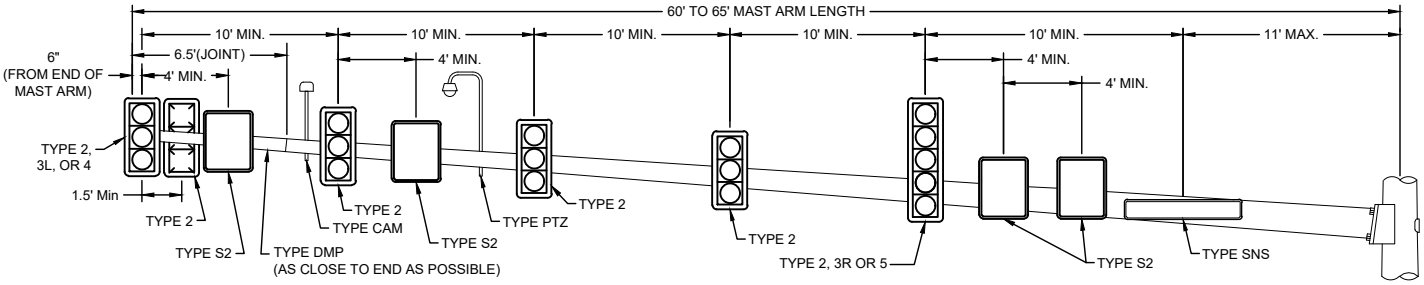
CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

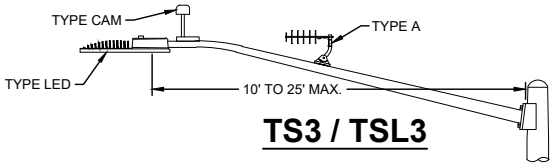
STANDARD PLAN
STREETSCAPE LAMP POST
FLOWER HANGER DETAIL

APPROVED	CITY ENGINEER	12/16/19	DRAWN BY	DTN	11/2019	**NO.706**
		DATE	CHECKED BY	AAE	11/2019	

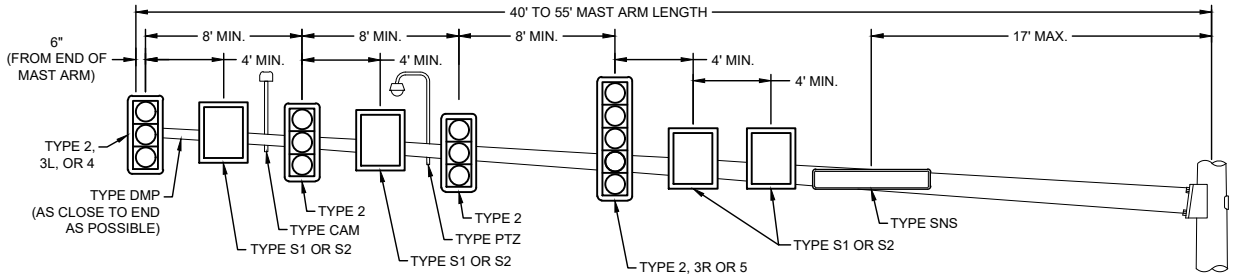


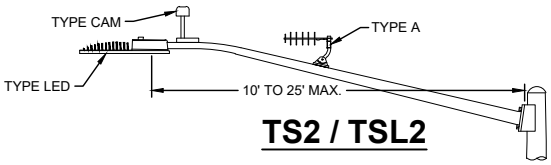
TS4 / TSL4



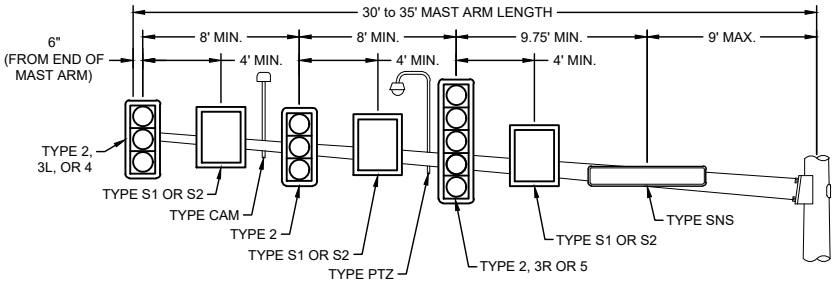


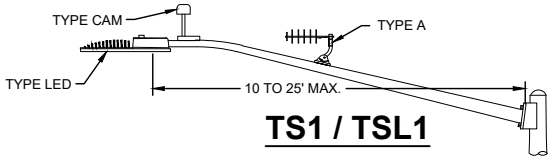
TS3 / TSL3



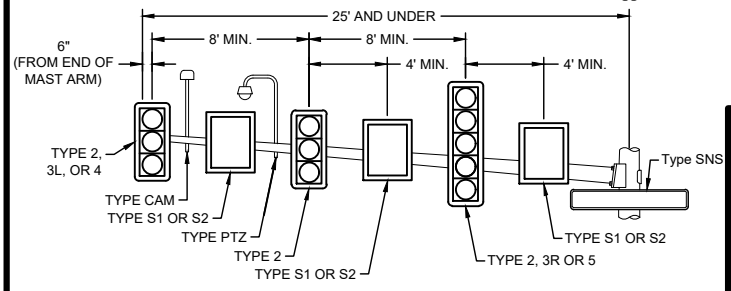


TS2 / TSL2





TS1 / TSL1



NOTES:

1. VEHICLE DETECTION CAMERA (CAM) MOUNTED ON 6 FT (MAX.) GUSSETED TUBE PLACED AT ANY LOCATION ON MAST ARM.
2. VEHICLE DETECTION CAMERA (CAM) MOUNTED ON 20-1/2" FABRICATED BRACKET NEXT TO LUMINAIRE.
3. FIRE PRE-EMPTION UNIT (F) MAY BE PLACED AT ANY LOCATION ALONG THE MAST ARM.
4. TRAFFIC MONITORING CAMERA (PTZ) MAY BE PLACED AT ANY LOCATION ALONG MAST ARM OR JUST BELOW LUMINAIRE ARM ATTACHMENT POINT ON MAST POLE.
5. WIFI ANTENNA (A) PLACED AT ANY LOCATION ON LUMINAIRE ARM, MAST ARM OR POLE SHAFT.

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

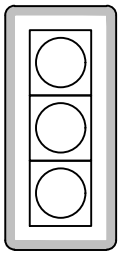
STANDARD PLAN

TRAFFIC SIGNAL APPURTENANCE SPACING FOR STANDARD LOADING CALCULATIONS

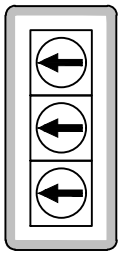
APPROVED	CITY ENGINEER	1/17/2020	DRAWN BY	JAK	1/2020	**NO.751**
		DATE	CHECKED BY	AAE	1/2020	

APPURTENANCE LOADS							
TYPE	**DESCRIPTION**	**HEIGHT (FT)**	**WEIGHT (LBS)**	**ICE AREA (FT^2)**	**FACE AREA (FT^2)**	**SIDE AREA (FT^2)**	**BOTTOM AREA (FT^2)**
2	3 - SECTION SIGNAL HEAD	3.75	55	25	8.67	4	1
3L	3 - SECTION SIGNAL HEAD	3.75	55	25	8.67	4	1
3R	3 - SECTION SIGNAL HEAD	3.75	55	25	8.67	4	1
4	4 - SECTION SIGNAL HEAD	5	73	30	9.9	5	1
4L	5 - SECTION SIGNAL HEAD, "DOGHOUSE"	3.75	92	35	11.97	4	2
5	5 - SECTION SIGNAL HEAD	6.25	92	35	11.97	6	1
6L	4 - SECTION SIGNAL HEAD	5	73	30	9.9	5	1
7	4 - SECTION SIGNAL HEAD	5	73	30	9.9	5	1
S1(OS)	30" X 36" INTERIOR ILLUMINATED SIGN	3	60	20	7.5	2	1.67
S2(AL)	30" X 36" ALUMINUM SIGN (2.5 LB / FT^2)	3	18.75	7.5	7.5	0	0
SNS	STREET NAME SIGN (2.5 LB / FT^2)	1	15	6	6	0	0
-	SIGN CLUSTER ON SHAFT	8	120	48	48	0	0
DMP	30" X 36" ALUM. SIGN BLANK, HORIZ. (2.5 LB / FT^2)	0	18.75	7.5	0	0	7.5
LED	LIGHT EMITTING DIODE LUMINAIRE	0.4	10.8	2.97	0.54	0.36	1.18
F	FIRE PREEMPTION DET. (2.75" DIA x 3.375" TALL)	0.25	1	0.24	0.2	0.06	0.04
A	ANTENNA (2' LONG, 1.5" TALL, 3" WIDE)	0.5	5	1.0625	0.25	0.03125	0.5
CAM	VIDEO DETECTION CAMERA	1	5	1.6	0.36	0.36	0.14
PTZ	TRAFFIC MONITORING CAMERA	11	8	3.4	0.7	0.7	0.6

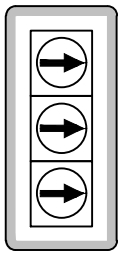
SIGNAL HEAD TYPES



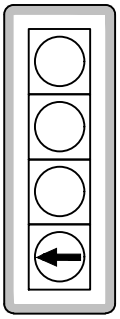
TYPE 2
"IN LINE" STANDARD
VEHICLE SIGNAL
12" R
12" Y
12" G



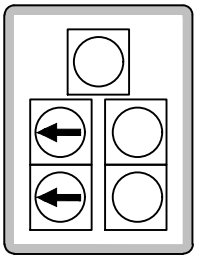
TYPE 3L
"IN LINE" PROTECTED
LEFT TURN SIGNAL
12" RLTA
12" YLTA
12" GLTA



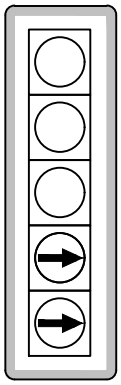
TYPE 3R
"IN LINE" PROTECTED
RIGHT TURN SIGNAL
12" RRTA
12" YRTA
12" GRTA



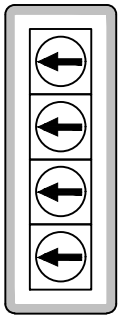
TYPE 4
"IN LINE"
LEFT TURN / THROUGH
(USED FOR SPLIT PHASE)
12" R
12" Y
12" G
12" GLTA



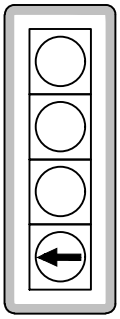
TYPE 4L
"DOGHOUSE" LEFT TURN
PROTECTED / PERMITTED
12" R
12" YLTA 12" Y
12" GLTA 12" G



TYPE 5
"IN LINE" RIGHT TURN
PROTECTED / PERMITTED
12" R
12" Y
12" G
12" YRTA
12" GRTA

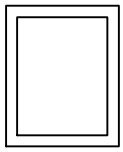


TYPE 6L
"IN LINE" LEFT TURN
PROTECTED / PERMITTED
12" RLTA
12" YLTA
12" FYLTA
12" GLTA

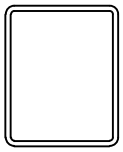


TYPE 7
"IN LINE"
LEFT TURN / THROUGH
(USED FOR RAIL PREEMPTION ONLY)
12" R
12" Y
12" G
12" GLTA

SIGN TYPES



TYPE S1(OS)
(30"X36" INTERIOR
ILLUMINATED SIGN)



TYPE S2(AL)
(30"X36" ALUMINUM
SIGN)

TYPE SNS1
(12" X 72" ALUMINUM)

TYPE SNS2
(12" X 72" ALUMINUM)

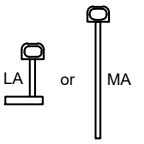
TYPE DMP (VIBRATION DAMPER)
HORIZONTAL 30"X36" ALUMINUM
SIGN BLANK

MISC.

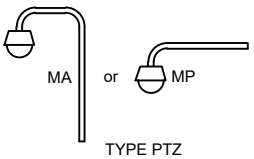
TYPE F
(FIRE PREEMPTION
DETECTOR)

TYPE A
(WIFI ANTENNA)

TYPE LED
(LIGHT EMITTING DIODE
LUMINAIRE)



TYPE CAM
(VIDEO DETECTION CAMERA)



TYPE PTZ
(TRAFFIC MONITORING CAMERA)

NOTES:

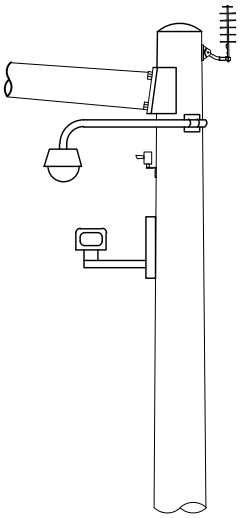
1. VEHICLE DETECTION CAMERA (CAM) MOUNTED ON 6 FT (MAX.) GUSSETED TUBE PLACED AT ANY LOCATION ON MAST ARM.
2. VEHICLE DETECTION CAMERA (CAM) MOUNTED ON 20-1/2" FABRICATED BRACKET NEXT TO LUMINAIRE.
3. FIRE PRE-EMPTION UNIT (F) MAY BE PLACED AT ANY LOCATION ALONG THE MAST ARM.
4. TRAFFIC MONITORING CAMERA (PTZ) MAY BE PLACED AT ANY LOCATION ALONG MAST ARM OR JUST BELOW LUMINAIRE ARM ATTACHMENT POINT ON MAST POLE.
5. WIFI ANTENNA (A) PLACED AT ANY LOCATION ON LUMINAIRE ARM, MAST ARM OR POLE SHAFT.

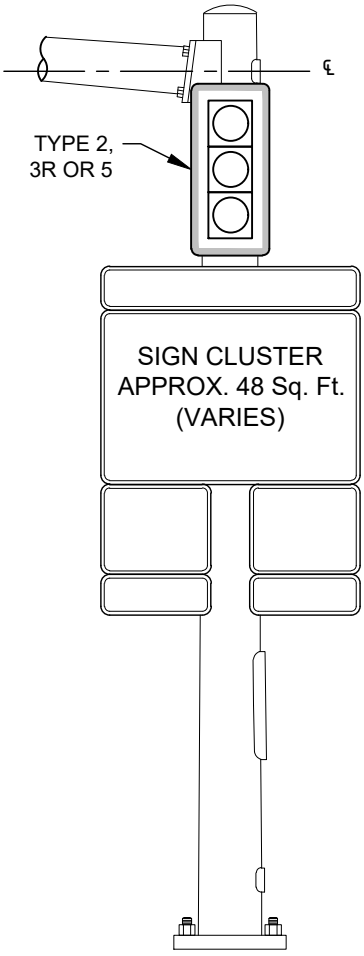
CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
TRAFFIC SIGNAL MAST ARM APPURTENANCE LOADS

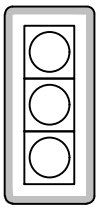
APPROVED		1/17/2020	DRAWN BY	JAK	1/2020	**NO.752**	
	CITY ENGINEER	DATE	CHECKED BY	AAE	1/2020		

APPURTENANCE LOADS						
TYPE	**HEIGHT (FT)**	**WEIGHT (LBS)**	**ICE AREA (FT^2)**	**FACE AREA (FT^2)**	**SIDE AREA (FT^2)**	**BOTTOM AREA (FT^2)**
2	3.75	55	25	8.67	4	1
3R	3.75	55	25	8.67	4	1
5	6.25	92	35	11.97	6	1
S1(OS)	3	60	20	7.5	2	1.67
S2(AL)	3	18.75	7.5	7.5	0	0
F	0.25	1	0.24	0.2	0.06	0.04
A	0.5	5	1.0625	0.25	0.03125	0.5
CAM	1	5	1.6	0.36	0.36	0.14
PTZ	11	8	3.4	0.7	0.7	0.6
SIGN CLUSTER (2.5 LB / FT²)	8	120	48	48	0	0

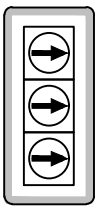




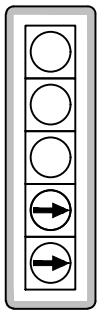
SIGNAL HEAD TYPES



TYPE 2
"IN LINE" STANDARD
VEHICLE SIGNAL
12" R
12" Y
12" G

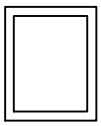


TYPE 3R
"IN LINE" PROTECTED
RIGHT TURN SIGNAL
12" RRTA
12" YRTA
12" GRTA

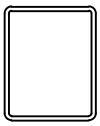


TYPE 5
"IN LINE" RIGHT TURN
PROTECTED / PERMITTED
12" R
12" Y
12" G
12" YRTA
12" GRTA

SIGN TYPES



TYPE S1(OS)
(30"X36" INTERIOR
ILLUMINATED SIGN)



TYPE S2(AL)
(30"X36" ALUMINUM SIGN)

TYPE SNS1
(12" X 72" ALUMINUM)

TYPE SNS2
(12" X 72" ALUMINUM)

MISC.

TYPE F
(FIRE PREEMPTION DETECTOR)

TYPE A
(WIFI ANTENNA)

TYPE LED
(LIGHT EMITTING DIODE LUMINAIRE)

TYPE CAM
(VIDEO DETECTION CAMERA)

TYPE PTZ
(TRAFFIC MONITORING CAMERA)

NOTES:

1. REFER TO PROJECT PLANS FOR ACTUAL APPURTENANCE LOCATIONS.
2. VEHICLE DETECTION CAMERA (CAM) MOUNTED ON 20-1/2" FABRICATED BRACKET ON POLE SHAFT.
3. FIRE PRE-EMPTION UNIT (F) MAY BE PLACED ON POLE SHAFT.
4. TRAFFIC MONITORING CAMERA (PTZ) MAY BE PLACED JUST BELOW LUMINAIRE ARM ATTACHMENT POINT ON MAST POLE.
5. WIFI ANTENNA (A) PLACED AT ANY LOCATION ON POLE SHAFT.

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
TRAFFIC SIGNAL MAST POLE APPURTENANCE LOADS

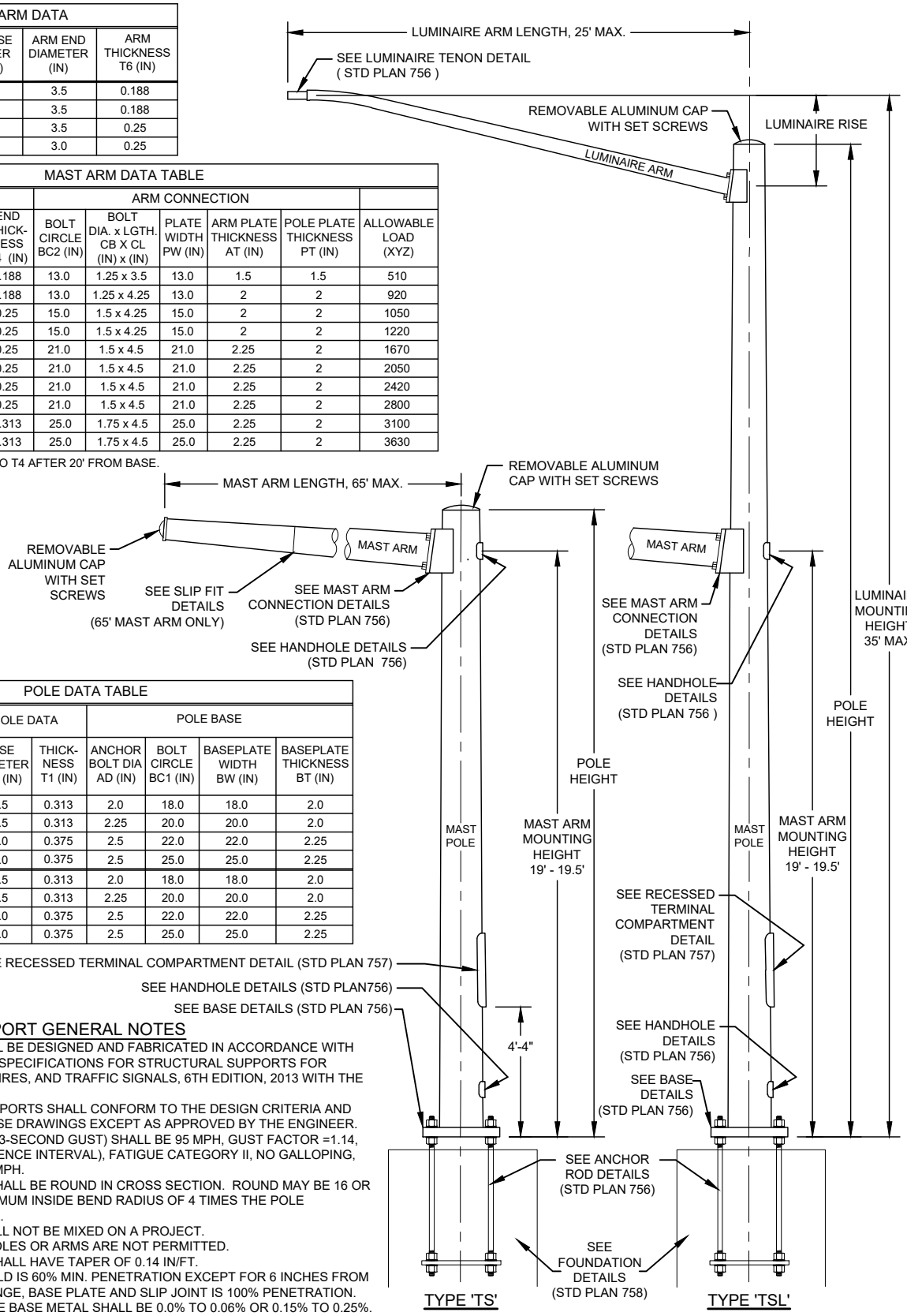
APPROVED	CITY ENGINEER	1/17/2020	DATE	DRAWN BY	JAK	1/2020	**NO.753**
				CHECKED BY	AAE	1/2020	

LUMINAIRE ARM DATA				
ARM LENGTH (FT)	RISE (IN)	ARM BASE DIAMETER BD6 (IN)	ARM END DIAMETER (IN)	ARM THICKNESS T6 (IN)
10	41	4.9	3.5	0.188
15	60	5.6	3.5	0.188
20	60	6.3	3.5	0.25
25	60	6.5	3.0	0.25

MAST ARM DATA TABLE									
ARM LENGTH (FT)	MAST ARM DATA			ARM CONNECTION					
	BASE DIAMETER BD3 (IN)	BASE THICK-NESS T3 (IN)	END THICK-NESS T4 (IN)	BOLT CIRCLE BC2 (IN)	BOLT DIA. x LGTH. CB X CL (IN) x (IN)	PLATE WIDTH PW (IN)	ARM PLATE THICKNESS AT (IN)	POLE PLATE THICKNESS PT (IN)	ALLOWABLE LOAD (XYZ)
20	8.0	0.188	0.188	13.0	1.25 x 3.5	13.0	1.5	1.5	510
25	9.0	0.188	0.188	13.0	1.25 x 4.25	13.0	2	2	920
30	10.0	0.25	0.25	15.0	1.5 x 4.25	15.0	2	2	1050
35	11.0	0.25	0.25	15.0	1.5 x 4.25	15.0	2	2	1220
40	11.0	0.375(1)	0.25	21.0	1.5 x 4.5	21.0	2.25	2	1670
45	12.0	0.375(1)	0.25	21.0	1.5 x 4.5	21.0	2.25	2	2050
50	13.0	0.375(1)	0.25	21.0	1.5 x 4.5	21.0	2.25	2	2420
55	14.0	0.375(1)	0.25	21.0	1.5 x 4.5	21.0	2.25	2	2800
60	14.0	0.375(1)	0.313	25.0	1.75 x 4.5	25.0	2.25	2	3100
65	15.0	0.375(1)	0.313	25.0	1.75 x 4.5	25.0	2.25	2	3630

(1) ARM THICKNESS REDUCED TO T4 AFTER 20' FROM BASE.

POLE DATA TABLE							
POLE DESIGNATION	MAX ARM LENGTH (FT)	POLE DATA		POLE BASE			
		BASE DIAMETER BD1 (IN)	THICK-NESS T1 (IN)	ANCHOR BOLT DIA AD (IN)	BOLT CIRCLE BC1 (IN)	BASEPLATE WIDTH BW (IN)	BASEPLATE THICKNESS BT (IN)
TS1	25.0	12.5	0.313	2.0	18.0	18.0	2.0
TS2	35.0	13.5	0.313	2.25	20.0	20.0	2.0
TS3	55.0	16.0	0.375	2.5	22.0	22.0	2.25
TS4	65.0	18.0	0.375	2.5	25.0	25.0	2.25
TSL1	25.0	12.5	0.313	2.0	18.0	18.0	2.0
TSL2	35.0	13.5	0.313	2.25	20.0	20.0	2.0
TSL3	55.0	16.0	0.375	2.5	22.0	22.0	2.25
TSL4	65.0	18.0	0.375	2.5	25.0	25.0	2.25



TRAFFIC SIGNAL SUPPORT GENERAL NOTES

- SIGNAL SUPPORTS SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 6TH EDITION, 2013 WITH THE INTERIM 2015 REVISIONS.
- ALL TRAFFIC SIGNAL SUPPORTS SHALL CONFORM TO THE DESIGN CRITERIA AND DETAILS SHOWN ON THESE DRAWINGS EXCEPT AS APPROVED BY THE ENGINEER.
- THE BASIC WIND SPEED (3-SECOND GUST) SHALL BE 95 MPH, GUST FACTOR =1.14, Ir = 1.0 (50 YEAR RECURRENCE INTERVAL), FATIGUE CATEGORY II, NO GALLOPING, AND TRUCK SPEED = 55 MPH.
- POLE AND MAST ARMS SHALL BE ROUND IN CROSS SECTION. ROUND MAY BE 16 OR MORE SIDES WITH A MINIMUM INSIDE BEND RADIUS OF 4 TIMES THE POLE THICKNESS OR GREATER.
- DIFFERENT SHAPES SHALL NOT BE MIXED ON A PROJECT.
- TWO PLY AND FLUTED POLES OR ARMS ARE NOT PERMITTED.
- POLE AND MAST ARMS SHALL HAVE TAPER OF 0.14 IN/FT.
- LONGITUDINAL SEAM WELD IS 60% MIN. PENETRATION EXCEPT FOR 6 INCHES FROM END OF SECTION AT FLANGE, BASE PLATE AND SLIP JOINT IS 100% PENETRATION.
- SILICON CONTENT OF THE BASE METAL SHALL BE 0.0% TO 0.06% OR 0.15% TO 0.25%.
- HUBS SHALL BE 3000# THREAD FORGED STEEL.
- ALL STRUCTURAL STEEL INCLUDING FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
- POLES AND MAST ARMS SHALL BE OF ONE PIECE CONSTRUCTION, 5' SLIP-FIT CONNECTIONS ARE PERMITTED FOR 65' MAST ARMS ONLY.
- TIGHTENING OF BOLTS WITH TAPPED HOLES SHALL CONFORM TO THE OREGON DEPARTMENT OF TRANSPORTATION'S 2018 STANDARD SPECIFICATIONS FOR CONSTRUCTION SECTION 962.46(j)(2).
- ALL FASTENERS SHALL BE STAINLESS STEEL, UNLESS OTHERWISE SPECIFIED.
- REFER TO STANDARD PLAN 755 FOR MAST POLE, MAST ARM AND LUMINAIRE ARM IDENTIFICATION TAG LOCATIONS.

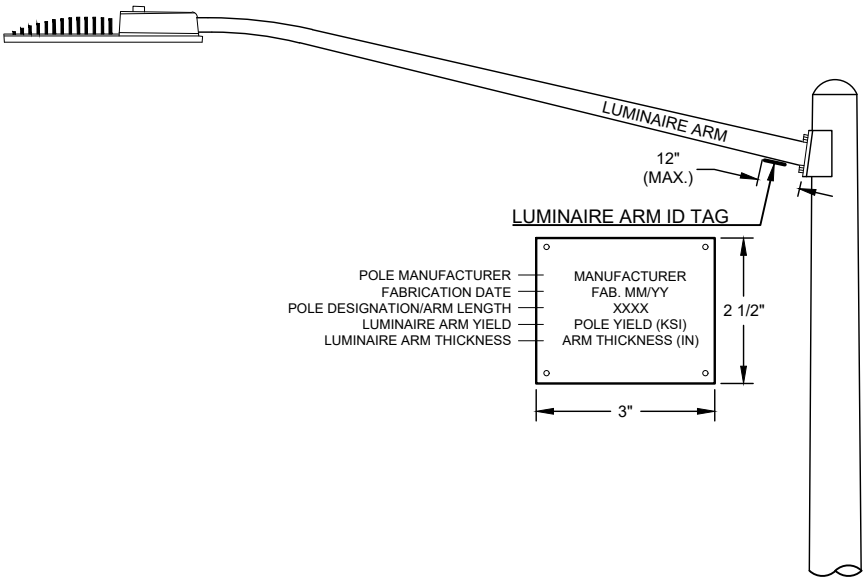
CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN

TRAFFIC SIGNAL SUPPORTS ASSEMBLY DETAILS

APPROVED	CITY ENGINEER	1/17/2020	DATE	DRAWN BY	JAK	1/2020	NO.754
				CHECKED BY	AAE	1/2020	

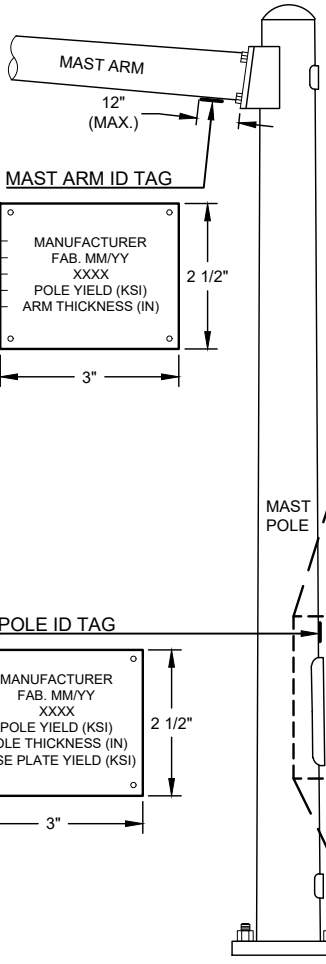
- TAGS SHALL BE ATTACHED WITH (4) STAINLESS #6 U-DRIVE SCREWS.
- TAGS SHALL BE 1/16" THICK STAINLESS STEEL.
- TEXT HEIGHT SHALL BE 1/4".



LUMINAIRE ARM ID TAG

POLE MANUFACTURER	MANUFACTURER
FABRICATION DATE	FAB. MM/YY
POLE DESIGNATION/ARM LENGTH	XXXX
LUMINAIRE ARM YIELD	POLE YIELD (KSI)
LUMINAIRE ARM THICKNESS	ARM THICKNESS (IN)

2 1/2" × 3"



MAST ARM ID TAG

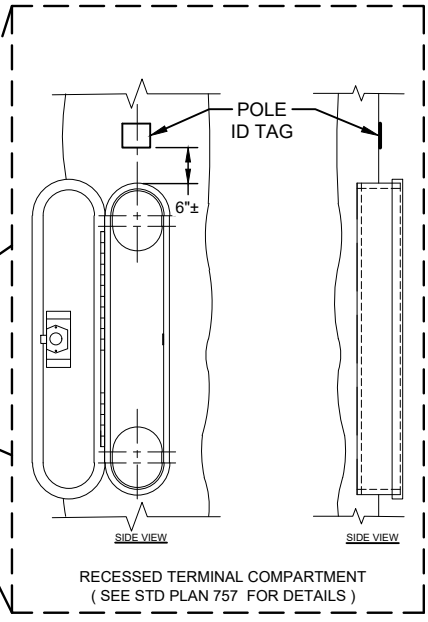
POLE MANUFACTURER	MANUFACTURER
FABRICATION DATE	FAB. MM/YY
POLE DESIGNATION - ARM LENGTH	XXXX
MAST ARM YIELD	POLE YIELD (KSI)
MAST ARM THICKNESS	ARM THICKNESS (IN)

2 1/2" × 3"

POLE ID TAG

POLE MANUFACTURER	MANUFACTURER
FABRICATION DATE	FAB. MM/YY
POLE DESIGNATION	XXXX
POLE YIELD	POLE YIELD (KSI)
POLE THICKNESS	POLE THICKNESS (IN)
BASE PLATE YIELD	BASE PLATE YIELD (KSI)

2 1/2" × 3"

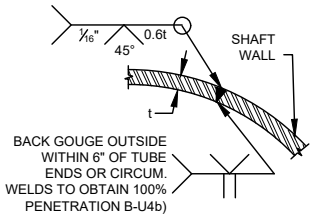


RECESSED TERMINAL COMPARTMENT
(SEE STD PLAN 757 FOR DETAILS)

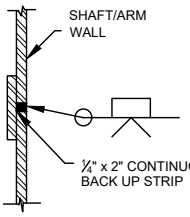
CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
TRAFFIC SIGNAL EQUIPMENT IDENTIFICATION TAGS

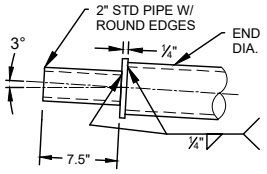
APPROVED		1/17/2020	DRAWN BY	JAK	1/2020	**NO.755**
	CITY ENGINEER	DATE	CHECKED BY	AAE	1/2020	



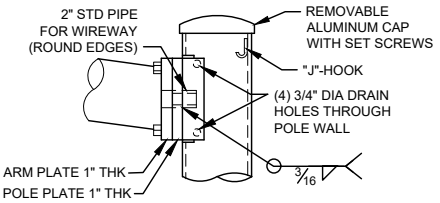
LONGITUDINAL WELD DETAIL



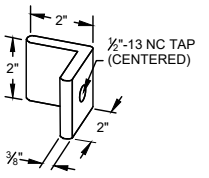
CIRCUMFERENTIAL WELD DETAIL



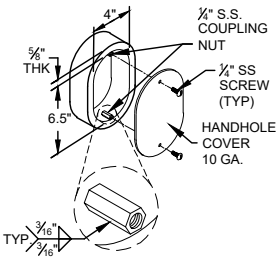
LUMINAIRE TENON DETAIL



LUMINAIRE ARM CONNECTION DETAIL 1

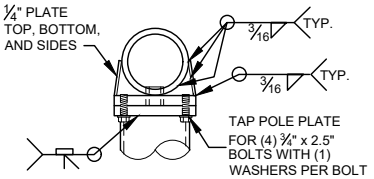


POLE GROUNDING ANGLE DETAIL

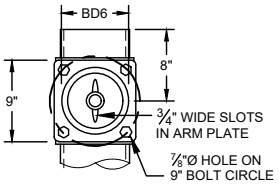


HANDHOLE DETAIL

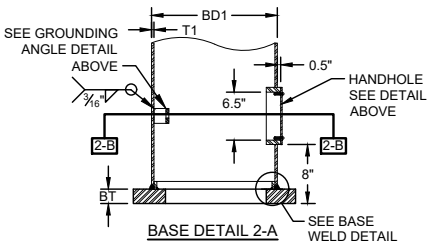
MATERIAL DATA	
COMPONET	GRADE
STEEL TUBES	ASTM A572 GR. 50 OR A595 GR A
BASE PLATES	ASTM A572 GR. 50
FLANGE PLATES	ASTM A572 GR. 50
GUSSET PLATES	ASTM A572 GR. 50
HANDHOLE FRAMES	ASTM A572 GR. 50
HANDHOLE COVERS	ASTM A1011
ANCHOR BOLTS	ASTM F1554 GR. 55
NUTS	ASTM A563 GR. DH
WASHERS	ASTM F436 TYPE 1
ANCHOR PLATE / TEMPLATE	ASTM A36
CONNECTION BOLTS	ASTM A325 OR A449
GALVANIZING	ASTM A123, A153, & F2329
PIPE	ASTM A53 GR. B OR ASTM A500 GR. B



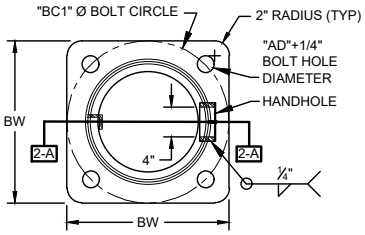
LUMINAIRE ARM CONNECTION DETAIL 2



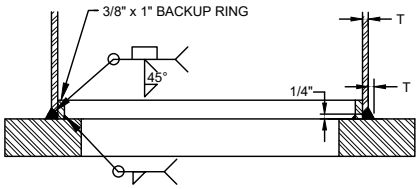
LUMINAIRE ARM CONNECTION DETAIL 3



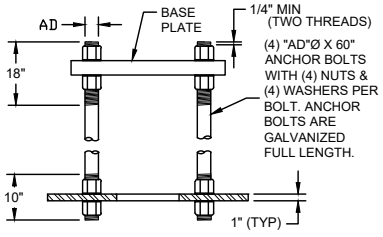
BASE DETAIL 2-A

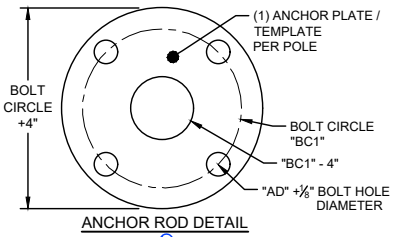


BASE DETAIL 2-B

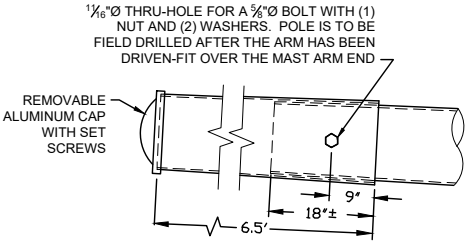


BASE WELD DETAIL
(MAIN SHAFT, MAST ARMS & LUMINAIRE)

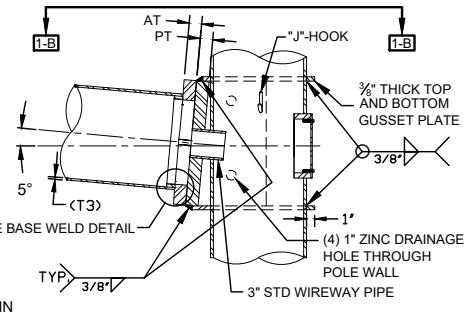




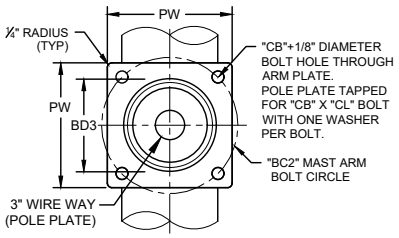
ANCHOR ROD DETAIL



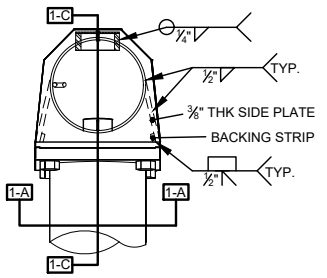
SLIP FIT MAST ARM EXTENSION DETAIL
(65' MA ONLY)



MAST ARM CONNECTION DETAIL 1-C



MAST ARM CONNECTION DETAIL 1-A



MAST ARM CONNECTION DETAIL 1-B

TRAFFIC SIGNAL SUPPORT GENERAL NOTES

- SIGNAL SUPPORTS SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 6TH EDITION, 2013 WITH THE INTERIM 2015 REVISIONS.
- ALL TRAFFIC SIGNAL SUPPORTS SHALL CONFORM TO THE DESIGN CRITERIA AND DETAILS SHOWN ON THESE DRAWINGS EXCEPT AS APPROVED BY THE ENGINEER.
- THE BASIC WIND SPEED (3-SECOND GUST) SHALL BE 95 MPH, GUST FACTOR G=1.14, Ir = 1.0 (50 YEAR RECURRENCE INTERVAL), FATIGUE CATEGORY II, NO GALLOPING, AND TRUCK SPEED = 55 MPH.
- POLE AND MAST ARMS SHALL BE ROUND IN CROSS SECTION. ROUND MAY BE 16 OR MORE SIDES WITH A MINIMUM INSIDE BEND RADIUS OF 4 TIMES THE POLE THICKNESS OR GREATER.
- DIFFERENT SHAPES SHALL NOT BE MIXED ON A PROJECT.
- TWO PLY AND FLUTED POLES OR ARMS ARE NOT PERMITTED.
- POLE AND MAST ARMS SHALL HAVE TAPER OF 0.14 IN/FT.
- LONGITUDINAL SEAM WELD IS 60% MIN. PENETRATION EXCEPT FOR 6 INCHES FROM END OF SECTION AT FLANGE, BASE PLATE AND SLIP JOINT IS 100% PENETRATION.
- SILICON CONTENT OF THE BASE METAL SHALL BE 0.0% TO 0.06% OR 0.15% TO 0.25%.
- HUBS SHALL BE 3000# THREAD FORGED STEEL.
- ALL STRUCTURAL STEEL INCLUDING FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
- POLES AND MAST ARMS SHALL BE OF ONE PIECE CONSTRUCTION, 5' SLIP-FIT CONNECTIONS ARE PERMITTED FOR 65' MAST ARMS ONLY.
- TIGHTENING OF BOLTS WITH TAPPED HOLES SHALL CONFORM TO THE OREGON DEPARTMENT OF TRANSPORTATION'S 2018 STANDARD SPECIFICATIONS FOR CONSTRUCTION SECTION 962.46(j)(2).
- ALL FASTENERS SHALL BE STAINLESS STEEL, UNLESS OTHERWISE SPECIFIED.
- POLE AND MAST ARM CAPS SHALL BE CAST ALUMINUM.
- PREINSTALLED "J"-HOOKS FOR WIRE STRAIN RELIEF AT ALL ACCESS ENTRANCES FOR LUMINAIRE AND SIGNAL ARMS.

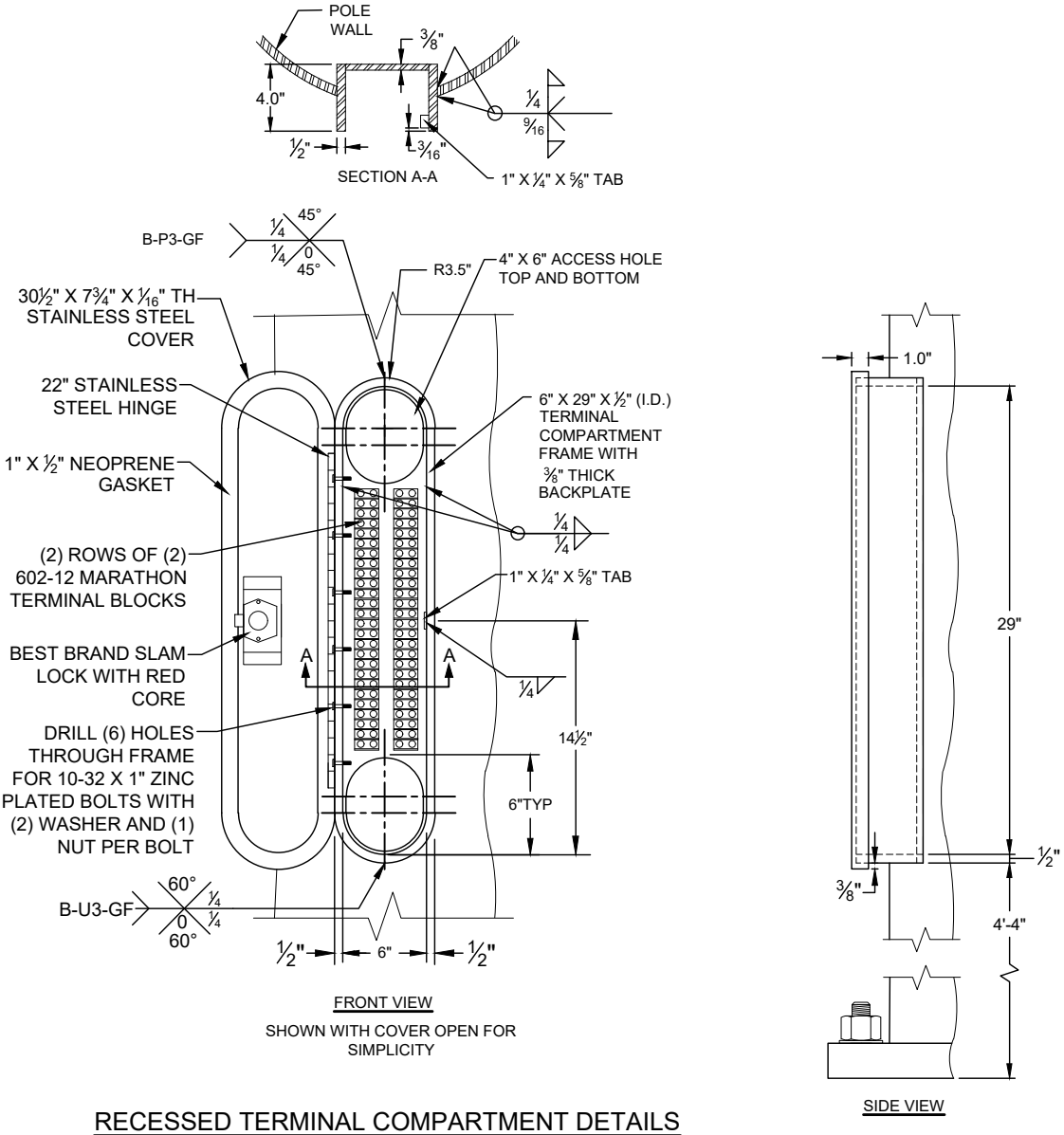
CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
TRAFFIC SIGNAL MAST POLE FABRICATION DETAILS

APPROVED		1/17/2020	DRAWN BY	JAK	1/2020	**NO.756**
	CITY ENGINEER	DATE	CHECKED BY	AAE	1/2020	

NOTES:

- ROUND AND SMOOTH ALL EDGES ALONG ELECTRICAL WAY.
- ALL FASTENERS SHALL BE STAINLESS STEEL.



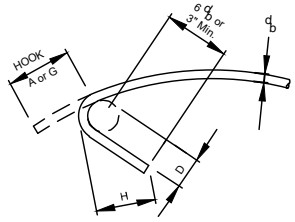
RECESSED TERMINAL COMPARTMENT DETAILS

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN

TRAFFIC SIGNAL RECESSED TERMINAL COMPARTMENT DETAILS

APPROVED	Ryan D. Martin	1/17/2020	DRAWN BY	JAK	1/2020	**NO.757**
	CITY ENGINEER	DATE	CHECKED BY	AAE	1/2020	



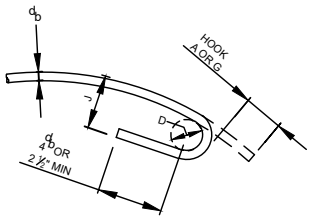
SEISMIC STIRRUP / TIE

BAR SIZE	135° SEISMIC HOOK		
	D	A or G	H*
#5	2 1/2"	5 1/2"	3 3/4"

*H DIMENSION IS MINIMUM

d_b= BAR DIAMETER

D = FINISHED INSIDE BEND DIAMETER



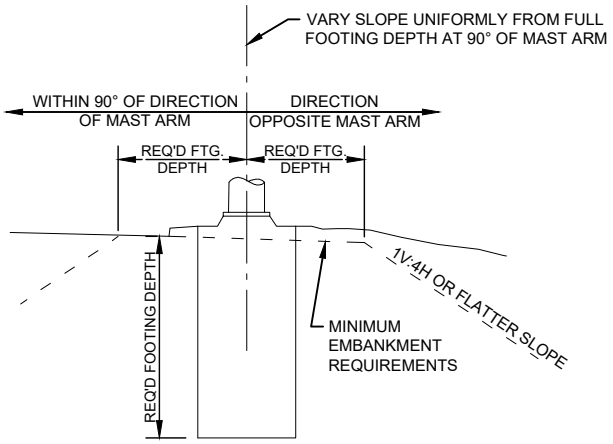
STANDARD STIRRUP / TIE

BAR SIZE	180° STANDARD HOOK		
	D	A or G	J
#5	3 3/4"	7"	5"

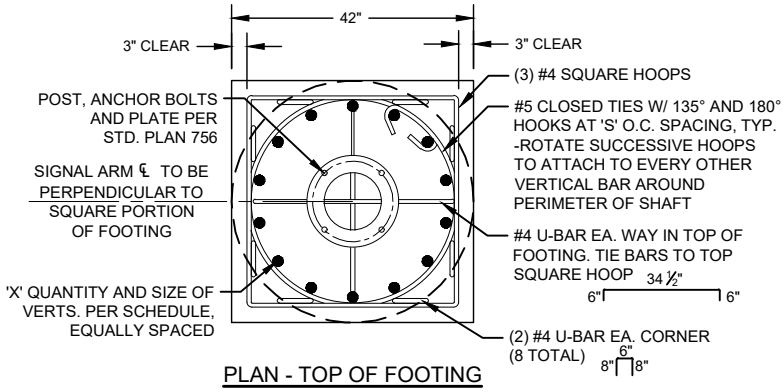
d_b = BAR DIAMETER

D = FINISHED INSIDE BEND DIAMETER

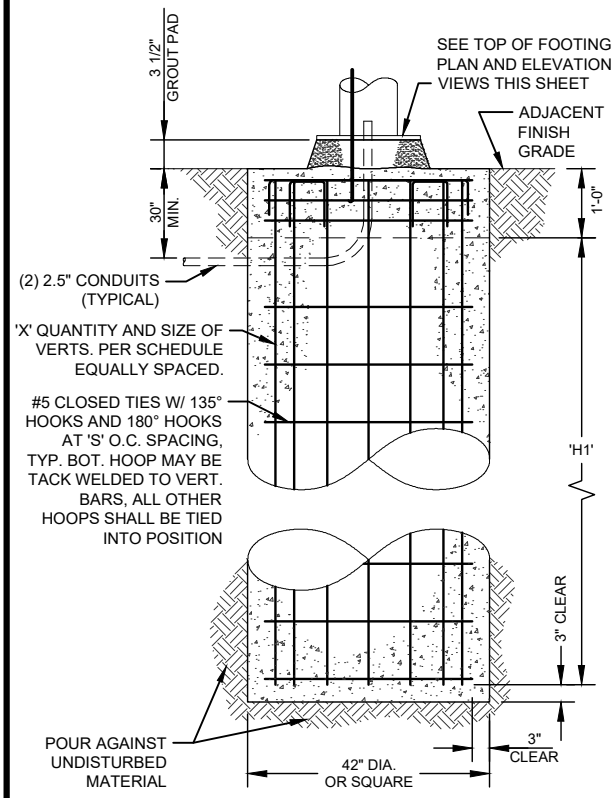
NOTE:
135 DEGREE AND 180 DEGREE HOOKS ARE TO BE DETAILS AS RECOMMENDED PER THE REQUIREMENTS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).



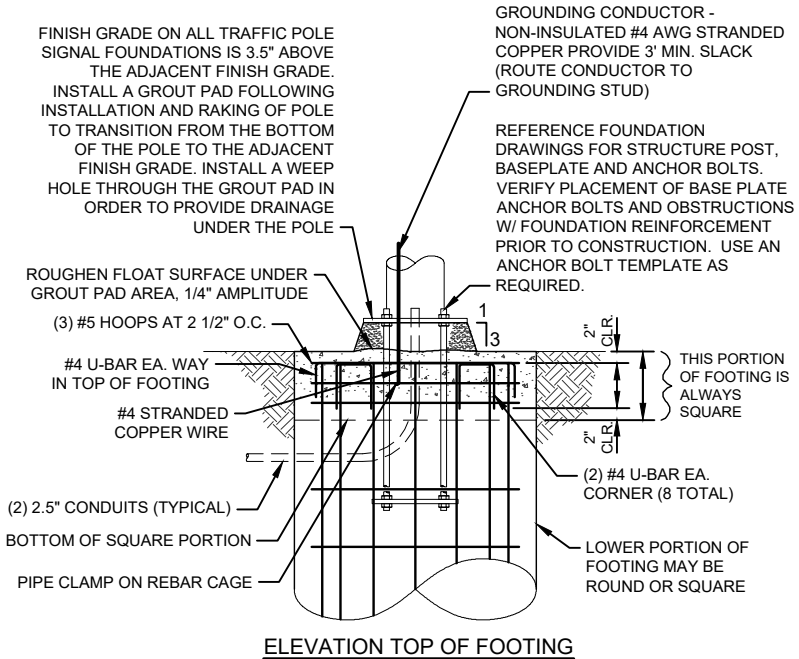
MINIMUM EMBANKMENT REQUIREMENTS



PLAN - TOP OF FOOTING



FOOTING ELEVATION



ELEVATION TOP OF FOOTING

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
TRAFFIC SIGNAL SUPPORT FOUNDATION DETAILS

APPROVED		1/17/2020	DRAWN BY	JAK	1/2020	**NO.758**
	CITY ENGINEER	DATE	CHECKED BY	AAE	1/2020	

FOUNDATION SCHEDULE					
POLE No.	SOIL TYPE	DEPTH 'H1'*	VERT. BARS 'X'	#5 CLOSED TIES	
				MAX. 'S' O.C. SPACING WITHIN 'H1'	MIN. NUMBER OF TIES
TS1 / TSL1	1	11'-6"	(14) #9 BARS	12"	12
TS1 / TSL1	2	8'-6"	(14) #9 BARS	12"	9
TS1 / TSL1	3	8'-0"	(14) #9 BARS	12"	9
TS2 / TSL2	1	11'-6"	(14) #9 BARS	12"	12
TS2 / TSL2	2	8'-6"	(14) #9 BARS	12"	9
TS2 / TSL2	3	8'-0"	(14) #9 BARS	12"	9
TS3 / TSL3	1	15'-6"	(14) #9 BARS	8"	24
TS3 / TSL3	2	12'-6"	(14) #9 BARS	8"	19
TS3 / TSL3	3	9'-0"	(14) #9 BARS	8"	14
TS4 / TSL4	1	21'-0"	(14) #9 BARS	6"	43
TS4 / TSL4	2	17'-0"	(14) #9 BARS	6"	35
TS4 / TSL4	3	11'-6"	(14) #9 BARS	6"	24

*H1 DEPTH ASSUMES NATIVE/UNDISTURBED SOILS. EXTEND FOUNDATION DEPTH AS NECESSARY FOR DISTURBED SOILS. TOTAL FOUNDATION DEPTH SHALL BE H1+1' PER STD. PLAN 758 (+ ANY ADDITIONAL DEPTH FOR DISTURBED SOILS).

NOTES:

1. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 3000 PSI AT 28 DAYS. A CONCRETE MIX DESIGN SHALL BE FURNISHED BY THE CONTRACTOR FOR REVIEW AND VERIFICATION PRIOR TO CONSTRUCTION.
2. STEEL TO BE 60 KSI YIELD STRENGTH FOR ALL REINFORCING BARS
3. DESIGN LOADS (SERVICE):
   AXIAL: SEE SCHEDULE
   SHEAR: SEE SCHEDULE (RESULTANT)
   MOMENT: SEE SCHEDULE (RESULTANT)
   TORSION: SEE SCHEDULE
   (LOADS APPLIED AT TOP OF PILE)
4. DESIGN ASSUMPTIONS:
   - c = 0 = 0.01
   - E 50
   - L-PILE PLUS VERSION 5.0 UTILIZED FOR DESIGN
5. SIGNAL POLE FOUNDATION DRILLING IS TO BE MONITORED BY THE CITY OF SALEM TO VERIFY SUB-SURFACE CONDITIONS ENCOUNTERED MATCH DESIGN ASSUMPTIONS OR IF APPROPRIATE RECOMMEND CHANGES TO DESIGN OR CONSTRUCTION PROCEDURES, BASED ON SPECIFIC CONDITIONS AT DRILLING SITE. NO PERMANENT CASING IS ALLOWED TO REMAIN AROUND SHAFT.
6. POLE MANUFACTURER SHALL PROVIDE CALCULATIONS AND A RESULTS SUMMARY FOR BOTH STANDARD DESIGN LOADS AND PROJECT SPECIFIC LOADS.

POLE No.	DESIGN LOADS					
	AXIAL (lbs)	SHEAR-y (lbs)	SHEAR-z (lbs)	TORQUE (in-lbs)	MOMENT-y (in-lbs)	MOMENT-z (in-lbs)
TS1 / TSL1	2,736	996	4,980	422,400	1,088,400	417,600
TS2 / TSL2	3,360	1,020	5,100	699,600	1,138,800	694,800
TS3 / TSL3	4,632	1,200	6,000	1,425,600	1,410,000	1,107,600
TS4 / TSL4	6,300	1,380	6,840	1,936,800	1,644,000	1,624,800

GOOD SOIL TYPES	SOIL FRICTION ANGLE (ϕ)	SOIL UNIT WEIGHT ABOVE WATER TABLE (γ) (pcf)	SOIL UNIT WEIGHT BELOW WATER TABLE (γ) (pcf)	FRICTION CAPACITY (psf)	p-y MODULUS (K) (pci)	SOIL BEARING PRESSURE (PSF)
TYPE 1: MEDIUM STIFF TO STIFF CLAY, SILT OR SILT W/ SAND	28°	105	42	400	100	1500
TYPE 2: MEDIUM DENSE COHESIONLESS SOIL	34°	120	57	500	100	1500
TYPE 3: DENSE COHESIONLESS SOIL	36°	125	62	750	100	1500

1. SOIL PARAMETERS AND TYPES DESCRIBED ARE FOR "GOOD SOIL CONDITIONS" THAT INCLUDE:
   - MEDIUM STIFF TO STIFF CLAY, SILT, OR SILT WITH SAND (TYPE 1) - MEDIUM TO HIGH PLASTICITY CLAY WITH VARYING AMOUNTS OF SILT AND FINE SAND, OR SILT WITH VARYING AMOUNTS OF CLAY AND FINE SAND.
   - MEDIUM DENSE COHESIONLESS SOIL (TYPE 2) - FINE TO COARSE SAND OR GRAVEL, OR SANDY GRAVEL WITH VARYING AMOUNTS OF SILT OR CLAY.
   - DENSE COHESIONLESS SOIL (TYPE 3) - FINE TO COARSE GRAVEL THAT IS GENERALLY DENSELY CONSOLIDATED OR CEMENTED.
2. "POOR SOIL CONDITIONS" ARE SOFT, SOFT TO MEDIUM STIFF, OR LOOSE SOILS, OR SOILS WITH ORGANICS, OR SITES WHERE SIGNAL FOUNDATIONS WILL BE LOCATED WITHIN A HORIZONTAL DISTANCE LESS THAN THE MINIMUM EMBANKMENT REQUIREMENT. POOR SOIL OR NEAR-SLOPE CONDITIONS SHOULD BE DESIGNED BASED ON A SITE-SPECIFIC SOIL INVESTIGATION.

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
TRAFFIC SIGNAL SUPPORT DESIGN SPECIFICATIONS

APPROVED	CITY ENGINEER	1/17/2020	DATE	DRAWN BY	JAK	1/2020	NO.759
				CHECKED BY	AAE	1/2020	