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UTILITIES

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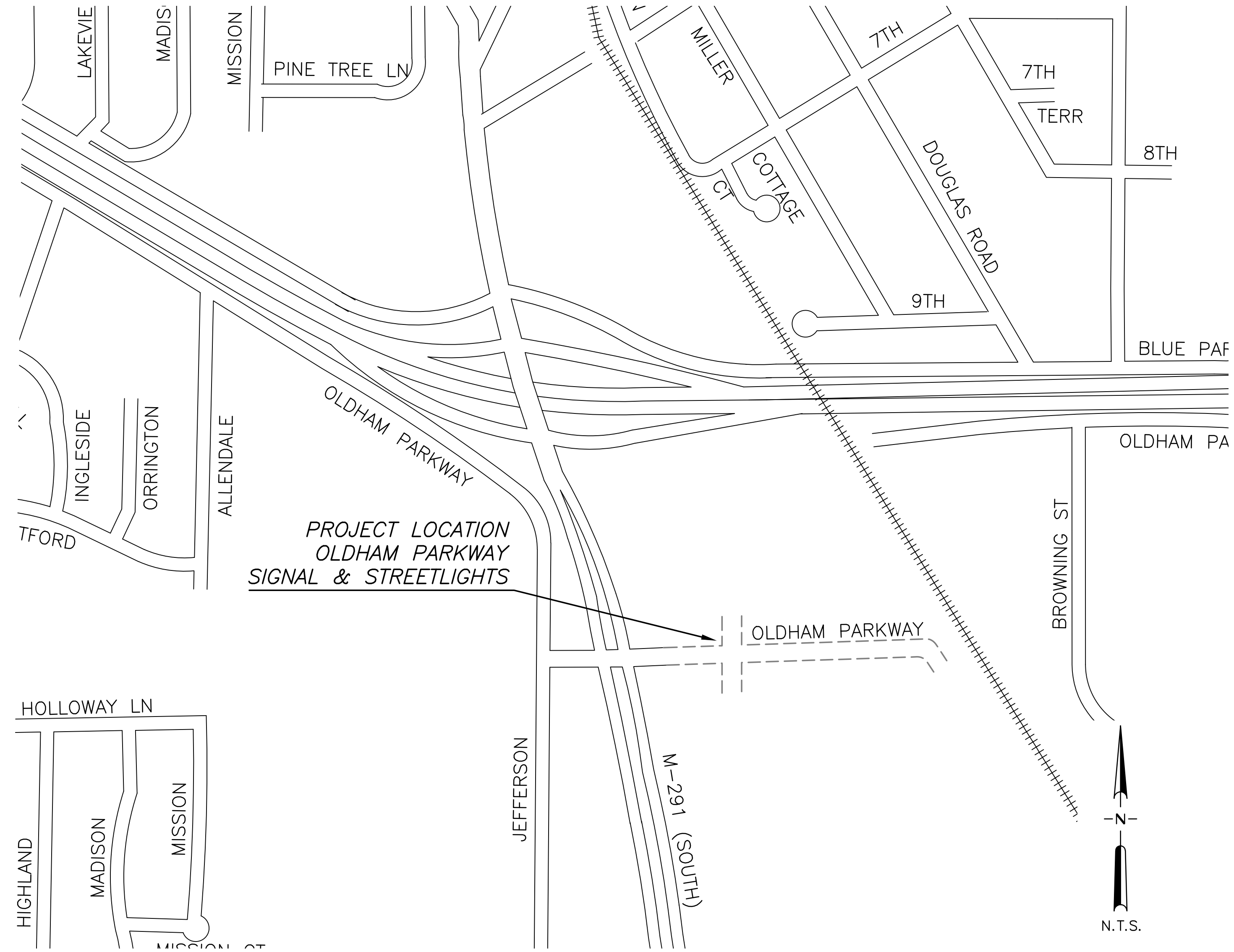
UTILITY NOTE

EXISTING UTILITIES SHOWN ARE BASED ON ENGINEER'S CONTACT WITH UTILITY AGENCIES AND ARE BELIEVED TO REASONABLY REPRESENT EXISTING LOCATIONS. HOWEVER, THE ENGINEER AND OWNER MAKE NO GUARANTEE AS TO ACCURACY OR COMPLETENESS OF INFORMATION SHOWN. CONTRACTOR SHALL NOTIFY ALL UTILITY AGENCIES BEFORE BEGINNING WORK AND SHALL COOPERATE WITH THEM IN LOCATION AND PROTECTING THEIR UTILITIES.

OLDHAM PARKWAY SIGNAL AND STREETLIGHTING CITY OF LEE'S SUMMIT, MISSOURI 2026

INDEX OF SHEETS

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PROJECT LOCATION
OLDHAM PARKWAY
SIGNAL & STREETLIGHTS

LOCATION MAP
LEE'S SUMMIT, MISSOURI



PRELIMINARY PLANS
NOT FOR CONSTRUCTION
Date: 2/17/2026

Plans Prepared and Submitted By:

Affinis corp
8900 Indian Creek Parkway, Suite 450
Overland Park, Kansas 66210
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ENGINEER: _____ DATE: _____

APPROVED - DATE _____

CITY ENGINEER
CITY OF LEE'S SUMMIT, MISSOURI

Bill of Materials (1)

Item	Unit	Quantity
40' Aluminum Pole w/ 15' Bracket Arm P40S	Each	10
5/8" x 10' Ground Rod w/clamp	Each	11
Type B40S Screw-in Foundation	Each	10
Class 3 LED Cobra-Head Luminaire	Each	10
Type 1 Junction Box	Each	3
Power Supply - Pad Mounted (4 Circuit)	Each	1
Photo Cell	Each	1
HDPE Conduit, 2"	Ln. Ft.	2,326
Schedule 40 PVC Conduit, 1" (for Equipment Ground Cable)	Ln. Ft.	33
Distribution Cable 3-1c #8 AWG	Ln. Ft.	2,437
Pole and Bracket Cable 3-1c #10 AWG	Ln. Ft.	840
Electrical Service Power Cable 3-1c #2 AWG	Ln. Ft.	125
Solid Copper Ground Cable (Bare # 6 AWG)	Ln. Ft.	55
Break-Away Fused Connector Kits	Each	28
Break-Away Non-Fused Connector Kits	Each	14
Multiple Streetlight Tap Connector	Each	42

Notes:

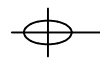

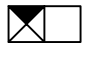
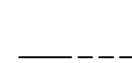

- These approximate quantities were prepared solely for the contractor's convenience. It is not guaranteed that this list of materials constitutes all items required for the completion of the work.

Streetlighting General Notes

- The contractor shall have one (1) signed copy of the plans (approved by the City of Lee's Summit) and one (1) copy of the appropriate Design and Construction Standards and Specification at the job site at all times.
- Construction of the improvements shown or implied by this set of drawings shall not be initiated or any part thereof undertaken until the Director of Public works or his agent is notified of such intent, and all required and properly executed bonds and contract agreements are received and approved by the City.
- All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit, Missouri.
- Right-Of-Way limits should be cross checked by the Contractor and approved by the field inspector before undertaking any excavations at the site.
- The Contractor shall stake the locations for all poles, controllers and junction boxes to be installed. The stations and offsets provided are to the center of the streetlighting equipment. The contractor shall provide elevations. If obstructions are encountered during installation, the contractor will re-stake those locations affected by the obstruction. The city streetlighting inspector shall inspect the staking prior to any excavation/construction.
- All locations indicated in drawings, including conduit runs are subject to adjustment to clear obstructions and to meet site conditions, if any, by the City.
- The locations of existing underground utilities, if shown, are approximate only and have not been independently verified. The Contractor shall be responsible for contacting all utility companies for locations of all underground lines prior to excavation and be fully responsible for any and all damages, which might occur as a result of the Contractor's failure to exactly locate and preserve any and all underground utilities.
- Rock and shale may be encountered and thus the bid items shall reflect the extra work necessary to accomplish the installation. No additional payments ("extras") will be made for excavation of rock or shale and suitable backfill materials. The following conditions shall prevail: Screw-in foundations have been assumed for all areas. In the event a screw-in foundation may not be installed, then the contractor may at his option install the screw-in foundation within a pre-drilled hole. All pre-drilled holes within rock/shale shall be backfilled with flowable fill up to the bottom of the conduit slot, in accordance with the specifications.
- Conduit shall be bored under all street pavements that are in place at the time of installation. Saw cutting existing street pavement for the purpose of trenching conduit across any existing pavement will not be allowed. Multiple conduits cannot be pulled back through the same bore unless otherwise approved.
- Continuous 2" HDPE conduit shall be installed between all streetlighting appurtenances prior to paving within the limits of the street improvements. Conduit splices between appurtenances shall not be allowed unless fusion couplings or other fusion methods are used with prior approval from the Engineer.
- All cable connections at junction boxes shall be watertight.
- The contractor shall be responsible for any damage to existing underground sprinkler systems during construction. All affected pipes or fittings shall be restored to original condition and location with new materials similar to existing. All restoration work shall be acceptable to the engineer and property owner.
- The contractor shall install service conduit with electrical service cable from the control center to the Every power source.
- The ends of all conduit in service boxes, junction boxes, and controller cabinets shall be plugged with duct seal.

Streetlight Legend

Proposed

-  Class 3 LED Cobra-Head Luminaire w/15' Arm & 40' Pole
-  Type 1 Junction Box
-  Pad Mounted Control Center (Shaded Area Indicates Photocell Orientation) (North or East)
-  2 Inch HDPE Conduit
-  Construction Note Number

- The Contractor shall coordinate all electrical power requirements and connection activities with the Utility Company, including location of the meter, circuitry and connection requirements, and powering up the complete system. The Contractor shall order the meter and pay electrical bills until testing is complete, at which time the Contractor shall coordinate with the City for transferring the electrical billing services to the City.

- All disturbed surfaces shall be made good to match existing at the Contractor expense.

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 Issued: Notes:
 File: LS_STLT_Conr_Notes.dwg
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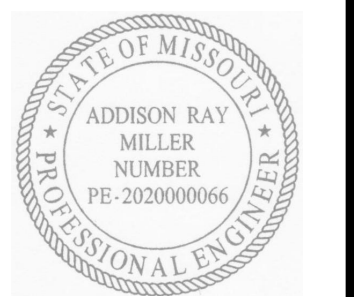
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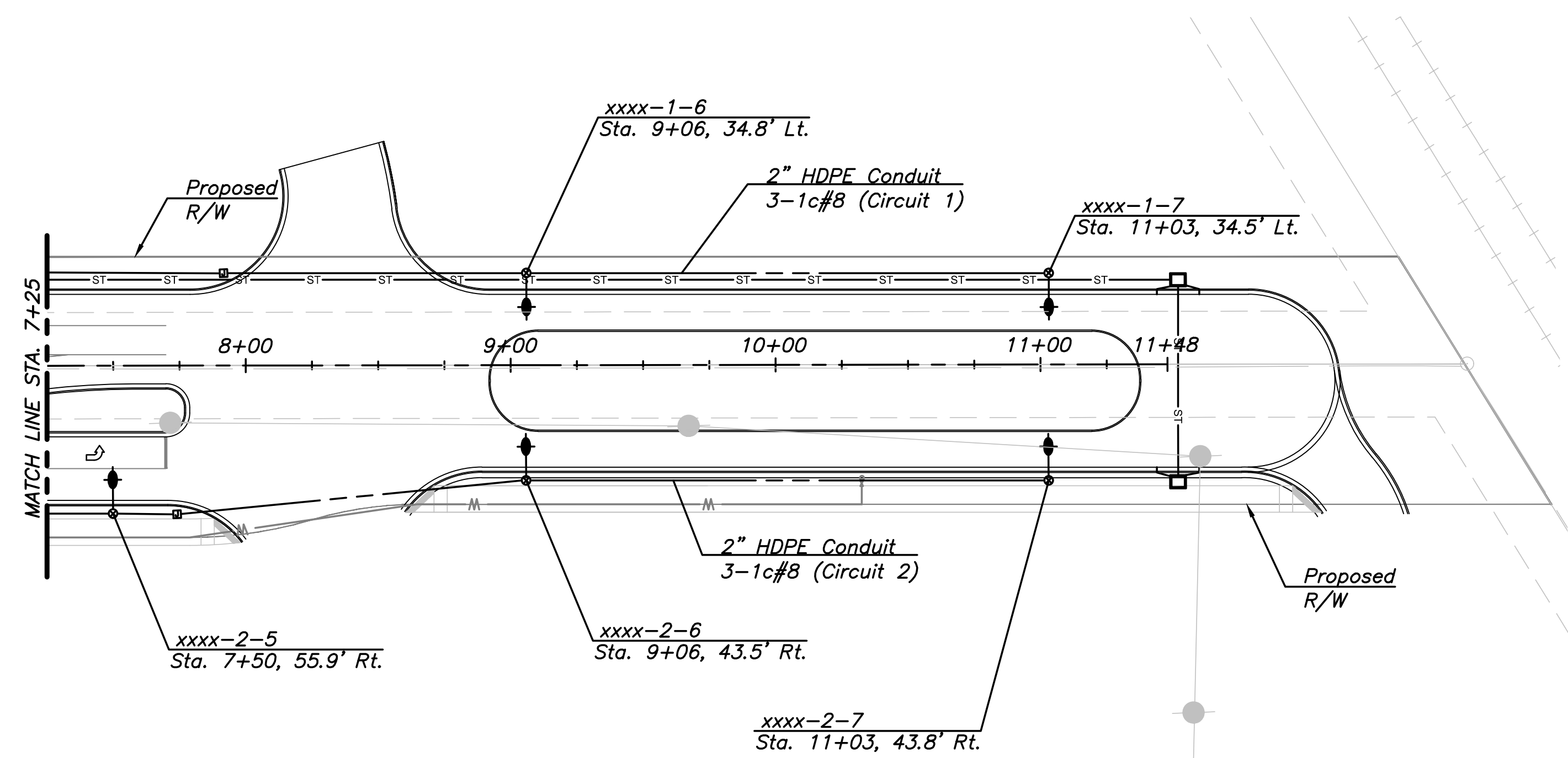
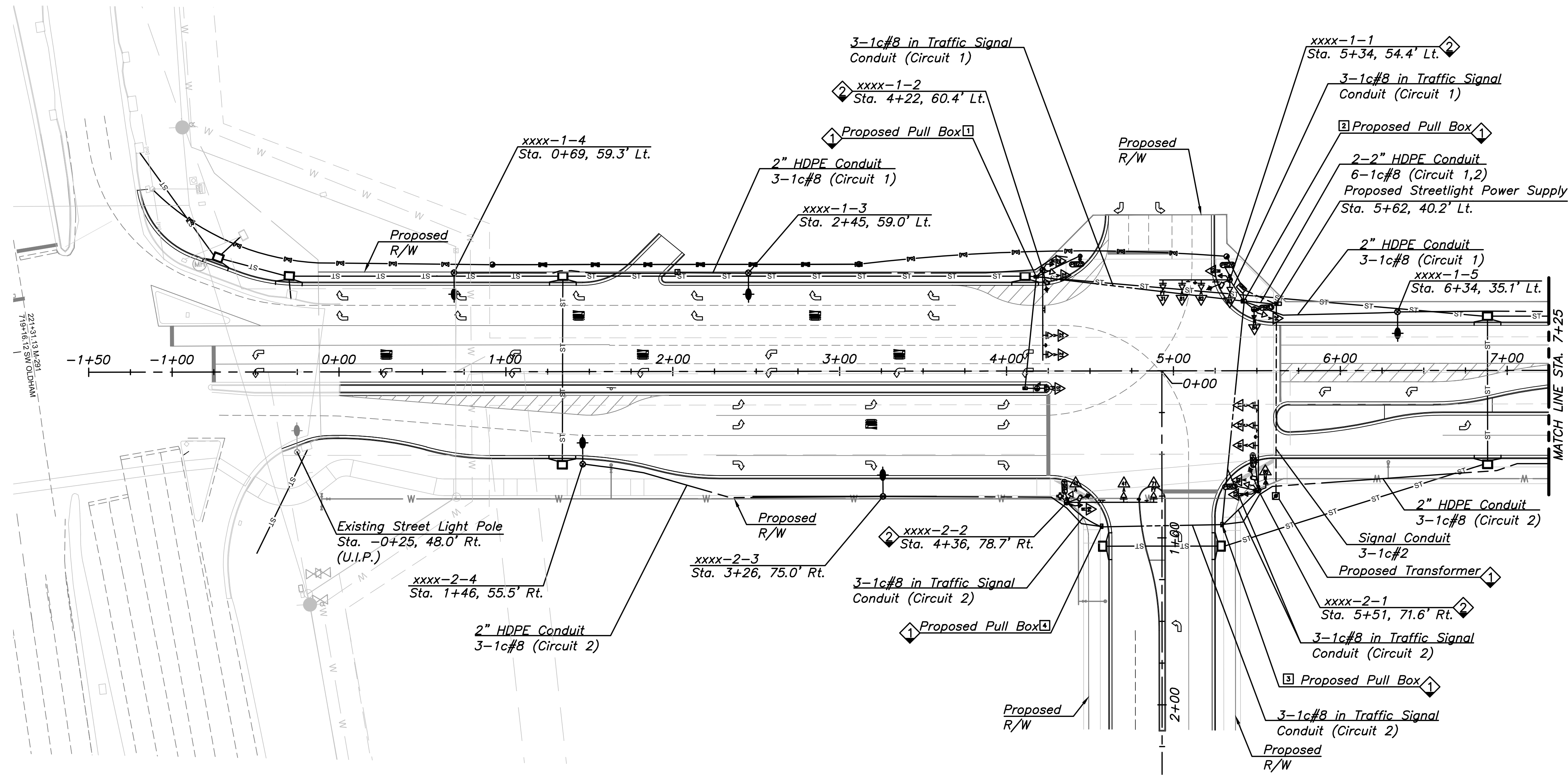
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CITY OF LEE'S SUMMIT, MISSOURI
 OLDHAM PARKWAY
 SIGNAL AND STREETLIGHTING
 STREETLIGHTING PLAN
 GENERAL NOTES





Construction Notes:

- ① Refer to traffic signal plans for location. Quantities included in traffic signal bill of materials.
- ② Refer to traffic signal plans for location. Signal pole, bracket arm, luminaire, and foundation included in traffic signal bill of materials. Conductor, and connectors included in streetlighting bill of materials.

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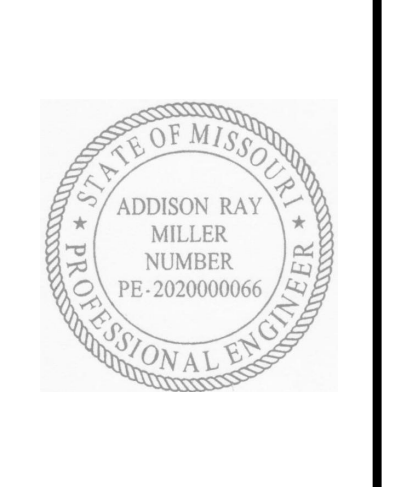
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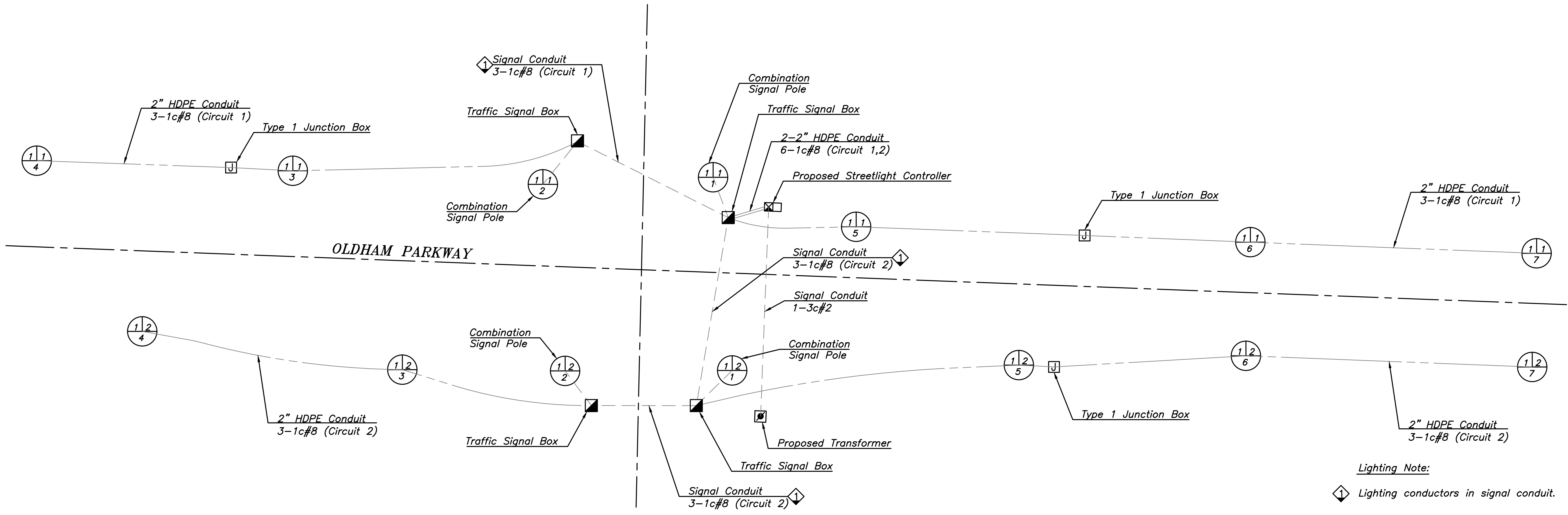
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CITY OF LEE'S SUMMIT, MISSOURI
OLDHAM PARKWAY
SIGNAL AND STREETLIGHTING
STREETLIGHTING PLAN





Lighting Note:
 ⬠ Lighting conductors in signal conduit.

Roadway Segment – Continous Lighting		
Street Segment:	291 & Oldham Pkwy EB	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	1.81:Fc
Avg. to Min.Uniformity	4:1	3.62:1

Roadway Segment – Continous Lighting		
Street Segment:	East of Signal EB	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	1.98:Fc
Avg. to Min.Uniformity	4:1	2.48:1

Roadway Segment – Continous Lighting		
Street Segment:	East End EB	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	2.07:Fc
Avg. to Min.Uniformity	4:1	2.59:1

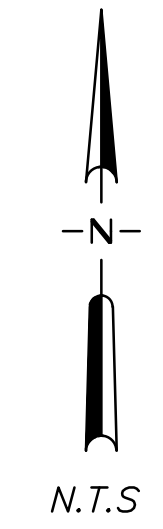
Roadway Segment – Continous Lighting		
Street Segment:	291 & Oldham Pkwy WB	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	2.15:Fc
Avg. to Min.Uniformity	4:1	3.07:1

Roadway Segment – Continous Lighting		
Street Segment:	East of Signal WB	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	2.28:Fc
Avg. to Min.Uniformity	4:1	2.53:1

Roadway Segment – Continous Lighting		
Street Segment:	East End WB	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	2.17:Fc
Avg. to Min.Uniformity	4:1	2.71:1

Roadway Segment – Continous Lighting		
Street Segment:	Signal Intersection	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	3.01:Fc
Avg. to Min.Uniformity	4:1	2.15:1

Roadway Segment – Continous Lighting		
Street Segment:	East Intersection	
Functional Street Classification:	Commercial Collector	
Light Loss Factor:	0.9	
Measure	Illuminance Design	
	Criteria	Results
Avg. Maintained Illuminance	1.7:Fc	2.05:Fc
Avg. to Min.Uniformity	4:1	3.42:1



Controller Number $\frac{x|x}{x-}$ Circuit Number Pole Number

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CITY OF LEE'S SUMMIT, MISSOURI
OLDHAM PARKWAY
SIGNAL AND STREETLIGHTING
STREETLIGHTING PLAN
CIRCUIT DIAGRAM

4

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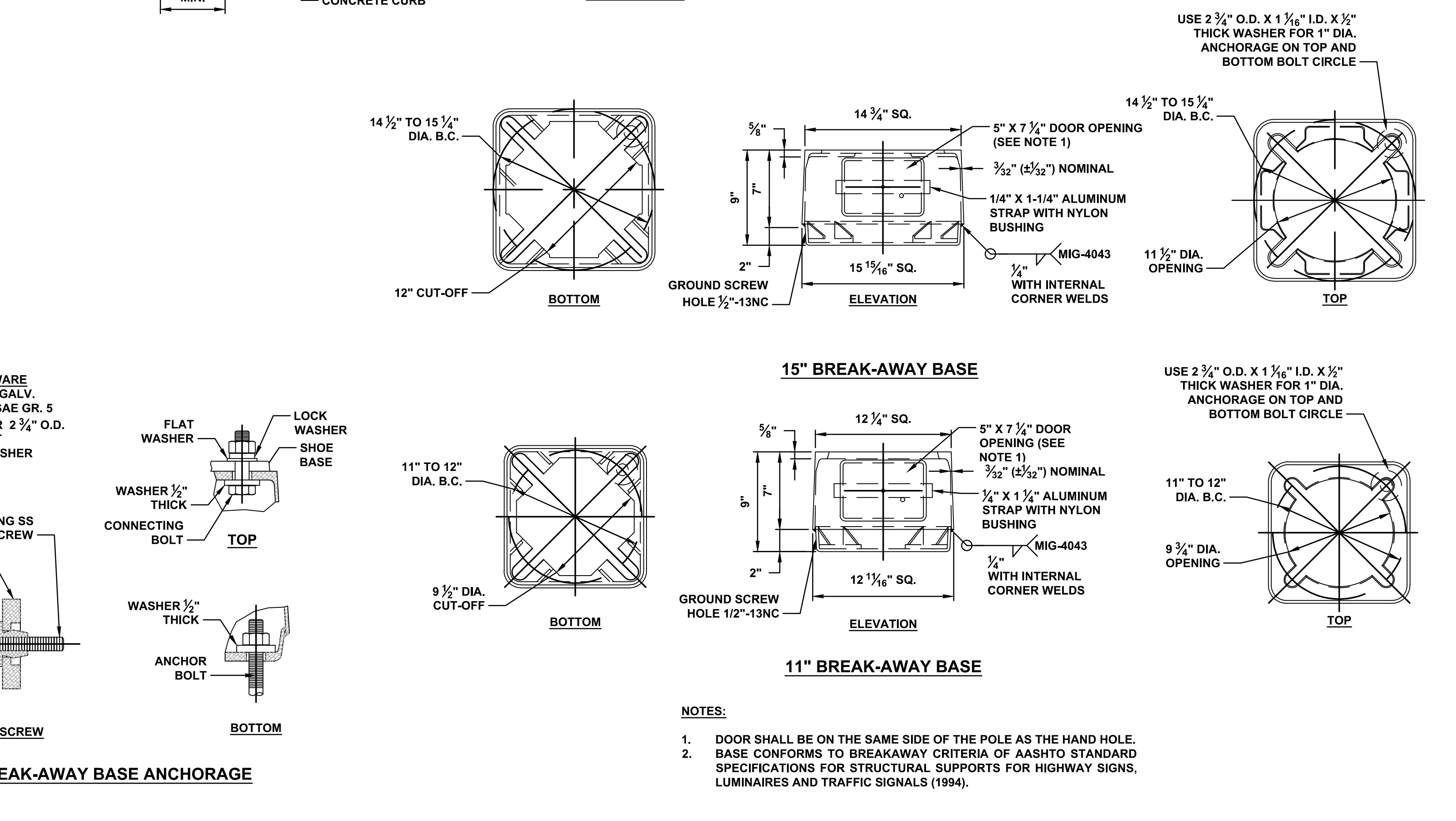
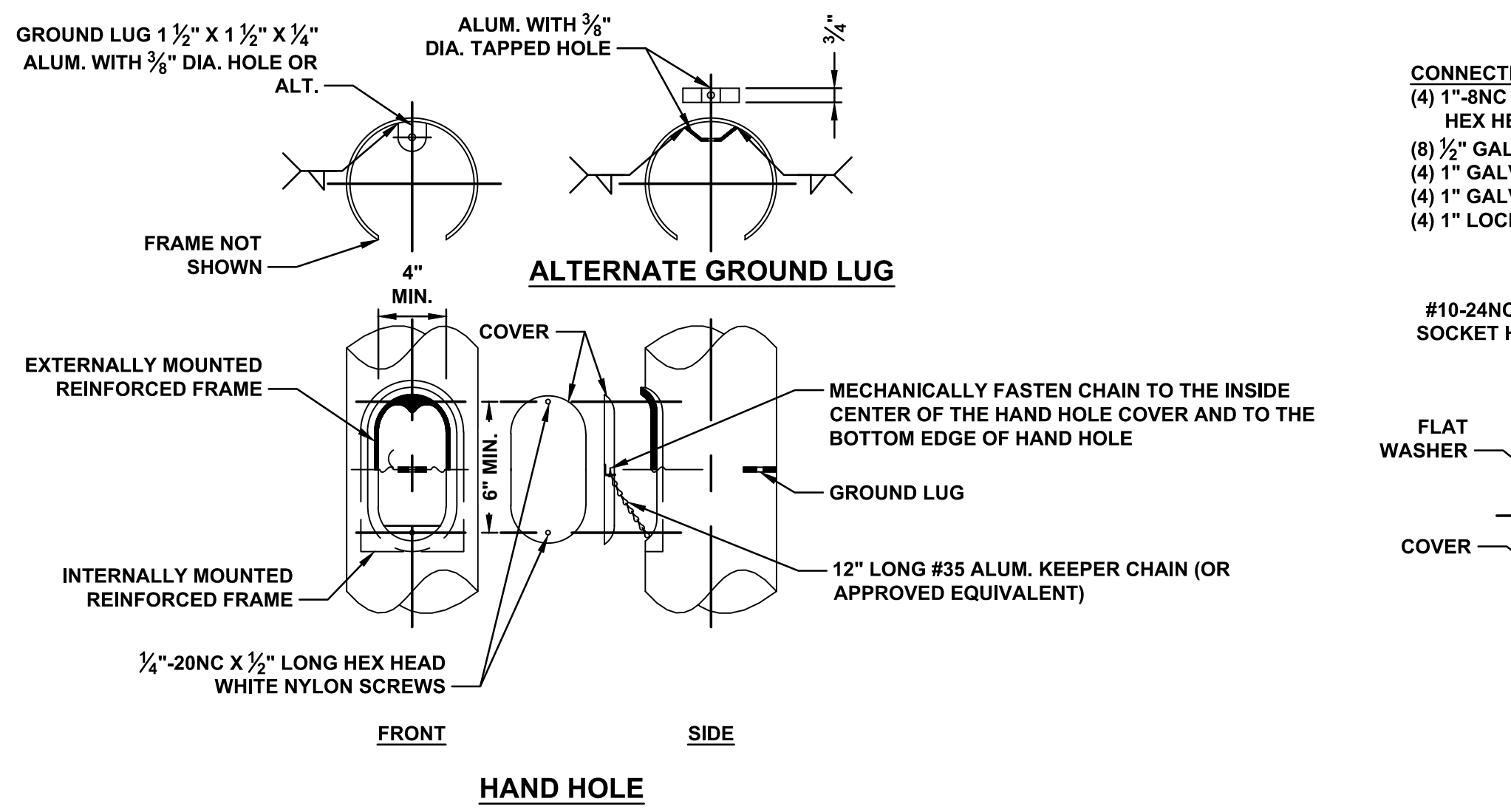
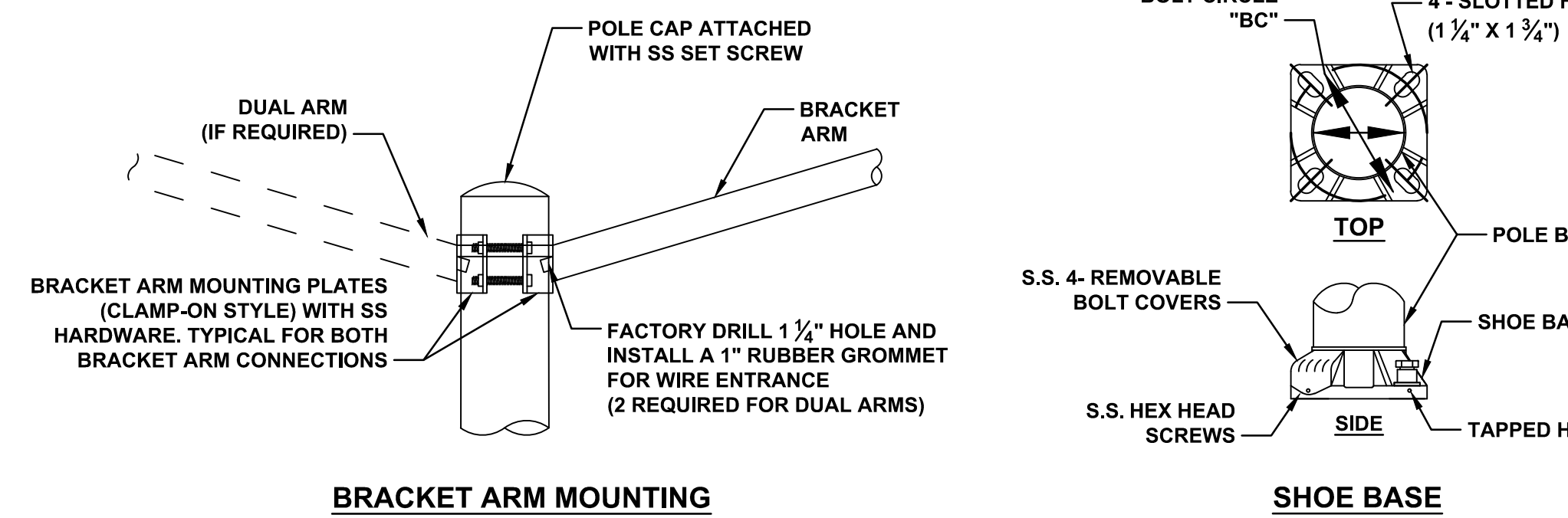
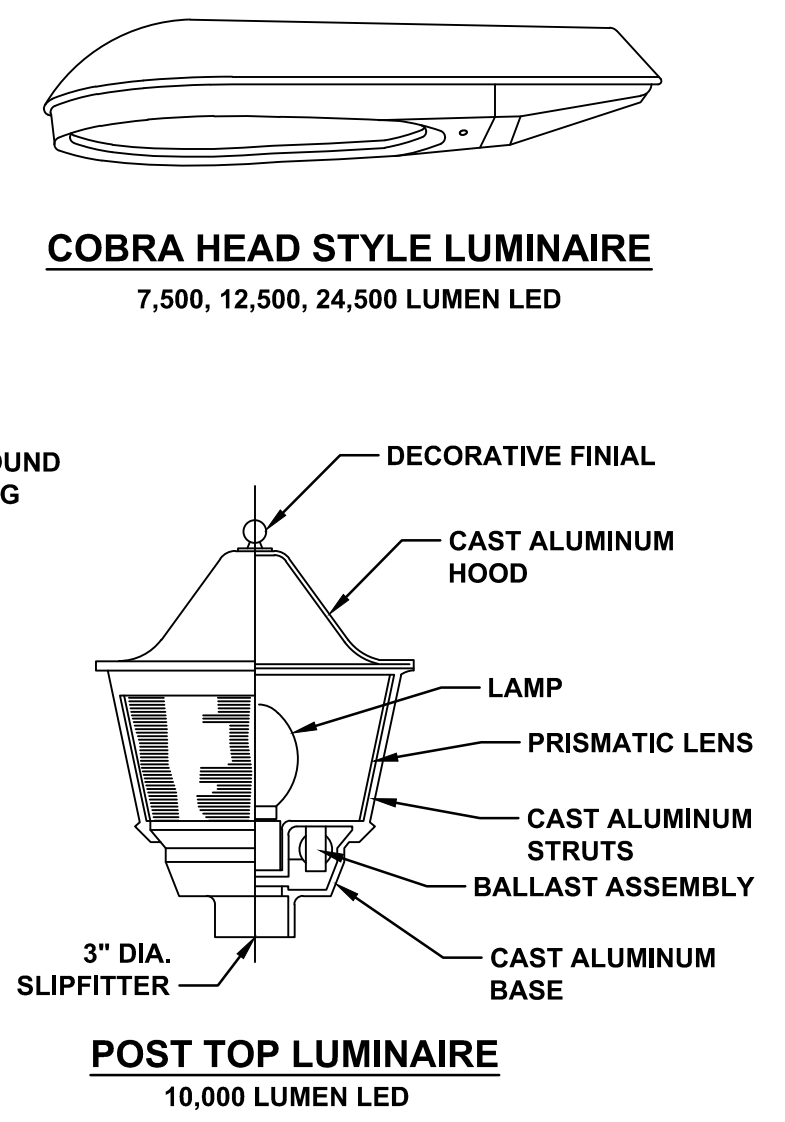
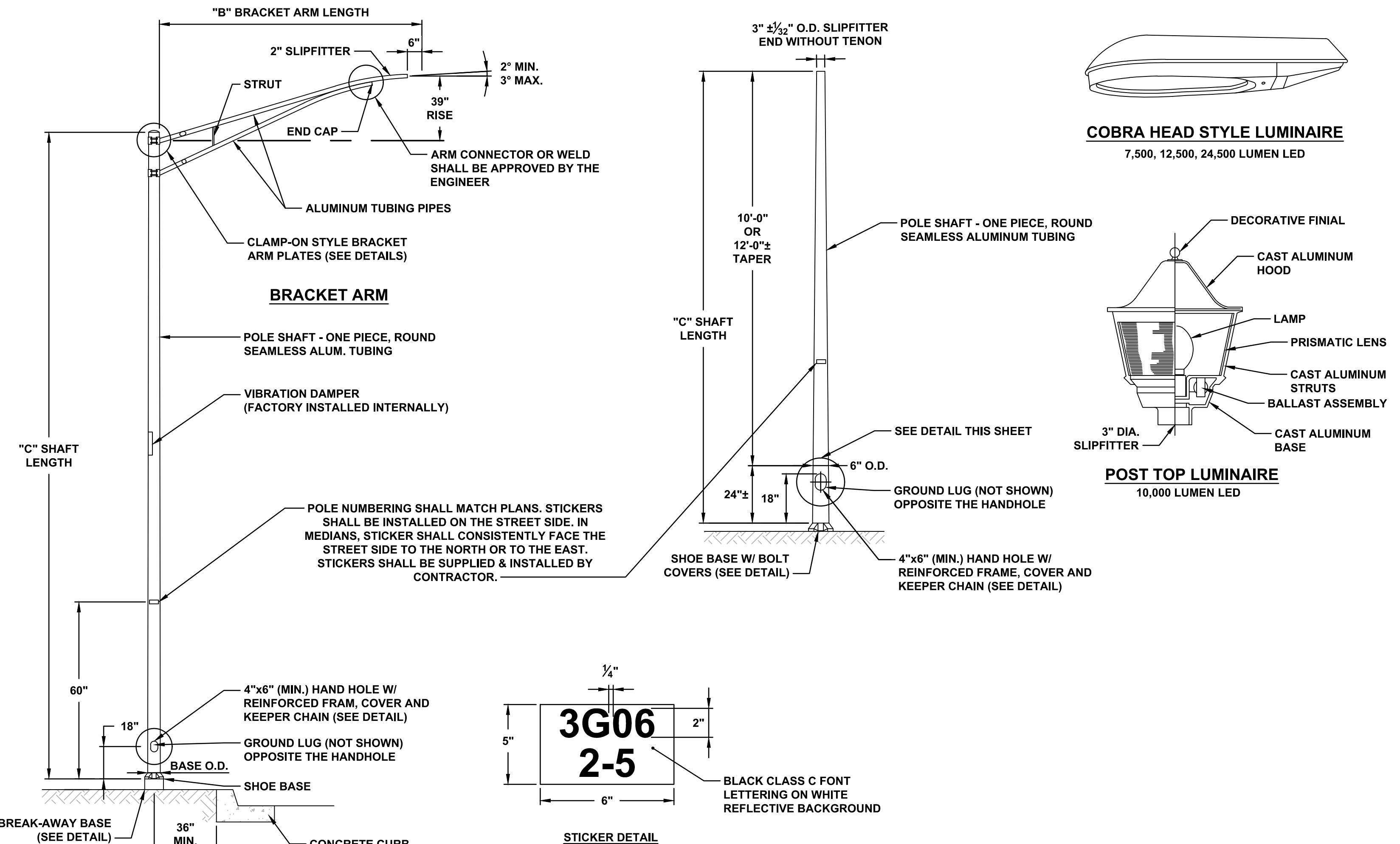
STREET LIGHT POLE, BRACKET ARM, AND BREAK-AWAY BASE

POLE TYPE	MOUNTING HEIGHT (A)	BRACKET ARMS		POLE SHAFT				SHOE BASE		ANCHOR BOLTS		
		LENGTH (B)		BASE O.D.	TOP O.D.	MIN. WALL THICKNESS	SHAFT LENGTH (C)	BOLT CIRCLE (BC)	DIAMETER	LENGTH	HOOK	
		ARM 1	ARM 2									
P12	12'	-	-	6"	3"	0.156"	12'-0"	9.5"	0.75" 10NC	25"	3"	
P14	14'	-	-	6"	3"	0.156"	14'-0"	9.5"	0.75" 10NC	25"	3"	
P30S	30'	6' or 10'	-	8"	6"	0.188"	26'-6" ±2"	11.0"	1.00" 8NC	36"	4"	
P30D	30'	6' or 10'	6' or 10'	8"	6"	0.219"	26'-6" ±2"	11.0"	1.00" 8NC	36"	4"	
P40S	40'	6', 10' or 15'	-	8"	6"	0.219"	36'-6" ±2"	11.5"	1.00" 8NC	36"	4"	
P40D	40'	6', 10' or 15'	6', 10' or 15'	10"	6"	0.219"	36'-6" ±2"	14.5"	1.00" 8NC	48"	4"	

- NOTES:**
- ALL POLES, ARMS, AND MISCELLANEOUS EQUIPMENT SHALL CONFORM TO THESE DETAILS AND AS SPECIFIED BY THE LATEST CITY STANDARD SPECIFICATIONS.
 - POLE SHAFT SHALL HAVE A SATIN GROUND FINISH.
 - ALL HARDWARE (BOLTS, NUTS, WASHERS BUT NOT INCLUDING ANCHOR BOLTS) NOT OTHERWISE SPECIFICALLY DESIGNATED IN THE SPECIFICATIONS OR DETAILS SHALL BE 300-SERIES STAINLESS STEEL CONFORMING TO ASTM A193 OR A194.
 - ANCHOR BOLTS SHALL BE USED WITH CONCRETE BASES. ANCHOR BOLTS SHALL BE STEEL WITH 50,000 PSI MINIMUM YIELD; TOP 10" MIN. GALVANIZED; INCLUDING 8 NUTS AND 8 FLAT WASHERS GALVANIZED TO ASTM A153 STANDARDS. GALVANIZED HEX HEAD BOLTS (SEE POLE FOUNDATION SHEET) SHALL BE USED WITH SCREW-IN ANCHOR BASES. 4 BOLTS, 4 NUTS AND 8 FLAT WASHERS TO PROVIDED WITH EACH ANCHOR.
 - ALL WELDING IS TO BE DONE WITH 4043 WELD WIRE. ALL ARMS AND SHAFTS ARE TO BE HEAT-TREATED TO T6 TEMPER AFTER WELDING.
 - ANCHOR BOLTS SHALL PROJECT ABOVE THE CONCRETE BASE AS PER MANUFACTURER'S RECOMMENDED PRACTICES, 2 1/2" TO 3".
 - THE ALUMINUM STREET LIGHT POLE ASSEMBLY, INCLUDING ANCHORAGE AND LUMINAIRE, SHALL COMPLY WITH THE LATEST CITY STANDARD SPECIFICATIONS AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LOAD WIND LOADING.
 - ALL POLES AND ARMS SHALL BE CLEARLY IDENTIFIED BY THE MANUFACTURER'S NAME, ABBREVIATION, OR SYMBOL ENGRAVED ON THE SHAFT, SHOE BASE, HAND HOLE, OR OTHER MEANS SUCH AS TO BE READILY VISIBLE AFTER INSTALLATION.

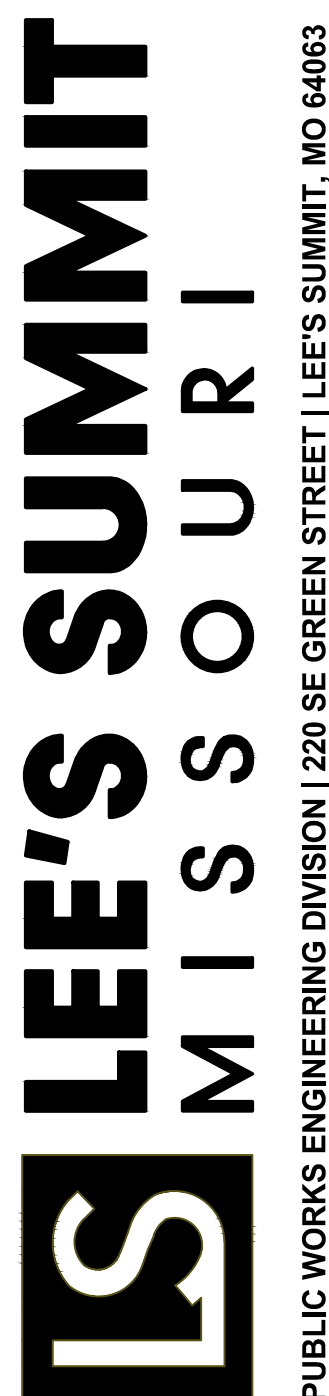
MATERIAL DATA

COMPONENT	ALUMINUM ALLOY DESIGNATION	SPECIFICATION
SHOE BASE	356-T6, CAST	ASTM B26 OR B108
BREAKAWAY BASE	356-T6, CAST	ASTM B108
BOLT COVERS	356 OR 360, CAST	ASTM B26 OR B108
POLE SHAFT	6063-T6, EXTRUDED	ASTM B221 OR B241
GROUND LUG	6061-T5 OR 6063-T6, PLATE	ASTM B221
REINFORCED HANDHOLE FRAME	356-T6 OR 6061-T6	ASTM B26, B108 OR B221
HANDHOLE COVER	6063-T6	ASTM B209, B221 OR B241
BRACKET ARM & TUBING PIPES	6063-T6	ASTM B221, B241 OR B249
BRACKET ARM MOUNTING PLATES	6061-T6 OR 6063-T6 EXTRUDED	ASTM B221
BRACKET ARM STRUT & ARM CONNECTOR	AU6061-T6 OR 6063-T6 EXTRUDED	ASTM B221, B241 OR B249
POLE CAP	356, CAST	ASTM B26 OR B108
ANCHOR BOLTS	N/A	GALVANIZED PER ASTM A153

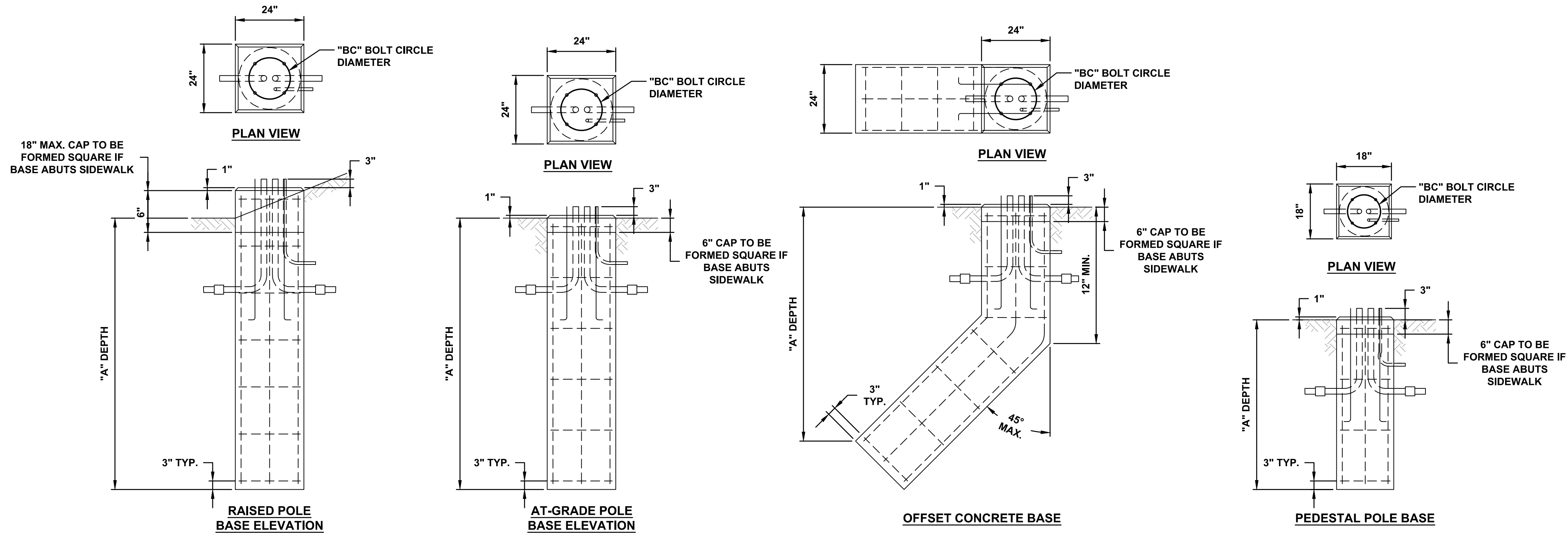


- NOTES:**
- DOOR SHALL BE ON THE SAME SIDE OF THE POLE AS THE HAND HOLE. BASE CONFORMS TO BREAKAWAY CRITERIA OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (1994).

DATE	04/22/2024
REV	A.0
DESCRIPTION	INTERNAL DESIGN REVIEW
PROJECT	LEE'S SUMMIT, JACKSON COUNTY, MISSOURI
SHEET NAME	POLE & LUMINAIRE DETAILS
DRAWN BY	CNS
CHECKED BY	MJF
DATE	05/10/2024
PROJECT #	---
5 OF 24	



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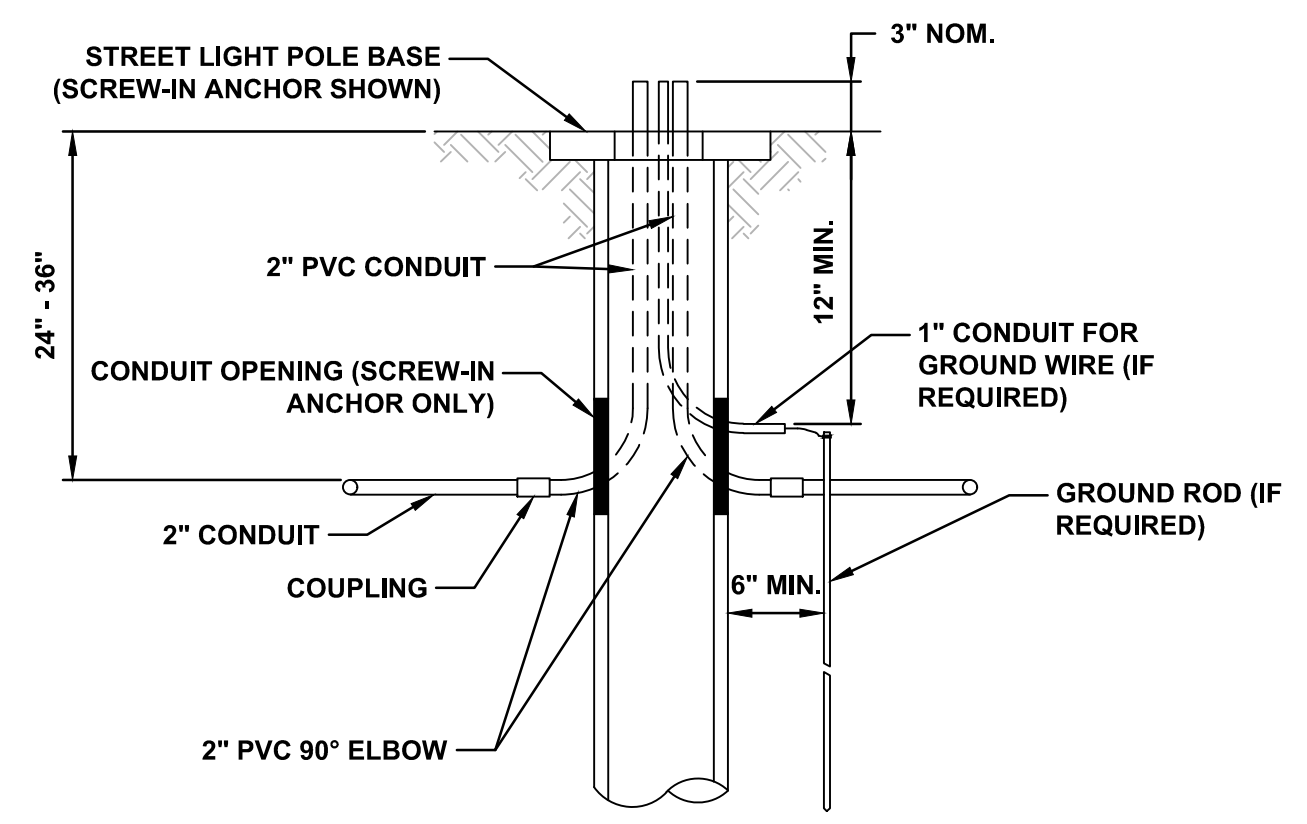


NOTES:

1. FINISH: HOT DIP GALVANIZE PER ASTM-A153 (LATEST REVISION).
2. BASEPLATE TO BE PERPENDICULAR TO SHAFT AXIS ($\pm 1^\circ$) AND HOLE AND CONCENTRIC (± 188 I.D. FIM) TO SHAFT AXIS.
3. ALL BASES SHALL BE IDENTIFIED BY THE MANUFACTURER'S INITIALS AND THE ANCHOR TYPE (1 OR 2) PERMANENTLY STAMPED INTO THE TOP PLATE WITH 1/2" LETTERS. THE JULIAN DATE OF MANUFACTURE SHALL BE PERMANENTLY STAMPED IN 1/4" NUMERALS.
4. PILOT POINT AND SHAFT AXES TO BE CONCENTRIC (± 125 FIM) AND IN LINE ($\pm 2^\circ$).
5. TAP 1" HOLES ON THE SPECIFIED BOLT CIRCLE PERPENDICULAR TO THE BASEPLATE. CLEAN AND CHASE THE THREADS AFTER HOT-DIP GALVANIZING SO THAT A BOLT MAY BE INSTALLED.
6. PREHEAT (ROOM TEMPERATURE 70°F), TUMBLEBLAST, HANDGRIND, AND CLEAN BASEPLATE, HELIX, AND CORE ON ALL WELD AREAS.
7. FLAME CUT IRREGULARITIES PERMISSIBLE:
 - (1) VALLEYS NOT TO EXCEED 3/32 IN. BELOW NOMINAL SURFACE LEVEL.
 - (2) PEAKS OR POSITIVE IRREGULARITIES NOT TO EXCEED 1/32 IN. ABOVE NOMINAL SURFACE LEVEL OR INTERSECTIONS OF NOMINAL SURFACES.
8. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
9. ALL MATERIAL IS TO BE NEW, UNUSED AND MILL TRACEABLE MEETING THE FOLLOWING SPECIFICATIONS:
 - BASEPLATE: ASTM A36-(LATEST REVISION) HOT ROLLED STEEL PLATE (CONFORM TO AASHTO TECHNICAL BUL. #270).
 - SHAFT: STEEL PIPE PILES, SEAMLESS OR STRAIGHT WELDED, GRADE 2 PER ASTM A252. ALTERNATE MATERIAL: PIPE TYPE E OR S, GRADE B PER ASTM A53.
 - HELIX: ASTM A635-(LATEST REVISION) HOT ROLLED STEEL PLATE
 - PILOT POINT: ASTM A575-(LATEST REVISION) HOT ROLLED STEEL
 - BOLT: ASTM A325 OR GRADE 5 SAE J429 - 1" DIAMETER HOT DIP GALVANIZED HEX HEAD BOLT. BOLT SHALL INCLUDE ONE EACH LOCK AND FLAT WASHER.
10. THE DESIGN AND PERFORMANCE INTEGRITY OF THE FOUNDATION SHALL BE VERIFIED BY FULL-SCALE TESTS BY QUALIFIED ENGINEERS INDEPENDENT OF THE MANUFACTURER. CERTIFIED TEST REPORTS SHALL BE PROVIDED UPON REQUEST.
11. FLAME CUT NOTCH OR PROJECTION WILL BE ON THE BASE PLATE TO INDICATE SLOT ORIENTATION.

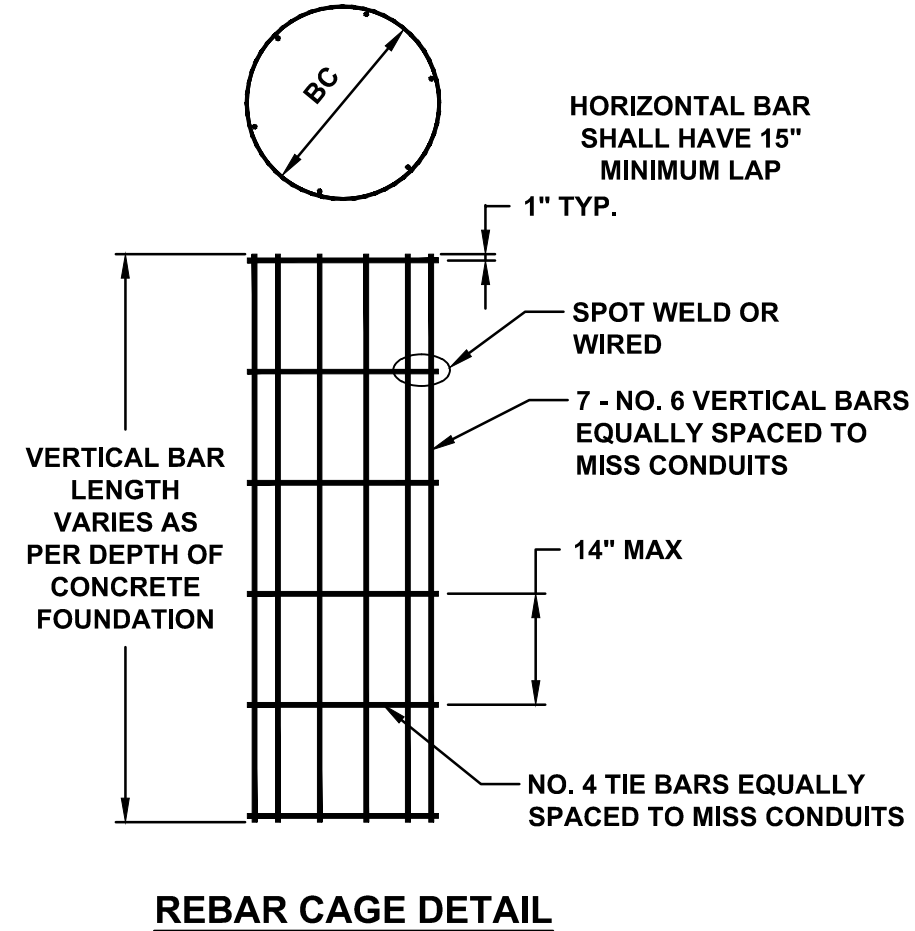
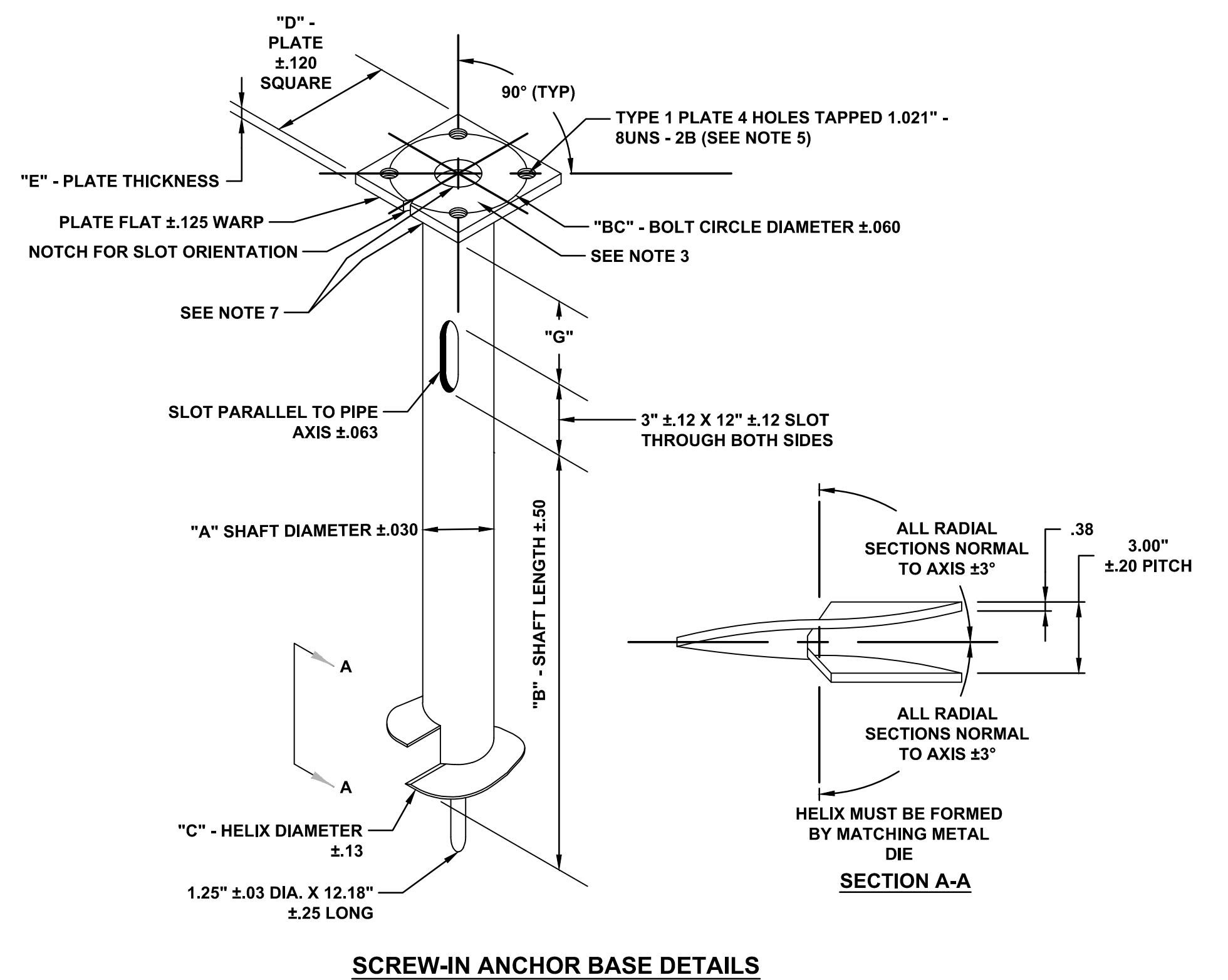
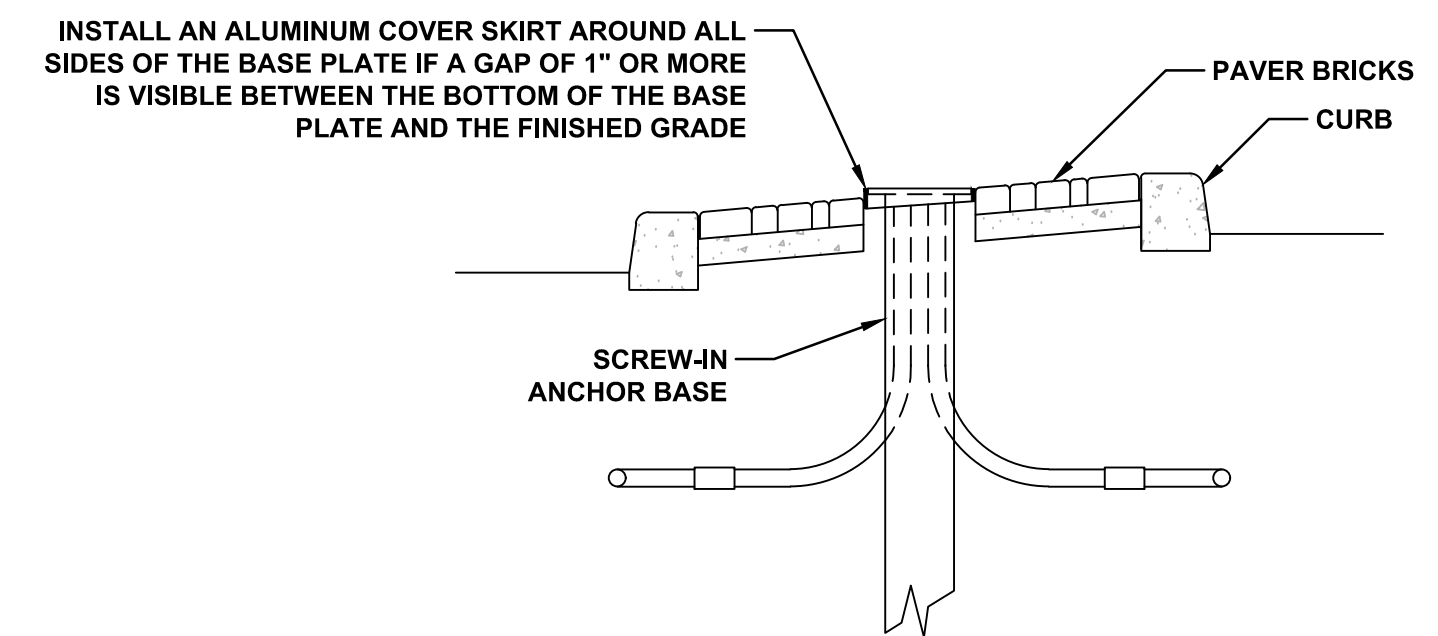
BASE TYPE	POLE TYPE	MINIMUM TORQUE RATING (LBS. FT.)	MAXIMUM TORQUE RATING (LBS. FT.)	SHAFT DIA. (A)	SHAFT LENGTH (B)	HELIX DIA. (C)	PLATE SIZE (D)	PLATE THICKNESS (E)	BOLT CIRCLE (BC)	SLOT LOCATION (G)
B12	P12	2,000	15,000	6"	48"	12"	10"	0.75"	9.5"	12"
B14	P14	2,000	15,000	6"	48"	12"	10"	0.75"	9.5"	12"
B30	P30S & P30D	2,000	15,000	6"	60"	12"	12"	1.0"	11.0"	18"
B40S	P40S	2,000	20,000	8"	60"	14"	12"	1.0"	11.5"	18"
B40D	P40D	2,000	20,000	8"	60"	14"	15"	1.25"	14.5"	18"

POLE TYPE	BRACKET ARM	DEPTH (A)	BOLT CIRCLE (BC)
P12	---	48"	9.5"
P14	---	48"	9.5"
P30S OR P30D	SINGLE OR DUAL	72"	11.0"
P40S	SINGLE	94"	11.5"
P40D	DUAL	94"	14.5"



- NOTES:**
1. GROUND RODS ARE REQUIRED FOR ALL CONCRETE BASES.
 2. GROUND RODS ARE REQUIRED FOR SCREW-IN ANCHOR BASES BACKFILLED WITH FLOWABLE FILL OR CONCRETE.

CONDUIT ENTRANCE AND GROUNDING



DATE: 04/22/2024

DESCRIPTION: INTERNAL DESIGN REVIEW

REV: A.0

LEE'S SUMMIT MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS

PUBLIC WORKS ENGINEERING

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

POLE BASE DETAILS

PROJECT:

DRAWN BY: CNS

CHECKED BY: MJF

DATE: 05/10/2024

PROJECT #:

6 OF 24

6

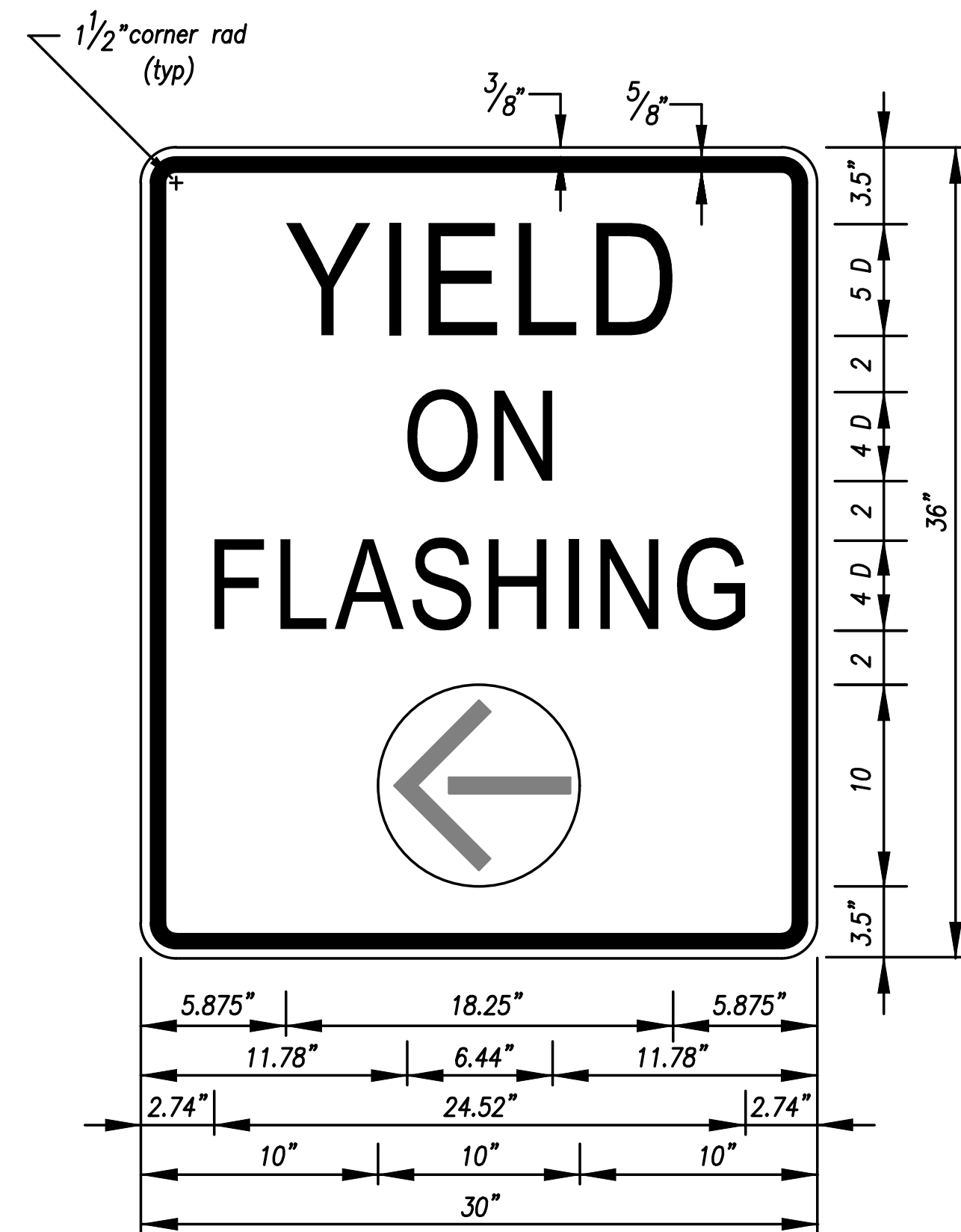
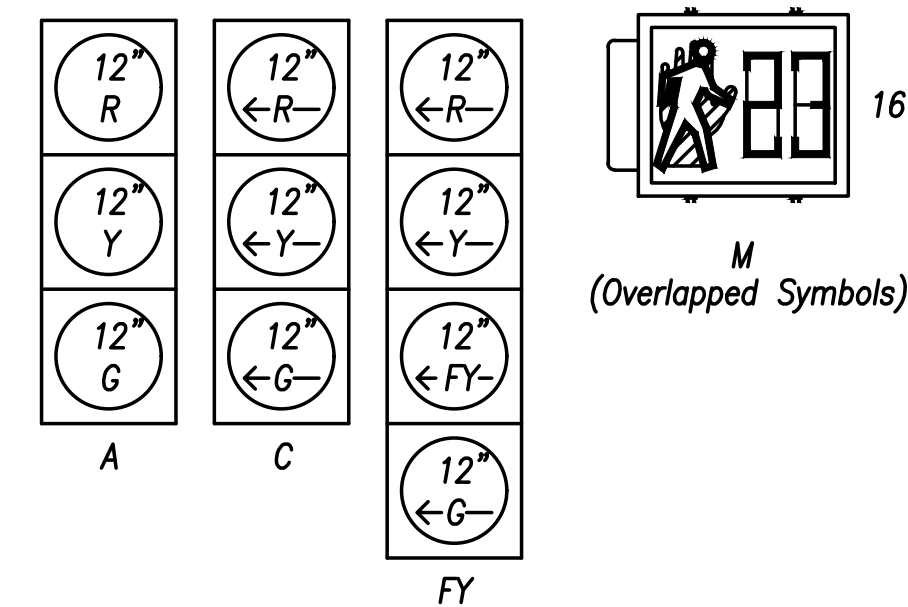
GENERAL NOTES:

- The contractor shall have one (1) signed copy of the plans (approved by the City of Lee's Summit) and one (1) copy of the appropriate Design and Construction Standards and Specification at the job site at all times.
- Construction of the improvements shown or implied by this set of drawings shall not be initiated or any part thereof undertaken until the Director of Public works or his agent is notified of such intent, and all required and properly executed bonds and contract agreements are received and approved by the City.
- The Construction covered by these plans shall conform to all applicable standards and specifications of the Public Works Department of the City of Lee's Summit, Missouri, in current use. Specifically, but not exclusive to: Traffic Signal Specification: Section 2900. Traffic Signal Standard Drawings: TS-1 through TS-10.
- All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit, Missouri.
- Right-Of-Way limits should be cross checked by the Contractor and approved by the field inspector before undertaking any excavations at the site.
- The contractor shall stake the location of all poles, pull boxes, and controller cabinet base, then provide the City one week notice prior to the start of construction, and subsequent construction activities, for inspection and approval. The contractor shall provide a work schedule, contact names, and phone numbers. Notification and coordination shall be with the City's Traffic Engineer.
- All locations indicated in drawings, including conduit runs are subject to adjustment to clear obstructions and to meet site conditions, if any, by the City.
- Existence and location of any underground or overhead facilities shown on these drawings or reference to any soil conditions, if made, are approximate only. It is the Contractor's responsibility to verify all site conditions and to locate all utilities, including depth, before starting construction so that any adjustments to design can be made prior to pole ordering or fabrication. In addition, the Contractor shall avoid disruption of services provided by the utilities and shall insure that proper clearances (overhead and underground) are maintained for the duration of construction. The Contractor shall be fully responsible for any and all damages caused by failure to exactly locate and preserve all utilities.
- The contractor shall coordinate with the City Traffic Engineer for any necessary changes to the traffic signals resulting from existing utilities or other construction issues.
- Any equipment damaged during construction shall be replaced at the Contractor's expense.
- Signal equipment shall not form an obstruction to the movement of pedestrian and wheelchair traffic and shall be ADA accessible. Where sidewalks are present, a minimum clear width of 48 inches shall be available for pedestrian and wheelchair movement. Pull boxes shall not be installed on wheelchair ramps.
- Conduits to be placed outside of paved areas shall be trenched in place. If the project includes roadway improvements, the conduit shall be trenched after the roadway rough grade is established and prior to any final roadway paving, curb & gutter, median or sidewalk sections are placed. All compaction and backfill shall meet City of Lee's Summit requirements. At the option of the contractor, conduits may be bored outside paved areas, but there will be no adjustment to the unit prices for conduit installation and any change in cost would be the contractor's responsibility. Any conduit bore outside paved areas shall be done after roadway improvements are complete. Conduits to be placed within the limits of pavement shall be bored unless otherwise authorized by the City Traffic Engineer. If the project includes roadway improvements, the conduit shall be bored prior to any final roadway paving. Potholing for utilities on road bores after final paving will not be allowed.
- The traffic signal controller shall be delivered to the City for testing prior to installation. All signal timings will be provided by the City Traffic Engineer. The Contractor shall coordinate material delivery and pick-up with the Public Works Operations Department (816-969-1870) at least 48 hours prior to transportation. A minimum of 4 weeks shall be permitted for testing between delivery and pick-up. The Contractor assumes all damage liability and should inspect all materials before and after transportation of equipment.
- The Contractor shall coordinate all electrical power requirements and connection activities with the Utility Company, including location of the meter, circuitry and connection requirements, and powering up the complete system. The Contractor shall order the meter and pay electrical bills until testing is complete, at which time the Contractor shall coordinate with the City for transferring the electrical billing services to the City.
- All disturbed surfaces shall be made good to match existing at the Contractor expense.
- Contractor shall maintain at all times access for Emergency Vehicles and residents along the entire project.
- Substantial completion of the traffic signals shall be defined as all components of the traffic signal operated fully and satisfactorily with red, yellow, and green cycles. Substantial completion shall allow for testing of the signals, including a flash period, prior to signals operating with cycles.
- Final acceptance of traffic signals shall be defined as final written approval and acceptance by the City, including completion or correction of all punch list items and the traffic signals fully operational for a time period of fifteen (15) days, without any problem, as noted in the specifications. As-built plans shall be submitted prior to final acceptance by the City.
- Appropriate traffic control devices, signage, and pavement markings shall be established and maintained throughout the project in accordance with the contract documents and the MUTCD.
- Minimum lane width of 10.0' shall be permitted.

LEGEND

- | | | | |
|----|--|---|--|
| FO | HDPE FIBER OPTIC Conduit | ○ | Fiber Optic Pull Box |
| — | 2" HDPE Conduit | ◼ | Pull Box |
| — | 3" HDPE Conduit | ⊙ | Audible Pedestrian Pushbutton Detector |
| — | 4" HDPE Conduit | ⊖ | EVP (Opticom) Detector |
| ⊥ | Flat Sheet Street Name Sign | ⊠ | Video Detection Camera |
| ⊥ | Flat Sheet Traffic Sign | ⊕ | PTZ Camera |
| ⊕ | Push Button Pole | △ | Signal Face Number |
| ⊖ | Pedestal Pole | ⑦ | Pole Number |
| ⊕ | Mast Arm Pole with Luminaire | □ | Pull Box Number |
| ⊖ | Cobra Head Luminaire | ⬠ | Fiber Optic Box Number |
| ⊠ | Traffic Controller Cabinet | ⊠ | Push Button Number |
| ⊠ | Street Light Controller Cabinet | | |
| ▶ | Traffic Signal Head | | |
| ▶ | Traffic Signal Head With Backplate | | |
| ▶ | Pedestrian Signal Head | | |
| ⊠ | Secondary Service Pedestal (Transformer) | | |
| ∅ | Power Supply | | |

Signal Faces



R10-FYA

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<p>Drawn: _____ Checked: _____ Approved: _____</p>	<p>Notes: _____</p>	<p>File: TRAF-SGNL-plan.dwg Job # _____</p>	<p>8900 Indian Creek Parkway, Suite 450 Overland Park, Kansas 66210 Phone: 913-239-1100 Toll Free: 877-527-5468 Fax: 913-239-1111 www.affinis.us</p> <p>Affinis corp</p> <p>ENGINEERS • SURVEYORS AFFINIS CORP MISSOURI STATE CERTIFICATE OF AUTHORITY - ENGINEERING #200175358 & LAND SURVEYING #200175358</p>
<p>CITY OF LEE'S SUMMIT, MISSOURI OLDHAM PARKWAY SIGNAL AND STREETLIGHTING SIGNAL PLAN GENERAL NOTES</p>			
<p>10 10 OF 24</p>			

BILL OF MATERIALS

		CABLE																				
From	To	Length (ft)	Ground #6		Power 3c#2		Lighting				Push Button 2c#14		Pedestrian 5c#14		Signal 7c#14		PTZ Camera CAT-6		Video Camera 3c#16 Coax		EVP M-138	
			Qty	Total	Qty	Total	Qty	Total	Qty	Total	Qty	Total	Qty	Total	Qty	Total	Qty	Total	Qty	Total	Qty	Total
Transformer	SL Cabinet	120	2	240	2	240																
SL Cabinet	TS Cabinet	20	1	20	1	20																
SL Cabinet	Pull Box #2	20																				
TS Cabinet	Pull Box #2	20	2	40						6	120	6	120	14	280	1	20	4	80	80	4	80
Pull Box #2	Pull Box #1	110	1	110						1	110	1	110	4	440			1	110	110	1	110
Pull Box #1	Pole #1	20	1	20														1	20	20	1	20
Pole #1	M25	10																				
Pole #1	A23	15																				
Pole #1	Luminaire	50																				
Pole #1	Video	45																	1	45	45	
Pole #1	EV1	50																			1	50
Pole #1	A22	60																				
A22	A21	15																				
Pull Box #1	Pole #2	10	1	10						1	10											
Pole #2	PB25	6								1	6											
Pull Box #1	Pull Box #5	70	1	70																		
Pull Box #5	Coil Slack	30																				
Pull Box #5	Pole #7	10	1																			
Pole #7	FY51	10																				
Pull Box #2	Pole #3	30	1	30						1	30	1	30	3	90			1	30	30	1	30
Pole #3	PB26	6								1	6											
Pole #3	M26	10																				
Pole #3	A83	15																				
Pole #3	Luminaire	50																				
Pole #3	Video	45																	1	45	45	
Pole #3	EV2	45																			1	45
Pole #3	A82	40																				
A82	A81	15																				
Pole #3	FY31	60																				
Pull Box #2	Pole #4	20	1	20						1	20	1	20									
Pole #4	PB84	6								1	6											
Pole #4	M84	10																				
Pole #4	A24	15																				
Pull Box #2	Pull Box #3	130	1	130						3	390	3	390	6	780	1	130	2	260	260	2	260
Pull Box #3	Pole #5	30	1	30						2	60	2	60	3	90			1	30	30	1	30
Pole #5	M85	10																				
Pole #5	PB85	6								1	6											
Pole #5	A62	15																				
Pole #5	Luminaire	50																				
Pole #5	Video	45																	1	45	45	
Pole #5	EV3	50																			1	50
Pole #5	A61	55																				
Pole #5	C12	70																				
C12	C11	15																				
Pole #5	M63	10																				
Pole #5	PB63	6								1	6											
Pull Box #3	Pull Box #4	70	1	70						1	70	1	70	3	210	1	70	1	70	70	1	70
Pull Box #4	Pole #6	30	1	30						1	30	1	30	3	90	1	30	1	30	30	1	30
Pole #6	M64	10																				
Pole #6	PB64	6								1	6											
Pole #6	A42	15																				
Pole #6	Luminaire	50																				
Pole #6	Video	45																	1	45	45	
Pole #6	EV4	35																			1	35
Pole #6	A41	40																				
Pole #6	FY71	70																				
Pole #6	CCTV	40																				
Total				820		260					876		940		2715		290		810	810		810

		POLES																			
NUMBER	POLE TYPE	HEIGHT (FT)			LENGTH (FT)			MAST ARM SIGNAL HEAD SPACING (FT)				LUMINAIRE			BASE				CONCRETE (C.Y.)		
		4	8	15	42	54		A	B	C	D	ARM LENGTH (FT)	LED TYPE	III	MOUNTING HEIGHT (FT)	B10	B13	C		EV	
1	Mast Arm (CL)						1	39	11.5					15	1	40			1		3.4
2	Pedestal	1																	1		0.44
3	Mast Arm (CL)				1			17	11.5	11.5				15	1	40			1		3.4
4	Pedestal			1															1		0.44
5	Mast Arm (CL)					1		27	12	12				15	1	40			1		3.4
6	Mast Arm (CL)					1		34	18					15	1	40			1		3.4
7	Pedestal			1															1		0.44
TOTAL		1		2	1	3								4					4	3	14.92

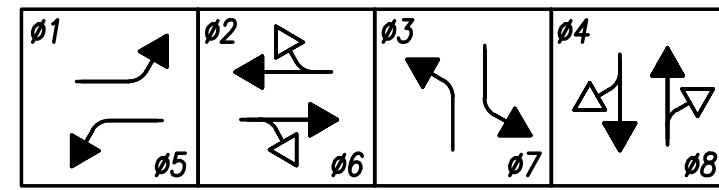
		SIGNAL HEADS																		
Location	Pole No.	Face No.	Head Type	Backplate	Signal Indication								Visor Type		Section Mounting Type					
					R	Y	G	R ←	Y ←	FY ←	G ←	Pedestrian Countdown	Tunnel	Cut Away						
Signal Pole	1	23	A		1	1	1									3		Pole		
Mast Arm	1	22	A	3-SECTION	1	1	1									3		Mast Arm		
Mast Arm	1	21	A	3-SECTION	1	1	1									3		Mast Arm		
Signal Pole	1	25	M											1				Pole		
Signal Pole	3	83	A		1	1	1									3		Pole		
Mast Arm	3	82	A	3-SECTION	1	1	1									3		Mast Arm		
Mast Arm	3	81	A	3-SECTION	1	1	1									3		Mast Arm		
Mast Arm	3	31	FY	4-SECTION				1	1	1	1					4		Mast Arm		
Signal Pole	3	25	M											1				Pole		
Pedestal Pole	4	84	M											1				Pole		
Pedestal Pole	4	24	A		1	1	1											Pole		
Signal Pole	5	62	A		1	1	1									3		Pole		
Mast Arm	5	61	A	3-SECTION	1	1	1									3		Mast Arm		
Mast Arm	5	12	C	3-SECTION				1	1					1		3		Mast Arm		
Mast Arm	5	11	C	3-SECTION				1	1					1		3		Mast Arm		
Signal Pole	5	63	M															Pole		
Signal Pole	5	85	M															Pole		
Signal Pole	6	42	A		1	1	1									3		Pole		
Mast Arm	6	41	A	3-SECTION	1	1	1									3		Mast Arm		
Mast Arm	6	71	FY	4-SECTION				1	1	1	1					4		Mast Arm		
Signal Pole	6	64	M															Pole		
Signal Pole	7	51	FY											1	1	1	1	4		Pole

CONDUIT				
From	To	2"	3"	4"
Transformer	SL Cabinet	240		
SL Cabinet	TS Cabinet	20		
SL Cabinet	Pull Box #2	20		
TS Cabinet	Pull Box #2			20
Pull Box #2	Pull Box #1			110
Pull Box #1	Pole #1		20	
Pull Box #1	Pole #2	10		
Pull Box #1	Pull Box #5			70
Pull Box #2	Pole #7		10	
Pull Box #2	Pole #3		30	
Pull Box #2	Pole #4		20	
Pull Box #2	Pull Box #3			130
Pull Box #3	Pole #5		30	
Pull Box #3	Pull Box #4			70
Pull Box #4	Pole #6		30	
Total		290	80	330

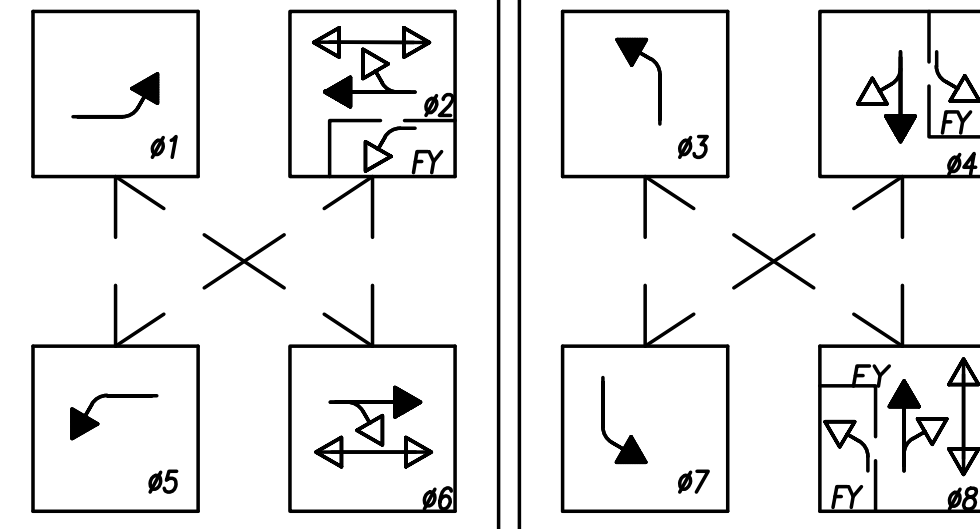
PULL BOX			
BOX	CLASS 1	CLASS 2	CLASS 3
Pull Box #1		1	
Pull Box #2			1
Pull Box #3		1	
Pull Box #4		1	
Pull Box #5	1		
TOTAL	1	3	1

CONTROLLER AND EQUIPMENT	TOTALS
Cabinet & Accessories (Complete):	1
NEMA Type P TS1 Cabinet	
Controller (Complete with Software):	1
Siemens M60 EPAC	
Emergency Vehicle Detection System (Complete):	1
GTT	
Video Detection System (Complete):	1
Iteris NEXT	
Power Supply:	1
Dual Meter (Utility Enclosure Pedestal)	
Pan Tilt Zoom (PT	

Sequence



Phasing Diagram



Legend
 ← Permissive Phase
 ← Protected Phase
 ↔ Pedestrian Phase
 FY Flashing Yellow

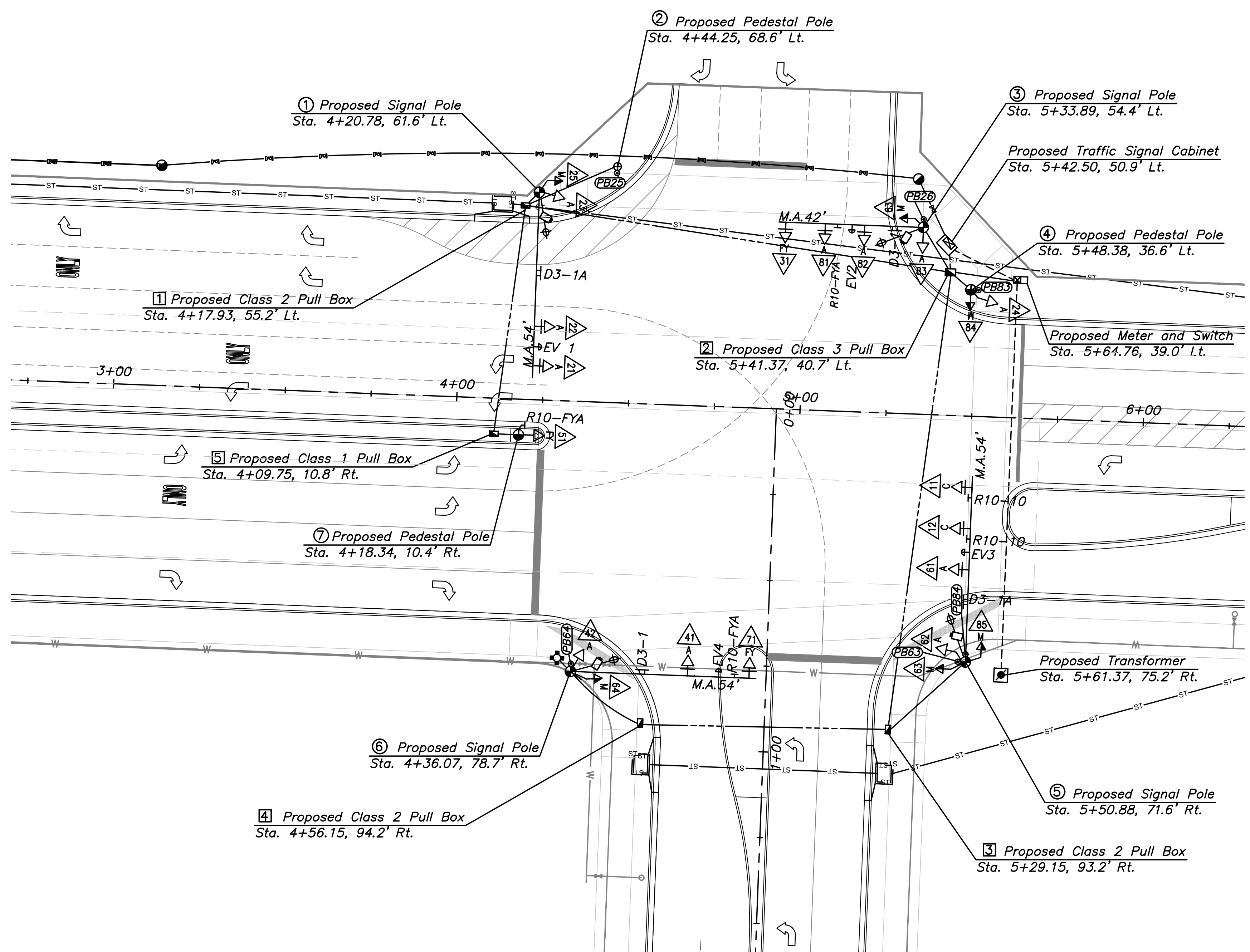
FLASHING OPERATION	
EMERGENCY	SCHEDULED
FY-0's	FY-0's
FR-All 0's	FR-All 0's

POWER SUPPLY		CIRCUIT BREAKER TRIP RATINGS		
LOCATION	TYPE	SERVICE DISCONNECT (2-Pole)	TRAFFIC SIGNAL (1-Pole)	LIGHTING (2-Pole)
SE Corner	Dual Meter (4-Circuit)	100 AMP	30 AMP	15 AMP

OUTPUT FILE ASSIGNMENTS

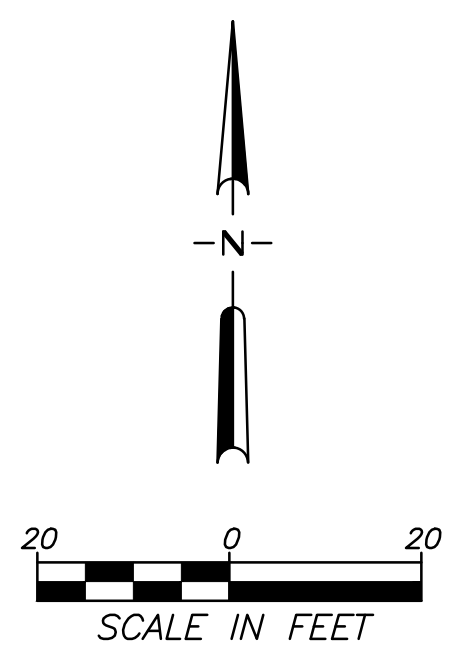
FR1	01	02	PED 02	04	PED 04	MONITOR
FR2						
FR3	05	06	PED 06	08	PED 08	
FR4						

1	2	3	4	5	6	7	8	9	10	11	12	13	14
											PED 02	PED 04	FLH
											PED 06	PED 08	STOP TIME



WIRING AND PHASING GENERAL NOTES

- Vehicle signal heads located on the mast arm shall be connected to like phase signal heads via a 7c#14 cable connected within the signal head terminal box. A maximum of three vehicle heads may be joined together, any additional signal heads would require a separate cable extending from the head back to the controller cabinet. All vehicular signal heads located on the pole shall each be served by one 7c#14 cable extending from the head back to the controller cabinet. No cable splices are allowed, including at the base of the pole and inside pull boxes, except for street lighting cables.
- Street lighting cable, not signal cable, may be spliced inside of pull boxes using a split bolt connector and resin filled splice kit as described in section 2800 of the technical specifications.
- A continuous 1c #6 awg bare solid copper ground wire shall be provided in addition to ground rods. All grounding and ground rods shall be tied together using 1c #6 awg bare solid copper wire to bond the system.
- See fiber interconnect plan for fiber optic cable conduit, and pull box details.



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 Job # _____

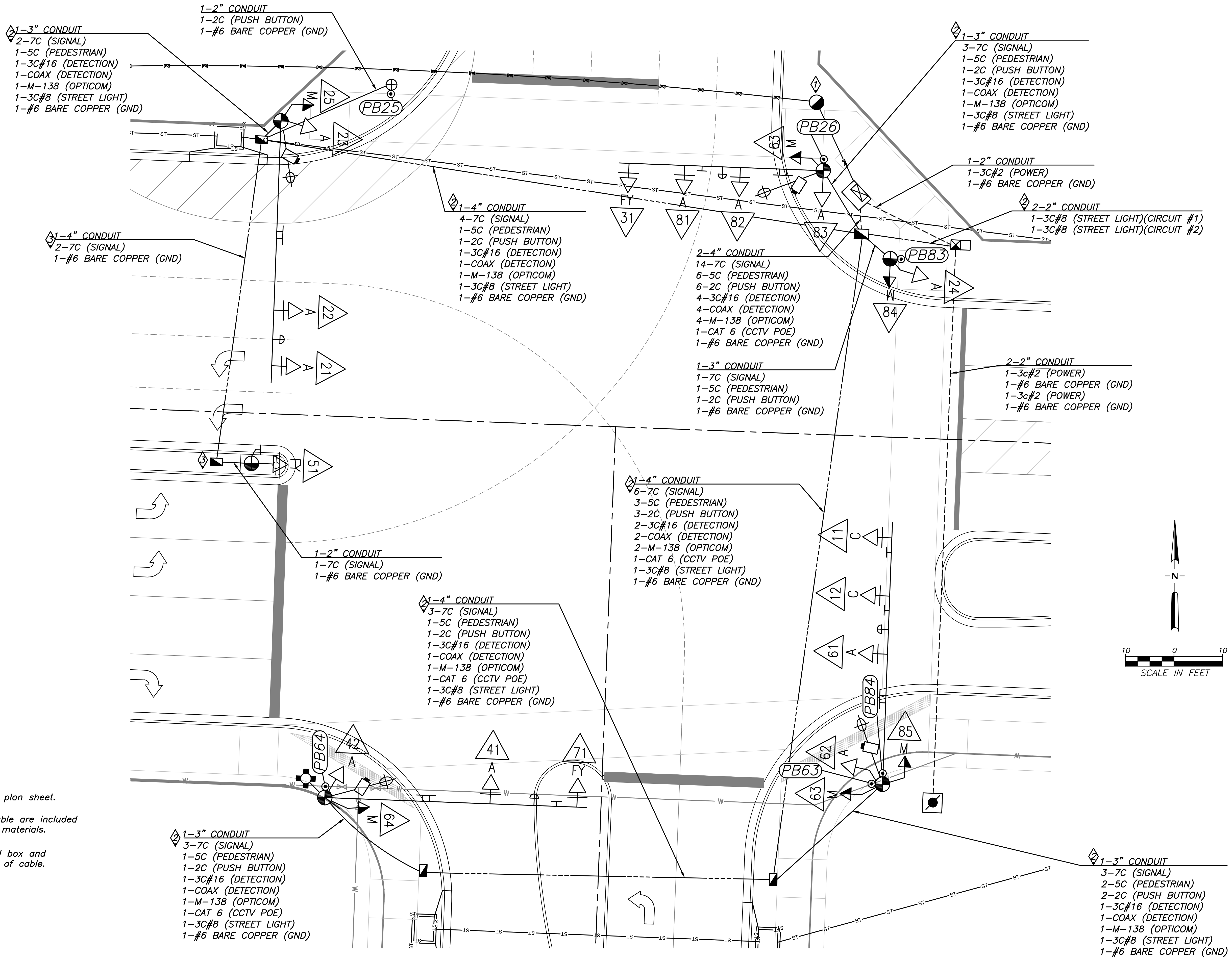
8900 Indian Creek Parkway, Suite 450
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 Toll Free: 877-527-5468
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CITY OF LEE'S SUMMIT, MISSOURI
 OLDHAM PARKWAY
 SIGNAL AND STREETLIGHTING
 SIGNAL PLAN





- NOTES:
- 1 See the Fiber (Interconnect) plan sheet.
 - 2 Quantities for street light cable are included in the street lighting bill of materials.
 - 3 Coil 30' of 1-7c in the pull box and terminate cable. Secure end of cable. (Spare)

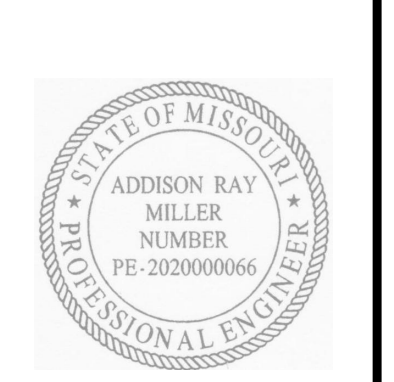
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Job #

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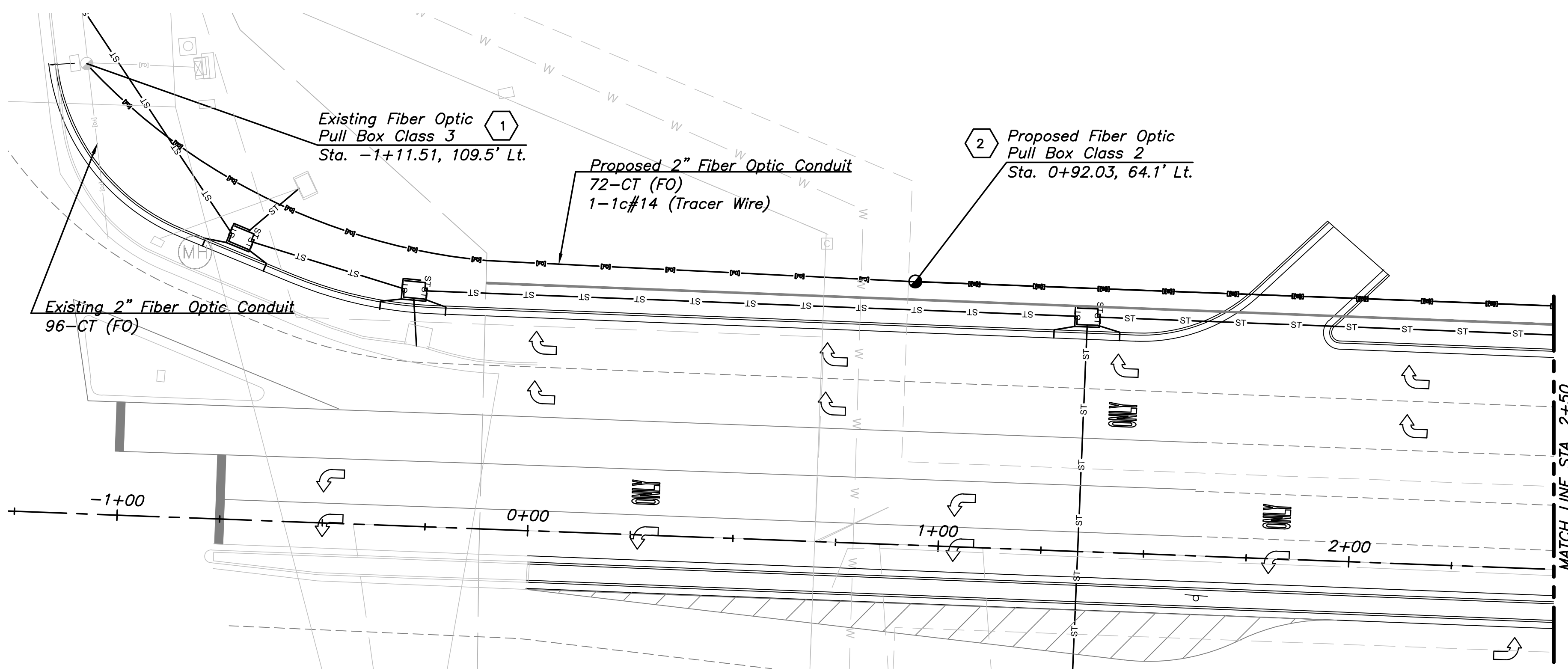
8900 Indian Creek Parkway, Suite 450
 Overland Park, Kansas 66210
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CITY OF LEE'S SUMMIT, MISSOURI
 OLDHAM PARKWAY
 SIGNAL AND STREETLIGHTING
 SIGNAL PLAN
 WIRING DETAIL



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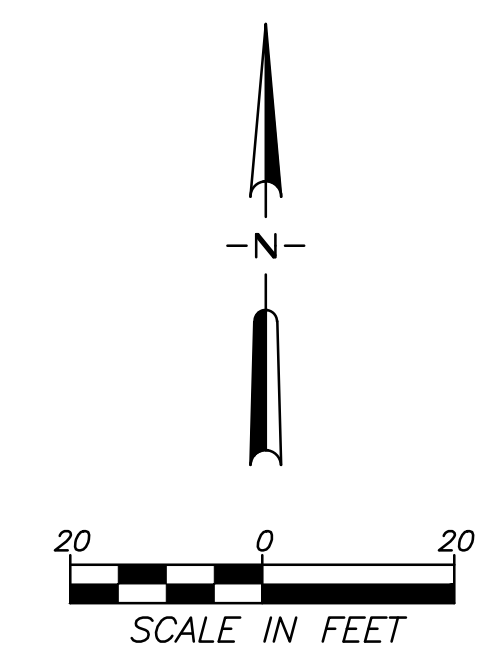
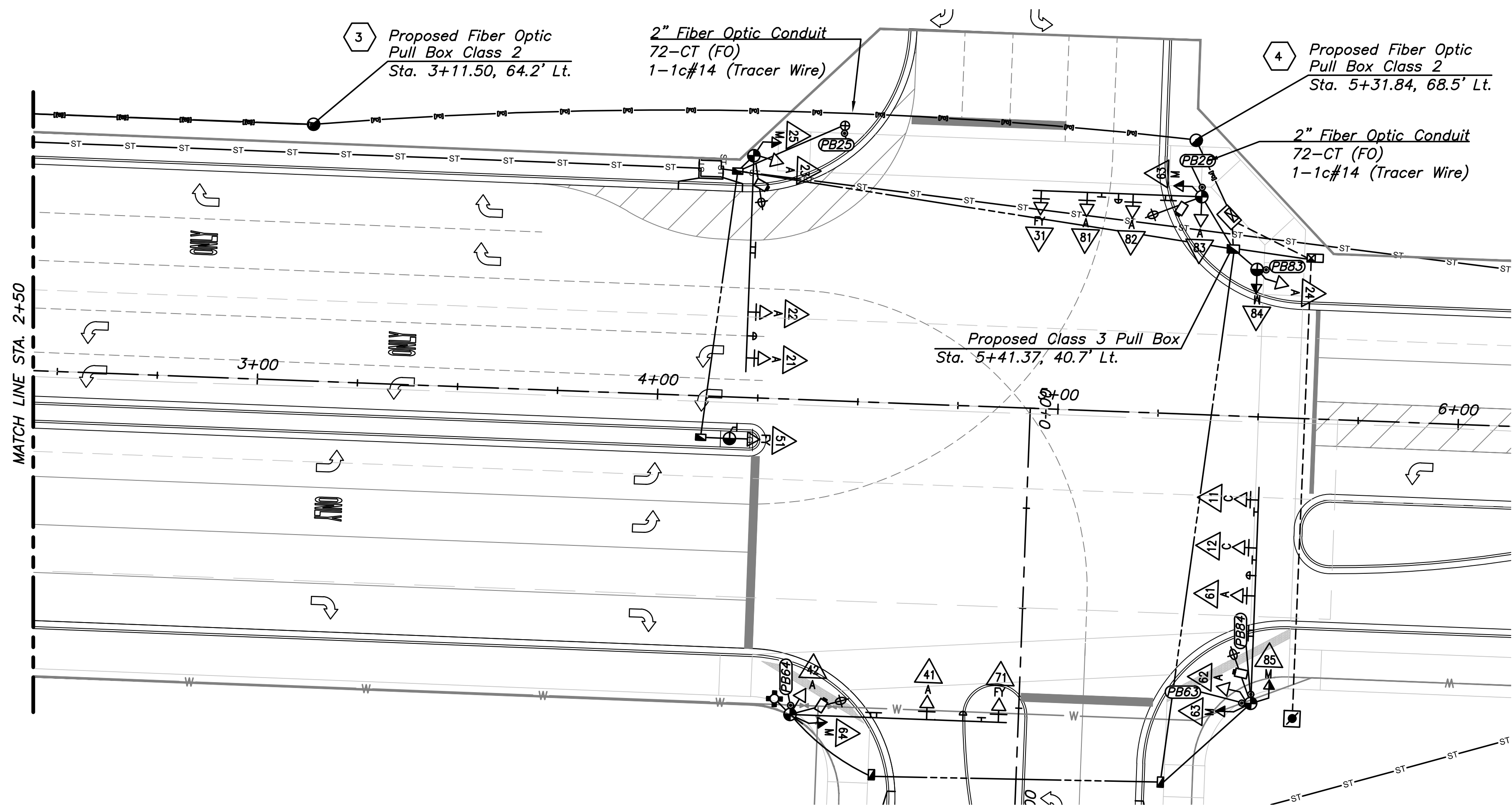


SUMMARY OF INTERCONNECT QUANTITIES*				
FROM	TO	FIBER OPTIC PULL BOX CLASS 2	2" HDPE CONDUIT	FO CABLE 72-CT
FO BOX #1		EXISTING		100'
FO BOX #1	FO BOX #2		210'	210'
FO BOX #2		1 EA	50'	
FO BOX #2	FO BOX #3		220'	220'
FO BOX #3		1 EA	50'	
FO BOX #3	FO BOX #4		220'	220'
FO BOX #4		1 EA	50'	
FO BOX #4	TS CABINET		30'	50'
		3 EA	680'	950'

* Items not listed above are considered subsidiary.
See note 6.

INTERCONNECT NOTES:

- Fiber interconnect shall facilitate communication with the traffic signal controller.
- Fiber interconnect conduit shall be installed 36" to 48" below finished grade.
- A 1c#14-AWG stranded copper tracer wire shall be installed in each conduit with the fiber cable or pull string. Tracer wire shall be bonded to the ground rod in the traffic signal cabinet. Tracer wire is subsidiary to the fiber optic cable.
- Install 72-ct fiber optic cable (single mode) between existing fiber optic pull box #1 and the proposed traffic signal controller cabinet. Splice existing and new fiber optic cables per splice diagram (or other instructions) provided by the city.
- Terminate fiber cables on fiber distribution units (FDU's) mounted in the traffic signal cabinet. Install fiber optic data link switch in the traffic signal cabinet and connect the fiber distribution units to the signal controller.
- Leave fiber cable coiled in pull boxes as noted on the plans for slack and future splicing. Coiling shall be neat and per the manufacturer's minimum bending radius specifications.
- The fiber optic data link switches shall be Kyland Technology co. Ltd, model sicom3000s or approved equal. The switches shall include all necessary modules, cables, and power supply.
- A minimum of 9 hooks, installed on three levels, shall be included in each fiber optic pull box.
- Fiber splicing assignments to be provided by the City of Lee's Summit, contact Tim Scharf, Tim.Scharf@cityofls.net. 816-969-1262.



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Drawn: Checked: Approved:

Issued: Notes:

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CITY OF LEE'S SUMMIT, MISSOURI
OLDHAM PARKWAY
SIGNAL AND STREETLIGHTING
SIGNAL PLAN
FIBER INTERCONNECT

Missouri State Professional Engineer
ADDISON RAY
MILLER NUMBER
PE-2020000066

14
 14 OF 24

