

INDEX OF SHEETS

SHEET NO. TITLE

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- E-2 SITE DEVELOPMENT LIGHTING PLAN
- E-3 LIGHTING CONTROLLER PEDESTAL MOUNT
- E-4 LIGHT FOUNDATION, 40'-0" TO 47'-6" M.H.
15" BOLT CIRCLE
- E-5 ALUMINUM LIGHT POLE, 47'-6" MOUNTING HEIGHT

LIST OF STATE STANDARDS

- STANDARD 701301-02; LANE CLOSURE 2L, 2W-SHORT TIME OPERATION
- STANDARD 701501-03; URBAN LANE CLOSURE 2L, 2W-UNDIVIDED
- STANDARD 702001-05; TRAFFIC CONTROL DEVICES

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
BUREAU OF LOCAL ROADS**

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

FAU 1596 (135th STREET)

**LIGHTING IMPROVEMENTS,
CICERO AVENUE TO CAL-SAG ROAD**

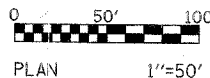
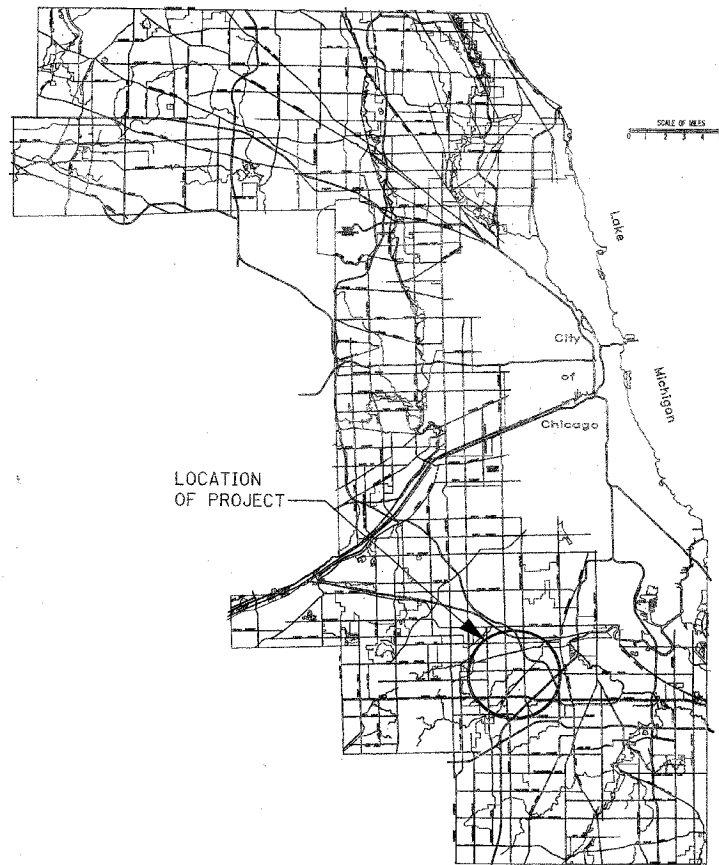
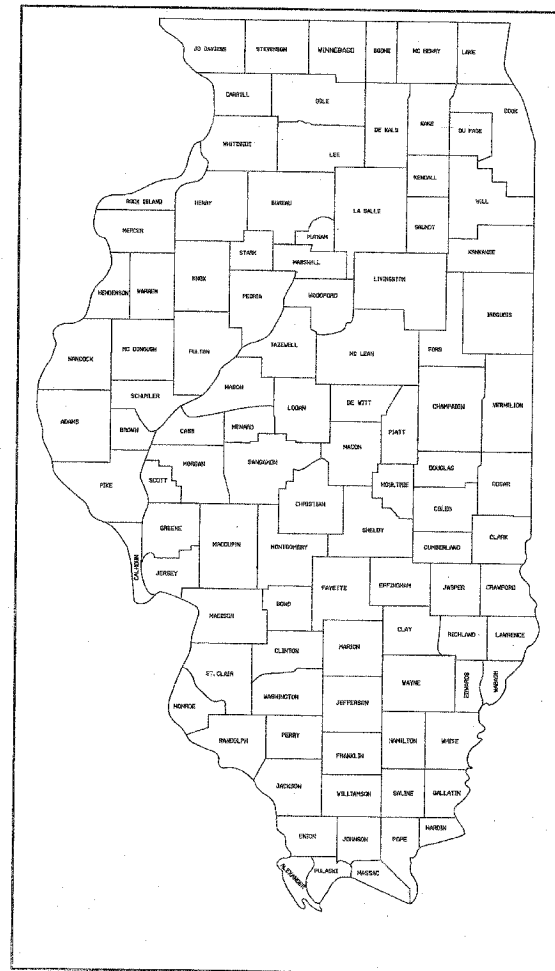
SECTION NO. 05-00029-00-LT

PROJECT NO. M-8003(531)

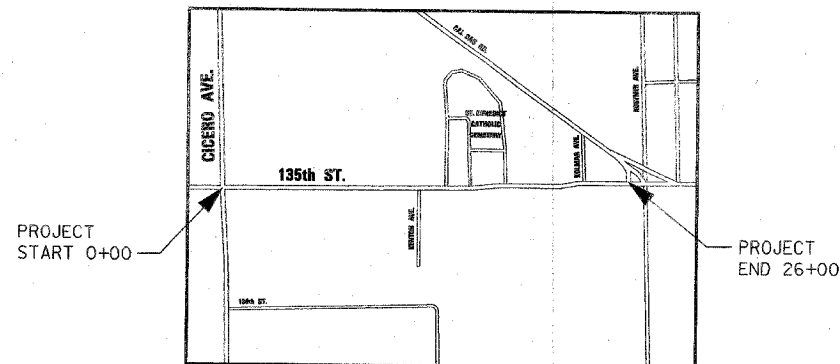
JOB NO. C91-033-06

VILLAGE OF CRESTWOOD, COOK COUNTY

FAP NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1596	05-00029-00-LT	COOK	6	
STA. 0+00	TO	STA. 26+00		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT M-8003 (531)	
CONTRACT NO. 83818				



PLAN 1"=50'



MAP LOCATION



CONTRACT NO. 83818

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
BUREAU OF LOCAL ROADS**

SUBMITTED 11-3 2005
Chester Stronczyk
LOCAL AGENCY OFFICIAL

SUBMITTED NOVEMBER 8 2005
[Signature]
ENGINEER OF LOCAL ROADS AND STREETS

SUBMITTED NOV. 8 2005
Diane M. O'Keefe /cd
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER



Plans Prepared By:

KNIGHT

Engineers & Architects

221 North LaSalle Street
Suite 300
Chicago, IL 60601-1211
Phone: (312) 577-3300

FEDERAL AID COORDINATOR: PHILIP MARCYN 847 705 4189

FIP RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1596	05-00029-00-LT	COOK	6	
STA. 0+00	TO	STA. 26+00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	M-8003 (531)	

CONTRACT NO. 83818

LEGEND

SYMBOL	DESCRIPTION
	LIGHTING POLE 47'-6" MOUNTING HEIGHT WITH ONE 400W, HPS LUMINARIES MOUNTED ON 15'-0" MAST ARM 240V BALLASTS, TYPE 3 DISTRIBUTION, GROUND MOUNTED.
	EXISTING LIGHTING STANDARD X = EXISTING TO REMAIN XR = EXISTING TO BE REMOVED XRR = EXISTING RELOCATED TO NEW POSITION
	COMED POWER POLE (EXISTING)
(CIAB3)	LETTER IN PARENTHESIS ADJACENT TO FIXTURE INDICATES LIGHTING CONTROLLER (CI), CIRCUITS (AB) AND POLE NUMBER (3).
	JUNCTION BOX, TYPE AND SIZE INDICATED.
	UNIT DUCT 2 - 1/C #4 WITH 1/C #8 GRD. IN 1" DIA. UNIT DUCT IN TRENCH OR PLOWED.
	CONDUIT IN TRENCH OR PUSHED
	LIGHTING CONTROLLER PEDESTAL MOUNT
STA. 5+07 CI AB I	STATION OF LIGHT STANDARD AND OFFSETS POLE NUMBER (TYP.) CIRCUIT NUMBER DESIGNATION LIGHTING CONTROLLER NUMBER
	GROUND ROD, 3/4" DIA. x 10'-0"
H.W.R.C.	HEAVY WALL RIGID CONDUIT

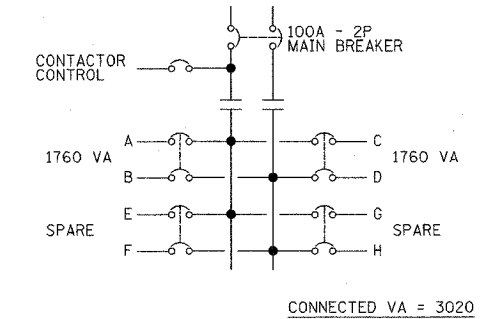
GENERAL NOTES:

- WHERE UNIT DUCT PASSES UNDER ROADWAY OR DRIVEWAY PROVIDE A RIGID GALVANIZED CONDUIT SLEEVE, SIZE AS NOTED ON THE DRAWINGS. EXTEND SLEEVES A MINIMUM OF 3'-0" BEYOND EDGE OF PAVEMENT/ROADWAY SLEEVES SHALL BE INSTALLED TO MAINTAIN A MINIMUM 12" CLEARANCE BELOW UNDERDRAINS (APPROX. 5'-0" BELOW GRADE).
- LIGHT POLE OFFSETS SHALL BE 2'-0" AS MEASURED FROM EDGE OF PAVEMENT.
- PRIOR TO THE INSTALLATION OF THE NEW CABLE DUCT, CONDUITS, CONTROLLER AND LIGHT STANDARD FOUNDATIONS, THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING CONDUITS, CABLES AND UNDERGROUND UTILITIES. THE CONTRACTOR SHALL CALL J.U.L.I.E. TO AID IN THIS TASK.
- ALL NEW CABLE DUCT, CONDUIT AND APPURTENANCES ARE ILLUSTRATED DIAGRAMMATICALLY. THE ACTUAL LOCATION IN THE FIELD SHALL MEET THE APPROVAL OF THE ENGINEER.
- ALL SINGLE RUNS OF CABLE DUCT MAY BE PLOWED IN. MULTI-CABLE DUCT RUNS ARE TO BE INSTALLED IN COMMON TRENCH AND BACKFILLED.
- ALL PITS USED FOR INSTALLING PUSHED JACKED STEEL CONDUIT UNDER EXISTING ROADWAYS SHALL BE LOCATED FIVE FEET MINIMUM CLEAR FROM THE EDGE OF THE SHOULDER. LOCATIONS OF THE CONDUIT CROSSINGS SHOWN ARE APPROXIMATE. THE PITS MUST BE ADEQUATELY GUARDED TO PROTECT THE MOTORISTS AND PEDESTRIANS. THE CONTRACTOR MUST SUBMIT PLANS FOR THE LOCATIONS AND SIZE OF THE PITS AND MAINTENANCE AND PROTECTION OF TRAFFIC AT THE SITE FOR THE APPROVAL OF THE ENGINEER BEFORE EXCAVATING FOR ANY PITS.

SUMMARY OF QUANTITIES			
ITEM NO.	ITEM DESCRIPTION	UNITS	TOTAL QUANTITY
70101700	TRAFFIC CONTROL AND PROTECTION	L SUM	1
67100100	MOBILIZATION	L SUM	1
80300100	LOCATING UNDERGROUND CABLE	FOOT	2400
80400100	ELECTRIC SERVICE INSTALLATION	EACH	1
80400200	ELECTRIC UTILITY SERVICE CONNECTION	L SUM	1
80600200	GROUNDING ELECTRODE BG	EACH	9
81000700	CONDUIT IN TRENCH, 2 1/2" DIA.	FOOT	250
81500200	TR & BK FIL F ELECT WK	FOOT	1,900
81600410	UD 2#4XLP 1#4BG 1P	FOOT	1,650
81700375	EC C EPR RHW 3C #4#6G	FOOT	150
82102400	LUM SV HOR MT 400W	EACH	8
82500530	LT CONT CBRC 100-240	EACH	1
83050810	LT P A 47.5MH 15MA	EACH	8
83800505	BKWY DEV COU AL SKIRT	EACH	8
83600200	LIGHT POLE FDN 24D	FOOT	56
83600215	LIGHT POLE FDN 24D OS	FOOT	8
* 21101610	TOP SOIL, FURNISH & PLACE, 3"	SQ. YD.	350
* 25200100	SODDING	SQ. YD.	350

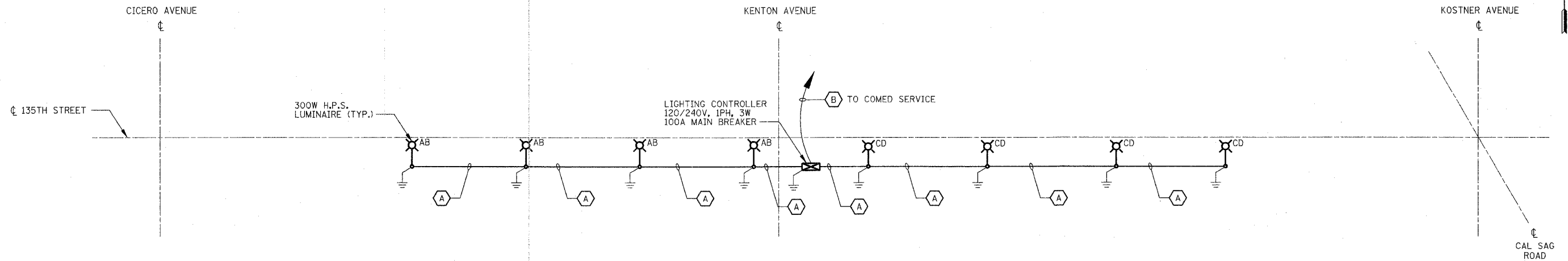
* SPECIFICITY ITEMS

FIXTURE SCHEDULE			
TAG	DESCRIPTION	VOLTAGE	CATALOG NO.
C1XXX	400W H.P.S. LUMINAIRE WITH CUTOFF OPTICS	240V - 1Ø	GE# MDCL40SOA22FMC31 AEL# 32540SCAMT2R3FG



LIGHTING CONTROLLER C1
(SEE DWG. E-3)

FEEDER SCHEDULE	
TAG	DESCRIPTION
A	2#4 & 1#4 GRD. - 1" UNIT DUCT
B	3#4 & 1#6 GRD. - 2 1/2" C



LIGHTING WIRING DIAGRAM

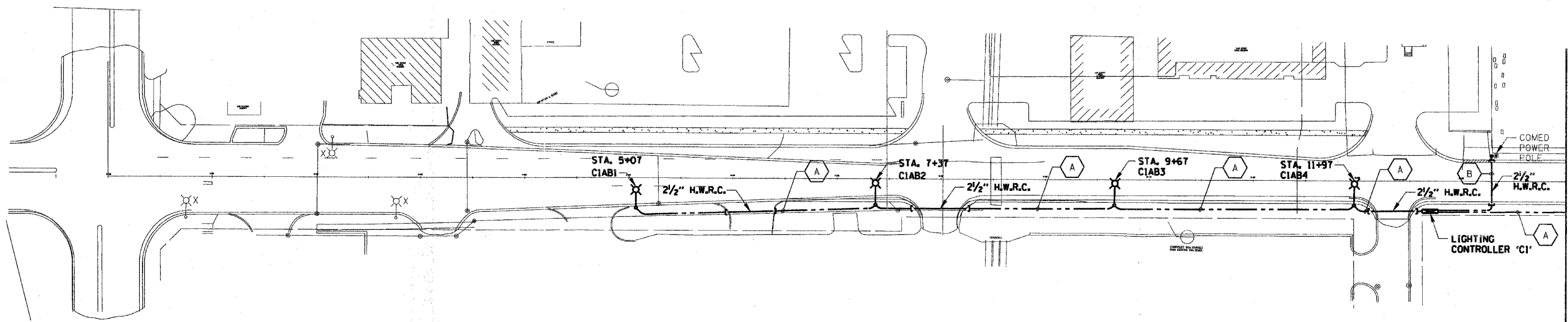
NOT TO SCALE

NOTE: CONTRACTOR SHALL OBTAIN AND VERIFY ALL DIMENSIONS AND CONDITIONS AT JOB SITE AND BE FULLY RESPONSIBLE FOR SAME.

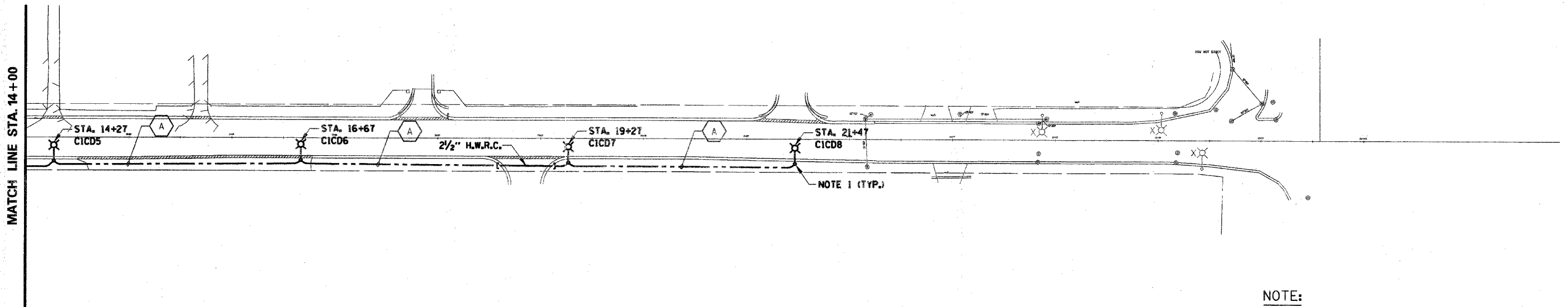
REVISIONS			REVISIONS			DRAWN	PREPARED	SEAL	PROJECT NO.
NO.	DATE	REMARKS	NO.	DATE	REMARKS				
						TRACED	APPROVED	 KNIGHT Engineers & Architects 221 North LaSalle Street Suite 300 Chicago, IL 60601-1211 Phone: (312) 577-3300	CRESTWOOD - 135th STREET LIGHTING
						CHECKED	APPROVED		SYMBOL LIST, GENERAL NOTES, SCHEDULES AND WIRING DIAGRAM
									DATE SHEET NO. E-1

FAP NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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STA. 0+00 TO		STA. 26+00		
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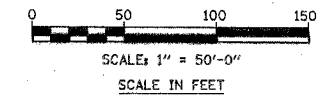
MATCH LINE STA. 14+00



MATCH LINE STA. 14+00

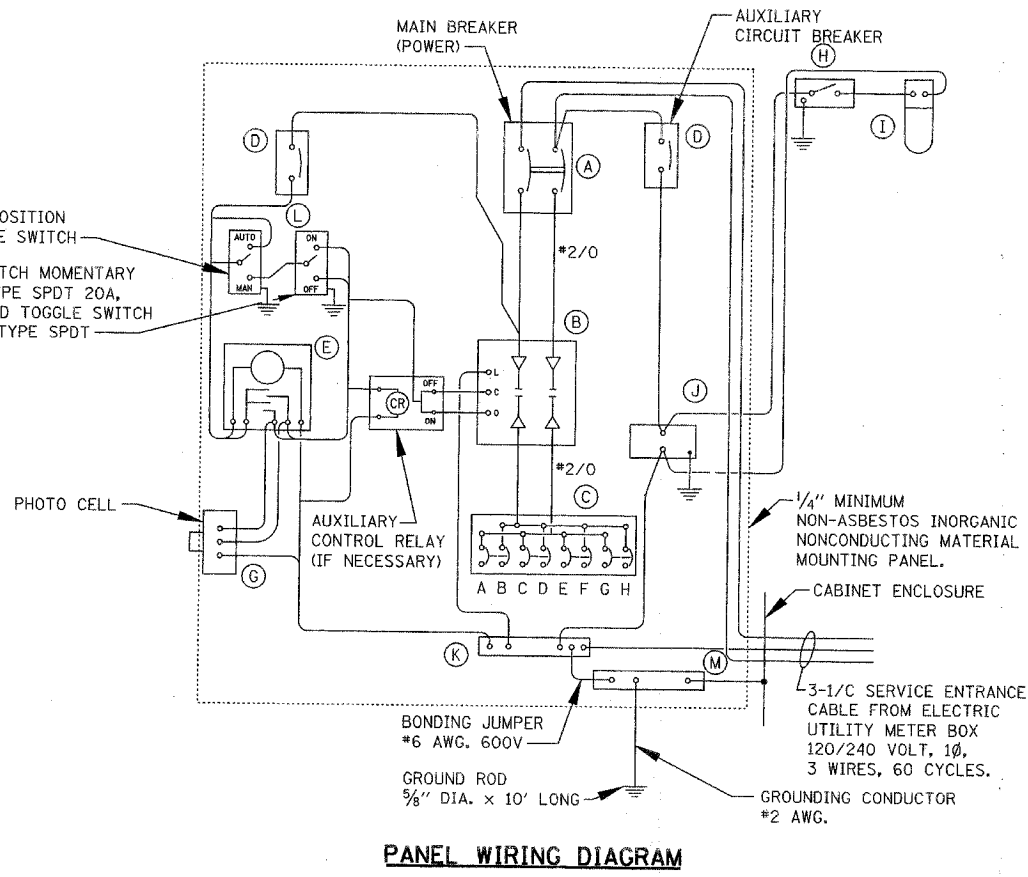
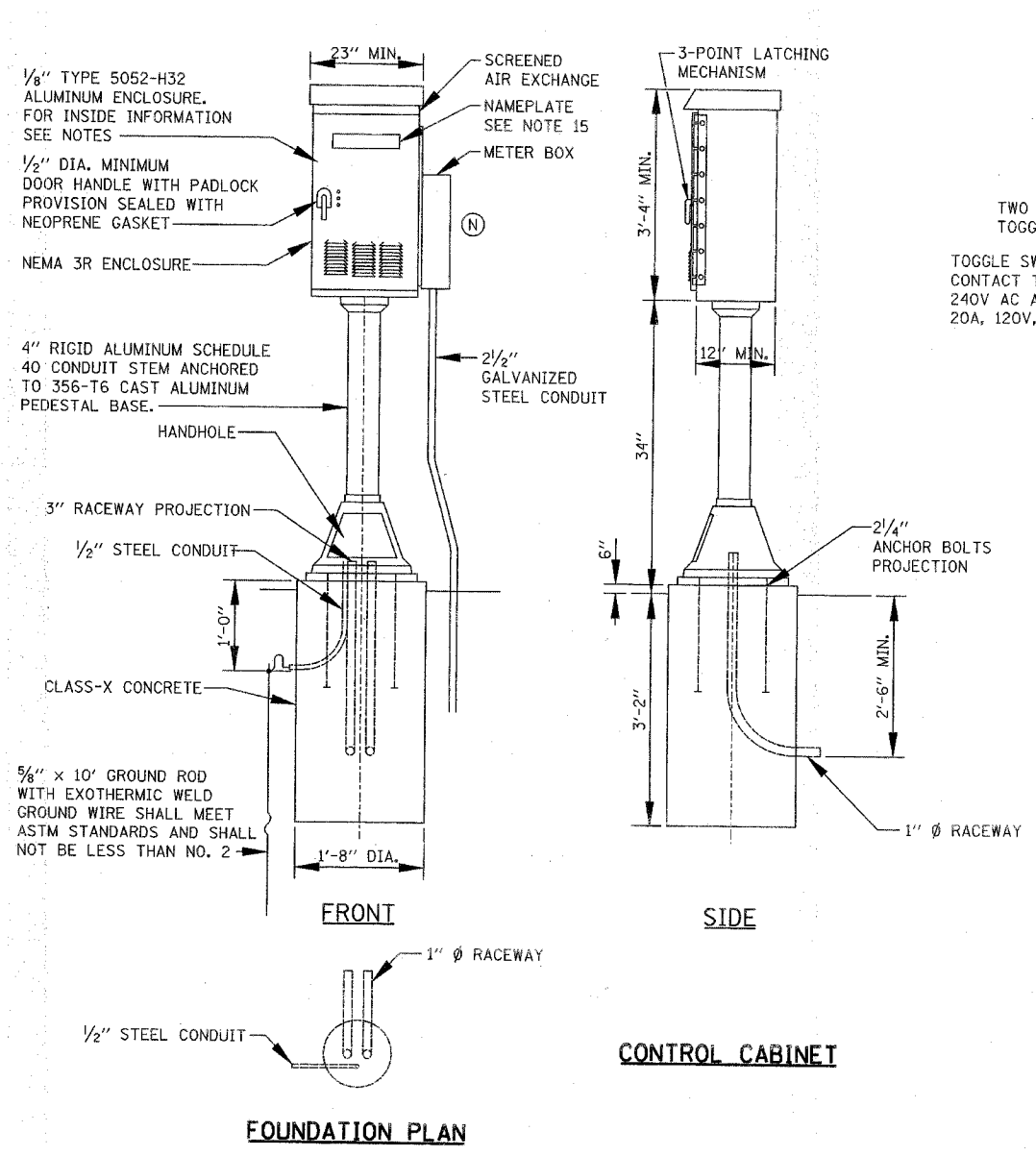
NOTE:

1. LIGHT POLE OFFSETS SHALL BE 2'-0" AS MEASURED FROM EDGE OF PAVEMENT.



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REVISIONS			REVISIONS			DRAWN TRACED	PREPARED APPROVED	SEAL OFF.	 KNIGHT Engineers & Architects 221 North LaSalle Street Suite 300 Chicago, IL 60601-1211 Phone: (312) 577-3300	CRESTWOOD - 135th STREET LIGHTING		PROJECT NO.
NO.	DATE	REMARKS	NO.	DATE	REMARKS					SITE DEVELOPMENT LIGHTING PLAN		DATE



PANEL EQUIPMENT

BILL OF MATERIAL		
ITEM	QUANTITY	DESCRIPTION
A	1	MAIN CIRCUIT BREAKER, 2 POLE, 600 VOLT, 100 AMP. FRAME, 100 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-22000 AMP. AT 240 VOLT.
B	1	REMOTE CONTROL SWITCH, ELECTRICALLY OPERATED, MECHANICALLY HELD, 2 POLE, SINGLE THROW, 100 AMP., 600 VOLTS CONTROL CIRCUIT 240 VOLT.
C	8	CIRCUIT BREAKERS, 2 POLE, 277V., 100 AMP., FRAME 30 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-10,000 AMP. AT 240 VOLT.
D	2	CONTROL CIRCUIT - CIRCUIT BREAKER, 1 POLE, 240V., 100 AMP. FRAME, 15 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-5,000 AMP. AT 120 VOLT.
E	1	ASTRONOMIC MICROPROCESSOR-BASED 2-CHANNEL CONTROLLER (TIME SWITCH).
F	1	20 A., 120 V. FUSE
G	1	PHOTO ELECTRIC CELL 120 VAC, 60 HZ
H	1	SPST 20A SWITCH ON DOOR, TO TURN LIGHT ON WHEN DOOR IS OPEN.
I	1	INCANDESCENT LIGHTING FIXTURE ENCLOSED AND GASKETED WITH 60 WATT, 120 V. LAMP.
J	1	20 A., 120 V., DUPLEX RECEPTACLE, GFCI.
K	1	COPPER GROUND BUS 1/4" x 1" x 12" LONG MOUNTED ON PANEL WITH LUGS AND 4 SPARE LUGS.
L	1	TOGGLE SWITCHES MOUNTED IN 4" x 4" BOX.
M	1	COPPER GROUND BUS 1/4" x 1" x 12" LONG MOUNTED ON PANEL WITH LUGS AND SPARE LUGS
N	1	METER CABINET WITH SOCKET IN NEMA 3R ENCLOSURE

NOTES:

- ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.
- UNLESS OTHERWISE INDICATED, THE CABINET SHALL BE MOUNTED ATOP A 4-INCH RIGID ALUMINUM SCHEDULE 40 CONDUIT STEM ANCHORED TO A CAST ALUMINUM PEDESTAL BASE.
- DOOR SHALL BE CONSTRUCTED FROM SAME TYPE OF MATERIAL AND THICKNESS AS CABINET.
- DOOR SHALL BE EQUIPPED WITH THREE POINT LATCHING MECHANISM WITH NYLON ROLLERS AT TOP AND BOTTOM.
- DOOR HINGE SHALL BE A HEAVY GAUGE CONTINUOUS HINGE WITH A 1/4" DIA. STAINLESS STEEL HINGE PIN.
- ALL EXTERNAL HARDWARE SHALL BE STAINLESS STEEL.
- CONTROL WIRING TO BE #12 AWG, 600V, TYPE "SIS" GRAY SWITCH BOARD WIRE, STRANDED COPPER.
- METER BOX SHALL BE MOUNTED ON THE SIDE OF CONTROL CABINET, NEAR TO THE SERVICE POLE.
- CABINETS SHALL BE PRIMED AND PAINTED BLACK.
- THE HEADS OF CONNECTORS SCREWS SHALL BE PAINTED WHITE FOR NEUTRAL BAR CONNECTION AND GREEN FOR GROUND BAR CONNECTION.
- ALL WIRING WITHIN THE CABINET SHALL BE COLOR CODED AS INDICATED.
R = RED BL = BLUE W = WHITE
B = BLACK Y = YELLOW G = GREEN
- PROVIDE SEALING GROMMETS FOR ALL OPEN WIRING EXTENDED FROM DEVICES IN BOXES OR CABINETS WITHIN THE CONTROL CABINET.
- ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.
- THE CONTROLLER SHALL BE CONSTRUCTED TO U.L. STD. 508 AND BEAR THE U.L. LABEL "ENCLOSED INDUSTRIAL CONTROL PANEL".
- 12" x 16" STAINLESS STEEL EXTERIOR NAMEPLATE SHALL BE ENGRAVED TO "VILLAGE OF CRESTWOOD LIGHTING CONTROLS".

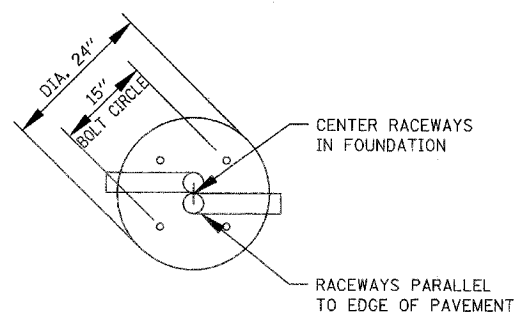
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NO.	DATE	REMARKS	NO.	DATE	REMARKS		OFF.				DATE
						TRACED	APPROVED				SHEET NO.
						CHECKED	APPROVED				E-3

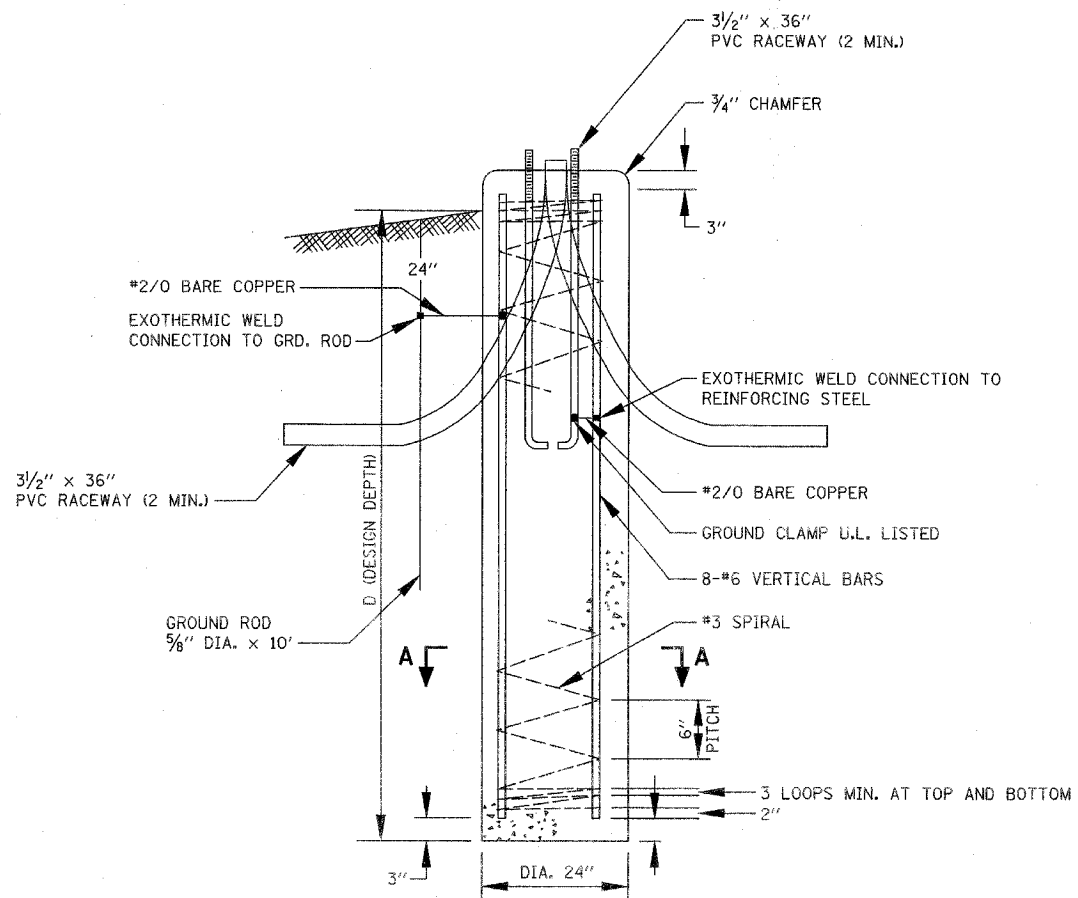
KNIGHT
Engineers & Architects
221 North LaSalle Street
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Chicago, IL 60601-1211
Phone: (312) 577-3300

LIGHT POLE FOUNDATION DEPTH TABLE
40 FT. TO 47.5 FT. MOUNTING HEIGHT

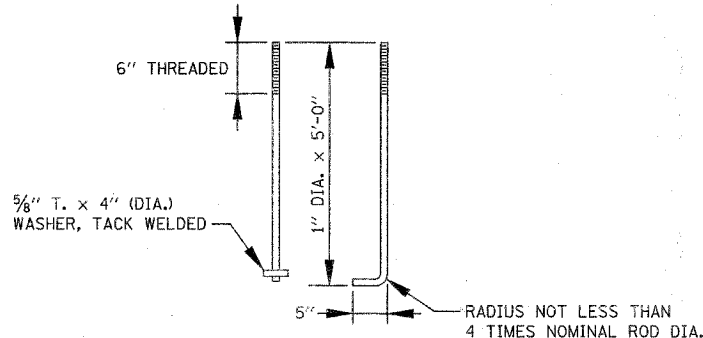
SOIL CONDITIONS	DESIGN DEPTH "D" OF FOUNDATION	
	SINGLE ARM POLE	TWIN ARM POLE
SOFT CLAY Ou = 0.375 TON/SQ. FT.	13'-0"	15'-0"
MEDIUM CLAY Ou = 0.75 TON/SQ. FT.	9'-6"	10'-9"
STIFF CLAY Ou = 1.50 TON/SQ. FT.	7'-0"	8'-0"
LOOSE SAND φ = 34°	9'-0"	10'-0"
MEDIUM SAND φ = 37.5°	8'-3"	9'-0"
DENSE SAND φ = 40°	7'-9"	9'-0"



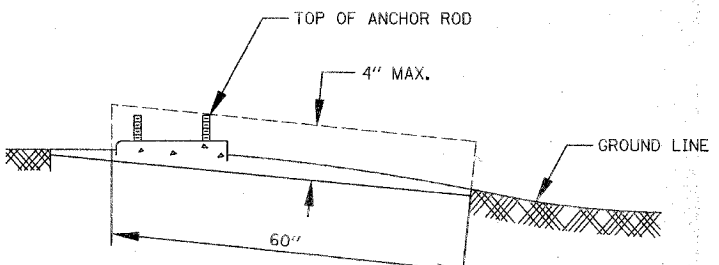
TOP VIEW



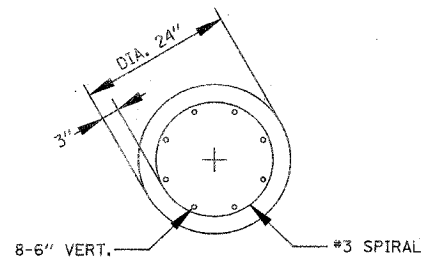
FOUNDATION DETAIL



ANCHOR ROD DETAIL



FOUNDATION EXTENSION DETAIL



SECTION A-A

NOTES:

- ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.
- THE ANCHOR RODS AND RACEWAYS SHALL BE PROPERLY SECURED IN PLACE BEFORE THE CONCRETE IS PLACED.
- THE FOUNDATION SHALL NOT PROTRUDE MORE THAN 4" ABOVE THE FINISHED GRADE WITHIN A 60" CHORD ACROSS THE FOUNDATION, WITH ANCHOR RODS INCLUDED. IN ACCORDANCE WITH AASHTO GUIDELINES. IF THE FOUNDATION HEIGHT, INCLUDING ANCHOR RODS, EXTENDS BEYOND THESE SPECIFIED LIMITS, THE FOUNDATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. SEE FOUNDATION EXPANSION DETAIL.
- THE HOLE FOR THE FOUNDATION SHALL BE MADE BY DRILLING WITH AN AUGER, OF THE SAME DIAMETER AS THE FOUNDATION, IF SOIL CONDITIONS REQUIRE THE USE OF A LINER TO FORM THE HOLE, THE LINER SHALL BE WITHDRAWN AS THE CONCRETE IS DEPOSITED.
- THE TOP OF THE FOUNDATION SHALL BE CONSTRUCTED LEVEL. A LINER OR FORM SHALL BE USED TO PRODUCE A UNIFORM SMOOTH SIDE TO THE TOP OF THE FOUNDATION. FOUNDATION TOP SHALL BE CHAMFERED 3/4".
- THE CONCRETE SHALL BE CLASS SI. CONCRETE SHALL CURE ACCORDING TO ARTICLE 1020.13 BEFORE LIGHT POLES ARE INSTALLED.
- THE ANCHOR ROD SHALL BE A HOOK ROD TYPE. COLD BENDING OF THE ANCHOR WILL NOT BE ALLOWED. THE RADIUS OF THE HOOK BEND SHALL NOT BE LESS THAN 4 TIMES THE NOMINAL DIAMETER OF THE ANCHOR ROD. A TACK WELDED ANCHOR ROD MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER.
- THE ANCHOR SHALL BE ACCORDING TO ASTM F1554 GRADE 725 (GRADE 105). NUTS SHALL BE HEXAGON NUTS ACCORDING TO ASTM A 194 2H OR ASTM A 563 DH, AND WASHERS SHALL BE ACCORDING TO ASTM F 436.
- ANCHOR RODS, NUTS AND WASHERS SHALL BE COMPLETELY GALVANIZED BY EITHER THE HOT-DIPPED PROCESS CONFORMING WITH AASHTO M 232. THE MECHANICAL PLATING METHOD CONFORMING TO AASHTO M 298, CLASS 50 WITH A MAXIMUM COATING THICKNESS OF 6 MILS OR THE ELECTROLYTIC PROCESS ACCORDING TO ASTM F 1136.
- THE ANCHOR RODS SHALL BE THREADED A MINIMUM OF 6" WITH A MINIMUM OF 3" OF THREADED ANCHOR ROD EMBEDDED IN THE FOUNDATION.
- ANCHOR RODS SHALL PROJECT 2 3/4" ABOVE THE TOP OF THE FOUNDATION. IF BREAKAWAY COUPLINGS ARE SPECIFIED, THE CONTRACTOR SHALL CAREFULLY COORDINATE THE ANCHOR ROD PROJECTION WITH THE INSTALLATION REQUIREMENTS OF THE BREAKAWAY COUPLINGS.
- THE CONTRACTOR SHALL USE A #3 SPIRAL AT 6" PITCH OR MAY SUBSTITUTE #3 TIES AT 12" O.C. WITH THE APPROVAL OF THE ENGINEER.
- THE CABLE TRENCHES AND FOUNDATION SHALL BE BACK FILLED AND COMPACTED AS SPECIFIED BEFORE THE LIGHT POLE IS ERECTED.
- THE RACEWAYS SHALL PROTECT 1" ABOVE THE TOP OF THE FOUNDATION.

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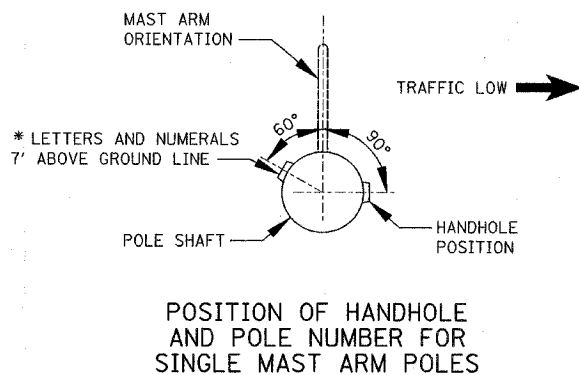
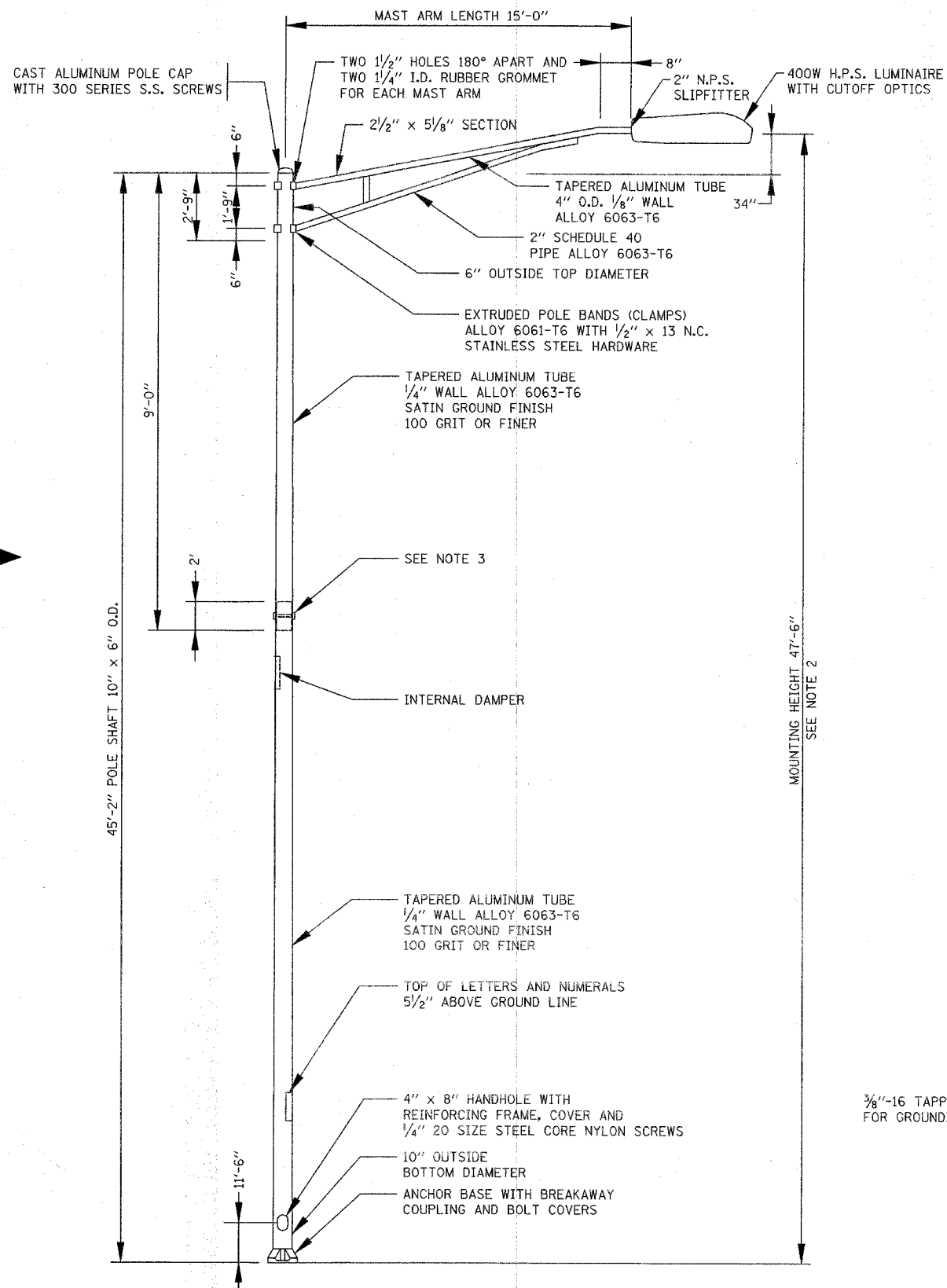
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CRESTWOOD - 135th STREET LIGHTING		PROJECT NO.
LIGHT POLE FOUNDATION 40'-0" TO 47'-6" M.H. 15" BOLT CIRCLE		DATE
		SHEET NO. E-4

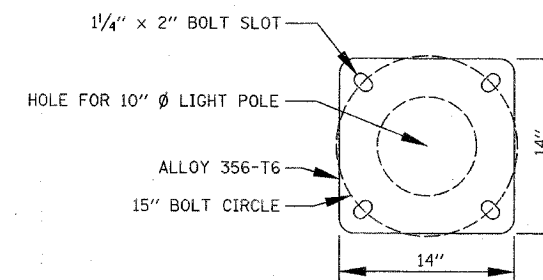
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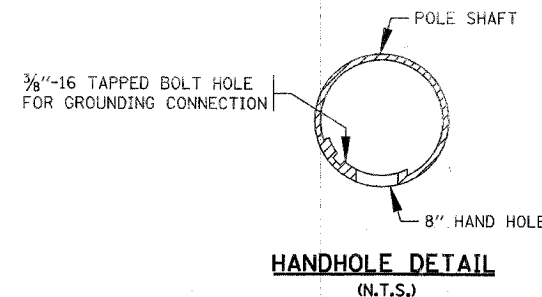


NOTES:

1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.
2. MOUNTING HEIGHT IS DEFINED AS THE DISTANCE FROM THE CENTER LINE OF THE TENON TO THE BOTTOM OF THE ANCHOR BASE.
3. TWO PIECE SHAFT SHALL BE MATCHED, MARKED AND INTERCHANGEABLE BETWEEN DIFFERENT UNITS. FIELD DRILLING OF THE HOLES WILL NOT BE ALLOWED.
4. THE LIGHT POLE SHALL MEET AASHTO DESIGN CRITERIA AS SPECIFIED.
5. THE INSTALLING CONTRACTOR SHALL PROVIDE A U.L. LISTED GROUNDING CONNECTOR, BURNDY K2C23, T&B SP4DL OR APPROVED EQUAL.
6. LIGHT POLES SHALL NOT BE INSTALLED WITHOUT MAST ARMS AND LUMINAIRES.
7. LIGHT POLES SHALL BE SET PLUMB ON THE FOUNDATION WITHOUT THE USE OF LEVELING NUTS, WASHERS OR SHIMS.
8. LIGHTING UNIT IDENTIFICATION NUMBERS SHALL BE INSTALLED BEFORE THE LIGHTING UNIT IS ENERGIZED.



LIGHT POLE BASE PLATE DETAIL
15 INCH BOLT CIRCLE



NOTE: CONTRACTOR SHALL OBTAIN AND VERIFY ALL DIMENSIONS AND CONDITIONS AT JOB SITE AND BE FULLY RESPONSIBLE FOR SAME.

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CRESTWOOD - 135th STREET LIGHTING

ALUMINUM LIGHT POLE
47'-6" MOUNTING HEIGHT

PROJECT NO.

DATE
SHEET NO.

E-5