

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

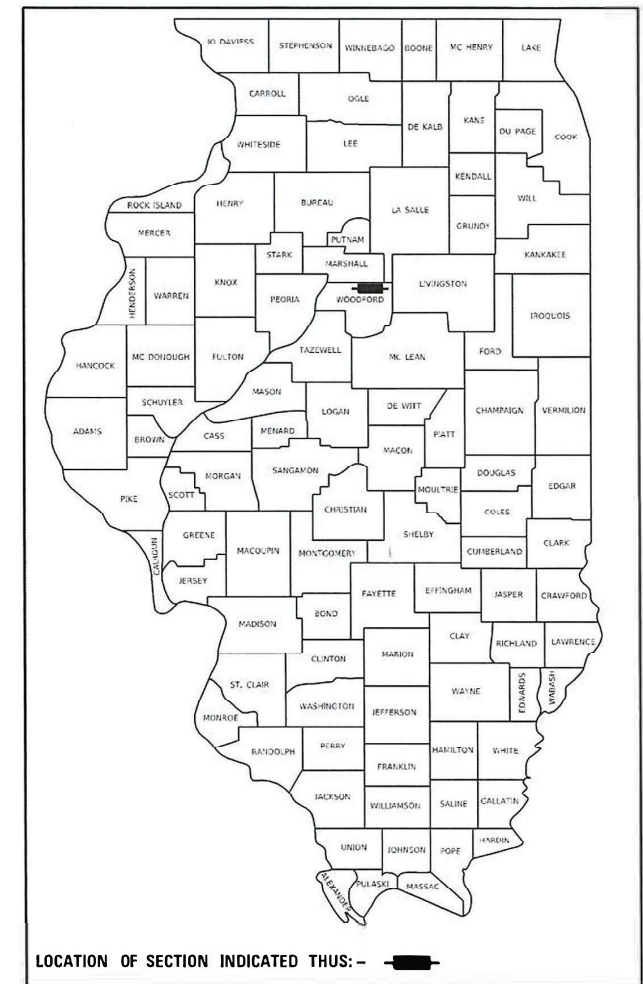
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4;X3-16RA)L	WOODFORD	15	1
ILLINOIS			CONTRACT NO. 68G22	

D-94-024-21

INDEX OF SHEETS:
SEE SHEET 2 FOR INDEX OF SHEETS

PROPOSED
HIGHWAY PLANS

FAI 39 (I-39)
FAI 74 (I-74)
SECTION (102-4;X3-16RA)L
WOODFORD COUNTY
PROJECT NUMBER: STP-NDIS(474)
C-94-039-21

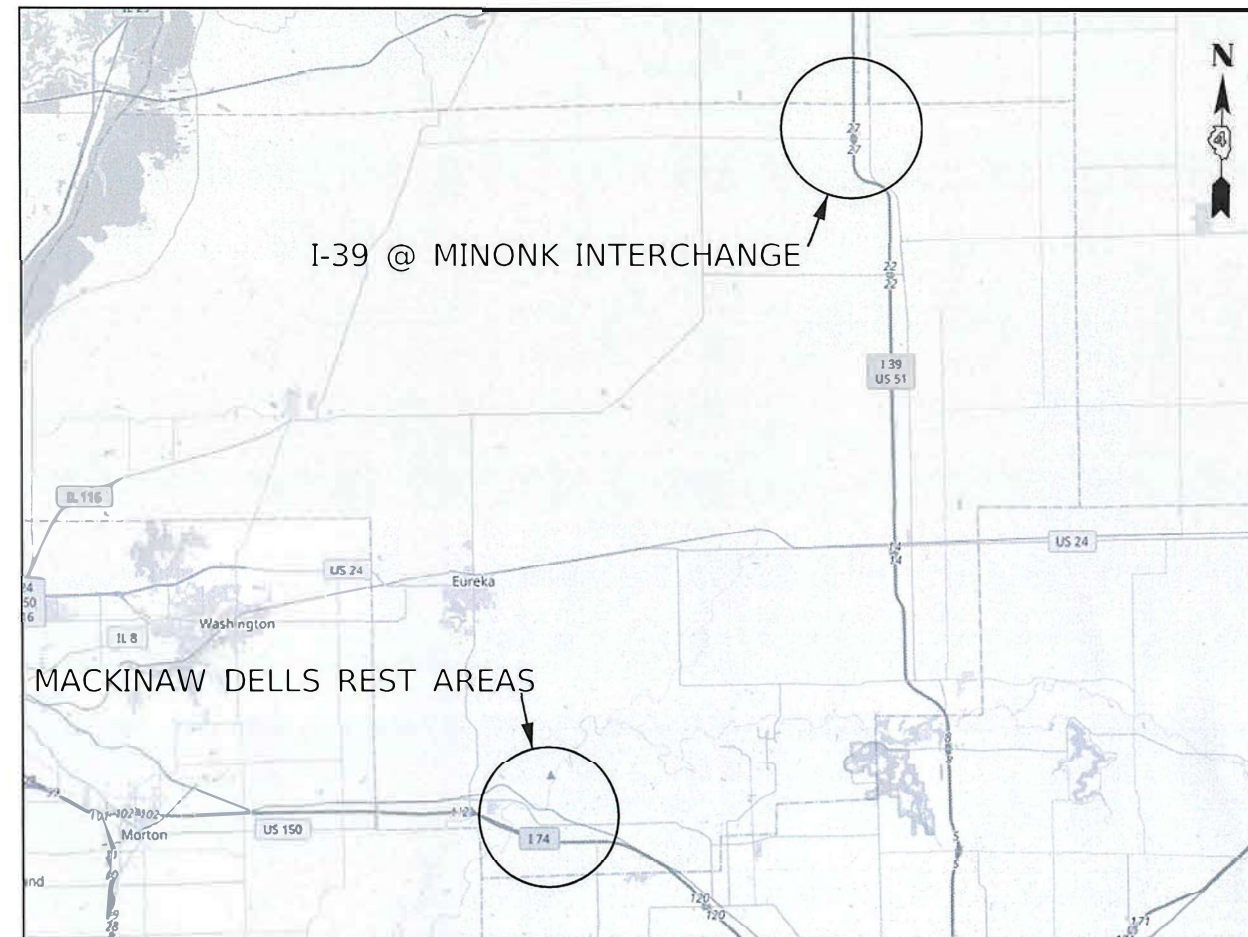


HIGHWAY STANDARDS:
SEE SHEET 2 FOR A LIST OF
APPLICABLE HIGHWAY STANDARDS

PROJECT DESCRIPTION:
REMOVAL OF EXISTING HIGH MAST
TOWERS AND INSTALLATION OF NEW
LIGHTING SYSTEM AT I-39 @ MINONK
INTERCHANGE, I-74 WB MACKINAW
DELLS REST AREA, AND I-74 EB
MACKINAW DELLS REST AREA.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS
1-800-892-0123
OR 811

PROJECT ENGINEER : ERIC HOWALD (309) 671-4481
PROJECT MANAGER : BEN TELLEFSON (309) 671-4477
CATALOG NO. 036154-00D
CONTRACT NO. 68G22



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED January 20 2021
[Signature]
REGIONAL ENGINEER

March 19, 2021 [Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

March 19, 2021 [Signature]
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

NO COMMITMENTS HAVE BEEN MADE IN CONJUNCTION WITH THIS PROJECT.

INDEX OF SHEETS	
SHEET	DESCRIPTION
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2	COMMITMENTS, INDEX OF SHEETS, HIGHWAY STANDARDS, AND TRAFFIC CONTROL NOTES
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14	PROPOSED LUMINAIRE PERFORMANCE TABLES - MACKINAW DELLS REST AREAS (EB & WB) - WOODFORD COUNTY
15	PROPOSED LIGHTING CONTROLLER DETAIL - MACKINAW DELLS REST AREAS (EB & WB) - WOODFORD COUNTY

HIGHWAY STANDARDS	
STANDARD	APPLICATION
000001-08	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
001006	DECIMAL OF AN INCH AND OF A FOOT
701001-02	OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-05	OFF-ROAD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701101-05	OFF-ROAD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE
701106-02	OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701426-09	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS ≥ 45 MPH
701451-05	RAMP CLOSURE, FREEWAY/ EXPRESSWAY
701456-05	PARTIAL EXIT RAMP CLOSURE FREEWAY / EXPRESSWAY
701901-08	TRAFFIC CONTROL DEVICES
814001-03	HANDHOLES
821101-02	LUMINAIRE WIRING IN POLE
830021-03	LIGHT POLE STEEL TENON TOP
836001-04	LIGHT POLE FOUNDATION
838001-01	BREAKAWAY DEVICES

TRAFFIC CONTROL NOTES:

I-39 MAINLINE:

- USE STD. 701301, ONE ADDITIONAL FLAGGER SHALL BE REQUIRED FOR APPROACHING TRAFFIC ON THE EXIT RAMP WITHIN THE LANE CLOSURE. THIS COST IS INCIDENTAL TO STD. 701301.

I-39 RAMPS:

- THE CONTRACTOR SHALL GIVE 14 DAYS ADVANCE NOTICE PRIOR TO STARTING WORK ON THE RAMPS.
- STD. 701451 SHALL BE USED TO CLOSE THE RAMPS.
- STD. 701426 SHALL BE USED TO CLOSE THE DRIVING LANE OF MAINLINE I-39 DURING REMOVAL OF THE TWO TOWERS LOCATED AT GORE AREAS ALONG I-39.

MACKINAW DELLS REST AREAS:

- THE CONTRACTOR SHALL NOTIFY BRITTANY GAVIN, D4 ROADSIDE MANAGER, (309-671-4479) 7 DAYS PRIOR TO TOWER REMOVAL.
- PARKING SPACES AFFECTED BY THE TOWER REMOVAL AND INSTALLATION WORK SHALL BE BARRELLED OFF 24 HOURS PRIOR TO STARTING THE WORK. THE COST OF THIS WORK SHALL BE INCIDENTAL TO THE TOWER REMOVAL AND INSTALLATION.

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**COMMITMENTS, INDEX OF SHEETS, HIGHWAY STANDARDS,
AND TRAFFIC CONTROL NOTES**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4:X3-16RA)L	WOODFORD	15	2
			CONTRACT NO. 68G22	
		ILLINOIS FED. AID PROJECT		

CONSTRUCTION NOTES

1. THE LOCATION OF ALL UTILITIES AND PRIVATELY OWNED FACILITIES SHALL BE FIELD VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO THE INSTALLATION OF ANY COMPONENTS.
2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING IDOT ELECTRICAL FACILITIES AT HIS/HER OWN EXPENSE IF REQUIRED. THE GENERAL CONTRACTOR SHALL ALSO BE LIABLE FOR ANY DAMAGE TO IDOT FACILITIES RESULTING FROM INACCURATE LOCATING.
3. ELECTRICAL WORK SHALL CONFORM WITH NATIONAL, STATE, AND LOCAL CODES.
4. THE LOCATIONS FOR LIGHT POLES ARE PROVIDED FOR REFERENCE ONLY. THE ENGINEER OF TRAFFIC SHALL BE NOTIFIED FOR LOCATION VERIFICATION BEFORE INSTALLATION.
5. ALL HIGHWAY LIGHTING STRUCTURES SHALL BE BONDED IN ACCORDANCE WITH NEC REQUIREMENTS. THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR "UNIT DUCT, 600V, 2-1C NO.6, 1/C NO.8 GROUND, (XLP-TYPE USE), 1" DIA. POLYETHYLENE" AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS (INCLUDING CLAMPS, HARDWARE, ELECTRICAL CABLE, AND ALL OTHER ITEMS REQUIRED TO BOND THE STRUCTURES.)
6. THE CONTRACTOR SHALL PROVIDE ELECTRICAL CABLE SLACK IN ACCORDANCE WITH ARTICLE 873.03.
7. ELECTRICAL CABLE WILL BE MEASURED FOR PAYMENT IN ACCORDANCE WITH ARTICLE 817.04.
8. POTHOLING TO LOCATE EXISTING UNDERGROUND UTILITIES SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR THE UNIT-DUCT PAY ITEM.
9. ALL SURPLUS MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS.
10. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR PLACING UNIT-DUCT OR CONDUIT AT GREATER THAN 2 FT. MINIMUM DEPTH TO AVOID OBSTACLES SUCH AS UNDERGROUND UTILITIES.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF UNCOVERING OR HAND DIGGING AROUND UTILITIES AS NECESSARY. THIS COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICES FOR THE UNIT-DUCT AND CONDUIT.
12. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BIDDING. THERE WILL BE NO ADDITIONAL COMPENSATION PAID FOR CLAIMS THAT ARISE FROM A FAILURE TO FULLY INVESTIGATE EXISTING FIELD CONDITIONS.
13. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING LIGHTING SYSTEM COMPLETELY (LIGHT POLES, HIGH MAST LIGHT TOWERS, CONCRETE AND METAL FOUNDATIONS, LUMINAIRES, WIRING, ETC.) AS SHOWN IN THE PLANS. THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "REMOVE EXISTING LIGHTING SYSTEM."
14. THE CONTRACTOR SHALL FURNISH AND INSTALL NEW FUSEHOLDERS, FUSES, SURGE ARRESTORS, AND LUMINAIRE WIRING INSIDE THE POLE. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE OF THE PROPOSED LUMINAIRES.
15. THE CONTRACTOR SHALL DISPOSE OF THE EXISTING LIGHT POLES, HIGH MAST LIGHT TOWERS, CONCRETE AND METAL FOUNDATIONS, LUMINAIRES, WIRING, ETC. OFF THE JOB SITE. THE SALVAGE COST OF THESE ITEMS SHALL BE INCLUDED IN THE BID PRICES FOR "REMOVE EXISTING LIGHTING SYSTEM."
16. COILABLE POLYETHYLENE DUCT MAY BE SUBSTITUTED FOR PVC PUSHED OR TRENCHED.
17. THE EXISTING LIGHTING SYSTEM SHALL REMAIN IN OPERATION UNTIL THE PROPOSED LIGHTING SYSTEM IS FULLY OPERATIONAL.
18. THE COST OF THE PROPOSED 1.0 FT. LUMINAIRE ARM SHALL BE INCLUDED IN THE COST OF THE PROPOSED LIGHT POLE.
19. THE CONTRACTOR SHALL REMOVE EXISTING METAL HELIX FOUNDATIONS BY EXCAVATING 36", CUTTING THE FOUNDATION, AND BACKFILLING AS REQUIRED TO MATCH THE EXISTING GRADE. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR "REMOVE EXISTING LIGHTING SYSTEM."
20. THE COST OF THE CONDUIT AND SERVICE CABLES, INCLUDING GROUNDING CABLE AND HARDWARE, FROM THE DISCONNECT TO THE LIGHTING CONTROLLER SHALL BE INCLUDED IN THE COST OF THE PROPOSED ELECTRIC SERVICE.
21. THE CONTRACTOR SHALL REMOVE EXISTING CONCRETE LIGHT TOWER FOUNDATIONS IN ACCORDANCE WITH ARTICLE 895.05 OF THE STANDARD SPECIFICATIONS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR "REMOVE EXISTING LIGHTING SYSTEM."
22. THE CONTRACTOR SHALL AIM THE PROPOSED LIGHT TOWER LUMINAIRES TO MATCH THE EXISTING.
23. THE PROPOSED REST AREA LIGHT TOWER SHALL BECOME COMPLETELY OPERATIONAL THE SAME DAY EXISTING TOWER IS REMOVED WITHOUT INTERRUPTION TO REST AREA LIGHTING.

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PLOT DATE = 1/29/2021	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

CONSTRUCTION NOTES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4;X3-16RA)L	WOODFORD	15	3
			CONTRACT NO. 68G22	
		ILLINOIS	FED. AID PROJECT	

SUMMARY OF QUANTITIES

WOODFORD COUNTY
CONST. TYPE
CODE 0021
90% FEDERAL
10% STATE
OVERHEAD LIGHTING
RURAL

CODE	ITEM DESCRIPTION	UNIT	TOTAL QTY.	
67100100	MOBILIZATION	L SUM	1.0	1.0
80400100	ELECTRIC SERVICE INSTALLATION	EACH	1.0	1.0
81028350	UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	615.0	615.0
81028360	UNDERGROUND CONDUIT, PVC, 2 1/2" DIA.	FOOT	70.0	70.0
81400700	HANDHOLE, PORTLAND CEMENT CONCRETE	EACH	1.0	1.0
81603040	UNIT DUCT, 600V, 2-1C NO.6, 1/C NO.8 GROUND, (XLP-TYPE USE), 1" DIA. POLYETHYLENE	FOOT	8664.0	8664.0
82110008	LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H	EACH	14.0	14.0
82110009	LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION I	EACH	10.0	10.0
82500330	LIGHTING CONTROLLER, PEDESTAL MOUNTED, 240VOLT, 60AMP	EACH	1.0	1.0
82500430	LIGHTING CONTROLLER, WALL MOUNTED, 240VOLT, 100AMP	EACH	2.0	2.0
83060830	LIGHT POLE, GALVANIZED STEEL, 45 FT. M.H., TENON MOUNT	EACH	24.0	24.0
83600356	LIGHT POLE FOUNDATION, METAL, 15" BOLT CIRCLE, 8 5/8" X 6'	EACH	24.0	24.0
83800650	BREAKAWAY DEVICE, COUPLING WITH STAINLESS STEEL SCREEN	EACH	96.0	96.0
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1.0	1.0
X8210402	LUMINAIRE MOUNTING BRACKET - SPECIAL	EACH	24.0	24.0

NOT TO SCALE

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PLOT DATE = 1/29/2021	DATE -	REVISED +

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
99 / 74	(102-4;X3-16RA)L	WOODFORD	15	4
			CONTRACT NO. 68G22	
ILLINOIS FED. AID PROJECT				



BILL OF MATERIALS		
DESCRIPTION	UNIT	QTY.
REMOVE EXISTING LIGHTING SYSTEM	L SUM	1.0

REMOVE EXISTING EXISTING LIGHTING SYSTEM - QTY. 1 LUMP SUM (INCLUDES ALL ITEMS LISTED BELOW)
 THE FOLLOWING ITEMS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR OFF OF THE RIGHT-OF-WAY:

I-39 @ MINONK INTERCHANGE	
QTY.	ITEM
1.0	LIGHTING CONTROLLER CABINET (RE-USE EX. FOUNDATION)
1.0	ELECTRICAL SERVICE INSTALLATION
4.0	TOWER LIGHTING STRUCTURE, COMPLETE WITH 4 HIGH MAST LUMINAIRES
4.0	TOWER LIGHTING CONCRETE FOUNDATION (PARTIAL REMOVAL IN ACCORDANCE WITH ARTICLE 895.05)
4.0	LIGHT POLE, WEATHERING STEEL, WITH HPS LUMINAIRE
9.0	METAL HELIX FOUNDATION (SEE NOTE)
I-74 EB - MACKINAW DELLS REST AREA	
QTY.	ITEM
8.0	HIGH MAST LUMINAIRES
1.0	LIGHTING CONTROLLER (LOCATED IN REST AREA BASEMENT)
I-74 WB - MACKINAW DELLS REST AREA	
QTY.	ITEM
1.0	TOWER LIGHTING STRUCTURE, COMPLETE WITH 8 HIGH MAST LUMINAIRES
1.0	TOWER LIGHTING CONCRETE FOUNDATION (PARTIAL REMOVAL IN ACCORDANCE WITH ARTICLE 895.05)
1.0	LIGHTING CONTROLLER (LOCATED IN REST AREA BASEMENT)

ALL EXISTING UNIT-DUCT SHALL BE ABANDONED IN PLACE.
 ALL EXISTING ELECTRICAL WIRES SHALL BE REMOVED FROM CONDUITS AND THE CONDUITS SHALL BE ABANDONED IN PLACE.

EXISTING METAL HELIX FOUNDATIONS SHALL BE REMOVED BY EXCAVATING 36", CUTTING THE FOUNDATION OFF, AND BACKFILLING AS REQUIRED TO MATCH THE EXISTING GRADE.

"R" INDICATES REMOVAL ITEM

LEGEND	
	EXISTING LIGHTING CONTROLLER AND CONCRETE FOUNDATION
	EXISTING ELECTRICAL SERVICE
	EXISTING 50' MH LIGHT POLE (WEATHERING STEEL) AND METAL HELIX FOUNDATION
	EXISTING TOWER LIGHTING STRUCTURE AND CONCRETE FOUNDATION
	EXISTING CONDUIT

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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

EXISTING LIGHTING PLANS & REMOVAL ITEMS
 I-39 & CR 2200 N (EXIT 27) INTERCHANGE - WOODFORD COUNTY

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4;X3-16RA)L	WOODFORD	15	5
CONTRACT NO. 68G22			ILLINOIS FED. AID PROJECT	



"R" INDICATES REMOVAL ITEM

LEGEND



EXISTING TOWER LIGHTING STRUCTURE AND CONCRETE FOUNDATION

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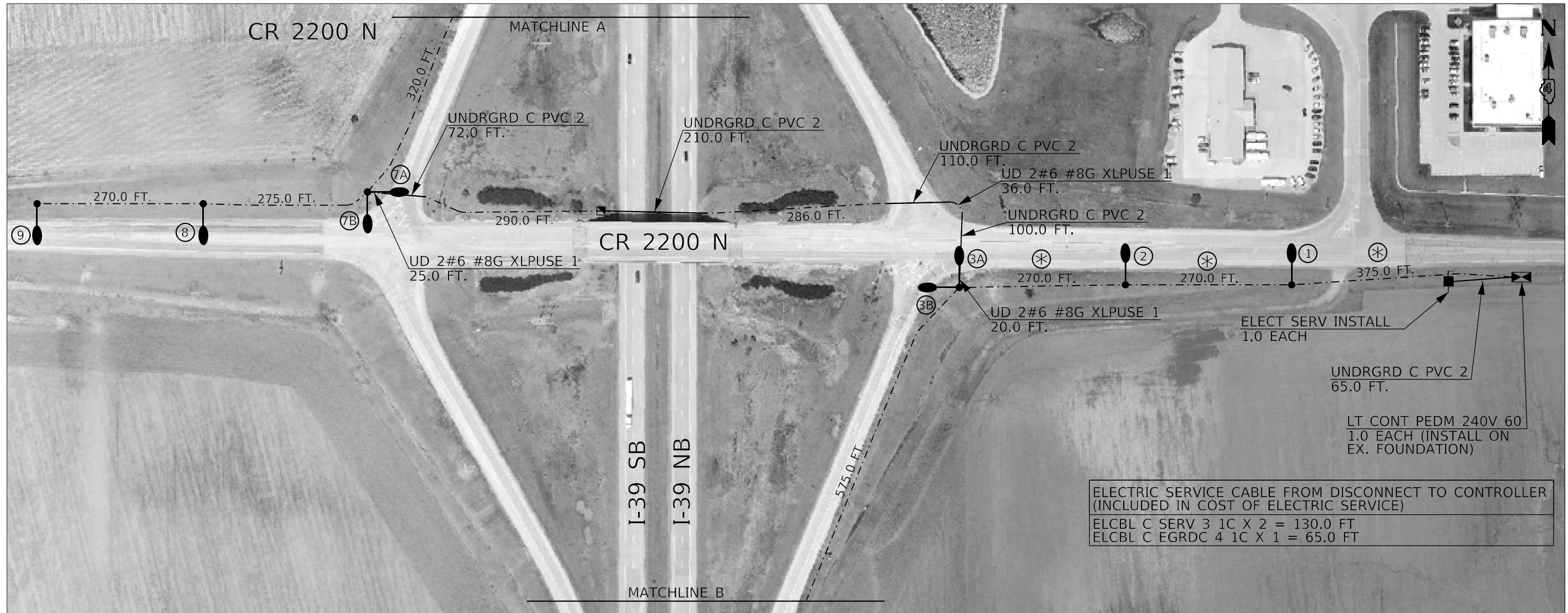
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**EXISTING LIGHTING PLANS & REMOVAL ITEMS - CONTINUED
I-39 & CR 2200 N (EXIT 27) INTERCHANGE - WOODFORD COUNTY**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4;X3-16RA)L	WOODFORD	15	6
CONTRACT NO. 68G22				
		ILLINOIS	FED. AID PROJECT	



ELECTRIC SERVICE CABLE FROM DISCONNECT TO CONTROLLER
(INCLUDED IN COST OF ELECTRIC SERVICE)
 ELCBL C SERV 3 1C X 2 = 130.0 FT
 ELCBL C EGRDC 4 1C X 1 = 65.0 FT

LEGEND

- PROPOSED LIGHTING CONTROLLER, PEDESTAL MOUNT (ON EX. FOUNDATION)
- PROPOSED 50' MH LIGHT POLE (GALVANIZED STEEL, TENON-MOUNT) AND LED LUMINAIRE
- PROPOSED 50' MH LIGHT POLE (GALVANIZED STEEL, TENON-MOUNT, TWIN) AND LED LUMINAIRES
- PROPOSED LIGHT POLE NUMBER
- PROPOSED PVC CONDUIT
-
-
-

BILL OF MATERIALS		
DESCRIPTION	UNIT	QTY.
ELECTRIC SERVICE INSTALLATION	EACH	1.0
UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	557.0
UNIT DUCT, 600V, 2-1C NO.6, 1/C NO.8 GROUND, (XLP-TYPE USE), 1" DIA. POLYETHYLENE	FOOT	2589.0
UNIT DUCT, 600V, 4-1C NO.6, 1/C NO.6 GROUND, (XLP-TYPE USE), 1 1/4" DIA. POLYETHYLENE	FOOT	915.0
LIGHTING CONTROLLER, PEDESTAL MOUNTED, 240VOLT,	EACH	1.0
LIGHT POLE, GALVANIZED STEEL, 50 FT. M.H., TENON MOUNT	EACH	4.0
LIGHT POLE, GALVANIZED STEEL, 50 FT. M.H., TENON MOUNT-	EACH	2.0
LIGHT POLE FOUNDATION, METAL, 15" BOLT CIRCLE, 8 5/8" X	EACH	6.0
BREAKAWAY DEVICE, COUPLING WITH STAINLESS STEEL	EACH	24.0
LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H	EACH	8.0
LUMINAIRE MOUNTING BRACKET - SPECIAL	EACH	6.0

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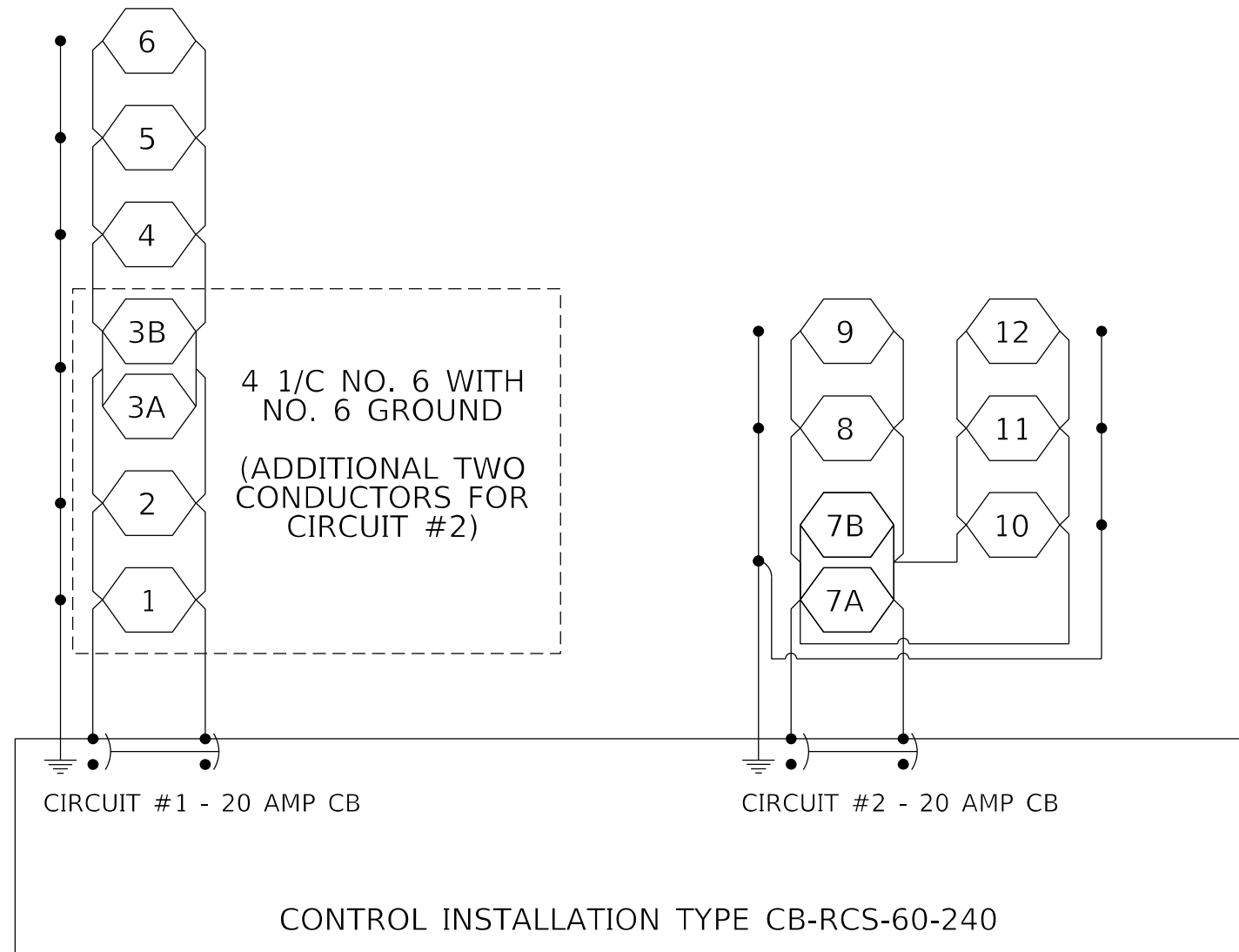
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DEPARTMENT OF TRANSPORTATION

PROPOSED LIGHTING PLANS
I-39 & CR 2200 N (EXIT 27) INTERCHANGE - WOODFORD COUNTY

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE. 39 / 74	SECTION (102-4(X)3-16RA)L	COUNTY WOODFORD	TOTAL SHEETS 15	SHEET NO. 7
ILLINOIS FED. AID PROJECT			CONTRACT NO. 68G22	



LEGEND



PROPOSED LUMINAIRE, LED, ROADWAY,
OUTPUT DESIGNATION H (POLE NUMBER)

ALL CIRCUITS 2 1/C NO. 6 WITH NO. 8 GROUND UNLESS INDICATED OTHERWISE

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**PROPOSED CIRCUIT DIAGRAM
I-39 & CR 2200 N (EXIT 27) INTERCHANGE - WOODFORD COUNTY**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4;X3-16RA)L	WOODFORD	15	9
CONTRACT NO. 68G22			ILLINOIS FED. AID PROJECT	

NOTE: PERFORMANCE VALUES MAY BE ROUNDED UP TO ONE SIGNIFICANT DIGIT.



Luminaire Performance Table



Project

Date	Contract Number	Section Number	County
01/26/21	68G22	(102-4;X3-16RA)L	Woodford

Marked Route Number	Municipality
I-39	

Roadway

Lane Width	# of Lanes	Median Width	I.E.S. Surface Classification	Q-Zero Value
12 Ft.	2	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
50	15	24	N/A

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution
LED, OUTPUT DESIGNATION H	Type III	Medium

Total Light Loss Factor (LLF)	B-U-G Rating	Shields	Dimming Protocol
0.684	U = 0	N/A	0-10V

Layout

Spacing (to Nearest 5 ft)	Configuration (Opposite, Staggered, 1 Sided, or Median)
260 Ft.	One Sided

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}

Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_v/L_{AVE}
0.6	3.5	6.0	0.30

Light Tresspass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_v
N/A	N/A	N/A

Notes

- Set-Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
- Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to the roadway.
- Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
- Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

Printed 01/26/21

BDE 5650 (04/10/19)

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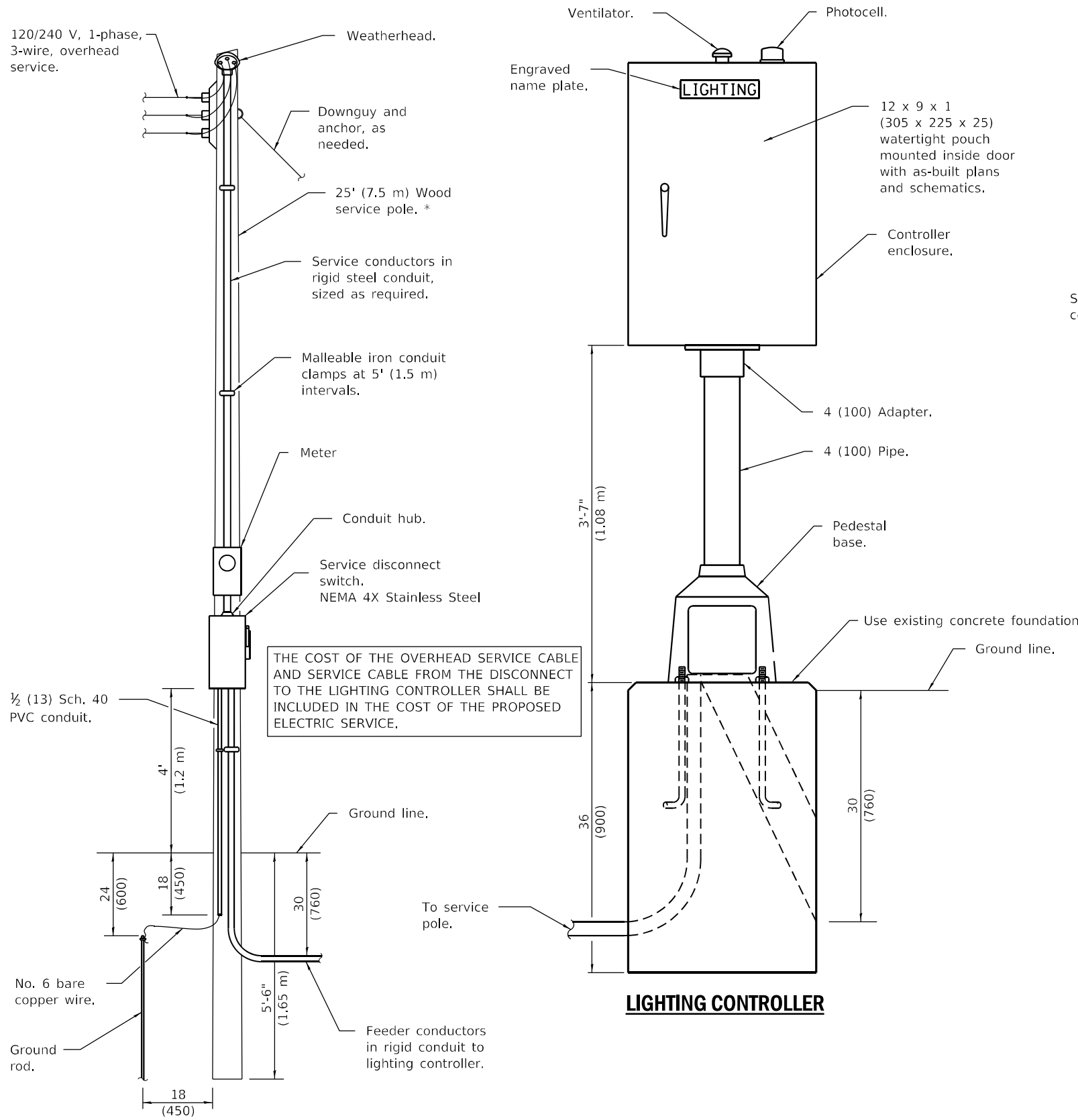
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	DRAWN -	REVISED -
PLOT SCALE = 165.0762' / in.	CHECKED -	REVISED -
PLOT DATE = 1/29/2021	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED LUMINAIRE PERFORMANCE TABLE
I-39 & CR 2200 N (EXIT 27) INTERCHANGE - WOODFORD COUNTY

SCALE: SHEET OF SHEETS STA. TO STA.

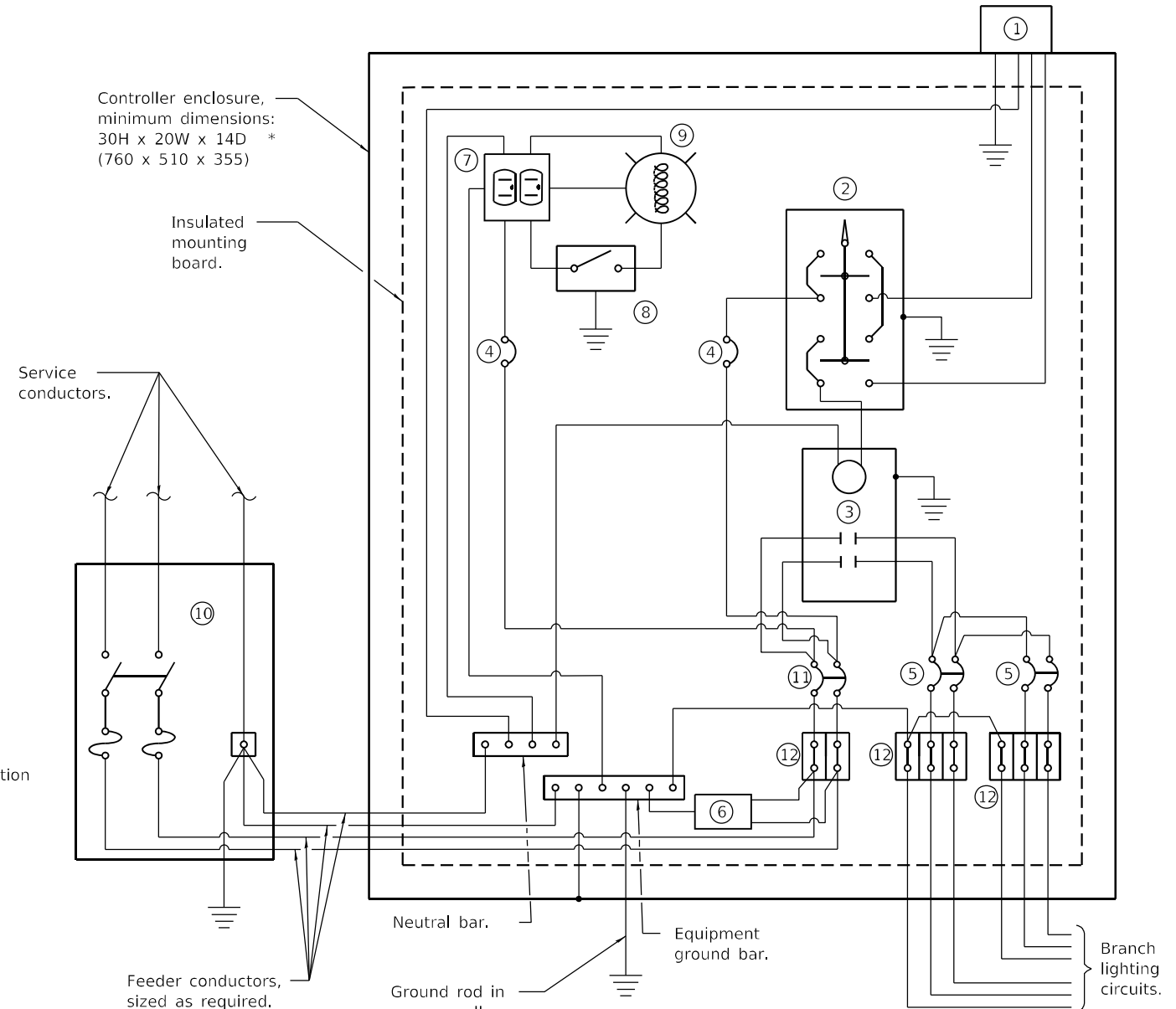
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4;X3-16RA)L	WOODFORD	15	10
CONTRACT NO. 68G22				
ILLINOIS FED. AID PROJECT				



THE COST OF THE OVERHEAD SERVICE CABLE AND SERVICE CABLE FROM THE DISCONNECT TO THE LIGHTING CONTROLLER SHALL BE INCLUDED IN THE COST OF THE PROPOSED ELECTRIC SERVICE.

ELECTRIC SERVICE INSTALLATION

(Typical overhead service shown. Cut pole off for underground service and treat cut surface with preservative. Consult utility company standards for exact requirements.)
 * Size larger as needed.



CONTROL SCHEMATIC

- ① Photocell with integral surge arrester.
 - ② HAND-OFF-AUTO selector switch.
 - ③ 60 amp*, electrically held contactor.
 - ④ 15 amp, 1-pole circuit breaker.
 - ⑤ 20 amp*, 2-pole circuit breaker (QTY 2.0 PLUS 2 SPARE).
 - ⑥ Surge arrester.
 - ⑦ GFCI duplex receptacle.
 - ⑧ Single-pole, single-throw switch.
 - ⑨ LED light bulb, enclosed and gasketed with 800 lumen lamp.
 - ⑩ Service disconnect switch - 2-pole, 3-wire, 60 amp*, fused at 60 amp*, solid neutral in NEMA 4X enclosure having lockable external handle.
 - ⑪ 60 amp*, 2-pole circuit breaker.
 - ⑫ Terminal block sized for conductors as shown on plans.
- * Size larger as needed.

All dimensions are in inches (millimeters) unless otherwise shown.

MODEL Path: S:\CEN\W\WOOD\DESIGN\AN\barson\68G22_139_@_Mhank Lighting (Final 12-21-21).dgn

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PLOT SCALE = 165,0762' / in.	DRAWN -	REVISED -
PLOT DATE = 1/29/2021	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

PROPOSED LIGHTING CONTROLLER DETAIL
I-39 & CR 2200 N (EXIT 27) INTERCHANGE - WOODFORD COUNTY
 SCALE: SHEET OF SHEETS STA. TO STA.

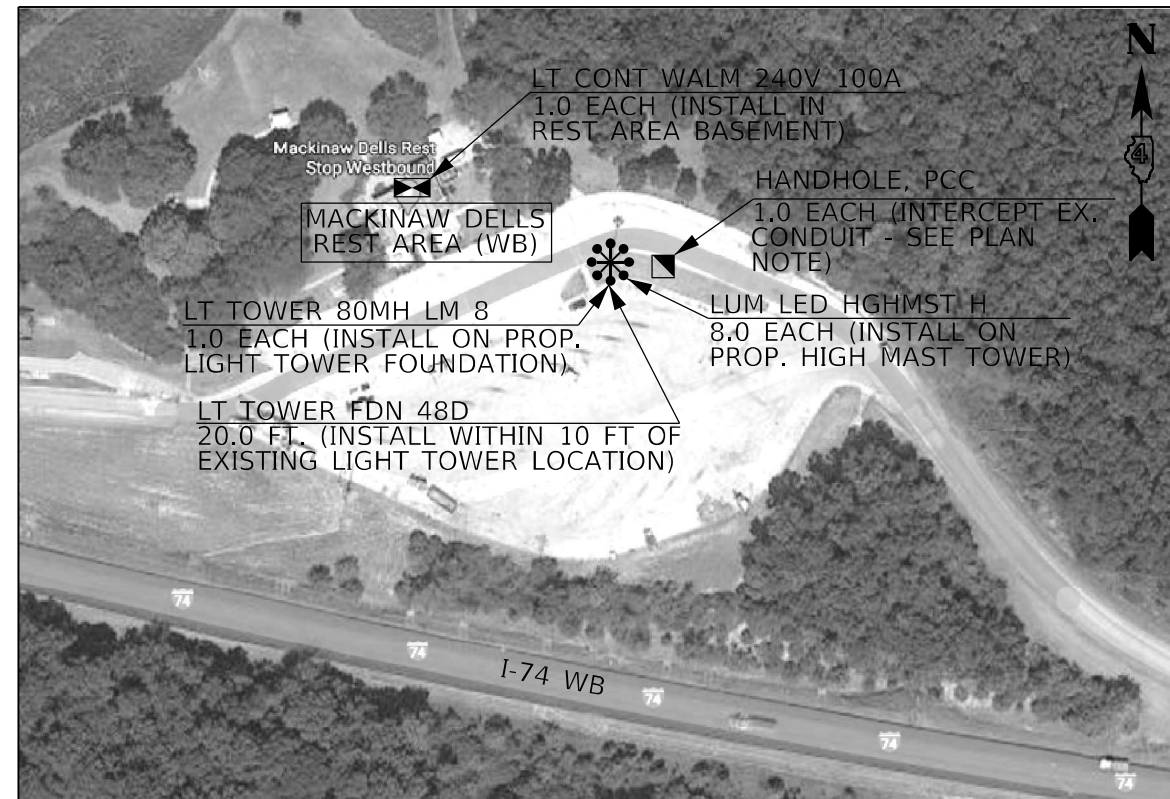
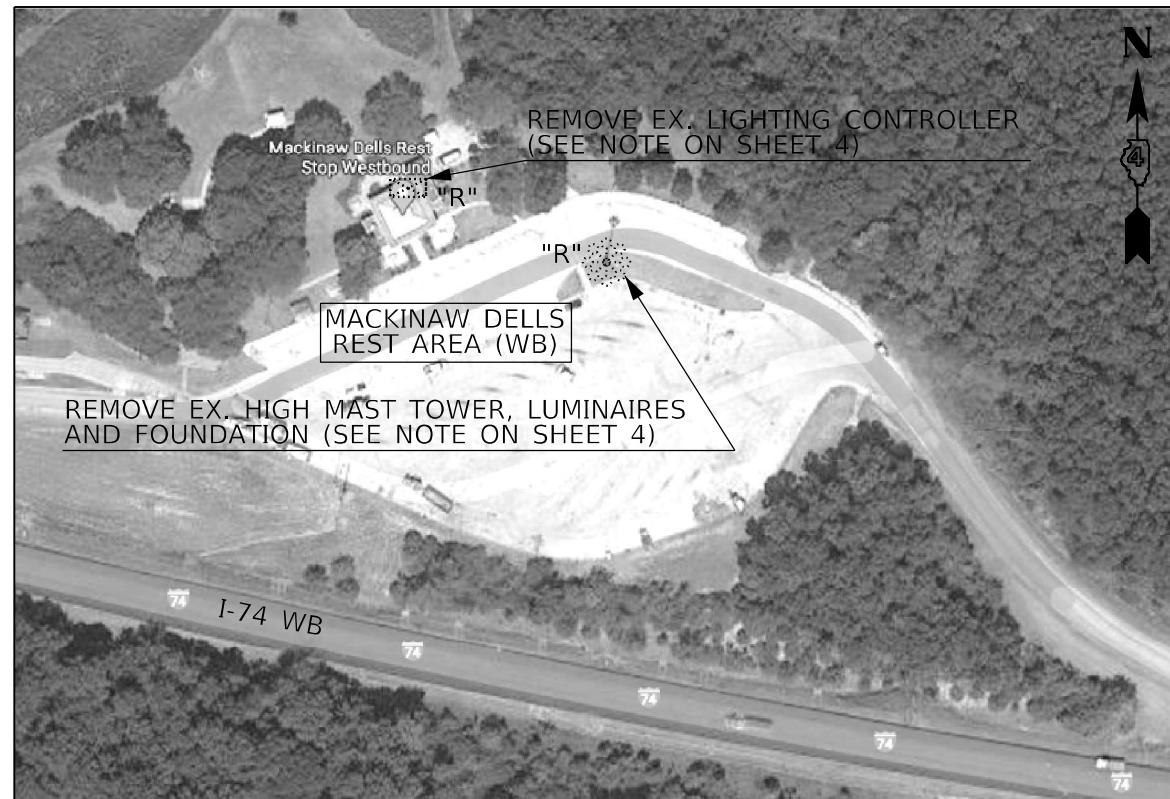
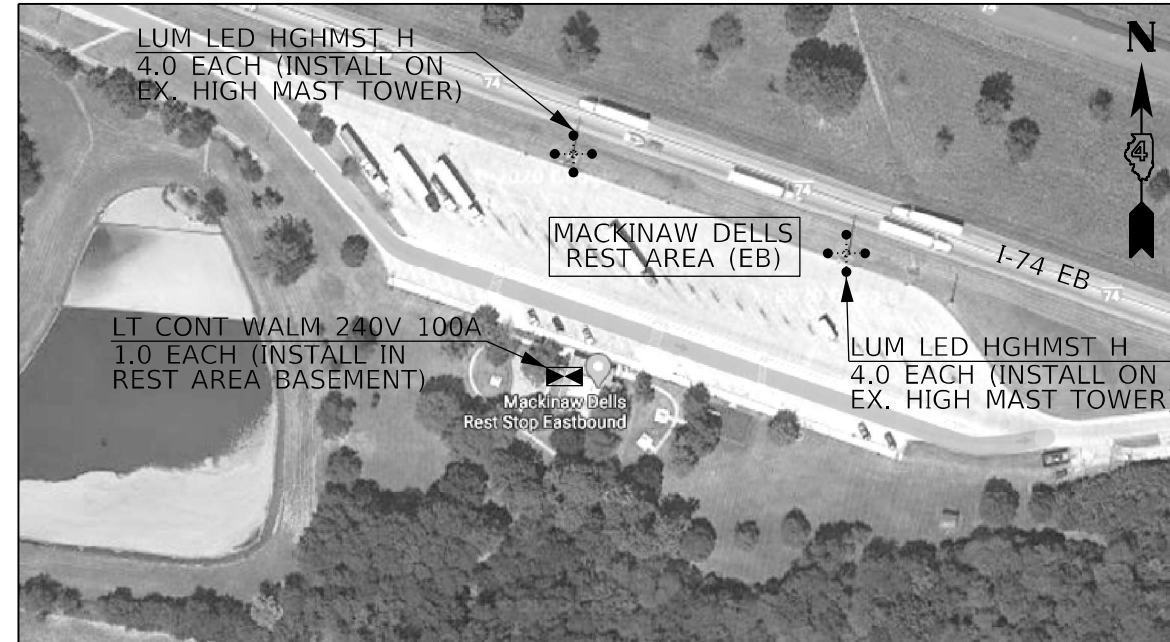
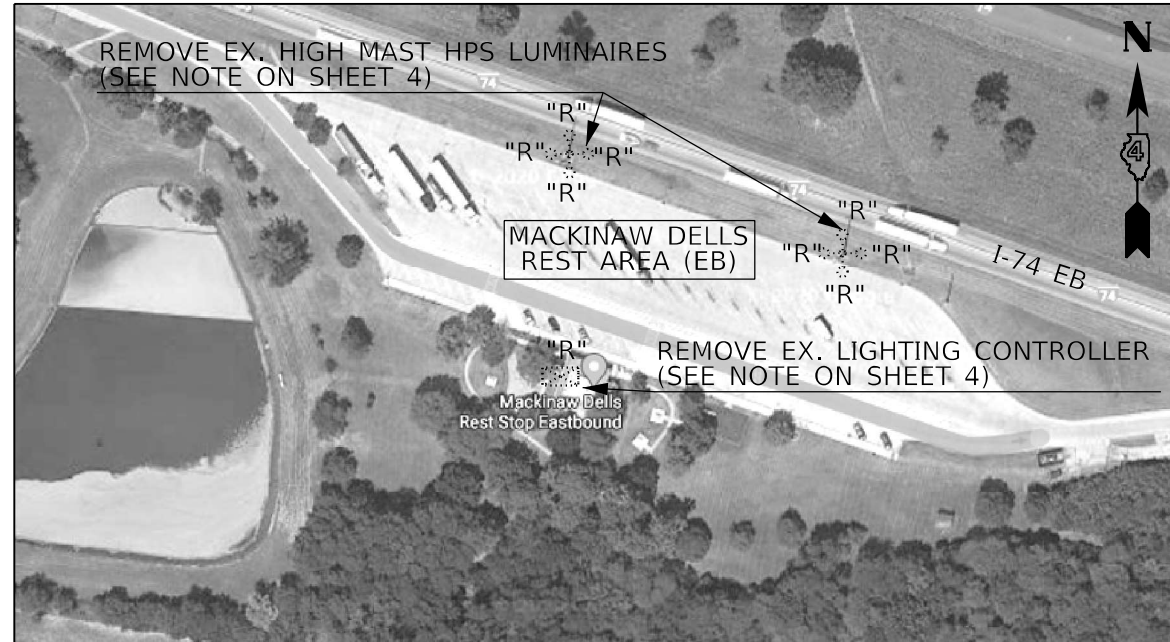
F.A.I. RTE. 39 / 74	SECTION (102-4;X3-16RA)L	COUNTY WOODFORD	TOTAL SHEETS 15	SHEET NO. 11
ILLINOIS FED. AID PROJECT			CONTRACT NO. 68G22	

NOT TO SCALE

"R" INDICATES REMOVAL ITEM

NOTES:
1. THE EXISTING CIRCUIT WIRING SHALL BE RE-USED WITH THE PROPOSED HIGH MAST LIGHT TOWER INSTALLATION.

BILL OF MATERIALS		
DESCRIPTION	UNIT	QTY.
HANDHOLE, PORTLAND CEMENT CONCRETE	EACH	1
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H	EACH	16.0
LIGHTING CONTROLLER, WALL MOUNTED, 240VOLT, 100AMP	EACH	2.0
LIGHT TOWER, 80 FT. MOUNTING HEIGHT, LUMINAIRE MT. - 8	EACH	1.0
LIGHT TOWER FOUNDATION, 48" DIAMETER	FOOT	20.0



THE CONTRACTOR SHALL INSTALL THE CONCRETE HANDHOLE TO INTERCEPT THE EXISTING LIGHT TOWER CONDUIT. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF THE PROPOSED HANDHOLE.

THE CONTRACTOR SHALL PULL THE EXISTING LIGHTING CONDUCTORS INTO THE PROPOSED HANDHOLE AND SPLICE AS REQUIRED TO EXTEND THE EXISTING CONDUCTORS TO THE PROPOSED LIGHT TOWER. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF THE PROPOSED HANDHOLE.

LEGEND

	EXISTING TOWER LIGHTING STRUCTURE (8 LUMINAIRES) AND CONCRETE FOUNDATION
	EXISTING TOWER LIGHTING STRUCTURE (4 LUMINAIRES)
	EXISTING LIGHTING CONTROLLER (LOCATED IN BASEMENT OF REST AREA)

LEGEND

	PROP. LED HIGH MAST LUMINAIRES, OUTPUT DESIGNATION H INSTALLED ON EX. LIGHT TOWER
	PROP. LIGHT TOWER, 80 FT. M.H. 8 LUMINAIRE, ON PROP. LIGHT TOWER FOUNDATION 48" DIA.
	PROP. LIGHTING CONTROLLER, WALL MOUNTED, 240V, 100A (INSTALL IN REST AREA BASEMENT)

MODEL Path: \\S:\CEN\W\WOOD\DESIGN\AN\barson\68G22_139_01\Main\Lighting (Final 1-27-21).dgn
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	DRAWN -	REVISED -
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PLOT DATE = 1/29/2021	DATE -	REVISED -

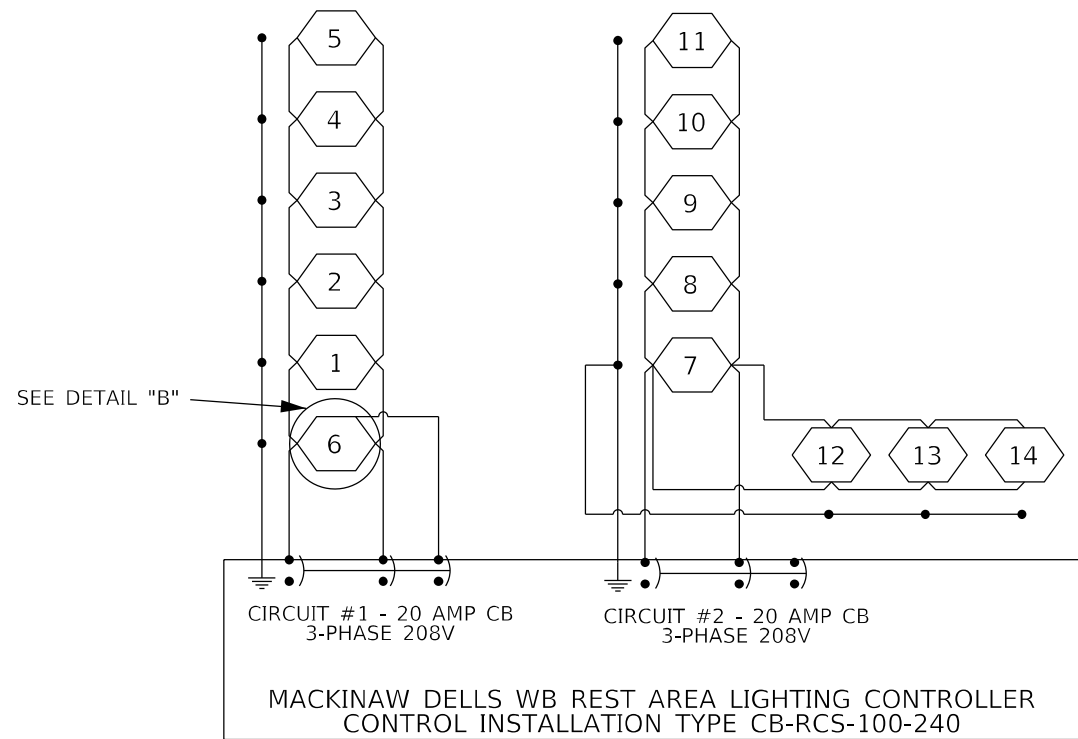
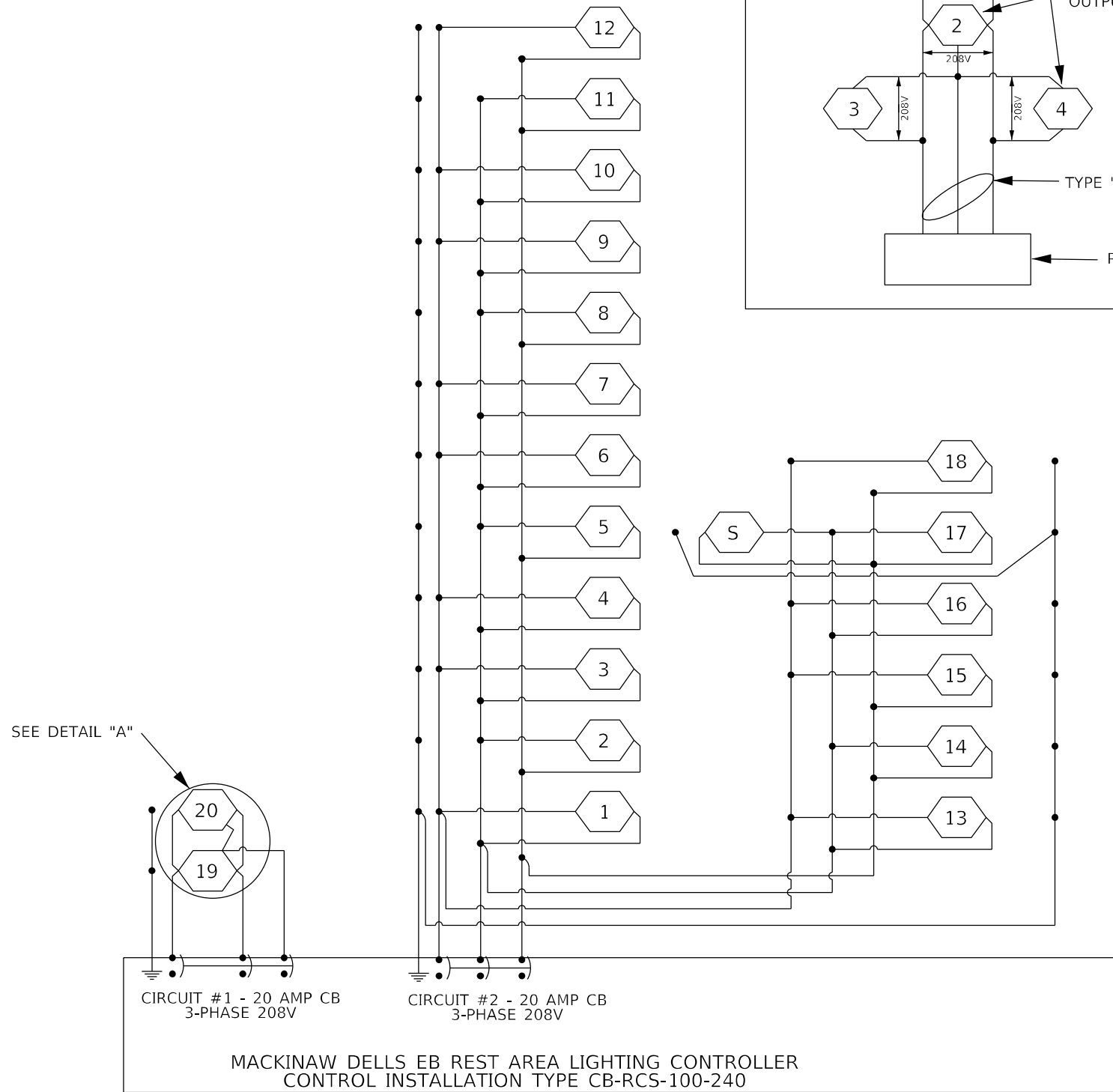
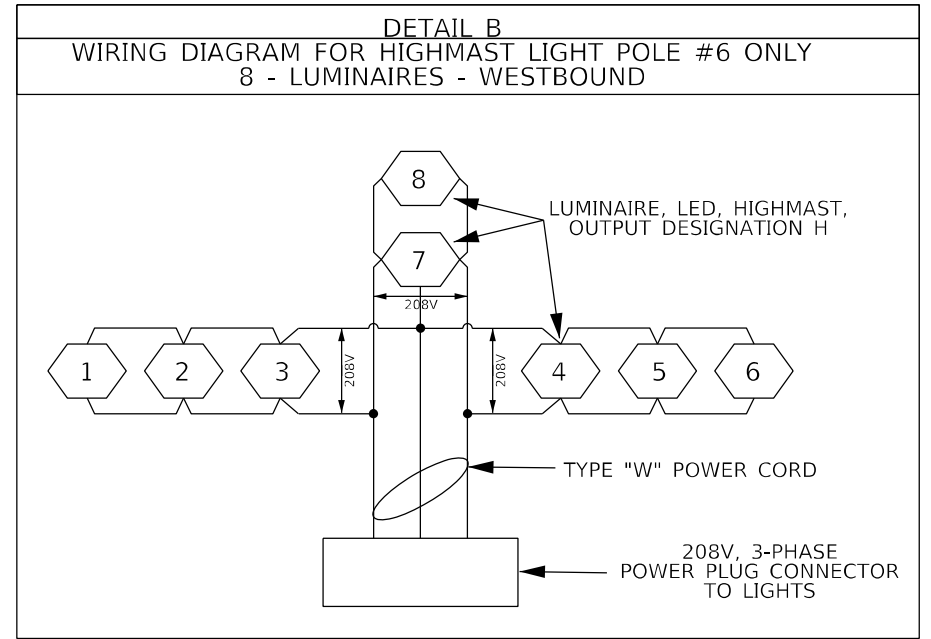
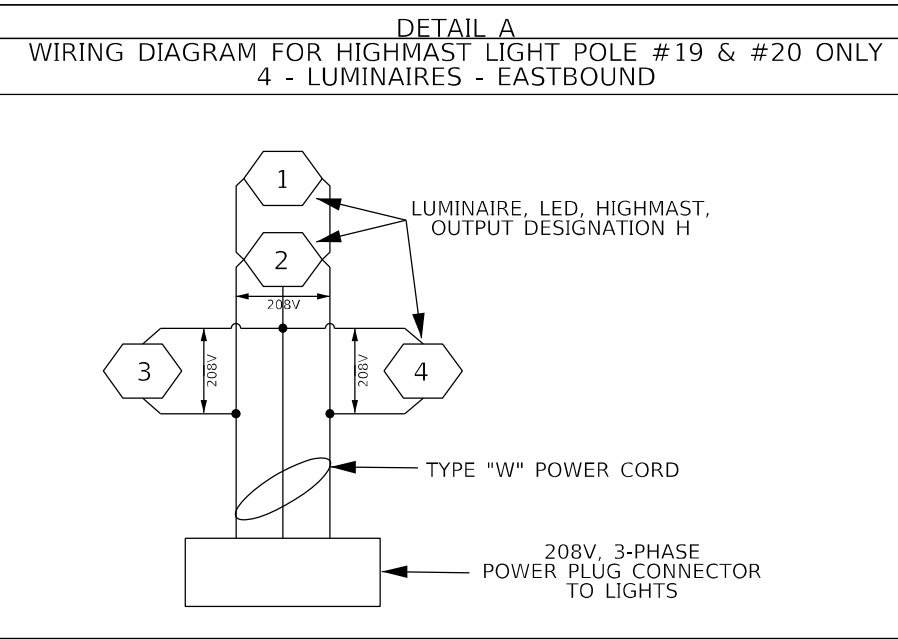
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED LIGHT TOWER REPLACEMENT DESIGN
MACKINAW DELLS REST AREAS (EB & WB) - WOODFORD COUNTY

F.A.I. RTE. 39 / 74	SECTION (102-4;X3-16RA)L	COUNTY WOODFORD	TOTAL SHEETS 15	SHEET NO. 12
CONTRACT NO. 68G22				
ILLINOIS FED. AID PROJECT				

NOT TO SCALE

SCALE: SHEET OF SHEETS STA. TO STA.



MODEL: Default
FILE NAME: S:\CEN\WV\WOOD\ESP\AN\barson\# 68G22 - 139 @ Mhank Lighting (Final 1-27-21).dgn

USER NAME = howaldier	DESIGNED -	REVISED -
PLOT SCALE = 1/65,0762' / in.	DRAWN -	REVISED -
PLOT DATE = 1/29/2021	CHECKED -	REVISED -
	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED LIGHT TOWER CIRCUIT DIAGRAMS
MACKINAW DELLS REST AREAS (EB & WB)- WOODFORD COUNTY

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE. 89 / 74	SECTION (102-4:X3-16RA)L	COUNTY WOODFORD	TOTAL SHEETS 15	SHEET NO. 13
ILLINOIS FED. AID PROJECT			CONTRACT NO. 68G22	

NOT TO SCALE

NOTE: PERFORMANCE VALUES MAY BE ROUNDED UP TO ONE SIGNIFICANT DIGIT.



EB MACKINAW DELLS REST AREA

Luminaire Performance Table



Project

Date	Contract Number	Section Number	County
01/26/21	68G22		Woodford

Marked Route Number	Municipality
I-74	

Roadway

Lane Width	# of Lanes	Median Width	I.E.S. Surface Classification	Q-Zero Value
135 Ft.	N/A	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
80	1	15	4

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution
LED, OUTPUT DESIGNATION H	Type V	Medium

Total Light Loss Factor (LLF)	B-U-G Rating	Shields	Dimming Protocol
0.684	U =0	N/A	0-10V

Layout

Spacing (to Nearest 5 ft)	Configuration (Opposite, Staggered, 1 Sided, or Median)
295	Median

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}
1.1	4.0:1

Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_v/L_{AVE}

Light Tresspass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_v
N/A	N/A	N/A

Notes

- Set-Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
- Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to the roadway.
- Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
- Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

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Printed 01/26/21

BDE 5650 (04/10/19)



WB MACKINAW DELLS REST AREA

Luminaire Performance Table



Project

Date	Contract Number	Section Number	County
01/26/21	68G22		Woodford

Marked Route Number	Municipality
I-74	

Roadway

Lane Width	# of Lanes	Median Width	I.E.S. Surface Classification	Q-Zero Value
135 Ft.	N/A	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
80	1	15	8

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution
LED, OUTPUT DESIGNATION H	Type V	Medium

Total Light Loss Factor (LLF)	B-U-G Rating	Shields	Dimming Protocol
0.684	U =0	N/A	0-10V

Layout

Spacing (to Nearest 5 ft)	Configuration (Opposite, Staggered, 1 Sided, or Median)
N/A	Median

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}
1.1	4.0:1

Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_v/L_{AVE}

Light Tresspass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_v
N/A	N/A	N/A

Notes

- Set-Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
- Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to the roadway.
- Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
- Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

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Printed 01/26/21

BDE 5650 (04/10/19)

MODEL Path: \\S:\CEN\WV\ORD\ESP\AN\barson\68G22_139_@_Mhank Lighting (Final 1-27-21).dgn

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PLOT DATE = 1/29/2021	DATE -	REVISED -

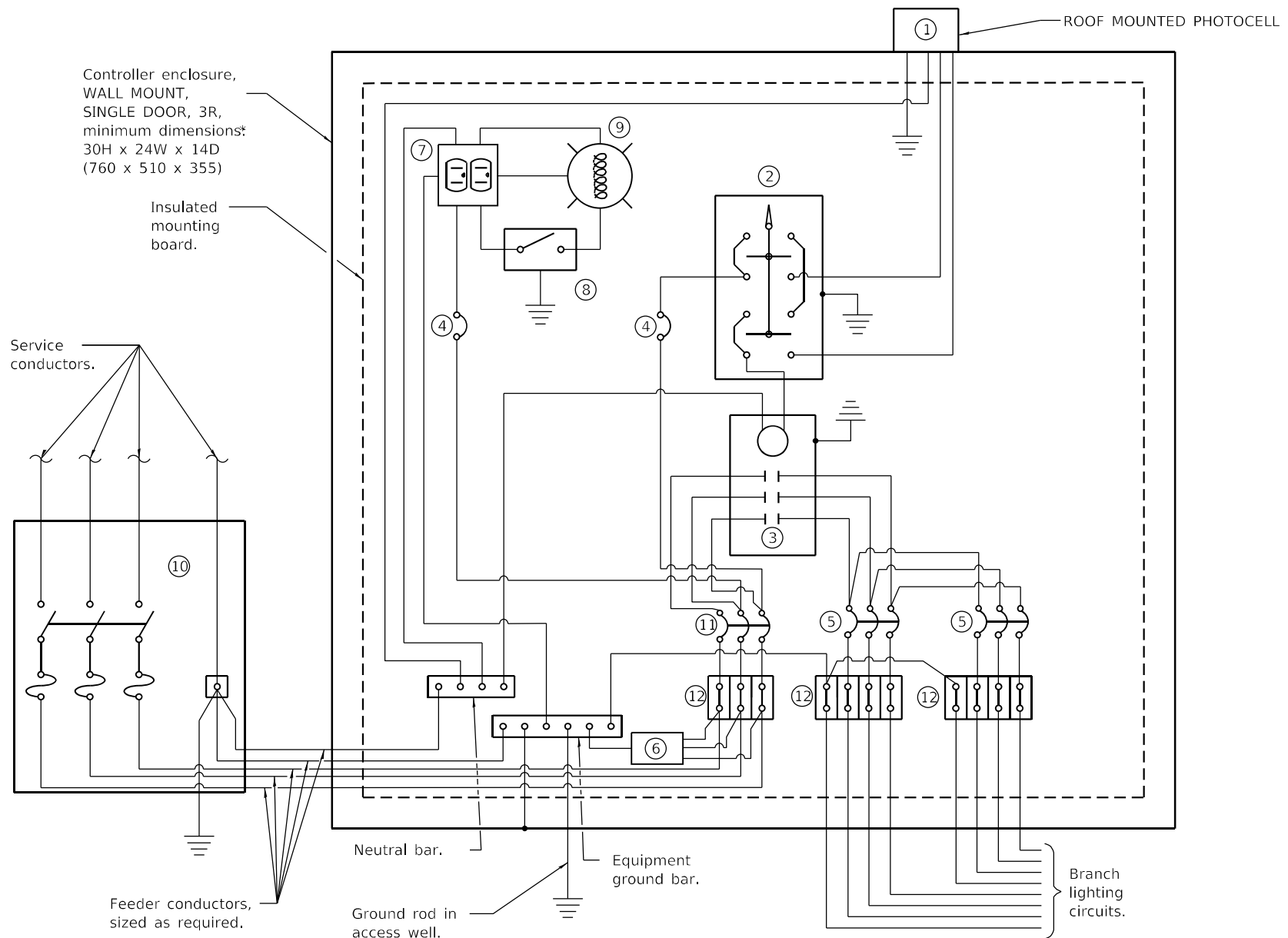
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED LUMINAIRE PERFORMANCE TABLES
MACKINAW DELLS REST AREAS (EB & WB)- WOODFORD COUNTY

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39 / 74	(102-4;X3-16RA)L	WOODFORD	15	14
CONTRACT NO. 68G22				
ILLINOIS FED. AID PROJECT				

NOT TO SCALE

SCALE: SHEET OF SHEETS STA. TO STA.



LIGHTING CONTROLLER OPERATES 3-PHASE 208V

THE CONTRACTOR SHALL EXTEND THE EXISTING LIGHTING CIRCUITS AS REQUIRED TO ACCOMODATE THE INSTALLATION OF THE PROPOSED WALL MOUNTED LIGHTING CONTROLLER. THE CONTRACTOR SHALL FURNISH HARDWARE, BRACKETS, WIRE, CONNECTORS, AND ALL OTHER ITEMS REQUIRED FOR CONTROLLER INSTALLATION. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF THE PROPOSED WALL MOUNTED LIGHTING CONTROLLER.

CONTROL SCHEMATIC

- ① Photocell with integral surge arrester - ROOF MOUNTED.
- ② HAND-OFF-AUTO selector switch.
- ③ 60 amp*, electrically held contactor.
- ④ 15 amp, 1-pole circuit breaker.
- ⑤ 20 amp*, 3-pole circuit breaker (QTY 3.0 PLUS 2 SPARE).
- ⑥ Surge arrester.
- ⑦ GFCI duplex receptacle.
- ⑧ Single-pole, single-throw switch.
- ⑨ LED light bulb, enclosed and gasketed with 800 lumen lamp.
- ⑩ Service disconnect switch - 3-pole, 4-wire, 60 amp*, fused at 60 amp*, solid neutral in NEMA 4X enclosure having lockable external handle.
- ⑪ 60 amp*, 3-pole circuit breaker.
- ⑫ Terminal block sized for conductors as shown on plans.

* Size larger as needed.

All dimensions are in inches (millimeters) unless otherwise shown.

MODEL Path: S:\CEN\W\WOODREST\AN\barson.dwg 68G22_139 @ Mhank Lighting (Final 12-21-21).dgn

NOT TO SCALE

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PLOT SCALE = 1/65,0762' / in.	DRAWN -	REVISED -
PLOT DATE = 1/29/2021	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**PROPOSED LIGHTING CONTROLLER DETAIL
MACKINAW DELLS REST AREAS (EB & WB)- WOODFORD COUNTY**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
89 / 74	(102-4:X3-16RA)L	WOODFORD	15	15
			CONTRACT NO. 68G22	
		ILLINOIS	FED. AID PROJECT	