

**NOTES**

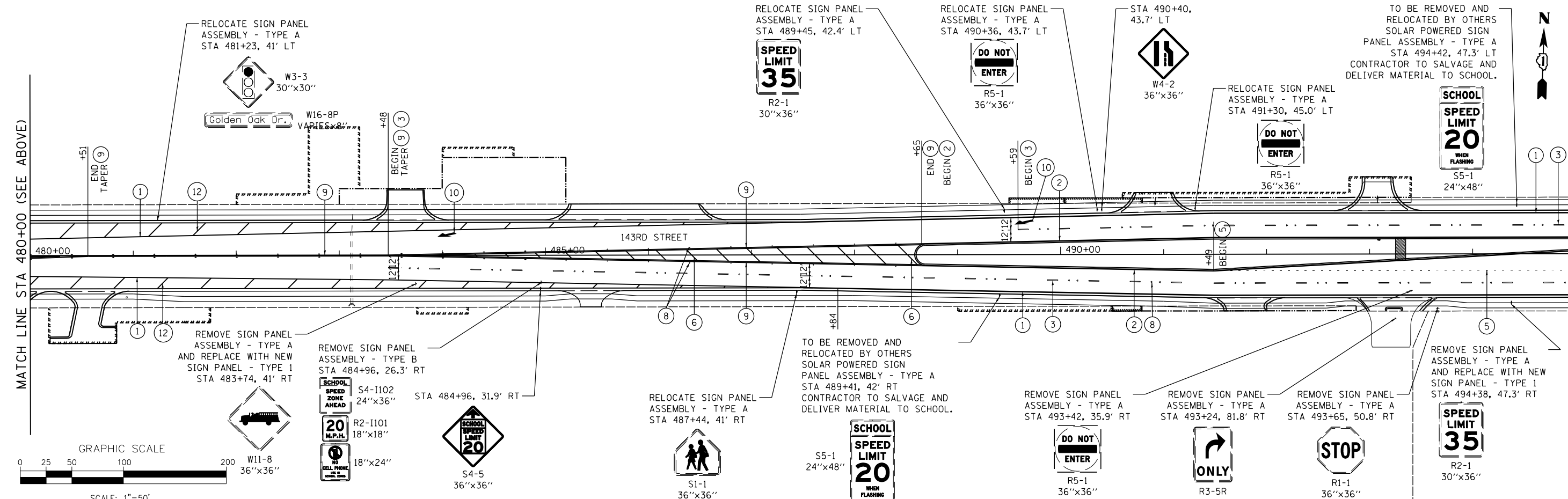
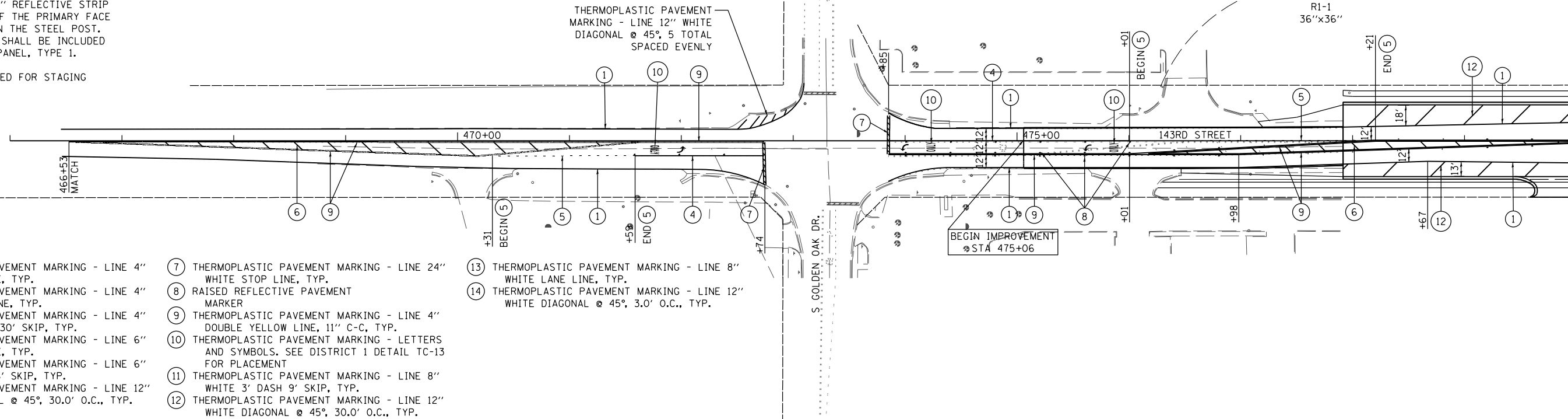
- ALL RAISED REFLECTIVE PAVEMENT MARKERS USED WITH SKIP DASHES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS, AND OFFSET 4 INCHES FROM THE CENTER OF THE LINE.
- ALL RELOCATED AND NEW SIGNS SHALL USE TELESCOPING STEEL POST, 36" SLEEVE. IN ADDITION A 3" X 30" REFLECTIVE STRIP MATCHING THE COLOR OF THE PRIMARY FACE SHALL BE INSTALLED ON THE STEEL POST. THE REFLECTIVE STRIP SHALL BE INCLUDED IN THE COST OF SIGN PANEL, TYPE 1.
- ALL STRIPING REMOVED FOR STAGING SHALL BE REPLACED.

FABRICATION, AND "WILL COUNTY DIVISION OF TRANSPORTATION" IN THE BORDER AT THE LOWER EDGE OF THE SIGN FACE. THE LETTER SIZE SHALL BE 1/2" IN HEIGHT.

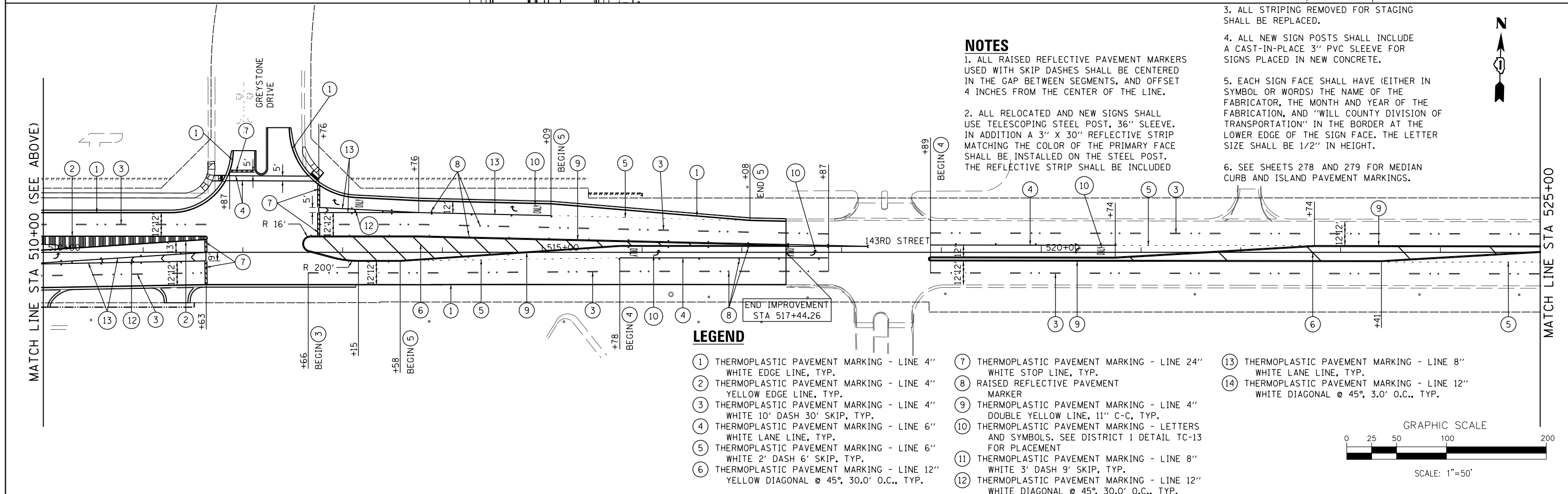
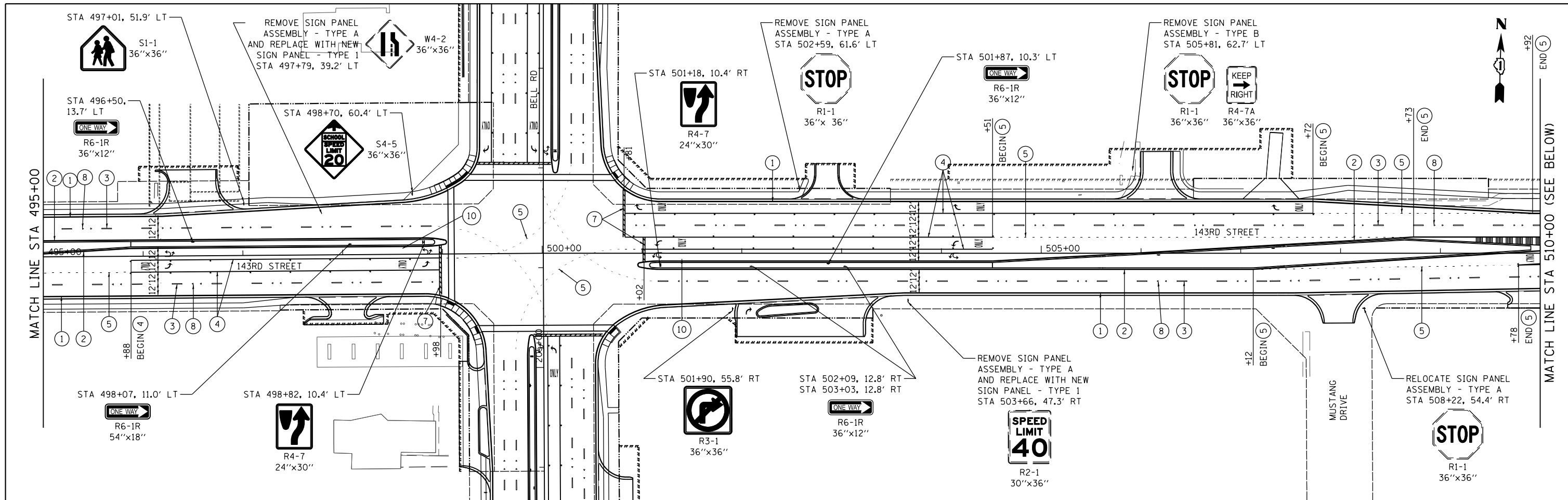
6. SEE SHEETS 278 AND 279 FOR MEDIAN CURB AND ISLAND PAVEMENT MARKINGS.

**LEGEND**

- |   |   |   |
|---|---|---|
| ① THERMOPLASTIC PAVEMENT MARKING - LINE 4" WHITE EDGE LINE, TYP.                    | ⑦ THERMOPLASTIC PAVEMENT MARKING - LINE 24" WHITE STOP LINE, TYP.                                 | ⑬ THERMOPLASTIC PAVEMENT MARKING - LINE 8" WHITE LANE LINE, TYP.                  |
| ② THERMOPLASTIC PAVEMENT MARKING - LINE 4" YELLOW EDGE LINE, TYP.                   | ⑧ RAISED REFLECTIVE PAVEMENT MARKER   | ⑭ THERMOPLASTIC PAVEMENT MARKING - LINE 12" WHITE DIAGONAL @ 45°, 3.0' O.C., TYP. |
| ③ THERMOPLASTIC PAVEMENT MARKING - LINE 4" WHITE 10' DASH 30' SKIP, TYP.            | ⑨ THERMOPLASTIC PAVEMENT MARKING - LINE 4" DOUBLE YELLOW LINE, 11" C-C, TYP.                      |   |
| ④ THERMOPLASTIC PAVEMENT MARKING - LINE 6" WHITE LANE LINE, TYP.                    | ⑩ THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS. SEE DISTRICT 1 DETAIL TC-13 FOR PLACEMENT |   |
| ⑤ THERMOPLASTIC PAVEMENT MARKING - LINE 6" WHITE 2' DASH 6' SKIP, TYP.              | ⑪ THERMOPLASTIC PAVEMENT MARKING - LINE 8" WHITE 3' DASH 9' SKIP, TYP.                            |   |
| ⑥ THERMOPLASTIC PAVEMENT MARKING - LINE 12" YELLOW DIAGONAL @ 45°, 30.0' O.C., TYP. | ⑫ THERMOPLASTIC PAVEMENT MARKING - LINE 12" WHITE DIAGONAL @ 45°, 30.0' O.C., TYP.                |   |



FILE NAME = ...\\willco-sh-t004-PMK-143rd.dgn	DESIGNED - NP	REVISED -	<p>600 W. FULTON ST. CHICAGO, ILLINOIS 60611-1259</p> <p>TEL 312 456 9100 FAX 312 559 1217 WEB www.sepstein.com</p>	<p align="center"><b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b></p>	<p align="center"><b>PAVEMENT MARKING AND SIGNING - 143RD STREET</b></p>	F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 201			
PLOT TIME = 3:59:40 PM	CHECKED - GAO	REVISED -				SCALE: 1" = 50'	SHEET 4 OF 6 SHEETS	STA. 466+52.76 TO STA. 495+00.00	CONTRACT NO. 61D34		ILLINOIS FED. AID PROJECT		
PLOT DATE = 2/14/2024	DATE - 02/14/2024	REVISED -											

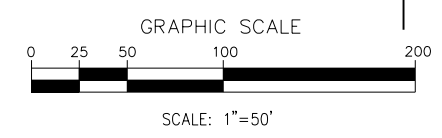


**NOTES**

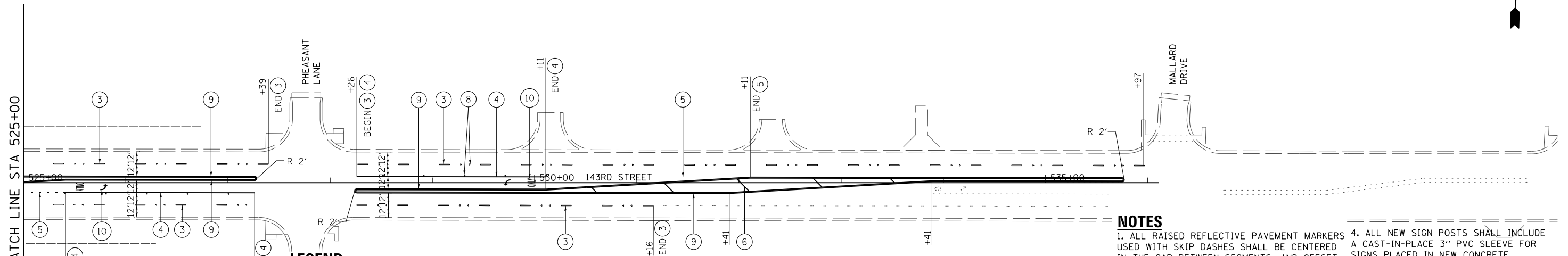
- ALL RAISED REFLECTIVE PAVEMENT MARKERS USED WITH SKIP DASHES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS, AND OFFSET 4 INCHES FROM THE CENTER OF THE LINE.
- ALL RELOCATED AND NEW SIGNS SHALL USE TELESCOPING STEEL POST, 36" SLEEVE. IN ADDITION A 3" X 30" REFLECTIVE STRIP MATCHING THE COLOR OF THE PRIMARY FACE SHALL BE INSTALLED ON THE STEEL POST. THE REFLECTIVE STRIP SHALL BE INCLUDED
- ALL STRIPING REMOVED FOR STAGING SHALL BE REPLACED.
- ALL NEW SIGN POSTS SHALL INCLUDE A CAST-IN-PLACE 3" PVC SLEEVE FOR SIGNS PLACED IN NEW CONCRETE.
- EACH SIGN FACE SHALL HAVE (EITHER IN SYMBOL OR WORDS) THE NAME OF THE FABRICATOR, THE MONTH AND YEAR OF THE FABRICATION, AND "WILL COUNTY DIVISION OF TRANSPORTATION" IN THE BORDER AT THE LOWER EDGE OF THE SIGN FACE. THE LETTER SIZE SHALL BE 1/2" IN HEIGHT.
- SEE SHEETS 278 AND 279 FOR MEDIAN CURB AND ISLAND PAVEMENT MARKINGS.

**LEGEND**

- ① THERMOPLASTIC PAVEMENT MARKING - LINE 4" WHITE EDGE LINE, TYP.
- ② THERMOPLASTIC PAVEMENT MARKING - LINE 4" YELLOW EDGE LINE, TYP.
- ③ THERMOPLASTIC PAVEMENT MARKING - LINE 4" WHITE 10' DASH 30' SKIP, TYP.
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- ⑤ THERMOPLASTIC PAVEMENT MARKING - LINE 6" WHITE 2' DASH 6' SKIP, TYP.
- ⑥ THERMOPLASTIC PAVEMENT MARKING - LINE 12" YELLOW DIAGONAL @ 45°, 30.0' O.C., TYP.
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- ⑧ RAISED REFLECTIVE PAVEMENT MARKER
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FILE NAME = ...\\willco-sh-t005-PMK-143rd.dgn	DESIGNED - NP	REVISED -	 600 W FULTON ST CHICAGO, ILLINOIS 60611-1259 TEL 312 456 9100 FAX 312 559 1217 WEB www.sepstein-ill.com	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>PAVEMENT MARKING AND SIGNING - 143RD STREET</b>			F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 202	
PLOT TIME = 3:59:41 PM	DRAWN - NP	REVISED -			SCALE: 1" = 50'	SHEET 5 OF 6 SHEETS	STA. 495+00.00 TO STA. 525+00.00	ILLINOIS FED. AID PROJECT					
PLOT DATE = 2/14/2024	CHECKED - GAO	REVISED -			CONTRACT NO. 61D34								
	DATE - 02/14/2024	REVISED -											

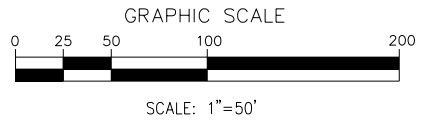
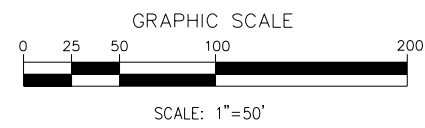


**LEGEND**

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6. SEE SHEETS 278 AND 279 FOR MEDIAN CURB AND ISLAND PAVEMENT MARKINGS.



FILE NAME = ...\\willco-sh-t006-PMK-143rd.dgn	DESIGNED - NP	REVISED -	 600 W FULTON ST. CHICAGO, ILLINOIS 60611-1259 TEL 312 456 9100 FAX 312 559 1217 WEB www.sepstein-hill.com	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>PAVEMENT MARKING AND SIGNING - 143RD STREET</b>	F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 203		
PLOT TIME = 3:59:42 PM	CHECKED - GAO	REVISED -				CONTRACT NO. 61D34						
PLOT DATE = 2/14/2024	DATE - 02/14/2024	REVISED -				ILLINOIS FED. AID PROJECT						

SCALE: 1" = 50' SHEET 6 OF 6 SHEETS STA. 525+00.00 TO STA. 536+00.00

# TRAFFIC SIGNAL LEGEND

(NOT TO SCALE)

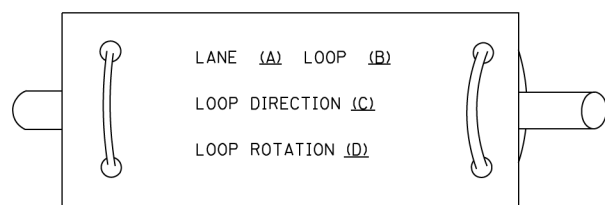
ITEM	EXISTING	PROPOSED	ITEM	EXISTING	PROPOSED	ITEM	EXISTING	PROPOSED
CONTROLLER CABINET			HANDHOLE -SQUARE			SIGNAL HEAD		
COMMUNICATION CABINET			-ROUND			-(P) PROGRAMMABLE SIGNAL HEAD		
MASTER CONTROLLER			HEAVY DUTY HANDHOLE -SQUARE					
MASTER MASTER CONTROLLER			-ROUND					
UNINTERRUPTABLE POWER SUPPLY			DOUBLE HANDHOLE			SIGNAL HEAD WITH BACKPLATE -(P) PROGRAMMABLE SIGNAL HEAD -(RB) RETROREFLECTIVE BACKPLATE		
SERVICE INSTALLATION -(P) POLE MOUNTED			JUNCTION BOX					
SERVICE INSTALLATION -(G) GROUND MOUNTED			RAILROAD CANTILEVER MAST ARM					
-(GM) GROUND MOUNTED METERED			RAILROAD FLASHING SIGNAL					
TELEPHONE CONNECTION			RAILROAD CROSSING GATE					
STEEL MAST ARM ASSEMBLY AND POLE			RAILROAD CROSSBUCK					
ALUMINUM MAST ARM ASSEMBLY AND POLE			RAILROAD CONTROLLER CABINET					
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE			UNDERGROUND CONDUIT (UC), GALVANIZED STEEL					
SIGNAL POST -(BM) BARREL MOUNTED - TEMPORARY			TEMPORARY SPAN WIRE, TETHER WIRE, AND CABLE					
WOOD POLE			SYSTEM ITEM	S	SP	ILLUMINATED SIGN "NO LEFT TURN"/"NO RIGHT TURN"		
GUY WIRE			INTERSECTION ITEM	I	IP	NUMBER OF CONDUCTORS, ELECTRIC CABLE NO. 14, UNLESS NOTED OTHERWISE. ALL DETECTOR LOOP CABLE TO BE SHIELDED		
SIGNAL HEAD			REMOVE ITEM		R	GROUND CABLE IN CONDUIT, NO. 6 SOLID COPPER (GREEN)		
SIGNAL HEAD WITH BACKPLATE			RELOCATE ITEM		RL	ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1/C		
SIGNAL HEAD OPTICALLY PROGRAMMED			ABANDON ITEM		A	COAXIAL CABLE		
FLASHER INSTALLATION -(FS) SOLAR POWERED			CONTROLLER CABINET AND FOUNDATION TO BE REMOVED		RCF	VENDOR CABLE		
			MAST ARM POLE AND FOUNDATION TO BE REMOVED		RMF	COPPER INTERCONNECT CABLE, NO. 18, 3 PAIR TWISTED, SHIELDED		
			SIGNAL POST AND FOUNDATION TO BE REMOVED		RPF	FIBER OPTIC CABLE -NO. 62.5/125, MM12F -NO. 62.5/125, MM12F SM12F -NO. 62.5/125, MM12F SM24F		
PEDESTRIAN SIGNAL HEAD			DETECTOR LOOP, TYPE 1					
PEDESTRIAN PUSH BUTTON -(APS) ACCESSIBLE PEDESTRIAN PUSH BUTTON			PREFORMED DETECTOR LOOP					
RADAR DETECTION SENSOR			SAMPLING (SYSTEM) DETECTOR					
VIDEO DETECTION CAMERA			INTERSECTION AND SAMPLING (SYSTEM) DETECTOR					
RADAR/VIDEO DETECTION ZONE			QUEUE AND SAMPLING (SYSTEM) DETECTOR					
PAN, TILT, ZOOM (PTZ) CAMERA			WIRELESS DETECTOR SENSOR					
EMERGENCY VEHICLE LIGHT DETECTOR			WIRELESS ACCESS POINT					
CONFIRMATION BEACON								
WIRELESS INTERCONNECT								
WIRELESS INTERCONNECT RADIO REPEATER								



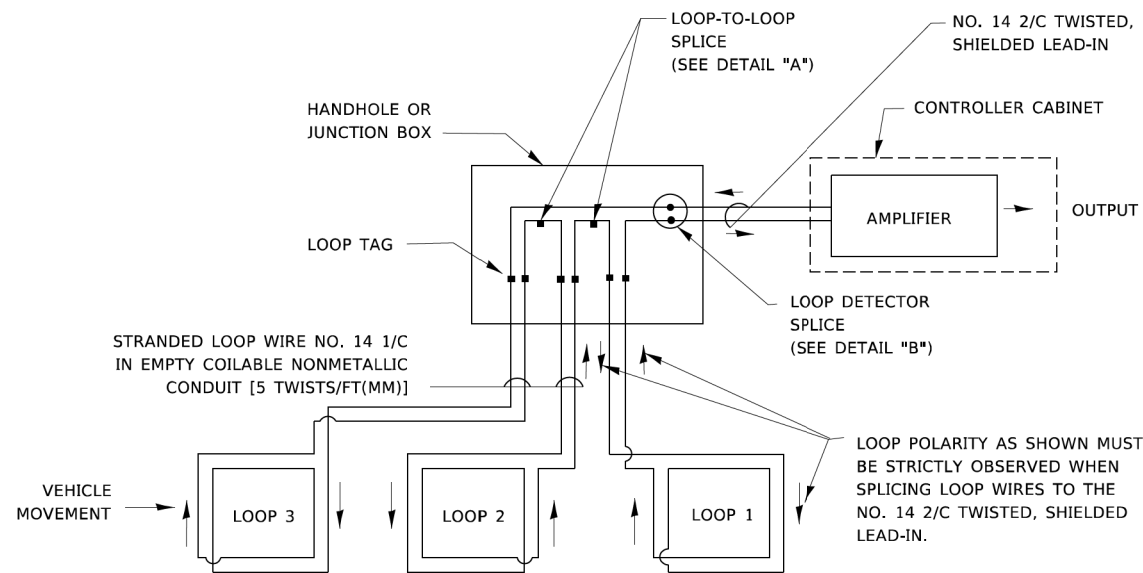
**LOOP DETECTOR NOTES**

1. EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE EMPTY COILABLE NONMETALLIC CONDUIT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). EMPTY COILABLE NONMETALLIC CONDUIT SHALL BE INCLUDED IN THE COST OF THE LOOP WIRE.
2. THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED BY THE AMPLIFIER MANUFACTURER. ALL ADJACENT SIDES OF THE LOOPS SHALL BE INSTALLED IN SUCH A WAY THAT THE CURRENT FLOW IS IN THE SAME DIRECTION TO REINFORCE ITS MAGNETIC FIELDS FOR SMALL VEHICLE DETECTION.
3. EACH LOOP LEAD-IN SHALL BE IDENTIFIED AND PERMANENTLY TAGGED IN THE HANDHOLE. EACH LEAD-IN CABLE TAG SHALL INDICATE THE LOCATION OF THE LOOP, LOOP ROTATION (CLOCKWISE/COUNTERCLOCKWISE), LOOP LEAD-IN DIRECTION (IN OR OUT), LOOP CABLE NUMBER AND LOCATION IN CABINET, AND NUMBER OF TURNS IN THE DETECTOR LOOPS IN WATER PROOF INK AS INDICATED ON THE DISTRICT 1 STANDARD TRAFFIC SIGNAL DESIGN DETAIL. THE CONTRACTOR SHALL MARK LOOP LOCATIONS ON RECORD DRAWINGS AND PRESENT TO THE ENGINEER AFTER FINAL INSPECTION. LOOPS SHALL BE MARKED BY LANE AND LOOP NUMBER. SEE DETAIL BELOW.
4. ALL LOOP CABLE SHALL BE FASTENED WITH PLASTIC TIE WRAP TO THE HANDHOLE HOOKS.
5. IN ASPHALT PAVEMENT, LOOPS SHOULD BE PLACED IN THE BINDER AND DIVESHOLES MARKED AT THE CURB WITH A SAW-CUT. THE SAW-CUT SHALL BE CUT IN ACCORDANCE WITH LOCAL AND E.P.A. DUST CONTROL REQUIREMENTS. DETECTOR LOOP(S) SHALL NOT BE INSTALLED IN WET CONDITIONS AND THE SAW-CUTS MUST BE FREE OF DEBRIS AND RESIDUE SUCH AS DUST AND WATER WHICH IS TO BE ACHIEVED BY THE USE OF COMPRESSED AIR, WIRE BRUSHING AND HEAT DRYING ACCORDING TO SEALANT MANUFACTURER REQUIREMENTS. THE DETECTOR WIRE SHALL BE HELD IN PLACE BY THE USE OF FORM WEDGES. WEDGES SHALL BE SPACED NO MORE THAN 18" (450 mm) APART.
6. LOOP SPLICES SHALL BE SOLDERED USING A SOLDERING IRON. BLOW TORCHES OR OTHER DEVICES WHICH OXIDIZE COPPER CABLE SHALL NOT BE ALLOWED FOR SOLDERING OPERATIONS. SEE DETAIL BELOW RIGHT.
7. PREFORMED DETECTOR LOOPS SHALL BE USED, AS SHOWN ON THE PLANS, WHERE NEW CONCRETE PAVEMENT IS PROPOSED. THE INSTALLATION OF PREFORMED LOOPS SHALL BE IN ACCORDANCE WITH THE DISTRICT 1 SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.

**LOOP LEAD-IN CABLE TAG**

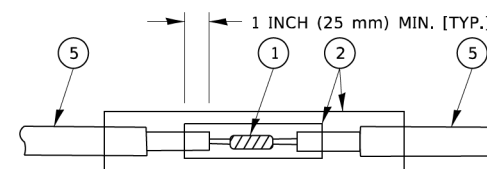


- A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY
- B. LOOP #1 IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION.
- C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".
- D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

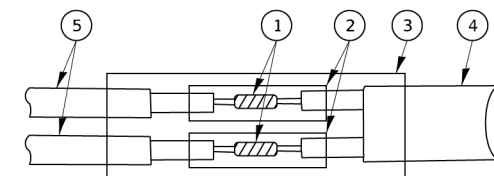


**DETECTOR LOOP WIRING SCHEMATIC**

- LOOPS SHALL BE SPLICED IN SERIES. SAW-CUTS SHALL BE A MINIMUM WIDTH OF 5/16" (8 mm).
- SAW-CUT DEPTHS SHALL BE 3" (75 mm). IF IN CONCRETE,
- THE SAW-CUT DEPTH SHALL BE TO THE TOP OF THE REINFORCEMENT.
- LOOP CORNERS SHALL BE DRILLED WITH A 2" (50 mm) DIAMETER CORE.

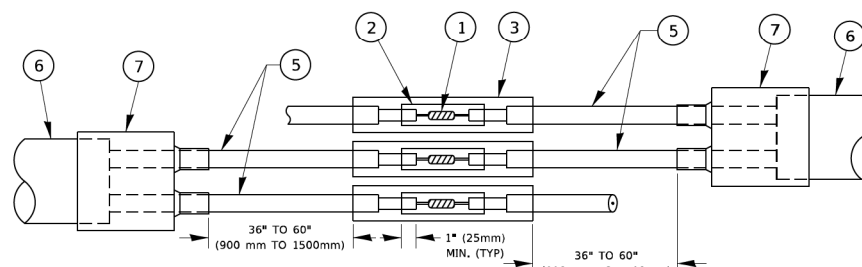


DETAIL "A"  
LOOP-TO-LOOP SPLICE

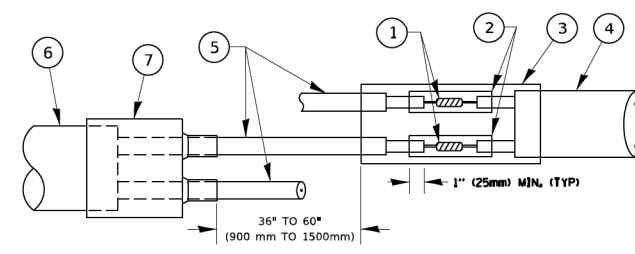


DETAIL "B"  
LOOP-TO-CONTROLLER SPLICE

**TYPE I LOOP**



DETAIL "A"  
LOOP-TO-LOOP SPLICE



DETAIL "B"  
LOOP-TO-CONTROLLER SPLICE

**PREFORMED LOOP**

**LOOP DETECTOR SPLICE**

- 1 WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH. THE WESTERN UNION SPLICES SHALL BE STAGGERED.
- 2 WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.
- 3 WCS 200/750 HEAT SHRINK TUBE, MINIMUM LENGTH 6" (150 mm), UNDERWATER GRADE.
- 4 NO. 14 2/C TWISTED, SHIELDED CABLE.
- 5 LOOP CONDUCTOR WITH FLEXIBLE PLASTIC TUBE. PREFORMED LOOP
- 6 XL POLYOLEFIN 2 CONDUCTOR
- 7 BREAKOUT SEALS. TYCO CBR-2 OR APPROVED EQUAL

FILE NAME =  
...Traffic\W11Co-sht002-TS.dgn  
PLOT TIME = 3:59:46 PM  
PLOT DATE = 2/14/2024

DESIGNED -  
DRAWN -  
CHECKED -  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -

**SEPSTEIN**  
800 W FULTON ST  
CHICAGO, ILLINOIS  
60611-1259  
TEL: 312-454-9100  
FAX: 312-559-1217  
WEB: www.sepstein.com

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

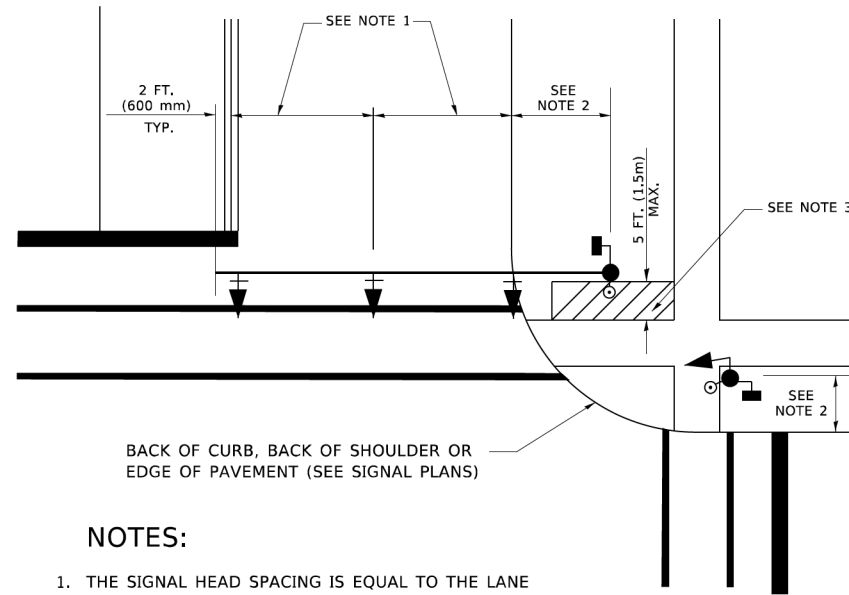
**DISTRICT ONE  
STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: SHEET 2 OF 7 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	205
I TS-05		CONTRACT NO. 61D34		
ILLINOIS FED. AID PROJECT				

**TRAFFIC SIGNAL MAST ARM AND SIGNAL POST**

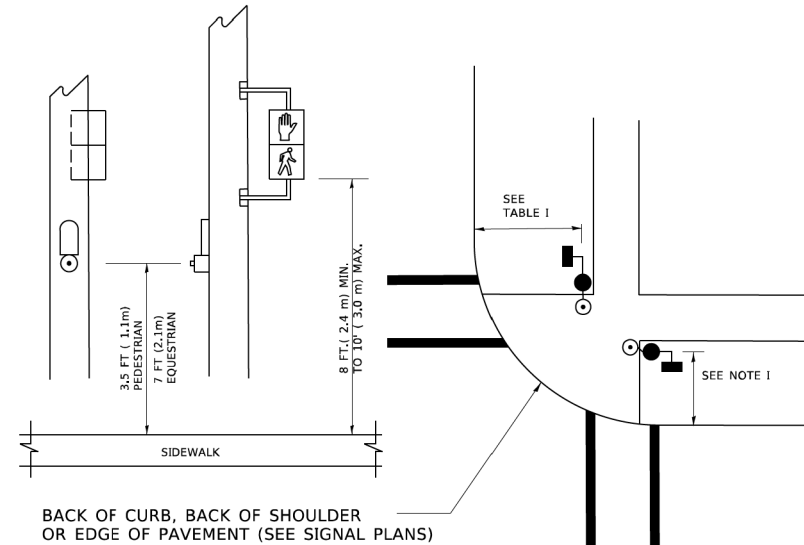
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.



**NOTES:**

1. THE SIGNAL HEAD SPACING IS EQUAL TO THE LANE WIDTH OR AS SHOWN ON THE TRAFFIC SIGNAL PLAN.
2. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
3. PROVIDE A LEVEL ALL-WEATHER SURFACE (CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE) UP TO THE MAST ARM SHAFT OR THE SIGNAL POST.
4. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
5. THE LOCATIONS AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES."

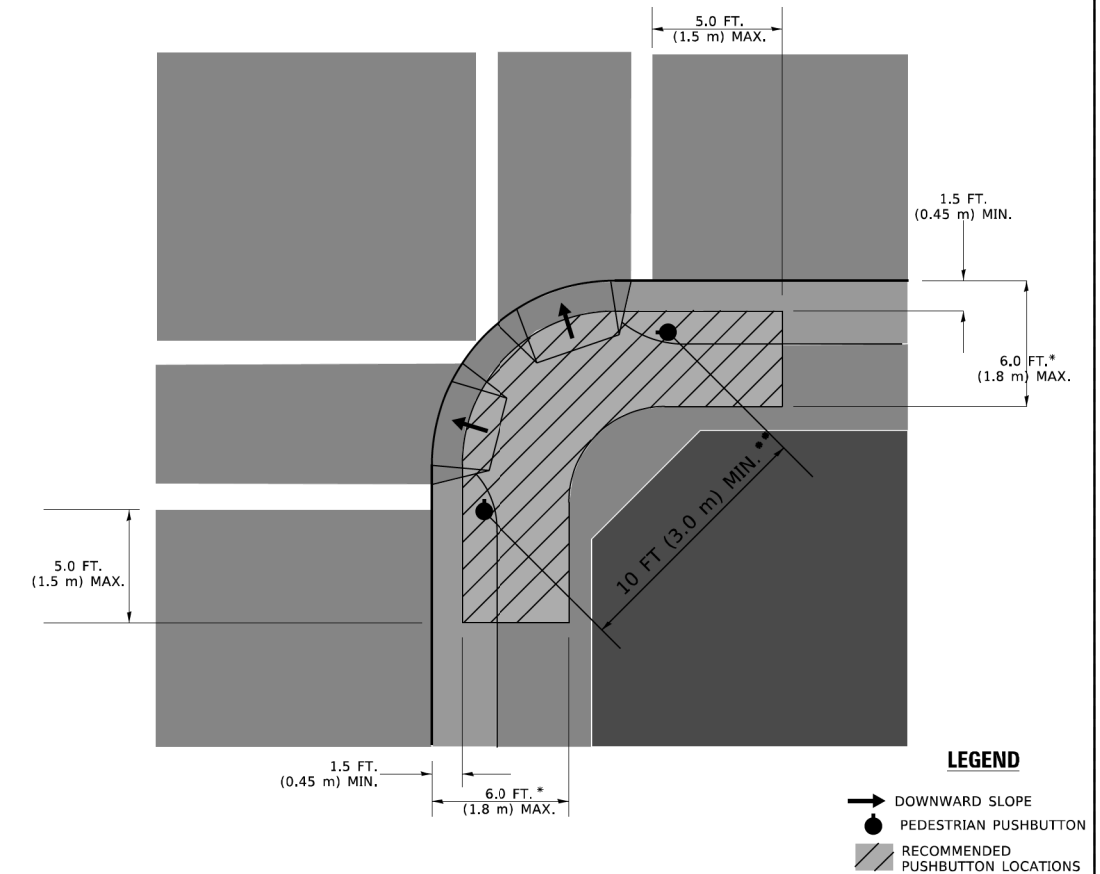
**PEDESTRIAN SIGNAL POST AND PEDESTRIAN PUSH BUTTON POST**



**NOTES:**

1. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
2. PROVIDE A LEVEL ALL-WEATHER SURFACE (CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE) UP TO THE PEDESTRIAN SIGNAL POST OR THE PEDESTRIAN PUSH BUTTON POST.
3. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
4. THE LOCATIONS AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES."

**RECOMMENDED PUSHBUTTON LOCATIONS**



- \* WHERE THERE ARE CONSTRAINTS THAT MAKE IT IMPRACTICAL TO PLACE THE PEDESTRIAN PUSHBUTTON BETWEEN 1.5 FT (0.45 m) AND 6 FT ( 1.8 m) FROM THE EDGE OF THE CURB, SHOULDER, OR PAVEMENT, IT SHOULD NOT BE FURTHER THAN 10 FT (3 m) FROM THE EDGE OF CURB, SHOULDER, OR PAVEMENT.
- \*\* WHERE THERE ARE CONSTRAINTS ON A PARTICULAR CORNER THAT MAKE IT IMPRACTICAL TO PROVIDE THE 10 FT (3 m) SEPERATION BETWEEN THE TWO PEDESTRIAN PUSHBUTTONS, THE PUSHBUTTONS MAY BE PLACED CLOSER TOGETHER OR ON THE SAME POLE.

**NOTES:**

1. PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGNAL HOUSING INCLUDING BRACKETS NOT LESS THAN 8 FT (2.4 m) OR MORE THAN 10 FT (3 m) ABOVE SIDEWALK LEVEL, AND SHALL BE POSITIONED AND ADJUSTED TO PROVIDE MAXIMUM VISIBILITY AT THE BEGINNING OF THE CONTROLLED CROSSWALK.
2. THE BOTTOM OF THE SIGNAL HOUSING (INCLUDING BRACKETS) OF A VEHICULAR SIGNAL FACE THAT IS NOT LOCATED OVER A HIGHWAY SHALL BE AT LEAST 8 FT (2.4 m) BUT NOT MORE THAN 19 FT (5.8 m) ABOVE THE SIDEWALK OR, IF THERE IS NO SIDEWALK, ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY.
3. THE BOTTOM OF THE SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL BE ACCORDING TO CURRENT STATE STANDARDS 877001, 877002, 877006, 877011 AND 877012 WITH A MINIMUM OF 16 FT (5.0 m) AND A MAXIMUM OF 18 FT. (5.5 m) FROM THE HIGHEST POINT OF PAVEMENT.
4. THE BOTTOM OF THE TEMPORARY SPAN WIRE MOUNTED SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL BE ACCORDING TO CURRENT STATE STANDARD 880001 WITH A MINIMUM OF 17 FT (5.18 m) FROM THE HIGHEST POINT OF PAVEMENT.
5. THE TOP OF THE SIGNAL HOUSING OF A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL NOT BE MORE THAN 25.6 FT (7.8 m) ABOVE THE PAVEMENT.

**TRAFFIC SIGNAL EQUIPMENT OFFSET**

TRAFFIC SIGNAL EQUIPMENT	COMBINATION CONCRETE CURB AND GUTTER (MINIMUM DISTANCE FROM BACK OF CURB TO CENTERLINE OF FOUNDATION)	SHOULDER/NON-CURBED AREA (MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO CENTERLINE OF FOUNDATION)
TRAFFIC SIGNAL MAST ARM POLE	6 FT (1.8m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
TRAFFIC SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
PEDESTRIAN SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
PEDESTRIAN PUSHBUTTON POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
TEMPORARY WOOD POLE	6 FT (1.8m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
CONTROLLER CABINET	6 FT (1.8m) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 6 FT (1.8m), MINIMUM 16 FT (4.9m) SEE NOTE 3.
SERVICE INSTALLATION, GROUND MOUNT	6 FT (1.8m) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 6 FT (1.8m), MINIMUM 16 FT (4.9m) SEE NOTE 3.

**NOTES:**

1. CONTACT THE "AREA TRAFFIC SIGNAL MAINTENANCE AND OPERATIONS ENGINEER" FOR ASSISTANCE IN LOCATING THE TRAFFIC SIGNAL EQUIPMENT WHEN THERE ARE CONFLICTS WITH DITCHES OR THE MINIMUM OFFSET DISTANCES CANNOT BE MET.
2. MINIMUM DISTANCE FROM THE BACK OF CURB TO THE ROADWAY SIDE OF THE FOUNDATION.
3. MINIMUM DISTANCE FROM THE EDGE OF PAVEMENT TO THE ROADWAY SIDE OF THE FOUNDATION.
4. ANY CHANGES TO THE OFFSETS OF THE FOUNDATIONS, FROM THE MINIMUM DISTANCES LISTED IN THE "TRAFFIC SIGNAL EQUIPMENT OFFSET" CHART AND THE TRAFFIC SIGNAL INSTALLATION PLAN, COULD AFFECT THE PLACEMENT OF THE SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS AND THE PEDESTRIAN PUSHBUTTONS. THE SIGNAL HEAD PLACEMENT ON THE MAST ARMS SHALL REMAIN AS PER THE TRAFFIC SIGNAL INSTALLATION PLAN AND THE "TRAFFIC SIGNAL MAST ARM AND SIGNAL POST" DETAIL ABOVE. THE PROPOSED MAST ARM LENGTHS MAY NEED TO BE REVISED TO MEET THE ABOVE REQUIREMENTS. THE PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS MUST MEET THE REQUIREMENTS UNDER THE DETAILS ON THIS SHEET.

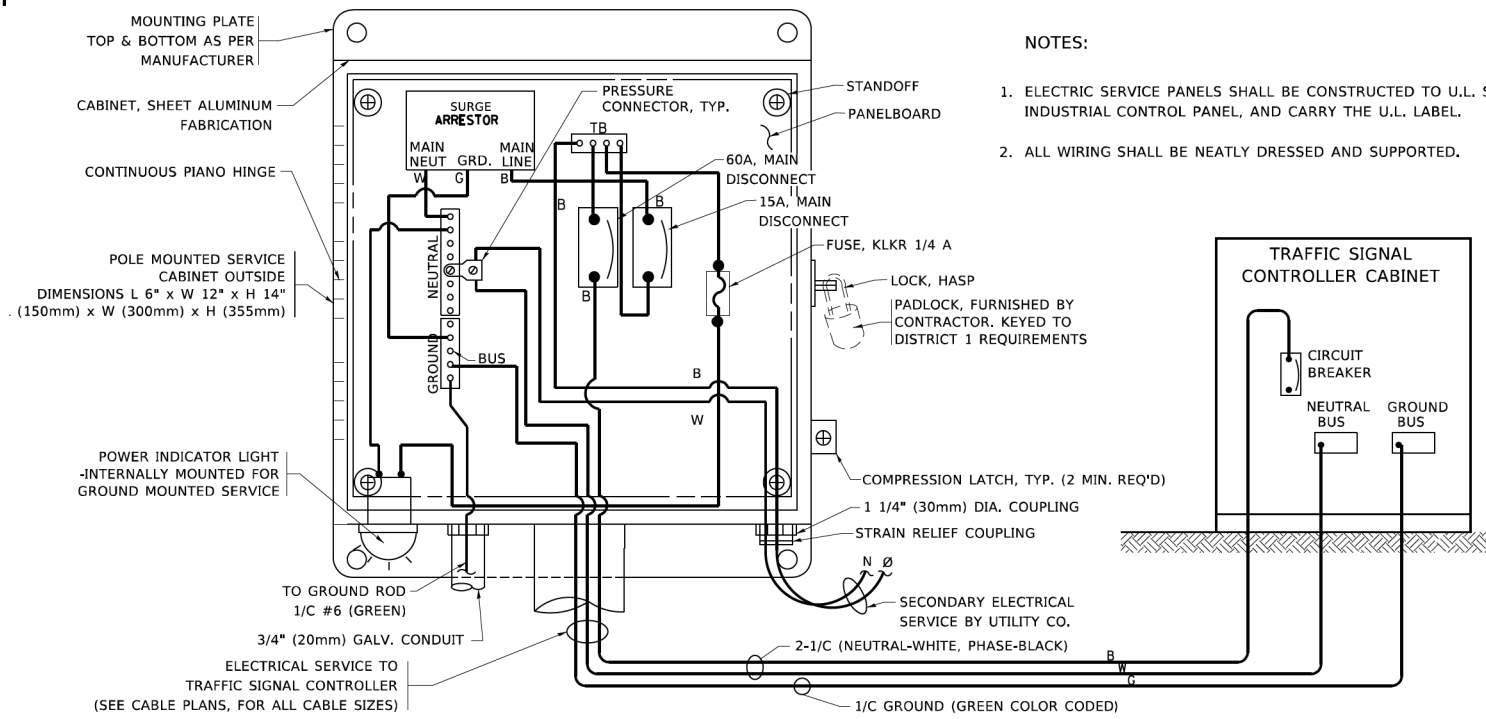
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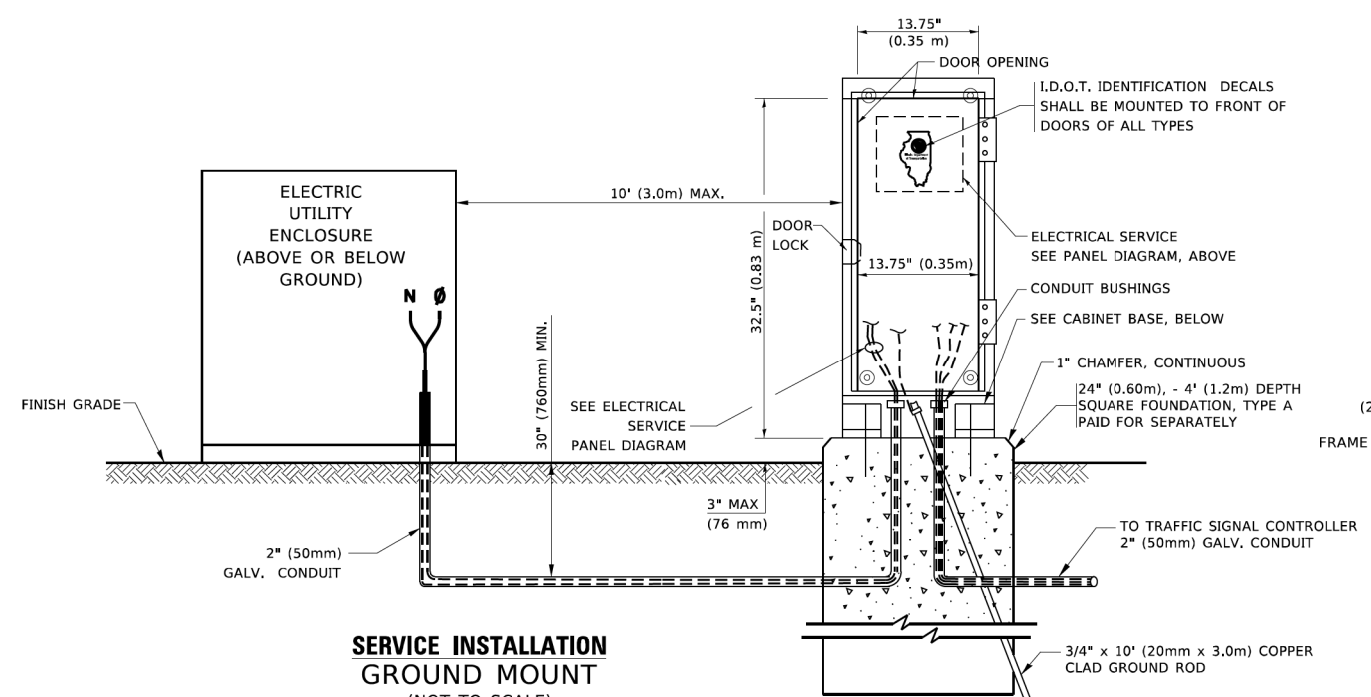
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>DISTRICT ONE</b>	
<b>STANDARD TRAFFIC SIGNAL DESIGN DETAILS</b>	
SCALE:	SHEET 3 OF 7 SHEETS STA. TO STA.

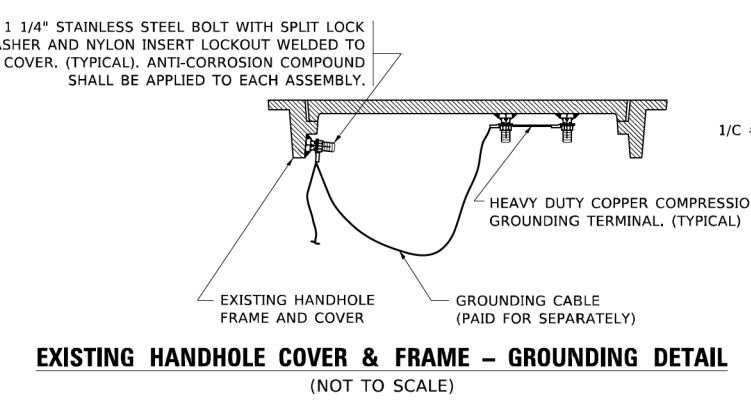
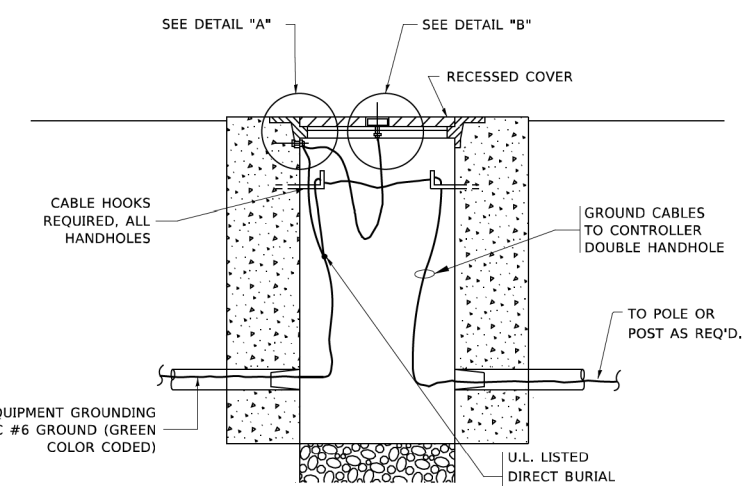
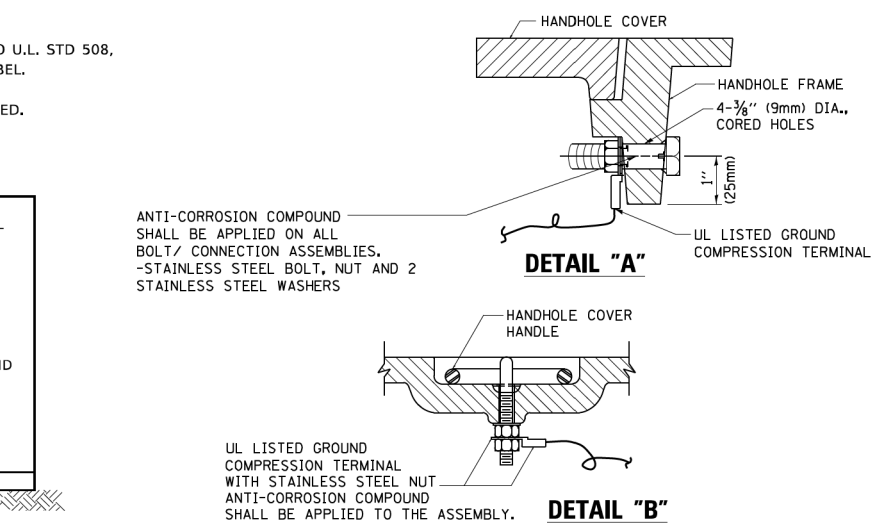
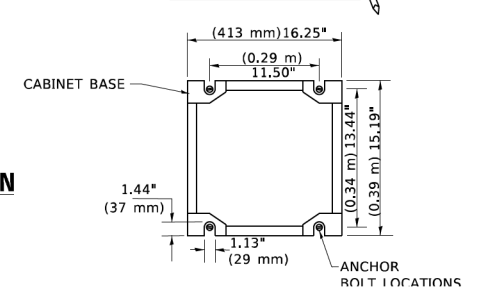
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0356	12-00147-11-CH	WILL	356	206
IS-05		CONTRACT NO. 61D34		
ILLINOIS FED. AID PROJECT				



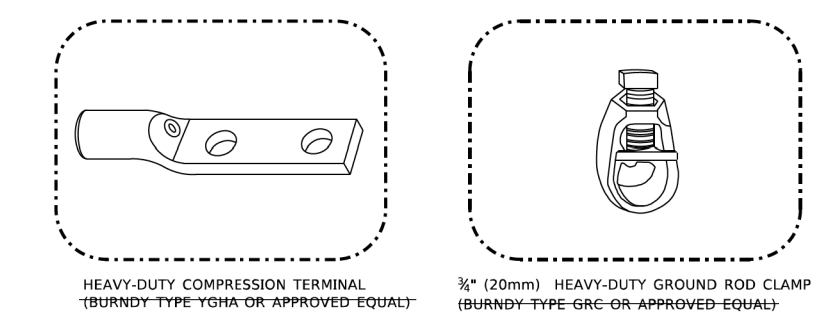
**ELECTRICAL SERVICE – PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)**  
**SERVICE INSTALLATION POLE MOUNT (SHOWN)**  
 (NOT TO SCALE)



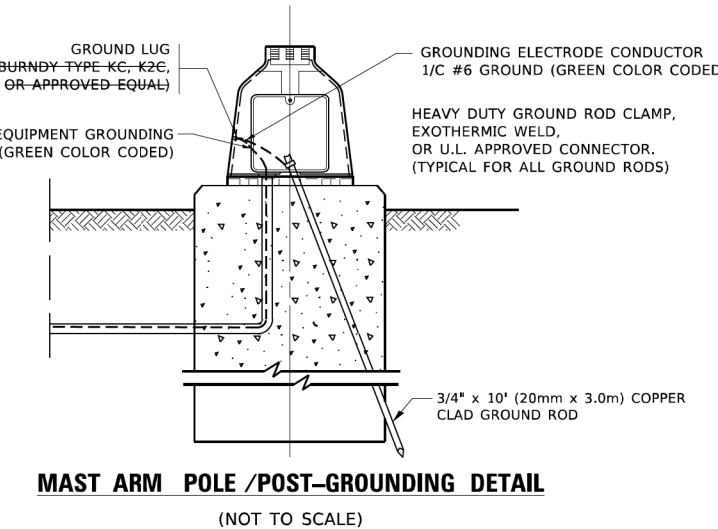
**CABINET – BASE BOLT PATTERN**  
 (NOT TO SCALE)

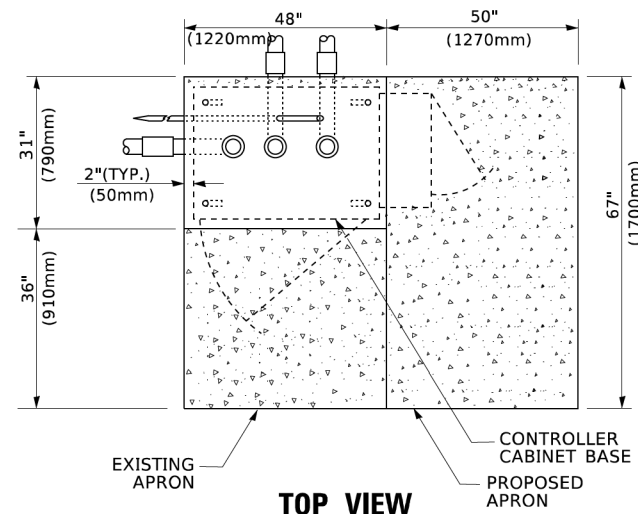


- NOTES:**
- GROUNDING SYSTEM**
1. THE GROUNDING SYSTEM SHALL CONSIST OF AN INSULATED CONDUCTOR TYPE XLP, NO. 6 A.W.G., STRANDED COPPER TO BE INSTALLED IN RACEWAYS. THE GROUNDING CABLE SHALL BE INSTALLED IN A CONTINUOUS MANNER AS SHOWN ON THE CABLE PLAN PROVIDED. ALL GROUNDING CONDUCTORS SHALL BE BONDED TO METAL ENCLOSURE (HANDHOLE, POST, MAST ARM, CONTROLLER, ETC.). GROUND ROD SHALL BE 3/4" DIA. x 10'-0" (20mm x 3.0m) LONG, COPPER CLAD. ONE GROUND ROD SHALL BE INSTALLED AT ALL POST FOUNDATIONS, POLE FOUNDATIONS, CONTROLLER CABINET FOUNDATION AND ELECTRICAL SERVICE INSTALLATION AS INDICATED ON THE CABLE PLAN. IF THERE ARE ANY SPECIAL CONDITIONS SUCH AS SUB-SURFACE CONDITIONS OR INSTALLATION PROBLEMS, THE RESIDENT ENGINEER SHALL BE NOTIFIED OR CONTACT THE BUREAU OF TRAFFIC, ILLINOIS DEPARTMENT OF TRANSPORTATION DISTRICT ONE AT (847) 705-4139.
  2. THE NEUTRAL CONDUCTOR AND THE GROUND CONDUCTOR SHALL BE CONNECTED IN THE SERVICE INSTALLATION. AT NO OTHER POINT IN THE TRAFFIC SIGNAL SYSTEM SHALL THE NEUTRAL AND GROUND CONDUCTORS BE CONNECTED.
  3. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL TERMINATE AT THE GROUND BUS IN THE CONTROLLER CABINET.
  4. THE CONTRACTOR SHALL PROVIDE A GROUND CABLE WITH CONNECTORS BETWEEN THE HANDHOLE COVER AND HANDHOLE FRAME.

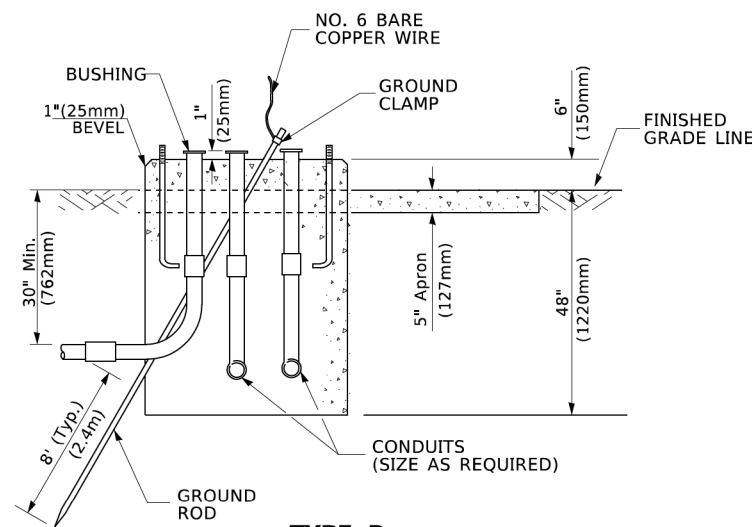


- NOTES:**
- ALL CLAMPS SHALL BE BRONZE OR COPPER, UL APPROVED.
  - GROUND CABLE SHALL BE LOOPED OVER HOOKS IN THE HANDHOLES 6.5' (2.0m) SLACK SHALL BE PROVIDED IN SINGLE HANDHOLES 13' (4.0m) OF SLACK SHALL BE PROVIDED IN DOUBLE HANDHOLES. 5' (1.4m) OF SLACK SHALL BE PROVIDED BETWEEN FRAME AND COVER.

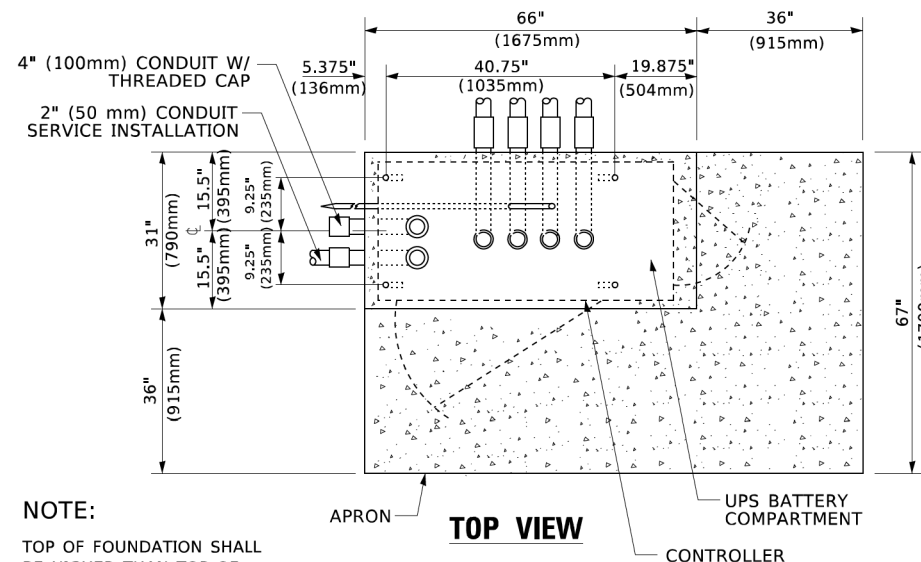




**TOP VIEW**

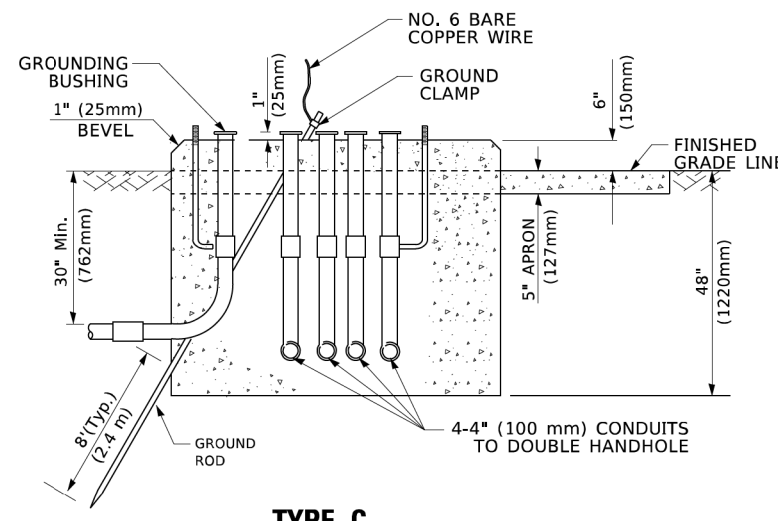


**TYPE D  
FOR GROUND MOUNTED  
CONTROLLER CABINET  
AND UPS BATTERY CABINET**

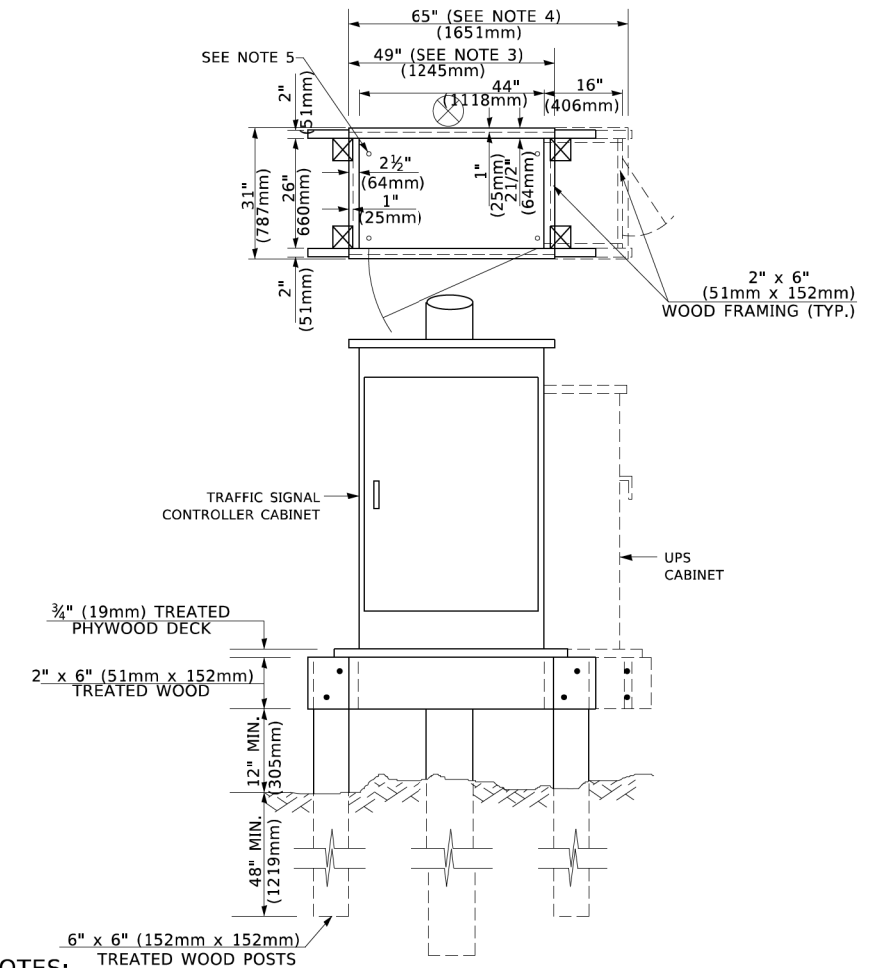


**TOP VIEW**

**NOTE:**  
TOP OF FOUNDATION SHALL BE HIGHER THAN TOP OF DOUBLE HANDHOLE



**TYPE C  
FOR GROUND MOUNTED  
SUPER P (TYPE IV) AND SUPER R (TYPE V)  
CONTROLLER CABINETS**



**NOTES:**

- BASED ON CONTROLLER CABINET TYPE IV WITH BASE DIMENSIONS OF 26" x 44" (660mm x 1118mm). ADJUST PLATFORM SIZE TO FIT CABINET BASE DIMENSIONS BEING SUPPLIED.
- BASED ON UNINTERRUPTIBLE POWER SUPPLY CABINET WITH BASE DIMENSIONS OF 16" x 25" (406mm x 635mm). ADJUST PLATFORM SIZE TO FIT CABINET BASE DIMENSIONS BEING SUPPLIED.
- PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV.
- PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV AND UNINTERRUPTIBLE POWER SUPPLY CABINET.
- DRILLED HOLES THROUGH THE PLATFORM BASE TO MATCH THE CONTROLLER CABINET BOLT TEMPLATE. FASTEN THE CONTROLLER CABINET TO THE PLATFORM WITH CARRIAGE BOLTS, WASHERS AND NUTS.
- FASTEN ALL SUPPORT WOOD FRAMING TO THE WOOD POSTS WITH 2 LAG SCREWS FOR EACH CONNECTION..

**TEMPORARY SIGNAL CONTROLLER  
WOOD SUPPORT PLATFORM**

CABLE SLACK LENGTH	FEET	METER
HANDHOLE	6.5	2.0
DOUBLE HANDHOLE	13.0	4.0
SIGNAL POST	2.0	0.6
MAST ARM	2.0	0.6
CONTROLLER CABINET	1.5	0.5
FIBER OPTIC AT CABINET	13.0	4.0
ELECTRIC SERVICE AT (CABINET OR SERVICE LOCATION)	1.5	0.5
GROUND CABLE (SIGNAL POST, MAST ARM, CABINET)	1.5	0.5
GROUND CABLE (BETWEEN FRAME AND COVER)	5.0	1.6

**CABLE SLACK**

VERTICAL CABLE LENGTH	FEET	METER
MAST ARM POLE ( MAST ARM MOUNTED SIGNAL HEAD) (L = MAST ARM LENGTH - DISTANCE TO SIGNAL HEAD FROM END OF ARM)	20.0+L	6.0+L
BRACKET MOUNTED (MAST ARM POLE OR SIGNAL POLE)	13.0	4.0
PEDESTRIAN PUSH BUTTON	6.0	2.0
SERVICE INSTALLATION POLE MOUNT TO SERVICE DROP	13.5	4.1
SERVICE INSTALLATION POLE MOUNT TO GROUND	13.5	4.1
SERVICE INSTALLATION GROUND MOUNT	6.0	2.0
FOUNDATION (SIGNAL POST, MAST ARM POLE, CONTROLLER CABINET, SERVICE-GROUND MOUNT)	3.0	1.0

**VERTICAL CABLE LENGTH**

FOUNDATION	DEPTH
TYPE A - Signal Post	4'-0" (1.2m)
TYPE C - CONTROLLER W/ UPS	4'-0" (1.2m)
TYPE D - CONTROLLER	4'-0" (1.2m)
SERVICE INSTALLATION, GROUND MOUNT, TYPE A - SQUARE	4'-0" (1.2m)

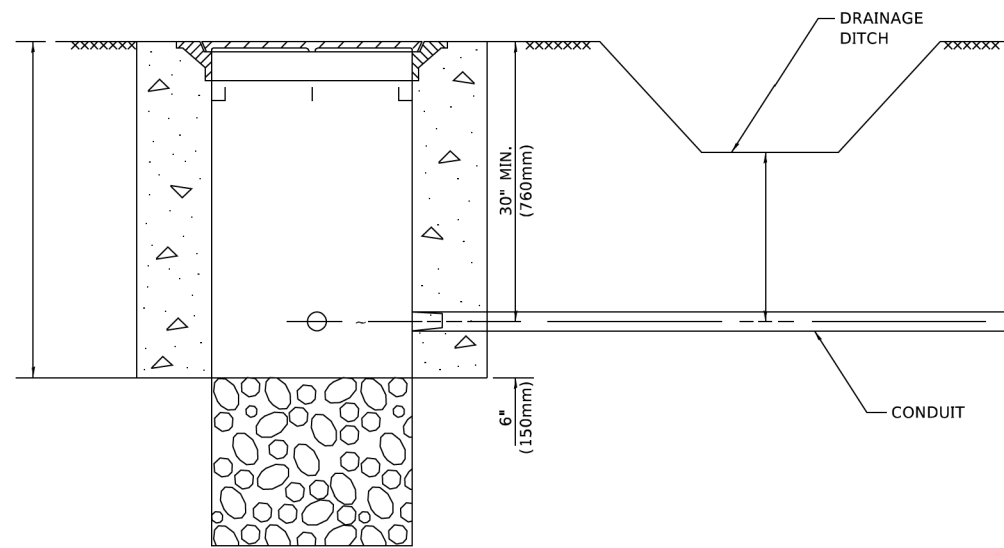
**DEPTH OF FOUNDATION**

MAST ARM LENGTH	① FOUNDATION DEPTH	FOUNDATION DIAMETER	SPIRAL DIAMETER	QUANTITY OF REBARS	SIZE OF REBARS
Less than 30' (9.1 m)	10'-0" (3.0 m)	30" (750mm)	24" (600mm)	8	6(19)
Greater than or equal to 30' (9.1 m) and less than 40' (12.2 m)	13'-6" (4.1 m)	30" (750mm)	24" (600mm)	8	6(19)
Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m)	11'-0" (3.4 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	13'-0" (4.0 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 55' (16.8 m) and up to 65' (19.8 m)	15'-0" (4.6 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 65' (19.8 m) and less than 75' (22.9 m)	21'-0" (6.4 m)	42" (1060mm)	36" (900mm)	16	8(25)
Greater than or equal to 75' (22.9 m)	25'-0" (7.6 m)	42" (1060mm)	36" (900mm)	16	8(25)

**NOTES:**

- These foundation depths are for sites which have cohesive soils (clayey silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive Strength (Qu) > 1.0 tsf (100 kpa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.
- Combination mast arm assemblies under 55 feet (16.8 m) shall use 36" (900 mm) diameter foundations.
- Combination mast arm assemblies under 56 feet (16.8 m) through 75 feet (22.9 m) shall use 42" (1060 mm) diameter foundations.
- For mast arm assemblies with dual arms refer to state standard 878001..

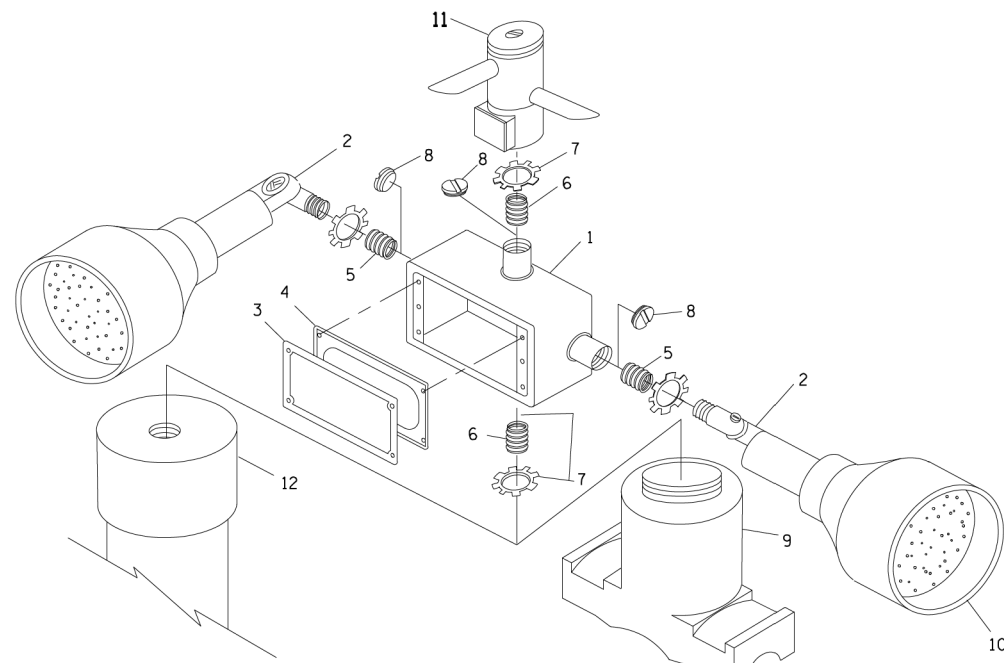
**DEPTH OF MAST ARM FOUNDATIONS, TYPE E**



**NOTES:**

1. CONDUIT DEPTH SHALL BE A MINIMUM OF 30" (760mm) BELOW THE BOTTOM OF THE DRAINAGE DITCH OR ANY SLOPING GROUND
2. THE MINIMUM CONDUIT DEPTH APPLIES TO ALL CONDUIT PLACED UNDER ROADWAY PAVEMENT, MULTI-USE PATHS, SIDEWALKS AND SOIL SURFACES.
3. THE MINIMUM CONDUIT DEPTH APPLIES TO ALL HANDHOLES, HEAVY DUTY HANDHOLES AND DOUBLE HANDHOLES.

**HANDHOLE WITH MINIMUM CONDUIT DEPTH**  
(NOT TO SCALE)

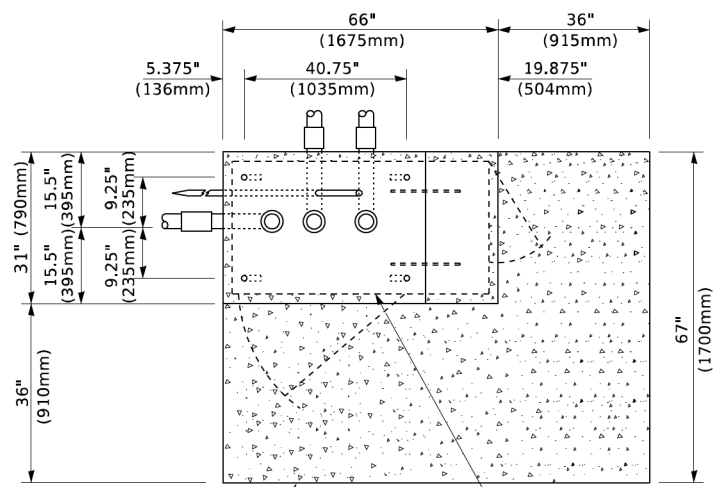


**POST CAP MOUNT**      **MAST ARM MOUNT**  
**EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION**

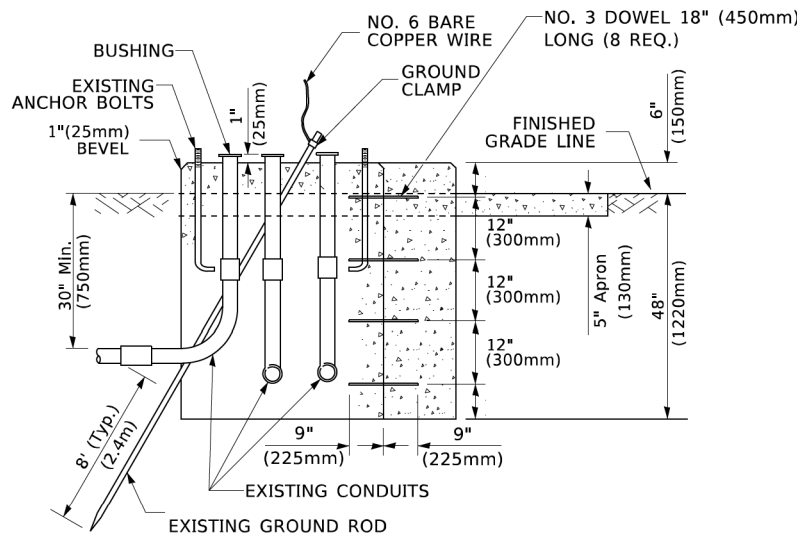
ITEM NO.	IDENTIFICATION
1	OUTLET BOX- GALV. 21 CU.IN. (0.000344 CU-M)
2	LAMP HOLDER AND COVER
3	OUTLET BOX COVER
4	RUBBER COVER GASKET
5	REDUCING BUSHING
6	3/4"(19 mm) CLOSE NIPPLE
7	3/4"(19 mm) LOCKNUT
8	3/4"(19 mm) HOLE PLUG
9	SADDLE BRACKET - GALV.
10	6 WATT PAR 38 LED FLOOD LAMP
11	DETECTOR UNIT
12	POST CAP [18 FT. (5.4 m) POST MIN.]

**NOTES:**

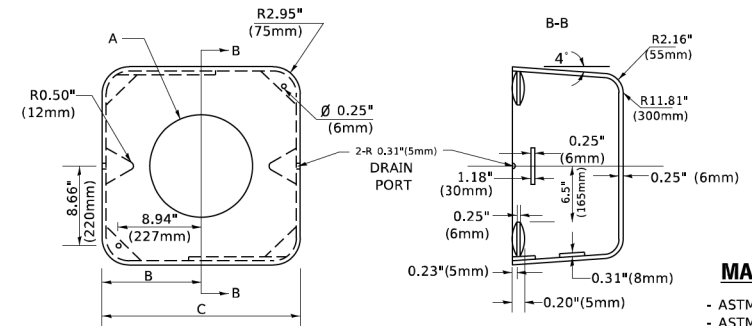
1. ALL ELECTRICAL ITEMS, EXCEPT ITEMS #2 AND #11 SHALL BE ALUMINUM OR GALVANIZED
2. ITEM #1- OZ/GEDNEY FSX-1-50 OR EQUIVALENT  
ITEM #2- MULBERRY CON-O SHADE LAMP SHIELD OR EQUIVALENT  
ITEM #9- "BAND-IT" SADDLE BRACKET OR EQUIVALENT
3. WHEN POST MOUNTING IS SPECIFIED, ITEM #9 SHALL NOT BE REQUIRED. THE DETECTION UNIT SHALL BE MOUNTED DIRECTLY ON TOP OF THE CAP BY DRILLING AND TAPPING A 3/4 "(19 mm) HOLE WITH PIPE THREADS. THE POST CAP SHALL EITHER BE SCREWED TO THE TOP OF THE POST OR A MINIMUM OF 3 TIGHTENING SCREWS SHALL BE REQUIRED ON EACH CAP.



**TOP VIEW**  
(NOT TO SCALE)



**MODIFY EXISTING TYPE "D" FOUNDATION TO TYPE "C" FOUNDATION**  
(NOT TO SCALE)



**MATERIAL**  
- ASTM A36 STEEL  
- ASTM A-123 HOT DIPPED GALVANIZED

	A	B	C	HEIGHT	WEIGHT
VARIES	9.5"(241mm)	19"(483mm)	7" (178mm) - 12" (300mm)	53 lbs (24kg)	
VARIES	10.75"(273mm)	21.5"(546mm)	7" (178mm) - 12" (300mm)	68 lbs (31 kg)	
VARIES	13.0"(330mm)	26"(660mm)	7" (178mm) - 12" (300mm)	81 lbs (37 kg)	
VARIES	18.5"(470mm)	37"(940mm)	7" (178mm) - 12" (300mm)	126 lbs (57 kg)	

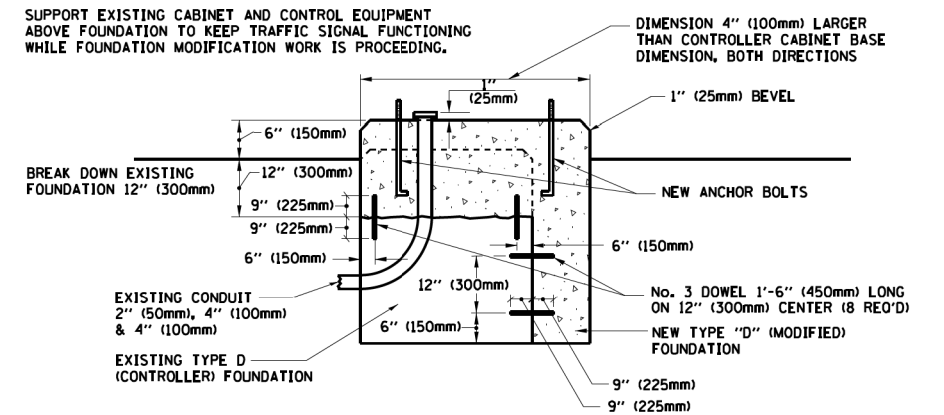
**SHROUD**

**NOTES:**

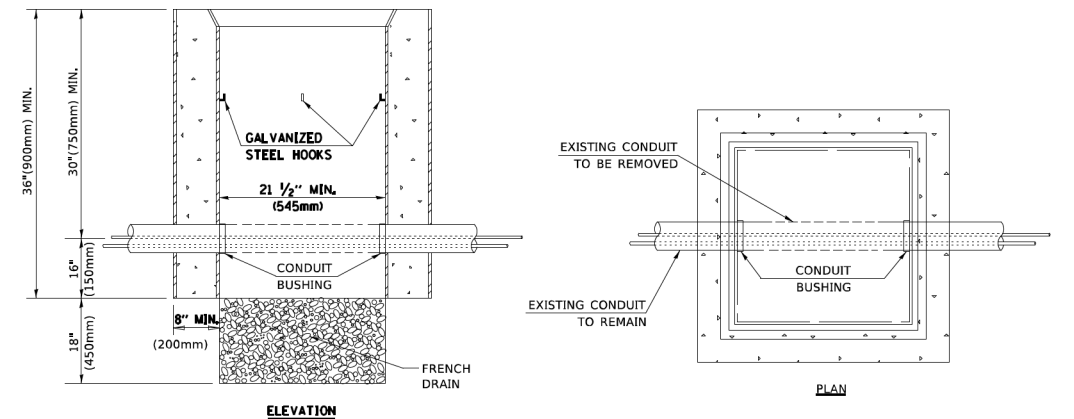
1. DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
2. THE SUPPLIER SHALL VERIFY THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
3. THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST ARM POLE BASE.

**NOTE:**

SUPPORT EXISTING CABINET AND CONTROL EQUIPMENT ABOVE FOUNDATION TO KEEP TRAFFIC SIGNAL FUNCTIONING WHILE FOUNDATION MODIFICATION WORK IS PROCEEDING.



**MODIFY EXISTING TYPE "D" FOUNDATION**



**NOTES:**

1. HANDHOLE CONSTRUCTED PER STATE STANDARD 814001.
2. REMOVAL OF THE EXISTING CONDUIT FROM THE HANDHOLE AND THE INSTALLATION OF THE CONDUIT BUSHINGS SHALL BE INCLUDED WITH THE COST OF THE HANDHOLE.

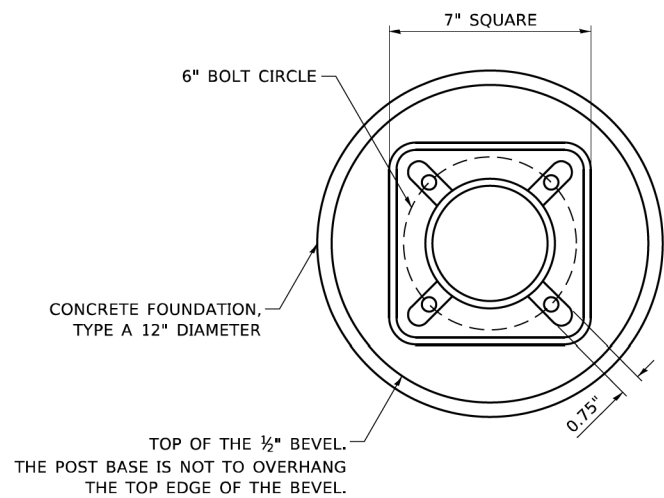
**HANDHOLE TO INTERCEPT EXISTING CONDUIT**

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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

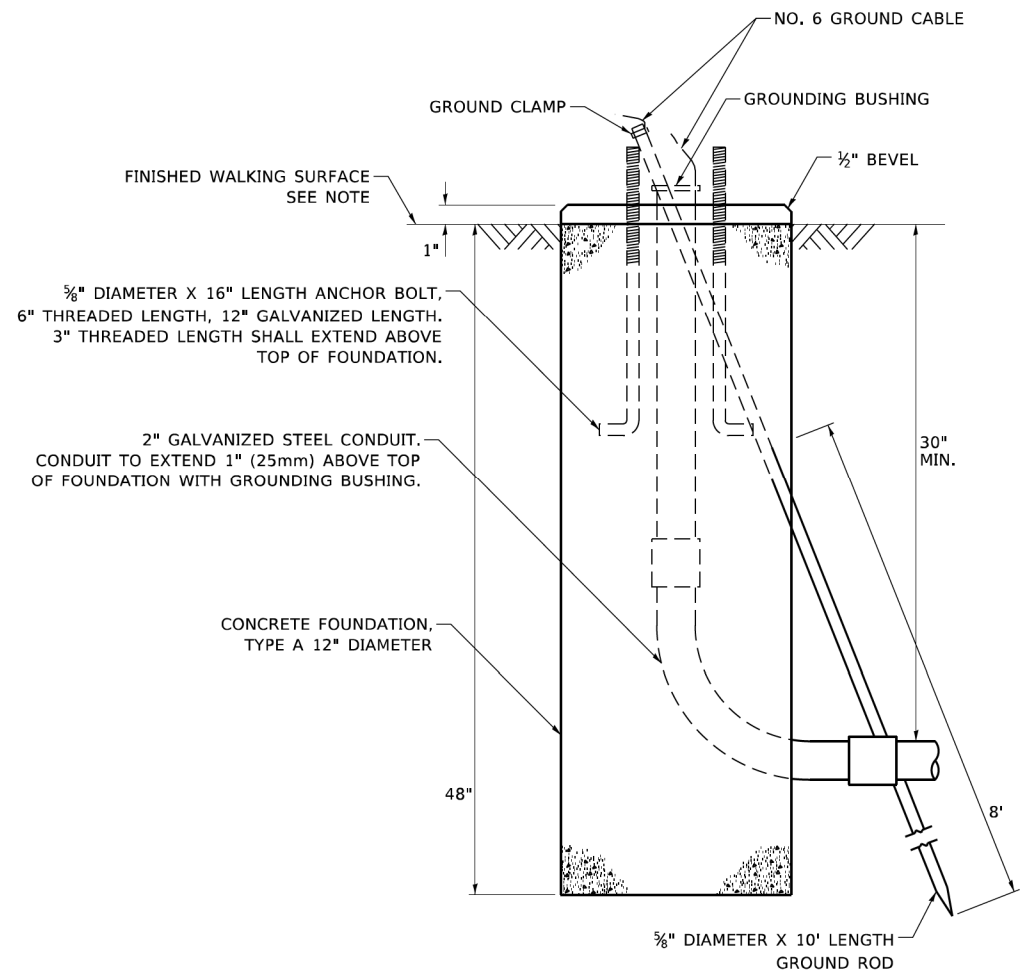
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<b>STANDARD TRAFFIC SIGNAL DESIGN DETAILS</b>		0356	12-00147-11-CH	WILL	356	209
SCALE:		<b>TS-05</b>		CONTRACT NO. 61D34		
SHEET 6 OF 7 SHEETS STA. TO STA.		ILLINOIS FED. AID PROJECT				



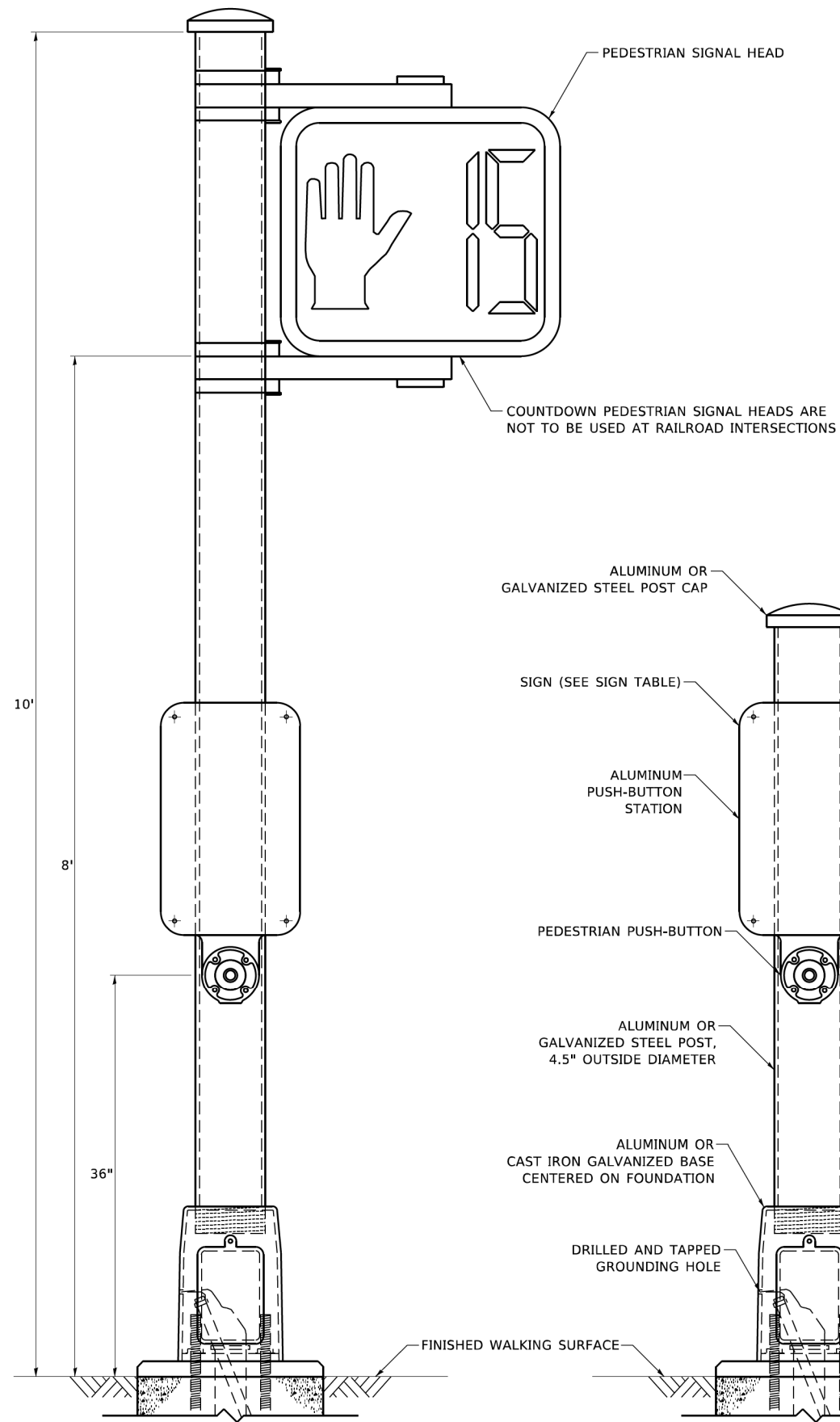
**BOLT PATTERN**

**NOTE:**

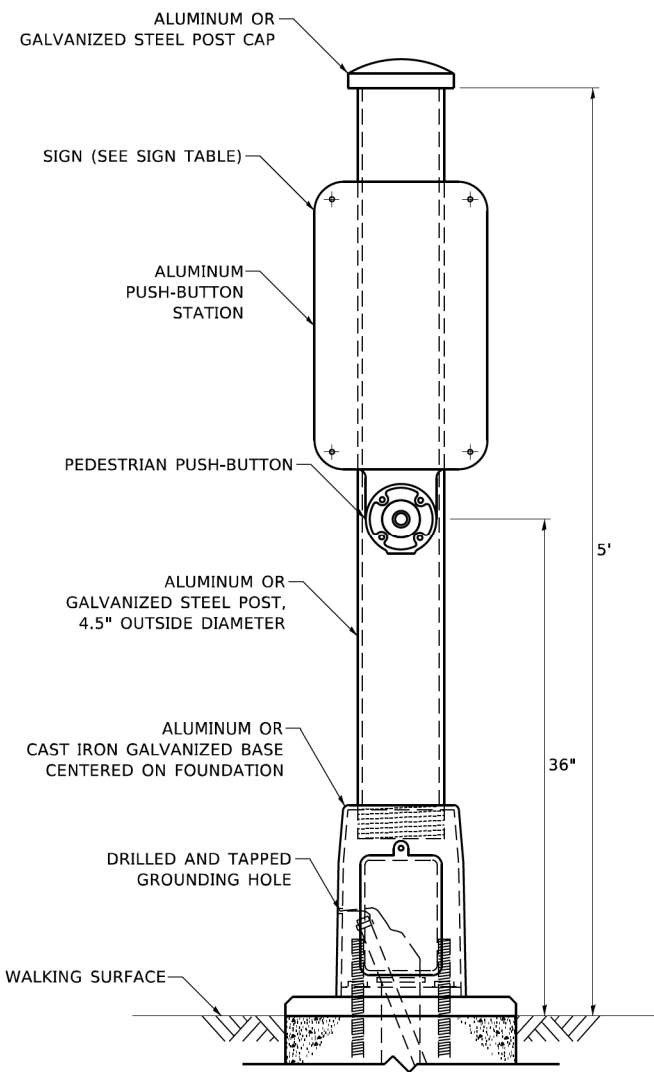
1. IF THE PEDESTRIAN SIGNAL POST FOUNDATION IS INSTALLED WITHIN OR BEHIND A BARRIER CURB, THE TOP OF THE FOUNDATION SHALL BE INSTALLED FLUSH WITH THE TOP OF THE BARRIER CURB.



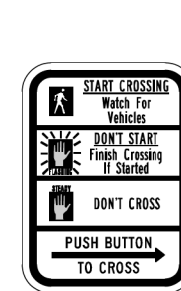
**CONCRETE FOUNDATION,  
TYPE A 12-INCH DIAMETER**



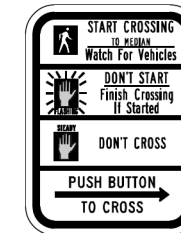
**PEDESTRIAN SIGNAL POST, 10 FT.**



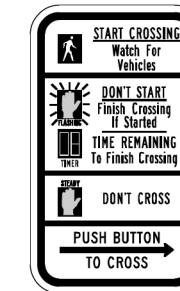
**PEDESTRIAN SIGNAL POST, 5 FT.**



R10-3b



R10-3d



R10-3e

**SIGN TABLE**

SIGN	DIMENSIONS
R10-3b (RAILROAD ONLY)	9" X 12"
R10-3d (RAILROAD ONLY)	9" X 12"
R10-3e	9" X 15"

**NOTES:**

1. THE SIGN PANELS SHALL BE TYPE AP SHEETING.
2. THE ARROW ON SIGNS FOR PUSH-BUTTONS SERVING TWO DIRECTIONS ON THE SAME PHASE SHALL BE BI-DIRECTIONAL.
3. THE SIGN FOR DUAL-CALL PUSH-BUTTONS SHALL HAVE NO ARROW.

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

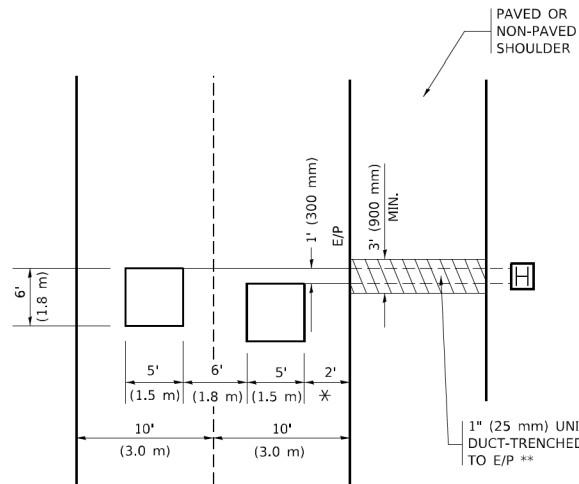
**DISTRICT ONE  
STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: SHEET NO. 7 OF 7 SHEETS STA. TO STA.

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 210
TS-05		CONTRACT NO. 61D34		
ILLINOIS FED. AID PROJECT				

**LOOPS NEXT TO SHOULDERS**

PROVIDE A PAVEMENT REPLACEMENT NOTE WHICH SHOULD EQUAL 3' (900 mm) X WIDTH OF PAVED SHOULDER.



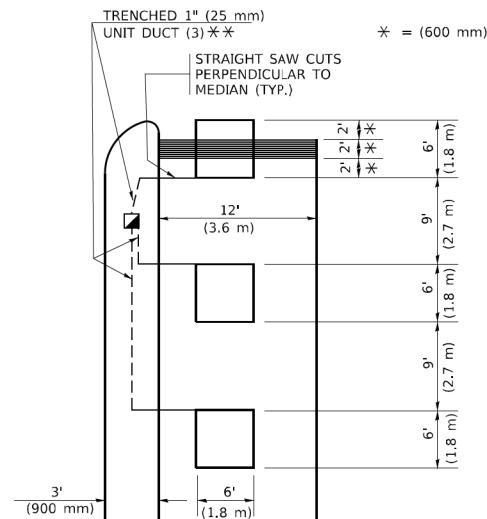
\* = (600 mm)

\*\* UNIT DUCT IS TO BE SHOWN ON PLAN SHEETS BUT SHALL NOT BE INCLUDED IN THE PAY ITEMS.

**LEFT TURN LANES WITH MEDIANS**

**VOLUME DENSITY ("FAR OUT" DETECTION) ON SAME APPROACH (PROTECTED / PERMITTED LEFT TURN PHASING)**

HANDHOLE LOCATION MAY VARY DEPENDING ON GEOMETRICS AND DESIGN OF TRAFFIC SIGNALS. HEAVY-DUTY HANDHOLES TO BE USED WHEN THE MEDIAN IS MOUNTABLE. REFER TO STANDARD 814001 TO ENSURE THAT HANDHOLE FITS IN MEDIAN.



\* = (600 mm)

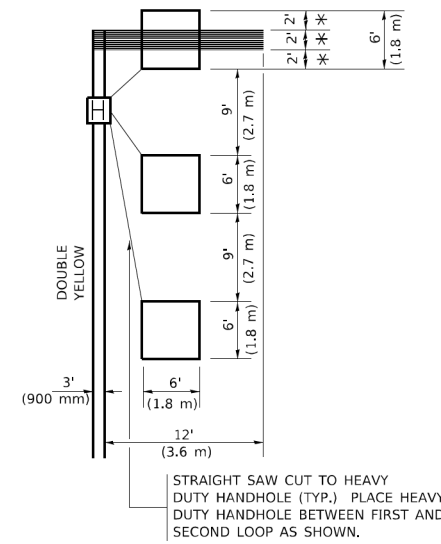
\*\* UNIT DUCT IS TO BE SHOWN ON PLAN SHEETS BUT SHALL NOT BE INCLUDED IN THE PAY ITEMS.

NOTE: DUAL LEFT TURNS NOT SHOWN REFER TO PLAN SHEET FOR DETECTOR LOOP REPLACEMENT

**LEFT TURN LANES WITHOUT MEDIANS**

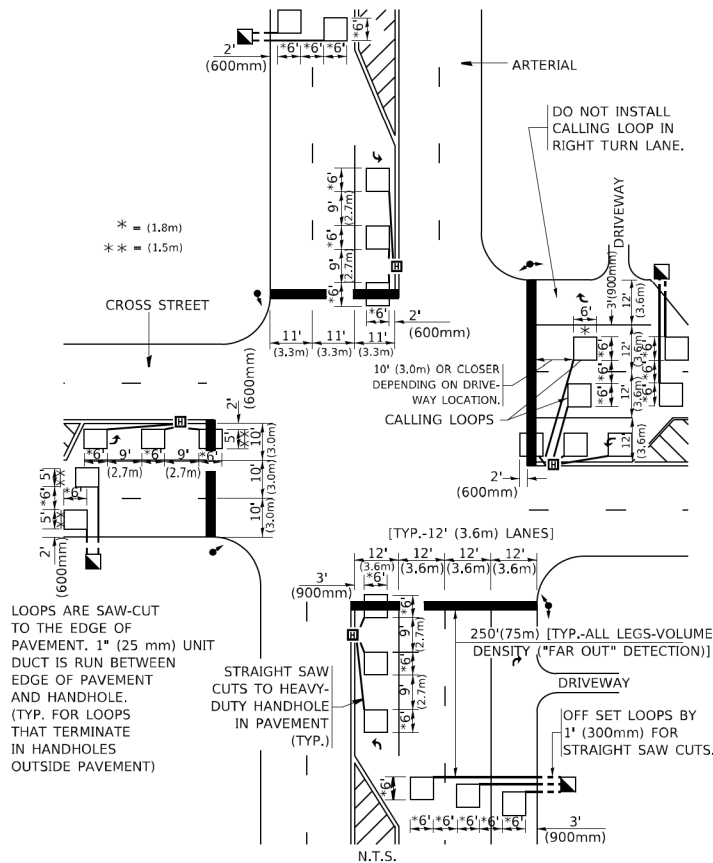
**VOLUME DENSITY ("FAR OUT" DETECTION) ON SAME APPROACH (PROTECTED / PERMITTED LEFT TURN PHASING)**

\* = (600 mm)



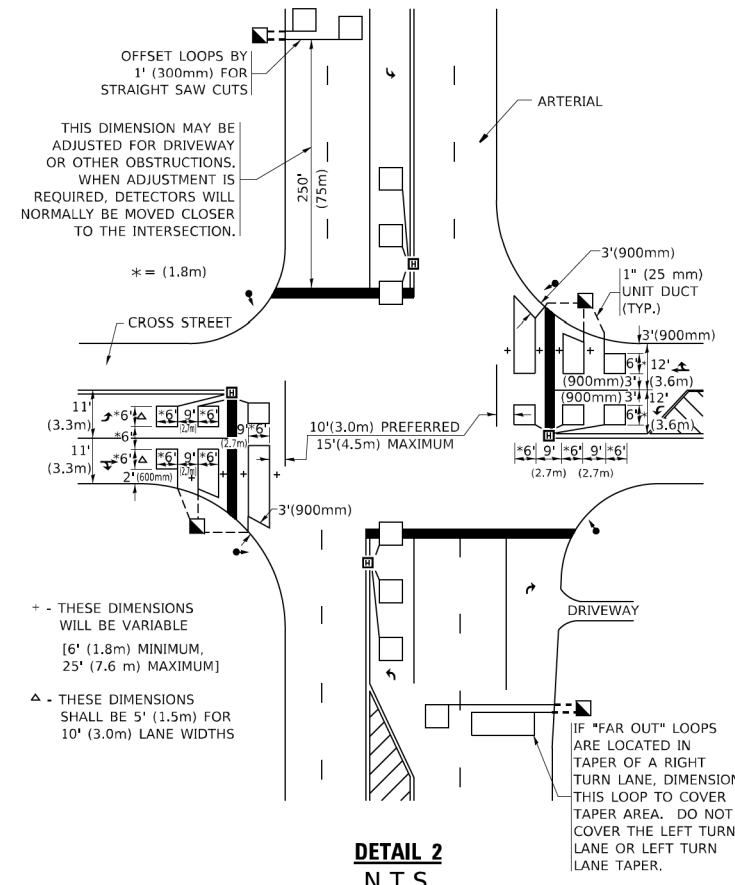
NOTE: DUAL LEFT TURNS NOT SHOWN REFER TO PLAN SHEET FOR DETECTOR LOOP REPLACEMENT

**ARTERIAL-VOLUME DENSITY ("FAR OUT" DETECTION) CROSS STREET-NON VOLUME DENSITY ("FAR OUT" DETECTION)**



**DETAIL 1**  
N.T.S.

**ARTERIAL-VOLUME DENSITY ("FAR OUT" DETECTION) CROSS STREET-NON VOLUME DENSITY ("UPTIGHT" PRESENCE DETECTION)**



**DETAIL 2**  
N.T.S.

**NOTES:**

**VEHICLES LOOP DETECTORS**

- \* ALL LEAD IN CABLE SHALL BE TWO CONDUCTOR NO. 14 TWISTED, SHIELDED.
- \* EACH DETECTOR LOOP SHALL HAVE ITS OWN SAW CUT FROM THE LOOP TO THE EDGE OF PAVEMENT OR TO A HANDHOLE IN THE PAVEMENT.
- \* EACH DETECTOR LOOP SHALL HAVE ITS OWN ONE INCH (25 mm) UNIT DUCT BETWEEN THE EDGE OF PAVEMENT AND THE FIRST HANDHOLE OR JUNCTION BOX. EACH UNIT DUCT RUN SHALL BE SHOWN ON THE PLANS BY THE DESIGNER, BUT SHALL NOT BE PAID FOR SEPARATELY. THIS ITEM IS INCIDENTAL TO THE PAY ITEM FOR DETECTOR LOOPS.
- \* ONE DIMENSION OF ALL DETECTOR LOOPS SHALL BE SIX FEET (1.8 m)
- \* EACH LANE OF NON-LOCKING, PRESENCE DETECTION AND EACH LANE OF A DOUBLE LEFT TURN LANE REQUIRES A SEPARATE INDUCTIVE LOOP DETECTOR AND LEAD IN CABLE.
- \* WHEN NON-LOCKING, PRESENCE DETECTION IS USED, MORE THAN ONE LOOP PER LANE IS REQUIRED BEHIND THE STOP BAR (i.e. 1-1/2, 1-3/4, 2).
- \* WHEN SYSTEM LOOPS ARE REQUIRED ON AN APPROACH OF AN INTERSECTION, THE LOOPS USED FOR VOLUME DENSITY AND INTERSECTION TIMING SHALL ALSO BE USED AS SYSTEM DETECTORS. EACH ONE OF THESE TYPE OF LOOPS REQUIRES A SEPARATE TWO CONDUCTOR NO. 14 TWISTED SHIELDED CABLE AND A SEPARATE INDUCTIVE LOOP DETECTOR WHEN NEW CONTROLLERS ARE UTILIZED. THE DESIGNER SHALL LABEL THESE TYPES OF LOOPS AS "INTERSECTION AND SAMPLING (SYSTEM) DETECTORS" ON THE SIGNAL LAYOUT, THE INTERCONNECT PLAN AND THE SYSTEM CABLE PLAN. WHEN AN EXISTING CONTROLLER IS UTILIZED FOR THIS TYPE OF DETECTION, THE PAY ITEM "INDUCTIVE LOOP DETECTOR WITH SYSTEM OUTPUT" SHOULD BE USED.

**PLACEMENT OF DETECTORS**

THE FOLLOWING FIGURES REPRESENT THE MOST COMMON DETECTOR LOOP LOCATIONS AND SIZES. ADJUSTMENTS WILL BE NECESSARY FOR SPECIFIC GEOMETRIC CONSIDERATIONS.

LOCATIONS AND DEMENSIONS OF DETECTOR LOOPS ARE REQUIRED ON ALL SIGNAL LAYOUT PLAN SHEETS.

"FAR OUT" DETECTION REFERS TO LOCKING, PRESENCE TYPE DETECTION LOCATED IN THRU LANES, RIGHT TURN LANES, AND RIGHT TURN LANE TAPER AREAS (IF APPLICABLE), USUALLY 250' (75 m) IN ADVANCE OF STOP BARS. "UPTIGHT" DETECTION REFERS TO NON-LOCKING PRESENCE TYPE DETECTION LOCATED IN ALL LANES AND 10'-15' (3.0 m-4.5 m) BEHIND THE CROSSING STREET'S EDGE OF PAVEMENT EXTENDED.

**NOTE:**

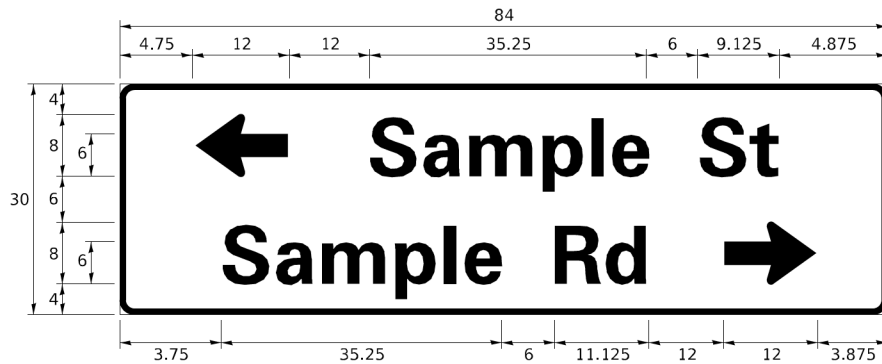
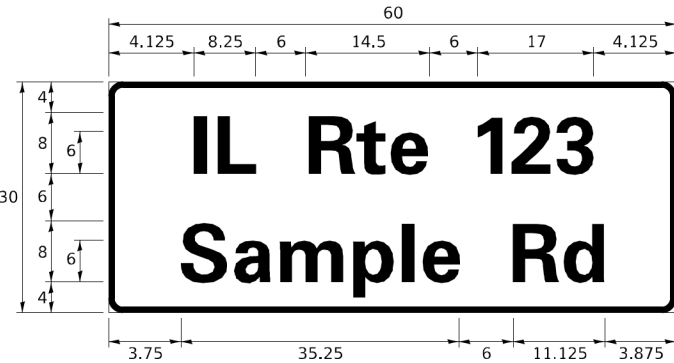
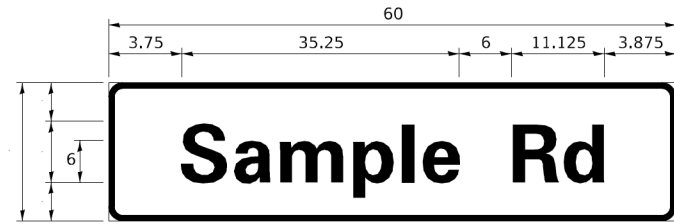
ALL DETAILS AND NOTES SHOWN ARE FROM THE I.D.O.T. DISTRICT 1 TRAFFIC SIGNAL DESIGN GUIDELINES DATED JANUARY 1995

THIS DRAWING HAS BEEN PREPARED TO ASSIST THE RESIDENT ENGINEER FOR ALL ROADWAY RESURFACING OR S.M.A.R.T. PROJECTS WHERE THE DIMENSIONS ARE NOT SHOWN ON THE PLANS AND THE FINAL LOCATIONS FOR CROSSWALKS OR STOP BARS ARE NOT DETERMINED.

FILE NAME - ...Traffic\W11Co-shs008-TS.dgn	DESIGNED -	REVISED -	<p>800 W FULLTON ST CHICAGO, ILLINOIS 60611-1250</p> <p>TEL 312 454 9100 FAX 312 559 1217 WEB www.stepstein.com</p>	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>			<b>DISTRICT 1 - DETECTOR LOOP INSTALLATION</b> <b>DETAILS FOR ROADWAY RESURFACING</b>			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT TIME - 4:08:12 PM	DRAWN -	REVISED -								0356	12-00147-11-CH	WILL	356	211
PLOT DATE - 2/14/2024	CHECKED -	REVISED -		SCALE:			SHEET 1	OF 1	SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT		
DATE - 02/14/2024	DATE -	REVISED -								CONTRACT NO. 61D34				



**SIGN PANEL – TYPE 1 OR TYPE 2**



DESIGN SERIES	AREA (SQ FT)	SIGN PANEL TYPE	SHEETING TYPE	QTY. REQUIRED
D OR C	-	1 OR 2	ZZ	-

**COMMON STREET NAME ABBREVIATIONS AND WIDTHS**

NAME	ABBREVIATION	WIDTH (INCH)	
		SERIES "C"	SERIES "D"
AVENUE	Ave	15.000	18.250
BOULEVARD	Blvd	17.125	20.000
CIRCLE	Cir	11.125	13.000
COURT	Ct	8.250	9.625
DRIVE	Dr	8.625	10.125
HIGHWAY	Hwy	18.375	22.000
ILLINOIS	IL	7.000	8.250
LANE	Ln	9.125	10.750
PARKWAY	Pkwy	23.375	27.375
PLACE	Pl	7.125	7.750
ROAD	Rd	9.625	11.125
ROUTE	Rte	12.625	14.500
STREET	St	8.000	9.125
TERRACE	Ter	12.625	14.625
TRAIL	Tr	7.750	9.125
UNITED STATES	US	10.375	12.250

**GENERAL NOTES**

- WHERE MAST ARM MOUNTED STREET NAME SIGNS ARE SPECIFIED, THE MAST ARM ASSEMBLY AND POLES SHALL BE DESIGNED TO SUPPORT THE LOADINGS CALLED FOR ON STANDARDS 877001, 877002, 877006, 877011 AND 877012, AS APPLICABLE, PLUS TWO (2) SIGN PANELS 2'-6" x 8'-0" MOUNTED AS SHOWN. THE DESIGN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR 80 M.P.H. WIND VELOCITY.
- ALL SIGNS SHALL CONSIST OF A WHITE LEGEND AND BORDER (TYPE ZZ SHEETING) ON A GREEN BACKGROUND (TYPE ZZ SHEETING)
- THE SIGN LENGTH SHALL BE IN 6-INCH INCREMENTS, BUT THE OVERALL LENGTH SHALL NOT EXCEED 8'-0". ALL BORDERS IF POSSIBLE, BUT MAY BE REDUCED TO 5" WHEN SPACING IS CRITICAL. A MINIMUM OF 2-1/2" SHALL BE INCLUDED BETWEEN THE WORD AND THE RIGHT AND LEFT EDGES OF THE SIGN.
- A PREFERRED METHOD FOR THE SIGN DESIGN IS TO USE SERIES "D" LETTER ON A ONE-LINE SIGN 18" IN HEIGHT AND A MAXIMUM OF 8'-0" IN WIDTH. IF SERIES "D" DOES NOT FIT ON A 8'-0" SIGN, THEN SERIES "C" SHOULD BE TRIED. IF SERIES "C" DOES NOT FIT ON A 8'-0" SIGN, A 30" HIGH TWO-LINE SIGN CAN BE USED. THE CROSSROAD DESIGNATION AS TO STREET, AVENUE, ETC. SHOULD BE SPELLED OUT ON THE SECOND LINE, IF THE ABBREVIATION CANNOT FIT ON THE FIRST LINE.
- LED ILLUMINATED STREET NAME SIGNS CAN BE USED IN PLACE OF REGULAR SIGN PANELS BUT ANY SPECIAL WORDING AND SYMBOLOGY MUST BE APPROVED BY THE DEPARTMENT. GENERAL DESIGN REQUIREMENT AS LISTED ABOVE (COLOR, FONT, SIZE, ETC.) MUST BE FOLLOWED.
- SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM SHALL BE USED FOR ALL SIGNS ATTACHED TO SIGNAL POLES AND POSTS.

**LOCAL SUPPLIERS:**

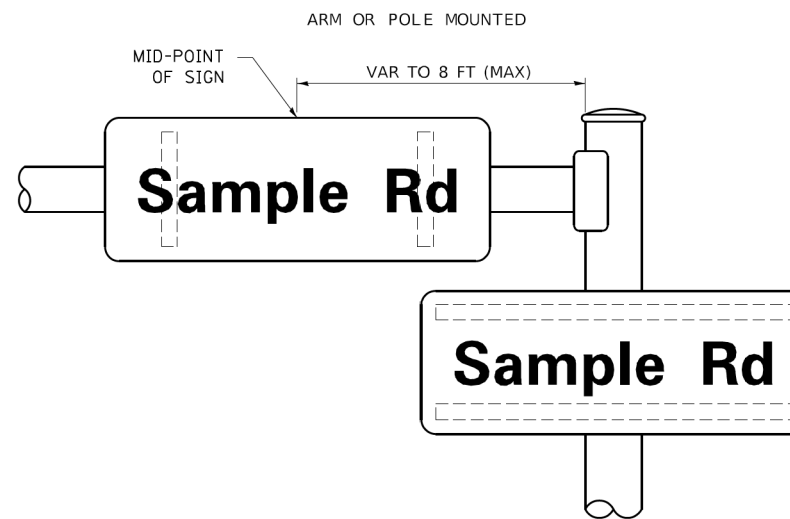
- J.O. HERBERT COMPANY, INC  
MIDLOTHIAN, VA
- WESTERN REMAC, INC.  
WOODRIDGE, IL

**PARTS LISTING:**

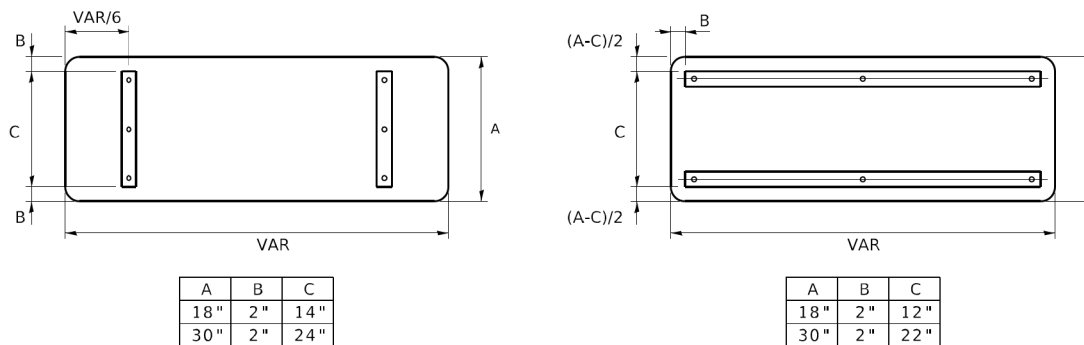
- SIGN CHANNEL PART #HPN053 (MED. CHANNEL)
- SIGN SCREWS 1/4" x 14 x 1" H.W.H. #3
- BRACKETS SELF TAPPING WITH NEOPRENE WASHER
- CHANNEL CLAMPS WITH STAINLESS STEEL STRAPPING PART #HPN034 (UNIVERSAL)

OTHER BRANDS OF MOUNTING HARDWARE ARE ACCEPTABLE, BASED UPON THE DEPARTMENT'S APPROVAL AND COMPATIBILITY WITH THE CHANNEL/BACKET OF THE ABOVE PRODUCT.

**MOUNTING LOCATION**



**SUPPORTING CHANNELS**



**STANDARD ALPHABETS SPACING CHART**

(8") UPPER CASE AND (6") LOWER CASE

FHWA SERIES "C"				FHWA SERIES "D"			
CHARACTER	LEFT SPACING (INCH)	WIDTH (INCH)	RIGHT SPACING (INCH)	CHARACTER	LEFT SPACING (INCH)	WIDTH (INCH)	RIGHT SPACING (INCH)
A	0.240	5.122	0.240	A	0.240	6.804	0.240
B	0.880	4.482	0.480	B	0.960	5.446	0.400
C	0.720	4.482	0.720	C	0.800	5.446	0.800
D	0.880	4.482	0.720	D	0.960	5.446	0.800
E	0.880	4.082	0.480	E	0.960	4.962	0.400
F	0.880	4.082	0.240	F	0.960	4.962	0.240
G	0.720	4.482	0.720	G	0.800	5.446	0.800
H	0.880	4.482	0.880	H	0.960	5.446	0.960
I	0.880	1.120	0.880	I	0.960	1.280	0.960
J	0.240	4.082	0.880	J	0.240	5.122	0.960
K	0.880	4.482	0.480	K	0.960	5.604	0.400
L	0.880	4.082	0.240	L	0.960	4.962	0.240
M	0.880	5.284	0.880	M	0.960	6.244	0.960
N	0.880	4.482	0.880	N	0.960	5.446	0.960
O	0.720	4.722	0.720	O	0.800	5.684	0.800
P	0.880	4.482	0.720	P	0.960	5.446	0.240
Q	0.720	4.722	0.720	Q	0.800	5.684	0.800
R	0.880	4.482	0.480	R	0.960	5.446	0.400
S	0.480	4.482	0.480	S	0.400	5.446	0.400
T	0.240	4.082	0.240	T	0.240	4.962	0.240
U	0.880	4.482	0.880	U	0.960	5.446	0.960
V	0.240	4.962	0.240	V	0.240	6.084	0.240
W	0.240	6.084	0.240	W	0.240	7.124	0.240
X	0.240	4.722	0.240	X	0.400	5.446	0.400
Y	0.240	5.122	0.240	Y	0.240	6.884	0.240
Z	0.480	4.482	0.480	Z	0.400	5.446	0.400
a	0.320	3.842	0.640	a	0.400	4.562	0.720
b	0.720	4.082	0.480	b	0.800	4.802	0.480
c	0.480	4.002	0.240	c	0.480	4.722	0.240
d	0.480	4.082	0.720	d	0.480	4.802	0.800
e	0.480	4.082	0.320	e	0.480	4.722	0.320
f	0.320	2.480	0.160	f	0.320	2.882	0.160
g	0.480	4.082	0.720	g	0.480	4.802	0.800
h	0.720	4.082	0.640	h	0.800	4.722	0.720
i	0.720	1.120	0.720	i	0.800	1.280	0.800
j	0.000	2.320	0.720	j	0.000	2.642	0.800
k	0.720	4.322	0.160	k	0.800	5.122	0.160
l	0.720	1.120	0.720	l	0.800	1.280	0.800
m	0.720	6.724	0.640	m	0.800	7.926	0.720
n	0.720	4.082	0.640	n	0.800	4.722	0.720
o	0.480	4.082	0.480	o	0.480	4.882	0.480
p	0.720	4.082	0.480	p	0.800	4.802	0.480
q	0.480	4.082	0.720	q	0.480	4.802	0.800
r	0.720	2.642	0.160	r	0.800	3.042	0.160
s	0.320	3.362	0.240	s	0.320	3.762	0.240
t	0.080	2.882	0.080	t	0.080	3.202	0.080
u	0.640	4.082	0.720	u	0.720	4.722	0.800
v	0.160	4.722	0.160	v	0.160	5.684	0.160
w	0.160	7.524	0.160	w	0.160	9.046	0.160
x	0.000	5.202	0.000	x	0.000	6.244	0.000
y	0.160	4.962	0.160	y	0.160	6.004	0.160
z	0.240	3.362	0.240	z	0.240	4.002	0.240
1	0.720	1.680	0.880	1	0.800	2.000	0.960
2	0.480	4.482	0.480	2	0.800	5.446	0.800
3	0.480	4.482	0.480	3	1.440	5.446	0.800
4	0.240	4.962	0.720	4	0.160	6.004	0.960
5	0.480	4.482	0.480	5	0.800	5.446	0.800
6	0.720	4.482	0.720	6	0.800	5.446	0.800
7	0.240	4.482	0.720	7	0.560	5.446	0.560
8	0.480	4.482	0.480	8	0.800	5.446	0.800
9	0.480	4.482	0.480	9	0.800	5.446	0.800
0	0.720	4.722	0.720	0	0.800	5.684	0.800
-	0.240	2.802	0.240	-	0.240	2.802	0.240



**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.

**REMOVAL AND RELOCATION NOTES:**

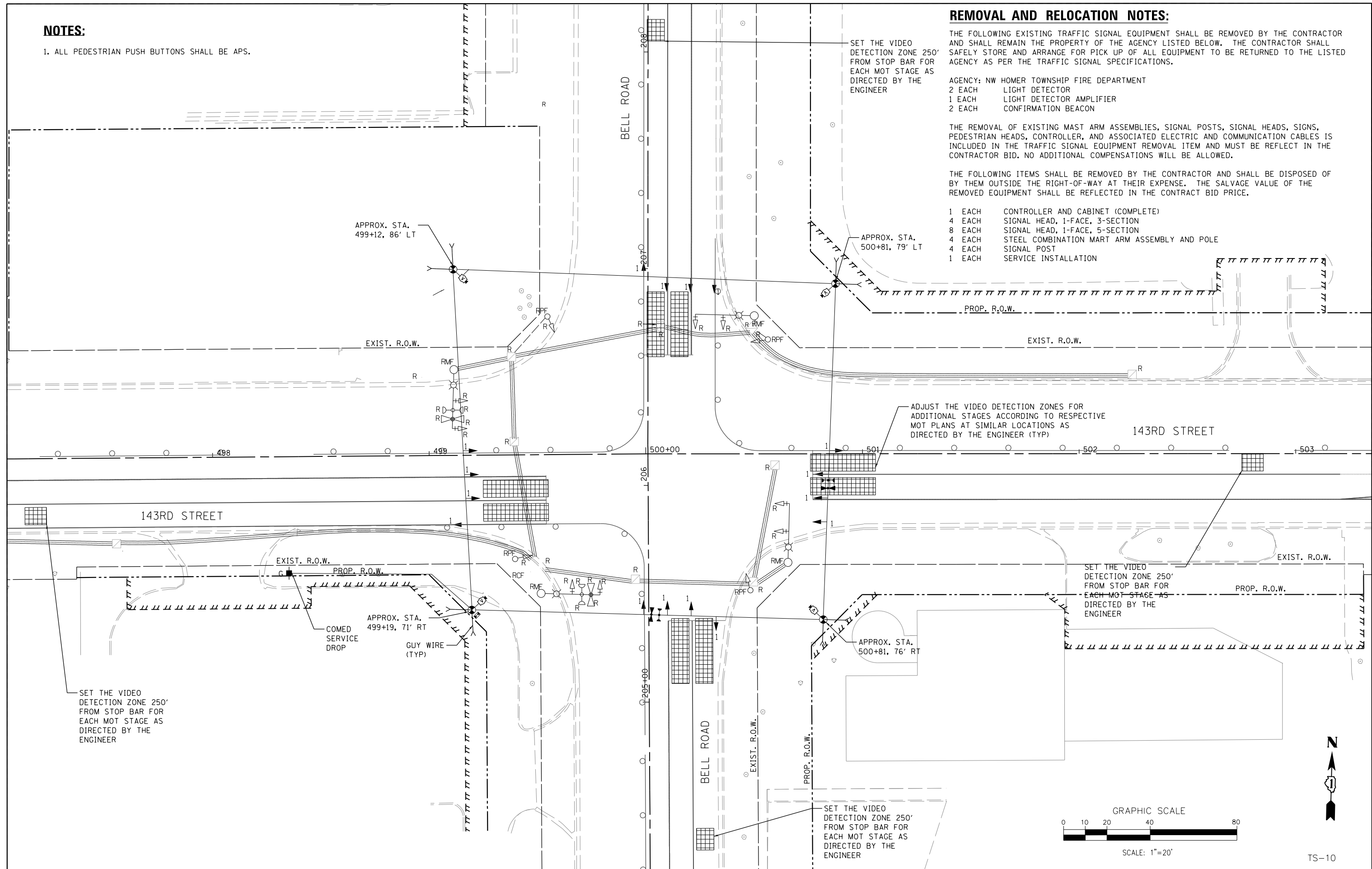
THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR AND SHALL REMAIN THE PROPERTY OF THE AGENCY LISTED BELOW. THE CONTRACTOR SHALL SAFELY STORE AND ARRANGE FOR PICK UP OF ALL EQUIPMENT TO BE RETURNED TO THE LISTED AGENCY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS.

- AGENCY: NW HOMER TOWNSHIP FIRE DEPARTMENT  
 2 EACH LIGHT DETECTOR  
 1 EACH LIGHT DETECTOR AMPLIFIER  
 2 EACH CONFIRMATION BEACON

THE REMOVAL OF EXISTING MAST ARM ASSEMBLIES, SIGNAL POSTS, SIGNAL HEADS, SIGNS, PEDESTRIAN HEADS, CONTROLLER, AND ASSOCIATED ELECTRIC AND COMMUNICATION CABLES IS INCLUDED IN THE TRAFFIC SIGNAL EQUIPMENT REMOVAL ITEM AND MUST BE REFLECTED IN THE CONTRACTOR BID. NO ADDITIONAL COMPENSATIONS WILL BE ALLOWED.

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 1 EACH CONTROLLER AND CABINET (COMPLETE)  
 4 EACH SIGNAL HEAD, 1-FACE, 3-SECTION  
 8 EACH SIGNAL HEAD, 1-FACE, 5-SECTION  
 4 EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE  
 4 EACH SIGNAL POST  
 1 EACH SERVICE INSTALLATION

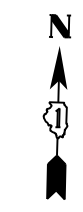
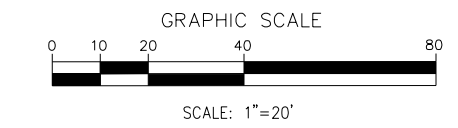


ADJUST THE VIDEO DETECTION ZONES FOR ADDITIONAL STAGES ACCORDING TO RESPECTIVE MOT PLANS AT SIMILAR LOCATIONS AS DIRECTED BY THE ENGINEER (TYP)

SET THE VIDEO DETECTION ZONE 250' FROM STOP BAR FOR EACH MOT STAGE AS DIRECTED BY THE ENGINEER

SET THE VIDEO DETECTION ZONE 250' FROM STOP BAR FOR EACH MOT STAGE AS DIRECTED BY THE ENGINEER

SET THE VIDEO DETECTION ZONE 250' FROM STOP BAR FOR EACH MOT STAGE AS DIRECTED BY THE ENGINEER



TS-10

FILE NAME = ...Traffic\WillCo-sh1010-TS.dgn  
 PLOT TIME = 4:00:57 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

**SEPSTEIN**  
 800 W FULTON ST. TEL: 312 454 9100  
 CHICAGO, ILL 60605 FAX: 312 539 1217  
 0081-1259 WEB: www.sepstein.com

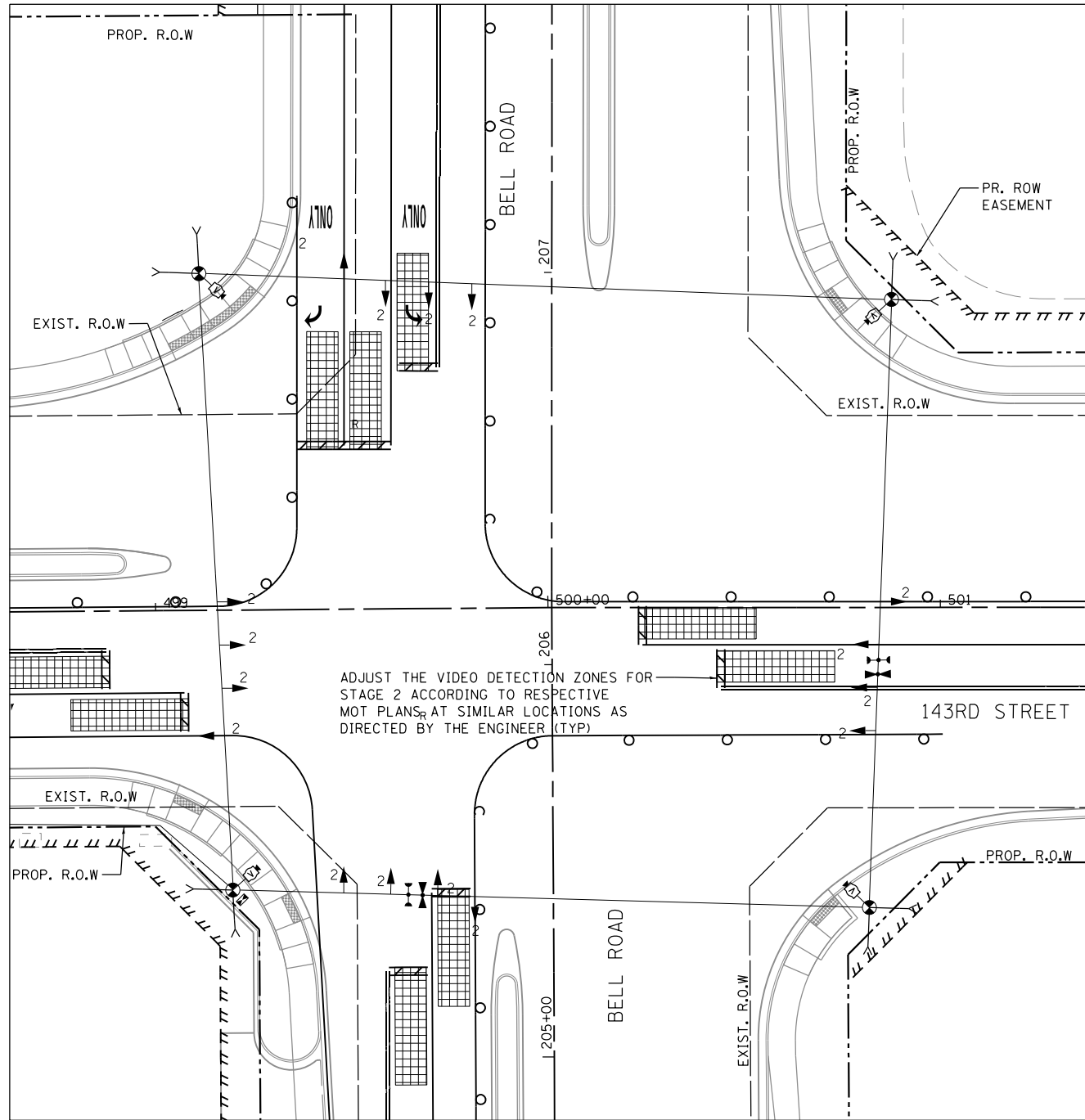
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGE 1  
 AND REMOVAL PLAN - BELL ROAD /143RD STREET**  
 SCALE: 1" = 20' SHEET 10 OF 47 SHEETS STA. N/A TO STA. N/A

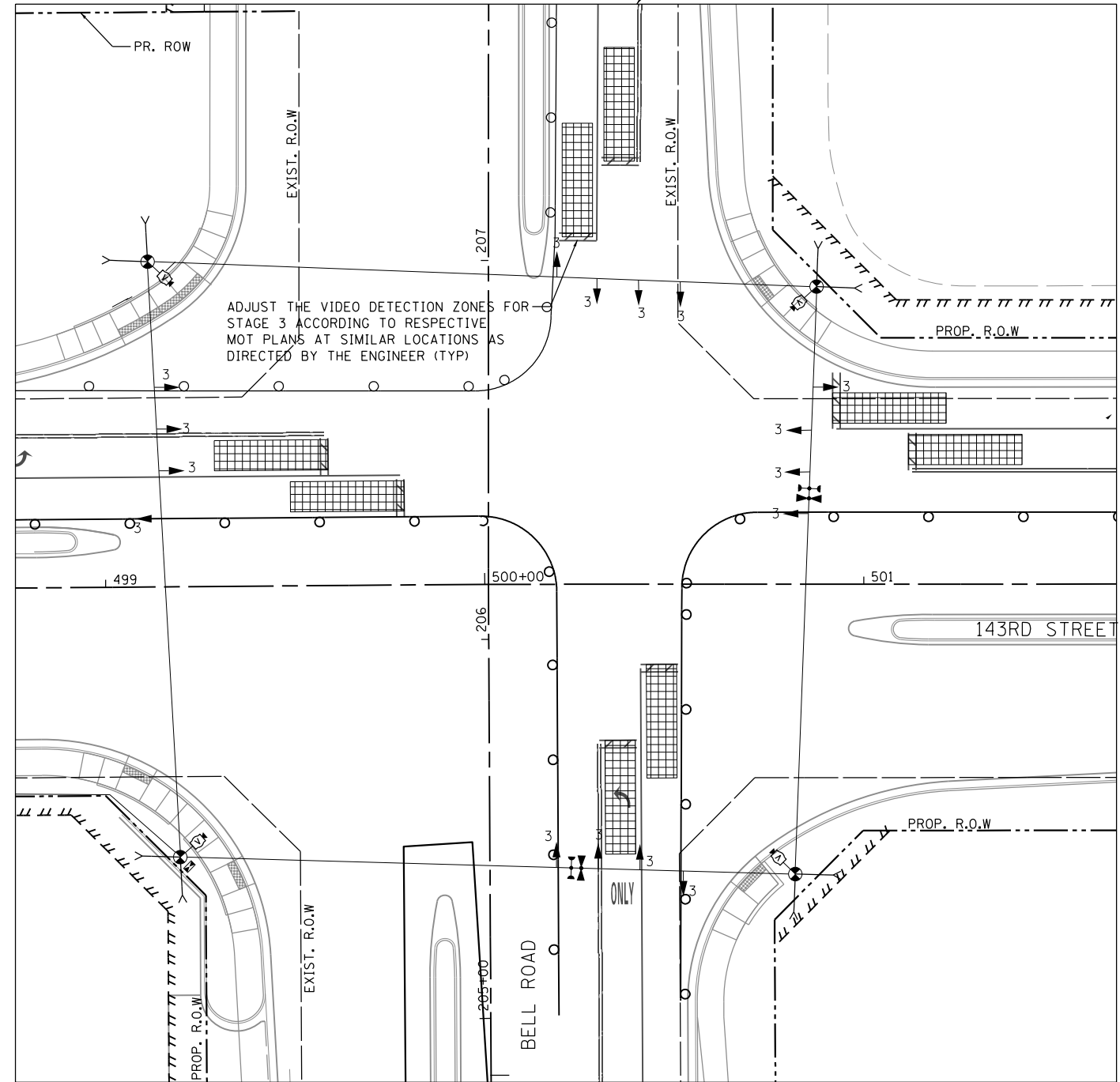
F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 213
CONTRACT NO. 61D34				ILLINOIS FED. AID PROJECT

**NOTES:**

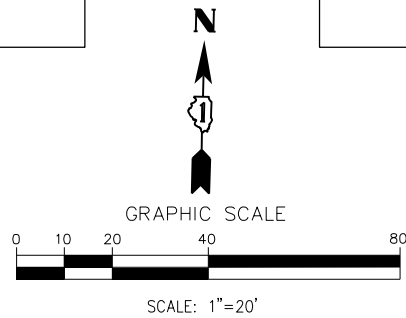
1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



**TEMPORARY TRAFFIC SIGNALS  
STAGE 2**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 3**



FILE NAME =  
...Traffic\WillCo-sh1011-TS.dgn  
PLOT TIME = 4:00:58 PM  
PLOT DATE = 2/14/2024

DESIGNED -	REVISED -
DRAWN -	REVISED -
CHECKED -	REVISED -
DATE - 02/14/2024	REVISED -

**SEPSTEIN**  
800 W. FULTON ST. TEL: 312.454.9100  
CHICAGO, ILLINOIS FAX: 312.459.1217  
60614-1259 WEB: www.sepstein.com

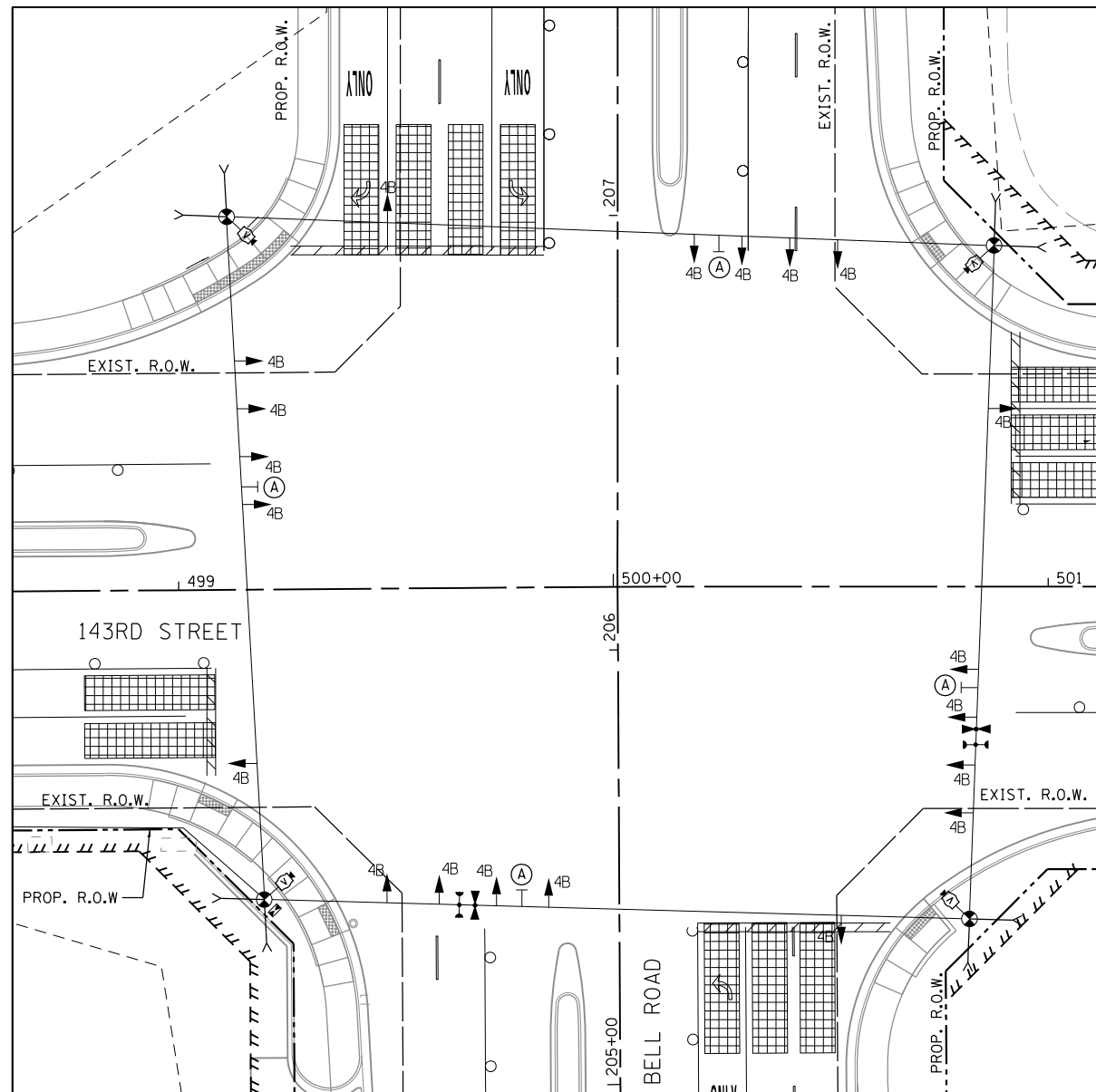
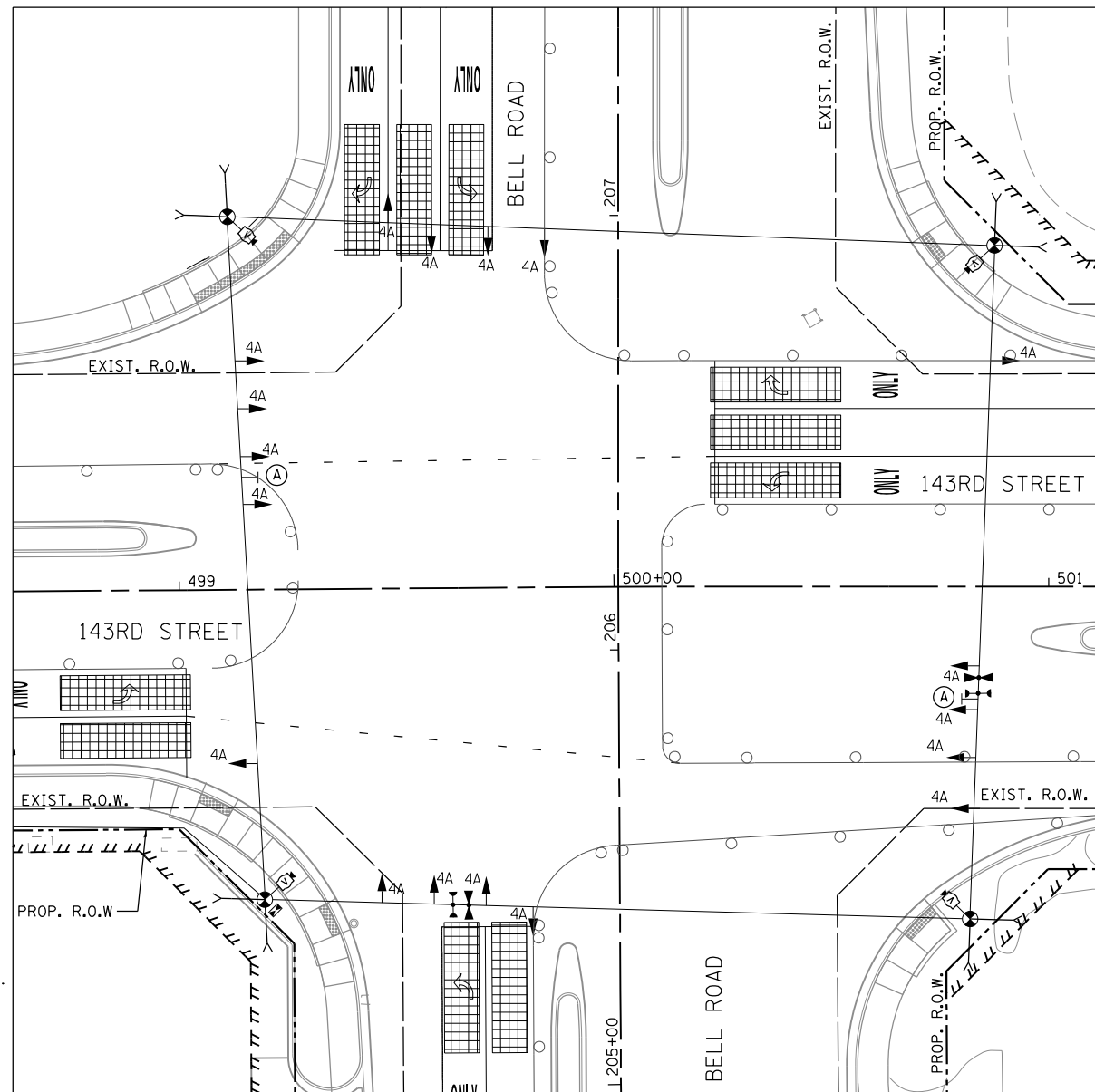
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**  
N/A N/A

**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 2 & 3  
AND REMOVAL PLAN - BELL ROAD /143RD STREET**  
SCALE: 1" = 20' SHEET 11 OF 47 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	214
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



SET THE VIDEO  
DETECTION ZONE 250'  
FROM STOP BAR FOR  
EACH MOT STAGE AS  
DIRECTED BY THE  
ENGINEER. TYP. ON  
ALL LEGS

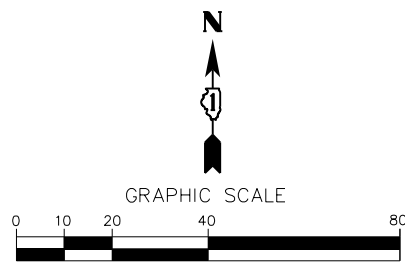
SET THE VIDEO  
DETECTION ZONE 250'  
FROM STOP BAR FOR  
EACH MOT STAGE AS  
DIRECTED BY THE  
ENGINEER. TYP. ON  
ALL LEGS



R10-5  
30"x 36" (750mm x 900mm)  
(TYPICAL) SIGN PANEL TYPE 1

**TEMPORARY TRAFFIC SIGNALS  
STAGE 4A**

**TEMPORARY TRAFFIC SIGNALS  
STAGE 4B**



FILE NAME =  
...Traffic\WillCo-sht012-TS.dgn  
PLOT TIME = 4:00:58 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

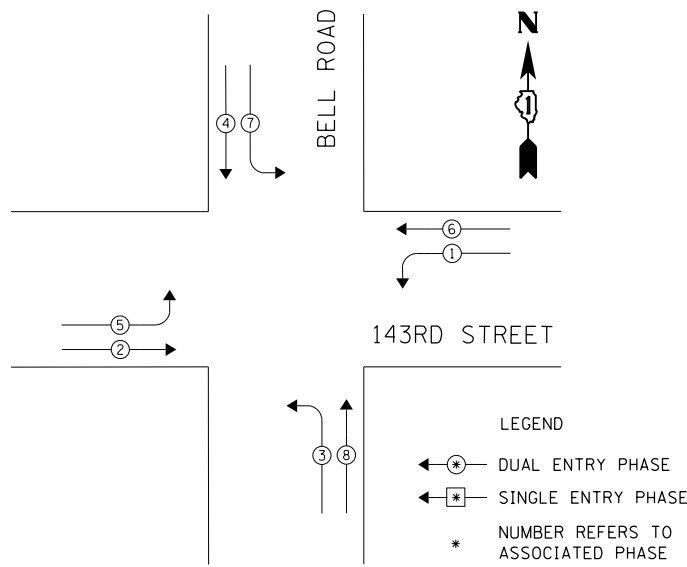
**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 4A & 4B  
BELL ROAD /143RD STREET**

SCALE: 1" = 20' SHEET 12 OF 47 SHEETS STA. N/A TO STA. N/A

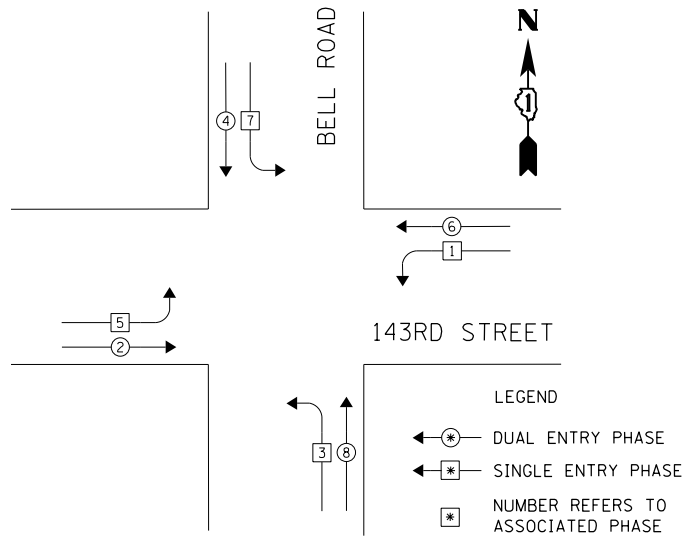
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	215
				CONTRACT NO. 61D34
ILLINOIS FED. AID PROJECT				

TS-12

TEMPORARY CONTROLLER SEQUENCE

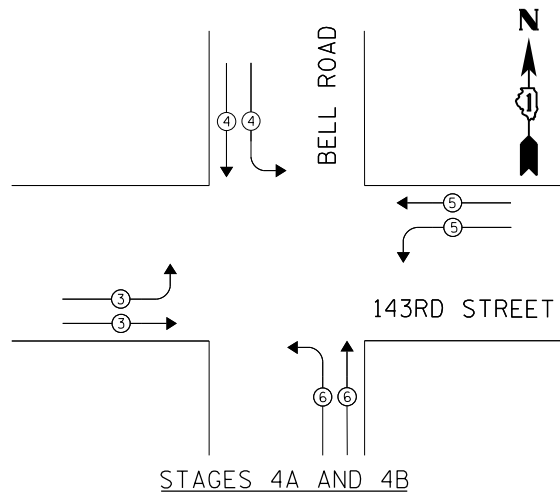


STAGES 1, 2, AND 3  
TEMPORARY CONTROLLER SEQUENCE



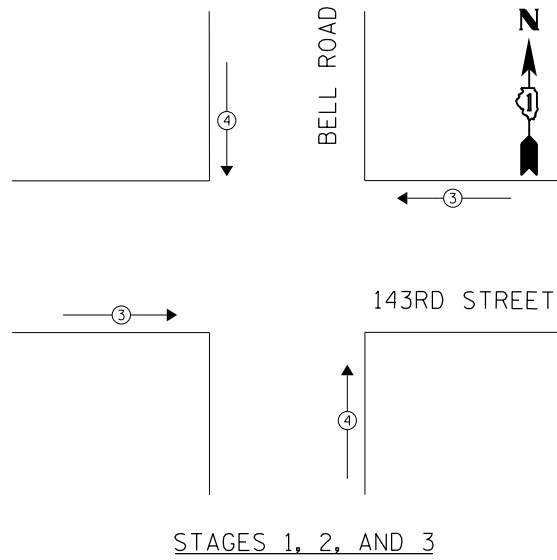
STAGES 4A AND 4B

TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE



STAGES 4A AND 4B

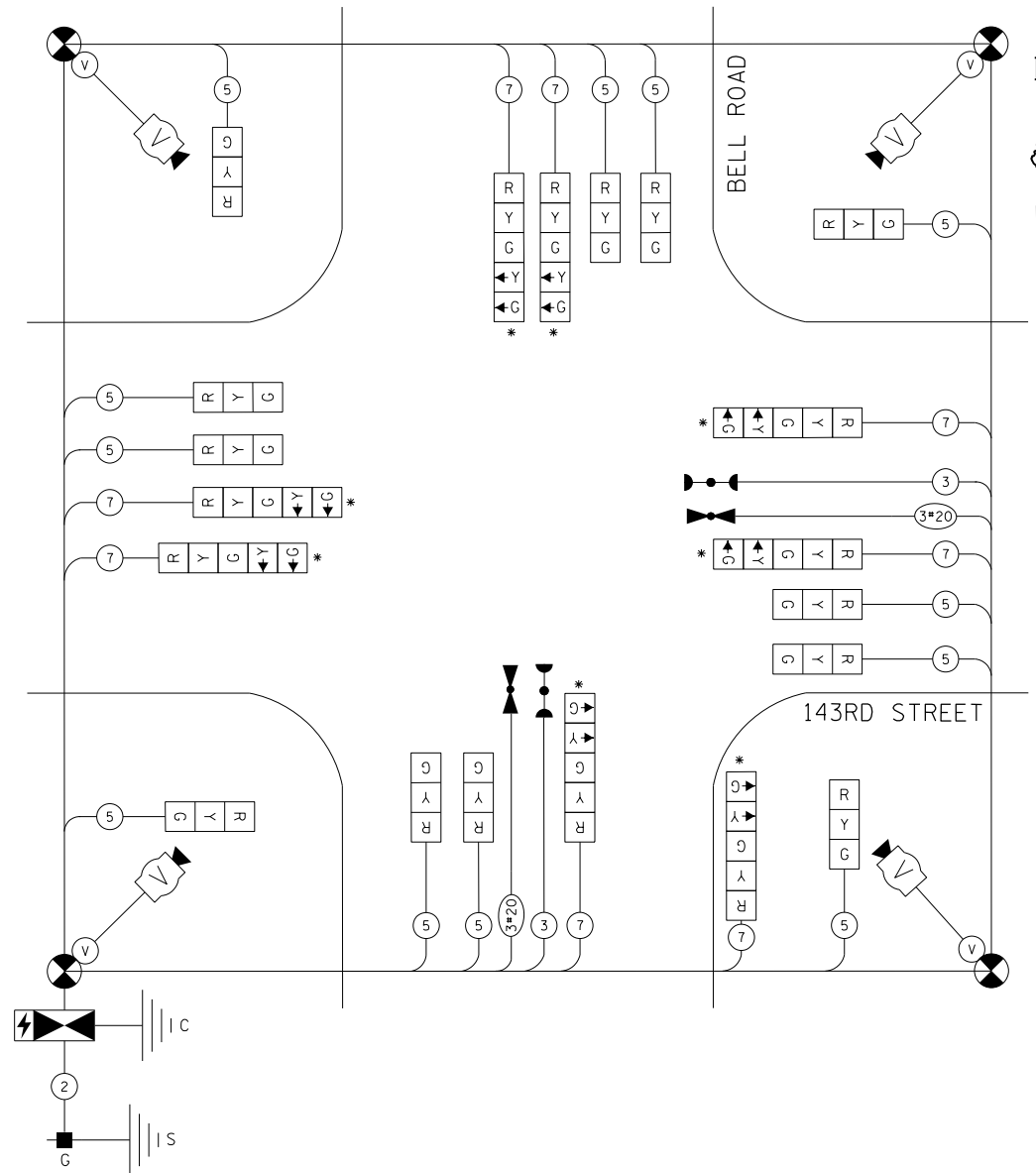
TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE



STAGES 1, 2, AND 3

TEMPORARY EMERGENCY VEHICLE PREEMPTORS		
EMERGENCY VEHICLE PREEMPTOR	3	4
MOVEMENT	← →	↑ ↓

TEMPORARY EMERGENCY VEHICLE PREEMPTORS				
EMERGENCY VEHICLE PREEMPTOR	3	4	5	6
MOVEMENT	← →	↓ ↘	← ↘	← ↗



TEMPORARY CABLE PLAN

\* BAG RED AND YELLOW BALL, CONVERT GREEN BALL TO RED ARROW FOR STAGES 4A AND 4B. MAINTAIN THIS CONFIGURATION UNTIL THE PERMANENT TRAFFIC SIGNALS ARE INSTALLED, OPERATIONAL AND ACCEPTED BY THE COUNTY OF WILL DIVISION OF TRANSPORTATION OR AS DIRECTED BY THE ENGINEER.

TRAFFIC SIGNAL ELECTRICAL SERVICE REQUIREMENTS				
TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	20	11	50	110
(YELLOW)	20	20	5	20
(GREEN)	20	12	45	108
ARROW	16	10	10	16
PED. SIGNAL	-	20	100	-
CONTROLLER	1	100	100	100
UPS	1	25	100	25
VIDEO SYSTEM	1	150	100	150
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
ENERGY COST TO:				TOTAL =
WILL COUNTY DIVISION OF TRANSPORTATION				529
ENERGY SUPPLY: CONTACT: NEW BUSINESS				
PHONE: 877-426-6331				
COMPANY: ComEd				
ACCT: 4867165011				

FILE NAME = ...Traffic\WillCo-sht013-TS.dgn  
PLOT TIME = 4:00:59 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN, TEMPORARY PHASE DESIGNATION DIAGRAM AND  
TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE  
BELL ROAD /143RD STREET  
SCALE: N.T.S. SHEET 13 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO.  
0356 12-00147-11-CH WILL 356 216  
CONTRACT NO. 61D34  
ILLINOIS FED. AID PROJECT

**CONSTRUCTION NOTES:**

1. REFER TO LIGHTING PLAN SHEETS LTG-01 THROUGH LTG-05 FOR LUMINAIRE WIRING AND INSTALLATION DETAILS.

\* 100% OF THE COST OF EMERGENCY VEHICLE PREEMPTION TO NW HOMER TOWNSHIP FIRE DEPARTMENT

PROPOSED TEMPORARY EASEMENT (TYP.)

MA-5  
64" - 42" DIA. FDN. (21' DEPTH)  
WITH DUAL 15' LIGHTING ARMS  
AT 40 FT. MOUNTING HEIGHT  
APPROX. STA. 499+03.2, 75.0' LT

MA-6  
38" - 30" DIA. FDN. (13.5' DEPTH)  
APPROX. STA. 499+15.6, 83.0' LT

MA-1  
56" - 42" DIA. FDN. (21' DEPTH)  
WITH DUAL 15' LIGHTING ARMS  
AT 40 FT. MOUNTING HEIGHT  
APPROX. STA. 501+71.5, 101.0' LT  
PAID FOR AS STEEL COMBINATION  
MAST ARM ASSEMBLY AND POLE  
56 FT. (SPECIAL)

5' POST  
APPROX. STA. 501+77.8, 84.5' LT

16' POST  
APPROX. STA. 501+04.8, 65.6' LT

143RD STREET

EXIST. R.O.W.

PROP. R.O.W.

PROPOSED INTERSECTION & SAMPLING (SYSTEM) DETECTORS

PROPOSED TEMPORARY EASEMENT

PROPOSED COMED SERVICE DROP

16' POST APPROX. STA. 499+02.1, 55.6' RT

MA-4  
64" - 42" DIA. FDN. (21' DEPTH)  
WITH DUAL 15' LIGHTING ARMS  
AT 40' MOUNTING HEIGHT  
APPROX. STA. 499+24.6, 76.0' RT

MA-2  
55" - 36" DIA. FDN. (16' DEPTH)  
WITH DUAL 15' LIGHTING ARMS  
AT 40' FT. MOUNTING HEIGHT  
APPROX. STA. 500+91.6, 69.3' RT  
PAID FOR AS STEEL COMBINATION  
MAST ARM ASSEMBLY AND POLE  
55 FT. (SPECIAL)

MA-3  
28" - 30" DIA. FDN. (10' DEPTH)  
APPROX. STA. 500+74.1, 85.1' RT

PROPOSED TEMPORARY EASEMENT

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

**NOTES:**

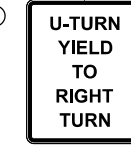
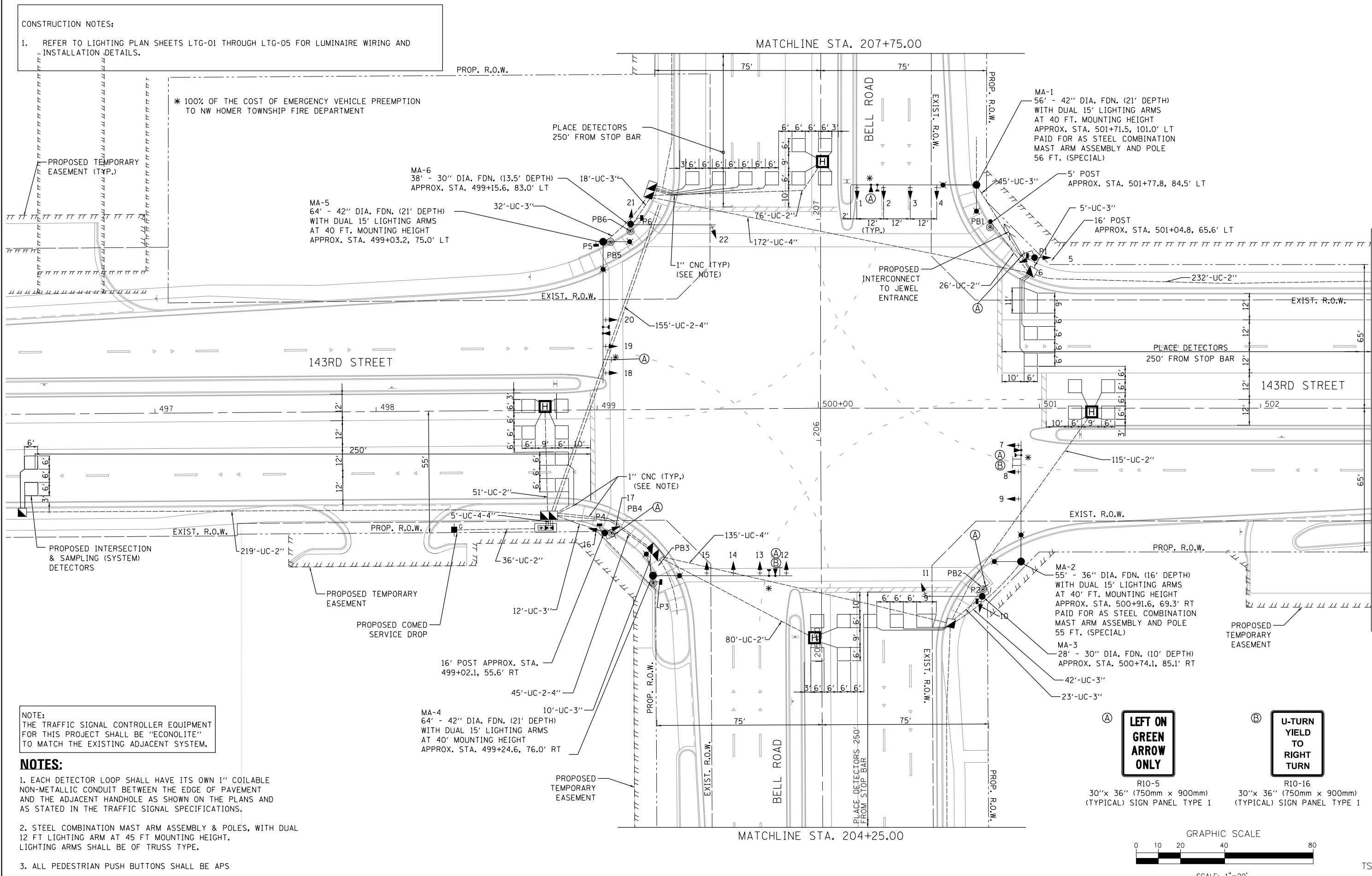
1. EACH DETECTOR LOOP SHALL HAVE ITS OWN 1" COILABLE NON-METALLIC CONDUIT BETWEEN THE EDGE OF PAVEMENT AND THE ADJACENT HANDHOLE AS SHOWN ON THE PLANS AND AS STATED IN THE TRAFFIC SIGNAL SPECIFICATIONS.

2. STEEL COMBINATION MAST ARM ASSEMBLY & POLES, WITH DUAL 12 FT LIGHTING ARM AT 45 FT MOUNTING HEIGHT. LIGHTING ARMS SHALL BE OF TRUSS TYPE.

3. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS

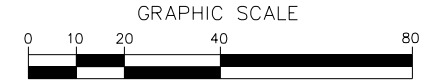
MATCHLINE STA. 207+75.00

MATCHLINE STA. 204+25.00



R10-5  
30"x 36" (750mm x 900mm)  
(TYPICAL) SIGN PANEL TYPE 1

R10-16  
30"x 36" (750mm x 900mm)  
(TYPICAL) SIGN PANEL TYPE 1



MATCHLINE STA. 502+50.00 SEE SHEET TS-15

FILE NAME = ...Traffic\W11Co-sht014-TS.dgn	DESIGNED -	REVISED -
PLOT TIME = 3:13:23 PM	DRAWN -	REVISED -
PLOT DATE = 3/12/2024	CHECKED -	REVISED -
	DATE - 03/12/2024	REVISED -

**SEPSTEIN**

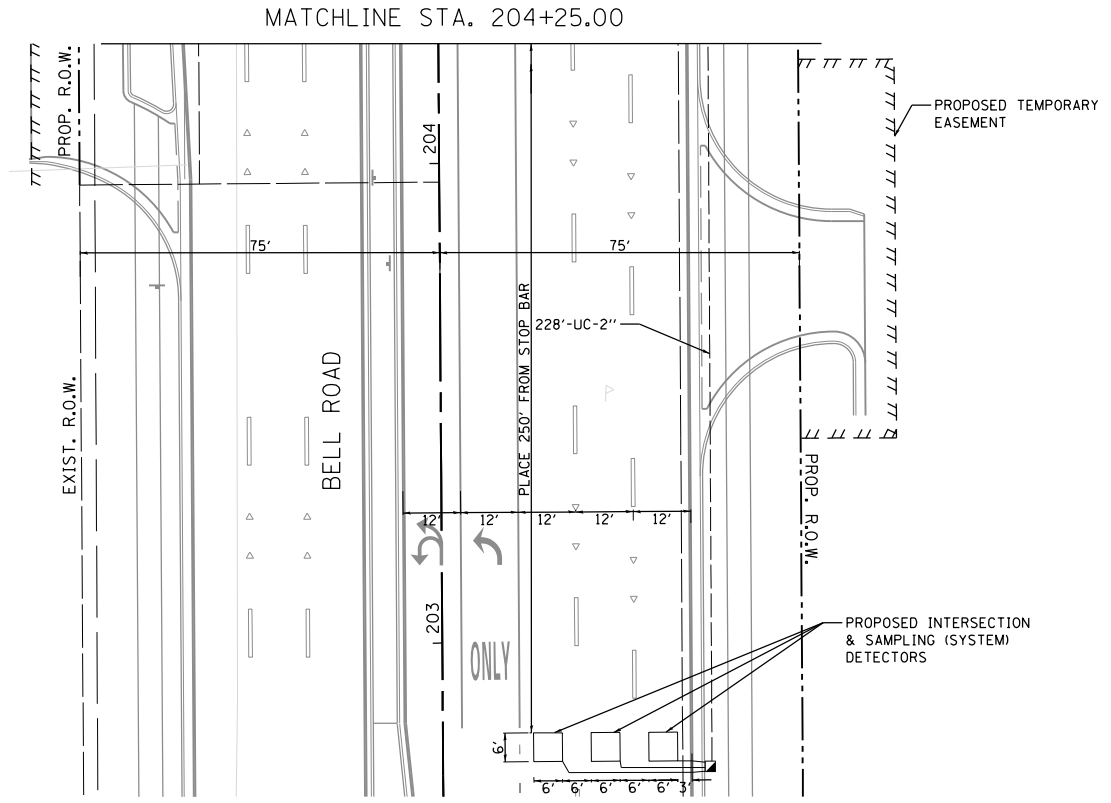
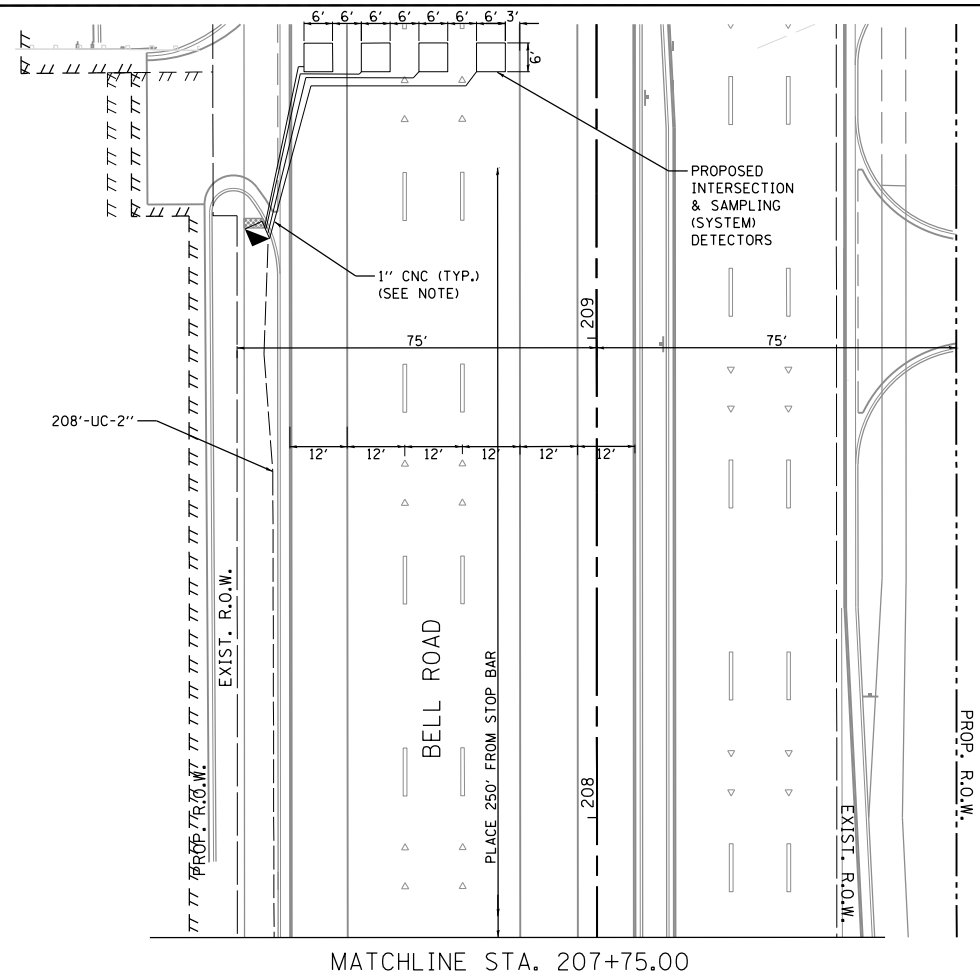
800 W. FULLERTON ST. CHICAGO, ILLINOIS 60611-1250  
TEL: 312-454-9100 FAX: 312-559-1217  
WEB: www.sepstein.com

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TRAFFIC SIGNAL MODERNIZATION PLAN  
BELL ROAD /143RD STREET**

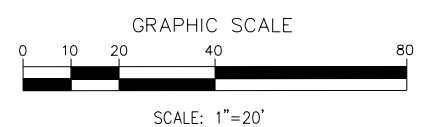
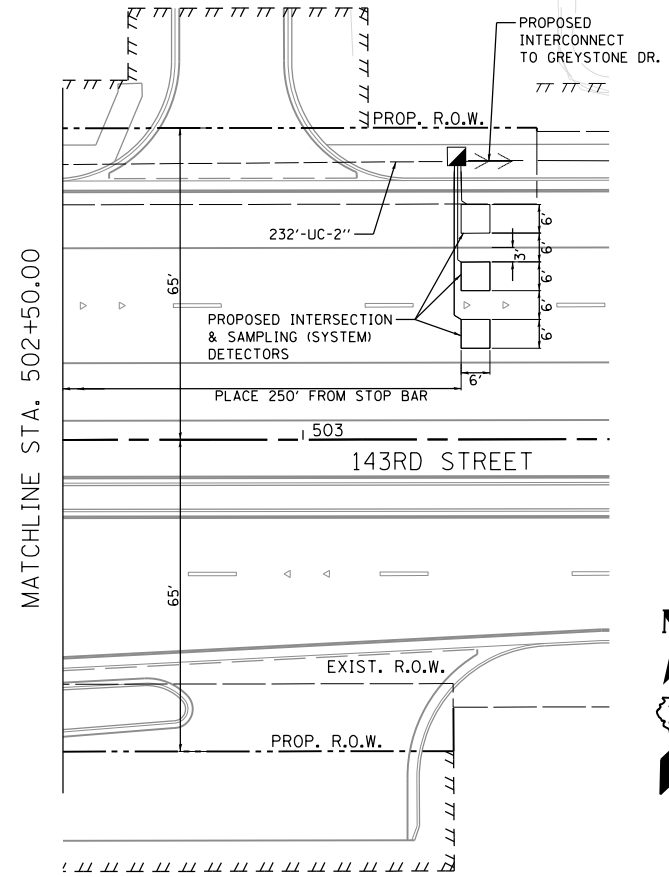
SCALE: 1" = 20' SHEET 14 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 217
CONTRACT NO. 61D34				ILLINOIS FED. AID PROJECT



NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

- NOTES:**
1. EACH DETECTOR LOOP SHALL HAVE ITS OWN 1" COILABLE NON-METALLIC CONDUIT BETWEEN THE EDGE OF PAVEMENT AND THE ADJACENT HANDHOLE AS SHOWN ON THE PLANS AND AS STATED IN THE TRAFFIC SIGNAL SPECIFICATIONS.



FILE NAME =  
...Traffic\WillCo-sht015-TS.dgn  
PLOT TIME = 4:01:00 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

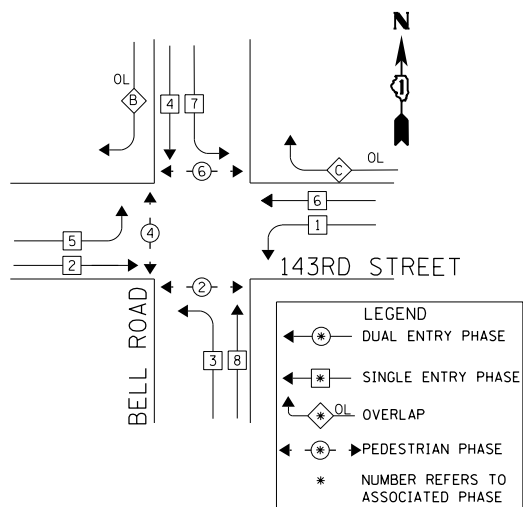
**SEPSTEIN**  
800 W FULTON ST. TEL: 312 454 9100  
CHICAGO, ILLINOIS FAX: 312 539 1217  
60611-1259 WEB: www.sepstein.com

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TRAFFIC SIGNAL MODERNIZATION PLAN  
BELL ROAD /143RD STREET**  
SCALE: 1" = 20' SHEET 15 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	218
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

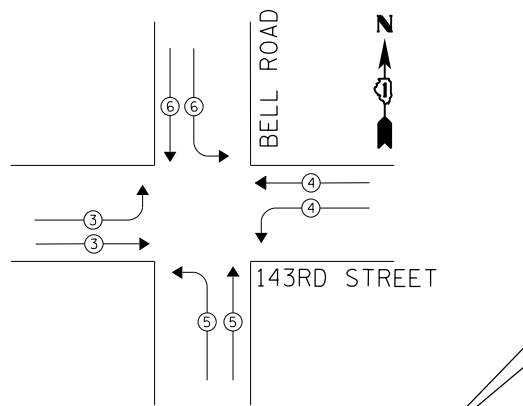
CONTROLLER SEQUENCE



PHASE DESIGNATION DIAGRAM

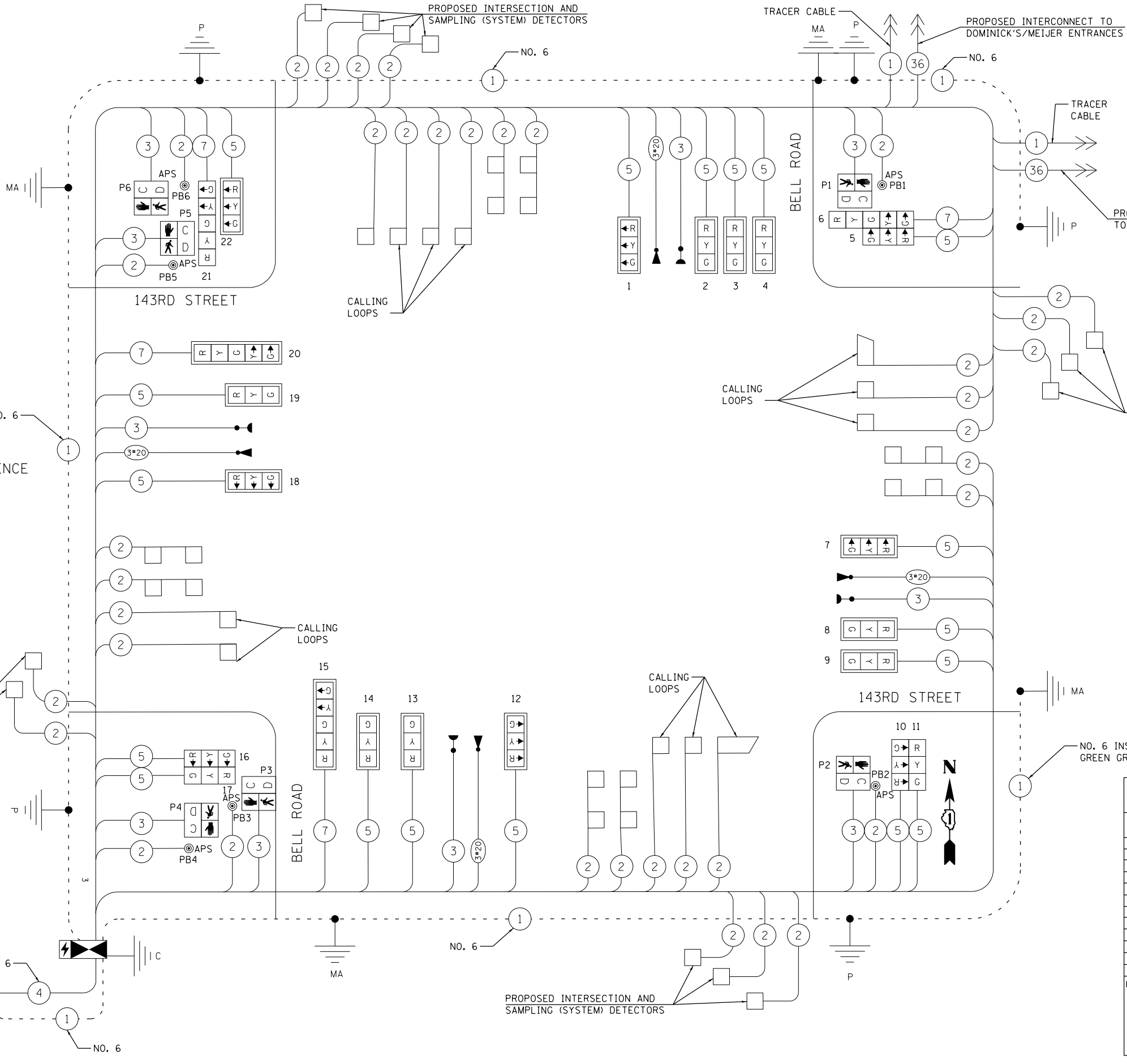
OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
B	= 4	+ 5
C	= 6	+ 7

EMERGENCY VEHICLE PREEMPTION SEQUENCE



PROPOSED EMERGENCY VEHICLE PREEMPTORS

PREEMPTOR	3	4	5	6
MOVEMENT	→	←	↕	↕



NOTE:  
THE SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

THE END OF THE TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO THE CONTROLLER CABINET.

TRAFFIC SIGNAL ELECTRICAL SERVICE REQUIREMENTS				
TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	22	11	50	121
(YELLOW)	22	20	5	22
(GREEN)	22	12	45	118.8
ARROW	8	10	10	8
PED. SIGNAL	6	20	100	120
CONTROLLER	1	100	100	100
UPS	1	25	100	25
VIDEO SYSTEM	-	150	100	-
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
TOTAL=				514.8

ENERGY COST TO: WILL COUNTY DIVISION OF TRANSPORTATION  
 ENERGY SUPPLY: CONTACT: NEW BUSINESS  
 PHONE: 877-426-6331  
 COMPANY: ComEd  
 ACCT: 4867165011

FILE NAME = ...Traffic\WillCo-sh1016-TS.dgn  
 PLOT TIME = 4:01:01 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR  
 DRAWN - SAR  
 CHECKED - A. OSHANA  
 DATE - 02/14/2024

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -



STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

CABLE PLAN, PHASE DIAGRAM & EMERGENCY VEHICLE PREEMPTION SEQUENCE  
 BELL ROAD /143RD STREET  
 SCALE: N.T.S. SHEET 16 OF 47 SHEETS STA. N/A TO STA. N/A

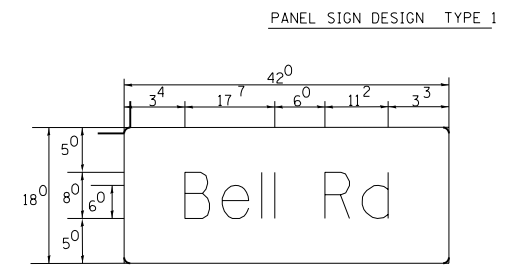
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	219

CONTRACT NO. 61D34  
 ILLINOIS FED. AID PROJECT

**SCHEDULE OF QUANTITIES – BELL ROAD /143RD STREET**

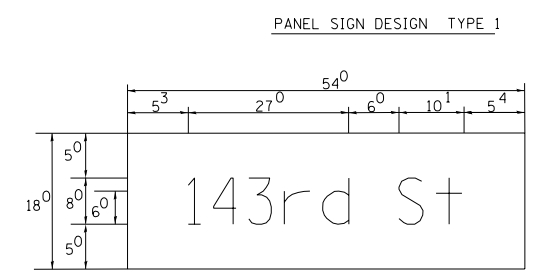
ITEM	UNIT	QUANTITY
SIGN PANEL - TYPE 1	SQ FT	60
SERVICE INSTALLATION - GROUND MOUNTED	EACH	1
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	1,297
UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	190
UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	1082
HANDHOLE	EACH	6
HEAVY-DUTY HANDHOLE	EACH	4
DOUBLE HANDHOLE	EACH	3
ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 4/C NO. 6	FOOT	47
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	1258
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	2564
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	5260
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1086.5
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	7054.5
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	803
TRAFFIC SIGNAL POST, 16 FT.	EACH	2
STEEL MAST ARM ASSEMBLY AND POLE, 28 FT.	EACH	1
STEEL MAST ARM ASSEMBLY AND POLE, 38 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	FOOT	32
CONCRETE FOUNDATION, TYPE C	FOOT	4
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	10
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	41
CONCRETE FOUNDATION, TYPE E 42-INCH DIAMETER	FOOT	84
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	12
SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	2
PEDESTRIAN SIGNAL HEAD, LED, 1-FACE BRACK MOUNTED WITH COUNTDOWN TIMER	EACH	6
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	14
INDUCTIVE LOOP DETECTOR	EACH	30
DETECTOR LOOP, TYPE I	EACH	1364
LIGHT DETECTOR	FOOT	4
LIGHT DETECTOR AMPLIFIER	EACH	1
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	9
EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	EACH	1281
ACCESSIBLE PEDESTRIAN SIGNALS	FOOT	7
CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER	EACH	4
FULL ACTUATED CONTROLLER AND TYPE SUPER P CABINET	FOOT	1
PEDESTRIAN SIGNAL POST, 5FT	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 64 FT. WITH DUAL 15 FT. LIGHTING ARM AT 40 FT. MOUNTING HEIGHT	EACH	2
UNINTERRUPTABLE POWER SUPPLY (SPECIAL)	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 55 FT. (SPECIAL)	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 56 FT. (SPECIAL)	EACH	1

BELL ROAD/  
143rd STREET



— Sq. M. each  
5.25 Sq. Ft. each  
— 4 Required  
Design Series   

NOTE: SIGN DIMENSIONS ARE IN ENGLISH UNITS



— Sq. M. each  
6.75 Sq. Ft. each  
— 3 Required  
Design Series   

FILE NAME =  
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PLOT TIME = 3:31:12 PM  
PLOT DATE = 3/12/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 03/12/2024	REVISED -



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SCHEDULE OF QUANTITIES  
BELL ROAD /143RD STREET**

SCALE: N/A SHEET 17 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	220
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	



**REMOVAL NOTES**

THE REMOVAL OF EXISTING MAST ARM ASSEMBLIES, SIGNAL POSTS, SIGNAL HEADS, SIGNS, PEDESTRIAN HEADS, CONTROLLER, AND ASSOCIATED ELECTRIC AND COMMUNICATION CABLES IS INCLUDED IN THE TRAFFIC SIGNAL EQUIPMENT REMOVAL ITEM AND MUST BE REFLECT IN THE CONTRACTOR BID. NO ADDITIONAL COMPENSATIONS WILL BE ALLOWED.

CHANGEABLE MESSAGE SIGNS SHALL BE PLACED ON EACH APPROACH AT LEAST ONE WEEK PRIOR TO DEACTIVATION OF THIS SIGNAL. MESSAGE SHOULD READ 'SIGNAL TO BE REMOVED/[DATE].'

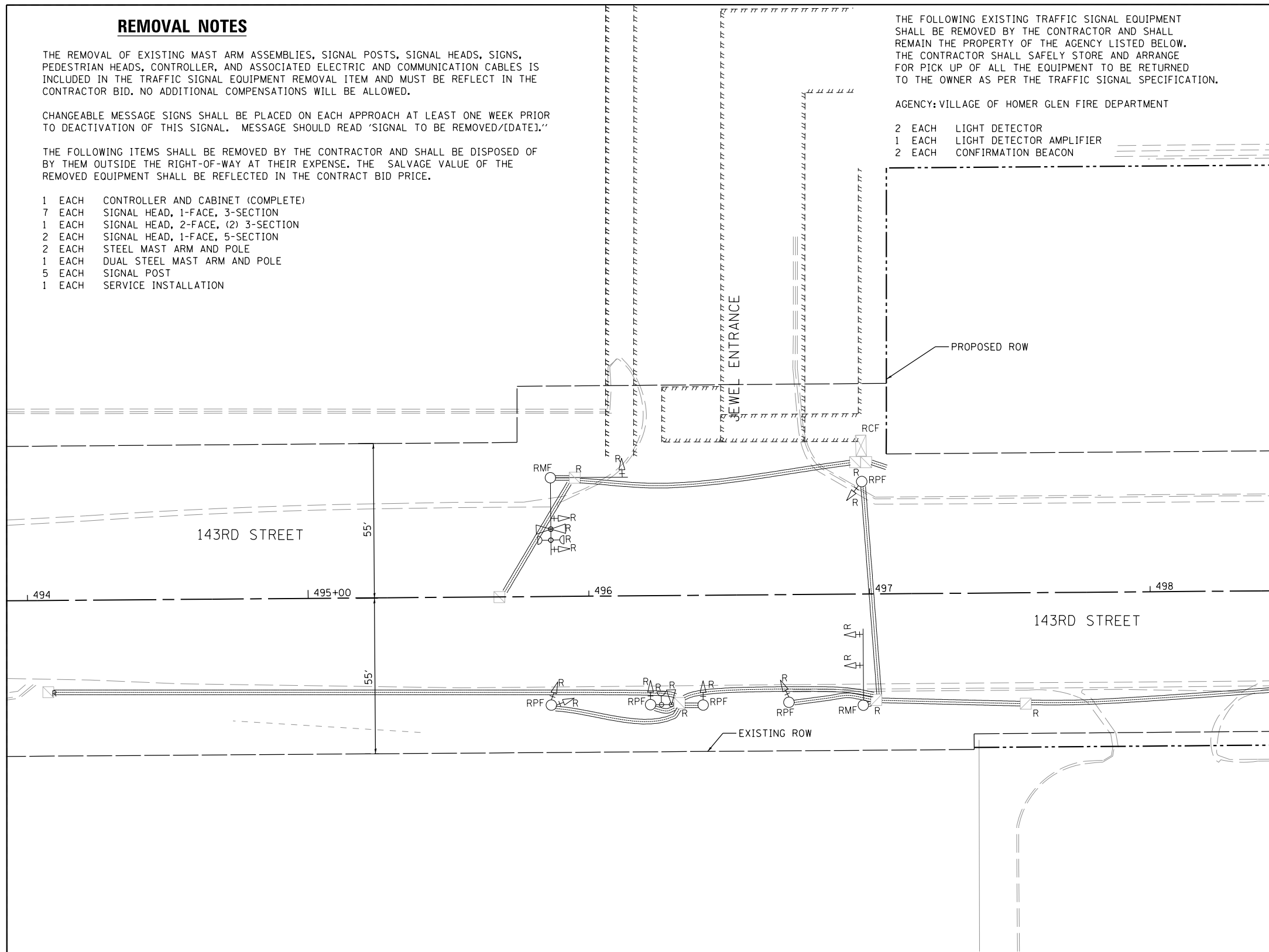
THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 1 EACH CONTROLLER AND CABINET (COMPLETE)
- 7 EACH SIGNAL HEAD, 1-FACE, 3-SECTION
- 1 EACH SIGNAL HEAD, 2-FACE, (2) 3-SECTION
- 2 EACH SIGNAL HEAD, 1-FACE, 5-SECTION
- 2 EACH STEEL MAST ARM AND POLE
- 1 EACH DUAL STEEL MAST ARM AND POLE
- 5 EACH SIGNAL POST
- 1 EACH SERVICE INSTALLATION

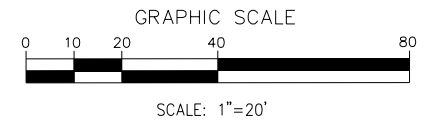
THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR AND SHALL REMAIN THE PROPERTY OF THE AGENCY LISTED BELOW. THE CONTRACTOR SHALL SAFELY STORE AND ARRANGE FOR PICK UP OF ALL THE EQUIPMENT TO BE RETURNED TO THE OWNER AS PER THE TRAFFIC SIGNAL SPECIFICATION.

AGENCY: VILLAGE OF HOMER GLEN FIRE DEPARTMENT

- 2 EACH LIGHT DETECTOR
- 1 EACH LIGHT DETECTOR AMPLIFIER
- 2 EACH CONFIRMATION BEACON



SCHEDULE OF QUANTITIES - 143RD STREET / JEWEL ENTRANCE		
ITEM	UNIT	QUANTITY
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	5
REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	8



**REMOVAL AND RELOCATION NOTES:**

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

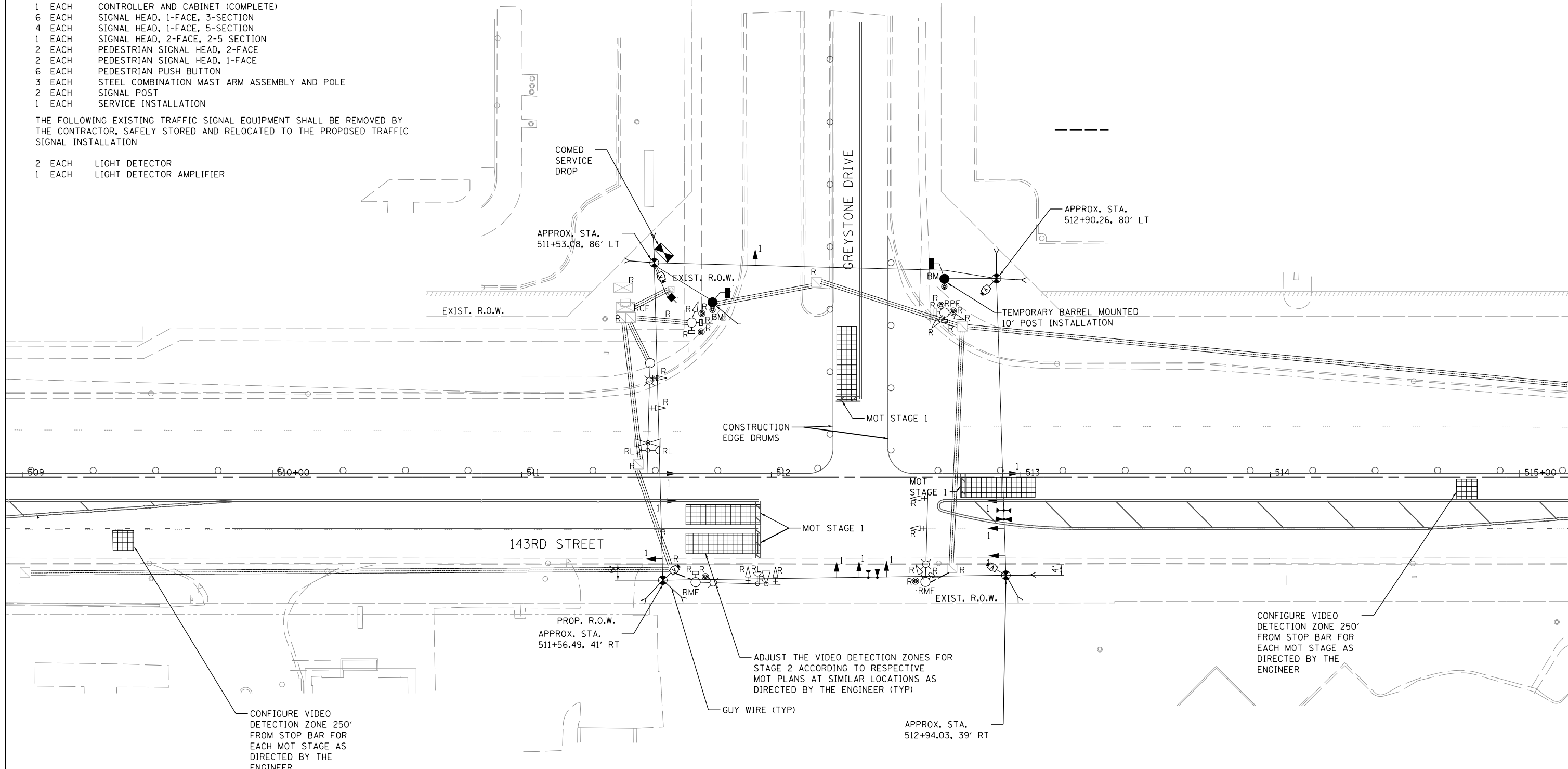
- 1 EACH CONTROLLER AND CABINET (COMPLETE)
- 6 EACH SIGNAL HEAD, 1-FACE, 3-SECTION
- 4 EACH SIGNAL HEAD, 1-FACE, 5-SECTION
- 1 EACH SIGNAL HEAD, 2-FACE, 2-5 SECTION
- 2 EACH PEDESTRIAN SIGNAL HEAD, 2-FACE
- 2 EACH PEDESTRIAN SIGNAL HEAD, 1-FACE
- 6 EACH PEDESTRIAN PUSH BUTTON
- 3 EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE
- 2 EACH SIGNAL POST
- 1 EACH SERVICE INSTALLATION

THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR, SAFELY STORED AND RELOCATED TO THE PROPOSED TRAFFIC SIGNAL INSTALLATION

- 2 EACH LIGHT DETECTOR
- 1 EACH LIGHT DETECTOR AMPLIFIER

**NOTES:**

- 1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.

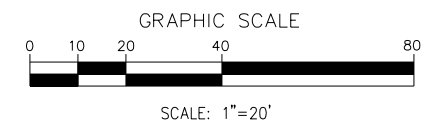


**STAGE 1**

CONFIGURE VIDEO DETECTION ZONE 250' FROM STOP BAR FOR EACH MOT STAGE AS DIRECTED BY THE ENGINEER

ADJUST THE VIDEO DETECTION ZONES FOR STAGE 2 ACCORDING TO RESPECTIVE MOT PLANS AT SIMILAR LOCATIONS AS DIRECTED BY THE ENGINEER (TYP)

CONFIGURE VIDEO DETECTION ZONE 250' FROM STOP BAR FOR EACH MOT STAGE AS DIRECTED BY THE ENGINEER

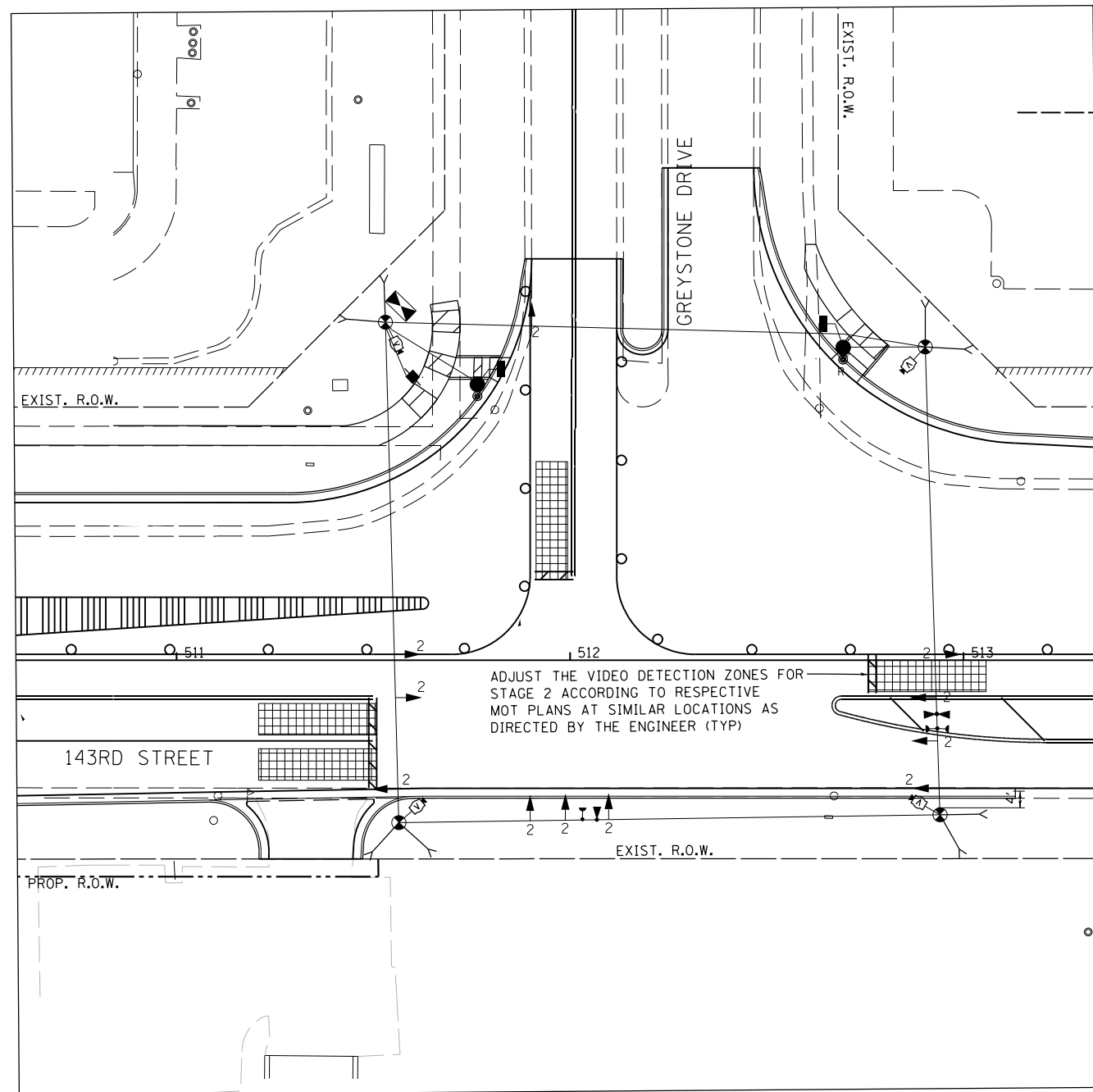


TS-19

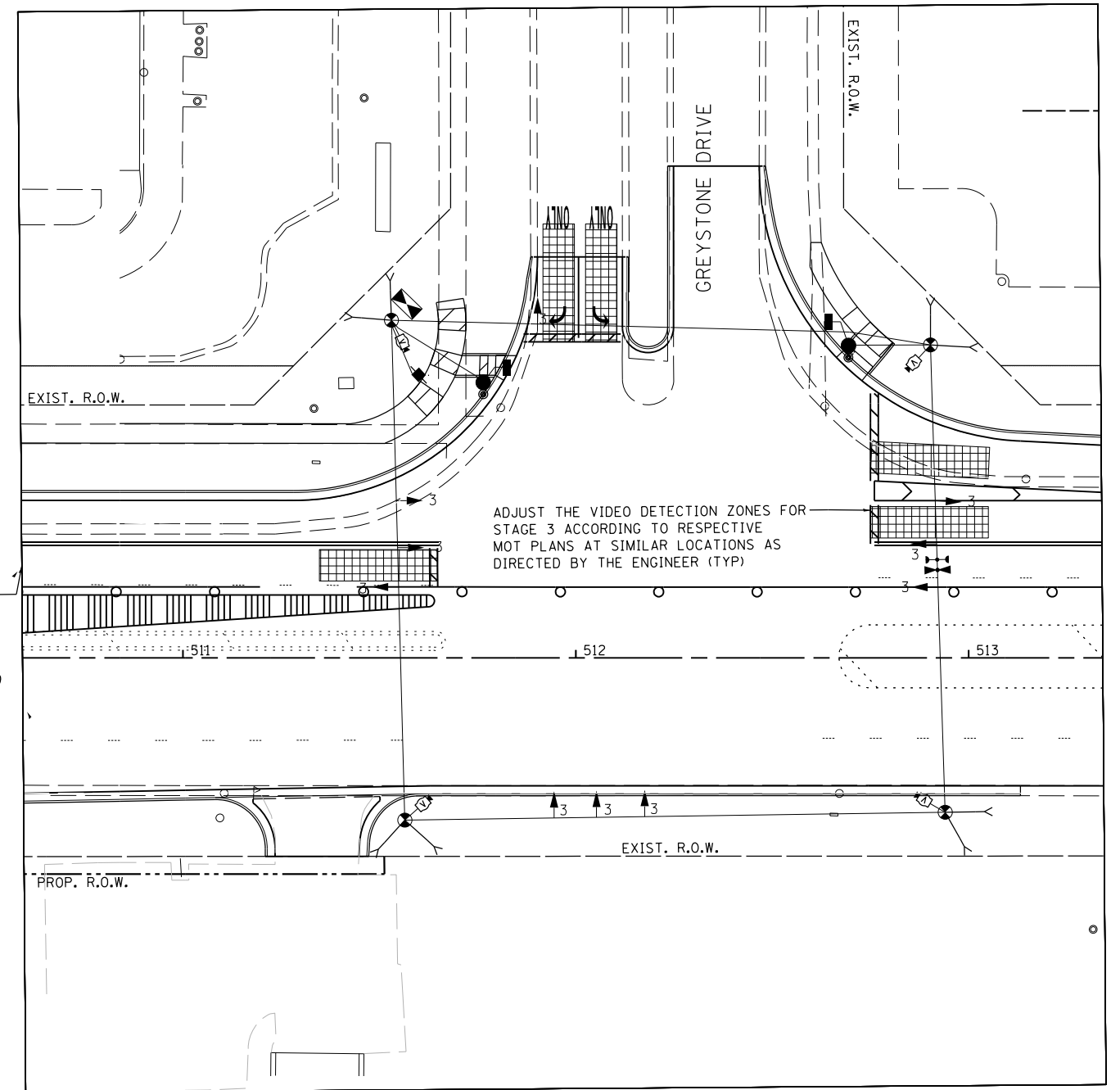
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	DRAWN - SAR	REVISED -						CONTRACT NO. 61D34		ILLINOIS FED. AID PROJECT		
	CHECKED - A. OSHANA	REVISED -		SCALE: 1" = 20'		SHEET 19 OF 47 SHEETS	STA. N/A TO STA. N/A					
	DATE - 03/12/2024	REVISED -										

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.

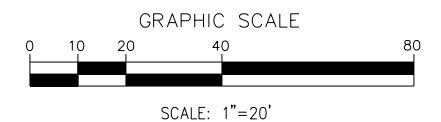


**TEMPORARY TRAFFIC SIGNALS  
STAGE 2**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 3**

SET THE VIDEO DETECTION ZONE 250' FROM STOP BAR FOR EACH MOT STAGE AS DIRECTED BY THE ENGINEER, TYP. EAST AND WEST LEGS

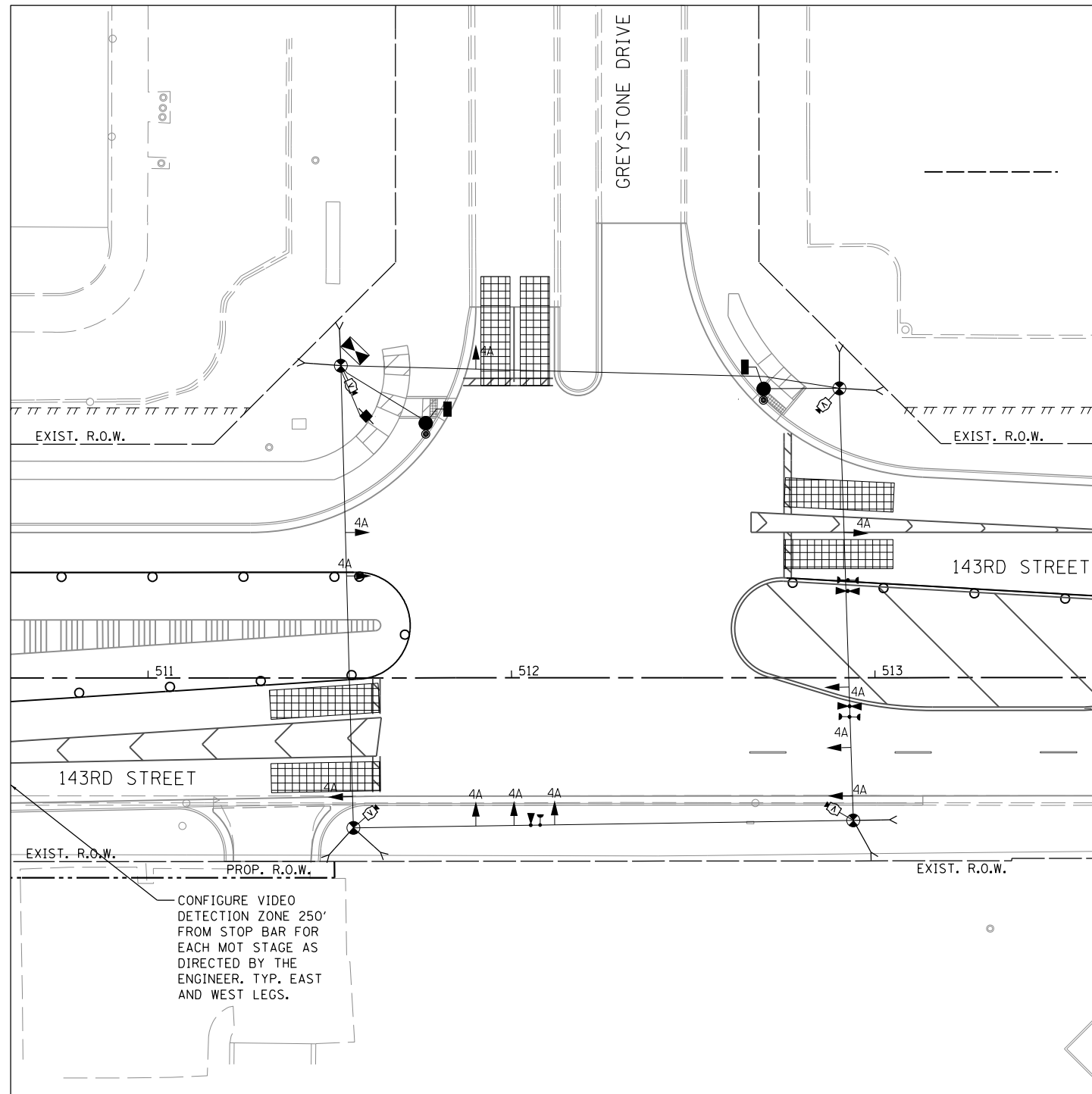


TS-20

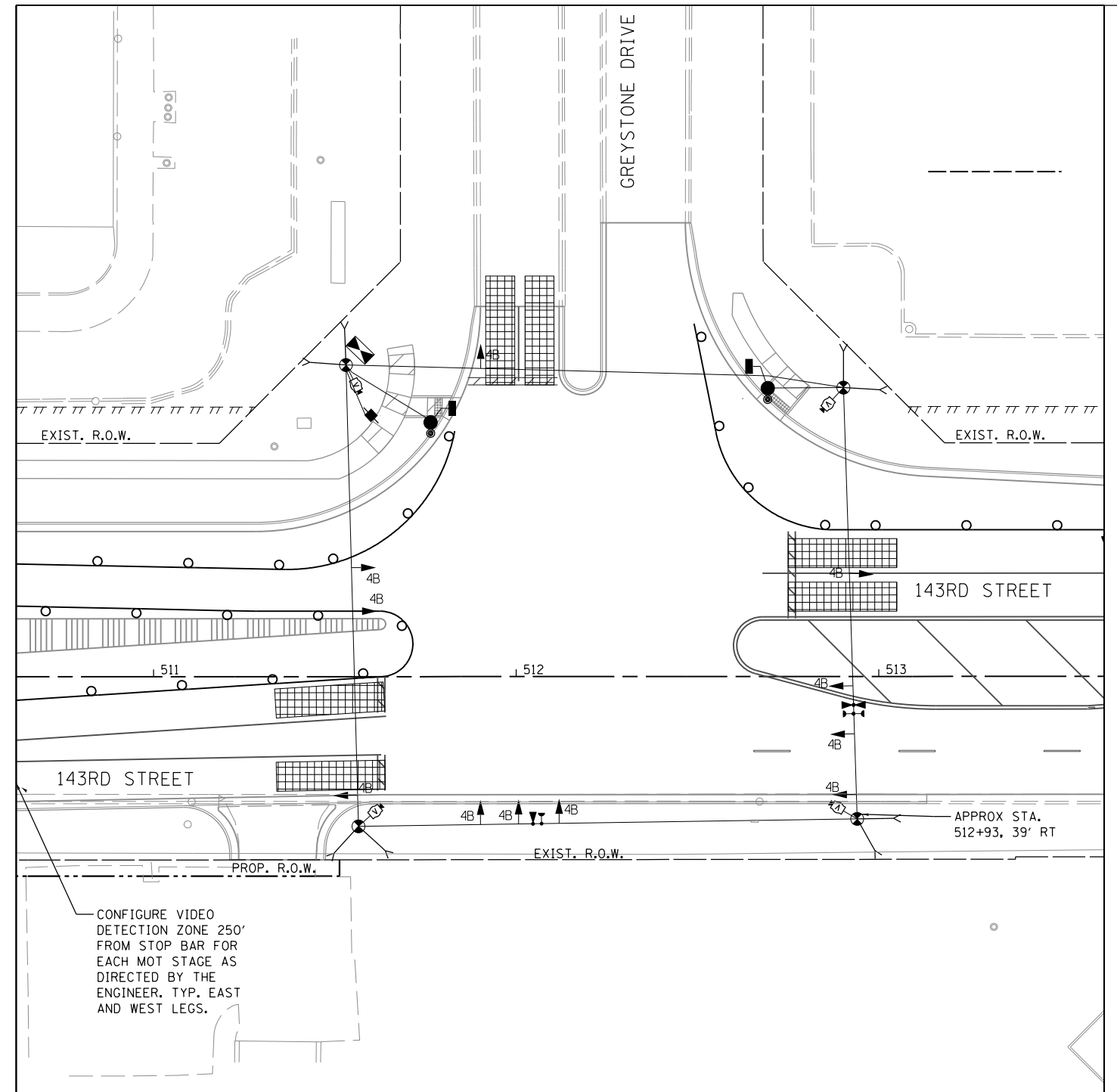
FILE NAME = ...Traffic\W11Co-sht020-TS.dgn PLOT TIME = 4:01:03 PM PLOT DATE = 2/14/2024	DESIGNED - SAR DRAWN - SAR CHECKED - A. OSHANA DATE - 02/14/2024	REVISED - REVISED - REVISED - REVISED -		<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 2 &amp; 3 &amp; REMOVAL PLAN - 143RD STREET / GREYSTONE DRIVE</b>	F.A.P. R.T.E. - 0356	SECTION - 12-00147-11-CH	COUNTY - WILL	TOTAL SHEETS - 356	SHEET NO. - 223
	SCALE: 1" = 20'    SHEET 20 OF 47 SHEETS    STA. N/A TO STA. N/A					CONTRACT NO. 61D34		ILLINOIS FED. AID PROJECT		

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.

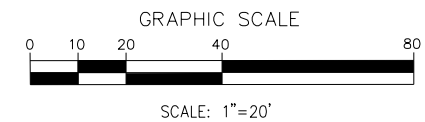


**TEMPORARY TRAFFIC SIGNALS  
STAGE 4A**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 4B**

NOTES:  
ADJUST THE VIDEO DETECTION ZONES FOR STAGE  
ACCORDING TO RESPECTIVE MOT PLANS AT SIMILAR  
LOCATION AS DIRECTED BY THE ENGINEER (TYP.)



TS-21

FILE NAME =  
...Traffic\WillCo-sh1021-TS.dgn  
PLOT TIME = 4:01:03 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



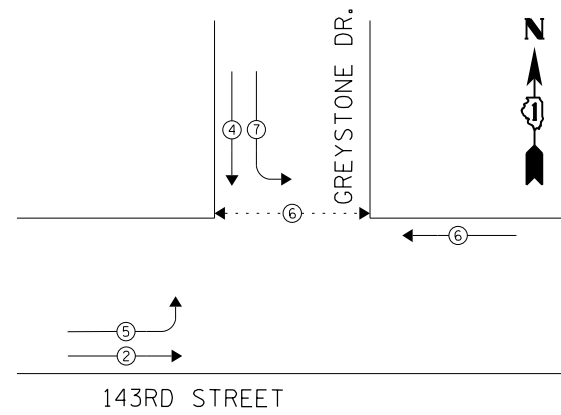
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 4A, & 4B  
143RD STREET /GREYSTONE DRIVE**

SCALE: 1" = 20' SHEET 21 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 224
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	

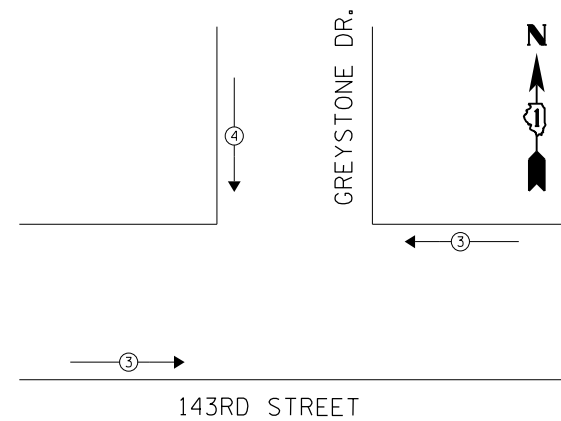
TEMPORARY CONTROLLER SEQUENCE



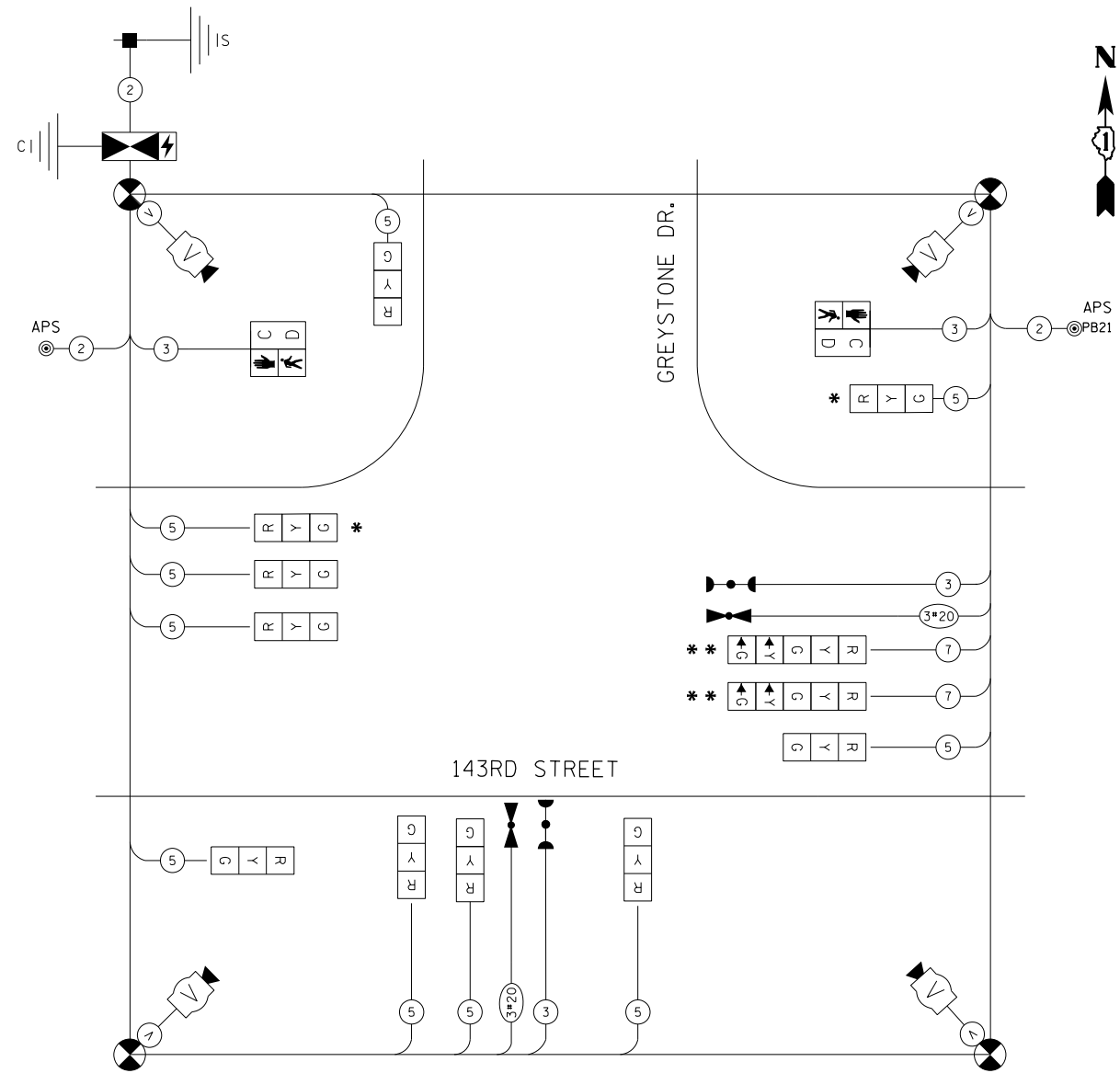
- LEGEND
- ← ⊙ → DUAL ENTRY PHASE
  - ← ⊙ ⊙ → PEDESTRIAN PHASE
  - \* NUMBER REFERS TO ASSOCIATED PHASE
  - OL OVERLAP

TEMPORARY PHASE DESIGNATION DIAGRAM

TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE



TEMPORARY EMERGENCY VEHICLE PREEMPTORS		
EMERGENCY VEHICLE PREEMPTOR	3	4
MOVEMENT	← →	↓



TEMPORARY CABLE PLAN

\* SIGNAL HEAD TO BE USED FOR THE FINAL ROADWAY CONFIGURATION UNTIL THE PERMANENT TRAFFIC SIGNALS ARE INSTALLED, OPERATIONAL AND ACCEPTED BY THE WILL COUNTY DIVISION OF TRANSPORTATION OR AS DIRECTED BY THE ENGINEER.

\*\* PROVIDE LEADING LEFT/THRU DURING STAGE 3

TRAFFIC SIGNAL ELECTRICAL SERVICE REQUIREMENTS				
TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	12	11	50	66
(YELLOW)	12	20	5	12
(GREEN)	12	12	45	64.8
ARROW	4	10	10	4
PED. SIGNAL	2	20	100	40
CONTROLLER	1	100	100	100
UPS	1	25	100	25
VIDEO SYSTEM	1	150	100	150
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
ENERGY COST TO:			TOTAL=	461.8
WILL COUNTY DIVISION OF TRANSPORTATION				
ENERGY SUPPLY:		CONTACT: NEW BUSINESS		
		PHONE: 877-426-6331		
		COMPANY: ComEd		
		ACCT: 4867165011		

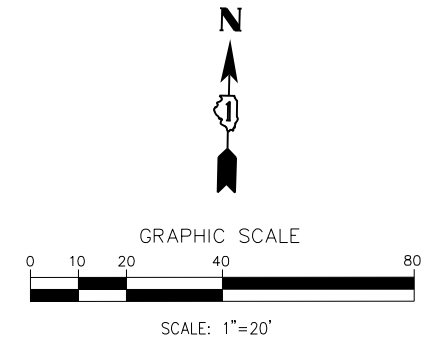
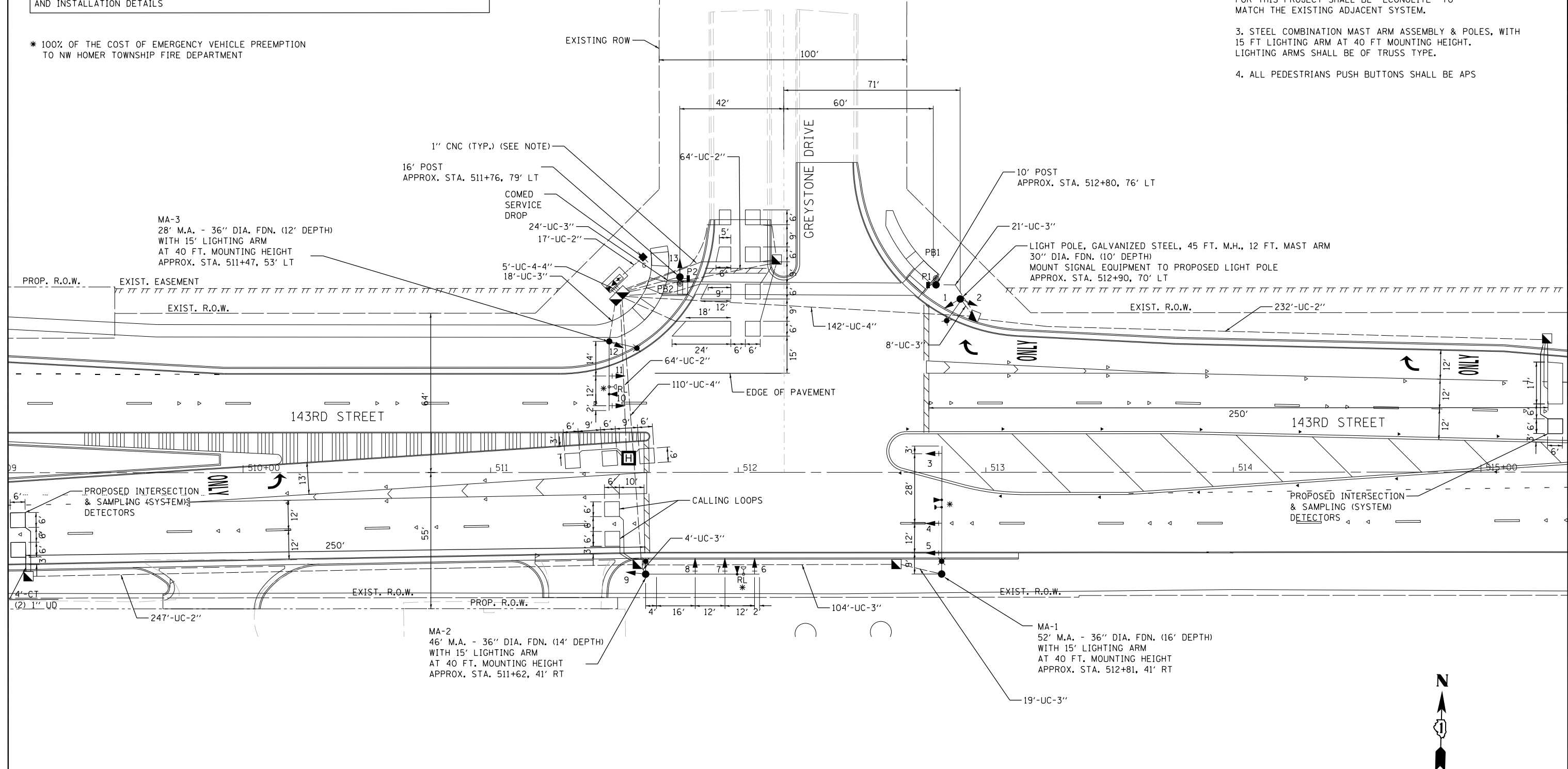
**CONSTRUCTION NOTES:**

REFER TO LIGHTING PLANS LTG-01 THROUGH LTG-05 FOR LUMINAIRE WIRING AND INSTALLATION DETAILS

\* 100% OF THE COST OF EMERGENCY VEHICLE PREEMPTION TO NW HOMER TOWNSHIP FIRE DEPARTMENT

**NOTES:**

1. EACH DETECTOR LOOP SHALL HAVE ITS OWN 1" COILABLE NON-METALLIC CONDUIT BETWEEN THE EDGE OF PAVEMENT AND THE ADJACENT HANDHOLE AS SHOWN ON THE PLANS AND AS STATED IN THE TRAFFIC SIGNAL SPECIFICATIONS.
2. THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.
3. STEEL COMBINATION MAST ARM ASSEMBLY & POLES, WITH 15 FT LIGHTING ARM AT 40 FT MOUNTING HEIGHT. LIGHTING ARMS SHALL BE OF TRUSS TYPE.
4. ALL PEDESTRIANS PUSH BUTTONS SHALL BE APS



FILE NAME = ...Traffic\WillCo-sh1023-TS.dgn  
 PLOT TIME = 4:01:05 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

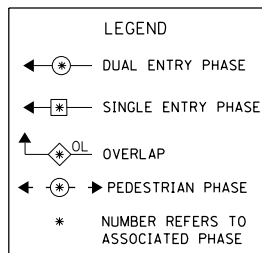
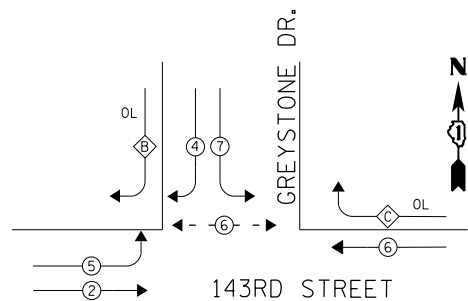


**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**TRAFFIC SIGNAL MODERNIZATION PLAN  
 143RD STREET / GREYSTONE DRIVE**  
 SCALE: 1" = 20' SHEET 23 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 226
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	

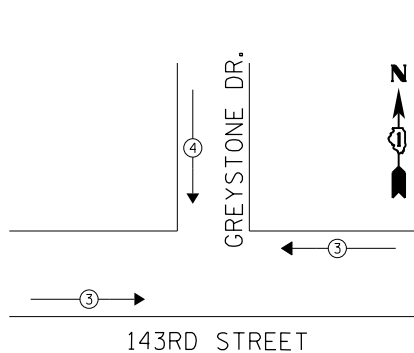
CONTROLLER SEQUENCE



PHASE DESIGNATION DIAGRAM

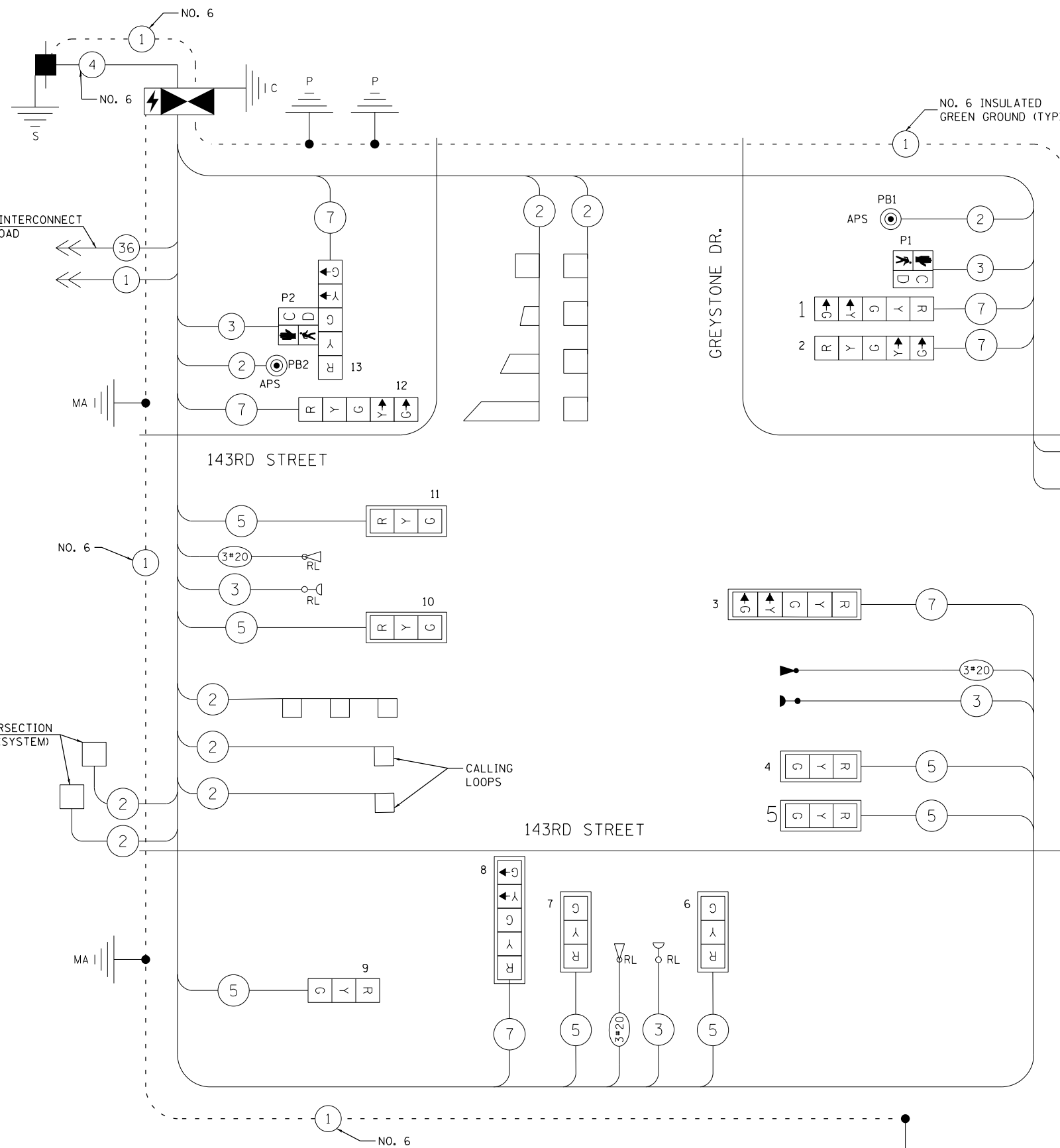
OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
B	= 4	+ 5
C	= 6	+ 7

EMERGENCY VEHICLE PREEMPTION SEQUENCE



PROPOSED EMERGENCY VEHICLE PREEMPTORS

EMERGENCY VEHICLE PREEMPTOR	3	4
MOVEMENT	←→	↓



NOTE: THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

THE END OF THE TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO THE CONTROLLER CABINET.

PROPOSED INTERSECTION AND SAMPLING (SYSTEM) DETECTORS

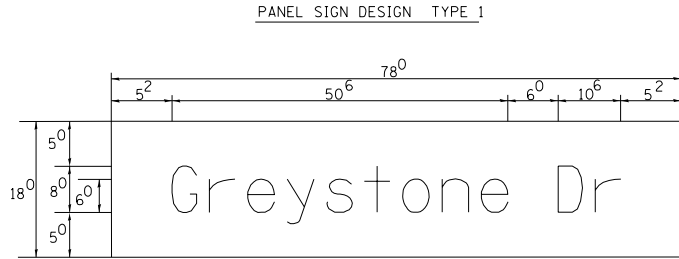
CABLE PLAN

**TRAFFIC SIGNAL ELECTRICAL SERVICE REQUIREMENTS**

TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	13	11	50	71.5
(YELLOW)	13	20	5	13
(GREEN)	13	12	45	70.2
ARROW	12	10	10	12
PED. SIGNAL	2	20	100	40
CONTROLLER	1	100	100	100
UPS	1	25	100	25
VIDEO SYSTEM	-	150	100	-
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
TOTAL =				331.7

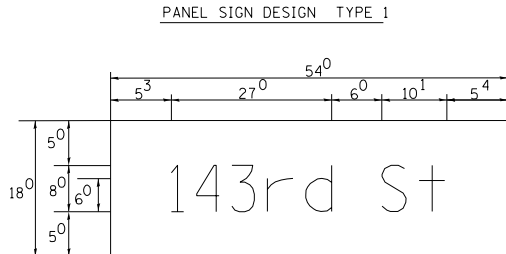
ENERGY COST TO: WILL COUNTY DIVISION OF TRANSPORTATION  
 ENERGY SUPPLY: CONTACT: NEW BUSINESS  
 PHONE: 877-426-6331  
 COMPANY: ComEd  
 COMPANY: 4867165011

SCHEDULE OF QUANTITIES – 143RD STREET /GREYSTONE DRIVE		
ITEM	UNIT	QUANTITY
SERVICE INSTALLATION - GROUND MOUNTED	EACH	1
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	624
UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	198
UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	446
HANDHOLE	EACH	6
HEAVY-DUTY HANDHOLE	EACH	1
DOUBLE HANDHOLE	EACH	1
ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 4/C NO. 6	EACH	28
LIGHT POLE, GALVANIZED STEEL, 45 FT. M.H., 12 FT. MAST ARM	FOOT	1
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	260.5
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	873.5
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1348
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1048
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	1562
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	498
TRAFFIC SIGNAL POST, 16 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 28 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 46 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 52 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	FOOT	16
CONCRETE FOUNDATION, TYPE C	FOOT	4
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	10
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	42
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	6
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	1
SIGNAL HEAD, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	4
SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	2
PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	2
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	8
INDUCTIVE LOOP DETECTOR	EACH	10
DETECTOR LOOP, TYPE I	FOOT	596
LIGHT DETECTOR	EACH	3
LIGHT DETECTOR AMPLIFIER	EACH	1
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	6
EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	FOOT	597
UNINTERRUPTABLE POWER SUPPLY (SPECIAL)	EACH	2
ACCESSIBLE PEDESTRIAN SIGNALS	EACH	1
CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER	FOOT	4
FULL ACTUATED CONTROLLER AND TYPE SUPER P CABINET	EACH	1
PEDESTRIAL SIGNAL POST, 10FT	EACH	1



\_\_\_\_ Sq. M. each  
9.75 Sq. Ft. each  
3 Required  
 Design Series D

NOTE: SIGN DIMENSIONS ARE IN ENGLISH UNITS



\_\_\_\_ Sq. M. each  
6.75 Sq. Ft. each  
3 Required  
 Design Series D

FILE NAME =  
 ...Traffic\WillCo-sh1025-TS.dgn  
 PLOT TIME = 3:35:04 PM  
 PLOT DATE = 3/12/2024

DESIGNED - SAR  
 DRAWN - SAR  
 CHECKED - A. OSHANA  
 DATE - 03/12/2024

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -



STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES  
 143RD STREET /GREYSTONE DRIVE  
 SCALE: N/A SHEET 25 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	228
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	



**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.

**REMOVAL AND RELOCATION NOTES:**

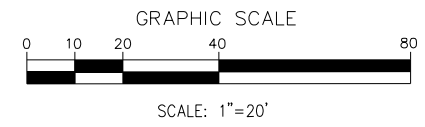
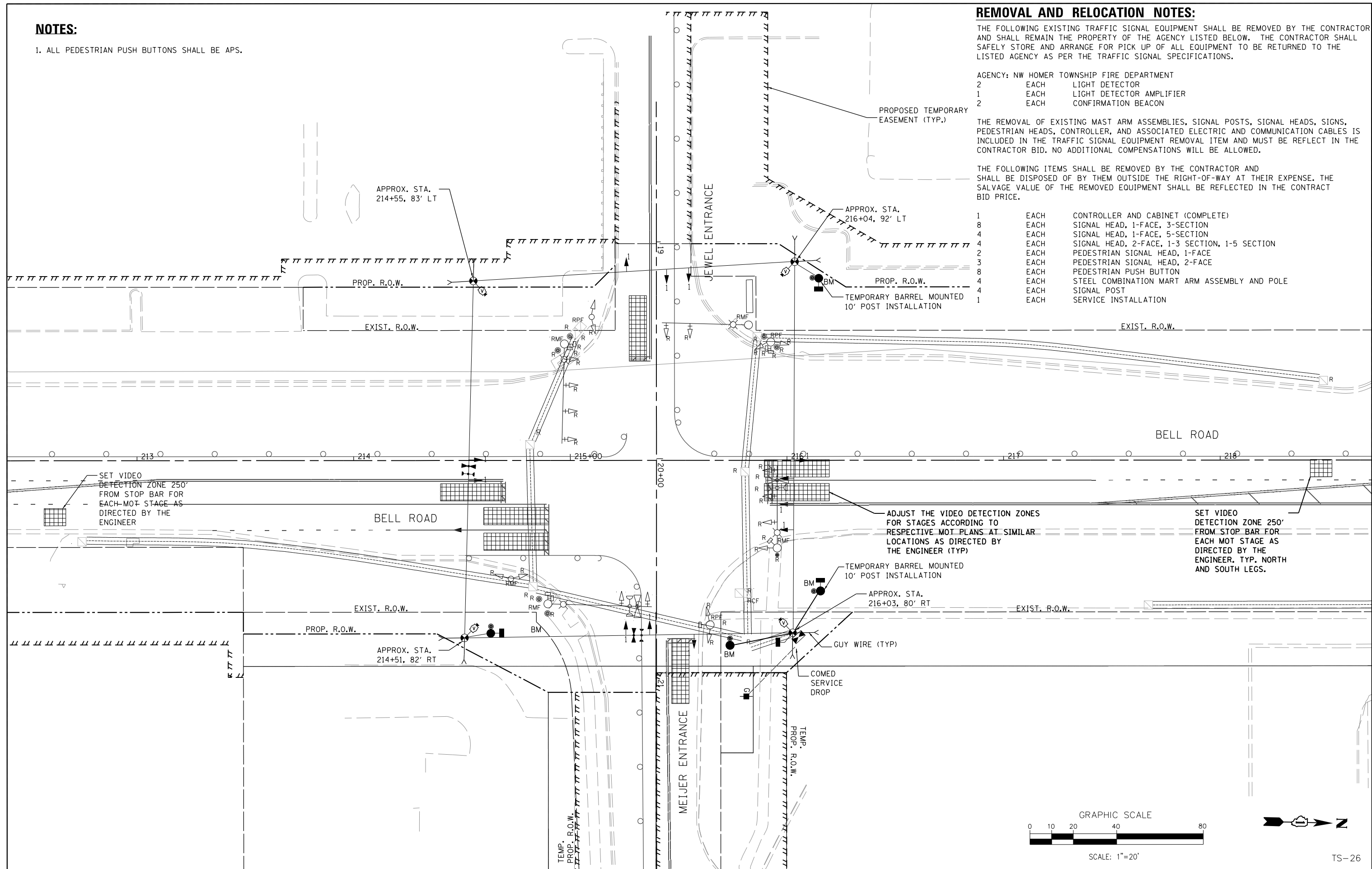
THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR AND SHALL REMAIN THE PROPERTY OF THE AGENCY LISTED BELOW. THE CONTRACTOR SHALL SAFELY STORE AND ARRANGE FOR PICK UP OF ALL EQUIPMENT TO BE RETURNED TO THE LISTED AGENCY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS.

AGENCY: NW HOMER TOWNSHIP FIRE DEPARTMENT  
 2 EACH LIGHT DETECTOR  
 1 EACH LIGHT DETECTOR AMPLIFIER  
 2 EACH CONFIRMATION BEACON

THE REMOVAL OF EXISTING MAST ARM ASSEMBLIES, SIGNAL POSTS, SIGNAL HEADS, SIGNS, PEDESTRIAN HEADS, CONTROLLER, AND ASSOCIATED ELECTRIC AND COMMUNICATION CABLES IS INCLUDED IN THE TRAFFIC SIGNAL EQUIPMENT REMOVAL ITEM AND MUST BE REFLECT IN THE CONTRACTOR BID. NO ADDITIONAL COMPENSATIONS WILL BE ALLOWED.

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

1 EACH CONTROLLER AND CABINET (COMPLETE)  
 8 EACH SIGNAL HEAD, 1-FACE, 3-SECTION  
 4 EACH SIGNAL HEAD, 1-FACE, 5-SECTION  
 4 EACH SIGNAL HEAD, 2-FACE, 1-3 SECTION, 1-5 SECTION  
 2 EACH PEDESTRIAN SIGNAL HEAD, 1-FACE  
 3 EACH PEDESTRIAN SIGNAL HEAD, 2-FACE  
 8 EACH PEDESTRIAN PUSH BUTTON  
 4 EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE  
 4 EACH SIGNAL POST  
 1 EACH SERVICE INSTALLATION



TS-26

FILE NAME = ...Traffic\WillCo-sh1026-TS.dgn  
 PLOT TIME = 4:01:06 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -



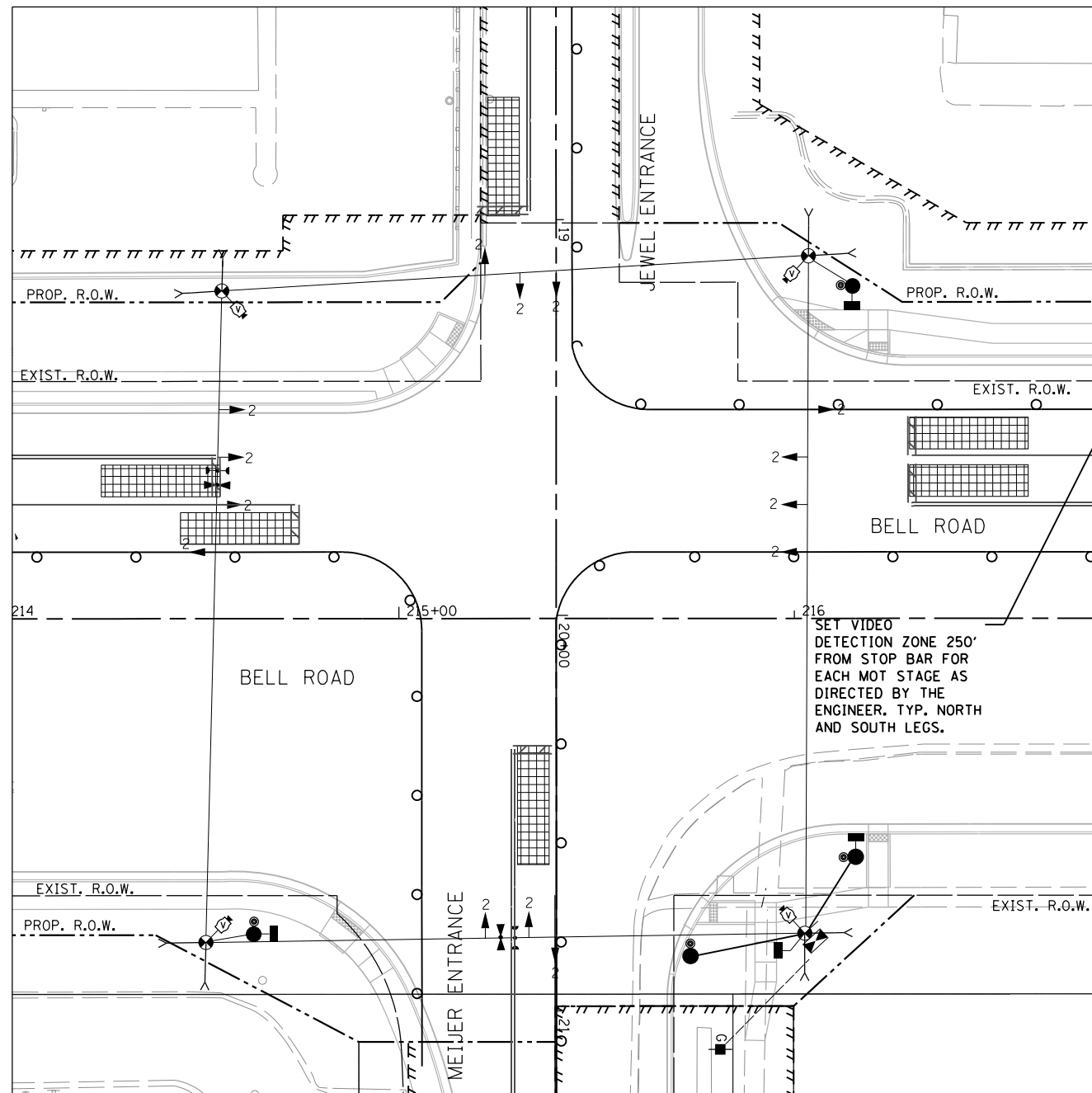
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGE 1 & REMOVAL PLAN - BELL ROAD /JEWEL & MEIJER ENTRANCES**  
 SCALE: 1" = 20' SHEET 26 OF 47 SHEETS STA. N/A TO STA. N/A

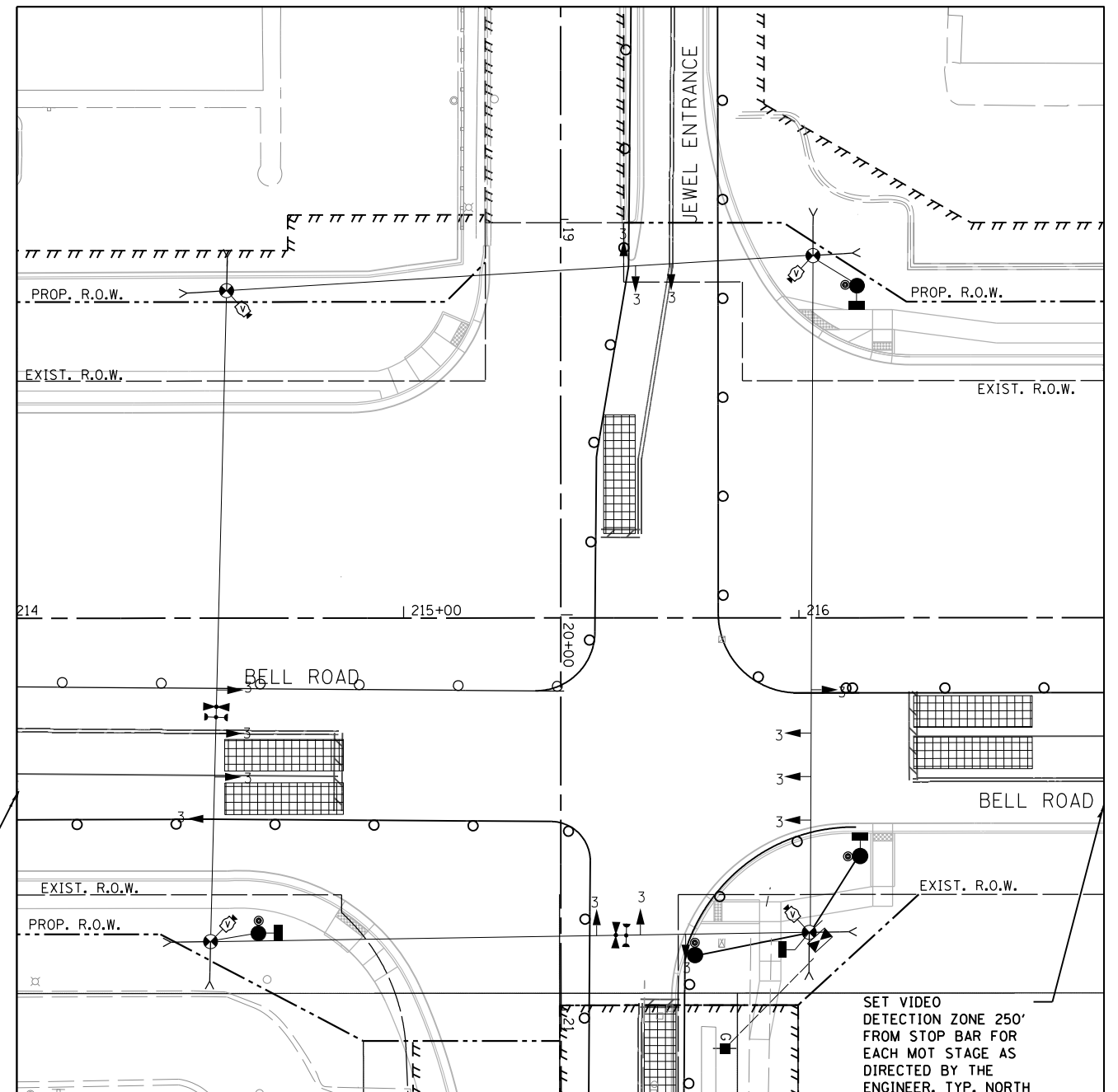
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	229
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



**TEMPORARY TRAFFIC SIGNALS  
STAGE 2**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 3**



TS-27

FILE NAME =  
...Traffic\WillCo-sh1027-TS.dgn  
PLOT TIME = 4:01:07 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

REVISED -
REVISED -
REVISED -
REVISED -



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

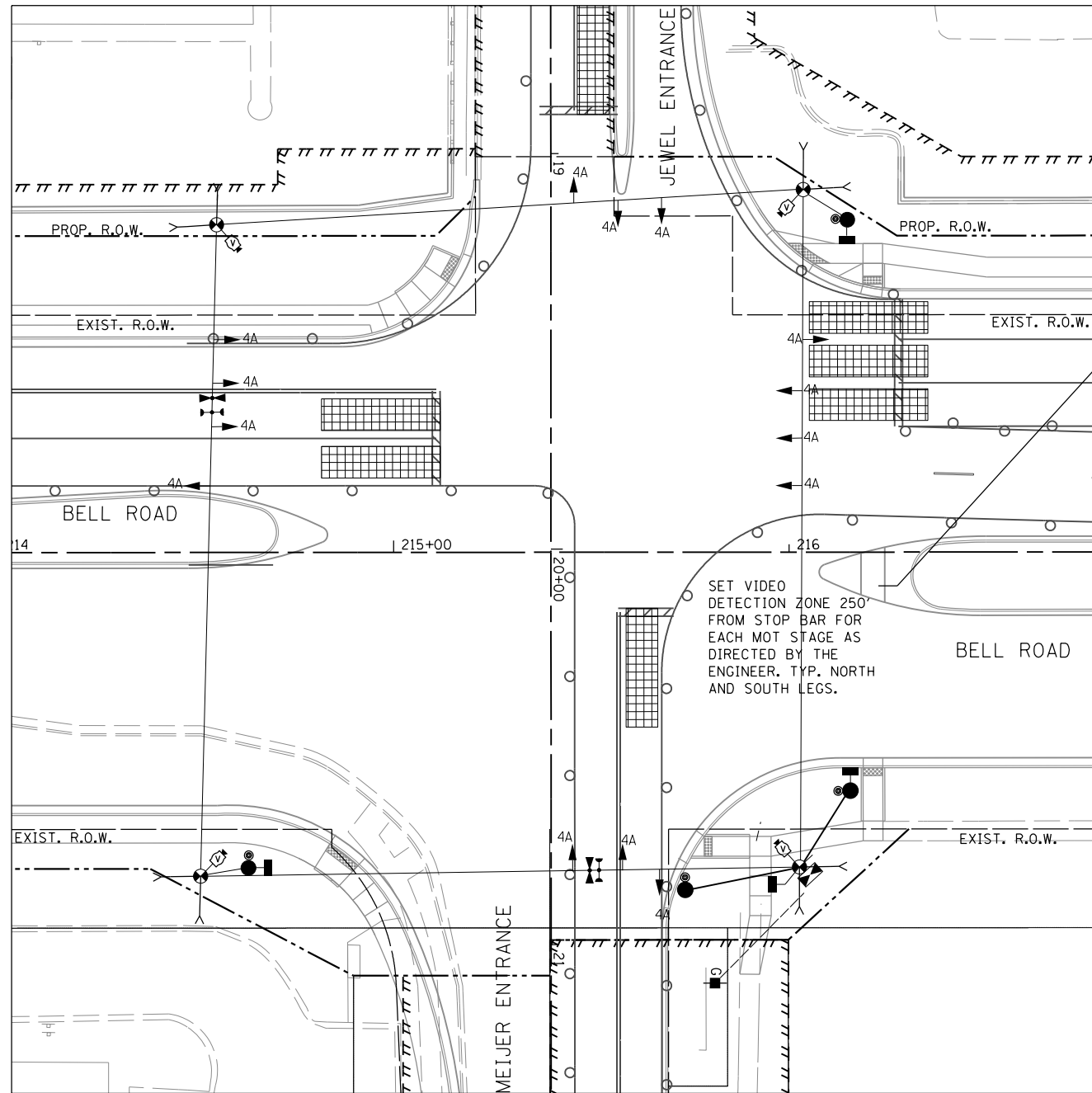
**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 2 & 3  
& REMOVAL PLAN - BELL ROAD /JEWEL & MEIJER ENTRANCES**

SCALE: 1" = 20' SHEET 27 OF 47 SHEETS STA. N/A TO STA. N/A

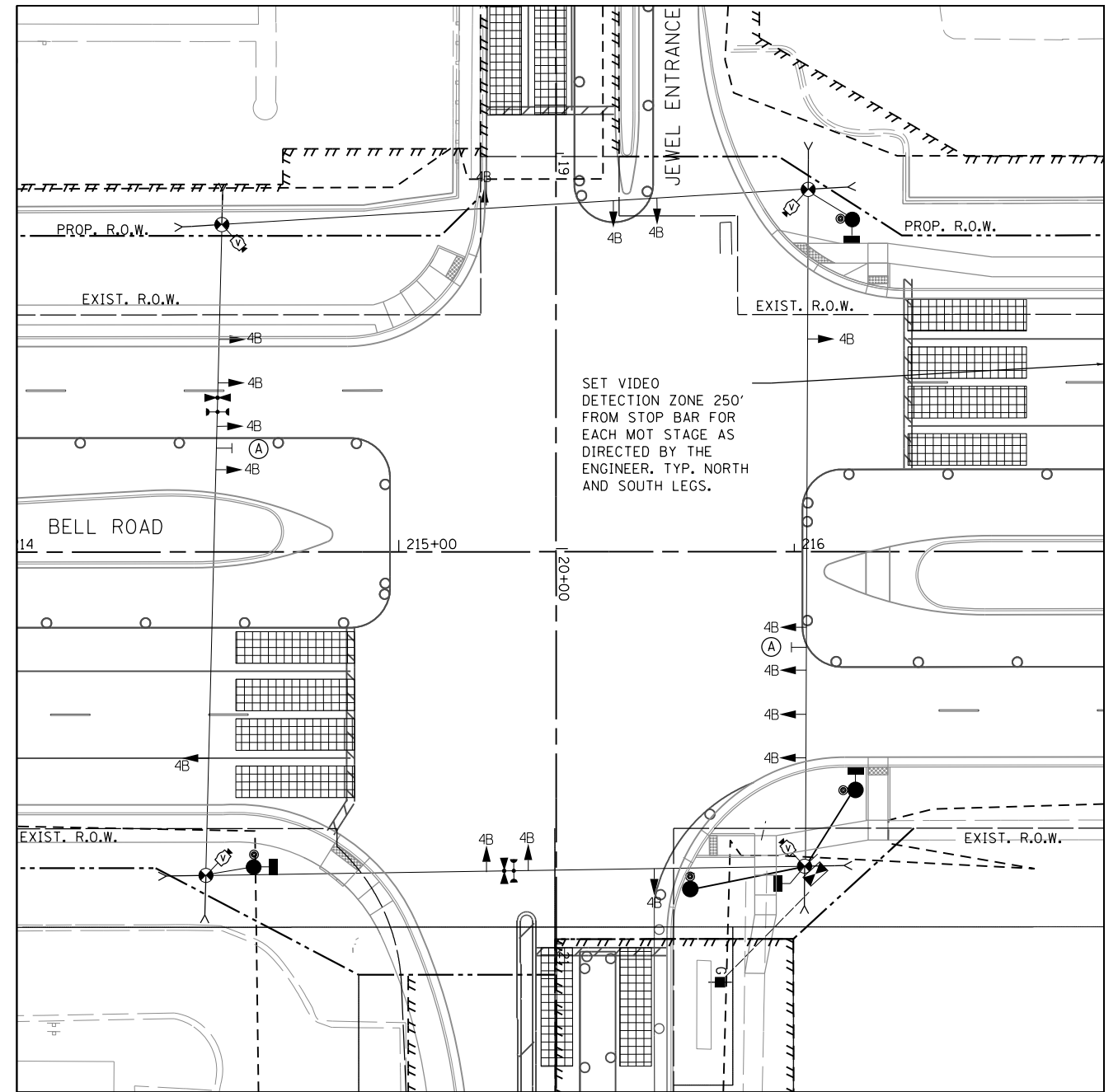
F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 230
CONTRACT NO. 61D34				ILLINOIS FED. AID PROJECT

**NOTES:**

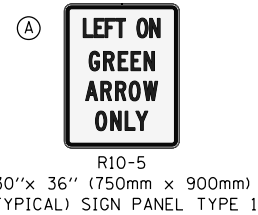
1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



**TEMPORARY TRAFFIC SIGNALS  
STAGE 4A**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 4B**



TS-28

FILE NAME =  
...Traffic\WillCo-sh1028-TS.dgn  
PLOT TIME = 4:01:00 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



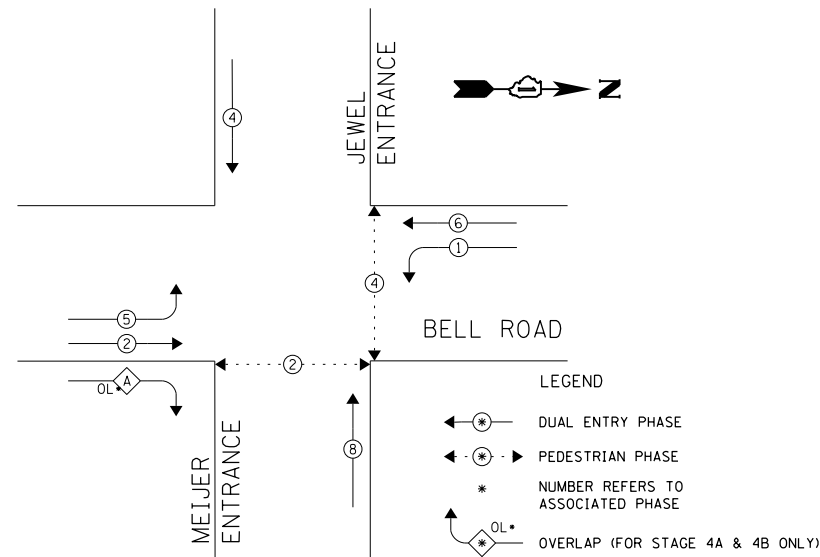
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGE 4A & 4B  
BELL ROAD / JEWEL & MEIJER ENTRANCES**

SCALE: 1" = 20' SHEET 28 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	231
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

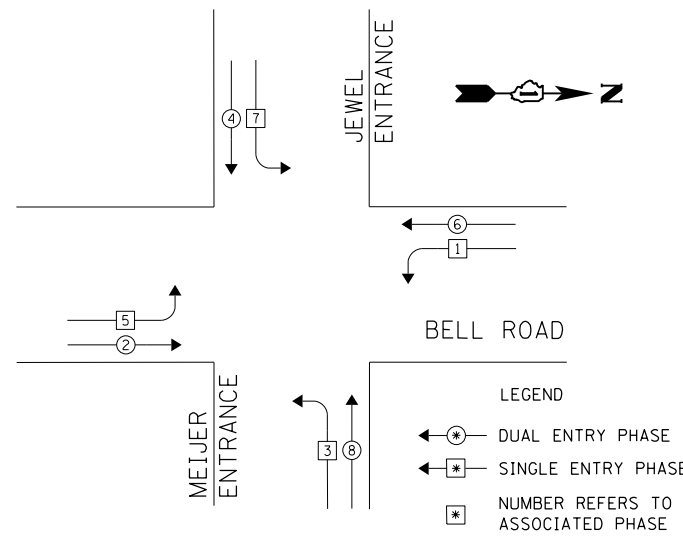
TEMPORARY CONTROLLER SEQUENCE



TEMPORARY PHASE DESIGNATION DIAGRAM

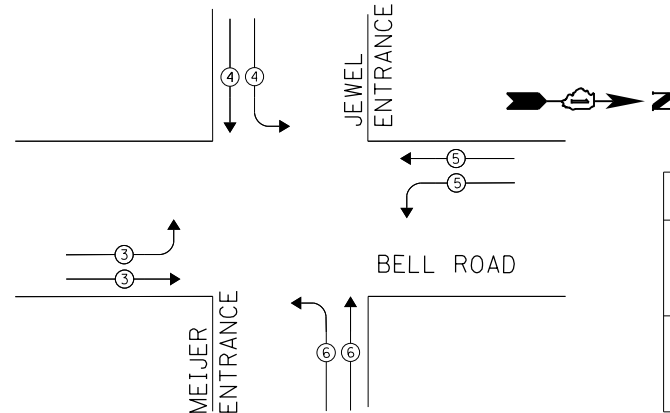
OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
A	= 2	+ 3

STAGES 1, 2, AND 3  
TEMPORARY CONTROLLER SEQUENCE



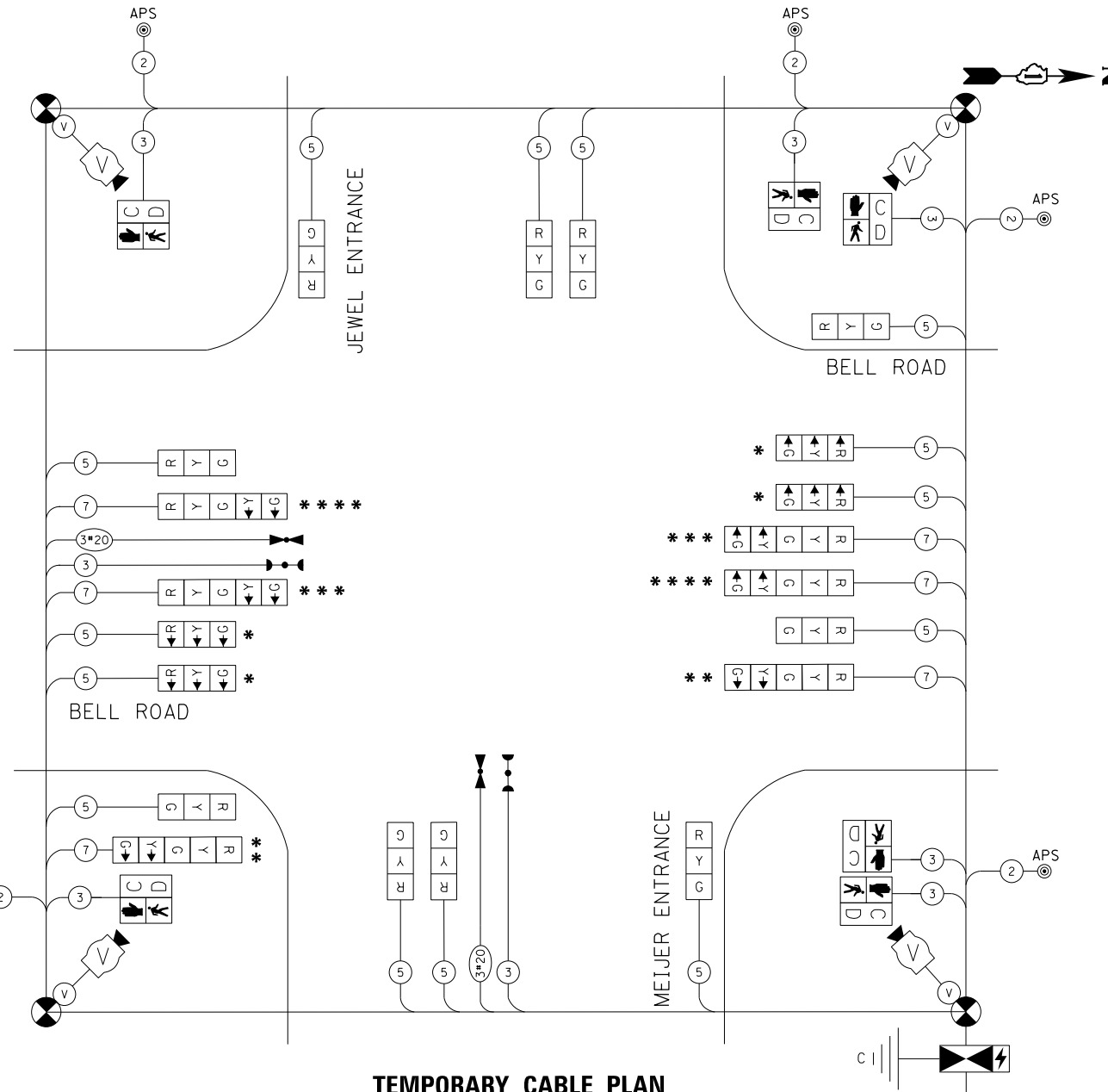
STAGES 4A AND 4B

TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE



EMERGENCY VEHICLE PREEMPTOR	3	4
MOVEMENT	← →	↓ ↑

EMERGENCY VEHICLE PREEMPTOR	3	4	5	6
MOVEMENT	← →	↓ ↑	← →	← →



TEMPORARY CABLE PLAN

- \* SIGNAL HEAD SHALL BE BAGGED DURING MOT STAGES 1,2, 3, AND 4A. SIGNAL HEAD TO BE USED DURING STAGE 4B OR AS DIRECTED BY THE ENGINEER
- \*\* BAG RIGHT TURN ARROW IN STAGES WHERE NO RIGHT TURN OVERLAP IS ALLOWED.
- \*\*\* SIGNAL HEAD TO BE DISCONNECTED AND REMOVED DURING STAGE 4B
- \*\*\*\* BOTTOM TWO SECTIONS OF SIGNAL HEAD SHALL BE BAGGED DURING STAGE 4B

TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	20	11	50	110
(YELLOW)	20	20	5	20
(GREEN)	20	12	45	108
ARROW	12	10	10	12
PED. SIGNAL	6	20	100	120
CONTROLLER	1	100	100	100
UPS	1	25	100	25
VIDEO SYSTEM	1	150	100	150
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
TOTAL =				645

ENERGY COST TO: WILL COUNTY DIVISION OF TRANSPORTATION  
 ENERGY SUPPLY: CONTACT: NEW BUSINESS  
 PHONE: 877-426-6331  
 COMPANY: ComEd  
 ACCT: 4867165011

FILE NAME = ...Traffic\WillCo-sh1029-TS.dgn  
 PLOT TIME = 4:01:09 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR  
 DRAWN - SAR  
 CHECKED - A. OSHANA  
 DATE - 02/14/2024

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -



STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN, TEMPORARY PHASE DESIGNATION DIAGRAM AND  
 TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE  
 BELL ROAD /JEWEL & MEIJER ENTRANCES  
 SCALE: N.T.S. SHEET 29 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356 SECTION 12-00147-11-CH COUNTY WILL TOTAL SHEETS 356 SHEET NO. 232 CONTRACT NO. 61D34 ILLINOIS FED. AID PROJECT

TS-29

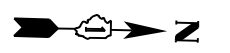
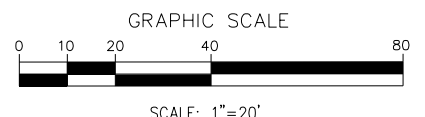
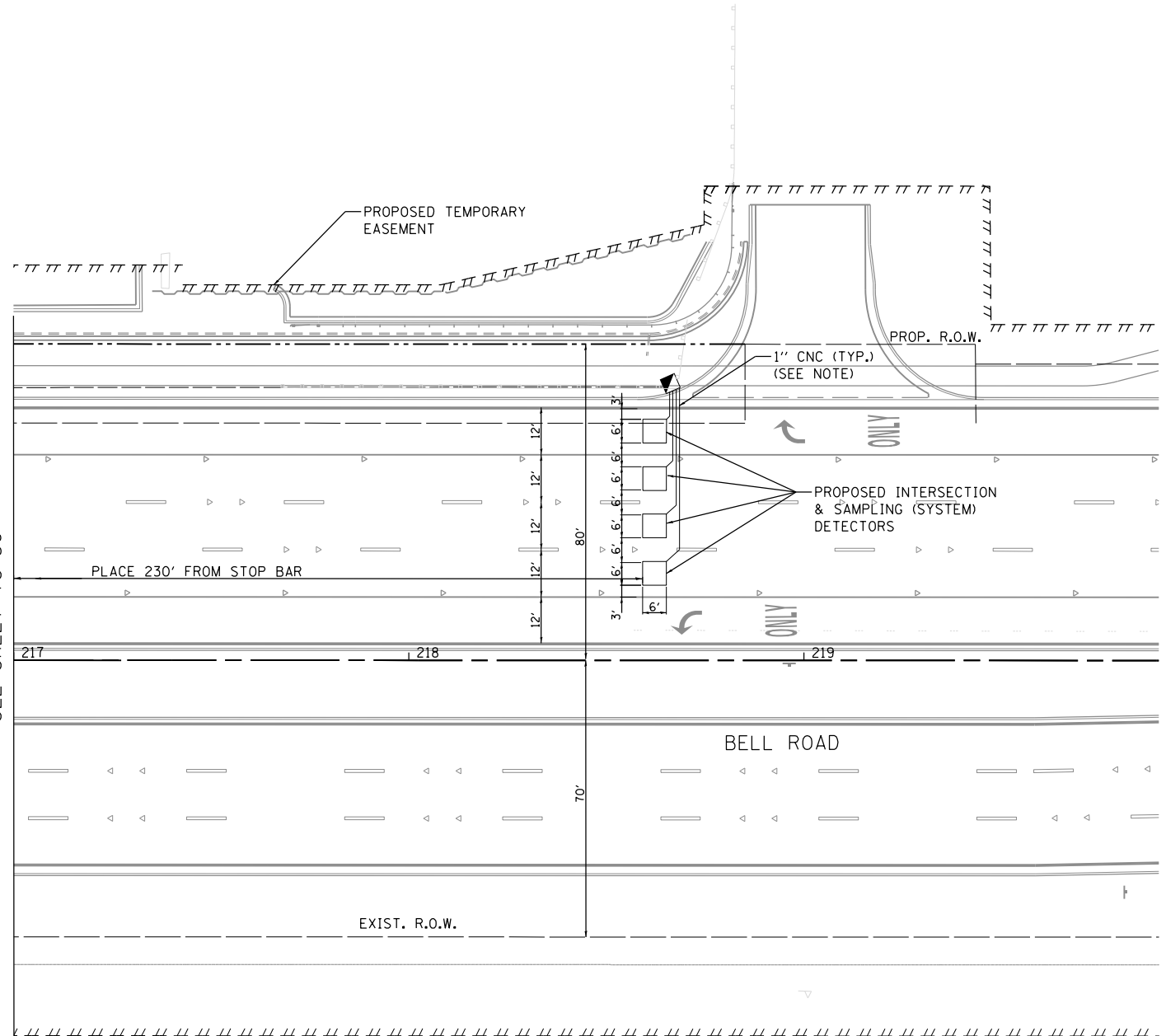


**CONSTRUCTION NOTES:**  
 REFER TO LIGHTING PLANS LTG-01 THROUGH LTG-05 FOR LUMINAIRE WIRING AND INSTALLATION DETAILS.

**NOTE:**  
 THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

**NOTES:**  
 1. EACH DETECTOR LOOP SHALL HAVE ITS OWN 1" COILABLE NON-METALLIC CONDUIT BETWEEN THE EDGE OF PAVEMENT AND THE ADJACENT HANDHOLE AS SHOWN ON THE PLANS AND AS STATED IN THE TRAFFIC SIGNAL SPECIFICATIONS.

MATCHLINE STA. 217+00.00  
 SEE SHEET TS-30



TS-31

FILE NAME = ...Traffic\BellCo-sh1031-TS.dgn  
 PLOT TIME = 4:01:10 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

**SEPSTEIN**  
 800 W FULTON ST. TEL: 312 454 9100  
 CHICAGO, ILLINOIS FAX: 312 559 1217  
 60614-1259 WEB: www.sepstein-signal.com

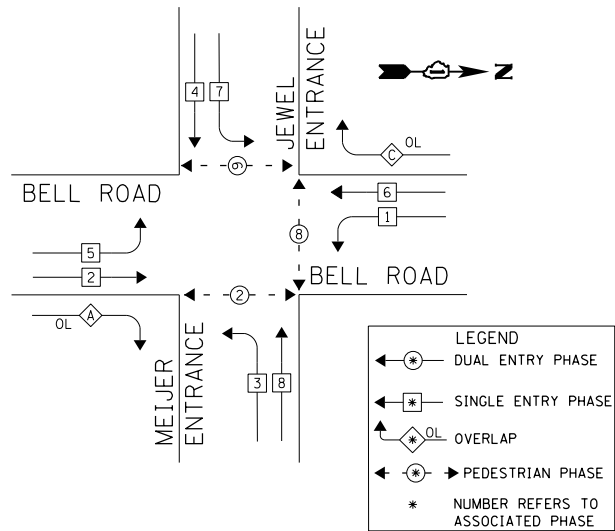
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**TRAFFIC SIGNAL MODERNIZATION PLAN  
 BELL ROAD /JEWEL & MEIJER ENTRANCES**

SCALE: 1" = 20' SHEET 31 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	234
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

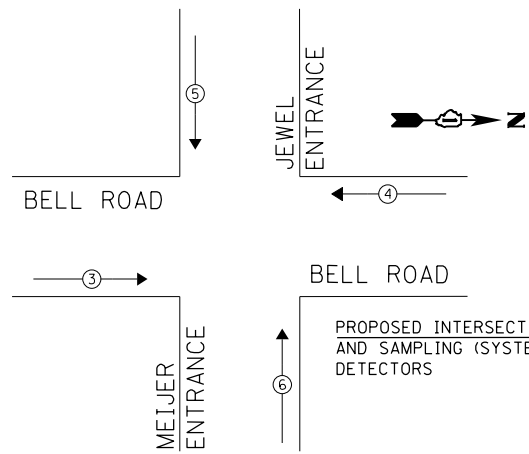
CONTROLLER SEQUENCE



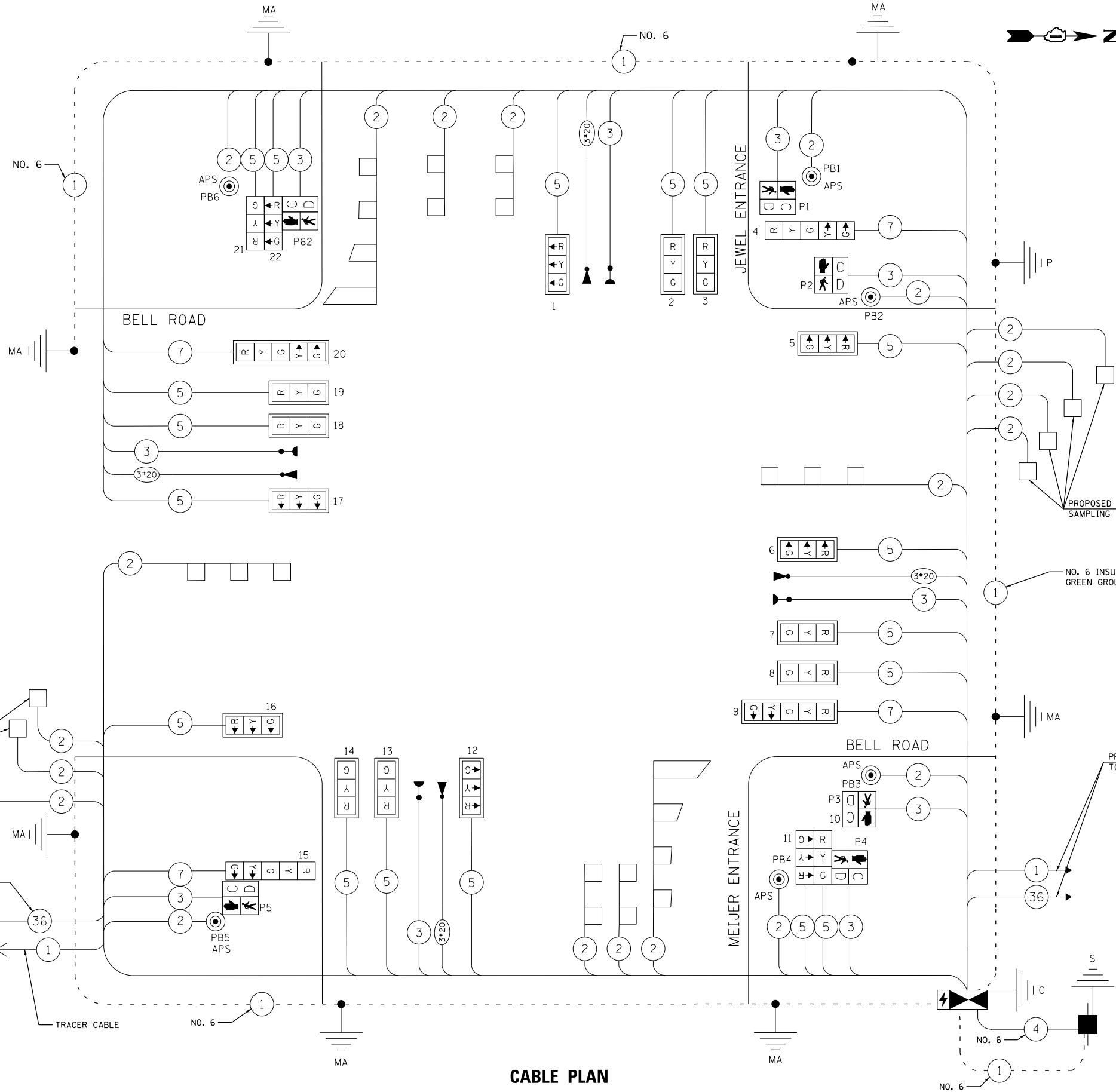
PHASE DESIGNATION DIAGRAM

OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
A	= 2 + 3	
C	= 6 + 7	

EMERGENCY VEHICLE PREEMPTION SEQUENCE



EMERGENCY VEHICLE PREEMPTORS				
EMERGENCY VEHICLE PREEMPTOR	3	4	5	6
MOVEMENT	→	←	↓	↑



NOTE:  
THE SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

THE END OF THE TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO THE CONTROLLER CABINET.

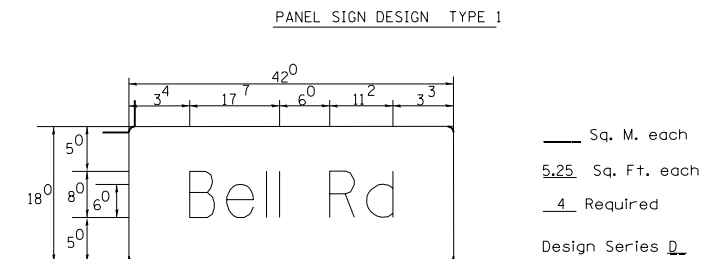
CABLE PLAN

TRAFFIC SIGNAL ELECTRICAL SERVICE REQUIREMENTS				
TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	22	11	50	121
(YELLOW)	22	20	5	22
(GREEN)	22	12	45	118.8
ARROW	8	10	10	8
PED. SIGNAL	6	20	100	120
CONTROLLER	1	100	100	100
LPS	1	25	100	25
VIDEO SYSTEM	-	150	100	-
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
				TOTAL = 514.8

ENERGY COST TO:  
WILL COUNTY DIVISION OF TRANSPORTATION  
ENERGY SUPPLY: CONTACT: NEW BUSINESS  
PHONE: 877-426-6331  
COMPANY: ComEd  
ACCT: 4867165011

**SCHEDULE OF QUANTITIES – BELL ROAD /JEWEL & MEIJER ENTRANCES**

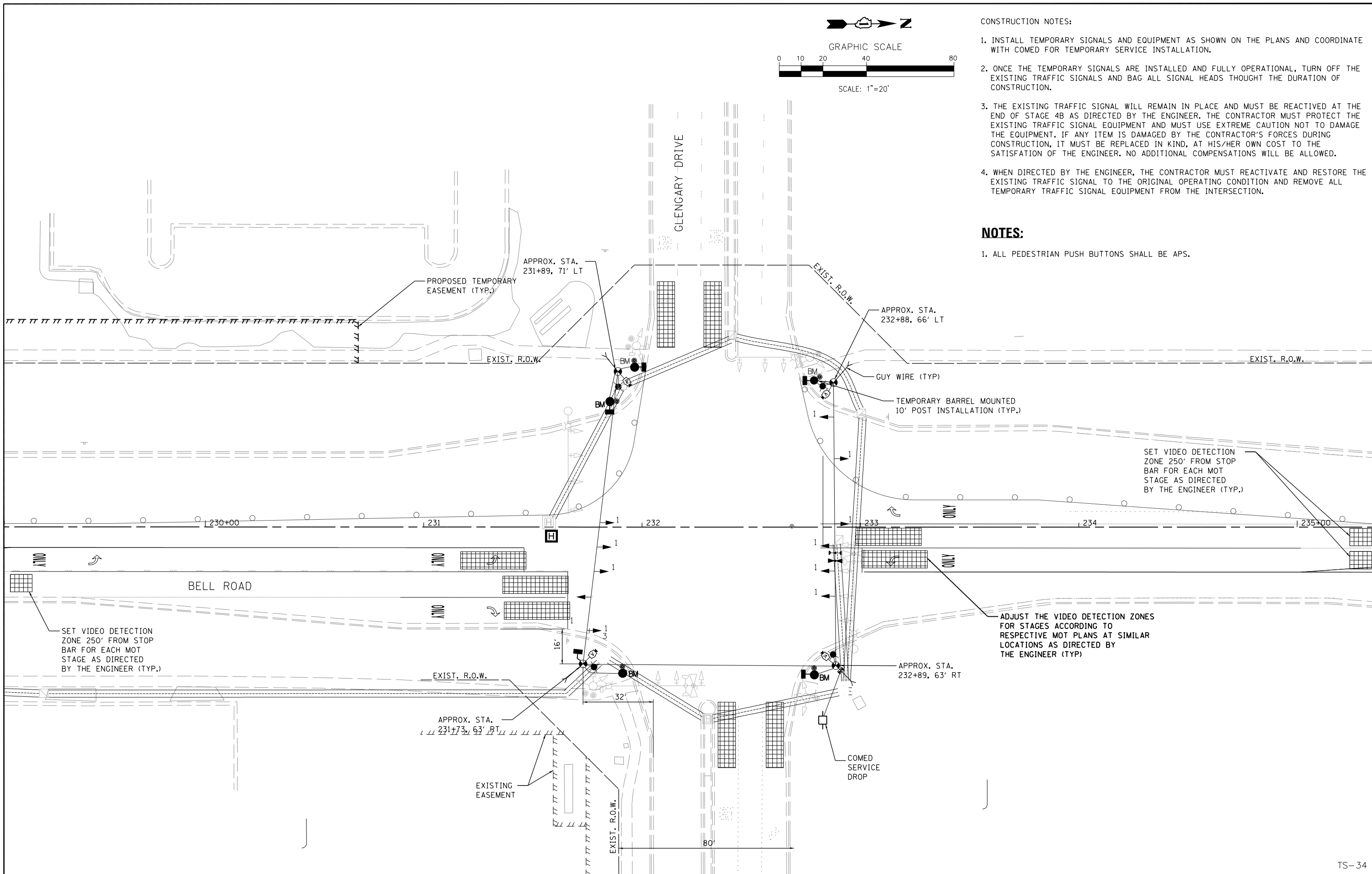
ITEM	BELL ROAD/ DOMINICK'S & MEIJER ENTRANCES	
	UNIT	QUANTITY
SIGN PANEL - TYPE 1	SQ FT	60
SERVICE INSTALLATION - GROUND MOUNTED	EACH	1
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	790
UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	145
UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	960
HANDHOLE	EACH	4
HEAVY-DUTY HANDHOLE	EACH	4
DOUBLE HANDHOLE	EACH	3
ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 4/C NO. 6	FOOT	48
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	1255
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	2454
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	5420
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	986
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	4032.5
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	653
TRAFFIC SIGNAL POST, 16 FT.	EACH	2
STEEL MAST ARM ASSEMBLY AND POLE, 28 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	FOOT	16
CONCRETE FOUNDATION, TYPE C	FOOT	4
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	10
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	60
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	16
SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	2
SIGNAL HEAD, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	2
SIGNAL HEAD, LED, 2-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 40 FT.	EACH	1
PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	6
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	16
INDUCTIVE LOOP DETECTOR	EACH	17
DETECTOR LOOP, TYPE I	EACH	856
LIGHT DETECTOR	FOOT	4
LIGHT DETECTOR AMPLIFIER	EACH	1
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING DOUBLE HANDHOLE	EACH	2
REMOVE EXISTING CONCRETE FOUNDATION	EACH	9
EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	EACH	1199
FULL ACTUATED CONTROLLER AND TYPE SUPER P CABINET	FOOT	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 48 FT. WITH DUAL 15 FT. LIGHTING ARM AT 40 FT. MOUNTING HEIGHT	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 54 FT. WITH DUAL 15 FT. LIGHTING ARM AT 40 FT. MOUNTING HEIGHT	EACH	1
UNINTERRUPTABLE POWER SUPPLY (SPECIAL)	EACH	1
ACCESSIBLE PEDESTRIAN SIGNALS	EACH	6
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 50 FT. (SPECIAL)	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 42 FT. WITH DUAL 15 FT. LIGHTING ARM AT 40 FT. MOUNTING HEIGHT	EACH	1



TS-33

FILE NAME = ...Traffic\WillCo-sh1033-TS.dgn	DESIGNED - SAR	REVISED -	 800 W FULTON ST. TEL: 312 454 9100 CHICAGO, IL 60605 FAX: 312 559 1217 0081-1259 WEB: www.sepstein.com	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCHEDULE OF QUANTITIES BELL ROAD /JEWEL & MEIJER ENTRANCES			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT TIME = 3:38:34 PM	DRAWN - SAR	REVISED -			0356	12-00147-11-CH	WILL	356	236			
PLOT DATE = 3/12/2024	CHECKED - A. OSHANA	REVISED -			CONTRACT NO. 61D34							
	DATE - 03/12/2024	REVISED -			ILLINOIS FED. AID PROJECT							
SCALE: N/A					SHEET 33 OF 47 SHEETS			STA. N/A TO STA. N/A				





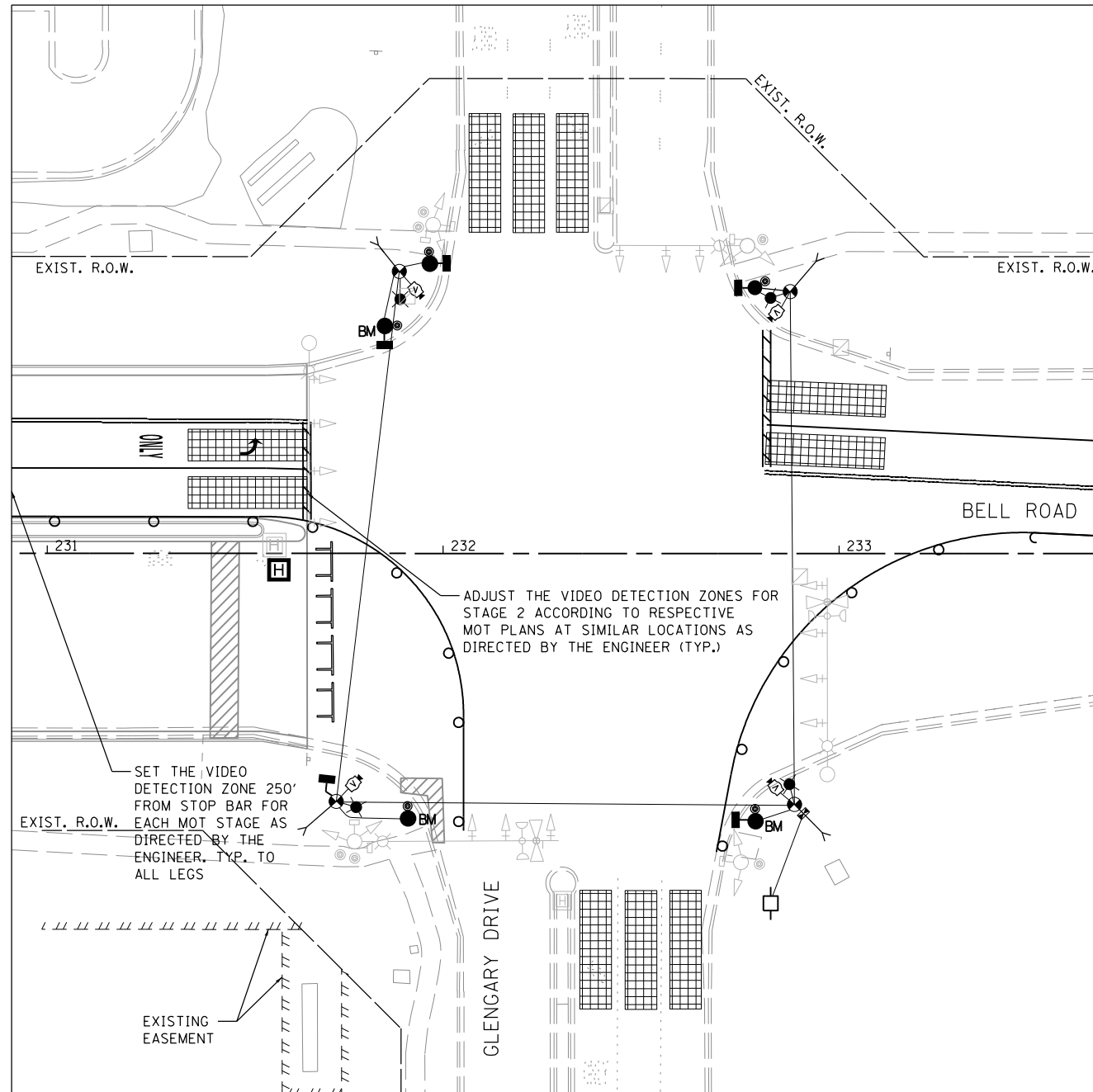
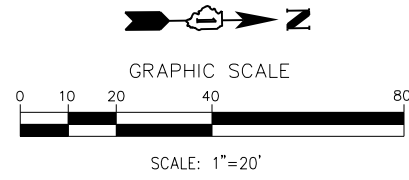
- CONSTRUCTION NOTES:**
1. INSTALL TEMPORARY SIGNALS AND EQUIPMENT AS SHOWN ON THE PLANS AND COORDINATE WITH COMED FOR TEMPORARY SERVICE INSTALLATION.
  2. ONCE THE TEMPORARY SIGNALS ARE INSTALLED AND FULLY OPERATIONAL, TURN OFF THE EXISTING TRAFFIC SIGNALS AND BAG ALL SIGNAL HEADS THOUGHT THE DURATION OF CONSTRUCTION.
  3. THE EXISTING TRAFFIC SIGNAL WILL REMAIN IN PLACE AND MUST BE REACTIVED AT THE END OF STAGE 4B AS DIRECTED BY THE ENGINEER. THE CONTRACTOR MUST PROTECT THE EXISTING TRAFFIC SIGNAL EQUIPMENT AND MUST USE EXTREME CAUTION NOT TO DAMAGE THE EQUIPMENT. IF ANY ITEM IS DAMAGED BY THE CONTRACTOR'S FORCES DURING CONSTRUCTION, IT MUST BE REPLACED IN KIND, AT HIS/HER OWN COST TO THE SATISFACTION OF THE ENGINEER. NO ADDITIONAL COMPENSATIONS WILL BE ALLOWED.
  4. WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR MUST REACTIVATE AND RESTORE THE EXISTING TRAFFIC SIGNAL TO THE ORIGINAL OPERATING CONDITION AND REMOVE ALL TEMPORARY TRAFFIC SIGNAL EQUIPMENT FROM THE INTERSECTION.

- NOTES:**
1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.

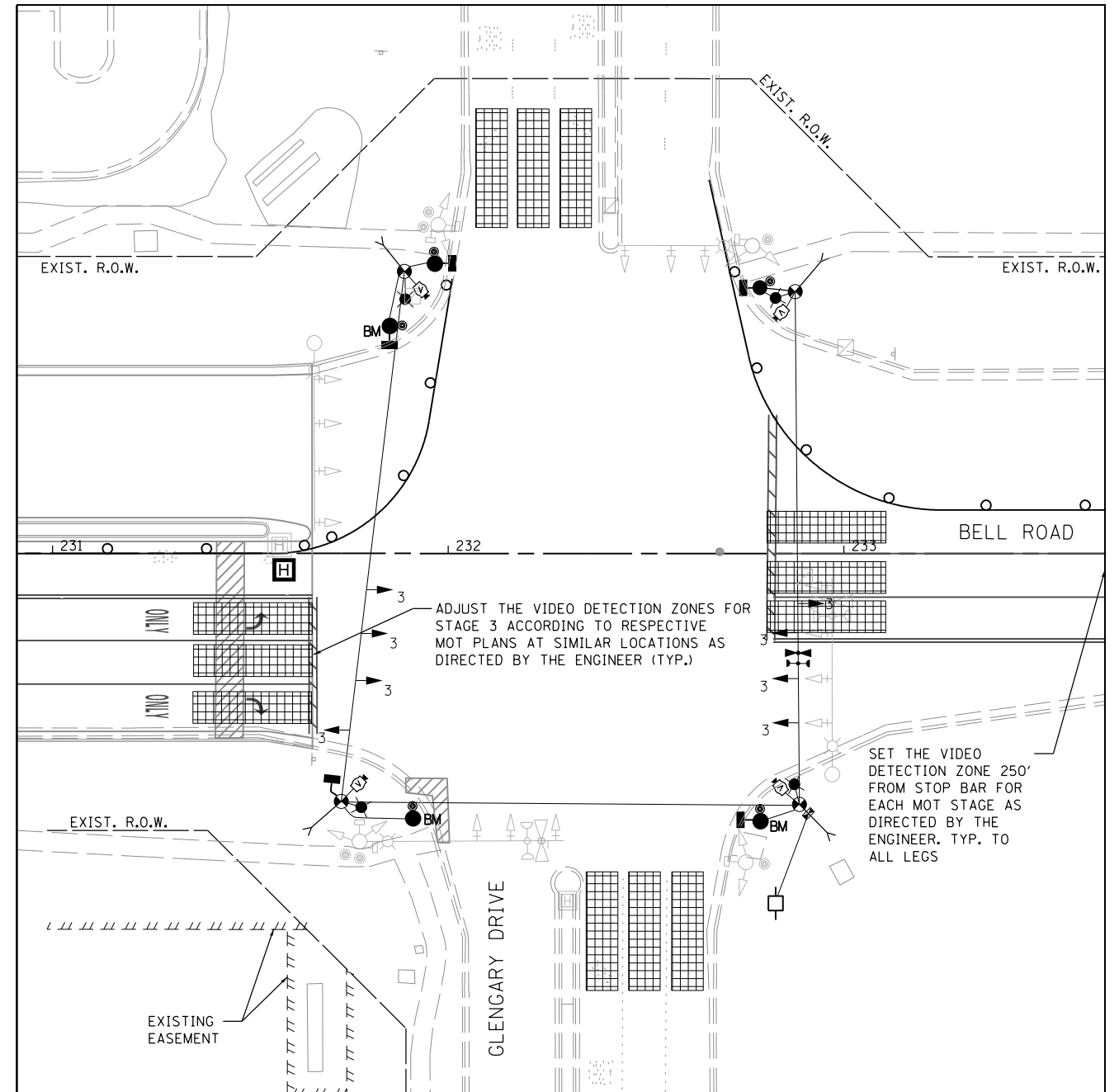
FILE NAME = ...Traffic\WillCo-sh1034-TS.dgn PLOT TIME = 4:01:11 PM PLOT DATE = 2/14/2024	DESIGNED - SAR DRAWN - SAR CHECKED - A. OSHANA DATE - 02/14/2024	REVISED - REVISED - REVISED - REVISED -	 800 W. FULTON ST. TEL: 312.454.9100 CHICAGO, ILLINOIS FAX: 312.559.1217 60614-1259 WEB: www.epstein-ill.com	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGE 1 AND REMOVAL PLAN - BELL ROAD / GLENGARY DRIVE</b>	F.A.P. - RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 237	<b>CONTRACT NO. 61D34</b>  ILLINOIS FED. AID PROJECT
	SCALE: 1" = 20' SHEET 34 OF 47 SHEETS STA. N/A TO STA. N/A										

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



**TEMPORARY TRAFFIC SIGNALS  
STAGE 2**



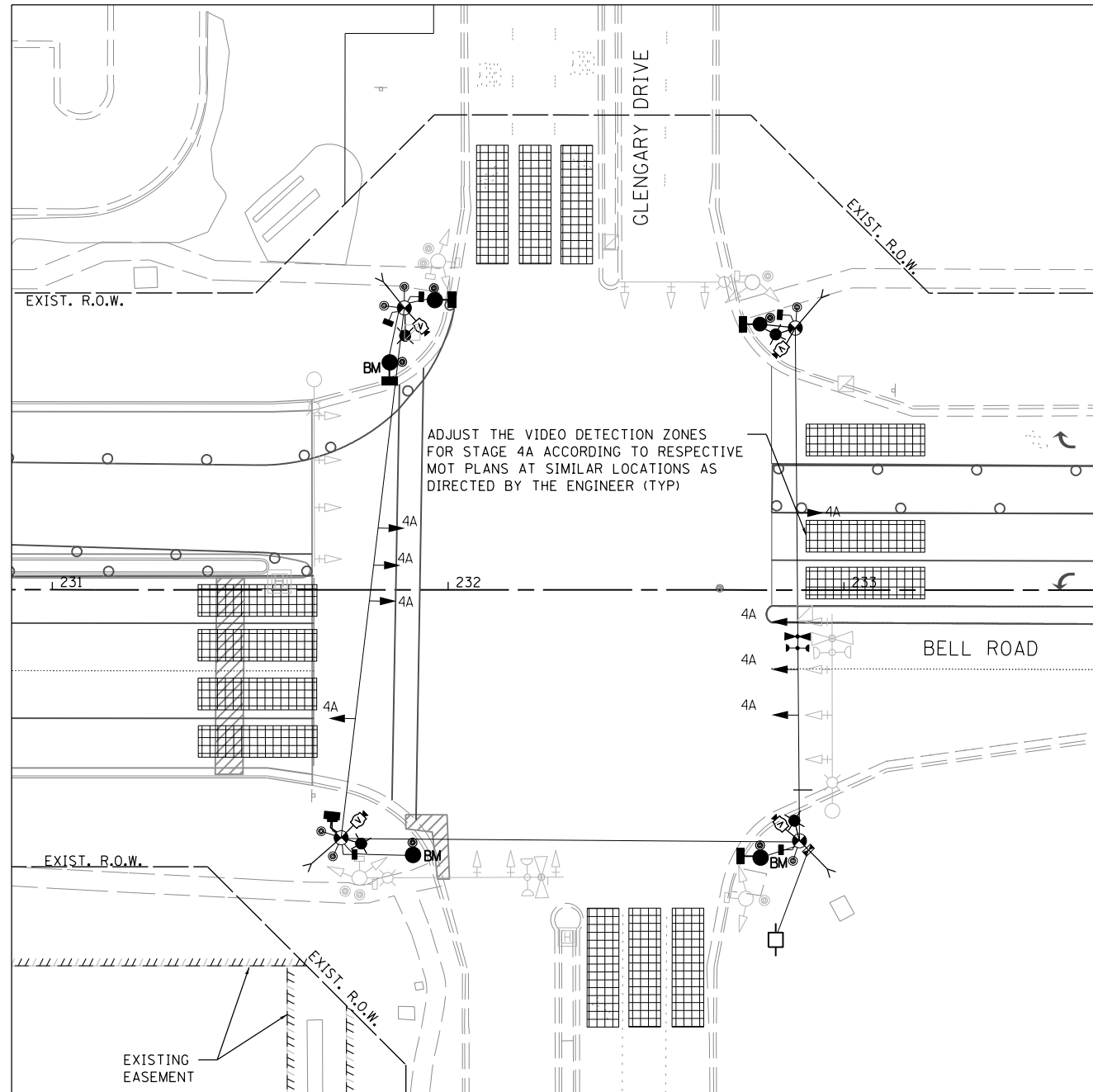
**TEMPORARY TRAFFIC SIGNALS  
STAGE 3**

TS-35

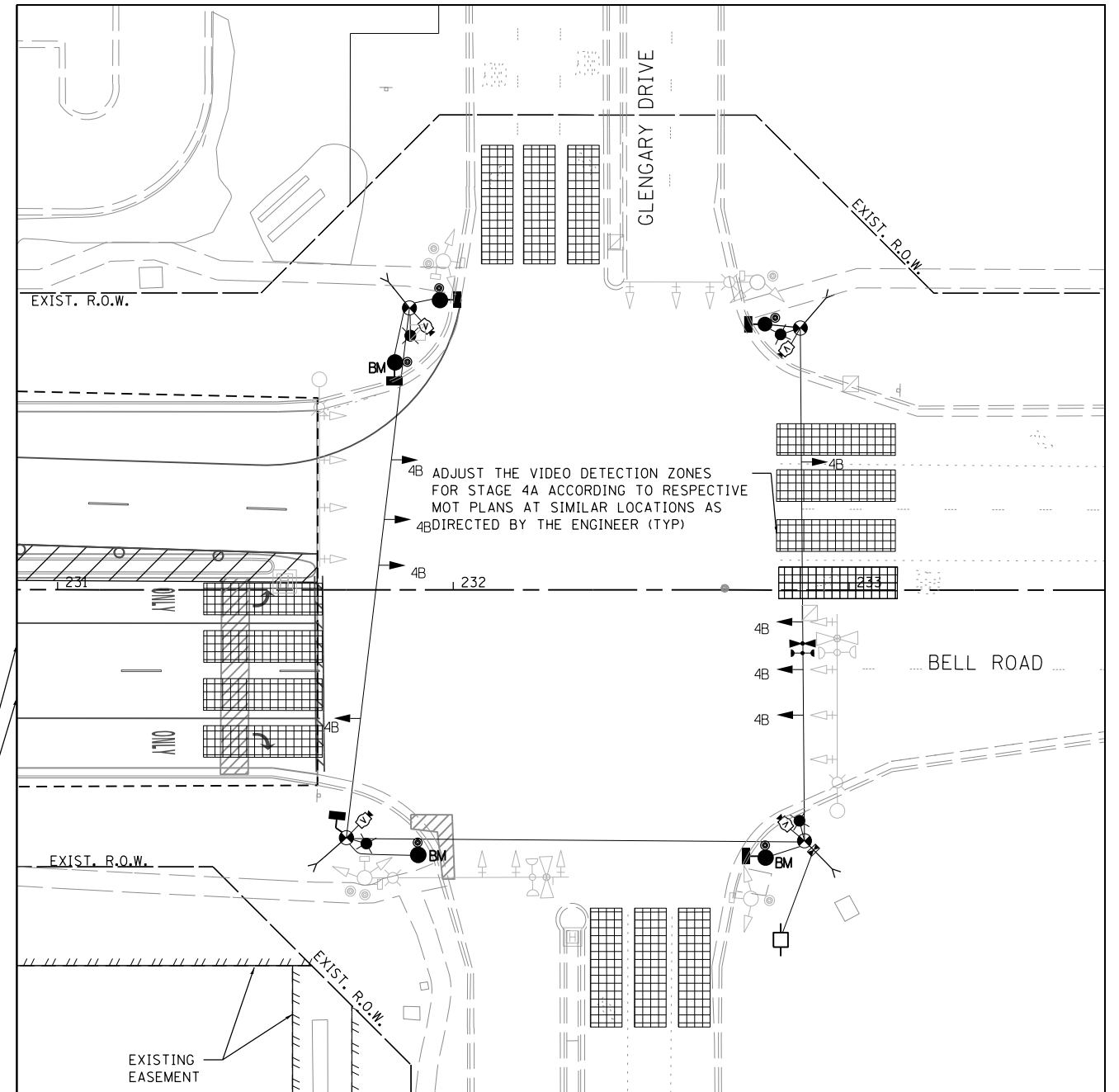
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	SCALE: 1" = 20' SHEET 35 OF 47 SHEETS STA. N/A TO STA. N/A					CONTRACT NO. 61D34		ILLINOIS FED. AID PROJECT		

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.

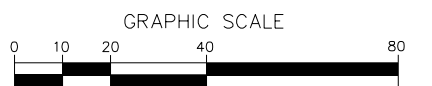


**TEMPORARY TRAFFIC SIGNALS  
STAGE 4A**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 4B**

SET THE VIDEO  
DETECTION ZONE 250'  
FROM STOP BAR FOR  
EACH MOT STAGE AS  
DIRECTED BY THE  
ENGINEER. TYP. ON NORTH  
AND SOUTH LEGS.



SCALE: 1"=20'

TS-36

FILE NAME =  
...Traffic\IllCo-sh1036-TS.dgn  
PLOT TIME = 4:01:13 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



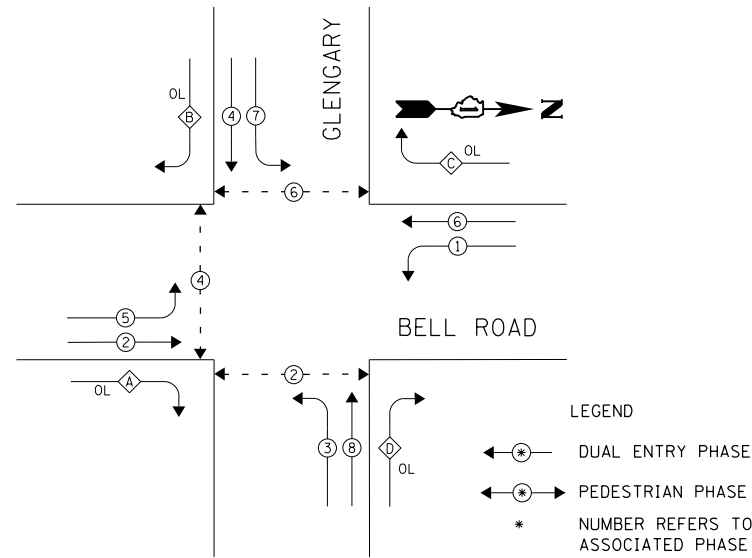
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 4A & 4B  
BELL ROAD / GLENGARY DRIVE**

SCALE: 1" = 20' SHEET 36 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	239
				<b>CONTRACT NO. 61D34</b>
ILLINOIS FED. AID PROJECT				

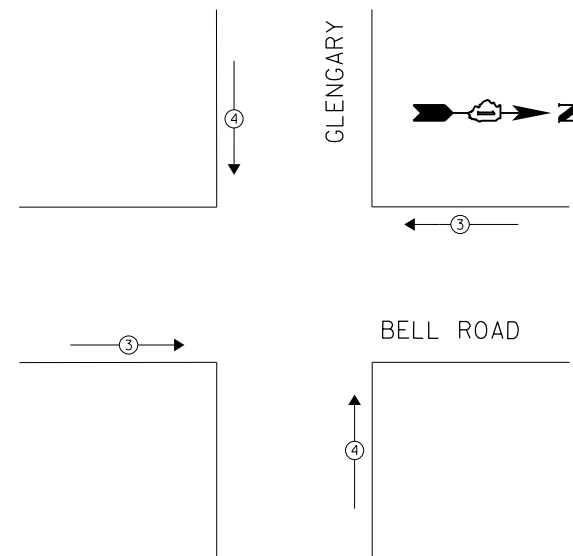
TEMPORARY CONTROLLER SEQUENCE



TEMPORARY PHASE DESIGNATION DIAGRAM

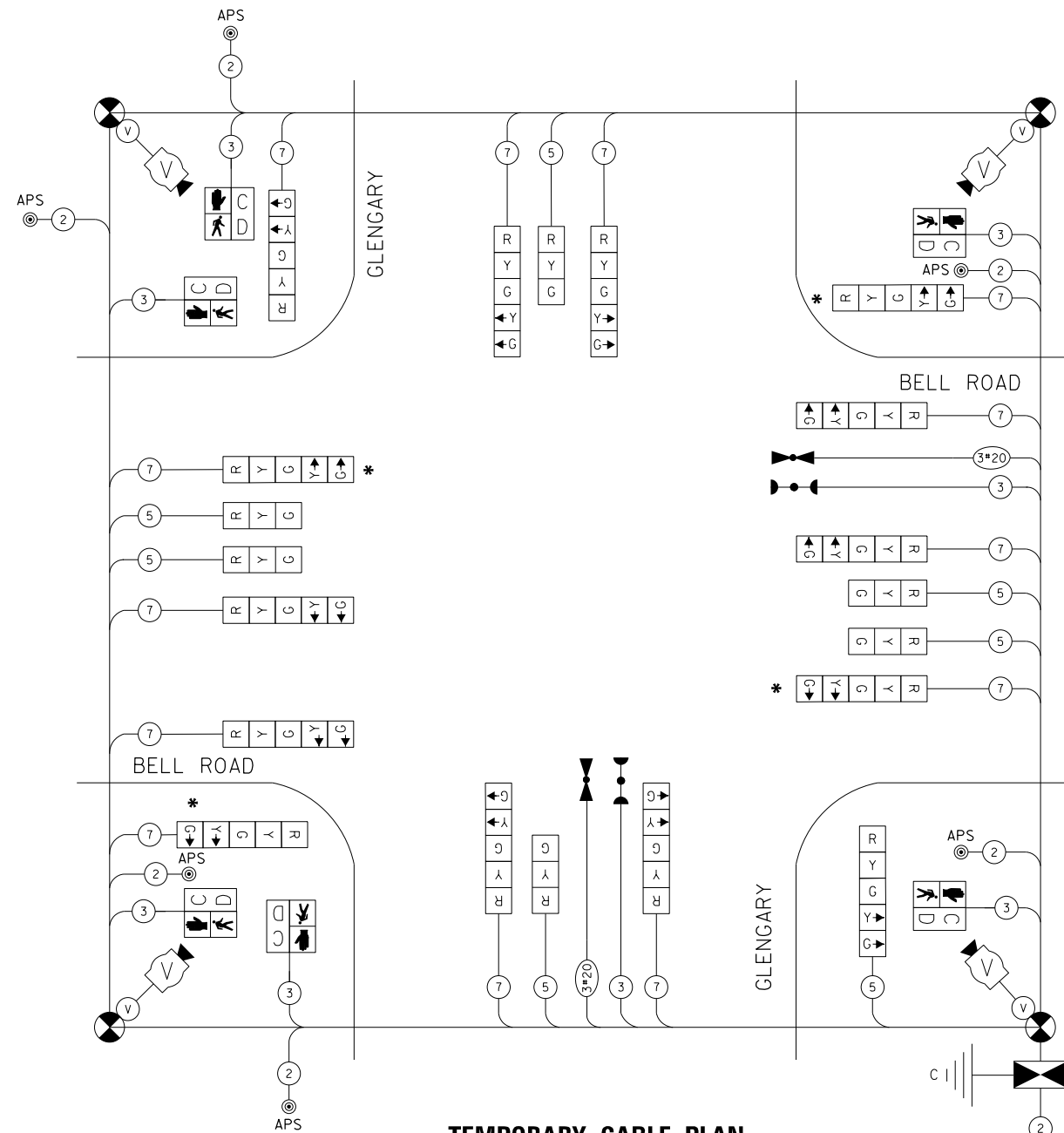
OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
A =	2	+ 3
B =	4	+ 5
C =	6	+ 7
D =	8	+ 1

TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE



EMERGENCY VEHICLE PREEMPTOR	3	4
MOVEMENT	← →	↓ ↑

RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.



TEMPORARY CABLE PLAN

\* BOTTOM TWO SECTIONS OF SIGNAL HEAD MUST BE BAGGED DURING MOT STAGES 2. UNBAG AND USE THE ENTIRE SIGNAL HEAD FOR ALL OTHER MOT STAGES AND FINAL ROADWAY CONFIGURATION UNTIL THE EXISTING TRAFFIC SIGNALS ARE REACTIVATED AND RESTORED TO THE ORIGINAL CONDITION AS DIRECTED BY THE ENGINEER.

TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	20	11	50	110
(YELLOW)	20	20	5	20
(GREEN)	20	12	45	108
ARROW	28	10	10	28
PED. SIGNAL	6	20	100	100
CONTROLLER	1	100	100	100
UPS	1	25	100	25
VIDEO SYSTEM	1	150	100	150
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
TOTAL =				641

ENERGY COST TO:  
WILL COUNTY DIVISION OF TRANSPORTATION  
ENERGY SUPPLY: CONTACT: NEW BUSINESS  
PHONE: 877-426-6331  
COMPANY: ComEd  
ACCT: 4867165011

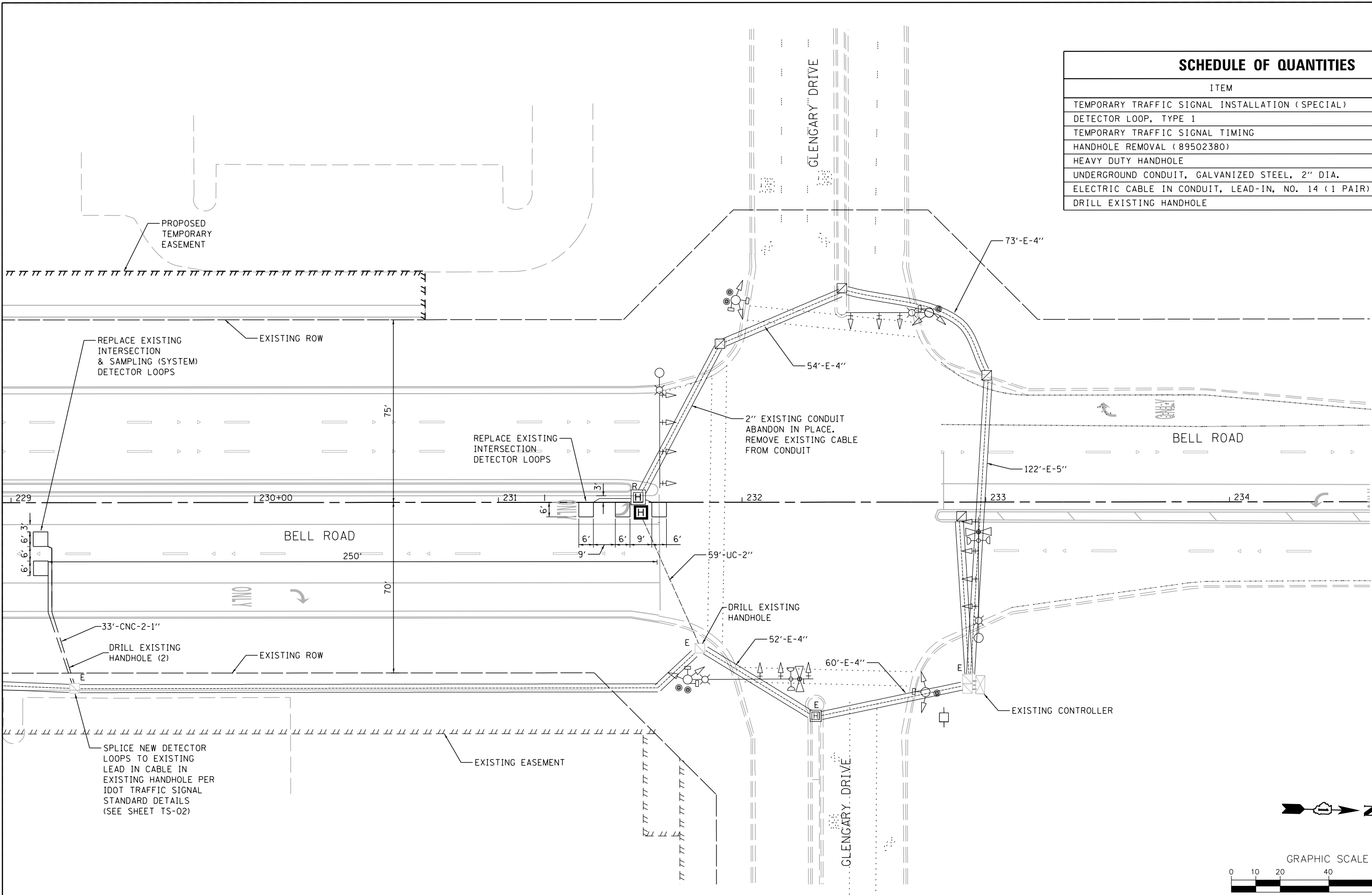
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PLOT TIME = 4:01:13 PM	DRAWN - SAR	REVISED -
PLOT DATE = 2/14/2024	CHECKED - A. OSHANA	REVISED -
	DATE - 02/14/2024	REVISED -



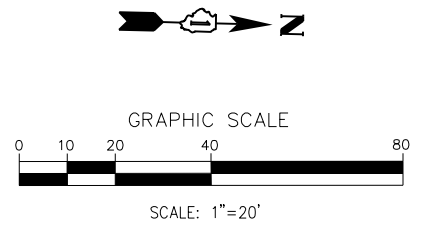
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN, TEMPORARY PHASE DESIGNATION DIAGRAM AND TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE			
BELL ROAD / GLENGARY DRIVE			
SCALE: N.T.S.	SHEET 37 OF 47 SHEETS	STA. N/A	TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 240
CONTRACT NO. 61D34				ILLINOIS FED. AID PROJECT



SCHEDULE OF QUANTITIES		
ITEM	UNIT	QUANTITY
TEMPORARY TRAFFIC SIGNAL INSTALLATION (SPECIAL)	EACH	1
DETECTOR LOOP, TYPE 1	FOOT	182
TEMPORARY TRAFFIC SIGNAL TIMING	EACH	1
HANDHOLE REMOVAL (89502380)	EACH	1
HEAVY DUTY HANDHOLE	EACH	1
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	59
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 (1 PAIR)	FOOT	204
DRILL EXISTING HANDHOLE	EACH	1



TS-38

FILE NAME =  
 ...Traffic\WillCo-sh1038-TS.dgn  
 PLOT TIME = 4:01:14 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR  
 DRAWN - SAR  
 CHECKED - A. OSHANA  
 DATE - 02/14/2024

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -



STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL MODERNIZATION PLAN  
 BELL ROAD / GLENGARY DRIVE  
 SCALE: 1" = 20' SHEET 38 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	241
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

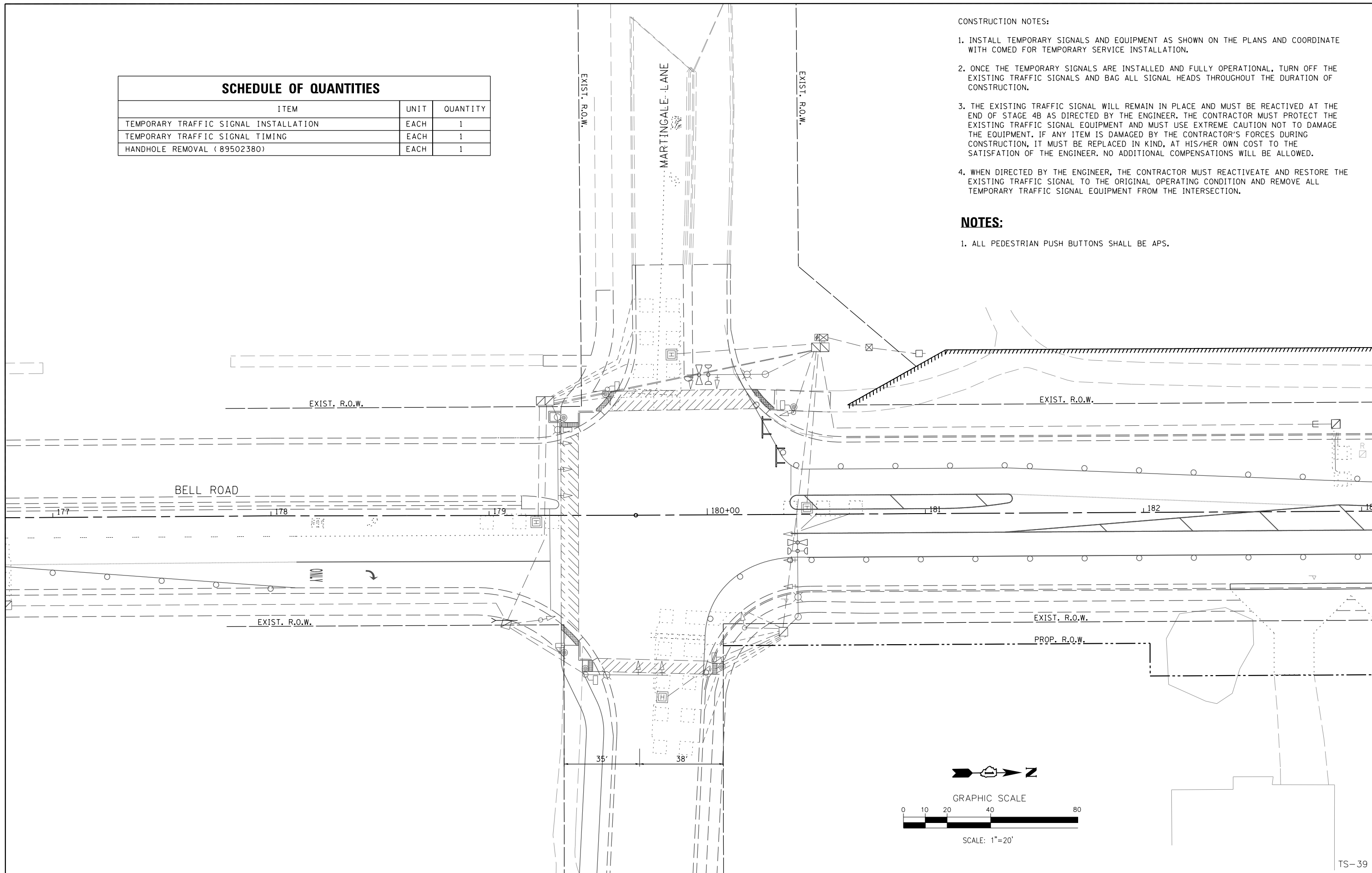
SCHEDULE OF QUANTITIES		
ITEM	UNIT	QUANTITY
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
TEMPORARY TRAFFIC SIGNAL TIMING	EACH	1
HANDHOLE REMOVAL ( 89502380)	EACH	1

**CONSTRUCTION NOTES:**

1. INSTALL TEMPORARY SIGNALS AND EQUIPMENT AS SHOWN ON THE PLANS AND COORDINATE WITH COMED FOR TEMPORARY SERVICE INSTALLATION.
2. ONCE THE TEMPORARY SIGNALS ARE INSTALLED AND FULLY OPERATIONAL, TURN OFF THE EXISTING TRAFFIC SIGNALS AND BAG ALL SIGNAL HEADS THROUGHOUT THE DURATION OF CONSTRUCTION.
3. THE EXISTING TRAFFIC SIGNAL WILL REMAIN IN PLACE AND MUST BE REACTIVED AT THE END OF STAGE 4B AS DIRECTED BY THE ENGINEER. THE CONTRACTOR MUST PROTECT THE EXISTING TRAFFIC SIGNAL EQUIPMENT AND MUST USE EXTREME CAUTION NOT TO DAMAGE THE EQUIPMENT. IF ANY ITEM IS DAMAGED BY THE CONTRACTOR'S FORCES DURING CONSTRUCTION, IT MUST BE REPLACED IN KIND, AT HIS/HER OWN COST TO THE SATISFACTION OF THE ENGINEER. NO ADDITIONAL COMPENSATIONS WILL BE ALLOWED.
4. WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR MUST REACTIVATE AND RESTORE THE EXISTING TRAFFIC SIGNAL TO THE ORIGINAL OPERATING CONDITION AND REMOVE ALL TEMPORARY TRAFFIC SIGNAL EQUIPMENT FROM THE INTERSECTION.

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



TS-39

FILE NAME = ...Traffic\WillCo-sht039-TS.dgn  
 PLOT TIME = 4:01:14 PM  
 PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

**SEPSTEIN**  
 600 W FULTON ST. TEL: 312 454 9100  
 CHICAGO, ILLINOIS FAX: 312 559 1217  
 60611-1259 WEB: www.sepstein.com

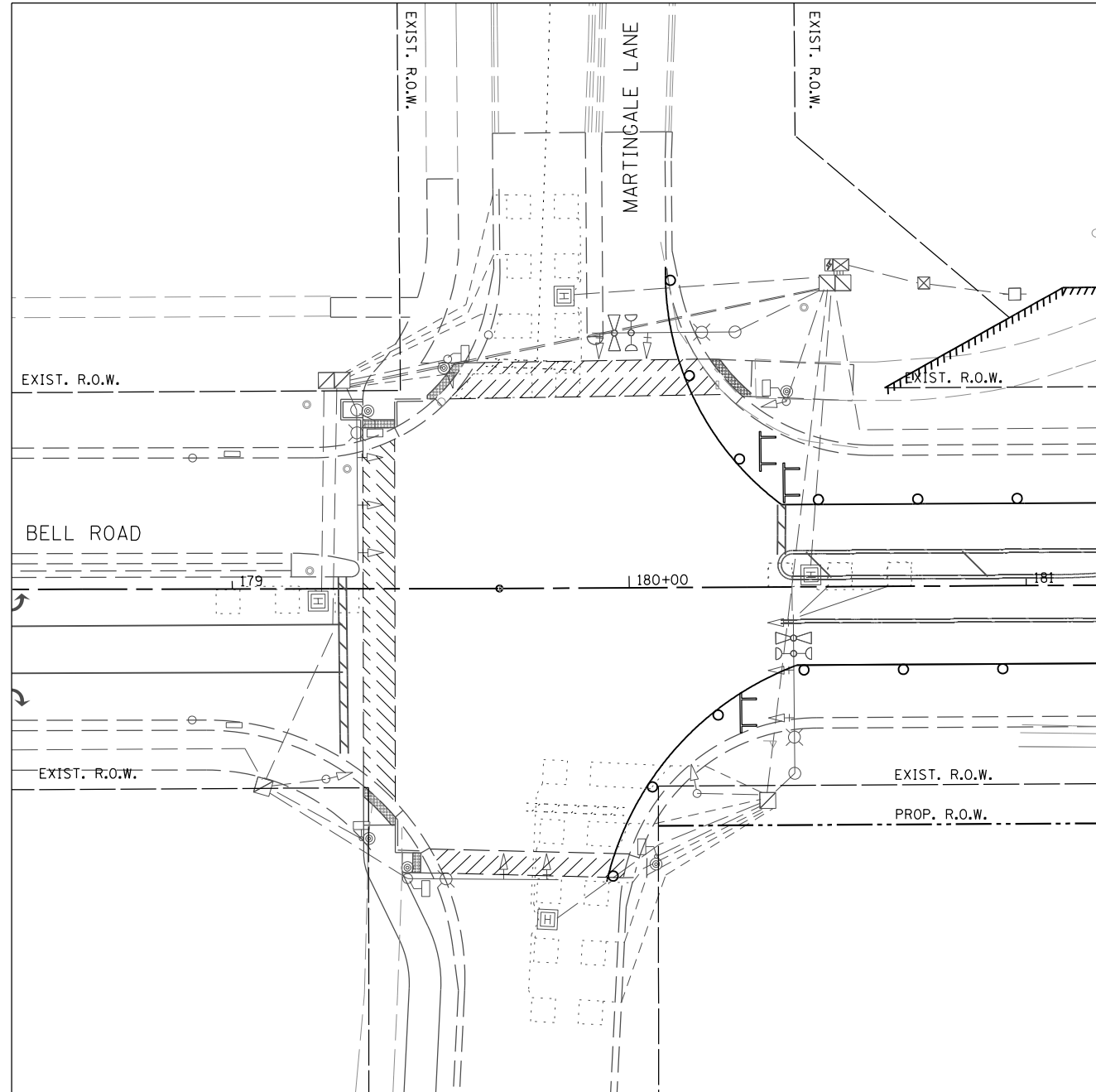
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGE 1**  
**BELL ROAD / MARTINGALE LANE**  
 SCALE: 1" = 20' SHEET 39 OF 47 SHEETS STA. N/A TO STA. N/A

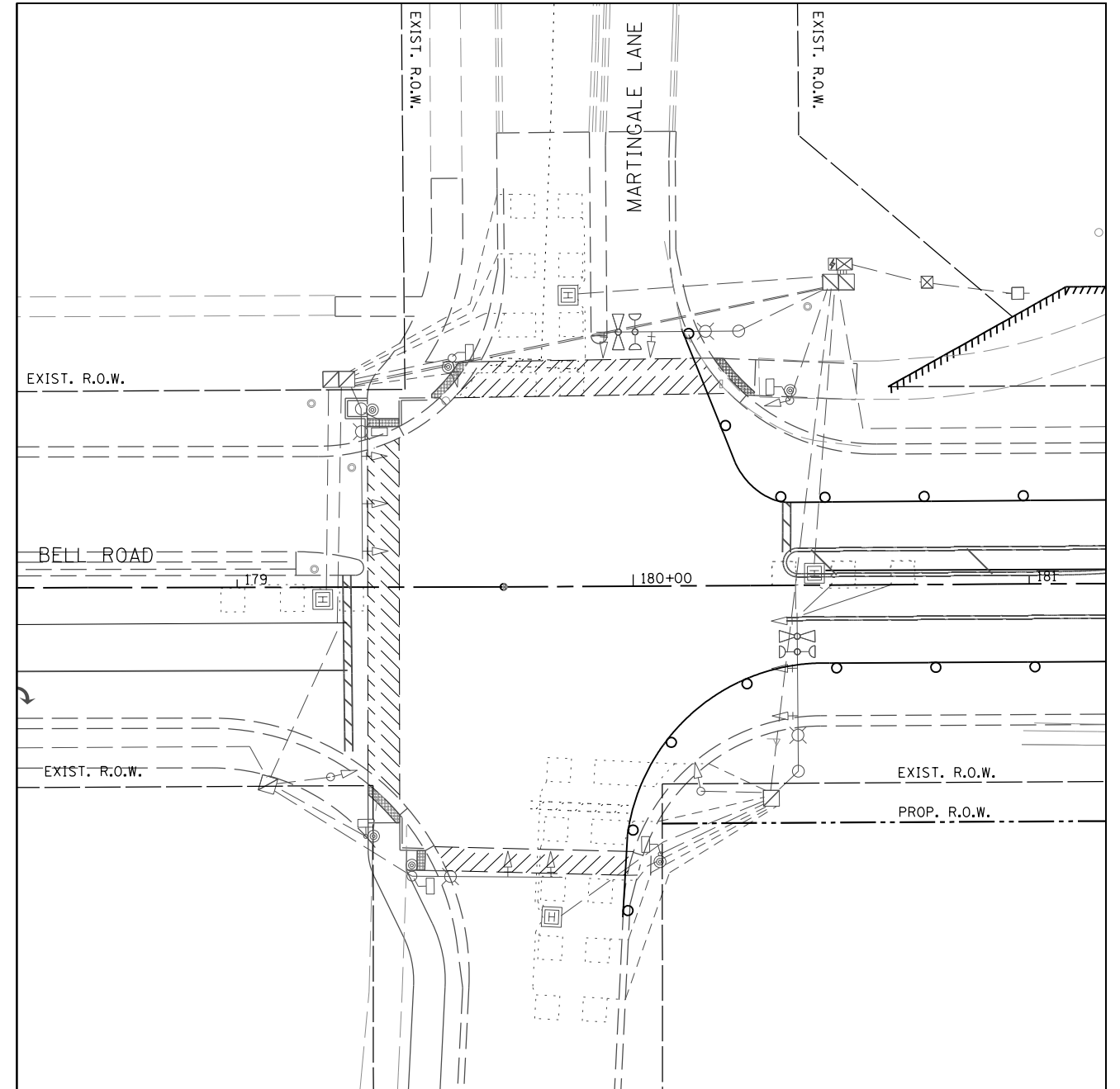
F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 242
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	

**NOTES:**

1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



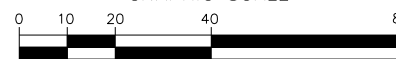
**TEMPORARY TRAFFIC SIGNALS  
STAGE 2**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 3**



GRAPHIC SCALE



SCALE: 1"=20'

TS-40

FILE NAME =  
...TrafficWallCo-sh1040-TS.dgn  
PLOT TIME = 4:01:15 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

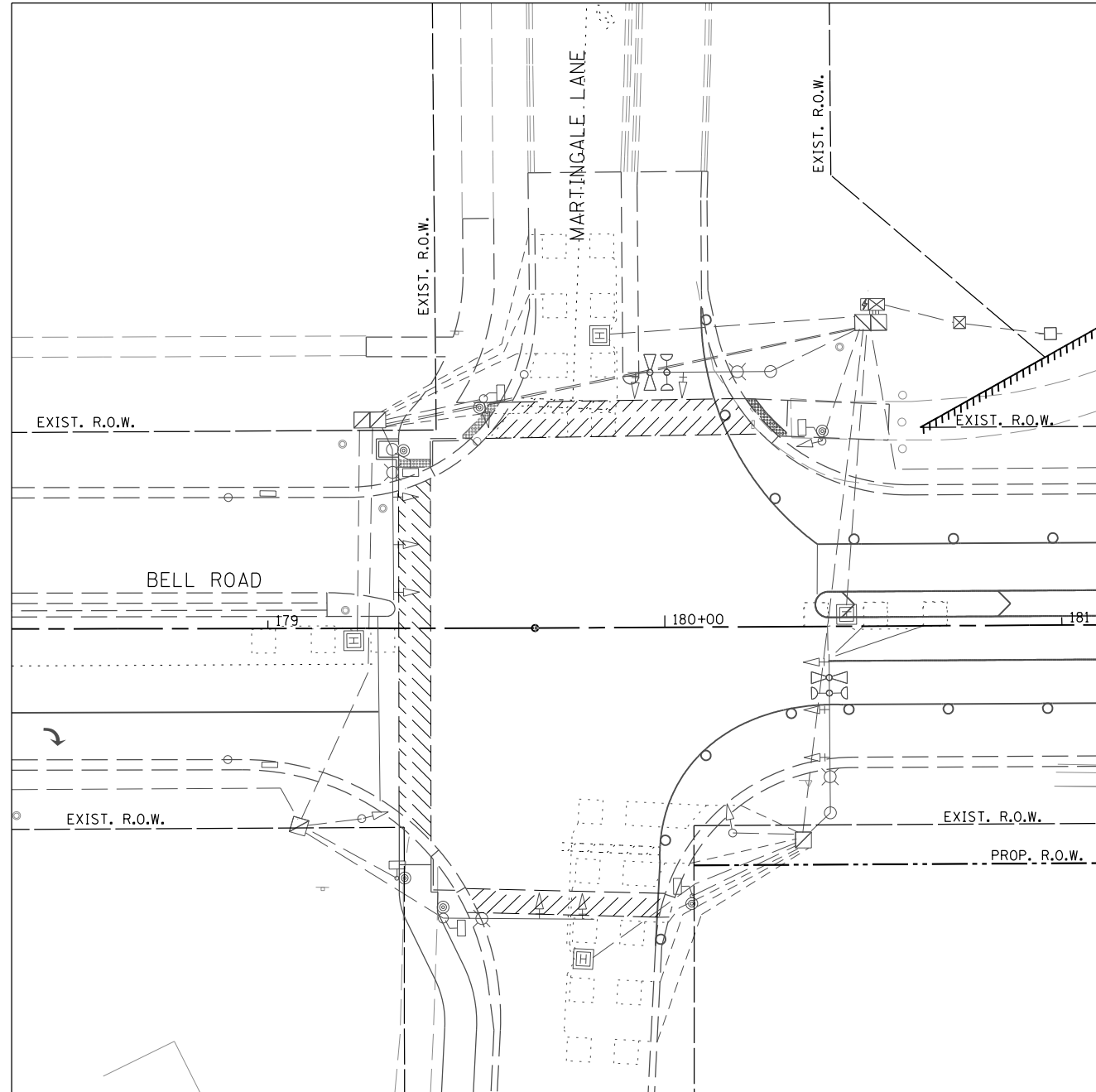
**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 2 & 3  
BELL ROAD /MARTINGALE LANE**

SCALE: 1" = 20' SHEET 40 OF 47 SHEETS STA. N/A TO STA. N/A

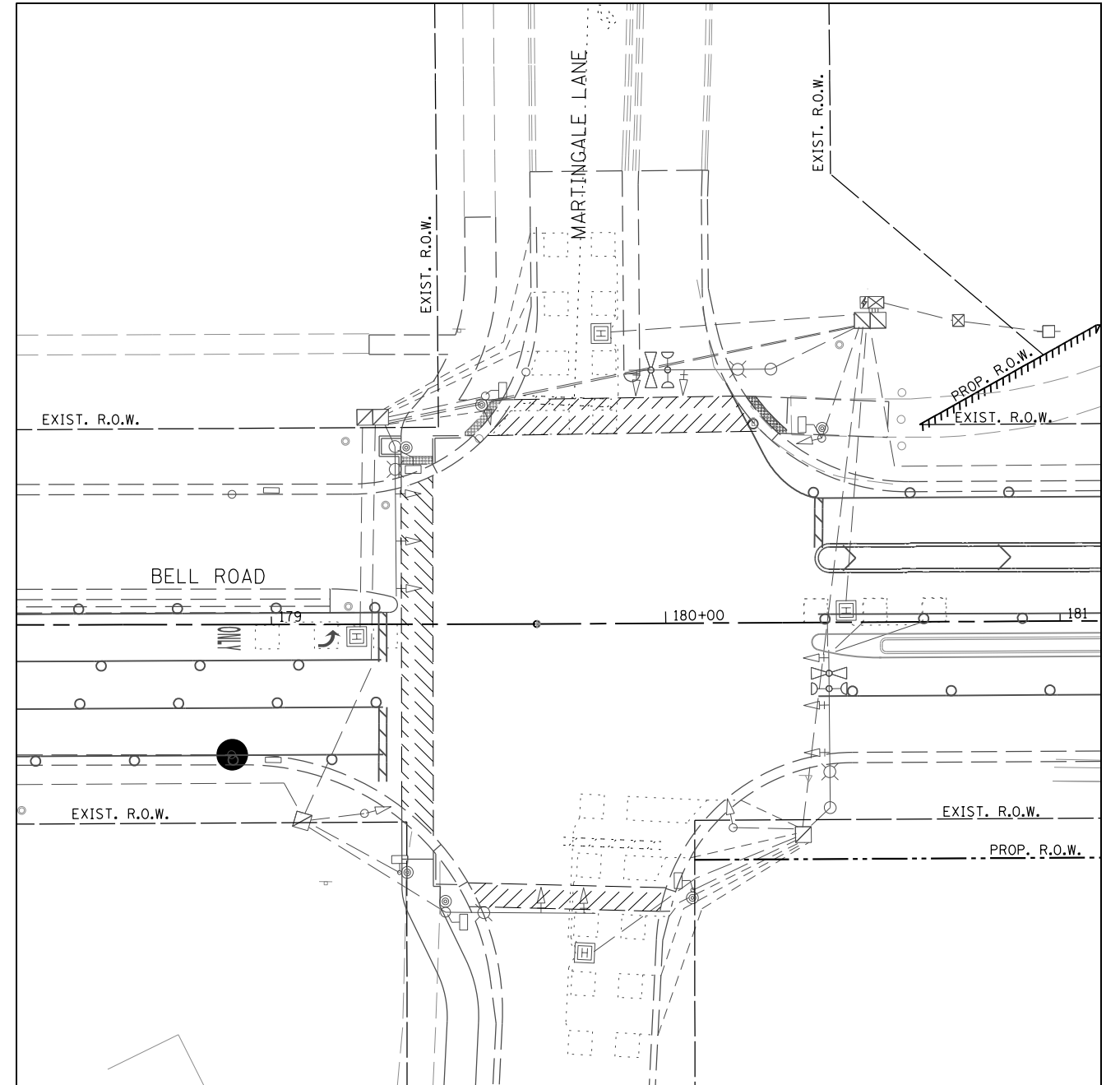
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	243
<b>CONTRACT NO. 61D34</b>				
ILLINOIS FED. AID PROJECT				

**NOTES:**

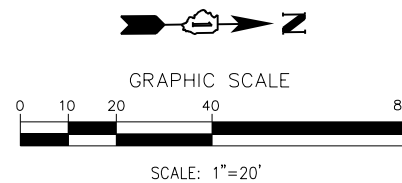
1. ALL PEDESTRIAN PUSH BUTTONS SHALL BE APS.



**TEMPORARY TRAFFIC SIGNALS  
STAGE 4A**



**TEMPORARY TRAFFIC SIGNALS  
STAGE 4B**



FILE NAME =  
...Traffic\WillCo-sh1041-TS.dgn  
PLOT TIME = 4:01:16 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

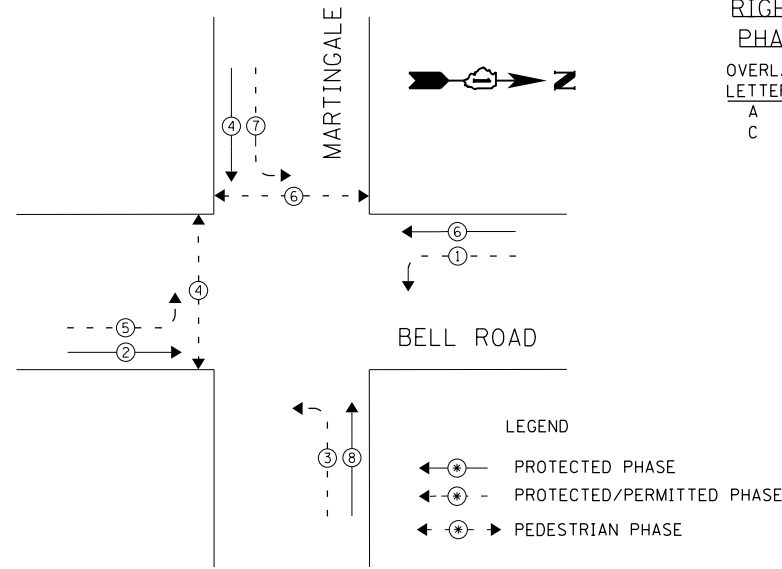
**TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR MOT STAGES 4A & 4B  
BELL ROAD / MARTINGALE LANE**

SCALE: 1" = 20' SHEET 41 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	244
<b>CONTRACT NO. 61D34</b>				
ILLINOIS FED. AID PROJECT				



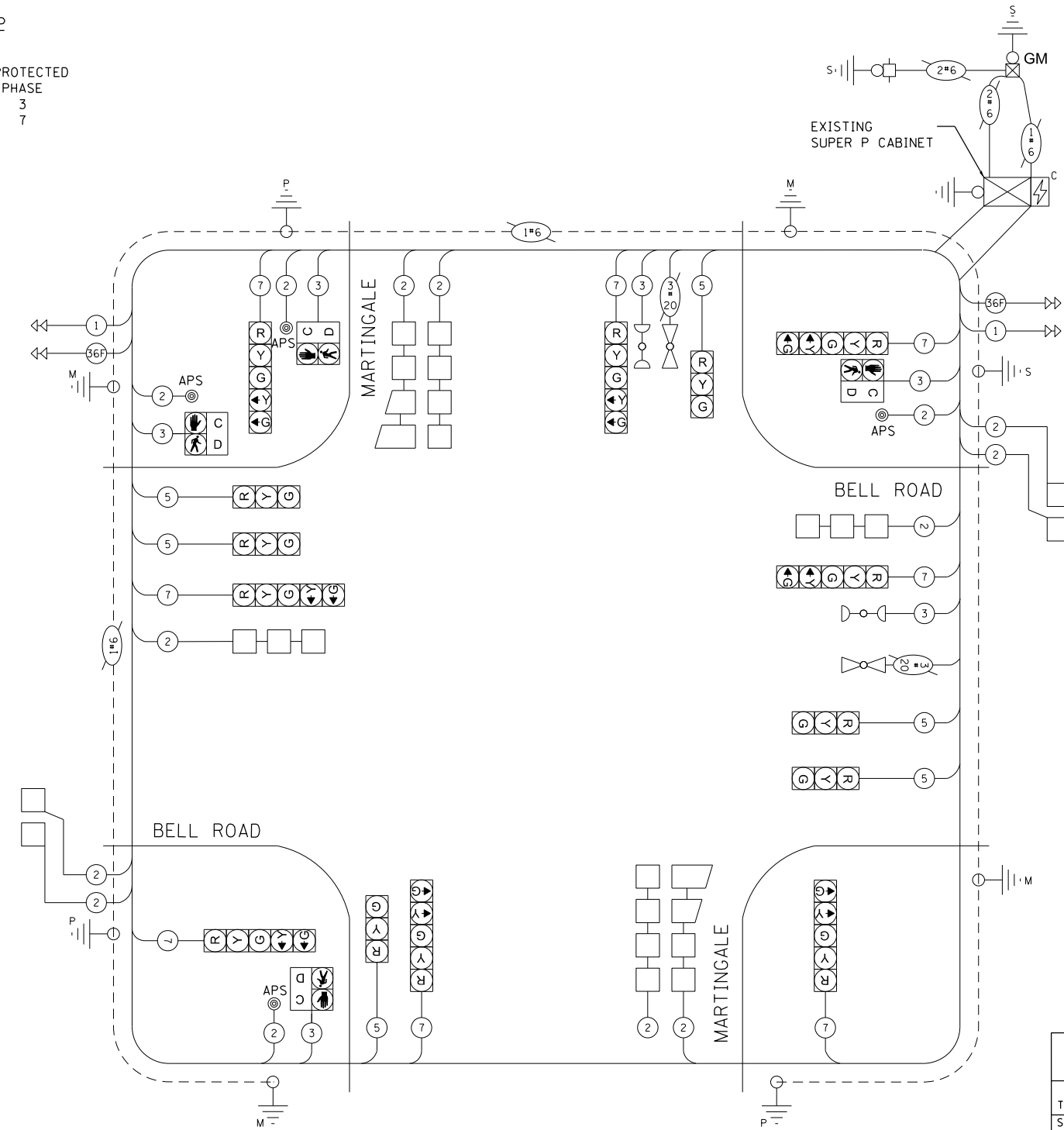
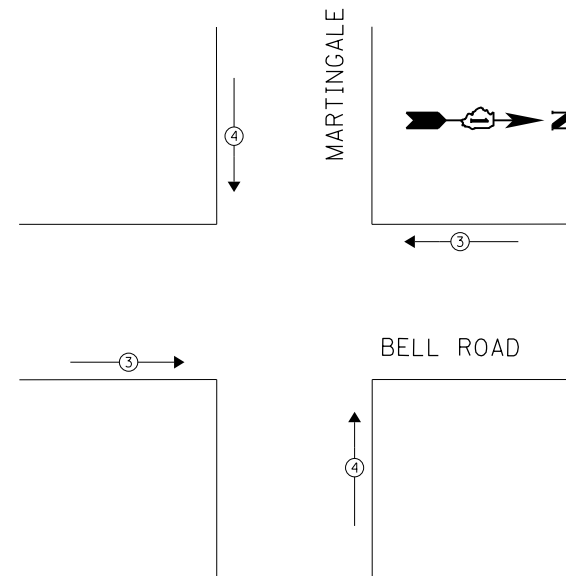
TEMPORARY CONTROLLER SEQUENCE



**RIGHT TURN OVERLAP PHASE DESIGNATION:**

OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
A	= 2	+ 3
C	= 6	+ 7

TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE



**CABLE PLAN**  
NOT TO SCALE

TRAFFIC SIGNAL ELECTRICAL SERVICE REQUIREMENTS				
TYPE	NO. OF LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	14	11	50	77
(YELLOW)	14	20	5	14
(GREEN)	14	12	45	75.6
ARROW	16	10	10	16
PED. SIGNAL	4	20	100	80
CONTROLLER	1	100	100	100
UPS	1	25	100	25
VIDEO SYSTEM	-	150	100	-
BLANK-OUT SIGN	-	25	5	-
FLASHER	-	-	50	-
STREET NAME SIGN	-	120	50	-
LUMINAIRE	-	-	-	-
TOTAL=				387.6

ENERGY COST TO:  
WILL COUNTY DIVISION OF TRANSPORTATION  
ENERGY SUPPLY: CONTACT: NEW BUSINESS  
PHONE: 815-724-5054  
COMPANY: ComEd  
ACCT: 4867165011

NOTE:  
RHW TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM

FILE NAME = ...Traffic\WillCo-sht042-TS.dgn  
PLOT TIME = 4:01:16 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

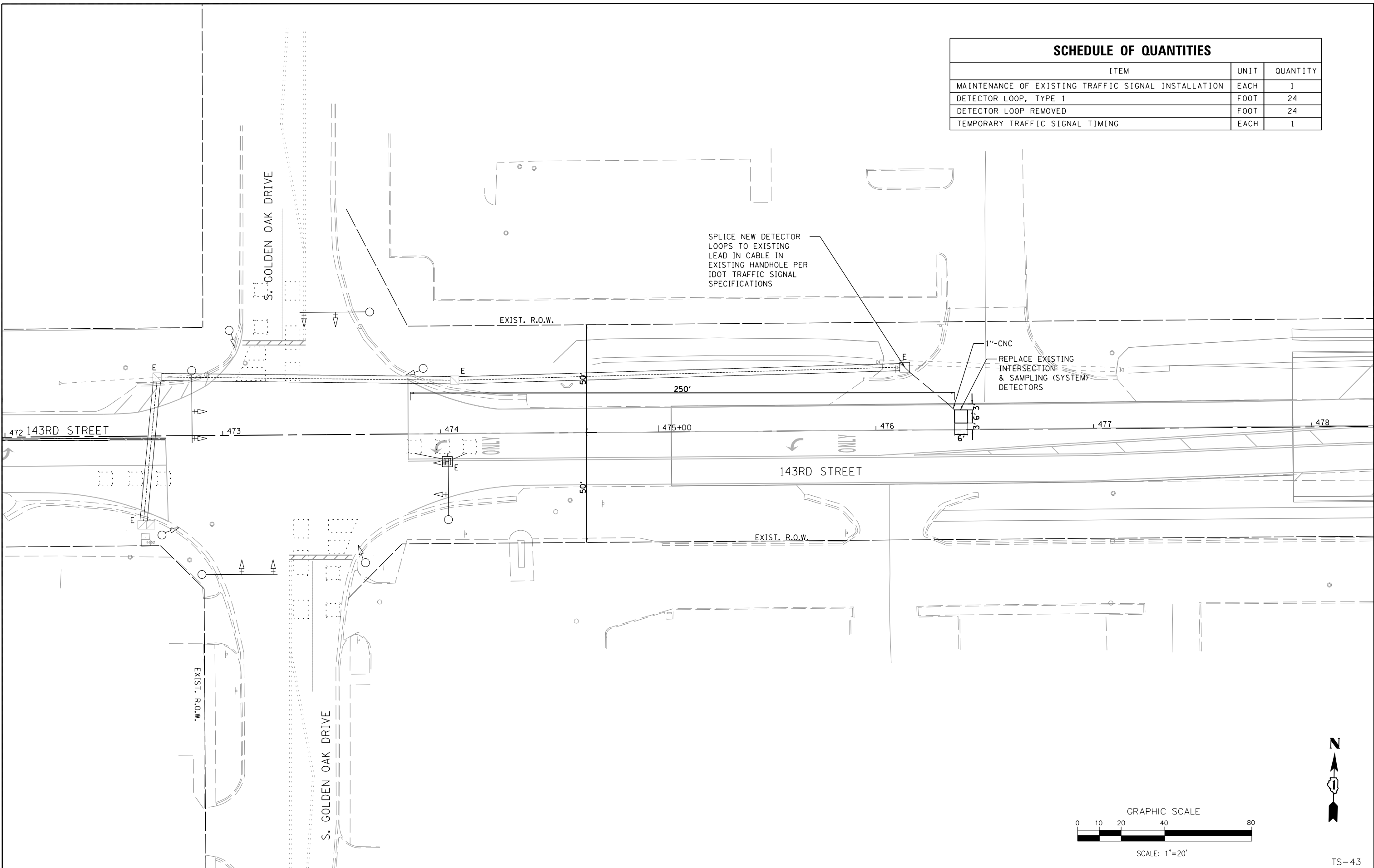


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN, TEMPORARY PHASE DESIGNATION DIAGRAM AND TEMPORARY EMERGENCY VEHICLE PREEMPTION SEQUENCE  
BELL ROAD / MARTINGALE LANE  
SCALE: N.T.S. SHEET 42 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 245
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	

SCHEDULE OF QUANTITIES		
ITEM	UNIT	QUANTITY
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
DETECTOR LOOP, TYPE 1	FOOT	24
DETECTOR LOOP REMOVED	FOOT	24
TEMPORARY TRAFFIC SIGNAL TIMING	EACH	1



FILE NAME =  
 ...Traffic\WllCo-sh1043-TS.dgn  
 PLOT TIME = 4:01:17 PM  
 PLOT DATE = 2/14/2024

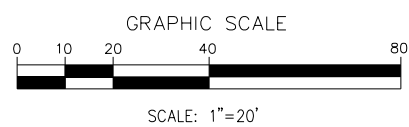
DESIGNED - SAR	REVISED -
DRAWN - SAR	REVISED -
CHECKED - A. OSHANA	REVISED -
DATE - 02/14/2024	REVISED -

**SEPSTEIN**  
 800 W. FULTON ST. TEL: 312.454.9100  
 CHICAGO, ILLINOIS FAX: 312.559.1217  
 60614-1259 WEB: www.sepstein.com

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

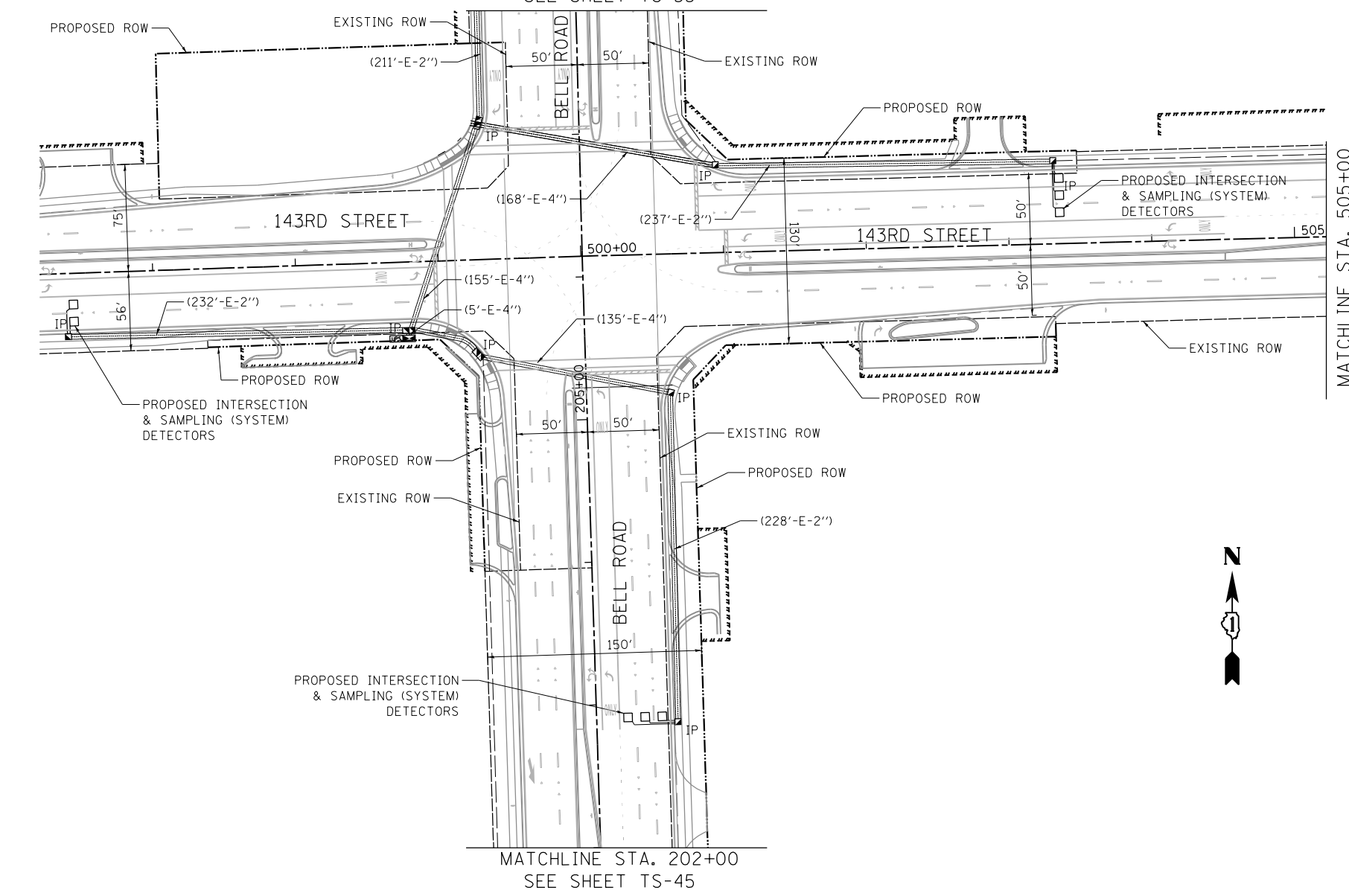
**TRAFFIC SIGNAL MODERNIZATION PLAN**  
**143RD STREET / S. GOLDEN OAK DRIVE**  
 SCALE: 1" = 20' SHEET 43 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 246
CONTRACT NO. 61D34				ILLINOIS FED. AID PROJECT

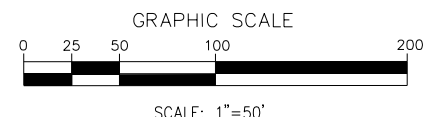
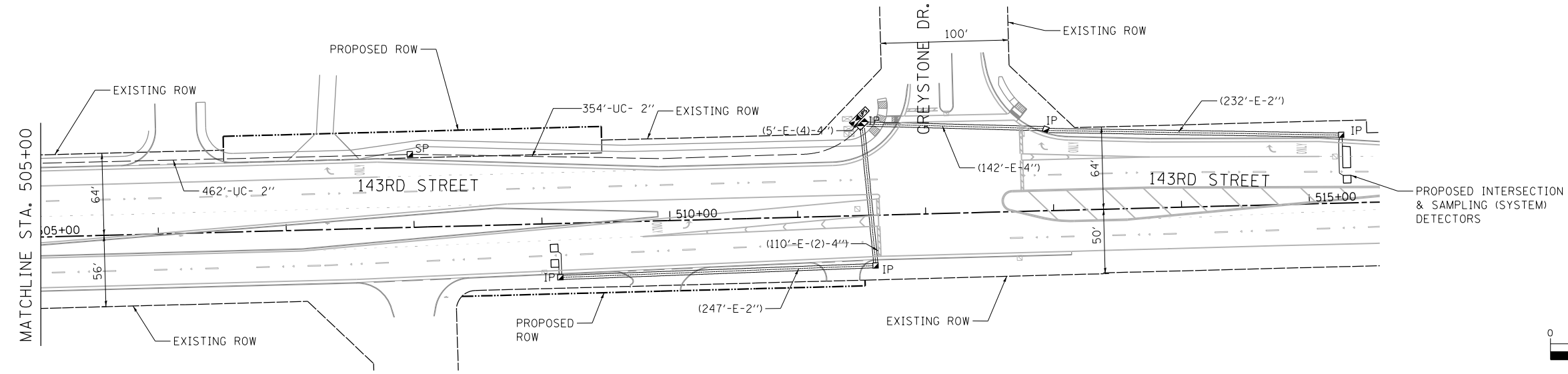


TS-43

MATCHLINE STA. 208+00  
SEE SHEET TS-33



NOTE:  
THE TRAFFIC SIGNAL CONTROLLER  
EQUIPMENT FOR THIS PROJECT  
SHALL BE "ECONOLITE" TO MATCH  
THE EXISTING ADJACENT SYSTEM.



FILE NAME =  
...Traffic\WillCo-sht044-TS.dgn  
PLOT TIME = 4:01:17 PM  
PLOT DATE = 2/14/2024

DESIGNED - SAR  
DRAWN - SAR  
CHECKED - A. OSHANA  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -

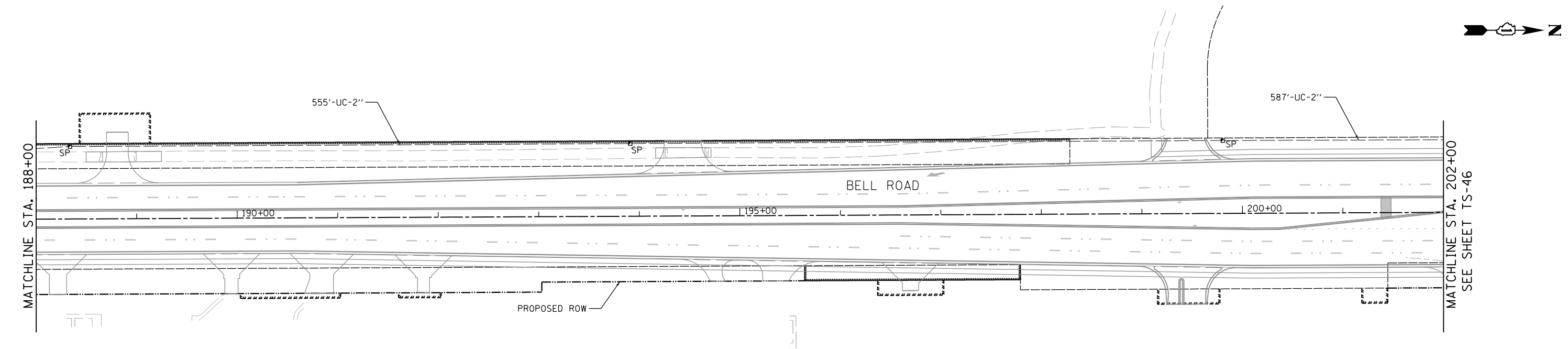
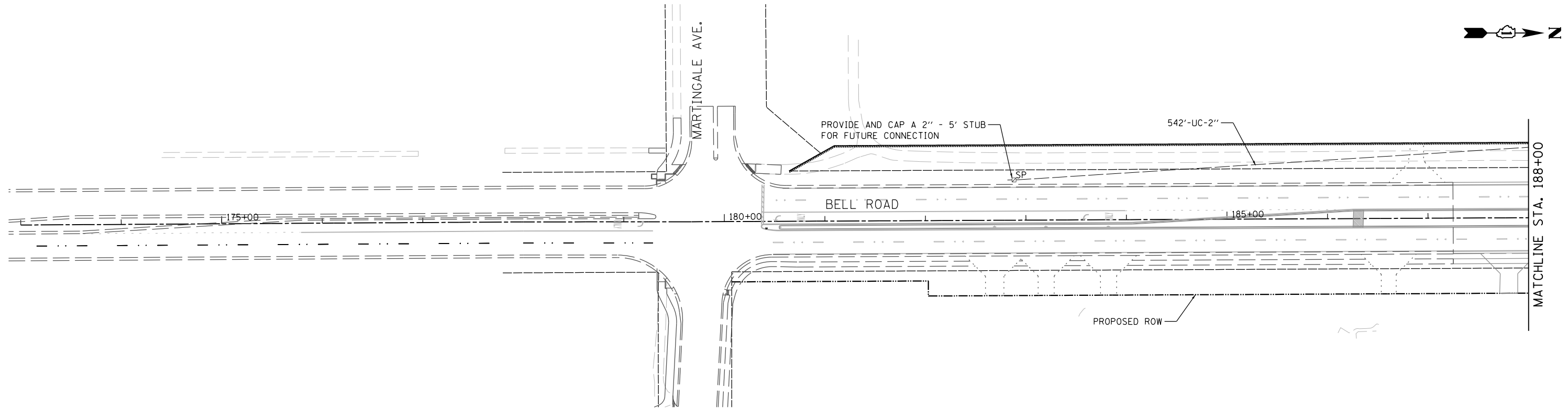


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

INTERCONNECT PLAN  
143RD STREET

SCALE: 1" = 50' SHEET 44 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	247
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				



SCALE: 1" = 50' TS-45

FILE NAME =  
 ...Traffic\WillCo-sht045-TS.dgn  
 PLOT TIME = 4:01:18 PM  
 PLOT DATE = 2/14/2024

DESIGNED - JRK	REVISED -
DRAWN - DMR	REVISED -
CHECKED - JRK	REVISED -
DATE - 02/14/2024	REVISED -



**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

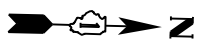
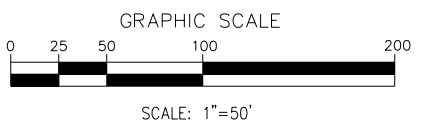
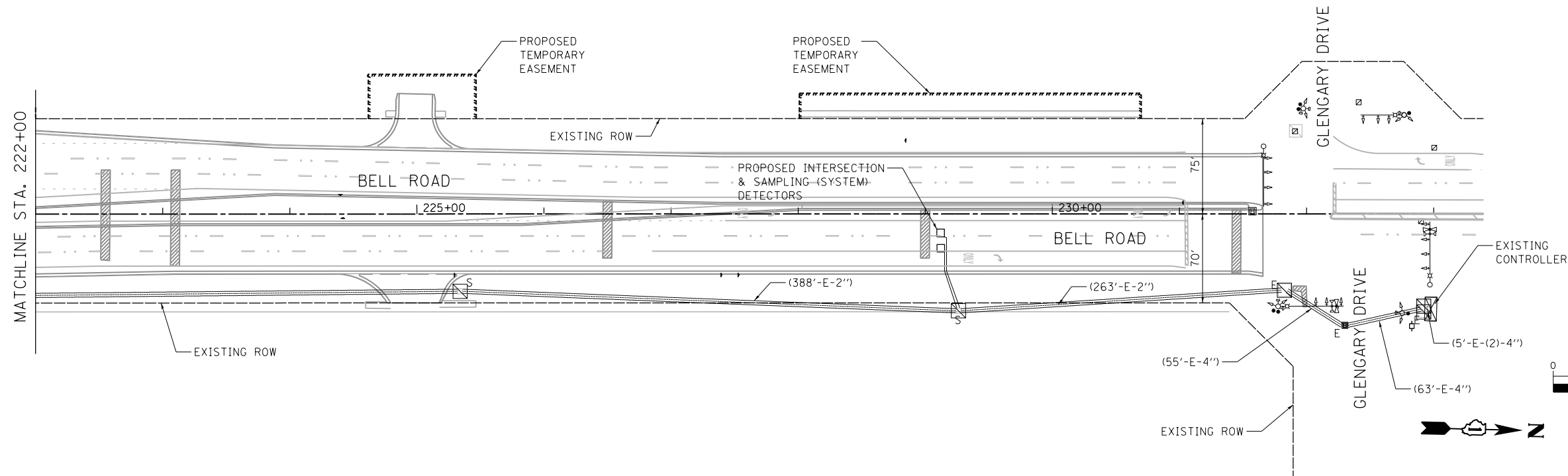
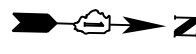
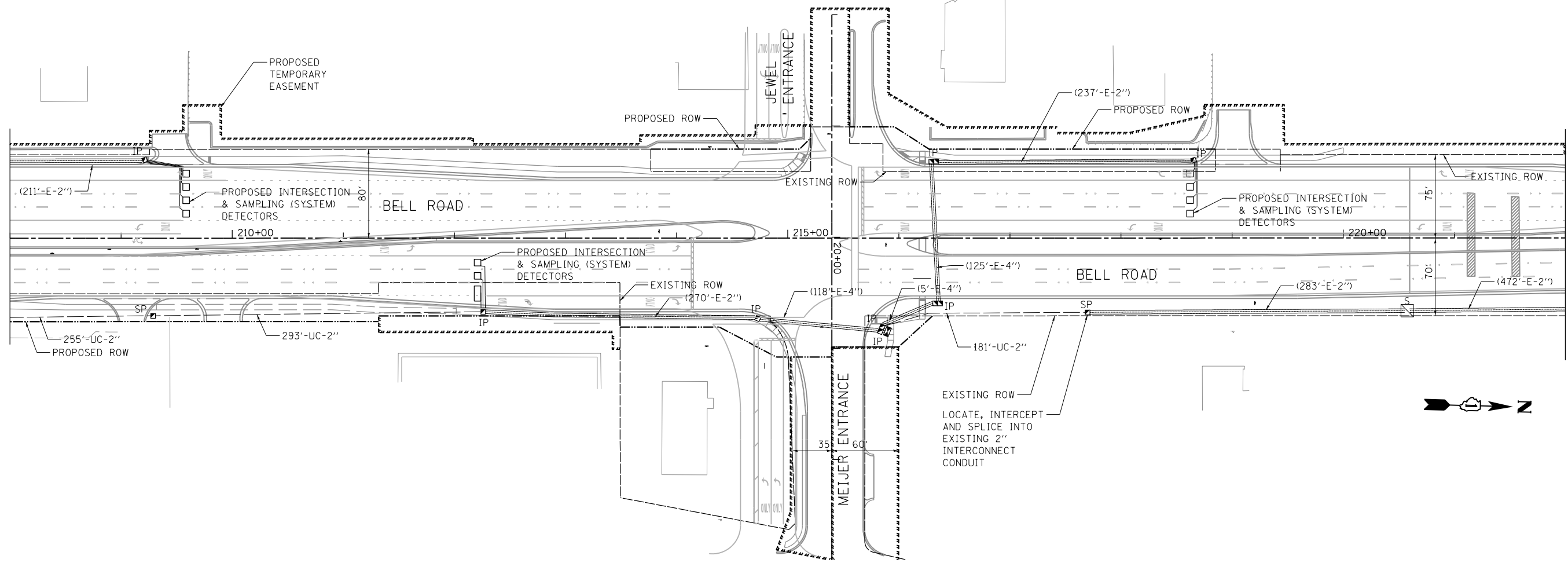
**INTERCONNECT PLAN  
 BELL ROAD**

SCALE: 1" = 50' SHEET 45 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	248
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

MATCHLINE STA. 208+00  
SEE SHEET TS-45

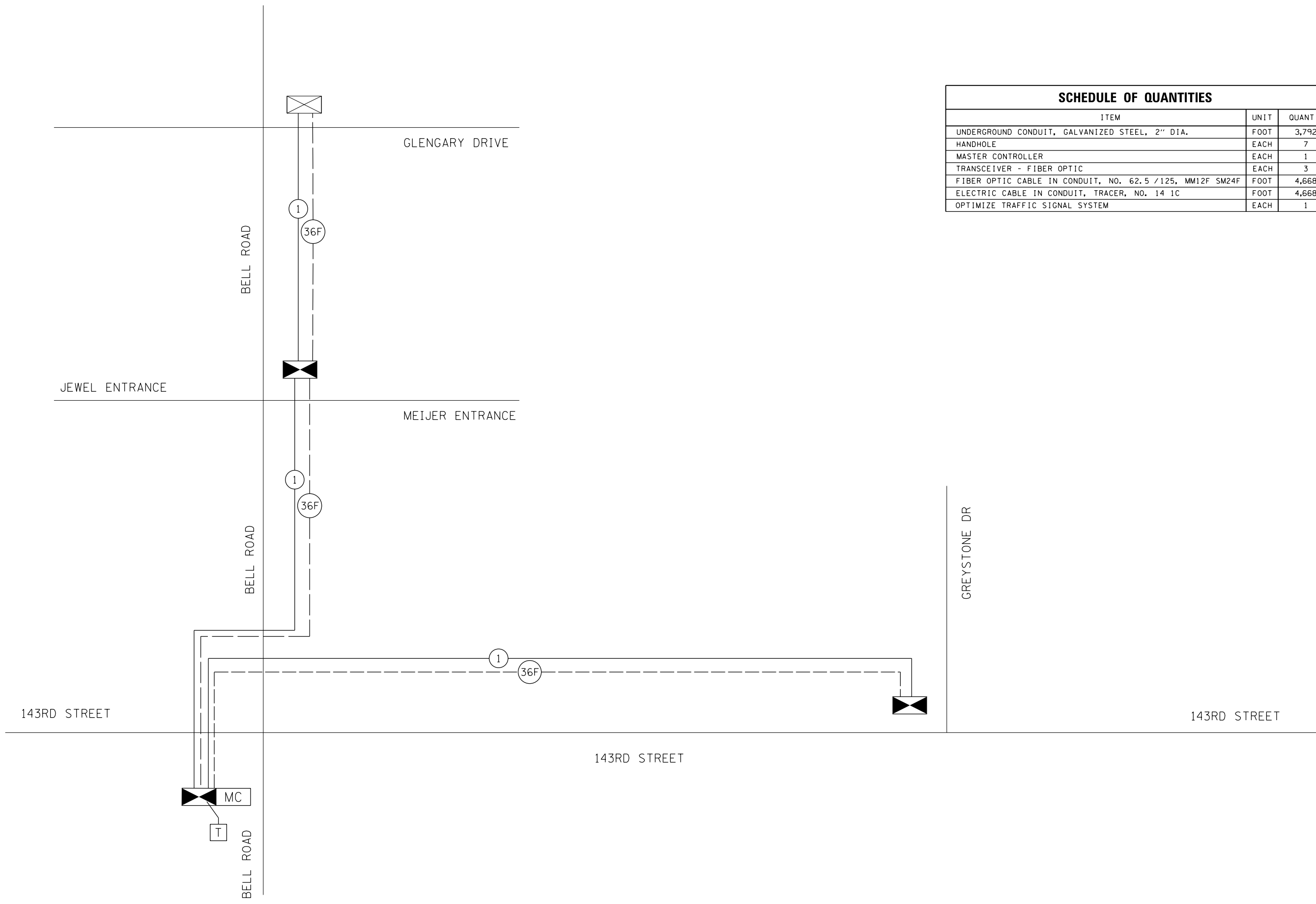
MATCHLINE STA. 222+00



TS-46

FILE NAME = ...Traffic\WillCo-sht046-TS.dgn PLOT TIME = 4:01:18 PM PLOT DATE = 2/14/2024	DESIGNED - SAR DRAWN - SAR CHECKED - A. OSHANA DATE - 02/14/2024	REVISED - REVISED - REVISED - REVISED -		<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>INTERCONNECT PLAN</b> <b>BELL ROAD</b>			F.A.P. RT.E. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 249
	SCALE: 1" = 50'    SHEET 46 OF 47 SHEETS    STA. N/A    TO STA. N/A					CONTRACT NO. 61D34 ILLINOIS FED. AID PROJECT						

SCHEDULE OF QUANTITIES		
ITEM	UNIT	QUANTITY
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	3,792
HANDHOLE	EACH	7
MASTER CONTROLLER	EACH	1
TRANSCIEVER - FIBER OPTIC	EACH	3
FIBER OPTIC CABLE IN CONDUIT, NO. 62.5 /125, MM12F SM24F	FOOT	4,668
ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	4,668
OPTIMIZE TRAFFIC SIGNAL SYSTEM	EACH	1



TS-47

FILE NAME = ...Traffic\W11Co-sht047-TS.dgn	DESIGNED - SAR	REVISED -
PLOT TIME = 4:01:19 PM	DRAWN - SAR	REVISED -
PLOT DATE = 2/14/2024	CHECKED - A. OSHANA	REVISED -
	DATE - 02/14/2024	REVISED -

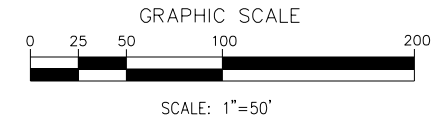
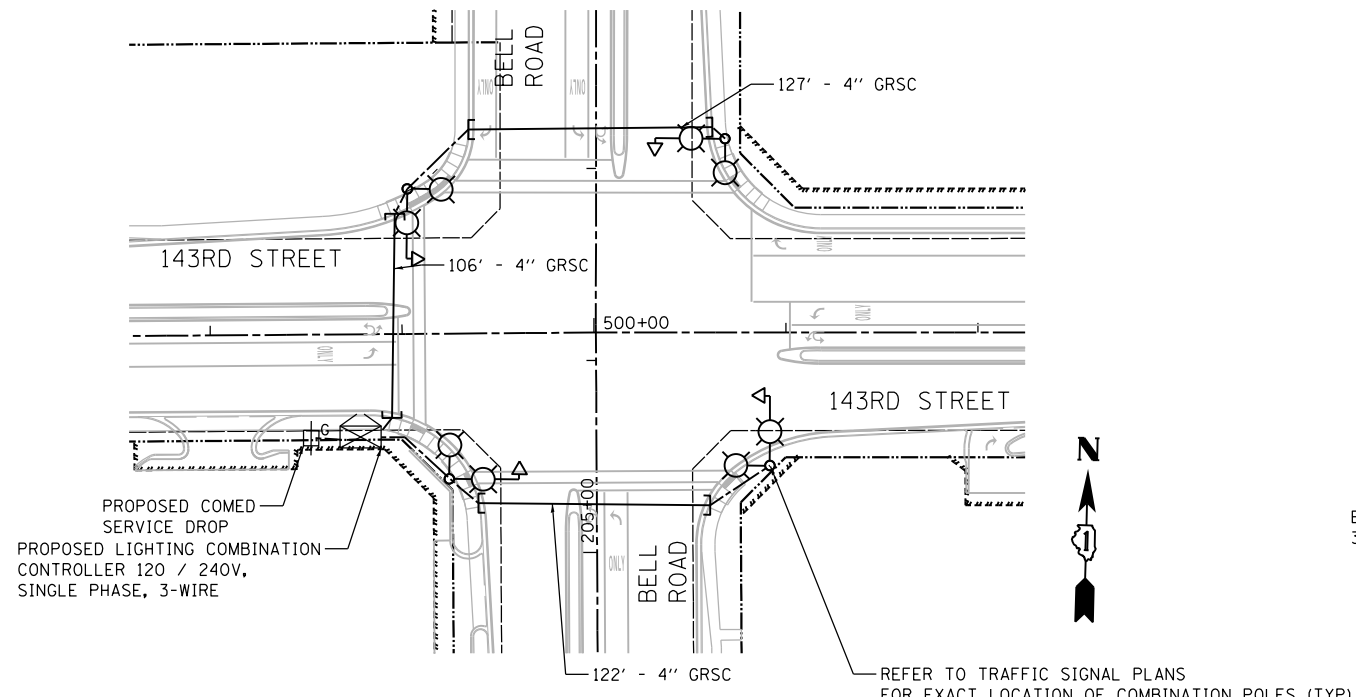
**SEPSTEIN**  
800 W FULTON ST. TEL: 312-454-9100  
 CHICAGO, ILLINOIS FAX: 312-559-1217  
 60611-1259 WEB: www.sepstein.com

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

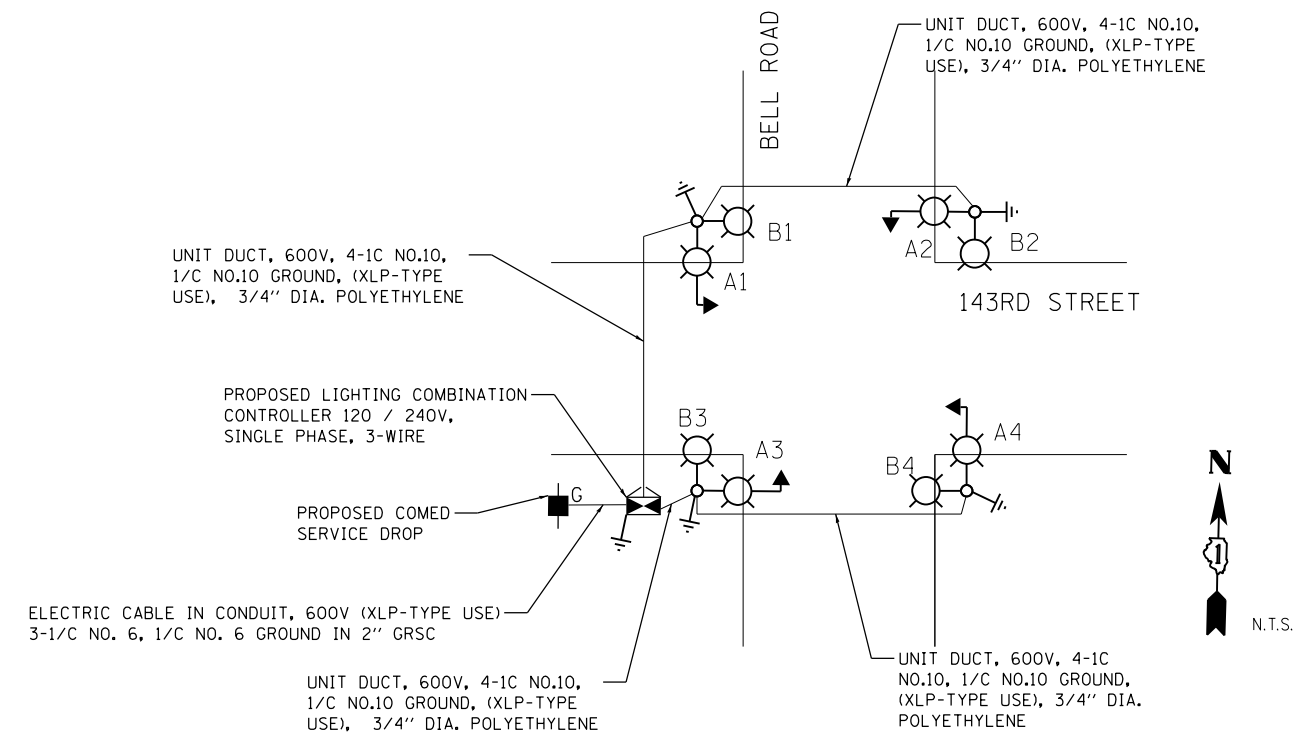
**INTERCONNECT SCHEMATIC  
 BELL ROAD /143RD STREET**

SCALE: N.T.S. SHEET 47 OF 47 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 250
ILLINOIS FED. AID PROJECT			CONTRACT NO. 61D34	



- NOTES:
1. THE COMBINATION POLES AND LIGHTING MAST ARM ARE INCLUDED IN THE TRAFFIC SIGNALS PAY ITEMS
  2. LIGHTING MAST ARMS SHALL BE THE TRUSS TYPE.

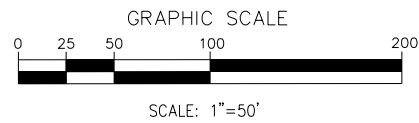
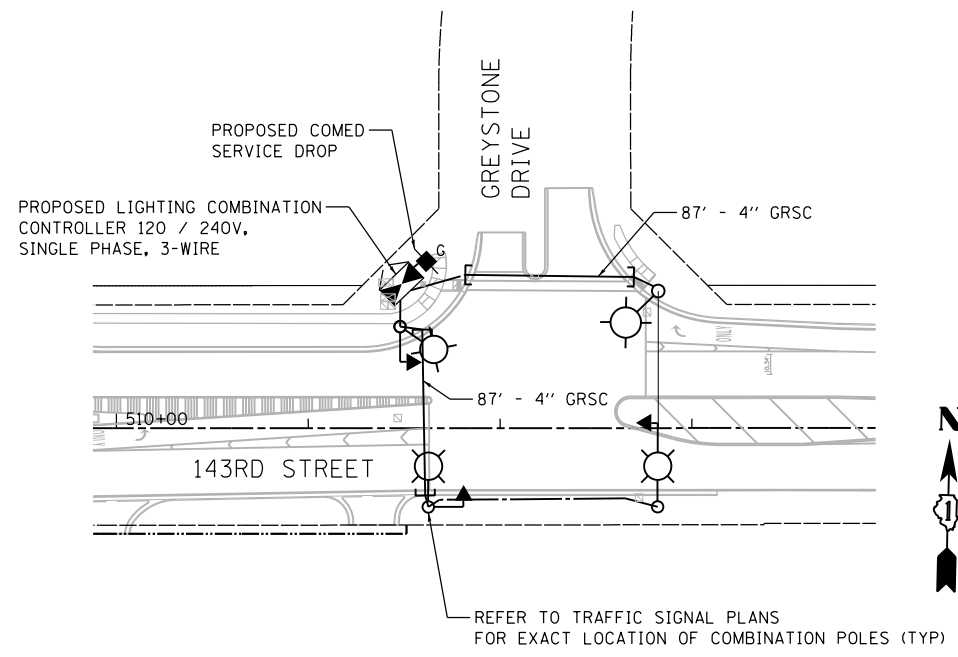


**ROADWAY LIGHT SINGLE WIRE DIAGRAM**

LIGHTING CONTROLLER PANEL SCHEDULE AND LOAD TABULATION 120 / 240VAC, SINGLE PHASE, 3-WIRE MAIN BREAKER: 60A			
CIRCUIT NO.	CIRCUIT BREAKER AMP/TYPE	CKT LOAD (WATTS)	CKT LOAD (AMPS)
A	20A, 2-POLE	1400	6A
B	20A, 2-POLE	1400	6A
<b>TOTAL LOAD</b>		<b>2800W</b>	<b>12A</b>

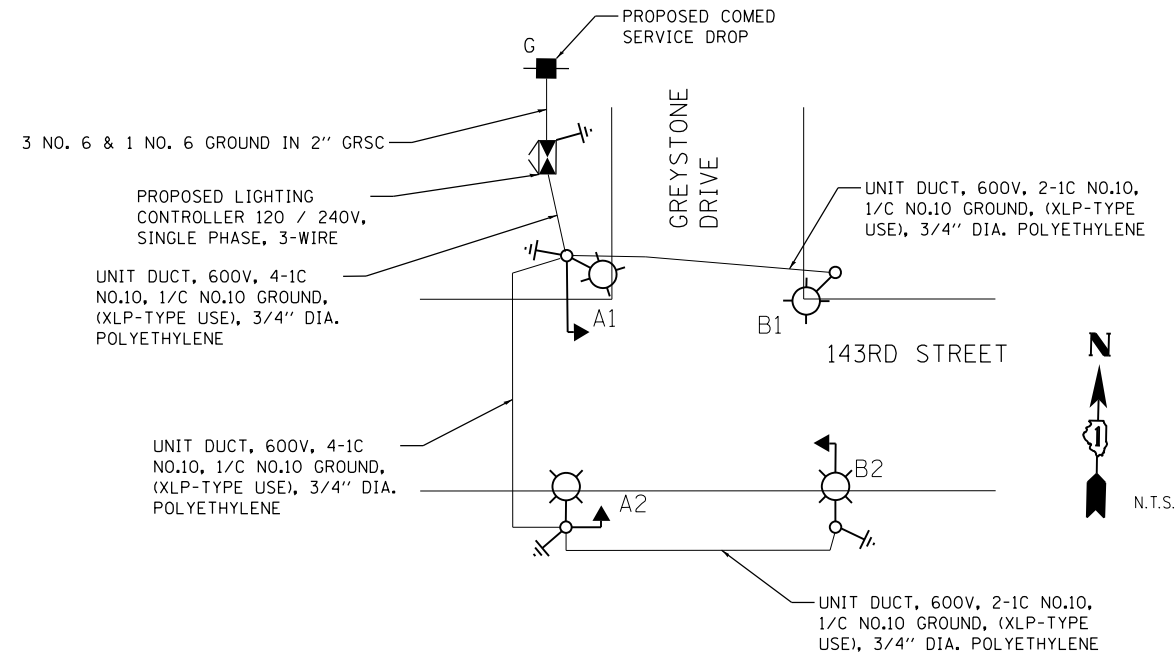
SCHEDULE OF QUANTITIES /BELL ROAD & 143RD STREET			
NUMBER	ITEM	UNIT	QUANTITY
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	355
81603022	UNIT DUCT, 600V, 4-1C NO.10, 1/C NO.10 GROUND, (XLP-TYPE USE), 3 / 4" DIA. POLYETHYLENE	FOOT	703
81702417	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/C NO. 6, 1/C NO. 6 GROUND	FOOT	38
82110009	LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION I	EACH	8
X8250091	COMBINATION LIGHTING CONTROLLER	EACH	1

- LIGHT UNIT COMBINATION TRAFFIC SIGNAL, DUAL 15 FT MAST ARM, LED, 4000K, TYPE IV, 240V, 40 FT MOUNTING HEIGHT
- UNIT DUCT, 600V, 4-1C NO.10, 1/C NO.10 GROUND, (XLP-TYPE USE), 3/4" DIA. POLYETHYLENE
- RIGID GALVANIZED STEEL CONDUIT, CONTAINING PULLED-IN UNIT DUCT
- COMBINATION LIGHTING CONTROLLER CABINET 120/240 VOLT, SINGLE PHASE, 3-WIRE
- PROPOSED COMED SERVICE DROP GROUND MOUNTED
- GROUND ROD, 5/8" X 10 FT



- NOTES:
1. THE COMBINATION POLES AND LIGHTING MAST ARM ARE INCLUDED IN THE TRAFFIC SIGNALS PAY ITEMS
  2. LIGHTING MAST ARMS SHALL BE THE TRUSS TYPE

SCHEDULE OF QUANTITIES /143RD STREET & GREYSTONE DRIVE			
NUMBER	ITEM	UNIT	QUANTITY
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	174
81603010	UNIT DUCT, 600V, 2-1C NO.10, 1/C NO.10 GROUND, (XLP-TYPE USE), 3 /4" DIA. POLYETHYLENE	FOOT	363
81603022	UNIT DUCT, 600V, 4-1C NO.10, 1/C NO.10 GROUND, (XLP-TYPE USE), 3 /4" DIA. POLYETHYLENE	FOOT	161
81702417	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/C NO. 6, 1/C NO. 6 GROUND	FOOT	38
82110009	LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION I	EACH	4
X8250091	COMBINATION LIGHTING CONTROLLER	EACH	1

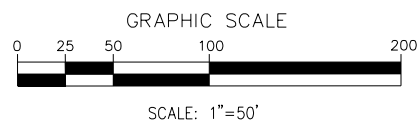
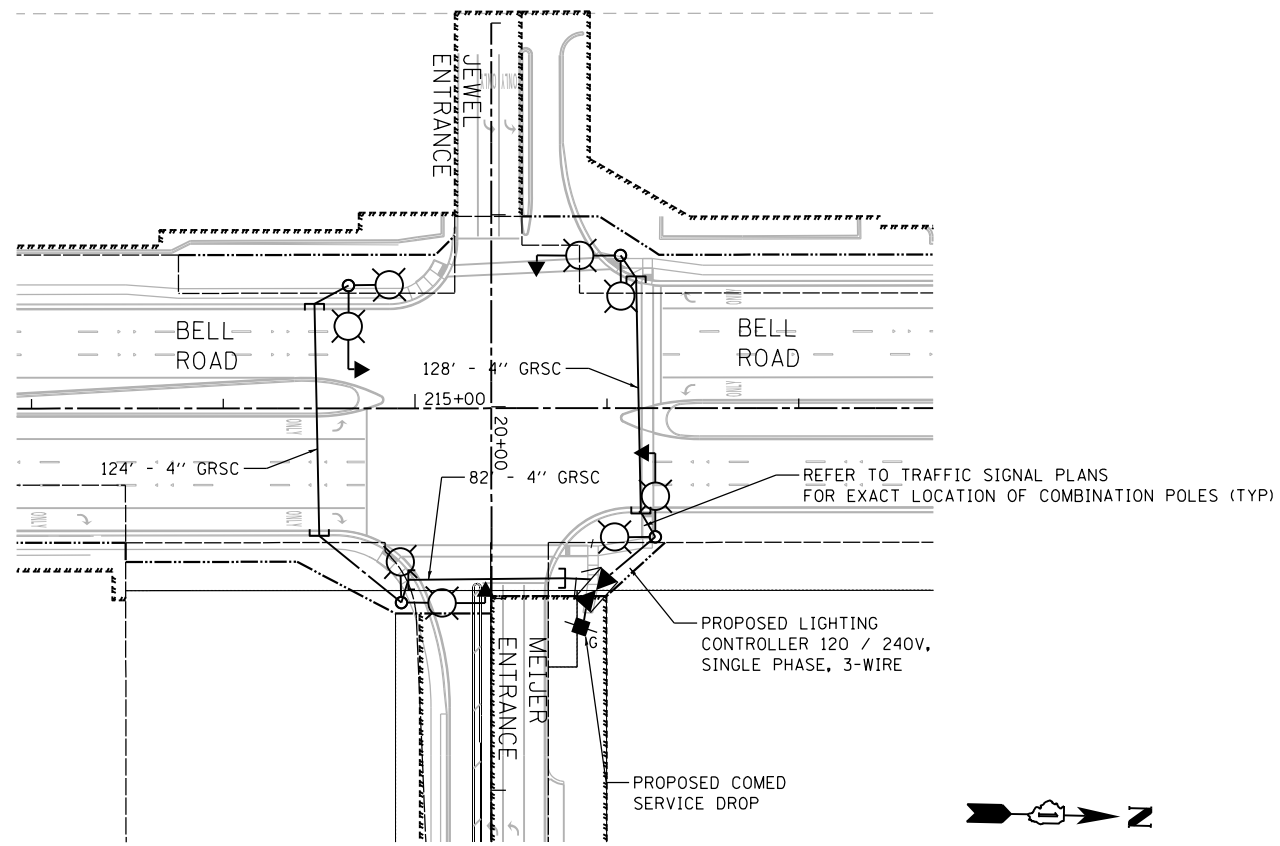


**ROADWAY LIGHT SINGLE WIRE DIAGRAM**

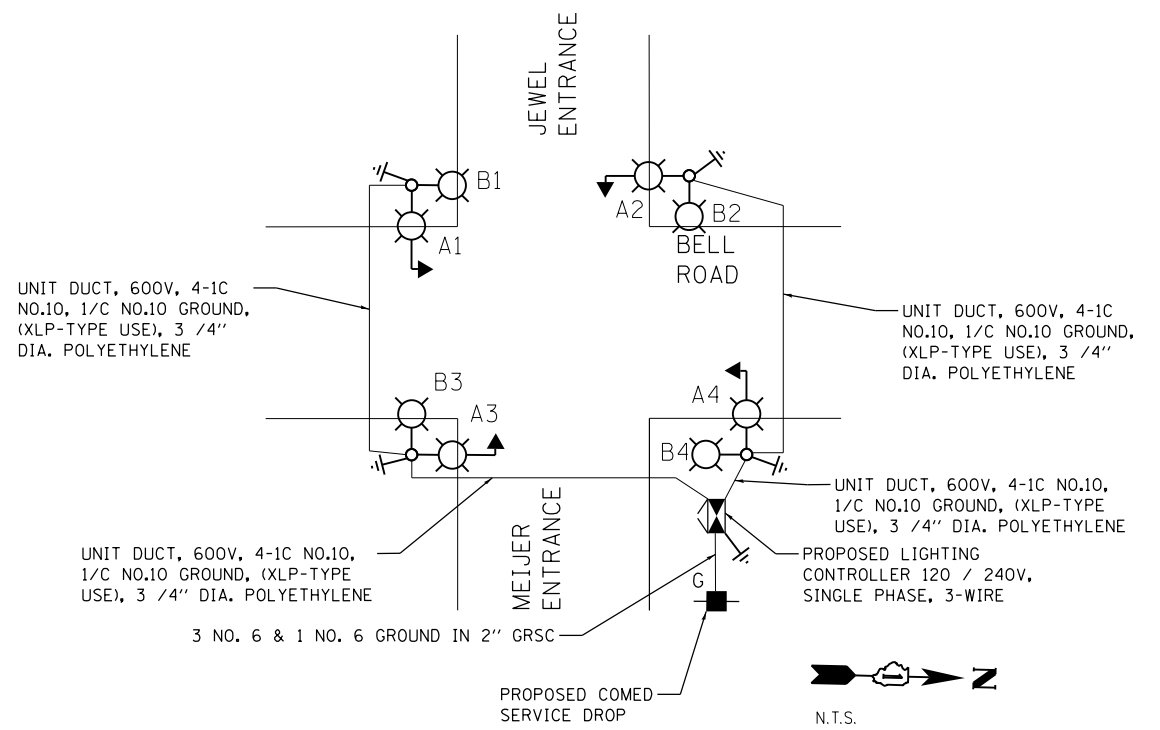
LIGHTING CONTROLLER PANEL SCHEDULE AND LOAD TABULATION 120 / 240VAC, SINGLE PHASE, 3-WIRE MAIN BREAKER: 60A			
CIRCUIT NO.	CIRCUIT BREAKER AMP/TYPE	CKT LOAD (WATTS)	CKT LOAD (AMPS)
A	20A, 2-POLE	700	3
B	20A, 2-POLE	700	3
	<b>TOTAL LOAD</b>	<b>1400W</b>	<b>6A</b>

- OR LIGHT UNIT COMBINATION TRAFFIC SIGNAL, 15 FT MAST ARM, LED, 4000K, TYPE IV, 240V, 40 FT MOUNTING HEIGHT
- PROPOSED UNIT DUCT, (4 NO. 10 OR 2 NO. 10) & 1 NO. 10 GROUND XLP-TYPE USE, 3 /4" DIA., POLYETHYLENE
- RIGID GALVANIZED STEEL CONDUIT, CONTAINING PULLED-IN UNIT DUCT
- COMBINATION LIGHTING CONTROLLER CABINET 120/240 VOLT, SINGLE PHASE, 3-WIRE
- PROPOSED COMED SERVICE DROP GROUND MOUNTED
- GROUND ROD, 5/8" X 10 FT





- NOTES:
1. THE COMBINATION POLES AND LIGHTING MAST ARM ARE INCLUDED IN THE TRAFFIC SIGNALS PAY ITEMS
  2. LIGHTING MAST ARMS SHALL BE THE TRUSS TYPE



**ROADWAY LIGHT SINGLE WIRE DIAGRAM**

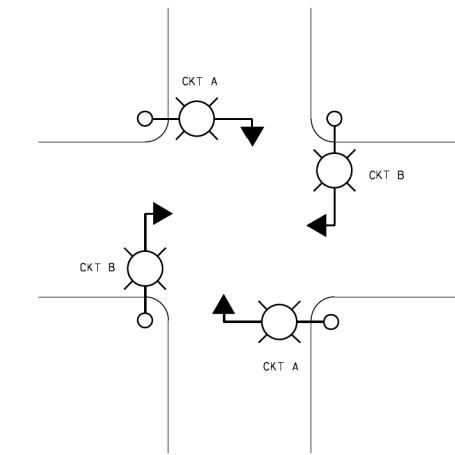
LIGHTING CONTROLLER PANEL SCHEDULE AND LOAD TABULATION 120 / 240VAC, SINGLE PHASE, 3-WIRE MAIN BREAKER: 60A			
CIRCUIT NO.	CIRCUIT BREAKER AMP/TYPE	CKT LOAD (WATTS)	CKT LOAD (AMPS)
A	20A, 2-POLE	1400	6
B	20A, 2-POLE	1400	6
TOTAL LOAD		2800W	12A

SCHEDULE OF QUANTITIES /BELL ROAD & JEWEL /MEIJER ENTRANCES			
NUMBER	ITEM	UNIT	QUANTITY
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	334
81603022	UNIT DUCT, 600V, 4-1C NO.10, 1/C NO.10 GROUND, (XLP-TYPE USE), 3 /4" DIA. POLYETHYLENE	FOOT	657
81702417	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/C NO. 6, 1/C NO. 6 GROUND	FOOT	38
82110009	LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION I	EACH	8
X8250091	COMBINATION LIGHTING CONTROLLER	EACH	1

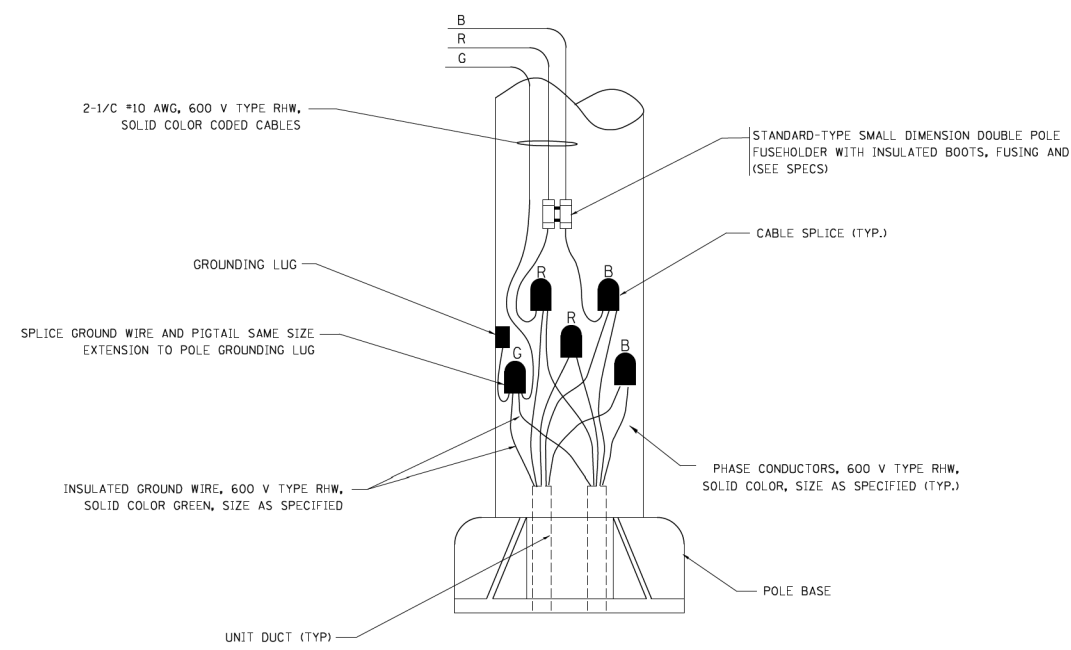
- LIGHT UNIT COMBINATION TRAFFIC SIGNAL, DUAL 15 FT MAST ARM, LED, 4000K, TYPE IV, 240V, 40 FT MOUNTING HEIGHT
- UNIT DUCT, 600V, 4-1C NO.10, 1/C NO.10 GROUND, (XLP-TYPE USE), 3 /4" DIA. POLYETHYLENE
- RIGID GALVANIZED STEEL CONDUIT, CONTAINING PULLED-IN UNIT DUCT
- COMBINATION LIGHTING CONTROLLER CABINET 120/240 VOLT, SINGLE PHASE, 3-WIRE
- PROPOSED COMED SERVICE DROP GROUND MOUNTED
- GROUND ROD, 5/8" X 10 FT

PANEL EQUIPMENT

BILL OF MATERIALS		
ITEM	QUANTITY	DESCRIPTION
A	1	CIRCUIT BREAKER, THERMAL MAGNETIC MOLDED CASE, 2 POLE, 240 VOLT 100 AMP FRAME, 30 AMP TRIP, INTERRUPTING RATING 22K RMS SYMMETRICALL AMP
B	1	REMOTE CONTROL SWITCH, ELECTRICALLY OPERATED, MECHANICALLY HELD, 2 POLE, SINGLE THROW, 30 AMP., 600 VOLTS CONTROL CIRCUIT 120 VOLT.
C	2	CIRCUIT BREAKERS, 2 POLE, 100 AMP. FRAME 20 AMP. NON-INTERCHANGABLE TRIP INTERRUPTING RATING NEMA 10,000 AMP AT 240 V.
D	1	CONTROL CIRCUIT-CIRCUIT BREAKER, 1 POLE, 100 AMP FRAME, 15 AMP NON-INTERCHANGABLE TRIP, INTERRUPTING RATING 22K RMS SYMMETRICAL AMP AT 240V.
E	1	ASTRONOMIC MICROPROCESSOR-BASED 2-CHANNEL CONTROLLER (TIME SWITCH)
F	1	H-O-A SWITCH
G	1	COPPER GROUND BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND 4 SPARE LUGS
H	1	COPPER NEUTRAL BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND 4 SPARE LUGS
I	1	RELAY, 2 POLE, SINGLE THROW, 120 VOLT COIL, CURRENT RATING TO BE COORDINATED WITH CONTACTOR



TYPICAL LIGHTING LAYOUT  
(NOT TO SCALE)

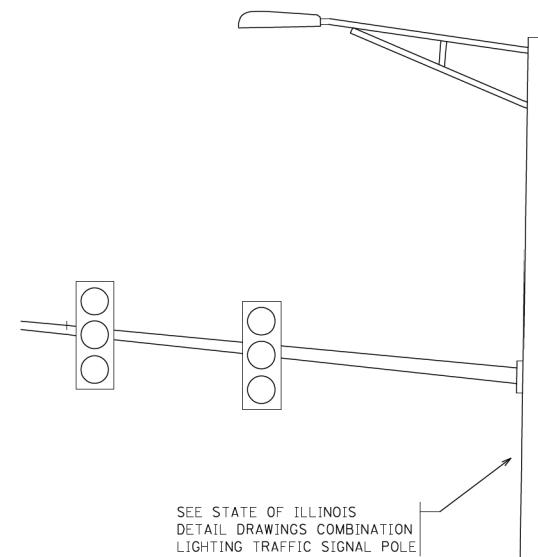


COMBINATION POLE WIRING DETAIL  
(NOT TO SCALE)

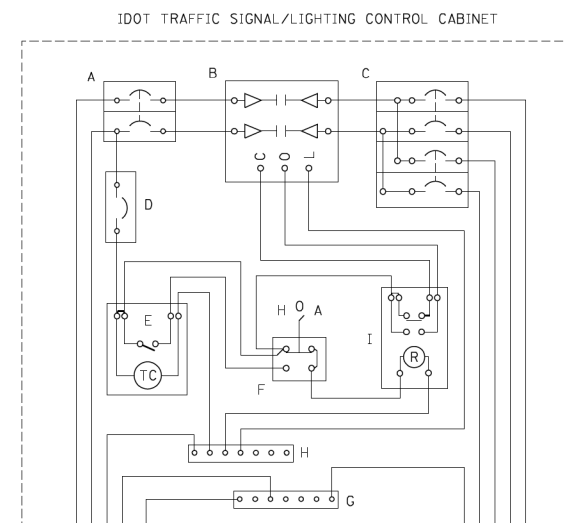
NOTES:

- ALL WIRING RELATED TO THE LIGHTING CONTROLS SHALL BE #10 AWG, 600V, TYPE SWITCH BOARD WIRE, STRANDED COPPER.
- PROVIDE SEALING GROMMETS FOR ALL OPEN WIRING EXTENDED FROM DEVICES IN BOXES OR CABINETS WITHIN THE ENCLOSURE.
- ALL WIRING SHALL BE NEATLY DRESSED, IDENTIFIED BY TAGS, AND SUPPORTED.
- ALL SPLICES AND CONNECTIONS FOR ROADWAY LIGHTING SHALL BE AT POLE BASE ONLY. UNDERGROUND SPLICING OF LIGHTING CONDUCTORS IS NOT PERMITTED.
- THE COMBINATION POLE LIGHTING CABLING DETAIL IS INTENDED TO SHOW CONNECTIONS ONLY. FOR FURTHER INFORMATION ON THE COMBINATION LIGHT POLE, THE TRAFFIC SIGNAL CONTROL CABINET, AND THE SERVICE DISCONNECT BOX OR CABINET REFER TO THE RESPECTIVE DETAIL DRAWINGS.
- COMBINATION LIGHTING SHALL BE TIMED TO ENERGIZE 20 MINUTES PRIOR TO DUSK AND DE-ENERGIZE 20 MINUTES AFTER DAWN.
- COMBINATION LIGHTING CONTROLLER AND ALL COMBINATION POLES SHALL HAVE IDOT DESIGNATIONS AND LABELS. LIGHTING CONTROLLER DESIGNATIONS SHALL BE COORDINATED WITH THE BUREAU OF TRAFFIC - LIGHTING SECTION.
- ENCLOSURE SHALL BE UNPAINTED, NATURAL ALUMINUM FINISH. SHALL BE U.L. LISTED NEMA TYPE 3R AND SHALL BE 26" X 17" X 15"
- 12" X 16" STAINLESS STEEL EXTERIOR NAMEPLATE SHALL BE ENGRAVED TO "STATE OF ILLINOIS LIGHTING CONTROLS" UNLESS OTHERWISE SPECIFIED.
- ELECTRIC SERVICE SHALL BE 120V/240V SERVICE AND SHALL BE A SHARED SERVICE FOR COMBINATION LIGHTING AND TRAFFIC SIGNALS.
- CONDUIT SIZES TO THE SERVICE DISCONNECT SHALL BE COORDINATED WITH THE SERVICE DISCONNECT DETAILS. REFER TO THE FOLLOWING DETAIL DRAWINGS FOR THE SERVICE DISCONNECT.

FOR POLE MOUNTED ELECTRIC SERVICE USE "COMBINATION LIGHTING AND TRAFFIC POLE MOUNTED ELECTRIC SERVICE BOX" (BE-230).  
FOR GROUND MOUNTED ELECTRIC SERVICE USE "STANDARD COMBINATION LIGHTING DISCONNECT" CONTAINED IN THE TRAFFIC SIGNAL DETAILS.



SEE STATE OF ILLINOIS  
DETAIL DRAWINGS COMBINATION  
LIGHTING TRAFFIC SIGNAL POLE

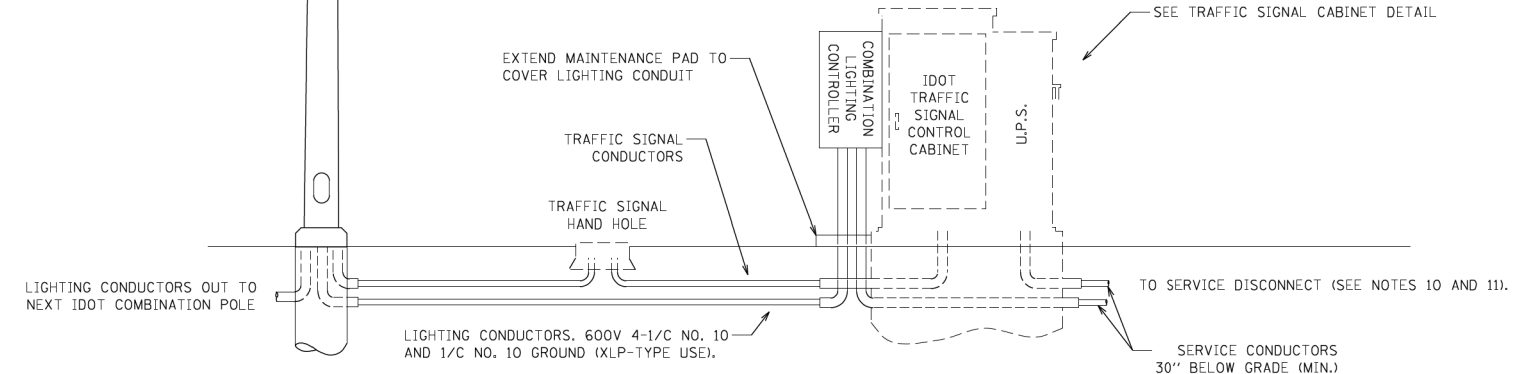


COMBINATION LIGHTING CONTROLLER  
WIRING DIAGRAM  
(NOT TO SCALE)

600V 3-1/C NO. 8 AND 1/C NO. 10 GND IN RGS CONDUIT FROM DISCONNECT CABINET (SEE NOTES 10 AND 11)

GROUND JUMPER SHALL BE BONDED TO CABINET ENCLOSURE

600V 4-1/C NO. 10 AND 1/C NO. 10 GROUND (XLP-TYPE USE), TO COMBINATION LIGHT POLES



COMBINATION POLE LIGHTING CABLING - TYPICAL  
(NOT TO SCALE)

**BENCHMARK**

Set cut "X" in SW light pole foundation bolt located ±150' N. of the intersection of 143rd Street and Bell Road. 2nd light pole along S. line of McDonald's restaurant property. Elev. 760.14.

**INDEX OF SHEETS**

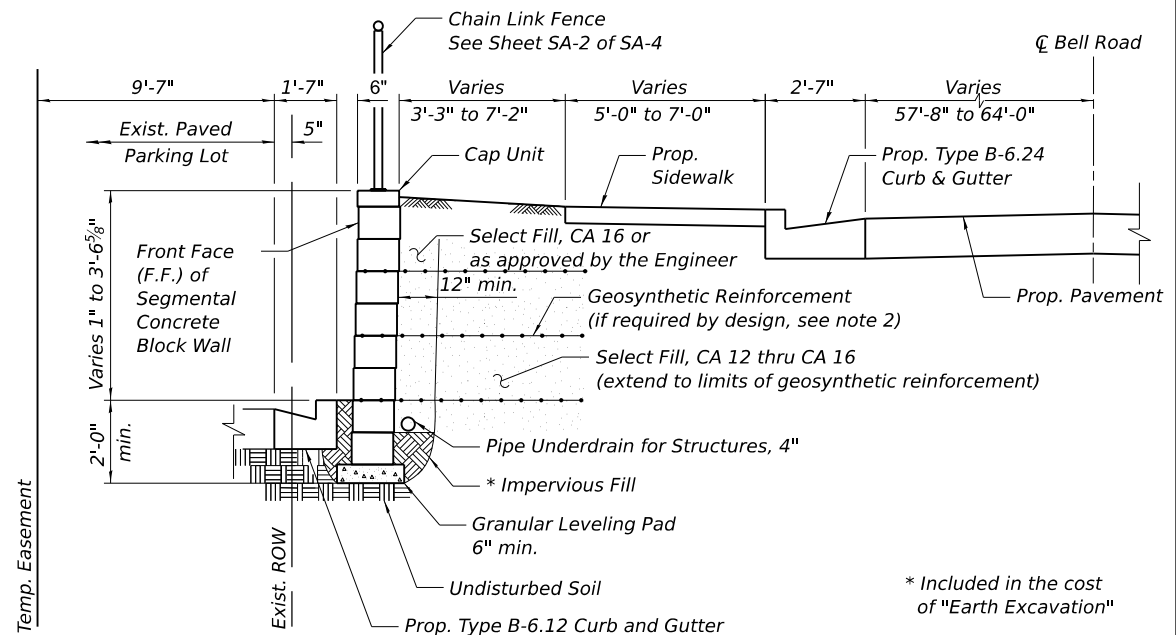
- SA-1 General Plan
- SA-2 Fence Details
- SA-3 Boring Logs 1
- SA-4 Boring Logs 2

**DESIGN SPECIFICATIONS**

2017 AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 8th Edition

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	50
Segmental Concrete Block Wall	Sq. Ft.	748
Pipe Underdrains for Structures 4"	Foot	215
Chain Link Fence, 4' Attached to Structure	Foot	208



**TYPICAL WALL A SECTION**  
(Looking North)

**ELEVATION TABLE**

POINT	STATION	OFFSET	WALL LENGTH	TOP OF WALL	FINISHED GRADE AT B.F. OF WALL	FINISHED GRADE AT F.F. OF WALL	THEORETICAL TOP OF LEVELING PAD
A	211+79.47	78.38' LT	1.47'	749.93	749.79	749.79	748.29
B	211+78.00	78.38' LT	2.43'	749.93	749.81	749.30	747.80
C	211+75.57	78.38' LT	25.57'	749.93	749.85	749.35	747.85
D	211+50.00	78.38' LT	2.29'	750.43	750.24	749.86	748.36
E	211+47.71	78.38' LT	10.64'	750.43	750.35	749.91	748.41
F	211+37.08	78.38' LT	10.64'	750.93	750.85	750.16	748.66
G	211+26.44	78.39' LT	2.61'	751.43	751.35	750.40	748.90
H	211+23.83	78.39' LT	8.03'	751.93	751.47	750.46	748.96
I	211+15.80	78.39' LT	10.64'	751.93	751.85	750.66	749.16
J	211+05.16	78.39' LT	5.16'	752.43	752.35	750.93	749.43
K	211+00.00	78.39' LT	8.20'	752.93	752.59	751.05	749.55
L	210+91.80	78.39' LT	15.92'	752.93	752.85	751.18	749.68
M	210+75.88	78.40' LT	0.88'	753.43	753.35	751.44	749.94
N	210+75.00	78.40' LT	15.05'	753.93	753.37	751.45	749.95
O	210+59.95	78.40' LT	9.95'	753.93	753.85	751.69	750.19
P	210+50.00	78.40' LT	4.12'	754.43	754.16	751.85	750.35
Q	210+45.88	78.40' LT	10.99'	754.43	754.35	751.93	750.43
R	210+34.89	78.40' LT	9.95'	754.93	754.85	752.14	750.64
S	210+24.94	78.40' LT	2.41'	755.43	755.30	752.34	750.84
T	210+22.53	78.40' LT	22.53'	755.43	755.35	752.40	750.90
U	210+00.00	78.41' LT	1.54'	755.93	755.79	752.93	751.43
V	209+98.46	78.41' LT	13.43'	755.93	755.85	752.96	751.46
W	209+85.02	78.41' LT	3.02'	756.43	756.35	753.30	751.80
X	209+82.00	78.41' LT	10.41'	756.93	756.46	753.38	751.88
Y	209+71.59	78.41' LT		756.93	756.85	756.85	755.35

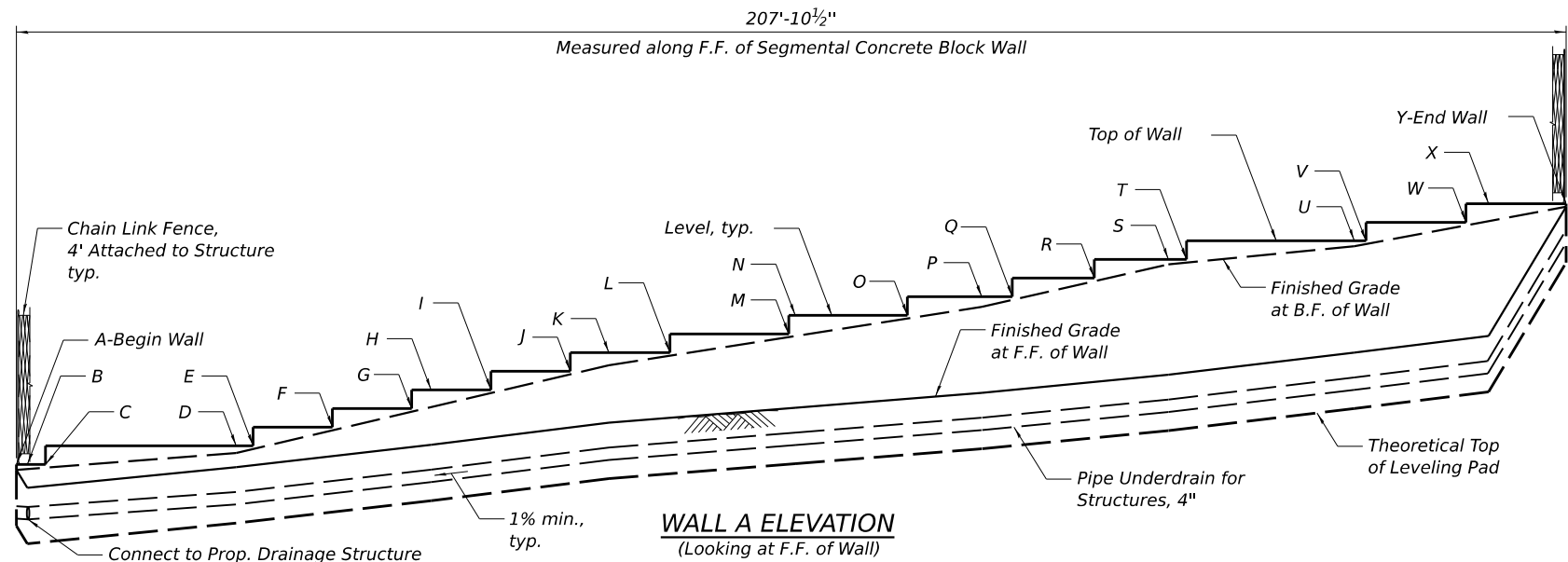
"Wall Length" measured between points.

Notes:

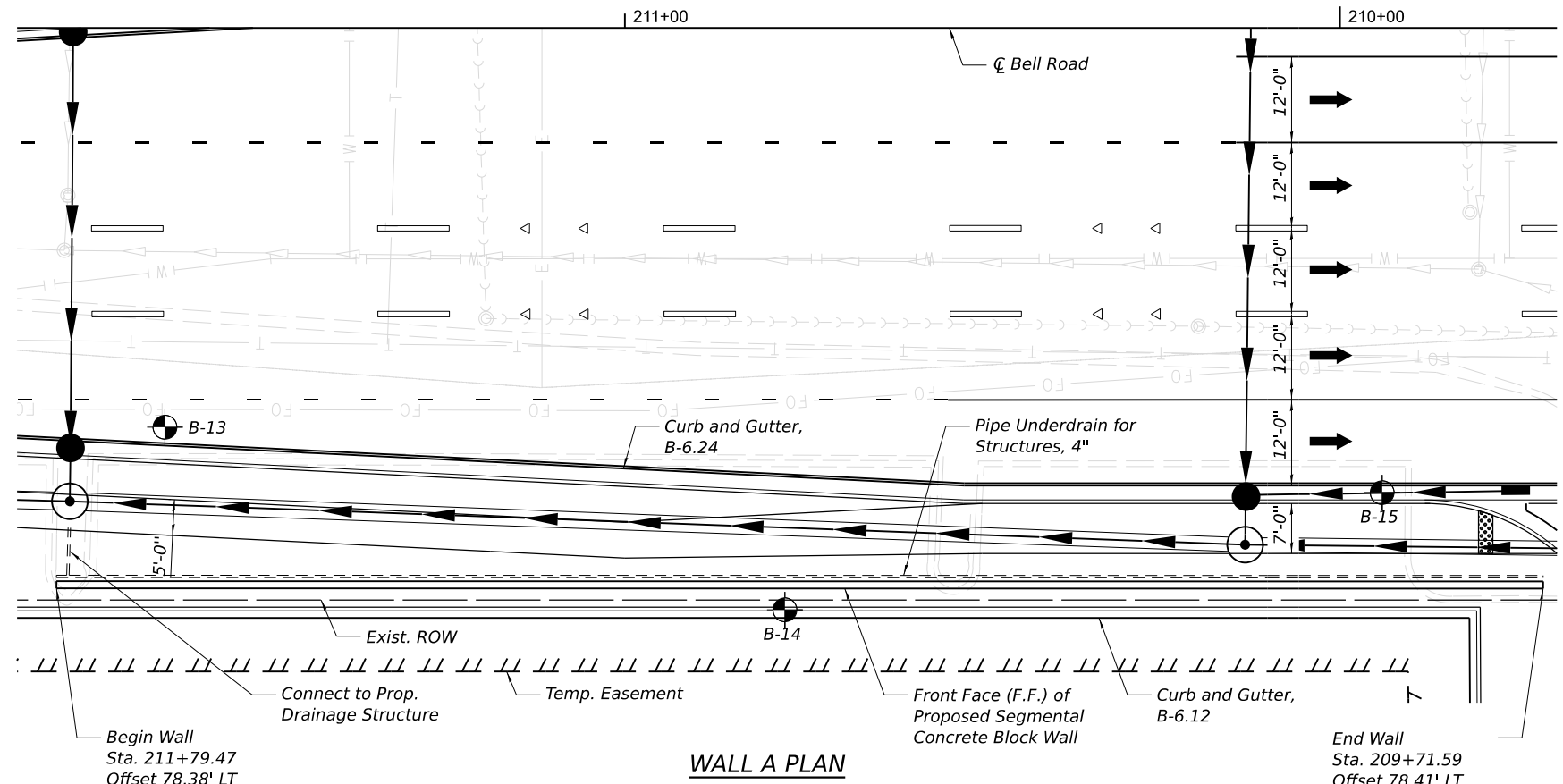
- Wall offsets are measured from the  $\text{C Bell Road}$  to the front face of segmental concrete block wall at finished grade level.
- Segmental Concrete Block Wall shall be constructed to the manufacturer's specifications and to the approval of the Engineer.
- Select fill, concrete blocks, concrete leveling pad, and geosynthetic reinforcement
- Connect retaining wall underdrain to the adjacent storm sewer system.
- Contractor to coordinate with segmental concrete block wall manufacturer regarding installation of proposed wall adjacent to the drainage structures at Sta. 210+13 LT and Sta. 211+77 LT.

**LEGEND**

- > Exist. Aerial Line
- > Exist. Storm Sewer
- > Exist. Underground Fiber Optic
- > Exist. Underground Sanitary Sewer
- > Exist. Underground Telephone
- > Exist. Underground Water
- > Prop. Storm Sewer



**WALL A ELEVATION**  
(Looking at F.F. of Wall)



**WALL A PLAN**

FILE NAME = ...\\w11co-sh-t001-RetWall1A.dgn  
PLOT TIME = 4:01:26 PM  
PLOT DATE = 2/14/2024

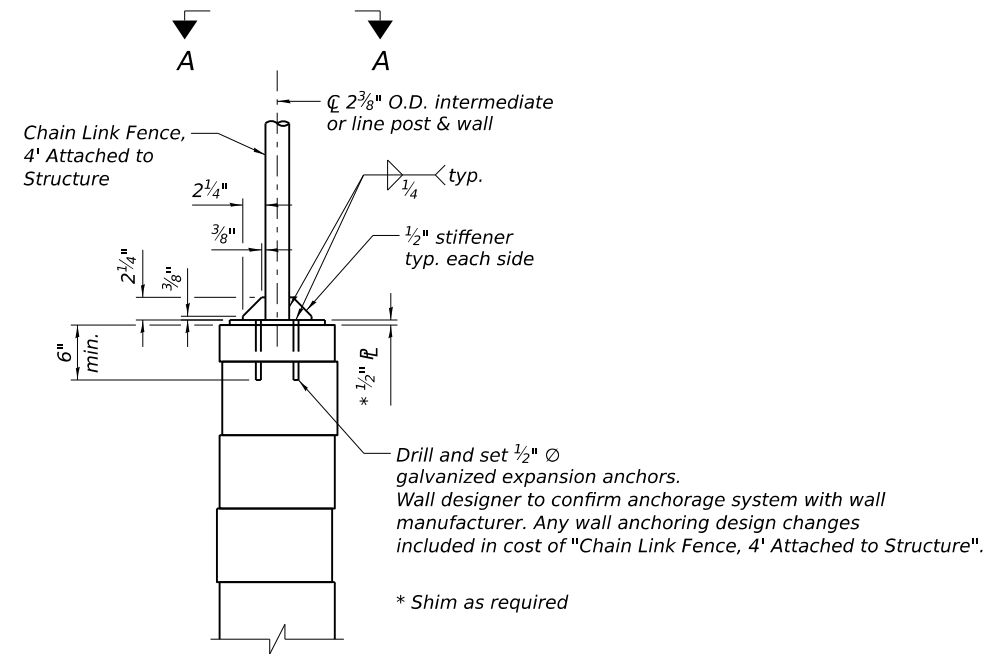
DESIGNED - CS	REVISED -
DRAWN - CS	REVISED -
CHECKED - TG	REVISED -
DATE - 02/14/2024	REVISED -

**SEPSTEIN**  
800 W. FULTON ST. CHICAGO, ILLINOIS 60611-1250  
TEL: 312-454-9100 FAX: 312-559-1217  
WEB: www.sepstein.com

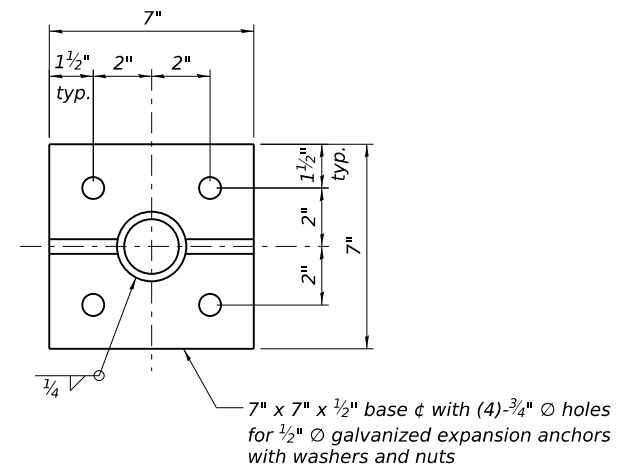
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**RETAINING WALL A - GENERAL PLAN**  
SCALE: N.T.S. SHEET SA-1 OF 4 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	255
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				



**CHAIN LINK FENCE  
ATTACHED TO STRUCTURE**



**SECTION A-A**

**BILL OF MATERIAL**

Item	Unit	Quantity
Chain Link Fence, 4' Attached to Structure	Foot	208

FILE NAME =	DESIGNED - CS	REVISED -
...\\willco-sh-t002-RetWallA.dgn	DRAWN - CS	REVISED -
PLOT TIME = 4:01:26 PM	CHECKED - TG	REVISED -
PLOT DATE = 2/14/2024	DATE - 02/14/2024	REVISED -

**STEPSTEIN**

800 W FULTON ST. TEL: 312-454-9100  
CHICAGO, ILLINOIS FAX: 312-559-1217  
60615-1259 WEB: www.stepstein.com

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>RETAINING WALL A - FENCE DETAILS</b>			
SCALE: N.T.S.	SHEET SA-2 OF 4 SHEETS	STA. N/A	TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	256
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				



# SOIL BORING LOG

Date 3/28/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63060556, Longitude 87.93131111  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	D E P T H	B L O W S	U C S Qu	M O I S T T	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
		(ft)	(/6")	(tsf)	(%)	NA	NA	None	None	None	NA	NA
	750.14				21							
3 inches TOPSOIL with surface vegetation												
Dark Brown, Moist FILL: Silty Clay, trace sand and organic matter	748.39		1		24							
Very Stiff to Very Hard Brown, Moist CLAY, A-6			3									
			5									
			7	7.3	15							
			8	S								
		-5										
			3									
			7	8.3	16							
			9	S								
			4									
			8	3.7	15							
			11	S								
Very Stiff Gray, Moist SILTY CLAY, trace sand	740.39	-10										
			3									
			5	3.1	13							
			8	S								
			4									
			6	2.1	12							
			8	S								
End of Boring	735.39	-15										

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



# SOIL BORING LOG

Date 3/28/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63036667, Longitude 87.93139722  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	D E P T H	B L O W S	U C S Qu	M O I S T T	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
		(ft)	(/6")	(tsf)	(%)	NA	NA	None	None	None	NA	NA
	749.73				5							
2 inches Asphalt Pavement												
10 inches Crushed Aggregate Base Course			4									
Stiff to Hard Brown, Moist CLAY LOAM, trace gravel, A-6			5	5.8	15							
			7	S								
			5									
			5	1.9	17							
			8	S								
		-5										
			3									
Very Stiff to Hard Gray, Moist SILTY CLAY, trace gravel	744.73											
			6	4.2	13							
			8	S								
			5									
			6	4.2	12							
			8	S								
		-10										
			3									
			5	3.1	15							
			8	S								
			3									
			4	3.1	15							
			8	S								
End of Boring	735.73	-15										

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



SOIL BORING LOG

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois
SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E
COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

Table with columns: STRUCT. NO., BORING NO., Station, Offset, Ground Surface Elev., DPTH (ft), BLOW (6") (ft), UCS (tsf), MOIST (%), Surface Water Elev., Stream Bed Elev., Groundwater Elev., First Encounter, Upon Completion, After Hrs.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, form 137 (Rev. 8-99)

**BENCHMARK**

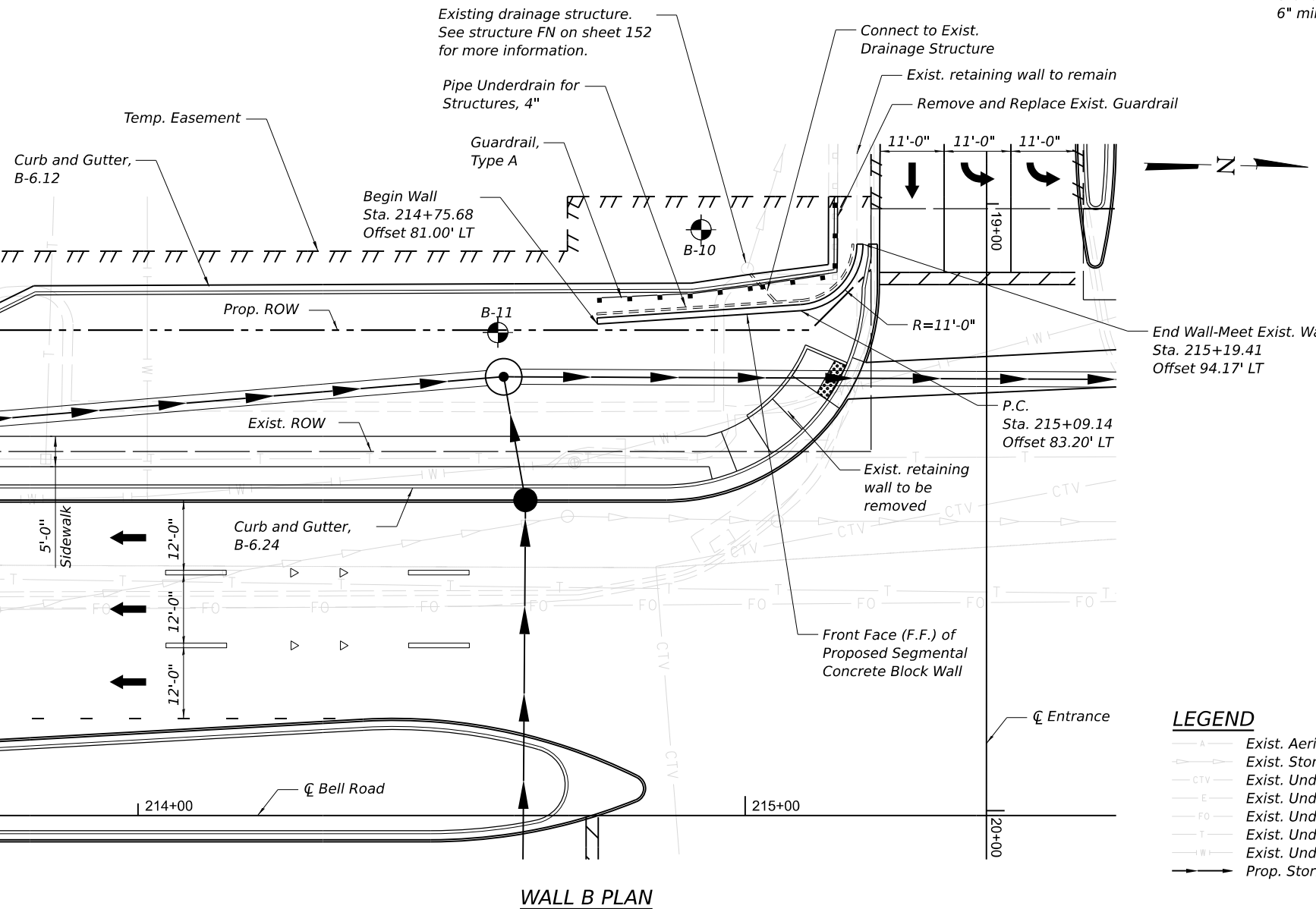
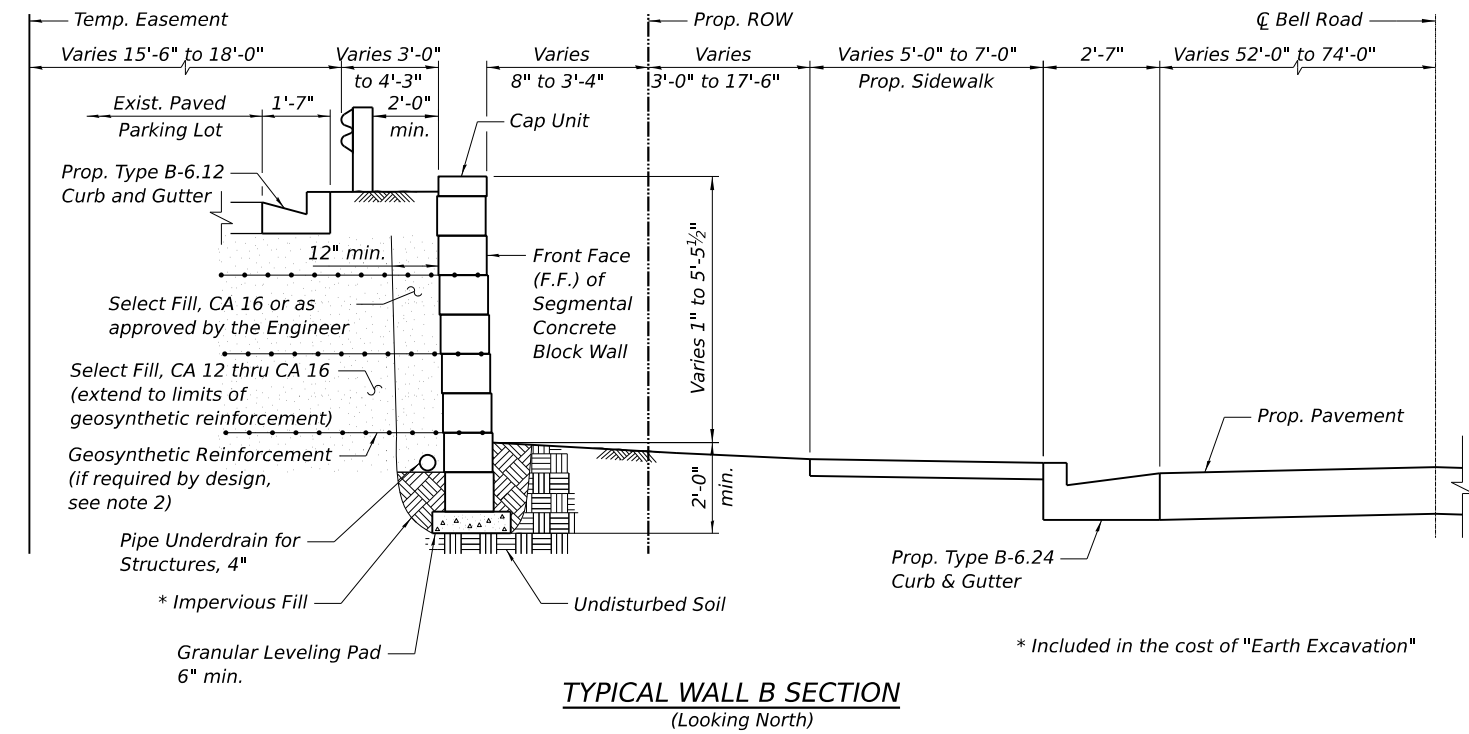
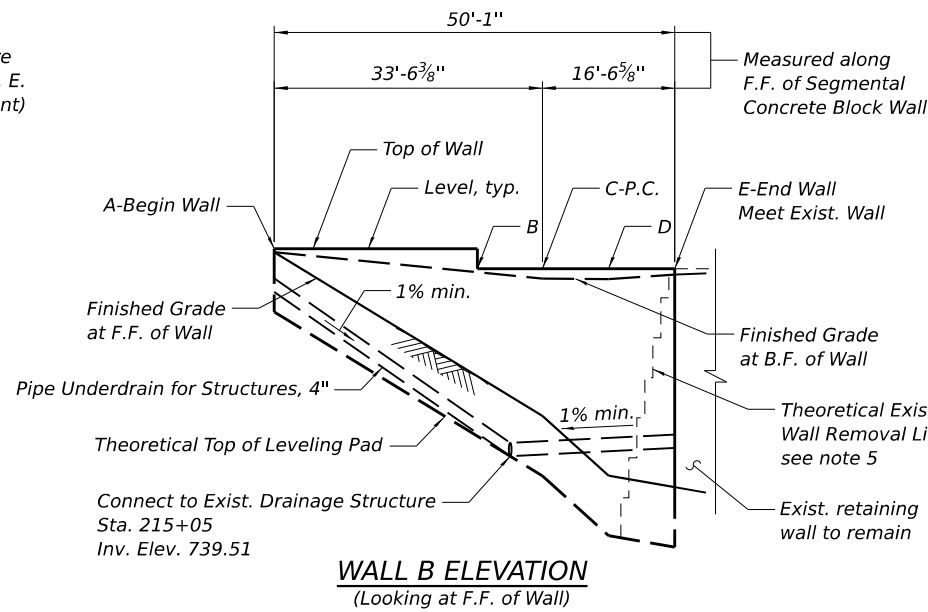
Set cut "X" in southwesterly bonnet bolt of the 2nd fire hydrant ±400' N. of the entrance to The Home Depot, E. side of Bell Road. (1st hydrant N. of Wendy's restaurant) Elev. 728.34

**INDEX OF SHEETS**

SB-1 General Plan  
SB-2 Boring Logs

**DESIGN SPECIFICATIONS**

2017 AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 8th Edition



**ELEVATION TABLE**

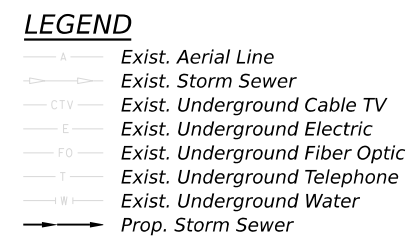
POINT	STATION	OFFSET	WALL LENGTH	TOP OF WALL	FINISHED GRADE AT B.F. OF WALL	FINISHED GRADE AT F.F. OF WALL	THEORETICAL TOP OF LEVELING PAD
A	214+75.68	81.00' LT	25.40'	744.70	744.62	744.62	743.12
B	215+01.02	82.66' LT	8.13'	744.20	744.12	744.51	740.01
C	215+09.14	83.20' LT	8.28'	744.20	743.96	740.52	739.02
D	215+16.44	86.65' LT	8.28'	744.20	743.94	739.03	737.53
E	215+19.41	94.17' LT		744.20	744.06	738.74	737.24

"Wall Length" measured between points.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	35
Segmental Concrete Block Wall	Sq. Ft.	224
Retaining Wall Removal	Foot	79
Pipe Underdrains for Structures 4"	Foot	59

- Notes:
- Wall offsets are measured from the ̄ Bell Road to the front face of segmental concrete block wall at finished grade level.
  - Segmental Concrete Block Wall shall be constructed to the manufacturer's specifications and to the approval of the Engineer.
  - Select fill, concrete blocks, concrete leveling pad, and geosynthetic reinforcement shall be included in the pay item "Segmental Concrete Block Wall".
  - Connect retaining wall underdrain to the adjacent storm sewer system.
  - Remove existing segmental concrete block wall along the front face of wall at an approximate 1:1 slope from the top of wall to the theoretical top of leveling pad (Elev. ±737.48), or to the manufacturer's specifications and to the approval of the Engineer.
  - Contractor responsible for determining color and dimensional size of existing segmental concrete block in field. Match existing and proposed segmental concrete blocks accordingly and submit to the Engineer for review and approval.
  - Contractor to coordinate with segmental concrete block wall manufacturer regarding installation of proposed wall adjacent to the drainage structure at Sta. 215+00.39 LT





# SOIL BORING LOG

Date 3/27/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63150556, Longitude 87.93148333  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	D E P T H	B L O W S	U C S Qu	M O I S T T	Surface Water Elev.	Stream Bed Elev.	D E P T H	B L O W S	U C S Qu	M O I S T T
		(ft)	(/6")	(tsf)	(%)	ft	ft	(ft)	(/6")	(tsf)	(%)
	743.60					NA	NA				
2 inches Asphalt Pavement											
2 inches Crushed Aggregate Base Course					11				5		
Dark Brown, Moist			4						9	4.2	12
FILL: Clay Loam, trace gravel, A-6			5						9	S	
1 ft - 2.5 ft : Unit Weight-103.6 pcf	740.93										
Medium Stiff to Hard			3						5		
Brown, Moist			3	2.7	16				6	3.1	13
CLAY, trace gravel, A-6			5	S					9	S	
		-5					718.93	-25			
			4								
			6	3.3	14						
			6	S							
			3								
			5	4.6	16						
		-10	7	S				-30			
			5								
			6	2.9	19						
			7	S							
			3								
			3	1.9	18						
		-15	5	S				-35			
			2								
			2	1.0	21						
			5	S							
	725.43										
Very Stiff to Hard			5								
Gray, Moist			9	2.7	16						
SILTY CLAY, trace gravel		-20	10	S				-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



# SOIL BORING LOG

Date 3/28/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63141389, Longitude 87.93141944  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	D E P T H	B L O W S	U C S Qu	M O I S T T	Surface Water Elev.	Stream Bed Elev.	D E P T H	B L O W S	U C S Qu	M O I S T T
		(ft)	(/6")	(tsf)	(%)	ft	ft	(ft)	(/6")	(tsf)	(%)
	743.78					NA	NA				
2 inches Asphalt Pavement											
4 inches Crushed Aggregate Base Course					8						
Dark Brown, Moist			4								
FILL: Loam, trace gravel			5		13						
			3								
	741.28										
Very Stiff to Hard			2								
Brown and Gray, Moist			2	5.2	17						
CLAY, trace gravel, A-6			3	S							
		-5									
			5								
			5	5.0	17						
			7	S							
			3								
			4	3.1	20						
		-10	6	S							
			5								
			6	4.6	15						
			9	S							
			4								
			6	4.0	18						
		-15	7	S							
	729.28										
End of Boring											

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



**BENCHMARK**

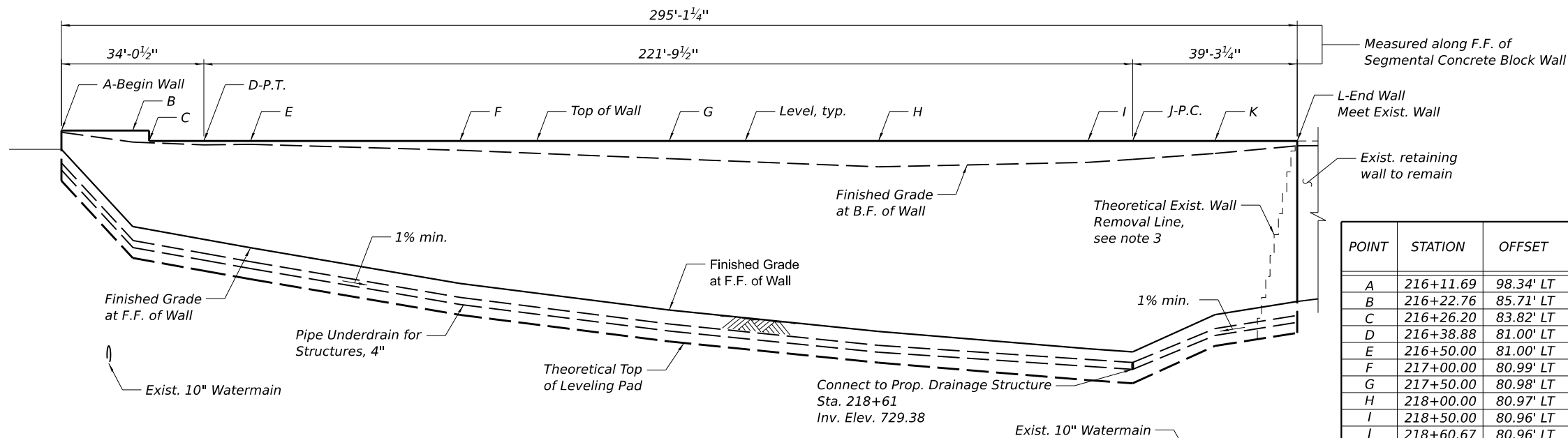
Set cut "X" in southwesterly bonnet bolt of the 2nd fire hydrant ±400' N. of the entrance to The Home Depot, E. side of Bell Road. (1st hydrant N. of Wendy's restaurant) Elev. 728.34

**INDEX OF SHEETS**

- SC-1 General Plan
- SC-2 Details
- SC-3 Boring Logs 1
- SC-4 Boring Logs 2

**DESIGN SPECIFICATIONS**

2017 AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 8th Edition



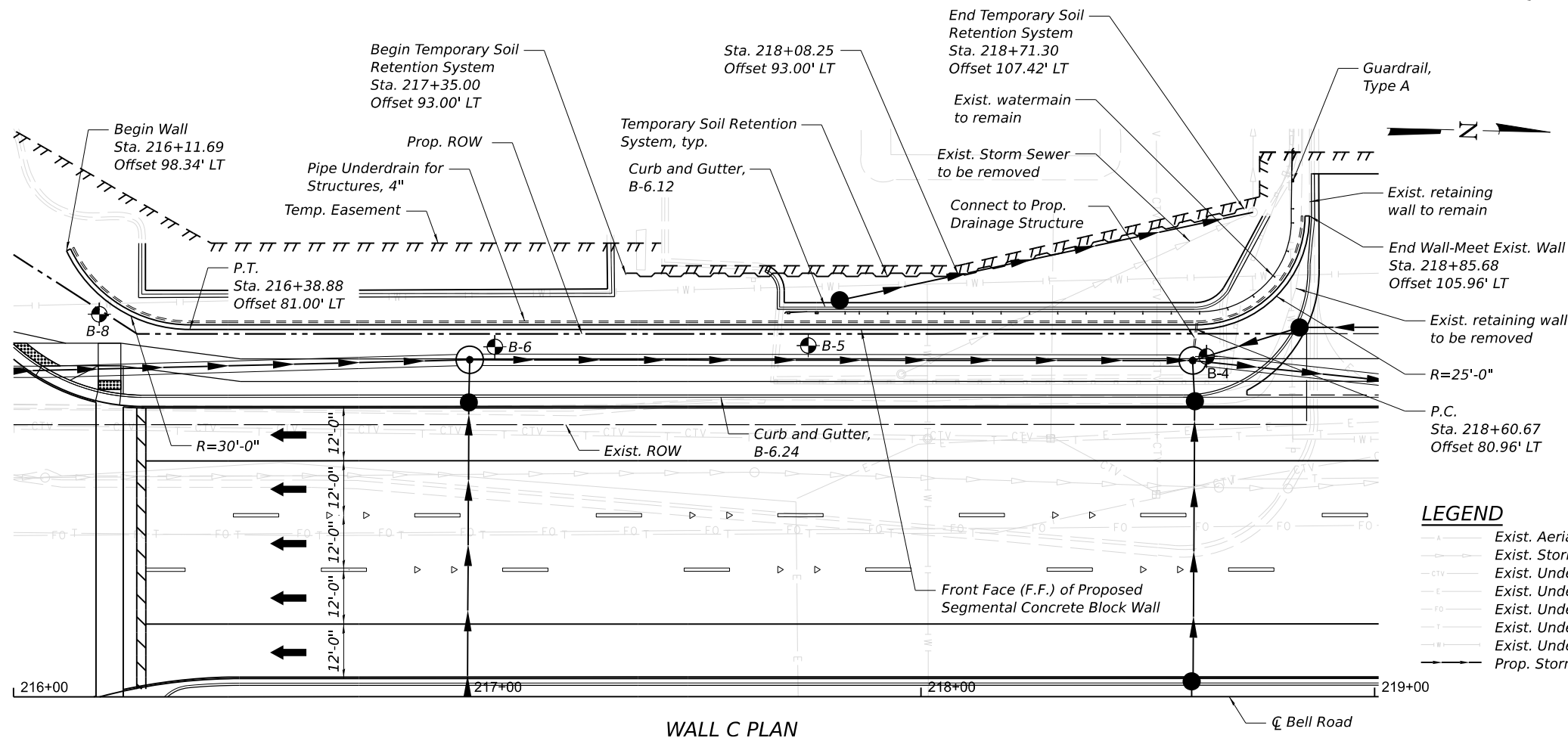
**ELEVATION TABLE**

POINT	STATION	OFFSET	WALL LENGTH	TOP OF WALL	FINISHED GRADE AT B.F. OF WALL	FINISHED GRADE AT F.F. OF WALL	THEORETICAL TOP OF LEVELING PAD
A	216+11.69	98.34' LT	17.02'	740.80	740.72	739.90	738.40
B	216+22.76	85.71' LT	3.93'	740.80	740.25	736.21	734.71
C	216+26.20	83.82' LT	13.09'	740.30	740.22	736.07	734.57
D	216+38.88	81.00' LT	11.12'	740.30	740.12	735.60	734.10
E	216+50.00	81.00' LT	50.00'	740.30	740.14	735.20	733.70
F	217+00.00	80.99' LT	50.00'	740.30	739.86	733.49	731.99
G	217+50.00	80.98' LT	50.00'	740.30	739.46	732.22	730.72
H	218+00.00	80.97' LT	50.00'	740.30	739.07	731.20	729.70
I	218+50.00	80.96' LT	10.67'	740.30	739.28	730.37	728.87
J	218+60.67	80.96' LT	19.63'	740.30	739.42	730.22	728.72
K	218+78.35	88.28' LT	19.63'	740.30	739.71	732.00	730.50
L	218+85.68	105.96' LT		740.30	740.07	732.63	731.13

"Wall Length" measured between points.

**WALL C ELEVATION**

(Looking at F.F. of Wall)



**WALL C PLAN**

**TOTAL BILL OF MATERIAL**

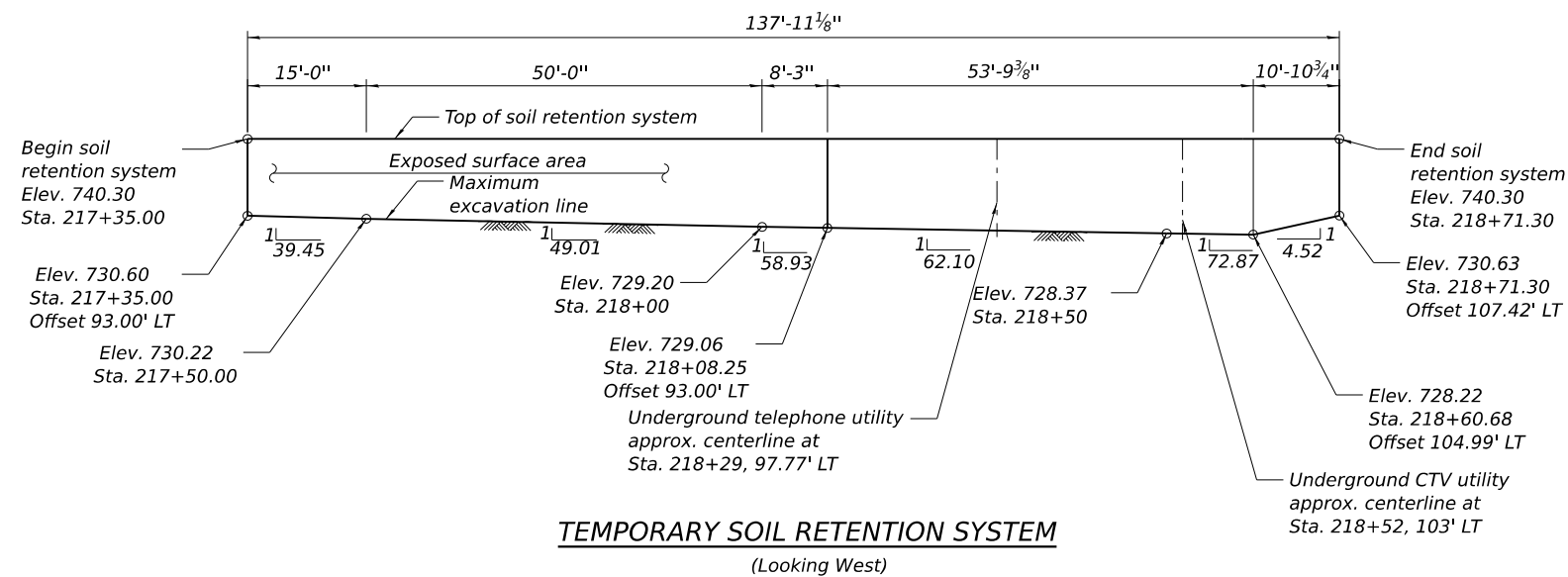
ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	384
Temporary Soil Retention System	Sq. Ft.	1517
Segmental Concrete Block Wall	Sq. Ft.	2,641
Retaining Wall Removal	Foot	325
Pipe Underdrains for Structures 4"	Foot	305

**Notes:**

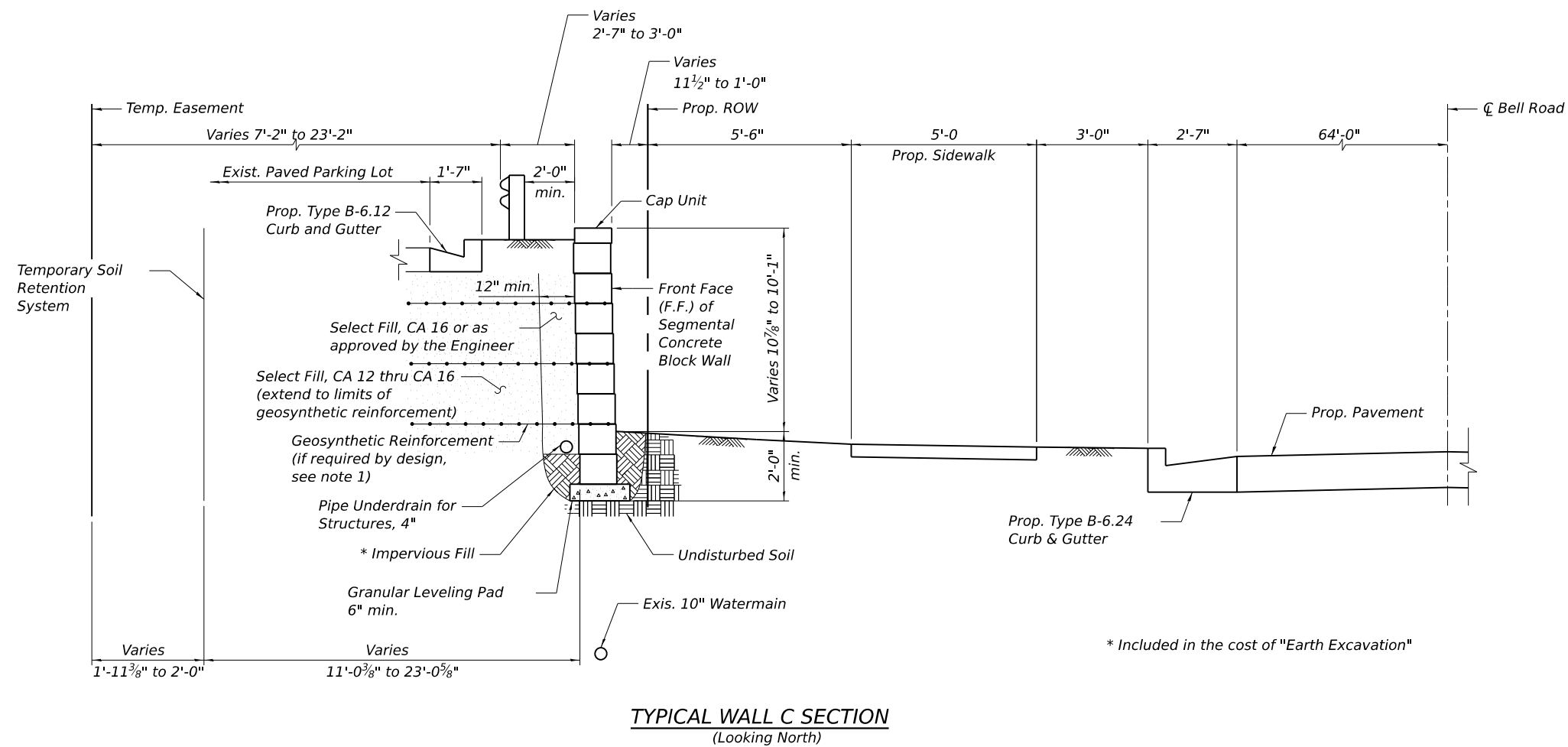
1. Wall offsets are measured from the  $\text{C}$  Bell Road to the front face of segmental concrete block wall at finished grade level.
2. Connect retaining wall underdrain to the adjacent storm sewer system.
3. Remove existing segmental concrete block wall along the front face of wall at an approximate 1:1 slope from the top of wall to the theoretical top of leveling pad (Elev. ±730.83), or to the manufacturer's specifications and to the approval of the Engineer.
4. Contractor responsible for determining color and dimensional size of existing segmental concrete block in field. Match existing and proposed segmental concrete blocks accordingly and submit to the Engineer for review and approval.
5. Contractor to coordinate with segmental concrete block wall manufacturer regarding installation of proposed wall adjacent to the drainage structure at Sta. 217+82 LT.
6. Contractor's Engineer to design/sequence temporary soil retention system installation and removal to accommodate installation of proposed storm sewer.
7. Contractor shall take all necessary precautions for the protection of underground utilities.

**LEGEND**

- A- Exist. Aerial Line
- SS- Exist. Storm Sewer
- CTV- Exist. Underground Cable TV
- E- Exist. Underground Electric
- FO- Exist. Underground Fiber Optic
- T- Exist. Underground Telephone
- W- Exist. Underground Water
- S- Prop. Storm Sewer



**TEMPORARY SOIL RETENTION SYSTEM**  
(Looking West)



**TYPICAL WALL C SECTION**  
(Looking North)

**Notes:**

1. Segmental Concrete Block Wall shall be constructed to the manufacturer's specifications and to the approval of the Engineer.
2. Select fill, concrete blocks, concrete leveling pad, and geosynthetic reinforcement shall be included in the pay item "Segmental Concrete Block Wall".
3. Contractor is expected to grade excavation slopes within the provided limits.

\* Included in the cost of "Earth Excavation"

FILE NAME = ...\\w11co-sh-t002-RetWallC.dgn	DESIGNED - CS	REVISED -	 800 W. FULTON ST. CHICAGO, ILLINOIS 60611-1259 TEL: 312-454-9100 FAX: 312-559-1217 WEB: www.stepstein.com	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>			<b>RETAINING WALL C - DETAILS</b>			F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 262
PLOT TIME = 4:01:34 PM	DRAWN - CS	REVISED -					SCALE: N.T.S.			SHEET SC-2 OF 4 SHEETS	STA. N/A	TO STA. N/A	CONTRACT NO. 61D34	
PLOT DATE = 2/14/2024	CHECKED - TG	REVISED -								ILLINOIS FED. AID PROJECT				
	DATE - 02/14/2024	REVISED -												



# SOIL BORING LOG

Date 3/27/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63252222, Longitude 87.93143333  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	D	B	U	M	Surface Water Elev.	ft	D	B	U	M
NA	NA	EP	LO	CS	OST	NA	ft	EP	LO	CS	OST
		T	W	Qu	T	Stream Bed Elev.	ft	H	S	Qu	T
BORING NO.	B-4					Groundwater Elev.:					
Station	218+62.98					First Encounter	None				
Offset	75.00ft LT					Upon Completion	None				
Ground Surface Elev.	738.98	ft	(ft)	(/6")	(tsf)	(%)					
6 inches Asphalt Pavement						Stiff to Very Stiff					
15 inches Crushed Aggregate Base Course	737.48		2			Brown, Moist CLAY, A-6 (continued)			2		
Stiff to Very Stiff			1	1.9	14				3	1.7	24
Brown, Moist CLAY, A-6			2	S					3	S	
			1								
			1	1.7	20				2		
			1	S					3	<0.25	47
							714.48		2	P	
						Soft					
						Brownish Gray, Moist CLAY LOAM					
			7								
			4	1.2	25						
			4	S							
			3				710.48		5		
			3	1.5	16	Very Stiff			6	2.1	16
			4	B		Brownish Gray, Moist SILTY CLAY			7	S	
							708.98				
						End of Boring					
			4								
			6	2.5	14						
			8	S							
			4								
			4	2.1	18						
			7	S							
			4								
			4	1.5	17						
			6	B							
			3								
			3	1.9	19						
			4	B							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



# SOIL BORING LOG

Date 3/27/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63228056, Longitude 87.93143333  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	D	B	U	M	Surface Water Elev.	ft	D	B	U	M
NA	NA	EP	LO	CS	OST	NA	ft	EP	LO	CS	OST
		T	W	Qu	T	Stream Bed Elev.	ft	H	S	Qu	T
BORING NO.	B-5					Groundwater Elev.:					
Station	217+75.18					First Encounter	None				
Offset	77.41ft LT					Upon Completion	None				
Ground Surface Elev.	739.01	ft	(ft)	(/6")	(tsf)	(%)					
5 inches Asphalt Pavement						Medium Stiff to Hard					
8 inches Crushed Aggregate Base Course	737.81		5		9	Brown to Gray, Moist CLAY, trace gravel, A-6 (continued)				6	
Medium Stiff to Hard			3	2.0	21					8	17
Brown to Gray, Moist CLAY, trace gravel, A-6			4	P						7	
			3							6	
			3	5.0	23					5	2.9
			4	P						8	S
							714.01				
						End of Boring					
			1								
			2		16						
			3								
			2								
			5	5.0	17						
			7	S							
			5								
			8	6.5	19						
			9	P							
			7								
			9	4.0	17						
			7	P							
			4								
			5	2.1	17						
			8	S							
			4								
			5	3.1	20						
			6	S							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



# SOIL BORING LOG

Date 3/27/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63209167, Longitude 87.93142778  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	BORING NO.	Station	Offset	Ground Surface Elev.	D E P T H  ft	B L O W S  (ft)	U C S  Qu (tsf)	M O I S T  (%)	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
NA	NA	B-6	217+06.10	77.15ft LT	739.84					NA	NA	None	None	None	NA	NA
					739.59				8							
							5									
							6		18							
							7									
							4									
					735.84		3	2.3	18							
							5	S								
							-5									
							3									
							3	2.5	18							
							4	S								
							4									
							5	3.1	16							
							6	S								
							-10									
							5									
							7	4.6	16							
							10	S								
							5									
							5	7.3	19							
							7	S								
							-15									
							7									
							9	6.0	16							
							14	S								
							26									
							10	5.4	16							
							9	S								
							-20									

End of Boring  
 The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



# SOIL BORING LOG

Date 3/27/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION Retaining Wall, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.63185, Longitude 87.93144722  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	BORING NO.	Station	Offset	Ground Surface Elev.	D E P T H  ft	B L O W S  (ft)	U C S  Qu (tsf)	M O I S T  (%)	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
NA	NA	B-8	216+18.91	84.36ft LT	740.03					NA	NA	None	None	None	NA	NA
					739.83				19							
							4									
							7		21							
							7									
							737.03									
							2									
							3	1.9	19							
							3	S								
							-5									
							734.03									
							4									
							5	3.7	15							
							6	S								
							4									
							4	4.0	15							
							7	S								
							-10									
							729.03									
							4									
							6	3.7	21							
							7	S								
							7									
							4	1.9	24							
							4	S								
							725.03									
							-15									
							End of Boring									

End of Boring  
 The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)

**BENCHMARK**

Set cut "□" in SE corner of The Home Depot concrete sign foundation located at the NW corner of Greystone Drive and 143rd Street. Elev. 731.79.

**INDEX OF SHEETS**

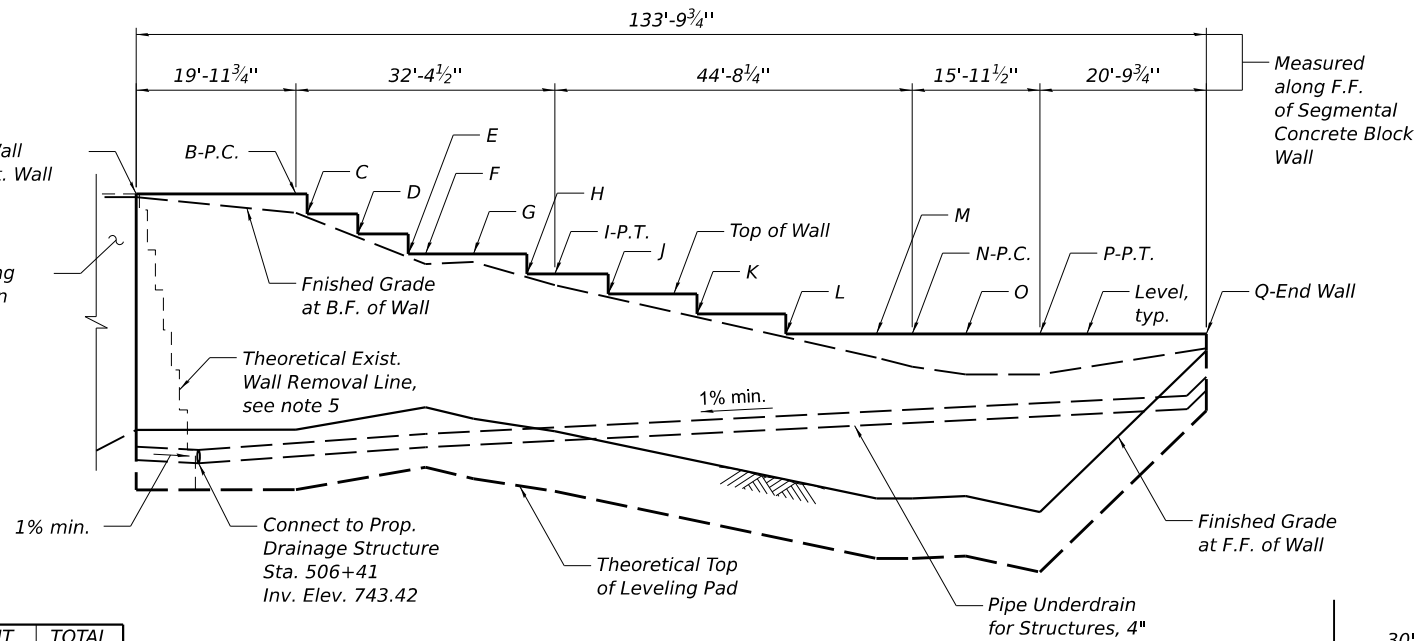
SD-1 General Plan  
SD-2 Boring Logs

**DESIGN SPECIFICATIONS**

2017 AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 8th Edition

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	113
Segmental Concrete Block Wall	Sq. Ft.	757
Retaining Wall Removal	Foot	123
Pipe Underdrains for Structures 4"	Foot	144

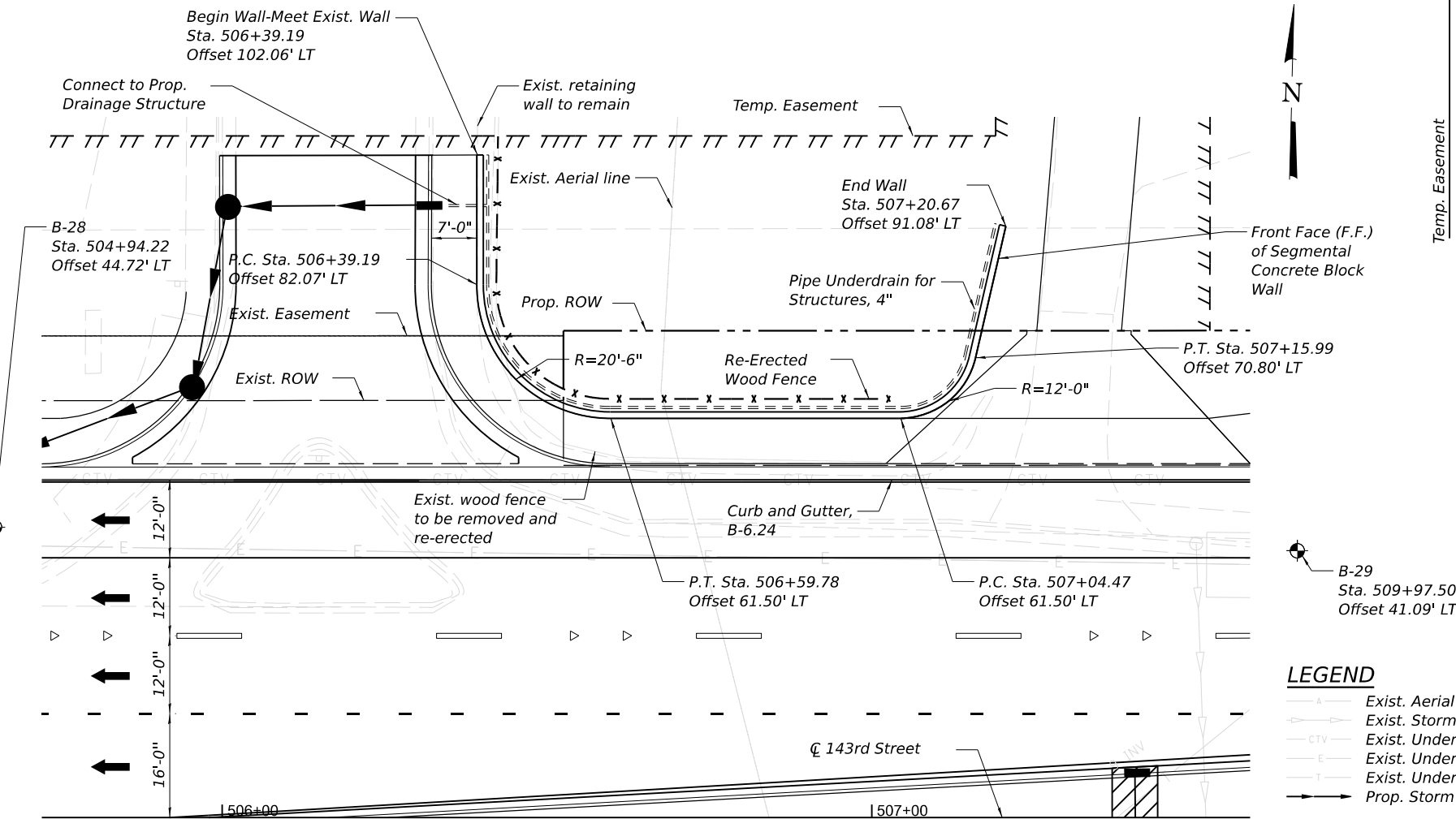


**WALL D ELEVATION**  
(Looking at F.F. of Wall)

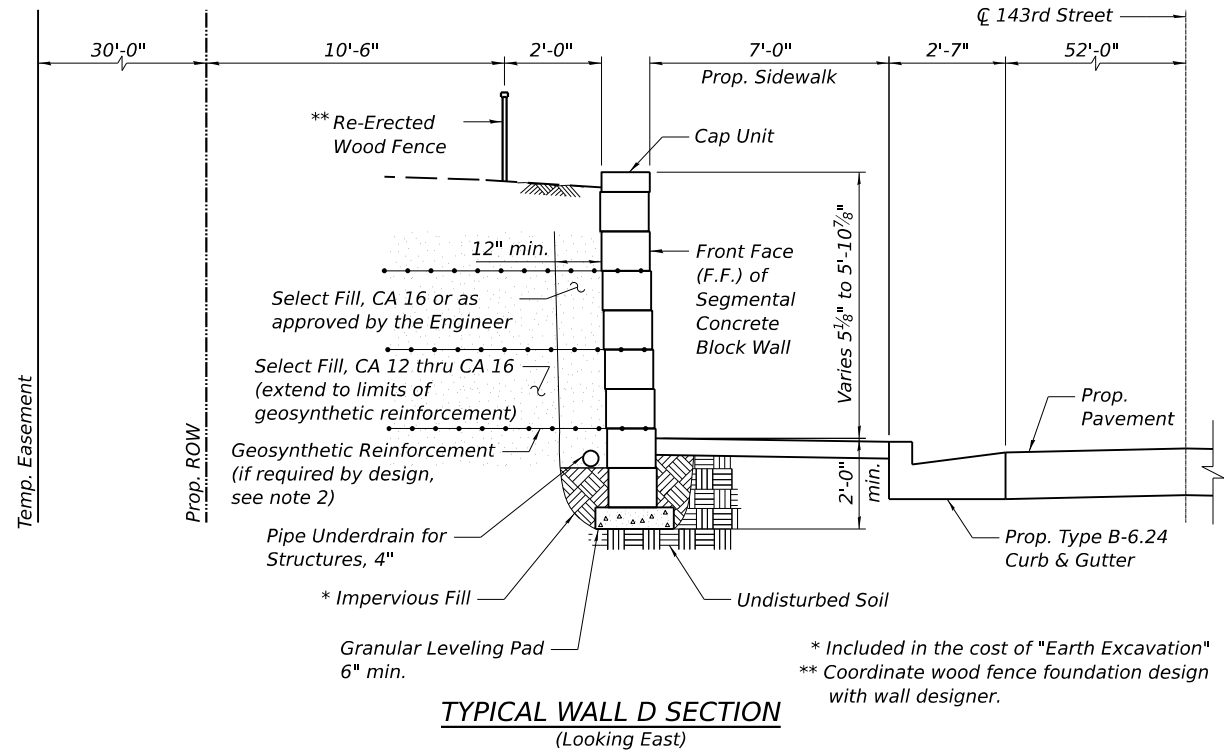
**ELEVATION TABLE**

POINT	STATION	OFFSET	WALL LENGTH	TOP OF WALL	FINISHED GRADE AT B.F. OF WALL	FINISHED GRADE AT F.F. OF WALL	THEORETICAL TOP OF LEVELING PAD
A	506+39.19	102.06' LT	19.98'	750.15	750.07	744.25	742.75
B	506+39.19	82.07' LT	1.39'	750.15	749.68	744.26	742.76
C	506+39.24	80.68' LT	6.32'	749.65	749.57	744.31	742.81
D	506+40.60	74.54' LT	6.32'	749.15	749.07	744.53	743.03
E	506+43.77	69.09' LT	2.15'	748.65	748.57	744.75	743.25
F	506+45.20	67.50' LT	5.99'	748.65	748.40	744.82	743.32
G	506+50.00	63.93' LT	6.68'	748.65	748.45	744.53	743.03
H	506+56.29	61.78' LT	3.52'	748.15	748.07	744.32	742.82
I	506+59.79	61.50' LT	6.66'	748.15	747.87	744.22	742.72
J	506+66.46	61.50' LT	11.11'	747.65	747.57	743.94	742.44
K	506+77.56	61.50' LT	11.11'	747.15	747.07	743.48	741.98
L	506+88.67	61.50' LT	11.33'	746.65	746.57	743.02	741.52
M	507+00.00	61.50' LT	4.47'	746.65	746.06	742.54	741.04
N	507+04.47	61.50' LT	6.70'	746.65	745.83	742.54	741.04
O	507+10.80	63.41' LT	9.26'	746.65	745.64	742.60	741.10
P	507+15.99	70.80' LT	20.82'	746.65	745.64	742.20	740.70
Q	507+20.67	91.08' LT		746.65	746.29	746.23	744.73

"Wall Length" measured between points.



**WALL D PLAN**



**TYPICAL WALL D SECTION**  
(Looking East)

**Notes:**

- Wall offsets are measured from the  $\text{C}$  143rd Street to the front face of segmental concrete block wall at finished grade level.
- Segmental Concrete Block Wall shall be constructed to the manufacturer's specifications and to the approval of the Engineer.
- Select fill, concrete blocks, concrete leveling pad, and geosynthetic reinforcement shall be included in the pay item "Segmental Concrete Block Wall".
- Connect retaining wall underdrain to the adjacent storm sewer system.
- Remove existing segmental concrete block wall along the front face of wall at an approximate 1:1 slope from the top of wall to the theoretical top of leveling pad (Elev.  $\pm 742.75$ ), or to the manufacturer's specifications and to the approval of the Engineer.
- Contractor responsible for determining color and dimensional size of existing segmental concrete blocks accordingly and submit to the Engineer for review and approval.

**LEGEND**

- A — Exist. Aerial Line
- S — Exist. Storm Sewer
- CTV — Exist. Underground Cable TV
- E — Exist. Underground Electric
- T — Exist. Underground Telephone
- S — Prop. Storm Sewer



# SOIL BORING LOG

Date 3/30/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC

SECTION 12-00147-11-CH LOCATION 143rd Street, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.62925278, Longitude 87.92926111

COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	DEPTH	BULGE	UCS	MOIST	Surface Water Elev.	Stream Bed Elev.
NA	NA					NA ft	NA ft
BORING NO.	Station	Offset				Groundwater Elev.:	First Encounter
B-28	504+94.22	44.72ft LT				None ft	None ft
	Ground Surface Elev.					Upon Completion	After NA Hrs.
	749.60 ft					None ft	NA ft
4 inches TOPSOIL with surface vegetation	749.35						
	748.60						17
Dark Brown, Moist FILL: Clay Loam, trace gravel, A-6			5				
Hard			6	5.0			16
Brown, Moist CLAY, A-6			8		S		
1 ft - 3 ft : LL-36, PL-18, PI-18							
			4				
			7	5.2			15
			9		S		
			7				
			10	7.3			16
			12		S		
			5				
			6	5.8			16
			7		S		
End of Boring	739.60	-10					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



# SOIL BORING LOG

Date 3/30/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC

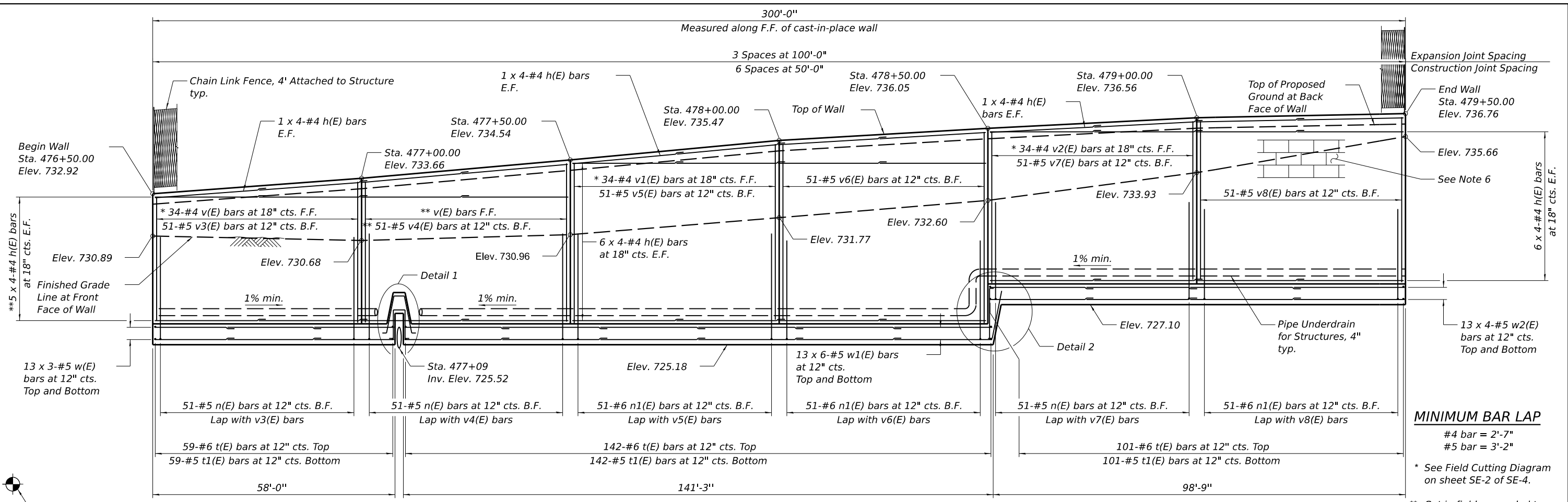
SECTION 12-00147-11-CH LOCATION 143rd Street, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.62926944, Longitude 87.92742222

COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	DEPTH	BULGE	UCS	MOIST	Surface Water Elev.	Stream Bed Elev.
NA	NA					NA ft	NA ft
BORING NO.	Station	Offset				Groundwater Elev.:	First Encounter
B-29	509+97.50	41.09ft LT				None ft	None ft
	Ground Surface Elev.					Upon Completion	After NA Hrs.
	730.86 ft					None ft	NA ft
4 inches TOPSOIL with surface vegetation	730.61						19
Dark Brown to Black, Moist FILL: Sandy Clay Loam, A-6			4				
			5				34
			5				
	726.86		3				
Soft to Stiff Brown, Moist CLAY, A-6			4	1.2			26
			4		B		
			1				
			2	0.4			24
			3		B		
	721.86		2				
Very Stiff Gray, Moist SILTY CLAY, trace sand			5	3.1			16
			7		S		
End of Boring	720.86	-10					

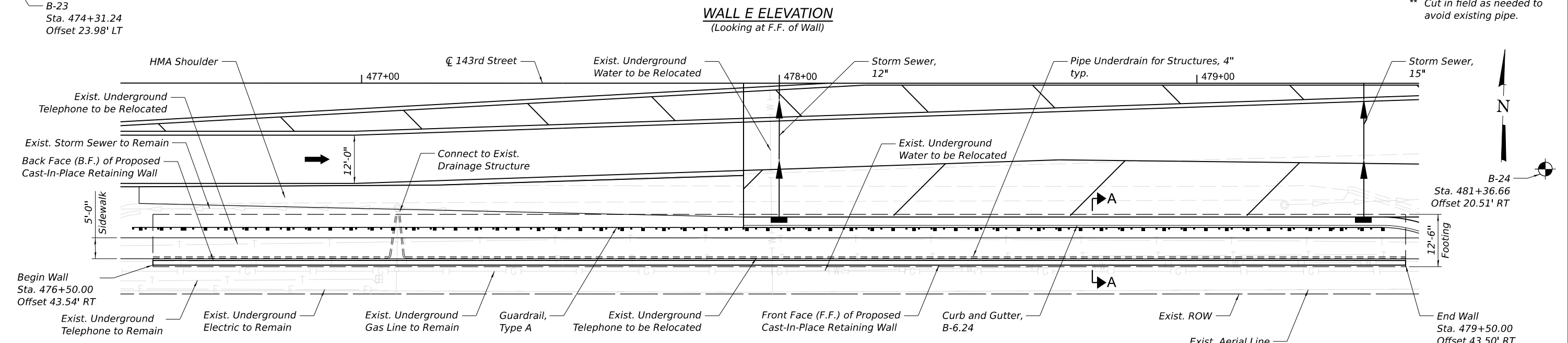
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



**WALL E ELEVATION**  
(Looking at F.F. of Wall)

**MINIMUM BAR LAP**  
 #4 bar = 2'-7"  
 #5 bar = 3'-2"  
 \* See Field Cutting Diagram on sheet SE-2 of SE-4.  
 \*\* Cut in field as needed to avoid existing pipe.



**WALL E PLAN**

**INDEX OF SHEETS**  
 SE-1 General Plan  
 SE-2 Details  
 SE-3 Fence Details  
 SE-4 Boring Logs

**BENCHMARK**  
 Set RR spike in S. side of utility pole located ±200' E. of intersection of 143rd Street and Golden Oak Drive. ±50' S. of 143rd Street and immediately W. of first driveway E. of intersection. Elev. 731.69.

**DESIGN STRESSES**  
 $f_c = 3,500 \text{ psi}$   
 $f_y = 60,000 \text{ psi (Reinforcement)}$

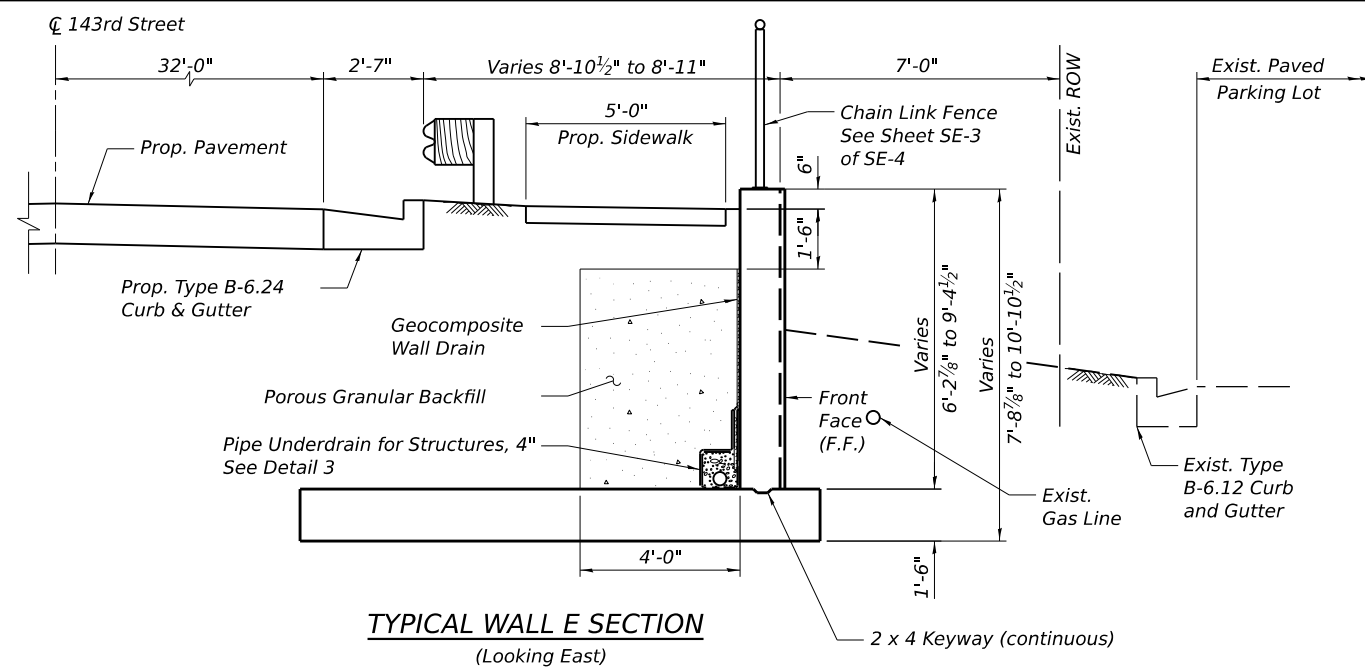
**DESIGN SPECIFICATIONS**  
 2017 AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 8th Edition

- Notes:
- For Typical Wall E Section, Section A-A, Details 1 and 2, Expansion Joint Detail, and Bill of Material, see sheet SE-2 of SE-4.
  - Wall offsets are measured from the 143rd Street to the front face of cast-in-place wall at finished grade level.

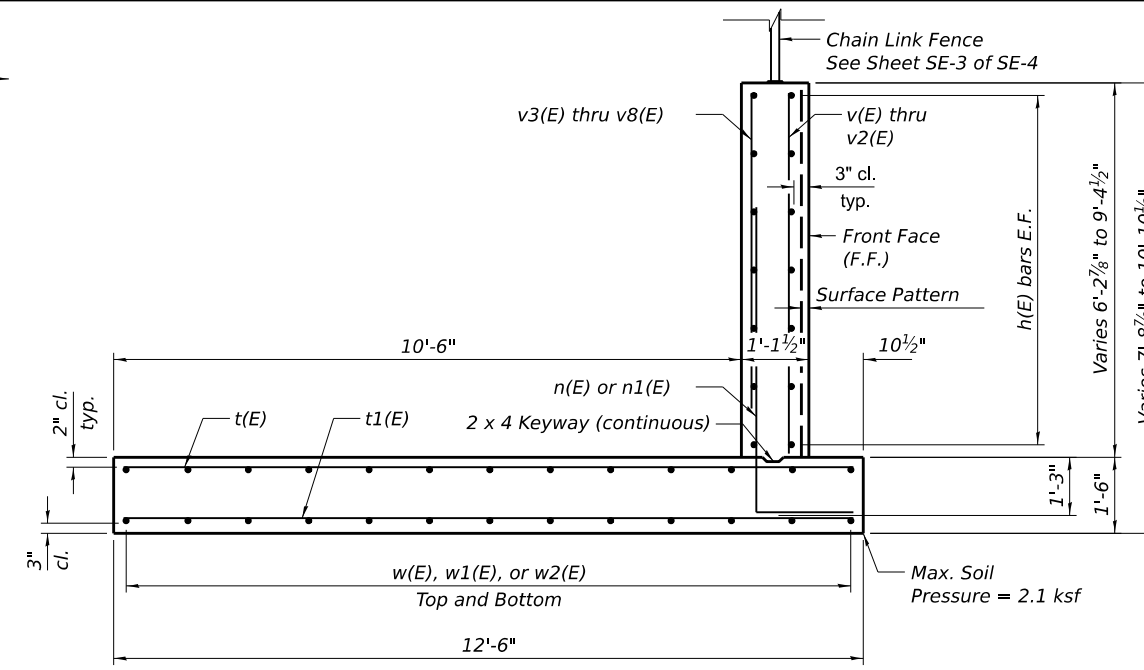
- Bars indicated thus 2 x 3-#5 etc. indicates 2 lines of bars with 3 lengths per line.
- Reinforcement bars designated (E) shall be epoxy coated.
- Exposed edges and corners shall be chamfered as indicated.
- The front face of the retaining wall shall receive a surface pattern produced through the use of a form liner. See Special Provision "Form Liner Textured Surface, Special".

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	1,831
Concrete Structures	Cu. Yd.	309.5
Reinforcement Bars, Epoxy Coated	Pound	28,030
Chain Link Fence, 4' Attached to Structure	Foot	300
Geocomposite Wall Drain	Sq. Yd.	211
Granular Backfill for Structures	Cu. Yd.	281
Pipe Underdrains for Structures 4"	Foot	326
Form Liner Textured Surface (Special)	Sq. Ft.	2,354



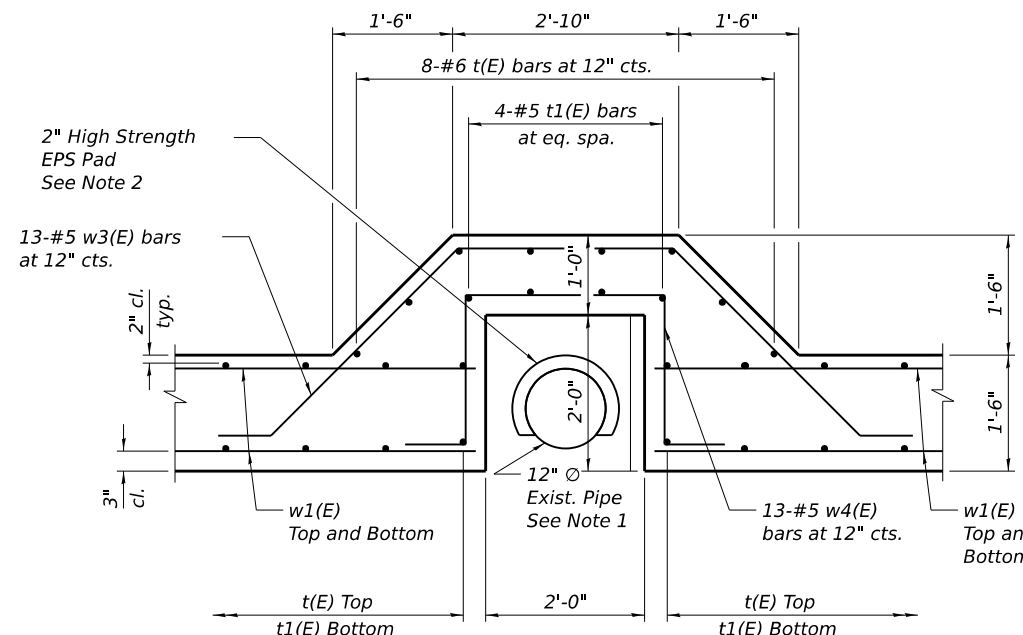
**TYPICAL WALL E SECTION**  
(Looking East)



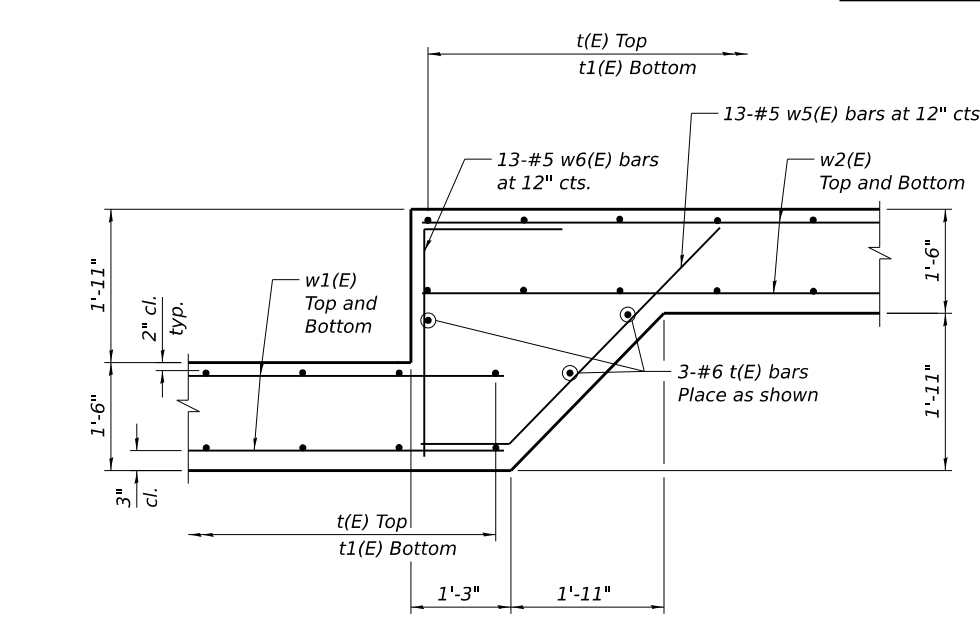
**SECTION A-A**

**BILL OF MATERIAL**

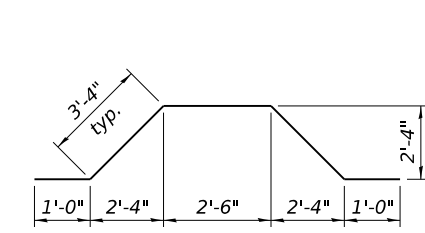
Bar	No.	Size	Length	Shape
h(E)	160	#4	27'-0"	
n(E)	153	#5	7'-3"	
n1(E)	153	#6	7'-3"	
t(E)	313	#6	12'-2"	
t1(E)	306	#5	12'-2"	
v(E)	34	#4	13'-6"	
v1(E)	34	#4	16'-10"	
v2(E)	34	#4	15'-2"	
v3(E)	51	#5	6'-0"	
v4(E)	51	#5	6'-9"	
v5(E)	51	#5	7'-8"	
v6(E)	51	#5	8'-7"	
v7(E)	51	#5	7'-3"	
v8(E)	51	#5	7'-9"	
w(E)	78	#5	21'-4"	
w1(E)	156	#5	26'-2"	
w2(E)	104	#5	27'-4"	
w3(E)	13	#5	11'-2"	
w4(E)	13	#5	8'-6"	
w5(E)	13	#5	5'-1"	
w6(E)	13	#5	3'-6"	
Structure Excavation	Cu. Yd.		1,249	
Concrete Structures	Cu. Yd.		309.5	
Reinforcement Bars, Epoxy Coated	Pound		28,030	



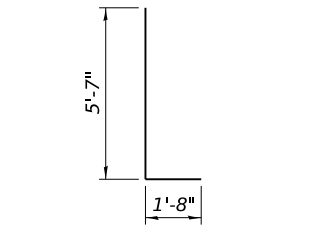
**DETAIL 1**



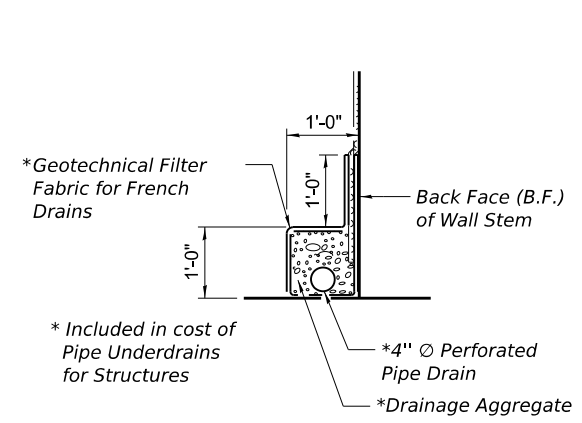
**DETAIL 2**



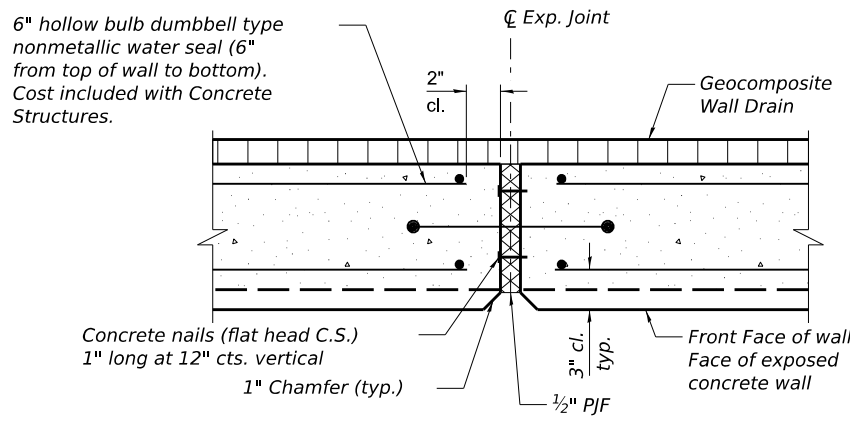
**BAR w3(E)**



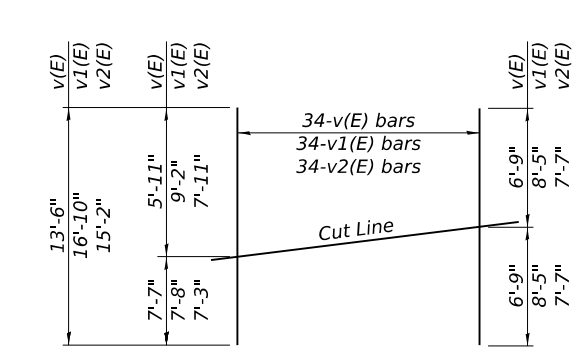
**BARS n(E) AND n1(E)**



**DETAIL 3**

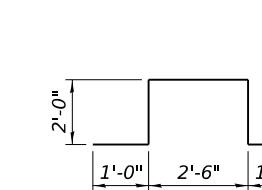


**EXPANSION JOINT DETAIL**

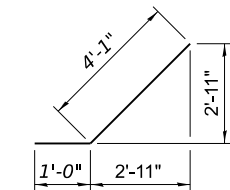


**FIELD CUTTING DIAGRAM**

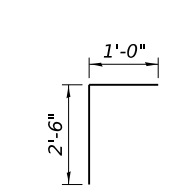
Order v(E), v1(E), and v2(E) bars full length. Cut as shown and use remainder of bars in adjacent wall panel.



**BAR w4(E)**



**BAR w5(E)**



**BAR w6(E)**

- Notes:
- Contractor shall verify existing pipe location and invert elevation.
  - 2" High Strength EPS Pad should comply with requirements of ASTM C 578-04 Type II. Cost included with Concrete Structures.
  - For location of Section A-A see sheet SE-1 of SE-4.

FILE NAME = ...\\w11co-sh-t002-RetWall1G.dgn  
PLOT TIME = 4:01:44 PM  
PLOT DATE = 2/14/2024

DESIGNED - CS  
DRAWN - CS  
CHECKED - TG  
DATE - 02/14/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -



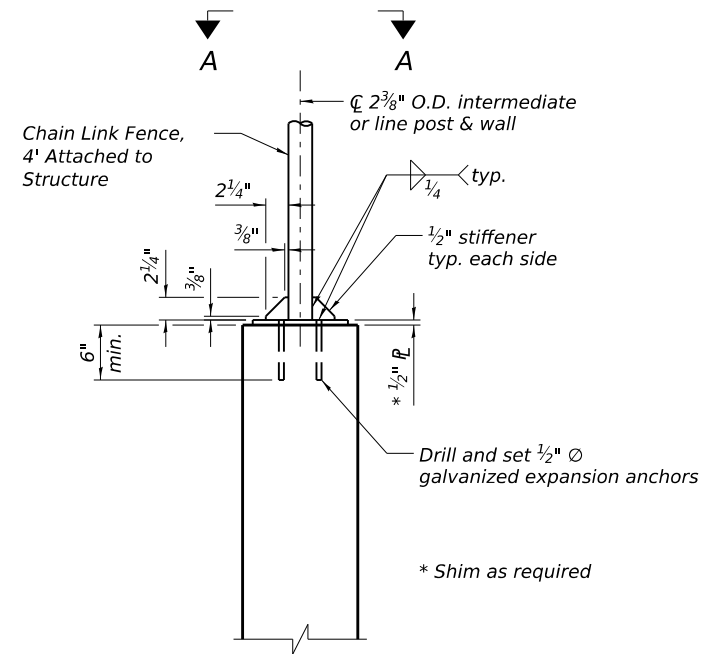
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**RETAINING WALL E - DETAILS**

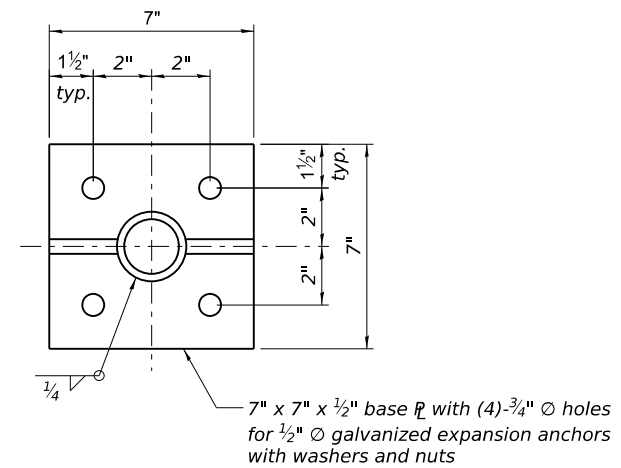
SCALE: N.T.S. SHEET SE-2 OF 4 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	268
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	





**CHAIN LINK FENCE  
ATTACHED TO STRUCTURE**



**SECTION A-A**

**BILL OF MATERIAL**

Item	Unit	Quantity
Chain Link Fence, 4' Attached to Structure	Foot	300

FILE NAME =	DESIGNED - CS	REVISED -
...\\w11co-sh-t003-RetWallG.dgn	DRAWN - CS	REVISED -
PLOT TIME = 4:01:44 PM	CHECKED - TG	REVISED -
PLOT DATE = 2/14/2024	DATE - 02/14/2024	REVISED -

**STEPSTEIN**

800 W FULTON ST. TEL: 312-454-9100  
CHICAGO, ILLINOIS FAX: 312-559-1217  
60615-1259 WEB: www.stepstein.com

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**RETAINING WALL E - FENCE DETAILS**

SCALE: N.T.S. SHEET SE-3 OF 4 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	269
CONTRACT NO. 61D34			ILLINOIS FED. AID PROJECT	



# SOIL BORING LOG

Date 3/29/12

ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION 143rd Street, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.62896389, Longitude 87.94046111  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO.	Station	DEPTH	BLOW	UCS	MOST	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
NA	NA	(ft)	(/6")	(tsf)	(%)	NA	NA	None	None	None	NA	NA
3 inches TOPSOIL with surface vegetation 729.65												
Dark Brown to Brown, Moist FILL: Silty Clay, trace sand, A-6												
725.98												
Very Stiff to Hard Brown, Moist CLAY LOAM, A-6												
719.98												
End of Boring												
-20												

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



# SOIL BORING LOG

Date 3/30/12




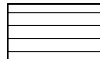




ROUTE 0356 DESCRIPTION Bell Road and 143rd Street Improvements, Homer Glen, Illinois LOGGED BY KSC  
 SECTION 12-00147-11-CH LOCATION 143rd Street, SEC. 11, TWP. 36N, RNG. 11E, Latitude 41.62889722, Longitude 87.93787778  
 COUNTY Will DRILLING METHOD HSA HAMMER TYPE AUTO

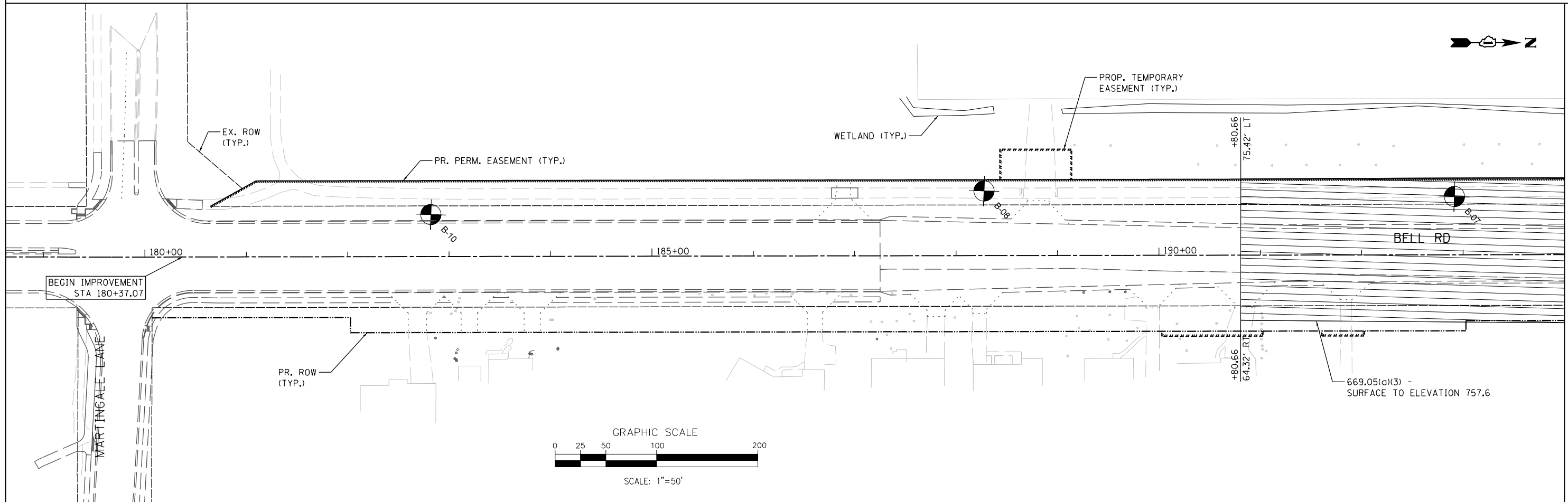
STRUCT. NO.	Station	DEPTH	BLOW	UCS	MOST	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
NA	NA	(ft)	(/6")	(tsf)	(%)	NA	NA	None	None	None	NA	NA
Dark Gray, Moist FILL: Crushed Aggregate, trace clay 736.14												
Dark Brown, Moist FILL: Clay Loam, trace gravel, A-6 735.14												
Hard Brown, Moist CLAY LOAM, A-6 1 ft - 3 ft : LL-30, PL-16, PI-14												
728.64												
Very Stiff Gray, Moist SILTY CLAY 727.14												
End of Boring												
-20												

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)


BBS, form 137 (Rev. 8-99)

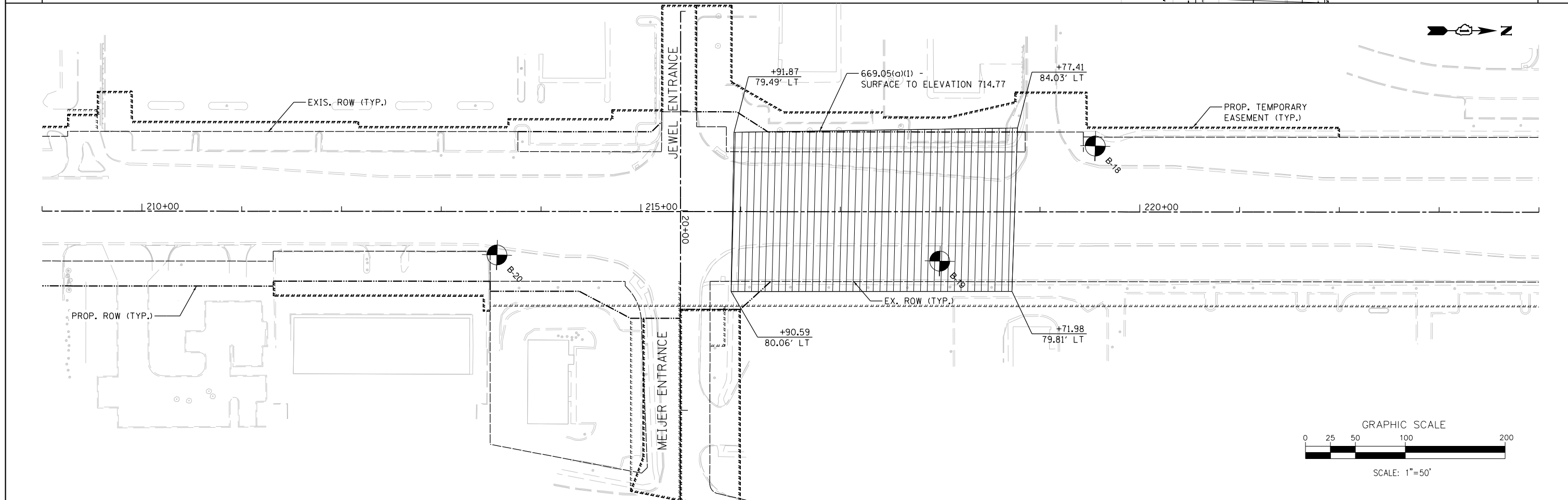
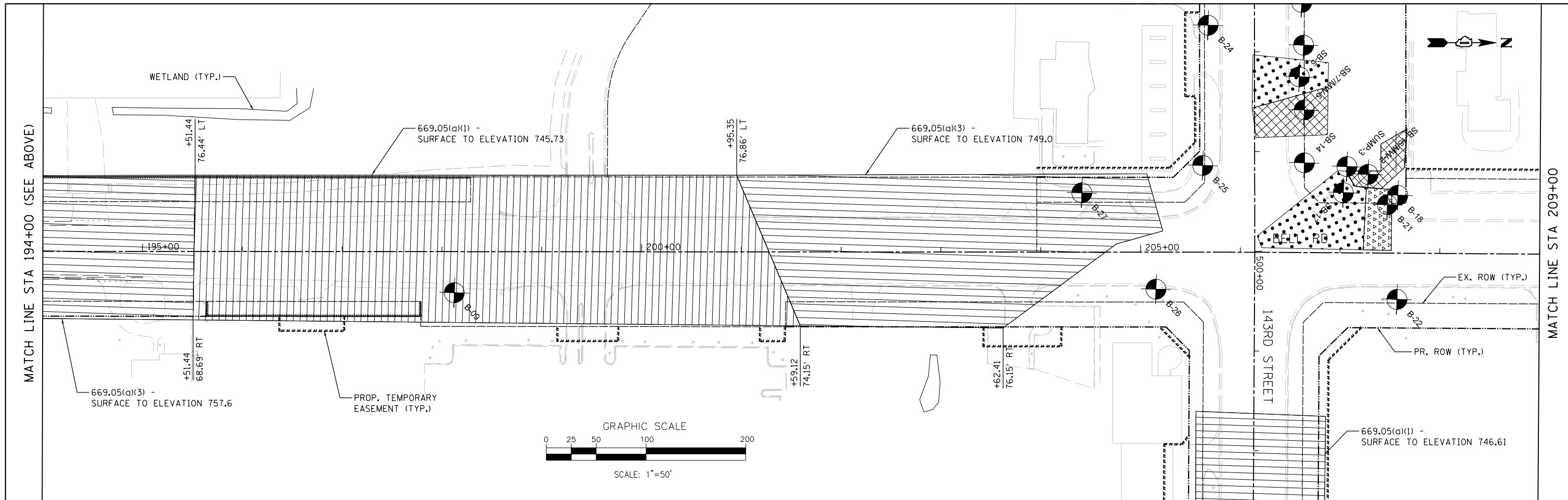
**LEGEND:**

-  SOIL BORING
-  CONSTRUCTION WORKER EXCEEDANCES
-  ARTICLE 669.05(a)(1): DISPOSE OF AT A SUBTITLE D LANDFILL. REUSE ON SITE, IF SUITABLE.
-  ARTICLE 669.05(a)(3): DISPOSE OF AT A CCDD FACILITY. REUSE ON SITE, IF SUITABLE.
-  ARTICLE 669.05(a)(4): DISPOSE OF AT A SUBTITLE D LANDFILL OR AN MSA COUNTY CCDD FACILITY OUTSIDE THE CITY OF CHICAGO. REUSE ON SITE, IF SUITABLE.
-  ARTICLE 669.05(a)(5): DISPOSE OF AT A SUBTITLE D LANDFILL.
-  ARTICLE 669.05(b)(1): DISPOSE OF AT A SUBTITLE D LANDFILL. REUSE ON SITE, IF SUITABLE.
-  ARTICLE 669.05(b)(2): DISPOSE OF AT A SUBTITLE D LANDFILL.



MATCH LINE STA 194+00 (SEE BELOW)

FILE NAME = ...\\Soils\\W11Co-sht001-Soils.dgn	DESIGNED - DR	REVISED -	 600 W FULTON ST CHICAGO, ILLINOIS 60661-1259 TEL 312 456 9100 FAX 312 559 1217 WEB www.sepstein.com	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>SOILS CLASSIFICATION PLAN</b>	F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 271	
PLOT TIME = 4:01:47 PM	CHECKED - JK	REVISED -		SCALE: 1" = 50'	SHEET 1 OF 4 SHEETS	STA. TO STA.	CONTRACT NO. 61D34				
PLOT DATE = 2/14/2024	DATE - 02/14/2024	REVISED -		ILLINOIS FED. AID PROJECT							



FILE NAME =  
 ...\\Soils\W11Co-sht002-Soils.dgn  
 PLOT TIME = 4:01:47 PM  
 PLOT DATE = 2/14/2024

DESIGNED - DR  
 DRAWN - DR  
 CHECKED - JK  
 DATE - 02/14/2024

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**SEPSTEIN**  
 600 W FULTON ST  
 CHICAGO, ILLINOIS  
 60661-1259

TEL 312 456 9100  
 FAX 312 559 1217  
 WEB www.sepstein.com

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

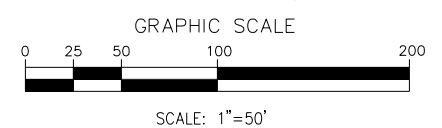
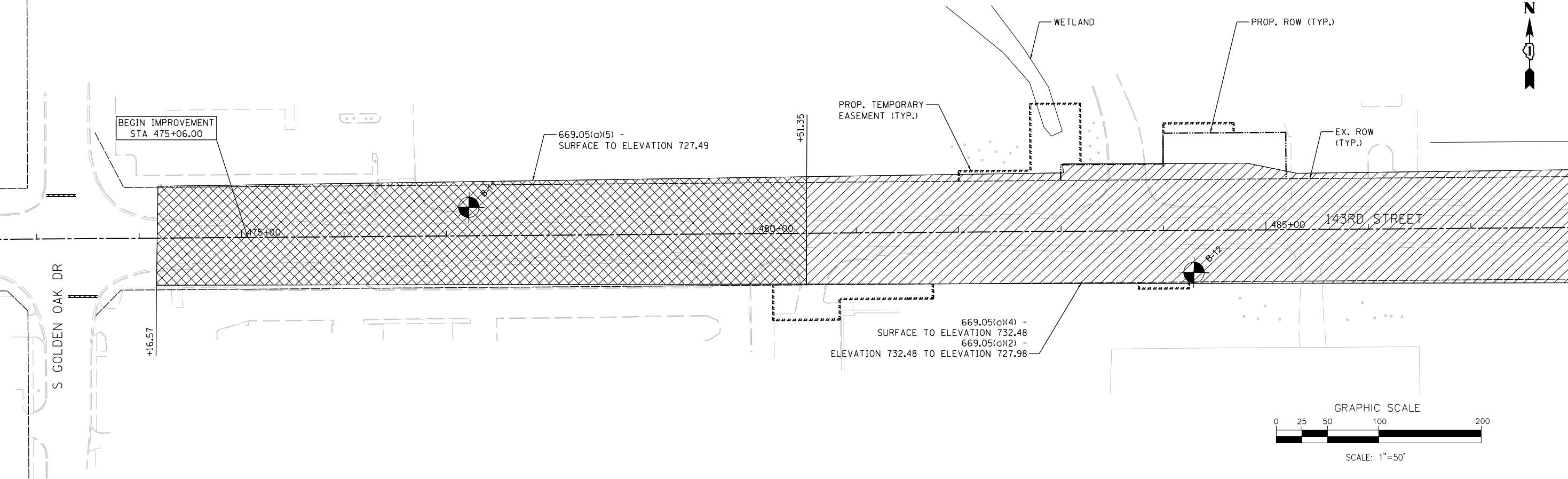
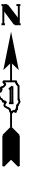
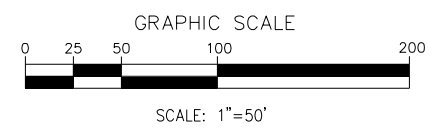
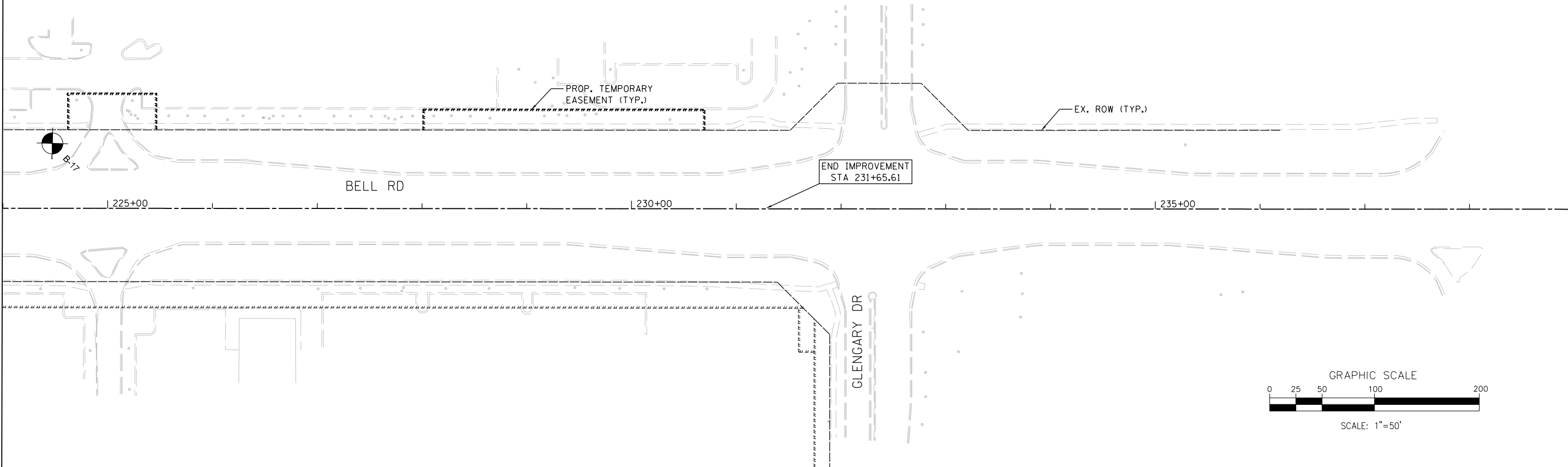
**SOILS CLASSIFICATION PLAN**

SCALE: 1" = 50'    SHEET 2 OF 4 SHEETS    STA.    TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	272
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

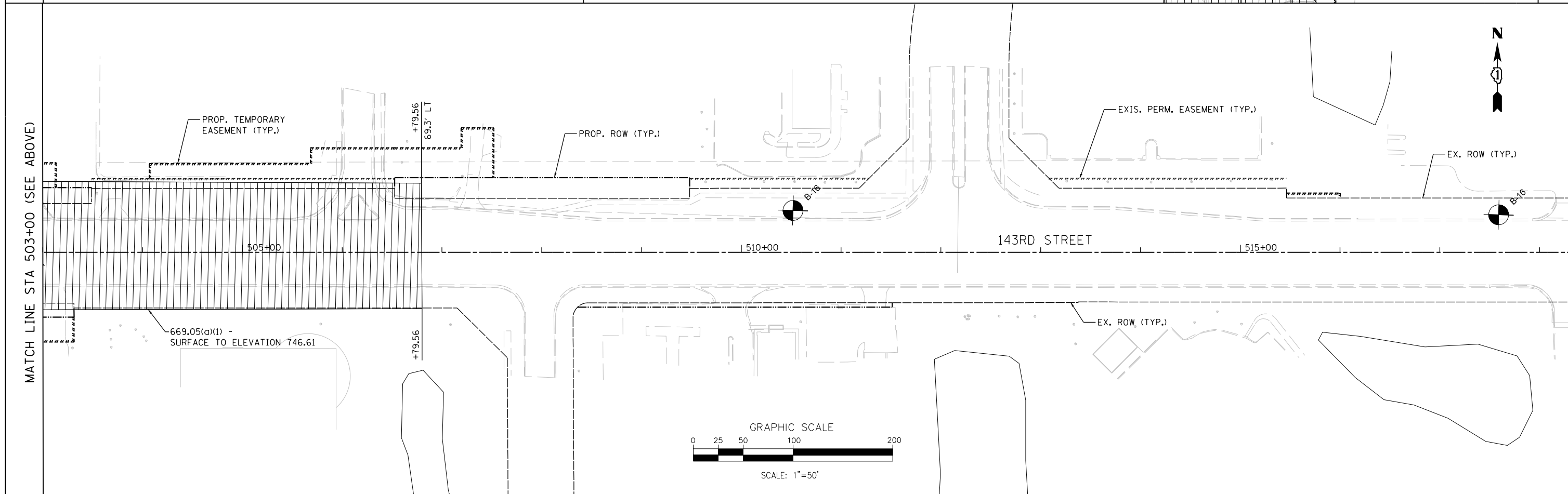
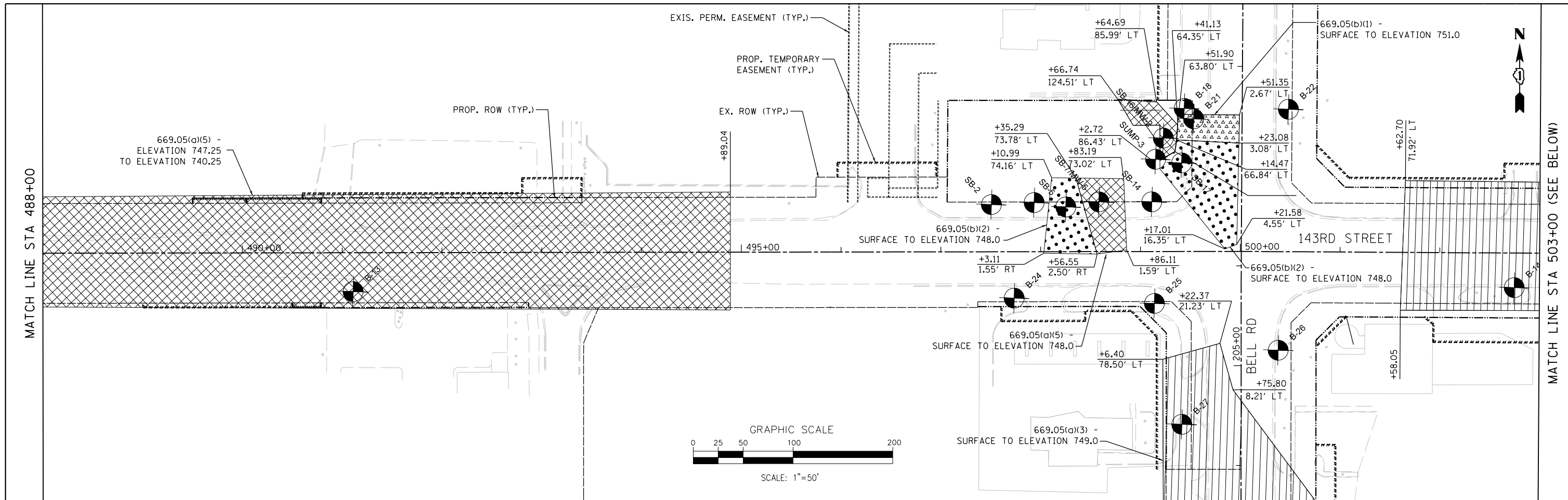


MATCH LINE STA 224+00

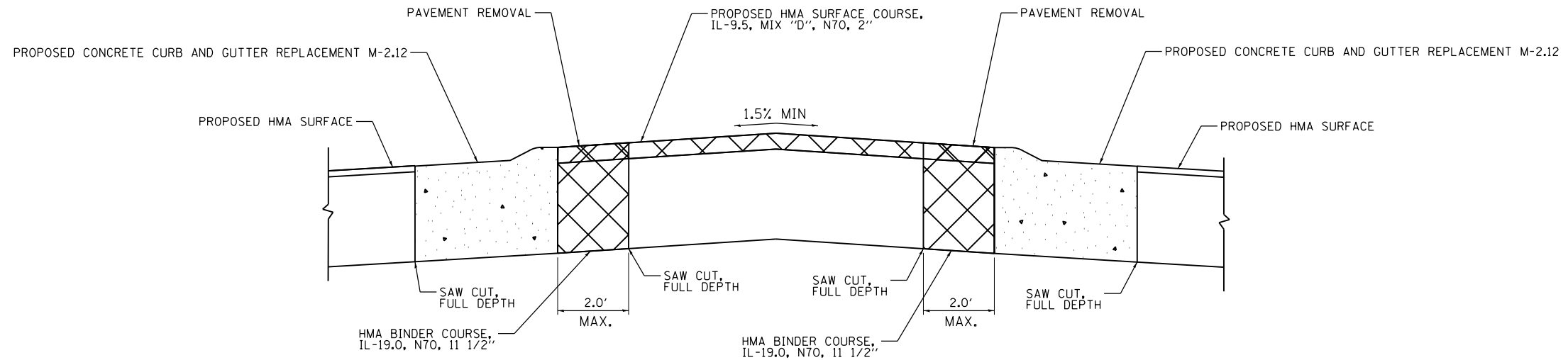


MATCH LINE STA 488+00

FILE NAME = ...\\Soils\\W11Co-shs003-Soils.dgn	DESIGNED - DR	REVISED -		<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>SOILS CLASSIFICATION PLAN</b>			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = 2/14/2024	CHECKED - JK	REVISED -			SCALE: 1" = 50'    SHEET 3 OF 4 SHEETS    STA. 178+62.55 TO STA. 209+00.00					CONTRACT NO. 61D34 ILLINOIS FED. AID PROJECT		
DATE - 02/14/2024	DATE -	REVISED -										

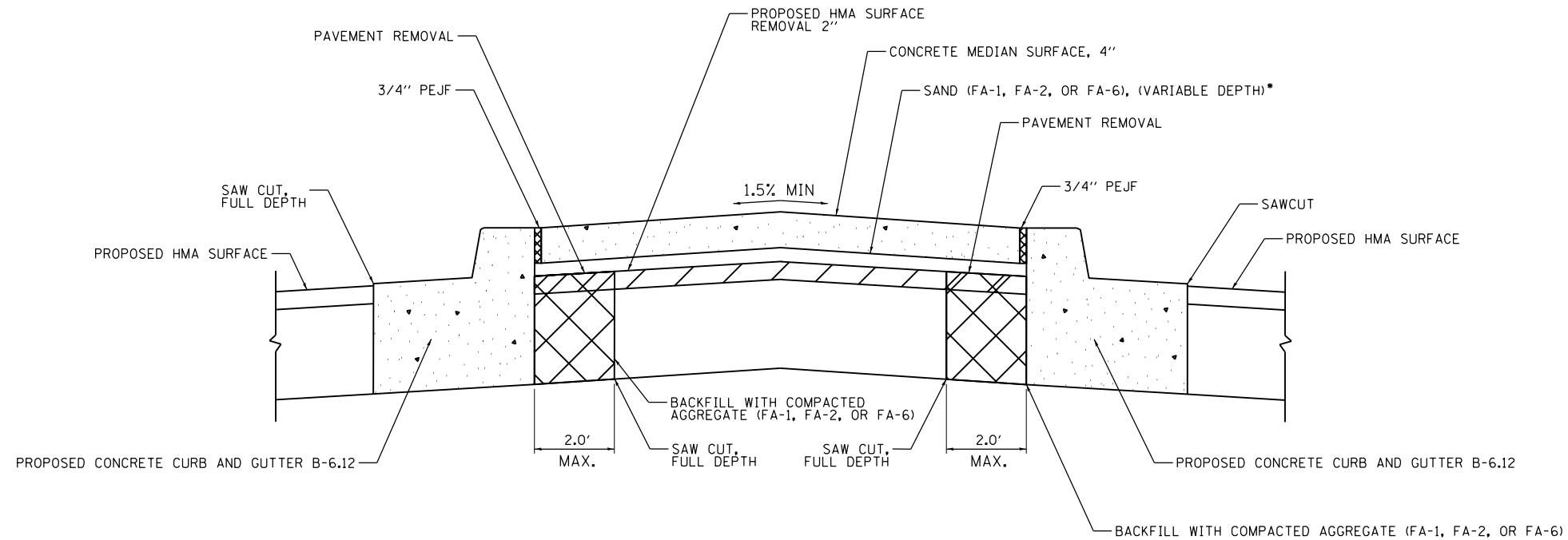


FILE NAME = ...\\Soils\\W11Co-sht004-Soils.dgn	DESIGNED - DR	REVISED -	 600 W FULTON ST CHICAGO, ILLINOIS 60661-1259 TEL 312 456 9100 FAX 312 559 1217 WEB www.sepstein.com	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>		<b>SOILS CLASSIFICATION PLAN</b>		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = 2/14/2024	DATE - 02/14/2024	REVISED -						CONTRACT NO. 61D34				
SCALE: 1" = 50'								SHEET 4 OF 4 SHEETS		STA. 473+00.00 TO STA. 503+00.00		
ILLINOIS FED. AID PROJECT												



**HOT-MIX ASPHALT MEDIAN**

STA 507+12.42 TO 509+90.00



**CONCRETE MEDIAN (SPECIAL)**

STA 220+59.86 TO 228+03.13  
STA 504+51.23 TO 507+12.42

**NOTES**

- SAND IS TO BE INCLUDED IN THE CONTRACT UNIT PRICE PER SQUARE YARD FOR CONCRETE MEDIAN (SPECIAL)
- CONCRETE CURB AND GUTTER IS NOT INCLUDED IN THE COST OF THE CONCRETE MEDIAN (SPECIAL) PAY ITEM

FILE NAME =  
...\\WillCo-MedianDetail.dgn  
PLOT TIME = 4:01:49 PM  
PLOT DATE = 2/14/2024

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CHECKED - JRK  
DATE - 02/14/2024

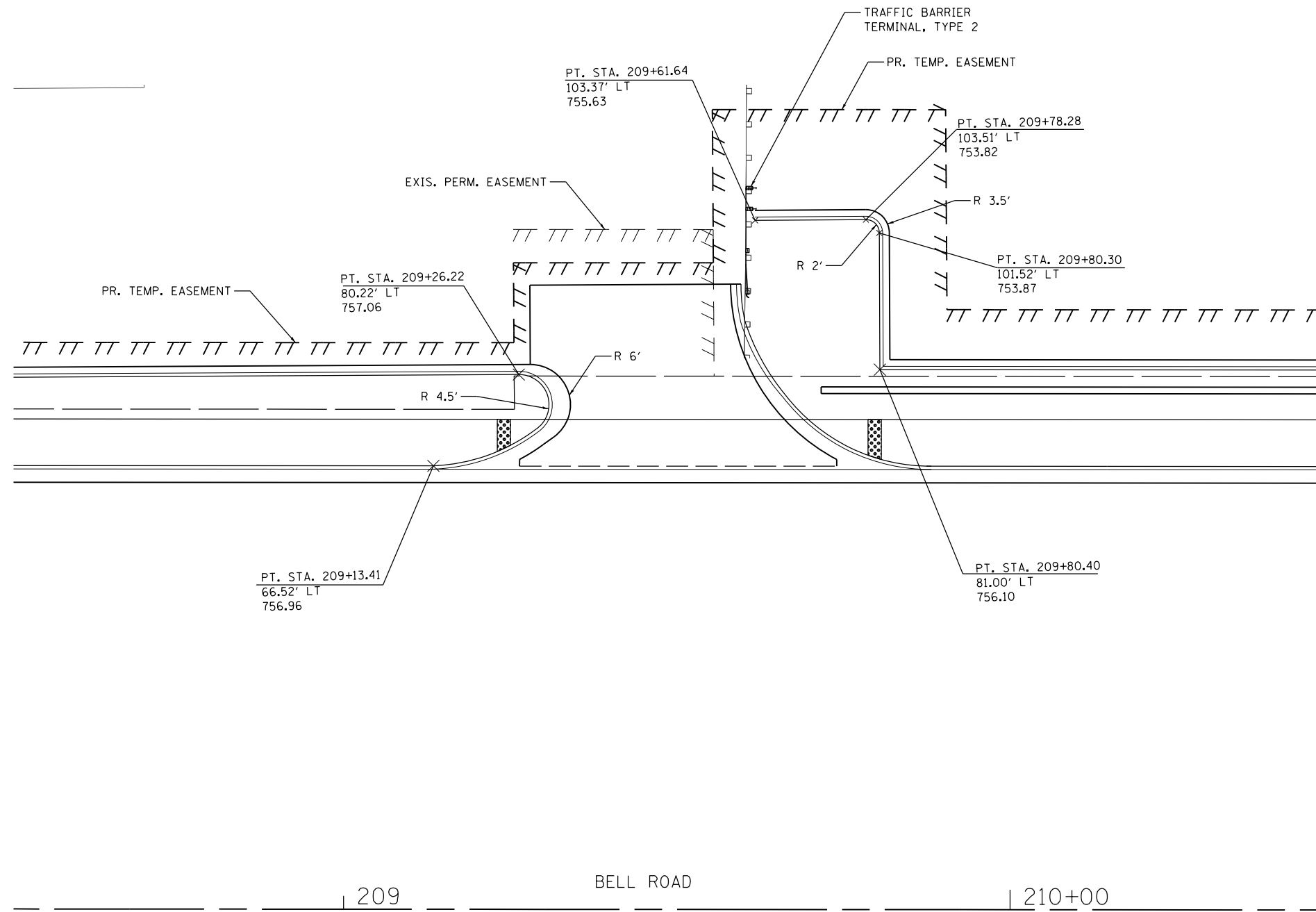
REVISED -  
REVISED -  
REVISED -  
REVISED -



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**HOT-MIX ASPHALT MEDIAN AND  
CONCRETE MEDIAN (SPECIAL) DETAILS**  
SCALE: N.T.S. SHEET 1 OF 1 SHEETS STA. N/A TO STA. N/A

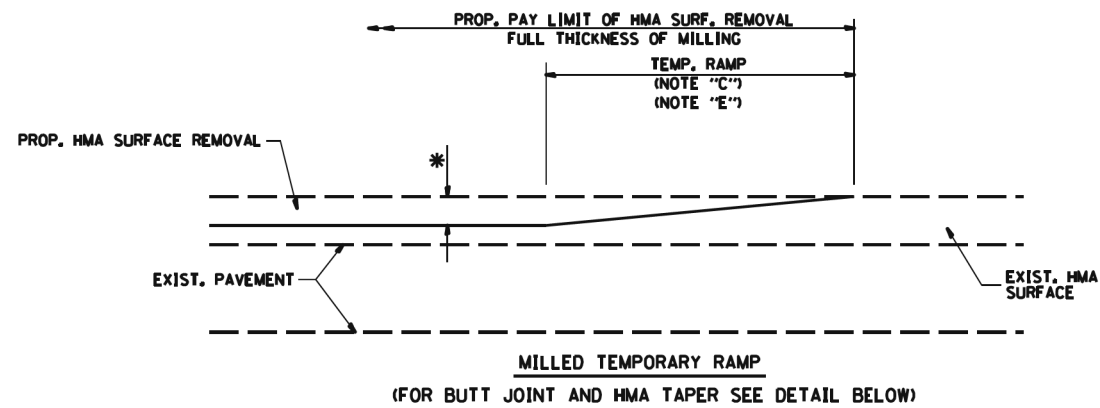
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	275
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				



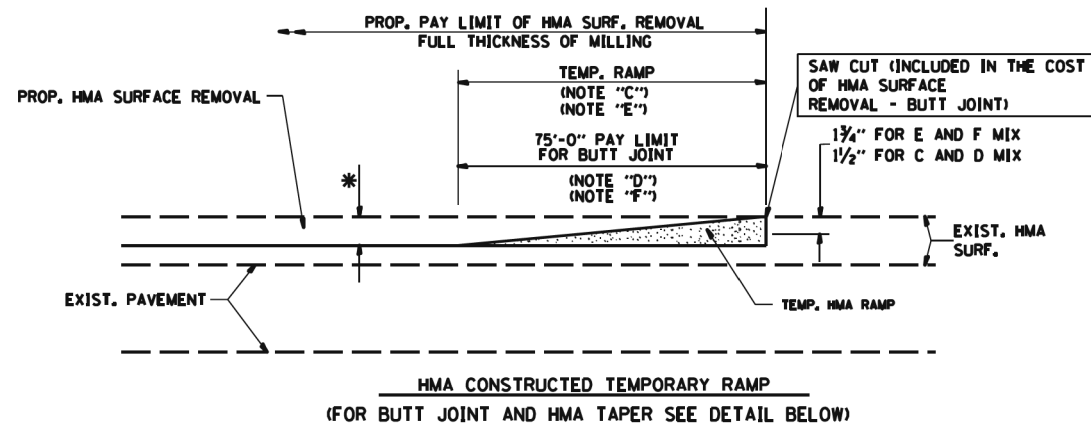
**DRIVEWAY AT STA 209 + 43.70 ON BELL ROAD**

FILE NAME = ...\\willco-sh03- BellRd-curb detail.dgn PLOT TIME = 4:01:50 PM PLOT DATE = 2/14/2024	DESIGNED -	REVISED -	 800 W FULTON ST CHICAGO, ILLINOIS 60611-1259 TEL: 312-454-9100 FAX: 312-559-1217 WEB: www.stepstein.com	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>		<b>SOUTH ENTRANCE TO HOMER TOWN SQUARE DETAIL</b>		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN -	REVISED -						0356	12-00147-11-CH	WILL	356	276
	CHECKED -	REVISED -						CONTRACT NO. 61D34				
	DATE - 02/14/2024	REVISED -				SCALE:	SHEET OF SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT			



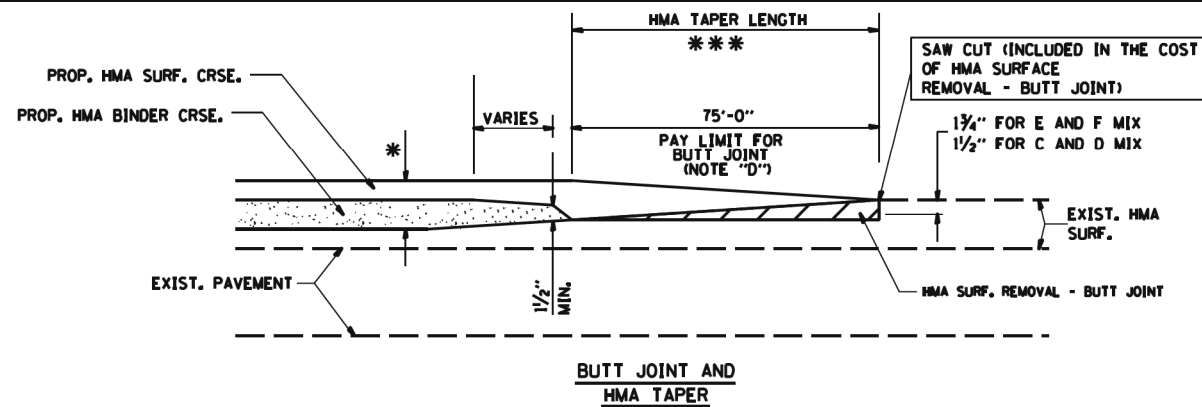


**OPTION 1**

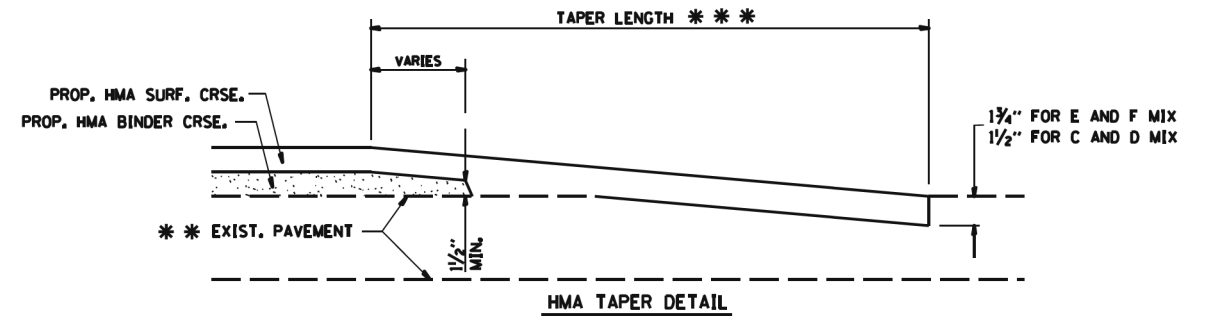
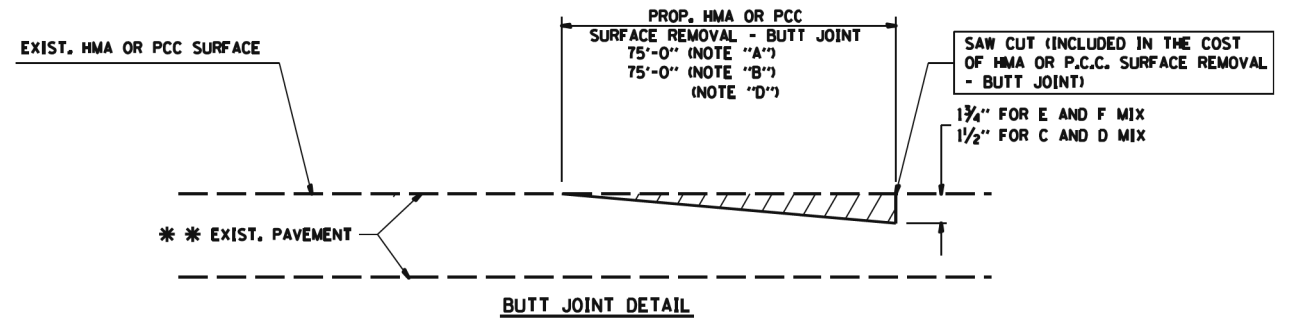


**OPTION 2**

**TYPICAL TEMPORARY RAMP**



**TYPICAL BUTT JOINT AND HMA TAPER FOR MILLING AND RESURFACING**



**TYPICAL BUTT JOINT AND HMA TAPER FOR RESURFACING ONLY**

\*\*\* PC CONCRETE, HMA OR HMA RESURFACED PAVEMENT.

**NOTES**

- A<sub>1</sub> MAINLINE ROADWAYS AND MAJOR SIDE ROADS.
  - B<sub>1</sub> MINOR SIDE ROADS.
  - C<sub>1</sub> THE TEMP. RAMP SHALL BE CONSTRUCTED IMMEDIATELY UPON REMOVAL OF THE EXISTING HMA SURFACE.
  - D<sub>1</sub> THE BUTT JOINT SHALL BE CONSTRUCTED IMMEDIATELY PRIOR TO PLACING THE PROPOSED HMA COURSES.
  - E<sub>1</sub> TAPER THE TEMP. RAMP AT A RATE OF 50'-0" PER 1 INCH OF MILLING THICKNESS.
  - F<sub>1</sub> INSTALLATION AND REMOVAL OF THE 30'-0" TEMP. RAMP IS INCLUDED IN COST OF HMA SURFACE REMOVAL - BUTT JOINT
  - G<sub>1</sub> SEE ARTICLE 406.08 AND 406.14 OF THE STANDARD SPECIFICATIONS FOR "HMA AND/OR PCC SURFACE REMOVAL, BUTT JOINT".
- \* SEE TYPICAL SECTIONS FOR MILLING THICKNESS.
- \*\*\* 50'-0" PER 1" RESURFACING (NOTE "A")  
50'-0" PER 1" RESURFACING (NOTE "B")

**BASIS OF PAYMENT:**

THE BUTT JOINT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD (SQUARE METER) FOR "HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT" OR FOR "PORTLAND CEMENT CONCRETE SURFACE REMOVAL - BUTT JOINT".

WC-00406



WILL COUNTY  
DIVISION OF TRANSPORTATION

**BUTT JOINT AND HMA TAPER DETAIL**

DATE	REVISIONS
6/22/2015	STANDARD CREATED

FILE NAME = ...\\willco-wc\DOT\_Detail\01.dgn  
PLOT TIME = 4:01:50 PM  
PLOT DATE = 2/14/2024

DESIGNED -	REVISED -
DRAWN -	REVISED -
CHECKED -	REVISED -
DATE - 1/2024	REVISED -



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SCALE: NONE SHEET 1 OF 1 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 277
				CONTRACT NO. 61D34
ILLINOIS FED. AID PROJECT				

NOTES: ALL PAINTED CURB SHALL BE POLYUREA AND WILL BE PAID PER SQ. FT. AS POLYUREA PAVEMENT MARKING. LETTERS AND SYMBOLS ALL MARKINGS ARE TO BE YELLOW UNLESS OTHERWISE NOTED.

SEE DETAIL A

COMBINATION CURB AND GUTTER

SEE DETAIL A

SEE DETAIL B

DRIVEWAY/  
SIDE STREET

P

COMBINATION CURB AND GUTTER

SEE DETAIL A

IF JOINT EXISTS. PAINT CORNER

COMBINATION CURB AND GUTTER

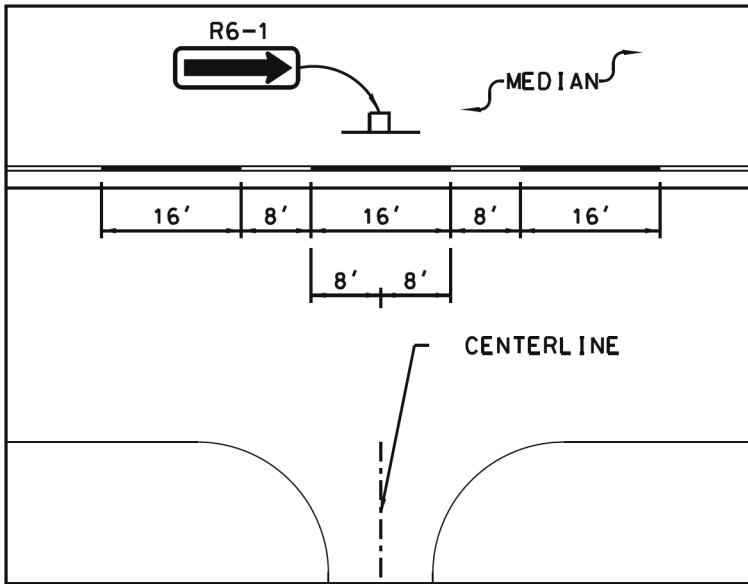
PAINT AROUND ENTIRE ISLAND - SKIP ANY DEPRESSED CURB

ALL PAINT ON TRAFFIC ISLAND TO BE WHITE

TYPICAL PAVEMENT MARKINGS AT ISLAND

SEE DETAIL A

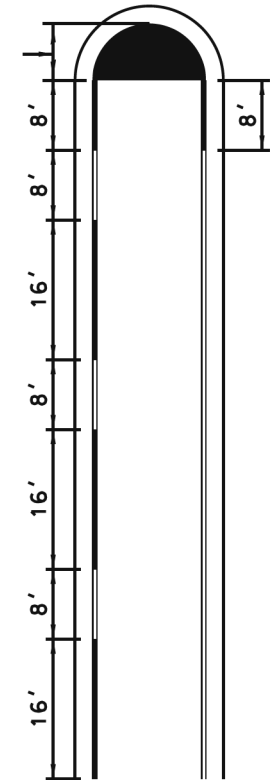
DETAIL B



SKIPS AT DRIVEWAYS OR SIDE STREETS

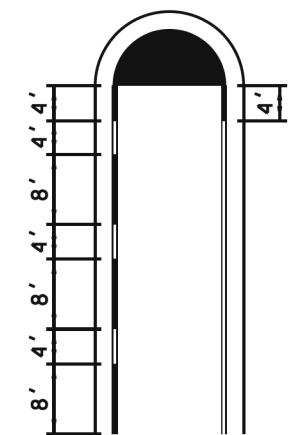
DETAIL A\*

NOSE OR 10' (WHICHEVER IS GREATER)



TYPICAL PAVEMENT MARKINGS AT RAISED MEDIAN NOSE

\* IF 16 FOOT MARKINGS WITH 8 FOOT SKIPS DO NOT FIT. PAINT 8 FOOT MARKINGS WITH 4 FOOT SKIPS



SHEET 1 OF 2

WC-00800



WILL COUNTY  
DIVISION OF TRANSPORTATION

MEDIAN CURB AND ISLAND  
PAVEMENT MARKINGS

DATE	REVISIONS
2/17/2015	ADDED CURB AND GUTTER
12/5/2014	STANDARD CREATED

FILE NAME =  
...\\willco-wc\DOT\_Detail\02.dgn  
PLOT TIME = 4:01:54 PM  
PLOT DATE = 2/14/2024

DESIGNED -  
DRAWN -  
CHECKED -  
DATE - 1/2024

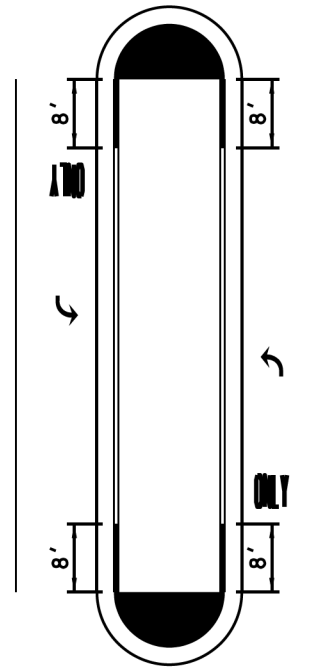
REVISED -  
REVISED -  
REVISED -  
REVISED -

**SEPSTEIN**  
800 W FULTON ST  
CHICAGO, ILLINOIS  
60611-1259  
TEL 312 456 9100  
FAX 312 559 1217  
WEB www.sepstein.com

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

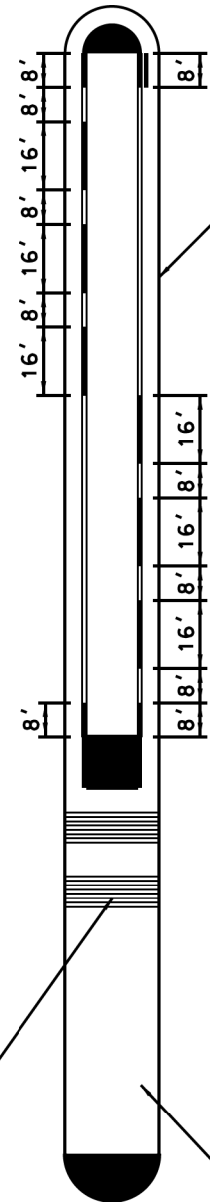
SCALE: NONE SHEET 1 OF 2 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	278
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				



**TYPICAL PAVEMENT MARKINGS  
AT MEDIAN NOSE  
WITH TURN BAYS**

NOTE: NO 16' SKIPS IN TURN BAYS  
(UNLESS FOR ONE WAY SIGNS)



CORRUGATED MEDIAN

MOUNTABLE SECTION

COMBINATION CURB  
AND GUTTER

EXTEND 6" WHITE EDGE LINE ACROSS ENTRANCE

12" WIDE DIAGONALS SPACED 10' C-C  
(OMIT IF THERE IS LESS THAN 4' FROM  
MEDIAN TO EDGE LINE)

8" WIDE WHITE LINE

WHITE

**TYPICAL PAVEMENT MARKING  
AT RIGHT-IN RIGHT-OUT  
MEDIAN**

COMBINATION CURB  
AND GUTTER

END OF CURB

GRASS

10'

**TYPICAL PAVEMENT MARKING  
AT CURB ENDS**

SHEET 2 OF 2

WC-00800



WILL COUNTY  
DIVISION OF TRANSPORTATION

**MEDIAN CURB AND ISLAND  
PAVEMENT MARKINGS**

DATE	REVISIONS
12/13/2023	ADD PAVEMENT MARKINGS TO RIRO
8/22/2022	REMOVED REF. TO RAISED MEDIAN
2/17/2015	ADDED CURB AND GUTTER

FILE NAME =  
...\\WillCo-WCDDOT\_Detail\03.dgn  
PLOT TIME = 4:01:57 PM  
PLOT DATE = 2/14/2024

DESIGNED -  
DRAWN -  
CHECKED -  
DATE - 1/2024

REVISED -  
REVISED -  
REVISED -  
REVISED -

**SEPSTEIN**  
800 W FULTON ST  
CHICAGO, ILLINOIS  
60611-1259  
TEL: 312-454-9100  
FAX: 312-559-1217  
WEB: www.sepstein.com

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SCALE: NONE SHEET 2 OF 2 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	279
CONTRACT NO. 61D34				
ILLINOIS FED. AID PROJECT				

FOR  
REFERENCE  
ONLY

ENGINEER INFORMATION:

Epstein  
600 W Fulton St  
Chicago, IL 60661  
312-454-9100

PROJECT INFORMATION:

Bell Road &  
143rd St -  
Vault 1  
Homer Glen, IL

CURRENT ISSUE DATE:

01/12/2024

ISSUED FOR:

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REV.	DATE:	ISSUED FOR:	DWN BY:
△	01/12/2023	PRELIMINARY	EB
1	05/22/2023	PRELIMINARY	EB

SCALE:

NTS

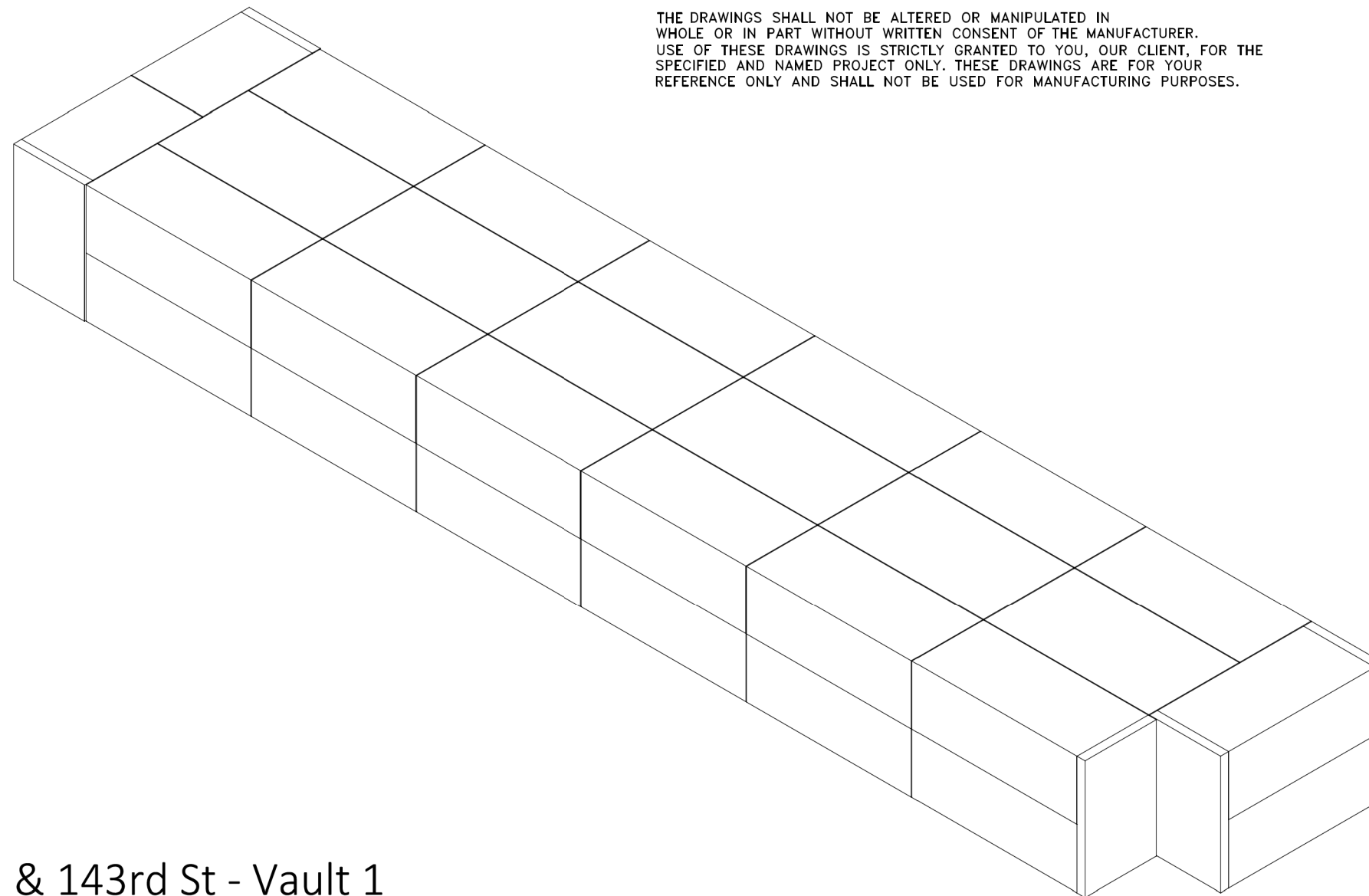
SHEET TITLE:

COVER SHEET

SHEET NUMBER:

0.0

THE DRAWINGS SHALL NOT BE ALTERED OR MANIPULATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE MANUFACTURER. USE OF THESE DRAWINGS IS STRICTLY GRANTED TO YOU, OUR CLIENT, FOR THE SPECIFIED AND NAMED PROJECT ONLY. THESE DRAWINGS ARE FOR YOUR REFERENCE ONLY AND SHALL NOT BE USED FOR MANUFACTURING PURPOSES.



Bell Road & 143rd St - Vault 1  
Homer Glen, IL

**STRUCTURAL DESIGN LOADING CRITERIA**

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING  
 GROUND WATER TABLE: BELOW INVERT OF SYSTEM  
 SOIL BEARING PRESSURE: 3000PSF  
 SOIL DENSITY: 120 PCF  
 EQUIVALENT UNSATURATED  
 LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.  
 EQUIVALENT SATURATED  
 LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)  
 APPLICABLE CODES: ASTM C857  
 ACI-318  
 BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

**SYSTEM INFORMATION**

UNIT HEADROOM: 10'-0" DOUBLETRAP  
 TOTAL STORAGE PROV: 20,219.27 CUBIC FEET

**SITE SPECIFIC DESIGN CRITERIA**

1. UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.50' MAX. 10.90' CONSULT MANUFACTURER FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT MANUFACTURER.

**FOR REFERENCE ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
 600 W Fulton St  
 Chicago, IL 60661  
 312-454-9100

**PROJECT INFORMATION:**

Bell Road &  
 143rd St -  
 Vault 1  
 Homer Glen, IL

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**SCALE:**

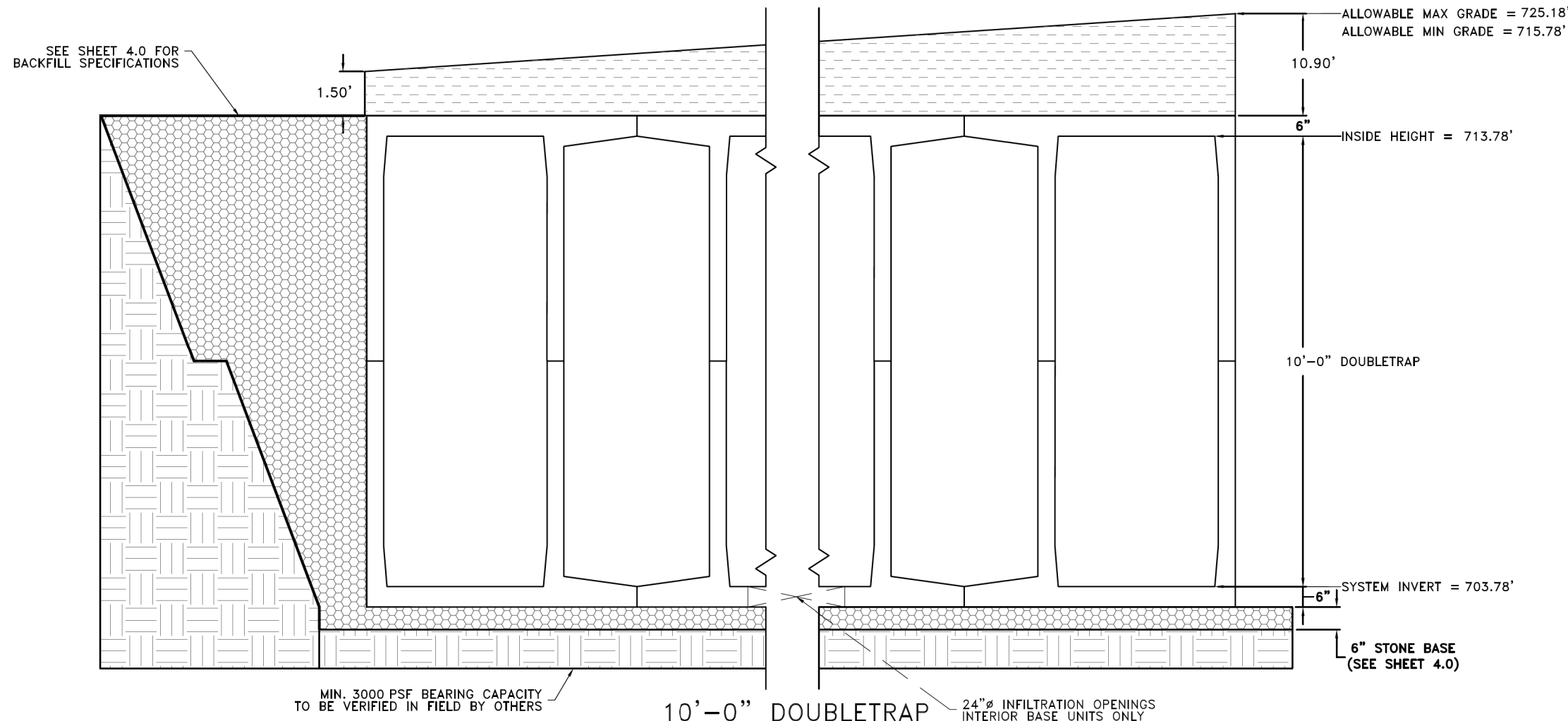
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**SHEET TITLE:**

DOUBLETRAP  
 DESIGN  
 CRITERIA

**SHEET NUMBER:**

**1.1**



FILE NAME =  
 ...\\wllco-UndergroundChamber-02.dgn  
 PLOT TIME = 4:02:09 PM  
 PLOT DATE = 2/14/2024

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DATE - 02/14/2024	REVISED -



**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

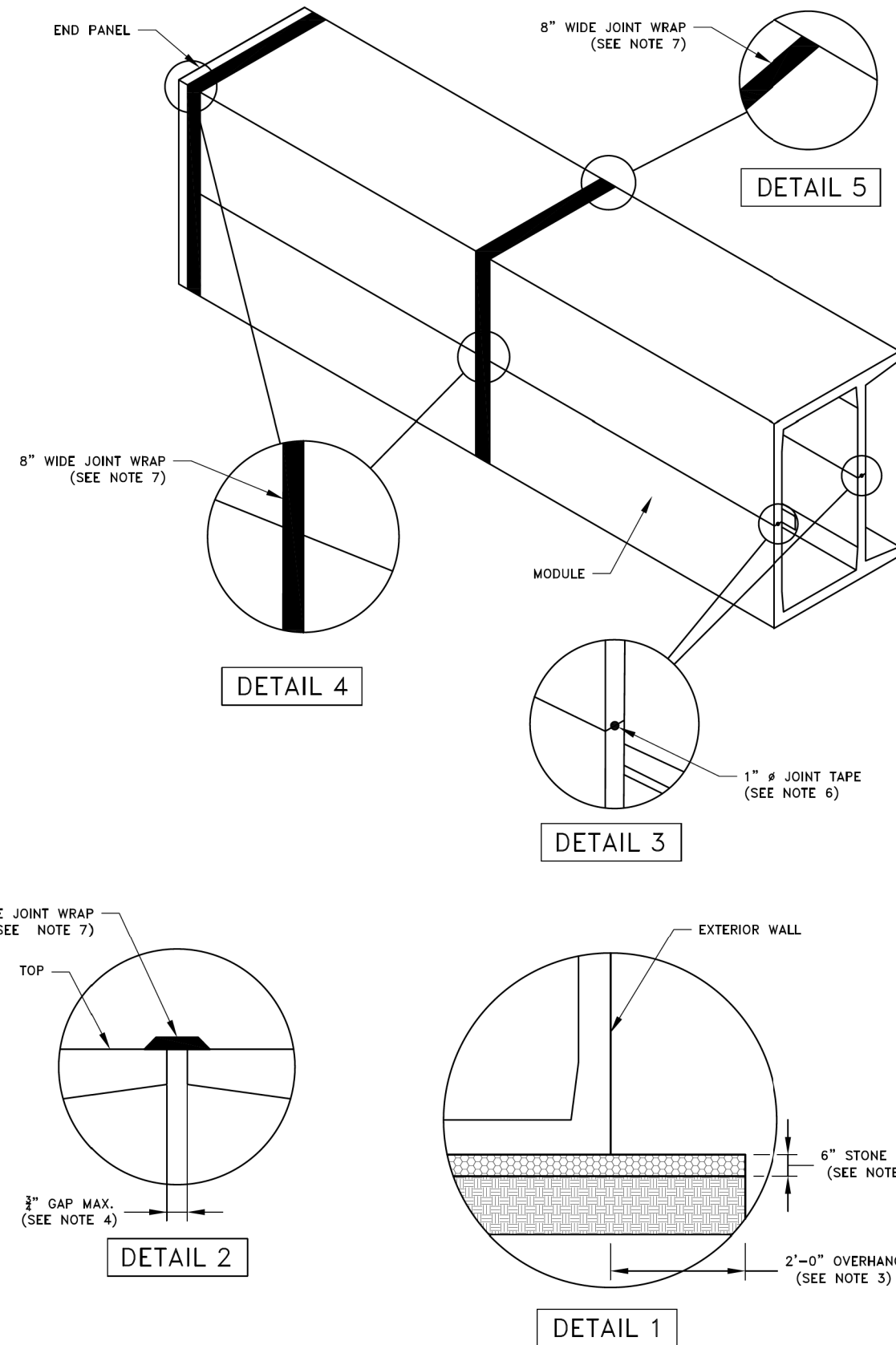
**UNDERGROUND CHAMBER  
 DETAILS**  
 SCALE: NTS SHEET 2 OF 17 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 281
				CONTRACT NO. 61D34
ILLINOIS FED. AID PROJECT				



**INSTALLATION SPECIFICATION**

1. SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 (STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES). THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS ARE PROVIDED FOR EMPHASIS. THE MENTION OF THESE ITEMS DOES NOT PRECLUDE THE INSTALLING CONTRACTOR FROM FOLLOWING ASTM C891 IN ITS ENTIRETY AND IMPLEMENTING ALL APPROPRIATE MEASURES. THE INSTALLING CONTRACTOR OWNS AND IS RESPONSIBLE FOR THE SYSTEM UPON REMOVAL OF THE MODULES FROM THE DELIVERY TRUCK THROUGH 'FINAL CONSTRUCTION'. FINAL CONSTRUCTION IS ACHIEVED WHEN ALL MODULES ARE SET, FULLY BACKFILLED, AND WHEN FINAL FINISHED GRADES ARE REACHED. THE CONTRACTOR IS RESPONSIBLE FOR ANY COUNTERMEASURES NECESSARY TO RESIST UPLIFT/BUOYANCY BEFORE 'FINAL CONSTRUCTION' IS ACHIEVED.
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. MODULES CAN BE PLACED ON A LEVEL, 6" FOUNDATION OF 3/4" AGGREGATE EXTENDING 2'-0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1) AND SHALL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.1 FOR SOIL BEARING CAPACITY REQUIREMENTS), AND IN ACCORDANCE WITH ASTM C891 STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES.
4. THE MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 1/2" (SEE DETAIL 2). IF THE SPACE EXCEEDS 1/2", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. THE MODULES ARE NOT WATERTIGHT. IF A WATERTIGHT SOLUTION IS REQUIRED, CONTACT MANUFACTURER FOR RECOMMENDATIONS. THE WATERTIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATERTIGHT SOLUTION PERFORMS AS SPECIFIED BY THE MANUFACTURER.
6. THE HORIZONTAL JOINT BETWEEN THE TOP AND BASE LEG CONNECTIONS OF ALL PERIMETER MODULES SHALL BE SEALED WITH PREFORMED MASTIC JOINT TAPE ACCORDING TO ASTM C891, 8.8 AND 8.12. (SEE DETAIL 3). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.
7. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN, HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY MANUFACTURER (SEE DETAILS 2, 4, & 5). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
  - 7.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.
  - 7.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
8. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
9. IF THE MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, THE MANUFACTURER MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT THE MANUFACTURER IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
10. THE MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM THE MANUFACTURER.



**FOR REFERENCE ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
 600 W Fulton St  
 Chicago, IL 60661  
 312-454-9100

**PROJECT INFORMATION:**

**Bell Road &  
 143rd St -  
 Vault 1**  
 Homer Glen, IL

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**SCALE:**

**NTS**

**SHEET TITLE:**

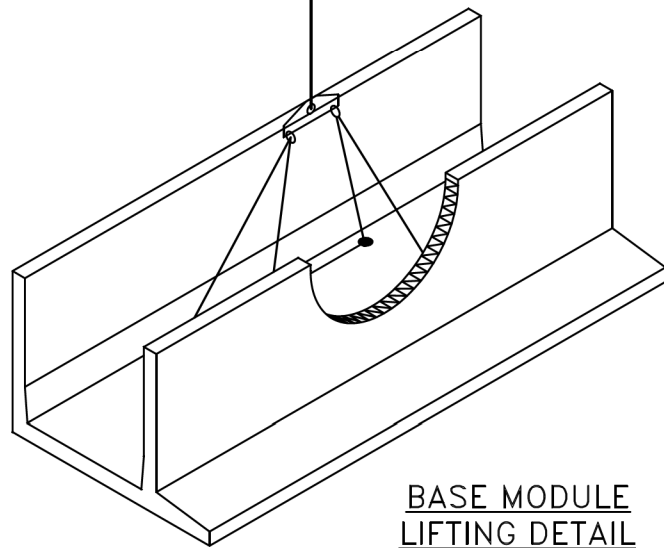
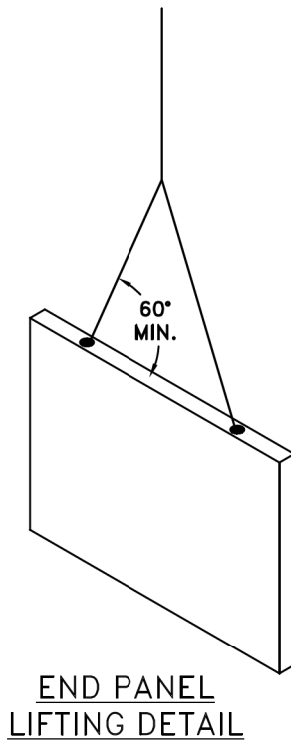
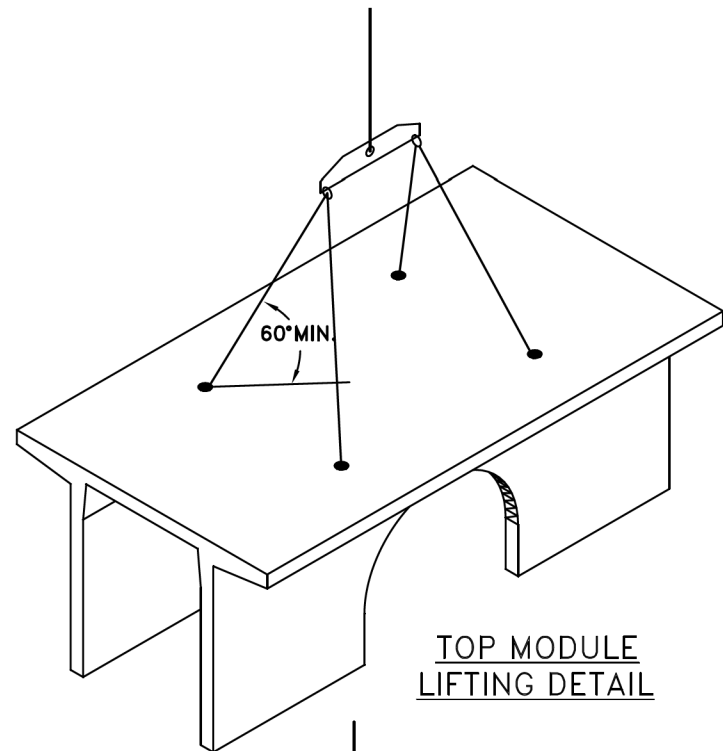
**DOUBLETRAP  
 INSTALLATION  
 SPECIFICATION**

**SHEET NUMBER:**

**3.0**

**MODULE LIFTING SPECIFICATION**

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE MODULE.
- MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT MODULES (SUPPLIED BY CONTRACTOR).
- CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF MODULE. SEE DETAIL.
- IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.

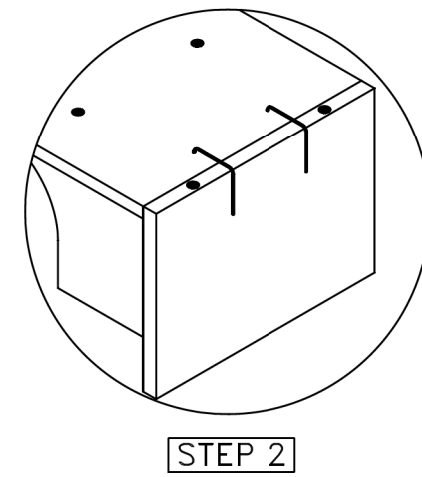
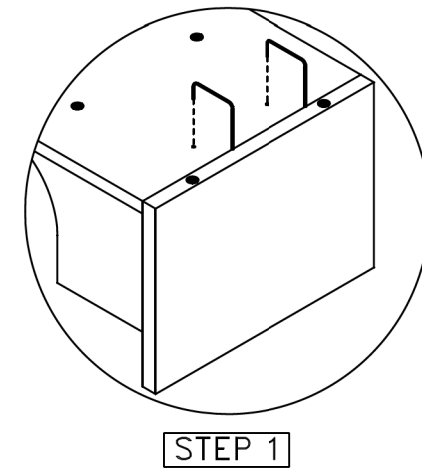
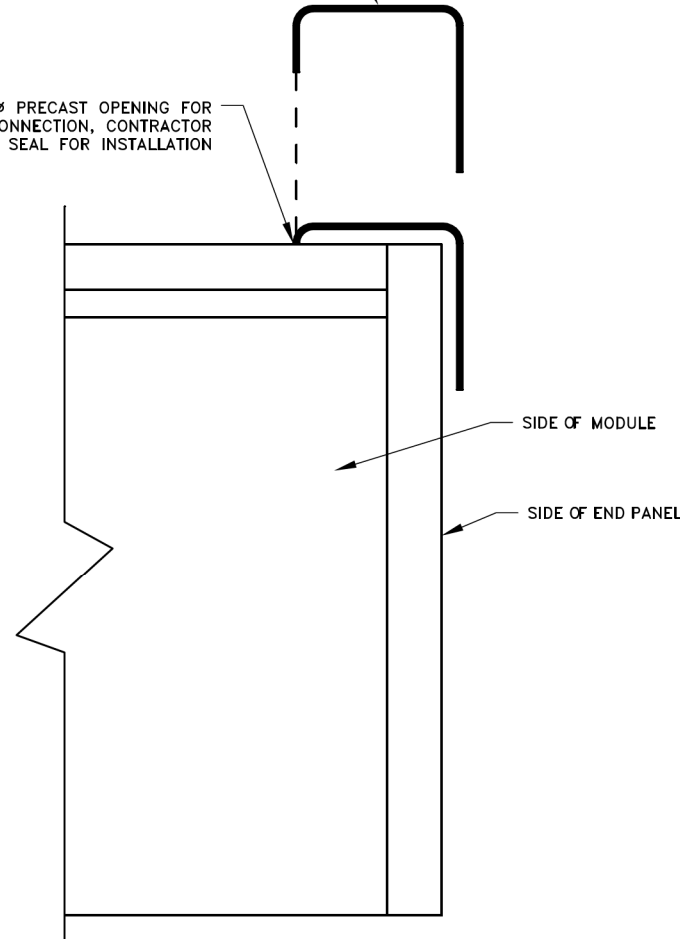


**END PANEL ERECTION/INSTALLATION SPECIFICATION**

- END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
- PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
- CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
- ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
- JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).

CONNECTION HOOKS PROVIDED BY MANUFACTURER AND INSTALLED BY CONTRACTOR (SEE DETAIL 6)

1" Ø PRECAST OPENING FOR HOOK CONNECTION, CONTRACTOR TO SEAL FOR INSTALLATION



**DETAIL 6**

**FOR  
REFERENCE  
ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
600 W Fulton St  
Chicago, IL 60661  
312-454-9100

**PROJECT INFORMATION:**

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143rd St -  
Vault 1  
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**SCALE:**

NTS

**SHEET TITLE:**

DOUBLETRAP  
INSTALLATION  
SPECIFICATION

**SHEET NUMBER:**

**3.1**

FILE NAME =  
...\\W11Co-UndergroundChamber-05.dgn  
PLOT TIME = 4:02:22 PM  
PLOT DATE = 2/14/2024

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DATE - 02/14/2024	REVISED - -

**EPSTEIN**  
600 W FULTON ST  
CHICAGO, ILLINOIS  
60661-1259  
TEL: 312-454-9100  
FAX: 312-559-1217  
WEB: www.epsteineng.com

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**UNDERGROUND CHAMBER  
DETAILS**  
SCALE: NTS SHEET 5 OF 17 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	284
				CONTRACT NO. 61D34
ILLINOIS FED. AID PROJECT				



FOR  
REFERENCE  
ONLY

ENGINEER INFORMATION:

**Epstein**  
  
600 W Fulton St  
Chicago, IL 60661  
312-454-9100

PROJECT INFORMATION:

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SCALE:

NTS

SHEET TITLE:

DOUBLETRAP  
BACKFILL  
SPECIFICATION

SHEET NUMBER:

4.0

ZONE INSTALLATION SPECIFICATION/PROCEDURE

1. THE FILL PLACED AROUND THE MODULES MUST BE DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS). ALL MODULES MUST BE SET AND ALL SIDES MUST BE FULLY BACKFILLED BEFORE TRAVEL OVERTOP THE SYSTEM IS PERMITTED. SEE NOTE 2 FOR EXCEPTIONS AND LIMITATIONS.
2. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED IN MINIMUM 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN LIVE LOAD LISTED ON SHEET 1.0 TRAVEL OVERTOP THE SYSTEM. IF TRAVEL OVER THE SYSTEM OCCURS BEFORE THE MINIMUM DESIGN COVER IS ACHIEVED, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. VEHICLES AND MACHINERY USED TO PLACE FILL MATERIAL ON TOP OF THE SYSTEM SHALL TRAVEL PARALLEL TO THE LONGITUDINAL AXIS OF THE MODULES WHENEVER POSSIBLE.
3. THE VIBRATORY FUNCTION OF ANY ROLLER, COMPACTOR, VEHICLE, ETC. SHALL NOT BE USED OVERTOP THE SYSTEM WITHOUT PRIOR APPROVAL FROM THE MANUFACTURER. IN SOME CASES, HAND COMPACTION MAY BE NECESSARY TO ENSURE THAT THE ALLOWABLE DESIGN LOADING IS NOT EXCEEDED.
4. STONE AGGREGATE FOUNDATION IN ZONE 1 MAY BE REQUIRED FOR THE FOLLOWING:
  - A.) INFILTRATION - IF INFILTRATION IS REQUIRED, A FREE DRAINING MATERIAL SHALL BE USED AT A DEPTH DETERMINED BY THE EOR. FREE DRAINING AGGREGATE IS DEFINED AS 80% AGGREGATE RETAINED ON 1/2" SIEVE, MAJORITY OF AGGREGATE SIZE BETWEEN 1/2" AND 1", AND ONLY 5% OF MATERIAL PASSING #3/8" SIEVE.
  - B.) LEVELING - THE MANUFACTURER RECOMMENDS STONE SUBBASE FOR LEVELING PURPOSES ONLY (OPTIONAL).

ZONE CHART

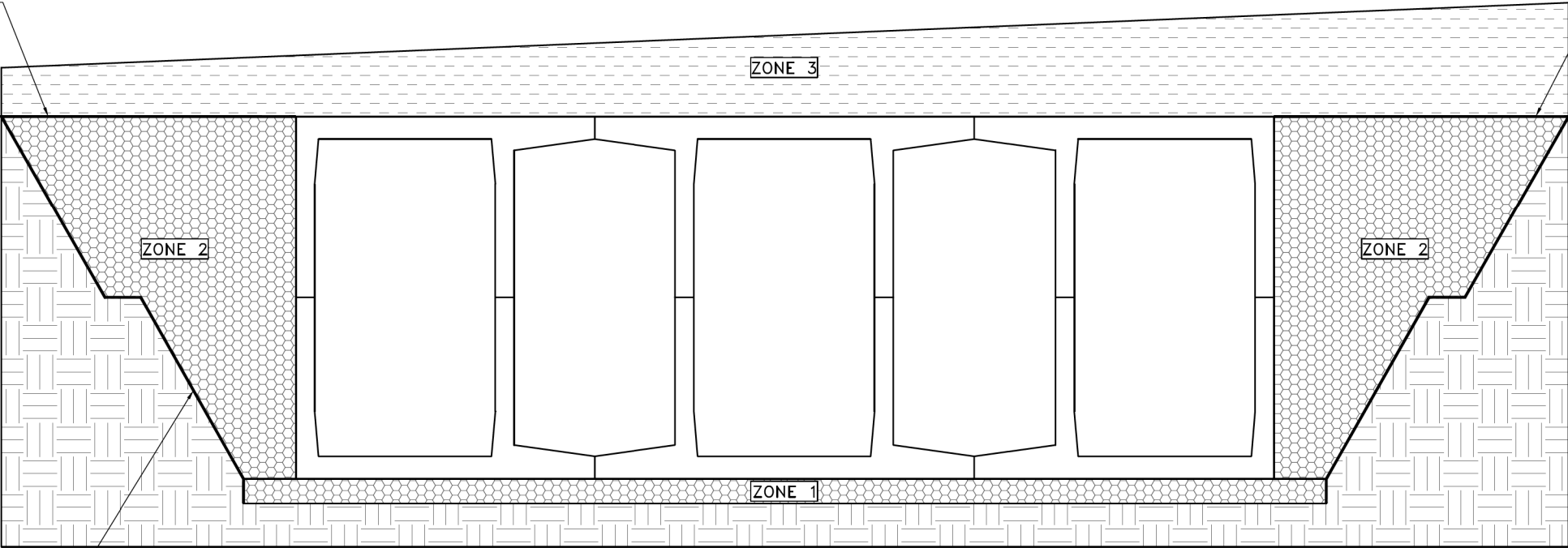
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	#5 (3/4") STONE ANGULAR AGGREGATE (SEE NOTE 4)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

APPROVED ZONE 2 BACKFILL OPTIONS

OPTION	REMARKS
3/4" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

GEOFABRIC/GEOTEXTILE AS REQUIRED PER APPROVED ZONE 2 BACKFILL OPTIONS.

GEOFABRIC/GEOTEXTILE AS REQUIRED PER APPROVED ZONE 2 BACKFILL OPTIONS.



STEPPED OR SERRATED AND APPLICABLE OSHA REQUIREMENTS (SEE INSTALLATION SPECIFICATIONS)

BACKFILL DETAIL

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PLOT TIME = 4:02:26 PM  
PLOT DATE = 2/14/2024

DESIGNED - -	REVISED -
DRAWN - -	REVISED -
CHECKED - -	REVISED -
DATE - 02/14/2024	REVISED -



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

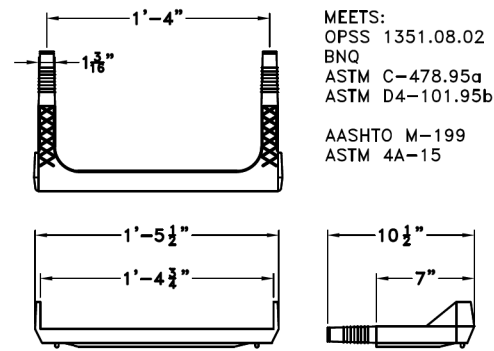
UNDERGROUND CHAMBER  
DETAILS

SCALE: NTS SHEET 6 OF 17 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	285
				CONTRACT NO. 61D34
ILLINOIS FED. AID PROJECT				

**ACCESS OPENING SPECIFICATION**

1. A TYPICAL ACCESS OPENING FOR THE SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 4'-0" IN DIAMETER NEED TO BE APPROVED BY THE MANUFACTURER. ALL OPENINGS MUST RETAIN AT LEAST 2'-0" OF CLEARANCE FROM THE END OF THE MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED. SEE SHEET 2.0 FOR SIZES AND LOCATIONS.
2. UNLESS OTHERWISE SPECIFIED, PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #PS3-PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. THE MANUFACTURER RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. THE MANUFACTURER RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)



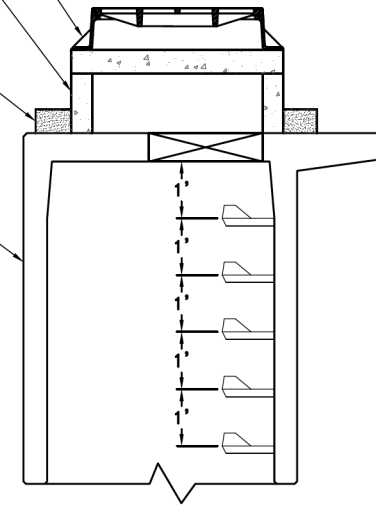
**STEP DETAIL**

**\*\*\* NOTICE \*\*\*** 03-25-2022  
DUE TO CURRENT INCONSISTENCIES IN THE 16" STEP SUPPLY, THE MANUFACTURER MAY SUBSTITUTE THE 16" STEP WITH THE CLOSEST ALTERNATIVE LENGTH STEP UNTIL THE SUPPLY CHAIN ISSUE IS RESOLVED.

MEETS:  
OPSS 1351.08.02  
BNQ  
ASTM C-478.95a  
ASTM D4-101.95b  
  
AASHTO M-199  
ASTM 4A-15

FRAME & COVER AS SPECIFIED BY ENGINEER (SUPPLIED BY OTHERS)  
  
PRECAST CONCRETE ADJUSTING RINGS, BARREL OR CONE SECTIONS AS NEEDED SEE ACCESS OPENING SPECIFICATION NOTE 6. (SUPPLIED BY OTHERS)

NON-SHRINK GROUT  
  
MODULE



**RISER/STAIR DETAIL**

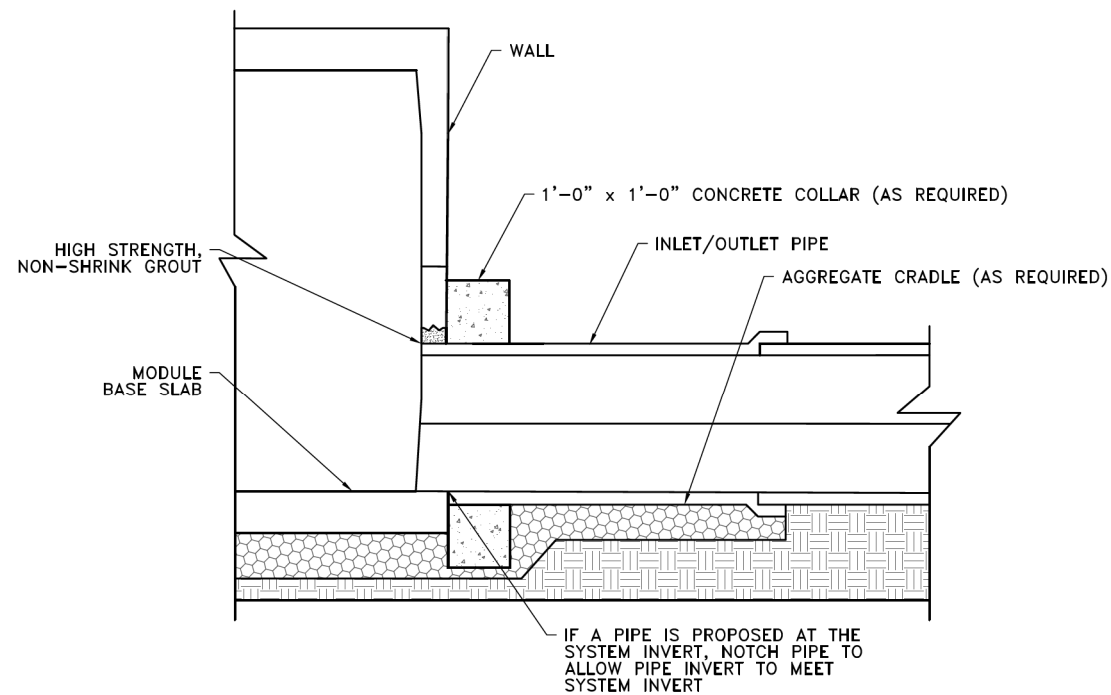
**PIPE OPENING SPECIFICATION**

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
2. CONNECTING PIPES MAY BE INSTALLED WITH A 1'-0" CONCRETE COLLAR AND AN AGGREGATE CRADLE (AS REQUIRED) FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MAY BE USED.
3. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

**PIPE INSTALLATION INSTRUCTIONS**

1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET INCLUDING BUT NOT LIMITED TO CONCRETE COLLARS, AGGREGATE CRADLES, GRADE RINGS, RISER SECTIONS, ETC., ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.



**NOTCHED PIPE CONNECTION DETAIL  
WHEN PIPE INVERT IS AT  
INVERT OF SYSTEM**

**FOR REFERENCE ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
  
600 W Fulton St  
Chicago, IL 60661  
312-454-9100

**PROJECT INFORMATION:**

Bell Road &  
143rd St -  
Vault 1  
  
Homer Glen, IL

**CURRENT ISSUE DATE:**

01/12/2024

**ISSUED FOR:**

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
△	01/12/2023	PRELIMINARY	EB
1	05/22/2023	PRELIMINARY	EB

**SCALE:**

NTS

**SHEET TITLE:**

PIPE / ACCESS  
OPENING  
SPECIFICATION

**SHEET NUMBER:**

5.0

**FOR  
REFERENCE  
ONLY**

**ENGINEER INFORMATION:**

Epstein  
  
600 W Fulton St  
Chicago, IL 60661  
312-454-9100

**PROJECT INFORMATION:**

Bell Road &  
143rd St -  
Vault 1  
  
Homer Glen, IL

**CURRENT ISSUE DATE:**

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**SCALE:**

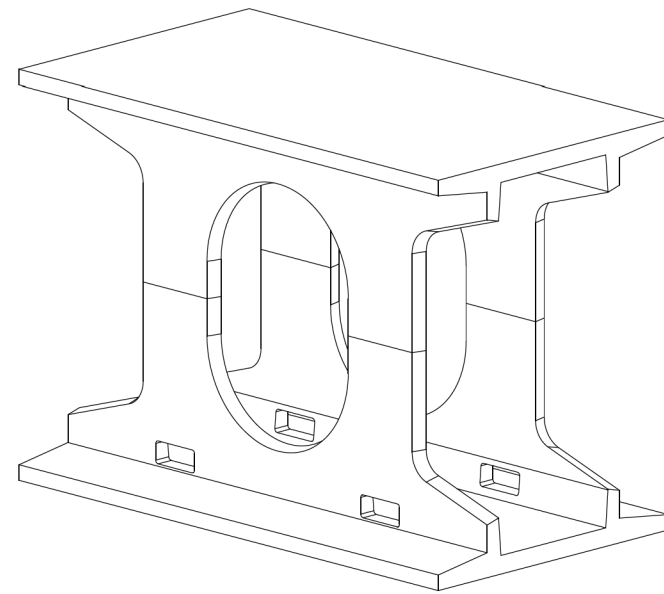
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**SHEET TITLE:**

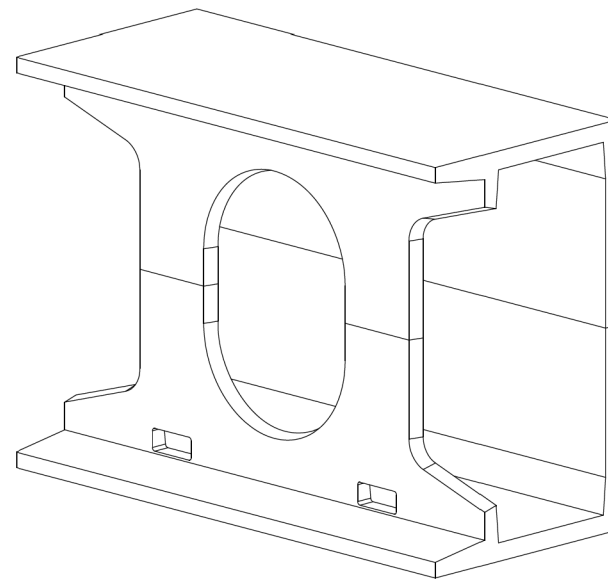
DOUBLETRAP  
MODULE TYPES

**SHEET NUMBER:**

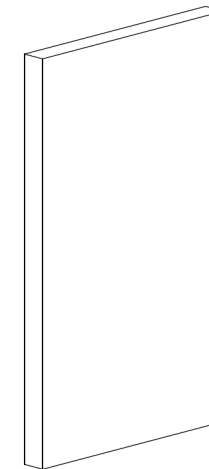
**6.0**



TYPE I/INF



TYPE III



TYPE IV  
9" END PANEL

**NOTES:**

1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP - INDICATES A MODULE WITH MODIFICATIONS.
3. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

FOR  
REFERENCE  
ONLY

ENGINEER INFORMATION:

Epstein  
  
600 Fulton St  
Chicago, IL 60661  
312-454-9100

PROJECT INFORMATION:

Bell Road &  
143rd St -  
Vault 2  
  
Homer Glen, IL

CURRENT ISSUE DATE:

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SCALE:

NTS

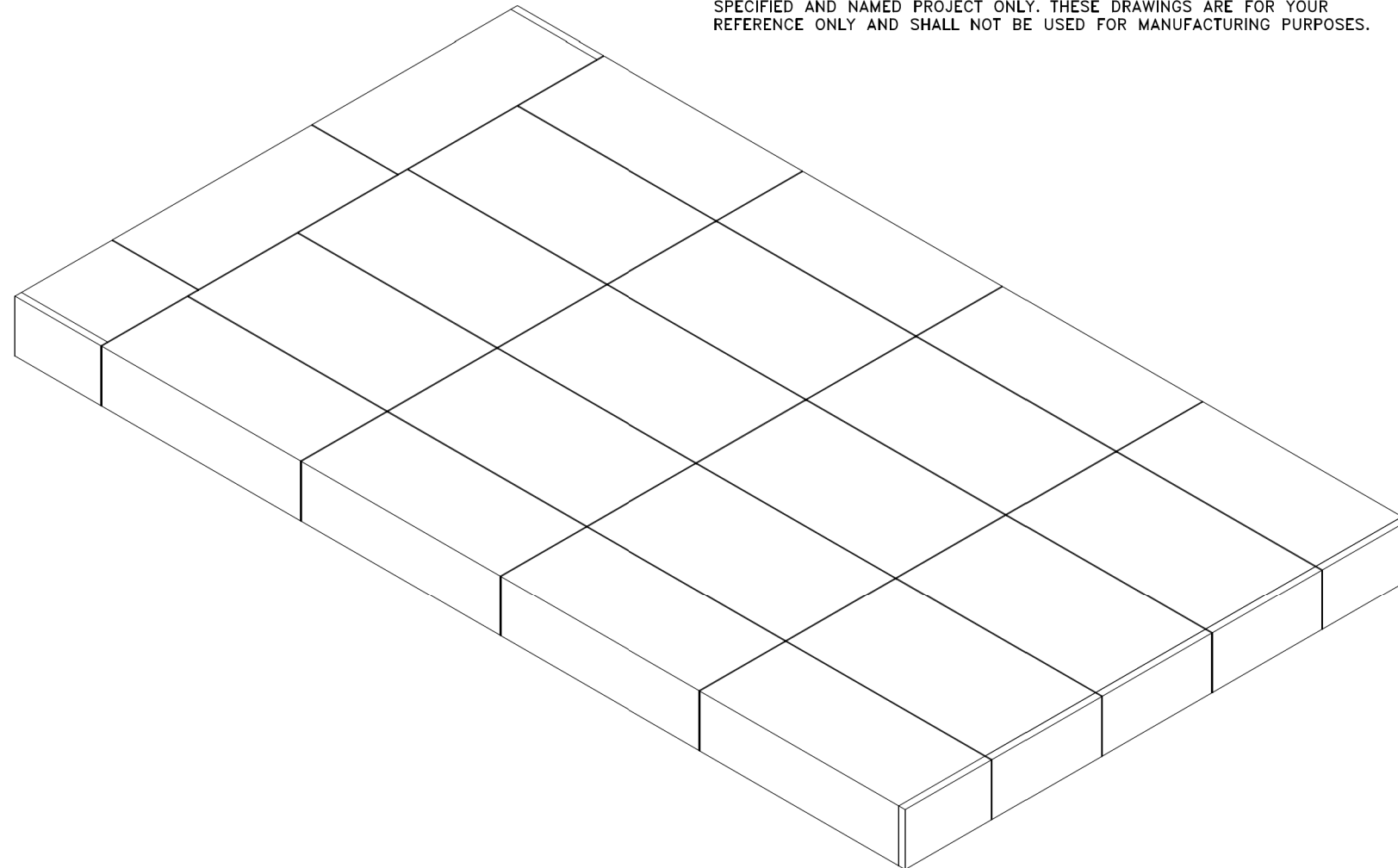
SHEET TITLE:

COVER SHEET

SHEET NUMBER:

0.0

THE DRAWINGS SHALL NOT BE ALTERED OR MANIPULATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE MANUFACTURER. USE OF THESE DRAWINGS IS STRICTLY GRANTED TO YOU, OUR CLIENT, FOR THE SPECIFIED AND NAMED PROJECT ONLY. THESE DRAWINGS ARE FOR YOUR REFERENCE ONLY AND SHALL NOT BE USED FOR MANUFACTURING PURPOSES.



Bell Road & 143rd St - Vault 2  
Homer Glen, IL

**FOR  
REFERENCE  
ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
  
600 Fulton St  
Chicago, IL 60661  
312-454-9100

**PROJECT INFORMATION:**

Bell Road &  
143rd St -  
Vault 2  
  
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**SCALE:**

NTS

**SHEET TITLE:**

SINGLETRAP  
DESIGN  
CRITERIA

**SHEET NUMBER:**

**1.1**

**STRUCTURAL DESIGN LOADING CRITERIA**

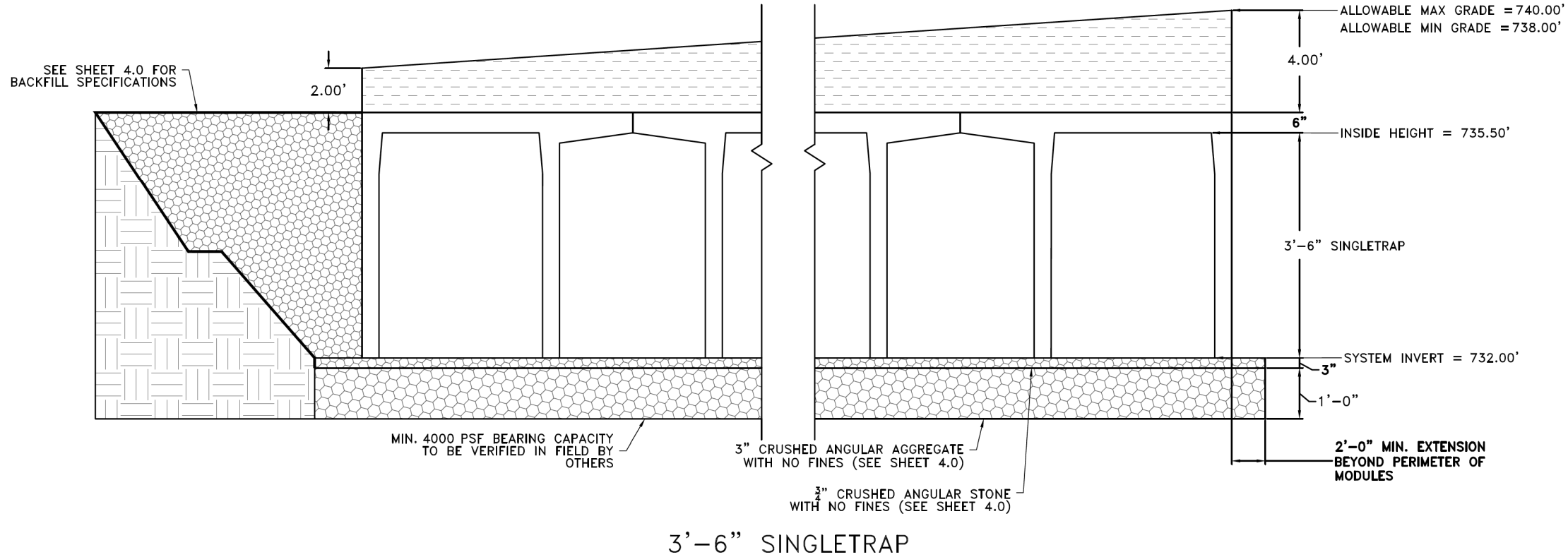
LIVE LOADING: **AASHTO HS-20 HIGHWAY LOADING**  
  
GROUND WATER TABLE: BELOW INVERT OF SYSTEM  
SOIL BEARING PRESSURE: 4000PSF  
SOIL DENSITY: 120 PCF  
EQUIVALENT UNSATURATED  
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.  
EQUIVALENT SATURATED  
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)  
APPLICABLE CODES: ASTM C857  
ACI-318  
  
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

**SYSTEM INFORMATION**

UNIT HEADROOM: 3'-6" SINGLETRAP  
TOTAL STORAGE PROV: 8186.53 CUBIC FEET

**SITE SPECIFIC DESIGN CRITERIA**

- UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
- COVER RANGE: MIN. 1.50' MAX. 4.00' CONSULT MANUFACTURER FOR ADDITIONAL COVER OPTIONS.
- ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO INSTALLATION.
- FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT MANUFACTURER.



FILE NAME = ...\\w111Co-UndergroundChamber-10.dgn  
PLOT TIME = 4:02:43 PM  
PLOT DATE = 2/14/2024

DESIGNED - -	REVISED -
DRAWN - -	REVISED -
CHECKED - -	REVISED -
DATE - 02/14/2024	REVISED -



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**UNDERGROUND CHAMBER  
DETAILS**  
SCALE: NTS SHEET 10 OF 17 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE. 0356	SECTION 12-00147-11-CH	COUNTY WILL	TOTAL SHEETS 356	SHEET NO. 289
CONTRACT NO. 61D34				ILLINOIS FED. AID PROJECT

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	3'-6" SINGLETRAP	0
12	II	3'-6" SINGLETRAP	15844
0	III	3'-6" SINGLETRAP	0
10	IV	3'-6" SINGLETRAP	14146
0	VII	3'-6" SINGLETRAP	0
0	VII-1	3'-6" SINGLETRAP	0
0	VII-2	3'-6" SINGLETRAP	0
0	VII-3	3'-6" SINGLETRAP	0
0	VII-4	3'-6" SINGLETRAP	0
0	SPIII	3'-6" SINGLETRAP	VARIES
1	SPIV	3'-6" SINGLETRAP	VARIES
3	T2 PANEL	6" THICK PANEL	2526
4	T4 PANEL	6" THICK PANEL	1988
0	T7 PANEL	6" THICK PANEL	0
5	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 23			
TOTAL PANELS = 7			
HEAVIEST PICK WEIGHT = 15844			

**DESIGN CRITERIA**  
ALLOWABLE MAX GRADE = 740.00'  
ALLOWABLE MIN GRADE = 738.00'  
INSIDE HEIGHT ELEVATION = 735.50'  
SYSTEM INVERT = 732.00'

**NOTES:**

- DIMENSIONING OF SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
- ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
- SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
- SP - INDICATES A MODULE WITH MODIFICATIONS.
- P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
- CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
- IN ORDER FOR THE MANUFACTURER TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO THE MANUFACTURER AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.

**FOR  
REFERENCE  
ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
  
600 Fulton St  
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312-454-9100

**PROJECT INFORMATION:**

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143rd St -  
Vault 2**  
  
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1	05/22/2022	PRELIMINARY	EB

**SCALE:**

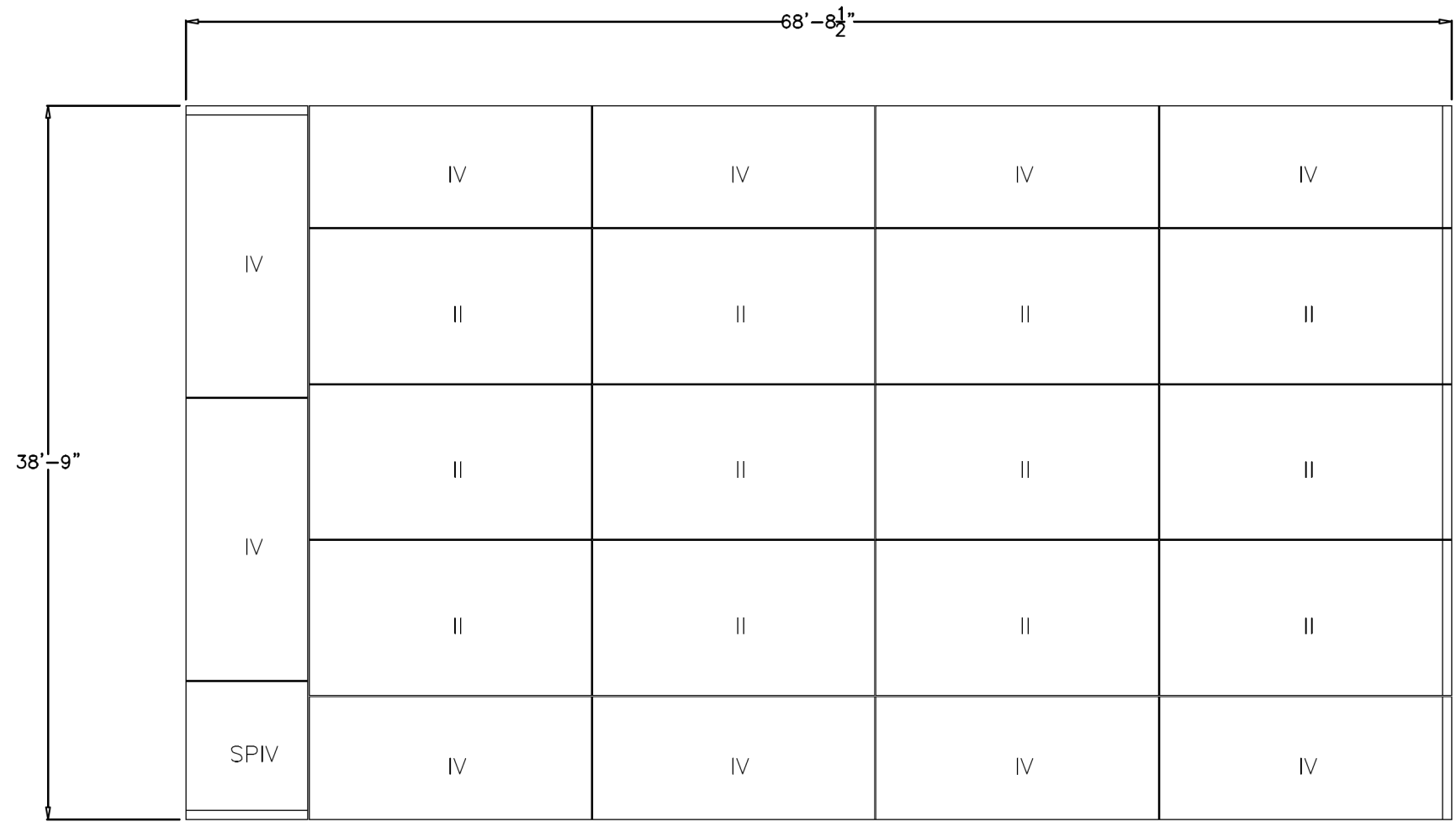
NTS

**SHEET TITLE:**

**SINGLETRAP  
SYSTEM LAYOUT**

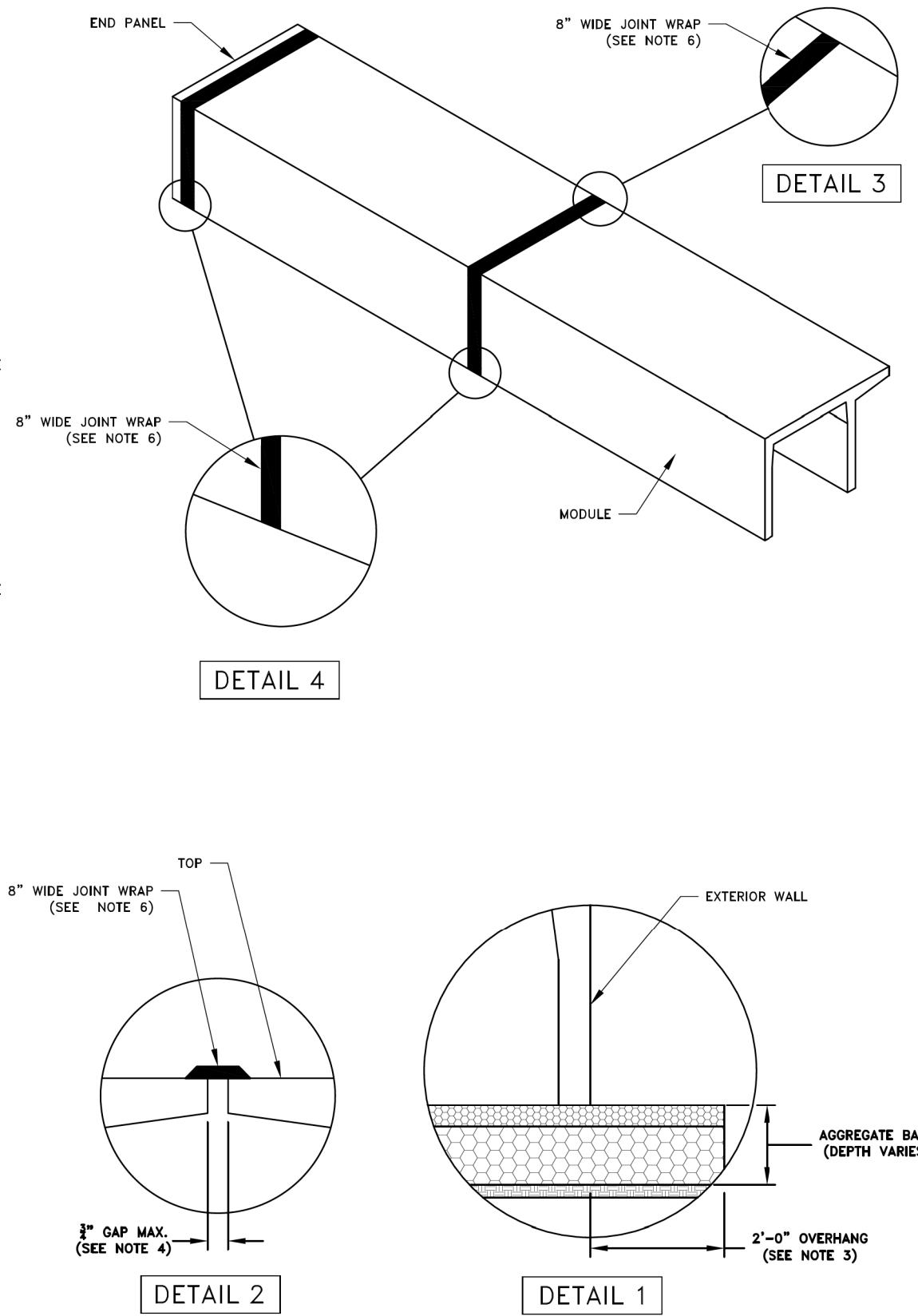
**SHEET NUMBER:**

**2.0**



**INSTALLATION SPECIFICATION**

1. SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 (STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES). THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS ARE PROVIDED FOR EMPHASIS. THE MENTION OF THESE ITEMS DOES NOT PRECLUDE THE INSTALLING CONTRACTOR FROM FOLLOWING ASTM C891 IN ITS ENTIRETY AND IMPLEMENTING ALL APPROPRIATE MEASURES. THE INSTALLING CONTRACTOR OWNS AND IS RESPONSIBLE FOR THE SYSTEM UPON REMOVAL OF THE MODULES FROM THE DELIVERY TRUCK THROUGH 'FINAL CONSTRUCTION'. FINAL CONSTRUCTION IS ACHIEVED WHEN ALL MODULES ARE SET, FULLY BACKFILLED, AND WHEN FINAL FINISHED GRADES ARE REACHED. THE CONTRACTOR IS RESPONSIBLE FOR ANY COUNTERMEASURES NECESSARY TO RESIST UPLIFT/BUOYANCY BEFORE 'FINAL CONSTRUCTION' IS ACHIEVED.
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. THE AGGREGATE FOUNDATION HAS BEEN DESIGNED BASED ON THE FOLLOWING ASSUMPTIONS. THESE ASSUMPTIONS WILL NEED TO BE VERIFIED BY A GEOTECHNICAL ENGINEER WHICH WILL NEED TO BE EMPLOYED BY THE OWNER.
  - 3.1. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS BELOW THE PROPOSED ENGINEERED STONE FOUNDATION. IF A STONE FOUNDATION DESIGN IS TO BE USED, THE BEARING PRESSURE OF THE SOILS BELOW THE STONE WILL NEED TO MEET OR EXCEED ALLOWABLE CAPACITY. IF THIS IS NOT POSSIBLE, THE STONE FOUNDATION MAY NOT BE AN OPTION FOR THIS LOCATION.
  - 3.2. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO EVALUATE A SOURCE OF STONE AGGREGATES THAT WILL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.1 FOR SOIL BEARING CAPACITY REQUIREMENTS). THE AGGREGATE BASE COURSE FOR WHICH THE SYSTEM WILL BEAR DIRECTLY ON SHALL CONSIST OF A 3" THICK BED OF 3/4" DIAMETER ANGULAR STONE, WELL COMPACTED AND SEATED, WITH NO FINES. AND A 1'-0" THICK BED OF 3" ANGULAR AGGREGATE (SEE SHEET 4.0 FOR FURTHER DESCRIPTION/EXPLANATION). PLEASE NOTE THAT THESE ARE ONLY MINIMUM RECOMMENDATIONS AND A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE USED TO DETERMINE THE EXACT REQUIREMENTS FOR THE LOCATIONS THAT THE SYSTEM IS TO BE LOCATED.
  - 3.3. THE CONTRACTOR SHALL REMOVE ANY AND ALL EXPANDABLE OR COLLAPSIBLE SOILS AT THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER.
  - 3.4. THE AGGREGATE FOUNDATION SHALL BE INSTALLED SUCH THAT THE AGGREGATE EXTENDS A MINIMUM OF 2'-0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1).
  - 3.5. THE 3/4" AGGREGATE SHALL BE COMPACTED USING A VIBRATING ROLLER WITH ITS' FULL DYNAMIC FORCE APPLIED TO ACHIEVE A FLAT SURFACE.
  - 3.6. DISK, DRY AND COMPACT THE TOP 8" OF THE SUBGRADE SOILS TO 95% OF THE STANDARD DRY DENSITY AND 110% OPTIMUM MOISTURE CONTENT.
  - 3.7. AGGREGATE SHALL BE GRADED WITHIN +/- 1/4" OF THE GRADE SHOWN ON THE PLANS.
  - 3.8. MINIMUM SOIL BEARING CAPACITY LISTED ON SHEET 1.1 SHALL BE VERIFIED IN FIELD BY OTHERS.
4. THE MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 3/4" (SEE DETAIL 2). IF THE SPACE EXCEEDS 3/4", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. MODULES ARE NOT WATERTIGHT. IF A WATERTIGHT SOLUTION IS REQUIRED, CONTACT THE MANUFACTURER FOR RECOMMENDATIONS. THE WATERTIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATERTIGHT SOLUTION PERFORMS AS SPECIFIED BY THE MANUFACTURER.
6. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN, HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
  - 6.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE THE JOINT WRAP IS TO BE APPLIED.
  - 6.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE MODULE SURFACE WHEN APPLYING.
7. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
8. IF THE MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, THE MANUFACTURER MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT THE MANUFACTURER, IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
9. THE MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM THE MANUFACTURER.



**FOR REFERENCE ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
 600 Fulton St  
 Chicago, IL 60661  
 312-454-9100

**PROJECT INFORMATION:**

**Bell Road &  
 143rd St -  
 Vault 2**  
 Homer Glen, IL

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3	01/12/2024	PRELIMINARY	EB

**SCALE:**

**NTS**

**SHEET TITLE:**

**SINGLETRAP  
 INSTALLATION  
 SPECIFICATION**

**SHEET NUMBER:**

**3.0**

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 PLOT DATE = 2/14/2024

DESIGNED - -  
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 DATE - 02/14/2024

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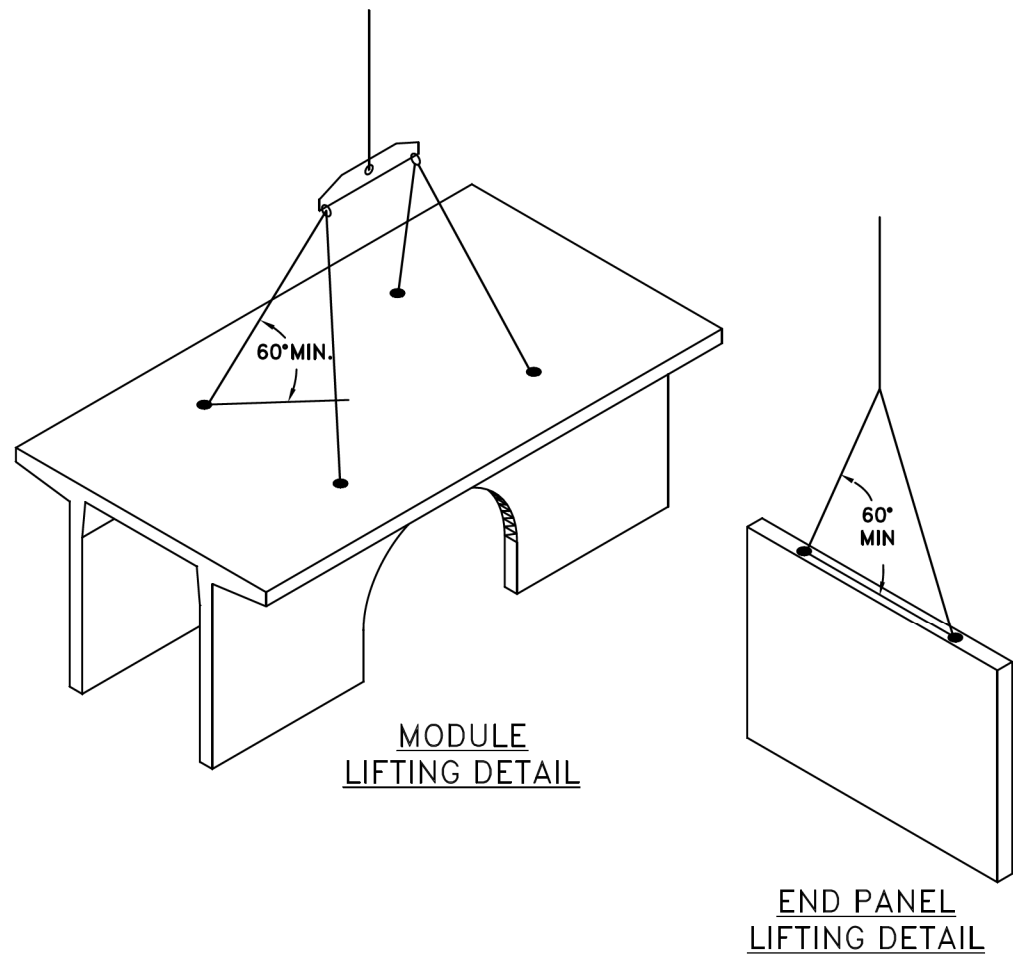
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**UNDERGROUND CHAMBER  
 DETAILS**  
 SCALE: NTS SHEET 12 OF 17 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	291
				CONTRACT NO. 61D34
ILLINOIS FED. AID PROJECT				

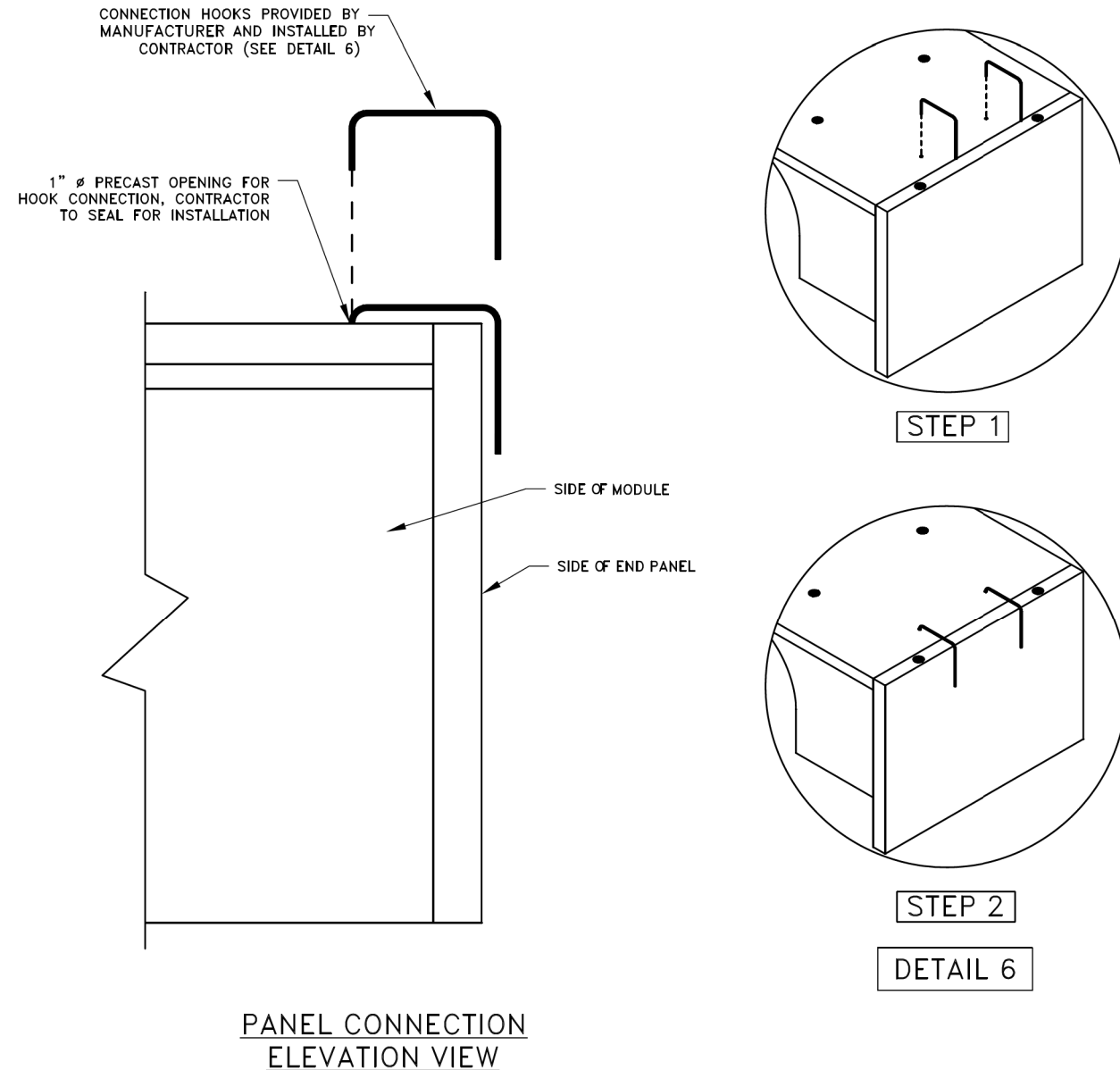
**MODULE LIFTING SPECIFICATION**

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE
- MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT MODULES (SUPPLIED BY CONTRACTOR).
- CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF MODULE. SEE DETAIL.
- IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.



**END PANEL ERECTION/INSTALLATION SPECIFICATION**

- END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
- PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
- CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
- ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
- JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



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**SCALE:**

NTS

**SHEET TITLE:**

SINGLETRAP  
INSTALLATION  
SPECIFICATION

**SHEET NUMBER:**

**3.1**



ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1A	FOUNDATION AGGREGATE	#5 (3/4") STONE ANGULAR AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 1B	FOUNDATION AGGREGATE (INFILTRATION NOT ALLOWED)	3" RECYCLED CRUSHED CONCRETE (SEE NOTES 5 & 6 FOR DESCRIPTION)
	FOUNDATION AGGREGATE (INFILTRATION ALLOWED)	3" STONE AGGREGATE (SEE NOTE 5)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

APPROVED ZONE 2 BACKFILL OPTIONS	
OPTION	REMARKS
3/4" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

**ZONE INSTALLATION SPECIFICATION/PROCEDURE**

- THE FILL PLACED AROUND THE MODULES MUST BE DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS). ALL MODULES MUST BE SET AND ALL SIDES MUST BE FULLY BACKFILLED BEFORE TRAVEL OVERTOP THE SYSTEM IS PERMITTED. SEE NOTE 2 FOR EXCEPTIONS AND LIMITATIONS.
- THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED IN MINIMUM 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN LIVE LOAD LISTED ON SHEET 1.0 TRAVEL OVERTOP THE SYSTEM. IF TRAVEL OVER THE SYSTEM OCCURS BEFORE THE MINIMUM DESIGN COVER IS ACHIEVED, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. VEHICLES AND MACHINERY USED TO PLACE FILL MATERIAL ON TOP OF THE SYSTEM SHALL TRAVEL PARALLEL TO THE LONGITUDINAL AXIS OF THE STORMTRAP MODULES WHENEVER POSSIBLE.
- THE VIBRATORY FUNCTION OF ANY ROLLER, COMPACTOR, VEHICLE, ETC. SHALL NOT BE USED OVERTOP THE SYSTEM WITHOUT PRIOR APPROVAL FROM STORMTRAP. IN SOME CASES, HAND COMPACTION MAY BE NECESSARY TO ENSURE THAT THE ALLOWABLE DESIGN LOADING IS NOT EXCEEDED.
- FREE DRAINING ANGULAR AGGREGATE - 80% AGGREGATE RETAINED ON 1/2" SIEVE MAJORITY OF AGGREGATE SIZE BETWEEN 1/2" AND 1" ONLY 5% OF MATERIAL PASSING #8 SIEVE.
- FREE DRAINING, NO FINES, 3" ANGULAR AGGREGATE - MAJORITY OF STONE SIZE IN BETWEEN 1 1/2" AND 3" - VERY SIMILAR TO AASHTO (#1, #2, #3, & #24) STONE AGGREGATE GRADATION.
- CRUSHED CONCRETE AGGREGATE IS KNOWN TO REACT WITH WATER AND CAN INCREASE THE PH VALUE OF THE GROUND WATER. PRIOR TO USING CRUSHED CONCRETE AGGREGATE IN ZONE 1B IT IS IMPERATIVE THAT THE USE OF SUCH MATERIAL SHALL BE VERIFIED BY THE EOR AND/OR THE PROJECT GEOTECHNICAL ENGINEER.

**FOR REFERENCE ONLY**

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Vault 2  
Homer Glen, IL

**CURRENT ISSUE DATE:**

01/12/2024

**ISSUED FOR:**

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	01/12/2024	PRELIMINARY	EB
2	05/24/2022	PRELIMINARY	EB
1	05/22/2022	PRELIMINARY	EB

**SCALE:**

NTS

**SHEET TITLE:**

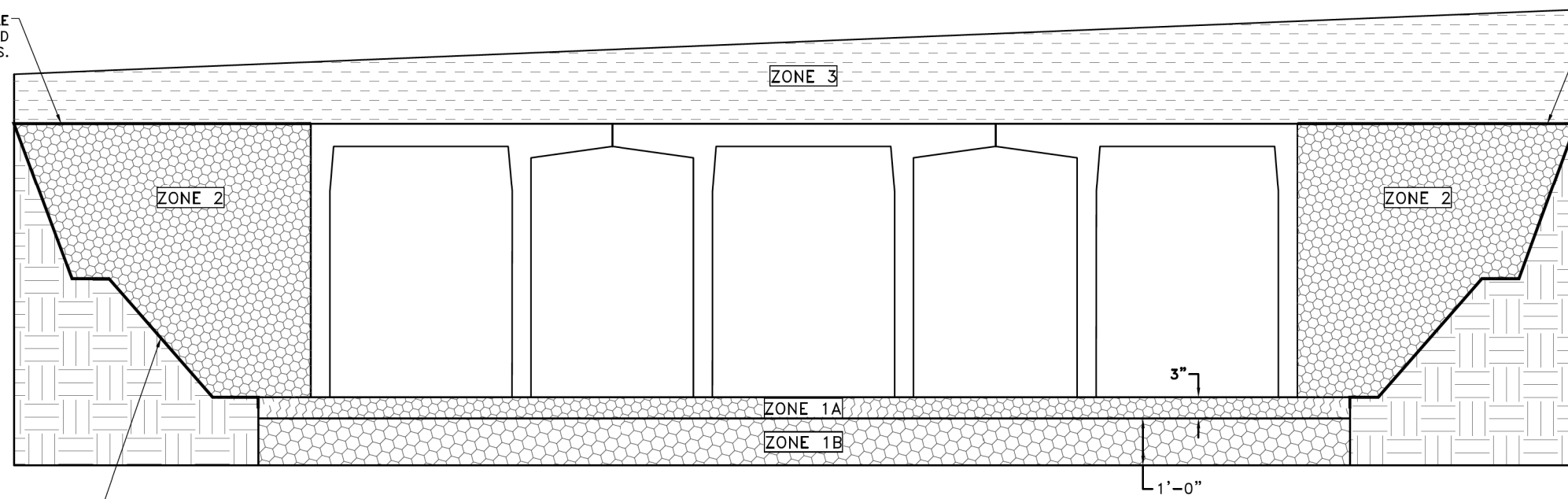
SINGLETRAP  
BACKFILL  
SPECIFICATION

**SHEET NUMBER:**

4.0

GEOFABRIC/GEOTEXTILE AS REQUIRED PER APPROVED ZONE 2 BACKFILL OPTIONS.

GEOFABRIC/GEOTEXTILE AS REQUIRED PER APPROVED ZONE 2 BACKFILL OPTIONS.

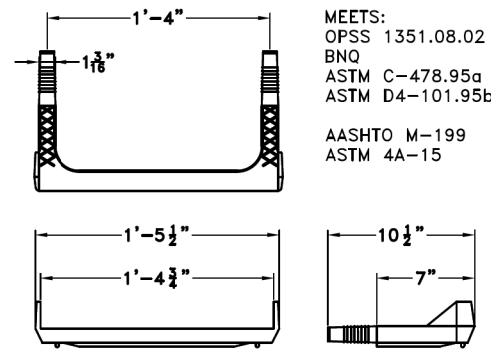


STEPPED OR SERRATED AND APPLICABLE OSHA REQUIREMENTS (SEE INSTALLATION SPECIFICATIONS)

**BACKFILL DETAIL**

**ACCESS OPENING SPECIFICATION**

1. A TYPICAL ACCESS OPENING FOR THE SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 4'-0" IN DIAMETER NEED TO BE APPROVED BY THE MANUFACTURER. ALL OPENINGS MUST RETAIN AT LEAST 2'-0" OF CLEARANCE FROM THE END OF THE MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED. SEE SHEET 2.0 FOR SIZES AND LOCATIONS.
2. UNLESS OTHERWISE SPECIFIED, PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #PS3-PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. MANUFACTURER RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. THE MANUFACTURER RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)



**STEP DETAIL**

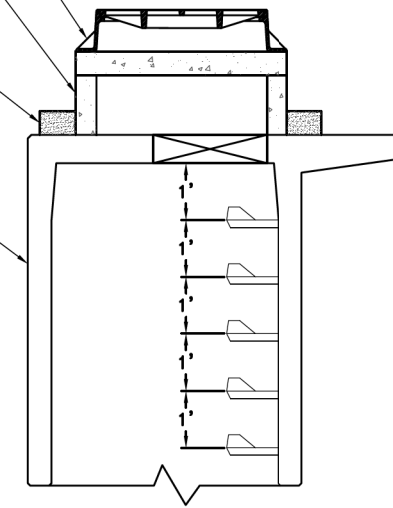
\*\*\* NOTICE \*\*\* 03-25-2022  
 DUE TO CURRENT INCONSISTENCIES IN THE 16" STEP SUPPLY, MANUFACTURER MAY SUBSTITUTE THE 16" STEP WITH THE CLOSEST ALTERNATIVE LENGTH STEP UNTIL THE SUPPLY CHAIN ISSUE IS RESOLVED.

MEETS:  
 OPSS 1351.08.02  
 BNO  
 ASTM C-478.95a  
 ASTM D4-101.95b  
 AASHTO M-199  
 ASTM 4A-15

FRAME & COVER AS SPECIFIED BY ENGINEER (SUPPLIED BY OTHERS)  
 PRECAST CONCRETE ADJUSTING RINGS, BARREL OR CONE SECTIONS AS NEEDED SEE ACCESS OPENING SPECIFICATION NOTE 6. (SUPPLIED BY OTHERS)

NON-SHRINK GROUT

MODULE



**RISER/STAIR DETAIL**

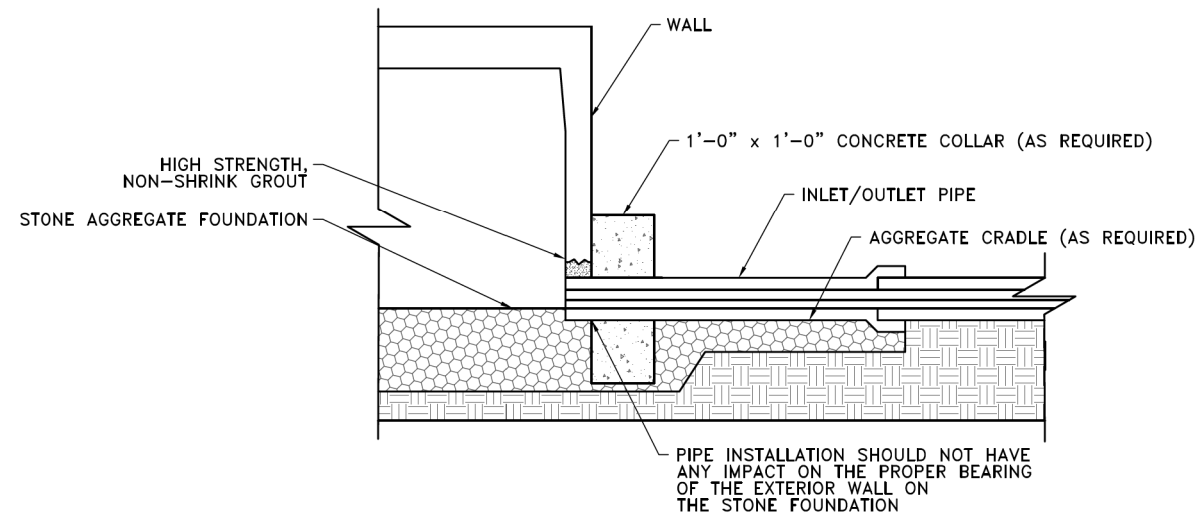
**PIPE OPENING SPECIFICATION**

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
2. CONNECTING PIPES MAY BE INSTALLED WITH A 1'-0" CONCRETE COLLAR AND AN AGGREGATE CRADLE (AS REQUIRED) FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MAY BE USED.
3. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

**PIPE INSTALLATION INSTRUCTIONS**

1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET INCLUDING BUT NOT LIMITED TO CONCRETE COLLARS, AGGREGATE CRADLES, GRADE RINGS, RISER SECTIONS, ETC., ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.



**PIPE CONNECTION DETAIL  
 WHEN PIPE INVERT IS AT  
 INVERT OF SYSTEM**

**FOR  
 REFERENCE  
 ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
 600 Fulton St  
 Chicago, IL 60661  
 312-454-9100

**PROJECT INFORMATION:**

**Bell Road &  
 143rd St -  
 Vault 2**  
 Homer Glen, IL

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**SCALE:**

**NTS**

**SHEET TITLE:**

**PIPE / ACCESS  
 OPENING  
 SPECIFICATION**

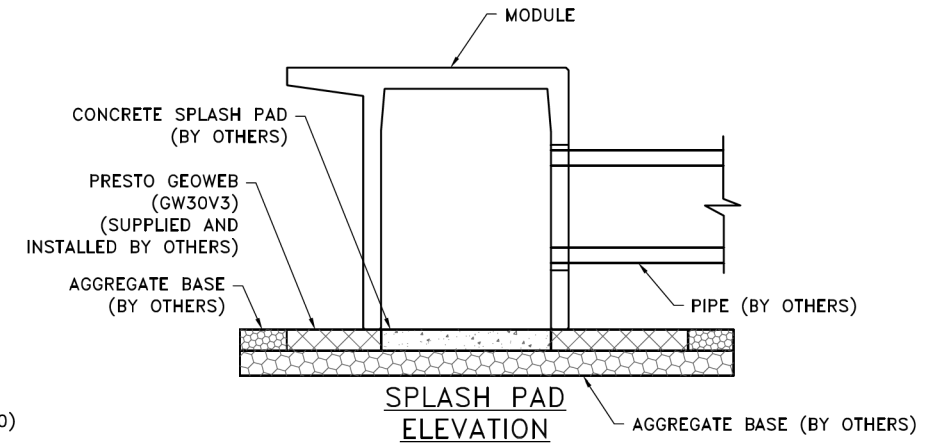
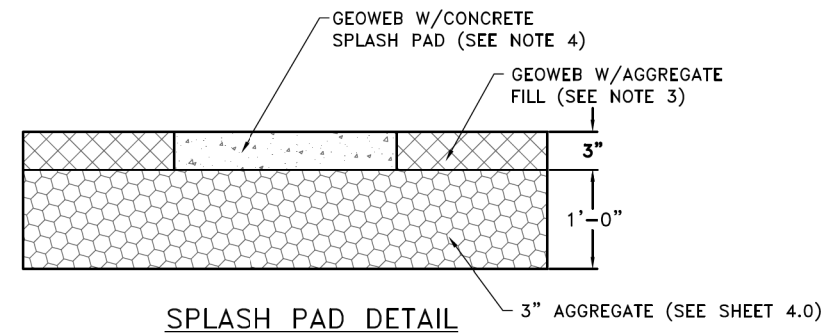
**SHEET NUMBER:**

**5.0**

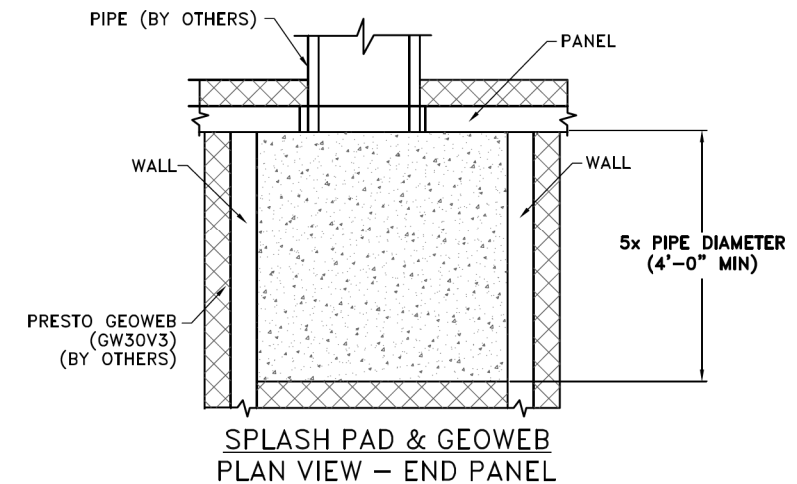
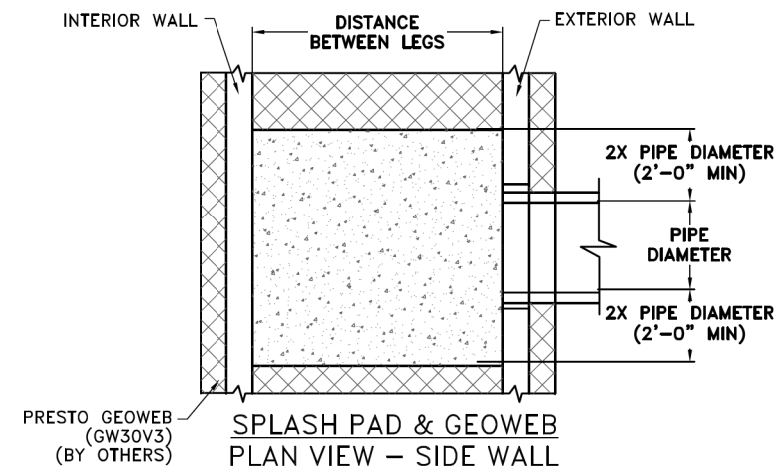
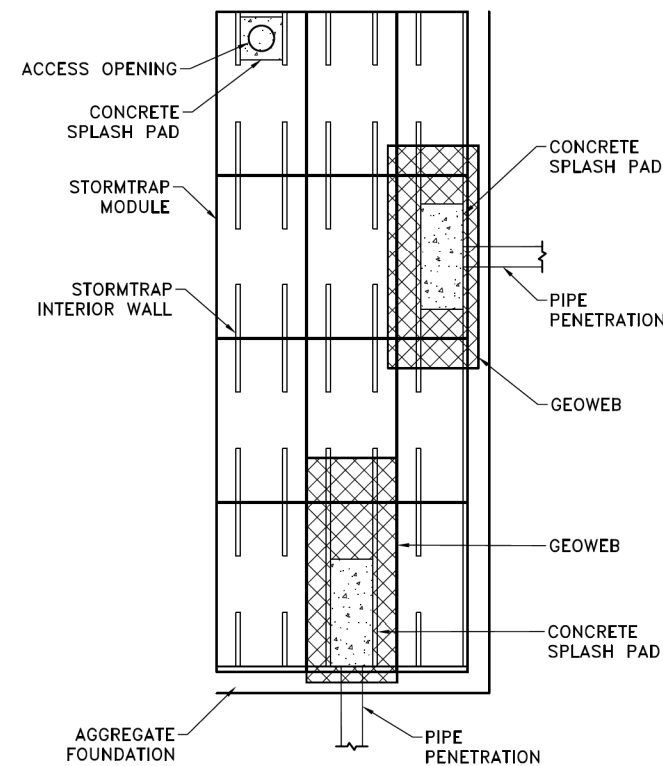
FOR  
REFERENCE  
ONLY

**GEOWEB AND SPLASH PAD INSTALLATION SPECIFICATION**

1. THE APPROVED GEOWEB SHALL BE PRESTO GEOWEB (GW30V3). THE GEOWEB NOMINAL DIMENSIONS SHALL BE 9-FT x 25-FT.
2. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE STORMTRAP MODULES.
3. THE GEOWEB INFILL MATERIAL SHALL BE #5 AGGREGATE.
4. THE CONCRETE SPLASH PAD SHALL BE INSTALLED WITHIN THE GEOWEB AND IS REQUIRED AT ALL PIPE ENTRY LOCATIONS.
5. THE GEOWEB EDGE SHALL BE INSTALLED 1-FT BEYOND THE OUTER PERIMETER OF THE STORMTRAP SYSTEM.
6. THE GEOWEB LONGITUDINAL DIMENSION (25-FT) SHALL BE INSTALLED PARALLEL TO THE STORMTRAP LEGS.
7. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE CENTERED AT THE PIPE PENETRATION.
8. REFER TO SPLASH PAD LAYOUT FOR CONCRETE SPLASH PAD DIMENSIONS.
9. IF ANY PRODUCT OTHER THAN PRESTO GEOWEB IS TO BE INSTALLED, THE PRODUCT MANUFACTURER IS REQUIRED TO SUBMIT A LETTER STATING THAT THE PRODUCT IS EQUAL OR BETTER THEN PRESTO GEOWEB, BOTH IN PERFORMANCE AND IN STRUCTURAL CAPACITY.
10. ALL GEOWEB AND SPLASH PADS TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
11. A CONCRETE SPLASH PAD IS REQUIRED AT ANY ACCESS OPENING THAT HAS AN OPEN GRATE FOR DRAINAGE. THE CONCRETE SPLASH PAD SHALL EXTEND BETWEEN THE UNIT LEG WALLS AND 3'-0" FROM THE CENTERLINE OF THE OPENING ON BOTH SIDES UNLESS SPECIFIED OTHERWISE ON THE SPLASH PAD LAYOUT. GEOWEB IS NOT REQUIRED UNDER ACCESS OPENINGS.



**SPLASH PAD CONFIGURATION**



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**Epstein**  
600 Fulton St  
Chicago, IL 60661  
312-454-9100

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**SCALE:**

NTS

**SHEET TITLE:**

SPLASH PAD &  
GEOWEB DETAILS

**SHEET NUMBER:**

6.0

**FOR  
REFERENCE  
ONLY**

**ENGINEER INFORMATION:**

**Epstein**  
  
600 Fulton St  
Chicago, IL 60661  
312-454-9100

**PROJECT INFORMATION:**

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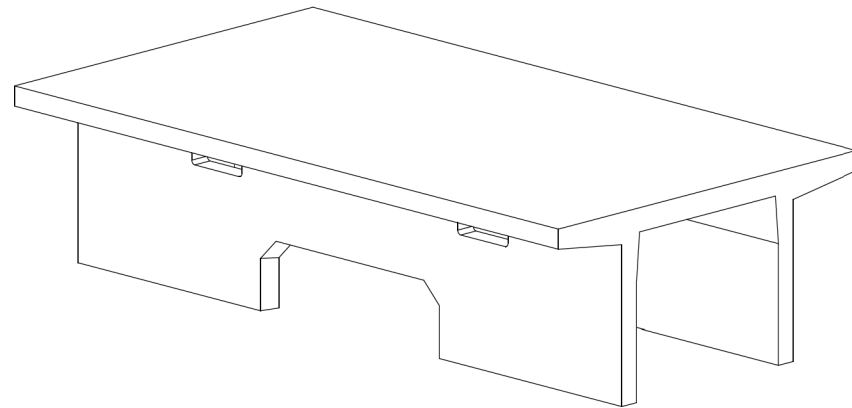
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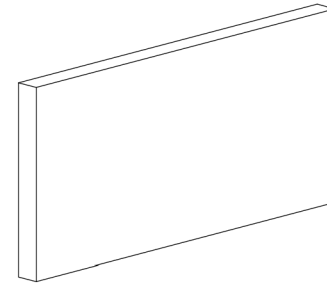
SINGLETRAP  
MODULE TYPES

**SHEET NUMBER:**

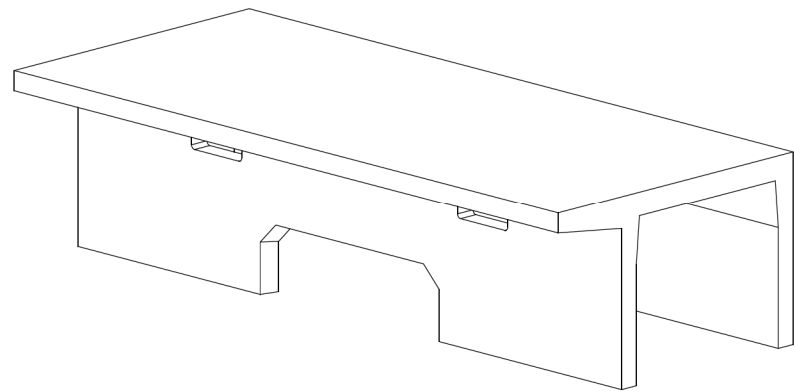
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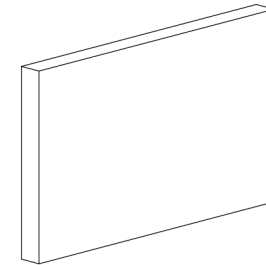
TYPE II



TYPE II END PANEL



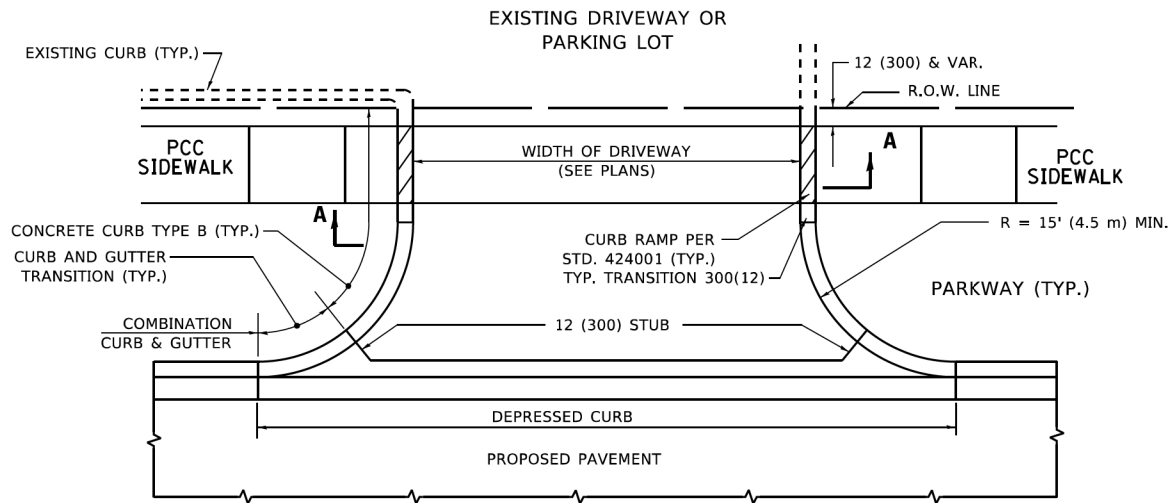
TYPE IV



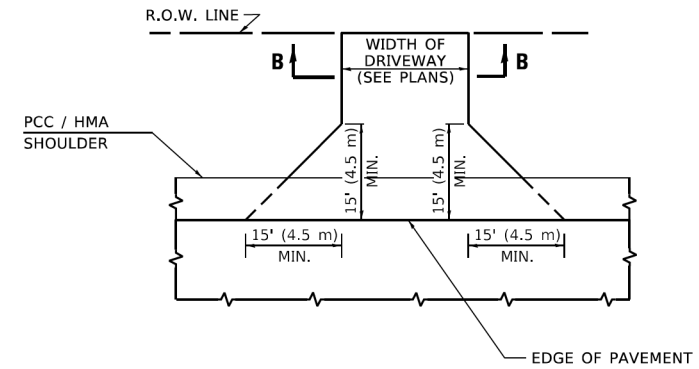
TYPE IV END PANEL

**NOTES:**

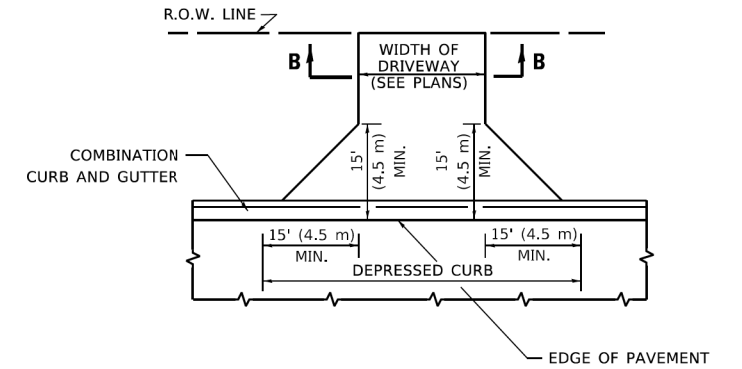
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP - INDICATES A MODULE WITH MODIFICATIONS.
3. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.



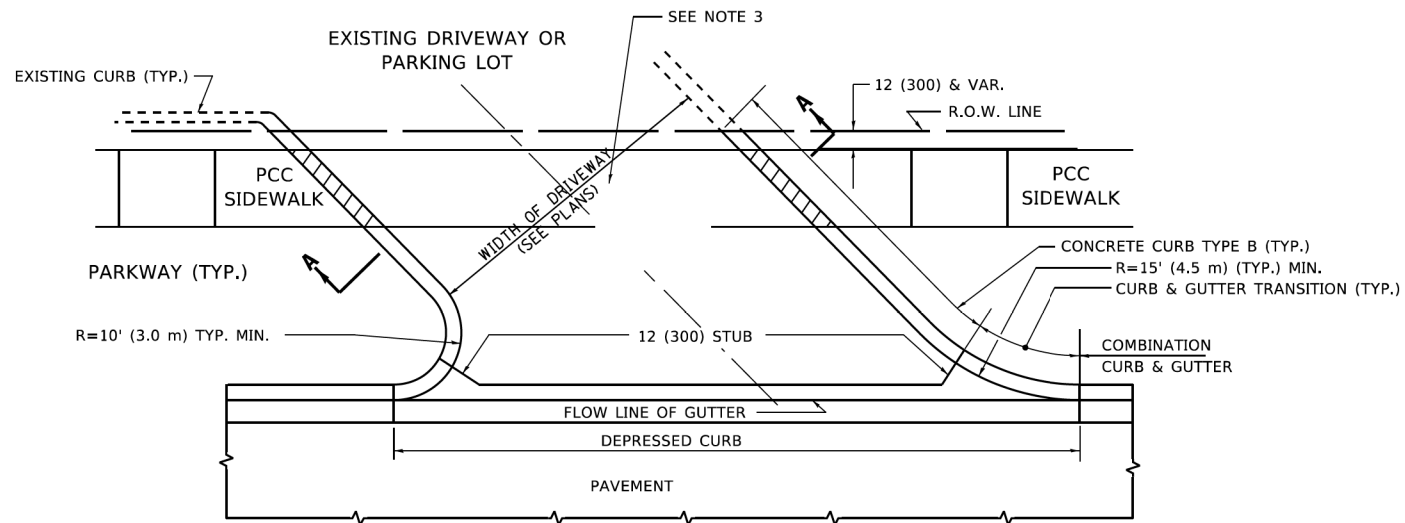
**WITH CONCRETE CURB, TYPE B**



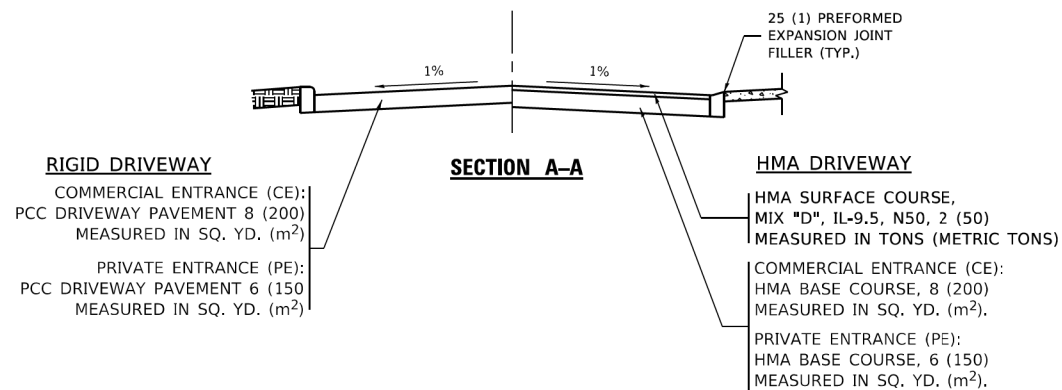
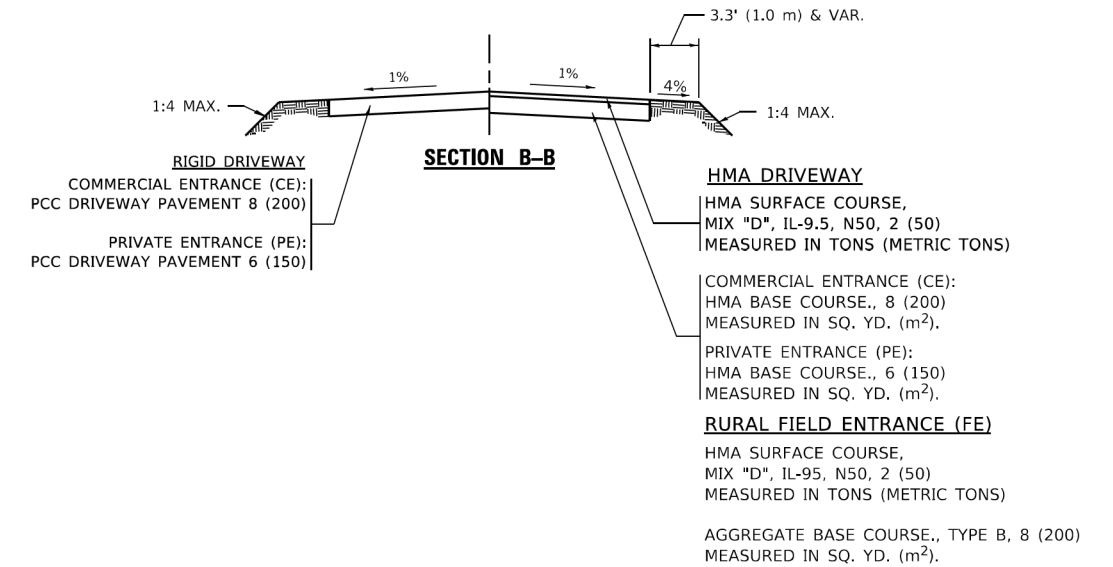
**ADJACENT TO PCC /HMA SHOULDER**



**ADJACENT TO CURB AND GUTTER**



**WITH CONCRETE CURB, TYPE B**



**GENERAL NOTES**

1. DRIVEWAY SLOPES, LOCATIONS, & GEOMETRIC LAYOUT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "HANDBOOK FOR POLICY ON PERMITS FOR ACCESS DRIVEWAYS TO STATE HIGHWAYS". FOR FURTHER LAYOUT REQUIREMENTS, REFER TO ILLUSTRATIONS IN THE PERMIT HANDBOOK. DRIVEWAYS SHALL BE REPLACED IN KIND, UNLESS OTHERWISE NOTED ON THE PLANS.
2. COMMERCIAL DRIVEWAYS SHALL BE CONSTRUCTED WITH CONCRETE CURB, TYPE B RETURNS EXCEPT WHEN THE SIDEWALK EDGE IS 4 FEET (1.2 METERS) OR LESS FROM THE BACK OF CURB, CONSTRUCT A FLARE DRIVEWAY WITHOUT CURB.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED.

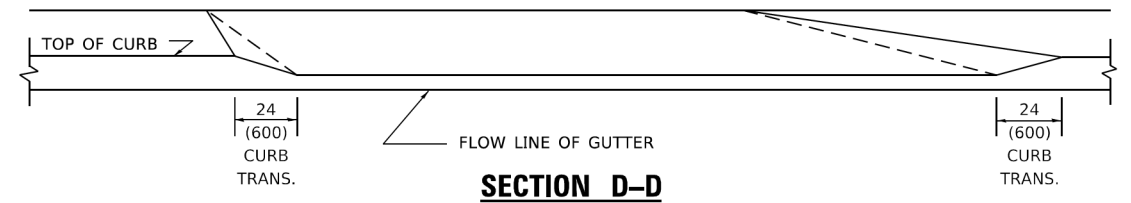
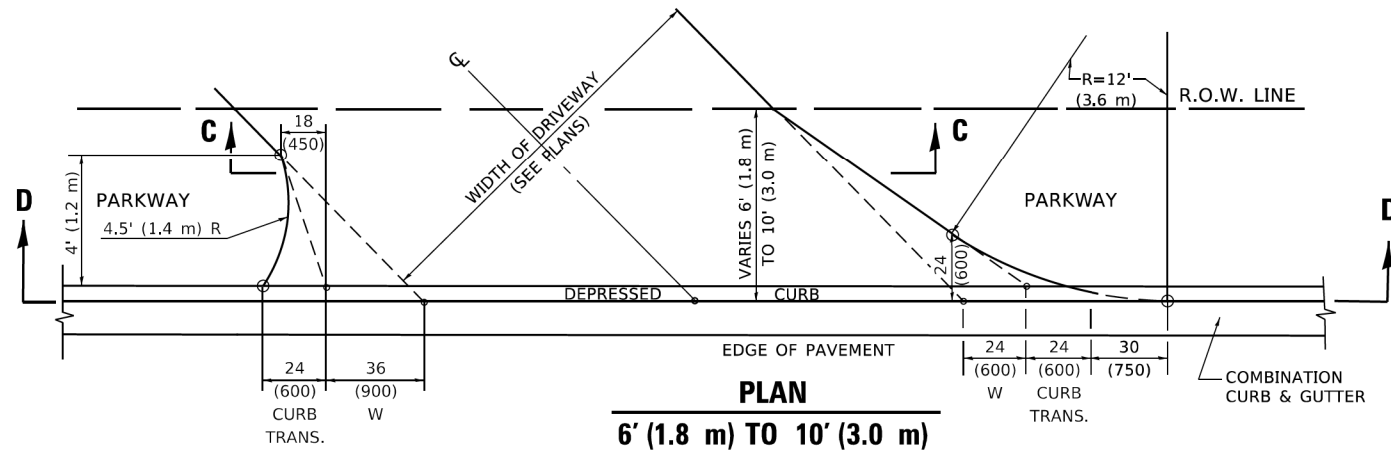
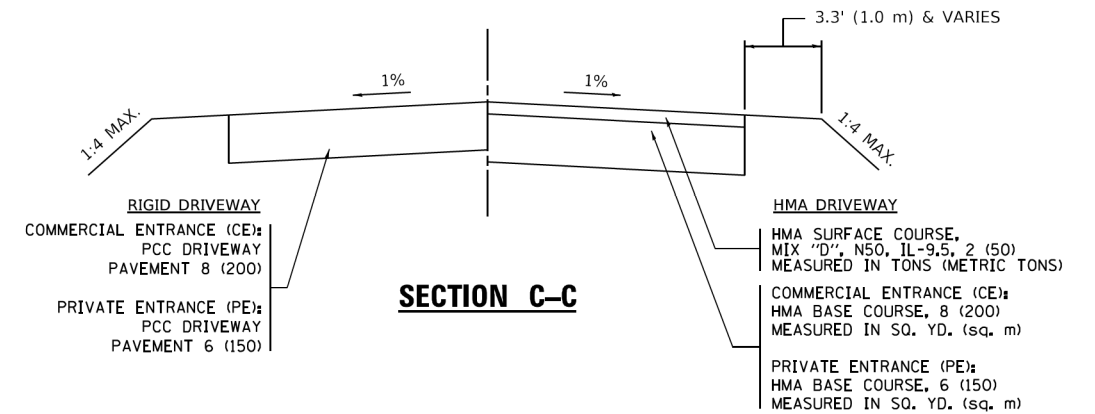
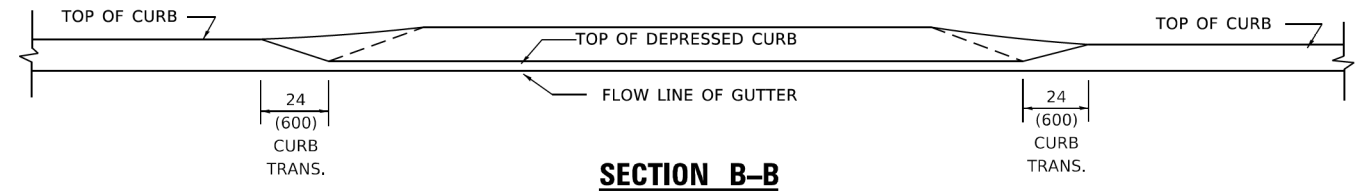
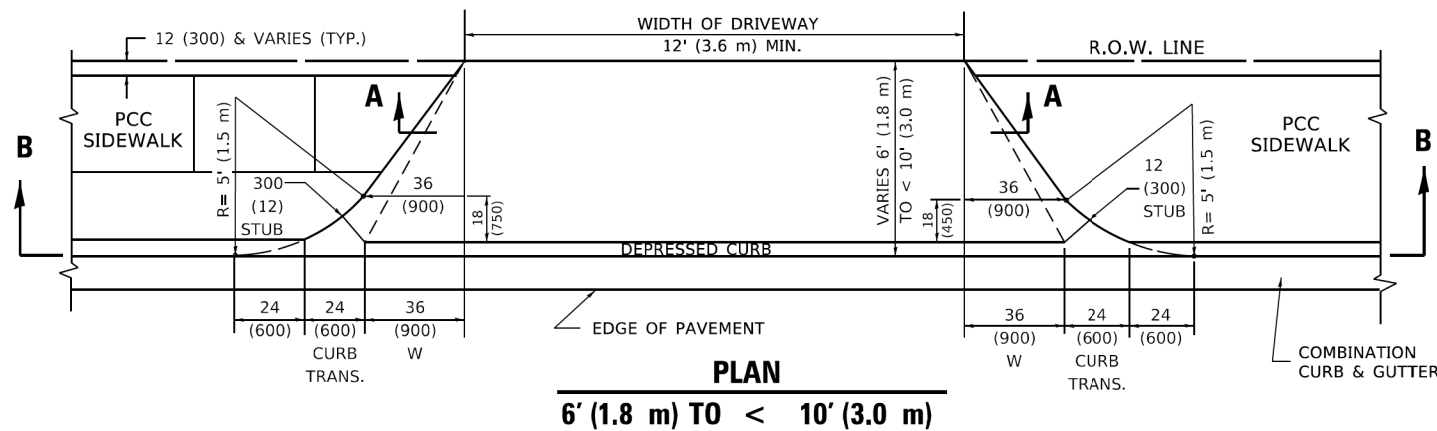
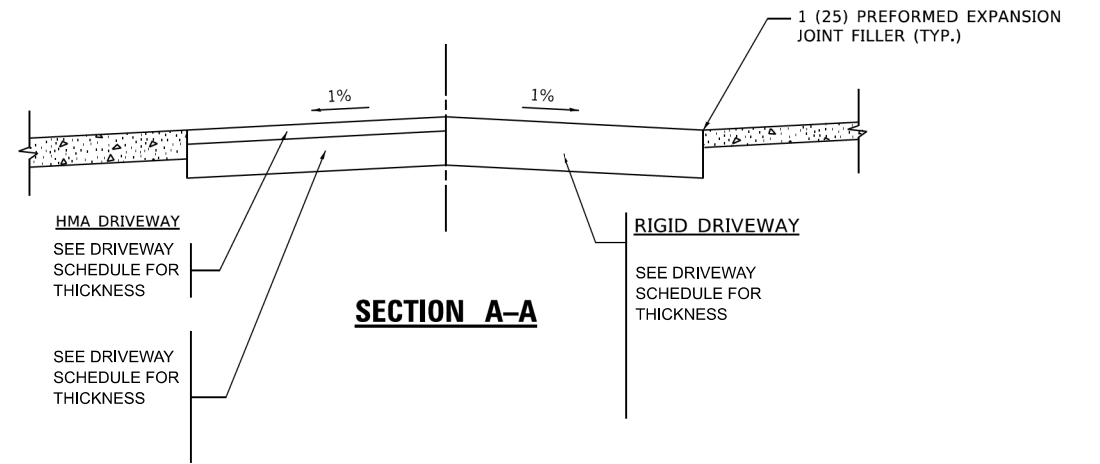
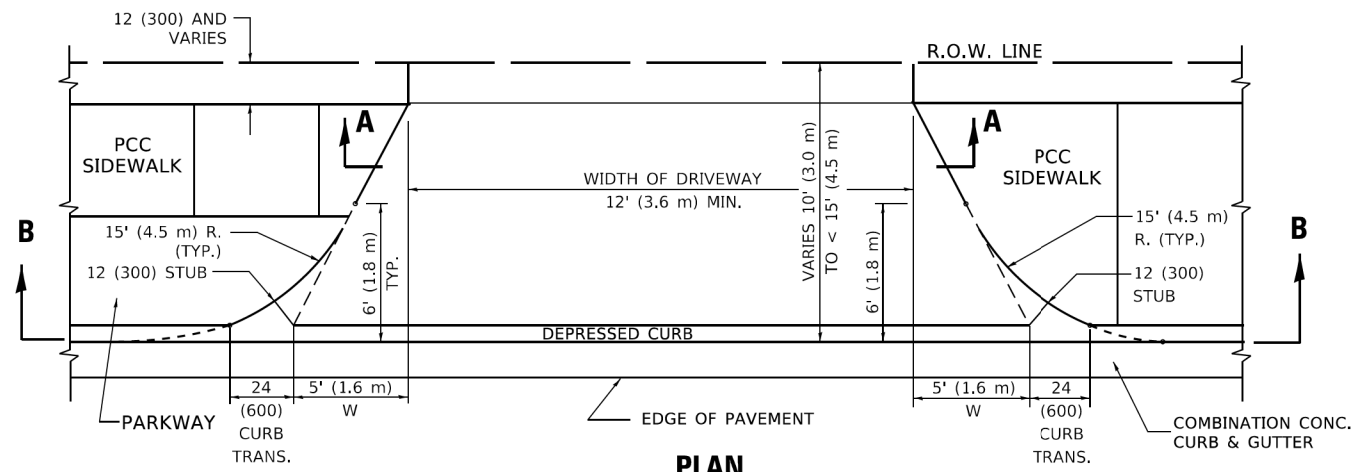
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USER NAME = Lawrence,DeManche	DESIGNED - R. SHAH	REVISED - R. BORO 06-11-08
	DRAWN -	REVISED - R. BORO 09-06-11
PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED - K. SMITH 08-28-19
PLOT DATE = 11/18/2022	DATE - 11-04-95	REVISED - K. SMITH 11-18-22

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>DRIVEWAY DETAILS - DISTANCE BETWEEN R.O.W. AND FACE OF CURB &amp; EDGE OF SHOULDER ≥ 15'(4.5m)</b>			
SCALE: NONE	SHEET 1 OF 1 SHEETS	STA. TO STA.	

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	297
BD400-01 (BD-01)			CONTRACT NO. 61D34	
ILLINOIS / FED. AID PROJECT				



**GENERAL NOTES**

- DRIVEWAY SLOPES, LOCATIONS, & GEOMETRIC LAYOUT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "HANDBOOK FOR POLICY ON PERMITS FOR ACCESS DRIVEWAYS TO STATE HIGHWAYS". FOR FURTHER LAYOUT REQUIREMENTS, REFER TO ILLUSTRATION 10 IN THE PERMIT HANDBOOK. WHERE SIDEWALKS EXIST, DRIVEWAYS SHALL BE REPLACED WITH RIGID PAVEMENT. WHERE NO SIDEWALKS EXIST, DRIVEWAYS SHALL BE REPLACED IN KIND. SIDEWALK CROSS SLOPE THRU DRIVEWAY AREA TO BE A MAXIMUM OF 1:50.
- WHEN THE DISTANCE BETWEEN R.O.W. AND THE BACK OF CURB IS EQUAL TO OR LESS THAN 8' (2.4 m), THE PCC SIDEWALK SHALL EXTEND TO THE BACK OF CURB.
- "W" VARIES FROM 36 (900) TO 5' (1.5 m) PROPORTIONAL TO THE LENGTH (L), FROM 6' (1.8 m) TO 10' (3 m).

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED.

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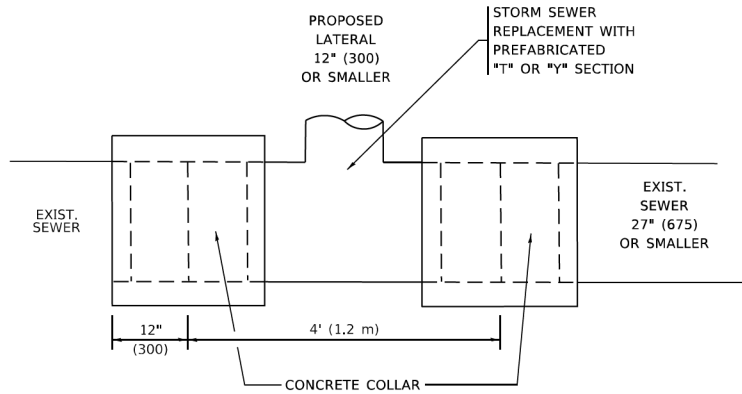
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DRIVEWAY DETAILS  
DISTANCE BETWEEN ROW AND FACE OF CURB < 15' (4.5m)**

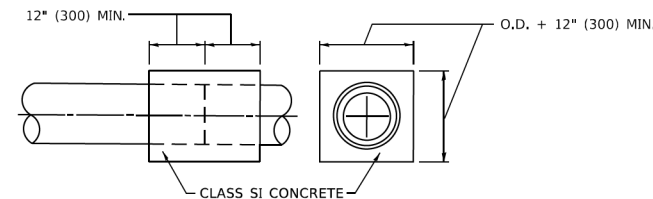
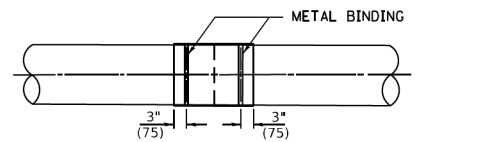
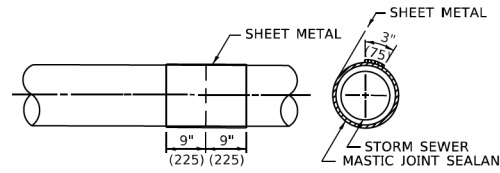
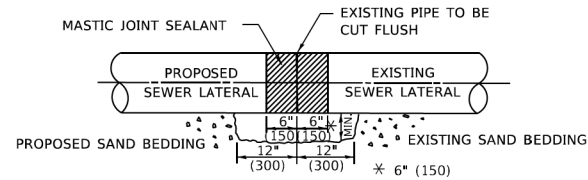
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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<b>BD400-02 (BD-02)</b>		CONTRACT NO. 61D34		
ILLINOIS   FED. AID PROJECT				



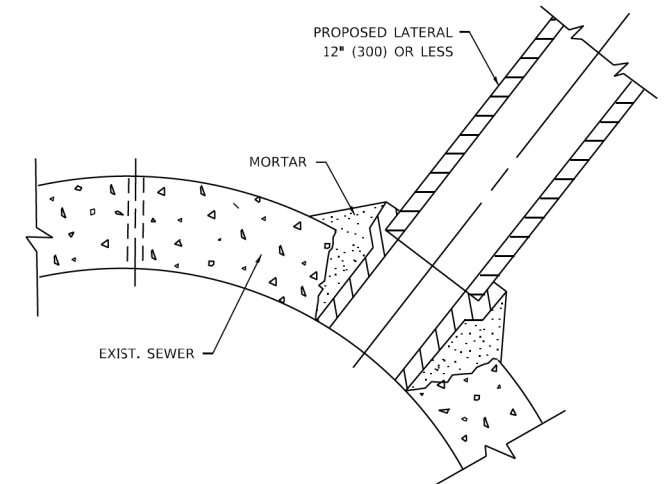
**DETAIL "A"**

LATERAL CONNECTION TO EXISTING SEWER OF 27" (675) OR SMALLER



**DETAIL "B"**

CLASS SI CONCRETE COLLAR



**DETAIL "C"**

PROPOSED LATERAL CONNECTION TO EXISTING SEWER OF 30" (750) OR LARGER

**CONSTRUCTION SEQUENCE**

1. CUT THE EXISTING END OF THE PIPE SO AS TO PRESENT A FLUSH BUTT JOINT. BRUSH AND CLEAN ALL PIPES.
2. APPLY THE MASTIC JOINT SEALANT TO THE FIRST 6" (150) OF EACH PIPE.
3. BUTT THE PIPES TOGETHER LEAVING A MINIMUM OF 12' x 6' (300 x 150) DEEP EXCAVATION UNDER AND AROUND EACH PIPE END.
4. CUT A PIECE OF SHEET METAL GAGE NO. 19 1.1 (0.0418) 18" (450) WIDE BY THE OUTSIDE CIRCUMFERANCE OF THE PIPE PLUS 3" (75) LONG.
5. WRAP THE SHEET METAL AROUND THE PIPES, 9" (225) ON EACH SIDE OF THE JOINT, STARTING AT THE TOP OF THE PIPE.
6. LAP THE SHEET METAL AT LEAST 3" (75) AT THE TOP OF THE PIPE AND PLACE THE MASTIC JOINT SEALANT BETWEEN THE LAP.
7. PLACE TWO METAL BANDS AROUND THE SHEET METAL AND TIGHTEN.
8. WIPE OFF ANY EXCESS MASTIC JOINT SEALANT THAT OZES OUT FROM BETWEEN THE SHEET METAL AND THE PIPES.
9. PLACE CLASS SI CONCRETE AROUND THE JOINT.

**NOTES:**

**MATERIAL**

MATERIAL USED FOR THE TEE OR WYE SECTION SHALL BE COMPATIBLE WITH THE EXISTING STORM SEWER OR THE PROPOSED STORM SEWER.

**CONSTRUCTION METHODS**

- THIS WORK SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE APPLICABLE PORTIONS OF SECTION 550 OF THE STANDARD SPECIFICATIONS.
- CONNECTION TO AN EXISTING STORM SEWER SHALL BE BY EITHER OF THE FOLLOWING METHODS:
  - PROPOSED STORM SEWER CONNECTION TO EXISTING SEWER OF 27" (675) OR SMALLER SEE DETAIL "A" AND "B".
  - PROPOSED STORM SEWER CONNECTION TO EXISTING SEWER OF 30" (750) OR LARGER SEE DETAIL "C".

IF THE EXISTING SEWER PIPE IS CRACKED, BROKEN OR OTHERWISE DAMAGED BY THE CONTRACTOR IN MAKING THE CIRCULAR OPENING, THE CONTRACTOR SHALL REPLACE THAT SECTION OF PIPE WITH PIPE EQUAL AND SIMILAR IN ALL RESPECTS TO THE PIPE IN THE EXISTING SEWER, IN A CAREFUL WORKMANLIKE MANNER, WITHOUT EXTRA COMPENSATION.

**GENERAL**

- CARE MUST BE TAKEN TO PREVENT DEBRIS FROM ENTERING THE SEWER. ALL DEBRIS WHICH ENTERS THE SEWER MUST BE REMOVED. THE SEWER MUST BE LEFT CLEAN AND UNOBSTRUCTED UPON COMPLETION OF THE CONTRACT.
- CARE MUST BE TAKEN TO PREVENT ANY PART OF THE NEW PIPE CONNECTION FROM PROJECTING INTO THE EXISTING SEWER.

**BASIS OF PAYMENT**

- TEE OR WYE CONNECTIONS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR STORM SEWER TEE OR WYE OF THE TYPE AND SIZE SPECIFIED IN THE PLANS, THIS PRICE SHALL INCLUDE ALL EXCAVATION OF THE TRENCH, REMOVAL OF THE EXISTING STORM SEWER, FURNISHING AND INSTALLING THE SPECIFIED TEE OR WYE SECTION, FURNISHING AND INSTALLING THE REQUIRED CONCRETE COLLAR, AND ALL OTHER MATERIAL NECESSARY TO COMPLETE THIS WORK AS SHOWN AND SPECIFIED.
- REMOVAL AND REINSTALLATION OF EXISTING STORM SEWER ADJACENT TO THE PROPOSED TEE OR WYE SECTION, FOR THE PURPOSE OF FACILITATING THE INSTALLATION OF THE TEE OR WYE SECTION, WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE WORK.
- TRENCH BACKFILL, EXCAVATION IN ROCK AND REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL BELOW PLAN BEDDING GRADE WILL BE PAID FOR SEPARATELY.
- CONCRETE COLLAR FOR CONNECTING A PROPOSED STORM SEWER TO AN EXISTING STORM SEWER WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE PROPOSED STORM SEWER.

\* ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

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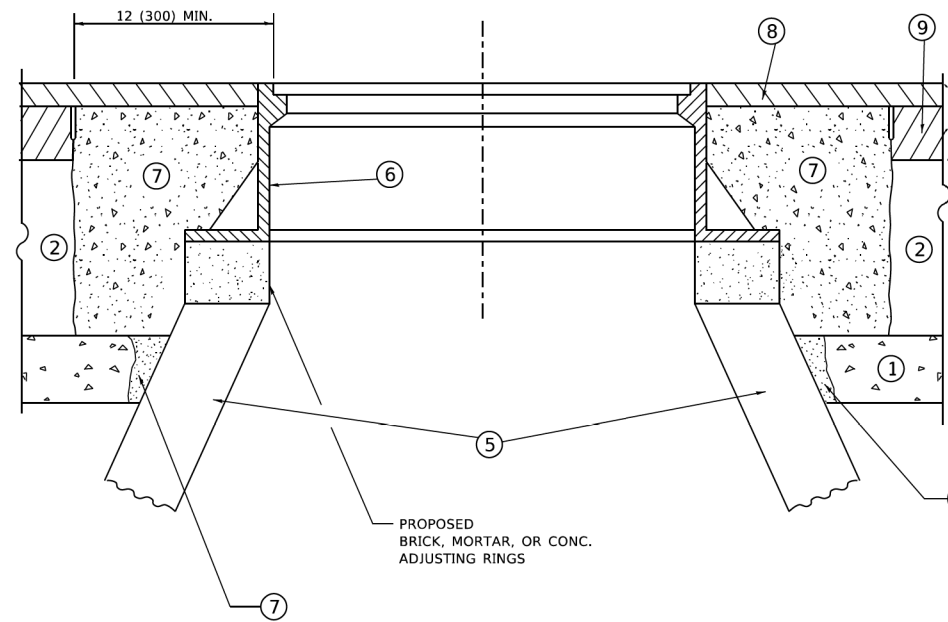
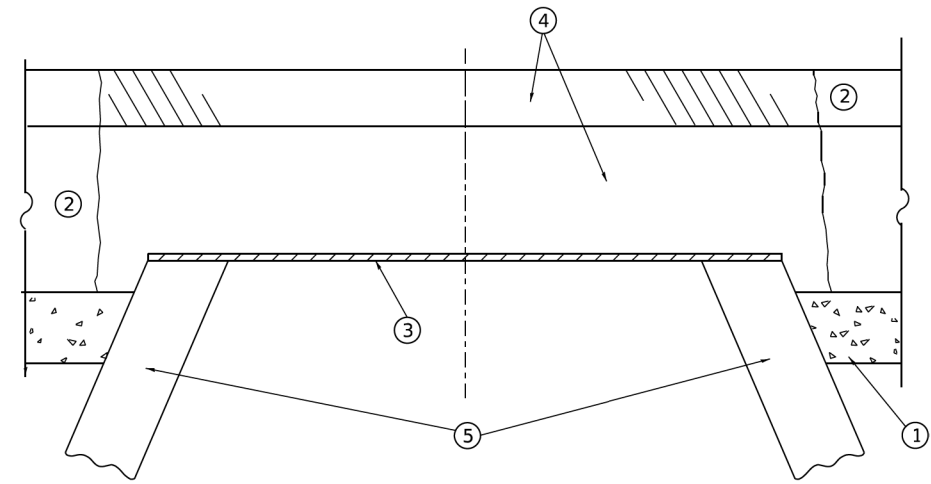
USER NAME = Lawrence,DeManche	DESIGNED - M. DE YONG	REVISED - R. SHAH 09-09-94
	DRAWN -	REVISED - R. SHAH 10-25-94
PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED - R. SHAH 06-12-96
PLOT DATE = 11/18/2022	DATE - 07-25-90	REVISED - K. SMITH 11-18-22

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DETAIL OF STORM SEWER  
CONNECTION TO EXISTING SEWER**

SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	299
BD500-01 (BD-07)			CONTRACT NO. 61D34	
ILLINOIS FED. AID PROJECT				



**DETAILS FOR FRAMES AND LIDS ADJUSTMENT  
WITH MILLING**

**NOTES**

1. EXISTING BROKEN FRAMES AND LIDS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AND SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. REPLACEMENT FRAMES AND LIDS WILL BE PAID FOR IN ACCORDANCE WITH ARTICLE 109.04 OF THE STANDARD SPECIFICATIONS UNLESS A SEPARATE PAY ITEM HAS BEEN PROVIDED.
2. IF THE EXISTING LIDS ARE OPEN, THE FRAME WILL BE ADJUSTED TO THE ELEVATION OF THE MILLED PAVEMENT SURFACE PRIOR TO THE MILLING OPERATION. THE FRAME WILL NOT BE REMOVED AND COVERED BY THE METAL PLATE.
3. CITY OF CHICAGO CASTINGS ARE THE PROPERTY OF THE CITY AND THE CONTRACTOR SHALL NOTIFY THE CITY FOR REMOVAL AND DISPOSITION OF THE CASTINGS.
4. THE METAL PLATE USED TO COVER THE STRUCTURE SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL REMOVE ALL TRAFFIC CONTROL DEVICES BY THE END OF EACH WORK SHIFT.

**CONSTRUCTION PROCEDURES**

**STAGE 1 (BEFORE PAVEMENT MILLING)**

- A) REMOVE A MINIMUM OF 12 (300) OF THE PAVEMENT FROM AROUND THE STRUCTURE.
- B) REMOVE THE EXISTING FRAME AND LID FROM THE STRUCTURE.
- C) COVER THE STRUCTURE OPENING WITH A 36 (900) DIAMETER METAL PLATE.
- D) BACKFILL WITH CRUSHED STONE AND HMA SURFACE MIX APPROVED BY THE ENGINEER. (MIN. 3 (80) HMA TO REMAIN AFTER MILLING).

**STAGE 2 (AFTER PAVEMENT MILLING)**

- A) REMOVE THE HMA SURFACE MIX AND CRUSHED STONE.
- B) INSTALL THE FRAME AND LID; ADJUST THE FRAME TO ITS FINAL SURFACE ELEVATION.
- C) THE SURROUNDING SPACE SHALL BE FILLED WITH CLASS PP-2\* CONCRETE TO THE ELEVATION OF THE SURFACE OF THE EXISTING BASE COURSE OR THE BINDER COURSE.

\* UNLESS OTHERWISE SPECIFIED IN THE PLANS.

THE PROCEDURE EXPLAINED ABOVE SHALL CONFORM TO THE APPLICABLE PORTIONS OF SECTIONS 353, 406, 602, AND 603 OF THE STANDARD SPECIFICATIONS EXCEPT THAT "THE CONTRACTOR SHALL ADJUST THE STRUCTURES TO THE FINISHED PAVEMENT ELEVATION NO MORE THAN 5 CALENDAR DAYS PRIOR TO PLACEMENT OF THE FINAL LIFT OF SURFACE UNLESS APPROVED BY THE ENGINEER."

**LEGEND**

- |  |                               |
|--|-------------------------------|
| ① SUB-BASE GRANULAR MATERIAL                 | ⑥ FRAME AND LID (SEE NOTES)   |
| ② EXISTING PAVEMENT                          | ⑦ CLASS PP-2* CONCRETE        |
| ③ 36 (900) DIAMETER METAL PLATE              | ⑧ PROPOSED HMA SURFACE COURSE |
| ④ PROPOSED CRUSHED STONE AND HMA SURFACE MIX | ⑨ PROPOSED HMA BINDER COURSE  |
| ⑤ EXISTING STRUCTURE                         |                               |

**LOCATION OF STRUCTURES**

THE CONTRACTOR WILL BE REQUIRED TO KEEP A RECORD OF THE LOCATIONS OF THE BURIED STRUCTURES ACCORDING TO THE STATION AND DISTANCE LEFT OR RIGHT OF THE CENTERLINE OF PAVEMENT. UPON COMPLETION OF THE WORK, THE CONTRACTOR WILL DELIVER THE RECORD TO THE ENGINEER.

**BASIS OF PAYMENT**

1. REMOVING FRAMES AND LIDS ON DRAINAGE AND UTILITY STRUCTURES IN THE PAVEMENT PRIOR TO MILLING, AND ADJUSTING TO FINAL GRADE PRIOR TO PLACING THE SURFACE COURSE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR "FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)."
2. THIS WORK WILL NOT BE PAID FOR WHEN DRAINAGE AND UTILITY STRUCTURES ARE SPECIFIED FOR PAYMENT AS STRUCTURE RECONSTRUCTION.
3. NEW FRAMES AND LIDS, WHEN SPECIFIED, WILL BE PAID FOR SEPARATELY.
4. WHEN STRUCTURES ARE TO BE ADJUSTED OR RECONSTRUCTED, THE LOWERING AND RAISING OF THE FRAMES AND LIDS WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE COST OF THE CORRESPONDING PAY ITEM.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

MODEL: Defaul  
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USER NAME = Lawrence.DeManche	DESIGNED - R. SHAH	REVISED - R. BORO 03-09-11
	DRAWN -	REVISED - R. BORO 12-06-11
PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED - K. SMITH 11-18-22
PLOT DATE = 9/15/2023	DATE - 10-25-94	REVISED - K. SMITH 09-15-23

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DETAILS FOR  
FRAMES AND LIDS ADJUSTMENT WITH MILLING**

SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0356	12-00147-11-CH	WILL	356	300
BD600-03 (BD-08)			CONTRACT NO. 61D34	
ILLINOIS FED. AID PROJECT				