

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0121/0124	19-00512-00-SP	McHENRY	79	1
		ILLINOIS	CONTRACT NO. 61K42	

FOR INDEX OF SHEETS, SEE SHEET NO. 2  
FOR INDEX OF OF HIGHWAY STANDARDS, SEE SHEET NO. 2

04-26-2024 LETTING ITEM 012

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED  
FEDERAL AID HIGHWAY

FAU ROUTE 0121 (VIRGINIA ROAD)  
FAU ROUTE 0124 (PYOTT ROAD)

TECKLER BLVD TO JAMES R RAKOW ROAD

SECTION 19-00512-00-SP

PROJECT XUZD(086)

TRAFFIC SIGNAL INSTALLATION /REPLACEMENT

MCHEMRY COUNTY

C-91-191-20

PROJECT LOCATED IN  
CITY OF CRYSTAL LAKE  
VILLAGE OF LAKE IN THE HILLS

TRAFFIC DATA

ROAD NAME: VIRGINIA ROAD / PYOTT ROAD  
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL  
POSTED SPEED LIMIT: 40 MPH  
DESIGN SPEED: 50 MPH  
ADT: 6100-14200



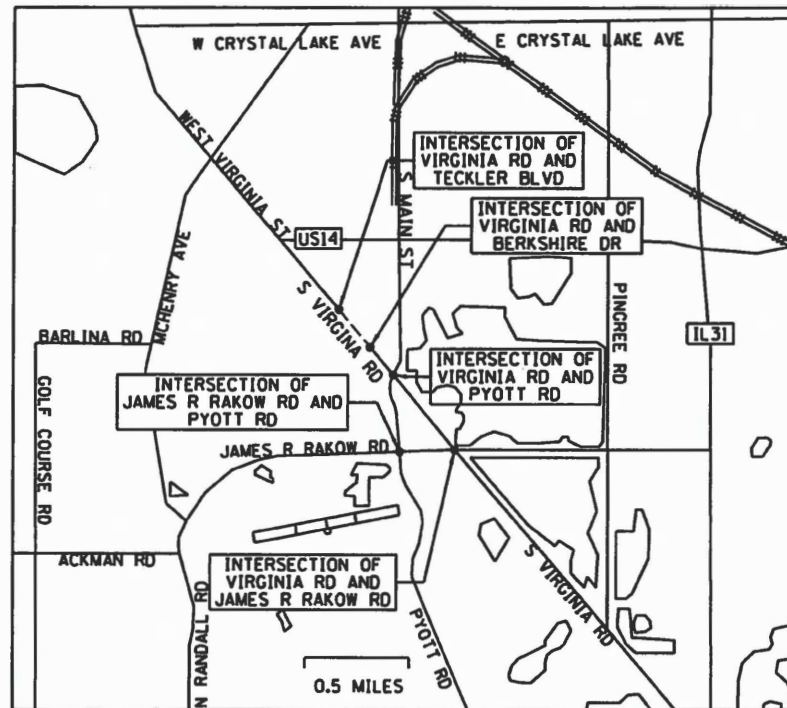
*Todd Artz*

TODD ARTZ, P.E. DATE 02/27/2024  
HANSON PROFESSIONAL SERVICES INC.  
LICENSE EXPIRES: 11/30/2025  
SHEET RANGE: 28-47



*Nada Naffakh*

NADA NAFFAKH, P.E. DATE 02/27/2024  
HANSON PROFESSIONAL SERVICES INC.  
LICENSE EXPIRES: 11/30/2025  
SHEET RANGE: 1-27

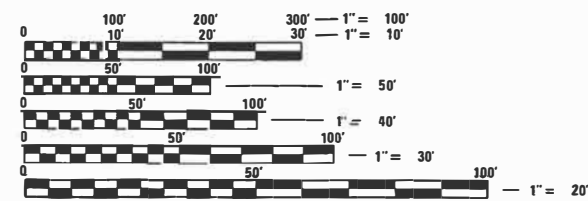


LOCATION MAP

N.T.S.

GROSS LENGTH = N/A = N/A MILE  
WORK IN INTERSECTIONS ONLY

DATE: 02/14/2024



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

APPROVED FEBRUARY 23 20 24  
*Joseph R. Korpala*  
COUNTY ENGINEER  
MCHEMRY COUNTY DIVISION OF TRANSPORTATION

PASSED FEB 29 20 24  
*Chris Rade*  
DISTRICT ENGINEER OF LOCAL ROADS AND STREETS

RELEASED FOR BID  
BASED ON LIMITED REVIEW March 1st 20 2024  
*Joseph Rade*  
REGIONAL ENGINEER

PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS

CONTRACT NO. 61K42

FEDERAL AID PROGRAM ENGINEER: CARMEN E. RAMOS, P.E. SCHAUMBURG, IL

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**LIST OF STANDARDS**

000001-08	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
424001-11	PERPENDICULAR CURB RAMPS FOR SIDEWALKS
424006-05	DIAGONAL CURB RAMPS FOR SIDEWALKS
424021-06	DEPRESSED CORNER FOR SIDEWALKS
606001-08	CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER
701001-02	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-05	OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701101-05	OFF-RD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE
701106-02	OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
701306-04	LANE CLOSURE, 2L, 2W, SLOW MOVING OPERATIONS DAY ONLY, FOR SPEEDS >= 45 MPH
701311-03	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS DAY ONLY
701426-09	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS >= 45 MPH
701427-05	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS <= 40 MPH
701701-10	URBAN LANE CLOSURE, MULTI LANE INTERSECTION
701801-06	SIDEWALK, CORNER OR CROSSWALK CLOSURE
701901-09	TRAFFIC CONTROL DEVICES
720001-01	SIGN PANEL MOUNTING DETAILS
720006-04	SIGN PANEL ERECTION DETAILS
720016-04	MAST ARM MOUNTED STREET NAME SIGN
814001-03	HANDHOLES
821101-02	LUMINAIRE WIRING IN POLE
838001-01	BREAKAWAY DEVICES
857001-01	STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES
873001-02	TRAFFIC SIGNAL GROUNDING & BONDING
876001-04	PEDESTRIAN PUSH BUTTON POST
877011-10	STEEL COMB. MAST ARM ASSEMBLY AND POLE 16' THROUGH 55'
877012-07	STEEL COMB. MAST ARM ASSEMBLY AND POLE 56' THROUGH 75'
878001-11	CONCRETE FOUNDATION DETAILS
880006-01	TRAFFIC SIGNAL MOUNTING DETAILS

**LIST OF DI STANDARDS**

BE702	MISCELLANEOUS ELECTRICAL DETAILS, SHEET A - (CABLE SPLICING, POLE WIRING, TRENCH DETAIL)
TC13	DISTRICT ONE TYPICAL PAVEMENT MARKINGS
TC22	ARTERIAL ROAD INFORMATION SIGN
TS02	MAST ARM MOUNTED STREET NAME SIGNS
TS05	DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS (INCL. IN INDEX OF SHEETS)

**UTILITY NOTE**

THE LOCATIONS OF THOSE BURIED AND ABOVEGROUND UTILITIES SHOWN ARE APPROXIMATE, ARE SHOWN FOR CONTRACTOR INFORMATIONAL USE ONLY, AND ARE NOT TO BE REFERENCED FOR CONSTRUCTION PURPOSES. THE IMPLIED PRESENCE OR ABSENCE OF UTILITIES IS NOT TO BE CONSTRUED BY THE OWNER, ENGINEER, CONTRACTOR, OR SUBCONTRACTORS TO BE AN ACCURATE AND COMPLETE REPRESENTATION OF UTILITIES THAT MAY OR MAY NOT EXIST ON THE CONSTRUCTION SITE. BURIED AND ABOVEGROUND UTILITY LOCATION, IDENTIFICATION, AND MARKING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. REROUTING, DISCONNECTION, PROTECTION, ETC. OF ANY UTILITIES MUST BE COORDINATED AMONG THE CONTRACTOR, UTILITY COMPANY, AND OWNER. SITE SAFETY, INCLUDING THE AVOIDANCE OF HAZARDS, ASSOCIATED WITH BURIED AND ABOVEGROUND UTILITIES REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

**LEGEND**

⊙	EXISTING MANHOLE	— G —	GAS
▲	CONTROL POINT	— T —	TELEPHONE
⊞	EXISTING TELEPHONE PEDESTAL	— CTV —	CABLE TELEVISION
→	EXISTING GUY	— FO —	FIBER OPTIC
□	EXISTING POWER POLE	— W —	WATER
◁	EXISTING CULVERT	-----	PIPE CULVERT
⊥	EXISTING SIGN	← ← ← ← ←	PROPOSED STORM SEWER
⊙	EXISTING TREE	← ← ← ← ←	EXISTING STORM SEWER
⊗	EXISTING R.O.W. MARKER	— A —	OVERHEAD ELECTRIC
⊥	EXISTING MAILBOX	- X - X - X -	FENCE
▶	PROPOSED MAILBOX	— - - —	PROPOSED R.O.W.
—	PROPOSED INLET	— — — —	EXISTING R.O.W.
⊙	PROPOSED MANHOLE	/// /// /// ///	TEMPORARY EASEMENT
⊥	PROPOSED SIGN		

**GENERAL NOTES**

- THE CONSTRUCTION SHALL BE GOVERNED BY THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", JANUARY 1, 2022 EDITION AND "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS", JANUARY 1, 2024 EDITION.
- WHERE SECTION, SUB-SECTION, SUBDIVISION, OR PROPERTY MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND PRESERVE ALL PROPERTY MARKERS UNTIL AN OWNER OR AUTHORIZED SURVEYOR HAS WITNESSED OR REFERENCED THEIR LOCATION.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS TO ANY UTILITY LINES AND EXISTING FACILITIES TO REMAIN THAT ARE DAMAGED AS A RESULT OF THE WORK.
- ALL SECTIONS, DETAILS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE, UNLESS OTHERWISE SHOWN.
- ALL THE ELEVATIONS, STATIONS, AND OFFSETS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS.
- EXCESS MATERIAL, IF NOT USED FOR OTHER ON-SITE PURPOSES, SHALL BE HAULED OFF-SITE AT CONTRACTOR'S EXPENSE.
- THE WORK AREA SHALL BE POSITIVELY DRAINED DURING CONSTRUCTION. FINAL GRADES SHALL BE PROTECTED AGAINST DAMAGE FROM EROSION, SEDIMENTATION, AND TRAFFIC.
- THE CONTRACTOR SHALL USE ANY ON SITE MATERIAL DEEMED SUITABLE BY THE ENGINEER BEFORE ANY NEW FILL IS HAULED TO THE SITE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
- CONTRACTORS BIDDING THIS PROJECT SHALL VISIT THE SITE BEFORE BIDDING.
- TRAFFIC SIGNS LOCATED ON EXISTING SIGNAL MAST ARMS AND POSTS SHOULD BE REMOVED SAFELY, STORED, AND REINSTALLED TO THE PROPOSED TRAFFIC SIGNAL POSTS OR MAST ARMS. ALL RELOCATED SIGNS AND PROPOSED SIGNS SHALL BE INSTALLED WITH SUPPORTING CHANNELS UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
- PROPOSED SIDEWALKS SHALL BE 5" PCC ON A 4" CA-6(SUB-BASE GRANULAR MATERIAL, TYPE B)
- THE LOCATIONS AND ELEVATIONS SHOWN ON THE PLANS MAY BE MODIFIED IN THE FIELD AS NECESSARY AND SHALL IN NO WAY BE A CAUSE FOR FURTHER COMPENSATION TO THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY FENCE LOCATIONS WITHIN ROW IN THE PROJECT LIMITS.
- ALL COORDINATE INFORMATION SHOWN IS EXPRESSED IN ILLINOIS STATE PLANE WEST ZONE (1983) COORDINATE SYSTEM.
- CONTRACTOR SHALL TAKE PRECAUTION BY PRESERVING EXISTING TREES WITHIN THE RIGHT OF WAY. IF ANY DAMAGE OCCURS, TREES SHALL BE REPLACED IN KIND PER ARTICLE 201.07. REPAIR OR REPLACEMENT OF EXISTING PLANT MATERIAL REQUIREMENTS STATED HEREIN
- CONTRACTOR SHALL MAINTAIN ACCESS TO PRAIRIE TRAIL USING TEMPORARY SIDEWALK AND CONSTRUCTION PHASING

PROJECT CONTACTS			
SCHOOLS	DISTRICT 155 (CRYSTAL LAKE)	SHANNON PODZIMEK	(815) 455-8500
	DISTRICT 47 (CRYSTAL LAKE)	DENISE BARR	(815) 788-5014
EMS	CRYSTAL LAKE FIRE/RESCUE DEPARTMENT	PAUL DERAEDT	(815) 356-3640
STATE	ILLINOIS DEPARTMENT OF TRANSPORTATION - DISTRICT ONE	CARMEN RAMOS	(847) 705-4021
COUNTY	MCHENRY COUNTY DIVISION OF TRANSPORTATION	REBECCA BRAZAS	(815) 334-4979
	MCDOT CONSTRUCTION CONTACT	JEREMY STULL	(815) 334-4967
VILLAGES	CITY OF CRYSTAL LAKE	ABBY WILGREEN	(815) 356-3605
	VILLAGE OF LAKE IN THE HILLS	RYAN MCDILLON	(847) 960-7506

**COMMITMENTS- NONE**

SIDEWALKS AND RAMPS AT THE INTERSECTION OF VIRGINIA AND PYOTT/MAIN SHALL BE LIMITED TO 2-DAY (TUESDAY-WEDNESDAY) CLOSURES. ALL WORK PERTAINING TO THE SIDEWALKS AND RAMPS SHALL BE COMPLETED WITHIN THESE CLOSURE PERIODS.

HOT MIX ASPHALT MIXTURE REQUIREMENTS			
OPERATION	MIXTURE TYPE	PERCENT AIR VOIDS @NDES	OMP
CLASS D PATCH SPECIAL	HOT MIX ASPHALT BINDER COURSE, IL-19.0, N70	4% @70 GYR	LR 1030-2
	HOT MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70 (TOP 2")	4% @70 GYR	LR 1030-2
OMP DESIGNATION: QUALITY CONTROL/QUALITY ASSURANCE (QC/OA) PER LR 1030-2			

THE UNIT WEIGHT USED TO CALCULATE ALL HMA SURFACE MIXTURE QUANTITIES IS 112 LBS/50 YD/IN

THE "AC TYPE" FOR POLYMERIZED HMA MIXES SHALL BE "SBS/SBR PG 76 -22" AND FOR NON-POLYMERIZED HMA THE "AC TYPE" SHALL BE "PG 64 -22" UNLESS MODIFIED BY RECLAIMED MATERIALS SPECIFICATIONS.



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 LAYOUT: JAP 09/09/2022  
 DRAWN: JAP 11/30/2022  
 REVIEWED: GR  
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USER NAME = hard02376	DESIGNED - NN	REVISED -
	DRAWN - JAP	REVISED -
PLOT SCALE = 2.00' / in.	CHECKED - GR	REVISED -
PLOT DATE = 3/18/2024	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**INDEX OF SHEETS, GENERAL NOTES,  
LEGEND AND LIST OF STANDARDS**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	MCHENRY	79	2
CONTRACT NO. 61K42				
ILLINOIS FED. AID PROJECT				

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	PYOTT / RAKOW	VIRGINIA / RAKOW	PYOTT / MAIN	BERKSHIRE	TECKLER	Interconnect
CONSTRUCTION CODE 0021									
90% STATE (HSIP FUNDS) 10% COUNTY									
* 20101200	TREE ROOT PRUNING	EACH	1					1	
* 20101300	TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	1					1	
* 20200100	EARTH EXCAVATION	CU YD	11			1	5	5	
* 21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	247			48	112	87	
* 25200110	SODDING, SALT TOLERANT	SQ YD	247			48	112	87	
* 25200200	SUPPLEMENTAL WATERING	UNIT	14			3	6	5	
	28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	4		1	2	1	
* 28000510	INLET FILTERS	EACH	16			7	3	6	
* 31101200	SUBBASE GRANULAR MATERIAL, TYPE B 4"	SQ YD	311			132	101	78	
* 42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	2,790			1,186	905	699	
* 42400800	DETECTABLE WARNINGS	SQ FT	298			86	115	97	
* 44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	328			103	129	96	
* 44000600	SIDEWALK REMOVAL	SQ FT	2,383			1,156	740	487	
* 60260100	INLEIS TO BE ADJUSTED	EACH	6			5	1		
* 60605000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24	FOOT	346			103.00	136.00	107.00	
67100100	MOBILIZATION	L SUM	1	0.20	0.20	0.20	0.20	0.20	
70102635	TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	1	0.20	0.20	0.20	0.20	0.20	
70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	1	0.20	0.20	0.20	0.20	0.20	
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	60	10	10	10	20	10	
72000100	SIGN PANEL - TYPE 1	SQ FT	179	30	30	75	23	21	

\* SPECIALTY ITEM

USER NAME = hardi02376	DESIGNED - NN	REVISED -
PLOT SCALE = 2.00" = 1'	DRAWN - JAP	REVISED -
PLOT DATE = 2/15/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES			
SCALE:	SHEET 1	OF 2	SHEETS
			STA. TO STA.

F.A.U. RTE. 021/0124	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 3
CONTRACT NO. 61K42				
ILLINOIS FED. AID PROJECT				



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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	PYOTT / RAKOW	VIRGINIA / RAKOW	PYOTT / MAIN	BERKSHIRE	TECKLER	Interconnect
CONSTRUCTION CODE 0021									
90% STATE (HSIP FUNDS) 10% COUNTY									
* 78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	1,096			706		390	
* 78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	FOOT	829			430	399		
78300201	PAVEMENT MARKING REMOVAL - GRINDING	SQ FT	2,032			1,137	505	390	
80500020	SERVICE INSTALLATION - POLE MOUNTED	EACH	1				1		
81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	562			231	182	149	
81028220	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	107				73	34	
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	827			110	385	332	
81028350	UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	2,443						2,443
81400100	HANDHOLE	EACH	11			1	3	2	5
81400300	DOUBLE HANDHOLE	EACH	2				1	1	
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	3	1	1	1			
86400100	TRANSCEIVER - FIBER OPTIC	EACH	4						4
87300925	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	4,967						4,967
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	3,583			1,498	1,276	809	
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	5,128			1,545	2,217	1,366	
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	4,193	230			1,832	2,131	
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1,772				1,489	283	
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	139	17	25	25	38	34	
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	2095	17	25	479	880	694	
87502440	TRAFFIC SIGNAL POST, GALVANIZED STEEL 10 FT.	EACH	22			8	8	6	
87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	8				4	4	

\* SPECIALTY ITEM

USER NAME = hard02376	DESIGNED - NN	REVISED -
PLOT SCALE = 2.00" / 1"	DRAWN - JAP	REVISED -
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	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES				
SCALE:	SHEET 2	OF 2	SHEETS	STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	4
CONTRACT NO. 61K42				
ILLINOIS FED. AID PROJECT				

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	PYOTT / RAKOW	VIRGINIA / RAKOW	PYOTT / MAIN	BERKSHIRE	TECKLER	Interconnect
CONSTRUCTION CODE 0021									
90% STATE (HSIP FUNDS) 10% COUNTY									
87702870	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 28 FT.	EACH	1				1		
87702900	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 34 FT.	EACH	2				2		
87702920	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 38 FT.	EACH	1					1	
87702930	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 40 FT.	EACH	1				1		
87702950	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 44 FT.	EACH	1					1	
87702955	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 45 FT.	EACH	1					1	
87702990	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 54 FT.	EACH	1			1			
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	144	8	4	36	52	44	
87800150	CONCRETE FOUNDATION, TYPE C	FOOT	8				4	4	
87800400	CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	10				10		
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	72				35	37	
87900200	DRILL EXISTING HANDHOLE	EACH	10			7			3
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	14	1	4	2	2	5	
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	44	12	12	6	8	6	
88040110	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	15	4	2	4	4	1	
88040120	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	14	3	2	4	4	1	
88040150	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	8	2	2	4			
88040160	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	12	4	2	6			
88102717	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	14				8	6	
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	107	26	24	26	18	13	

USER NAME = hard02376	DESIGNED - NN	REVISED -
DRAWN - JAP	CHECKED - GR	REVISED -
PLOT SCALE = 2.00' / in.	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES			
SCALE:	SHEET	OF	SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	5
CONTRACT NO. 61K42				
ILLINOIS   FED. AID PROJECT				



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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	PYOTT / RAKOW	VIRGINIA / RAKOW	PYOTT / MAIN	BERKSHIRE	TECKLER	Inter connect
CONSTRUCTION CODE 0021									
90% STATE (HSIP FUNDS) 10% COUNTY									
88700200	LIGHT DETECTOR	EACH	7				4	3	
88700300	LIGHT DETECTOR AMPLIFIER	EACH	7				4	3	
89000100	TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	2				1	1	
89500200	RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD	EACH	8			8			
89500300	RELOCATE EXISTING ILLUMINATED SIGN	EACH	1			1			
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	3	1	1	1			
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	5	1	1	1	1	1	
89502380	REMOVE EXISTING HANDHOLE	EACH	6			1	2	3	
89502382	REMOVE EXISTING DOUBLE HANDHOLE	EACH	2				1	1	
89502385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	17			1	9	7	
X0324085	EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	FOOT	1588				989	599	
X1400150	SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	5	1	1	1	1	1	
X1400424	ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW	FOOT	1561			192	745	624	
* X4240200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH COLORED	SQ FT	64			64			
* X4420828	CLASS D PATCHES, TYPE III, 12 INCH (SPECIAL)	SQ YD	53			18		35	
* X4421790	CLASS D PATCHES, TYPE II, 12 INCH (SPECIAL)	SQ YD	108			41	41	26	
X8030108	LOCATING UNDERGROUND UTILITIES	SUM	1	0.2	0.2	0.2	0.2	0.2	
X8100105	CONDUIT SPLICE	EACH	4	1	1	1		1	
X8570226	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	2				1	1	

\* SPECIALTY ITEM

LAYOUT	IN	02/09/2022
DRAWN	JAP	11/20/2022
REVIEWED	GR	

USER NAME	= hardi02376	DESIGNED	- NN	REVISED	- 02/27/2024
DRAWN	- JAP	CHECKED	- GR	REVISED	-
PLOT SCALE	= 2.00' / in.	DATE	- 02/14/2024	REVISED	-
PLOT DATE	= 2/28/2024				

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES				
SCALE:	SHEET 4	OF 5	SHEETS	STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	6
CONTRACT NO. 61K42				
ILLINOIS   FED. AID PROJECT				

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	PYOTT / RAKOW	VIRGINIA / RAKOW	PYOTT / MAIN	BERKSHIRE	TECKLER	Interconnect
CONSTRUCTION CODE 0021									
90% STATE (HSIP FUNDS) 10% COUNTY									
X8620200	UNINTERRUPTIBLE POWER SUPPLY, SPECIAL	EACH	2				1	1	
X8710200	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM36F	FOOT	4967						4967
X8760200	ACCESSIBLE PEDESTRIAN SIGNALS	EACH	22			8	8	6	
X8809005	LED SIGNAL FACE, LENS COVER	EACH	107	26	24	26	18	13	
X8891408	RELOCATE EXISTING VIDEO VEHICLE DETECTOR	EACH	1			1			
XX005723	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION	EACH	2				1	1	
XX005937	LED INTERNALLY ILLUMINATED STREET NAME SIGN	EACH	7				4	3	
XX007150	RELOCATE EXISTING SIGN, TYPE 1	EACH	1					1	
* Z0007430	TEMPORARY SIDEWALK	SQ FT	2548			1156	905	487	
Z0013798	CONSTRUCTION LAYOUT	L SUM	1					1	
Z0030850	TEMPORARY INFORMATION SIGNING	SQ FT	50	10	10	10	10	10	
Z0033044	RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 1	EACH	4						4
CONSTRUCTION CODE 0042									
# Z0076600	TRAINEES	HOUR	500						
# Z0076604	TRAINEES TRAINING PROGRAM GRADUATE	HOUR	500						

\* SPECIALTY ITEM

# 0042

LAYOUT	09/09/2022	NN
DRAWN	JAP	
REVIEWED	GR	

USER NAME = hardi02376	DESIGNED - NN	REVISED - 02/27/2024
PLOT SCALE = 2.00" / 1in.	DRAWN - JAP	REVISED -
PLOT DATE = 2/28/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

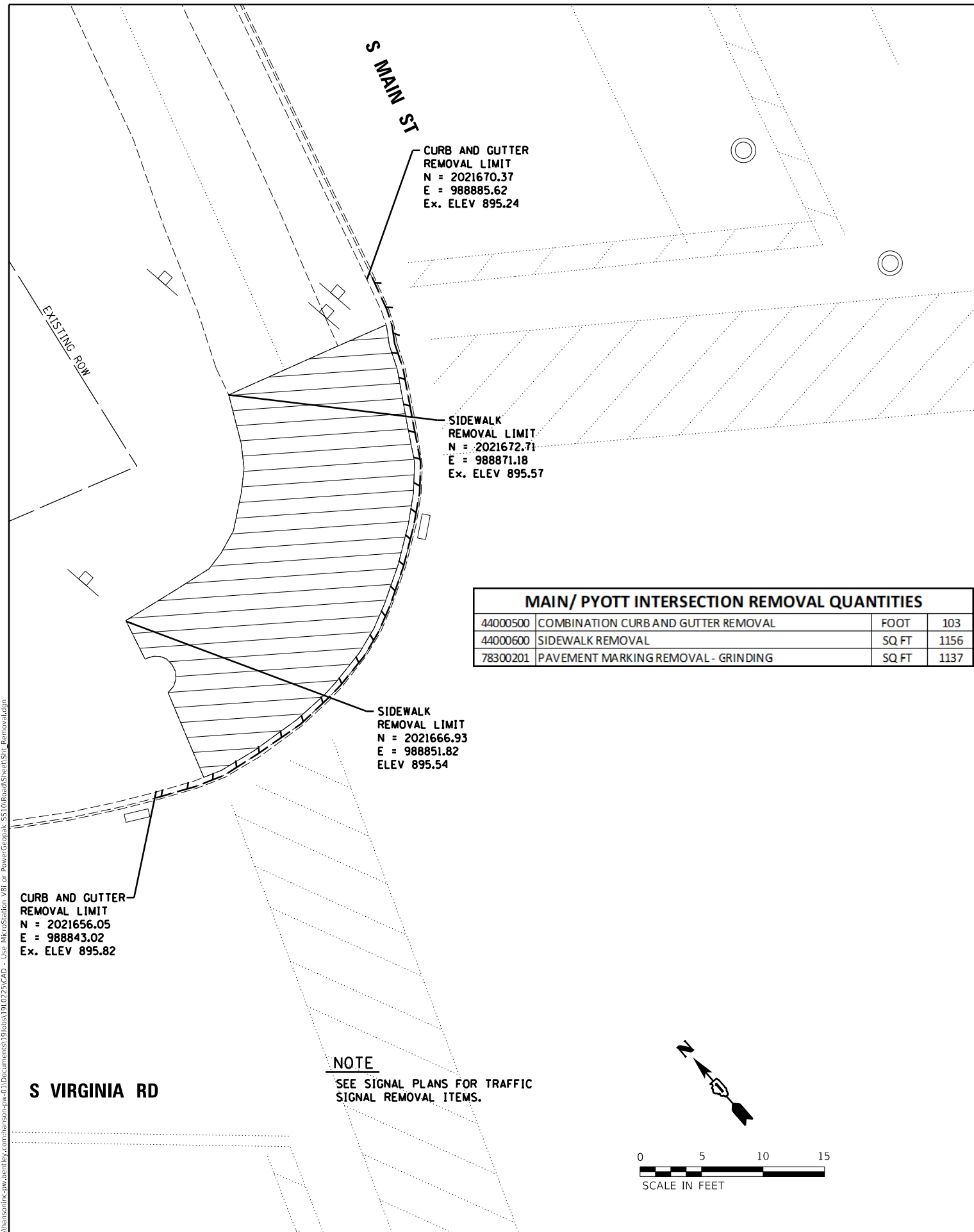
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES**

SCALE: SHEET 5 OF 5 SHEETS STA. TO STA.

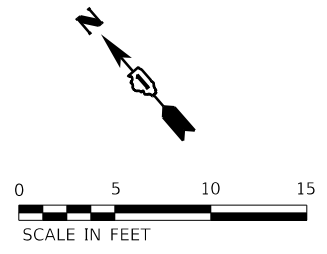
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	7
CONTRACT NO. 61K42				
ILLINOIS FED. AID PROJECT				

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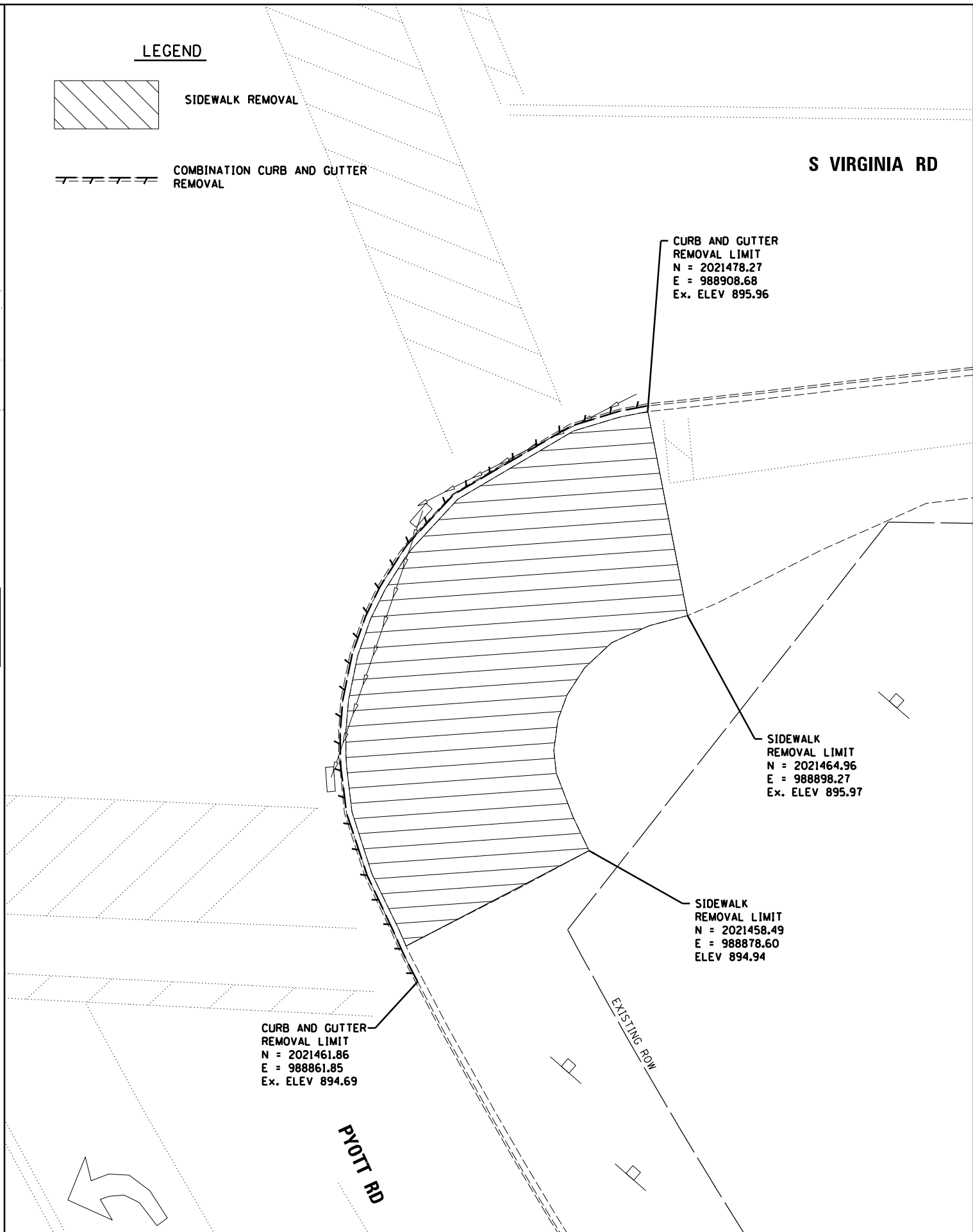
MAIN/ PYOTT INTERSECTION REMOVAL QUANTITIES			
44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	103
44000600	SIDEWALK REMOVAL	SQ FT	1156
78300201	PAVEMENT MARKING REMOVAL - GRINDING	SQ FT	1137

**NOTE**  
 SEE SIGNAL PLANS FOR TRAFFIC  
 SIGNAL REMOVAL ITEMS.



**LEGEND**

- SIDEWALK REMOVAL
- COMBINATION CURB AND GUTTER REMOVAL



LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME = hard02376	DESIGNED - NN	REVISED -
DRAWN - JAP	REVISED -	
PLOT SCALE = 10.00' / in.	CHECKED - GR	REVISED -
PLOT DATE = 3/18/2024	DATE - 02/14/2024	REVISED -

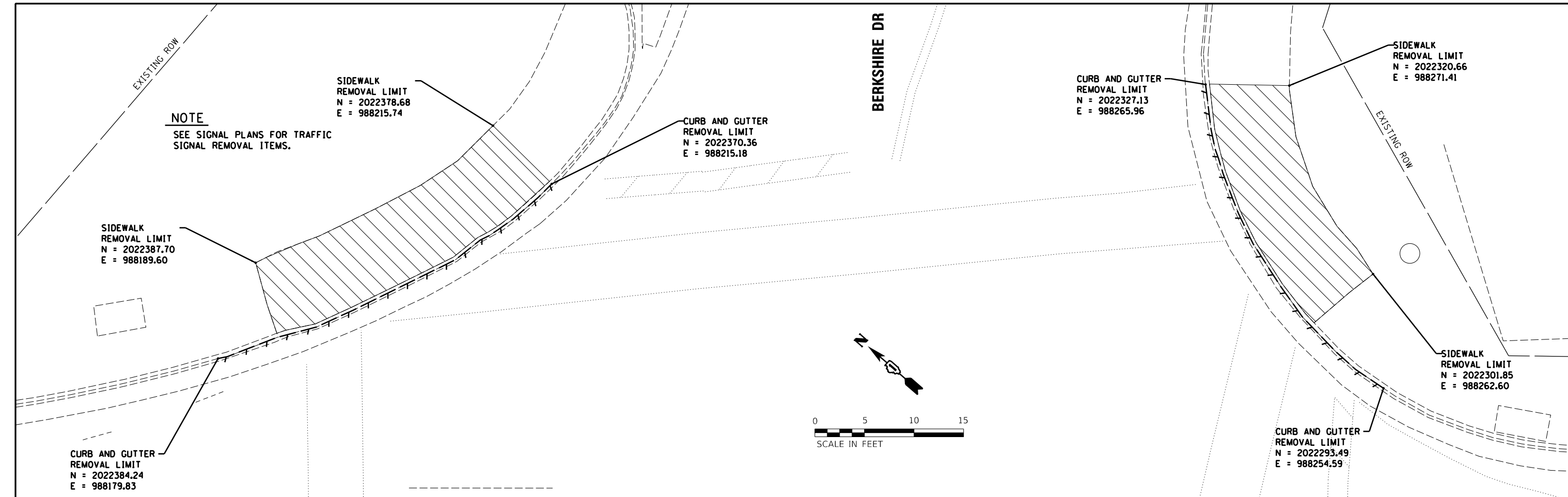
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / PYOTT RD / MAIN ST  
 REMOVAL SHEET**

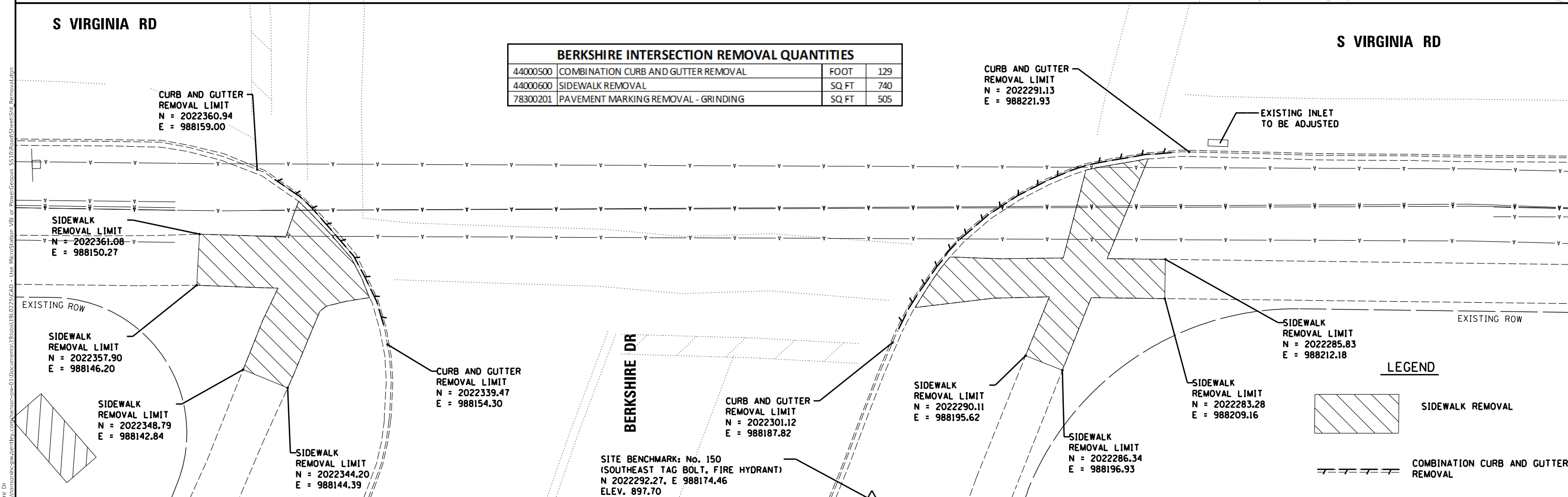
SCALE: 1"=5' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	8
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	





BERKSHIRE INTERSECTION REMOVAL QUANTITIES		
44000500	COMBINATION CURB AND GUTTER REMOVAL	129
44000600	SIDEWALK REMOVAL	740
78300201	PAVEMENT MARKING REMOVAL - GRINDING	505



**LEGEND**

- SIDEWALK REMOVAL**
- COMBINATION CURB AND GUTTER REMOVAL**

LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME = hard02376	DESIGNED - NN	REVISED -
PLOT SCALE = 10.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

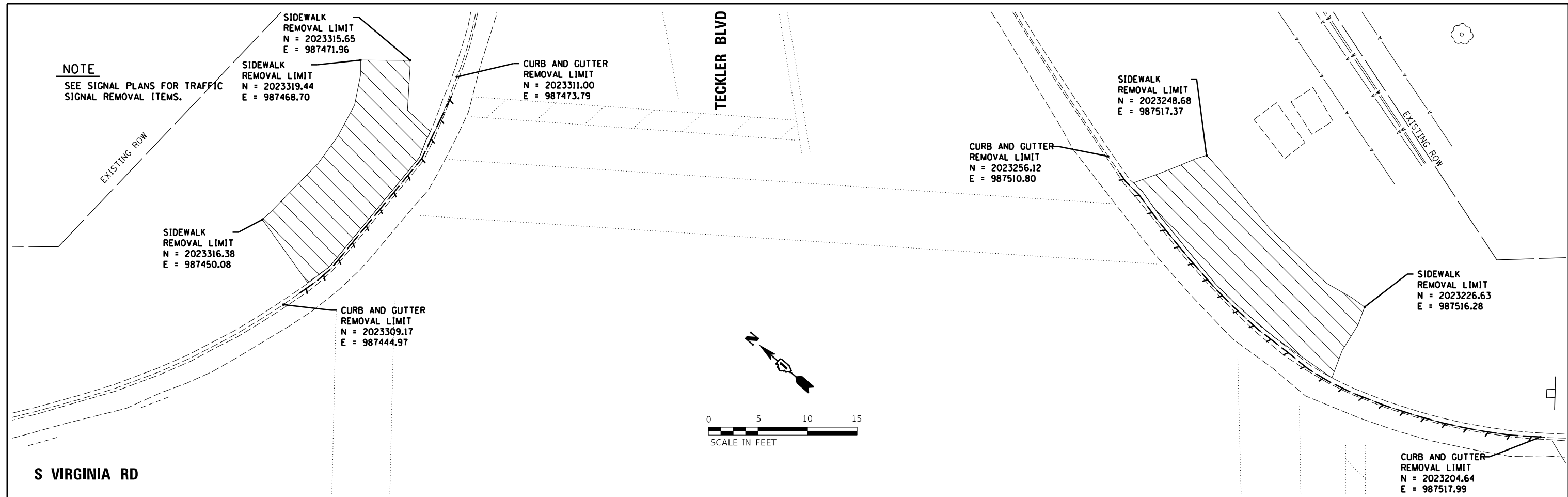
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / BERKSHIRE DR**  
**REMOVAL SHEET**

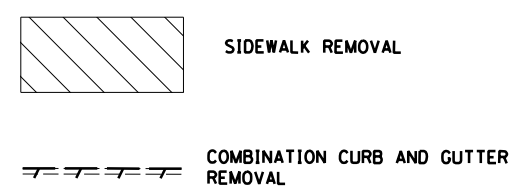
SCALE: 1"=5' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	9
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

**NOTE**  
 SEE SIGNAL PLANS FOR TRAFFIC  
 SIGNAL REMOVAL ITEMS.



**LEGEND**



USER NAME = hard02376	DESIGNED - NN	REVISED -
PLOT SCALE = 10.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

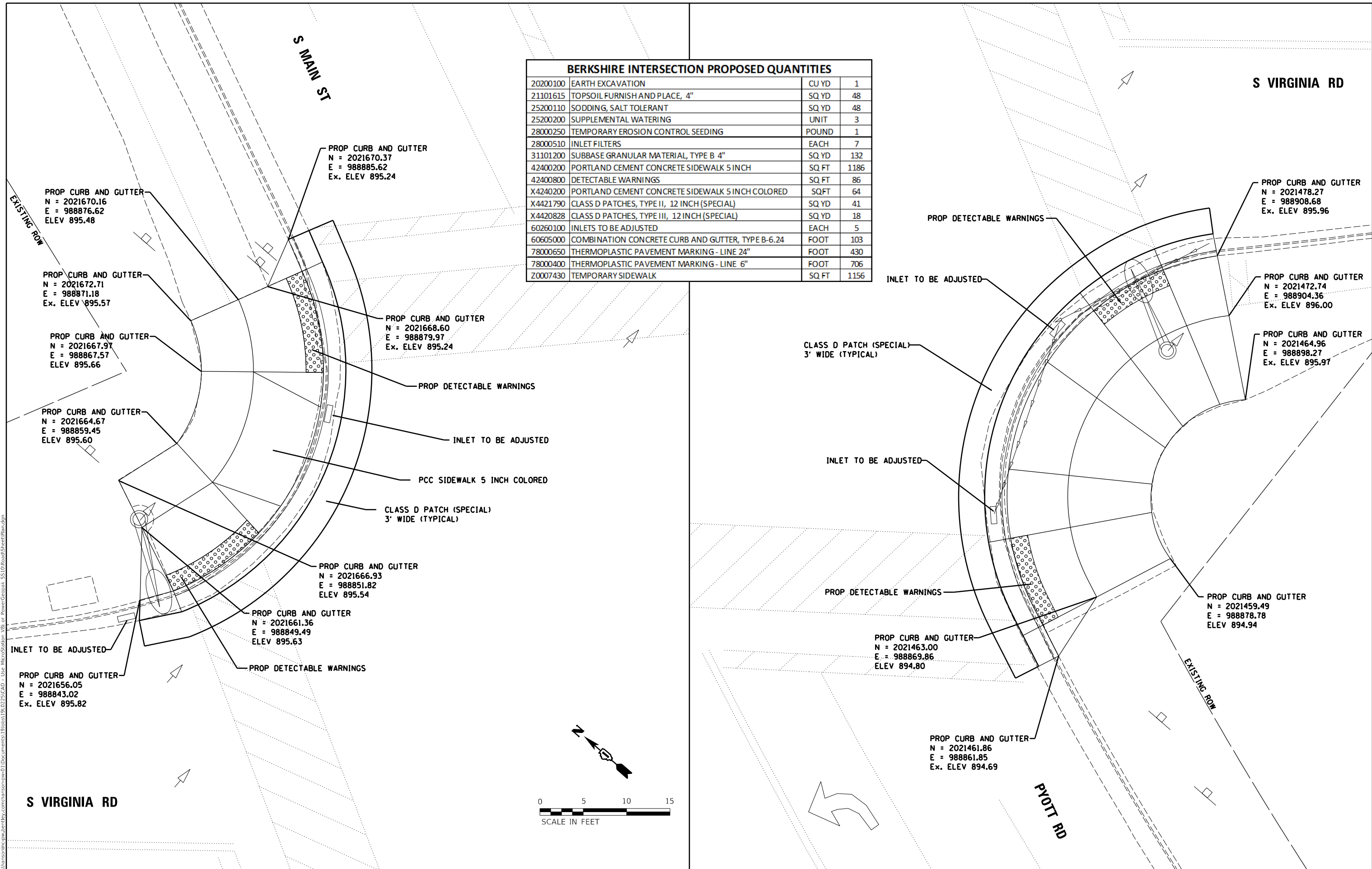
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / TECKLER BLVD**  
**REMOVAL SHEET**

SCALE: 1"=5' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	10
ILLINOIS FED. AID PROJECT			CONTRACT NO. 61K42	

BERKSHIRE INTERSECTION PROPOSED QUANTITIES			
20200100	EARTH EXCAVATION	CU YD	1
21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	48
25200110	SODDING, SALT TOLERANT	SQ YD	48
25200200	SUPPLEMENTAL WATERING	UNIT	3
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	1
28000510	INLET FILTERS	EACH	7
31101200	SUBBASE GRANULAR MATERIAL, TYPE B 4"	SQ YD	132
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	1186
42400800	DETECTABLE WARNINGS	SQ FT	86
X4240200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH COLORED	SQ FT	64
X4421790	CLASS D PATCHES, TYPE II, 12 INCH (SPECIAL)	SQ YD	41
X4420828	CLASS D PATCHES, TYPE III, 12 INCH (SPECIAL)	SQ YD	18
60260100	INLETS TO BE ADJUSTED	EACH	5
60605000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24	FOOT	103
78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	FOOT	430
78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	706
Z0007430	TEMPORARY SIDEWALK	SQ FT	1156



LAYOUT	IN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

\\hanson\main\and\virginia\190512\190512\CAD - Use MicroStation V8i or PowerGeopak 5510\Road\SheetPlan.dgn  
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USER NAME = hard02376	DESIGNED - NN	REVISED - 02/27/2024
PLOT SCALE = 10.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

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

**VIRGINIA RD / PYOTT RD / MAIN ST**  
**PLAN SHEET**

SCALE: 1"=5' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	11
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

**NOTE**  
SEE SIGNAL PLANS FOR PROPOSED TRAFFIC SIGNAL ITEMS.

PROP SIDEWALK  
N = 2022378.71  
E = 988215.74

PROP CURB AND GUTTER  
N = 2022370.72  
E = 988215.23

PROP CURB AND GUTTER  
N = 2022326.85  
E = 988266.26

PROP SIDEWALK  
N = 2022320.67  
E = 988271.41

PROP SIDEWALK  
N = 2022391.07  
E = 988184.43

PROP SIDEWALK  
N = 2022294.85  
E = 988262.46

BERKSHIRE INTERSECTION PROPOSED QUANTITIES			
20200100	EARTH EXCAVATION	CU YD	5
21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	112
25200110	SODDING, SALT TOLERANT	SQ YD	112
25200200	SUPPLEMENTAL WATERING	UNIT	6
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	2
28000510	INLET FILTERS	EACH	3
31101200	SUBBASE GRANULAR MATERIAL, TYPE B 4"	SQ YD	101
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	905
42400800	DETECTABLE WARNINGS	SQ FT	115
60260100	INLETS TO BE ADJUSTED	EACH	1
60605000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24	FOOT	136
78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	FOOT	399
X4421790	CLASS D PATCHES, TYPE II, 12 INCH (SPECIAL)	SQ YD	41
Z0007430	TEMPORARY SIDEWALK	SQ FT	905

PROP DETECTABLE WARNINGS

CLASS D PATCH (SPECIAL)  
3' WIDE (TYPICAL)

PROP CURB AND GUTTER  
N = 2022293.58  
E = 988255.09

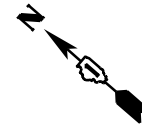
PROP CURB AND GUTTER  
N = 2022384.53  
E = 988180.03

PROP DETECTABLE WARNINGS

**S VIRGINIA RD**

**S VIRGINIA RD**

REFRESH EXISTING 6" PAVEMENT MARKINGS IN PLACE (TYPICAL)



PROP CURB AND GUTTER  
N = 2022358.88  
E = 988158.98

PROP DETECTABLE WARNINGS

PROP CURB AND GUTTER  
N = 2022292.15  
E = 988220.43

PROP SIDEWALK  
N = 2022346.85  
E = 988152.70

INLET TO BE ADJUSTED

PROP SIDEWALK  
N = 2022354.82  
E = 988155.26

PROP SIDEWALK  
N = 2022292.37  
E = 988212.43

PROP SIDEWALK  
N = 2022361.08  
E = 988150.27

PROP SIDEWALK  
N = 2022298.90  
E = 988201.77

PROP DETECTABLE WARNINGS

PROP DETECTABLE WARNINGS

PROP SIDEWALK  
N = 2022296.17  
E = 988198.06

PROP SIDEWALK  
N = 2022294.32  
E = 988205.67

PROP SIDEWALK  
N = 2022285.83  
E = 988212.18

EXISTING ROW

PROP SIDEWALK  
N = 2022357.90  
E = 988146.20

PROP SIDEWALK  
N = 2022351.59  
E = 988151.12

PROP CURB AND GUTTER  
N = 2022341.37  
E = 988155.15

**BERKSHIRE DR**

PROP CURB AND GUTTER  
N = 2022300.99  
E = 988188.91

PROP SIDEWALK  
N = 2022292.28  
E = 988201.59

PROP SIDEWALK  
N = 2022290.59  
E = 988208.85

PROP SIDEWALK  
N = 2022283.28  
E = 988209.16

EXISTING ROW

PROP SIDEWALK  
N = 2022348.79  
E = 988142.84

PROP SIDEWALK  
N = 2022346.85  
E = 988152.70

SITE BENCHMARK: No. 150  
(SOUTHEAST TAG BOLT, FIRE HYDRANT)  
N 2022292.27, E 988174.46  
ELEV. 897.70

PROP SIDEWALK  
N = 2022290.11  
E = 988195.62

PROP SIDEWALK  
N = 2022286.35  
E = 988196.93

LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME = hard02376	DESIGNED - NN	REVISED -
PLOT SCALE = 10.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
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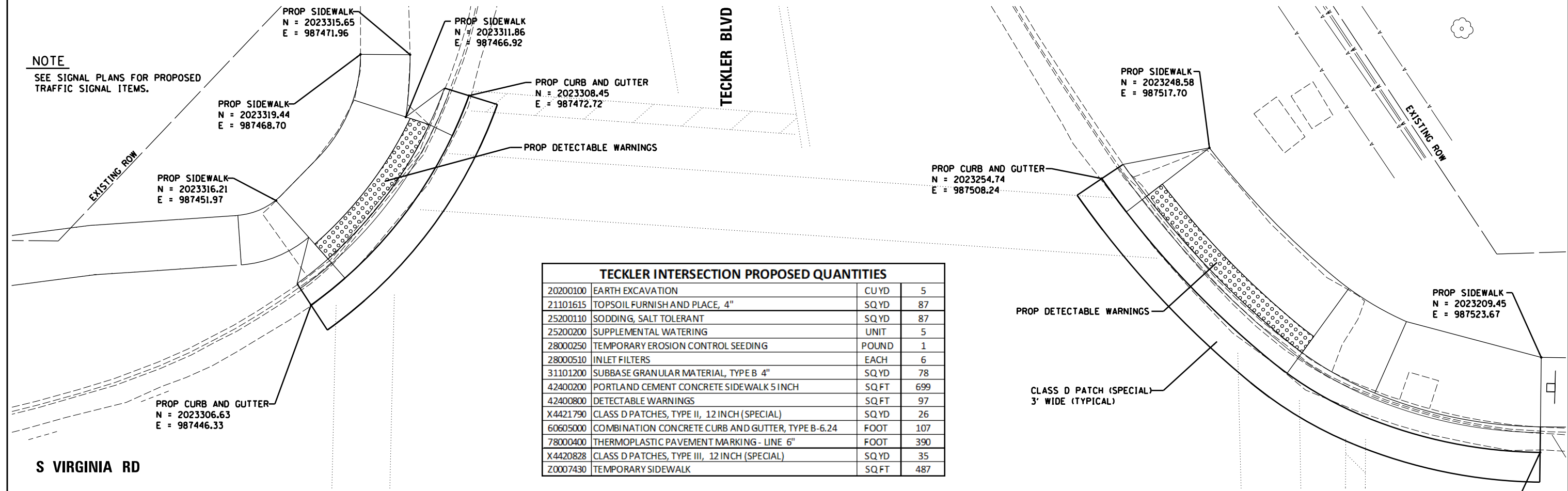
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / BERKSHIRE DR  
PLAN SHEET**

SCALE: 1"=5' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	12
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

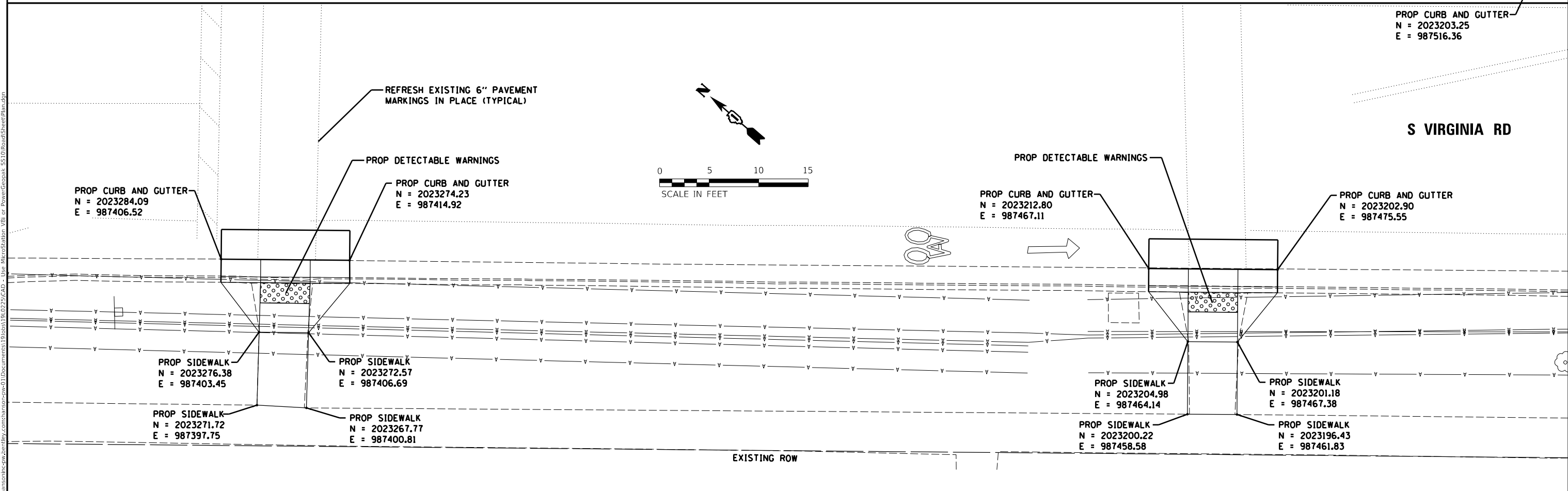
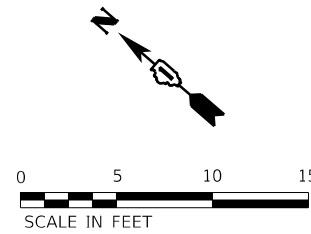
**NOTE**  
 SEE SIGNAL PLANS FOR PROPOSED TRAFFIC SIGNAL ITEMS.



TECKLER INTERSECTION PROPOSED QUANTITIES			
20200100	EARTH EXCAVATION	CUYD	5
21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	87
25200110	SODDING, SALT TOLERANT	SQ YD	87
25200200	SUPPLEMENTAL WATERING	UNIT	5
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	1
28000510	INLET FILTERS	EACH	6
31101200	SUBBASE GRANULAR MATERIAL, TYPE B 4"	SQ YD	78
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	699
42400800	DETECTABLE WARNINGS	SQ FT	97
X4421790	CLASS D PATCHES, TYPE II, 12 INCH (SPECIAL)	SQ YD	26
60605000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24	FOOT	107
78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	390
X4420828	CLASS D PATCHES, TYPE III, 12 INCH (SPECIAL)	SQ YD	35
Z0007430	TEMPORARY SIDEWALK	SQ FT	487

**S VIRGINIA RD**

**S VIRGINIA RD**



LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME = hard02376	DESIGNED - NN	REVISED -
PLOT SCALE = 10.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / TECKLER BLVD  
 PLAN SHEET**

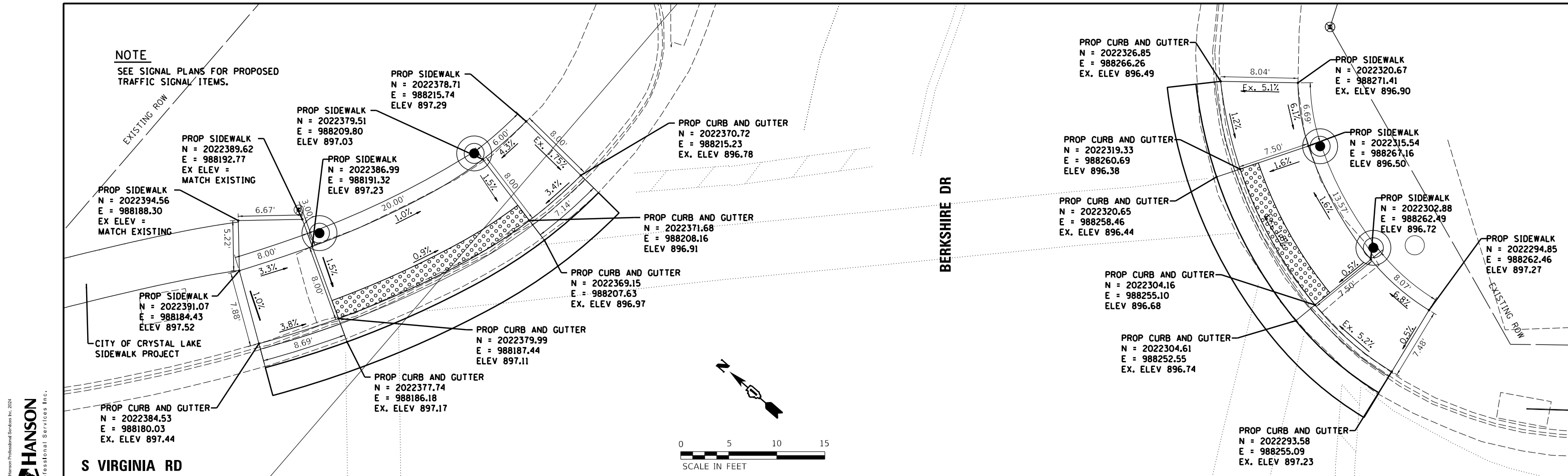
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F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	13
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	



**NOTE**

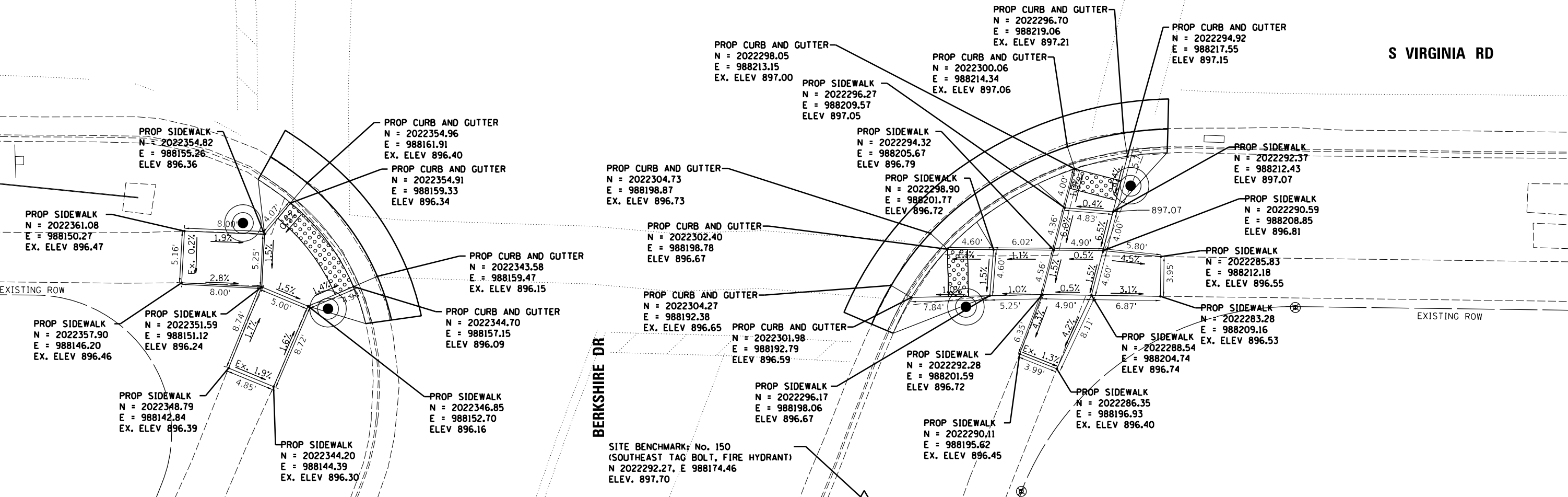
SEE SIGNAL PLANS FOR PROPOSED TRAFFIC SIGNAL ITEMS.



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 Hanson Professional Services Inc.

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 Plot Date: 3/18/2024

LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	



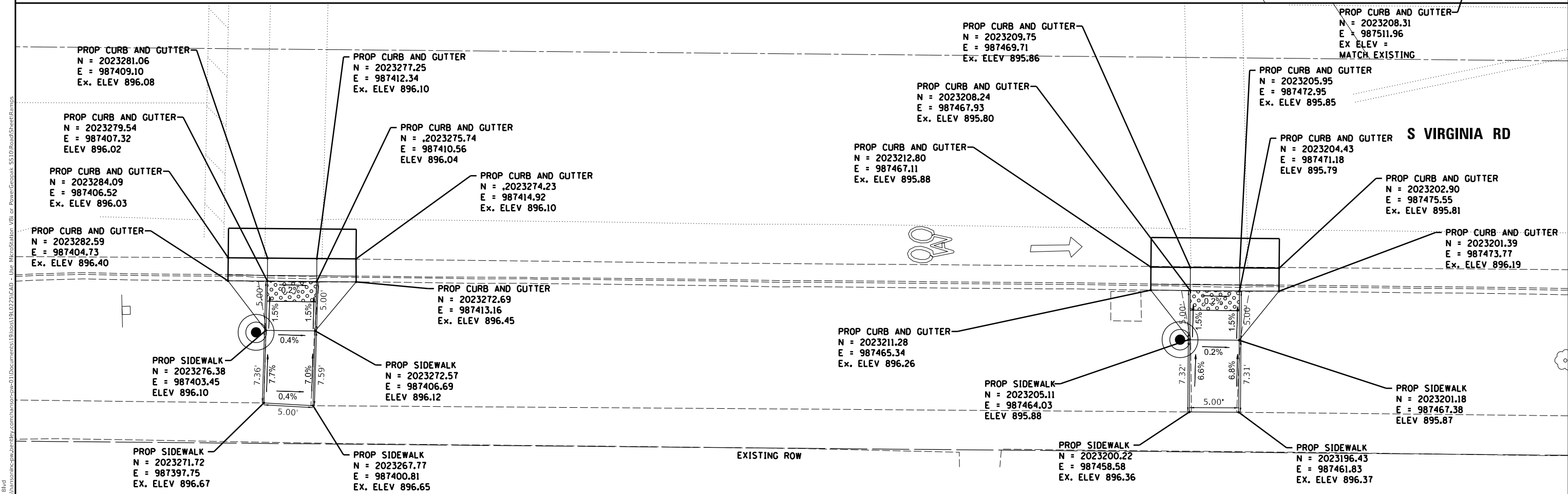
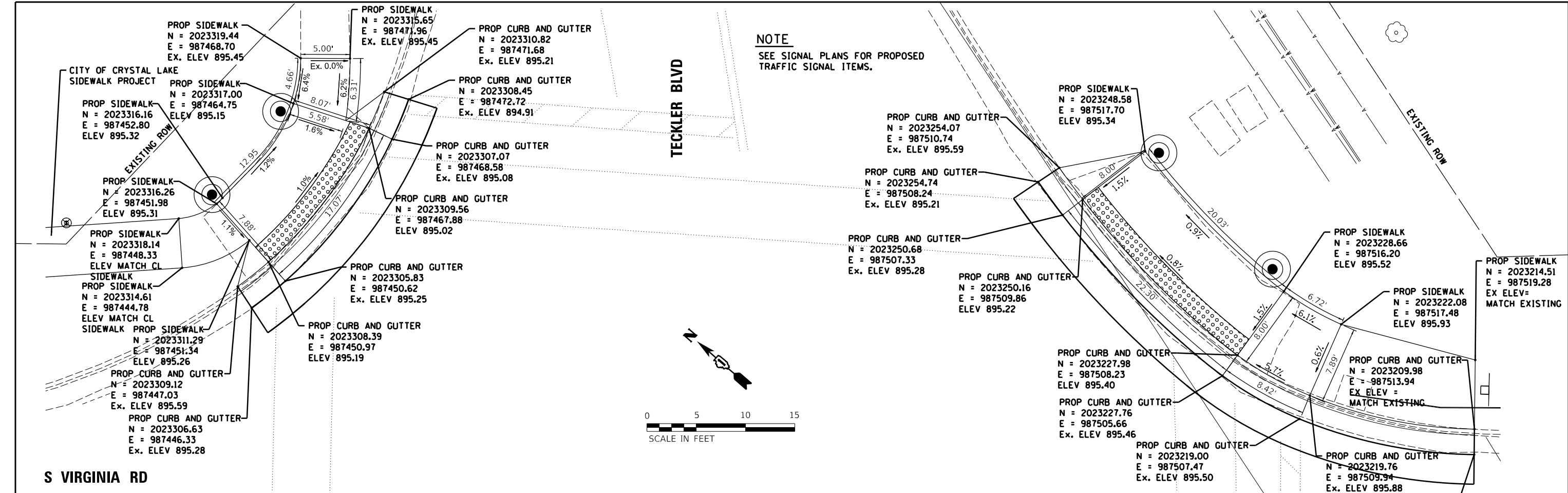
SITE BENCHMARK: No. 150  
 (SOUTHEAST TAG BOLT, FIRE HYDRANT)  
 N 2022292.27, E 988174.46  
 ELEV. 897.70

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

VIRGINIA RD / BERKSHIRE DR  
 RAMP GRADING DETAIL

SCALE: 1"=5'  
 SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	15
ILLINOIS FED. AID PROJECT			CONTRACT NO. 61K42	



LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

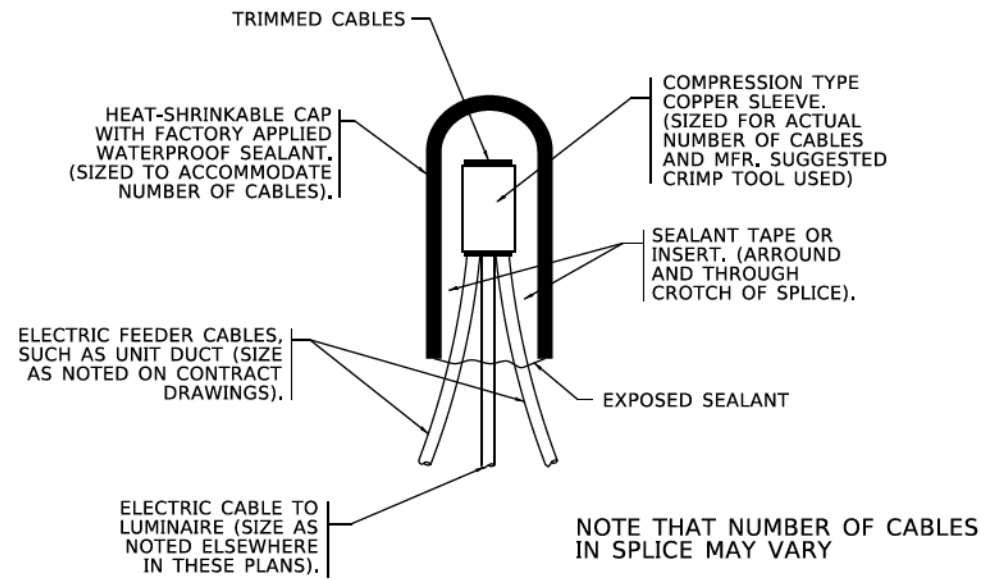
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PLOT SCALE = 10.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

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

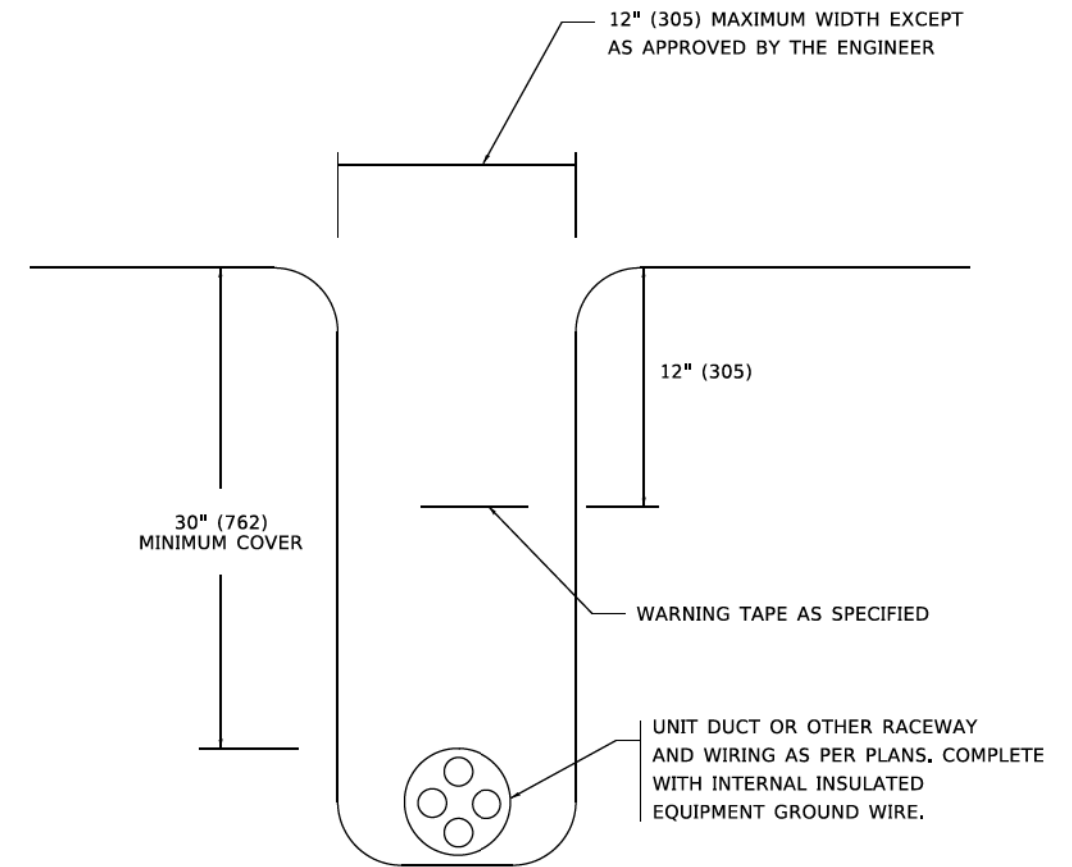
<b>VIRGINIA RD / TECKLER BLVD</b>		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
<b>RAMP GRADING DETAIL</b>		021/0124	19-00512-00-SP	McHENRY	79	16
SCALE: 1"=5'	SHEET	OF	SHEETS	STA.	TO	STA.

ILLINOIS	FED. AID PROJECT
CONTRACT NO. 61K42	

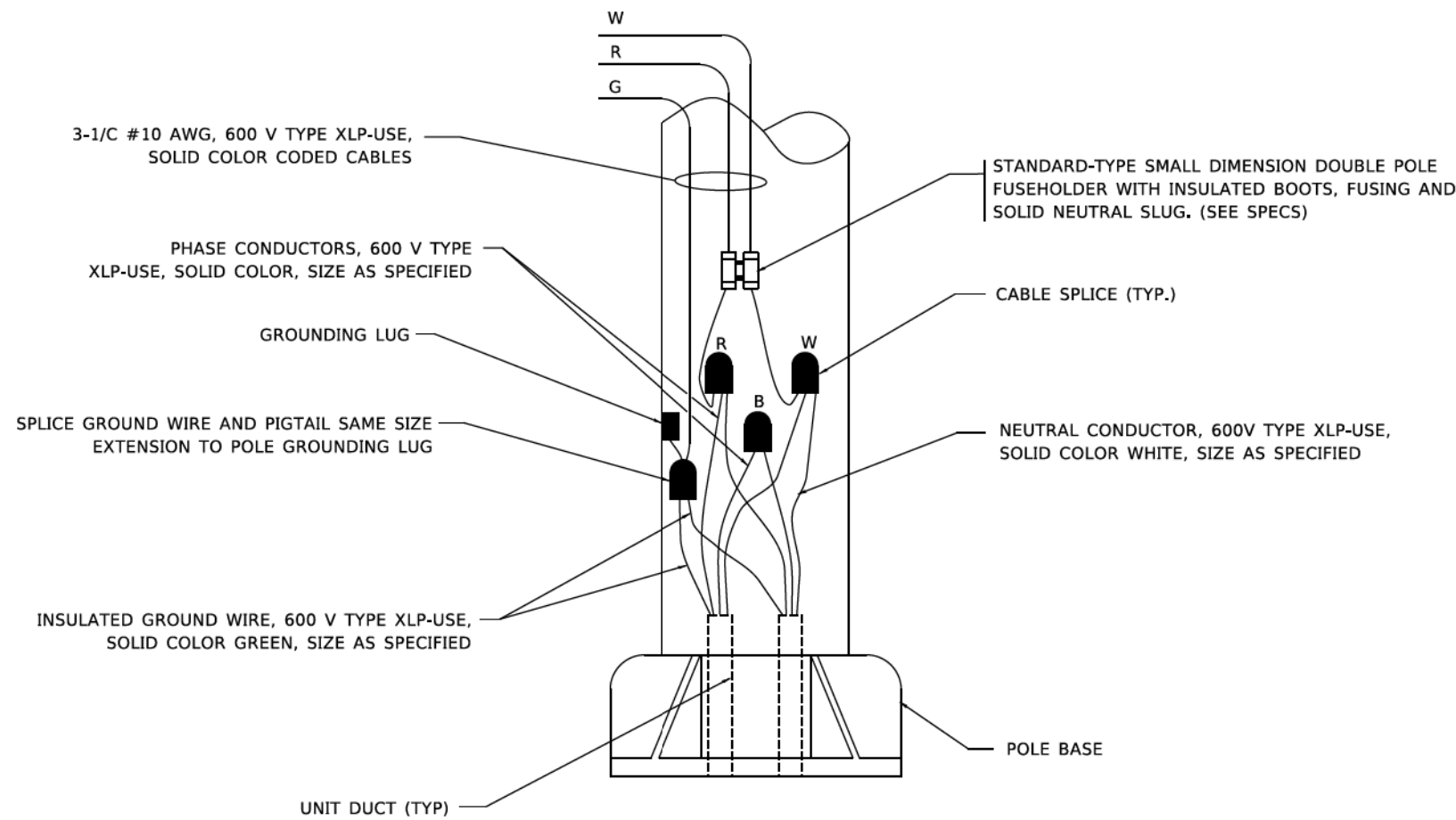




**TYPICAL SPLICE DETAIL**  
**N.T.S.**



**TYPICAL WIRING IN TRENCH DETAIL**  
**N.T.S.**



**POLE WIRING DETAIL**  
**N.T.S.**

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 DATE: ...

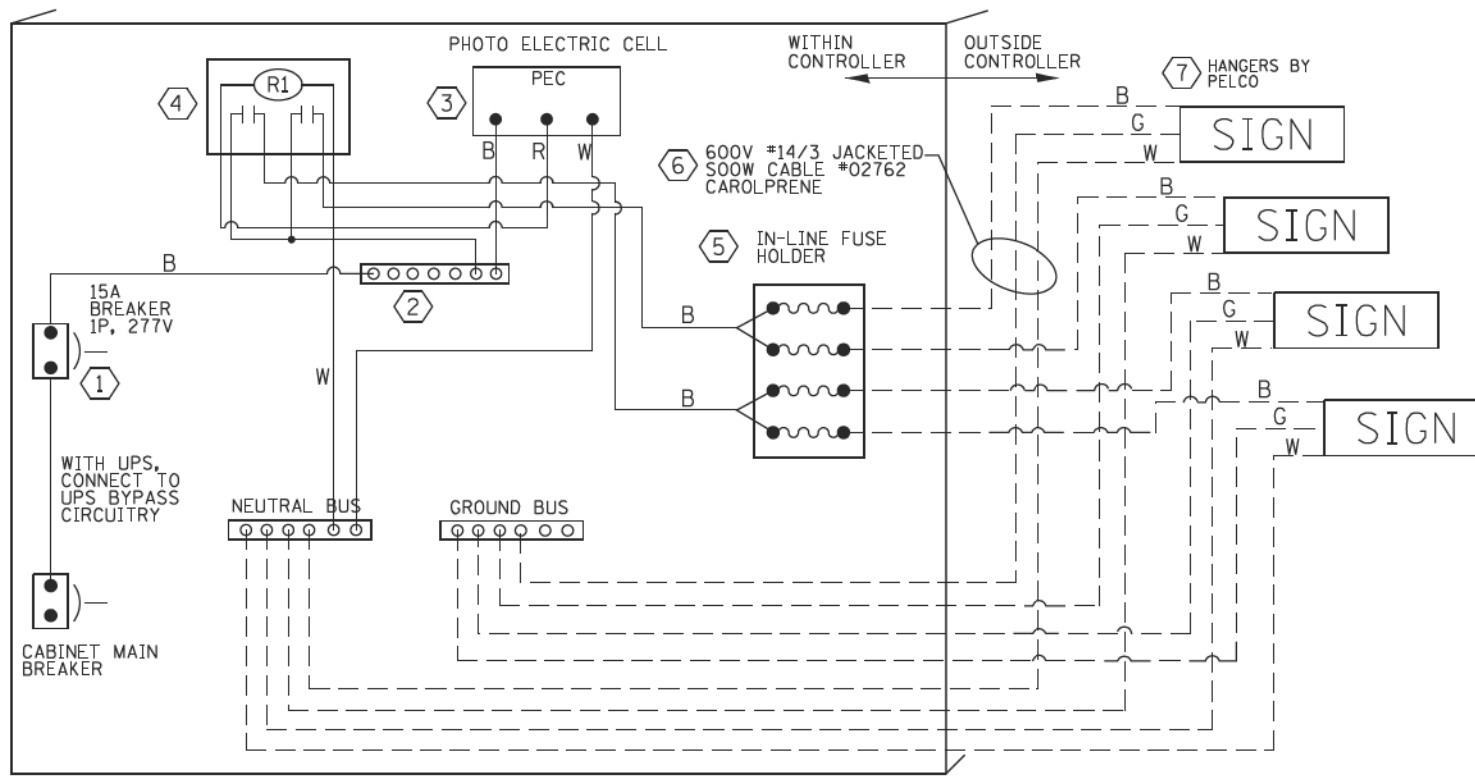
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	DRAWN -	REVISED -
PLOT SCALE - 50,0000' / 1"	CHECKED -	REVISED -
PLOT DATE - 3/2/2020	DATE - 08/08/2003	REVISED -

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

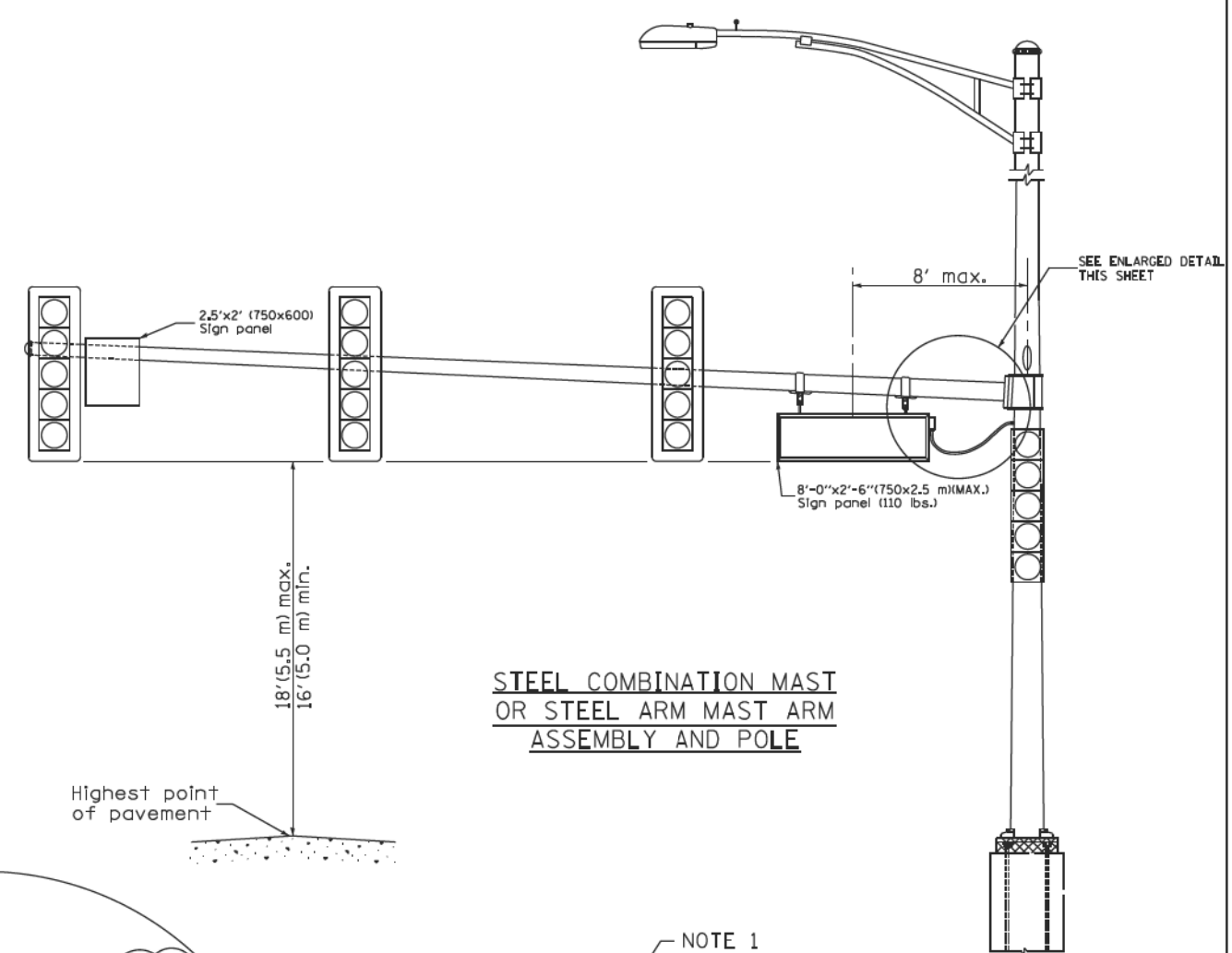
**MISC. ELECTRICAL DETAILS**  
**SHEET A**

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

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/014	19-00512-00-SP	McHENRY	79	17
<b>BE-702</b>		CONTRACT NO. 61K42		
ILLINOIS FED. AID PROJECT				



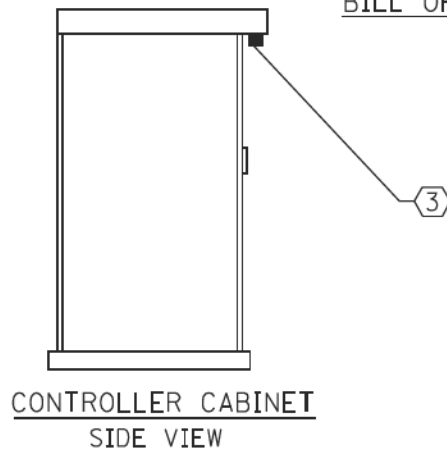
LED SIGN WIRING DETAIL



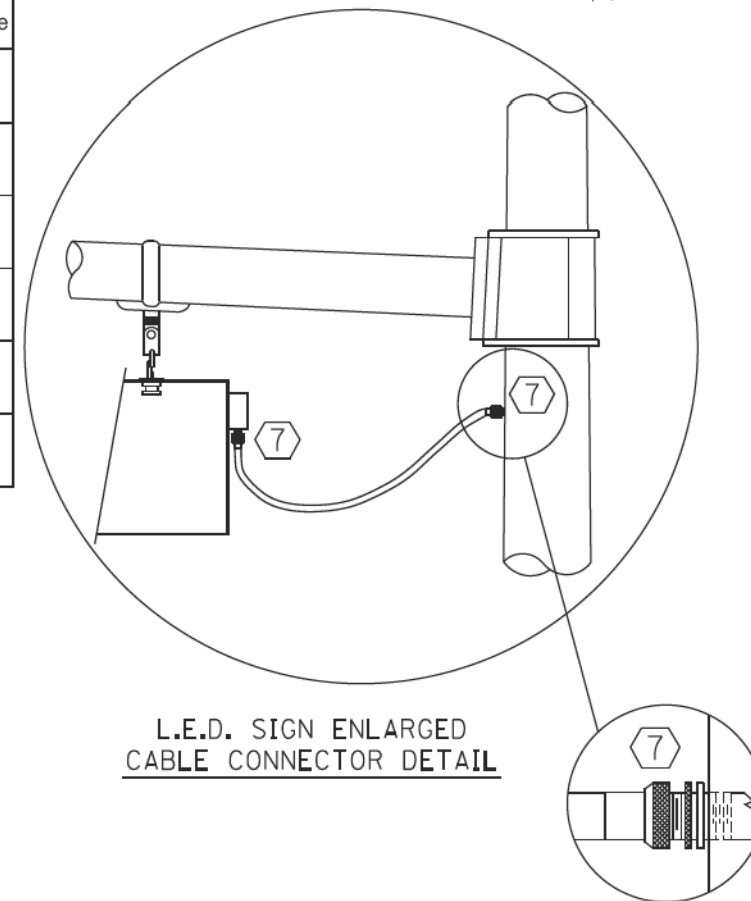
STEEL COMBINATION MAST OR STEEL ARM MAST ARM ASSEMBLY AND POLE

DESCRIPTION	MANUFACTURER	MODEL	NOTES
① CIRCUIT BREAKER		15 AMPERE	Molded case, Thermal Mag. min. R.I. of 14K R.M.S. symmetrical ampere at 277V.
② TERMINAL BLOCK	MARATHON	1502 DJSV	
③ PHOTO ELECTRIC CONTROL	FISHER PIERCE	B124-1.5-07762	
④ CONTROL RELAY	SQUARE D	8501X020V02	BOLT ON W/SCREW TERMINAL
⑤ INLINE FUSE HOLDER WITH 5 AMP FUSE	BUSSMAN	S-8000 BK/S-8-3-4-R	
⑥ ELECTRIC CABLE, NO. 14, 3/C (BLACK, WHITE, GREEN)	CAROLPRENE/SOOW	02762	
⑦ SIGN MOUNTING HARDWARE	PELCO	SE-5015	S.S. HARDWARE

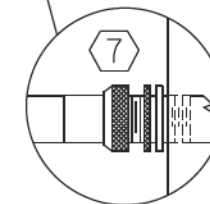
BILL OF MATERIALS



CONTROLLER CABINET SIDE VIEW



L.E.D. SIGN ENLARGED CABLE CONNECTOR DETAIL



L.E.D. SIGN ENLARGED CABLE CONNECTOR DETAIL



LED ILLUMINATED SIGN PANEL

8'0" x 2'6" (750 mm x 2.5 mm)(MAX)  
C or D FONT

NOTES:

- SIGNS SHALL BE DUAL SIDED. FRONT AND BACK OF SIGN WILL BE THE SAME.
- SIGNS SHALL NOT BE ENERGIZED WHEN TRAFFIC SIGNALS ARE POWERED BY THE UPS. THE SIGNS SHALL BE CONNECTED TO THE UPS BYPASS CIRCUITRY.
- ALL WIRING WITHIN THE CABINET SHALL BE COLOR CODED AS INDICATED:  
R = RED      BL = BLUE      W = WHITE  
B = BLACK      Y = YELLOW      G = GREEN
- ALL 120 VOLT SYSTEM AND ALL CONTROL WIRING SHALL BE #12AWG STRANDED UNLESS OTHERWISE INDICATED.
- ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.

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FILENAME =	DRAWN - GR	REVISED -
PLOT SCALE = 100.0000' / 1"	CHECKED - ---	REVISED -
PLOT DATE = 4/25/2018	DATE - 4-26-2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

LED ILLUMINATED STREET NAME  
INSTALLATION AND WIRING DIAGRAM

SCALE: NONE SHEET 1 OF 1 SHEETS STA TO STA

FAP RTR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0121/0124	19-00512-00-SP	McHENRY	79	18
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	



# TRAFFIC SIGNAL LEGEND

(NOT TO SCALE)

ITEM	EXISTING	PROPOSED	ITEM	EXISTING	PROPOSED	ITEM	EXISTING	PROPOSED
CONTROLLER CABINET			HANDHOLE -SQUARE -ROUND			SIGNAL HEAD -(P) PROGRAMMABLE SIGNAL HEAD		
COMMUNICATION CABINET			HEAVY DUTY HANDHOLE -SQUARE -ROUND			SIGNAL HEAD WITH BACKPLATE -(P) PROGRAMMABLE SIGNAL HEAD -(RB) RETROREFLECTIVE BACKPLATE		
MASTER CONTROLLER			DOUBLE HANDHOLE			PEDESTRIAN SIGNAL HEAD AT RAILROAD INTERSECTIONS		
MASTER MASTER CONTROLLER			JUNCTION BOX			PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER		
UNINTERRUPTABLE POWER SUPPLY			RAILROAD CANTILEVER MAST ARM			ILLUMINATED SIGN *NO LEFT TURN*/*NO RIGHT TURN*		
SERVICE INSTALLATION -(P) POLE MOUNTED			RAILROAD FLASHING SIGNAL			NUMBER OF CONDUCTORS, ELECTRIC CABLE NO. 14, UNLESS NOTED OTHERWISE, ALL DETECTOR LOOP CABLE TO BE SHIELDED		
SERVICE INSTALLATION -(G) GROUND MOUNTED -(GM) GROUND MOUNTED METERED			RAILROAD CROSSING GATE			GROUND CABLE IN CONDUIT, NO. 6 SOLID COPPER (GREEN)		
TELEPHONE CONNECTION			RAILROAD CROSSBUCK			ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1/C		
STEEL MAST ARM ASSEMBLY AND POLE			RAILROAD CONTROLLER CABINET			COAXIAL CABLE		
ALUMINUM MAST ARM ASSEMBLY AND POLE			UNDERGROUND CONDUIT (UC), GALVANIZED STEEL			VENDOR CABLE		
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE			TEMPORARY SPAN WIRE, TETHER WIRE, AND CABLE			COPPER INTERCONNECT CABLE, NO. 18, 3 PAIR TWISTED, SHIELDED		
SIGNAL POST -(BM) BARREL MOUNTED - TEMPORARY			SYSTEM ITEM			FIBER OPTIC CABLE -NO. 62.5/125, MM12F -NO. 62.5/125, MM12F SM12F -NO. 62.5/125, MM12F SM24F		
WOOD POLE			INTERSECTION ITEM			GROUND ROD -(C) CONTROLLER -(M) MAST ARM -(P) POST -(S) SERVICE		
GUY WIRE			REMOVE ITEM					
SIGNAL HEAD			RELOCATE ITEM					
SIGNAL HEAD WITH BACKPLATE			ABANDON ITEM					
SIGNAL HEAD OPTICALLY PROGRAMMED			CONTROLLER CABINET AND FOUNDATION TO BE REMOVED					
FLASHER INSTALLATION -(FS) SOLAR POWERED			MAST ARM POLE AND FOUNDATION TO BE REMOVED					
PEDESTRIAN SIGNAL HEAD			SIGNAL POST AND FOUNDATION TO BE REMOVED					
PEDESTRIAN PUSH BUTTON -(APS) ACCESSIBLE PEDESTRIAN PUSH BUTTON			DETECTOR LOOP, TYPE I					
RADAR DETECTION SENSOR			PREFORMED DETECTOR LOOP					
VIDEO DETECTION CAMERA			SAMPLING (SYSTEM) DETECTOR					
RADAR/VIDEO DETECTION ZONE			INTERSECTION AND SAMPLING (SYSTEM) DETECTOR					
PAN, TILT, ZOOM (PTZ) CAMERA			QUEUE AND SAMPLING (SYSTEM) DETECTOR					
EMERGENCY VEHICLE LIGHT DETECTOR			WIRELESS DETECTOR SENSOR					
CONFIRMATION BEACON			WIRELESS ACCESS POINT					
WIRELESS INTERCONNECT			LEFT TURN YIELD ON FLASHING YELLOW ARROW (R10-1109)					
WIRELESS INTERCONNECT RADIO REPEATER			STREET NAME SIGN LED					

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PLOT DATE - 3/4/2019	DATE - 9/29/2016	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DISTRICT ONE  
STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

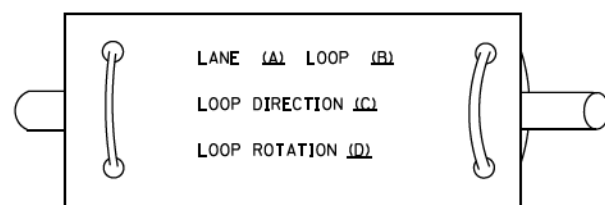
SCALE: NONE SHEET 1 OF 7 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/014	19-00512-00-SP	McHENRY	79	20
<b>TS-05</b>				
CONTRACT NO. 61K42				
ILLINOIS FED. AID PROJECT				

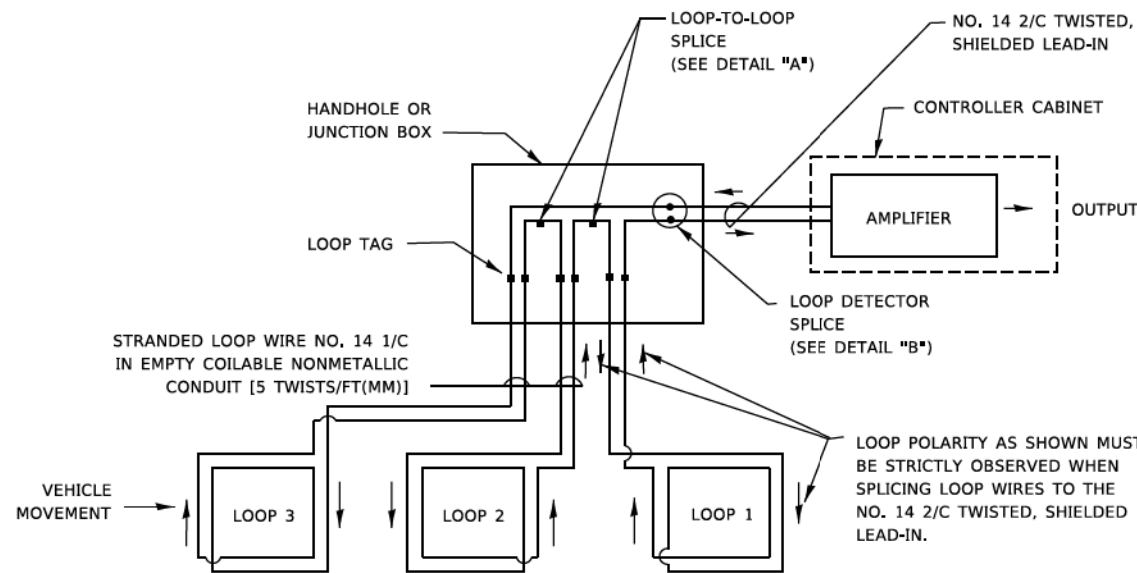
**LOOP DETECTOR NOTES**

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**

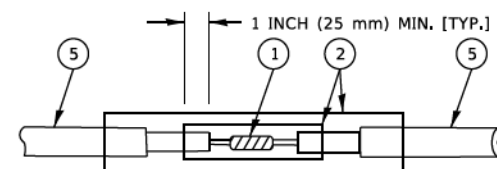


- A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY
- B. LOOP #1 IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION.
- C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".
- D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

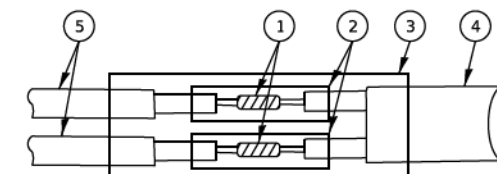


**DETECTOR LOOP WIRING SCHEMATIC**

- 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.

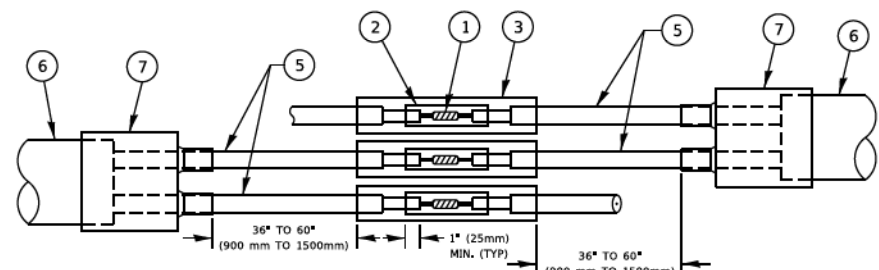


DETAIL "A"  
LOOP-TO-LOOP SPLICE

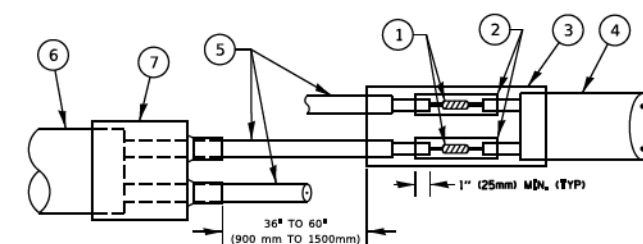


DETAIL "B"  
LOOP-TO-CONTROLLER SPLICE

**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

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

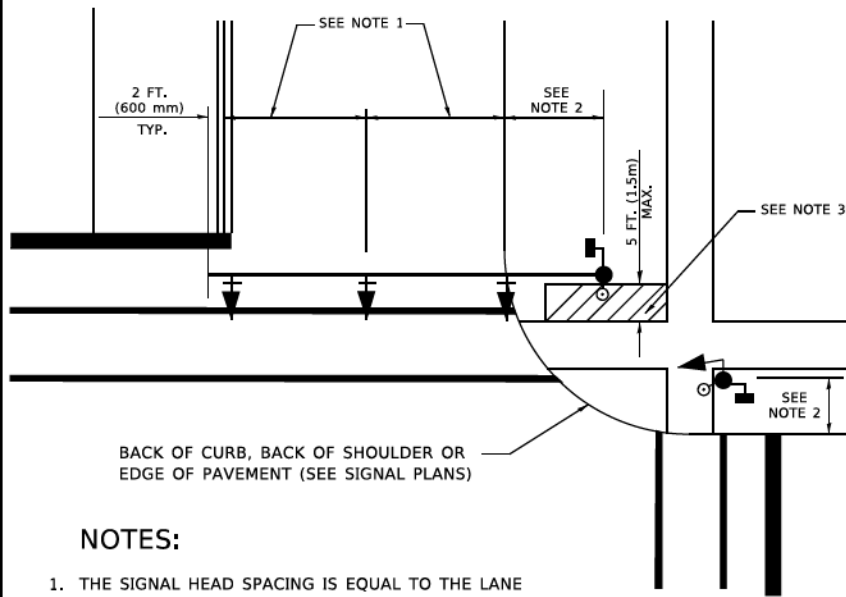
**DISTRICT ONE  
STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: NONE SHEET 2 OF 7 SHEETS STA. TO STA.

F.A. RTE. 021/014	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 21
TS-05			CONTRACT NO. 61K42	
ILLINOIS FED. AID PROJECT				

**TRAFFIC SIGNAL MAST ARM AND SIGNAL POST**

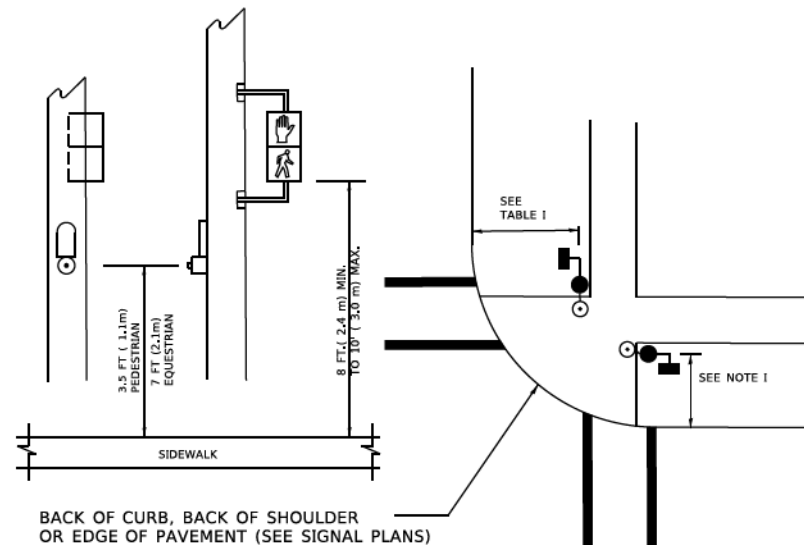
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.



**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."

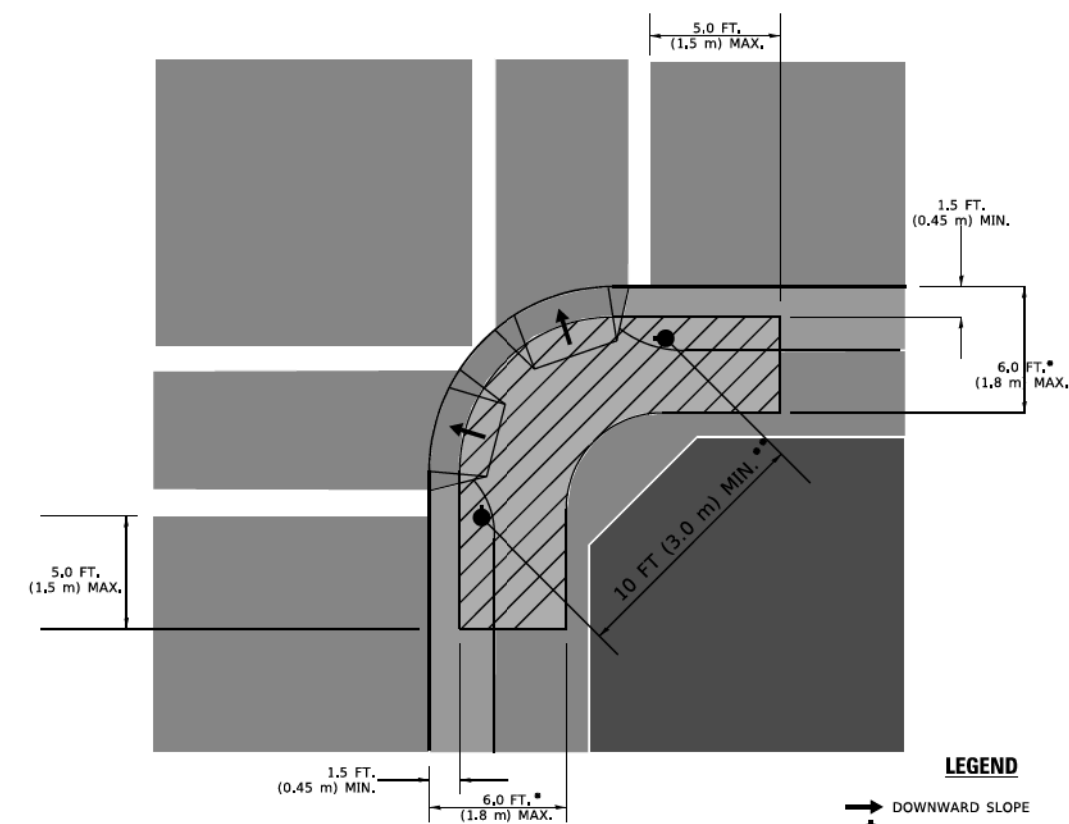
**PEDESTRIAN SIGNAL POST AND PEDESTRIAN PUSH BUTTON POST**



**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**



**LEGEND**

- DOWNWARD SLOPE
- PEDESTRIAN PUSHBUTTON
- 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 EFFECT 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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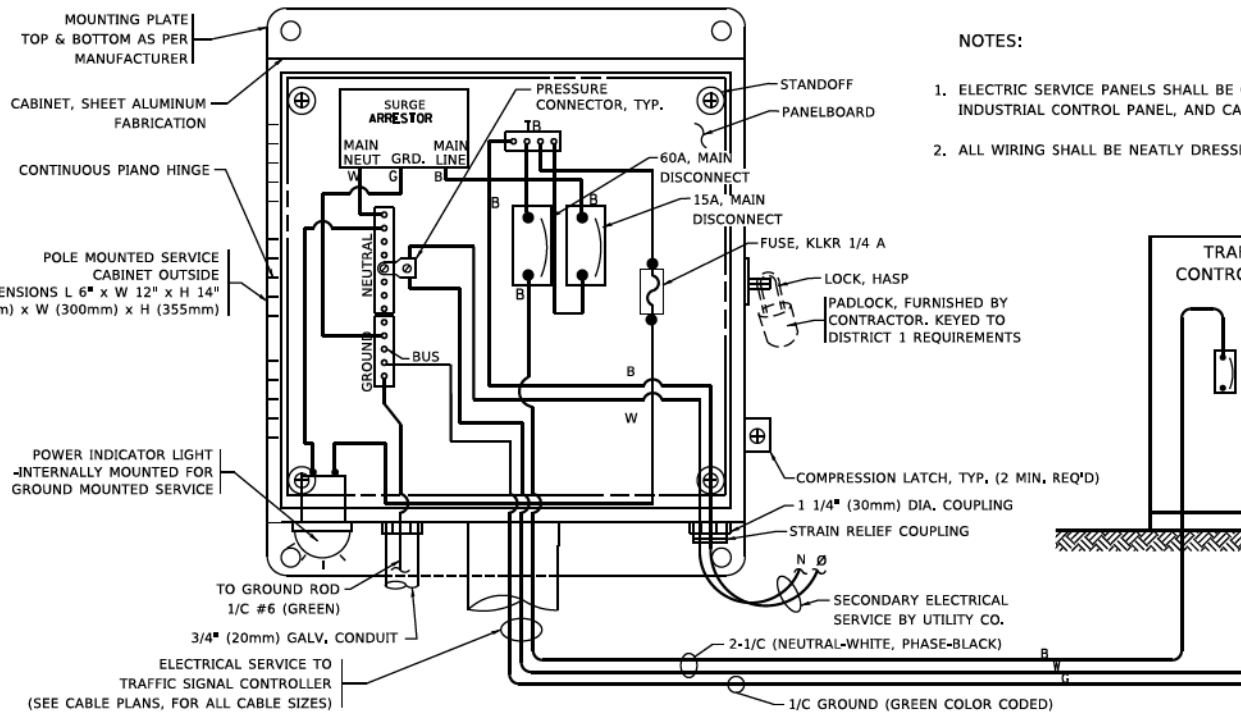
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	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

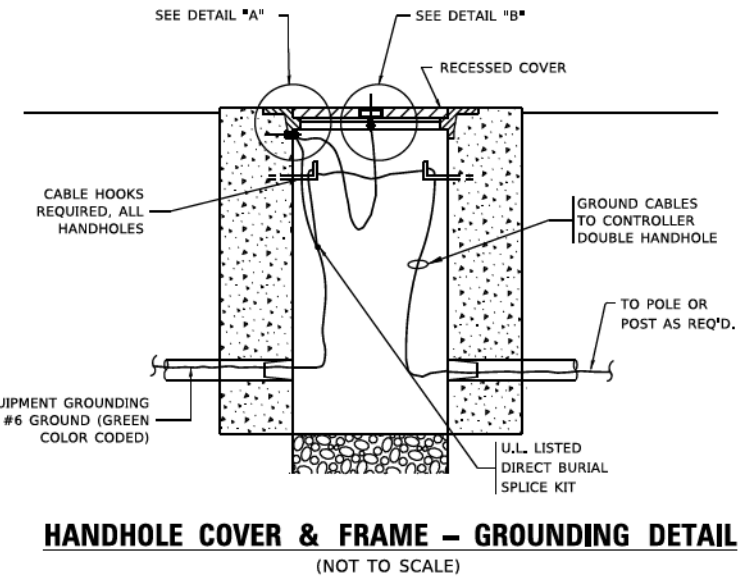
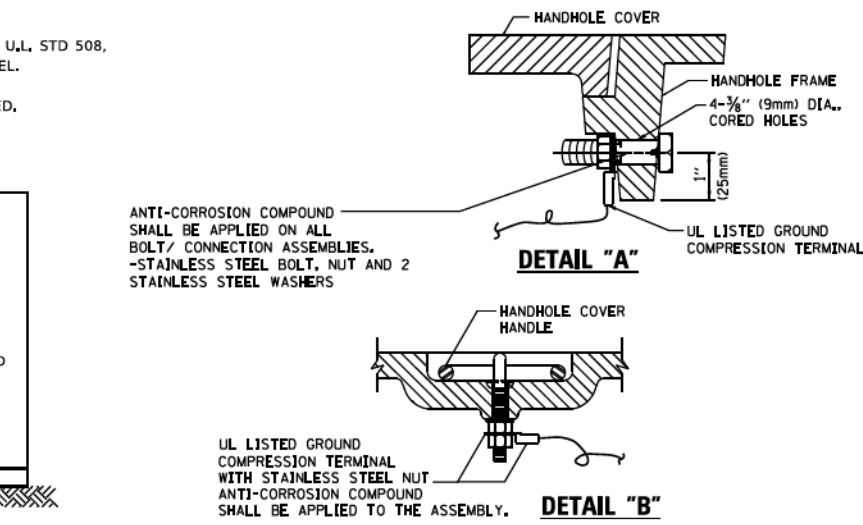
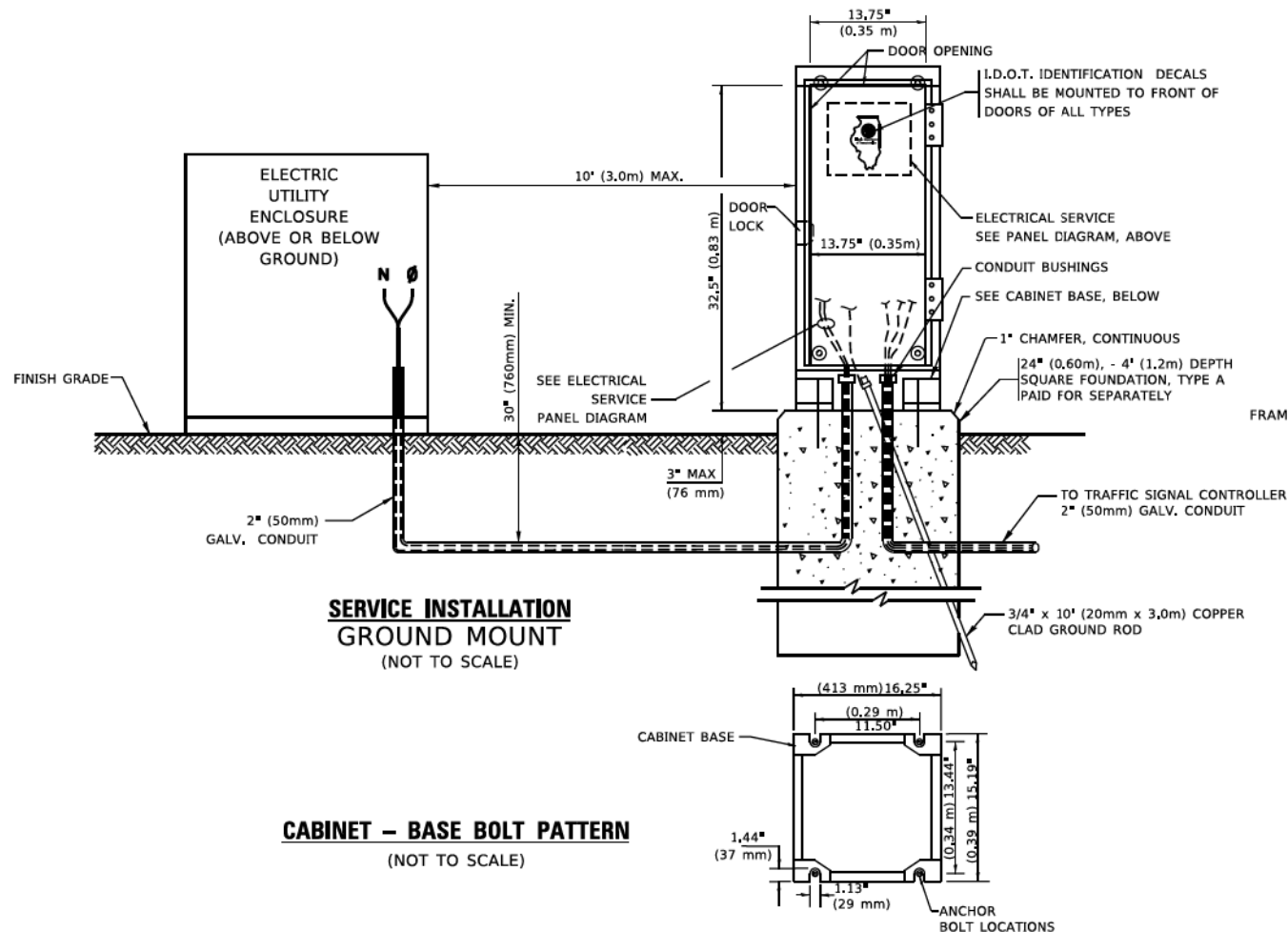
**DISTRICT ONE  
STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: NONE SHEET 3 OF 7 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	22
TS-05		CONTRACT NO. 61K42		
ILLINOIS FED. AID PROJECT				

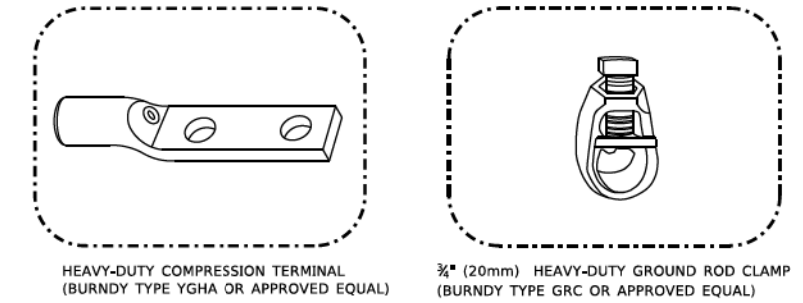


**ELECTRICAL SERVICE - PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)**  
**SERVICE INSTALLATION POLE MOUNT (SHOWN)**  
 (NOT TO SCALE)



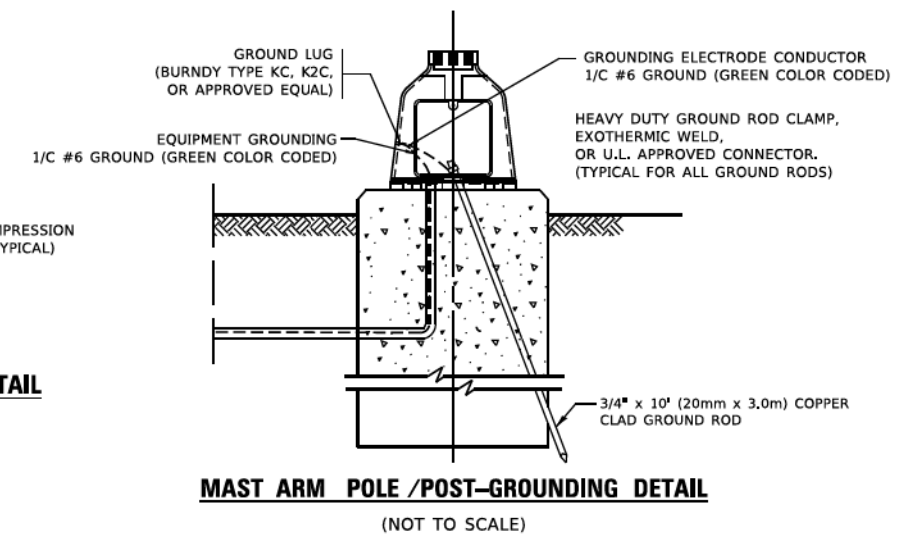
**NOTES:**  
**GROUNDING SYSTEM**

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.



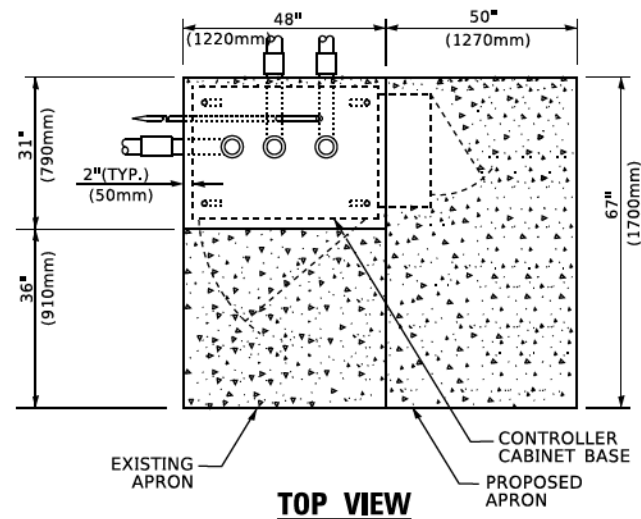
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 PROJECT: ...  
 DATE: ...

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PLOT SCALE = 50,0000' / in.	DRAWN -	REVISED -
PLOT DATE = 3/4/2019	CHECKED -	REVISED -
	DATE -	REVISED -

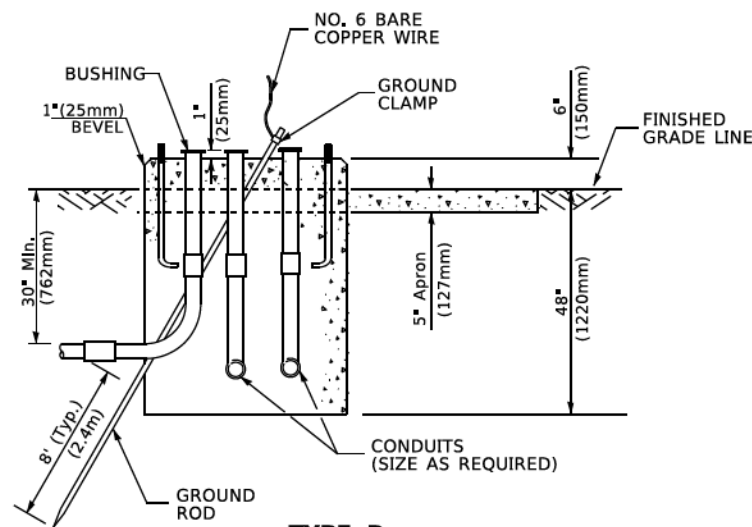
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

<b>DISTRICT ONE</b>			
<b>STANDARD TRAFFIC SIGNAL DESIGN DETAILS</b>			
SCALE: NONE	SHEET 4	OF 7 SHEETS	STA. TO STA.

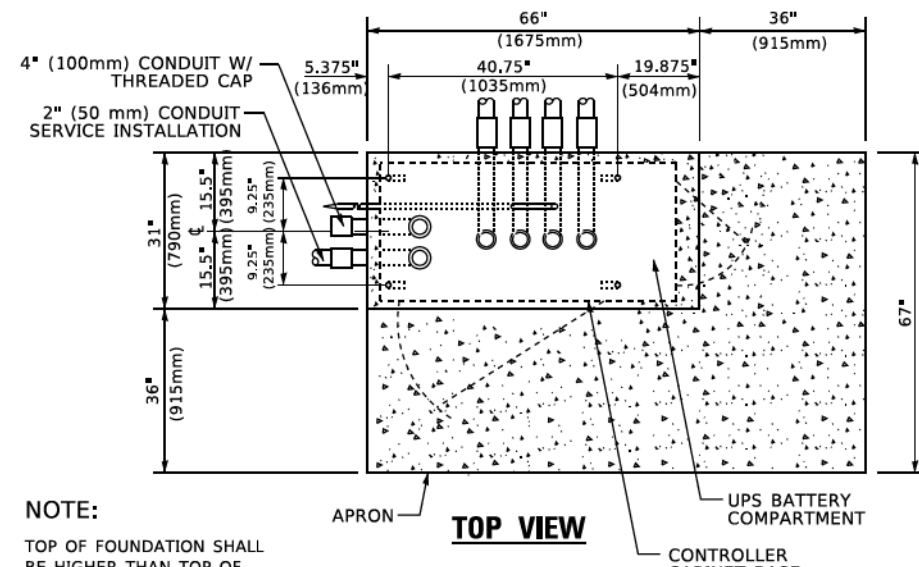
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/014	19-00512-00-SP	McHENRY	79	23
<b>TS-05</b>		CONTRACT NO. 61K42		
ILLINOIS FED. AID PROJECT				



**TOP VIEW**

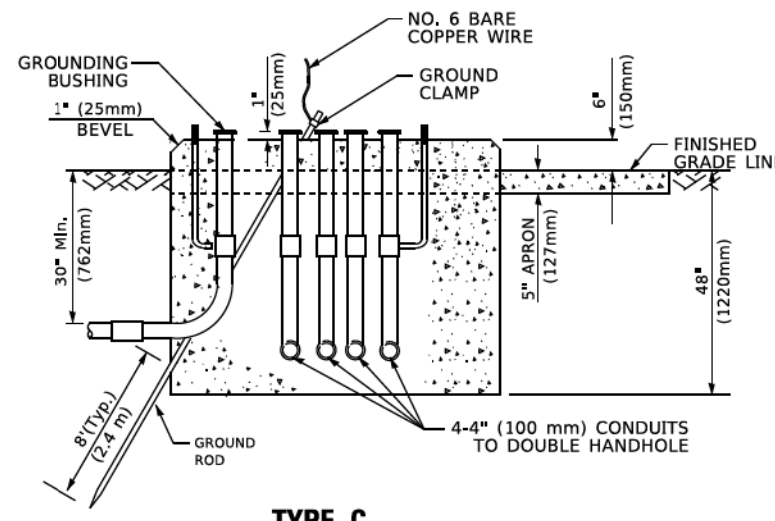


**TYPE D  
FOR GROUND MOUNTED  
CONTROLLER CABINET  
AND UPS BATTERY CABINET**

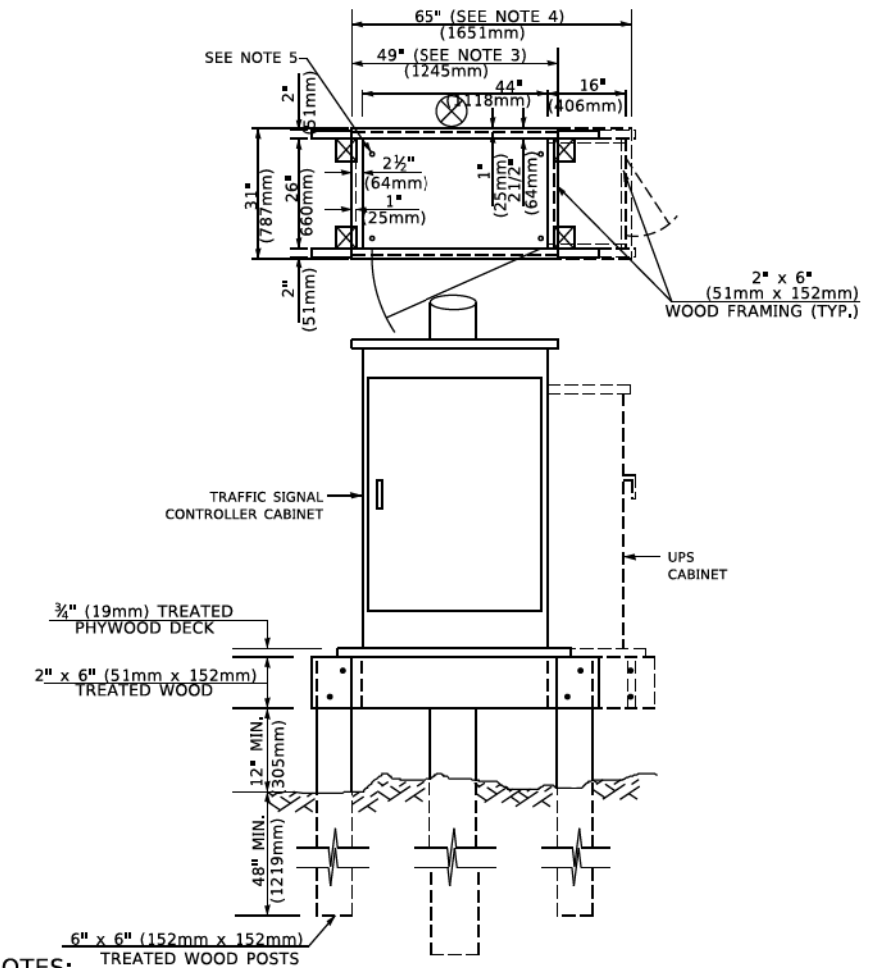


**TOP VIEW**

**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:**

1. 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.
2. 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.
3. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV.
4. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV AND UNINTERRUPTIBLE POWER SUPPLY CABINET.
5. 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.
6. 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 56' (16.8 m) and less than 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:**

1. 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.
2. Combination mast arm assemblies under 55 feet (16.8 m) shall use 36" (900 mm) diameter foundations.
3. Combination mast arm assemblies under 56 feet (16.8 m) through 75 feet (22.9 m) shall use 42" (1060 mm) diameter foundations.
4. For mast arm assemblies with dual arms refer to state standard 878001.

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

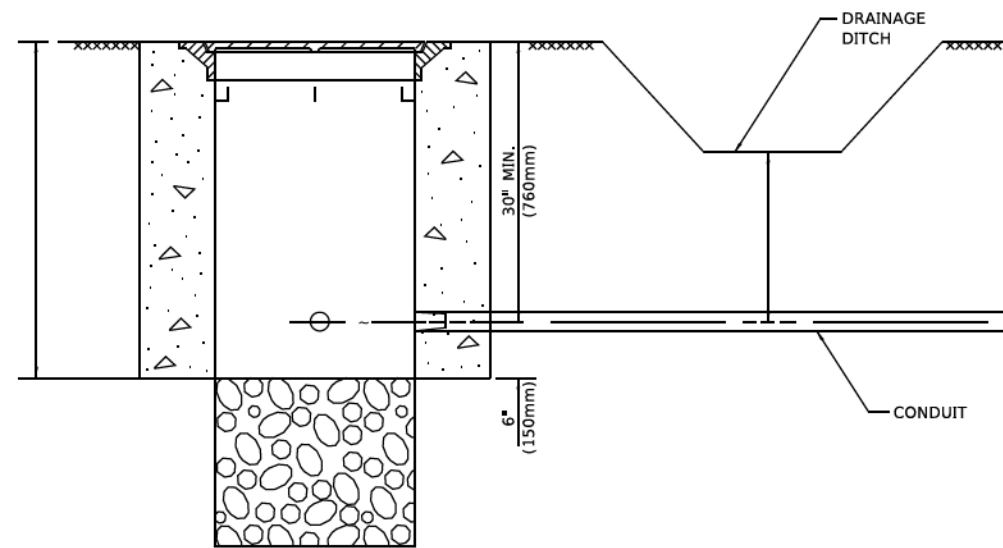
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PLOT DATE = 3/4/2019	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>DISTRICT ONE</b>		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
<b>STANDARD TRAFFIC SIGNAL DESIGN DETAILS</b>		021/0124	19-00512-00-SP	McHENRY	79	24
SCALE: NONE		SHEET 5 OF 7 SHEETS		STA. TO STA.	CONTRACT NO. 61K42	
		ILLINOIS		FED. AID PROJECT		

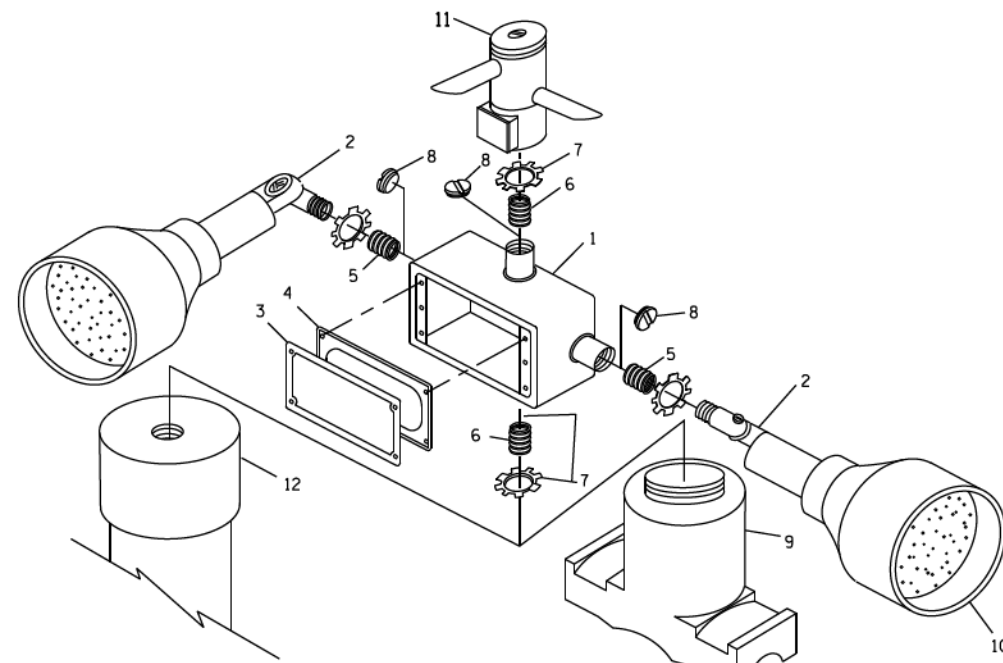




**NOTES:**

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)

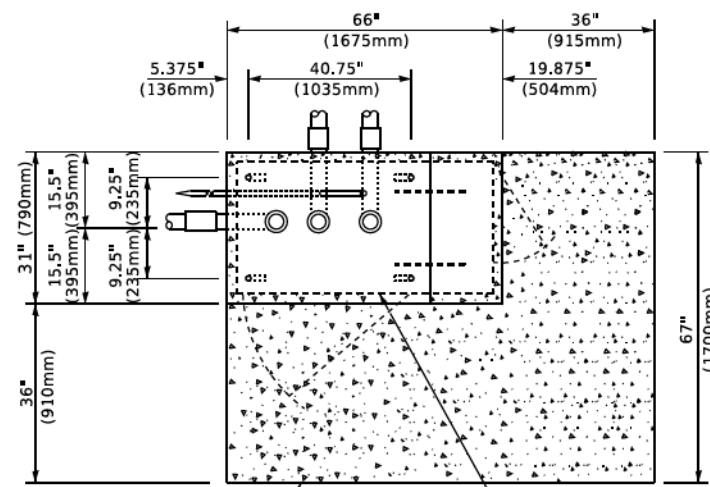


**POST CAP MOUNT**      **MAST ARM MOUNT**  
**EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL**

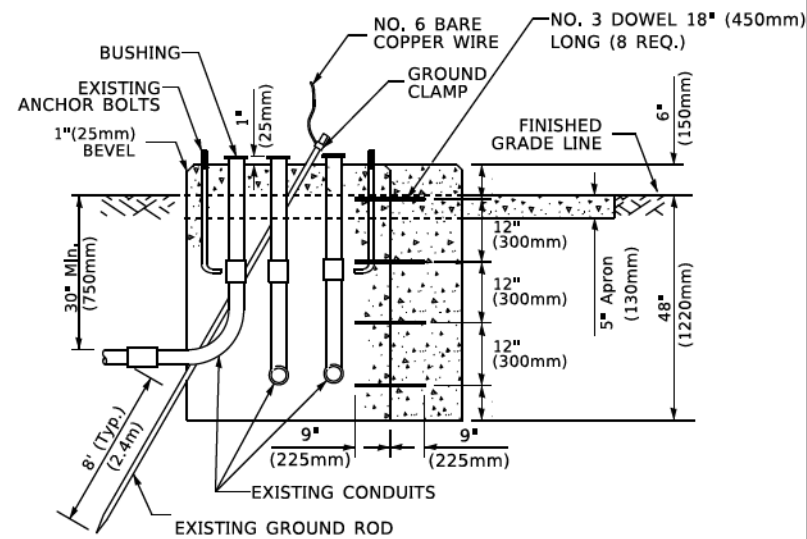
ITEM NO.	IDENTIFICATION
1	OUTLET BOX- GALV. 21 CU. IN. (0,000344 CU-M)
2	LAMP HOLDER AND COVER
3	OUTLET BOX COVER
4	RUBBER COVER GASKET
5	REDUCING BUSHING
6	3/4" (19 mm) CLOSE NIPPLE
7	3/4" (19 mm) LOCKNUT
8	3/4" (19 mm) HOLE PLUG
9	SADDLE BRACKET - GALV.
10	6 WATT PAR 38 LED FLOOD LAMP
11	DETECTOR UNIT
12	POST CAP [18 FT. (5,4 m) POST MIN.]

**NOTES:**

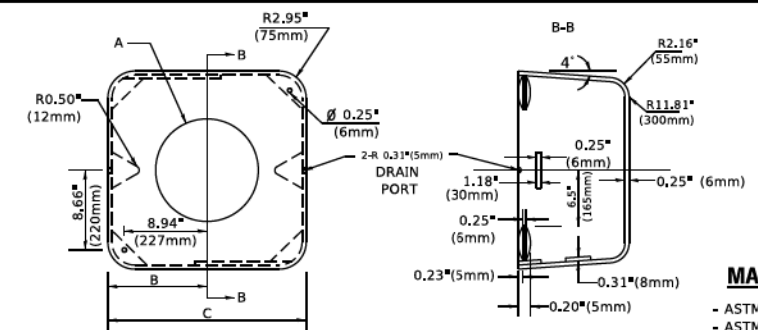
1. ALL ELECTRICAL ITEMS, EXCEPT ITEMS #2 AND #11 SHALL BE ALUMINUM OR GALVANIZED
2. ITEM #1- OZ/GEDNEY FSX-1-50 OR EQUIVALENT  
ITEM #2- MULBERRY CON-O-SHADE LAMP SHIELD OR EQUIVALENT  
ITEM #9- "BAND-IT" SADDLE BRACKET OR EQUIVALENT
3. WHEN POST MOUNTING IS SPECIFIED, ITEM #9 SHALL NOT BE REQUIRED, 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)

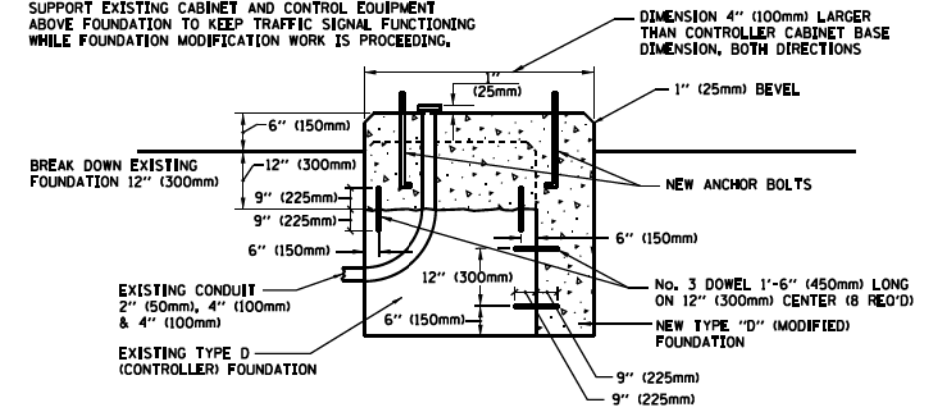
**SHROUD**

**NOTES:**

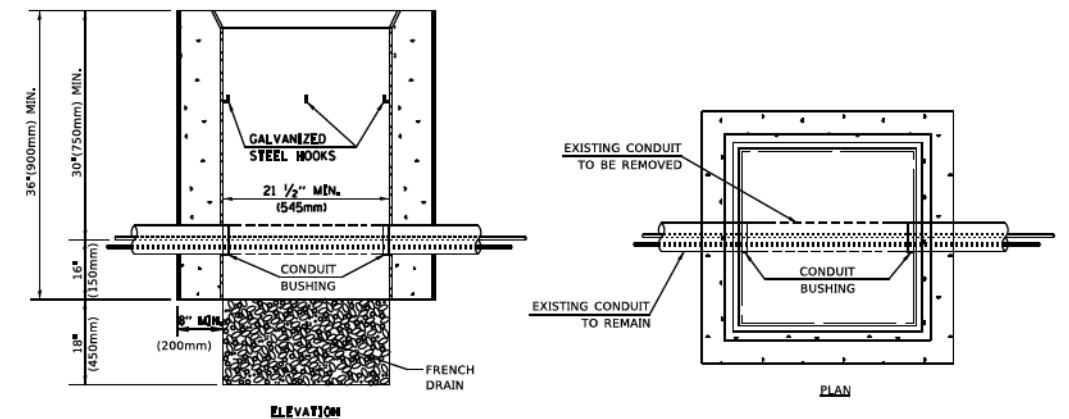
1. DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
2. THE SUPPLIER SHALL VERIFY THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
3. THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST ARM POLE BASE.

**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**

MODEL: D:\info\... FILE NAME: ...

USER NAME - footemj	DESIGNED -	REVISED -
PLOT SCALE - 50,0000 ' / IN.	DRAWN -	REVISED -
PLOT DATE - 3/4/2019	CHECKED -	REVISED -
	DATE -	REVISED -

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

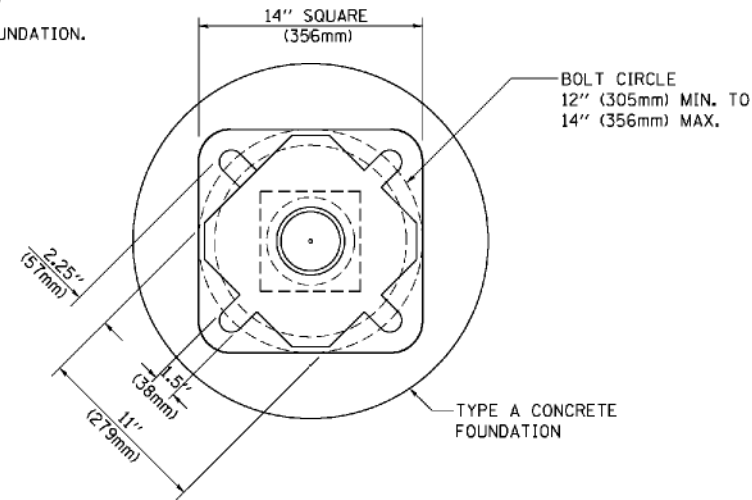
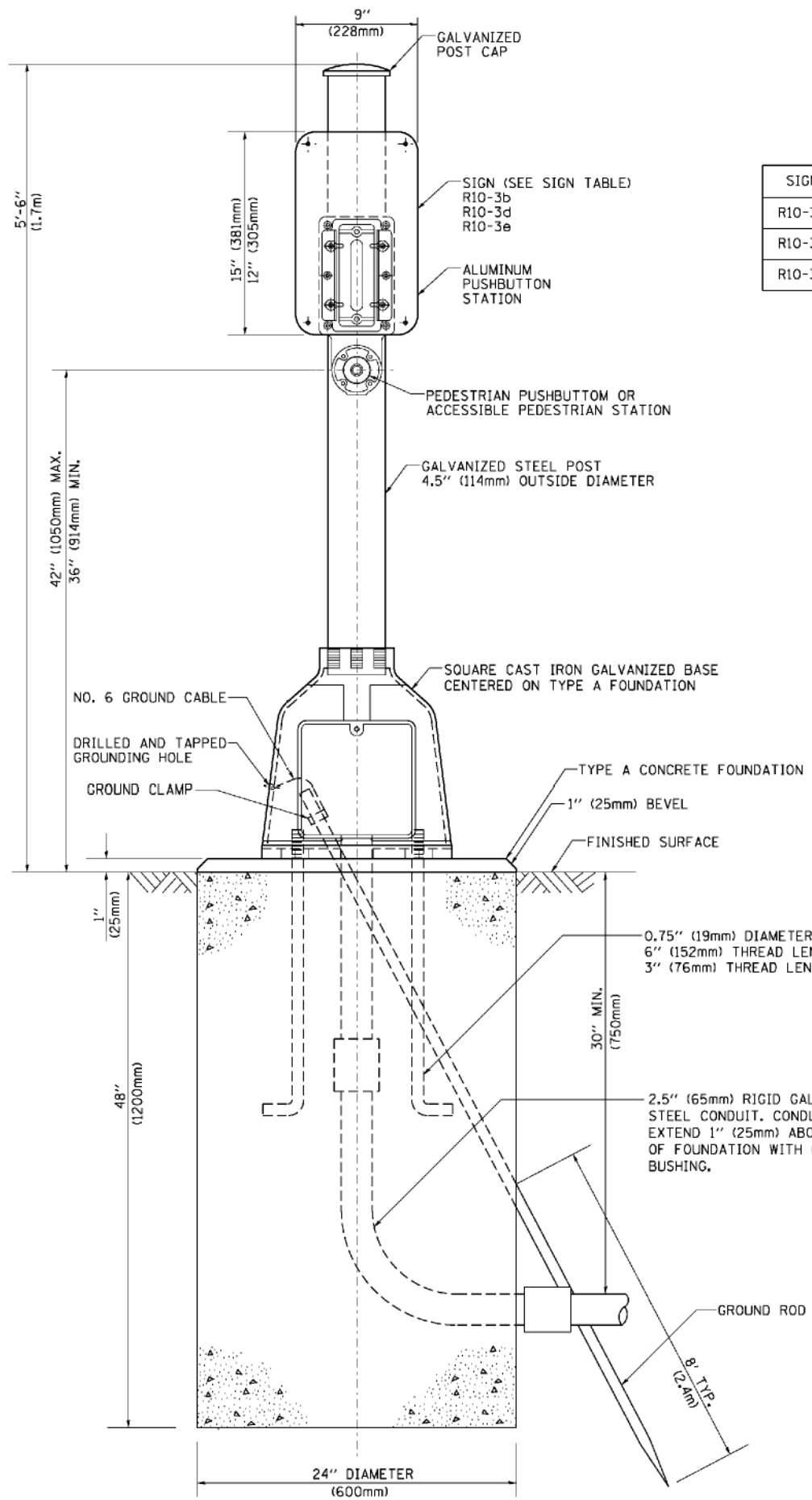
**DISTRICT ONE**  
**STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: NONE    SHEET 6 OF 7 SHEETS    STA. TO STA.

F.A. RTE. 021/014	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 25
TS-05		CONTRACT NO. 61K42		
ILLINOIS / FED. AID PROJECT				

**SIGN TABLE**

SIGN	DIMENSIONS
R10-3b	9" (228mm) X 12" (305mm)
R10-3d	9" (228mm) X 12" (305mm)
R10-3e	9" (228mm) X 15" (381mm)



**BOLT PATTERN**

**PEDESTRIAN PUSH BUTTON POST, TYPE A**

TS SHT NO.7

FILE NAME =	USER NAME = foatemj	DESIGNED - DAG	REVISED - DAG 1-1-14	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS</b>	F.A.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = 1/13/2014	DATE - 10/1/2012	REVISED -	SCALE: NONE			SHEET NO. 7 OF 7 SHEETS	STA. TO STA.	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT		



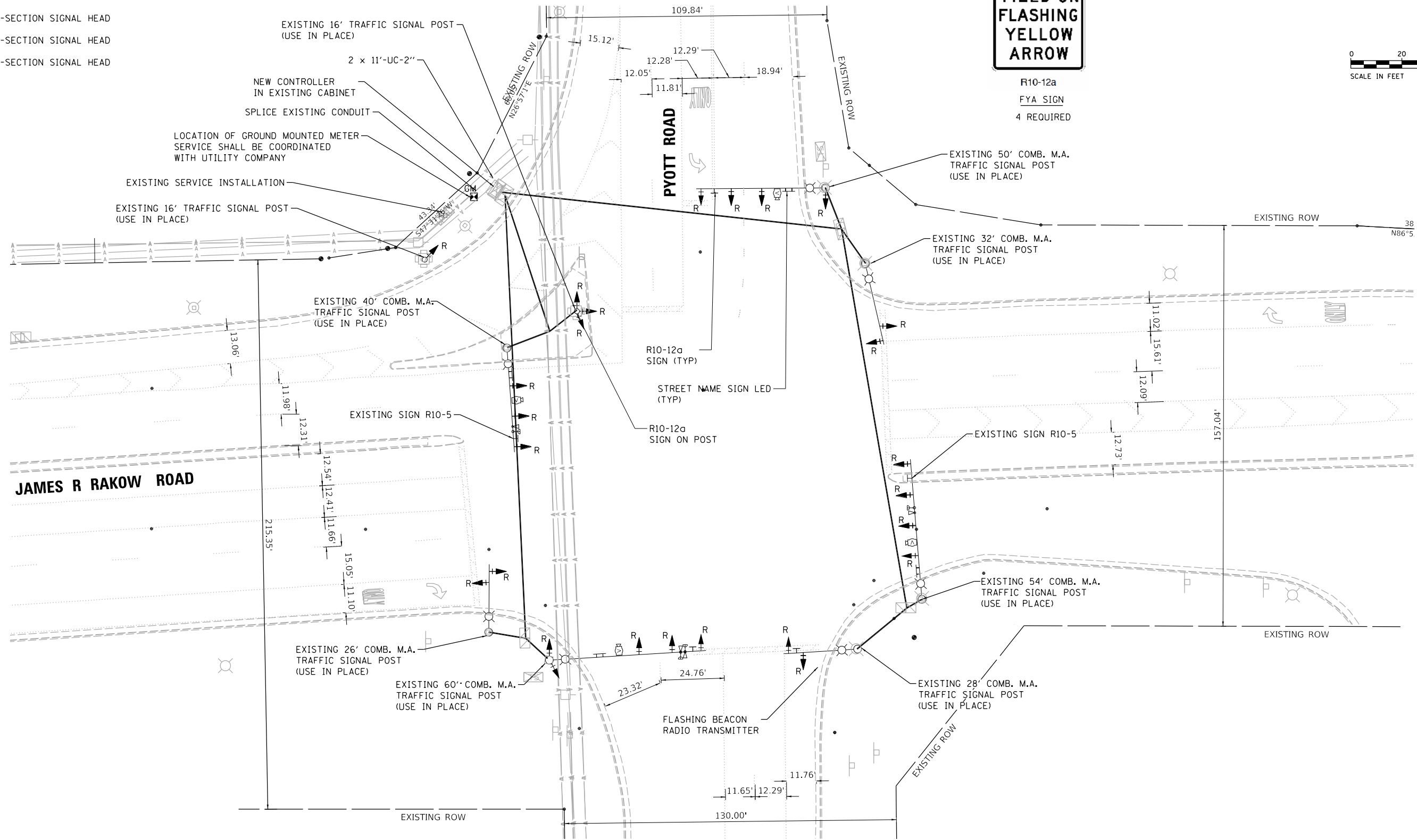
**REMOVAL NOTES:**

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.

- 10 EACH 5-SECTION SIGNAL HEAD
- 3 EACH 4-SECTION SIGNAL HEAD
- 12 EACH 3-SECTION SIGNAL HEAD

**LEFT TURN  
YIELD ON  
FLASHING  
YELLOW  
ARROW**

R10-12a  
FYA SIGN  
4 REQUIRED



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Hanson Professional Services Inc.  
LAYOUT: TMA 09/09/2022  
DRAWN: JAP 11/30/2022  
REVIEWED: GR  
FILE: \\hanson\csw\hanson\pwp\01\Documents\19\psh\1910225\CAD - Use MicroStation V8i or PowerGeopak 5510\Road\Sheet\c-signs\01.dgn

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	DATE - 02/14/2024	REVISED -

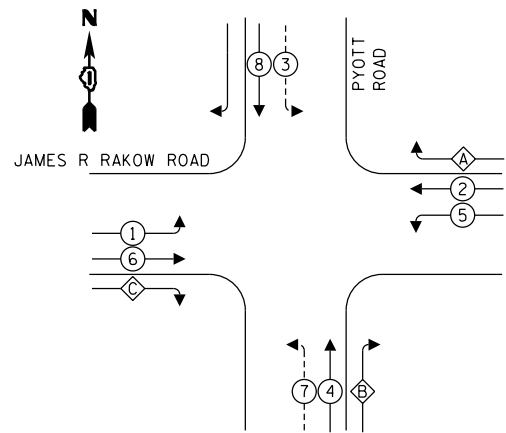
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PYOTT RD / JAMES R. RAKOW RD  
TRAFFIC SIGNAL MODIFICATION PLAN**

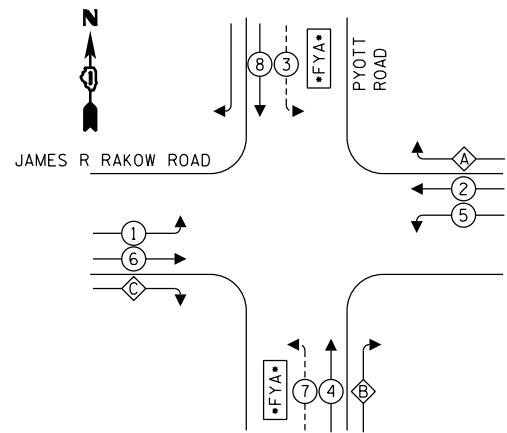
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F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	28
CONTRACT NO. 61K42				
ILLINOIS FED. AID PROJECT				

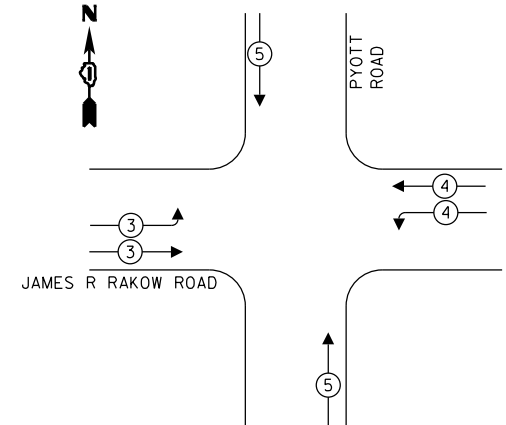
**EXISTING CONTROLLER SEQUENCE**



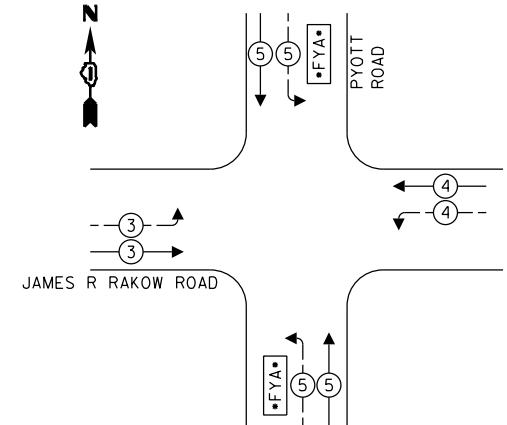
**PROPOSED CONTROLLER SEQUENCE**



**EXISTING EMERGENCY VEHICLE PREEMPTION SEQUENCE**



**PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE**



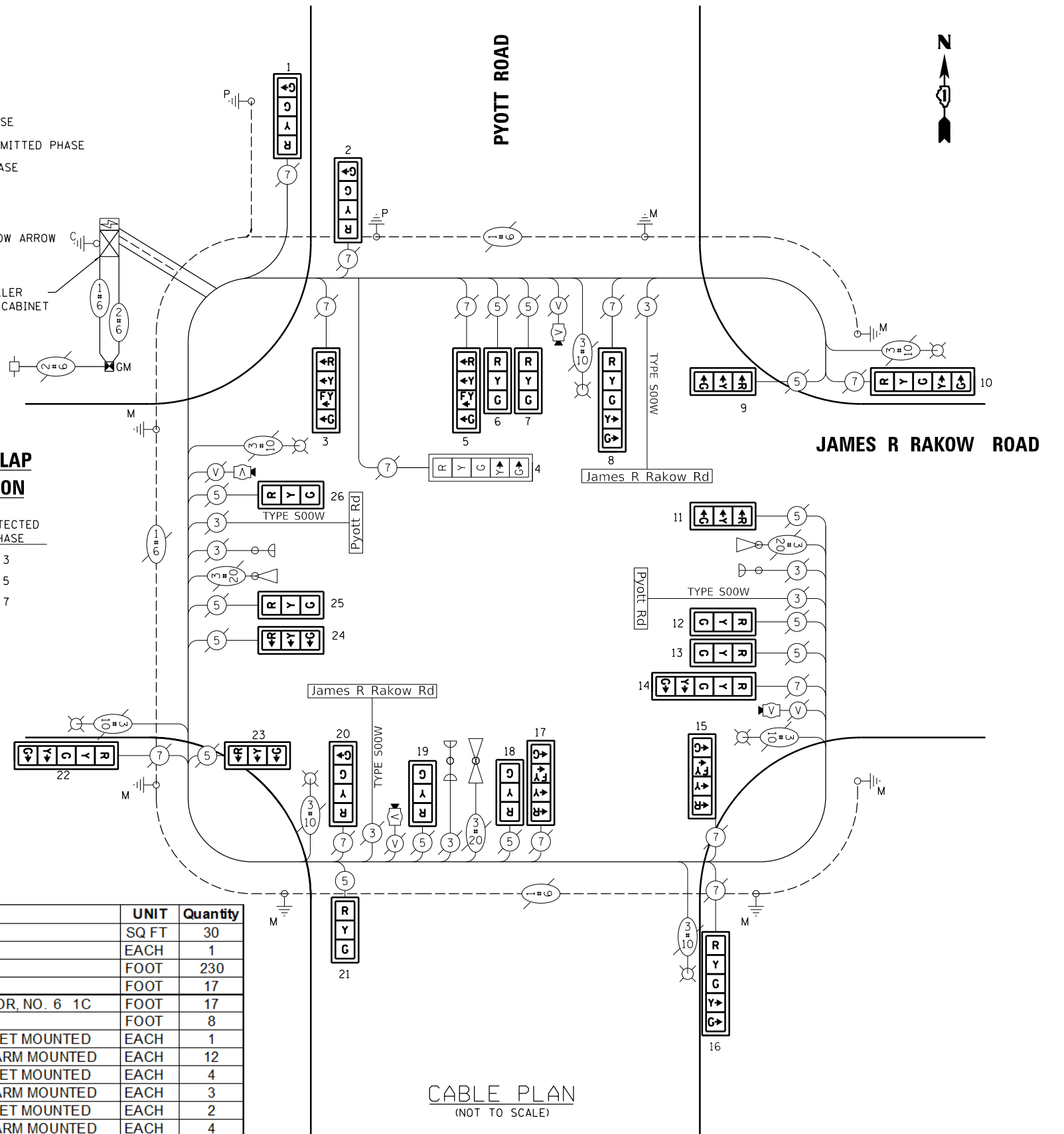
**LEGEND**

- ← \* → PROTECTED PHASE
- ← \* - - \* → PROTECTED/PERMITTED PHASE
- ← \* - - \* → PEDESTRIAN PHASE
- ← \* → OVERLAP
- ← \* → CONTINUOUS
- ◻ \* FYA ◻ FLASHING YELLOW ARROW

**RIGHT TURN OVERLAP PHASE DESIGNATION**

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

NEW CONTROLLER IN EXISTING CABINET



**CABLE PLAN**  
(NOT TO SCALE)

**TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS**

TYPE	NO. LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	26	11	50	137.5
(YELLOW)	31	20	5	31.0
(GREEN)	34	12	45	183.6
FYA	4	10	10	4.0
FLASHER	1	10	50	5.0
CONTROLLER	1	100	100	100.0
UPS	1	25	100	25.0
VIDEO DETECTION LUMINAIRE	1	150	100	150.0
	7	190	50	665.0
TOTAL =				1301.1

ENERGY COST - BILLED TO: MCHENRY COUNTY  
 2200 N. SEMINARY AVE.  
 WOODSTOCK, IL 60098

ENERGY SUPPLY - CONTACT: LISA ARGAST  
 PHONE: (630) 576-7094  
 COMPANY: COMED

PAY ITEM	DESCRIPTION	UNIT	Quantity
72000100	SIGN PANEL - TYPE 1	SQ FT	30
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	230
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	17
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	17
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	8
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	1
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	12
88040110	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	4
88040120	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	3
88040150	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	2
88040160	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	4
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	26
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	1
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
X1400150	SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	1
X8100105	CONDUIT SPLICE	EACH	1
X8809005	LED SIGNAL FACE, LENS COVER	EACH	26

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME =	hard02376
PLOT SCALE =	40.00" / in.
PLOT DATE =	3/18/2024

DESIGNED -	TMA	REVISED -	
DRAWN -	JAP	REVISED -	
CHECKED -	GR	REVISED -	
DATE -	02/14/2024	REVISED -	

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

**PYOTT RD / JAMES R. RAKOW RD**  
**WIRING DIAGRAM**

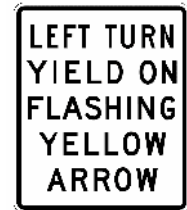
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	MCHENRY	79	29
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

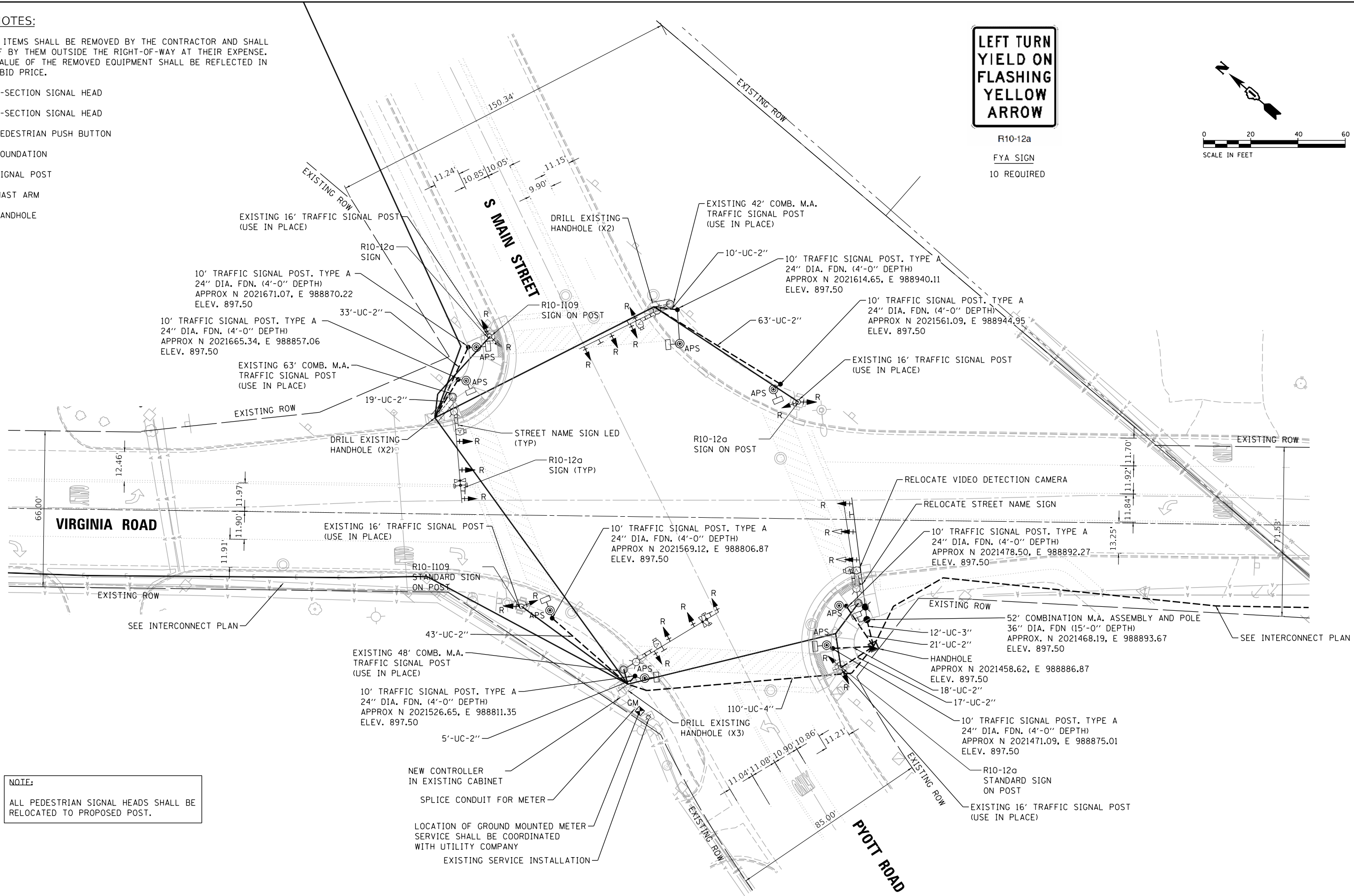
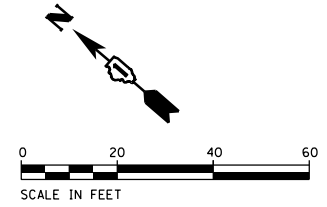
**REMOVAL NOTES:**

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.

- 14 EACH 5-SECTION SIGNAL HEAD
- 8 EACH 3-SECTION SIGNAL HEAD
- 8 EACH PEDESTRIAN PUSH BUTTON
- 1 EACH FOUNDATION
- 1 EACH SIGNAL POST
- 1 EACH MAST ARM
- 1 EACH HANDHOLE



R10-12a  
FYA SIGN  
10 REQUIRED



**NOTE:**  
ALL PEDESTRIAN SIGNAL HEADS SHALL BE RELOCATED TO PROPOSED POST.



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 HANSON Professional Services Inc.  
 FILE: I:\data\proj\hanson\civic-cw\hanson-cw\hanson-cw\1010\RoadSignal\Sheet\sigmod2.dwg

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME = hard02376	DESIGNED - TMA	REVISED -
PLOT SCALE = 40.00" / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

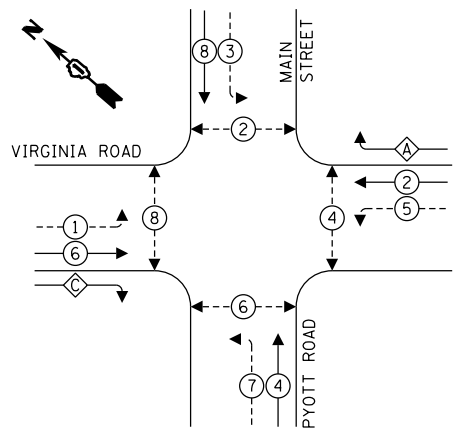
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / PYOTT RD / MAIN ST  
TRAFFIC SIGNAL MODIFICATION PLAN**

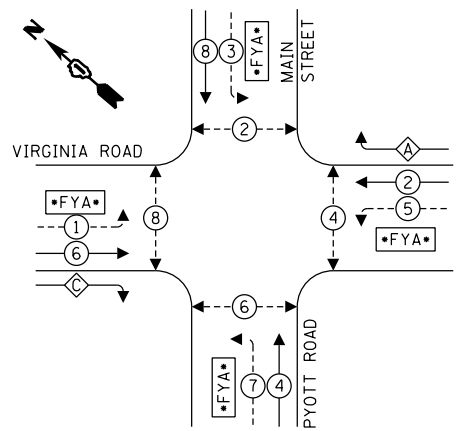
SCALE: 1"=20' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	30
		CONTRACT NO. 61K42		
		ILLINOIS FED. AID PROJECT		

**EXISTING CONTROLLER SEQUENCE**



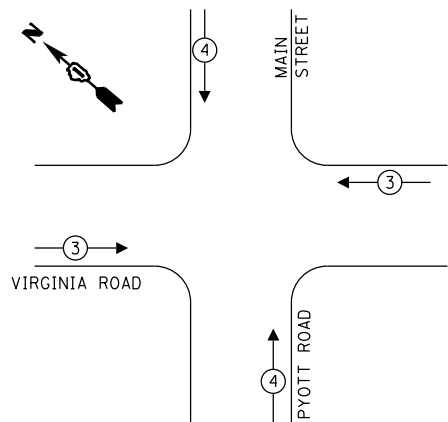
**PROPOSED CONTROLLER SEQUENCE**



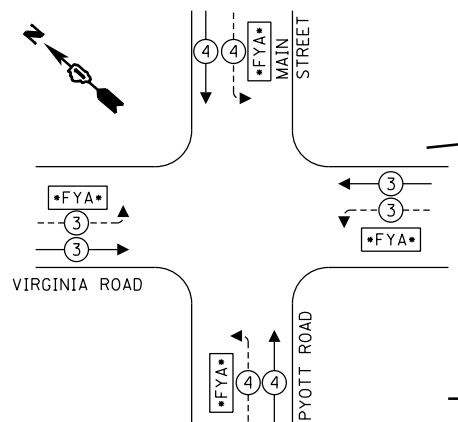
**LEGEND**

- ◉ PROTECTED PHASE
- ◉ PROTECTED/PERMITTED PHASE
- ◉ PEDESTRIAN PHASE
- ◉ OVERLAP
- ◉ FYA FLASHING YELLOW ARROW

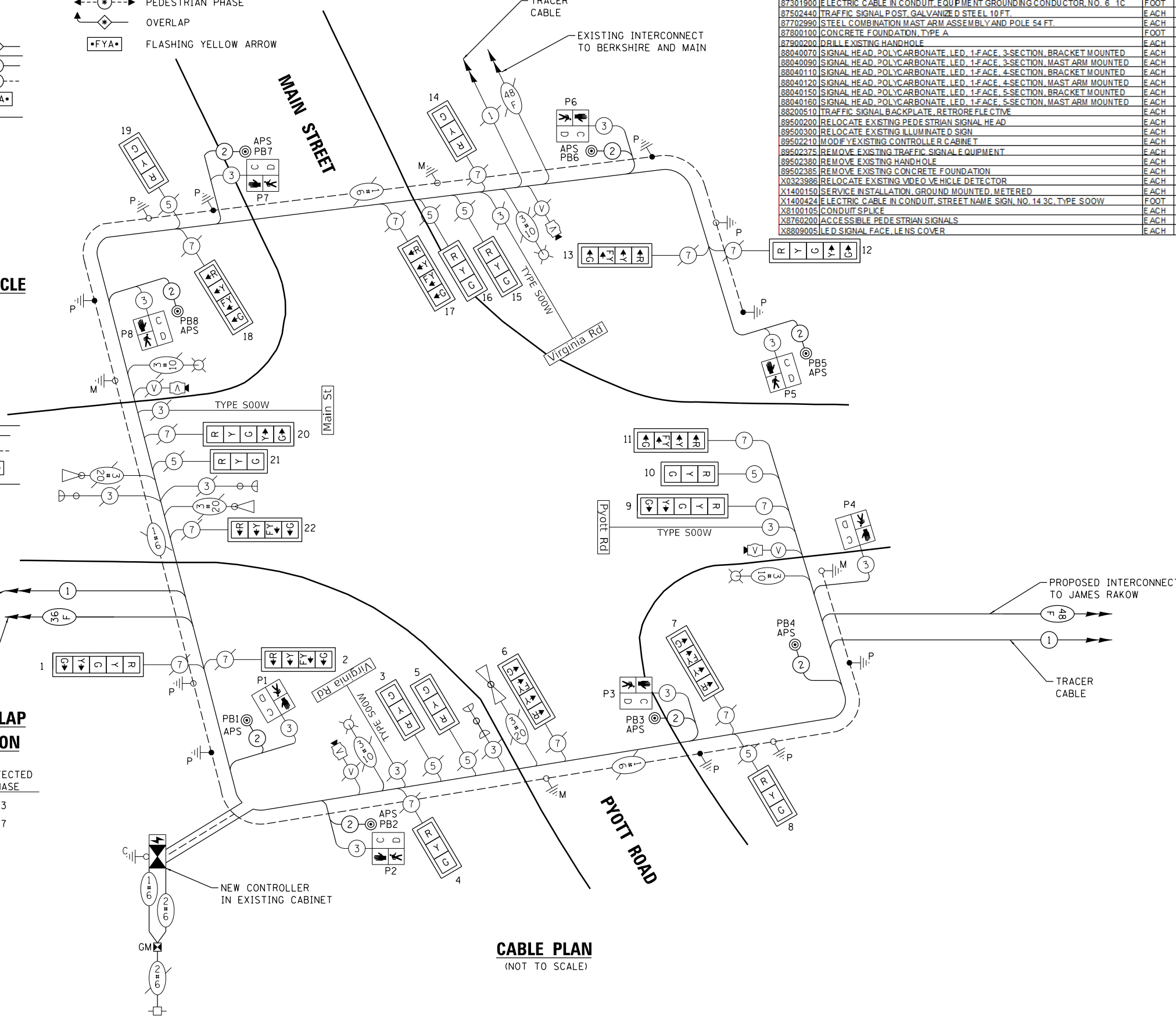
**EXISTING EMERGENCY VEHICLE PREEMPTION SEQUENCE**



**PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE**



PAY ITEM	DESCRIPTION	UNIT	Quantity
72000100	SIGN PANEL - TYPE 1	SQ FT	75
81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	231
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	110
81400100	HANDHOLE	EACH	1
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14, 2C	FOOT	1498
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14, 3C	FOOT	1545
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6, 2C	FOOT	25
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6, 1C	FOOT	479
87502440	TRAFFIC SIGNAL POST, GALVANIZED STEEL, 10 FT.	EACH	8
87702990	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 54 FT.	EACH	1
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	36
87900200	DRILL EXISTING HANDHOLE	EACH	7
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	6
88040110	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	4
88040120	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	4
88040150	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	4
88040160	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	6
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	26
89500200	RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD	EACH	8
89500300	RELOCATE EXISTING ILLUMINATED SIGN	EACH	1
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	1
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
89502380	REMOVE EXISTING HANDHOLE	EACH	1
89502385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	1
X0323986	RELOCATE EXISTING VIDEO VEHICLE DETECTOR	EACH	1
X1400150	SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	1
X1400424	ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW	FOOT	192
X8100105	CONDUIT SPLICE	EACH	1
X8760200	ACCESSIBLE PEDESTRIAN SIGNALS	EACH	8
X8809005	LED SIGNAL FACE, LENS COVER	EACH	26



**TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS**

TYPE	NO. LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE			
SIGNAL (RED)	22	11	50	121.0			
(YELLOW)	25	20	5	25.0			
(GREEN)	26	12	45	140.4			
FYA	11	10	10	11.0			
PED. SIGNAL				8	20	100	160.0
CONTROLLER				1	100	100	100.0
UPS				1	25	100	25.0
VIDEO DETECTION LUMINAIRE				1	150	100	150.0
				4	190	50	380.0
TOTAL =							1112.4

ENERGY COST - BILLED TO: MCHENRY COUNTY  
 2200 N. SEMINARY AVE.  
 WOODSTOCK, IL 60098

ENERGY SUPPLY - CONTACT: LISA ARGAST  
 PHONE: (630) 576-7094  
 COMPANY: COMED

**RIGHT TURN OVERLAP PHASE DESIGNATION**

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

**CABLE PLAN (NOT TO SCALE)**

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME	= hard02376
DESIGNED	- TMA
DRAWN	- JAP
CHECKED	- GR
DATE	- 02/14/2024
REVISIONS	
REVISED	-
REVISIONS	
REVISED	-
REVISIONS	
REVISED	-

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / PYOTT RD / MAIN ST  
 WIRING DIAGRAM**

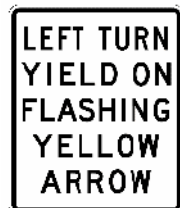
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	MCHENRY	79	31
ILLINOIS FED. AID PROJECT			CONTRACT NO. 61K42	

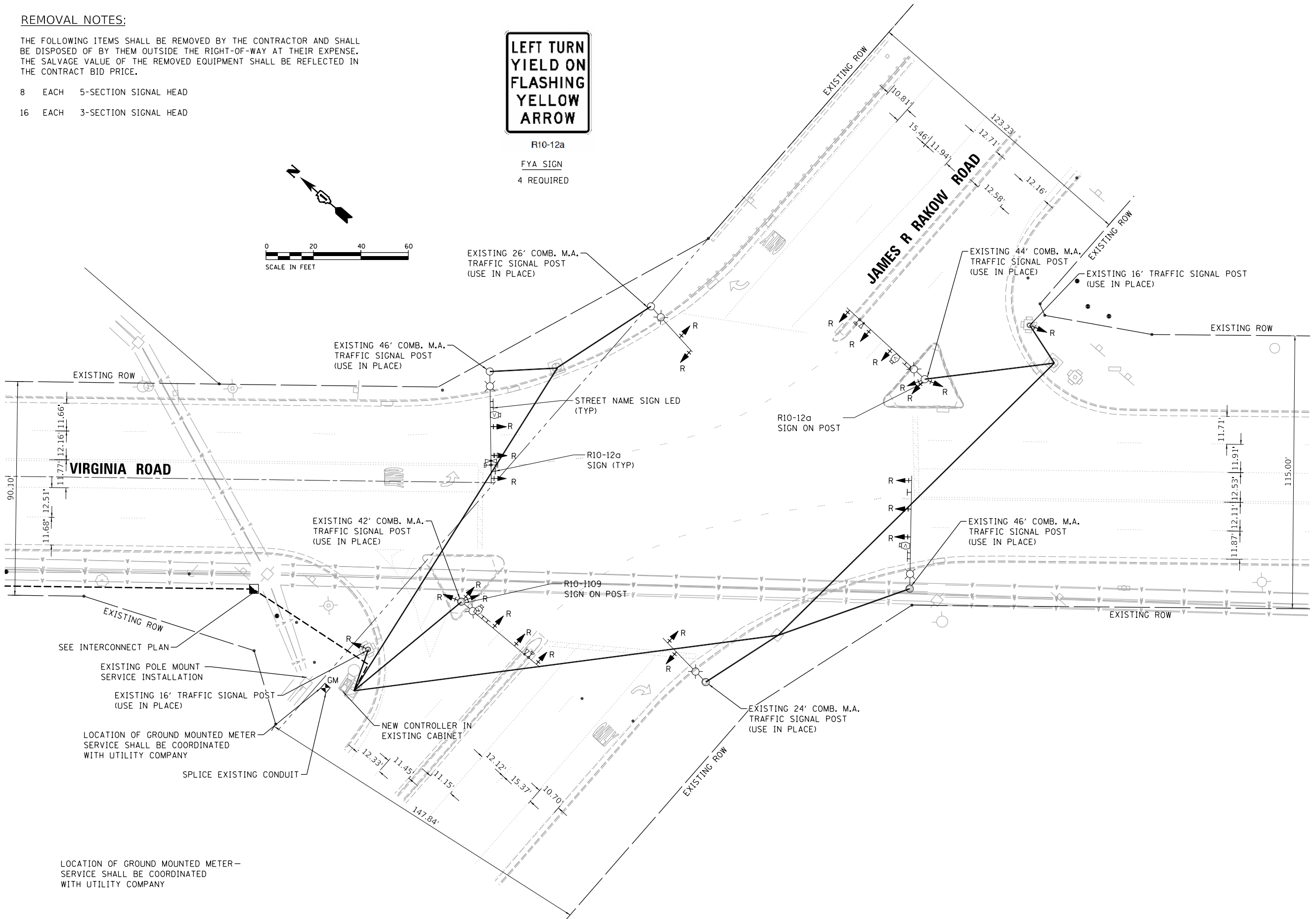
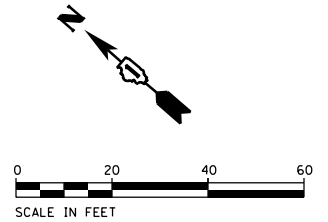
**REMOVAL NOTES:**

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.

- 8 EACH 5-SECTION SIGNAL HEAD
- 16 EACH 3-SECTION SIGNAL HEAD



R10-12a  
FYA SIGN  
4 REQUIRED



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**HANSON**  
 Hanson Professional Services Inc.

LAYOUT TMA 09/09/2022  
 DRAWN JAP 11/30/2022  
 REVIEWED GR  
 FILE: \\hanson\c:\pwworking\hanson\projects\1910225\CAD - Use MicroStation V8i or PowerGeopak 5510\RoadSheet\Signal04.dgn

SEE INTERCONNECT PLAN  
 EXISTING POLE MOUNT SERVICE INSTALLATION  
 EXISTING 16' TRAFFIC SIGNAL POST (USE IN PLACE)  
 LOCATION OF GROUND MOUNTED METER SERVICE SHALL BE COORDINATED WITH UTILITY COMPANY  
 SPLICE EXISTING CONDUIT

LOCATION OF GROUND MOUNTED METER - SERVICE SHALL BE COORDINATED WITH UTILITY COMPANY

USER NAME = hard02376	DESIGNED - TMA	REVISED -
PLOT SCALE = 40.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

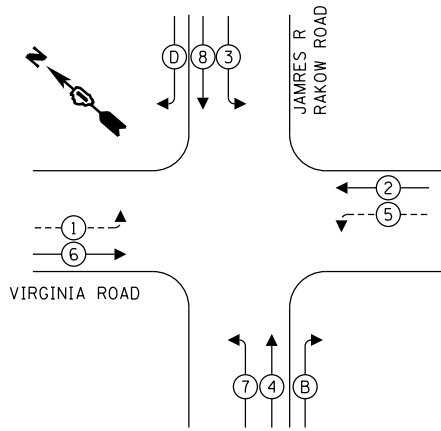
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>VIRGINIA RD / JAMES R. RAKOW RD TRAFFIC SIGNAL MODIFICATION PLAN</b>		F.A.U. RTE. 021/0124	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 32
SCALE: 1"=20'	SHEET	OF	SHEETS	STA.	TO	STA.
				ILLINOIS		FED. AID PROJECT

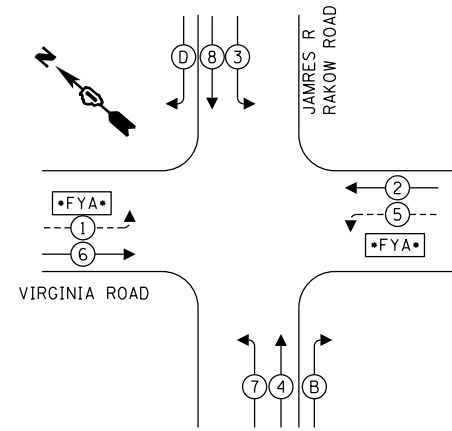
CONTRACT NO. 61K42



**EXISTING CONTROLLER SEQUENCE**



**PROPOSED CONTROLLER SEQUENCE**



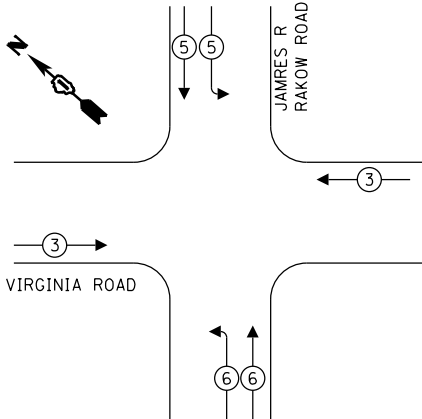
**LEGEND**

- ⊖ PROTECTED PHASE
- ⊖ PROTECTED/PERMITTED PHASE
- ⊖ PEDESTRIAN PHASE
- ⊖ OVERLAP
- ⊖ FYA FLASHING YELLOW ARROW

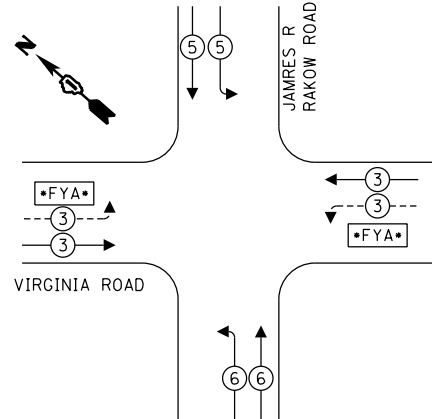
**RIGHT TURN OVERLAP PHASE DESIGNATION**

OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
B	= 4	+ 5
D	= 8	+ 1

**EXISTING EMERGENCY VEHICLE PREEMPTION SEQUENCE**



**PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE**



**TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS**

TYPE	NO. LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	24	11	50	132.0
(YELLOW)	28	20	5	28.0
(GREEN)	28	12	45	151.2
FYA	4	10	10	4.0
CONTROLLER	1	100	100	100.0
UPS	1	25	100	25.0
VIDEO DETECTION	1	150	100	150.0
LUMINAIRE	6	190	50	570.0
TOTAL =				1160.2

ENERGY COST - BILLED TO: McHENRY COUNTY  
 2200 N. SEMINARY AVE.  
 WOODSTOCK, IL 60098

ENERGY SUPPLY - CONTACT: LISA ARGAST  
 PHONE: (630) 576-7094  
 COMPANY: COMED

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

FILE: \\hanson\hanson\csw\benhery\comshanson\p01\Documents\19\p01\10\0225\CAD - Use MicroStation V8i or PowerGeopak 5510\RoadSheet\cable04.dgn

USER NAME = hard02376	DESIGNED - TMA	REVISED -
PLOT SCALE = 40.00" / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

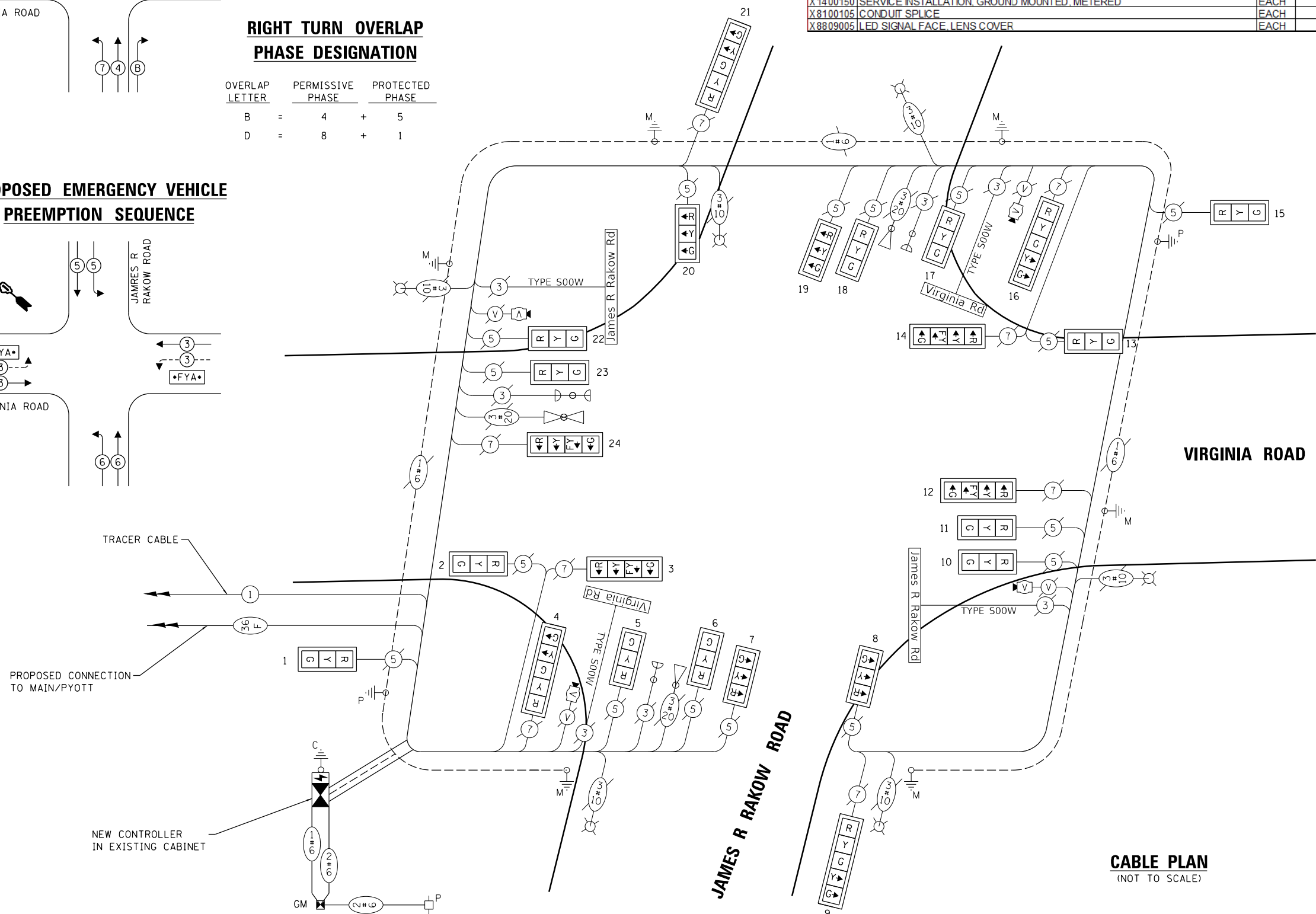
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

VIRGINIA RD / JAMES R. RAKOW RD  
 WIRING DIAGRAM

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE. 021/0124	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 33
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

PAY ITEM	DESCRIPTION	UNIT	Quantity
72000100	SIGN PANEL - TYPE 1	SQ FT	30
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	25
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	25
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	4
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	4
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	12
88040110	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	2
88040120	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	2
88040150	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	2
88040160	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	2
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	24
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	1
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
X1400150	SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	1
X8100105	CONDUIT SPLICE	EACH	1
X8809005	LED SIGNAL FACE, LENS COVER	EACH	24

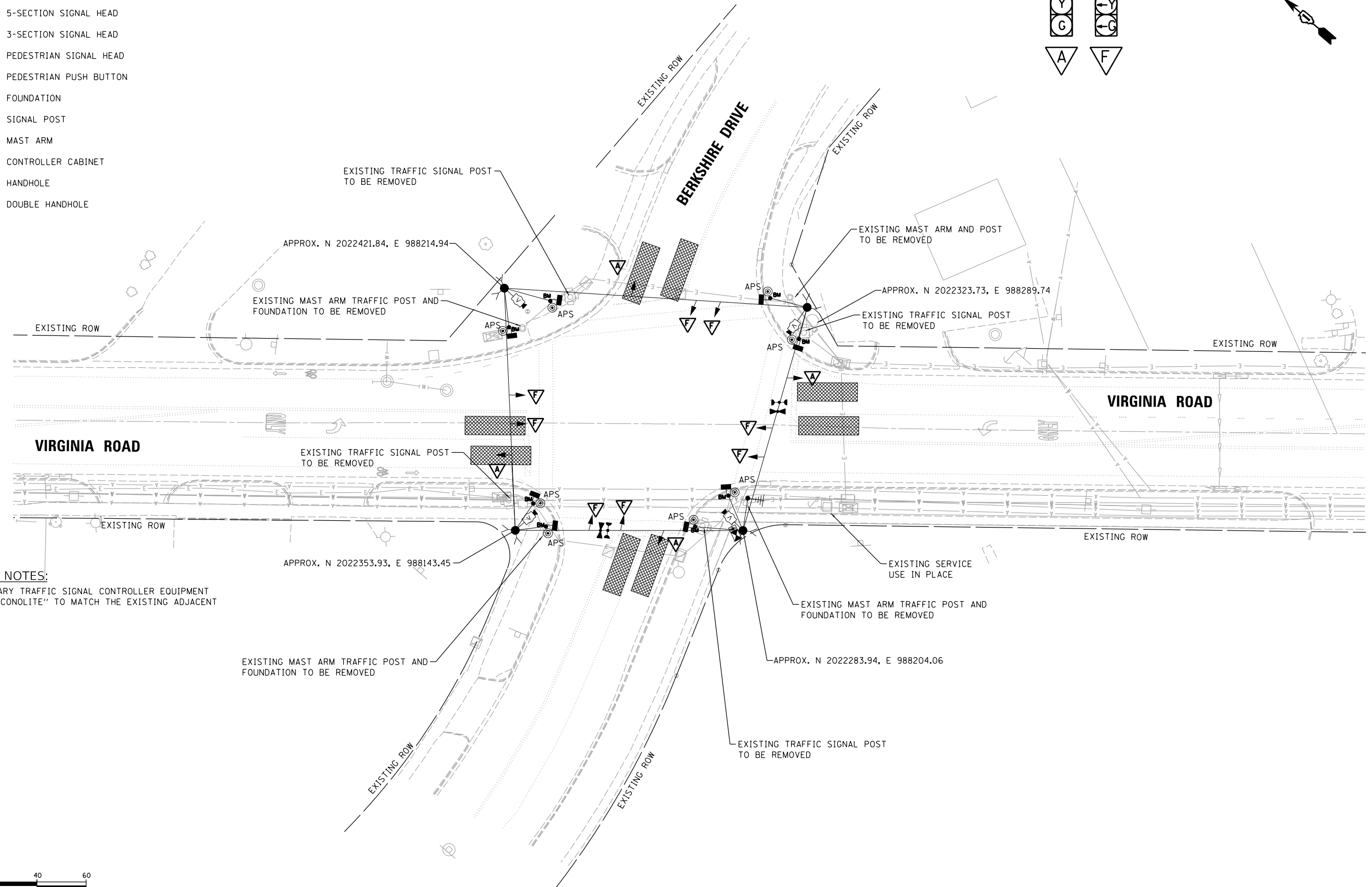
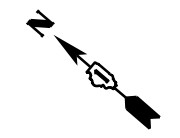
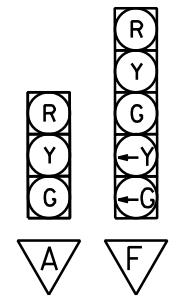


**CABLE PLAN**  
 (NOT TO SCALE)

**REMOVAL 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.

- 8 EACH 5-SECTION SIGNAL HEAD
- 6 EACH 3-SECTION SIGNAL HEAD
- 8 EACH PEDESTRIAN SIGNAL HEAD
- 6 EACH PEDESTRIAN PUSH BUTTON
- 9 EACH FOUNDATION
- 8 EACH SIGNAL POST
- 4 EACH MAST ARM
- 1 EACH CONTROLLER CABINET
- 2 EACH HANDHOLE
- 1 EACH DOUBLE HANDHOLE



**GENERAL NOTES:**

THE TEMPORARY TRAFFIC SIGNAL CONTROLLER EQUIPMENT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.



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 Hanson Professional Services Inc.

LAYOUT TMA 09/09/2022  
 DRAWN JAP 11/30/2022  
 REVIEWED GR  
 FILE: \\hanson\proj\hanson\proj\611\Documents\19\proj\19\0225\CAD - Use MicroStation V8i - Use MicroStation V8i\Sheet\comp\hanson\BerkshireDr.dgn

USER NAME = hard02376	DESIGNED - TMA	REVISED - 02/27/2024
DRAWN - JAP	REVISOR -	
PLOT SCALE = 40.00' / in.	CHECKED - GR	REVISOR -
PLOT DATE = 3/18/2024	DATE - 02/14/2024	REVISOR -

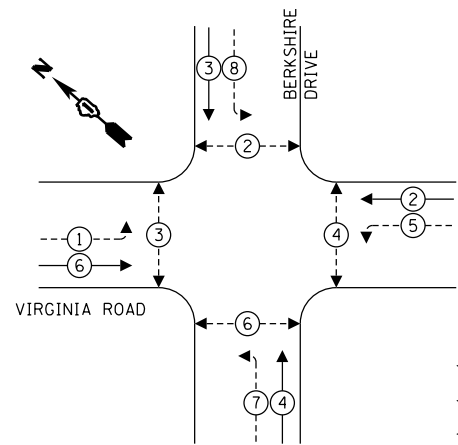
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / BERKSHIRE DR**  
**TEMPORARY SIGNAL AND REMOVAL PLAN**

SCALE: 1"=20'    SHEET    OF    SHEETS    STA.    TO    STA.

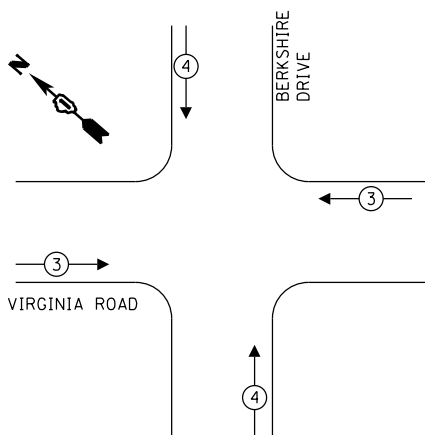
F.A.U. RTE. 021/0124	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 34
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

TEMPORARY CONTROLLER SEQUENCE



- LEGEND**
- ← (circle with star) PROTECTED PHASE
  - ← (circle with star and dashed line) PROTECTED/PERMITTED PHASE
  - ← (circle with star and dashed line with arrow) PEDESTRIAN PHASE
  - ← (diamond with star) OVERLAP
  - ◻ (FYA) FLASHING YELLOW ARROW

**EXISTING EMERGENCY VEHICLE  
PREEMPTION SEQUENCE**

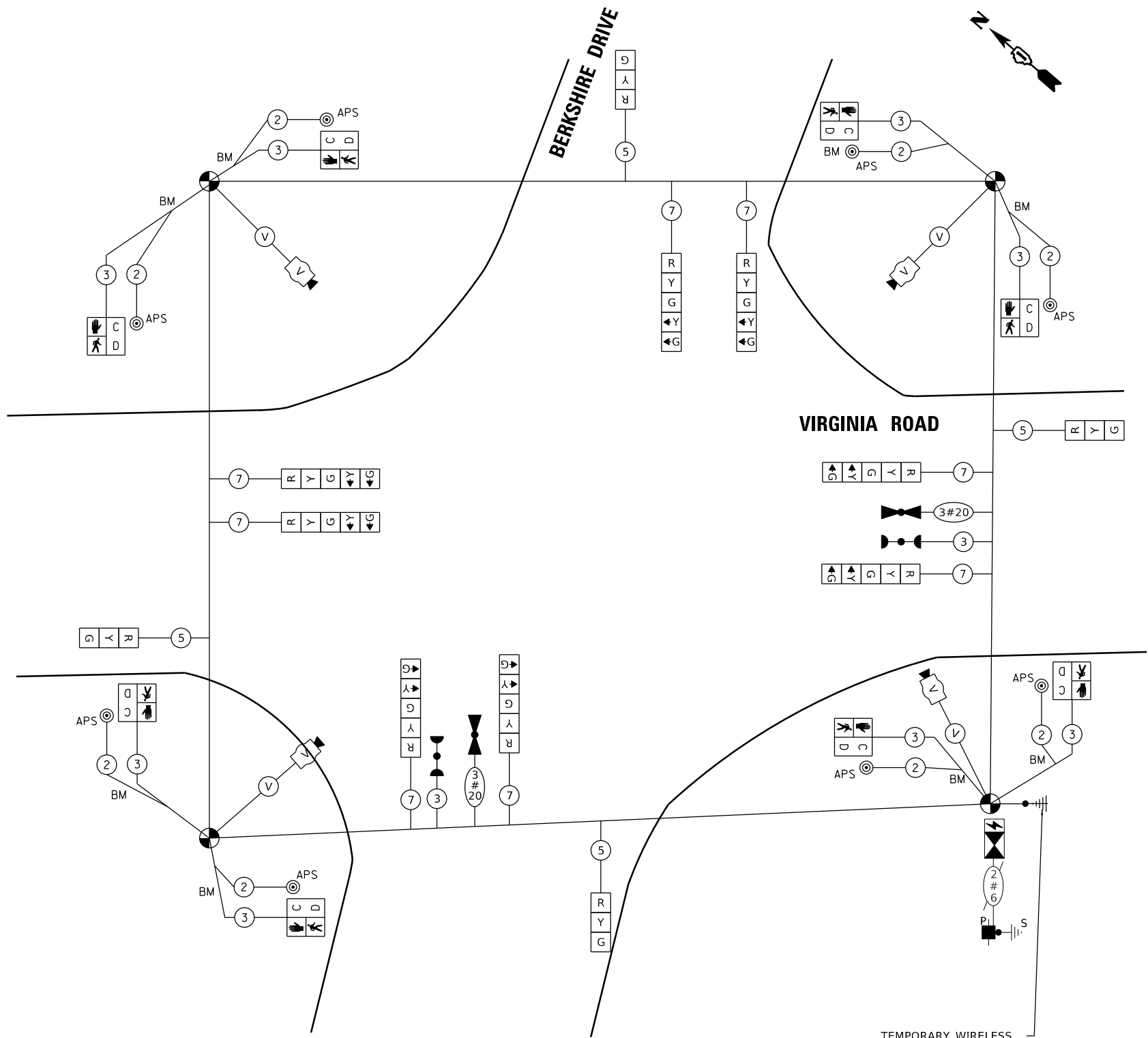


**TRAFFIC SIGNAL INSTALLATION  
ELECTRICAL SERVICE REQUIREMENTS**

TYPE	NO. LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	12	11	50	66.0
(YELLOW)	12	20	5	12.0
(GREEN)	12	12	45	64.8
(ARROW)	16	10	10	16.0
PED. SIGNAL	8	20	100	160.0
CONTROLLER	1	100	100	100.0
UPS	1	25	100	25.0
VIDEO DETECTION	1	150	100	150.0
TOTAL =				593.8

ENERGY COST - BILLED TO: McHENRY COUNTY  
 2200 N. SEMINARY AVE.  
 WOODSTOCK, IL 60098

ENERGY SUPPLY - CONTACT: LISA ARGAST  
 PHONE: (630) 576-7094  
 COMPANY: COMED



TEMPORARY WIRELESS  
INTERCONNECT  
TO PYOTT AND TECKLER

**CABLE PLAN**  
(NOT TO SCALE)

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**HANSON**  
 Hanson Professional Services Inc.

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

FILE: \\hanson\csw\_bentley\comshanson\p01\Documents\19\p01\19-00512-00-SP\CAD - Use MicroStation V8i or PowerGeopak\_S510\RoadSheet\c-temp\cableberkshire.dgn

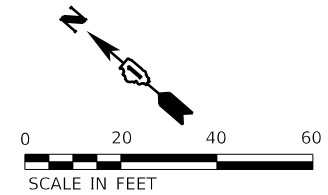
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PLOT SCALE = 40.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / BERKSHIRE DR  
TEMPORARY CABLE PLAN**

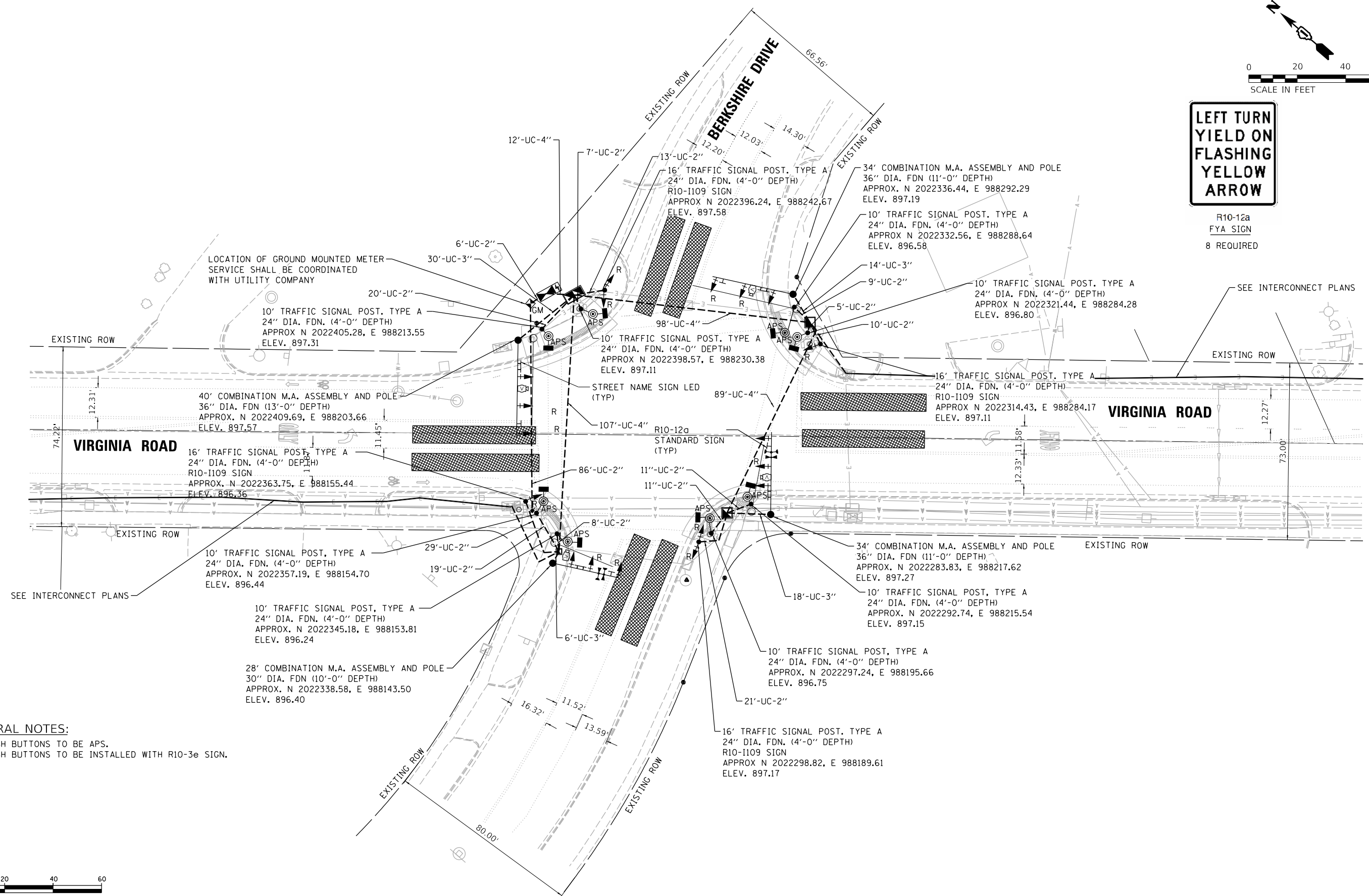
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	35
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	



**LEFT TURN  
 YIELD ON  
 FLASHING  
 YELLOW  
 ARROW**

R10-12a  
 FYA SIGN  
 8 REQUIRED



**GENERAL NOTES:**

ALL PUSH BUTTONS TO BE APS.  
 ALL PUSH BUTTONS TO BE INSTALLED WITH R10-3e SIGN.



LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

FILE: \\hanson\proj\hanson\csw\hanson\p01\Documents\19\0225\CAD - Use MicroStation V8i or PowerGeopak 5510\RoadSignalSheet\signal03.dgn

USER NAME = hard02376	DESIGNED - TMA	REVISED -
PLOT SCALE = 40.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

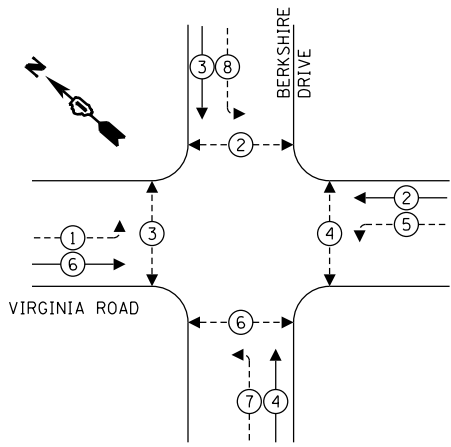
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VIRGINIA RD / BERKSHIRE DR  
 SIGNAL PLAN**

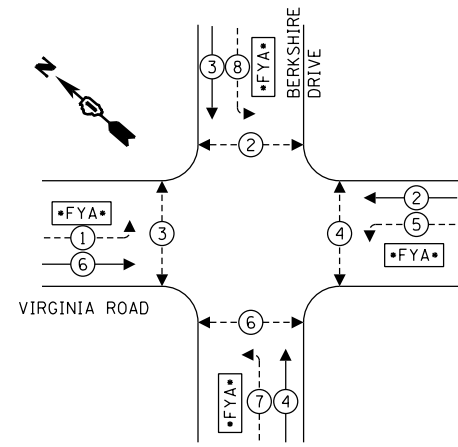
SCALE: 1"=20' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	36
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

**EXISTING CONTROLLER SEQUENCE**



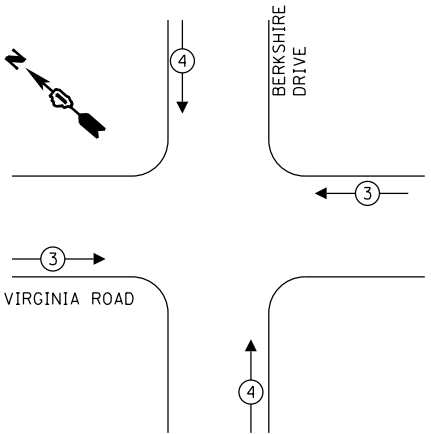
**PROPOSED CONTROLLER SEQUENCE**



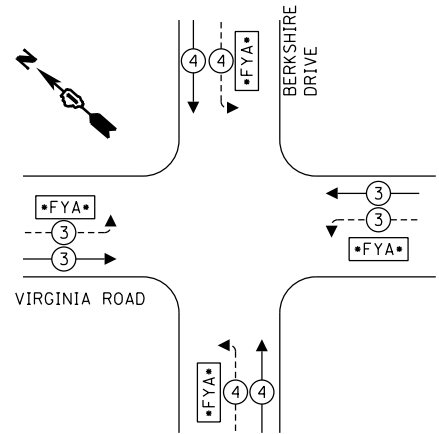
**LEGEND**

- ← (P) → PROTECTED PHASE
- ← (P) → PROTECTED/PERMITTED PHASE
- ← (P) → PEDESTRIAN PHASE
- ← (P) → OVERLAP
- FYA• FLASHING YELLOW ARROW

**EXISTING EMERGENCY VEHICLE PREEMPTION SEQUENCE**



**PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE**



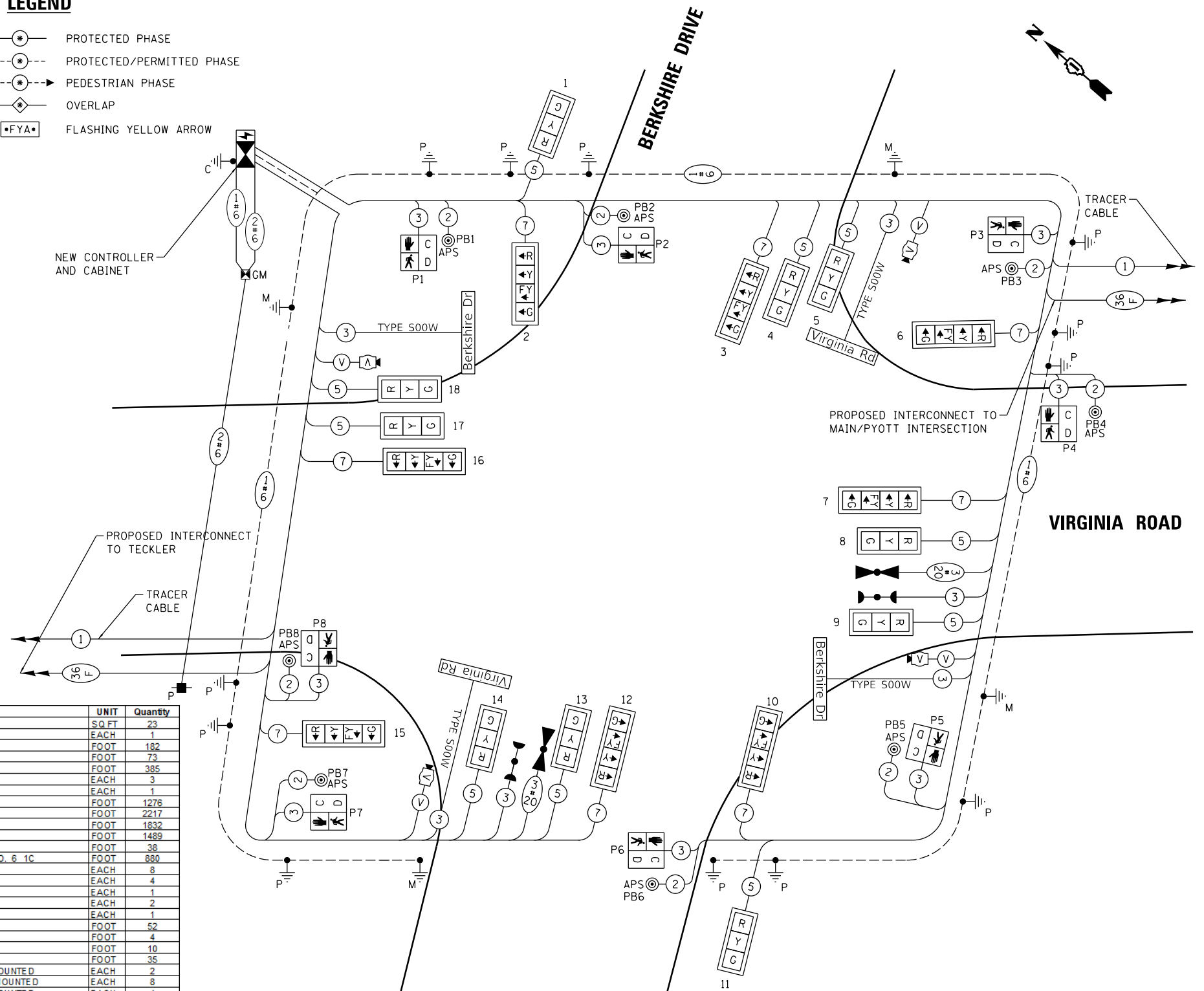
**TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS**

TYPE	NO. LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	18	11	50	99.0
(YELLOW)	18	20	5	18.0
(GREEN)	18	12	45	97.2
FYA	8	10	10	8.0
PED. SIGNAL	8	20	100	160.0
CONTROLLER	1	100	100	100.0
UPS	1	25	100	25.0
VIDEO DETECTION	1	150	100	150.0
LUMINAIRE	4	190	50	380.0
TOTAL =				1037.2

ENERGY COST - BILLED TO: MCHENRY COUNTY  
 2200 N. SEMINARY AVE.  
 WOODSTOCK, IL 60098

ENERGY SUPPLY - CONTACT: LISA ARGAST  
 PHONE: (630) 576-7094  
 COMPANY: COMED

PAY ITEM	DESCRIPTION	UNIT	Quantity
72000100	SIGN PANEL - TYPE 1	SQ FT	23
80500020	SERVICE INSTALLATION - POLE MOUNTED	EACH	1
81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	182
81028220	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	73
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	385
81400100	HANDHOLE	EACH	3
81400300	DOUBLE HANDHOLE	EACH	1
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	1276
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	2217
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1832
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1489
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2C	FOOT	38
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	880
87502440	TRAFFIC SIGNAL POST, GALVANIZED STEEL 10 FT.	EACH	8
87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	4
87702870	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 28 FT.	EACH	1
87702900	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 34 FT.	EACH	2
87702930	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 40 FT.	EACH	1
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	52
87800150	CONCRETE FOUNDATION, TYPE C	FOOT	4
87800400	CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	10
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	35
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	8
88040110	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	4
88040120	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	4
88102717	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	8
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	18
88700200	LIGHT DETECTOR	EACH	4
88700300	LIGHT DETECTOR AMPLIFIER	EACH	4
89000100	TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
89502380	REMOVE EXISTING HANDHOLE	EACH	2
89502382	REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
89502385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	9
X0324085	EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3C	FOOT	989
X1400150	SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	1
X1400424	ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW	FOOT	745
X8570226	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1
X8620200	UNINTERRUPTIBLE POWER SUPPLY, SPECIAL	EACH	1
X8760200	ACCESSIBLE PEDESTRIAN SIGNALS	EACH	8
X8809005	LED SIGNAL FACE, LENS COVER	EACH	18
XX005723	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION	EACH	1
XX005937	LED INTERNALLY ILLUMINATED STREET NAME SIGN	EACH	4



**CABLE PLAN**  
 (NOT TO SCALE)

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

FILE: \\hanson\hanson\csw\benhew\com\hanson\spw-01\Documents\19\ps\1910\0225\CAD - Use MicroStation V8i or PowerGeopak 5510\Road\Sheet\c-cable03.dgn

USER NAME = hard02376	DESIGNED - TMA	REVISED -
PLOT SCALE = 40.00" / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

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

**VIRGINIA RD / BERKSHIRE DR**  
**WIRING DIAGRAM**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	MCHENRY	79	37
ILLINOIS FED. AID PROJECT			CONTRACT NO. 61K42	

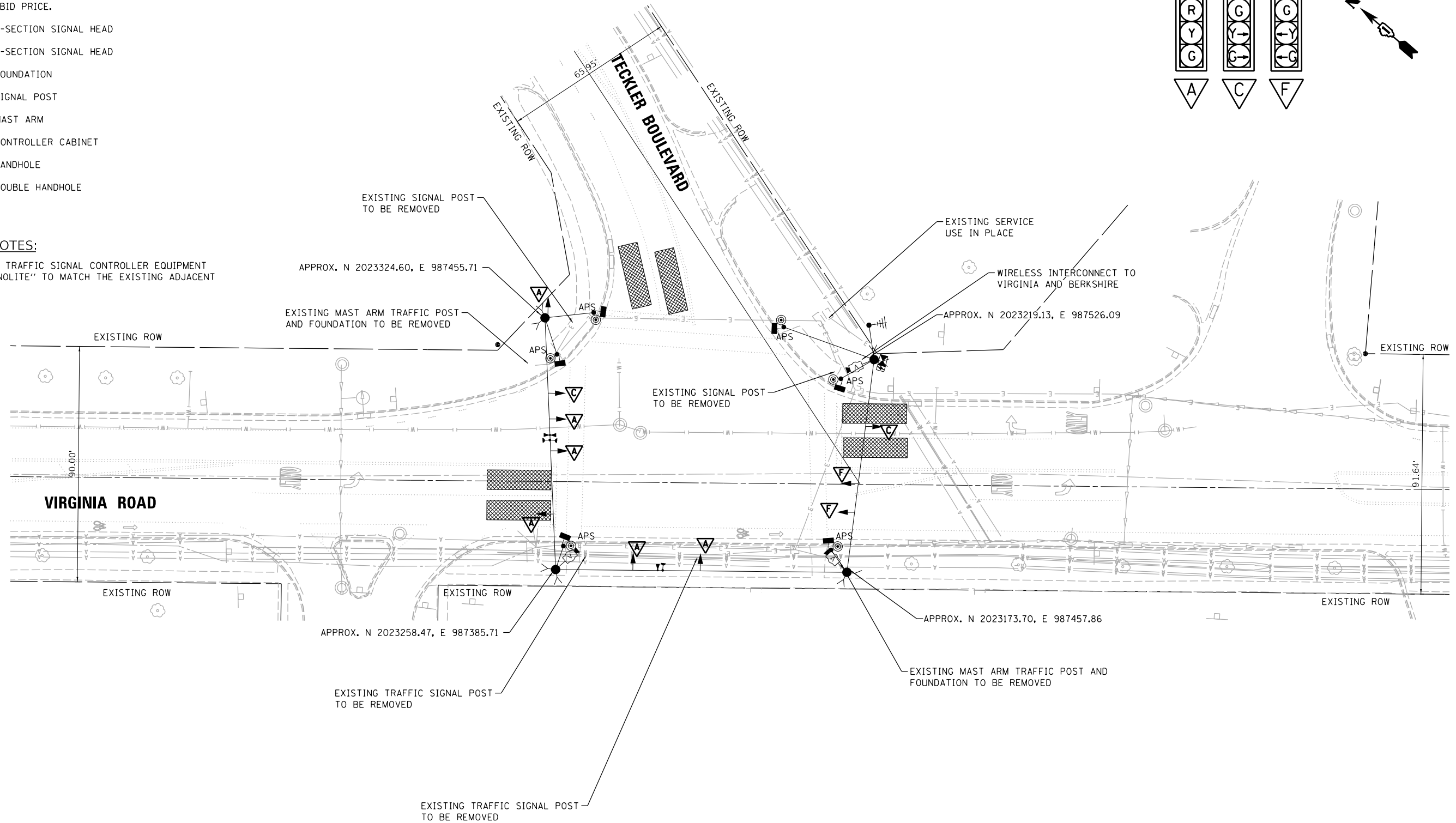
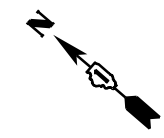
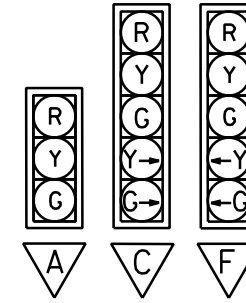
**REMOVAL NOTES:**

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.

- 2 EACH 5-SECTION SIGNAL HEAD
- 8 EACH 3-SECTION SIGNAL HEAD
- 7 EACH FOUNDATION
- 6 EACH SIGNAL POST
- 2 EACH MAST ARM
- 1 EACH CONTROLLER CABINET
- 3 EACH HANDHOLE
- 1 EACH DOUBLE HANDHOLE

**GENERAL NOTES:**

THE TEMPORARY TRAFFIC SIGNAL CONTROLLER EQUIPMENT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.



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 Hanson Professional Services Inc.

LAYOUT TMA 09/09/2022  
 DRAWN JAP 11/30/2022  
 REVIEWED GR  
 FILE: \\hanson\c:\pwworking\hanson\p01\Documents\19\0512\19-00512-00-SP-CAD - Use MicroStation V8i or PowerGeopak 5510\Road\Sheet\c-temp\signalteckler.dgn



USER NAME = hard02376	DESIGNED - TMA	REVISED - 02/27/2024
PLOT SCALE = 40.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

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

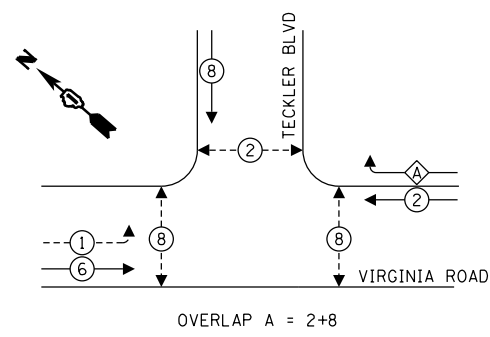
**VIRGINIA RD / TECKLER BLVD**  
**TEMPORARY SIGNAL AND REMOVAL PLAN**

SCALE: 1"=20'    SHEET    OF    SHEETS    STA.    TO    STA.

F.A.U. RTE. 021/0124	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 38
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

FILE: \\hanson\csw\hanson\csw\hanson\p01\Documents\19\p01\19-00512-00-SP-CAD - Use MicroStation V8i or PowerGeopak SS10\RoadSheet\c-temp\cable\teckler.dgn

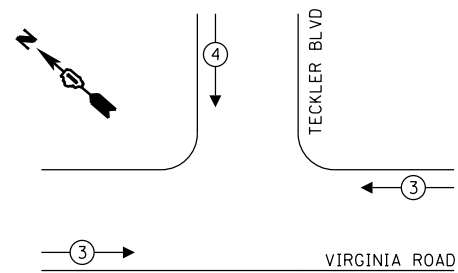
**TEMPORARY CONTROLLER SEQUENCE**



**LEGEND**

- ⊙ PROTECTED PHASE
- ⊙- - - PROTECTED/PERMITTED PHASE
- ⊙- - - PEDESTRIAN PHASE
- ◇ OVERLAP

**TEMPORARY EMERGENCY VEHICLE  
 PREEMPTION SEQUENCE**



**TRAFFIC SIGNAL INSTALLATION  
 ELECTRICAL SERVICE REQUIREMENTS**

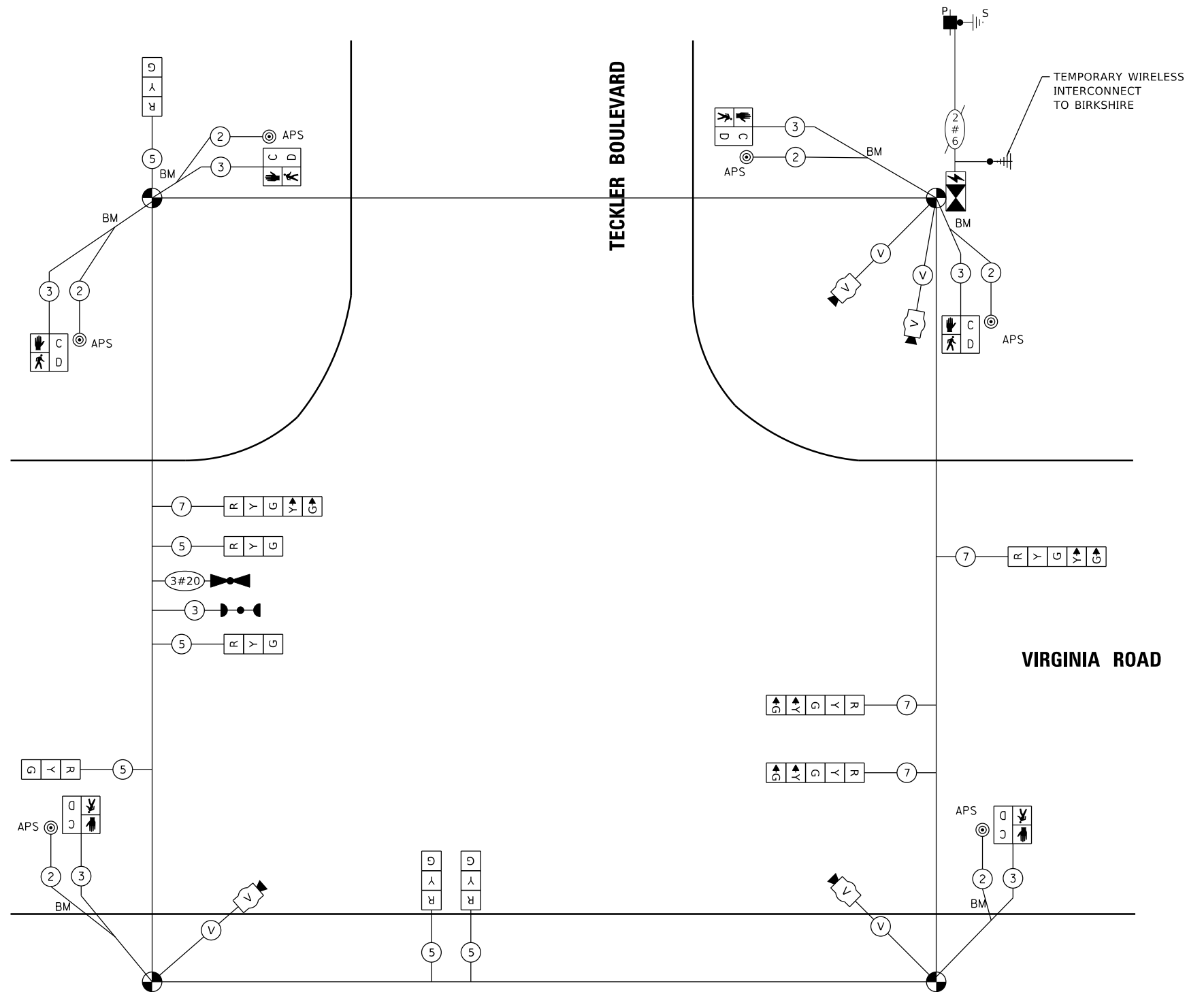
TYPE	NO. LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	7	11	50	38.5
(YELLOW)	8	20	5	8.0
(GREEN)	8	12	45	43.2
PED SIGNAL	6	20	100	120.0
CONTROLLER	1	100	100	100.0
UPS	1	25	100	25.0
VIDEO DETECTION	1	150	100	150.0
TOTAL =				484.7

ENERGY COST - BILLED TO: McHENRY COUNTY  
 2200 N. SEMINARY AVE.  
 WOODSTOCK, IL 60098

ENERGY SUPPLY - CONTACT: LISA ARGAST  
 PHONE: (630) 576-7094  
 COMPANY: COMED

USER NAME =	hard02376
DESIGNED -	TMA
DRAWN -	JAP
CHECKED -	GR
DATE -	02/14/2024
PLOT SCALE =	40.00' / in.
PLOT DATE =	3/18/2024

REVISD -	
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REVISD -	



**CABLE PLAN**  
 (NOT TO SCALE)

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

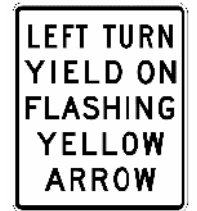
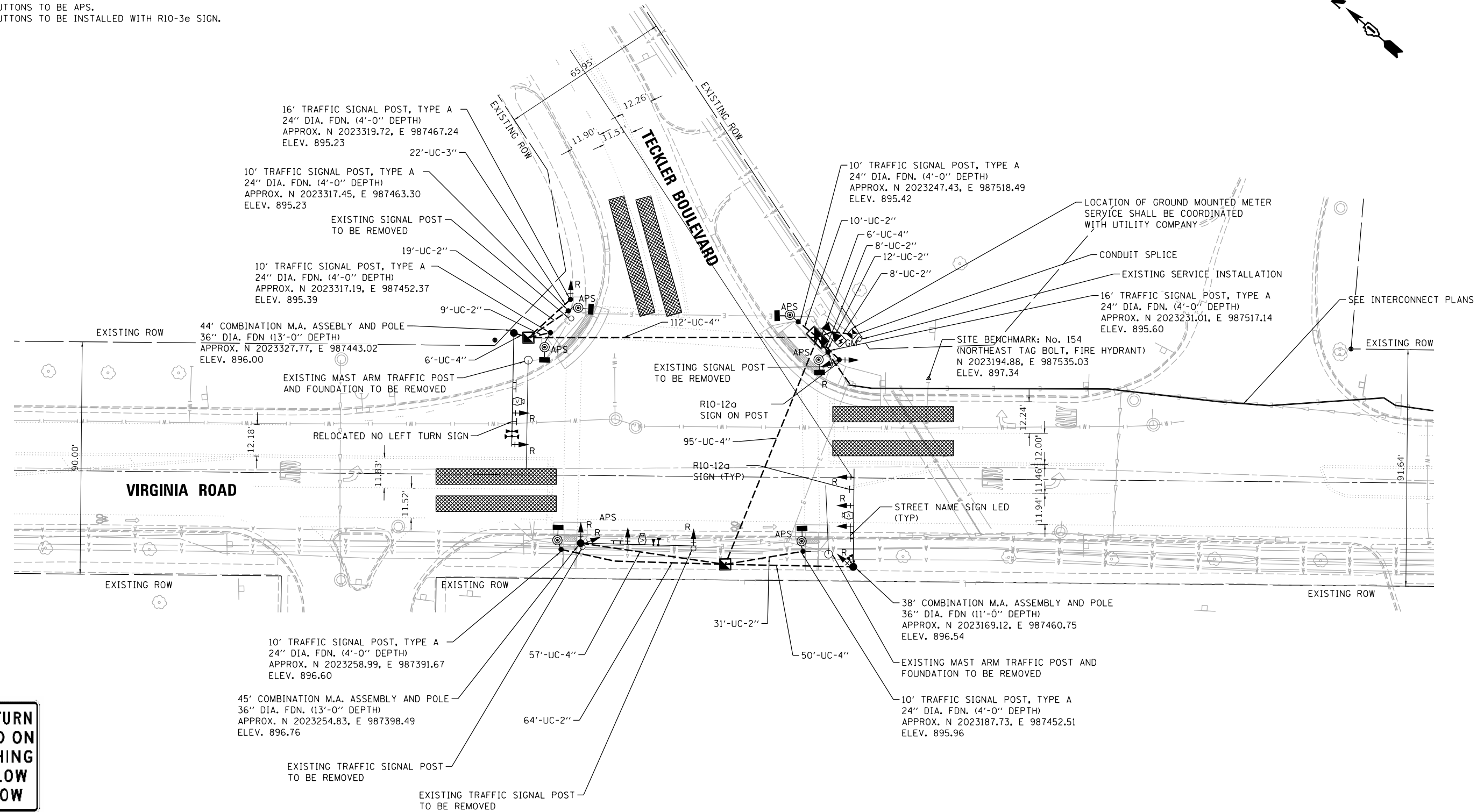
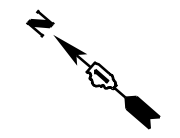
**VIRGINIA RD / TECKLER BLVD  
 TEMPORARY CABLE PLAN**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	39
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

**GENERAL NOTES:**

ALL EXISTING SIGNAL HEADS SHALL BE REPLACED.  
 ALL PUSH BUTTONS TO BE APSES.  
 ALL PUSH BUTTONS TO BE INSTALLED WITH R10-3e SIGN.



R10-12a  
 FYA SIGN  
 2 REQUIRED



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LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

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USER NAME = hard02376	DESIGNED - TMA	REVISED -
PLOT SCALE = 40.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

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

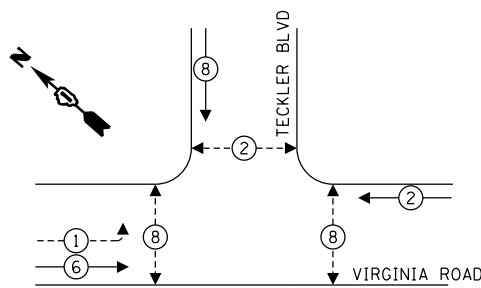
**VIRGINIA RD / TECKLER BLVD**  
**SIGNAL PLAN**

SCALE: 1"=20'    SHEET    OF    SHEETS    STA.    TO    STA.

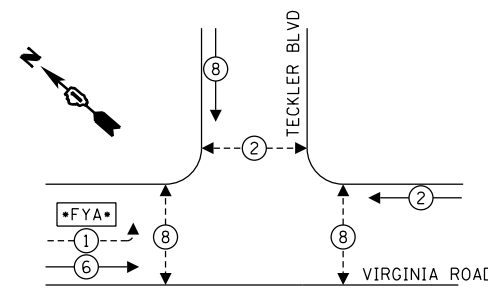
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021/0124	19-00512-00-SP	McHENRY	79	40
			CONTRACT NO. 61K42	
		ILLINOIS FED. AID PROJECT		



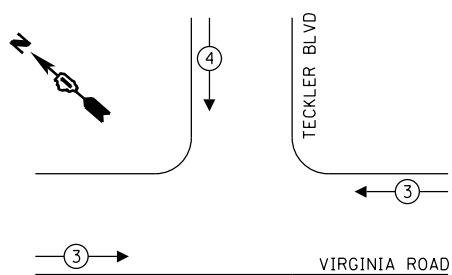
**EXISTING CONTROLLER SEQUENCE**



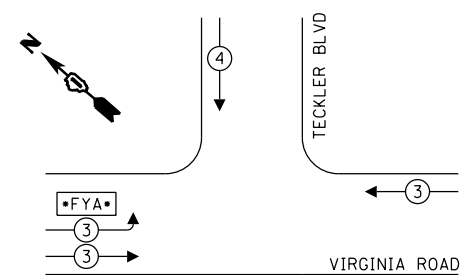
**PROPOSED CONTROLLER SEQUENCE**



**EXISTING EMERGENCY VEHICLE PREEMPTION SEQUENCE**

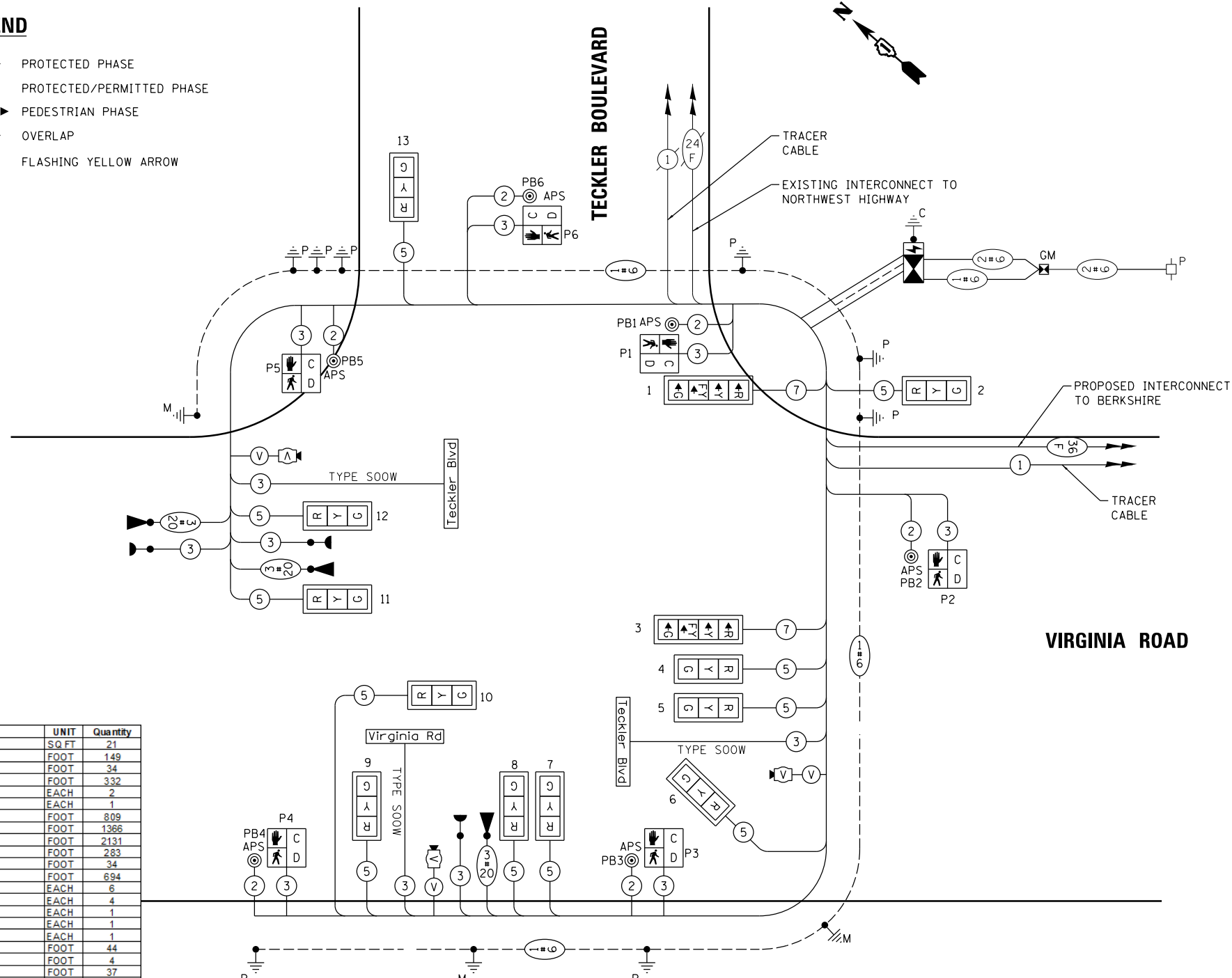


**PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE**



**LEGEND**

- ⊙ — PROTECTED PHASE
- ⊙ — PROTECTED/PERMITTED PHASE
- ⊙ — PEDESTRIAN PHASE
- ⊙ — OVERLAP
- ⊙ — FLASHING YELLOW ARROW



**CABLE PLAN**  
(NOT TO SCALE)

**TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS**

TYPE	NO. LAMPS	LED WATTAGE	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	13	11	50	71.5
(YELLOW)	16	20	5	16.0
(GREEN)	16	12	45	86.4
PERMISSIVE ARROW	2	10	10	2.0
PED SIGNAL	6	20	100	120.0
CONTROLLER	1	100	100	100.0
UPS	1	25	100	25.0
VIDEO DETECTION LUMINAIRE	1	150	100	150.0
	2	190	50	190.0
<b>TOTAL =</b>				<b>760.9</b>

ENERGY COST - BILLED TO: MCHENRY COUNTY  
 2200 N. SEMINARY AVE.  
 WOODSTOCK, IL 60098

ENERGY SUPPLY - CONTACT: LISA ARGAST  
 PHONE: (630) 576-7094  
 COMPANY: COMED

PAY ITEM	DESCRIPTION	UNIT	Quantity
72000100	SIGN PANEL - TYPE 1	SQ.FT	21
81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	149
81028220	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	34
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	332
81400100	HANDHOLE	EACH	2
81400300	DOUBLE HANDHOLE	EACH	1
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	809
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1366
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	2131
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	283
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2C	FOOT	34
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	694
87502440	TRAFFIC SIGNAL POST, GALVANIZED STEEL 10 FT.	EACH	6
87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	4
87702920	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 38 FT.	EACH	1
87702950	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 44 FT.	EACH	1
87702955	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 45 FT.	EACH	1
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	44
87800150	CONCRETE FOUNDATION, TYPE C	FOOT	4
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	37
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	5
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	6
88040110	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	1
88040120	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	1
88102717	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	6
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	13
88700200	LIGHT DETECTOR	EACH	3
88700300	LIGHT DETECTOR AMPLIFIER	EACH	3
89000100	TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
89502380	REMOVE EXISTING HANDHOLE	EACH	3
89502382	REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
89502385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	7
X0324085	EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	FOOT	599
X1400150	SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	1
X1400424	ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 143C, TYPE SOOW	FOOT	624
X8100105	CONDUIT SPLICE	EACH	1
X8570226	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1
X8620200	UNINTERRUPTIBLE POWER SUPPLY, SPECIAL	EACH	1
X8760200	ACCESSIBLE PEDESTRIAN SIGNALS	EACH	6
X8809005	LED SIGNAL FACE, LENS COVER	EACH	13
XX005723	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION	EACH	1
XX005937	LED INTERNALLY ILLUMINATED STREET NAME SIGN	EACH	3
XX007150	RELOCATE EXISTING SIGN, TYPE 1	EACH	1

LAYOUT	TMA	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

FILE: \\hanson\hanson\csw\benhew\com\hanson\spw-01\Documents\19\ps\19\02\25\CAD - Use MicroStation V8i or PowerGeopak 5510\RoadSheet\c-cable05.dgn

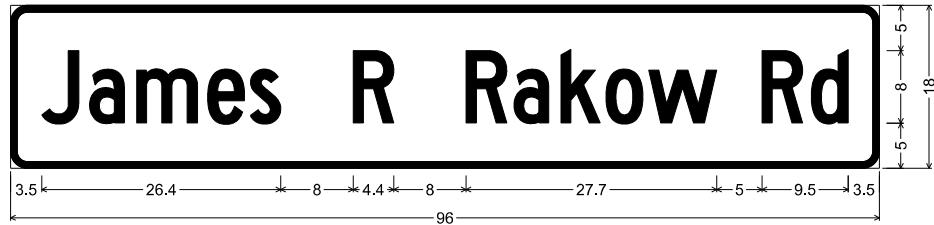
USER NAME = hard02376	DESIGNED - TMA	REVISED -
PLOT SCALE = 40.00' / in.	CHECKED - GR	REVISED -
PLOT DATE = 3/18/2024	DATE - 02/14/2024	REVISED -

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

**VIRGINIA RD / TECKLER BLVD**  
**WIRING DIAGRAM**

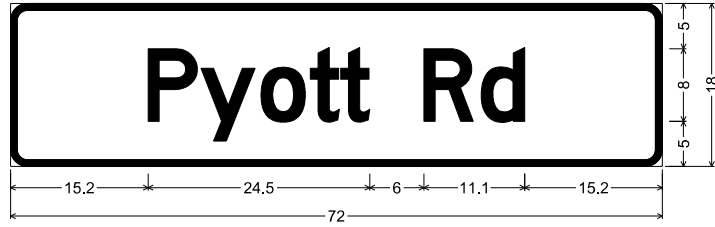
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE. 021/0124	SECTION 19-00512-00-SP	COUNTY MCHENRY	TOTAL SHEETS 79	SHEET NO. 41
		CONTRACT NO. 61K42		
		ILLINOIS FED. AID PROJECT		



D3-1(3)\_VARx18;  
 1.9" Radius, 0.8" Border, White on, Green;  
 "James R Rakow", C 2K; "Rd", C 2K;

DESIGN SERIES	AREA (SQ FT)	SHEETING TYPE	QTY. REQUIRED
C	12	ILLUM. SIGN	4



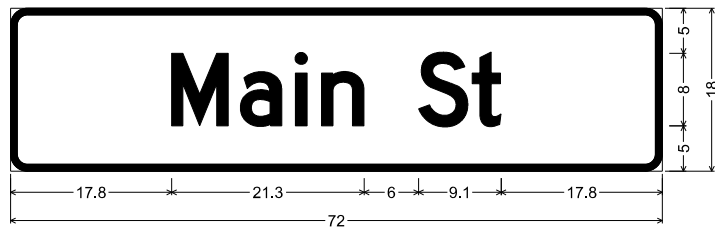
D3-1(3)\_VARx18;  
 1.9" Radius, 0.8" Border, White on, Green;  
 "Pyott", D 2K; "Rd", D 2K;

DESIGN SERIES	AREA (SQ FT)	SHEETING TYPE	QTY. REQUIRED
D	9	ILLUM. SIGN	3



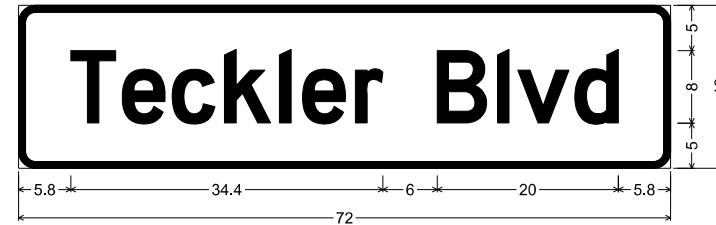
D3-1(3)\_VARx18;  
 1.9" Radius, 0.8" Border, White on, Green;  
 "Virginia", D 2K; "Rd", D 2K;

DESIGN SERIES	AREA (SQ FT)	SHEETING TYPE	QTY. REQUIRED
D	9	ILLUM. SIGN	7



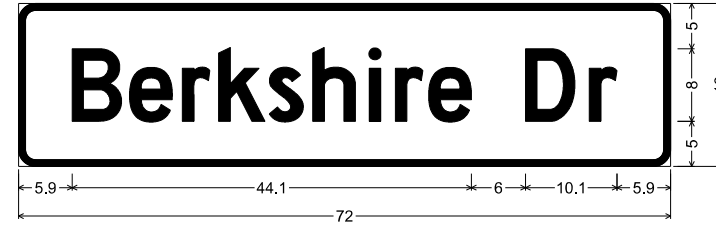
D3-1(3)\_VARx18;  
 1.9" Radius, 0.8" Border, White on, Green;  
 "Main", D 2K; "St", D 2K;

DESIGN SERIES	AREA (SQ FT)	SHEETING TYPE	QTY. REQUIRED
D	9	ILLUM. SIGN	1



D3-1(3)\_VARx18;  
 1.9" Radius, 0.8" Border, White on, Green;  
 "Teckler", D 2K; "Blvd", D 2K;

DESIGN SERIES	AREA (SQ FT)	SHEETING TYPE	QTY. REQUIRED
D	9	ILLUM. SIGN	1



D3-1(3)\_VARx18;  
 1.9" Radius, 0.8" Border, White on, Green;  
 "Berkshire", D 2K; "Dr", D 2K;

DESIGN SERIES	AREA (SQ FT)	SHEETING TYPE	QTY. REQUIRED
D	9	ILLUM. SIGN	2

LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

USER NAME = hard02376	DESIGNED - NN	REVISED -
PLOT SCALE = 2,0000 ' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

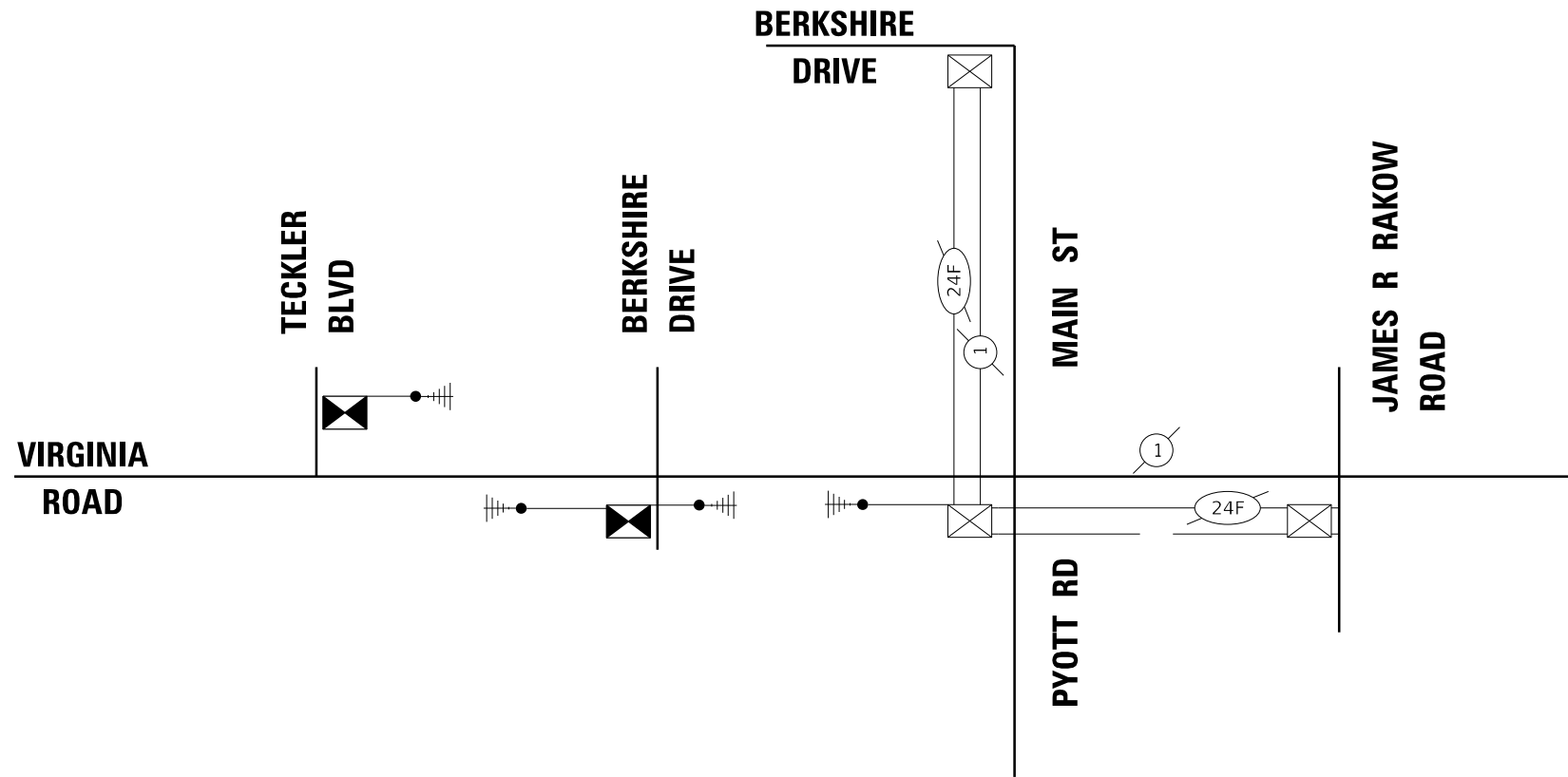
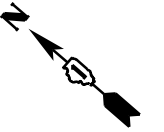
**LED STREET NAME  
 SIGN DETAIL**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	42
CONTRACT NO. 61K42			ILLINOIS FED. AID PROJECT	

**NOTE:**

1. THE NEW EXISTING CONTROLLER AT PYOTT/MAIN SHALL BE MODIFIED TO ACCEPT WIRELESS INTERCONNECT.



LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

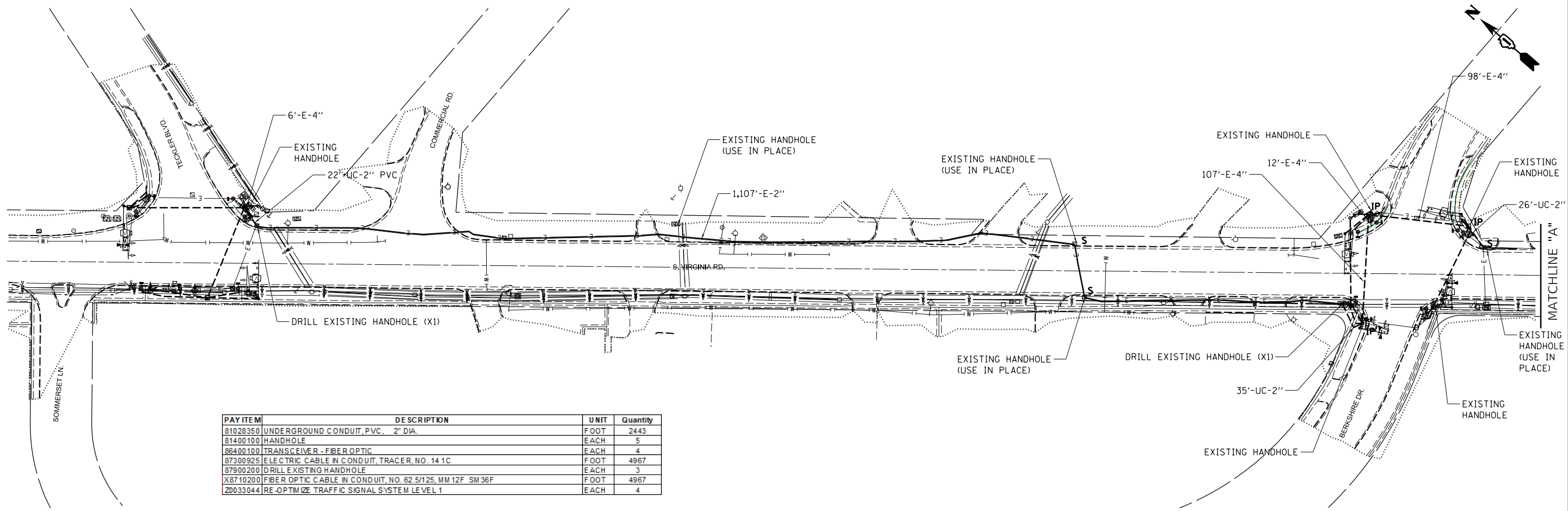
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	DRAWN - JAP	REVISED -
PLOT SCALE = 200.00' / in.	CHECKED - GR	REVISED -
PLOT DATE = 3/18/2024	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

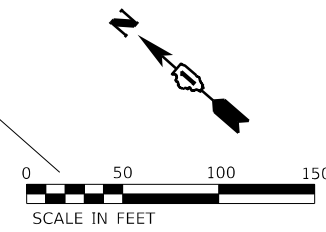
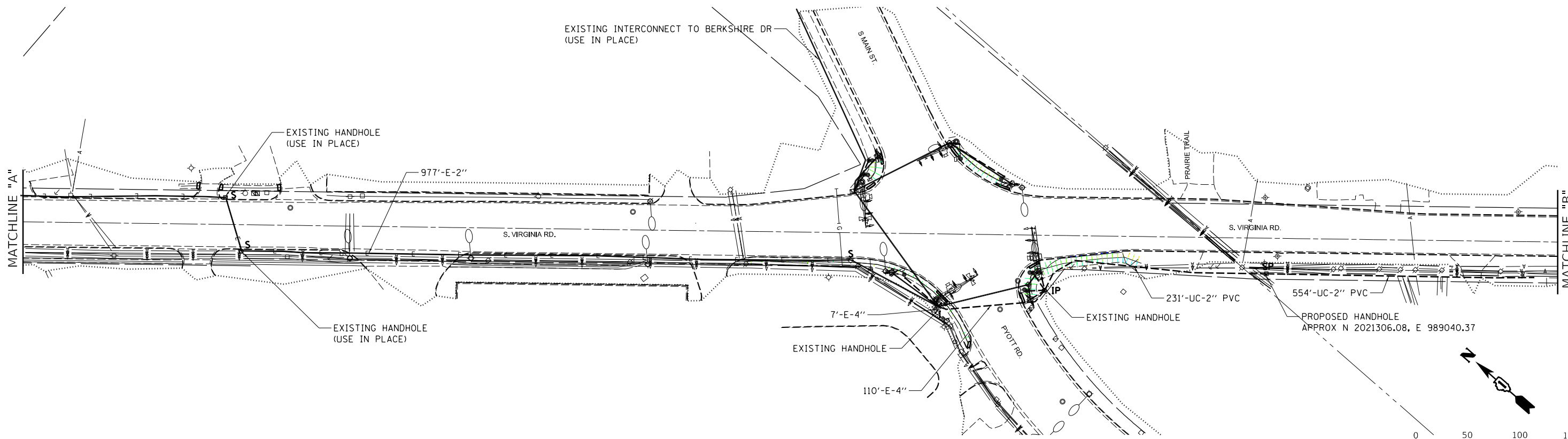
**VIRGINIA RD  
 TEMPORARY INTERCONNECT PLAN**

SCALE: 1"=100' SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	43
			CONTRACT NO. 61K42	
		ILLINOIS	FED. AID PROJECT	



PAY ITEM	DESCRIPTION	UNIT	Quantity
81028350	UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	2443
81400100	HANDHOLE	EACH	5
86400100	TRANSCIVER - FIBER OPTIC	EACH	4
87300925	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	4967
87900200	DRILL EXISTING HANDHOLE	EACH	3
X8710200	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM 12F SM 36F	FOOT	4967
Z0033044	RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 1	EACH	4



LAYOUT	NN	09/09/2022
DRAWN	JAP	11/30/2022
REVIEWED	GR	

W:\Projects\2022\190512\190512-00-SP\190512-00-SP-Interconnect.dwg  
 Use MicroStation V8i or PowerGeopak 5S10/RouteSheet/Interconnect

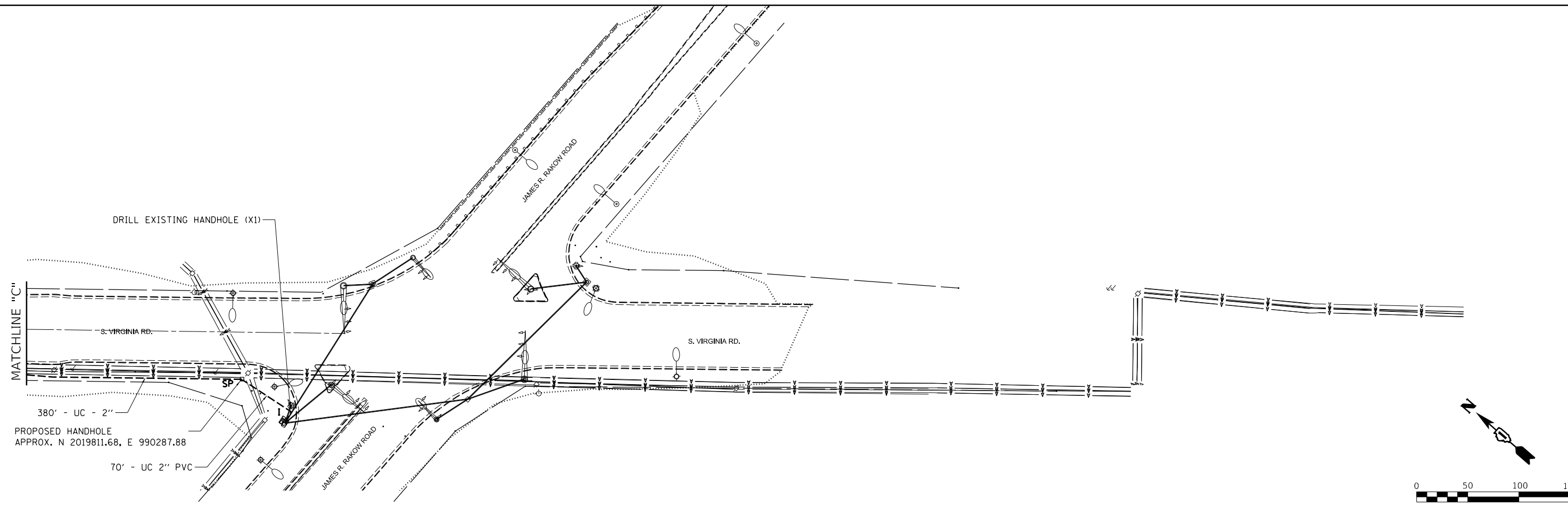
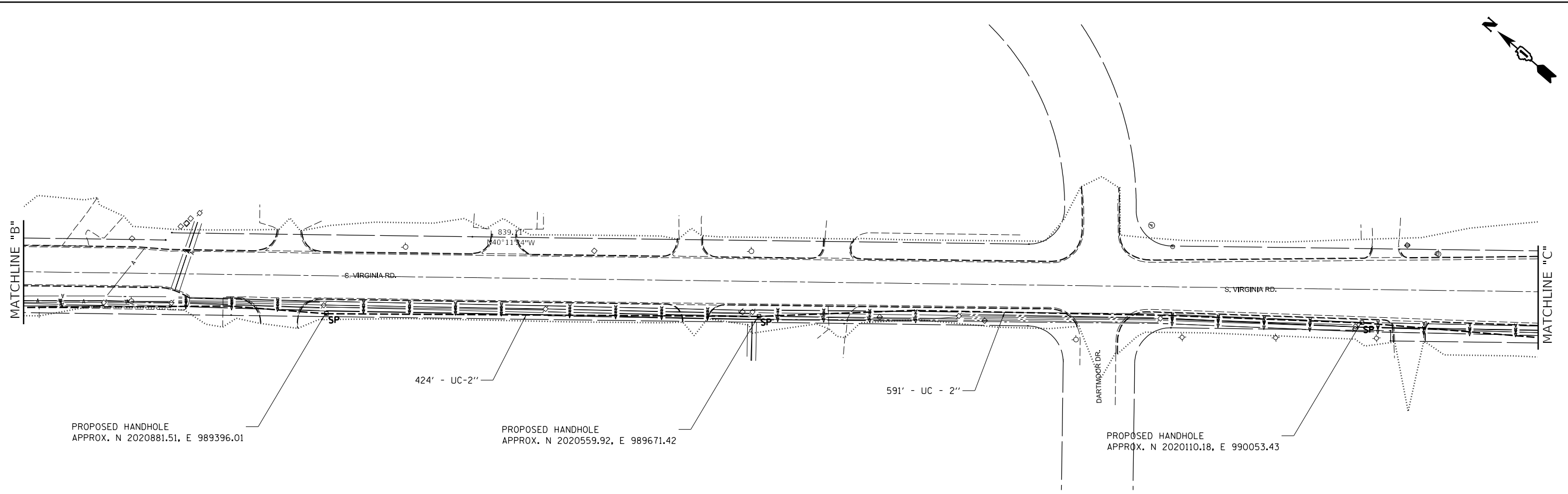
USER NAME = hard02376	DESIGNED - NN	REVISED -
PLOT SCALE = 100.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SCALE: 1"=100'	SHEET	OF	SHEETS	STA.	TO	STA.
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**VIRGINIA RD  
INTERCONNECT PLAN**

F.A.U. RTE. 021/0124	SECTION 19-00512-00-SP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 44
				CONTRACT NO. 61K42
				ILLINOIS FED. AID PROJECT

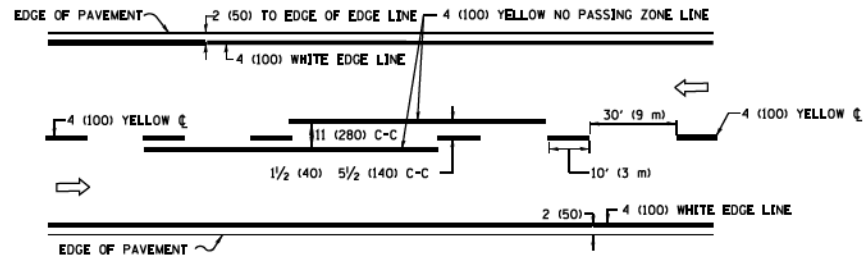


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PLOT SCALE = 100.00' / in.	DRAWN - JAP	REVISED -
PLOT DATE = 3/18/2024	CHECKED - GR	REVISED -
	DATE - 02/14/2024	REVISED -

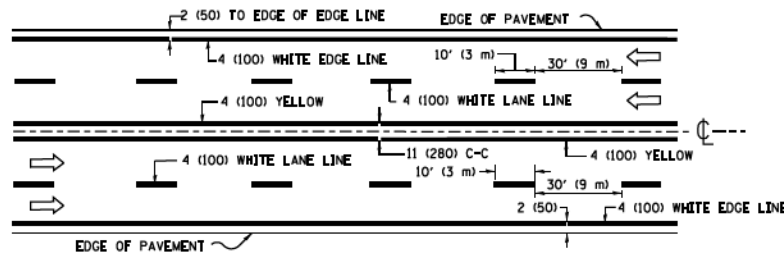
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

<b>VIRGINIA RD    INTERCONNECT PLAN</b>			
SCALE: 1"=100'	SHEET	OF SHEETS	STA. TO STA.

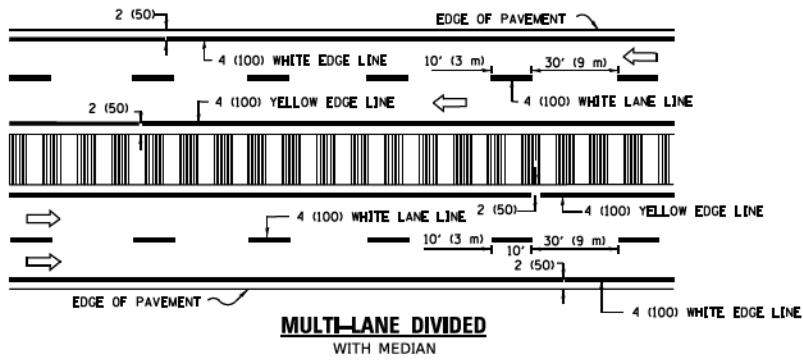
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	45
				CONTRACT NO. 61K42
ILLINOIS FED. AID PROJECT				



**2-LANE ROADWAY**

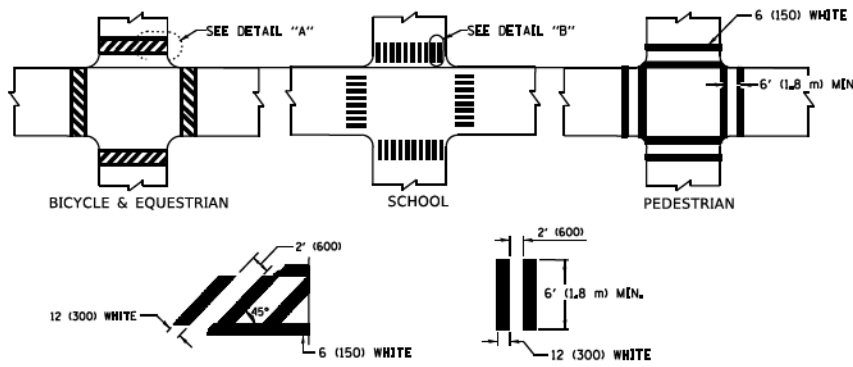


**MULTI-LANE UNDIVIDED**



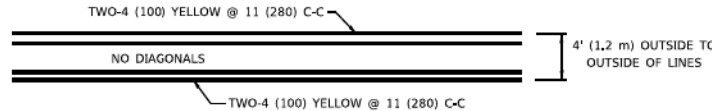
**MULTI-LANE DIVIDED WITH MEDIAN**

**TYPICAL LANE AND EDGE LINE MARKING**

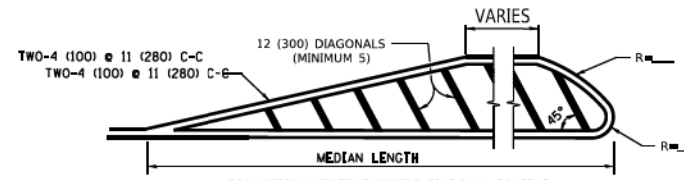


**TYPICAL CROSSWALK MARKING**

\* MARKINGS SHALL BE INSTALLED PARALLEL TO THE CENTERLINE OF THE ROAD WHICH IT CROSSES

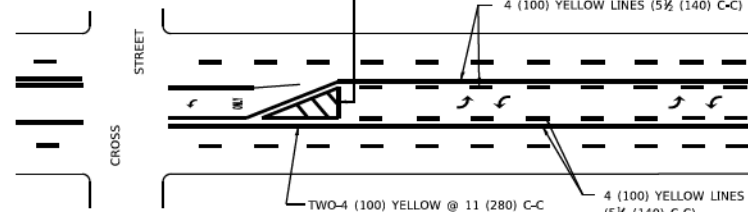


**4' (1.2 m) WIDE MEDIANS ONLY**



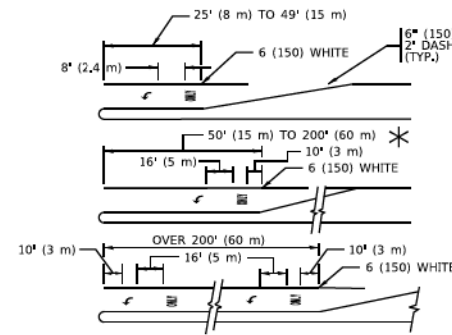
FOR MEDIAN LENGTHS WHERE DIAGONAL SPACING CANNOT BE ATTAINED, USE 5 (FIVE) EQUALLY SPACED DIAGONAL LINES.  
DIAGONAL LINE SPACING: 50' (15 m) C-C (LESS THAN 30MPH (50 km/h))  
75' (25 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h)  
150' (45 m) C-C (MORE THAN 45MPH (70 km/h))

**MEDIANS OVER 4' (1.2 m) WIDE**



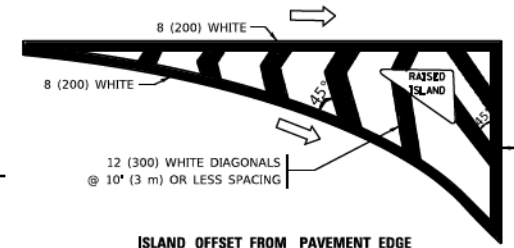
A MINIMUM OF TWO PAIRS OF TURN ARROWS SHALL BE USED, WHITE IN COLOR. ADDITIONAL PAIRS SHALL BE PLACED AT 200' (60 m) TO 300' (90 m) INTERVALS.

**MEDIAN WITH TWO-WAY LEFT TURN LANE TYPICAL PAINTED MEDIAN MARKING**

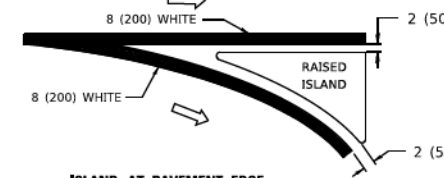


FULL SIZE LETTERS 8" (2.4 m) AND ARROWS SHALL BE USED.  
AREA = 15.6 SQ. FT. (1.5 m²) AREA = 20.8 SQ. FT. (1.9 m²)  
\* TURN LANES IN EXCESS OF 400' (120 m) IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW - "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW - "ONLY".

**TYPICAL LEFT (OR RIGHT) TURN LANE TYPICAL TURN LANE MARKING**

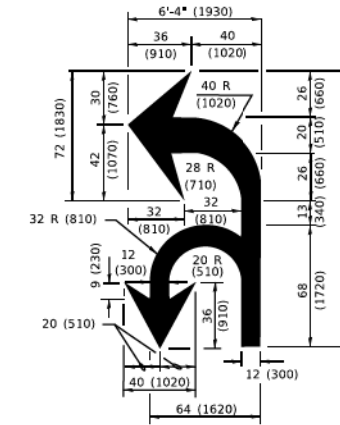


ISLAND OFFSET FROM PAVEMENT EDGE

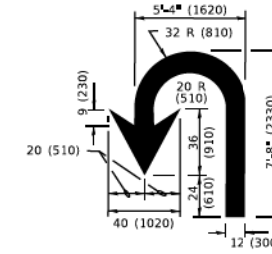


ISLAND AT PAVEMENT EDGE

**TYPICAL ISLAND MARKING**



**COMBINATION LEFT AND U-TURN**



**U-TURN**

**LANE REDUCTION TRANSITION**

\* LANE REDUCTION ARROWS REQUIRED AT SPEEDS OF 45 MPH OR GREATER OR WHEN SPECIFIED IN PLANS.

D(FT)	SPEED LIMIT
345	30
425	35
500	40
580	45
665	50
750	55

TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING / REMARKS
CENTERLINE ON 2 LANE PAVEMENT	4 (100)	SKIP-DASH	YELLOW	10' (3 m) LINE WITH 30' (9 m) SPACE
CENTERLINE ON MULTI-LANE UNDIVIDED PAVEMENT	2 @ 4 (100)	SOLID	YELLOW	11 (280) C-C
NO PASSING ZONE LINES: FOR ONE DIRECTION FOR BOTH DIRECTIONS	4 (100) 2 @ 4 (100)	SOLID SOLID	YELLOW YELLOW	5 1/2 (140) C-C FROM SKIP-DASH CENTERLINE 11 (280) C-C OMIT SKIP-DASH CENTERLINE BETWEEN
LANE LINES	4 (100) 5 (125) ON FREEWAYS	SKIP-DASH SKIP-DASH	WHITE WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	2' (600) LINE WITH 6' (1.8 m) SPACE
EDGE LINES	4 (100)	SOLID	YELLOW-LEFT WHITE-RIGHT	OUTLINE MEDIANS IN YELLOW
TURN LANE MARKINGS	6 (150) LINE: FULL SIZE LETTERS & SYMBOLS (8" (2.4m))	SOLID	WHITE	SEE TYPICAL TURN LANE MARKING DETAIL
TWO WAY LEFT TURN MARKING	2 @ 4 (100) EACH DIRECTION 8" (2.4m) LEFT ARROW	SKIP-DASH AND SOLID IN PAIRS	YELLOW WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE FOR SKIP-DASH; 5 1/2 (140) C-C BETWEEN SOLID LINE AND SKIP-DASH LINE SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK LINES (PEDESTRIAN) A. DIAGONALS (BIKE & EQUESTRIAN) B. LONGITUDINAL BARS (SCHOOL)	2 @ 6 (150) 12 (300) @ 45° 12 (300) @ 90°	SOLID SOLID SOLID	WHITE WHITE WHITE	NOT LESS THAN 6' (1.8 m) APART 2' (600) APART 2' (600) APART SEE TYPICAL CROSSWALK MARKING DETAILS.
STOP LINES	24 (600)	SOLID	WHITE	PLACE 4' (1.2 m) IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT. OTHERWISE, PLACE AT DESIRED STOPPING POINT. PARALLEL TO CROSSROAD CENTERLINE, WHERE POSSIBLE.
PAINTED MEDIANS	2 @ 4 (100) WITH 12 (300) DIAGONALS @ 45° NO DIAGONALS USED FOR 4' (1.2 m) WIDE MEDIANS	SOLID	YELLOW: TWO WAY TRAFFIC WHITE: ONE WAY TRAFFIC	11 (280) C-C FOR THE DOUBLE LINE SEE TYPICAL PAINTED MEDIAN MARKING.
GORE MARKING AND CHANNELIZING LINES	8 (200) WITH 12 (300) DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS: 15' (4.5 m) C-C (LESS THAN 30MPH (50 km/h)) 20' (6 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h) 30' (9 m) C-C (OVER 45MPH (70 km/h))
RAILROAD CROSSING	24 (600) TRANSVERSE LINES: "RR" 15' (4.5 m) LETTERS: 16' (400) LINE FOR "X"	SOLID	WHITE	SEE STATE STANDARD 780001 AREA OF: "RR" = 3.6 SQ. FT. (0.33 m²) EACH "X" = 54.0 SQ. FT. (5.0 m²)
SHOULDER DIAGONALS (REQUIRED FOR SHOULDERS ≥ 8')	12 (300) @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	50' (15 m) C-C (LESS THAN 30MPH (50 km/h)) 75' (25 m) C-C (30 MPH (50 km/h) TO 45MPH (70 km/h)) 150' (45 m) C-C (OVER 45MPH (70 km/h))
U TURN ARROW	SEE DETAIL	SOLID	WHITE	16.3 SF
2 ARROW COMBINATION LEFT AND U TURN	SEE DETAIL	SOLID	WHITE	30.4 SF

FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STATE STANDARD 780001.

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

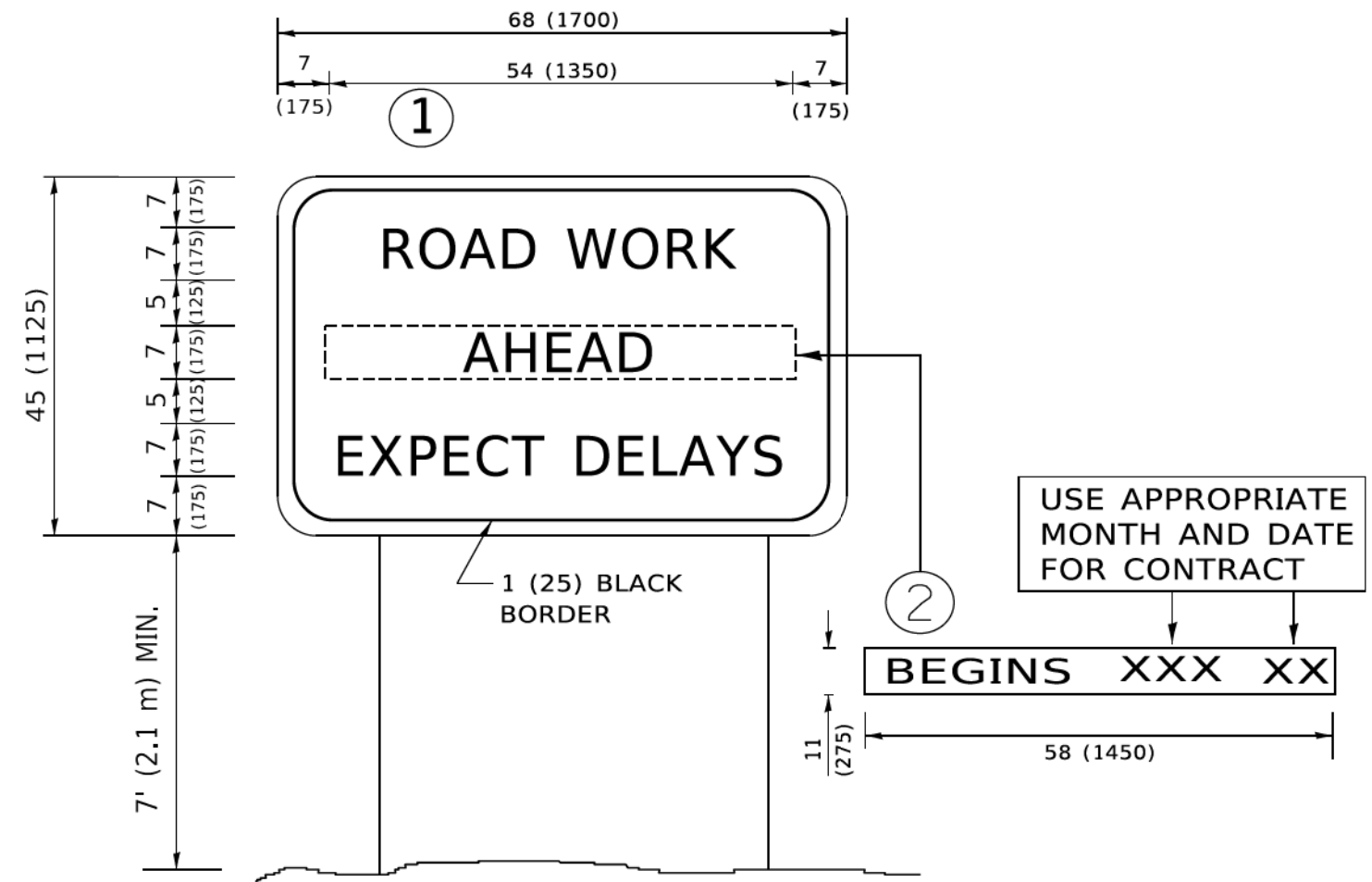
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USER NAME = footernj	DESIGNED - EVERS	REVISED - C. JUCIUS 09-09-09
PLOT SCALE = 50,0000 ' / In.	CHECKED -	REVISED - C. JUCIUS 07-01-13
PLOT DATE = 3/4/2019	DATE - 03-19-90	REVISED - C. JUCIUS 12-21-15
		REVISED - C. JUCIUS 04-12-16

**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

SCALE: NONE		SHEET 1 OF 2 SHEETS		STA. TO STA.	
DISTRICT ONE		SECTION		COUNTY	
TYPICAL PAVEMENT MARKINGS		19-00512-00-SP		MCHENRY	
		TC-13		CONTRACT NO. 61K42	
		ILLINOIS		FED. AID PROJECT	

F.A. RTE.	SHEET NO.	TOTAL SHEETS	SHEET NO.
021/0124	79	79	46



**NOTES:**

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN ① WITH INSTALLED PANEL ② ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL ② SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

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

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USER NAME	DESIGNED -	REVISED - R. MIRS 09-15-97
FOOTERM	DRAWN -	REVISED - R. MIRS 12-11-97
PLOT SCALE = 50,0000 ' / In.	CHECKED -	REVISED - T. RAMMACHER 02-02-99
PLOT DATE = 3/4/2019	DATE -	REVISED - C. JUCIUS 01-31-07

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ARTERIAL ROAD  
INFORMATION SIGN**

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

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
021/0124	19-00512-00-SP	McHENRY	79	47
TC-22		CONTRACT NO. 61K42		
ILLINOIS FED. AID PROJECT				

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0124	08-00106-00-FP	McHENRY	79	48
		ILLINOIS	CONTRACT NO. 63843	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**PLANS FOR PROPOSED  
FEDERAL AID HIGHWAY**

FAU ROUTE 0124 (SOUTH MAIN STREET)  
RAKOW ROAD TO US ROUTE 14  
WIDENING AND RESURFACING  
SECTION 08-00106-00-FP  
PROJECT M-9003(685)  
CITY OF CRYSTAL LAKE  
McHENRY COUNTY  
JOB NO. C-91-722-10

FOR INDEX OF SHEETS, SEE SHEET NO. 2

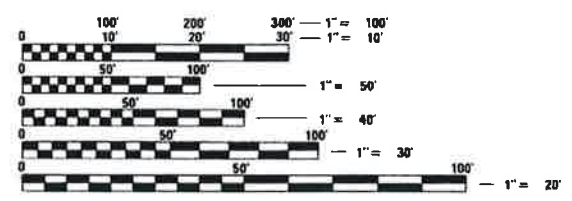


DESIGN DESIGNATION  
SOUTH MAIN STREET  
ARTERIAL  
DESIGN SPEED: 35/30  
POSTED SPEED: 40  
ADT PYOTT ROAD 24,500 (2030)  
ADT SOUTH MAIN STREET 20,400 (2030)  
ADT VIRGINIA ROAD 15,500 (2030)  
ADT BERKSHIRE DRIVE 6,000 (2030)



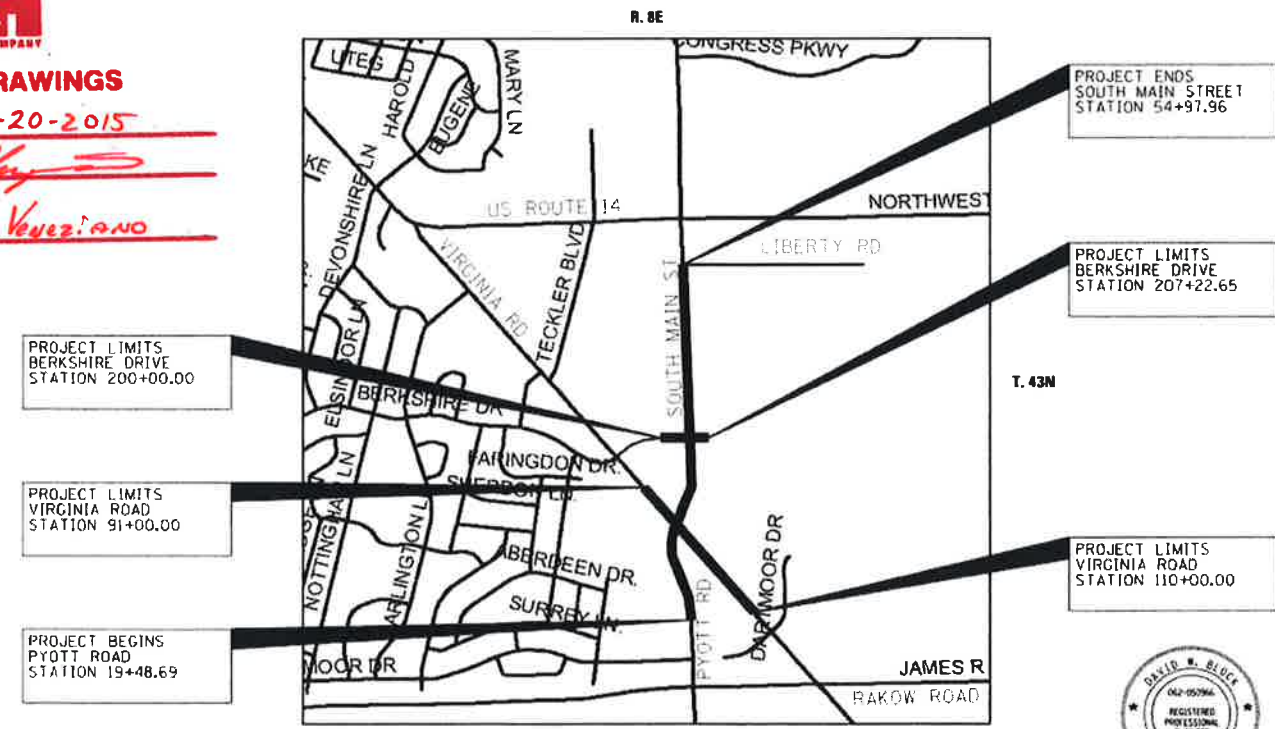
**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015  
Signed [Signature]  
Print(First\_Last) Lenny Vezziano



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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



**LOCATION MAP**  
NOT TO SCALE  
PROJECT LENGTH (GROSSNET)  
SOUTH MAIN STREET 3,549.27 FT (0.67 MILES)

7-16-14  
[Signature]  
DAVID W. BLOCK, P.E.  
NO. 062-050966  
EXP. DATE 11/30/15

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

APPROVED ON: July 16, 2014  
[Signature]  
CITY OF CRYSTAL LAKE, CITY ENGINEER

PASSED July 27, 2014  
[Signature]  
CHRISTOPHER HOLT  
DISTRICT 1 ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID  
BASED ON LIMITED  
REVIEW July 27, 2014  
[Signature]  
JOHN FORTMAN  
DIRECTOR OF HIGHWAYS, REGION 1 ENGINEER

**PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS**

TranSystems  
1475 E. WOODFIELD RD., SUITE 600  
SCHMIDT, IL 60173  
09-19-14 LETTING ITEM 024  
(647) 603-9000  
FEDERAL AID PROFESSIONAL ENGINEER: FAWCETT, JAMES L. #02-050966

CONTRACT NO. 63843



**CONSTRUCTION NOTES**

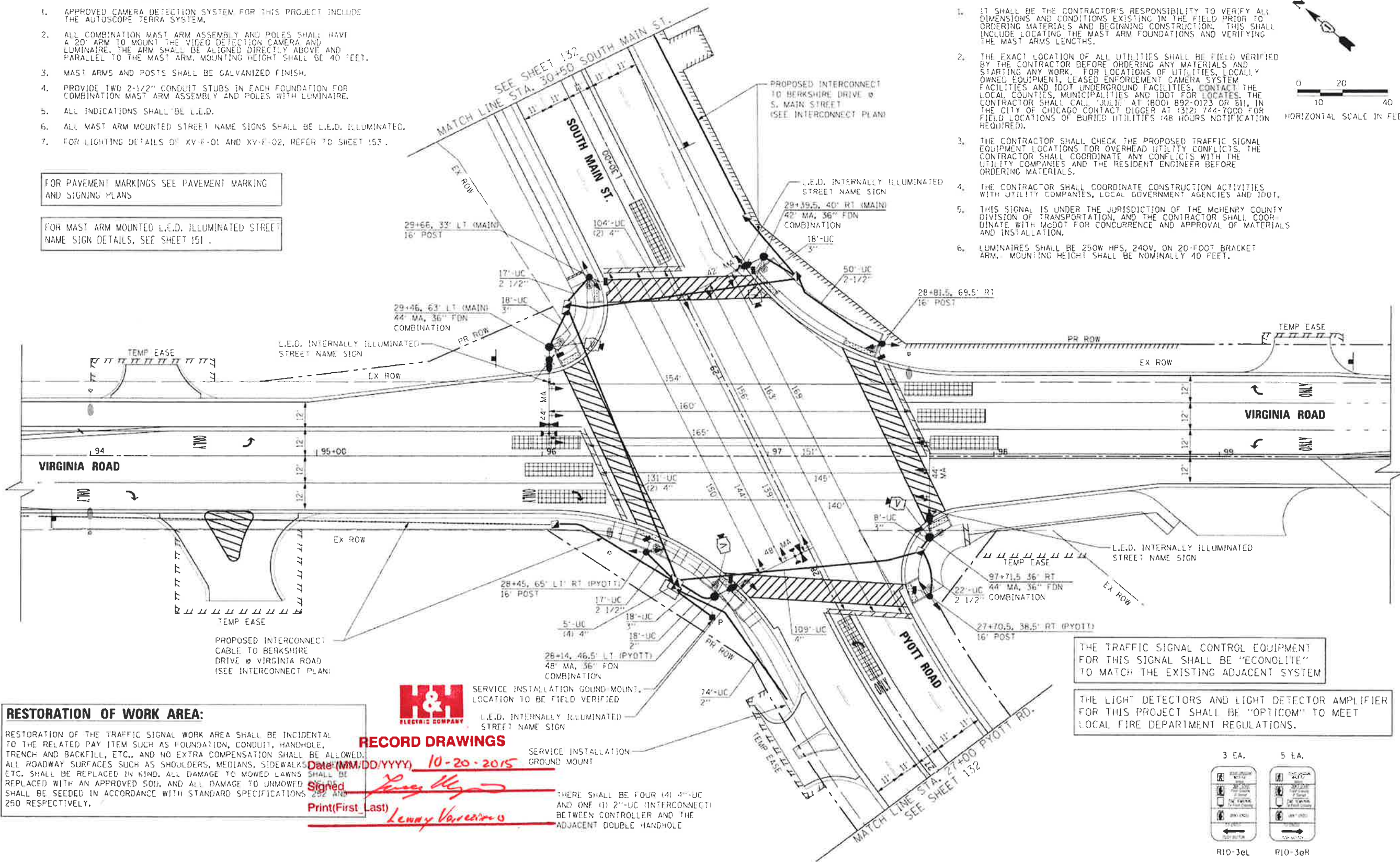
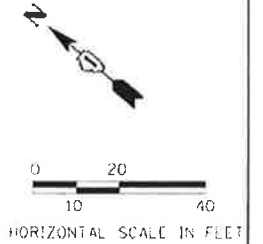
1. APPROVED CAMERA DETECTION SYSTEM FOR THIS PROJECT INCLUDE THE AUTOSCOPE TERRA SYSTEM.
2. ALL COMBINATION MAST ARM ASSEMBLY AND POLES SHALL HAVE A 20' ARM TO MOUNT THE VIDEO DETECTION CAMERA AND LUMINAIRE. THE ARM SHALL BE ALIGNED DIRECTLY ABOVE AND PARALLEL TO THE MAST ARM. MOUNTING HEIGHT SHALL BE 40 FEET.
3. MAST ARMS AND POSTS SHALL BE GALVANIZED FINISH.
4. PROVIDE TWO 2-1/2" CONDUIT STUBS IN EACH FOUNDATION FOR COMBINATION MAST ARM ASSEMBLY AND POLES WITH LUMINAIRE.
5. ALL INDICATIONS SHALL BE L.L.D.
6. ALL MAST ARM MOUNTED STREET NAME SIGNS SHALL BE L.E.D. ILLUMINATED.
7. FOR LIGHTING DETAILS OF XV-F-01 AND XV-F-02, REFER TO SHEET 153.

FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING AND SIGNING PLANS

FOR MAST ARM MOUNTED L.E.D. ILLUMINATED STREET NAME SIGN DETAILS, SEE SHEET 151.

**GENERAL NOTES**

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION. THIS SHALL INCLUDE LOCATING THE MAST ARM FOUNDATIONS AND VERIFYING THE MAST ARMS LENGTHS.
2. THE EXACT LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIALS AND STARTING WORK. FOR LOCATIONS OF UTILITIES, LOCALLY OWNED EQUIPMENT, LEASED ENFORCEMENT CAMERA SYSTEM FACILITIES AND IDOT UNDERGROUND FACILITIES, CONTACT THE LOCAL COUNTIES, MUNICIPALITIES AND IDOT FOR LOCATES. THE CONTRACTOR SHALL CALL "JULIE" AT (800) 892-0123 OR 611, IN THE CITY OF CHICAGO CONTACT DIGGER AT (312) 744-7000 FOR FIELD LOCATIONS OF BURIED UTILITIES (48 HOURS NOTIFICATION REQUIRED).
3. THE CONTRACTOR SHALL CHECK THE PROPOSED TRAFFIC SIGNAL EQUIPMENT LOCATIONS FOR OVERHEAD UTILITY CONFLICTS. THE CONTRACTOR SHALL COORDINATE ANY CONFLICTS WITH THE UTILITY COMPANIES AND THE RESIDENT ENGINEER BEFORE ORDERING MATERIALS.
4. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES, LOCAL GOVERNMENT AGENCIES AND IDOT.
5. THIS SIGNAL IS UNDER THE JURISDICTION OF THE McHENRY COUNTY DIVISION OF TRANSPORTATION, AND THE CONTRACTOR SHALL COORDINATE WITH McDOT FOR CONCURRENCE AND APPROVAL OF MATERIALS AND INSTALLATION.
6. LUMINAIRES SHALL BE 250W HPS, 240V, ON 20-FOOT BRACKET ARM. MOUNTING HEIGHT SHALL BE NOMINALLY 40 FEET.



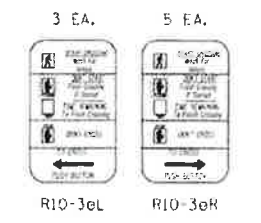
**RESTORATION OF WORK AREA:**  
 RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOIL, AND ALL DAMAGE TO UNMOWED AREAS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 292 AND 250 RESPECTIVELY.

**RECORD DRAWINGS**  
 Date: (MM/DD/YYYY) 10-20-2015  
 Signed: [Signature]  
 Print(First Last) Leway Vancin

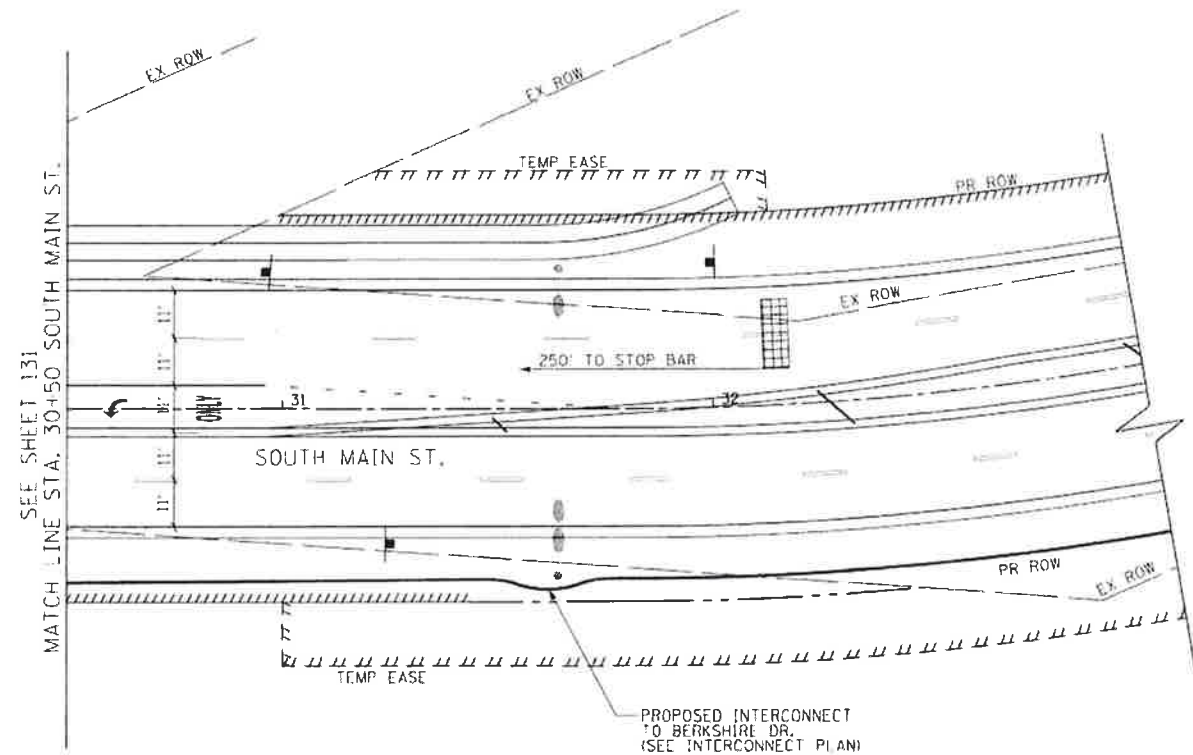
THERE SHALL BE FOUR (4) 4" UC AND ONE (1) 2" UC INTERCONNECT BETWEEN CONTROLLER AND THE ADJACENT DOUBLE HANDHOLE

THE TRAFFIC SIGNAL CONTROL EQUIPMENT FOR THIS SIGNAL SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM

THE LIGHT DETECTORS AND LIGHT DETECTOR AMPLIFIER FOR THIS PROJECT SHALL BE "OPTICOM" TO MEET LOCAL FIRE DEPARTMENT REGULATIONS.

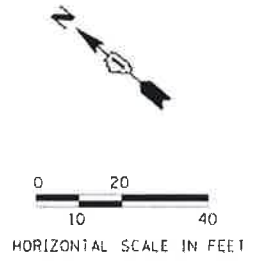


DESIGNED: HJF	REVISIONS:	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>VIRGINIA ROAD AND S. MAIN STREET TRAFFIC SIGNAL INSTALLATION PLAN (1 of 2)</b>		F.A.U. RTE. 0124	SECTION 08-00106-D 0-FP	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 49	
DRAWN: HJF	REVISIONS:		SCALE: 1"=20'		SHEET NO. 5 OF 7 SHEETS	STA. TO STA.	CONTRACT NO. 63843			
CHECKED: HJF	REVISIONS:		ILLINOIS FED. AID PROJECT							
DATE:	REVISIONS:									



**GENERAL NOTES**

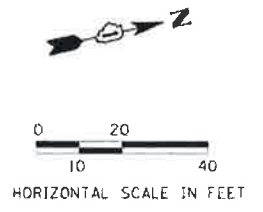
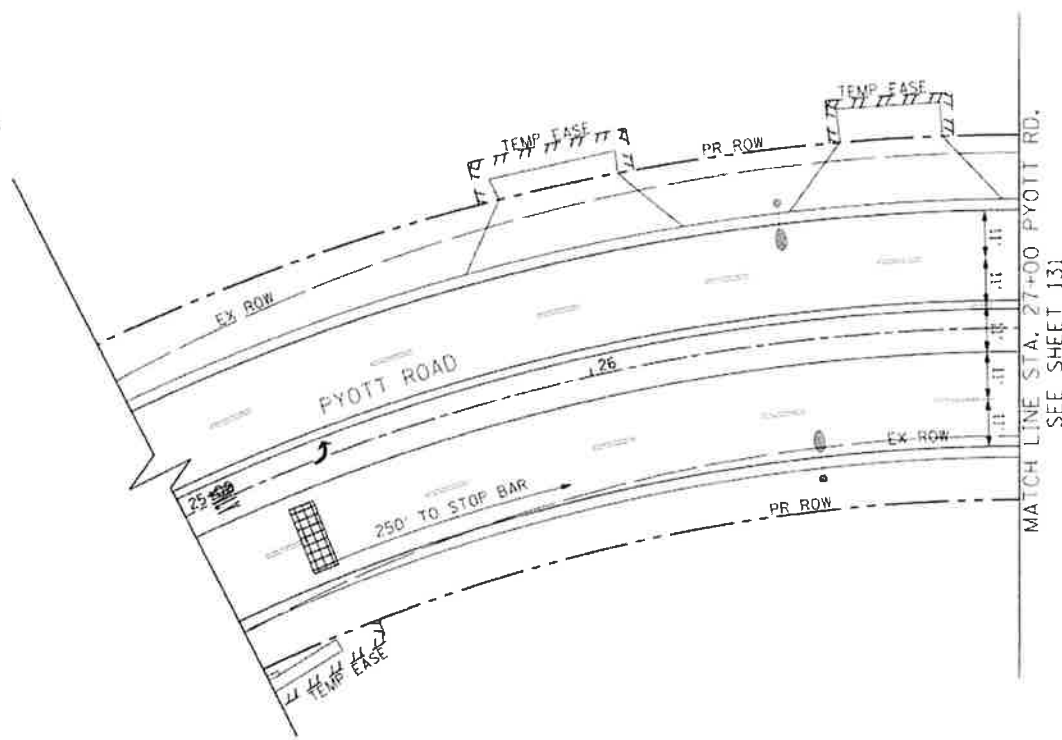
1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION. THIS SHALL INCLUDE LOCATING THE MAST ARM FOUNDATIONS AND VERIFYING THE MAST ARMS LENGTHS.
2. THE EXACT LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIALS AND STARTING ANY WORK. FOR LOCATIONS OF UTILITIES, LOCALLY OWNED EQUIPMENT, LEASED ENFORCEMENT CAMERA SYSTEM FACILITIES AND IDOT UNDERGROUND FACILITIES, CONTACT THE LOCAL COUNTIES, MUNICIPALITIES AND IDOT FOR LOCATES. THE CONTRACTOR SHALL CALL 'JULIE' AT (800) 892-0123 OR 811, IN THE CITY OF CHICAGO CONTACT DIGGER AT (312) 744-7000 FOR FIELD LOCATIONS OF BURIED UTILITIES (48 HOURS NOTIFICATION REQUIRED).
3. THE CONTRACTOR SHALL CHECK THE PROPOSED TRAFFIC SIGNAL EQUIPMENT LOCATIONS FOR OVERHEAD UTILITY CONFLICTS. THE CONTRACTOR SHALL COORDINATE ANY CONFLICTS WITH THE UTILITY COMPANIES AND THE RESIDENT ENGINEER BEFORE ORDERING MATERIALS.
4. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES, LOCAL GOVERNMENT AGENCIES AND IDOT.
5. THIS SIGNAL IS UNDER THE JURISDICTION OF THE McHENRY COUNTY DIVISION OF TRANSPORTATION, AND THE CONTRACTOR SHALL COORDINATE WITH MCDOT FOR CONCURRENCE AND APPROVAL OF MATERIALS AND INSTALLATION.
6. LUMINAIRES SHALL BE 250W HPS, 240V, ON 20-FOOT BRACKET ARM. MOUNTING HEIGHT SHALL BE NOMINALLY 40 FEET.



**CONSTRUCTION NOTES**

1. APPROVED CAMERA DETECTION SYSTEM FOR THIS PROJECT INCLUDE THE AUTOSCOPE TERRA SYSTEM.
2. ALL COMBINATION MAST ARM ASSEMBLY AND POLES SHALL HAVE A 20' ARM TO MOUNT THE VIDEO DETECTION CAMERA AND LUMINAIRE. THE ARM SHALL BE ALIGNED DIRECTLY ABOVE AND PARALLEL TO THE MAST ARM. MOUNTING HEIGHT SHALL BE 40 FEET.
3. MAST ARMS AND POSTS SHALL BE GALVANIZED FINISH.
4. PROVIDE 2" CONDUIT STUBS IN EACH FOUNDATION FOR MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE.
5. ALL INDICATIONS SHALL BE L.E.D.

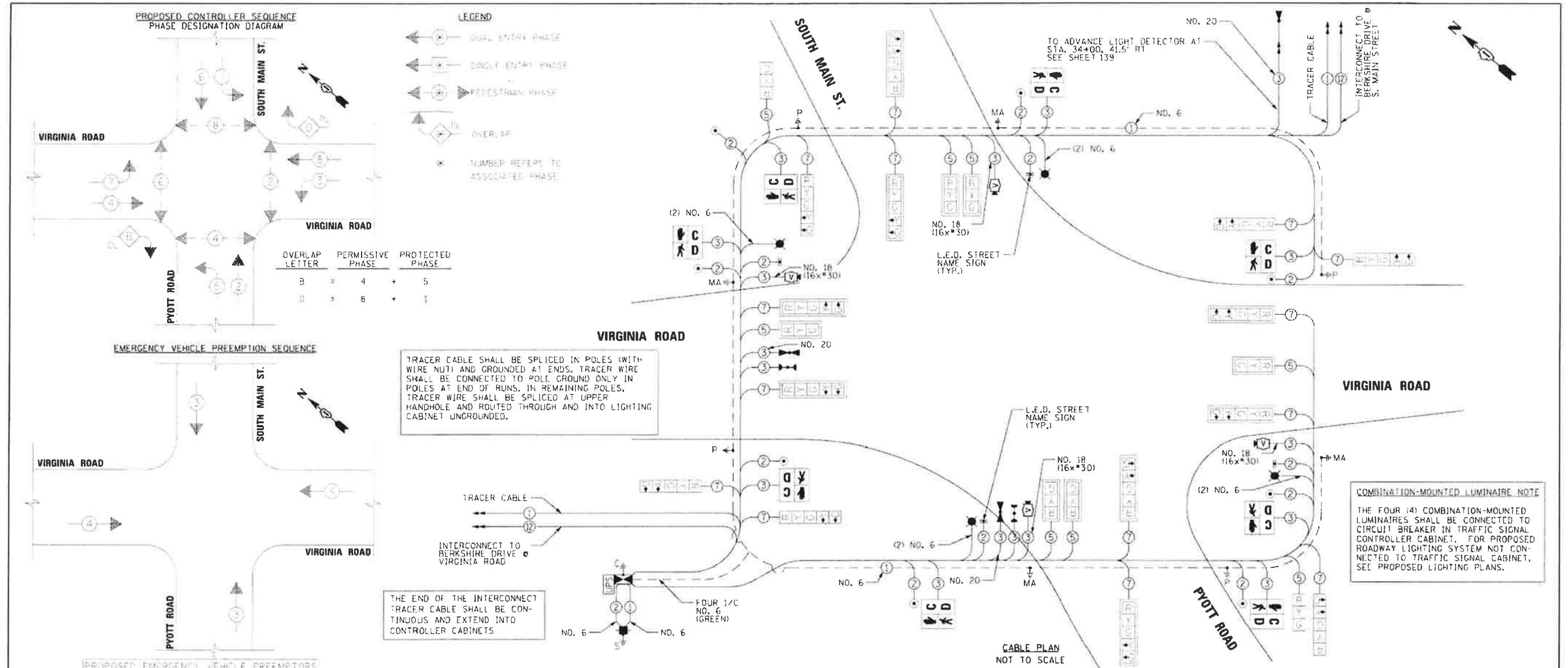
FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING AND SIGNING PLANS



**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015  
 Signed [Signature]  
 Print(First\_Last) Larry Venisiano

FILE NAME	USER NAME	DESIGNED	KJF	REVISED		<b>STATE OF ILLINOIS          DEPARTMENT OF TRANSPORTATION</b>	<b>VIRGINIA ROAD AND S. MAIN STREET          TRAFFIC SIGNAL INSTALLATION PLAN (2 of 2)</b>		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
08-00106-0-0-PP	TS: Mudge	DRAWN	RJB	REVISED			0124	08-00106-0-0-PP	McHENRY	79	50		
FILE SCALE 20,000	FILE DATE 10/17/2014	CHECKED	KJF	REVISED			SCALE: 1"=20'		SHEET NO. 6 OF 7 SHEETS STA. TO STA.		CONTRACT NO. 63843		
										ILLINOIS FED. AID PROJECT			



PROPOSED CONTROLLER SEQUENCE PHASE DESIGNATION DIAGRAM



OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
B	4	5
D	6	1

EMERGENCY VEHICLE PREEMPTION SEQUENCE

PROPOSED EMERGENCY VEHICLE PREEMPTORS			
EMERGENCY VEHICLE PREEMPTORS	3	4	
MOVEMENT			
←			
→			
↑			
↓			

MCHENRY COUNTY DIVISION OF TRANSPORTATION TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL AMOUNT
TYPE	NO. LAMPS	WATTAGE (INCAND)	LED	% OPERATING	
SIGNAL (RED)	22	17	0.25	100%	17.0
SIGNAL (YELLOW)	22	25	0.25	100%	17.5
SIGNAL (GREEN)	22	36	0.25	100%	26.0
ARROW	28	12	0.25	100%	33.0
FLC. SIGNAL	8	24	1.00	100%	28.0
CONTROLLER	1	100	1.00	100%	100.0
BATTERY BACKUP	1	25	1.00	100%	25.0
VIDEO SYSTEM	1	150	1.00	100%	150.0
LUMINAIRE	4	250	0.50	100%	20.0
L.E.D. ST. NAME SIGN (TYP.)	4	64	0.20	100%	16.0
FLASHER			0.20	100%	2.0
TOTAL					322.5

ENERGY COSTS - BELLEVILLE CITY OF CHRYSLER LEASE  
ADDRESS 150 W. ADVISORY ST.

ENERGY SUPPLY - CONTACT: LISA COOK  
PHONE: (636) 650-9547  
COMPANY: COMCO LIBERTYVILLE

SUMMARY OF QUANTITIES

NO.	CODE NO.	ITEM	UNIT	TOTAL
1	80200000	SERVICE INSTALLATION - GROUND MOUNTED	EACH	1
2	81020000	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	74
3	81020210	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 1/2" DIA.	FOOT	106
4	81020220	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	92
5	81020240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	620
6	81400100	HANDHOLE	EACH	2
7	81400100	DOUBLE HANDHOLE	EACH	2
8	81100100	ELECTRIC CABLE IN CONDUIT, BODY ONLY-TYPE USE 1/2" NO. 6	FOOT	3925
9	80100400	REGULATED CONTROLLER AND TYPE IV CABINET	EACH	1
10	86200300	INTERMEDIATE POWER SUPPLY, EXTENDED	EACH	1
11	87500210	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	2461
12	87500220	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1510
13	87500240	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1790
14	87500250	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	3122
15	87500260	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 6 2 1	FOOT	200
16	87500270	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 2 1	FOOT	1455
17	87500500	TRAFFIC SIGNAL HOUSING, GALVANIZED STEEL 16 FT.	EACH	4
18	87500510	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 42 FT.	EACH	1
19	87500520	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 44 FT.	EACH	1
20	87500530	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 47 FT.	EACH	1
21	87500540	CONCRETE FOUNDATION, TYPE A	FOOT	16

NO.	CODE NO.	ITEM	UNIT	TOTAL
22	87800100	CONCRETE FOUNDATION, TYPE C	FOOT	3
23	87800410	CONCRETE FOUNDATION, TYPE E 6-INCH DIAMETER	FOOT	52
24	88030070	SIGNAL HEAD, LED, 3-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	6
25	88030080	SIGNAL HEAD, LED, 3-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2
26	88030090	SIGNAL HEAD, LED, 3-FACE, 5-SECTION, BRACKET MOUNTED	EACH	6
27	88030100	SIGNAL HEAD, LED, 3-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	6
28	88030110	PEDESTRIAN SIGNAL HEAD, LED, 2-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	8
29	88200010	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	14
30	86700700	LIGHT DETECTOR	EACH	4
31	86700300	LIGHT DETECTOR AMPLIFIER	EACH	1
32	88600100	PEDESTRIAN PUSH-BUTTON	EACH	2
33	89000000	TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
34	89100400	ILLUMINATED SIGN LED	EACH	4
35	89500100	REMOVE EXISTING SERVICE INSTALLATION	EACH	1
36	89500210	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
37	89500230	REMOVE EXISTING HANDHOLE	EACH	13
38	89500240	REMOVE EXISTING DOUBLE HANDHOLE	EACH	2
39	89500250	REMOVE EXISTING CONCRETE FOUNDATION	EACH	9
40	90300000	VIDEO DETECTION SYSTEM	EACH	1
41	89200420	LUMINAIRE, STREET LIGHTING, HIGH PRESSURE SODIUM VAPOR, 250 WATT, 240 VOL.	EACH	4
42	89700200	ELECTRIC CABLE IN CONDUIT, NO. 20 3/4" TWISTED, SHULDED	FOOT	1,647
43	20070500	TEMPORARY TRAFFIC SIGNAL TWINING	EACH	4

TRACER CABLE SHALL BE SPliced IN POLES (WITH WIRE NUT) AND GROUNDED AT ENDS. TRACER WIRE SHALL BE CONNECTED TO POLE GROUND ONLY IN POLES AT END OF RUNS. IN REMAINING POLES, TRACER WIRE SHALL BE SPliced AT UPPER HANDHOLE AND ROUTED THROUGH AND INTO LIGHTING CABINET UNGROUNDED.

THE END OF THE INTERCONNECT TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO CONTROLLER CABINETS

COMBINATION-MOUNTED LUMINAIRE NOTE  
THE FOUR (4) COMBINATION-MOUNTED LUMINAIRES SHALL BE CONNECTED TO CIRCUIT BREAKER IN TRAFFIC SIGNAL CONTROLLER CABINET. FOR PROPOSED ROADWAY LIGHTING SYSTEM NOT CONNECTED TO TRAFFIC SIGNAL CABINET, SEE PROPOSED LIGHTING PLANS.



RECORD DRAWINGS

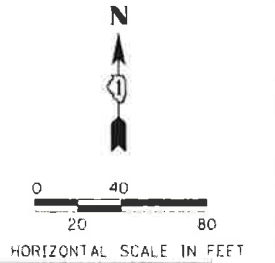
Date (MM/DD/YYYY) 10-20-2015  
Signed: *Lenny Vezina*  
Print (First\_Last) Lenny Vezina

**GENERAL NOTES**

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THE TRAFFIC SIGNAL CONTROL EQUIPMENT FOR THIS SIGNAL SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM

THE LIGHT DETECTORS AND LIGHT DETECTOR AMPLIFIER FOR THIS PROJECT SHALL BE "OPTICOM" TO MEET LOCAL FIRE DEPARTMENT REGULATIONS.



**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 SEEDING IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

**CONSTRUCTION NOTES**

- MAST ARMS AND POSTS SHALL BE GALVANIZED FINISH.
- PROVIDE TWO 2-1/2" CONDUIT STUBS IN EACH FOUNDATION FOR COMBINATION MAST ARM ASSEMBLY AND POLES WITH LUMINAIRE.
- ALL INDICATIONS SHALL BE L.E.D.
- ALL MAST ARM MOUNTED STREET NAME SIGNS SHALL BE L.E.D. ILLUMINATED.

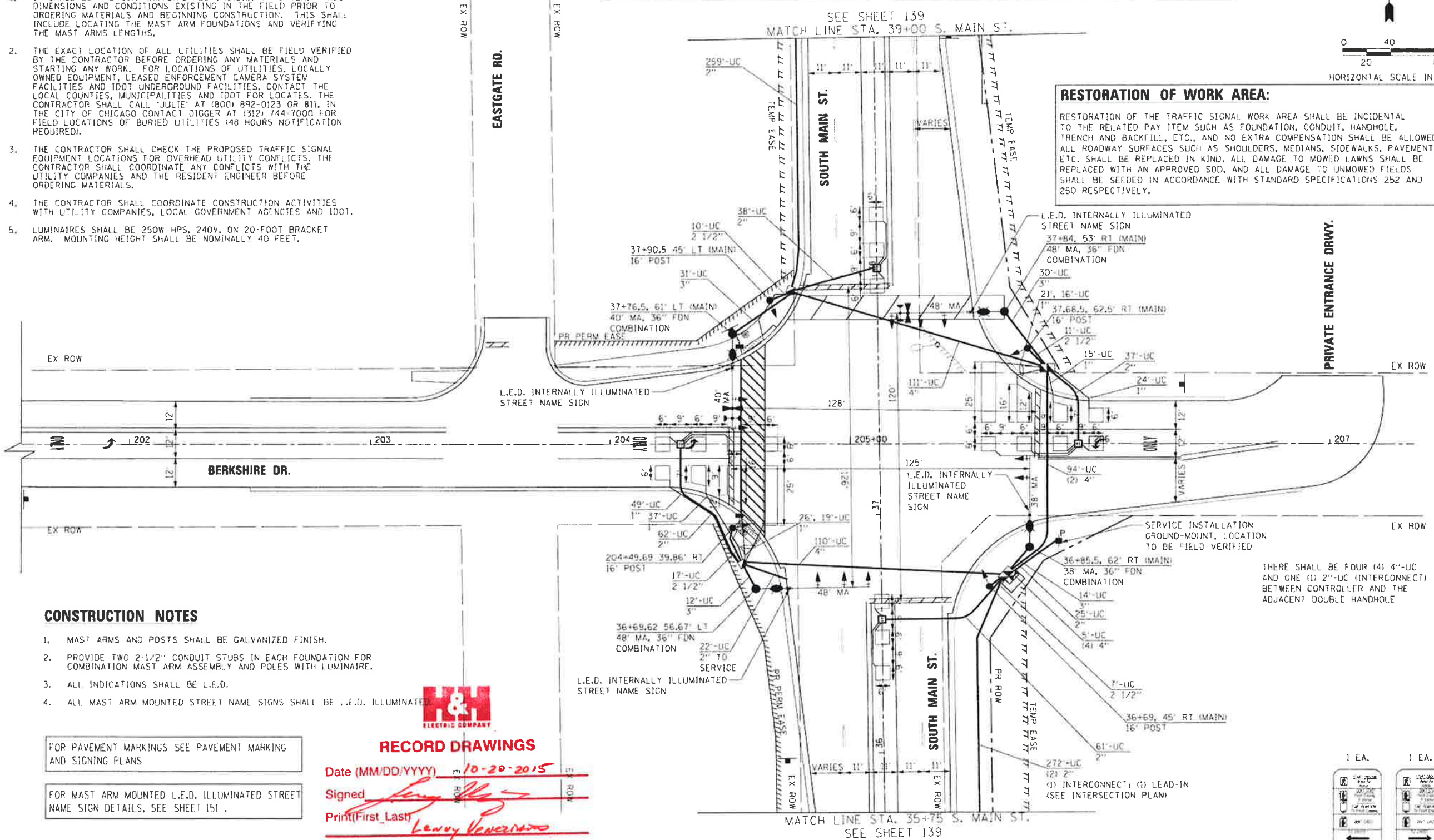
FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING AND SIGNING PLANS

FOR MAST ARM MOUNTED L.E.D. ILLUMINATED STREET NAME SIGN DETAILS, SEE SHEET 151.

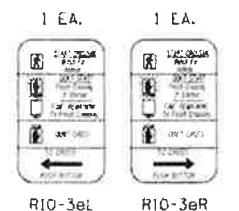


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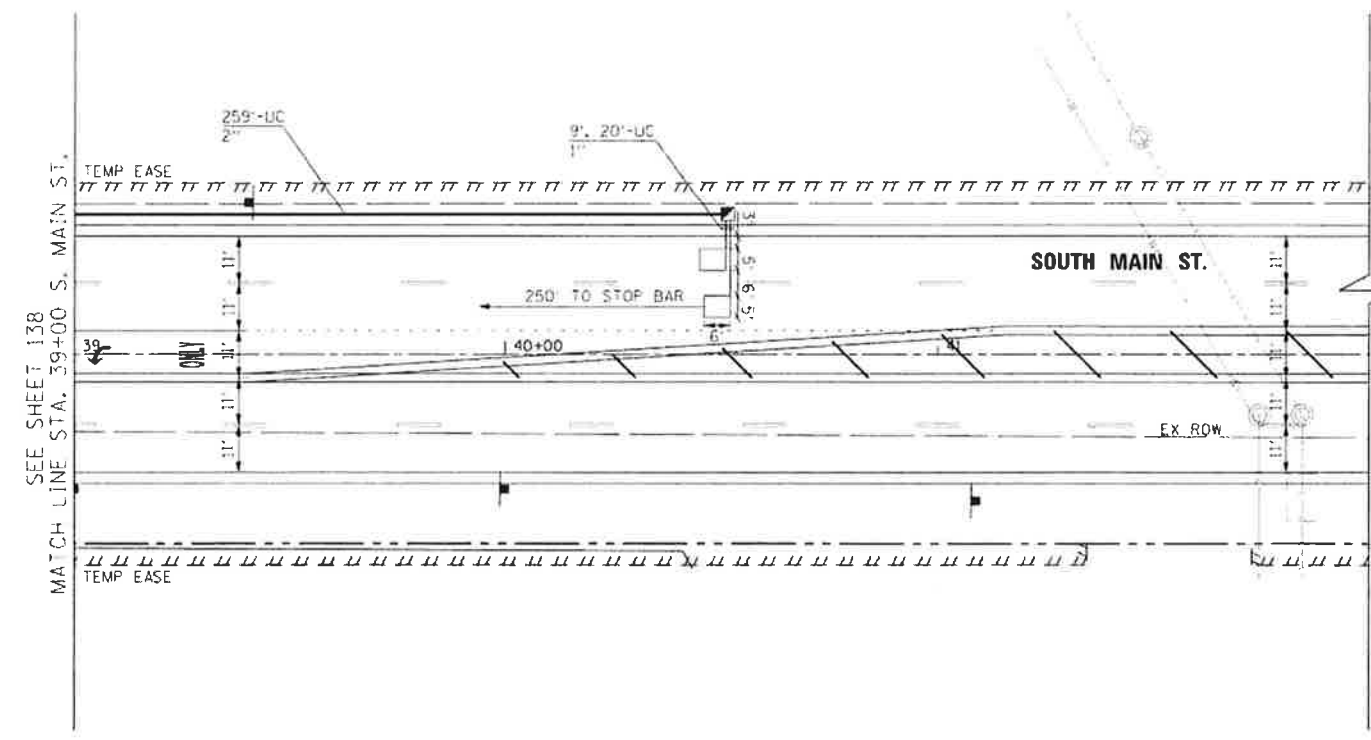
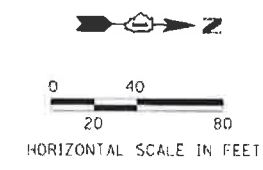
Date (MM/DD/YYYY) 10-20-2015  
 Signed [Signature]  
 Print(First\_Last) Lenny Hernandez



THERE SHALL BE FOUR (4) 4"-UC AND ONE (1) 2"-UC (INTERCONNECT) BETWEEN CONTROLLER AND THE ADJACENT DOUBLE HANDHOLE



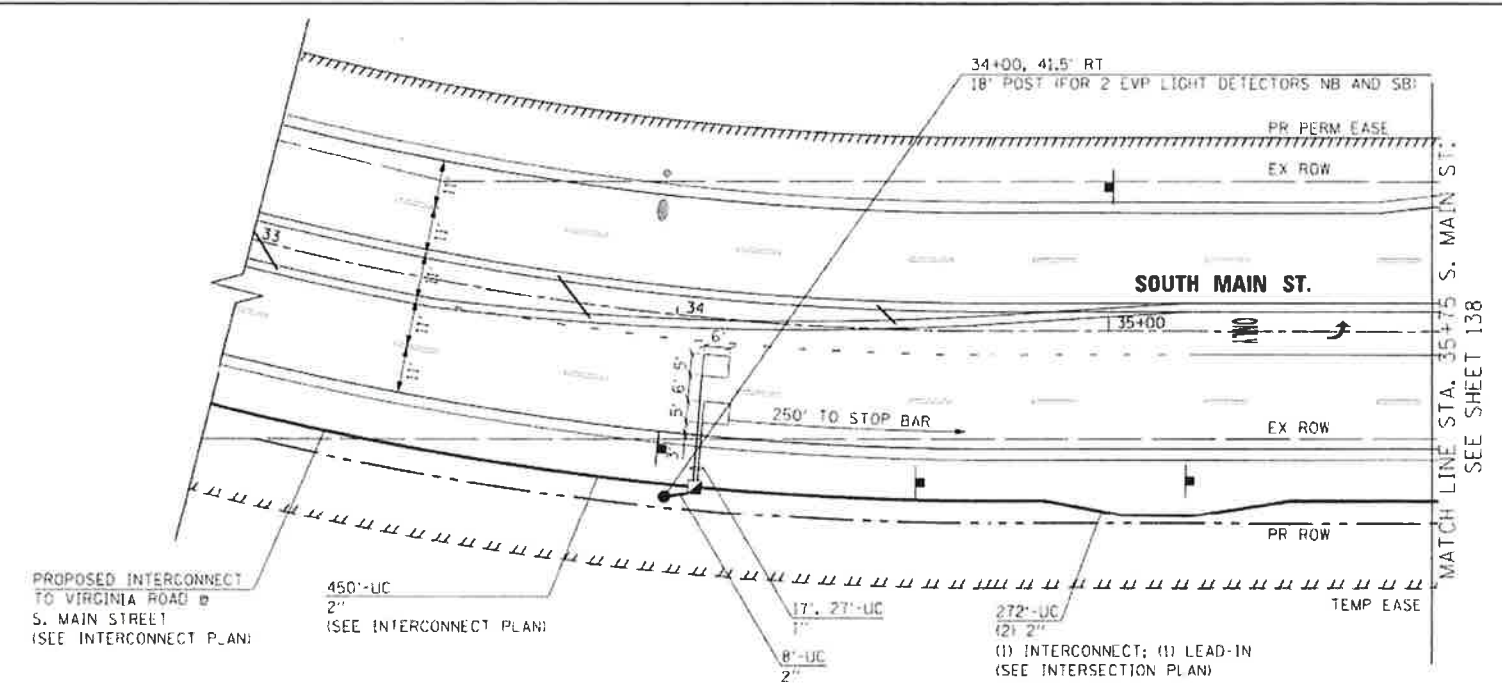
FILE NAME S:\CHICAGO\2015\10\20\10-20-2015\10-20-2015.dwg	USER NAME T31 Mkg	DESIGNED DRAWN CHECKED DATE	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	S. MAIN STREET AND BERKSHIRE DRIVE TRAFFIC SIGNAL INSTALLATION PLAN (1 of 2)	SECTION 08-00106-00-FF	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 52	CONTRACT NO. 63843
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**GENERAL NOTES**

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5. LUMINAIRES SHALL BE 250W HPS, 240V, ON 20-FOOT BRACKET ARM. MOUNTING HEIGHT SHALL BE NOMINALLY 40 FEET.

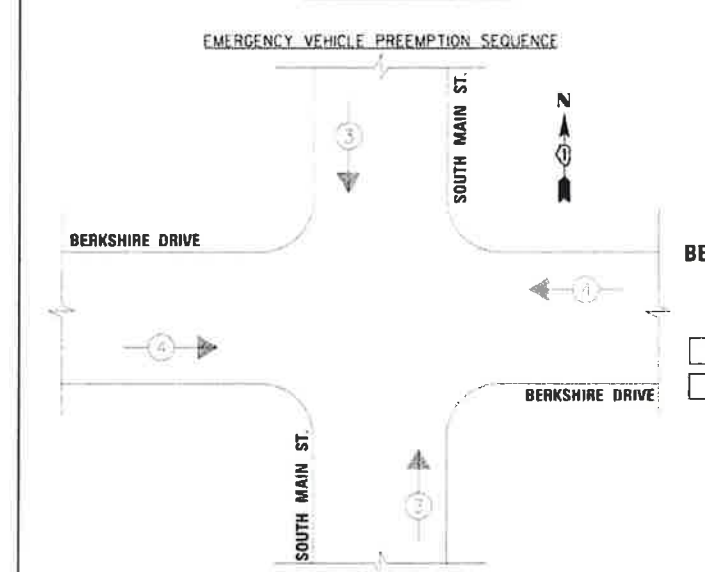
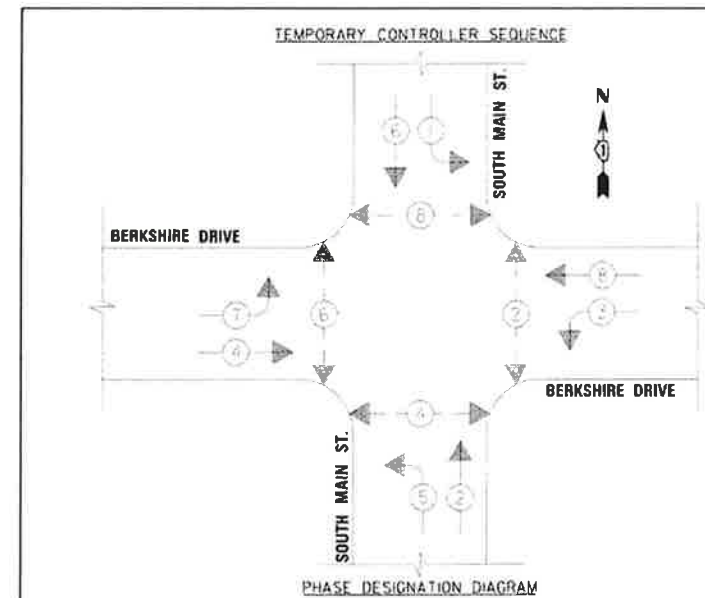
FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING AND SIGNING PLANS



**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015  
 Signed [Signature]  
 Print(First, Last) Lenny Veneziano

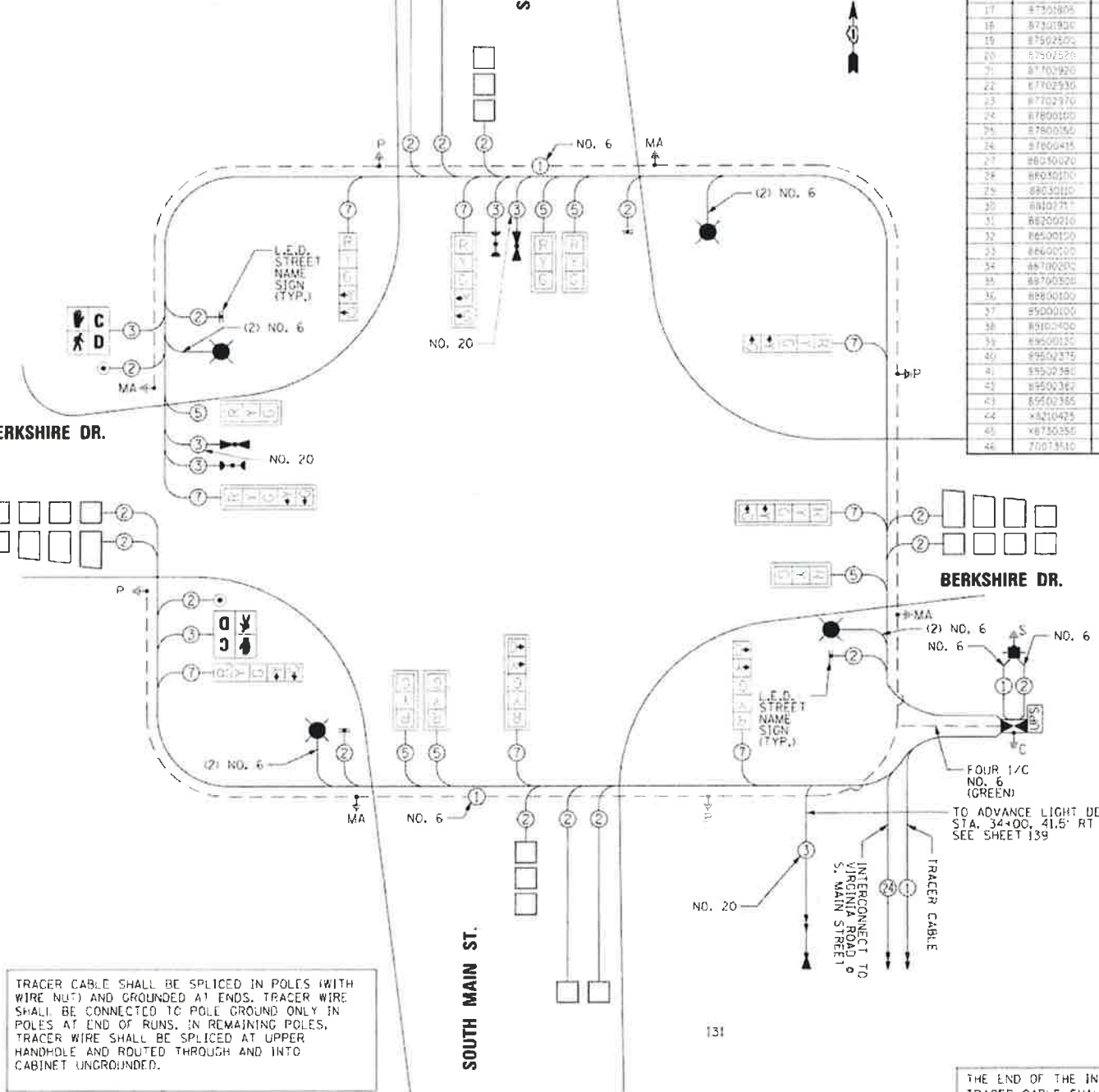
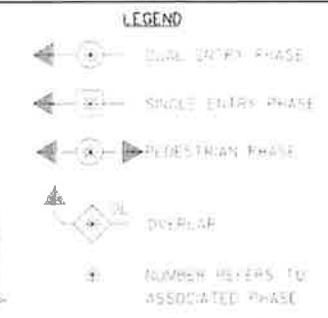
DESIGNED DRAWN CHECKED DATE	REVISIONS REVISIONS REVISIONS REVISIONS	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>S. MAIN STREET AND BERKSHIRE DRIVE</b> <b>TRAFFIC SIGNAL INSTALLATION PLAN (2 of 2)</b>	F.A.A. RT#: 0124	SECTION 08-00106-00-FP	COUNTY McHENRY	TOTAL SHEET NO. 79	SHEET NO. 53
SCALE: 1"=20'			SHEET NO. 6 OF 7 SHEETS STA. TO STA.		CONTRACT NO. 63843 ILLINOIS FED. AID PROJECT			



PROPOSED EMERGENCY VEHICLE PREEMPTIONS	
EMERGENCY VEHICLE PREEMPTIONS	MOVEMENT
3	1
4	2

CITY OF CRYSTAL LAKE TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO. LAMPS	WATTAGE		% OPERATION	
		INCAN.	LED		
SIGNAL (RED)	12		17	0.50	204.0
SIGNAL (YELLOW)	12		25	0.25	300.0
SIGNAL (GREEN)	12		15	0.25	180.0
ARROW	12		12	0.50	144.0
PEB. SIGNAL CONTROLLER	2		25	1.00	50.0
BATTERY BACKUP	1	100		1.00	100.0
VIDEO SYSTEM	1	75		1.00	75.0
LUMINAIRE	4	150		1.00	600.0
LED ST. NAME SIGN FLASHER	4	250	64	0.50	320.0
TOTAL					1983.0

ENERGY COSTS - BILLED TO: CITY OF CRYSTAL LAKE  
 ADDRESS: 100 W. WOODSTOCK ST.  
 ENERGY SUPPLY - CONTRACTOR: LISA COOK  
 PHONE: (815) 450-9572  
 COMPANY: COMET LIBERTYVILLE



TRACER CABLE SHALL BE SPLICED IN POLES (WITH WIRE NUT) AND GROUNDED AT ENDS. TRACER WIRE SHALL BE CONNECTED TO POLE GROUND ONLY IN POLES AT END OF RUNS. IN REMAINING POLES, TRACER WIRE SHALL BE SPLICED AT UPPER HANDHOLE AND ROUTED THROUGH AND INTO CABINET UNGROUNDED.

CABLE PLAN NOT TO SCALE

NO.	CODE NO.	ITEM	UNIT	TOTAL
1	80500010	SERVICE INSTALLATION - GROUND MOUNTED	EACH	1
2	80742005	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	504
3	80282010	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 1/2" DIA.	FOOT	52
4	80928220	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	87
5	80028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	450
6	81400100	HANDHOLE	EACH	4
7	85400200	HEAVY-DUTY HANDHOLE	EACH	4
8	81400300	DOUBLE HANDHOLE	EACH	2
9	81700150	ELECTRIC CABLE IN CONDUIT, 400V, 1MP, TYPE USE 1, V.C. NO. 6	FOOT	1868
10	85100200	FULL-RANGE CONTROLLER AND TYPE 15 CABINET	EACH	1
11	86200300	UNINTERRUPTIBLE POWER SUPPLY, EXTENDED	EACH	1
12	87300210	ELECTRIC CABLE IN CONDUIT, SIGNAL, NO. 14 2C	FOOT	1266
13	87300225	ELECTRIC CABLE IN CONDUIT, SIGNAL, NO. 14 3C	FOOT	1035
14	87300240	ELECTRIC CABLE IN CONDUIT, SIGNAL, NO. 14 3C	FOOT	1881
15	87300255	ELECTRIC CABLE IN CONDUIT, SIGNAL, NO. 14 7E	FOOT	1647
16	87300300	ELECTRIC CABLE IN CONDUIT, LEADING, NO. 14 3 PAIR	FOOT	2108
17	87300800	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	300
18	87300800	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1E	FOOT	546
19	87500200	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	4
20	87500220	TRAFFIC SIGNAL POST, GALVANIZED STEEL 18 FT.	EACH	1
21	87700200	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 16 FT.	EACH	1
22	87700230	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 10 FT.	EACH	1
23	87700270	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 16 FT.	EACH	2
24	87800100	CONCRETE FOUNDATION, TYPE A	FOOT	20
25	87800150	CONCRETE FOUNDATION, TYPE C	FOOT	4
26	87800415	CONCRETE FOUNDATION, TYPE 1 36-INCH DIAMETER	FOOT	56
27	88000200	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	6
28	88000300	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	4
29	88000300	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	4
30	88000371	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	2
31	88200210	TRAFFIC SIGNAL BACKPLATE, LOWERCASE ALUMINUM	EACH	10
32	88500100	INDUCTIVE LOOP DETECTOR	EACH	10
33	88600200	DETECTION LOOP, TYPE 1	FOOT	99
34	88700200	LIGHT DETECTOR	EACH	6
35	88700300	LIGHT DETECTOR AMP/BUCK	EACH	1
36	88800100	PEDESTRIAN PUSH-BUTTON	EACH	2
37	89000100	TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
38	89100400	ILLUMINATED SIGN, LED	EACH	4
39	89500100	REMOVE EXISTING SERVICE INSTALLATION	EACH	1
40	89500275	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
41	89500380	REMOVE EXISTING HANDHOLE	EACH	1
42	89500380	REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
43	89500385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	8
44	89500425	LUMINAIRE, STREET LIGHTING, HIGH-PRESSURE SODIUM VAPOR, 250 WATT, 2ND VOLT.	EACH	4
45	89700350	ELECTRIC CABLE IN CONDUIT NO. 20 3-PH, TWISTED, SHIELDED	FOOT	68
46	70018100	TEMPORARY TRAFFIC SIGNAL TIMING	EACH	1

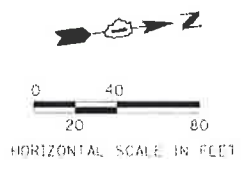
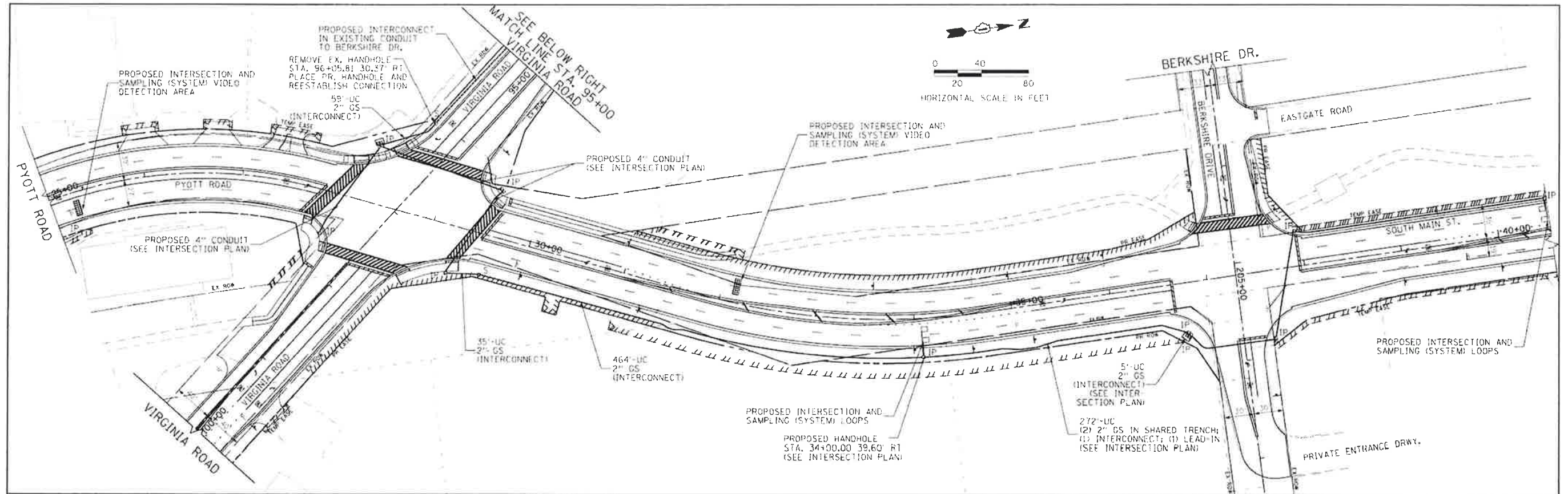
COMBINATION-MOUNTED LUMINAIRE NOTE  
 THE FOUR (4) COMBINATION-MOUNTED LUMINAIRES SHALL BE CONNECTED TO CIRCUIT BREAKER IN TRAFFIC SIGNAL CONTROLLER CABINET, FOR PROPOSED ROADWAY LIGHTING SYSTEM CONNECTED TO TRAFFIC SIGNAL CABINET. SEE PROPOSED LIGHTING PLAN.

RECORD DRAWINGS  
 Date: 10-20-2015  
 Signed: *Lenny Veneziano*  
 Print(First-Last): Lenny Veneziano

THE TRAFFIC SIGNAL CONTROL EQUIPMENT FOR THIS SIGNAL SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

THE EMERGENCY PREEMPTION EQUIPMENT FOR THIS SIGNAL SHALL BE "OPTICOM" TO MATCH EXISTING.

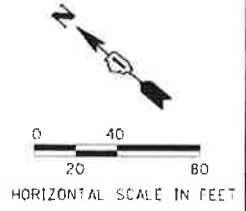
THE END OF THE INTERCONNECT TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO CONTROLLER CABINETS



**INTERCONNECT PLAN LEGEND**

	PROPOSED	EXISTING
CONTROLLER CABINET		
VIDEO COMMUNICATIONS CABINET		
HANDHOLE		
DOUBLE HANDHOLE		
RADIO INTERCONNECT		
G.S. CONDUIT IN TRENCH		
DETECTION AREA SYSTEM		
INTERSECTION		
COLLABLE NONMETAL CONDUIT	CNC	
GALVANIZED STEEL	GS	

- GENERAL NOTES**
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION. THIS SHALL INCLUDE LOCATING THE MAST ARM FOUNDATIONS AND VERIFYING THE MAST ARM LENGTHS.
  - THE EXACT LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIALS AND STARTING ANY WORK. FOR LOCATIONS OF UTILITIES, LOCALLY OWNED EQUIPMENT, LEASED ENFORCEMENT CAMERA SYSTEM FACILITIES AND 100' UNDERGROUND FACILITIES, CONTACT THE LOCAL COUNTIES, MUNICIPALITIES AND IDOT FOR LOCATES. THE CONTRACTOR SHALL CALL "JULIE" AT (800) 892-0123 OR 811 IN THE CITY OF CHICAGO CONTACT BIGGER AT (312) 744-7000 FOR FIELD LOCATIONS OF BURIED UTILITIES (48 HOURS NOTIFICATION REQUIRED).
  - THE CONTRACTOR SHALL CHECK THE PROPOSED TRAFFIC SIGNAL EQUIPMENT LOCATIONS FOR OVERHEAD UTILITY CONFLICTS. THE CONTRACTOR SHALL COORDINATE ANY CONFLICTS WITH THE UTILITY COMPANIES AND THE RESIDENT ENGINEER BEFORE ORDERING MATERIALS.
  - THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES, LOCAL GOVERNMENT AGENCIES AND IDOT.



TRACER CABLE SHALL BE SPLICED IN POLES (WITH WIRE NUT) AND GROUNDED AT ENDS. TRACER WIRE SHALL BE CONNECTED TO POLE GROUND ONLY IN POLES AT END OF RUNS. IN REMAINING POLES, TRACER WIRE SHALL BE SPLICED AT UPPER HANDHOLE AND ROUTED THROUGH AND INTO LIGHTING CABINET UNGROUNDED.

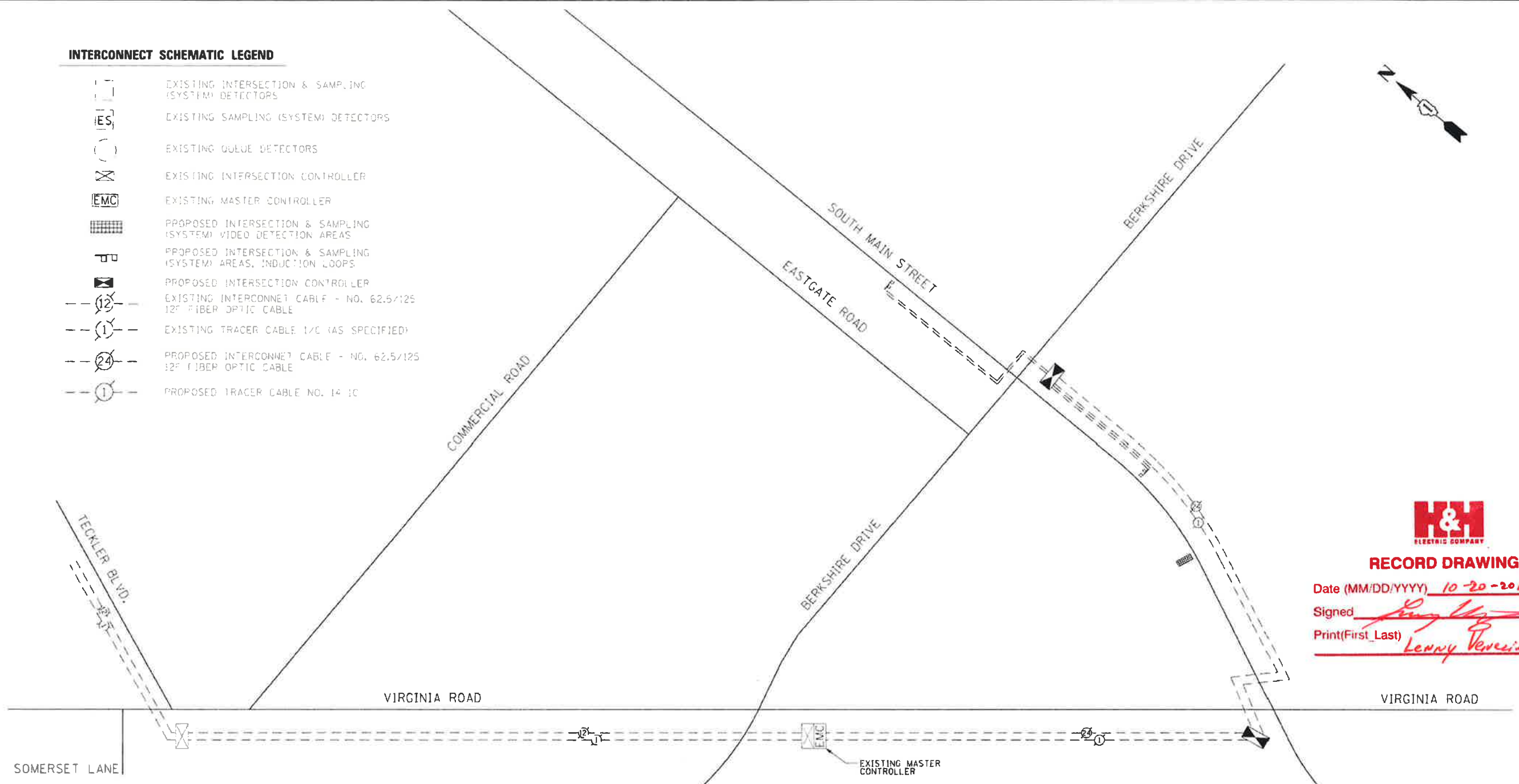


**RECORD DRAWINGS**  
 Date (MM/DD/YYYY) 10-20-2015  
 Signed [Signature]  
 Print(First\_Last) Lanny Venerano

FILE NAME G:\CHEN\2015\10\15\10-20-2015\10-20-2015-10-20-2015.dwg	USER NAME j.venerano	DESIGNED RJB	REVISED	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>S. MAIN STREET INTERCONNECT PLAN</b>	F.A.U. RTE. 0124	SECTION 08-00106-09-CP	COUNTY MCHEMRY	TOTAL SHEETS 79	SHEET NO. 55	
SCALE 1"=50'	DATE 10/17/2014	DRAWN RJB	REVISED			SCALE: 1"=50'	SHEET NO. 3 OF 4 SHEETS	STA. 10+00.00 TO STA. 35+00.00	CONTRACT NO. 63843		ILLINOIS FED. AID PROJECT
CHECKED HJF	DATE	DATE	REVISED								

**INTERCONNECT SCHEMATIC LEGEND**

- EXISTING INTERSECTION & SAMPLING (SYSTEM) DETECTORS
- EXISTING SAMPLING (SYSTEM) DETECTORS
- EXISTING QUEUE DETECTORS
- EXISTING INTERSECTION CONTROLLER
- EXISTING MASTER CONTROLLER
- PROPOSED INTERSECTION & SAMPLING (SYSTEM) VIDEO DETECTION AREAS
- PROPOSED INTERSECTION & SAMPLING (SYSTEM) AREAS, INDUCTION LOOPS
- PROPOSED INTERSECTION CONTROLLER
- EXISTING INTERCONNECT CABLE - NO. 62.5/125 12" FIBER OPTIC CABLE
- EXISTING TRACER CABLE 1/C (AS SPECIFIED)
- PROPOSED INTERCONNECT CABLE - NO. 62.5/125 12" FIBER OPTIC CABLE
- PROPOSED TRACER CABLE NO. 14 1/C



**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015  
 Signed *Lenny Veresians*  
 Print(First\_Last) Lenny Veresians

**TRAFFIC SIGNAL INTERCONNECT - SUMMARY OF QUANTITIES**

NO.	CODE NO.	ITEM	UNIT	TOTAL
1	81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	830
2	81400100	HANDHOLE	EACH	2
3	86400100	TRANSCEIVER - FIBER OPTIC	EACH	2
4	87100160	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 24F	FOOT	2100
5	87300925	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1/C	FOOT	2100
6	89502300	REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	880
7	89502380	REMOVE EXISTING HANDHOLE	EACH	1

NO.	CODE NO.	ITEM	UNIT	TOTAL
8	X0325938	TEMPORARY WIRELESS INTERCONNECT, COMPLETE	L SUM	1
9	Z003304E	RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 2	EACH	1
10	Z0033047	TEMPORARY RE-OPTIMIZATION OF EXISTING TRAFFIC SIGNAL SYSTEM	L SUM	1

FILE NAME: *...*  
 USER NAME: *...*  
 PLOT SCALE: 20:1  
 PLOT DATE: 7/17/2014

DESIGNED: HJF  
 DRAWN: RJB  
 CHECKED: HJF  
 DATE: *...*

REVISOR: *...*  
 REVISION: *...*  
 REVISION: *...*  
 REVISION: *...*

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

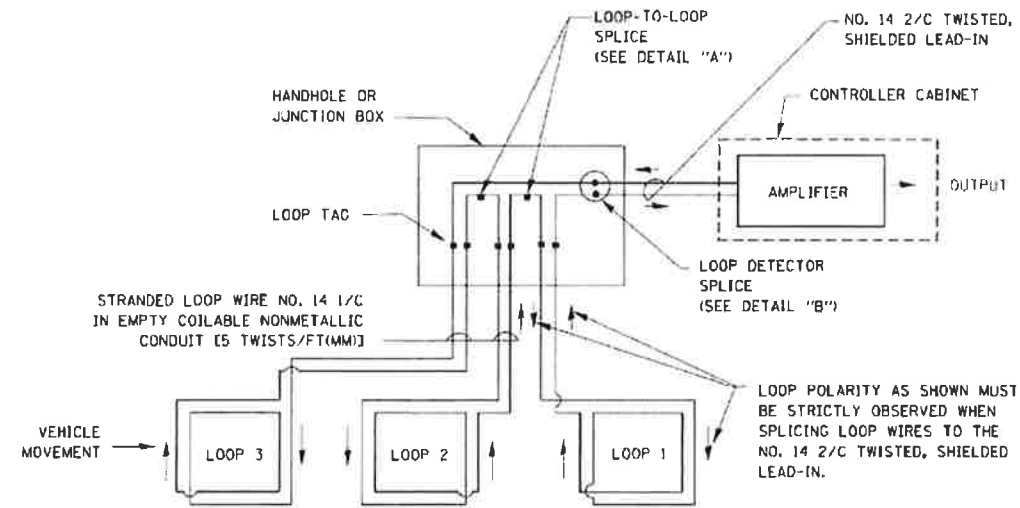
**S. MAIN STREET  
 INTERCONNECT SCHEMATIC**  
 SCALE: 1"=20'  
 SHEET NO. 4 OF 4 SHEETS | STA. TO STA.

P.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D124	08-00106-0 0-PP	MCHENRY	79	56
CONTRACT NO. 63843			ILLINOIS FED. AID PROJECT	



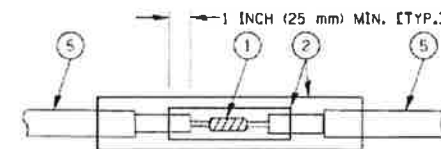
**LOOP DETECTOR NOTES**

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.

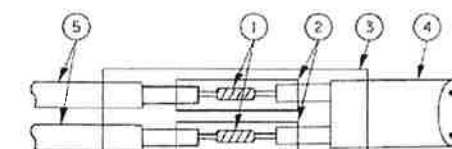


**DETECTOR LOOP WIRING SCHEMATIC**

- 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.

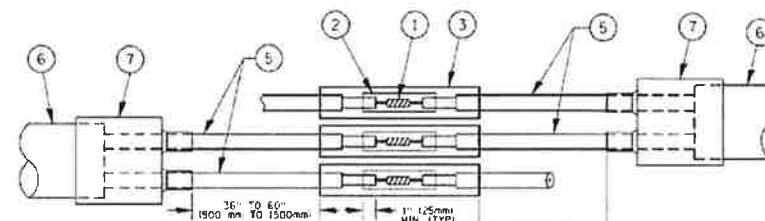


DETAIL "A"  
LOOP-TO-LOOP SPLICE

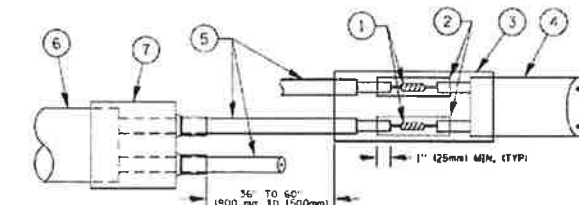


DETAIL "B"  
LOOP-TO-CONTROLLER SPLICE

**TYPE I LOOP**



DETAIL "A"  
LOOP-TO-LOOP SPLICE

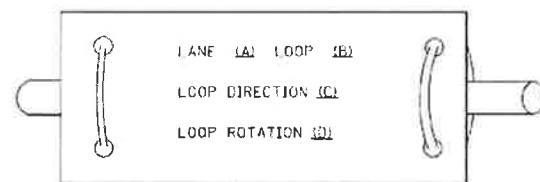


DETAIL "B"  
LOOP-TO-CONTROLLER SPLICE

**PREFORMED LOOP**

**LOOP DETECTOR SPLICE**

**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.

**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015  
 Signed [Signature]  
 Print (First\_Last) Lanny Venerus

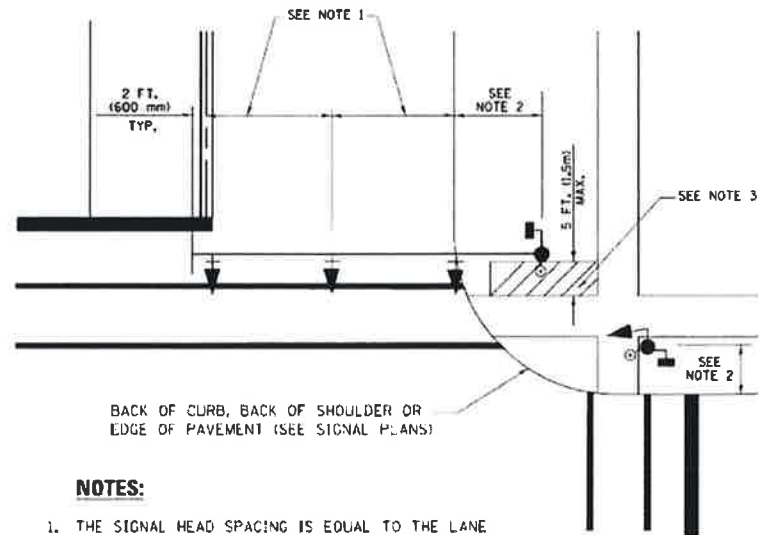
- 1 WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH. THE WESTERN UNION SPLICES SHALL BE STAGGERED.
- 2 WCSMW 30/100 HEAT SHRINK TUBE. MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.
- 3 WCS 200/750 HEAT SHRINK TUBE. MINIMUM LENGTH 6" (150 mm), UNDERWATER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



**TranSystems**  
 1475 EAST WOODFIELD ROAD, SUITE 600  
 SCHUMBERG, ILLINOIS 60173  
 (847) 605-9600

DESIGNED: OAD	REVISION: 01/01/14	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS	F.R.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	
DRAWN: BCK	REVISION:			0124	08-00106-00-FP	MCHEENY	79	57
CHECKED: OAD	REVISION:			CONTRACT NO. 63843				
DATE: 10/28/09	REVISION:	SCALE:	SHEET NO. 1 OF 6 SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT		

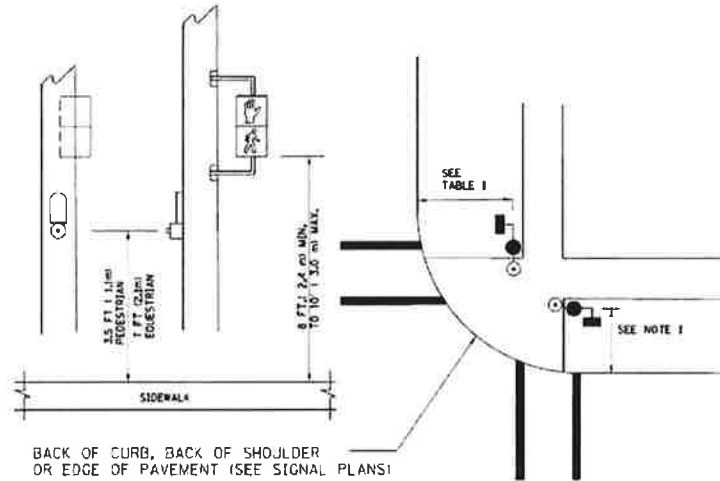
**TRAFFIC SIGNAL MAST ARM AND SIGNAL POST  
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR  
FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN  
WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.**



**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."

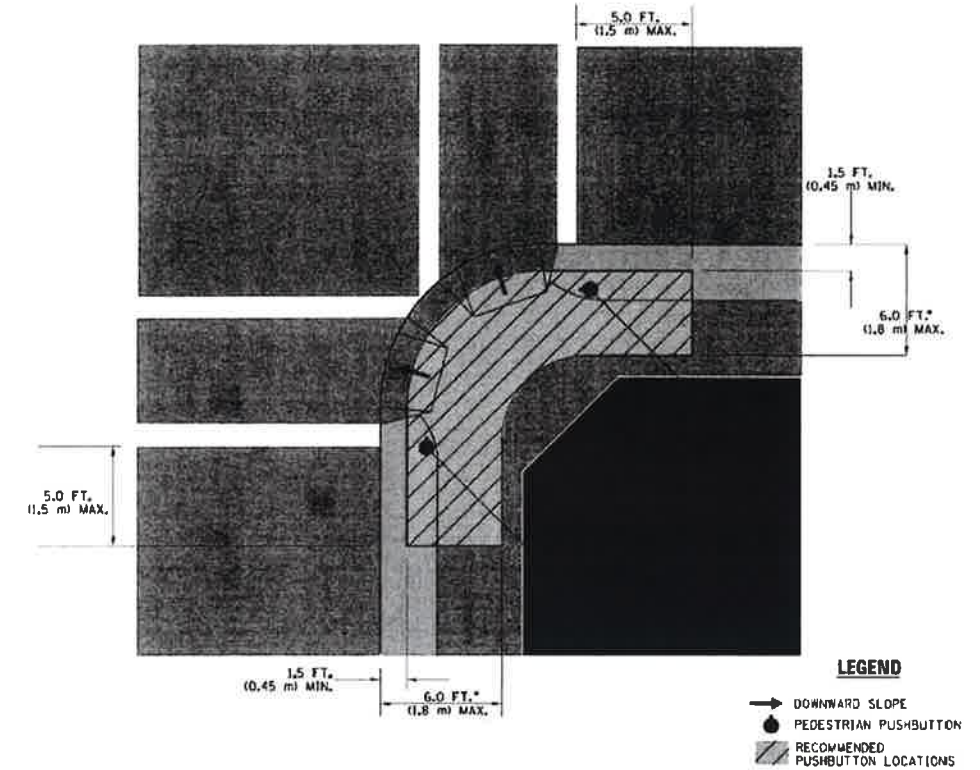
**PEDESTRIAN SIGNAL POST  
AND  
PEDESTRIAN PUSH BUTTON POST**



**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 2
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 2

**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 EFFECT 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.

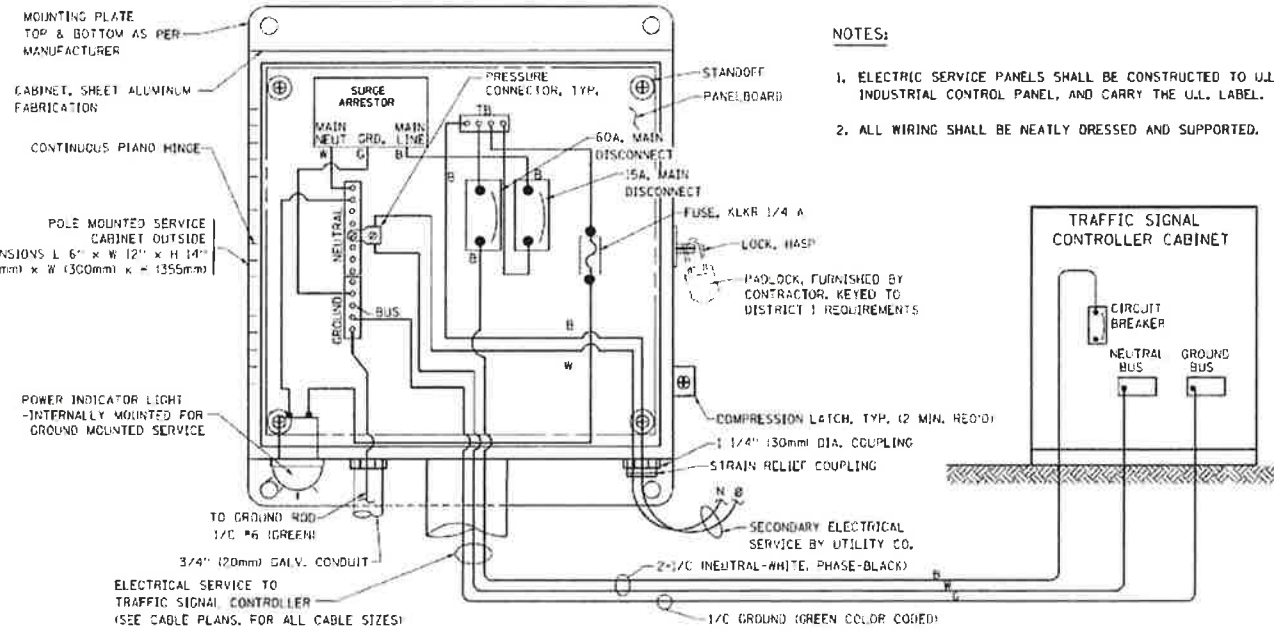


**RECORD DRAWINGS**

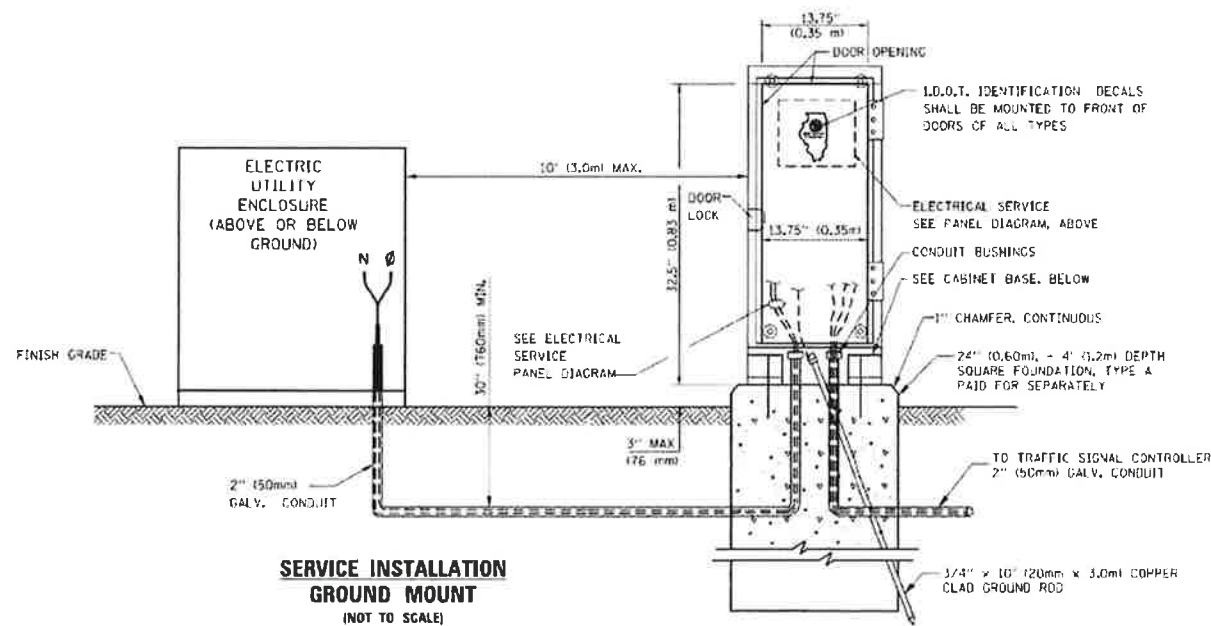
Date (MM/DD/YYYY) 10-20-2015  
 Signed [Signature]  
 Print (First Last) Lenny Kewer

**TranSystems**  
 1475 EAST WOODFIELD ROAD, SUITE 600  
 SCHAMBERG, ILLINOIS 60173  
 (847) 605-9600

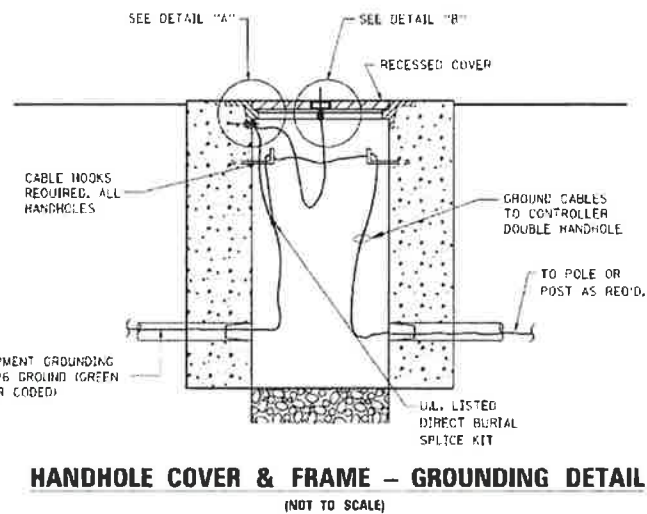
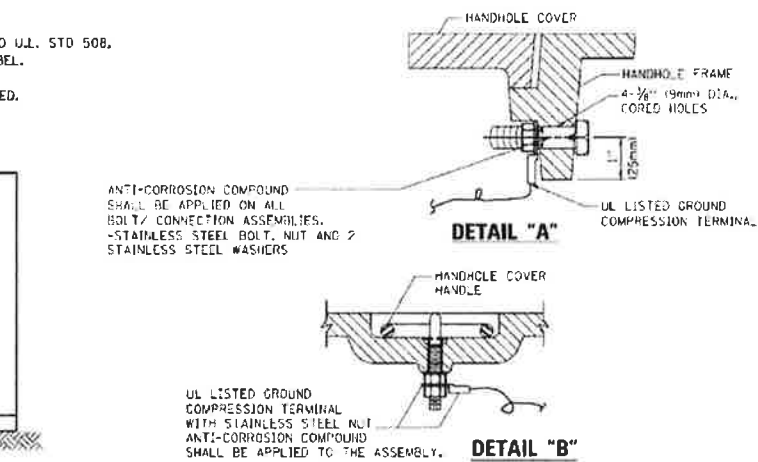
FILE NAME: S:\2015\StandardTrafficSignalDesign\Drawings\STD-TSS-102522.dwg	USER NAME: jlabrecque	DESIGNED: DAC	REVISION: _____	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DISTRICT ONE - STANDARD TRAFFIC SIGNAL DESIGN DETAILS	SCALE: N.T.S.	SHEET NO. 2 OF 6 SHEETS STA. TO STA.	F.A.P. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
DRAWN: BKW	CHECKED: DAD	DATE: 10/28/09	0124					08-00106-00-FFP	MCHENRY	79	58	
PLOT SCALE: 1/4"=1'-0"	PLOT DATE: 11/17/2014		CONTRACT NO. 63843									
ILLINOIS FED. AID PROJECT												



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

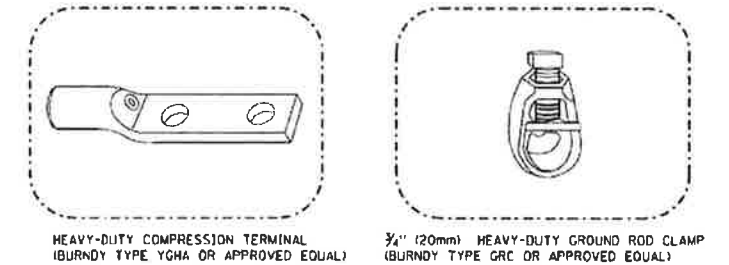


**CABINET - BASE BOLT PATTERN**  
 (NOT TO SCALE)



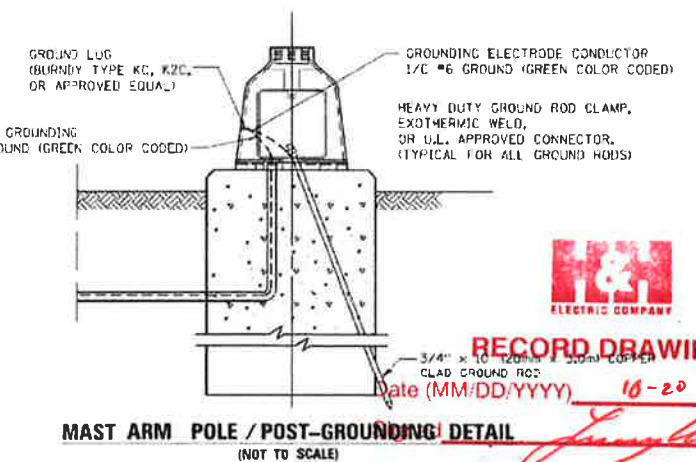
**NOTES:**  
**GROUNDING SYSTEM**

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.



**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015  
 Print(First\_Last) Jungles  
Kenny Kevans

**TranSystems**  
 1475 EAST WOODFIELD ROAD, SUITE 600  
 SCHAMBERG, ILLINOIS 60173  
 (847) 605-9600

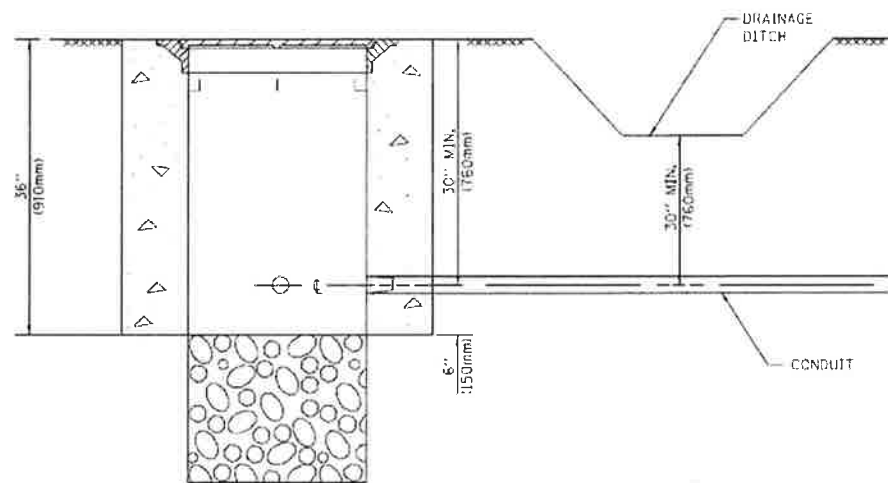
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0124-08-00106-00-EP	gallagher	DRAWN BCK	REVISED -
		CHECKED DAD	REVISED -
		DATE 10/28/09	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

DISTRICT ONE - STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SCALE: N.T.S. SHEET NO. 3 OF 6 SHEETS STA. TO STA.

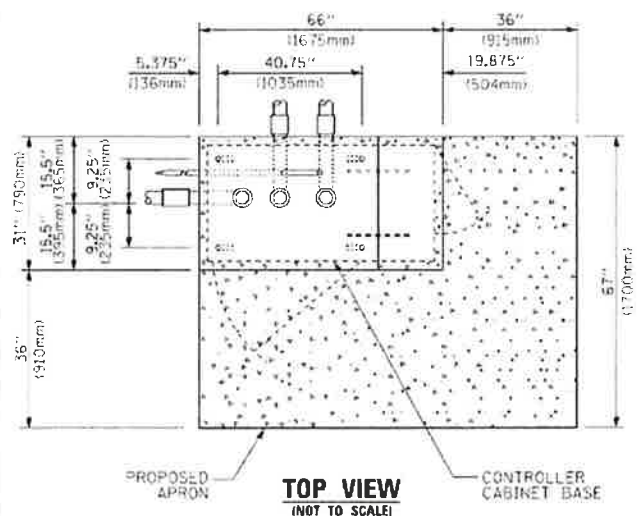
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0124	08-00106-00-EP	MCHEMRY	79	59
			CONTRACT NO. 63843	
ILLINOIS FED. AID PROJECT				



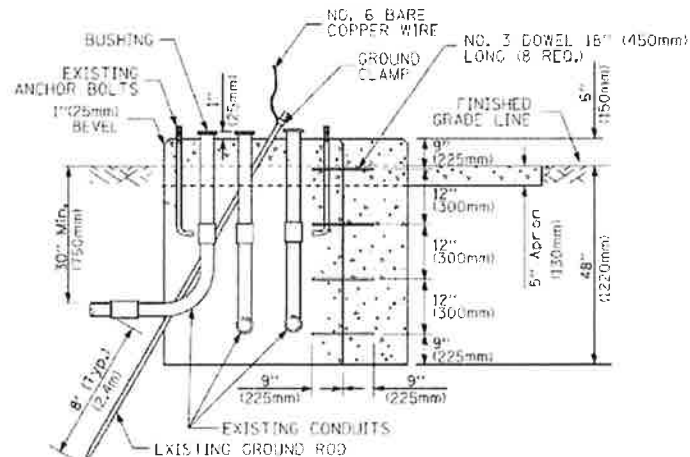
**NOTES:**

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)



**TOP VIEW**  
(NOT TO SCALE)

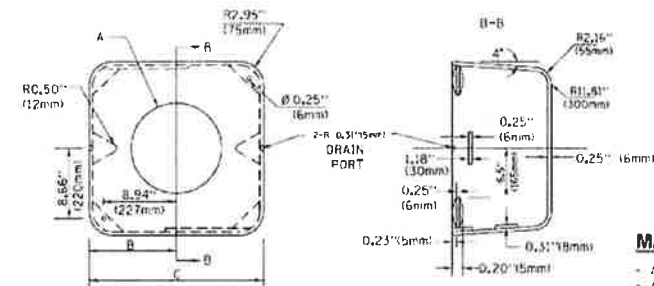


**MODIFY EXISTING TYPE "D" FOUNDATION TO TYPE "C" FOUNDATION**  
(NOT TO SCALE)

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-I-50 OR EQUIVALENT  
ITEM #2 - MULBERRY CON-O-SHADE LAMP SHIELD OR EQUIVALENT  
ITEM #9 - "BAND-1" 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.



**MATERIAL:**

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

A	B	C	HEIGHT	WEIGHT
VARIABLES	9.5" (241mm)	19" (483mm)	7" (178mm) - 12" (300mm)	53 lbs (24kg)
VARIABLES	10.75" (273mm)	21.5" (546mm)	7" (178mm) - 12" (300mm)	68 lbs (31 kg)
VARIABLES	13.0" (330mm)	26" (660mm)	7" (178mm) - 12" (300mm)	81 lbs (37 kg)
VARIABLES	16.5" (417mm)	37" (940mm)	7" (178mm) - 12" (300mm)	126 lbs (57 kg)

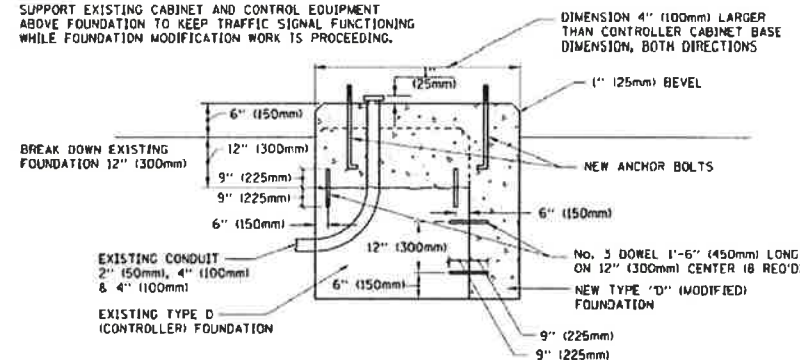
**SHROUD**

**NOTES:**

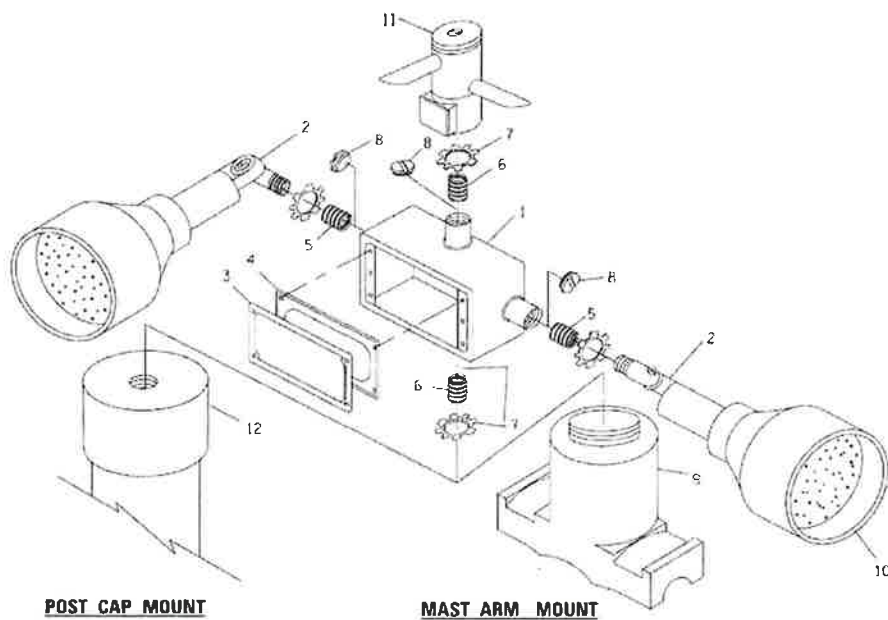
1. DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
2. THE SUPPLIER SHALL VERIFY THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
3. THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST ARM POLE BASE.

**NOTE:**

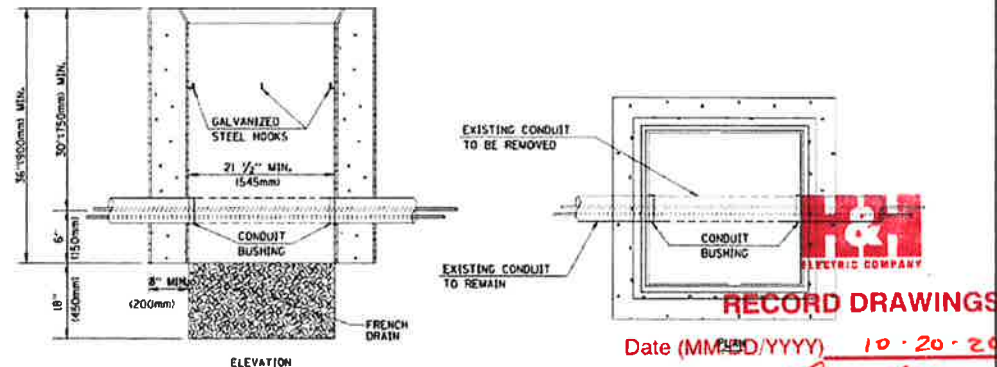
SUPPORT EXISTING CABINET AND CONTROL EQUIPMENT ABOVE FOUNDATION TO KEEP TRAFFIC SIGNAL FUNCTIONING WHILE FOUNDATION MODIFICATION WORK IS PROCEEDING.



**MODIFY EXISTING TYPE "D" FOUNDATION**



**EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL**



**NOTES:**

1. HANDHOLE CONSTRUCTED PER STATE STANDARD B4001.
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**

**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015

Signed [Signature]

Print (First Last) Larry K... [Signature]

**TranSystems**  
1475 EAST WOODFIELD ROAD, SUITE 600  
SCHAMBERG, ILLINOIS 60173  
(647) 605-9600

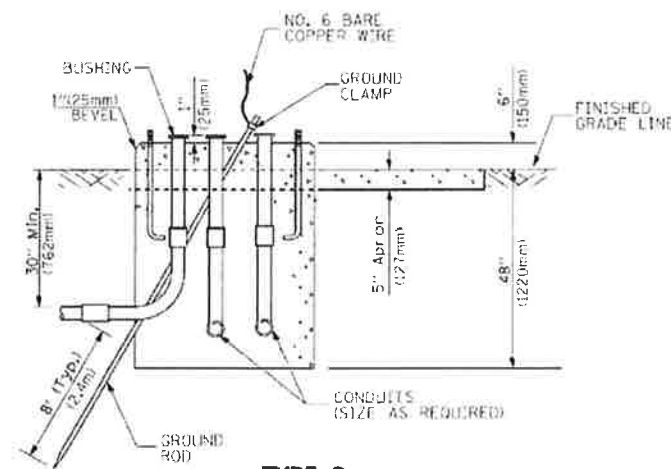
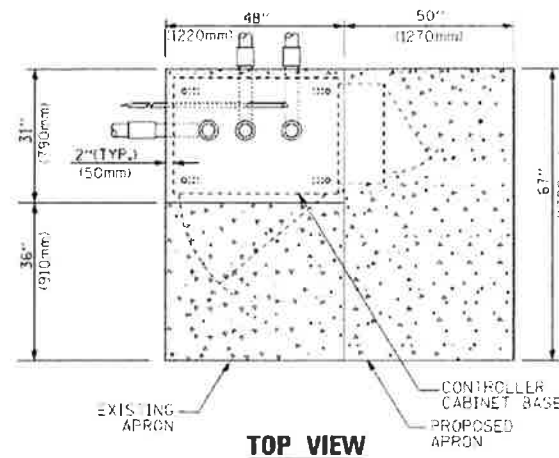
FILE NAME	USER NAME	DESIGNED	DWG	REVISION
...	...	DAG	BCK	REVISED
...	...	DAD	DAD	REVISED
...	...	DAD	DAD	REVISED
...	...	DAD	DAD	REVISED

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

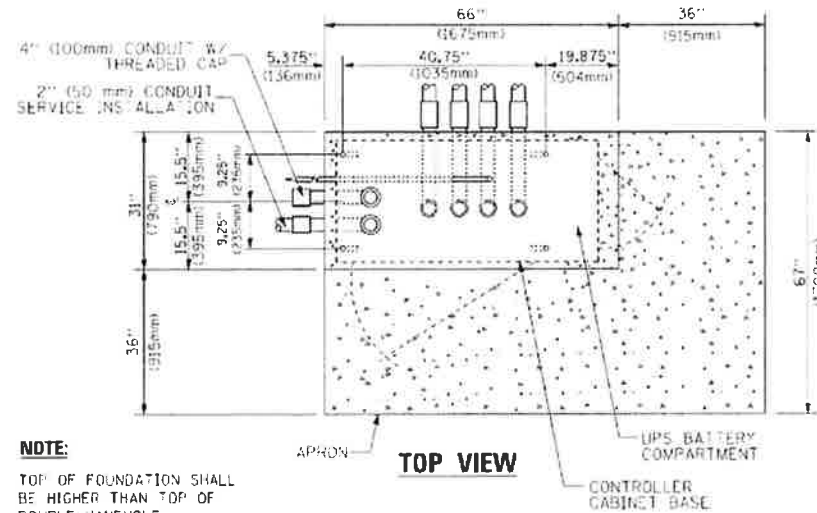
**DISTRICT ONE - STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: N.T.S. SHEET NO. 4 OF 6 SHEETS STA. TO STA.

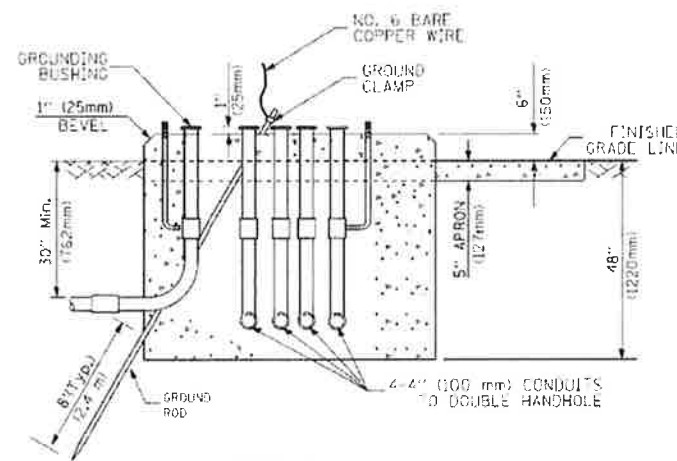
F.A.P. FILE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0124	08-00106-00-FF	MCHEMRY	79	60
CONTRACT NO. 63843			ILLINOIS FED. AID PROJECT	



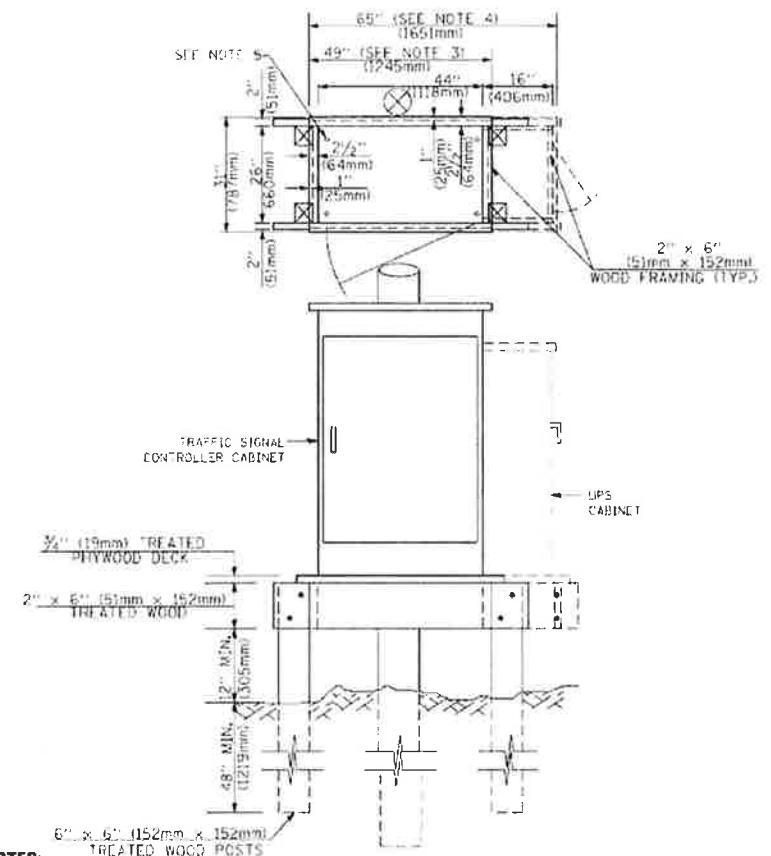
**TYPE D  
FOR GROUND MOUNTED  
CONTROLLER CABINET  
AND UPS BATTERY CABINET**



**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 CABINET	4'-0" (1.2m)
TYPE D - CONTROLLER CABINET	4'-0" (1.2m)
SERVICE INSTALLATION GROUND MOUNT	4'-0" (1.2m)

**RECORD DRAWINGS**  
Date (MM/DD/YYYY) OF FOUNDATION DEPTH: 10/25/2015  
Signed: *[Signature]*  
Print (First Last): *Kenya Venetiano*

MAST ARM LENGTH	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#21
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#21
Greater than or equal to 55' (16.8 m) and less than 65' (19.8 m)	15'-0" (4.6 m)	36" (900mm)	30" (750mm)	12	7#21
Greater than or equal to 65' (19.8 m) and up to 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) and up to 85' (25.9 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 (UCS) > 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 87800.1.

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

FILE NAME: 08-00106-00-PP	DESIGNED: DAG	REVISIONS:	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DISTRICT ONE - STANDARD TRAFFIC SIGNAL DESIGN DETAILS	SHEET NO. 5 OF 6 SHEETS	TOTAL SHEETS: 79	SHEET NO.: 61
SCALE: N.T.S.	CHECKED: DAG	DATE: 10/28/09	SCALE: N.T.S.	SHEET NO. 5 OF 6 SHEETS	STA. TO STA.	CONTRACT NO. 63843	ILLINOIS FED. AID PROJECT

# TRAFFIC SIGNAL LEGEND

ITEM	REMOVAL	EXISTING	PROPOSED	ITEM	REMOVAL	EXISTING	PROPOSED	ITEM	REMOVAL	EXISTING	PROPOSED
CONTROLLER CABINET				EMERGENCY VEHICLE LIGHT DETECTOR				ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1/C, UNLESS NOTED OTHERWISE			
RAILROAD CONTROL CABINET				CONFIRMATION BEACON				COAXIAL CABLE			
COMMUNICATIONS CABINET				HANDHOLE				VENDOR CABLE FOR CAMERA			
MASTER CONTROLLER				HEAVY DUTY HANDHOLE				COPPER INTERCONNECT CABLE, NO. 18 3 PAIR TWISTED, SHIELDED			
MASTER MASTER CONTROLLER				DOUBLE HANDHOLE				FIBER OPTIC CABLE NO. 62.5/125, MM12F			
UNINTERRUPTIBLE POWER SUPPLY				JUNCTION BOX				FIBER OPTIC CABLE NO. 62.5/125, MM12F SM12F			
SERVICE INSTALLATION, (P) POLE OR (G) GROUND MOUNT				UNDERGROUND CONDUIT, GALVANIZED STEEL (UC)				FIBER OPTIC CABLE NO. 62.5/125, MM12F SM24F			
TELEPHONE CONNECTION (P) POLE OR (G) GROUND MOUNT				TEMPORARY SPAN WIRE, TETHER WIRE, AND CABLE				FIBER OPTIC CABLE NO. 62.5/125, MM12F SM24F			
STEEL MAST ARM ASSEMBLY AND POLE				COMMON TRENCH				GROUND ROD AT (C) CONTROLLER, (H) HANDHOLE, (P) POST, (M) MAST ARM, OR (S) SERVICE			
ALUMINUM MAST ARM ASSEMBLY AND POLE				COILABLE NONMETALLIC CONDUIT (EMPTY)				CONTROLLER CABINET AND FOUNDATION TO BE REMOVED			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE				SYSTEM ITEM				STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH PTZ CAMERA				INTERSECTION ITEM				ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED			
SIGNAL POST				REMOVE ITEM				STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE AND FOUNDATION TO BE REMOVED			
TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT (13.7m) MINIMUM				RELOCATE ITEM				SIGNAL POST AND FOUNDATION TO BE REMOVED			
GUY WIRE				ABANDON ITEM				INTERSECTION & SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD				12" (300mm) TRAFFIC SIGNAL SECTION				SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD CONSTRUCTION STAGES (NUMBERS INDICATE THE CONSTRUCTION STAGE)				12" (300mm) RED WITH B" (200mm) YELLOW AND GREEN TRAFFIC SIGNAL FACE				QUEUE DETECTOR			
SIGNAL HEAD WITH BACKPLATE				SIGNAL FACE				PERFORMED QUEUE DETECTOR			
SIGNAL HEAD OPTICALLY PROGRAMMED				SIGNAL FACE WITH BACKPLATE, "P" INDICATES PROGRAMMED HEAD				PERFORMED INTERSECTION AND SAMPLING (SYSTEM) DETECTOR			
FLASHER INSTALLATION (S DENOTES SOLAR POWER)				"RB" INDICATES REFLECTIVE BACKPLATE				PERFORMED SAMPLING (SYSTEM) DETECTOR			
PEDESTRIAN SIGNAL HEAD				12" (300mm) PEDESTRIAN SIGNAL HEAD WALK/DON'T WALK SYMBOL							
PEDESTRIAN PUSHBUTTON DETECTOR				12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, OUTLINED							
ACCESSIBLE PEDESTRIAN PUSHBUTTON DETECTOR				12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, SOLID							
ILLUMINATED SIGN "NO LEFT TURN"				PEDESTRIAN SIGNAL HEAD, INTERNATIONAL SYMBOL, WITH COUNTDOWN TIMER							
ILLUMINATED SIGN "NO RIGHT TURN"				RADIO INTERCONNECT							
DETECTOR LOOP, TYPE I				RADIO REPEATER							
PERFORMED DETECTOR LOOP				DENOTES NUMBER OF CONDUCTORS, ELECTRIC CABLE NO. 14, UNLESS NOTED OTHERWISE, ALL DETECTOR LOOP CABLE TO BE SHIELDED							
MICROWAVE VEHICLE SENSOR				GROUND CABLE IN CONDUIT NO. 6 SOLID COPPER (GREEN)							
VIDEO DETECTION CAMERA											
VIDEO DETECTION ZONE											
PAN, TILT, ZOOM CAMERA											
WIRELESS DETECTOR SENSOR											
WIRELESS ACCESS POINT											

## RAILROAD SYMBOLS

**RECORD DRAWINGS**

Date (MM/DD/YYYY) 10-20-2015

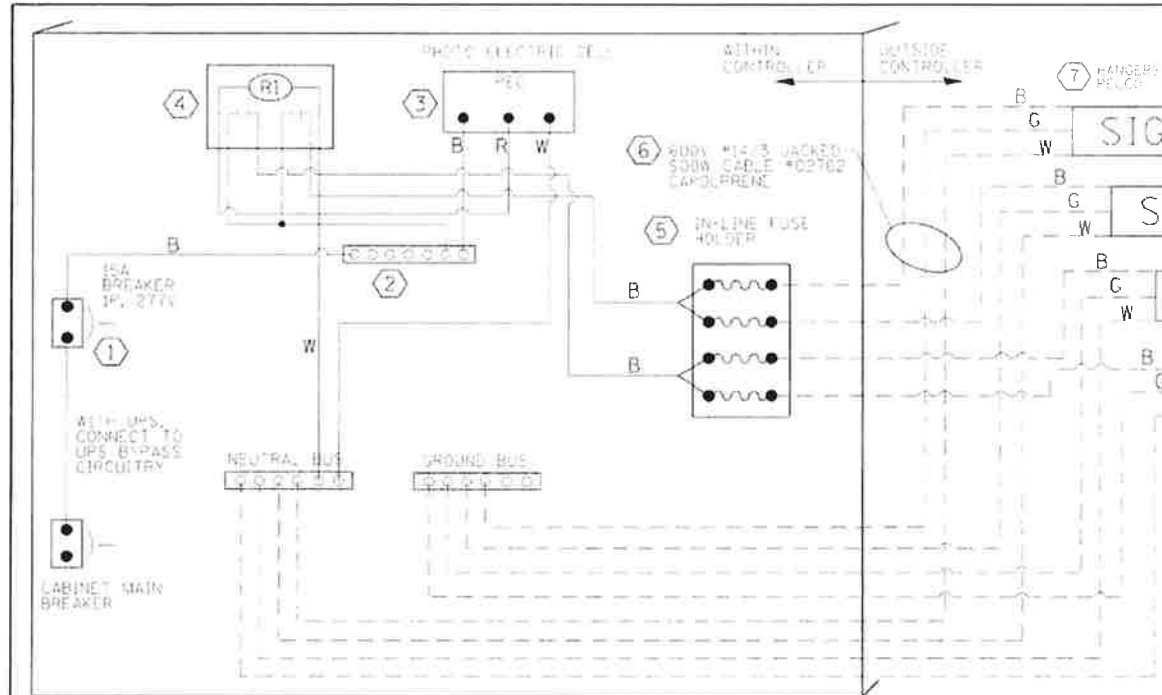
Signed [Signature]

Print(First\_Last) Leang Venutras

	EXISTING	PROPOSED
RAILROAD CONTROL CABINET		
RAILROAD CANTILEVER MAST ARM		
FLASHING SIGNAL		
CROSSING GATE		
CROSSBUCK		

**Tran Systems**  
 1475 EAST WOODFIELD ROAD, SUITE 600  
 SCHAMBERG, ILLINOIS 60173  
 (847) 605-9600

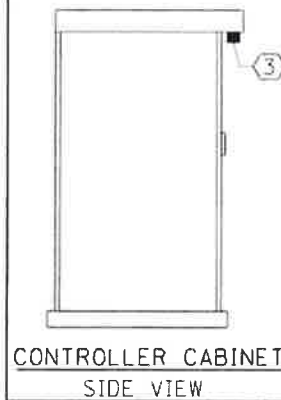
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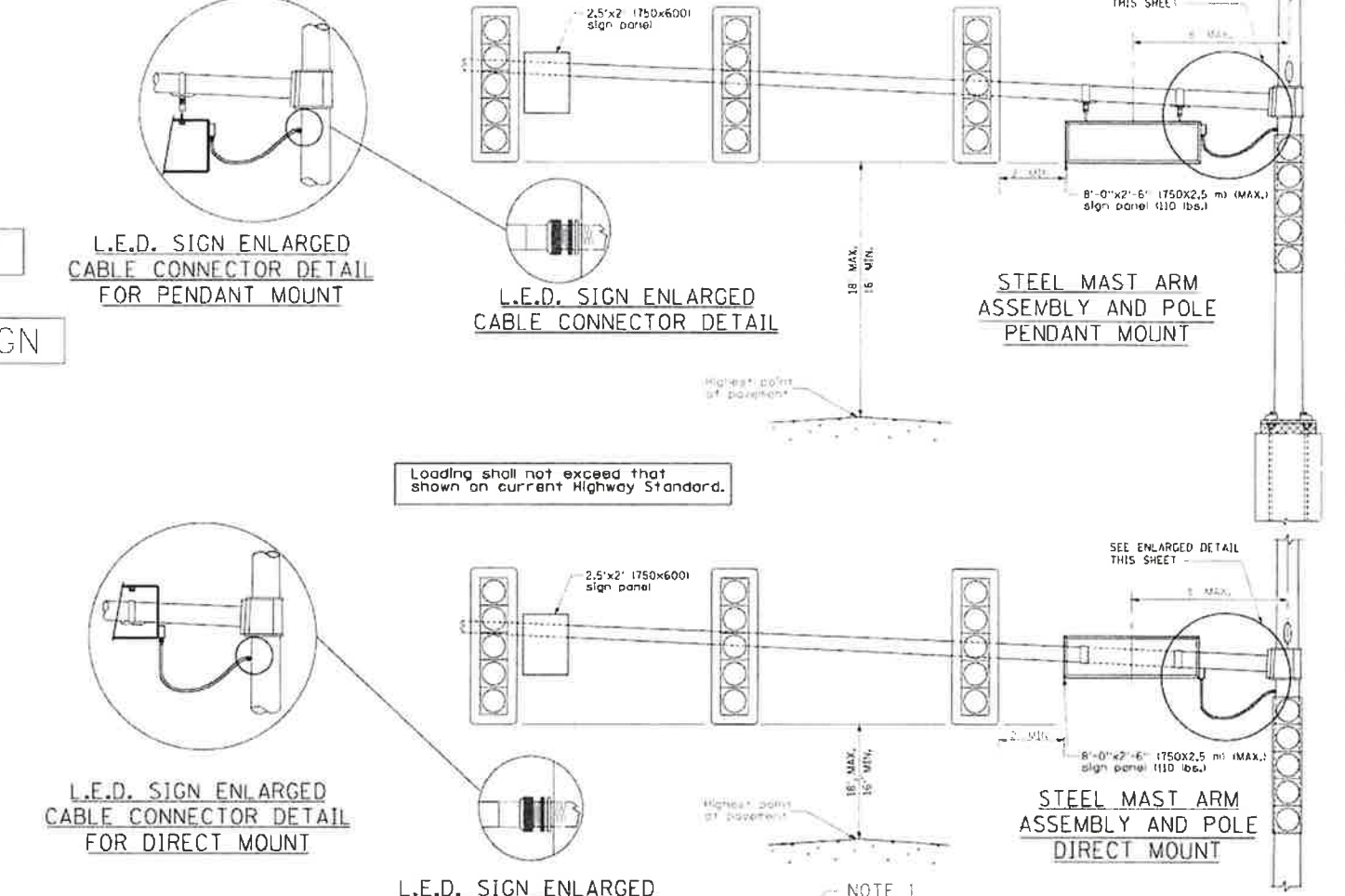
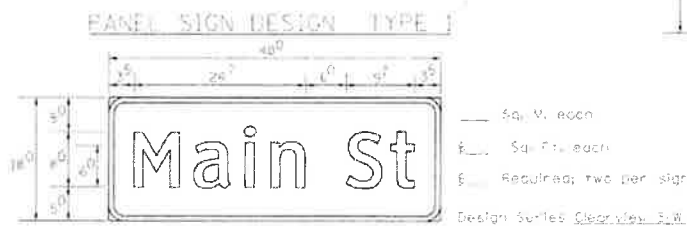
LED SIGN WIRING DETAIL

DESCRIPTION	MANUFACTURER	MODEL	NOTES
① CIRCUIT BREAKER		15 AMPERE	Molded case, Thermal Mag. min. R.I. of 14K R.M.S. symmetrical ampere at 277V.
② TERMINAL BLOCK	MARATHON	502 DJSV	
③ PHOTO ELECTRIC CONTROL	FISHER PIERCE	B124-1.5-07762	
④ CONTROL RELAY	SQUARE D	8501X020V02	BOLT ON W/SCREW TERMINAL
⑤ INLINE FUSE HOLDER WITH 5 AMP FUSE	BUSSMAN	S-8000 BK/S-8-3-4-R	
⑥ ELECTRIC CABLE, NO. 14, 3/C (BLACK, WHITE, GREEN)	CAROLPRENE/SOOW	02762	
⑦ SIGN MOUNTING HARDWARE	PELCO	Pendant (SE-5015) Direct mount (AB-0104-L-SP) Additional sign stiffeners may be required for direct mounted signs.	S.S. HARDWARE

BILL OF MATERIALS



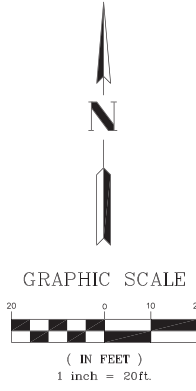
CONTROLLER CABINET SIDE VIEW



LED ILLUMINATED SIGN PANEL  
8'0" x 2'6" (750 mm x 2.5 m)(MAX.)  
C or D FONT

- NOTES:
- SIGNS SHALL BE SINGLE SIDED FOR DIRECT MOUNT AND DOUBLE SIDED FOR PENDANT MOUNT.
  - CERTAIN ADDITIONAL INFORMATION MAY BE ALLOWED ON THE SIGN. VERIFY WITH ENGINEER.
  - SIGNS SHALL NOT BE ENERGIZED WITH TRAFFIC SIGNALS ARE POWERED BY THE UPS. THE SIGNS SHALL BE CONNECTED TO THE UPS BYPASS CIRCUITRY. Date (MM/DD/YYYY) 10-20-2015
  - ALL WIRING WITHIN THE CABINET SHALL BE COLOR CODED AS INDICATED:  
R = RED BL = BLUE  
B = BLACK Y = YELLOW G = GREEN
  - ALL 120 VOLT SYSTEM AND ALL CONTROL WIRING SHALL BE #12AWG STRANDED UNLESS OTHERWISE INDICATED.
  - ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.

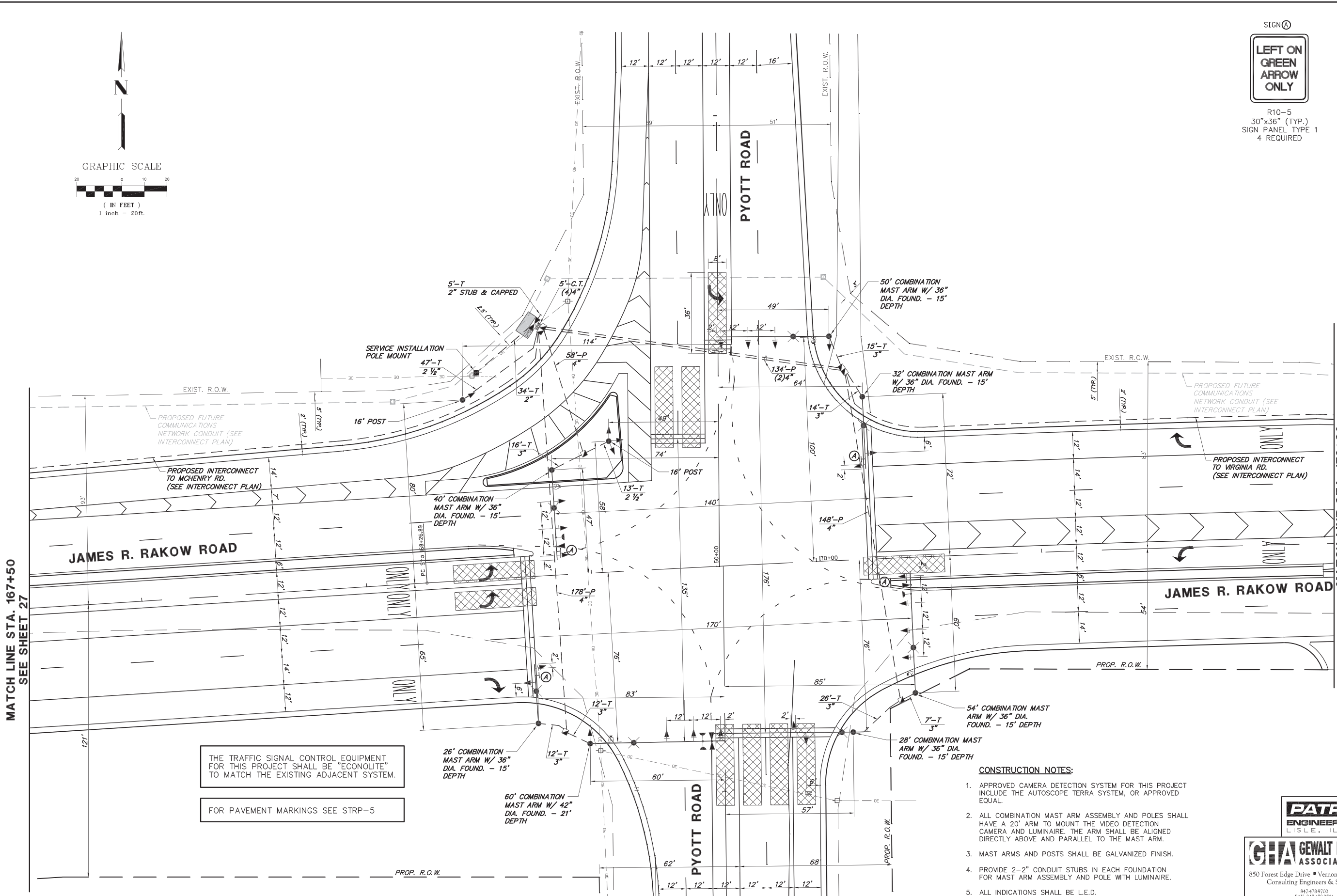
DESIGNED	REVISIONS
DRAWN	REVISIONS
CHECKED	REVISIONS
DATE	REVISIONS



SIGN (A)

**LEFT ON GREEN  
ARROW  
ONLY**

R10-5  
30"x36" (TYP.)  
SIGN PANEL TYPE 1  
4 REQUIRED



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

FOR PAVEMENT MARKINGS SEE STRP-5

- CONSTRUCTION NOTES:**
- APPROVED CAMERA DETECTION SYSTEM FOR THIS PROJECT INCLUDE THE AUTOSCOPE TERRA SYSTEM, OR APPROVED EQUAL.
  - ALL COMBINATION MAST ARM ASSEMBLY AND POLES SHALL HAVE A 20' ARM TO MOUNT THE VIDEO DETECTION CAMERA AND LUMINAIRE. THE ARM SHALL BE ALIGNED DIRECTLY ABOVE AND PARALLEL TO THE MAST ARM.
  - MAST ARMS AND POSTS SHALL BE GALVANIZED FINISH.
  - PROVIDE 2-2" CONDUIT STUBS IN EACH FOUNDATION FOR MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE.
  - ALL INDICATIONS SHALL BE L.E.D.

**PATRICK**  
ENGINEERING INC.  
LISLE, ILLINOIS

**GHA GEWALT HAMILTON**  
ASSOCIATES, INC.  
850 Forest Edge Drive • Vernon Hills, IL 60061  
Consulting Engineers & Surveyors  
847-478-9700  
FAX: 847-478-9703

FILE NAME = 4153.600-tr1.dwg

USER NAME = GHA  
PLOT SCALE = N.T.S.  
PLOT DATE = 8/2/10

DESIGNED - DPB  
DRAWN - ZCW  
CHECKED - DPB  
DATE - 8/2/10

REVISED -  
REVISED -  
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REVISED -



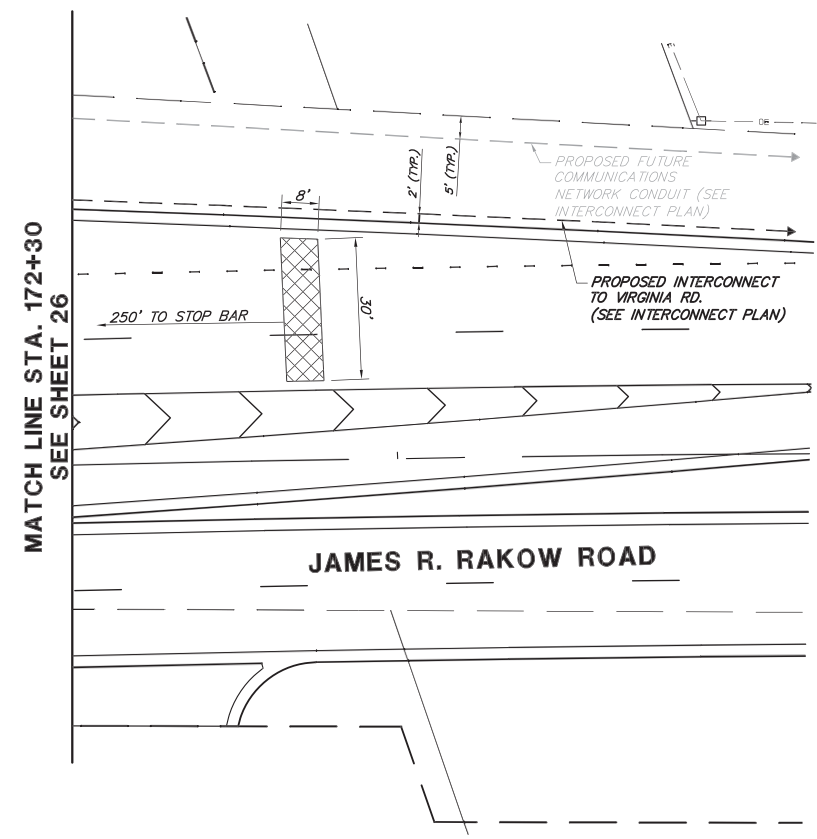
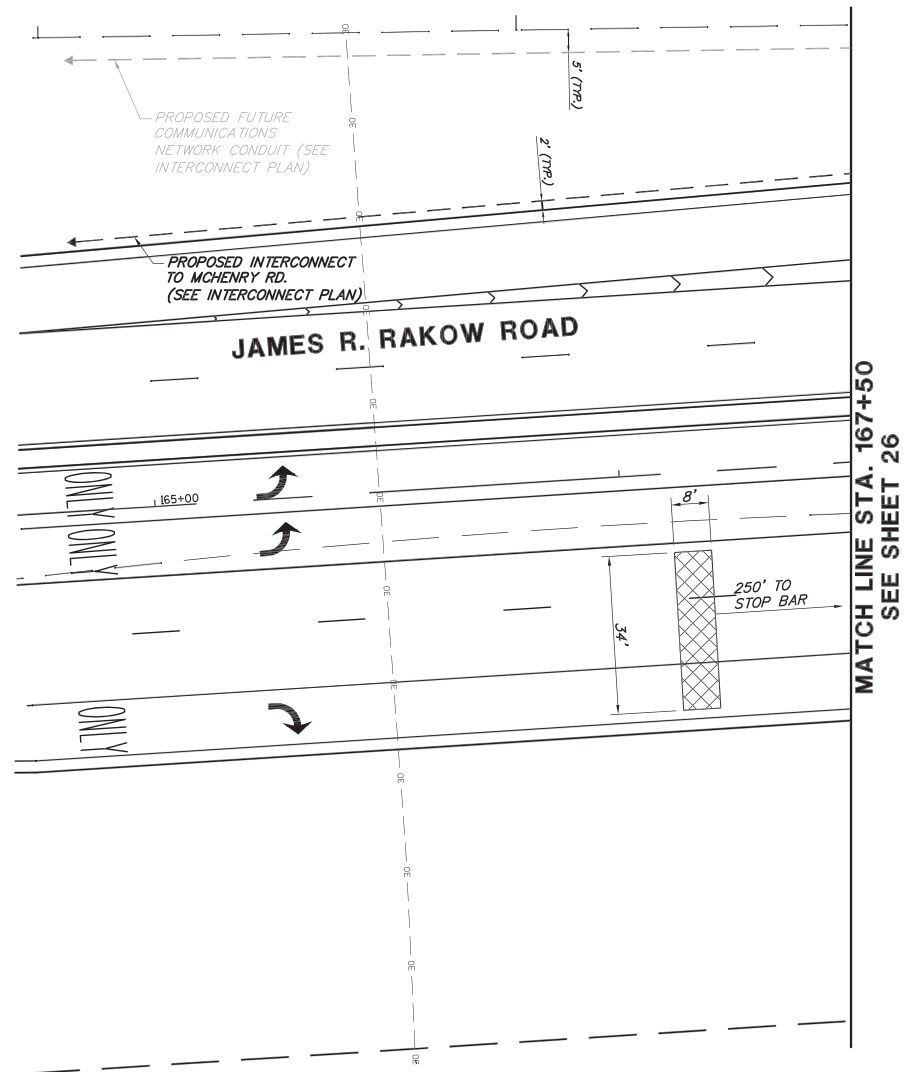
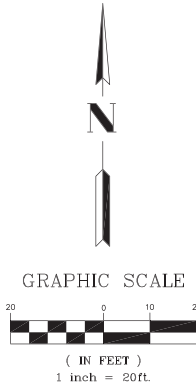
MCHENRY COUNTY  
DIVISION OF TRANSPORTATION

TRAFFIC SIGNAL MODERNIZATION PLAN  
JAMES R. RAKOW RD. AND PYOTT RD.

SCALE 1"=20' SIGN SHEET # 26 OF 65 SHEETS STA. TO STA.

F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0336	05-00308-WR	McHENRY	79	64
CONTRACT #:			63398	
ILLINOIS FED. AID PROJECT				





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

FOR PAVEMENT MARKINGS SEE STRP-5

**CONSTRUCTION NOTES:**

1. APPROVED CAMERA DETECTION SYSTEM FOR THIS PROJECT INCLUDE THE AUTOSCOPE TERRA SYSTEM, OR APPROVED EQUAL.
2. ALL COMBINATION MAST ARM ASSEMBLY AND POLES SHALL HAVE A 20' ARM TO MOUNT THE VIDEO DETECTION CAMERA AND LUMINAIRE. THE ARM SHALL BE ALIGNED DIRECTLY ABOVE AND PARALLEL TO THE MAST ARM.
3. MAST ARMS AND POSTS SHALL BE GALVANIZED FINISH.
4. PROVIDE 2-2" CONDUIT STUBS IN EACH FOUNDATION FOR MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE.
5. ALL INDICATIONS SHALL BE L.E.D.



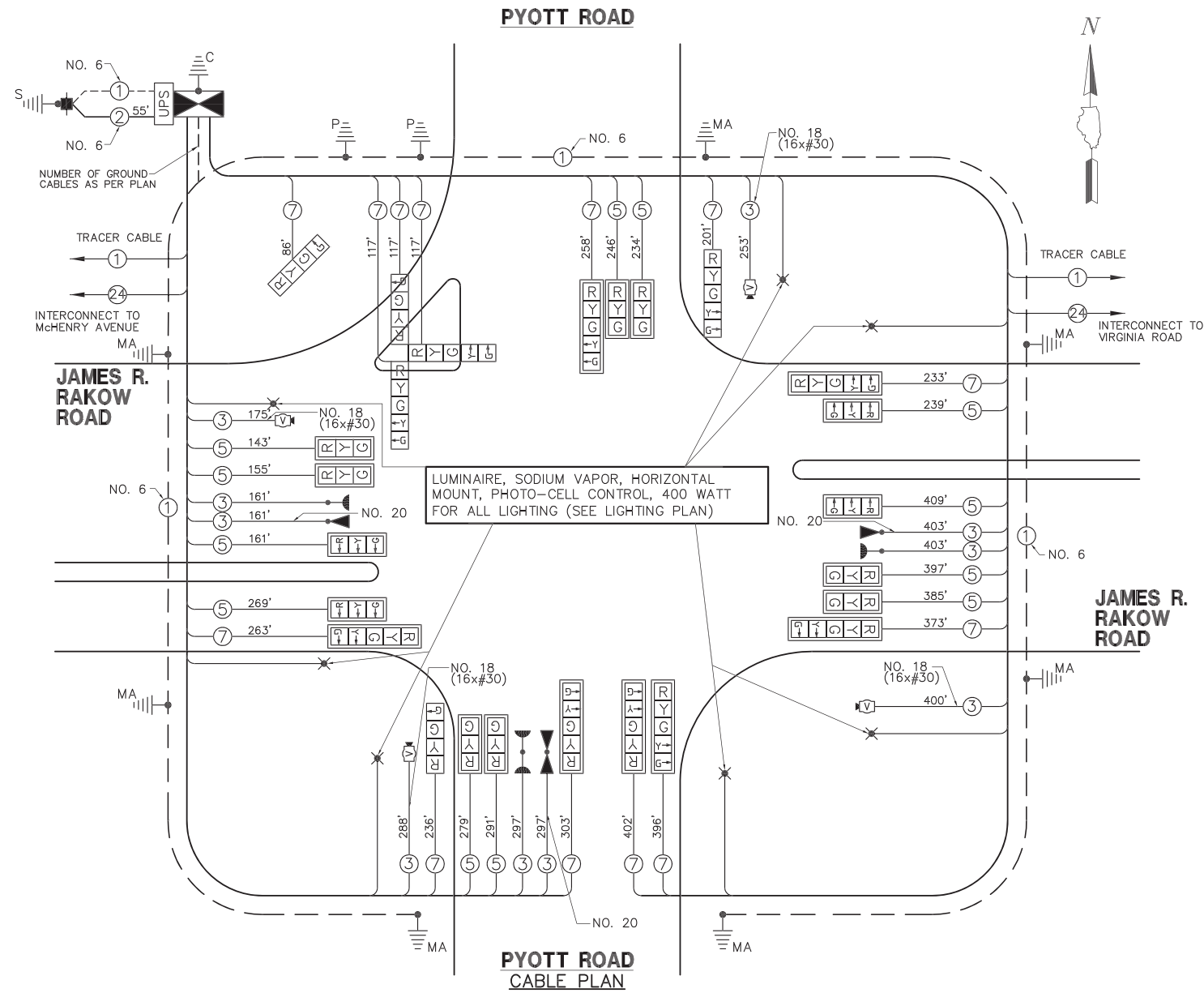
**GHA GEWALT HAMILTON ASSOCIATES, INC.**  
 850 Forest Edge Drive • Vernon Hills, IL 60061  
 Consulting Engineers & Surveyors  
 847-478-9700  
 FAX: 847-478-9703

FILE NAME = 4153.800-tr1.dwg	USER NAME = GHA	DESIGNED - DPB	REVISED -		<b>MCHENRY COUNTY</b> <b>DIVISION OF TRANSPORTATION</b>	<b>TRAFFIC SIGNAL MODERNIZATION PLAN</b> <b>JAMES R. RAKOW RD. AND PYOTT RD.</b>		F.A.P. RTE. 0336	SECTION 05-00308-WR	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 65	
	PLOT SCALE = N.T.S.	CHECKED - DPB	REVISED -			SCALE 1"=20'	SGNL SHEET # 27 OF 65 SHEETS	STA. TO STA.	CONTRACT # 63398		ILLINOIS FED. AID PROJECT		
	PLOT DATE = 8/2/10	DATE - 8/2/10	REVISED -										

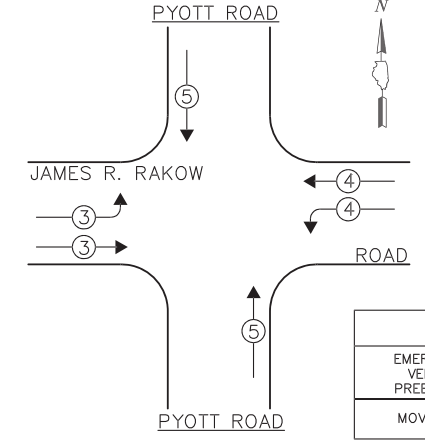
**SCHEDULE OF QUANTITIES**

JAMES R. RAKOW ROAD AT PYOTT ROAD TRAFFIC SIGNAL MODERNIZATION

NO.	QUANT.	UNIT
1.	30.00	SQ FT SIGN PANEL - TYPE 1
2.	34	FOOT CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL
3.	60	FOOT CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL
4.	102	FOOT CONDUIT IN TRENCH, 3" DIA., GALVANIZED STEEL
5.	25	FOOT CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL
6.	652	FOOT CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL
7.	3	EACH HANDHOLE
8.	2	EACH DOUBLE HANDHOLE
9.	206	FOOT TRENCH AND BACKFILL FOR ELECTRICAL WORK
10.	1	EACH FULL-ACTUATED CONTROLLER AND TYPE N CABINET, SPECIAL
11.	1	EACH TRANSCEIVER - FIBER OPTIC
12.	861	FOOT ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C
13.	3,214	FOOT ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C
14.	3,102	FOOT ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C
15.	1,116	FOOT ELECTRIC CABLE IN CONDUIT, COMMUNICATION NO. 18 3 PAIR
16.	55	FOOT ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C
17.	2	EACH TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.
18.	1	EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 26 FT.
19.	1	EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 28 FT.
20.	1	EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 32 FT.
21.	1	EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 40 FT.
22.	1	EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 50 FT.
23.	1	EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 54 FT.
24.	1	EACH STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 60 FT.
25.	8	FOOT CONCRETE FOUNDATION, TYPE A
26.	4	FOOT CONCRETE FOUNDATION, TYPE C
27.	90	FOOT CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER
28.	21	FOOT CONCRETE FOUNDATION, TYPE E 42-INCH DIAMETER
29.	12	EACH SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED
30.	2	EACH SIGNAL HEAD, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED
31.	1	EACH SIGNAL HEAD, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED
32.	7	EACH SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED
33.	1	EACH SIGNAL HEAD, LED, 3-FACE, 1-4 SECTION, 2-5 SECTION, BRACKET MOUNTED
34.	19	EACH TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM
35.	3	EACH LIGHT DETECTOR
36.	1	EACH LIGHT DETECTOR AMPLIFIER
37.	1	EACH TEMPORARY TRAFFIC SIGNAL INSTALLATION
38.	1	EACH REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT
39.	11	EACH REMOVE EXISTING HANDHOLE
40.	12	EACH REMOVE EXISTING CONCRETE FOUNDATION
41.	1	EACH TEMPORARY TRAFFIC SIGNAL TIMING
42.	1	EACH SERVICE INSTALLATION - POLE MOUNTED
43.	1	EACH UNINTERRUPTIBLE POWER SUPPLY
44.	861	FOOT ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED
45.	1	EACH VIDEO DETECTION SYSTEM COMPLETE INTERSECTION
46.	4	EACH LED INTERNALLY ILLUMINATED STREET NAME SIGN



**EMERGENCY VEHICLE PREEMPTION SEQUENCE**



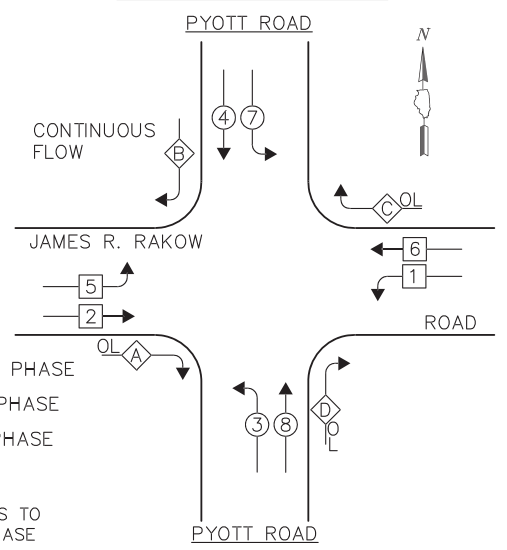
PROPOSED EMERGENCY VEHICLE PREEMPTORS			
EMERGENCY VEHICLE PREEMPTOR	3	4	5
MOVEMENT	→	←	↑

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

**LEGEND:**

- ← \* → SINGLE ENTRY PHASE
- ← \* → DUAL ENTRY PHASE
- ← \* → PEDESTRIAN PHASE
- ← \* → OVERLAP
- \* NUMBER REFERS TO ASSOCIATED PHASE

**CONTROLLER SEQUENCE**



**PHASE DESIGNATION DIAGRAM**

**GHA GEWALT HAMILTON ASSOCIATES, INC.**  
 850 Forest Edge Drive • Vernon Hills, IL 60061  
 Consulting Engineers & Surveyors  
 847.478.9700  
 FAX: 847.478.9701

**PATRICK ENGINEERING INC.**  
 LISLE, ILLINOIS

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

MCHENRY COUNTY DIVISION OF TRANSPORTATION TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO LAMPS	WATTAGE		% OPERATION	
		INCAND.	L.E.D.		
SIGNAL (RED)	24	135	17	0.50	204.0
SIGNAL (YELLOW)	24	135	25	0.25	150.0
SIGNAL (GREEN)	24	135	15	0.25	90.0
ARROW	22	135	12	0.10	19.2
PED.SIGNAL		90	25	1.00	
CONTROLLER	1	100	100	1.00	100.0
BATTERY BACKUP	1		25	1.00	25.0
VIDEO SYSTEMS	1		150	1.00	150.0
LUMINAIRE	6	400		0.50	1200.0
L.E.D. ST. NAME SIGN	4		64	0.50	128.0
FLASHER				0.05	
TOTAL =					2,066.2

ENERGY COSTS - BILLED TO: CITY OF CRYSTAL LAKE (ADDRESS) 100 WEST MUNICIPAL COMPLEX  
 ENERGY SUPPLY - CONTACT: MS. AUDREY HELGESEN PHONE: (847) 816-5225 COMPANY: COMED-LIBERTYVILLE

FILE NAME = 4153.600-tr1.dwg	USER NAME = GHA	DESIGNED - DPB	REVISED -
		DRAWN - ZCW	REVISED -
		CHECKED - DPB	REVISED -
		DATE - 8/2/10	REVISED -

**MCHENRY COUNTY DIVISION OF TRANSPORTATION**

**CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND SCHEDULE OF QUANTITIES JAMES R. RAKOW RD. AND PYOTT RD.**

F.A.P. RTE 0336	SECTION 05-00308-WR	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 66
CONTRACT # 63398			ILLINOIS FED. AID PROJECT	

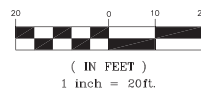
THE TRAFFIC SIGNAL CONTROL EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

FOR PAVEMENT MARKINGS SEE STRP-5



R10-5  
30"x36" (TYP.)  
SIGN PANEL TYPE 1  
4 REQUIRED

GRAPHIC SCALE



MATCH LINE STA. 180+75  
SEE SHEET 35

MATCH LINE STA. 186+50  
SEE SHEET 35

**CONSTRUCTION NOTES:**

- APPROVED CAMERA DETECTION SYSTEM FOR THIS PROJECT INCLUDE THE AUTOSCOPE TERRA SYSTEM, OR APPROVED EQUAL.
- ALL COMBINATION MAST ARM ASSEMBLY AND POLES SHALL HAVE A 20' ARM TO MOUNT THE VIDEO DETECTION CAMERA AND LUMINAIRE. THE ARM SHALL BE ALIGNED DIRECTLY ABOVE AND PARALLEL TO THE MAST ARM.
- MAST ARMS AND POSTS SHALL BE GALVANIZED FINISH.
- PROVIDE 2"-2" CONDUIT STUBS IN EACH FOUNDATION FOR MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE.
- ALL INDICATIONS SHALL BE L.E.D.

FILE NAME =  
4153.800-tr1.dwg

USER NAME = GHA  
PLOT SCALE = N.T.S.  
PLOT DATE = 8/2/10

DESIGNED - DPB  
DRAWN - ZCW  
CHECKED - DPB  
DATE - 8/2/10

REVISED -  
REVISED -  
REVISED -  
REVISED -



MCHENRY COUNTY  
DIVISION OF TRANSPORTATION

TRAFFIC SIGNAL MODERNIZATION PLAN  
JAMES R. RAKOW RD. AND VIRGINIA RD.

SCALE 1"=20' SIGN SHEET # 34 OF 65 SHEETS STA. TO STA.

F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0336	05-00308-WR	McHENRY	79	67
CONTRACT #:			63398	
ILLINOIS FED. AID PROJECT				

**PATRICK**  
ENGINEERING INC.  
LISLE, ILLINOIS

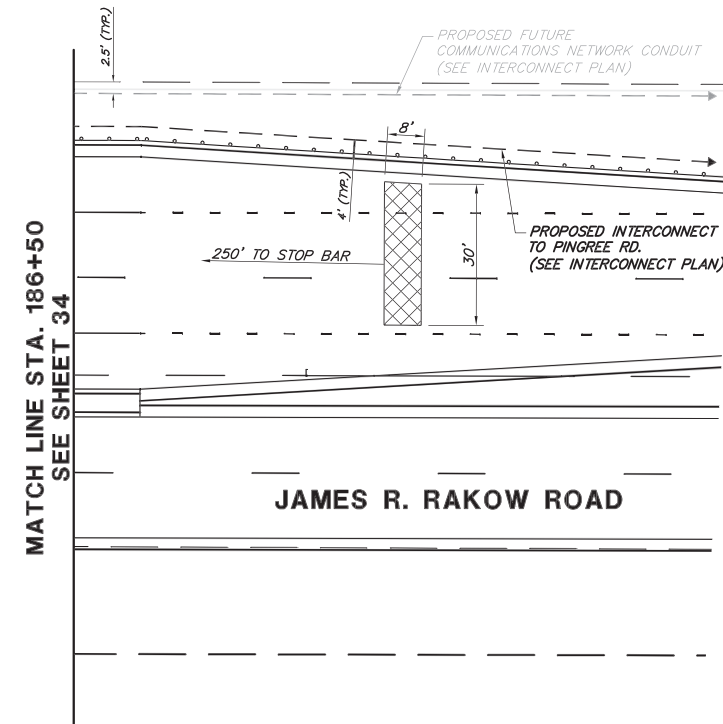
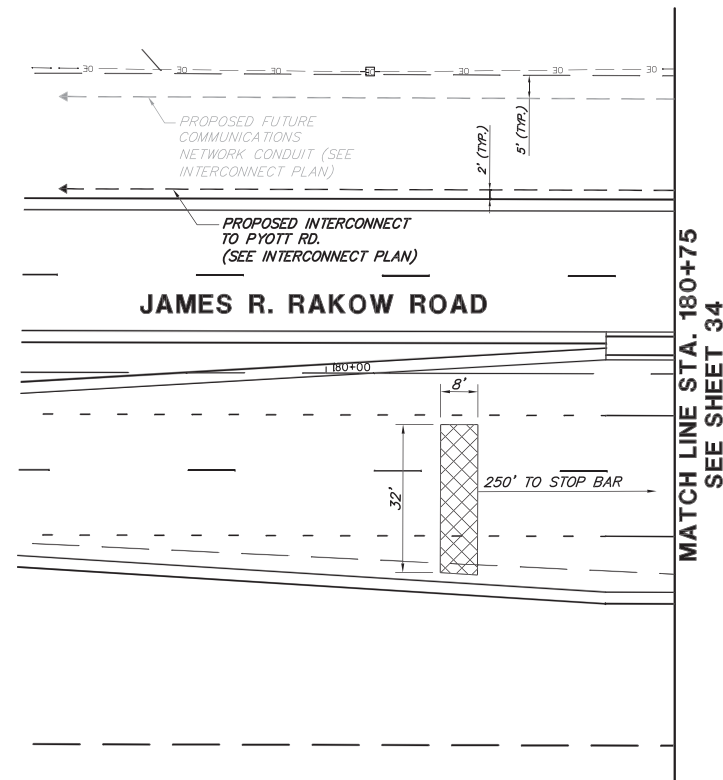
**GHA GEWALT HAMILTON**  
ASSOCIATES, INC.  
850 Forest Edge Drive • Vernon Hills, IL 60061  
Consulting Engineers & Surveyors  
847.478.9700  
FAX: 847.478.9703



GRAPHIC SCALE



( IN FEET )  
1 inch = 20ft.



**CONSTRUCTION NOTES:**

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2. ALL COMBINATION MAST ARM ASSEMBLY AND POLES SHALL HAVE A 20' ARM TO MOUNT THE VIDEO DETECTION CAMERA AND LUMINAIRE. THE ARM SHALL BE ALIGNED DIRECTLY ABOVE AND PARALLEL TO THE MAST ARM.
3. MAST ARMS AND POSTS SHALL BE GALVANIZED FINISH.
4. PROVIDE 2-2" CONDUIT STUBS IN EACH FOUNDATION FOR MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE.
5. ALL INDICATIONS SHALL BE L.E.D.

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

FOR PAVEMENT MARKINGS SEE STRP-5

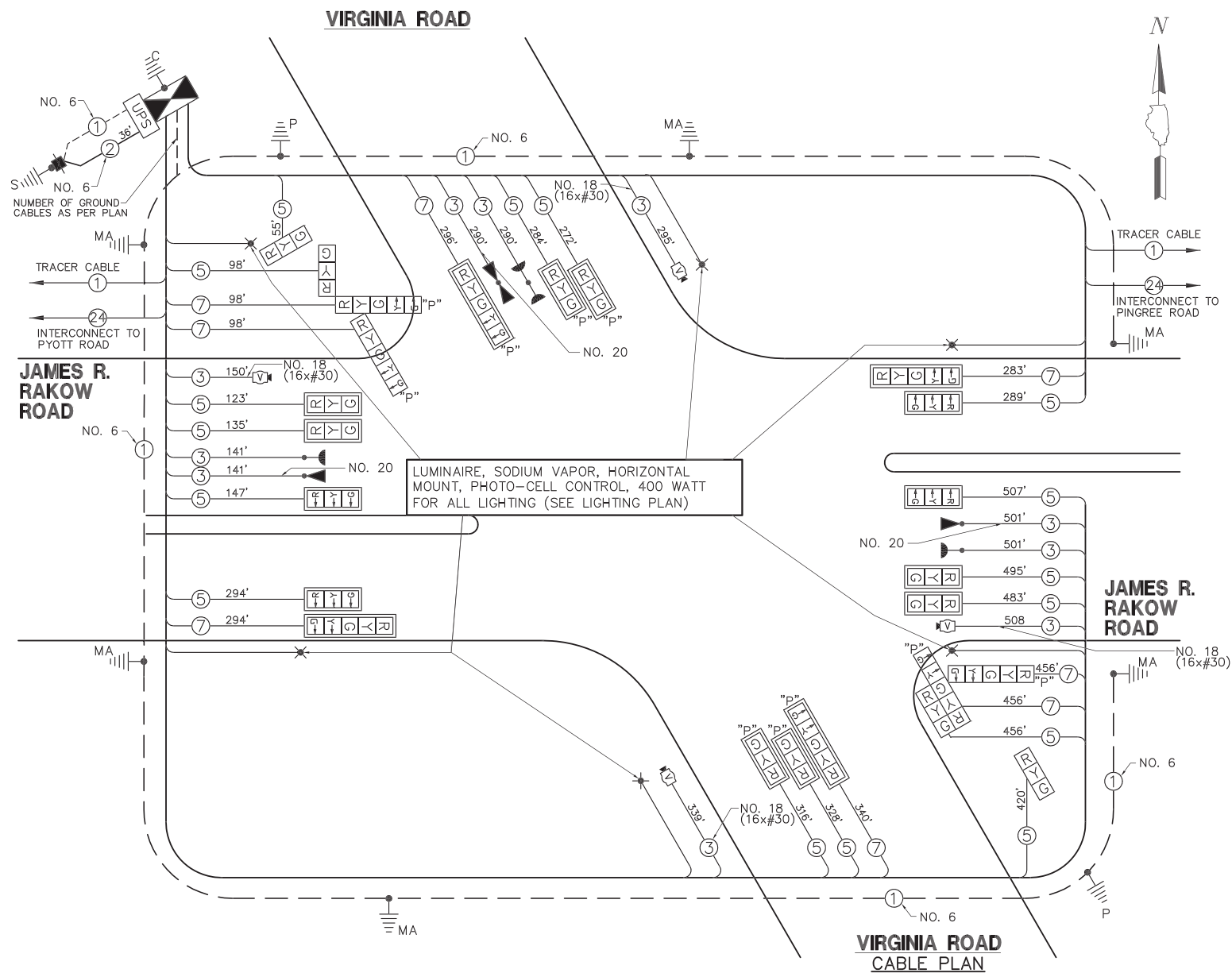
**PATRICK**  
ENGINEERING INC.  
LISLE, ILLINOIS

**GHA GEWALT HAMILTON**  
ASSOCIATES, INC.  
850 Forest Edge Drive • Vernon Hills, IL 60061  
Consulting Engineers & Surveyors  
847-478-9700  
FAX: 847-478-9703

FILE NAME = 4153.600-tr1.dwg	USER NAME = GHA	DESIGNED - DPB	REVISED -		<b>MCHENRY COUNTY</b> DIVISION OF TRANSPORTATION	<b>TRAFFIC SIGNAL MODERNIZATION PLAN</b> <b>JAMES R. RAKOW RD. AND VIRGINIA RD.</b>	F.A.P. RTE. 0336	SECTION 05-00308-WR	COUNTY McHENRY	TOTAL SHEETS 79	SHEET NO. 68	
	PLOT SCALE = N.T.S.	CHECKED - DPB	REVISED -				SCALE 1"=20'	SGNL SHEET # 35 OF 65 SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT		CONTRACT #: 63398
	PLOT DATE = 8/2/10	DATE - 8/2/10	REVISED -									

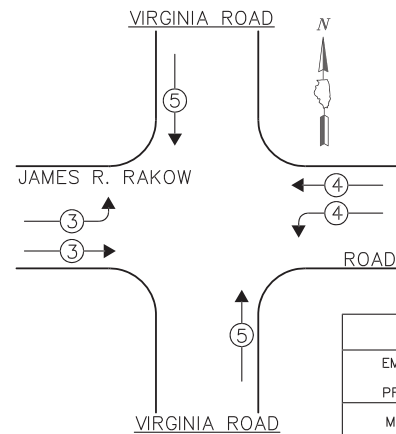
**SCHEDULE OF QUANTITIES**  
JAMES R. RAKOW ROAD AT VIRGINIA ROAD TRAFFIC SIGNAL MODERNIZATION

NO.	QUANT.	UNIT	DESCRIPTION
1.	30.00	SQ FT	SIGN PANEL - TYPE 1
2.	15	FOOT	CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL
3.	36	FOOT	CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL
4.	163	FOOT	CONDUIT IN TRENCH, 3" DIA., GALVANIZED STEEL
5.	25	FOOT	CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL
6.	115	FOOT	CONDUIT PUSHED, 3" DIA., GALVANIZED STEEL
7.	587	FOOT	CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL
8.	2	EACH	HANDHOLE
9.	2	EACH	DOUBLE HANDHOLE
10.	224	FOOT	TRENCH AND BACKFILL FOR ELECTRICAL WORK
11.	1	EACH	FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL
12.	1	EACH	TRANSCIVER - FIBER OPTIC
13.	932	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C
14.	4,702	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C
15.	2,315	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C
16.	1,292	FOOT	ELECTRIC CABLE IN CONDUIT, COMMUNICATION NO. 18 3 PAIR
17.	36	FOOT	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C
18.	2	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.
19.	1	EACH	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 24 FT.
20.	1	EACH	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 26 FT.
21.	1	EACH	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 42 FT.
22.	1	EACH	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 44 FT.
23.	2	EACH	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 46 FT.
24.	8	FOOT	CONCRETE FOUNDATION, TYPE A
25.	4	FOOT	CONCRETE FOUNDATION, TYPE C
26.	90	FOOT	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER
27.	4	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 3-SECTION, MAST ARM MOUNTED
28.	2	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 5-SECTION, MAST ARM MOUNTED
29.	1	EACH	COMBINATION SIGNAL HEAD, 2-FACE, 1-5 SECTION OPTICALLY PROGRAMMED, 1-3 SECTION, BRACKET MOUNTED
30.	2	EACH	COMBINATION SIGNAL HEAD, 3-FACE, 2-5 SECTION OPTICALLY PROGRAMMED, 1-3 SECTION, BRACKET MOUNTED
31.	8	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED
32.	2	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED
33.	2	EACH	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED
34.	16	EACH	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM
35.	3	EACH	LIGHT DETECTOR
36.	1	EACH	LIGHT DETECTOR AMPLIFIER
37.	1	EACH	TEMPORARY TRAFFIC SIGNAL INSTALLATION
38.	1	EACH	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT
39.	14	EACH	REMOVE EXISTING HANDHOLE
40.	8	EACH	REMOVE EXISTING CONCRETE FOUNDATION
41.	1	EACH	TEMPORARY TRAFFIC SIGNAL TIMING
42.	1	EACH	SERVICE INSTALLATION - POLE MOUNTED
43.	1	EACH	UNINTERRUPTIBLE POWER SUPPLY
44.	932	FOOT	ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C
45.	932	FOOT	ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED
46.	1	EACH	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION
47.	4	EACH	LED INTERNALLY ILLUMINATED STREET NAME SIGN



**VIRGINIA ROAD  
CABLE PLAN**

**EMERGENCY VEHICLE  
PREEMPTION SEQUENCE**



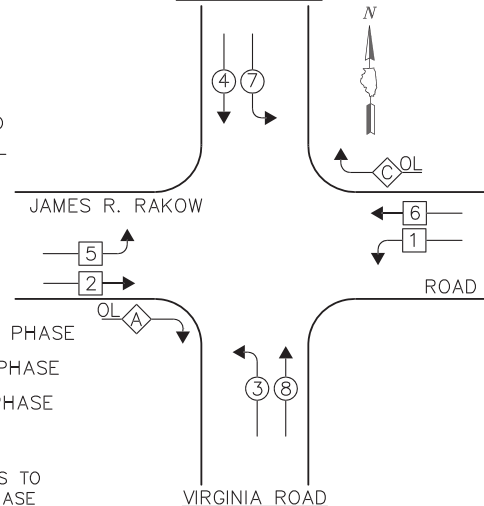
PROPOSED EMERGENCY VEHICLE PREEMPTORS			
EMERGENCY VEHICLE PREEMPTOR	3	4	5
MOVEMENT	←	→	↑

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

**LEGEND:**

- ← \* → SINGLE ENTRY PHASE
- ← \* → DUAL ENTRY PHASE
- ← \* → PEDESTRIAN PHASE
- ← \* → OVERLAP
- \* NUMBER REFERS TO ASSOCIATED PHASE

**CONTROLLER SEQUENCE  
VIRGINIA ROAD**



**PHASE DESIGNATION DIAGRAM**

**GHA GEWALT HAMILTON ASSOCIATES, INC.**

850 Forest Edge Drive • Vernon Hills, IL 60061  
Consulting Engineers & Surveyors  
847.478.9700  
FAX: 847.478.9701

**PATRICK ENGINEERING INC.**  
LISLE, ILLINOIS

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

McHENRY COUNTY DIVISION OF TRANSPORTATION TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO LAMPS	WATTAGE		% OPERATION	
		INCAND.	L.E.D.		
SIGNAL (RED)	24	135	17	0.50	204.0
SIGNAL (YELLOW)	24	135	25	0.25	150.0
SIGNAL (GREEN)	24	135	15	0.25	90.0
ARROW	16	135	12	0.10	19.2
PED. SIGNAL		90	25	1.00	
CONTROLLER	1	100	100	1.00	100.0
BATTERY BACKUP	1		25	1.00	25.0
VIDEO SYSTEMS	1		150	1.00	150.0
LUMINAIRE	6	400		0.50	1200.0
L.E.D. ST. NAME SIGN			64	0.50	128.0
FLASHER				0.05	
<b>TOTAL =</b>					<b>2,065.4</b>

ENERGY COSTS - BILLED TO: CITY OF CRYSTAL LAKE  
(ADDRESS) 100 WEST MUNICIPAL COMPLEX

ENERGY SUPPLY - CONTACT: MS. AUDREY HELGESEN  
PHONE: (847) 816-5225  
COMPANY: COMED-LIBERTYVILLE

FILE NAME = 4153.800-tr1.dwg

USER NAME = GHA

DESIGNED - DPB  
DRAWN - ZCW

REVISED -  
REVISED -  
CHECKED - DPB  
DATE - 8/2/10

REVISED -  
REVISED -  
REVISED -



**MCHENRY COUNTY  
DIVISION OF TRANSPORTATION**

**CABLE PLAN, PHASE DESIGNATION DIAGRAM,  
AND SCHEDULE OF QUANTITIES  
JAMES R. RAKOW RD. AND VIRGINIA RD.**

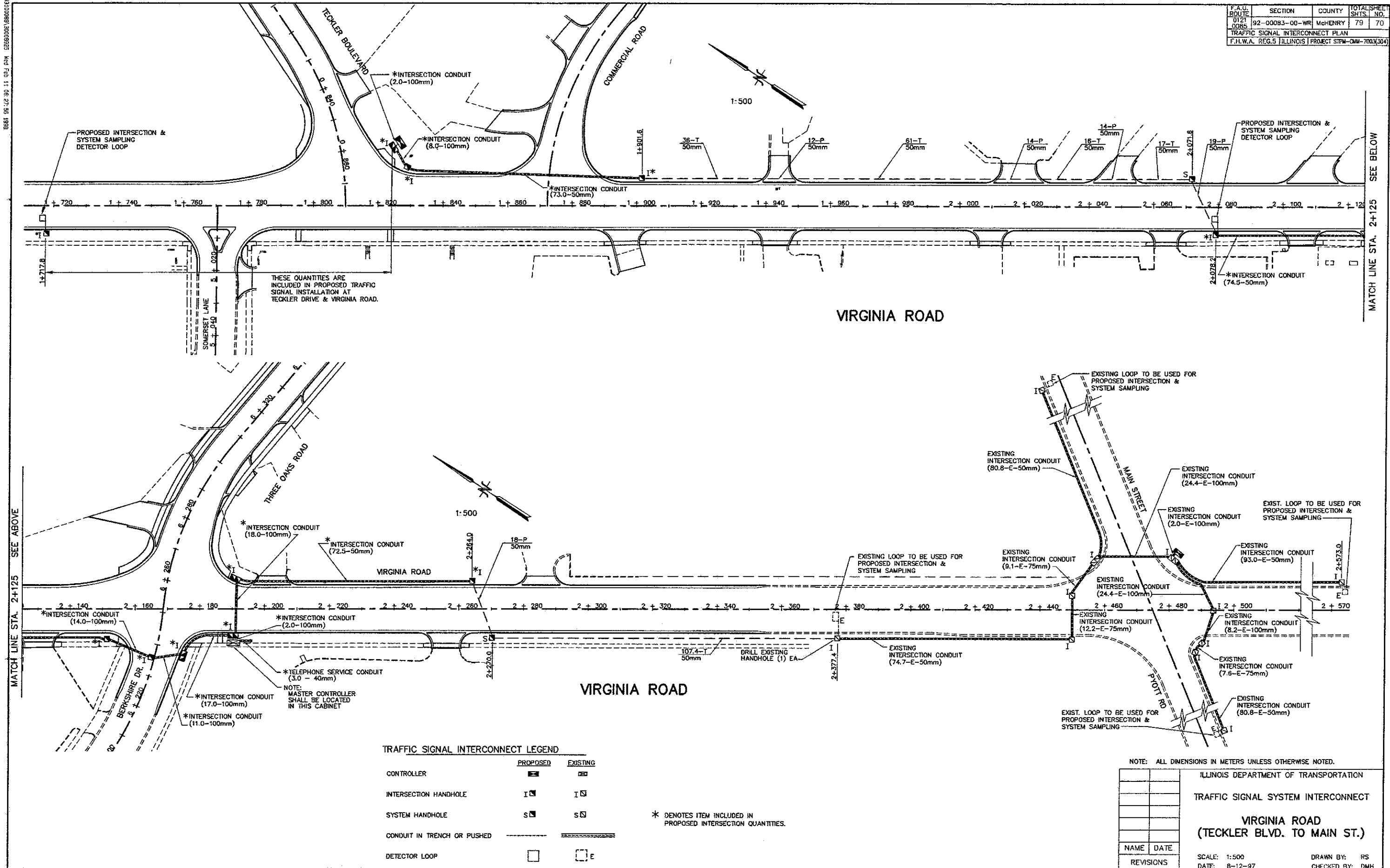
SCALE: N.A.    SIGNAL SHEET # 36 OF 65 SHEETS    STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0336	05-00308-WR	McHENRY	79	69
CONTRACT #:			63398	

ILLINOIS FED. AID PROJECT

Drawn: 30008912.DWG  
 Date: 02/11/1998 8:27:12 a.m.  
 Project: 92-00083-00-WR

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0121	92-00083-00-WR	McHENRY	79	70
TRAFFIC SIGNAL INTERCONNECT PLAN				
F.H.W.A. REG.5 ILLINOIS PROJECT STPW-QM-7003(304)				



**TRAFFIC SIGNAL INTERCONNECT LEGEND**

	PROPOSED	EXISTING
CONTROLLER	■	□
INTERSECTION HANDHOLE	I ■	I □
SYSTEM HANDHOLE	S ■	S □
CONDUIT IN TRENCH OR PUSHED	---	====
DETECTOR LOOP	□	□ E

\* DENOTES ITEM INCLUDED IN PROPOSED INTERSECTION QUANTITIES.

NOTE: ALL DIMENSIONS IN METERS UNLESS OTHERWISE NOTED.

ILLINOIS DEPARTMENT OF TRANSPORTATION	
TRAFFIC SIGNAL SYSTEM INTERCONNECT	
<b>VIRGINIA ROAD (TECKLER BLVD. TO MAIN ST.)</b>	
NAME	DATE
REVISIONS	
SCALE: 1:500	DRAWN BY: RS
DATE: 8-12-97	CHECKED BY: DMH

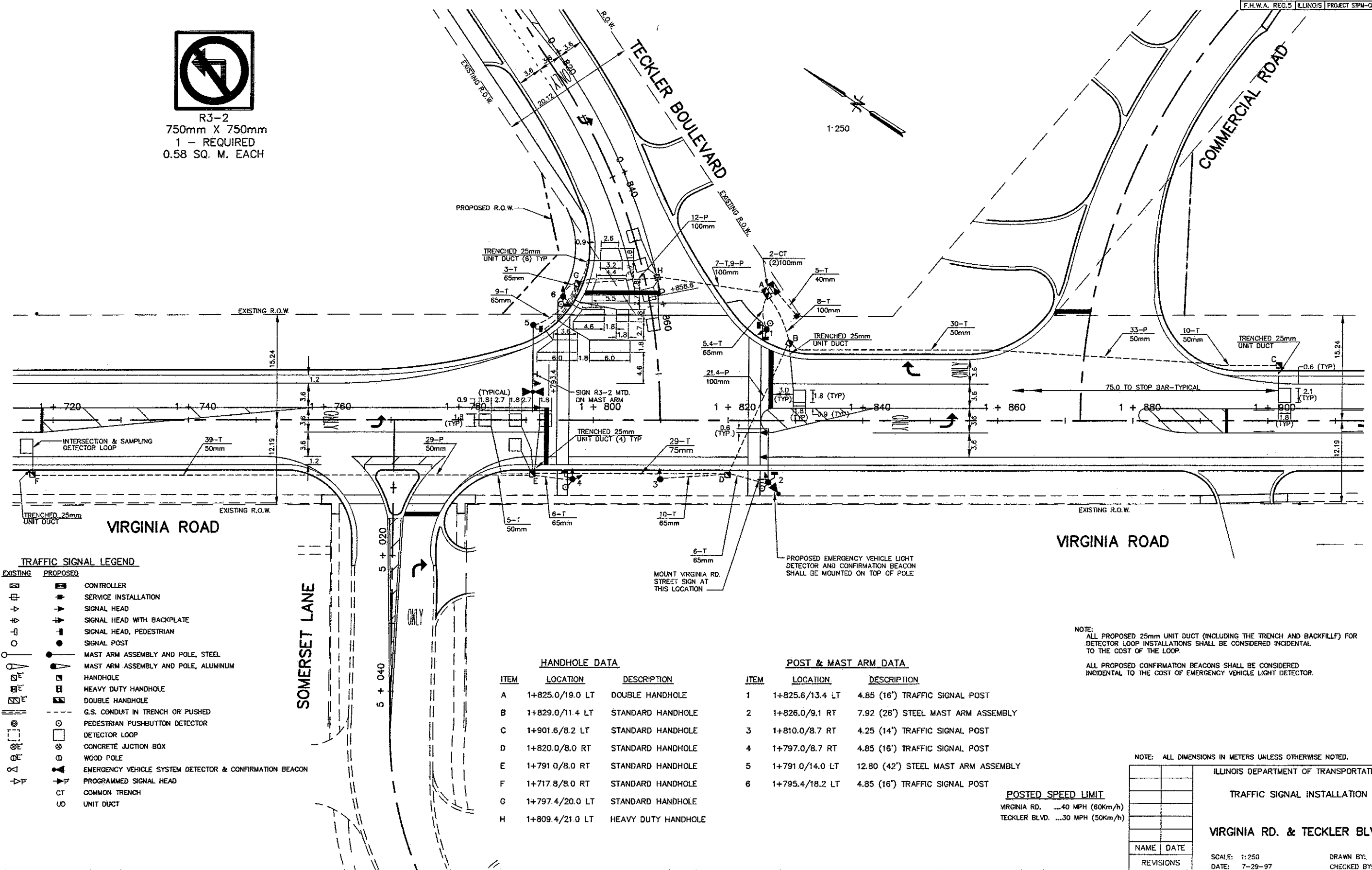


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F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEET
0121	92-00083-00-WR	McHENRY	79
0085			72
TRAFFIC SIGNAL PLAN			
F.H.W.A. REG.5 ILLINOIS PROJECT STPW-CUM-7003(304)			



R3-2  
 750mm X 750mm  
 1 - REQUIRED  
 0.58 SQ. M. EACH



- TRAFFIC SIGNAL LEGEND**
- | EXISTING | PROPOSED | DESCRIPTION   |
|----------|----------|---|
| [Symbol] | [Symbol] | CONTROLLER  |
| [Symbol] | [Symbol] | SERVICE INSTALLATION                                    |
| [Symbol] | [Symbol] | SIGNAL HEAD   |
| [Symbol] | [Symbol] | SIGNAL HEAD WITH BACKPLATE                              |
| [Symbol] | [Symbol] | SIGNAL HEAD, PEDESTRIAN                                 |
| [Symbol] | [Symbol] | SIGNAL POST   |
| [Symbol] | [Symbol] | MAST ARM ASSEMBLY AND POLE, STEEL                       |
| [Symbol] | [Symbol] | MAST ARM ASSEMBLY AND POLE, ALUMINUM                    |
| [Symbol] | [Symbol] | HANDHOLE  |
| [Symbol] | [Symbol] | HEAVY DUTY HANDHOLE                                     |
| [Symbol] | [Symbol] | DOUBLE HANDHOLE   |
| [Symbol] | [Symbol] | G.S. CONDUIT IN TRENCH OR PUSHED                        |
| [Symbol] | [Symbol] | PEDESTRIAN PUSHBUTTON DETECTOR                          |
| [Symbol] | [Symbol] | DETECTOR LOOP   |
| [Symbol] | [Symbol] | CONCRETE JUNCTION BOX                                   |
| [Symbol] | [Symbol] | WOOD POLE   |
| [Symbol] | [Symbol] | EMERGENCY VEHICLE SYSTEM DETECTOR & CONFIRMATION BEACON |
| [Symbol] | [Symbol] | PROGRAMMED SIGNAL HEAD                                  |
| [Symbol] | [Symbol] | COMMON TRENCH   |
| [Symbol] | [Symbol] | UNIT DUCT   |

**HANDHOLE DATA**

ITEM	LOCATION	DESCRIPTION
A	1+825.0/19.0 LT	DOUBLE HANDHOLE
B	1+829.0/11.4 LT	STANDARD HANDHOLE
C	1+901.6/8.2 LT	STANDARD HANDHOLE
D	1+820.0/8.0 RT	STANDARD HANDHOLE
E	1+791.0/8.0 RT	STANDARD HANDHOLE
F	1+717.8/8.0 RT	STANDARD HANDHOLE
G	1+797.4/20.0 LT	STANDARD HANDHOLE
H	1+809.4/21.0 LT	HEAVY DUTY HANDHOLE

**POST & MAST ARM DATA**

ITEM	LOCATION	DESCRIPTION
1	1+825.6/13.4 LT	4.85 (16') TRAFFIC SIGNAL POST
2	1+826.0/9.1 RT	7.92 (26') STEEL MAST ARM ASSEMBLY
3	1+810.0/8.7 RT	4.25 (14') TRAFFIC SIGNAL POST
4	1+797.0/8.7 RT	4.85 (16') TRAFFIC SIGNAL POST
5	1+791.0/14.0 LT	12.80 (42') STEEL MAST ARM ASSEMBLY
6	1+795.4/18.2 LT	4.85 (16') TRAFFIC SIGNAL POST

NOTE: ALL PROPOSED 25mm UNIT DUCT (INCLUDING THE TRENCH AND BACKFILL) FOR DETECTOR LOOP INSTALLATIONS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE LOOP.

ALL PROPOSED CONFIRMATION BEACONS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF EMERGENCY VEHICLE LIGHT DETECTOR.

NOTE: ALL DIMENSIONS IN METERS UNLESS OTHERWISE NOTED.

NAME	DATE
REVISIONS	

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 TRAFFIC SIGNAL INSTALLATION  
 VIRGINIA RD. & TECKLER BLVD.

POSTED SPEED LIMIT  
 VIRGINIA RD. ....40 MPH (60km/h)  
 TECKLER BLVD. ....30 MPH (50km/h)

SCALE: 1:250  
 DATE: 7-29-97

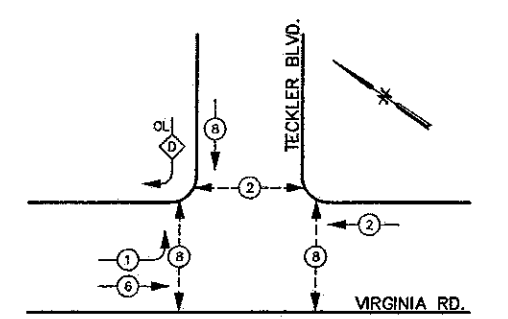
DRAWN BY: RLS  
 CHECKED BY: DMH



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F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEET NO.
0121 0085	92-00083-00-WR	McHENRY	79 73
TRAFFIC SIGNAL PLAN			
F.H.W.A. REG.5 ILLINOIS PROJECT SIPM-CMN-700X(04)			

**CONTROLLER SEQUENCE**  
REFERRING TO STANDARD 857001, THE VEHICULAR AND PEDESTRIAN PHASES USED ARE DESIGNATED BELOW.



**LEGEND**

- DUAL ENTRY PHASE
- OVERLAP
- PEDESTRIAN PHASE

\* NUMBER REFERS TO ASSOCIATED PHASE

**PHASE DESIGNATION DIAGRAM**  
DUAL ENTRY - ALL LEGS  
PROTECTED/PERMITTED LEFT TURN PHASING  
WITH RIGHT TURN OVERLAPS

**RIGHT TURN OVERLAP PHASE DESIGNATION**

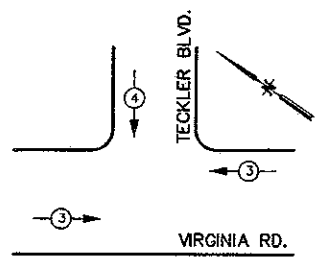
OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE	DISPLAY
D	8	1	8

DISPLAY - THE YELLOW RIGHT ARROW OF THE OVERLAP SHALL BE INHIBITED DURING THE PERMISSIVE PHASE'S YELLOW INTERVAL. THE GREEN RIGHT ARROW OF THE OVERLAP SHALL BE INHIBITED DURING THE PERMISSIVE PHASE'S GREEN INTERVAL.

**CLEARANCE NOTES FOR RIGHT TURN OVERLAPS WITH 5-SECTION RIGHT TURN SIGNAL HEAD DISPLAYS**

- CONTINUATION OF AN OVERLAP DURING ITS PERMISSIVE PHASE SHALL BE WITH A CIRCULAR YELLOW DISPLAYED TOGETHER WITH A GREEN RIGHT ARROW WHEN FOLLOWED BY THAT OVERLAP'S PROTECTED PHASE.
- TERMINATION OF AN OVERLAP DURING ITS PERMISSIVE PHASE SHALL BE WITH A CIRCULAR YELLOW WHEN NOT FOLLOWED BY THAT OVERLAP'S PROTECTED PHASE.
- CONTINUATION OF AN OVERLAP DURING ITS PROTECTED PHASE SHALL BE WITH A CIRCULAR RED DISPLAYED TOGETHER WITH A GREEN RIGHT ARROW WHEN FOLLOWED BY THAT OVERLAP'S PERMISSIVE PHASE.
- TERMINATION OF AN OVERLAP DURING ITS PROTECTED PHASE SHALL BE WITH A CIRCULAR RED DISPLAYED TOGETHER WITH A YELLOW RIGHT ARROW WHEN NOT FOLLOWED BY THAT OVERLAP'S PERMISSIVE PHASE.

**EMERGENCY VEHICLE PREEMPTION SEQUENCE FOR DUAL ENTRY OPERATION - ALL LEGS**

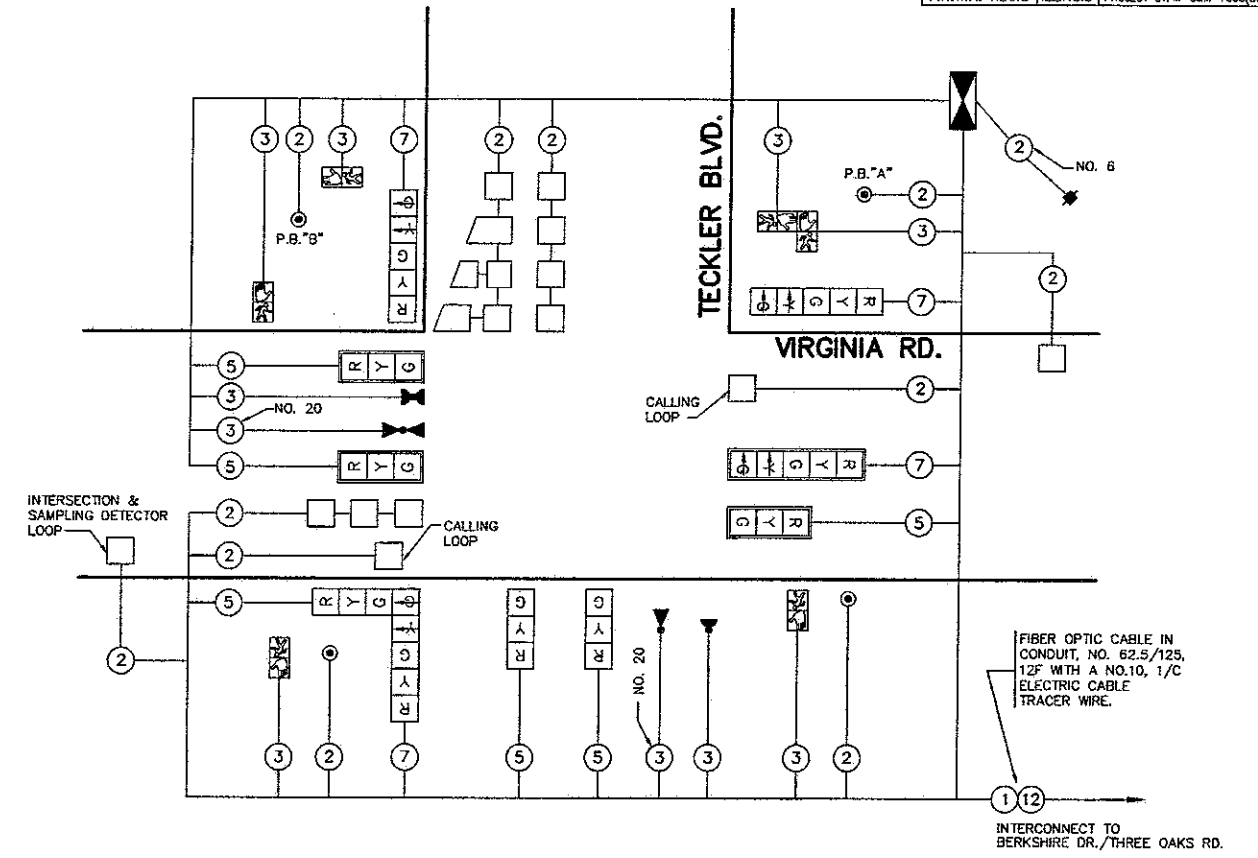


**PROPOSED EMERGENCY VEHICLE PRE EMT**

EMERGENCY VEHICLE PREEMPTOR INTERVAL	3	4
MOVEMENT		

**SCHEDULE OF QUANTITIES**

QUANTITY	UNIT	ITEM
123.0	METER	ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED
6.0	EACH	HANDHOLE
1.0	EACH	HEAVY-DUTY HANDHOLE
1.0	EACH	DOUBLE HANDHOLE
2.0	EACH	SIGNAL HEAD, 1-FACE, 3-SECTION, BRACKET MOUNTED
3.0	EACH	SIGNAL HEAD, 1-FACE, 3-SECTION, MAST ARM MOUNTED
2.0	EACH	SIGNAL HEAD, 1-FACE, 5-SECTION, BRACKET MOUNTED
1.0	EACH	SIGNAL HEAD, 1-FACE, 5-SECTION, MAST ARM MOUNTED
1.0	EACH	SIGNAL HEAD, 2-FACE, 1-3 SECTION, 1-5 SECTION, BRACKET MOUNTED
4.0	EACH	PEDESTRIAN SIGNAL HEAD, 1-FACE, BRACKET MOUNTED
1.0	EACH	PEDESTRIAN SIGNAL HEAD, 2-FACE, BRACKET MOUNTED
4.0	EACH	TRAFFIC SIGNAL BACKPLATE
7.0	EACH	INDUCTIVE LOOP DETECTOR
2.0	EACH	LIGHT DETECTOR
1.0	EACH	LIGHT DETECTOR AMPLIFIER
1.0	EACH	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL
4.0	EACH	PEDESTRIAN PUSH-BUTTON
1.0	EACH	TRANSCIVER - FIBER OPTIC
1.0	EACH	SERVICE INSTALLATION, TYPE C
2.89	SQ. M	SIGN PANEL - TYPE 1
5.0	METER	CONDUIT IN TRENCH, 40MM DIA., GALVANIZED STEEL
84.0	METER	CONDUIT IN TRENCH, 50MM DIA., GALVANIZED STEEL
40.0	METER	CONDUIT IN TRENCH, 65MM DIA., GALVANIZED STEEL
29.0	METER	CONDUIT IN TRENCH, 75MM DIA., GALVANIZED STEEL
41.0	METER	CONDUIT IN TRENCH, 100MM DIA., GALVANIZED STEEL
62.0	METER	CONDUIT PUSHED, 50MM DIA., GALVANIZED STEEL
21.0	METER	CONDUIT PUSHED, 100MM DIA., GALVANIZED STEEL
200.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C
393.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C
380.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C
209.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C
465.0	METER	ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR
11.0	METER	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C
1.0	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 4.25 METER
3.0	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 4.85 METER
1.0	EACH	STEEL MAST ARM ASSEMBLY AND POLE, 7.92 METER
1.0	EACH	STEEL MAST ARM ASSEMBLY AND POLE, 12.80 METER
4.8	METER	CONCRETE FOUNDATION, TYPE A
1.2	METER	CONCRETE FOUNDATION, TYPE D
3.4	METER	CONCRETE FOUNDATION, TYPE E 800MM DIAMETER
4.5	METER	CONCRETE FOUNDATION, TYPE E 750MM DIAMETER
212.0	METER	DETECTOR LOOP, TYPE 1
197.0	METER	TRENCH AND BACKFILL FOR ELECTRICAL WORK



**CABLE PLAN**

**CABLE PLAN LEGEND**

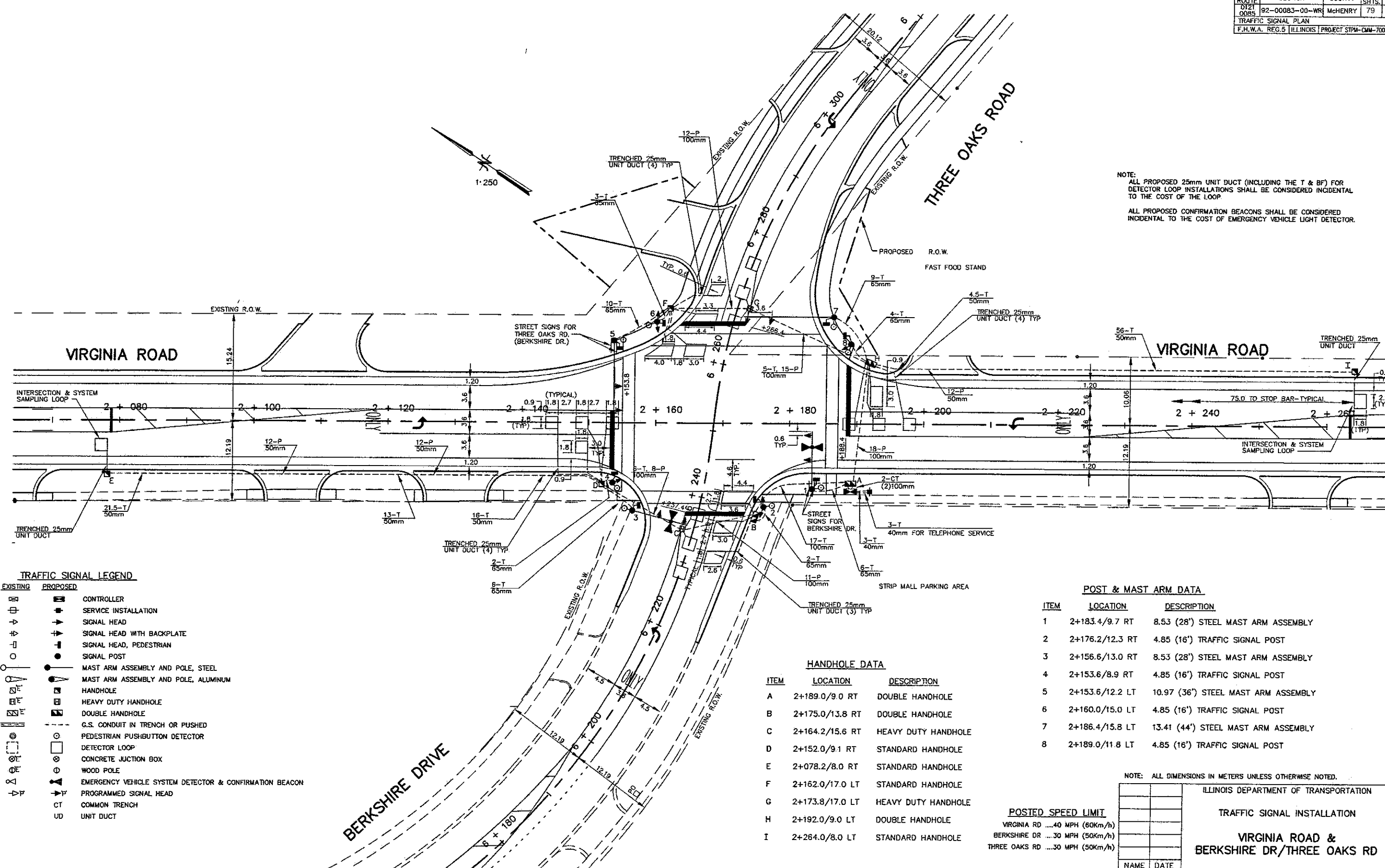
EXISTING	PROPOSED	DESCRIPTION
		6" TRAFFIC SIGNAL SECTION
		12" TRAFFIC SIGNAL SECTION
		12" PEDESTRIAN SIGNAL SECTION
		12" PEDESTRIAN SIGNAL SECTION
		CONTROLLER CABINET
		SERVICE INSTALLATION
		VEHICLE DETECTOR, INDUCTION LOOP
		DENOTES NUMBER OF CONDUCTORS (NEW) ALL LOOP DETECTOR CABLE TO BE SHIELDED. ALL CABLE #14 EXCEPT AS INDICATED
		MAGNETIC DETECTOR
		LIGHT DETECTOR
		CONFIRMATION BEACON
		PUSHBUTTON DETECTOR
		SIGNAL FACE WITH BACKPLATE
		"P" INDICATES PROGRAMMED FACE

NOTE:  
PUSHBUTTON "A" SHALL PLACE CALLS IN PHASES 2 AND 8.  
PUSHBUTTON "B" SHALL PLACE CALLS IN PHASES 2 AND 8.

PROPOSED CONTROLLER FOR THIS INTERSECTION SHALL BE ONLY THAT MFG. BY "ECONOLITE CONTROL PRODUCTS, INC" AND PROPOSED EMERGENCY VEHICLE PREEMPTION EQUIPMENT SHALL BE ONLY THE "OPTICOM" SYSTEM AS MFG. BY 3M COMPANY.

ILLINOIS DEPARTMENT OF TRANSPORTATION	
CABLE PLAN	
PHASE DESIGNATION DIAGRAM	
SCHEDULE OF QUANTITIES	
VIRGINIA RD & TECKLER BLVD	
NAME	DATE
REVISIONS	
SCALE: NONE	DRAWN BY: RLS
DATE: 7-28-97	CHECKED BY: DMH

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0221 0085	92-00083-00-WR	McHENRY	79	74
TRAFFIC SIGNAL PLAN				
F.H.W.A. REG.5 ILLINOIS PROJECT STPM-DM-7003(304)				



NOTE:  
 ALL PROPOSED 25mm UNIT DUCT (INCLUDING THE T & BF) FOR DETECTOR LOOP INSTALLATIONS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE LOOP.  
 ALL PROPOSED CONFIRMATION BEACONS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF EMERGENCY VEHICLE LIGHT DETECTOR.

**TRAFFIC SIGNAL LEGEND**

EXISTING	PROPOSED	DESCRIPTION
[Symbol]	[Symbol]	CONTROLLER
[Symbol]	[Symbol]	SERVICE INSTALLATION
[Symbol]	[Symbol]	SIGNAL HEAD
[Symbol]	[Symbol]	SIGNAL HEAD WITH BACKPLATE
[Symbol]	[Symbol]	SIGNAL HEAD, PEDESTRIAN
[Symbol]	[Symbol]	SIGNAL POST
[Symbol]	[Symbol]	MAST ARM ASSEMBLY AND POLE, STEEL
[Symbol]	[Symbol]	MAST ARM ASSEMBLY AND POLE, ALUMINUM
[Symbol]	[Symbol]	HANDHOLE
[Symbol]	[Symbol]	HEAVY DUTY HANDHOLE
[Symbol]	[Symbol]	DOUBLE HANDHOLE
[Symbol]	[Symbol]	G.S. CONDUIT IN TRENCH OR PUSHED
[Symbol]	[Symbol]	PEDESTRIAN PUSHBUTTON DETECTOR
[Symbol]	[Symbol]	DETECTOR LOOP
[Symbol]	[Symbol]	CONCRETE JUNCTION BOX
[Symbol]	[Symbol]	WOOD POLE
[Symbol]	[Symbol]	EMERGENCY VEHICLE SYSTEM DETECTOR & CONFIRMATION BEACON
[Symbol]	[Symbol]	PROGRAMMED SIGNAL HEAD
[Symbol]	[Symbol]	COMMON TRENCH
[Symbol]	[Symbol]	UNIT DUCT

**POST & MAST ARM DATA**

ITEM	LOCATION	DESCRIPTION
1	2+183.4/9.7 RT	8.53 (28') STEEL MAST ARM ASSEMBLY
2	2+176.2/12.3 RT	4.85 (16') TRAFFIC SIGNAL POST
3	2+156.6/13.0 RT	8.53 (28') STEEL MAST ARM ASSEMBLY
4	2+153.6/8.9 RT	4.85 (16') TRAFFIC SIGNAL POST
5	2+153.6/12.2 LT	10.97 (36') STEEL MAST ARM ASSEMBLY
6	2+160.0/15.0 LT	4.85 (16') TRAFFIC SIGNAL POST
7	2+186.4/15.8 LT	13.41 (44') STEEL MAST ARM ASSEMBLY
8	2+189.0/11.8 LT	4.85 (16') TRAFFIC SIGNAL POST

**HANDHOLE DATA**

ITEM	LOCATION	DESCRIPTION
A	2+189.0/9.0 RT	DOUBLE HANDHOLE
B	2+175.0/13.8 RT	DOUBLE HANDHOLE
C	2+164.2/15.6 RT	HEAVY DUTY HANDHOLE
D	2+152.0/9.1 RT	STANDARD HANDHOLE
E	2+078.2/8.0 RT	STANDARD HANDHOLE
F	2+162.0/17.0 LT	STANDARD HANDHOLE
G	2+173.8/17.0 LT	HEAVY DUTY HANDHOLE
H	2+192.0/9.0 LT	DOUBLE HANDHOLE
I	2+264.0/8.0 LT	STANDARD HANDHOLE

**POSTED SPEED LIMIT**  
 VIRGINIA RD ...40 MPH (60km/h)  
 BERKSHIRE DR ...30 MPH (50km/h)  
 THREE OAKS RD ...30 MPH (50km/h)

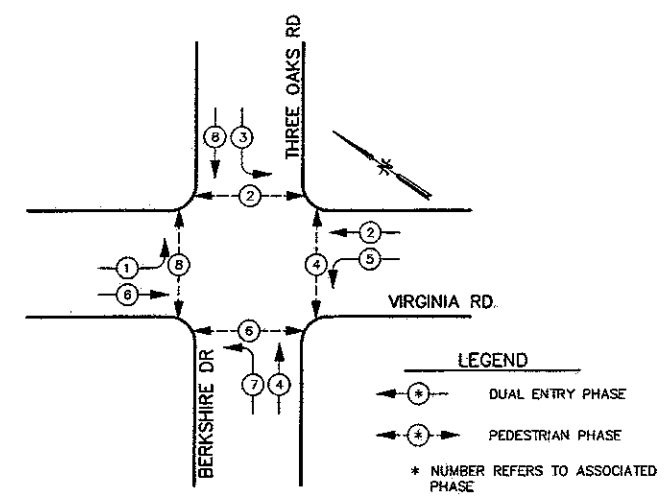
NOTE: ALL DIMENSIONS IN METERS UNLESS OTHERWISE NOTED.

ILLINOIS DEPARTMENT OF TRANSPORTATION	
TRAFFIC SIGNAL INSTALLATION	
VIRGINIA ROAD & BERKSHIRE DR/THREE OAKS RD	
NAME	DATE
REVISIONS	
SCALE: 1:250	DRAWN BY: JMH
DATE: 8-07-97	CHECKED BY: DMH

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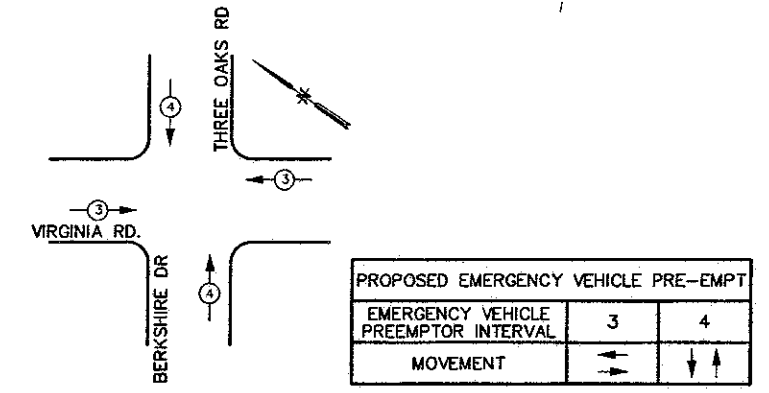
F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEET
0121 0085	92-00083-00-WR	McHENRY	SHTS. NO.
TRAFFIC SIGNAL PLAN			79 75
F.H.W.A. REG.5 ILLINOIS PROJECT SIPM-CMN-700X(304)			

**CONTROLLER SEQUENCE**  
 REFERRING TO STANDARD 857001, THE VEHICULAR AND PEDESTRIAN PHASES USED ARE DESIGNATED BELOW.



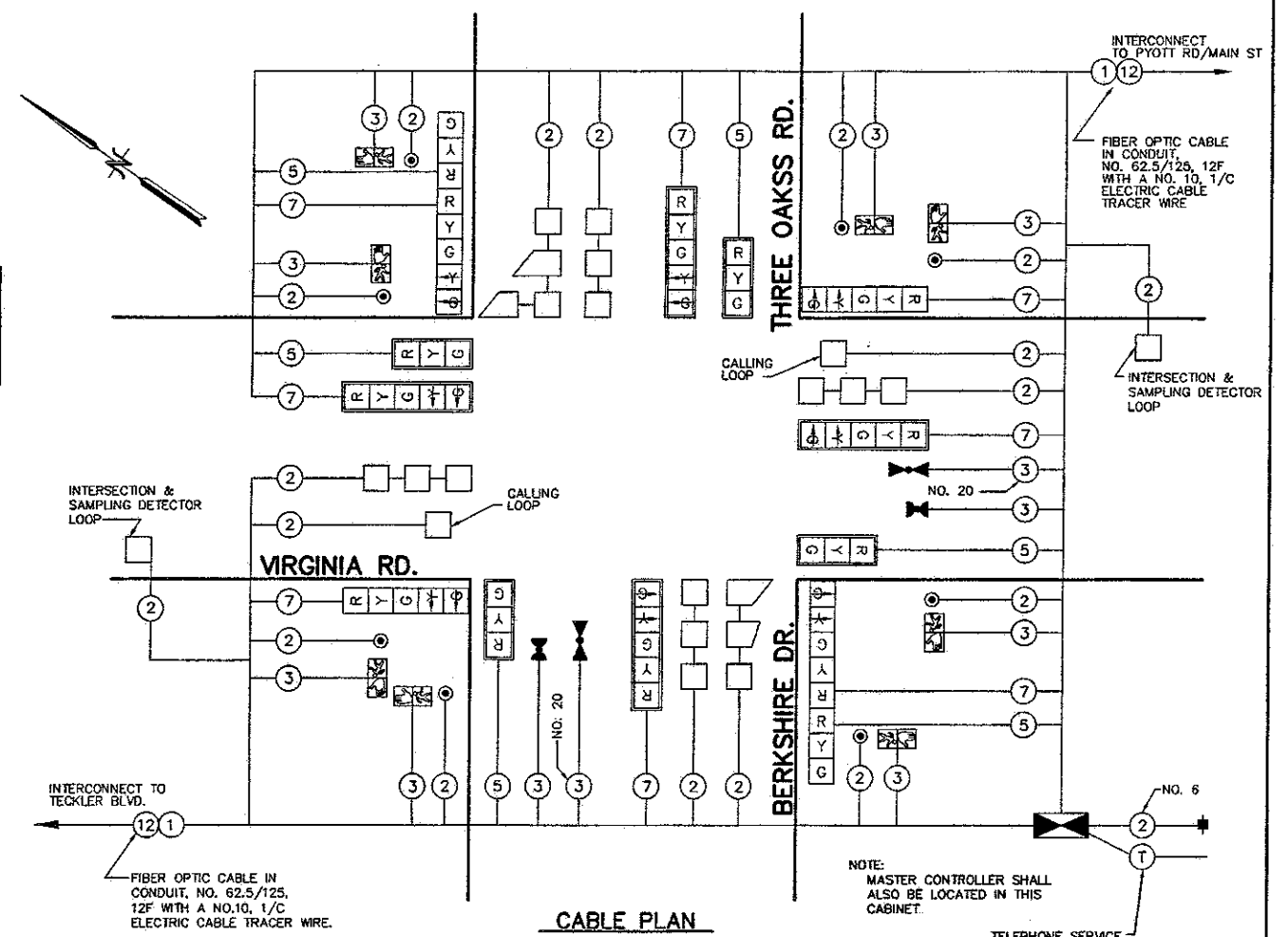
**PHASE DESIGNATION DIAGRAM**  
 DUAL ENTRY - ALL LEGS  
 PROTECTED/PERMITTED LEFT TURN PHASING

**EMERGENCY VEHICLE PREEMPTION SEQUENCE FOR DUAL ENTRY OPERATION - ALL LEGS**



**SCHEDULE OF QUANTITIES**

QUANTITY	UNIT	ITEM
106.0	METER	ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED
4.0	EACH	HANDHOLE
2.0	EACH	HEAVY-DUTY HANDHOLE
3.0	EACH	DOUBLE HANDHOLE
4.0	EACH	SIGNAL HEAD, 1-FACE, 3-SECTION, MAST ARM MOUNTED
2.0	EACH	SIGNAL HEAD, 1-FACE, 5-SECTION, BRACKET MOUNTED
2.0	EACH	SIGNAL HEAD, 2-FACE, 1-3 SECTION, 1-5 SECTION, BRACKET MOUNTED
4.0	EACH	SIGNAL HEAD, 1-FACE, 5-SECTION, MAST ARM MOUNTED
8.0	EACH	PEDESTRIAN SIGNAL HEAD, 1-FACE, BRACKET MOUNTED
8.0	EACH	TRAFFIC SIGNAL BACKPLATE
10.0	EACH	INDUCTIVE LOOP DETECTOR
2.0	EACH	LIGHT DETECTOR
1.0	EACH	LIGHT DETECTOR AMPLIFIER
1.0	EACH	FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL
8.0	EACH	PEDESTRIAN PUSH-BUTTON
1.0	EACH	TRANSCIVER - FIBER OPTIC
1.0	EACH	SERVICE INSTALLATION, TYPE C
4.90	SQ. M.	SIGN PANEL - TYPE 1
6.0	METER	CONDUIT IN TRENCH, 40MM DIA., GALVANIZED STEEL
111.0	METER	CONDUIT IN TRENCH, 50MM DIA., GALVANIZED STEEL
42.0	METER	CONDUIT IN TRENCH, 65MM DIA., GALVANIZED STEEL
32.0	METER	CONDUIT IN TRENCH, 100MM DIA., GALVANIZED STEEL
36.0	METER	CONDUIT PUSHED, 50MM DIA., GALVANIZED STEEL
64.0	METER	CONDUIT PUSHED, 100MM DIA., GALVANIZED STEEL
419.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C
525.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C
350.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C
466.0	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C
594.0	METER	ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR
8.0	METER	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C
4.0	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 4.85 METER
2.0	EACH	STEEL MAST ARM ASSEMBLY AND POLE, 8.53 METER
1.0	EACH	STEEL MAST ARM ASSEMBLY AND POLE, 10.97 METER
1.0	EACH	STEEL MAST ARM ASSEMBLY AND POLE, 13.41 METER
4.0	METER	CONCRETE FOUNDATION, TYPE A
1.2	METER	CONCRETE FOUNDATION, TYPE D
6.8	METER	CONCRETE FOUNDATION, TYPE E 600MM DIAMETER
9.0	METER	CONCRETE FOUNDATION, TYPE E 750MM DIAMETER
255.0	METER	DETECTOR LOOP, TYPE I
189.0	METER	TRENCH AND BACKFILL FOR ELECTRICAL WORK



**CABLE PLAN LEGEND**

- PROPOSED**
- 6" TRAFFIC SIGNAL SECTION
  - 12" TRAFFIC SIGNAL SECTION
  - 12" PEDESTRIAN SIGNAL SECTION
  - 12" PEDESTRIAN SIGNAL SECTION
  - CONTROLLER CABINET
  - SERVICE INSTALLATION
  - VEHICLE DETECTOR, INDUCTION LOOP
  - DENOTES NUMBER OF CONDUCTORS (NEW)  
ALL LOOP DETECTOR CABLE TO BE SHIELDED,  
ALL CABLE #4+ EXCEPT AS INDICATED
  - MAGNETIC DETECTOR
  - LIGHT DETECTOR (FOR EMERGENCY VEHICLES)
  - CONFIRMATION BEACON (FOR EMERGENCY VEHICLES)
  - PUSHBUTTON DETECTOR
  - SIGNAL FACE WITH BACKPLATE  
"P" INDICATES PROGRAMMED FACE

PROPOSED CONTROLLER FOR THIS INTERSECTION SHALL BE ONLY THAT MFG. BY "ECONOLITE CONTROL PRODUCTS, INC." AND PROPOSED EMERGENCY VEHICLE PREEMPTION EQUIPMENT SHALL BE ONLY THE "OPTICOM" SYSTEM AS MFG. BY 3M COMPANY.

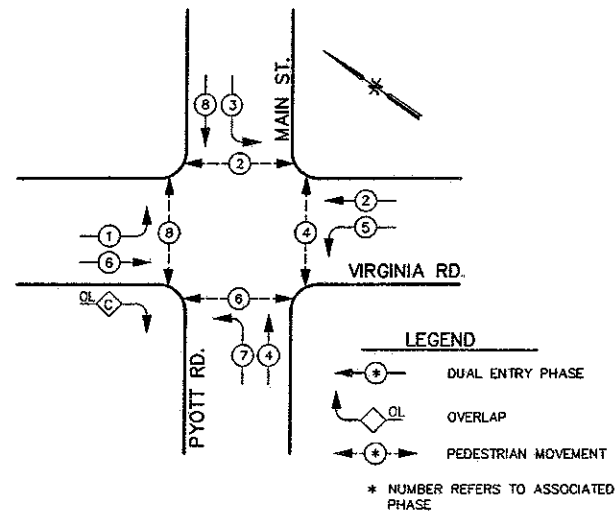
ILLINOIS DEPARTMENT OF TRANSPORTATION	
CABLE PLAN	
PHASE DESIGNATION DIAGRAM	
SCHEDULE OF QUANTITIES	
VIRGINIA ROAD & BERKSHIRE DR/THREE OAKS RD	
NAME	DATE
REVISIONS	
SCALE: NONE	DRAWN BY: RLS
DATE: 7-28-97	CHECKED BY: DMH

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 February 11, 1998 8:34:40 a.m.  
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 TRAFFIC SIGNAL PLAN  
 F.H.W.A. REG. 5 ILLINOIS PROJECT STPM-CMM-7003(304)

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0121 0085	92-0083-00-WR	McHENRY	79	76

**PROPOSED CONTROLLER SEQUENCE**

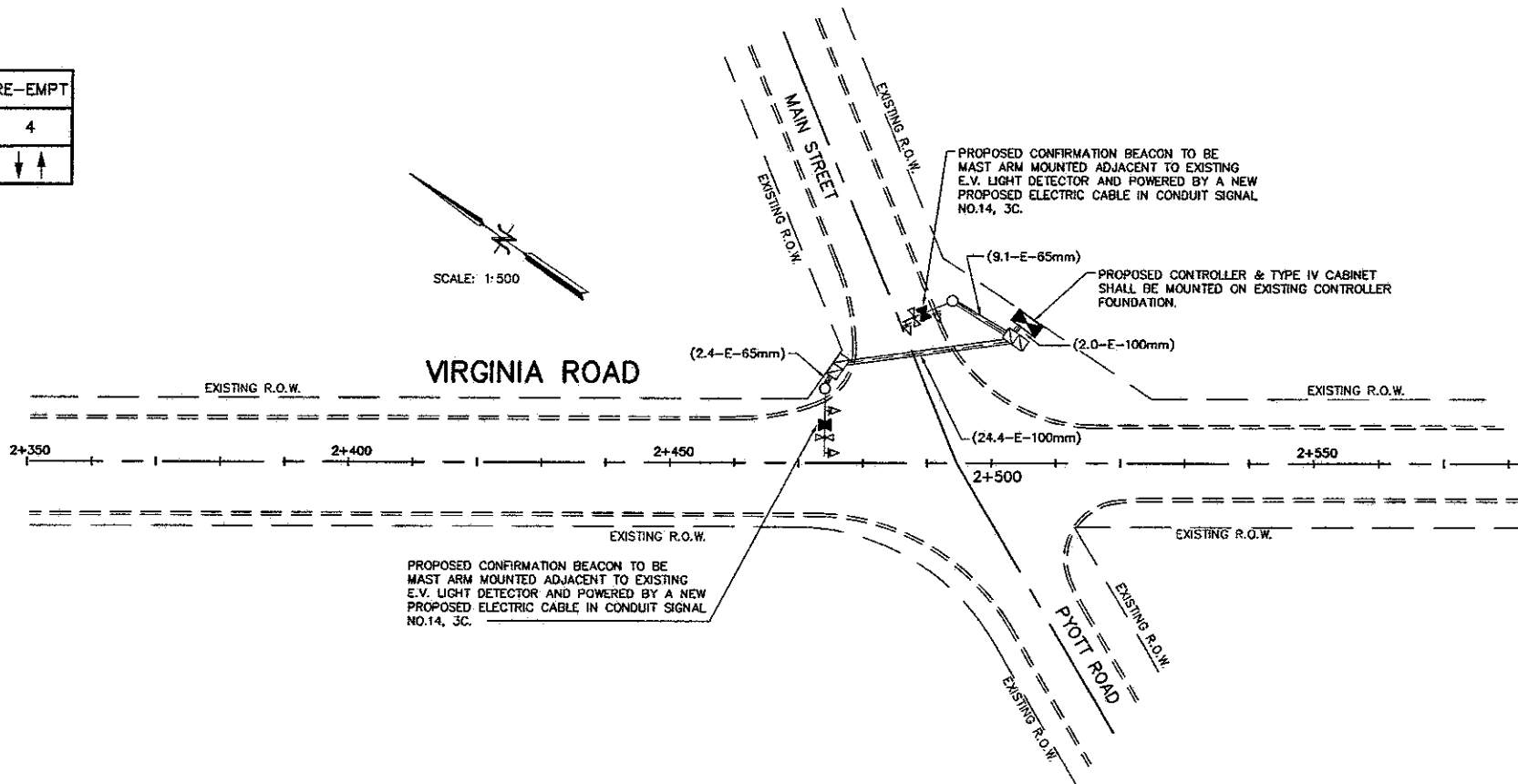
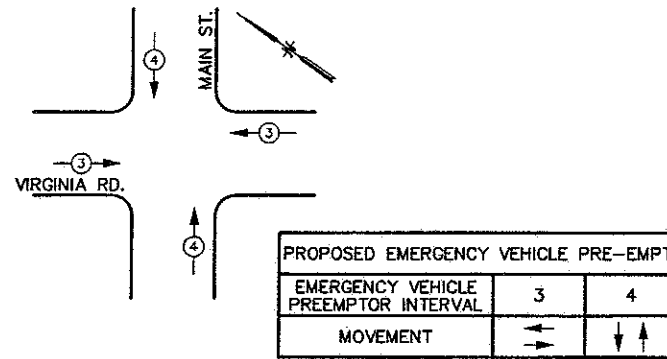
REFERRING TO STANDARD 857001, THE VEHICULAR AND PEDESTRIAN PHASES USED ARE DESIGNATED BELOW.



**PHASE DESIGNATION DIAGRAM**

DUAL ENTRY - ALL LEGS  
 PROTECTED/PERMITTED LEFT TURN PHASING  
 WITH RIGHT TURN OVERLAPS

**EMERGENCY VEHICLE PREEMPTION SEQUENCE FOR DUAL ENTRY OPERATION - ALL LEGS**



**SCHEDULE OF QUANTITIES**

QUANTITY	UNIT	ITEM
12	EACH	INDUCTIVE LOOP DETECTOR
1	EACH	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL
1	EACH	TRANSCIVER-FIBER OPTIC
2	EACH	CONFIRMATION BEACON
84	METER	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14, 3C
1	EACH	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT
1	EACH	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

- 1 EACH CONTROLLER AND CABINET
- 8 EACH INDUCTIVE LOOP DETECTOR
- 4 EACH INDUCTIVE LOOP DETECTOR AMPLIFIER WITH CALLING DETECTOR RELAY

PROPOSED CONTROLLER FOR THIS INTERSECTION SHALL BE ONLY THAT MFG. BY "ECONOLITE CONTROL PRODUCTS, INC". AND EXISTING EMERGENCY VEHICLE PREEMPTION EQUIPMENT IS THE "OPTICOM" SYSTEM AS MFG. BY 3M COMPANY.

THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR. SHALL REMAIN THE PROPERTY OF THE CITY, AND SHALL BE STORED AS STATED IN THE SPECIAL PROVISION FOR PICK UP BY CITY FORCES AS DESIGNATED BY THE ENGINEER.

NOTE: ALL DIMENSIONS IN METERS UNLESS OTHERWISE INDICATED.

ILLINOIS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL MODERNIZATION

**VIRGINIA RD. & MAIN ST. / PYOTT RD.**

NAME	DATE

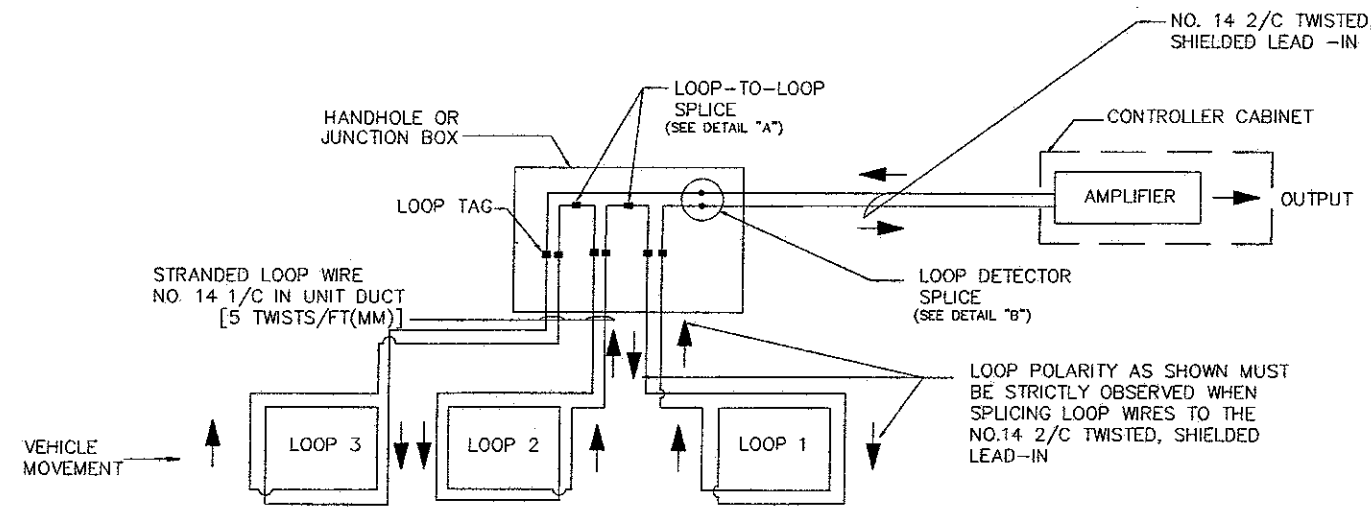
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 DRAWN BY: RLS  
 CHECKED BY: DMH



F.A.I.L. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0121 0085	92-00083-00-WR	McHENRY	79	78
STANDARD TRAFFIC SIGNAL DESIGN DETAILS				
F.H.W.A. REG. 5 ILLINOIS PROJECT SPM-QMM-7003(304)				

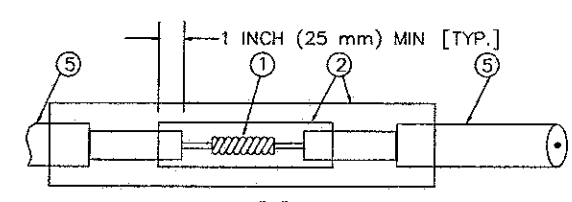
**LOOP DETECTOR NOTES**

1. EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE UNIT DUCT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE, SPACING BETWEEN THW HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). UNIT DUCT SHALL BE INCIDENTAL TO THE COST OF THE CABLE.
2. LOOP TURNS 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. IDENTIFICATION SHALL INCLUDE LOOP LOCATION POLARITY (CLOCKWISE/COUNTERCLOCKWISE) AND WIRE DIRECTION (IN OR OUT).
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 DIVEHOLES 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 OTHERS DEVICES WHICH OXIDIZE COPPER CABLE SHALL NOT BE ALLOWED FOR SOLDERING OPERATIONS.
7. 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 LOOP IN WATER PROOF INK AS INDICATED ON THE DISTRICT 1 STANDARD TRAFFIC SIGNAL DESIGN DETAIL. THE CONTRACTOR SHALL MARK LOOP LOCATIONS ON AS-BUILT PLANS AND PRESENT TO ENGINEER AFTER FINAL INSPECTION. LOOPS SHALL BE MARKED BY LANE AND LOOP NUMBER.

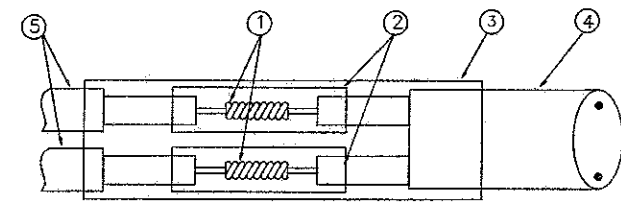


**DETECTOR LOOP WIRING SCHEMATIC**

- LOOPS SHALL BE SPLICED IN SERIES.
- SAW-CUTS SHALL BE MINIMUM WIDTH OF 5/16" (8mm).
- SAW-CUTS 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.

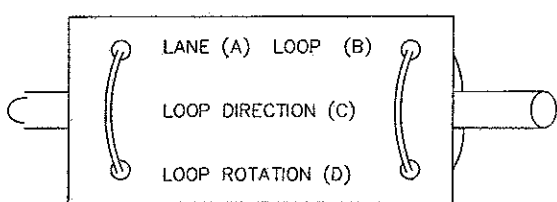


**DETAIL "A"**  
LOOP-TO-LOOP SPLICE



**DETAIL "B"**  
LOOP-TO-CONTROLLER SPLICE

**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.

**LOOP DETECTOR SPLICE**

- ① WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH.
- 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

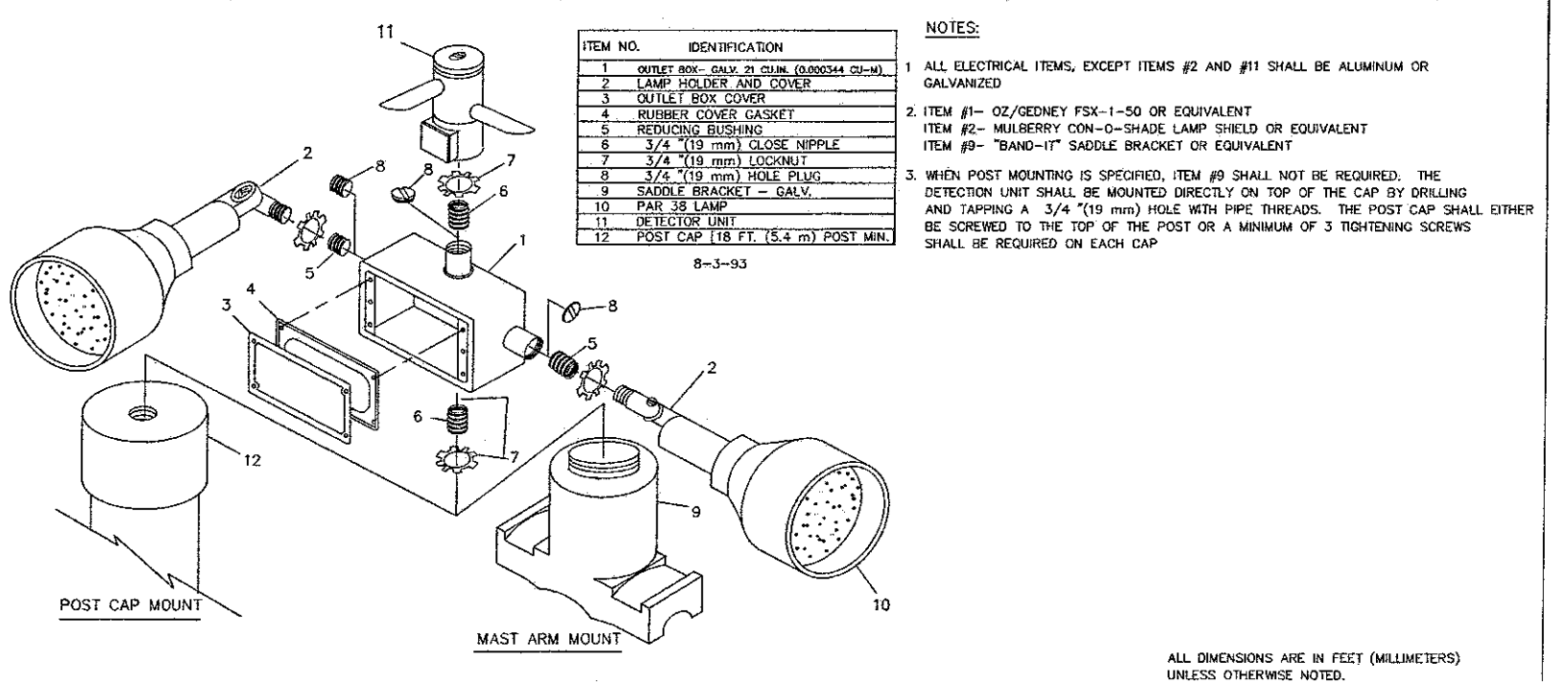
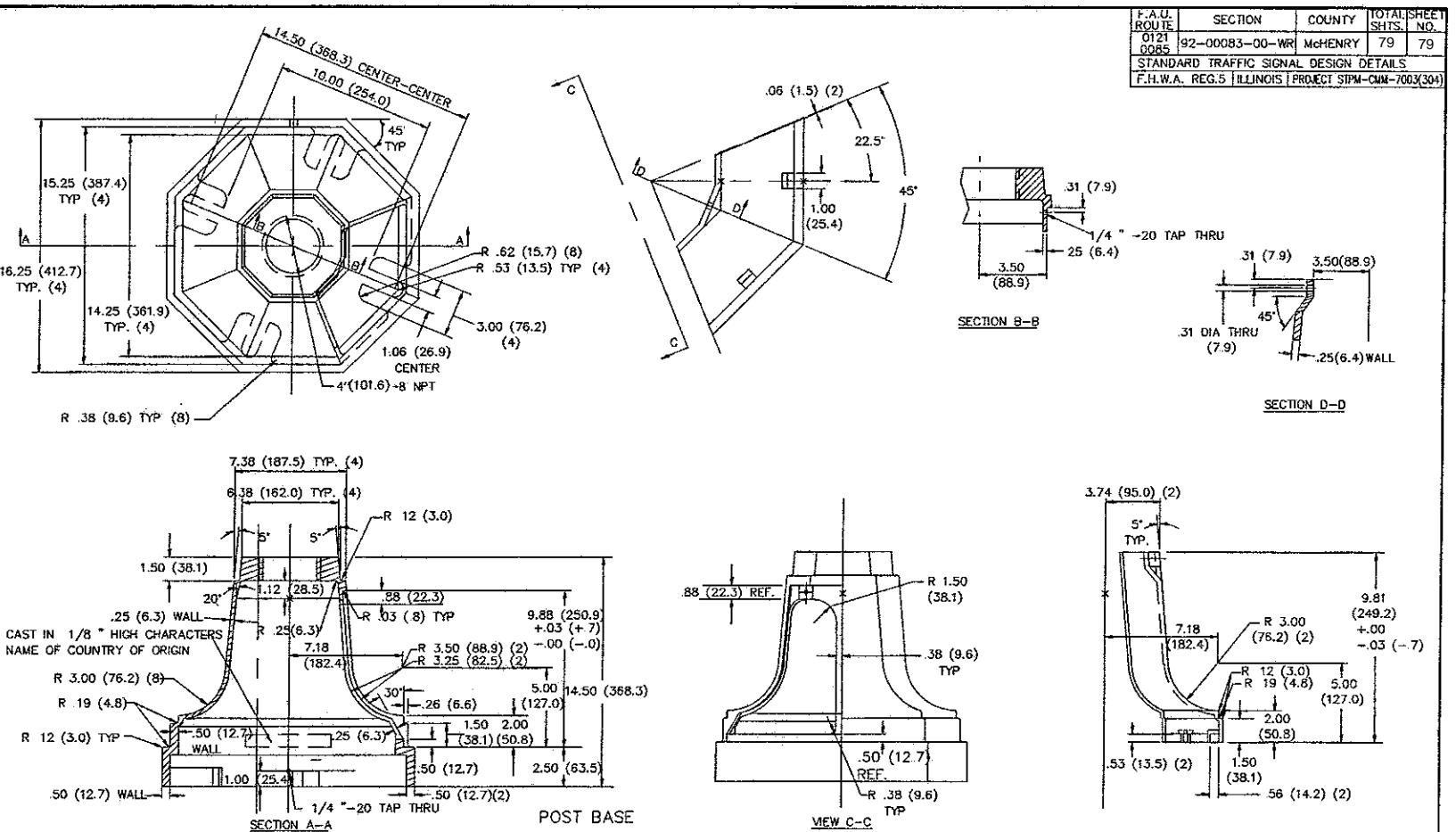
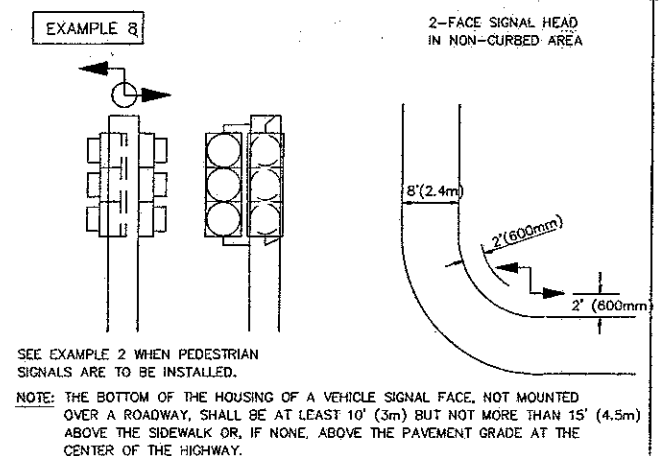
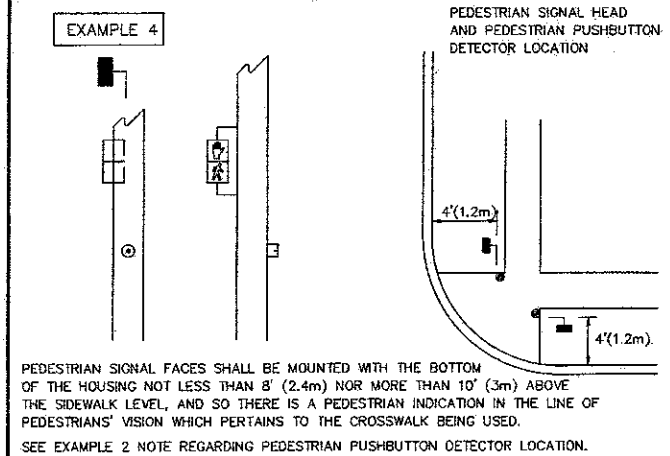
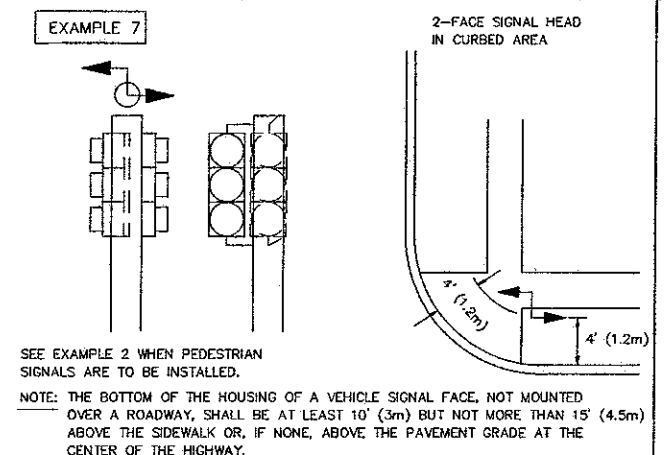
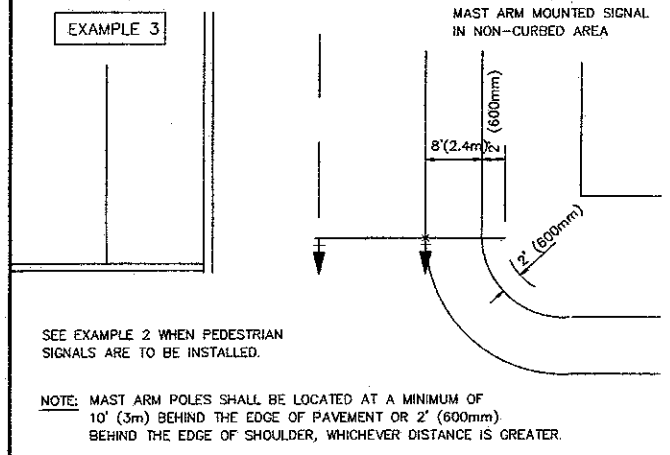
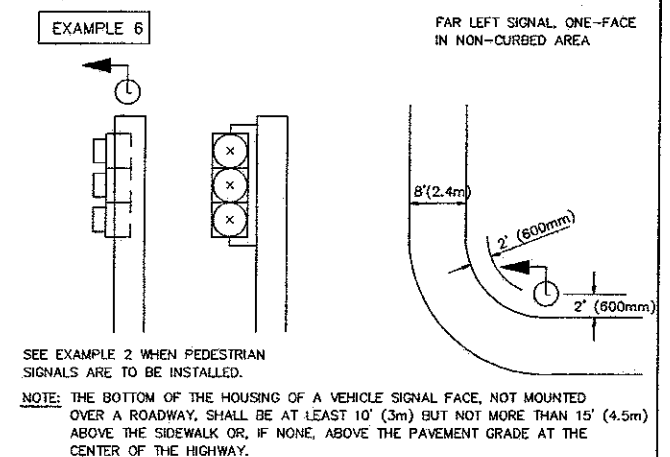
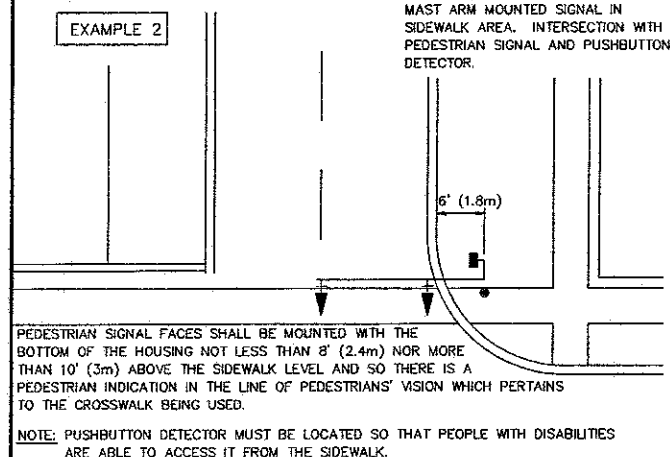
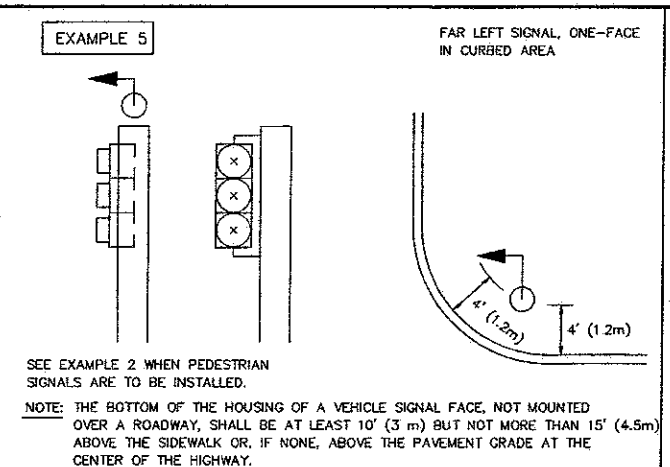
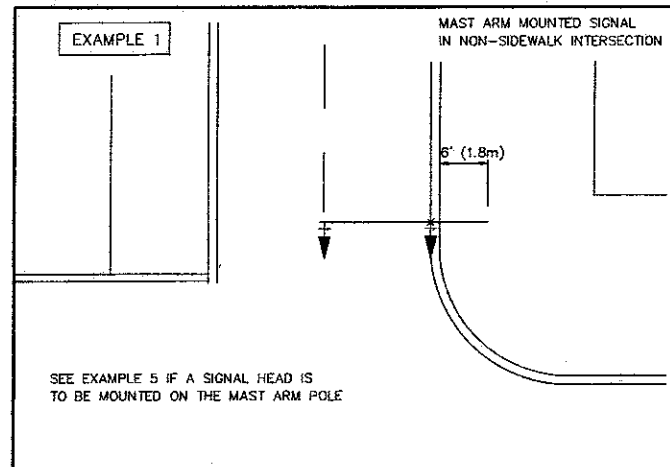
**NOTE:**  
 THE COMMONWEALTH EDISON MARKETING REPRESENTATIVE FOR THIS PROJECT IS:  
 NAME: RICH PARKER  
 TELEPHONE: 815-477-5207

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
**DISTRICT 1**  
 STANDARD TRAFFIC SIGNAL DESIGN DETAILS  
 SCALE: NONE  
 DATE: 8-04-97  
 DRAWN BY  
 CHECKED BY

D:\P\03100089\TS05-2.DWG  
February 09, 1998 1:45:17 p.m.  
C:\P\03100089\TS05-2.dwg Feb 9 13:45:33 1998

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0121 0089	92-00083-00-WR	McHENRY	79	79
STANDARD TRAFFIC SIGNAL DESIGN DETAILS				
F.H.W.A. REG. 5 ILLINOIS PROJECT SIPM-CMM-7003(304)				



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

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

**STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: NONE  
DATE 8-05-97

SHEET 2 OF 2  
TS-5