

STATE OF ILLINOIS COUNTY OF LAKE PLANS FOR PROPOSED TRAFFIC SIGNAL INSTALLATION LEWIS AVENUE (CH 27) AND W. 29TH STREET SECTION 14-00089-07-TL

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FOR UNDERGROUND UTILITY LOCATIONS, CALL

J. U. L. I. E.

TOLL FREE
800-892-0123

UTILITY POINTS OF CONTACT:
AT&T CORP. (FORMERLY SBC): 1000 COMMERCE DRIVE, FLOOR 2
 OAK BROOK, IL 60523
 OFFICE: (630) 573-5465
 FAX: (630) 573-5567
 CELL: (630) 639-8372
 EMAIL: hg2929@att.com

COMCAST: 688 INDUSTRIAL DRIVE
 ELMHURST, IL 60126
 ATTN: MR. ROBERT SHULTER
 OFFICE: (630) 600-6347
 FAX: (630) 600-6390
 EMAIL: bobshulter@comcast.com

COMED: 1500 FRANKLIN BLVD
 LIBERTYVILLE, IL 60048
 ATTN: MS. TERRI BLECK
 OFFICE: (847) 816-5239
 FAX: (847) 816-5348
 EMAIL: terr.bleck@comed.com

NORTH SHORE GAS: 3001 GRAND AVENUE
 WAUKEGAN, IL 60085
 ATTN: MR. JAY R. HAMMER
 OFFICE: (847) 263-4678
 FAX: (847) 263-3226
 CELL: (847) 489-6305
 EMAIL: jrhammer@integralsgroup.com

OTHER POINTS OF CONTACT:
LAKE COUNTY DIVISION OF TRANSPORTATION: 600 W. WINCHESTER ROAD
 LIBERTYVILLE, IL 60048
 ATTN: MR. MICHAEL MARTINELLI
 TRAFFIC SIGNAL ENGINEER
 OFFICE: (847) 377-7400
 EMAIL: mmartinelli@lakecountyil.gov

CITY OF ZION: 3220 27TH STREET
 ZION, IL 60099
 ATTN: MR. RON COLANGELO
 PUBLIC WORKS DIRECTOR AND ENGINEER
 OFFICE: (847) 746-4057
 EMAIL: ronc@zion.il.us

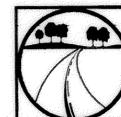
VILLAGE OF BEACH PARK: 11270 WEST WADSWORTH ROAD
 BEACH PARK, IL 60099
 ATTN: MR. JON KINDSETH
 VILLAGE ADMINISTRATOR
 OFFICE: (847) 246-6016
 EMAIL: jonkindseth@villageofbeachpark.com

NOTE: SAFETY IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR

EXISTING UTILITIES: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS RELATIVE TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES OR THE MANNER IN WHICH THEY ARE TO BE REMOVED OR ADJUSTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH UTILITIES. HE SHALL ALSO OBTAIN THE RESPECTIVE UTILITY COMPANIES' DETAILED INFORMATION RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR REMOVING OR ADJUSTING THEM.

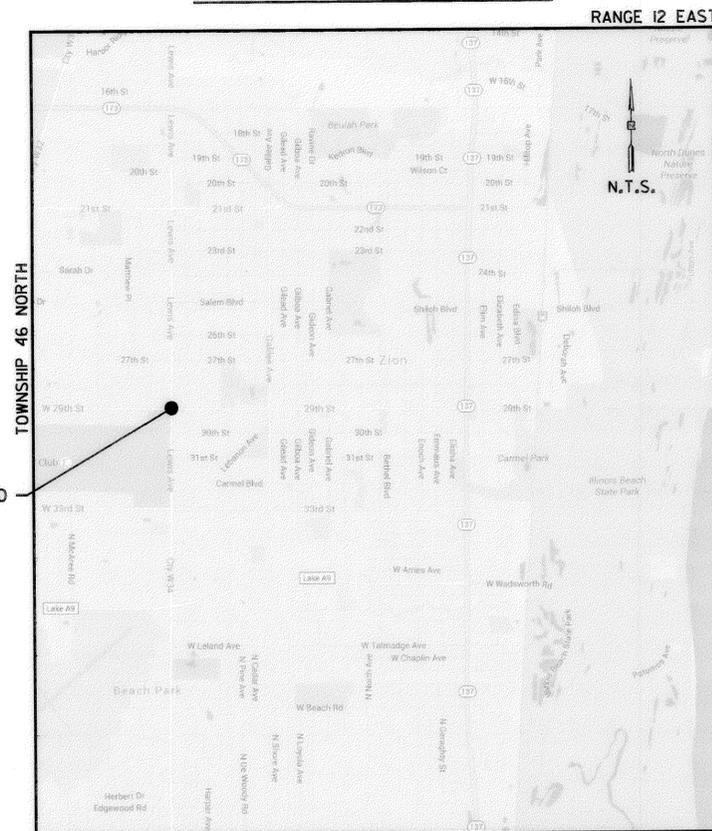
CONTRACTOR IS RESPONSIBLE FOR CONTACTING J.U.L.I.E. AT 1-800-892-0123 AND MUST ACQUIRE A DIG NUMBER A MINIMUM OF 72 HOURS PRIOR TO ANY WORK BEING DONE.

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 BELOW SCALES MAY BE USED.



BUILDING LAKE COUNTY'S
EFFECTIVE TRANSPORTATION
SYSTEM TODAY

PROJECT LOCATION



LEWIS AVENUE AND
29TH STREET

Plans Prepared By: **GHA** GEWALT HAMILTON ASSOCIATES, INC.



Signature: *[Signature]*

Date: *January 6, 2016*

Illinois License No: *062-055293*

Expiration Date: *November 30, 2017*

Field: _____

Approved By: *[Signature]*
County Engineer

Date: *January 6, 2016*

REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	CHA

TITLE SHEET		ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
LEWIS AVENUE (CH 27) AND W. 29TH STREET		CH27		14-00089-07-TL	1	63

SUMMARY OF QUANTITIES		LOCATON OF WORK		LEWIS AVENUE (CH 27) AND W. 29TH STREET	INTERCONNECT - LEWIS AVENUE (CH 27) FROM 33RD STREET TO 27TH STREET INTERCONNECT
CODE NO.	ITEM	TYPE	TOTAL	TRAFFIC SIGNALS	
60100905	PIPE DRAINS 4"	FOOT	30	30	
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	4	4	
78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	400	400	
78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	FOOT	100	100	
78300100	PAVEMENT MARKING REMOVAL	SO FT	30	30	
80500020	SERVICE INSTALLATION - POLE MOUNTED	EACH	1	1	
81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	282	79	203
81028210	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 1/2" DIA.	FOOT	94	94	
81028220	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	85	85	
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	340	340	
81400100	HANDHOLE	EACH	3	2	1
81400300	DOUBLE HANDHOLE	EACH	2	2	
82102250	LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 250 WATT	EACH	4	4	
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	2		2
87300925	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	1,504		1,504
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	690	690	
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	238	238	
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1,737	1,737	
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	688	688	
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	100	100	
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	607	607	
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	16	16	
87800150	CONCRETE FOUNDATION, TYPE C	FOOT	4	4	
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	60	60	
87900200	DRILL EXISTING HANDHOLE	EACH	2	1	1
88030020	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	8	8	
88030050	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2	2	
88030100	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	2	2	
88030110	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	2	2	
88200210	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	10	10	
88700200	LIGHT DETECTOR	EACH	2	2	
88700300	LIGHT DETECTOR AMPLIFIER	EACH	1	1	
89502300	REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	2,956		2,956
89502350	REMOVE AND REINSTALL ELECTRIC CABLE FROM CONDUIT	FOOT	436		436
LC800614	ELECTRIC CABLE IN CONDUIT, VIDEO NO. 20 4C	FOOT	175	175	
LC800616	ELECTRIC CABLE IN CONDUIT, 600V (EPR-TYPE RHW) 2-1/C NO. 10	FOOT	811	811	
X0324085	EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	FOOT	412	412	
X0324599	ROD AND CLEAN EXISTING CONDUIT	FOOT	1,170		1,170
X1400007	FIBER OPTIC CABLE IN CONDUIT, 24 FIBERS, SINGLE MODE	FOOT	1,504		1,504
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1		
X8570226	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1	1	
X8620200	UNINTERRUPTABLE POWER SUPPLY, SPECIAL	EACH	1	1	
X8730571	ELECTRIC CABLE IN CONDUIT, COAXIAL	FOOT	175	175	
X8770134	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 34 FT. (SPECIAL)	EACH	2	2	
X8772860	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 26 FT. (SPECIAL)	EACH	2	2	
XX005723	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION	EACH	1	1	
XX005931	TRAFFIC SIGNAL POST, 16 FOOT, (SPECIAL)	EACH	4	4	
XX005937	LED INTERNALLY ILLUMINATED STREET NAME SIGN	EACH	4	4	
XX005940	REMOTE CONTROLLED VIDEO SYSTEM	EACH	1	1	
XX006655	LAYER II (DATALINK) SWITCH	EACH	1	1	
XX007017	TERMINATE FIBER IN CABINET	EACH	6		6
XX008253	VIDEO ENCODER	EACH	1	1	
Z0033046	RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 2	EACH	1		1

LIST OF HIGHWAY STANDARDS

LC DOT STANDARD DRAWINGS:

- LC4202 CONCRETE WASHOUT FACILITIES
- LC6020 SUB-SURFACE DRAINS
- LC7000 TWO LANE, TWO WAY, OFF-ROAD OPERATIONS, DAY ONLY OPERATIONS
- LC7003 MODIFIED STANDARD 7010 URBAN LANE CLOSURE MULTILANE INTERSECTION
- LC7004 TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS
- LC7200 DIRECTION INDICATOR BARRICADES
- LC7800 TYPICAL PAVEMENT MARKINGS FOR COUNTY HIGHWAYS
- LC8900 VIDEO DETECTION DETAILS

IDOT STANDARDS:

- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
- 701006-05 OFF-ROAD OPERATIONS 2L, 2W, 15' TO 24' FROM PAVEMENT EDGE
- 701011-05 OFF-ROAD MOVING OPERATIONS, 2L, 2W, DAY ONLY
- 701011-04 OFF-ROAD OPERATIONS, MULTILANE 15' TO 24' FROM PAVEMENT EDGE
- 701201-04 LANE CLOSURE, 2L, 2W, DAY ONLY FOR SPEED > 45 MPH
- 701301-04 LANE CLOSURE 2L, 2W, SHORT TIME OPERATIONS
- 701502-06 URBAN LANE CLOSURE, 2L, 2W, WITH BIDIRECTIONAL LEFT TURN LANE
- 701602-07 URBAN LANE CLOSURE, MULTILANE 2W WITH BIDIRECTIONAL LEFT TURN LANE
- 701701-09 URBAN LANE CLOSURE MULTILANE INTERSECTION
- 701801-05 LANE CLOSURE MULTILANE 1W OR 2W CROSSWALK OR SIDEWALK CLOSURE
- 701901-04 TRAFFIC CONTROL DEVICES
- 780001-05 TYPICAL PAVEMENT MARKINGS
- 805001-01 ELECTRICAL SERVICE INSTALLATION DETAILS
- 814001-03 HANDHOLE
- 814006-02 DOUBLE HANDHOLE
- 857001-01 STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES
- 862001-01 UNINTERRUPTIBLE POWER SUPPLY (UPS)
- 873001-02 TRAFFIC SIGNAL GROUNDING AND BONDING
- 877011-05 STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 16' THROUGH 55'
- 878001-10 CONCRETE FOUNDATION DETAILS
- 880006-01 TRAFFIC SIGNAL MOUNTING DETAILS

NO.	REVISIONS / REMARKS	DATE	BY	SURVEYOR:	GHA
1	QUANTITY REVISION	1/27/2016	ZCW	DSG NR/LIAISON:	JRD
				PLOTTED BY:	zwallen 1/27/2016



SUMMARY OF QUANTITIES AND LIST OF HIGHWAY STANDARDS		ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
LEWIS AVENUE (CH 27) AND W. 29TH STREET		CH27		14-00089-07-TL	2	63

LCDOT GENERAL NOTES

1. GENERAL
 - a. All construction shall be done according to the State of Illinois "Standard Specifications for Road and Bridge Construction" adopted April 1, 2016; the "Supplemental Specifications and Recurring Special Provisions, adopted April 1, 2016; the latest edition of the "Illinois Manual on Uniform Traffic Control devices for Streets and Highways" details in these plans, and the Special Provisions included in the contract documents.
 - b. The Contractor shall notify the Engineer at least 72 hours prior to beginning work and shall coordinate all construction operations with the Engineer.
 - c. The Contractor shall coordinate his/her work with any adjacent projects that are or may be under construction.
 - d. The Contractor shall verify all dimensions and existing conditions in the field prior to ordering materials and beginning construction. Where new work is proposed to meet existing features, it shall be the Contractor's responsibility to field check all dimensions and elevations and notify the Engineer of discrepancies before proceeding with construction.
 - e. The Contractor shall provide access to abutting properties at all times during construction, except for brief periods of interruption. The Contractor shall notify the property owner no less than 24 hours in advance of the interruption of access and/or services. The notification will include the time and duration of the interruption. The cost to provide access shall be paid for and included in the cost of TRAFFIC CONTROL AND PROTECTION (SPECIAL)
2. SURVEY
 - a. All elevations shown on these plans are based upon the North American Vertical Datum of 1988 (NAVD 88). The elevations shown on the plans are for finished grades unless otherwise noted.
 - b. Where section or subsection monuments are encountered, the Engineer shall be notified before the monuments are removed. The Contractor shall carefully preserve all property marks and monuments until the owner, authorized surveyor or agent has witnessed or otherwise referenced their location.
 - c. All radii for proposed curb and gutter are to the edge of pavement unless otherwise noted.
3. REMOVAL
 - a. The Contractor shall saw cut the existing pavement, concrete curb & gutter, median, hot-mix asphalt shoulder; sidewalk; and/or other appurtenances as shown on the plans, to separate the existing material to be removed, by means of an approved concrete saw to a depth shown on the plans or as directed by the Engineer. This work shall be included in the cost of the item being removed. The Contractor shall be required to saw vertical cuts so as to form clean vertical joints. Should the Contractor deface any edge, a new sawed joint shall be provided and any additional work, including removal and replacement, shall be done at the Contractor's expense.
 - b. All excess material shall be disposed of offsite on the day it is excavated or removed.
 - c. The Contractor is prohibited from burning any material within or adjacent to the project limits. All excess or waste material shall be hauled away from the project site by the contractor and legally disposed of outside the right-of-way. No extra compensation will be allowed the contractor for any expense incurred by complying with the requirements of this note.
4. DRAINAGE
 - a. The cost of connecting existing storm sewers to the proposed drainage system shall be included in the unit cost of the proposed drainage structure. The cost of connecting proposed storm sewer to existing structures shall be included in the unit cost of the proposed storm sewer. Additional pipe required to complete the connections will be paid for at the contract unit price for "STORM SEWER" of the type, size and class required.
 - b. Unless otherwise noted on the plans, the existing drainage facilities shall remain in use during the period of construction. During construction operations the Contractor shall ensure positive site drainage at the conclusion of each day. Site drainage may be achieved by ditching, pumping, or any other method acceptable to the Engineer.
 - c. The Contractor shall confirm all existing storm sewer pipe sizes and inverts prior to ordering structures. Any modification of structures due to the failure of the Contractor to perform this task shall be at the Contractor's expense and may lead to the rejection of the structure in the field if the modification is not approved by the Engineer.
 - d. If during construction, the Contractor encounters or otherwise becomes aware of any sewers or underdrains within the right-of-way other than those shown on the plans, he/she shall inform the Engineer, who shall direct the work necessary to maintain or replace the facilities in service and to protect them from damage during construction if maintained. Existing facilities to be maintained that are damaged because of non-compliance with this provision shall be replaced at the Contractor's own expense. Should the Engineer direct the replacement of a facility, the necessary work and payment shall be according to Sections 550 and 601, and Article 104.02 of the "Standard Specifications".
 - e. When existing drainage facilities are disturbed, the contractor shall provide and maintain temporary outlets and connections for all private or public drains, culverts, sewers or catch basins. The Contractor shall provide facilities to take in all storm water which will be received by these drains and sewers and discharge the same. The Contractor shall provide and maintain an efficient pumping plant, if necessary, and a temporary outlet. The Contractor shall be prepared at all times to dispose of the water received from temporary connections until such time as the permanent connections with sewer are built and in service. This work will not be paid for separately, but shall be included in the cost of the storm sewers and drainage structures installed as part of this project.
 - f. The Contractor shall determine when flat slab tops are required on manholes and catch basins. Restricted depth manholes and catch basins shall be constructed according to LCDOT standard LC6000. Sumps, where required, will be included in the unit price of the restricted depth structure. No additional compensation shall be allowed for the use of flat slab tops.
 - g. All existing drainage facilities, headwalls and fences no longer required, in the opinion of the Engineer, shall be removed. The cost of removal of existing pipe culverts, storm sewers, drainage structures, concrete headwalls, fencing or other obstructions which interfere with the proposed improvements and which are not shown to be removed as a separate pay item shall be considered included in the cost of EARTH EXCAVATION.
 - h. During the construction operation when any loose material is deposited in the flow line of ditches, gutters or drainage structures so the natural flow of water is obstructed, the material shall be removed at the close of each working day. At the conclusion of the construction operations all drainage structures shall be free from all dirt and debris. This work will not be paid for separately but shall be considered included in the unit costs of the various Temporary Erosion Control Systems e.g. INLET FILTERS, INLET PROTECTION SPECIAL, TEMPORARY DITCH CHECKS, etc....
 - i. Top of frame (rim) elevations shown on the plans are only to assist the Contractor in determining the approximate overall height of the structure. Frames on all new structures shall be adjusted to the final elevations of the areas in which they are located as part of the structure cost. Any plating of the structure required for staged construction shall be included in the cost of the structure.
 - j. Unless otherwise noted, locations shown on the plans are to the edge of pavement for structures in the curb and to the center of the structure for all other structures. All top of frame (rim) elevations for structures located in the curb and gutter are at the edge of pavement. See the LCDOT detail for Drainage Structure Rim Elevations and Offsets LC6003. Drainage structure flat-tops and cones shall be turned so that the frames are closest to the centerline of the lane unless otherwise noted. All flat-tops and cones are assumed to be eccentric unless otherwise noted.
 - k. Stations, offsets, and invert elevations for flared end sections are given at the centerline of the outlet end of the flared end section. The flared end section shall be installed at the same slope as the outlet pipe.
 - l. All frames with closed lids to be furnished as part of this contract, for the construction, adjustment or reconstruction of manholes, catch basins, inlets, valve vaults, or meter vaults shall have cast into the lid one of the following words: Lids for storm sewer structures shall bear the word STORM. Lids for sanitary sewer structures shall bear the word SANITARY. Lids for water system structures shall bear the word WATER. Additionally open grates or lids shall include the wording DUMP NO WASTE, DRAINS TO WATERWAYS. This work shall be included in the unit cost of the structure being constructed, adjusted or reconstructed.
 - m. Hot-mix asphalt or concrete pavement crossings shall not be left in gravel overnight. This will include the main road, side streets, private entrances, commercial entrances and parking areas. Temporary hot-mix asphalt patching or steel plates (see steel plate special provision) at the Contractor's expense may be used in lieu of immediate pavement replacement.
 - n. Temporary sheeting or bracing for sewer trenches that may be required shall be the responsibility of the Contractor. The cost of this work shall be included in the proposed drainage and/or utility unit prices and no additional compensation will be allowed.
 - o. At locations where the proposed storm sewer crosses over utilities, a 4" Styrofoam cushion shall be placed under the storm sewer when directed to do so by the Engineer. This work shall be included in the unit price for the proposed storm sewer.
 - p. All field tile encountered during construction operations shall be connected to the proposed storm sewer or extended to outlet into a proposed drainage way. If this cannot be accomplished, then it shall be repaired with new pipe of similar size and material to the original line and put in acceptable operating condition. A record of the location of all field tile or on-site drain pipe encountered shall be kept by the contractor and turned over to the engineer upon completion of the project. An estimated quantity of PIPE DRAINS, 4" and PIPE DRAINS, 6" has been included for this work.
 - q. Precast concrete adjustment rings, maximum of 12" in height, will be allowed in the adjustment or reconstruction of catch basin, manhole, inlet and valve vault structures. HDPE plastic and recycled rubber adjusting rings may be used according to Section 602 of the "Standard Specifications". Common brick will not be allowed. All type 8 grates on drainage structures shall be adjusted to plan grade with 4" minimum concrete adjustment rings. The rings shall be included in the cost of the structure.
 - r. Couplings used for connections of new pipe to existing pipe and where dissimilar pipe and joint materials are encountered shall be approved by the Engineer prior to installation. No stainless steel shear rings will be allowed. This work will not be paid for separately, but shall be included in the cost of the storm sewer being installed.
5. DRIVEWAYS and ENTRANCES
 - a. Existing hot-mix asphalt, concrete, and gravel driveways and entrances shall be re-surfaced to one foot inside the right-of-way with hot-mix asphalt surface course as scheduled on the plans.
 - b. Existing concrete driveways and entrances shall be reconstructed to one foot inside the right-of-way with concrete as scheduled on the plans.
 - c. Existing hot-mix asphalt driveways and entrances shall be sawcut at the limits of construction line. The surface shall be removed to the sawcut. The aggregate base shall be appropriately prepared, and the driveway shall be resurfaced with Hot-Mix Asphalt Surface Course.
 - d. Existing aggregate field entrances shall be built up in place to one foot inside the right-of-way with aggregate base course.
6. LANDSCAPING: Phosphorus Fertilizer Nutrient **shall not** be used on Lake County Highways.
7. MILLED PAVEMENT: When milled pavement is open to traffic, the maximum elevation difference between lanes, at concrete curb and gutter, or existing ground (shoulders, entrances etc...) shall not exceed 1.5 inches. With written approval from the Engineer the maximum elevation difference may be up to 3 inches if the edge of the milling is sloped a minimum 3:1 (H:V).
8. SIGNS
 - a. The Contractor will be required to relocate or remove and replace signs which interfere with his/her construction operations, and to temporarily reset all such signs during construction operations according to **Article 107.25 of the "Standard Specifications"**.
 - All unused signs shall be returned to the County.
 - Longer posts may be required at some temporary or permanent sign locations to maintain proper sign elevations.
 - b. Permanent signing will be furnished and installed by LCDOT. Proposed permanent signs shown on the plans are for reference only.

LCDOT GENERAL NOTES (CONT'D)

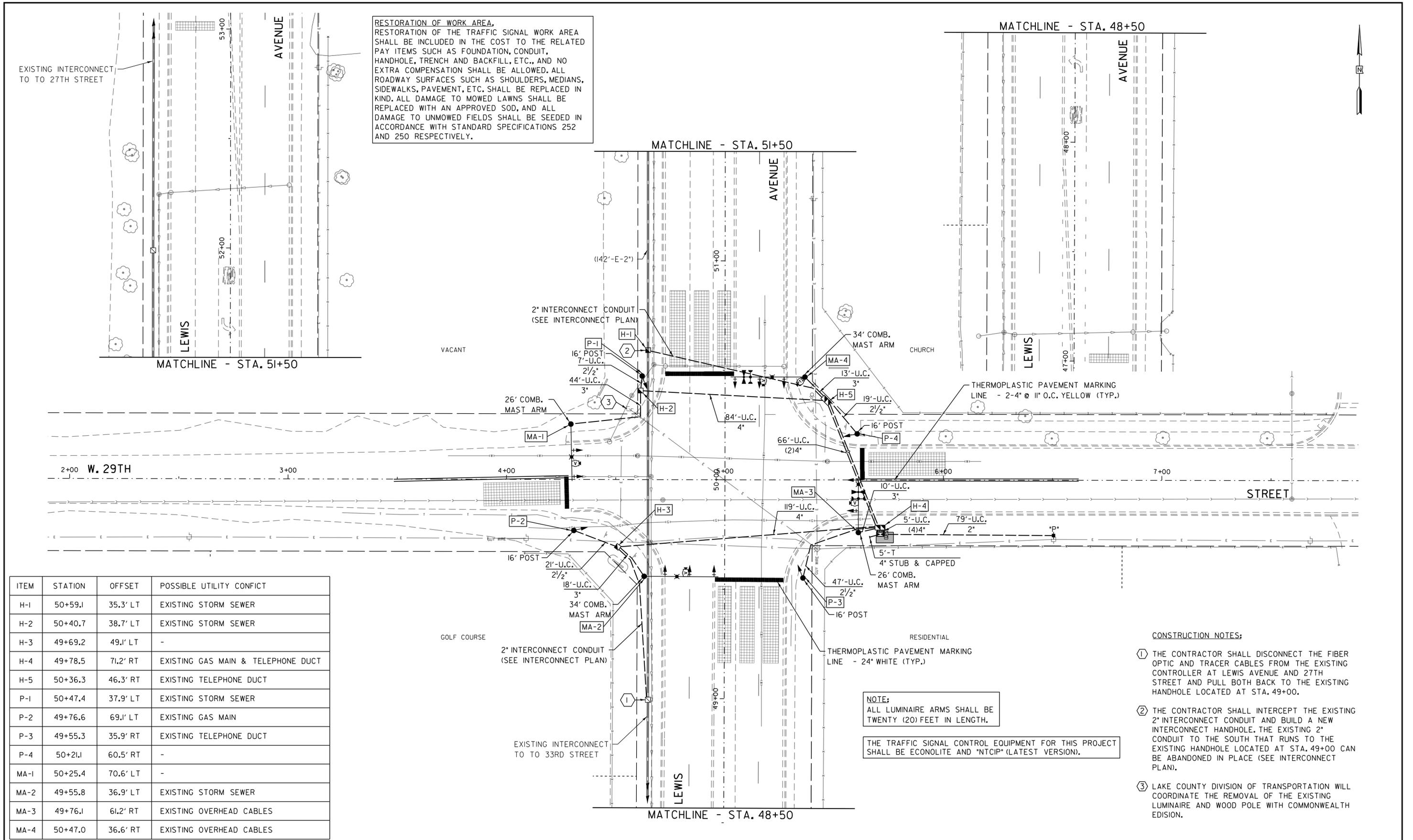
9. UTILITIES
 - a. Location information for underground utility facilities shown on the plans and/or included in the Contract Specifications represents the best information provided to LCDOT, and is only included for the convenience of the Contractor. LCDOT assumes no responsibility for the sufficiency or the accuracy of the location information provided.
 - b. Before starting any excavation, the Contractor shall contact "JULIE" at 1-800-892-0123 for field locations of buried electric, telephone, gas, water, sewer, cable, etc., utility lines (minimum 48 hours notification is required).
 - c. The Contractor shall be responsible for any damage or destruction of public or private property according to the special provisions and Article 107.20 of the "Standard Specifications". The Contractor shall restore such property at his/her own expense. The Contractor shall use all necessary precautions and protective measures required to maintain existing utilities, sewers, and appurtenances that must be kept in operation. In particular, the Contractor will take adequate measures to prevent the undermining of utilities and sewers which are still in service.
10. MAILBOXES
 - a. According to Article 107.20 of the "Standard Specifications" the Contractor shall remove all mailboxes within the limits of construction which interfere with construction operations. The removed mailboxes shall be erected at temporary locations. As soon as construction operations permit, the Contractor shall set the mailboxes at their permanent locations as directed by the Engineer and approved by the Postmaster. This work is included in the unit bid price of the contract, and no additional compensation will be allowed.
11. MISCELLANEOUS
 - a. The Contractor shall provide temporary toilet facilities for the use of all the Contractors' personnel employed on the work site, and shall maintain same in proper sanitary condition. The temporary facilities shall include hand sanitizing stations. At the completion of the project, the facilities shall be removed and the premises left clean. The Engineer shall approve the location of the temporary toilets. The cost of this work shall be included in the unit bid prices and no additional compensation will be allowed.
 - b. Generally 10 foot transitions shall be used to match proposed items of work to existing items in the field, unless otherwise shown on the plans. The transitions shall be paid for at the contract unit price for the proposed item of work specified.
 - c. The Contractor shall not cross completed surface course, or existing pavement not scheduled to be removed, with construction equipment which may damage the pavement.
 - d. All references in the highway standards and standard specifications for reinforcement, dowel bars and tie bars in pavement, shoulders, curb, gutter, combination curb & gutter and median, and chair supports for continuously reinforced concrete pavement, shall be epoxy coated, unless noted on the plans.
 - e. The Contractor's attention is called to the fact that some quantities are given in both summary form and on the plan sheets. Care should be taken to avoid duplication of quantities.
12. USE OF CCDD FILL OPERATIONS
 - a. If the Contractor chooses to dispose of uncontaminated soil or uncontaminated soil mixed with Clean Construction and Demolition Debris (CCDD) at a CCDD fill operation, it shall be the Contractor's responsibility to perform all necessary field and laboratory analysis and to obtain the licensed professional engineer's certification required as per Public Act 96-1416 to use the site. No additional compensation will be provided.
13. EXPLORATORY EXCAVATION
 - a. If required, exposing of existing utilities shall be the responsibility of the contractor and shall be at the contractor's cost. No additional payment shall be made under the contract for pavement replacement or restoration of work area.

CONTROL POINT TABLE						
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
1	2104334.18	113462.94	694.36	CPI-SMN	5+31.55	41.27' LT
2	2103930.36	113460.68	689.59	CP2-CX	46+37.54	30.73' RT
3	2104319.02	113790.40	683.43	CP3-CX	8+59.04	26.58' LT
4	2104879.99	113401.02	698.84	CP4-SMN	55+87.03	30.94' LT
5	2104277.16	113305.47	693.20	CP5-SN	3+74.19	16.04' RT
6	2104332.69	113398.01	694.30	CP6-SMN	4+66.62	39.67' LT
7	2104292.97	113431.23	-	CP7-CL-CL	50+00.04	0.00'

REVISIONS / REMARKS					
NO.	DESCRIPTION	DATE	BY	SURVEYOR:	GHA
				DSGMR/LIAISON:	JRD
				PLOTTED BY:	zwaltsten 1/5/2016



GENERAL NOTES AND POINT TABLE				ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
LEWIS AVENUE (CH 27) AND W. 29TH STREET				CH27		14-00089-07-TL	3	63



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

ITEM	STATION	OFFSET	POSSIBLE UTILITY CONFLICT
H-1	50+59.1	35.3' LT	EXISTING STORM SEWER
H-2	50+40.7	38.7' LT	EXISTING STORM SEWER
H-3	49+69.2	49.1' LT	-
H-4	49+78.5	71.2' RT	EXISTING GAS MAIN & TELEPHONE DUCT
H-5	50+36.3	46.3' RT	EXISTING TELEPHONE DUCT
P-1	50+47.4	37.9' LT	EXISTING STORM SEWER
P-2	49+76.6	69.1' LT	EXISTING GAS MAIN
P-3	49+55.3	35.9' RT	EXISTING TELEPHONE DUCT
P-4	50+21.1	60.5' RT	-
MA-1	50+25.4	70.6' LT	-
MA-2	49+55.8	36.9' LT	EXISTING STORM SEWER
MA-3	49+76.1	61.2' RT	EXISTING OVERHEAD CABLES
MA-4	50+47.0	36.6' RT	EXISTING OVERHEAD CABLES

REVISIONS / REMARKS		DATE	BY	SURVEYOR:	GHA
NO.	DESCRIPTION			DSGMR/LIAISON:	JRD
				PLOTTED BY:	zwallsten 1/5/2016

GHA GEWALT HAMILTON ASSOCIATES, INC.
 625 Forest Edge Drive • Vernon Hills, IL 60061
 Tel. 847.478.9700 • Fax 847.478.9701

LakeCounty
 Division of Transportation

TRAFFIC SIGNAL INSTALLATION PLAN
LEWIS AVENUE (CH 27) AND W. 29TH STREET

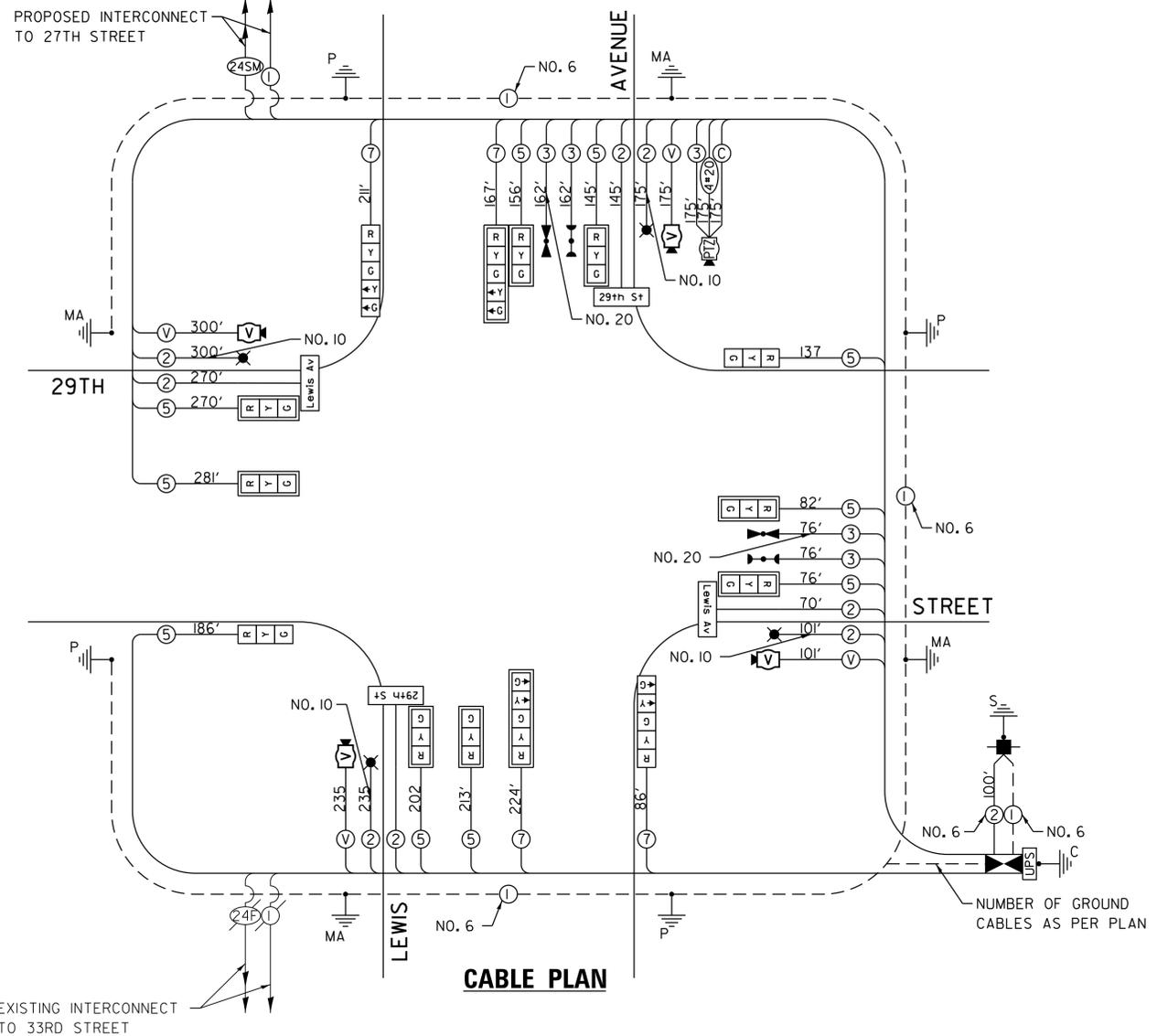
ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH27		14-00089-07-TL	4	63

- CONSTRUCTION NOTES:**
- THE CONTRACTOR SHALL DISCONNECT THE FIBER OPTIC AND TRACER CABLES FROM THE EXISTING CONTROLLER AT LEWIS AVENUE AND 27TH STREET AND PULL BOTH BACK TO THE EXISTING HANDHOLE LOCATED AT STA. 49+00.
 - THE CONTRACTOR SHALL INTERCEPT THE EXISTING 2" INTERCONNECT CONDUIT AND BUILD A NEW INTERCONNECT HANDHOLE. THE EXISTING 2" CONDUIT TO THE SOUTH THAT RUNS TO THE EXISTING HANDHOLE LOCATED AT STA. 49+00 CAN BE ABANDONED IN PLACE (SEE INTERCONNECT PLAN).
 - LAKE COUNTY DIVISION OF TRANSPORTATION WILL COORDINATE THE REMOVAL OF THE EXISTING LUMINAIRE AND WOOD POLE WITH COMMONWEALTH EDISON.

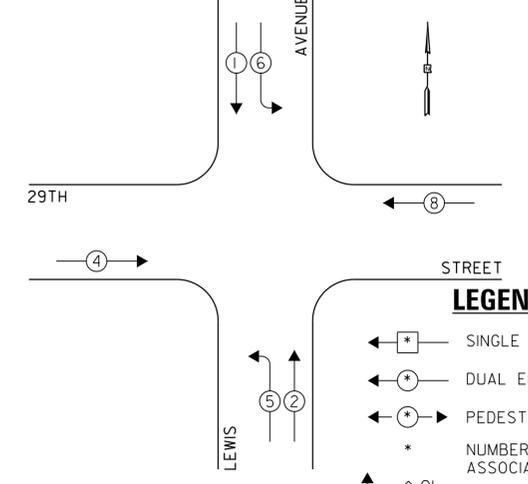
NOTE:
 ALL LUMINAIRE ARMS SHALL BE TWENTY (20) FEET IN LENGTH.
 THE TRAFFIC SIGNAL CONTROL EQUIPMENT FOR THIS PROJECT SHALL BE ECONOLITE AND "NTCIP" (LATEST VERSION).

SCHEDULE OF QUANTITIES
LEWIS AVENUE (CH 27) AND W. 29TH STREET

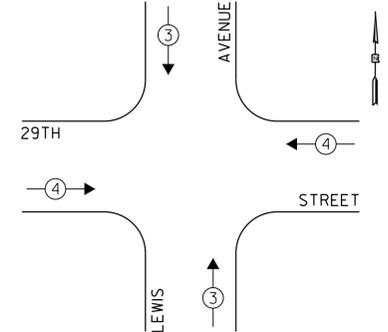
NO.	QUANT.	UNIT	DESCRIPTION
1.	1.00	CAL MO	CHANGEABLE MESSAGE SIGN
2.	400	FOOT	THERMOPLASTIC PAVEMENT MARKING - LINE 4"
3.	100	FOOT	THERMOPLASTIC PAVEMENT MARKING - LINE 24"
4.	30	SO FT	PAVEMENT MARKING REMOVAL
5.	1	EACH	SERVICE INSTALLATION - POLE MOUNTED
6.	79	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.
7.	94	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 1/2" DIA.
8.	85	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.
9.	340	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.
10.	2	EACH	HANDHOLE
11.	2	EACH	DOUBLE HANDHOLE
12.	4	EACH	LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 250 WATT
13.	690	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C
14.	238	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C
15.	1,737	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C
16.	688	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C
17.	100	FOOT	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C
18.	607	FOOT	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1 C
19.	2	EACH	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 26 FT. (SPECIAL)
20.	2	EACH	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 34 FT. (SPECIAL)
21.	16	FOOT	CONCRETE FOUNDATION, TYPE A
22.	4	FOOT	CONCRETE FOUNDATION, TYPE C
23.	60	FOOT	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER
24.	1	EACH	DRILL EXISTING HANDHOLE
25.	8	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED
26.	2	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED
27.	2	EACH	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED
28.	2	EACH	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED
29.	10	EACH	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM
30.	2	EACH	LIGHT DETECTOR
31.	1	EACH	LIGHT DETECTOR AMPLIFIER
32.	175	FOOT	ELECTRIC CABLE IN CONDUIT, VIDEO NO. 20 4C
33.	811	FOOT	ELECTRIC CABLE IN CONDUIT, 600V (EPR-TYPE RHW) 2-1/C NO. 10
34.	412	FOOT	EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C
35.	1.00	EACH	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL
36.	1	EACH	UNINTERRUPTABLE POWER SUPPLY, SPECIAL
37.	175	FOOT	ELECTRIC CABLE IN CONDUIT, COAXIAL
38.	1	EACH	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION
39.	4	EACH	TRAFFIC SIGNAL POST, 16 FOOT, (SPECIAL)
40.	4	EACH	LED INTERNALLY ILLUMINATED STREET NAME SIGN
41.	1	EACH	REMOTE CONTROLLED VIDEO SYSTEM
42.	1	EACH	LAYER II (DATALINK) SWITCH
43.	1	EACH	VIDEO ENCODER



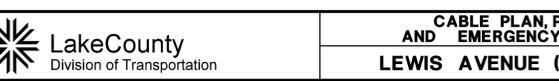
PROPOSED CONTROLLER SEQUENCE



PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE



PROPOSED PHASE DESIGNATION DIAGRAM



RESTORATION OF WORK AREA,
RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCLUDED IN THE COST TO THE RELATED PAY ITEMS 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.

THE TRAFFIC SIGNAL CONTROL EQUIPMENT FOR THIS PROJECT SHALL BE ECONOLITE AND "NTCIP" (LATEST VERSION).

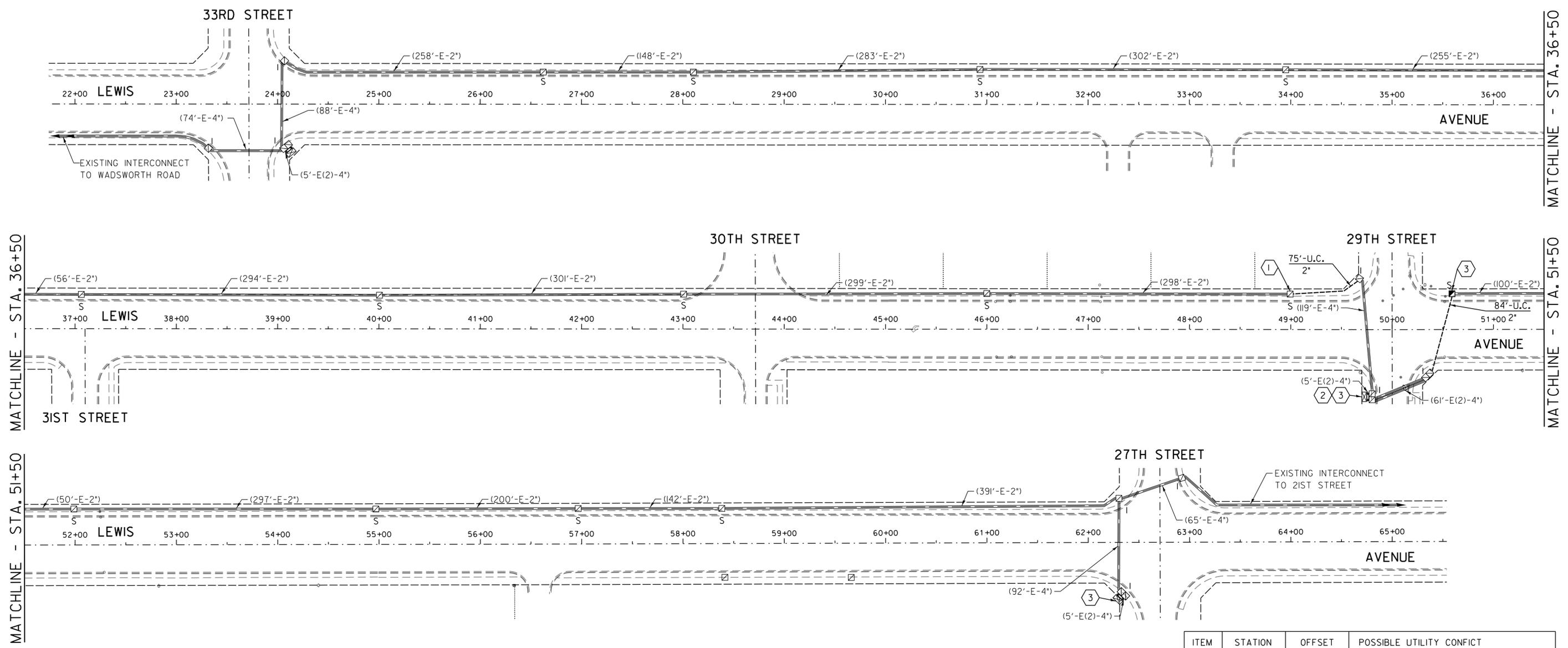
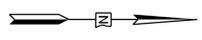
L.C.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS				TOTAL WATTAGE
TYPE	NO. LAMPS	WATTAGE		TOTAL
		INCAND.	L.E.D.	
SIGNAL (RED)	14	135	10	70.0
SIGNAL (YELLOW)	14	135	19	26.6
SIGNAL (GREEN)	14	135	11	61.6
ARROW	8	135	9	7.2
PED. SIGNAL	-	90	9	-
CONTROLLER	1	-	100	100.0
LUMINAIRE	4	-	250	500.0
L.E.D. ST. NAME SIGN	4	-	64	128.0
VIDEO SYSTEM	1	-	150	150.0
BATTERY BACKUP	1	-	25	25.0
ILLUMINATED SIGN	-	-	25	0.05
TOTAL =				1,068.4

ENERGY COSTS - BILLED TO: CITY OF ZION
(ADDRESS) 3220 27TH STREET
(ADDRESS) ZION, IL 60099
ENERGY SUPPLY - CONTACT: MS. TERRI BLECK
PHONE: (847) 816-5239
COMPANY: COM-ED LIBERTYVILLE

NO.	REVISIONS / REMARKS	DATE	BY	SURVEYOR:	GHA
				DSGMR/LIAISON:	JRD
				PLOTTED BY:	zwaltstn 1/5/2016



CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND EMERGENCY VEHICLE PREEMPTION SEQUENCE		ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
LEWIS AVENUE (CH 27) AND W. 29TH STREET		CH27		14-0089-07-TL	5	63



ITEM	STATION	OFFSET	POSSIBLE UTILITY CONFLICT
H-1	50+59.1	35.3' LT	EXISTING STORM SEWER

CONSTRUCTION NOTES:

- ① THE CONTRACTOR SHALL DISCONNECT THE FIBER OPTIC AND TRACER CABLES FROM THE EXISTING CONTROLLER AT LEWIS AVENUE AND 27TH STREET AND PULL BOTH BACK TO THE EXISTING HANDHOLE LOCATED AT STA. 49+00.
- ② THE CONTRACTOR SHALL THEN PULL THE EXISTING FIBER OPTIC AND TRACER CABLES FROM THE EXISTING HANDHOLE AT STA 49+00 THROUGH THE NEW CONDUIT AND TERMINATE BOTH AT THE NEW CONTROLLER AND CABINET LOCATION PER THE SPECIFICATIONS. FIBER TERMINATIONS AND SPLICES SHALL BE ACCORDING TO THE FIBER SPLICING DIAGRAMS.
- ③ THE CONTRACTOR SHALL INSTALL NEW FIBER OPTIC AND TRACER CABLES FROM THE NEW CONTROLLER AND CABINET AT 27TH STREET TO THE EXISTING CONTROLLER AND CABINET AT 29TH STREET.

REVISIONS / REMARKS		DATE	BY	SURVEYOR:	GHA
NO.	DESCRIPTION			DSG NR/LIAISON:	JRD
				PLOTTED BY:	zwallsten 1/5/2016



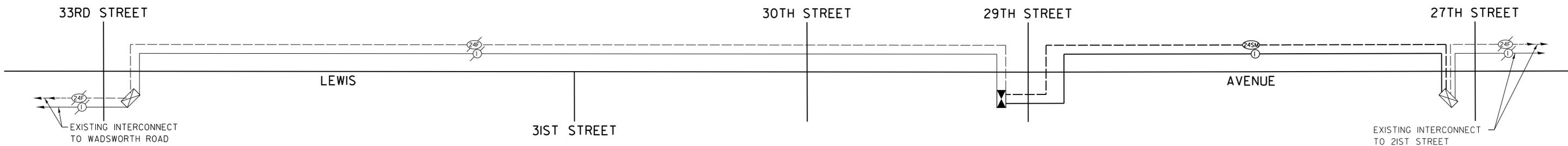
INTERCONNECT PLAN		ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
LEWIS AV (CH 27) FROM 33RD ST TO 27TH ST		CH27		14-00089-07-TL	6	63

FILE NAME: 5051.800-TS-int.dgn
 DRAWING SCALE: 1"=50'
 GHA #5051.800

SCHEDULE OF QUANTITIES

INTERCONNECT - LEWIS AVENUE (CH 27) FROM 33RD STREET TO 27TH STREET

NO.	QUANT.	UNIT	DESCRIPTION
1.	203	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.
2.	1	EACH	HANDHOLE
3.	2	EACH	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION
4.	1,504	FOOT	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C
5.	1	EACH	DRILL EXISTING HANDHOLE
6.	2,956	FOOT	REMOVE ELECTRIC CABLE FROM CONDUIT
7.	436	FOOT	REMOVE AND REINSTALL ELECTRIC CABLE FROM CONDUIT
8.	1,170	FOOT	ROD AND CLEAN EXISTING CONDUIT
9.	1,504	FOOT	FIBER OPTIC CABLE IN CONDUIT, 24 FIBERS, SINGLE MODE
10.	6	EACH	TERMINATE FIBER IN CABINET
11.	1	EACH	RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 2



FIBER OPTIC CABLE TERMINATION/SPLICING QUANTITIES
(BY INTERSECTION/LOCATION)

INTERSECTION/LOCATION	INCIDENTAL		BID ITEM	
	T	S	T	S
LEWIS AVENUE AT 33RD STREET				
LEWIS AVENUE AT 29TH STREET	6	6	6	
LEWIS AVENUE AT 27TH STREET	6	6		
SUBTOTAL				

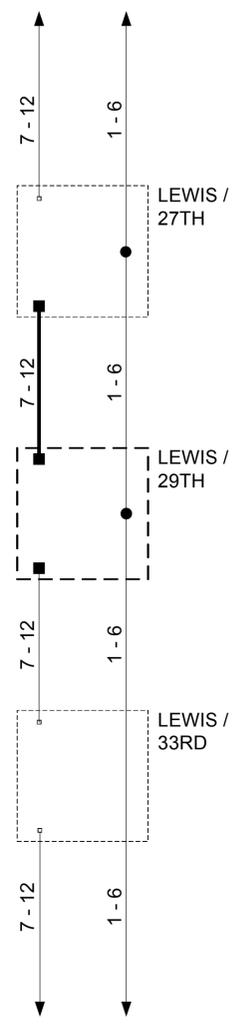
T = TERMINATE FIBER IN CABINET
S = SPLICE FIBER IN CABINET

REVISIONS / REMARKS					
NO.	DESCRIPTION	DATE	BY	SURVEYOR:	GHA
				DSGMR/LIAISON:	JRD
				PLOTTED BY:	zwalsten 1/5/2016

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ASSOCIATES, INC.
625 Forest Edge Drive • Vernon Hills, IL 60061
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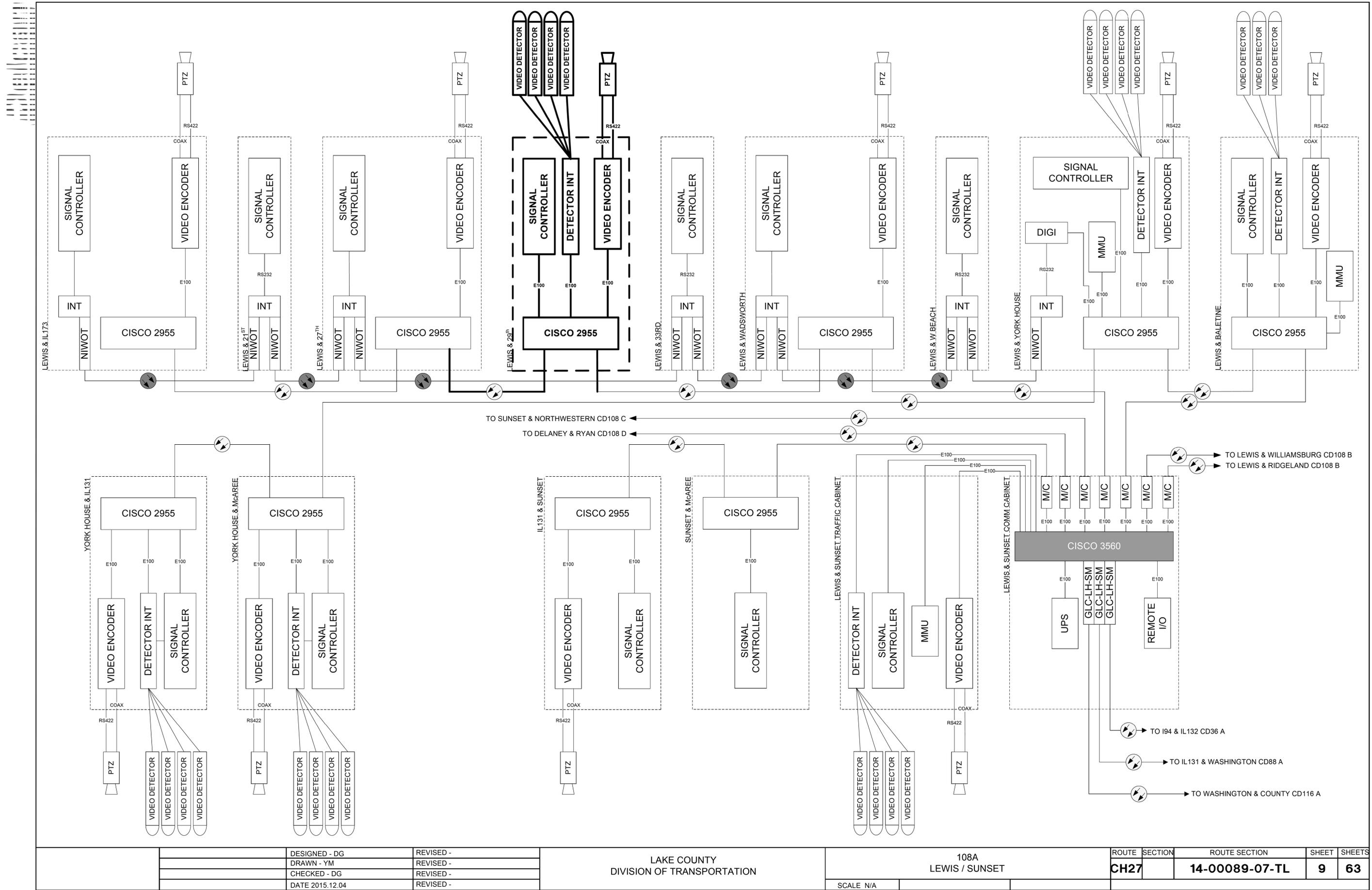
 LakeCounty
Division of Transportation

INTERCONNECT SCHEMATIC		ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
LEWIS AV (CH 27) FROM 33RD ST TO 27TH ST		CH27		14-00089-07-TL	7	63



- EXISTING CONNECTOR / EXISTING FIBER
- NEW CONNECTOR / EXISTING FIBER
- EXISTING FUSION SPLICE / EXISTING FIBER
- NEW FUSION SPLICE / EXISTING FIBER
- NEW CONNECTOR / NEW FIBER
- NEW FUSION SPLICE / NEW FIBER

		DESIGNED - DG	REVISED -	LAKE COUNTY DIVISION OF TRANSPORTATION	FIBER SPLICING DIAGRAM 1	ROUTE	SECTION	ROUTE SECTION	SHEET	SHEETS
		DRAWN - YM	REVISED -			CH27		14-00089-07-TL	8	63
		CHECKED - DG	REVISED -			SCALE N/A				
		DATE 2015.12.04	REVISED -							



DESIGNED - DG
 DRAWN - YM
 CHECKED - DG
 DATE 2015.12.04

REVISED -
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 REVISED -
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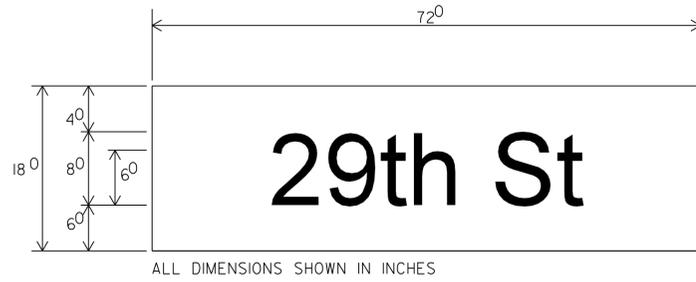
LAKE COUNTY
 DIVISION OF TRANSPORTATION

108A
 LEWIS / SUNSET

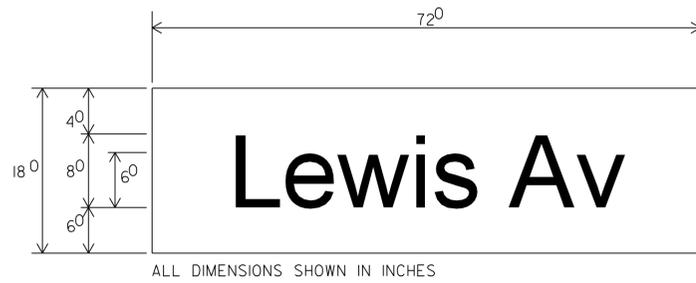
ROUTE	SECTION	ROUTE SECTION	SHEET	SHEETS
CH27		14-00089-07-TL	9	63

SCALE N/A

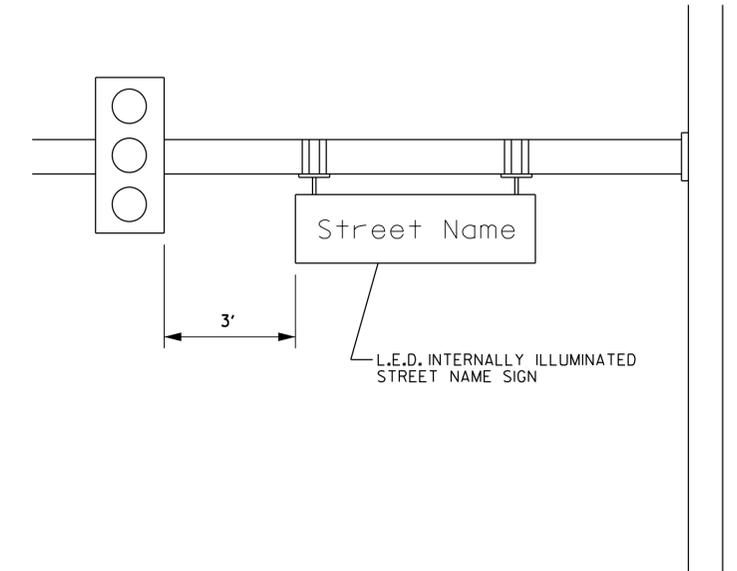
PANEL DESIGN TYPE 1



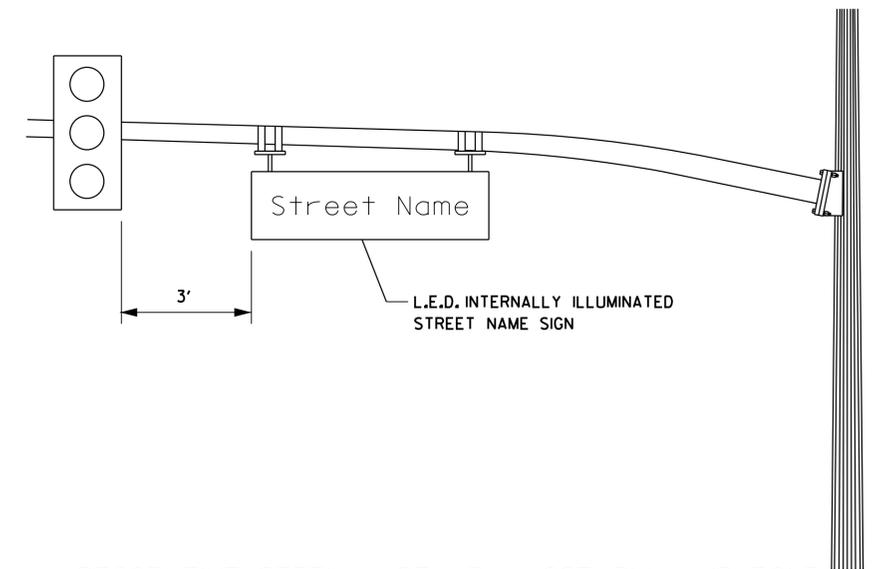
9.0 SQ. FT. EACH
 _____ SINGLE SIDED REQUIRED
 2 _____ DOUBLE SIDED REQUIRED
 DESIGN SERIES D
 HIGHWAY GOTHIC FONT



9.0 SQ. FT. EACH
 _____ SINGLE SIDED REQUIRED
 2 _____ DOUBLE SIDED REQUIRED
 DESIGN SERIES D
 HIGHWAY GOTHIC FONT



REGULAR STEEL MAST ARM ASSEMBLY AND POLE



DECORATIVE STEEL MAST ARM ASSEMBLY AND POLE

NOTE: L.E.D. ILLUMINATED STREET NAME SIGNS
 AVAILABLE ONLY IN 2 FOOT INCREMENTS.

REVISIONS / REMARKS					
NO.	DESCRIPTION	DATE	BY	SURVEYOR:	GHA
				DSG NR/LIAISON:	JRD
				PLOTTED BY:	zwallsten 1/4/2016

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 625 Forest Edge Drive • Vernon Hills, IL 60061
 Tel: 847.478.9700 • Fax: 847.478.9701

 **LakeCounty**
 Division of Transportation

LCDOT MAST ARM MOUNTED STREET NAME SIGNS		ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
LEWIS AVENUE (CH 27) AND W. 29TH STREET		CH27		14-00089-07-TL	10	63

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			
UNINTERRUPTABLE 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				FIBER OPTIC CABLE NO. 62.5/125, MM12F SM24F			
ALUMINUM MAST ARM ASSEMBLY AND POLE				COILABLE NONMETALLIC CONDUIT (EMPTY)				GROUND ROD AT (C) CONTROLLER, (H) HANDHOLE, (P) POST, (M) MAST ARM, OR (S) SERVICE			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE				SYSTEM ITEM				CONTROLLER CABINET AND FOUNDATION TO BE REMOVED			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH PTZ CAMERA				INTERSECTION ITEM				STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED			
SIGNAL POST				REMOVE ITEM				ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED			
TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT (13.7m) MINIMUM				RELOCATE ITEM				STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE AND FOUNDATION TO BE REMOVED			
GUY WIRE				ABANDON ITEM				SIGNAL POST AND FOUNDATION TO BE REMOVED			
SIGNAL HEAD				12" (300mm) TRAFFIC SIGNAL SECTION				INTERSECTION & SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD CONSTRUCTION STAGES (NUMBERS INDICATE THE CONSTRUCTION STAGE)				12" (300mm) RED WITH 8" (200mm) YELLOW AND GREEN TRAFFIC SIGNAL FACE				SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD WITH BACKPLATE				SIGNAL FACE				QUEUE DETECTOR			
SIGNAL HEAD OPTICALLY PROGRAMMED				SIGNAL FACE WITH BACKPLATE, "P" INDICATES PROGRAMMED HEAD				PREFORMED QUEUE DETECTOR			
FLASHER INSTALLATION (S DENOTES SOLAR POWER)				"RB" INDICATES REFLECTIVE BACKPLATE				PREFORMED INTERSECTION AND SAMPLING (SYSTEM) DETECTOR			
PEDESTRIAN SIGNAL HEAD				12" (300mm) PEDESTRIAN SIGNAL HEAD WALK/DON'T WALK SYMBOL				PREFORMED SAMPLING (SYSTEM) DETECTOR			
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							
PREFORMED 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											

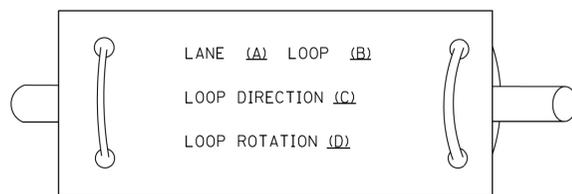
RAILROAD SYMBOLS

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

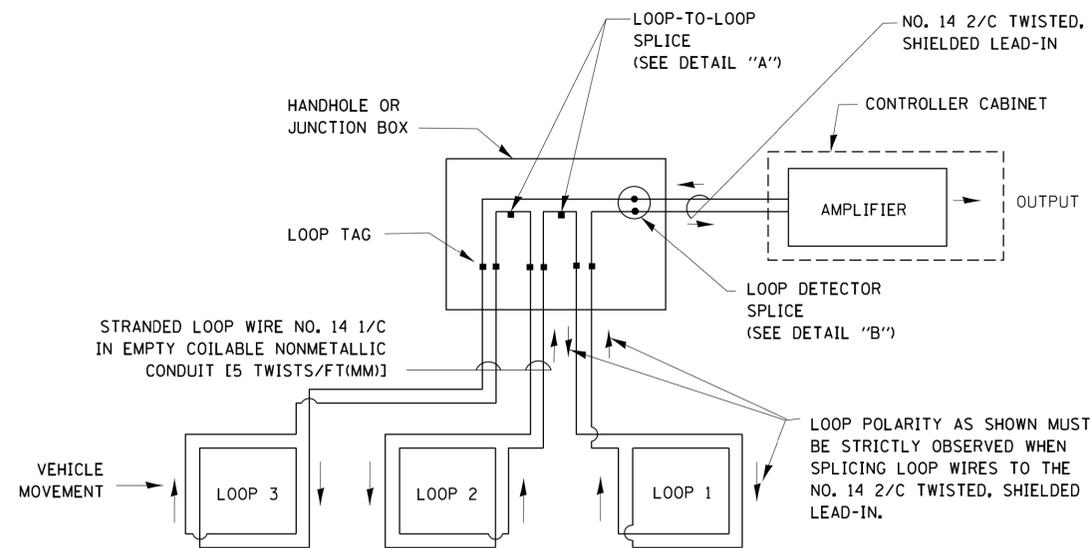
LOOP DETECTOR NOTES

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 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 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

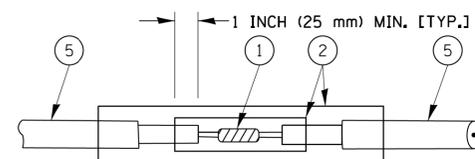


- A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY
- B. LOOP #1 IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION.
- C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".
- D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

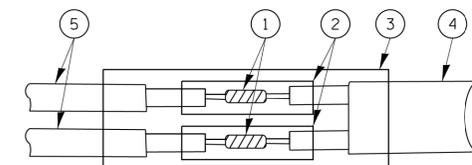


DETECTOR LOOP WIRING SCHEMATIC

- 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.

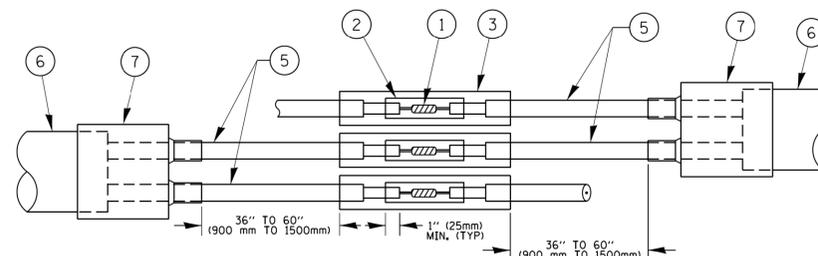


DETAIL "A"
LOOP-TO-LOOP SPLICE

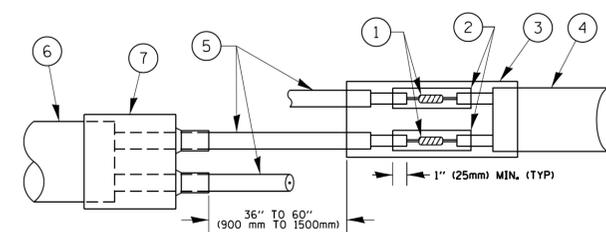


DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

TYPE I LOOP



DETAIL "A"
LOOP-TO-LOOP SPLICE



DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

PREFORMED LOOP

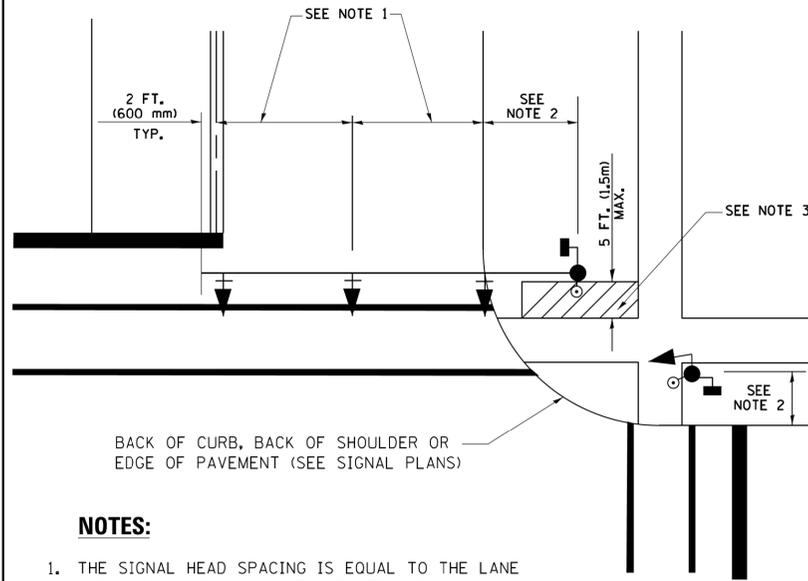
LOOP DETECTOR SPLICE

- 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.
- 6 PREFORMED LOOP
- 7 XL POLYOLEFIN 2 CONDUCTOR BREAKOUT SEALS, TYCO CBR-2 OR APPROVED EQUAL

FILE NAME = 5051.800-StdDetails.dgn	USER NAME = zwellsten	DESIGNED - DAD	REVISED - DAG 1-1-14
GHA #5051.800	PLOT SCALE = 1:1	DRAWN - BCK	REVISED -
1DOT D1 STANDARD TS05b	PLOT DATE = 1/4/2016	CHECKED - DAD	REVISED -
		DATE - 10-28-09	REVISED -

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH27	I4-00089-07-TL		63	12
TS-05		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

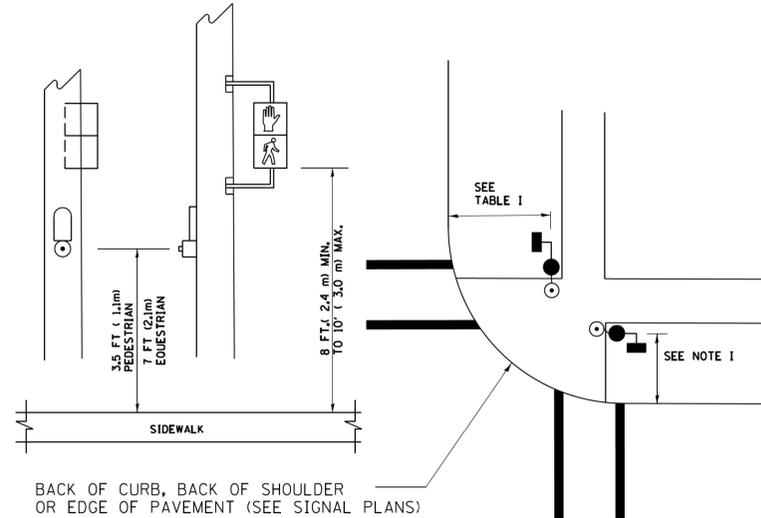
**TRAFFIC SIGNAL MAST ARM AND SIGNAL POST
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR
FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN
WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.**



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."

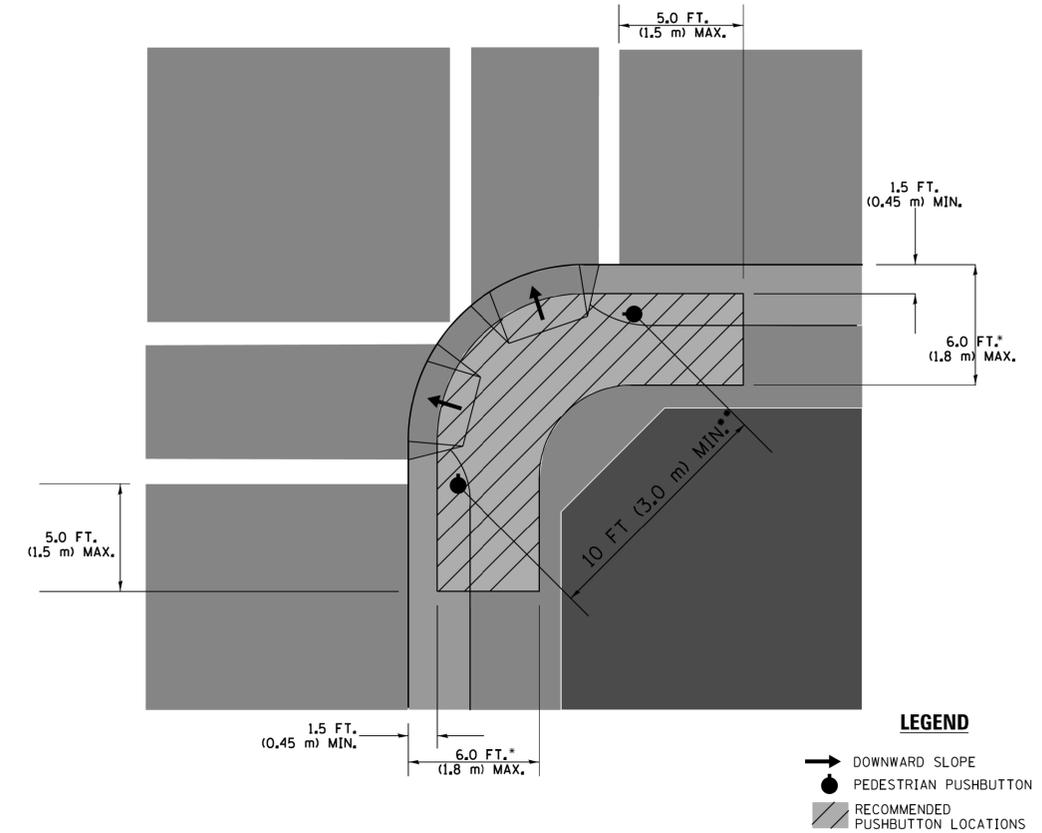
**PEDESTRIAN SIGNAL POST
AND
PEDESTRIAN PUSH BUTTON POST**



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) SEPARATION BETWEEN THE TWO PEDESTRIAN PUSHBUTTONS, THE PUSHBUTTONS MAY BE PLACED CLOSER TOGETHER OR ON THE SAME POLE.

NOTES:

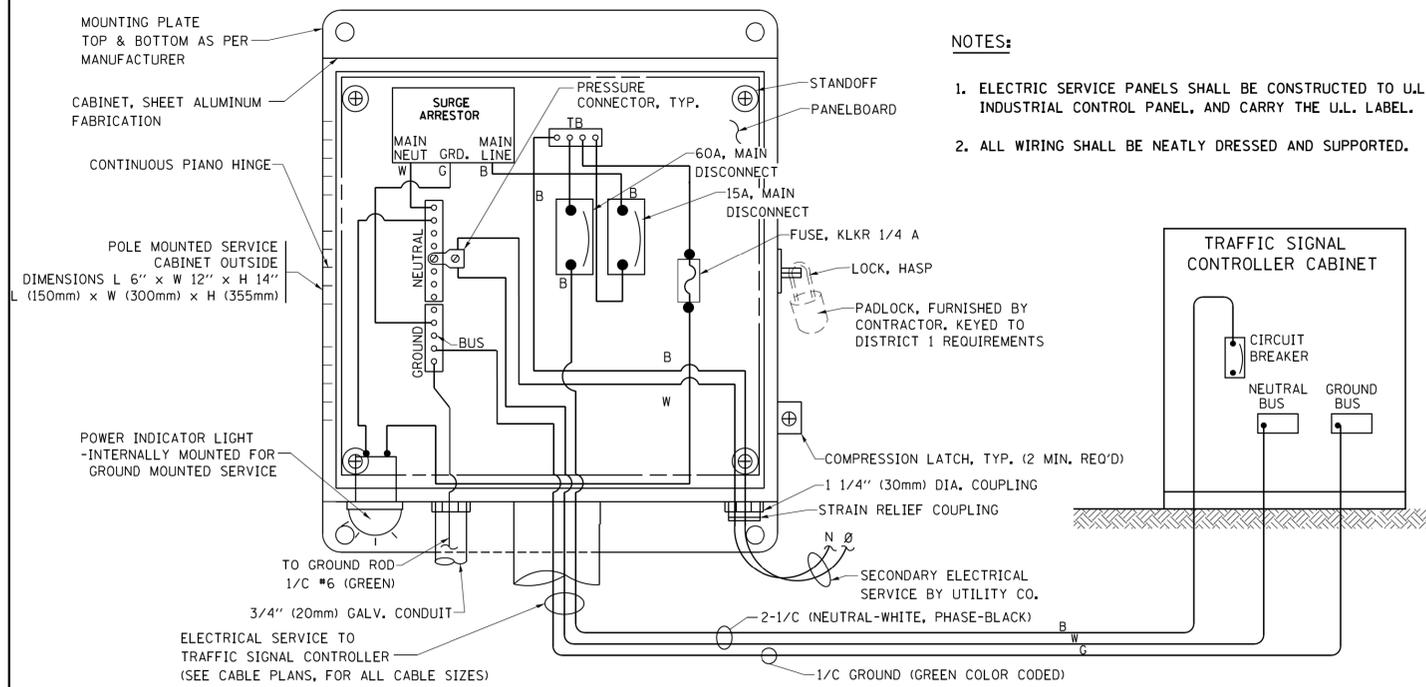
1. PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGNAL HOUSING INCLUDING BRACKETS NOT LESS THAN 8 FT (2.4 m) OR MORE THAN 10 FT (3 m) ABOVE SIDEWALK LEVEL, AND SHALL BE POSITIONED AND ADJUSTED TO PROVIDE MAXIMUM VISIBILITY AT THE BEGINNING OF THE CONTROLLED CROSSWALK.
2. THE BOTTOM 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

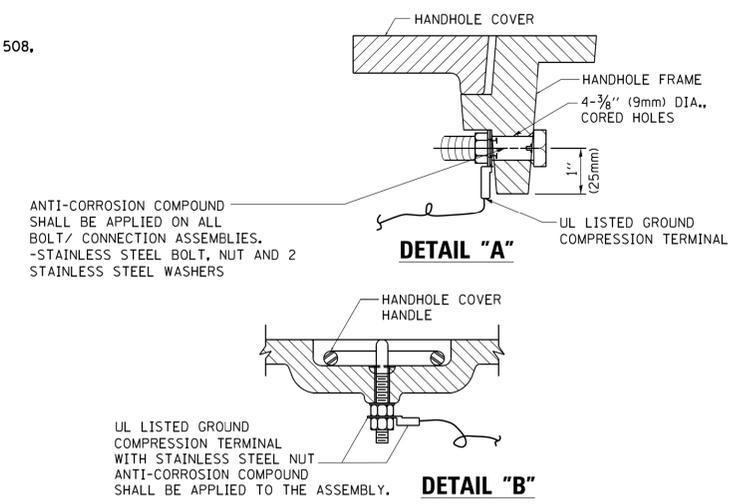
TRAFFIC SIGNAL EQUIPMENT	COMBINATION CONCRETE CURB AND GUTTER (MINIMUM DISTANCE FROM BACK OF CURB TO CENTERLINE OF FOUNDATION)	SHOULDER/NON-CURBED AREA (MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO CENTERLINE OF FOUNDATION)
TRAFFIC SIGNAL MAST ARM POLE	6 FT (1.8m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 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.

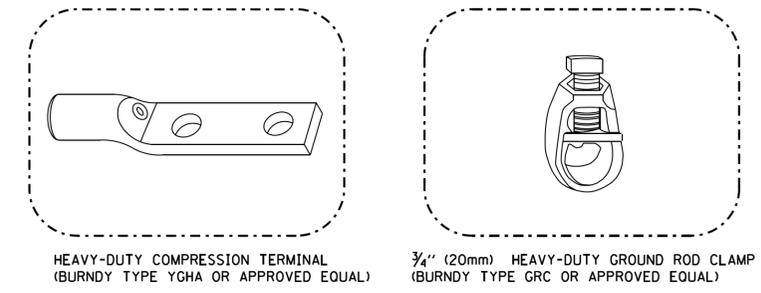
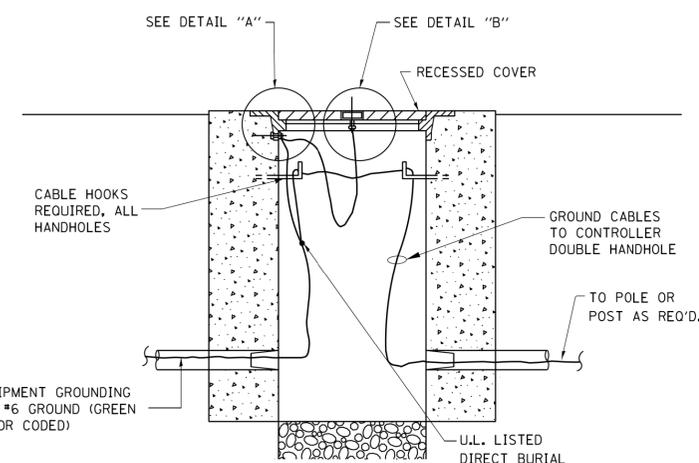


**ELECTRICAL SERVICE – PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)
SERVICE INSTALLATION POLE MOUNT (SHOWN)
(NOT TO SCALE)**

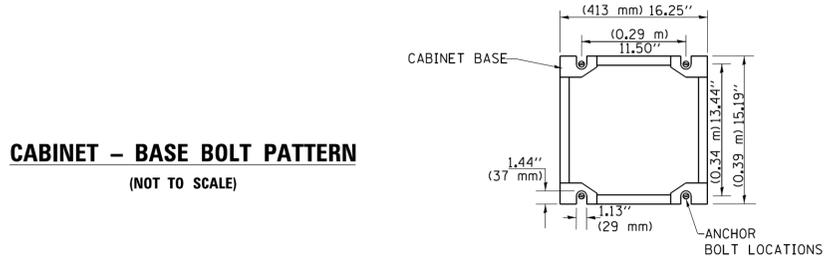
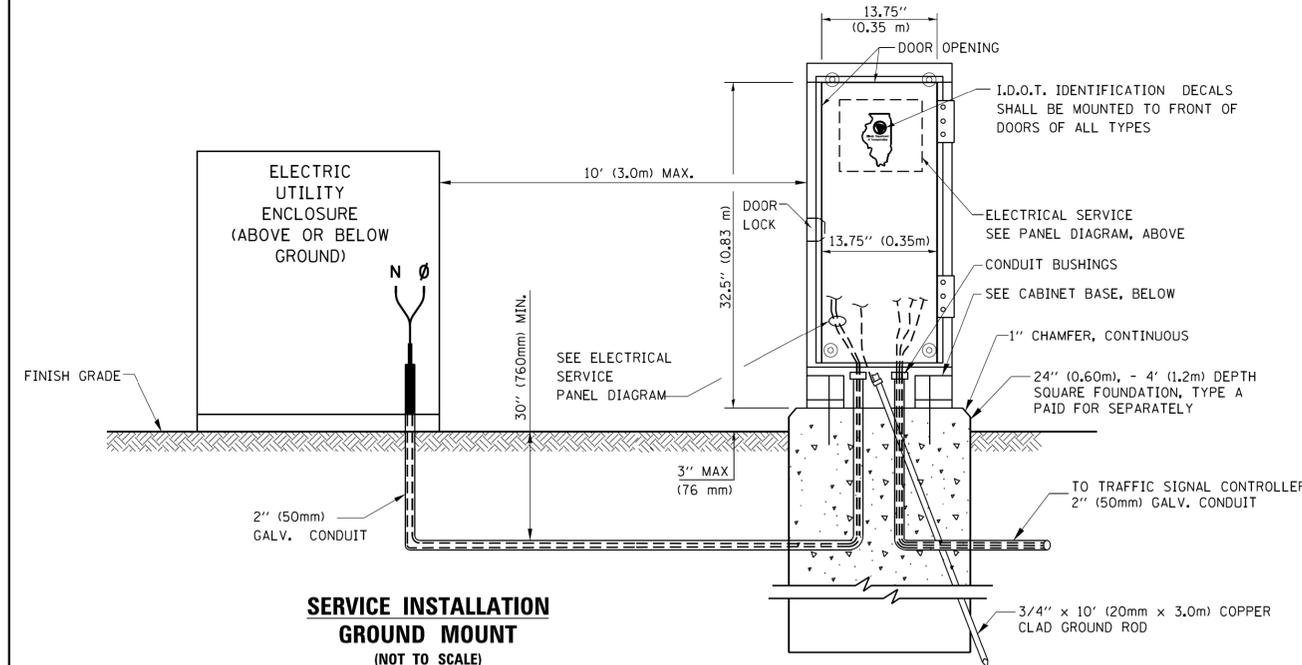
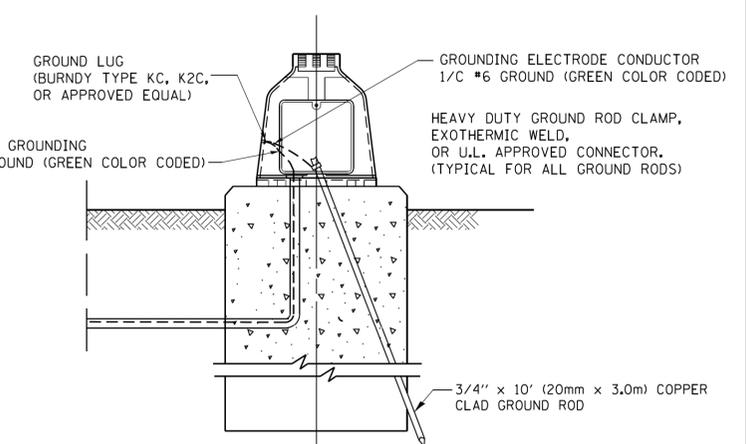
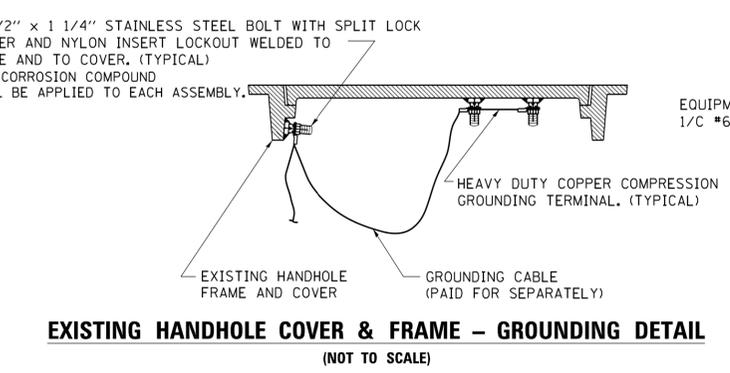


NOTES:
GROUNDING SYSTEM

- 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.
- 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.
- ALL EQUIPMENT GROUNDING CONDUCTORS SHALL TERMINATE AT THE GROUND BUS IN THE CONTROLLER CABINET.
- 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.



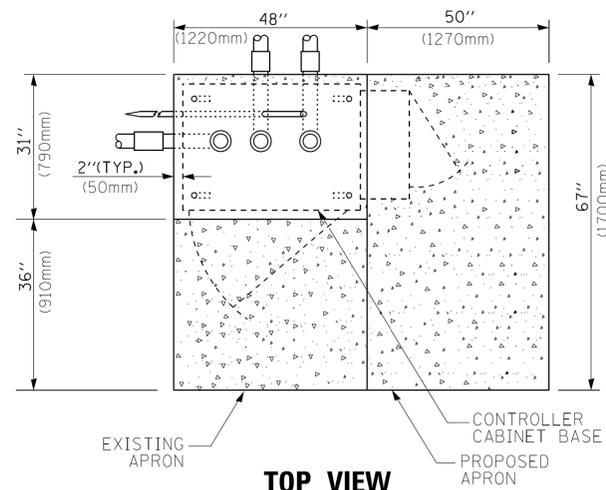
GHA GEWALT HAMILTON ASSOCIATES, INC.

FILE NAME = 5051.800-StdDetails.dgn	USER NAME = zwellsten	DESIGNED - DAD	REVISED - DAG 1-1-14
GHA #5051.800	PLOT SCALE = 1st	DRAWN - BCK	REVISED -
1DOT D1 STANDARD TS05d	PLOT DATE = 1/4/2016	CHECKED - DAD	REVISED -
		DATE - 10-28-09	REVISED -

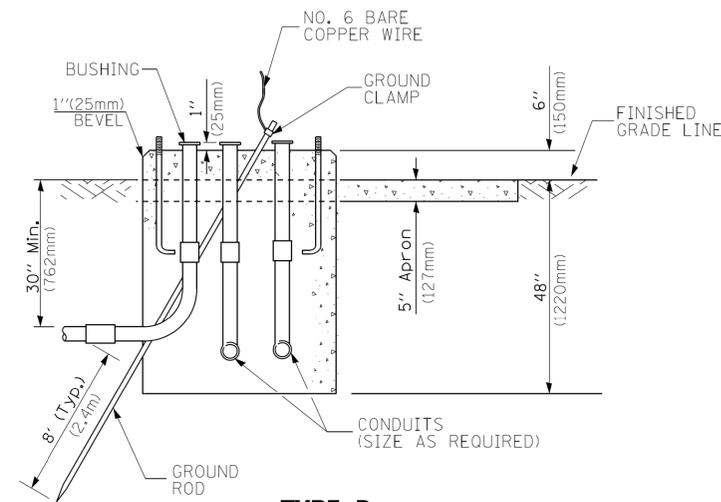
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

DISTRICT ONE	
STANDARD TRAFFIC SIGNAL DESIGN DETAILS	
SCALE: NONE	SHEET NO. 4 OF 7 SHEETS STA. TO STA.

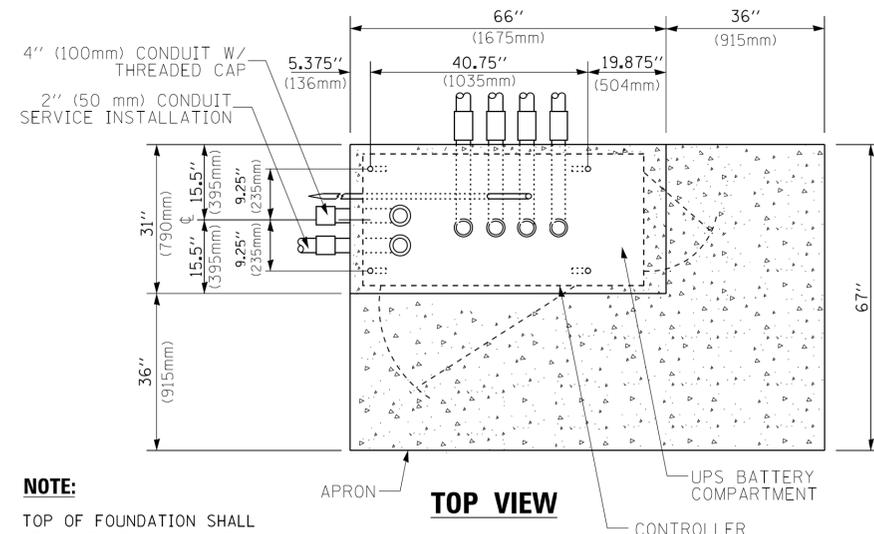
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH27	I4-00089-07-TL		63	14
TS-05		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



TOP VIEW



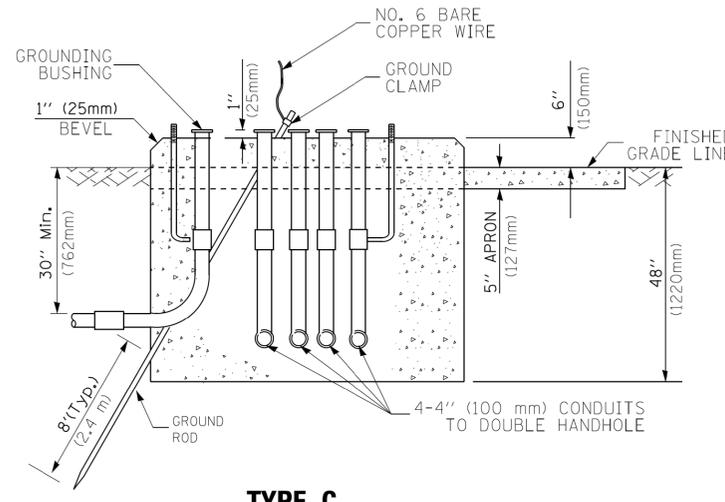
**TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET**



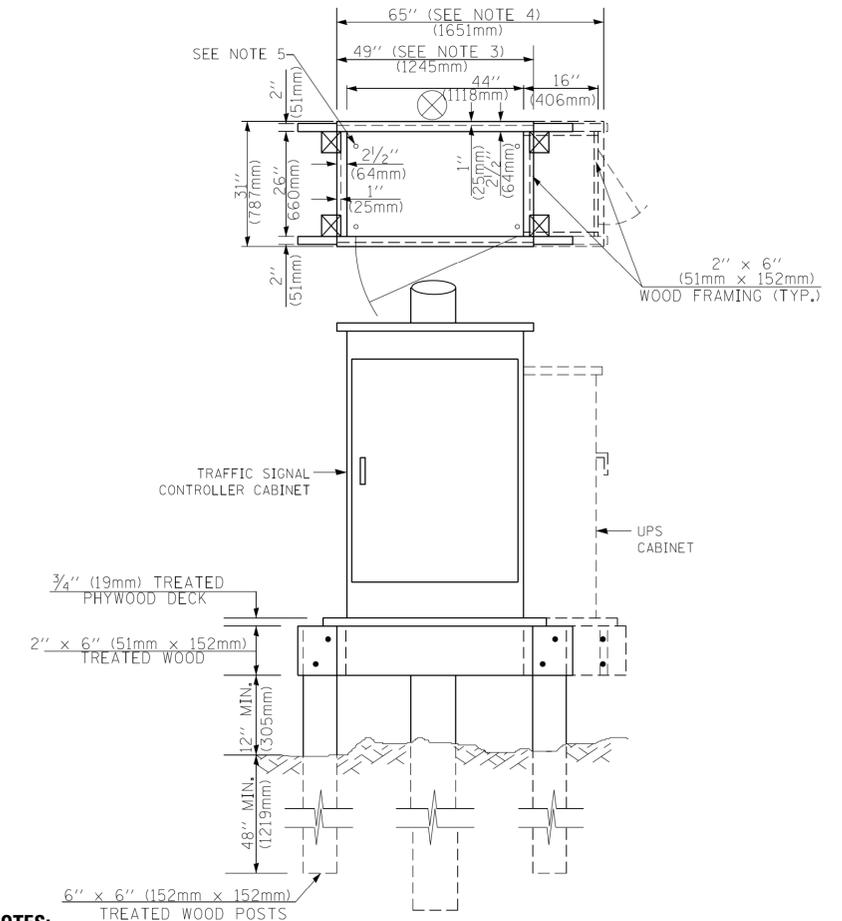
TOP VIEW

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)	24" (600mm)	12	7(22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	13'-0" (4.0 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 55' (16.8 m) and up to 65' (19.8 m)	15'-0" (4.6 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 65' (19.8 m) and less than 75' (22.9 m)	21'-0" (6.4 m)	42" (1060mm)	36" (900mm)	16	8(25)
Greater than or equal to 75' (22.9 m) and up to 85' (25.9 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..

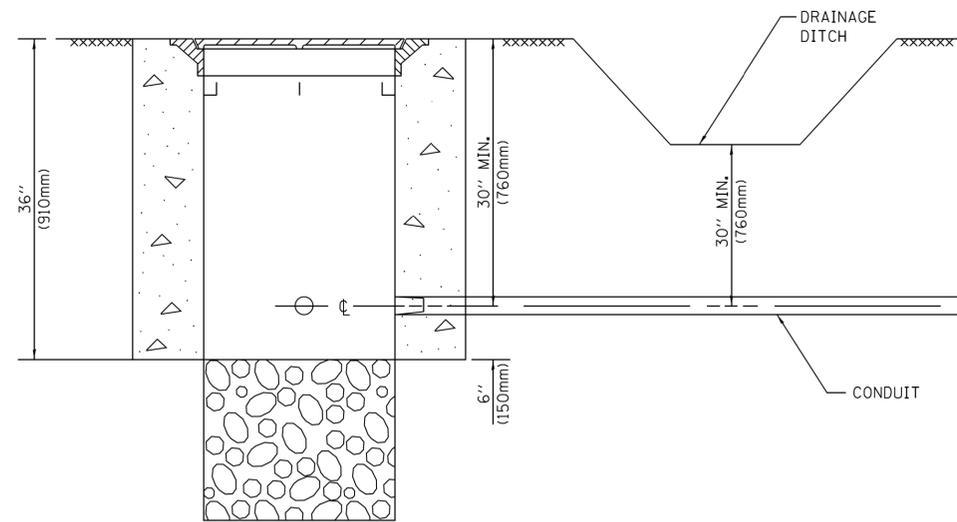
DEPTH OF MAST ARM FOUNDATIONS, TYPE E

GHA GEWALT HAMILTON ASSOCIATES, INC.

FILE NAME = 5051.800-StdDetails.dgn	USER NAME = zwellsten	DESIGNED - DAG	REVISED - DAG 1-1-14
GHA #5051.800	PLOT SCALE = 1st	DRAWN - BCK	REVISED -
100T D1 STANDARD TS05e	PLOT DATE = 1/4/2016	CHECKED - DAD	REVISED -
		DATE - 10-28-09	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

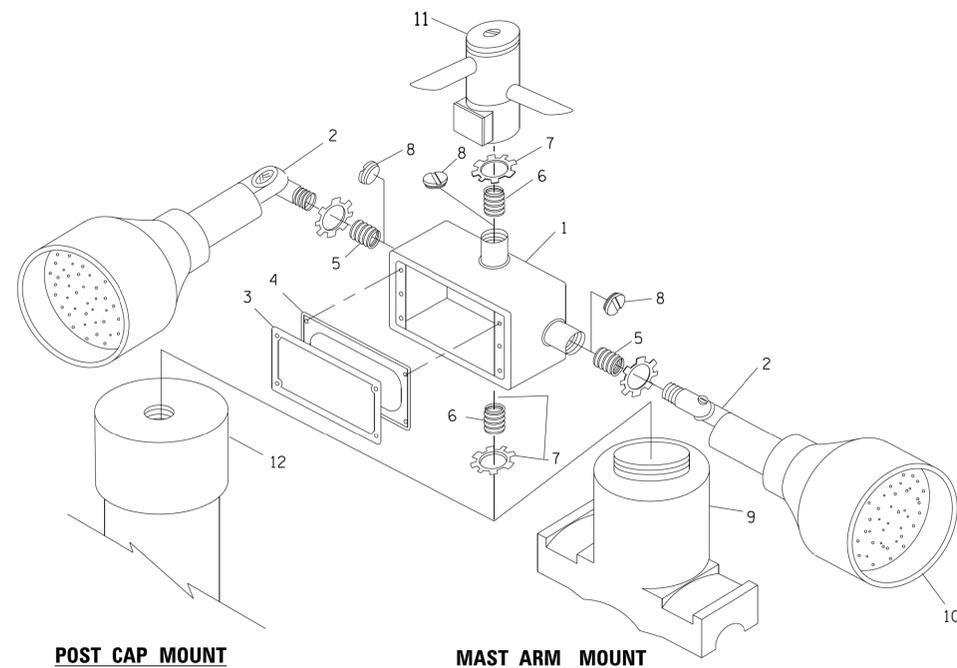
DISTRICT ONE		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
STANDARD TRAFFIC SIGNAL DESIGN DETAILS		CH27	I4-00089-07-TL		63	15
SCALE: NONE		SHEET NO. 5 OF 7 SHEETS		STA. TO STA.	CONTRACT NO.	
		ILLINOIS		FED. AID PROJECT		



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.

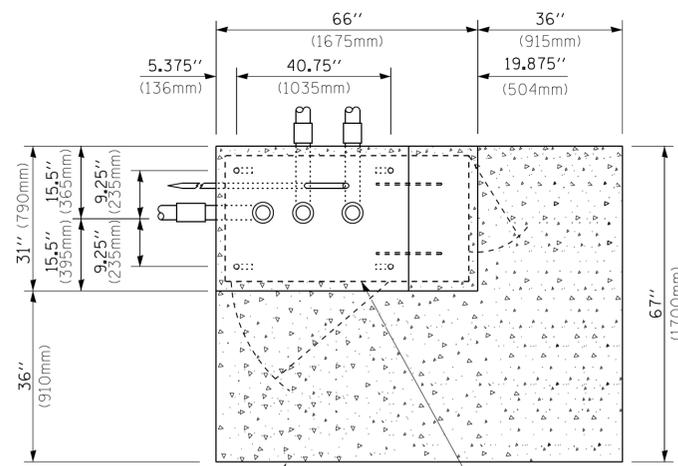
HANDHOLE WITH MINIMUM CONDUIT DEPTH
(NOT TO SCALE)



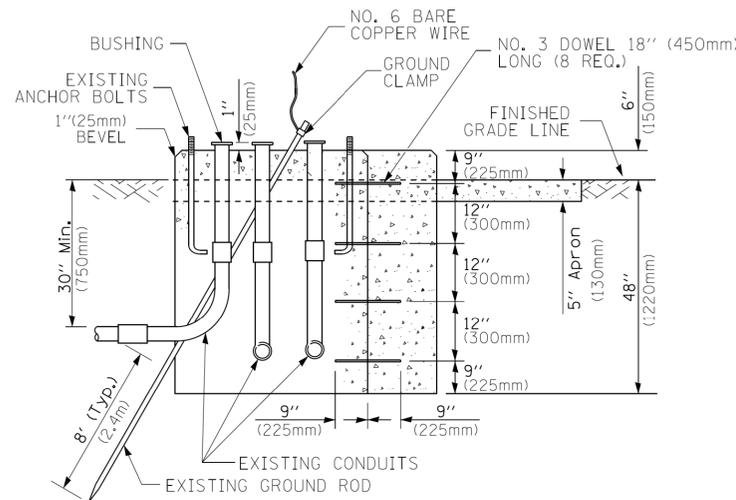
POST CAP MOUNT

MAST ARM MOUNT

EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL



TOP VIEW
(NOT TO SCALE)

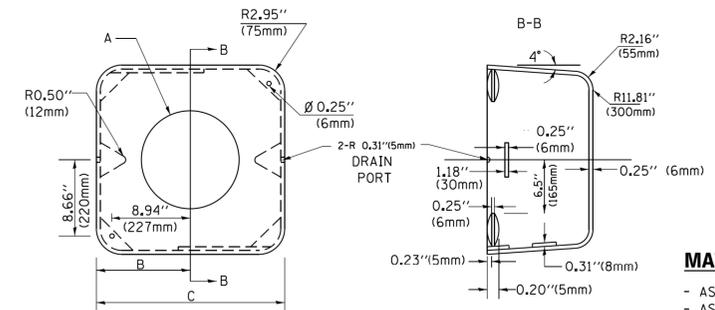


MODIFY EXISTING TYPE "D" FOUNDATION TO TYPE "C" FOUNDATION
(NOT TO SCALE)

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-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.



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	18.5" (470mm)	37" (940mm)	7" (178mm) - 12" (300mm)	126 lbs (57 kg)

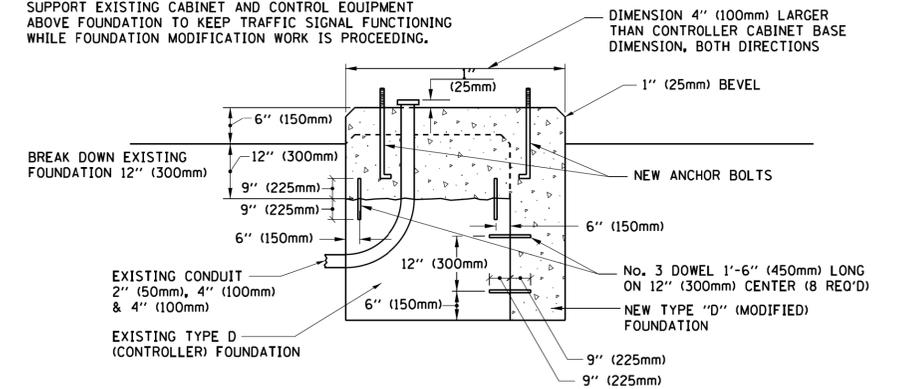
SHROUD

NOTES:

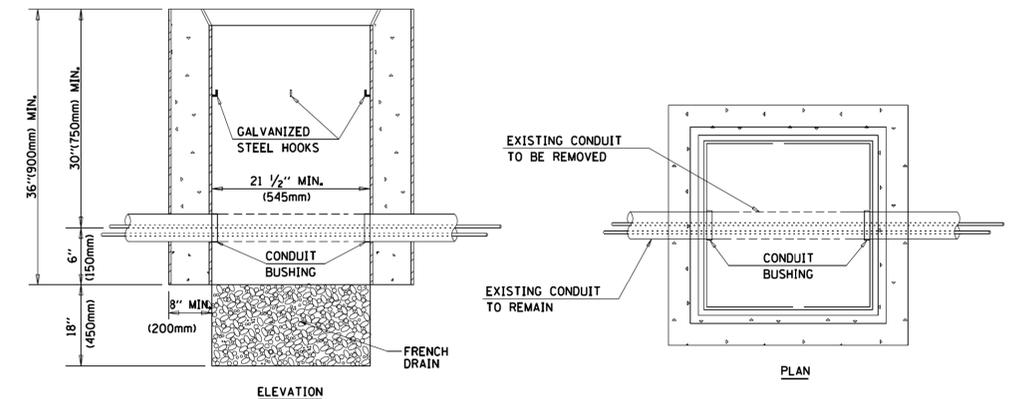
1. DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
2. THE SUPPLIER SHALL VERIFY THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
3. THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST ARM POLE BASE.

NOTE:

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



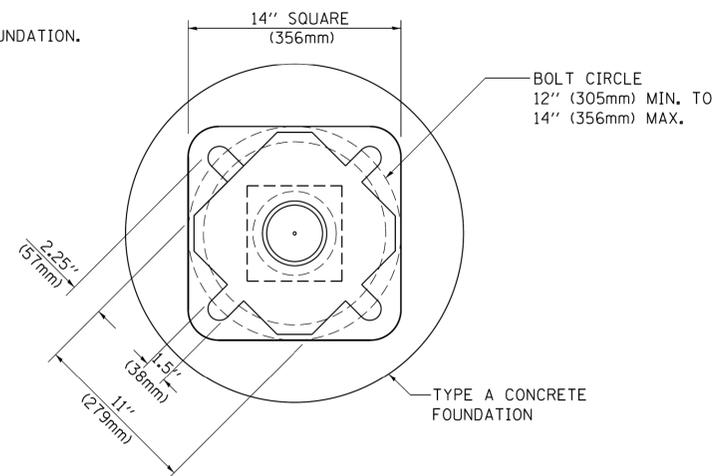
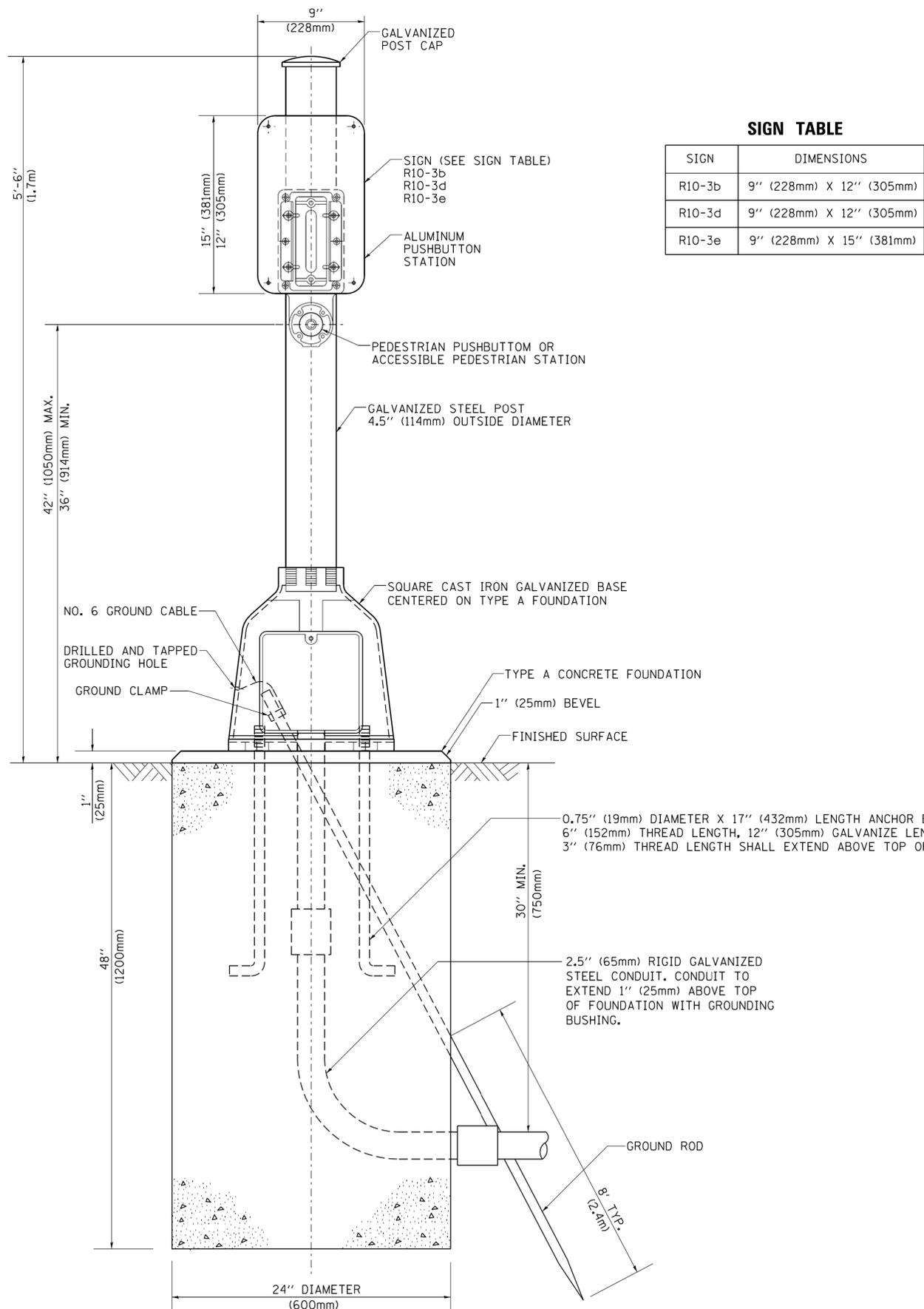
MODIFY EXISTING TYPE "D" FOUNDATION



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



BOLT PATTERN
PEDESTRIAN PUSH BUTTON POST, TYPE A

REVISIONS / REMARKS		DATE	BY	SURVEYOR:	GBA
NO.	DESCRIPTION			DSG NR/LIAISON:	JRD
				PLOTTED BY:	zwalls ten 1/11/2016

FILE NAME: 505I,800-StdDetails.dgn
DRAWING SCALE: NONE
GHA *505I,800

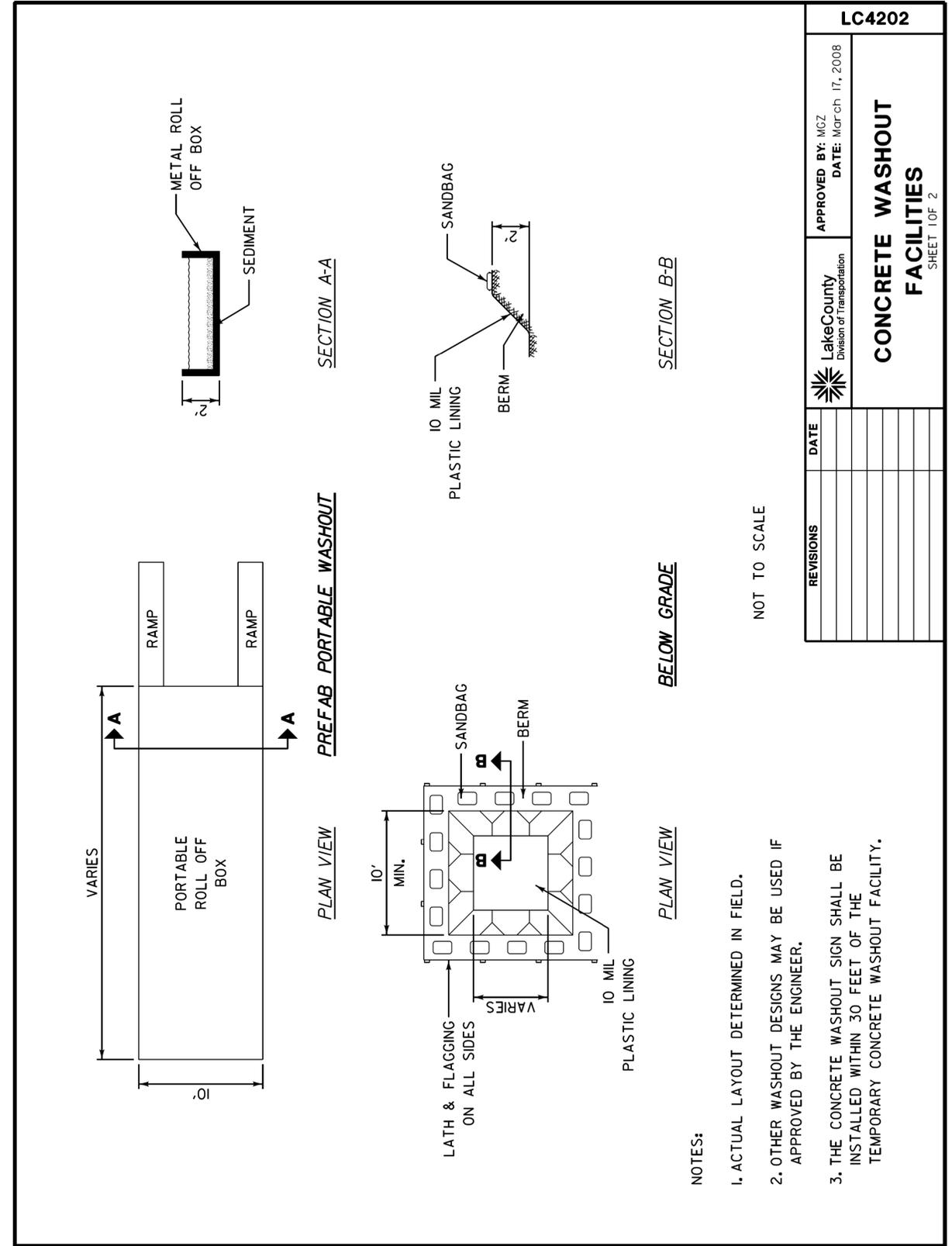
GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive • Vernon Hills, IL 60061
Tel. 847.478.9700 • Fax 847.478.9701

 **Lake County**
Division of Transportation

LCDOT STANDARD DETAILS

LEWIS AVENUE (CH 27) AND W. 29TH STREET

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH27		14-00089-07-TL	18	63



NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. OTHER WASHOUT DESIGNS MAY BE USED IF APPROVED BY THE ENGINEER.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

NOT TO SCALE

REVISIONS	DATE	APPROVED BY: M6Z	DATE: March 17, 2008

LC4202

CONCRETE WASHOUT FACILITIES
SHEET 1 OF 2

NO.	REVISIONS / REMARKS	DATE	BY	SURVEYOR:	GHA
	DESCRIPTION			DSGMR/LIAISON:	JRD
				PLOTTED BY:	zwallsten 1/4/2016

FILE NAME: 5051,800-St+dDetails.dgn
DRAWING SCALE: NONE
GHA #5051,800

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive • Vermont Hills, IL 60061
Tel. 847.478.9700 • Fax 847.478.9701

LakeCounty
Division of Transportation

LCDOT STANDARD DETAILS

LEWIS AVENUE (CH 27) AND W. 29TH STREET

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH27		14-00089-07-TL	19	63

PLAN VIEW ABOVE GRADE WITH STRAW BALES

PLAN VIEW ABOVE GRADE WITH CONCRETE WASHOUT

NOTES:

- ACTUAL LAYOUT DETERMINED IN FIELD.
- OTHER WASHOUT DESIGNS MAY BE USED IF APPROVED BY THE ENGINEER.
- THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

SECTION C-C

SECTION D-D

STAPLE DETAIL

CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)

REVISIONS

NO.	DATE	DESCRIPTION

APPROVED BY: M.C.Z. **DATE:** Mar-Ch 17, 2008

LakeCounty Division of Transportation

LC4202

CONCRETE WASHOUT FACILITIES
SHEET 2 OF 2

SECTION A-A

SECTION A-A

SECTION C-C

SECTION C-C

SECTION D-D

SECTION D-D

REVISIONS

NO.	DATE	DESCRIPTION

APPROVED BY: M. G. ZEMAITIS **DATE:** APRIL 1, 2007

LakeCounty Division of Transportation

LC6020

SUB-SURFACE DRAINS

The removable rodent shield shall be furnished and installed in accordance with one of the configurations shown. The shield shall be fabricated from steel wire, or expanded metal, as detailed above and shall be galvanized after fabrication in accordance with AASHTO M-111. Other submitted designs for a removable rodent shield will be allowed with the approval of the Engineer.

DESIGN NOTES:
All work shall be according to the applicable portions of the "Standard Specifications" except as modified hereon.

In addition to the requirements of Article 601.08 of the "Standard Specifications", the contract unit price per foot for pipe drains 4" & 6" and pipe underdrains 4" shall include the cost of furnishing and placing the rodent shield.

TYPICAL PIPE DRAIN/PIPE UNDERDRAIN OUTLET

PD/PU SHALL NOT PROJECT INTO CULVERT MORE THAN 1" AND SHALL FIT TIGHT TO KEEP MORTAR OUT OF CULVERT.

DESIGN NOTES:

All work shall be according to the applicable portions of the "Standard Specifications" except as modified hereon.

In addition to the requirements of Article 601.08 of the "Standard Specifications", the contract unit price per foot for pipe drains 4" & 6" and pipe underdrains 4" shall include the cost of furnishing and placing the rodent shield.

3/16" WIRE STOCK BENT TO A SPIRAL CONFIGURATION. TO INSTALL, TWIST INTO PD/PU END.

(2 LF FOR 4" PIPE)
(3 LF FOR 6" PIPE)

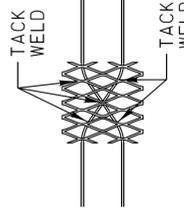
4 1/2" FOR 4" PIPE
6 1/2" FOR 6" PIPE

FIELD CUT HOLE IN CULVERT FOR PIPE

DETAIL C

RODENT SHIELDS DETAIL (ALTERNATES) NOT TO SCALE

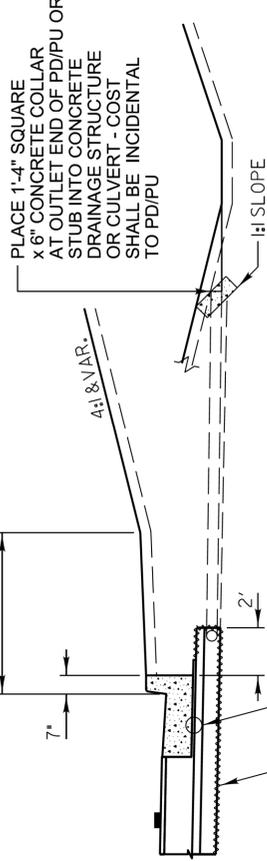
6"x6" EXPANDED METAL SHIELD WITH TWO 2'-6" LONG PREFABRICATED 6 GAGE STEEL STRUTS FOR SNUG FIT INTO THE PD/PU END.



SECTION A-A

SEE CURB & GUTTER SUBGRADE OPTIONS LAKE COUNTY DETAIL # LC3000.

GEOTECHNICAL FABRIC FOR GROUND STABILIZATION



DITCH LINE OR TOE OF SLOPE

PLUGGED END

PROP PD/PU

0.20% MIN. SLOPE

LONGITUDINAL SLOPE OF PAVEMENT

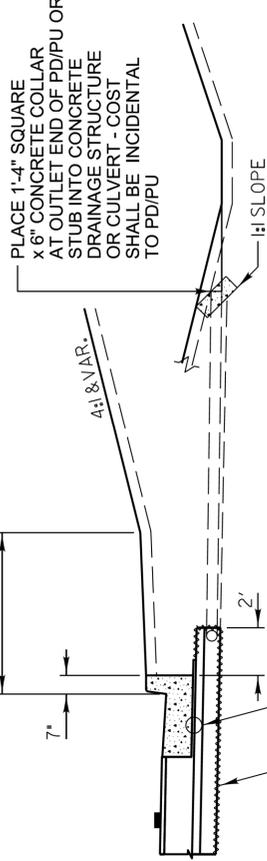
SEE DETAIL C

0.20% MIN. SLOPE

GEOTECHNICAL FABRIC FOR GROUND STABILIZATION

SEE CURB & GUTTER SUBGRADE OPTIONS LAKE COUNTY DETAIL # LC3000.

SECTION A-A



DITCH LINE OR TOE OF SLOPE

PLUGGED END

PROP PD/PU

0.20% MIN. SLOPE

LONGITUDINAL SLOPE OF PAVEMENT

SEE DETAIL C

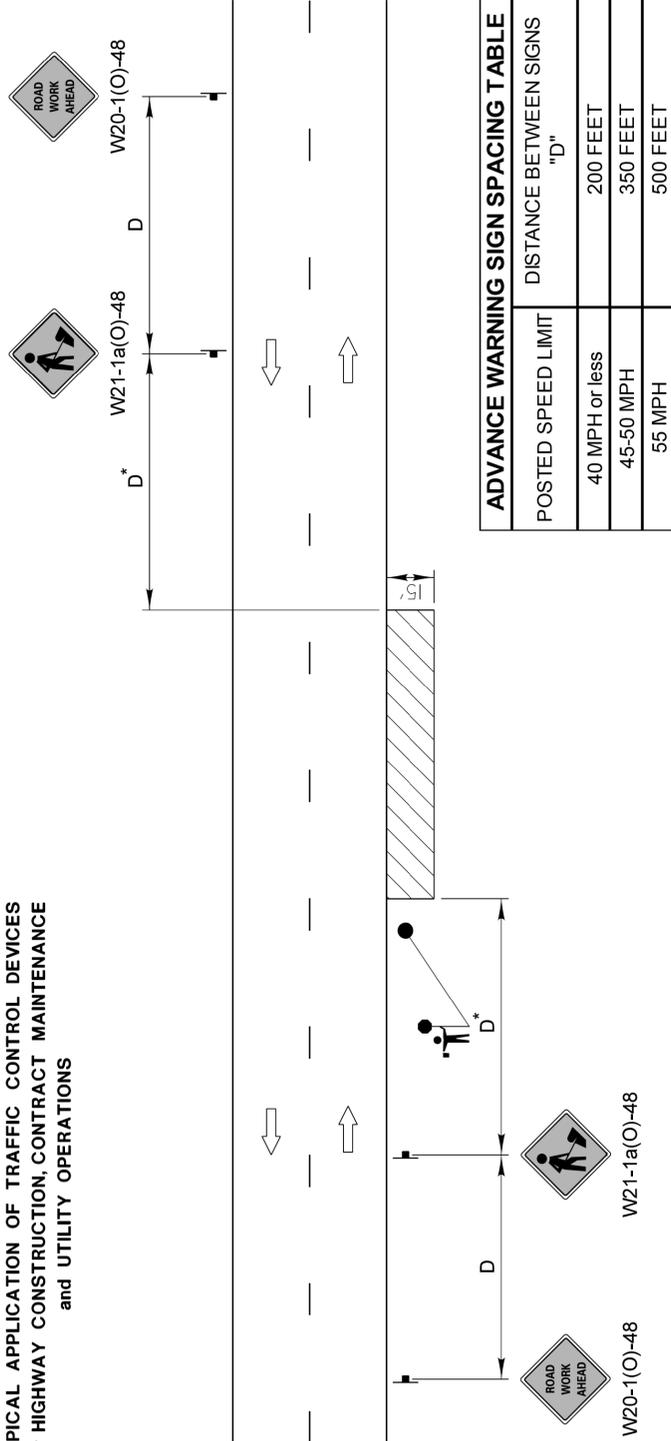
0.20% MIN. SLOPE

GEOTECHNICAL FABRIC FOR GROUND STABILIZATION

SEE CURB & GUTTER SUBGRADE OPTIONS LAKE COUNTY DETAIL # LC3000.

SECTION A-A

**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
for HIGHWAY CONSTRUCTION, CONTRACT MAINTENANCE
and UTILITY OPERATIONS**

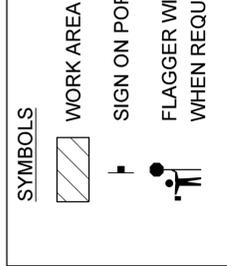


GENERAL NOTES:

This special detail is used at any time, any vehicle, equipment, workers or their activities require a stationary, intermittent or continuous moving operation within 15 feet of the traffic lane, where the average speed is 1 mph or less.

* Minimum distance "D" is shown in the Advance Warning Sign Spacing Table. If the work is a moving operation, the maximum distance "D" may be extended to 1/2 the length required for one normal working day's operation or 4 miles, whichever is less.

If the work operation does not exceed 60 minutes, traffic control may be according to I.D.O.T. Highway Standard 701301.



MODIFIED IDOT STANDARD 701011-02

APPROVED BY: A. KHAWAJA
DATE: APRIL 1, 2007



Revised IDOT Reference
Title Block Revision
Reformat LCDOT Standard

DATE
8/7/09
7/15/10

**TWO LANE, TWO WAY,
OFF-ROAD OPERATIONS
DAY OPERATIONS ONLY**

LC7000

NOT TO SCALE

REVISIONS / REMARKS					
NO.	DESCRIPTION	DATE	BY	SURVEYOR:	GHA
				DSGMR/LIAISON:	JRD
				PLOTTED BY:	zwallsten 1/4/2016

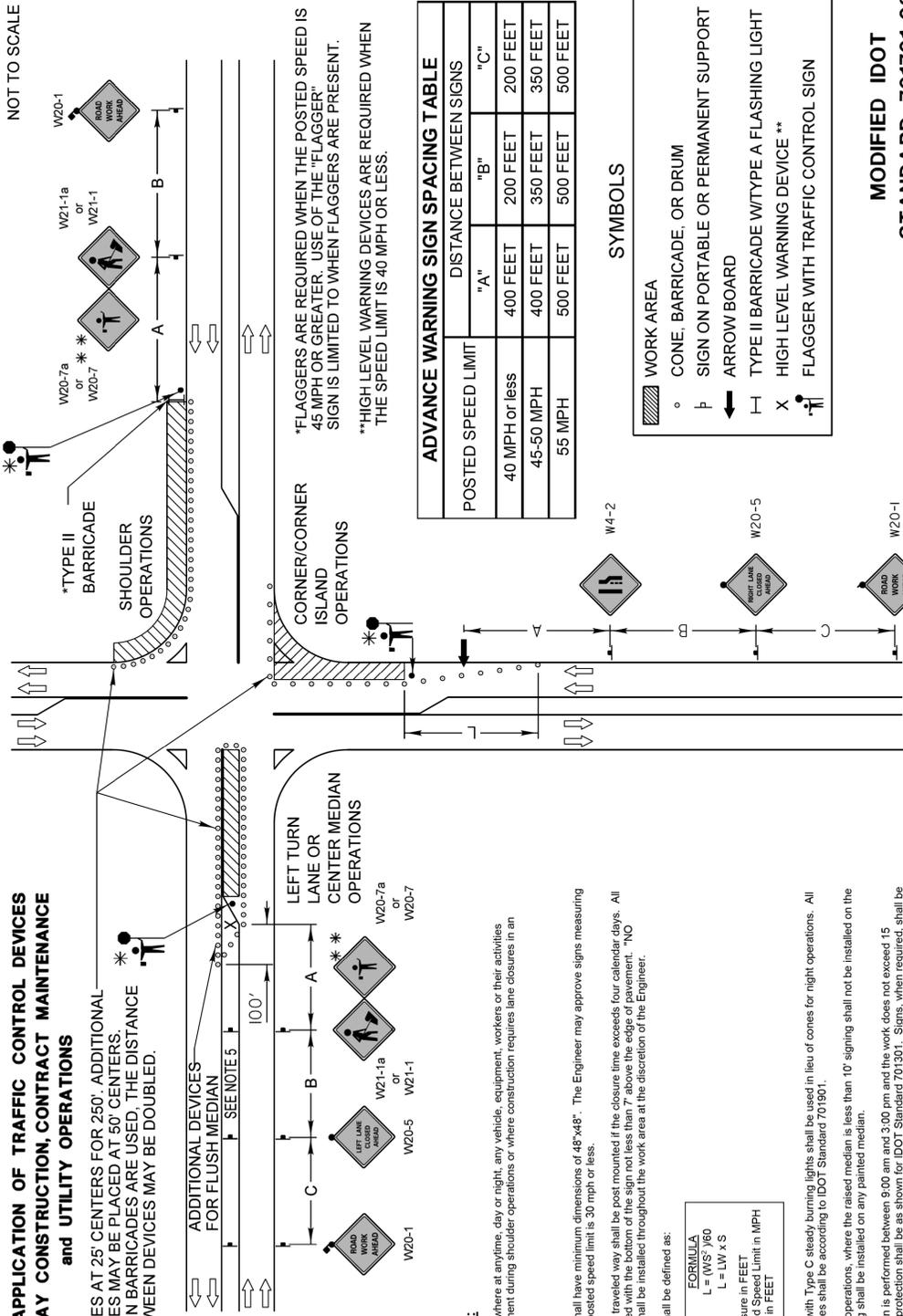


LCDOT STANDARD DETAILS
LEWIS AVENUE (CH 27) AND W. 29TH STREET

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH27		14-00089-07-TL	20	63

FILE NAME: 5051,800-S+tdDetails.dgn
DRAWING SCALE: NONE
GHA *5051,800

**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
for HIGHWAY CONSTRUCTION, CONTRACT MAINTENANCE
and UTILITY OPERATIONS**



GENERAL NOTE:

This Standard is used where, at anytime, day or night, any vehicle, equipment, workers or their activities encroach on the pavement during shoulder operations or where construction requires lane closures in an urban area.

DESIGN NOTES:

- All warning signs shall have minimum dimensions of 48"x48". The Engineer may approve signs measuring 36"x36" when the posted speed limit is 30 mph or less.
- All signs not on the included list shall be post mounted if the closure time exceeds four calendar days. All signs shall be erected with the top of the sign at the top of the shoulder. The sign shall be the standard "NO PARKING" signs shall be installed throughout the work area at the discretion of the Engineer.
- The distance "L" shall be defined as:

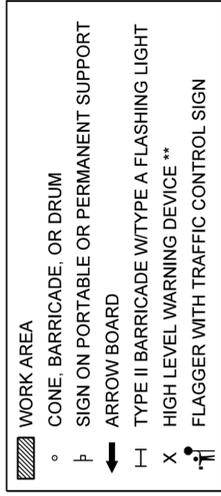
SPEED	FORMULA
≤ 40 MPH	L = (WS) ² /160
≥ 45 MPH	L = LW x S

W = Width of Closure in FEET
S = Normal Posted Speed Limit in MPH
LW = Lane Width in FEET
- Type II barricades with Type C steady burning lights shall be used in lieu of cones for night operations. All cones and barricades shall be according to IDOT Standard 701901.
- For raised median operations, where the raised median is less than 10' signing shall not be installed on the median. No signing shall be installed on any painted median.
- If the work operation is performed between 9:00 am and 3:00 pm and the work does not exceed 15 minutes, the traffic protection shall be as shown for IDOT Standard 701301. Signs, when required, shall be at the spacing specified in the advance warning sign spacing table.
- If the work area is in the parking lane and the parking exists during work hours, a "ROAD WORK AHEAD" sign shall be installed in advance of the work area at the spacing specified in the Advance Warning Sign Spacing Table and the area protected with cones or barricades.
- Type A flashing lights shall be used on each approach in advance of the work area during hours of darkness and installed above the first two sign in each series and the high level warning devices.
- Longitudinal dimensions may be adjusted to fit field conditions.
- Form BT-725 is required.

ADVANCE WARNING SIGN SPACING TABLE

POSTED SPEED LIMIT	"A"	"B"	"C"
40 MPH or less	400 FEET	200 FEET	200 FEET
45-50 MPH	400 FEET	350 FEET	350 FEET
55 MPH	500 FEET	500 FEET	500 FEET

SYMBOLS



**MODIFIED IDOT
STANDARD 701701-08**

APPROVED BY: ANTHONY KHAWAJA
DATE: APRIL 1, 2007



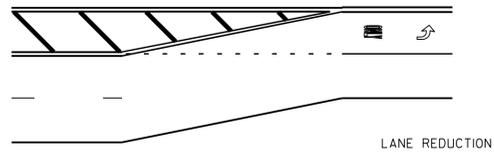
Revised IDOT Reference
Title Block Revision
Reformat LCDOT Standard
Removed "Worker" & "Flagger" signs

DATE
2/7/08
8/7/09
7/15/10
6/26/12

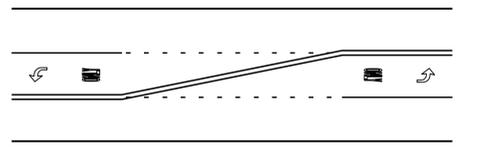
**URBAN LANE CLOSURE
MULTILANE INTERSECTION**

LC7003

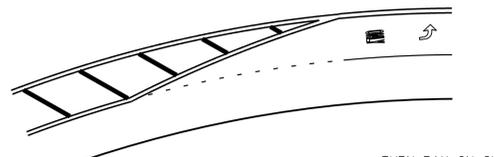
TYPICAL MINI-SKIP PAVEMENT MARKINGS



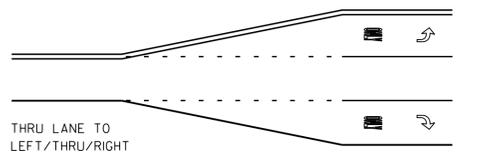
LANE REDUCTION



DOUBLE TAPER



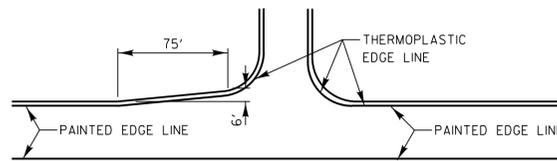
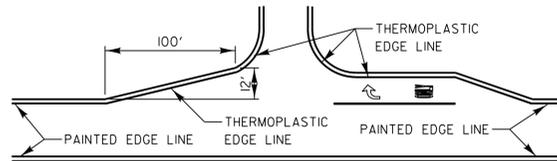
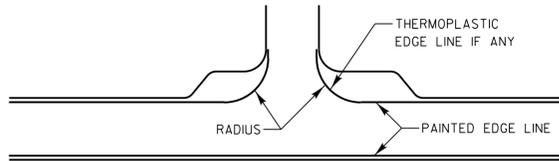
TURN BAY ON CURVE



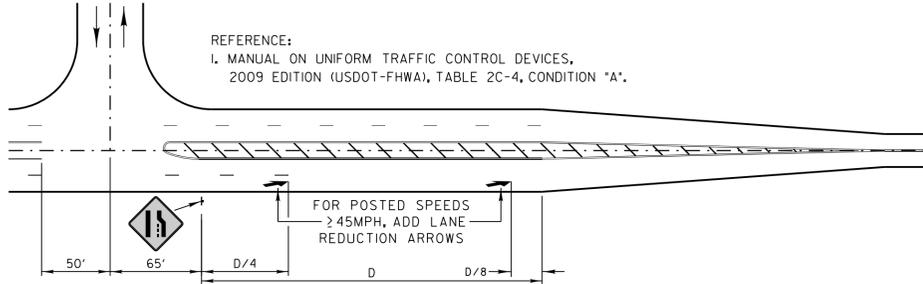
MINI-SKIPS ARE 2 FEET WHITE LINE WITH 6 FEET SPACING, THE MINI-SKIP IS THE SAME WIDTH AS THE PAVEMENT MARKING LINE, IT EXTENDS.

TYPICAL PAVEMENT MARKINGS

EDGE LINE RADII AT SIDE STREETS

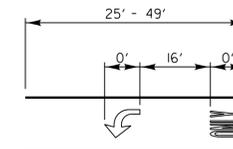


LANE REDUCTION ARROW PLACEMENT

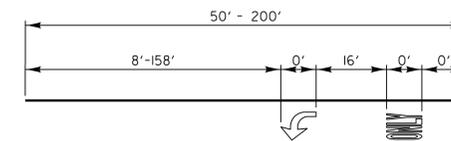


DESIGN SPEED MPH	D (FEET)
<45	N/A
45	775' [1]
50	885' [1]
55	990' [1]

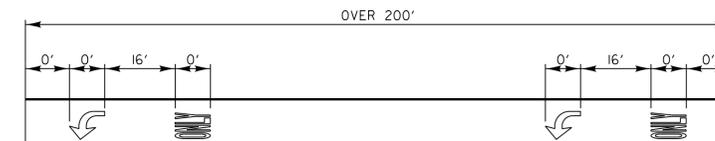
TYPICAL TURN BAY PAVEMENT MARKINGS



TURN BAY LESS THAN 50'



TURN BAY 50' TO 200' *



TURN BAY OVER 200' *

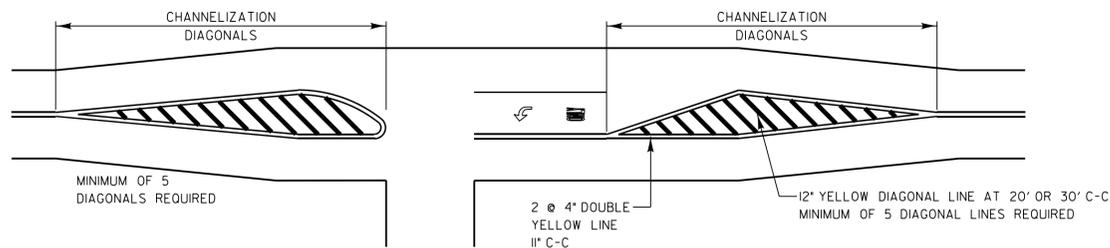
AREA = 15.6 SQ. FT.

* AT INTERSECTIONS WITH VIDEO DETECTION, THE ARROW AND ONLY PAVEMENT MARKINGS SHALL BE A MINIMUM OF 30' BEHIND THE STOP BAR.

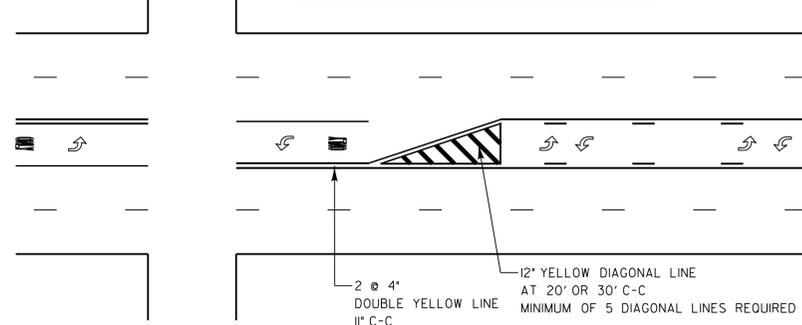
AREA = 20.8 SQ. FT.

FULL SIZE LETTERS (8") AND ARROWS SHALL BE USED. TURN LANES IN EXCESS OF 400' IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW W/ "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW W/ "ONLY".

TWO LANE ROAD



TWO-WAY LEFT TO LEFT TURN BAY



TYPICAL DIAGONAL SPACING

SPEED LIMIT RANGE	DIAGONAL SPACING	
	CONTINUOUS	INTERSECTION CHANNELIZATION
30-45 MPH	75 FT.	20 FT.
OVER 45 MPH	150 FT.	30 FT.

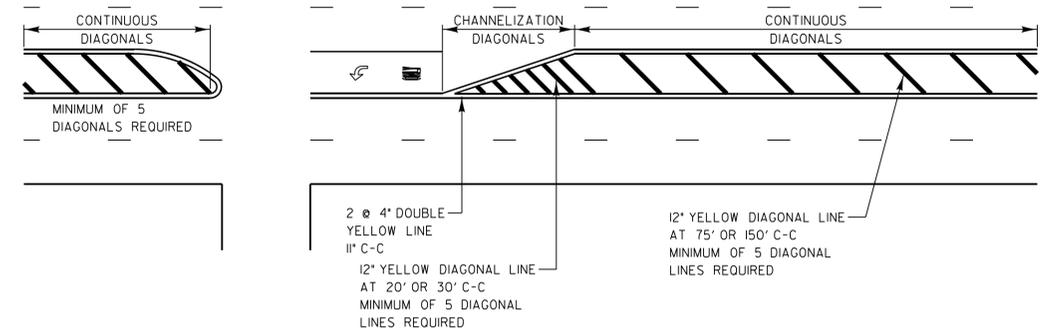
DUAL LEFT TURN ARROWS



31.2 SQ. FT. MINIMUM OF 2 SETS REQUIRED

A MINIMUM OF TWO PAIRS OF DUAL LEFT TURN ARROWS SHALL BE USED. THE DUAL LEFT TURN ARROWS SHALL BE WHITE IN COLOR, THE INTERVAL BETWEEN SETS OF DUAL LEFT TURN ARROWS SHOULD BE 200' AND 300'.

3 OR 5 LANE ROAD



REVISIONS	DATE
SEPARATED RAILROAD SHEET	06/02/08
ADDED LANE REDUCTION ARROWS	07/11/12
RAISED TO RECESSED MARKERS	12/2/13
REMOVE STATION NUMBERS	5/30/14



APPROVED BY: A. KHAWAJA
DATE: APRIL 1, 2007

TYPICAL PAVEMENT MARKINGS FOR COUNTY HIGHWAYS

SHEET 1 OF 2

LC7800

REVISIONS / REMARKS		DATE	BY	SURVEYOR:	GH
NO.	DESCRIPTION				

FILE NAME: 5051,800-StdDetails.dgn
DRAWING SCALE: NONE
GHA *5051,800



625 Forest Edge Drive • Vernon Hills, IL 60061
Tel. 847.478.9700 • Fax 847.478.9701



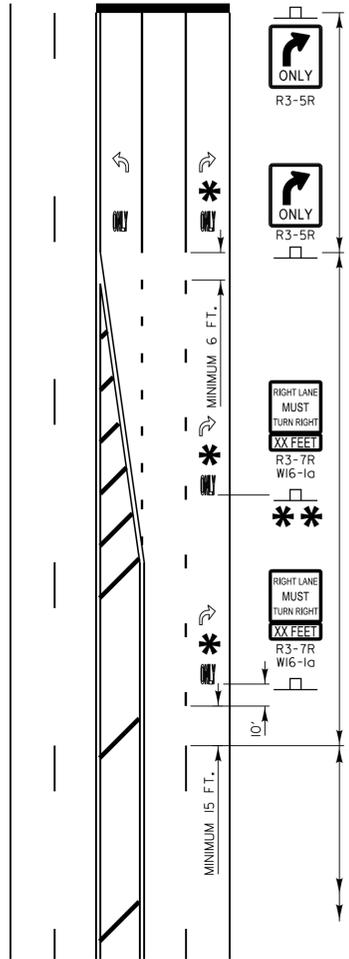
LCDOT STANDARD DETAILS

LEWIS AVENUE (CH 27) AND W. 29TH STREET

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH27		14-00089-07-TL	22	63

TYPICAL PAVEMENT MARKINGS AND RECESSED PAVEMENT MARKERS

THRU LANE TO
TURN LANE CONVERSION



TURN LANE
6' WHITE LINE
(ADDITIONAL PAVEMENT MARKINGS AS SHOWN
ON SHEET ONE OF THE L.C.D.O.T TYPICAL
PAVEMENT MARKINGS DETAIL SHEETS)

TRANSITION ZONE
6' WHITE 3'/12' SKIP DASH
LANE LINE

THRU LANE
4" WHITE 10'/30' SKIP DASH
LANE LINE

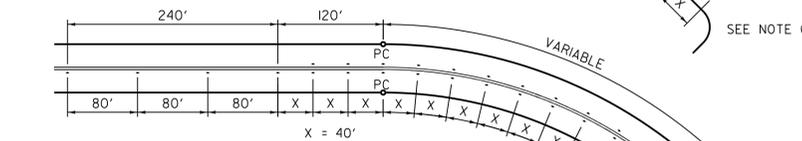
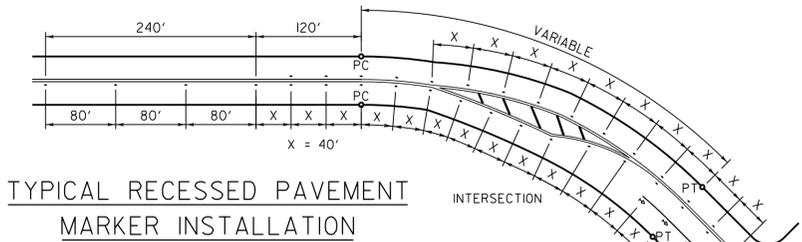
MINIMUM TRANSITION ZONE LENGTH

POSTED SPEED	LENGTH
25 M.P.H.	255 FT
30 M.P.H.	330 FT
35 M.P.H.	405 FT
40 M.P.H.	480 FT
45 M.P.H.	555 FT
50 M.P.H.	630 FT
55 M.P.H.	705 FT

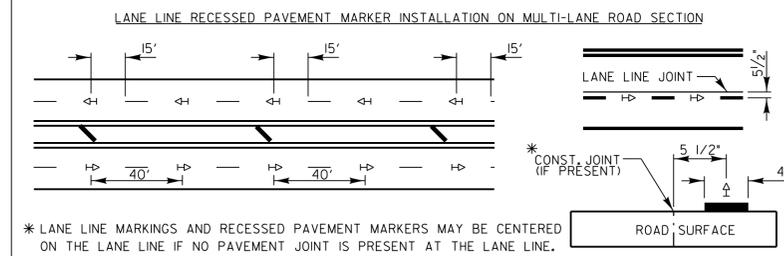
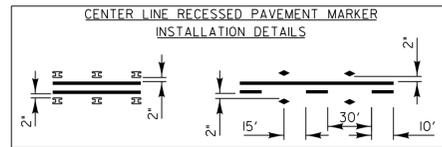
* LOCATION OF PAV'T MARKINGS (MEASURED FROM BEGINNING OF TRANSITION ZONE)

POSTED SPEED	LOCATION OF PAV'T MARKINGS
25 M.P.H.	10 FT, 260 FT
30 M.P.H.	10 FT, 170 FT, 340 FT
35 M.P.H.	10 FT, 210 FT, 410 FT
40 M.P.H.	10 FT, 170 FT, 330 FT, 490 FT
45 M.P.H.	10 FT, 190 FT, 370 FT, 560 FT
50 M.P.H.	10 FT, 170 FT, 330 FT, 490 FT, 640 FT
55 M.P.H.	10 FT, 180 FT, 350 FT, 520 FT, 710 FT

** FOR POSTED SPEEDS 40 M.P.H. OR GREATER
A SECOND R3-7/W16-1a SIGN INSTALLATION
SHALL BE LOCATED HALFWAY BETWEEN THE
BEGINNING OF THE TRANSITION ZONE AND THE
BEGINNING OF THE TURN LANE

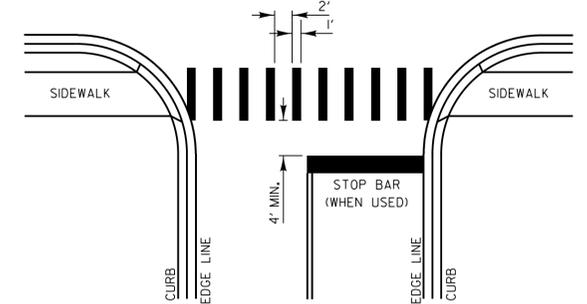


RECESSED PAVEMENT MARKER LEGEND



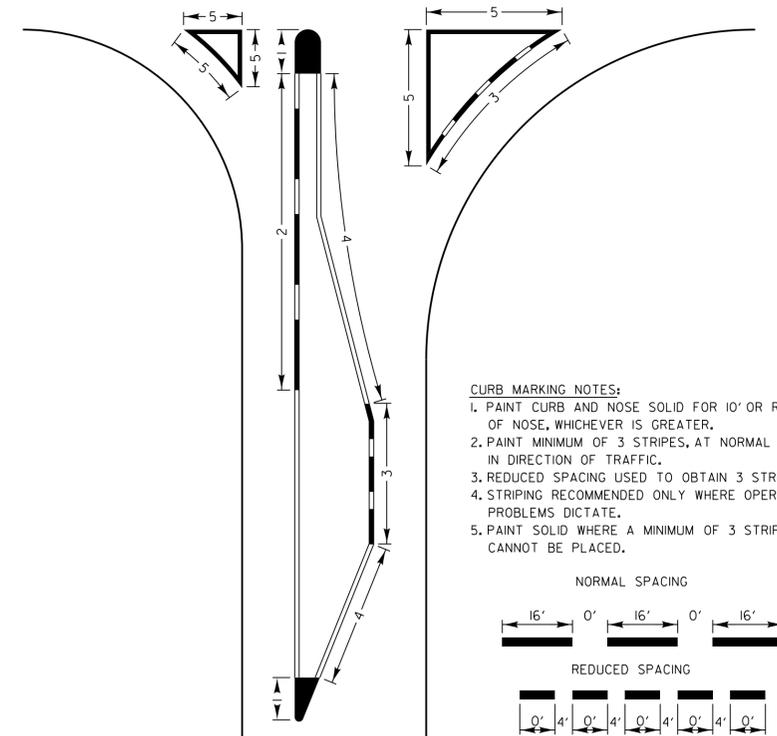
- RECESSED PAVEMENT MARKER NOTES:
- CENTERLINE RECESSED PAVEMENT MARKERS (RPM'S) SHALL BE PLACED ON ALL TWO AND THREE LANE HIGHWAYS WITH CURVES OVER 3 1/2 DEGREES, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
 - SPACING = 40' FOR CENTERLINE MARKERS.
 - ALL RPM'S ON CENTERLINE ARE 2-WAY YELLOW. LANE LINE MARKERS ARE WHITE/RED.
 - MARKERS SHALL BE INSTALLED ACCORDING TO F.H.W.A. MEMORANDUM H10-21.
 - MARKERS SHALL BE FIELD ADJUSTED TO BE LOCATED IN CENTER OF THE 30' GAP OF A 30'/10' SKIP/DASH CENTERLINE.
 - RPM'S WHICH ARE TO BE LOCATED WITHIN THE INTERSECTION OF A CROSS STREET, SHALL NOT BE INSTALLED.
 - A MINIMUM OF 4 WHITE/RED MARKERS SHALL BE INSTALLED ALONG THE TURN LANE LINE.
 - RPM'S INSTALLED ON MULTI-LANE ROAD SECTIONS SHALL BE INSTALLED ON THE WHITE SKIP-DASH LANE LINE ONLY. THESE RPM'S SHALL BE LOCATED IN CENTER OF THE 30' GAP OF A 30'/10' SKIP/DASH LANE LINE.

CROSSWALKS



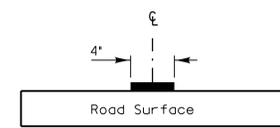
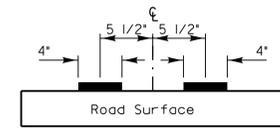
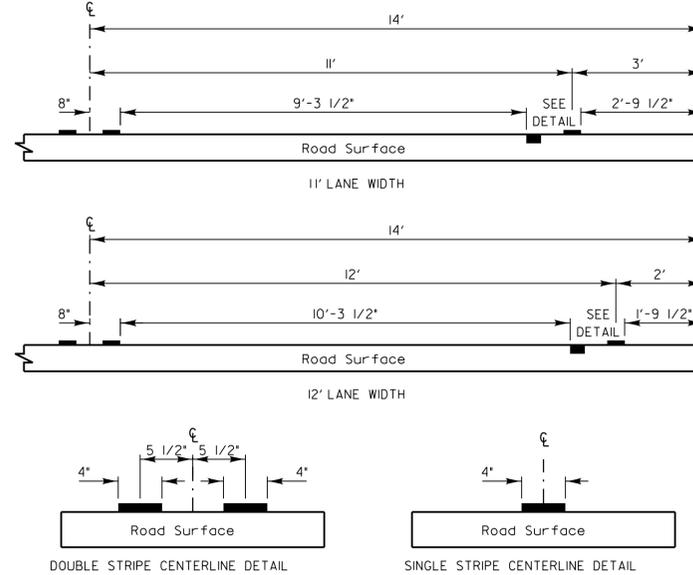
- CROSSWALK NOTES:
- WIDTH OF THE CROSSWALK IS GENERALLY 6' EXCEPT AT SCHOOL CROSSINGS AND BICYCLE CROSSINGS, WHICH CAN BE 8'.
 - THE STOP BAR SHOULD BE INSTALLED A MINIMUM OF 4' IN ADVANCE OF THE CROSSWALK.

CURB MARKING



- CURB MARKING NOTES:
- PAINT CURB AND NOSE SOLID FOR 10' OR RADIUS OF NOSE, WHICHEVER IS GREATER.
 - PAINT MINIMUM OF 3 STRIPES, AT NORMAL SPACING, IN DIRECTION OF TRAFFIC.
 - REDUCED SPACING USED TO OBTAIN 3 STRIPE MINIMUM.
 - STRIPING RECOMMENDED ONLY WHERE OPERATIONAL PROBLEMS DICTATE.
 - PAINT SOLID WHERE A MINIMUM OF 3 STRIPES CANNOT BE PLACED.

PAVEMENT CROSS SECTION SHOWING TYPICAL PAVEMENT MARKINGS (2-LANE ROADWAY)



DOUBLE STRIPE CENTERLINE DETAIL
 SINGLE STRIPE CENTERLINE DETAIL
 NOTE:
 CENTERLINE MARKINGS ARE 4" LINES AT 11" CENTERS.

PAVEMENT MARKING GUIDELINES				
TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING / REMARKS
CENTERLINE OF 2 LANE PAVEMENT	4 IN.	SKIP-DASH	YELLOW	10 FT. LINE WITH 30 FT. SPACE
NO PASSING ZONE LINES: FOR ONE DIRECTION FOR BOTH DIRECTIONS	4 IN. 2 @ 4 IN.	SOLID SOLID	YELLOW YELLOW	5 1/2 IN. C-C FROM SKIP-DASH CENTERLINE 11 IN. C-C (OMIT SKIP-DASH CENTERLINE BETWEEN)
CENTERLINE ON MULTI-LANE UNDIVIDED LANE LINES	2 @ 4 IN. 4 IN.	SOLID SKIP-DASH	YELLOW WHITE	11 IN. C-C 10 FT. LINE WITH 30 FT. SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	2 FT. LINE WITH 6 FT. SPACE
EDGE LINES	5 IN. WHITE 4 IN. YELLOW	SOLID	WHITE - RIGHT YELLOW - LEFT	OUTLINE RAISED MEDIANS IN YELLOW
TURN LANE MARKINGS	6 IN. LINE FULL SIZE LETTERS AND SYMBOLS (8 FT.)	SOLID	WHITE	TURN ARROW 15.6 SQ. FT. STRAIGHT ARROW 11.5 SQ. FT. ONLY 20.8 SQ. FT. COMB. ARROW 26.0 SQ. FT.
TWO WAY LEFT TURN MARKING	2 @ 4 IN. EACH DIRECTION 8 FT. LEFT ARROW	SKIP-DASH AND SOLID IN PAIRS	YELLOW WHITE	10 FT. LINE WITH 30 FT. SPACE FOR SKIP-DASH 5 1/2 IN. C-C BETWEEN SKIP-DASH LINE AND SOLID LINE SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK	12 IN. @ 90°	SOLID	WHITE	12 IN. LONGITUDINAL BAR WITH 24 IN. SPACE 6 FT. TO 12 FT. WIDE SEE TYPICAL CROSSWALK MARKING DETAIL
STOP BARS	24 IN.	SOLID	WHITE	PLACE 4 FT. IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT, OTHERWISE PLACE AT DESIRED STOPPING POINT.
PAINTED MEDIANS	2 @ 4 IN. & 11 IN. C-C 12 IN. DIAGONALS @ 45° NO DIAGONALS USED FOR 4 FT. WIDE MEDIAN	SOLID	YELLOW; 2-WAY TRAFFIC WHITE; 1-WAY TRAFFIC	11 IN. C-C FOR THE DOUBLE LINE SEE TYPICAL PAINTED MEDIAN MARKING DETAIL MINIMUM OF 5 DIAGONALS
GORE MARKING AND CHANNELIZING LINES	8 IN. WITH 12 IN. DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS 15 FT. C-C (LESS THAN 30 M.P.H.) 20 FT. C-C (30 TO 45 M.P.H.) 30 FT. C-C (OVER 45 M.P.H.) MINIMUM OF 5 DIAGONALS
R.R. CROSSING	24 IN. TRANSVERSE LINES RR IS 6 FT. LETTER 16 IN. LINE FOR "X"	SOLID	WHITE	SEE I.D.O.T. STD. 78001 50 FT. AREA OF: "R" = 3.6 SQ. FT. / "R" "X" = 54.0 SQ. FT.
SHOULDER DIAGONALS (FOR PAVED SHOULDER ≥ 6 FT.)	12 IN. @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	50 FT. C-C (LESS THAN 30 M.P.H.) 75 FT. C-C (30 TO 45 M.P.H.) 150 FT. C-C (OVER 45 M.P.H.) MINIMUM OF 5 DIAGONALS

FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO PART III 'MARKINGS' IN THE 'ILLINOIS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES',
 THE 'STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION', AND THE LATEST I.D.O.T. HIGHWAY STANDARD 78001.

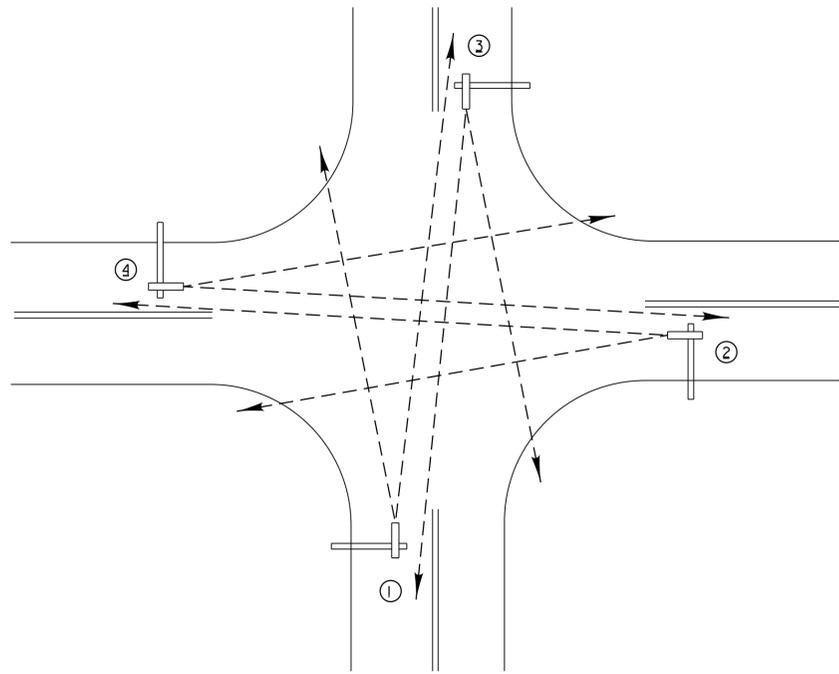
REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:
				GHA
				JRD
				zwallsten 1/4/2016

GHA GEWALT HAMILTON
ASSOCIATES, INC.
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LakeCounty
Division of Transportation

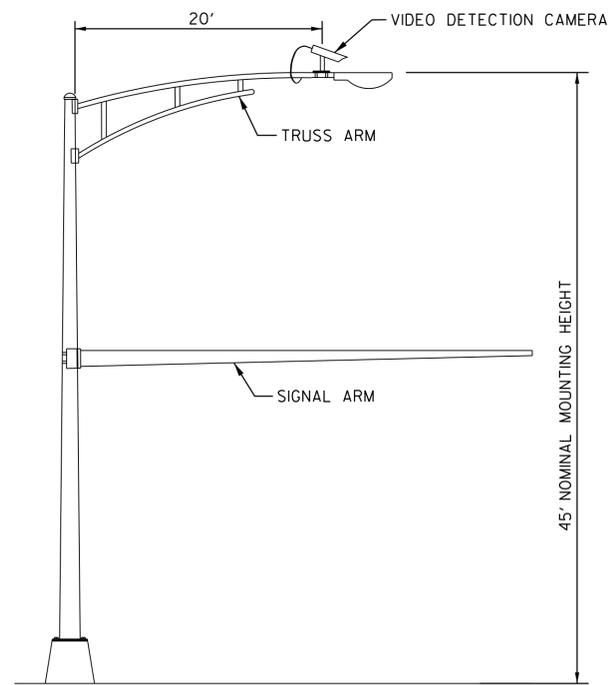
LCDOT STANDARD DETAILS
LEWIS AVENUE (CH 27) AND W. 29TH STREET

REVISIONS	DATE	APPROVED BY: A. KHAWAJA DATE: APRIL 1, 2007	LCT800	
SEPARATED RAILROAD SHEET	06/02/08			
REVISED RPM DETAILS	07/11/12			
RAISED TO RECESSED MARKERS	12/2/13			
REMOVE STATION NUMBERS	5/30/14			
TYPICAL PAVEMENT MARKINGS FOR COUNTY HIGHWAYS				
SHEET 2 OF 2				
ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH27		14-00089-07-TL	23	63

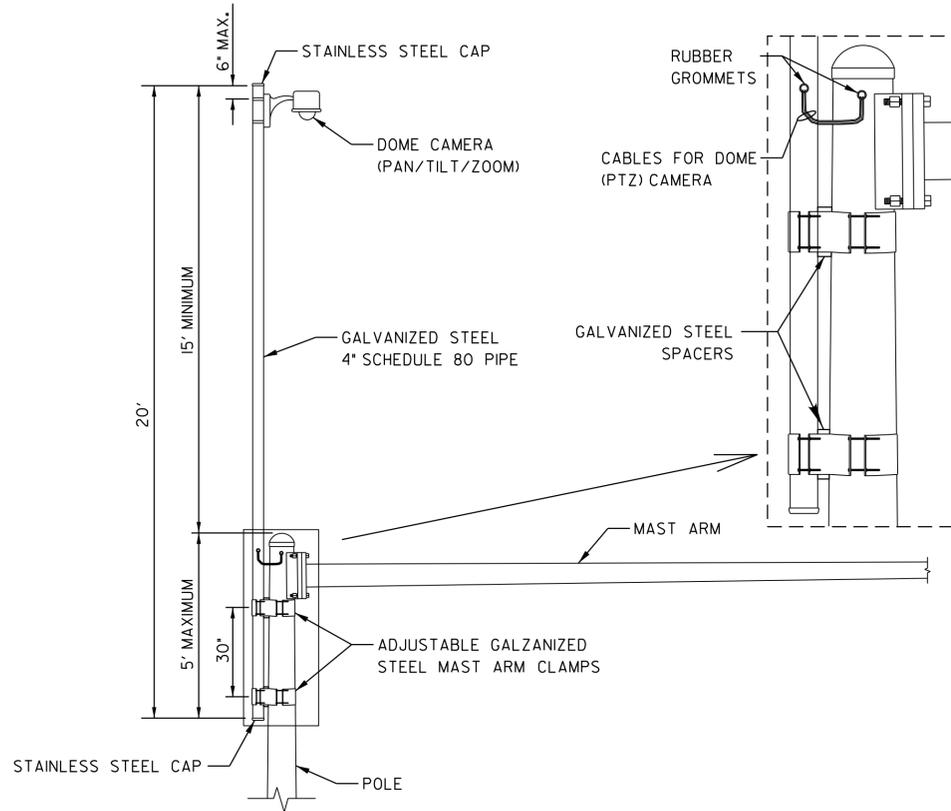


TYPICAL VIDEO VEHICLE
DETECTION SYSTEM
(NOT TO SCALE)

(4) VIDEO DETECTION CAMERA ASSEMBLIES AND BRACKETS ① ② ③ ④

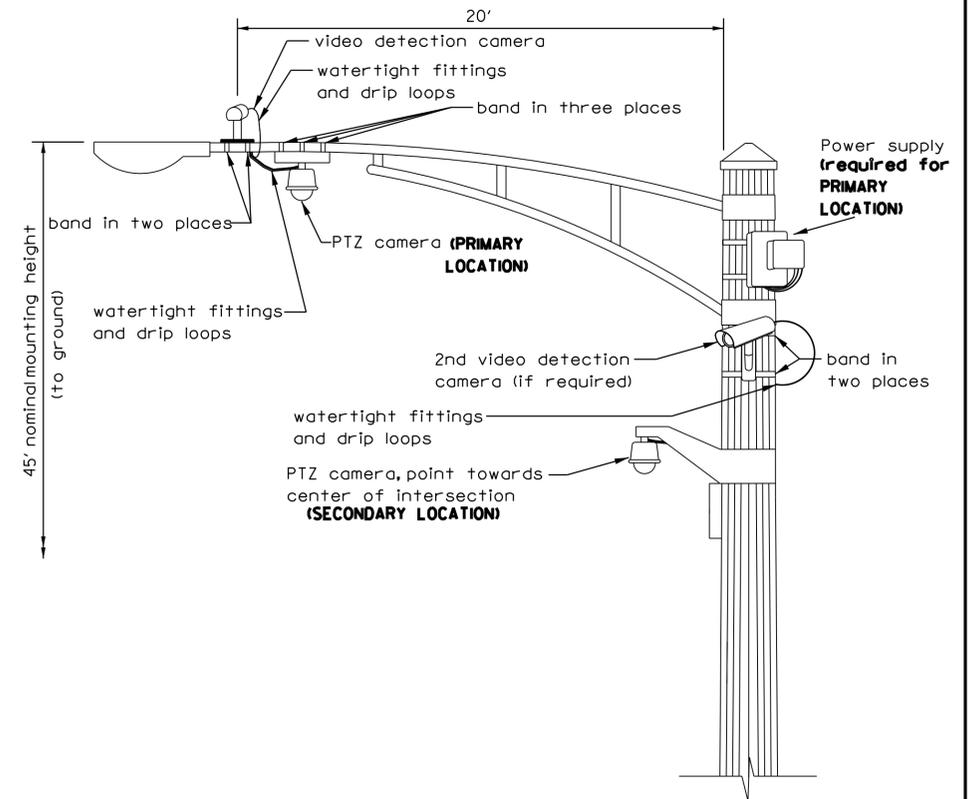


COMBINATION MAST ARM ASSEMBLY
AND POLE DIMENSIONS
(NOT TO SCALE)



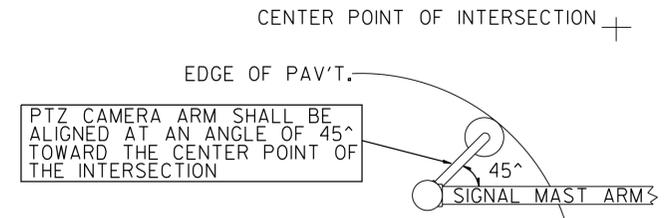
CAMERA MOUNTING ASSEMBLY DETAIL
(NOT TO SCALE)

- NOTES:
- THE MAST ARM IS TAPERED.
 - INSTALL EXTENSION POLE VERTICAL AND PLUMB BY MODIFYING/INSTALLING BRACKETS AS NECESSARY. ADDITIONAL SPACERS REQUIRED ARE INCLUDED IN THE COST OF THE CAMERA MOUNTING ASSEMBLY OF THE TYPE SPECIFIED.
 - SPACERS ARE TO BE INTEGRATED OR MANUFACTURED WITH THE MAST ARM BRACKETS



VIDEO DETECTION CAMERA(S) AND
DOME (PTZ) CAMERA MOUNTING DETAIL
(NOT TO SCALE)

- NOTES FOR SINGLE, DUAL AND MULTIPLE CAMERA MOUNTING:
- MOUNT LUMINAIRE MOUNTING BRACKET AS HIGH AS POSSIBLE.
 - MOUNT VIDEO DETECTION CAMERA AIMING DOWN TOWARD THE DIRECTION OF TRAFFIC TO BE DETECTED.



PTZ CAMERA MOUNTING DETAILS
(SECONDARY LOCATION)
(NO SCALE)

REVISIONS	DATE		APPROVED BY: J. P. NELSON DATE: JUNE 13, 2014
Mounting Details Revised	05/01/08		
2nd Camera Locat. added	01/14/09		
Mast Arm Taper Detail	06/01/12		
Mounting Details Revised	06/13/14		
CAMERA MOUNTING DETAILS		LC8900	

REVISIONS / REMARKS		DATE	BY	SURVEYOR:	GH
NO.	DESCRIPTION			DSGMR/LIAISON:	JRD
				PLOTTED BY:	zwilstein 1/4/2016

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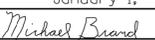
Lake County
 Division of Transportation

LCDOT STANDARD DETAILS

LEWIS AVENUE (CH 27) AND W. 29TH STREET

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH27		14-00089-07-TL	24	63

ABV	ABOVE	CU YD	CUBIC YARD	HD	HEAD	PED	PEDESTAL	STD	STANDARD
A/C	ACCESS CONTROL	CULV	CULVERT	HDW	HEADWALL	PNT	POINT	SBI	STATE BOND ISSUE
AC	ACRE	C&G	CURB & GUTTER	HDUTY	HEAVY DUTY	PC	POINT OF CURVATURE	SR	STATE ROUTE
ADJ	ADJUST	D	DEGREE OF CURVE	ha	HECTARE	PI	POINT OF INTERSECTION OF HORIZONTAL CURVE	STA	STATION
AS	AERIAL SURVEYS	DC	DEPRESSED CURVE	HMA	HOT MIX ASPHALT	PRC	POINT OF REVERSE CURVE	SPBGR	STEEL PLATE BEAM GUARDRAIL
AGG	AGGREGATE	DET	DETECTOR	HWY	HIGHWAY	PT	POINT OF TANGENCY	SS	STORM SEWER
AH	AHEAD	DIA	DIAMETER	HORIZ	HORIZONTAL	POT	POINT ON TANGENT	STY	STORY
APT	APARTMENT	DIST	DISTRICT	HSE	HOUSE	POLYETH	POLYETHYLENE	ST	STREET
ASPH	ASPHALT	DOM	DOMESTIC	IL	ILLINOIS	PCC	PORTLAND CEMENT CONCRETE	STR	STRUCTURE
AUX	AUXILIARY	DBL	DOUBLE	IMP	IMPROVEMENT	PP	POWER POLE OR PRINCIPAL POINT	e	SUPERELEVATION RATE
AGS	AUXILIARY GAS VALVE (SERVICE)	DSEL	DOWNSTREAM ELEVATION	IN DIA	INCH DIAMETER	PRM	PRIME	S.E. RUN.	SUPERELEVATION RUNOFF LENGTH
AVE	AVENUE	DSFL	DOWNSTREAM FLOWLINE	INL	INLET	PE	PRIVATE ENTRANCE	SURF	SURFACE
AX	AXIS OF ROTATION	DR	DRAINAGE OR DRIVE	INST	INSTALLATION	PROF	PROFILE	SMK	SURVEY MARKER
BK	BACK	DI	DRAINAGE INLET OR DROP INLET	IDS	INTERSECTION DESIGN STUDY	PGL	PROFILE GRADELINE	T	TANGENT DISTANCE
B-B	BACK TO BACK	DRV	DRIVEWAY	INV	INVERT	PROJ	PROJECT	T.R.	TANGENT RUNOUT DISTANCE
BKPL	BACKPLATE	DCT	DUCT	IP	IRON PIPE	P.C.	PROPERTY CORNER	TEL	TELEPHONE
B	BARN	EA	EACH	IR	IRON ROD	PL	PROPERTY LINE	TB	TELEPHONE BOX
BARR	BARRICADE	EB	EASTBOUND	JT	JOINT	PR	PROPOSED	TP	TELEPHONE POLE
BGN	BEGIN	EOP	EDGE OF PAVEMENT	kg	KILOGRAM	R	RADIUS	TEMP	TEMPORARY
BM	BENCHMARK	E-CL	EDGE TO CENTERLINE	km	KILOMETER	RR	RAILROAD	TBM	TEMPORARY BENCH MARK
BIND	BINDER	E-E	EDGE TO EDGE	LN	LANE	RPS	RAILROAD SPIKE	TD	TILE DRAIN
BIT	BITUMINOUS	EL	ELEVATION	LT	LEFT	REF	REFERENCE POINT STAKE	TBE	TO BE EXTENDED
BTM	BOTTOM	ENTR	ENTRANCE	LP	LIGHT POLE	RCCP	REINFORCED CONCRETE CULVERT PIPE	TBR	TO BE REMOVED
BLVD	BOULEVARD	EXC	EXCAVATION	LGT	LIGHTING	REIN	REINFORCEMENT	TBS	TO BE SAVED
BRK	BRICK	EX	EXISTING	LF	LINEAL FEET OR LINEAR FEET	REM	REMOVAL	TWP	TOWNSHIP
BBOX	BUFFALO BOX	E	EXTERNAL DISTANCE OF HORIZONTAL CURVE	L	LITER OR CURVE LENGTH	RC	REMOVE CROWN	TR	TOWNSHIP ROAD
BLDG	BUILDING	E	EXTERNAL DISTANCE OF HORIZONTAL CURVE	LC	LONG CHORD	REP	REPLACEMENT	TS	TRAFFIC SIGNAL
CIP	CAST IRON PIPE	F-F	FACE TO FACE	LNG	LONGITUDINAL	REST	RESTAURANT	TSCB	TRAFFIC SIGNAL CONTROL BOX
CB	CATCH BASIN	FA	FEDERAL AID	L SUM	LUMP SUM	RESURF	RESURFACING	TSC	TRAFFIC SYSTEMS CENTER
C-C	CENTER TO CENTER	FAI	FEDERAL AID INTERSTATE	MACH	MACHINE	RET	RETAINING	TRVS	TRANSVERSE
CL	CENTERLINE OR CLEARANCE	FAP	FEDERAL AID PRIMARY	MB	MAIL BOX	RT	RIGHT	TRVL	TRAVEL
CL-E	CENTERLINE TO EDGE	FAS	FEDERAL AID SECONDARY	MH	MANHOLE	ROW	RIGHT-OF-WAY	TRN	TURN
CL-F	CENTERLINE TO FACE	FAUS	FEDERAL AID URBAN SECONDARY	MATL	MATERIAL	RD	ROAD	TY	TYPE
CTS	CENTERS	FP	FENCE POST	MED	MEDIAN	RDWY	ROADWAY	T-A	TYPE A
CERT	CERTIFIED	FE	FIELD ENTRANCE	m	METER	RTE	ROUTE	TYP	TYPICAL
CHSLD	CHISELED	FH	FIRE HYDRANT	METH	METHOD	SAN	SANITARY	UNDGND	UNDERGROUND
CS	CITY STREET	FL	FLOW LINE	M	MID-ORDINATE	SANS	SANITARY SEWER	USGS	U.S. GEOLOGICAL SURVEY
CP	CLAY PIPE	FB	FOOT BRIDGE	mm	MILLIMETER	SEC	SECTION	USEL	UPSTREAM ELEVATION
CLSD	CLOSED	FDN	FOUNDATION	mm DIA	MILLIMETER DIAMETER	SEED	SEEDING	USFL	UPSTREAM FLOWLINE
CLID	CLOSED LID	FR	FRAME	MIX	MIXTURE	SHAP	SHAPING	UTIL	UTILITY
CT	COAT OR COURT	F&G	FRAME & GRATE	MOD	MODIFIED	S	SHED	VBOX	VALVE BOX
COMB	COMBINATION	FRWAY	FREEWAY	MFT	MOTOR FUEL TAX	SH	SHEET	VV	VALVE VAULT
C	COMMERCIAL BUILDING	GAL	GALLON	N & BC	NAIL & BOTTLE CAP	SHLD	SHOULDER	VL	VAULT
CE	COMMERCIAL ENTRANCE	GALV	GALVANIZED	N & C	NAIL & CAP	SW	SIDEWALK OR SOUTHWEST	VEH	VEHICLE
CONC	CONCRETE	G	GARAGE	N & W	NAIL & WASHER	SIG	SIGNAL	VP	VENT PIPE
CONST	CONSTRUCT	GM	GAS METER	NOAA	NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION	SOD	SODDING	VERT	VERTICAL
CONTD	CONTINUED	GR	GRATE	NC	NORMAL CROWN	SM	SOLID MEDIUM	VC	VERTICAL CURVE
CONT	CONTINUOUS	GRV	GRAVEL	NB	NORTHBOUND	SB	SOUTHBOUND	VPC	VERTICAL POINT OF CURVATURE
COR	CORNER	GND	GROUND	NE	NORTHEAST	SE	SOUTHEAST	VPI	VERTICAL POINT OF INTERSECTION
CORR	CORRUGATED	GUT	GUTTER	NW	NORTHWEST	SPL	SPECIAL	VPT	VERTICAL POINT OF TANGENCY
CMP	CORRUGATED METAL PIPE	GP	GUY POLE	OLID	OPEN LID	SD	SPECIAL DITCH	WM	WATER METER
CNTY	COUNTY	GW	GUY WIRE	PAT	PATTERN	SQ FT	SQUARE FEET	WV	WATER VALVE
CH	COUNTY HIGHWAY	HH	HANDHOLE	PVD	PAVED	m ²	SQUARE METER	WMAIN	WATER MAIN
CSE	COURSE	HATCH	HATCHING	PVMT	PAVEMENT	mm ²	SQUARE MILLIMETER	WB	WESTBOUND
XSECT	CROSS SECTION			PM	PAVEMENT MARKING	SQ YD	SQUARE YARD	WILDFL	WILDFLOWERS
m ³	CUBIC METER					STB	STABILIZED	W	WITH
mm ³	CUBIC MILLIMETER							WO	WITHOUT

 Illinois Department of Transportation	
PASSED	January 1, 2011
 ENGINEER OF POLICY AND PROCEDURES	
APPROVED	January 1, 2011
 ENGINEER OF DESIGN AND ENVIRONMENT	

ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Updated abbreviations and symbols.
1-1-08	Updated abbreviations and symbols.

STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

(Sheet 1 of 8)

STANDARD 000001-06

<u>ADJUSTMENT ITEMS</u>		<u>EX</u>	<u>PR</u>	<u>ALIGNMENT ITEMS</u>		<u>EX</u>	<u>PR</u>	<u>CONTOUR ITEMS</u>		<u>EX</u>	<u>PR</u>
Structure To Be Adjusted			ADJ	Baseline	_____	_____		Approx. Index Line	-----		
Structure To Be Cleaned			C	Centerline	_____	_____		Approx. Intermediate Line	-----		
Main Structure To Be Filled			FM	Centerline Break Circle	○	○		Index Contour	_____		
Structure To Be Filled			F	Baseline Symbol	⊥	⊥		Intermediate Contour	_____		
Structure To Be Filled Special			FSP	Centerline Symbol	⊥	⊥		<u>DRAINAGE ITEMS</u>			
Structure To Be Removed			R	PI Indicator	△	△		Channel or Stream Line	-----	-----	
Structure To Be Reconstructed			REC	Point Indicator	○	○		Culvert Line	- - - - -	_____	
Structure To Be Reconstructed Special			RSP	Horizontal Curve Data (Half Size)	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=		Grading & Shaping Ditches	-----	-----	
Frame and Grate To Be Adjusted			A	<u>BOUNDARIES ITEMS</u>		<u>EX</u>	<u>PR</u>	Drainage Boundary Line	////	////	
Frame and Lid To Be Adjusted			A	Dashed Property Line	- - - - -	- - - - -		Paved Ditch	=====	=====	
Domestic Service Box To Be Adjusted			A	Solid Property/Lot Line	_____	_____		Aggregate Ditch	=====	=====	
Valve Vault To Be Adjusted			A	Section/Grant Line	_____	_____		Pipe Underdrain	-----	-----	
Special Adjustment			SP	Quarter Section Line	_____	_____		Storm Sewer	-----	-----	
Item To Be Abandoned			AB	Quarter/Quarter Section Line	_____	_____		Flowline	⊥	⊥	
Item To Be Moved			M	County/Township Line	_____	_____		Ditch Check	◆	◆	
Item To Be Relocated			REL	State Line	- - - - -	- - - - -		Headwall	-	∩	
Pavement Removal and Replacement				Iron Pipe Found	○	○		Inlet	□	■	
				Iron Pipe Set	●	●		Manhole	⊙	⊙	
				Survey Marker	⊙	⊙		Summit	↔	↔	
				Property Line Symbol	⊥	⊥		Roadway Ditch Flow	~	~	
				Same Ownership Symbol (Half Size)	↗	↗		Swale	+	+	
				Northwest Quarter Corner (Half Size)	⊙	⊙		Catch Basin	○	●	
				Section Corner (Half Size)	⊙	⊙		Culvert End Section	◁	◁	
				Southeast Quarter Corner (Half Size)	⊙	⊙		Water Surface Indicator	▽	▽	
								Riprap	▒	▒	

**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 2 of 8)

STANDARD 000001-06 26 / 63

Illinois Department of Transportation

PASSED January 1, 2011

Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2011

Scott Schick
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

EROSION & SEDIMENT CONTROL ITEMS

EX

PR

Cleaning & Grading Limits	---
Dike	~~~~~
Erosion Control Fence	~~~~~
Perimeter Erosion Barrier	_____
Temporary Fence	- xxx - xxx - xxx - xxx - xxx -
Ditch Check Temporary	
Ditch Check Permanent	
Inlet & Pipe Protection	
Sediment Basin	
Erosion Control Blanket	
Fabric Formed Concrete Revetment Mat	
Turf Reinforcement Mat	
Mulch Temporary	
Mulch Method 1	
Mulch Method 2 Stabilized	
Mulch Method 3 Hydraulic	

NON-HIGHWAY IMPROVEMENT ITEMS

EX

PR

Noise Attn./Levee	
Field Line	_____ E _____
Fence	- x - x - x - x - x -
Base of Levee	
Mailbox	
Multiple Mailboxes	
Pay Telephone	
Advertising Sign	

LANDSCAPING ITEMS

EX

PR

Contour Mounding Line	-----
Fence	- x - x - x - x - x -
Fence Post	□
Shrubs	
Mowline	
Perennial Plants	
Seeding Class 2	
Seeding Class 2A	
Seeding Class 4	
Seeding Class 4 & 5 Combined	

EXISTING LANDSCAPING ITEMS (contd.)

EX

PR

Seeding Class 5	
Seeding Class 7	
Seedlings Type 1	
Seedlings Type 2	
Sodding	
Mowstake w/Sign	
Tree Trunk Protection	

Evergreen Tree		
Shade Tree		

LIGHTING

EX

PR

Duct	-----	-----
Conduit	=====	=====
Electrical Aerial Cable	----- A -----	----- A -----
Electrical Buried Cable	----- L -----	----- L -----
Controller		
Underpass Luminaire		
Power Pole		

STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

(Sheet 3 of 8)

STANDARD 000001-06

Illinois Department of Transportation

PASSED January 1, 2011
Michael Brand
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2011
Scott Schick
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

**LIGHTING
(contd.)**

Pull Point

EX



PR



Handhole



Heavy Duty Handhole



Junction Box



Light Unit Comb.



Electrical Ground



Traffic Flow Arrow



High Mast Pole
(Half Size)



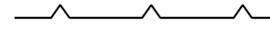
Light Unit-1



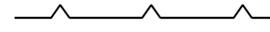
PAVEMENT (MISC.)

Keyed Long. Joint

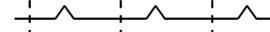
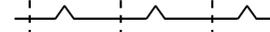
EX



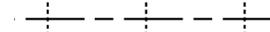
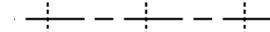
PR



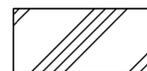
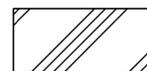
Keyed Long. Joint w/Tie Bars



Sawed Long. Joint w/Tie Bars



Bituminous Shoulder



Bituminous Taper



Stabilized Driveway



Widening



PAVEMENT MARKINGS

Bike Lane Symbol

EX



PR



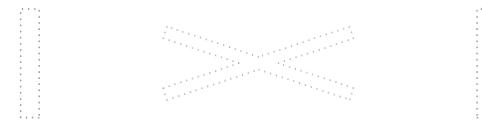
Bike Lane Text



Handicap Symbol



RR Crossing



Raised Marker Amber 1 Way



Raised Marker Amber 2 Way



Raised Marker Crystal 1 Way



Two Way Turn Left



Shoulder Diag. Pattern



Skip-Dash White



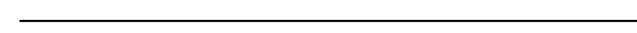
Skip-Dash Yellow



Stop Line



Solid Line



Double Centerline



Dotted Lines



CL 2Ln 2Way
RRPM 12.2 m (40') o.c.



CL 2Ln 2Way
RRPM 80' (24.4 m) o.c.



CL Multilane Div.
RRPM 40' (12.2 m) o.c.



CL Multilane Div.
RRPM 80' (24.4 m) o.c.



CL Multilane Div. Dbl.
RRPM 80' (24.4 m) o.c.



CL Multilane Undiv.



Two Way Turn Left Line



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**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 4 of 8)

STANDARD 000001-06

PAVEMENT MARKINGS

(contd.)

Urban Combination Left

EX



PR



Urban Combination Right



Urban Left Turn Arrow



Urban Right Turn Arrow



Urban Left Turn Only



ONLY ONLY ONLY



Urban Right Turn Only



Urban Thru Only



Urban U-Turn



Urban Combined U-Turn



Rural Combination Left



Rural Combination Right



Rural Left Turn Arrow



Rural Right Turn Arrow



Rural Left Turn Only



ONLY ONLY ONLY



Rural Right Turn Only



ONLY ONLY ONLY



Rural Thru Only



ONLY ONLY ONLY

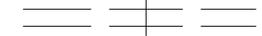


RAILROAD ITEMS

EX

PR

Abandoned Railroad



Railroad



Railroad Point



Control Box



Crossing Gate



Flashing Signal



Railroad Cant. Mast Arm



Crossbuck

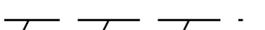


REMOVAL ITEMS

EX

PR

Removal Tic



Bituminous Removal



Hatch Pattern



Tree Removal Single



RIGHT OF WAY ITEMS

EX

PR

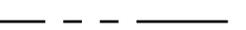
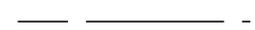
Future ROW Corner Monument



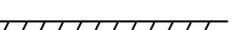
ROW Marker



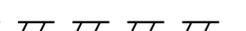
ROW Line



Easement



Temporary Easement



**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 5 of 8)

STANDARD 000001-06

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RIGHT OF WAY ITEMS
(contd.)

	EX	PR
Access Control Line	— AC —————	— AC —————
Access Control Line & ROW	— AC —————	— AC —————
Access Control Line & ROW with Fence	— x ————— AR —	— x — AC — x —
Excess ROW Line		— XS —————

ROADWAY PLAN
ITEMS

	EX	PR
Cable Barrier	— □ — □ — □ — □ — □ —	— ■ — ■ — ■ — ■ — ■ —
Concrete Barrier	— □ — □ — □ — □ — □ —	— ■ — ■ — ■ — ■ — ■ —
Edge of Pavement	— — — — —	— — — — —
Bit Shoulders, Medians and C&G Line	— — — — —	— — — — —
Aggregate Shoulder	— — — — —	— — — — —
Sidewalks, Driveways	— — — — —	— — — — —
Guardrail	— □ — □ — □ — □ — □ —	— ■ — ■ — ■ — ■ — ■ —
Guardrail Post	□	■
Traffic Sign	⊥	⊥
Corrugated Median	▤▤▤▤▤▤▤▤▤▤	▤▤▤▤▤▤▤▤▤▤
Impact Attenuator		○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
North Arrow with District Office (Half Size)	↑ N ↓	
Match Line		STA. 45+00
Slope Limit Line	— · · · · · —	
Typical Cross-Section Line	— — — — —	— — — — —

ROADWAY PROFILES

	EX	PR
P.I. Indicator	△	△
Point Indicator	○	○
Earthworks Balance Point		⊗
Begin Point		◐
Vert. Curve Data	VPI = ELEV = L E = E =	VPI = ELEV = L E = E =
Ditch Profile Left Side	— · · · · · —	— · · · · · —
Ditch Profile Right Side	— · · · · · —	— · · · · · —
Roadway Profile Line	— · · · · · —	— · · · · · —
Storm Sewer Profile Left Side	— · · · · · —	— · · · · · —
Storm Sewer Profile Right Side	— · · · · · —	— · · · · · —

SIGNING ITEMS

	EX	PR
Cone, Drum or Barricade		○
Barricade Type II		▨
Barricade Type III		⊥
Barricade With Edge Line		— ○ — ○ —
Flashing Light Sign		○
Panels I		▨
Panels II		
Direction of Traffic		→
Sign Flag (Half Size)		◇

SIGNING ITEMS
(contd.)

	EX	PR
Reverse Left W1-4L (Half Size)		⬆
Reverse Right W1-4R (Half Size)		⬇
Two Way Traffic Sign W6-3 (Half Size)		↕
Detour Ahead W20-2(0) (Half Size)		◇ DETOUR AHEAD
Left Lane Closed Ahead W20-5L(0) (Half Size)		◇ LEFT LANE CLOSED AHEAD
Right Lane Closed Ahead W20-5R(0) (Half Size)		◇ RIGHT LANE CLOSED AHEAD
Road Closed Ahead W20-3(0) (Half Size)		◇ ROAD CLOSED AHEAD
Road Construction Ahead W20-1(0) (Half Size)		◇ ROAD CONSTRUCTION AHEAD
Single Lane Ahead (Half Size)		◇ SINGLE LANE AHEAD
Transition Left W4-2L (Half Size)		◇
Transition Right W4-2R (Half Size)		◇

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STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
 (Sheet 6 of 8)

STANDARD 000001-06 30 / 63

SIGNING ITEMS
(contd.)

EX

PR

One Way Arrow Lrg. W1-6-(0)
(Half Size)



Two Way Arrow Large W1-7-(0)
(Half Size)



Detour M4-10L-(0)
(Half Size)



Detour M4-10R-(0)
(Half Size)



One Way Left R6-1L
(Half Size)



One Way Right R6-1R
(Half Size)



Left Turn Lane R3-I100L
(Half Size)



Keep Left R4-7AL
(Half Size)



Keep Left R4-7BL
(Half Size)



Keep Right R4-7AR
(Half Size)



Keep Right R4-7BR
(Half Size)



Stop Here On Red R10-6-AL
(Half Size)



Stop Here On Red R10-6-AR
(Half Size)



No Left Turn R3-2
(Half Size)



No Right Turn R3-1
(Half Size)



Road Closed R11-2
(Half Size)



Road Closed Thru Traffic R11-2
(Half Size)



STRUCTURES ITEMS

EX

PR

Box Culvert Barrel



Box Culvert Headwall



Bridge Pier



Bridge



Retaining Wall



Temporary Sheet Piling



TRAFFIC SHEET
ITEMS

EX

PR

Cable Number



Left Turn Green



Left Turn Yellow



Signal Backplate



Signal Section 8" (200 mm)



Signal Section 12" (300 mm)



Walk/Don't Walk Letters



Walk/Don't Walk Symbols



TRAFFIC SIGNAL
ITEMS

EX

PR

Galv. Steel Conduit



Underground Cable



Detector Loop Line



Detector Loop Large



Detector Loop Small



Detector Loop Quadrapole



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**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 7 of 8)

STANDARD 000001-06

**TRAFFIC SIGNAL
ITEMS (contd.)**

EX

PR

Detector Raceway



Aluminum Mast Arm



Steel Mast Arm



Veh. Detector Magnetic



Conduit Splice



Controller



Gulfbox Junction



Wood Pole



Temp. Signal Head



Handhole



Double Handhole



Heavy Duty Handhole



Junction Box



Ped. Pushbutton Detector



Ped. Signal Head



Power Pole Service



Priority Veh. Detector



Signal Head



Signal Head w/Backplate



Signal Post



Closed Circuit TV



Video Detector System



**UNDERGROUND
UTILITY ITEMS**

EX

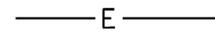
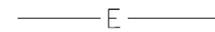
PR

ABANDONED

Cable TV



Electric Cable



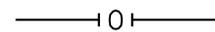
Fiber Optic



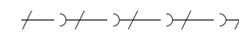
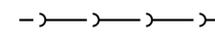
Gas Pipe



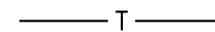
Oil Pipe



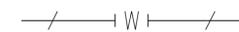
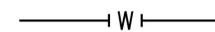
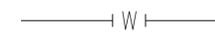
Sanitary Sewer



Telephone Cable



Water Pipe



UTILITIES ITEMS

EX

PR

Controller



Double Handhole



Fire Hydrant



GuyWire or Deadman Anchor



Handhole



Heavy Duty Handhole



Junction Box



Light Pole



Manhole



Pipeline Warning Sign



Power Pole



Power Pole with Light



Sanitary Sewer Cleanout



Splice Box Above Ground



Telephone Splice Box
Above Ground



Telephone Pole



**UTILITY ITEMS
(contd.)**

EX

PR

Traffic Signal



Traffic Signal Control Box



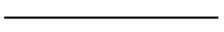
Water Meter



Water Meter Valve Box



Profile Line



Aerial Power Line



VEGETATION ITEMS

EX

PR

Deciduous Tree



Bush or Shrub



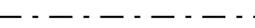
Evergreen Tree



Stump



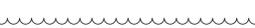
Orchard/Nursery Line



Vegetation Line



Woods & Bush Line



**WATER FEATURE
ITEMS**

EX

PR

Stream or Drainage Ditch



Waters Edge



Water Surface Indicator



Water Point



Disappearing Ditch



Marsh



Marsh/Swamp Boundary



**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 8 of 8)

STANDARD 000001-06

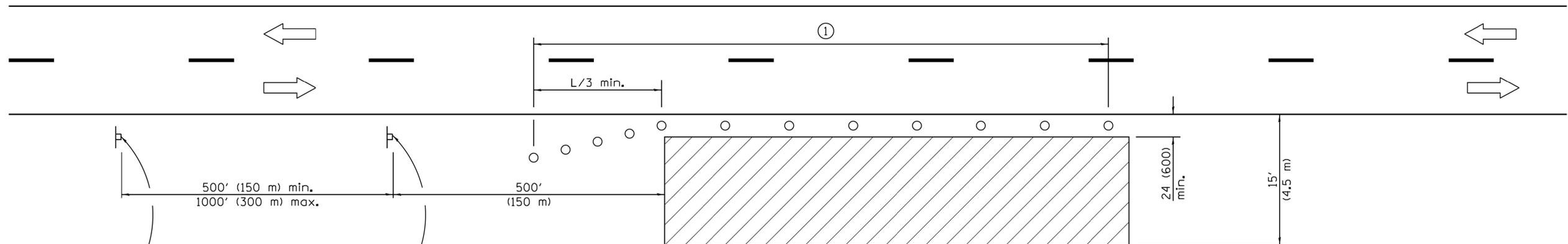
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APPROVED January 1, 2011
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For contract construction projects



W20-1103(0)-48



W21-1(0)-48

For maintenance and utility projects



W20-1(0)-48

TYPICAL APPLICATIONS

- Utility operations
- Culvert extensions
- Side slope changes
- Guardrail installation and maintenance
- Delineator installation
- Landscaping operations
- Shoulder repair
- Sign installation and maintenance

SYMBOLS

- Work area
- Sign
- Cone, drum or barricade

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24' (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

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

DATE	REVISIONS
1-1-14	Revised workers sign number to agree with current MUTCD.
1-1-13	Omitted text 'WORKERS' sign.

OFF-RD OPERATIONS, 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE

STANDARD 701006-05

Illinois Department of Transportation

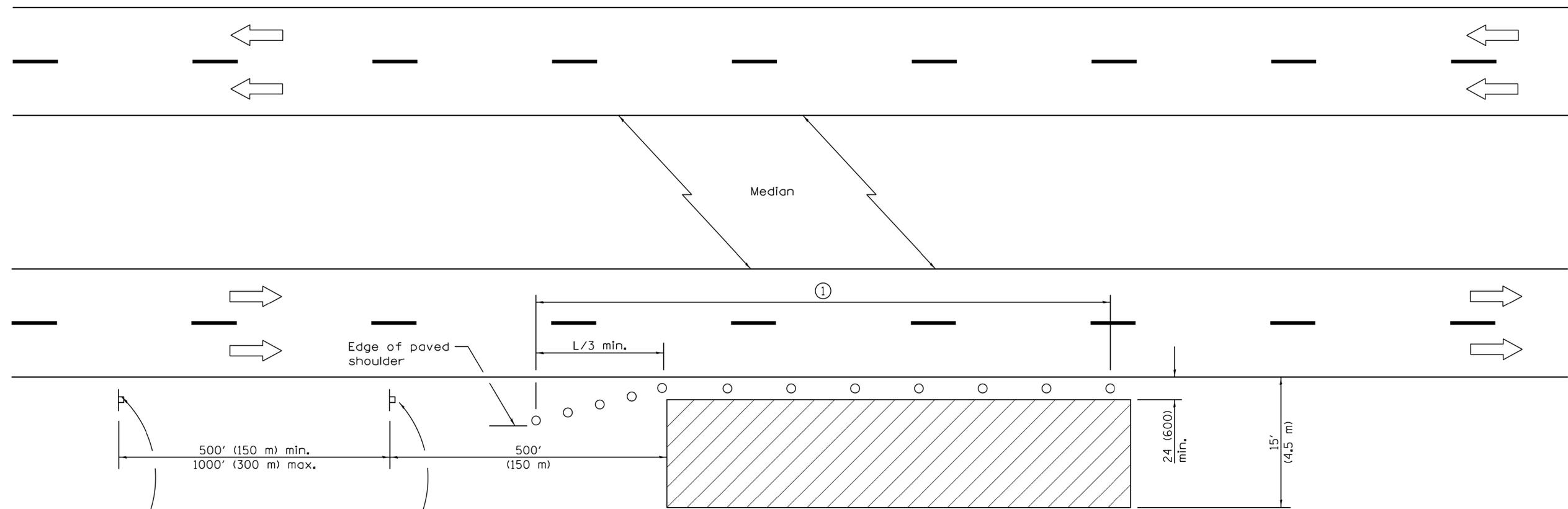
APPROVED January 1, 2014

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APPROVED January 1, 2014

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



For contract construction projects



W20-I103(O)-48



W21-1(O)-48

For maintenance and utility projects



W20-1(O)-48

TYPICAL APPLICATIONS

- Utility operations
- Culvert extensions
- Side slope changes
- Guardrail installation and maintenance
- Delineator installation
- Landscaping operations
- Shoulder repair
- Sign installation and maintenance

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

SYMBOLS

- Work area
- Sign
- Cone, drum or barricade

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24' (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

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

DATE	REVISIONS
1-1-14	Revised workers sign number to agree with current MUTCD.
1-1-13	Omitted text 'WORKERS' sign.

**OFF-RD OPERATIONS, MULTILANE,
15' (4.5 m) TO 24" (600 mm)
FROM PAVEMENT EDGE**

STANDARD 701101-04

Illinois Department of Transportation

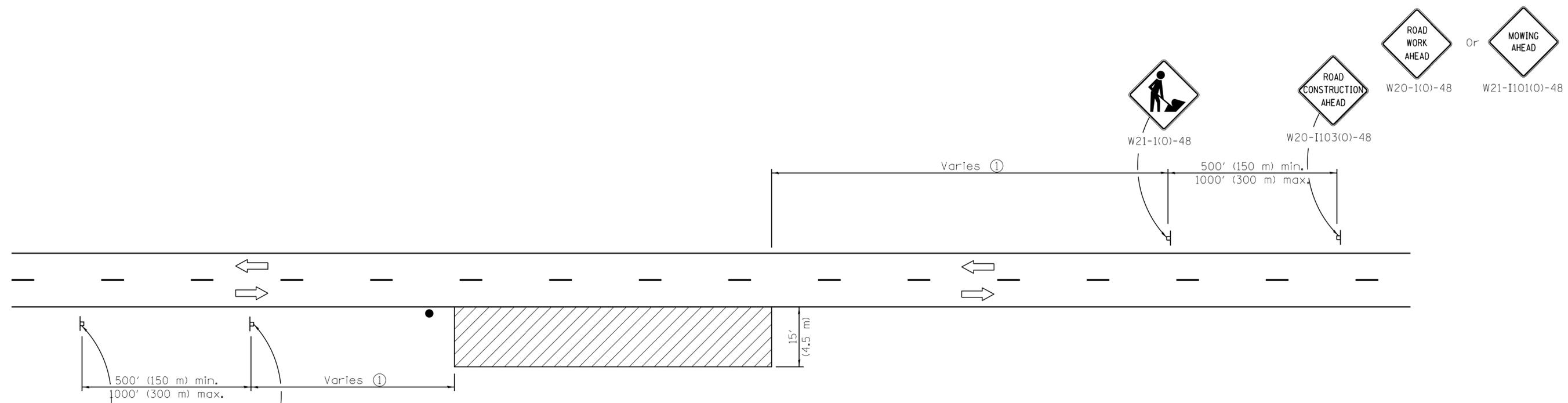
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TYPICAL APPLICATIONS

Shoulder work
Utility operations

For contract construction projects



W20-I103(O)-48



W21-1(O)-48

For maintenance and utility projects

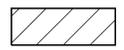


W20-1(O)-48



W21-I101(O)-48

SYMBOLS



Work area



Sign



Flagger with traffic control sign when required

① Minimum distance is 200' (60 m). Maximum distance to be determined by the Engineer but should not exceed 1/2 the length required for one normal working day's operation, or 4 miles (6.4 km) whichever is less.

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities require an intermittent or continuous moving operation on the shoulder, where the average speed is 1 mph (2 km/h) or less.

When the work operation does not exceed 60 minutes, traffic control may be according to Standard 701301.

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

DATE	REVISIONS
1-1-14	Revised workers sign number to agree with current MUTCD.
1-1-13	Omitted text 'WORKERS' sign.

**OFF-RD MOVING OPERATIONS,
2L, 2W, DAY ONLY**

STANDARD 701011-04

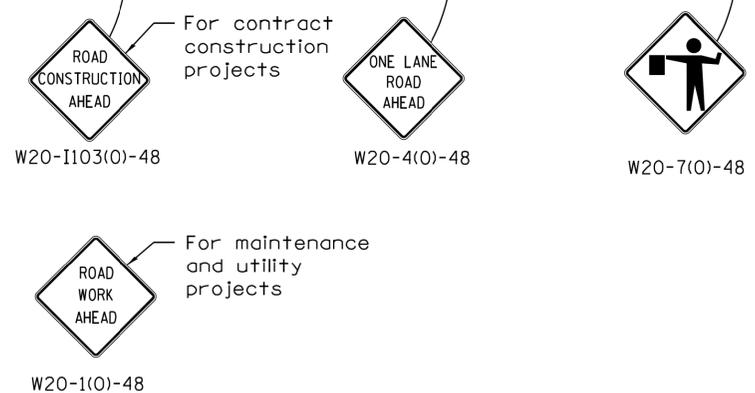
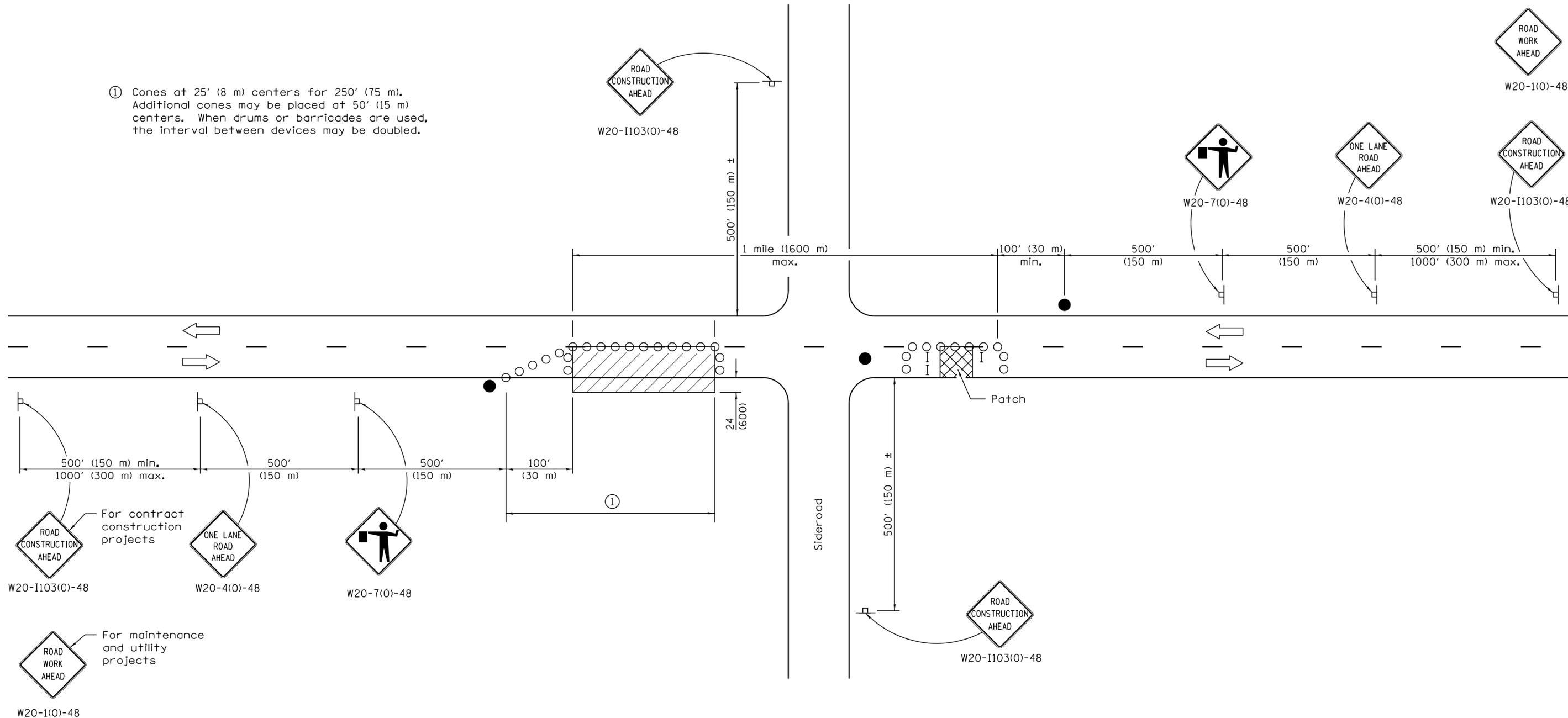
Illinois Department of Transportation

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[Signature]
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ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

① Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or barricades are used, the interval between devices may be doubled.



SYMBOLS

- Work area
- Sign
- Barricade or drum
- Cone, drum or barricade
- Flagger with traffic control sign

TYPICAL APPLICATIONS

- Isolated patching
- Utility operations
- Storm sewer
- Culverts
- Cable placement

GENERAL NOTES

This Standard is used where at any time, any vehicles, equipment, workers or their activities will encroach in the area between the center line and a line 24 (600) outside the edge of pavement for daylight operation.

When the distance between successive work areas exceeds 2000' (600 m), additional warning signs, flaggers, and taper shall be placed as shown.

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

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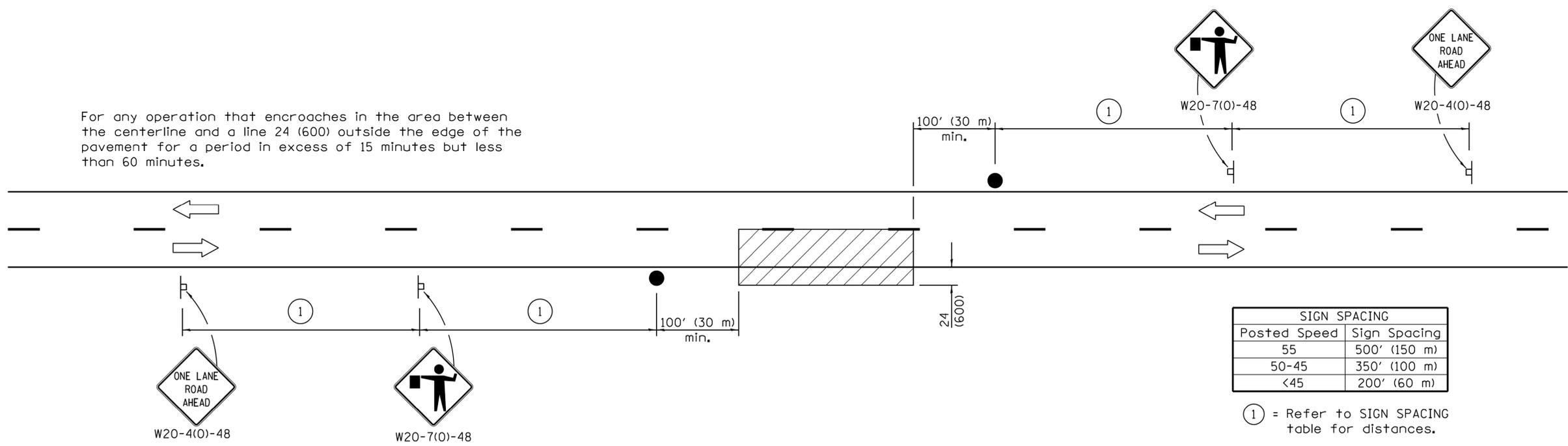
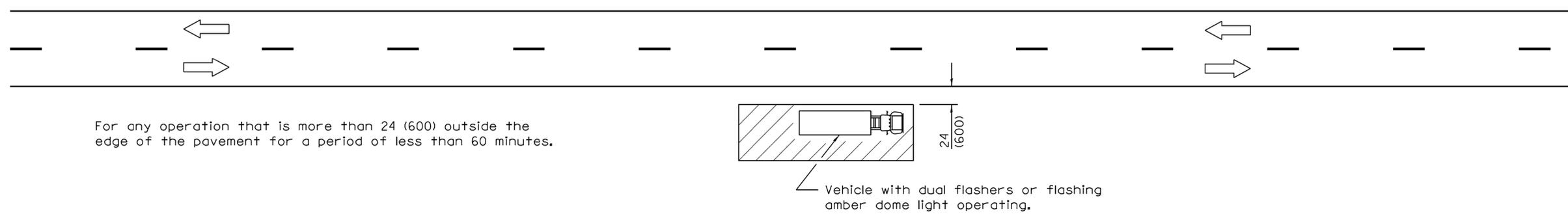
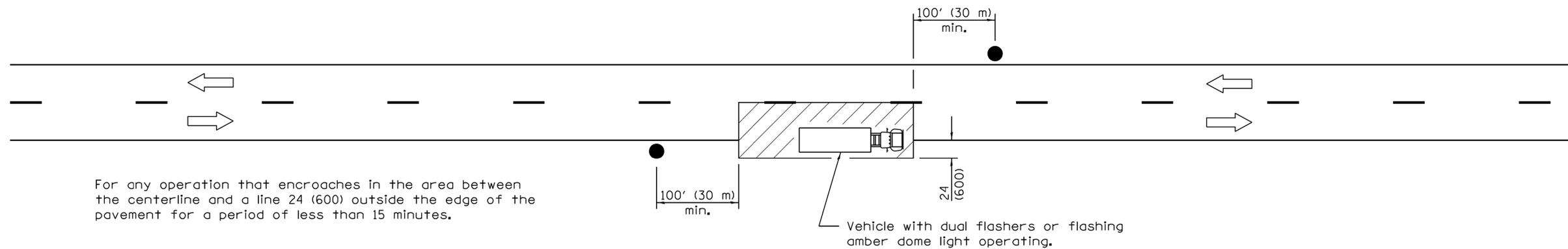
ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to English (metric).
	Corrected sign No.'s.

**LANE CLOSURE, 2L, 2W,
DAY ONLY,
FOR SPEEDS ≥ 45 MPH**

STANDARD 701201-04

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TYPICAL APPLICATIONS

- Marking patches
- Field survey
- String line
- Utility operations
- Cleaning up debris on pavement

SYMBOLS

- Work area
- Sign on portable or permanent support
- Flagger with traffic control sign

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

Illinois Department of Transportation

APPROVED January 1, 2011
Amelia A. Davis
 ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2011
Scott Schickel
 ENGINEER OF DESIGN AND ENVIRONMENT

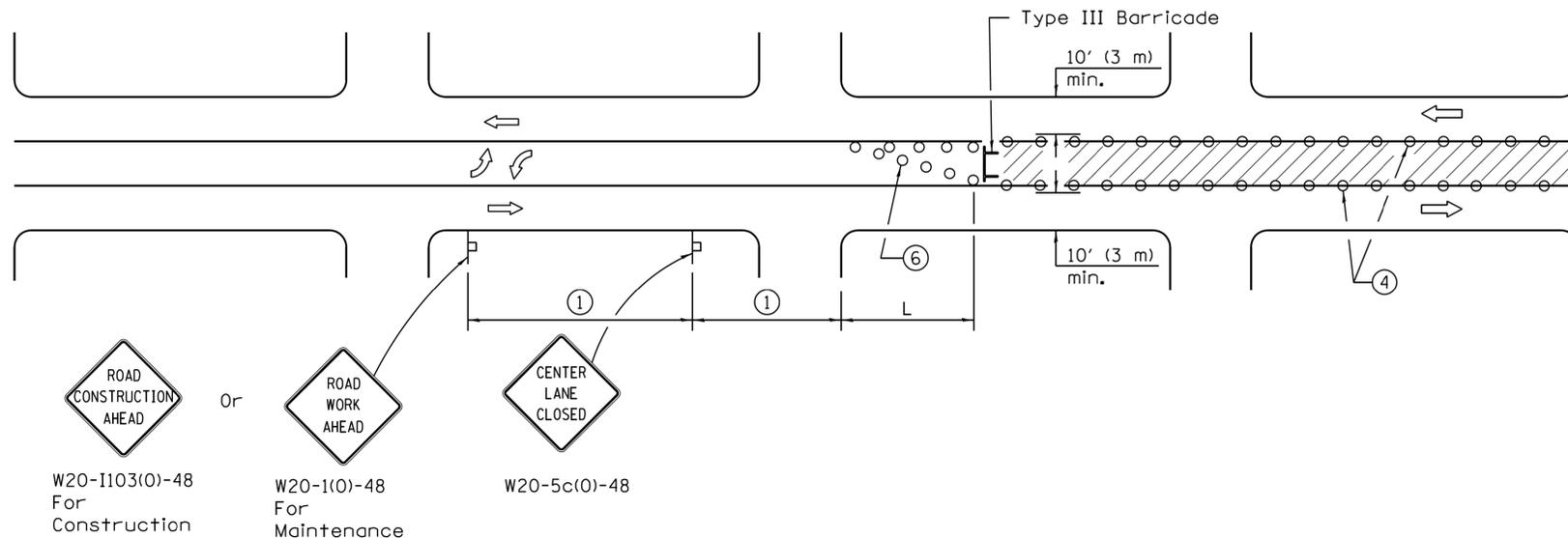
ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to English (metric).

LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS

STANDARD 701301-04

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ROAD CONSTRUCTION AHEAD
W20-1103(0)-48
For Construction

Or

ROAD WORK AHEAD
W20-1(0)-48
For Maintenance

CENTER LANE CLOSED
W20-5c(0)-48

CASE I

(Signs required for both directions)

SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

- ① Refer to SIGN SPACING TABLE for distances.
- ② Required for speeds > 40 mph (70 km/h).
- ③ Required if work exceeds 500' (164 m) or 1 block.
- ④ Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 15 m (50') centers. When drums or type I or II barricades are used, the interval between devices may be doubled.
- ⑤ For approved sideroad closures.
- ⑥ Cones, drums or barricades at 20' (6 m) centers in taper.
- ⑦ Use flagger sign only when flagger is present.

SYMBOLS

- Work area
- Barricade or drum with flashing light
- Flagger with traffic control sign
- Cone, drum or barricade (Cones for daytime use only)
- Sign on portable or permanent support

GENERAL NOTES

This Standard is used to close one lane of an urban, two lane, two way roadway with a bidirectional turn lane.

Case I applies when no workers are present. When workers are present, two lanes shall be closed and traffic control shall be according to Standard 701501.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$

45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$
------------------------------	--------------	------------------

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

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

DATE	REVISIONS
1-1-14	Omitted original note ④.
	Rev. workers sign no. to agree with current MUTCD.
1-1-13	Omitted text 'WORKERS' sign.

**URBAN LANE CLOSURE,
2L, 2W, WITH BIDIRECTIONAL
LEFT TURN LANE**

(Sheet 1 of 2)

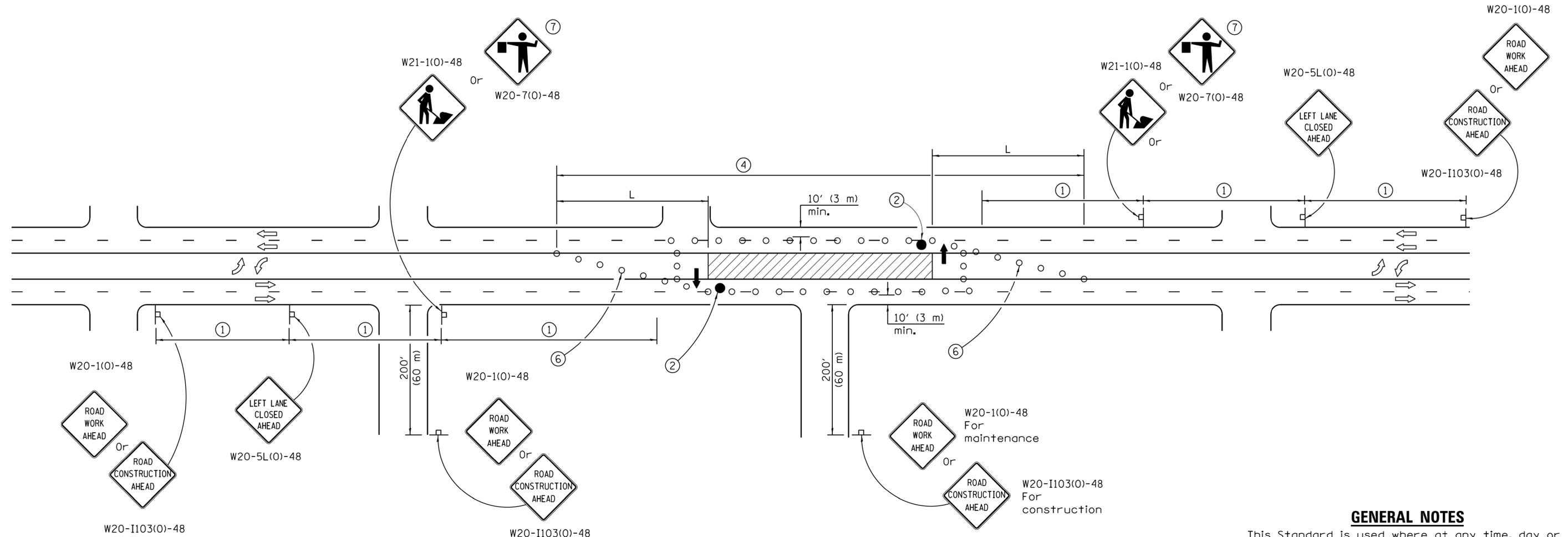
STANDARD 701502-06

Illinois Department of Transportation

APPROVED January 1, 2014
[Signature]
ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2014
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

- SYMBOLS**
- Arrow board
 - Work area
 - Barricade or drum with steady burning monidirectional light
 - Flagger with traffic control sign
 - Cone, drum or barricade (Cones for daytime use only)
 - Sign on portable or permanent support
 - Type III Barricade

CASE I

- ① Refer to SIGN SPACING TABLE for distances.
- ② Required for speeds > 40 mph (70 km/h).
- ③ Required if work exceeds 500' (164 m) or 1 block, repeat every 1 mile (1.6 km).
- ④ Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or type I or II barricades are used, the interval between devices may be doubled.
- ⑤ For approved sideroad closures.
- ⑥ Cones, drums or barricades at 20' (6 m) centers in taper.
- ⑦ Use flagger sign only when flagger is present.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement requiring the closure of one traffic lane in an Urban area.

If the work operation is performed between 9:00 a.m. and 3:00 p.m. and does not exceed 15 min. Traffic protection shall be as shown for Standard 701426.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

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

Illinois Department of Transportation

APPROVED January 1, 2014

 ENGINEER OF SAFETY ENGINEERING

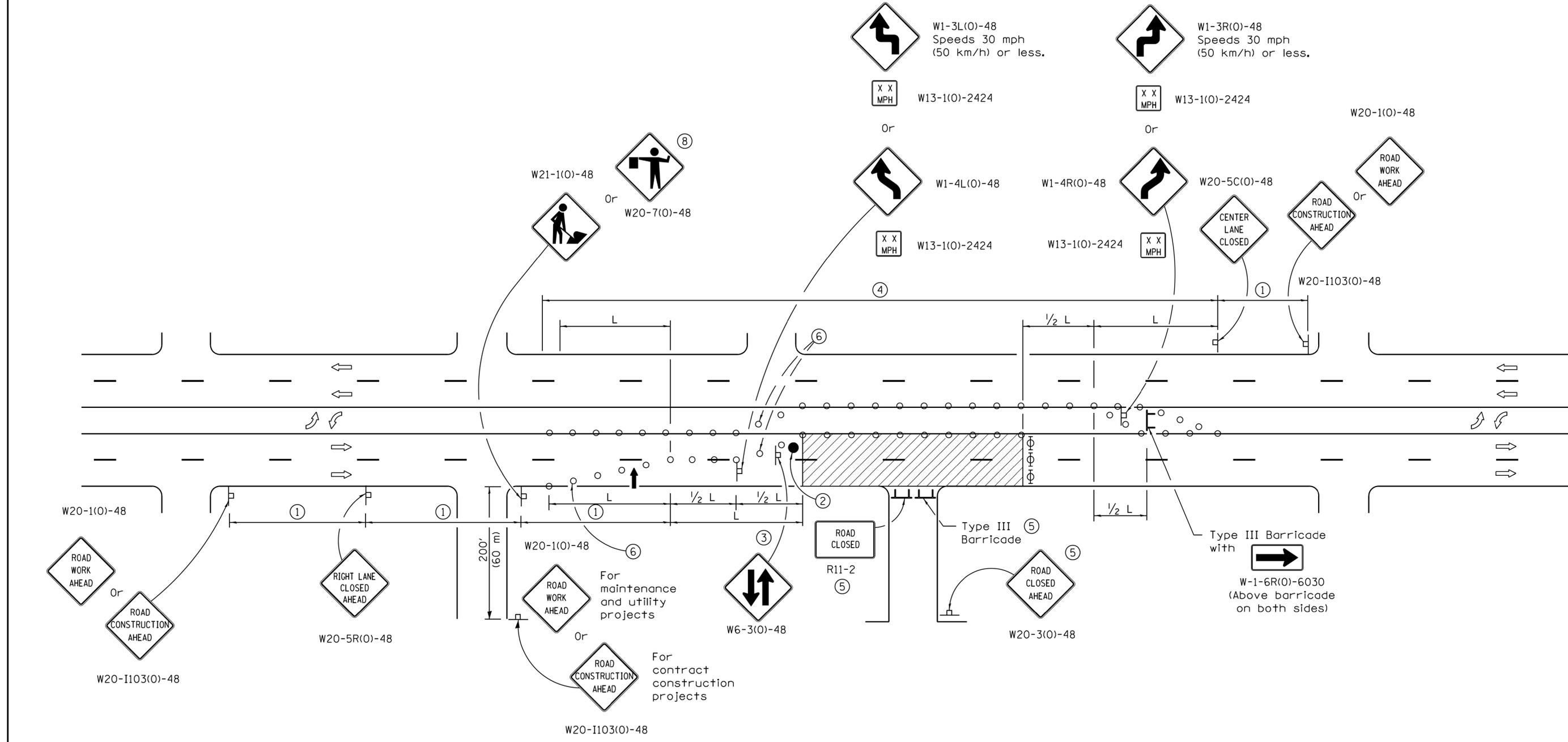
APPROVED January 1, 2014

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01

DATE	REVISIONS
1-1-14	Omitted original note ④.
	Rev. workers sign no. to agree with current MUTCD.
1-1-13	Omitted text 'WORKERS' sign.

URBAN LANE CLOSURE, MULTILANE, 2W WITH BIDIRECTIONAL LEFT TURN LANE
 (Sheet 1 of 4)



CASE II

Illinois Department of Transportation

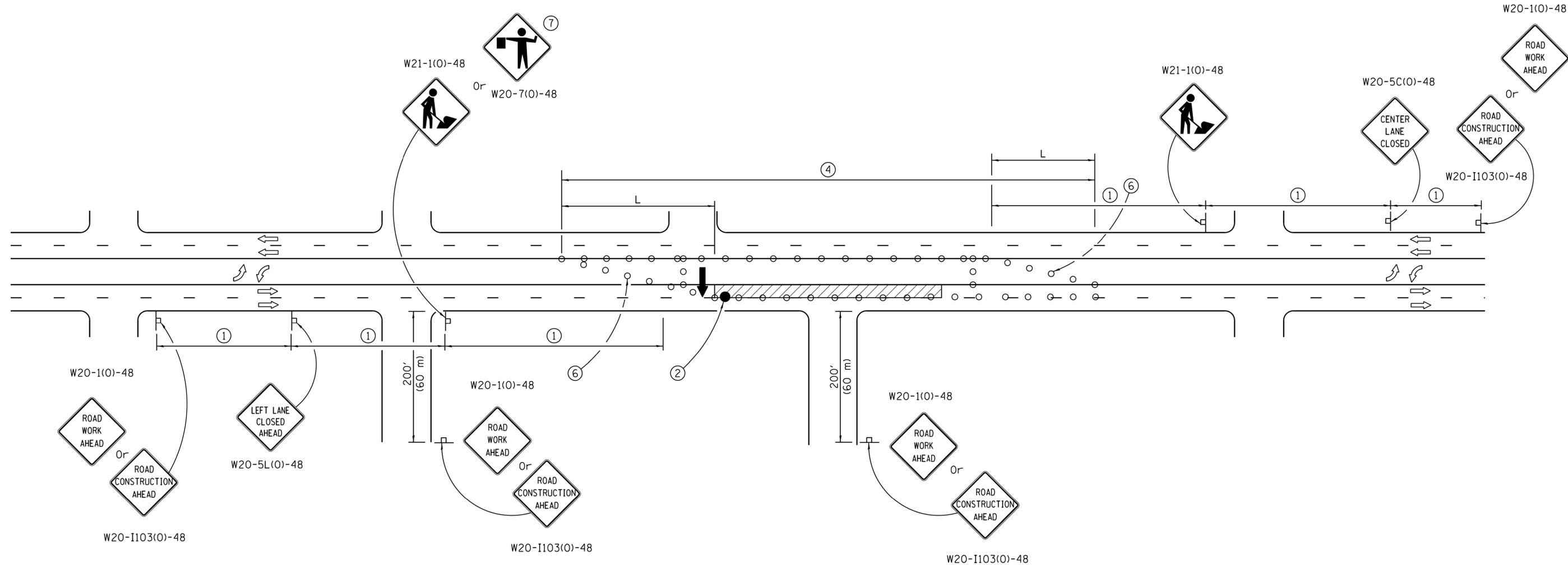
APPROVED January 1, 2014
[Signature]
 ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2014
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01

**URBAN LANE CLOSURE,
 MULTILANE, 2W WITH
 BIDIRECTIONAL LEFT TURN LANE**
 (Sheet 2 of 4)

STANDARD 701602-07 41 / 63



CASE III

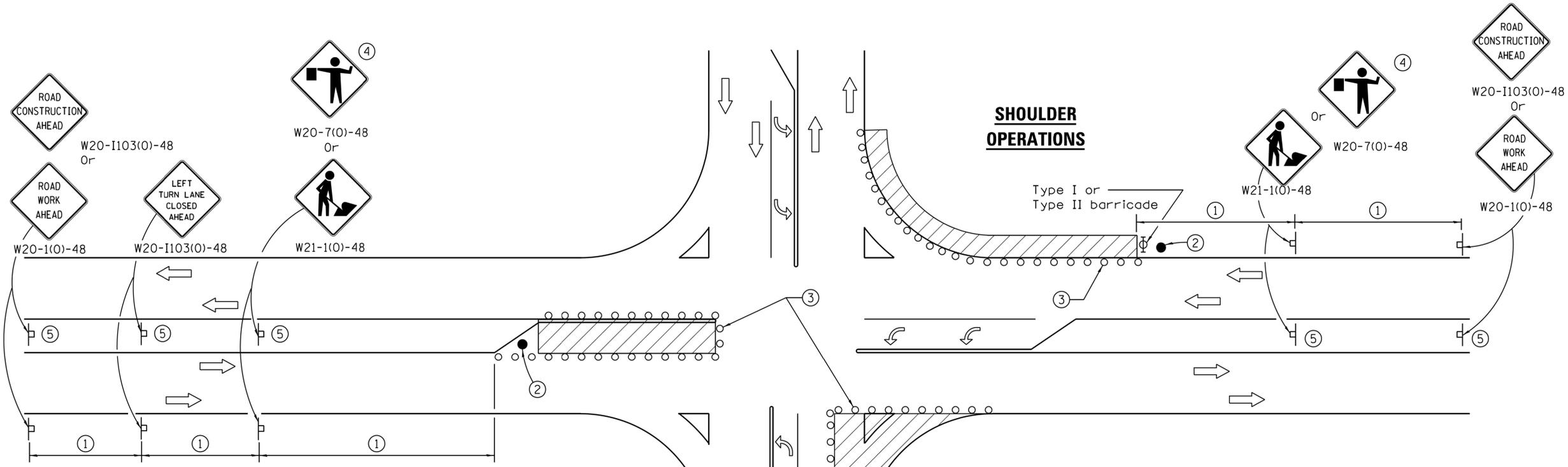
Illinois Department of Transportation
 APPROVED January 1, 2014

 ENGINEER OF SAFETY ENGINEERING
 APPROVED January 1, 2014

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01

**URBAN LANE CLOSURE,
 MULTILANE, 2W WITH
 BIDIRECTIONAL LEFT TURN LANE**
 (Sheet 3 of 4)



**LEFT TURN LANE OR CENTER
MEDIAN OPERATIONS**

- ① Refer to SIGN SPACING TABLE for distance.
- ② Required for speed > 40 mph.
- ③ Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
- ④ Use flagger sign only when flagger is present.
- ⑤ Omit this sign when median is less than 10' (3 m) or for bi-directional turn lanes.
- ⑥ Cones, drums or barricades at 20' (6 m) centers in taper.
- ⑦ Advanced arrow board required for speeds > 45 mph.
- ⑧ Three Type II barricades, drums or vertical barricades at 50' (15 m) centers.

SYMBOLS

- Work area
- Cone, drum or barricade
- Sign on portable or permanent support
- Arrow board
- Barricade or drum with flashing light
- Flagger with traffic control sign

SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

**CORNER ISLAND
OPERATIONS**

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement during shoulder operations or where construction requires lane closures in an urban area.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

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

DATE	REVISIONS
1-1-14	Added devices at arrow board upstream from taper.
	Rev. workers sign number.
1-1-12	Revised flagger sign.
	Omitted W21-I110 sign.

**URBAN LANE CLOSURE,
MULTILANE INTERSECTION**

STANDARD 701701-09

Illinois Department of Transportation

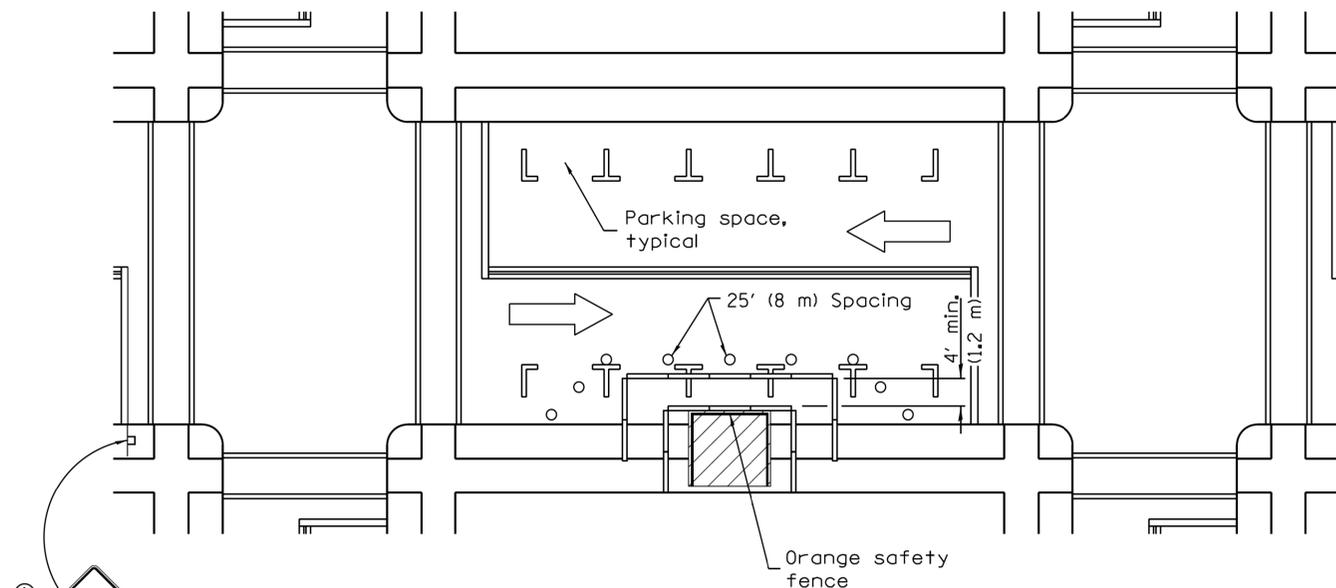
APPROVED January 1, 2014

 ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2014

 ENGINEER OF DESIGN AND ENVIRONMENT

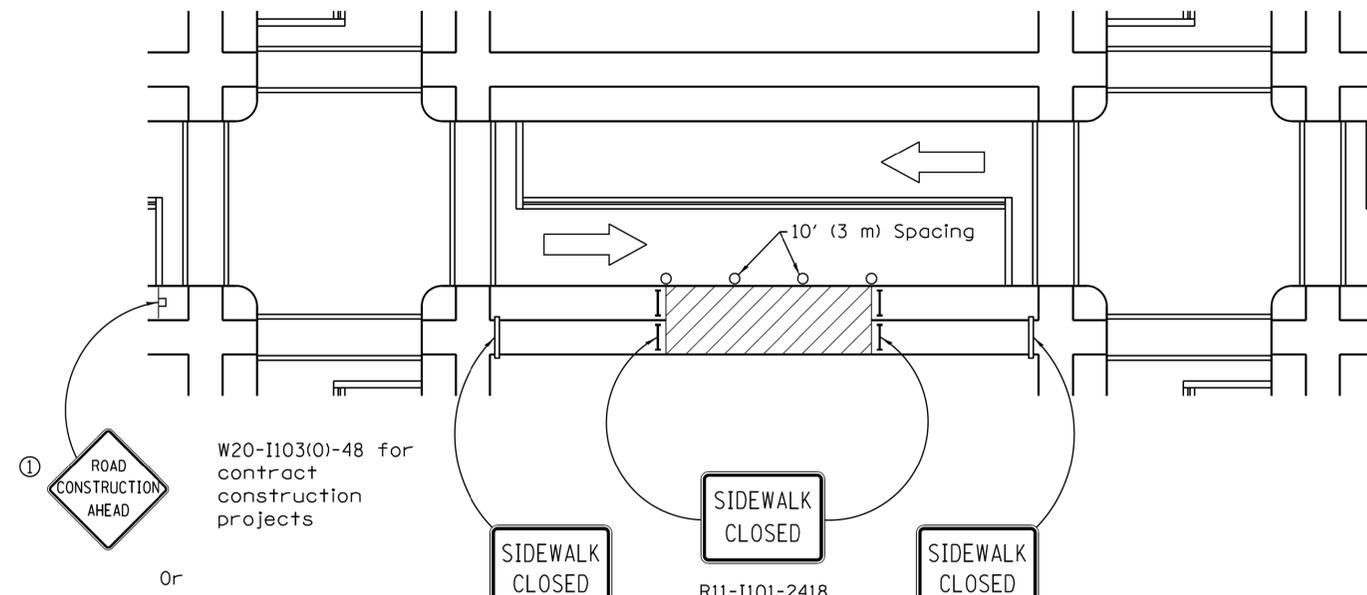
ISSUED 1-1-97



① ROAD CONSTRUCTION AHEAD
W20-I103(O)-48 for contract construction projects

Or
① ROAD WORK AHEAD
W20-1(O)-48 for maintenance and utility projects

SIDEWALK DIVERSION



① ROAD CONSTRUCTION AHEAD
W20-I103(O)-48 for contract construction projects

Or
① ROAD WORK AHEAD
W20-1(O)-48 for maintenance and utility projects

R11-I102-2430
SIDEWALK CLOSED
USE OTHER SIDE

R11-I101-2418
SIDEWALK CLOSED

R11-I102-2430
SIDEWALK CLOSED
USE OTHER SIDE

SIDEWALK CLOSURE

① Omit whenever duplicated by road work traffic control.

GENERAL NOTES

This Standard is used where, at any time, pedestrian traffic must be rerouted due to work being performed.

This Standard must be used in conjunction with other Traffic Control & Protection Standards when roadway traffic is affected.

Temporary facilities shall be detectable and accessible.

The temporary pedestrian facilities shall be provided on the same side of the closed facilities whenever possible.

The SIDEWALK CLOSED / USE OTHER SIDE sign shall be placed at the nearest crosswalk or intersection to each end of the closure. Where the closure occurs at a corner, the signs shall be erected on the corners across the street from the closure. The SIDEWALK CLOSED signs shall be used at the ends of the actual closures.

Type III barricades and R11-2-4830 signs shall be positioned as shown in "ROAD CLOSED TO ALL TRAFFIC" detail on Standard 701901.

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

SYMBOLS

- Work area
- Sign on portable or permanent support
- Barricade or drum
- Cone, drum or barricade
- Type III barricade
- Detectable pedestrian channelizing barricade

Illinois Department of Transportation

APPROVED January 1, 2012
Annelle O'Shea
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APPROVED January 1, 2012
Scott S. Smith
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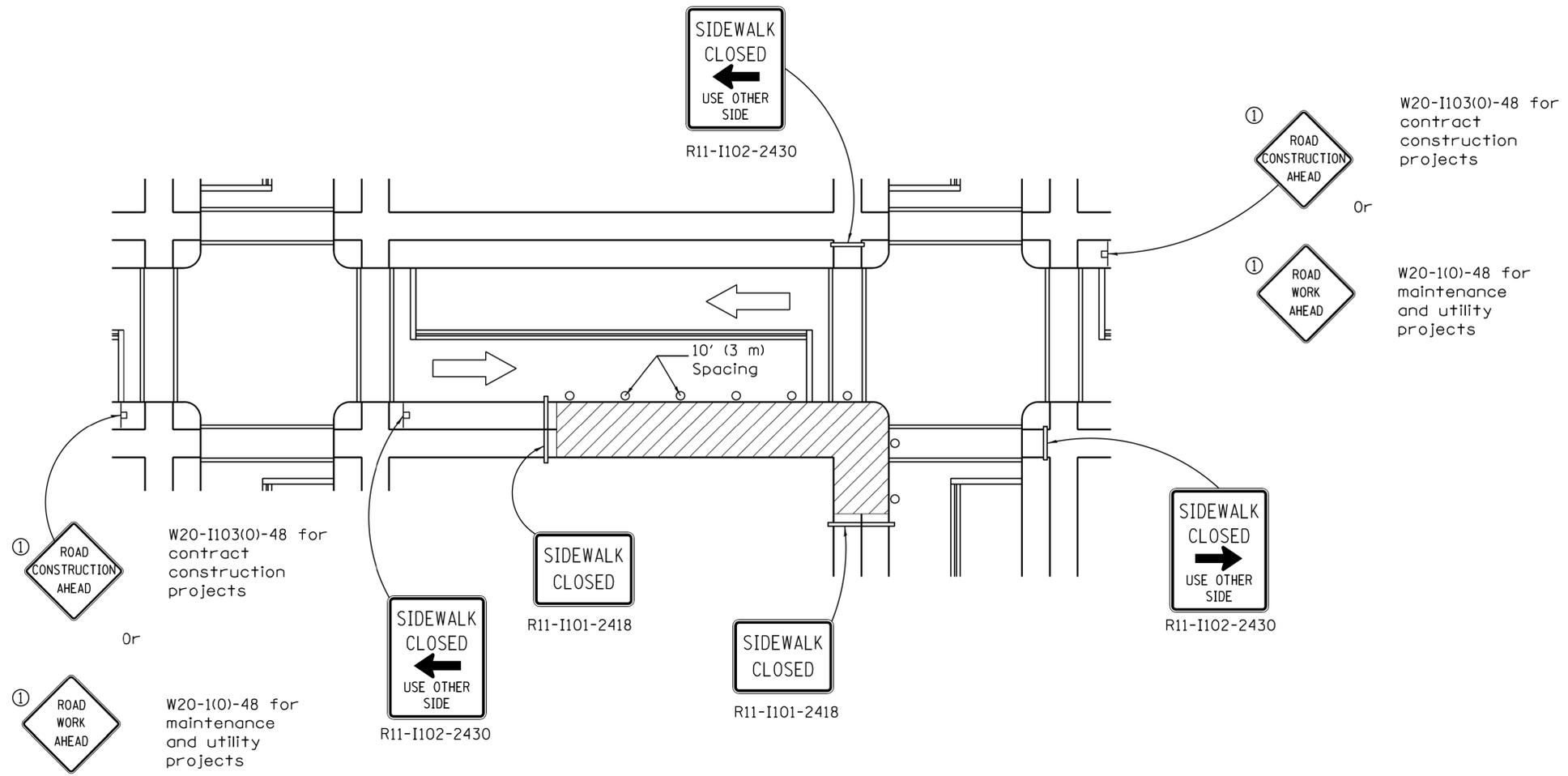
ISSUED 1-1-97

DATE	REVISIONS
1-1-12	Added SIDEWALK DIVERSION.
	Modified appearance of plan views. Renamed Std.
1-1-09	Switched units to English (metric),
	702001 to 701901.

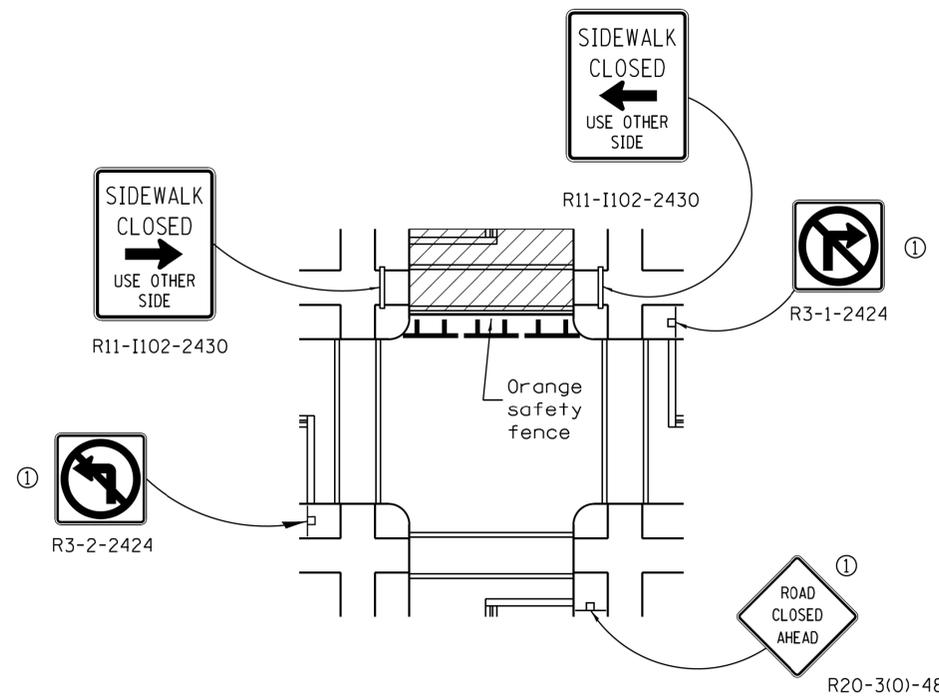
SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 1 of 2)

STANDARD 701801-05



CORNER CLOSURE



CROSSWALK CLOSURE

W20-I103(0)-48 for contract construction projects

Or

W20-1(0)-48 for maintenance and utility projects

W20-I103(0)-48 for contract construction projects

Or

W20-1(0)-48 for maintenance and utility projects

SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 2 of 2)

STANDARD 701801-05

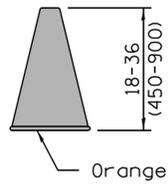
46 / 63

Illinois Department of Transportation

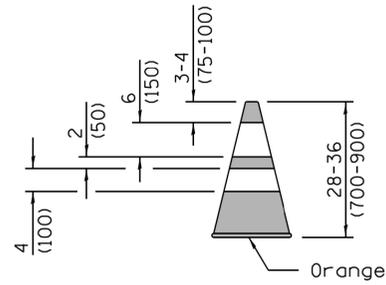
APPROVED January 1, 2012
Annelle A. Stein
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APPROVED January 1, 2012
Scott S. Smith
 ENGINEER OF DESIGN AND ENVIRONMENT

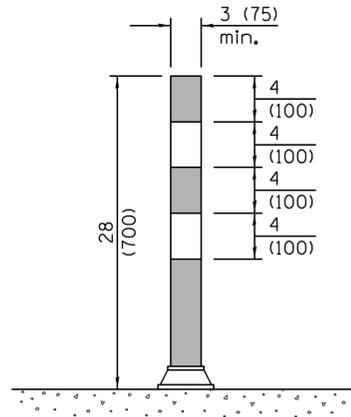
ISSUED 1-1-97



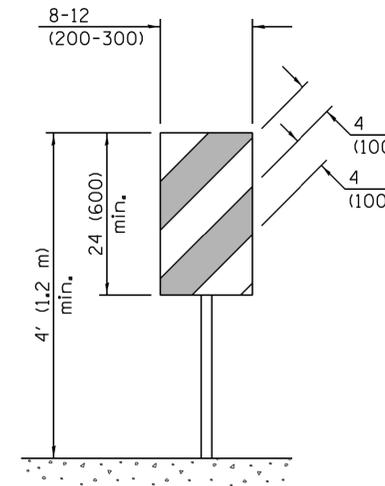
CONE



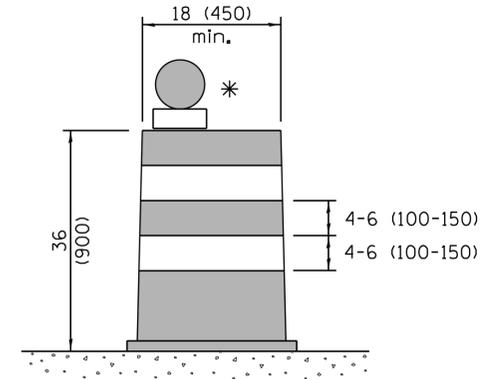
REFLECTORIZED CONE



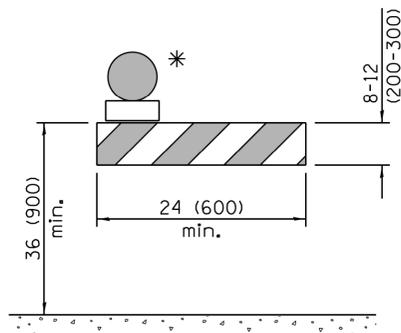
FLEXIBLE DELINEATOR



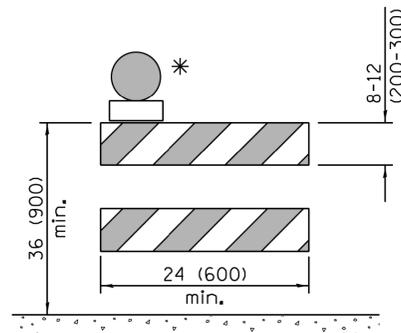
**VERTICAL PANEL
POST MOUNTED**



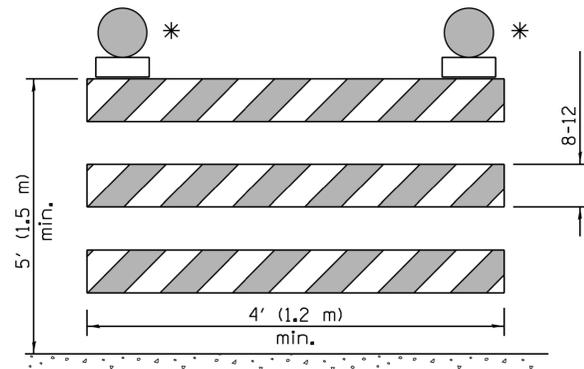
DRUM



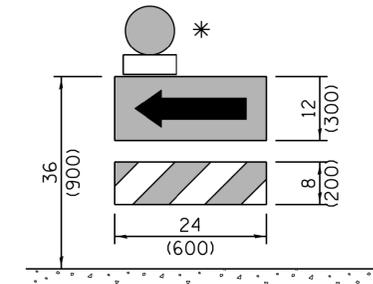
TYPE I BARRICADE



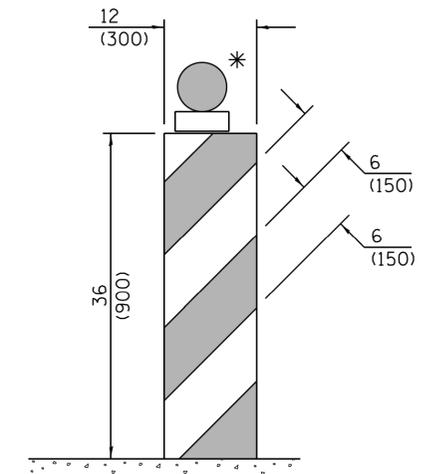
TYPE II BARRICADE



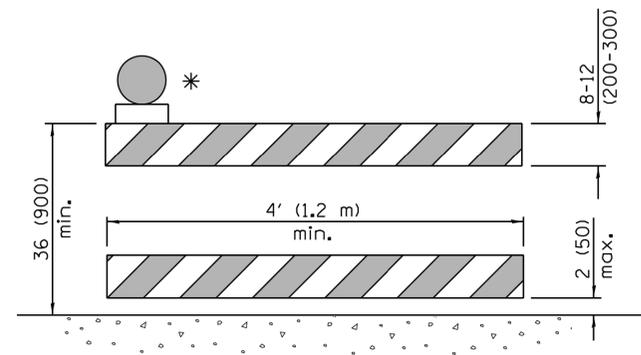
TYPE III BARRICADE



**DIRECTION INDICATOR
BARRICADE**



VERTICAL BARRICADE



**DETECTABLE PEDESTRIAN
CHANNELIZING BARRICADE**

* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

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

DATE	REVISIONS
1-1-15	Revised two sign numbers on sheet 2. Added note reg. PHOTO ENFORCED plaque.
1-1-14	Modified flagger sign height. Added highway construction speed zone signs.

**TRAFFIC CONTROL
DEVICES**

(Sheet 1 of 3)

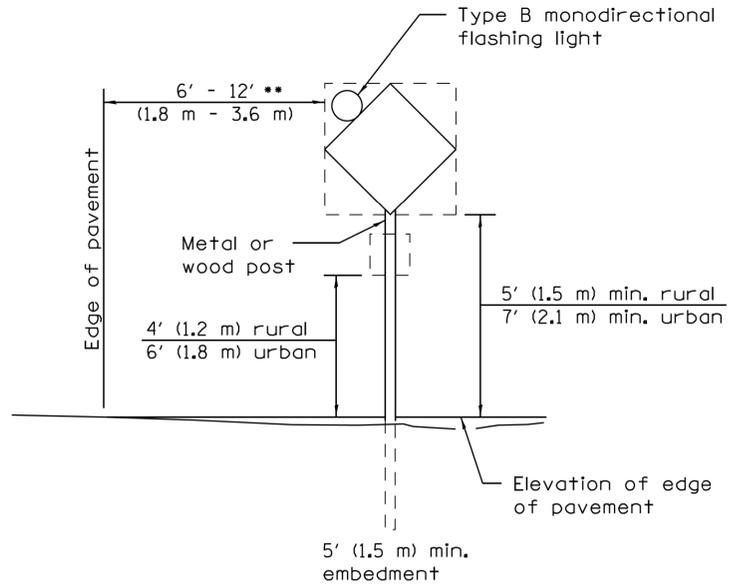
STANDARD 701901-04

Illinois Department of Transportation

APPROVED January 1, 2015
Amy Ellis
 ENGINEER OF OPERATIONS

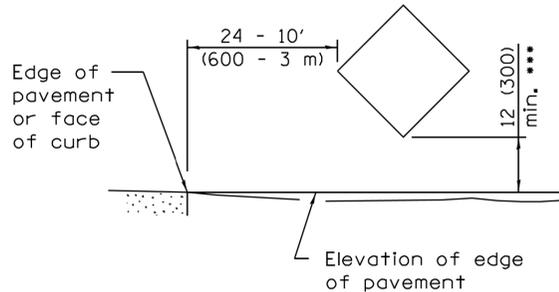
APPROVED January 1, 2015
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-15 0315S1 16-1-1



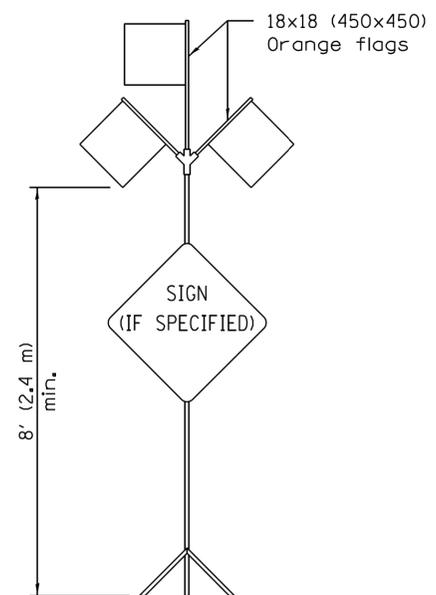
POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.

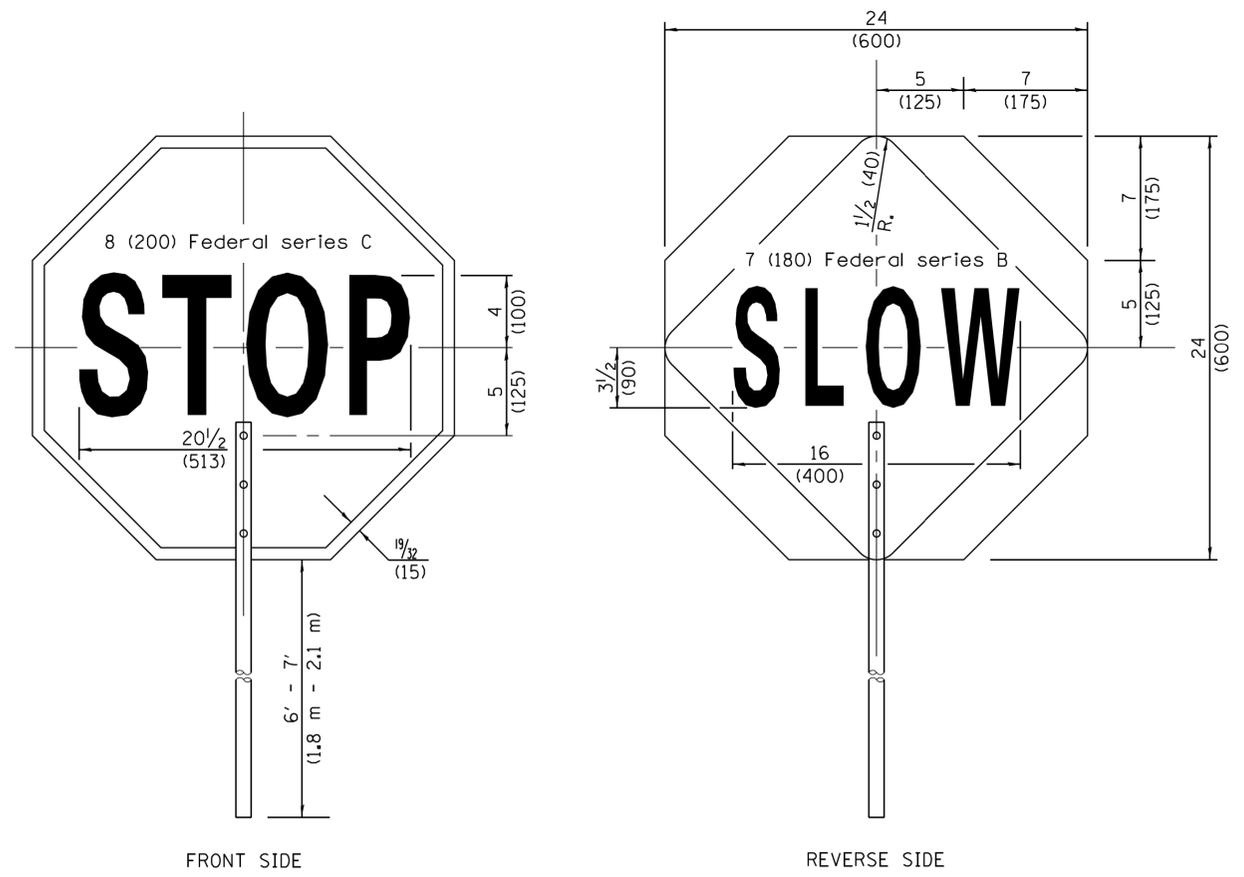


SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



HIGH LEVEL WARNING DEVICE



FLAGGER TRAFFIC CONTROL SIGN

ROAD CONSTRUCTION NEXT X MILES	END CONSTRUCTION
G20-I104(0)-6036	G20-I105(0)-6024

This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING

WORK ZONE	W21-I115(0)-3618
SPEED LIMIT XX	R2-1-3648
PHOTO ENFORCED	R10-I108p-3618 ****
\$XXX FINE MINIMUM	R2-I106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.

END WORK ZONE SPEED LIMIT	G20-I103(0)-6036
---------------------------	------------------

This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

**** R10-I108p shall only be used along roadways under the jurisdiction of the State.

TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

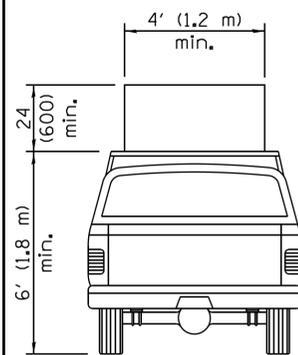
STANDARD 701901-04

Illinois Department of Transportation

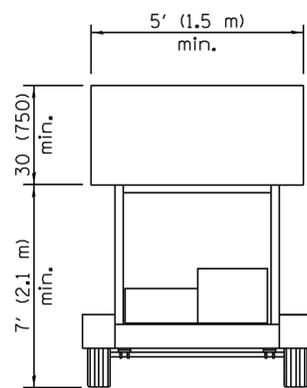
APPROVED January 1, 2015
Amy Ellis
 ENGINEER OF OPERATIONS

APPROVED January 1, 2015
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

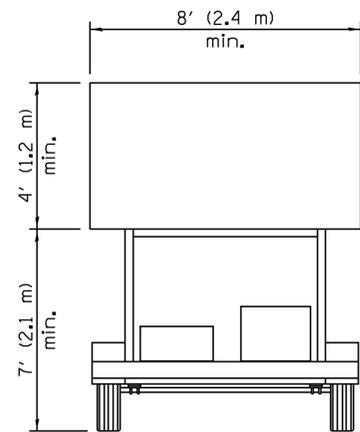
ISSUED 1-1-97



**TYPE A
ROOF
MOUNTED**

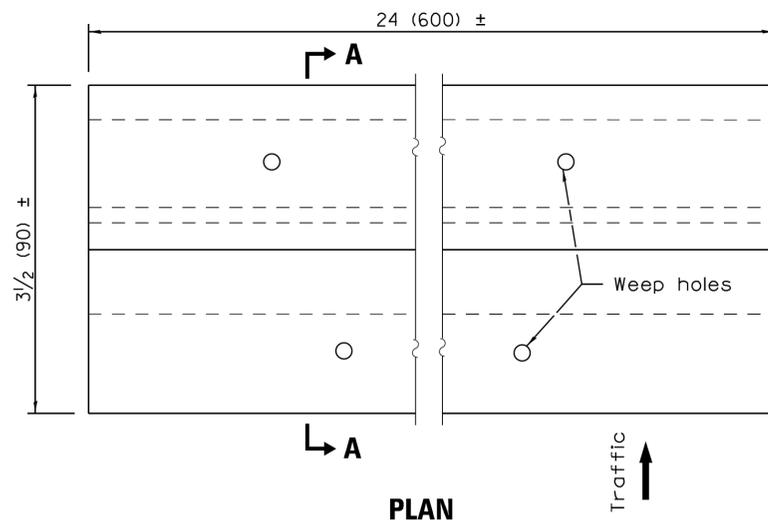


**TYPE B
ROOF OR TRAILER
MOUNTED**

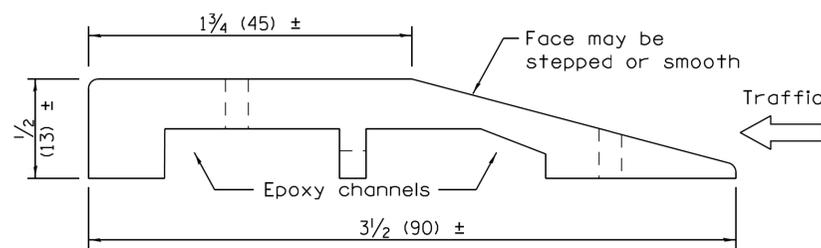


**TYPE C
TRAILER
MOUNTED**

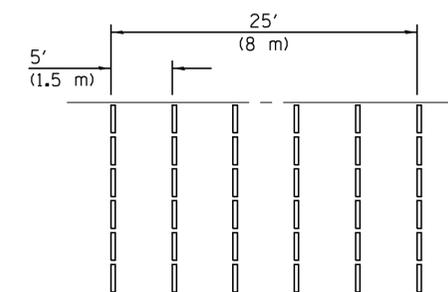
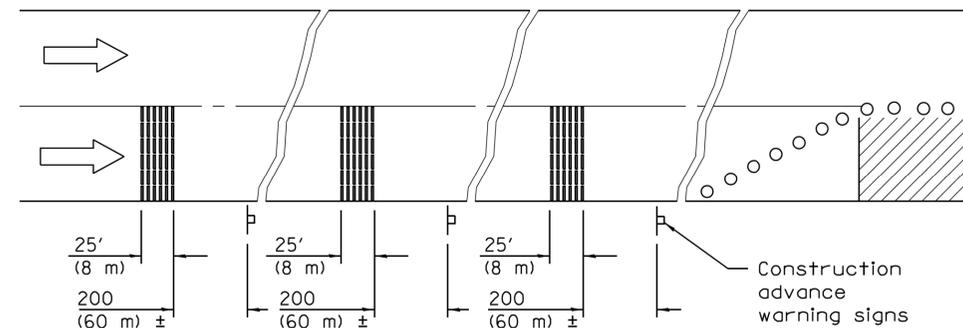
ARROW BOARDS



PLAN

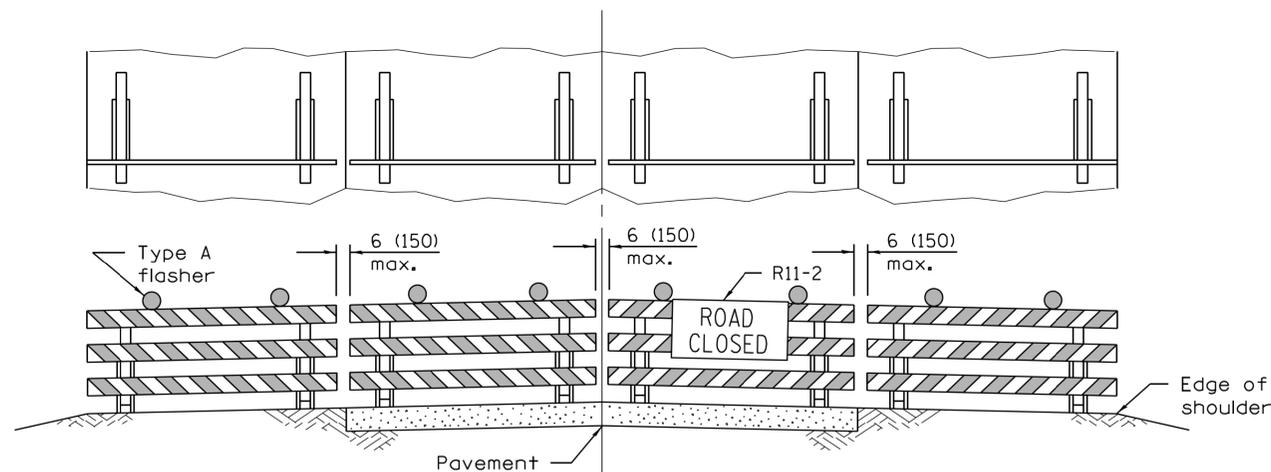


SECTION A-A



TYPICAL INSTALLATION

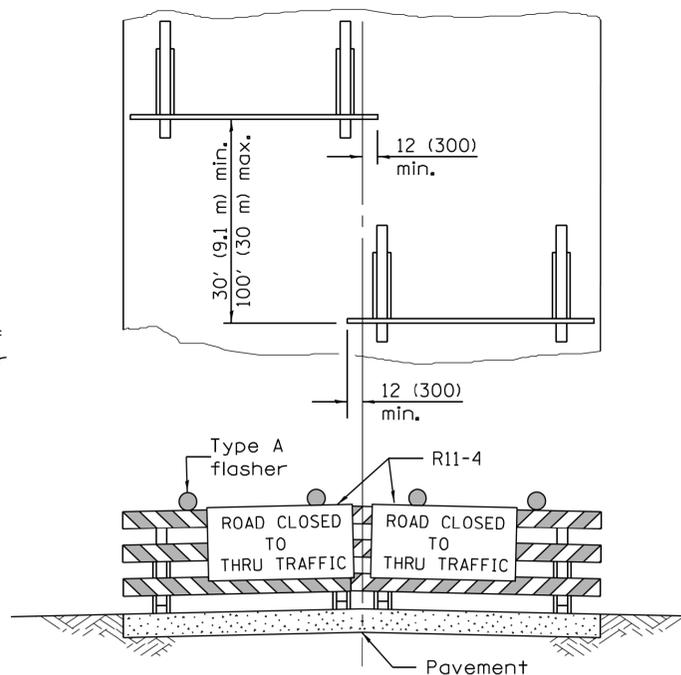
TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.

**TYPICAL APPLICATIONS OF
TYPE III BARRICADES CLOSING A ROAD**



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

Illinois Department of Transportation

APPROVED January 1, 2015
Amy Ellis
 ENGINEER OF OPERATIONS

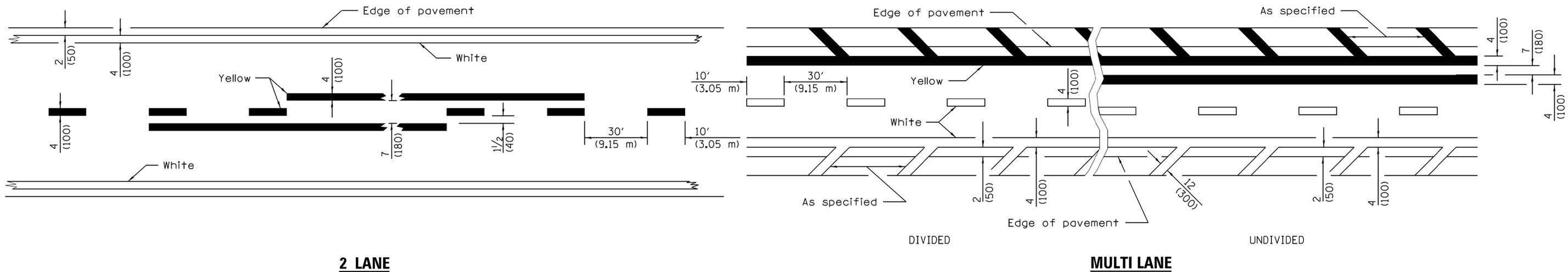
APPROVED January 1, 2015
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

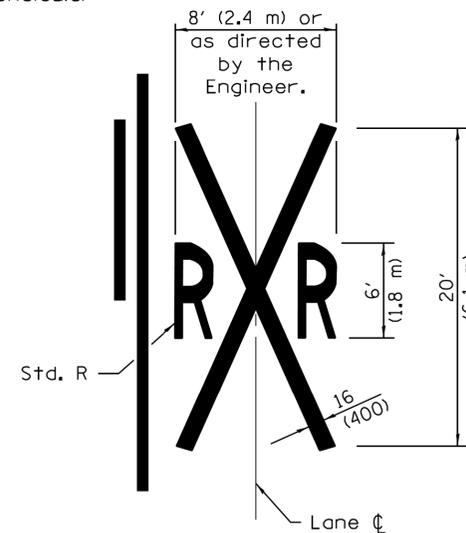
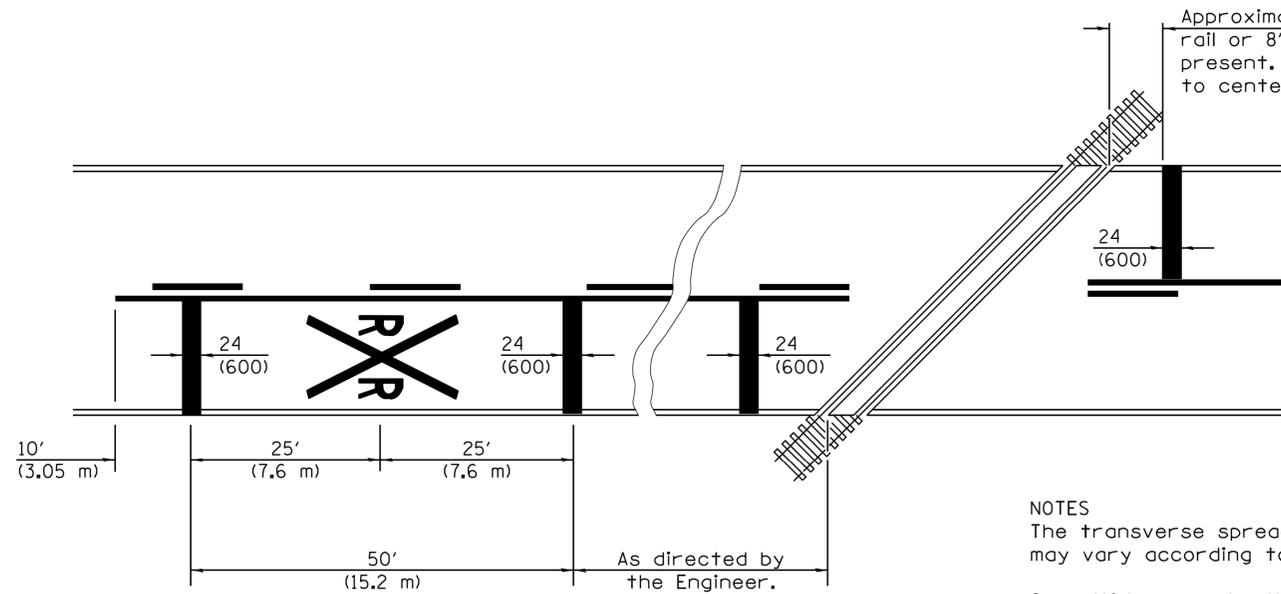
**TRAFFIC CONTROL
DEVICES**

(Sheet 3 of 3)

STANDARD 701901-04



LANE AND EDGE LINES



NOTES

The transverse spread of the "X" may vary according to lane width.

On multi-lane roads, the stop lines shall extend across all approach lanes and separate RXR symbols shall be placed adjacent to each other in each lane.

When the pavement marking symbol is used, a portion of the symbol should be located directly adjacent to the Advance Warning Sign (W10-1) as placed by Table 2C-4, Condition B of the MUTCD.

PAVEMENT MARKINGS AT RAILROAD-HIGHWAY GRADE CROSSING

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

DATE	REVISIONS
1-1-15	Added symbols. Revised bike symbol. Revised note for stop line at RR crossing.
1-1-14	Added bike symbol. Renamed 'LANE DROP ARROW' detail to 'LANE-REDUCTION ARROW'.

TYPICAL PAVEMENT MARKINGS

(Sheet 1 of 3)

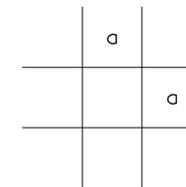
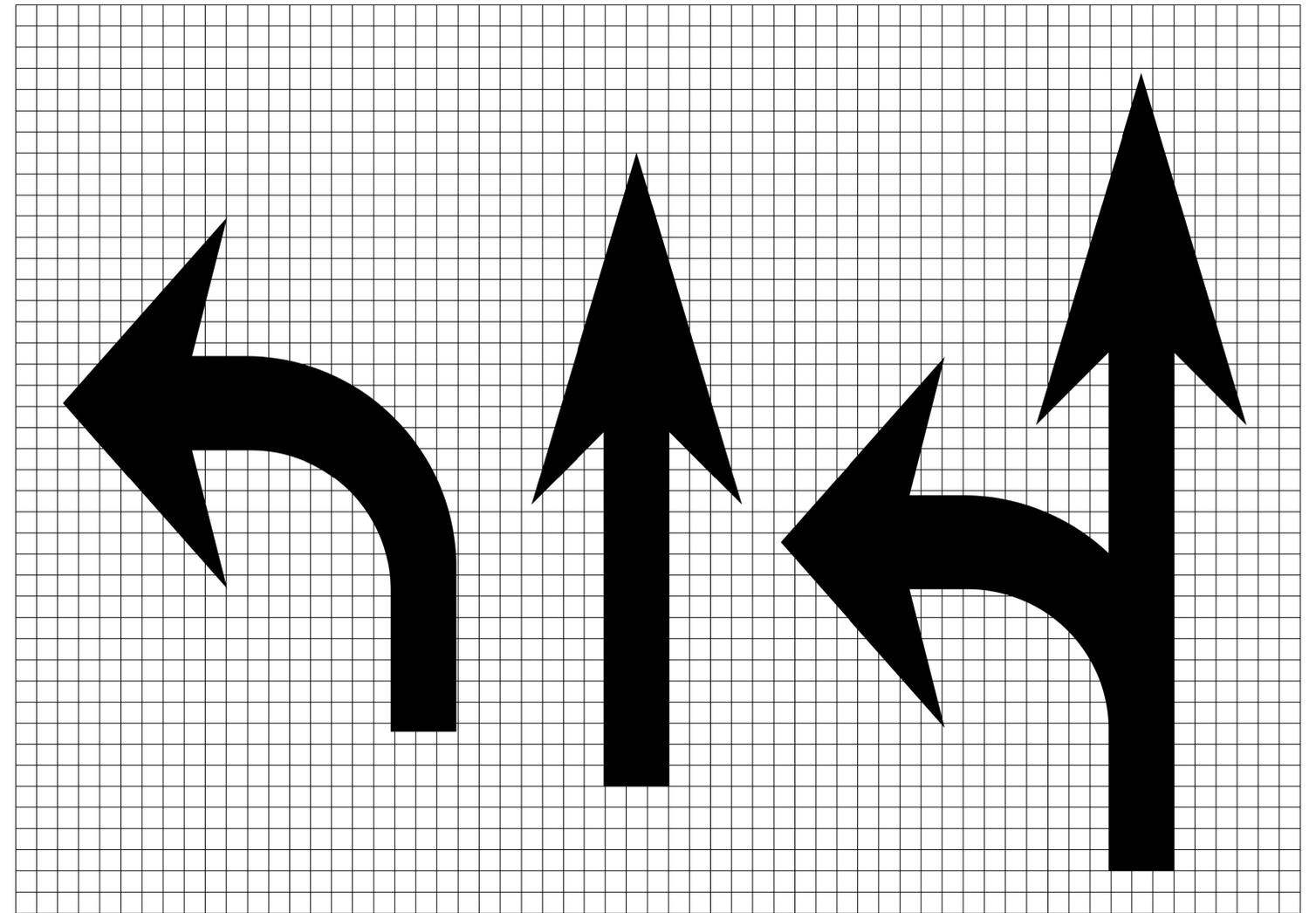
STANDARD 780001-05

Illinois Department of Transportation

APPROVED January 1, 2015
Amy Allen
 ENGINEER OF OPERATIONS

APPROVED January 1, 2015
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



Legend Height	Arrow Size	a
6' (1.8 m)	Small	2.9 (74)
8' (2.4 m)	Large	3.8 (96)

The space between adjacent letters or numerals should be approximately 3 (75) for 6' (1.8 m) legend and 4 (100) for 8' (2.4 m) legend.

LETTER AND ARROW GRID SCALE

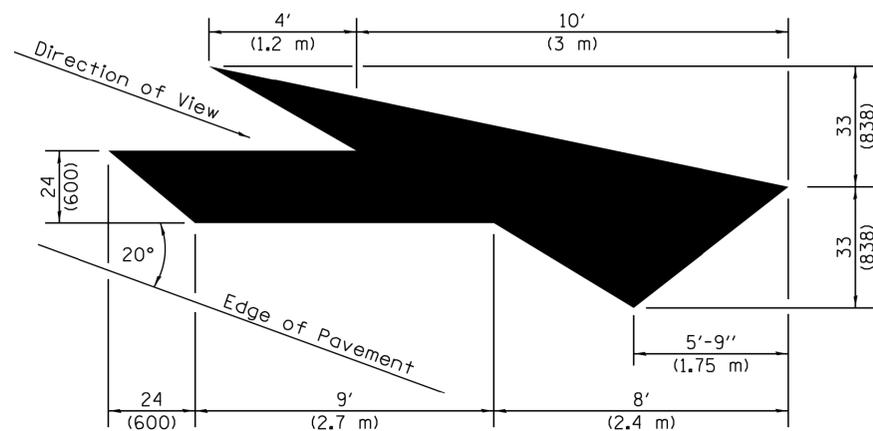
 Illinois Department of Transportation
 APPROVED January 1, 2015
Amy Eller
 ENGINEER OF OPERATIONS
 APPROVED January 1, 2015
RE
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

TYPICAL PAVEMENT MARKINGS

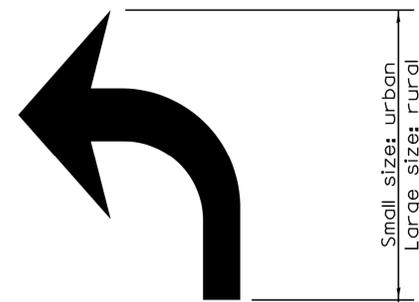
(Sheet 2 of 3)

STANDARD 780001-05



LANE-REDUCTION ARROW

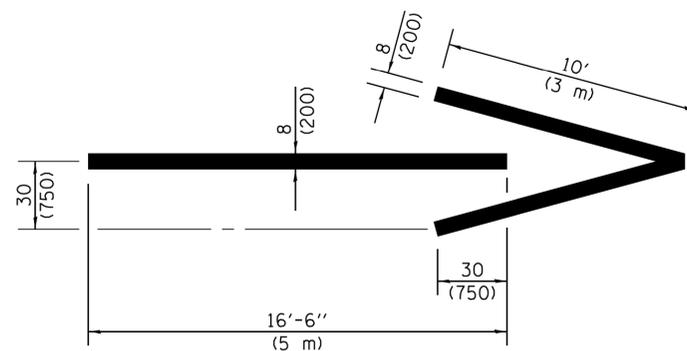
Right lane-reduction arrow shown.
Use mirror image for left lane.



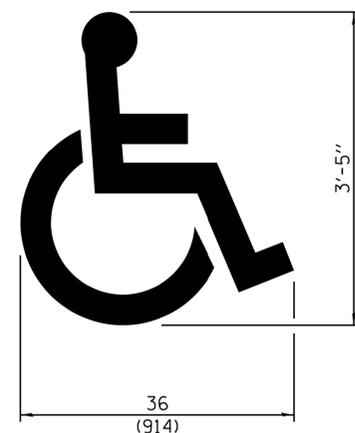
20' (6 m): urban
50' (15 m): rural
(Between arrow
and word or
between words)



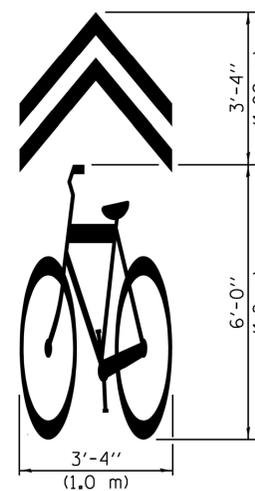
WORD AND ARROW LAYOUT



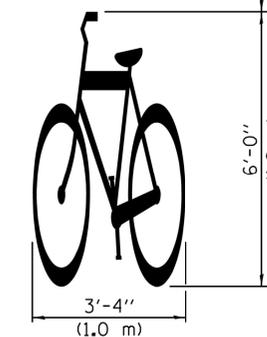
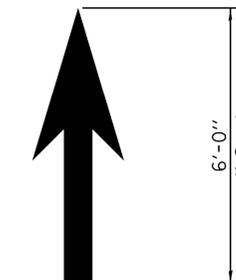
WRONG WAY ARROW



**INTERNATIONAL
SYMBOL OF
ACCESSIBILITY**



**SHARED LANE
SYMBOL**



BIKE SYMBOL
(Arrow is optional.)

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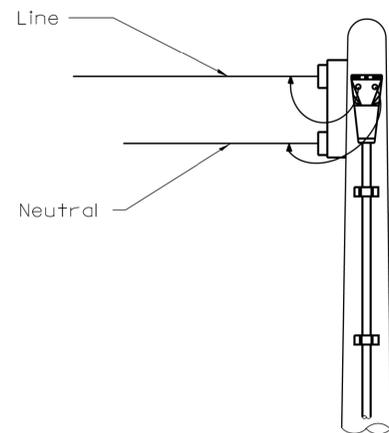
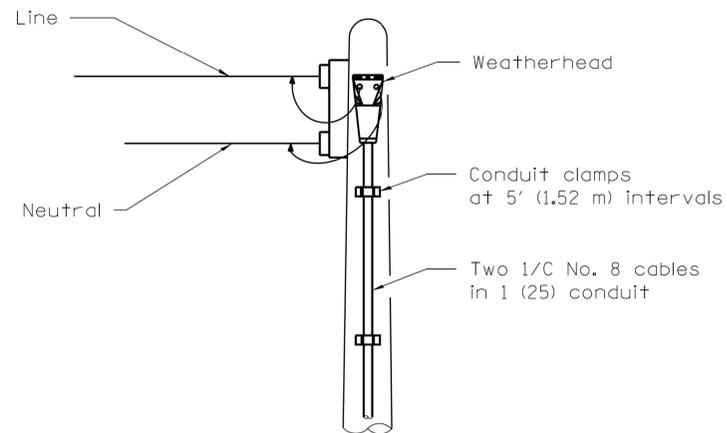
ISSUED 1-1-97

**TYPICAL PAVEMENT
MARKINGS**

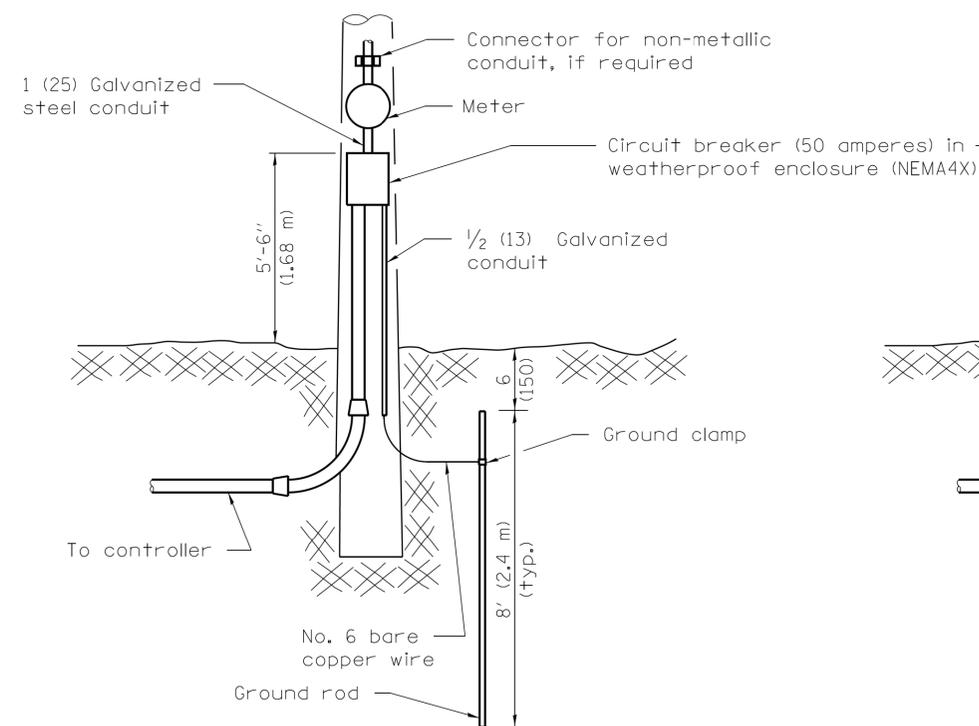
(Sheet 3 of 3)

STANDARD 780001-05

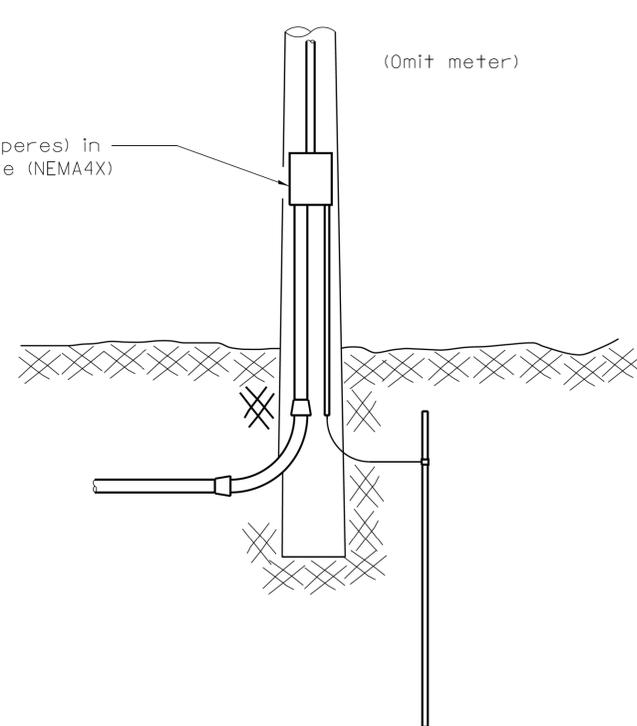
52 / 63



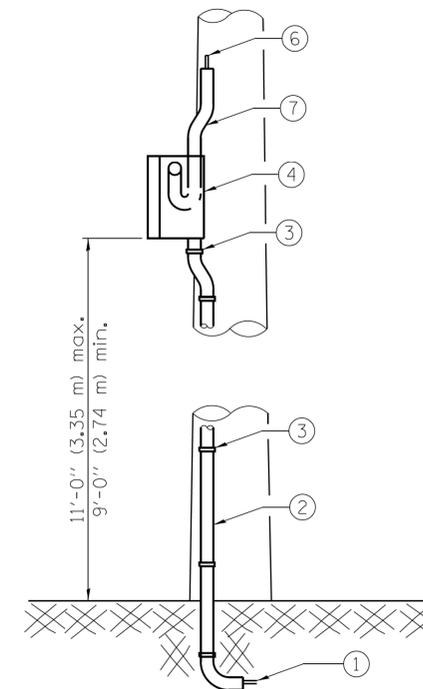
Except for the changes noted below, details for TYPE A and TYPE B service installations shall correspond.



TYPE A



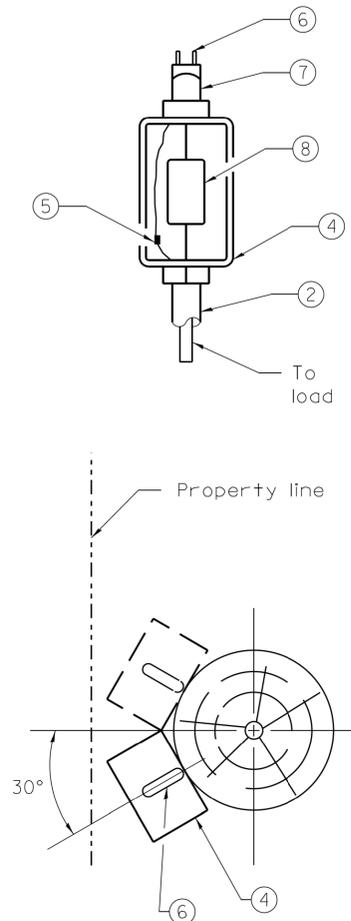
TYPE B



The following equipment is to be furnished and installed on the TYPE C installation.

- ① Cable in conduit (electric cable, No. 6, 2/C except where otherwise specified)
- ② Galvanized steel conduit 1/4 (32) with bend
- ③ Galvanized conduit clamps
- ④ Aluminum weatherproof box with gasketed cover. Weatherproof box shall be installed facing the adjacent property line. (See diagram for alternate installation.)
- ⑤ Ground stud for neutral connection
- ⑥ Service cables
- ⑦ Offset weatherproof fitting
- ⑧ Circuit breaker

TYPE C



ALTERNATE INSTALLATION
(Installation when weatherproof box cannot be installed facing the adjacent property line.)

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

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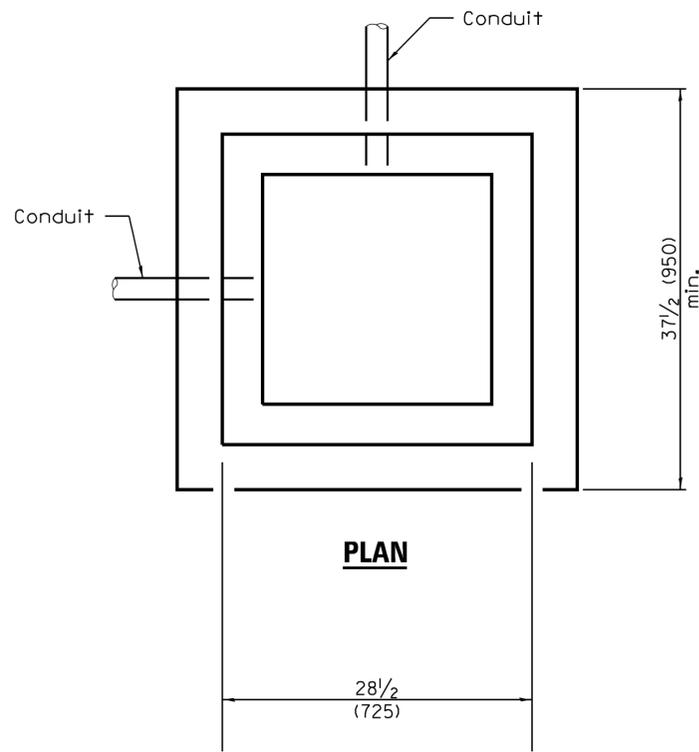
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-02

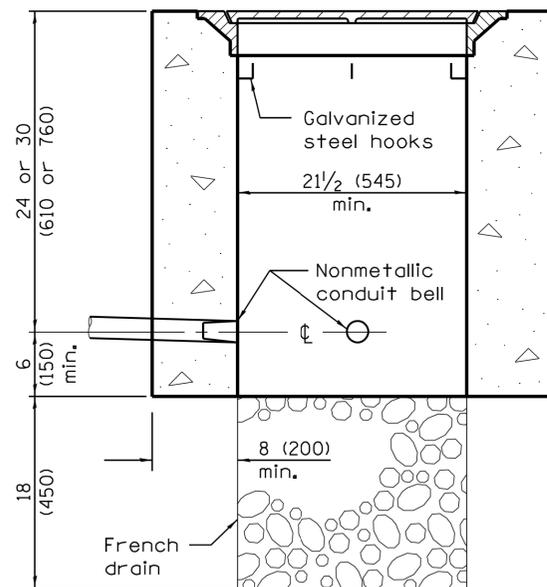
DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-02	Renum. Standard 2373-1.

**ELECTRICAL SERVICE
INSTALLATION DETAILS**

STANDARD 805001-01

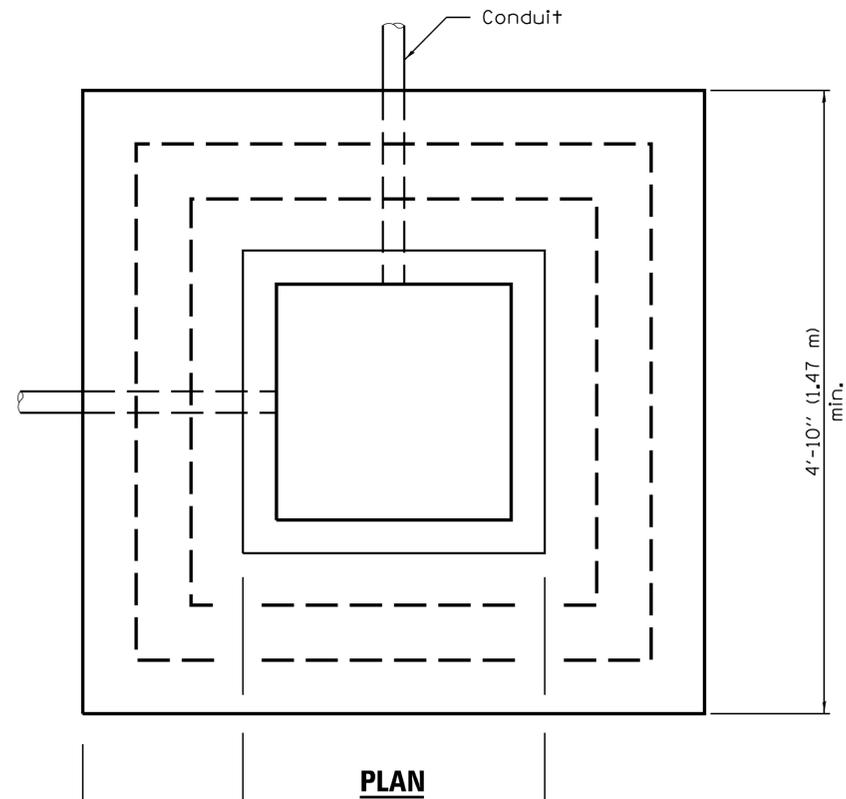


PLAN

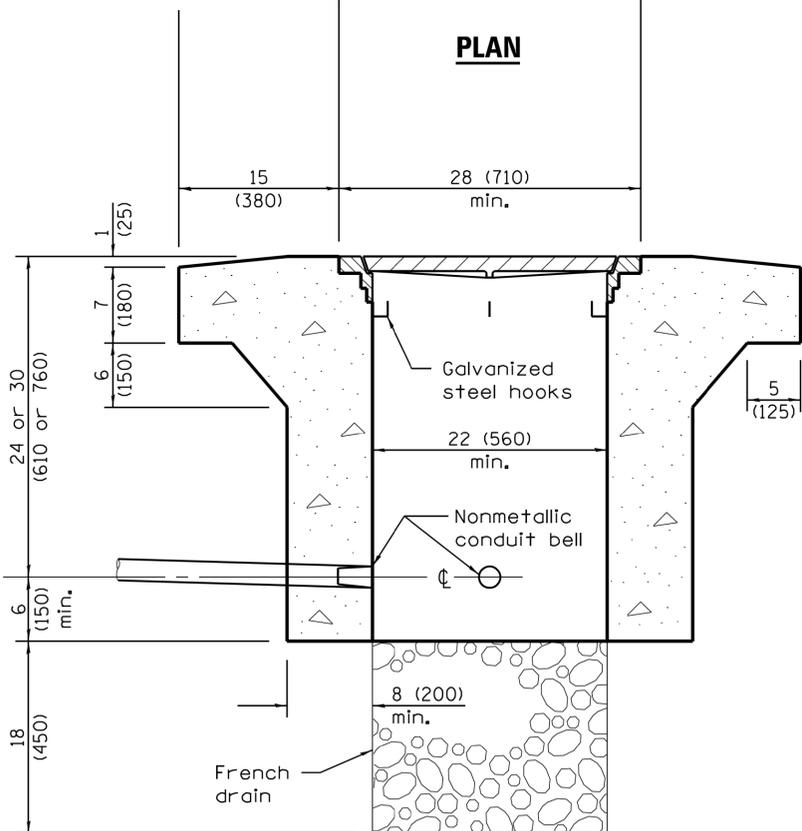


ELEVATION

PORTLAND CEMENT CONCRETE

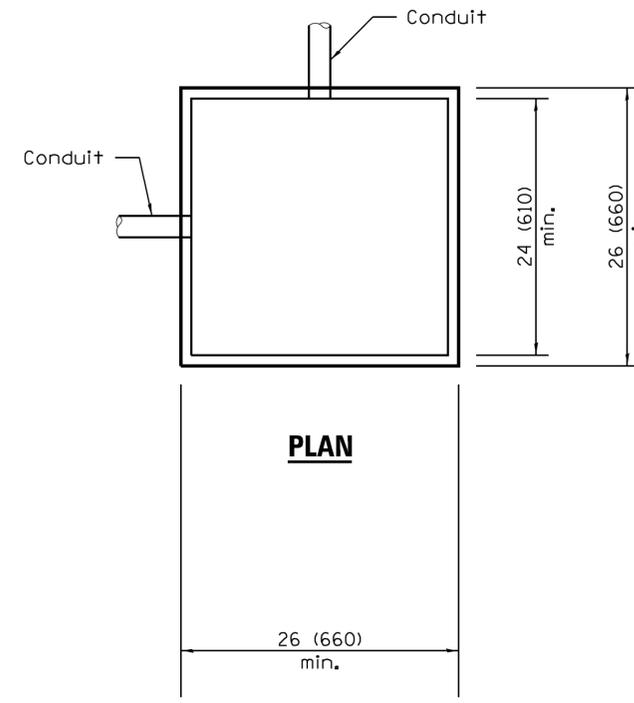


PLAN

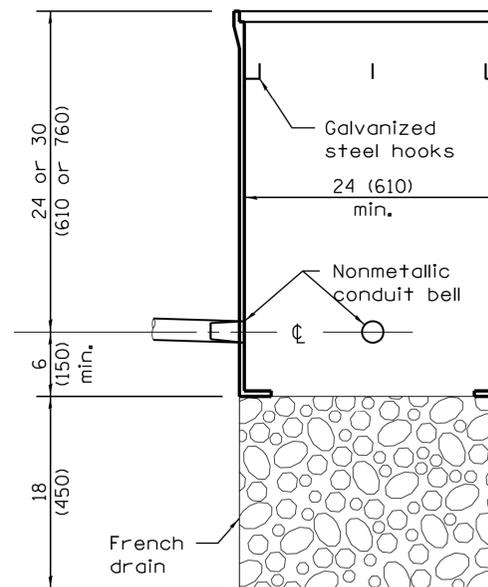


ELEVATION

**PORTLAND CEMENT CONCRETE
HEAVY DUTY**



PLAN



ELEVATION

COMPOSITE CONCRETE

QUANTITIES

Depth	Concrete yd ³ (m ³)	
	Handhole	Heavy Duty Handhole
30 (762)	0.61 (0.47)	0.98 (0.75)
36 (914)	0.73 (0.56)	1.10 (0.84)

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

DATE	REVISIONS
1-1-15	Corrected dimension on heavy duty handhole. Added concrete quantities table.
1-1-09	Switched units to English (metric).

HANDHOLES

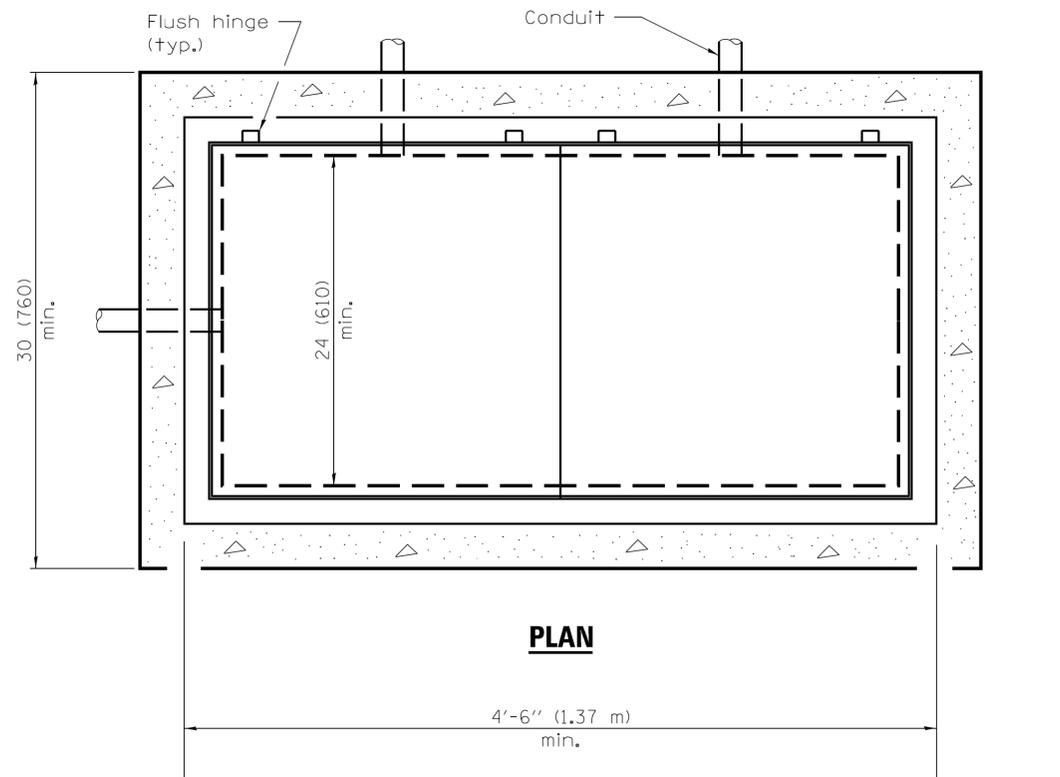
STANDARD 814001-03

Illinois Department of Transportation

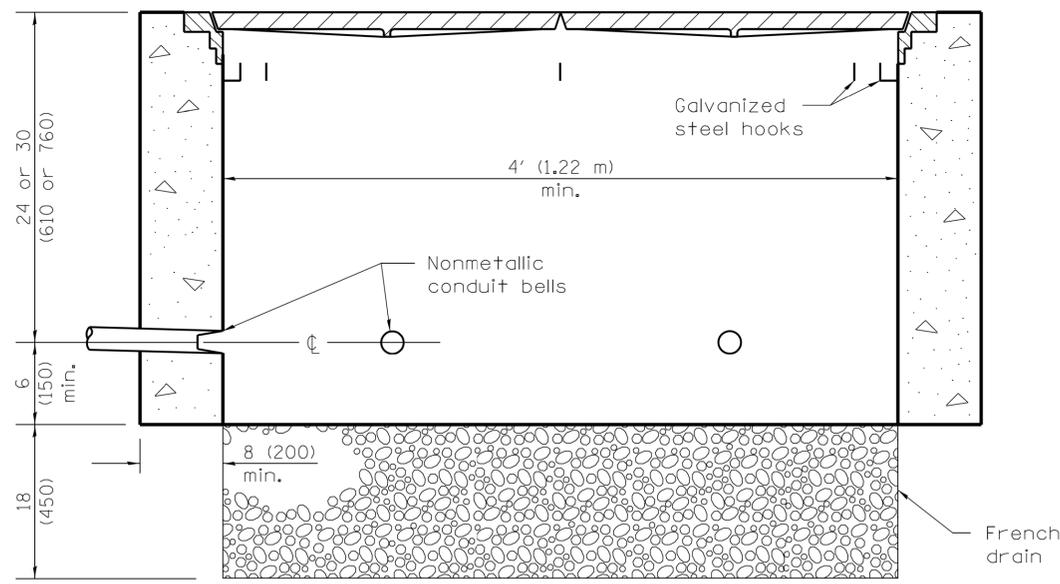
APPROVED January 1, 2015
Amy Allen
ENGINEER OF OPERATIONS

APPROVED January 1, 2015
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

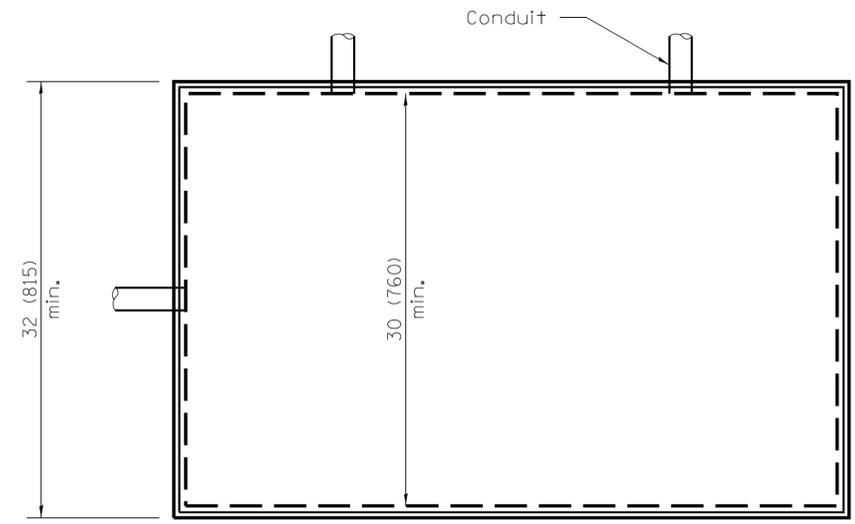


PLAN

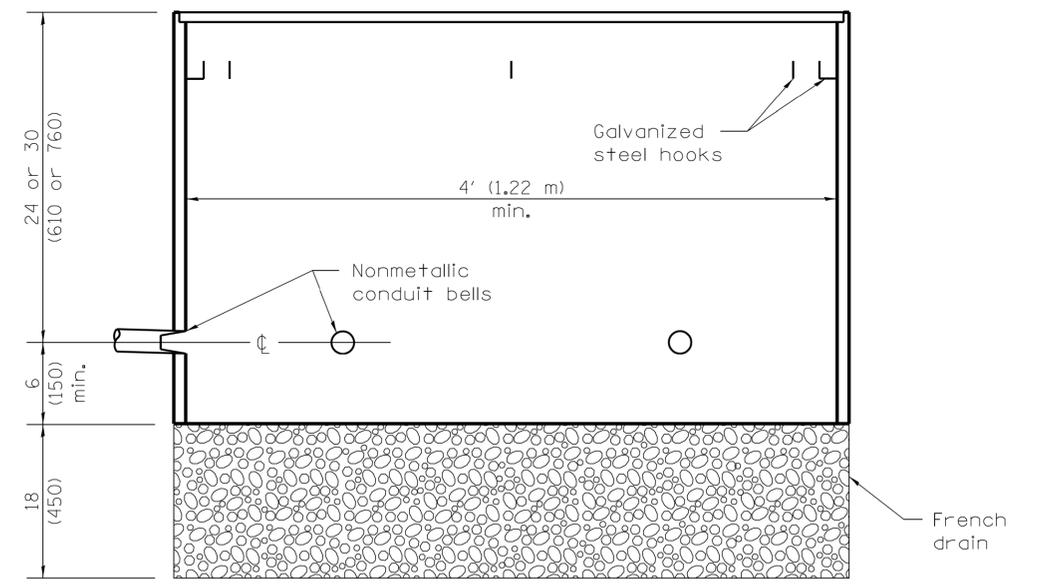


ELEVATION

PORTLAND CEMENT CONCRETE



PLAN



ELEVATION

COMPOSITE CONCRETE

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

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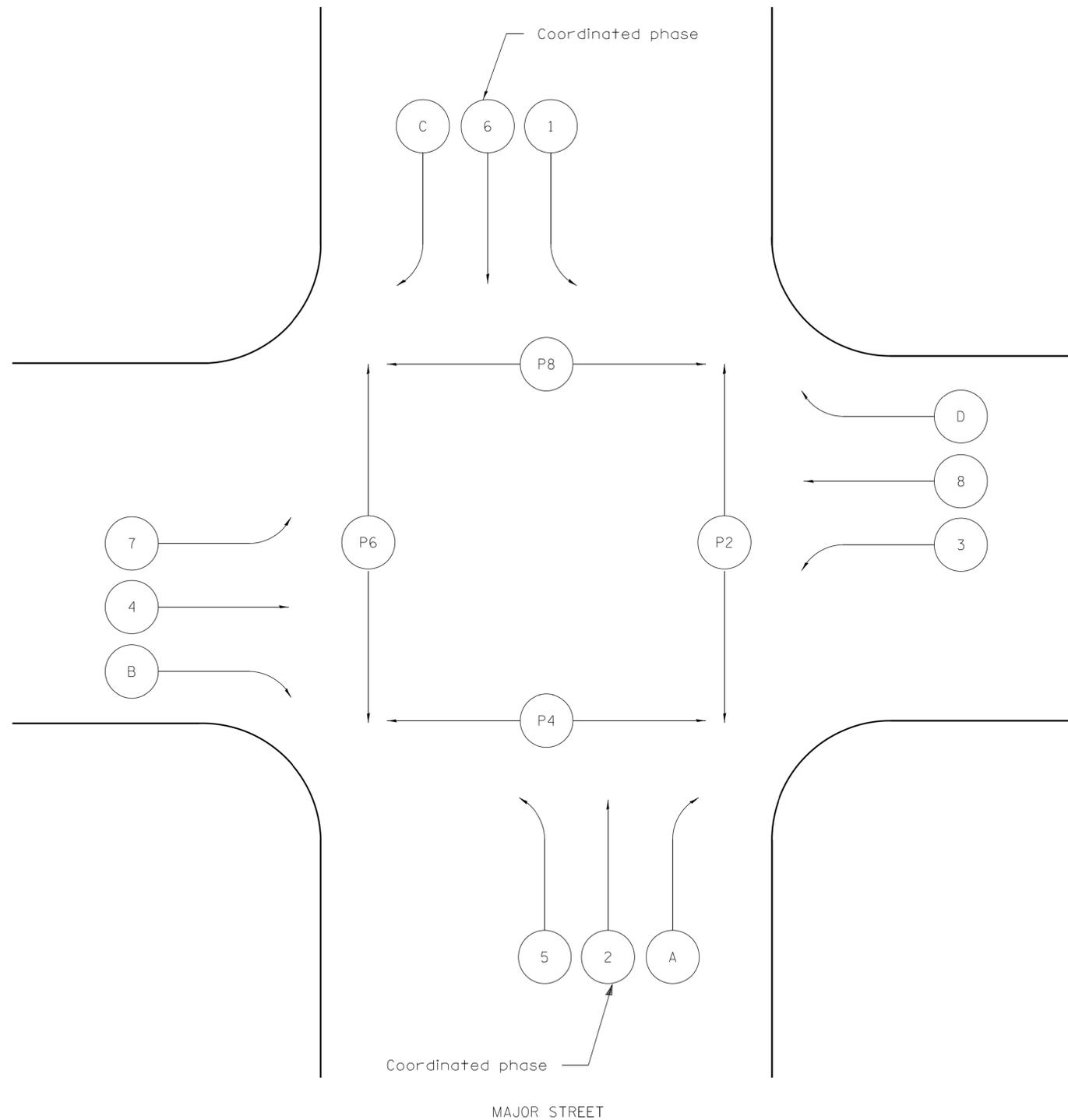
APPROVED January 1, 2009
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

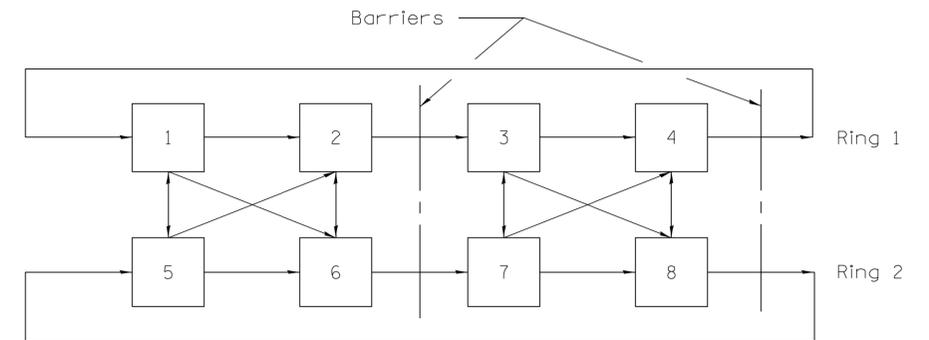
DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-07	Revised composite conc. handhole. Rem. weights of frames and covers.

DOUBLE HANDHOLES

STANDARD 814006-02



STANDARD PHASE DESIGNATION DIAGRAM (NEMA)



**NEMA EIGHT PHASE DUAL RING
ACTUATED CONFIGURATION**

LEGEND

- (X), [X] Vehicular phase no. x
- (PX) Pedestrian phase no. x
- (A), (B), (C), (D) Right turn overlaps where:
 - (A) = (2) + (3)
 - (B) = (4) + (5)
 - (C) = (6) + (7)
 - (D) = (8) + (1)
- NEMA National Electrical Manufacturers Association

Illinois Department of Transportation

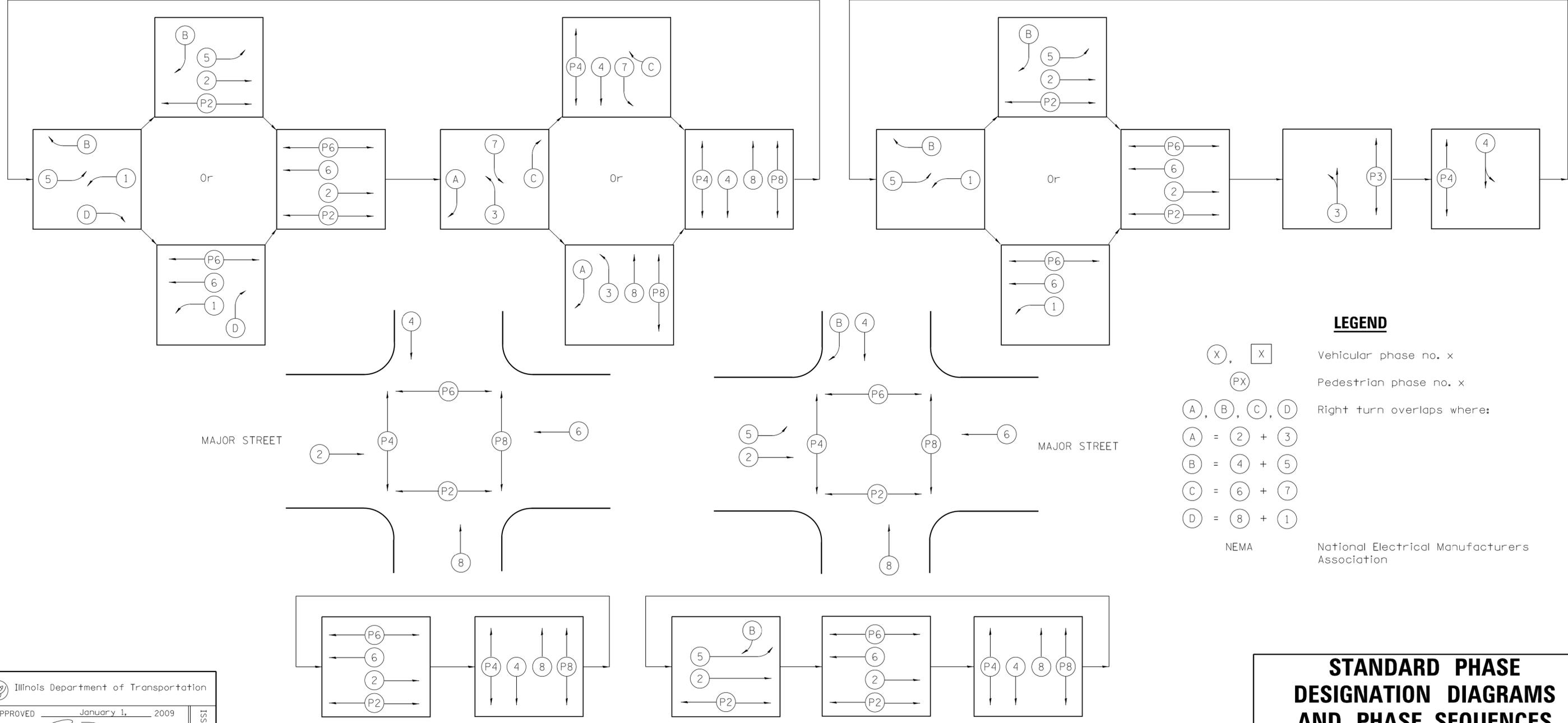
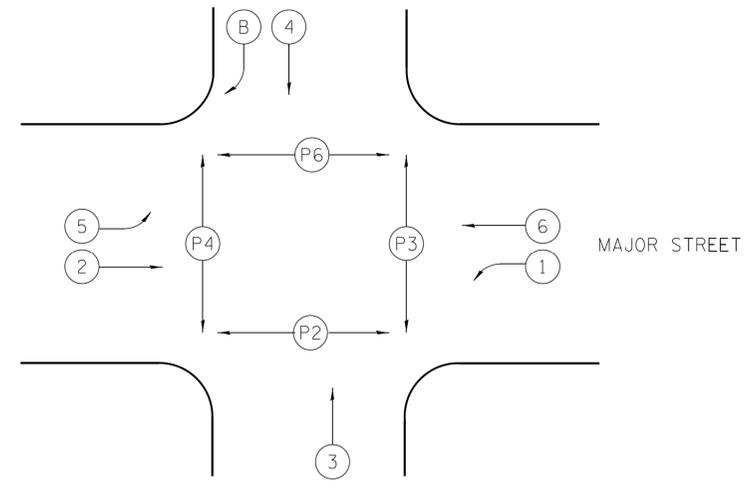
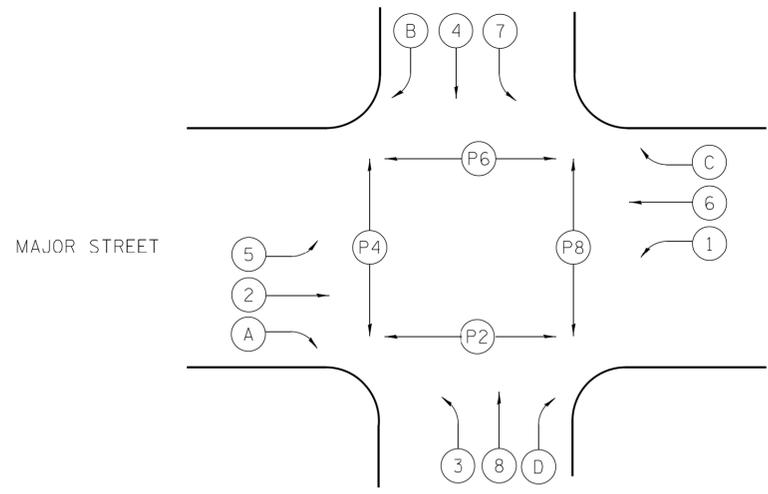
APPROVED January 1, 2009
[Signature]
 ENGINEER OF OPERATIONS

APPROVED January 1, 2009
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Omitted note regarding units of length.
1-1-97	Renum. Standard 2393-2.

**STANDARD PHASE
DESIGNATION DIAGRAMS
AND PHASE SEQUENCES**
 (Sheet 1 of 2)



LEGEND

- (X), [X] Vehicular phase no. x
- (PX) Pedestrian phase no. x
- (A), (B), (C), (D) Right turn overlaps where:
 - A = 2 + 3
 - B = 4 + 5
 - C = 6 + 7
 - D = 8 + 1
- NEMA National Electrical Manufacturers Association

PHASE DESIGNATION DIAGRAMS AND CORRESPONDING PHASE SEQUENCES

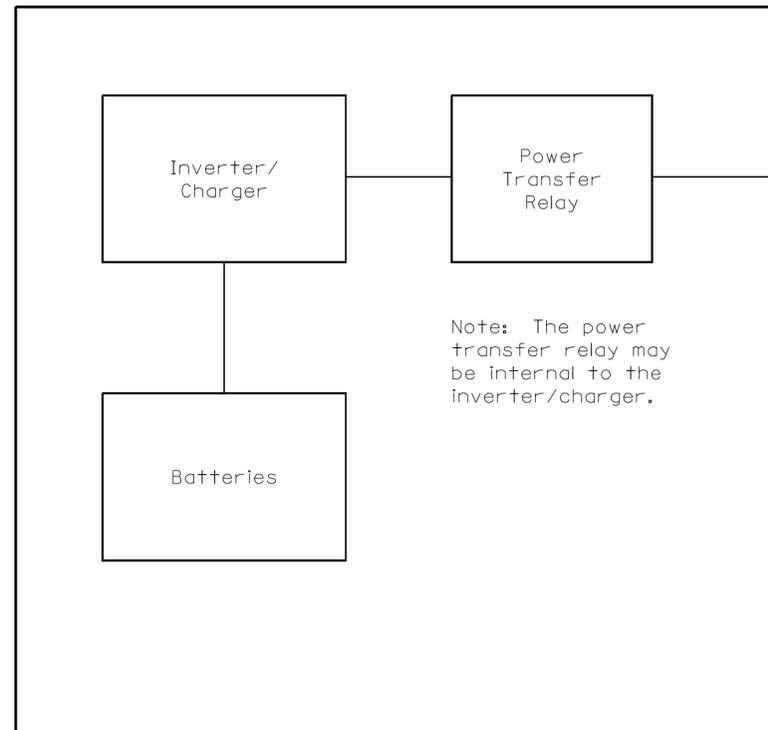
Illinois Department of Transportation
 APPROVED January 1, 2009
 ENGINEER OF OPERATIONS
 APPROVED January 1, 2009
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

**STANDARD PHASE
 DESIGNATION DIAGRAMS
 AND PHASE SEQUENCES**
 (Sheet 2 of 2)

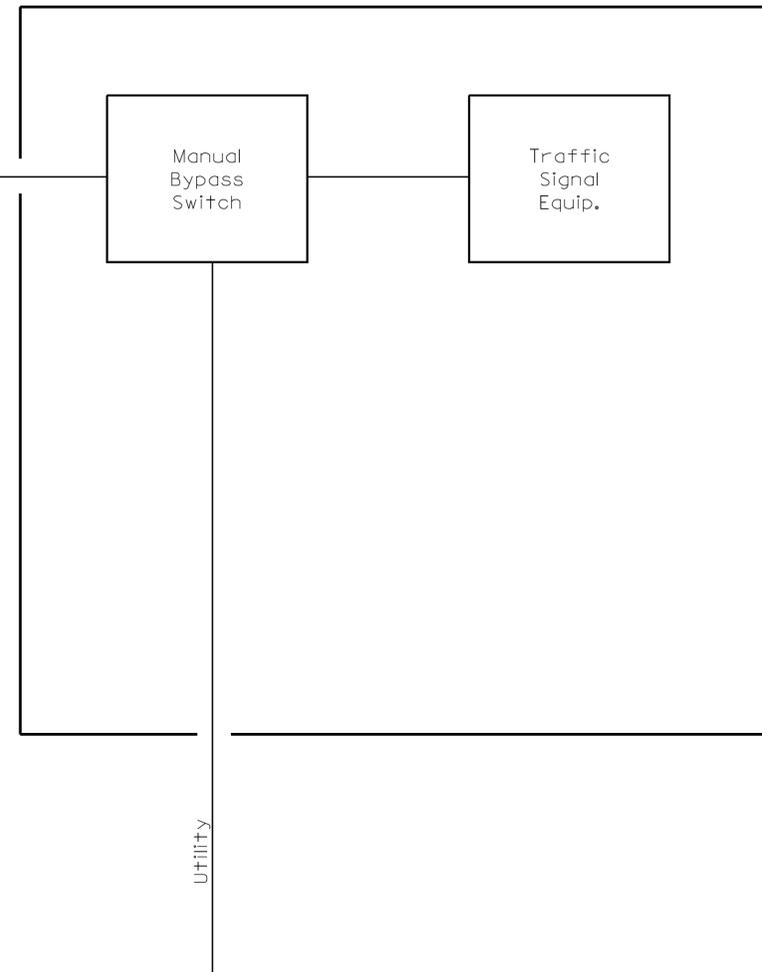
STANDARD 857001-01 57 / 63

UPS CABINET



Note: The power transfer relay may be internal to the inverter/charger.

TRAFFIC SIGNAL (NEMA) CABINET



SINGLE LINE BLOCK DIAGRAM

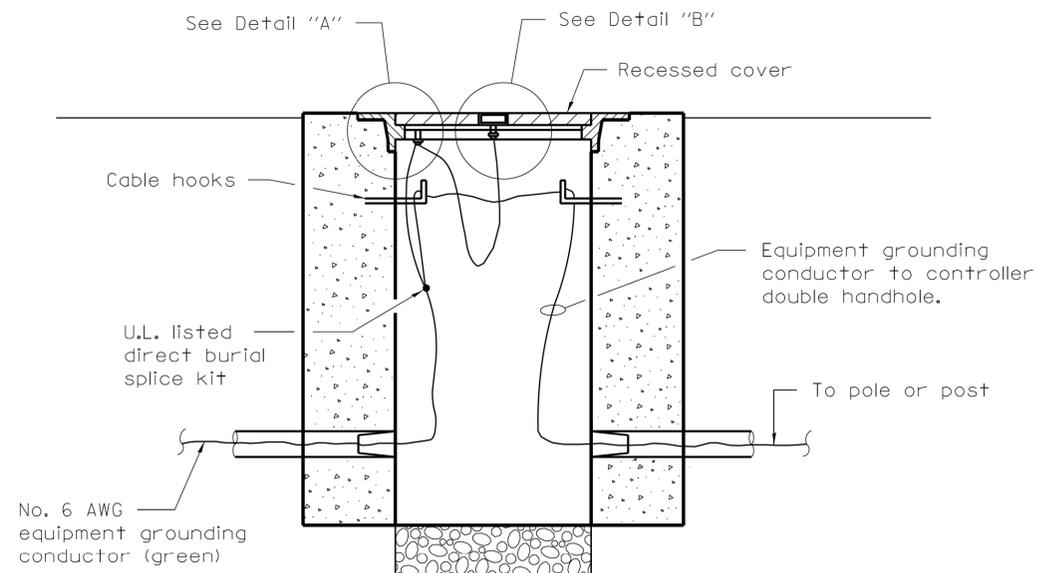
Illinois Department of Transportation
 APPROVED January 1, 2009
 ENGINEER OF OPERATIONS
 APPROVED January 1, 2009
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-06

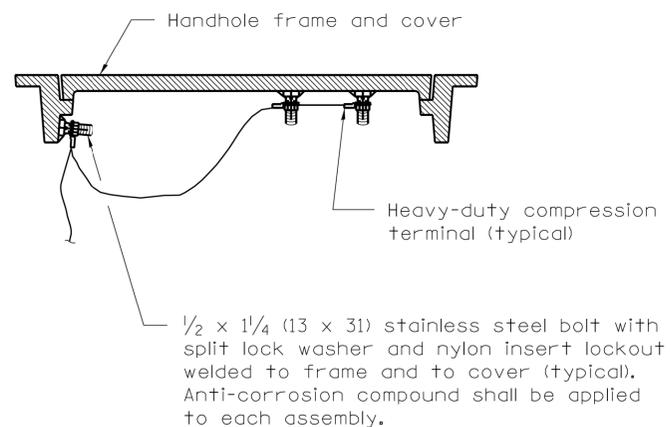
DATE	REVISIONS
1-1-09	Omitted note regarding units of length.
4-1-06	New Standard

UNINTERRUPTABLE POWER SUPPLY (UPS)

STANDARD 862001-01



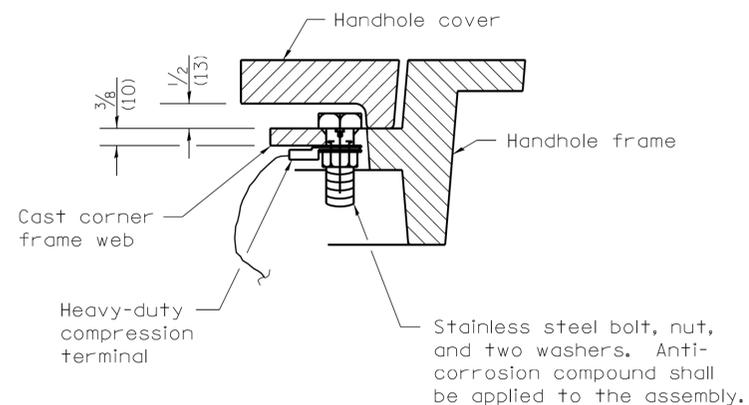
BONDING A HANDHOLE COVER & FRAME



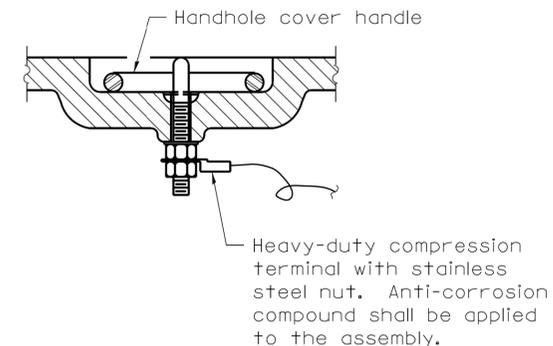
BONDING AN EXISTING HANDHOLE COVER & FRAME



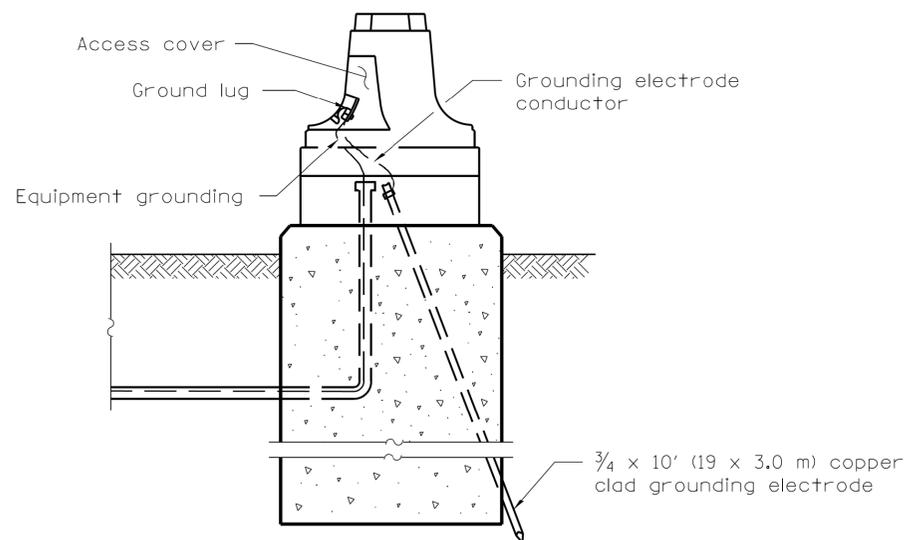
HEAVY-DUTY COMPRESSION TERMINAL



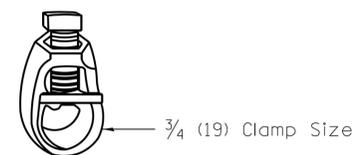
DETAIL "A"



DETAIL "B"



GROUNDING A MAST ARM POLE/POST



HEAVY-DUTY GROUND ROD CLAMP

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

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-07	Revised terminology.

TRAFFIC SIGNAL GROUNDING & BONDING

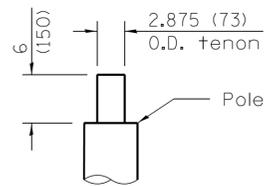
STANDARD 873001-02

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APPROVED January 1, 2009
[Signature]
 ENGINEER OF OPERATIONS

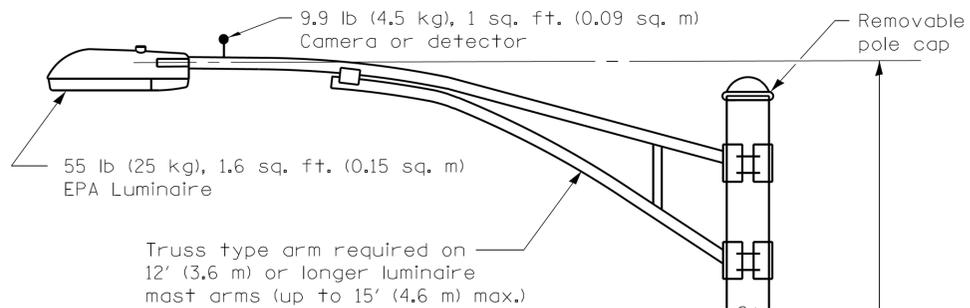
APPROVED January 1, 2009
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-06

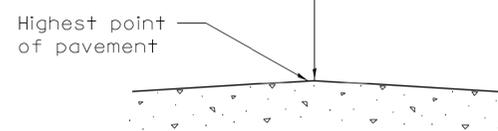
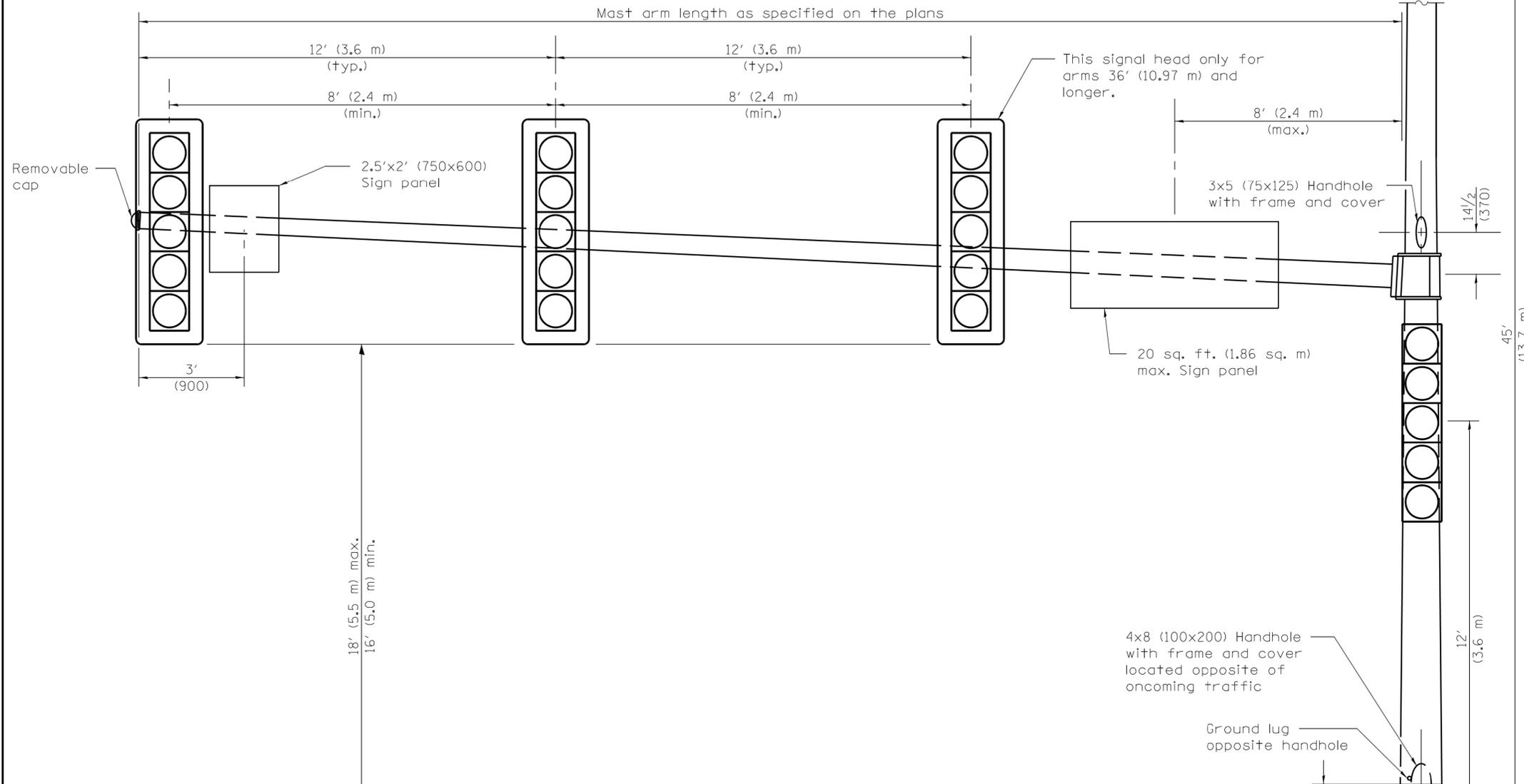


TENON TOP FOR VERTICAL MOUNTED LUMINAIRES

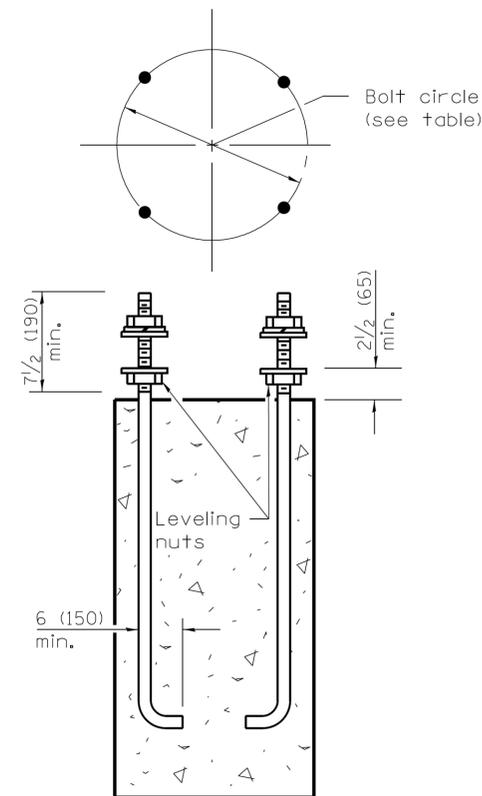
Note: The tenon top shall support a bullhorn fitting with two (twin) vertically mounted luminaires (clamp-mounted bullhorn assembly with removable pole cap acceptable). Each luminaire shall weigh 100 lb (45 kg) and have an effective projected (EPA) area of 3.85 sq. ft. (0.36 sq. m).



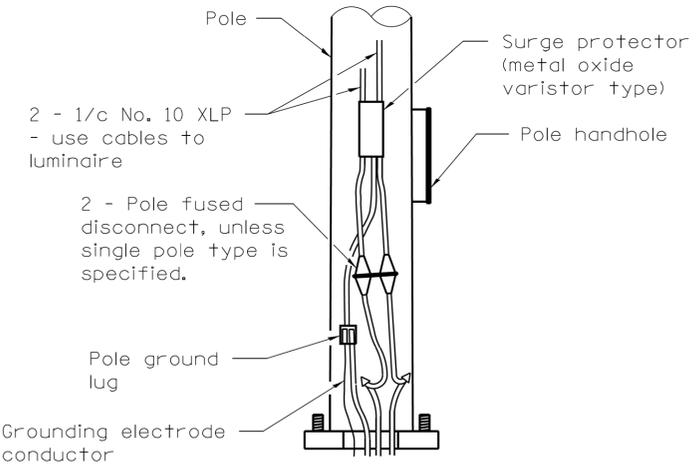
Truss type arm required on 12' (3.6 m) or longer luminaire mast arms (up to 15' (4.6 m) max.)



MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
16' thru 20' (4.87 m thru 6.10 m)	15 (380)	1/2 x 5' (38 x 1.5 m)
22' thru 30' (6.71 m thru 9.14 m)	18 (450)	1/2 x 5' (38 x 1.5 m)
32' thru 40' (9.75 m thru 12.20 m)	18 (450)	3/4 x 7' (44 x 2.10 m)
42' thru 55' (12.80 m thru 16.80 m)	21 (535)	1 3/4 x 7' (44 x 2.10 m)



ANCHOR ROD DETAIL



POLE BASE DETAIL

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 80 lb (36 kg) and have a projected area of 14.7 sq. ft. (1.37 sq. m). All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-12	Changed 2.5'x8' sign panel to 20 sq. ft. (1.86 sq. m) max.
1-1-09	Switched units to English (metric).

STEEL COMB. MAST ARM ASSEMBLY AND POLE 16' THROUGH 55'

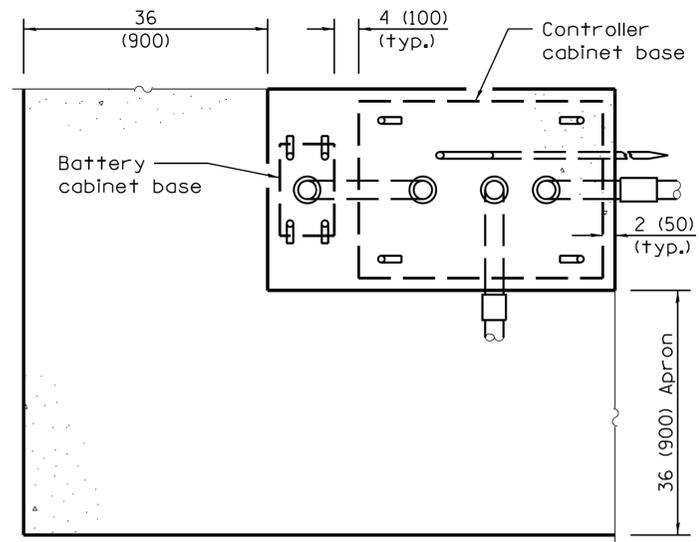
STANDARD 877011-05

Illinois Department of Transportation

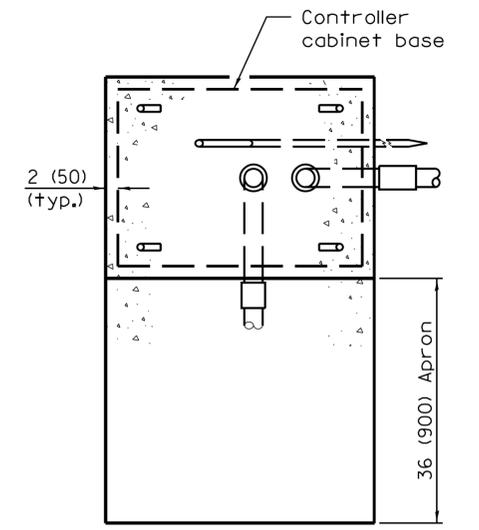
APPROVED January 1, 2012
Dustin Mann
ENGINEER OF OPERATIONS

APPROVED January 1, 2012
Scott Esch
ENGINEER OF DESIGN AND ENVIRONMENT

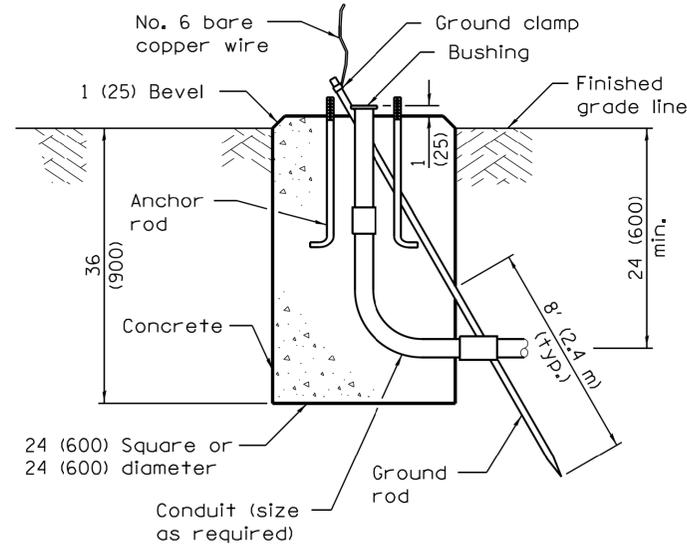
ISSUED 1-1-02



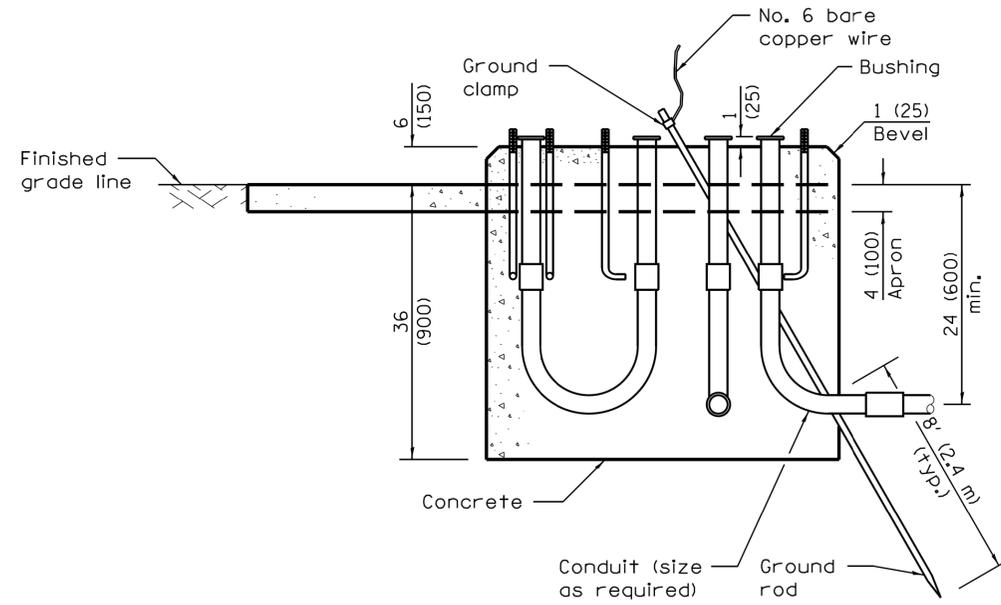
TOP VIEW



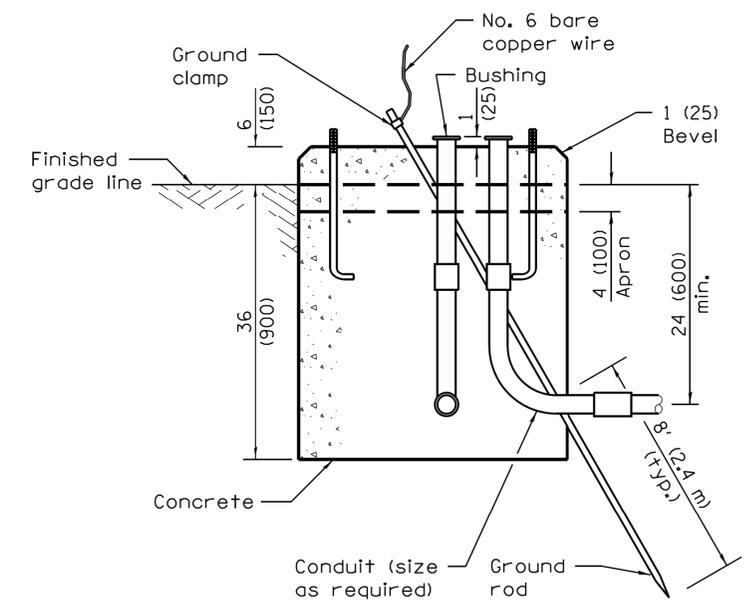
TOP VIEW



TYPE A



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



**TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET**

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

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APPROVED January 1, 2015
Amy Ellis
 ENGINEER OF OPERATIONS

APPROVED January 1, 2015
[Signature]
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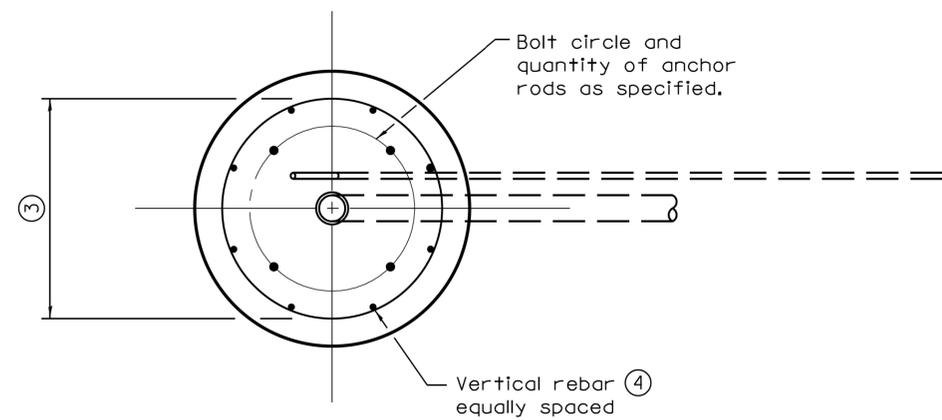
ISSUED 1-1-02

DATE	REVISIONS
1-1-15	Revised TYPE E detail.
1-1-12	Replaced rebar No.'s with 'Vertical' for TYPE E foundation detail.

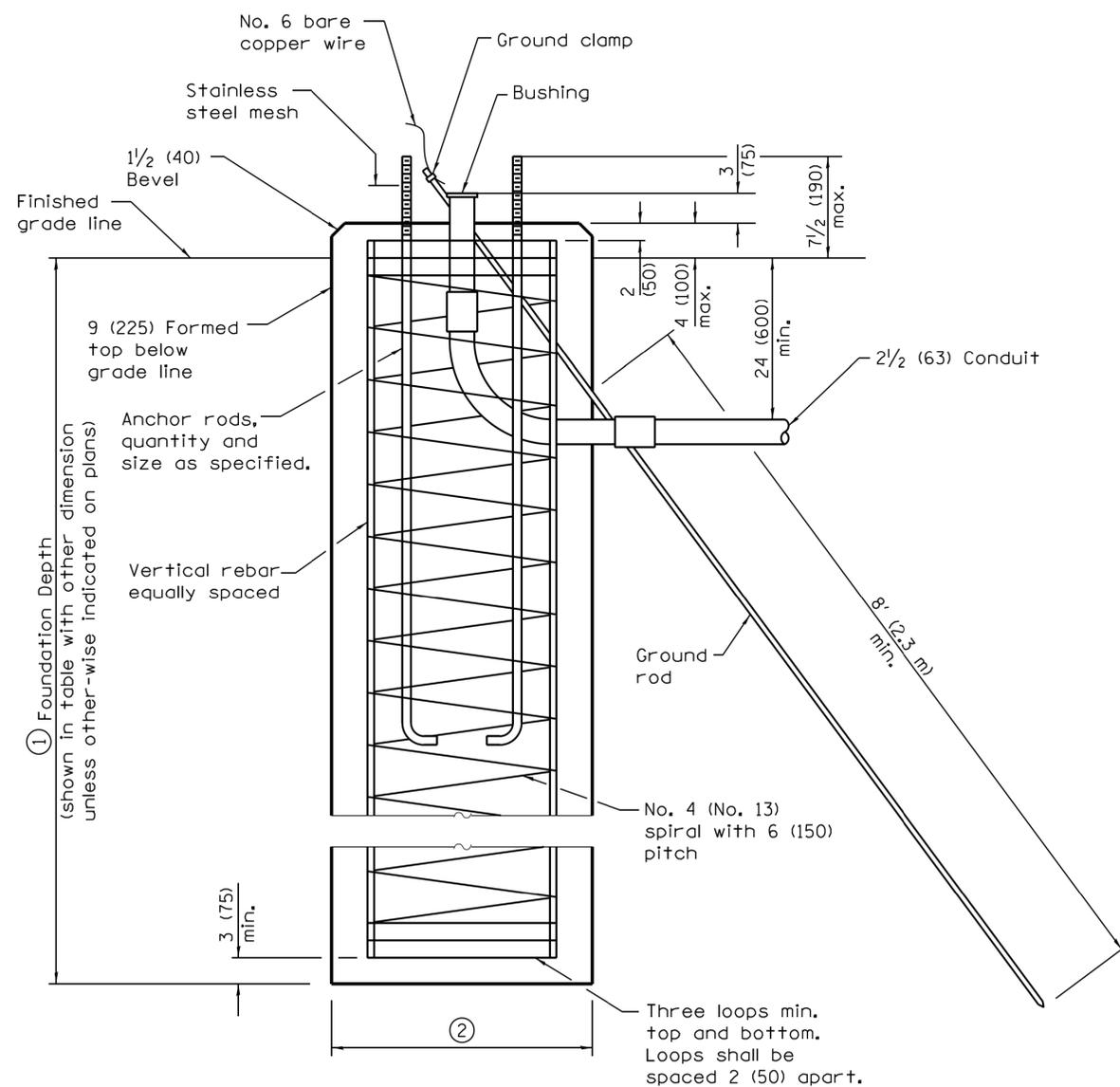
**CONCRETE
FOUNDATION DETAILS**

(Sheet 1 of 2)

STANDARD 878001-10



TOP VIEW



TYPE E

Mast Arm Length	① Foundation Depth *	② Foundation Diameter	③ Spiral Diameter	④ Quantity of Rebars	Size of Rebars
Less than 30' (9.1 m)	10'-0" (3.0 m)	30 (750)	24 (600)	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 (750)	24 (600)	8	6 (19)
	11'-0" (3.4 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m)	13'-0" (4.0 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	15'-0" (4.6 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 56' (16.8 m) and less than 65' (19.8 m)	21'-0" (6.4 m)	42 (1060)	36 (900)	16	8 (25)
Greater than or equal to 65' (19.8 m) and up to 75' (22.9 m)	25'-0" (7.6 m)	42 (1060)	36 (900)	16	8 (25)

* For standard and combination mast arm assemblies. Foundation depths for standard dual mast arms with the longest arm length upto and including 55' (16.8 m) shall be increased by 1' (0.3 m) of that shown in the table, based on the longer of the two arms.

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 (Q_u) > 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.

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APPROVED January 1, 2015
Amy Ellis
 ENGINEER OF OPERATIONS

APPROVED January 1, 2015
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

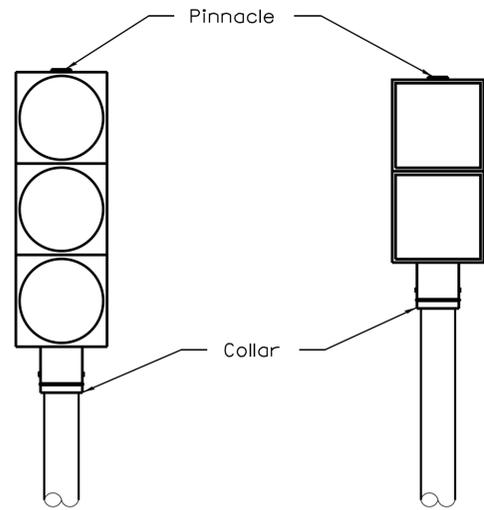
ISSUED 1-1-02

**CONCRETE
FOUNDATION DETAILS**

(Sheet 2 of 2)

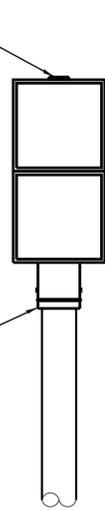
STANDARD 878001-10

62 / 63

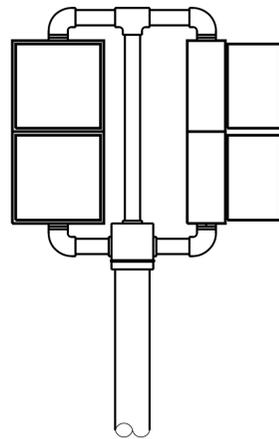


**POST MOUNTED
TRAFFIC SIGNAL HEAD**

ONE WAY

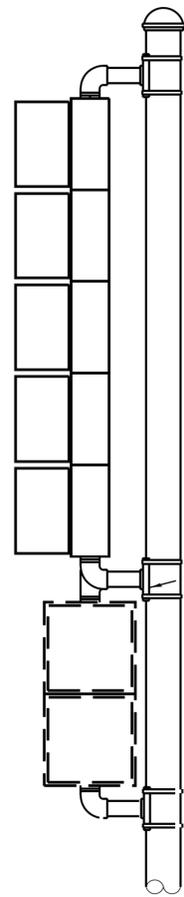


**POST MOUNTED
PEDESTRIAN SIGNAL HEAD**



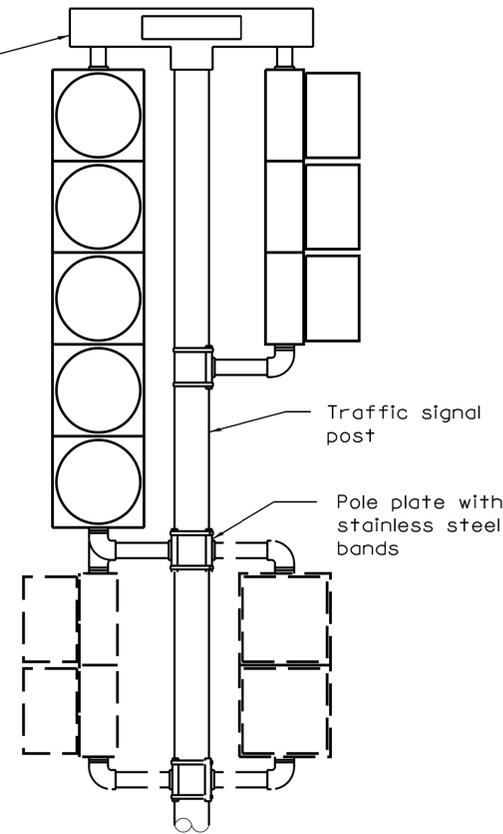
**POST MOUNTED
PEDESTRIAN SIGNAL HEAD**

TWO WAY



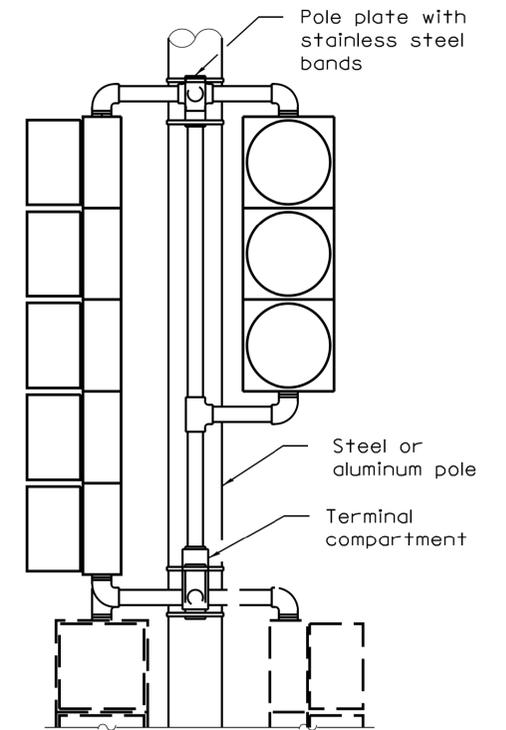
**BRACKET MOUNTED
TRAFFIC SIGNAL HEAD**

ONE WAY

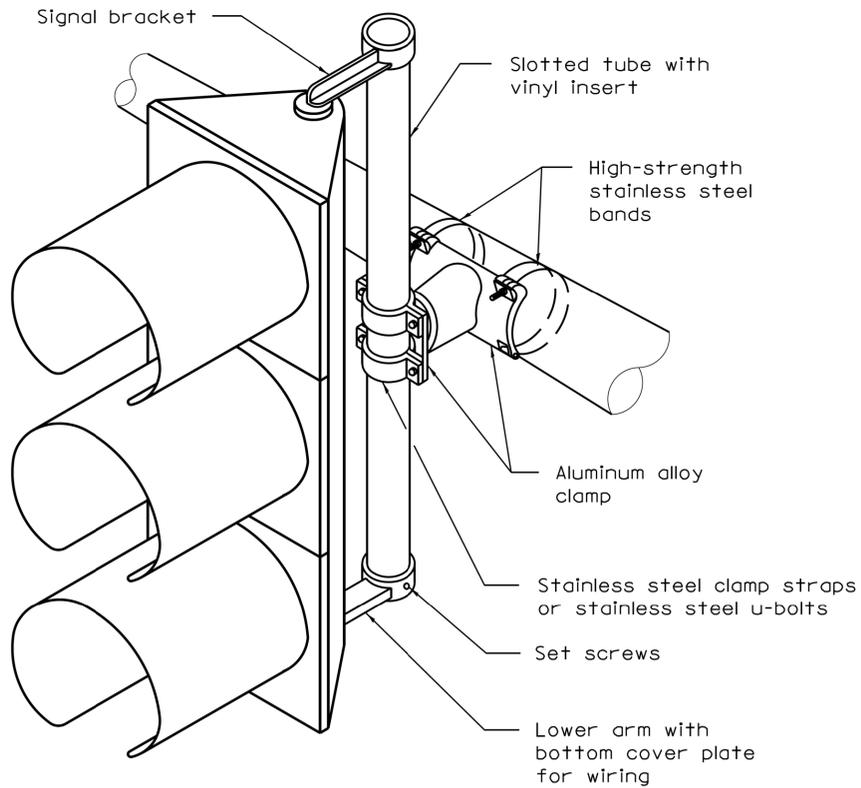


**BRACKET MOUNTED
TRAFFIC SIGNAL HEAD**

TWO WAY

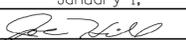


**BRACKET MOUNTED
TRAFFIC SIGNAL HEAD**



STEEL MAST ARM MOUNTING

Illinois Department of Transportation

APPROVED January 1, 2009

 ENGINEER OF OPERATIONS

APPROVED January 1, 2009

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-02

DATE	REVISIONS
1-1-09	Omitted note regarding units of length.
1-1-02	Renum. Standard 840006.

**TRAFFIC SIGNAL
MOUNTING DETAILS**

STANDARD 880006-01