

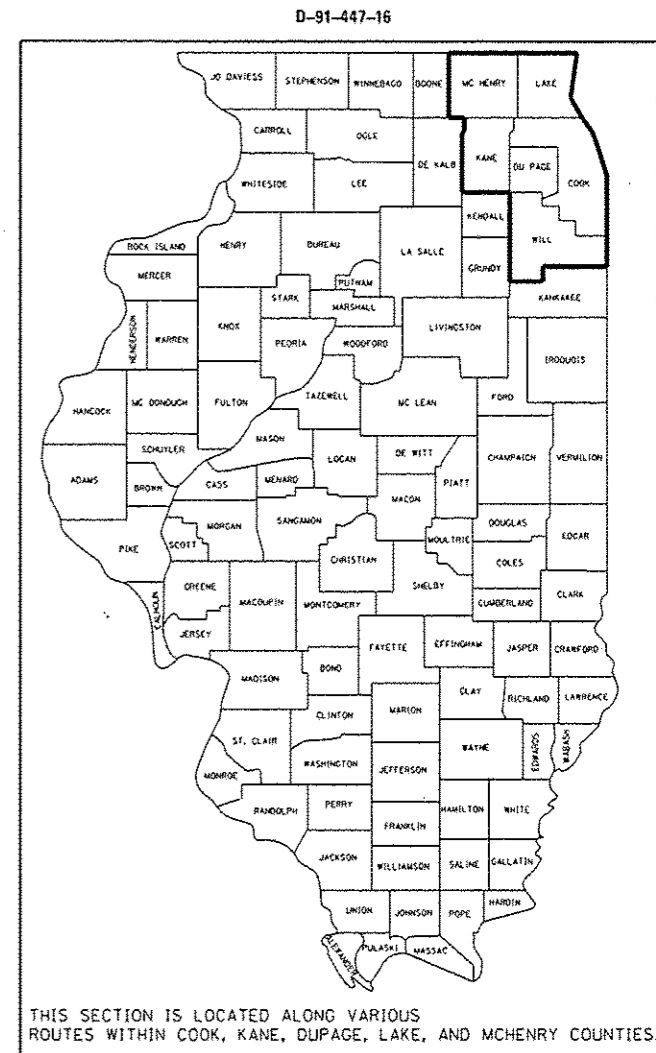
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	2016-045GRR	VARIOUS	29	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 62D24		

FOR INDEX OF SHEETS, SEE SHEET NO. 2

PROPOSED HIGHWAY PLANS

**ROUTE: VARIOUS EXPRESSWAYS AND ARTERIAL
HIGHWAYS – NORTHERN PART, DISTRICT ONE
GUARDRAIL REPAIR
SECTION: 2016-045GRR
COUNTY: VARIOUS
D-91-447-16**



**SEE LOCATION MAPS
SHEETS 5 THRU 13**

C.U.A.N.
CHICAGO UTILITY ALERT NETWORK
1-312-744-7000

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

PROJECT ENGINEER: J. ALAIN MIDY (847) 221-3056
PROJECT MANAGER: ISSAM RAYYAN (847) 705-4178

CONTRACT NO. 62D24

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED June 29 2016
John F. [Signature]
REGIONAL ENGINEER

Aug 12 2016
Maureen M. Addis PE, Esq.
acting ENGINEER OF DESIGN AND ENVIRONMENT

Aug 12 2016
[Signature] 2
DIRECTOR OF PROGRAM DEVELOPMENT

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

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OPENINGS (TC-18)

LIST OF STATE STANDARDS

- | | |
|-----------|---|
| 630001-11 | STEEL PLATE BEAM GUARDRAIL |
| 630301-07 | SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS |
| 631006-08 | TRAFFIC BARRIER TERMINAL, TYPE 1B |
| 631011-10 | TRAFFIC BARRIER TERMINAL, TYPE 2 |
| 631026-06 | TRAFFIC BARRIER TERMINAL, TYPE 5 |
| 631031-15 | TRAFFIC BARRIER TERMINAL, TYPE 6 |
| 701006-05 | OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE |
| 701301-04 | LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS |
| 701311-03 | LANE CLOSURE, 2L, 2W, MOVING OPERATIONS, DAY ONLY |
| 701336-06 | LANE CLOSURE, 2L, 2W, WORK AREAS IN SERIES, FOR SPEEDS > 45 MPH |
| 701400-09 | APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY |
| 701401-10 | LANE CLOSURE, FREEWAY/EXPRESSWAY |
| 701411-09 | LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEED \geq 45 MPH |
| 701421-08 | LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY FOR SPEEDS \geq 45 MPH TO 55 MPH |
| 701427-05 | LANE CLOSURE, MULTILANE, INTERMITTANT OR MOVING OPERATIONS \leq 40 MPH |
| 701428-01 | TRAFFIC CONTROL SETUP AND REMOVAL FREEWAY/EXPRESSWAY |
| 701501-06 | URBAN LANE CLOSURE, 2L, 2W, UNDIVIDED |
| 701601-09 | URBAN LANE CLOSURE, MULTILANE, 1W OR 2W, WITH NONTRAVERSABLE MEDIAN |
| 701606-10 | URBAN LANE CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN |
| 701701-10 | URBAN LANE CLOSURE, MULTILANE INTERSECTION |
| 701801-06 | LANE CLOSURE MULTILANE 1W OR 2W CROSSWALK OR SIDEWALK CLOSURE |
| 701901-06 | TRAFFIC CONTROL DEVICES |
| 720011-01 | METAL POSTS FOR SIGNS, MARKERS & DELINEATORS |

GENERAL NOTES

BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT (800) 892-0123 OR 811 OR "CUAN" AT (312) 744-700 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS UTILITIES. 48 HOUR NOTIFICATION IS REQUIRED.

ALL WORK IS TO BE REPLACED IN KIND OR AS INDICATED ON THE CONTRACT QUANTITY SHEET.

GUARDRAIL WORK WILL INCLUDE ALIGNMENT AS NECESSARY TO RESTORE THE RAIL TO THE ORIGINAL CONDITIONS.

REMOVAL OF DAMAGED MATERIALS WILL INCLUDE DISMANTLING, LOADING, HAULING AND DISPOSAL. THE WORK SITE WILL BE LEFT IN A SAFE AND ORDERLY CONDITION.

NO MATERIAL SHOULD BE LEFT ON OR NEAR THE ROADWAY DURING NON-WORKING HOURS.

ANY NECESSARY TRAFFIC CONTROL WILL BE PROVIDED BY THE CONTRACTOR; APPROPRIATE STANDARDS ARE HEREWITH ATTACHED.

THE LIMITS OF THE DAMAGED GUARDRAIL WILL BE MARKED WITH PAINT. THE REPLACEMENT PARTS AND THE QUANTITIES INDICATED ARE WITHIN THESE LIMITS AS MARKED.

REMOVED GUARDRAIL THAT IS NOT REPLACED ON THE SAME DAY MUST BE DELINEATED WITH LIGHTED BARRICADES. NO LOCATIONS WILL BE LEFT WITHOUT EITHER LIGHTED BARRICADES OR RESTORED GUARDRAIL AT ANY TIME.

GUARDRAIL MARKERS SHALL NOT BE ATTACHED TO TERMINAL SECTIONS.

THE CONTRACTOR SHALL TELEPHONE THE IDOT BUREAU OF TRAFFIC OPERATIONS, ELECTRICAL MAINTENANCE SECTION AT 708-524-2145 TO REQUEST THE LOCATE FOR UNDERGROUND ELECTRICAL AND/OR FIBER CABLE PRIOR TO ANY DIGGING AS PER THE CONTRACT.

REMOVAL OF EXISTING TERMINAL SECTIONS INCLUDED IN COST OF NEW TERMINAL SECTIONS

REVISED SHEET 8-30-16

FILE NAME :	USER NAME : pgrzanowski	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	INDEX OF SHEETS, STATE STANDARDS AND GENERAL NOTES	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED -	REVISED -			VAR.	2016-045GRR	VARIOUS	29	2	
		DATE	REVISED -			SCALE: SHEET NO. OF SHEETS STA. TO STA.		CONTRACT NO. 62D24			
								FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT			

URBAN

URBAN

SUMMARY OF QUANTITIES			CONSTRUCTION TYPE CODE 0021					
CODE NO	ITEM	UNIT	TOTAL QUANTITIES	100% STATE 0021	100% MCHD 0021			
63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	396	317	79			
63100041	TRAFFIC BARRIER TERMINAL, TYPE 1B	EACH	2	1	1			
63100045	TRAFFIC BARRIER TERMINAL, TYPE 2	EACH	8	6	2			
63100070	TRAFFIC BARRIER TERMINAL, TYPE 5	EACH	2	1	1			
63100085	TRAFFIC BARRIER TERMINAL, TYPE 6	EACH	5	4	1			
63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	44	35	9			
63100169	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) FLARED	EACH	6	5	1			
78200410	GUARDRAIL MARKERS, TYPE A	EACH	283	226	57			
72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	20	16	4			
X0321563	REPAIR TRAFFIC BARRIER TERMINAL TYPE 1 SPECIAL	EACH	184	147	37			
X2300001	MISSING OR FAILED ANCHOR CABLES	EACH	10	8	2			
X2300002	MISSING OR FAILED LAG BOLTS	EACH	10	8	2			
X4402302	CURB REMOVAL (PARTIAL)	FOOT	99	79	20			
X6300210	GUARDRAIL BLOCKS	EACH	990	792	198			
X6300215	RAIL ELEMENT PLATES	EACH	1287	1030	257			
X6300217	RAIL ELEMENT PLATES (RADIUS)	EACH	52	42	10			

SUMMARY OF QUANTITIES			CONSTRUCTION TYPE CODE 0021					
CODE NO	ITEM	UNIT	TOTAL QUANTITIES	100% STATE 0021	100% MCHD 0021			
X6300222	CONNECTING END SECTION	EACH	2	1	1			
X6300224	RETURN END SECTION	EACH	3	2	1			
X6300225	SINGLE END SECTION	EACH	14	11	3			
X6300230	STEEL POSTS	EACH	703	562	141			
X6300310	REMOVE AND REPLACE GUARDRAIL CHANNEL	EACH	30	24	6			
X6300610	THRIE BEAM GUARDRAIL ELEMENT PLATES	EACH	6	5	1			
X6300620	THRIE-BEAM MODIFIED BLOCKS	EACH	6	5	1			
X6300630	THRIE-BEAM POSTS	EACH	6	5	1			
X6300640	THRIE BEAM RADIUS ELEMENT PLATES	EACH	2	1	1			
X6310163	TRAFFIC BARRIER TERMINAL, TYPE 1, NOSE	EACH	7	6	1			
X6310177	TRAFFIC BARRIER TERMINAL, TYPE 3 (SPECIAL)	EACH	2	1	1			
X6310203	TRAFFIC BARRIER TERMINAL, TYPE 3 SPECIAL, NOSE	EACH	2	1	1			
X6330800	GUARDRAIL POST VERTICAL ADJUSTMENT	EACH	12	10	2			
X6331105	STEEL POSTS, MODIFIED	EACH	22	18	4			
X6331110	STEEL POSTS, SPECIAL	EACH	9	7	2			
Z0007124	STEEL RAILING (SPECIAL)	FOOT	25	20	5			

16

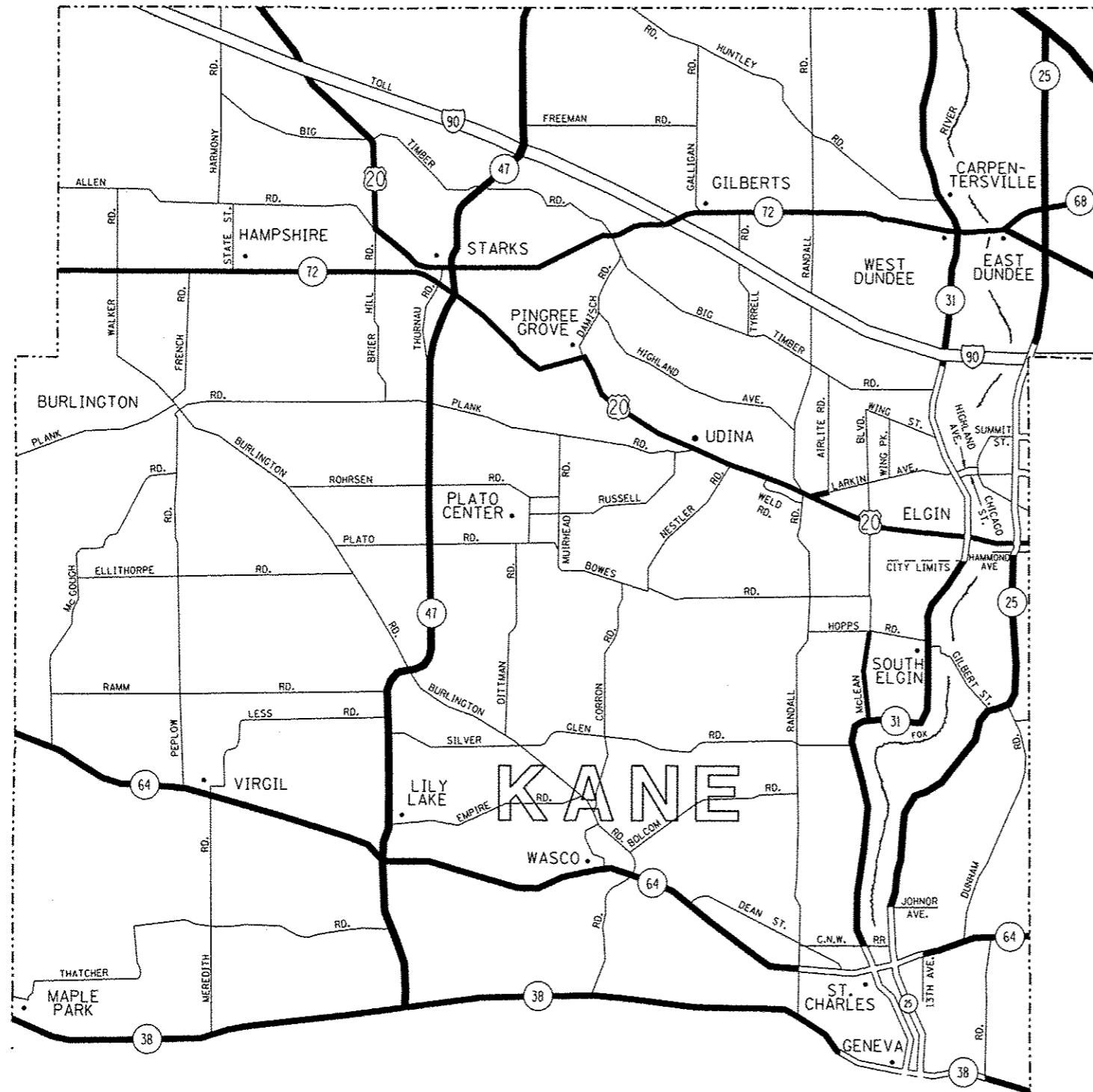
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OFFICIALS/DESIGNER/PROJECT/DATE/SCALE/PLLOT DATE	OFFICIALS/DESIGNER/PROJECT/DATE/SCALE/PLLOT DATE	CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

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

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	2016-045GRR	VARIOUS	29	3
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT			CONTRACT NO. 62024	



DISTRICT NO. 1

- STATE HIGHWAYS & EXPRESSWAYS WITHIN STATE JURISDICTION. (EXCEPT TOLLWAYS) AND CITY MAINTENANCE AGREEMENTS UNDER STATE JURISDICTION**
- FUTURE HIGHWAYS**
- VARIOUS AGENCIES HIGHWAYS**

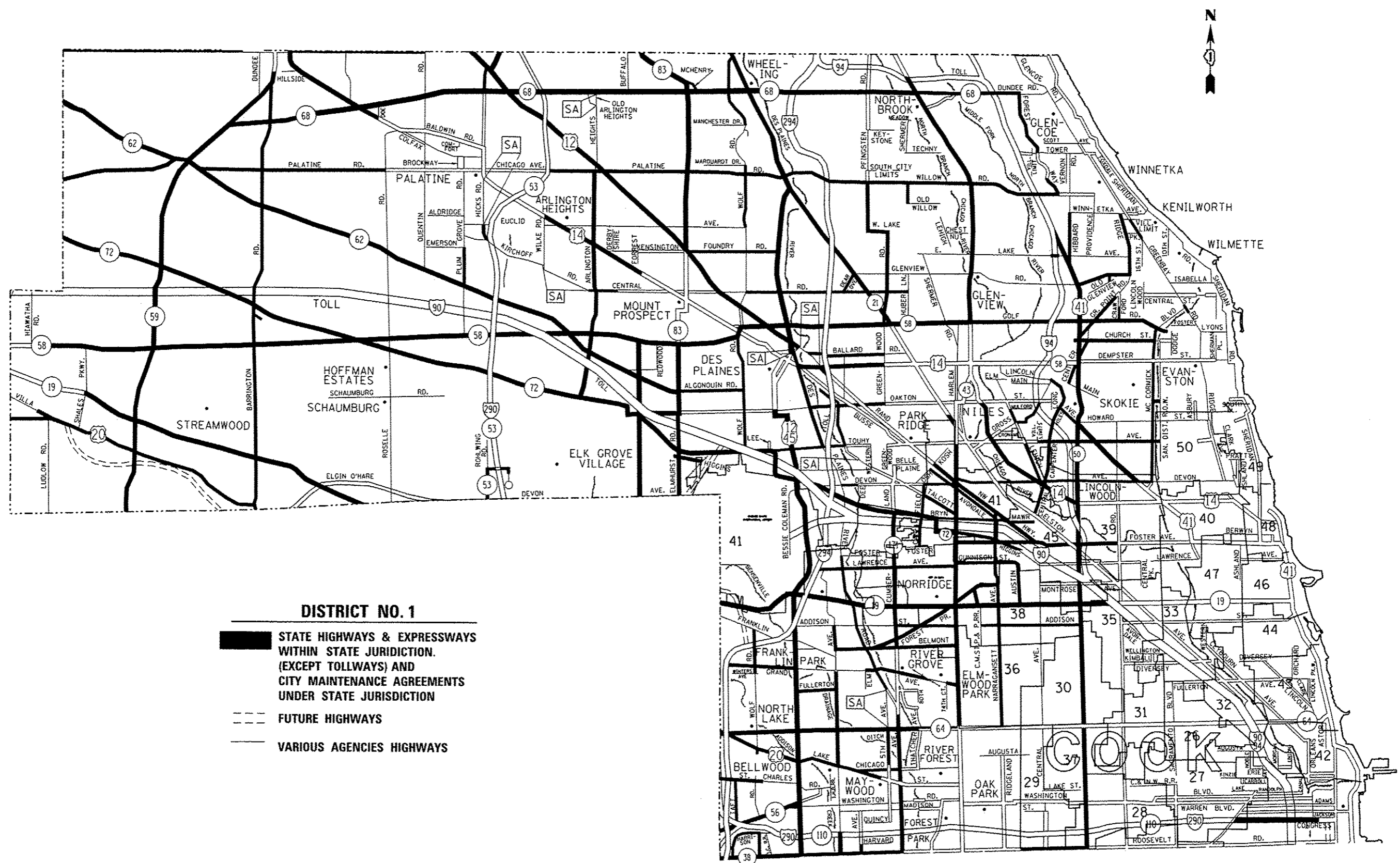
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GUARDRAIL REPAIR LOCATION MAP KANE COUNTY
NORTH OF AND INCLUDING IL RTE 38

FILE NAME :	USER NAME :	DESIGNED :	REVISED :
PROJECT :	PROJECT :	PROJECT :	PROJECT :
PLLOT SCALE :	CHECKED :	REVISED :	REVISED :
PLLOT DATE :	DATE :	REVISED :	REVISED :

SCALE:	SHEET NO. OF SHEETS	STA. TO STA.	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			VAR.	2016-045GRR	VARIOUS	29	7
			FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

CONTRACT NO. 62D24



DISTRICT NO. 1

- STATE HIGHWAYS & EXPRESSWAYS WITHIN STATE JURISDICTION. (EXCEPT TOLLWAYS) AND CITY MAINTENANCE AGREEMENTS UNDER STATE JURISDICTION**
- FUTURE HIGHWAYS**
- VARIOUS AGENCIES HIGHWAYS**

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GUARDRAIL REPAIR LOCATION MAP COOK COUNTY
NORTH OF AND INCLUDING IL. RTE 38**

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	2016-045GRR	VARIOUS	29	9
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

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100,0000' / in.	DATE :	DATE :	DATE :
PLOT DATE :	DATE :	DATE :	DATE :
6/15/2016			

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



DISTRICT NO. 1

- STATE HIGHWAYS & EXPRESSWAYS WITHIN STATE JURISDICTION. (EXCEPT TOLLWAYS) AND CITY MAINTENANCE AGREEMENTS UNDER STATE JURISDICTION
- FUTURE HIGHWAYS
- VARIOUS AGENCIES HIGHWAYS

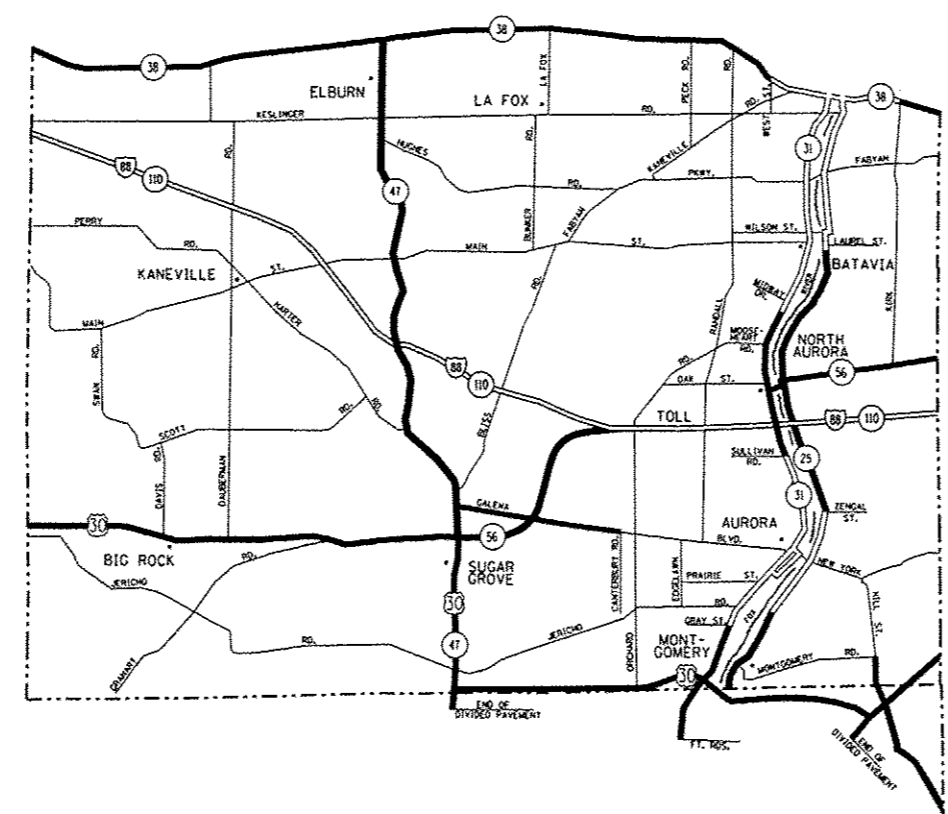
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		CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GUARDRAIL REPAIR LOCATION MAP COOK COUNTY
SOUTH OF IL RTE 38

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

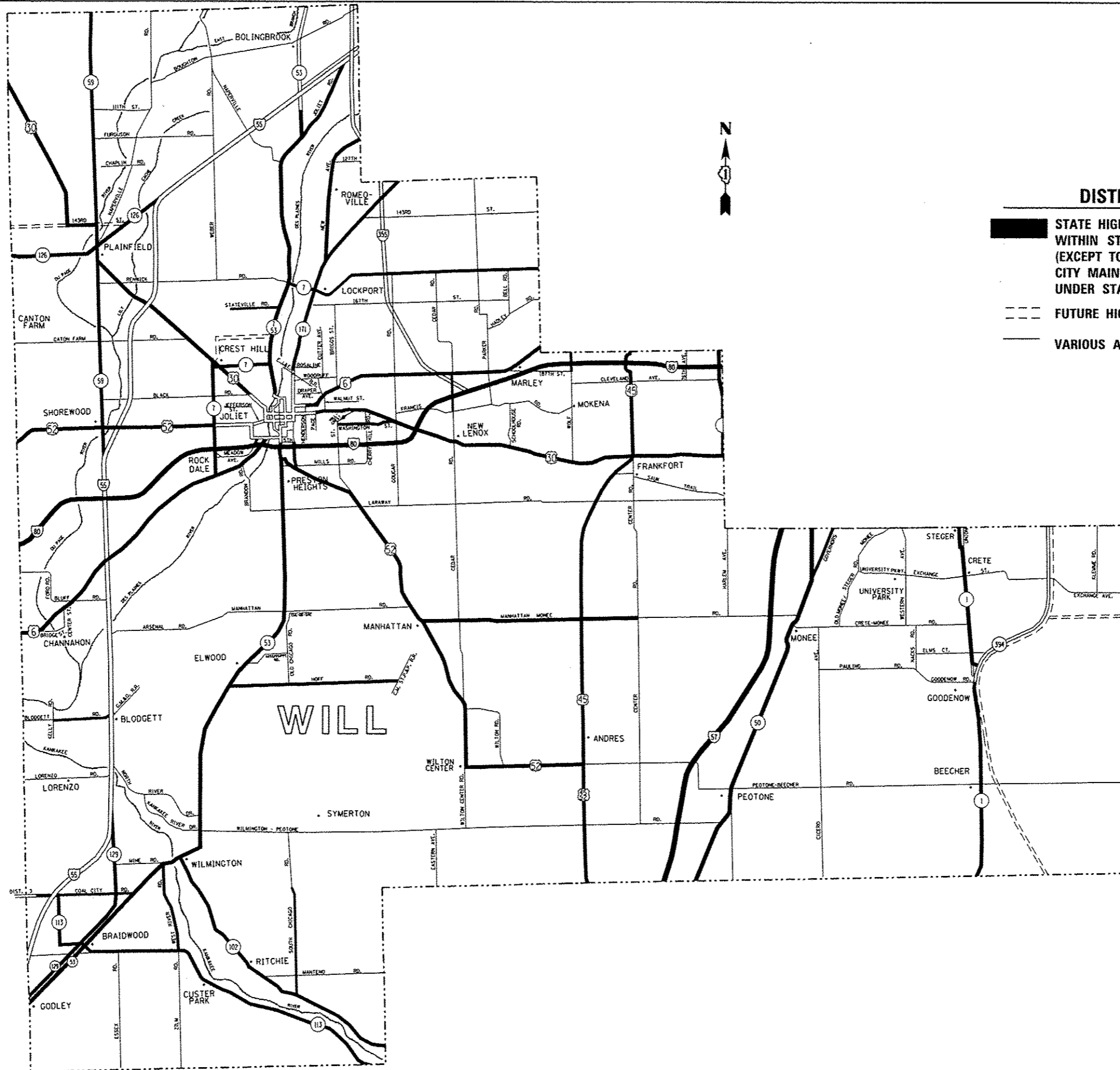
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	2016-045GRR	VARIOUS	29	10
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
		CONTRACT NO. 62024		



DISTRICT NO. 1

- STATE HIGHWAYS & EXPRESSWAYS WITHIN STATE JURISDICTION, (EXCEPT TOLLWAYS) AND CITY MAINTENANCE AGREEMENTS UNDER STATE JURISDICTION**
- FUTURE HIGHWAYS**
- VARIOUS AGENCIES HIGHWAYS**

FILE NAME :	USER NAME = pyzenowski	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GUARDRAIL REPAIR LOCATION MAP KANE COUNTY SOUTH OF IL RTE 38	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
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PLLOT DATE = 6/15/2016	DATE -	REVISED -	REVISED -			CONTRACT NO. 62D24					
						SCALE:	SHEET NO. OF SHEETS	STA. TO STA.	FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT		



DISTRICT NO. 1

- STATE HIGHWAYS & EXPRESSWAYS WITHIN STATE JURISDICTION. (EXCEPT TOLLWAYS) AND CITY MAINTENANCE AGREEMENTS UNDER STATE JURISDICTION**
- FUTURE HIGHWAYS**
- VARIOUS AGENCIES HIGHWAYS**

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	PLOT DATE = 6/15/2016	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GUARDRAIL REPAIR LOCATION MAP
WILL COUNTY**

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	2016-045GRR	VARIOUS	29	13
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

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

NOTE:

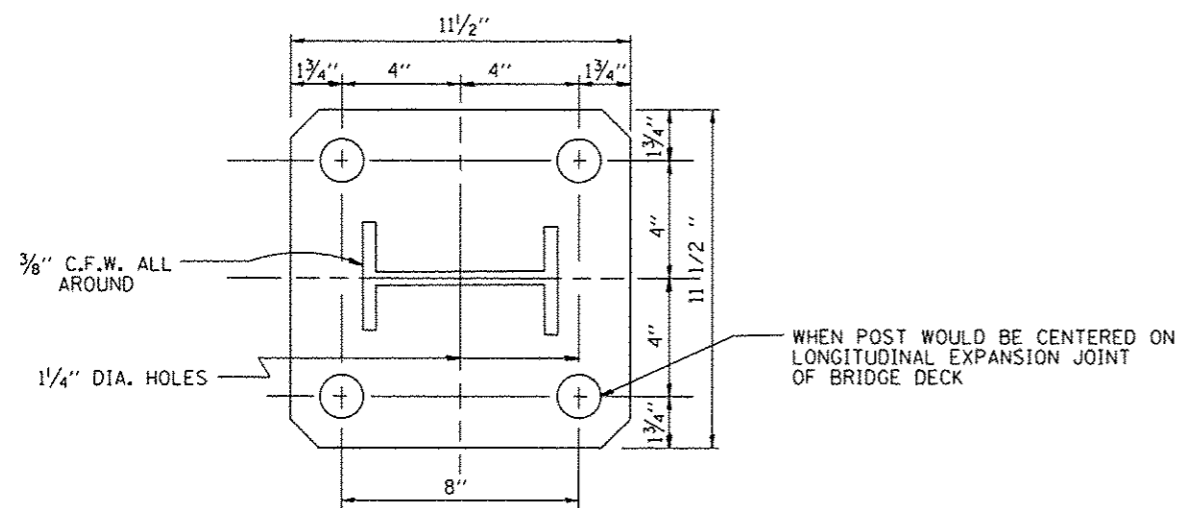
FOR DETAILS OF RAIL ELEMENTS, RAIL SPLICING, NUT, BOLT AND SIDE VIEW OF RAIL, SEE STANDARD 2230-2.

ALL WELDS SHALL BE GROUND SMOOTH

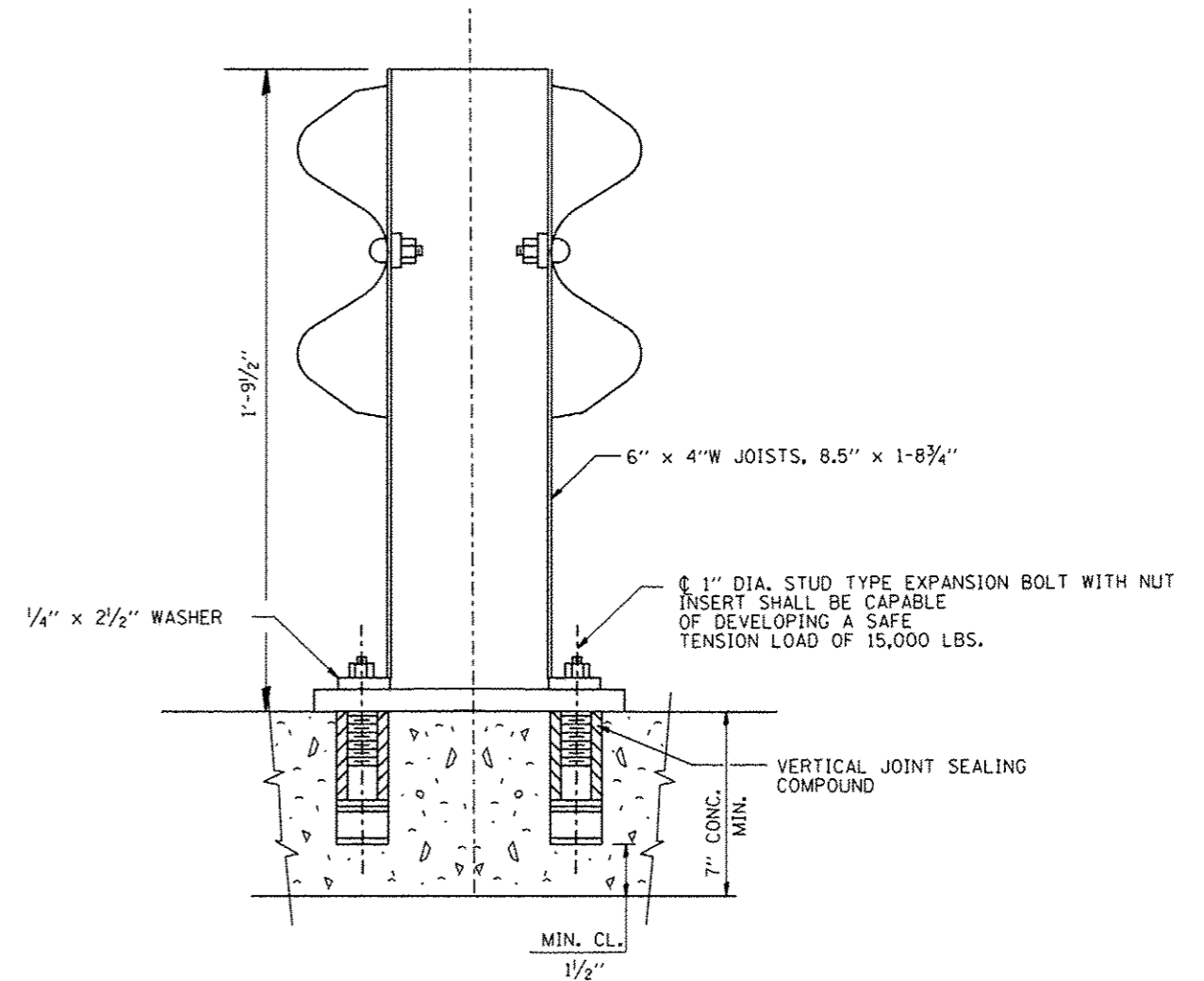
POSTS SHALL BE CUT AND WELDED TO THE BASE PLATE SO THAT THE POST WILL BE PLUMB WHEN ERECTED.

TWO PERCENT (2%) OF ALL ANCHOR BOLTS SHALL BE TEST LOADED IN PLACE, MINIMUM TEST LOAD=8 KIPS. IF ONE ANCHOR BOLT FAILS DURING THE TEST, TWO OTHER ANCHOR BOLTS SHALL BE TESTED. TESTING EQUIPMENT SHALL BE BOLT COMPANIES.

PROVIDE 1/8" AND 2/16" GALVANIZED SHIMS FOR 25% OF THE POSTS.



RAIL POST BASE \square
 \square 11 1/2" x 1 1/4" x 11 1/2"



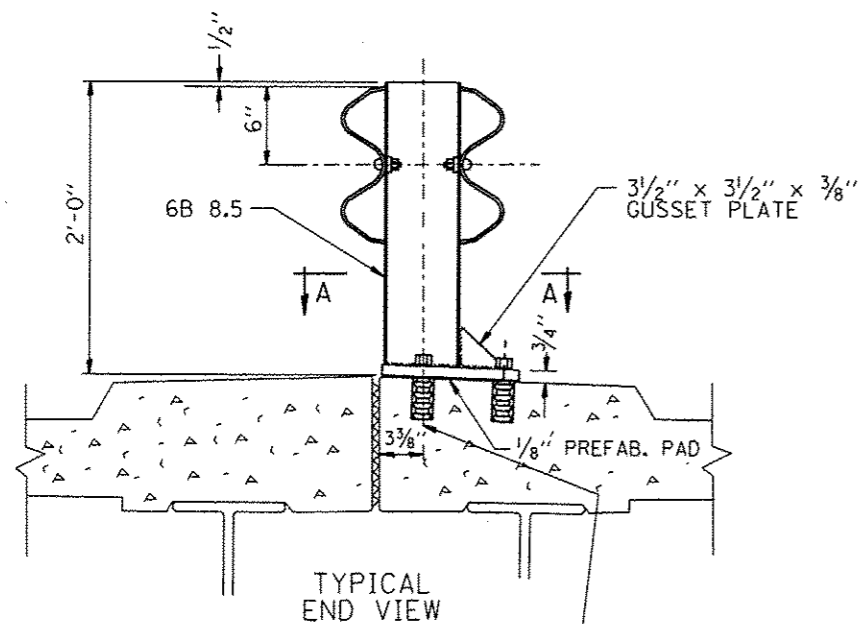
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		DATE - 10-31-88	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

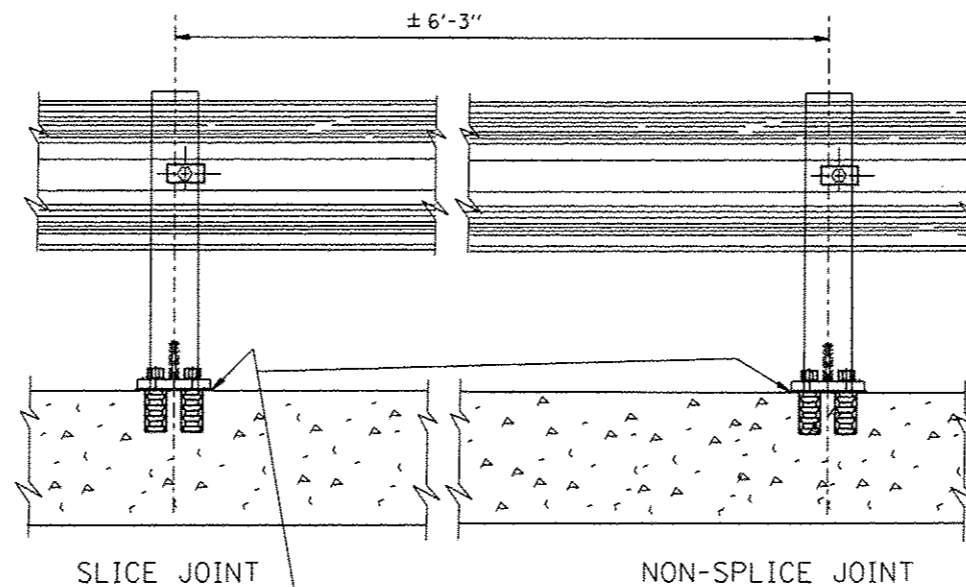
**ANCHOR DETAIL FOR STEEL PLATE BEAM
 GUARDRAIL ON CONCRETE**

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

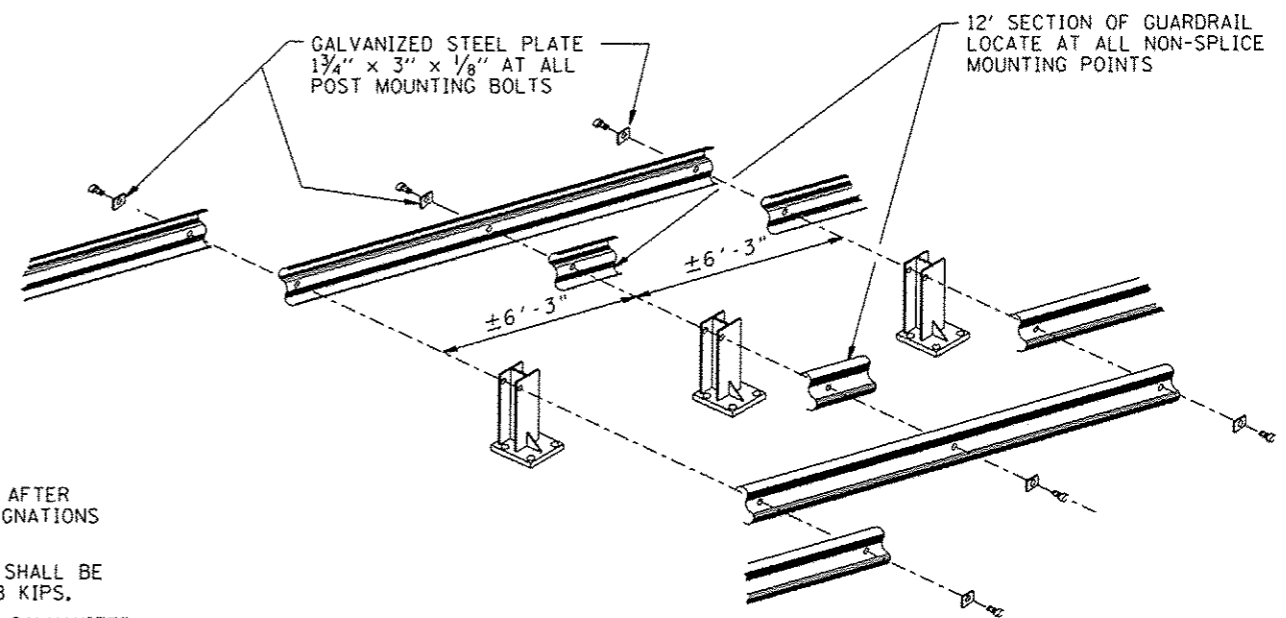
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	2016-045GRR	VARIOUS	29	14
BM-02		CONTRACT NO. 62D24		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



1/4" GALVANIZED ANCHOR BOLTS AND SELF DRILLING EXPANSION SHELLS OR MULTI UNIT TYPE ANCHORS 1/8" HOLES THRU BASE PLATE

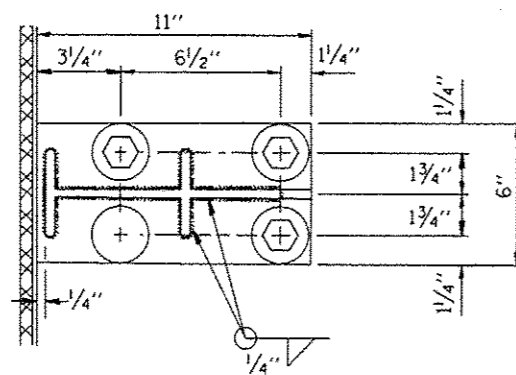


SEAL PERIMETER OF BASE OF POST TO MEDIAN WITH TWO COMPONENT NON-STAINING GRAY SEALING COMPOUND WITH POLYSULFIDE LIQUID POLYMERS - GUN GRADE WITH PRIMER



NOTE:

DIAMOND TIPPED DRILL SHALL BE USED TO DRILL THRU REINFORCEMENT BARS



SEC. A-A

NOTE:

POSTS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM DESIGNATIONS A-123 AND A-385.

TWO PERCENT (2%) OF ALL ANCHOR BOLTS SHALL BE TEST LOADED IN PLACE. MIN. TEST LOAD = 8 KIPS.

ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION A-153.

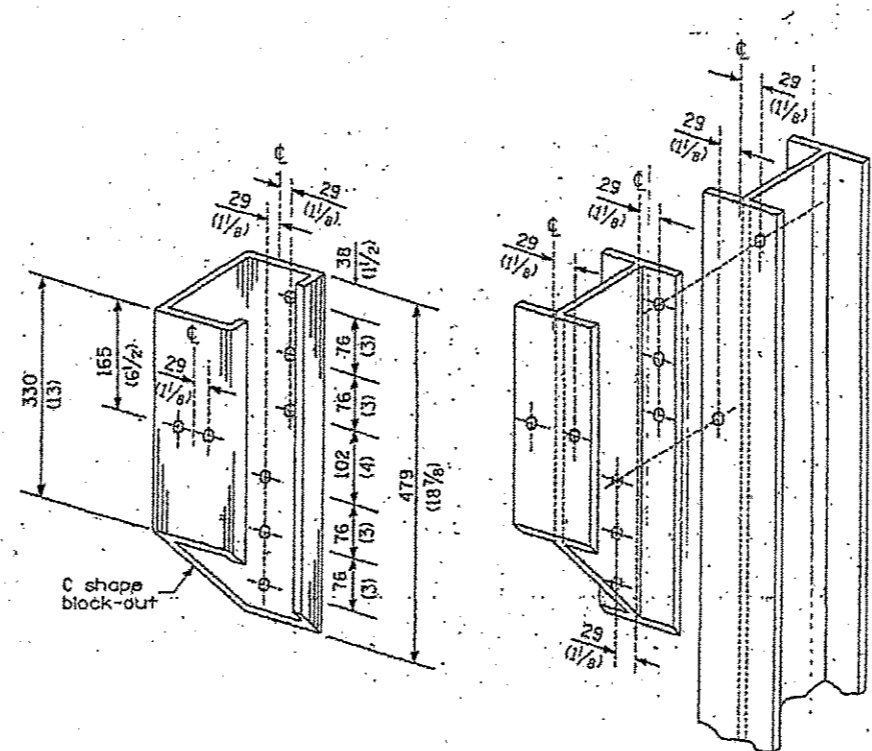
FOR MATERIAL COMPOSITION OF PREFABRICATED PAD, SEE ARTICLE 54.9(F), (BEARING AND ANCHORAGE), OF THE STANDARD SPECIFICATIONS.

PROVIDE 1-1/8" AND 2-1/16" GALVANIZED STEEL SHIMS FOR 25% OF THE POSTS.

IF ONE ANCHOR BOLT FAILS DURING TEST, TWO OTHER ANCHOR BOLTS SHALL BE TESTED. TESTING EQUIPMENT CAN BE OBTAINED FROM BOLT COMPANIES.

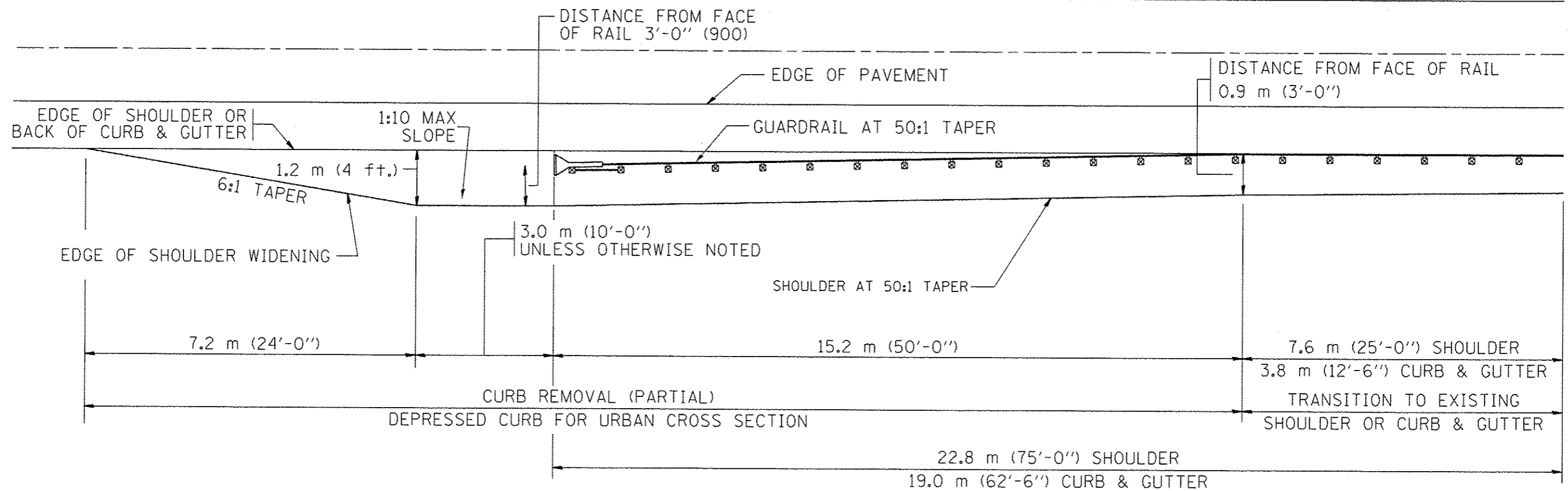
THIS SHEET IS FOR INFORMATION ONLY

FILE NAME =	USER NAME = pyzsonovskrb	DESIGNED -	REVISED - R. RITCHIE 05-02-00	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL DETAIL FOR CENTER LONGITUDINAL JOINT GUARDRAIL JOINT			F.A. RTE. VAR.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PROJECT =	PROJECT =	CHECKED -	REVISED -		SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	2016-045GRR	VARIOUS	29	17
PLOT SCALE = 100,0000' / 1"	DATE = 10-31-88	REVISED -	REVISED -					BM-05		CONTRACT NO. 62024		
PLOT DATE = 6/15/2016		REVISED -	REVISED -					FED. ROAD DIST. NO. 1 [ILLINOIS] FED. AID PROJECT				



STEEL BLOCK-OUT AND
STEEL POST DETAILS

FILE NAME =	USER NAME = pyronovskirb	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STEEL PLATE BEAM GUARDRAIL STEEL BLOCK-OUT DETAIL	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
pw:\IL084EBIDINTEG\illinois.gov\PWIDOT\Documents\IDOT Offices\District 1\Projects\DI38315\Design\DI38315-shr-plan.dgn		CHECKED -	REVISED -			VAR.	2016-045GRR	VARIOUS	29	21	
Default	PLOT SCALE = 100,0000 / in.	DATE -	REVISED -			CONTRACT NO. 62024					
	PLOT DATE = 6/15/2016					ILLINOIS FED. AID PROJECT					
					SCALE:	SHEET OF SHEETS		STA.	TO STA.		

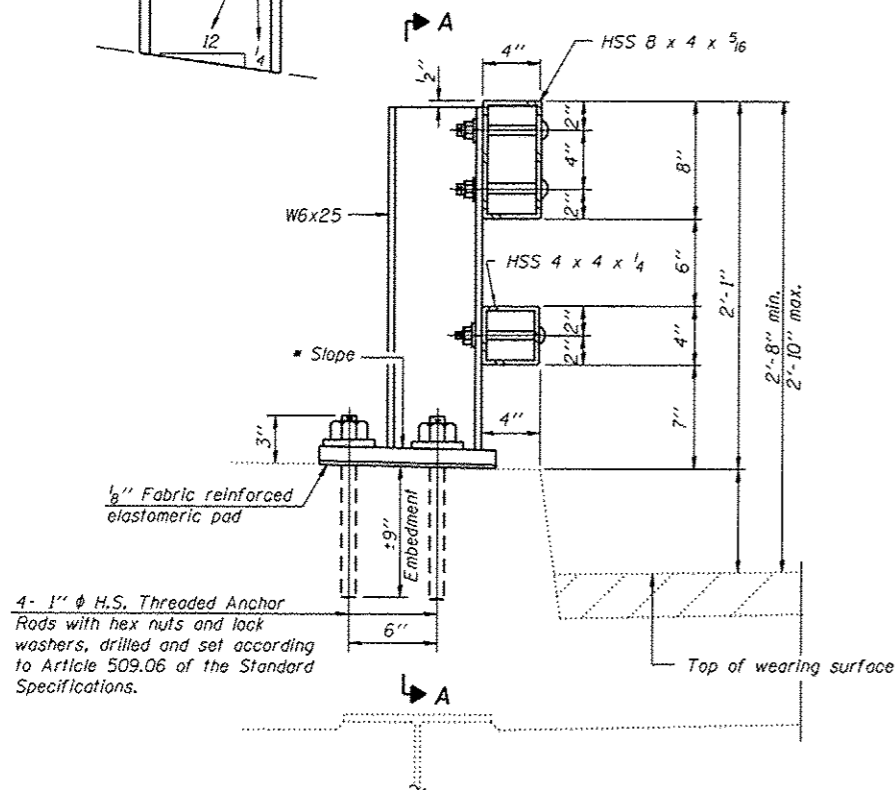


NOTES: THE CONTRACTOR SHALL VERIFY THE TYPE/HEIGHT OF GUARDRAIL IN-PLACE BEFORE ORDERING THE NEW TERMINAL SECTION. COST INCLUDED WITH THE COST OF THE TERMINAL. THE TERMINAL SECTION HEIGHT TO BE PLACED MUST MATCH THE HEIGHT OF THE IN-PLACE GUARDRAIL.

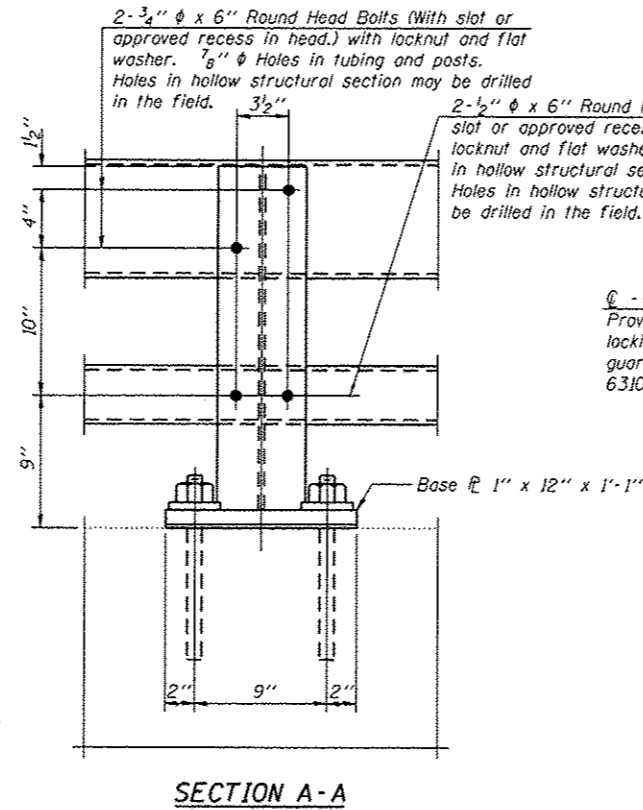
SHOULDER WIDENING SHALL BE IN ACCORDANCE WITH STATE STANDARD 630301

FILE NAME =	USER NAME = pyzzenovskrb	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CURB REMOVAL (PARTIAL) FOR TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Default	Documents\DOT Offices\District 1\Projects\DI38315\Design\DI38315-shr-plen.dgn	CHECKED -	REVISED -				VAR.	2016-045GRR	VARIOUS	29	22
	PLOT SCALE = 100.0000' / 1"	DATE -	REVISED -				CONTRACT NO. 62D24		ILLINOIS FED. AID PROJECT		
	PLOT DATE = 6/15/2016						SCALE:	SHEET	OF	SHEETS	STA.

• Cut bottom end of post to curb slope.

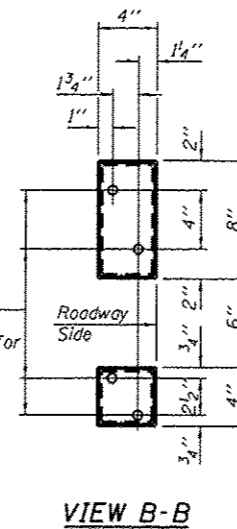


SECTION AT RAIL POST

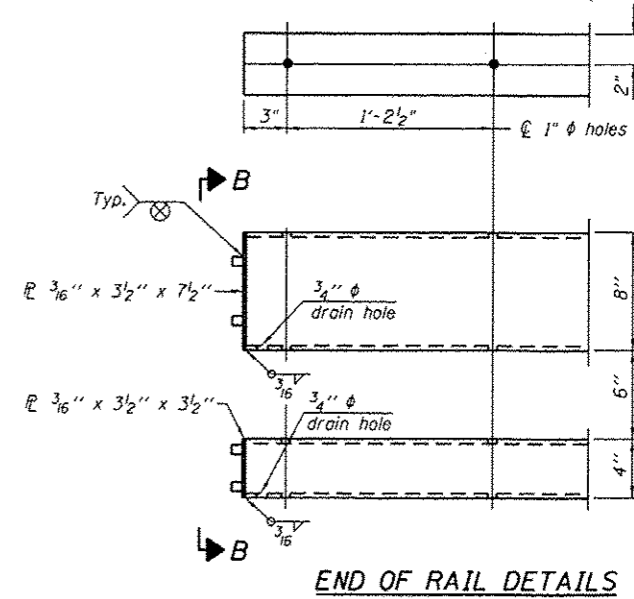


SECTION A-A

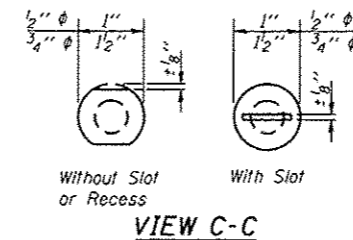
• 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032.



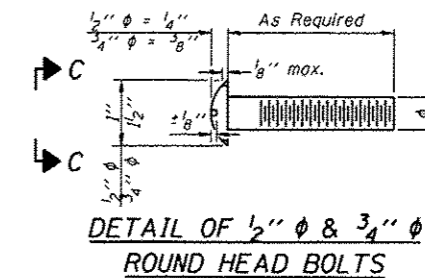
VIEW B-B



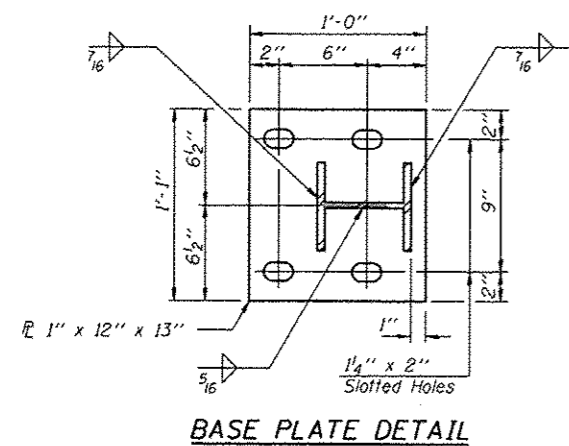
END OF RAIL DETAILS



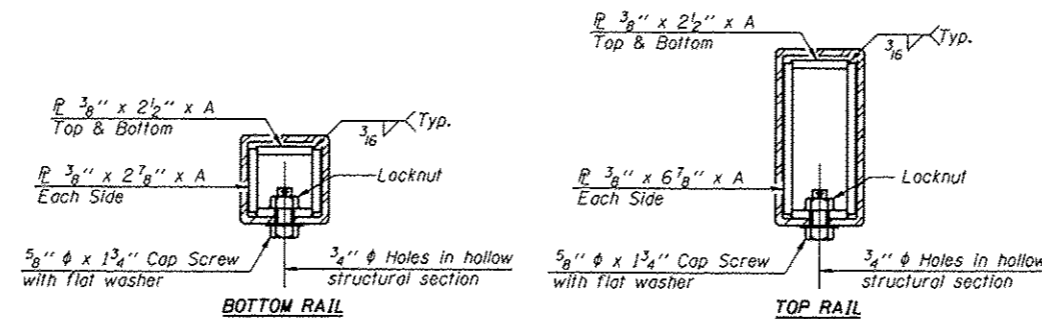
VIEW C-C



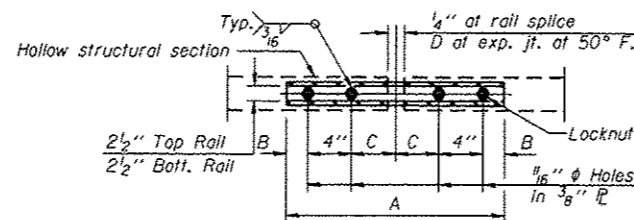
DETAIL OF 1/2" & 3/4" ROUND HEAD BOLTS



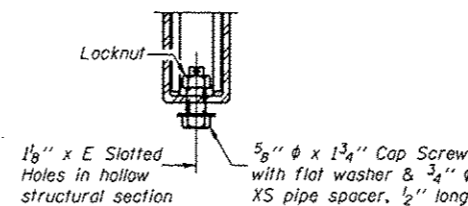
BASE PLATE DETAIL



SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE TYPICAL



RAIL SPLICE CONNECTION AT EXPANSION JT.

Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 Posts shall not be located closer than 1'-3" to an existing bridge expansion joint or end of bridge.
 Steel Bridge Rail expansion joint shall be provided between any two (2) posts which span a bridge expansion joint. Bolts located at expansion joint shall be provided with locknuts and shall be tightened only to a point that will allow railing movement.
 Provide one 1/8" and two 1/16" steel shims for 25% of the posts. Shims shall be similar to base plates in size and holes.
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

SPLICE DIMENSIONS

T	D	A	B	C	E
≤4"	2 1/2"	1'-8"	2"	4"	2 1/2"
>4" ≤6 1/2"	3 1/2"	2'-0"	2 1/2"	5 1/2"	3 1/2"
>6 1/2" ≤9"	5"	2'-4"	3 1/2"	6 1/2"	9"
>9" ≤13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	—

T = Total movement at expansion joint as shown on the design plans.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type 2399	Foot	23

R-31

7-1-10

(6'-3" Maximum Post Spacing)

STEEL RAILING, TYPE 2399
 STRUCTURE NO.

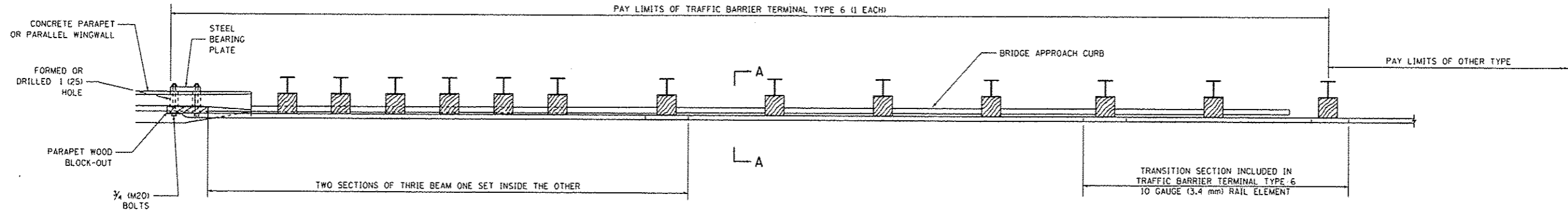
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE 2399

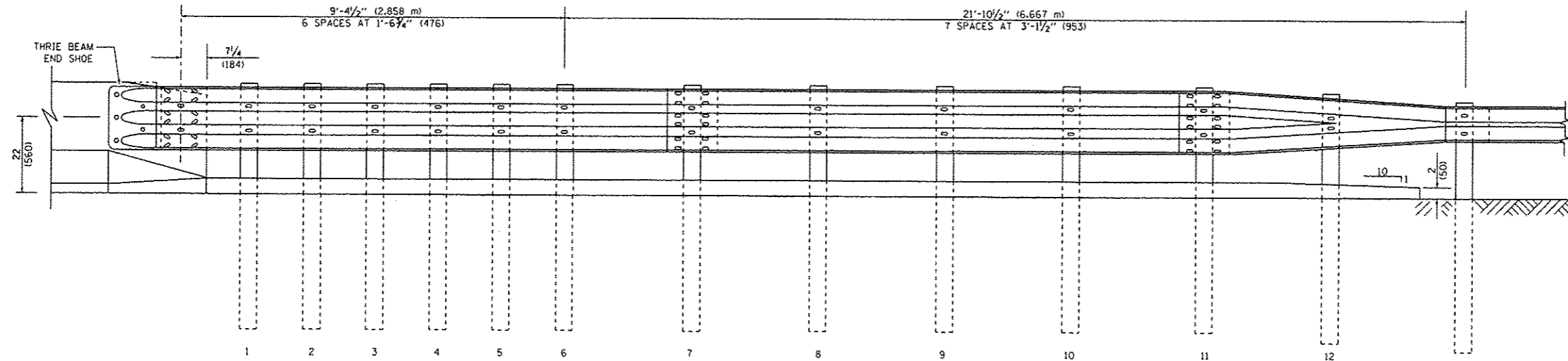
FILE NAME =	USER NAME = puzanowakrb	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STEEL RAILING, TYPE 2399	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
PROJECT NO. = 100.0000	DATE = 6/15/2016	CHECKED -	REVISED -			VAR.	2016-045GRR	VARIOUS	29	23		
						SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT
						CONTRACT NO. 62D24						

PARAPET OR WINGWALL

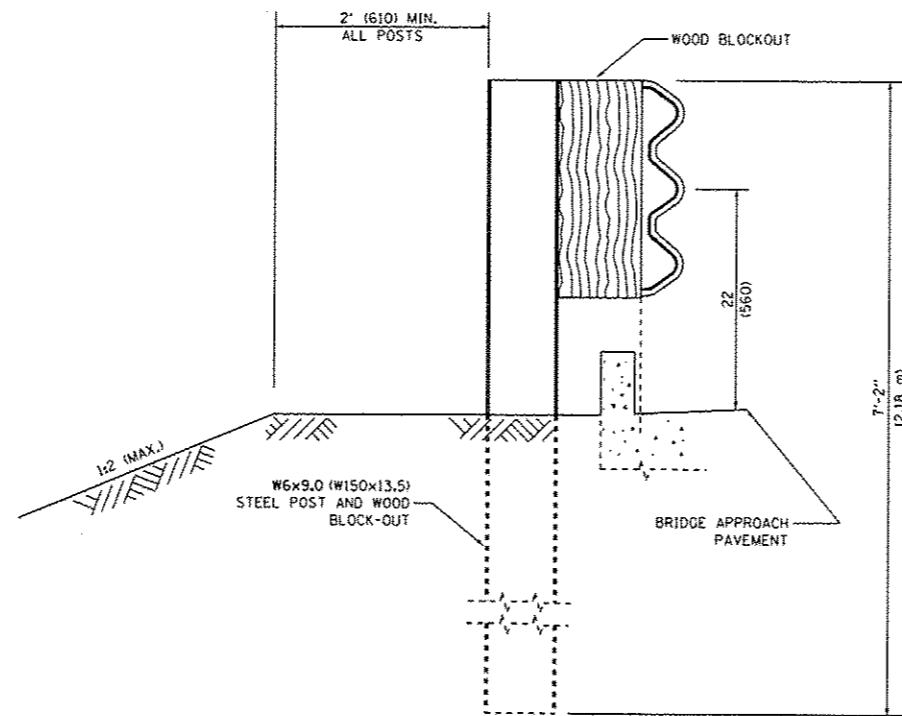
PAY LIMITS OF TRAFFIC BARRIER TERMINAL TYPE 6 (1 EACH)



PLAN



ELEVATION



SECTION A-A

GENERAL NOTES

TO BE USED WHEN CONNECTING TO EXISTING GUARD RAILING PRIOR TO THE MIDWEST GUARDRAIL SYSTEM.

SEE STANDARD 630001 FOR DETAILS OF GUARDRAIL NOT SHOWN.

THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.

SEE STANDARD 420401 FOR DETAILS OF BRIDGE APPROACH PAVEMENT.

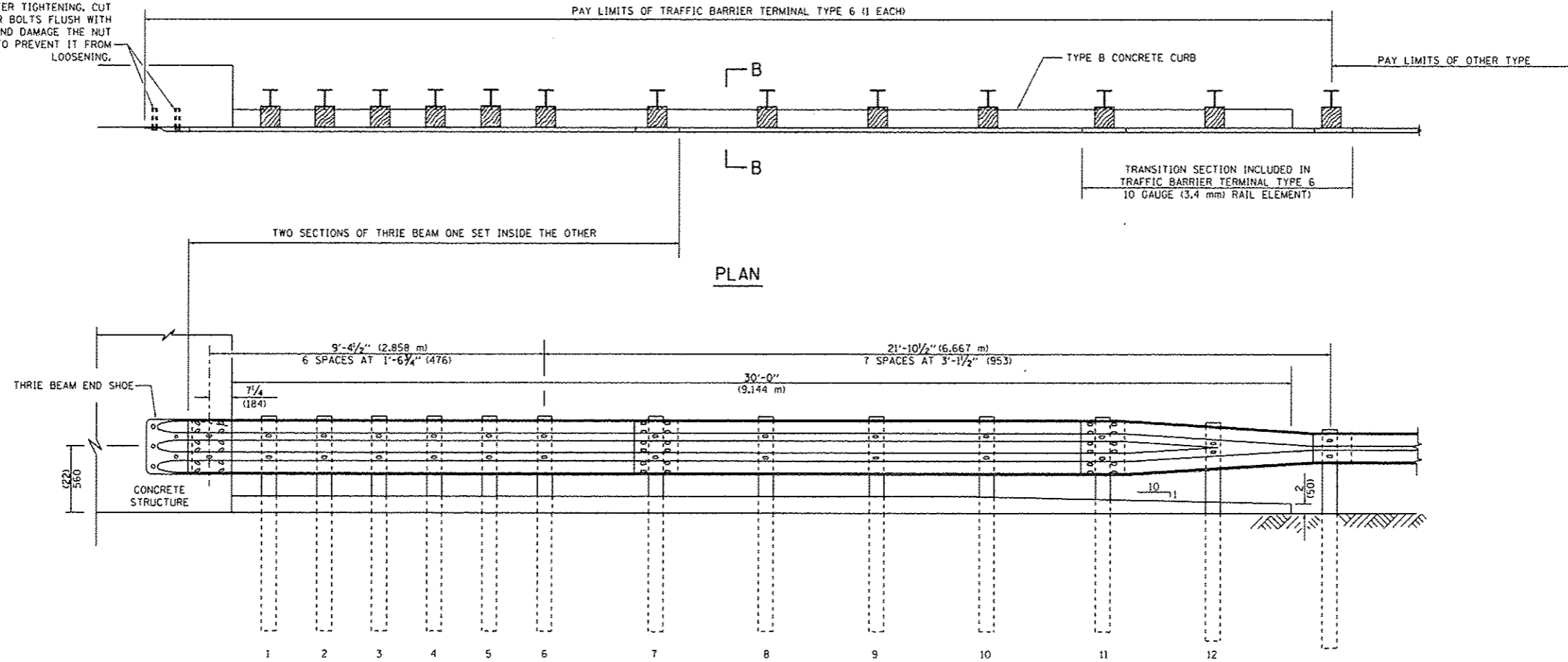
ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

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

FILE NAME =	USER NAME = pyzanoski	DESIGNED -	REVISED - STATE STANDARD:	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPE 6 TERMINAL FOR USE WITH 21" HIGH SPBGR		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
\\VIL084EBID\INTEG.Illinois.gov\PI\DOT\Documents\DOT Offices\District 1\Projects\01389\CRAN\Design\0138915-shr-plan.dgn		631031-05 - 02/19/2008			SCALE: NONE	SHEET NO. 1 OF 3 SHEETS	STA.	TO STA.	VAR.	2016-045GRR	VARIOUS	29	24
PLOT SCALE = 100.0000 / 1 in.	CHECKED -	REVISED -											
PLOT DATE = 6/15/2016	DATE -	REVISED -											
							BM 22		CONTRACT NO. 62024				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT													

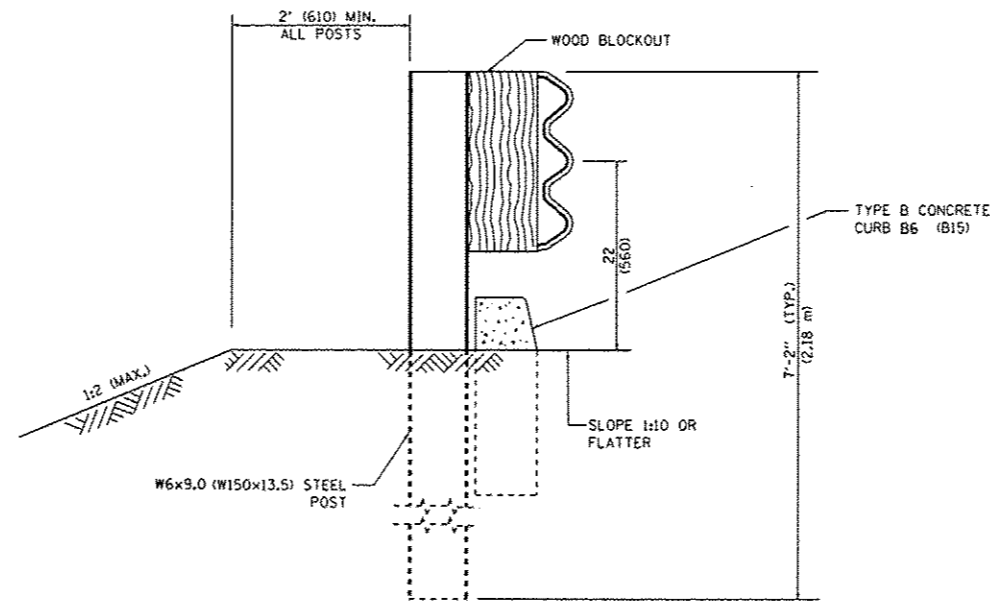
OTHER CONCRETE STRUCTURE

5 EPOXY GROUTED 3/4 (M20) ANCHOR BOLTS WITH STANDARD WASHERS. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH NUTS, AND DAMAGE THE NUT TO PREVENT IT FROM LOOSENING.



PLAN

ELEVATION



SECTION B-B

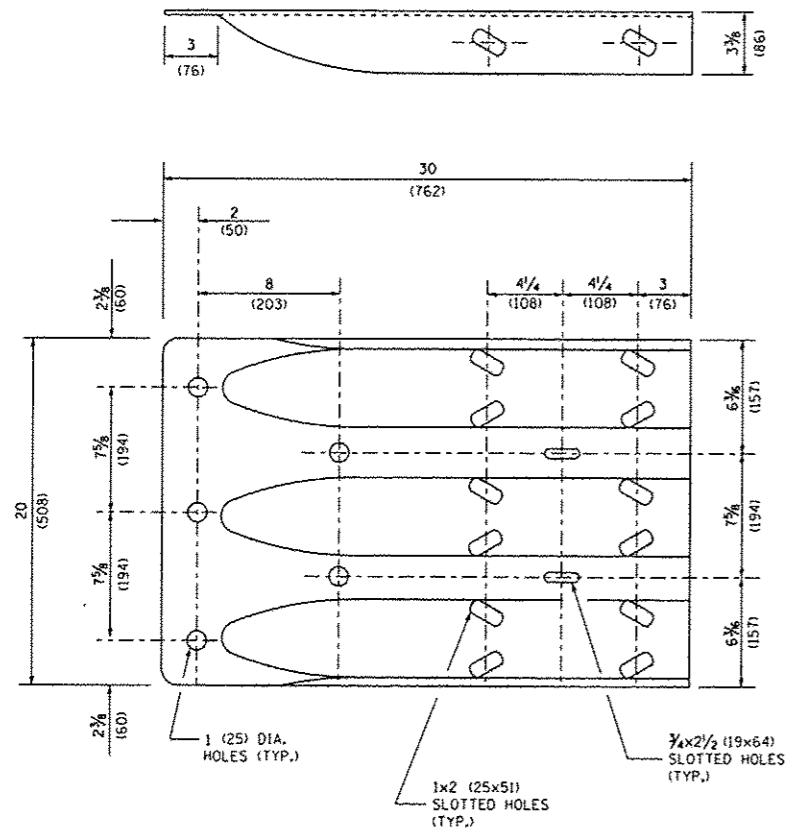
FILE NAME =	USER NAME = pyrzano@skrb	DESIGNED -	REVISED - STATE STANDARD;
p:\IL04EBID\INTEG.illinois.gov\PWIDOT\Documents\DOT Offices\District I\Projects\0138301\0138301\Design\0138301-shr-plan.dgn			631031-05 - 02/19/2008
	PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -
	PLOT DATE = 6/15/2016	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

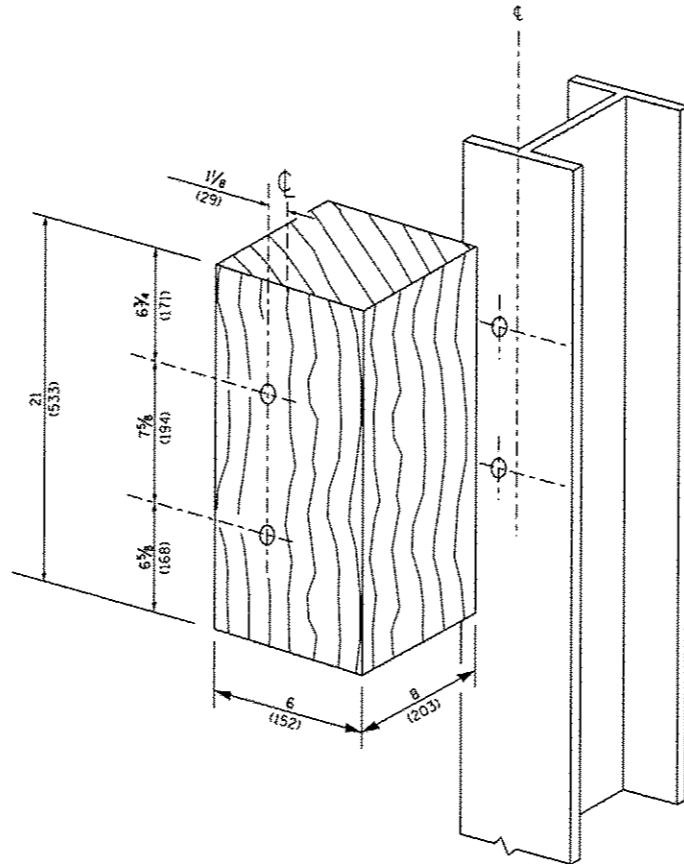
TYPE 6 TERMINAL
FOR USE WITH 21" HIGH SPBGR

SCALE: NONE SHEET NO. 2 OF 3 SHEETS STA. TO STA.

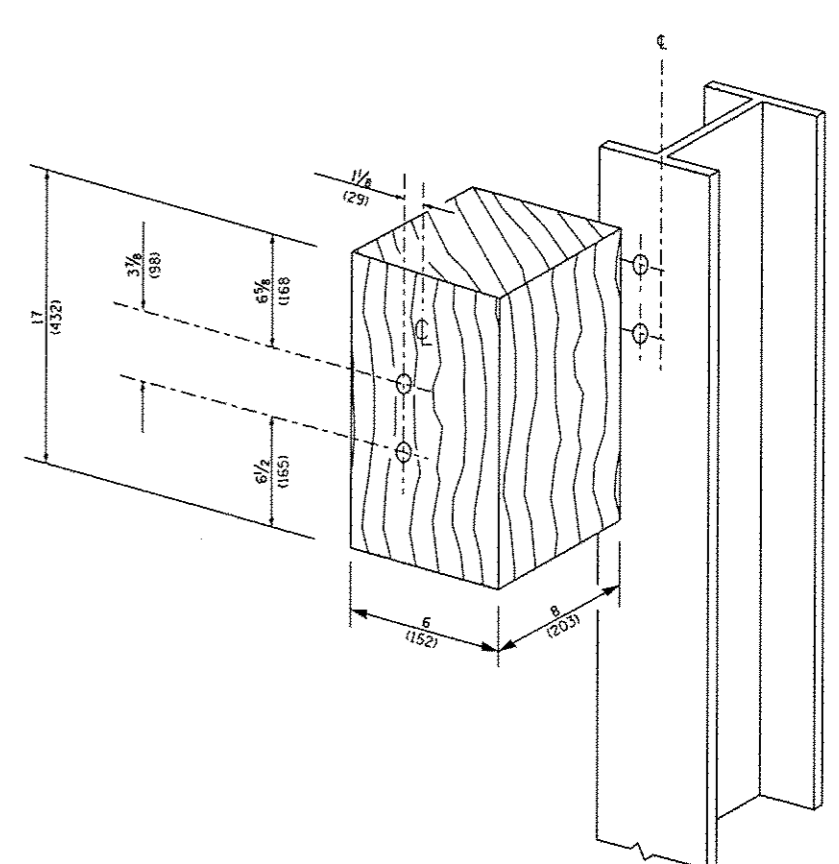
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	2016-045GRR	VARIOUS	29	25
BM 22		CONTRACT NO. 62D24		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



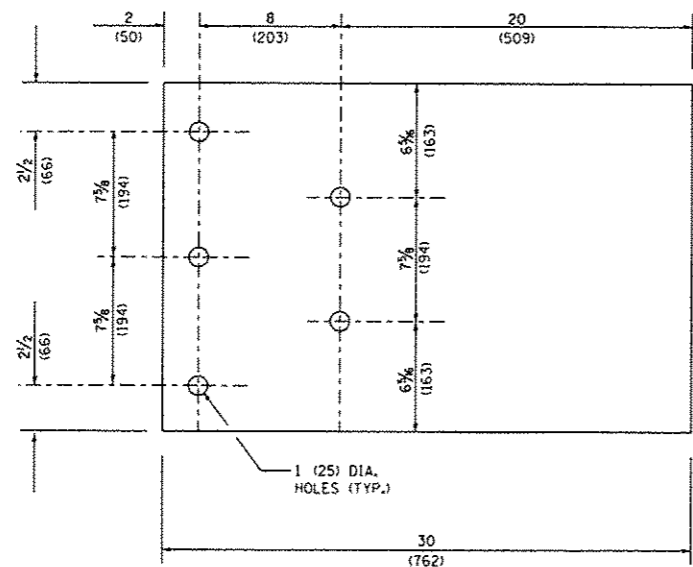
THRIE BEAM END SHOE DETAIL



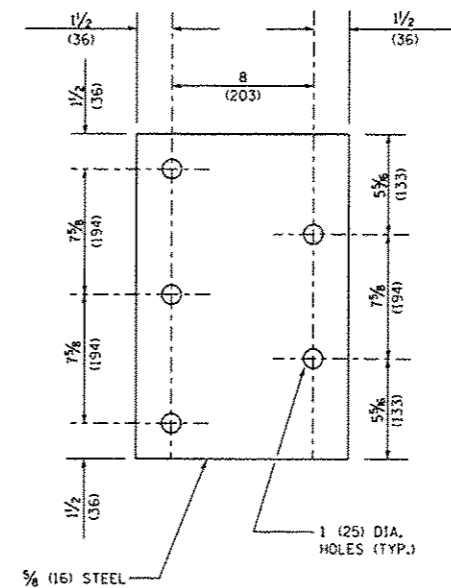
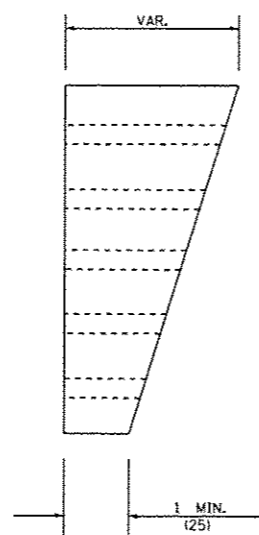
POSTS 1-11 WOOD BLOCKOUT DETAIL



POST 12 WOOD BLOCKOUT DETAIL



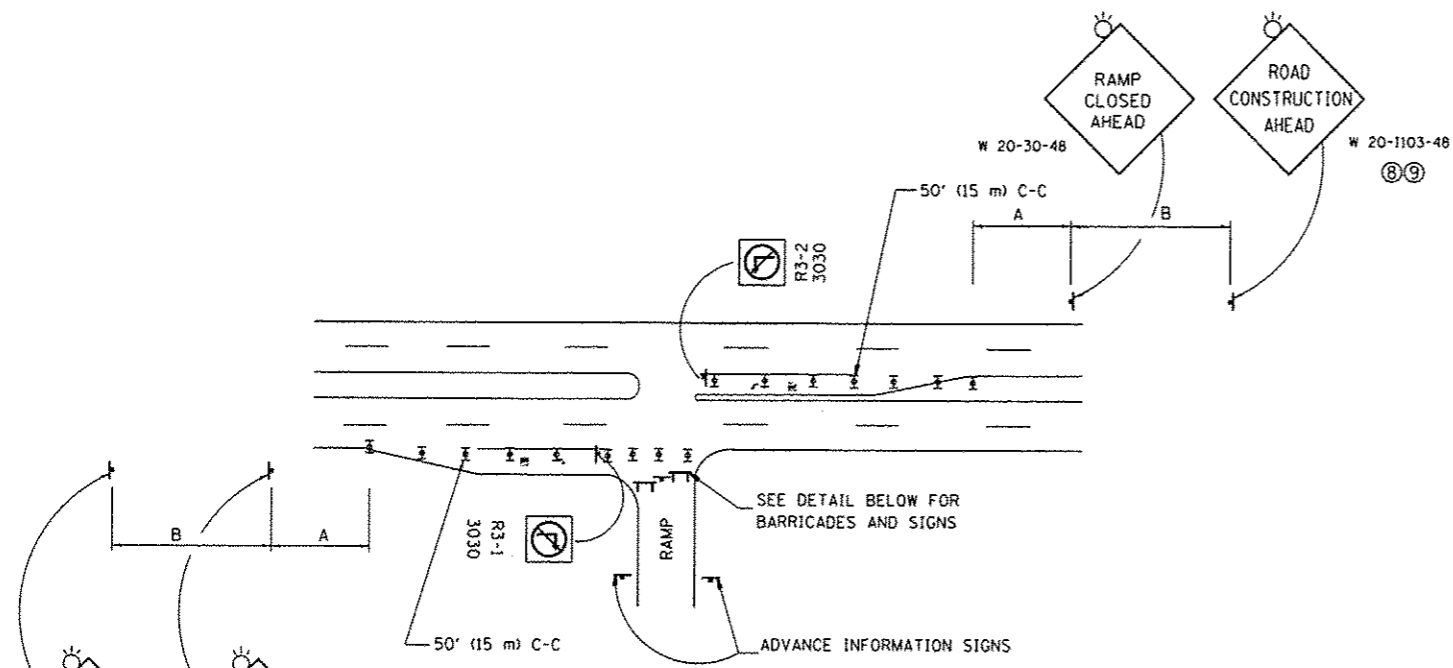
PARAPET WOOD BLOCK-OUT DETAIL



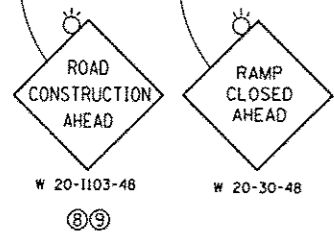
PARAPET STEEL BEARING PLATE DETAIL

(5 EACH INDIVIDUAL 5x5x3/8 (125x125x16) STEEL PLATES WITH CENTERED 1 (25) HOLES MAY BE SUBSTITUTED FOR THE PLATE SHOWN.)

FILE NAME =	USER NAME = pyzanos@skrb	DESIGNED -	REVISED - STATE STANDARD;	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPE 6 TERMINAL FOR USE WITH 21" HIGH SPBGR		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
pw\11084EBIDINTEG\Illinois.gov\PI00T\Documents\DOT Offices\District 1\Projects\013835\Design\013835-eh1-plan.dgn		631031-05 - 02/19/2008			SCALE: NONE	SHEET NO. 3 OF 3 SHEETS	STA.	TO STA.	VAR.	2016-045GRR	VARIOUS	29	26
PLOT SCALE = 100,0000 / 1 in.		CHECKED -	REVISED -							BM 22			
PLOT DATE = 6/15/2016		DATE -	REVISED -							FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT	



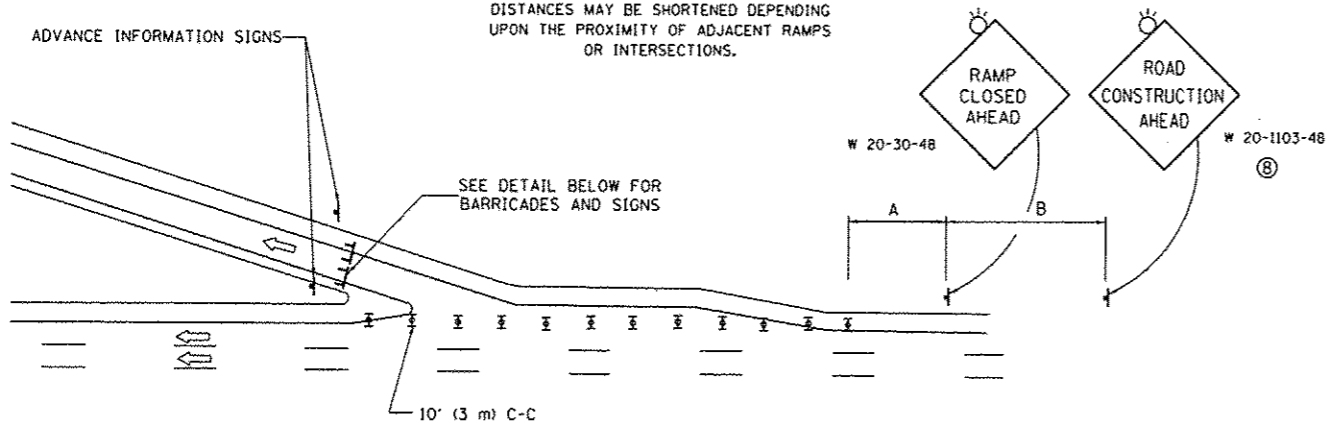
ENTRANCE RAMP CLOSURE



SIGN SPACING TABLE

FACILITY	DISTANCE BETWEEN SIGNS	
	A	B
EXPRESSWAY >24 HOURS	1000' (300 m)	1500' (450 m)
EXPRESSWAY ≤24 HOURS	500' (150 m)	500' (150 m)
ARTERIAL 55 MPH	500' (150 m)	500' (150 m)
ARTERIAL 50-45 MPH	350' (100 m)	350' (100 m)
ARTERIAL <45 MPH	200' (60 m)	200' (60 m)

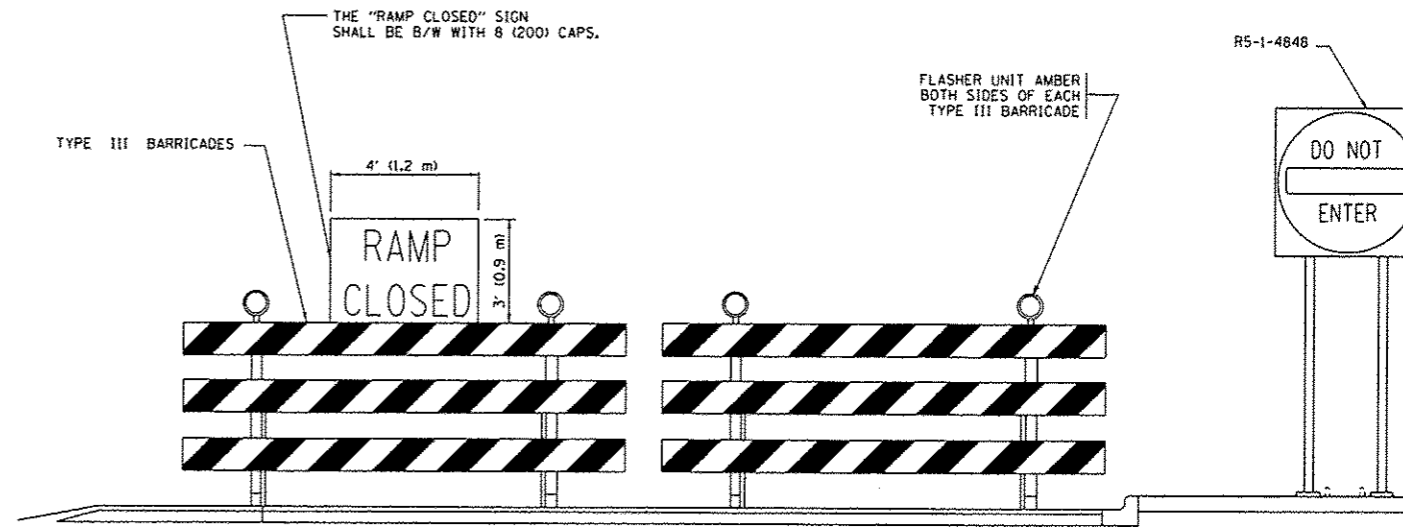
DISTANCES MAY BE SHORTENED DEPENDING UPON THE PROXIMITY OF ADJACENT RAMPS OR INTERSECTIONS.



EXIT RAMP CLOSURE

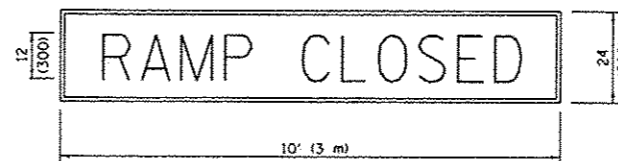
SYMBOLS

- ☒ TYPE II BARRICADE OR DRUM WITH STEADY BURN MONO-DIRECTIONAL LIGHT
- ☒ TYPE III BARRICADE WITH 2 FLASHING LIGHTS



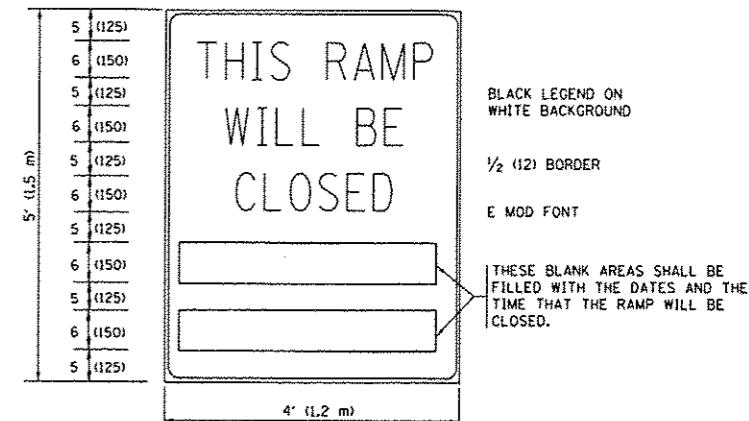
DETAIL FOR REQUIRED BARRICADES & SIGNS

RAMP CLOSURE ADVANCE WARNING SIGN



BLACK LEGEND ON ORANGE BACKGROUND MOUNTED DIAGONALLY E MOD FONT 1 (25) BORDER
 THESE SIGNS ARE REQUIRED ON ALL THE EXIT GUIDE SIGNS FOR EXIT RAMPS THAT WILL BE CLOSED FOR MORE THAN FOUR (4) CONSECUTIVE DAYS.

RAMP CLOSURE ADVANCE INFORMATION SIGN



THESE SIGNS ARE REQUIRED ON BOTH SIDES OF THE RAMP, MINIMUM OF 1 WEEK IN ADVANCE OF THE CLOSURE.

THESE SIGNS SHALL BE FABRICATED AND PAID FOR ACCORDING TO THE TEMPORARY INFORMATION SIGNING SPECIAL PROVISION

GENERAL NOTES:

- 1 CONES MAY BE SUBSTITUTED FOR DRUMS OR TYPE II BARRICADES DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (700) HIGH.
- 2 STEADY BURN LIGHTS WILL NOT BE REQUIRED FOR DAY OPERATIONS.
- 3 A FLAGGER SHALL BE POSITIONED AT EACH CLOSED RAMP THAT IS OPEN TO CONSTRUCTION VEHICLES, PRECEDED BY A W20-7 FLAGGER WARNING SIGN.
- 4 ALL ROUTE MARKERS AND TRAILBLAZER ASSEMBLIES WHICH DIRECT MOTORISTS TO A CLOSED ENTRANCE RAMP SHALL BE COVERED WHEN THE RAMP IS CLOSED FOR MORE THAN FOUR (4) DAYS.
- 5 THE SIGNING AND BARRICADING WHICH IS REQUIRED BY THIS DETAIL SHALL BE INCLUDED IN THE COST OF TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS).
- 6 AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL RAMP CLOSURES.
- 7 THE RAMP CLOSURE ADVANCE INFORMATION SIGNS SHALL BE ERECTED IF THE CLOSURE TIME EXCEEDS TWENTY-FOUR (24) HOURS. ADDITIONAL ADVANCE WARNING SIGNS ON EXIT GUIDE SIGNING WILL BE REQUIRED FOR EXIT RAMP CLOSURES THAT EXCEED FOUR (4) DAYS IN LENGTH.
- 8 ROAD CONSTRUCTION AHEAD SIGNS MAY BE OMITTED WHEN THIS DETAIL IS USED IN CONJUNCTION WITH OTHER TRAFFIC CONTROL THAT ALREADY INCLUDES A ROAD CONSTRUCTION AHEAD SIGN.
- 9 ARTERIAL ROAD CONSTRUCTION AHEAD SIGNS SHALL BE INSTALLED ON THE LEFT SIDE OF TRAFFIC IF THE MEDIAN IS MORE THAN 10 FT WIDE.

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

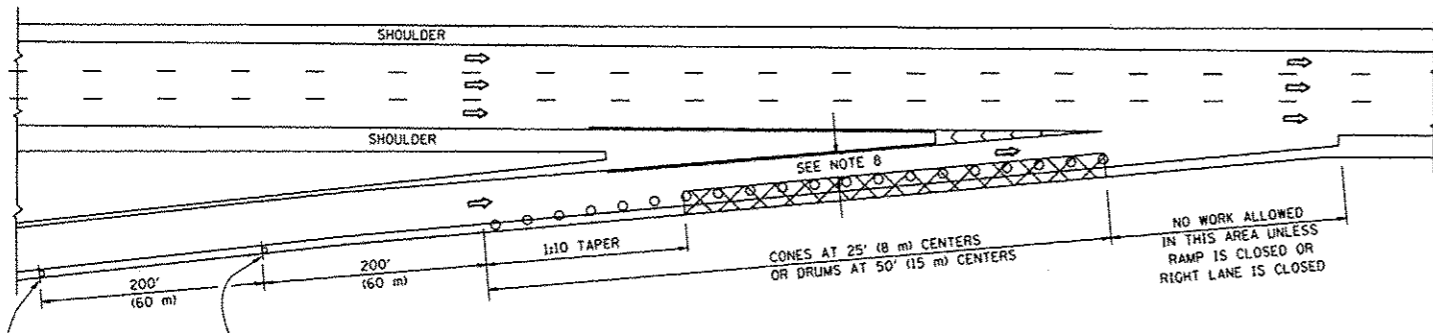
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**ENTRANCE AND EXIT RAMP
CLOSURE DETAILS**

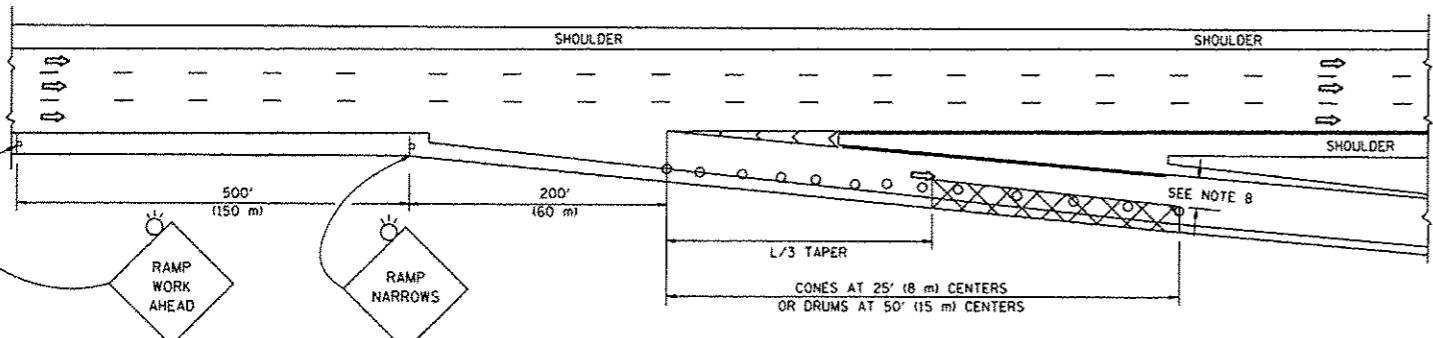
FILE NAME =	USER NAME = pyrzanawshrb	DESIGNED - DWS	REVISED - JAF 02-06
g:\11084EBID\INTEC\Illinois.gov\PI001\Documents\1001\Offices\District 1\Projects\DISB\DRM\Notes\Design\0138315-shr-plan.dgn		CHECKED -	REVISED - SPB 01-07
PLOT SCALE = 100.0000' / 1"		DATE - 02-83	REVISED - SPB 12-09
PLOT DATE = 6/15/2016			REVISED - MD 06-13

SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA. TO STA.	F.A. RTE. VAR.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
				2016-045GRR	VARIOUS	29	27
				TC-08			CONTRACT NO. 62024
				FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT	

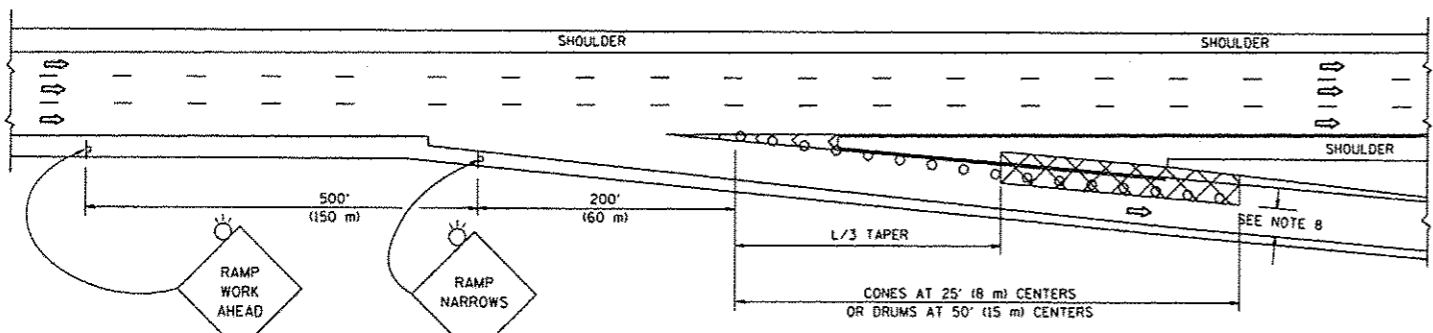
PARTIAL RAMP CLOSURE DETAILS



TYPICAL ENTRANCE RAMP



TYPICAL EXIT RAMP



TYPICAL EXIT RAMP

SYMBOLS

- ACTIVE WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- FLAGGER WITH CONTROL SIGN
- TYPE 11 BARRICADE OR DRUM WITH STEADY BURN MONO-DIRECTIONAL LIGHT
- CONE, DRUM OR BARRICADE
- IMPACT ATTENUATOR OF TYPE AND TEST LEVEL SPECIFIED

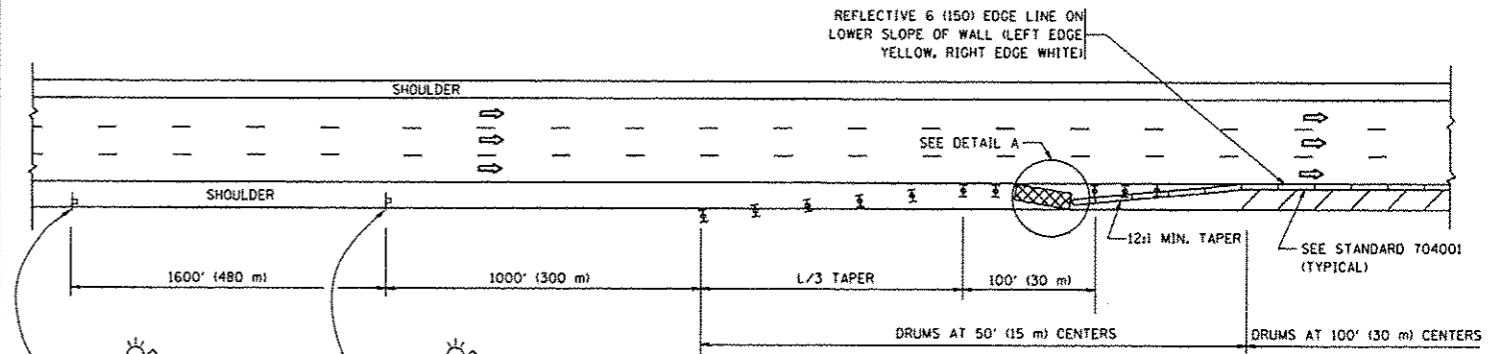
GENERAL NOTES

1. THE "L" DISTANCE EQUALS:

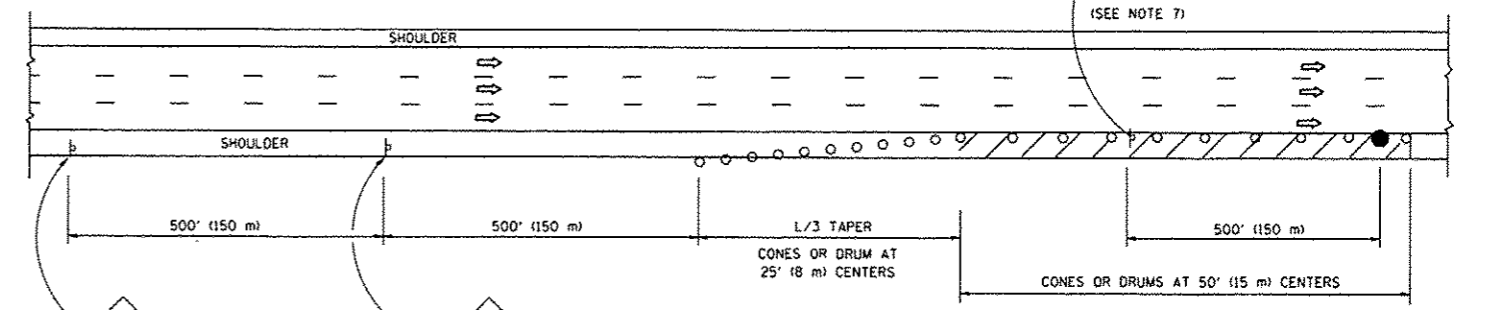
SPEED LIMIT	METRIC	ENGLISH
45 mph (80 km/h) OR GREATER:	$L = 0.65(W)(S)$	$L = (W)(S)$

W = WIDTH OF OFFSET IN FEET (METERS)
 S = NORMAL POSTED SPEED MPH (KM/H)
2. PLASTIC DRUMS WITH HIGH PERFORMANCE REFLECTIVE SHEETING AND STEADY BURNING LIGHTS ARE REQUIRED FOR ALL NIGHTTIME CLOSURES.
3. ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
4. FLASHING LIGHTS SHALL BE USED DURING THE HOURS OF DARKNESS AND SHALL BE INSTALLED ABOVE THE FIRST TWO SETS OF SIGNS.

SHOULDER CLOSURE DETAILS

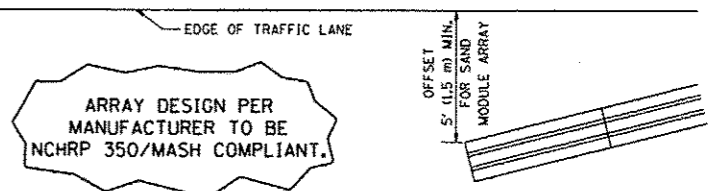


PERMANENT SHOULDER CLOSURE



DAYTIME SHOULDER CLOSURE

THIS DETAIL IS USED WHERE:
 1. VEHICLES, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCR OACH IN AN AREA CLOSER THAN 15' (4.5 m) TO THE EDGE OF PAVEMENT FOR A PERIOD IN EXCESS OF 15 MINUTES.



ARRAY DESIGN PER MANUFACTURER TO BE NCHRP 350/MASH COMPLIANT.

DETAIL "A"
 IMPACT ATTENUATOR, TEMPORARY
 (SEE NOTE 5)

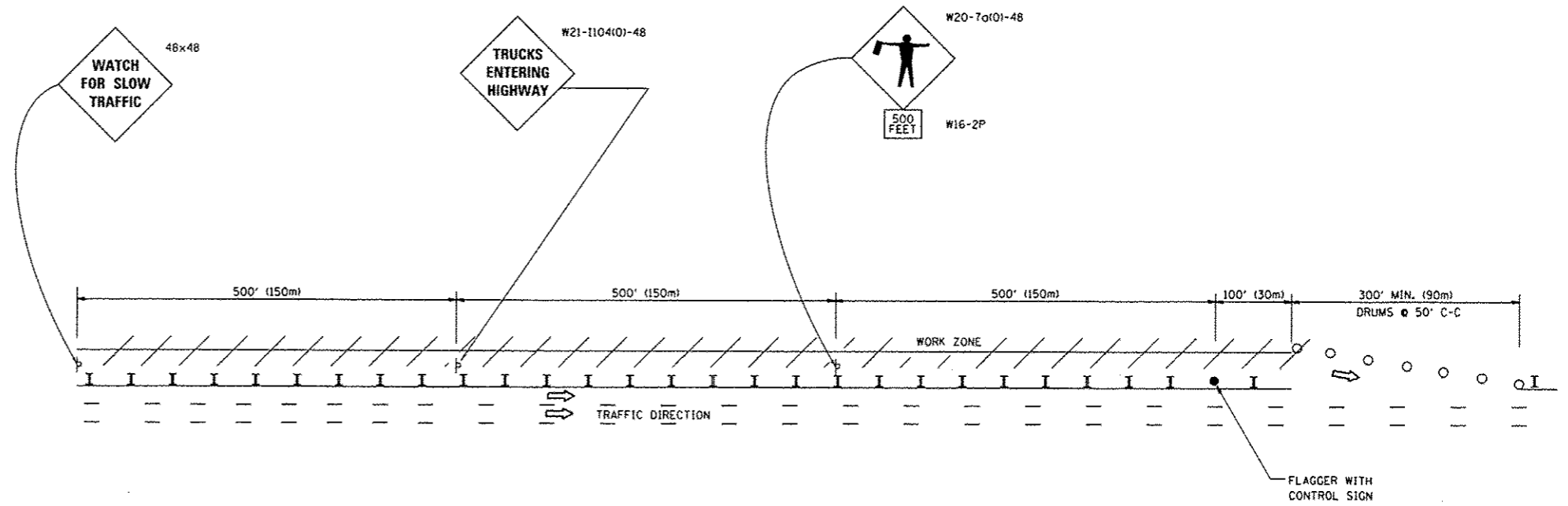
5. THE IMPACT ATTENUATOR, TEMPORARY IS NOT REQUIRED WHEN THE TEMPORARY CONCRETE BARRIER WALL IS PROTECTED BY OR IS TIED INTO THE EXISTING GUARDRAIL. IF OFFSET IS LESS THAN 5 FEET USE NARROW USE TYPE DEVICE TO MEET NCHRP350/MASH.
6. AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL FREEWAY CLOSURES.
7. THE FLAGGER AND FLAGGER SIGN ARE REQUIRED AT THE ABOVE WORK SITES WHEN:
 - a. FOUR OR MORE WORK VEHICLES ENTER THE TRAFFIC LANES IN A ONE HOUR PERIOD.
 - b. THE WORK ACTIVITY REQUIRES FREQUENT ENCR OACHMENT INTO THE LANE OPEN TO TRAFFIC.
 THE FLAGGER SHALL BE STATIONED APPROXIMATELY 100' (30 m) TO 200' (60 m) IN ADVANCE OF THE WORKERS.
8. 12' MIN. WIDTH TANGENT SECTION
 16' MIN. WIDTH CURVE SECTION.

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

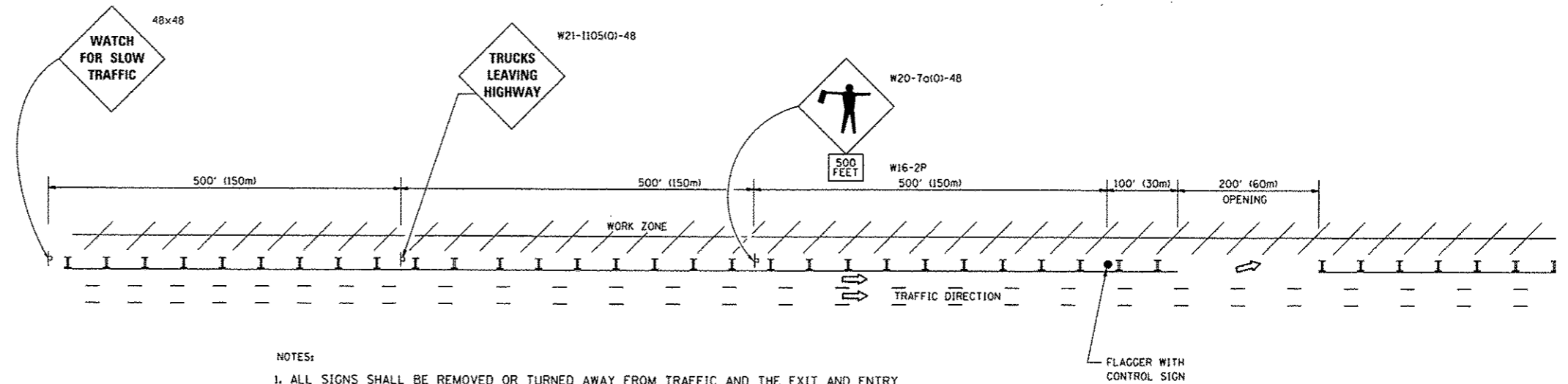
FILE NAME *	USER NAME = pyznanowshrb	DESIGNED -	REVISED - J.A.F. 12-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TRAFFIC CONTROL DETAILS FOR FREEWAY SHOULDER CLOSURES AND PARTIAL RAMP CLOSURES			F.A. RTE. VAR.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Documents\1001 Offices\District 1\Projects\01383\Drawings\Design\01383-115-shr-plan.dgn	CHECKED -	REVISED - S.P.B. 01-07	REVISED - S.P.B. 12-09		SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	2016-045GRR	VARIOUS	29	28
PLOT SCALE = 1/8" = 1'-0"	DATE - 11-96	REVISED - M.D. 06-13							TC-17	CONTRACT NO. 62D24		
PLOT DATE = 6/15/2016									FED. ROAD DIST. NO. 1	ILLINOIS FED. AID PROJECT		

SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS

WORK ZONE EXIT OPENING



WORK ZONE ENTRY OPENING



NOTES:

1. ALL SIGNS SHALL BE REMOVED OR TURNED AWAY FROM TRAFFIC AND THE EXIT AND ENTRY OPENINGS SHALL BE CLOSED WHEN THE FLAGGING OPERATION CEASES. NON OPERATING EQUIPMENT SHALL COMPLY WITH ARTICLE 701.11
2. WORK ZONE OPENINGS SHALL BE A MINIMUM OF ONE HALF MILE APART AND A MINIMUM OF ONE QUARTER MILE FROM ALL ENTRANCE AND EXIT RAMP.
3. EXITING THE WORK ZONE AT ANY PLACE OTHER THAN AT A WORK ZONE EXIT OPENING WILL BE PROHIBITED.
4. ALL VEHICLES SHALL ENTER THE WORK ZONE AT ENTRY OPENINGS, USING THEIR TURN SIGNALS TO WARN MOTORISTS
5. FLAGGERS SHALL NOT STOP TRAFFIC OR DIRECT TRAFFIC INTO AN ADJACENT LANE.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

FILE NAME *	USER NAME * pyzenovskirb	DESIGNED -	REVISED - J.A.F. 02-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FREEWAY/EXPRESSWAY SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS ON FREEWAYS/EXPRESSWAYS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
\\IL084EB10INTEG.illinois.gov\PI007\Documents\1007 Offices\District 1\Projects\103835\03835-eh-1-pln.dgn	PROJECT NO. 2016-045GRR	CHECKED -	REVISED - S.P.B. 01-07			VAR.	2016-045GRR	VARIOUS	29	29
PLOT SCALE * 100.0000' / 1"	DATE	REVISED - S.P.B. 12-09	REVISED - M.D. 06-13			TC-18		CONTRACT NO. 62D24		
PLOT DATE * 6/15/2016						SCALE: NONE		SHEET NO. 1 OF 1 SHEETS		STA. TO STA.
						FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				