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

#### COUNTY SHEETS NO. VARIOUS 17 I \*VAR

\*\*D6 CABLE/GUARDRAIL 2017-5

#### D-96-070-17



STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

# **PROPOSED** HIGHWAY PLANS

**VARIOUS ROUTES** SECTION D6 CABLE/GUARDRAIL 2017-5 **CABLE & GUARDRAIL REPAIR VARIOUS COUNTIES IN D6** C-96-070-17

### INDEX OF SHEETS

**COVER SHEET** 

**GENERAL NOTES** 

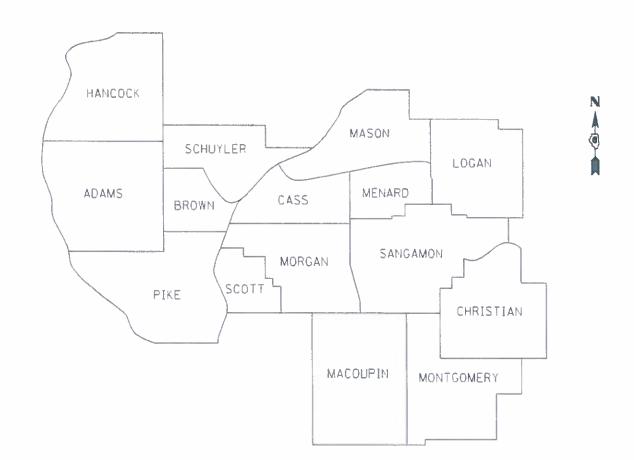
3-5 SUMMARY OF QUANTITIES

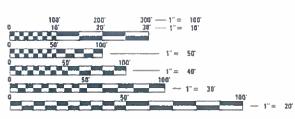
6-16 PRE-MGS HIGHWAY STANDARDS

FOR INDEX OF SHEETS, SEE SHEET NO. 2

CABLE GUARD MARKER DETAIL

FOR LIST OF STANDARDS, SEE SHEET 2





ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION 1-800-892-0123 OR 811

PROJECT ENGINEER : JAY EDWARDS PROJECT MANAGER: JONATHAN COX (217)-782-1378

(217)-785-0597

CONTRACT NO. 72K06

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#### HIGHWAY STANDARDS

STANDARD NO.	TITLE
000001-07 630001-12 630101-10 630111 630301-09 631011-10	STANDARD SYMBOLS, ABBREVATIONS & PATTERNS STEEL PLATE BEAM GUARDRAIL STRONG POST GUARDRAIL ATTACHED TO CULVERT WEAK POST GUARDRAIL ATTACHED TO CULVERT SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS TRAFFIC BARRIER TERMINAL, TYPE 2
631026-06 631031-15	TRAFFIC BARRIER TERMINAL, TYPE 5 TRAFFIC BARRIER TERMINAL. TYPE 6
643001-02	SAND MODULE IMPACT ATTENUATORS
664001-02	CHAIN LINK FENCE
665001-02	WOVEN WIRE FENCE
701001-02	OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 M) AWAY
701006-05	OFF-ROAD OPERATIONS, 2L, 2W, 15' (4.5 M) TO 24" (600 MM) FROM PAVEMENT EDGE
701101-05	OFF-ROAD OPERATIONS, MULTILANE, 15' (4.5 M) TO 24" (600 MM) FROM PAVEMENT EDGE
701106-02 701201-05	OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' (4.5 M) AWAY LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS > 45 MPH
701301-03	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701400-09	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
	LANE CLOSURE, FREEWAY/EXPRESSWAY, DAY OPERATIONS ONLY
701411-09	LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS > 45 MPH
701421-08	LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY, FOR SPEEDS > 45 MPH TO 55 MPH
701422-10	LANE CLOSURE, MULTILANE, FOR SPEEDS > 45 MPH TO 55 MPH
701426-09	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPERATION, FOR SPEEDS ≥ 45 MPH
701427-05	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPERATION, FOR SPEEDS < 40 MPH
701428-01	TRAFFIC CONTROL SET UP AND REMOVAL FREEWAY/EXPRESSWAY
701456-05	PARTIAL EXIT RAMP CLOSURE FREEWAY/EXPRESSWAY
701501-06	URBAN LANE CLOSURE, 2L, 2W, UNDIVIDED
701502-09 701601-09	URBAN LANE CLOSURE, 2L, 2W, WITH BIDIRECTIONAL LEFT TURN LANE URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN
701601-03	URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN  URBAN LANE CLOSURE, MULTILANE, 2W WITH BIDIRECTIONAL LEFT TURN LANE
701606-10	URBAN SINGLE LANE CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN
701701-10	URBAN LANE CLOSURE, MULTILANE INTERSECTION
701901-08	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
782006	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS.

#### **GENERAL NOTES**

ALL DISTURBED AREAS CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL
BE GRADED AND SEEDED WITH CLASS 2 ROADSIDE MIXTURE
AND FERTILIZED AS STATED IN SECTION 250 OF THE STANDARD
SPECIFICATIONS. COST SHALL BE CONSIDERED INCLUDED IN THE UNIT
COST OF THE WORK BEING PERFORMED.

REMOVAL OF DAMAGED IMPACT ATTENUATORS SHALL BE INCLUDED IN THE COST OF THE IMPACT ATTENUATOR BEING INSTALLED.

REMOVAL AND DISPOSAL OF DAMAGED FENCE SHALL BE INCLUDED IN THE COST OF THE FENCE BEING INSTALLED.

DISTRICT SIX	
EXAMINED 6 May 20 19 OPERATIONS ENGINEER	
EXAMINED May 7 20 19  PROGRAM DEVELOPMENT ENGINEER	
EXAMINED 10 May 20 19 PROJECT IMPLEMENTATION ENGINEER	•

FILE NAME =	USER NAME = spechtd	DESIGNED - JWC	REVISED -		GENERAL NOTES	F.A.*	SECTION	COUNTY	TOTAL	SHEET
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		VARIOUS GR	MCHD	MED CBL BAR		
				100% STATE	100% MCHD	100% STATE
COD 5				ROADWAY	ROADWAY	ROADWAY
CODE			TOTAL	0021	0021	0021
NO.	ITEM	UNIT	QUANT I TY	RURAL	RURAL	RURAL
63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	300	150	150	
63000003	STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS	FOOT	100	50	50	
63000030	STRONG POST GUARDRAIL ATTACHED TO CULVERT	FOOT	50	50		
63100045	TRAFFIC BARRIER TERMINAL, TYPE 2	EACH	2	1	1	
63100070	TRAFFIC BARRIER TERMINAL, TYPE 5	EACH	2	1	1	
63100085	TRAFFIC BARRIER TERMINAL, TYPE 6	EACH	2	1	1	
62100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	22	6	16	
03100107	TRAFFIC BARRIER TERMINAL, TIPE I (SPECIAL) TANGENT	EACH	22	0	10	
63100169	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) FLARED	EACH	1	1		
63200310	GUARDRAIL REMOVAL	FOOT	1200	300	900	
			1200		300	
64300450	IMPACT ATTENUATORS (NON-REDIRECTIVE), TEST LEVEL 3	EACH	1	1		
64401300	HIGH TENSION CABLE MEDIAN BARRIER TERMINALS	EACH	2		1	1
01101300	THE TENSTON GABLE TESTAN SANNER TENTINES	EXCIT	-			1
66400105	CHAIN LINK FENCE,4'	FOOT	100	50	50	
66500105	WOVEN WIRE FENCE, 4'	FOOT	1800	500	1300	
	TOVER TIME FERGE, T	1001	1000		1300	
67100100	MOBILIZATION	L SUM	1.0	0.3	0.6	0.1

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	SUMMARY OF QUANTITIES	F.A.* RTE	SECTION	COUNTY	TOTAL SHEETS	
	•	*VAR	**	VARIOUS	17	3
				CONTRACT	Γ NO. 72	2K06
SCALE:	SHEET 1 OF 3 SHEETS STA. TO STA.		ILLINOIS FED. A	ID PROJECT		

0-02174-6009 MCHD FUNDS 0-01858-6001

				0-02174-6009	MCHD FUNDS	0-01858-6001
				VARIOUS GR	MCHD	MED CBL BAR
				100% STATE	100% MCHD	100% STATE
				ROADWAY	ROADWAY	ROADWAY
CODE			TOTAL	0021	0021	0021
NO.	ITEM	UNIT	QUANTITY		RURAL	RURAL
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	2	1	1	
			1			
72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	35	20	15	
78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	75	35	40	
X0325231	CABLE GUARD MARKER	EACH	200		100	100
X0325899	REPAIR HIGH TENSION CABLE (GIBRALTAR)	FOOT	20		10	10
X0325900	  REPAIR HIGH TENSION BARRIER TERMINAL (GIBRALTAR)	EACH	5		3	2
X0325901	REPAIR POSTS (GIBRALTAR)	EACH	100		50	50
X0325902	REMOVE AND REPLACE POSTS (GIBRALTAR)	EACH	200		150	50
X0327490	REPAIR HIGH TENSION CABLE (NU-CABLE)	FOOT	20		10	10
X0327491	REPAIR POSTS (NU-CABLE)	EACH	20		10	10
X0327492	REMOVE AND REPLACE POSTS (NU-CABLE)	EACH	335		222	113
X0327493	REPAIR HIGH TENSION BARRIER TERMINAL (NU-CABLE)	EACH	2		1	1
X6300155	STEEL PLATE BEAM GUARDRAIL, ATTACHED TO STRUCTURES (SPECIAL)	FOOT	50	25	25	
X6431220	REMOVE AND REPLACE IMPACT ATTENUATOR SAND MODULE	EACH	45	10	35	

DESIGNED -

REVISED -

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FILE NAME =

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

SCALE:

				0-02174-6009	MCHD FUNDS	0-01858-6001
				VARIOUS GR 100% STATE	MCHD 100% MCHD	MED CBL BAR 100% STATE
				ROADWAY	ROADWAY	ROADWAY
CODE			TOTAL	0021	0021	0021
NO.	ITEM	UNIT	QUANTITY	RURAL	RURAL	RURAL
110.	1 I EM	ONT	QUARTITI	NONAL	NONAL	KOKAL
X7011834	TRAFFIC CONTROL AND PROTECTION, CALL OUT WORK	EACH	45	10	35	
X7011836	TRAFFIC CONTROL AND PROTECTION, FREEWAY/EXPRESSWAY, CALL OUT WORK	EACH	30	10	10	10
Z0008759	CALL OUT	EACH	5	2	2	1
70008760	EMERGENCY WORK CALL OUT	EACH	35	8	25	2
20000,00		271611		<u> </u>		
Z0052000	REPAIR STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	2300	1200	1100	
Z0052410	REPAIR TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL (TANGENT)	EACH	60	20	40	
Z0052415	REPAIR TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL (FLARED)	EACH	2	1	1	
Z0052600	REPAIR TRAFFIC BARRIER TERMINAL, TYPE 2	EACH	2	1	1	
Z0053000	REPAIR TRAFFIC BARRIER TERMINAL, TYPE 5	EACH	2	1	1	
	TRAINEES TRAINING PROGRAM GRADUATE	HOUR	500	500		
Z0053200	REPAIR TRAFFIC BARRIER TERMINAL, TYPE 6	EACH	2	1	1	
	1					

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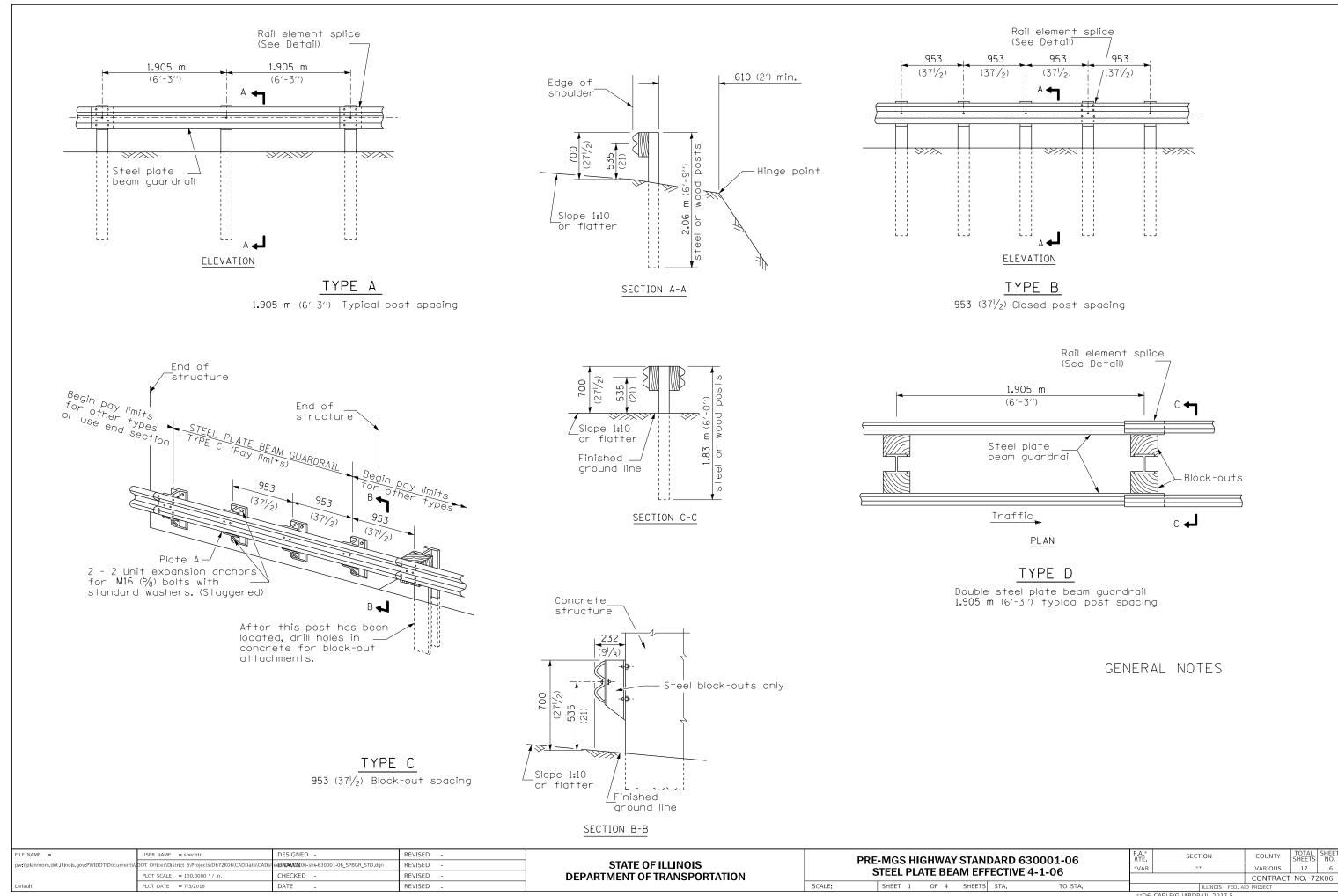
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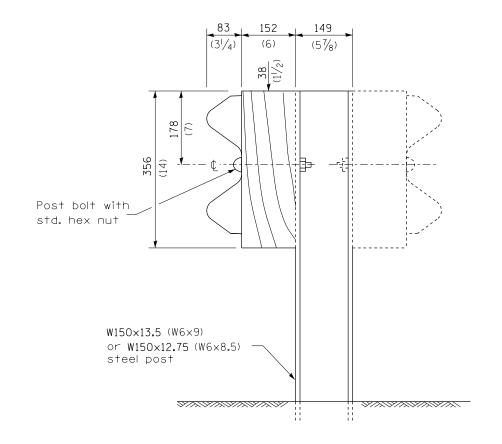
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SCALE:

						F.A.* RTE	SEC	TION		COUNTY	TOTAL SHEETS	SHEET NO.	
				-			*VAR	4	*		VARIOUS	17	5
											CONTRACT	NO. 72	2K06
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## STEEL POST CONSTRUCTION

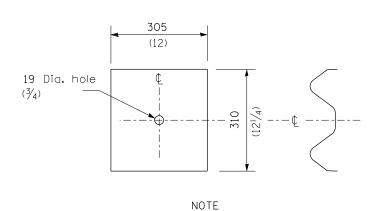
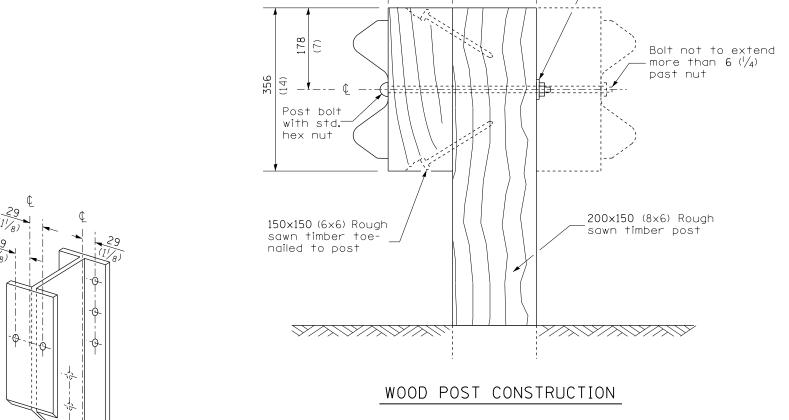


Plate A shall be placed between rail element and block-out at non-splice mounting points only when steel block-outs are used.

## PLATE A

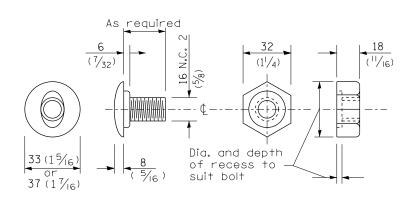


152

(6)

200

– Std. flat washer



POST OR SPLICE BOLT & NUT

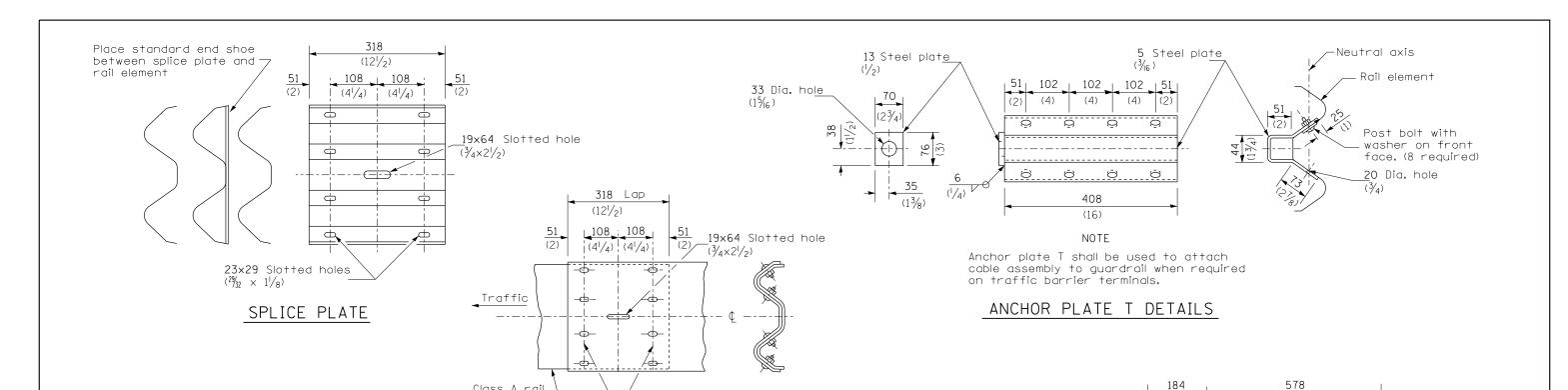
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

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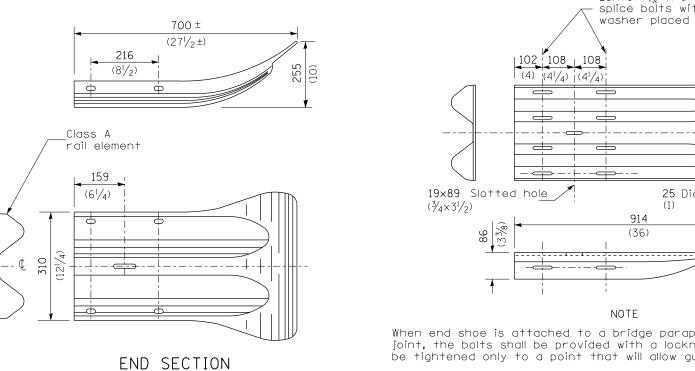
STEEL BLOCK-OUT DETAIL

PRE-MGS HIGHWAY STANDARD 630001-06							F.A.* RTE		
ST	STEEL PLATE BEAM EFFECTIVE 4-1-06								
- 31	STEEL PLATE DEAW EFFECTIVE 4-1-00								
	SHEET	2	OF	4	SHEETS	STA.	TO STA.		



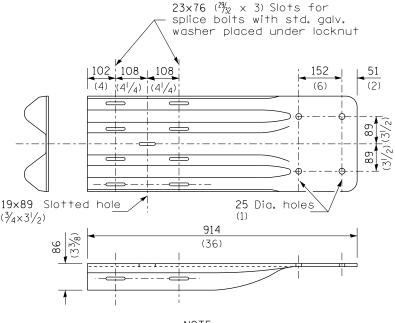
 $23\times29$  ( $^{29}\!\!/_{32}$   $\times$   $1^{1}\!/_{8}$ ) Slotted Tholes for M16 ( $^{5}\!\!/_{8}$ ) splice bolts

## RAIL ELEMENT SPLICE



Class A rail

element



(223/4)

 $(\frac{3}{4} \times 2\frac{1}{2})$ 

ALTERNATE END SHOE

108 108

 $(4^{1}/_{4})$   $(4^{1}/_{4})$ 

(1) = 19x64 Slotted hole (optional)

 $\Gamma_{(2)}$ 

√\_25 Dia. holes

 $(7^{1}/_{4})$ 

ф

23x29 Slotted Holes

310

 $(2\%_{32} \times 1^{1}/_{8})$ 

76 108 | 108 | (3) | (4<sup>1</sup>/<sub>4</sub>) | (4<sup>1</sup>/<sub>4</sub>) |

4 (1)

Ф

762 (30)

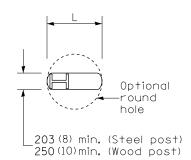
When end shoe is attached to a bridge parapet which has an expansion joint, the bolts shall be provided with a locknut or double nut and shall be tightened only to a point that will allow guardrail movement.

The standard end shoe shall be attached to the concrete with pre-drilled or self-drilling anchor bolts. The anchor cone shall be set flush with the surface of the concrete.

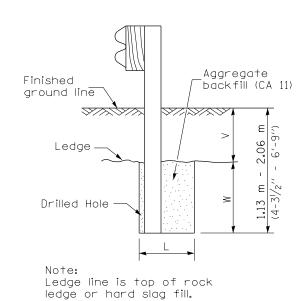
Externally threaded studs protruding from the surface of the concrete will not be permitted.

#### END SHOE

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	PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION					CONTRACT NO.	). 72K06
Default	PLOT DATE = 7/3/2018	DATE -	REVISED -		SCALE: SHEET 3 OF 4 SHEETS STA. TO STA.			ILLINOIS FED.	. AID PROJECT	
							**D6 CABLE/GUARDRAIL 2017-5			

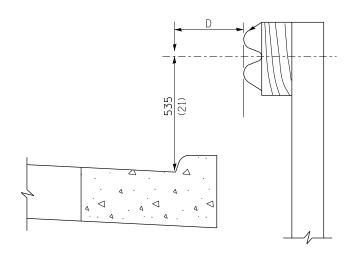


## PLAN



## ELEVATION

## FOOTING FOR POST WHEN IMPERVIOUS MATERIAL IS ENCOUNTERED



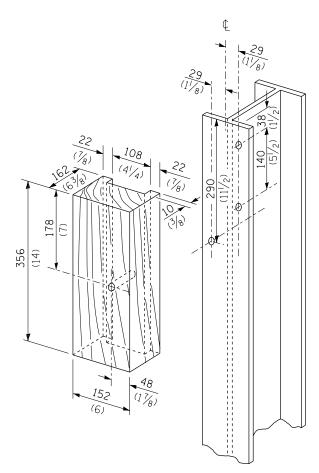
#### Note:

If it is necessary for D to be more than 300 (12) and less than 3.0 m (10'-0") type M-5 (M-2)curb and gutter (Std. 606001) shall be used in front of and in advance of the guardrail.

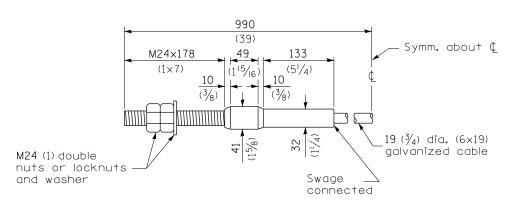
### GUARDRAIL PLACED BEHIND CURB

(D = 0 desirable to 300 (12) maximum)

V	W	L				
, v	"	Steel Post	Wood Post			
0 - 460	610	530	580			
(0 - 18)	(24)	(21)	(23)			
>460 - 825	305	203	250			
(>18 - 41.5)	(12)	(8)	(10)			
>825 - 1.13 m	305 - 0	203	250			
(>41.5 - 53.5)	(12 - 0)	(8)	(10)			



WOOD BLOCK-OUT AND STEEL POST DETAILS



#### CABLE ASSEMBLY

(18,100 kg (40,000 lbs.) min. breaking strength)
Tighten to taut tension.

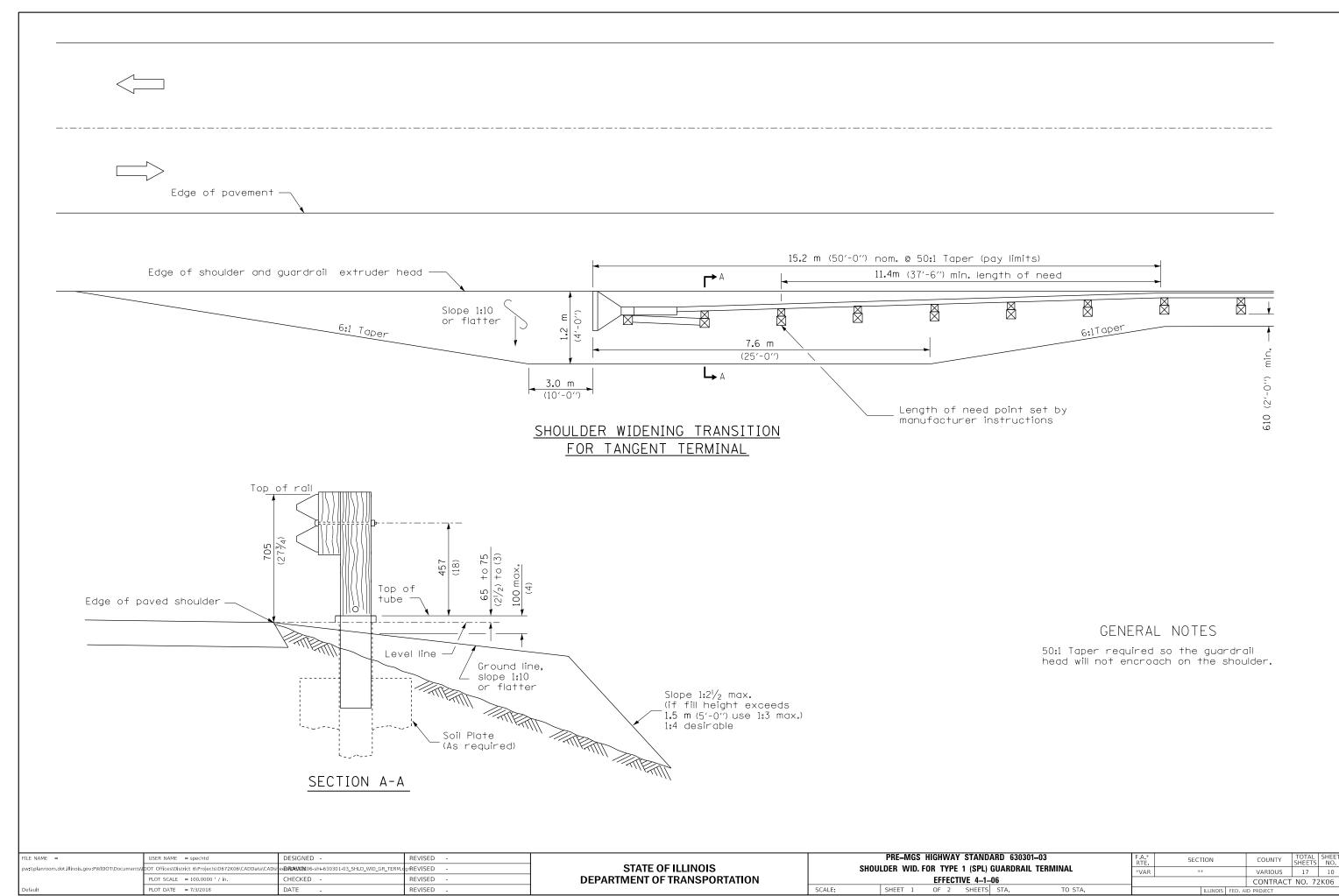
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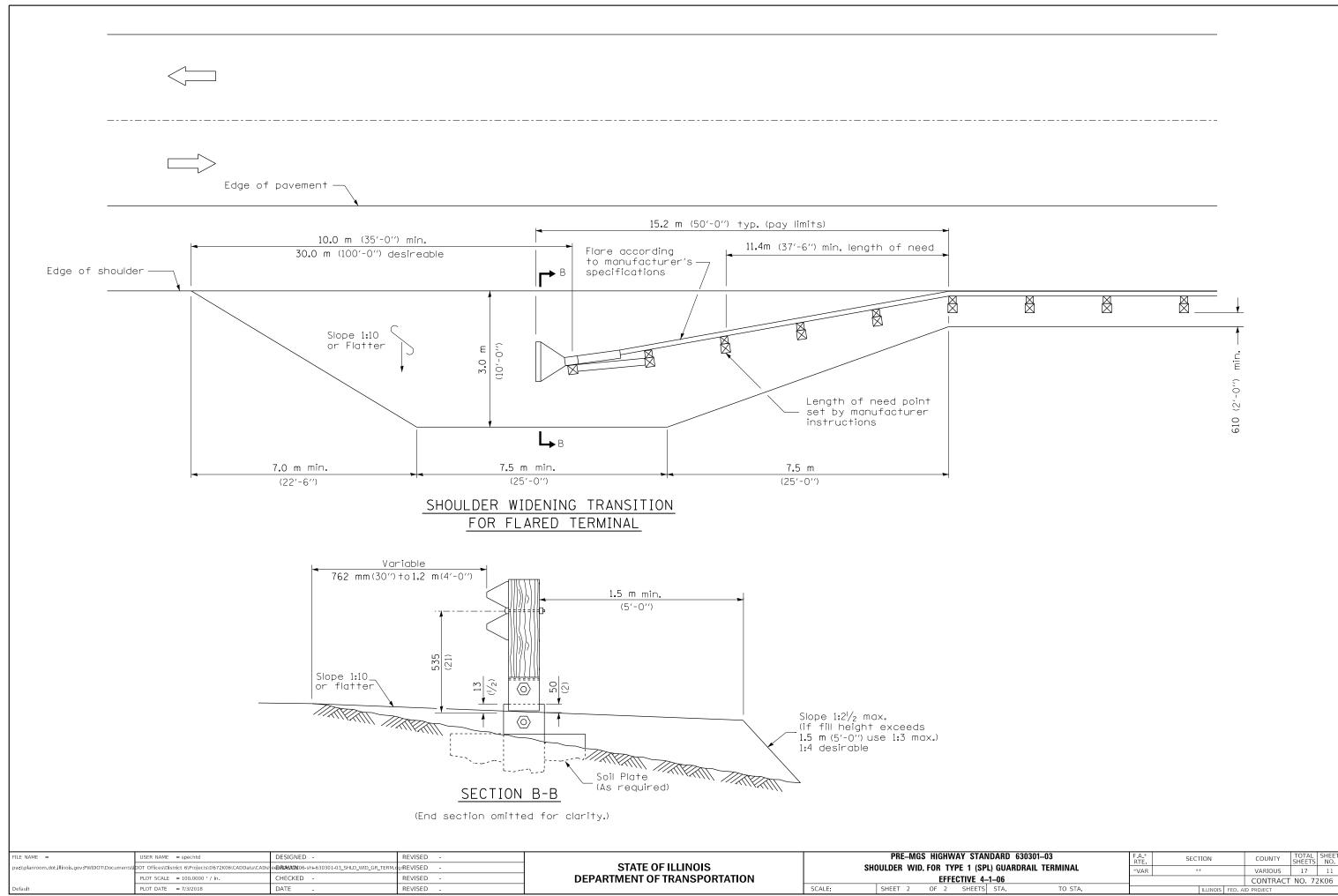
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

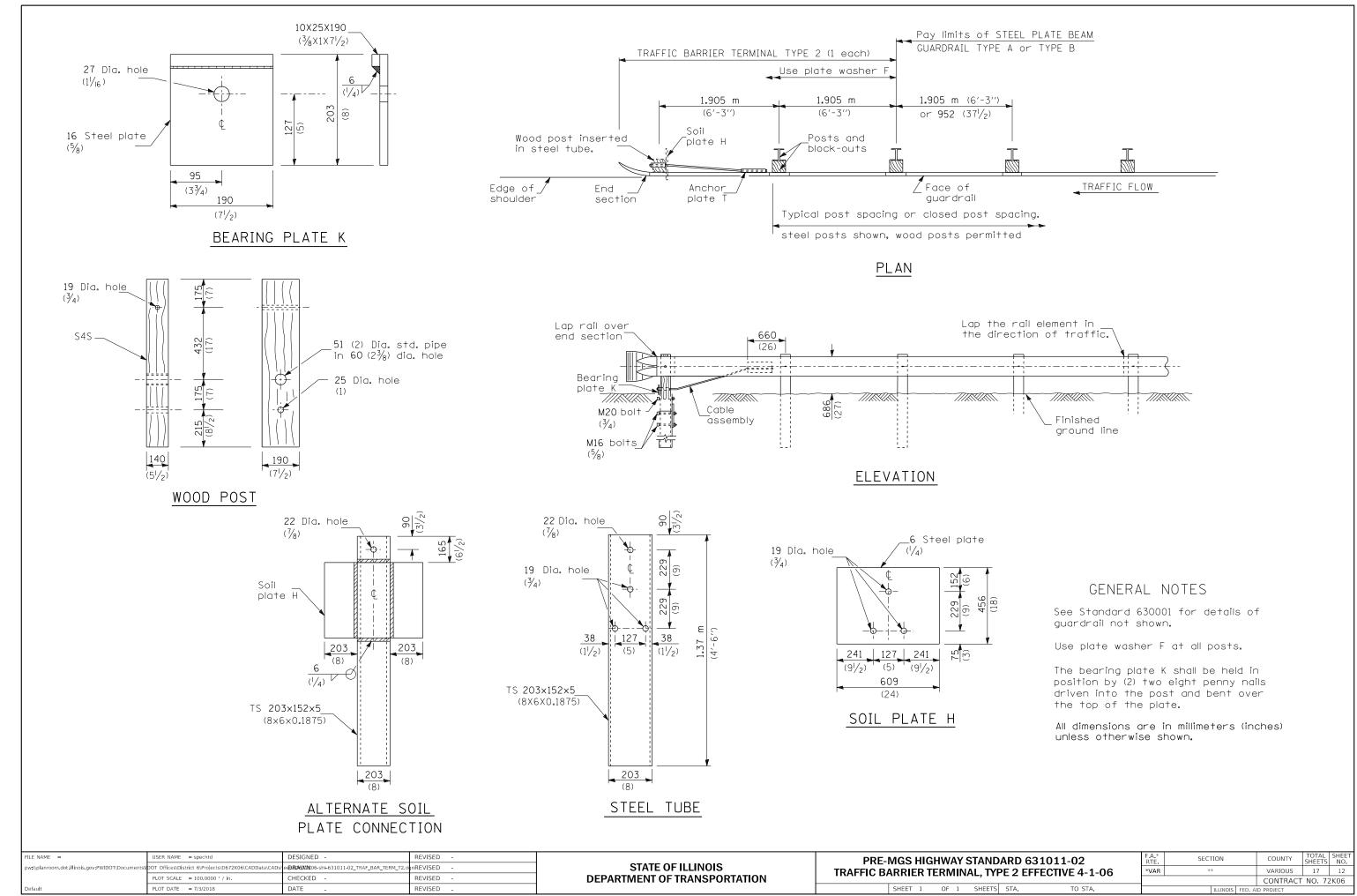
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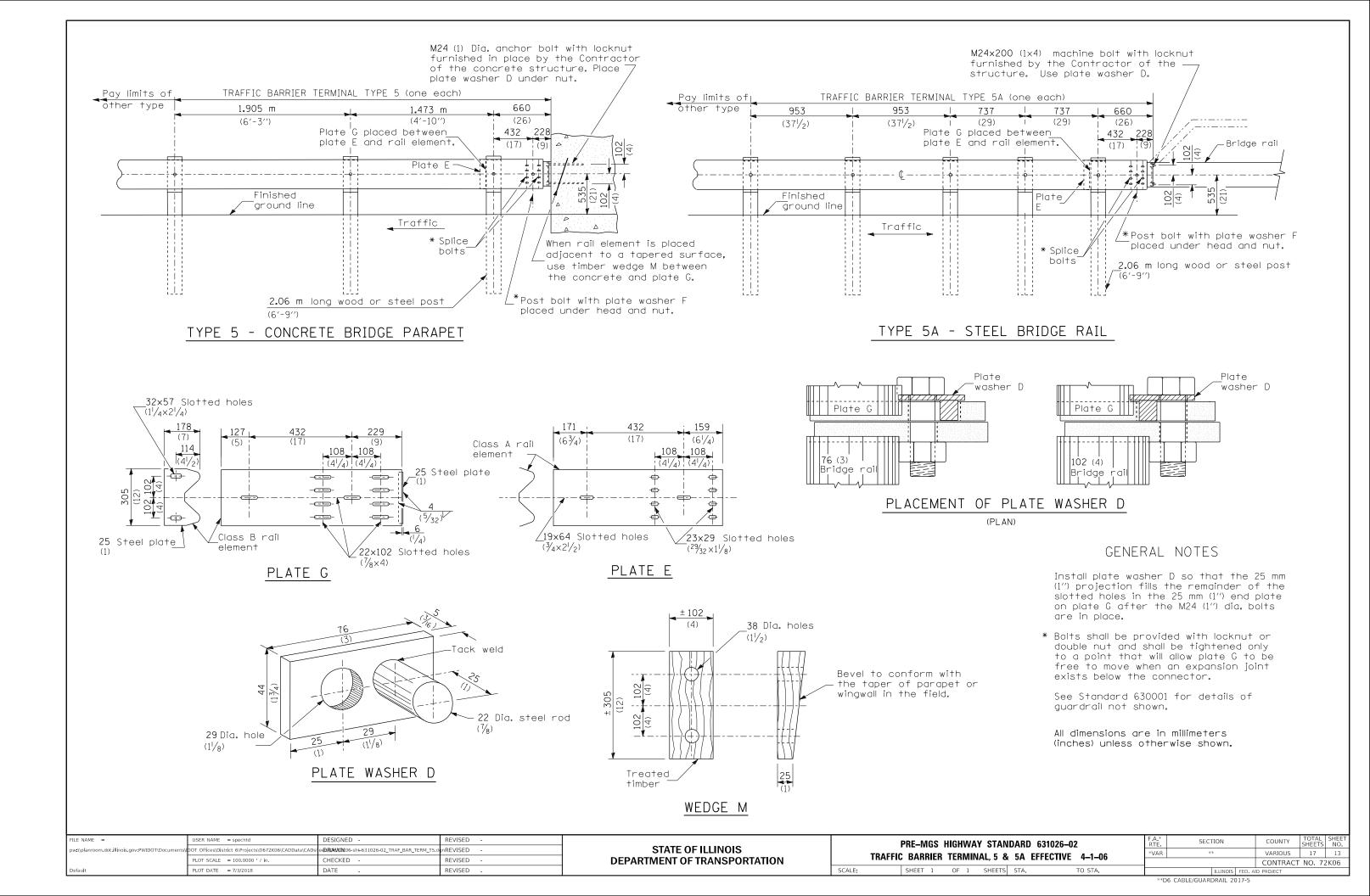
PRE-MGS HIGHWAY STANDARD 630001-06	F.A.* RTE	SECTION
STEEL PLATE BEAM EFFECTIVE 4-1-06	*VAR	**
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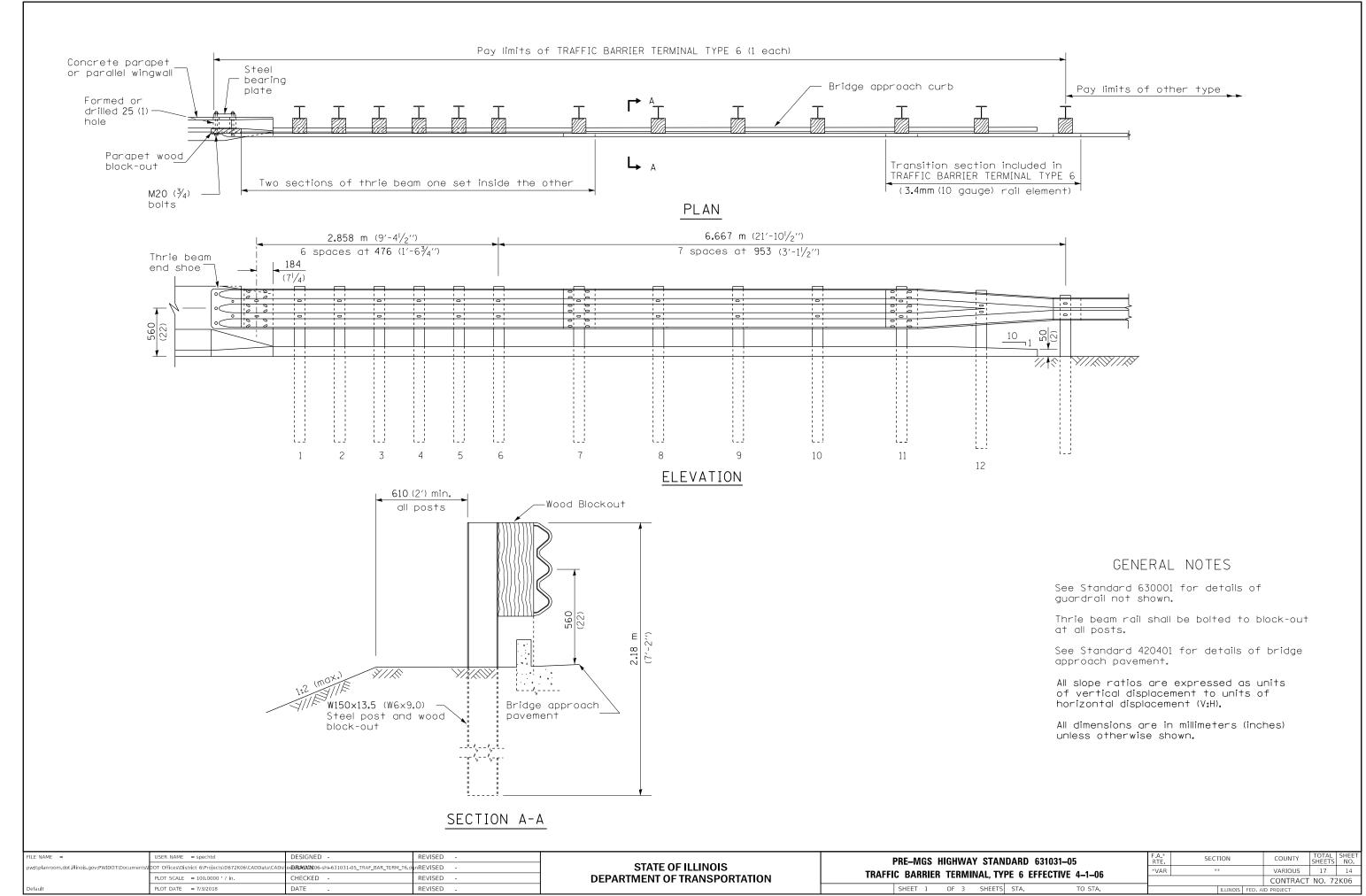
ABLE/GUARDRAIL 2017-5

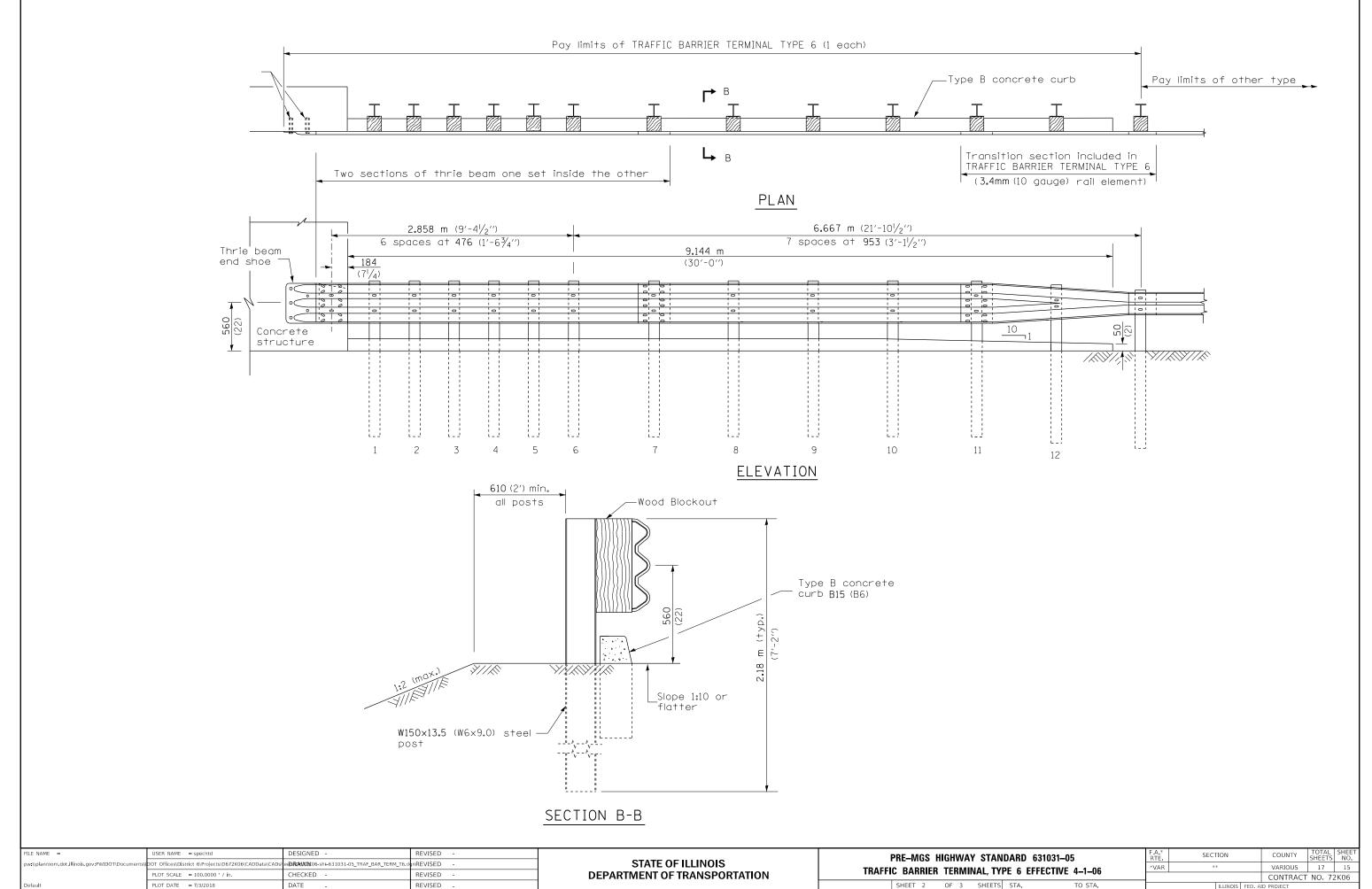


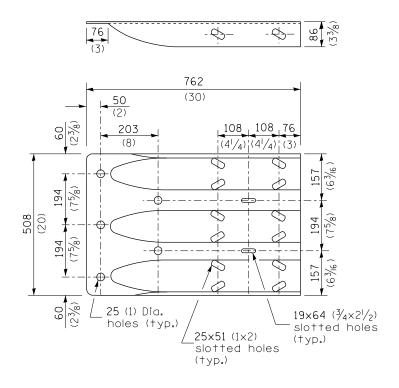










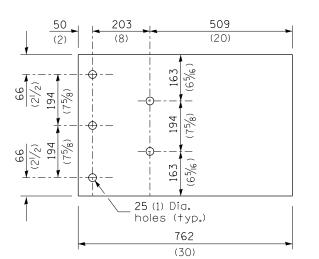


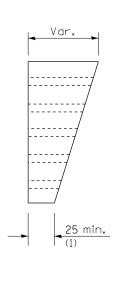
THRIE BEAM END SHOE DETAIL

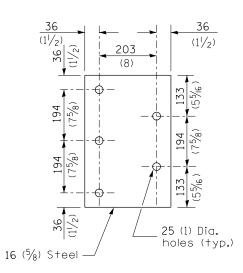
533 168 / 194 / 171 (659) (634) (634) (659) (634) (634) (659) (634) (634)

POSTS 1-11 WOOD BLOCKOUT DETAIL

POST 12 WOOD BLOCKOUT DETAIL





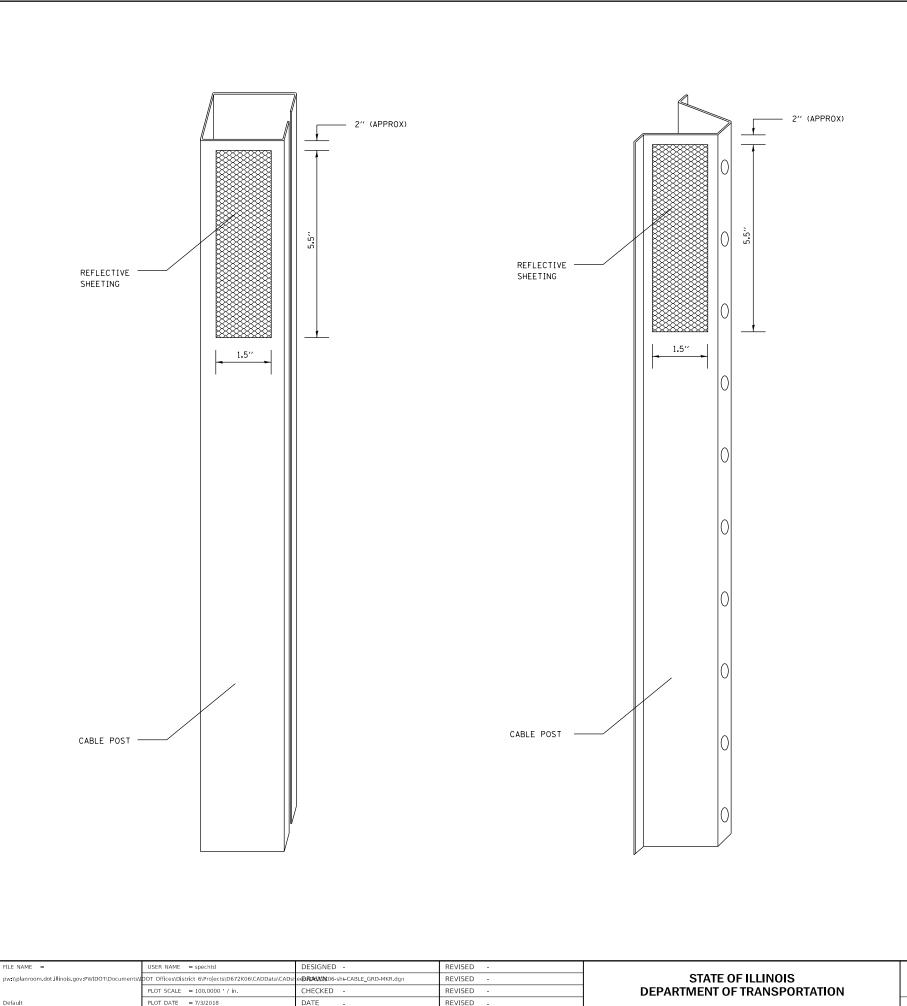


## PARAPET WOOD BLOCK-OUT DETAIL

## PARAPET STEEL BEARING PLATE DETAIL

(5 each individual  $125 \times 125 \times 16$  ( $5 \times 5 \times 5\%$ ) steel plates with centered 25 (1) holes may be substituted for the plate shown.)

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		PLOT SCALE = 100,0000 ' / in.	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION	THATTIC DANNIEN TENIVINAE, THE O EFFECTIVE 4-1-00			CONTRACT NO.	). 72K06
- 1	Default	PLOT DATE = 7/3/2018	DATE -	REVISED -		SHEET 3 OF 3 SHEETS STA. TO STA.		ILLINOIS FED. A	AID PROJECT	



#### NOTES:

MATERIAL: THE MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 1090 AND 1091 OF THE STANDARD SPECIFICATIONS.

CONSTRUCTION REQUIREMENTS: THE REFLECTIVE SHEETING SHALL BE INSTALLED DIRECTLY ON THE CABLE POSTS. THE REFLECTIVE SHEETING SHALL BE INSTALLED AS SHOWN IN THE PLANS, ON EVERY OTHER POST (IN ORDER TO PROVIDE A SPACING OF 40°). THE SURFACE OF THE POST SHALL BE CLEANED OF ALL CONTAMINANTS PRIOR TO THE INSTALLATION OF THE REFLECTIVE SHEETING. THE SURFACE SHALL BE CLEANED USING A 5-8 PERCENT PHOSPHORIC ACID SOLUTION AND RINSED WITH CLEAN WATER OR AS RECOMMENDED BY THE MANUFACTURER OF THE REFLECTIVE SHEETING AND AS APPROVED BY THE ENGINEER.

BASIS OF PAYMENT: THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR CABLE GUARD MARKER.