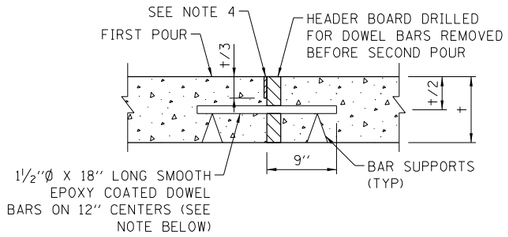


NOTE: FOR 13'' PAVEMENT USE THE FOLLOWING
1-1/2''Ø X 18'' LONG SMOOTH EPOXY COATED DOWEL BARS ON 9'' CENTERS OR
1-3/4''Ø X 18'' LONG SMOOTH EPOXY COATED DOWEL BARS ON 12'' CENTERS

TRANSVERSE CONSTRUCTION JOINT
(JOINTED PLAIN CONCRETE PAVEMENT)

GENERAL NOTES:

1. DOWEL BAR CAPS SHALL BE PLACED ON OPPOSITE END OF ADJACENT DOWEL BARS.
2. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.
3. † = PAVEMENT THICKNESS
4. A ⅜'' SAW CUT SHALL BE PROVIDED FOR PAVEMENT CRACK CONTROL.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009

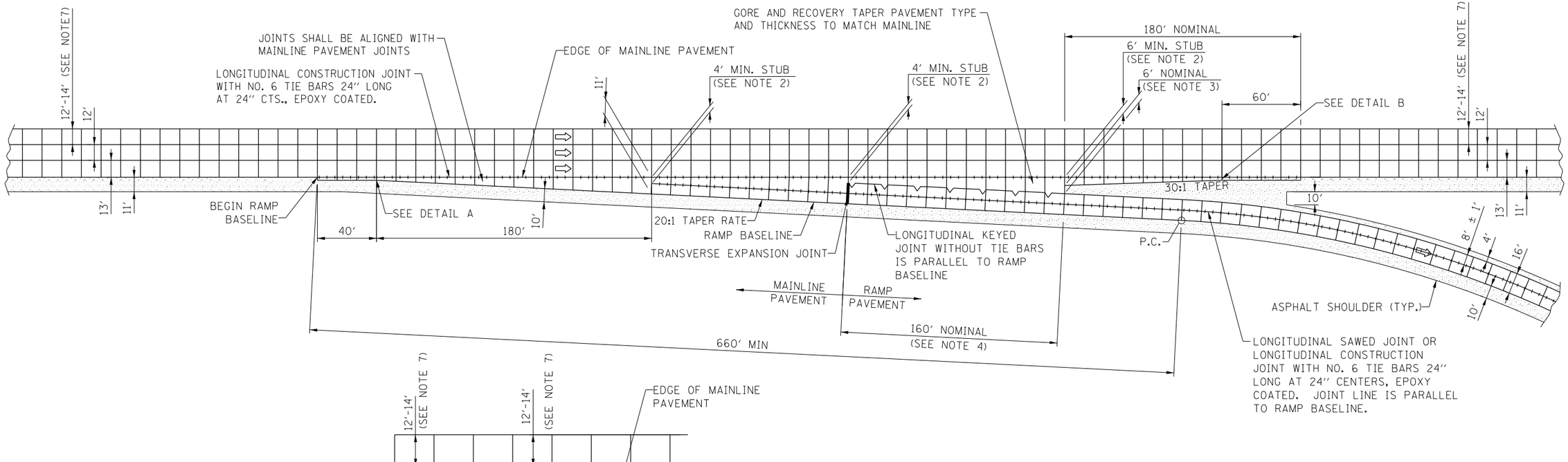
DATE	REVISIONS
05-01-09	MODIFIED JOINT DETAIL.
	REVISED NOTES
03-31-16	REVISED 13'' PAVEMENT
	NOTE FOR DOWEL BARS

Illinois Tollway

PAVEMENT JOINTS

580 501

STANDARD A7-02



DETAIL A

DETAIL B

JOINTED PCC RAMP ADJACENT TO JOINTED PCC MAINLINE PAVEMENT

NOTES:

1. ALL PAVEMENT JOINTS SHALL BE DETAILED AS SHOWN ON ILLINOIS TOLLWAY STANDARD DRAWING A7 AND IDOT HIGHWAY STANDARD 420001, EXCEPT EXPANSION JOINT SEALS SHALL BE AS DESCRIBED IN THE SPECIAL PROVISION, BONDED PREFORMED JOINT SEAL.
2. STUBS SHALL BE THE MINIMUM DIMENSION AS SHOWN AND ALIGNED WITH A MAINLINE TRANSVERSE JOINT.
3. 6' NOSE LOCATION SHALL BE ADJUSTED TO BE ALIGNED WITH A MAINLINE TRANSVERSE JOINT.
4. THE THICKNESS OF THE JOINTED RAMP PAVEMENT IN THE TANGENT AREA SHALL MATCH THE MAINLINE PAVEMENT. THE EXTRA THICKNESS OF PAVEMENT SHALL BE INCLUDED IN THE PRICE FOR THE RAMP PAVEMENT.
5. TYPICAL P.C.C. PAVEMENT JOINT SPACING SHALL BE 15'.
6. AS ADDITIONAL RAMP LANES ARE ADDED, THE MAXIMUM JOINT SPACING SHALL BE 15' LONG BY 15' WIDE. TYPICAL SPACING IS 15' LONG BY 12' WIDE. LONGITUDINAL JOINT LOCATIONS IN THE WHEEL PATH SHALL BE MINIMIZED.
7. DIMENSIONS OF LANE 1 SHALL BE AS SHOWN ON THE PLANS.

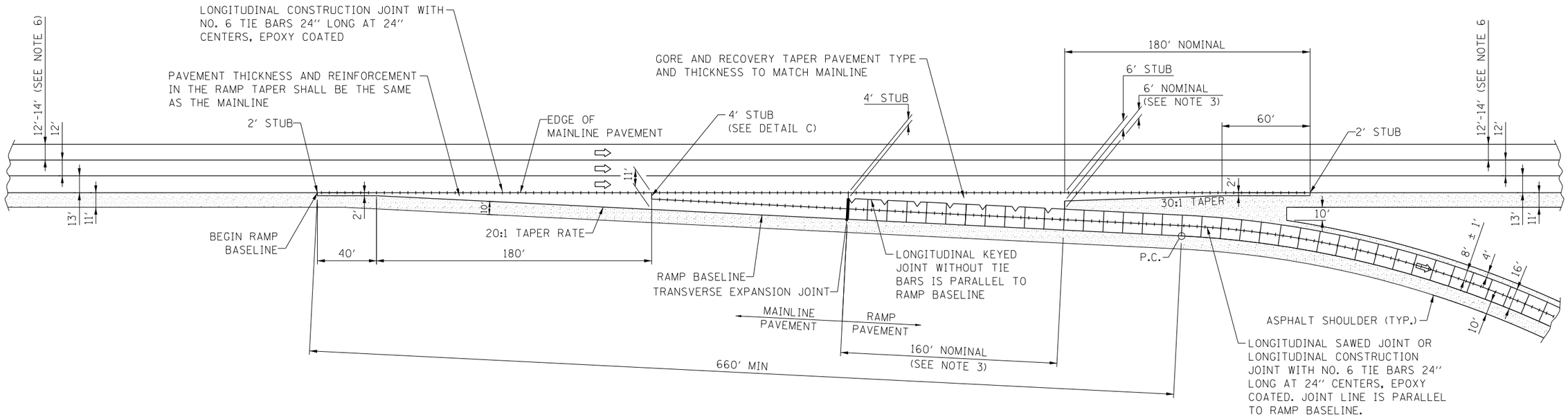
Illinois Tollway

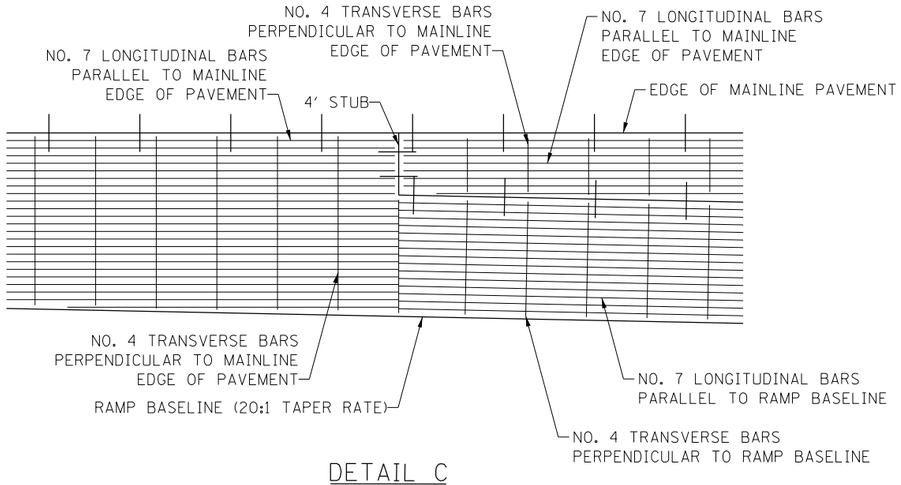
DATE	REVISIONS
3-11-2015	MODIFIED JOINT SPACING.
3-31-2016	UPDATED NOTES AND CALL-OUTS.

JOINTING PLAN
EXIT RAMP TERMINAL
580 502

STANDARD A15-02

Paul Kovacs
APPROVED ..... DATE 1-31-2015
CHIEF ENGINEER





DETAIL C

NOTES:

1. ALL PAVEMENT JOINTS SHALL BE DETAILED AS SHOWN ON ILLINOIS TOLLWAY STANDARD DRAWING A7 AND IDOT HIGHWAY STANDARD 420001, EXCEPT EXPANSION JOINT SEALS SHALL BE AS DESCRIBED IN THE SPECIAL PROVISION, BONDED PREFORMED JOINT SEAL.
2. SEE PROJECT PLANS AND CONTRACT DOCUMENTS FOR DETAILS OF PAVEMENT REINFORCEMENT.
3. THE THICKNESS OF THE JOINTED RAMP PAVEMENT IN THE TANGENT AREA SHALL MATCH THE MAINLINE PAVEMENT. THE EXTRA THICKNESS OF PAVEMENT SHALL BE INCLUDED IN THE PRICE FOR THE RAMP PAVEMENT.
4. TYPICAL P.C.C. PAVEMENT JOINT SPACING SHALL BE 15'.
5. AS ADDITIONAL RAMP LANES ARE ADDED, THE MAXIMUM JOINT SPACING SHALL BE 15' LONG BY 15' WIDE. TYPICAL SPACING IS 15' LONG BY 12' WIDE. LONGITUDINAL JOINT LOCATIONS IN THE WHEEL PATH SHALL BE MINIMIZED.
6. DIMENSIONS OF LANE 1 SHALL BE AS SHOWN ON THE PLANS.

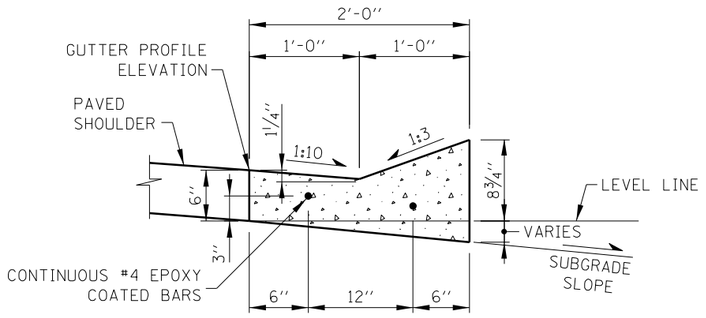
Paul Kovacs
APPROVED ..... DATE 1-31-2015
CHIEF ENGINEER

JOINTED PCC RAMP ADJACENT TO C.R.C. MAINLINE PAVEMENT

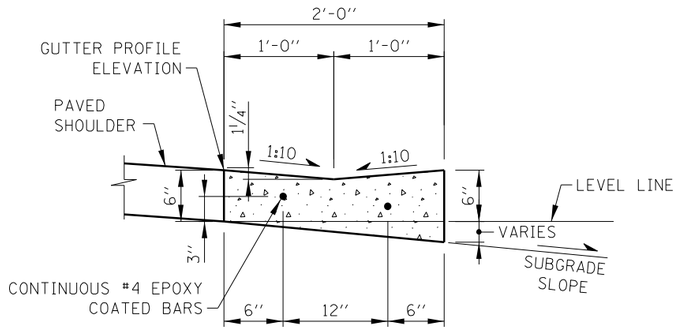
Illinois Tollway

JOINTING PLAN
EXIT RAMP TERMINAL
580 503

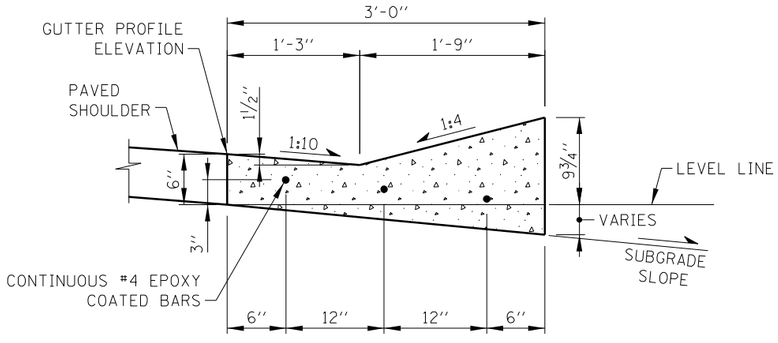
STANDARD A15-02



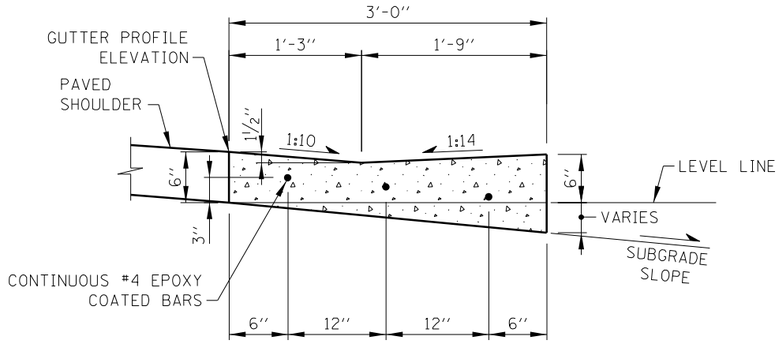
GUTTER, TYPE G-2



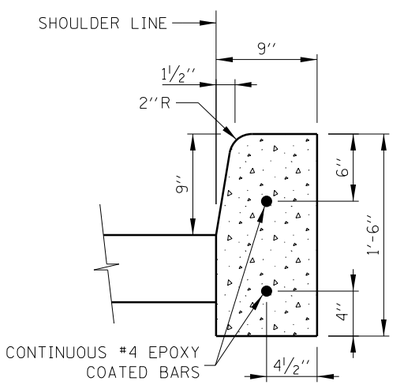
GUTTER, TYPE G-2, MODIFIED



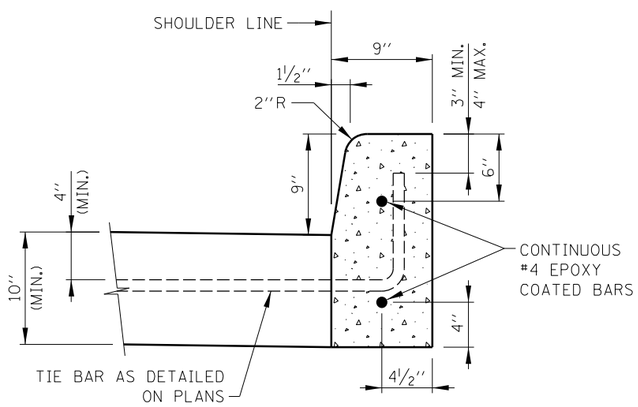
GUTTER, TYPE G-3



GUTTER, TYPE G-3, MODIFIED



ADJACENT TO FLEXIBLE PAVEMENT



ADJACENT TO PCC PAVEMENT

CONCRETE CURB, TYPE C
(RAMP TOLL PLAZAS ONLY)

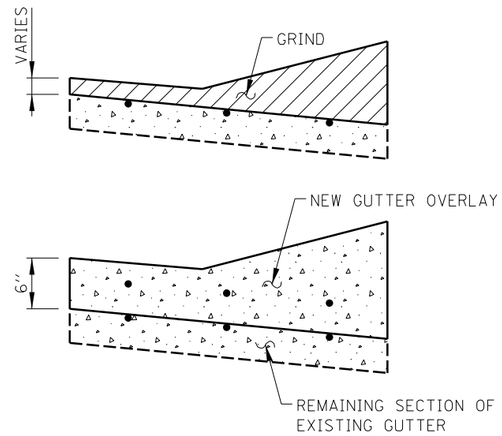
NOTES:

1. FOR CONCRETE CURB, TYPE C TRANSITIONS, THE LEADING ENDS OF CURB IN THE DIRECTION OF TRAFFIC SHALL BEGIN FLUSH WITH ADJACENT PAVEMENT OR SHOULDER SURFACE AND TRANSITION TO FULL HEIGHT AT THE RATE OF ONE INCH VERTICAL TO ONE FOOT HORIZONTAL.

2.

GUTTER TRANSITION DETAILS	STANDARD DRAWING
TRAFFIC BARRIER TERMINAL TYPE T1 (SPECIAL)	B-28
TRAFFIC BARRIER TERMINAL TYPE T1-A (SPECIAL)	B-29
TRAFFIC BARRIER TERMINAL TYPE T10	B-2
TRAFFIC BARRIER TERMINAL TYPE T6	B-3

3. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
4. REINFORCEMENT STEEL SHALL BE ACCURATELY PLACED AND FIRMLY HELD IN THE POSITION SPECIFIED USING EPOXY COATED STEEL CHAIRS. CHAIR SPACING SHALL NOT EXCEED 4'-0".
5. GUTTER REINFORCEMENT SHALL BE PLACED 3" ABOVE BOTTOM OF GUTTER FOLLOWING THE SUBGRADE SLOPE.
6. OTHER GUTTER AND CURB TRANSITION DETAILS WILL BE SHOWN ON THE PLANS.
7. CONTINUOUS #4 BARS SHALL BE LAPPED A MINIMUM OF 1'-1".
8. FOR CONCRETE GUTTER OVERLAYS, CRACK CONTROL JOINTS SHALL BE PLACED AT LOCATIONS OF UNDERLYING JOINTS AND WORKING CRACKS.
9. GUTTER CRACK CONTROL JOINTS TO ALIGN IN PROLONGATION WITH PCC SHOULDER JOINTS WHERE EXISTING.
10. EXPANSION JOINTS SHALL BE CONSTRUCTED IN GUTTER AT MAXIMUM JOINT SPACING OF 60'-0", SEE EXPANSION JOINT DETAIL ON SHEET 2 OF THIS STANDARD.



CONCRETE GUTTER OVERLAY

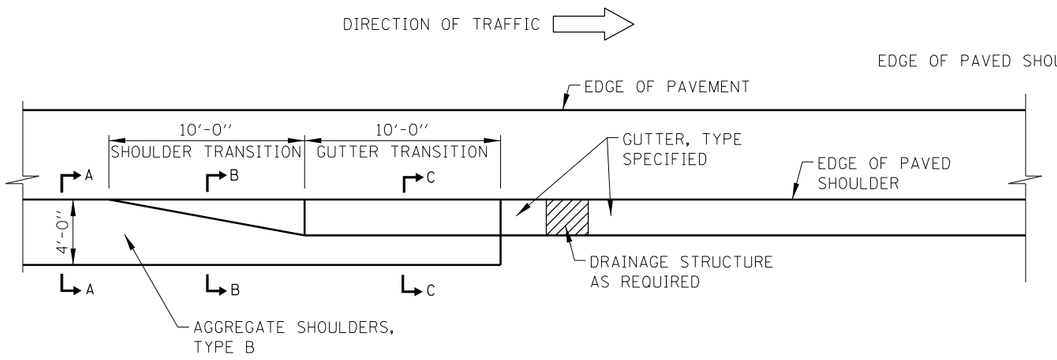
APPROVED Paul Kovacs CHIEF ENGINEER DATE 2-7-2012

Illinois Tollway

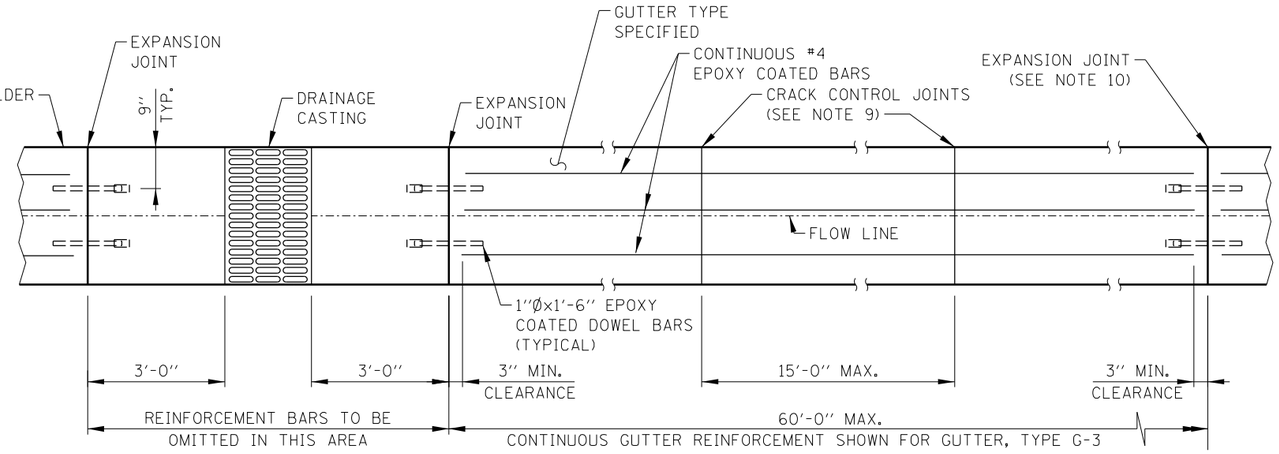
DATE	REVISIONS
2-07-12	REVISED NOTES
11-01-12	ADDED CONCRETE GUTTER OVERLAY, MODIFIED GUTTER CONTROL JOINT SPACING
3-11-2015	REVISED DETAIL DESCRIPTIONS
3-31-2016	REVISED NOTE

GUTTER AND CURB DETAILS
580 504

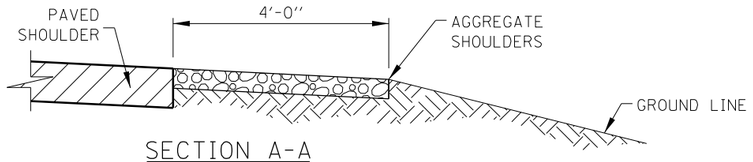
STANDARD B1-07



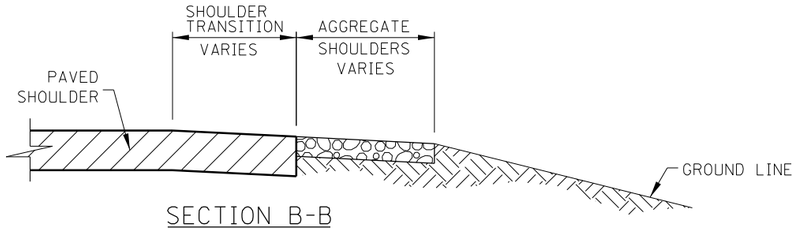
GUTTER TRANSITION TERMINATION



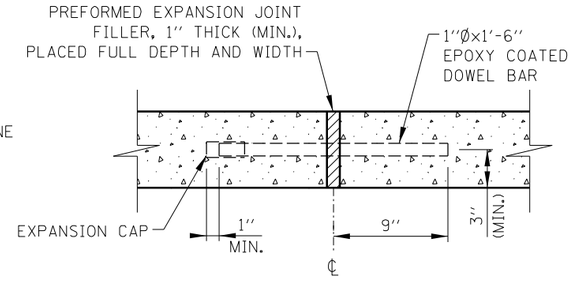
GUTTER PLAN



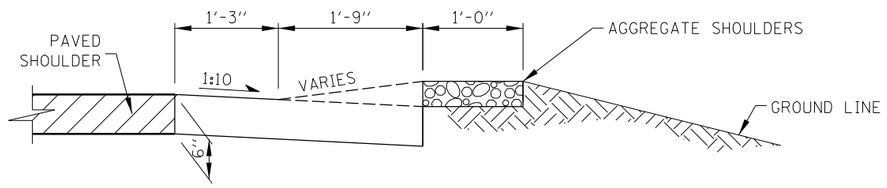
SECTION A-A



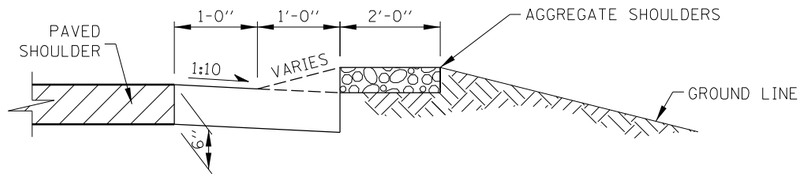
SECTION B-B
ASPHALT SHOULDER TRANSITION



EXPANSION JOINT

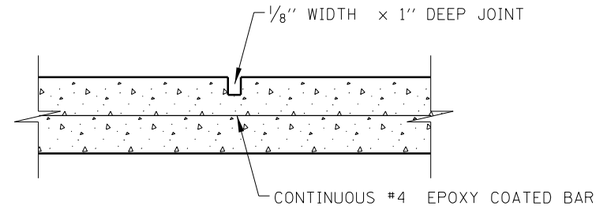


GUTTER, TYPE G-3 TRANSITION



GUTTER, TYPE G-2 TRANSITION

SECTION C-C



CRACK CONTROL JOINT

EXPANSION-CRACK CONTROL JOINTS
GUTTER, TYPE SPECIFIED

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

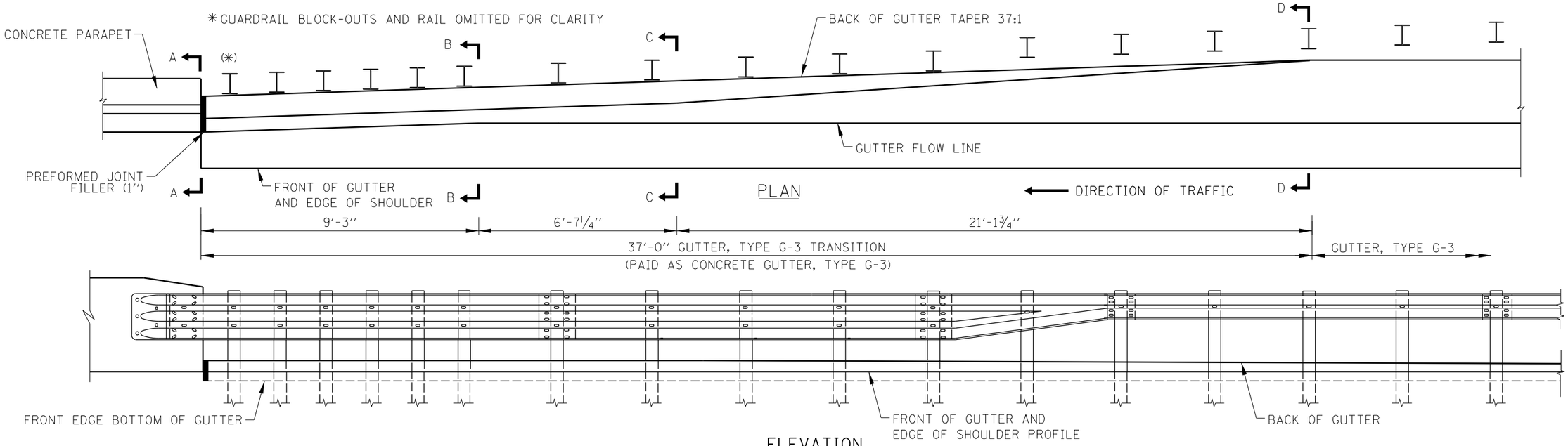
Illinois Tollway

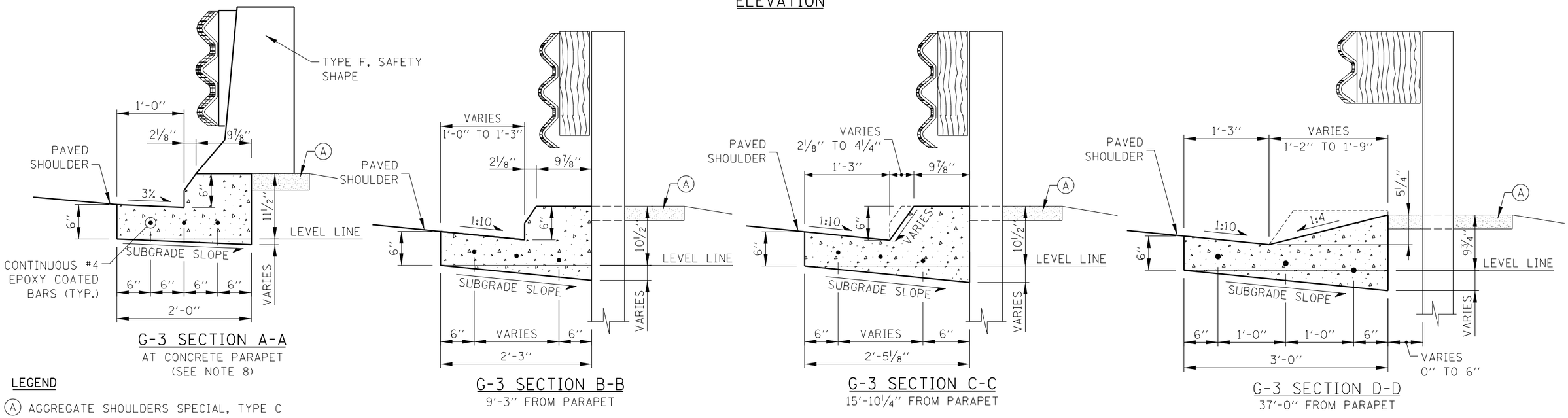
GUTTER AND CURB DETAILS

580 505

STANDARD B1-07

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012





GUTTER, TYPE G-3 TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6 TO CONCRETE PARAPET

LEGEND

(A) AGGREGATE SHOULDERS SPECIAL, TYPE C

GUTTER TRANSITION NOTES:

1. SLOPE TO MATCH ADJACENT SHOULDER SLOPE.
2. PROVIDE 1" EXPANSION JOINT WITH PREFORMED JOINT FILLER BETWEEN TRANSITION SECTION AND WINGWALL OR BARRIER WALL.
3. INSTALLATION ON CURVED WINGWALLS SIMILAR.
4. FOR DETAILS OF SEE ILLINOIS TOLLWAY STANDARD C9 (TRAFFIC BARRIER TERMINAL, TYPE T6).
5. GUTTER TRANSITIONS SHALL BE CONSTRUCTED TO FIT THE STANDARD LOCATION OF THE TRAFFIC BARRIER TERMINAL, TYPE T6.
6. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
7. GUTTER SECTION SHOWN AT BARRIER WALL TO MATCH VERTICAL PROFILE OF TYPE F SAFETY SHAPE. MODIFY GUTTER FACE TO MATCH OTHER PARAPET PROFILES.
8. CONTINUOUS #4 BARS SHALL BE LAPPED A MINIMUM OF 1'-1".

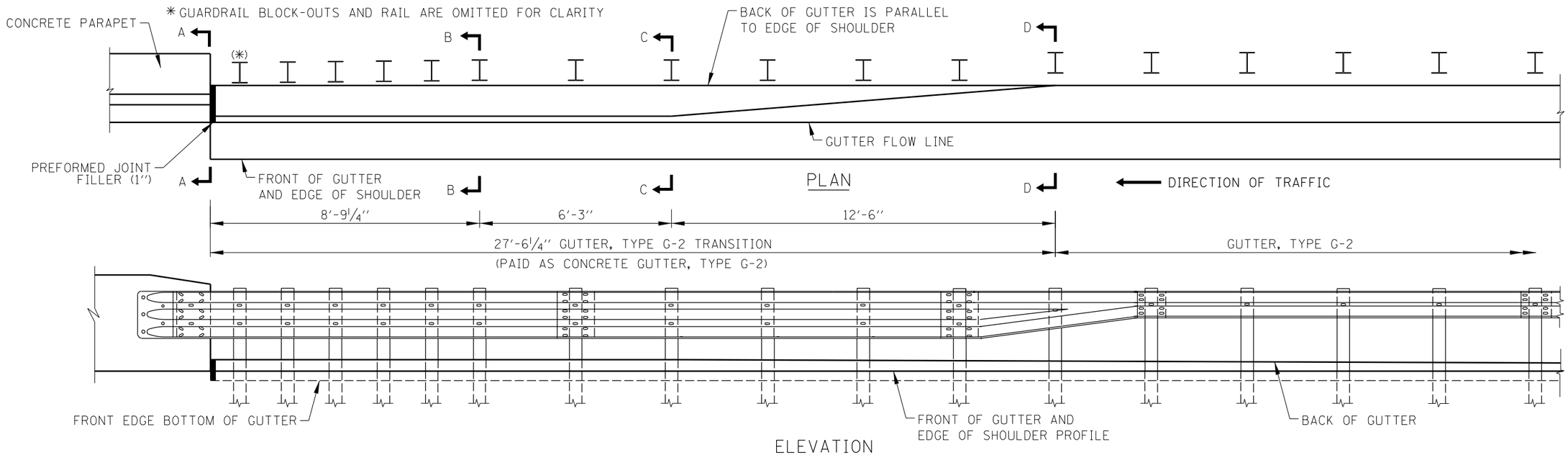
Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

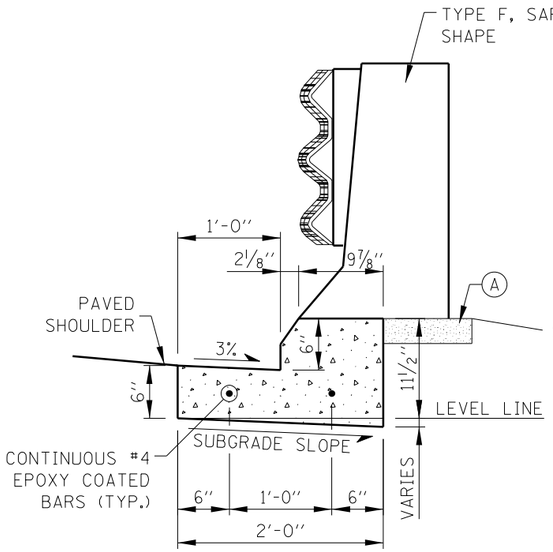
DATE	REVISIONS
3-01-2010	REVISED G-2/G-3 GUTTERT TRANSITION DETAILS. REVISED NOTES.
1-01-2011	REVISED NOTE 8.
2-07-2012	REVISED GUTTER.
3-11-2015	GUTTER TRANSITION FOR CONCRETE BARRIER, SINGLE-FACE.
3-31-2016	REVISED G-2 GUTTER SHAPE

Illinois Tollway

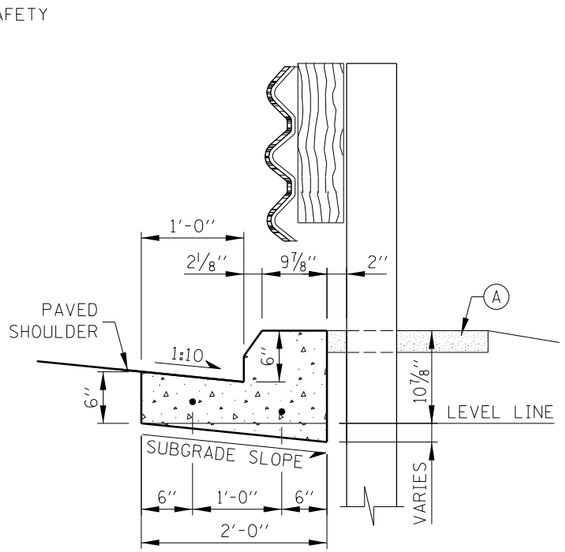
TYPE G-2/G-3 GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6 580 506

STANDARD B3-06

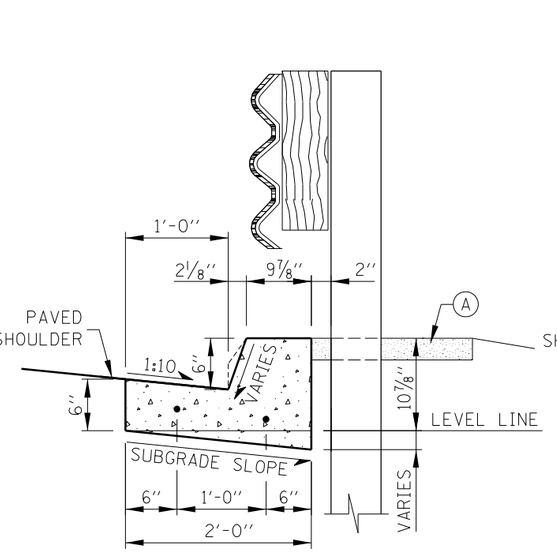




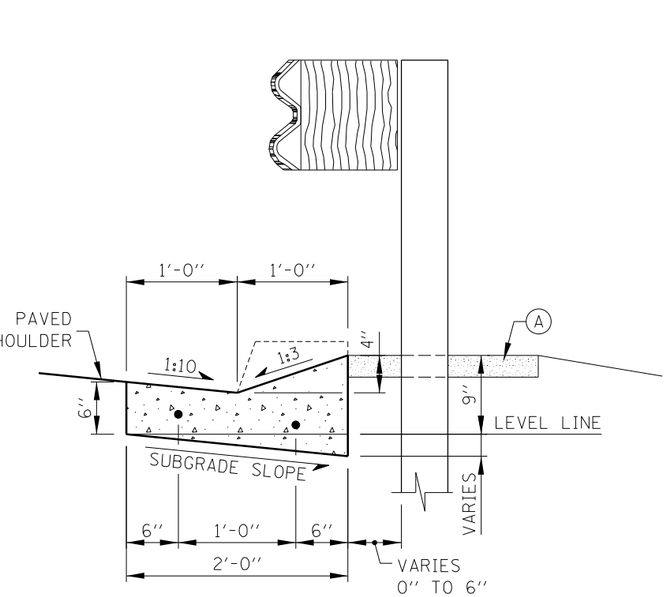
G-2 SECTION A-A
AT CONCRETE PARAPET
(SEE NOTE 8)



G-2 SECTION B-B
8'-9 1/4" FROM PARAPET



G-2 SECTION C-C
15'-10 1/4" FROM PARAPET



G-2 SECTION D-D
27'-6 1/4" FROM PARAPET

GUTTER, TYPE G-2 TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6 TO CONCRETE PARAPET

LEGEND

(A) AGGREGATE SHOULDERS SPECIAL, TYPE C

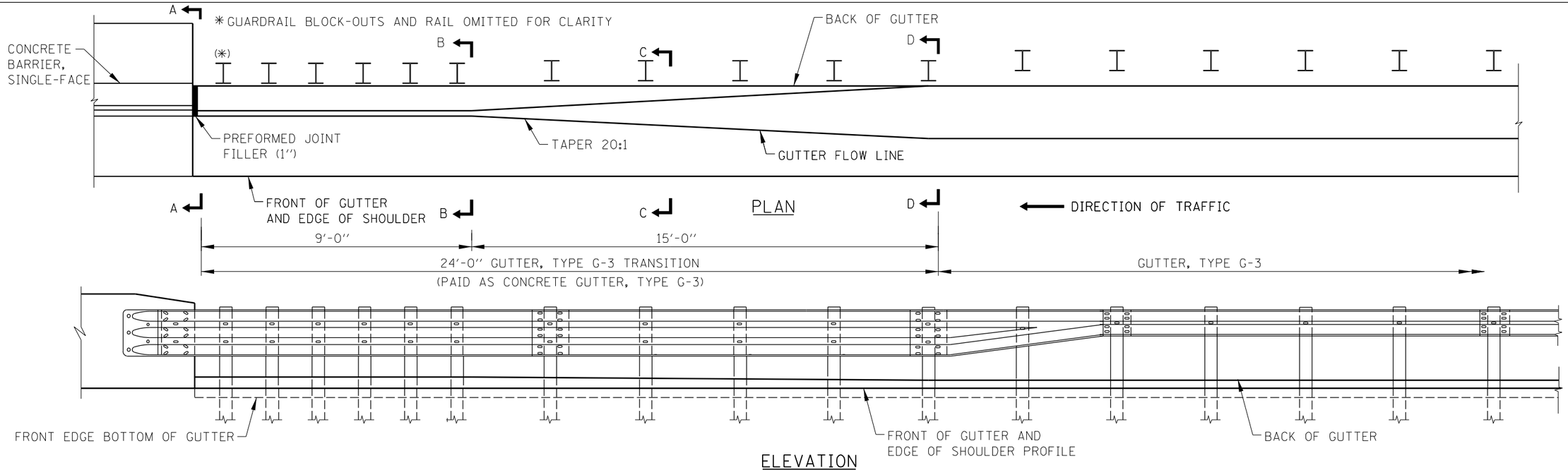
NOTE:
SEE SHEET 1 OF THIS SERIES FOR GUTTER TRANSITION NOTES.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

Illinois Tollway

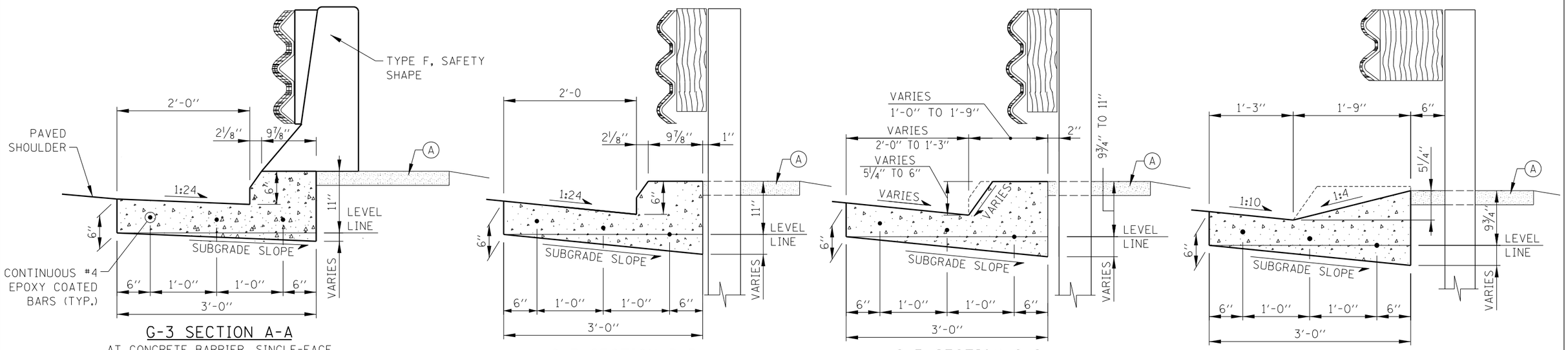
TYPE G-2/G-3 GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6 580 507

STANDARD B3-06



PLAN

ELEVATION



G-3 SECTION A-A
AT CONCRETE BARRIER, SINGLE-FACE
(SEE NOTE 8)

G-3 SECTION B-B
9'-0" FROM CONCRETE BARRIER

G-3 SECTION C-C

G-3 SECTION D-D
24'-0" FROM CONCRETE BARRIER

LEGEND

(A) AGGREGATE SHOULDERS SPECIAL, TYPE C

GUTTER, TYPE G-3 TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6, TO CONCRETE BARRIER, SINGLE-FACE

NOTE:

SEE SHEET 1 OF THIS SERIES FOR GUTTER TRANSITION NOTES.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

Illinois Tollway

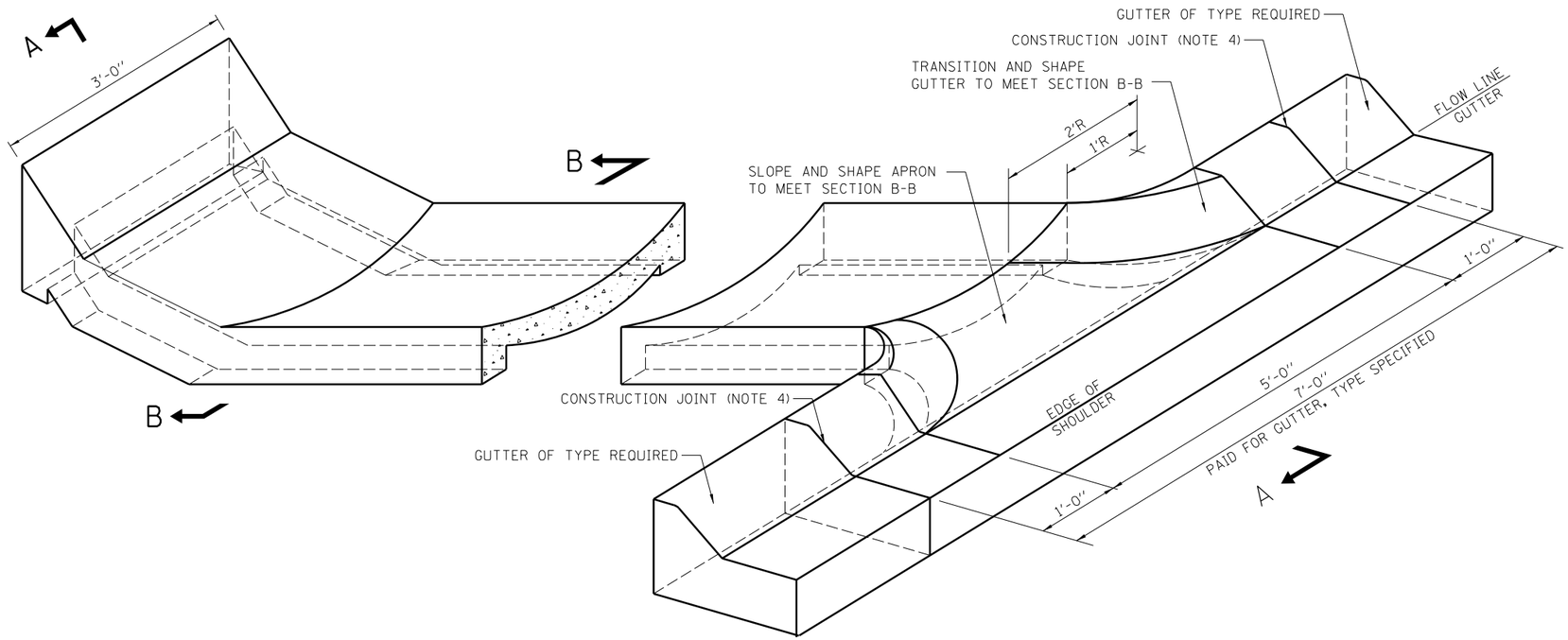
TYPE G-2/G-3 GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6 580 508

STANDARD B3-06

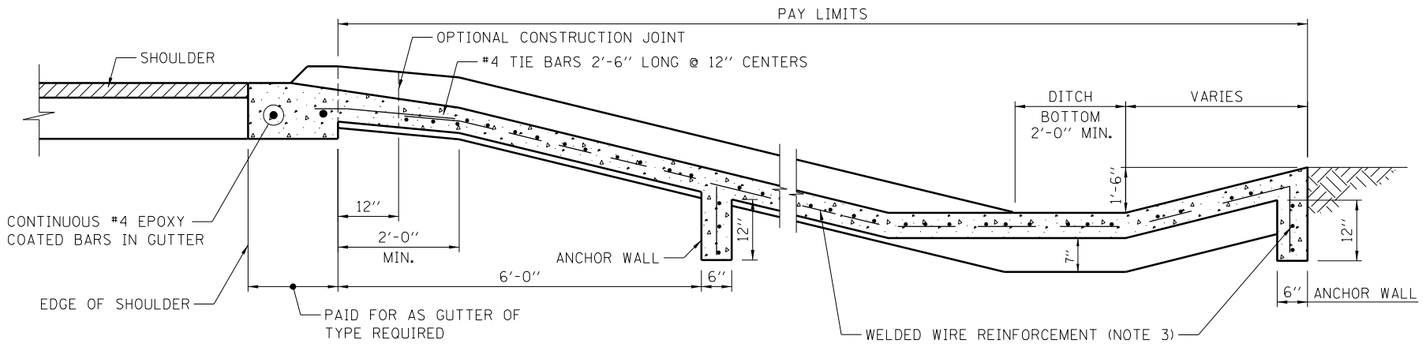
CONCRETE FLUME

NOTES:

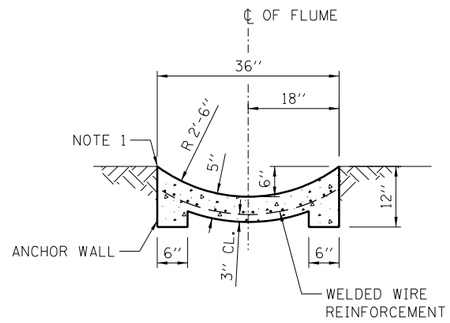
1. CONCRETE FLUMES SHALL BE CONSTRUCTED FLUSH WITH THE ADJACENT EXISTING OR PROPOSED SURFACES.
2. CLASS SI CONCRETE SHALL BE USED THROUGHOUT.
3. WELDED WIRE REINFORCEMENT SHALL BE EPOXY COATED 6x6 W4xW4, 58 LBS. PER 100 SQ. FT.
4. #4 EPOXY COATED TIE BARS 2'-6" LONG AT 12" O/C SHALL BE PROVIDED AT ALL CONSTRUCTION JOINTS.
5. EPOXY COATED EXPANDED METAL FABRIC OF EQUIVALENT STRENGTH MAY BE USED IN LIEU OF WELDED WIRE REINFORCEMENT SUBJECT TO ENGINEER'S APPROVAL.
6. THE LOCATION OF THE ANCHOR WALL MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
7. THE MATERIALS AND CONSTRUCTION OF THE CONCRETE FLUME SHALL CONFORM TO THE APPLICABLE PORTIONS OF THE STANDARD SPECIFICATIONS.
8. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).



PLAN



SECTION A-A
ADJACENT TO GUTTER



NOTE:
0.62 C.Y. CONCRETE / L.F.

SECTION B-B

Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

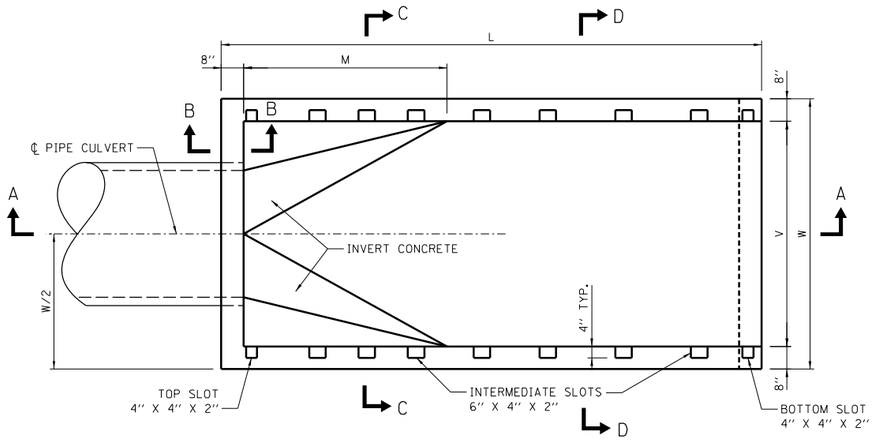
DATE	REVISIONS
2-07-2012	REVISED NOTES
3-11-2015	DELETED CURB SECTION
3-31-2016	CHANGED TERMINOLOGY TO WELDED WIRE REINFORCEMENT

Illinois Tollway

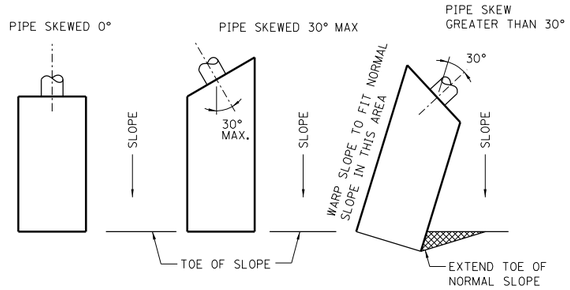
CONCRETE FLUME DETAILS

580 509

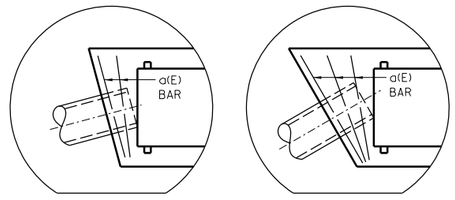
STANDARD B5-03



PLAN



PLAN VIEW OF STRUCTURE LOCATIONS

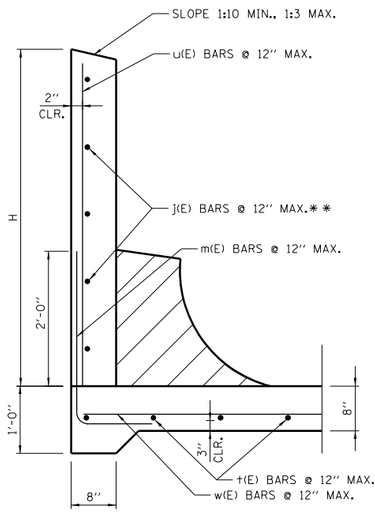


FLARED BAR DETAILS

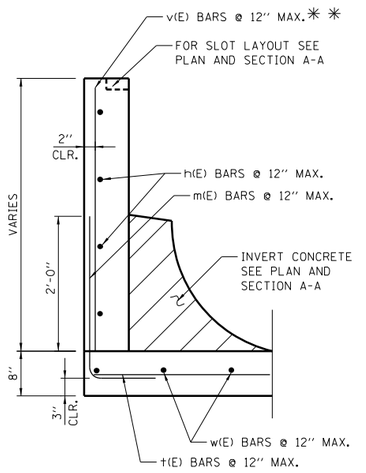
NOTES:

ADDITIONAL "a" BARS SHALL BE FURNISHED AND PLACED BY THE CONTRACTOR. THE ADDITIONAL BARS ARE NOT INCLUDED IN THE LISTED QUANTITIES, BUT WILL BE PAID FOR AS REINFORCEMENT BARS (EPOXY COATED).

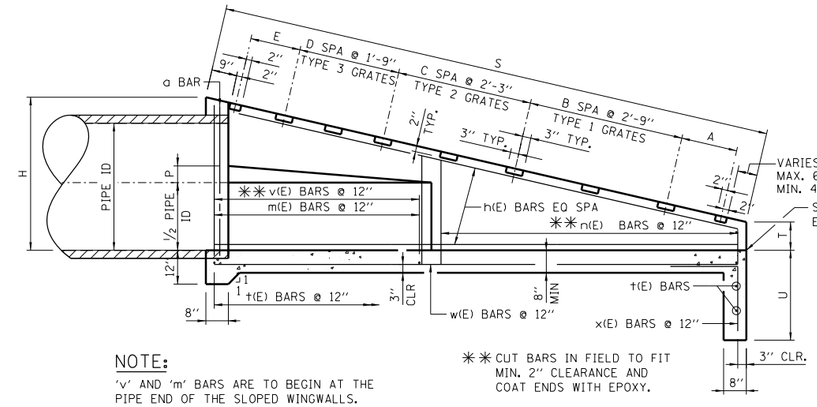
1 ADDITIONAL BAR REQUIRED FOR EACH 15° SKEW OR FRACTION THEREOF.



SECTION B-B



SECTION C-C

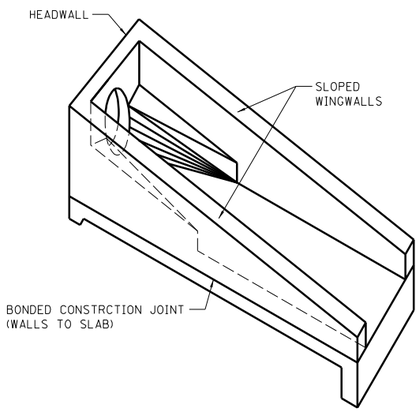


NOTE:

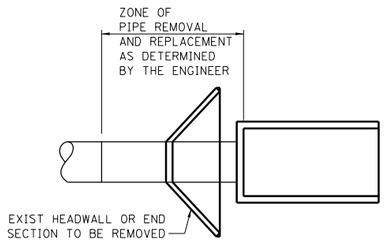
'v' AND 'm' BARS ARE TO BEGIN AT THE PIPE END OF THE SLOPED WINGWALLS.

** CUT BARS IN FIELD TO FIT MIN. 2" CLEARANCE AND COAT ENDS WITH EPOXY.

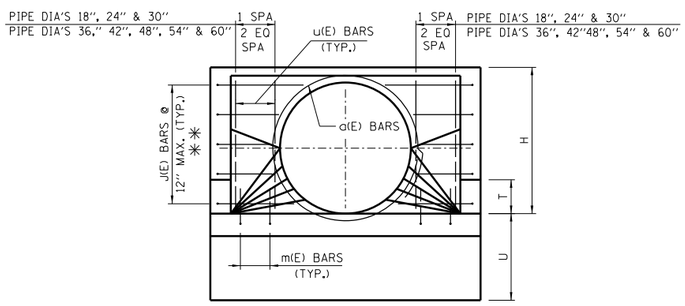
SECTION A-A



ISOMETRIC VIEW



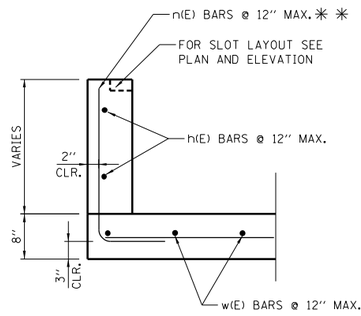
INSTALLATION DETAIL



FRONT ELEVATION

NOTES:

1. HEADWALL TYPE III SHALL BE CONSTRUCTED FLUSH WITH EXISTING OR PROPOSED SLOPE.
2. CLASS SI CONCRETE SHALL BE USED THROUGHOUT.
3. ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED (E).
4. BAR BENDING DETAILS ARE DIMENSIONED OUT TO OUT OF BARS.
5. ALL EXPOSED EDGES SHALL HAVE A ¾" - 45° CHAMFER. CHAMFER ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW THE FINISHED GROUND LINE.
6. COVER FROM THE FACE OF CONCRETE TO FACE OF REINFORCEMENT BAR SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.
7. CARE SHALL BE EXERCISED IN REMOVING ANY LENGTH OF EXISTING PIPE SO THE REMAINING PIPE IS UNDAMAGED AND FULLY FUNCTIONING.
8. FOR DIMENSIONS AND QUANTITIES FOR ONE HEADWALL, SEE SHEET 2 IN THIS SERIES.
9. FOR STEEL GRATING DETAILS, SEE SHEET 3 IN THIS SERIES.
10. FOR ALTERNATE PRECAST CONCRETE DETAILS AND NOTES, SEE SHEET 4 IN THIS SERIES.
11. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).



SECTION D-D

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009

SHEET 1 OF 4

Illinois Tollway

DATE	REVISIONS
3-31-2014	REVISED QUANTITIES-CONC REINF STEEL
3-11-2015	REVISED QUANTITIES, CONCRETE REINFORCEMENT
	STEEL AND PRECAST CONCRETE DETAILS
3-31-2016	ADDED NOTE TO OMIT RESTRAINT ANGLE AND
	THE PLATE FOR MULTI-END SECTIONS
	REVISED GRATE LAYOUT

HEADWALL TYPE III
18"-24"-30"-36"-42"-48"-54"-60"
FOR 1:3, 1:4, 1:6, AND
1:10 SLOPES 580 510

STANDARD B6-06

DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:3 SLOPE

PIPE DIA	DIMENSIONS											NO. OF SPACES			CONCRETE CLASS SI CU. YD.	REINF. BARS LB.
	H	L	M	P	S	T	U	V	W	A	E	B	C	D		
36"	3'-10"	11'-0"	3'-3"	4"	11'-7"	2"	2'-8"	6'-0"	7'-4"	2'-2"	1'-8"	0	2	1	3.8	347
42"	4'-5"	12'-9"	3'-10"	6"	13'-5"	2"	3'-2"	6'-6"	7'-10"	2'-2"	1'-8"	0	2	2	4.6	444
48"	5'-0"	14'-6"	4'-4"	6"	15'-3"	2"	3'-2"	7'-0"	8'-4"	1'-8"	1'-8"	0	0	6	5.5	502
54"	5'-6"	16'-0"	4'-10"	8"	16'-10"	2"	3'-6"	7'-6"	8'-10"	2'-2"	1'-8"	0	2	4	6.4	613
60"	6'-0"	17'-6"	5'-3"	8"	18'-5"	2"	3'-6"	8'-0"	9'-4"	2'-8"	1'-8"	2	0	4	7.3	668

DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:4 SLOPE

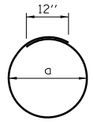
PIPE DIA	DIMENSIONS											NO. OF SPACES			CONCRETE CLASS SI CU. YD.	REINF. BARS LB.
	H	L	M	P	S	T	U	V	W	A	E	B	C	D		
36"	3'-10"	14'-8"	4'-5"	4"	15'-2"	2"	2'-8"	6'-0"	7'-4"	2'-8"	2'-8"	3	0	0	4.7	415
42"	4'-5"	17'-0"	5'-1"	6"	17'-6"	2"	3'-2"	6'-6"	7'-10"	2'-8"	2'-2"	0	5	0	5.8	546
48"	5'-0"	19'-4"	5'-10"	6"	19'-11"	2"	3'-2"	7'-0"	8'-4"	2'-8"	2'-2"	0	6	0	6.9	625
54"	5'-6"	21'-4"	6'-5"	8"	22'-0"	2"	3'-6"	7'-6"	8'-10"	2'-8"	2'-2"	0	7	0	8.0	788
60"	6'-0"	23'-4"	7'-0"	8"	24'-1"	2"	3'-6"	8'-0"	9'-4"	1'-8"	1'-8"	0	0	11	9.1	837

DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:6 SLOPE

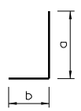
PIPE DIA	DIMENSIONS											NO OF SPACES			CONCRETE CLASS SI CU. YD.	REINF. BARS LB.
	H	L	M	P	S	T	U	V	W	A	E	B	C	D		
36"	3'-10"	22'-0"	6'-8"	4"	22'-4"	2"	2'-8"	6'-0"	7'-4"	1'-8"	1'-8"	0	0	10	7.5	573
42"	4'-5"	25'-6"	7'-8"	6"	25'-10"	2"	3'-2"	6'-6"	7'-10"	1'-8"	1'-8"	0	0	12	9.5	746
48"	5'-0"	29'-0"	8'-9"	6"	29'-5"	2"	3'-2"	7'-0"	8'-4"	1'-8"	1'-8"	0	0	14	11.7	863
54"	5'-6"	32'-0"	9'-8"	8"	32'-5"	2"	3'-6"	7'-6"	8'-10"	2'-2"	1'-8"	0	5	9	13.9	1047
60"	6'-0"	35'-0"	10'-6"	8"	35'-6"	2"	3'-6"	8'-0"	9'-4"	2'-2"	1'-8"	0	1	16	16.3	1177

DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:10 SLOPE

PIPE DIA	DIMENSIONS											NO OF SPACES			CONCRETE CLASS SI CU. YD.	REINF. BAR LBS.
	H	L	M	P	S	T	U	V	W	A	E	B	C	D		
18"	2'-3"	20'-10"	6'-3"	2"	20'-11½"	2"	2'-8"	3'-0"	4'-4"	2'-8"	2'-2"	2	4	0	4.1	368
24"	2'-9"	25'-10"	7'-9"	3"	25'-11½"	2"	2'-8"	4'-0"	5'-4"	1'-8"	1'-8"	0	0	12	6.1	490
30"	3'-4"	31'-8"	9'-6"	4"	31'-10"	2"	2'-8"	5'-0"	6'-4"	2'-8"	2'-2"	6	4	0	8.8	705
36"	3'-10"	36'-8"	11'-0"	4"	36'-10½"	2"	2'-8"	6'-0"	7'-4"	2'-8"	2'-2"	7	5	0	11.9	944
42"	4'-5"	42'-6"	12'-9"	6"	42'-8½"	2"	3'-2"	6'-6"	7'-10"	2'-8"	2'-8"	13	0	0	15.2	1178
48"	5'-0"	48'-4"	14'-6"	6"	48'-7"	2"	3'-2"	7'-0"	8'-4"	2'-2"	2'-2"	0	19	0	18.8	1457
54"	5'-6"	53'-4"	16'-0"	8"	53'-7½"	2"	3'-6"	7'-6"	8'-10"	2'-8"	2'-8"	17	0	0	22.4	1687
60"	6'-0"	58'-4"	17'-6"	8"	58'-7½"	2"	3'-6"	8'-0"	9'-4"	2'-8"	2'-2"	19	0	0	26.2	1964



TYPE 1



TYPE 2

REINFORCEMENT BARS SCHEDULE FOR ONE HEADWALL TYPE III 1:10 SLOPE

PIPE DIA	NO 4 REINFORCEMENT BARS						
	MARK(E)	TYPE	NO REQ'D	LENGTH	a	b	
18"	a18	1	1	8'-7"	2'-5"	-	
	n18	2	32	2'-7"	1'-10"	9"	*
	m18	2	18	3'-2"	2'-5"	9"	
	j18	2	6	4'-0"	2'-0"	2'-0"	*
	h18	STR.	6	20'-8"	-	-	
	x18	2	5	4'-3"	2'-3"	2'-0"	
	t18	STR.	23	4'-0"	-	-	
	u18	STR.	4	2'-1"	-	-	
	v18	STR.	14	2'-1"	-	-	*
	w18	STR.	5	20'-6"	-	-	
24"	a24	1	1	10'-5"	3'-0"	-	
	n24	2	38	2'-11"	2'-2"	9"	*
	m24	2	20	3'-2"	2'-5"	9"	
	j24	2	6	4'-0"	2'-0"	2'-0"	
	h24	STR.	6	25'-8"	-	-	
	x24	2	6	4'-3"	2'-3"	2'-0"	
	t24	STR.	28	5'-0"	-	-	
	u24	STR.	4	2'-7"	-	-	
	v24	STR.	16	2'-7"	-	-	*
	w24	STR.	6	25'-6"	-	-	
30"	a30	1	1	12'-3"	3'-7"	-	
	n30	2	46	3'-4"	2'-7"	9"	*
	m30	2	24	3'-2"	2'-5"	9"	
	j30	2	8	4'-0"	2'-0"	2'-0"	*
	h30	STR.	8	31'-6"	-	-	
	x30	2	7	4'-3"	2'-3"	2'-0"	
	t30	STR.	34	6'-0"	-	-	
	u30	STR.	4	3'-2"	-	-	
	v30	STR.	20	3'-2"	-	-	*
	w30	STR.	7	31'-4"	-	-	
36"	a36	1	1	13'-10"	4'-1"	-	
	n36	2	52	3'-8"	2'-11"	9"	*
	m36	2	30	3'-2"	2'-5"	9"	
	j36	2	10	4'-0"	2'-0"	2'-0"	*
	h36	STR.	10	36'-6"	-	-	
	x36	2	8	4'-3"	2'-3"	2'-0"	
	t36	STR.	39	7'-0"	-	-	
	u36	STR.	6	3'-8"	-	-	
	v36	STR.	24	3'-8"	-	-	*
	w36	STR.	8	36'-4"	-	-	
42"	a42	1	1	15'-11"	4'-9"	-	
	n42	2	62	3'-8"	2'-11"	9"	*
	m42	2	34	3'-2"	2'-5"	9"	
	j42	2	10	4'-0"	2'-0"	2'-0"	*
	h42	STR.	20	22'-2"	-	-	**
	x42	2	9	4'-7"	2'-7"	2'-0"	
	t42	STR.	46	7'-6"	-	-	
	u42	STR.	6	4'-3"	-	-	
	v42	STR.	28	4'-3"	-	-	*
	w42	STR.	18	22'-1"	-	-	**
48"	a48	1	1	17'-9"	5'-4"	-	
	n48	2	70	4'-6"	3'-9"	9"	*
	m48	2	36	3'-2"	2'-5"	9"	
	j48	2	12	4'-0"	2'-0"	2'-0"	*
	h48	STR.	24	25'-2"	-	-	**
	x48	2	9	4'-7"	2'-7"	2'-0"	
	t48	STR.	52	8'-0"	-	-	
	u48	STR.	6	4'-10"	-	-	
	v48	STR.	30	4'-10"	-	-	*
	w48	STR.	18	25'-0"	-	-	**
54"	a54	1	1	19'-7"	5'-11"	-	
	n54	2	76	4'-10"	4'-1"	9"	*
	m54	2	40	3'-2"	2'-5"	9"	
	j54	2	12	4'-0"	2'-0"	2'-0"	*
	h54	STR.	24	27'-8"	-	-	**
	x54	2	10	5'-1"	3'-1"	2'-0"	
	t54	STR.	57	8'-6"	-	-	
	u54	STR.	6	5'-4"	-	-	
	v54	STR.	34	5'-4"	-	-	*
	w54	STR.	20	27'-6"	-	-	**
60"	a60	1	1	21'-2"	6'-5"	-	
	n60	2	82	5'-3"	4'-6"	9"	*
	m60	2	42	3'-2"	2'-5"	9"	
	j60	2	14	4'-0"	2'-0"	2'-0"	*
	h60	STR.	28	30'-2"	-	-	**
	x60	2	10	5'-1"	3'-1"	2'-0"	
	t60	STR.	62	9'-0"	-	-	
	u60	STR.	6	5'-10"	-	-	
	v60	STR.	36	5'-10"	-	-	*
	w60	STR.	20	30'-0"	-	-	**

REINFORCEMENT BARS SCHEDULE FOR ONE HEADWALL TYPE III 1:6 SLOPE

PIPE DIA	NO 4 REINFORCEMENT BARS						
	MARK(E)	TYPE	NO REQ'D	LENGTH	a	b	
36"	a36	1	1	13'-10"	4'-1"	-	
	n36	2	32	3'-8"	2'-11"	9"	*
	m36	2	20	3'-2"	2'-5"	9"	
	j36	2	8	4'-0"	2'-0"	2'-0"	*
	h36	STR.	8	22'-0"	-	-	
	x36	2	8	4'-3"	2'-0"	2'-0"	
	t36	STR.	25	7'-0"	-	-	
	u36	STR.	6	3'-7"	-	-	
	v36	STR.	14	3'-7"	-	-	*
	w36	STR.	8	21'-8"	-	-	
42"	a42	1	1	15'-11"	4'-9"	-	
	n42	2	38	4'-2"	3'-5"	9"	*
	m42	2	22	3'-2"	2'-5"	9"	
	j42	2	10	4'-0"	2'-0"	2'-0"	*
	h42	STR.	10	25'-6"	-	-	
	x42	2	9	4'-7"	2'-7"	2'-0"	
	t42	STR.	29	7'-6"	-	-	
	u42	STR.	6	4'-2"	-	-	
	v42	STR.	16	4'-2"	-	-	*
	w42	STR.	9	25'-2"	-	-	
48"	a48	1	1	17'-9"	5'-4"	-	
	n48	2	42	4'-6"	3'-9"	9"	*
	m48	2	24	3'-2"	2'-5"	9"	
	j48	2	10	4'-0"	2'-0"	2'-0"	*
	h48	STR.	10	29'-1"	-	-	
	x48	2	9	4'-7"	2'-7"	2'-0"	
	t48	STR.	33	8'-0"	-	-	
	u48	STR.	6	4'-9"	-	-	
	v48	STR.	18	4'-9"	-	-	*
	w48	STR.	9	28'-8"	-	-	
54"	a54	1	1	19'-7"	5'-11"	-	
	n54	2	46	4'-10"	4'-1"	9"	*
	m54	2	26	3'-2"	2'-5"	9"	
	j54	2	12	4'-0"	2'-0"	2'-0"	*
	h54	STR.	12	32'-1"	-	-	
	x54	2	10	5'-1"	3'-1"	2'-0"	
	t54	STR.	36	8'-6"	-	-	
	u54	STR.	6	5'-3"	-	-	
	v54	STR.	20	5'-3"	-	-	*
	w54	STR.	10	31'-8"	-	-	
60"	a60	1	1	21'-2"	6'-5"	-	
	n60	2	50	5'-3"	4'-6"	9"	*
	m60	2	28	3'-2"	2'-5"	9"	
	j60	2	12	4'-0"	2'-0"	2'-0"	*
	h60	STR.	12	35'-2"	-	-	**
	x60	2	10	5'-1"	3'-1"	2'-0"	
	t60	STR.	40	9'-0"	-	-	
	u60	STR.	6	5'-9"	-	-	
	v60	STR.	22	5'-9"	-	-	*
	w60	STR.	10	34'-8"	-	-	**

REINFORCEMENT BARS SCHEDULE FOR ONE HEADWALL TYPE III 1:4 SLOPE

PIPE DIA	NO 4 REINFORCEMENT BARS						
	MARK(E)	TYPE	NO REQ'D	LENGTH	a	b	
36"	a36	1	1	13'-10"	4'-1"	-	
	n36	2	22	3'-8"	2'-11"	9"	*
	m36	2	16	3'-2"	2'-5"	9"	
	j36	2	8	4'-0"	2'-0"	2'-0"	*
	h36	STR.	8	14'-10"	-	-	
	x36	2	8	4'-3"	2'-3"	2'-0"	
	t36	STR.	17	7'-0"	-	-	
	u36	STR.	6	3'-7"	-	-	
	v36	STR.	10	3'-7"	-	-	*
	w36	STR.	8	14'-4"	-	-	
42"	a42	1	1	15'-11"	4'-9"	-	
	n42	2	26	4'-2"	3'-5"	9"	*
	m42	2	18	3'-2"	2'-5"	9"	
	j42	2	10	4'-0"	2'-0"	2'-0"	*
	h42	STR.	10	17'-2"	-	-	
	x42	2	9	4'-7"	2'-7"	2'-0"	
	t42	STR.	21	7'-6"	-	-	
	u42	STR.	6	4'-2"	-	-	
	v42	STR.	12	4'-2"	-	-	*
	w42	STR.	9	16'-8"	-	-	
48"	a48	1	1	17'-9"	5'-4"	-	
	n48	2	28	4'-6"	3'-9"	9"	*
	m48	2	20	3'-2"	2'-5"	9"	
	j48	2	10	4'-0"	2'-0"	2'-0"	*
	h48	STR.	10	19'-7"	-	-	
	x48	2	9	4'-7"	2'-7"	2'-0"	
	t48	STR.	23	8'-0"	-	-	
	u48	STR.	6	4'-9"	-	-	
	v48	STR.	14	4'-9"	-	-	*
	w48	STR.	9	19'-0"	-	-	
54"	a54	1	1	19'-7"	5'-11"	-	
	n54	2	30	6'-2"	5'-5"	9"	*
	m54	2	22	3'-2"	2'-5"	9"	
	j54	2	12	4'-0"	2'-0"	2'-0"	*
	h54	STR.	12	21'-8"	-	-	
	x54	2	10	5'-1"	3'-1"	2'-0"	
	t54	STR.	26	8'-6"	-	-	
	u54	STR.	6	5'-3"	-	-	
	v54	STR.	16	5'-3"	-	-	*
	w54	STR.	10	21'-0"	-	-	
60"	a60	1	1	21'-2"	6'-5"	-	
	n60	2	34	5'-3"	4'-6"	9"	*
	m60	2	22	3'-2"	2'-5"	9"	
	j60	2	12	4'-0"	2'-0"	2'-0"	*
	h60	STR.	12	23'-9"	-	-	
	x60	2	10	5'-1"	3'-1"	2'-0"	
	t60	STR.	27	9'-0"	-	-	
	u60	STR.	6	5'-9"	-	-	
	v60	STR.	16	5'-9"	-	-	*
	w60	STR.	10	23'-0"	-	-	

REINFORCEMENT BARS SCHEDULE FOR ONE HEADWALL TYPE III 1:3 SLOPE

PIPE DIA	NO 4 REINFORCEMENT BARS						
	MARK(E)	TYPE	NO REQ'D	LENGTH	a	b	
36"	a36	1	1	13'-10"	4'-1"	-	
	n36	2	18	3'-8"	2'-11"	9"	*
	m36	2	14	3'-2"	2'-5"	9"	
	j36	2	8	4'-0"	2'-0"	2'-0"	*
	h36	STR.	8	11'-10"	-	-	
	x36	2	8	4'-3"	2'-3"	2'-0"	
	t36	STR.	14	7'-0"	-	-	
	u36	STR.	6	3'-7"	-	-	
	v36	STR.	8	3'-7"	-	-	*
	w36	STR.	8	10'-8"	-	-	
42"	a42	1	1	15'-11"	4'-9"	-	
	n42	2	20	4'-1"	3'-4"	9"	*
	m42	2	16	3'-2"	2'-5"	9"	
	j42	2	10	4'-0"	2'-0"	2'-0"	*
	h42	STR.	10	13'-8"	-	-	
	x42	2	9	4'-7"	2'-7"	2'-0"	
	t42	STR.	16	7'-6"	-	-	
	u42	STR.	6	4'-2"	-	-	
	v42	STR.	10	4'-2"	-	-	*
	w42	STR.	9	12'-5"	-	-	
48"	a48	1	1	17'-9"	5'-4"	-	
	n48	2	22	4'-6"	3'-9"	9"	*
	m48	2	16	3'-2"	2'-5"	9"	
	j48	2	10	4'-0"	2'-0"	2'-0"	*
	h48	STR.	10	15'-6"	-	-	
	x48	2	9	4'-7"	2'-7"	2'-0"	
	t48	STR.	18	8'-0"	-	-	
	u48	STR.	6	4'-9"	-	-	
	v48	STR.	10	4'-9"	-	-	*
	w48	STR.	9	14'-2"	-	-	
54"	a54	1	1	19'-7"	5'-11"	-	
	n54	2	24	4'-10"	4'-1"	9"	*
	m54	2	18	3'-2"	2'-5"	9"	
	j54	2	12	4'-0"	2'-0"	2'-0"	*
	h54	STR.	12	17'-1"	-	-	
	x54	2	10	5'-1"	3'-1"	2'-0"	
	t54	STR.	20	8'-6"	-	-	
	u54	STR.	6	5'-3"	-	-	
	v54	STR.	12	5'-3"	-	-	*
	w54	STR.	10	15'-8"	-	-	
60"	a60	1	1	21'-2"	6'-5"	-	
	n60	2	26	5'-2"	4'-5"	9"	*
	m60	2	18	3'-2"	2'-5"	9"	
	j60	2	12	4'-0"	2'-0"	2'-0"	*
	h60	STR.	12	18'-8"	-	-	
	x60	2	10	5'-1"	3'-1"	2'-0"	
	t60	STR.	21	9'-0"	-	-	
	u60	STR.	6	5'-9"	-	-	
	v60	STR.	12	5'-9"	-	-	*
	w60	STR.	10	17'-2"	-	-	

* CUT BARS IN FIELD TO FIT MIN. 2" CLEARANCE
** PROVIDE 2'-0" MIN. LAP

NOTES:

1. THE 'v', 'n' and 'j' BARS, TYPE 3, SHALL BE ORDERED FULL LENGTH AND CUT IN THE FIELD.
2. THE LONG LEG OF THE 'm' AND 'n' BARS SHALL BE VERTICAL.
3. QUANTITIES ON THIS DRAWING ARE BASED ON THE CAST-IN-PLACE DESIGN. SEE SHEET 4 IN THIS SERIES FOR ALTERNATE PRECAST CONCRETE NOTES.
4. "STR." = STRAIGHT BAR
5. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

APPROVED Paul Kovacs CHIEF ENGINEER DATE 5-1-2009

Illinois Tollway

HEADWALL TYPE III
18"-24"-30"-36"-42"-48"-54"-60"
FOR 1:3, 1:4, 1:6, AND 1:10 SLOPES 580 511

STANDARD B6-06

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III END ENTRANCE 1:3 SLOPE

INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (POUND)	
			BAR NO 1		BAR NO 2			
	NUMBER REQUIRED	TYPE REQ'D	BARS REQ'D	LENGTH	BARS REQ'D	LENGTH	EACH GRATE	TOTAL
36''	0	1	2	6'-7''	11	2'-4½''	112	493
	3	2	2	6'-7''	11	1'-10½''	102	
	2	3	2	6'-7''	11	1'-4½''	93	
42''	0	1	2	7'-1''	12	2'-4½''	121	633
	3	2	2	7'-1''	12	1'-10½''	110	
	3	3	2	7'-1''	12	1'-4½''	100	
48''	0	1	2	7'-7''	13	2'-4½''	130	863
	0	2	2	7'-7''	13	1'-10½''	119	
	8	3	2	7'-7''	13	1'-4½''	108	
54''	0	1	2	8'-1''	14	2'-4½''	139	958
	3	2	2	8'-1''	14	1'-10½''	127	
	5	3	2	8'-1''	14	1'-4½''	115	
60''	3	1	2	8'-7''	15	2'-4½''	148	1058
	0	2	2	8'-7''	15	1'-10½''	135	
	5	3	2	8'-7''	15	1'-4½''	123	

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III END ENTRANCE 1:4 SLOPE

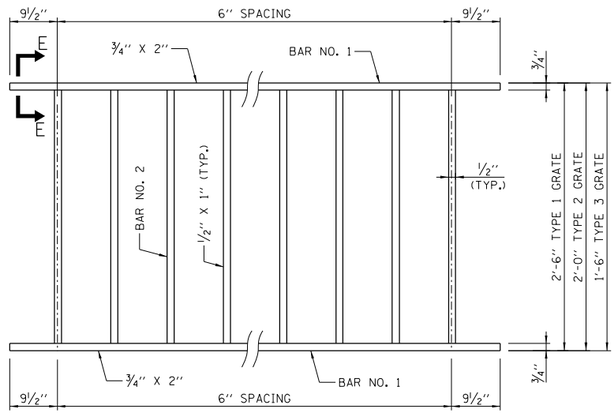
INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (POUND)	
			BAR NO 1		BAR NO 2			
	NUMBER REQUIRED	TYPE REQ'D	BARS REQ'D	LENGTH	BARS REQ'D	LENGTH	EACH GRATE	TOTAL
36''	5	1	2	6'-7''	11	2'-4½''	112	558
	0	2	2	6'-7''	11	1'-10½''	102	
	0	3	2	6'-7''	11	1'-4½''	93	
42''	1	1	2	7'-1''	12	2'-4½''	121	784
	6	2	2	7'-1''	12	1'-10½''	110	
	0	3	2	7'-1''	12	1'-4½''	100	
48''	1	1	2	7'-7''	13	2'-4½''	130	962
	7	2	2	7'-7''	13	1'-10½''	119	
	0	3	2	7'-7''	13	1'-4½''	108	
54''	1	1	2	8'-1''	14	2'-4½''	139	1157
	8	2	2	8'-1''	14	1'-10½''	127	
	0	3	2	8'-1''	14	1'-4½''	115	
60''	0	1	2	8'-7''	15	2'-4½''	148	1595
	0	2	2	8'-7''	15	1'-10½''	135	
	13	3	2	8'-7''	15	1'-4½''	123	

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III END ENTRANCE 1:6 SLOPE

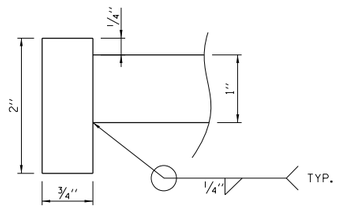
INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (POUND)	
			BAR NO 1		BAR NO 2			
	NUMBER REQUIRED	TYPE REQ'D	BARS REQ'D	LENGTH	BARS REQ'D	LENGTH	EACH GRATE	TOTAL
36''	0	1	2	6'-7''	11	2'-4½''	112	1115
	0	2	2	6'-7''	11	1'-10½''	102	
	12	3	2	6'-7''	11	1'-4½''	93	
42''	0	1	2	7'-1''	12	2'-4½''	121	1405
	0	2	2	7'-1''	12	1'-10½''	110	
	14	3	2	7'-1''	12	1'-4½''	100	
48''	0	1	2	7'-7''	13	2'-4½''	130	1725
	0	2	2	7'-7''	13	1'-10½''	119	
	16	3	2	7'-7''	13	1'-4½''	108	
54''	0	1	2	8'-1''	14	2'-4½''	139	1916
	6	2	2	8'-1''	14	1'-10½''	127	
	10	3	2	8'-1''	14	1'-4½''	115	
60''	0	1	2	8'-7''	15	2'-4½''	148	2357
	2	2	2	8'-7''	15	1'-10½''	135	
	17	3	2	8'-7''	15	1'-4½''	123	

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III END ENTRANCE 1:10 SLOPE

INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (POUND)	
			BAR NO 1		BAR NO 2			
	NUMBER REQUIRED	TYPE REQ'D	BARS REQ'D	LENGTH	BARS REQ'D	LENGTH	EACH GRATE	TOTAL
18''	3	1	2	3'-7''	5	2'-4½''	57	433
	5	2	2	3'-7''	5	1'-10½''	52	
	0	3	2	3'-7''	5	1'-4½''	48	
24''	0	1	2	4'-7''	7	2'-4½''	75	884
	0	2	2	4'-7''	7	1'-10½''	69	
	14	3	2	4'-7''	7	1'-4½''	63	
30''	7	1	2	5'-7''	9	2'-4½''	93	1082
	5	2	2	5'-7''	9	1'-10½''	86	
	0	3	2	5'-7''	9	1'-4½''	78	
36''	8	1	2	6'-7''	11	2'-4½''	112	1507
	6	2	2	6'-7''	11	1'-10½''	102	
	0	3	2	6'-7''	11	1'-4½''	93	
42''	15	1	2	7'-1''	12	2'-4½''	121	1812
	0	2	2	7'-1''	12	1'-10½''	110	
	0	3	2	7'-1''	12	1'-4½''	100	
48''	0	1	2	7'-7''	13	2'-4½''	130	2497
	21	2	2	7'-7''	13	1'-10½''	119	
	0	3	2	7'-7''	13	1'-10½''	108	
54''	19	1	2	8'-1''	14	2'-4½''	139	2643
	0	2	2	8'-1''	14	1'-10½''	127	
	0	3	2	8'-1''	14	1'-4½''	115	
60''	20	1	2	8'-7''	15	2'-4½''	148	3100
	1	2	2	8'-7''	15	1'-10½''	135	
	0	3	2	8'-7''	15	1'-4½''	123	



TYPICAL GRATE



SECTION E-E

NOTES:

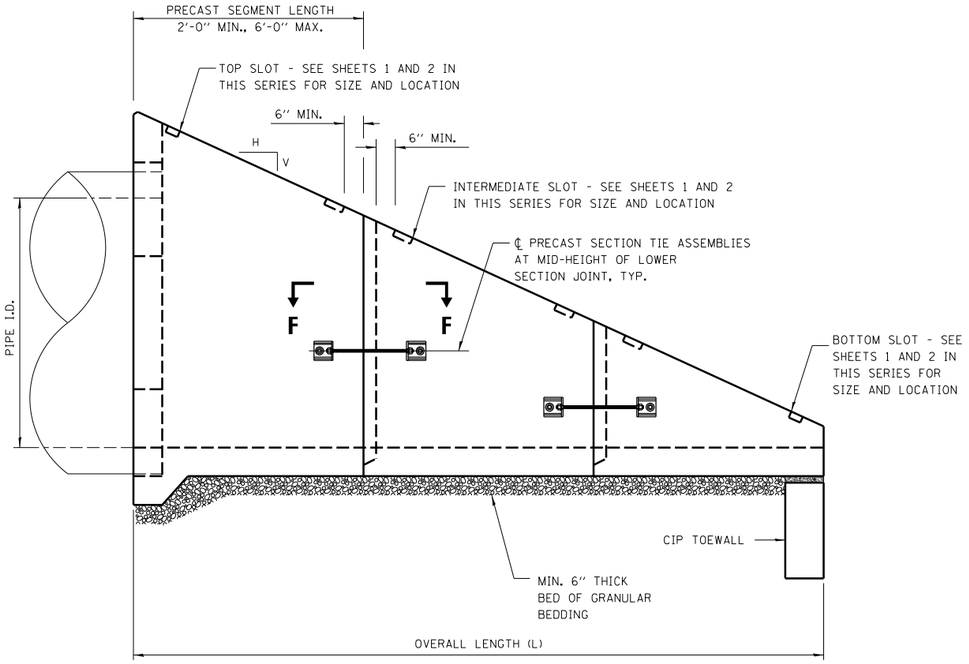
1. ALL STRUCTURAL STEEL SHALL BE AASHTO M270, GRADE 36 OR 50.
2. GALVANIZING SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
3. FOR PLACEMENT OF GRATES, SEE SHEET 1 IN THIS SERIES.
4. ALL TABLE DIMENSIONS AND QUANTITIES ARE FOR SINGLE HEADWALL, TYPE III.
5. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

Paul Kovacs
APPROVED ..... DATE 5-1-2009
CHIEF ENGINEER

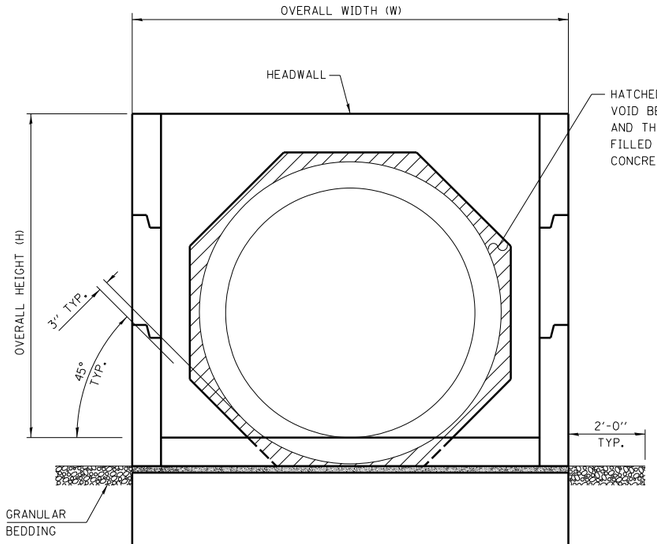
Illinois Tollway

HEADWALL TYPE III
18''-24''-30''-36''-42''-48''-54''-60''
FOR 1:3, 1:4, 1:6, AND
1:10 SLOPES 580 512

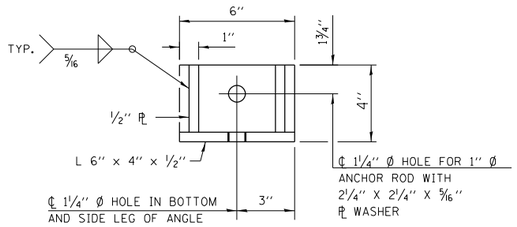
STANDARD B6-06



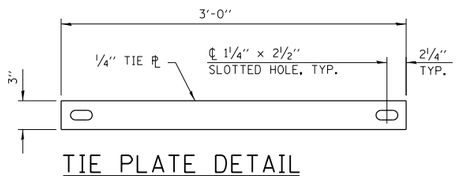
ELEVATION



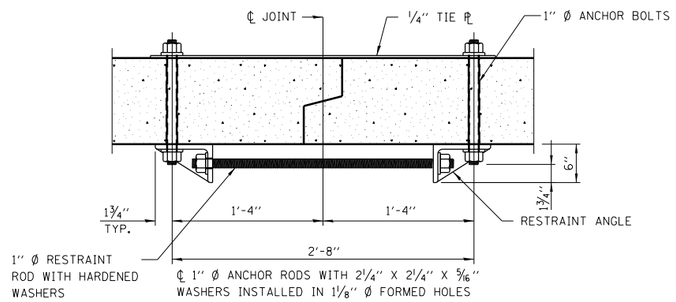
END VIEW



RESTRAINT ANGLE DETAIL

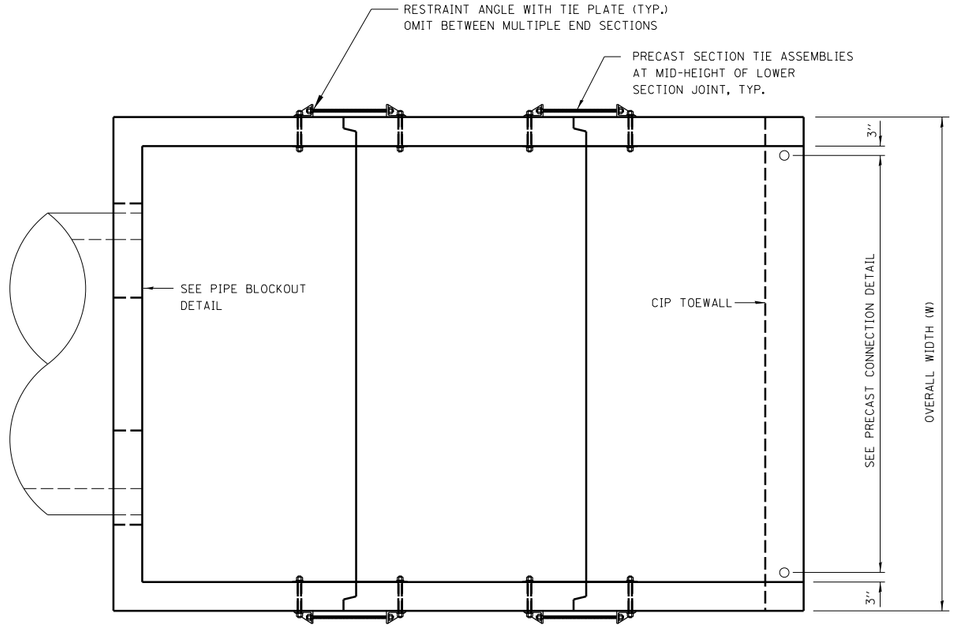


TIE PLATE DETAIL



SECTION F-F

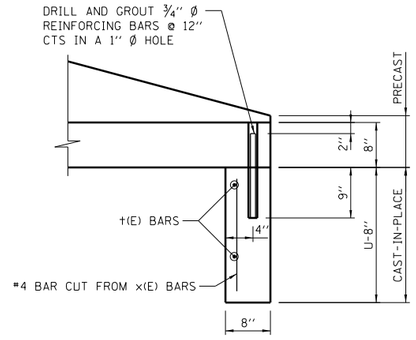
(SHOWING PRECAST SECTION TIE DETAILS)



PLAN

GENERAL NOTES:

1. THE NUMBER OF SEGMENTS SHOWN IN ELEVATION IS FOR EXAMPLE ONLY. THE LENGTH AND NUMBER OF PRECAST SECTIONS REQUIRED TO CONSTRUCT THE END SECTION SHALL BE DETERMINED BY THE CONTRACTOR.
2. CONTRACTOR SHALL RETAIN THE SERVICES OF AN ILLINOIS LICENSED STRUCTURAL ENGINEER TO PROPORTION, DESIGN AND DETAIL PRECAST SECTIONS FOR INSTALLATION AND FOR SERVICE. SEE CAST-IN-PLACE DIMENSIONS AND REINFORCING DETAILS FOR MINIMUM REQUIREMENTS. INCREASE MEMBER SIZES AND REINFORCING AS NECESSARY TO SATISFY HANDLING AND INSTALLATION STRESSES IN PRECAST SECTIONS.
3. CLASS "SI" CONCRETE SHALL BE USED THROUGHOUT.
4. REINFORCEMENT BARS (GRADE 60) SHALL BE EPOXY COATED. SEE CAST-IN-PLACE DETAILS FOR BENDING DIAGRAMS. SEE NOTES ON SHEET 1 IN THIS SERIES FOR REINFORCING COVER REQUIREMENTS.
5. ALL EXPOSED EDGES SHALL BE CHAMFERED. SEE NOTES ON SHEET 1 IN THIS SERIES.
6. SEE ROADWAY PLANS FOR SLOPE (V:H) AND PIPE INSIDE DIAMETER.
7. HOLES IN THE WALLS FOR THE PRECAST TIE ASSEMBLY MAY BE DRILLED USING CORE BITS IN LIEU OF FORMED HOLES. AVOID DAMAGE TO REINFORCING FROM DRILLING HOLES.
8. FOR STEEL GRATING DETAILS, SEE SHEET 3 IN THIS SERIES.
9. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
10. TIE ASSEMBLIES, CONSISTING OF ANCHOR RODS, TIE PLATES, RESTRAINT ANGLES, RESTRAINT RODS AND ALL NUTS AND WASHERS SHALL CONFORM WITH AASHTO M270 GR36, OR GR50 AND SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AFTER FABRICATION.



PRECAST CONNECTION DETAIL

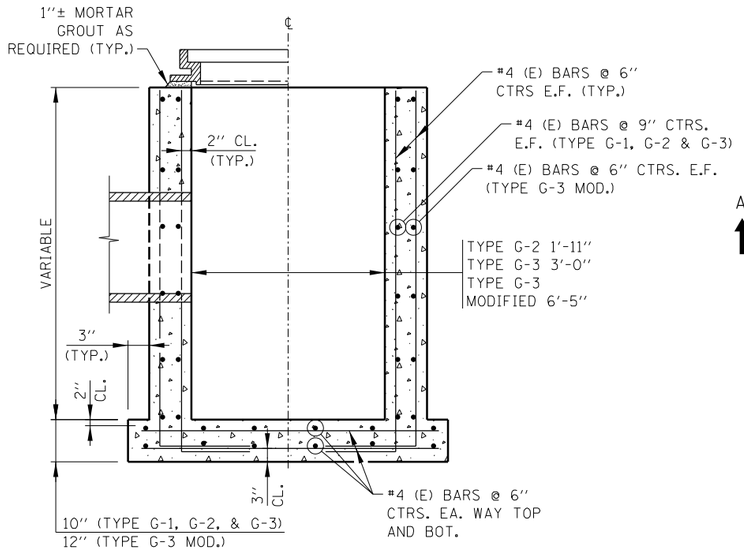
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009

HEADWALL TYPE III ALTERNATE PRECAST CONCRETE DETAILS

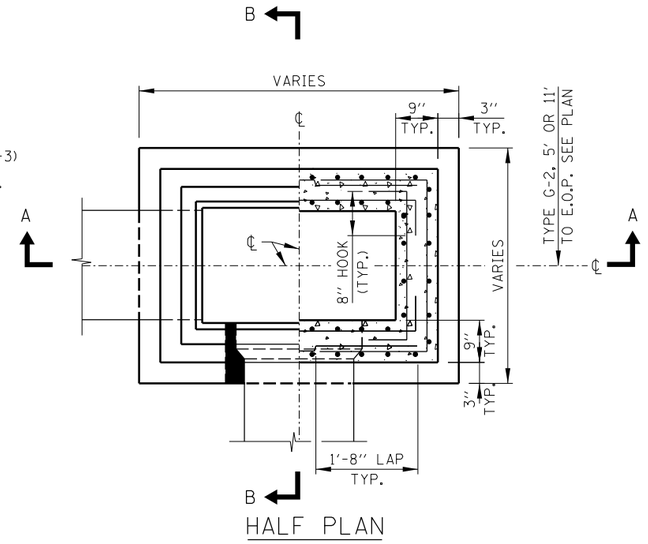
Illinois Tollway

HEADWALL TYPE III
18"-24"-30"-36"-42"-48"-54"-60"
FOR 1:3, 1:4, 1:6, AND 1:10 SLOPES 580 513

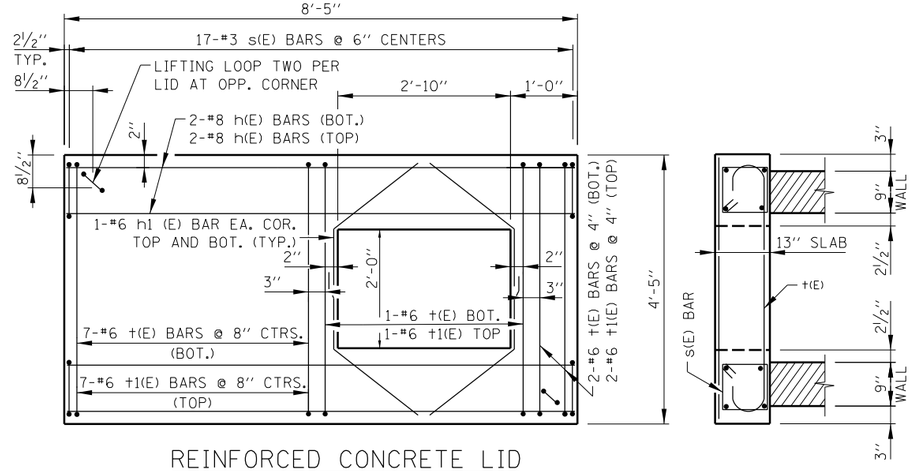
STANDARD B6-06



SECTION A-A



HALF PLAN

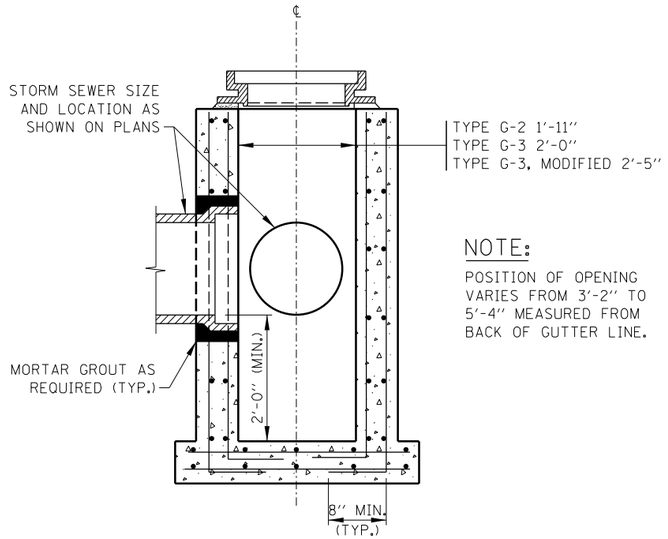


REINFORCED CONCRETE LID

CATCH BASIN,TYPE G-3, MODIFIED

NOTES:

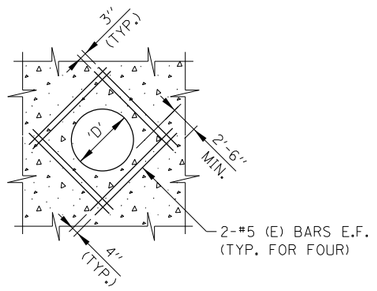
1. PRECAST CONCRETE UNITS WILL BE ACCEPTABLE PROVIDED THEY MEET ALL THE REQUIREMENTS AS SHOWN ON THIS DRAWING. BASE EXTENSION OF 3'' NOT REQUIRED FOR PRECAST UNITS. FABRICATION DRAWINGS SHOWING PIPE OPENINGS, REINFORCEMENT AND OTHER PERTINENT DIMENSIONS WILL BE REQUIRED FOR EACH UNIT, FOR APPROVAL BY THE ENGINEER PRIOR TO FABRICATION.
2. CATCH BASIN, TYPE G-2 SHALL BE USED ALONG RAMPS WHERE GUTTER TYPE G-2 IS PROVIDED.
3. CATCH BASIN, TYPE G-3 SHALL BE USED WHERE GUTTER TYPE G-3 IS PROVIDED.
4. CATCH BASIN, TYPE G-3 MODIFIED SHALL BE USED IN PAVEMENT SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED PAVEMENT.
5. CATCH BASIN, TYPE G-3 MODIFIED SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAILED ON THIS DRAWING.
6. TYPE G-2 FRAME AND GRATE SHALL BE NEENAH R-3508-A2, EAST JORDAN IRON WORKS 7300 OR APPROVED EQUAL.
7. TYPE G-3 FRAME AND GRATE SHALL BE NEENAH INLET FOR ROLL TYPE CURB R-3501-U OR EAST JORDAN IRON WORKS 7545 OR APPROVED EQUAL.
8. TYPE G-3, MODIFIED FRAME AND GRATE SHALL BE NEENAH INLET FOR ROLL TYPE CURB SPECIAL R-3501-U1, EAST JORDAN IRON WORKS 7546 OR APPROVED EQUAL.
9. TYPE G-2, MODIFIED FRAME AND GRATE FOR ROLL TYPE CURB R-3508-B2 OR APPROVED EQUAL.
10. MORTAR OR SEALER SHALL BE USED WHEN A PRECAST REINFORCED CONCRETE LID IS USED.
11. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
12. E.O.P. = EDGE OF PAVEMENT.
13. ALL CONCRETE SHALL BE CLASS SI CONCRETE.



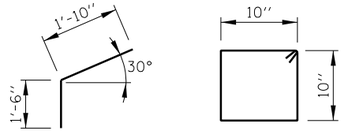
NOTE:

POSITION OF OPENING VARIES FROM 3'-2'' TO 5'-4'' MEASURED FROM BACK OF GUTTER LINE.

SECTION B-B

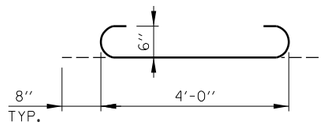


TYPICAL REINFORCEMENT AROUND STORM SEWER PIPE



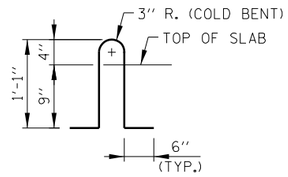
BAR h1(E)

BAR s(E)



BAR †(E)

LIFTING LOOP TO BE ½''Ø x 270 KSI STRANDS TO BE BURNED AFTER PRECAST CONCRETE LID IS SET IN PLACE.



LIFTING LOOP DETAIL

CATCH BASIN TYPE ''G'' SERIES

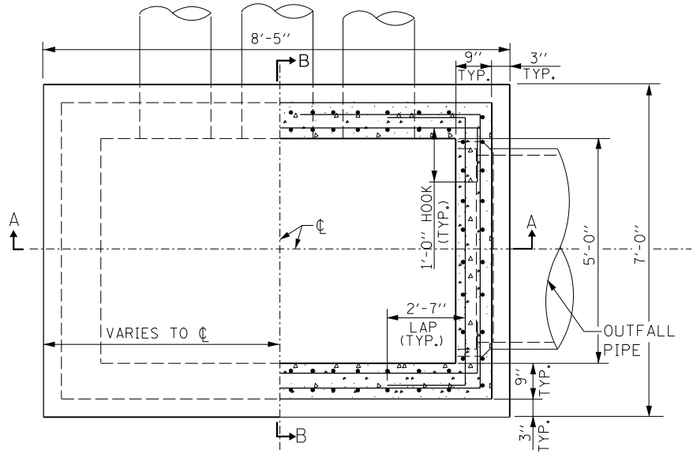
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 6-1-2009

DATE	REVISIONS
6-01-2009	DELETE REINF. CONC. LID TYPE S FRAME & GRATE
2-07-2012	REVISED REINFORCEMENT BARS
11-01-2012	ADDED TYPE G-2, MODIFIED FRAME AND GRATE
	MODIFIED PIPE BELL DETAIL
3-31-2014	ADDED FRAME AND GRATE CASTINGS
3-11-2015	REVISED NOTES AND ADDED CATCH BASIN TYPE G-4 AND TYPE G-5

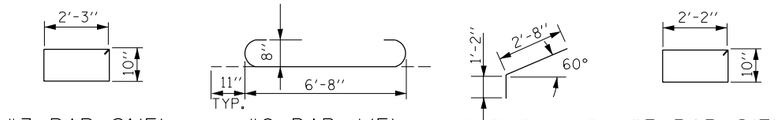
Illinois Tollway

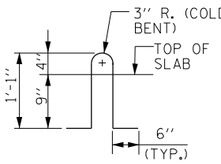
CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES 580 514

STANDARD B8-05



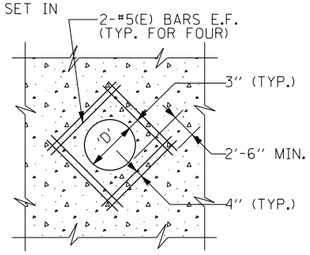
HALF PLAN (24"-36" I.D. OUTFALL PIPE)



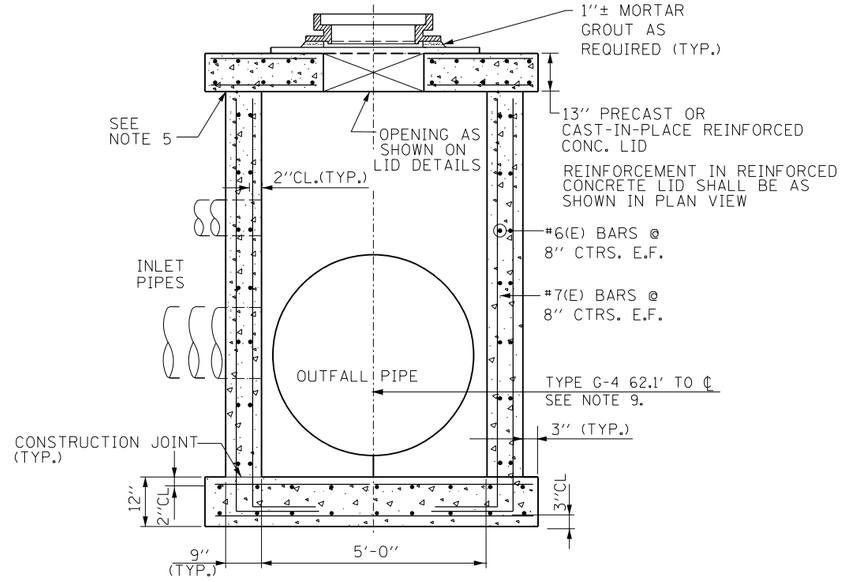


LIFTING LOOP DETAIL

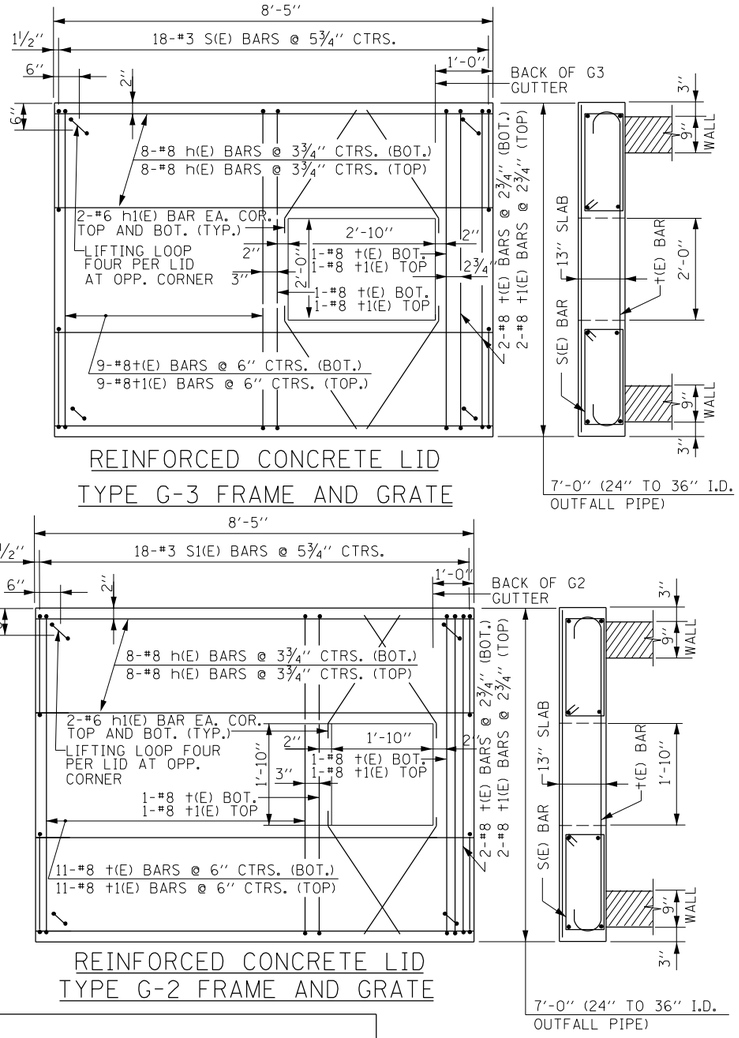
LIFTING LOOP TO BE ½"Ø×270Ksi STRANDS TO BE BURNED AFTER PRECAST CONCRETE LID IS SET IN PLACE.



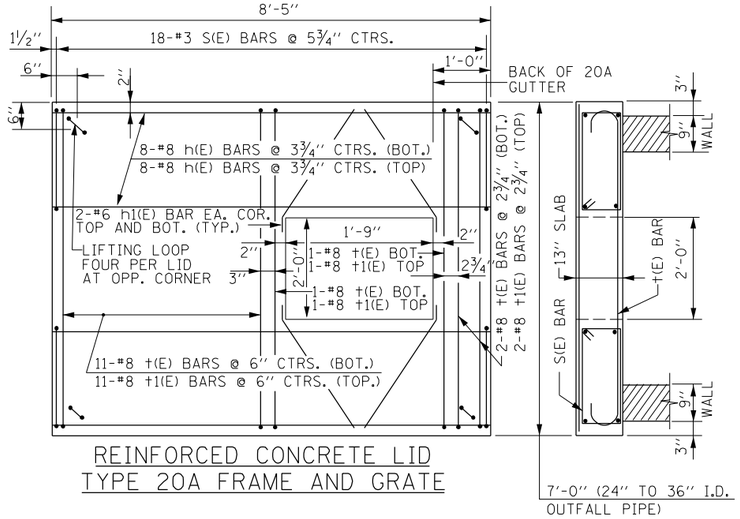
TYPICAL REINFORCEMENT AROUND STORM SEWER PIPE



SECTION B-B



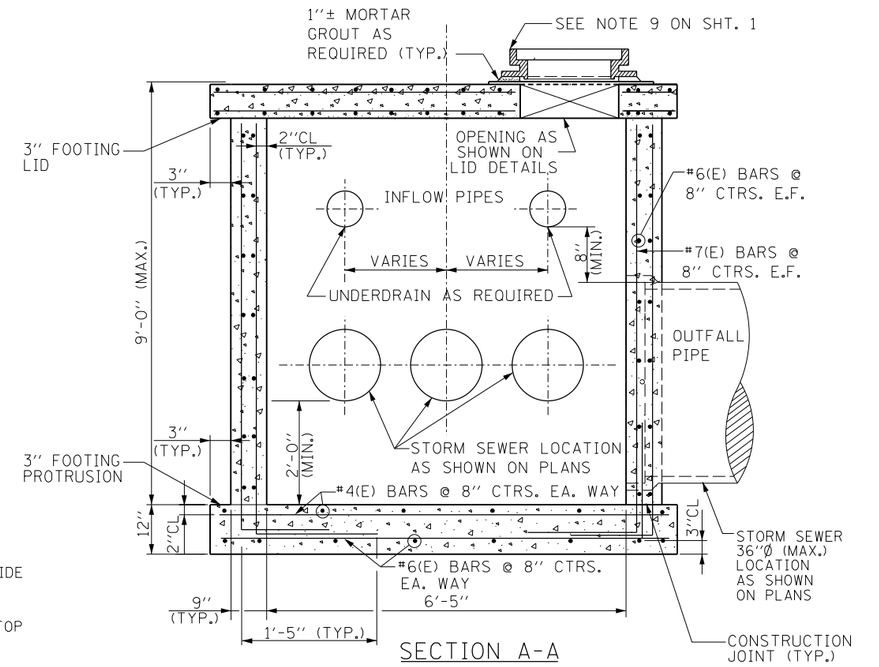
REINFORCED CONCRETE LID TYPE G-3 FRAME AND GRATE



REINFORCED CONCRETE LID TYPE 20A FRAME AND GRATE

REINFORCED CONCRETE LID TYPE G-2 FRAME AND GRATE

CATCH BASIN TYPE G-4



SECTION A-A

NOTES:

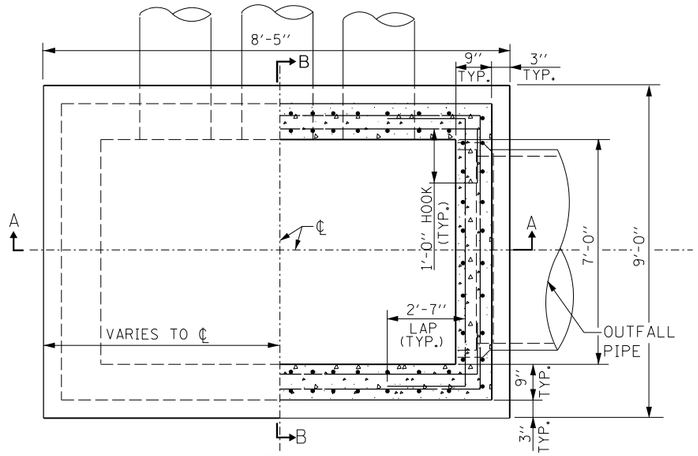
1. SEE SHEET 1 OF THIS SERIES FOR ADDITIONAL NOTES.
2. CATCH BASINS TYPE G-4 SHALL BE USED IN TANGENT SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED PAVEMENT.
3. CATCH BASINS TYPE G-4 SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAILED ON THIS DRAWING.
4. CATCH BASINS TYPE G-4 SHALL BE USED WHEN GUTTER, TYPE G-3 IS PROVIDED.
5. MORTAR OR SEALER SHALL BE USED WHEN A PRECAST REINFORCED CONCRETE LID IS USED.
6. EDGE OF SHOULDER. FRAME AND GRATE RIM ELEVATION AND OFFSET MEASURED AT THIS POINT.
7. 36"Ø MAX. OUTFALL PIPE FOR TYPE G-4 CATCH BASIN.
8. ALL CONCRETE SHALL BE CLASS SI CONCRETE.
9. DISTANCE FROM ℄ OUTFALL PIPE TO ℄ ROADWAY TO BE VERIFIED BY ENGINEER.

Paul Kovacs
APPROVED ..... DATE 6-1-2009
CHIEF ENGINEER

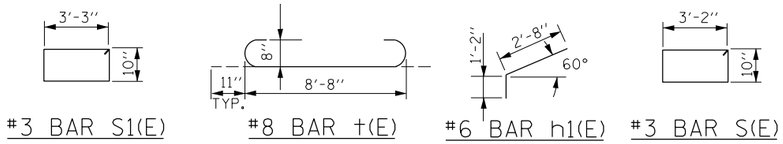
Illinois Tollway

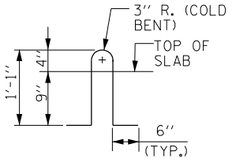
CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES 580 515

STANDARD B8-05



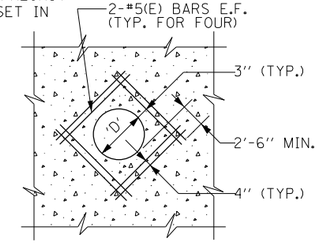
HALF PLAN (42"-60" I.D. OUTFALL PIPE)



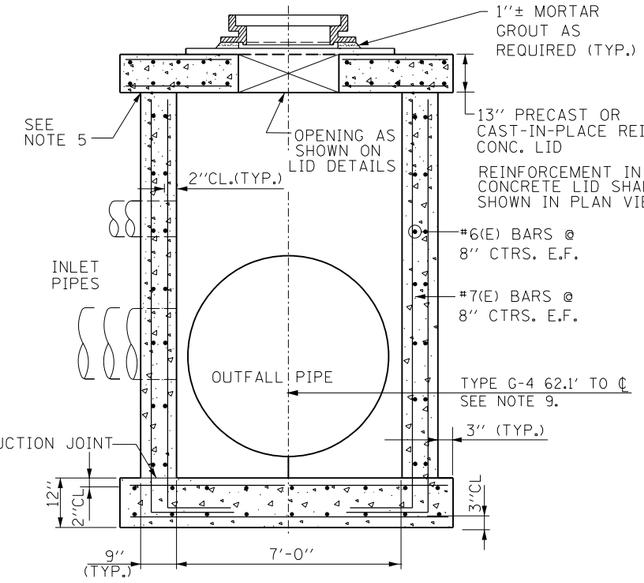


LIFTING LOOP DETAIL

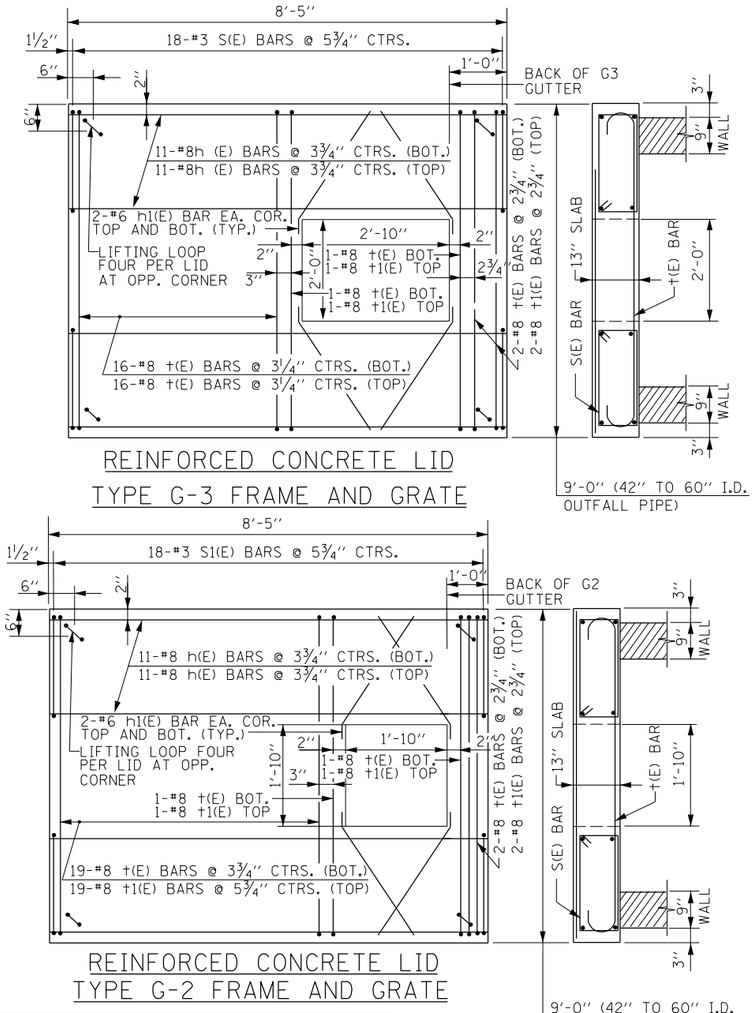
LIFTING LOOP TO BE 1/2"Ø x 270Ksi STRANDS TO BE BURNED AFTER PRECAST CONCRETE LID IS SET IN PLACE.



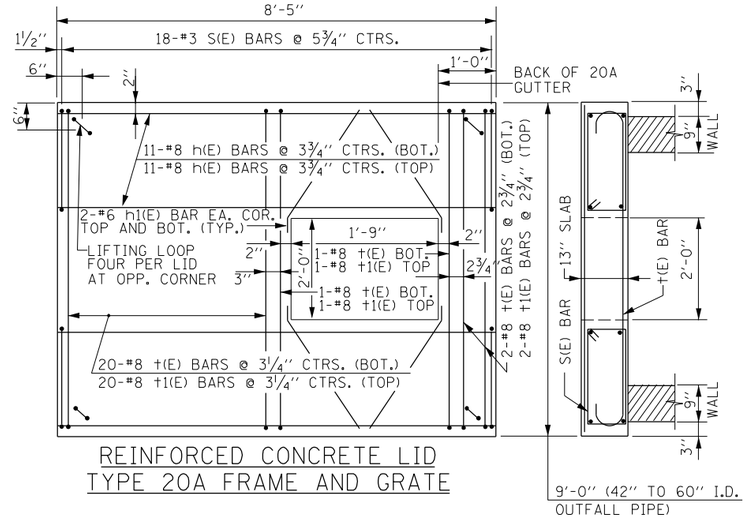
TYPICAL REINFORCEMENT AROUND STORM SEWER PIPE



SECTION B-B



REINFORCED CONCRETE LID TYPE G-3 FRAME AND GRATE



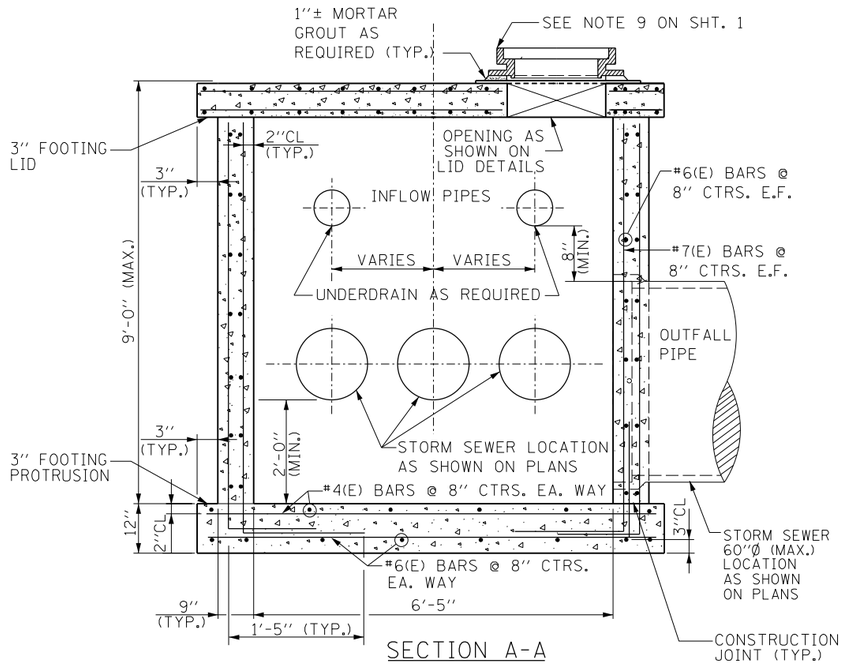
REINFORCED CONCRETE LID TYPE 20A FRAME AND GRATE

REINFORCED CONCRETE LID TYPE G-2 FRAME AND GRATE

CATCH BASIN TYPE G-5

NOTES:

1. SEE SHEET 1 OF THIS SERIES FOR ADDITIONAL NOTES.
2. CATCH BASINS TYPE G-5 SHALL BE USED IN TANGENT SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED PAVEMENT.
3. CATCH BASINS TYPE G-5 SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAILED ON THIS DRAWING.
4. CATCH BASINS TYPE G-5 SHALL BE USED WHEN GUTTER, TYPE G-3 IS PROVIDED.
5. MORTAR OR SEALER SHALL BE USED WHEN A PRECAST REINFORCED CONCRETE LID IS USED.
6. EDGE OF SHOULDER. FRAME AND GRATE RIM ELEVATION AND OFFSET MEASURED AT THIS POINT.
7. 60"Ø MAX. OUTFALL PIPE FOR TYPE G-5 CATCH BASIN.
8. ALL CONCRETE SHALL BE CLASS SI CONCRETE.
9. DISTANCE FROM ℄ OUTFALL PIPE TO ℄ ROADWAY TO BE VERIFIED BY ENGINEER.



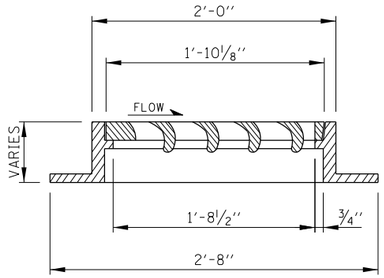
SECTION A-A

APPROVED Paul Kovacs CHIEF ENGINEER DATE 6-1-2009

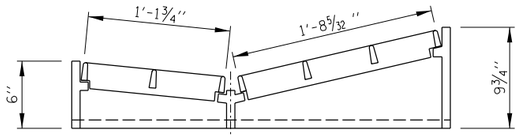
Illinois Tollway

CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES 580 516

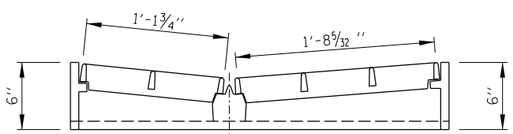
STANDARD B8-05



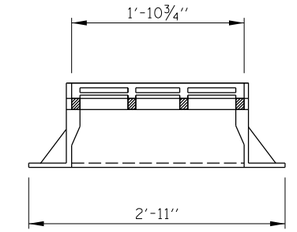
SECTION T-T



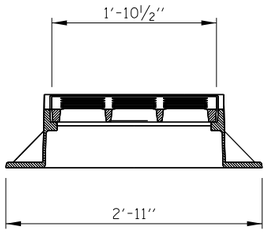
SECTION U-U



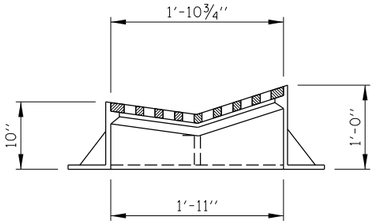
SECTION W-W



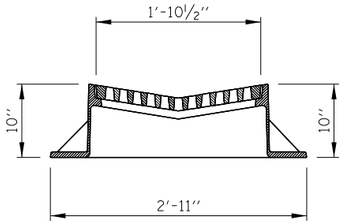
SECTION Y-Y



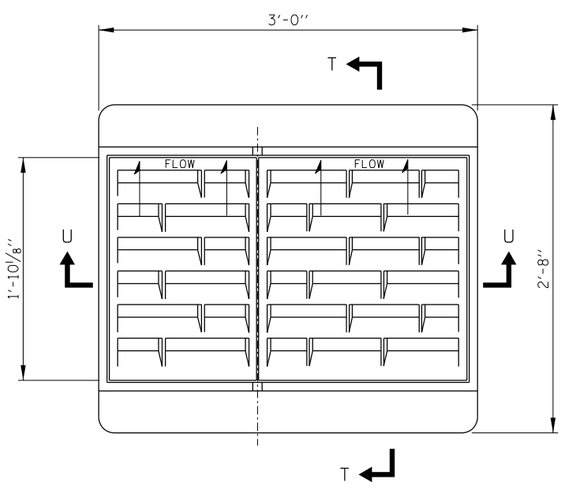
SECTION S-S



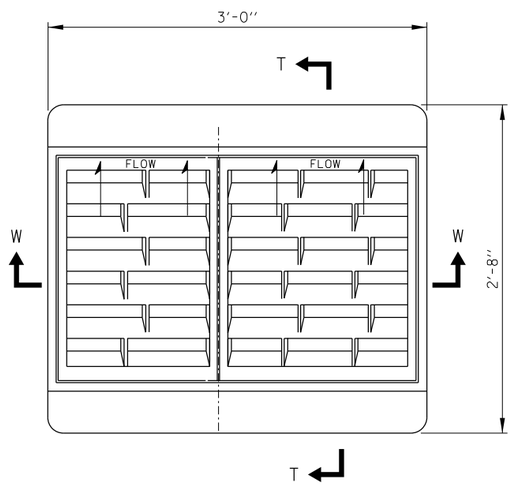
SECTION Z-Z



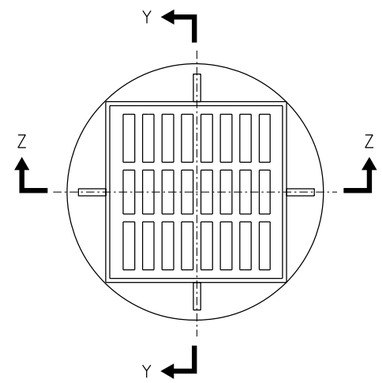
SECTION V-V



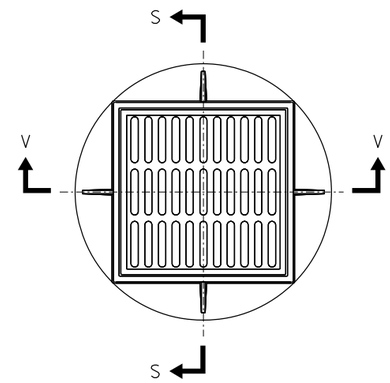
TYPE G-3 FRAME & GRATE



TYPE G-3, MODIFIED
FRAME & GRATE



TYPE G-2 FRAME & GRATE



TYPE G-2 MODIFIED
FRAME & GRATE

SHEET 4 OF 4

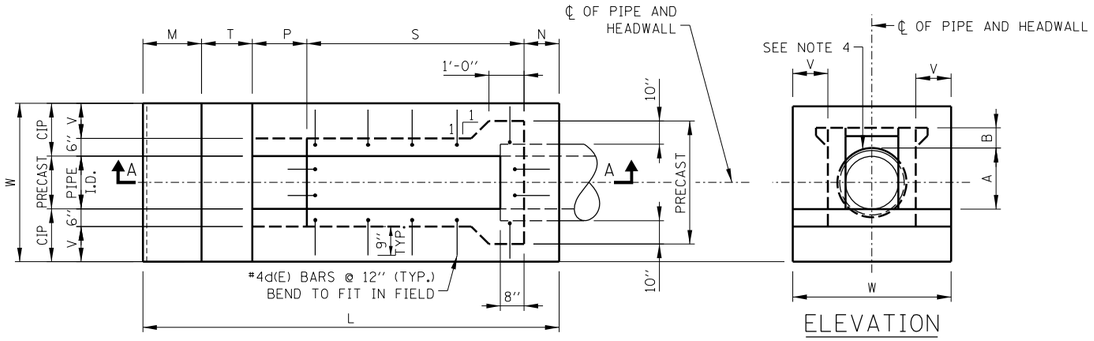
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Illinois Tollway

CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES 580 517

STANDARD B8-05

Paul Kovacs
APPROVED ..... DATE 6-1-2009
CHIEF ENGINEER

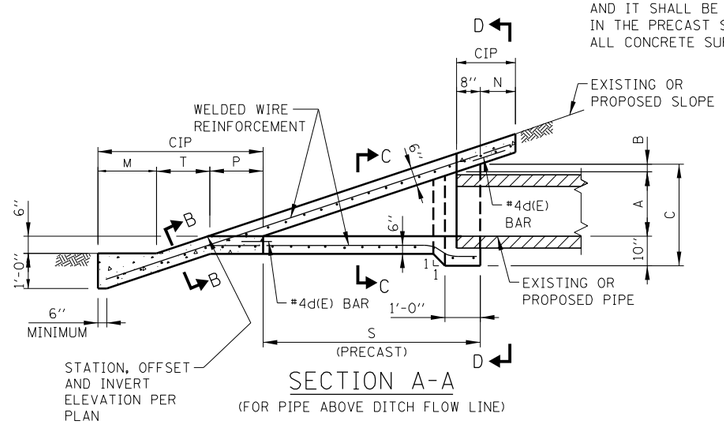


PLAN - SLOPED HEADWALL

ELEVATION

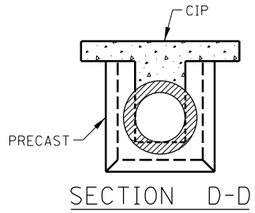
NOTES:

EACH *4d(E) BAR SHALL BE PLACED SUCH THAT IT WILL PROJECT 9" INTO THE CAST IN PLACE (CIP) CONCRETE AND IT SHALL BE 3" BELOW THE TOP SURFACE. HOOKS IN THE PRECAST SECTION SHALL BE TIPPED TO CLEAR ALL CONCRETE SURFACES A MIN. OF 2".

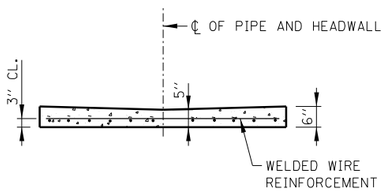


SECTION A-A

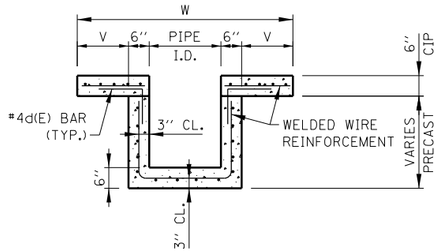
(FOR PIPE ABOVE DITCH FLOW LINE)



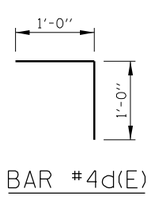
SECTION D-D



SECTION B-B



SECTION C-C



BAR *4d(E)

DIMENSIONS AND QUANTITIES FOR ONE SLOPED HEADWALL TYPE III

	PIPE I.D.	DIMENSIONS											PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE REINFORCEMENT SQ. YD.	REINFORCEMENT BARS				
		A	B	C	N	M	T	P	S	L	V	W				MARK(E)	SIZE	NO.	LENGTH	LB.
1 TO 3 SLOPE	6"	9"	2¾"	1'-9¾"	1'-0"	1'-8"	1'-6"	1'-6¾"	2'-11¼"	7'-2"	1'-0"	3'-6"	0.15	0.72	3.28	d6	#4	12	2'-0"	16
	12"	1'-3½"	2¾"	2'-4¼"	1'-0"	1'-8"	1'-6"	1'-6¾"	4'-6¾"	8'-9½"	1'-0"	4'-0"	0.34	0.92	4.50	d12	#4	14	2'-0"	19
	15"	1'-6½"	2¾"	2'-7¼"	1'-0"	1'-8"	1'-6"	1'-6¾"	5'-3¾"	9'-6½"	1'-0"	4'-3"	0.45	1.01	5.88	d15	#4	16	2'-0"	21
	18"	1'-10"	2¾"	2'-10¾"	1'-0"	1'-8"	1'-6"	1'-6¾"	6'-2¼"	10'-5"	1'-0"	4'-6"	0.61	1.13	6.44	d18	#4	18	2'-0"	24
	21"	2'-1"	2¾"	3'-1¾"	1'-0"	1'-9"	1'-6"	1'-6¾"	6'-11¼"	11'-3"	1'-3"	5'-3"	0.76	1.39	8.34	d21	#4	22	2'-0"	29
	24"	2'-4½"	2¾"	3'-5¼"	1'-0"	2'-0"	1'-6"	1'-6¾"	7'-9¾"	12'-4½"	1'-6"	6'-0"	0.95	1.72	9.85	d24	#4	24	2'-0"	32
	27"	2'-7½"	2¾"	3'-8¼"	1'-1½"	2'-3"	1'-6"	1'-6¾"	8'-6¾"	13'-6"	1'-9"	6'-9"	1.14	2.07	13.54	d27	#4	24	2'-0"	32
	30"	2'-11"	2¾"	3'-11¾"	1'-3"	2'-6"	1'-6"	1'-6¾"	9'-5¼"	14'-9"	2'-0"	7'-6"	1.38	2.46	16.40	d30	#4	26	2'-0"	35

	PIPE I.D.	DIMENSIONS											PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE REINFORCEMENT SQ. YD.	REINFORCEMENT BARS				
		A	B	C	N	M	T	P	S	L	V	W				MARK(E)	SIZE	NO.	LENGTH	LB.
1 TO 4 SLOPE	6"	9"	2"	1'-9"	1'-0"	1'-8"	2'-0"	2'-1"	3'-8"	8'-5"	1'-0"	3'-6"	0.17	0.83	4.07	d6	#4	12	2'-0"	16
	12"	1'-3½"	2"	2'-3½"	1'-0"	1'-8"	2'-0"	2'-1"	5'-10"	10'-7"	1'-0"	4'-0"	0.41	1.07	5.50	d12	#4	16	2'-0"	21
	15"	1'-6½"	2"	2'-6½"	1'-0"	1'-8"	2'-0"	2'-1"	6'-10"	11'-7"	1'-0"	4'-3"	0.55	1.18	6.63	d15	#4	18	2'-0"	24
	18"	1'-10"	2"	2'-10"	1'-0"	1'-8"	2'-0"	2'-1"	8'-0"	12'-11"	1'-0"	4'-6"	0.74	1.32	8.60	d18	#4	22	2'-0"	29
	21"	2'-1"	2"	3'-1"	1'-0"	1'-9"	2'-0"	2'-1"	9'-0"	13'-10"	1'-3"	5'-3"	0.93	1.63	11.03	d21	#4	24	2'-0"	32
	24"	2'-4½"	2"	3'-4½"	1'-0"	2'-0"	2'-0"	2'-1"	10'-2"	15'-3"	1'-6"	6'-0"	1.18	2.00	13.88	d24	#4	28	2'-0"	37
	27"	2'-7½"	2"	3'-7½"	1'-1½"	2'-3"	2'-0"	2'-1"	11'-2"	16'-7"	1'-9"	6'-9"	1.42	2.41	14.83	d27	#4	30	2'-0"	40
	30"	2'-11"	2"	3'-11"	1'-3"	2'-6"	2'-0"	2'-1"	12'-4"	18'-2"	2'-0"	7'-6"	1.71	2.87	20.49	d30	#4	32	2'-0"	43

	PIPE I.D.	DIMENSIONS											PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE REINFORCEMENT SQ. YD.	REINFORCEMENT BARS				
		A	B	C	N	M	T	P	S	L	V	W				MARK(E)	SIZE	NO.	LENGTH	LB.
1 TO 6 SLOPE	6"	9"	1½"	1'-8½"	1'-0"	1'-8"	3'-0"	3'-0"	5'-3"	10'-11"	1'-0"	3'-6"	0.23	1.07	5.29	d6	#4	16	2'-0"	21
	12"	1'-3½"	1½"	2'-3"	1'-0"	1'-8"	3'-0"	3'-0"	8'-6"	14'-2"	1'-0"	4'-0"	0.57	1.38	8.62	d12	#4	22	2'-0"	29
	15"	1'-6½"	1½"	2'-6"	1'-0"	1'-8"	3'-0"	3'-0"	10'-0"	15'-8"	1'-0"	4'-3"	0.77	1.53	10.35	d15	#4	26	2'-0"	35
	18"	1'-10"	1½"	2'-9½"	1'-0"	1'-8"	3'-0"	3'-0"	11'-9"	17'-5"	1'-0"	4'-6"	1.04	1.70	12.47	d18	#4	28	2'-0"	37
	21"	2'-1"	1½"	3'-0½"	1'-0"	1'-9"	3'-0"	3'-0"	13'-3"	19'-0"	1'-3"	5'-3"	1.31	2.11	15.77	d21	#4	34	2'-0"	45
	24"	2'-4½"	1½"	3'-4"	1'-0"	2'-0"	3'-0"	3'-0"	15'-0"	21'-0"	1'-6"	6'-0"	1.66	2.59	17.62	d24	#4	38	2'-0"	51
	27"	2'-7½"	1½"	3'-7"	1'-1½"	2'-3"	3'-0"	3'-0"	16'-6"	22'-10½"	1'-9"	6'-9"	1.99	3.11	24.10	d27	#4	40	2'-0"	53
	30"	2'-11"	1½"	3'-10½"	1'-3"	2'-6"	3'-0"	3'-0"	18'-3"	25'-0"	2'-0"	7'-6"	2.41	3.70	29.13	d30	#4	44	2'-0"	59

NOTES:

1. THE CAST IN PLACE (CIP) SLOPED HEADWALL SHALL BE CONSTRUCTED FLUSH WITH EXISTING OR PROPOSED SLOPE.
2. CLASS SI CONCRETE SHALL BE USED THROUGHOUT.
3. WELDED WIRE REINFORCEMENT SHALL BE EPOXY COATED 6x6-W4xW4, 58 LBS. PER 100 SQ.FT.
4. ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED (E).
5. BAR BENDING DETAILS ARE DIMENSIONED OUT TO OUT OF BARS.
6. COVER FROM FACE OF CONCRETE TO FACE OF REINFORCEMENT BAR SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.
7. PRECAST UNIT USE IS OPTIONAL. THE ENTIRE STRUCTURE MAY BE CAST IN PLACE.
8. AFTER THE PRECAST SLOPED HEADWALL HAS BEEN PLACED, THE SPACE BETWEEN THE HEADWALL AND PIPE SHALL BE COMPLETELY FILLED WITH AN APPROVED NON-SHRINK GROUT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI. THE COST FOR FURNISHING AND PLACING THE GROUT SHALL BE INCIDENTAL TO SLOPED HEADWALLS.
9. THE SLOPED HEADWALL DETAILS SHOWN ON THIS DRAWING ARE FOR USE ONLY WITH PIPES HAVING DIAMETER OR SPAN OF 30" OR LESS.
10. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
11. I.D. DENOTES INSIDE DIAMETER OF PIPE. O.D. DENOTES OUTSIDE DIAMETER OF PIPE.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

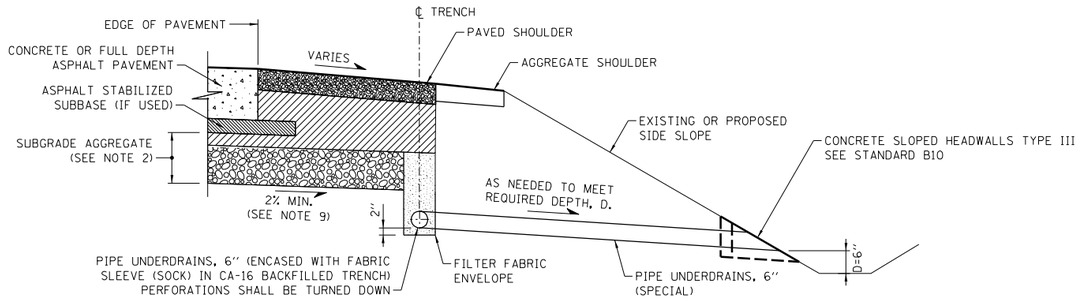
DATE	REVISIONS
3-31-2014	REVISED QUANTITIES
3-11-2015	REVISED TABLES AND SECTIONS
3-31-2016	CHANGED TERMINOLOGY TO WELDED WIRE REINFORCEMENT

Illinois Tollway

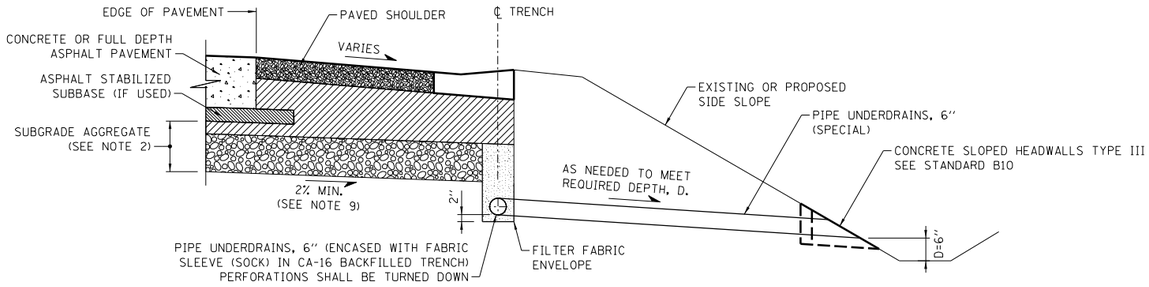
SLOPED HEADWALLS TYPE III DETAILS

580 518

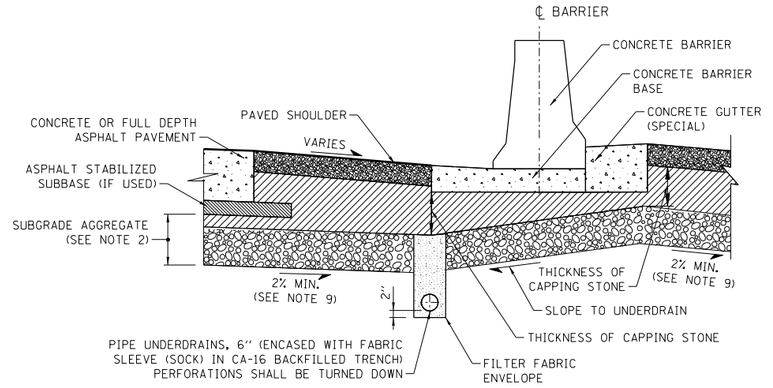
STANDARD B10-08



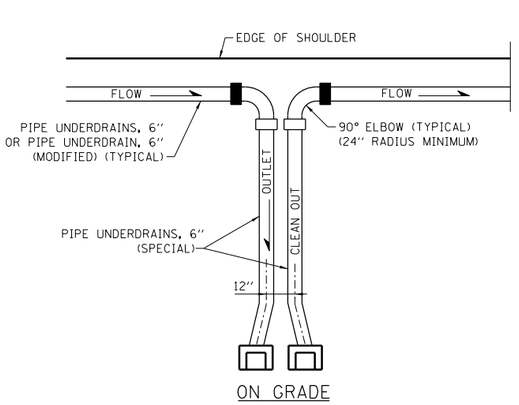
LOCATIONS WITHOUT GUTTER



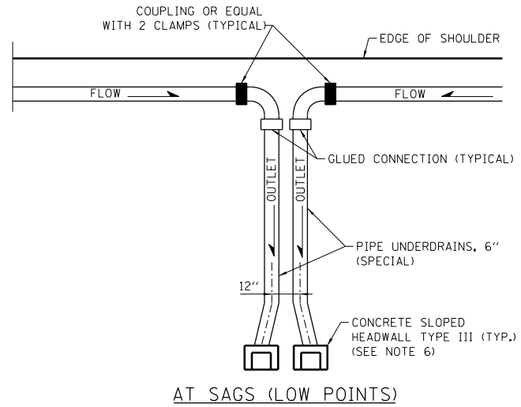
LOCATIONS WITH GUTTER



LOCATIONS WITH VARIABLE HEIGHT DOUBLE FACE BARRIER



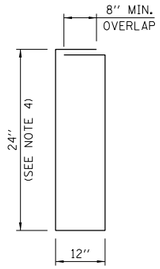
ON GRADE



AT SAGS (LOW POINTS)

DETAIL OF PIPE UNDERDRAIN OUTLETS

(SEE NOTE 7)

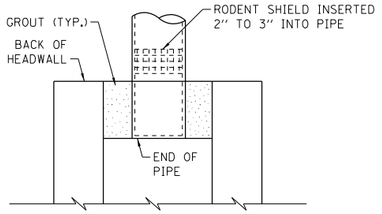


FILTER FABRIC ENVELOPE

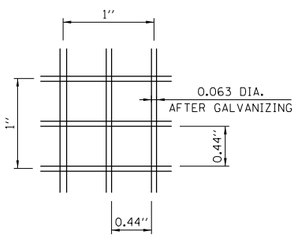
NOTES FOR PIPE UNDERDRAIN

1. FOR NEW CONSTRUCTION OR WIDENING PROJECTS, THE PIPE UNDERDRAIN INSTALLATION SHALL OCCUR AFTER SUBGRADE HAS BEEN PREPARED AND AFTER LIFT OF PGE BASE IS PLACED AND BEFORE 3" AND VARIES CA-6 CAPPING STONE IS PLACED. FOR PAVEMENT RUBBLIZATION PROJECTS, THE PIPE UNDERDRAIN SHALL BE INSTALLED PRIOR TO RUBBLIZATION.
2. SUBGRADE AGGREGATE SHALL CONSIST OF A 3" AND VARIES CA-6 CAP ABOVE A PGE BASE, THICKNESS AS NOTED IN THE PLANS.
3. ON SUPERELEVATED CURVES PLACE LONGITUDINAL UNDERDRAIN ON LOW SIDE ONLY.
4. IN AREAS WHERE ROADWAY LONGITUDINAL GRADE IS LESS THAN 0.5%, DIMENSION WILL INCREASE AS NECESSARY TO MAINTAIN MINIMUM 0.5% SLOPE IN PIPE UNDERDRAIN.
5. IF 500' MAXIMUM DISTANCE IS EXCEEDED, PIPE UNDERDRAIN SHALL BE INCREASED TO 8" DIAMETER AND TRENCH WIDTH INCREASED TO 16".
6. AT OUTLET LOCATIONS, PIPE UNDERDRAINS SHALL SEPARATE SUFFICIENTLY TO PROVIDE SPACE FOR TWO CONCRETE SLOPED HEADWALLS, OR TWO PIPES CAN RUN PARALLEL INTO A LARGER HEADWALL.
7. IN AREAS WHERE A CLOSED DRAINAGE SYSTEM EXISTS, THE PIPE UNDERDRAIN, 6" (SPECIAL) SHALL DRAIN TO THE NEAREST CATCH BASIN. THE UPPER END OF A RUN ON GRADE SHALL ALSO BE CONNECTED TO A CATCH BASIN TO BE USED AS A CLEANOUT.
8. THE OUTLET END OF THE SUBDRAIN SHALL BE PROTECTED BY A PERMANENT RODENT SHIELD. THE RODENT SHIELD SHALL HAVE THE CONFIGURATION SHOWN AND BE CONSTRUCTED FROM HOT DIP GALVANIZED STEEL INDUSTRIAL WIRE CLOTH 3x3 MESH, 0.063"x0.063" WIRE SIZE IN ACCORDANCE WITH AASHTO M232 (ASTM A153). THE COST OF THE RODENT SHIELD IS INCLUDED IN CONCRETE SLOPED HEADWALL.
9. BOTTOM OF SUBGRADE AGGREGATE SLOPE SHALL MATCH PAVEMENT SLOPE OF OUTSIDE LANE, BUT SHALL NOT BE LESS THAN 2%.

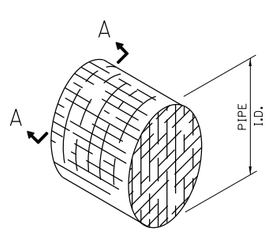
MAXIMUM ALLOWABLE DRAINAGE DISTANCE TO OUTLET OR SEPARATION DISTANCE BETWEEN OUTLETS	
ROADWAY PROFILE GRADE (%)	DISTANCE
≤ 1	250 FT.
BETWEEN 1 AND 2	375 FT.
≥ 2	500 FT. (NOTE 5)



RODENT SHIELD PLACEMENT



SECTION A-A



DETAIL OF RODENT SHIELD

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 6-1-2009

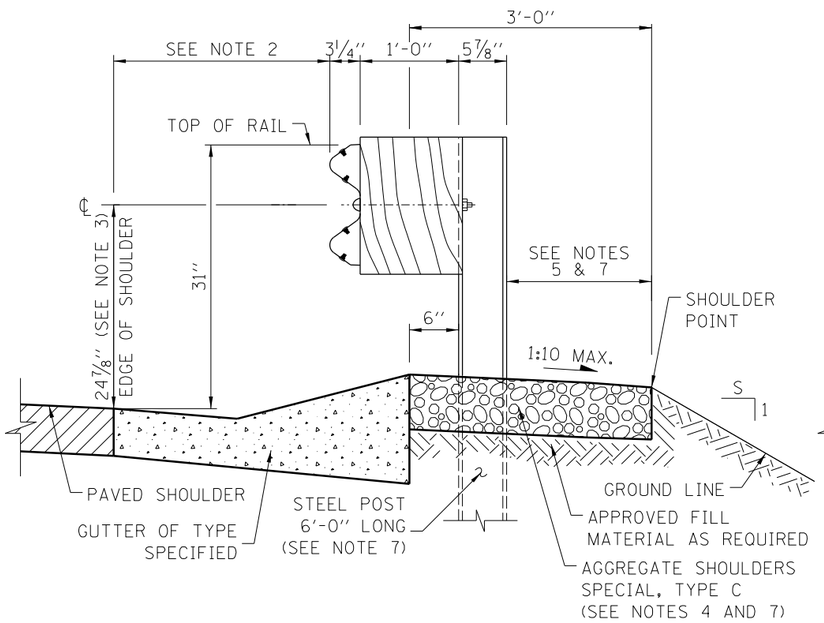
DATE	REVISIONS
06-01-09	CHANGES TO PIPE UNDERDRAIN, 6" (MODIFIED) DETAIL.
11-01-12	REVISED NOTES, MODIFIED PIPE UNDERDRAIN WITHOUT GUTTER.
3-11-2015	REVISED PIPE UNDERDRAIN DIMENSIONS.
3-31-2016	REMOVE RUBBLIZED DETAIL, ADD VAR. HEIGHT BARRIER DETAIL.

Illinois Tollway

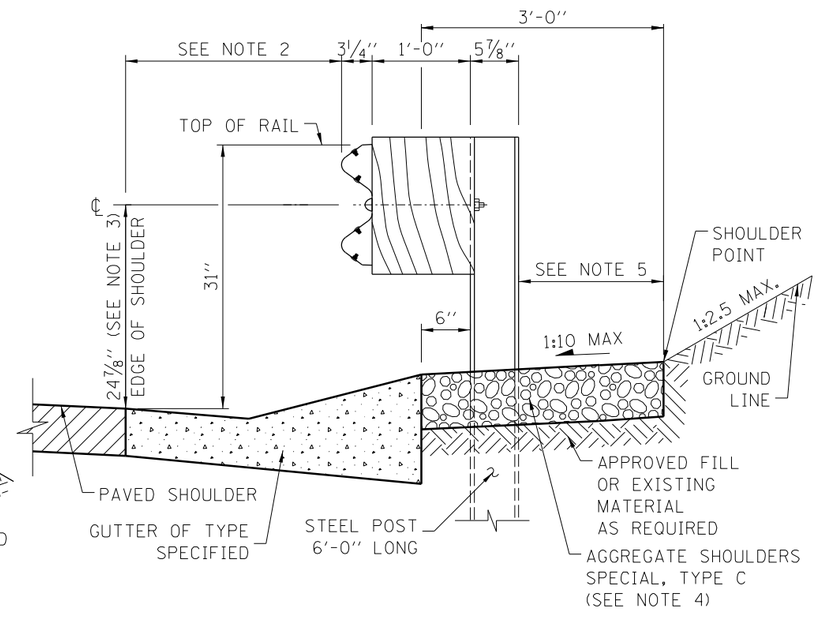
PIPE UNDERDRAINS

580 519

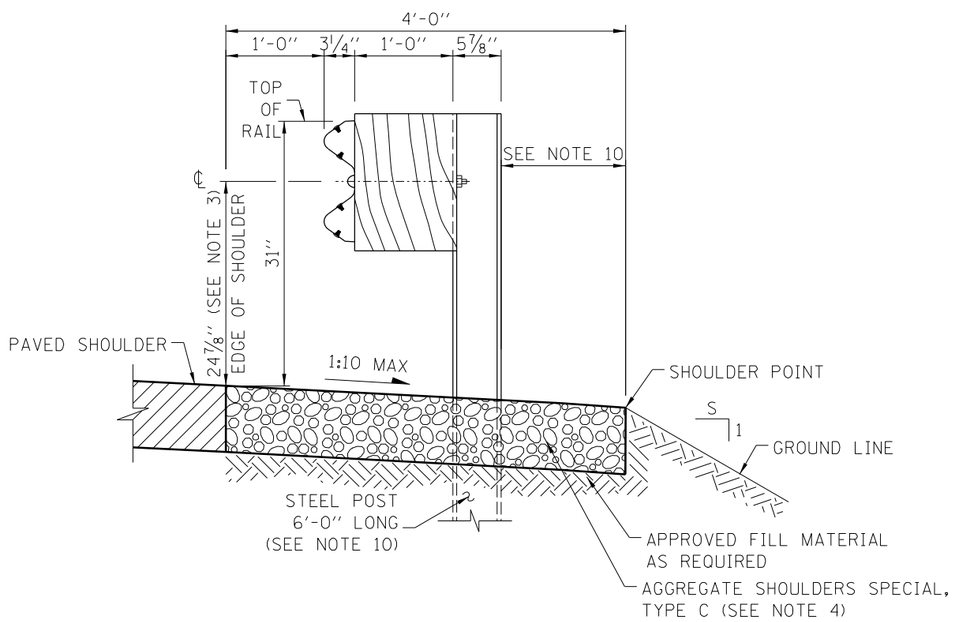
STANDARD B24-04



FILL SECTION WITH GUTTER



CUT SECTION WITH GUTTER



SECTION WITHOUT GUTTER

GUARDRAIL INSTALLATION DETAILS

NOTES:

1. 1'-0" OFFSET FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL IS TYPICAL FOR ALL INSTALLATIONS WITHOUT GUTTER EXCEPT AS OTHERWISE DETAILED IN THE PLAN DRAWINGS.
2. WHERE GUTTERS SUCH AS TYPE G-2, G-3 ARE REQUIRED IN FRONT OF THE GUARDRAIL, THE POSTS SHALL BE LOCATED 6" BEHIND THE GUTTER, OR AS OTHERWISE DETAILED IN THE PLANS. THE OFFSET FROM THE EDGE OF SHOULDER TO THE FACE OF THE GUARDRAIL SHALL BE AS SHOWN ON STANDARD B28.
3. THE 24⅞" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER WHEN EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL.
4. AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL COMPLY WITH THE REQUIREMENTS OF THE ILLINOIS TOLLWAY RECURRING SPECIAL PROVISION. WHERE GUTTER IS PROPOSED WITH GUARDRAIL, A 6" MINIMUM THICKNESS OF AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL BE PLACED BEHIND GUTTER. FOR GUARDRAIL WITHOUT GUTTER, AGGREGATE SHOULDER, TYPE C, OF THE SAME THICKNESS AS PAVED SHOULDER SHALL BE PLACED FROM THE EDGE OF PAVED SHOULDER SLOPING AWAY TO A 6" MIN. THICKNESS.
5. AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL EXTEND A MINIMUM OF 1'-0" BEHIND GUARDRAIL POST, EXCEPT AS DETAILED ELSEWHERE IN THE PLANS.
6. PLASTIC BLOCK-OUTS SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR WOOD BLOCK-OUTS ON NEW INSTALLATIONS.
7. WHEN S≤3 AND 3'-0" MIN. AGGREGATE SHOULDER WIDTH CANNOT BE MET, THE POST LENGTH SHALL BE 9'-0" AND THE AGGREGATE SHOULDER WIDTH SHALL BE 1'-0" MIN. BEHIND THE POST TO THE SHOULDER POINT.
8. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENTS (V:H).
9. UNDER NO CIRCUMSTANCES SHALL AN EXISTING GUARDRAIL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE EXTENDED, ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
10. WHEN S≤3, THE POST LENGTH SHALL BE 9'-0" AND 4'-0" AGGREGATE SHOULDER WIDTH MAINTAINED.
11. THE GUARDRAIL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.
12. GUARDRAIL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT. WHEN NECESSARY USE LEAVE-OUT DETAIL ON SHEET 4 OF 4 OF THIS SERIES.
13. GUARDRAIL POSTS SHALL NOT BE ATTACHED TO ANY STRUCTURE.

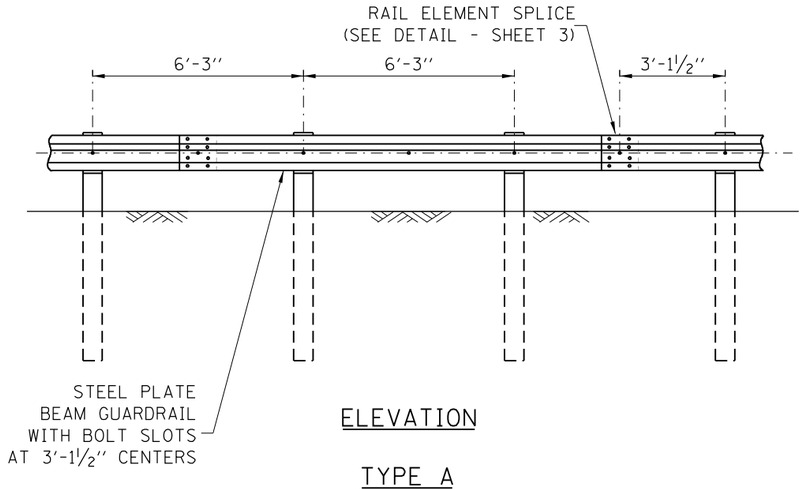
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009

Illinois Tollway

DATE	REVISIONS
11-01-12	MODIFIED AGGREGATE SHOULDERS
03-31-14	REMOVED SECONDARY HOLE FROM POST AND UPDATED NOTES.
03-31-16	ADDED SECTION, REV'D SHLDR

GALVANIZED STEEL PLATE BEAM GUARDRAIL
580 520

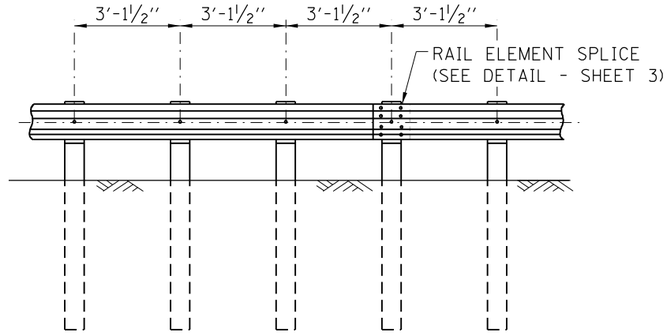
STANDARD C1-08



ELEVATION

TYPE A

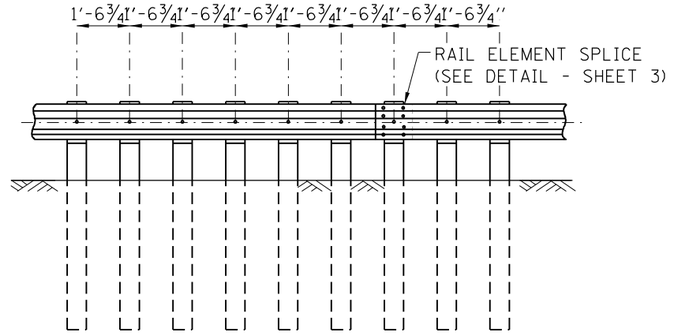
6'-3" TYPICAL POST SPACING



ELEVATION

TYPE B

3'-1½" ½ POST SPACING



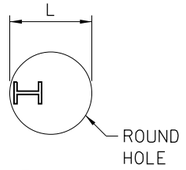
ELEVATION

TYPE C

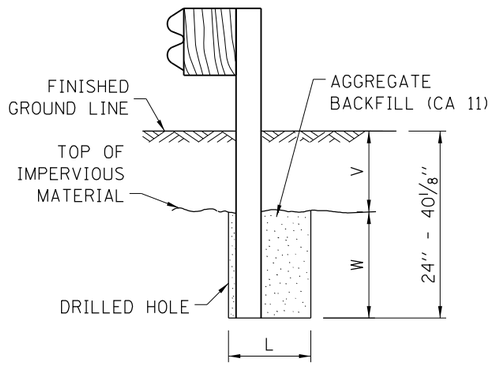
1'-6¾" ¼ POST SPACING

TABLE 1		
V	W	L
0 - 16⅛"	24"	21"
> 16⅛" - 28⅛"	12"	8"
> 28⅛" - 40⅛"	12" - 0 (*)	8"

* V + W = 40⅛"

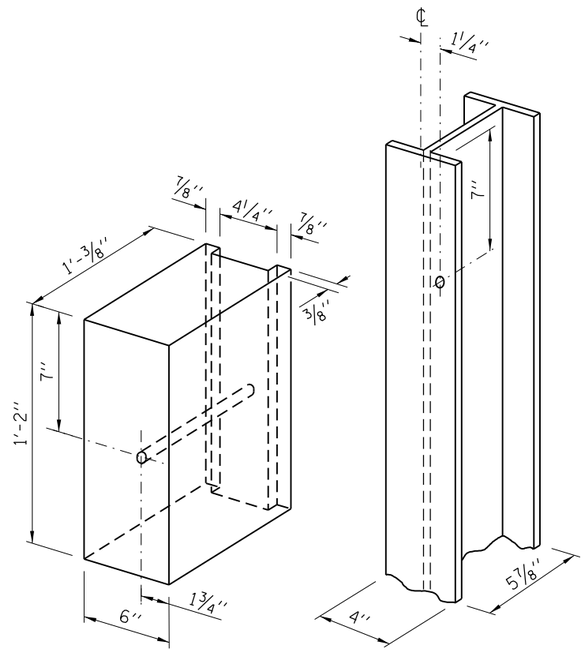


PLAN



ELEVATION

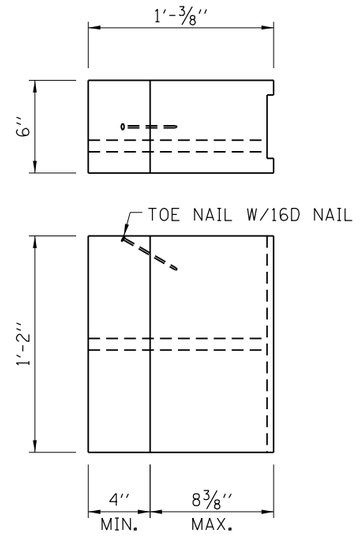
FOOTING FOR POST WHEN IMPERVIOUS MATERIAL IS ENCOUNTERED



NOTES:

ALL HOLES 3/4" DIA.

WOOD BLOCK-OUT AND STEEL POST DETAILS



TWO-PIECE WOOD BLOCK-OUT OPTION

APPROVED Paul Kovacs CHIEF ENGINEER DATE 5-1-2009

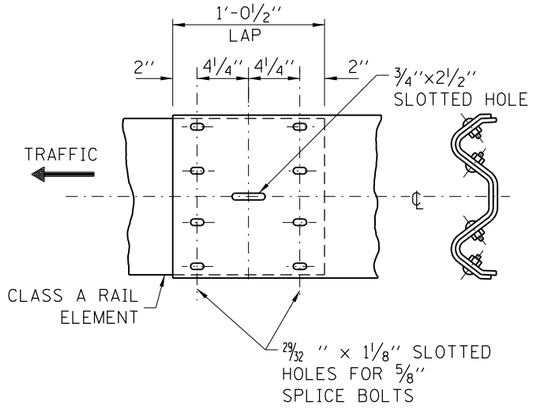
SHEET 2 OF 4

Illinois Tollway

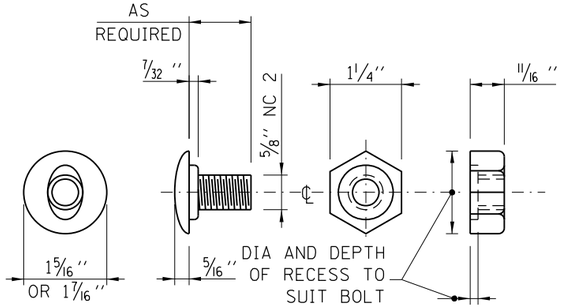
GALVANIZED STEEL PLATE BEAM GUARDRAIL

580 521

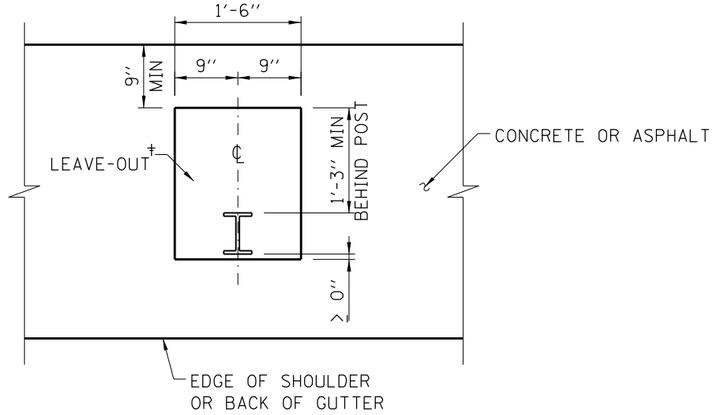
STANDARD C1-08



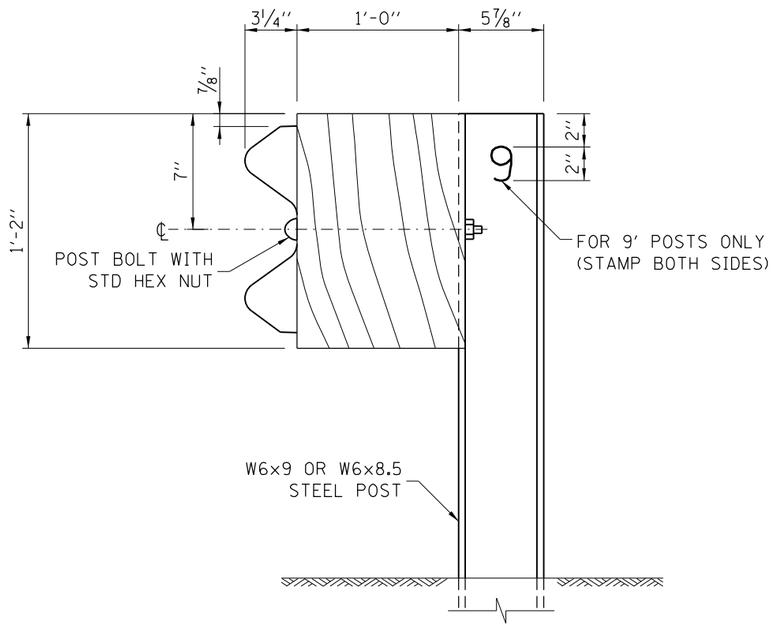
RAIL ELEMENT SPLICE



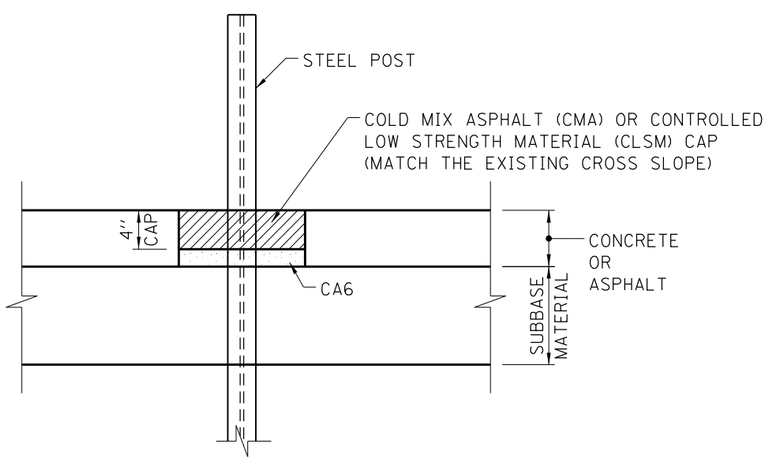
POST OR SPLICE BOLT & NUT



PLAN



STEEL POST CONSTRUCTION



ELEVATION

LEAVE-OUTS

† THE AREA AROUND THE POST THAT IS EITHER OMITTED FROM THE NEW CONSTRUCTION OR REMOVED FROM THE EXISTING CONCRETE OR ASPHALT.

Paul Kovacs
APPROVED ..... DATE 5-1-2009
CHIEF ENGINEER

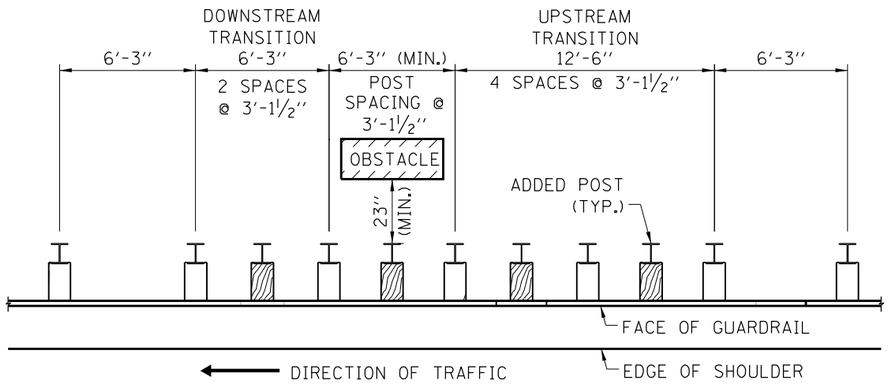
Illinois Tollway

GALVANIZED STEEL PLATE BEAM GUARDRAIL

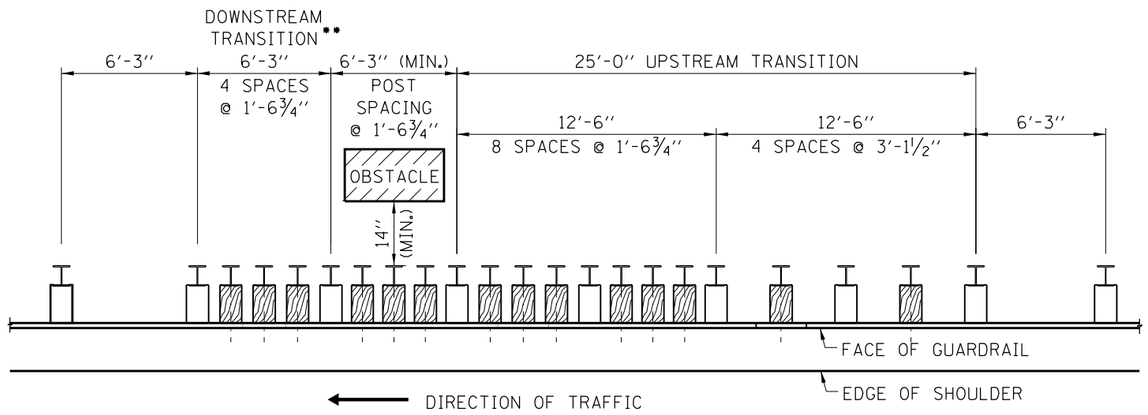
580 522

STANDARD C1-08

TABLE 2			
BARRIER CLEARANCE DISTANCE			
GUARDRAIL SYSTEM	POST SPACING	MINIMUM BARRIER CLEARANCE DISTANCE	
		CURRENT	CONST. AFTER 2017
TYPE A	6′-3″	28″	39″
TYPE B 1/2 POST SPACING	3′-1 1/2″	23″	34″
TYPE C 1/4 POST SPACING	1′-6 3/4″	14″	26″



TRANSITION TO 1/2-POST SPACING



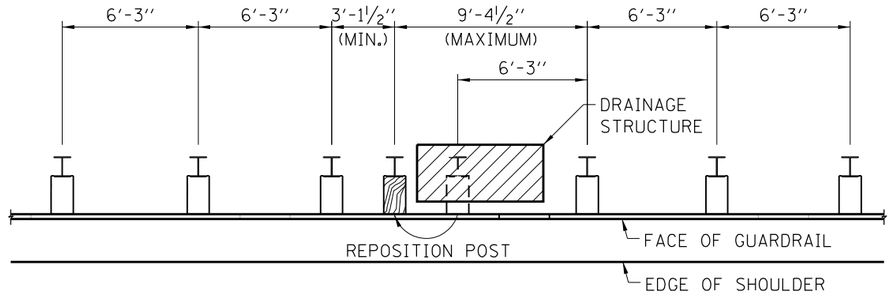
TRANSITION TO 1/4-POST SPACING

** WHEN LENGTH OF OBSTACLES IS 1′-3″ OR LESS, THE DOWNSTREAM TRANSITION SHALL BE OMITTED.

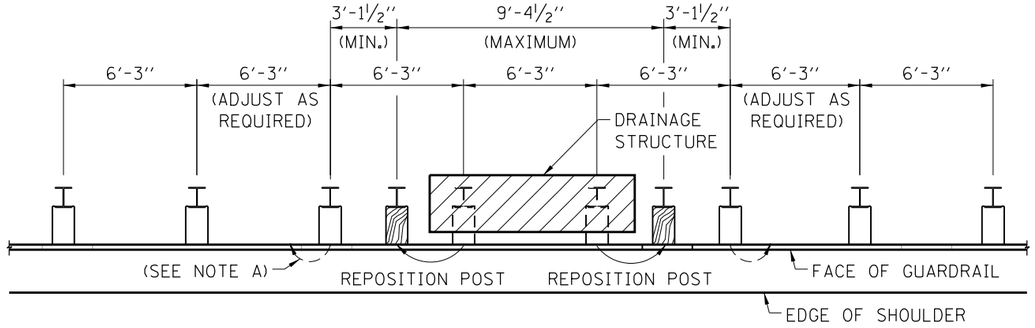
POST SPACING TRANSITIONS

NOTE: NO MODIFICATIONS OF ANY KIND TO THE TRANSITION POST SPACING ARE ALLOWED.

Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 5-1-2009



TYPE A GUARDRAIL-DRAINAGE STRUCTURE CONFLICT
ONE POST



TYPE A GUARDRAIL - DRAINAGE STRUCTURE CONFLICT
TWO POSTS

DRAINAGE STRUCTURE CONFLICTS

NOTES:

A. GUARDRAIL POSTS SHALL NOT BE ELIMINATED; ALL POSTS MUST BE USED. POSTS ADJACENT TO REPOSITIONED POSTS MAY NEED TO BE MOVED TO KEEP 3′-1 1/2″ MINIMUM SPACING.

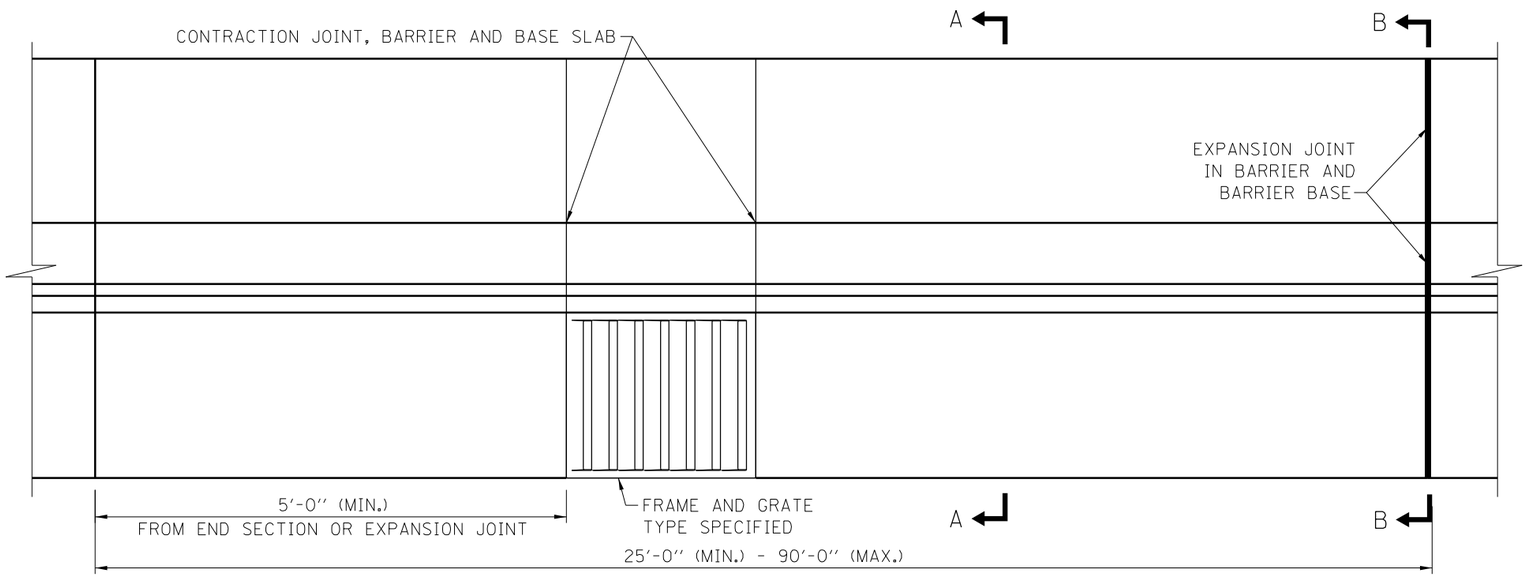
B. GUARDRAIL POSTS SHALL NOT BE SET BACK TO AVOID CONFLICTS WITH A DRAINAGE STRUCTURE.

C. THIS DETAIL ALSO APPLIES TO OTHER UNDERGROUND CONFLICTS.

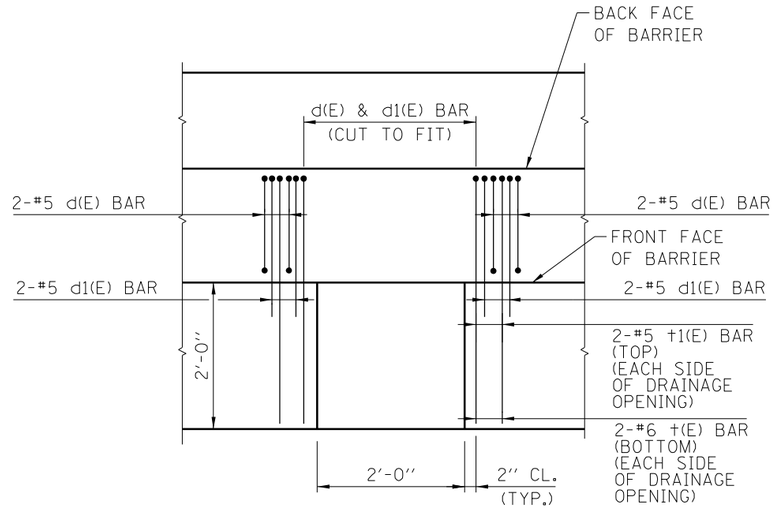
Illinois Tollway

GALVANIZED STEEL PLATE BEAM GUARDRAIL
580 523

STANDARD C1-08

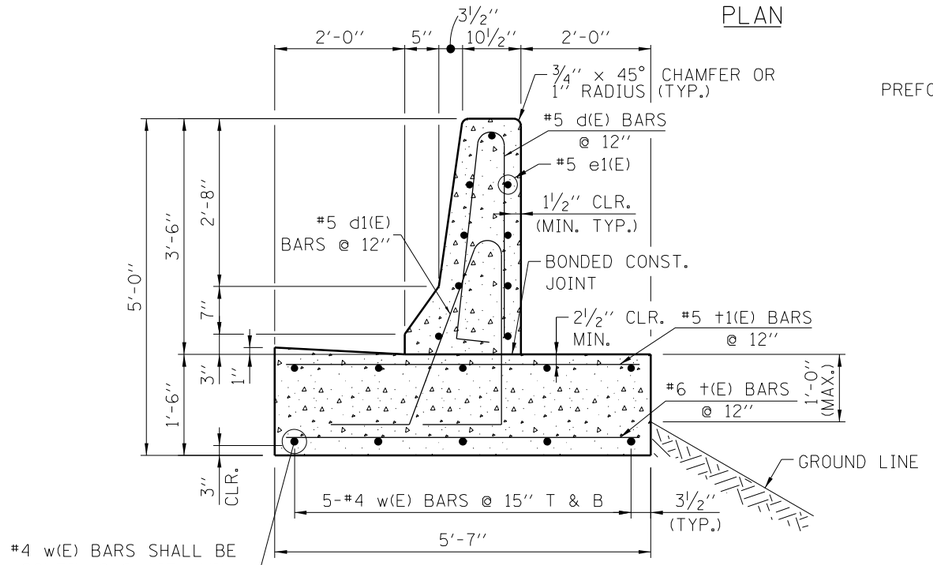


PLAN

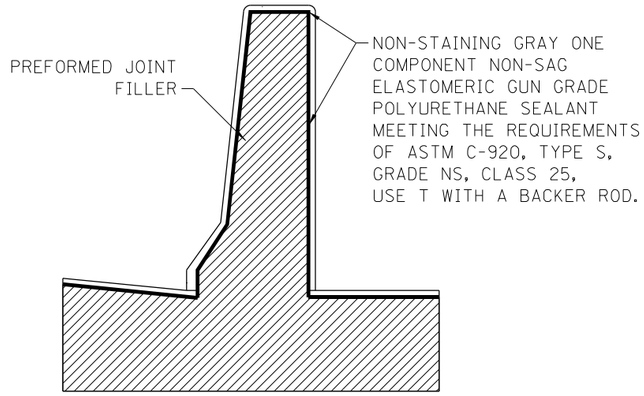


PLAN

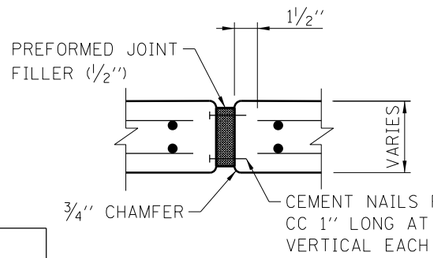
REINFORCEMENT AROUND DRAINAGE STRUCTURE



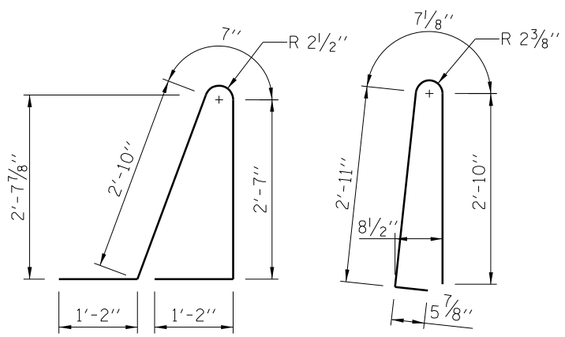
TYPE F BARRIER
SECTION A-A



TYPE F BARRIER
EXPANSION JOINT
SECTION B-B



EXPANSION JOINT



BAR d1(E) BAR d(E)

BENDING DIAGRAMS

NOTES:

1. TOP SHOULDER EDGE OF BARRIER BASE GUTTER SHALL MATCH THE TOP OF SHOULDER ELEVATION.
2. 1'' DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN BOTH THE REINFORCED CONCRETE BARRIER WALL AND BASE. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0''.
3. THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.
4. REINFORCEMENT BARS DESIGNATED ''(E)'' SHALL BE EPOXY COATED.
5. REINFORCEMENT BARS BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE ''MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES'', ACI 315, LATEST EDITION.
6. REINFORCEMENT BARS BENDING DIMENSIONS ARE OUT TO OUT.
7. AT DRAINAGE STRUCTURES, CUT FOOTING BARS TO FIT. ADD AN ADDITIONAL SET OF d, d1, †, AND †1 BARS ON EACH SIDE OF THE DRAINAGE STRUCTURE.
8. EXPANSION JOINTS SHALL BE CONSTRUCTED IN BARRIER WALL AT MAXIMUM JOINT SPACING OF 90'-0''. SEE SECTION B-B FOR DETAILS.
9. MINIMUM LENGTH OF INSTALLATION SHALL BE 25'-0''.
10. MINIMUM EXPANSION JOINT SPACING SHALL BE 25'-0''.

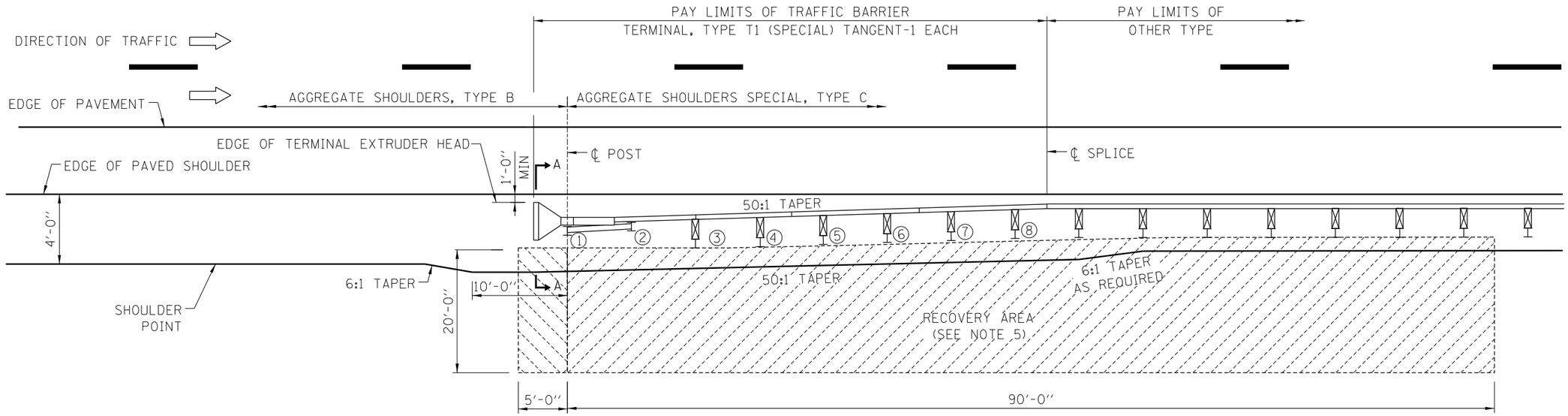
Paul Kovacs
APPROVED ..... CHIEF ENGINEER DATE 2-7-2012

DATE	REVISIONS
11-01-12	GUTTER TRANS. TAPER DET.
	NEW JOINT DET., REV. NOTES
10-01-13	REVISED REINFORCEMENT
	BARS AND GUTTER WIDTH
03-31-14	REDESIGNED FOR TL-4 LOADING
3-11-2015	REVISED BENDING DIAGRAM
3-31-2016	ADDED MAX. EXPOSED BASE,
	REVISED EXP. JT. NOTE

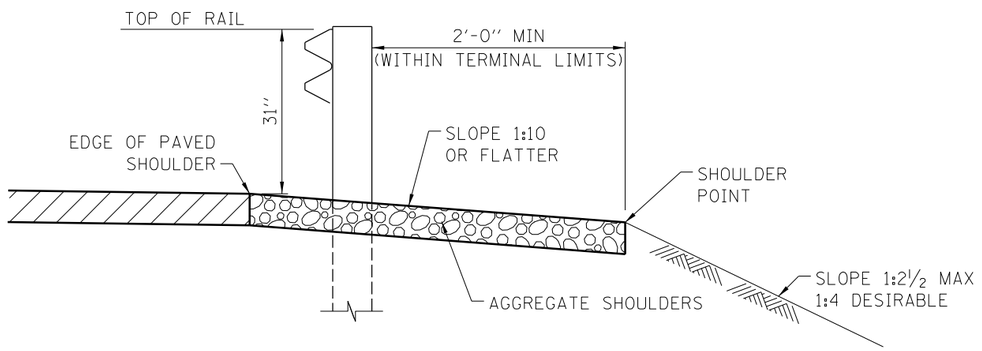
Illinois Tollway

SINGLE FACE REINFORCED CONCRETE BARRIER
580 524

STANDARD C3-06



SHOULDER WIDENING TRANSITION-WITHOUT GUTTER FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT



SECTION A-A
(EXTRUDER HEAD OMITTED FOR CLARITY)

GENERAL NOTES:

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

2. REFERENCE ILLINOIS TOLLWAY STANDARD DRAWING B28 FOR GUTTER TRANSITION, AND MINIMUM DISTANCE FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL.

3. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY WAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

4. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND SPECIFICATIONS.

5. NO ROADSIDE OBSTACLE OF ANY TYPE-FIXED OR BREAKAWAY, EITHER TEMPORARY OR PERMANENT SHALL BE ALLOWED WITHIN THIS RECOVERY AREA.

6. ON TANGENT ROADWAY: TRAFFIC BARRIER TERMINAL SHALL BE INSTALLED AT A 50:1 TAPER MEASURED FROM EDGE OF TRAVELED WAY.
ON CURVED ROADWAY: THE EDGE OF THE TERMINAL EXTRUDER HEAD SHALL BE OFFSET A DISTANCE FROM A POINT ON THE BACK OF THE CURVED EDGE OF PAVED SHOULDER AS SHOWN IN TABLE 1. NO CURVED W-BEAM SECTIONS ARE PERMITTED WITHIN THE TERMINAL PAY LIMITS. THE TERMINAL SHALL BE LAID OUT IN A STRAIGHT LINE.

7. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR HMA. WHEN NECESSARY USE LEAVE-OUT DETAIL SHOWN ON ILLINOIS TOLLWAY STANDARD DRAWING C1.

8. THE TERMINAL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH REPORT (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.

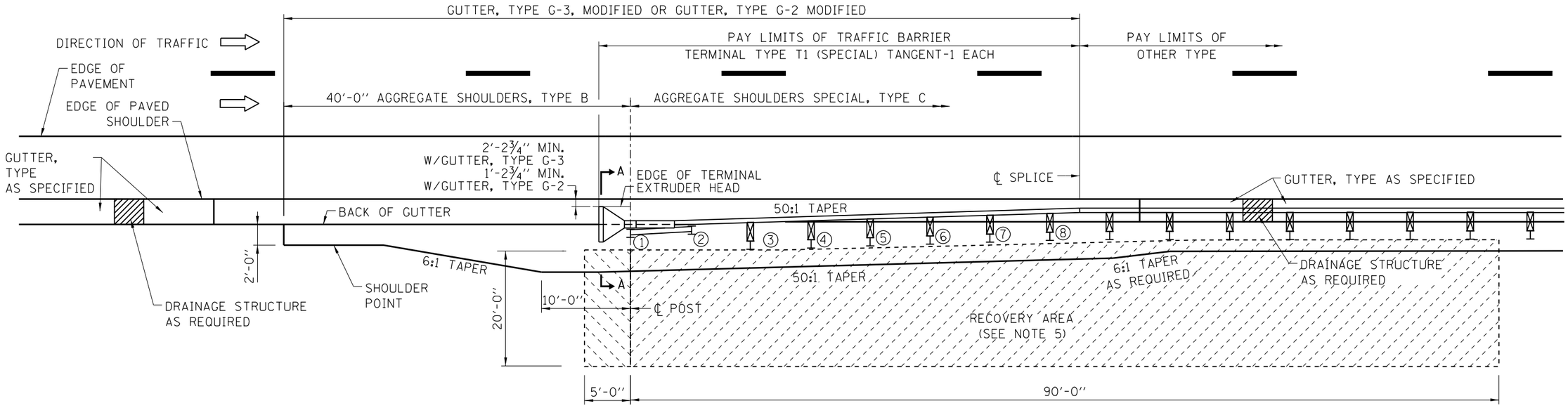
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

DATE	REVISIONS
03-01-13	TERMINAL CHANGED TO ALL
	STEEL POST SYSTEM, REVISED
	TERMINAL PAY LIMITS
03-31-14	REVISED RECOVERY AREA
	DIMENSION
3-11-2015	REVISED NOTES
3-31-2016	COMBINED G-3 & G-2

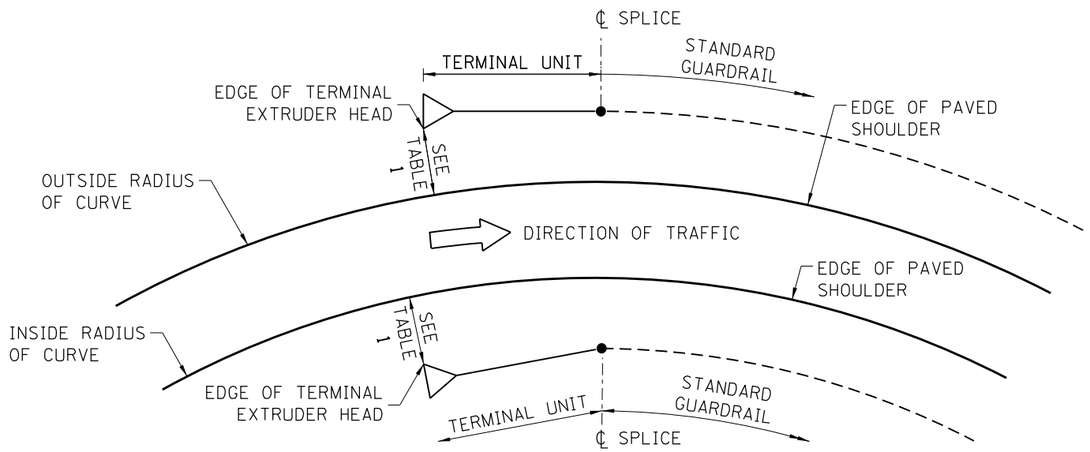
Illinois Tollway

SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT
580 525

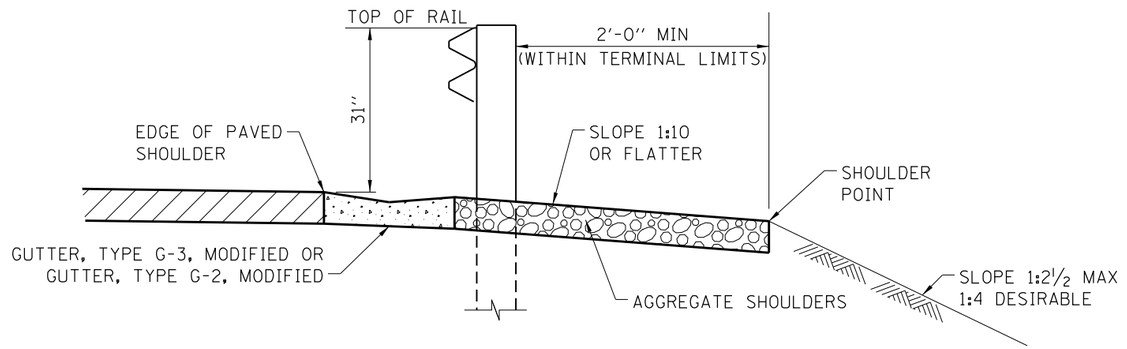
STANDARD C6-08



SHOULDER WIDENING TRANSITION-WITH GUTTER, TYPE G-3 OR TYPE G-2 FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT



CURVED ROADWAY
TRAFFIC BARRIER TERMINAL PLACEMENT



SECTION A-A
(EXTRUDER HEAD OMITTED FOR CLARITY)

TABLE 1		
LATERAL OFFSET DIMENSION TO EDGE OF TERMINAL EXTRUDER HEAD		
	INSIDE RADIUS OF CURVE	OUTSIDE RADIUS OF CURVE
NO GUTTER	1'-0"	1'-0" MIN. *
GUTTER, TYPE G-2	1'-2¾"	1'-2¾" MIN. *
GUTTER, TYPE G-3	2'-2¾"	2'-2¾" MIN. *

(*) OFFSET DISTANCE WILL VARY BASED ON RADIUS OF HORIZONTAL CURVE AND THE TERMINAL BEING INSTALLED IN A STRAIGHT LINE.

NOTES:

SEE SHEET 1 OF THIS SERIES FOR NOTES.

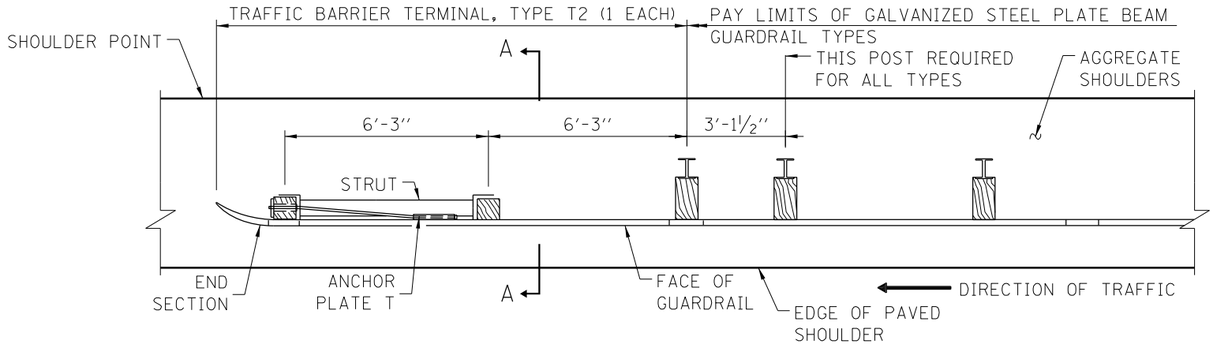
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

Illinois Tollway

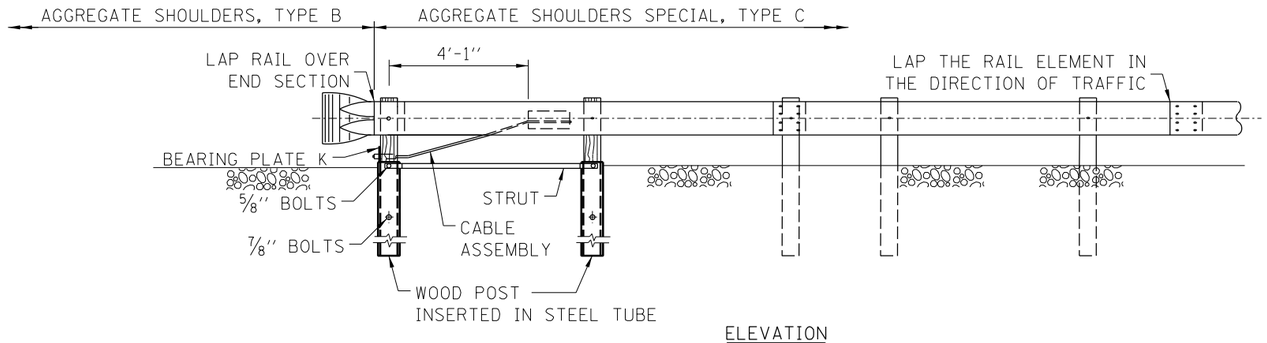
SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT

580 526

STANDARD C6-08

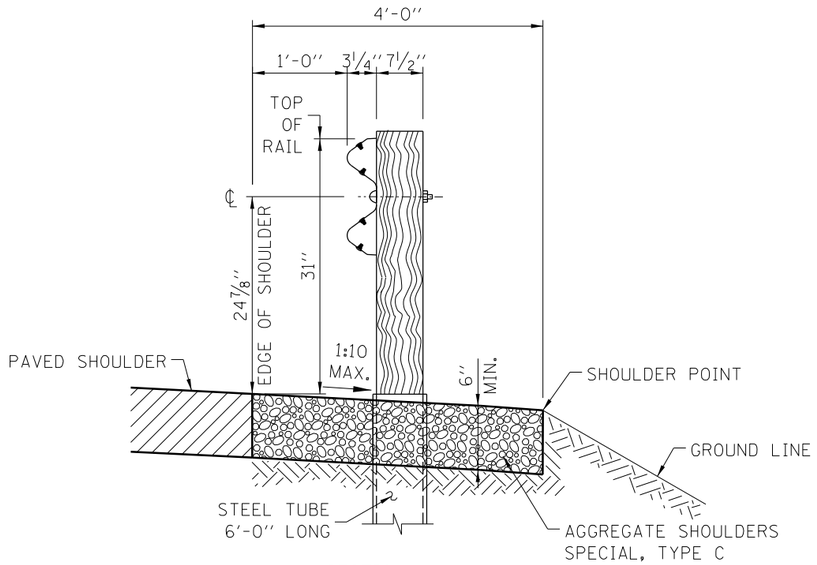


PLAN



ELEVATION

TRAFFIC BARRIER TERMINAL, TYPE T2-WITHOUT GUTTER



SECTION A-A

NOTES:

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THE BEARING PLATE K SHALL BE HELD IN POSITION BY TWO 8D NAILS DRIVEN INTO THE POST AND BENT OVER THE TOP OF THE PLATE.
3. THE TRAFFIC BARRIER TERMINAL, TYPE T2 IS TYPICALLY UTILIZED FOR THE DEPARTING END SECTION OF A GALVANIZED STEEL PLATE BEAM GUARDRAIL BARRIER SYSTEM.
4. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
6. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1.
7. WHERE GUTTER, TYPE G-2 OR GUTTER, TYPE G-3 ARE REQUIRED IN FRONT OF THE GUARDRAIL, THE POSTS SHALL BE LOCATED 6" BEHIND THE GUTTER, OR AS OTHERWISE DETAILED IN THE PLANS. THE OFFSET FROM THE EDGE OF SHOULDER TO THE FACE OF THE GUARDRAIL SHALL BE AS SHOWN ON ILLINOIS TOLLWAY STANDARD DRAWING B28.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

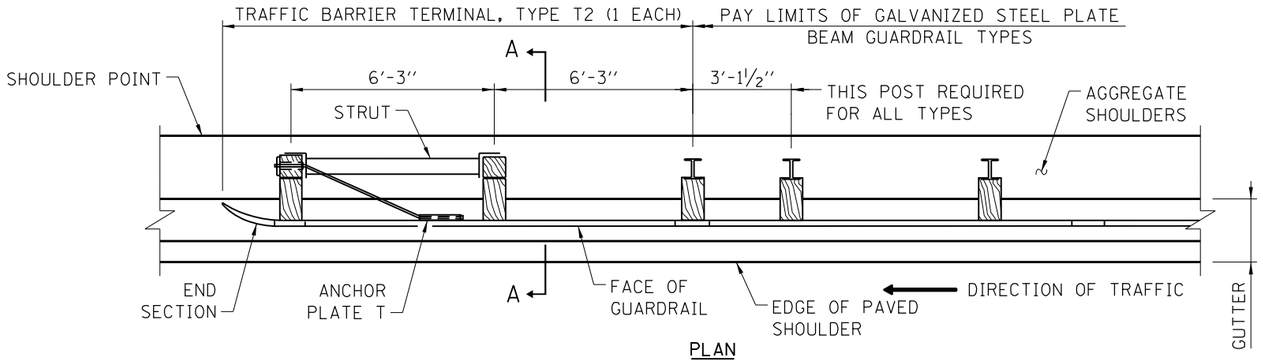
DATE	REVISIONS
2-07-2012	REVISED DIMENSIONS OF BEARING PLATE,
	POST, CABLE STRUT AND TUBE AND NOTES
11-01-2012	MODIFIED AGGREGATE SHOUILDERS,
	REVISED WOOD POST DIMENSION
3-31-2014	REVISED NOTES
3-11-2015	REVISED NOTES
3-31-2016	REVISED SECTION A-A SHOULDER

Illinois Tollway

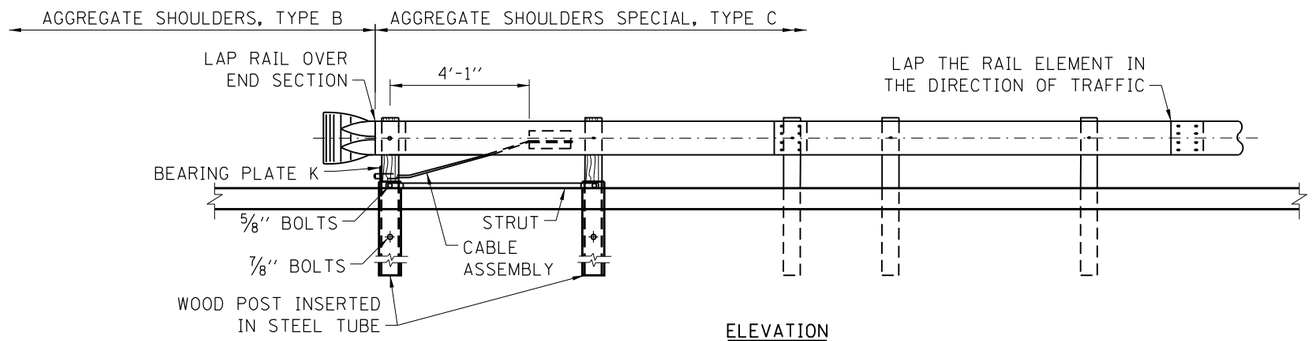
TRAFFIC BARRIER TERMINAL, TYPE T2

580 527

STANDARD C7-07

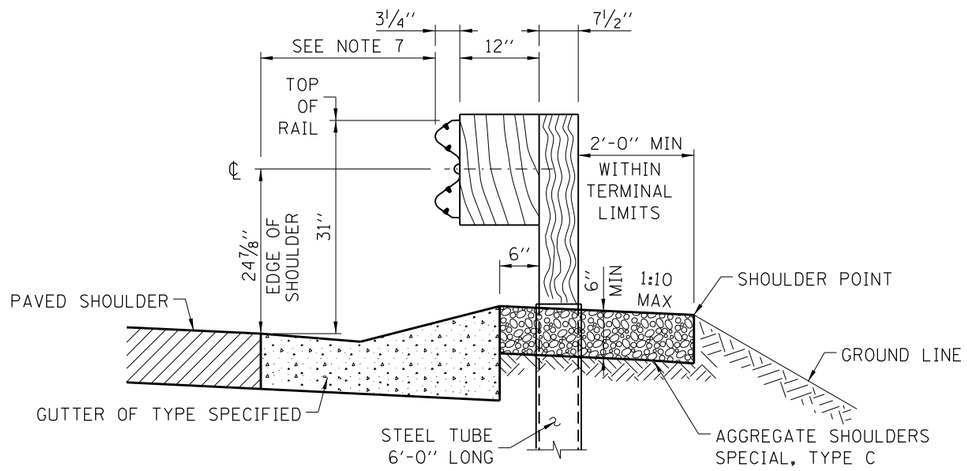


PLAN



ELEVATION

TRAFFIC BARRIER TERMINAL, TYPE T2-WITH GUTTER



SECTION A-A

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

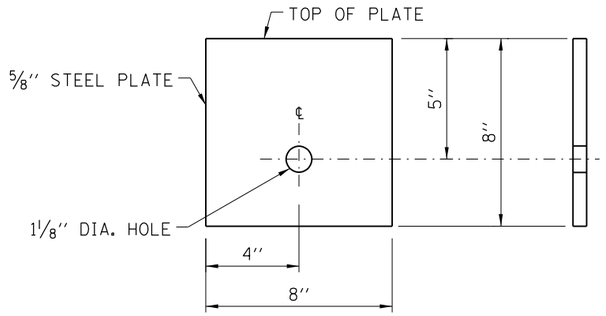
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

Illinois Tollway

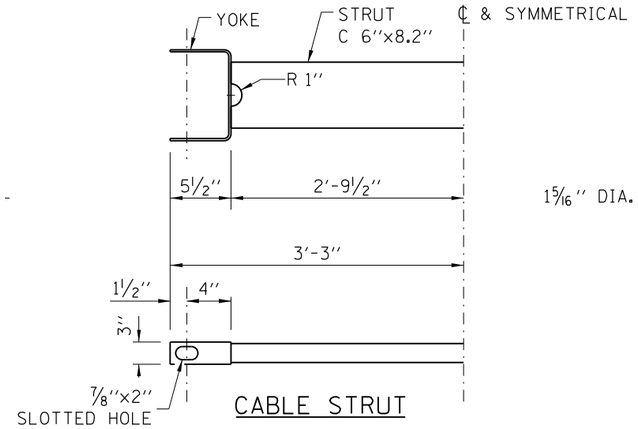
TRAFFIC BARRIER TERMINAL, TYPE T2

580 528

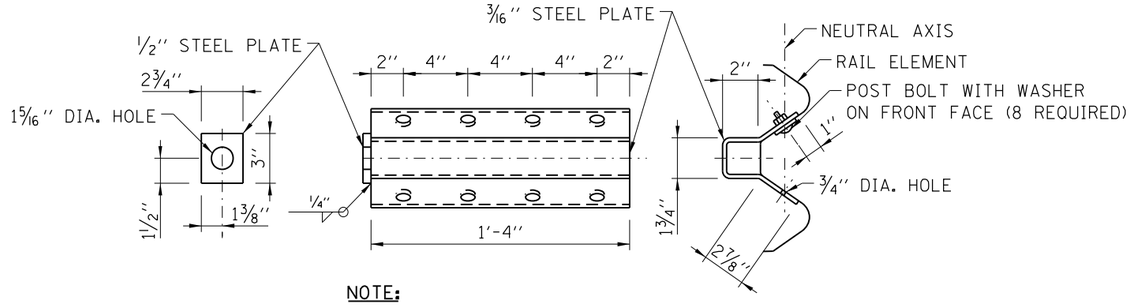
STANDARD C7-07



BEARING PLATE K

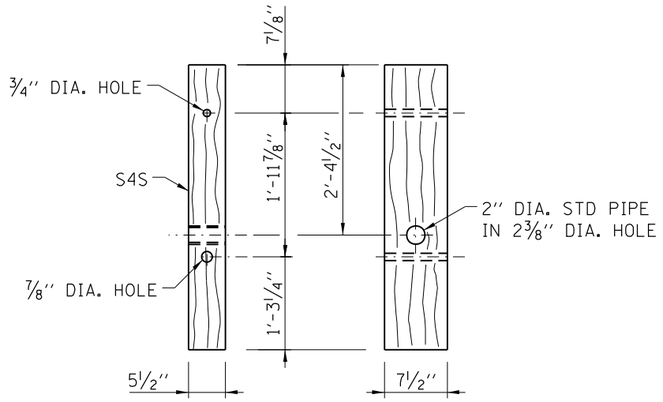


CABLE STRUT

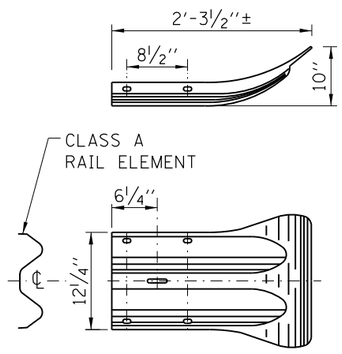


NOTE:
ANCHOR PLATE T SHALL BE USED TO ATTACH CABLE ASSEMBLY TO GUARDRAIL WHEN REQUIRED ON TRAFFIC BARRIER TERMINALS.

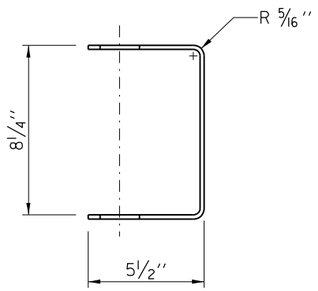
ANCHOR PLATE T DETAILS



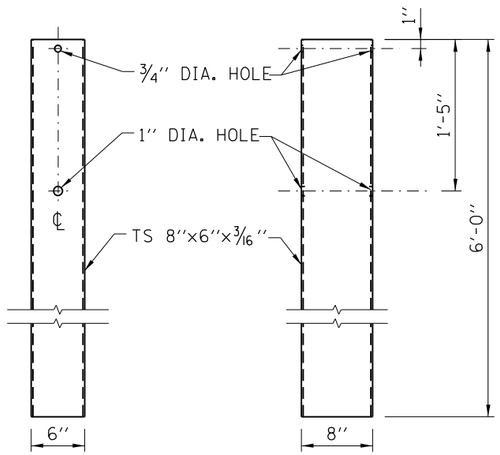
WOOD POST



END SECTION

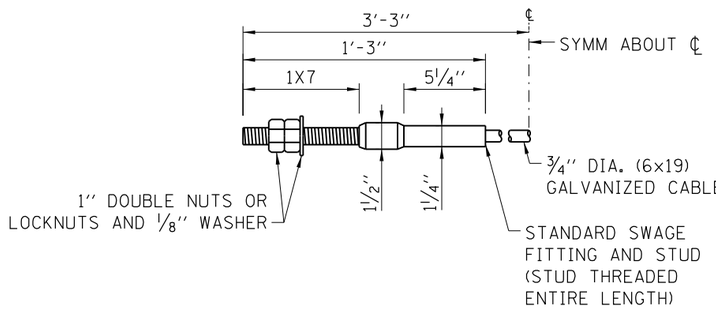


YOKE
3/16" THICK STEEL



FRONT SIDE

STEEL TUBE



CABLE ASSEMBLY
(40,000 LBS.) MIN. BREAKING STRENGTH)
TIGHTEN TO TAUT TENSION

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

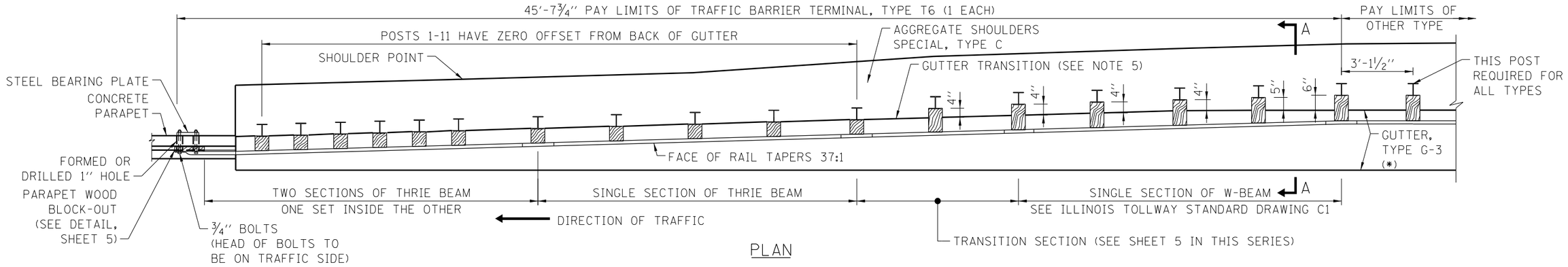
Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T2

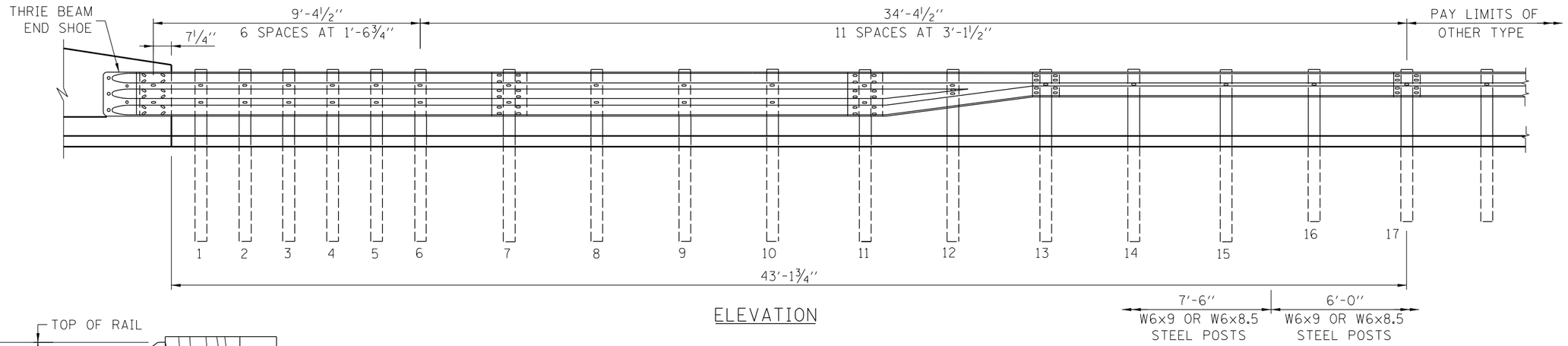
580 529

STANDARD C7-07

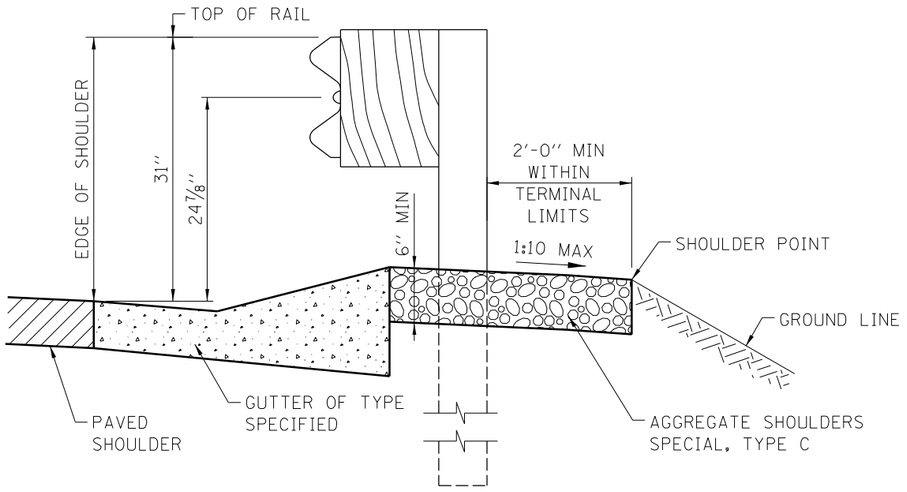
*GUTTER LINES OMITTED FOR CLARITY



PLAN



ELEVATION



WITH GUTTER,TYPE G-3

SECTION A-A

NOTES:

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.
3. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
4. THE TRAFFIC BARRIER TERMINAL, TYPE T6 IS TYPICALLY UTILIZED TO ATTACH GALVANIZED STEEL PLATE BEAM GUARDRAIL AT THE UPSTREAM END OF THE BRIDGES CONCRETE PARAPET, WHERE A ROADSIDE GUTTER IS TO BE INSTALLED.
5. SEE ILLINOIS TOLLWAY STANDARD DRAWING B3 FOR GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6.
6. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT COMFORMS TO THE CURRENT STANDARD.
7. TRAFFIC BARRIER TERMINAL, TYPE T6 SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
8. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1.
9. TERMINAL POSTS TO BE INSTALLED PERPENDICULAR TO BACK OF GUTTER.
10. THE TERMINAL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.
11. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON ILLINOIS TOLLWAY STANDARD DRAWING C1.
12. LEAVE-OUT DIMENSION BEHIND POSTS 1-6, SHALL BE A MINIMUM OF 4''.

Paul Kovacs
APPROVED . . . . . DATE 7-1-2009
CHIEF ENGINEER

DATE	REVISIONS
2-07-2012	REVISED BOLT NOTES, ANCHORAGE ADHESIVE AND REVISED NOTES.
11-01-2012	MODIFIED AGGREGATE SHOULDERS, REVISED NOTES.
3-31-2014	REVISED NOTES.
3-11-2015	REVISED NOTES AND ADDED DETAIL.
3-31-2016	REVISED SHOULDER SECTION

Illinois Tollway

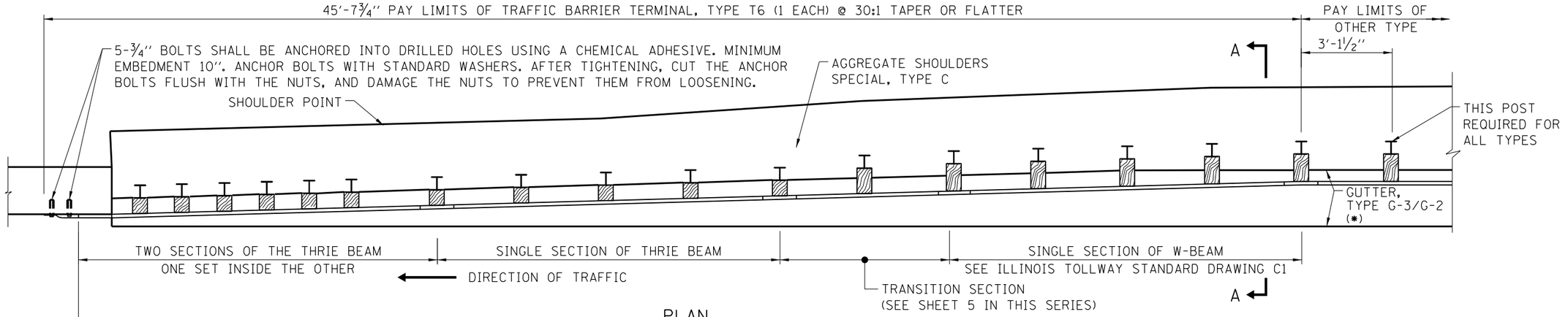
FOR PARAPET (SAFETY FACE) WITH GUTTER, TYPE G-3

TRAFFIC BARRIER TERMINAL, TYPE T6

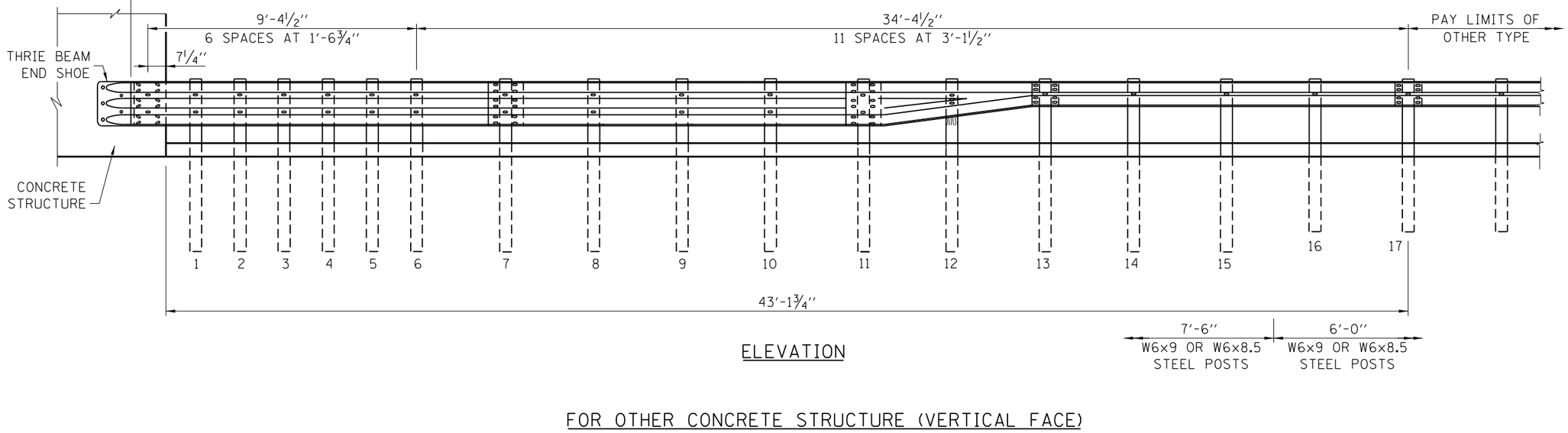
580 530

STANDARD C9-07

*GUTTER LINES OMITTED FOR CLARITY



PLAN



ELEVATION

FOR OTHER CONCRETE STRUCTURE (VERTICAL FACE) WITH GUTTER

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 7-1-2009

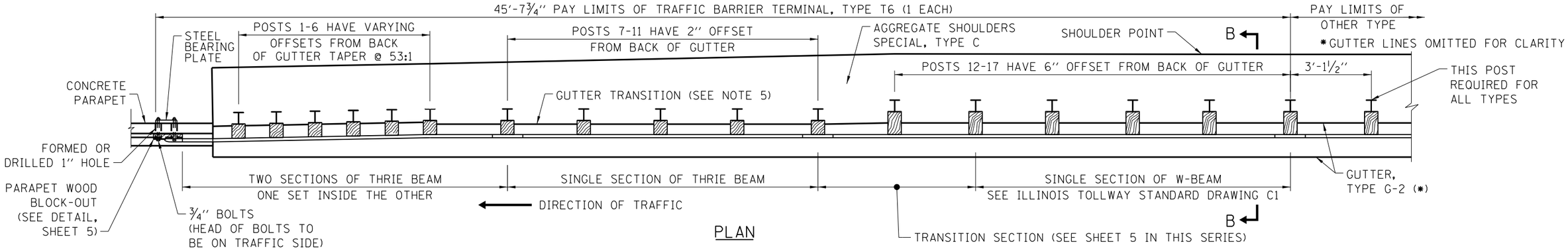
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES AND SECTION A-A.

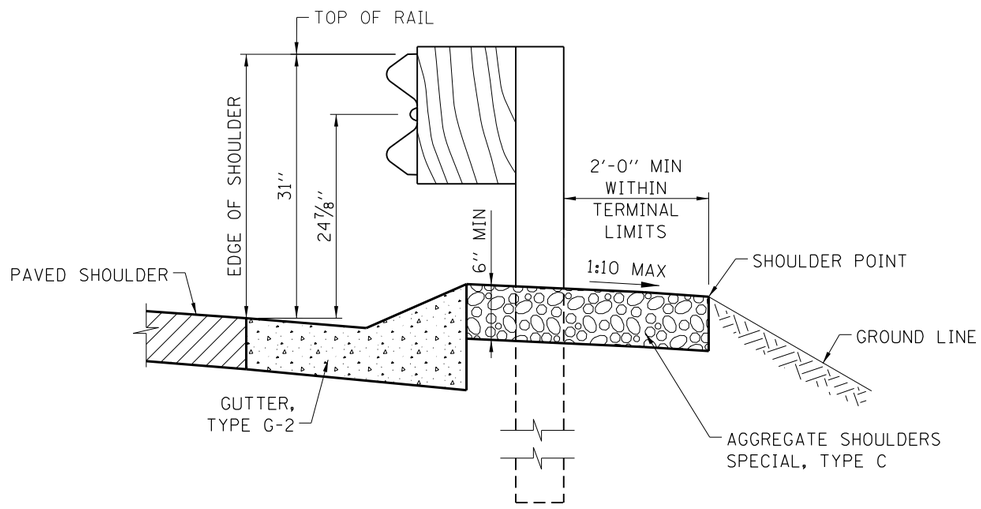
Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T6

580 531

STANDARD C9-07





SECTION B-B
WITH GUTTER, TYPE G-2

FOR PARAPET (SAFETY FACE)
WITH GUTTER, TYPE G-2

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 7-1-2009

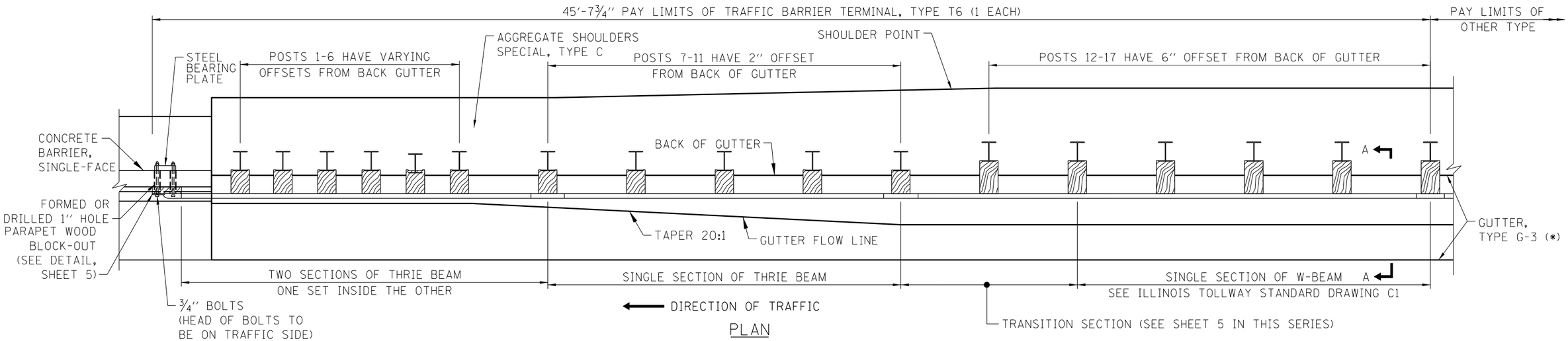
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Illinois Tollway

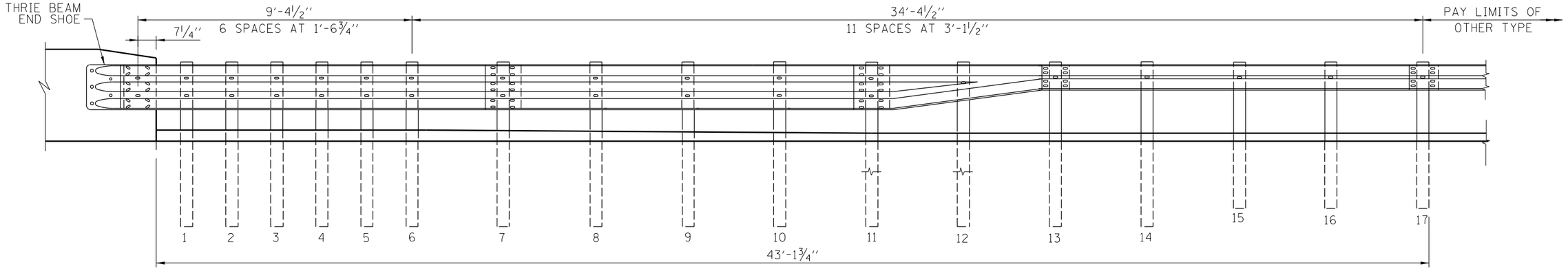
TRAFFIC BARRIER TERMINAL
TYPE T6
580 532

STANDARD C9-07

*GUTTER LINES OMITTED FOR CLARITY



PLAN



ELEVATION

FOR CONCRETE BARRIER, SINGLE-FACE W/ GUTTER, TYPE G-3

Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

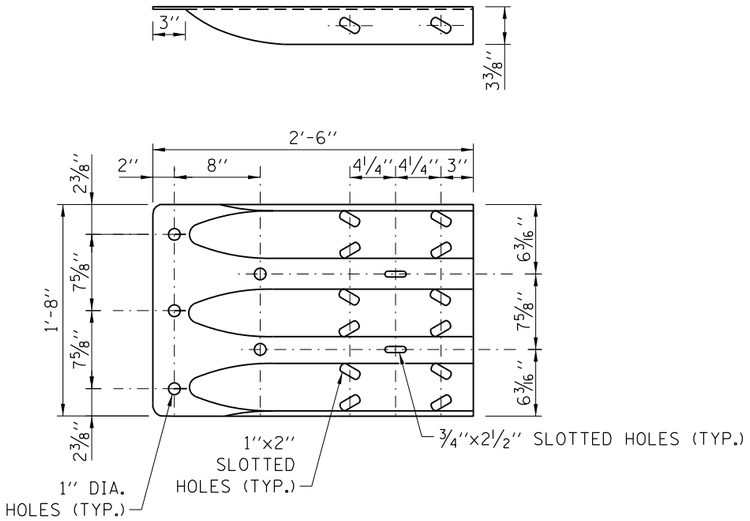
NOTE:
SEE SHEET 1 OF THIS SERIES FOR GUTTER TRANSITION NOTES AND SECTION A-A.

Illinois Tollway

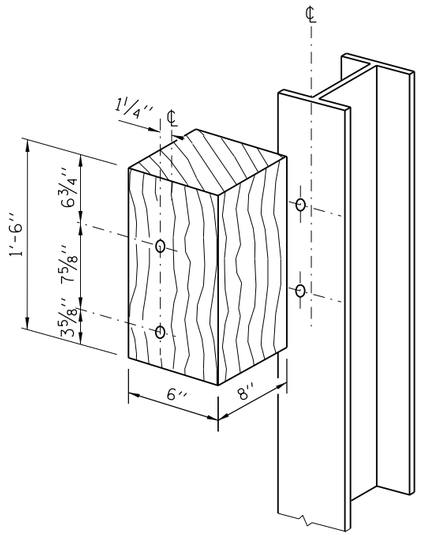
TRAFFIC BARRIER TERMINAL, TYPE T6

580 533

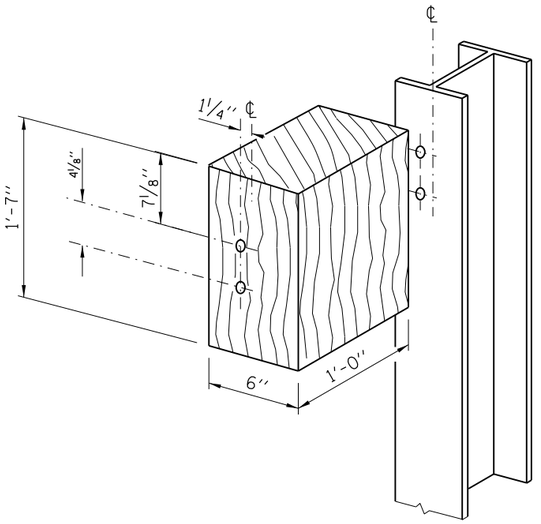
STANDARD C9-07



THRIE BEAM END SHOE DETAIL

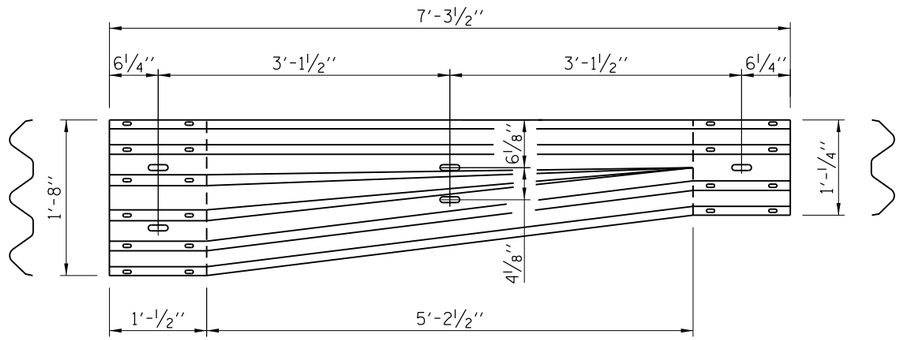


POSTS 1-11 WOOD BLOCK-OUT DETAIL



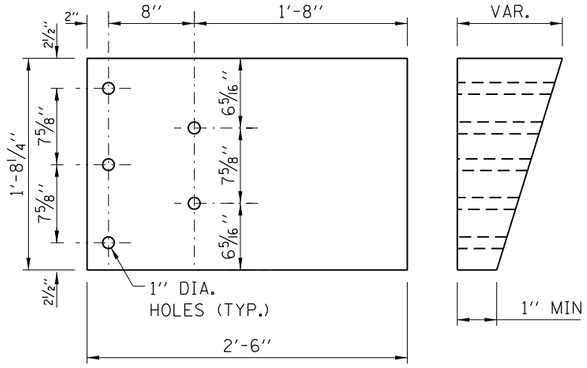
POST 12 WOOD BLOCK-OUT DETAIL

(SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR POST 13-17 BLOCKOUTS)

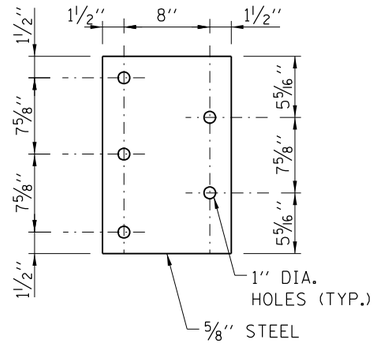


TRANSITION SECTION

(10 GUAGE RAIL ELEMENT)



PARAPET WOOD BLOCK-OUT DETAIL



PARAPET STEEL BEARING PLATE DETAIL

(5 EACH INDIVIDUAL 5''x5''x5/8'' STEEL PLATES WITH CENTERED 1'' HOLES MAY BE SUBSTITUTED FOR THE PLATE SHOWN.)

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

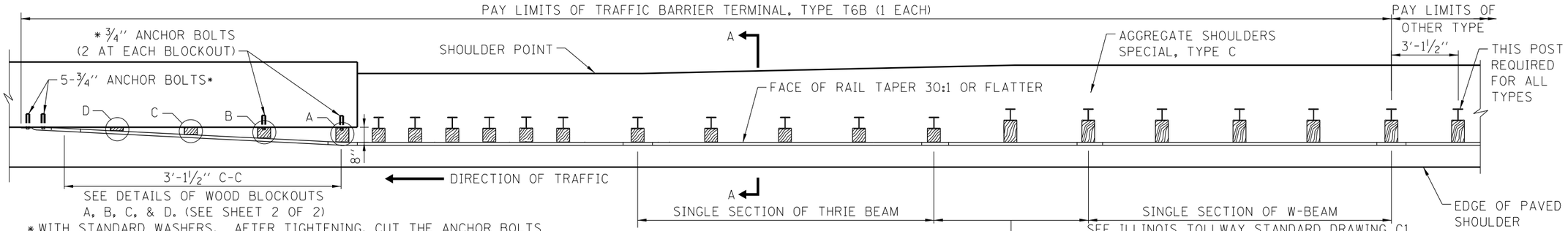
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T6

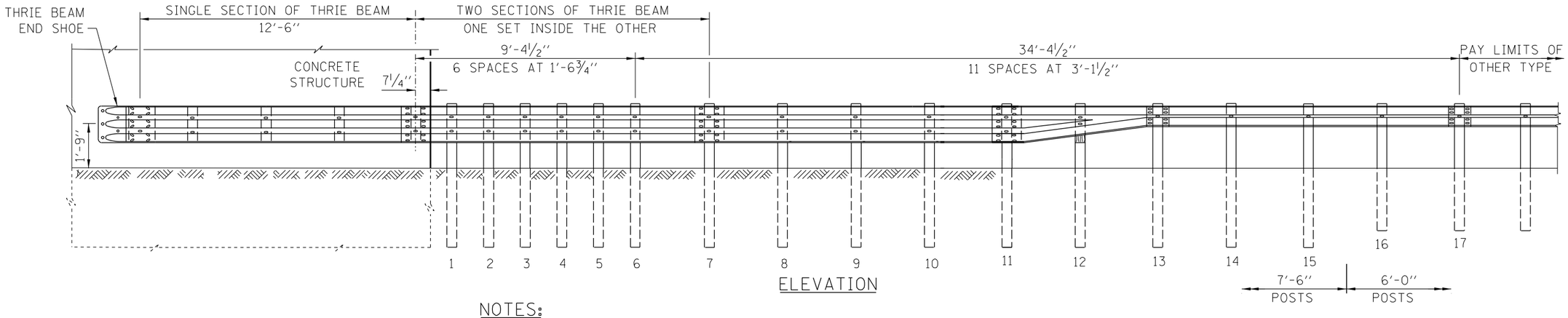
580 534

STANDARD C9-07

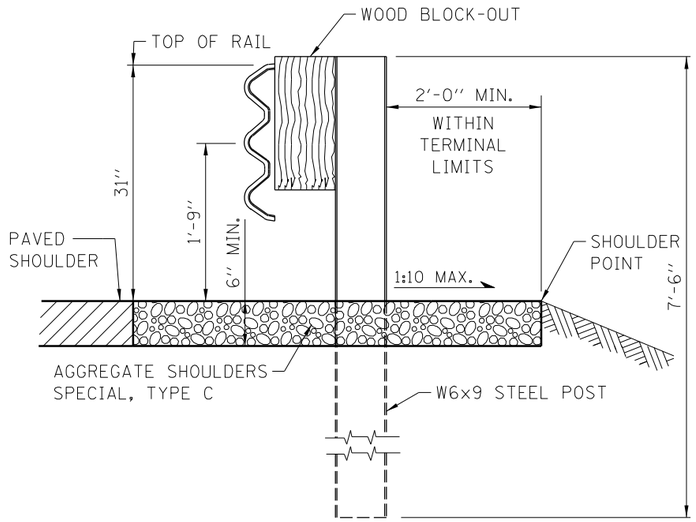


* WITH STANDARD WASHERS. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING. BOLTS SHALL BE ANCHORED INTO DRILLED HOLES USING A CHEMICAL ADHESIVE RESIN SYSTEM. MINIMUM EMBEDMENT 10''.

PLAN



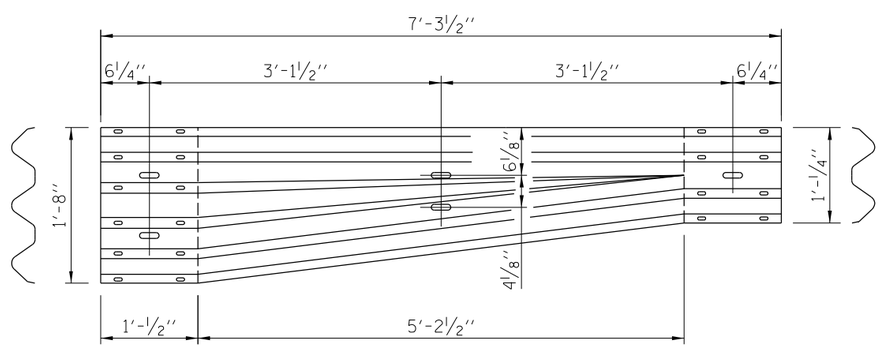
ELEVATION



SECTION A-A

NOTES:

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.
3. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
4. THE TRAFFIC BARRIER TERMINAL, TYPE T6B IS TYPICALLY UTILIZED TO ATTACH GALVANIZED STEEL PLATE BEAM GUARDRAIL AT THE UPSTREAM END OF THE BRIDGE CONCRETE PARAPET, WHERE A ROADSIDE GUTTER IS NOT TO BE INSTALLED.
5. UNDER NO CIRCUMSTANCES SHALL EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
6. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
7. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1, SHEET 4 OF 4.
8. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON ILLINOIS TOLLWAY STANDARD DRAWING C1.
9. LEAVE-OUT DIMENSION BEHIND POSTS 1-6, SHALL BE A MINIMUM OF 4''.



TRANSITION SECTION
(10 GUAGE RAIL ELEMENT)

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

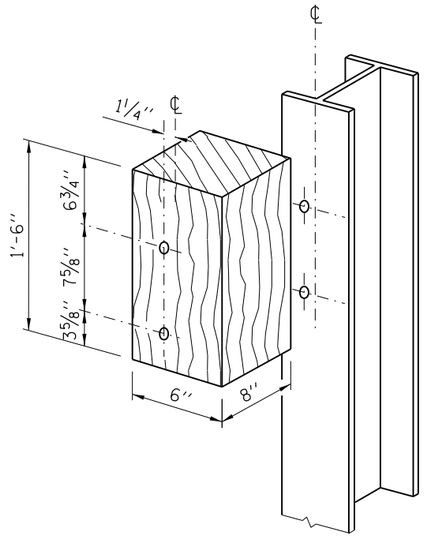
DATE	REVISIONS
2-07-2012	REVISED WOOD BLOCK-OUT DIMENSION
	ADHESIVE AND REVISED NOTES
11-01-2012	MODIFIED AGGREGATE SHOULDERS,
	REVISED NOTES
3-31-2014	REVISED WOOD BLOCKS AND NOTES
3-11-2015	REVISED NOTES
3-31-2016	REVISED SECTION A-A SHOULDER

SHEET 1 OF 2

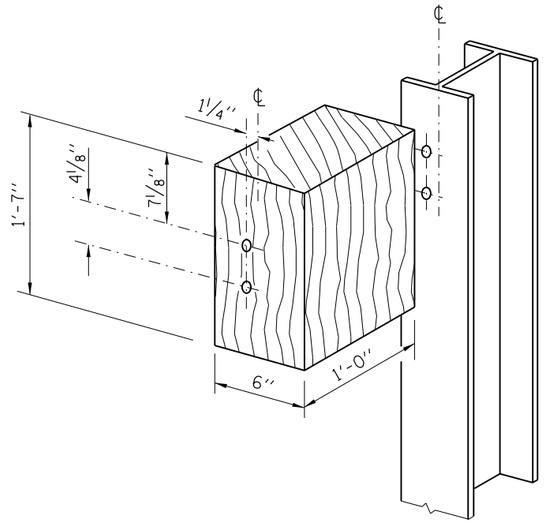
Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T6B
580 535

STANDARD C10-07

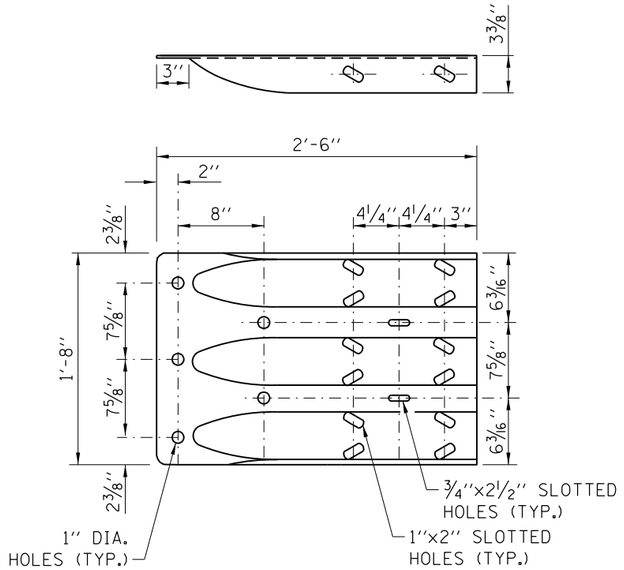


POSTS 1-11 WOOD BLOCK-OUT DETAIL

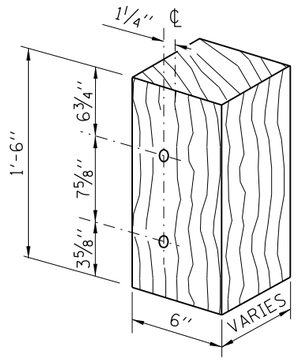


POST 12 WOOD BLOCK-OUT DETAIL

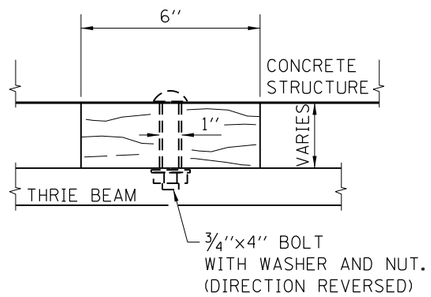
(SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR POST 13-17 BLOCKOUTS)



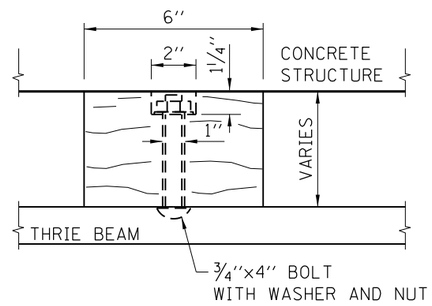
THRIE BEAM END SHOE DETAIL



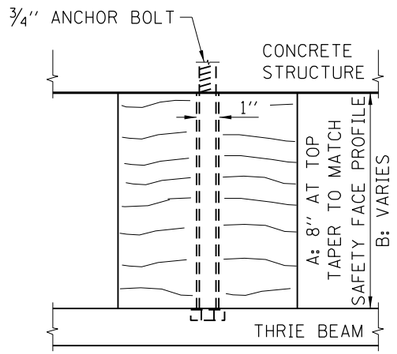
MODIFIED THICKNESS DETAIL
WOOD BLOCK-OUTS A, B, C, & D



WOOD BLOCK-OUT D



WOOD BLOCK-OUT C



WOOD BLOCK-OUT A & B

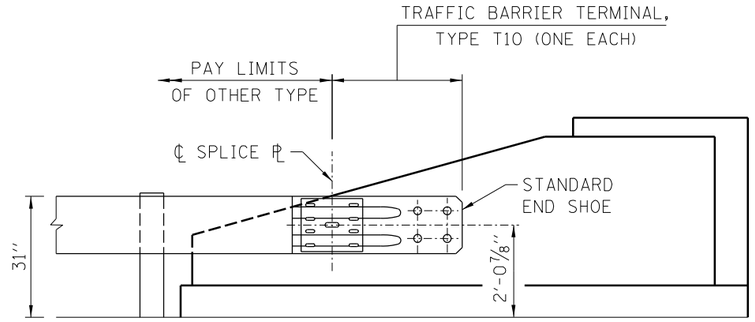
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 7-1-2009

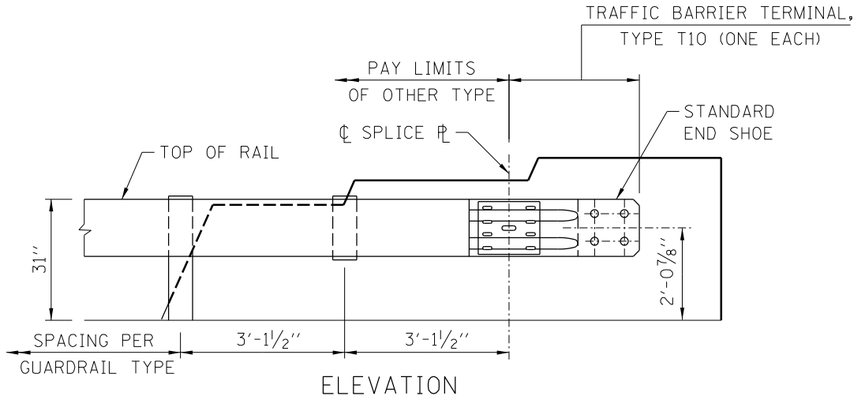
Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T6B
580 536

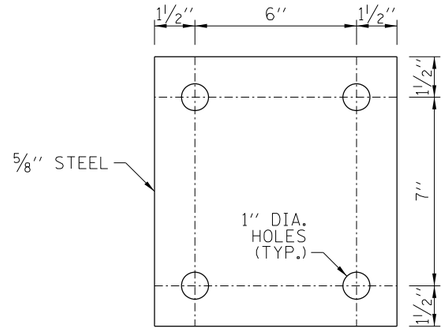
STANDARD C10-07



ELEVATION

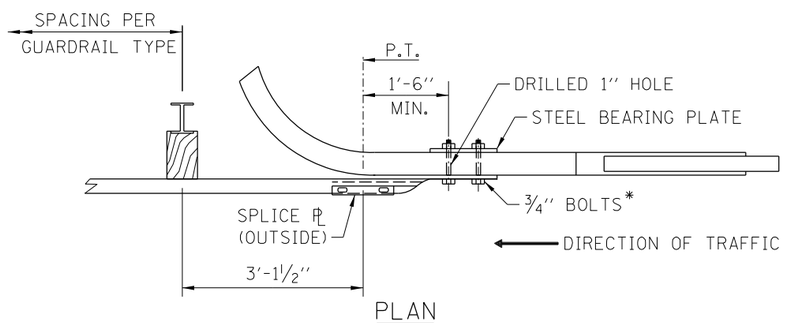


ELEVATION



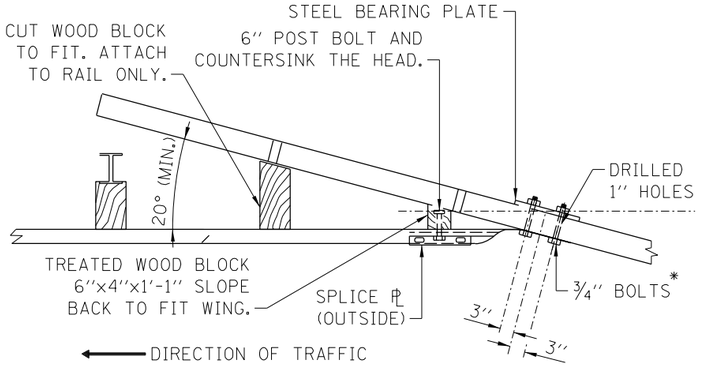
PARAPET STEEL BEARING PLATE DETAIL

(4 EACH INDIVIDUAL 5''x5''x⅝'' STEEL PLATES WITH CENTERED HOLES MAY BE SUBSTITUTED FOR THE PLATE SHOWN)



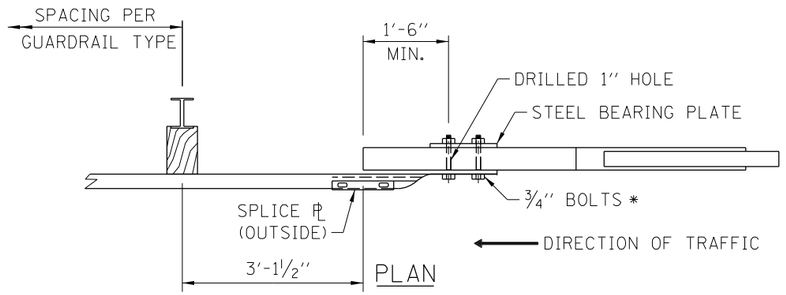
PLAN

CURVED WING



PLAN

FLARED WING

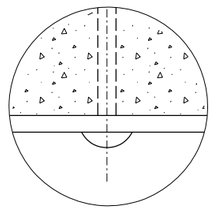


PLAN

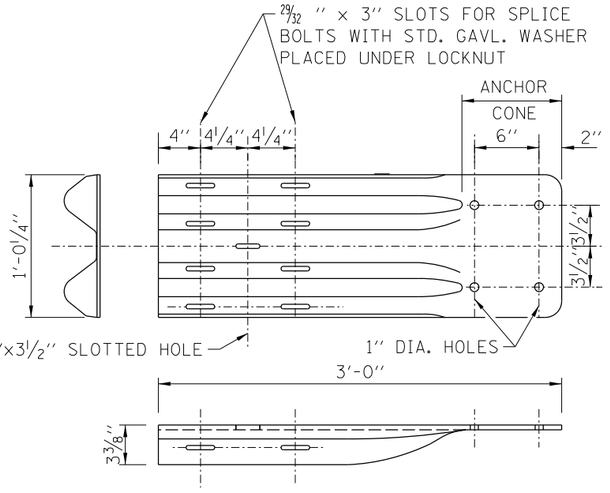
TANGENT WING

GENERAL NOTE:

* HEAD OF BOLT TO BE ON TRAFFIC SIDE. SEE DETAIL "A"



DETAIL "A"



END SHOE

NOTES:

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THE 24⅞'' TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1'-0'' IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER WHEN EDGE IS MORE THAN 1'-0'' IN FRONT OF RAIL TO CENTER OF RAIL.
3. THE TRAFFIC BARRIER TERMINAL, TYPE T10 IS TYPICALLY UTILIZED TO CONNECT GALVANIZED STEEL PLATE BEAM GUARDRAIL TO THE DEPARTING END OF AN EXISTING BRIDGE CONCRETE WING WALL OR PARAPET.
4. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
6. 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.
7. THE ANCHOR CONE SHALL BE SET FLUSH WITH THE SURFACE OF THE CONCRETE.
8. EXTERNALLY THREADED STUDS PROTRUDING FROM THE SURFACE OF THE CONCRETE SHALL NOT BE PERMITTED.
9. WHEN WING WALL THICKNESS IS GREATER THAN 18'' OR NOT ACCESSIBLE TO THE BACK SIDE, 4-¾'' BOLTS SHALL BE ANCHORED INTO DRILLED HOLES, USING A CHEMICAL ADHESIVE. MINIMUM EMBEDMENT SHALL BE 10''. ANCHOR BOLTS WITH STANDARD WASHER SHALL BE USED. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS, AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

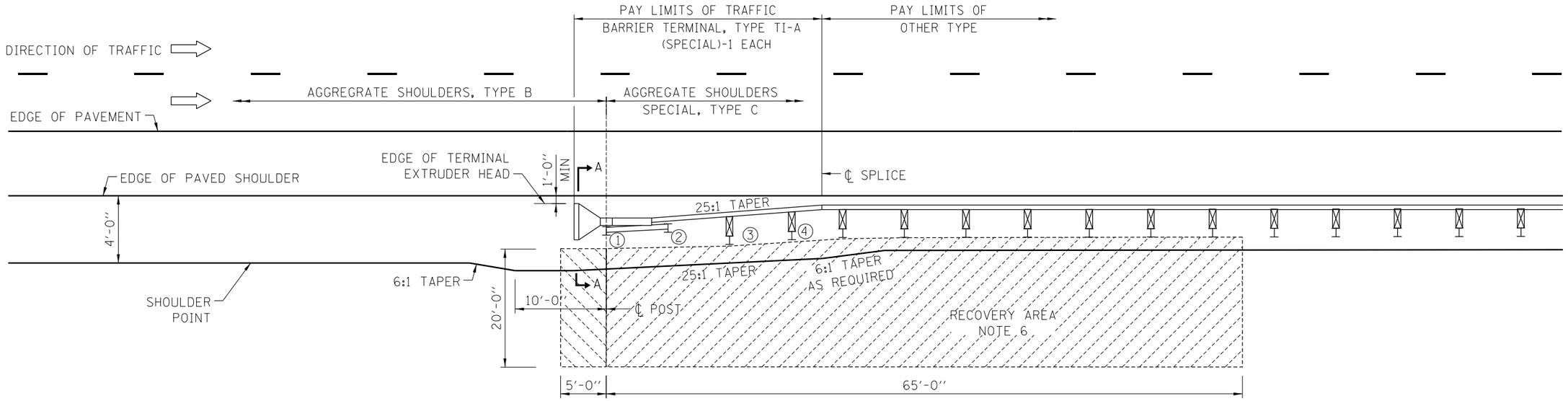
DATE	REVISIONS
3-01-2010	REVISED NOTES, ADDED END SHOE AND PARAPET BEARING PLATE DETAIL.
1-01-2011	REVISED END SHOE HEIGHT ATTACHMENT
2-07-2012	REVISED BOLT NOTE, ADDED DETAIL "A" AND REVISED NOTES.
3-31-2014	REVISED NOTES.
3-11-2015	REVISED NOTES.
3-31-2016	REVISED FLARED WING ANGLE.

Illinois Tollway

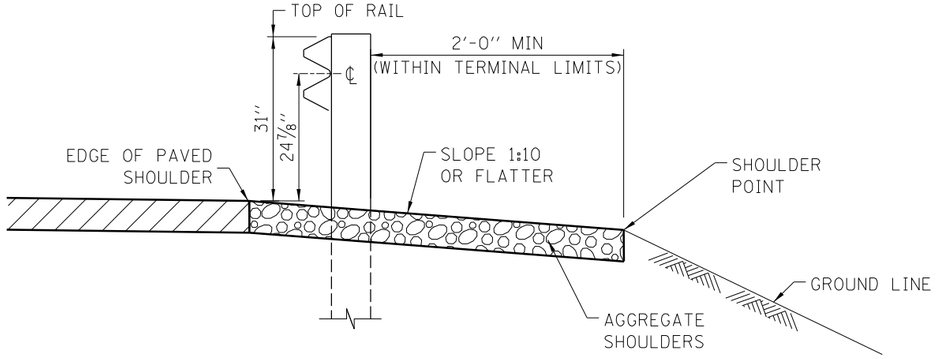
TRAFFIC BARRIER TERMINAL, TYPE T10

580 537

STANDARD C11-06



SHOULDER WIDENING TRANSITION-WITHOUT GUTTER FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)



SECTION A-A
(EXTRUDER HEAD OMITTED FOR CLARITY)

GENERAL NOTES:

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

2. THE TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL) IS THE UPSTREAM END SECTION OF A GALVANIZED STEEL PLATE BEAM GUARDRAIL BARRIER SYSTEM, FOR RAMP INSTALLATION WITH DESIGN SPEED LIMIT OF 40 MPH OR LESS, NCHRP 350, TEST LEVEL (TL-2).

3. REFERENCE ILLINOIS TOLLWAY STANDARD DRAWING B29 FOR GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL), AND MINIMUM DISTANCE FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL.

4. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND SPECIFICATIONS.

6. NO ROADSIDE OBSTRUCTION OF ANY TYPE-FIXED OR BREAKAWAY, EITHER TEMPORARY OR PERMANENT SHALL BE ALLOWED WITHIN THIS RECOVERY AREA.

7. ON TANGENT ROADWAY: TRAFFIC BARRIER TERMINAL SHALL BE INSTALLED AT A 25:1 TAPER MEASURED FROM EDGE OF TRAVELED WAY.
   ON CURVED ROADWAY: THE EDGE OF THE TERMINAL EXTRUDER HEAD SHALL BE OFFSET A DISTANCE FROM A POINT ON THE BACK OF THE CURVED EDGE OF PAVED SHOULDER AS SHOWN IN TABLE 1. NO CURVED W-BEAM SECTIONS ARE PERMITTED WITHIN THE TERMINAL PAY LIMITS. THE TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL) SHALL BE LAID OUT IN A STRAIGHT LINE.

8. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR HMA. WHEN NECESSARY USE LEAVE-OUT DETAIL SHOWN ON ILLINOIS TOLLWAY STANDARD DRAWING C1.

9. THE TERMINAL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURCES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH REPORT (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.

Paul Kovacs
APPROVED . . . . . DATE 1-1-2011
CHIEF ENGINEER

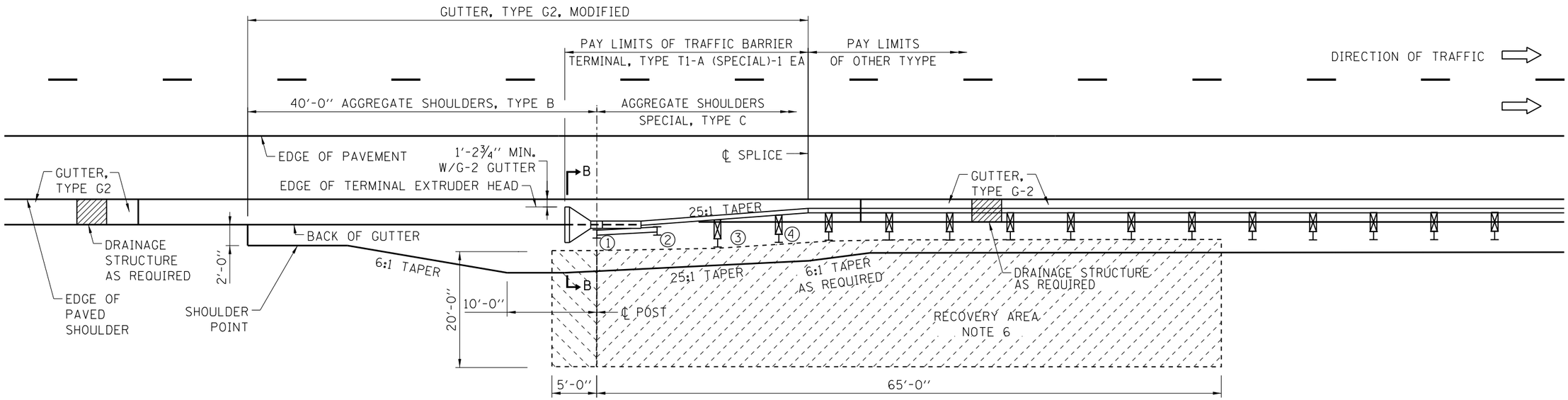
DATE	REVISIONS
2-07-2012	REVISED SLOPE NOTE.
11-01-2012	MODIFIED AGGREGATE SHOULDE
3-01-2013	TERMINAL CHANGED TO ALL STEEL POST.
	REVISED TERMINAL PAY LIMITS
3-31-2014	REVISED RECOVERY AREA DIMENSION.
3-11-2015	REVISED NOTES
3-31-2016	ADDED INSTALLATION NOTES IN NOTE 7
	AND REVISED SECTION A-A SHOULDER

Illinois Tollway

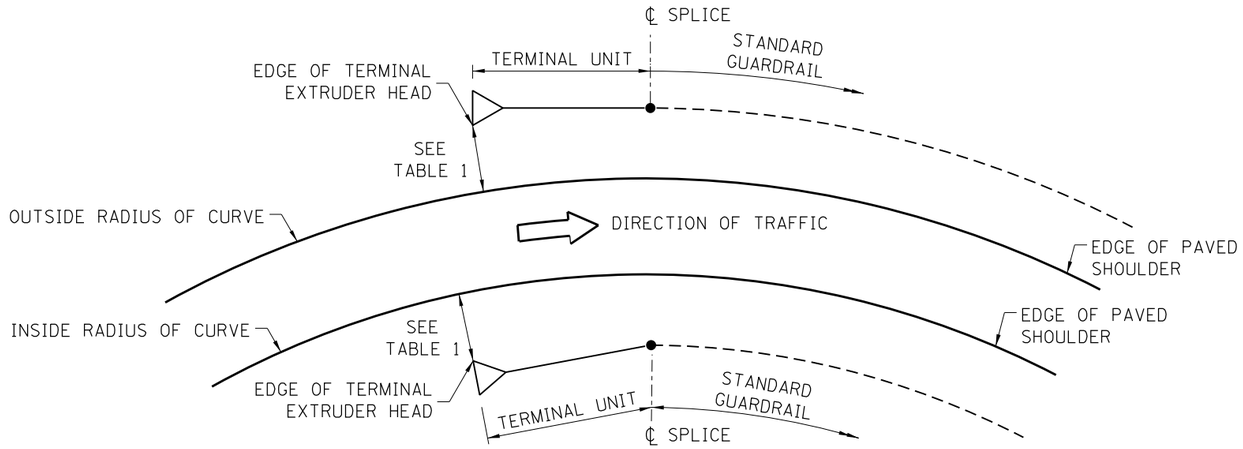
SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)

580 538

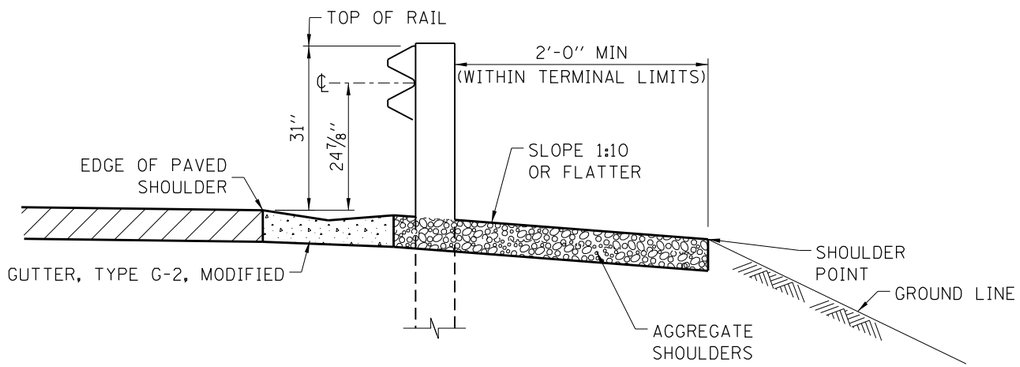
STANDARD C12-06



SHOULDER WIDENING TRANSITION-WITH GUTTER, TYPE G-2
FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)



CURVED ROADWAY
TRAFFIC BARRIER TERMINAL PLACEMENT
(SEE NOTE 7)



SECTION B-B
(EXTRUDER HEAD OMITTED FOR CLARITY)

TABLE 1		
LATERAL OFFSET DIMENSION TO EDGE OF TERMINAL EXTRUDER HEAD		
	INSIDE RADIUS OF CURVE	OUTSIDE RADIUS OF CURVE
NO GUTTER	1'-0"	1'-0" MIN. *
GUTTER, TYPE G-2	1'-2¾"	1'-2¾" MIN. *

(*) OFFSET DISTANCE WILL VARY BASED ON RADIUS OF HORIZONTAL CURVE AND THE TERMINAL BEING INSTALLED IN A STRAIGHT LINE.

NOTES:

SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... DATE 1-1-2011
CHIEF ENGINEER

Illinois Tollway

SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)
580 539

STANDARD C12-06

PERMANENT DELINEATION SPACING					
		MAINLINE		RAMP	
	REFLECTORS	TANGENT	CURVE	TANGENT	CURVE
*	GUARDRAIL	100′	100′	100′	TABLE A
*	BARRIER WALL (DOUBLE FACE)	100′	100′	100′	TABLE A
*	BARRIER WALL (SINGLE FACE)	100′	100′	100′	TABLE A
	SHOULDER NARROWING	3 @ 15′	3 @ 15′	3 @ 15′	3 @ 15′
	BRIDGE APPROACHES	3 @ 15′	3 @ 15′	3 @ 15′	3 @ 15′
*	BRIDGE PARAPET	50′	50′	50′	50′
*	NOISE ABATEMENT WALL (CRASH WORTHY)	100′	100′	100′	TABLE A

	ROADWAY DELINEATORS	MAINLINE		RAMP	
		TANGENT	CURVE	TANGENT	CURVE
	POST MOUNTED DELINEATOR	200′	200′	200′	TABLE A
	POST MOUNTED DELINEATOR (RAMP TAPERS AND TANGENTS)	100′	100′	NA	NA

	TEMPORARY DELINEATION SPACING				
		TANGENT	REVERSE CURVE	SHIFT	TAPER
	TEMPORARY CONCRETE BARRIER	50′	25′	25′	25′

* WHEN ADJACENT SHOULDER IS USED AS A TRAVELED LANE, USE SPACING REQUIREMENTS AS SHOWN FOR TEMPORARY DELINEATION.

TABLE A	
REFLECTOR SPACING ON RAMP-CURVES	
RADIUS OF CURVE (FT.)	SPACING ALONG CURVE (FT.)
LESS THAN 1050	50
1050-1299	100
1300-1999	125
2000-2999	150
3000-3999	175
MORE THAN 3999	200

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

GENERAL NOTES:

EMERGENCY TURNAROUNDS DELINEATION-THE FOLLOWING DELINEATION SHOULD BE INSTALLED ON THE LEFT SIDE OF THE PAVEMENT APPROACHING EMERGENCY TURNAROUNDS.

A. ONE-HALF OF A MILE IN ADVANCE OF THE EMERGENCY TURNAROUNDS ONE WHITE REFECTOR UNIT OVER THREE AMBER REFLECTOR UNITS.

B. ONE-FOURTH OF A MILE IN ADVANCE OF THE EMERGENCY TURNAROUNDS ONE WHITE REFLECTOR UNIT OVER TWO AMBER REFLECTOR UNITS.

C. AT A POINT NEAR THE INTERSECTION OF THE EDGE OF THE LEFT SHOULDER AND NEAR EDGE OF THE EMERGENCY TURNAROUNDS ONE WHITE REFLECTOR UNIT OVER ONE AMBER REFLECTOR UNIT.

NOTES FOR ROADWAY DELINEATORS, POST MOUNTED INSTALLATION:

1. A. MAINLINE-SINGLE WHITE REFECTOR UNITS SHALL BE PLACED CONTINUOUSLY ON THE RIGHT AND SINGLE AMBER REFLECTOR UNITS SHALL BE PLACED ON THE LEFT ON MAIN LINE SECTIONS WITHOUT BARRIER WALL.

   B. RAMPS-SINGLE REFLECTOR UNITS SHALL BE PLACED ON THE OUTSIDE OF ALL CURVED SECTIONS OF RAMPS, SINGLE WHITE SHALL BE PLACED ON THE RIGHT SIDE AND AMBER ON THE LEFT SIDE. THE DELINEATORS SHALL BE OVERLAPPED FOR A SHORT DISTANCE TO CLEARLY INDICATE WHERE DELINEATION ON ONE SIDE OF THE RAMP ENDS AND DELINEATION ON THE OTHER SIDE APPEARS.

   C. DOUBLE WHITE REFLECTOR UNITS SHALL BE PLACED ON THE RIGHT AT ALL ACCELERATION AND DECELERATION LANES.

2. REFLECTORS SHALL BE MOUNTED ON SUPPORTS SUCH THAT THE TOP OF REFLECTORS IS FOUR FEET ABOVE THE ROADWAY EDGE AND TWO FEET OUTSIDE THE OUTER EDGE OF THE PAVED SHOULDER OR TWO FEET MINIMUM AND SIX FEET MAXIMUM OUTSIDE THE BACKS OF CURBS OR GUTTERS.

3. IN ALL CASES, THE COLOR OF THE REFLECTORS SHALL BE THE SAME AS THE ADJACENT EDGE LINE EXCEPT AS SPECIFIED IN GENERAL NOTES.

4. POST MOUNTED REFLECTORS SHALL BE PLACED CONTINUOUSLY AS NOTED ABOVE IN CONJUNCTION WITH GUARDRAIL INSTALLED.

5. THE PLACEMENT OF ROADWAY DELINEATOR "CIRCULAR REFLECTORS" SHALL BE USED FOR ALL MINOR PROJECTS WHICH HAVE A LENGTH OF LESS THAN 5 MILES. THE PLACEMENT OF ROADWAY DELINEATOR "RECTANGULAR REFLECTORS" SHALL BE USED FOR ALL MAJOR PROJECTS WHICH HAVE A LENGTH GREATER THAN 5 MILES. ALL ROADWAY DELINEATORS WITHIN A ROADWAY SEGMENT SHALL BE OF THE SAME TYPE.

NOTES FOR GUARDRAIL AND BARRIER WALL REFLECTOR:

1. REFLECTORS TYPE B AND TYPE C SHALL HAVE REFLECTIVE SURFACE ON ONE SIDE ONLY.

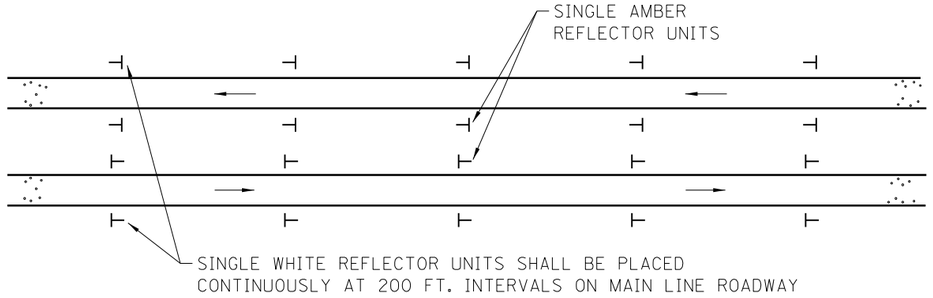
DATE	REVISIONS
07-01-09	CHANGED BARRIER TO F-SHAPE CONFIG.
	ADDED SECTION C-C NEW BARRIER DELINEATORS
02-07-12	REVISED REFLECTOR MARKER TYPE C DIMENSION
11-01-12	REVISED NOTES, TABLE AND DELINEATION
	SPACING
3-11-2015	REVISED NOTES
3-31-2016	REVISED DELINEATOR ATTACHMENT TO POST

Illinois Tollway

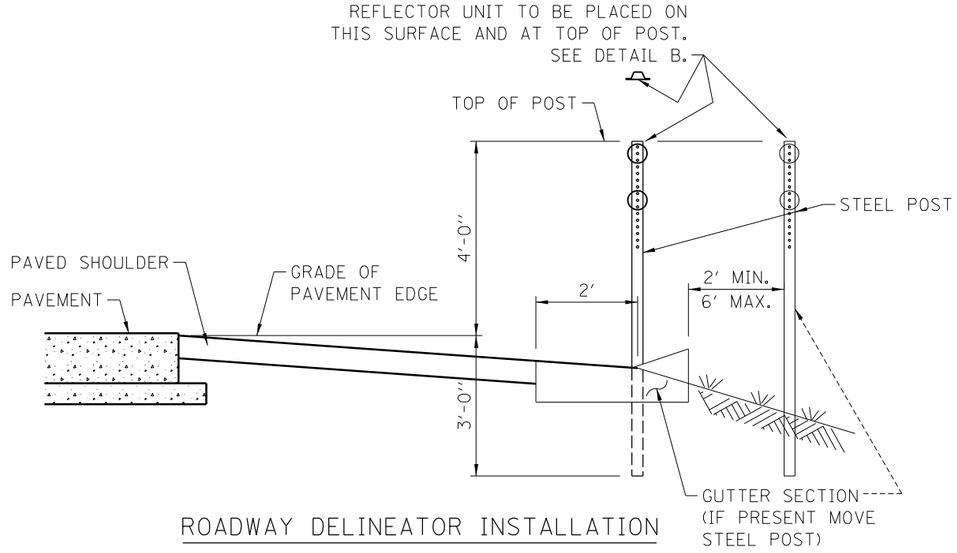
ROADWAY DELINEATORS AND REFLECTORS

580 540

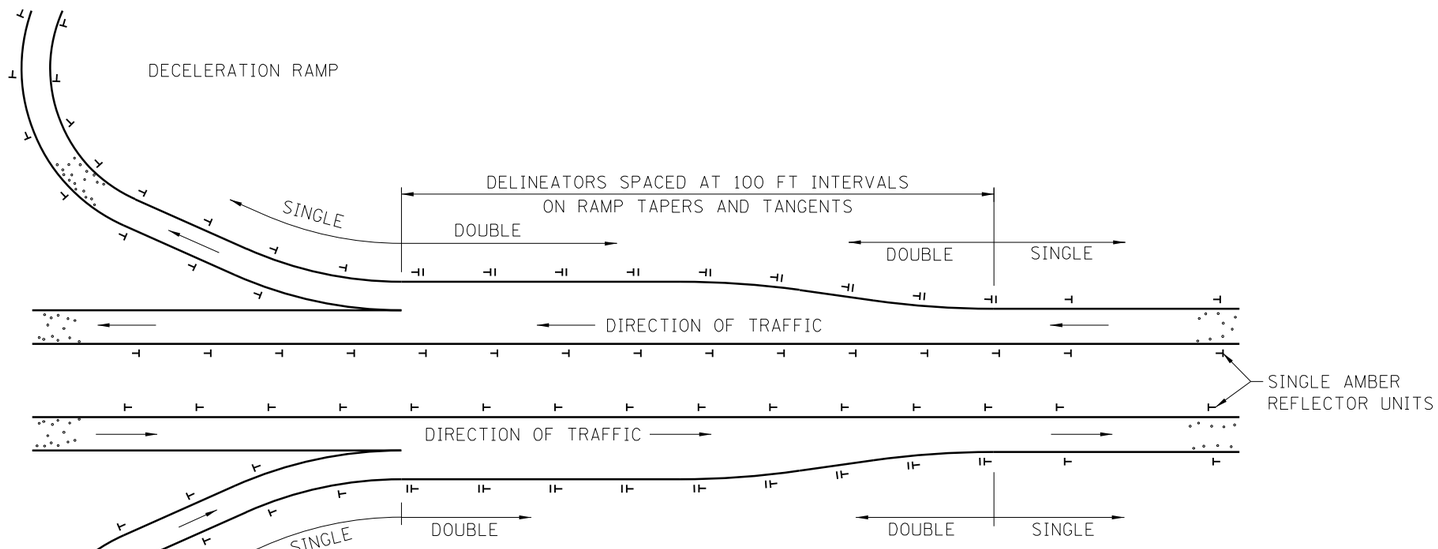
STANDARD D4-05



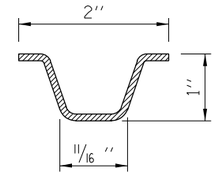
TANGENT PLACEMENT



ROADWAY DELINEATOR INSTALLATION

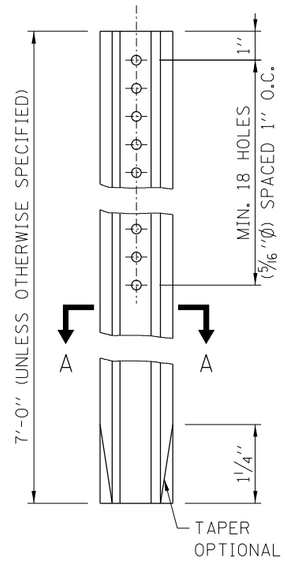


INTERCHANGE RAMP PLACEMENT

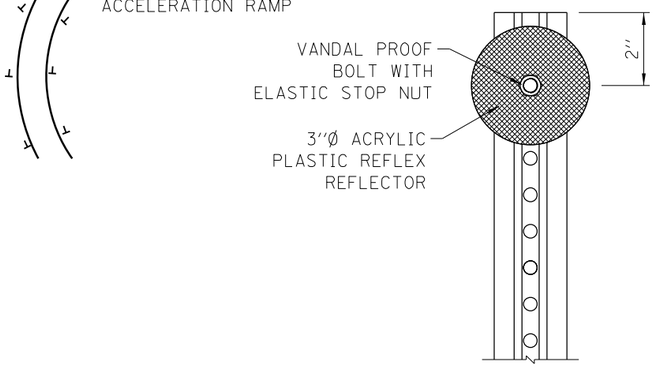


SECTION A-A

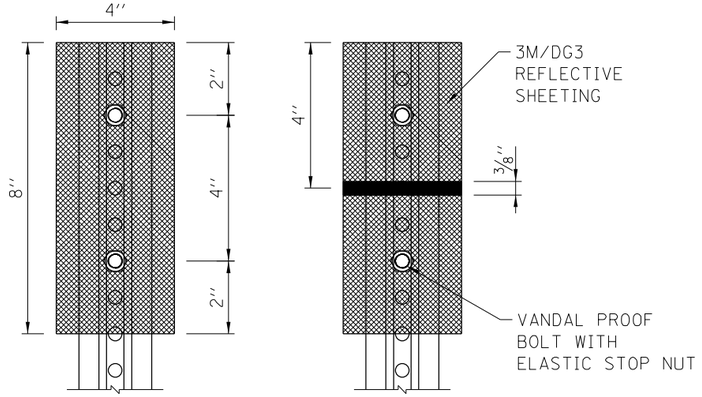
STEEL- 1.12 LBS/FT.



STEEL POST



SINGLE UNIT DOUBLE UNIT



SINGLE UNIT DOUBLE UNIT

CIRCULAR REFLECTORS

RECTANGULAR REFLECTORS

NOTE:

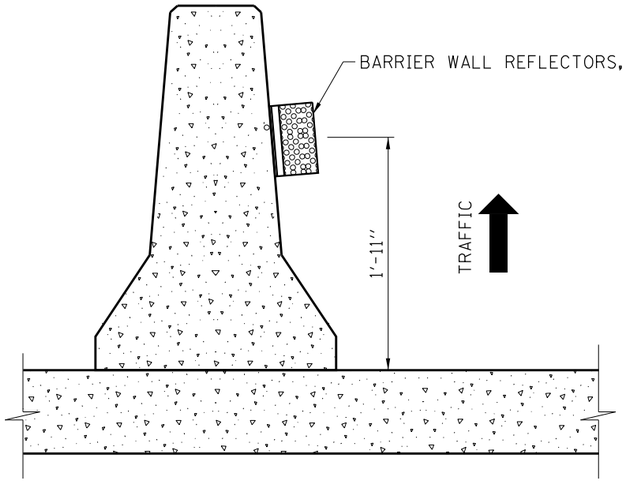
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

Illinois Tollway

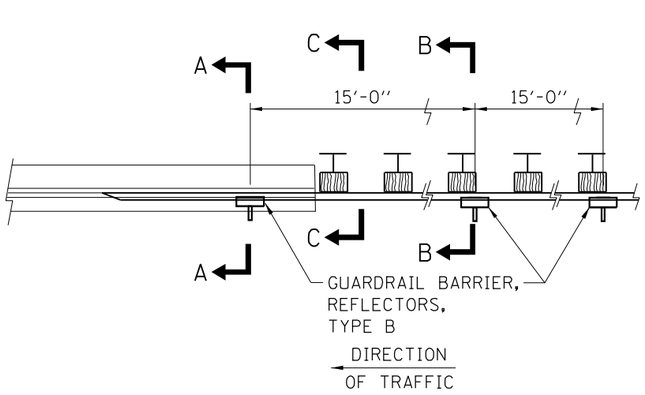
ROADWAY DELINEATORS
AND REFLECTORS
580 541

STANDARD D4-05

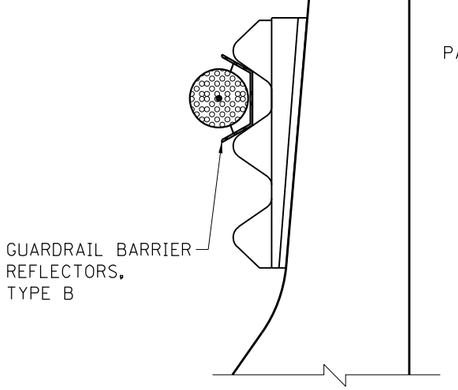


CROSS-SECTION

TEMPORARY CONCRETE BARRIER



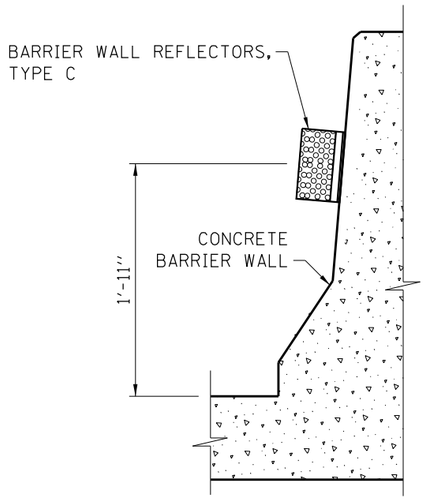
PLAN



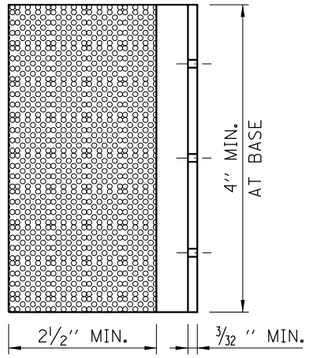
SECTION A-A

REFLECTOR INSTALLATION ON GUARDRAIL AT BRIDGE APPROACHES

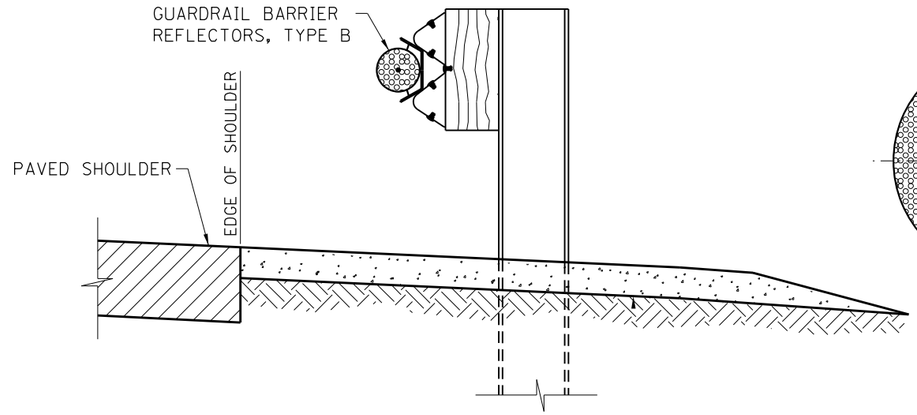
ALSO SEE SHEET 1 IN THIS SERIES FOR ADDITIONAL INFORMATION



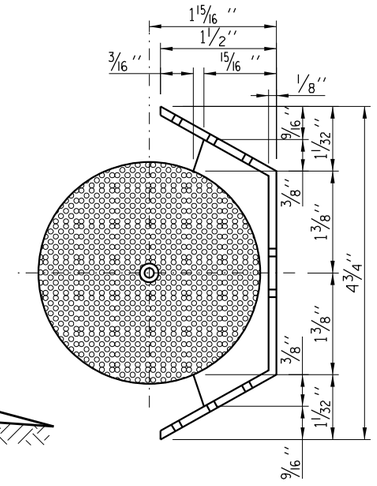
BARRIER OR PARAPET REFLECTOR INSTALLATION



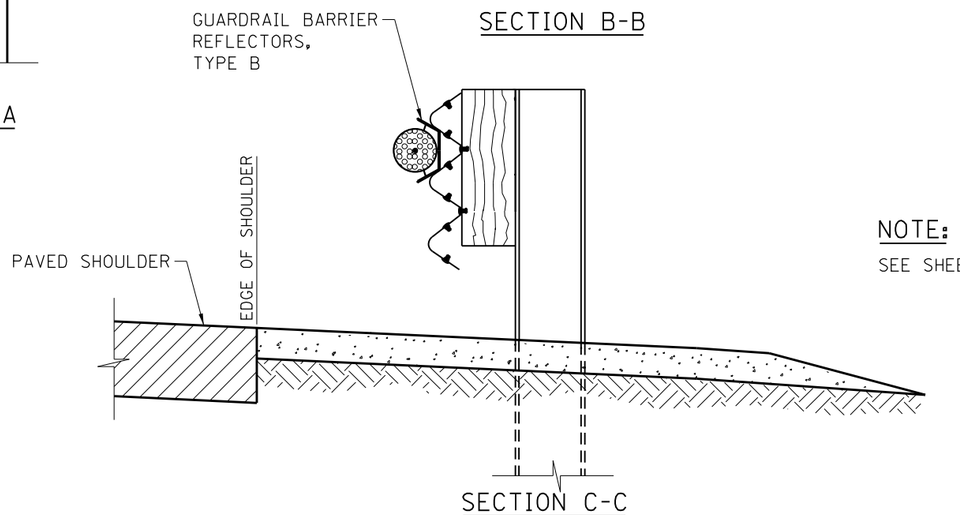
REFLECTOR, TYPE C



SECTION B-B



REFLECTOR, TYPE B



SECTION C-C

NOTE:

SEE SHEET 1 OF THIS SERIES FOR NOTES.

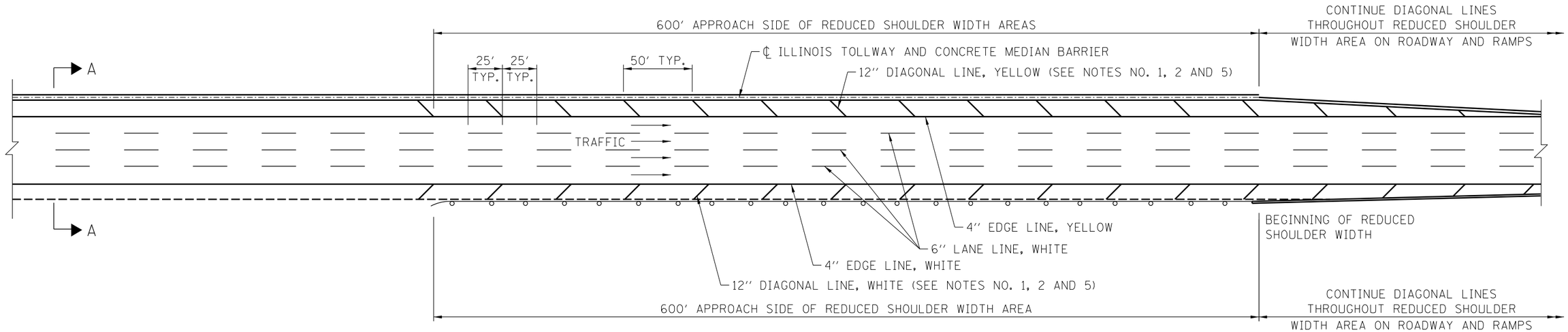
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 7-1-2009

Illinois Tollway

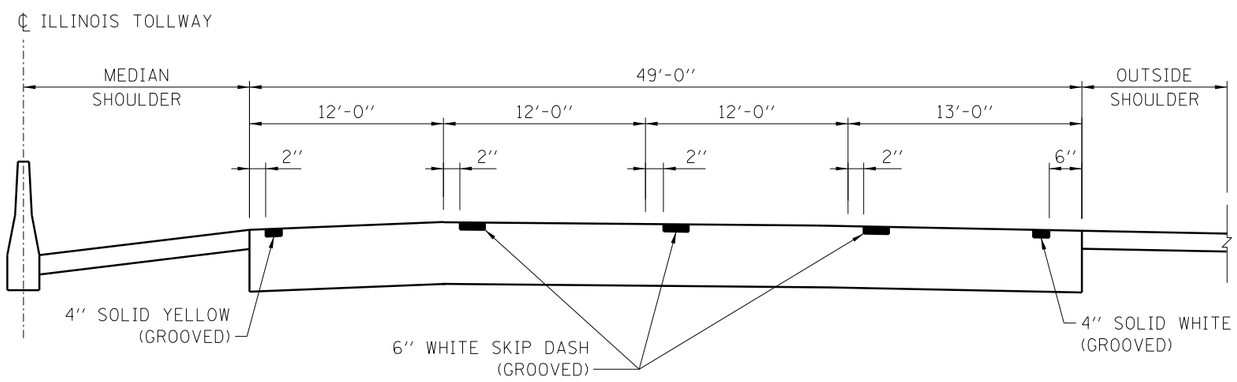
ROADWAY DELINEATORS AND REFLECTORS

580 542

STANDARD D4-05



PLAN



SECTION A-A

ROADWAY AND SHOULDER STRIPING - NEW CONSTRUCTION

GENERAL NOTES:

1. DIAGONAL SHOULDER STRIPING REQUIRED WHERE THE SHOULDER WIDTH IS LESS THAN STANDARD.
2. ROADWAY MARKING MATERIALS TO BE USED ON FINISHED CONCRETE SURFACE AND ASPHALT SURFACE SHALL BE AS SHOWN ON THE PLANS.
3. WHERE THE GUARDRAIL ENCROACHES ON THE SHOULDER THE DIAGONAL MARKINGS SHALL EXTEND AS CLOSE TO THE FACE OF THE RAIL AS POSSIBLE.
4. ALL PERMANENT LANE LINES AND EDGE LINES SHALL BE GROOVED, ON ROADWAY SURFACES, UNLESS OTHERWISE NOTED.
5. DIAGONAL STRIPING SHALL BE SURFACE APPLIED.
6. GORE STRIPING (CHEVRON) SHALL BE SURFACE APPLIED.
7. ALL LANE LINES AND EDGE LINES SHALL BE SURFACE APPLIED ON BRIDGES.
8. PAVEMENT MARKINGS SHALL NOT BE GROOVED AT THE CASH SIDE OF MAINLINE TOLL PLAZAS OR THE OPEN ROAD TOLLING (ORT), 100′ CONTINUOUSLY REINFORCED CONCRETE (CRC) PAVEMENT SECTION OF MAINLINE UNDER MONOTUBES.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

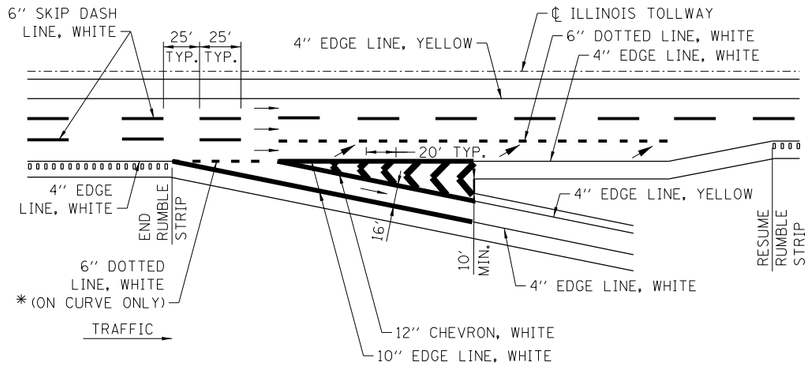
DATE	REVISIONS
7-01-09	ADDED LINE GROOVING NOTES
2-07-12	REVISED NOTES
11-01-12	REVISED EDGELINE OFFSET, REVISED NOTES
3-31-14	REVISED NOTES
3-31-16	REVISED NOTES

Illinois Tollway

PERMANENT PAVEMENT MARKINGS

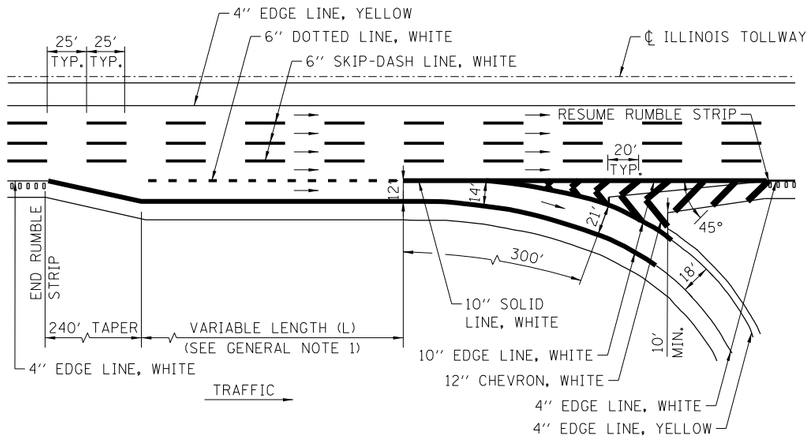
580 543

STANDARD D5-06

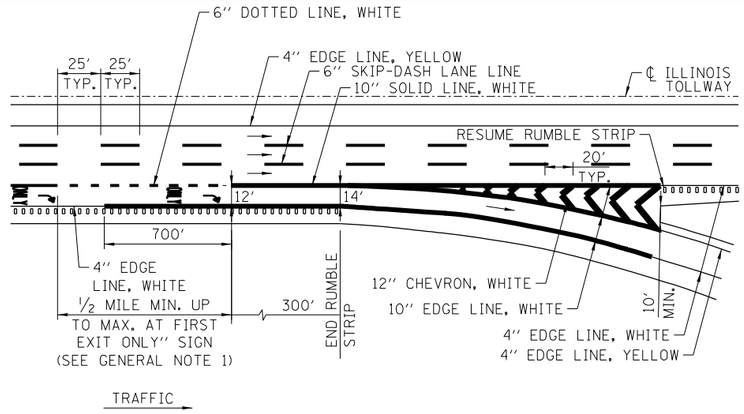


EXIT - SINGLE LANE RAMP
LANE THREE TERMINATION

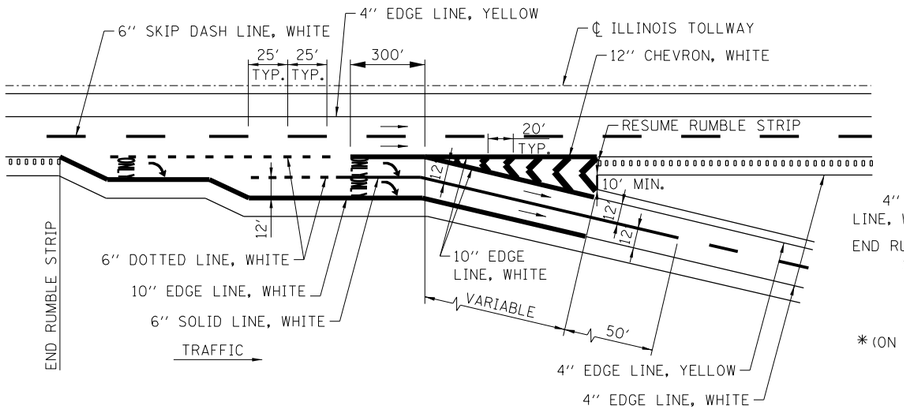
*OMIT R.P.M.



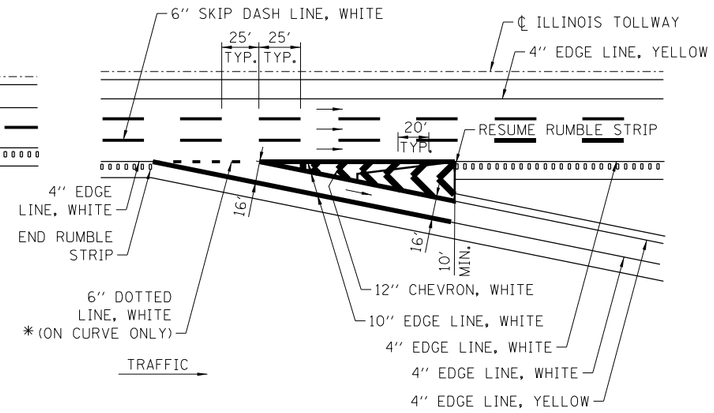
EXIT - SINGLE LANE LOOP RAMP - PARALLEL TYPE



EXIT - SINGLE LANE RAMP - LANE DROP

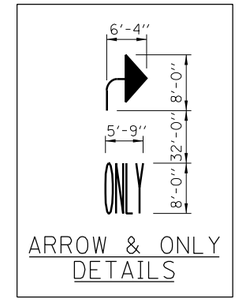


EXIT - TWO LANE PARALLEL RAMP



EXIT - SINGLE LANE RAMP - TAPER TYPE

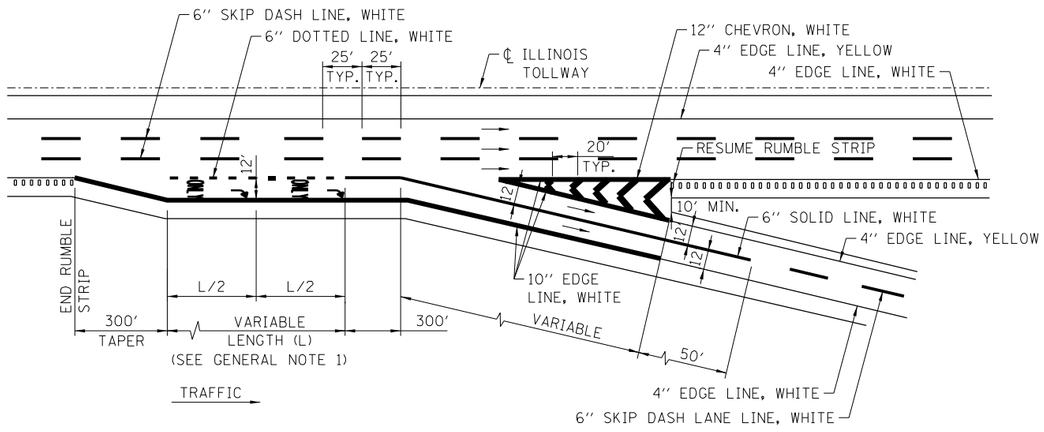
*OMIT R.P.M.



ARROW & ONLY
DETAILS

NOTE:

PAVEMENT MARKING LETTERS AND SYMBOLS-ONLY AND ARROW ARE TO BE TYPICALLY PLACED AT ½ MILE EXIT ONLY GUIDE SIGN, AT GORE EXIT GUIDE SIGN AND APPROXIMATELY HALFWAY BETWEEN THE TWO.



EXIT - TWO LANE RAMP

GENERAL NOTES:

1. RUMBLE STRIPS SHALL BE INSTALLED BETWEEN THE THEORETICAL GORE AND TAPER WHEN LENGTHS OF AUXILIARY LANES, ACCELERATION LANES OR DECELERATION LANES, ARE GREATER THAN 1000'.
2. ROADWAY MARKING MATERIALS TO BE USED ON FINISHED CONCRETE SURFACE AND ASPHALT SURFACE SHALL BE AS SHOWN ON THE PLANS.
3. ALL LANE LINES AND EDGE LINES SHALL BE GROOVED.
4. GORE STRIPING (CHEVRON) SHALL BE SURFACE APPLIED.
5. LETTERS AND SYMBOL MARKING SHALL BE SURFACE APPLIED.
6. DOTTED LINES SHALL CONSIST OF 3' LINE AND 9' GAPS.

SHEET 1 OF 3

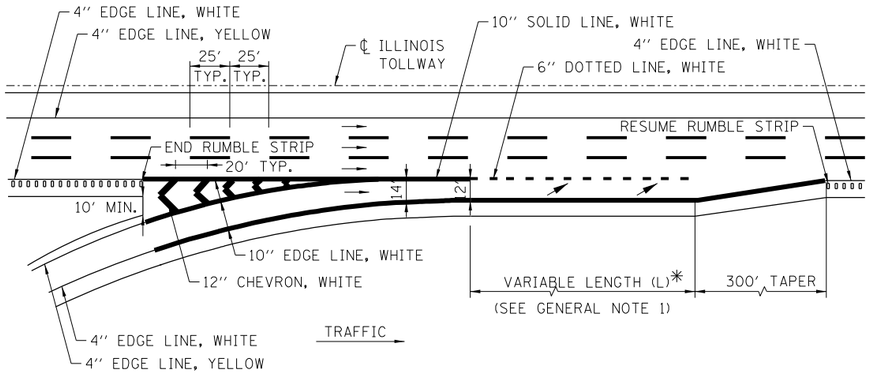
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

DATE	REVISIONS
07-01-09	ADDED LINE GROOVING NOTES
11-01-12	REVISED NOTES AND ADDED DOTTED LINE
03-01-13	REVISED SINGLE LANE LOOP RAMP DETAILS
03-31-14	ADDED LANE REDUCTION MARKINGS
3-11-2015	REVISED DETAILS, ADDED LANE-REDUCTION ARROWS AND SHEET 3
3-31-2016	REVISED NOTES, ADDED IPO PAVEMENT MARKING DETAIL.

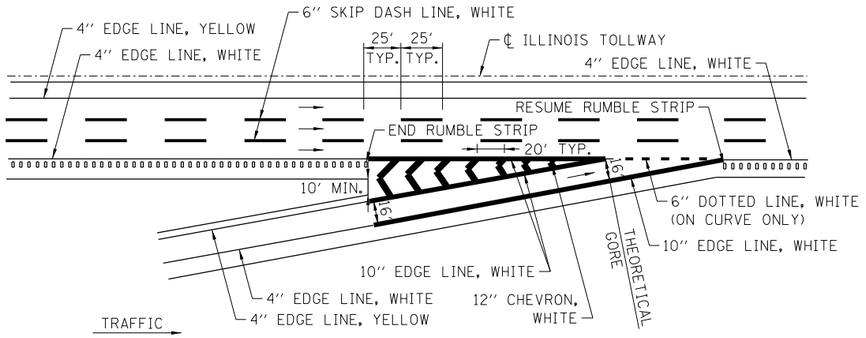
Illinois Tollway

PAVEMENT MARKING
AND SHOULDER
RUMBLE STRIP DETAILS 544

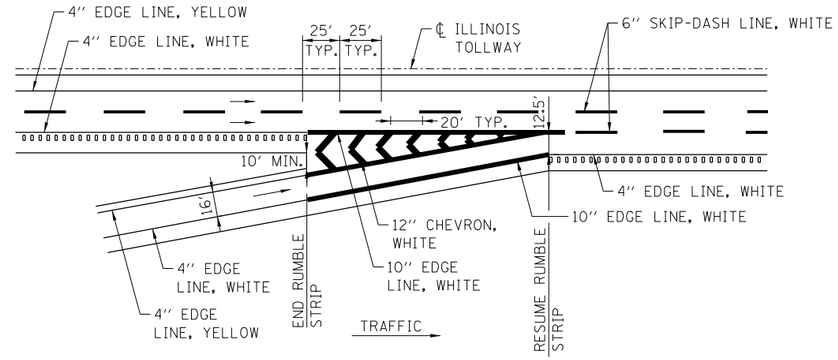
STANDARD D6-06



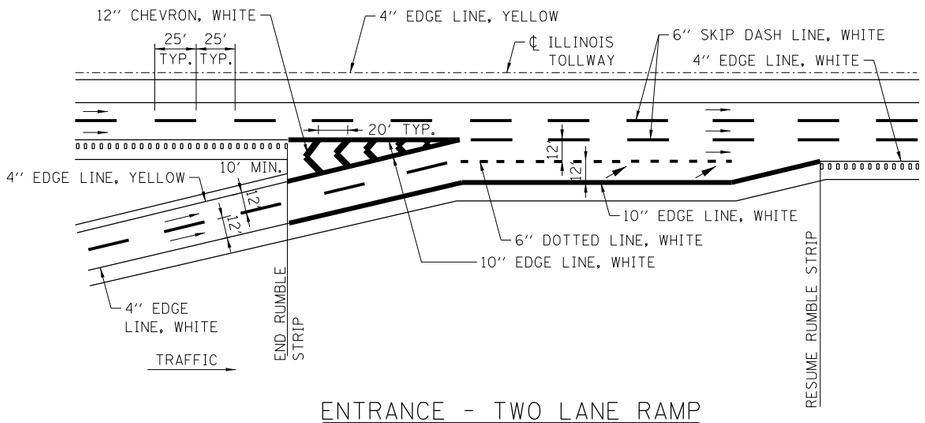
ENTRANCE - SINGLE LANE RAMP - PARALLEL TYPE



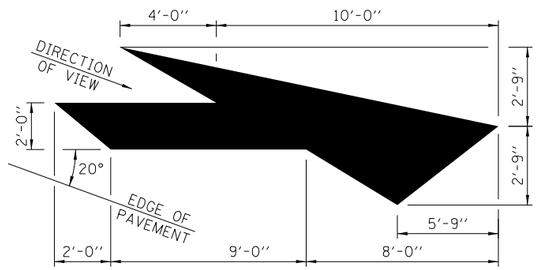
ENTRANCE - SINGLE LANE RAMP - TAPER TYPE



ENTRANCE - SINGLE LANE RAMP WITH ADDED MAINLINE LANE



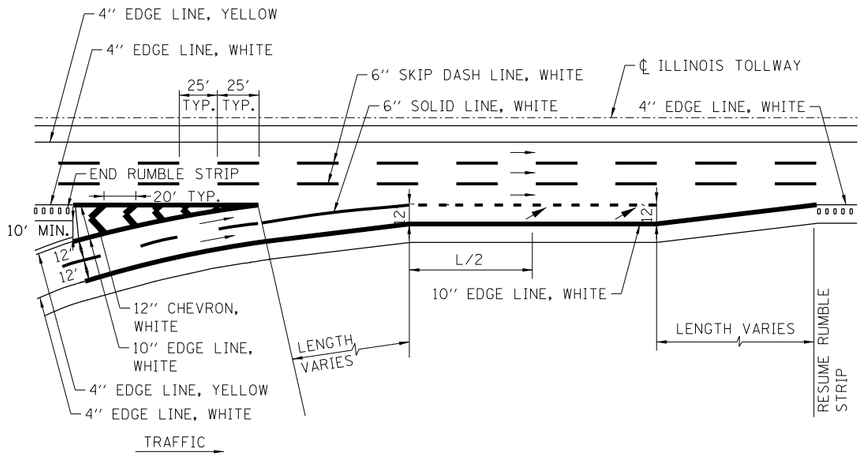
ENTRANCE - TWO LANE RAMP WITH ADDED MAINLINE LANE



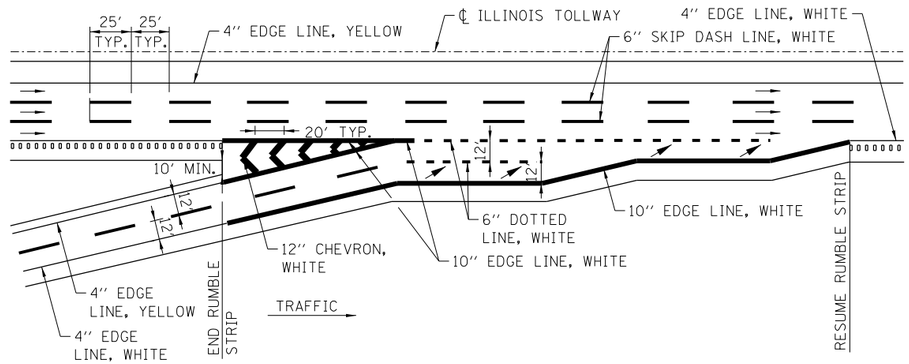
LANE-REDUCTION ARROW

RIGHT LANE-REDUCTION ARROW SHOWN.
USE MIRROR IMAGE FOR LEFT LANE.

* WHEN LENGTH (L) IS GREATER THAN 1000′-0″ PLACE ARROWS AS SHOWN



ENTRANCE - TWO LANE RAMP



ENTRANCE - TWO LANE PARALLEL RAMP

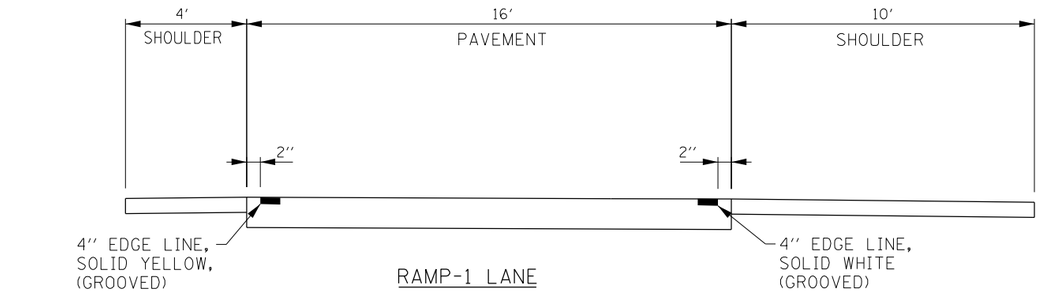
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

SEE SHEET 1 IN THIS SERIES FOR GENERAL NOTES.

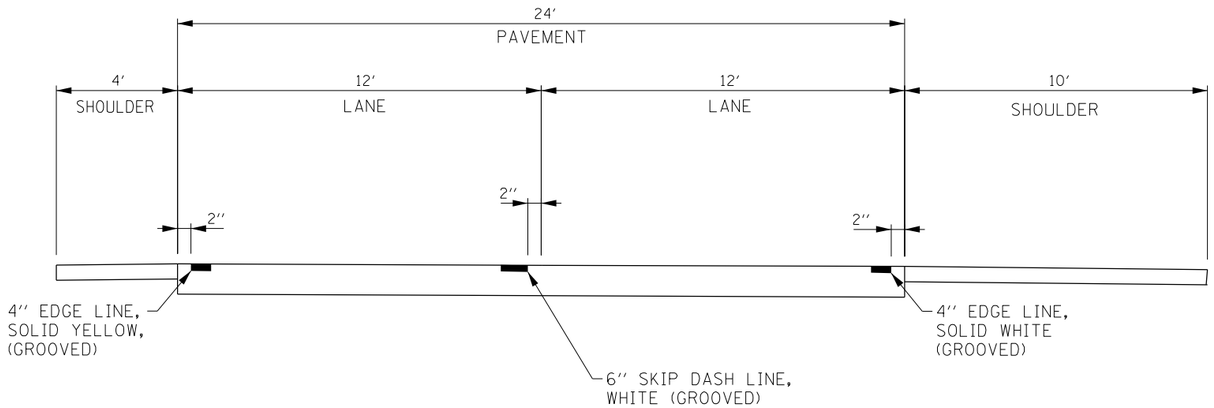
Illinois Tollway

PAVEMENT MARKING AND SHOULDER RUMBLE STRIP DETAILS

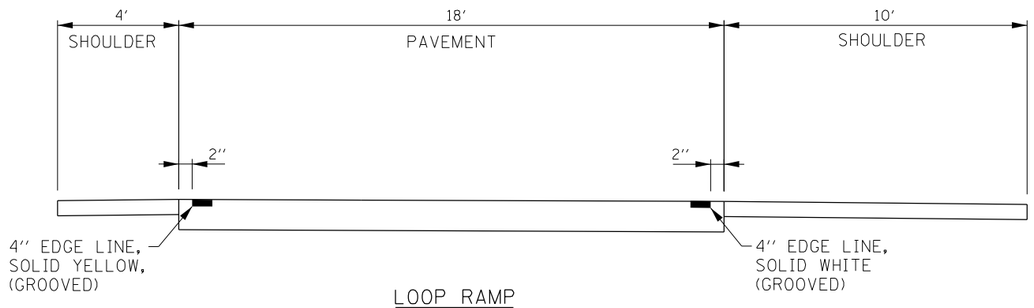
STANDARD D6-06



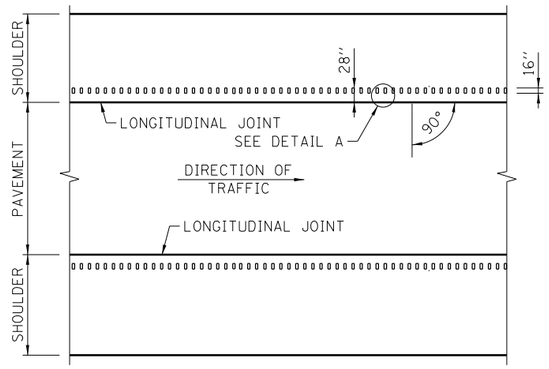
RAMP-1 LANE



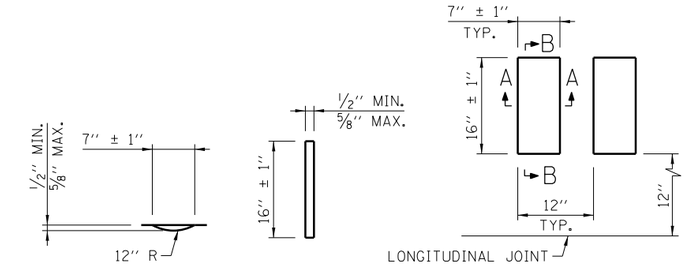
RAMP-2 LANES



LOOP RAMP

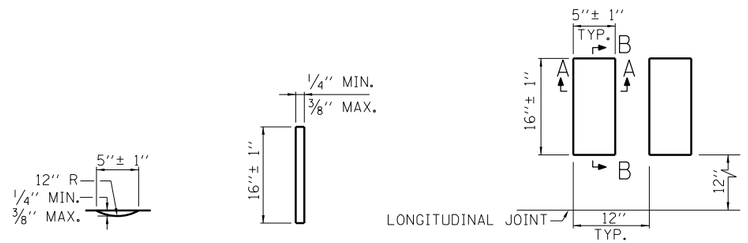


TYPICAL PLAN VIEW
MAINLINE



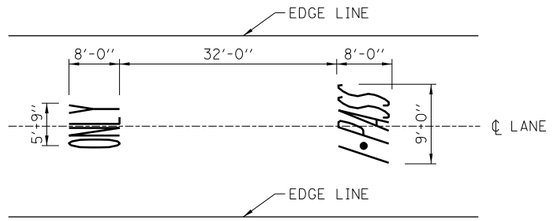
SECTION A-A SECTION B-B PLAN DETAIL A

ASPHALT SHOULDER
RUMBLE STRIP DETAILS



SECTION A-A SECTION B-B PLAN DETAIL A

CONCRETE SHOULDER
RUMBLE STRIP DETAILS



IPO LANE PAVEMENT MARKING

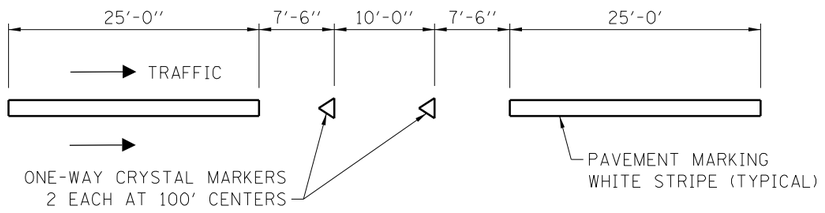
SEE SHEET 1 IN THIS SERIES FOR GENERAL NOTES.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

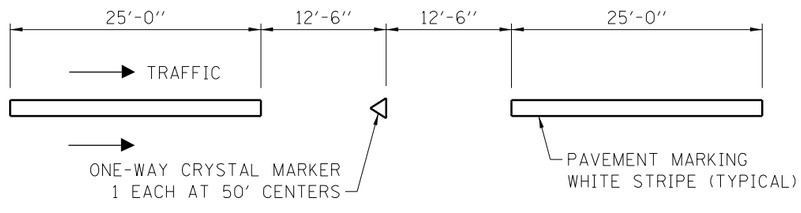
Illinois Tollway

PAVEMENT MARKING
AND SHOULDER
RUMBLE STRIP DETAILS

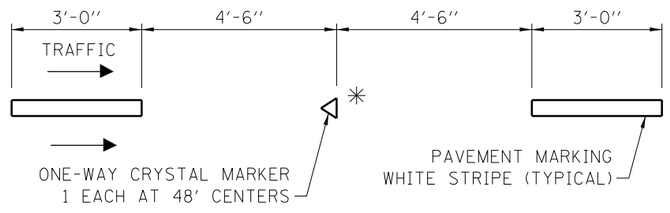
STANDARD D6-06



DETAIL A

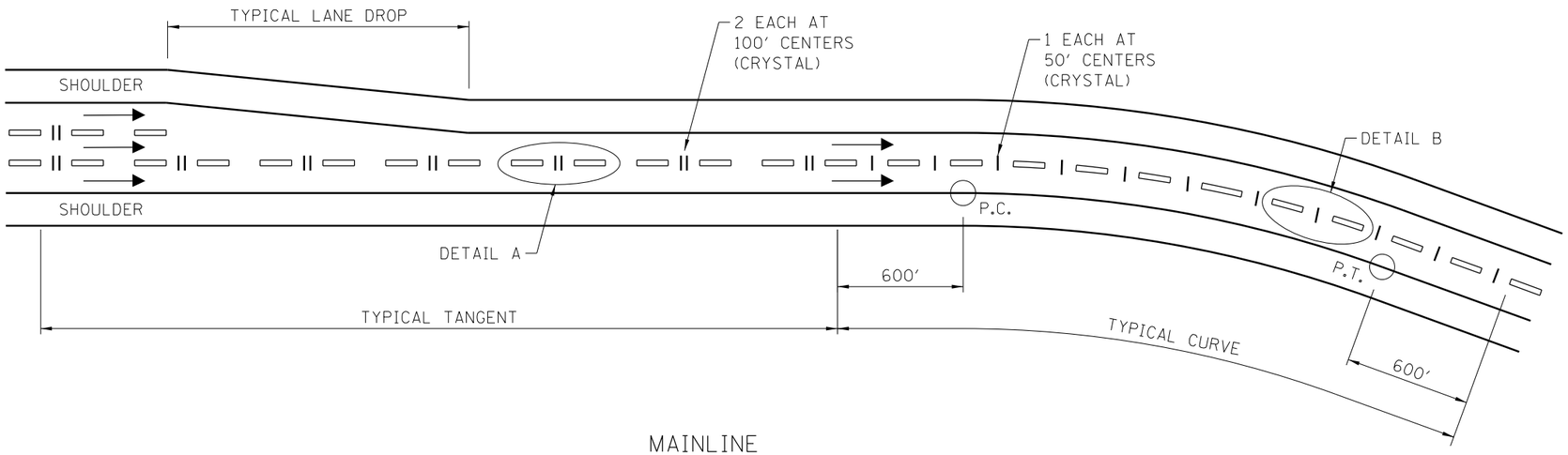


DETAIL B



✳ MARKER TO BE INSTALLED WHEN LENGTHS OF AUXILIARY LANES ARE GREATER THAN 1000'.

DETAIL C



MAINLINE

RAISED PAVEMENT LANE MARKER DETAILS

NOTES:

1. FOR COLLECTOR-DISTRIBUTOR (C-D) ROADWAYS, PLACE ONE-WAY CRYSTAL MARKER, 2 EACH AT 100' CENTERS. USE DETAIL A.
2. FOR MULTI LANE DIRECTIONAL RAMPS, PLACE ONE-WAY CRYSTAL MARKER, 1 EACH AT 50' CENTERS. USE DETAIL B.
3. FOR AUXILIARY LANES, PLACE ONE-WAY CRYSTAL MARKER, 1 EACH AT 48' CENTERS. USE DETAIL C.

APPROVED Paul Kovacs CHIEF ENGINEER DATE 7-1-2009

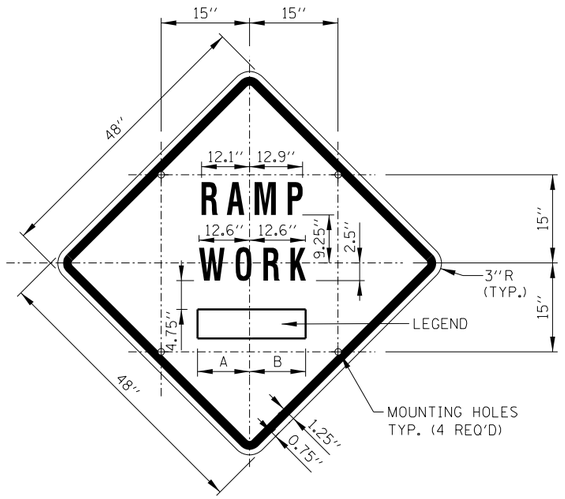
DATE	REVISIONS
11-01-2012	REVISED DETAIL C.
3-31-2016	REVISED NOTES 1.

Illinois Tollway

RAISED PAVEMENT LANE MARKER

580 547

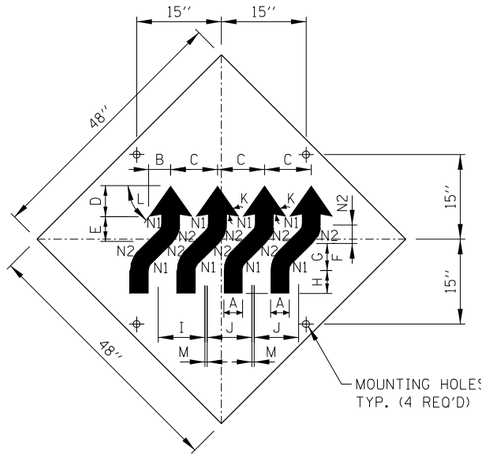
STANDARD D8-02



SIGN NO.	LEGEND	A	B
TS-2A	AHEAD	15.50''	15.50''
TS-2B	500 FT	14.25''	15.13''
TS-2C	1000 FT	14.88'' ∠2	15.75'' ∠2
TS-2D	1500 FT	14.88'' ∠2	15.75'' ∠2
TS-2E	1/2 MILE	15.75'' ∠3	15.75'' ∠3
TS-2F	1 MILE	13.06''	13.06''

SIGN TS-2 (O)

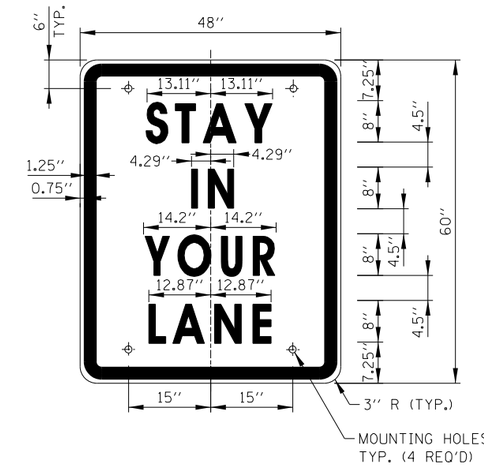
COLOR: BACKGROUND - FLUORESCENT ORANGE (O)
BORDER AND SYMBOL - BLACK
SIZE: 48''x48''
LETTERING: 7'' FEDERAL SERIES D
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN



A	4 1/2''
B	5 3/4''
C	12 1/2''
D	7 3/4''
E	6 1/2''
F	4 1/2''
G	6 1/2''
H	6''
I	12 3/4''
J	12''
K	45°
L	55°
M	3/4''
N1	2''
N2	6 1/2''

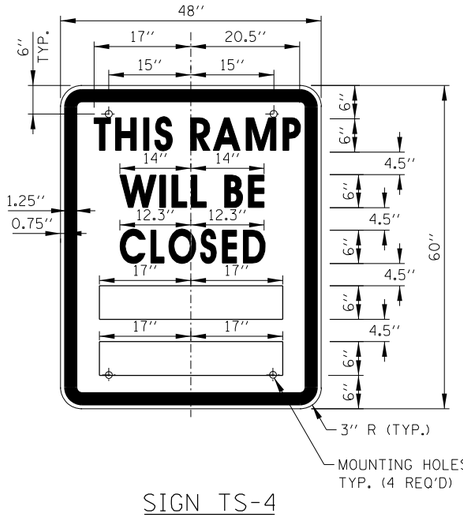
SIGN W1-4dR (O)

COLOR: BACKGROUND-FLUORESCENT ORANGE (O)
TYPE A REFLECTIVE
SHEETING PER STANDARD
SPECIFICATIONS (* A)
BORDER AND LETTERS-BLACK
SIZE: 48''x48''
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN.



SIGN TS-3

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (*A)
BORDER AND LETTERS - BLACK
SIZE: 48''x60''
LETTERING: LEGEND - 8'' FEDERAL SERIES D
MOUNTING HOLES: 7/16'' DIA., 4 HOLES, SPACED AS SHOWN

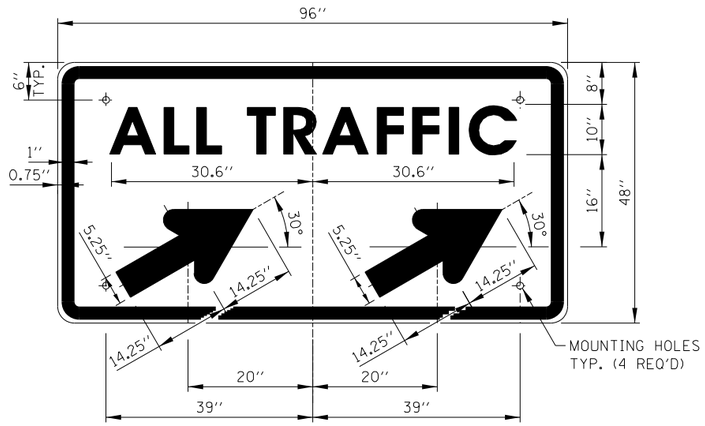


SIGN TS-4

COLOR: BACKGROUND - WHITE (REFLECTORIZED)(*A)
BORDER AND LETTERS - BLACK
SIZE: 48''x60''
LETTERING: LEGEND - 6'' FEDERAL SERIES C
MOUNTING HOLES: 7/16'' DIA., 4 HOLES, SPACED AS SHOWN

RAMP CLOSURE ADVANCE INFORMATION SIGN

THE VARIABLE MESSAGE WITH DATES FOR THE BOTTOM TWO LINES SHALL BE DETERMINED BY THE ENGINEER AND GIVEN TO THE CONTRACTOR BEFORE THE REQUIRED FIELD ERECTION DATE.



SIGN TS-5a & TS-5b

COLOR: BACKGROUND - WHITE (REFLECTORIZED)(*A)
BORDER AND LETTERS - BLACK
ARROW - BLACK
SIZE: 96''x48''
LETTERING: 10'' FEDERAL SERIES D
MOUNTING HOLES: 7/16'' DIA., 4 HOLES, SPACED AS SHOWN
NOTE: SIGN TS-5a IS SHOWN, SUBSTITUTE
LEGEND "↗" FOR "↗↗" FOR SIGN TS-5b

NOTES:

1. ALL LETTERING IS DESIGNATED BY SIZE AND SERIES IN ACCORDANCE WITH THE LATEST EDITION OF "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION. LETTERING SPACING SHALL BE IN ACCORDANCE WITH THIS GUIDE EXCEPT WHERE NOTED.

2. SYMBOLS AND ARROWS SHALL CONFORM TO THE DETAILS SHOWN IN THE LATEST EDITION OF "STANDARD HIGHWAY SIGNS" AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION.

3. SEE THE CONTRACT REQUIREMENTS FOR ADDITIONAL NOTES AND SPECIFICATIONS.
   (O) FLUORESCENT ORANGE REFLECTIVE SHEETING PER THE STANDARD SPECIFICATIONS.
   (*A) - REFLECTIVE SHEETING PER THE STANDARD SPECIFICATIONS.

4. DIMENSIONS INDICATED THUS ∠ ARE BASED ON A REDUCTION IN STANDARD LETTERING SPACING AS SHOWN BELOW:
   ∠1 SPACING REDUCED BY 25%
   ∠2 SPACING REDUCED BY 40%
   ∠3 SPACING REDUCED BY 50%

Paul Kovacs
APPROVED ..... DATE 5-1-2009
CHIEF ENGINEER

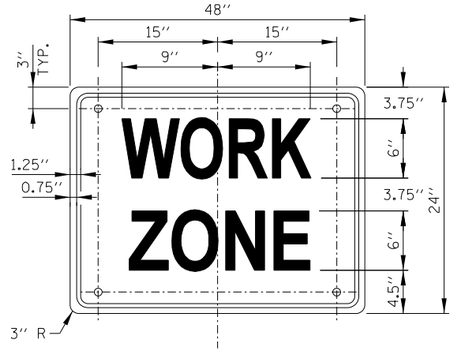
DATE	REVISIONS
05-01-09	DELETED FLASHING ARROW BOARDS
01-01-11	ADDED SIGN COLOR DESIGNATION
11-01-12	DELETED SIGN TS-1
03-31-14	REVISED FINE SIGN NUMBER AND
	ADDED LED SPEED LIMIT DISPLAY
3-11-2015	REVISED NOTES

Illinois Tollway

CONSTRUCTION SIGNS

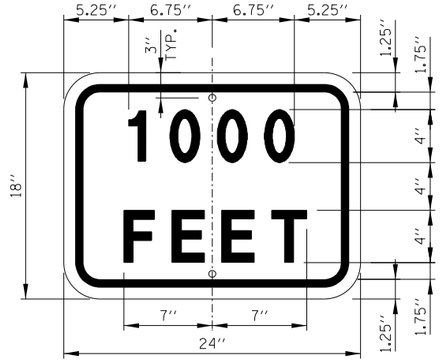
580 548

STANDARD E1-05



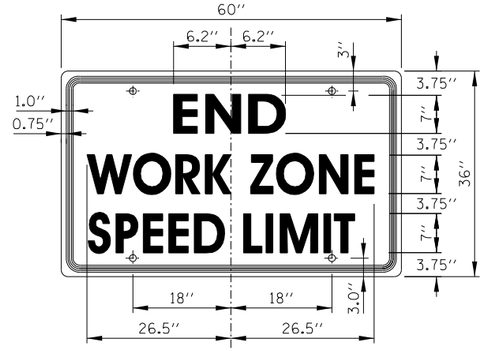
SIGN G20-I102 (0)

COLOR: BACKGROUND - FLUORESCENT ORANGE (0)
BORDER AND LETTERS - BLACK
SIZE: 48''x24''
LETTERING: 6'' FEDERAL SERIES C
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN



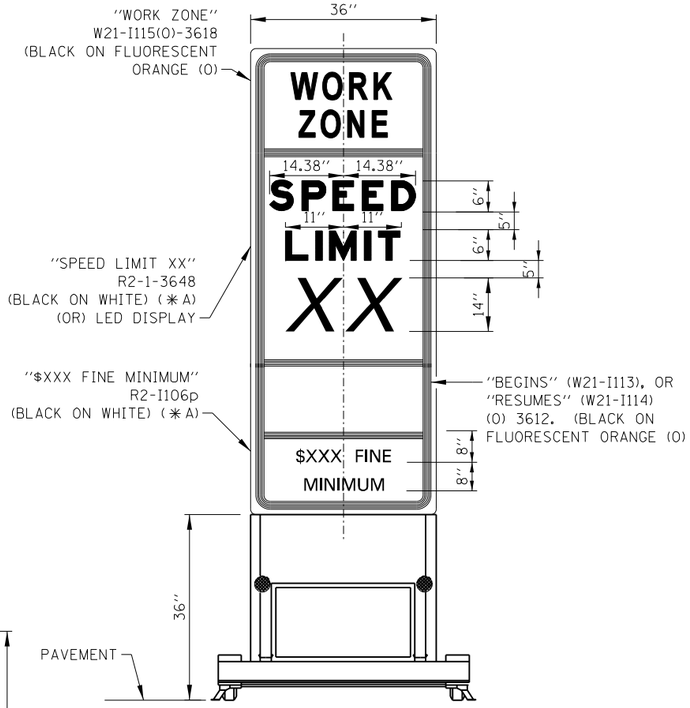
SUPPLEMENTAL PLATE (0)

COLOR: BACKGROUND - FLUORESCENT ORANGE (0)
BORDER AND LETTTERS - BLACK
SIZE: 24''x18''
LETTERING: 4'' FEDERAL SERIES D
MOUNTING HOLES: 7/16'' DIA., 2 HOLES SPACED AS SHOWN

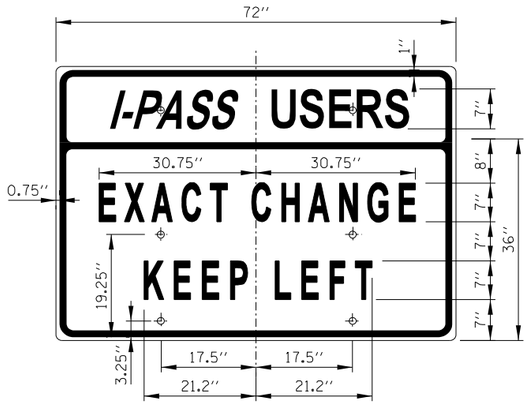


SIGN G20-I103 (0)

COLOR: BACKGROUND - FLUORESCENT ORANGE (0)
BORDER AND LETTERS - BLACK
SIZE: 60''x36''
LETTERING: 6'' FEDERAL SERIES C
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN

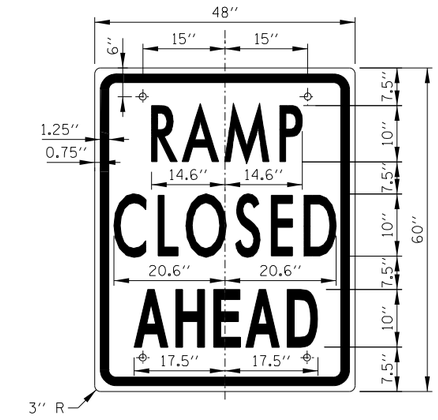


WORK ZONE SPEED LIMIT
SIGN ASSEMBLY



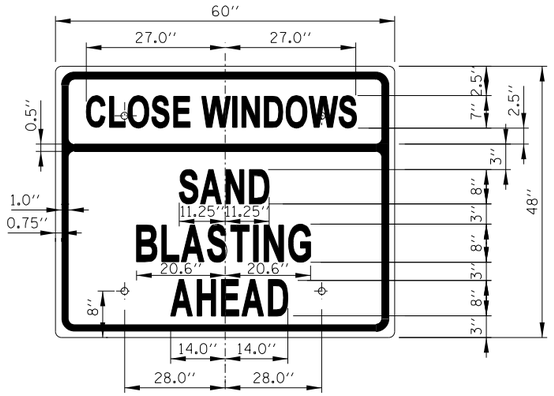
SIGN TS-7

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (* A)
BORDER AND LETTTERS - BLACK
SIZE: 72''x36''
LETTERING: 7'' FEDERAL SERIES C
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN



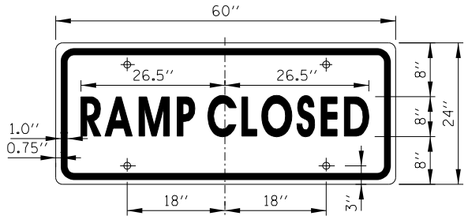
SIGN TS-9

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (* A)
BORDER AND LETTTERS - BLACK
SIZE: 48''x60''
LETTERING: 10'' FEDERAL SERIES C
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN



SIGN TS-10 (0)

COLOR: BACKGROUND - FLUORESCENT ORANGE (0)
BORDER AND LETTTERS - BLACK
SIZE: 60''x48''
LETTERING: 8'' FEDERAL SERIES C, 7'' FEDERAL SERIES B
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN



SIGN TS-6

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (* A)
BORDER AND LETTTERS - BLACK
SIZE: 60''x24''
LETTERING: 8'' FEDERAL SERIES C
MOUNTING HOLES: 7/16'' DIA., 4 HOLES SPACED AS SHOWN

GENERAL NOTES:

1. ALL LETTERING IS DESIGNATED BY SIZE AND SERIES IN ACCORDANCE WITH THE LATEST EDITION OF ''STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION. LETTERING SPACING SHALL BE IN ACCORDANCE WITH THIS GUIDE EXCEPT WHERE NOTED.

2. SYMBOLS AND ARROWS SHALL CONFORM TO THE DETAILS SHOWN IN THE LATEST EDITION OF ''STANDARD HIGHWAY SIGNS'' AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION.

3. SEE THE CONTRACT REQUIREMENTS FOR ADDITIONAL NOTES AND SPECIFICATIONS.
   (0) FLUORESCENT ORANGE REFLECTIVE SHEETING PER THE STANDARD SPECIFICATIONS.
   (* A) - REFLECTIVE SHEETING PER THE STANDARD SPECIFICATIONS.

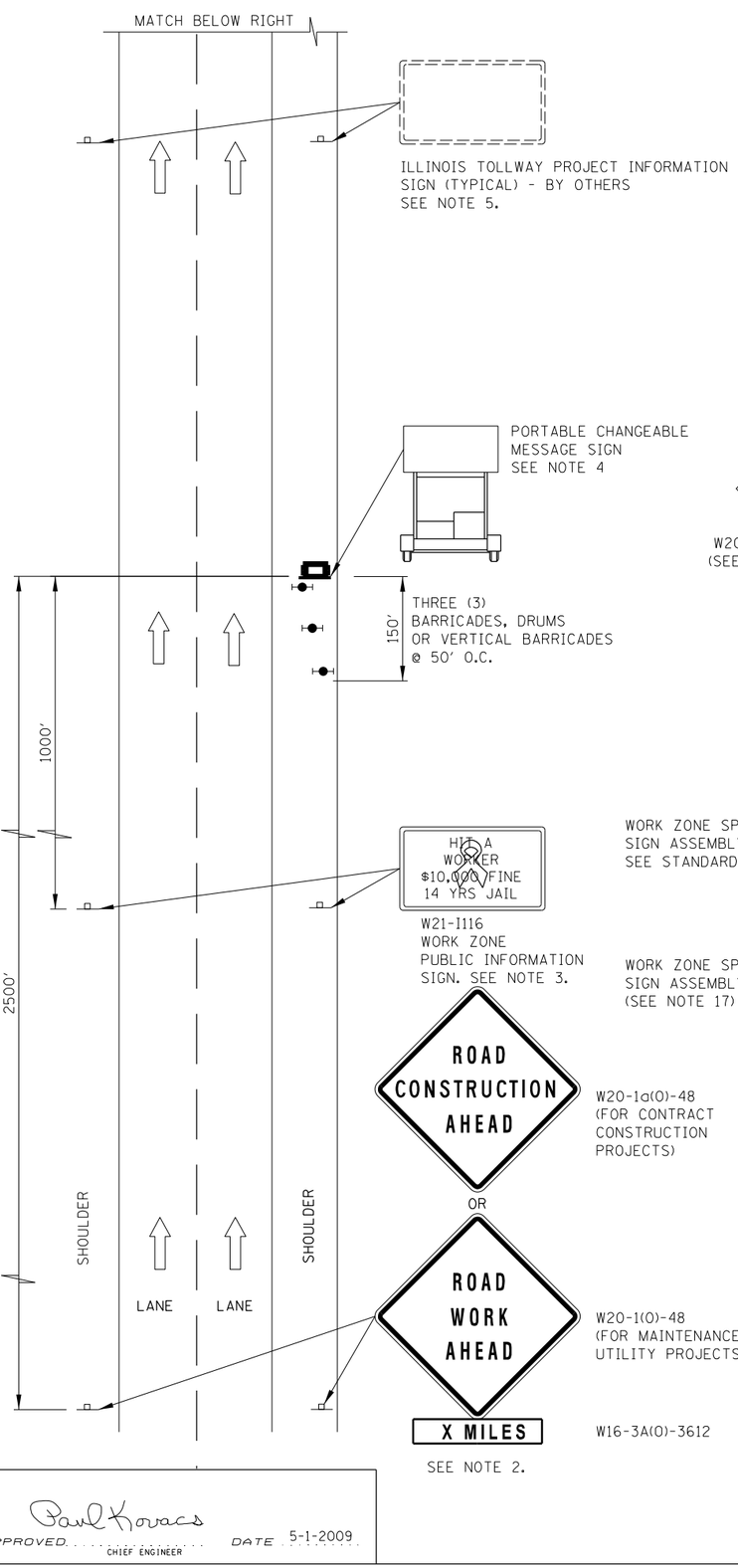
Paul Kovacs
APPROVED ..... DATE 5-1-2009
CHIEF ENGINEER

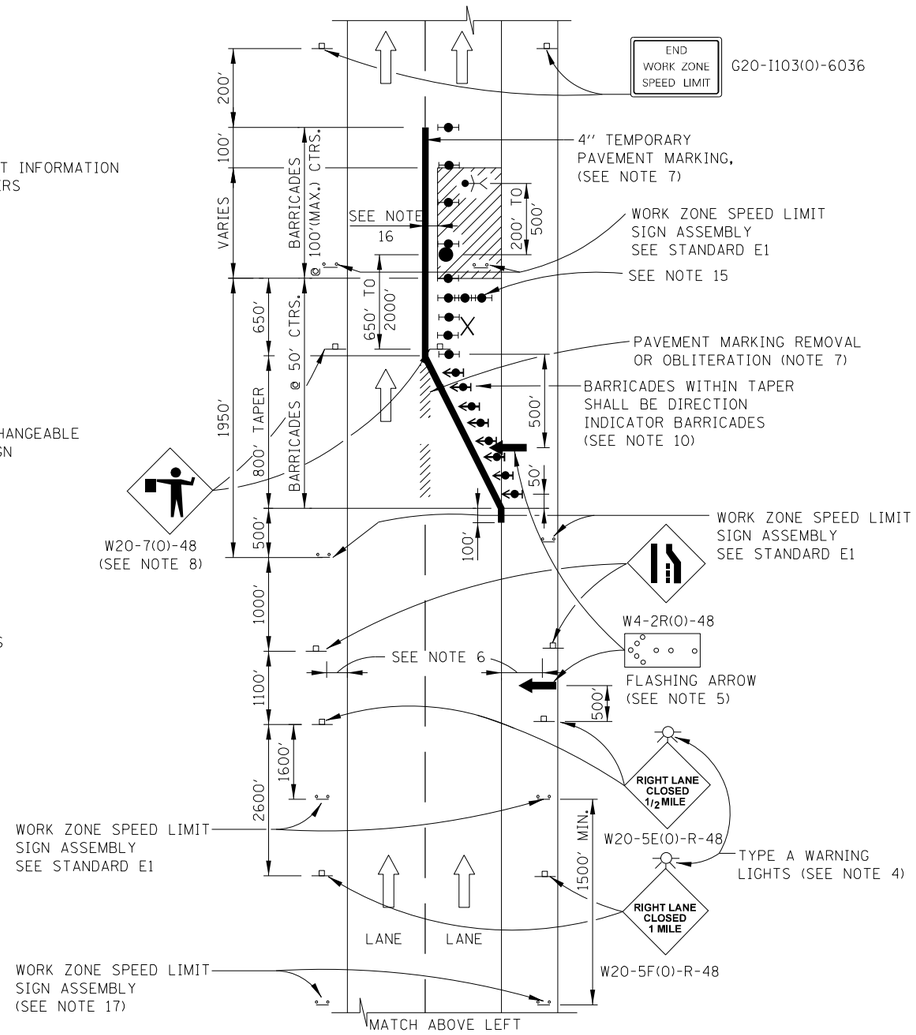
Illinois Tollway

CONSTRUCTION SIGNS

580 549

STANDARD E1-05





ONE-LANE CLOSURE WITH BARRICADE

LANE CLOSURE NOTES:

1. IF CLOSURES ARE EXPECTED TO PRODUCE TRAFFIC BACKUPS EXTENDING BEYOND THE FIRST WARNING SIGN SHOWN ON THE DETAILS, ADDITIONAL UPSTREAM SIGNS SHALL BE PLACED SO THAT THE TRAFFIC CONTROL ZONE ENCOMPASSES THE ANTICIPATED BACKUP ZONE.
2. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED SLIGHTLY TO FIT FIELD CONDITIONS.
3. THESE DETAILS ALSO APPLY TO OPPOSITE HAND LANE CLOSURES BY CHANGING SIGN LEGENDS AND ARROW DIRECTIONS TO INDICATE THE APPROPRIATE CLOSURE.
4. FOR NIGHT TIME CLOSURES, ONE TYPE A WARNING LIGHT SHALL BE INSTALLED ABOVE EACH OF THE 1 MILE AND ½ MILE ADVANCE WARNING SIGNS. FOR DAYLIGHT-ONLY CLOSURES, THE LIGHTS MAY BE OMITTED.
5. FOR ANY LANE CLOSURE, FLASHING ARROW BOARDS SHALL BE REQUIRED AND IN OPERATION AT ALL TIMES. THE FLASHING ARROW BOARD IN ADVANCE OF THE TAPER SHALL BE PROTECTED WITH THREE TYPE II BARRICADES AT 50' O.C.
6. CONSTRUCTION SIGNS SHALL GENERALLY BE POST-MOUNTED OR ATTACHED TO PORTABLE SUPPORTS AND SHALL BE INSTALLED 8' TO 12' FROM ADJACENT TRAVEL LANE WHEREVER POSSIBLE. IN NO CASE SHALL SIGNS BE LOCATED TO PROVIDE LESS THAN 2' CLEARANCE BETWEEN EDGE OF SIGN AND ADJACENT TRAVEL LANE.
7. PAVEMENT MARKING TAPE AND REMOVAL OR OBLITERATION OF EXISTING MARKINGS SHALL BE REQUIRED WHEN THE CLOSURE TIME EXCEEDS FOUR DAYS. THIS WORK SHALL BE MEASURED AND PAID FOR SEPARATELY.
8. WHEN A FLAGGER IS NOT ON STATION, THE FLAGGER SIGN SHALL BE PROMPTLY REMOVED, COVERED OR TURNED TO FACE AWAY FROM TRAFFIC. FLAGGER SIGNS SHALL BE MOVED AS NECESSARY TO MAINTAIN THE REQUIRED SPACING BETWEEN THE SIGNS AND THE WORKERS IN EACH SEPARATE WORK ACTIVITY, PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
9. WORK ZONE SPEED LIMIT SIGN ASSEMBLIES, SHALL BE PLACED ADJACENT TO THE OPEN TRAFFIC LANE(S). WORK ZONE SPEED SIGNS SHALL BE MOVED AS NECESSARY TO MAINTAIN THE REQUIRED SPACING BETWEEN SIGNS AND THE WORKERS IN EACH SEPARATE WORK ACTIVITY PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
10. DIRECTION INDICATOR BARRICADES SHALL BE USED IN LANE TAPERS.
11. FOR CLOSURES OTHER THAN SHORT TERM (SUNRISE TO ONE HOUR BEFORE SUNSET), THE MINIMUM HEIGHT OF THE SIGN FROM SHOULDER ELEVATION SHALL BE 7'-0".
12. CONES MAY BE USED IN LIEU OF BARRICADES IN THE BUFFER AND WORK AREAS, WHEN THE CLOSURE IS FOR MAINTENANCE OPERATIONS.
13. BARRICADES ARE TO BE LOCATED AT JOINT LINE WHEN WORK AREA EXTENDS UP TO JOINT UNLESS OTHERWISE SHOWN ON THE PLANS.
14. SEE MAINTENANCE OF TRAFFIC DRAWINGS FOR ADDITIONAL SIGNING IN THIS AREA.
15. CHECK BARRICADES SHALL BE PLACED IN THE MIDDLE OF THE CLOSED LANE AND AT THE SHOULDER AT 1000 FOOT CENTERS.
16. A 1'-0" MINIMUM/2'-0" DESIRABLE SHY DISTANCE SHALL BE PROVIDED, MEASURED BETWEEN EDGE OF PAVEMENT LANE MARKING TO THE EDGE OF THE TRAFFIC CONTROL DEVICE.
17. ADDITIONAL WORK ZONE SPEED LIMIT SIGNS SHALL BE PLACED WHEN DIFFERENCE BETWEEN POSTED TO WORK ZONE SPEED LIMIT IS > 20 M.P.H.

ADVANCE SIGNING NOTES:

1. THE ADVANCE SIGNING SHOWN ON THIS STANDARD SHALL APPLY ANY TIME THE CONTRACTOR CLOSES ONE OR MORE LANES, OR IS REQUIRED TO SHIFT THE LANE ALIGNMENT. THE "ROAD WORK AHEAD" OR "ROAD CONSTRUCTION AHEAD" SIGNS, WORK ZONE PUBLIC INFORMATION SIGNS AND PORTABLE CHANGEABLE MESSAGE ARE STATIONARY.
2. THE ROAD CONSTRUCTION AHEAD SIGN (W20-1A, WITH W16-3a SUPPLEMENTAL PLATE) OR ROAD WORK AHEAD SIGN (W20-1, WITH W16-3A SUPPLEMENTAL PLATE) SHALL BE LOCATED UP TO 5 MILES IN ADVANCE OF THE PROJECT LIMITS, WITH THE LOCATION BEING DETERMINED BY THE ENGINEER.
3. THE WORK ZONE PUBLIC INFORMATION SIGN IS 60" WIDE BY 48" HIGH. THE CONTRACTOR SHALL OBTAIN THE CAMERA-READY ARTWORK REQUIRED FOR THE SIGN MESSAGE BY CONTACTING IDOT'S CENTRAL BUREAU OF OPERATIONS.
4. THE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE USED TO DISPLAY THE STATUS OF LANE WITHIN THE CONTRACT LIMITS. THE PRIMARY MESSAGES SHALL BE: "RIGHT LANE(S) CLOSED" / "x MILES AHEAD", "LEFT LANE(S) CLOSED" / "x MILES AHEAD", "LANE(S) SHIFT" / "x MILES AHEAD", "ALL LANES OPEN". THE PORTABLE CHANGEABLE MESSAGE SIGN MAY BE MOVED TO THE MEDIAN SHOULDER WHEN THE LANE CLOSURES ARE ON THE LEFT, PROVIDED THE EXISTING SHOULDER WIDTH IS ADEQUATE.
5. THE ILLINOIS TOLLWAY WILL FURNISH AND INSTALL STATIC PROJECT INFORMATION SIGNS IN ADVANCE, THROUGH AND AT THE END OF THE WORK ZONE. THESE SIGNS WILL BE INSTALLED ALONG THE OUTSIDE SHOULDER WITH THE ADVANCE SIGNS LOCATED BEYOND THE PORTABLE CHANGEABLE MESSAGE SIGN. THE ENGINEER AND CONTRACTOR SHALL COORDINATE WITH THE ILLINOIS TOLLWAY REGARDING THE LOCATION OF THESE SIGNS AND NOTIFY THE ILLINOIS TOLLWAY OF ANY DAMAGE TO THE SIGNS OR SUPPORTS.

SYMBOLS

- ARROW BOARD
- WORK AREA
- SIGN
- DIRECTION INDICATOR BARRICADE WITH SEQUENTIAL FLASHING WARNING LIGHT
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
- FLAGGER WITH TRAFFIC CONTROL SIGN
- WORKER
- LANE CLOSED

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009

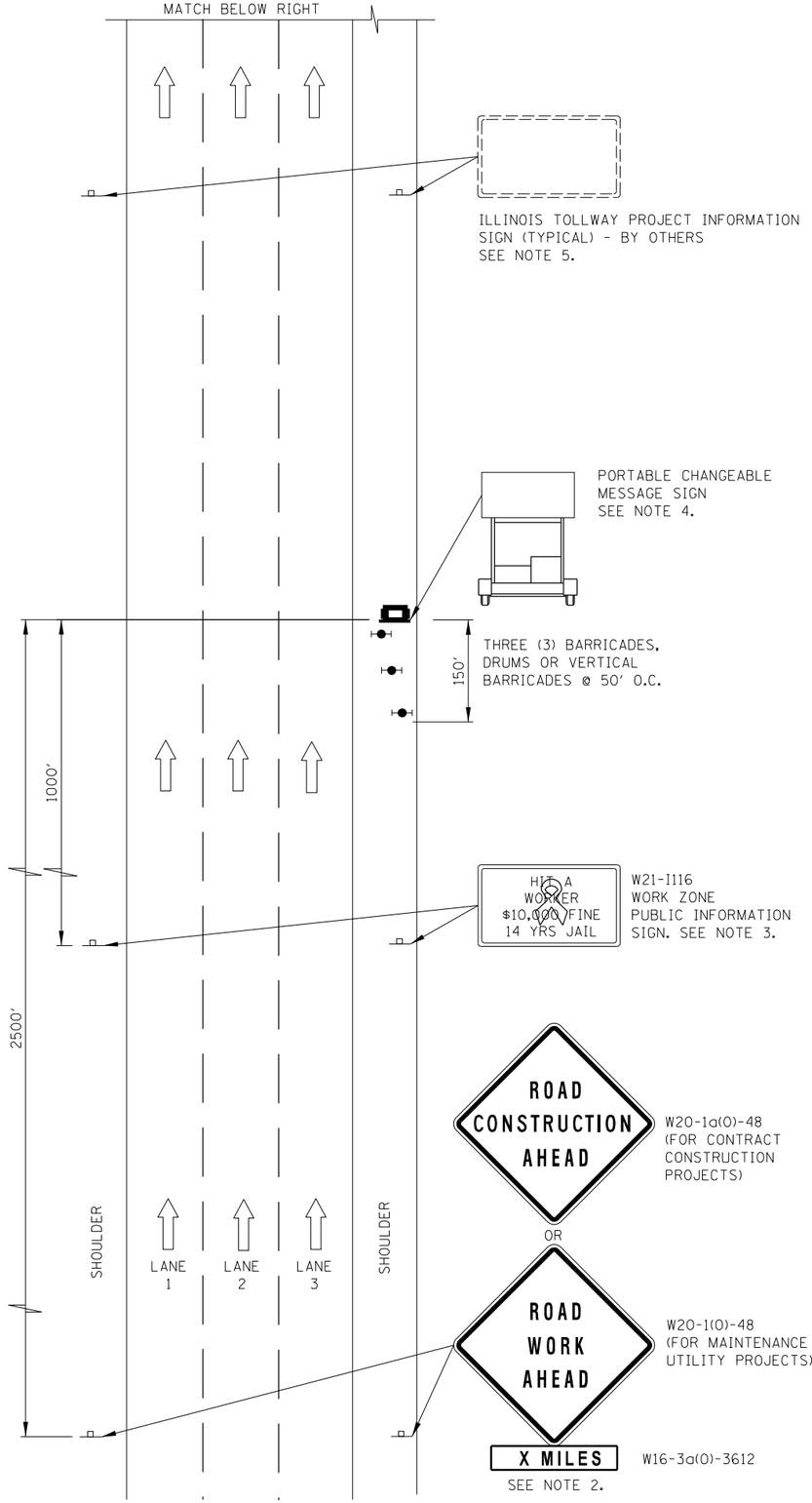
Illinois Tollway

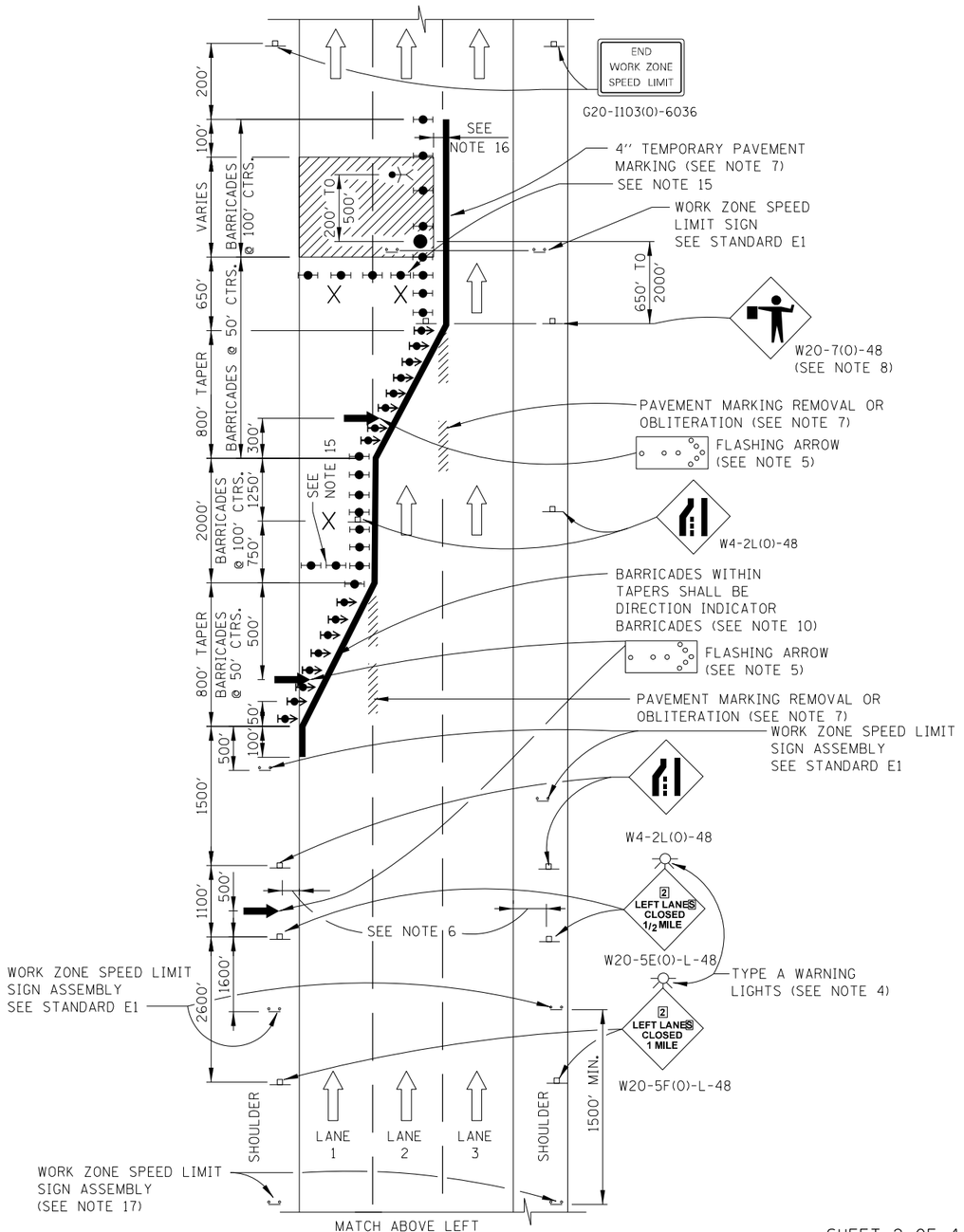
DATE	REVISIONS
11-01-12	ADDED THREE LANE CLOSURE
03-31-14	REVISED BUFFER SPACE, TAPER DIMENSIONS AND REVISED NOTES.
3-11-2015	REVISED NOTES.
3-31-2016	ADDED LANE CLOSURE WITH BARRIER AND ADDED SEQUENTIAL FLASHING WARNING LIGHT.

LANE CLOSURE DETAILS

580 550

STANDARD E2-06





TWO-LANE CLOSURE WITH BARRICADE

SYMBOLS

- ARROW BOARD
- WORK AREA
- SIGN
- DIRECTION INDICATOR BARRICADE WITH SEQUENTIAL FLASHING WARNING LIGHT
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
- FLAGGER WITH TRAFFIC CONTROL SIGN
- WORKER
- X LANE CLOSED

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009

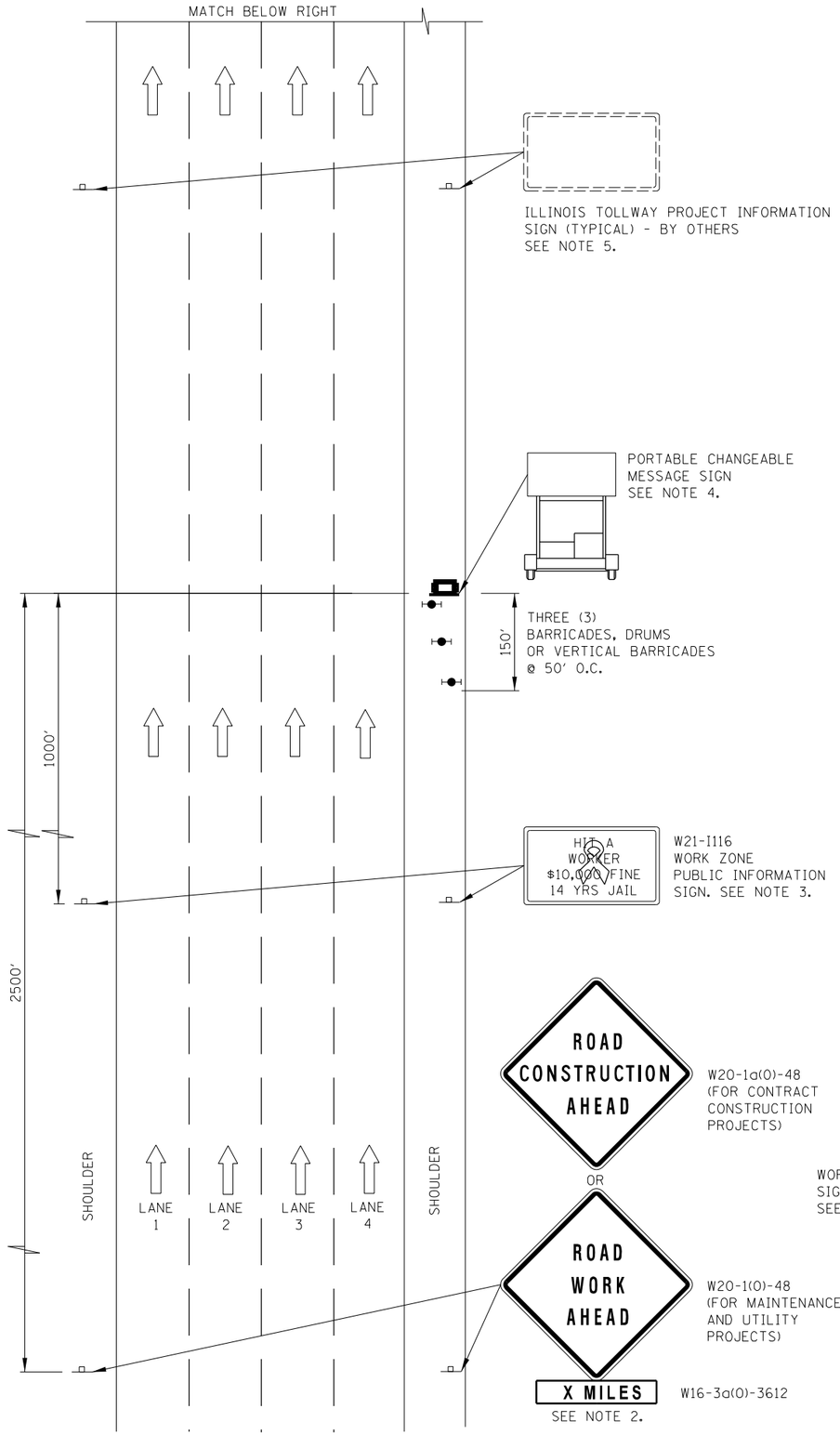
SEE SHEET 1 IN THIS SERIES FOR GENERAL NOTES

Illinois Tollway

LANE CLOSURE DETAILS

580 551

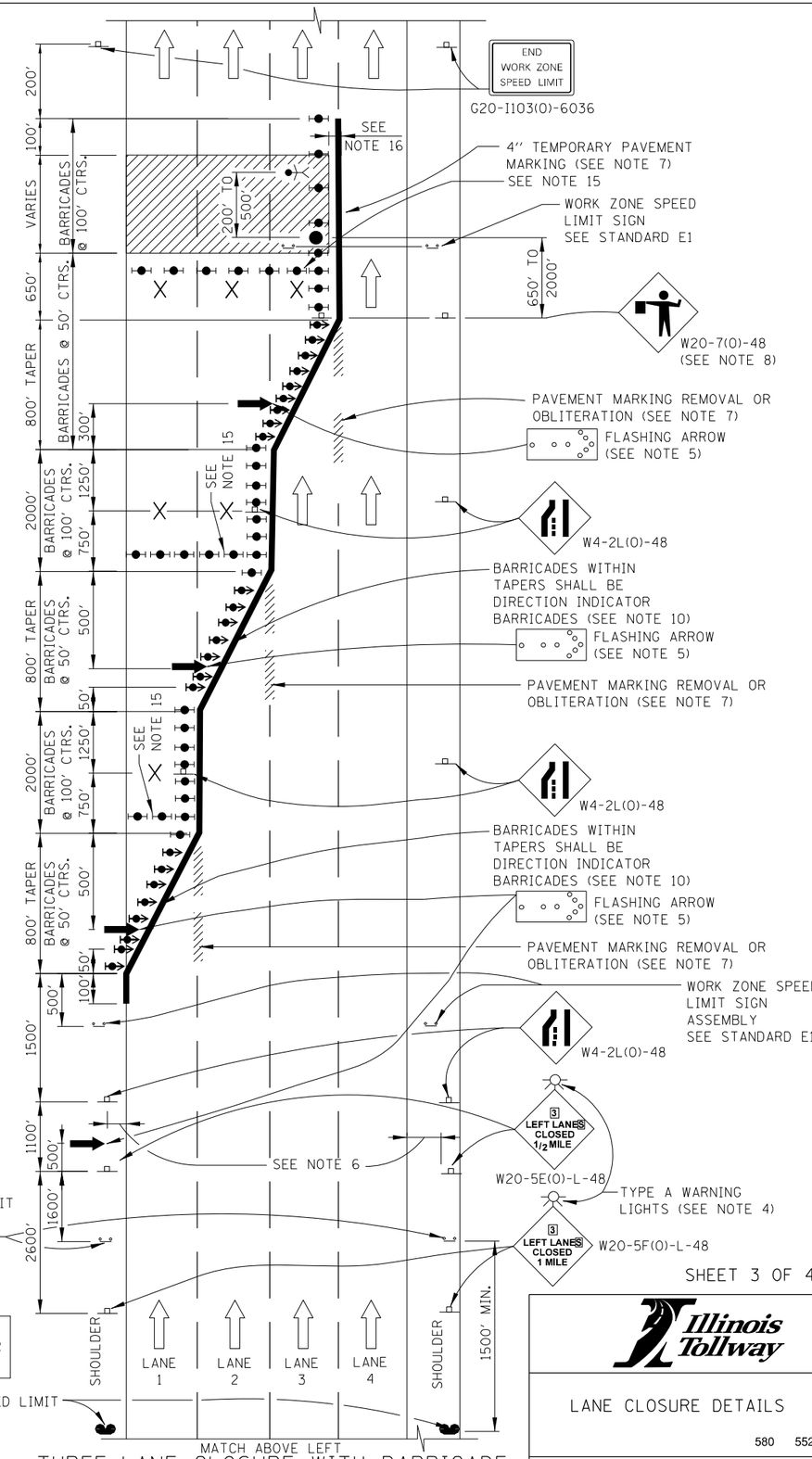
STANDARD E2-06



SYMBOLS

- ARROW BOARD
- WORK AREA
- SIGN
- DIRECTION INDICATOR BARRICADE WITH SEQUENTIAL FLASHING WARNING LIGHT
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
- FLAGGER WITH TRAFFIC CONTROL SIGN
- WORKER
- LANE CLOSED

Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 5-1-2009



SEE SHEET 1 IN THIS SERIES FOR GENERAL NOTES

WORK ZONE SPEED LIMIT SIGN ASSEMBLY (SEE NOTE 17)

THREE-LANE CLOSURE WITH BARRICADE

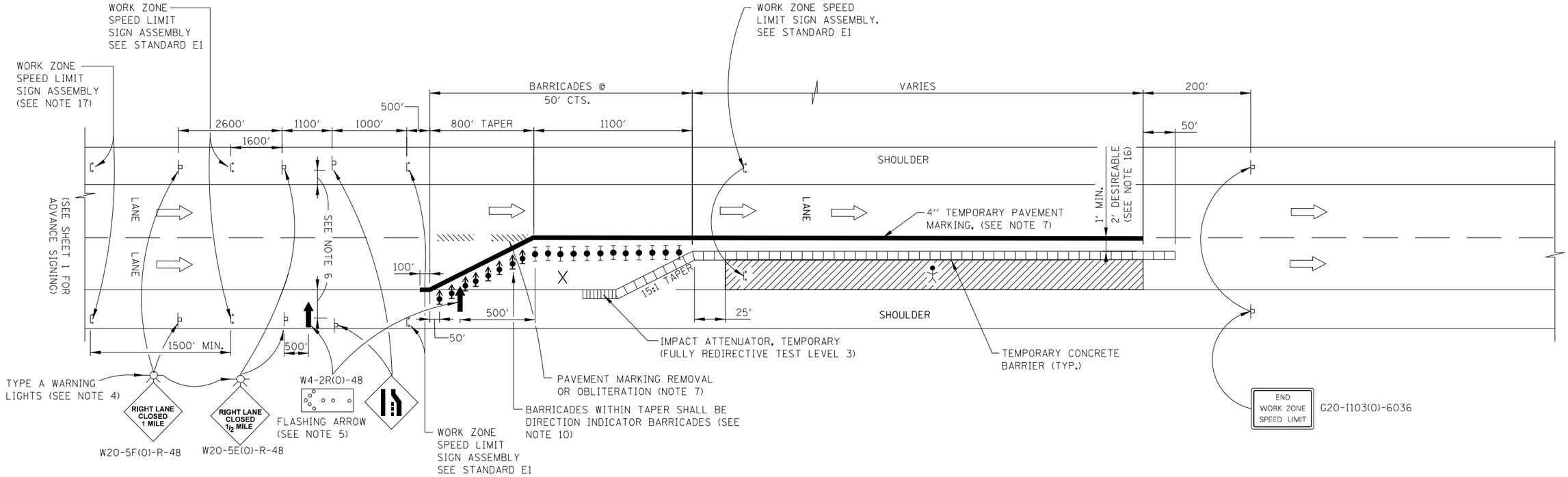
SHEET 3 OF 4

Illinois Tollway

LANE CLOSURE DETAILS

580 552

STANDARD E2-06



ONE-LANE CLOSURE WITH BARRIER

SYMBOLS

- ARROW BOARD
- WORK AREA
- SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN
- DIRECTION INDICATOR BARRICADE WITH SEQUENTIAL FLASHING WARNING LIGHT
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
- WORKER
- LANE CLOSED

NOTE:

SEE SHEET 1 OF THIS SERIES FOR NOTES.

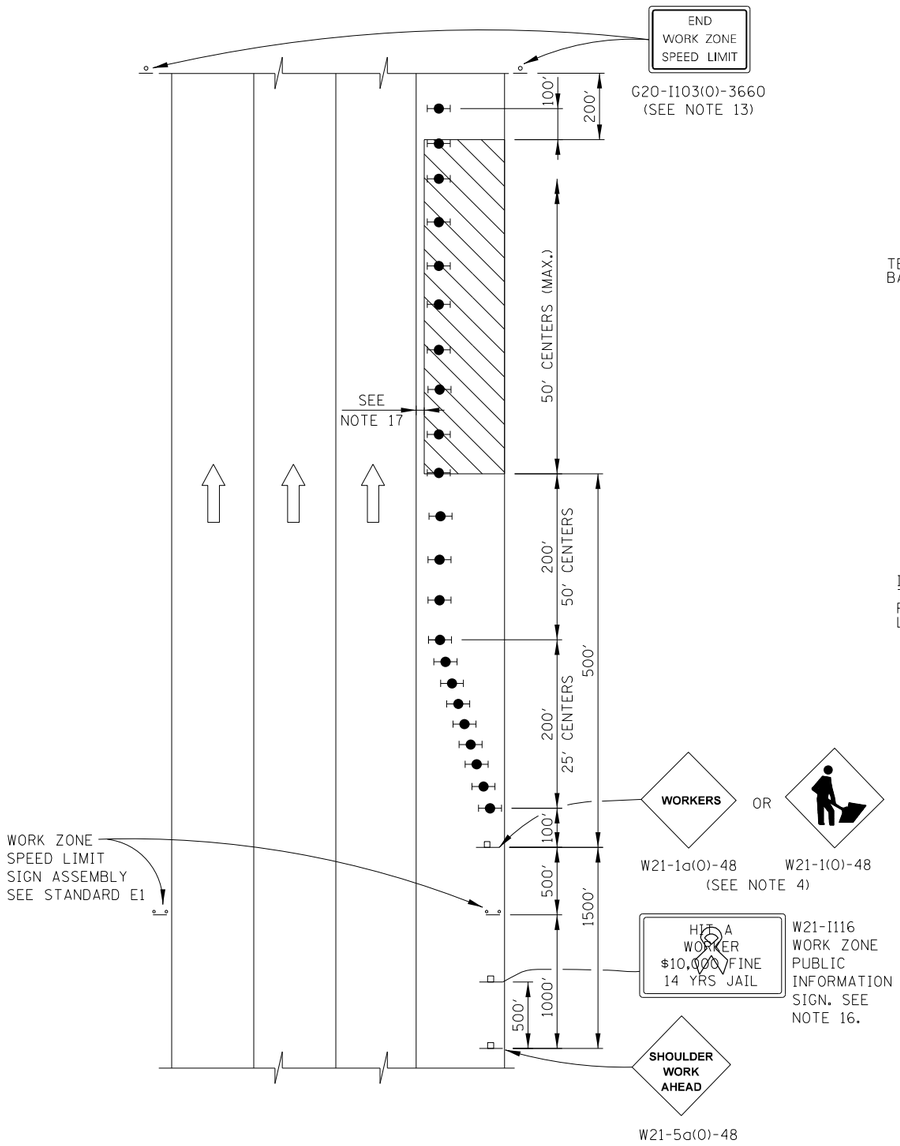
Paul Kovacs
APPROVED ..... DATE 3-31-2016
CHIEF ENGINEER

Illinois Tollway

LANE CLOSURE DETAILS

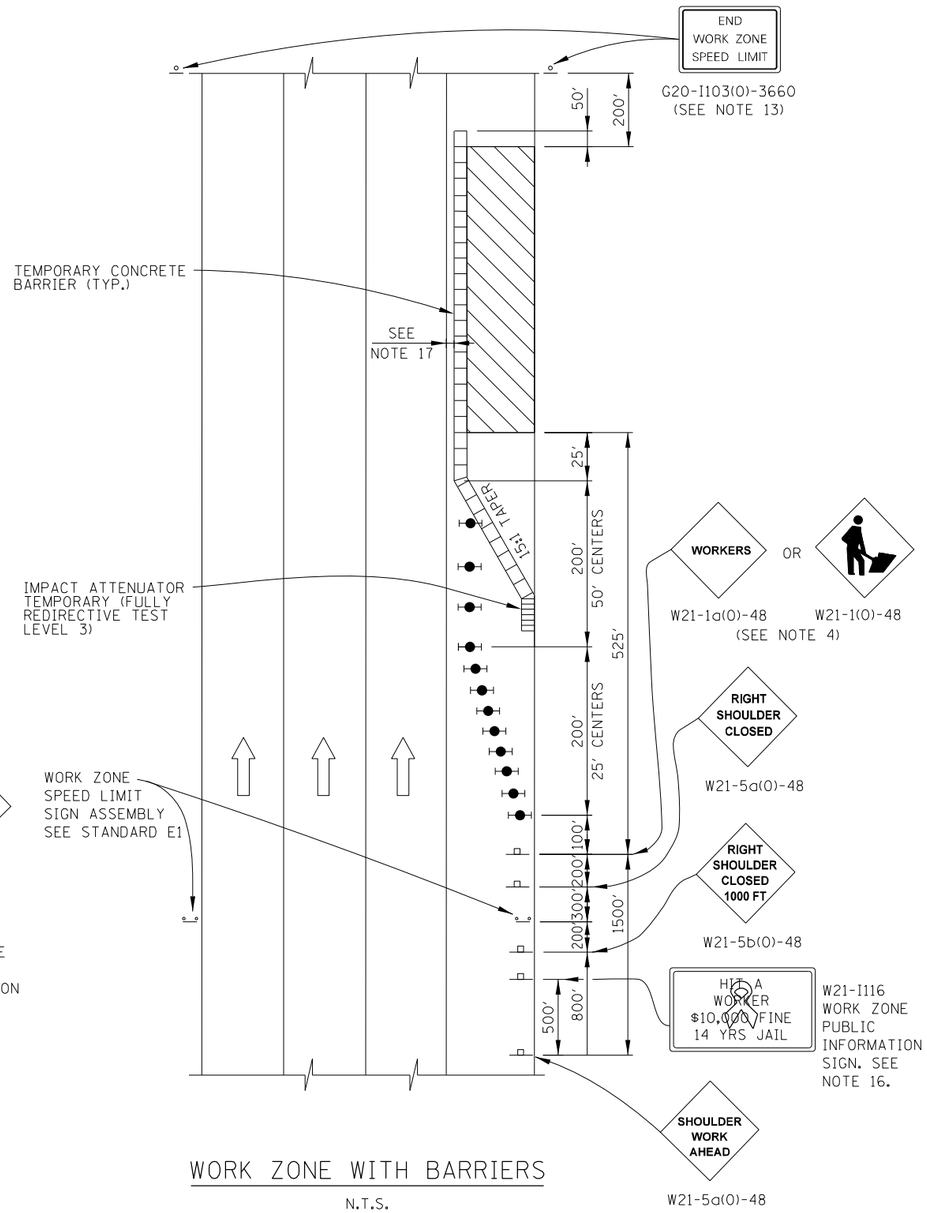
580 553

STANDARD E2-06



WORK ZONE WITH BARRICADES

N.T.S.



WORK ZONE WITH BARRIERS

N.T.S.

SYMBOLS

- WORK AREA
- SIGN
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT

GENERAL NOTES:

1. THE SHOULDER SHALL BE CLOSED WHEN A WORK ACTIVITY REQUIRING 15 OR MORE MINUTES IS PERFORMED AT A DISTANCE WHICH IS LESS THAN 15 FEET BUT NO CLOSER THAN 2 FEET FROM THE EDGE OF PAVEMENT.
2. THE ADJACENT EXTERIOR LANE SHALL BE CLOSED WHEN WORK IS PERFORMED WITHIN 2 FEET FROM THE EDGE OF PAVEMENT.
3. THE CHANNELIZING DEVICES WHICH SEPARATE THE WORK SPACE FROM THE ADJACENT TRAVEL LANE SHALL BE SPACED AT 25' FOR (200 FEET) AND AT A MAXIMUM OF 50' FOR ALL ADDITIONAL DEVICES.
4. WHEN THE WORKSITE IS UNATTENDED, SUBSTITUTE - ''SHOULDER WORK AHEAD'' SIGN FOR THE SECOND SIGN.
5. WORKER SIGNS OR SHOULDER WORK SIGNS AND CHANNELIZATION DEVICES ARE PLACED ONLY ON THE SIDE OF THE ROADWAY ON WHICH THE ACTIVITY IS PERFORMED.
6. FOR SHOULDER CLOSURE EXTENDING OVERNIGHT, BARRICADE TYPE II WITH STEADY BURNING LIGHT, TYPE C SHALL BE USED.
7. FOR SHORT TERM CLOSURE (SUNRISE TO ONE HOUR BEFORE SUNSET) NOT EXTENDING INTO DARKNESS, CONES MAY BE USED.
8. ONE WORK ZONE SPEED LIMIT SIGN ASSEMBLY SHALL BE PLACED AT A DISTANCE OF 500' TO 2,500' MAXIMUM IN ADVANCE OF WORKERS THROUGHOUT THE SHOULDER CLOSURE. MOVING OPERATIONS MAY REQUIRE CONTINUOUS ADJUSTMENT OF THE SIGN ASSEMBLY LOCATION TO MAINTAIN THE ABOVE INTERVAL.
9. AN ADDITIONAL SIGN ASSEMBLY SHALL BE PLACED 500' BEYOND THE LAST ENTRANCE RAMP FOR EACH INTERCHANGE THAT FALLS WITHIN THE 2,500'.
10. THE SIGN ASSEMBLY SHALL BE PLACED NO CLOSER THAN 500' TO ANY OTHER SIGN.
11. THE WORK ZONE SPEED LIMIT SIGNS AND SIGN ASSEMBLY SHALL BE PROMPTLY REMOVED OR COVERED WHEN SHOULDER CLOSURE IS NOT IN USE.
12. ALL CONFLICTING SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED.
13. ''END WORK ZONE SPEED LIMIT'' SIGNS SHALL BE IN PLACE ONLY WHEN THE EXISTING POSTED SPEED > 55MPH.
14. FOR SHOULDER REPAIRS OR REPLACEMENT THE CHANNELIZING DEVICES SHALL BE PLACED AT THE EDGE OF PAVEMENT WHENEVER THE WORK ACTIVITIES RESULT IN A DROPOFF AT THE EDGE OF PAVEMENT.
15. ANY UNATTENDED OBSTACLE OR EXCAVATION LEFT ON THE SHOULDER OVERNIGHT SHALL BE IN COMPLIANCE WITH THE ROADWAY TRAFFIC CONTROL AND COMMUNICATIONS MANUAL.
16. THE WORK ZONE PUBLIC INFORMATION SIGN IS 60'' WIDE BY 48'' HIGH. THE CONTRACTOR SHALL OBTAIN THE CAMERA-READY ARTWORK REQUIRED FOR THE SIGN MESSAGE BY CONTACTING IDOT'S CENTRAL BUREAU OF OPERATIONS.
17. A 1'-0'' MINIMUM/2'-0'' DESIRABLE SHY DISTANCE SHALL BE PROVIDED, MEASURED BETWEEN EDGE OF PAVEMENT LANE MARKING TO THE EDGE OF THE TRAFFIC CONTROL DEVICE.

Paul Kovacs
APPROVED ..... DATE 5-1-2009
CHIEF ENGINEER

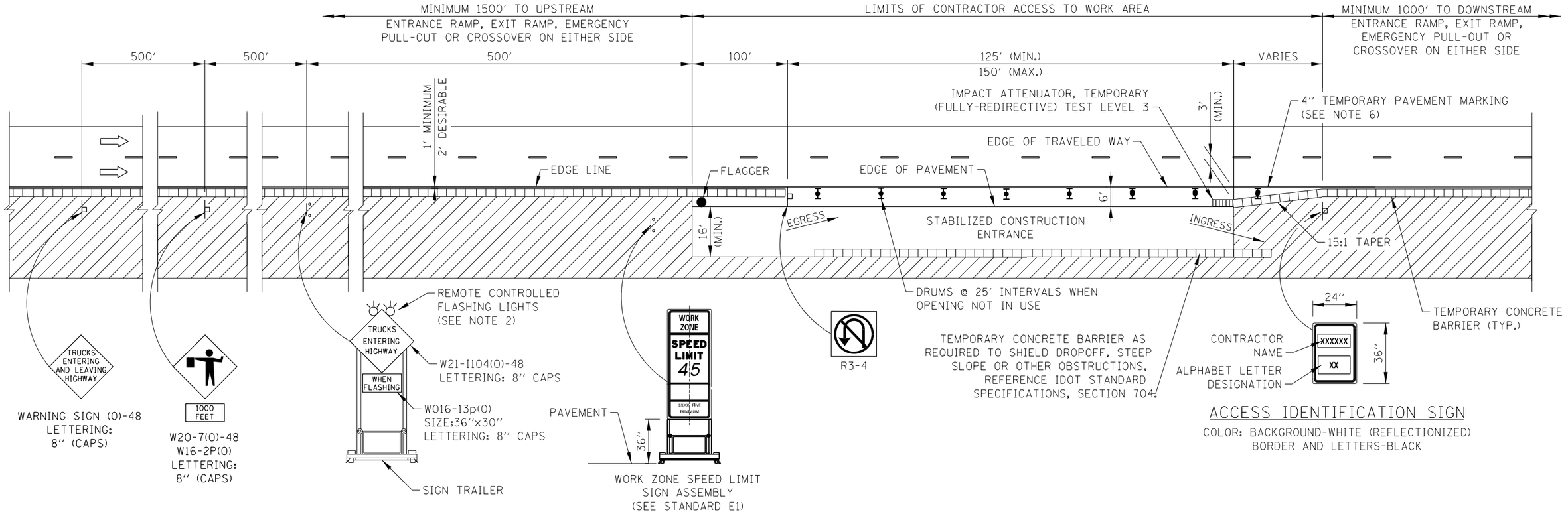
DATE	REVISIONS
1-01-11	CHANGED SYMBOL DESIGNATION
	REVISED NOTES
3-31-14	REVISED WORKER SIGN NUMBERS PER
	''MUTCD'' AND REVISED NOTES.
3-11-2015	REVISED NOTES
3-31-2016	ADD WORK ZONE WITH BARRIERS.

Illinois Tollway

SHOULDER CLOSURE DETAILS

580 554

STANDARD E3-05



ACCESS IDENTIFICATION SIGN

COLOR: BACKGROUND-WHITE (REFLECTIONIZED)
BORDER AND LETTERS-BLACK

CONTRACTOR ACCESS TO WORK AREA
(45 M.P.H.)

LEGEND

- ● FLAGGER
- CONSTRUCTION SIGN ON SUPPORT PER ILLINOIS TOLLWAY STANDARD UNLESS NOTED
- DIRECTION OF TRAFFIC FLOW
- WORK AREA
- DRUM WITH STEADY BURNING MONODIRECTIONAL LIGHT

NOTES:

1. SIGNS DESIGNATED FOR THIS ACCESS TO WORK AREA SHALL BE COVERED OR TURNED AWAY FROM THE TRAFFIC WHEN THE FLAGGER IS NOT ON STATION AND THE ACCESS OPENINGS ARE NOT IN USE.
2. THE FLASHING WARNING LIGHT SHALL MEET THE REQUIREMENTS OF ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS AND BE OPERATED BY THE FLAGGER REMOTELY. THE LIGHTS SHALL BE FLASHING ONLY WHEN A VEHICLE IS ENTERING THE ILLINOIS TOLLWAY.
3. WHEN THREE LANES OR MORE ARE OPENED TO TRAFFIC, ADVANCE WARNING SIGNS AND ASSEMBLIES SHALL BE PROVIDED ON BOTH SIDES OF TRAVELED WAY.
4. WHEN CONTRACTOR ACCESS TO WORK AREA IS ON OPPOSITE SIDE FROM SHOWN, ALL INSTALLATIONS ARE MIRROR IMAGE.
5. FOR NIGHTIME OPERATIONS, TEMPORARY LIGHTING OF CONSTRUCTION ACCESS TO WORK AREA SHALL BE PROVIDED.
6. TEMPORARY PAVEMENT MARKINGS SHALL BE REPLACED AS OFTEN AS NECESSARY TO DELINEATE OPENINGS.
7. IF POSSIBLE, LANE CLOSURES SHALL BE UTILIZED TO ELIMINATE THE MERGING OF CONSTRUCTION TRAFFIC INTO THROUGH TRAFFIC LANES.
8. A 1'-0" MINIMUM/2'-0" DESIRABLE SHY DISTANCE SHALL BE PROVIVED, MEASURED BETWEEN EDGE OF PAVEMENT LANE MARKING TO THE EDGE OF THE TRAFFIC CONTROL DEVICES.
9. "TRUCKS ENTERING HIGHWAY" SIGN MAY BE SUPPORTED BY OPTIONAL POST OR STAND MOUNTED DEVICES WHEN POSITIONED BEHIND TEMPORARY CONCRETE BARRIER.

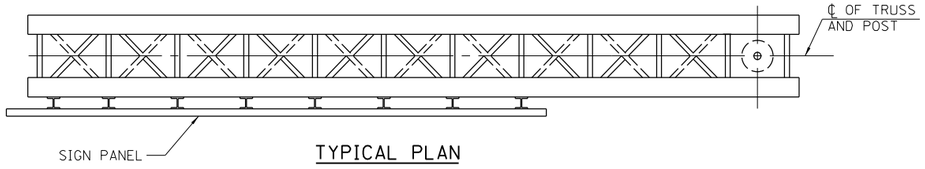
Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

Illinois Tollway

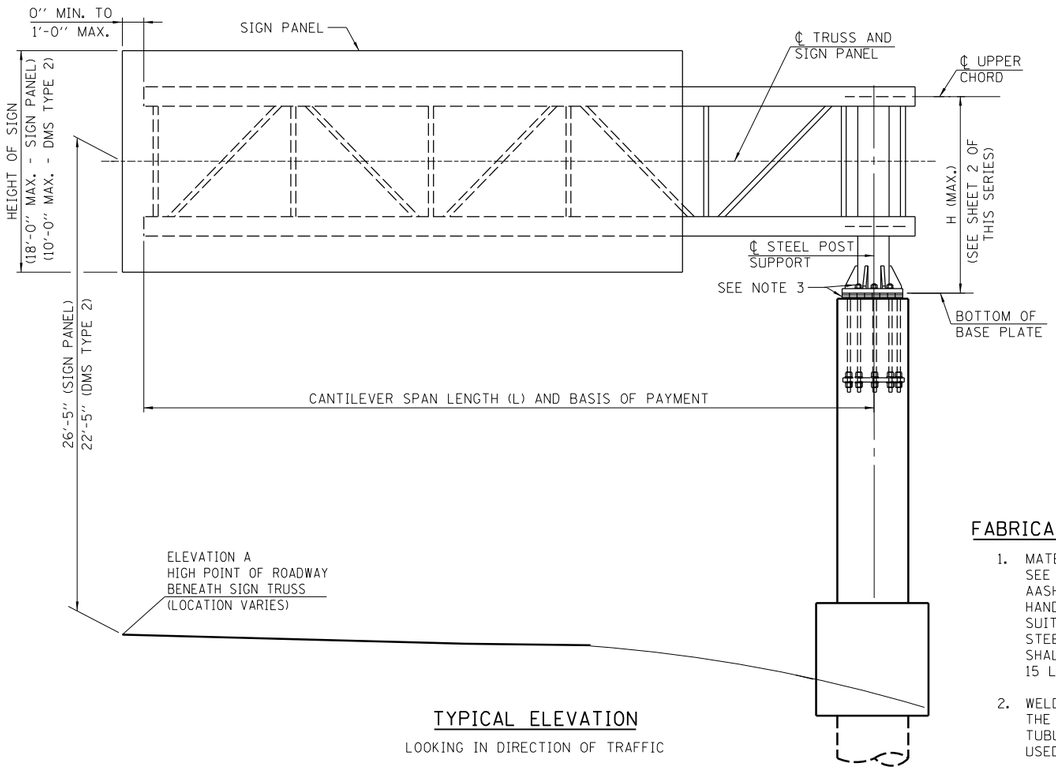
DATE	REVISIONS
3-01-2013	REVISED NOTES.
3-31-2014	REVISED NOTE FOR TEMPORARY CONCRETE BARRIER.

CONTRACTOR ACCESS TO WORK AREA
580 555

STANDARD E6-02



TYPICAL PLAN

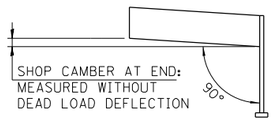


TYPICAL ELEVATION

LOOKING IN DIRECTION OF TRAFFIC

SHOP CAMBER TABLE

CANTILEVER LENGTH (L)	SHOP CAMBER AT END
20'	1½''
25'	1½''
30'	2''
35'	2½''
40'	2½''
45'	3''
50'	3½''



CAMBER DIAGRAM

(FOR FABRICATION ONLY)

TABLE B: MATERIAL SPECIFICATIONS FOR STRUCTURAL STEEL AND FASTENERS

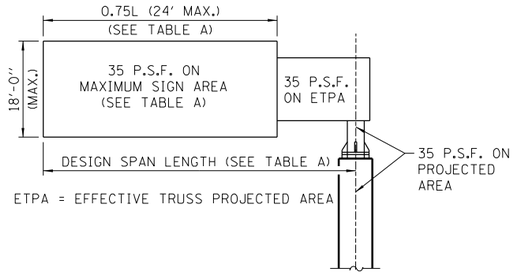
ELEMENT OF STRUCTURE	SPECIFICATION	MINIMUM YIELD STRENGTH (K.S.I.)	MINIMUM ULTIMATE STRENGTH (K.S.I.)
STRUCTURAL STEEL TUBE	ASTM A500 GRADE B	46	58
STRUCTURAL STEEL POST AND PIPE	API 5L GRADE B OR X42 OR X52	35	52
	ASTM A106 GRADE B	35	60
	ASTM A53, TYPE E OR S, GRADE B	35	60
STEEL BAR AND STEEL PLATES	ASTM A572 GRADE 50	50	65
STAINLESS STEEL BOLTS	ASTM A193, CLASS 1, GRADE B8	30	75
STRUCTURAL STEEL BOLTS	ASTM 325 TYPE 1	--	105
STAINLESS STEEL LOCKNUTS	ASTM A194 GRADE 8F ASTM A194 GRADE 2H	--	--
NUTS	ASTM A563 GRADE DH	--	--
STEEL WASHERS	ASTM F436	--	--
STAINLESS STEEL WASHERS	ASTM A240, TYPE 302	--	--
STEEL ANCHOR BOLTS	AASHTO M314 OR ASTM F1554	55	75

Paul Kovacs

APPROVED ..... CHIEF ENGINEER DATE 3-31-2014

TABLE A: MAXIMUM LIMITS FOR SIGNS

TRUSS TYPE	DESIGN SPAN LENGTH (FT.)	MAXIMUM SIGN AREA (SQ. FT.)	MAXIMUM SIGN LENGTH (FT.)
20-D	20	270	15
25-D	25	338	18.75
30-D	30	405	22.5
35-D	35	432	24
40-D	40	432	24
45-D	45	432	24
50-D	50	432	24



DESIGN WIND LOADING DIAGRAM

FABRICATION NOTES:

1. MATERIALS: FOR MATERIAL SPECIFICATIONS FOR CANTILEVER SIGN STRUCTURES, SEE TABLE B. ALL STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 GR. 50. STAINLESS STEEL FOR SHIMS, SLEEVES AND HANDHOLE COVERS SHALL BE ASTM A240, TYPE 302 OR 304 OR ANOTHER ALLOY SUITABLE FOR EXTERIOR EXPOSURE AND ACCEPTABLE TO THE ENGINEER. THE STEEL PIPE AND STIFFENING RIBS AT THE BASE PLATE FOR THE STEEL POST SHALL HAVE A MINIMUM LONGITUDINAL CHARPY V-NOTCH (CVN) ENERGY OF 15 LB.-FT. AT 40° F (ZONE 2) BEFORE GALVANIZING.

2. WELDING: ALL MATERIALS, WELDING PROCEDURES AND INSPECTION USED FOR THE CANTILEVER OVERHEAD SIGN STRUCTURE SHALL CONFORM TO AWS D1.1-10 FOR TUBULAR, CYCLICALLY LOADED STRUCTURES. ADDITIONALLY, ALL WELDED MATERIALS USED SHALL BE PREQUALIFIED FOR USE WITH WPS AS PER AWS D1.1-10, TABLE 3.1.

3. FASTENERS FOR STEEL TRUSSES: HIGH STRENGTH BOLTS MUST SATISFY THE REQUIREMENTS OF AASHTO M164 (ASTM A325), OR APPROVED ALTERNATE, AND MUST HAVE MATCHING LOCKNUTS. THREADED STUDS FOR SPLICES (IF MEMBERS INTERFERE) MUST SATISFY THE REQUIREMENTS OF ASTM A449. ASTM A193 GRADE B7, OR APPROVED ALTERNATE, AND MUST HAVE MATCHING LOCKNUTS. BOLTS AND LOCKNUTS NOT REQUIRED TO BE HIGH STRENGTH MUST SATISFY THE REQUIREMENTS OF ASTM A307. ALL BOLTS AND LOCKNUTS MUST BE HOT DIP GALVANIZED PER AASHTO M232, EXCEPT STAINLESS STEEL FASTENERS, NUTS AND WASHERS. THE LOCKNUTS MUST HAVE NYLON OR STEEL INSERTS. A STAINLESS STEEL FLAT WASHER CONFORMING TO ASTM A240 TYPE 302 OR 304, IS REQUIRED UNDER BOTH HEAD AND NUT OR UNDER BOTH NUTS WHERE THREADED STUDS ARE USED. HIGH STRENGTH BOLT INSTALLATION SHALL CONFORM TO ARTICLE 505.04(f)(2)d OF THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ROTATIONAL CAPACITY (''ROCAP'') TESTING OF BOLTS WILL NOT BE REQUIRED.

4. U-BOLTS: U-BOLTS MUST BE PRODUCED FROM ASTM A276 TYPE 304, 304L, 316 OR 316L, CONDITION A, COLD FINISHED STAINLESS STEEL, OR AN EQUIVALENT MATERIAL ACCEPTABLE TO THE ENGINEER. ALL NUTS FOR U-BOLTS MUST BE LOCKNUTS EQUIVALENT TO ASTM A307 WITH NYLON OR STEEL INSERTS AND HOT DIP GALVANIZED PER AASHTO M232. A STAINLESS STEEL FLAT WASHER CONFORMING TO ASTM A240, TYPE 302 OR 304, IS REQUIRED UNDER EACH U-BOLT LOCKNUT.

5. GALVANIZING: ALL PLATES, SHAPES AND PIPE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111. PAINTING IS NOT PERMITTED. ALL FASTENERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111 OR M232 AS APPROPRIATE FOR THE PRODUCT (EXCEPT STAINLESS STEEL FASTENERS).

GENERAL NOTES:

1. WORK THIS SHEET WITH OVERHEAD SIGN STRUCTURE CANTILEVER TYPE SUMMARY AND TOTAL BILL OF MATERIAL SHEET.

2. AFTER ADJUSTMENTS TO LEVEL TRUSS AND ENSURE ADEQUATE VERTICAL CLEARANCE, ALL TOP AND LEVELING NUTS SHALL BE TIGHTENED AGAINST THE BASE PLATE WITH A MINIMUM TORQUE OF 200 LB.-FT. STAINLESS STEEL MESH SHALL THEN BE PLACED AROUND THE PERIMETER OF THE BASE PLATE. SECURE TO BASE PLATE WITH STAINLESS STEEL BANDING.

3. SIGN SUPPORT STRUCTURES MAY BE SUBJECT TO DAMAGING VIBRATIONS AND OSCILLATIONS WHEN SIGN PANELS ARE NOT IN PLACE DURING ERECTION OR MAINTENANCE OF THE STRUCTURE. TO AVOID THESE, ATTACH TEMPORARY BLANK SIGN PANELS OR OTHER BRACING TO THE STRUCTURE UNTIL PERMANENT SIGNS ARE INSTALLED.

4. TRUSSES SHALL BE SHIPPED INDIVIDUALLY WITH ADEQUATE PROVISON TO PREVENT DETRIMENTAL MOTION DURING TRANSPORT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONFIGURATION AND PROTECTION OF THE TRUSSES.

5. ALL WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH CURRENT AWS D1.1 STRUCTURE WELDING CODE AND THE STANDARD SPECIFICATIONS.

6. ALL STEEL PLATES, SHAPES AND PIPE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111.

7. PROVIDE RUBBED SURFACE FINISH FOLLOWED BY CONCRETE SEALER APPLICATION ON ENTIRE SURFACE OF CONCRETE COLUMN AND NORMAL SURFACE FINISH ON GRADE BEAM, EXCEPT BOTTOM SURFACE. COST IS INCLUDED IN THE COST OF ''FOUNDATION FOR OVERHEAD SIGN STRUCTURE, CANTILEVER TYPE''.

8. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

9. DMS TYPE 2 IS PERMITTED TO BE INSTALLED ON CANTILEVER TRUSS. DO NOT INSTALL SIGN PANEL IN CONJUCTION WITH DMS TYPE 2. SEE SHEET 9 OF THIS SERIES FOR PERMISSIBLE SIGN SIZE AND WEIGHT.

CONSTRUCTION SPECIFICATIONS:

1. ALL MATERIALS, EXCEPT AS SHOWN, FABRICATION, ERECTION AND CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 733 OF THE LATEST ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.

2. THE COST OF FURNISHING AND INSTALLING THE STAINLESS STEEL BAND AND WIRE MESH CLOTH IS INCLUDED IN THE COST OF ''OVERHEAD SIGN STRUCTURE, CANTILEVER TYPE (STEEL)''.

LOADING:

1. ALL CANTILEVER TRUSSES ARE DESIGNED FOR AN 18'-0'' DEEP SIGN PANEL OVER 75% OF THE ARM LENGTH, WITH A MAXIMUM PANEL WIDTH OF 24'-0''.

2. ALL CANTILEVER TRUSSES ARE DESIGNED FOR 35 PSF WIND PRESSURE ON TRUSS MEMBERS AND SIGN PANEL.

3. THE AASHTO GROUP II AND III ALLOWABLE STRESS SHALL BE 133% (ALLOWABLE STRESS DESIGN).

DESIGN SPECIFICATIONS:

THESE STRUCTURES ARE DESIGNED TO SATISFY THE 2013 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SIXTH EDITION.

CONCRETE COLUMN, GRADE BEAM AND DRILLED SHAFT ARE DESIGNED IN ACCORDANCE WITH THE 2012 EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (INCLUDING THE 2013 INTERIM REVISIONS).

DESIGN UNIT STRESSES FOR REINFORCED CONCRETE:

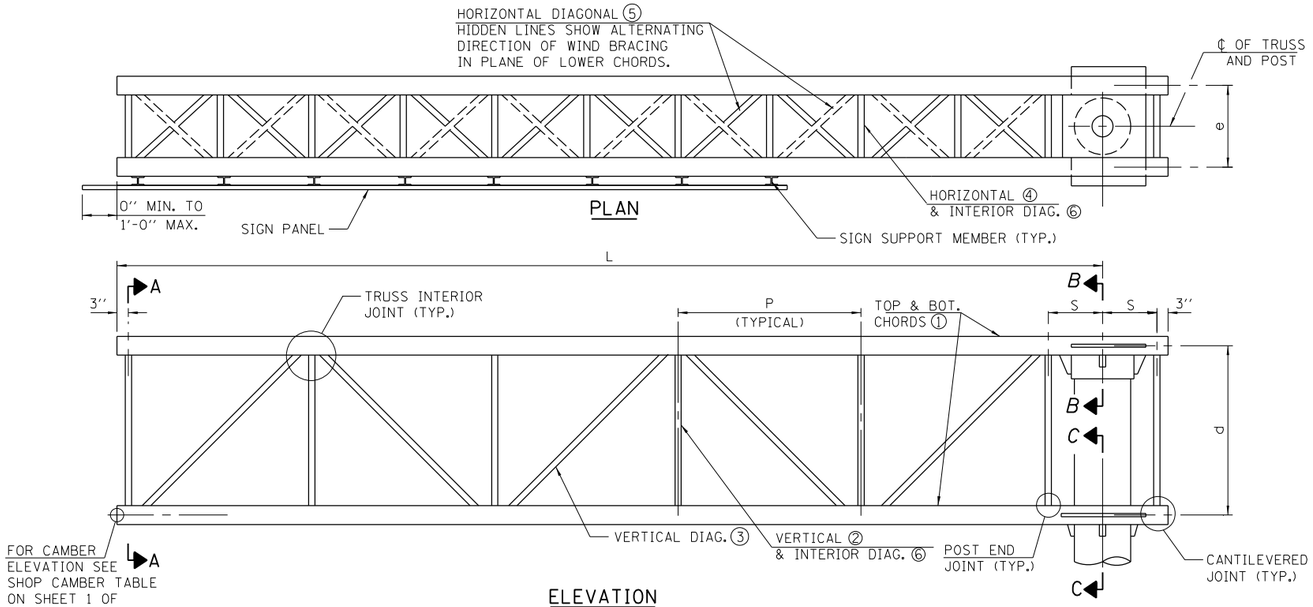
CLASS SI CONCRETE ---------- f'c = 3,500 P.S.I.
CLASS DS CONCRETE ---------- f'c = 4,000 P.S.I.
REINFORCING STEEL ---------- fy = 60,000 P.S.I.

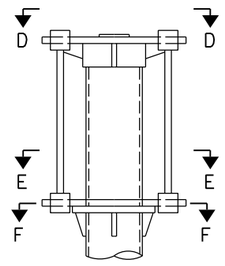
DATE	REVISIONS
2-1-2013	REVISED SIGN PARAMETERS
12-12-2013	REVISED TABLES AND NOTES
2-07-2014	REVISED STEEL POST TO CONCRETE
3-31-2014	ADDED DMS TYPE II
7-01-2014	ADDED DIMENSIONS AND REVISED NOTES
3-11-2015	ADDED DIMENSIONS AND REVISED NOTES
3-31-2016	REVISED FOUNDATION NOTE

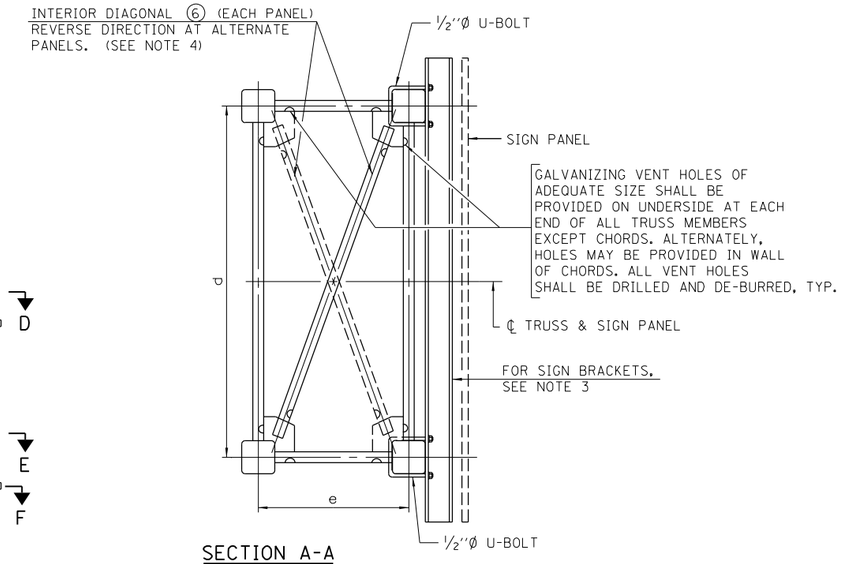
Illinois Tollway

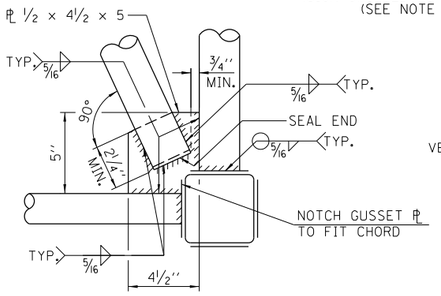
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE STRUCTURE DETAILS 580 556

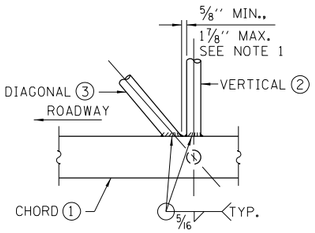
STANDARD F4-07

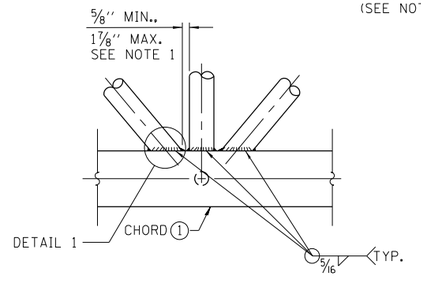


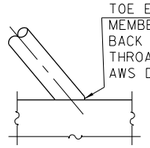












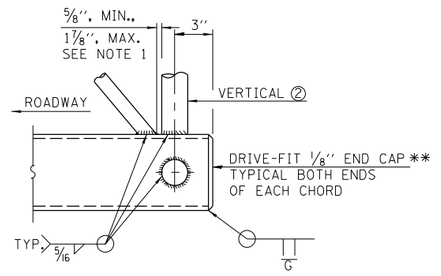


TABLE C: TRUSS AND POST DETAILS FOR 18'-0'' (MAX.) SIGN HEIGHT

DESIGN SPAN LENGTH (L)	TRUSS TYPE	TRUSS SIZE		ACTUAL SPAN LENGTH	MAXIMUM SIGN LENGTH	STEEL SUPPORT POST (COLUMN)				TRUSS MEMBERS AND DETAILS														
		e	d			DIAMETER	WEIGHT	* WALL THICKNESS	H (MAX.)	TOP & BOTTOM CHORD ①	VERTICAL ②		VERTICAL DIAG. ③		HORIZONTAL ④		HORIZONTAL DIAG. ⑤		INTERIOR DIAG. ⑥		PANELS		
											PIPE	WALL	PIPE	WALL	PIPE	WALL	PIPE	WALL	PIPE	WALL	NO.	P	S
20'	20-D	2'-6''	5'-6''	20'-1''	15'-0''	18''	138.30 (#/FT)	0.75''	12'-0''	HSS 5x5x¼	2½''Ø X.S	0.276''	3''Ø X.X.S	0.600''	1½''Ø X.S	0.200''	2½''Ø X.S	0.276''	1½''Ø X.S	0.200''	4	4'-7''	1'-6''
25'	25-D	3'-6''	5'-6''	24'-11''	18'-9''	18''	181.73 (#/FT)	1''	12'-0''	HSS 5x5x¼	2½''Ø X.S	0.276''	3''Ø X.X.S	0.600''	2''Ø X.S	0.218''	2½''Ø X.S	0.276''	2''Ø X.S	0.218''	5	4'-7''	1'-9''
30'	30-D	3'-6''	7'-0''	30'-2''	22'-6''	18''	181.73 (#/FT)	1''	12'-0''	HSS 6x6x¼	3''Ø X.S	0.300''	4''Ø X.X.S	0.674''	2''Ø X.S	0.218''	2½''Ø X.S	0.276''	2''Ø X.S	0.218''	5	5'-7''	2'-0''
35'	35-D	4'-0''	7'-0''	35'-0''	24'-0''	24''	186.41 (#/FT)	0.75''	12'-0''	HSS 6x6x¼	3''Ø X.S	0.300''	4''Ø X.X.S	0.674''	2''Ø X.S	0.218''	2½''Ø X.S	0.276''	2''Ø X.S	0.218''	5	6'-6''	2'-3''
40'	40-D	4'-0''	7'-0''	40'-0''	24'-0''	24''	186.41 (#/FT)	0.75''	12'-0''	HSS 6x6x¼	3''Ø X.S	0.300''	4''Ø X.X.S	0.674''	2''Ø X.S	0.218''	2½''Ø X.S	0.276''	2''Ø X.S	0.218''	6	6'-3''	2'-3''
45'	45-D	4'-6''	7'-0''	45'-0½''	24'-0''	24''	245.87 (#/FT)	1''	12'-0''	HSS 6x6x¼	3''Ø X.S	0.300''	4''Ø X.X.S	0.674''	2''Ø X.S	0.218''	2½''Ø X.S	0.276''	2''Ø X.S	0.218''	7	6'-0½''	2'-6''
50'	50-D	4'-6''	7'-0''	50'-1''	24'-0''	24''	245.87 (#/FT)	1''	12'-0''	HSS 6x6x¼	3''Ø X.S	0.300''	4''Ø X.X.S	0.674''	2''Ø X.S	0.218''	2½''Ø X.S	0.276''	2''Ø X.S	0.218''	8	5'-11''	2'-6''

* NOMINAL WALL THICKNESS SHOWN. THICKER WALL IS PERMITTED UPON ENGINEER'S APPROVAL.

NOTES:

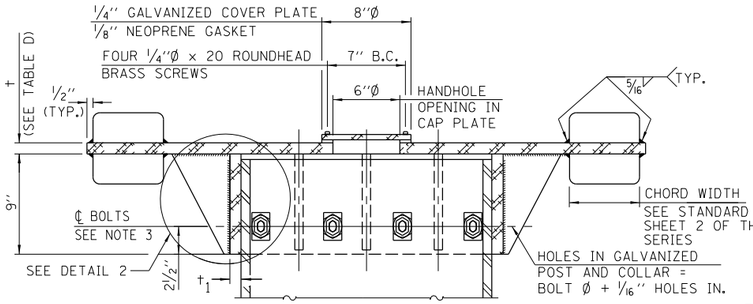
1. TRUSS MEMBERS SHALL BE SPACED A MINIMUM OF 3 TIMES THE WALL THICKNESS OF THE LARGEST CONNECTING MEMBERS TO ENSURE PROPER WELD SPACING.
2. FOR SECTIONS B-B, C-C, D-D, E-E AND F-F SEE SHEET 3 OF THIS SERIES.
3. FOR SIGN SUPPORT DETAILS, SEE ILLINOIS TOLLWAY STANDARD DRAWING F8, FOR DMS TYPE 2 SIGN SUPPORT DETAILS, SEE SHEET 9 OF THIS SERIES.
4. DIRECTION OF INTERIOR DIAGONALS SHOWN IN SECTION A-A CORRECTLY DEPICTS TRUSSES HAVING AN ODD NUMBER OF PANELS. TRUSSES WITH AN EVEN NUMBER OF PANELS WILL HAVE DIAGONALS IN A REVERSED DIRECTION THAN AS SHOWN.
5. FOR ANY DESIGN SPAN LENGTH THAT FALLS BETWEEN TWO CONSECUTIVE SPANS, PROVIDED IN COLUMN 1 OF TABLE C, THE LARGER DESIGN SPAN LENGTH SHALL BE USED (I.E. FOR A 32' SPAN LENGTH FALLING BETWEEN 30' AND 35' DESIGN SPAN LENGTHS IN TABLE C, THE 35' DESIGN SPAN LENGTH TRUSS AND POST DETAILS SHALL BE USED).

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 3-31-2014

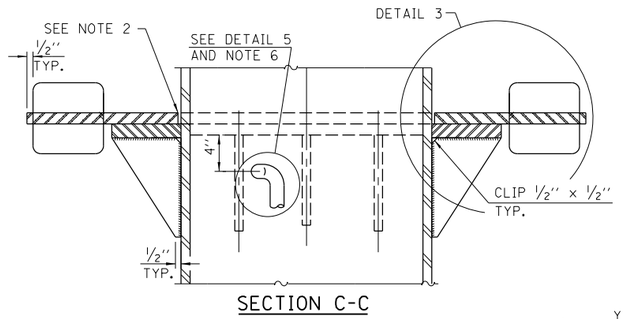
Illinois Tollway

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS 580 557

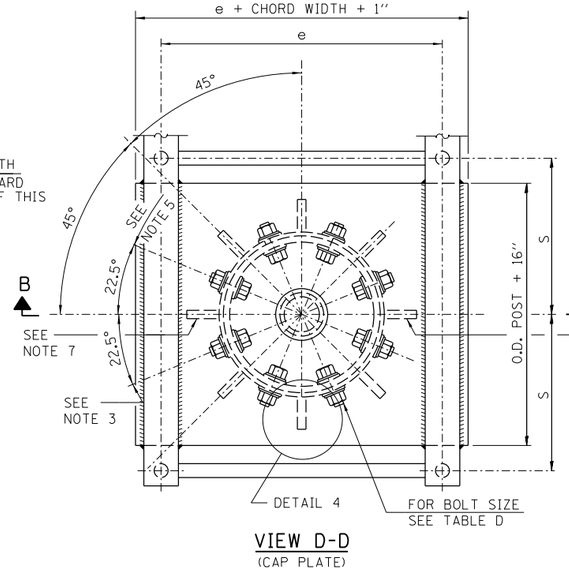
STANDARD F4-07



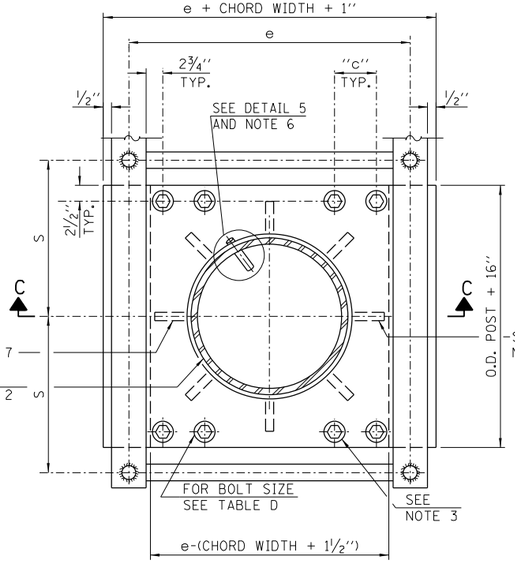
SECTION B-B



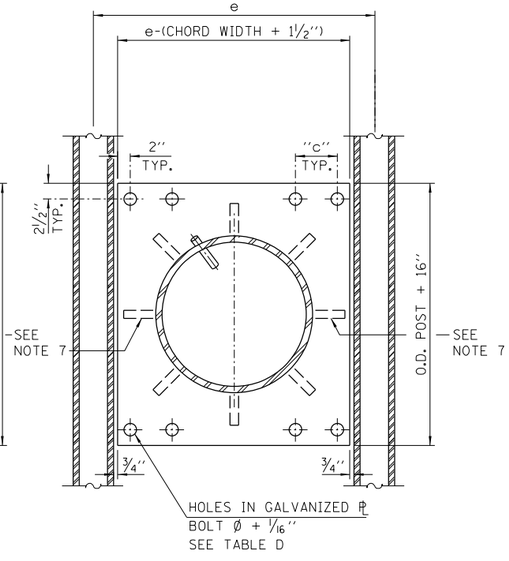
SECTION C-C



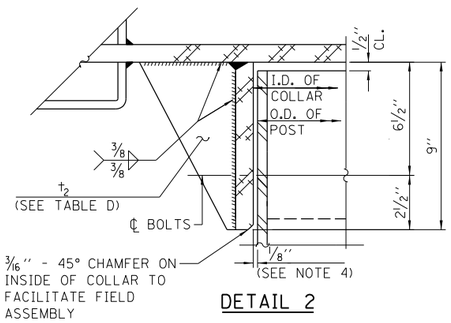
VIEW D-D
(CAP PLATE)



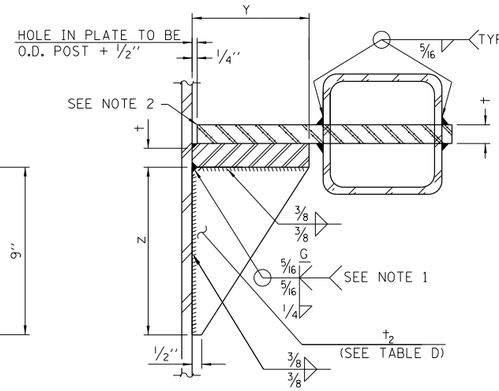
SECTION E-E
(JUNCTURE PLATE)



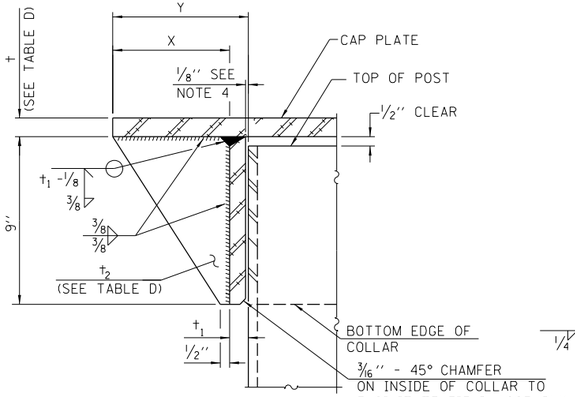
SECTION F-F
(SETTING PLATE)



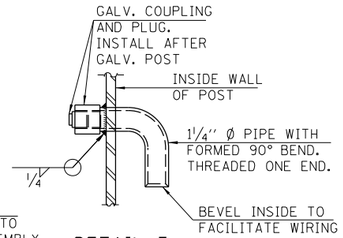
DETAIL 2



DETAIL 3



DETAIL 4



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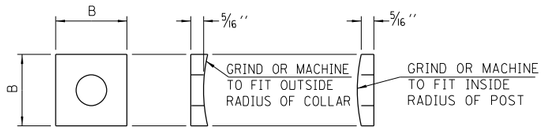


BOLT SIZE	CONTOURED WASHERS	
	HOLE DIA.	B
1 1/8''Ø	1 1/4''Ø	2 1/4''
1 1/4''Ø	1 3/8''Ø	2 1/4''
1 1/2''Ø	1 5/8''Ø	2 1/4''

CONTOURED WASHERS
(ASTM A240, TYPE 304)

NOTES:

1. GRIND TOP IF REQUIRED TO FULLY SEAT PLATE. REPAIR DAMAGED GALVANIZING BEFORE ASSEMBLY.
2. AFTER TIGHTENING LOWER CONNECTION BOLTS, FILL GAP WITH NON-HARDENING SILICONE CAULK SUITABLE FOR EXTERIOR EXPOSURE AND ACCEPTABLE TO THE ENGINEER. COST IS INCLUDED IN "OVERHEAD SIGN STRUCTURE, CANTILEVER TYPE (STEEL)".
3. CONNECTION BOLTS IN COLLAR AND BOLTS AT LOWER CHORD CONNECTION MUST BE HIGH STRENGTH WITH MATCHING LOCKNUTS. LOWER CONNECTION BOLTS MUST HAVE 2 FLAT WASHERS EACH.
4. AFTER GALVANIZING, COLLAR I.D. SHALL EQUAL O.D. OF GALVANIZED POST PLUS 1/8'' (±1/16'') MAXIMUM GAP BETWEEN POST AND COLLAR AT ANY LOCATION SHALL BE 1/8'' BEFORE TIGHTENING BOLTS.
5. OPTIONAL FULL PENETRATION WELD IN COLLAR. (TWO LOCATIONS MAXIMUM (180° APART) X-RAY OR UT 100%) ALL BOLTS SHOWN ARE HIGH STRENGTH.
6. ORIENT PIPE TOWARD SIGN PANEL SIDE. HOLE IN POST = O.D. PIPE + 1/8''.
7. OMIT INDICATED STIFFENER IN TRUSS TYPE 20-D.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 3-31-2014

B.C. = BOLT CIRCLE

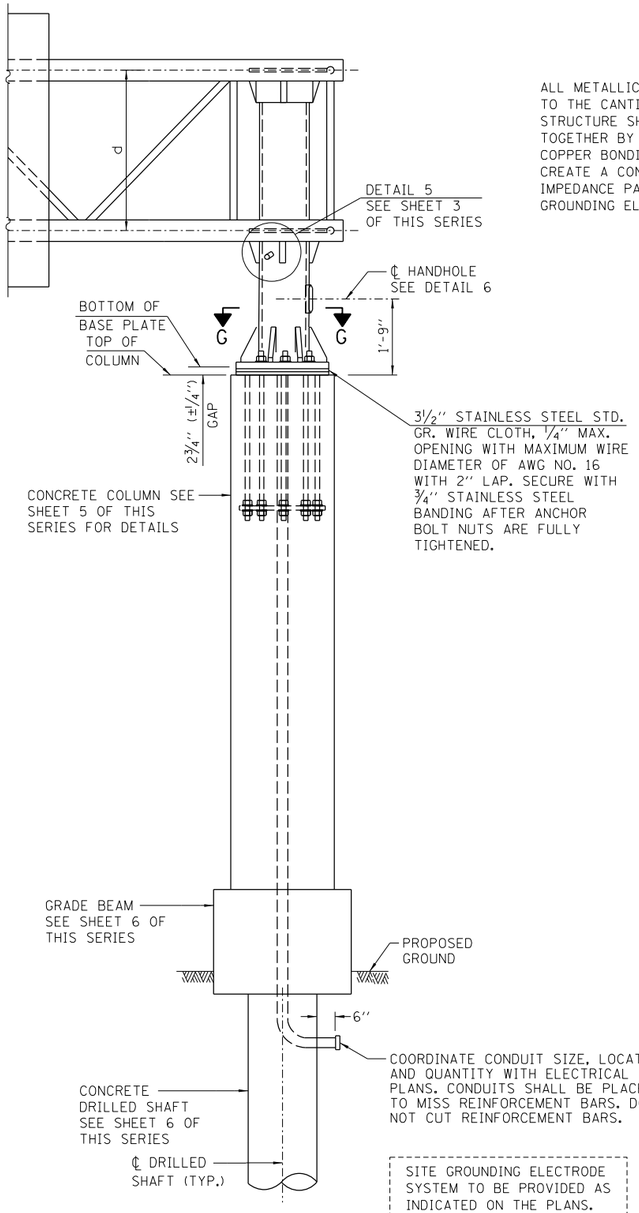
TABLE D: BOLT SCHEDULE

SPAN LENGTH	POST OUTSIDE DIAMETER	JUNCTURE & COLLAR CONNECTION BOLT DIAMETER	LOWER JUNCTURE BOLT SPACING DIMENSION "c"	PLATE THICKNESS		STIFFENER THICKNESS	NO. OF STIFFENERS	STIFFENERS		
				(t)	(t_1)	(t_2)		x	y	z
< = 20'	18''	1 1/8''	3 1/8''	1''	3/4''	1/2''	6	5''	6''	8''
21'-30'	18''	1 1/2''	3 3/4''	1 1/8''	7/8''	3/4''	8	5''	6''	8''
31'-40'	24''	1 1/2''	4 1/2''	1 1/4''	1''	3/4''	8	7''	8''	10 1/2''
41'-50'	24''	1 1/2''	4 1/2''	1 1/4''	1''	3/4''	8	7''	8''	10 1/2''

Illinois Tollway

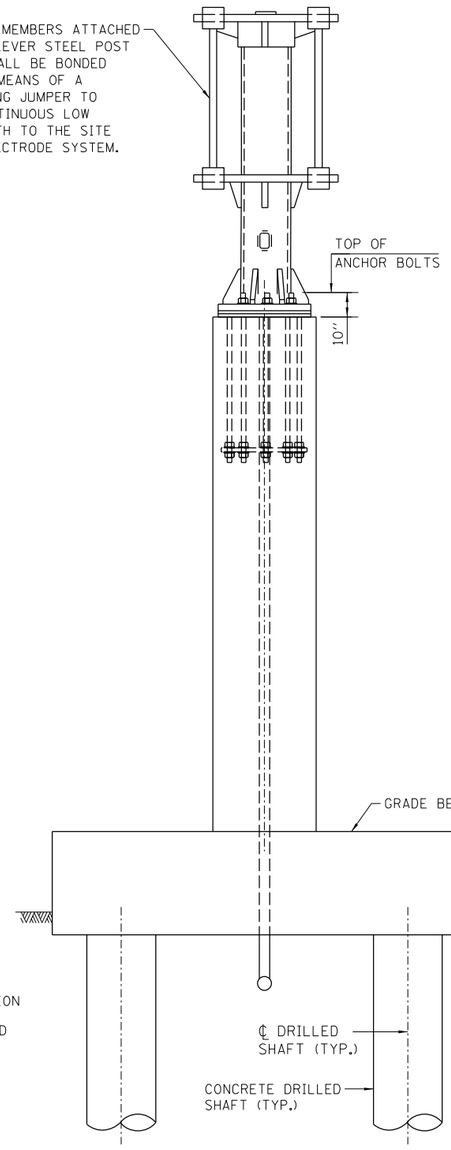
OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS

STANDARD F4-07

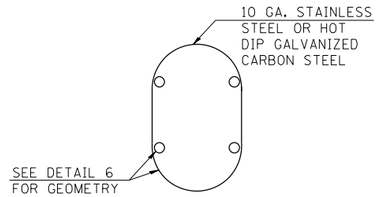


FRONT ELEVATION

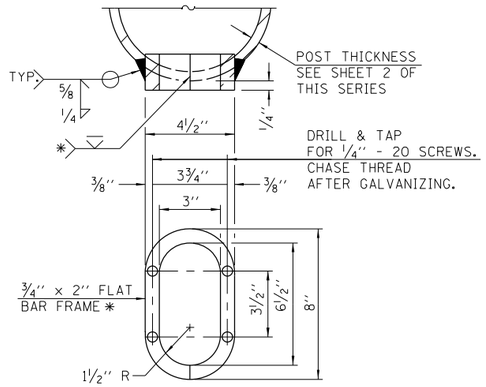
ALL METALLIC MEMBERS ATTACHED TO THE CANTILEVER STEEL POST STRUCTURE SHALL BE BONDED TOGETHER BY MEANS OF A COPPER BONDING JUMPER TO CREATE A CONTINUOUS LOW IMPEDANCE PATH TO THE SITE GROUNDING ELECTRODE SYSTEM.



SIDE ELEVATION



HANDHOLE COVER



PROVIDE 8'' x 4½'' COVER.
OUTSIDE CORNERS = 2¼'' RADIUS.
PROVIDE 4-5⁄16'' Ø HOLES IN COVER FOR
¼'' - 20 ROUND HEAD HOT DIP GALVANIZED
OR STAINLESS STEEL MACHINE SCREWS.
(SEE COVER DETAILS.)

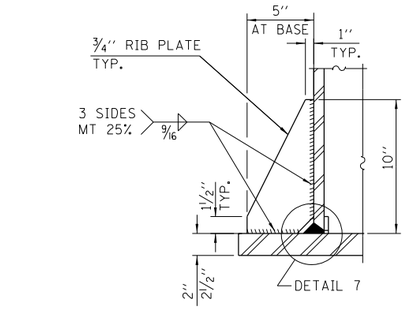
DETAIL 6

* BENT BARS MAY BE BUTT WELDED TOP AND BOTTOM OR BOTTOM ONLY. IN LIEU OF FABRICATED HANDHOLE FRAME AS SHOWN, MAY CUT FROM 2'' PLATE (ROLLING DIRECTION VERTICAL). ALL CUT FACES TO BE GROUND TO ANSI ROUGHNESS OF 500 μIN OR LESS.

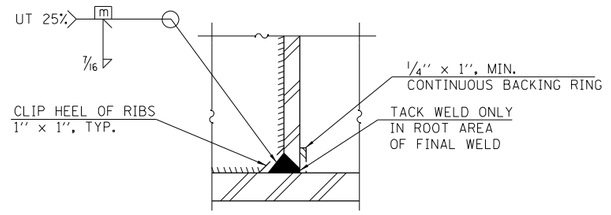
** 18'' IS MINIMUM TO BE GALVANZIED. ENTIRE BOLT MAY BE GALVANIZED AT CONTRACTOR'S OPTION.

TABLE E: BASE PLATE DETAIL

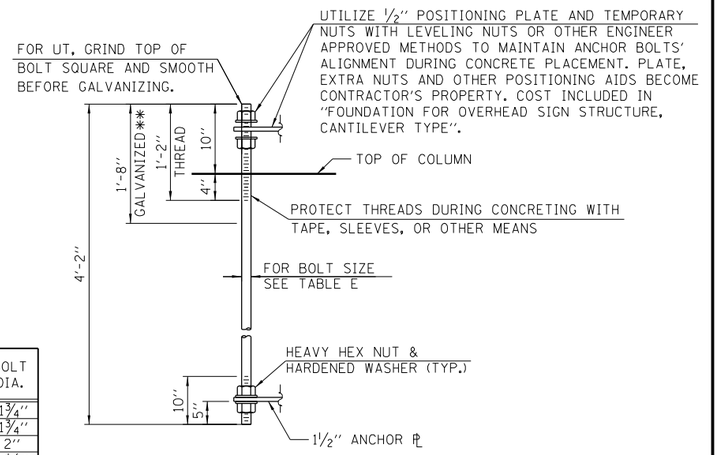
SPAN LENGTH (L)	POST OUTSIDE DIAMETER	BASE PLATE		BOLT CIRCLE	BOLT DIA.
		DIAMETER	THICKNESS		
< = 20'	18''	30''	2''	24''	1¾''
21'-30'	18''	30''	2''	24''	1¾''
31'-40'	24''	36''	2½''	30''	2''
41'-50'	24''	36''	2½''	30''	2¼''



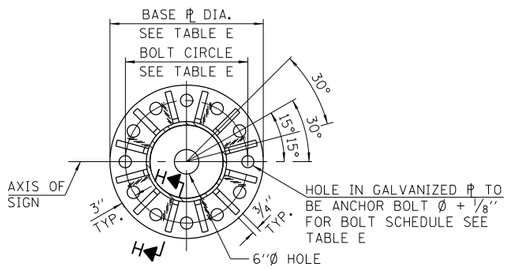
SECTION H-H



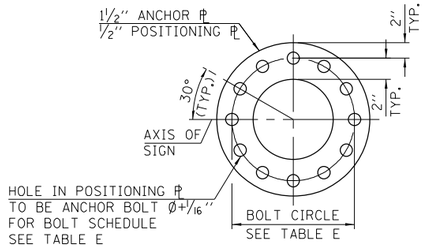
DETAIL 7
(TYPICAL RIB)



ANCHOR BOLT DETAIL



SECTION G-G



POSITIONING ℄ / ANCHOR ℄

NOTE:

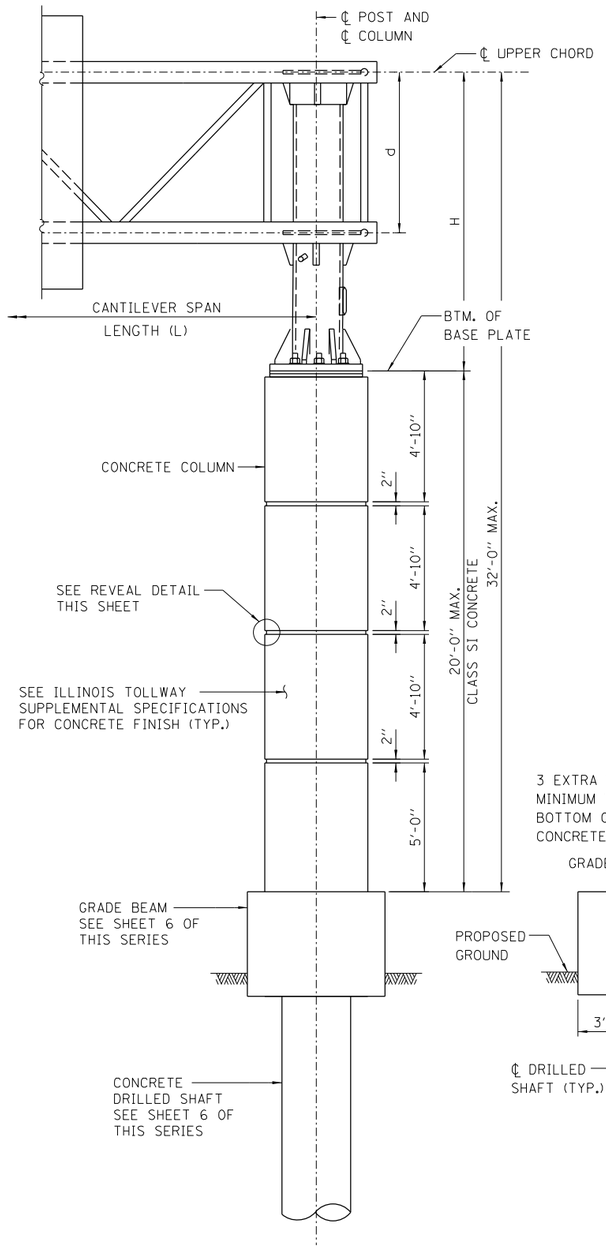
ANCHOR BOLTS SHALL CONFORM TO AASHTO M314 OR ASTM F1554 AND MEET CHARPY V-NOTCH (CVN) ENERGY OF 15 LB.-FT. AT 10° F. BEFORE GALVANIZING. GALVANIZE THE UPPER 18'' (MINIMUM **) AND ASSOCIATED M291, GRADE A, C OR DH HEAVY HEX NUTS AND HARDENED WASHERS PER AASHTO M293. NO WELDING SHALL BE PERMITTED ON BOLTS. PROVIDE AN UNFINISHED NUT AT BOTTOM, A HEXAGON LOCKNUT AND WASHER ABOVE BASE PLATE AND A LEVELING NUT AND WASHER BELOW BASE PLATE. NUTS SHALL EACH BE TIGHTENED WITH 200 LB.-FT. MINIMUM TORQUE AGAINST BASE PLATE. BEFORE OR AFTER THREADING, BUT BEFORE GALVANIZING, EACH ANCHOR BOLT SHALL BE ULTRASONICALLY TESTED (UT) BY A LEVEL II OR III INSPECTOR, QUALIFIED IN ACCORDANCE WITH ANSI GUIDELINES, USING A STRAIGHT BEAM, ½'' Ø 3.5 MHZ. TRANSDUCER, TO ENSURE NO REJECTABLE FLAWS EXIST IN THE UPPER 18'' (TENSION CRITERIA). COST OF TESTING INCLUDED IN THE COST OF ''FOUNDATION FOR OVERHEAD STRUCTURE, CANTILEVER TYPE''.

Paul Kovacs
APPROVED ..... DATE 3-31-2014
CHIEF ENGINEER

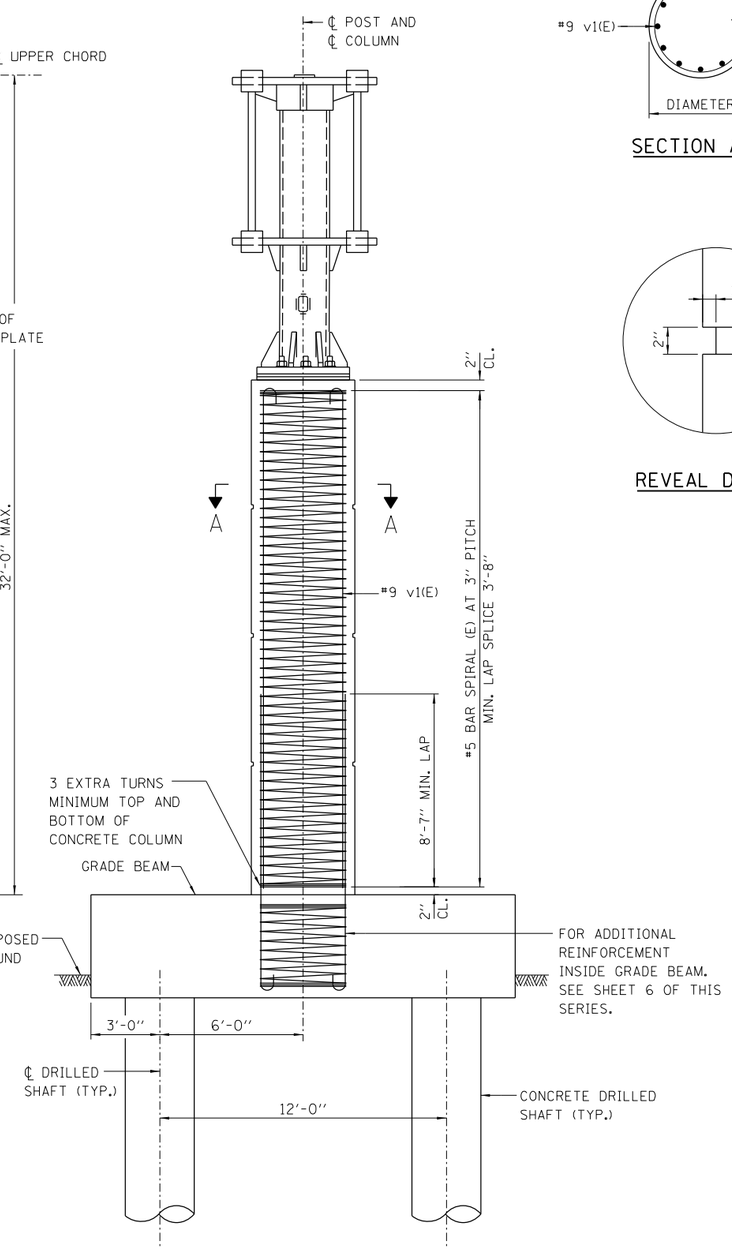
Illinois Tollway

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS 580 559

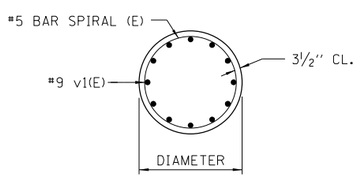
STANDARD F4-07



FRONT ELEVATION

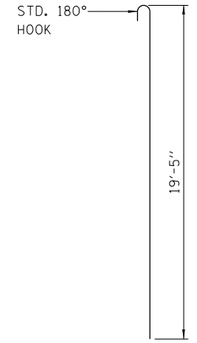


SIDE ELEVATION



SECTION A-A

REVEAL DETAIL



BAR v1(E)

TABLE F: CONCRETE COLUMN DESIGN TABLE

SPAN LENGTH (L)	STEEL POST DIAMETER	CONCRETE COLUMN			
		DIAMETER	VERTICAL BAR	CLASS SI CONC. CU. YD.*	REINF. BARS POUND *
< = 20'	18"	3'-6"	16-#9	7.1	1,910
21'-30'	18"	3'-6"	16-#9	7.1	1,910
31'-40'	24"	4'-0"	20-#9	9.2	2,330
41'-50'	24"	4'-0"	20-#9	9.2	2,330

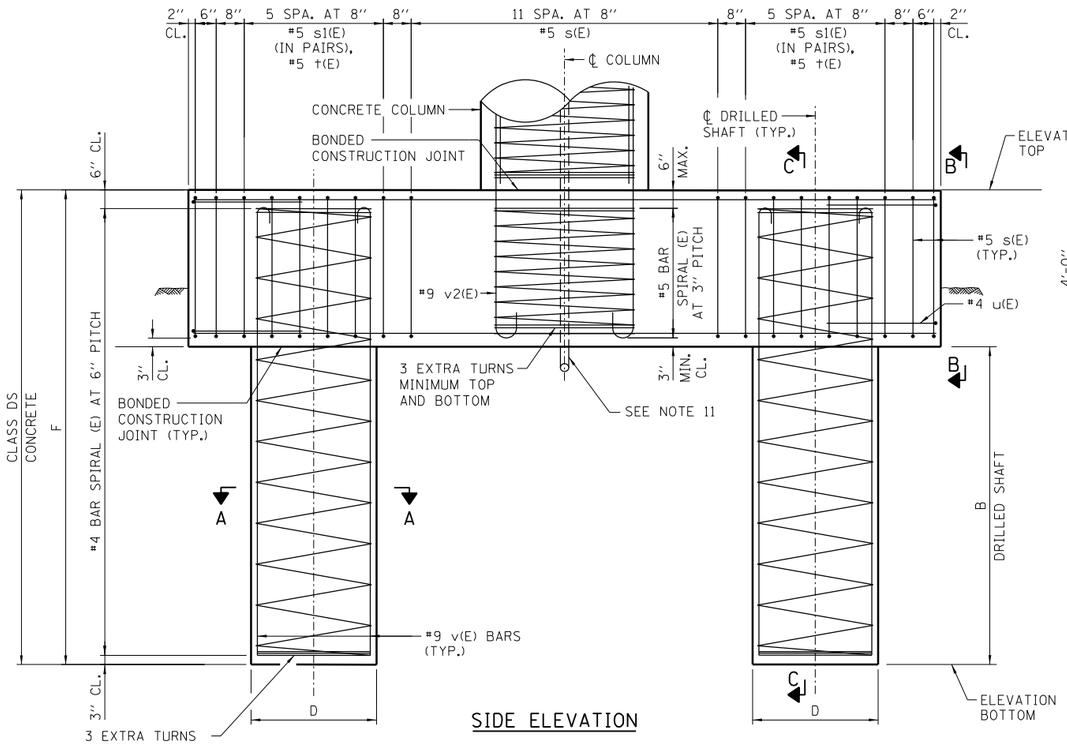
* CONCRETE VOLUME AND REBAR WEIGHT ARE DETERMINED FOR 20'-0" CONCRETE COLUMN HEIGHT. ADJUST CONCRETE VOLUME AND REBAR WEIGHT ACCORDINGLY IF CONCRETE COLUMN HEIGHT IS LESS THAN 20'-0".

Paul Kovacs
APPROVED. . . . . DATE 3-31-2014
CHIEF ENGINEER

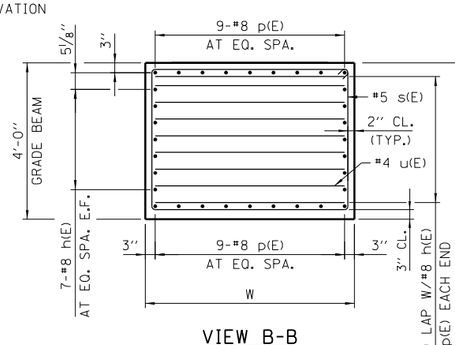
Illinois Tollway

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS 580 560

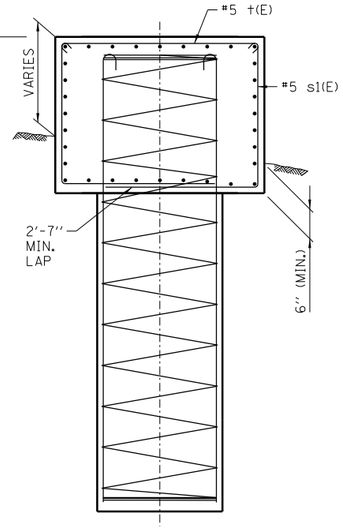
STANDARD F4-07



SIDE ELEVATION



VIEW B-B

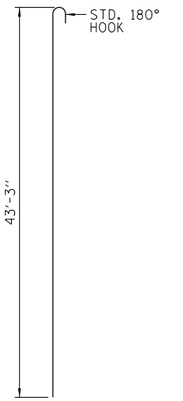


SECTION C-C

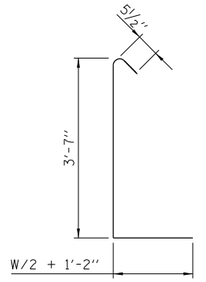
BAR LIST - EACH FOUNDATION

(2 SHAFT AND 1 GRADE BEAM)

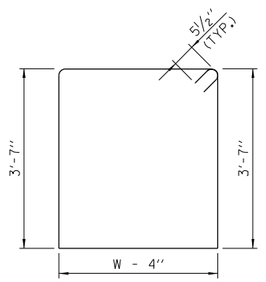
BAR	NUMBER	SIZE	LENGTH D = 3'-0''	LENGTH D = 4'-0''	SHAPE
h(E)	14	#8	17'-8''	17'-8''	
p(E)	18	#8	17'-8''	17'-8''	
s(E)	16	#5	17'-5''	19'-5''	
s1(E)	24	#5	7'-8½''	8'-2½''	
†(E)	12	#5	5'-7''	6'-7''	
u(E)	18	#4	8'-7''	9'-7''	
v(E)	SEE TABLE G	#9	44'-6''	44'-6''	
v2(E)	SEE TABLE G	#9	13'-9''	13'-9''	
#4 BAR SPIRAL (E) - SEE SIDE ELEVATION					
#5 BAR SPIRAL (E) - SEE SIDE ELEVATION					



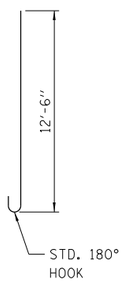
BAR v(E)



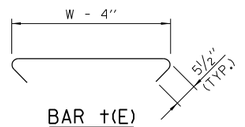
BAR s1(E)



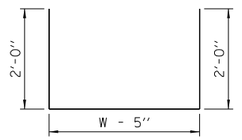
BAR s(E)



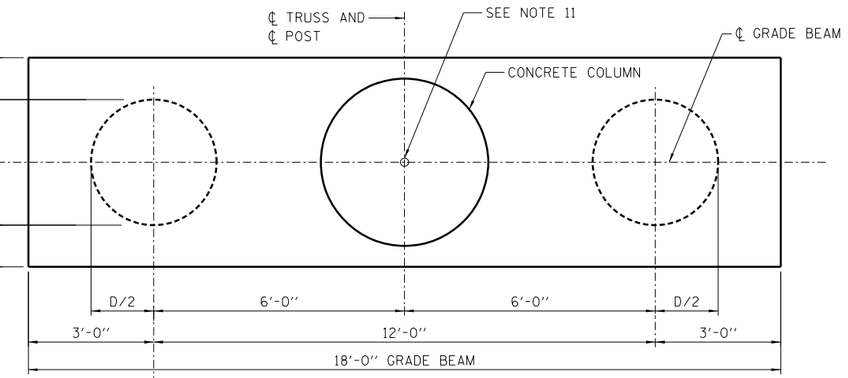
BAR v2(E)



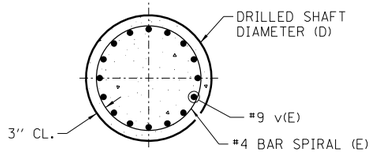
BAR †(E)



BAR u(E)



PLAN *



SECTION A-A

(TYPICAL BOTH SHAFTS)

NOTE:

* REINFORCEMENT IN GRADE BEAM NOT SHOWN FOR CLARITY.

** FOR GRADE BEAM ONLY.

BAR SPIRAL LAP SPLICE	
BAR	MIN. LAP
#4	2'-11''
#5	3'-8''

NOTES:

1. THE FOUNDATION DETAILS SHOWN ARE BASED ON THE PRESENCE OF MOSTLY COHESIVE SOIL CONDITIONS (SILTY OR SANDY CLAY), WITH AN AVERAGE UNCONFINED COMPRESSIVE STRENGTH (QU) > 1.25 TON/SQ. FT. WHICH MUST BE DETERMINED BY PREVIOUS SOIL INVESTIGATIONS AT THE JOBSITE. WHEN OTHER CONDITIONS ARE INDICATED, THE BORING DATA SHALL BE INCLUDED IN THE PLANS AND THE FOUNDATION DIMENSIONS SHOWN SHALL BE THE RESULT OF SITE SPECIFIC DESIGNS. IF CONDITIONS ENCOUNTERED IN THE FIELD ARE DIFFERENT THAN THOSE INDICATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE IF THE FOUNDATION DIMENSIONS NEED TO BE MODIFIED.
2. ALL MATERIAL, FABRICATION, AND CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 734 OF THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
3. CONCRETE SHALL BE PLACED MONOLITHICALLY, WITHOUT CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE.
4. BACKFILL SHALL BE PLACED PER SECTION 502 OF THE STANDARD SPECIFICATION AND PRIOR TO ERECTION OF CONCRETE COLUMN.
5. SEE NOTE 7 OF GENERAL NOTES ON SHEET 1 OF THIS SERIES.
6. ALL REBAR DESIGNATED (E) SHALL BE EPOXY COATED. REBAR SHALL BE POSITIONED SO THAT THERE WILL BE NO INTERFERENCE BETWEEN VERTICAL REINFORCEMENT AND STIRRUPS.
7. FURNISHING AND INSTALLING ALL CONDUIT, FITTINGS AND GROUNDING SYSTEM IS INCLUDED IN THE COST OF "FOUNDATION FOR OVERHEAD SIGN STRUCTURE, CANTILEVER TYPE".
8. NO SONOTUBES OR DECOMPOSABLE FORMS SHALL BE USED 6" BELOW THE FINISHED GROUND LINE. PERMANENT METAL FORMS OR OTHER SHIELDING MAY NOT BE LEFT IN PLACE BELOW THE ELEVATION WITHOUT THE ENGINEER'S WRITTEN PERMISSION. EXCAVATIONS SHALL BE DEWATERED BEFORE CONCRETE PLACEMENT IF DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
9. FOR SIZE AND NUMBER OF PVC COATED STEEL CONDUITS, SEE ELECTRICAL CONSTRUCTION DRAWINGS.
10. TYPICAL SIGN STRUCTURE FOUNDATION IS SHOWN ON THIS SHEET. SEE SHEET 7 OF THIS SERIES FOR FOUNDATION LOCATED IN ROADWAY MEDIAN.
11. COORDINATE CONDUIT SIZE, LOCATION AND QUANTITY WITH ELECTRICAL PLANS. CONDUITS SHALL BE PLACED TO MISS REINFORCEMENT BARS. DO NOT CUT REINFORCEMENT BARS.

TABLE G: DESIGN TABLE FOR DRILLED SHAFTS IN COHESIVE SOILS

SPAN LENGTH (L)	W	D	B	F	VERTICAL BAR v(E)	VERTICAL BAR v2(E)	CLASS DS CONC. CU. YD.**	CLASS DS CONC. CU. YD.	REINF. BARS POUND
< = 20'	5'-0''	3'-0''	40'	44'	12-#9	16-#9	13.4	21	7,680
21'-30'	5'-0''	3'-0''	40'	44'	12-#9	16-#9	13.4	21	7,680
31'-40'	6'-0''	4'-0''	40'	44'	20-#9	20-#9	16	37.3	9,570
41'-50'	6'-0''	4'-0''	40'	44'	20-#9	20-#9	16	37.3	9,570

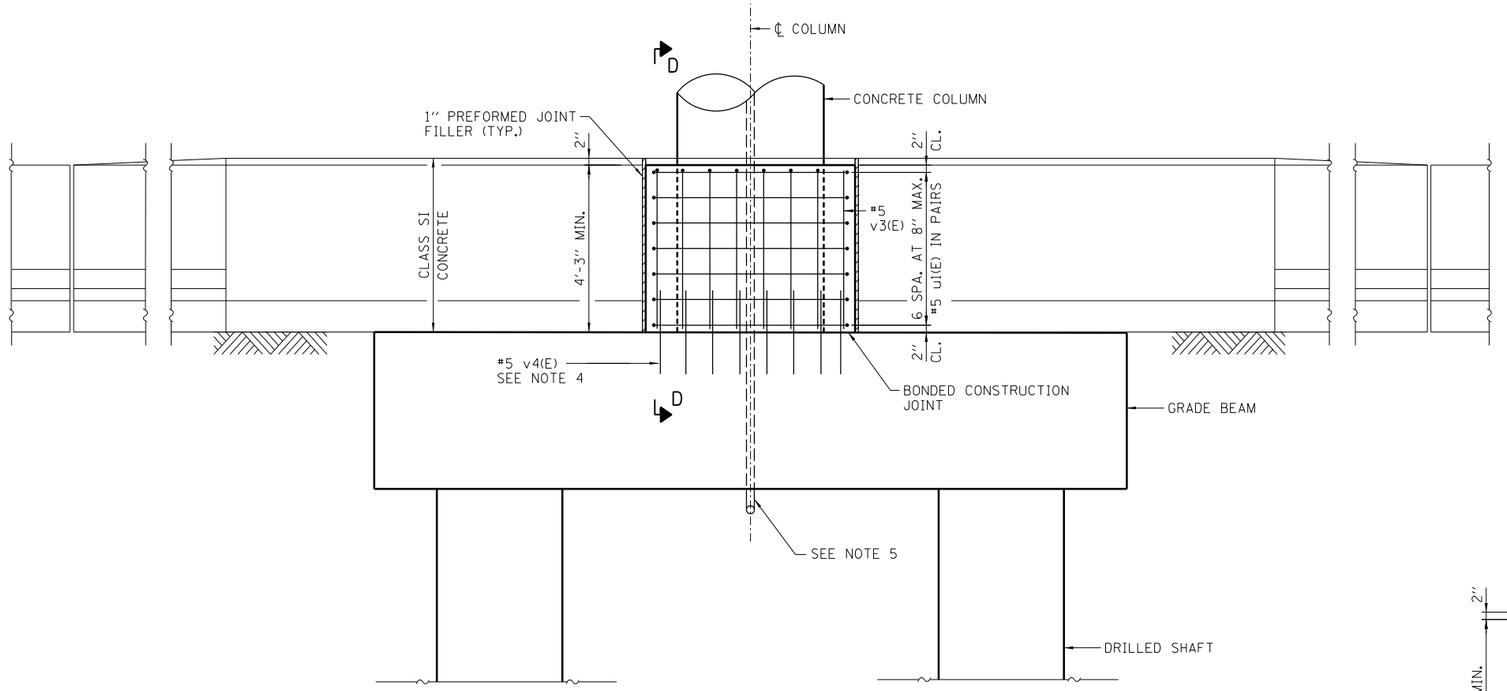
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 3-31-2014

SHEET 6 OF 9

Illinois Tollway

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS 580 561

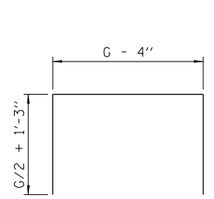
STANDARD F4-07



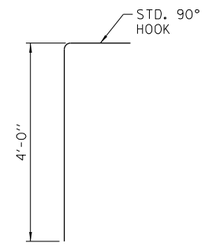
SIDE ELEVATION

BAR LIST - CRASHWALL

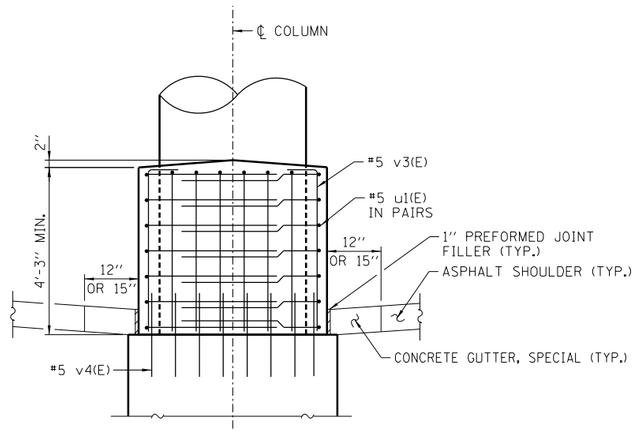
BAR	SIZE	G = 4'-6"		G = 5'-0"		SHAPE
		NUMBER	LENGTH	NUMBER	LENGTH	
u1(E)	#5	14	11'-2"	14	12'-2"	
v3(E)	#5	24	4'-10"	28	4'-10"	
v4(E)	#5	24	2'-0"	28	2'-0"	



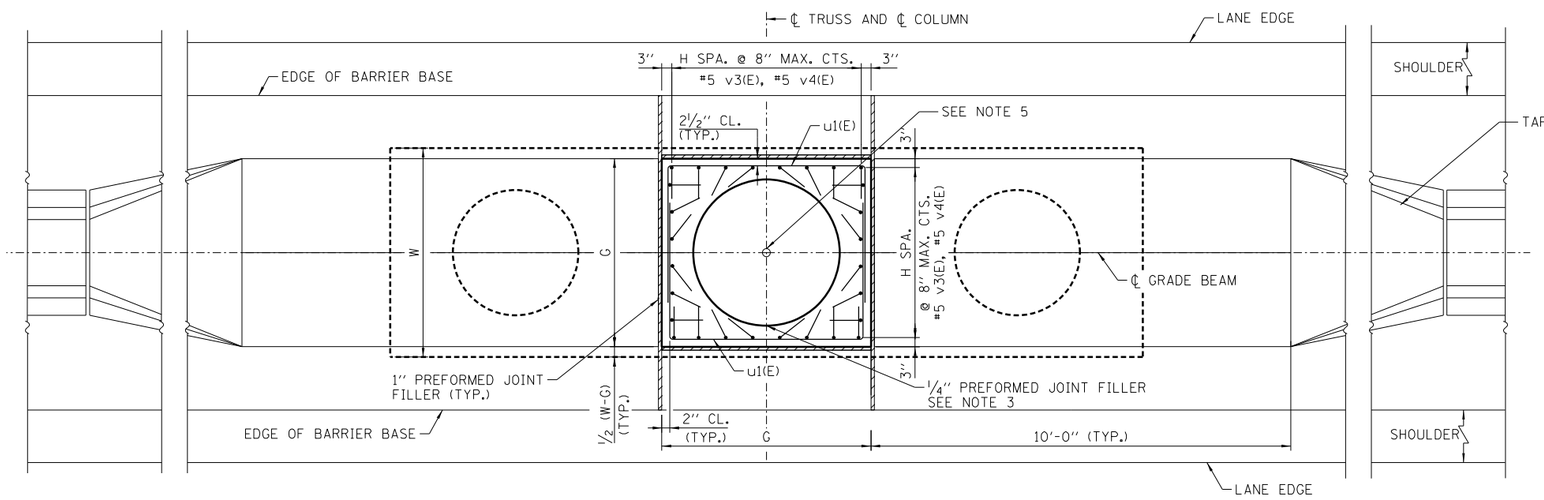
BAR u1(E)



BAR v3(E)



SECTION D-D



PLAN

NOTES:

1. SEE SHEET 6 OF THIS SERIES FOR ADDITIONAL NOTES.
2. GRADE BEAM AND DRILLED SHAFT DIMENSIONS, DETAILS, QUANTITIES AND BAR LIST ARE SHOWN ON SHEET 6 OF THIS SERIES.
3. SEAL EXPOSED SURFACE OF ¼" PREFORMED JOINT FILLER WITH BACKER ROD AND SILICONE SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).
4. #5 DRILLED ANCHOR BARS WILL BE EPOXY GROUTED AASHTO M31, GRADE 60 REBAR. PROVIDE 12" MINIMUM EMBEDMENT. INSTALL ANCHORS ACCORDING TO STANDARD SPECIFICATIONS SECTION 584. LOCATE GRADE BEAM REBAR PRIOR TO DRILLING. DO NOT DAMAGE GRADE BEAM REBARDURING INSTALLATION.
5. COORDINATE CONDUIT SIZE, LOCATION AND QUANTITY WITH ELECTRICAL PLANS. CONDUITS SHALL BE PLACED TO MISS REINFORCEMENT BARS. DO NOT CUT REINFORCEMENT BARS.
6. PROTECTIVE COAT SHALL BE APPLIED TO TRAFFIC AND TOP FACES OF CRASHWALL.

TABLE H: DESIGN TABLE FOR CRASHWALL

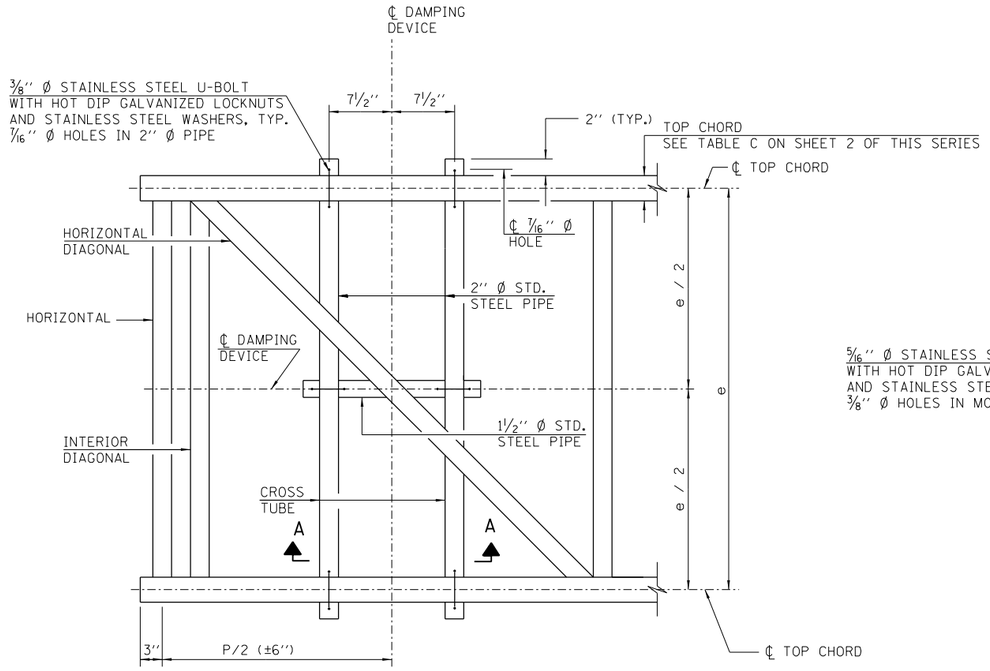
SPAN LENGTH (L)	W	G	H	CLASS SI CONCRETE CU. YD.	REINF. BARS POUND	PROTECTIVE COAT SQ. YD.
< = 20'	5'-0"	4'-6"	6	1.7	340	6.0
21'-30'	5'-0"	4'-6"	6	1.7	340	6.0
31'-40'	6'-0"	5'-0"	7	2.0	380	7.0
41'-50'	6'-0"	5'-0"	7	2.0	380	7.0

Paul Kovacs
APPROVED . . . . . DATE 3-31-2014
CHIEF ENGINEER

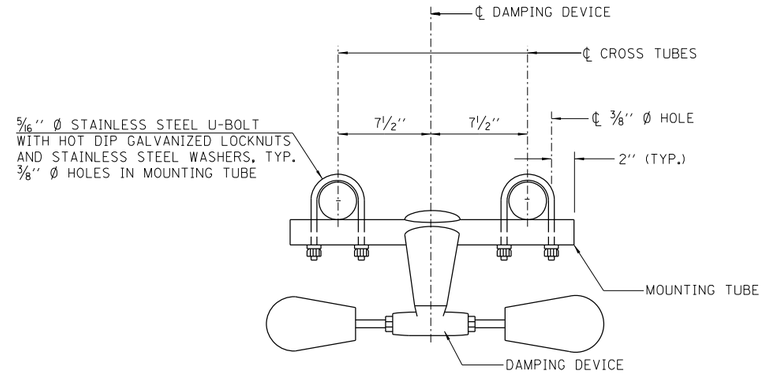
Illinois Tollway

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS

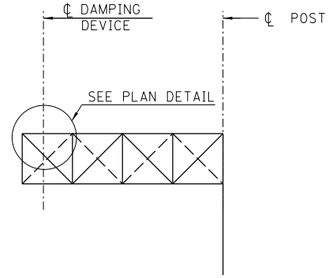
STANDARD F4-07



PLAN DETAIL



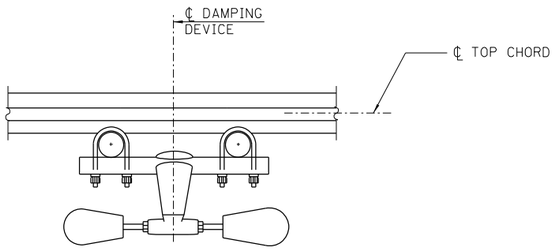
TRUSS DAMPING DEVICE CONNECTION DETAIL



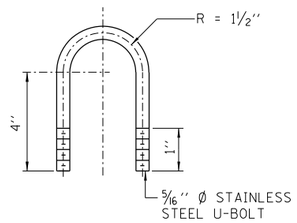
ELEVATION

NOTE:

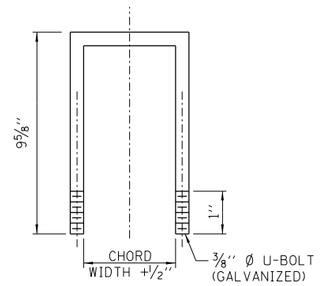
DAMPER: ONE DAMPER PER TRUSS. (31 LBS. STOCKBRIDGE-TYPE 29'' MINIMUM BETWEEN ENDS OF WEIGHTS) COST INCLUDED IN THE COST OF "OVERHEAD SIGN STRUCTURE, CANTILEVER TYPE (STEEL)."



SECTION A-A



DAMPING DEVICE MOUNTING TUBE U-BOLT DETAIL
(TYPICAL)



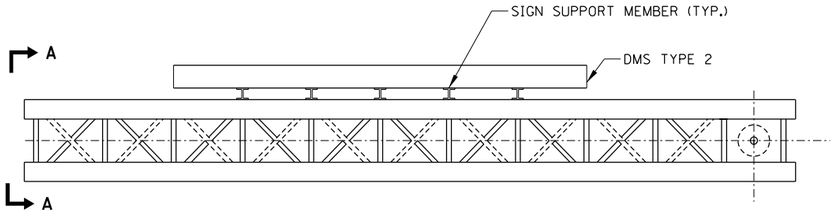
TOP CHORD TO CROSS TUBE U-BOLT DETAIL
(TYPICAL)

Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 3-31-2014

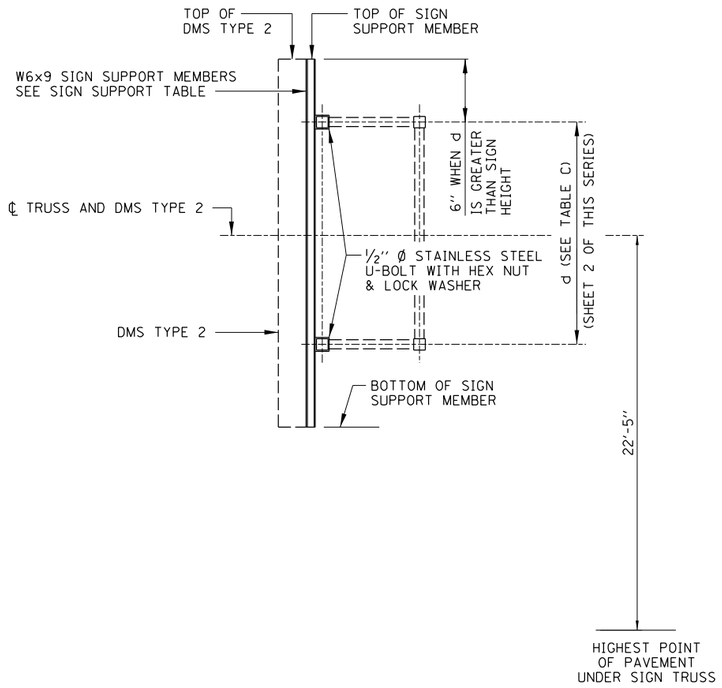
Illinois Tollway

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS 580 563

STANDARD F4-07



PLAN



SECTION A-A

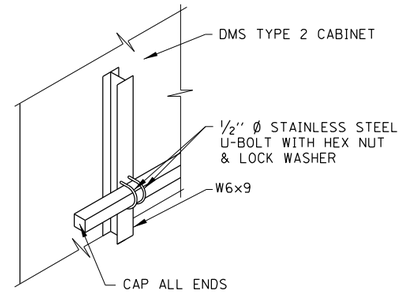
DMS TYPE 2 SUPPORT DETAIL

TABLE I: SIGN SUPPORT TABLE

W6x9		
SIGN WIDTH		NUMBER OF SIGN SUPPORTS REQUIRED
GREATER THAN	LESS THAN OR EQUAL TO	
	8'-0''	2
8'-0''	14'-0''	3
14'-0''	20'-0''	4
20'-0''	26'-0''	5
26'-0''	32'-0''	6

TABLE J: DMS TYPE 2 TABLE

MAXIMUM TRUSS LENGTH	MAXIMUM DMS TYPE 2 SIGN SIZE			MAXIMUM WEIGHT
	HEIGHT	WIDTH	DEPTH	
25 FEET	4'-0''	10'-0''	1'-0''	1200 LBS.
30 FEET	5'-0''	16'-0''	1'-0''	2000 LBS.
40 FEET	8'-0''	26'-0''	2'-2''	3100 LBS.



STAINLESS STEEL U-BOLT DETAIL

NOTES:

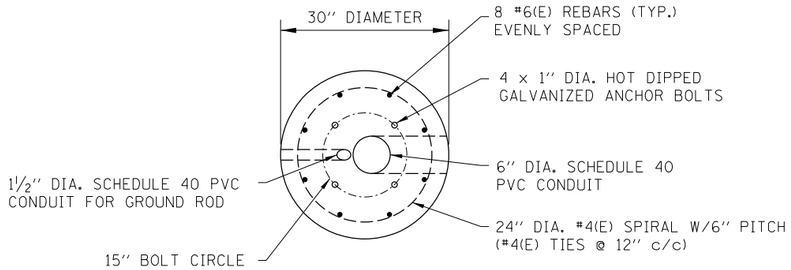
1. DMS TYPE 2 SHALL BE ATTACHED TO TRUSS AS CLOSE TO PANEL JOINTS AS POSSIBLE.
2. VERIFY SIGN SUPPORT MEMBER LENGTH PRIOR TO FABRICATION.
3. DMS TYPE 2 MANUFACTURER SHALL DESIGN, PROVIDE AND INSTALL HORIZONTAL MOUNTING MEMBERS. VERTICAL SPACING OF HORIZONTAL MEMBERS SHALL BE DESIGNED BY DMS TYPE 2 MANUFACTURER. VERIFY VERTICAL SPACING WITH HOLES FOR STAINLESS STEEL U-BOLT.
4. ALTERNATE DMS TYPE 2 DIMENSIONS MAY BE ACCEPTABLE UPON ILLINOIS TOLLWAY'S APPROVAL. CONSULT WITH THE ILLINOIS TOLLWAY BEFORE USING DMS TYPE 2 WITH ALTERNATE DIMENSIONS.

Paul Kovacs
APPROVED ..... DATE 3-31-2014
CHIEF ENGINEER

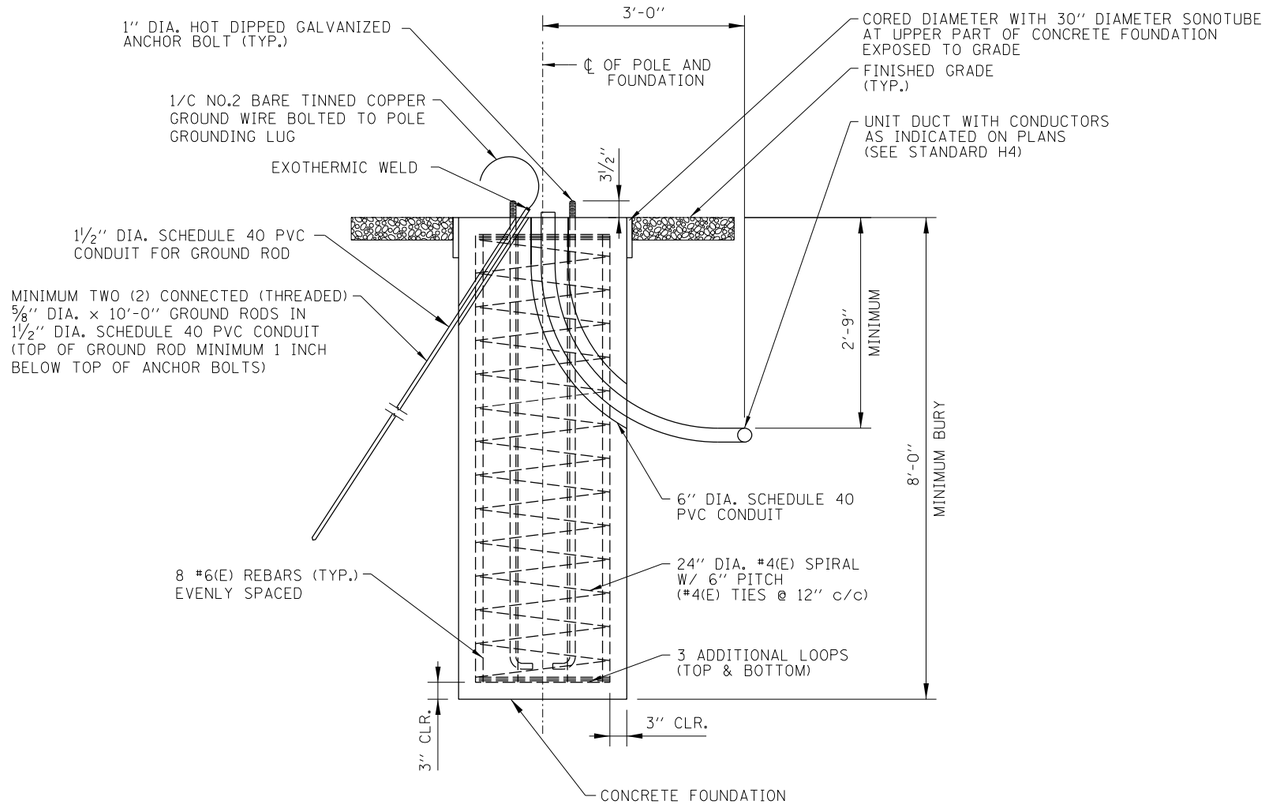
Illinois Tollway

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS 580 564

STANDARD F4-07



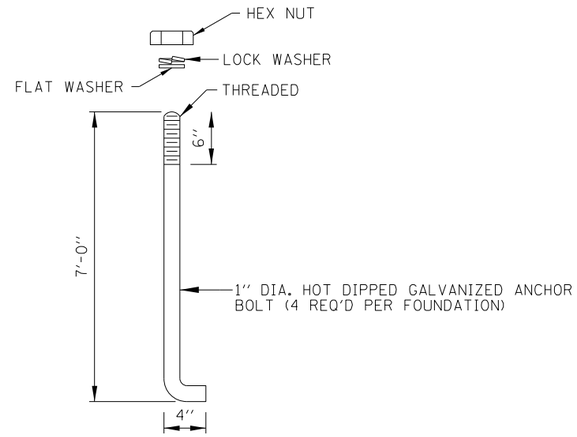
PLAN



ELEVATION

NOTES:

1. AT LOCATIONS NOT SHIELDED BY GUARDRAIL, THE LIGHT POLE FOUNDATION SHALL BE FLUSH WITH SURROUNDING GRADED ON ALL SIDES. THE SURROUNDING AREA SHALL BE A LEVEL GRADED AREA CONSTRUCTED OF AGGREGATE SHOULDERS WITH FILTER FABRIC, TYPE B, 4".
2. PROVIDE SEEDING, POTASIUM FERTILIZER NUTRIENT, AND EROSION CONTROL BLANKET AS REQUIRED.
3. THE TOP OF FOUNDATION SHALL BE AT THE SAME ELEVATION AS THE ADJACENT TOP OF GUTTER OR WHEN ADJACENT TO AGGREGATE SHOULDER, AT THE SAME ELEVATION AS THE OUTSIDE EDGE OF THE AGGREGATE SHOULDER SLOPED A MAXIMUM 6% AWAY FROM THE PAVED SHOULDER.
4. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
5. ALL GROUND MOUNTED LIGHT POLES SHALL BE PROVIDED WITH AN ACCEPTED FHWA BREAKAWAY BASE OR DEVICE PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 1070.
6. FOR DETAILS OF FUSE HOLDER, POLE BASE WIRING AND JOINT ASSEMBLY SEE STANDARD H2.
7. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED.
8. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.



ANCHOR BOLT DETAIL

LIGHT STANDARD FOUNDATION DETAILS - CONCRETE (GROUND MOUNTED UNITS)

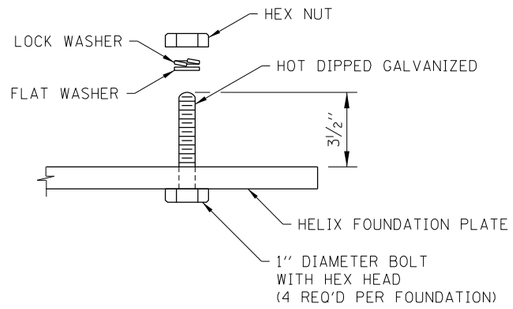
Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

DATE	REVISIONS
2-07-2012	MODIFIED FOUNDATION DETAILS, REVISED NOTES
11-01-2012	ADDED CONTROLLER NUMBER
3-31-2014	REVISED HELIX FOUNDATION, NEW DETAIL "A", AND GRADED AREA
3-11-2015	MOVED MEDIAN BARRIER MOUNTED FOUNDATION DETAILS.
3-31-2016	ADDED HELIX FOUNDATION DEPTH INFORMATION.

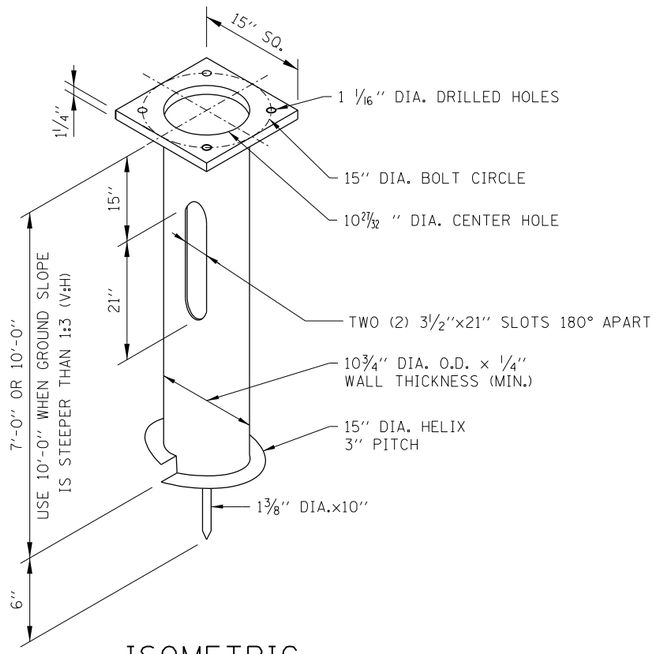
Illinois Tollway

LIGHT STANDARD FOUNDATION
580 565

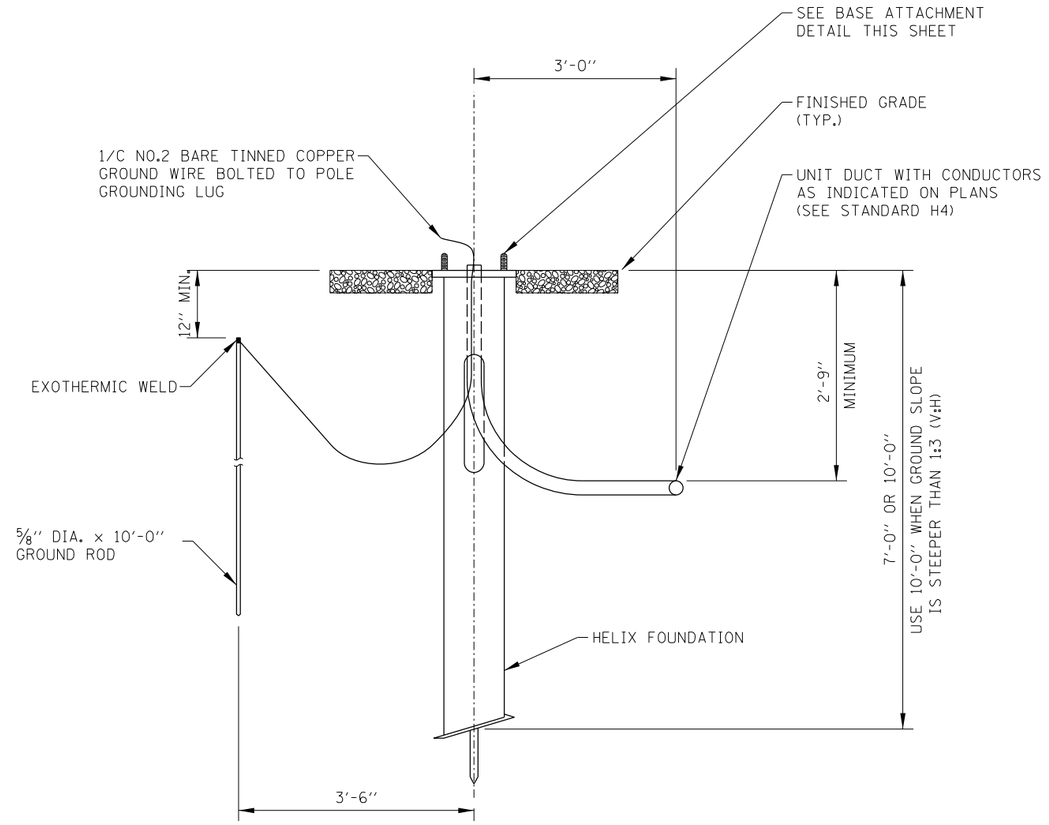
STANDARD H1-05



BASE ATTACHMENT DETAIL



ISOMETRIC



ELEVATION

Paul Kovacs
APPROVED . . . . . DATE 2-7-2012
CHIEF ENGINEER

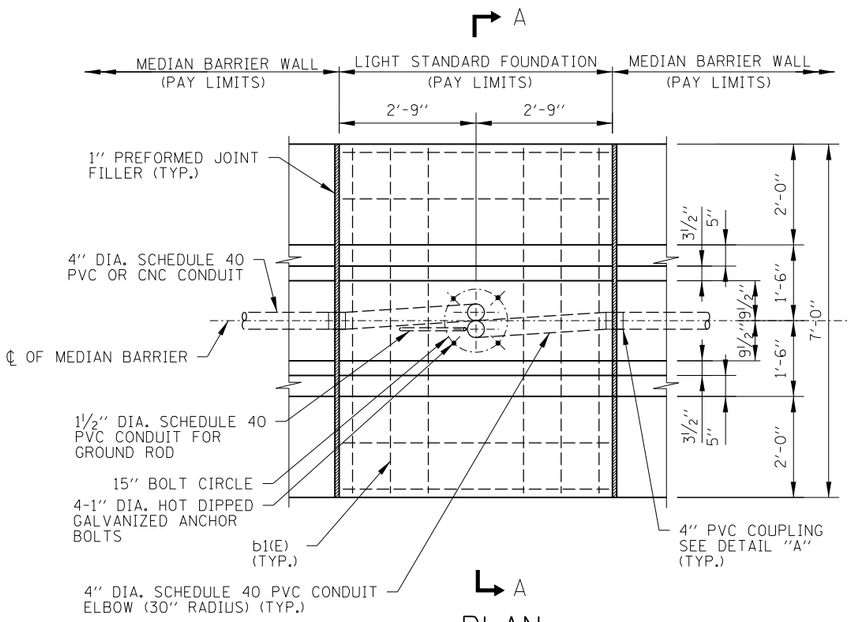
LIGHT STANDARD FOUNDATION DETAILS - HELIX
(GROUND MOUNTED UNITS)

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

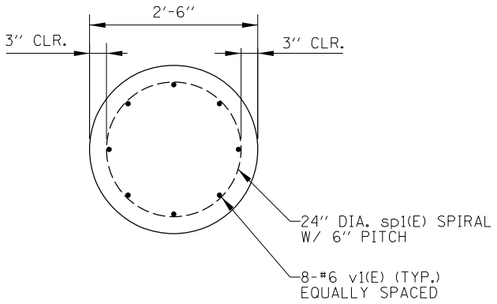
Illinois Tollway

LIGHT STANDARD
FOUNDATION
580 566

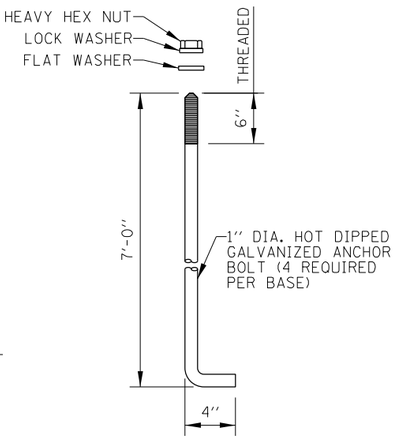
STANDARD H1-05



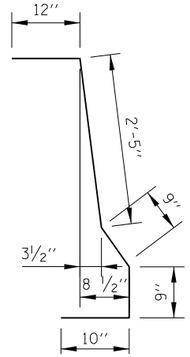
PLAN



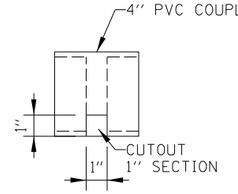
SECTION B-B



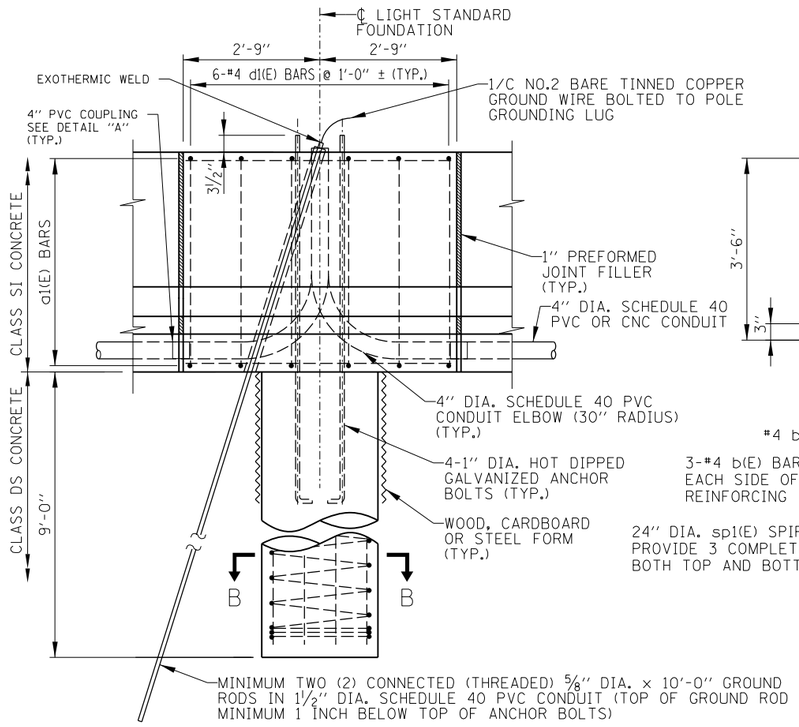
ANCHOR BOLT DETAIL



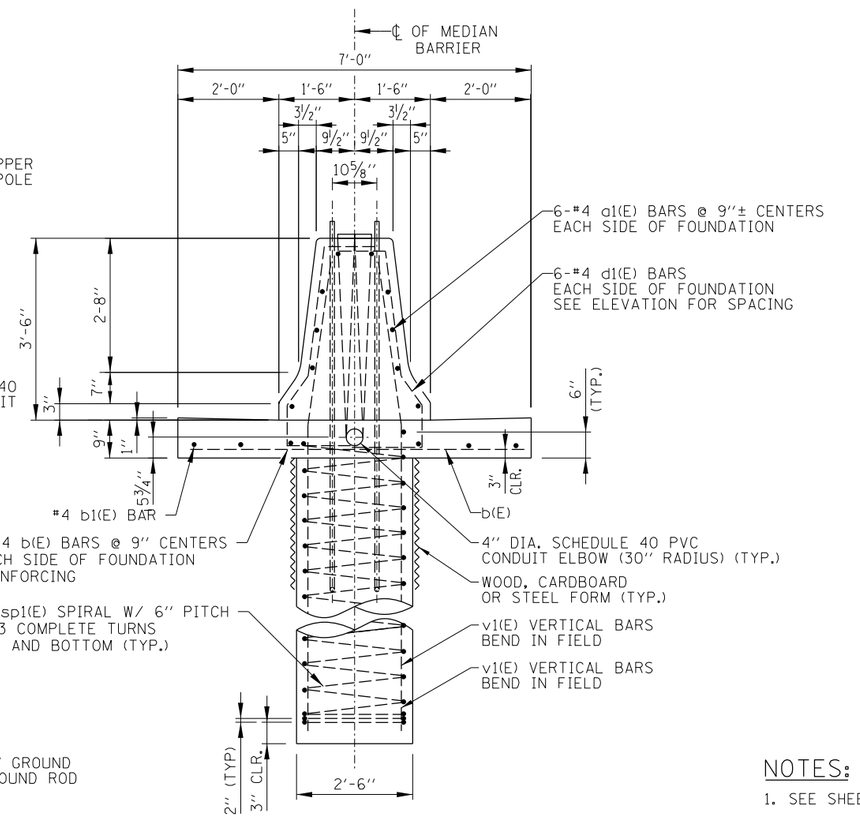
d1(E) BAR



DETAIL A



ELEVATION



SECTION A-A

REINFORCEMENT BARS SCHEDULE					
BAR	NO.	SIZE	LENGTH	WT. LB.	SHAPE
a1(E)	12	#4	5'-0"	40	—
b(E)	6	#4	6'-6"	26	—
b1(E)	4	#4	5'-2"	14	—
d1(E)	12	#4	5'-9"	46	⌐ ¬
sp1(E)	1	#4	*		≀
v1(E)	8	#6	11'-9"	142	—

* SEE SECTION A-A

NOTES:

1. SEE SHEET 1 OF THIS SERIES FOR NOTES.
2. FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES.

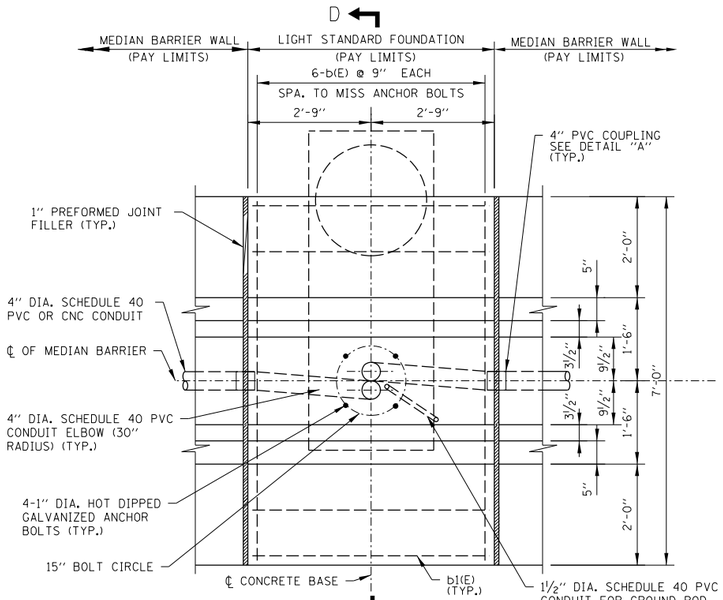
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
(TYPE 1 CENTERED CAISSON, 42" BARRIER)

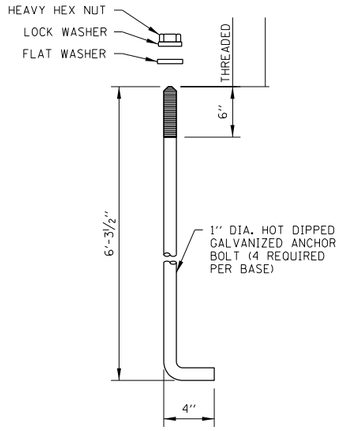
Illinois Tollway

LIGHT STANDARD FOUNDATION
580 567

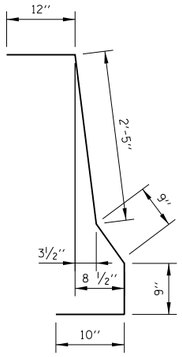
STANDARD H1-05



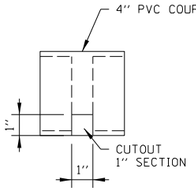
PLAN D



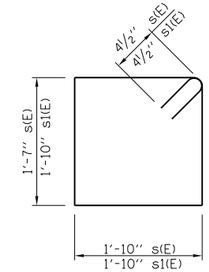
ANCHOR BOLT DETAIL



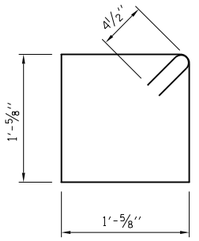
d1(E) BAR



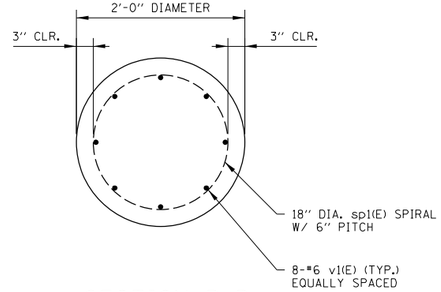
DETAIL A



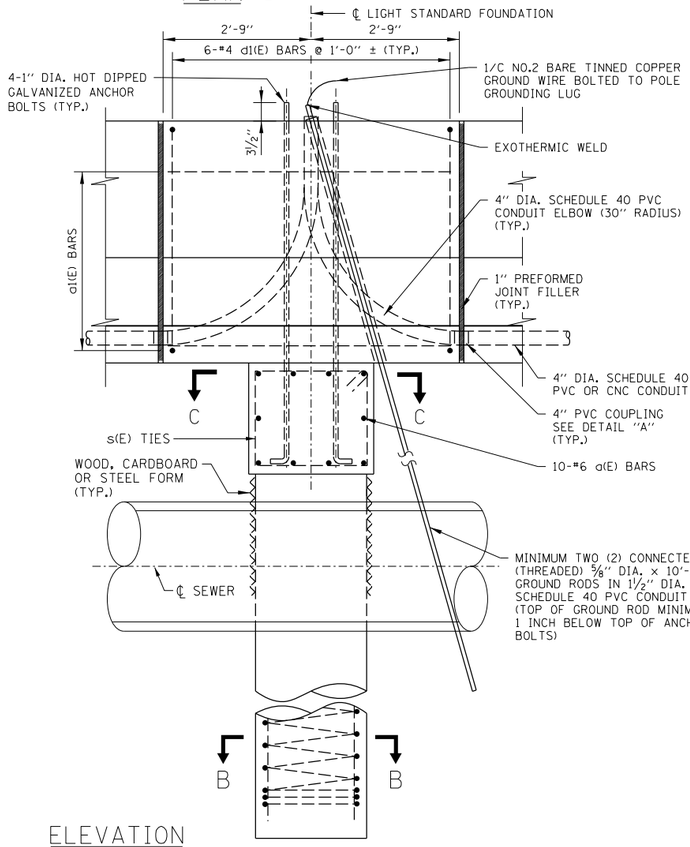
BARS s(E) AND s1(E)



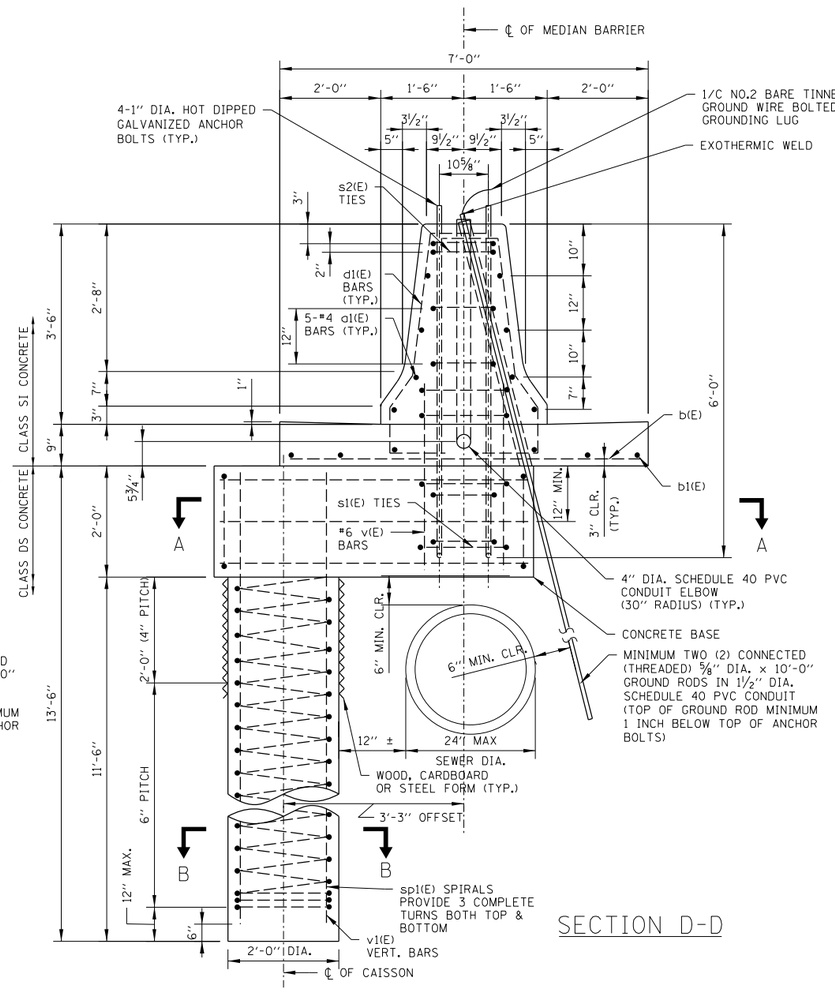
BAR s2(E)



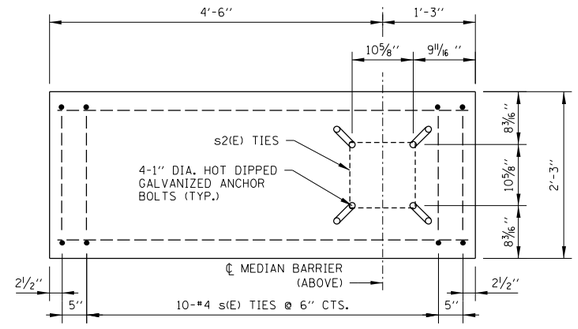
SECTION B-B



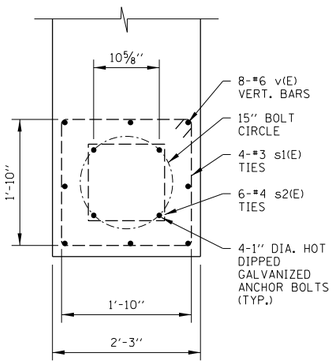
ELEVATION



SECTION D-D



SECTION A-A



SECTION C-C

REINFORCEMENT BARS SCHEDULE					
BAR	NO.	SIZE	LENGTH	WT. LB.	SHAPE
a(E)	10	#6	5'-6"	83	
a1(E)	10	#4	5'-0"	34	
b(E)	6	#4	6'-6"	26	
b1(E)	4	#4	5'-2"	14	
d1(E)	12	#4	5'-9"	46	
s(E)	12	#4	7'-7"	61	
s1(E)	4	#4	8'-1"	22	
s2(E)	6	#4	5'-0"	20	
sp1(E)	1	#4	*		
v(E)	8	#6	3'-2"	38	
v1(E)	8	#6	12'-6"	150	

* SEE D-D

SHEET 4 OF 9

Illinois Tollway

LIGHT STANDARD FOUNDATION

580 568

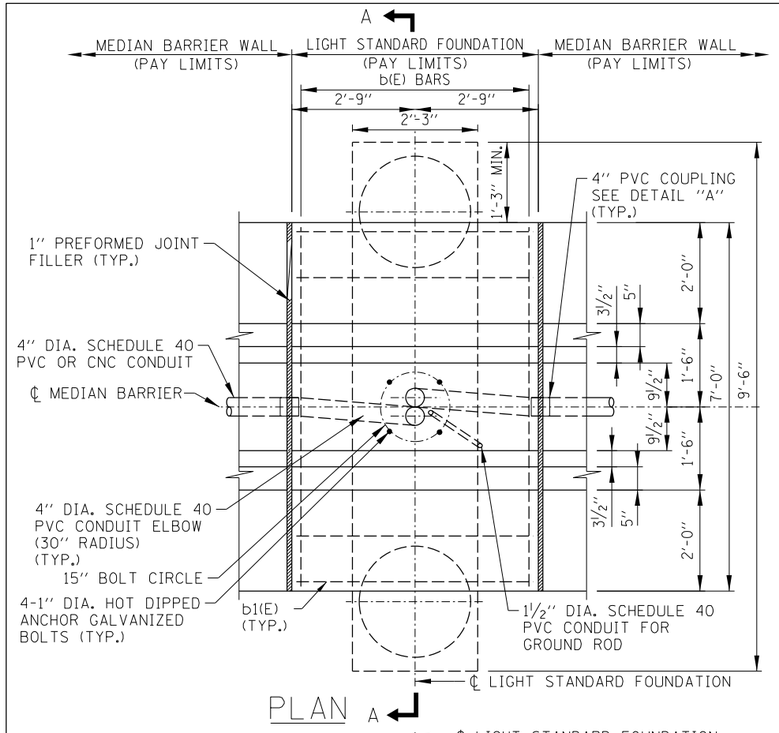
STANDARD H1-05

Paul Kovacs
APPROVED CHIEF ENGINEER DATE 2-7-2012

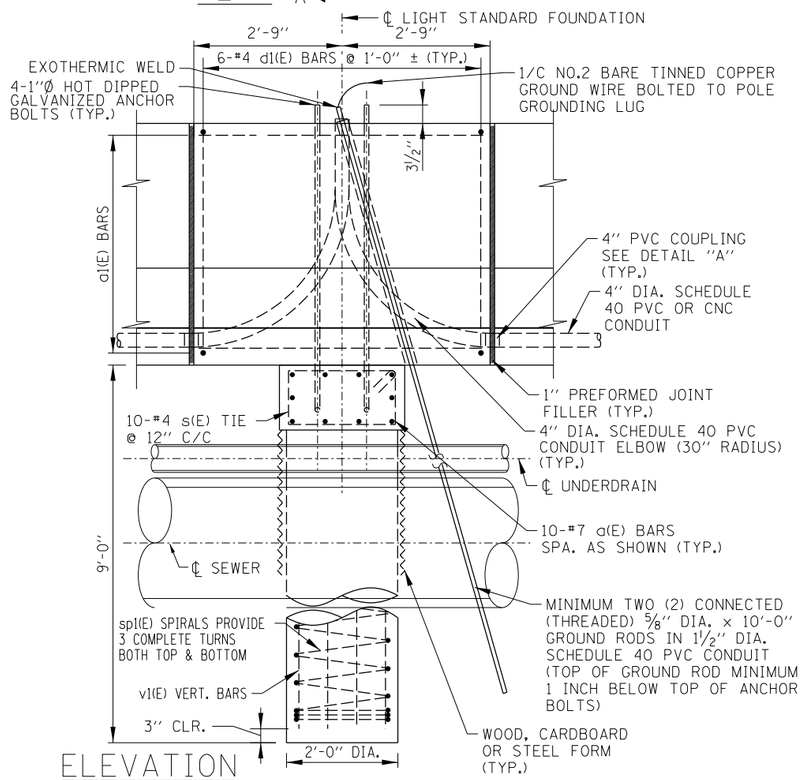
LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
(TYPE 2 OFFSET CAISSON, 42" BARRIER)

NOTES:

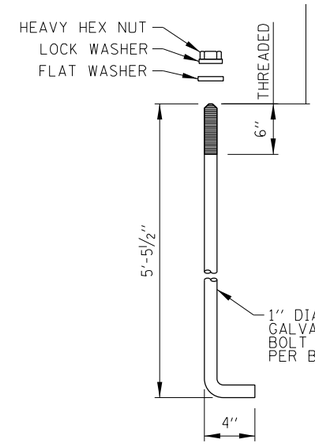
1. SEE SHEET 1 OF THIS SERIES FOR NOTES.
2. FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES



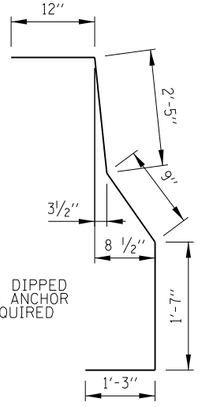
PLAN A



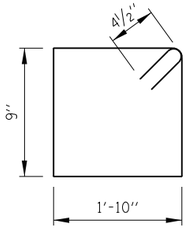
ELEVATION



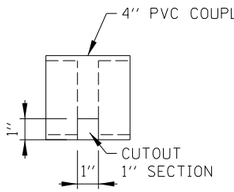
ANCHOR BOLT DETAIL



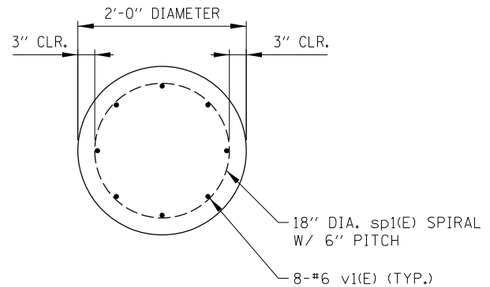
d1(E) BAR



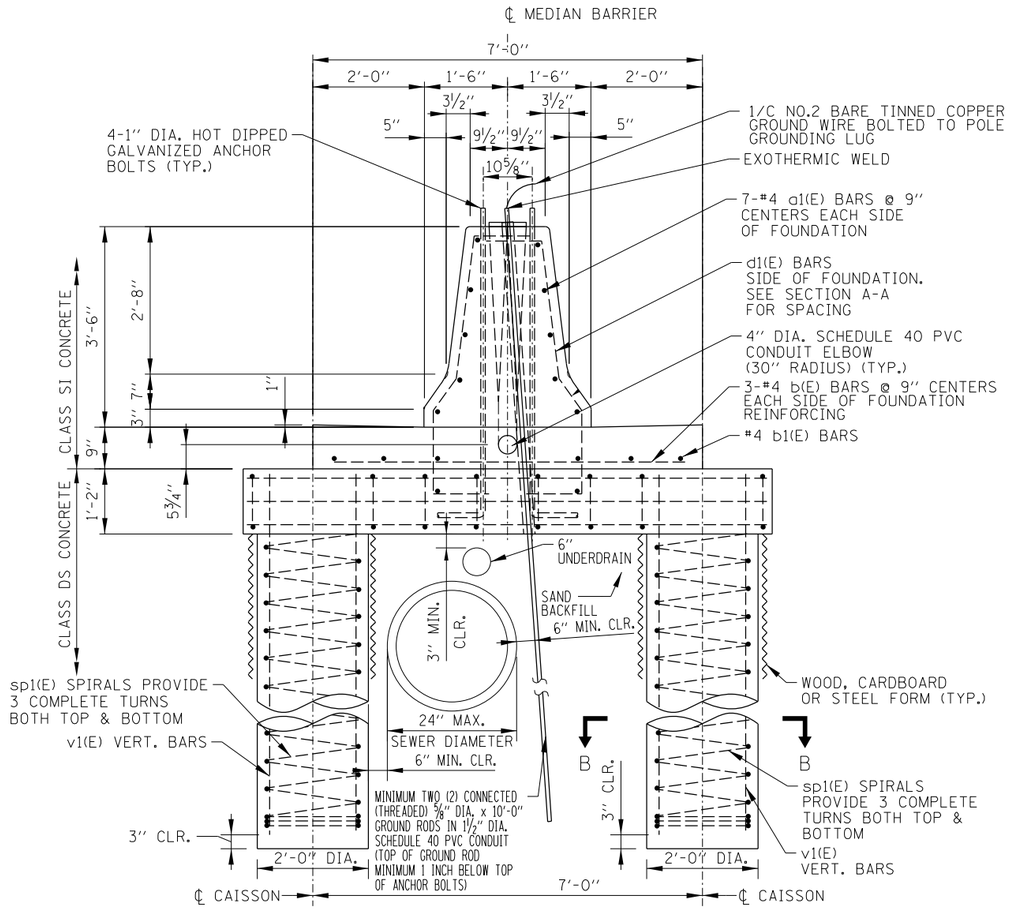
s(E) BAR



DETAIL A



SECTION B-B



SECTION A-A

REINFORCEMENT BARS SCHEDULE					
BAR	NO.	SIZE	LENGTH	WT. LB.	SHAPE
a(E)	10	#7	9'-0"	184	—
a1(E)	14	#4	5'-0"	47	—
b(E)	6	#4	6'-6"	26	—
b1(E)	4	#4	5'-2"	14	—
d1(E)	12	#4	6'-7"	53	⌐
s(E)	10	#4	5'-11"	40	□
sp1(E)	2	#4	*		○
v1(E)	16	#6	9'-9"	235	—

* SEE ELEVATION

NOTES:

1. SEE SHEET 1 OF THIS SERIES FOR NOTES.
2. FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES.

APPROVED Paul Kovacs CHIEF ENGINEER DATE 2-7-2012

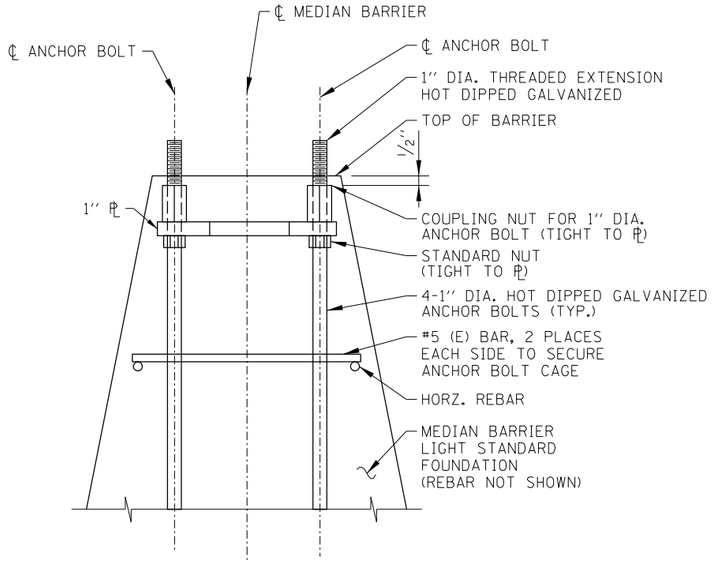
LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER (TYPE 3 STRADDLED CAISSON, 42" BARRIER)

Illinois Tollway

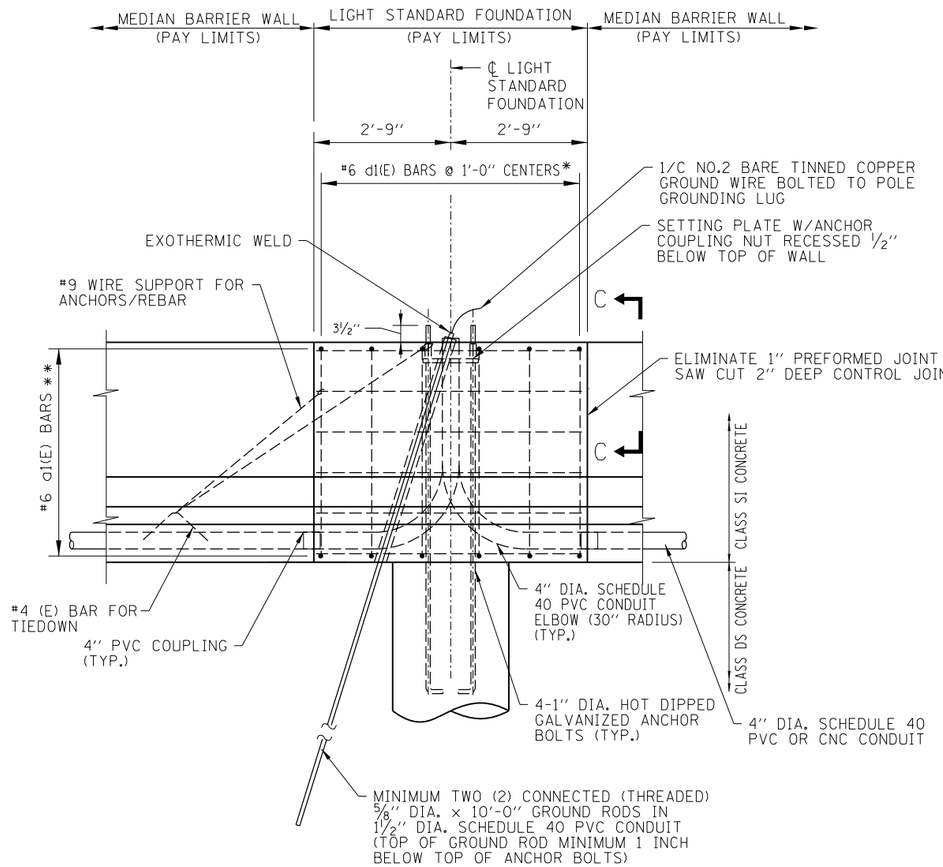
LIGHT STANDARD FOUNDATION

580 569

STANDARD H1-05

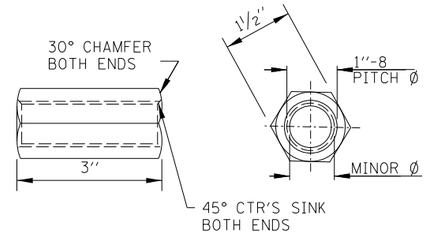


SECTION C-C

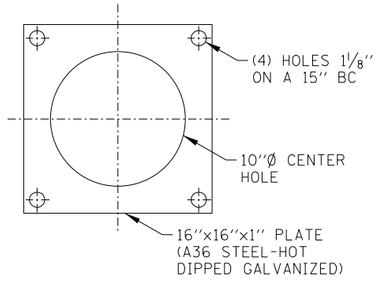


ELEVATION

* #6 d1(E) BAR REPLACES #4 d1(E) BAR
** #6 a1(E) BAR REPLACES #4 a1(E) BAR



COUPLING NUT



SETTING PLATE

SHEET 6 OF 9

LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER (MODIFICATIONS FOR SLIPFORM POUR, 42'' BARRIER)

NOTES:

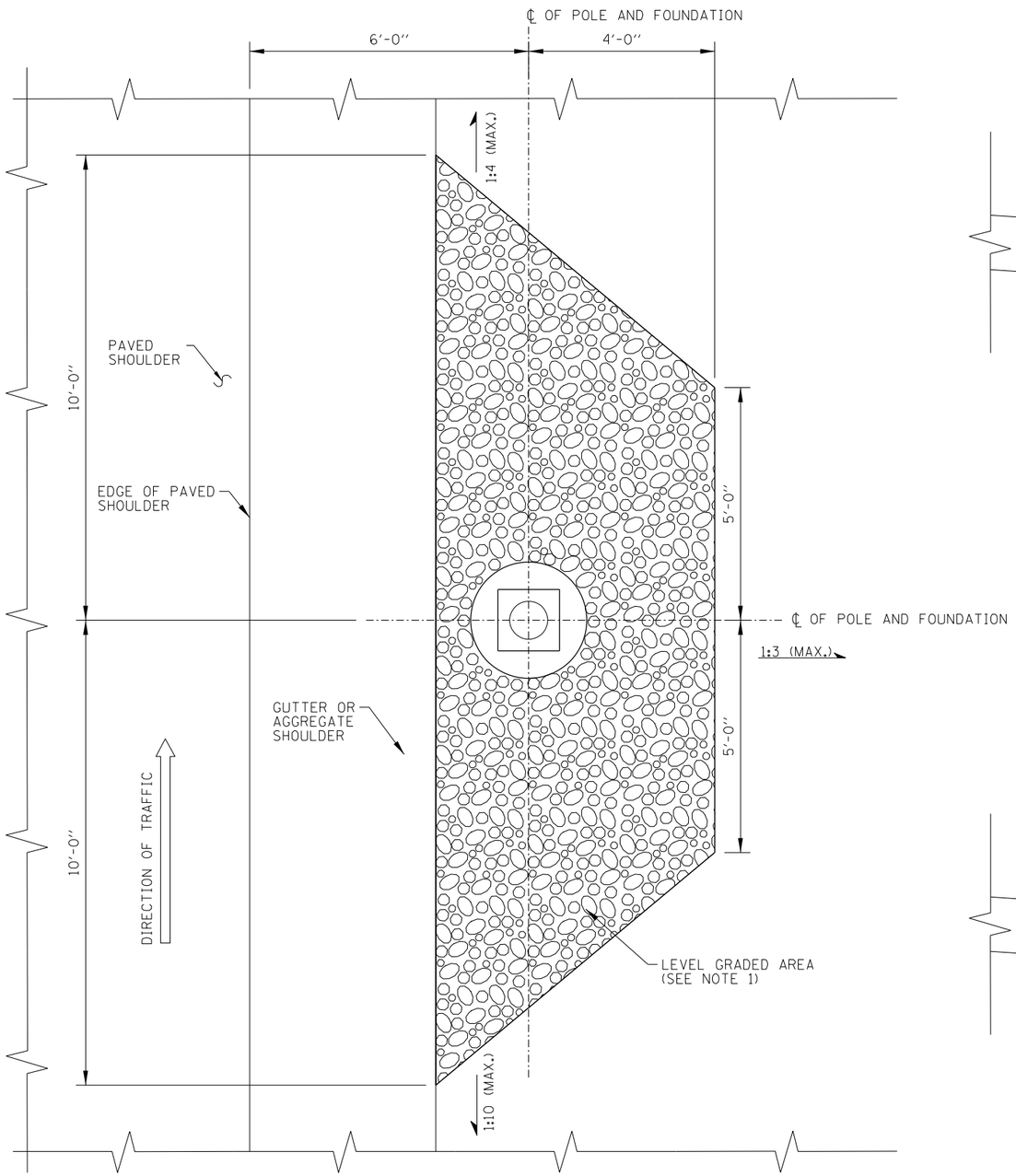
1. SEE SHEET 1 OF THIS SERIES FOR NOTES.
2. PLUG TOP OF COUPLER WITH PLASTIC PLUG OR COVER WHILE PLACING CONCRETE.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

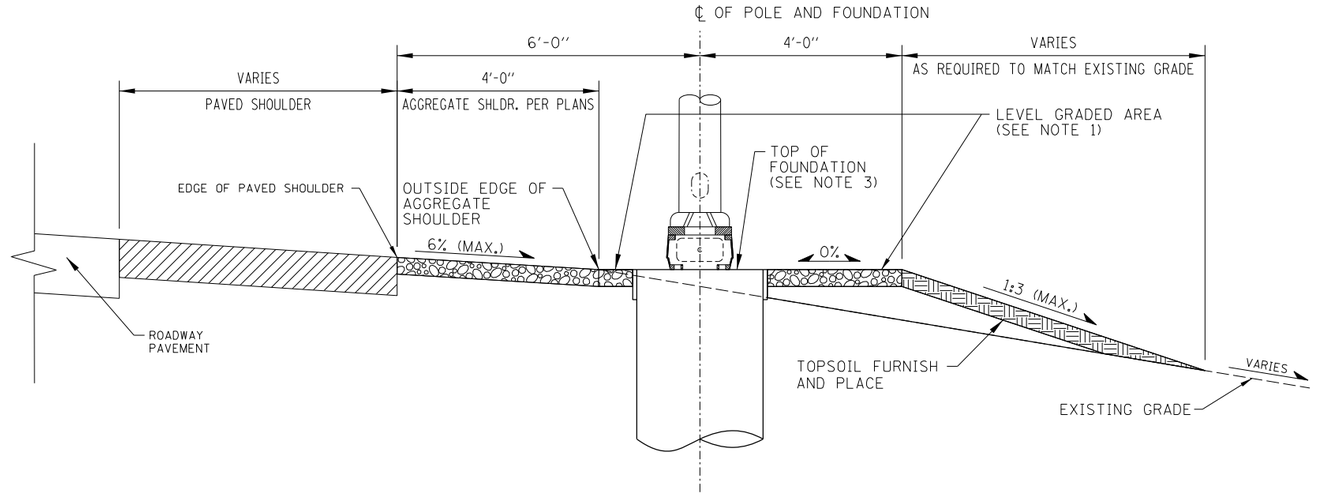
Illinois Tollway

LIGHT STANDARD FOUNDATION
580 570

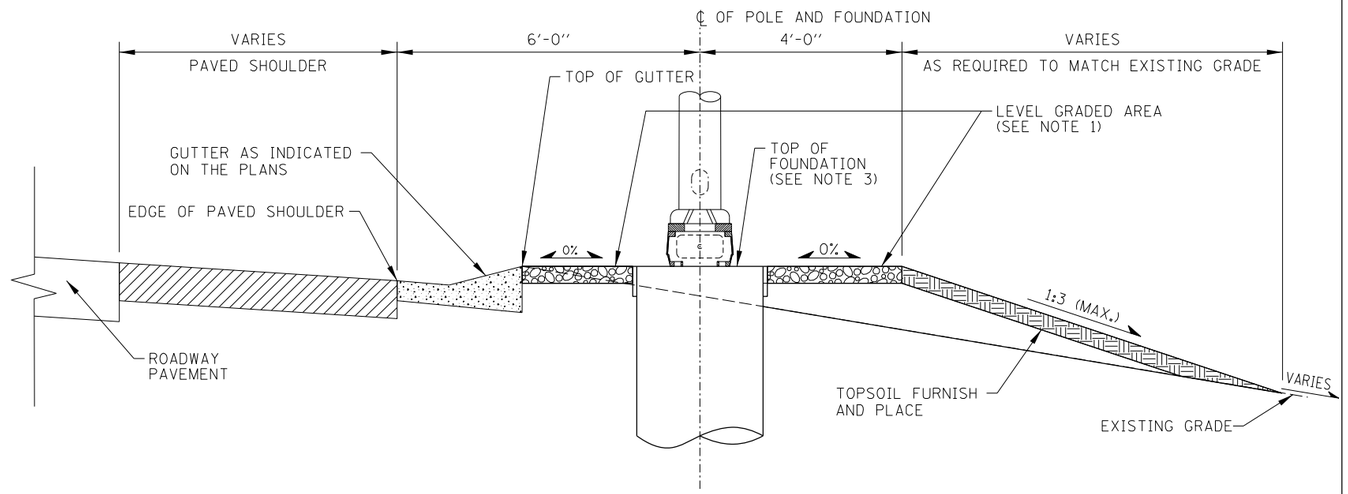
STANDARD H1-05



PLAN



LIGHT STANDARD FOUNDATION
ADJACENT TO AGGREGATE SHOULDER



LIGHT STANDARD FOUNDATION
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ FORESLOPE (GROUND MOUNTED UNITS)

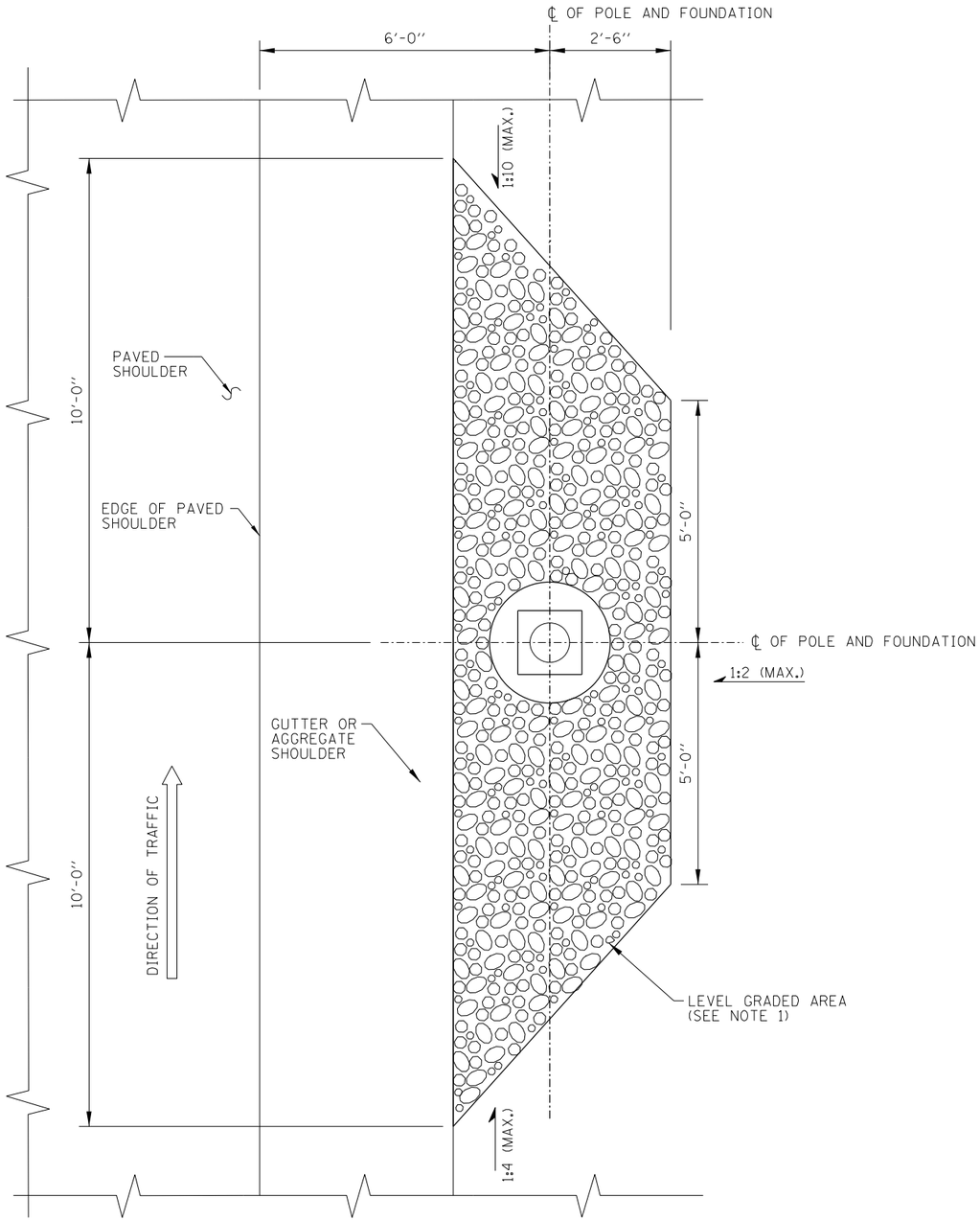
Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

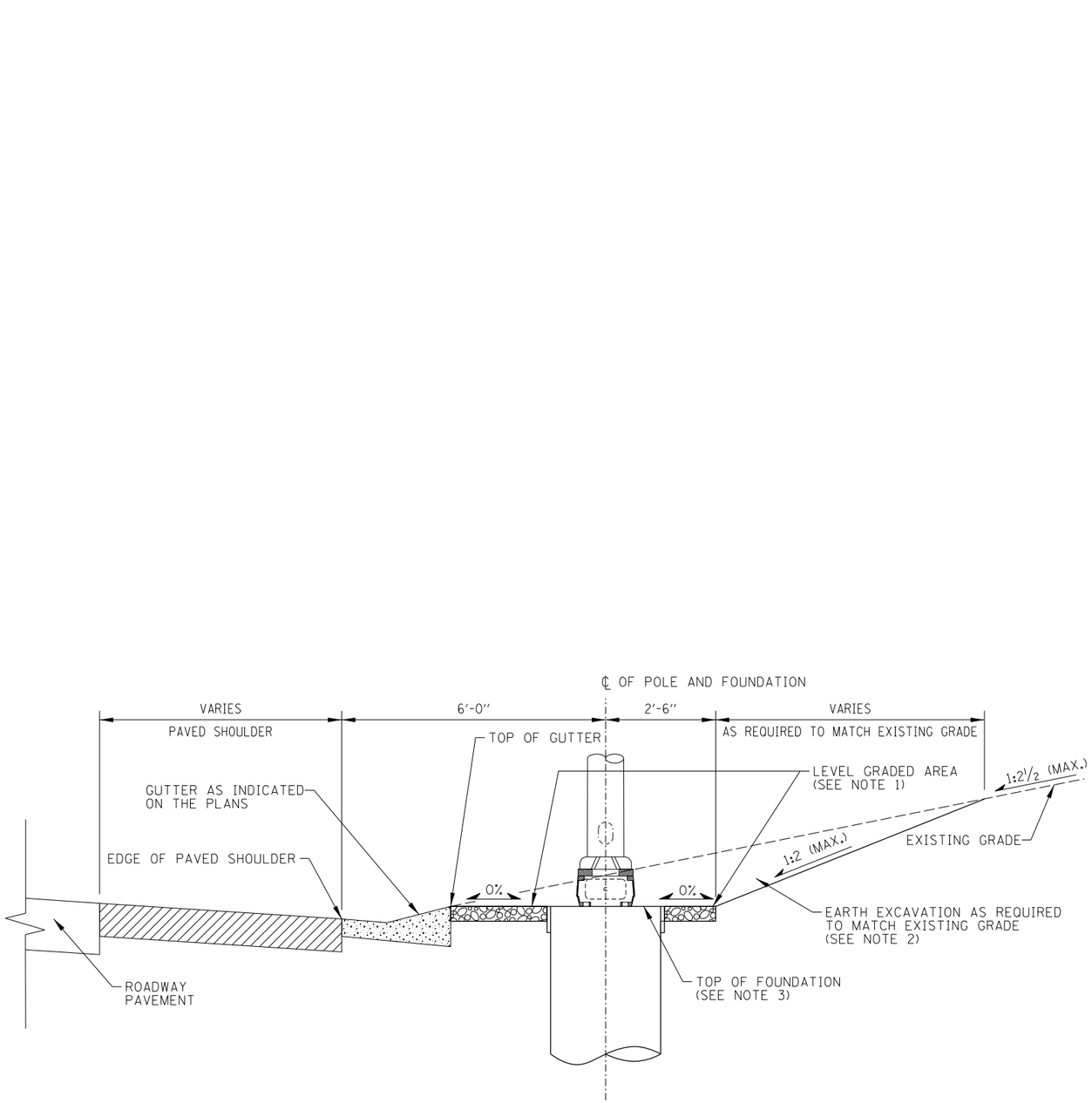
Illinois Tollway

LIGHT STANDARD FOUNDATION
580 571

STANDARD H1-05



PLAN



LIGHT STANDARD FOUNDATION
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ BACKSLOPE (GROUND MOUNTED UNITS)

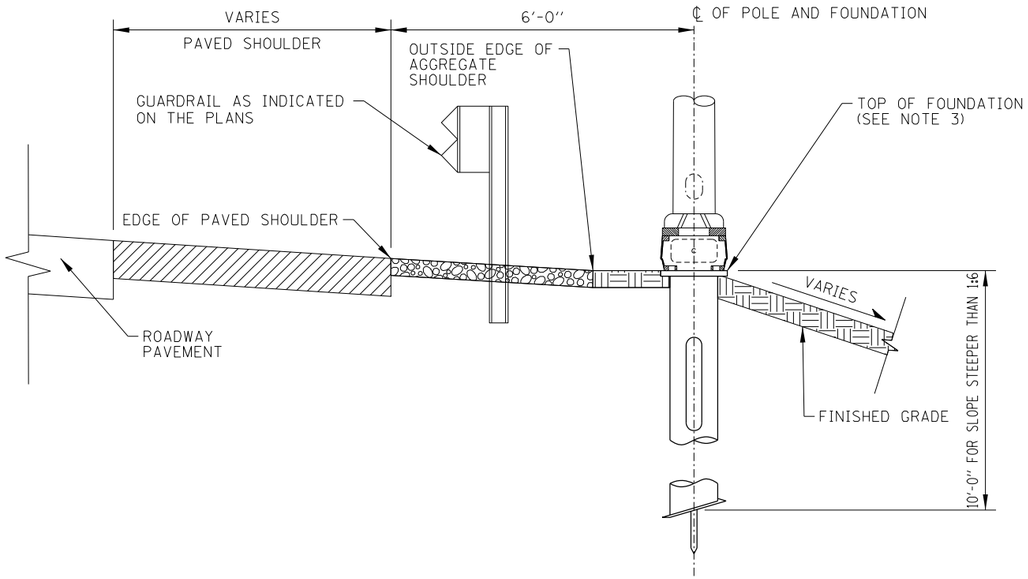
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

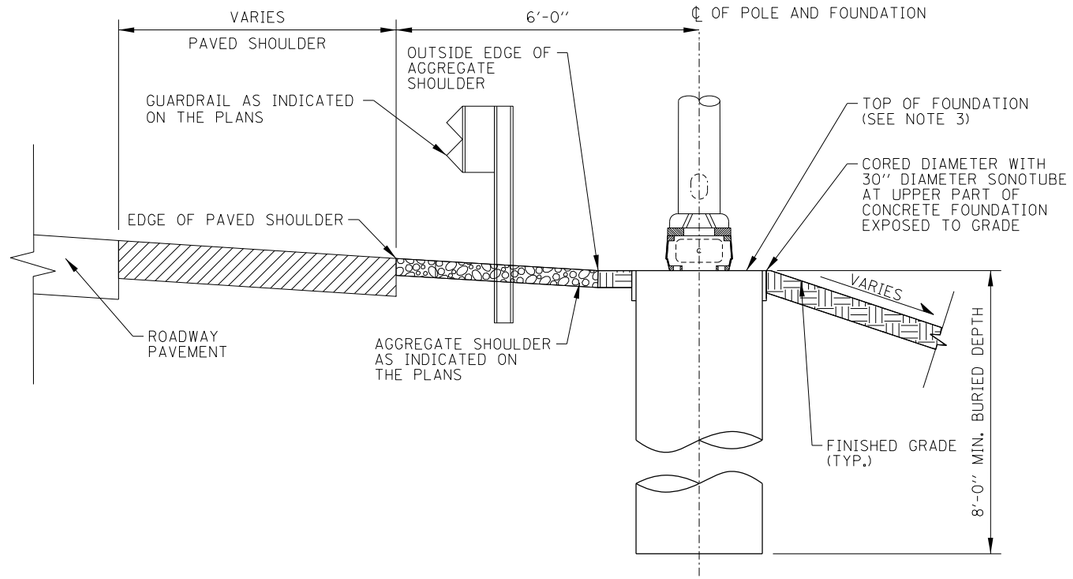
Illinois Tollway

LIGHT STANDARD FOUNDATION
580 572

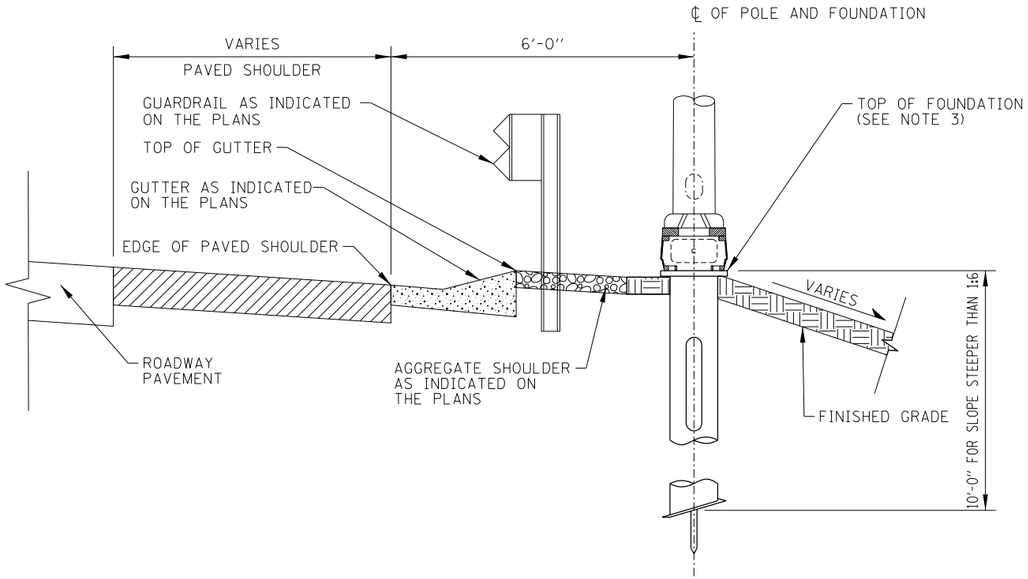
STANDARD H1-05



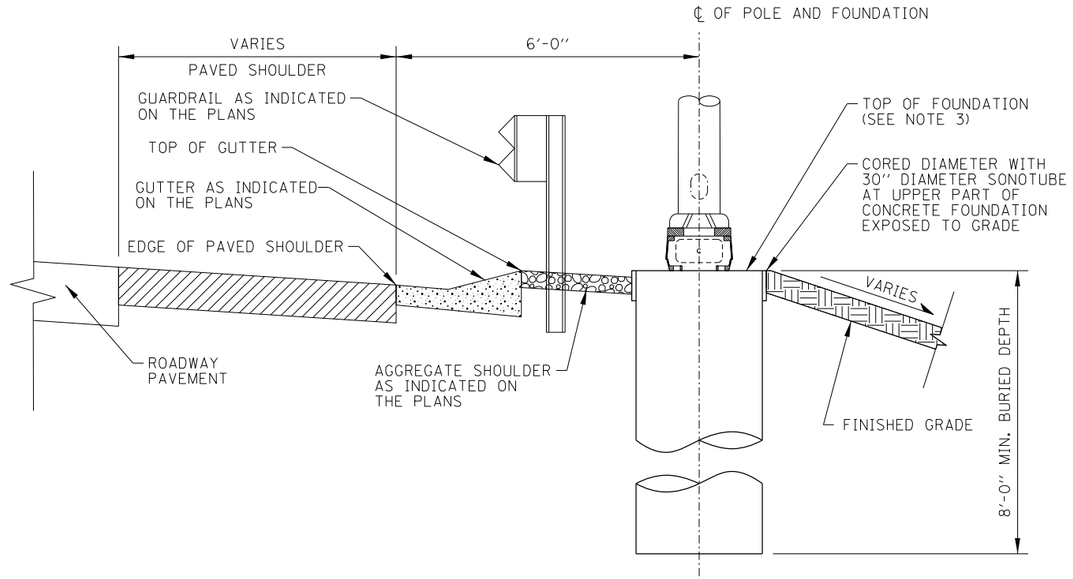
LIGHT STANDARD FOUNDATION - HELIX ADJACENT TO AGGREGATE SHOULDER



LIGHT STANDARD FOUNDATION - CONCRETE ADJACENT TO AGGREGATE SHOULDER



LIGHT STANDARD FOUNDATION - HELIX ADJACENT TO GUTTER



LIGHT STANDARD FOUNDATION - CONCRETE ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - ADJACENT TO GUARDRAIL (GROUND MOUNTED UNITS)

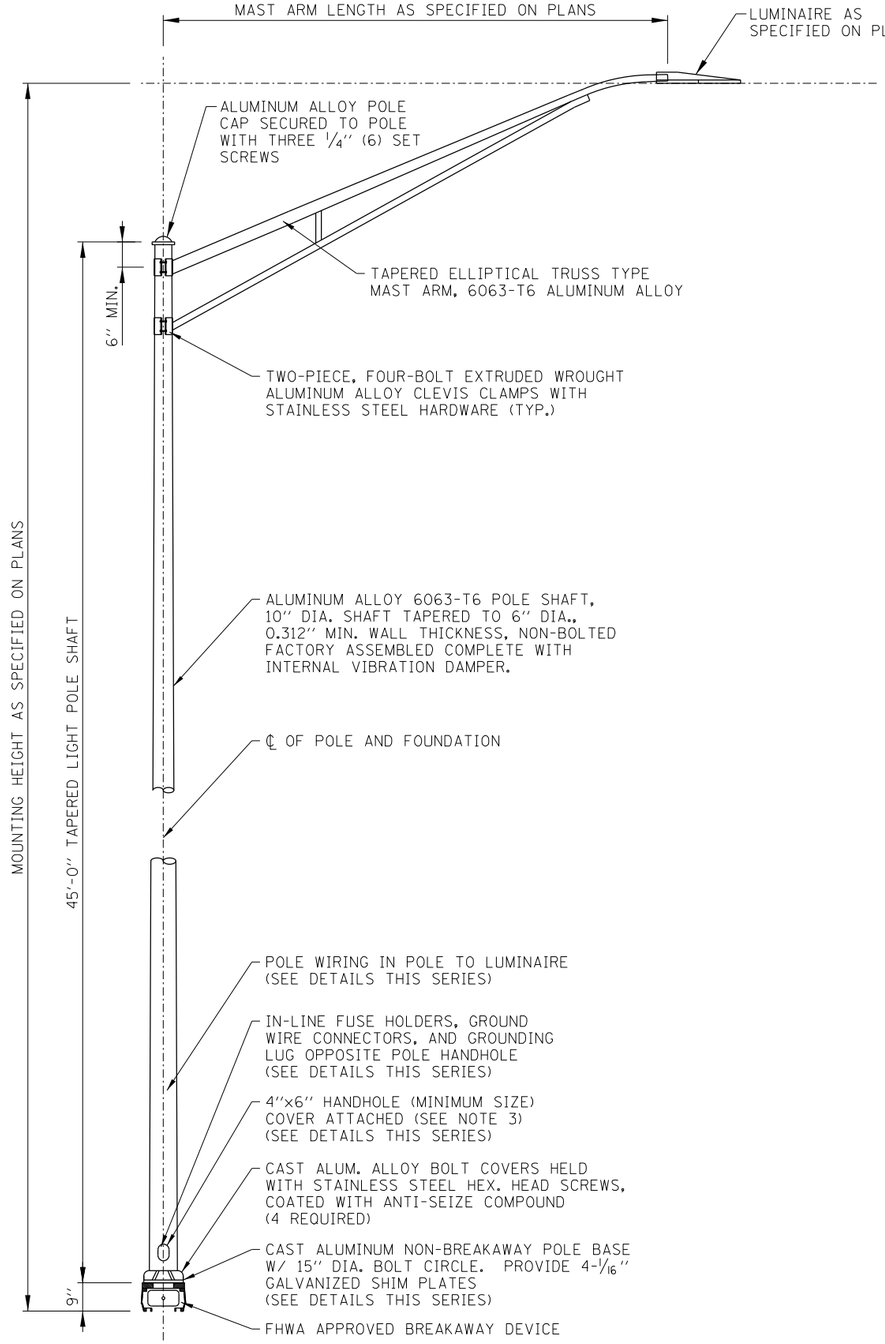
Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 2-7-2012

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

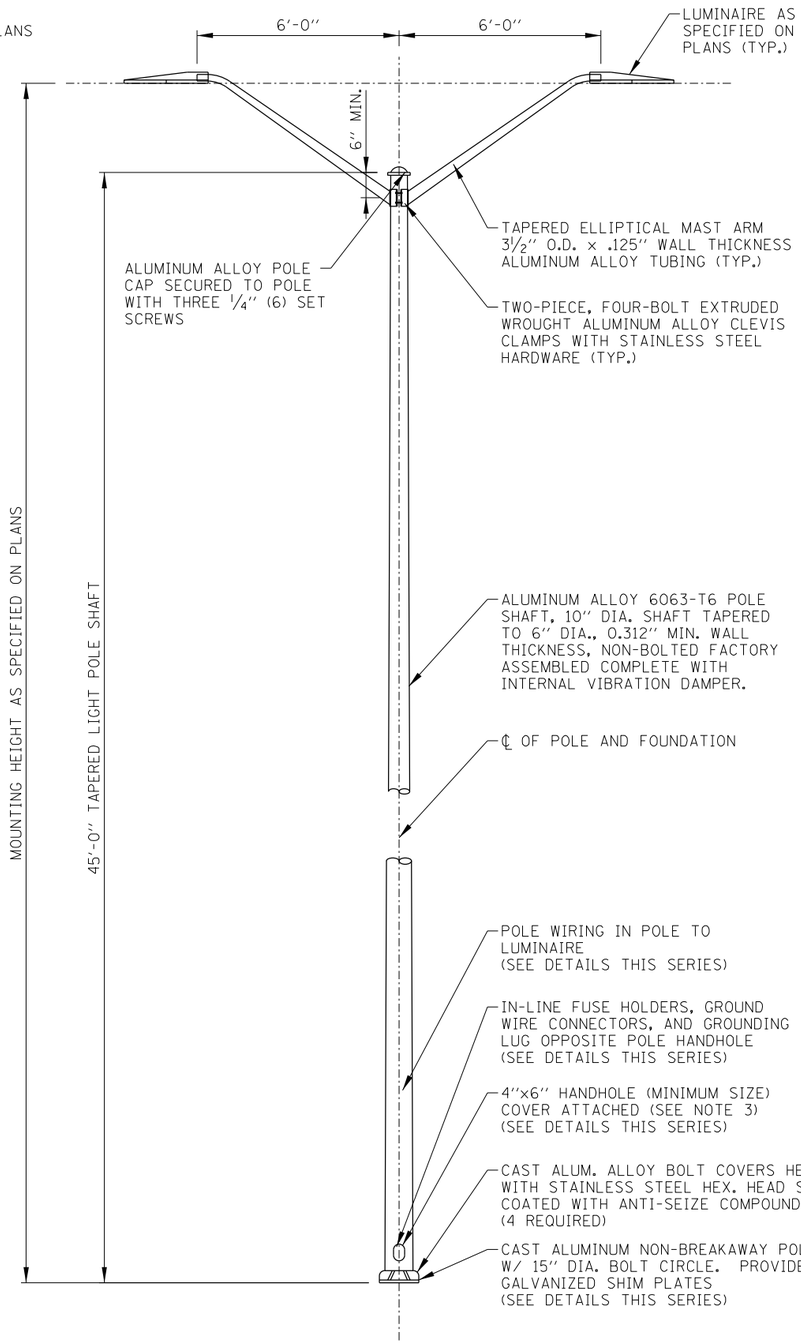
Illinois Tollway

LIGHT STANDARD FOUNDATION
580 573

STANDARD H1-05



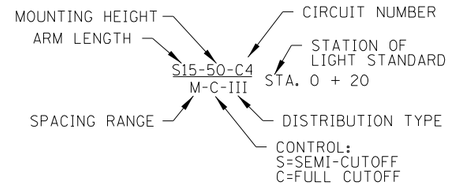
LIGHT STANDARD - SINGLE MAST ARM



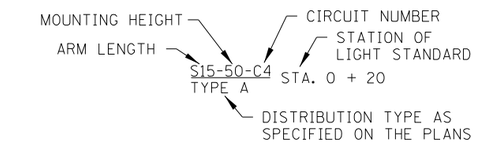
LIGHT STANDARD - TWIN MAST ARM

NOTES:

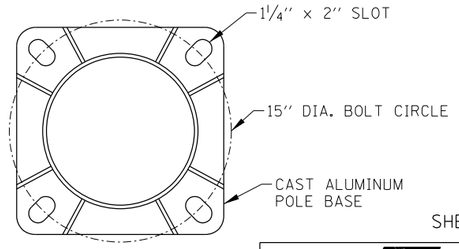
1. ALL LIGHT STANDARDS, BOTH NEW AND EXISTING, ARE SHOWN ON PLANS WITH THE SAMPLE DESCRIPTIONS SHOWN ON THIS SHEET.
2. FOR FOUNDATION DETAILS SEE STANDARD H1 OR FOR STRUCTURAL PARAPET FOUNDATION DETAILS, SEE STRUCTURAL PLANS.
3. HANDHOLE COVERS SHALL BE FASTENED USING TWO STAINLESS STEEL SCREWS WITH CAPTIVE STAINLESS STEEL NUTS OR INSERTS, PER ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION SECTION 1069.
4. PROVIDE A 24" LONG POLYETHYLENE TUBE TO PROTECT CABLES WHERE THEY PASS THROUGH THE GROMMETED OPENING AT THE POLE/MAST ARM JUNCTION.
5. ALL GROUND MOUNTED LIGHT POLES SHALL BE PROVIDED WITH AN ACCEPTED FHWA BREAKAWAY BASE OR DEVICE PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 1070.
6. EACH BRIDGE MOUNTED LIGHT STANDARD SHALL BE PROVIDED WITH SHOCK ABSORBING VIBRATION PADS, NUTS, WASHERS, LEVELING PLATE AND WIRE MESH FOR ITS ERECTION ON THE FOUNDATION AS SHOWN ON THE PLANS.
7. LIGHT STANDARD WIRING DETAIL FOR INSTALLATION WITH CONCRETE FOUNDATION SHOWN. DETAIL FOR INSTALLATION WITH HELIX FOUNDATION IS SIMILAR.
8. LIGHT STANDARD WIRING DETAILS SHOWN FOR TWIN MAST ARM (2 LUMINAIRES PER POLE) INSTALLATIONS. SINGLE MAST ARM (1 LUMINAIRE PER POLE) INSTALLATIONS SHALL OMIT TWO (2) IN-LINE FUSE HOLDERS, ONE SURGE PROTECTION DEVICE AND ASSOCIATED WIRING.
9. CONDUCTORS EXTENDED INTO LIGHT POLE BASE SHALL BE OF SUFFICIENT LENGTH TO WITHDRAW SPLICES AND/OR INSULATED JOINTS A MINIMUM 18" OUT OF THE POLE HANDHOLE.
10. ALL CONDUCTORS ORIGINATING IN POLE SHALL BE A 1/C NO. 10 AWG UNLESS OTHERWISE NOTED.
11. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.



LIGHT STANDARD DESCRIPTION - HPS LUMINAIRES



LIGHT STANDARD DESCRIPTION - LED LUMINAIRES



POLE BASE

Illinois Tollway

APPROVED Paul Kovacs CHIEF ENGINEER DATE 2-7-2012

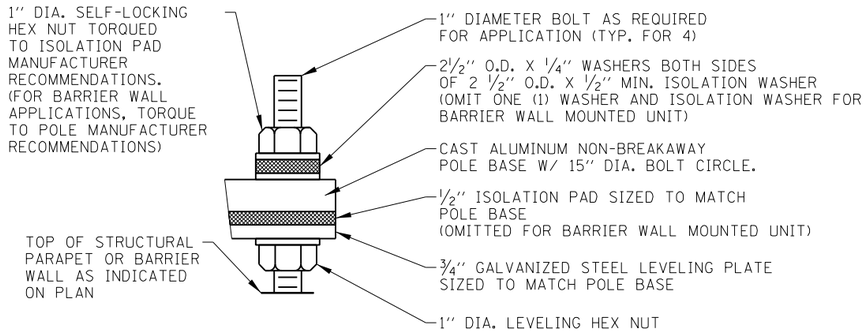
LIGHT STANDARD DETAILS

DATE	REVISIONS
02-07-12	REVISED LIGHT POLE HANDHOLE NOTES, REMOVED
	CABLE VOLTAGE, AND REVISED NOTES.
03-31-14	REVISED WIRING DIAGRAM.
3-11-2015	REVISED LIGHT STANDARD POLE WIRING DETAILS.
3-31-2016	REVISED BARRIER WALL UNIT MOUNTING DETAILS.

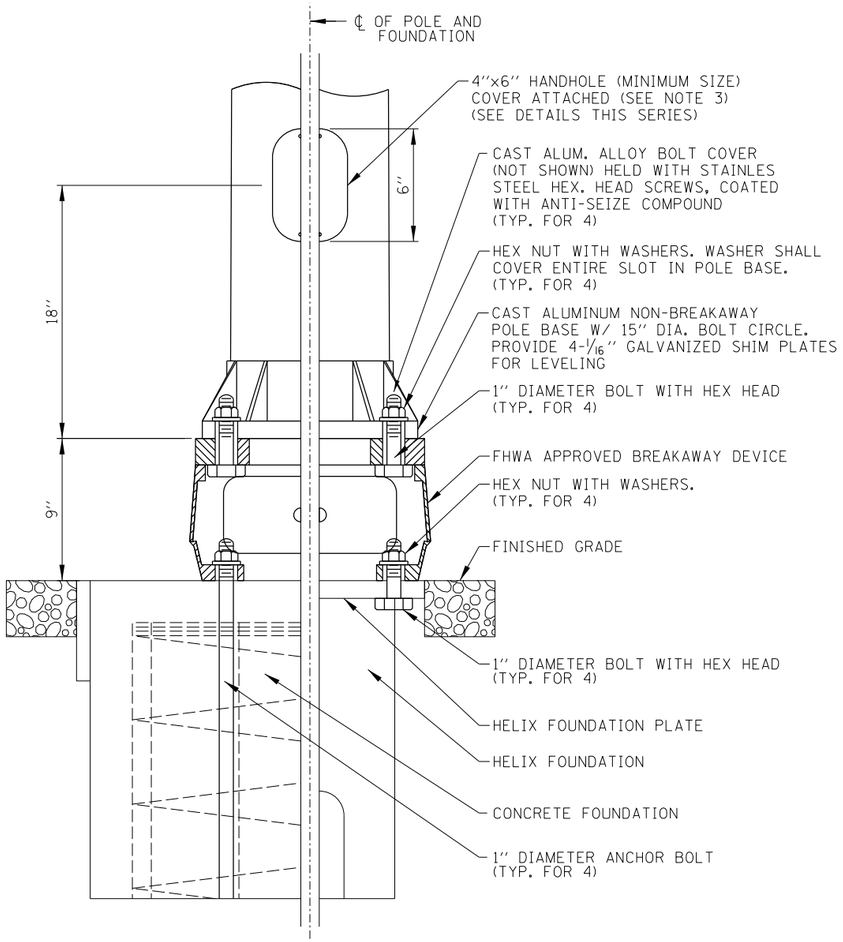
LIGHT STANDARD DETAILS

580 574

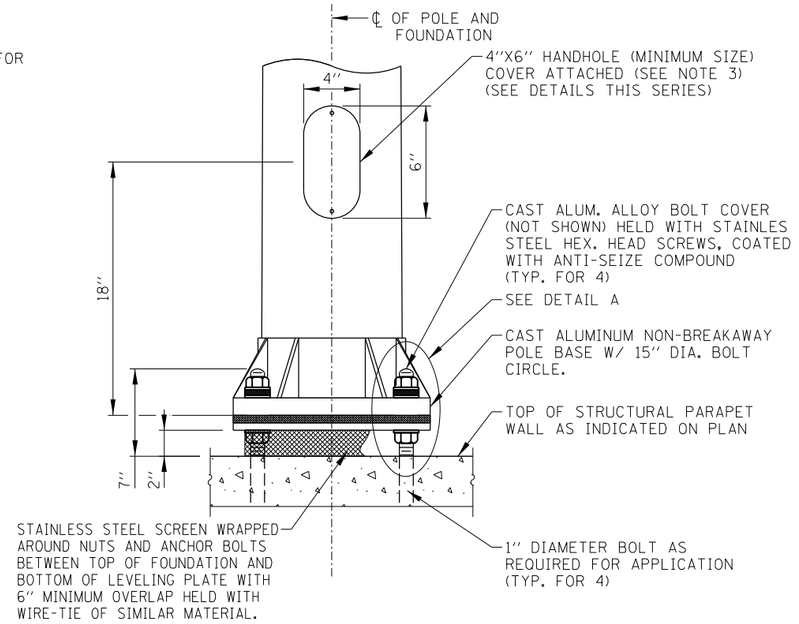
STANDARD H2-04



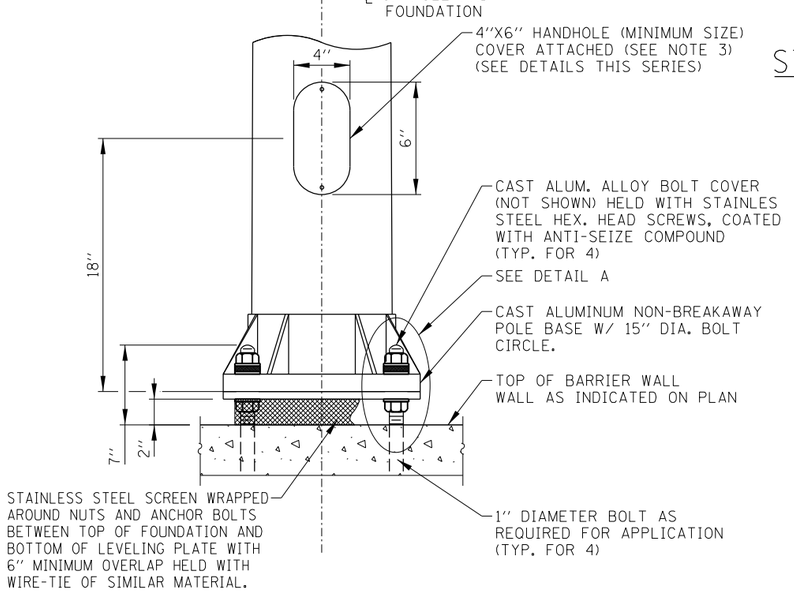
DETAIL A



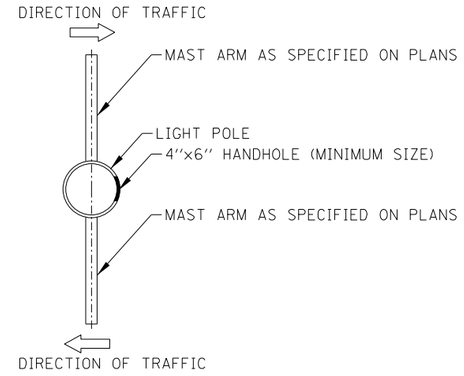
LIGHT STANDARD MOUNTING DETAIL
(GROUND MOUNTED UNITS)



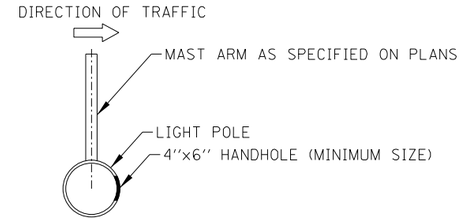
LIGHT STANDARD MOUNTING DETAIL
(STRUCTURAL PARAPET WALL MOUNTED UNITS)



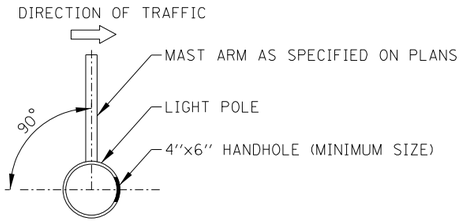
LIGHT STANDARD MOUNTING DETAIL
(BARRIER WALL MOUNTED UNITS)



MEDIAN BARRIER WALL MOUNTED UNITS



STRUCTURAL PARAPET WALL MOUNTED UNITS



GROUND MOUNTED UNITS

LIGHT STANDARD HANDHOLE
ORIENTATION DETAIL

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

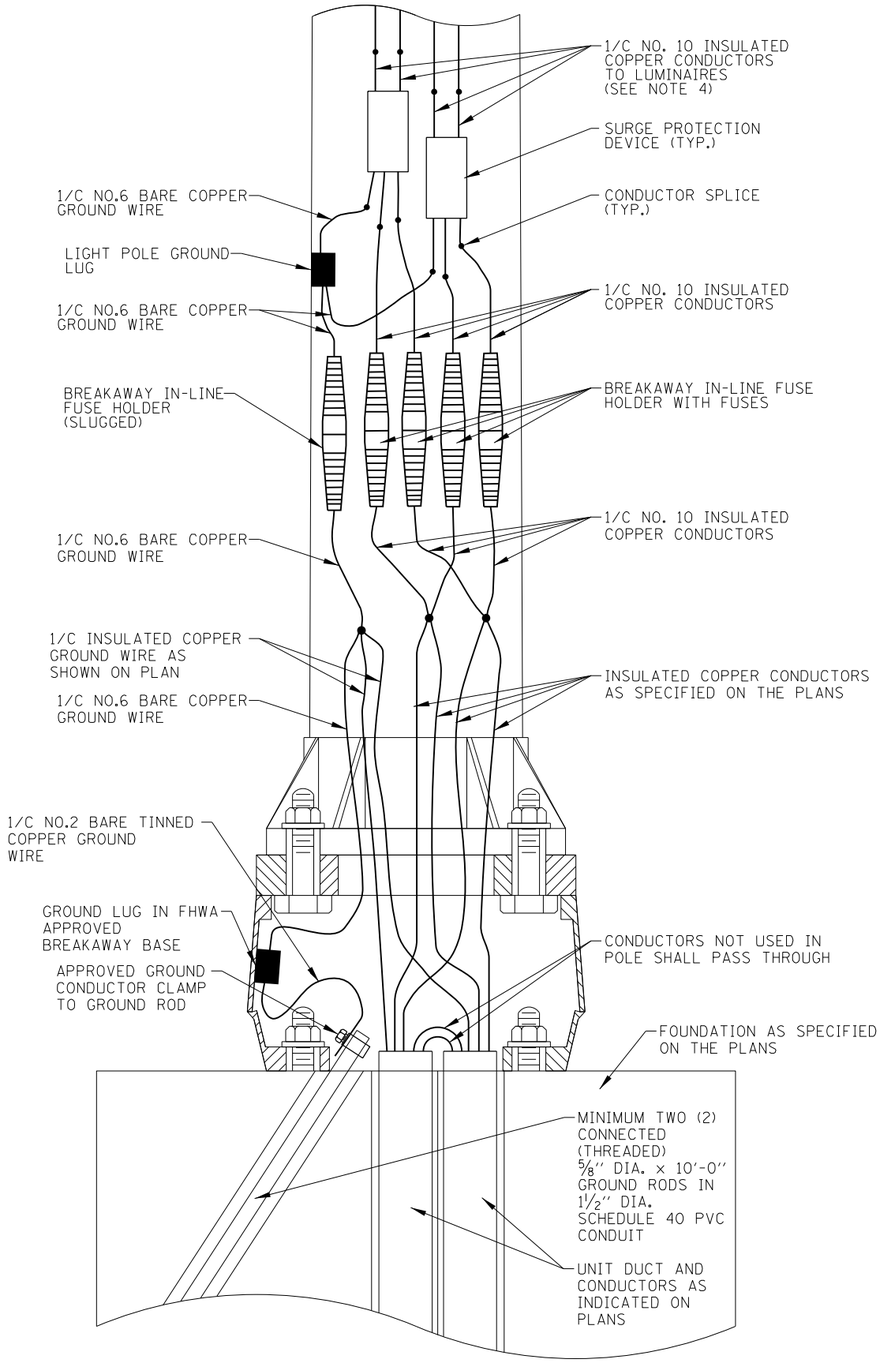
LIGHT STANDARD MOUNTING DETAILS

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Illinois Tollway

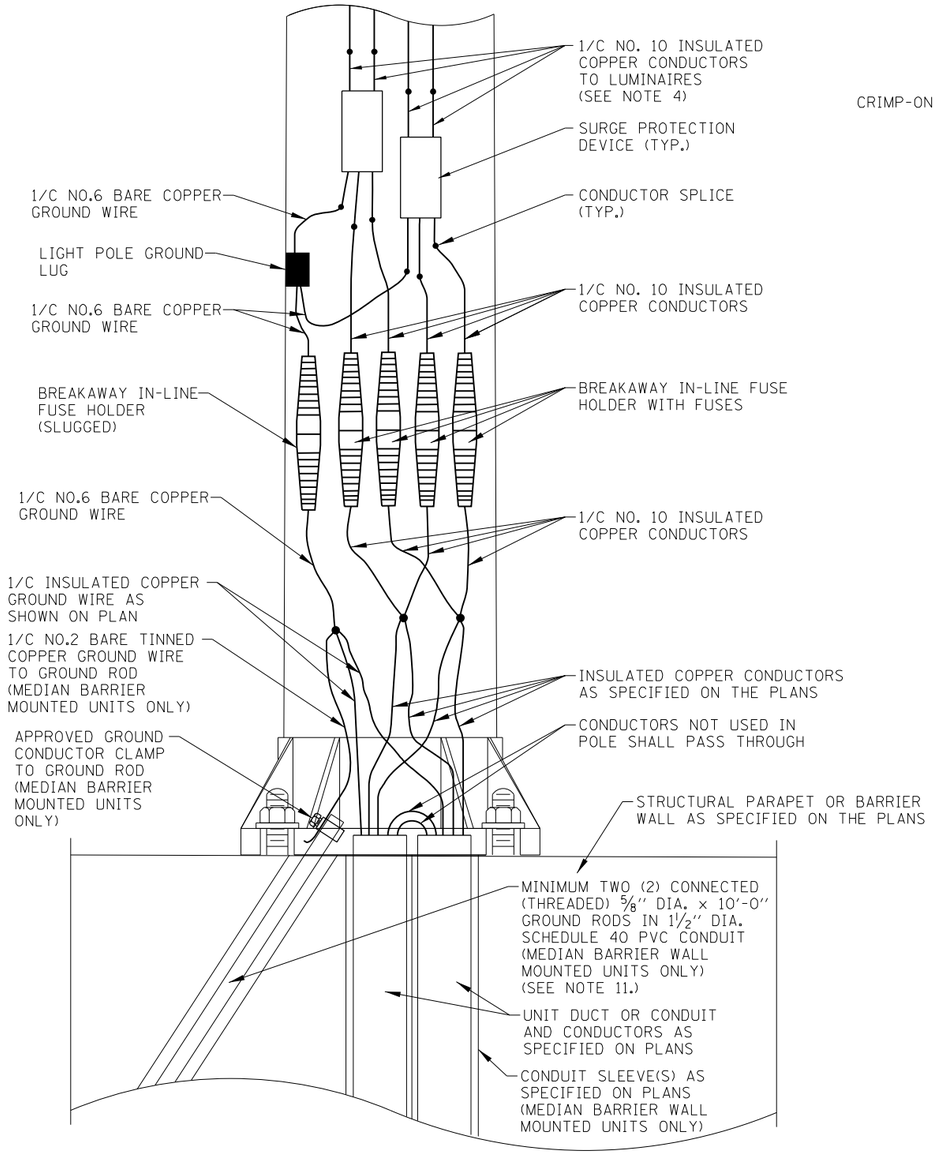
LIGHT STANDARD DETAILS
580 575

STANDARD H2-04

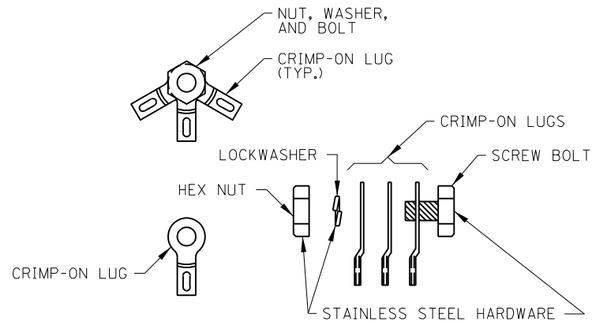


LIGHT STANDARD WIRING DETAIL (GROUND MOUNTED UNITS)

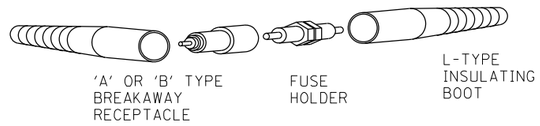
(SEE NOTES 7 & 8)



LIGHT STANDARD WIRING DETAIL (STRUCTURAL AND BARRIER WALL MOUNTED UNITS)



CONDUCTOR SPLICE DETAIL



IN-LINE FUSE HOLDER WITH BREAKAWAY FEATURE DETAIL

SHEET 3 OF 3

Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

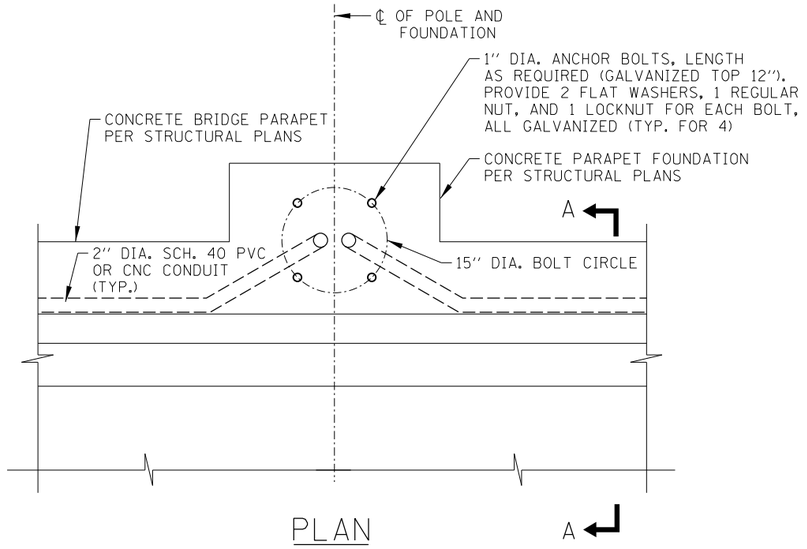
LIGHT STANDARD WIRING DETAILS

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Illinois Tollway

LIGHT STANDARD DETAILS
580 576

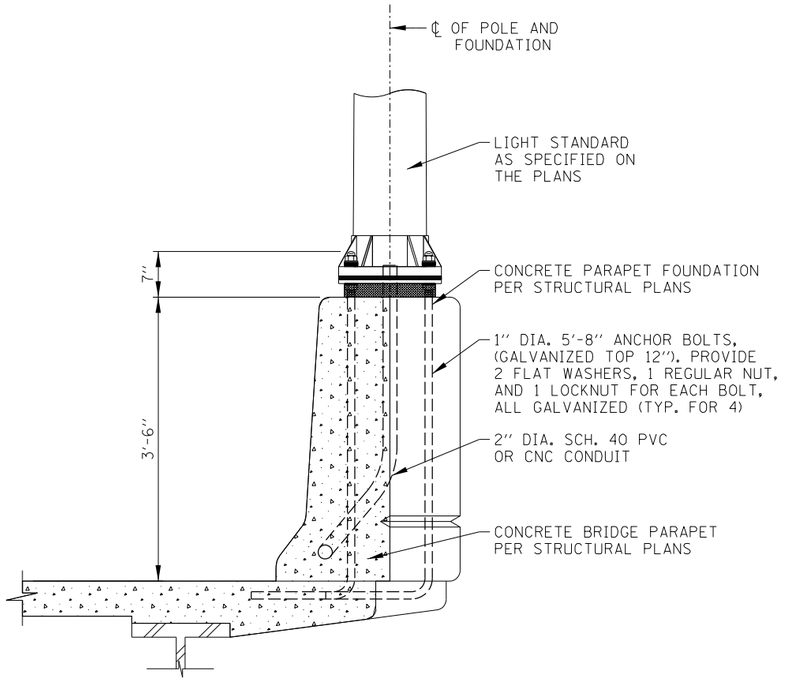
STANDARD H2-04



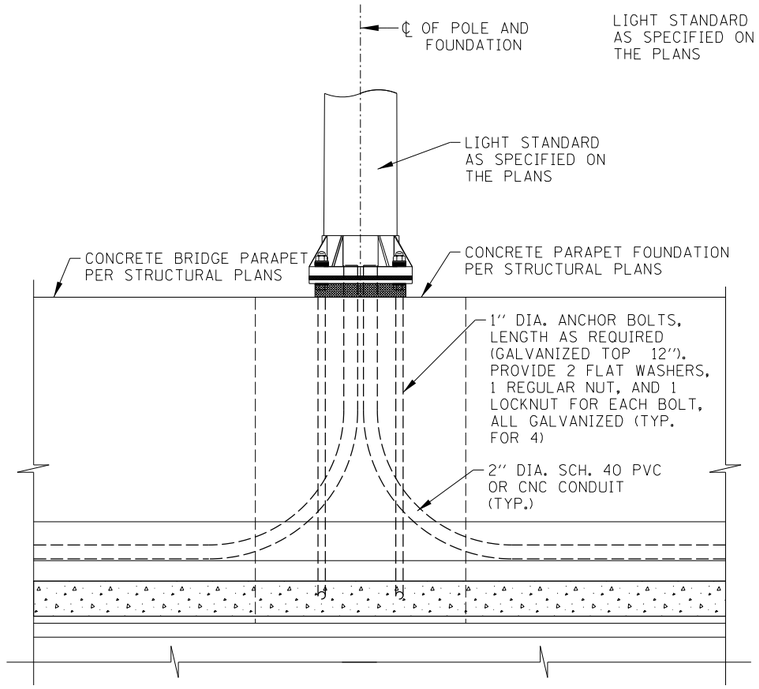
PLAN

NOTES:

1. FOR STRUCTURAL PARAPET FOUNDATION DETAILS, SEE STRUCTURAL PLANS.
2. THE END 4'-0'' SECTION OF WINGWALL/PARAPET SHALL BE KEPT FREE FROM ANY ATTACHMENTS TO AVOID CONFLICT FROM TRAFFIC BARRIER TERMINAL TYPE T6 ANCHORAGE ASSEMBLY.
3. ALL CONDUIT, JUNCTION BOXES AND APPURTENANCES MOUNTED TO STRUCTURE SHALL BE OFFSET FROM THE FACE OF THE STRUCTURE A MINIMUM OF ONE (1) INCH BY MEANS OF A STAINLESS STEEL C-CHANNEL. C-CHANNEL SHALL BE SECURED TO BRIDGE PARAPET WITH $\frac{1}{2}$'' DIA. EXPANSION ANCHORS (MIN. 2'' LONG). EXPANSION ANCHORS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION AND SHALL BE MADE BY PARABOLT, KWICK-BOLT OR WEJ-IT. CONDUIT SHALL BE SECURED WITH APPROVED CLAMPS A MINIMUM OF 5 FEET FROM CENTER AND A MINIMUM OF 2 FEET FROM ANY CHANGE IN DIRECTION OR JUNCTION BOX.
4. THE BARREL IN THE EXPANSION JOINT FITTING SHALL BE FULLY EMBEDDED IN THE CONCRETE ON ONE SIDE OF THE EXPANSION JOINT. ONE HALF THE LENGTH OF THE DEFLECTION FITTING SHALL BE EMBEDDED IN THE CONCRETE ON THE OTHER SIDE OF THE EXPANSION JOINT.
5. EXPANSION/DELFECTION JOINTS SHALL BE PROVIDED AT ALL BRIDGE EXPANSION JOINTS.
6. ALL CLAMPS AND HARDWARE FOR CONDUIT MOUNTING SHALL BE OF LIKE MATERIAL AS THE CONDUIT.
7. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.



SECTION A-A



ELEVATION

Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

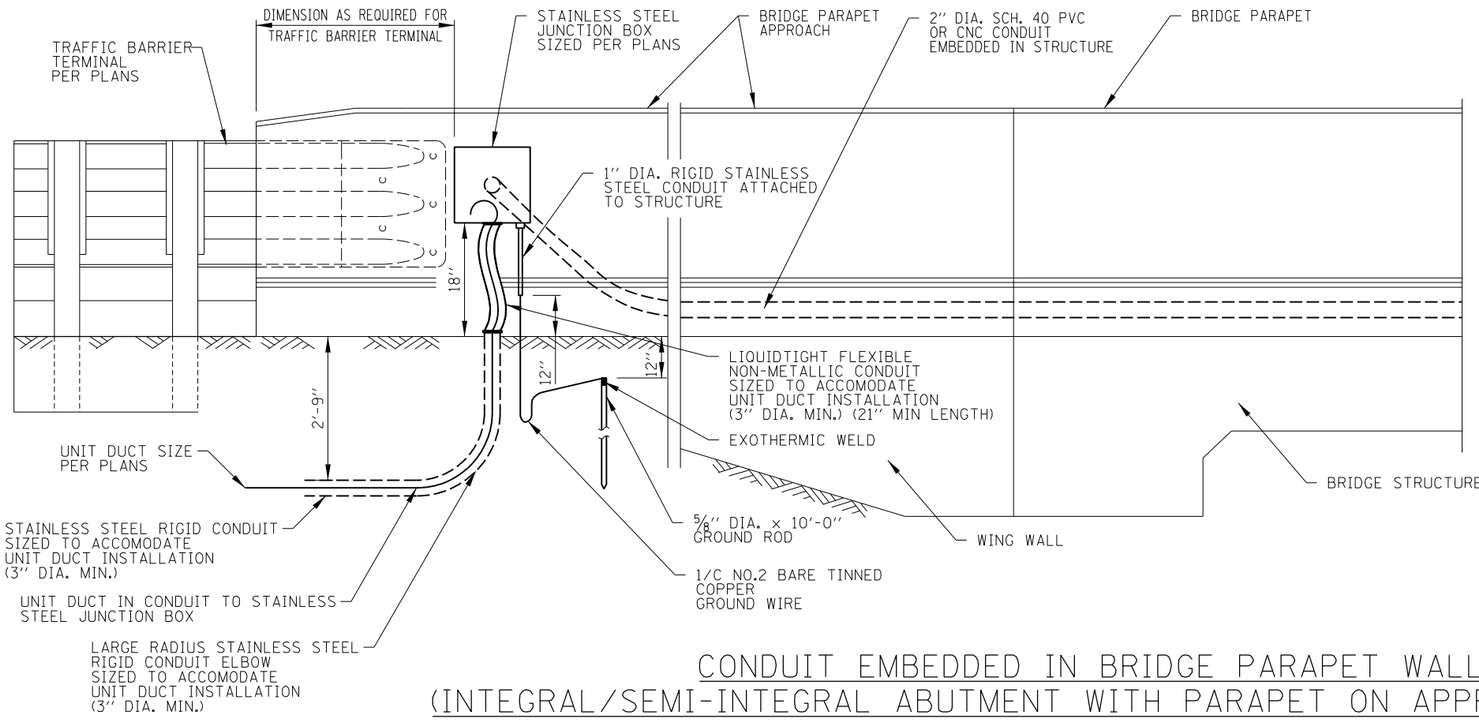
CONDUIT EMBEDDED IN BRIDGE PARAPET

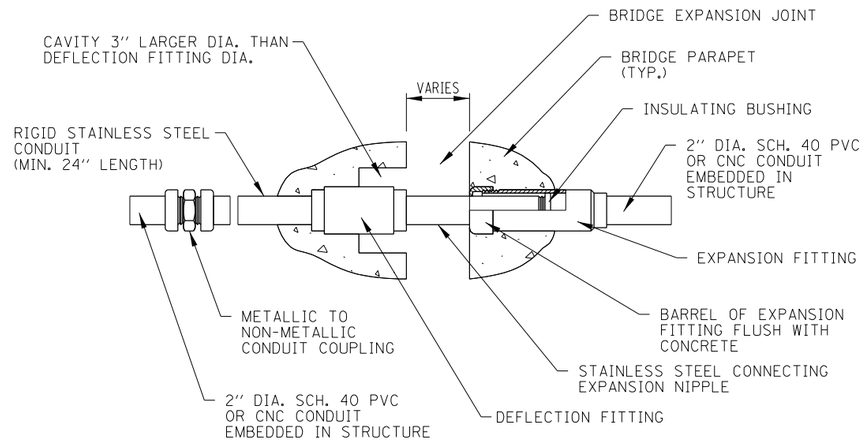
DATE	REVISIONS
2-07-2012	REVISED NOTES
11-01-2012	REVISED JUNCTION BOX
3-11-2015	ADDED BRIDGE CONDUIT DETAILS

Illinois Tollway

BRIDGE
CONDUIT DETAILS
580 577

STANDARD H3-03

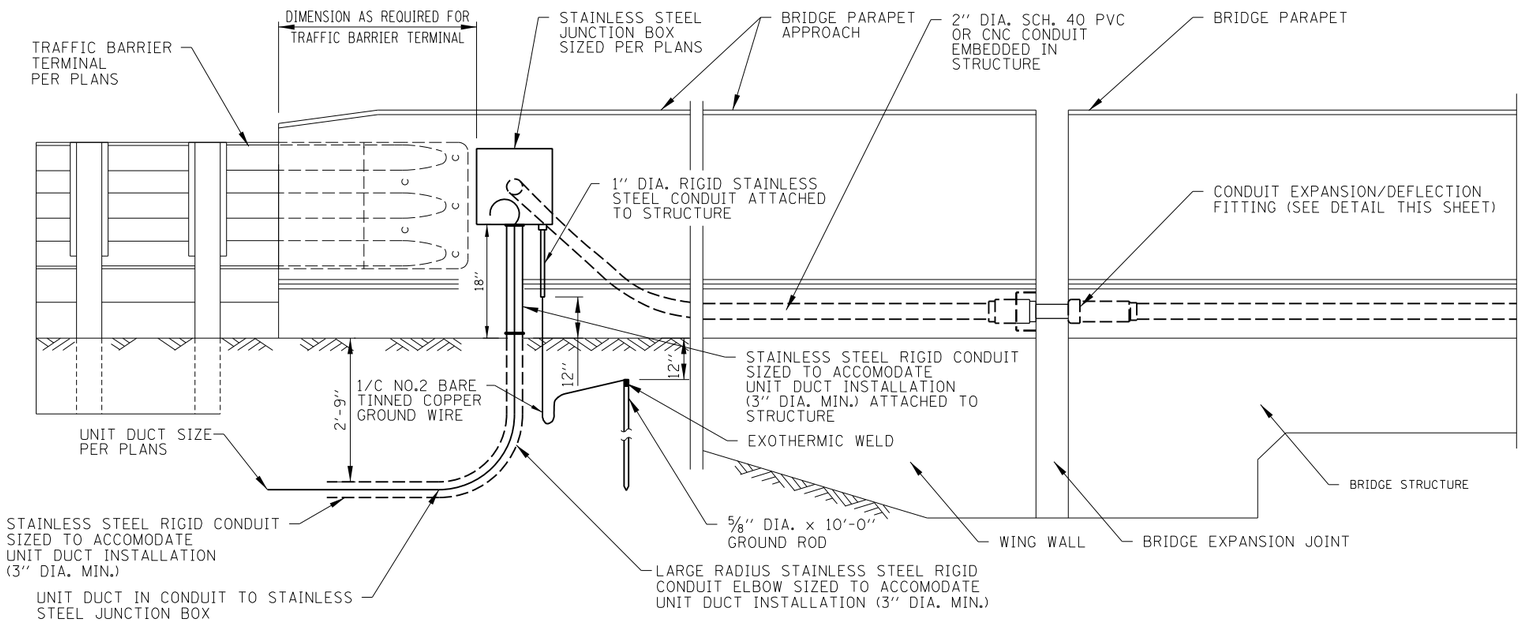




COMBINATION EXPANSION/ DEFLECTION FITTING

(SEE NOTES 4 & 5)

CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH PARAPET ON APPROACH PAVEMENT)



CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(JOINTED ABUTMENT WITH PARAPET ON APPROACH PAVEMENT)

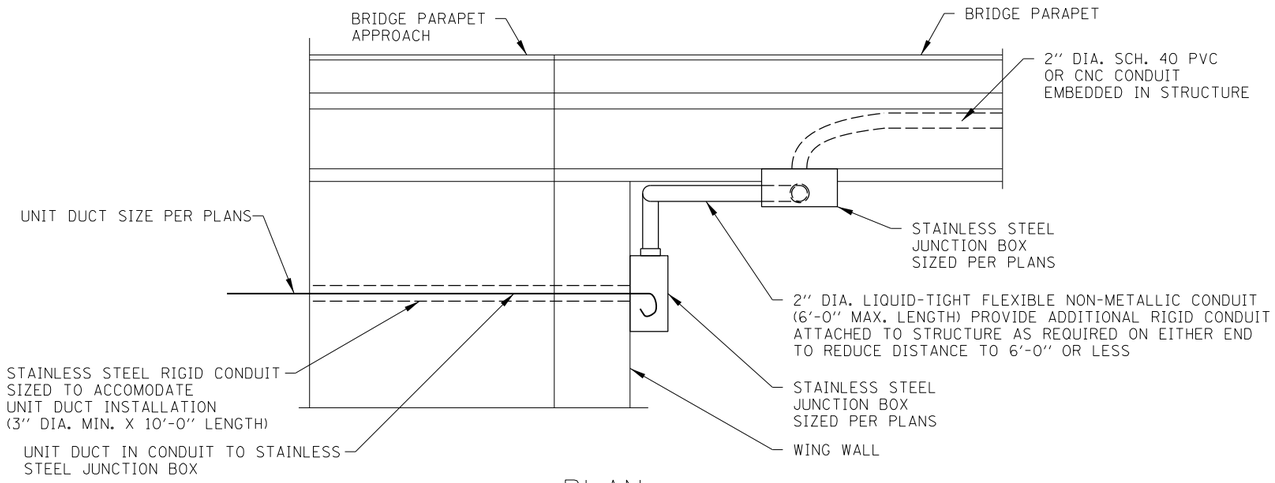
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

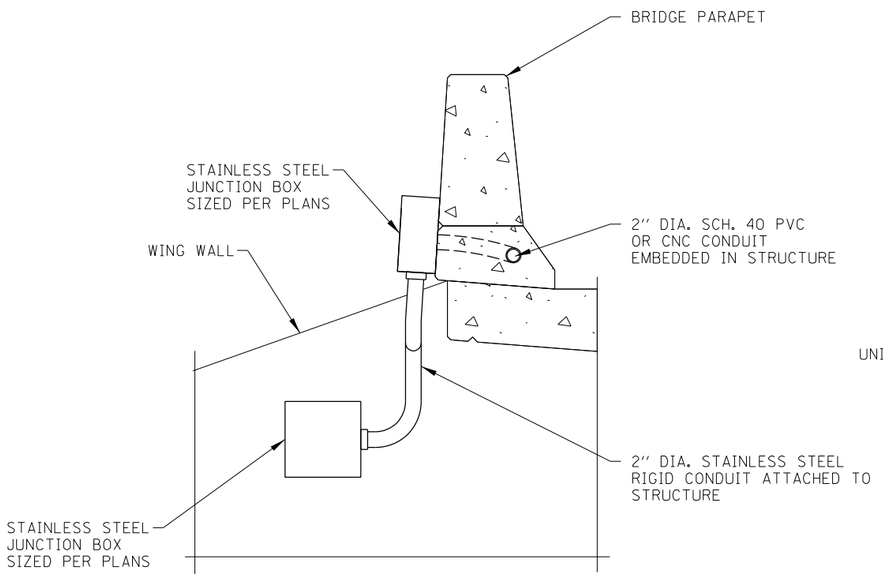
Illinois Tollway

BRIDGE
CONDUIT DETAILS
580 578

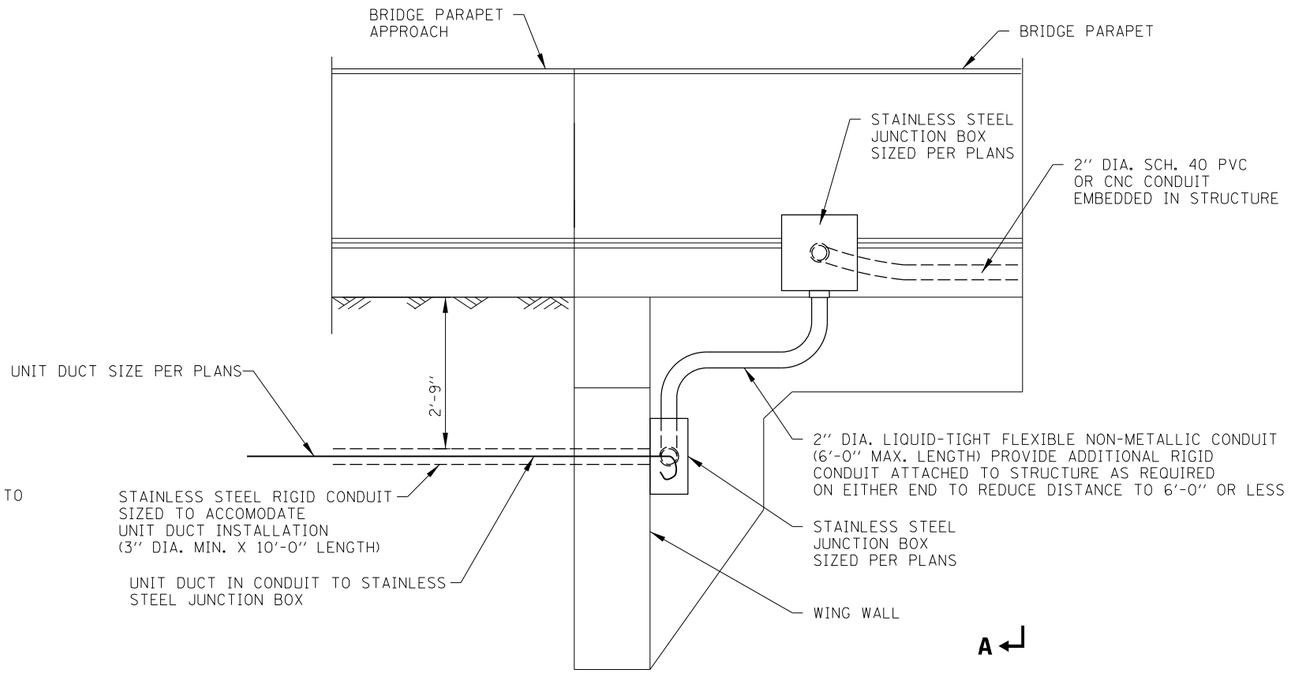
STANDARD H3-03



PLAN



SECTION A-A



ELEVATION

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

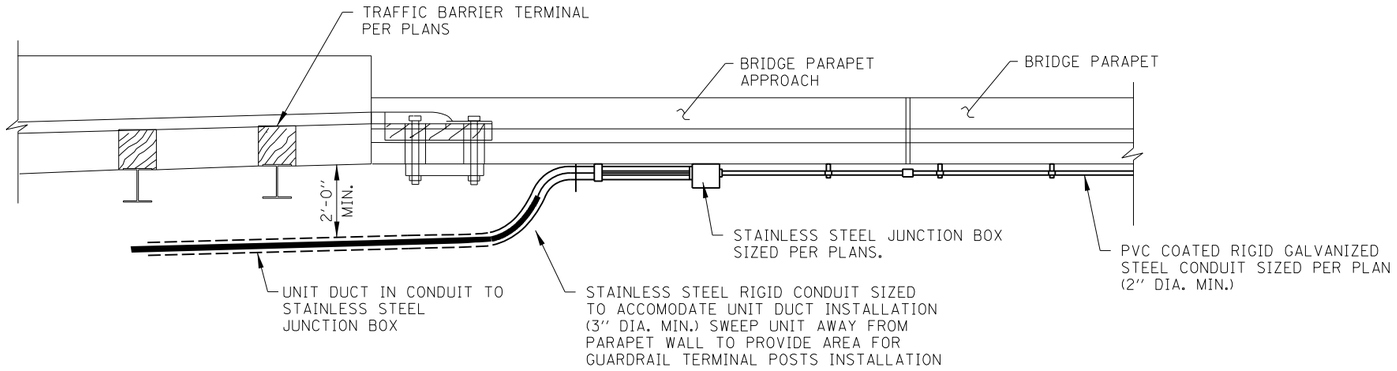
CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH PARAPET ENDING ON BRIDGE DECK)

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

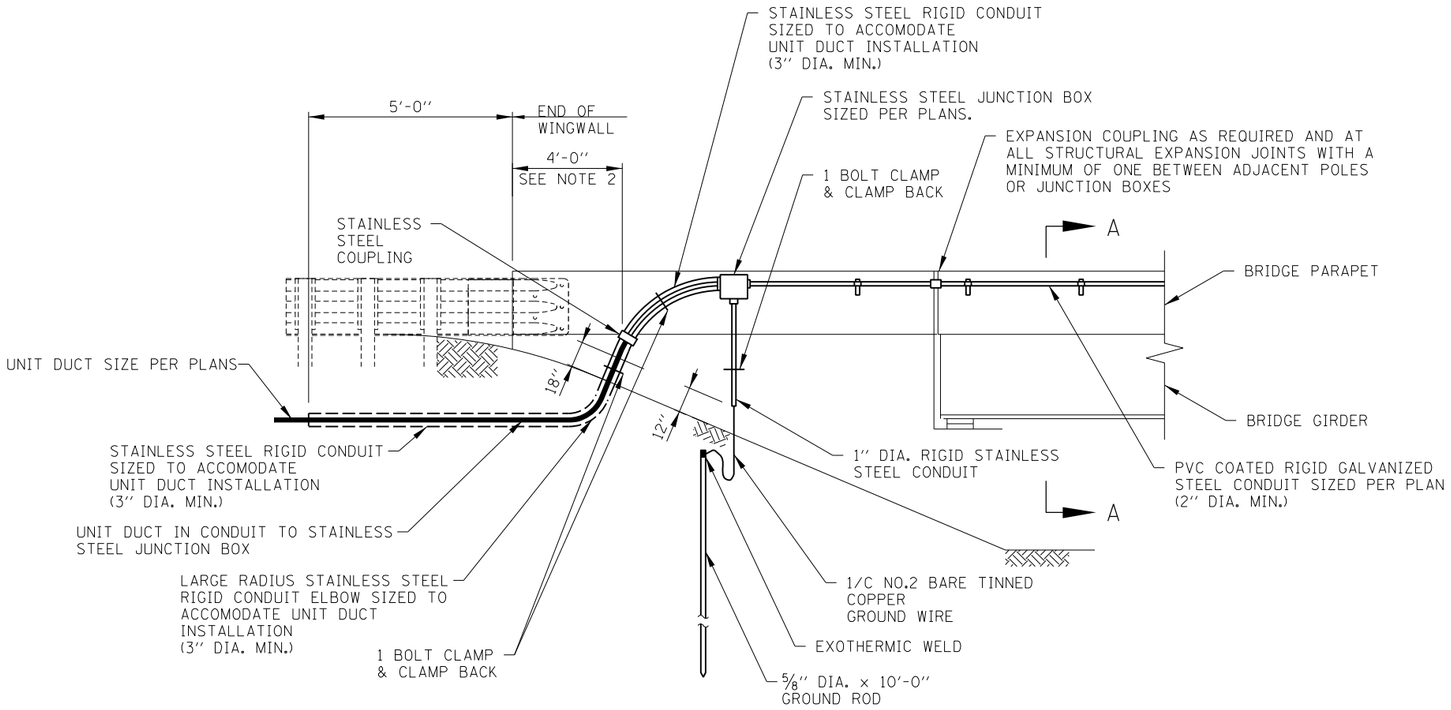
Illinois Tollway

BRIDGE
CONDUIT DETAILS
580 579

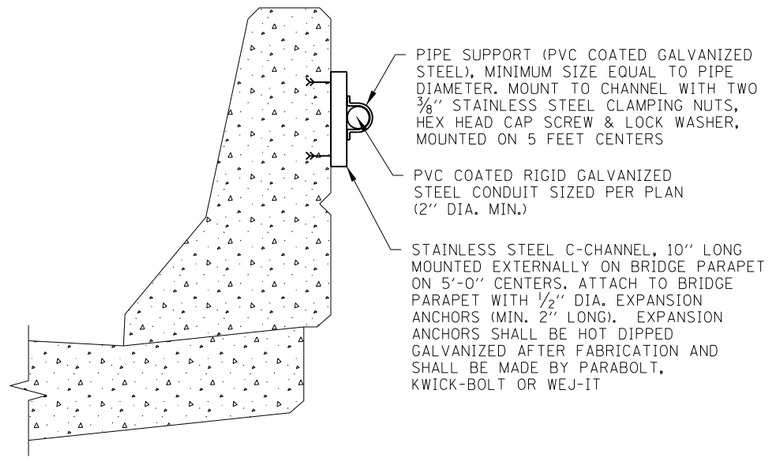
STANDARD H3-03



PLAN VIEW



ELEVATION OF TYPICAL WINGWALL CONDUIT TRANSITION



SECTION A-A

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DATE 2-7-2012

CONDUIT ATTACHED TO BRIDGE PARAPET

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

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BRIDGE
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580 580

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