SECTION I - BARRIER

SHEET NO.	NAME
B-L (2001)	– BARRIER LEGEND
B-1	– GUARDRAIL APPLICATIONS
	(2002) - 1 PLANS - (TYPE 1, TYPE 2, AND TYPE 3)
	(2004) - 2 ELEVATIONS AND SPLICE DETAIL
	(2002) - 3 SECTION VIEWS
	(2002) - 4 GRADING FOR GUARDRAIL END TREATMENT, TYPE 1
	(2002) - 5 GRADING FOR GUARDRAIL END TREATMENT, TYPE 2
	(2002) - 6 GRADING FOR GUARDRAIL END TREATMENT, TYPE 3
B-2 (2002)	– GUARDRAIL OVER CULVERTS, TYPE 1
B-3 (2002)	– GUARDRAIL OVER CULVERTS, TYPE 2
B-4 (2001)	– CURVED GUARDRAIL SECTION
B-5 (2002)	– END ANCHORAGE
B-6	– BURIED END SECTION
	(2002) - 1 BURIED END SECTION
	(2002) - 2 BURRIED END SECTION
	(2002) - 3 POST, CONCRETE BLOCK, & RUBRAIL ANCHOR DETAILS
B-7	– GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1
	(2002) - 1 PLAN, ELEVATION, AND SECTIONS
	(2001) - 2 WOOD BLOCKOUT, RUB RAIL WOOD BLOCKS, BEARING PLATE, RUB RAIL TO BARRIER CONNECTION DETAILS
	(2001) - 3 BENT PLATE RUB RAIL DETAILS
B-8	– GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2
	(2002) - 1 PLAN, ELEVATION, AND SECTIONS
	(2001) - 2 NOTES, BENT RAIL DETAILS, BLOCK SCHEDULE
B-9 (2002)	– GUARDRAIL TO BARRIER CONNECTION, EXIT TYPE
B-10 (2002)	– BRIDGE RAIL RETROFIT, TYPE 1
B-11	– BRIDGE RAIL RETROFIT, TYPE 2
	(2002) - 1 PLAN, SECTION A-A, BASE PLATE DETAIL
	(2001) - 2 BASE PLATE DETAIL AND STEEL GUARDRAIL POST
B-12 (2001)	– BRIDGE RAIL RETROFIT, TYPE 3
B-13	– HARDWARE
	(2004) - 1 W-BEAM DETAILS
	(2004) - 2 W-BEAM STEEL POST AND OFFSET BLOCK
	(2004) - 3 W-BEAM TERMINAL CONNECTOR
	(2004) - 4 THRIE BEAM DETAILS
	(2004) - 5 THRIE BEAM STEEL POST AND OFFSET BLOCK
	(2004) - 6 W-THRIE BEAM TRANSITION SECTION
	(2004) - 7 WOOD BLOCK, SOIL PLATE, SHORT WOOD BREAKAWAY POST, STEEL TUBE, LONG WOOD BREAKAWAY POST
	(2004) - 8 SWAGED CABLE AND RELATED HARDWARE ASSEMBLY
	(2004) - 9 REFLECTORIZED WASHER AND BEARING PLATE DETAIL
	(2004) - 10 GUARDRAIL BOLT & RECESSED NUT
	(2004) - 11 5/8" (16) HEX BOLT, HEX NUT, & STEEL WASHER, HIGH-STRENGTH STRUCTURAL HEX BOLT & HEX NUT
	(2004) - 12 15/16" (24) HEX NUT & STEEL WASHER, 5/8" (16) CARRIAGE BOLT, HEX NUT, & STEEL WASHER
	(2004) - 13 GUARDRAIL MOUNTED RAIL •DETAIL ON HOLD•
B-14	– CONCRETE SAFETY BARRIER (F SHAPE)
	(2001) - 1 TYPICAL CAST IN PLACE OR SLIP FORM CONSTRUCTION
	(2001) - 2 TYPICAL PRE-CAST CONSTRUCTION
	(2001) - 3 SLOTTED PLATE CONNECTION DETAILS

DELAWARE
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS (2004)

SHT. 1 OF 5

09/28/2004

SECTION I - BARRIER (CONT'D)

SHEET NO.	NAME
B-15	— PORTABLE CONCRETE SAFETY BARRIER (F SHAPE)
(2001) - 1	PLAN, ELEVATION, AND SECTION VIEW •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 2	CURVE SECTION •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 3	TAPERED END SECTION •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 4	TYPICAL REINFORCEMENT DETAILS •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 4	JOINT CONNECTION DETAILS •DETAIL DELETED - SEE SPECIFICATIONS•

SECTION II - CURB & GUTTER

SHEET NO.	NAME
C-1 (2004)	— P.C.C. CURB, P.C.C. CURB & GUTTER, AND HOT-MIX CURB
C-2	— CURB RAMPS
(2004) - 1	TYPE 1
(2004) - 2	TYPES 2, 3, & 4
(2004) - 3	SECTIONS FOR TYPES 2, 3, & 4
(2004) - 4	TYPE 5
C-3 (2001)	— ENTRANCES
C-4	— CURB OPENINGS
(2001) - 1	TYPES A, B, & C
(2001) - 2	TYPES D & E
(2001) - 3	TYPES F & G

SECTION III - DRAINAGE

SHEET NO.	NAME
D-1	— 6:1 SAFETY END STRUCTURE
(2001) - 1	DETAIL VIEWS
(2001) - 2	SCHEDULES
D-2	— 10:1 SAFETY END STRUCTURE
(2001) - 1	DETAIL VIEWS
(2001) - 2	SCHEDULES
D-3 (2001)	— SAFETY END STRUCTURE GRATE
D-4 (2002)	— INLET BOX DETAILS
D-5	— DRAINAGE INLET DETAILS
(2002) - 1	DRAINAGE INLET ASSEMBLY
(2002) - 2	DRAINAGE INLET FRAME AND GRATES
(2004) - 3	DRAINAGE INLET TOP UNITS
(2002) - 4	DRAINAGE INLET COVER SLAB DETAILS
(2002) - 5	DOUBLE INLET COVER SLAB DETAILS
(2004) - 6	DRAINAGE INLET 34" (865) x 24" (610) DETAILS
(2002) - 7	DRAINAGE INLET 34" (865) x 18" (455) DETAILS
(2002) - 8	LAWN INLET DETAIL

SECTION III - DRAINAGE (CONT'D)

SHEET NO.	NAME
D-6	— MANHOLE DETAILS
(2001) - 1	BOX MANHOLE ASSEMBLY
(2001) - 2	ROUND MANHOLE ASSEMBLY
(2001) - 3	MANHOLE FRAME AND COVER
(2002) - 4	BOX MANHOLE COVER SLAB
D-7	— JUNCTION BOX DETAILS
(2002) - 1	JUNCTION BOX ASSEMBLY
(2002) - 2	JUNCTION BOX COVER SLAB
D-8 (2001)	— PIPE BEDDING
D-9 (2004)	— PERFORATED PIPE UNDERDRAIN

SECTION IV - EROSION

SHEET NO.	NAME
E-1 (2001)	— INCREMENTAL STABILIZATION
E-2 (2001)	— SILT FENCE
E-3 (2001)	— DRAINAGE INLET SEDIMENT CONTROL
E-4 (2001)	— CURB INLET SEDIMENT CONTROL
E-5 (2001)	— STONE CHECK DAM
E-6 (2001)	— SEDIMENT TRAP
E-7 (2001)	— SEDIMENT TRAP, USING DRAINAGE INLET AS OUTLET
E-8	— RISER PIPE ASSEMBLY FOR SEDIMENT TRAP
(2001) - 1	ELEVATION
(2001) - 2	TRASH HOOD DETAILS
E-9 (2001)	— EROSION CONTROL BLANKET APPLICATIONS
E-10 (2001)	— RIPRAP DITCH
E-11 (2001)	— TEMPORARY SWALE
E-12 (2001)	— PERIMETER DIKE/SWALE
E-13 (2001)	— EARTH DIKE
E-14 (2001)	— TEMPORARY SLOPE DRAIN
E-15 (2001)	— STILLING WELL
E-16 (2001)	— SUMP PIT, TYPE 1& 2
E-17 (2001)	— DEWATERING BASIN
E-18 (2001)	— GEOTEXTILE-LINED CHANNEL DIVERSION
E-19 (2001)	— SANDBAG DIVERSION
E-20 (2001)	— SANDBAG DIKE
E-21 (2001)	— STABILIZED CONSTRUCTION ENTRANCE
E-22 (2001)	— SKIMMER DEWATERING DEVICE
E-23	— TURBIDITY CURTAIN
(2001) - 1	FLOATING TURBIDITY CURTAIN
(2001) - 2	STAKED TURBIDITY CURTAIN
E-24 (2001)	— PORTABLE SEDIMENT TANK
E-25 (2001)	— TURF REINFORCEMENT MAT APPLICATIONS

SECTION V - MISCELLANEOUS

SHEET NO.	NAME
M-1 (2001)	— RIGHT-OF-WAY FENCE
M-2 (2001)	— CONCRETE MONUMENT
M-3 (2004)	— REMOVABLE BOLLARD
M-4 (2004)	— BIKE RACK
M-5 (2004)	— WOOD RAIL FENCE
M-6 (2004)	— PATTERNED HOT-MIX OR CONCRETE & BRICK PAVER

SECTION VI - PAVEMENT

SHEET NO.	NAME
P-1	— P.C.C. PAVEMENT
(2001) - 1	SLAB PLAN (WITH DOWEL AND TIE LOCATIONS)
(2004) - 2	JOINT AND SEALANT DETAILS
(2001) - 3	W BOLT, HOOK BOLT, DOWEL & TIE BAR
(2001) - 4	DOWEL SUPPORT BASKET
(2001) - 5	DOWEL & TIE BAR PLACEMENT TOLERANCES
P-2	— P.C.C. PAVEMENT PATCHING
(2001) - 1	FULL DEPTH PATCH, PLAN VIEW
(2004) - 2	FULL DEPTH PATCH, SECTION VIEWS
(2004) - 3	FULL DEPTH PATCH, SEALANT DETAILS, GROUT RETENTION DISK, AND DOWEL BAR
(2001) - 4	FULL DEPTH PATCH, DOWEL BAR PLACEMENT TOLERANCES
(2001) - 5	PARTIAL DEPTH PATCH, PLAN AND SECTION VIEWS

SECTION VII - TRAFFIC

SHEET NO.	NAME
T-1 (2002)	— CONDUIT JUNCTION WELL, TYPES 1,2, AND 3
T-2 (2002)	— CONDUIT JUNCTION WELL, TYPE 4
T-3 (2002)	— CONDUIT JUNCTION WELL, TYPE 5
T-4 (2004)	— CABINET BASES (TYPES "M" AND "P")
T-5	— POLE BASES
(2002) - 1	ROUND BASE, SQUARE BASE
(2002) - 2	TYPICAL SECTION (BASES 1, 2, 2A, 2B, 3, 3A, 3B, AND 7), TYPICAL SECTION (BASE 4), TYPICAL INSTALLATION (BASES 1, 2, 2A, 2B, 3, 3A, 3B, 4, AND 7)
(2002) - 3	TYPICAL SECTION (BASES 5 AND 6), ANCHOR BOLT DATA CHART AND DETAILS
T-6 (2002)	— SPECIAL POLE BASE
T-7 (2002)	— SIGN FOUNDATION
T-8 (2002)	— LOOP DETECTOR TO CONDUIT JUNCTION WELL CONNECTION
T-9 (2004)	— TYPE #1 LOOP DETECTOR
T-10 (2004)	— TYPE #2 LOOP DETECTOR

SECTION VII - TRAFFIC (CONT'D)

SHEET NO.	NAME
T-11	— MESSENGER WIRE ATTACHMENT
(2004) - 1	INTERMEDIATE MESSENGER WIRE ATTACHMENT ON WOOD POLES
(2004) - 2	ANGULAR INTERMEDIATE MESSENGER WIRE ATTACHMENT
T-12	— MESSENGER WIRE ATTACHMENT
(2004) - 1	SPAN WIRE ATTACHMENT BETWEEN POLES
(2004) - 2	DEAD END MESSENGER WIRE ATTACHMENT
T-13	— CONDUIT JUNCTION WELLS
(2004) - 1	TYPE 4
(2004) - 2	TYPE 7
(2004) - 3	TYPES 8 & 10
T-14	— EMERGENCY PREEMPTION RECEIVER
(2004) - 1	UPRIGHT MOUNT
(2004) - 2	INVERTED MOUNT

SCALE :

BARRIER LEGEND

ITEM NO.	DESCRIPTION
1	W-BEAM
2	W6 X 9 (W150 x 13.5) STEEL POST
3	WOOD OFFSET BLOCK
4	SPLICE - REQUIRES EIGHT(8) 5/8" (16) GUARDRAIL BOLTS (L=1 1/4" (35)) WITH RECESS NUTS, AND ONE(1) 5/8" (16) GUARDRAIL BOLT (L=10" (255)) WITH RECESS NUT.
5	W-BEAM TERMINAL CONNECTOR
6	5/8" (16) GUARDRAIL BOLT (L=1 1/4" (35)) AND RECESS NUT
7	5/8" (16) GUARDRAIL BOLT (L=10" (255)) AND RECESS NUT
8	5/8" (16) GUARDRAIL BOLT (L=10" (255)), STEEL WASHER, AND RECESS NUT
9	7/8" (22) HIGH STRENGTH STRUCTURAL HEX BOLT (L=VARIES) AND HEX NUT
10	5/8" (16) CARRIAGE BOLT (L=VARIES), STEEL WASHER, AND HEX NUT
11	BEARING PLATE

DELAWARE
DEPARTMENT OF TRANSPORTATION

BARRIER LEGEND

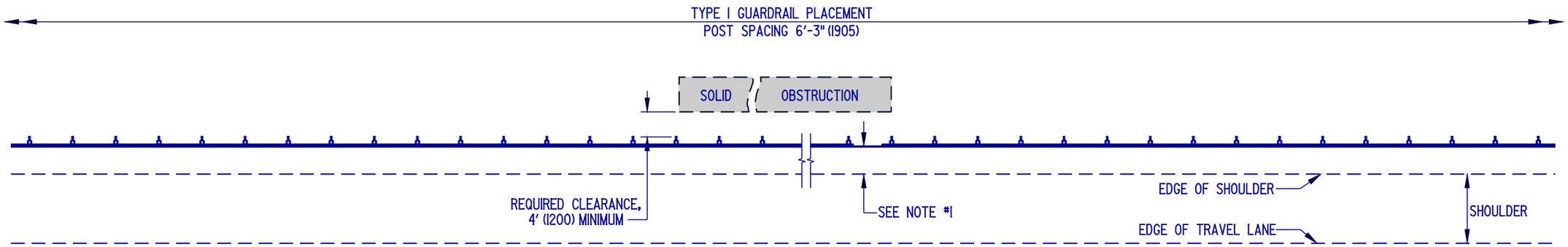
STANDARD NO. B-L (2001) SHT. 1 OF 1

APPROVED Lynne M. Hartnett CHIEF ENGINEER 6/18/01 DATE

RECOMMENDED Michael A. Hughes DESIGN ENGINEER 6/15/01 DATE

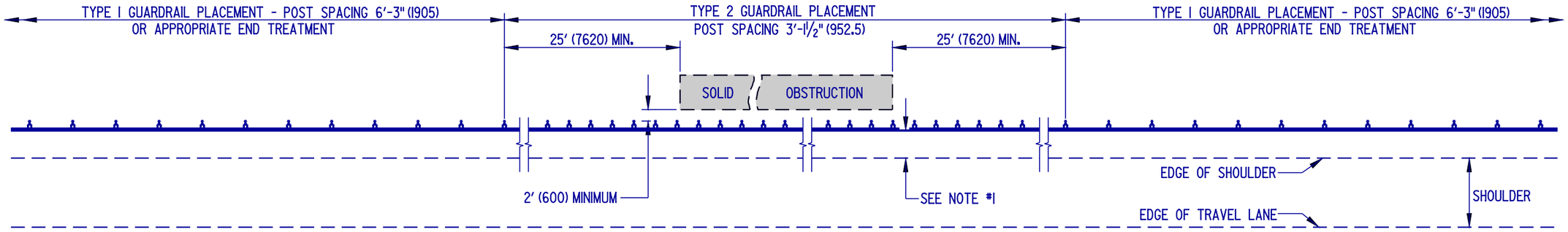
02/21/2001

SCALE : N.T.S.



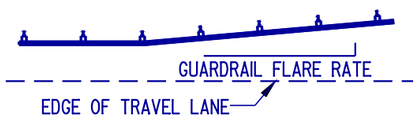
TYPE I GUARDRAIL

TYPICAL GUARDRAIL TREATMENT
WHEN THE REQUIRED 4' (1200) CLEARANCE TO OBSTRUCTION IS AVAILABLE

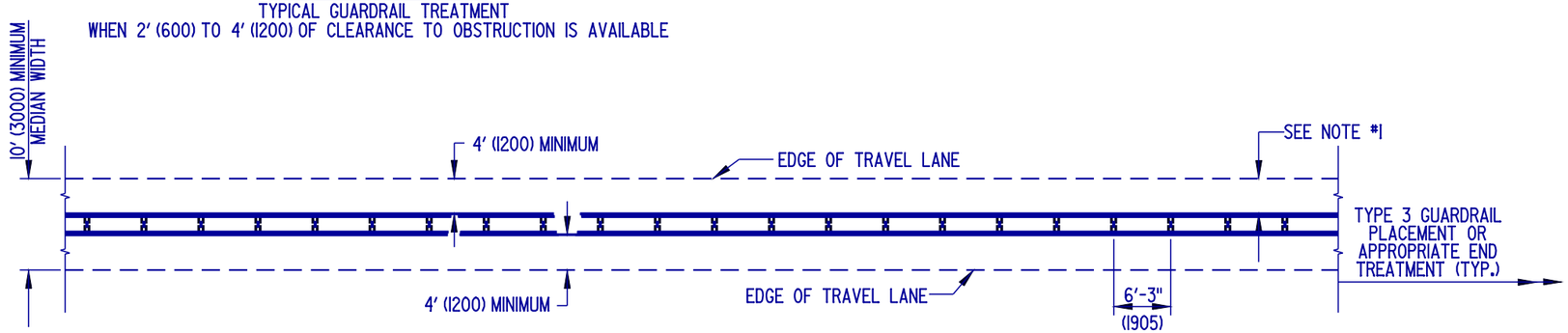


TYPE 2 GUARDRAIL

TYPICAL GUARDRAIL TREATMENT
WHEN 2' (600) TO 4' (1200) OF CLEARANCE TO OBSTRUCTION IS AVAILABLE



FLARE RATES	
DESIGN SPEED	FLARE RATE
70 MPH (110 km/h)	15:1
60 MPH (100 km/h)	14:1
55 MPH (90 km/h)	12:1
50 MPH (80 km/h)	11:1
45 MPH (70 km/h)	10:1
40 MPH (60 km/h)	9:1
30 MPH (50 km/h)	7:1



TYPE 3 GUARDRAIL

TYPICAL GUARDRAIL TREATMENT WHEN A MINIMUM OF
10' (3000) IS AVAILABLE FOR MEDIAN

NOTES : 1). THE DISTANCE FROM THE EDGE OF THE TRAVEL LANE OR SHOULDER TO THE FACE OF GUARDRAIL SHOULD BE MAXIMIZED. THIS AREA SHALL BE GRADED 10:1 OR FLATTER.

2). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.

DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL APPLICATIONS

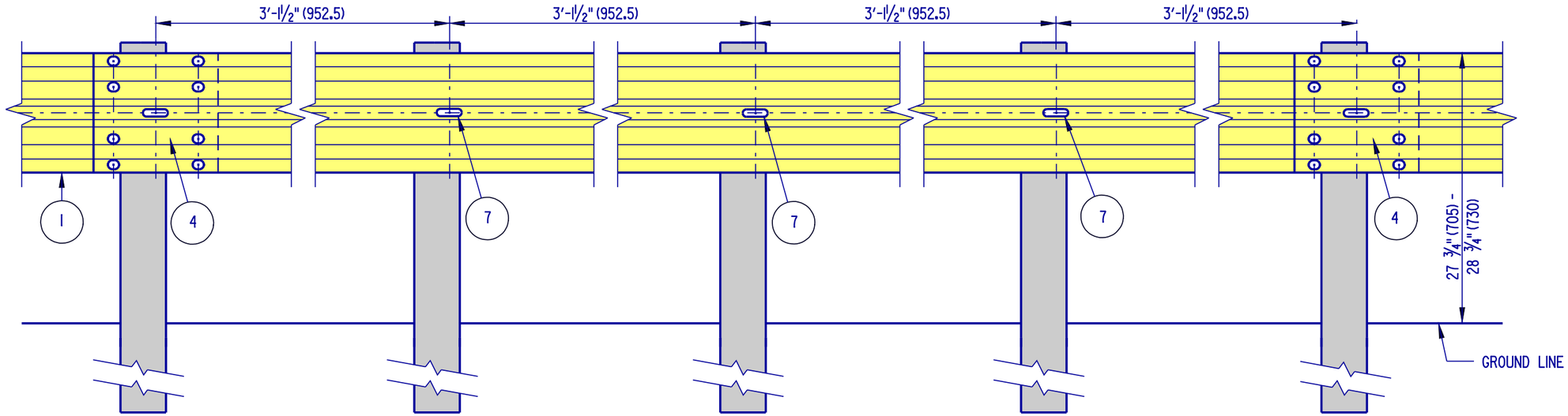
STANDARD NO. B-1 (2004) | SHT. 1 OF 6

APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE

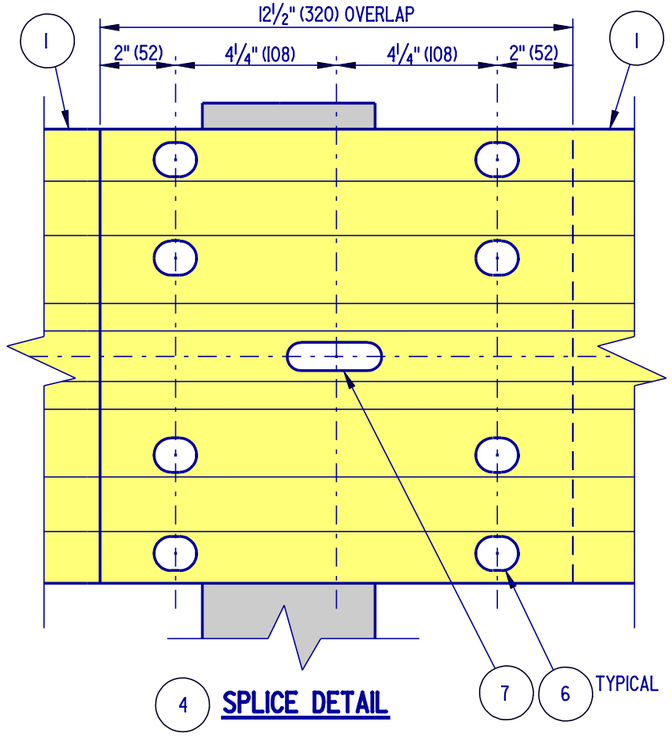
RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

12/08/2004

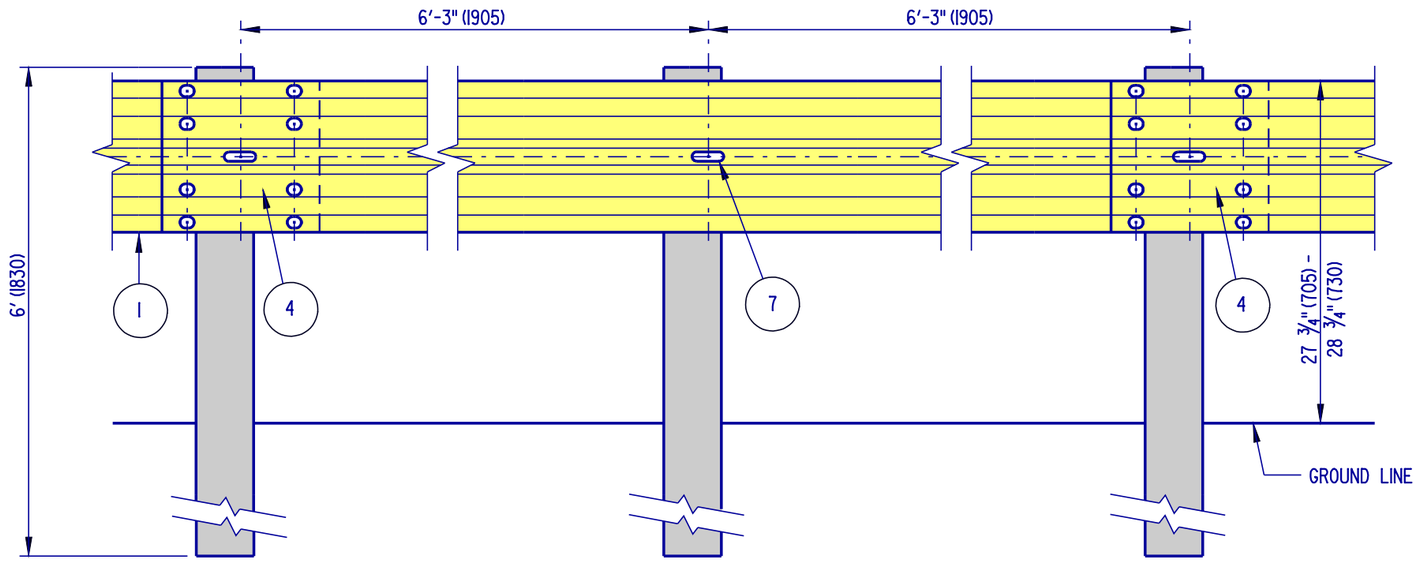
SCALE : N.T.S.



TYPE 2



4 **SPLICE DETAIL**



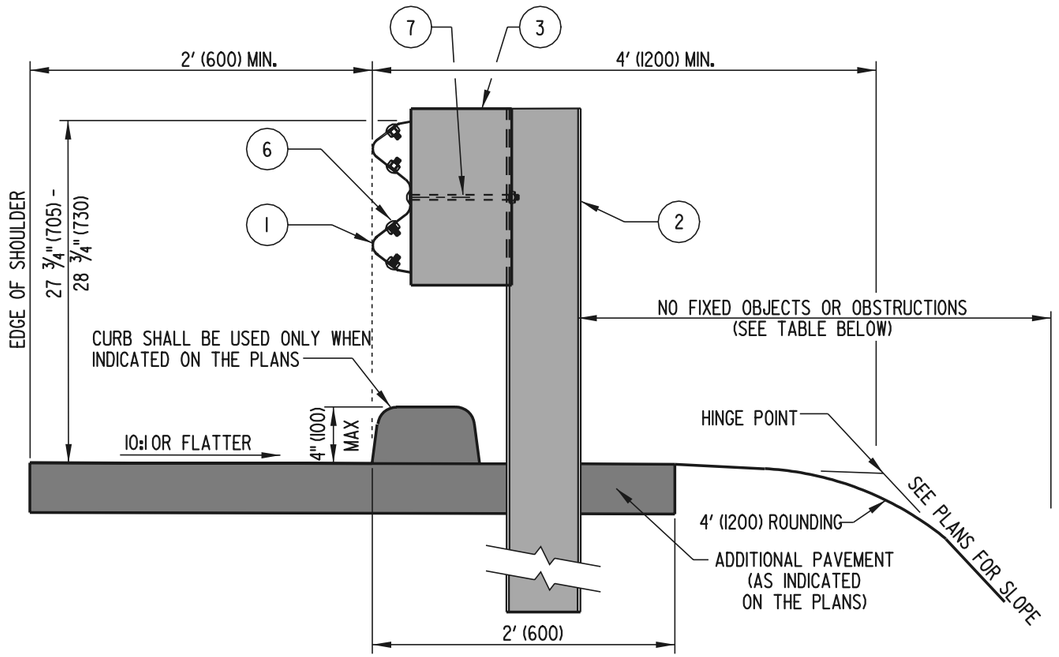
TYPE 1 OR 3

NOTE : OVERLAP W-BEAMS IN DIRECTION OF TRAVEL.

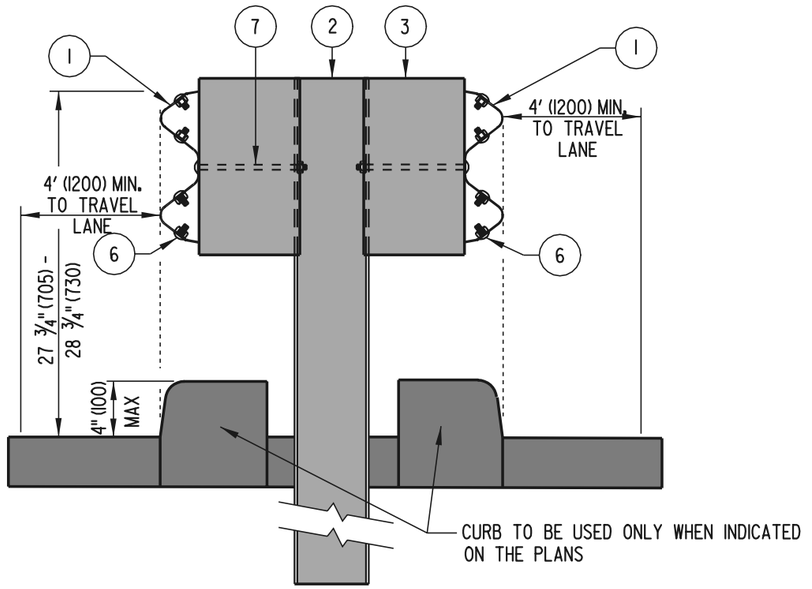
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL APPLICATIONS	APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-1 (2004) SHT. 2 OF 6	RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

08/24/2004

SCALE : N.T.S.



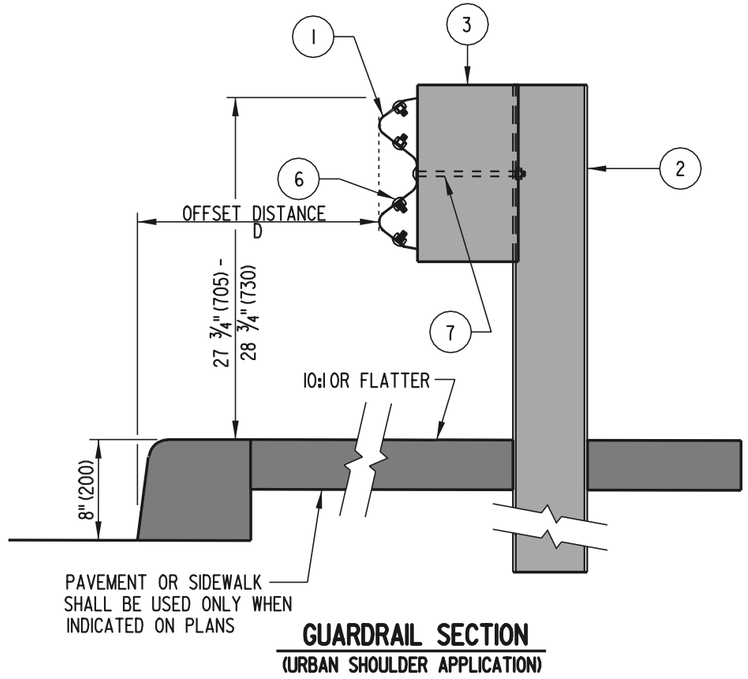
GUARDRAIL SECTION
(RURAL SHOULDER APPLICATION)



GUARDRAIL SECTION
(MEDIAN APPLICATION)

TYPE	POST SPACING	CLEAR AREA BEHIND POST
1	6' 3" (1905)	4' (1200) MIN
2	3' 1 1/2" (952.5)	2' (600) MIN

DESIGN SPEED	D
< 50 MPH (80 km/h)	6' (1800)
≥ 50 MPH (80 km/h)	10' (3000)

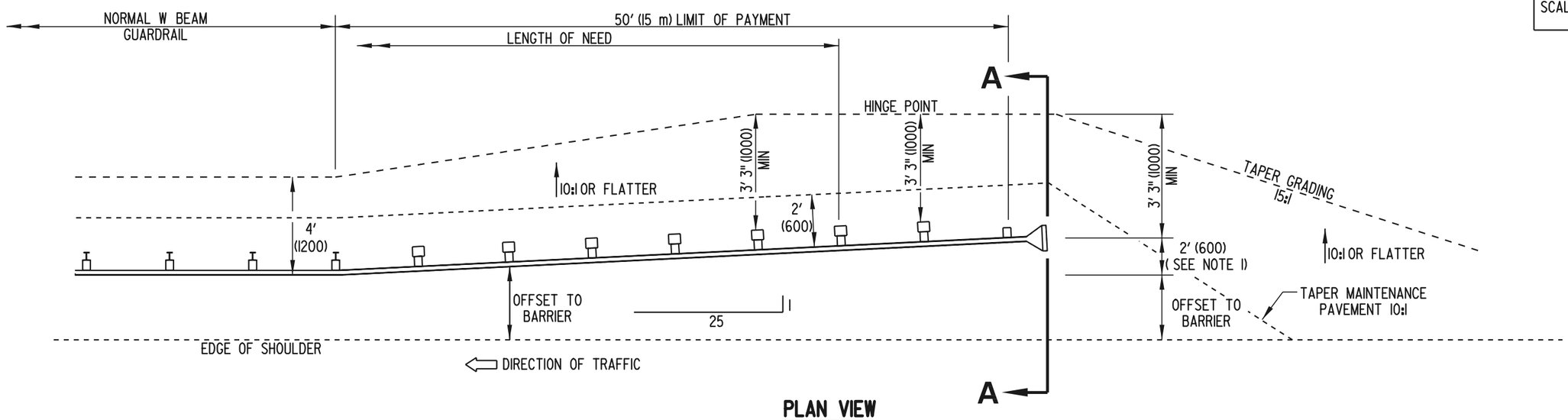


GUARDRAIL SECTION
(URBAN SHOULDER APPLICATION)

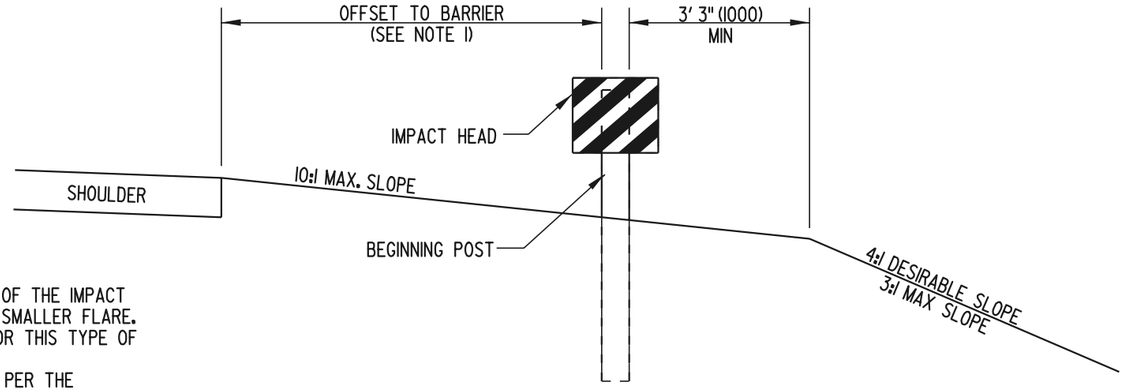
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL APPLICATIONS		
	STANDARD NO. B-1 (2002)	SHT. 3 OF 6	APPROVED Carolann Wicks CHIEF ENGINEER 9/6/02 DATE
			RECOMMENDED DESIGN ENGINEER 8/19/02 DATE

07/31/2002

SCALE :



PLAN VIEW



SECTION A-A

NOTES:

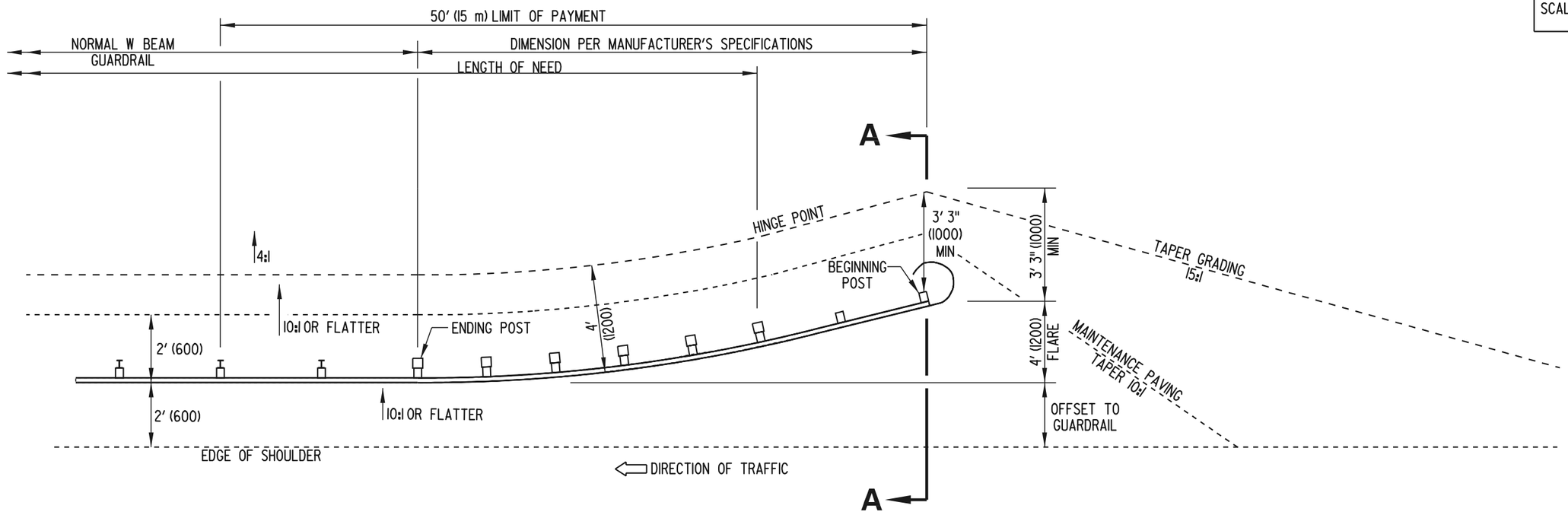
1. FLARE THE END TREATMENT AT 25:1 BEGINNING 50' (15 m) FROM THE END OF THE IMPACT HEAD, UNLESS THE CONSTRUCTION PLANS OR SPECIFICATIONS SPECIFY A SMALLER FLARE.
2. THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF ATTENUATOR.
3. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER'S AND THE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE I

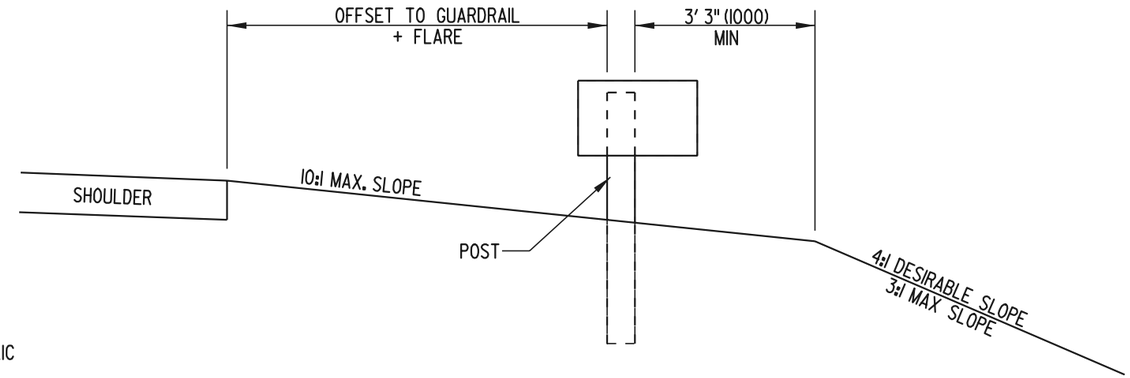
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL APPLICATIONS		APPROVED Carolann Wicks CHIEF ENGINEER 9/6/02 DATE
	STANDARD NO. B-1 (2002)	SHT. 4 OF 6	RECOMMENDED DESIGN ENGINEER 8/19/02 DATE

07/26/2002

SCALE :



PLAN VIEW



SECTION A-A

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 2

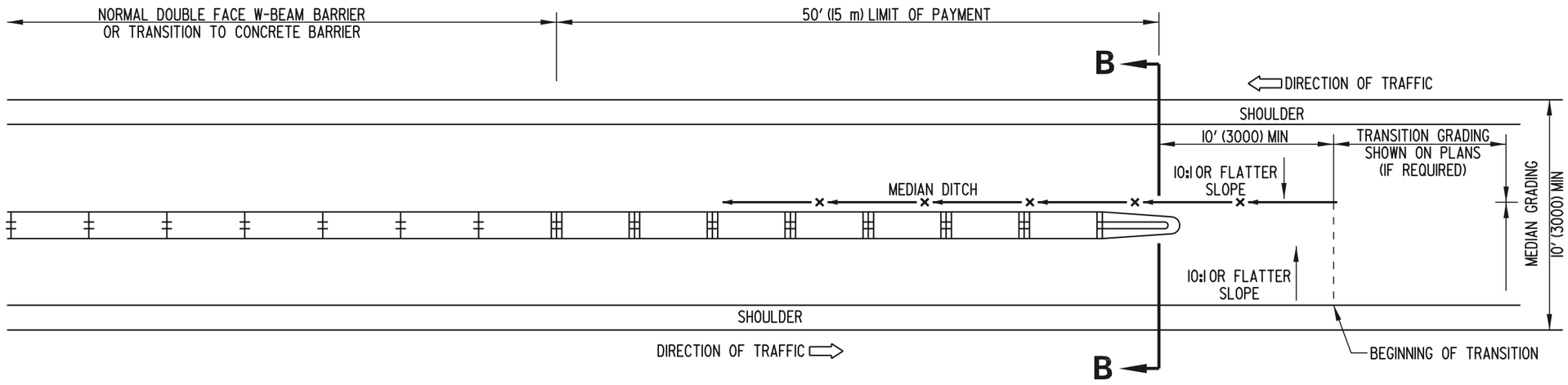
NOTES:

1. FLARE SHALL BE 4' (1200) UNLESS THE CONSTRUCTION PLANS OR SPECIFICATIONS SPECIFY A SMALLER FLARE. FLARE MAY BE PARABOLIC OR STRAIGHT BASED ON MANUFACTURE'S SPECIFICATIONS.
2. THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF ATTENUATOR. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER'S AND THE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

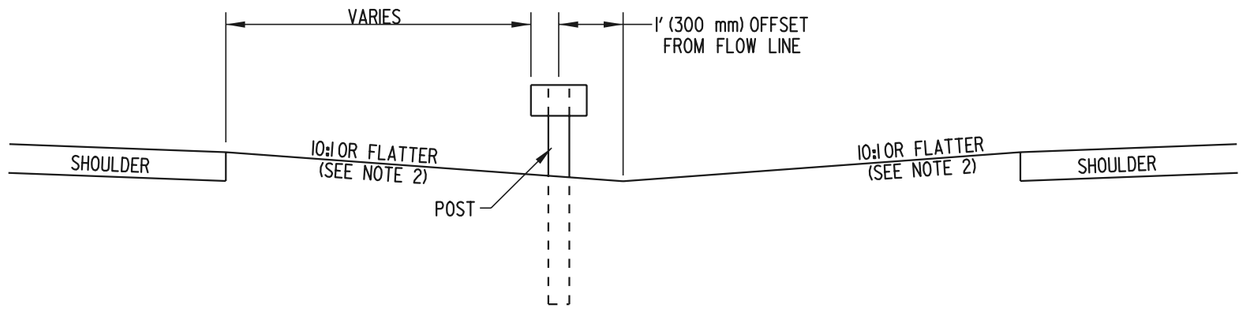
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL APPLICATIONS	APPROVED Carolann Wicks CHIEF ENGINEER 9/6/02 DATE
	STANDARD NO. B-1 (2002) SHT. 5 OF 6	RECOMMENDED Michael A. Simpson DESIGN ENGINEER 8/19/02 DATE

07/31/2002

SCALE :



PLAN VIEW



SECTION B-B

GRADING FOR END TREATMENT ATTENUATOR, TYPE 3

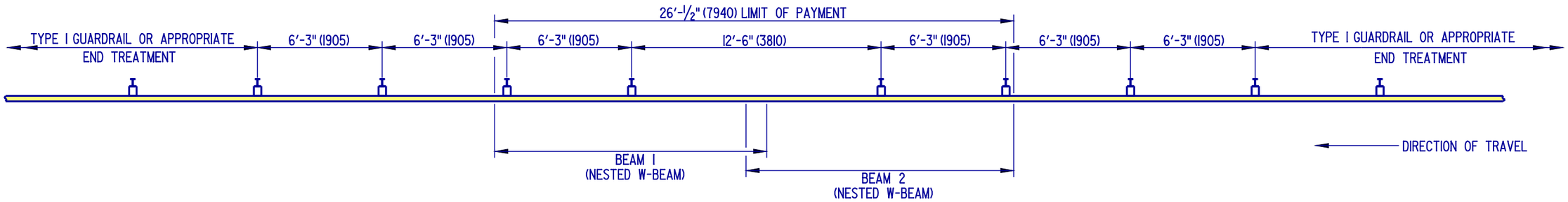
NOTES:

1. THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF ATTENUATOR.
2. 6:1 OR FLATTER GRADING IS ALLOWABLE WHEN THE BARRIER IS LOCATED 12' (3650 mm) OR MORE FROM THE OUTSIDE EDGE OF THE SHOULDER.
3. THIS END TREATMENT CAN ALSO BE USED IN RAMP GORES OR OTHER AREAS WHERE 2 RAILS OF W-BEAM COME TOGETHER AND TERMINATE WITH ONE END TREATMENT.
4. WHEN OPPOSING ROADWAYS HAVE EQUAL ELEVATIONS THE TRAFFIC BARRIER SYSTEM SHOULD BE PLACED ON THE OPPOSITE SIDE OF THE DITCH LINE FROM APPROACHING TRAFFIC.
5. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER'S AND THE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

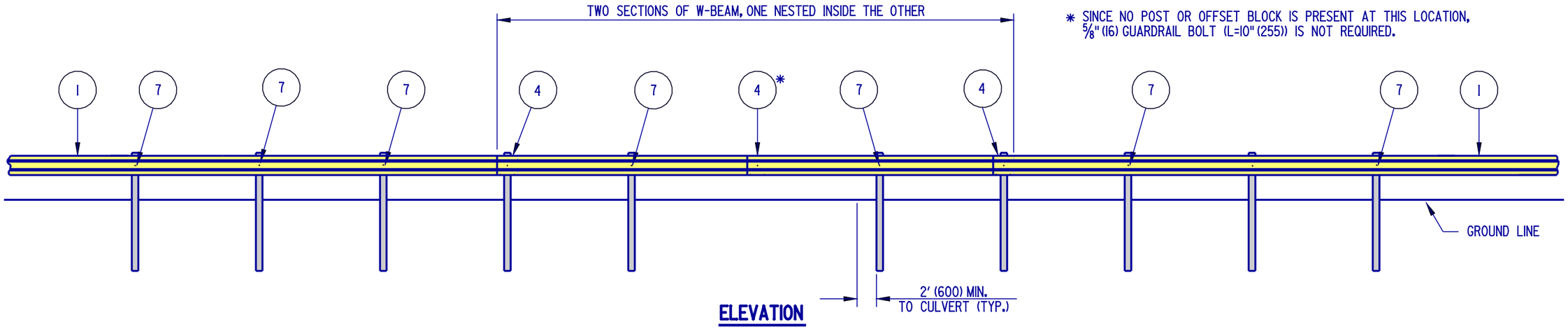
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL APPLICATIONS		APPROVED Carolann Wicks CHIEF ENGINEER 9/6/02 DATE
	STANDARD NO. B-1 (2002)	SHT. 6 OF 6	RECOMMENDED DESIGN ENGINEER 8/19/02 DATE

07/31/2002

SCALE : N.T.S.



PLAN



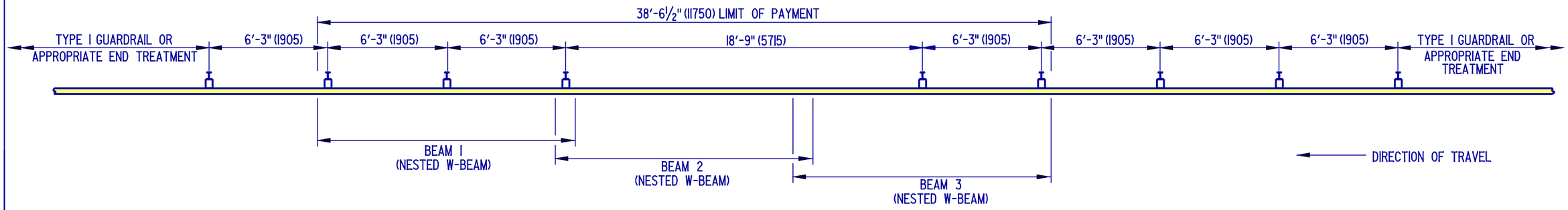
ELEVATION

NOTES :1). ALL W-BEAMS ARE 13'-6 1/2" (4130) IN LENGTH.
2). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.

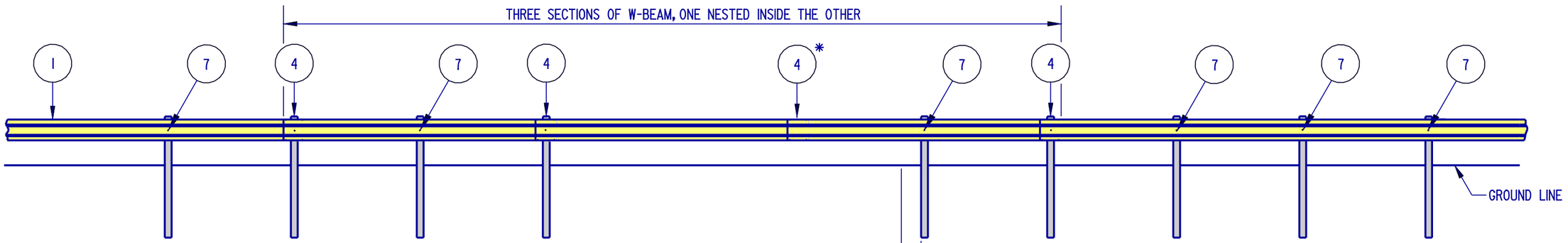
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL OVER CULVERTS, TYPE 1	APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-2 (2004) SHT. 1 OF 1	RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

12/08/2004

SCALE : N.T.S.



PLAN



ELEVATION

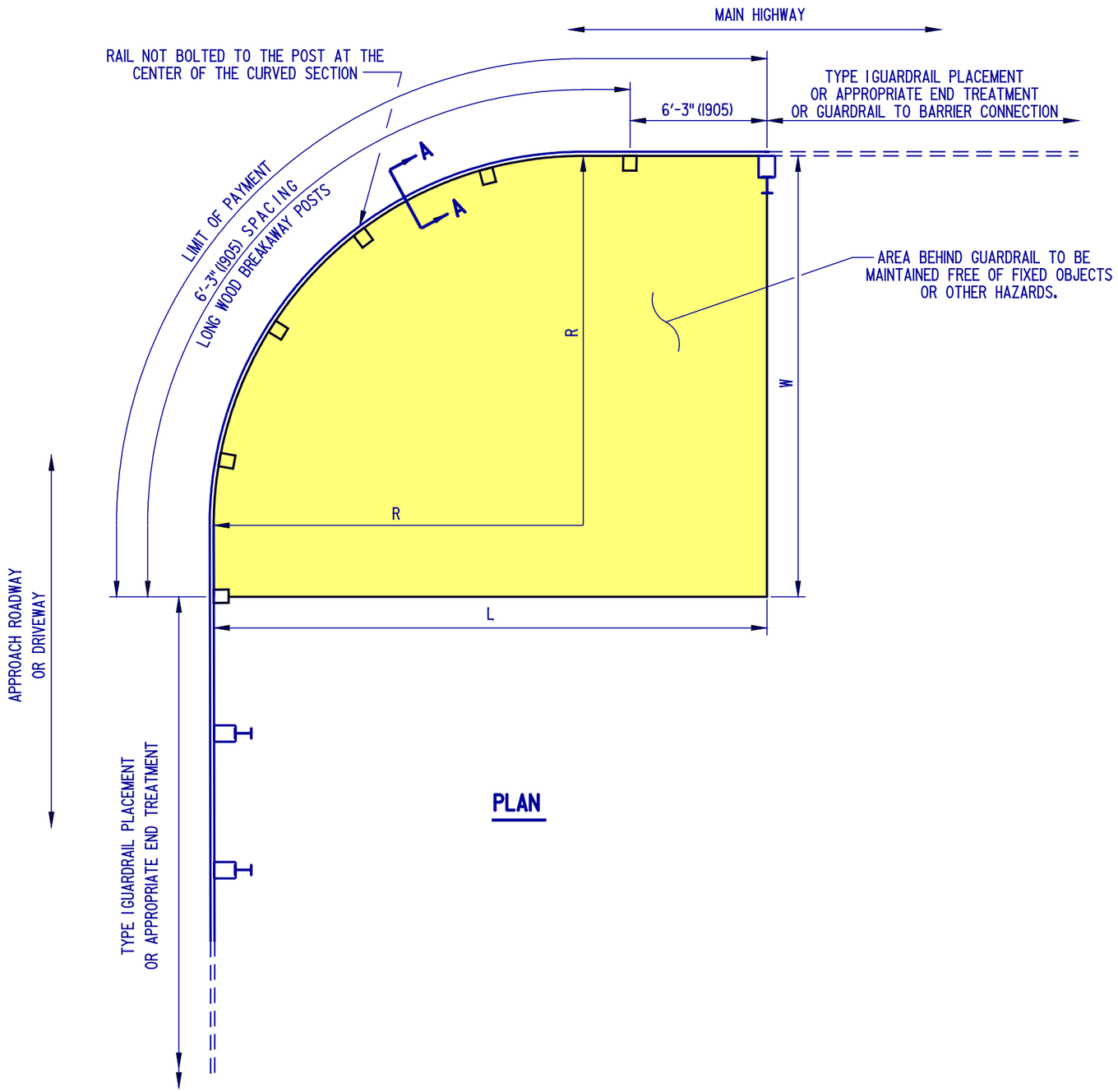
* SINCE NO POST OR OFFSET BLOCK IS PRESENT AT THIS LOCATION, ⅝" (16) GUARDRAIL BOLT (L=10" (255)) IS NOT REQUIRED.

NOTES : 1). ALL W-BEAMS ARE 13'-6½" (4130) IN LENGTH.
2). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.

DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL OVER CULVERTS, TYPE 2	APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-3 (2004) SHT. 1 OF 1	RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

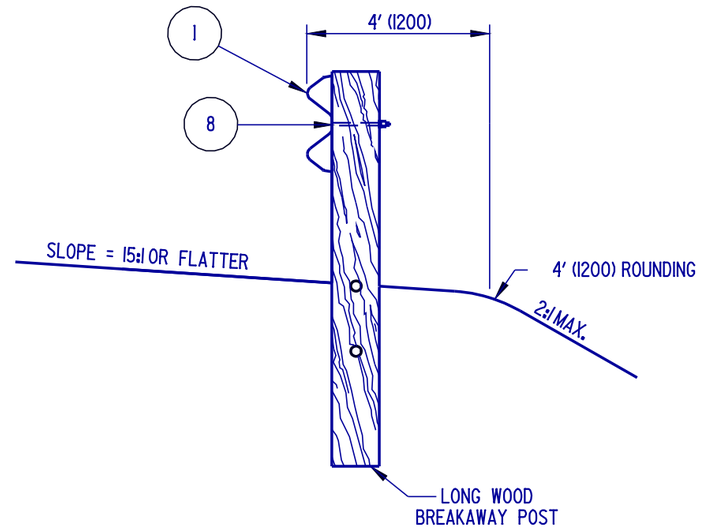
12/08/2004

SCALE : N.T.S.



PLAN

RADIUS	MIN. REQUIRED AREA FREE OF FIXED OBJECTS
	L x W
8'-6" (2600)	25' x 15' (7600 x 4500)
17'-0" (5200)	30' x 15' (9144 x 4500)
25'-6" (7800)	40' x 20' (1200 x 6000)
35'-0" (10700)	50' x 20' (15200 x 6000)



SECTION A-A

NOTES: 1). NO WASHERS ARE USED ON THE RAIL SIDE OF THE LONG WOOD BREAKAWAY POSTS.

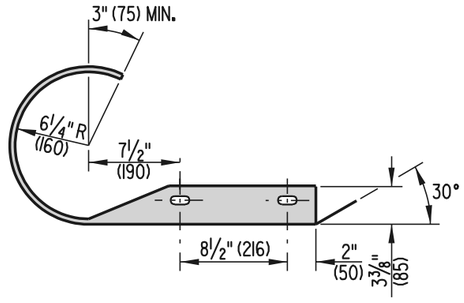
2). THE CURVED GUARDRAIL SECTION SHALL BE SHOP BENT.

3). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.

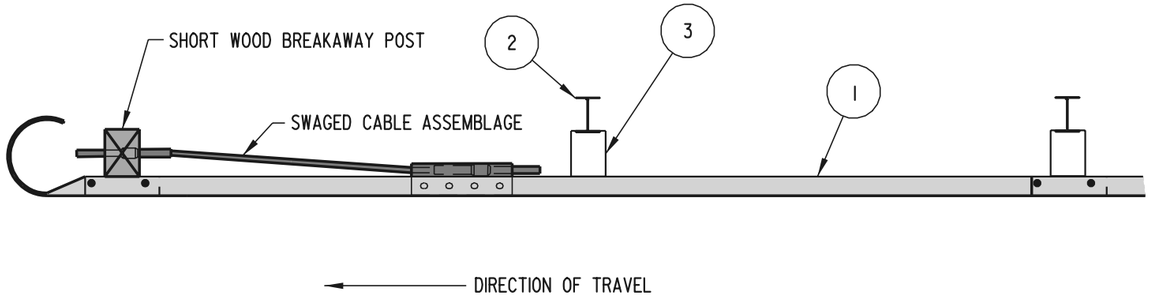
DELAWARE DEPARTMENT OF TRANSPORTATION	CURVED GUARDRAIL SECTION	APPROVED Carolann Wicks (CHIEF ENGINEER) 1/10/05 (DATE)
	STANDARD NO. B-4 (2004) SHT. 1 OF 1	RECOMMENDED Dennis M. Office (DESIGN ENGINEER) 1/3/05 (DATE)

12/08/2004

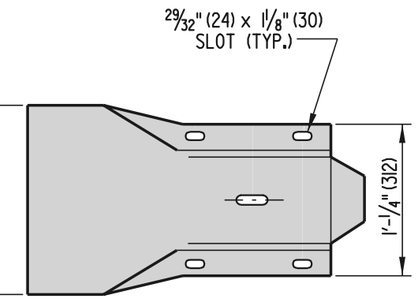
SCALE : N.T.S.



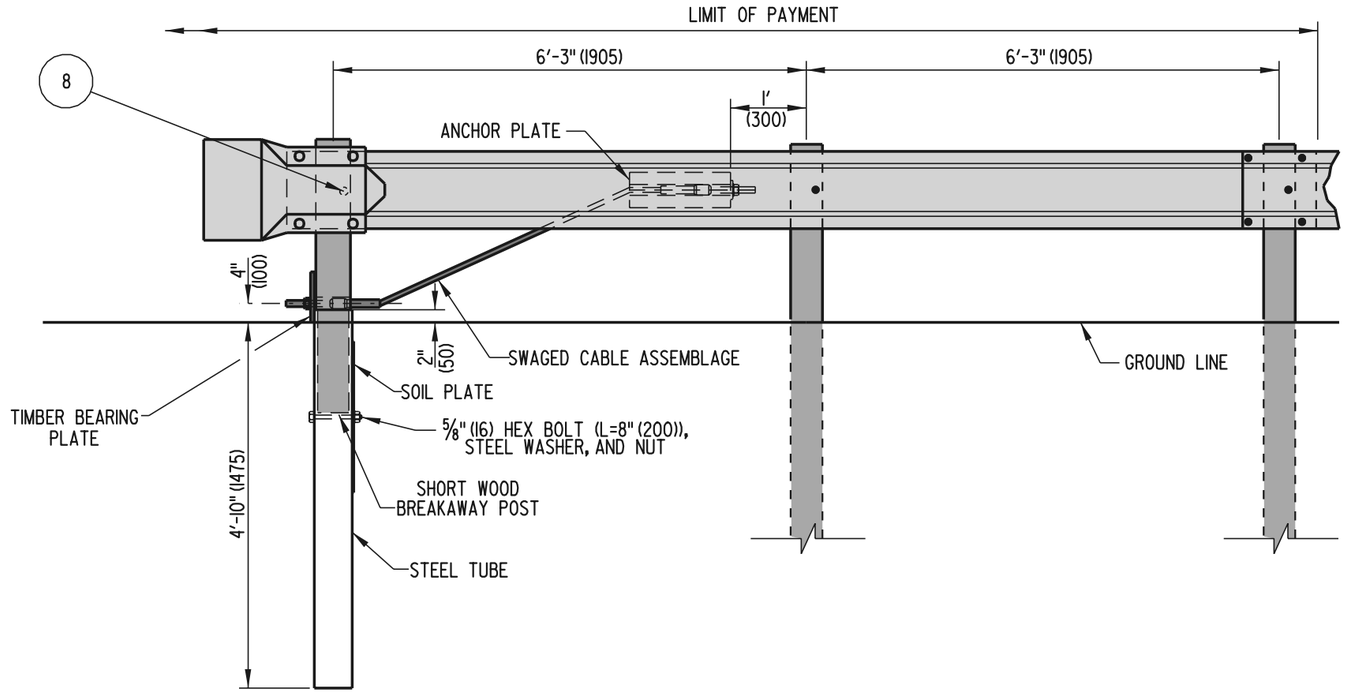
END SECTION PLAN



PLAN



END SECTION ELEVATION



ELEVATION

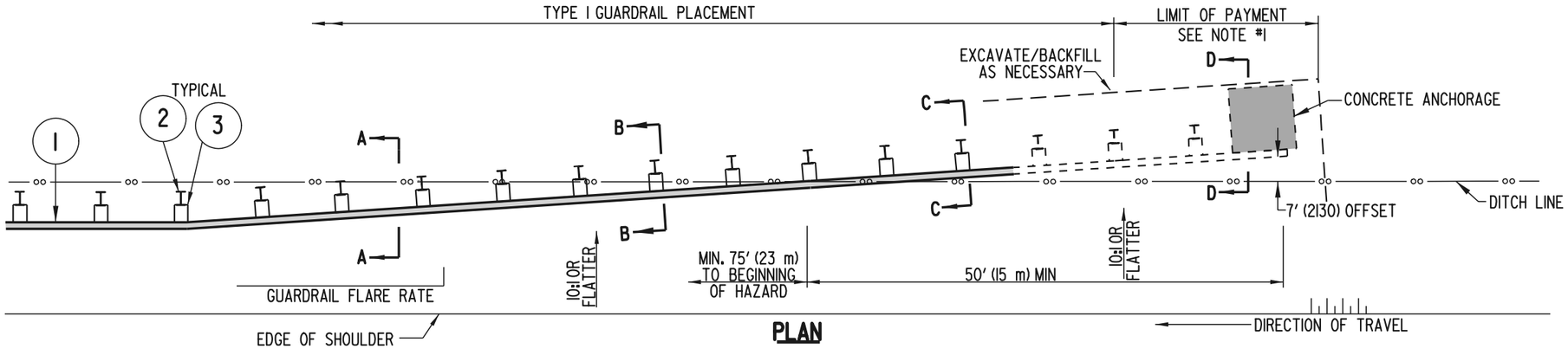
NOTES:

1. ADDITIONAL HOLES FOR ANCHOR PLATE SHALL BE DRILLED PRIOR TO GALVANIZING. (SEE STANDARD HARDWARE SHEET FOR HOLE SPACING INFORMATION).
2. CONTRACTOR HAS THE OPTION OF USING A 6' (1830) STEEL TUBE WITHOUT A SOIL PLATE OR A 5' (1525) STEEL TUBE WITH A SOIL PLATE.

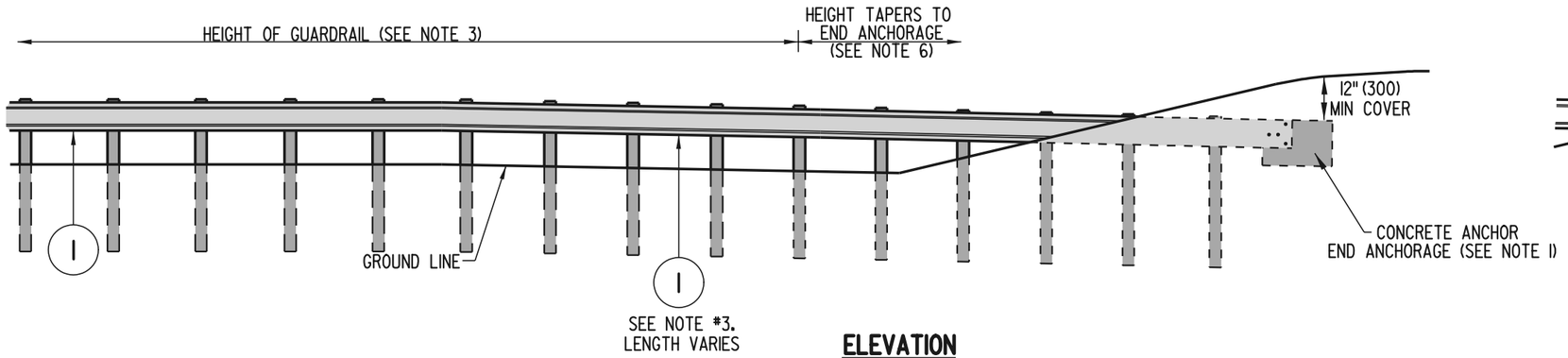
DELAWARE DEPARTMENT OF TRANSPORTATION	END ANCHORAGE		APPROVED Carolann Wicks CHIEF ENGINEER 9/6/02 DATE
	STANDARD NO. B-5 (2002)	SHT. 1 OF 1	RECOMMENDED DESIGN ENGINEER 8/19/02 DATE

07/31/2002

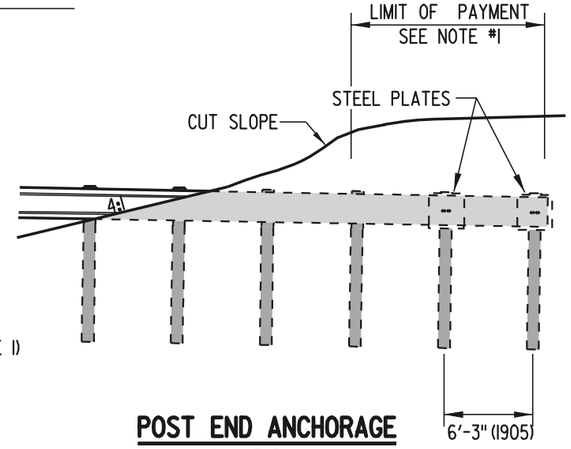
SCALE : N.T.S.



PLAN

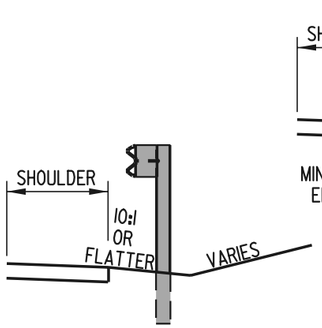


ELEVATION

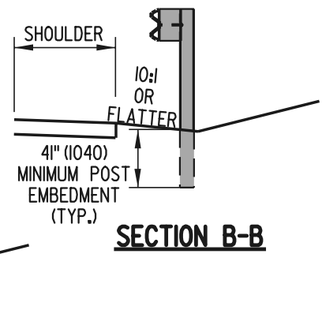


POST END ANCHORAGE
(SINGLE RAIL)

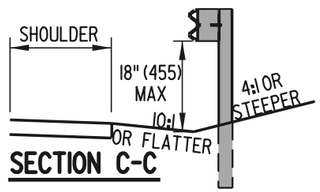
FLARE RATES	
DESIGN SPEED	FLARE RATE
70 MPH (110 km/h)	15:1
60 MPH (100 km/h)	14:1
55 MPH (90 km/h)	12:1
50 MPH (80 km/h)	11:1
45 MPH (70 km/h)	10:1
40 MPH (60 km/h)	9:1
30 MPH (50 km/h)	7:1



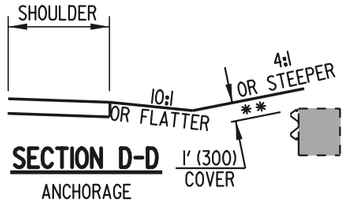
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D
ANCHORAGE

** 1' (300) BURIAL IS NOT REQUIRED WHEN ANCHORING IN ROCK.

NOTES:

1). BURIED END SECTION PAYMENT INCLUDES THE CONCRETE OR POST ANCHORAGE, EXCAVATION, BACKFILL, AND ALL APPLICABLE ITEMS INCLUDING LABOR NECESSARY TO COMPLETE END ANCHORAGE.
2). THE CONTRACTOR HAS THE OPTION OF USING EITHER A CONCRETE BLOCK ANCHOR OR A POST ANCHOR TO TERMINATE THE BURIED END SECTION.
3). WHEN PLACING GUARDRAIL ON A 10:1 OR FLATTER SLOPE, THE HEIGHT OF THE GUARDRAIL SHALL BE HELD CONSTANT RELATIVE TO THE GROUND DIRECTLY UNDER THE FACE OF THE GUARDRAIL.
4). ALL POSTS SHALL BE 6' (1800) FOR SINGLE RAIL INSTALLATION.
5). WHEN USING THE BURIED END SECTION, THE DESIGN MUST PROVIDE A MINIMUM OF 75' (23 m) FROM WHERE THE GUARDRAIL CROSSES THE DITCH LINE TO THE BEGINNING OF THE HAZARD.
6). MAINTAIN THE FLARE OF THE GUARDRAIL UNTIL THE 12" (300) COVER HAS BEEN ATTAINED. IF THE 12" (300) COVER CANNOT BE ATTAINED BEFORE THE RAIL IS 7' (2100) BEHIND THE BOTTOM OF THE DITCH, THEN SLOPE THE GUARDRAIL FROM THE POINT WHERE IT CROSSES THE DITCH TO WHERE IT IS 7' (2100) BEHIND THE DITCH, SO THAT IT HAS 12" (300) OF COVER.

DELAWARE
DEPARTMENT OF TRANSPORTATION

BURIED END SECTION

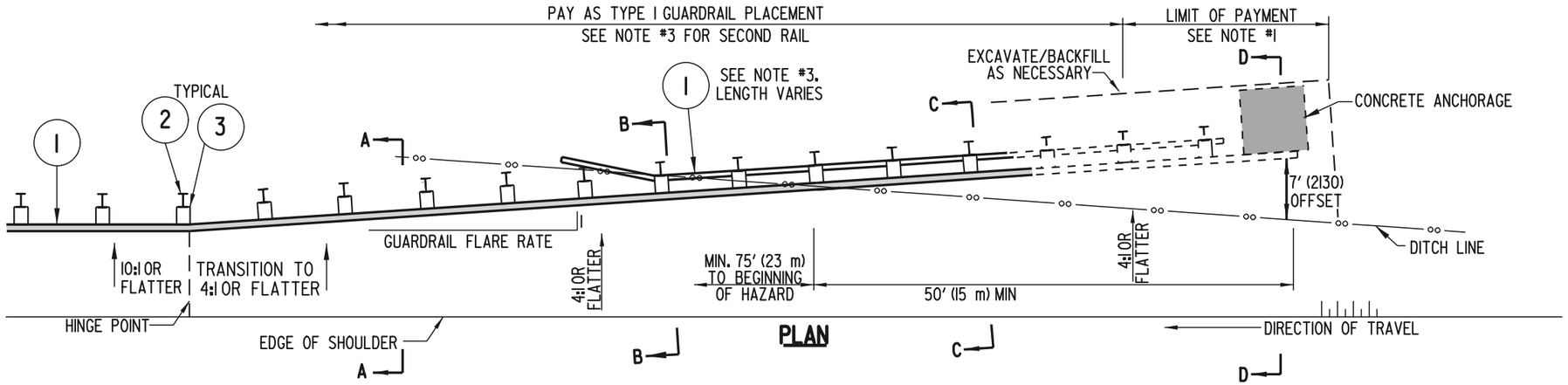
STANDARD NO. B-6 (2002) | SHT. 1 OF 3

APPROVED Carolann Wicks (CHIEF ENGINEER) 9/6/02 (DATE)

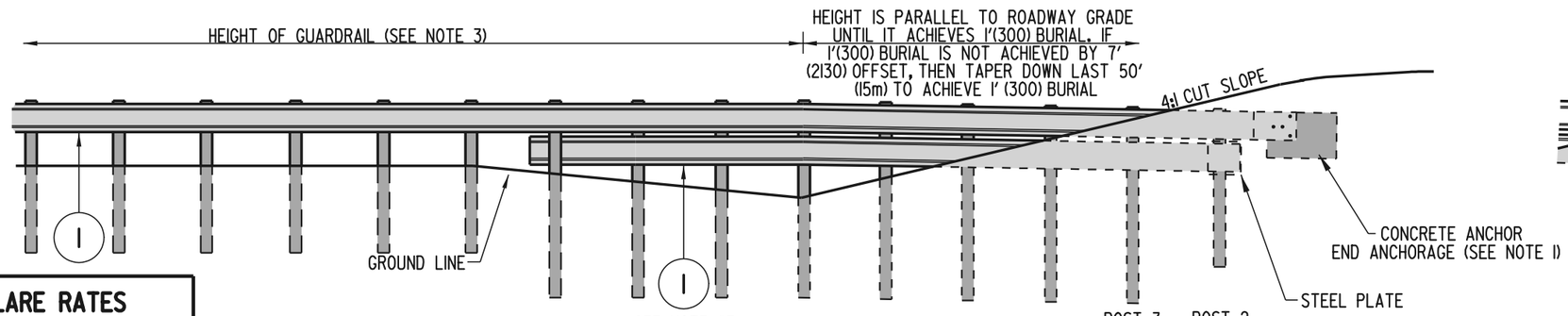
RECOMMENDED (DESIGN ENGINEER) 8/19/02 (DATE)

07/31/2002

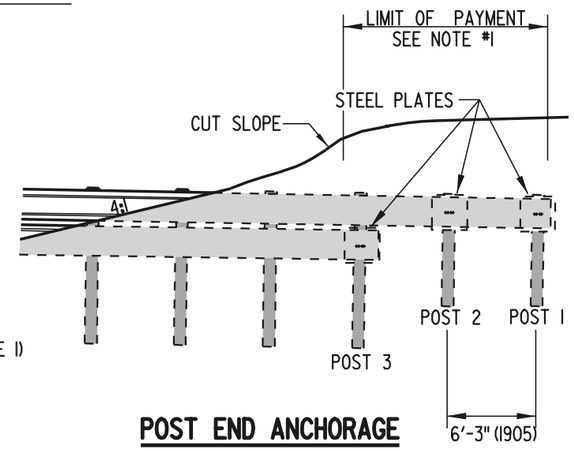
SCALE : N.T.S.



PLAN



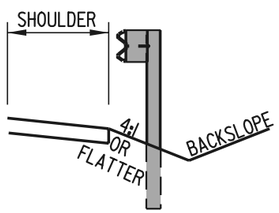
ELEVATION



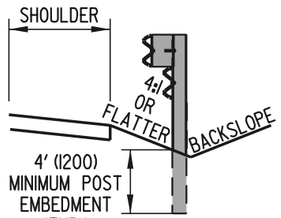
POST END ANCHORAGE

FLARE RATES

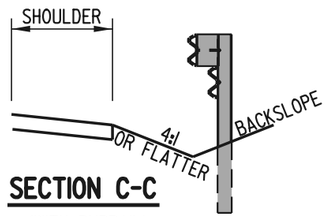
DESIGN SPEED	FLARE RATE
70 MPH (110 km/h)	15:1
60 MPH (100 km/h)	14:1
55 MPH (90 km/h)	12:1
50 MPH (80 km/h)	11:1
45 MPH (70 km/h)	10:1
40 MPH (60 km/h)	9:1
30 MPH (50 km/h)	7:1



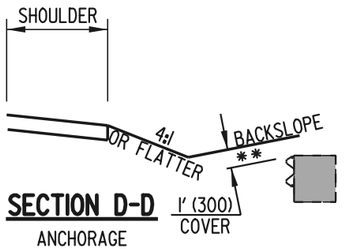
SECTION A-A



SECTION B-B
(WITH RUBRAIL)



SECTION C-C
(WITH RUBRAIL)



SECTION D-D
ANCHORAGE

** 1' (300) BURIAL IS NOT REQUIRED WHEN ANCHORING IN ROCK.

NOTES:

1). BURIED END SECTION PAYMENT INCLUDES THE CONCRETE OR POST ANCHORAGE, EXCAVATION, BACKFILL, AND ALL APPLICABLE ITEMS, INCLUDING LABOR NECESSARY TO COMPLETE END ANCHORAGE.

2). THE CONTRACTOR HAS THE OPTION OF USING EITHER A CONCRETE BLOCK ANCHOR OR A POST ANCHOR TO TERMINATE THE BURIED END SECTION.

3). THE TOP OF THE W-BEAM SHALL BE HELD CONSTANT RELATIVE TO THE ROADWAY PROFILE GRADE UNTIL IT CROSSES THE DITCH FLOW LINE. A SECOND W-BEAM RAIL IS REQUIRED WHEN THE DISTANCE BETWEEN THE GROUND AND THE BOTTOM OF THE TOP RAIL EXCEEDS 18" (450). THE MAXIMUM HEIGHT OF THE DOUBLE RAIL SYSTEM IS 45" (1150). IF NECESSARY, TAPER BOTH RAILS DOWN TO MAINTAIN MAXIMUM HEIGHT. SECOND RAIL SHALL BE PAID FOR AS ADDITIONAL LINEAR FEET (LINEAR METERS) OF TYPE I GUARDRAIL

4). WHEN USING A SECOND RAIL, 8' (2400) LONG POSTS ARE REQUIRED. BEHIND THE DITCHLINE, POSTS MUST PROVIDE 4' (1200) MINIMUM EMBEDMENT (20" (510) WHEN ROCK IS ENCOUNTERED). POSTS FOR THE POST ANCHOR SHALL BE 6' (1800) LONG.

5). WHEN USING THE BURIED END SECTION, THE DESIGN MUST PROVIDE A MINIMUM OF 75' (23 m) FROM WHERE THE GUARDRAIL CROSSES THE DITCH LINE TO THE BEGINNING OF THE HAZARD.

6). MAINTAIN THE FLARE OF THE GUARDRAIL UNTIL THE 12" (300) COVER HAS BEEN ATTAINED. IF THE 12" (300) COVER CANNOT BE ATTAINED BEFORE THE RAIL IS 7' (2100) BEHIND THE BOTTOM OF THE DITCH, THEN SLOPE THE GUARDRAIL FROM THE POINT WHERE IT CROSSES THE DITCH TO WHERE IT IS 7' (2100) BEHIND THE DITCH, SO THAT IT HAS 12" (300) OF COVER.

DELAWARE
DEPARTMENT OF TRANSPORTATION

BURIED END SECTION

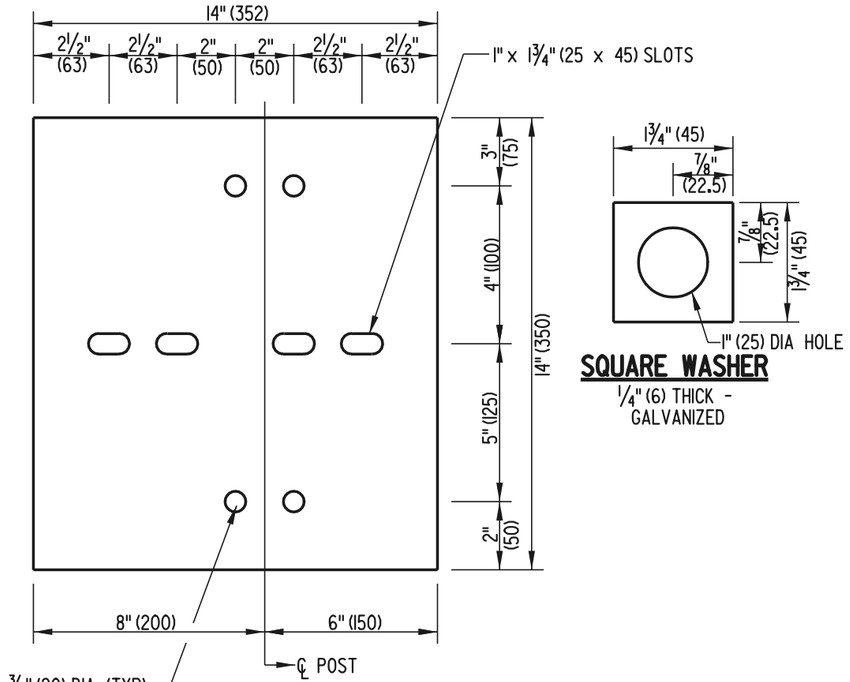
STANDARD NO. B-6 (2002) | SHT. 2 OF 3

APPROVED Carolann Wicks CHIEF ENGINEER 9/6/02 DATE

RECOMMENDED DESIGN ENGINEER 8/19/02 DATE

07/31/2002

SCALE : N.T.S.



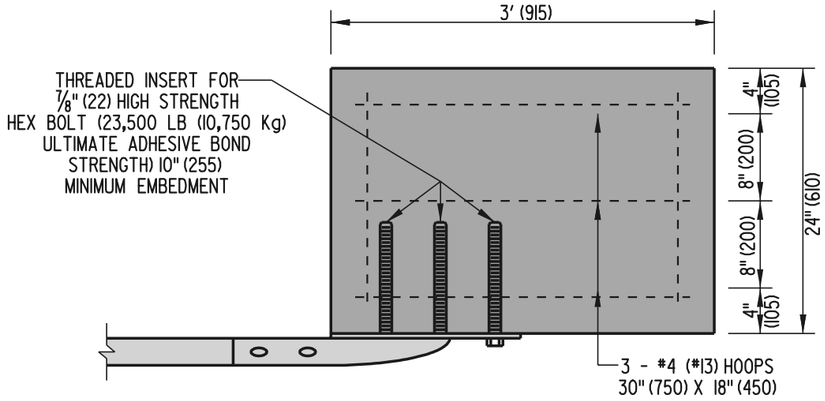
STEEL PLATE - ½" (13) THICK

GALVANIZED

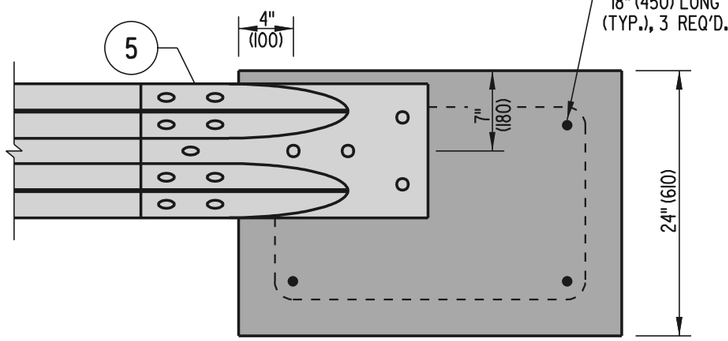
NOTE: ALL HOLES TO BE DRILLED PRIOR TO GALVANIZING.

SQUARE WASHER

¼" (6) THICK - GALVANIZED

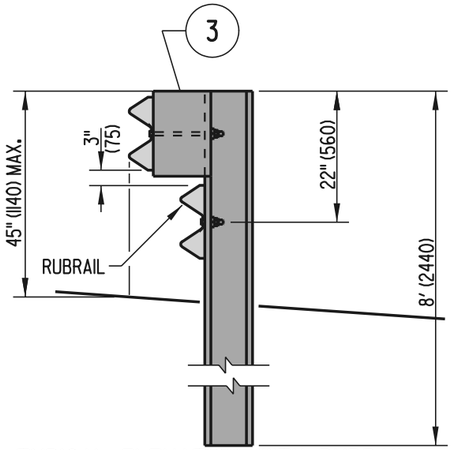


PLAN

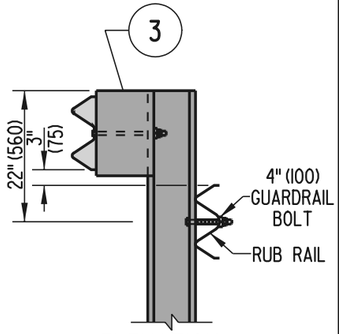


ELEVATION

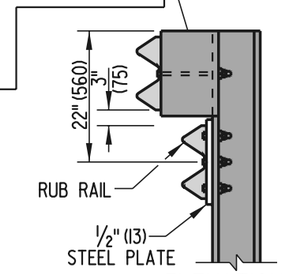
CONCRETE BLOCK ANCHOR



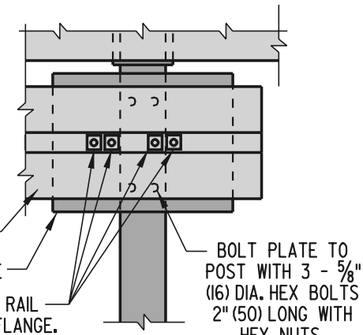
TYPICAL ELEVATION WITH RUBRAIL



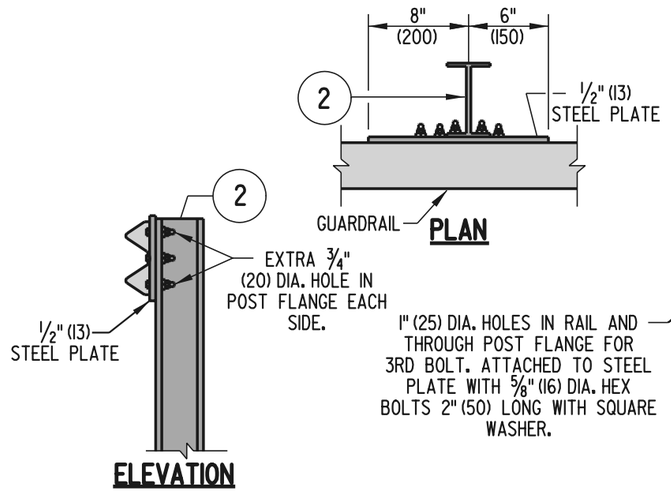
ELEVATION



ELEVATION

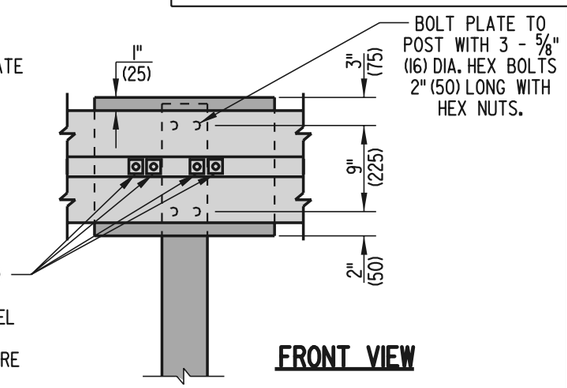


FRONT VIEW



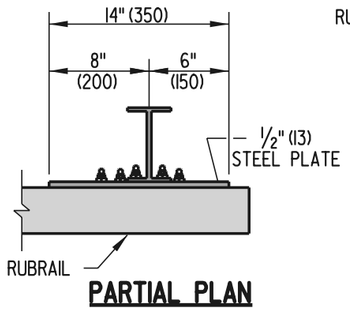
PLAN

ELEVATION



FRONT VIEW

POST ANCHOR DETAIL



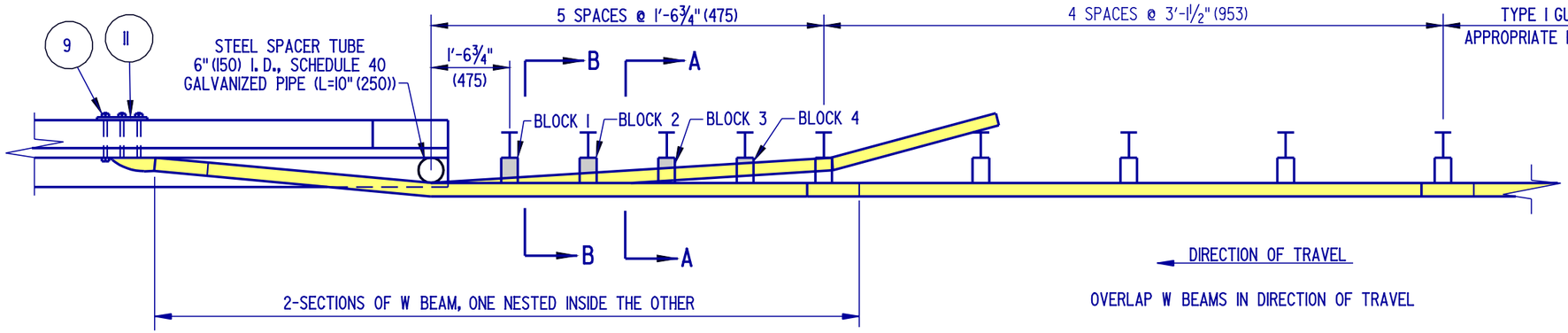
PARTIAL PLAN

RUBRAIL ANCHOR ATTACHMENT

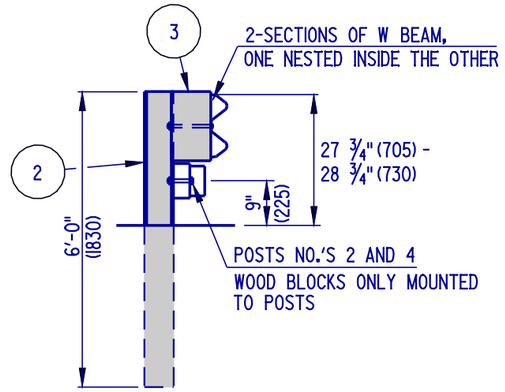
DELAWARE DEPARTMENT OF TRANSPORTATION	BURIED END SECTION		APPROVED Carolann Wicks CHIEF ENGINEER 9/6/02 DATE
	STANDARD NO. B-6 (2002)	SHT. 3 OF 3	RECOMMENDED Michael A. Simpkins DESIGN ENGINEER 8/19/02 DATE

07/31/2002

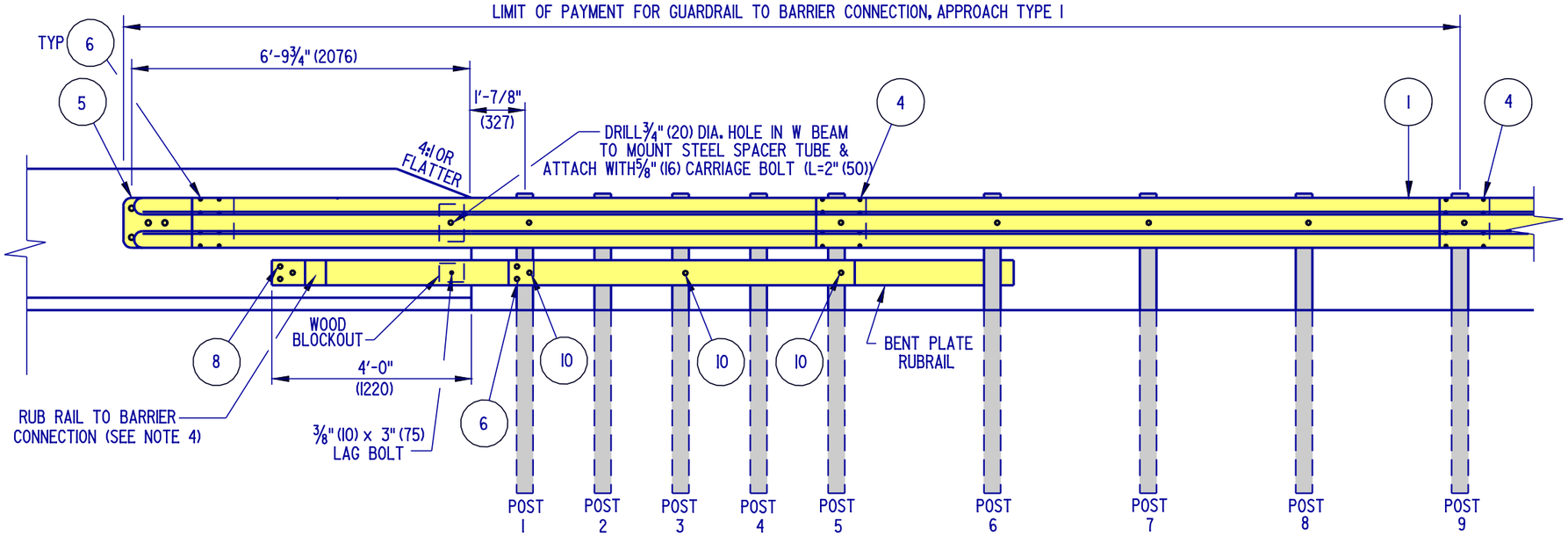
SCALE : N.T.S.



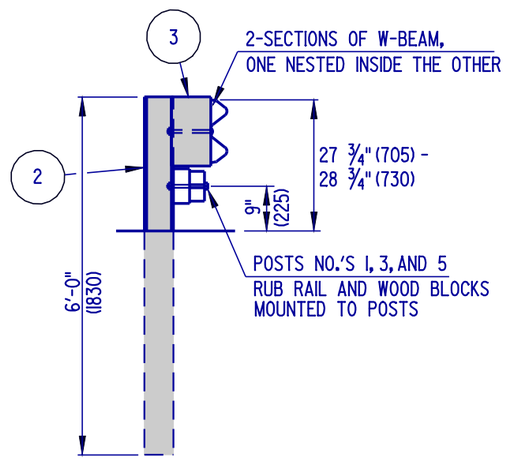
PLAN



SECTION A-A



ELEVATION



SECTION B-B

NOTES:
1). W BEAM IS NOT BOLTED TO POSTS AT POSTS 2 THROUGH 4.
2). RUB RAIL IS NOT BOLTED AT POSTS 2 AND 4.
3). POSTS 1 THROUGH 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER WOOD BLOCKS AND/OR RUBRAIL AND WOOD BLOCK.
4). USE APPROPRIATE EPOXY BOLT ANCHORS TO REDUCE THE CHANCE OF SPLITTING THE CONCRETE. PLACE STEEL WASHERS (FOR ⅝" (16) BOLT) BETWEEN BOLT HEADS AND RUB RAIL.
5). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
6). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.
7). APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTOR TO PARAPET.

DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1

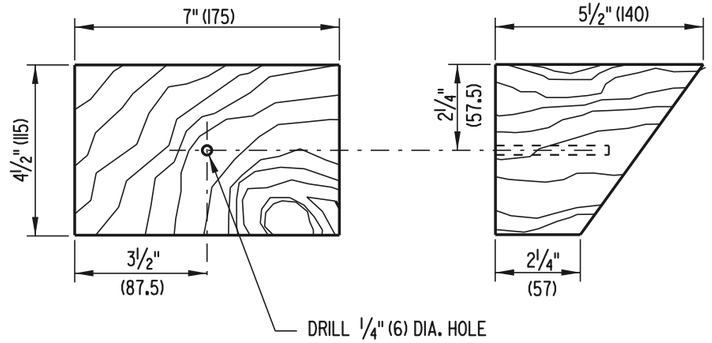
STANDARD NO. B-7 (2004) | **SHT. 1 OF 3**

APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE

RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

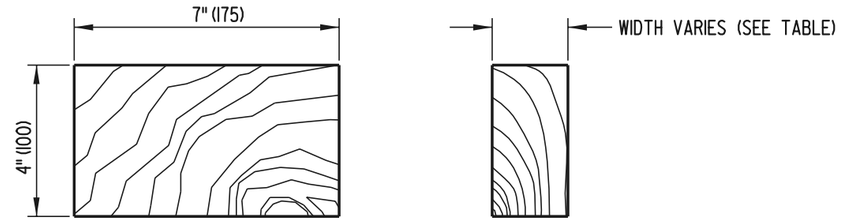
12/08/2004

SCALE : N.T.S.



ELEVATION RIGHT SIDE

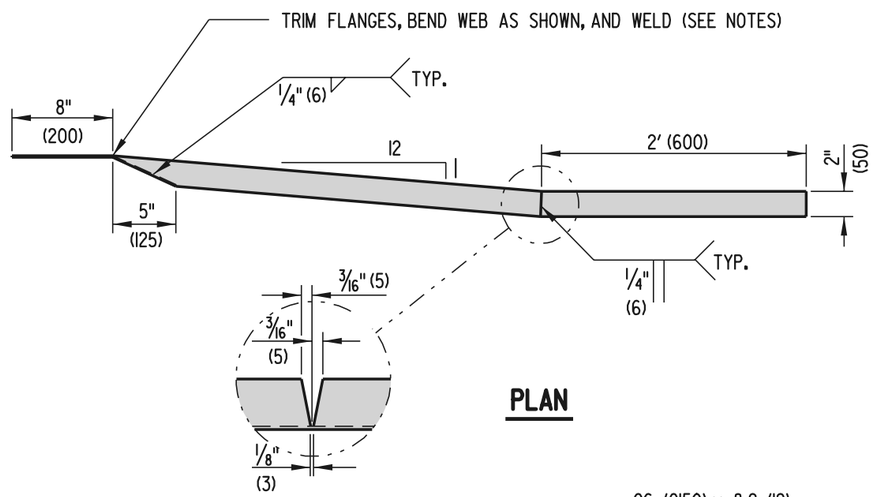
WOOD BLOCKOUT DETAIL



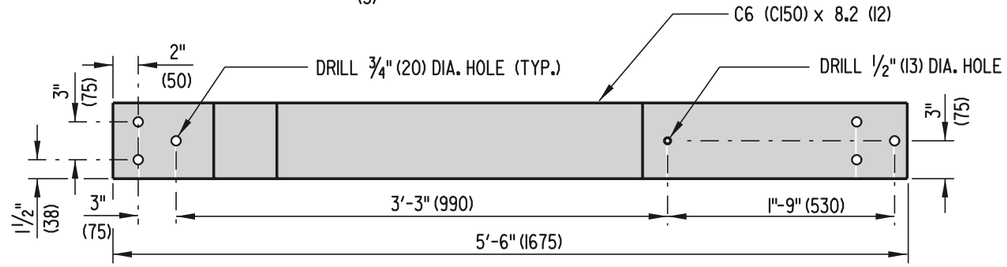
ELEVATION RIGHT SIDE

RUB RAIL WOOD BLOCKS

RUB RAIL WOOD BLOCKS (7" (175) x 4" (100))		
POST NO.	WIDTH	BOLT LENGTH
1	4¼" (108)	6" (150)
2	3¼" (83)	4" (100)
3	2" (50)	4" (100)
4	1" (25)	2" (50)



PLAN



ELEVATION

RUB RAIL TO BARRIER CONNECTION

NOTES: 1). THE RUB RAIL TO BARRIER CONNECTION END MUST BE ATTACHED FLUSH WITH THE SLOPED TOE OF THE SAFETY BARRIER. INSTALLATION CAN BE SIMPLIFIED BY FABRICATING OR SHOP TWISTING THE RUB RAIL END TO BE CONSISTENT WITH THE SLOPE OF THE BARRIER, HOWEVER, FIELD BENDING USING HEAT IS PERMITTED.

2). STEEL SPACER TUBE IS SCHEDULE 40 GALVANIZED PIPE, 6" (152) (I.D.) x 9" (229)

DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1

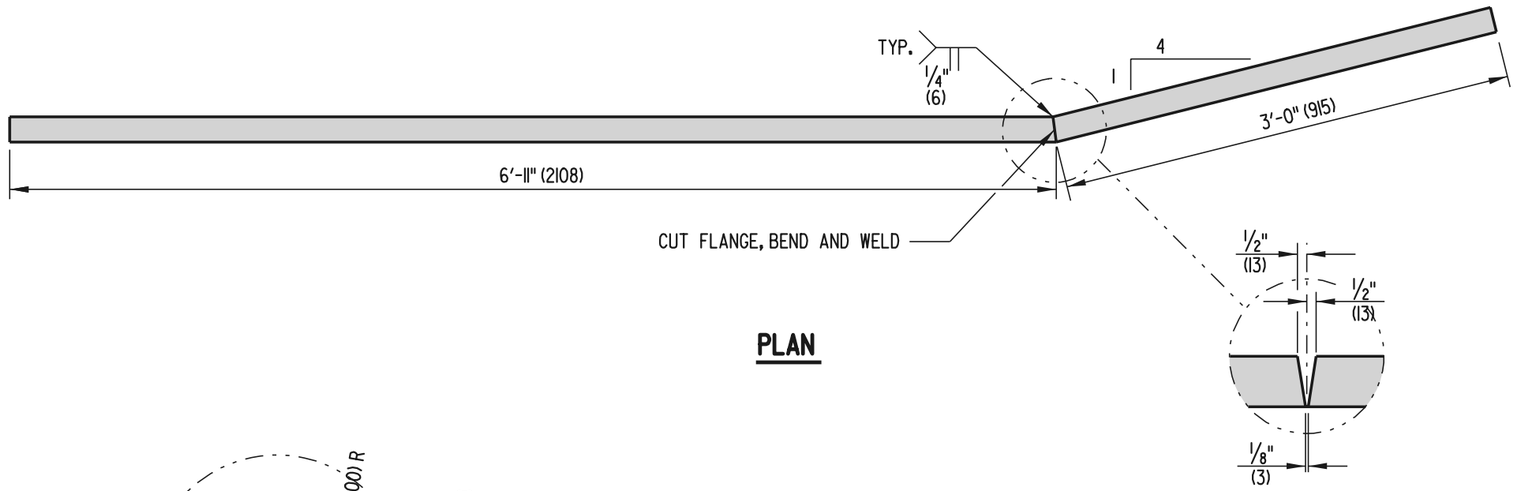
STANDARD NO. B-7 (2001) SHT. 2 OF 3

APPROVED Lyme M. Hastings CHIEF ENGINEER DATE 6/18/01

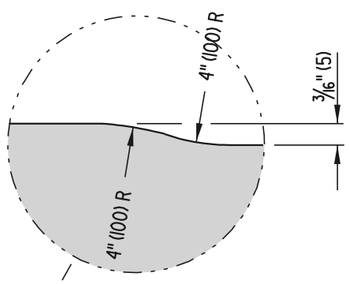
RECOMMENDED Michael A. Hopkins DESIGN ENGINEER DATE 6/15/01

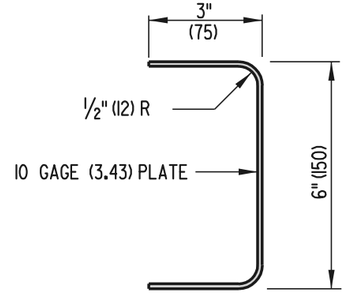
04/05/2001

SCALE : N.T.S.

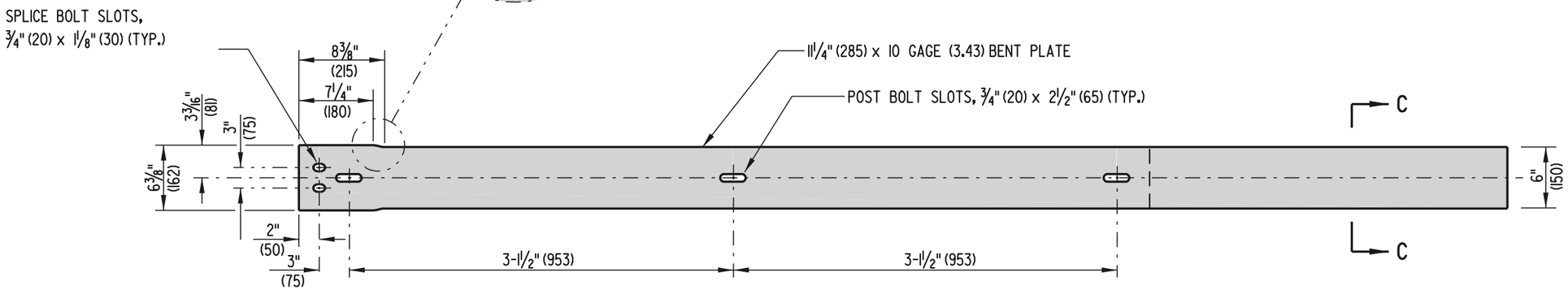


PLAN





SECTION C-C



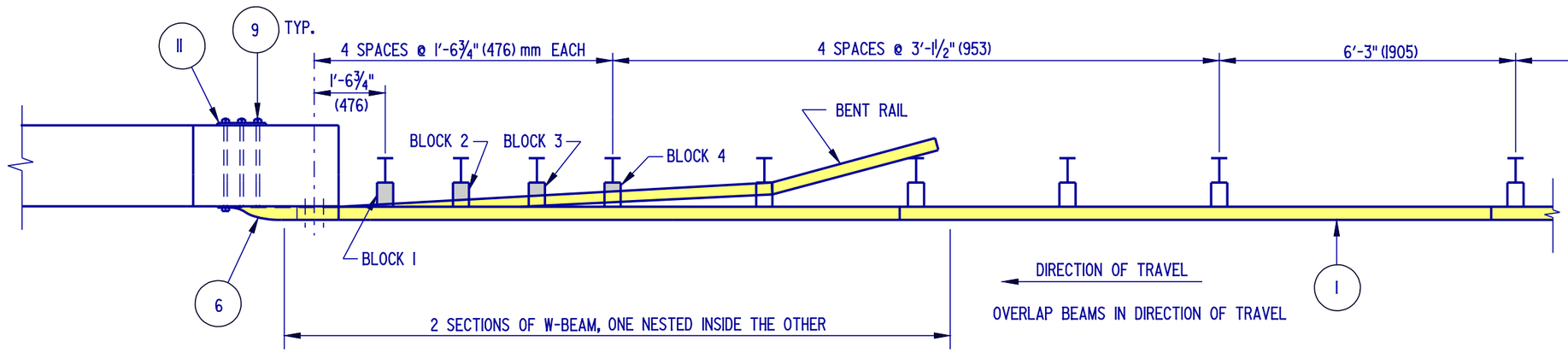
ELEVATION

BENT PLATE RUB RAIL

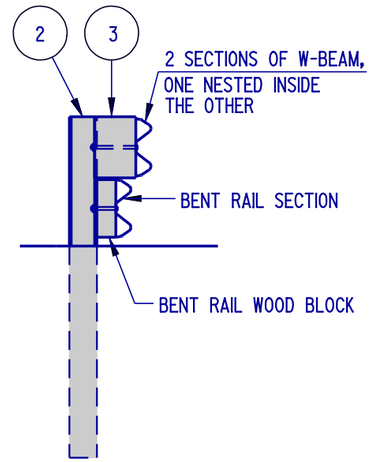
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1		APPROVED Eugene M. Hurlburt CHIEF ENGINEER 6/18/01 DATE
	STANDARD NO. B-7 (2001)	SHT. 3 OF 3	RECOMMENDED Michael A. Lepore DESIGN ENGINEER 6/15/01 DATE

04/05/2001

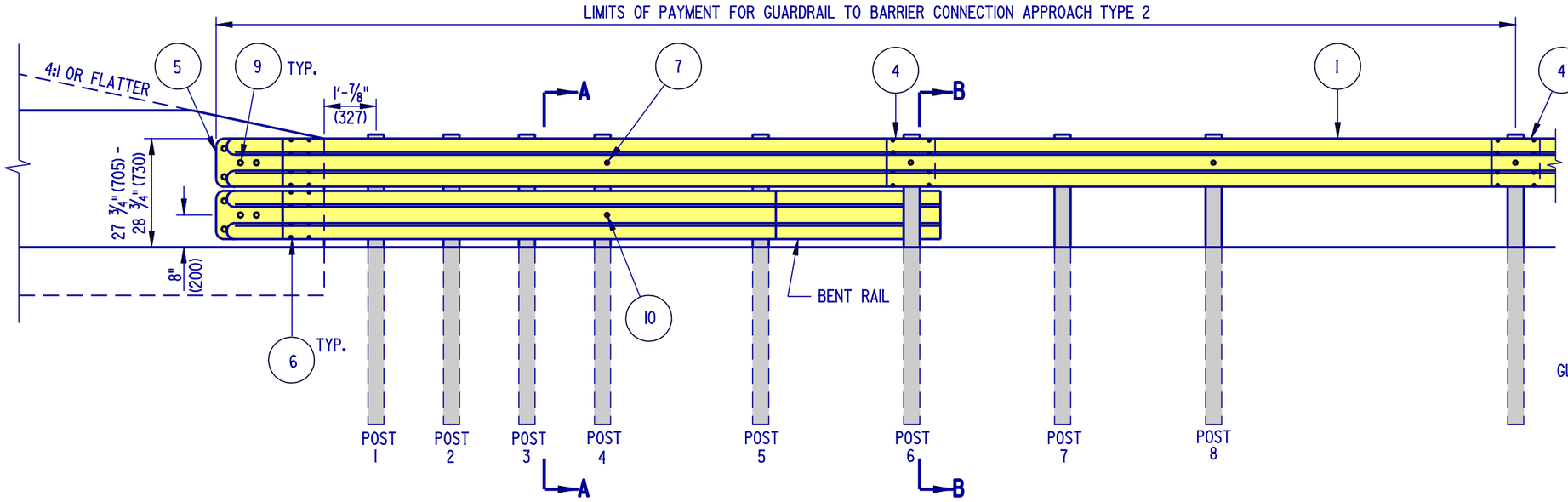
SCALE : N.T.S.



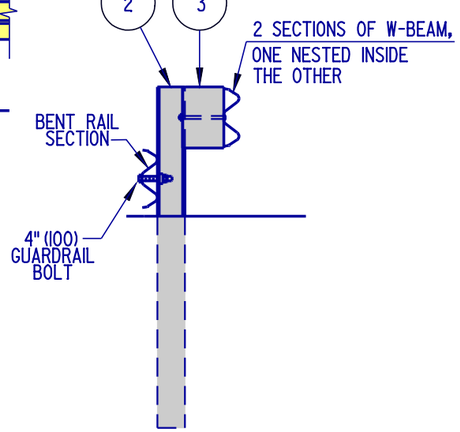
PLAN



SECTION A-A



ELEVATION



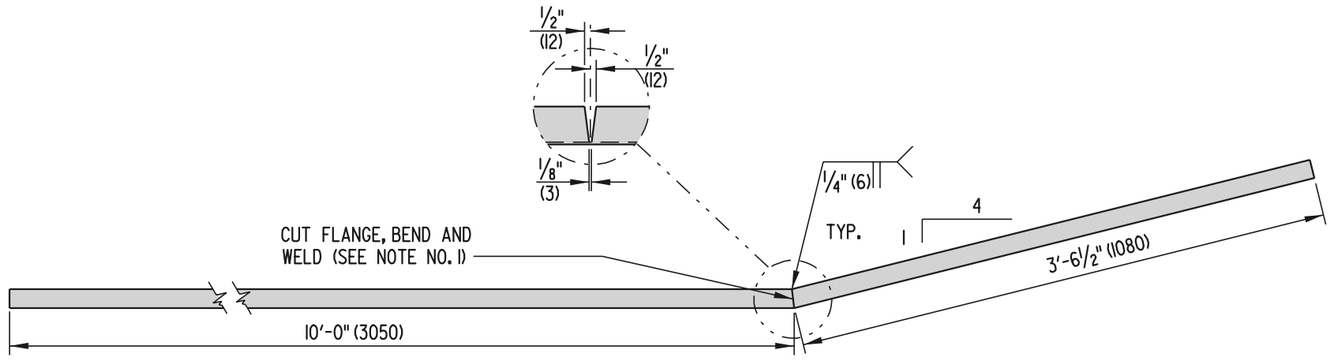
SECTION B-B

NOTES :
1). CURB SHALL NOT BE USED AT THE FACE OF RAIL WITHIN THE LIMITS OF THIS INSTALLATION.
2). POSTS 1, 2, 3, 4, AND 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH WOOD BLOCKS AND/OR BENT RAIL.
3). DO NOT ATTACH RAILS TO POSTS 1, 2, 3, 5, OR 7.
5). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
6). BENT RAIL MAY BE SHOP BENT TO FACILITATE INSTALLATION OR MAY BE FIELD BENT USING HEAT.
7). APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTORS TO PARAPET.
8). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.
9). WHEN PLACED OVER CURB (MIN 8" (200) HIGH), BOTTOM RAIL CAN BE ELIMINATED.

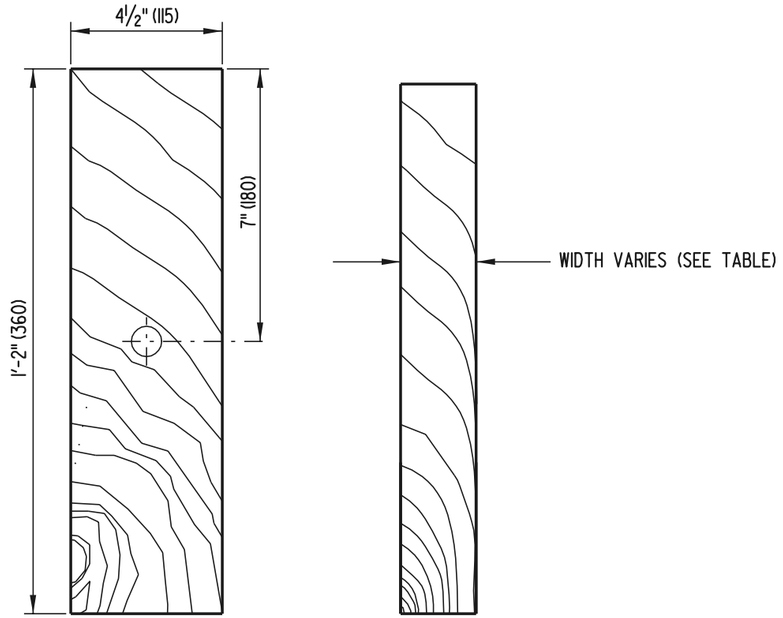
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL TO BARRER CONNECTION, APPROACH TYPE 2	APPROVED Carolann Wicks (CHIEF ENGINEER) 1/10/05 (DATE)
	STANDARD NO. B-8 (2004) SHT. 1 OF 2	RECOMMENDED (DESIGN ENGINEER) 1/3/05 (DATE)

12/08/2004

SCALE : N.T.S.



BENT RAIL



ELEVATION

RIGHT SIDE

BENT RAIL WOOD BLOCKS

BENT RAIL WOOD BLOCKS 1'-2" (360) x 4 1/2" (115)		
BLOCK	WIDTH	BOLT LENGTH
1	5" (125)	8" (200)
2	4" (100)	6" (150)
3	3" (75)	6" (150)
4	2" (50)	4" (100)

NOTE: BOTTOM WOOD BLOCKS LOCATED ON POSTS 1-4 ARE OFFSET DRILLED TO SIT SQUARELY ON THE POST FLANGE AND SECURED WITH 5/8" (16) CARRIAGE BOLTS (L VARIES), SEE BENT RAIL WOOD BLOCKS TABLE.

DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2

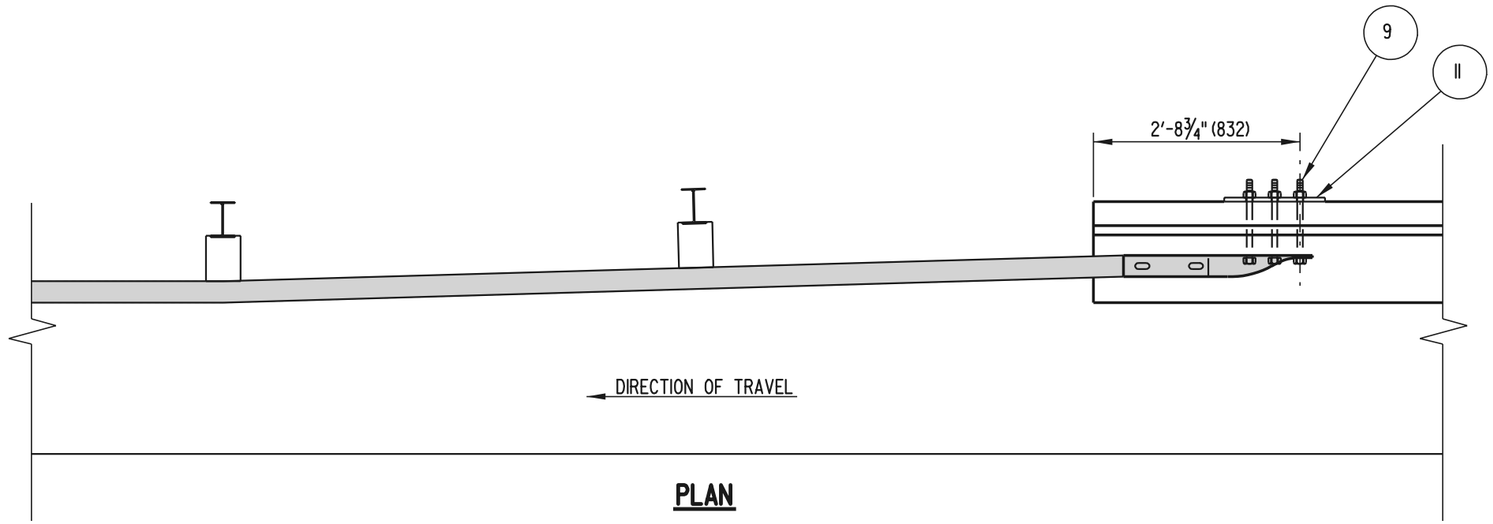
STANDARD NO. B-8 (2001) | SHT. 2 OF 2

APPROVED _____ CHIEF ENGINEER DATE 6/18/01

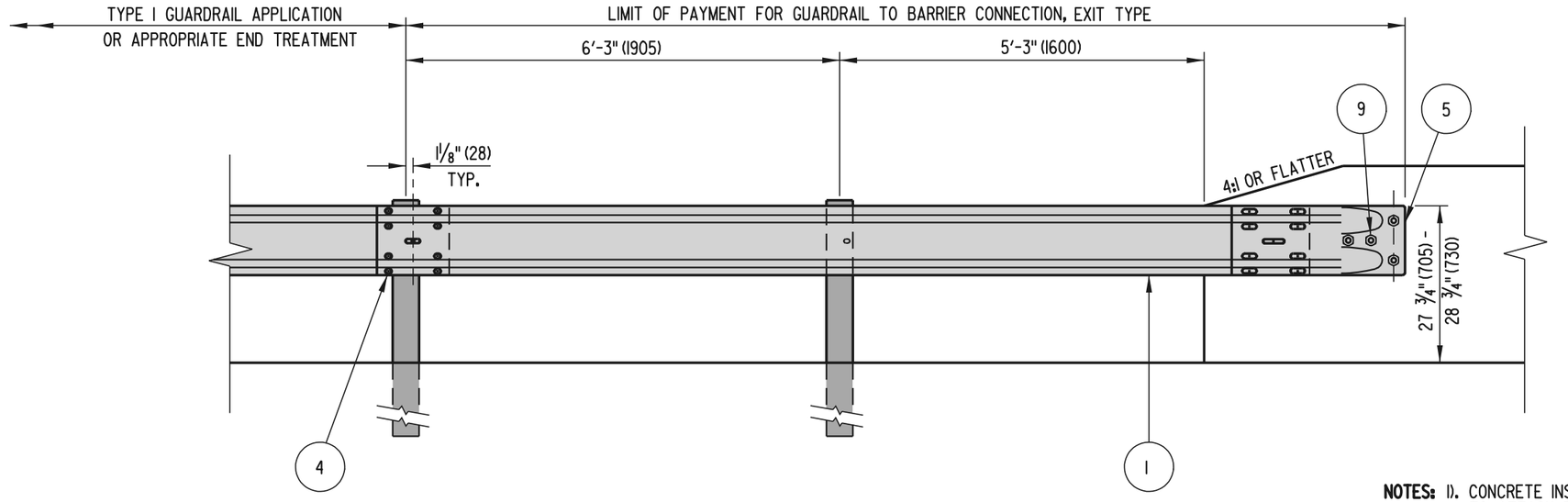
RECOMMENDED _____ DESIGN ENGINEER DATE 6/15/01

04/05/2001

SCALE : N.T.S.



PLAN



ELEVATION

NOTES: 1). CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTOR TO PARAPET,

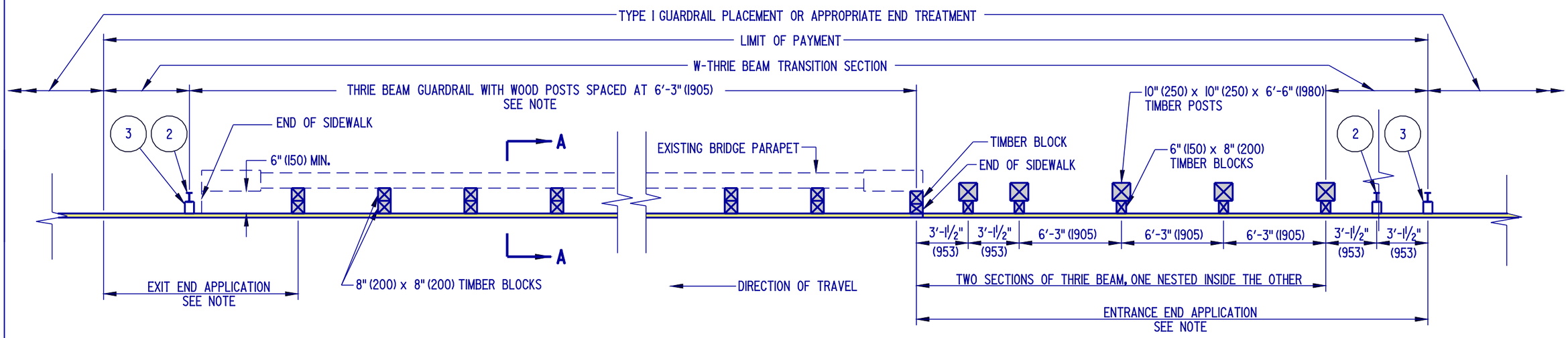
2). GUARDRAIL SECTION AND TERMINAL CONNECTORS SHALL BE OVERLAPPED IN THE DIRECTION OF TRAVEL.

3). INSTALLATION SHOWN ABOVE WITH AN 'F-TYPE' BARRIER FACE. GUARDRAIL SECTION OF BARRIER CONNECTION SHALL BE ADJUSTED HORIZONTALLY IN ORDER TO MEET FLUSH AGAINST VARIOUS TYPES OF WALLS AND BARRIERS.

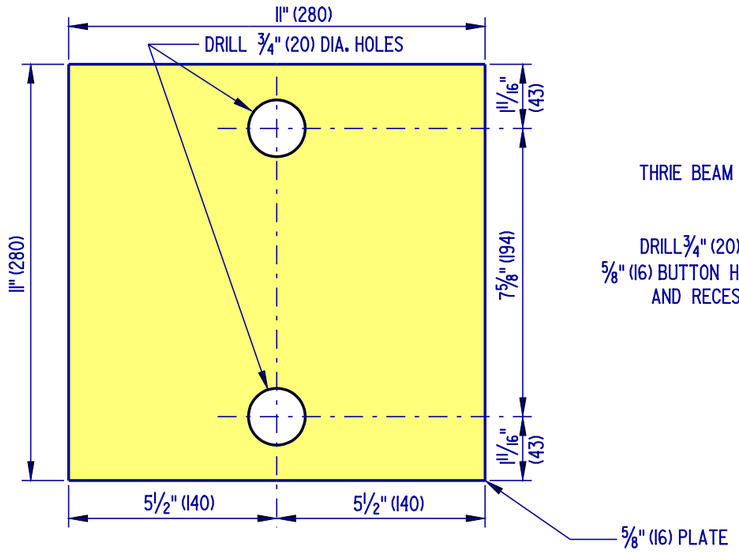
DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL TO BARRIER CONNECTION, EXIT TYPE		APPROVED Carolann Wicks (CHIEF ENGINEER) 9/6/02 (DATE)
	STANDARD NO. B-9 (2002)	SHT. 1 OF 1	RECOMMENDED (DESIGN ENGINEER) 8/19/02 (DATE)

04/23/2002

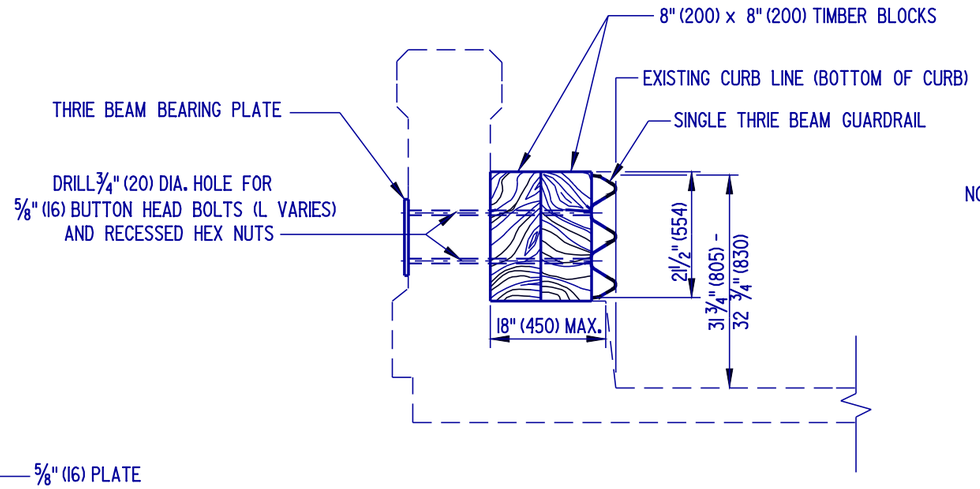
SCALE : N.T.S.



PLAN



THRIE BEAM BEARING PLATE DETAIL



SECTION A-A

NOTES:
1). THIS INSTALLATION SHALL BE USED WHEN THE EXISTING SIDEWALK IS 18" (450) OR LESS.
2). USE A THRIE BEAM EXPANSION SECTION AT BRIDGE EXPANSION JOINTS.
3). PLACE GUARDRAIL REFLECTOR IN THE UPPER VALLEY OF THE THRIE BEAM EVERY FIFTH POST.
4). TIMBER BLOCK THICKNESS SHALL BE ADJUSTED TO ALLOW FACE OF THE THRIE BEAM TO BE FLUSH WITH BOTTOM OF CURB (MINIMUM THICKNESS SHALL BE 4" (100)).
5). THE EXIT END APPLICATION SHALL BE USED ONLY ON DIVIDED HIGHWAYS. FOR ALL OTHER SITUATIONS, THE ENTRANCE END APPLICATION SHALL BE USED ON BOTH ENDS OF THE BRIDGE PARAPET.
6). SPACING OF WOOD POSTS MAY NEED TO BE REDUCED TO ACCOMMODATE LINING UP POSTS AT THE END OF THE PARAPET.

DELAWARE
DEPARTMENT OF TRANSPORTATION

BRIDGE RAIL RETROFIT, TYPE 1

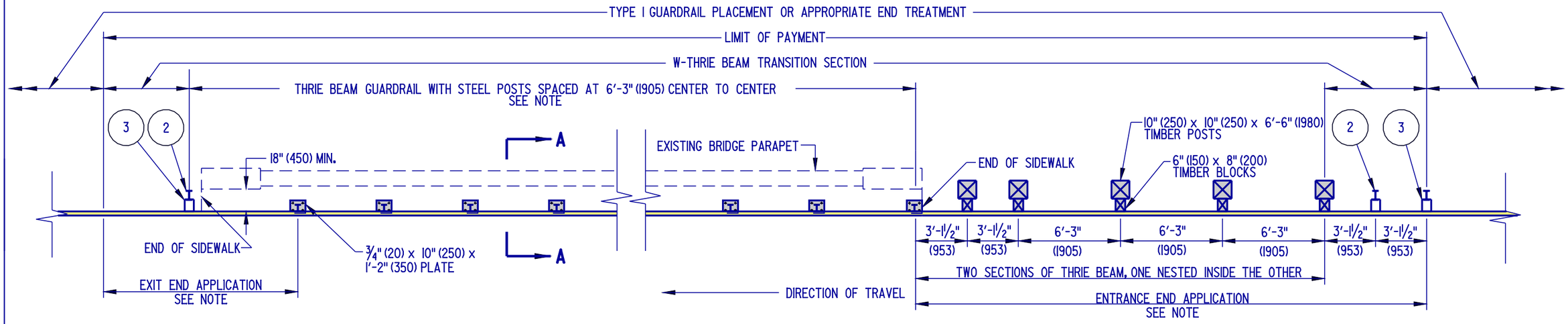
STANDARD NO. B-10 (2004) | SHT. 1 OF 1

APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE

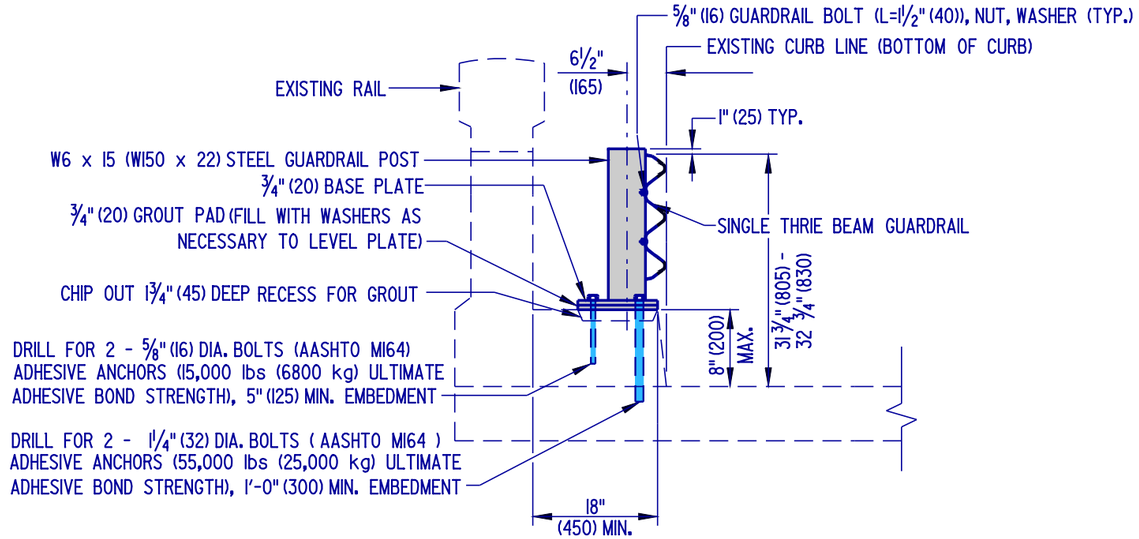
RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

12/08/2004

SCALE : N.T.S.



PLAN



SECTION A-A

NOTES:
1). THIS INSTALLATION SHALL BE USED WHEN THE EXISTING SIDEWALK IS 18" (450) OR WIDER, AND DEAD LOAD CONSIDERATIONS ARE A CONCERN WHEN USING BRIDGE RAIL RETROFIT, TYPE 3.
2). ADHESIVE ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND SHALL BE GALVANIZED.
3). USE A THRIE BEAM EXPANSION SECTION AT BRIDGE EXPANSION JOINTS.
4). PLACE GUARDRAIL REFLECTOR IN THE UPPER VALLEY OF THE THRIE BEAM EVERY FIFTH POST.
5). THE EXIT END APPLICATION SHALL BE USED ONLY ON DIVIDED HIGHWAYS. FOR ALL OTHER SITUATIONS, THE ENTRANCE END APPLICATION SHALL BE USED ON BOTH ENDS OF THE BRIDGE PARAPET.
6). SPACING OF STEEL POSTS MAY NEED TO BE REDUCED TO ACCOMMODATE LINING UP POSTS AT THE END OF THE PARAPET.

DELAWARE
DEPARTMENT OF TRANSPORTATION

BRIDGE RAIL RETROFIT, TYPE 2

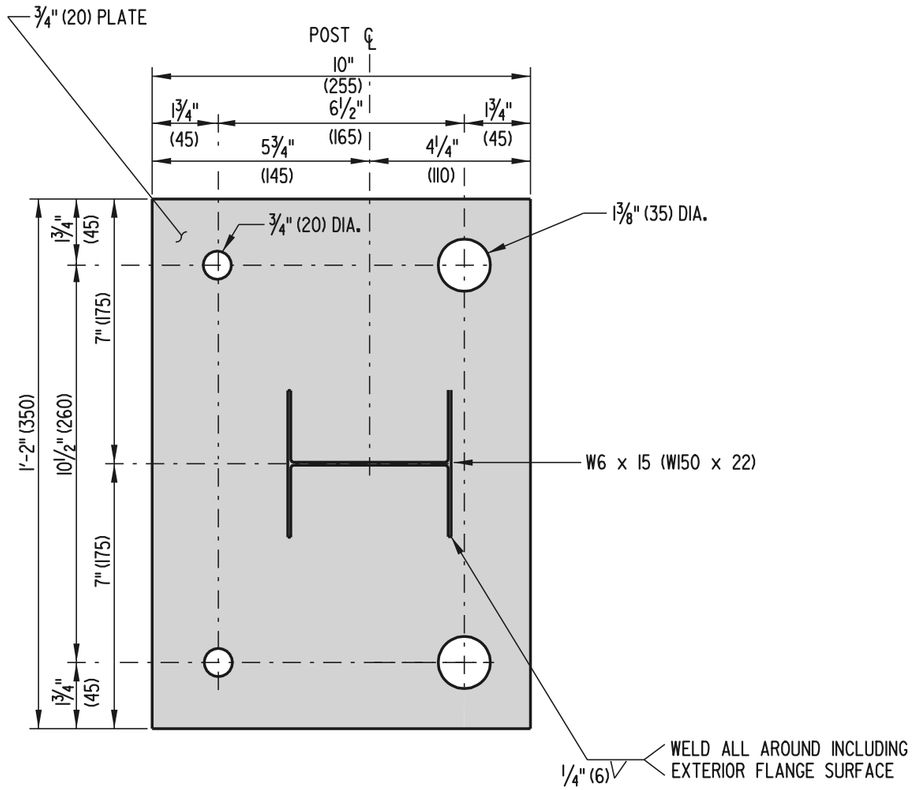
STANDARD NO. B-11 (2004) | SHT. 1 OF 4

APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE

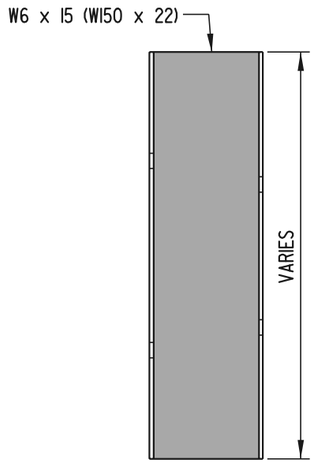
RECOMMENDED Dennis M. Office DESIGN ENGINEER 1/3/05 DATE

12/08/2004

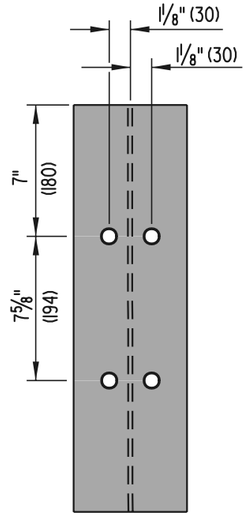
SCALE : N.T.S.



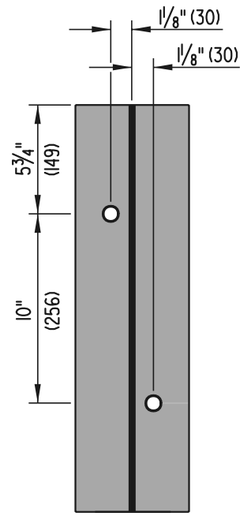
BASE PLATE DETAIL



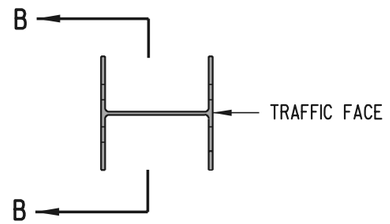
SIDE



FRONT



SECTION B-B



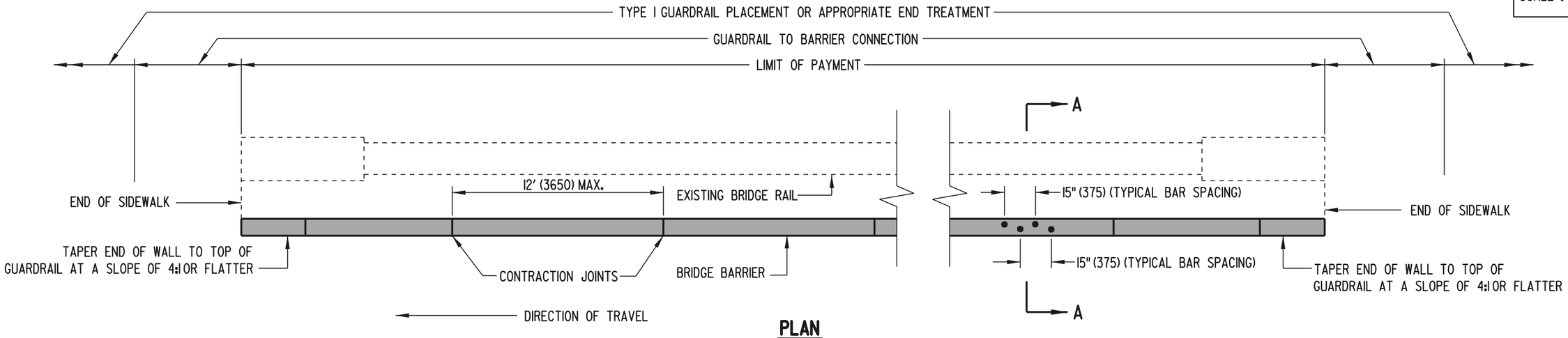
PLAN

W6 x 15 (W150 x 22) STEEL GUARDRAIL POST

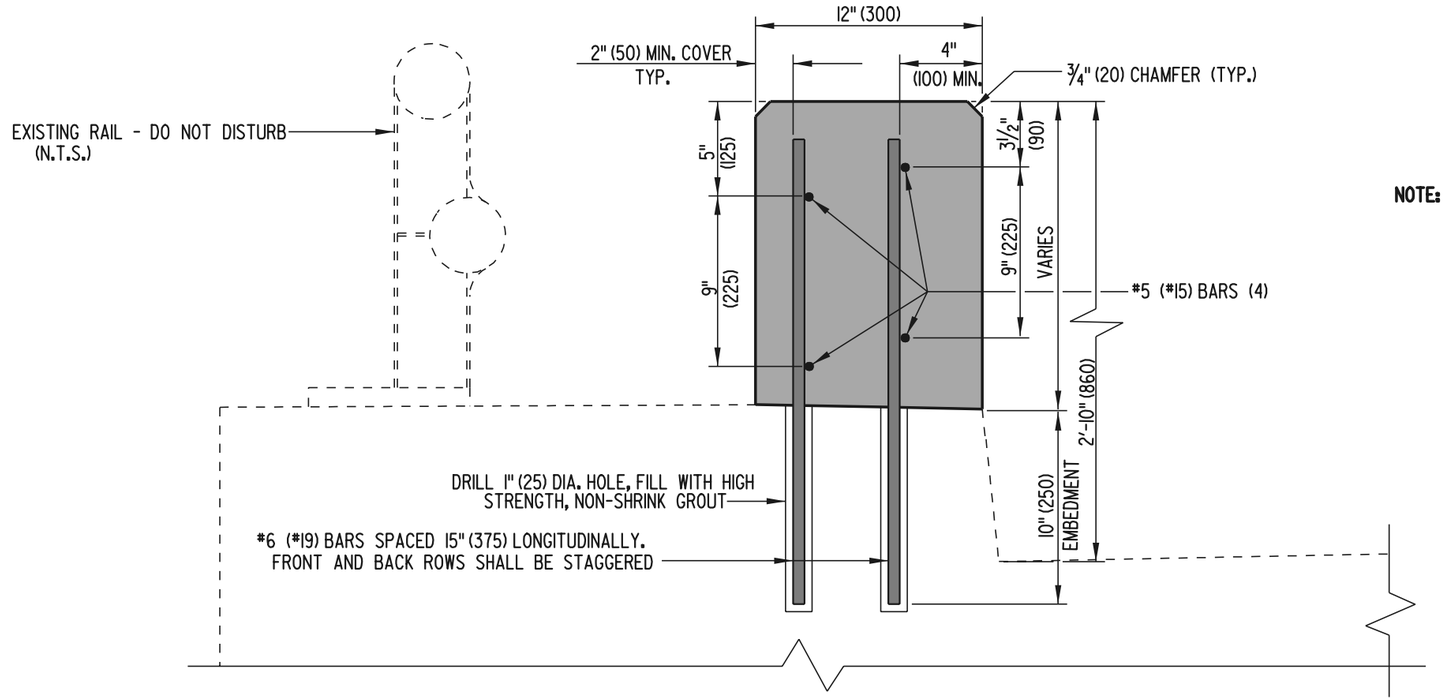
DELAWARE DEPARTMENT OF TRANSPORTATION	BRIDGE RAIL RETROFIT, TYPE 2			APPROVED Lynne M. Hartnett (CHIEF ENGINEER) DATE 6/18/01
	STANDARD NO. B-11 (2001)	SHT. 2	OF 2	RECOMMENDED (DESIGN ENGINEER) DATE 6/15/01

04/05/2001

SCALE : N.T.S.



PLAN



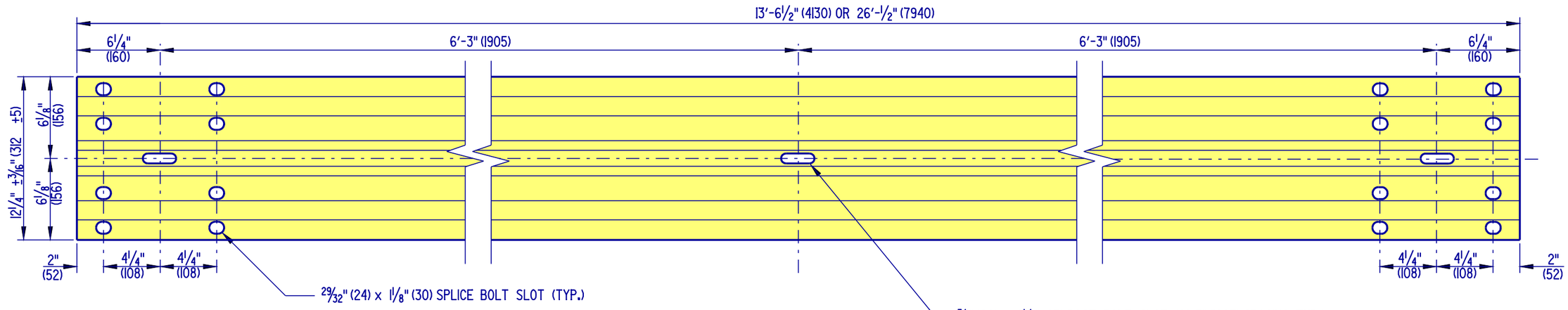
SECTION A-A

NOTE: STANDARD GUARDRAIL TO BARRIER CONNECTIONS SHALL BE CONNECTED TO THE ENDS OF THE NEW BRIDGE BARRIER AND TRANSITIONED TO THE EXISTING GUARDRAIL.

DELAWARE DEPARTMENT OF TRANSPORTATION	BRIDGE RAIL RETROFIT, TYPE 3			APPROVED Eugene M. Hurlong CHIEF ENGINEER 6/18/01 DATE
	STANDARD NO. B-12 (2001)	SHT. 1	OF 1	RECOMMENDED Michael A. Tapke DESIGN ENGINEER 6/15/01 DATE

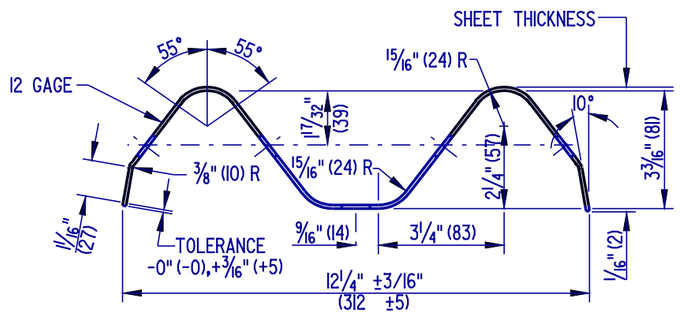
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SCALE : N.T.S.



W-BEAM ELEVATION

1



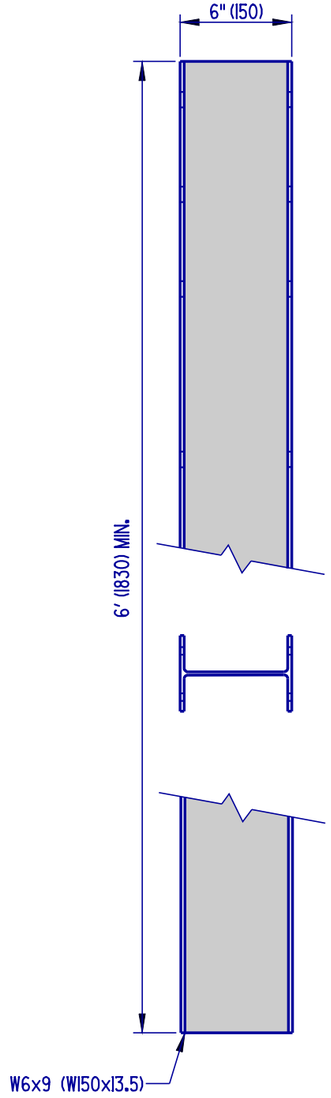
W-BEAM SECTION

NOTES: 1). TWO ADDITIONAL ¾" (20) x 2½" (65) SLOTS SHALL BE PROVIDED AT 6'-3" (1905) SPACING FOR BEAM LENGTH OF 26'-½" (7940).

DELAWARE DEPARTMENT OF TRANSPORTATION	HARDWARE	APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-13 (2004) SHT. 1 OF 13	RECOMMENDED Dennis M. Office DESIGN ENGINEER 1/3/05 DATE

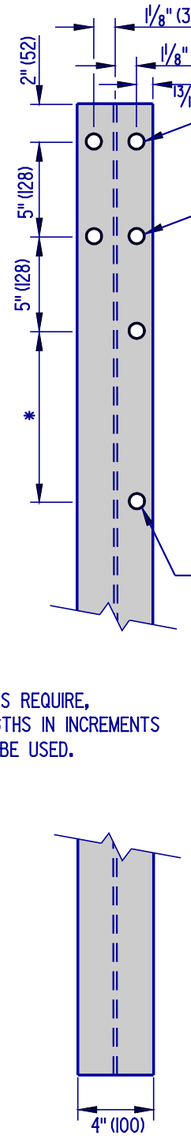
09/21/2004

SCALE : N.T.S.



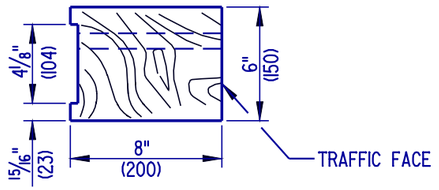
SIDE

NOTE:
WHERE CONDITIONS REQUIRE,
ALTERNATE LENGTHS IN INCREMENTS
OF 6" (150) MAY BE USED.

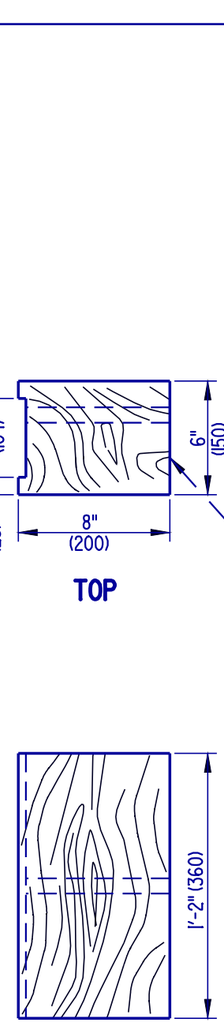


FRONT

POST (2)



TOP



SIDE



FRONT

OFFSET BLOCK (3)

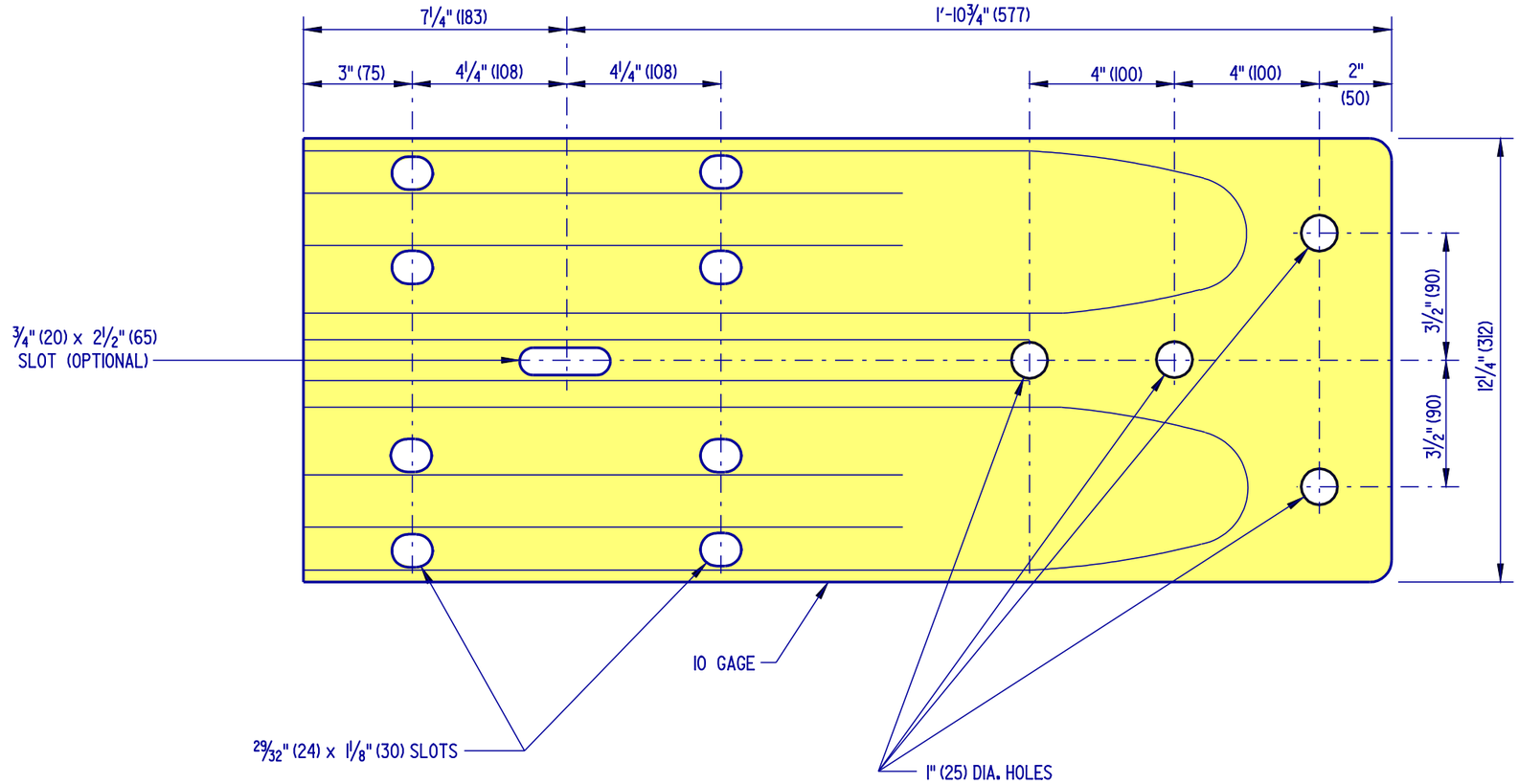
NOTE : ALL HOLES SHALL BE 13/16" (20) DIA. BOLT HOLE PATTERN IS SYMMETRICAL WITH RESPECT TO THE VERTICAL AXIS OF THE POST.

W-BEAM STEEL POST AND WOOD OFFSET BLOCK

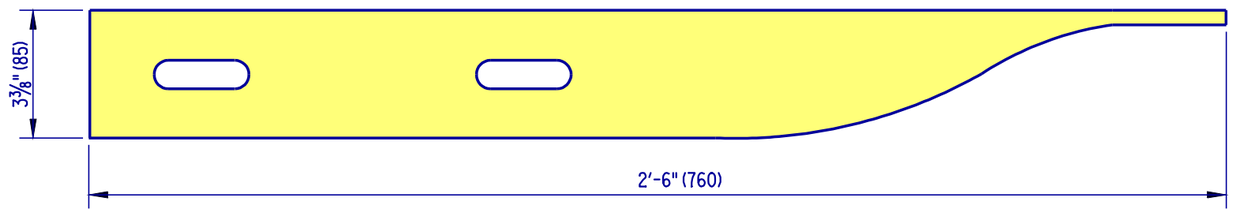
DELAWARE DEPARTMENT OF TRANSPORTATION	HARDWARE		APPROVED Carolann Wicks (CHIEF ENGINEER) 1/10/05 (DATE)
	STANDARD NO. B-13 (2004)	SHT. 2 OF 13	RECOMMENDED Dennis M. Office (DESIGN ENGINEER) 1/3/05 (DATE)

09/28/2004

SCALE : N.T.S.



ELEVATION



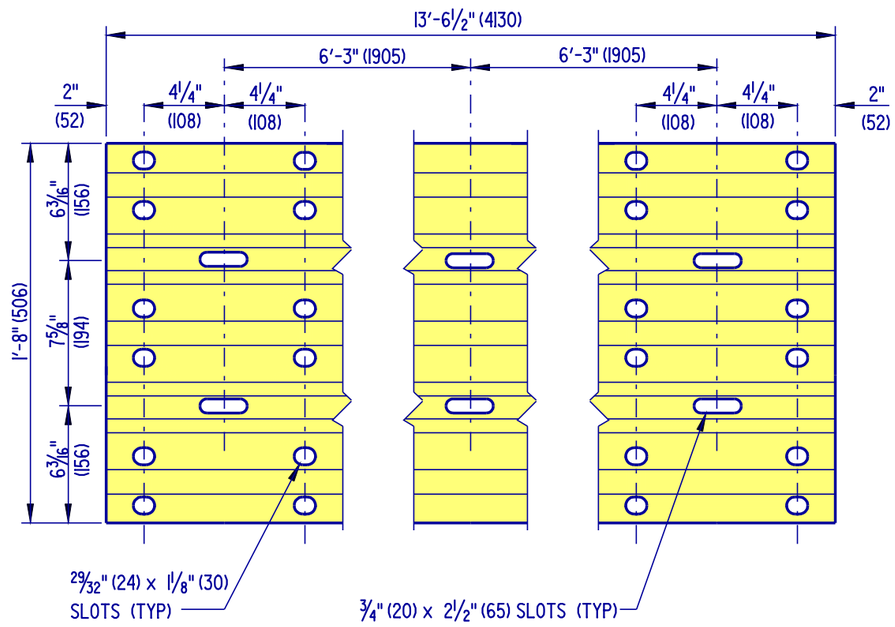
PLAN

W-BEAM TERMINAL CONNECTOR (5)

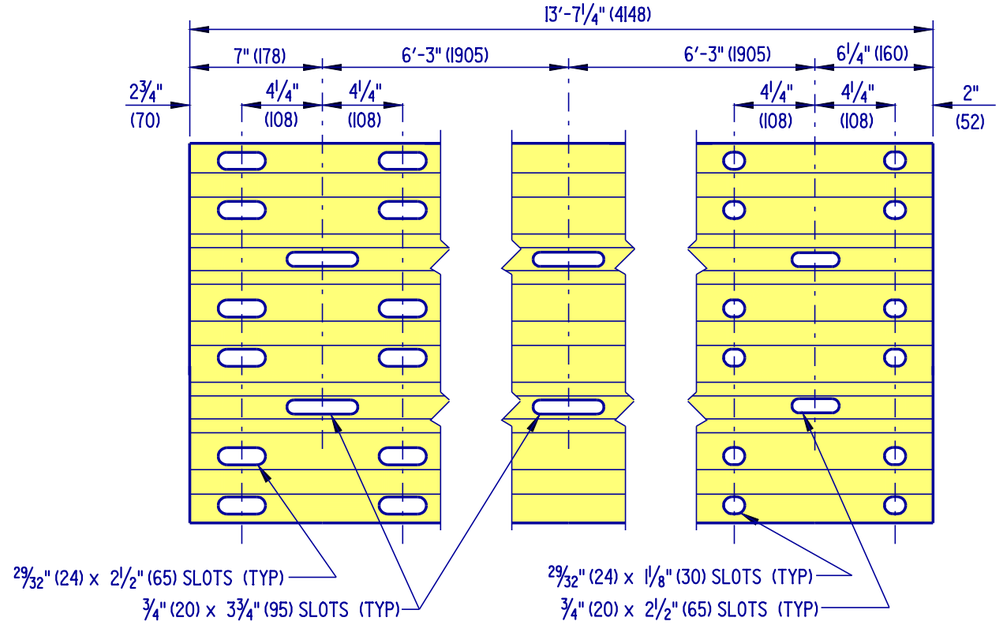
DELAWARE DEPARTMENT OF TRANSPORTATION	HARDWARE		APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-13 (2004)	SHT. 3 OF 13	RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

09/27/2004

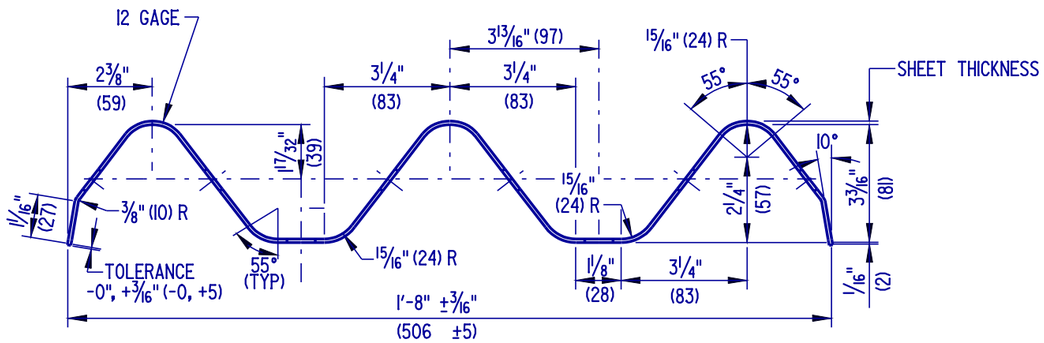
SCALE : N.T.S.



THRIE BEAM ELEVATION



THRIE BEAM EXPANSION ELEMENT

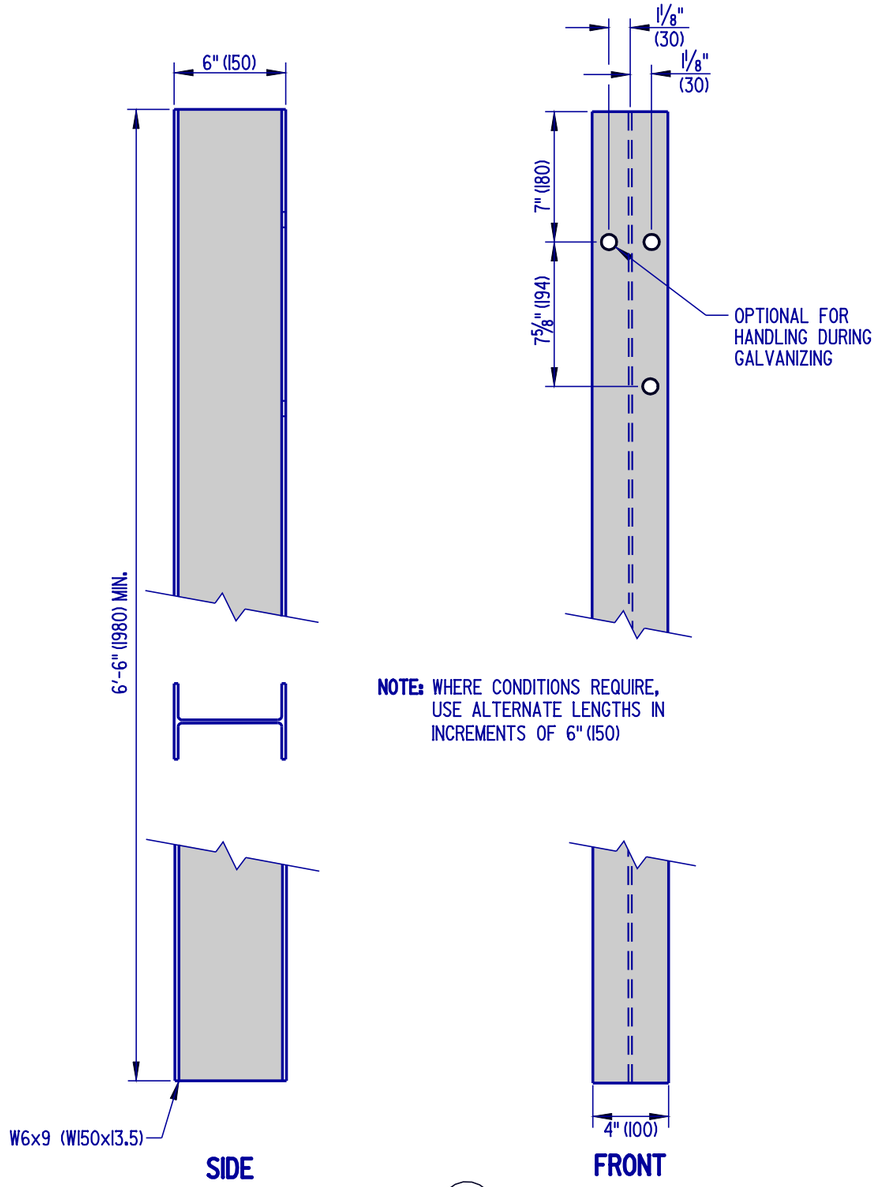


THRIE BEAM SECTION

DELAWARE DEPARTMENT OF TRANSPORTATION	HARDWARE		APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-13 (2004)	SHT. 4 OF 13	RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

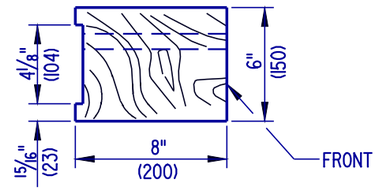
09/28/2004

SCALE : N.T.S.

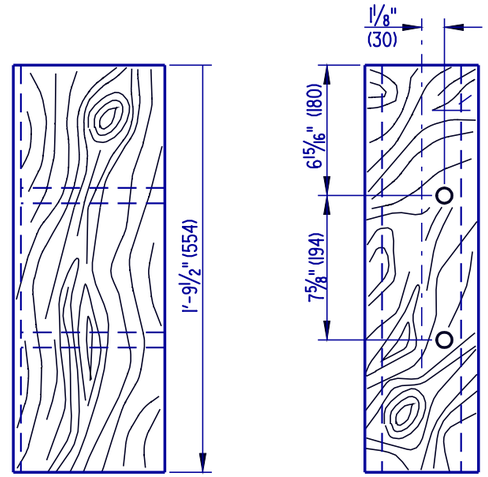


NOTE: WHERE CONDITIONS REQUIRE, USE ALTERNATE LENGTHS IN INCREMENTS OF 6" (150)

POST (2)



TOP



OFFSET BLOCK (3)

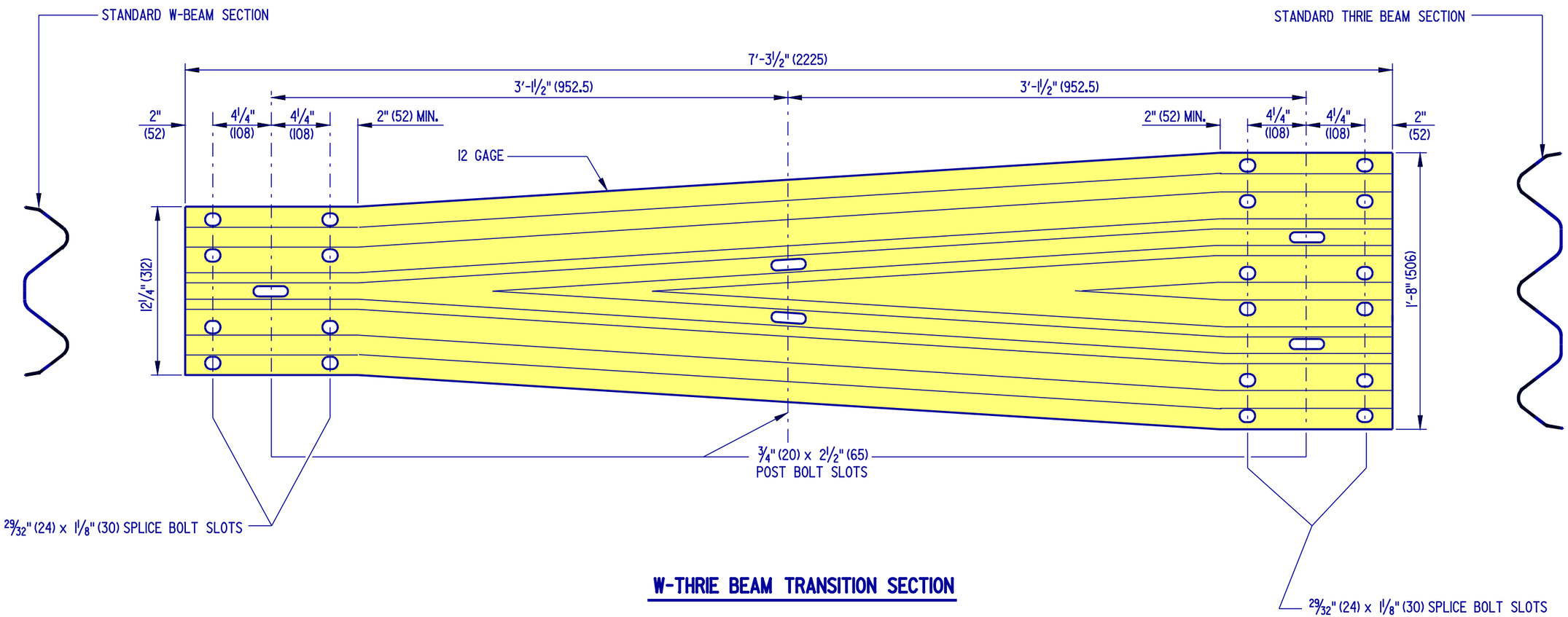
THRIE BEAM STEEL POST AND WOOD OFFSET BLOCK

NOTE :
ALL HOLES SHALL BE 13/16" (20) DIA. BOLT HOLE PATTERN IS SYMMETRICAL WITH RESPECT TO THE VERTICAL AXIS OF THE POST.

DELAWARE DEPARTMENT OF TRANSPORTATION	HARDWARE		APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-13 (2004)	SHT. 5 OF 13	RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

09/28/2004

SCALE : N.T.S.



W-THRIE BEAM TRANSITION SECTION

DELAWARE DEPARTMENT OF TRANSPORTATION	HARDWARE		APPROVED Carolann Wicks CHIEF ENGINEER 1/10/05 DATE
	STANDARD NO. B-13 (2004)	SHT. 6 OF 13	RECOMMENDED Dennis M. O'Toole DESIGN ENGINEER 1/3/05 DATE

09/10/2004