

STANDARD PLANS FOR INFORMATION ONLY

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8	BM-01	Bedding and Backfill for Drainage Structures (Sheet 1)	10/26/2023	5/8/2024	
9	BM-01	Bedding and Backfill for Drainage Structures (Sheet 2)	10/26/2023	5/8/2024	
10	CB-01	Concrete Open Top Catch Basin (12' Max. Depth)(24" x 36" Max. Pipe)(Specify Grate Type)	11/2/2000		
11	CB-02	Concrete Open Top Catch Basin (12' Max. Depth)(42" x 72" Max. Pipe)(Specify Grate Type)	11/2/2000		
12	CB-04	Precast Open Top Catch Basin (End of Line Basin)(2' Max. Depth)(15" Max. Pipe)	11/2/2000		
13	CB-05	Catch Basin Yard Drain, Open Top, 8" Max. Pipe, (1'-1" Max. Depth)(Precast or CIP)	2/6/2019	6/12/2019	
14	CB-06	Catch Basin Curb Opening (42" x 72" Max. Pipe)(12' Max. Depth)(4" Mount. or 6" Barrier)	11/2/2000		
15	CB-07	R. C. Catch Basin, Curb & Gutter Opening (4" Mount. or 6" Barr.)(Max. Pipe 42" x 72")(Max. Depth 12')	11/2/2000		
16	CB-08	Dbl. CombType Catch Basin (4" mount or 6" Barr.)(Max. Pipe Parallel to Curb: 72" RCP or 84" CMP)(Max. Pipe Perpendicular to Curb: 84" RCP or 96" CMP)(Max Depth 20')	10/7/2010		
17	CB-09	Comb. Type Catch Basin (Trunk line Under Pavement)(4" mount. or 6" Barr.)(Max. Pipe Parallel to Curb: 84" RCP or 96" CMP)(Max. Pipe Perpendicular to Curb: 84" RCP or 96" CMP)(Max. Depth: 20')	10/7/2010		
18	CB-Adjust	Adjusting / Conversion of Existing Catch Basins or Manholes	noles 10/30/2019 2/5/2020		
19	CC-30-20	2' to 5' Span x 2' to 5' Height R. C. Box Culvert (Single Opening)(Obsolete-use for extensions only)	1/5/1978		
20	CC.S.M. 4-6.S.45°.1	4' x 4', 5' x 5', 6' x 6' R. C. Box Culvert (Multiple Openings)	1/11/1978		
21	CC.S.M. 4-6.S.60°.1	4' x 4', 5' x 5', 6' x 6' R. C. Box Culvert (Multiple Openings)	1/11/1978		
22	CC.S.M. 4-6.S.75°.1	4' x 4', 5' x 5', 6' x 6' R. C. Box Culvert (Multiple Openings)	1/11/1978		
23	CC.S.M. 4-6.S.90°.1	4' x 4', 5' x 5', 6' x 6' R. C. Box Culvert (Multiple Openings)	1/11/1978		
24	CC.S.M. 5.R.45°.1	5' x 4' R.C. Box Culvert (Multiple Openings)	1/5/1978		
25	CC.S.M. 5.R.60°.1	5' x 4' R.C. Box Culvert (Multiple Openings)	1/5/1978		
26	CC.S.M. 5.R.75°.1	5' x 4' R.C. Box Culvert (Multiple Openings)	1/11/1978		
27	CC.S.M.5.R. 90°.1	5' x 4' R.C. Box Culvert (Multiple Openings)	1/11/1978		
28	CC.S.M. 6-7.R. 45°.1	6' x 4', 6' x 5', 7' x 4', R.C. Box Culvert (Multiple Openings)	1/5/1978		
29	CC.S.M. 6-7.R. 60°.1	6' x 4', 6' x 5', 7' x 4', R. C. Box Culvert (Multiple Openings)	1/11/1978		
30	CC.S.M. 6-7. R. 75°.1	6' x 4', 6' x 5', 7' x 4' R. C. Box Culvert (Multiple Openings)	1/5/1978		
31	CC.S.M. 6-8.R.90°.1	6' x 4', 6' x 5', 7' x 4', 7' x 5', 7' x 6', 8' x 5', 8' x 6', R. C. Box Culvert (Multiple Openings)	1/11/1978		
32	CC.S.M. 7-8.R. 45°.1	7' x 5', 7' x 6', 8' x 5', 8' x 6' R. C. Box Culvert (Multiple Openings)	1/11/1978		
33	CC.S.M. 7-8.R. 60°.1	7' x 5', 7' x 6', 8' x 5', 8' x 6' R.C. Box Culvert (Multiple Openings)	1/5/1978		

PAGE NO.	STANDARD PLAN NUMBER	DESCRIPTION	REVISION DATE	EFFECTIVE FOR THE LETTING OF
34	CC.S.M. 7-8.R. 75°.1	7' x 5', 7' x 6', 8' x 5', 8' x 6' R.C. Box Culvert (Multiple Openings)	1/11/1978	
35	CC.S.M. 7-10.S.45°.1	7' x7', 8' x 8', 9' x 9', 10' x 10' R.C. Box Culvert (Multiple Openings)	1/11/1978	
36	CC.S.M. 7-10.S.60°.2	7' x 7', 8' x 8', 9' x 9', 10' x 10' R.C. Box Culvert (Multiple Openings)	1/5/1978	
37	CC.S.M. 7-10.S.75°.1	7' x 7', 8' x 8', 9' x 9', 10' x 10' R.C. Box Culvert (Multiple Openings)	1/11/1978	
38	CC.S.M. 7-10.S.90°.1	7' x7', 8' x 8', 9' x 9', 10' x 10' R.C. Box Culvert (Multiple Openings)	1/5/1978	
39	CC.S.M. 8-9.R.90°.1	9' x 7', 9' x 8', 8' x 7', R.C. Box Culvert (Multiple Openings)	1/11/1978	
40	CC.S.M. 10.R.45°.1	10' x 7', 10' x 8', 10' x 9' R.C. Box Culvert (Multiple Openings)	1/11/1978	
41	CC.S.M. 10.R.60°.1	10' x 7', 10' x 8', 10' x 9' R.C. Box Culvert (Multiple Openings)	1/11/1978	
42	CC.S.M. 10.R.90°.1	10' x 7', 10' x 8', 10' x 9' R.C. Box Culvert (Multiple Openings)	1/5/1978	
43	CC.S.S. 4-6.RS.45°.1	4' x 6' span x 3' to 6' height R.C. Box Culvert (Single Opening)	1/11/1978	
44	CC.S.S. 4-7.RS.60°.1	4' to 7' span x 3' to 6' height R.C. Box Culvert (Single Opening)	1/11/1978	
45	CC.S.S. 4-7. RS.75°.1	4' to 7' span x 3' to 6' height R.C. Box Culvert (Single Opening)	1/11/1978	
46	CC.S.S. 4-7.RS.90°.1	4' to 7' span x 3' to 6' height R.C. Box Culvert (Single Opening)	1/5/1978	
47	CC.S.S. 7-10.RS.45°.1	7' to 10' span x 4' to 10' height R.C. Box Culvert (Single Opening)	1/11/1978	
48	CC.S.S. 7-10.RS.60°.1	7' to 10' span x 7' to 10' height R.C. Box Culvert (Single Opening)	1/11/1978	
49	CC.S.S. 7-10.RS.75°.1	7' to 10' span x 7' to 10' height R.C. Box Culvert (Single Opening)	1/11/1978	
50	CC.S.S. 7-10. RS.90°.1	7' to 10' span x 7' to 10' height R.C. Box Culvert (Single Opening)	1/5/1978	
51	CC.S.S. 8-10.R.60°.1	8' to 10' span x 4' to 6' height R.C. Box Culvert (Single Opening)	1/11/1978	
52	CC.S.S. 8-10.R.75°.1	8' to 10' span x 4' to 6' height R.C. Box Culvert (Single Opening)	1/11/1978	
53	CC.S.S. 8-10.R.90°.1	8' to 10' span x 4' to 6' height R.C. Box Culvert (Single Opening)	1/11/1978	
54	CC.S.S. 12.RS.75°.2	12' x 12' R.C. Box Culvert (Single Opening)	1/11/1978	
55	CM-49	Expansion and Construction Joint for Concrete Structures	10/1/2008	1/1/2009
56	COLLAR-01	Concrete Collar Detail	5/6/2022	9/14/2022
57	CP-01	Portland Cement Concrete Pavement Details (Sheet 1)	10/13/2021	6/8/2022
58	CP-01	Portland Cement Concrete Pavement Details (Sheet 2)	10/13/2021	6/8/2022
59	CP-01	Portland Cement Concrete Pavement Details (Sheet 3)	10/13/2021	6/8/2022
60	CPR-01	Concrete Joints and Cracks Rehab	1/12/2021	8/10/2022
61	CPR-02	Patching CRCP and PCCP	4/26/2022	8/10/2022

PAGE NO.	STANDARD PLAN NUMBER	DESCRIPTION	REVISION DATE	EFFECTIVE FOR THE LETTING OF
62	CPR-03	Concrete Rehab Details	1/12/2021	8/10/2022
63	DW-01	Driveways on Curbed Roadways	8/4/2022	12/14/2022
64	DW-01	Driveways on Non-Curbed Roadways	8/4/2022	12/14/2022
65	DW-01	Turnout and Driveway Tie-In Details	8/4/2022	12/14/2022
66	EC-01	Temporary Erosion Control Details (Sheet 1)	10/1/2008	1/1/2009
67	EC-01	Temporary Erosion Control Details (Sheet 2)	10/1/2008	1/1/2009
68	FN-01	Chain Link Fence & Gates (4, 5, 6, & 7ft)	11/3/2011	6/13/2012
69	FN-02	Field and Line Type Fence (Wood Post) (Sheet 1)	11/3/2011	6/13/2012
70	FN-02	Field and Line Type Fence (Steel Post) (Sheet 2)	11/3/2011	6/13/2012
71-78	GR-201	Highway Guard Rails (Sheets 1-8)	6/13/2017	7/12/2017
79	GR-MASH-BC	Highway Guard Rail (MASH) Application for Box Culverts	1/3/2019	6/12/2019
80	GR-MASH-OFF	Highway Guard Rail (MASH) Off-System Bridge Application	1/3/2019	6/12/2019
81-91	GR-MASH-ON	Highway Guard Rail (MASH) On-System Bridge Application (Sheets 1-11)	4/13/2023	8/9/2023
92	GRR-01	Side Mount Guard Rail (For Box Culverts)	5/3/2022	10/12/2022
93	GRR-02	Top Mounted Guard Rail (For Box Culverts)	5/3/2022	10/12/2022
94	GRR-03	Anchor Block & Bridge Rail Rehabilitation for Low Concrete Post and Rail	5/3/2022	10/12/2022
95	GRR-04	Guard Rail Anchor Block Rehabilitation for Concrete Post & Rail (Alternate 1)	5/3/2022	10/12/2022
96	GRR-05	Guard Rail Anchor Block Rehabilitation for Concrete Post & Rail (Alternate 2)	5/3/2022	10/12/2022
97	GRR-06	Approach Guard Rail for Structures with Flexible Rails	5/3/2022	10/12/2022
98	GRR-07	New Jersey Barrier Rail Retrofit (For Structures Greater than 60 ft. Long)	5/3/2022	10/12/2022
99	GRR-08	New Jersey Barrier Rail Retrofit (For Structures Less than 60 ft. Long)	5/3/2022	10/12/2022
100	GRR-09	Guard Rail Rehabilitation (Flat Deck Precast Bridges)	5/3/2022	10/12/2022
101	GRR-10	Side Mounted Guard Rail for Bridges	5/3/2022	10/12/2022
102	GRR-11	Side Mounted Guard Rail (Concrete Deck with Timber Stringers)	5/3/2022	10/12/2022
103	GRR-12	Side Mounted Bridge Rail	5/3/2022	10/12/2022
104	GRR-13	Guard Rail Terminating On Brush Curb Bridge Rail	5/3/2022	10/12/2022
105	GRR-14	Guard Rail Continuous Across Brush Curb Bridge Rail	5/3/2022	10/12/2022
106	GRR-15	Guard Rail Rehabilitation (Concrete Deck)	5/3/2022	10/12/2022
107	GRR-16	Guard Rail Rehabilitation (Timber Deck)	5/3/2022	10/12/2022
108	GRR-17	Bridge Rail Rehabilitation Waskey Bridges	5/3/2022	10/12/2022
109	HS-03 Object Markers, Mileposts, and Dead End Road Installations		4/7/2014	2/11/2015

PAGE NO.	STANDARD PLAN NUMBER	DESCRIPTION	REVISION DATE	EFFECTIVE FOR THE LETTING OF
110	KG-01	Cattle Guard (Structural Steel)	10/19/1981	
111	LS-01	Typical Landscaping Layout for use with Dead End Road <u>Installations</u>	4/20/1978	
112	MB-01	Mailbox Installation Details (Sheet 1)	4/4/2022	8/10/2022
113	MB-01	Mailbox Installation Details (Sheet 2)	4/4/2022	8/10/2022
114-119	MC-01	Details of Grates, Grate Frames and Covers for Catch Basins and Manholes	5/25/2018	12/12/2018
120	MH-06	R.C. Manhole, Maximum Dimensions: 11'-10" x 7'-2", Maximum Depth 20'	5/18/2011	
121	MISC SPAN-COMMON	Miscellaneous Span Details: Index, Crown, Deck Placement Formwork @ Link Slab	5/12/2021	1/12/2022
122	MISC DECK-DRAIN	Miscellaneous Span Details: Deck Drains	5/12/2021	1/12/2022
123-124	MISC JOINT-NP	Miscellaneous Span Details: Sealed Expansion Joint - End Dams and Preformed Neoprene	5/12/2021	1/12/2022
125-126	MISC JOINT-SC	Miscellaneous Span Details: Sealed Expansion Joint - End Dams and Preformed Silicone		1/12/2022
127	MISC JOINT-SC-P	Miscellaneous Span Details: Poured Silicone Joint	5/12/2021	1/12/2022
128	PC-01	Precast Catch Basins and Manholes		3/13/2024
129	PED-01 (1 of 5)	Pedestrian Facilities: General Notes and Misc. Details		12/14/2022
130	PED-01 (2 of 5)	Pedestrian Facilities: Curb Ramps and Detectable Warning Location	7/21/2022	12/14/2022
131	PED-01 (3 of 5)	Pedestrian Facilities: Typical Crossing Layouts	7/21/2022	12/14/2022
132	PED-01 (4 of 5)	Pedestrian Facilities: Detectable Warning Surfaces	7/21/2022	12/14/2022
133	PED-01 (5 of 5)	Pedestrian Facilities: Joint Details	7/21/2022	12/14/2022
134	PG-DRAIN (DOUBLE)	Double Paved Gutter Drain	9/22/2020	5/12/2021
135	PG-DRAIN (SINGLE)	Single Paved Gutter Drain	9/22/2020	5/12/2021
1 136	PG-DRAIN WITH SIDEWALK (DOUBLE)	Double Paved Gutter Drain with Sidewalk	9/22/2020	5/12/2021
137	PG-DRAIN WITH SIDEWALK (SINGLE)	Single Paved Gutter Drain with Sidewalk	9/22/2020	5/12/2021
138	PM-01	Centerline and Edgeline Markings	2/28/2019	8/14/2019
139	PM-02	Pavement Word and Symbol Markings for Non-Interstate Use	2/28/2019	8/14/2019
140	PM-03	Pavement Word and Symbol Markings for Interstate Use	2/28/2019	8/14/2019
141	PM-04	Auxiliary, Deceleration and Acceleration Lanes and Gore Striping Layouts	2/28/2019	8/14/2019
142	PM-05	Typical Intersection Striping Layouts	2/28/2019	8/14/2019
143	PM-06	1-06 Lane Reduction and Island Layouts		8/14/2019
144	PM-07	-07 Railway Crossing Layout		8/14/2019
145	PM-08	Pedestrian/Bike Striping Layout	2/28/2019	8/14/2019
146	PM-09	Roundabout Striping Layout	2/28/2019	8/14/2019

PAGE NO.	STANDARD PLAN NUMBER	DESCRIPTION	REVISION DATE	EFFECTIVE FOR THE LETTING OF
147	PRCB-01	Precast Reinforced Concrete Box Culverts	7/20/2022	12/14/2022
148	R-CB-11	Concrete Manhole (36" x 36") (10' Max. Depth)	3/1/2011	3/1/2011
149	R-CB-11 MOD	Concrete Manhole (36" x Open Max. Pipe)(10' Max. Depth)	3/1/2011	3/1/2011
150	R-CB-36	Sanitary Sewer R.C. Manhole	10/22/2008	1/1/2009
151	R-CB-38	Concrete Open Top Catch Basin (60" x 60" Max. Pipe)(24" Max. Depth)	11/17/2008	3/1/2009
152	RCB-EXTENSION	Standard Method for Extending Reinforced Concrete Box Culverts for 90° and Skewed Crossings.	4/8/2009	7/29/2009
153	R-CP-100 REV	Alternate Load Transmission Assembly for Expansion and Dummy Joints	3/19/1984	
154	RM-01	Right Of Way Monuments	2/1/2021	5/12/2021
155	RM-37	Portable Steel Rail Cattle Guard (42# to 45# Deck Rails)	3/24/1977	
156	RM-37 Mod.	Portable Steel Rail Cattle Guard (55# Min. Deck Rails)	3/24/1977	
157-173	RS-01	Roadside Signing Standards (Sheets 1-17)	7/1/2022	12/14/2022
174	RW-01	Miscellaneous Retaining Wall Details T & L Types 2' 0" thru 6' 0' Heights	6/13/2017	7/12/2017
175	SAM-1(Sheet 1)	Metal Pipe Wall Thickness and Connecting Bands, Fill Height for Metal Pipe (Sheet 1)	10/5/2005	
176	SAM-1(Sheet2)	Metal Pipe Wall Thickness and Connecting Bands, Fill Height for Metal Pipe (Sheet 2)	10/5/2005	
177	SC-01	Typical Speed Change Lane for Interstate Highways	11/21/2005	
178	SW-01	Shoulder Wedge	10/25/2022	3/8/2023
179	SWBS-100	Steel Wire Bar Supports	3/6/2013	8/1/2013
180-194	TS-OH	Overhead Traffic Signs	8/25/2025	1/1/2026
195	TTC-00 (A)	Temporary Traffic Control, General Notes Sheet	2/7/2025	6/11/2025
196	TTC-00 (B)	Temporary Traffic Control, General Notes Sheet	2/7/2025	6/11/2025
197	TTC-00 (C)	Temporary Traffic Control, General Notes Sheet	2/7/2025	6/11/2025
198	TTC-00 (D)	Temporary Traffic Control, Layout for Placement of Road Work, Next XX Miles, and End Road Work Signs	2/7/2025	6/11/2025
199	TTC-01	Temporary Traffic Control, For Work Greater than 15 Feet From the Traveled Way	2/7/2025	6/11/2025
200	TTC-02	Temporary Traffic Control, Layout For Work Less than 15 Feet From the Traveled Way	2/7/2025	6/11/2025
201	TTC-03	Temporary Traffic Control, Layout For Lane Closures on Two Lane Roads With Two-Way Traffic Near Intersections (Flagging Operations)	2/7/2025	6/11/2025
202	TTC-04	Temporary Traffic Control, Layout For Lane Closures on Two Lane Roads With Two-Way Traffic (Flagging Operations)	2/7/2025	6/11/2025
203	TTC-05	Temporary Traffic Control, For On-Site Diversion With Two- Way Traffic	2/7/2025	6/11/2025
204	TTC-06	Temporary Traffic Control, For Lane Closures on Four-Lane Undivided Highways	2/7/2025	6/11/2025

PAGE NO.	STANDARD PLAN NUMBER	DESCRIPTION	REVISION DATE	EFFECTIVE FOR THE LETTING OF
205	TTC-07	Temporary Traffic Control, For Closure of Two Adjacent Lanes On Four-Lane Undivided Highways	2/7/2025	6/11/2025
206	TTC-08	Temporary Traffic Control, For Median Crossover On Non- Interstate Divided Highways	2/7/2025	6/11/2025
207	TTC-09	Temporary Traffic Control, For Lane Closures On Divided Highways (Does not Include ramp entrance or exit tapers)	2/7/2025	6/11/2025
208	TTC-10	Temporary Traffic Control, For Lane and Sidewalk Closures In Urban Areas With Speed Limit Less Than or Equal to 40 MPH)	2/7/2025	6/11/2025
209	TTC-11	Temporary Traffic Control, For Lane Closure Using Temporary Barrier Rail On Divided Highway (Includes Freeways)	2/7/2025	6/11/2025
210	TTC-12	Temporary Traffic Control, For Lane Closures Through Ramp Entrance and Exit Tapers	2/7/2025	6/11/2025
211	TTC-13	Temporary Traffic Control, For Closure of Two Lanes on a Multi-Lane Highway	2/7/2025	6/11/2025
212	TTC-14	Temporary Traffic Control, For Louisiana Left On Interstate Highways	2/7/2025	6/11/2025
213	TTC-15	Temporary Traffic Control, For Short Duration Closing of Divided Highways	2/7/2025	6/11/2025
214	TTC-16	Temporary Traffic Control, For Road Closures	2/7/2025	6/11/2025
215	TTC-17	Temporary Traffic Control, Moving Operations for Interstate and Multi-Lane Roadways	2/7/2025	6/11/2025
216	TTC-18	Temporary Traffic Control, For Moving Operations On Two- Way Two-Lane Roadways	2/7/2025	6/11/2025
217	TTC-19	Temporary Traffic Control, For Traffic Signal Installation and Maintenance at an Intersection	2/7/2025	6/11/2025
218	WP-01	Right of Way Monument Witness Posts	2/1/2021	5/12/2021

- 1. REINFORCED CONCRETE PIPE AND FLEXIBLE PIPE ARE SHOWN AS TYPICAL STRUCTURES, DETAILS ALSO APPLY TO REINFORCED CONCRETE BOX CULVERT, REINFORCED CONCRETE PIPE ARCH, CORRUGATED METAL PIPE ARCH, AND CORRUGATED STRUCTURAL PLATE
- 2. CONSTRUCTION COVER REQUIREMENTS MAY EXCEED FINAL COVER.

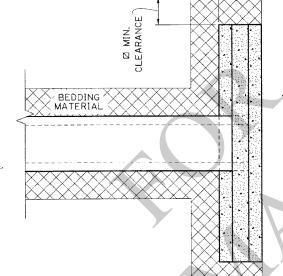
PLASTIC SOIL PLUG ~

(A)-

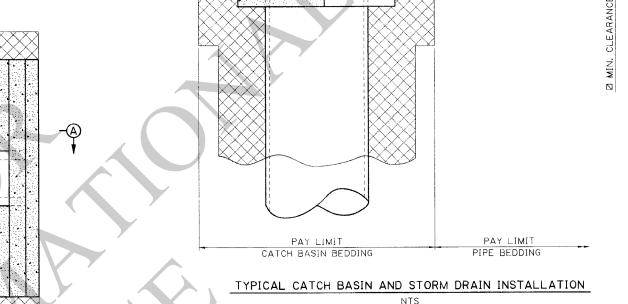
- CROSS DRAIN DETAILS APPLY TO ALL REACHES OF PIPE UNDER RIGID OR FLEXIBLE ROADWAYS.
- FOR STRUCTURES INSTALLED OUTSIDE THE LIMITS OF THE ROADWAY, THE 12" OF FINAL BACKFILL ABOVE TYPE B BACKFILL UP TO THE EXISTING GROUND SHALL BE PLASTIC SOIL BLANKET MATERIAL. IF THE EMBANKMENT TO BE INSTALLED IS GREATER THAN 12" ABOVE EXISTING GROUND IN THE AREA OVER THE STRUCTURE, THEN THE PLASTIC SOIL BLANKET IS NOT REQUIRED AND TYPE B BACKFILL MAY EXTEND TO EXISTING GROUND.

☑ MINIMUM TRENCH CLEARANCE				
TYPE OF STRUCTURE INSIDE DIAMETER MIN. CLEARANCE				
REINFORCED CONCRETE	ALL	18"		
FLEXIBLE PIPE	<48"	18"		
FLEXIBLE PIPE	≥48"	24"		

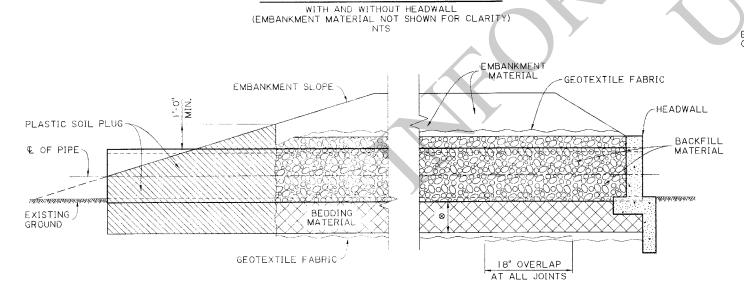
MIN. FARANCE



☑ MIN. CLEARANCE

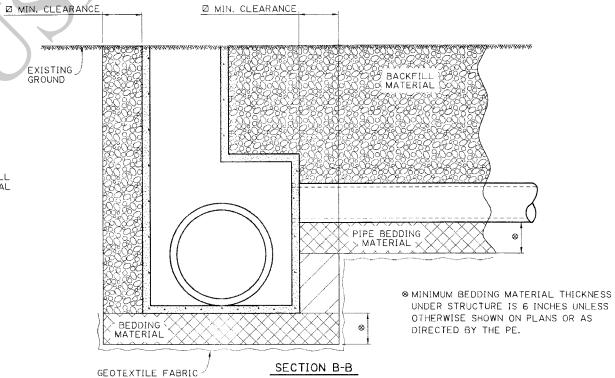


☑ MIN. CLEARANCE



TYPICAL CROSS DRAIN INSTALLATION

SECTION A-A WITH AND WITHOUT HEADWALL



NTS

☑ MIN. CLEARANCE

BEDDING MATERIAL

STRUCTURES DRAINAGE BEDDING

DOI PAVEMENT & GEOTECHNICAL SERVICES

CONTROL

10/23/2023



8 BACKFILL

ELEXIBLE

PIPE

FLEXIBLE PIPE CROSS DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS

SCALE: $1\frac{1}{2}$ "=1'-0"

CLEARANCE 200

GEOTEXTILE FABRIC

8

8

TYPE "B" EXISTING BACKFILL GROUND MATERIAL TYPE "B"
BACKFILL
MATERIAL 12" GEOTEXTILE FABRIC OVERLAP ☑ MINIMUM P FX CLEARANCE FLEXIBLE PIPE CMATERIAL Ø GEOTEXTILE FABRIC 3" MIN. SCARIFIED BEDDING 1/3 PIPE DIAMETER FLEXIBLE PIPE STORM DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS

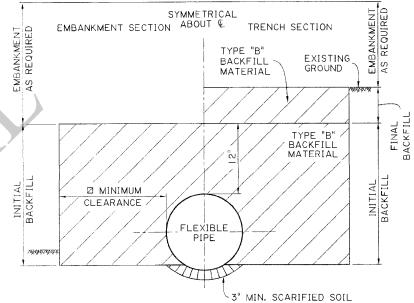
SCALE: | 1/2"= | '-0"

SYMMETRICAL

EMBANKMENT SECTION ABOUT & TRENCH SECTION

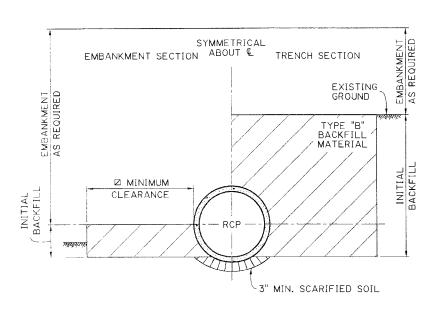
 ■ MINIMUM BEDDING MATERIAL THICKNESS UNDER STRUCTURE IS 6 INCHES UNLESS OTHERWISE SHOWN ON PLANS OR AS DIRECTED BY THE PE.

A NO BEDDING MATERIAL REQUIRED UNLESS OTHERWISE SPECIFIED



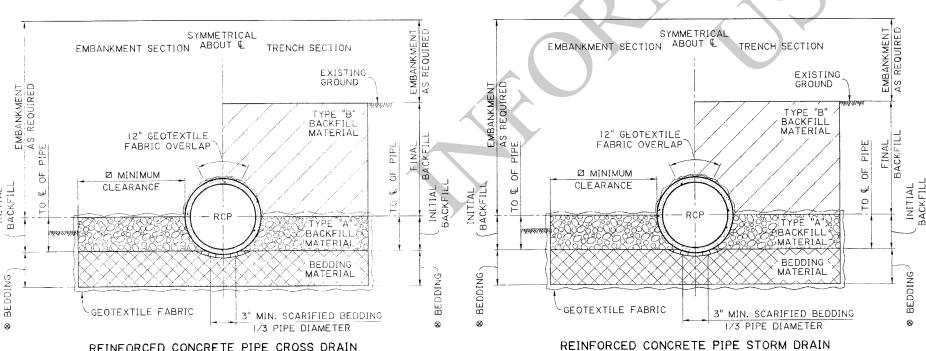
A FLEXIBLE PIPE SIDE DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS SCALE: 11/2"=1'-0"



A REINFORCED CONCRETE PIPE SIDE DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS SCALE: 11/2"=1'-0"



⊗

MATERIAL

3" MIN. SCARIFIED BEDDING

1/3 PIPE DIAMETER

BE

REINFORCED CONCRETE PIPE CROSS DRAIN

TRENCH AND EMBANKMENT INSTALLATIONS SCALE: 1/2"=1'-0"

TRENCH AND EMBANKMENT INSTALLATIONS SCALE: 1/2"=1'-0"

ON THE PLANS OR AS DIRECTED BY THE PE. * REFER TO NOTE 3 ON SHEET I OF THIS SERIES.

J

CONTROL

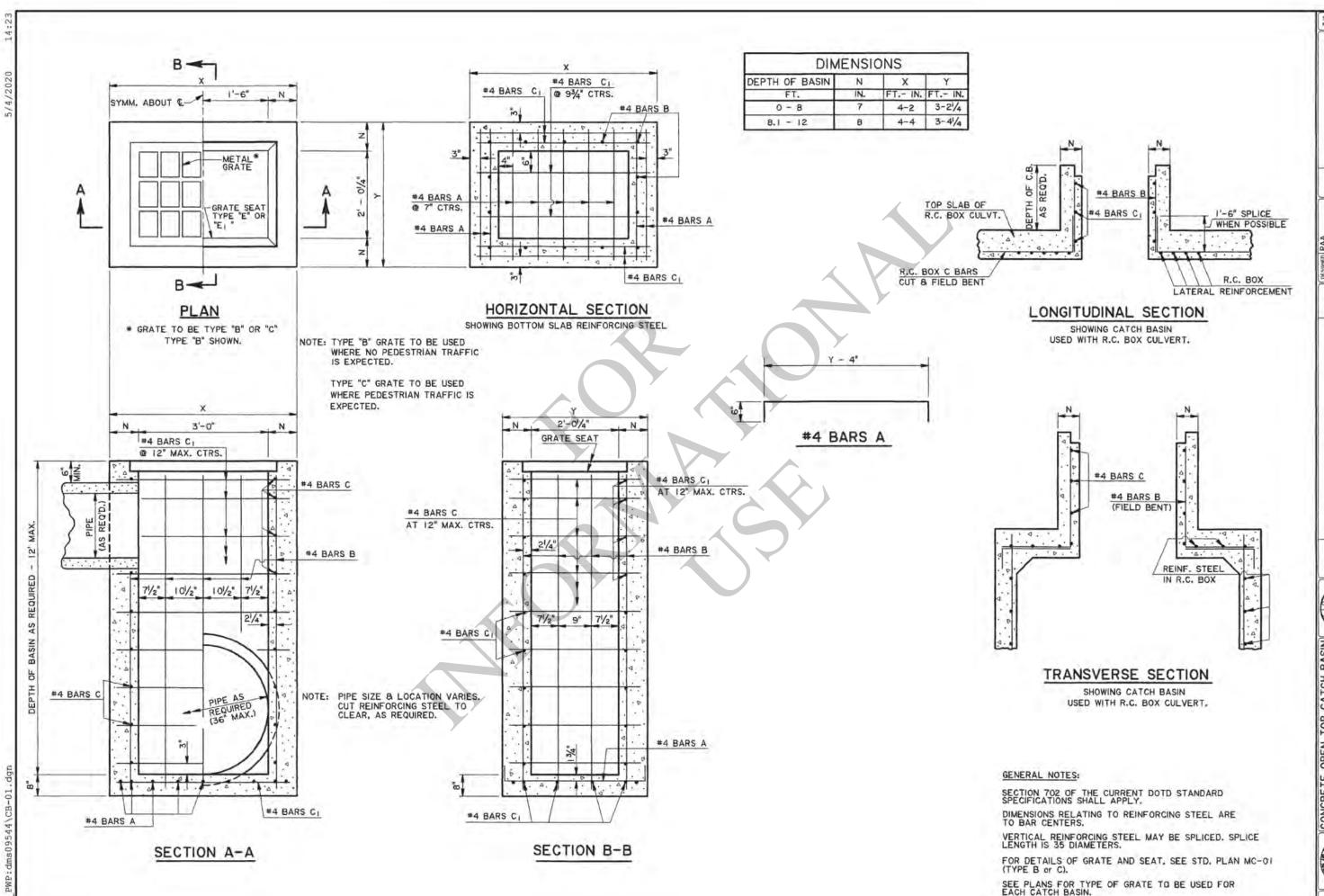
10/23/2023



FOR CROSS DRAINS STRUCTURES DRAINAGE

TYPICAL SECTIONS DRAINS & SIDE



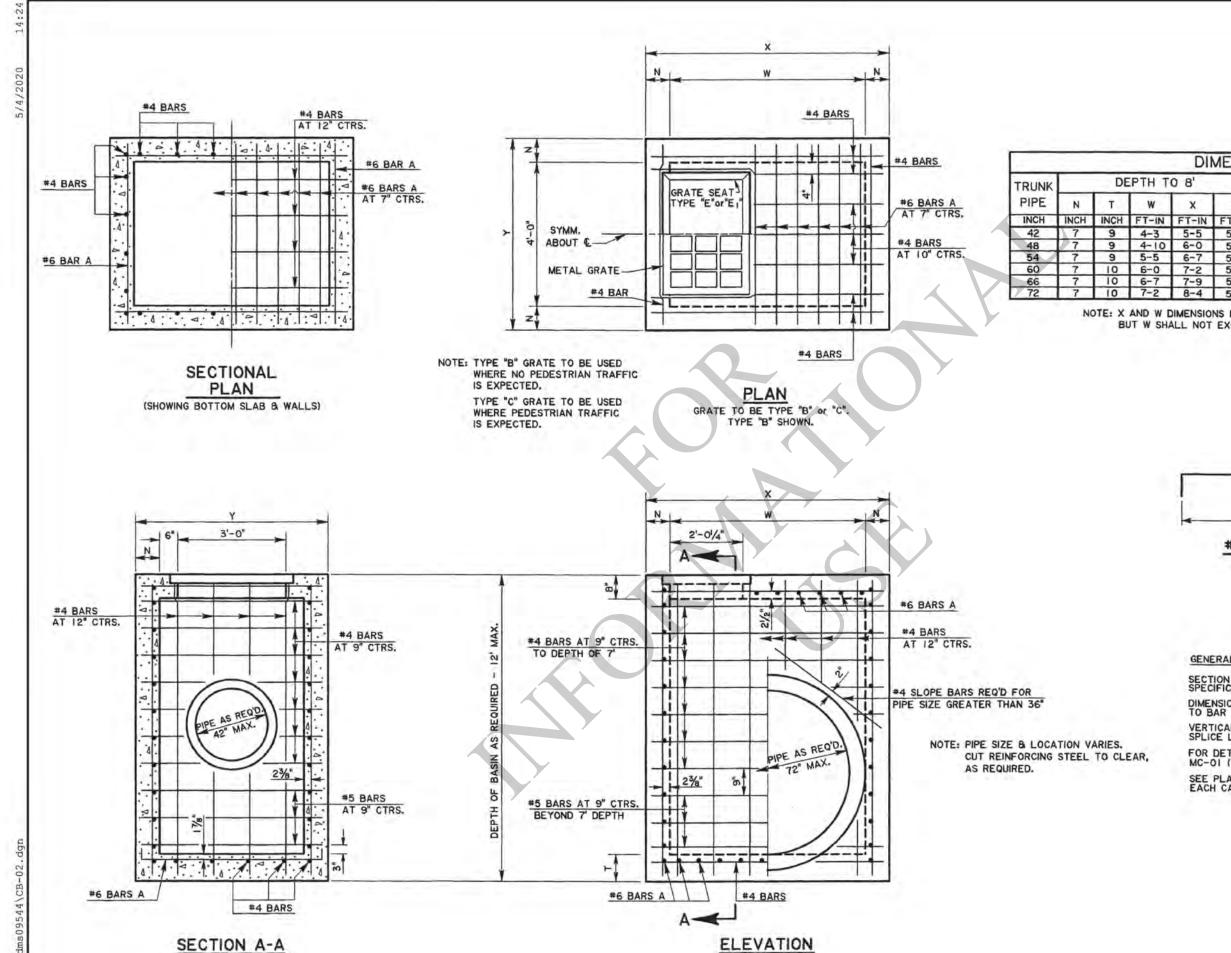


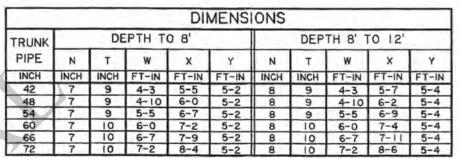
Converted Metric CB-OIM to I

A & Solul

CONCRETE OPEN TOP CATCH BASIN
Max. Pipe: 36" x 24"
Max. Depth: 12"
To Be Used in Conjunction With Std. Plan MC-01

HYDRAULICS SECTION





NOTE: X AND W DIMENSIONS MAY BE VARIED FOR SKEWED PIPE, BUT W SHALL NOT EXCEED 7'-2".

> #6 BARS A (41/2" Diam. Pin)

GENERAL NOTES:

SECTION 702 OF THE CURRENT DOTD STANDARD SPECIFICATIONS SHALL APPLY.

DIMENSIONS RELATING TO REINFORCING STEEL ARE TO BAR CENTERS.

a

VERTICAL REINFORCING STEEL MAY BE SPLICED, SPLICE LENGTH IS 35 DIAMETERS.

FOR DETAILS OF GRATE AND SEAT, SEE STD. PLAN MC-OI (TYPE B or C).

SEE PLANS FOR TYPE OF GRATE TO BE USED FOR EACH CATCH BASIN.

72" × 12" × 12"

BASIN

FEDERAL PROJECT STATE PROJECT

DESONED PAA
CHECKED KAJ
CHECKED WMR
DATE 1-31
SHEET 1 OF

11-2-00 Converted Metric CB-02M to English
DATE REVISION DESCRIPTION

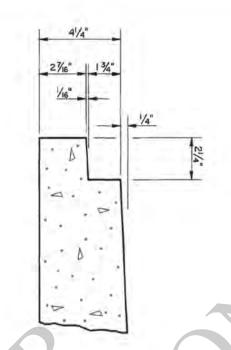


HYDRAULICS SECTION

FOR DETAILS OF CAST IRON GRATE,

SEE STD. PLAN MG-OI, TYPE A. (GRATE SEAT NOT REQ'D.)

ELEVATION



GENERAL NOTES:

ALL CONCRETE TO BE CLASS "P".

SETTING TOLERANCE TO BE +0 & -1".

WELDED WIRE MESH TO BE OVERLAPPED A MINIMUM 3" FOR SPLICE.

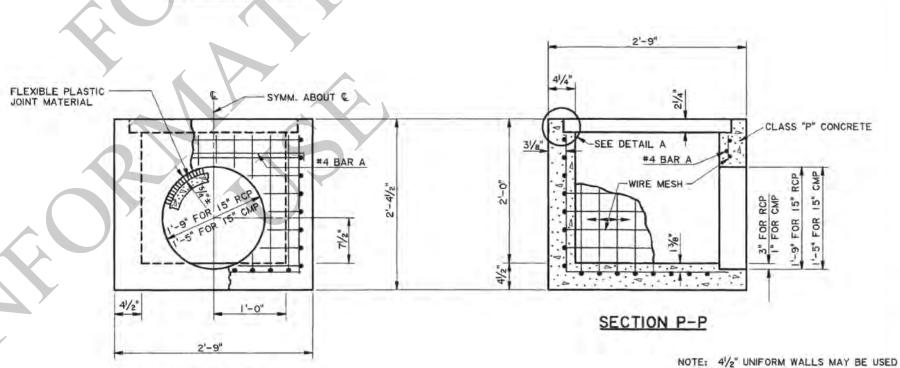
OPENING TO MATCH TYPE OF PIPE SPECIFIED ON PLAN/PROFILE OR SUMMARY OF DRAINAGE STRUCTURES.

THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE PLACEMENT OF ALL PICK-UP AND HANDLING DEVICES.

AFTER PLACEMENT OF PIPE, THE OPENING AROUND PIPE SHALL BE FILLED WITH FLEXIBLE PLASTIC JOINT MATERIAL.

DIMENSIONS RELATING TO REINFORCED STEEL ARE TO BAR CENTERS.

DETAIL ALL DIMENSIONS TYPICAL



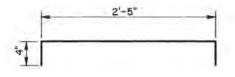
END ELEVATION

AT SUPPLIER'S OPTION.

NOT TO BE USED WHERE SUBJECT TO VEHICULAR TRAFFIC.

NOTE: STANDARD PLAN MC-OI (DETAILS OF GRATES, FRAMES, SEATS, LIDS, ETC.) MAY BE OBTAINED FROM: HYDRAULICS SECTION DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT P.O. BOX 94245 CAPITOL STATION

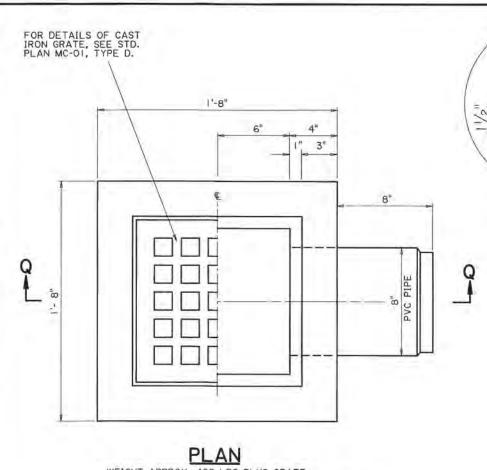
BATON ROUGE, LA 70804



#4 BAR A



10202lus



1/16" 215/16"

INSET A

NOTE:

STANDARD PLAN MC-OI (DETAILS OF GRATES, FRAMES, SEATS LIDS, ETC.), MAY BE OBTAINED FROM:

> HYDRAULICS & STANDARD PLANS DEPARTMENT OF TRANSPORTION AND DEVELOPMENT P.O. BOX 94245 CAPITOL STATION BATON ROUGE, LA 70804

1'-10"

CONTROL

S F F S

A COM

MITRA HASHEMIEH REG. No. 28546

M. Haskenie

2/5/2019

CONCRETE CATCH BASIN YARD DRAIN TYPE - PRECAST OR CAST-IN-PLACE MAX, PIPE: 8" e used in conjunction with Std. Plan MC-OI

DOTE

HYDRAULICS SECTION

CAST-IN-PLACE OPTION

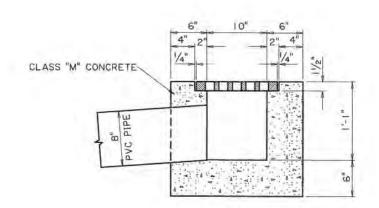
CLASS "M" CONCRETE

PLAN

GRATE NOT SHOWN

FOR DETAILS OF GRATE, SEE STD. PLAN MC-OI. TYPE D. TULLULI

ELEVATION



NOT TO BE USED WHERE SUBJECT TO VEHICULAR TRAFFIC

PRECAST OPTION

NOTES:

CONCRETE TO BE CLASS AI.

CATCH BASIN TO BE SUPPLIED COMPLETE, INCLUDING C.I. GRATE.

THE CATCH BASIN SUPPLIER SHALL BE RESPONSIBLE FOR SELECTION AND PLACEMENT OF ANY PICK-UP AND HANDLING DEVICES. SETTING TOLERANCE TO BE +0 8 -1".

WEIGHT APPROX. 460 LBS PLUS GRATE RIGHT HALF OF GRATE NOT SHOWN FOR CLARITY

1'-8" 1'-0" SEE INSET "A"-*41/4" I' SECTION OF 8" PIPE CAST INTO BASIN AT CASTING YARD PROJECTING END TO BE MALE.

*4" UNIFORM WALLS MAY BE USED, AT SUPPLIERS OPTION

ELEVATION

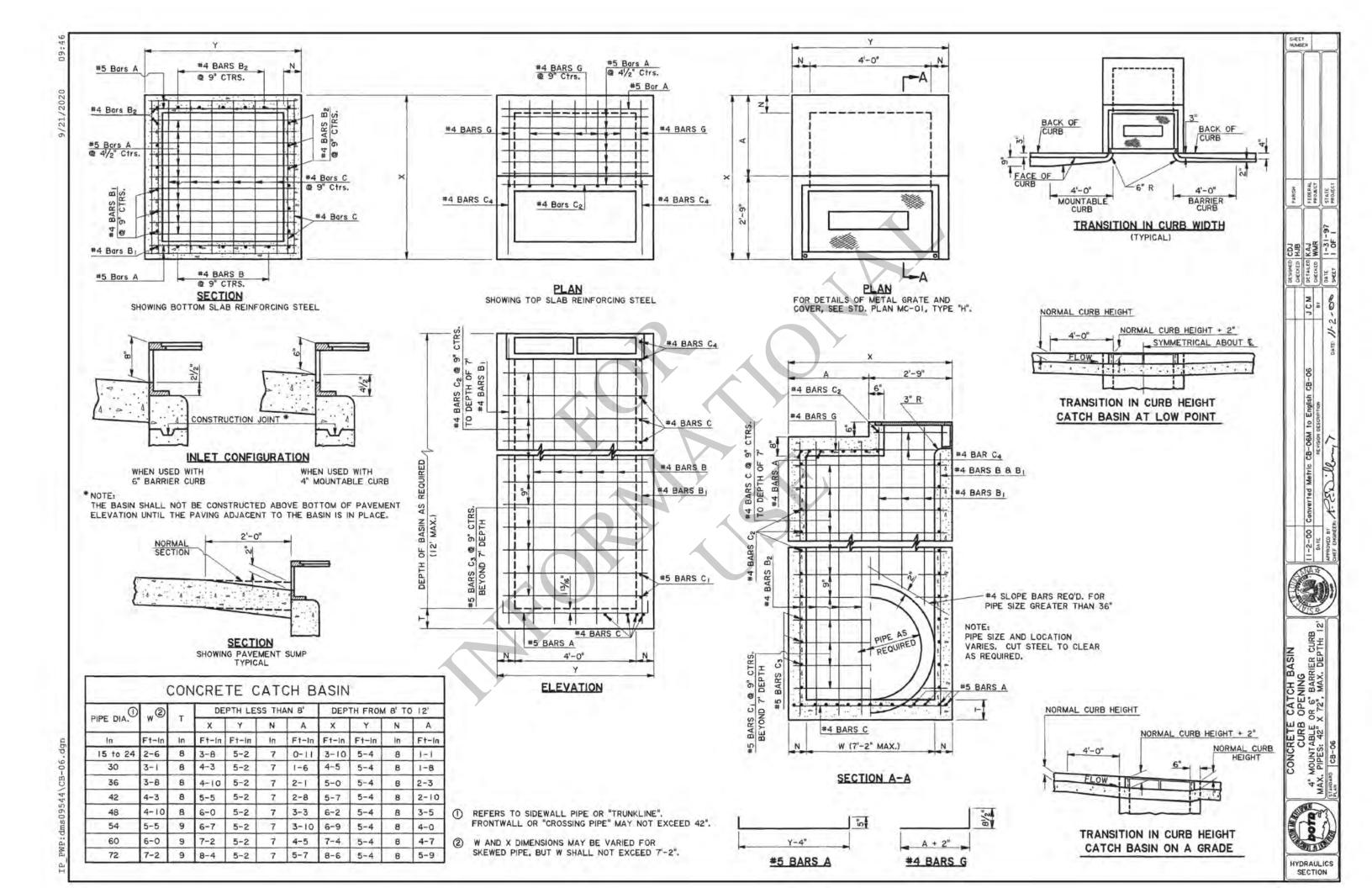
SECTION Q-Q

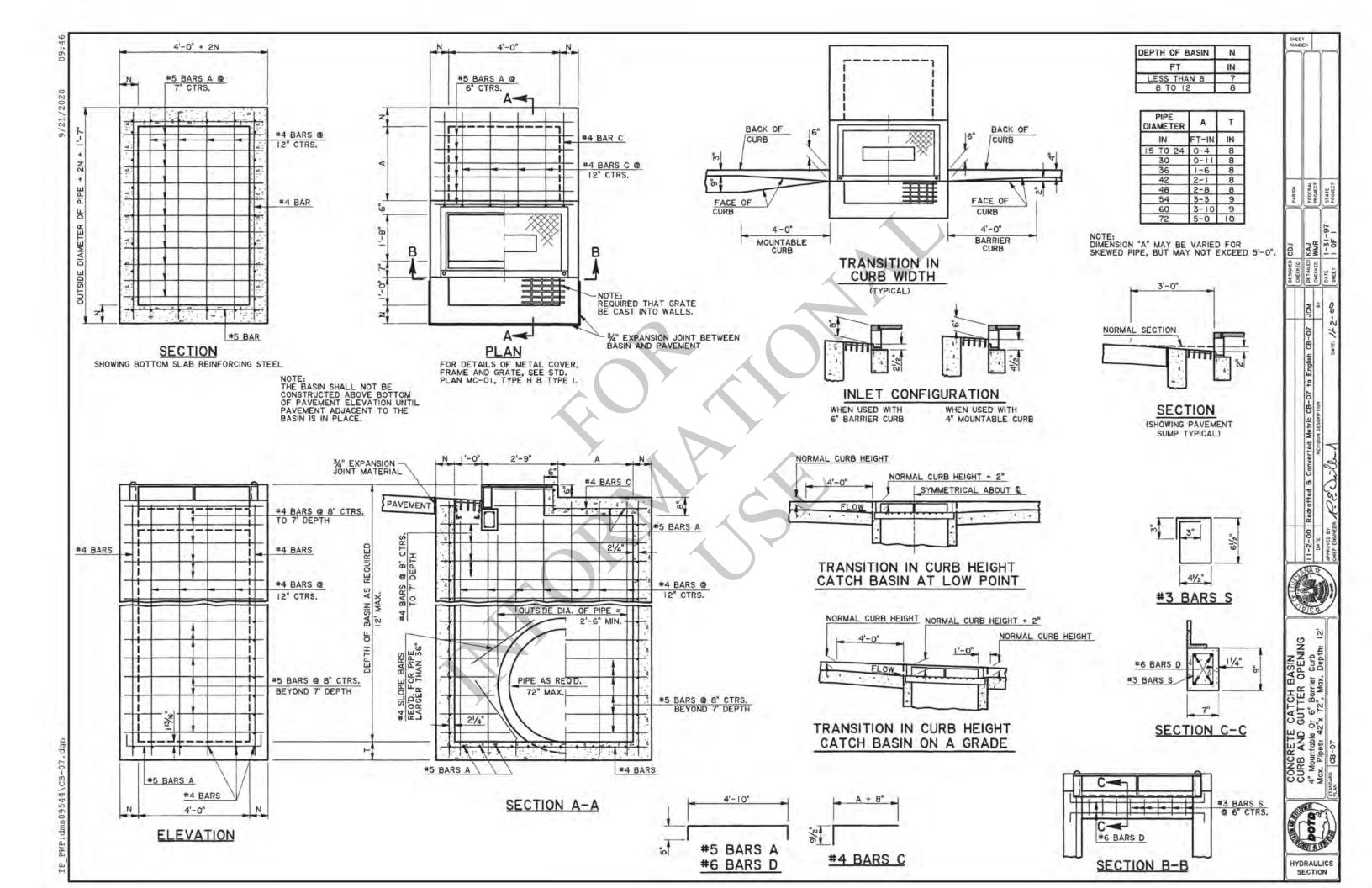
NOT TO BE USED WHERE SUBJECT TO VEHICULAR TRAFFIC

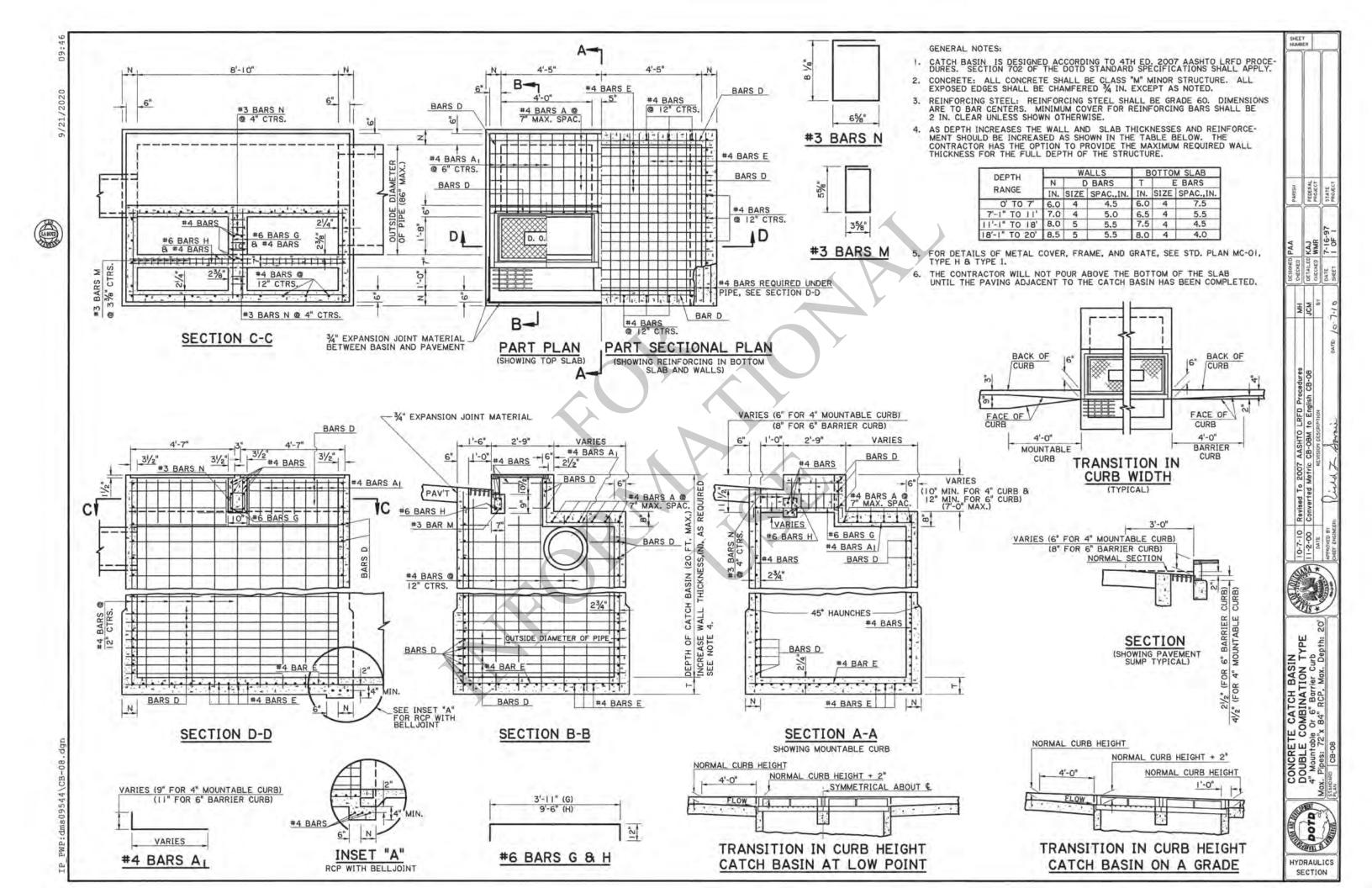
AN 8" RESILIENT BOOT CONNECTOR (SUCH AS A-LOK, Z-LOK OR QUIK-LOK) IS ALLOWED AS AN ALTERNATE TO CAST-IN-PLACE PIPE DETAIL

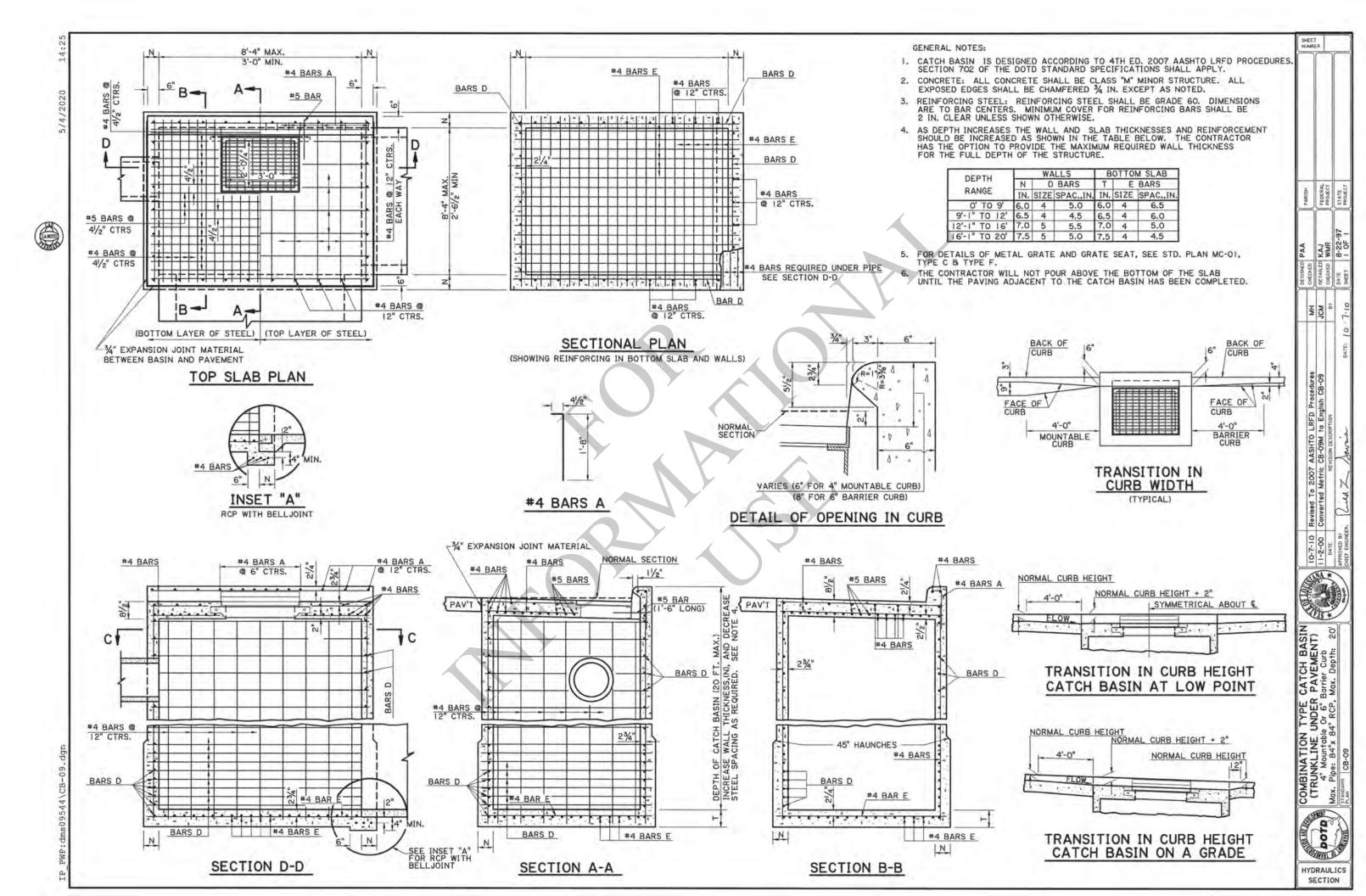
10"

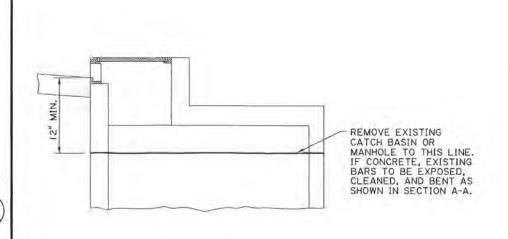
SECTION A-A

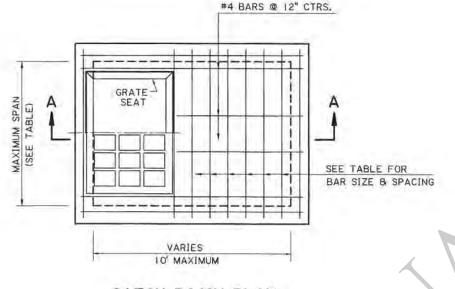












SEE TABLE FOR BAR SIZE & SPACING

#4 BARS @ 12" CTRS.

MANHOLE PLAN

10' MAXIMUM

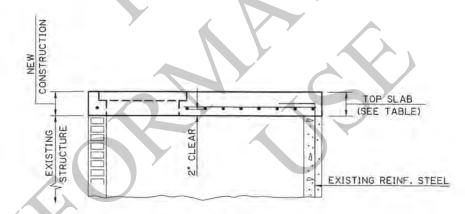
SHOWING NEW CONSTRUCTION

SECTION EXISTING STRUCTURE

CATCH BASIN PLAN SHOWING NEW CONSTRUCTION GRATE TO BE TYPE "B" OR "C". TYPE "B" SHOWN.*

* TYPE "B" AND "C" GRATES SHOULD NOT BE USED IN THE TRAVEL LANE. TYPE "B" GRATE IS TO BE USED WHERE NO PEDESTRIAN TRAFFIC AND NO VEHICULAR TRAFFIC IS EXPECTED. (DITCHES, ETC.)

TYPE "C" GRATE IS TO BE USED WHERE PEDESTRIAN TRAFFIC AND/OR LIGHT VEHICULAR TRAFFIC IS EXPECTED. (DRIVEWAYS, SHOULDERS, ETC.)



MAXIMUM SPAN	TOP SLAB	BAR SIZE	BAR SPACING
4'	8"	#5	8"
6'	81/2"	#5	6"
8'	91/2"	#5	5"
9'	101/2"	#5	4"

GENERAL NOTES:

DIMENSIONS RELATING TO REINFORCED STEEL ARE TO

FOR DETAILS OF CATCH BASIN GRATE AND SEAT, SEE STD. PLAN MC-OI (TYPE B OR C).

FOR DETAILS OF MANHOLE CAST IRON COVER AND SEAT, SEE STD. PLAN MC-OI (TYPE K OR K_1). PROJECT SPECIFICATIONS FOR MANHOLES, JUNCTION BOXES AND CATCH BASINS SHALL APPLY.

SECTION A-A

SHOWING NEW CONSTRUCTION FOR CATCH BASIN OR MANHOLE (FOR CONCRETE OR BRICK WALL)

ADJUSTMENT/CONVERSION OF EXISTING CATCH BASINS OR MANHOLES

- NOTE: 1) FOR ALL CATCH BASIN ADJUSTMENTS, THIS DETAIL SHOULD BE INCLUDED IN THE PLANS AND PAID FOR WITH APPROPRIATE PAY ITEMS.
 - 2) FOR ALL CATCH BASIN AND MANHOLE CONVERSIONS (CATCH BASIN TOP TO MANHOLE TOP OR MANHOLE TOP TO CATCH BASIN TOP), THIS DETAIL SHOULD BE INCLUDED IN THE PLANS ALONG WITH THE APPROPRIATE STANDARD PLAN/SPECIAL DETAIL TO CONSTRUCT THE NEW TOP. IF NO STANDARD PLAN/SPECIAL DETAIL IS INCLUDED, THE TOP IS TO BE BUILT AS SHOWN ON THIS DETAIL. ALL CONVERSIONS SHOULD BE PAID FOR WITH APPROPRIATE PAY ITEMS.
 - 3) FOR ALL MANHOLE ADJUSTMENTS GREATER THAN 7". THIS DETAIL SHOULD BE INCLUDED IN THE PLANS AND PAID FOR WITH APPROPRIATE PAY ITEMS.
 - 4) FOR ALL MANHOLE ADJUSTMENTS LESS THAN OR EQUAL TO 7", MANHOLE ADJUSTMENT RINGS MAY BE USED. SHOULD BE PAID FOR WITH APPROPRIATE PAY ITEMS AND NO DETAIL IS NEEDED IN THE PLANS. REFER TO STANDARD PLAN MC-OI.
 - 5) FOR ALL CATCH BASIN/MANHOLE ADJUSTMENTS, CLEAN EXISTING GRATES/FRAMES AS PER PROJECT SPECIFICATIONS FOR MANHOLES, JUNCTION BOXES AND AND CATCH BASINS.



ADJUSTMENT/CONVERSION OF EXISTING CATCH BASINS OR MANHOLES

HYDRAULICS DESIGN

VARIES

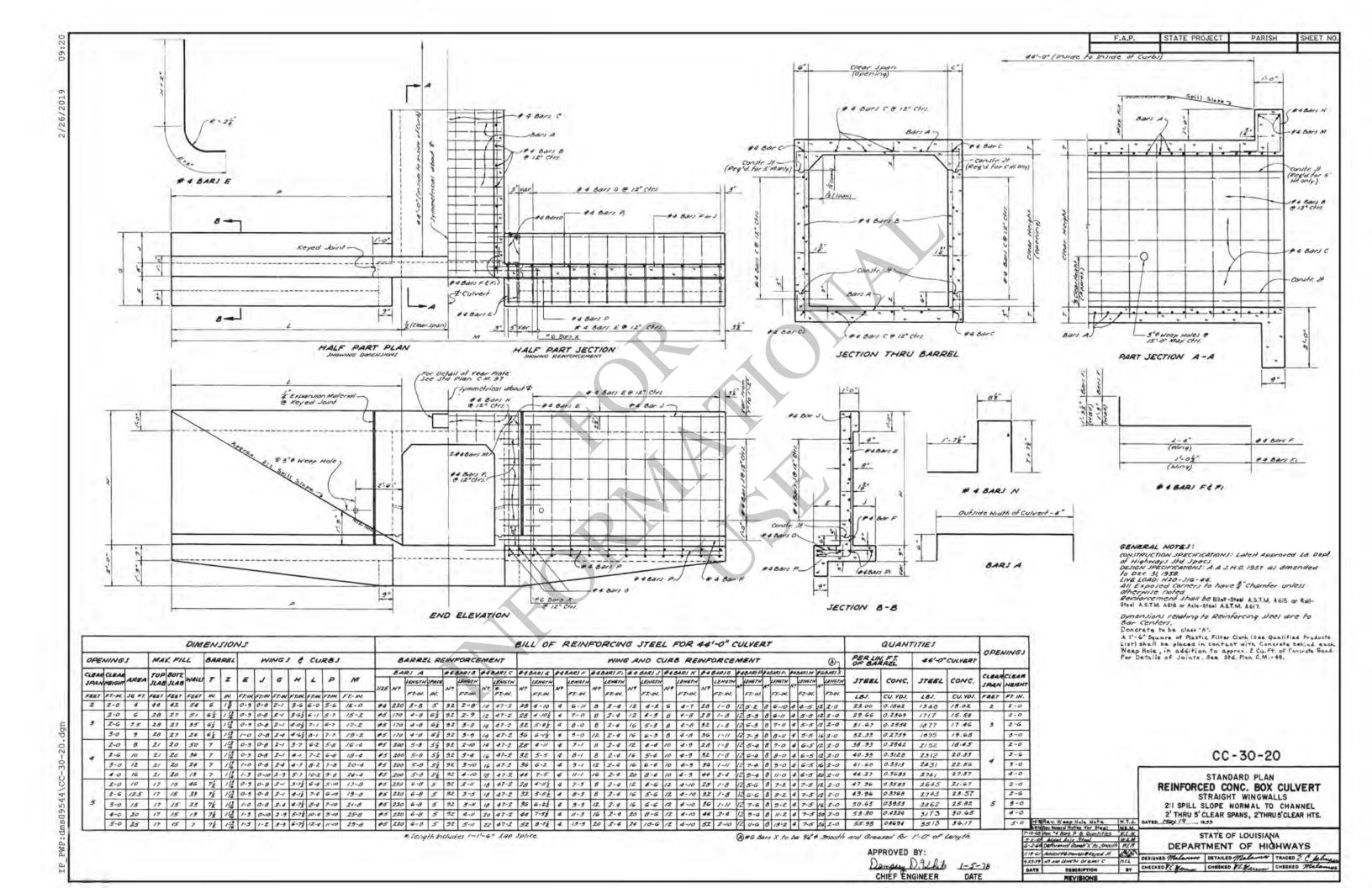
MITRA HASHEMIEN REG. No. 28546 + Harley

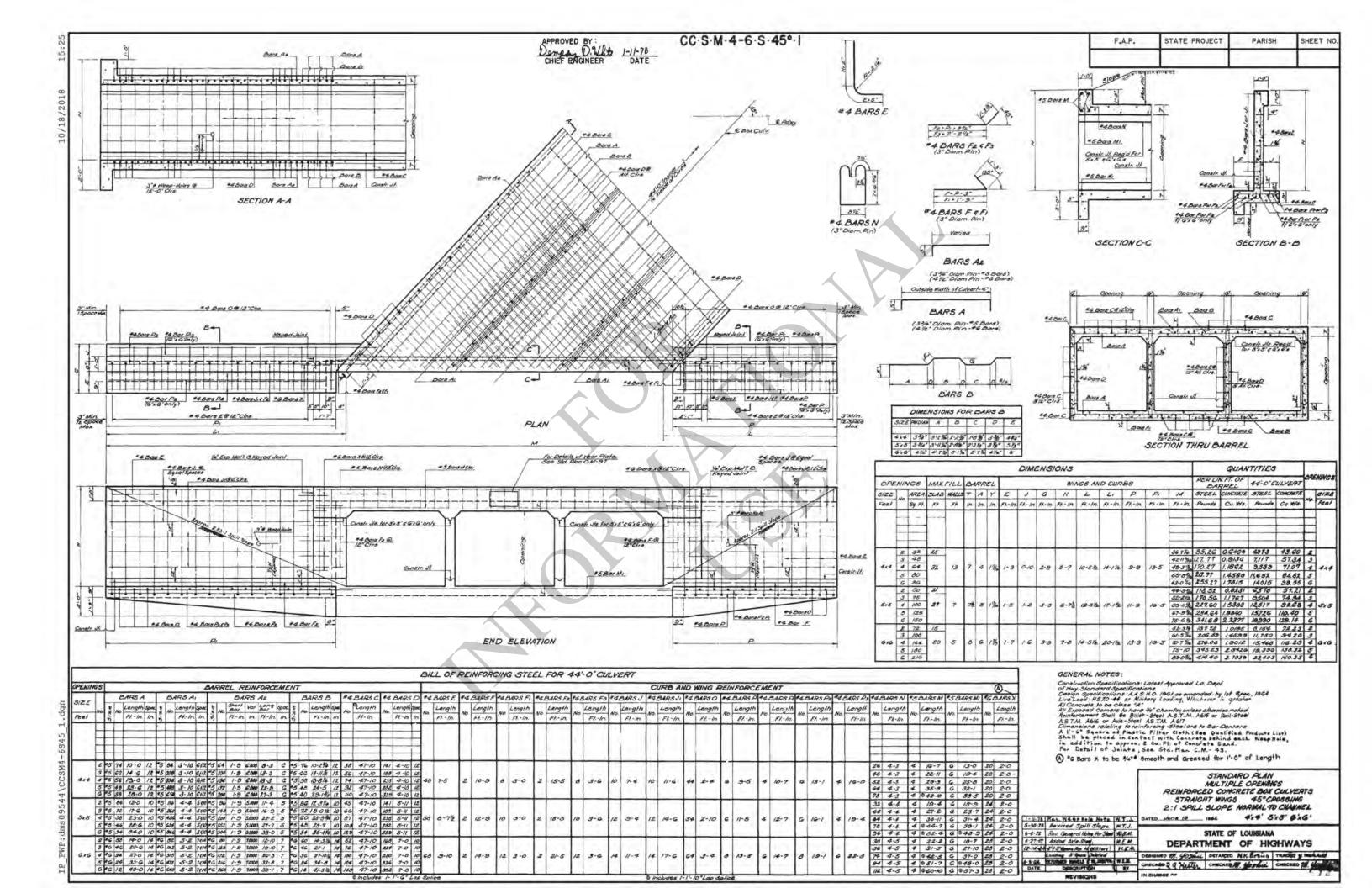
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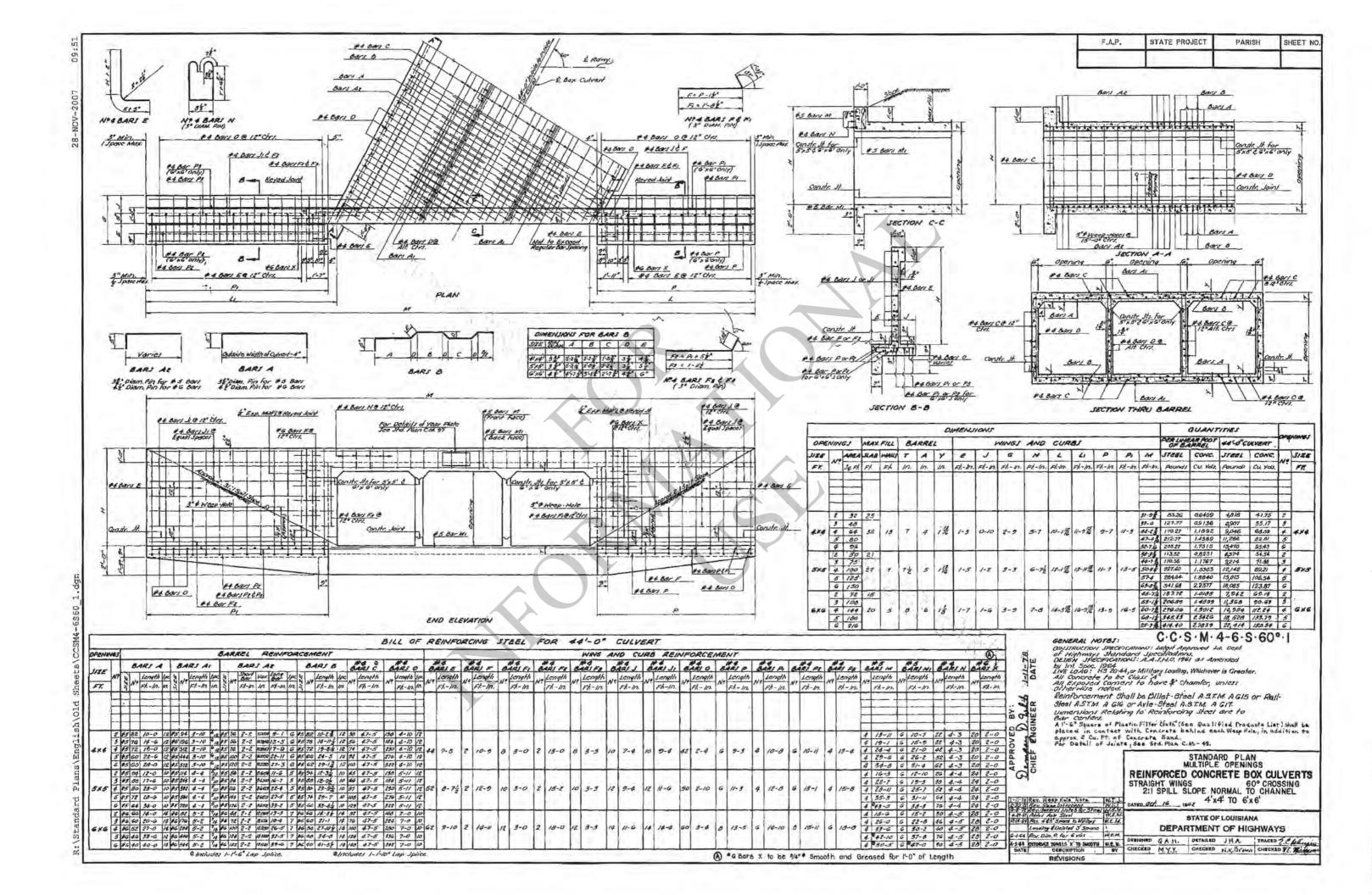


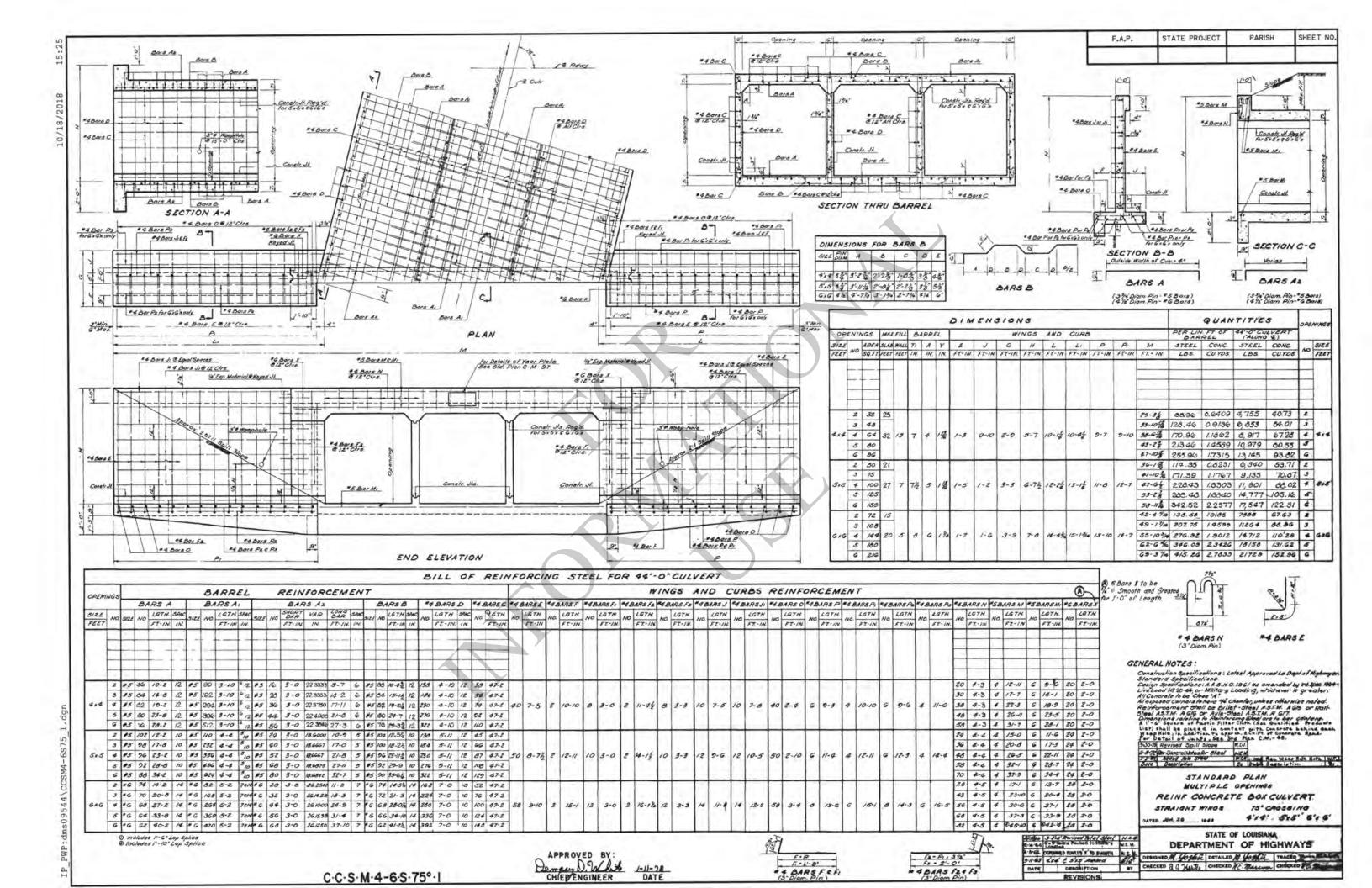


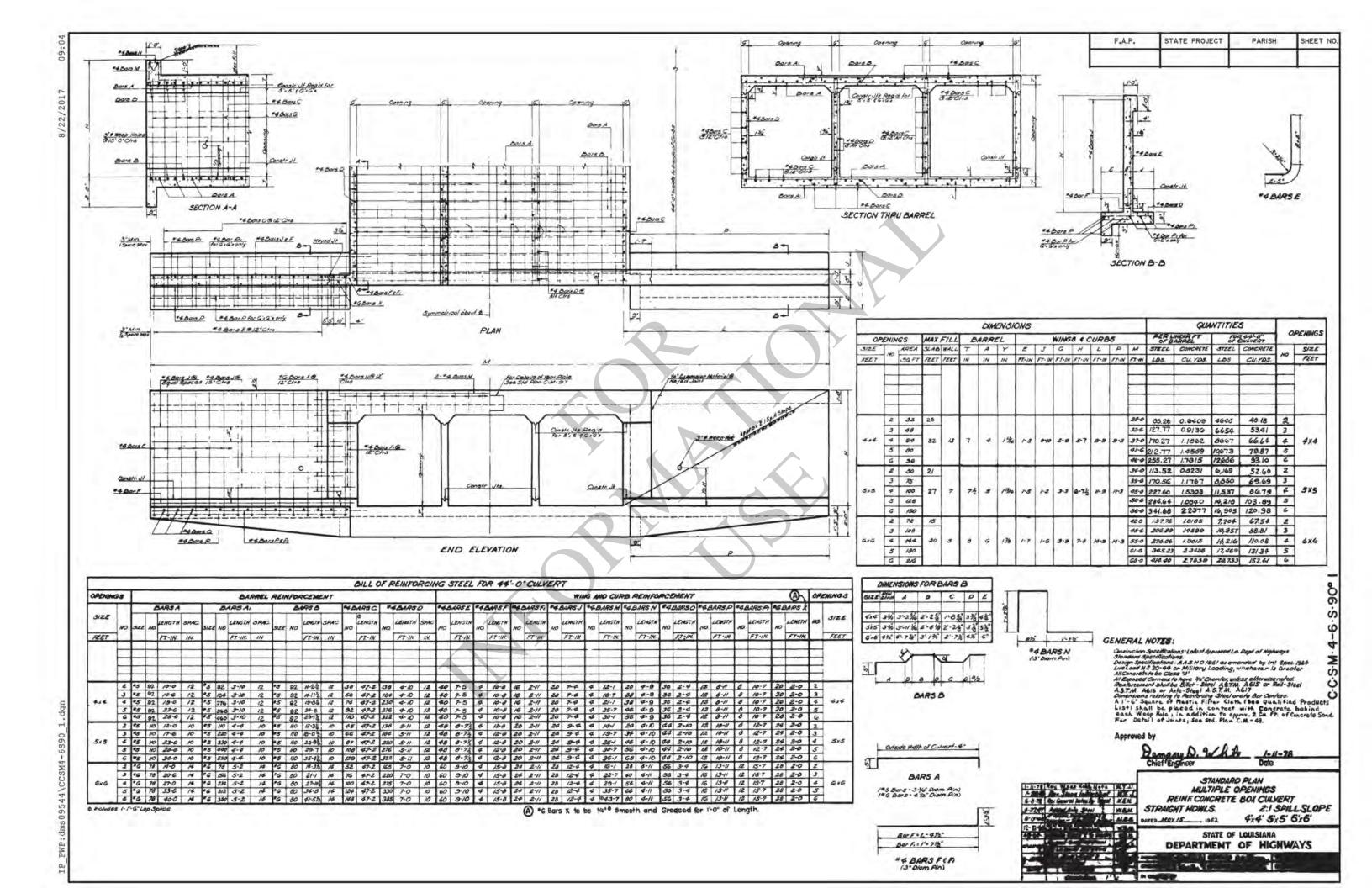


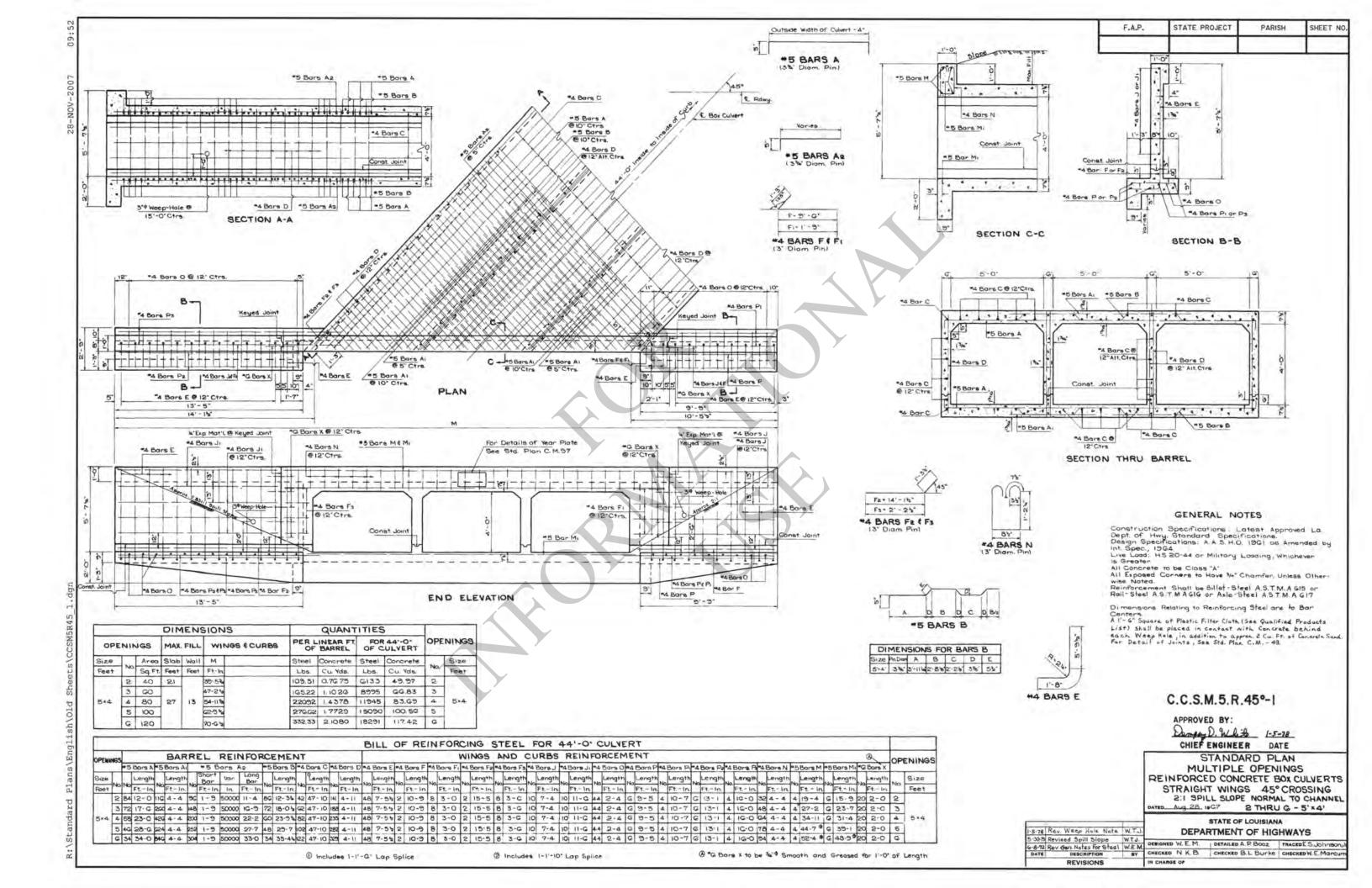


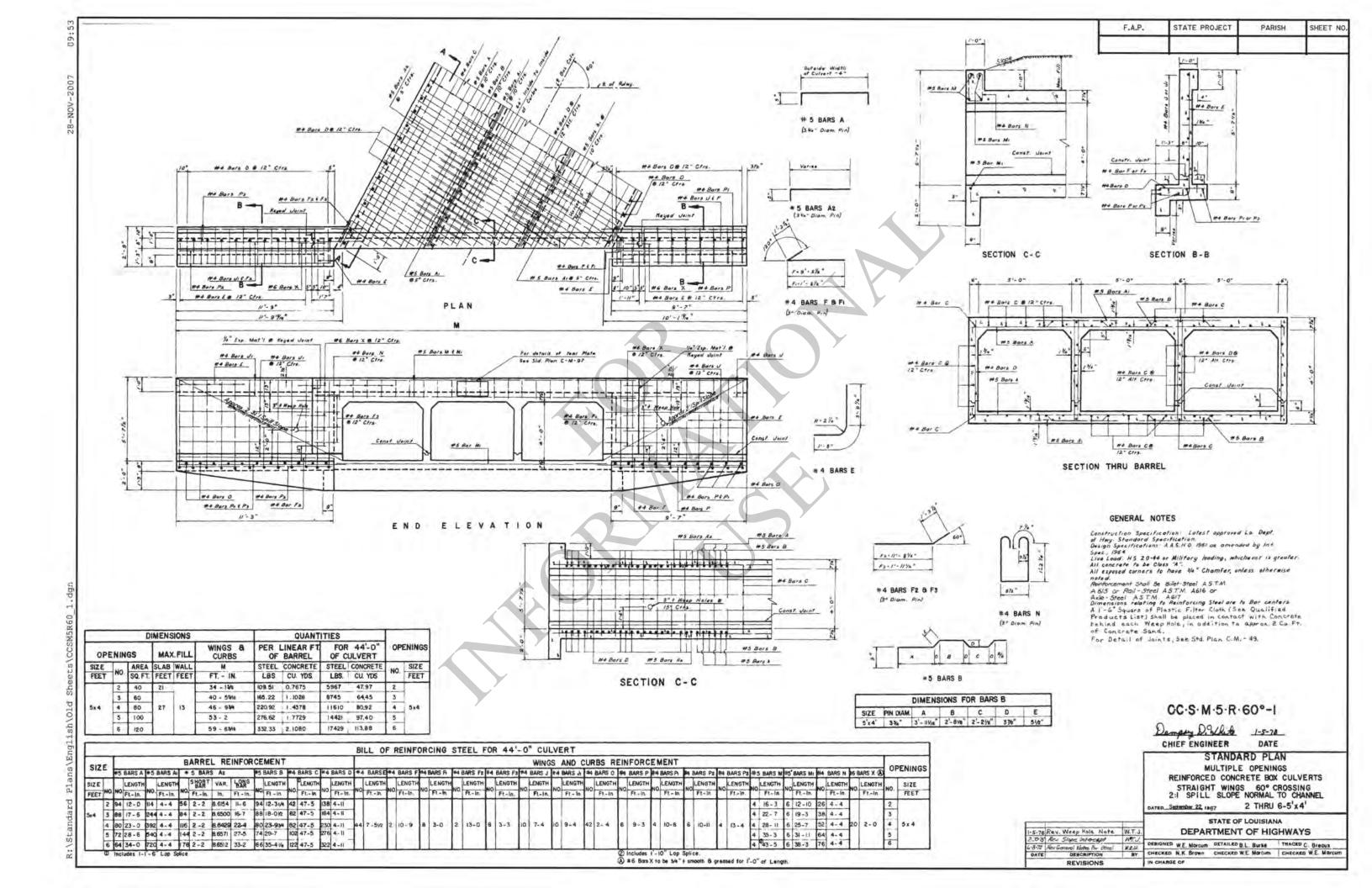


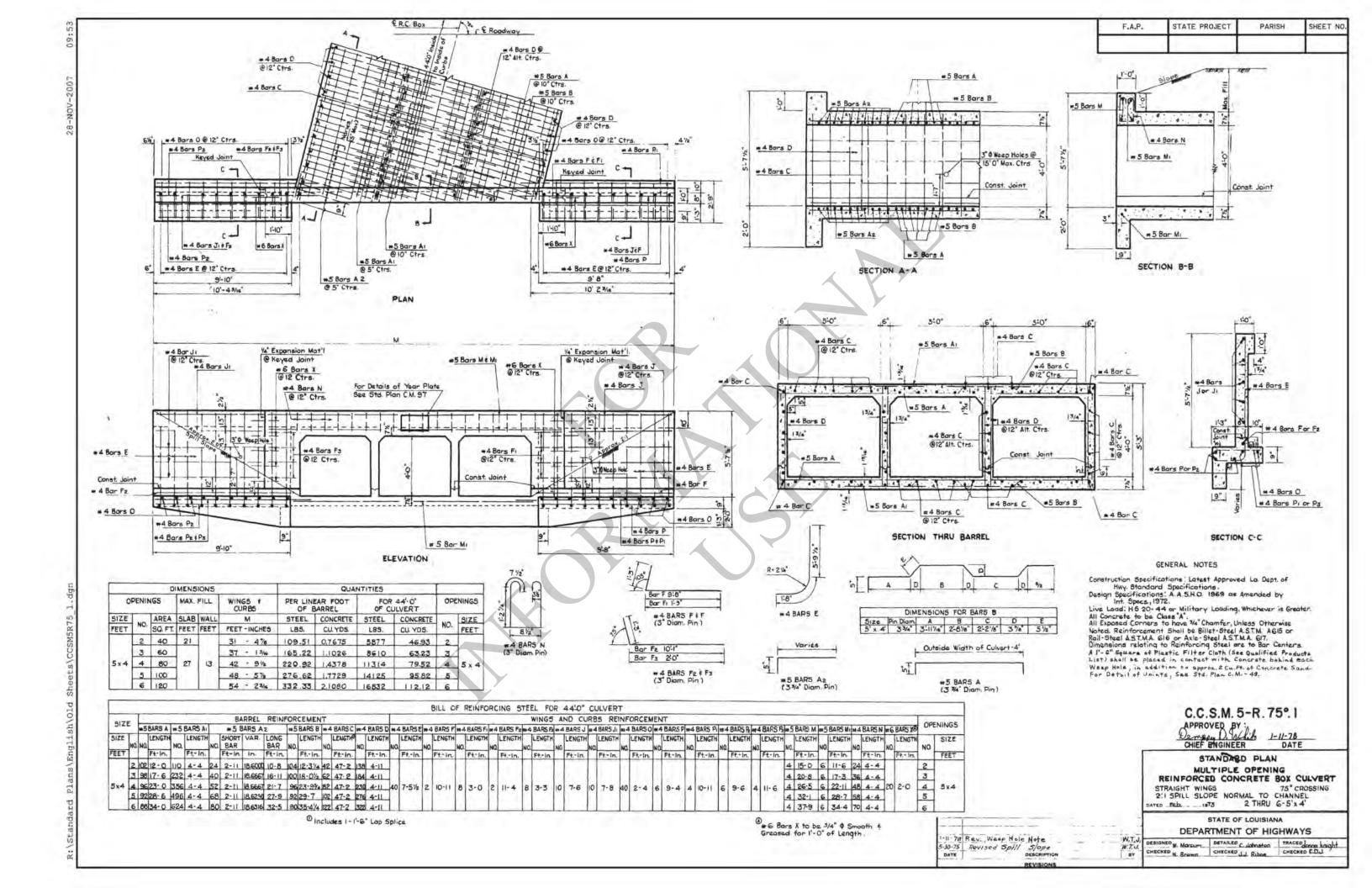


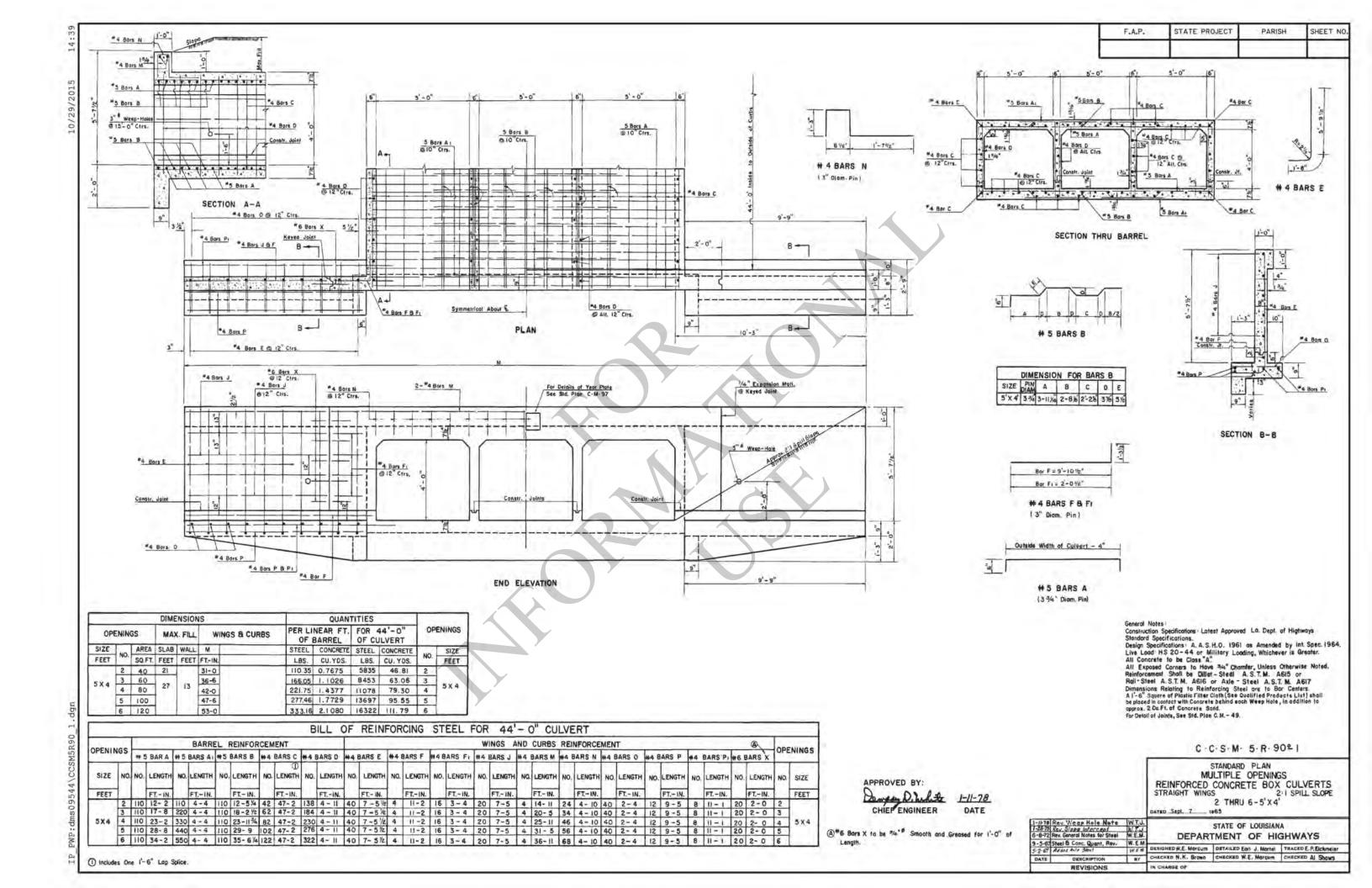


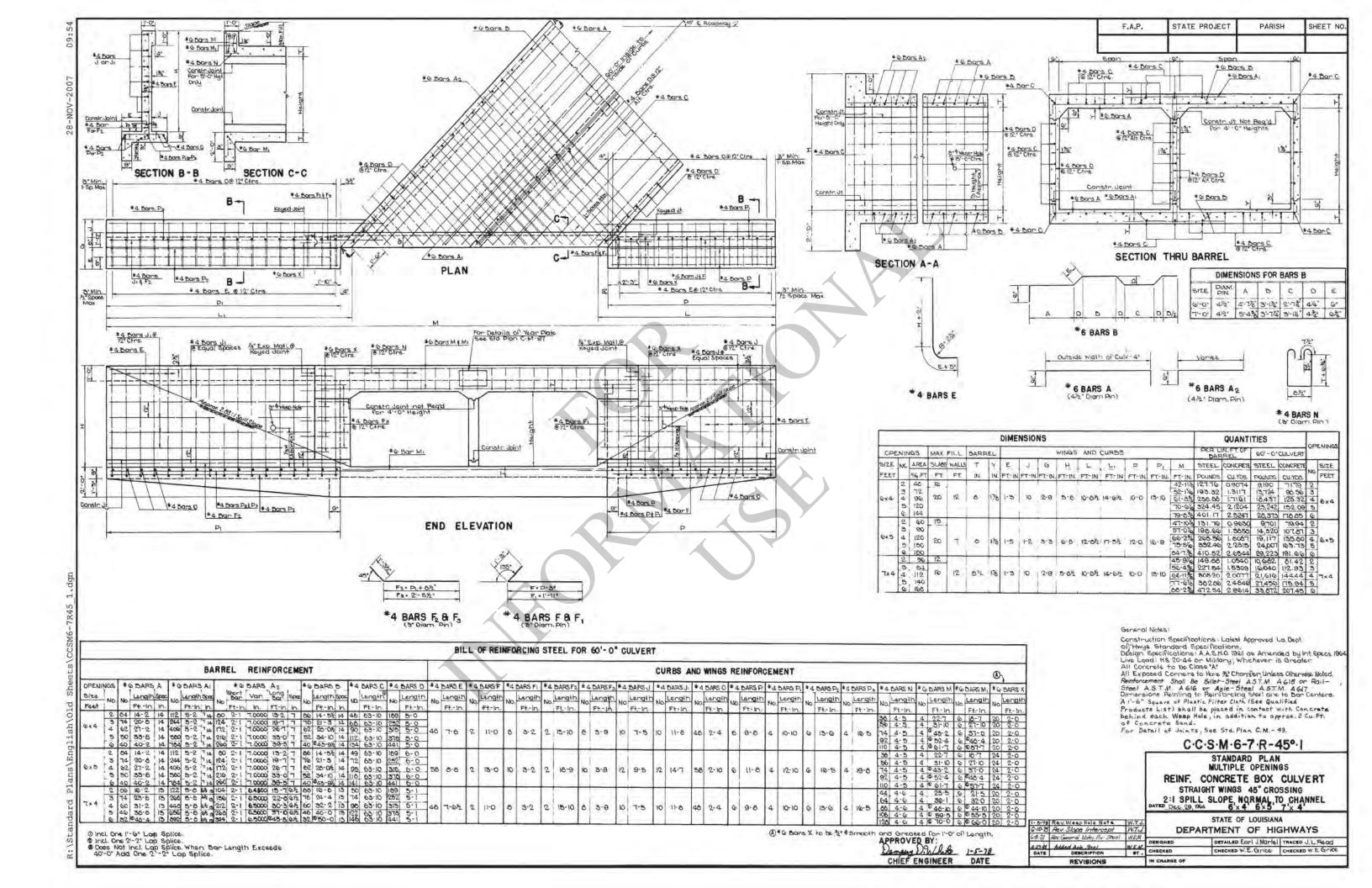


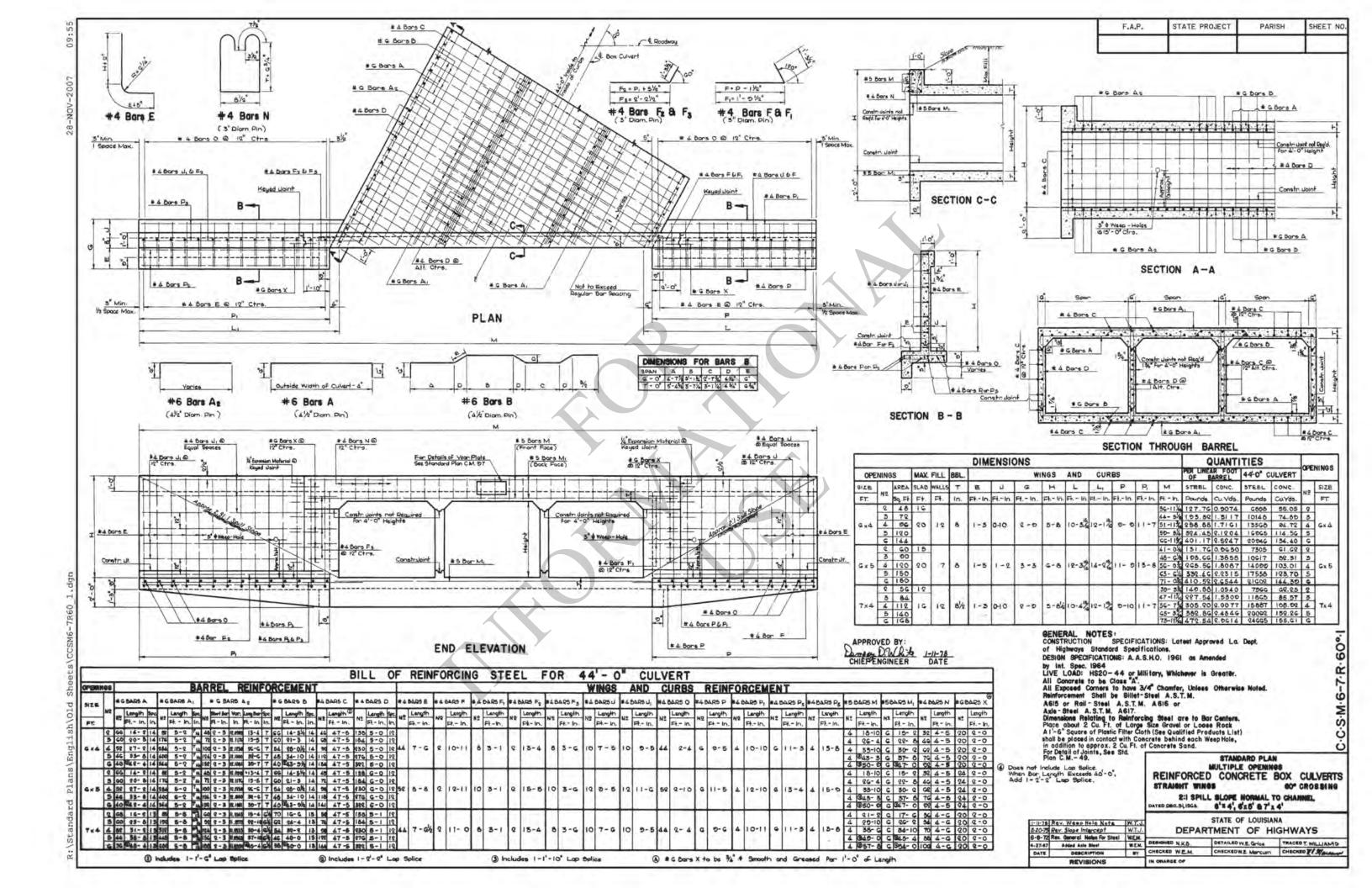


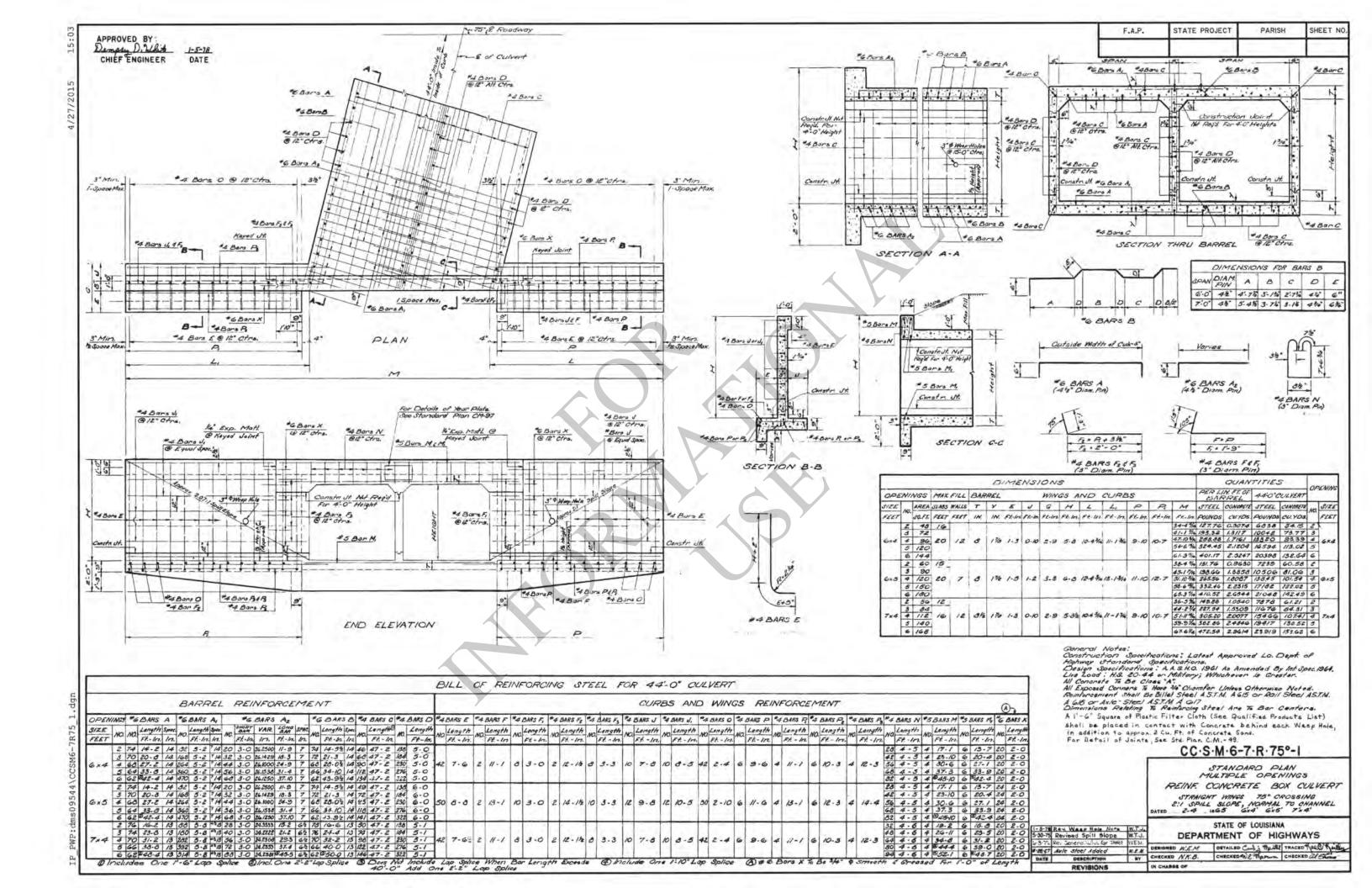




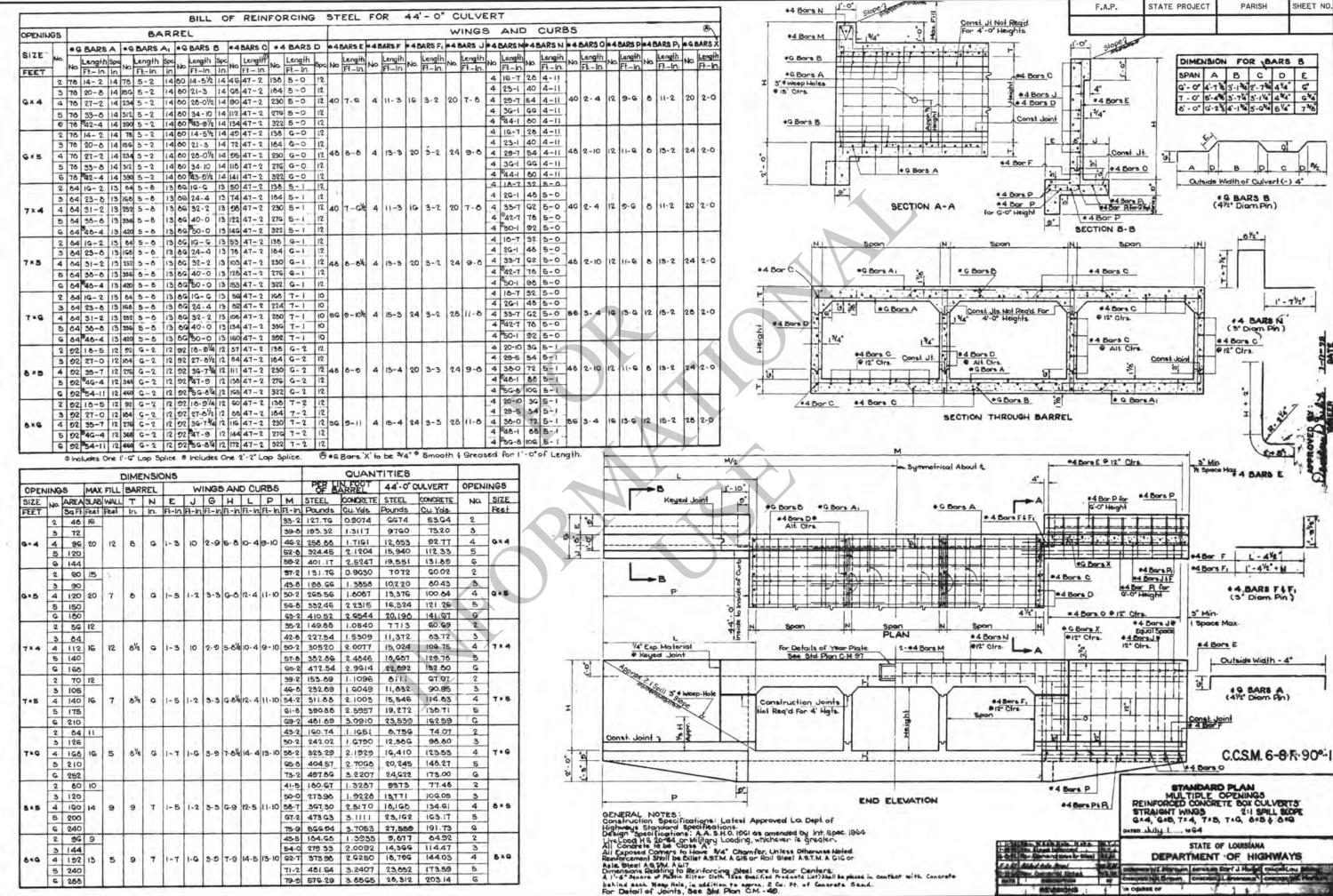


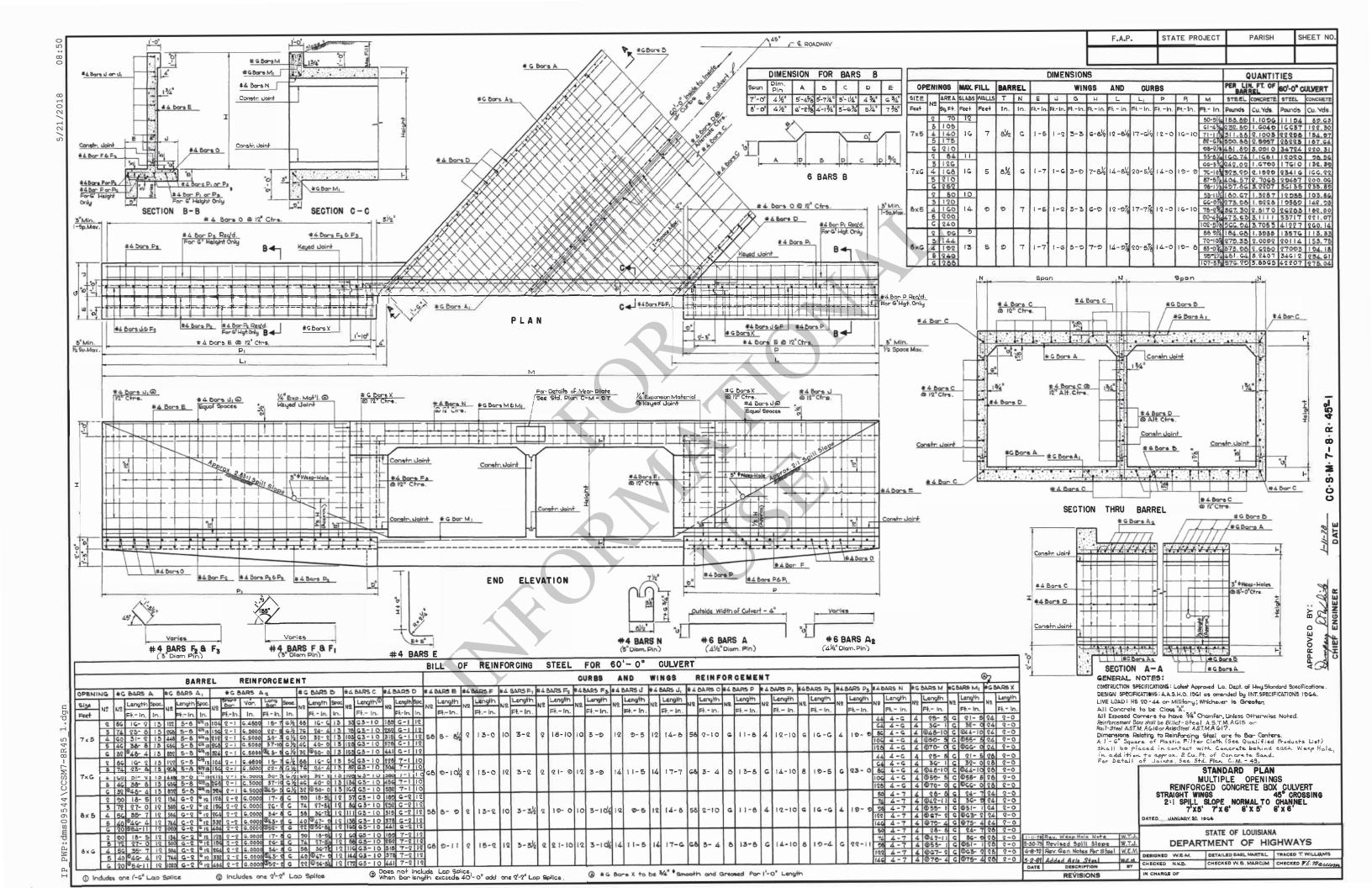


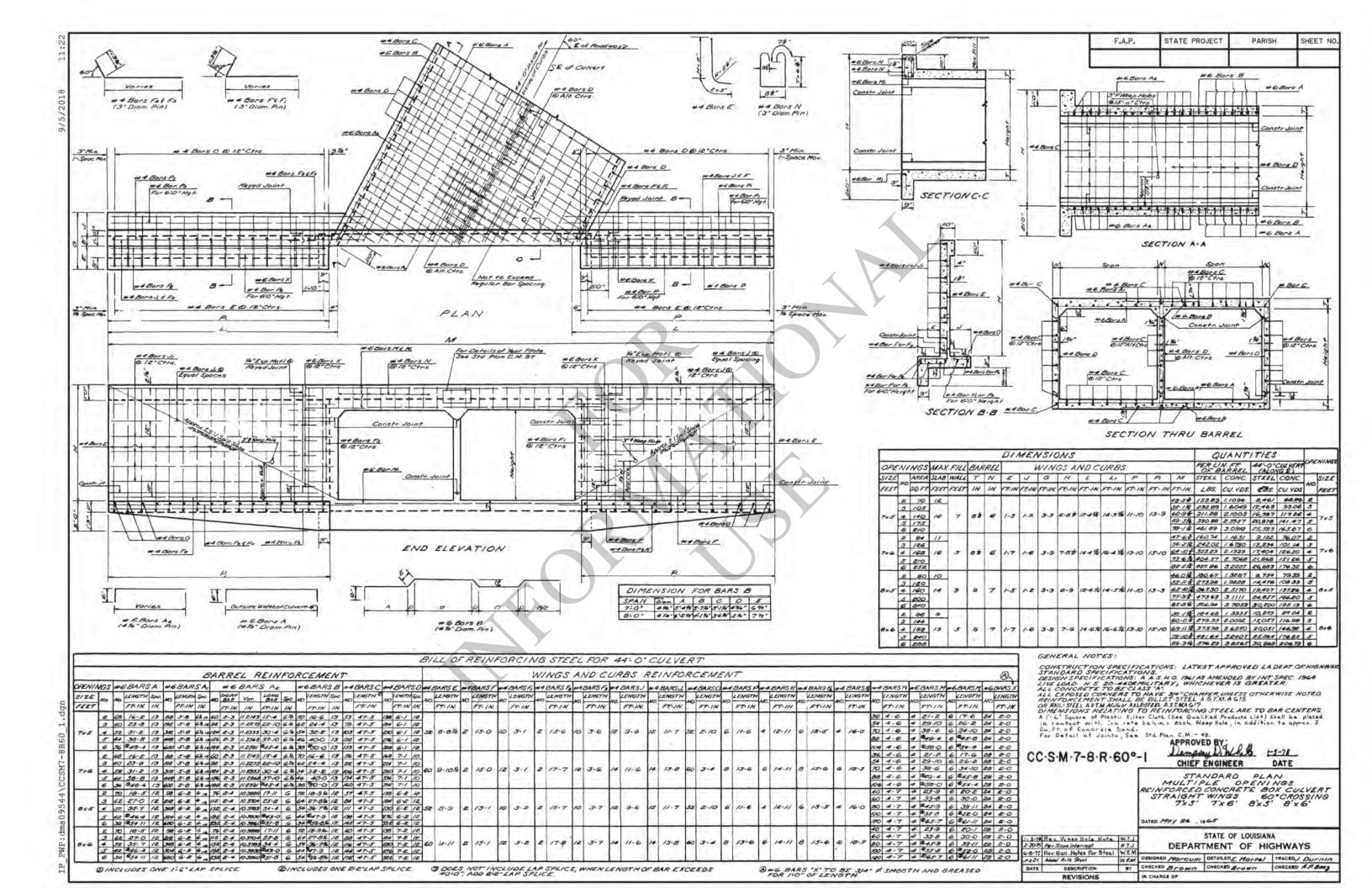


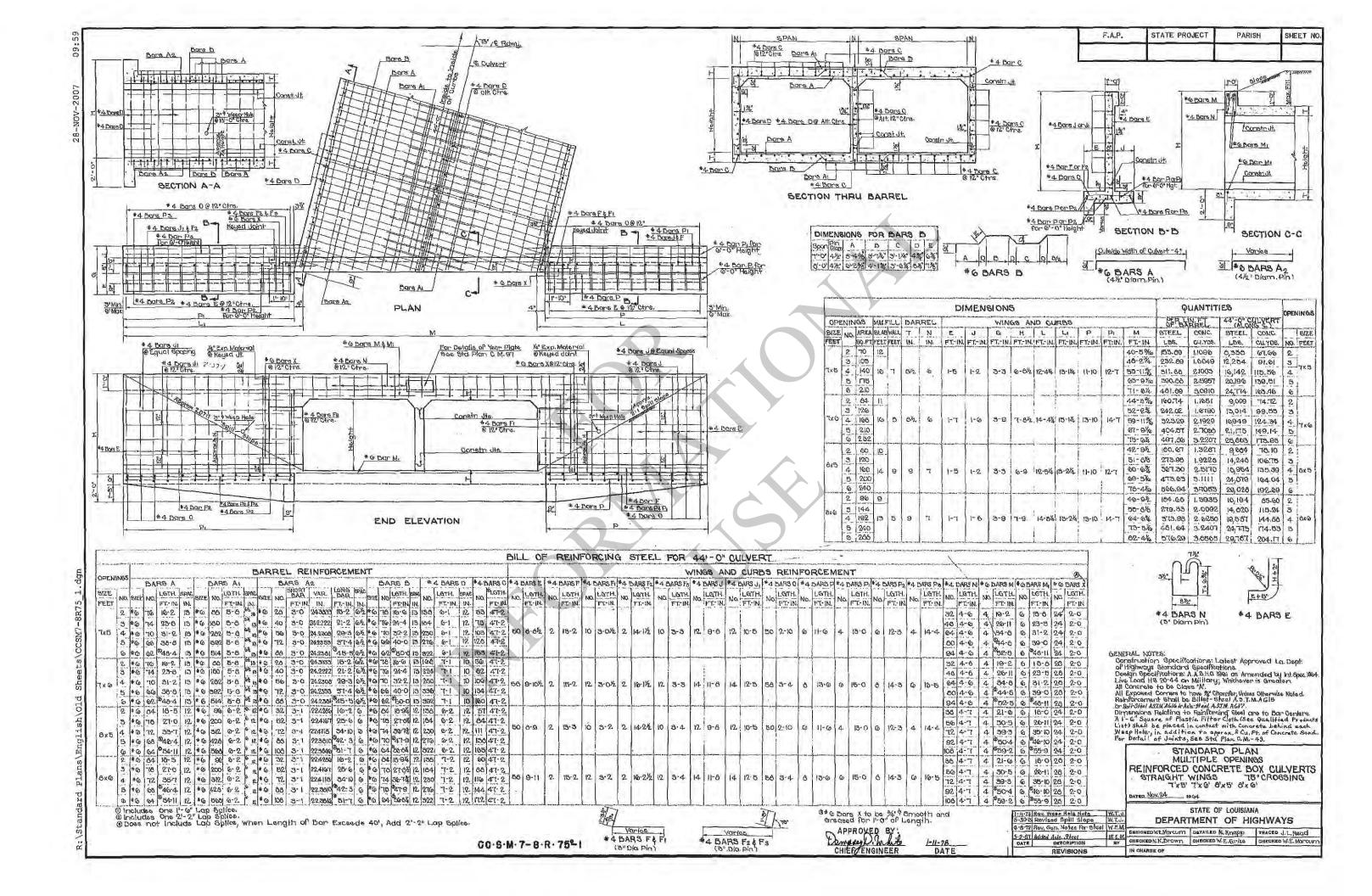


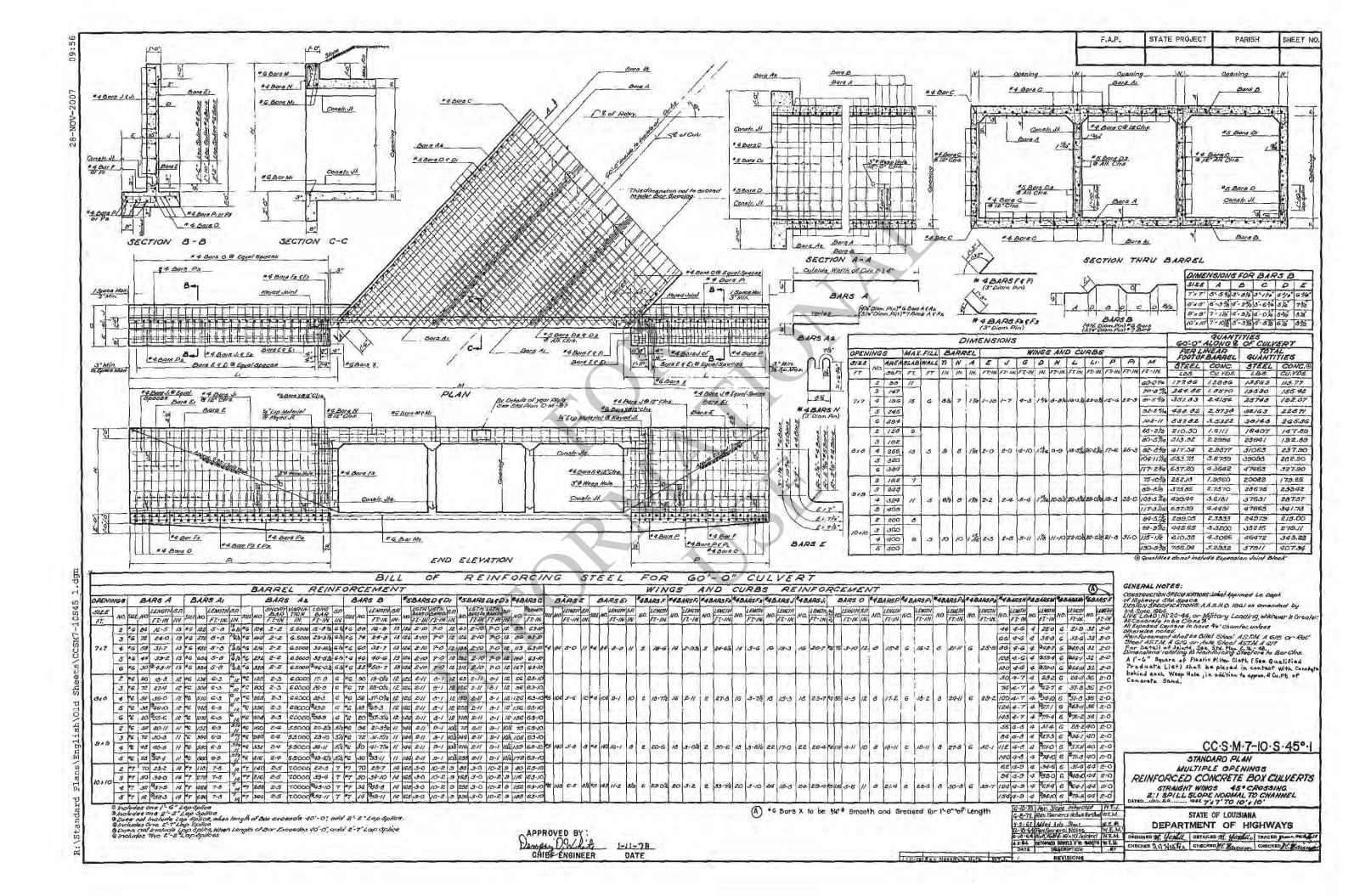
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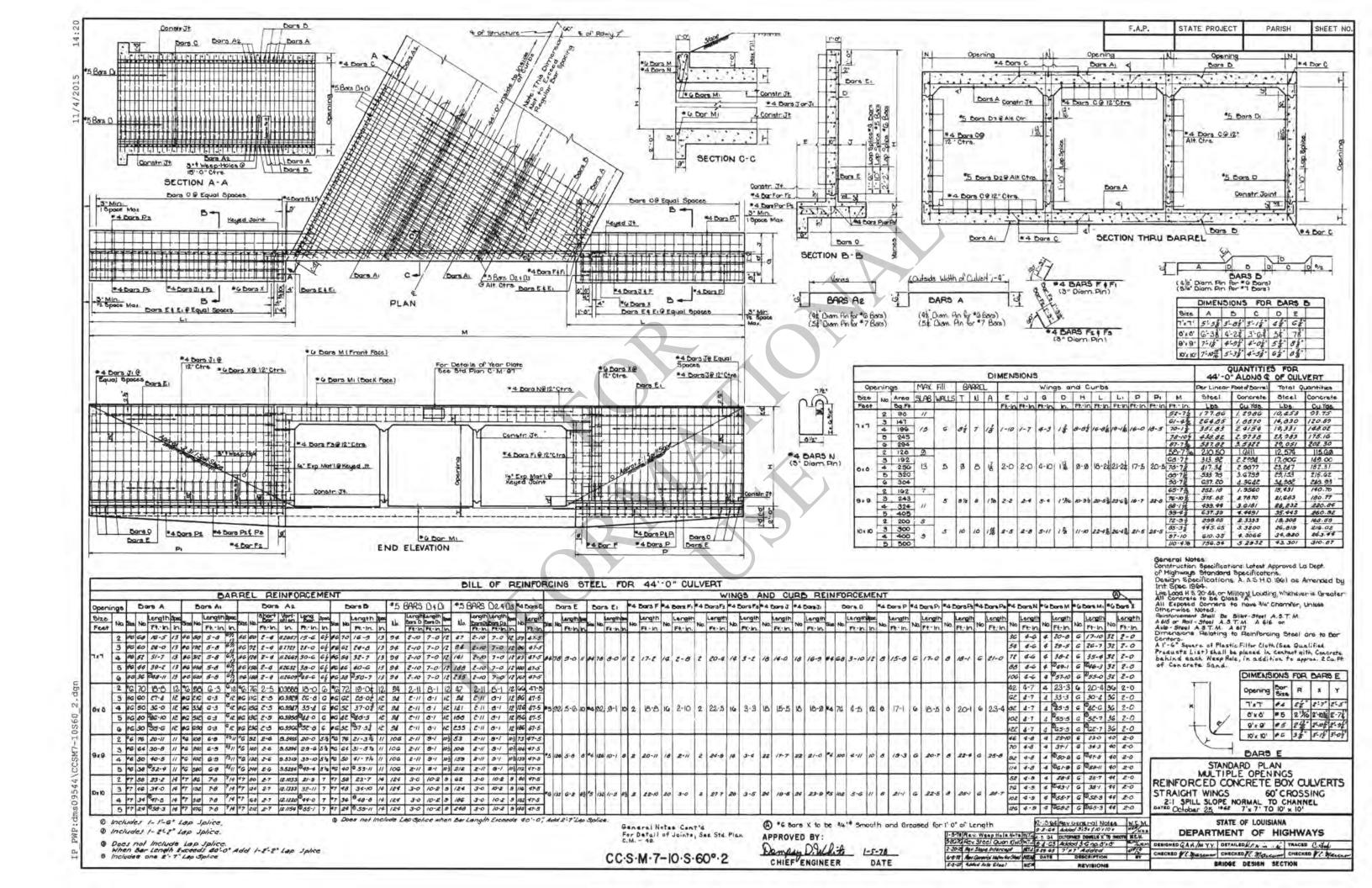


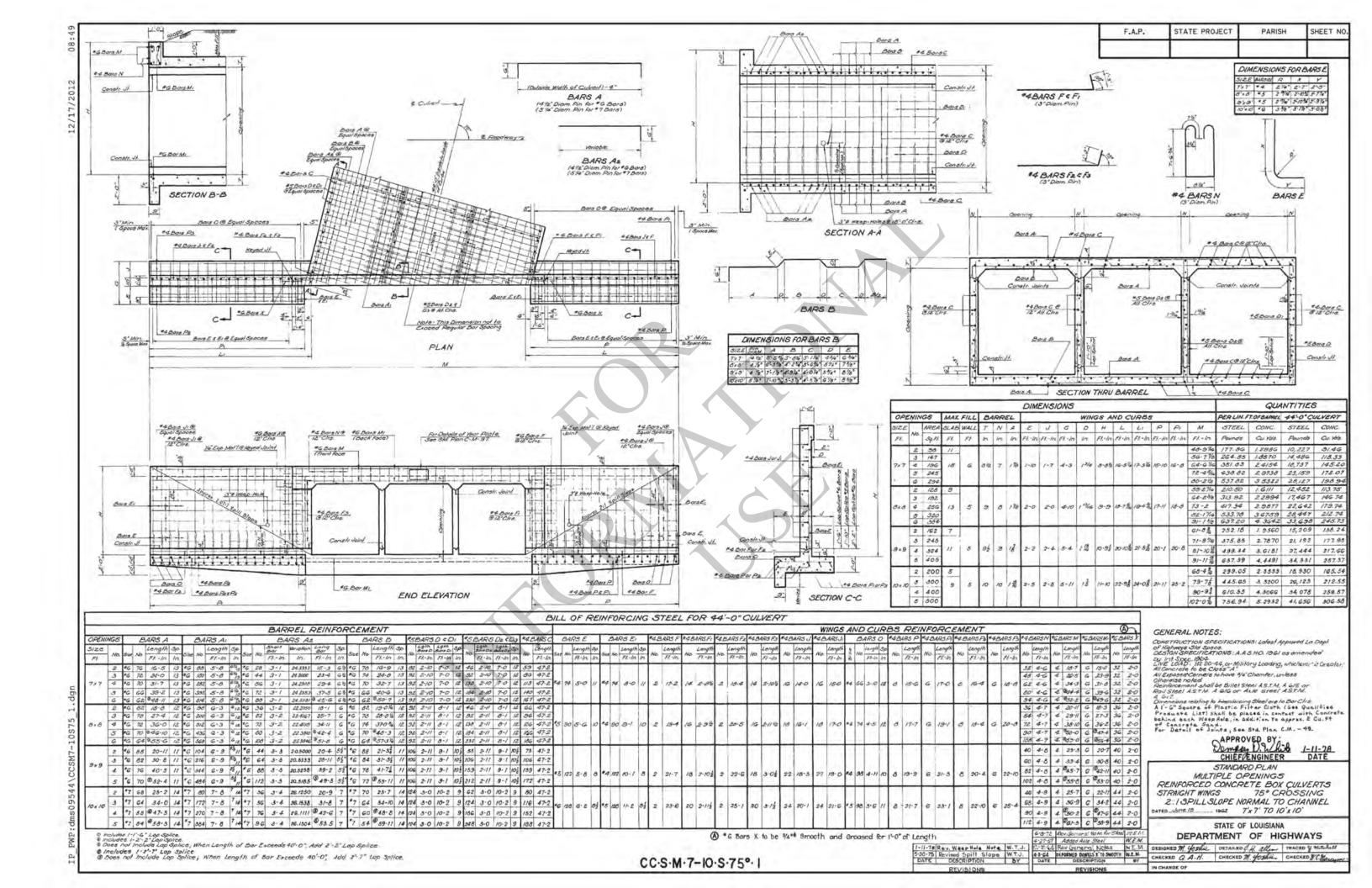


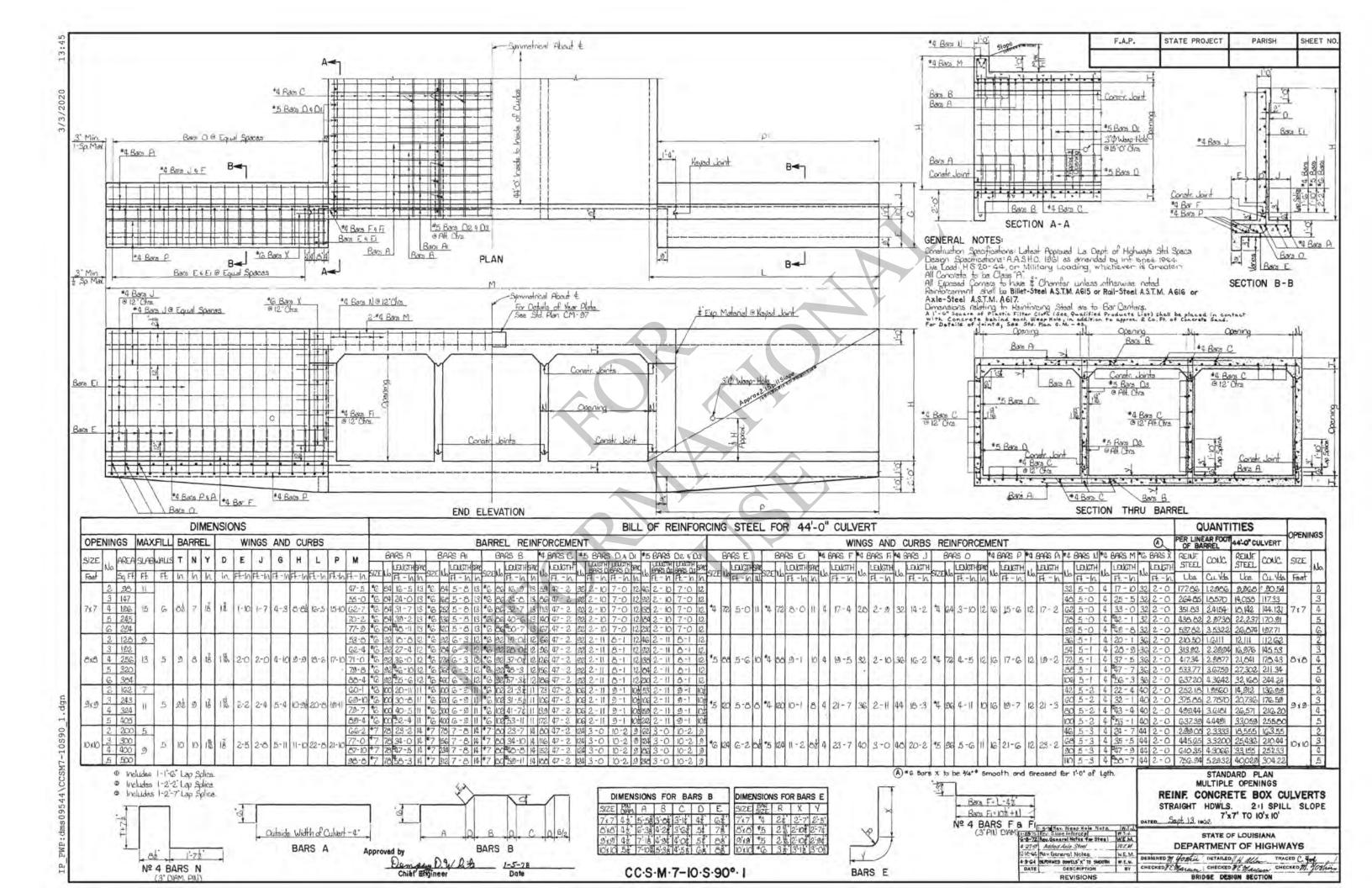


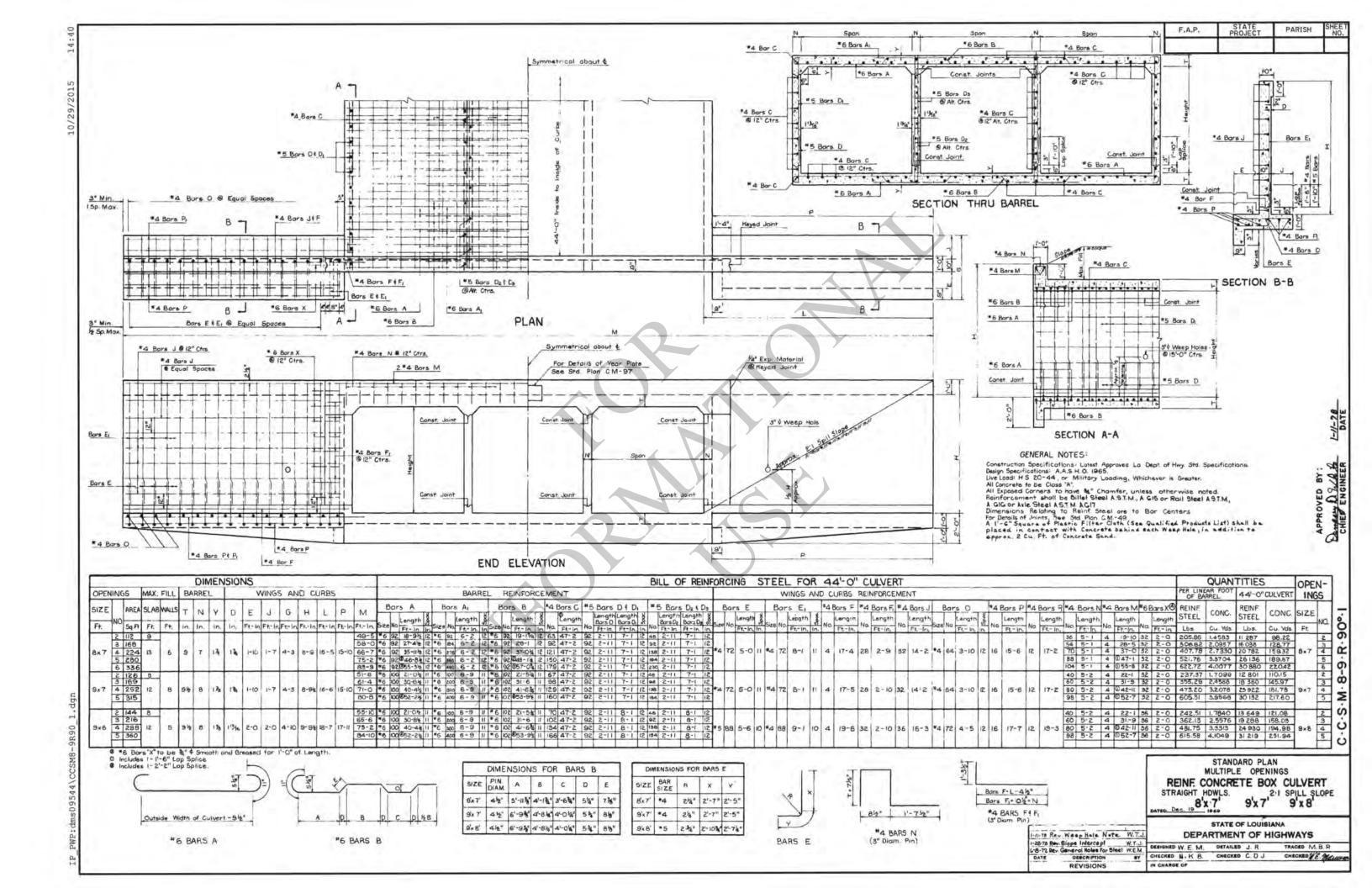


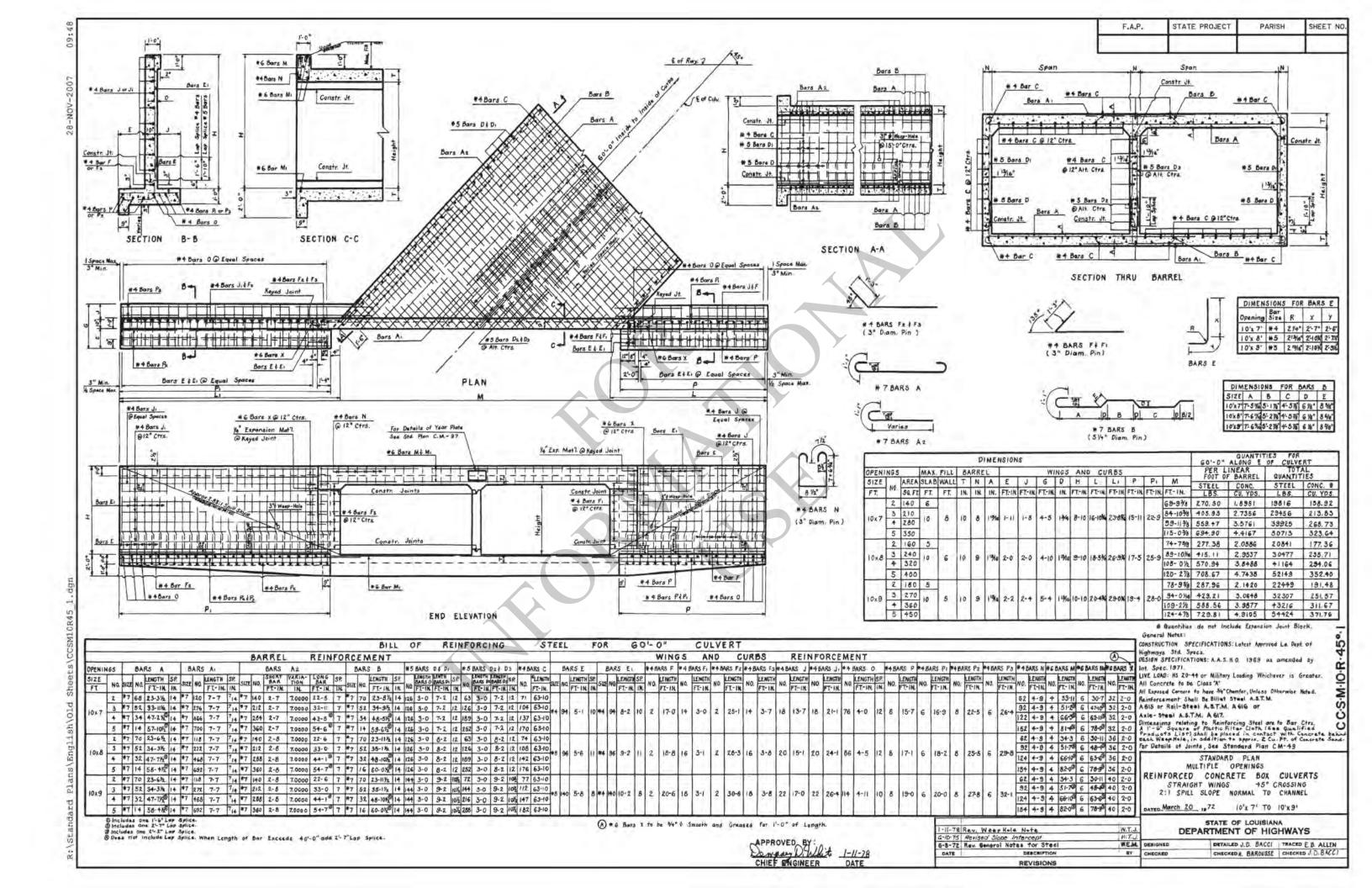


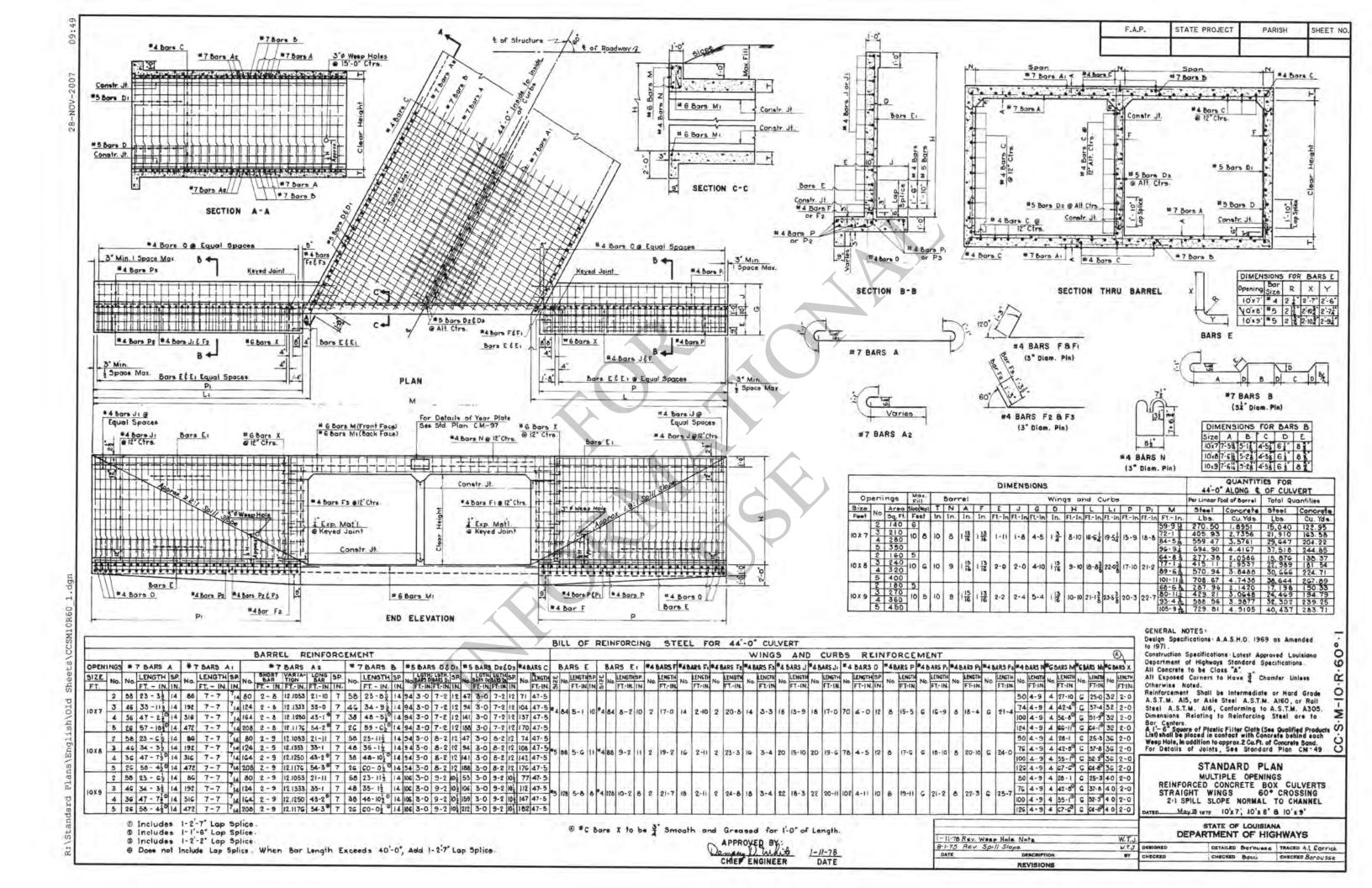


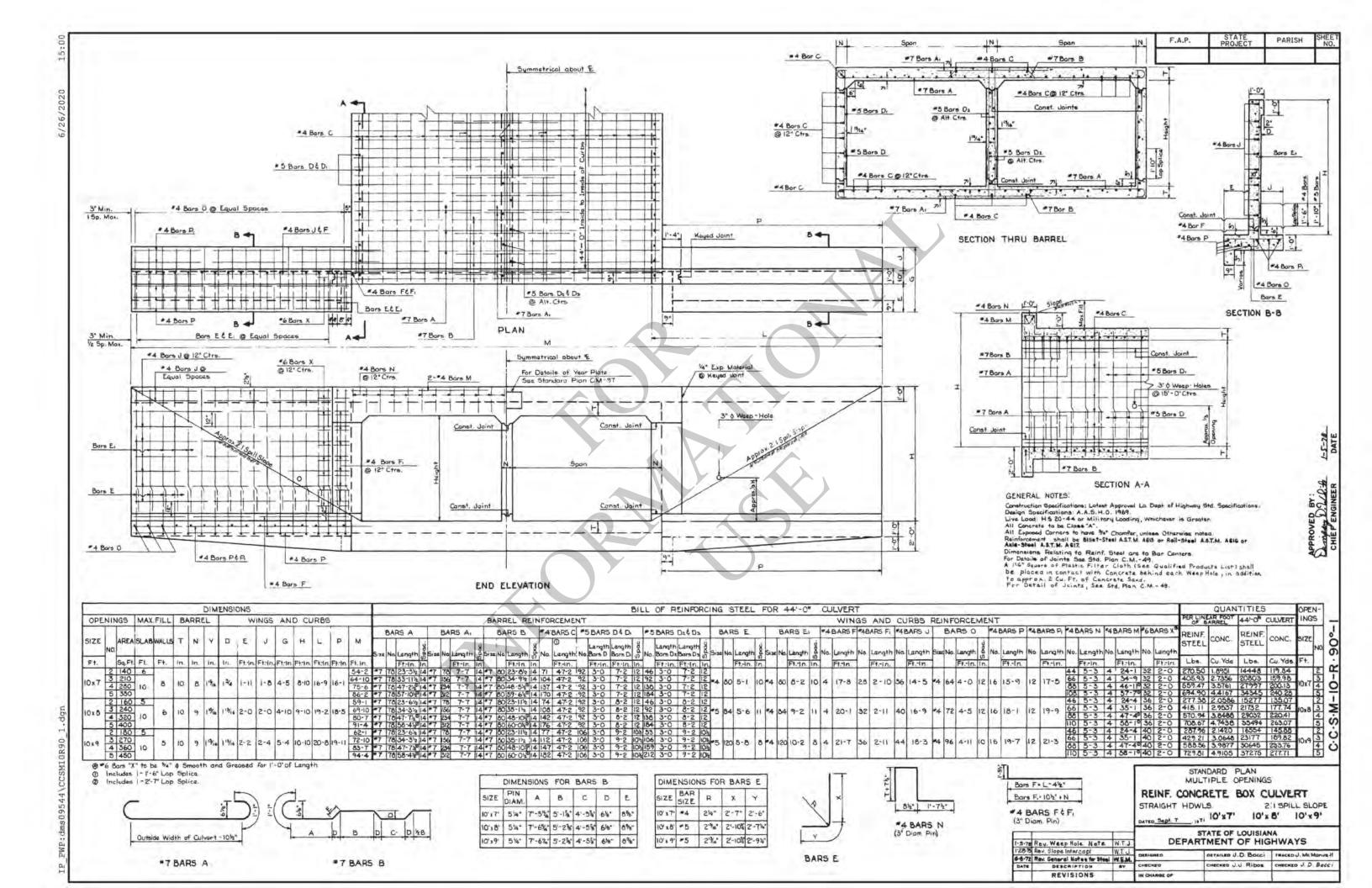


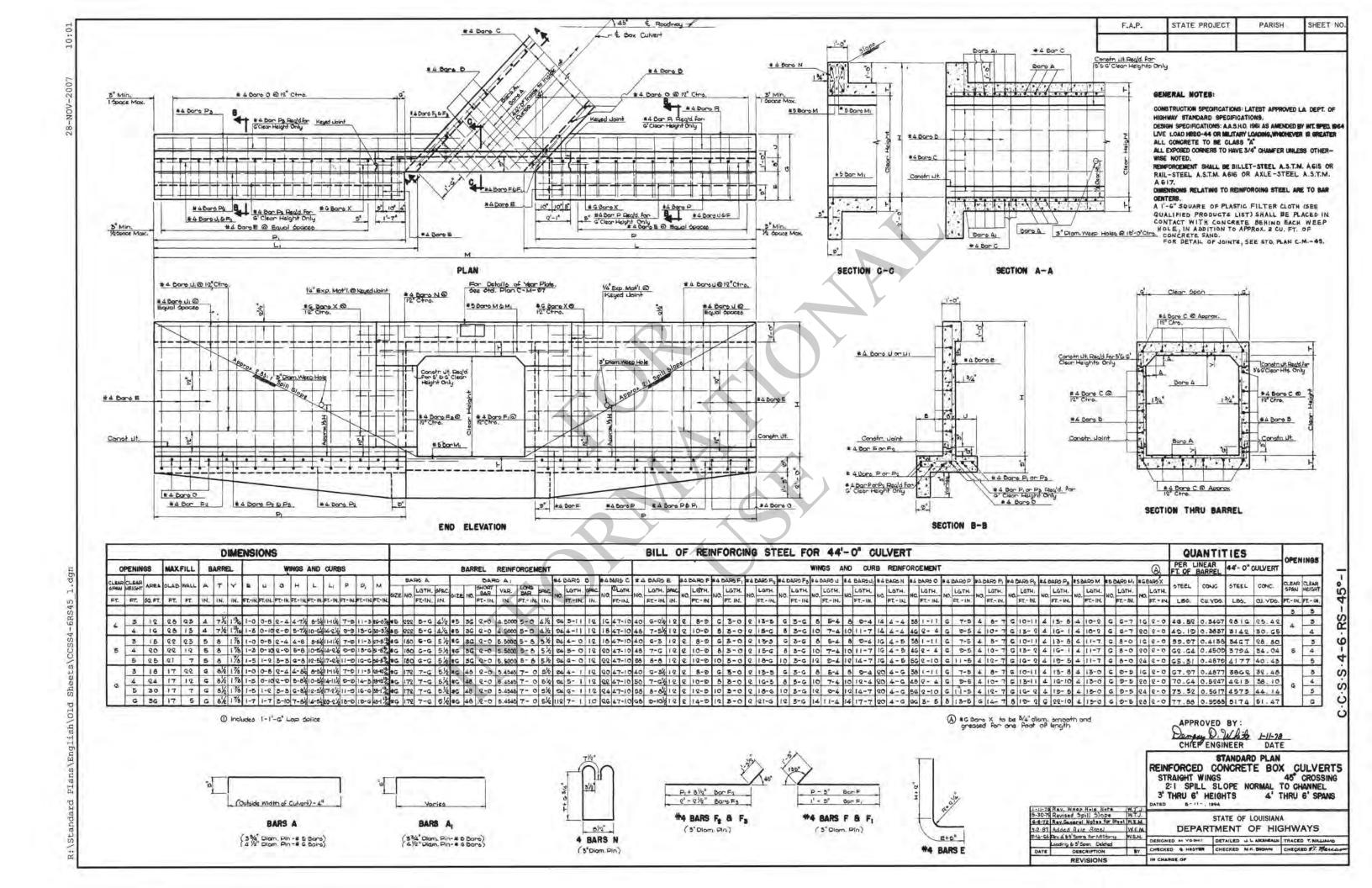


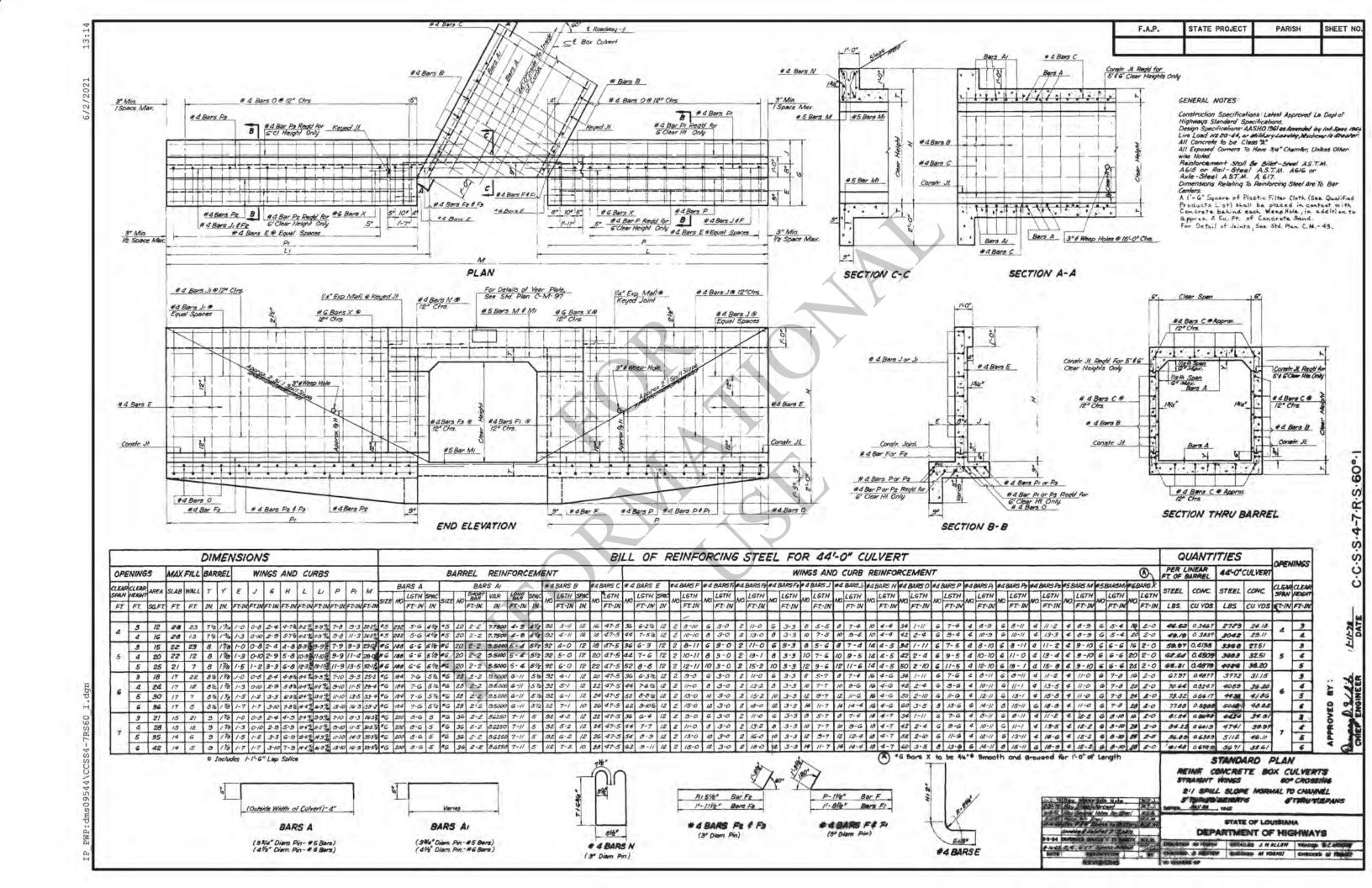


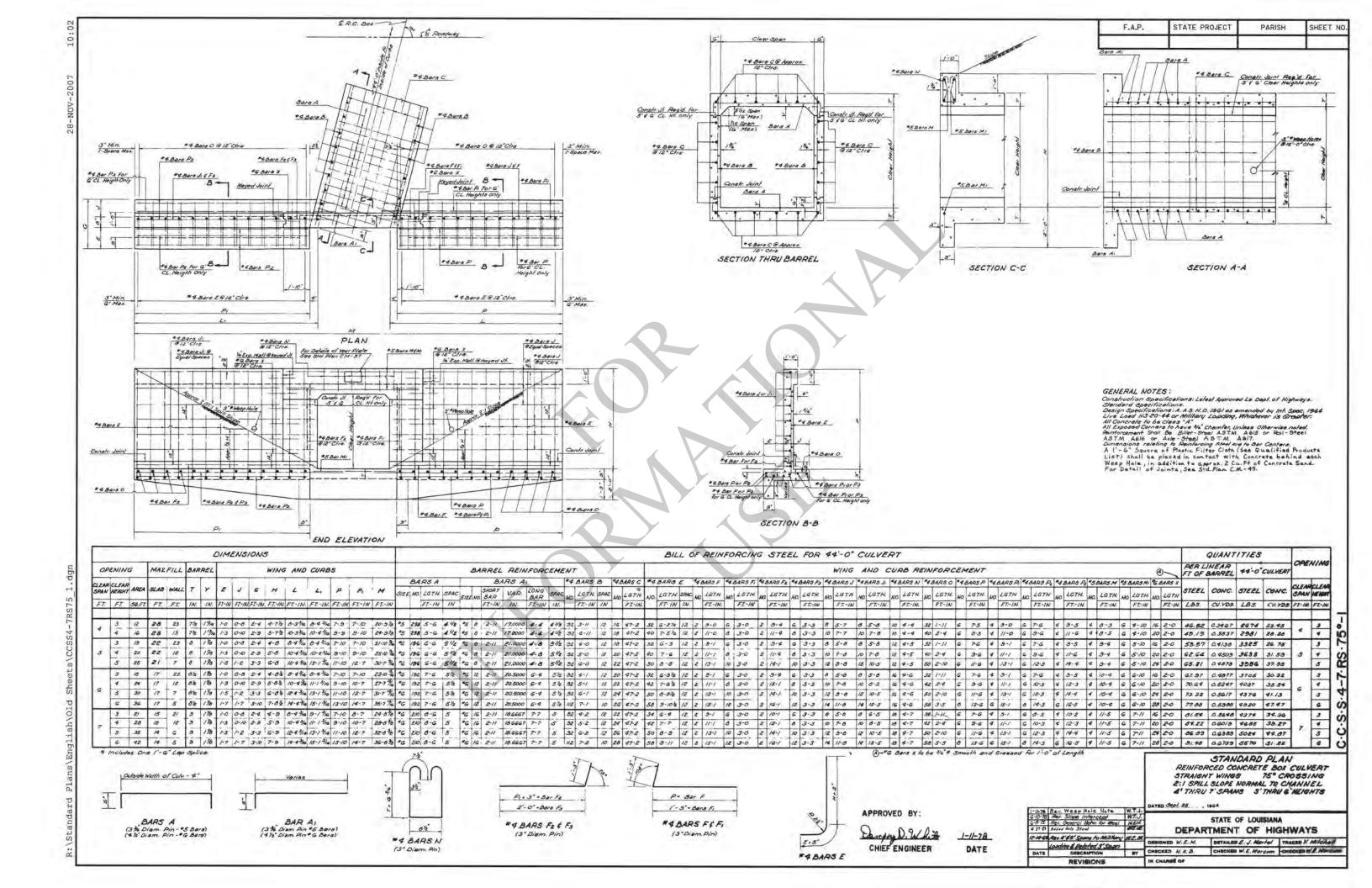


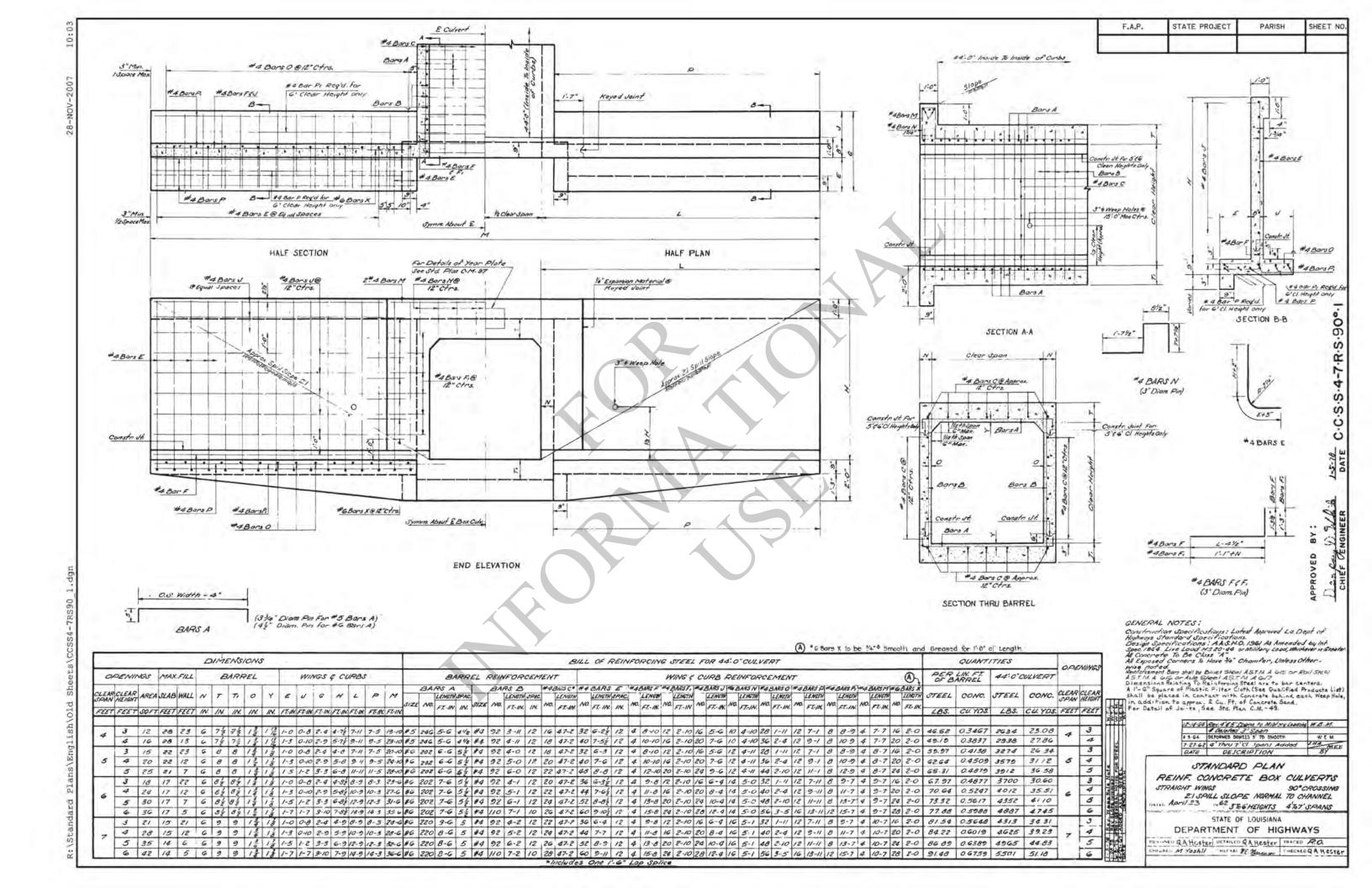


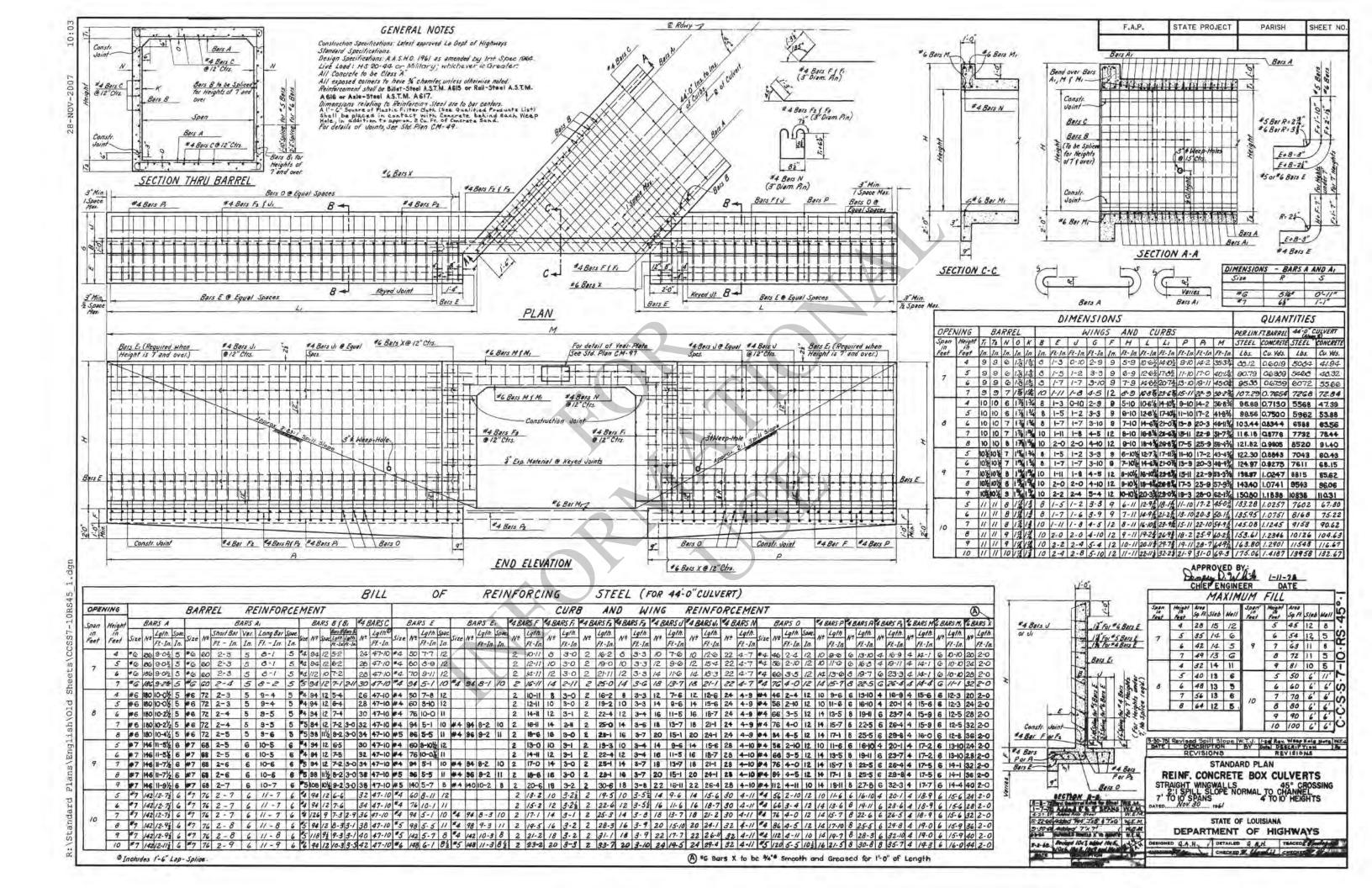


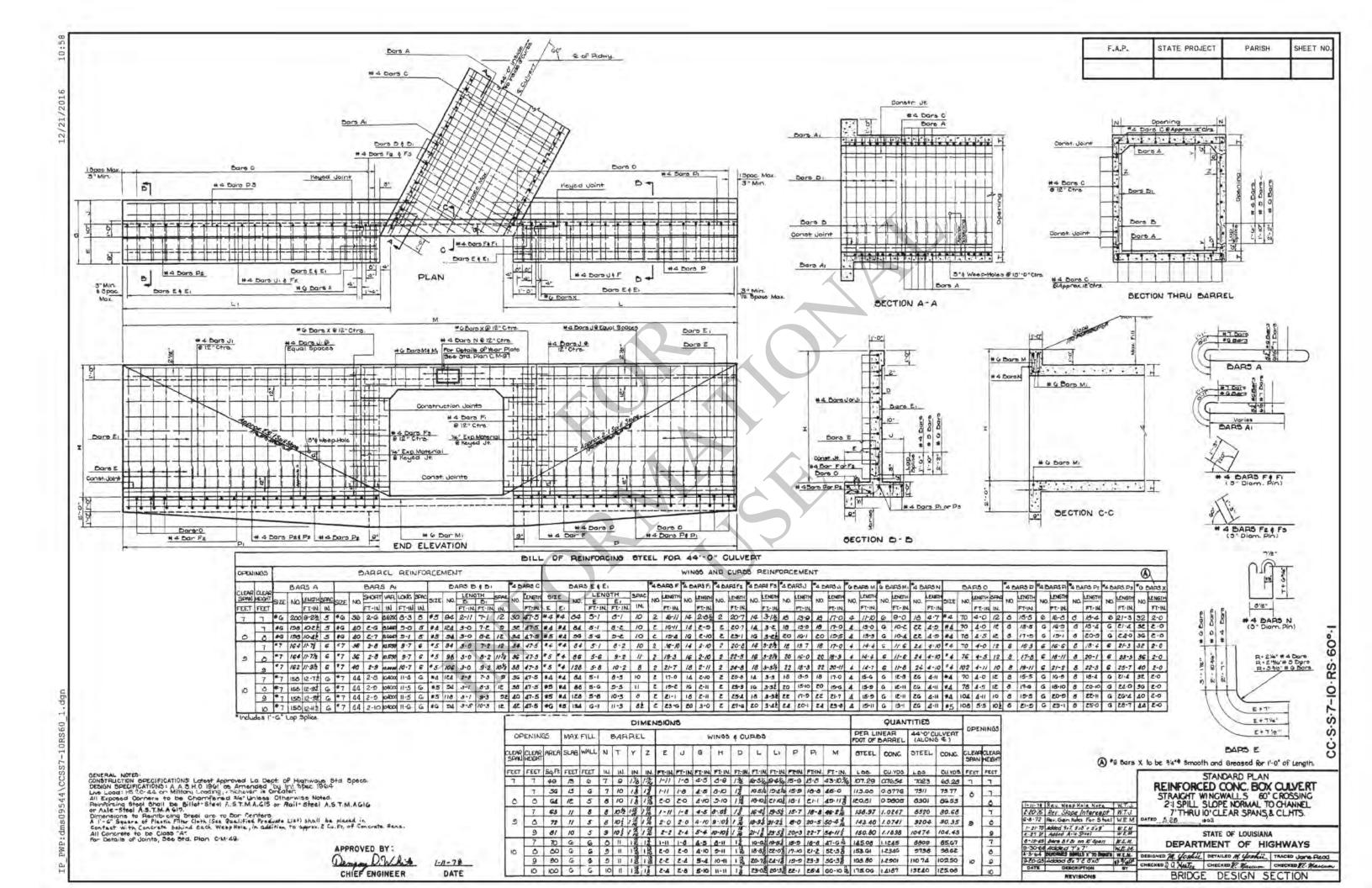


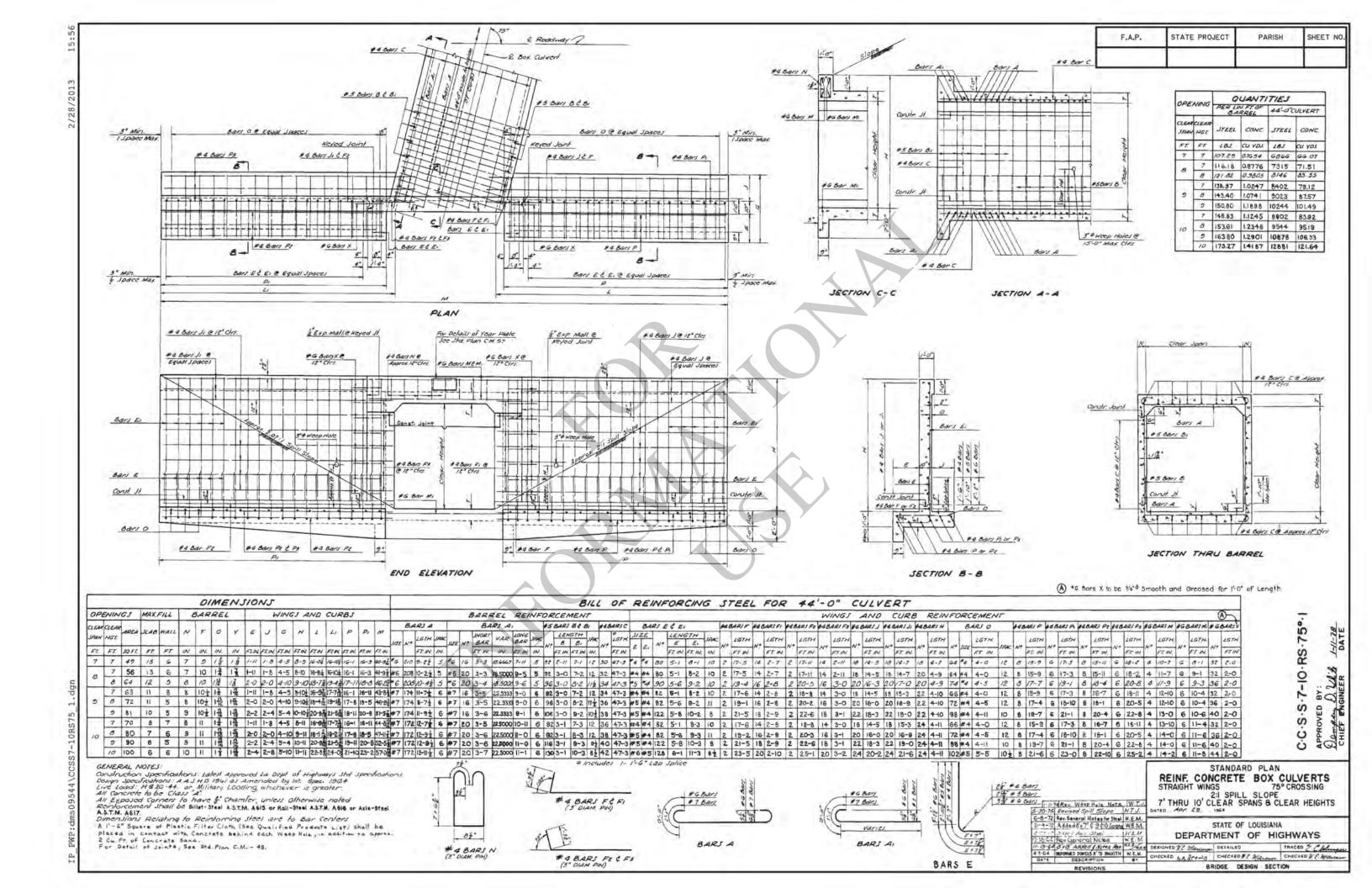


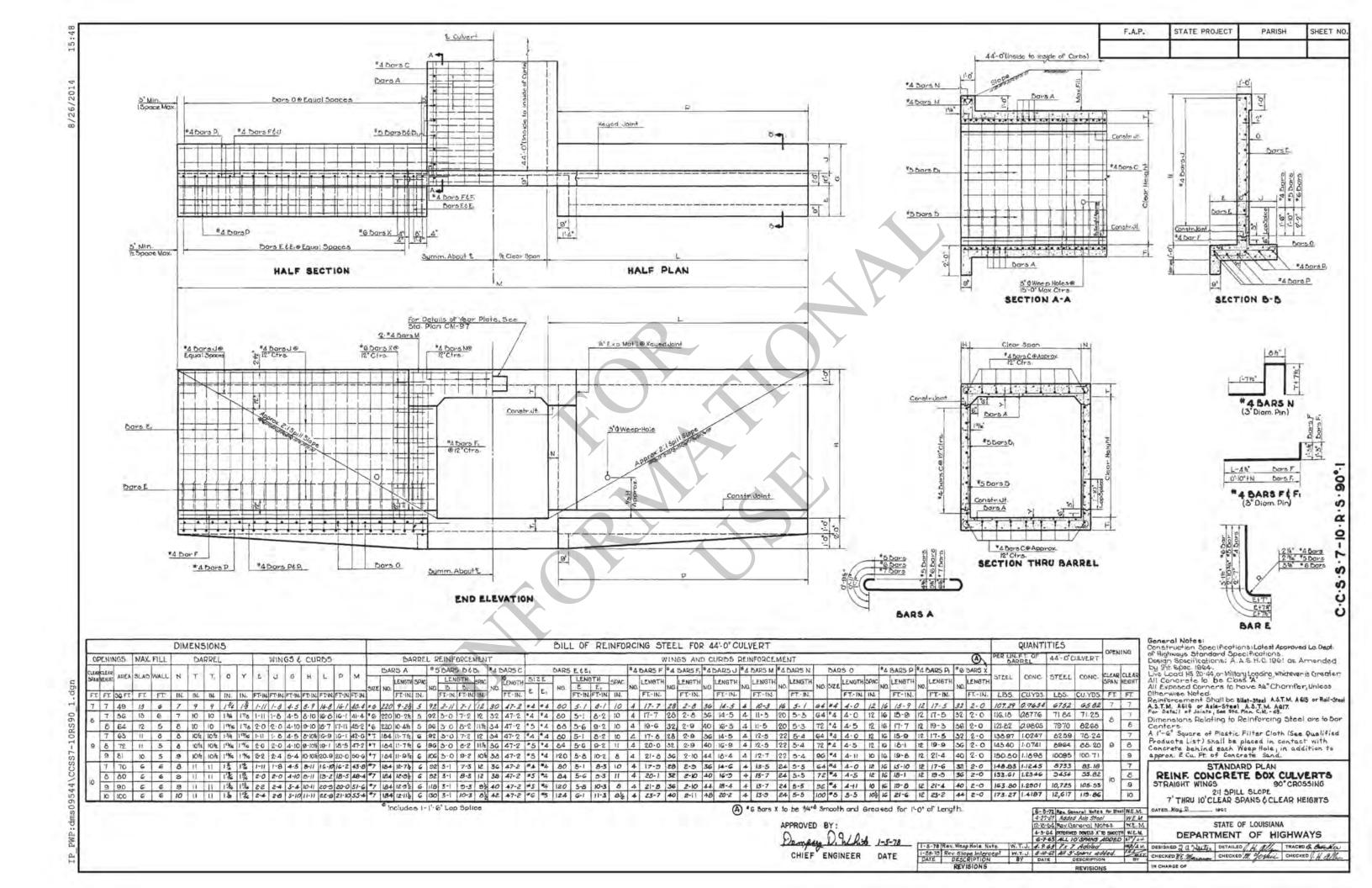


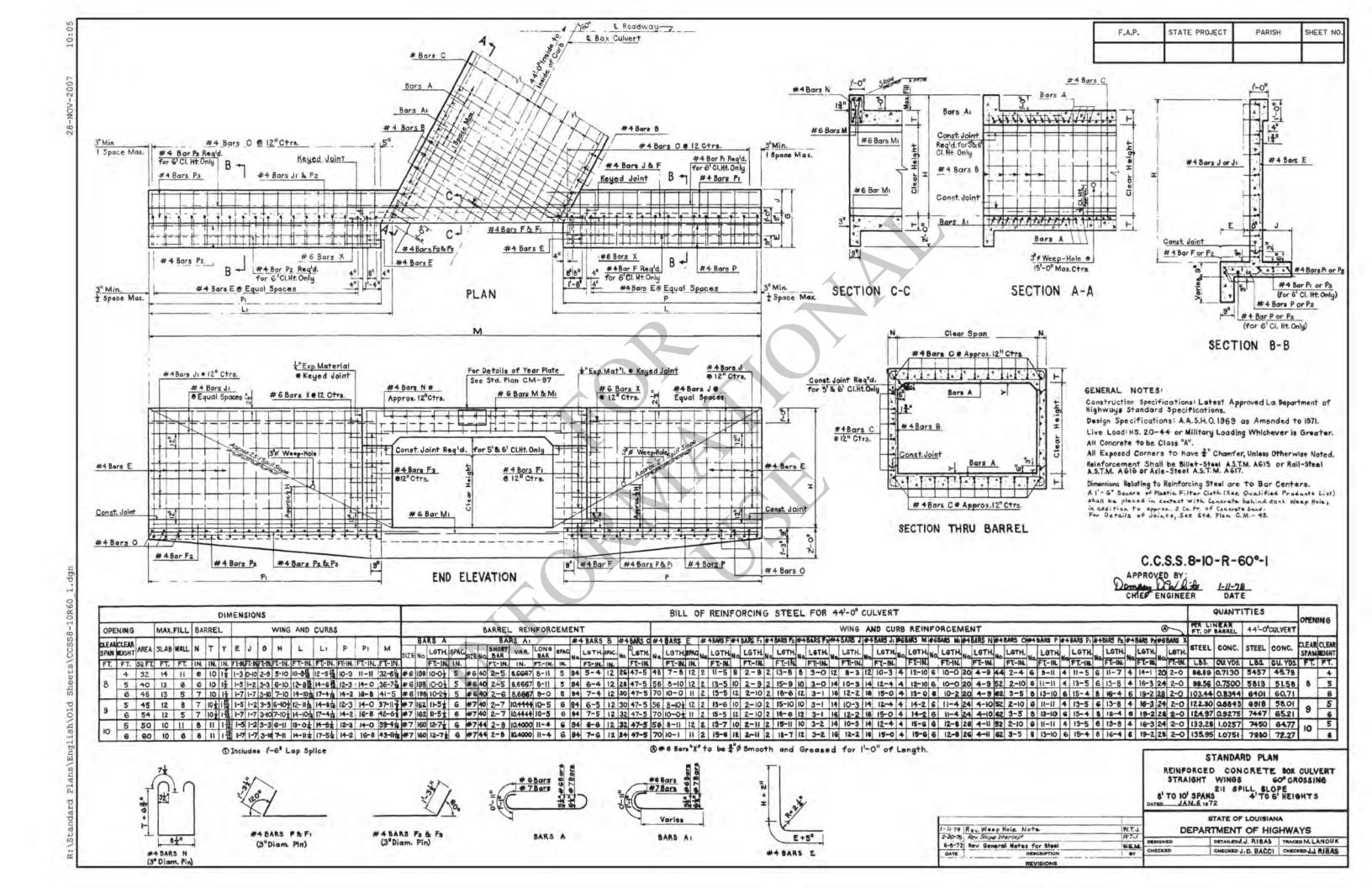


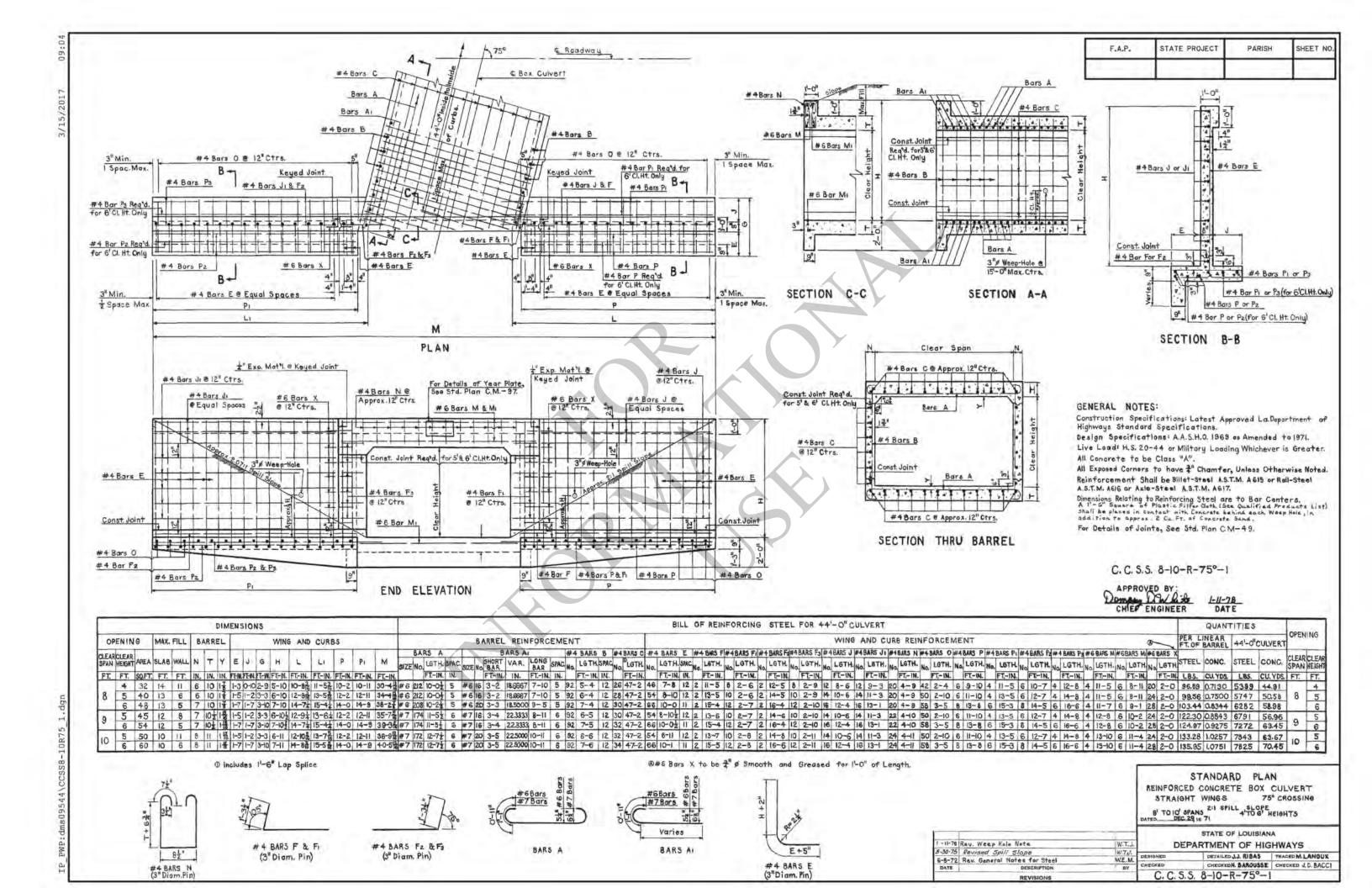


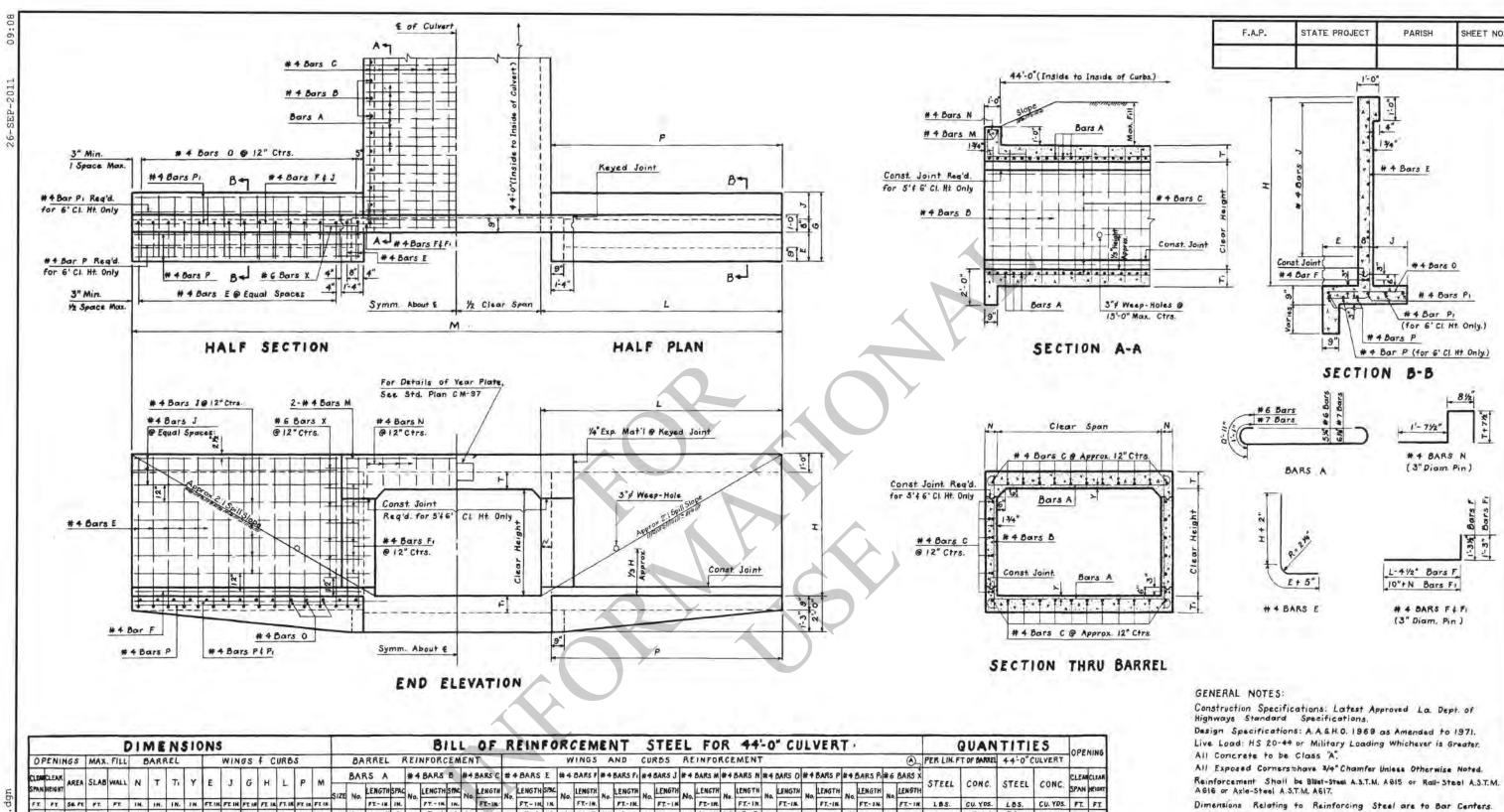












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1 Includes 1'-6" Lap Splice.

A #6 Bars X to be 3/4" / Smooth and Greased for 1'-0" of Length.

APPROVED BY: CHIEF ENGINEER 1-11-78

DATE	DESCRIPTION	BY
6-8-72	Rev. General Notes for Steel	W.E.M.
1-28-75	Rev Slope Intercept	WT.J.
	Rev. Weep Hole Note	W.T.J.

STANDARD PLAN REINFORCED CONCRETE BOX CULVERT STRAIGHT WINGS 90° CROSSING

C.C.S.S.8-10-R-90°-1

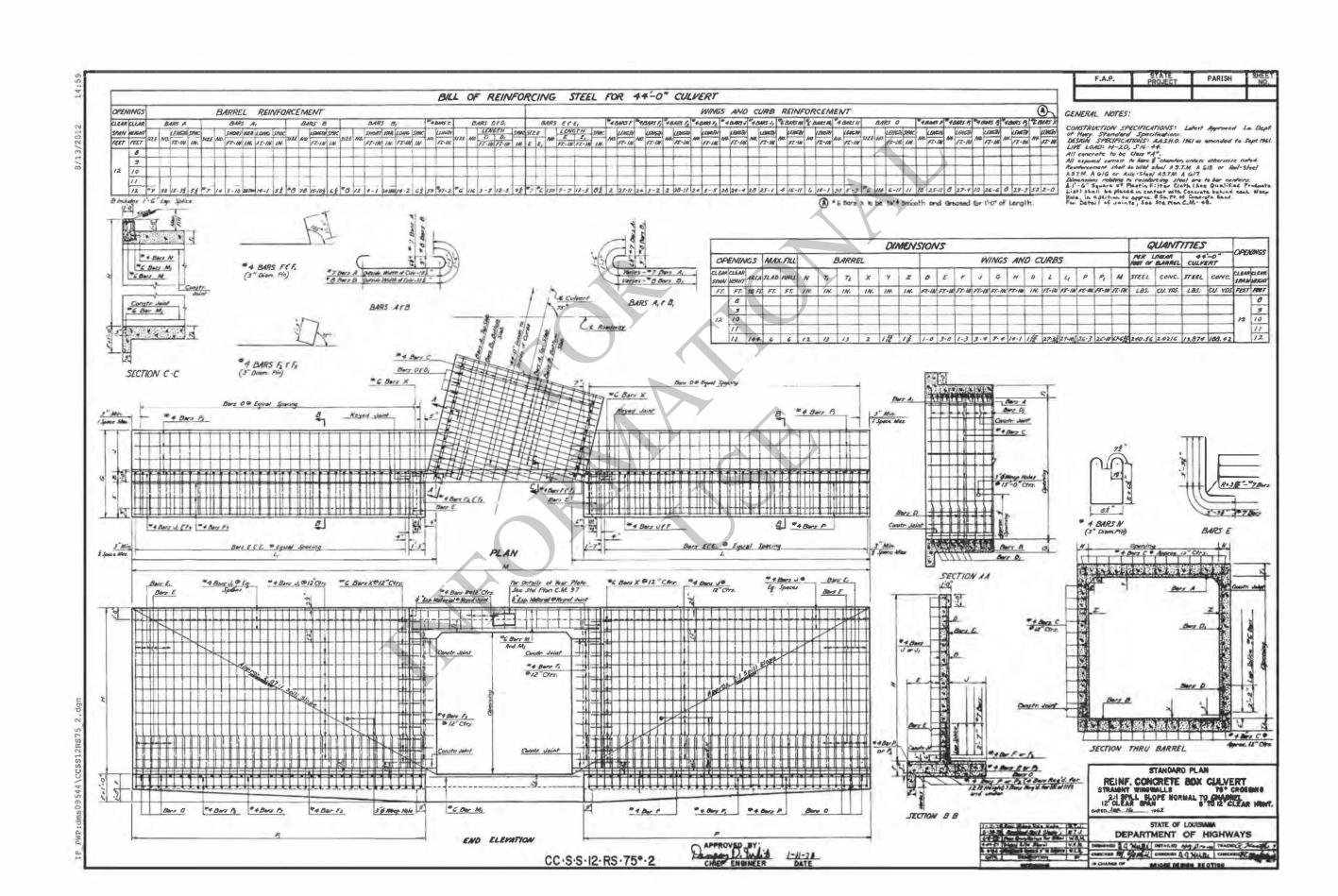
2:1 SPILL SLOPE 8' TO 10' SPANS 4'TO 6' HEIGHTS DATED NOV. 30 1071

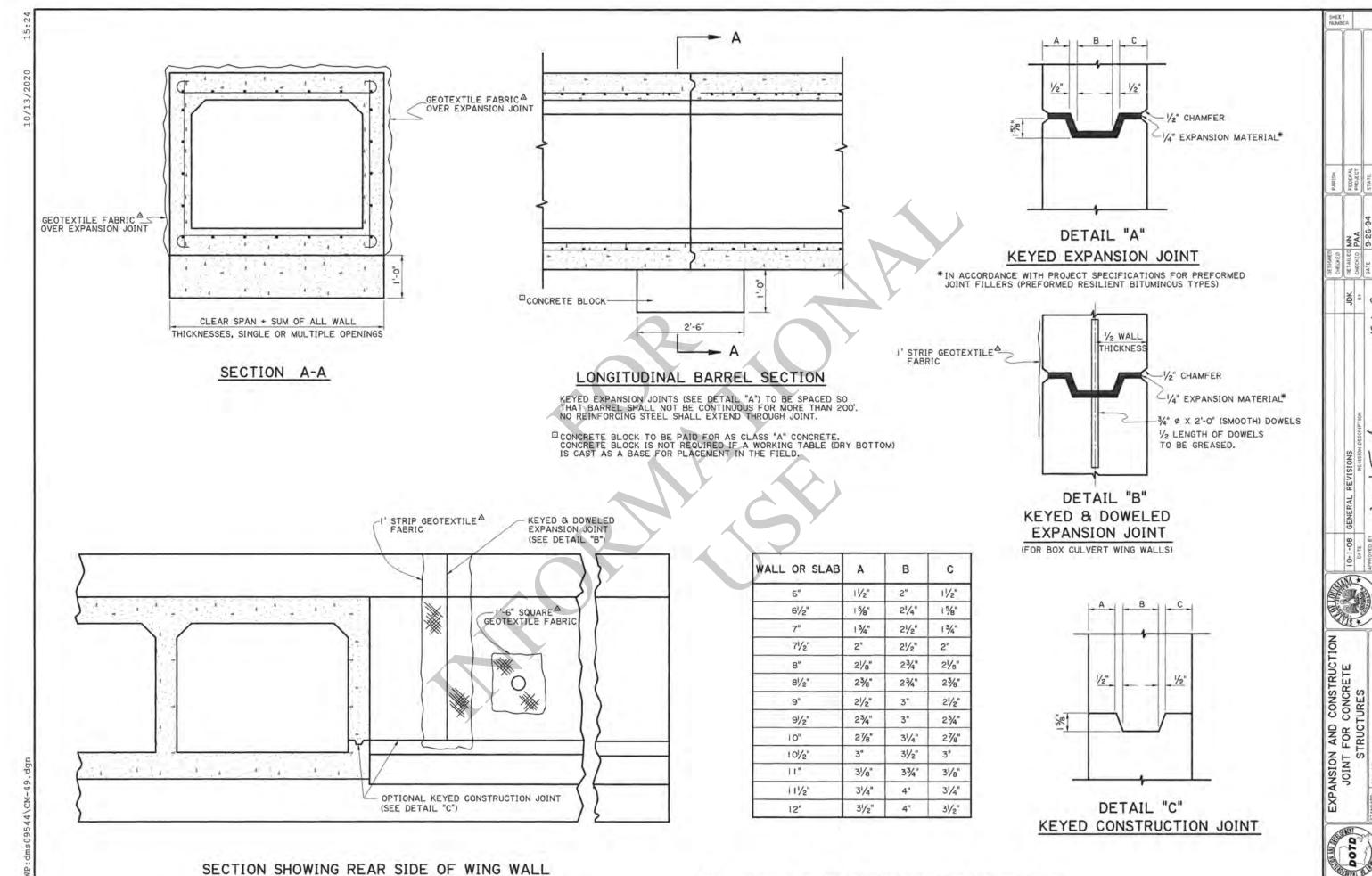
A 1'-6" Square of Plastic Filter Cloth (See Qualified Products List) Shall be placed in contact with Concrete behind each Weep Hole, in addition to approx 2 Ca.Ft. of Concrete Sand.
For Detail of Joints, See Std. Plan C.M. -49.

STATE OF LOUISIANA

DEPARTMENT OF HIGHWAYS CHECKED J. D. BACCI CHECKED J. D. BACCI

DATE

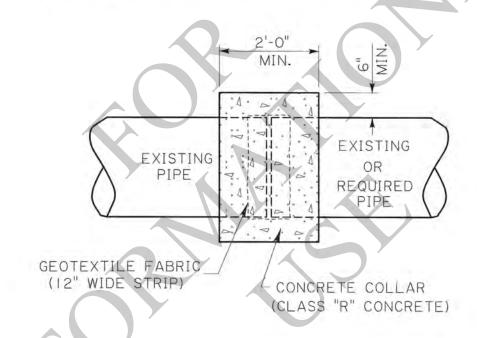




HYDRAULICS SECTION

CONCRETE COLLAR DETAIL

TO REPAIR EXISTING PIPE JOINT SEPARATION AND/OR TO CONNECT EXISTING PIPE TO NEW PIPE



1) NEW PIPE EXTENSION SHALL MATCH EXISTING PIPE IN MATERIAL TYPE AND SIZE BASED ON THE LATEST INDUSTRY STANDARDS.

PAVEMENT RELIEF JOINT AND SLEEPER SLAB AT APPROACH SLAB. SEE BRIDGE DESIGN SPECIAL DETAILS FOR APPROACH SLABS.

JOINT ABBREVIATIONS: LJ - LONGITUDINAL JOINT

- TRANSVERSE EXPANSION JOINT

- LONGITUDINAL CONSTRUCTION JOINT

CONTROL

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W.

DAVID 5, SMETH License No. 30565 PROFESSIONAL ENGINEER

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TCJ - TRANSVERSE CONTRACTION JOINT

- LONGITUDINAL BUTT JOINT

- PAVEMENT EDGE SEAL JOINT

- TRANSVERSE BUTT JOINT

- CONSTRUCTION JOINT

EJ

CJ

LCJ

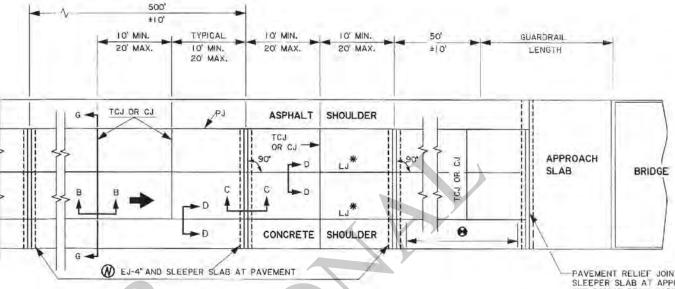
LBJ

BJ

TABLE I - SCHEDULE OF DIMENSIONS (ALL DIMENSIONS ARE IN INCHES)

SLAB THICKNESS	SM	OOTH D	OWEL &	DE	FORMED	TIE 🛭	KEY	WAY
'T"	SIZE (DIA.)	ACCES 127 6 6 6	SPACING	SIZE (DIA.)	LENGTH	SPACING	A ±1/4"	B ±1/4"
8	11/4	18	12	1/2	24	24	21/2	11/4
9	11/4	(8)	12	1/2	24	24	21/2	11/4
10	11/2	(8)	12	1/2	24	24	21/2	17/4
1)	11/2	18	12	5/6	30	24	21/2	11/4
12	11/2	18	12	3/8	30	24	3	11/2
1.3	11/2	(8	12	5/8	30	24	3	11/2
14	11/2	18	12	5/8	30	24	3	11/2

- (O) WHEN CONSTRUCTING CONCRETE CURB AND GUTTER ADJACENT TO NEW P.C.C. PAVEMENT, USE TYPE LCJ JOINT, WHEN ADJACENT TO EXISTING P.C.C. PAVEMENT, USE TYPE LBJ JOINT, THE FIRST LOAD TRANSFER DEVICE SHALL BE INSTALLED 18" FROM THE PAVEMENT EDGE.
- (II) TRANSVERSE EXPANSION JOINTS ARE NOT TO BE USED FOR CONSTRUCTION JOINTS.
- (12) CONCRETE SHOULDERS:
 - A. CONSTRUCT TCJ JOINTS IN ACCORDANCE WITH SECTION B-B (SHEET 2 OF 3).
 - B. CONSTRUCT LCJ JOINTS IN ACCORDANCE WITH TYPE LCJ DETAIL AND LJ JOINTS IN ACCORDANCE WITH TYPE LJ DETAIL. SEE SECTION D-D (SHEET 2 OF 3).
 - C. USE THE MAXIMUM SHOULDER THICKNESS WHEN DETERMINING DOWEL BAR AND TIE BAR SIZES IN TABLE 1.
 - D. WHEN SKEWED JOINTS ARE USED ON MAINLINE PAVING THE SHOULDER TCJ JOINTS MAY BE SKEWED OR CONSTRUCTED AT 90'.
 - E. SHOULDER JOINTS AND JOINT MATERIALS SHALL MATCH THE MAINLINE.
- F. HEIGHT OF DOWEL BASKET SHALL BE BASED ON THE THINNEST SHOULDER THICKNESS, VARYING HEIGHT DOWEL BASKETS WILL BE ALLOWED TO KEEP THE DOWEL BAR LOCATED WITHIN TOLERANCE.
- (3) TIE BARS SHALL NOT BE PLACED WITHIN 18" OF CONTRACTION OR EXPANSION JOINTS.



- # USE TYPE LCJ JOINT WITH SPLIT SLAB CONSTRUCTION.
- WHEN POSSIBLE, AT CATCH BASINS NO JOINTS SHALL BE PLACED IN THE LIMITS SHOWN.
- A TRANSVERSE JOINTS NEAR CATCH BASIN (CB-07, 08 8 09) THAT EXTEND INTO THE PAVEMENT SHALL BE ADJUSTED TO COINCIDE WITH ONE EDGE OF THE CATCH BASIN OR THE CENTER OF THE CATCH BASIN, SEE DETAIL E (SHEET 3 OF 3).
- SEE SECTION C-C (SHEET 2 OF 3) AND DETAIL "G"
 (SHEET 3 OF 3) FOR EJ-4" JOINT, SLEEPER SLAB AND DRAINAGE DETAILS. (REQUIRED (3) PLACES.)
- 8 CJ OR TCJ JOINTS AT 20' MAX, CTRS.

NOTE: MAXIMUM JOINT SPACING AT 18 WHEN PAVEMENT IS PLACED ON PERMEABLE BASE. (SEE SECTION 307)

NOTES:

LCJ OR LJ

LCJ OR LJ

TCJ

TCJ OR CJ

TCJ

OR CJ

OR CJ -

TYPICAL

10' MIN.

20' MAX.

CB

VARIES

-

-F.

TYPICAL

10' MIN.

20' MAX.

ASPHALT SHOULDER

TCJ

Δ

OR C.I

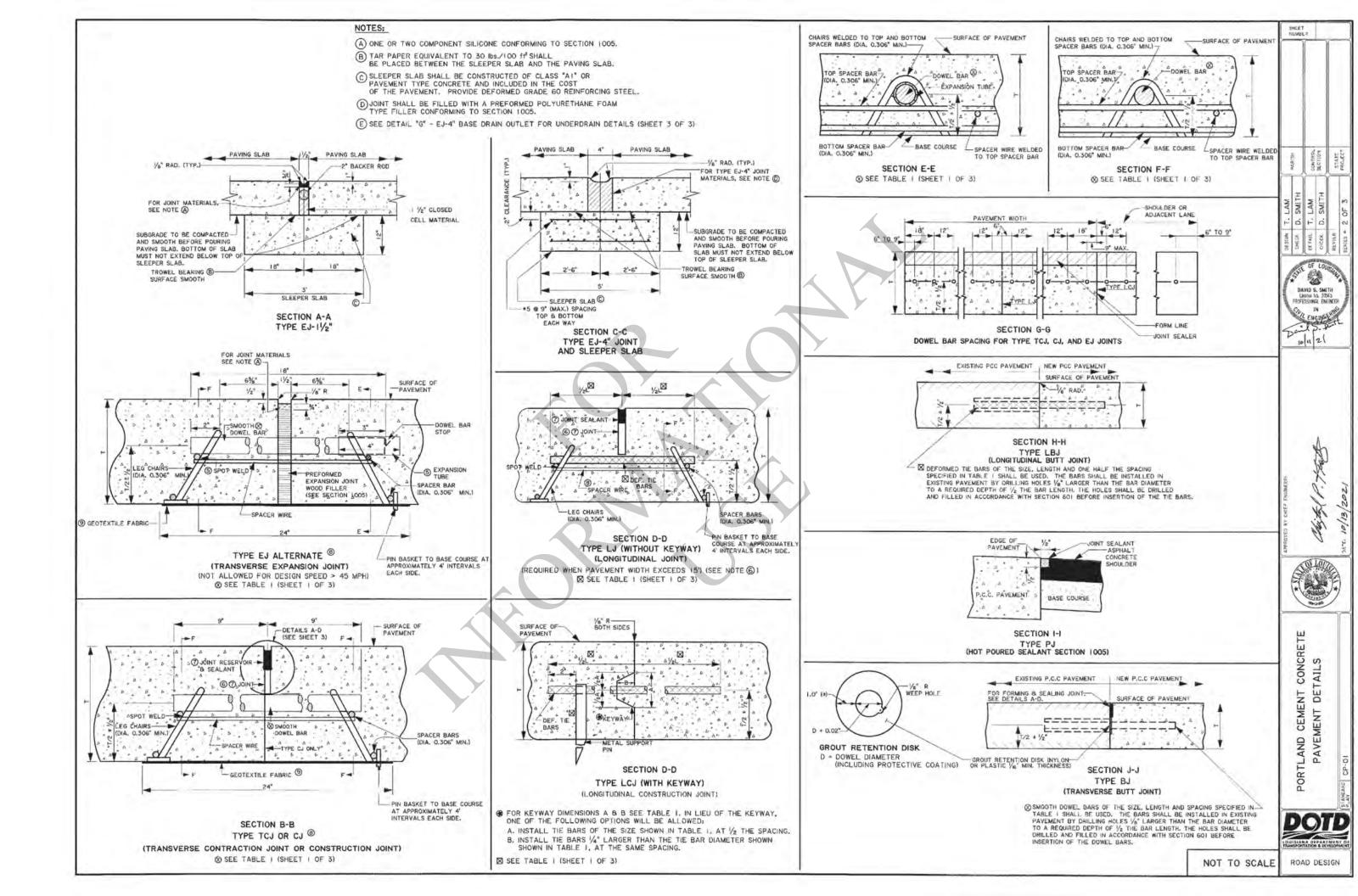
- (1) PAVEMENT EDGES SHALL BE SLIGHTLY ROUNDED (1/4 " APPROX.).
- (2) ASPHALT CONCRETE SHOULDER: THE SHOULDER JOINTS SHALL BE SAW OUT AND CONSTRUCTED IN ACCORDANCE WITH SECTION I-I (SHEET 2 OF 3).
- (3) FOR SECTIONS A-A THROUGH J-J (SEE SHEET 2 OF3).
- (4) ALL JOINTS TO BE USED WHERE SHOWN ON THIS SHEET OR AS SHOWN ELSEWHERE IN THE PLANS OR AS OTHERWISE DIRECTED BY
- (5) ON TYPE EJ ALTERNATE JOINTS, SPOT WELD ALTERNATE ENDS OF DOWEL BARS TO DOWEL BASKETS AND PLACE EXPANSION TUBES ON FREE ENDS OF DOWEL BARS.
- 6 FOR DESIGN SPEEDS GREATER THAN 45MPH: SAW CUT AND CONSTRUCT THE TYPE LJ, TCJ, AND CJ JOINTS AS IN DETAILS "A, B OR C" TO A DEPTH OF T/3 INCHES. THOROUGHLY CLEAN THE JOINT FACES BY SANDBLASTING; FOLLOWED BY AN OIL-FREE AIR JET IMMEDIATELY PRIOR TO SEALING WITH A POURED OR EXTRUDED SEALANT CONFORMING TO SECTION 1005.

- (7) FOR DESIGN SPEEDS OF 45MPH OR LESS:
- A. SAW CUT AND SEAL TYPE LJ JOINTS AS DESCRIBED IN NOTE 6.
- B. CONSTRUCT TYPE TCJ OR CJ JOINTS AS DESCRIBED IN NOTE 6 OR CONSTRUCT WITH A REMOVABLE FORMING DEVICE AS SPECIFIED IN DETAIL "C" (SHEET 3 OF 3), THOROUGHLY CLEAN THE JOINT FACES BY SAND-BLASTING; FOLLOWED BY AN OIL-FREE AIR JET IMMEDIATELY PRIOR TO SEALING WITH A POURED OR EXTRUDED SEALANT CONFORMING TO SECTIONS 601 AND 1005 WITH A COMBINATION JOINT FORMER/SEALER AS SHOWN IN DETAIL "D" (SHEET 3 OF 3), THE SEALER SHALL CONFORM TO SECTION 1005 AND BE INSTALLED IN ACCORDANCE WITH SECTION
- (8) EXCEPT AS NOTED BELOW, DOWEL BARS & TIE BARS SHALL BE HELD IN PLACE BY SUPPORTS SIMILAR TO THE ONES SHOWN, OR APPROVED EQUALS. APPROVED MECHANICAL PLACEMENT OF DOWEL BARS AND TIE BARS WILL BE ALLOWED WITH ALL PAVING METHODS.

601 AND NO ADDITIONAL SEALANT IS REQUIRED.

(9) INSTALL GEOTEXTILE FABRIC (TYPE B, C, OR D) UNDER ALL TCJ, CJ, AND EJ ALTERNATE JOINTS WHEN CONCRETE PAVEMENT IS PLACED ON PERMEABLE BASE. WHEN DOWEL BARS ARE MECHANICALLY IMPLANTED.
THE GEOTEXTILE FABRIC SHALL BE ANCHORED TO THE BASE COURSE WITH PINS.





% CLOSED CELL MATERIAL ---

IN ACCORDANCE WITH SECTION 601.

DETAIL "F"

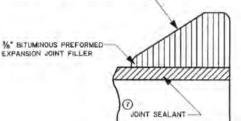
AFTER CATCH BASIN TOP IS POURED. THE TOP OF THE 3/4 " JOINT FILLER IS TO BE REMOVED TO THE DEPTH SHOWN PRIOR TO SEALING. THE CURB FACES ADJACENT TO THE BASIN SHALL ALSO BE SEALED. JOINT FACES SHALL BE CLEANED

SILICONE SEALANT

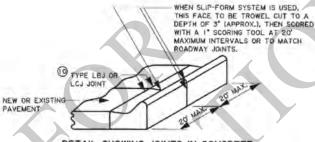
NOTE: SEE STANDARD PLAN DW-OLAND PLANS FOR CURB PLACEMENT DETAILS.

WHEN CURB IS POURED MONOLITHICALLY WITH PAVEMENT. THE BITUMINOUS PREFORMED EXPANSION JOINT FILLER SHALL EXTEND TO THE TOP OF JOINT INSERT. WHEN TRANSVERSE JOINTS ARE CONSTRUCTED BY SAWING, THE INITIAL SAW CUT SHALL EXTEND THRU THE CURBED SECTION (CURB AND UNDER-LYING PAVEMENT). THE SUBSEQUENT WIDENING CUT FOR THE JOINT SEALANT RESERVOIR SHALL EXTEND INTO THE CURB FOR A DISTANCE NECESSARY TO ENSURE THE SPECIFIED RESERVOIR DEPTH IS BEING MAINTAINED AT THE GUTTER LINE. ALL CURB FACES REGARDLESS OF CURB TYPE SHALL BE SEALED WHEN TRANSVERSE JOINT IS SAWED THROUGH CURB.

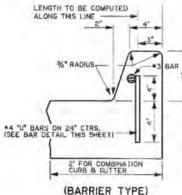
NOTE:



JOINT FILLER DETAIL FOR INTEGRAL CONCRETE CURB (MOUNTABLE OR BARRIER TYPE)

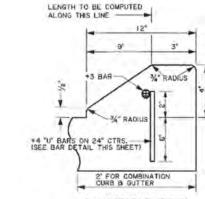


DETAIL SHOWING JOINTS IN CONCRETE CURB AND GUTTER (EXTEND ALL TCJ THROUGH CURB & GUTTER)

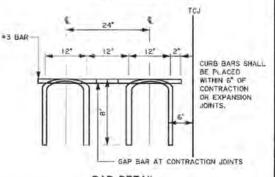




MODIFIED BARRIER OR MOUNTABLE CURB THRU DRIVEWAY



(MOUNTABLE TYPE)



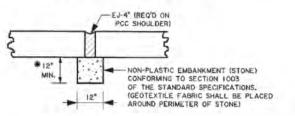
BAR DETAIL SHOWING DIMENSIONS AND SPACING OF #4 "U" BARS AND LONGITUDINAL BARS FOR CONC. CURB

CURB DETAILS

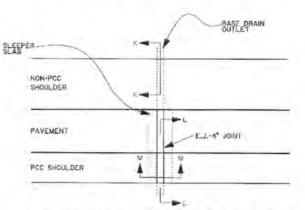
NOTES:

- POUR CURB INTEGRAL WITH PCC PAVEMENT OR GUTTER TO INSURE MONOLITHIC CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE ENGINEER. CURB BARS ARE NOT REQUIRED WHERE CURB IS CONSTRUCTED MONOLITHIC WITH THE PAVEMENT.
- ALL BARS SHOWN SHALL BE DEFORMED REINFORCING STEEL
- WHEN REPLACING OR ADDING CONCRETE CURB TO EXISTING PAVEMENT, CONNECT THE NEW CONCRETE CURB TO THE PAVEMENT WITH THE DEFORMED REINFORCING STEEL SHOWN BY DRILLING HOLES INTO THE EXISTING PAVEMENT 1/6" LARGER THAN THE BAR DIAMETER. ANCHOR THE BARS WITH AN APPROVED EPOXY RESIN SYSTEM FROM THE DOTD AML. APPLY EPOXY ADHESIVE, COMPLYING WITH AASHTO MEES, TYPE V. TO THE SURFACE AREA WHERE THE CONCRETE CURB WILL BE PLACED. INCLUDE ALL COST RELATED TO THE CONSTRUCTION OF THE CURB, INCLUDING THE DRILLED HOLES, DEFORMED REINFORCING BARS, AND EPOXY, IN THE UNIT PRICE FOR THE CURB ITEM.

NON-PCC SHOULDER PAVEMENT SLEEPER SLAB SECTION K-K EMBANKMENT OR NON-PLASTIC EMBANKMENT NON-PLASTIC * SEE TYPICAL SECTION (STONE) CONFORMING TO EMBANKMENT FOR DEPTH (12" MIN.) SECTION 1003 OF THE STANDARD SPECIFICATIONS. PAVEMENT PCC SHOULDER SLEEPER SLAB SECTION L-L (WITH CONCRETE SHOULDER)



SECTION M-M (SLEEPER SLAB NOT SHOWN) A BASE DRAIN OUTLET WILL BE REQUIRED AT E.J.-4" JOINTS UNLESS A SHOULDER UNDER DRAIN SYSTEM IS SPECIFIED ON THE PLANS, IN WHICH CASE, THE SHOULDER UNDER DRAIN FOR THE E.J. JOINT SHALL BE CONNECTED TO THE NEAREST STORM SEWER OR DISCHARGED THROUGH A HEADWALL. THE COST FOR THE BASE DRAIN OUTLET FOR THE E.J. JOINT IS TO BE INCLUDED IN THE COST OF THE PAVEMENT.



PLAN - BASE DRAIN OUTLET AT 4" E.J. EJ-4" JOINTS

DETAIL "G" - EJ-4" BASE DRAIN OUTLET

NOT TO SCALE

ROAD DESIGN

PORTLAND



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DAVID S. SMITH Liverse No. 30065 ROTESSIONAL ENGINEER

10/11/21

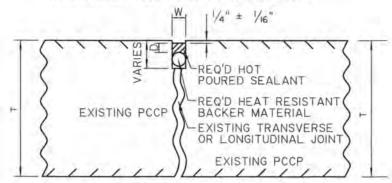




PAVEMENT

DOTD

CLEANING AND RESEALING EXISTING TRANSVERSE AND LONGITUDINAL JOINTS



SECTION VIEW

TRANSVERSE JOINTS

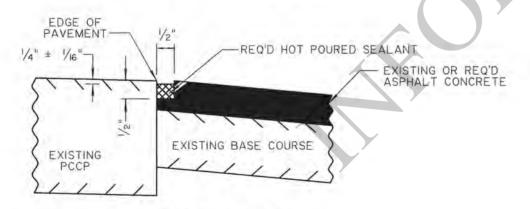
WIDTH (W)	DEPTH (D)	BACKER MATERIAL (DIAMETER)	MINIMUM DEPTH TO REMOVE INCOMPRESSIBLES
1/2" - 1"	1/2"	W + 25%	T/2
1" - 1 1/2"	W/2	W + 25%	T

LONGITUDINAL JOINTS

WIDTH (W)	DEPTH (D)	BACKER MATERIAL (DIAMETER)	MINIMUM DEPTH TO REMOVE INCOMPRESSIBLES
3/8" - 1"	1/2"	W + 25%	T/2
1" - 1 1/2"	W/2	W + 25%	T

- 1. HOT POURED SEALANT SHALL CONFORM TO SECTION 602.05 OF THE STANDARD SPECIFICATIONS.
 2. BACKER MATERIAL SHALL CONSIST OF HEAT RESISTANT, CLOSED-CELL, CROSS-LINKED POLYETHYLENE
- OR POLYOLEFIN FOAM.
- 3. ALL WORK ON THIS DETAIL TO BE PAID FOR UNDER ITEM LABELED: CLEANING AND RESEALING EXISTING TRANSVERSE PAVEMENT JOINTS, OR CLEANING AND RESEALING EXISTING LONGITUDINAL PAVEMENT JOINTS.
- 4. DETAIL NOT TO SCALE.

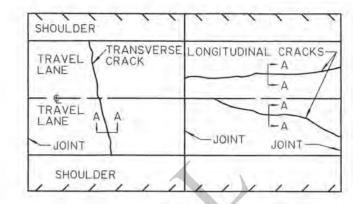
LONGITUDINAL SHOULDER JOINTS

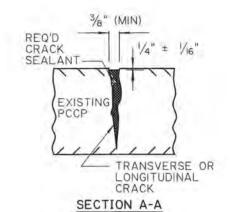


SECTION VIEW

- 1. HOT POURED SEALANT SHALL CONFORM TO SECTION 602.05 OF THE STANDARD SPECIFICATIONS.
- 2. ALL WORK ON THIS DETAIL TO BE PAID FOR UNDER THE ITEM LABELED: LONGITUDINAL SHOULDER JOINTS.
- 3. DETAIL NOT TO SCALE.

CLEANING AND SEALING RANDOM CRACKS





PLAN VIEW

- 1. APPLIES TO RANDOM CRACKS GREATER THAN 3/8" IN WIDTH ON JOINTED PCCP.
 2. CRACK SEALING LIMITS SHALL BE AS DIRECTED BY THE PROJECT ENGINEER.
- 3. SEALANT FOR TRANSVERSE CRACKS SHALL CONFORM TO 602.05 OF THE STANDARD SPECIFICATIONS.
- SEALANT FOR LONGITUDINAL CRACKS SHALL BE LOW MODULUS TYPE I GRADE A EPOXY RESIN SYSTEM OR SILICONE.
- 5. ALL WORK ON THIS DETAIL TO BE PAID FOR UNDER ITEM LABELED:
- CLEANING AND SEALING RANDOM CRACKS.

DETAIL NOT TO SCALE.

SAWING AND SEALING JOINTS IN ASPHALT CONCRETE OVERLAY

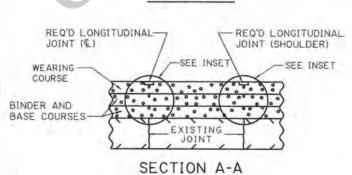




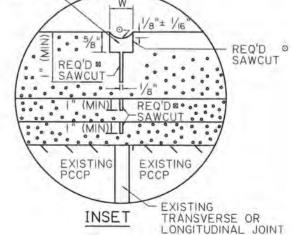
RESERVOIR

DIMENSIONS

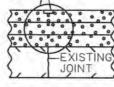
PLAN VIEW



HOT POURED SEALANT SHALL CONFORM TO SECTION 602.05 OF THE STD. SPECS.



REQ'D TRANSVERSE JOINT SEE INSET-



SECTION B-B

- SAWCUTS IN ASPHALT CONCRETE LIFTS (⋈) TO BE PAID FOR UNDER ITEM LABELED: SAWCUTS IN ASPHALT CONCRETE LIFTS.
- 2. SAWING AND SEALING JOINTS IN ASPHALT CONCRETE OVERLAY (0) TO BE PAID FOR UNDER ITEMS LABELED: SAWING AND SEALING LONGITUDINAL JOINTS IN ASPHALT CONCRETE OVERLAY, OR SAWING AND SEALING TRANSVERSE JOINTS IN ASPHALT CONCRETE OVERLAY.
- 3. DETAIL NOT TO SCALE.



SHEET

SECTION

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DETAIL

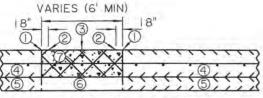


ROAD DESIGN

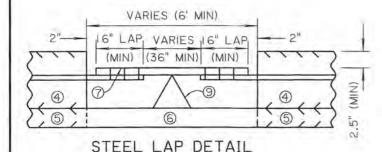


VARIES (6' MIN) NOR TRAVEL (8) LANE TRAVEL LANE SHOULDER

PLAN VIEW



SECTION VIEW



PATCHING CRCP

LEGEND

- (1) PARTIAL DEPTH SAW CUT (1 1/2" MINIMUM DEPTH).
- @ FULL DEPTH SAW CUT.
- 3 CONTINUOUSLY REINFORCED CONCRETE PAVEMENT TO BE REMOVED AND REPLACED.
- 4 EXISTING CONTINUOUSLY REINFORCED CONCRETE PAVEMENT TO REMAIN.
- 5 EXISTING BASE COURSE TO REMAIN.
- 6 DETERIORATED BASE COURSE TO BE REMOVED AND REPLACED WITH CONCRETE WITHIN PATCHING LIMITS.
- (7) LONGITUDINAL AND TRANSVERSE STEEL TO BE REPLACED WITH THE SAME SIZE AND GRADE AS EXISTING STEEL.
- ® CONCRETE IN THE SPLICE SECTION SHALL BE REMOVED IN SUCH A MANNER THAT THE EXISTING STEEL IS NOT DAMAGED OR BENT IN ANY DIRECTION.
- (9) THE MAXIMUM SPACING OF SUPPORTING CHAIRS SHALL BE 48".

NOTES:

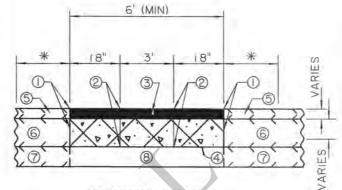
I. TRANSVERSE SAWCUTS SHALL BE ALLOWED ACROSS ONLY ONE LANE AT A TIME.

2. THE DESIRED CLEARANCE BETWEEN THE PARTIAL DEPTH SAW CUT AND THE NEAREST TRANSVERSE CRACK IS 18" A SHORTER DISTANCE MAY BE USED, BUT NOT LESS THAN 6".

2. ALL WORK ON THIS DETAIL TO BE PAID FOR UNDER ITEM LABELED:

PATCHING CONTINUOUSLY REINFORCED CONCRETE PAVEMENT. 3. DETAIL NOT TO SCALE.

PATCHING CRCP WITH HMAC



SECTION VIEW

* AN 18" CLEARANCE BETWEEN THE PARTIAL DEPTH SAW CUT AND THE NEAREST TRANSVERSE CRACK IS DESIRED. A SHORTER DISTANCE MAY BE USED, BUT THE MINIMUM LENGTH MUST NOT BE LESS THAN 6".

LEGEND

- 1 FULL DEPTH SAW CUT THROUGH EXISTING ASPHALT CONCRETE WITH PARTIAL DEPTH SAW CUT THROUGH CRCP (1 1/2" to 2").
- 2 FULL DEPTH SAW CUT THROUGH EXISTING ASPHALT CONCRETE AND
- 3 EXISTING ASPHALT CONCRETE TO BE REMOVED AND REPLACED. (COURSES AND TYPES TO BE AS SHOWN ON THE TYPICAL SECTION).
- 4) CRCP TO BE REMOVED AND REPLACED (SEE PATCHING CRCP DETAILS).
- 6 EXISTING ASPHALT CONCRETE TO REMAIN.
- 6 EXISTING CRCP TO REMAIN.
- TEXISTING BASE COURSE TO REMAIN.
- (8) DETERIORATED BASE COURSE TO BE REMOVED AND REPLACED WITH CONCRETE WITHIN THE PATCHING LIMITS.

BRIAN A. MAY Lichtse No. 40505 PROFESSIONAL ENGINEE 4/21/22

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HEET

NOTES:

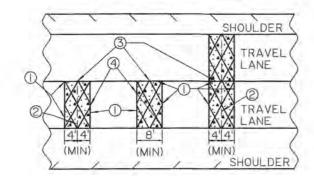
X ALL WORK ON THIS DETAIL TO BE PAID FOR UNDER ITEM LABELED: PATCHING CONTINUOUSLY REINFORCED CONCRETE PAVEMENT.

2. DETAIL NOT TO SCALE.

PATCHING JOINTED PCCP

SHOULDER

FULL WIDTH PANEL PATCH



PLAN VIEW

LEGEND

- ① FULL DEPTH SAW CUT.
- (2) REQUIRED AND EXISTING JOINT.
- 3 REQUIRED JOINT.
- 4 REQUIRED CONSTRUCTION JOINT.

I. FOR ALL PATCHES < 10 FEET IN LENGTH, PLACE A BOND BREAKER IN THE LONGITUDINAL JOINT OF THE ADJACENT SLAB(S).

2. FOR PATCHES > 10 FEET IN LENGTH THAT DO NOT CONTAIN A TRANSVERSE JOINT WITHIN THE PATCH, PLACE TIE BARS IN THE ADJACENT SLAB(S) ALONG THE LONGITUDINAL JOINT.

3. FOR PATCHES > 10 FEET IN LENGTH WHERE A TRANSVERSE JOINT IS LOCATED WITHIN THE PATCH, PLACE TIE BARS IN THE ADJACENT SLAB(S) IN THE LONGER PORTION ALONG THE LONGITUDINAL JOINT (WITH RESPECT TO THE EXISTING TRANSVERSE JOINT) AND PLACE A BOND BREAKER IN THE REMAINING SHORTER PORTION OF THE LONGITUDINAL JOINT. FOR THOSE CASES WHERE THE PATCH IS EVENLY SPACED ACROSS THE TRANSVERSE JOINT, PLACE TIE BARS ALONG THE LONGITUDINAL JOINT ON THE LEADING SIDE EDGE OF THE ADJACENT SLAB(S) WITH RESPECT TO TRAFFIC

4. REMOVE AND REPLACE DETERIORATED BASE COURSE WITH CONCRETE WITHIN THE PATCHING LIMITS, A BOND BREAKER IS REQUIRED BETWEEN THE BASE AND PAVEMENT

5. THE RECOMMENDED MAXIMUM LENGTH-TO-WIDTH RATIO FOR ALL PCCP PATCHES IS 1.5 (L) TO L (W) BETWEEN JOINTS.

6. FOR TRANSVERSE BUTT JOINTS, USE I" DIAMETER (#8) DOWEL BAR FOR SLAB THICKNESS 8" TO 10" AND 1.25" DIAMETER (#10) DOWEL BAR FOR SLAB THICKNESS >10" SPACED AT 12" CENTER TO CENTER. USE 18" LENGTHS FOR ALL TRANSVERSE BUTT JOINT DOWEL BARS. DRILL HOLES FOR DOWEL BARS INTO THE MIDDLE OF THE VERTICAL FACE OF EXISTING PAVEMENT, DRILL HOLES NO LARGER THAN /8 LARGER THAN THE DIAMETER OF THE BAR USED. FILL IN ACCORDANCE WITH SECTION 601 BEFORE INSERTION OF THE DOWEL BARS.

7. CONFORM TO SECTION 601 & CP-01 FOR JOINTS AND BAR SIZES, MATCHING EXISTING JOINT TYPE AND BAR SPACING WHERE POSSIBLE.

8. COAT EXISTING TRANSVERSE VERTICAL FACES WITH NEAT CEMENT JUST PRIOR TO POURING PATCH.

9. SAW AND SEAL ALL JOINTS.

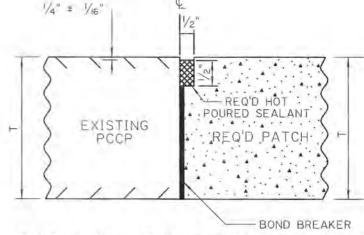
10. PAYMENT FOR ALL WORK PERFORMED IN THIS DETAIL UNDER ITEM:

FULL DEPTH PATCHING OF JOINTED CONCRETE PAVEMENT.

II. ANY DAMAGE OR SAWCUTS INTO ADJACENT PANELS SHALL BE PATCHED, AS SHOWN ON THIS PATCHING DETAIL, AT NO DIRECT PAY.

12. DETAIL NOT TO SCALE.

PATCHING JOINTED PCCP



LONGITUDINAL JOINT SECTION VIEW (<10')

I. HOT POURED SEALANT SHALL CONFORM TO SECTION 602.05 OF THE STANDARD SPECIFICATIONS.

2. ALL WORK ON THIS DETAIL TO BE PAID FOR UNDER ITEM LABELED: FULL DEPTH PATCHING OF JOINTED CONCRETE PAVEMENT

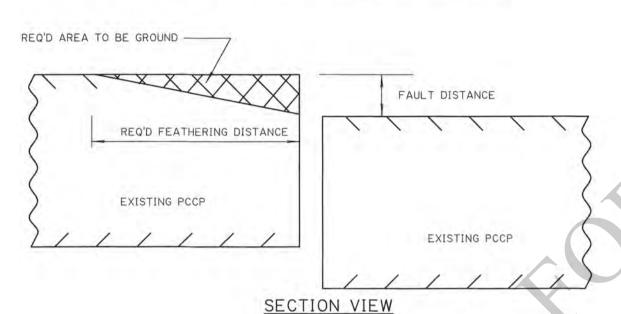
3. DETAIL NOT TO SCALE.

AND CR ATCHING

DOTE

ROAD DESIGN

GRINDING ISOLATED TRANSVERSE JOINTS

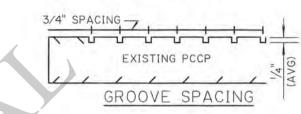


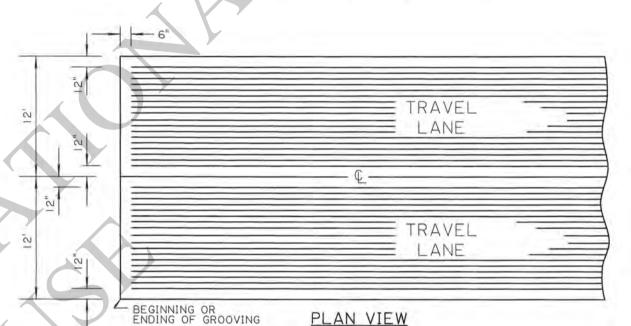
DISTANCE	FEATHERING	DISTANC

FAULT DISTANCE	FEATHERING DISTANCE
1/4"	5'
3/8"	7.5'
1/2"	10'

1. IF FAULT IS OVER 1/2", REMOVE AND REPLACE THE FAULTED AREA WITH A FULL DEPTH PATCH.
2. ALL GRINDING TO BE DONE PRIOR TO JOINT SEALING.
3. ALL WORK ON THIS DETAIL TO BE PAID FOR UNDER ITEM: MILLING CONCRETE PAVEMENT.
4. DETAIL NOT TO SCALE.

PAVEMENT GROOVING





NOTES:

1. ALL WORK ON THIS DETAIL SHALL BE PAID FOR UNDER ITEM: DIAMOND GROOVING CONCRETE PAVEMENT.

SHOWING GROOVES FOR 2 LANES

2. DETAIL NOT TO SCALE.

CONTROL SECTION STATE PROJECT

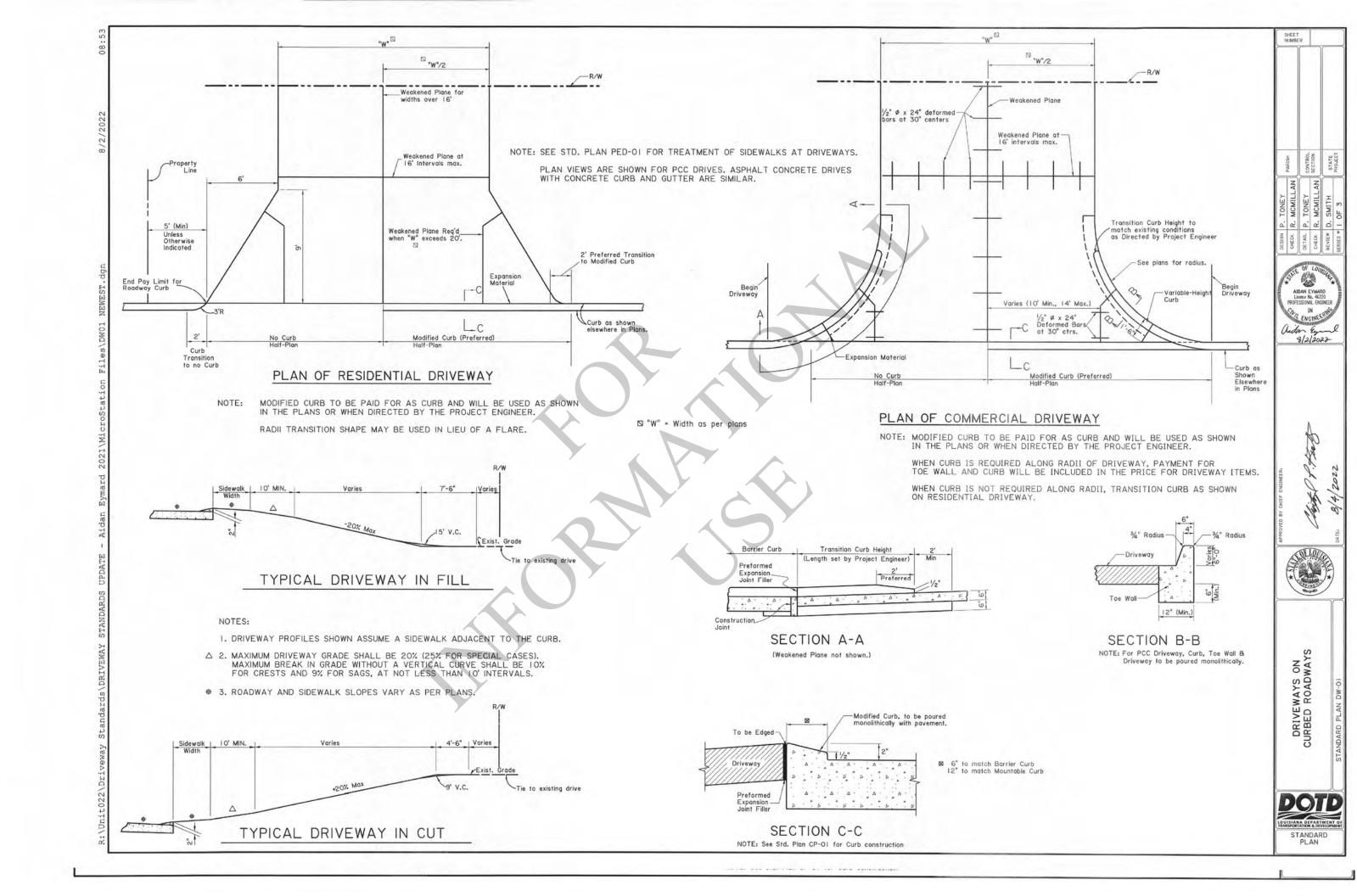


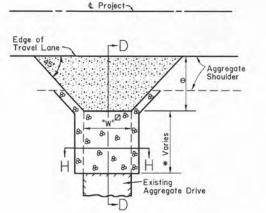




DETAILS CONCRETE REHAB

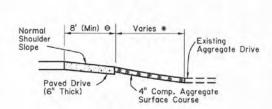




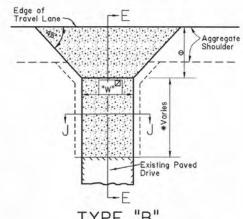


TYPE "A"

Paved Driveway Flare Along Aggregate Shoulder



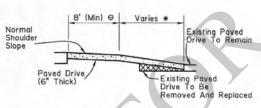
SECTION D-D



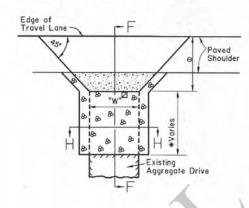
& Project

TYPE "B"

Paved Driveway Flare Along Aggregate Shoulder Connecting Existing Paved Drive



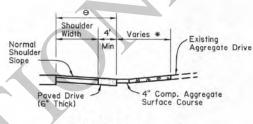
SECTION E-E



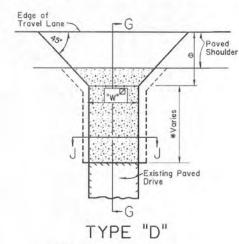
4. Project

TYPE

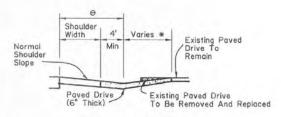
Paved Driveway Flare Along Paved Shoulder



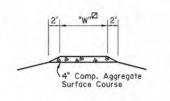
SECTION F-F



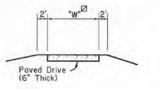
Paved Driveway Flare Along Paved Shoulder Connecting Existing Paved Drive



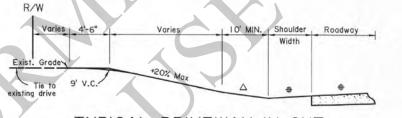
SECTION G-G



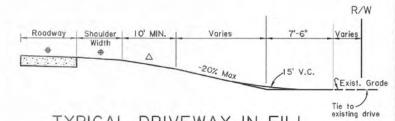
SECTION H-H



SECTION J-J



TYPICAL DRIVEWAY IN CUT



TYPICAL DRIVEWAY IN FILL

☑ "W" = Width as per plans

NOTES:

- I. PORTLAND CEMENT CONCRETE DRIVES WILL BE CONSTRUCTED TO REPLACE OR CONNECT TO EXISTING CONCRETE DRIVES.
- *2. SEE PLANS: APPLIES WHERE EXISTING DRIVE IS TO BE REMOVED FOR ROADWAY CONSTRUCTION AND/OR TO ACHIEVE VERTICAL GEOMETRY REQUIREMENTS.
- 63. PAVEMENT SHALL EXTEND 8' MINIMUM FROM EDGE OF PAVED ROADWAY SURFACE (TRAVEL LANE) FOR SINGLE-FAMILY RESIDENTIAL/NON-COMMERCIAL AGRICULTURE TYPE CONNECTIONS, AND 25' FOR TRAFFIC GENERATOR (COMMERCIAL) TYPE CONNECTIONS, OR AS PER THE PLANS. PAVED DRIVEWAY FLARE SHALL EXTEND 4' MINIMUM FROM EDGE OF PAVED SHOULDER. RADII TRANSITION SHAPE MAY BE USED IN LIEU OF FLARE.
- 4. COMPACTION OF SUBGRADE AND GRADING WORK FOR CONSTRUCTION OF DRIVES SHALL BE SATISFACTORY TO THE ENGINEER AND PAYMENT SHALL BE INCLUDED IN THE DRIVEWAY ITEMS.
- Δ 5. MAXIMUM DRIVEWAY GRADE SHALL BE 20% (25% FOR SPECIAL CASES), MAXIMUM BREAK IN GRADE WITHOUT A VERTICAL CURVE SHALL BE 10% FOR CRESTS AND 9% FOR SAGS, AT NOT LESS THAN 10' INTERVALS.
- # 6. ROADWAY AND SHOULDER SLOPES VARY AS PER PLANS





ASPHALT



AGGREGATE



REMOVAL



DRIVEWAYS ON NON-CURBED ROADWAYS

CONTROL

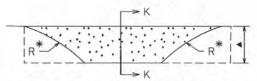
100 A

AIDAN EYMARD License No. 46220 PROFESSIONAL ENGINEER CA IN ENGINEERING

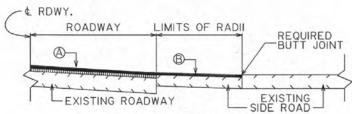
8/2/2022

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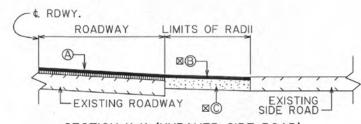
TURNOUT TIE-IN DETAILS FOR OVERLAY PROJECTS



DETAIL OF APRON AT TURNOUT (TYPICAL)

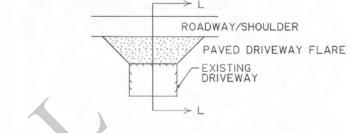


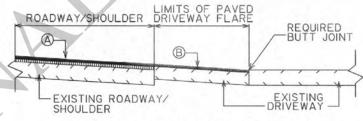
SECTION K-K (PAVED SIDE ROAD)



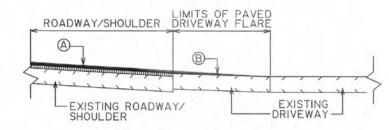
- SECTION K-K (UNPAVED SIDE ROAD)
- (A) ASPHALT CONCRETE (COURSES AND TYPES SHOWN ON ROADWAY TYPICAL SECTION)
- B ASPHALT CONCRETE (THICKNESS SHALL MATCH ROADWAY WEARING SURFACE)
- **⊠**© ASPHALT CONCRETE BASE COURSE
- * MATCH EXISTING RADIUS
- ▲ VERTICAL TRANSITION FROM ROADWAY TO BUTT JOINT TIE-IN WHERE NEEDED
- M TOTAL THICKNESS OF WEARING COURSE AND BASE COURSE SHALL BE A MINIMUM OF 6"

DRIVEWAY TIE-IN DETAILS FOR OVERLAY PROJECTS





SECTION L-L (ALTERNATE I)



SECTION L-L (ALTERNATE 2)

- (A ASPHALT CONCRETE (COURSES AND TYPES SHOWN ON ROADWAY TYPICAL SECTION)
- B ASPHALT CONCRETE (THICKNESS SHALL MATCH ROADWAY WEARING COURSE)

NOTES:

- I. DRIVE WIDTHS AND FLARE DIMENSIONS TO BE ADJUSTED TO MATCH EXISTING CONDITIONS AS DIRECTED BY THE PROJECT ENGINEER.
- 2. TYPE OF TIE-IN AND LENGTH OF OVERLAY TRANSITION TO BE SET BY PROJECT ENGINEER TO ACHIEVE A SUITABLE CONNECTION FOR EXISTING DRIVE.
- 3. REFER TO SHEET 2 OF DW-OI FOR SUGGESTED TIE-IN CRITERIA OF STEEP GRADES.



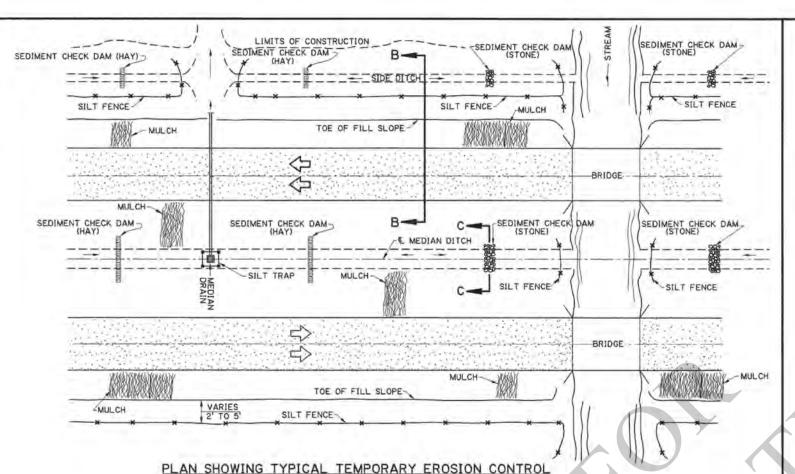
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VOUT AND DRIVEWA TIE-IN DETAILS

DOTD

LOUISIANA DEPARTMENT OF A DEVELOPMENT

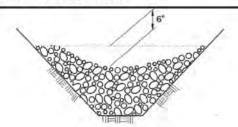
STANDARD
PLAN



MULCHES

MULCHES ARE THE APPLICATION OF MATS OF MATERIAL PLACED ON THE SOIL SURFACE TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINDROP IMPACT AND TO REDUCE THE VELOCITY OF OVERLAND FLOW. MULCHES CAN BE ORGANIC OR SYNTHETIC. MULCHES SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW GUIDELINES FOR THE USE OF MULCHES ARE:

- USE ON CUT AND EMBANKMENT SLOPES WHICH HAVE NOT BEEN COMPLETED TO PLAN GRADE OR WHERE THE WEATHER OR SOIL CONDITIONS WILL NOT PERMIT COMPLETING THEM WITHIN A REASONABLE TIME
- 2. USE ON CLEARED, GRUBBED , AND SCALPED AREAS WHERE SOIL EROSION IS LIKELY TO OCCUR.



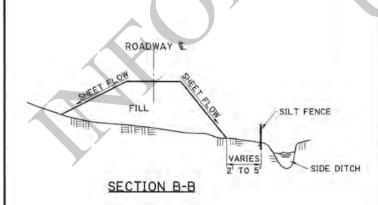
SECTION C-C

TEMPORARY SEDIMENT CHECK DAM (STONE)

PAY ITEM: TEMPORARY SEDIMENT CHECK DAM (STONE)

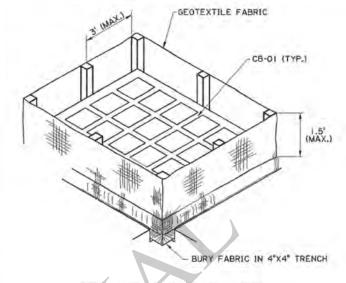
NOTES:
A STONE CHECK DAM IS A SMALL TEMPORARY DAM CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH. THE PURPOSE OF THIS MEASURE IS TO REDUCE THE VELOCITY OF CONCENTRATED STORM WATER FLOWS, THEREBY REDUCING EROSION OF THE SWALE OR DITCH. THE STONE CHECK DAM WILL TRAP SMALL AMOUNTS OF SEDIMENTS GENERATED IN THE DITCH ITSELF, HOWEVER IT SHOULD NOT BE USED AS A SEDIMENT TRAPPING DEVICE. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF STONE CHECK DAMS ARE:

- I. USE IN SMALL OPEN CHANNELS WHICH DRAIN TO ACRES OR LESS
- 2. DO NOT USE IN A LIVE STREAM
- USE IN A TEMPORARY DITCH OR SWALE WHICH, BECAUSE OF THEIR SHORT LENGTH OF SERVICE, CANNOT RECEIVE A NON- ERODIBLE LINING
- USE IN PERMANENT DITCHES OR SWALES WHICH WILL NOT RECEIVE A PERMANENT LINING FOR AN EXTENDED PERIOD OF TIME
- USE IN TEMPORARY OR PERMANENT DITCHES OR SWALES WHICH NEED PROTECTION DURING THE ESTABLISHMENT OF GRASS LININGS
- FOR STONE SPECIFICATIONS, SEE PROJECT SPECIFICATIONS FOR RIPRAP, (CLASS 2 LB)



TEMPORARY SILT FENCE APPLICATION

(FOR CONSTRUCTION DETAILS AND SPECIFICATIONS SEE SHEET 2 OF 2.)

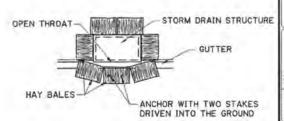


ISOMETRIC VIEW SHOWING GEOTEXTILE FABRIC

(BACKFILL SOIL NOT SHOWN)



SECTION THRU TRENCH SHOWING GEOTEXTILE FABRIC



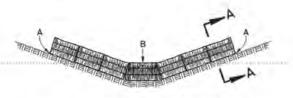
PLAN SHOWING HAY BALES

PAY ITEM: TEMPORARY HAY OR STRAW BALES

TEMPORARY INLET SILT TRAP

THE TEMPORARY DROP INLET SILT TRAP IS TO BE USED FOR SMALL DRAINAGE AREAS (LESS THAN I ACRE) WHERE THE STORM DRAIN IS FUNCTIONAL BEFORE THE AREA IS STABILIZED. THE TRAP CAN BE EITHER GEOTEXTILE FABRIC OR

- THE GEOTEXTILE FABRIC SHALL CONFORM TO PROJECT SPECIFICATIONS FOR GEOTEXTILE FABRIC (CLASS G).
- WOODEN STAKES SUPPORTING THE FABRIC SHALL BE 2" X 2" OR 2" X 4" WITH A MINIMUM LENGTH OF 3 FEET. THE STAKES SHALL BE SPACED AROUND THE INLET AT A MAXIMUM SPACING OF 3 FEET.
- 3. THE HEIGHT OF THE FABRIC ABOVE THE INLET SHALL BE LIMITED TO 1.5' AND THE BOTTOM OF THE FABRIC SHALL BE BURIED IN A TRENCH APPROXIMATELY 4" WIDE BY 4" DEEP. THE FABRIC SHALL BE STAPLED TO THE POST WITH 1/2" STAPLES.
- THE TRAP SHOULD BE INSPECTED REGULARLY AND AFTER EACH STORM. THE SEDIMENT SHOULD BE REMOVED AND EACH STAKE SHOULD BE FIRMLY IN THE GROUND.
- HAY BALES SHALL BE PLACED SO THAT THE BINDING WIRE OR TWINE IS NOT IN CONTACT WITH THE GROUND.



POINTS A SHOULD BE HIGHER THAN POINT B.

ELEVATION



SECTION A-A

TEMPORARY SEDIMENT CHECK DAM (HAY)

PAY ITEM: TEMPORARY SEDIMENT CHECK DAM (HAY)

A HAY BALE BARRIER IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A A HAT BALE BARRIER IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A ROW OF ENTRENCHED AND ANCHORED BALES OF STRAW OR HAY. THE HAY BALE BARRIER IS ALSO USED AS A CHECK DAM TO REDUCE THE VELOCITY IN SMALL DITCHES OR SWALES. THE HAY BALES SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A HAY BALE BARRIER ARE:

- I. USE WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION
- 2. USE IN MINOR SWALES OR DITCHES WHERE THE MAXIMUM DRAINAGE AREA IS 2 ACRES
- 3. ONLY USE WHERE THE EFFECTIVENESS IS REQUIRED FOR LESS THAN 3 MONTHS
- 4. DO NOT USE IN LIVE STREAMS OR IN SWALES OR DITCHES WHERE THERE IS A POSSIBILITY OF A WASHOUT

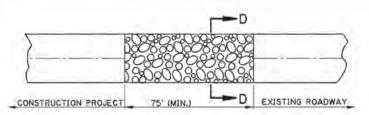


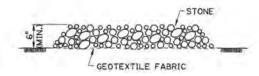
EROSION DETAILS

EMPORARY CONTROL

SPECIFIC PAY ITEM

HYDRAULICS SECTION





PLAN

SECTION D-D

TEMPORARY STONE CONSTRUCTION ENTRANCE

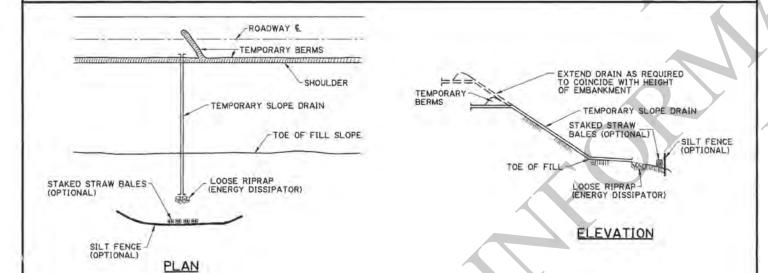
PAY ITEM: TEMPORARY STONE CONSTRUCTION ENTRANCE

NOTES:

TEMPORARY STONE CONSTRUCTION ENTRANCE AND/OR WASH RACK

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON THE CONSTRUCTION SITE TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS. IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF THE MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLE ENTERS A PUBLIC ROAD. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A STONE ENTRANCE AND/OR WASH RACKS ARE:

- I. THE STONE LAYER MUST BE AT LEAST 6 INCHES THICK
- 2. THE STONE SHALL CONFORM TO PROJECT SPECIFICATIONS FOR RIPRAP (CLASS 2 LB),
- 3. THE LENGTH OF THE PAD MUST BE A LEAST 75 FEET AND IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR
- A GEOTEXTILE FABRIC UNDERLINER IS REQUIRED. THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR GEOTEXTILE FABRIC (CLASS D).
- 5. IF A WASH RACK IS NECESSARY, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF-SITE.



TEMPORARY SLOPE DRAIN

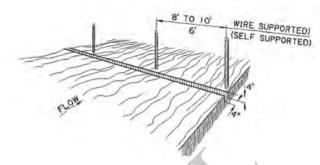
A TEMPORARY SLOPE DRAIN IS A DEVICE USED TO CARRY WATER FROM THE CONSTRUCTION WORK AREA TO A LOWER ELEVATION. SLOPE DRAINS MAY BE PLASTIC SHEET, METAL OR PLASTIC PIPE, STONE GUTTERS, FIBER MATS, OR CONCRETE OR ASPHALT DITCHES. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A TEMPORARY SLOPE DRAIN ARE:

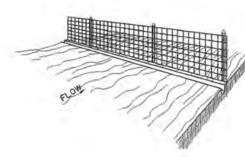
I. THE SPACING OF THE SLOPE DRAINS VARIES WITH THE ROAD GRADE, FOR GRADES: 0.0% - 2.0% USE 500' SPACING GREATER THAN 5.0% USE 100' SPACING GREATER THAN 5.0% USE 100' SPACING

2. SLOPE DRAIN MATERIAL: SMOOTH PIPE - 8" MINIMUM - 3 MILS THICK MIN. CORRUGATED PIPE - 12" MINIMUM PLASTIC SHEETING - 4' WIDE MINIMUM PLASTIC SHEETING - 3 MILS THICK MIN.

- 3. PLASTIC SHEETING CAN BE STAKED DOWN OR WEIGHTED WITH ROCKS OR LOGS. THE AREA UNDER THE SHEETING SHOULD BE SHAPED TO PROVIDE AN ADEQUATE CHANNEL.
- 4. THE OUTLET END SHOULD BE PROTECTED OR HAVE SOME MEANS OF DISSIPATING ENERGY. THE FLOW SHOULD BE DIRECTED THROUGH A SEDIMENT TRAP SUCH AS A SILT FENCE, HAY BALES, OR OTHER APPROVED SEDIMENT CONTROL DEVICES.
- TO INSURE PROPER OPERATION, TEMPORARY SLOPE DRAINS SHOULD BE INSPECTED REGULARLY AND AFTER EACH STORM, FOR CLOGGING OR DISPLACEMENT. EROSION AT THE OUTLET SHOULD BE CHECKED AND THE SILT TRAPS CLEANED IF NECESSARY.

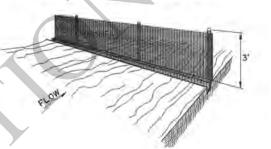
I. SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS,



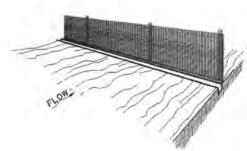


2. STAPLE WIRE FENCING TO THE POSTS.

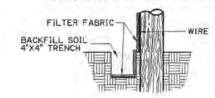
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT EXCAVATED SOIL.



EXTENSION OF FABRIC INTO THE TRENCH.



CONSTRUCTION OF TEMPORARY SILT FENCING

(WIRE SUPPORTED SILT FENCE IS SHOWN. SELF SUPPORTED SILT FENCE WILL BE CONSTRUCTED ACCORDING TO MANUFACTURERS SPECIFICATIONS.)

SILT FENCING IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A FILTER FABRIC SUPPORTED BY POSTS AND STRETCHED ACROSS AN AREA TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT. THE SILT FENCING SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW BASIC GUIDELINES FOR THE USE OF SILT FENCING ARE:

- 1. USE WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION
- 2. USE WHERE THE MAXIMUM DRAINAGE AREA BEHIND THE SILT FENCE IS 1/4 ACRE PER 100 FEET OF SILT FENCE LENGTH
- 3. USE WHERE THE MAXIMUM SLOPE LENGTH BEHIND THE BARRIER IS 100 FEET
- 4. USE THERE THE MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1
- DO NOT USE SILT FENCES IN LIVE STREAMS OR IN DITCHES OR SWALES WHERE FLOWS EXCEED ONE CUBIC FOOT PER SECOND



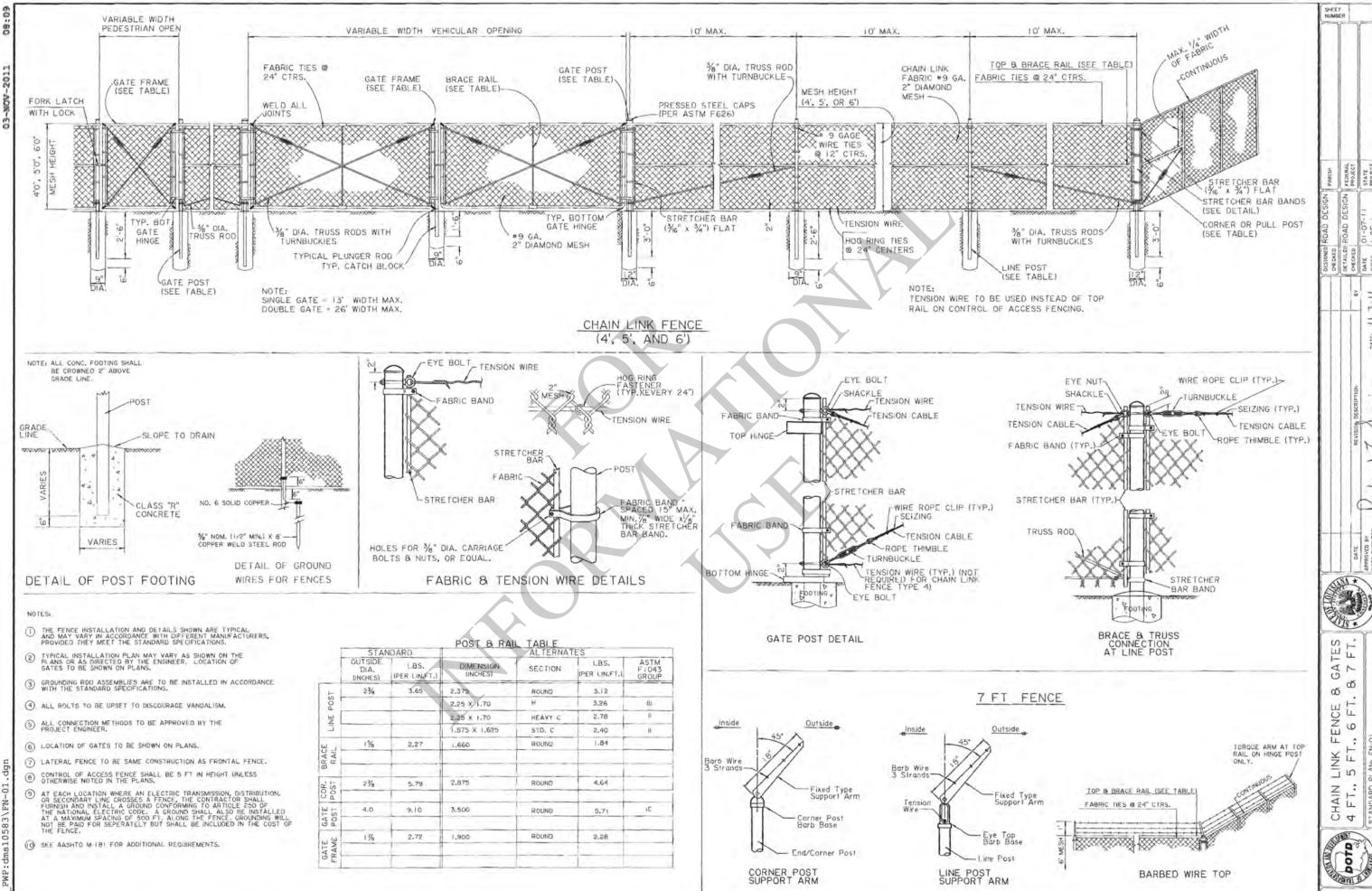
REMOVE SPECIFIC PAY ITEM

90

EROSION CONTROL



HYDRAULICS SECTION



L

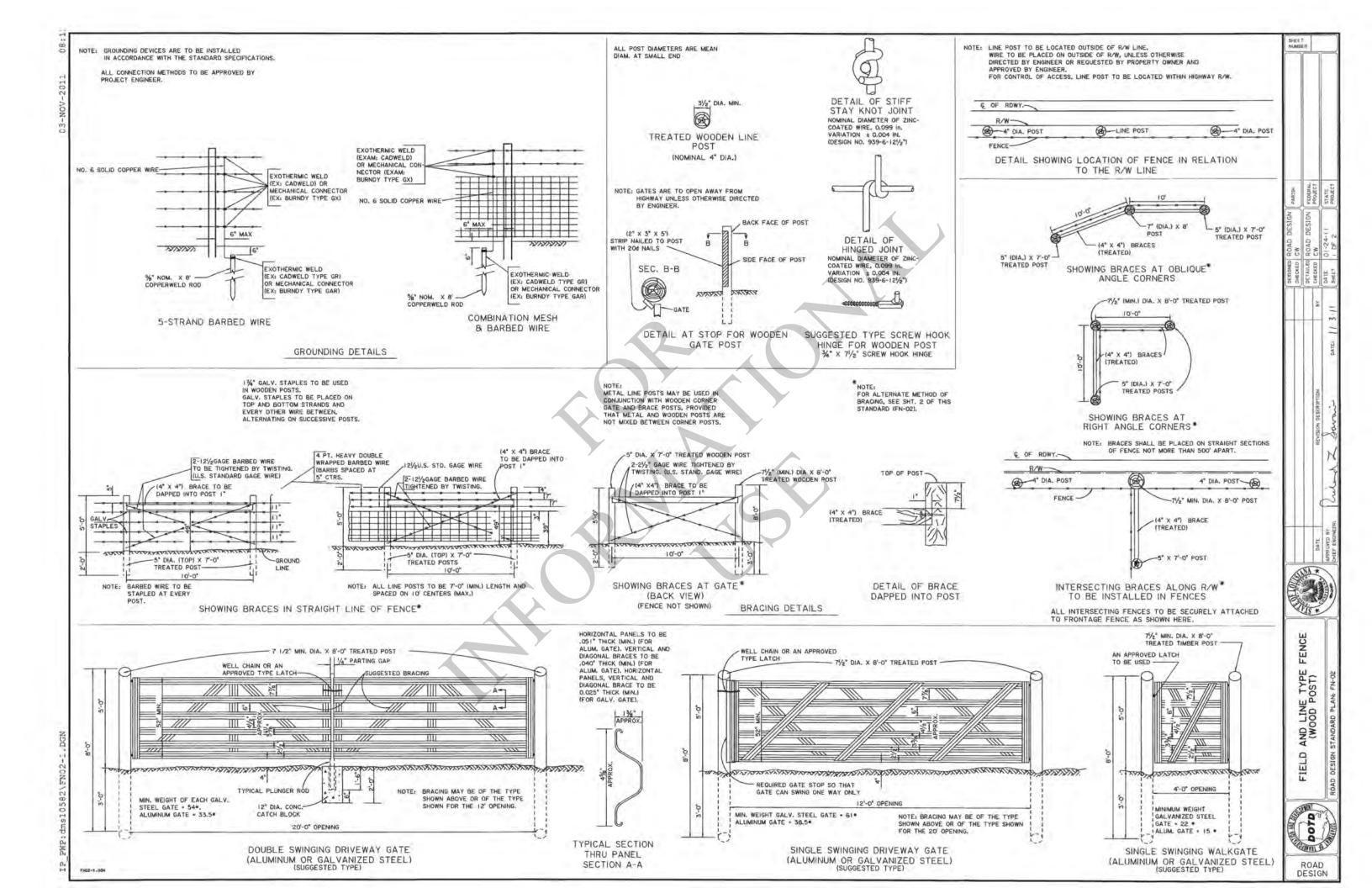
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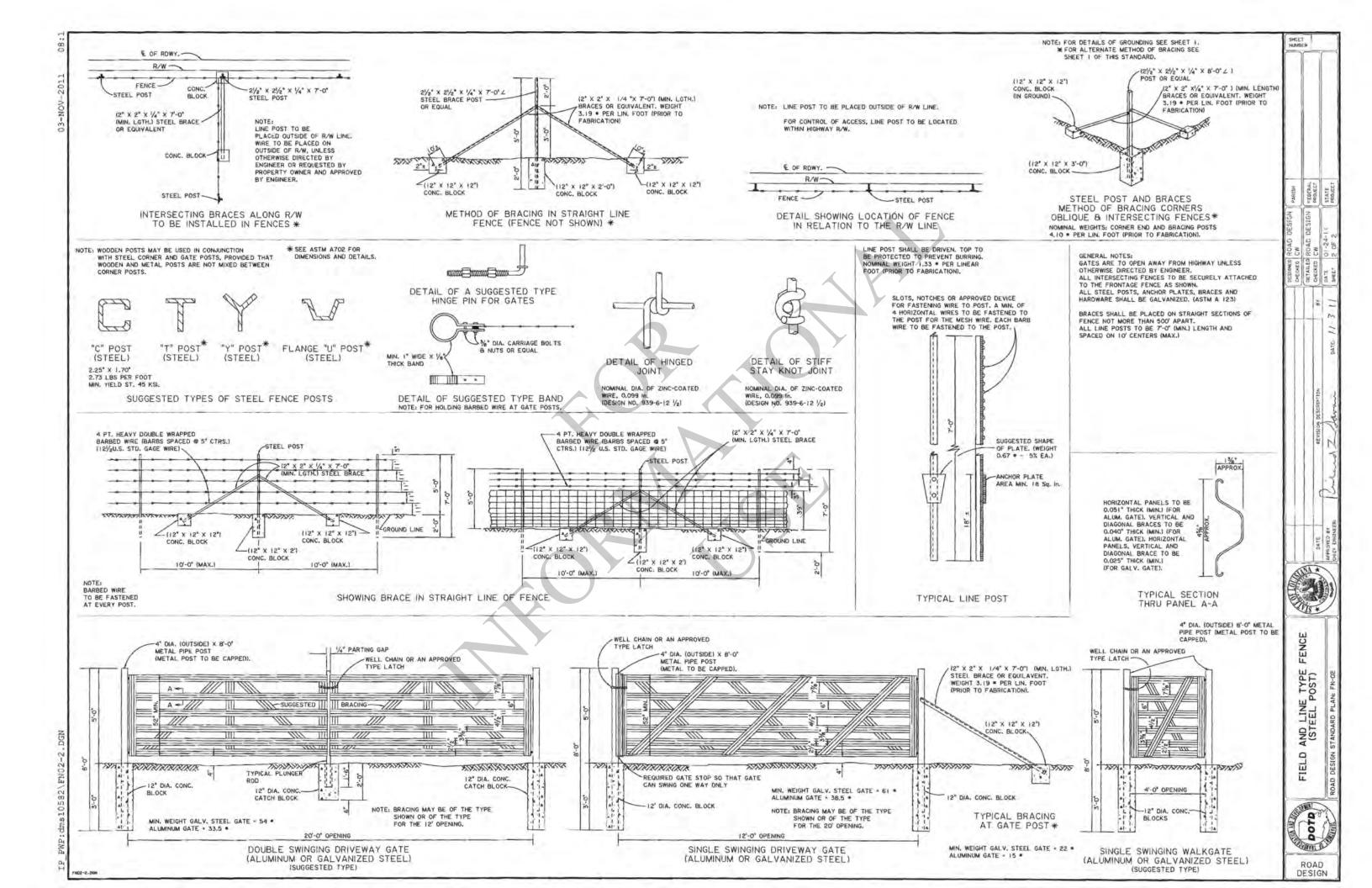
L

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DOTE

DESIGN





FOR CLEAR ZONE DISTANCE (Lc) SEE TABLE I, SHEET 2, STD. PLAN GR-200. "K", "KI" AND "K2" ARE DISTANCES MEASURED FROM EDGE OF TRAVEL LANE TO BACK FACE OF GUARD RAIL.

- * INCIDENTAL CONCRETE PAVING (4" THICK) TO BE PAID FOR UNDER ITEM 706-03-00100, PER SQ. YARD. THE INCIDENTAL CONCRETE WILL BE USED ON THE PROJECT ONLY IF A QUANTITY & PAY ITEM ARE SHOWN ON THE SUMMARY OF ESTIMATED QUANTITIES. SEE SHEET 10, GR-200 STD. PLAN FOR REQUIRED POST PAVING DETAILS.
- ▲ 6'-3" W BEAM/THRIE BEAM TRANSITION SECTION.

LENGTH OF NEED (X) TO BEGIN AT FIRST POST PRIOR TO OBSTACLE AS SHOWN.

- O DIMENSION MEASURED FROM BACK FACE OF GUARD RAIL POST TO FRONT FACE OF OBSTACLE.
- FLARE RATE SHALL BE IN ACCORDANCE WITH DESIGN SPEED AS SHOWN ON SHEET 2





EDGE OF TRAVEL LANE

- EDGE OF SHOULDER

EDGE OF TRAVEL LANE



HIGHWAY GUARD RAILS MEDIAN OBSTACLE 2' MIN. CLEARANCE

UPDATED FOR 2016 SPECIFICATIONS
REVISION DESCRIPTION

P. W. Choins

LENGTH OF NEED (X) 12'-6" @ GUARD RAIL END TREATMENT (BI-DIRECTIONAL) VARIES VARIES (DOUBLE THRIE BEAM) (3'-11/2" POST SP.) 704-01-02000 VARIES "H" VARIES
POST SPA. NOT TO EXCEED BLOCKED OUT GUARD RAIL 704-03-00100 704-10-00300 BLOCKED OUT GUARD RAIL 704-03-00100 ⊕ GUARD RAIL END TREATMENT (BI-DIRECTIONAL) 6'-3" 6'-3" 12'-6" VARIES TRAFFIC 704-10-00300 EDGE OF TRAVEL LANE EDGE OF SHOULDER 10:1 MAX. SLOPE INCIDENTAL CONCRETE (4" THICK).
JOINTS TO BE 15'-0" MAX. CTRS. (OR AS
DIRECTED BY THE ENGINEER.) 2'-0" (MIN. TYP, MEDIAN OBSTACLE (BRIDGE COLUMN, SIGN E MEDIAN EMBANKMENT WIDENING EDGE OF SHOULDER NOTE: GUARD RAIL THIS SIDE OF MEDIAN SHALL BE THE SAME AS OPPOSITE SIDE OF MEDIAN BUT IN OPPOSITE DIRECTION. SEE NOTE NO. 13 SHEET 1, STD. PLAN GR-200 FOR RETROREFLECTIVE OBJECT MARKER (TYP.) EDGE OF TRAVEL LANE GUARD RAIL FOR MEDIAN OBSTACLE (DESIRABLE) - PLAN VIEW

(WHEN "K" < Lc, SEE NOTES AND DETAILS SHT. 1 OF 8)

THIS STANDARD PLAN SHALL BE USED IN CONJUNCTION WITH STANDARD PLAN GR-200.

DESIRABLE LOCATION FOR GUARD RAIL: GUARD RAIL SHALL BE PLACED AS FAR AWAY FROM TRAFFIC AS POSSIBLE BUT NO CLOSER THAN 2'-0" FROM THE OBSTACLE SHOWN.

FOR CLEARANCES OF MORE THAN 5'-0", ITEM 704-01-02000, GUARD RAIL (DOUBLE THRIE BEAM) (3'-1)/2" POST SPA.) MAY BE REPLACED BY ITEM 704-01-01020 WHICH IS SINGLE THRIE BEAM WITH 6'-3" POST SPACING.

FOR CLEAR ZONE DISTANCE (Lc), SEE TABLE 1, SHEET 2, STD. PLAN GR-200

* INCIDENTAL CONCRETE PAVING (4" THICK) IS TO BE PAID FOR UNDER ITEM 706-03-00100 PER SQ. YARD. THE INCIDENTAL CONCRETE WILL BE USED ON THE PROJECT ONLY IF A QUANTITY B PAY ITEM ARE SHOWN ON THE SUMMARY OF ESTIMATED QUANTITIES. SEE SHT. 10, STD. PLAN GR-200 FOR REQUIRED POST PAVING DETAILS.

SEE NOTE 13, SHEET 1, STD. PLAN GR-200 FOR INFORMATION ON RETROREFLECTIVE ADHESIVE SHEETING FOR GUARD RAIL SYSTEMS.

"H" IS THE SHORTEST MULTIPLE OF 6'-3" WHICH EXCEEDS THE HAZARD LENGTH.

- @ GUARD RAIL SHALL BE FLARED TO MEET THE FRONT THRIE BEAM GUARDRAIL.
- $\ensuremath{\Theta}$ SEE STANDARD ITEM, 704-10-00300 FOR GUARD RAIL END TREATMENT (BI-DIRECTIONAL).
- ♠ 6'-3" W BEAM/THRIE BEAM TRANSITION SECTION.
- O DIMENSION MEASURED FROM BACK FACE OF GUARD RAIL POST TO FRONT FACE OF OBSTACLE.



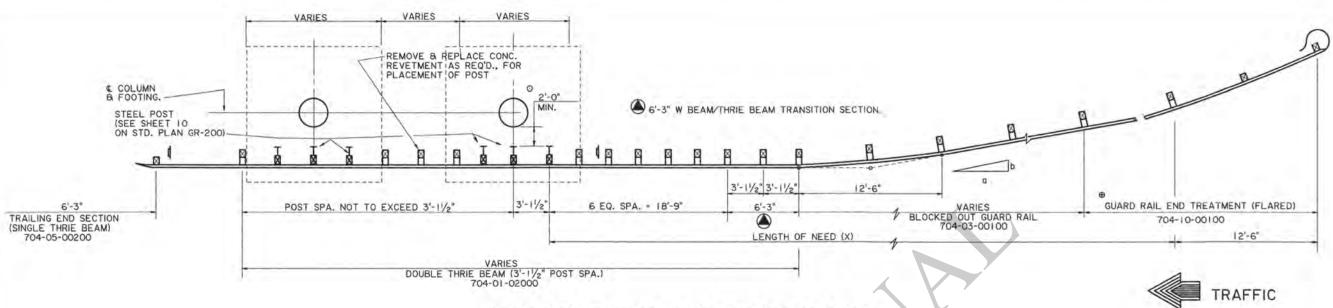


RAIL

HIGHWAY GUARD F MEDIAN OBSTACL 2' MIN. CLEARANG (DESIRABLE)

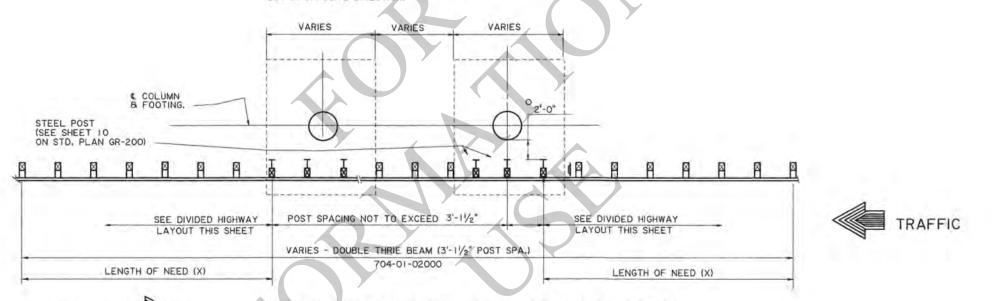






TYPICAL PLAN FOR DIVIDED HIGHWAY - SHOULDER APPLICATIONS

LAYOUT SAME FOR OPPOSITE SIDE OF HIGHWAY BUT IN OPPOSITE DIRECTION



TYPICAL PLAN FOR UNDIVIDED HIGHWAY - SHOULDER APPLICATIONS

LAYOUT SAME FOR OPPOSITE SIDE OF HIGHWAY BUT IN OPPOSITE DIRECTION.

THIS STANDARD PLAN SHALL BE USED IN CONJUCTION WITH STANDARD PLAN GR-200.

IDEAL LOCATION FOR GUARD RAIL: GUARD RAIL SHALL BE PLACE AS FAR AWAY FROM TRAFFIC AS POSSIBLE BUT NO CLOSER THAN 2'-O" FROM THE OBSTACLE AS SHOWN.

FOR CLEARANCES OF MORE THAN 5'-0", ITEMS 704-01-02000, DOUBLE THRIE BEAM $(3'-1)_2$ " POST SPA.) B 704-01-01000, SINGLE THRIE BEAM $(3'-1)_2$ " POST SPA.) MAY BE REPLACED BY ITEM 704-01-01020 WHICH IS A SINGLE THRIE BEAM WITH 6'-3" POST SPACING.

FOR CLEAR ZONE DISTANCE (Lc) SEE TABLE 1, SHEET 2, STD. PLAN GR-200

SEE ANCHOR PLATE AND STEEL POST ATTACHMENT TO CONCRETE DETAILS, SHEET 10, STD. PLAN GR-200 IF STEEL POST ARE REQUIRED AT FOOTING LOCATIONS.

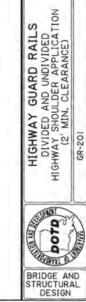
- O DIMENSION MEASURED FROM BACK FACE OF GUARD RAIL POST TO FRONT FACE OF OBSTACLE.
- ⊕ SEE NOTE | 1, SHT. I, GR-200 STD. PLAN

LENGTH OF NEED (X) TO BEGIN AT FIRST POST PRIOR TO THE OBSTACLE AS SHOWN.

FOR EMBANKMENT WIDENING, SEE SHT. I STD. PLAN GR-200.

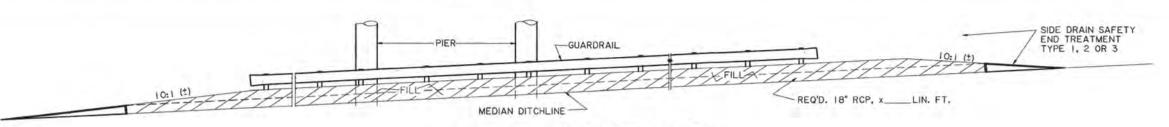




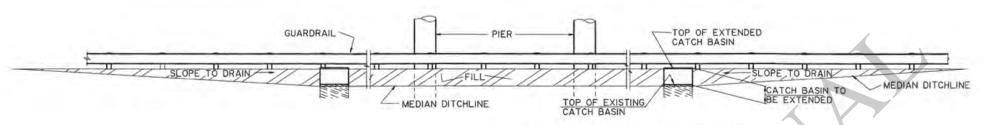


K,M,B,

UPDATED FOR 2016 SPECIFICATIONS
REVISION DESCRIPTION



MEDIAN BANK FILL WITH DRAIN FLOW PIPE



MEDIAN BANK FILL WITH CATCH BASIN



TYPICAL MEDIAN FILL TREATMENTS



ALTERNATE MEDIAN OUTSIDE SHOULDER DETAIL TREATMENT

NOTES

UNDER NO CIRCUMSTANCES SHALL THE MEDIAN OR SIDE SLOPE FILL INTERFERE WITH THE DRAINAGE. IF A CATCH BASIN FALLS WITHIN THE AREA OF NEW FILL, IT SHALL BE EXTENDED TO TOP OF THE NEW FILL TO ALLOW PROPER DRAINAGE. IF NECESSARY, PIPES MAY BE USED TO ACCOMMODATE SUBSURFACE DRAINAGE.

SLOPED CATCH BASIN, EXTENDING CATCH BASIN, SIDE DRAIN PIPE AND FILL TO BE PAID FOR UNDER THEIR RESPECTIVE PAY ITEMS,

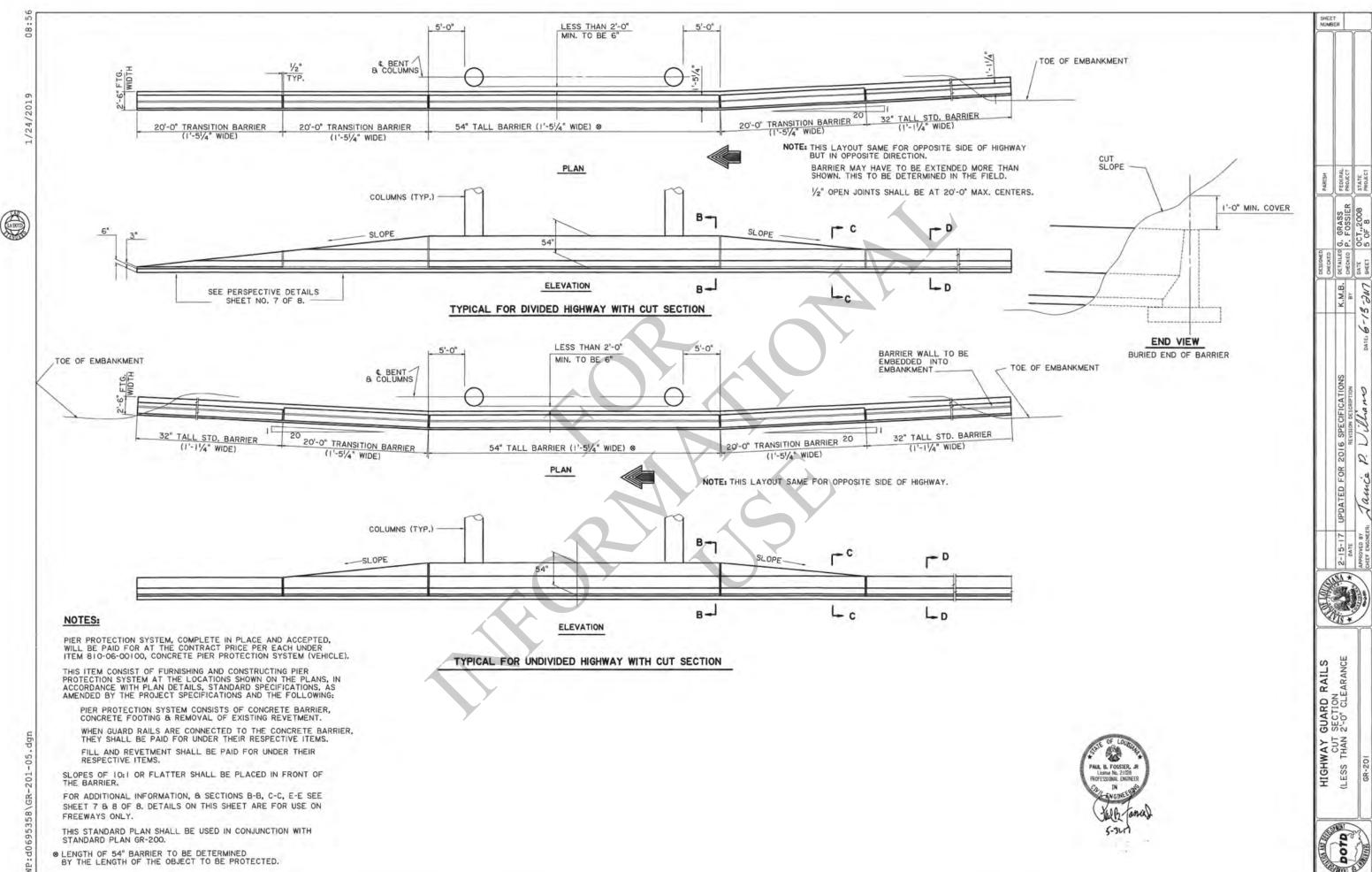
THIS STANDARD PLAN SHALL BE USED IN CONJUNCTION WITH STANDARD PLAN GR-200.



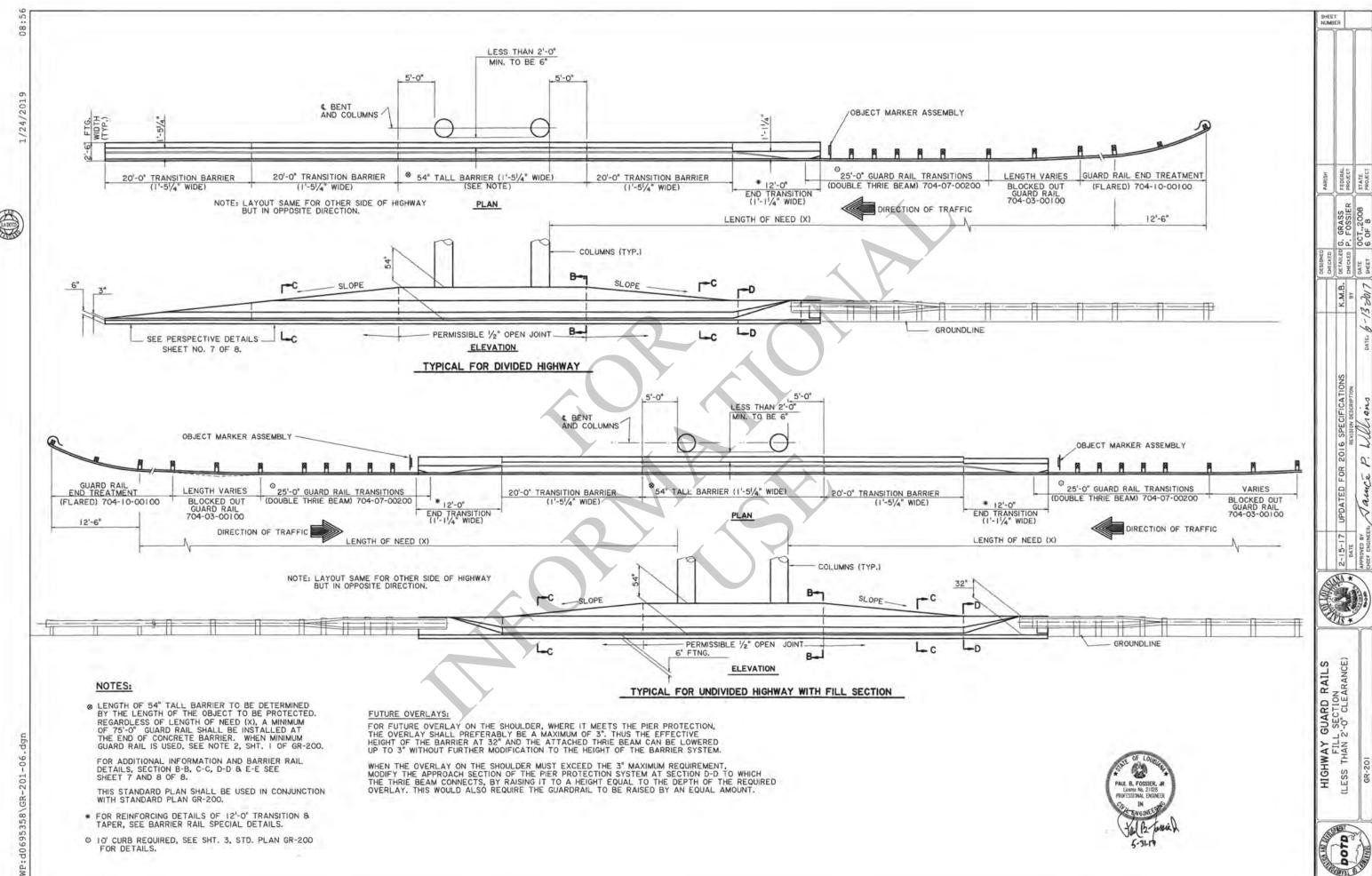




HIGHWAY GUARD RAILS
DRAINAGE DETAILS

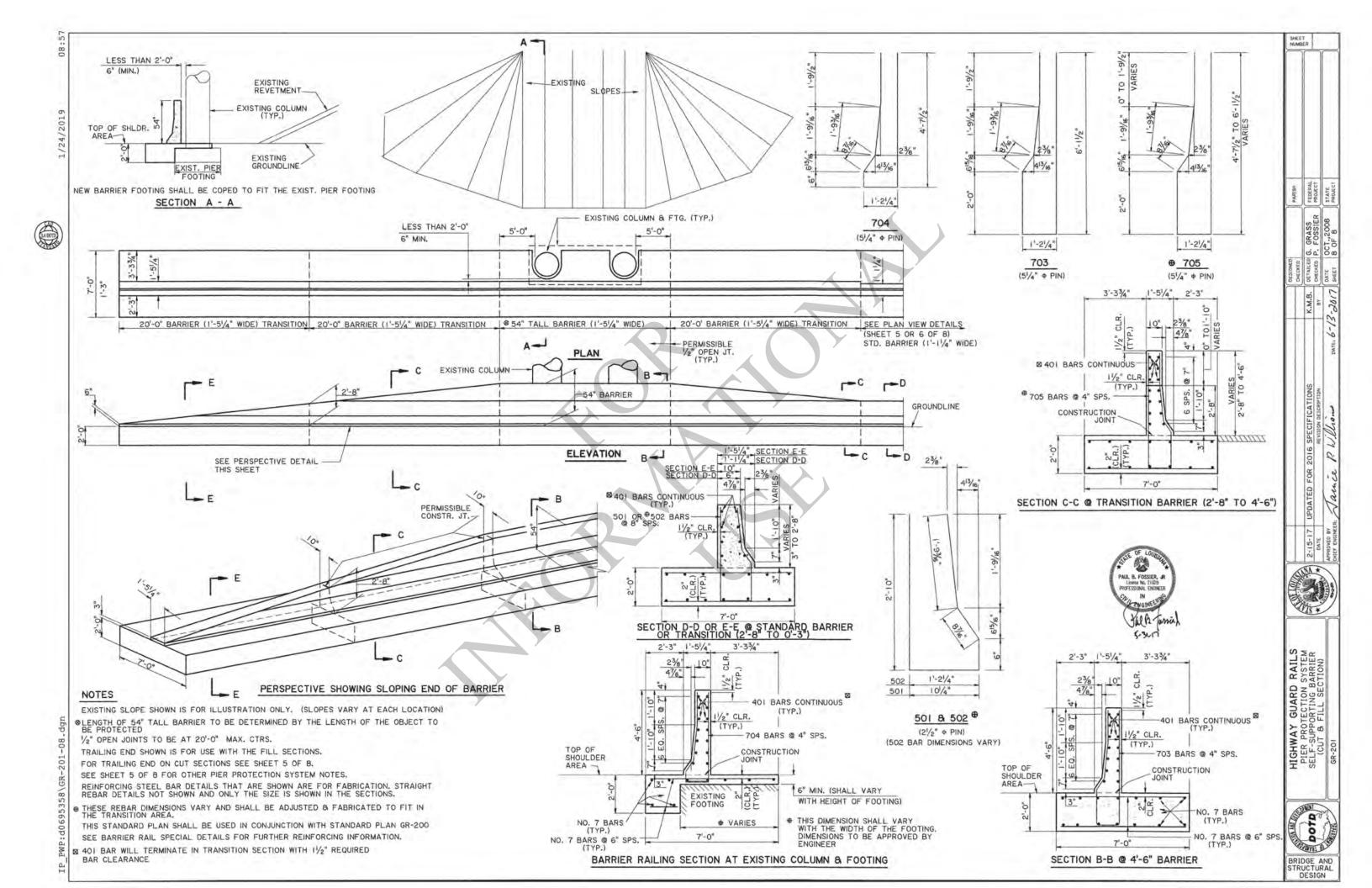


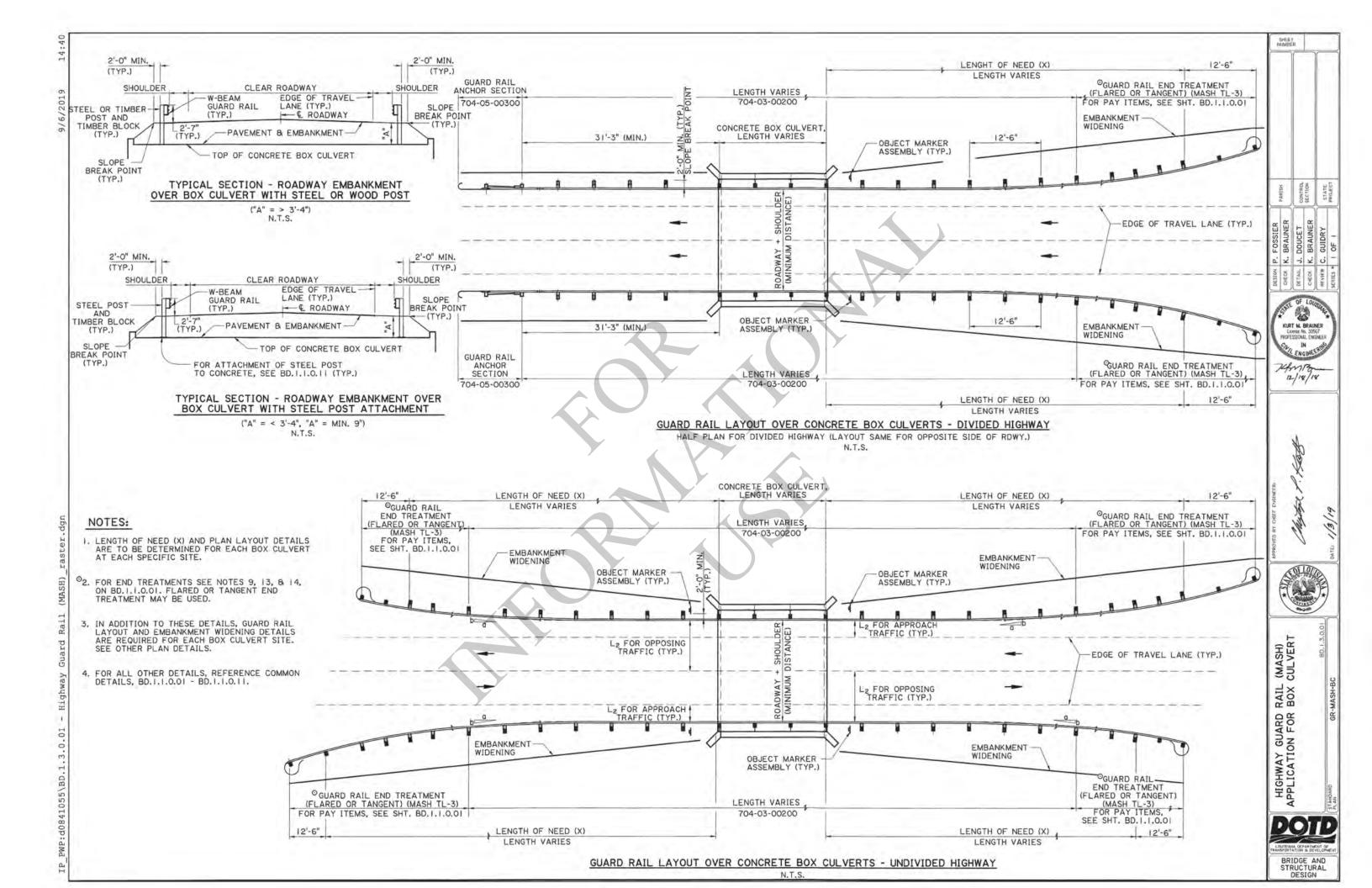
BRIDGE AND STRUCTURAL DESIGN

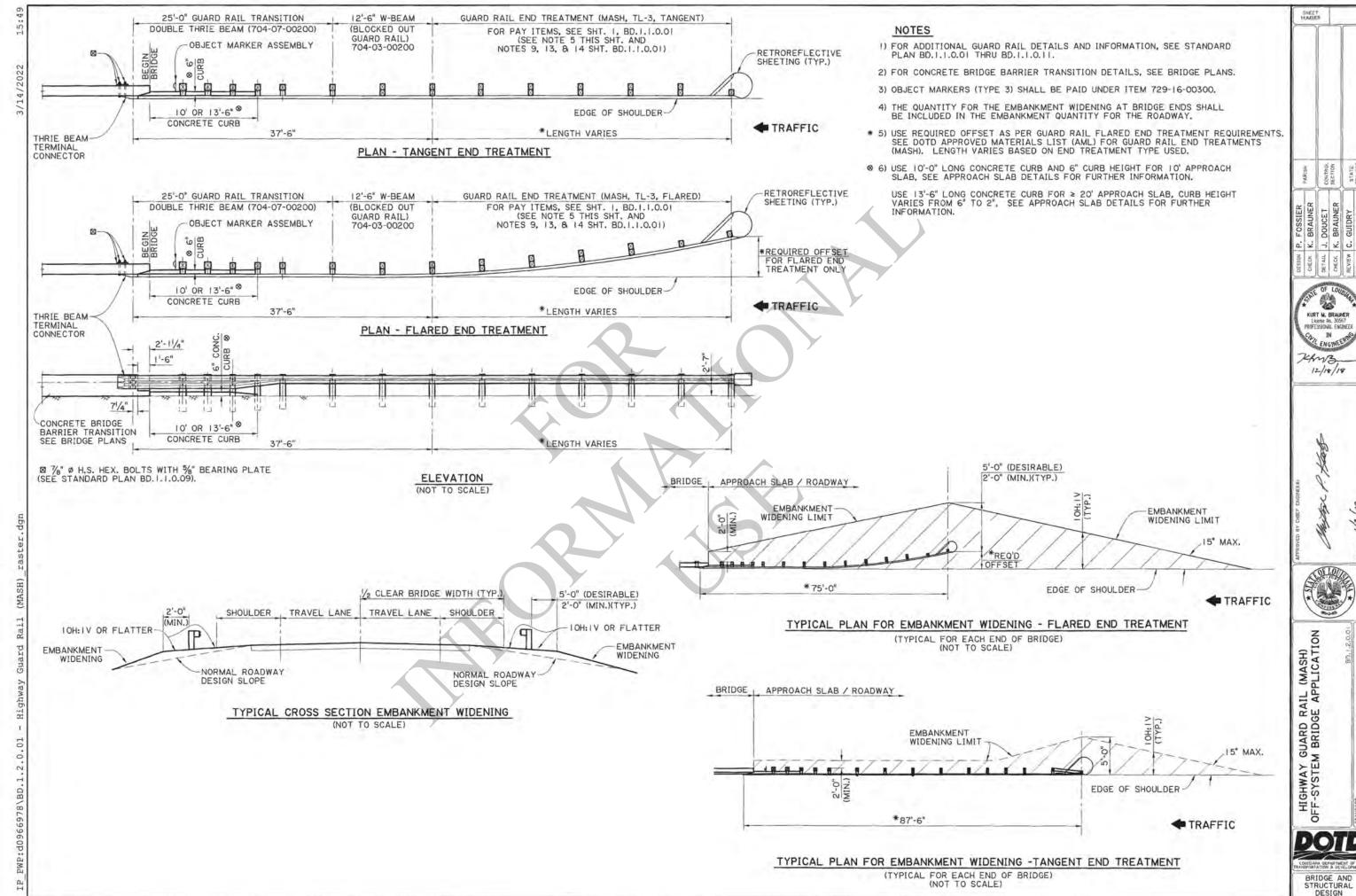


BRIDGE AND STRUCTURAL DESIGN

BRIDGE AND STRUCTURAL DESIGN







SECTION

1 KURT M. BRAUMER Ligerse No. 30567 PROFESSIONAL ENGINEE KAMB

12/18/18



OTD

GUARD RAIL GENERAL NOTES:

- DESIGN REFERENCE: THE LATEST EDITIONS OF THE AASHTO ROADSIDE DESIGN GUIDE (RDG) AND THE LADOTD BRIDGE DESIGN AND EVALUATION MANUAL (BDEM), PART II, VOLUME 4 - HIGHWAY SAFETY.
- 2. GUARD RAIL LENGTH: TOTAL GUARD RAIL LENGTH AND LENGTH OF NEED SHALL BE BASED ON THE LATEST AASHTO ROADSIDE DESIGN GUIDE LENGTH OF NEED REQUIREMENTS. TOTAL LENGTH OF GUARD RAIL SHALL NOT BE LESS THAN 75'-O" BASED ON A LENGTH OF LENGTH OF NEED OF X=62'-6". A DESIGN WAIVER IS REQUIRED FOR GUARD RAIL LENGTHS NOT MEETING THESE REQUIREMENTS.
- 3. FOR BRIDGES WITH GUARD RAILS IN URBAN AREAS WITH A DESIGN SPEED OF 45 MPH OR LESS, SEE DOTD EDSM NO. II.3.1.4 FOR DESIGN INFORMATION.
- 4. FOR GUARD RAIL ON EXISTING HIGHWAYS, SEE DOTD EDSM NO. II.3. I.3 FOR DESIGN INFORMATION.
- 5. EMBANKMENT WIDENING IS TO PROVIDE SLOPES NOT STEEPER THAN IOH: IV IN FRONT OF THE GUARD RAIL.
- 6. ALL GUARD RAIL COMPONENTS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFIC PLAN LAYOUT DETAILS, GUARD RAIL DESIGN DATA, PAY ITEMS, AND QUANTITY TABLES PROVIDED IN THE PROJECT PLANS.
- 7. LONGITUDINAL DIMENSIONS FOR GUARD RAIL ARE MEASURED ALONG THE PROJECTED FACE OF RAILING.
- 8. THE QUANTITY FOR THE EMBANKMENT WIDENING IS TO BE INCLUDED IN THE EMBANKMENT PAY ITEM QUANTITY FOR THE ROADWAY.
- 9. A TANGENT END TREATMENT MAY BE USED AS AN ALTERNATE TO THE FLARED END TREATMENT, A ZERO FLARE RATE (b/g=0) IS REQUIRED WHEN THE TANGENT END TREATMENT IS USED AND THE LENGTH OF NEED "X" SHALL BE CALCULATED BASED ON A "ZERO" FLARE RATE.
- 10. THE POINT WITHIN THE GUARD RAIL END TREATMENT WHERE THE LENGTH OF NEED TERMINATES MAY VARY WITH EACH TYPE OF GUARD RAIL END TREATMENT. THE 12'-6" LENGTH APPLIES TO MOST END TREATMENTS.
- II. RETROREFLECTIVE ADHESIVE SHEETING (12" X 2'-8")(TYPE II HIGH INTENSITY OBJECT MARKER PATTERN) SHALL BE APPLIED TO THE END TREATMENT NOSE. SEE THE LATEST LA. STANDARD SPECS. FOR ROADS AND BRIDGES FOR SPECIFICATIONS AND THE SHEETING MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION. FOR PATTERN DETAIL, SEE OBJECT MARKER STANDARD PLANS.
- 12. GUARD RAIL INSTALLATIONS MAY BE PAVED BY USING CONCRETE PAVING OR ASPHALT CONCRETE. THE INCIDENTAL CONCRETE OR ASPHALT WILL BE USED IF A LAYOUT DETAIL, PAY ITEM, AND QUANTITY IS INDICATED IN THE PLANS. SEE SHEET II FOR REQUIRED POST DETAILS WHEN PAVING IS USED AROUND POSTS.
- O13. GUARD RAIL END TREATMENTS SHALL BE SELECTED FROM THE DOTD APPROVED MATERIALS LIST (AML), AND SHALL BE AASHTO MASH, TEST LEVEL 3 (TL-3) UNLESS OTHERWISE NOTED IN THE PLANS. IF TEST LEVEL 2 (TL-2) GUARD RAIL END TREATMENTS ARE USED, A DESIGN WAIVER SHALL BE REQUIRED. IF MASH FLARED END TREATMENTS ARE NOT AVAILABLE, USE GUARD RAIL END TREATMENT, NCHRP 350 31" (TL-3 FLARED), WITH APPROVAL OF PROJECT ENGINEER.
- #014. FLARED GUARD RAIL END TREATMENTS (12'-6" OR 18'-9"), (PAY ITEMS 704-10-00105 AND 704-10-00110) ARE GENERIC TEST LEVEL 2 (TL-2) NCHRP 350 SYSTEMS THAT CAN ONLY BE USED WITH PERMISSION FROM THE BRIDGE DESIGN ENGINEER ADMINISTRATOR AND AN APPROVED DESIGN WAIVER. SEE BRIDGE DESIGN SPECIAL DETAILS FOR THESE END TREATMENT DETAILS.
- 15. GUARD RAIL DESIGN VARIABLES FOR STANDARD PLAN SHEETS:
 - LI = LENGTH OF TANGENT SECTION OF RAIL IN ADVANCE OF OBJECT. (FT)
 - L2 = DISTANCE FROM EDGE OF TRAVEL LANE TO TANGENT SECTION OF RAIL. (FT)
 - L3 = DISTANCE FROM EDGE OF TRAVEL LANE TO OBJECT OF CONCERN.
 - LR = RUNOUT LENGTH (FT)
 - Lc = REQUIRED CLEAR ZONE (FT)
 - LA = DISTANCE FROM THE EDGE OF THE TRAVEL LANE TO THE LATERAL EXTENT OF THE OBJECT. (FT)
 - LA = Lc FOR BRIDGE APPLICATIONS
 - X = CALCULATED LENGTH OF NEED (FT)
 - Y = DISTANCE FROM EDGE OF THE TRAVEL LANE TO THE BEGINNING OF THE LENGTH OF NEED.
 - Z = DISTANCE FROM EDGE OF THE TRAVEL LANE TO THE EDGE OF EMBANKMENT.
 - b/a = FLARE RATE (VERTICAL/HORIZONTAL)

FOR CLEAR ZONE, RUNOUT, FLARE RATE, SHYLINE, AND HORIZONTAL CURVE ADJUSTMENTS, SEE LATEST AASHTO ROADSIDE DESIGN GUIDE AND THE DOTD BRIDGE DESIGN AND EVALUATION MANUAL.

- 16. STEEL POSTS MAY BE USED AS AN ALTERNATE TO WOOD POSTS, UNLESS SHOWN OTHERWISE.
- 17. INTERMIXING OF STEEL AND WOOD POSTS IN ANY ONE SECTION OF THE GUARD RAIL SHALL NOT BE PERMITTED.
- 18. ALL MATERIAL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
- 19. GUARD RAIL HEIGHT TOLERANCE ALLOWED FOR INSTALLATION IS | INCH ABOVE AND 0.5 INCH BELOW THE SPECIFIED HEIGHT.
- 20. GUARD RAIL TRAILING END ANCHORAGE SHALL BE USED TO ANCHOR DOWNSTREAM END OF GUARD RAIL ONLY WHEN TYPICAL GUARD RAIL END TREATMENTS ARE NOT REQUIRED.
- 21. STANDARD COMPONENTS: STANDARD GUARD RAIL COMPONENTS, INCLUDING POSTS, PANELS, AND BOLT SYSTEM ARE BASED UPON ENGLISH UNIT CONVERSIONS OF THE AASHTO-AGC-ARTBA JOINT COMMITTEE TASK FORCE 13 REPORT: A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE.
- *22. IF OFF-SYSTEM BRIDGE OR BOX CULVERT DETAILS ARE USED, THE PLANS MUST ALSO INCLUDE THE COMMON DETAILS (SHTS. 1-11).

GUARD RAIL AND RELATED PAY ITEMS :

202-02-14500	REMOVAL	OF	GUARD	RAIL.	(LN F
LOL OL 1000	LITTING A LIT	C/1	COMIL	1101	Albert St.

704-01-01000 GUARD RAIL (SINGLE THRIE BEAM) (3'-1/2" POST SPACING), (LN FT)

704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SPACING), (LN FT)

704-01-02000 GUARD RAIL (DOUBLE THRIE BEAM) (3'-1/2" POST SPACING), (LN FT)

704-01-02020 GUARD RAIL (DOUBLE THRIE BEAM) (6'-3" POST SPACING), (LN FT)

704-03-00200 BLOCKED OUT GUARD RAIL - 31", (6'-3" POST SPACING), (LN FT)

704-04-00200 BLOCKED OUT GUARD RAIL - 31", (DOUBLE FACED, 6'-3" POST SPACING), (LN FT)

704-05-00300 GUARD RAIL ANCHOR SECTIONS - 31", (TRAILING END), (LN FT)

704-06-00100 GUARD RAIL BRIDGE ATTACHMENTS, (LN FT)

704-06-00200 GUARD RAIL BRIDGE ATTACHMENTS (SINGLE THRIE BEAM), (LN FT)

704-07-00200 GUARD RAIL TRANSITION, (DOUBLE THRIE BEAM), (LN FT)

704-09-00100 GUARD RAIL ANCHOR BLOCK, (EA.)

704-10-00105 GUARD RAIL END TREATMENT (FLARED, 12'-6" LENGTH), (EA.)

704-10-00/10 GUARD RAIL END TREATMENT (FLARED, 18'-9" LENGTH), (EA.)

0 704-10-00120 GUARD RAIL END TREATMENT, MASH, (TL-3 FLARED), (EA.)

0 704-10-00204 GUARD RAIL END TREATMENT, MASH, (TL-2 TANGENT), (EA.)

0 704-10-00205 GUARD RAIL END TREATMENT, MASH, (TL-3 TANGENT), (EA.)

0 704-10-00305 GUARD RAIL END TREATMENT, MASH, (TL-3 BI-DIRECTIONAL), (EA.)

0 704-10-00310 GUARD RAIL END TREATMENT, NCHRP 350 - 31" (TL-3 FLARED), (EA.)

GUARD RAIL STANDARD PLAN INDEX

810-06-00100 CONCRETE PIER PROTECTION SYSTEM (VEHICLE), (LN FT)

O SEE NOTE NO.13

SEE NOTE NO.14

		00/11	is the straightful transfer of
	BRIDGE STANDARD INDEX NO.	SERIES	DESCRIPTION
COMMON DETAILS	BD.1.1.0.01	1 OF 11	GENERAL NOTES, PAY ITEMS, STANDARD PLAN INDEX
DOVER THE AME	BD.1.1.0.02	2 OF 11	BRIDGE APPLICATION, TYPICAL LAYOUT
BRIDGE END AND	BD.1.1.0.03	3 OF 11	THRIE BEAM GUARD RAIL TRANSITION TO BRIDGE RAIL
on Billock All Peron Tonio	BD.1.1.0.04	4 OF 11	NON BRIDGE APPLICATION, TYPICAL LAYOUT
	BD.1.1.0.05	5 OF 11	NON BRIDGE APPLICATION, TYPICAL LAYOUT
	BD.1.1.0.06	6 OF 11	TYPICAL DETAILS AND SECTIONS
1	BD.1.1.0.07	7 OF 11	TRAILING END DETAILS
	BD.1.1.0.08	8 OF 11	TRAILING END DETAILS
1	BD.1.1.0.09	9 OF 11	RAIL STRUCTURAL DETAILS
1	BD.1.1.0.10	10 OF 11	GUARD RAIL POST AND BLOCK DETAILS
	BD.1.1.0.11	11 OF 11	MISCELLANEOUS DETAILS, MOW STRIPS AND CONCRETE ANCHORS
OFF - SYSTEM BRIDGE	BD.1.2.0.01	I OF I	OFF-SYSTEM BRIDGE GUARD RAIL DETAILS
BOX CULVERT DETAILS	BD.1.3.0.01	1 OF 1	BOX CULVERT GUARD RAIL DETAILS
CENTRAL PROPERTY AND ADDRESS OF THE PERSON O			

ESION P. FOSSIER
PARISH
THE J. DOUCET
SECTION







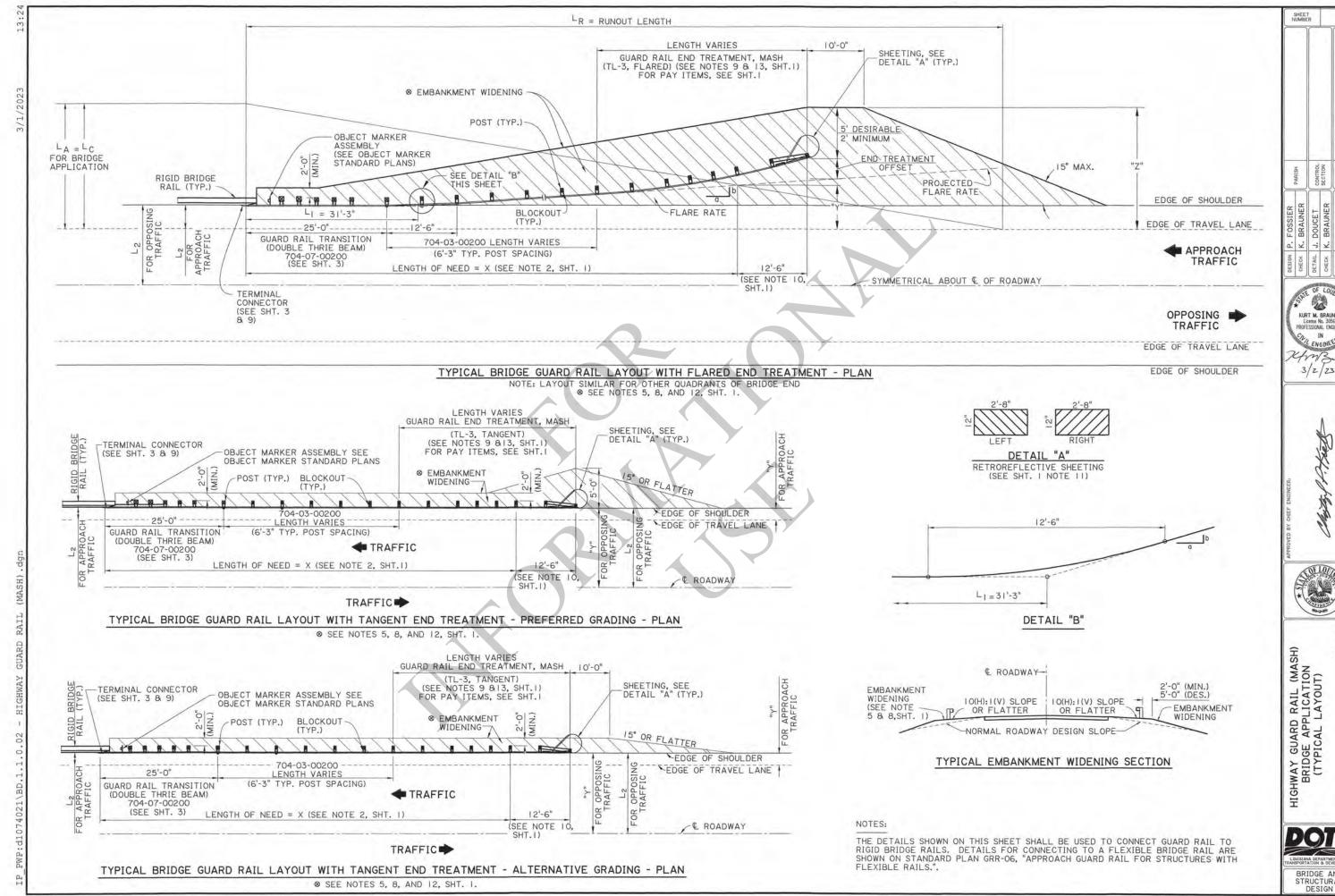
TES, PAY ITEMS
RD PLAN INDEX
BD.1.1.0.01

HIGHWAY GUARD RAIL GENERAL NOTES, PA' AND STANDARD PLAN

LOUBLAND SEPARAMENT OF TRANSPORTATION & DEVELOPMENT

BRIDGE AND

DESIGN



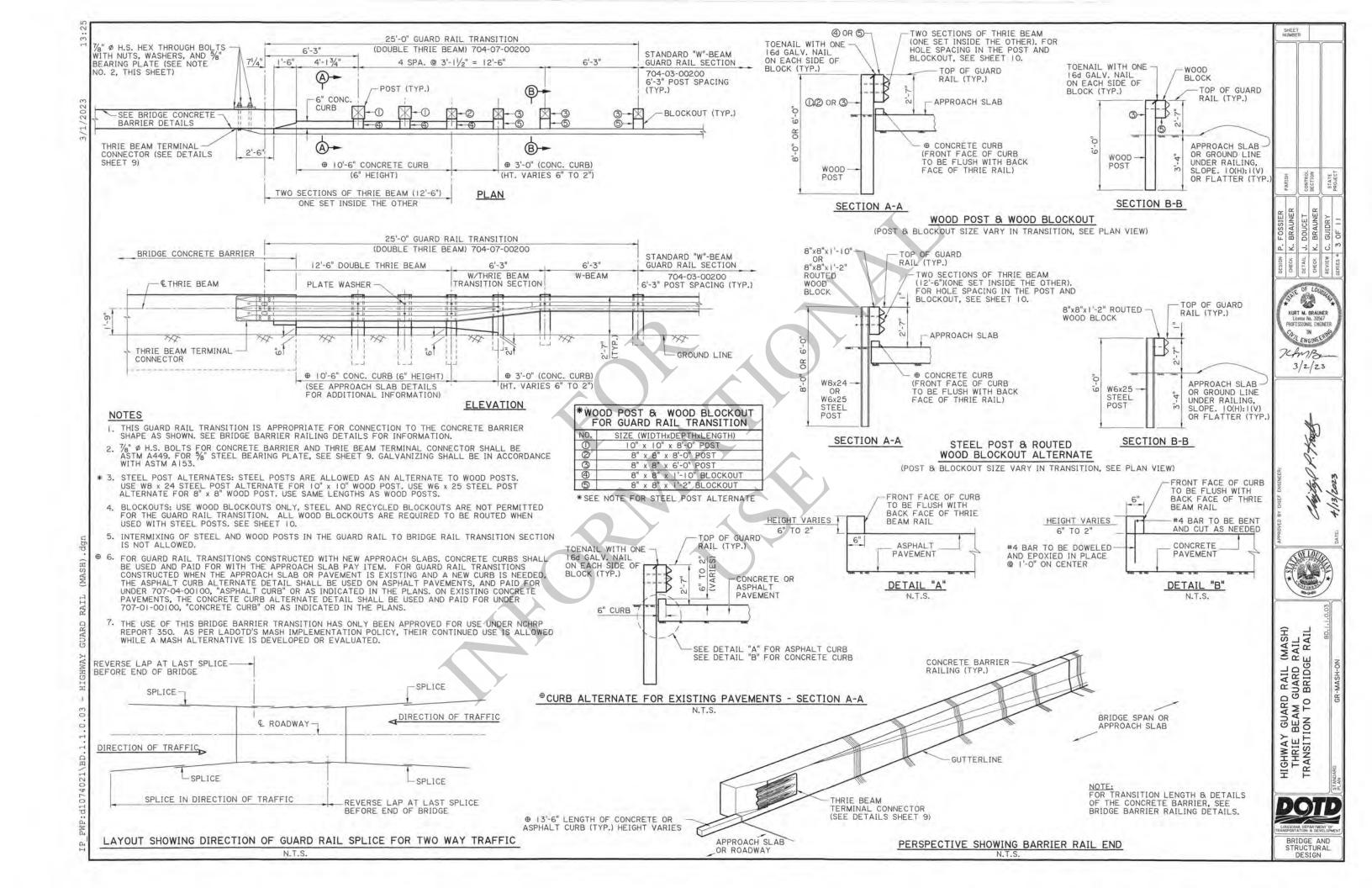
CONTROL

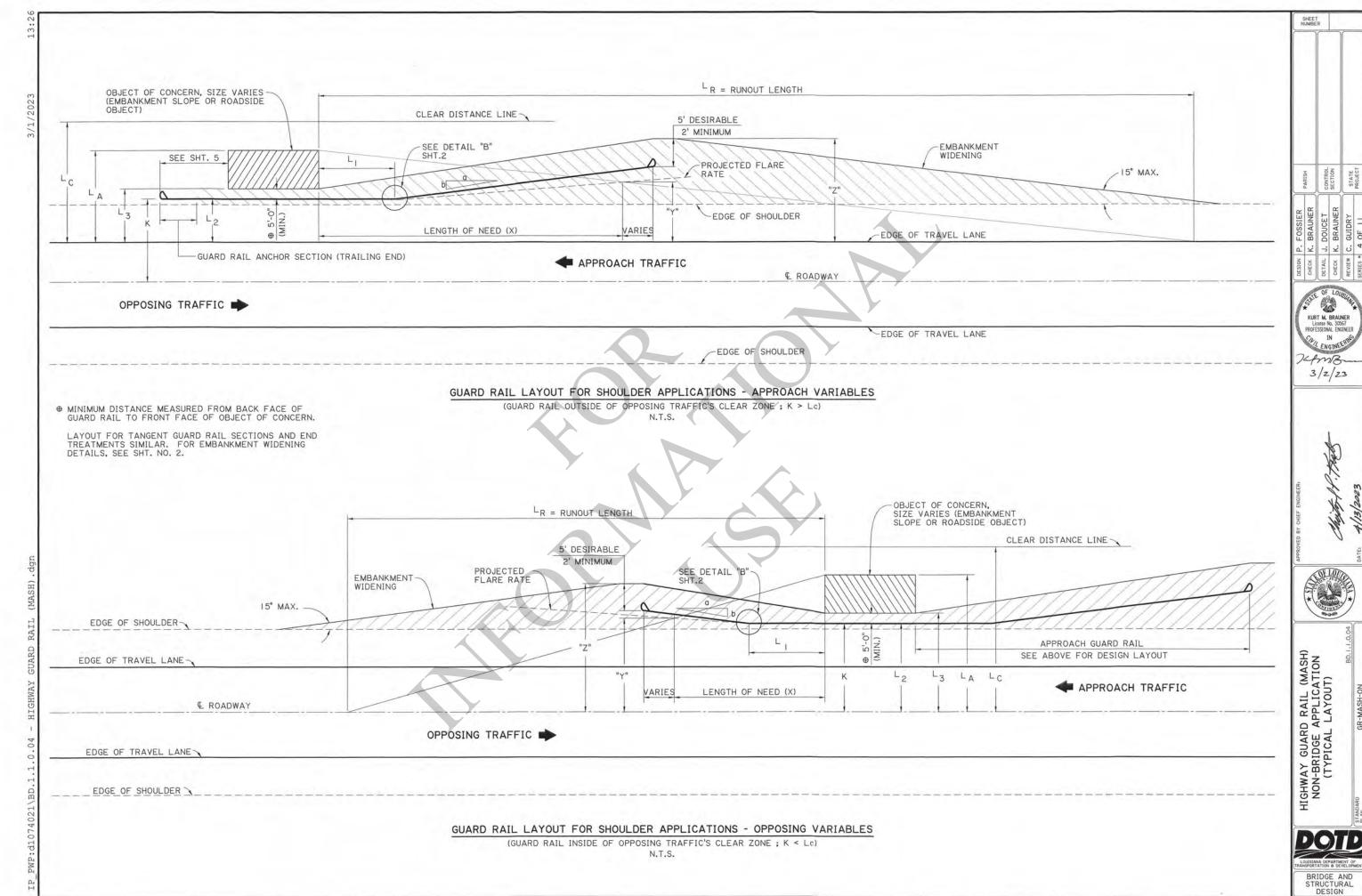
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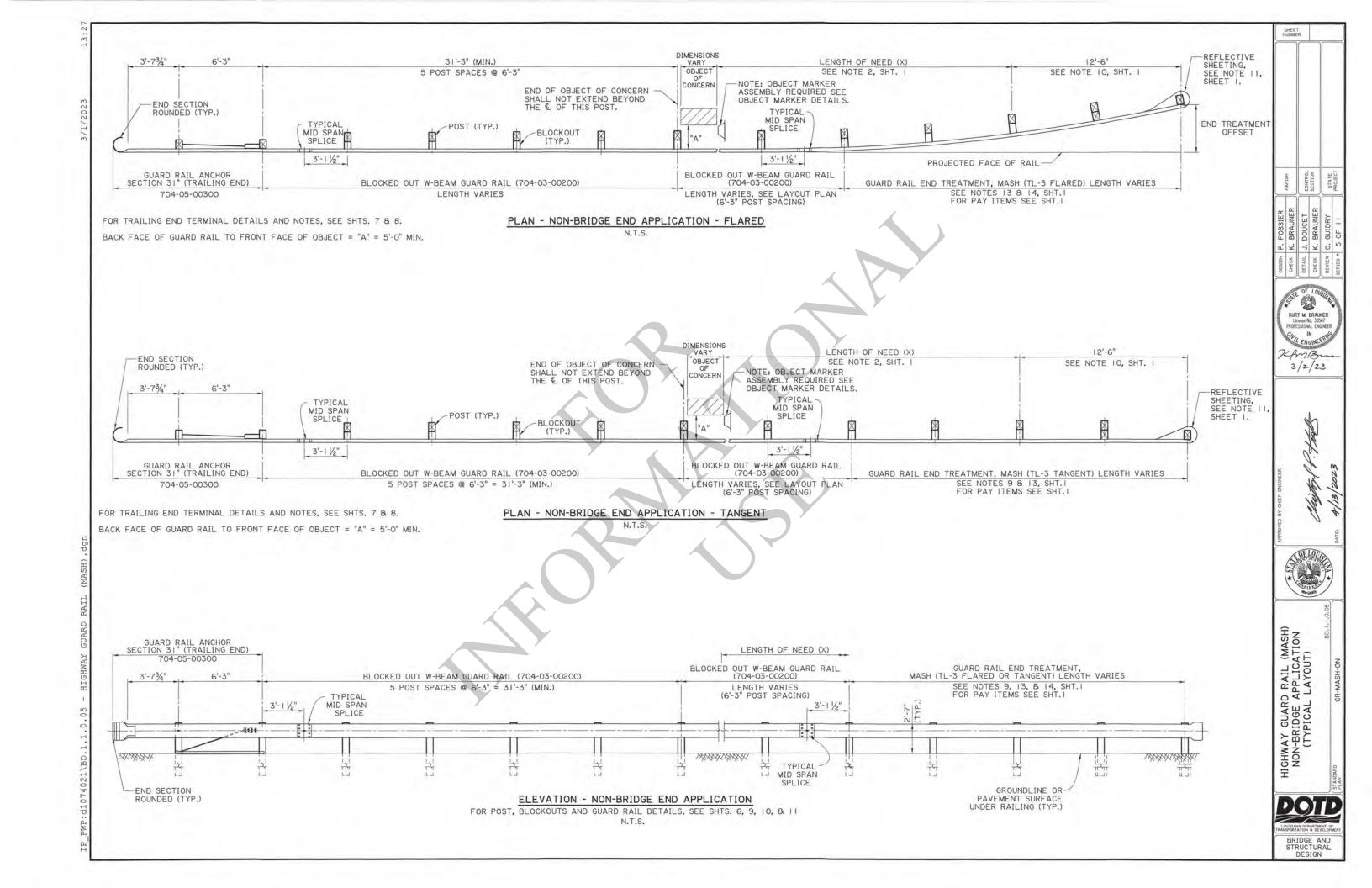
KURT M. BRAUNER License No. 30567 PROFESSIONAL ENGINEES 3/2/23

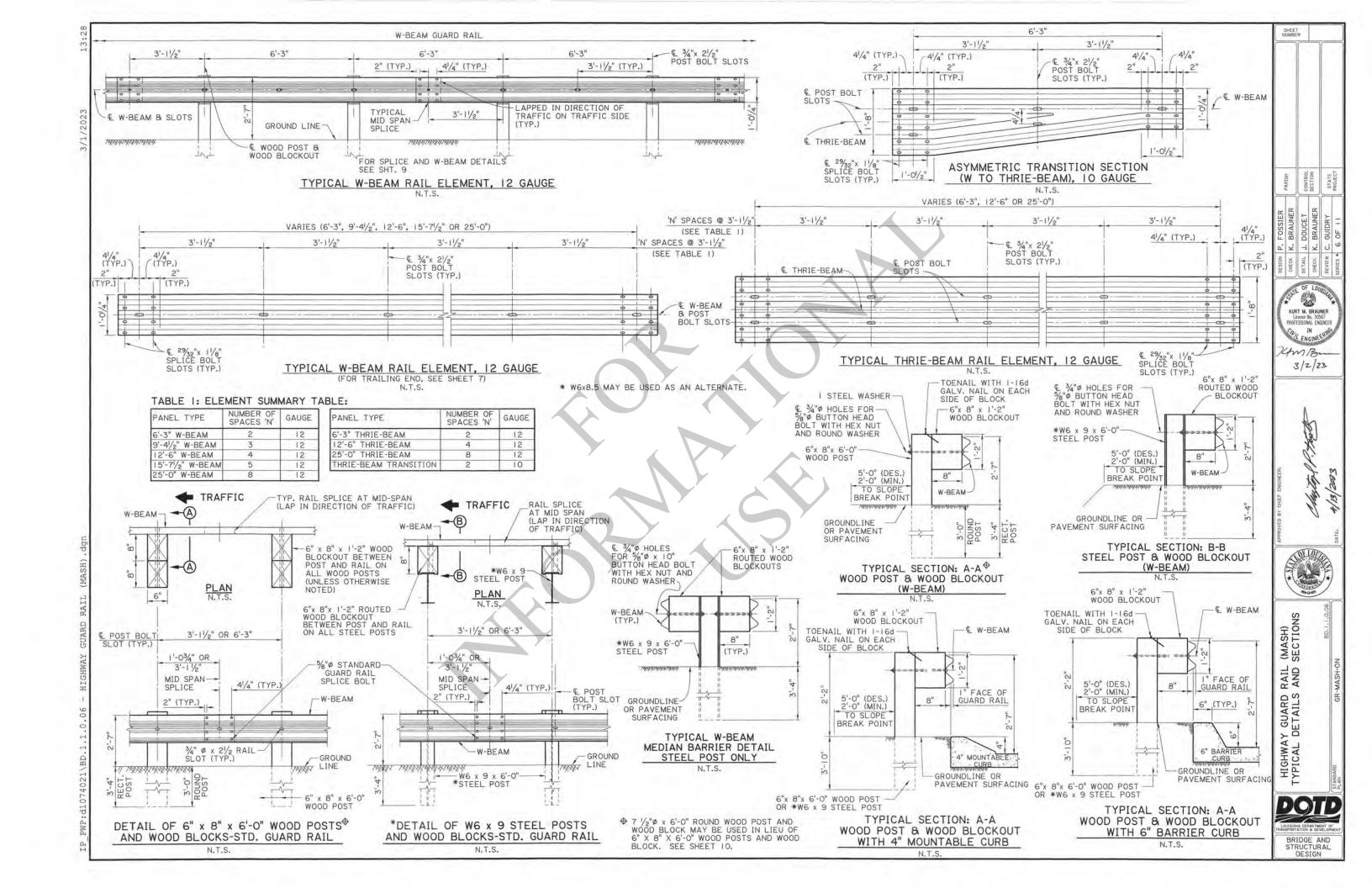


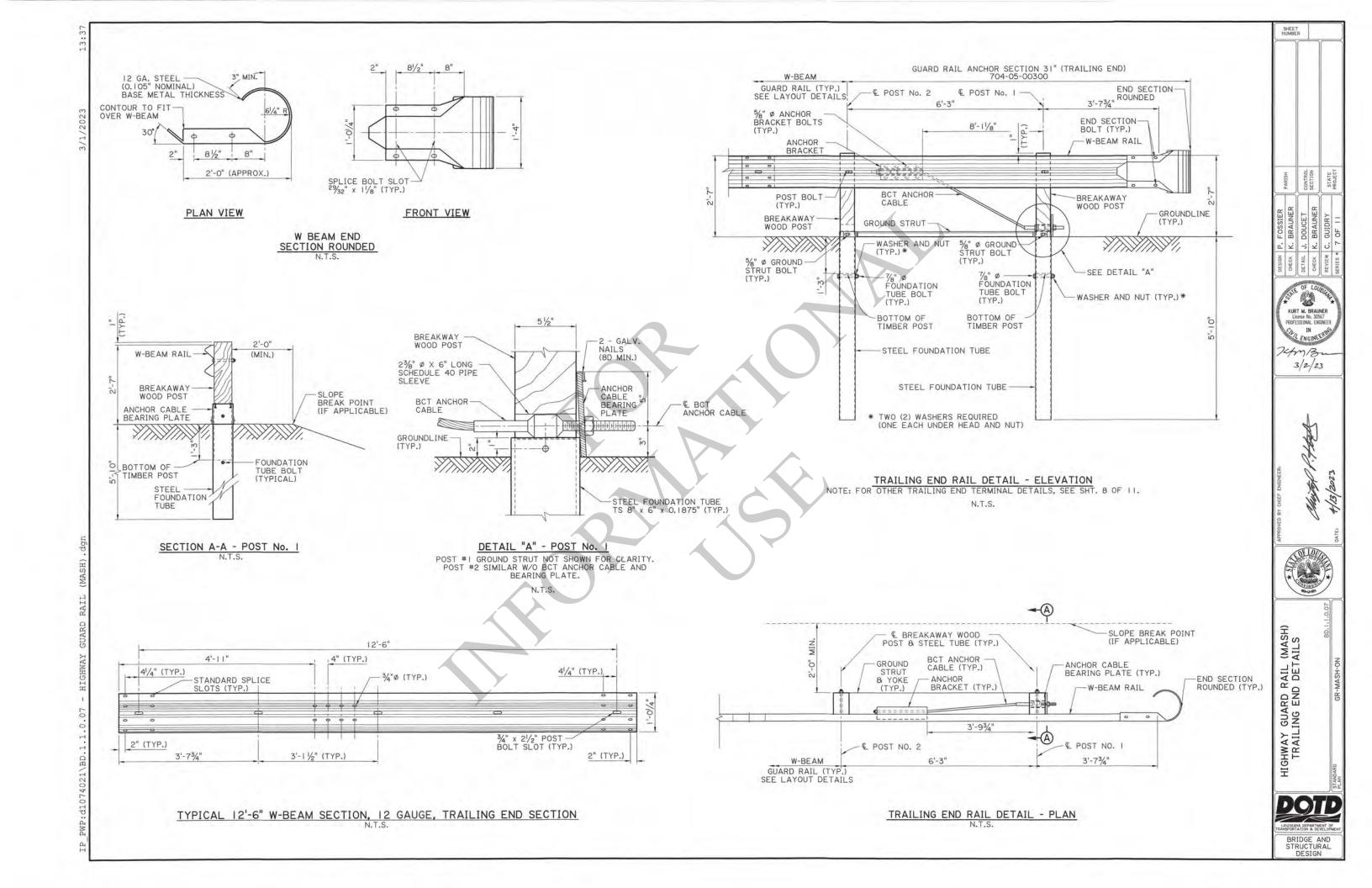
DOTE BRIDGE AND

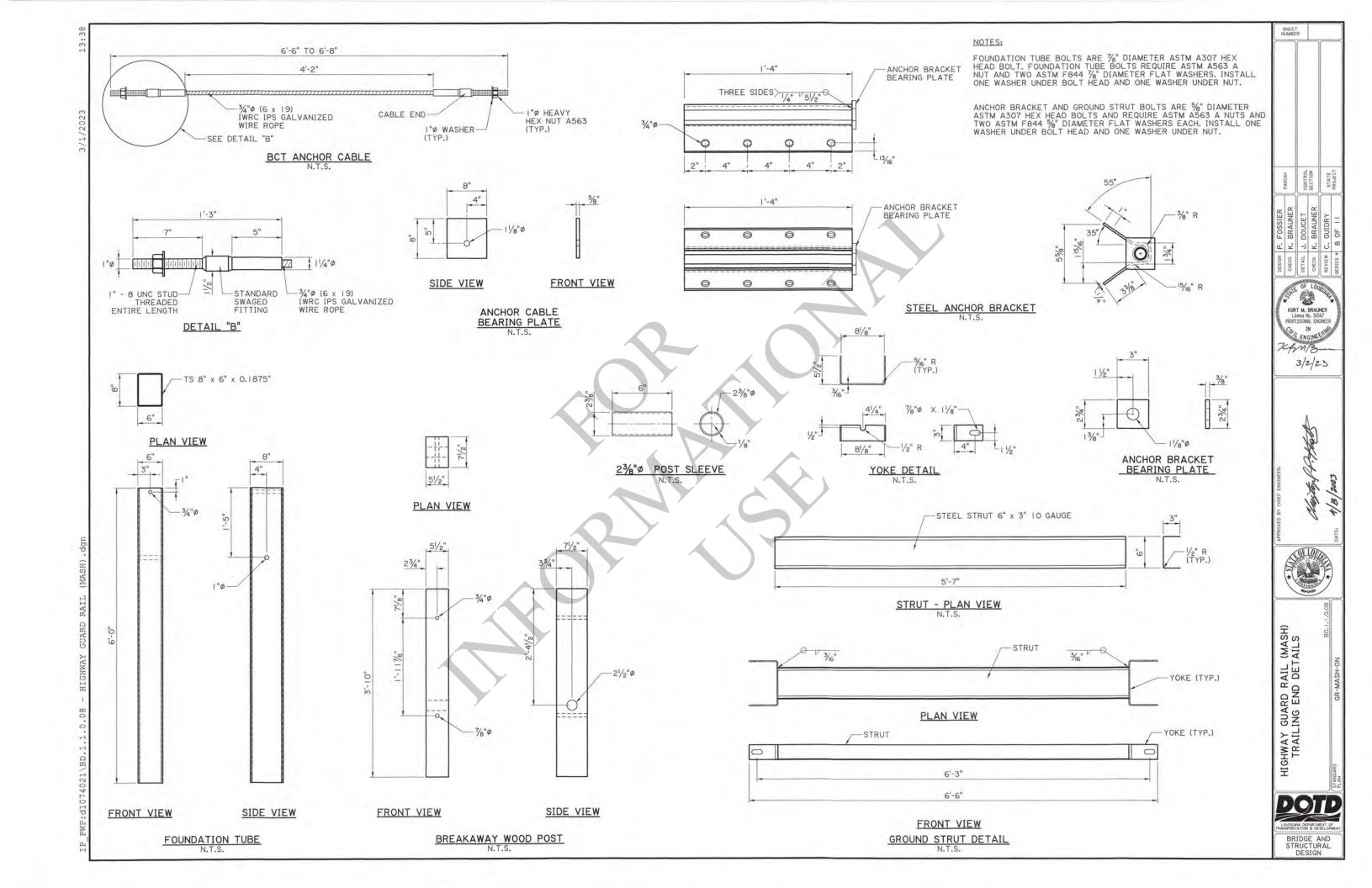


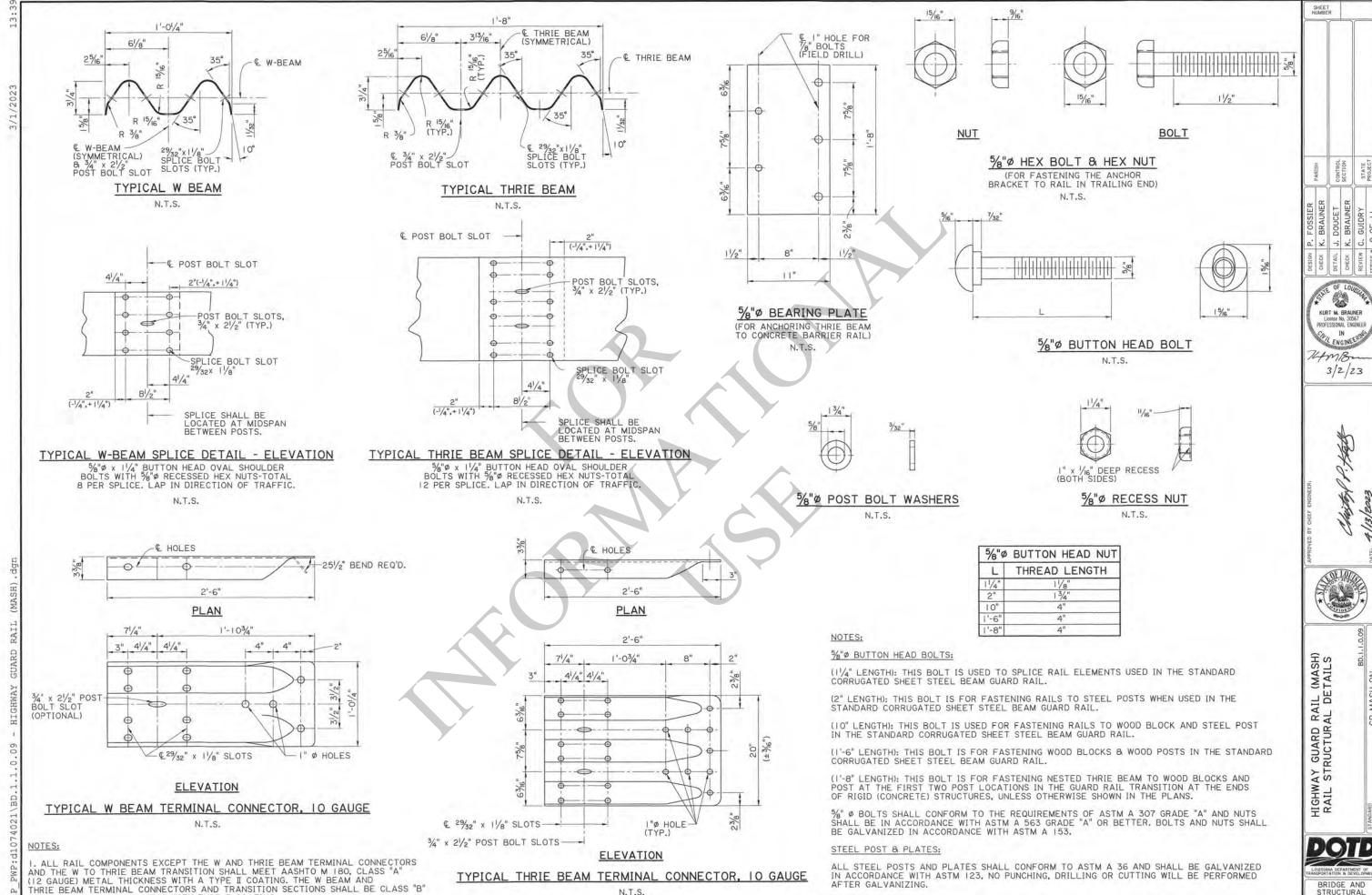












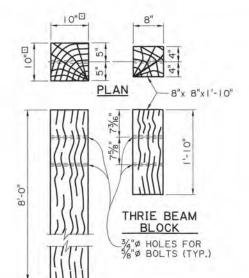
N.T.S.

CONTROL

BRIDGE AND STRUCTURAL

10 GAUGE) METAL THICKNESS WITH TYPE I COATING.





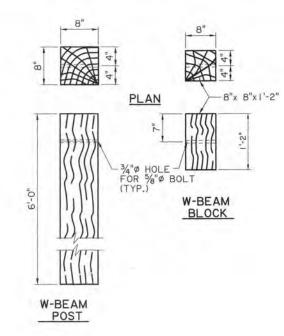
WOOD POST AND WOOD BLOCK

FOR THRIE BEAM TRANSITION

TO BRIDGE RAIL

(POST SIZE, BLOCK SIZE AND HOLE LOCATIONS VARY WITH LOCATION IN TRANSITION, SEE SHT.3) N.T.S.





W-BEAM STEEL POST

W-BEAM WOOD BLOCK

THRIE BEAM POST IS W6 x 25 (8'-0") FOR TRANSITION POST No. 3.

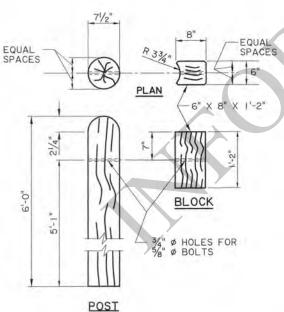
STEEL POST AND ROUTED WOOD BLOCK FOR THRIE BEAM TRANSITION TO BRIDGE RAIL

(POST SIZE, BLOCK SIZE AND HOLE LOCATIONS VARY WITH LOCATION IN TRANSITION, SEE SHT.3) N.T.S.

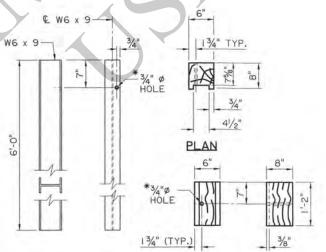
M BLOCK Ø HOLES FOR Ø BOLTS

WOOD POST AND WOOD BLOCK FOR STANDARD W-BEAM GUARD RAIL

POST



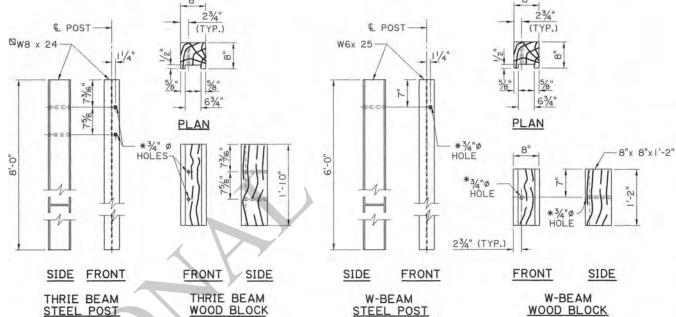
ROUND WOOD POST AND WOOD BLOCK FOR STANDARD W-BEAM GUARD RAIL



SIDE FRONT STEEL POST

STEEL POST AND ROUTED WOOD BLOCK FOR STANDARD W-BEAM GUARD RAIL

- I. A RECYCLED BLOCK ALTERNATE IS ALLOWED AS A SUBSTITUTE FOR THE WOOD BLOCK ON A | FOR | BASIS IN A STANDARD BLOCKED-OUT SECTION AT HOR HEASIS IN A STANDARD
 BLOCKS SHALL NOT BE USED IN TRANSITIONS, END TREATMENTS,
 OR IN TRAILING END SECTIONS. THE RECYCLED BLOCK SHALL
 HAVE FHWA HARDWARE ELIGIBILITY AND SHALL MEET AASHTO MASH REQUIREMENTS.
- ⊕ 2. A W6 x 8.5 STEEL POST MAY BE USED AS AN ALTERNATE FOR A W6 x 9 POST.
- * 3. POST AND BLOCK HOLES SHALL BE DRILLED ADJACENT TO THE DIRECTION OF THE ON-COMING TRAFFIC.
- 4. ALL WOOD BLOCKS SHALL BE TOE-NAILED TO WOOD POSTS AND BLOCKS (INCLUDING BLOCK COMBINATIONS) WITH A 16d GALVANIZED NAIL TO PREVENT BLOCK ROTATION. (ONE ON EACH SIDE)
- ◆ 5. THE ROUND WOOD POST AND WOOD BLOCKOUT IS ALLOWED TO REPLACE THE 6" X 8" STANDARD LINE POST AND BLOCKOUT FOR W BEAM. THE ROUND WOOD POSTS SHALL NOT BE USED AS AN W BEAM. THE ROUND WOOD POSTS SHALL NOT BE USED AS AN ALTERNATE FOR CRT POSTS, BCT POSTS, OR THE POSTS IN THE GUARD RAIL TO BRIDGE RAIL TRANSITION SECTION. ROUND POSTS SHALL NOT BE USED IN THE TRAILING END SECTION, BEHIND A CURB, OR IN A GUARD RAIL END TREATMENT UNLESS SPECIFICALLY ALLOWED BY THE MANUFACTURER.



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74m13.

3/2/23

SHEET

HIGHWAY GUARD RAIL (MASH) POST AND BLOCK DETAILS

DOTE STRUCTURAL DESIGN

NOTES:

WOOD BLOCK

FRONT SIDE



/1/2023

WOW STRIP LEAVE OUT
(SQUARE OR ROUND) WITH

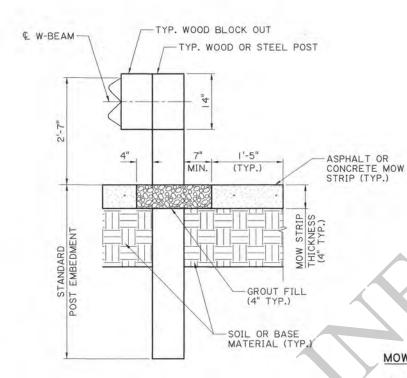
WOOD OR
STEEL POST

TYP. WOOD BLOCK

W-BEAM

W-BEAM

PLAN



ASPHALT OR CONCRETE MOW STRIPS N.T.S.

SECTION A-A

MOW STRIP NOTES:

ALL GUARD RAIL POSTS LOCATED WITHIN CONCRETE OR ASPHALT MOW STRIPS SHALL MEET INSTALLATION REQUIREMENTS SHOWN ON THIS SHEET.

THE LEAVE OUTS SHALL BE FILLED WITH A GROUT MIXTURE CONSISTING OF: 2719 POUNDS SAND, 188 POUNDS TYPE I OR II CEMENT, AND 550 POUNDS OF WATER PER CUBIC YARD WITH A 28 DAY COMPRESSIVE STRENGTH OF 230 PSI OR LESS. PROVIDE GROUT WITH A CONSISTENCY THAT WILL FLOW INTO AND COMPLETELY FILL ALL VOIDS.

ALL LABOR AND MATERIALS TO PLACE GROUT FILL SHALL BE INCLUDED IN PAYMENT FOR CONCRETE OR ASPHALT PAVING PAY ITEMS.

THE USE OF 6" X 8" RECTANGULAR TIMBER POSTS IN MOW STRIPS HAS ONLY BEEN APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, THEIR CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

We we steel posts which are anchored on concrete footing or culvert.

We were anchored on concrete footing or culvert.

We were anchored on concrete footing or box culvert

Top of concrete footing or box culvert

B

Finished grade

Finished grade

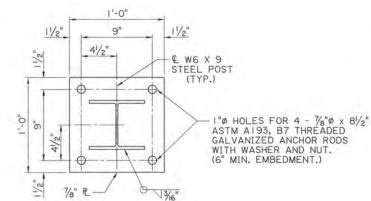
OR BOX Culvert

Top of concrete footing

& STEEL POSTS

GALVANIZED STEEL BASE PLATE & STEEL POST

SPECIAL POST WITH BASE PLATE TO BE USED WHEN REQUIRED EMBEDMENT OF CONVENTIONAL POST IN SOIL CANNOT BE OBTAINED, FOR BOX CULVERTS OR OTHER CONCRETE FOOTINGS.



ROD, WITH WASHER AND NUT.

SECTION B-B

ANCHOR ROD INSTALLATION

ALL HOLES DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE CLEANED WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. THREADED RODS TO BE ANCHORED USING THE HILTI RE500 EPOXY ANCHORING SYSTEM. PLACE ANCHOR BOLT IN HOLE IMMEDIATELY AND WAIT FOR THE MANUFACTURER'S CURE TIME. COST FOR LABOR, MATERIAL AND INSTALLMENT OF BASE PLATE & ANCHOR ROD TO BE PAID FOR AS PART OF GUARD RAIL PAY ITEM.

3/z/23

Live

We we x 9

Steel Post

(TYP.)

APPROVED BY CHIEF

SECTION

BRAUNE ALLEN BRAUNE ALLEN GUIDRY

× 6 × 6 0

KURT M. BRAUNER License No. 30567 PROFESSIONAL ENGINEER

11011

HIGHWAY GUARD RAIL (MASH) MOW STRIP AND CONCRETE ANCHOR DETAILS

LOUISIANA DEPARTMENT OF TRANSPORTATION & DUVELOPMENT BRIDGE AND STRUCTURAL DESIGN

IP PWP:d1074021\BD.1.1.0.11 - HIGHWAY GUZ

VIEW FROM ROADWAY

NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON BOX CULVERTS SHALL BE PAID FOR UNDER ITEM 704-01-01000 GUARD RAIL (SINGLE THRIE BEAM) (3'-11/2" POST SPACING).

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. LAP IN DIRECTION OF TRAFFIC.

● USE 78" MECHANICAL SYSTEM AS LISTED ON DOTD APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE BOLT IN HOLES IMMEDIATELY AND WAIT FOR MANUFACTURERS CURE TIME.

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL 5/6 $^{\circ}$ 0 BOLTS SHALL BE ASTM A307.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

PARISH	CONTROL	SECTION	STATE	PROJECT
P. FOSSIER	J. DOUCET	P. FOSSIER	K. BRAUNER	





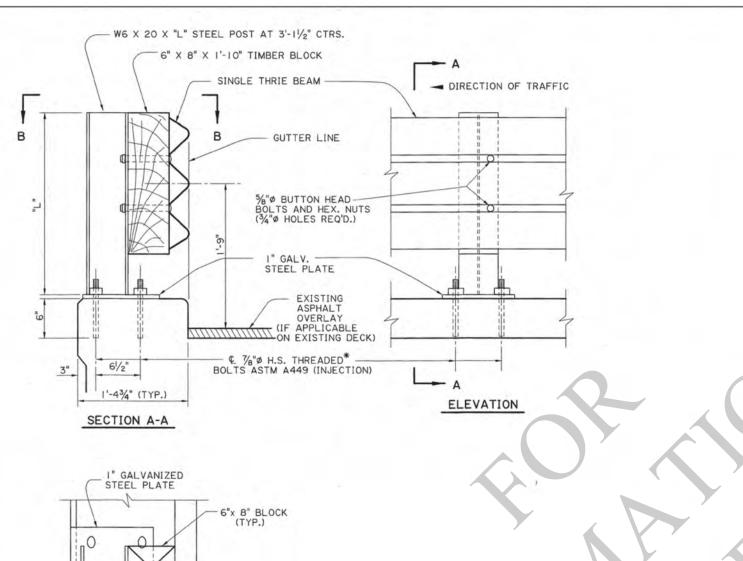


6"

SECTION THRU RAIL

SIDE MOUNT GUARD RAIL (FOR BOX CULVERTS)

DOTD BRIDGE AND STRUCTURAL DESIGN



NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON BOX CULVERTS SHALL BE PAID FOR UNDER ITEM 704-01-01000 GUARD RAIL (SINGLE THRIE BEAM) (3'-11/2" POST SPA.)

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. LAP IN DIRECTION OF TRAFFIC.

*DRILL I"Ø HOLES, 6" DEEP FOR 7_8 "Ø GALVANIZED BOLT. USE 7_8 " GALVANIZED NUT WITH GALVANIZED CUT WASHER.

ALL HOLES DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE CLEANED WITH COMPRESSED AIR AND MADE FREE OF ANY OIL OR RESIDUE. HOLES SHALL BE FILLED WITH 78 MO INJECTION SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE BOLT IN HOLE IMMEDIATELY AND WAIT FOR MADNIES CLIPE SUPE TIME MANUFACTURERS CURE TIME.

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL $5\!\!/\!\!\!/$ $^{\circ}$ BOLTS SHALL BE ASTM A307.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

CONTROL a 0 - a x



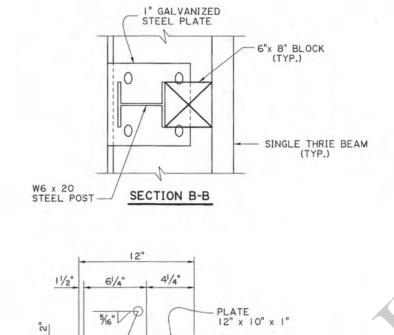






OP MOUNTED GUARD RAIL (FOR BOX CULVERTS)

DOTE BRIDGE AND STRUCTURAL

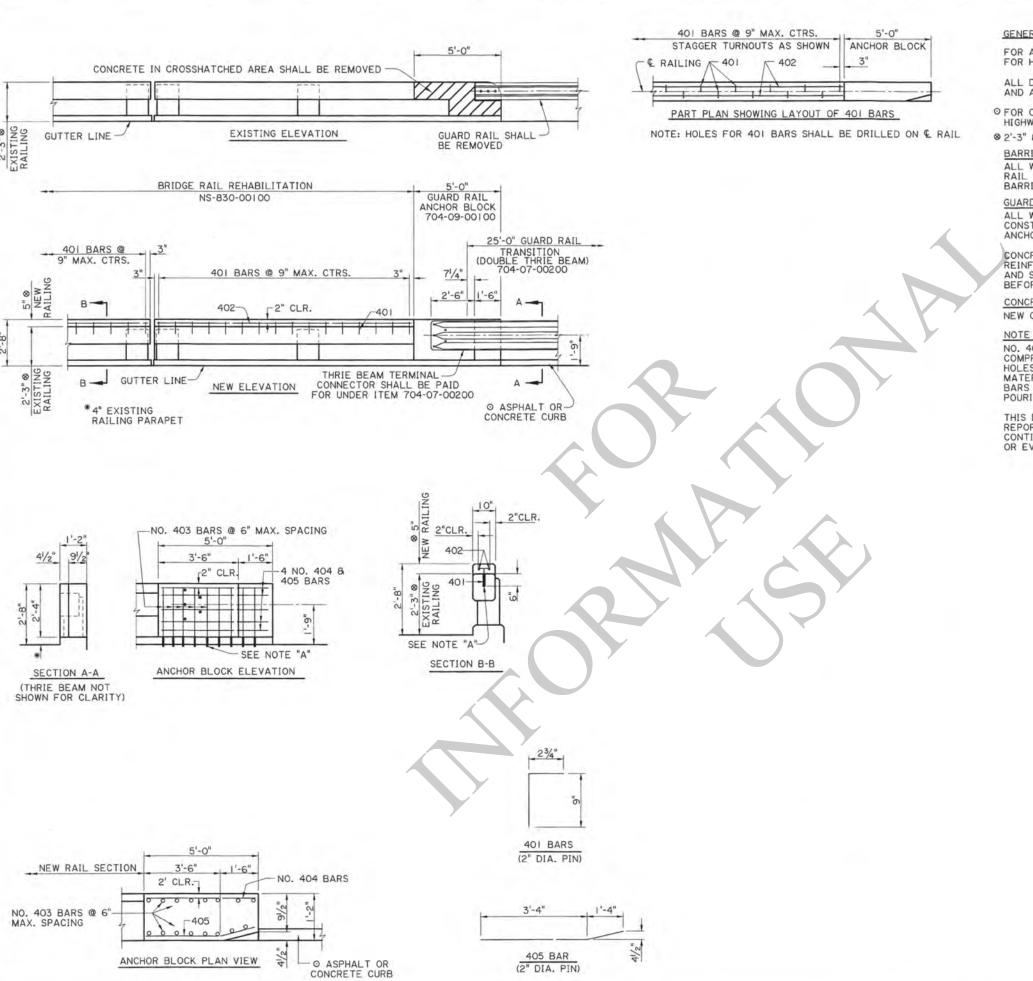


ROADWAY SIDE OF PLATE

E I"Ø HOLES FOR %"Ø BOLTS

BASE PLATE FOR POST ASSEMBLY 12" x 10" x 1" STEEL

NEW STEEL POST W6 x 20 x 2'-8"



GENERAL NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS

ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER.

O FOR CURB & TRANSITION INFORMATION, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHEET 3 OF 11.

⊗ 2'-3" 8 5" DIMENSIONS MAY VARY.

BARRIER RAIL REHABILITATION

ALL WORK AND MATERIALS REQUIRED TO RAISE THE EXISTING BARRIER RAIL TO THE REQUIRED HEIGHT OF 2'-8" SHALL BE PAID FOR UNDER: BARRIER RAIL REHABILITATION, PER LIN. FT.

GUARD RAIL ANCHOR BLOCKS

ALL WORK AND MATERIALS REQUIRED TO REMOVE EXISTING RAILING AND CONSTRUCT THE ANCHOR BLOCK SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100

CONCRETE IN CROSS HATCHED AREA SHALL BE REMOVED. THE EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE AND SHALL BE CLEANED AND STRAIGHTENED TO THE SATISFACTION OF THE PROJECT ENGINEER BEFORE POURING NEW CONCRETE.

CONCRETE

NEW CONCRETE SHALL BE CLASS "AI".

NO. 401 & 403 BARS SET IN 3/4 P DRILLED HOLES. CLEAN HOLES WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. FILL HOLES WITH A TYPE IV, GRADE 2 OR 3 EPOXY LISTED ON THE APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS". PLACE BARS IN HOLES AND WAIT THE MANUFACTURER'S CURE TIME BEFORE POURING NEW CONCRETE.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

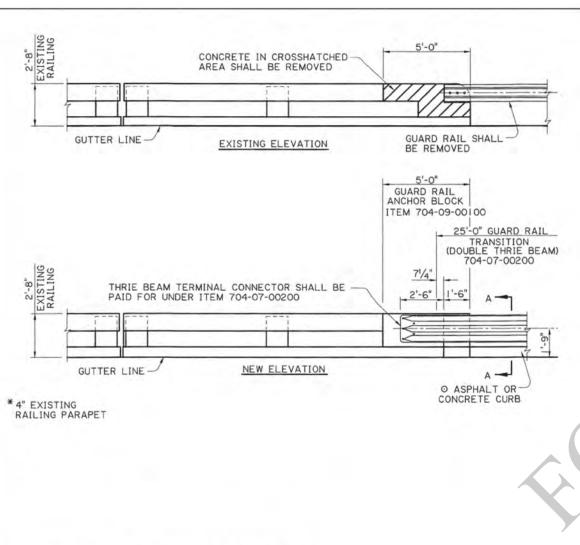
KURT M. BRAUNER License No. 30567 PROFESSIONAL ENGINEER CALL ENGINEER! 4/22/22

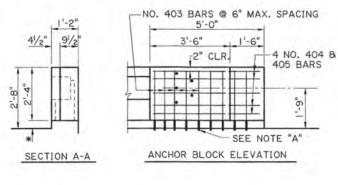


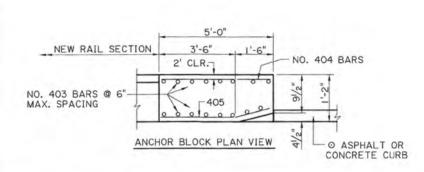


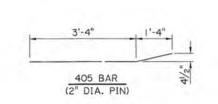
ANCHOR BLOCK & BRIDGE RA REHABILITATION FOR LOW CONCRETE POST AND RAIL











401 BARS (2" DIA. PIN)

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER.

O FOR CURB & TRANSITION INFORMATION, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHEET 3 OF 11.

GUARD RAIL ANCHOR BLOCKS

ALL WORK AND MATERIALS REQUIRED TO REMOVE EXISTING RAILING AND CONSTRUCT THE ANCHOR BLOCK SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100

CONCRETE IN CROSS HATCHED AREA SHALL BE REMOVED. THE EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE AND SHALL BE CLEANED AND STRAIGHTENED TO THE SATISFACTION OF THE PROJECT ENGINEER BEFORE POURING NEW CONCRETE. THE REINFORCING STEEL IN THE 1'-6" X 41/2" SLOT MAY BE CUT OR BENT TO ACCOMMODATE THIS SLOT.

NO. 401 & 403 BARS SET IN 3/4 DRILLED HOLES, CLEAN HOLES WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. FILL HOLES WITH A TYPE IV, GRADE 2 OR 3 EPOXY LISTED ON THE APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS". PLACE BARS IN HOLES AND WAIT THE MANUFACTURER'S CURE TIME BEFORE POURING NEW CONCRETE.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

GENERAL NOTES



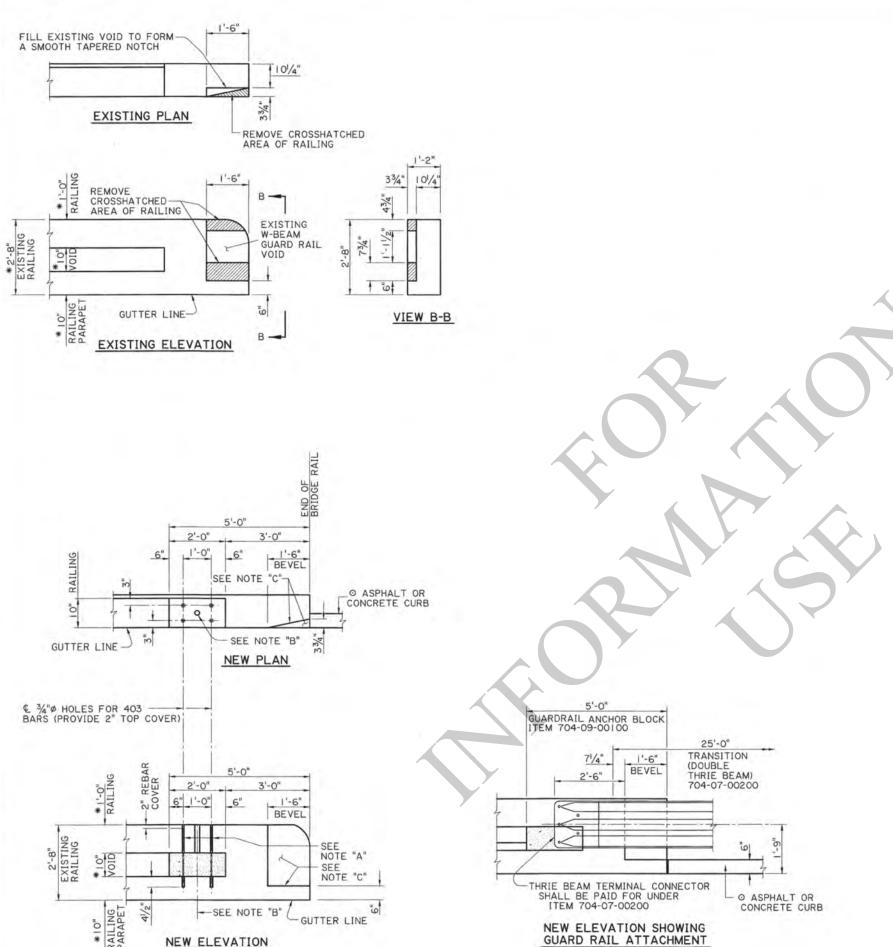






DOTE BRIDGE AND STRUCTURAL





GENERAL NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAILS, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

* THESE DIMENSIONS MAY VARY. THE NON-SHRINK GROUT QUANTITY AND 403 BAR LENGTH SHALL BE ADJUSTED ACCORDINGLY.

ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER.

O FOR CURB & TRANSITION, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH). SHEET 3 OF 11.

GUARD RAIL ANCHOR BLOCKS

ALL WORK AND MATERIALS REQUIRED TO MODIFY EXISTING RAILING SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100.

DRILL 34" # HOLES THROUGH THE RAILING AND INTO THE RAILING PARAPET AS SHOWN. CLEAN HOLES WITH COMPRESSED AIR TO REMOVE ALL OIL AND RESIDUE. FILL HOLES WITH A TYPE IV, GRADE 2 OR 3 EPOXY LISTED ON THE APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS". PLACE 403 BARS (2'-2" LONG) IN HOLES AND WAIT THE MANUFACTURER'S CURE TIME BEFORE POURING NEW CONCRETE.

NOTE "B"

DRILL A 2"Ø HOLE THROUGH THE DEPTH OF RAILING, FILL VOID BETWEEN RAILING AND RAILING PARAPET THROUGH THE 2"Ø HOLE WITH AN APPROVED FLOWABLE NON-SHRINK GROUT LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "NON-SHRINK GROUT."

NOTE "C"

AFTER REMOVING THE EXISTING CONCRETE TO CONSTRUCT THE 1'-6" BEVEL FULL HEIGHT, PREPARE THE VERTICAL SURFACE OF THE EXISTING VOID FOR AN EPOXY RESIN JOINT ACCORDING TO SUBSECTION 805.05.8.2 AND PLACE CONCRETE IN VOID. REDRESS AND FORM THE ENTIRE SURFACE OF THE BEVEL TO GIVE A SMOOTH APPEARANCE BY USING A FLOWABLE NON-SHRINK GROUT LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "NON-SHRINK GROUT."

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

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76MB-





GUARD RAIL ANCHOR BLOCK REHABILITATION FOR CONCRET POST & RAIL (ALTERNATE 2)



STANDARD "W"- BEAM GUARD RAIL END TREATMENT, MASH (TL-3 FLARED) BRIDGE GUARD RAIL SECTION 25'-0" 704-10-00120 6'-3" POST SPACING 704-03-00200 (LENGTH VARIES) OR GUARD RAIL END TREATMENT, MASH (TL-3 TANGENT) 704-10-00205 704-01-01000 704-01-01000 OR 704-01-01020 (MATCH RAILING ON BRIDGE) 704-01-01020 - € FIRST POST ON BRIDGE REQUIRED OBJECT MARKER ASSEMBLY 6'-3" W TO THRIE BEAM TRANSITION SECTION SHALL BE 12 GAUGE FOR THIS DETAIL ONLY. NO SPLICE SHALL BE MADE AT THE FIRST POST ON THRIE BEAM TRANSITION THE STRUCTURE GROUND LINE TYPICAL GUARD RAIL LAYOUT - FOR FLEXIBLE BRIDGE RAIL SYSTEM

WOOD POST AND WOOD BLOCK FOR STANDARD THRIE BEAM GUARD RAIL

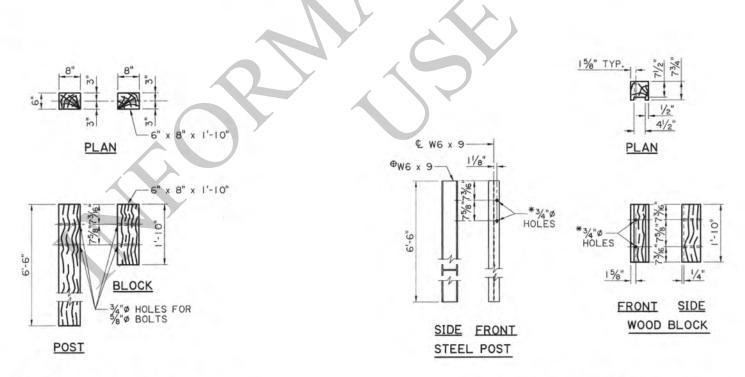
N.T.S.

NOTES

LAYOUTS SHOWN ARE FOR BRIDGE STRUCTURES WHICH HAVE FLEXIBLE BRIDGE RAILING.

FOR ADDITIONAL INFORMATION ON GUARD RAILS, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.



- ⊕ A W6 x 8.5 STEEL POST MAY BE USED AS AN ALTERNATE FOR A W6 x 9 POST.
- * POST AND BLOCK HOLES SHALL BE DRILLED ADJACENT TO THE DIRECTION OF THE TRAFFIC.

STEEL POST AND ROUTED WOOD BLOCK FOR STANDARD THRIE BEAM GUARD RAIL

N.T.S.

APPROACH GUARD RAIL FOR STRUCTURES WITH FLEXIBLE RAILS DOTE

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4/22/22

PLAN VIEW

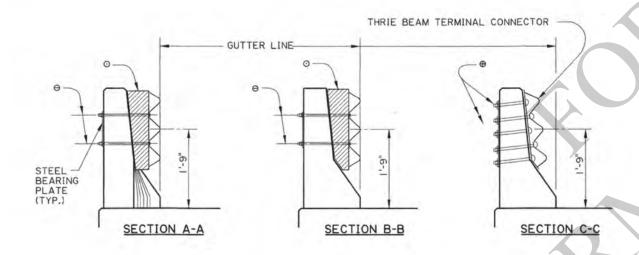
PLATE

STEEL BEARING PLATE

34"Ø HOLE

ŧ0

2"



31/2"*

VARIES

SHIM BLOCK FOR

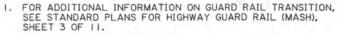
SECTION B-B

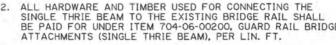


- Θ 2 %"Ø BUTTON HEAD BOLTS WITH %" BEARING PLATE, NUTS, & WASHERS
- 0 6" x 8" x 1'-10" TREATED TIMBER BLOCK (CUT & SHAPE IN THE FIELD TO FIT).

- SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH), SHEET 3 OF 11.
- 2. ALL HARDWARE AND TIMBER USED FOR CONNECTING THE SINGLE THRIE BEAM TO THE EXISTING BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-06-00200, GUARD RAIL BRIDGE
- 3. ANY DAMAGE DONE TO THE EXISTING STRUCTURE DURING INSTALLATION OF THE GUARD RAIL SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.
- 4. GALV. STEEL OGEE WASHER MAY BE USED IN LIEU OF THE STEEL BEARING PLATE.
- ALL H.S. BOLTS SHALL BE ASTM A449. ALL % BOLTS SHALL BE ASTM A307.
- 6. A 25'-0" SECTION OF THRIE BEAM RAIL (WITH NO SPLICE) SHALL BE INSTALLED SYMMETRICALLY WITH RESPECT TO THE SECOND TIMBER BLOCK USED AT THE END OF THE STRUCTURE.
- TO FIT THE LOCATION WITH A SNUG FIT.
- THE BOLT HOLES SHALL BE FIELD DRILLED THRU THE GUARD RAIL, SHIM BLOCKS AND THE BARRIER RAIL AT THE SAME TIME.
- IO. THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.







- 7. THE WOOD SHIM BLOCKS SHALL BE CUT & SHAPED IN THE FIELD
- 9. THE GUARD RAIL SHALL NOT PROTRUDE BEYOND THE GUTTER LINE.





* DIMENSIONS ARE ASSUMED. ADJUST IN THE FIELD AS REQUIRED. HOLES SHALL BE DRILLED IN THE FIELD. SEE NOTE NO. 8.

SHIM BLOCK FOR

SECTION A-A



DOTE

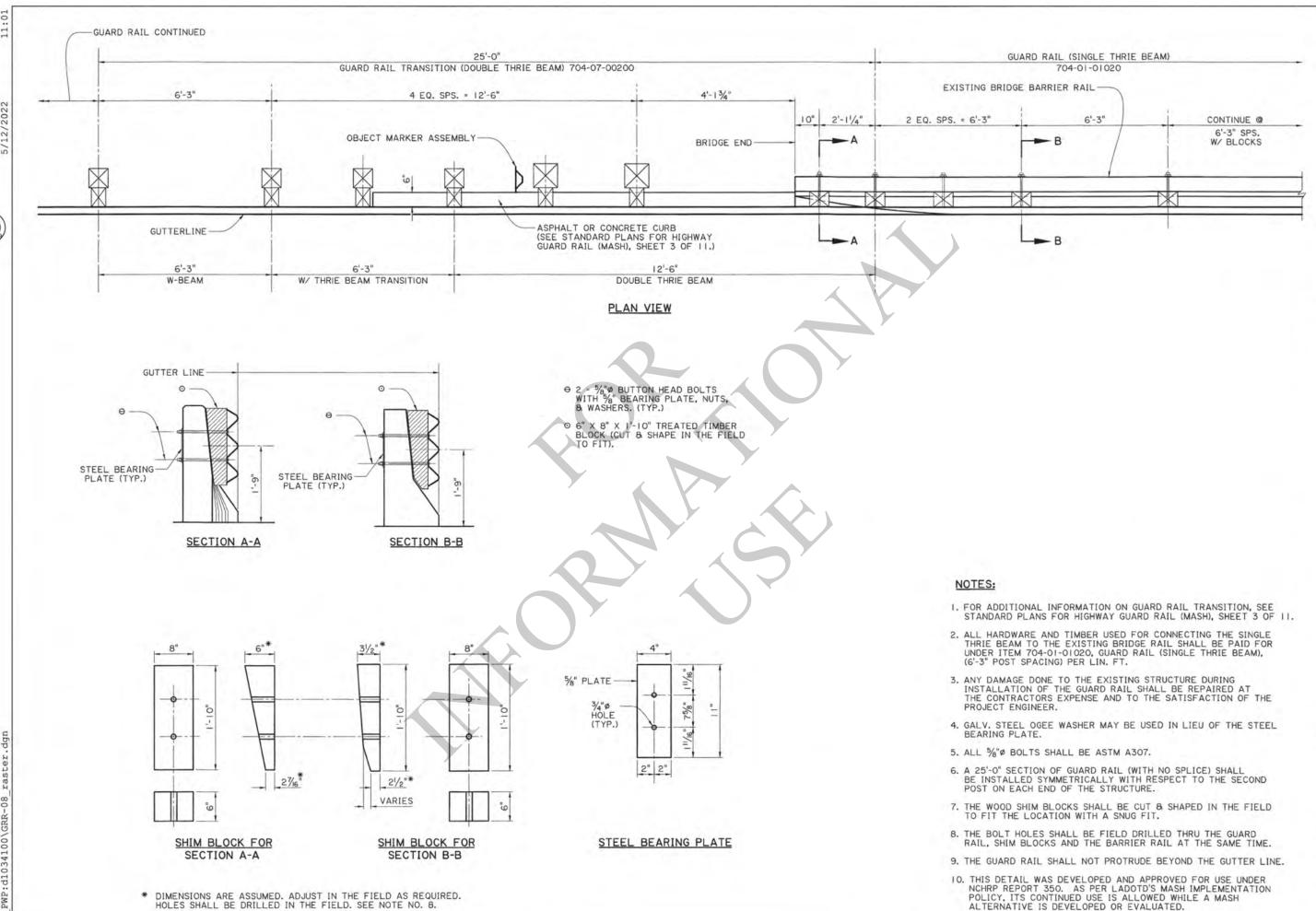
BRIDGE AND STRUCTURAL

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KURT M. BRAUNER License No. 30567 ROFESSIONAL ENGINEE

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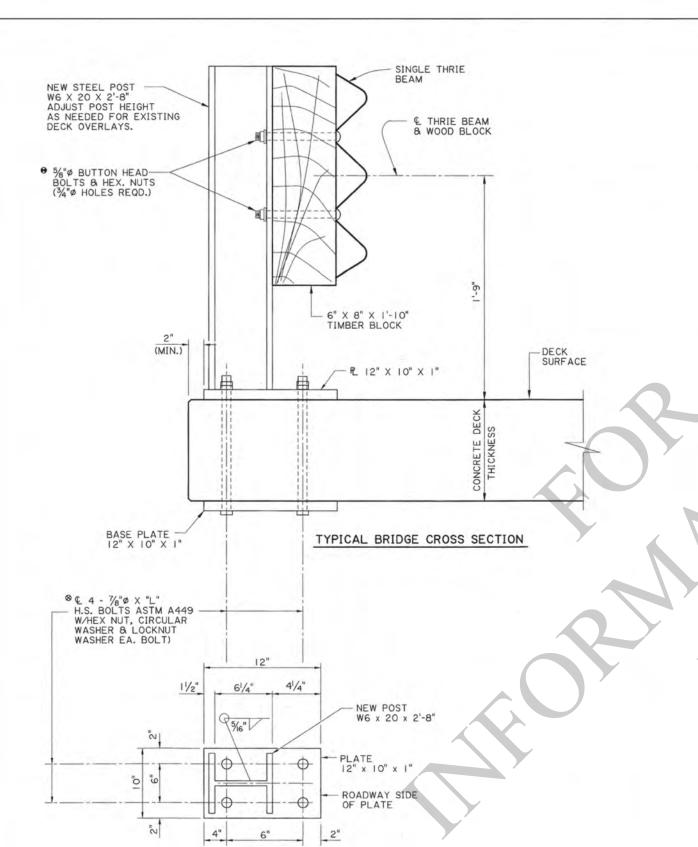
BRIDGE AND STRUCTURAL

DOTE

NEW JERSEY BARRIER RAIL RETROFIT (FOR STRUCURES LESS THAN 60 FT. LONG)

SECTION

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BASE PLATE FOR POST ASSEMBLY 12" x 10" x 1" STEEL

⊗ BOLTS LENGTH TO BE FIELD MEASURED AND ADJUSTED BASED ON ACTUAL DECK THICKNESS. SUBMIT TO DOTD BRIDGE DESIGN ENGINEER FOR REVIEW BEFORE INSTALLATION

NOTES

ALL HARDWARE INVOLVED SHALL BE REPLACED BY NEW HARDWARE.

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL STRUCTURAL STEEL, POST AND PLATES, SHALL BE ASTM A-36 AND GALVANIZED. ALL $5\%''\phi$ BOLTS SHALL BE ASTM A307.

 $\ensuremath{\boldsymbol{\Theta}}$ The Bolts in the guard rail shall be located on the oncoming flange traffic side.

ALTHOUGH ITEM 704-01-01020 CALLS FOR 6'-3" MAX. POST SPACING, THE NEW POST FOR EXISTING PRECAST BRIDGES SHALL BE INSTALLED AT THE SAME LOCATION AS THE OLD ONES. ALL GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

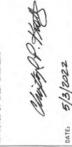
ALL WORK AND MATERIALS REQUIRED TO INSTALL THE NEW GUARD RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

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SHEET







GUARD RAIL REHABILITATION (FLAT DECK PRECAST BRIDGES)



W6 X 20 X "L"-STEEL POST SINGLE THRIE BEAM--GUTTER LINE

5"

6" X 8" X 1'-10"-TIMBER BLOCK

-DRILL 78" MECHANICAL CONCRETE ANCHOR SYSTEM

SECTION THRU RAIL

VIEW FROM ROADWAY

DIRECTION OF TRAFFIC

11 0

5% Ø BUTTON HEAD -BOLTS AND HEX. NUTS (3/4 Ø HOLES REQ'D.)

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. LAP IN DIRECTION OF TRAFFIC.

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL $\%^{\rm H} \sigma$ BOLTS SHALL BE ASTM A307.

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FOR	ADDIT	IONAL	INFO	RMATION	ON GUA	RD RA	IL.	SE
STAN	NDARD	PLANS	FOR	HIGHWAY	GUARD	RAIL	(MA	SH)

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON THIS TYPE STRUCTURE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE

ALTHOUGH ITEM 704-01-01020 CALLS FOR 6'-3" POST SPACING, THE NEW POST ON THIS TYPE STRUCTURE SHALL BE PLACED IN THE SAME LOCATION AS THE

USE % # MECHANICAL SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED



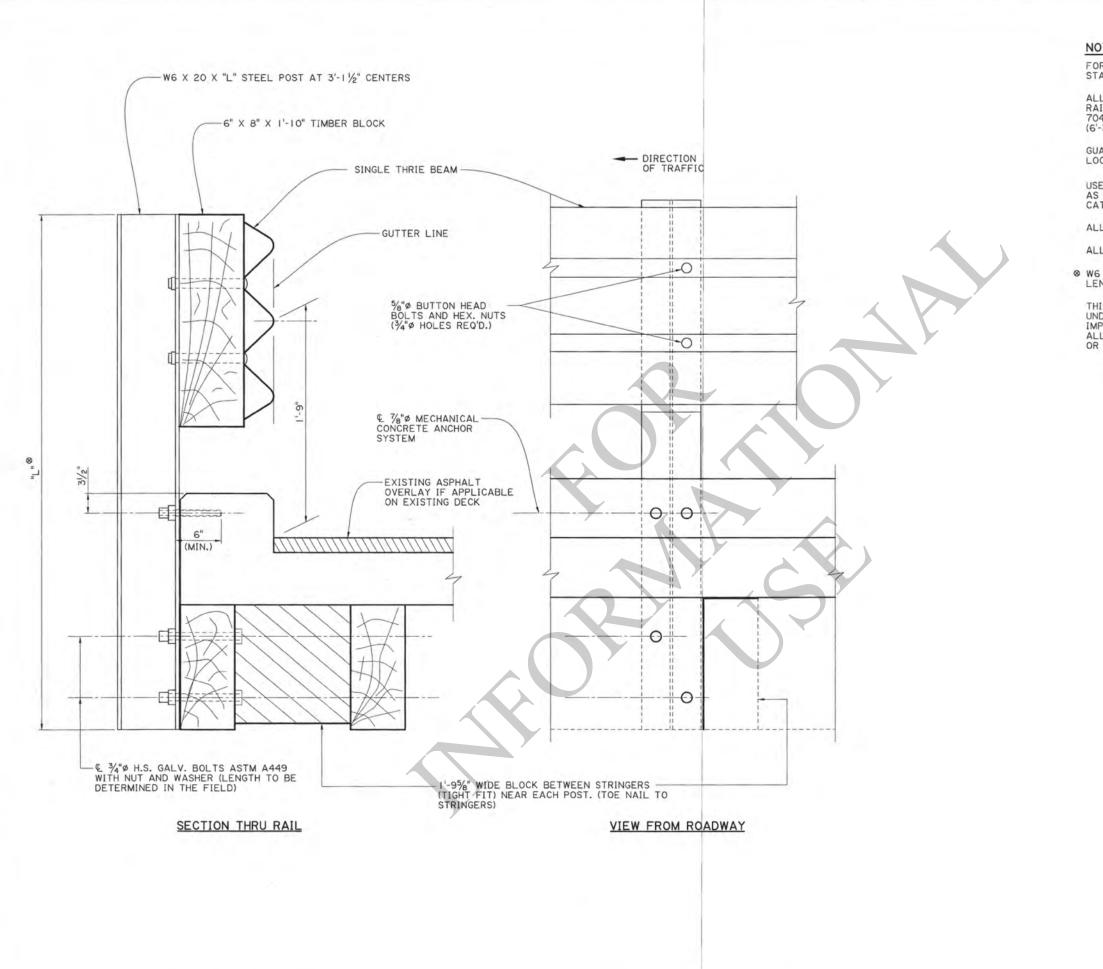




RAIL MOUNTED GUARD FOR BRIDGES

SIDE

DOTE



NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SP.).

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. LAP IN DIRECTION OF TRAFFIC.

USE %"% MECHANICAL CONCRETE ANCHOR SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS."

ALL STEEL SHALL BE ASTM A-36 AND GALVANIZED.

ALL %" BOLTS SHALL BE ASTM A307.

⊗ W6 x 20 POST TO BE FIELD MEASURED TO DETERMINE LENGTH "L" BY CONTRACTOR.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

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KURT M. BRAUNER License No. 30567 PROFESSIONAL ENGINEER SAIL ENGINEERING 14/22/22



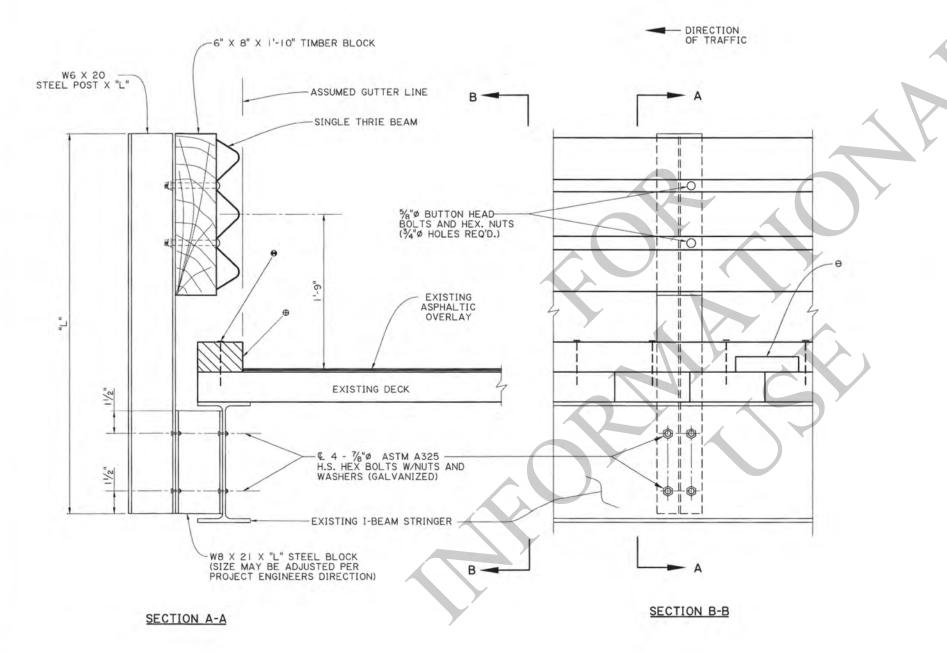


SIDE MOUNTED GUARD RAIL (CONCRETE DECK WITH TIMBER STRINGERS)

DOTE BRIDGE AND STRUCTURAL

⊕ 4" X 6" X LGTH. OF BRIDGE FELLOE GUARD (NEW) (NOTCH FOR DRAINAGE)

€ 6% SPIKE AT EACH FLOOR PLANK



NOTES

ALL WORK AND MATERIAL (INCLUDING THE NEW FELLOE GUARD) REQUIRED TO INSTALL THE NEW BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARDRAIL (SINGLE THRIE BEAM)

EXISTING ASPHALT SHALL BE CLEARED FROM AREA WHERE FELLOE GUARD IS TO BE PLACED SO THAT THE FELLOE GUARD WILL BE ON THE TIMBER DECK.

POST SHALL BE LOCATED AT EACH BENT AND AT INTERMEDIATE POINTS NOT TO EXCEED 6'-3" (EQUALLY SPACED)

IF DIRECTED BY THE PROJECT ENGINEER, A DIAPHRAGM SHALL BE PLACED AT EACH INTERMEDIATE POST BETWEEN THE FIRST AND SECOND STRINGER. (TO BE INCLUDED IN 704-01-01020.

"L" (POST HEIGHT & STEEL BLOCK) SHALL BE DETERMINED IN THE FIELD.

FOR ADDITIONAL INFORMATION ON GUARDRAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL STRUCTURAL STEEL SHALL BE ASTM A36 AND GALVANIZED. ALL $\frac{5}{6}$ BOLTS SHALL BE ASTM A307.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

CONTROL

a. c. -; a. x. CHECK DETAIL CHECK REVIEW



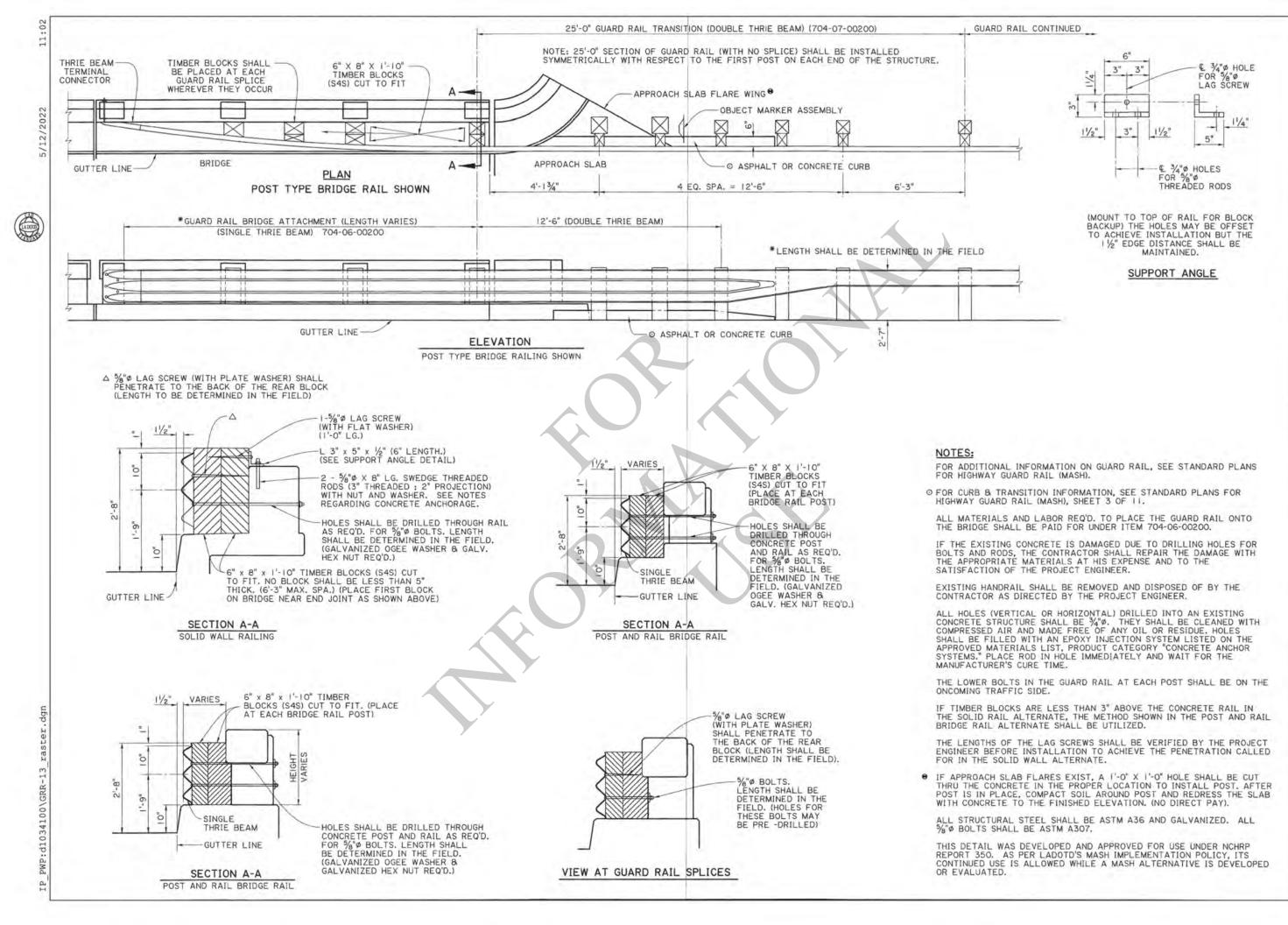




RAI BRIDGE

MOUNTED SIDE





CONTROL SECTION

KURT M. BRAUNER ROFESSIONAL ENGINEE 4/22/22

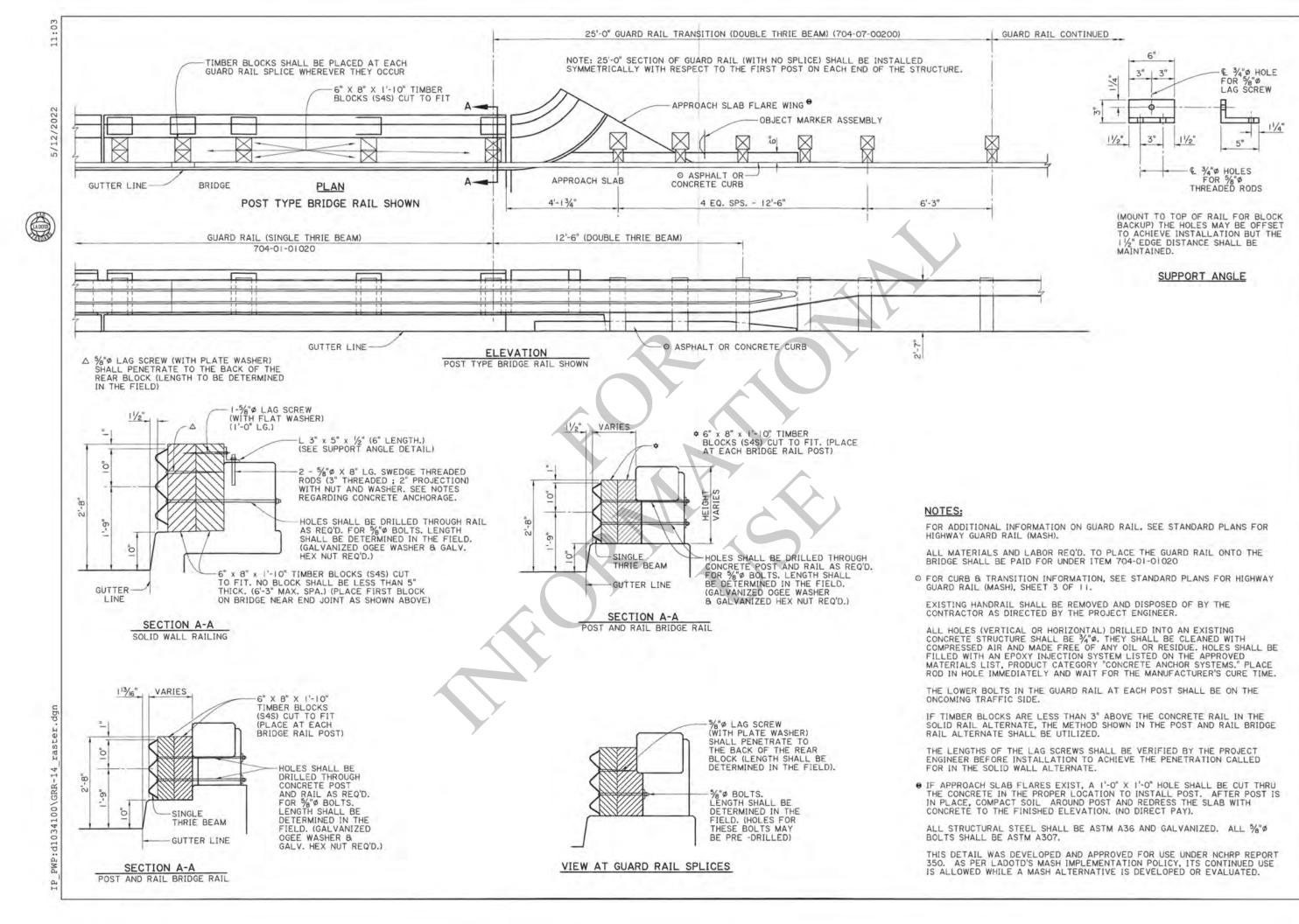
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O RAIL GUARD RAIL TERMINA BRUSH CURB BRIDGE

DOTE

BRIDGE AND STRUCTURAL



SECTION

CHE CHE

2 KURT M. BRAUNER ROFESSIONAL ENGINEE

4/22/22



RAIL IL CONTINUOUS CURB BRIDGE R

GUARD RAII BRUSH DOTE

STRUCTURAL

NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL

ALL TIMBER SHALL BE TREATED SOUTHERN YELLOW PINE OR DOUGLAS FIR. (CUT TO FIT). ALL HARDWARE & NAILS INVOLVED SHALL BE REPLACED WITH NEW MATERIALS AND SHALL BE GALVANIZED.

POST SPACING VARIES FROM STRUCTURE TO STRUCTURE. ORIGINAL POST SPACING SHALL BE VERIFIED BY THE PROJECT ENGINEER AND NEW POSTS SHALL BE PLACED AT THESE LOCATIONS. ANY POST AT OTHER THAN THE ORIGINAL POST SPACING SHALL BE REMOVED.

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. LAP IN DIRECTION OF TRAFFIC.

* HOLES IN CONCRETE CURB SHALL BE COUNTER-SUNK SO THE BOLT HEAD WILL NOT PROTRUDE OUTSIDE THE FACE OF CURB. GROUT HOLES WITH APPROPRIATE MATERIAL AFTER BOLT HAS BEEN

ALL WORK AND MATERIALS REQ'D. TO COMPLETE GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL, (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

WHEN EXTERIOR STRINGER IS REQ'D. TO BE REPLACED IT SHALL BE DONE AS DIRECTED BY THE PROJECT ENGINEER AND PAID FOR UNDER FORCE ACCOUNT.

□ ALL %"Ø BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED BY FIELD

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

DADIBLE	- Action	CONTROL	SECTION	STATE	PROJECT
P. FOSSIER	C. GAUDRY	J. DOUCET	P. FOSSIER	K. BRAUNER	

KURT M. BRAUNER Licerse No. 30567 PROFESSIONAL ENGINEER CALL ENGINEERIN

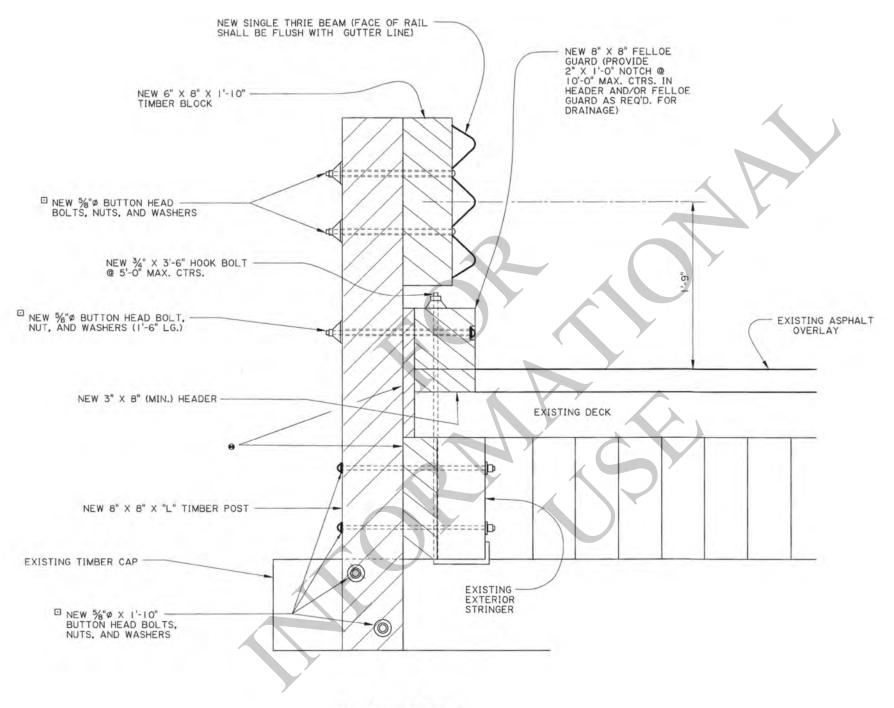
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GUARD RAIL REHABILITATION (CONCRETE DECK)

DOTE BRIDGE AND STRUCTURAL



NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STANDARD PLANS FOR HIGHWAY GUARD RAIL (MASH).

ALL TIMBER SHALL BE TREATED SOUTHERN YELLOW PINE OR DOUGLAS FIR. (CUT TO FIT) ALL HARDWARE & NAILS INVOLVED SHALL BE REPLACED WITH NEW MATERIALS AND SHALL BE GALVANIZED.

POST SPACING VARIES FROM STRUCTURE TO STRUCTURE. ORIGINAL POST SPACING SHALL
BE VERIFIED BY THE PROJECT ENGINEER AND
NEW POST SHALL BE PLACED AT THESE
LOCATIONS. ANY POST OTHER THAN THE ORIGINAL POST SPACING SHALL BE REMOVED.

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. LAP IN DIRECTION OF TRAFFIC.

ALL WORK AND MATERIALS REQ'D. TO COMPLETE GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL. (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

WHEN EXTERIOR STRINGER IS REQ'D. TO BE REPLACED IT SHALL BE DONE AS DIRECTED BY THE PROJECT ENGINEER AND PAID FOR UNDER FORCE ACCOUNT.

□ ALL 5/8" BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED BY FIELD MEASUREMENTS.

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

CONTROL a 0 3 a x







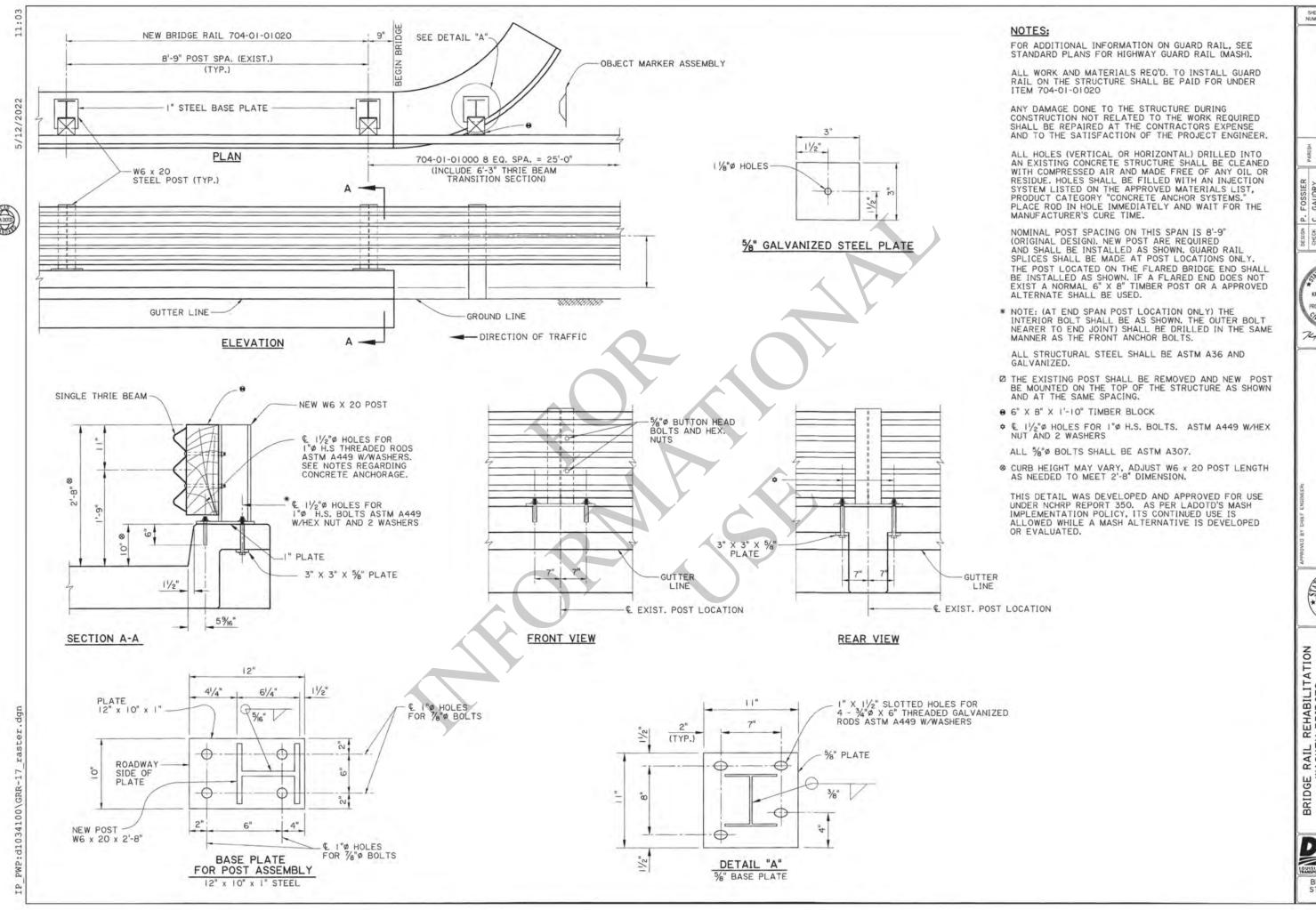
RAIL REHABILITATION (TIMBER DECK)

GUARD

DOTE BRIDGE AND STRUCTURAL

TYPICAL SECTION

(NOT TO SCALE)



CONTROL SECTION

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KURT M. BRAUNER License No. 30567 PROFESSIONAL ENGINEE CALL ENGINEERS 74/22/22



BRIDGE RAIL REHABILITATION WASKEY BRIDGES

DOTE

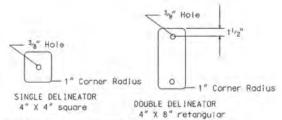
BRIDGE AND STRUCTURAL

END-OF-ROADWAY INSTALLATION DEAD END ROAD INSTALLATION

(TYPE A - WITH GUARD RAIL, TYPE D - WITHOUT GUARDRAIL)

For End of Road installation Object Marker stripes shall slope downward

Guardrail to be installed in accordance with guardrail Standard Plans. Typical installation requires 25 ft. of rail with flored end sections.



DETAIL OF DELINEATORS

Colors shall be red, white, or yellow. The sheeting shall be in accordance with DOTD Standard Specification

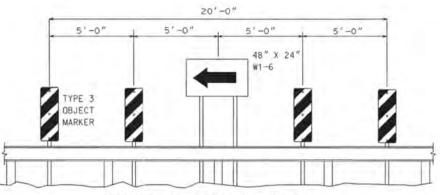
For alternate Delineator/Flexible Post systems see the DOTD Approved Materials List. Alternates shall have an equivalent area of sheeting and shall not be less than 3 in. wide.

The mounting height shall be the same as for Milepost Markers.

Post penetration in ground shall be a minimum of 2 ft.

% in. plate - 1/2 in. x 5 in. bolt

For bolt anchors see DOTO Approved Materials List.

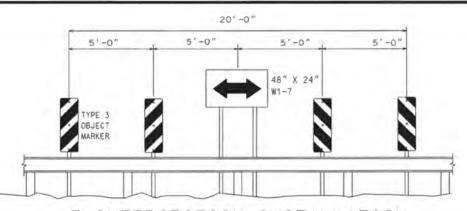


TURN INSTALLATION

DEAD END ROAD INSTALLATION (TYPE B - WITH GUARD RAIL, TYPE C - WITHOUT GUARDRAIL)

For Turn installations Object Marker stripes shall slope downward toward the direction of travel.

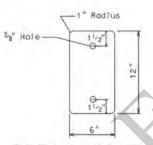
Guard rail to be installed in accordance with guardrail Standard Plans, Typical installation requires 25 ft. of rail with flored end sections.



RSECTION INSTALLATION DEAD END ROAD INSTALLATION

- WITH GUARD RAIL. TYPE C - WITHOUT GUARDRAIL)

For T-intersection installations Object Marker stripes shall slope away from center. Guardrail to be installed in accordance with guardrail Standard Plans. Typical installation requires 25 ft. of rail with flared end sections.

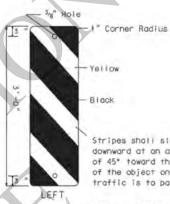


DETAIL OF TYPE OBJECT MARKER

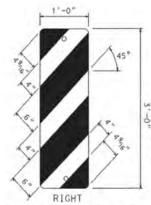
The face shall be yellow. The sheeting shall be in accordance with DOTD Standard Specification. The typical mounting height from the ground line to the bottom of the object marker shall be 36 in.

Post penetration in ground shall be a minimum of 2 ft.

Type 2 Object Markers are typically used in the right-of-way to mark objects for mowing operations.



Stripes shall slope downward at an angle of 45° toward the side of the object on which traffic is to pass.



Note: For mile markers on conventional roads. See the details shown on the Special Signing Details sheets-B. This is in accordance with MUTCD signs D10-4 & D10-5 in Figure 2H-4.

OF TYPE 3 OBJECT MARKER

The markings on the Object Markers shall be diagonal, block and yellow stripes. The sheeting shall be in accordance with DOTD Standard Specifications.

Post penetration in ground shall be a minimum of 3 ft.

Type 3 Object Markers are typically used to mark objects in the roadway (travel lanes and shoulder) and to mark guard rail installation (see guard rail Standard Plans) .

When used for marking objects in the roadway or objects that are 8 ft. or less from the shoulder or curb, the mounting height to the bottom of the object marker should be at least 4 ft. above the surface of the negrest traffic lane.

When used to mark objects more than 8 ft, from the shoulder or curb. the mounting height to the bottom of the object marker should be of least 4 ft. above the ground.

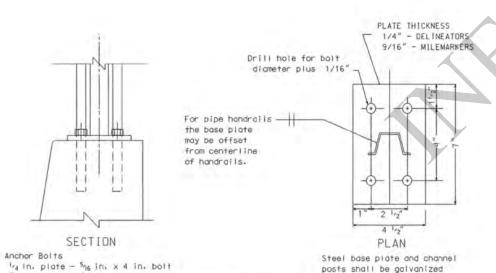


" Radius 3/8" Hole

DETAIL OF END OF ROAD MARKER

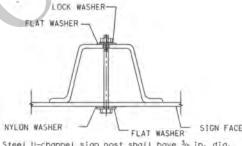
Colors shall be red. The sheeting shall be in accordance with DOTD Standard Specification.

The minimum mounting height from the ground line to the bottom of the marker shall be 5 ft. Post penetration in ground shall be a minimum



DETAIL FOR MOUNTING SIGN POST TO CONCRETE BARRIER RAIL

after fabrication.



Steel U-channel sign post shall have 3/8 in. dia. holes drilled in channel on 1 in. centers from top of post. Steel tube post (Min. 2.23 lb/ft) may be used in lieu of U-channel posts.

Post Weight: 2.0 lbs/ft - DELINEATORS and TYPE 2 OBJECT MARKERS 2.5 Ibs/ft - MILEMARKERS and TYPE 3 OBJECT MARKERS 3.0 lbs/ft - WARNING SIGNS, W1-6, W1-7

Fasteners shall be either bolts or rivets.

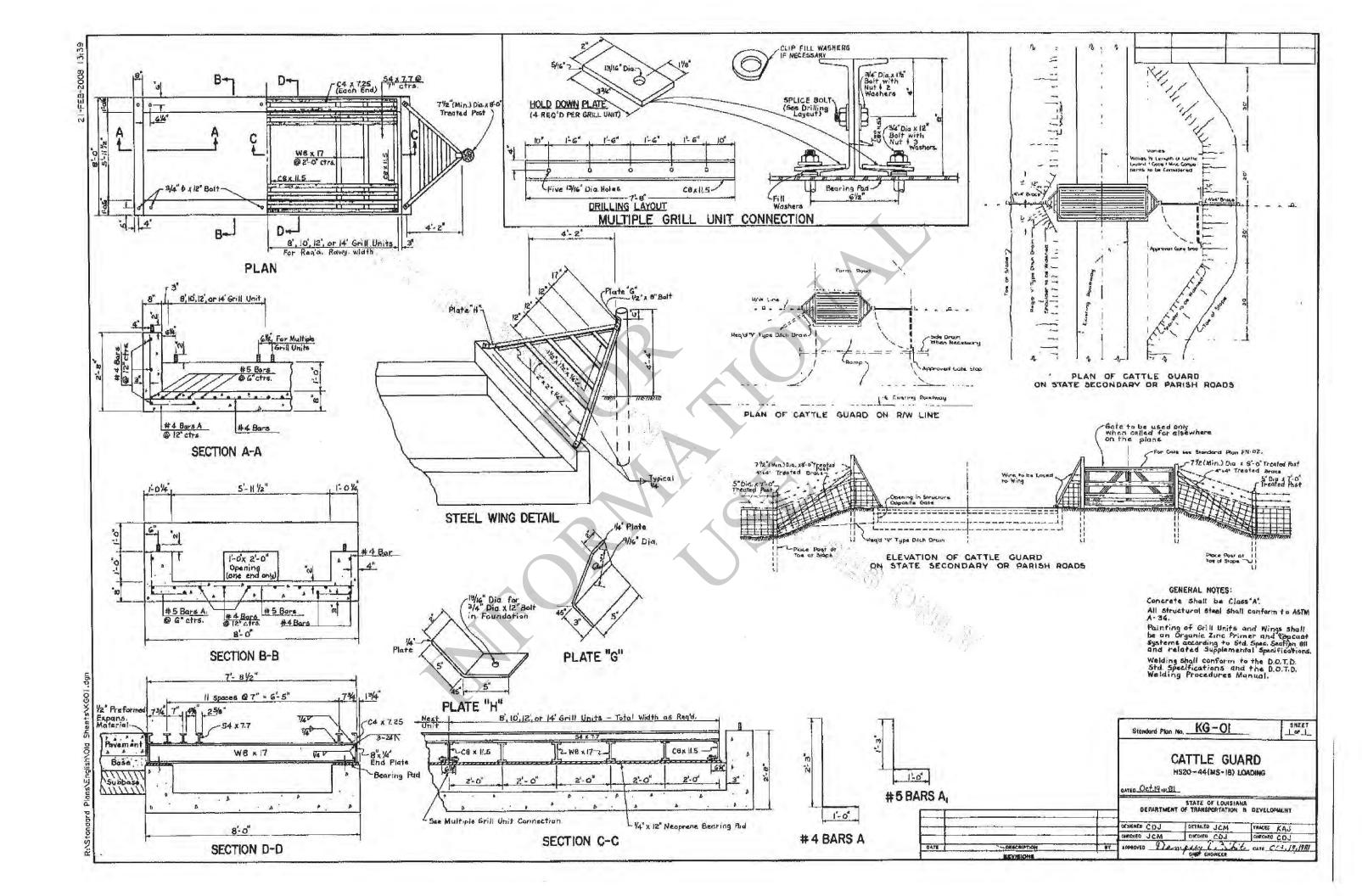
Bolts shall be 5/16 in. diameter electroplated steel hex head bolts with one nylon washer, two flat washers, one lock washer, and one vandal resistant hex nut.

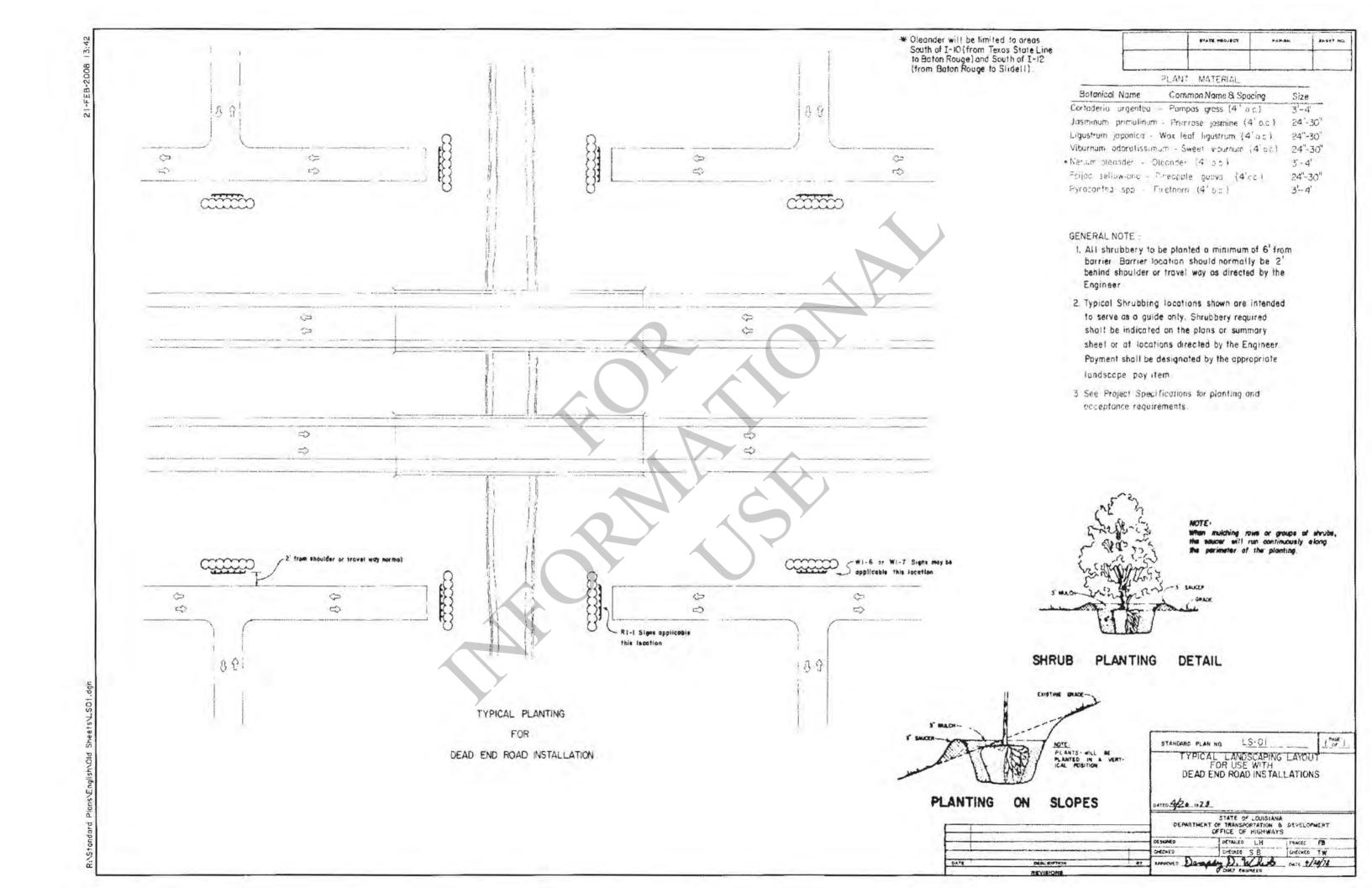
Rivets shall be vanda) resistant 1/4 in. diameter aluminum blind rivets with smooth. low profile heads on each end.

> DETAIL FOR MOUNTING SIGN TO U-CHANNEL POST



OBJECT MARKERS AND DEAD END ROAD INSTALLA





THROUGH ROAD SPEED (M.P.H.)	Do (FEET)		D _e (FEET)		
	n V _c V _m ≤4000	n V _c V _m > 4000	$\frac{V_{c}}{1.5n5} \le 50$	50< V _C ≤ 400	V _C > 400
35	65	200	65	100	100
≥ 55	65	295	150	150	200

V - AVERAGE DAILY TRAFFIC ON CROSS ROAD (VEHICLES PER DAY)

V = AVERAGE DAILY TRAFFIC ON THROUGH ROAD (VEHICLES PER DAY)

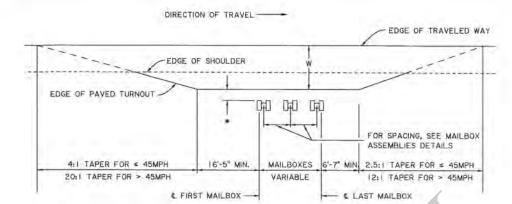
n . NUMBER OF MAILBOXES AT MAIL STOP

MINIMUM CLEARANCES TO NEAREST MAILBOX IN MAIL STOPS AT INTERSECTIONS

SINGLE MAILBOX MOUNT

DOUBLE MAILBOX MOUNT

SINGLE AND DOUBLE MAILBOX MOUNTS SERIES C



W . FOR SUGGESTED WIDTHS, SEE TABLE BELOW.

MAILBOXES = A MINIMUM DESIGN FOR ROADS CARRYING LOW-SPEED TRAFFIC AND FOR LOCAL AND COLLECTOR ROADS.

* FOR MAILBOX FACE OFFSET, SEE TABLE BELOW, 0" - 12".

DETAIL OF MAILBOX TURNOUT

* SUGGESTED GUIDELINES FOR LATERAL PLACEMENT OF MAILBOXES

HIGHWAY TYPE AND ADT (VPD)	WIDTH OF ALL-WEATHER SURFACE TURNOUT OR AVAILABLE SHOULDER AT MAILBOX (FT)			
	PREFERRED	MINIMUM	PREFERRED	MINIMUM
RURAL HIGHWAY OVER 10,000	12	8		
RURAL HIGHWAY 1,500 TO 10,000	12	8		o
RURAL HIGHWAY 400 TO 1,500	10	8	6 to 8	
RURAL ROAD UNDER 400	В	6 ^b		ic.
RESIDENTIAL STREET WITHOUT CURB OR ALL-WEATHER SHOULDER	6	0		ь
CURBED RESIDENTIAL STREET OR URBAN AND SUBURBAN AREAS	NOT A	PPLICABLE	8 to 12 ^d	e ^d

NOTES: ADT - AVERAGE DAILY TRAFFIC YPD . VEHICLES PER DAY

b) IF INCREASE ACCESS IS NEEDED. THE FOLLOWING WAY BE CONSIDERED IN CONJUCTION WITH THE LOCAL POSTMASTER PROVIDE A LEVEL CLEAR SPACE 30 IN. BY 48 IN. CENTERED ON THE BOX FOR EITHER SIDE OR FORWARD APPROACH. PROVIDE AN ACCESSIBLE PASSAGE TO AND FROM THE MAILBOX AND PROJECT INTO A CIRCULATION ROLITE-NO MORE THAN 4 IN. IF RETWEEN

28 IN. AND BO IN.— SO THAT THE MAILBOX DOES NOT BECOME A PROTRIDING OBJECT FOR PEDESTRIANS WITH IMPAIRED VISION.
b) PROVIDE AN ACCESSIBLE PASSAGE TO AND FROM THE MAILBOX. THE MAILBOX PROJECTION INTO A CIRCULATION ROUTE SHALL NOT BE MORE THAN

4 IN., SO THAT THE MAILBOX DOES NOT BECOME A PROTRUDING OBJECT FOR PEDESTRIANS WITH IMPAIRED VISION OF IF A TURNOUT IS PROVIDED. THIS MAY BE REDUCED TO ZERO.

d) BEHIND TRAFFIC-FACE OF CURB.

YIELDING BASE POST SUPPORT DOUBLE SUPPORT SYSTEM

SINGLE SUPPORT SYSTEM

EXAMPLES OF SINGLE AND DOUBLE MAILBOX INSTALLATIONS SERIES C

NOTES:

NO MAILBOX WILL BE PERMITTED WHERE ACCESS IS OBTAINED FROM THE LANES. OF A FREEWAY OR WHERE ACCESS IS OTHERWISE PROHIBITED BY LAW OR REGULATION.

MAILBOXES SHALL BE LOCATED ON THE RIGHT-HAND SIDE OF THE ROADWAY IN THE DIRECTION OF DELIVERY ROUTE EXCEPT ON ONE-WAY STREETS WHERE THEY MAY BE PLACED ON EITHER SIDE. THE BOTTOM OF THE BOX SHALL BE SET AT AN ELEVATION (H) ESTABLISHED BY THE U.S. POSTAL SERVICE, USUALLY BETWEEN 3'4" AND 4'0" ABOVE THE ROADWAY SURFACE, THE ROADSIDE FACE OF THE BOX SHALL BE OFFSET FROM THE EDGE OF THE TRAVELED WAY. SEE THE SUGGESTED GUIDELINES FOR LATERAL PLACEMENT OF MAILBOXES AT LEFT.

ALL MAILBOX INSTALLATIONS MUST CONFORM TO THE REQUIREMENTS OF THE U.S. POSTAL

WHERE FEASIBLE, NEW INSTALLATION SHOULD BE LOCATED ON THE FAR RIGHT SIDE OF AN INTERSECTION WITH A ROAD OR DRIVEWAY ENTRANCE. HOWEVER, CONSIDERATION SHOULD BE GIVEN TO

- . MINIMIZING WALKING DISTANCE WITHIN THE ROADWAY FOR THE PATRON.
- . AVAILABLE STOPPING SIGHT DISTANCE IN ADVANCE OF THE MAILBOX SITE, AND
- . POSSIBLE RESTRICTIONS TO CORNER SIGHT DISTANCES AT INTERSECTIONS AND DRIVEWAY ENTRANCES.

FOR LOCATION OF MAILBOXES AT AN INTERSECTING ROADWAY, SEE DETAIL AT LEFT.

MAILBOXES SHALL BE OF LIGHT SHEET METAL OR PLASTIC CONSTRUCTION MANUFACTURED BY AN APPROVED MANUFACTURERS CONFORMING TO THE REQUIREMENTS OF THE U.S. POSTAL SERVICE. MAILBOXES MUST BE FULL-SCALE CRASH TESTED IN ACCORDANCE WITH THE LATEST EDITION OF MASH. NEWSPAPER DELIVERY BOXES SHALL BE OF LIGHT SHEET METAL OR PLASTIC CONSTRUCTION OF MINIMUM DIMENSIONS SUITABLE FOR HOLDING A NEWSPAPER.

MANUFACTURERS WHOSE MAILBOXES HAVE BEEN APPROVED BY THE POSTMASTER GENERAL WILL BE LISTED IN THE POSTAL OPERATION MANUAL (POM) AND PUBLISHED IN THE POSTAL BULLETIN. NO MORE THAN TWO MAILBOXES MAY BE MOUNTED ON A SUPPORT STRUCTURE UNLESS THE SUPPORT STRUCTURE AND MAILBOX ARRANGEMENT HAVE BEEN SHOWN TO BE SAFE BY CRASH TESTING IN ACCORDANCE WITH THE LATEST EDITION OF MASH. HOWEVER, LIGHTWEIGHT NEWSPAPER BOXES MAY BE MOUNTED BELOW THE MAILBOX ON THE SIDE OF THE MAILBOX

MAILBOX SUPPORTS SHALL NOT BE SET IN CONCRETE UNLESS THE SUPPORT DESIGN HAS BEEN SHOWN TO BE SAFE BY CRASH TESTING IN ACCORDANCE WITH THE LATEST EDITION OF MASH WHEN SO INSTALLED.

POSTS SHALL BE STRONG ENOUGH TO SUPPORT THE BOX, BUT CAPABLE OF BENDING WHEN STRUCK BY AN AUTOMOBILE OR A LIGHT TRUCK. MAXIMUM STRENGTH POSTS ARE EITHER A METAL POST WITH A STRENGTH NO GREATER THAN A 2" DIAMETER STANDARD STRENGTH STEEL PIPE OR A 2*/FT FLANGED CHANNEL OR A 4"X4" WOODEN POST. POSTS ARE ACCEPTABLE MAILBOX SUPPORTS WHEN EMBEDDED NO MORE THAN 24" INTO THE GROUND. A METAL POST SHALL NOT BE FITTED WITH AN ANCHOR PLATE, BUT MAY HAVE AN ANTI-TWIST DEVICE THAT EXTENDS NO MORE THAN 10" BELOW THE GROUND SURFACE.

THE POST-TO-BOX ATTACHMENT SHALL BE OF SUFFICIENT STRENGTH TO PREVENT THE BOX. FROM SEPARATING FROM THE POST TOP IF THE INSTALLATION IS STRUCK BY AN AUTOMOBILE OR LIGHT TRUCK.

THE MINIMUM SPACING BETWEEN THE CENTERS OF SUPPORT POSTS SHALL BE THREE-FOURTHS THE HEIGHT OF THE POSTS ABOVE THE GROUND LINE

MAILBOX SUPPORT DESIGNS NOT DETAILED WILL BE ACCEPTABLE IF FULL-SCALE CRASH TESTED IN ACCORDANCE WITH THE LATEST EDITION OF MASH AND IF APPROVED BY THE ENGINEER.

FOR POST-TO-BOX ATTACHMENT DETAILS, SEE SHEET 2 OF 2.

MASH - MANUAL FOR ASSESSING SAFETY HARDWARE.



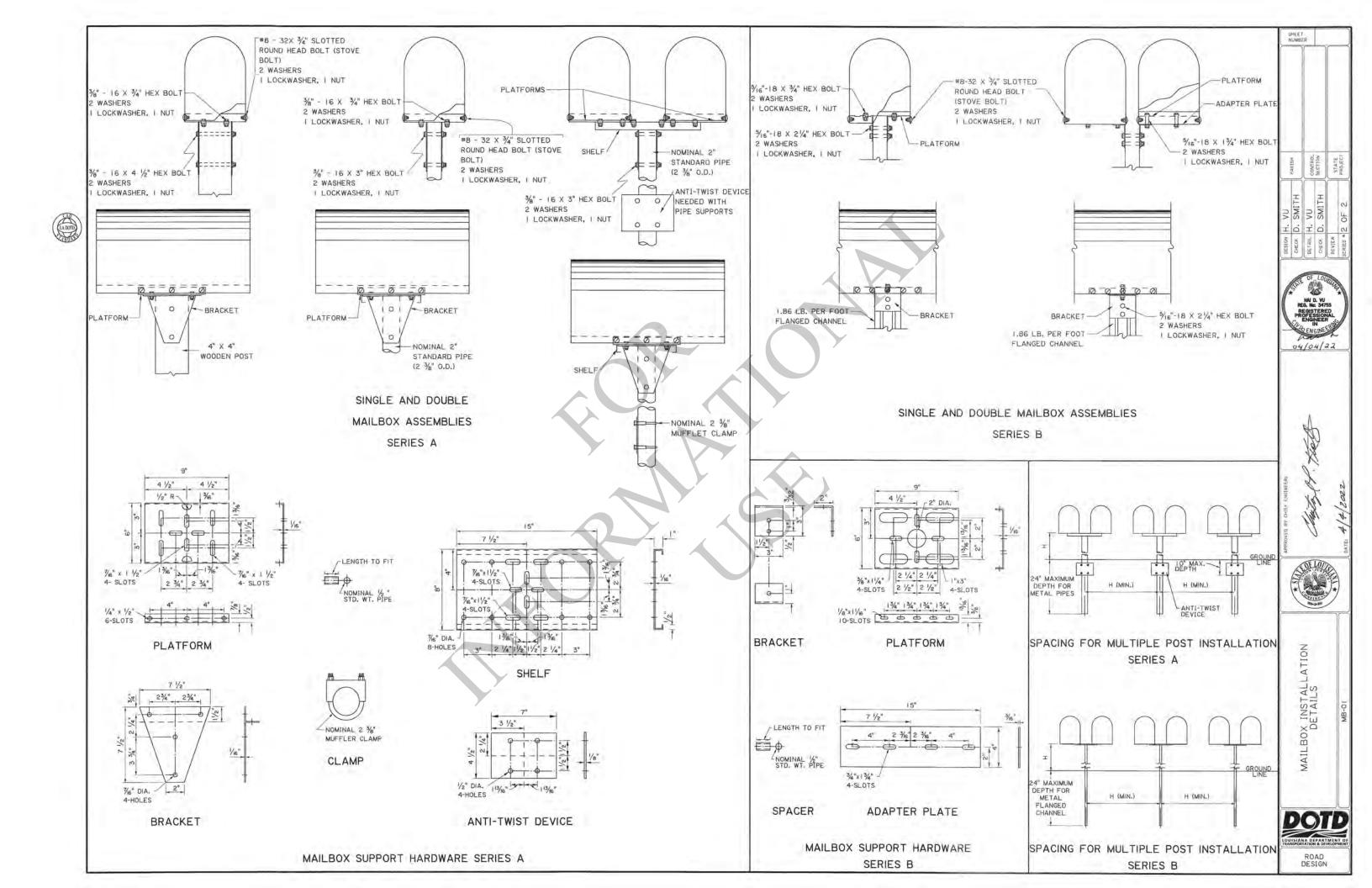


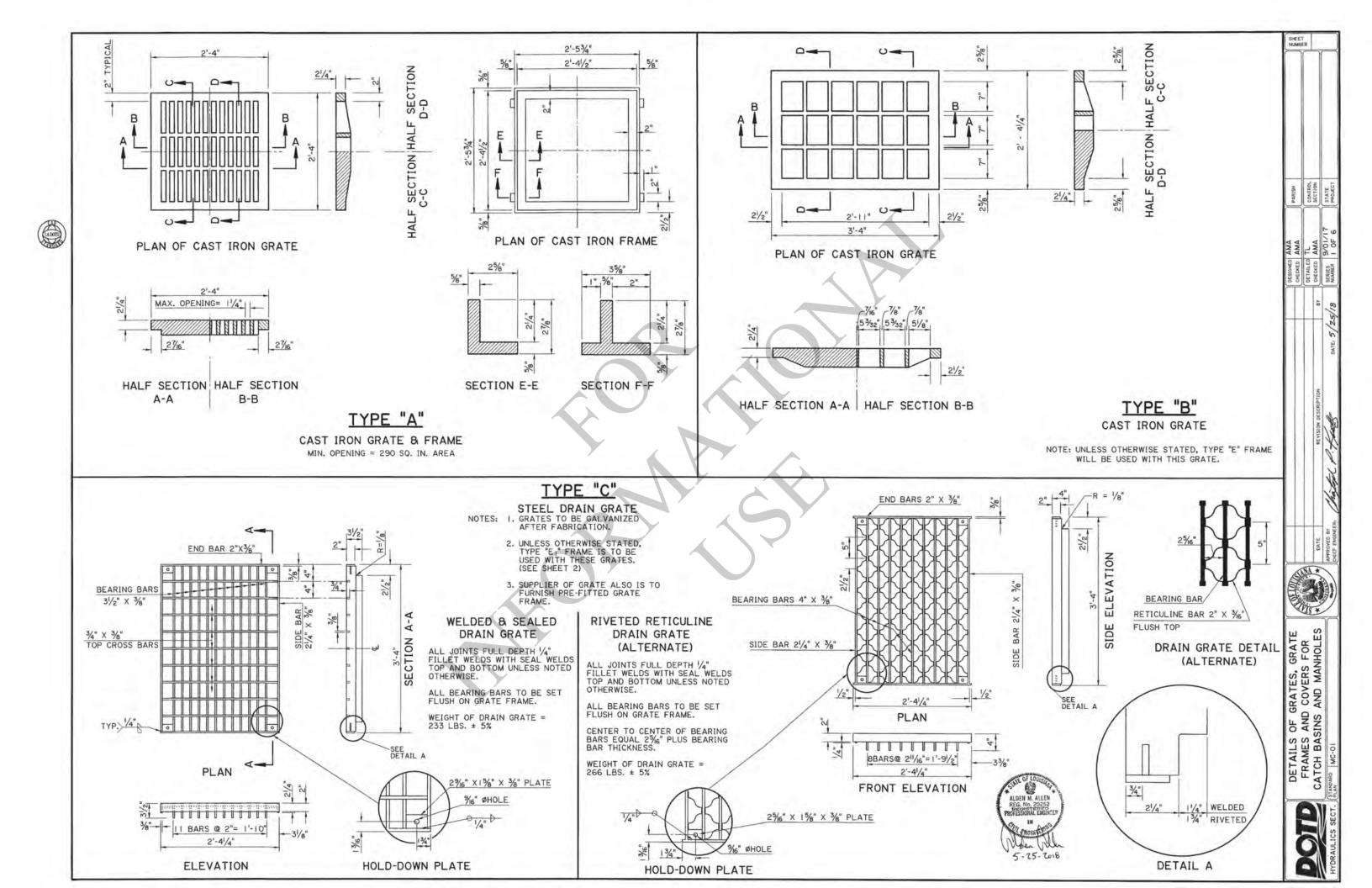


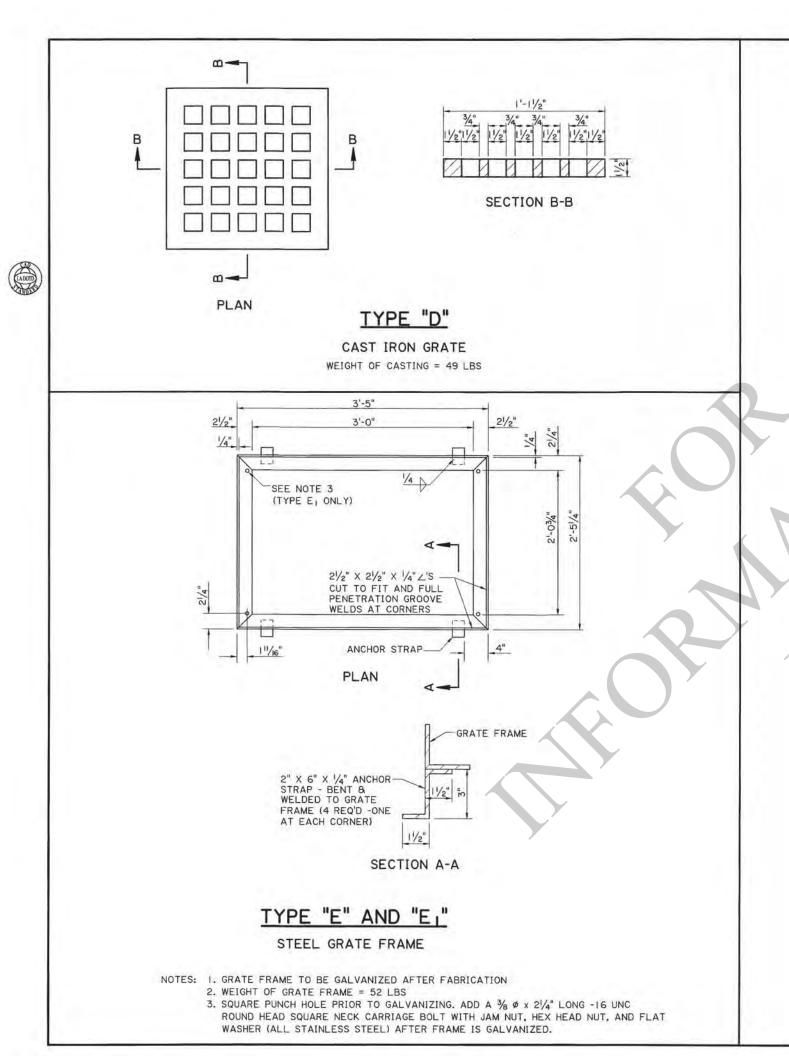
MAILBOX INSTALLATION DETAILS

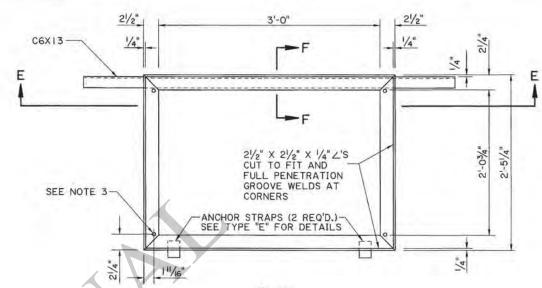


NOTE: SUPPORT FRAME AND FOUNDATION SHOWN ARE PROPRIETARY PRODUCTS.

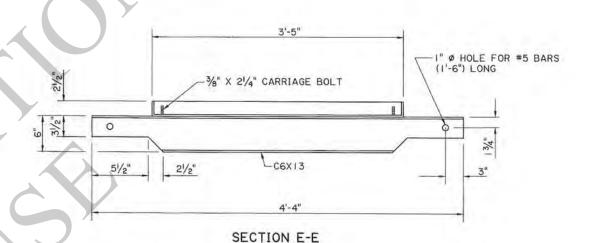


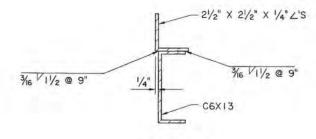






PLAN





SECTION F-F

TYPE "F"

STEEL GRATE FRAME

NOTES: I. GRATE FRAME TO BE GALVANIZED AFTER FABRICATION

2. WEIGHT OF GRATE FRAME = 52 LBS ± 5%

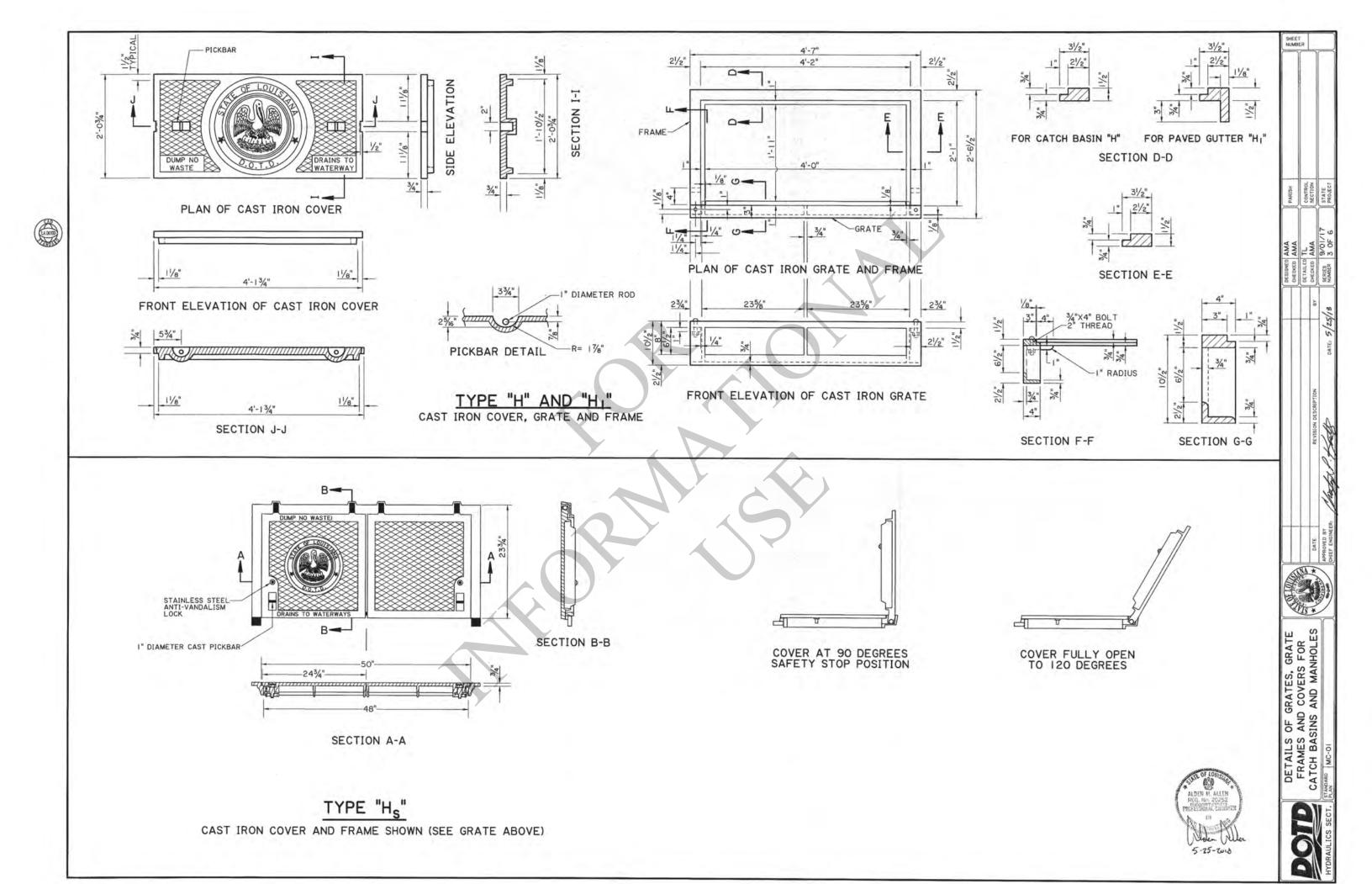
3. SQUARE PUNCH HOLE PRIOR TO GALVANIZING. ADD A 3/8 Ø x 21/4" LONG -16 UNC ROUND HEAD SQUARE NECK CARRIAGE BOLT WITH JAM NUT, HEX HEAD NUT, AND FLAT WASHER (ALL STAINLESS STEEL) AFTER FRAME IS GALVANIZED.

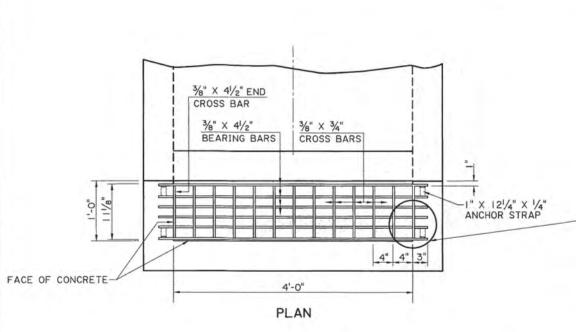


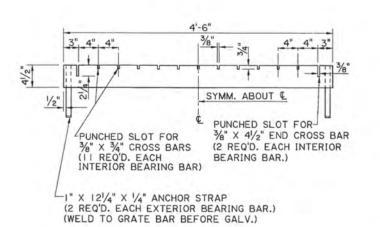
DETAILS OF GRATES, GRATE FRAMES AND COVERS FOR CATCH BASINS AND MANHOLES



5-25-2018





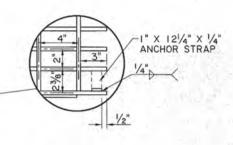


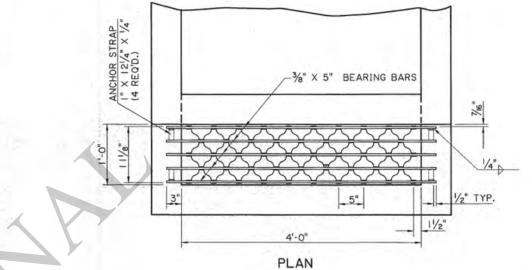
ELEVATION

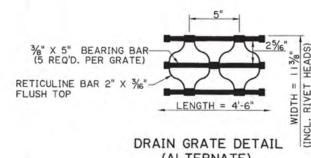
WELDED & SEALED DRAIN GRATE

ALL JOINTS FULL DEPTH 1/4" FILLET WELDS WITH SEAL WELD TOP AND BOTTOM UNLESS NOTED OTHERWISE.

WEIGHT OF DRAIN GRATE = 185 LBS. ± 5%





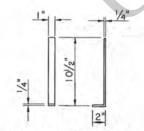




RIVETED RETICULINE DRAIN GRATE (ALTERNATE)

CENTER TO CENTER OF BEARING BARS EQUAL 211/16".

WEIGHT OF DRAIN GRATE = 176 LBS. ± 5%



STEEL ANCHOR STRAP (4 REQ'D. PER GRATE)



GRATE TO BE GALVANIZED AFTER FABRICATION.

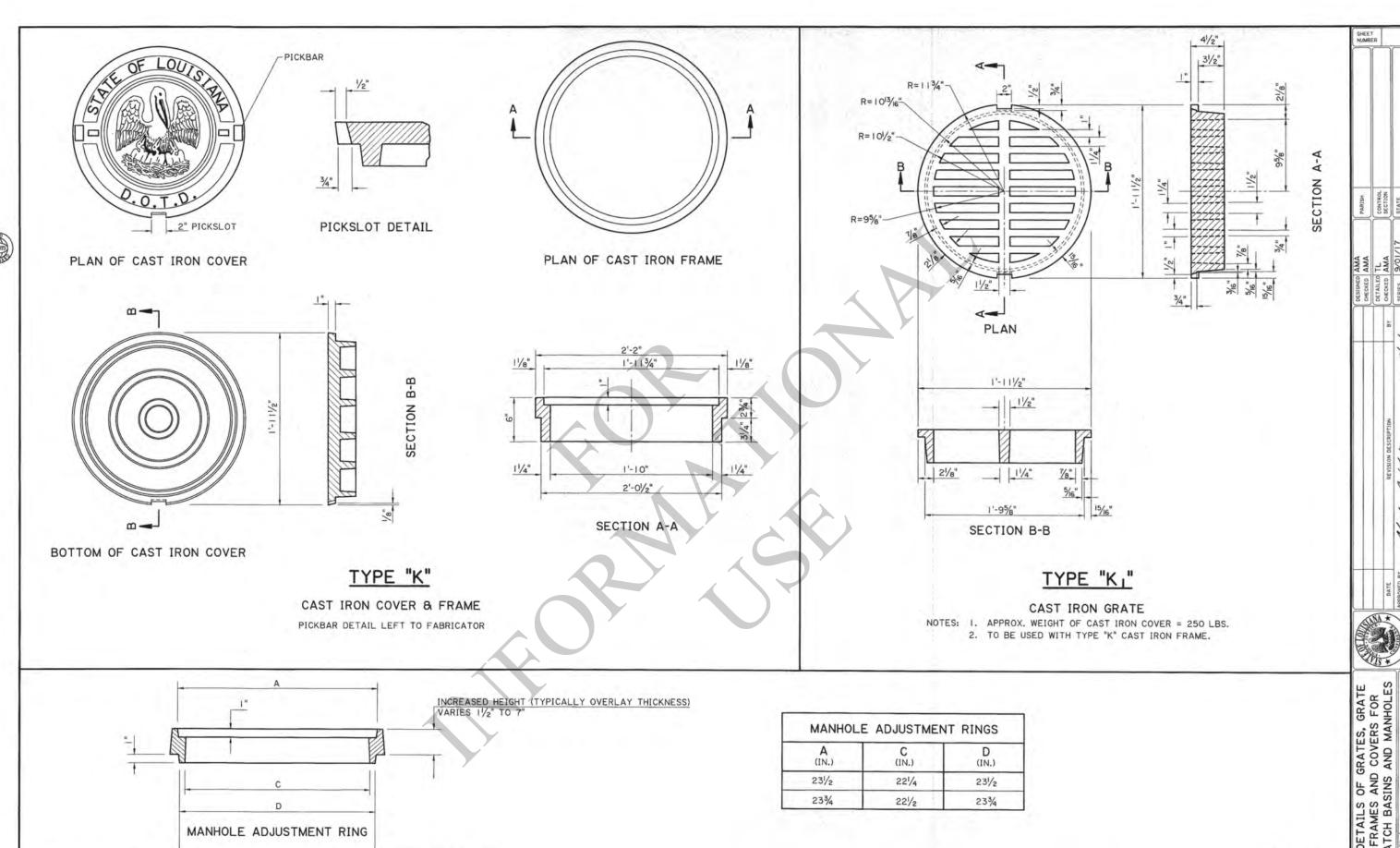












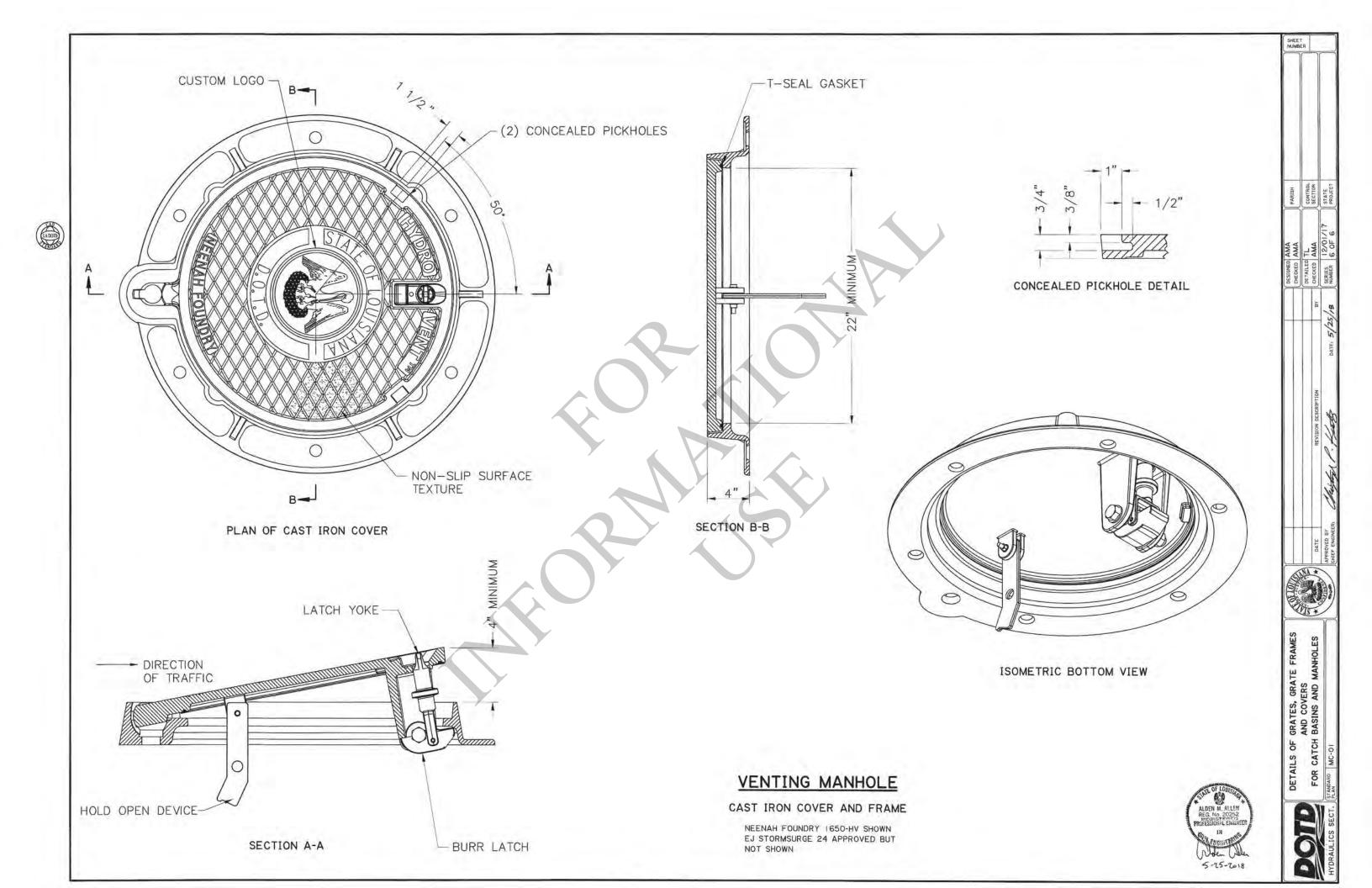
EXISTING GRATE SEAT

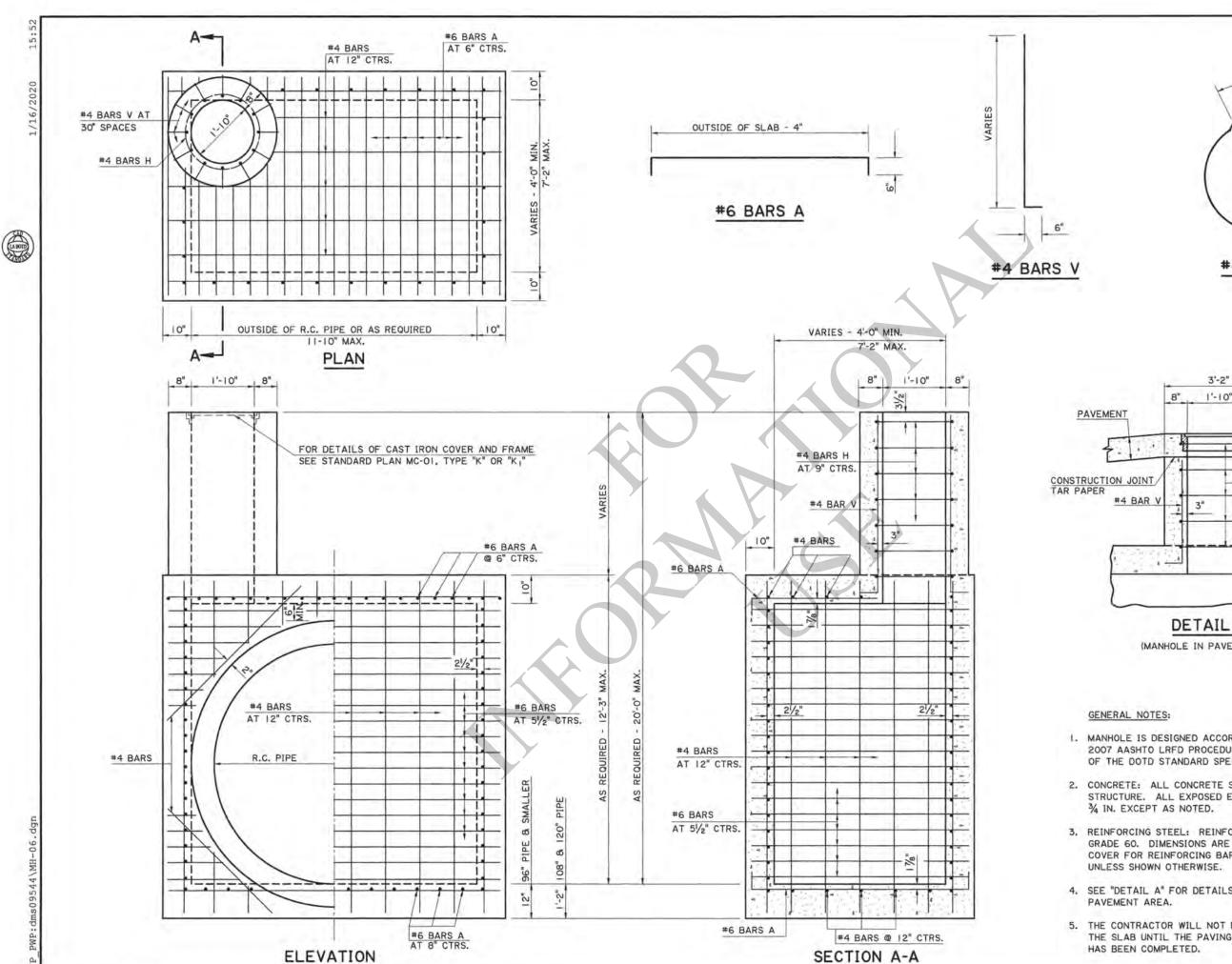
MANHOLE ADJUSTMENT RING

CAST IRON OR STEEL



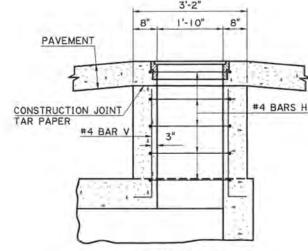








#4 BARS H



DETAIL A

(MANHOLE IN PAVEMENT AREA)

- 1. MANHOLE IS DESIGNED ACCORDING TO 4TH ED. 2007 AASHTO LRFD PROCEDURES. SECTION 702 OF THE DOTD STANDARD SPECIFICATIONS SHALL APPLY.
- 2. CONCRETE: ALL CONCRETE SHALL BE CLASS "M" MINOR STRUCTURE. ALL EXPOSED EDGES SHALL BE CHAMFERED
- 3. REINFORCING STEEL: REINFORCING STEEL SHALL BE GRADE 60. DIMENSIONS ARE TO BAR CENTERS. MINIMUM COVER FOR REINFORCING BARS SHALL BE 2 IN. CLEAR
- 4. SEE "DETAIL A" FOR DETAILS OF MANHOLE IN A
- 5. THE CONTRACTOR WILL NOT POUR ABOVE THE BOTTOM OF THE SLAB UNTIL THE PAVING ADJACENT TO THE MANHOLE



FEDERAL PROJECT STATE PROJECT

LAN VIEW WMR

R.C. MANHOLE
MAXIMUM DIMENSIONS: 11'-1
MAXIMUM DEPTH: 20'

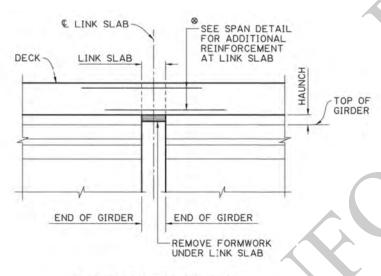


MISCELLANEOUS SPAN DETAILS INDEX

	SERIES	DESCRIPTION		
COMMON OF INDEX, CROWN, DECK PLACEMENT, FORMWORK @ LINK SLA				
DECK DRAINS	I OF I	DECK DRAINS		
	1 OF 2	SEALED EXPANSION JOINT - END DAMS AND PREFORMED NEOPRENE		
	2 OF 2	SEALED EXPANSION JOINT - END DAMS AND PREFORMED NEOPRENE		
EXPANSION	1 OF 2	SEALED EXPANSION JOINT - END DAMS AND PREFORMED SILICONE		
	2 OF 2	SEALED EXPANSION JOINT - END DAMS AND PREFORMED SILICONE		
	1 OF 1	POURED SILICONE JOINT		

MISCELLANEOUS SPAN GENERAL NOTES:

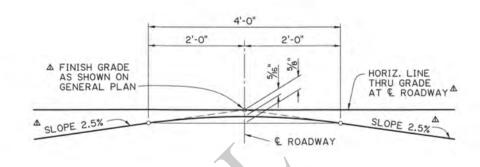
- 1. SHEETS LISTED IN THE INDEX THAT DO NOT APPLY TO THE PROJECT HAVE NOT BEEN INCLUDED IN THE
- 2. UNLESS STATED OTHERWISE, SECTION NUMBER REFERENCES (SUCH AS "SECTION 805") ARE TO THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.



FORMWORK AT LINK SLAB

(N.T.S.)

DECK REINFORCEMENT NOT SHOWN FOR CLARITY. DO NOT PLACE DECK REINFORCEMENT SPLICES WITHIN LIMITS OF LINK SLAB REINFORCEMENT.



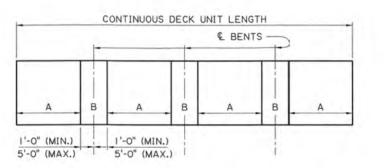
PARABOLIC CROWN AT ROADWAY

(N.T.S.)

A UNLESS OTHERWISE NOTED IN PLANS

DECK PLACEMENT NOTES:

- CONFORM TO SECTION 805.
- PLACE DECK UNIT USING ONE CONTINUOUS PLACEMENT.
- PREVENT INITIAL SET FROM OCCURING WITHIN AND DURING PLACEMENT.
- LIMIT PLACEMENT DURATION TO 4 HOURS MAXIMUM. IF MORE TIME IS NEEDED, INCLUDE METHOD AND SPECIFICATIONS FOR REDUCING CONCRETE SET TIME IN THE CONCRETE PLACEMENT PLAN REQUIRED BY SECTION 805.
- IF DECK UNIT PLACEMENT CANNOT BE CONTINUOUS, THE SEGMENTED PLACEMENT SHOWN BELOW MAY BE USED IF PERMITTED BY THE ENGINEER. PLACE AND CURE SEGMENTS "A" TOGETHER PRIOR TO PLACING AND CURING SEGMENTS "B."

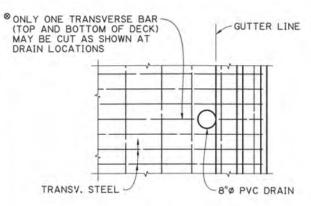


SEGMENTED DECK PLACEMENT SEQUENCE

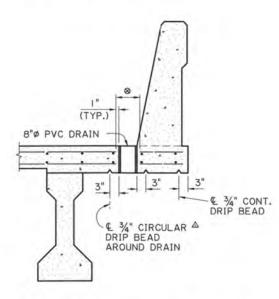


DECK PLACEMENT © LINK SLAB INDEX, CROWN, FORMWORK MISC.

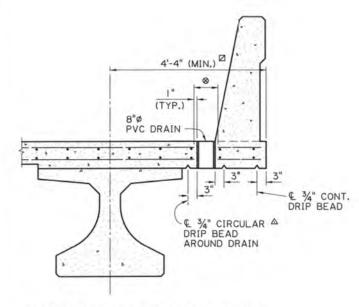
BRIDGE AND STRUCTURAL DESIGN



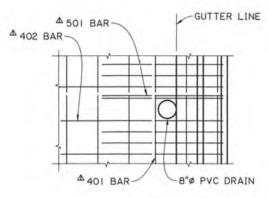
PLAN AT DECK DRAIN (GIRDER BRIDGE)



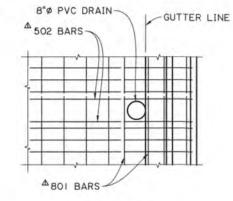
SECTION AT DECK DRAIN - AASHTO GIRDER



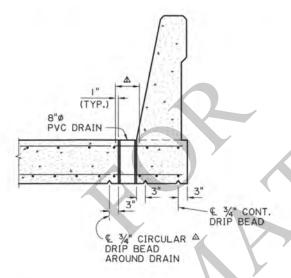
SECTION AT DECK DRAIN - LG GIRDER



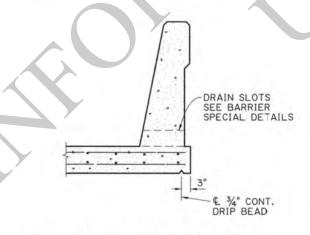
PLAN AT DECK DRAIN (SLAB SPAN - TOP STEEL)



PLAN AT DECK DRAIN (SLAB SPAN - BOTTOM STEEL)



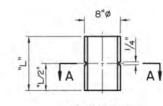
SECTION AT DECK DRAIN - SLAB SPAN (N.T.S.)



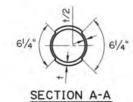
SECTION THRU SLOTTED BARRIER (GIRDER CR SLAB SPAN BRIDGES) (N.T.S.)

NOTES:

- PVC DECK DRAINS REQUIRED IF BRIDGE RAILING SLOT DRAINS ARE NOT USED. SEE PROJECT PLANS FOR SPECIFIED TYPE AND LOCATION OF DECK DRAINAGE DEVICES.
- \triangle 2. A V_2 " EXTENSION OF DECK DRAIN PIPE BELOW THE BOTTOM OF THE DECK MAY BE USED IN LIEU OF CIRCULAR DRIP BEAD.
- FOR DECK OVERHANGS LESS THAN 4'-4" USING LG GIRDERS, SLOTTED BARRIERS OR AN ALTERNATE DECK DRAIN CONFIGURATION MUST BE USED.
- ADJUST SLAB SPAN TOP AND BOTTOM STEEL AS NEEDED (BY SHIFTING OR BUNDLING TO ADJACENT REBAR) TO AVOID DECK DRAINS. MAINTAIN MINIMUM SPECIFIED CONCRETE COVER.
- BRIDGE RAILING SLOT DRAINS WILL BE PAID FOR AS PART OF THE BRIDGE RAILING PAY ITEM. DECK DRAIN PIPES WILL BE PAID FOR AS PART OF THE DECK CONCRETE PAY ITEM.



ELEVATION



DETAIL "A" - PVC DRAIN SHOWING GROOVE DETAILS (N.T.S.)



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A.LANCASTER
K. KEMP
Y. SHEN

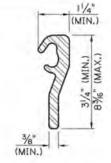
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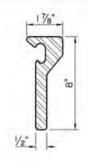


SPAN DETAIL DRAINS DECK

DOTE BRIDGE AND STRUCTURAL DESIGN

I" (MIN.) 11/2" (MAX.)





(CURB USE ONLY)

SECTION A-A

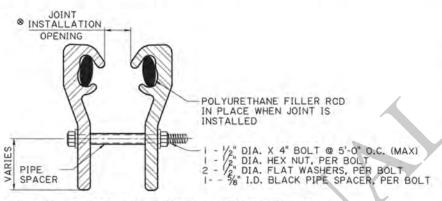
TYPICAL STEEL EXTRUSIONS (END DAMS)



TYPICAL NEOPRENE SEALS

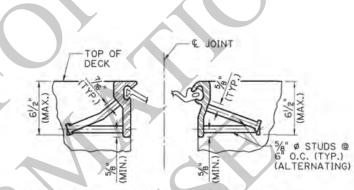
END DAM INSTALLATION PROCEDURE:

- PLACE END DAM ASSEMBLY AS A UNIT WITH PIPE SPACERS AND BOLTS IN PLACE. ADJUST ASSEMBLY TO CORRECT VERTICAL POSITION AND INSTALLATION OPENING. TIGHTEN
- ONE SIDE INTO PLACE USING ANCHOR BOLTS IN GIRDERS, HAND TIGHTEN OPPOSITE SIDE.
- TIGHTEN OPPOSITE SIDE JUST PRIOR TO DECK PLACEMENT.
- - CUT/REMOVE PIPE SPACER AND BOLT AS SOON AS CONCRETE WILL SUPPORT LOAD WITHOUT OVERSTRESSING OR DAMAGING CONCRETE, BUT NO LONGER THAN 8 HOURS AFTER DECK
- REPAIR DAMAGE TO EXPOSED GALVANIZATION.

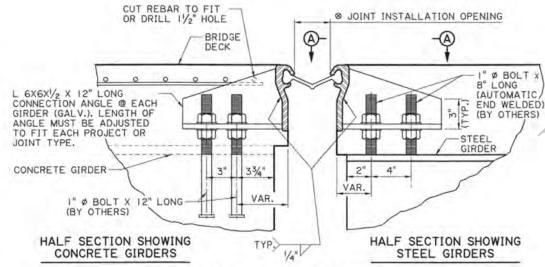


END DAM SHIPPING AND INSTALLATION ASSEMBLY

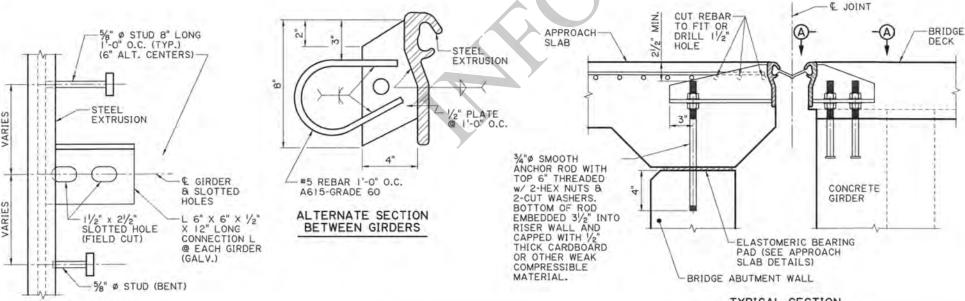
(ANCHOR ANGLES AND ANCHOR STUDS NOT SHOWN)



TYPICAL HALF-SECTIONS BETWEEN GIRDERS



TYPICAL SECTION AT GIRDERS



TYPICAL SECTION AT BRIDGE END (@ GIRDERS)

NOTES:

- JOINT FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 815.
- PROVIDE HOT-DIPPED GALVANIZED ANCHOR RODS AND ANCHOR BOLTS IN COMFORMANCE WITH SECTION 807.
- THE MANUFACTURER'S RECOMMENDED CONSTRUCTION METHODS SHALL BE FOLLOWED.
- THE NEOPRENE SEAL MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INITAL SEAL INSTALLATION(S) UNTIL SUCH TIME AS THE PROJECT ENGINEER IS SATISFIED WITH SEAL INSTALLATION, AFTER INITIAL INSTALLATION, PROVIDE SEAL MANUFACTURER'S REPRESENTATIVE AS NEEDED UPON PROJECT ENGINEER'S REQUEST.
- SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH SECTION 801.
- SHIP END DAMS IN ACCORDANCE WITH THESE DETAILS.
- PLACE POLYURETHANE FILLER ROD IN EXTRUSION CAVITY PRIOR TO SHIPMENT. REMOVE FILLER ROD ONLY WHEN NEOPRENE SEAL IS INSTALLED.
- FOR WELDS, CONFORM TO SECTION 809.
- JOINTS UP TO FIFTY-FOUR (54) FEET IN LENGTH SHALL BE DELIVERED TO THE JOB SITE IN ONE PIECE. JOINTS OVER FIFTY-FOUR (54) FEET IN LENGTH MAY HAVE PROVISIONS FOR A FIELD SPLICE IN THE END DAM EXTRUSION, PROVIDED THE SPLICE IS PERFORMED IN SHOP-LIKE CONDITIONS IN THE PRESENCE OF THE DOTD FABRICATION INSPECTOR.
- 10. WELDED SPLICES IN END DAM EXTRUSIONS SHALL BE SHOP SPLICES. EXTRUSION SECTIONS BETWEEN WELDED SHOP SPLICES SHALL NOT BE LESS THAN 15 FEET IN LENGTH, EXCEPT THAT ONE SECTION NO LESS THAN 4 FEET IN LENGTH WILL BE ALLOWED IN THE SHOULDER AREA IF REQUIRED TO MATCH ROADWAY CROSS SECTION. SPLICES SHALL BE OUTSIDE OF WHEEL PATHS. SEE WHEEL PATH LOCATIONS DETAIL.

WELDED SPLICES SHALL BE BUTT WELDS. WELD MATERIAL IN THE CAVITY WILL BE CAUSE FOR REJECTION. SHOP WELDED SPLICES ARE ALSC REQUIRED WHERE TWO DIFFERENT SHAPES ARE JOINED AT THE CURB WHERE CURB UNITS ARE TURNED UP. SHOW ALL SHOP AND FIELD SPLICE LOCATIONS IN THE SHOP DRAWINGS. SPLICE LOCATIONS MAY BE DESIGNATED WITH A +/- 6 INCH TOLERANCE.

- BEND STUDS PRIOR TO WELDING, NO BENDING OF STUDS WILL BE ALLOWED AFTER WELDING EXCEPT AS REQUIRED FOR WELDING
- 12. REPAIR DAMAGED GALVANIZED COATS IN ACCORDANCE WITH SECTION B11.
- 13. NEOPRENE SEALS SHALL BE MANUFACTURED AS A CONTINUOUS PIECE WITH ONLY ONE (I) SHOP SPLICE PER JOINT ALLOWED WHEN LENGTH EXCEEDS 50 FEET. SHOW SEAL SPLICE LOCATION ON THE SHOP DRAWINGS. THE NEOPRENE SEAL SHALL CONFORM TO SECTION 1005. WITH THE HARDNESS REQUIREMENT OF ASTM D2628 REVISED TO BE

SEAL SHALL BE BONDED TO EXTRUSION CAVITY WITH A PRE-MIXED ADHESIVE LUBRICATING SOLUTION WHICH SHALL BE USED TO FACILITATE THE SEAL INSTALLATION, THIS ADHESIVE LUBRICANT SHALL BE SELECTED FROM THE DOTD APPROVED MATERIALS LIST. THE LUBRICANT SHOULD FLOW FREELY AND EVENLY COAT THE SEAL AND JOINT FACE. THE LUBRICANT SHALL COMPLETELY COAT THE SEAL AND EXTRUSION CAVITY WHICH REMAINS IN CONTACT.

- 14. SEE PROJECT PLAN JOINT DATA TABLE FOR DESIGN AND INSTALLATION REQUIREMENTS.
 - 15. ANCHOR BOLTS IN GIRDER WILL BE PAID FOR AS PART OF THE GIRDER. ANCHOR RODS IN APPROACH SLAB SUPPORT WALL WILL BE PAID FOR UNDER THE STRUCTURAL METALWORK (ANCHOR BOLTS) PAY ITEM. MEASUREMENT AND PAYMENT OF OTHER END DAM AND SEAL ELEMENTS WILL BE IN ACCORDANCE WITH SECTION 815.
 - 16. JOINTS WILL BE PAID FOR UNDER PAY ITEM SEALED EXPANSION JOINT (END DAMS AND PREFORMED NEOPRENE SEAL).

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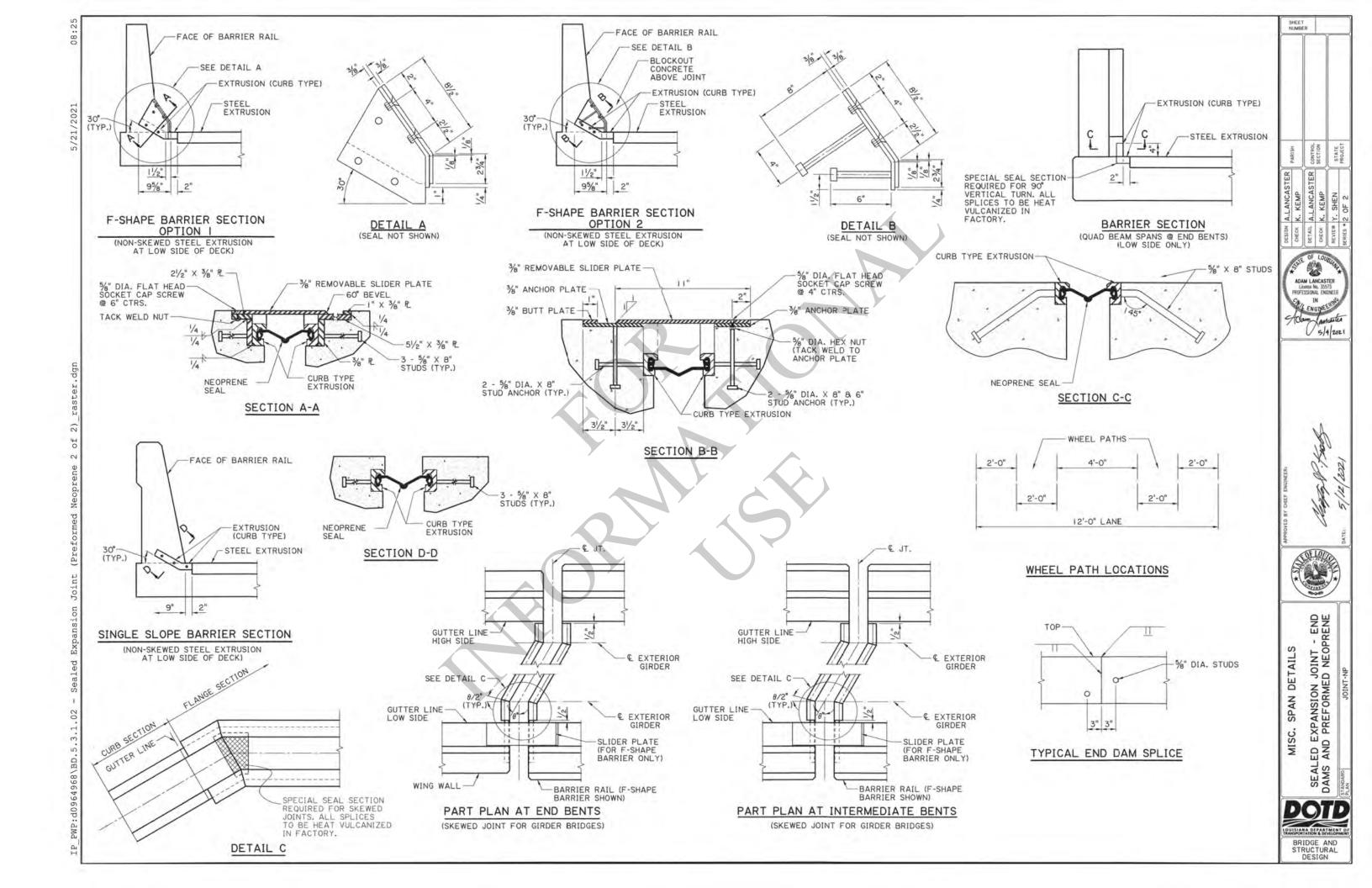


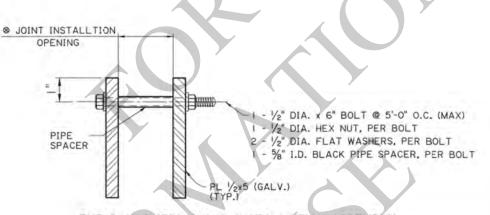


ED EXPANSION JOINT - END AND PREFORMED NEOPRENE DETAIL! SPAN MISC.



BRIDGE AND STRUCTURAL DESIGN





END DAM SHIPPING AND INSTALLATION ASSEMBLY (ANCHOR ANGLES AND ANCHOR STUDS NOT SHOWN)

NOTES:

- JOINT FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH
- 2. PROVIDE HOT-DIPPED GALVANIZED ANCHOR RODS AND ANCHOR BOLTS IN COMFORMANCE WITH SECTION 807.
- THE MANUFACTURER'S RECOMMENDED CONSTRUCTION METHODS SHALL BE
- THE SILICONE SEAL MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INITAL SEAL INSTALLATION(S) UNTIL SUCH TIME AS THE PROJECT ENGINEER IS SATISFIED WITH SEAL INSTALLATION, AFTER INITIAL INSTALLATION, PROVIDE SEAL MANUFACTURER'S REPRESENTATIVE AS NEEDED UPON PROJECT ENGINEER'S REQUEST.
- 5. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH SECTION 801.
- 6. SHIP END DAMS IN ACCORDANCE WITH THESE DETAILS.
- 7. FOR WELDS, CONFORM TO SECTION 809.

MATCH BARRIER

- JOINTS UP TO FIFTY-FOUR (54) FEET IN LENGTH SHALL BE DELIVERED TO THE JOB SITE IN ONE PIECE. JOINTS OVER FIFTY-FOUR (54) FEET IN LENGTH MAY HAVE PROVISIONS FOR A FIELD SPLICE IN THE END DAM, PROVIDED THE SPLICE IS PERFORMED IN SHOP-LIKE CONDITIONS IN THE PRESENCE OF THE DOTD FABRICATION INSPECTOR.
- WELDED SPLICES IN END DAMS SHALL BE SHOP SPLICES. END DAM SECTIONS BETWEEN WELDED SHOP SPLICES SHALL NOT BE LESS THAN 15 FEET IN LENGTH, EXCEPT THAT ONE SECTION NO LESS THAN 4 FEET IN LENGTH WILL BE ALLOWED IN THE SHOULDER AREA IF REQUIRED TO MATCH ROADWAY CROSS SECTION. SPLICES SHALL BE OUTSIDE OF WHEEL PATHS. SEE WHEEL

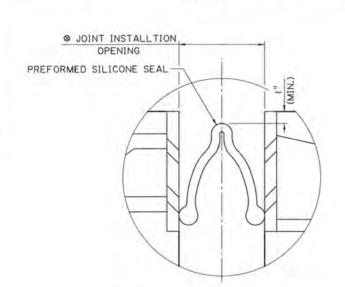
WELDED SPLICES SHALL BE BUTT WELDS. SHOW ALL SHOP AND FIELD SPLICE LOCATIONS IN THE SHOP DRAWINGS. SPLICE LOCATIONS MAY BE DESIGNATED WITH A +/- 6 INCH TOLERANCE.

- 10. BEND STUDS PRIOR TO WELDING. NO BENDING OF STUDS WILL BE ALLOWED AFTER WELDING EXCEPT AS REQUIRED FOR WELDING
- II. REPAIR DAMAGED GALVANIZED COATS IN ACCORDANCE WITH SECTION 811.
- 12. THE SILICONE SEAL AND LOCKING ADHESIVE SHALL CONFORM TO SECTION
- ⊗ 13. SEE PROJECT PLAN JOINT DATA TABLE FOR DESIGN AND INSTALLATION REQUIREMENTS.
 - 14. ANCHOR BOLTS IN GIRDER WILL BE PAID FOR AS PART OF THE GIRDER. ANCHOR RODS IN APPROACH SLAB SUPPORT WALL WILL BE PAID FOR UNDER THE STRUCTURAL METALWORK (ANCHOR BOLTS) PAY ITEM. MEASUREMENT AND PAYMENT OF OTHER END DAM AND SILICONE SEAL ELEMENTS WILL BE IN ACCORDANCE WITH SECTION 815.
 - 15. JOINTS SHALL BE PAID FOR UNDER PAY ITEM SEALED EXPANSION JOINT (END DAMS AND PREFORMED SILICONE SEAL).

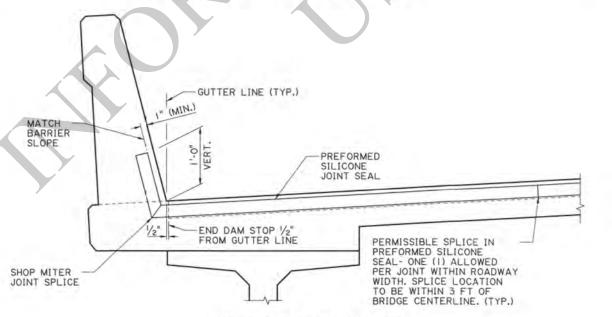
PART SECTION PART SECTION BETWEEN STEEL GIRDERS AT & OF STEEL GIRDER PREFORMED SILICONE SEAL DETAIL (STEEL GIRDERS)

4"

VAR.



(SILICONE SEAL INSTALLATION RECESS)



36" SINGLE SLOPE BARRIER

TOP SLOPE END DAM STOP 1/2 FROM GUTTER LINE SHOP MITER JOINT SPLICE

(MIN.)

-GUTTER LINE (TYP.)

F-SHAPE BARRIER

SILICONE SEAL AT GUTTER LINES

(HIGH SIDE AND LOW SIDE)

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LANCASTER
KEMP
KEMP
SHEN
OF 2

ADAM LANCASTER

IN ENGINEER IN

1 5/4/202



ED EXPANSION JOINT - END AND PREFORMED SILICONE DETAIL SPAN MISC.

DOTE

STRUCTURAL DESIGN

ANCHOR STUDS (ALTERNATE BENT AND STRAIGHT)

PL 1/2×5

END DAMS

GUTTER LINE

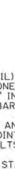
& JOINT-

& GIRDER

PARTIAL PLAN OF JOINT

(SHOWING TYPICAL END DAM FOR SKEWED JOINT)

PARTIAL PLAN OF JOINT



LAST STUD AT END OF END DAM TO

BE BENT AS

REQUIRED

GUTTER

LINE (TYP.)

GUTTER LINE

GUTTER LINE-

HIGH SIDE

SEE DETAIL A-

(TYP.)

ANCHOR

ANGLE

1/2"

 ONE END DAM STABILIZER (SEE END DAM STABILIZER DETAIL) IS REQUIRED IN EACH END DIAPHRAGM, EQUALLY SPACED BETWEEN GIRDERS, ON ONE SIDE OF THE JOINT ONLY. FOR CONCRETE GIRDER BRIDGE, CAST NO. 5 BARS "B" IN END DIAPHRAGM CONCRETE. FOR STEEL GIRDER BRIDGE, TACK WELD NO. 5 BARS "B" TO TOP MEMBER OF CROSS DIAPHRAGMS.

SPECIAL SEAL SECTION REQUIRED FOR SKEWED

TO BE HEAT VULCANIZED

JOINTS, ALL SPLICES

IN FACTORY.

PLACE END DAM ASSEMBLY AS A UNIT, WITH PIPE SPACERS AND BOLTS IN PLACE. ADJUST ASSEMBLY TO CORRECT VERTICAL POSITION AND JOINT INSTALLATION OPENING, TIGHTEN ONE SIDE INTO PLACE USING ANCHOR BOLTS IN GIRDERS. HAND TIGHTEN OPPOSITE SIDE.

LOOSELY TIE NO. 5 BARS "A" TO NO. 5 BARS "B" (END DAM STABILIZER). TACK WELD NO. 5 BARS "A" TO END DAM PLATE. WELD NO. 5 BARS "A" TO NO. 5 BARS "B".

END DAM INSTALLATION PROCEDURE:

DETAIL A

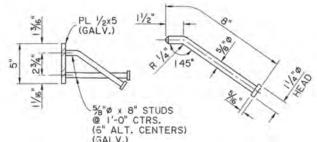
TIGHTEN OPPOSITE SIDE OF END DAM ASSEMBLY ANCHORS JUST PRIOR TO DECK

CAST DECK

CUT/REMOVE PIPE SPACER AND BOLT AS SOON AS CONCRETE WILL SUPPORT LOAD WITHOUT OVERSTRESSING OR DAMAGING CONCRETE, BUT NO LONGER THAN 8 HOURS

IO. REPAIR ANY DAMAGE TO EXPOSED GALVANIZATION.

* FOR APPROACH SLAB END DAMS

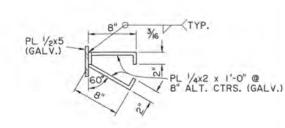


ANCHOR STUD

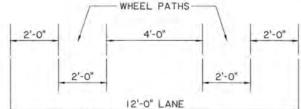
ANCHOR STUDS SHALL BE % % \times 8" AUTOMATIC END WELDED TYPE. ALL BENDS ARE TO BE MADE PRIOR TO WELDING AND

EXTERIOR

GIRDER

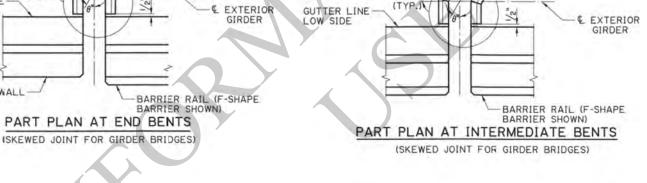


ANCHOR STRAP ALTERNATE (N.T.S.)



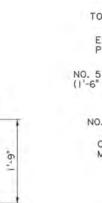
DIMENSIONS SHOWN ARE NORMAL TO DIRECTION OF

PL 1/2x5 TO HAVE A UNIVERSAL MILL FACE FINISH ON TOP, OR TOP EDGE IS TO BE FINISHED SMOOTH IF CUT TO MATCH CROWN OF ROADWAY. (N.T.S.)



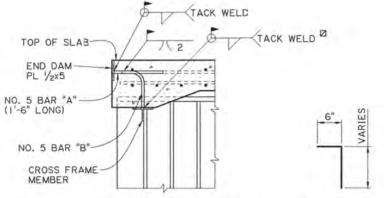
HIGH SIDE

SEE DETAIL



(N.T.S.)

NOT REMOVE COATING WITHIN 2 INCHES OF EDGE OF CROSS FRAME MEMBER FLANGE.



END DAM STABILIZER (PARTIAL SECTION BETWEEN STEEL GIRDERS)

FOR WELDING BAR "B" TO CROSS FRAME MEMBER, REMOVE CROSS FRAME MEMBER PROTECTIVE COATING SUFFICIENTLY TO PERMIT WELDING. DO



SECTION

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Y. SHEN

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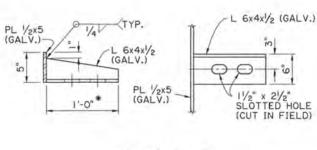
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MISC. SEALE



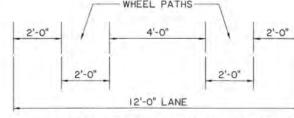


ANCHOR ANGLE (N.T.S.)

IN A 6" SACRIFICIAL SECTION, USE L 6x4x/2 x 1'-3"

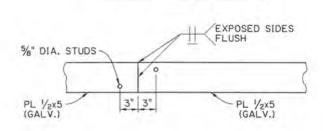
€ EXTERIOR GIRDER

(N.T.S.)



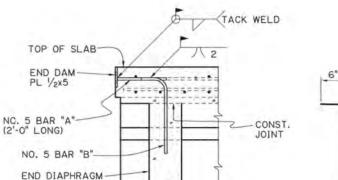
TRAFFIC.

WHEEL PATH LOCATIONS



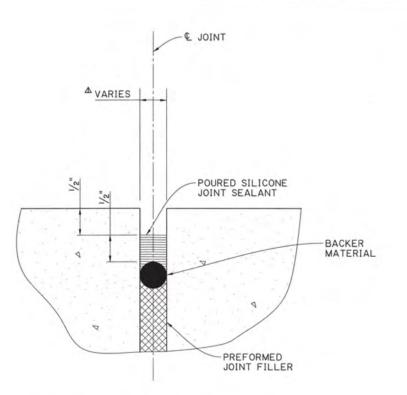
PERMISSIBLE END DAM SPLICE

NO. 5 BAR "B"



END DAM STABILIZER (PARTIAL SECTION BETWEEN PPC GIRDERS) (N.T.S.)

NO. 5 BAR "B" (21/2" Ø PIN)



POURED SILICONE JOINT - SECTION (N.T.S.)

NOTES:

1. JOINT FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 815.
2. THE MANUFACTURER'S RECOMMENDED CONSTRUCTION METHODS SHALL BE FOLLOWED.
3. PREFORMED JOINT FILLER SHALL CONFORM TO SECTION 1005.
4. POURED SILICONE JOINT SEALANT AND BACKER MATERIAL SHALL CONFORM TO SECTION 1005. THE BACKER MATERIAL SHALL BE COMPRESSED TO 80% OR LESS OF ITS ORIGINAL DIAMETER FOR INSTALLATION.

INSTALLATION.

5. SEE THE JOINT DATA TABLE IN PLANS FOR DESIGN AND INSTALLATION REQUIREMENTS.

4 6. JOINT WILL BE PAID FOR UNDER PAY ITEM JOINT SEAL (POURED).

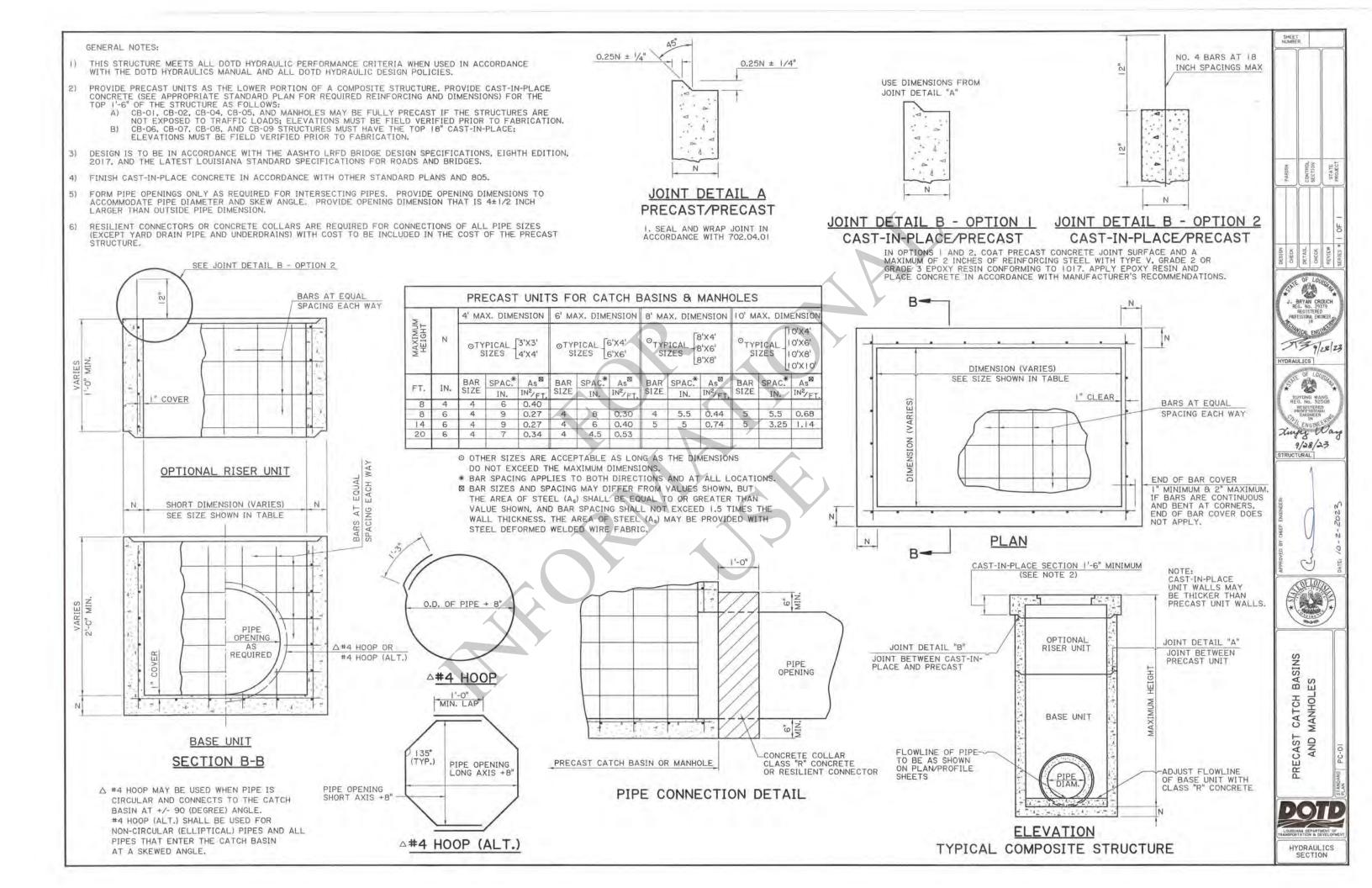


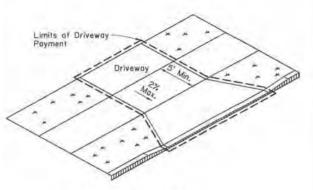




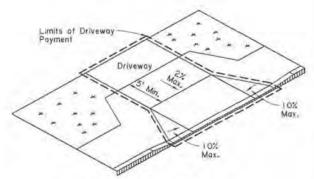
SILICONE JOINT SPAN DETAILS POURED MISC.

BRIDGE AND STRUCTURAL DESIGN

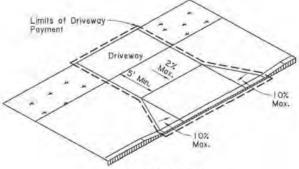




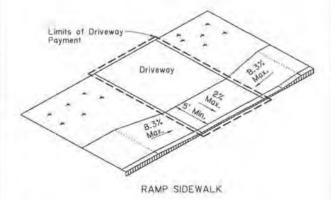
SETBACK SIDEWALK



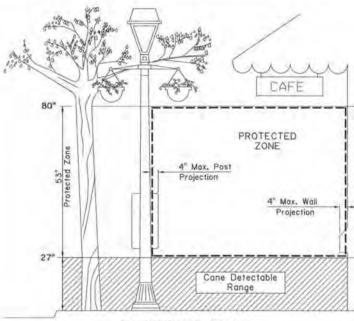
APRON OFFSET SIDEWALK



WIDE SIDEWALK



SIDEWALK TREATMENT AT DRIVEWAYS
Refer to Driveway Standard Plans for further details.



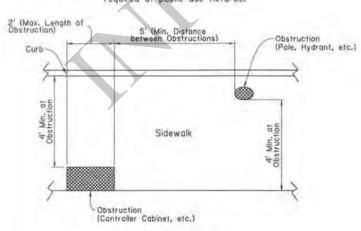
PROTECTED ZONE

Notes:

- In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27" and 80" above the surface.
- When an obstruction of a height greater than 27" from the surface would create a protrusion of more than 4" into the pedestrian circulation area, construct additional curb or foundation at the bottom to provide a maximum 4" overhang.
- Protruding objects of a height less than 27" are detectable by cone and do not require additional treatment.



CLEAR GROUND SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON Minimum 4' x 4' clear space required at public use fixtures.



PLAN VIEW
PLACEMENT OF OBSTRUCTIONS
Items not intended for public use.

PEDESTRIAN FACILITIES GENERAL NOTES

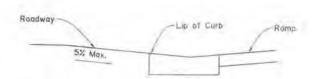
Curb Ramps

- 1. Maximum allowable cross slope of curb ramp surfaces is 2%; desired cross slope is 1.5%.
- Theoretical pay areas for curb ramps are as shown on sheet 2, unless otherwise noted in the plans. These areas may be field adjusted as approved by the Project Engineer.
- 3. Grade breaks at the top and bottom of curb ramps runs shall be perpendicular to the direction of the ramp run.
- 4. Where curb ramps are located adjacent to a walking surface, a flare must be provided; otherwise a curb may be provided. For an example, refer to curb ramp Type 2 on sheet 2.
- The landing dimensions are 5'x5' with a maximum 2% slope in any direction. The landing clear width shall be at least as wide as the widest ramp run leading to the landing.
- Small raised channelization islands, which cannot provide a minimum of 5'x5' landing at the top of ramps, shall be cut through level with the surface of the street.
- Raised medians should be 6' wide in the direction of pedestrian travel to serve as a pedestrian retuge area.
 Medians with pedestrian access routes through them shall be designed in accordance with Draft PROWAG.
- 8. Maneuvering space at the bottom of curb romps shall be a minimum of 4'x4' completely contained within the crosswalk and completely outside the parallel vehicle travel lane.
- 9. It is desirable to provide a no-parking zone 50' from crosswalks on each intersection approach or provide a ourb extension.
- 10. Drainage structures should be located on the upstream side of the ramp and located to prevent ponding near the curb ramp. Drainage structures should be placed outside the crosswalk.
- 11. Slopes of adjoining gutters and roadway surfaces immediately adjacent to the curb ramp shall not exceed 5%. Refer to the Transition from the Curb Ramp to Roadway Detail on sheet 1.
- Curb ramps should be aligned with the direction of pedestrian travel on the crosswalk or theoretical crosswalk. Refer to sheet 3 for typical crossing layouts and refer to the povernent marking standards for crosswalk markings.
- 13. Crosswalk markings shall be placed a distance of 24" from the flare on each side of a diagonal curb ramp, Refer to sheet 3 for an example.
- 14. Curb ramps shall include detectable warning surfaces. Refer to sheet 4 for details at detectable warning surfaces.
- 5. Where a curb ramp is constructed within existing curb, curb and gutter and/or sidewalk, the existing curb or curb and gutter shall be removed to the nearest joint beyond the curb transition or the extent that no remaining section of curb or curb and gutter is less than 5' long or as directed by the Project Engineer. Existing sidewalks shall be removed to the nearest joint beyond the flare slope or to the extent that no remaining section of sidewalk is less than 5' long or as directed by the Project Engineer.

Sidewalks

- . Where a 5' sidewalk cannot be provided due to site constraints, 5'x5' passing areas at intervals not to exceed 200' are required.
- 2. Where sidewalks and crosswalks are contained within street or highway right-of-way, the grade of the sidewalk or crosswalk shall not exceed the grade of the adjacent street or highway. Where sidewalks are not contained within a street or highway right-of-way, the grade of the sidewalk shall be 5% maximum.
- Maximum allowable cross slope of sidewalk surfaces is 2%; desired cross slope is 1.5%.
- Vertical surface discontinuities along a sidewalk shall be 1/2" maximum. Discontinuities between 1/4" and 1/2" shall be beveled at a 1:2 maximum slope.
- Where sidewalks intersect with streets, detectable warning surfaces are required. Refer to sheet 4 for details of detectable warning surfaces.
- Traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items shall be placed so as not to obstruct the accessible route,
- When a sidewalk crosses a driveway and exceeds the 2% maximum cross slope, the driveway or driveway portion shall be reconstructed to meet the 2% maximum cross slope requirement. Refer to driveway standard plans for driveway details.
- Handroils are not required on sidewalks within highway right-of-way, unless site specific conditions, such as a vertical drop-off, dictate. Where handrails are provided, they must complay with ADAAG 505.
- To prevent tracking of gravel onto the sidewalk, gravel driveways should be paved from the roadway edge to a point 10' behind the sidewalk or the right-of-way, whichever is less,

ADA - Americans with Disabilities Act
ADAAG - Americans with Disabilities Act Accessibility Guidelines
Draft PROWAG - Draft Public Rights-of-Way Accessibility Guidelines



TRANSITION FROM CURB RAMP TO ROADWAY

| OPECIN | BPW | RAUSH | SEPTION | S

MELISSA LEBAS
LEMIN M. 59111
PROFESSIONAL HERIES

LEMIN M. 59111
PROFESSIONAL HERIES

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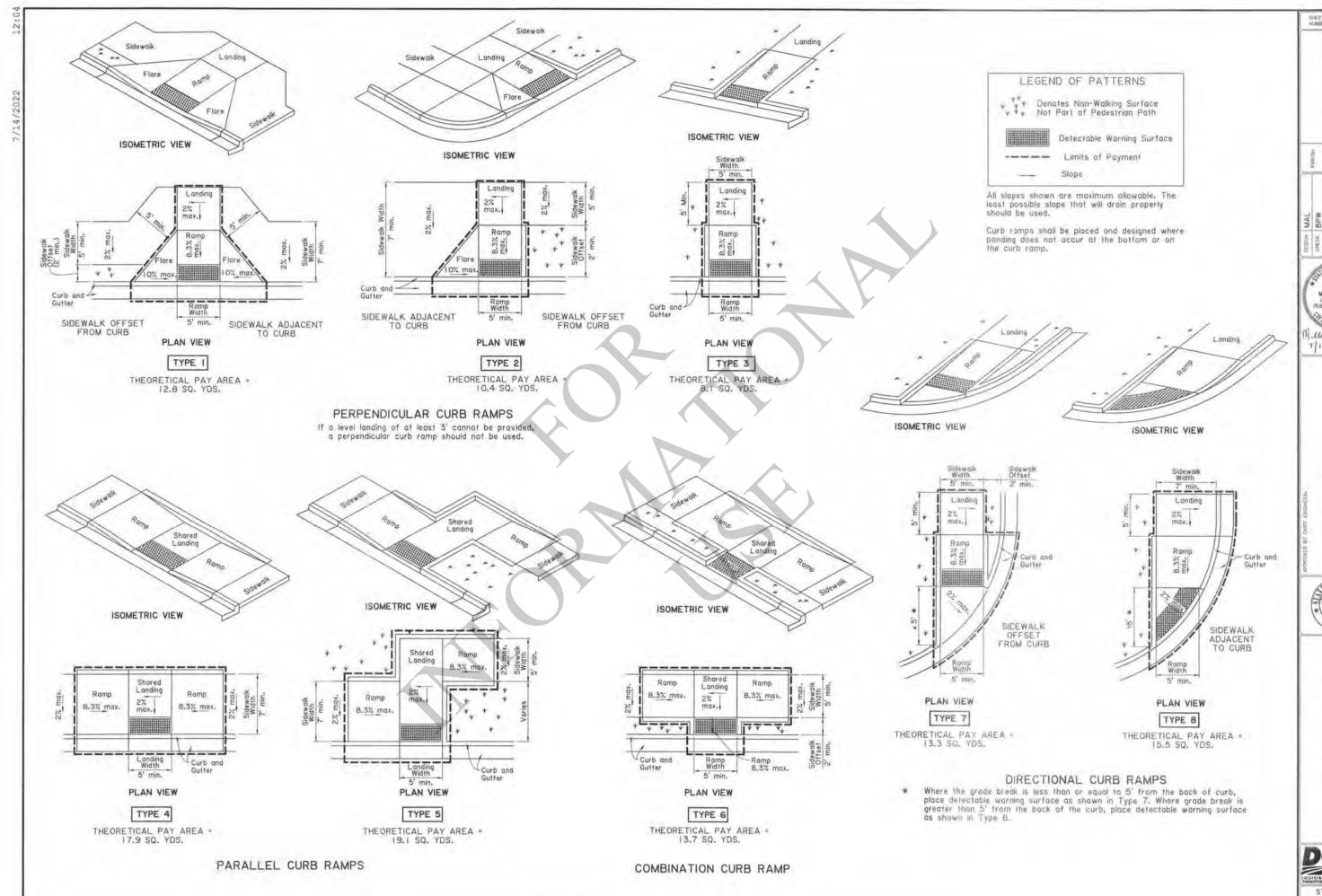
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PEDESTRIAN FACILITIES NERAL NOTES AND MISC. DETAILS





| MAL | PARISA | MAL | SCOTTEGA | BPW | STATE | 2 OF 5 | PPOJECT

MELISSA LEBAS LIMINA NO. 35111 PROFESSIONAL PRINCIPS IN IN

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PEDESTRIAN FACILITIES
CURB RAMPS AND DETECTABLE
WARNING LOCATION
PED-OI

DOTD

RAISED ISLAND

DETAIL F: SIDEWALKS AND CURB RAMPS AT ISLANDS

CUT-THROUGH ISLAND

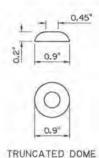
DETAIL G: SIDEWALKS AND CURB RAMPS AT MEDIANS

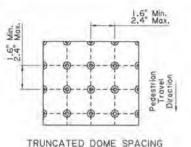
7/14/2022

PEDESTRIAN FACILITIES
TYPICAL CROSSING LAYOUTS

DOTD

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE



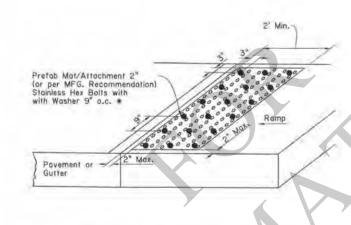


Notes:

Domes shall be arranged in a square in-line pattern or radial pattern

Color Fostness: Paver's composite coloring and ultra-violet stabilization must be homogeneous through the producted.

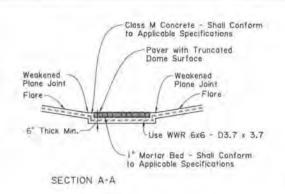
TRUNCATED DOME DETAILS

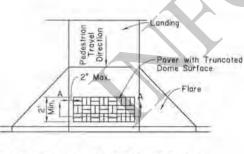


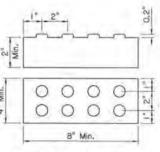
Note: Retrofit application placed on top of existing ramp with drilled and epoxied boilts.

Epoxy full surface area per manufacturer's recommendation.

PREFABRICATED MAT OPTION (INLAID)







TRUNCATED DOME PATTERN CURB RAMP

PAVER WITH TRUNCATED DOME SURFACE

Notes: Paver units shall meet all requirements of the applicable ASTM Standards. Layout pattern shall be appropriate for size of paver used. 4"x8" pavers shall be laid out in a 2x2 basket weave pattern. 12"x12" pavers shall be laid out in a block pattern.

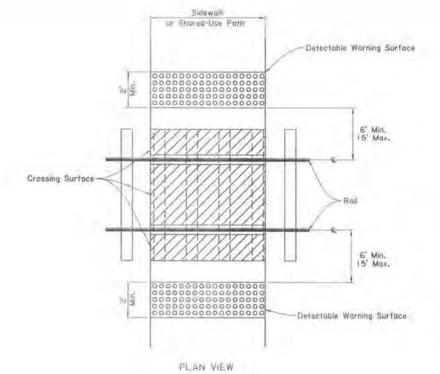
Pover units shall be saw cut only and any cut unit shall not be less than 25% of a full unit

installation should meet compliance with Draft PROWAG R302.7.2 (Vertical Surface Discontinuities). Vertical surface discontinuities shall be 1/2" maximum. Discontinuities between 1/4" and 1/2" shall be beveled at a 1:2 maximum slope.

DETECTABLE WARNING SURFACE PAVER OPTION

GENERAL NOTES:

- For ADA compliance, detectable warning surfaces must be provided on all pedestrian curb ramps, medians and pedestrian refuge islands (width 6' or greater), railroad crossings and at-grade sidewalk and shared-use paths intersecting with raadways.
- Curb ramps must contain a detectable warning surface that consists of raised truncated domes
 complying with ADA guidelines. The surface must contast visually with adjoining surfaces, including
 side flares, in accordance with Section 706 of the Standard Specifications. Color for detectable
 warning surface shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light.
- 3. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
- Truncated domes should be aligned perpendicular or radial to the grade break between the curb ramp or at-grade sidewalk and the street.
- Detectable warning surfaces shall be a minimum of 24" in depth in direction of pedestrian travel and extend the full width of the ramp run or landing where the pedestrian access route enters the street. Some detectable warning products may require a concrete border. The concrete border should not exceed 2".
- 6. Detectable warning surfaces shall be placed at the back of curb or no greater than 5' from the back of curb. Detectable warning surfaces may be curved along the corner radius. Refer to sheet 2 for typical placement of detectable warning surfaces on curb ramp types.
- 7. Detectable warning surfaces may be stamped, constructed of brick pavers or initial prefabricated mats affached by epoxy adhesive and mechanical attachment. Other detectable warning installations may be installed with approval from the Project Engineer, provided that the detectable warning surface meets ADA guidelines. No painted surfaces will be allowed.
- B. Any retrofit application of detectable warning surfaces must have beveled edges. The beveled edge shall not exceed a slope greater than 1:2.



LOCATION OF DETECTABLE WARNING SURFACES AT RAILROAD CROSSINGS

Note: Rows at truncated domes should be aligned parallel with the direction of wheelchale travel.

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CHECK BPW
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LIN LENGTHS

1/11/2022

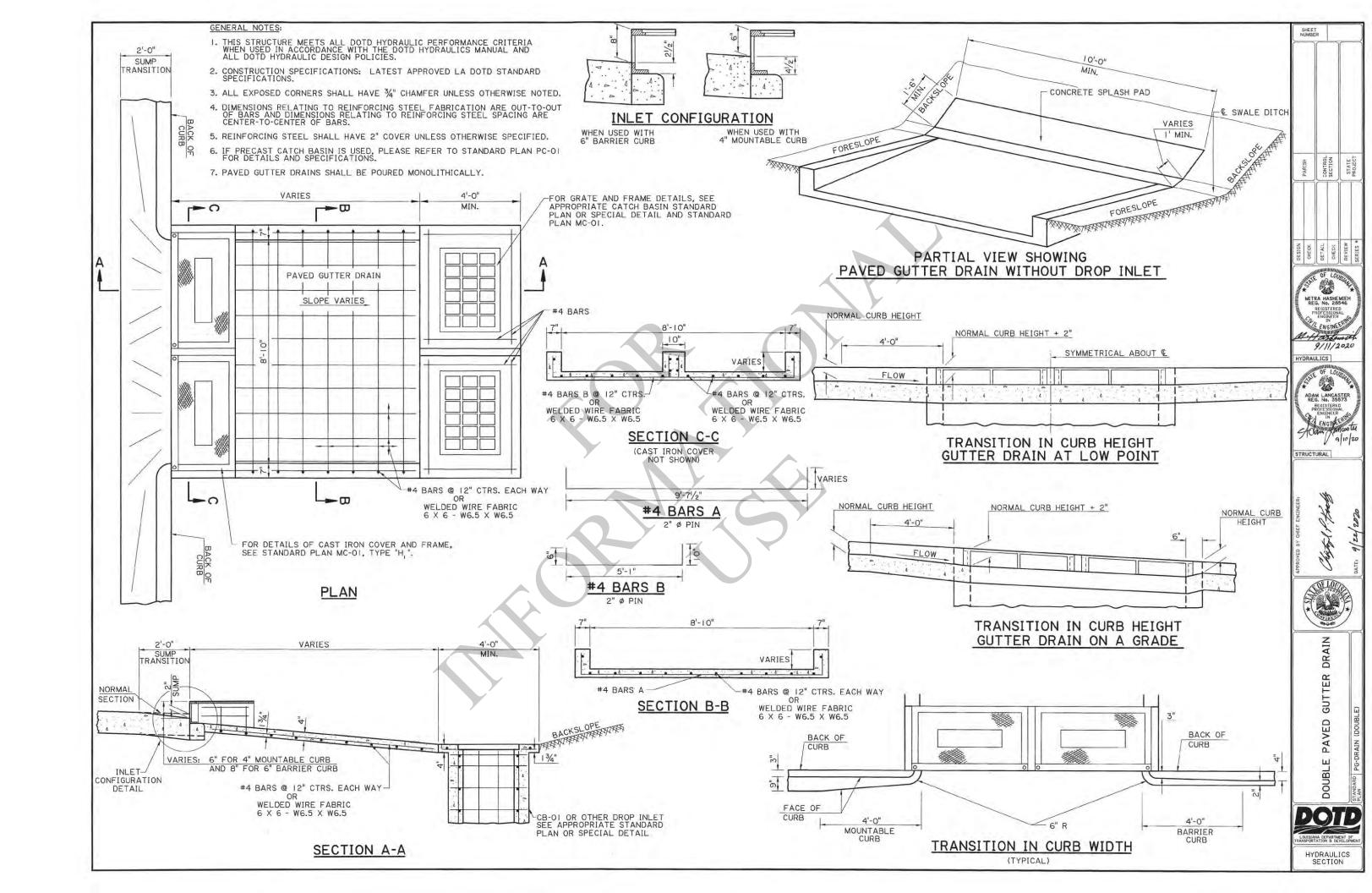
7/14/2022

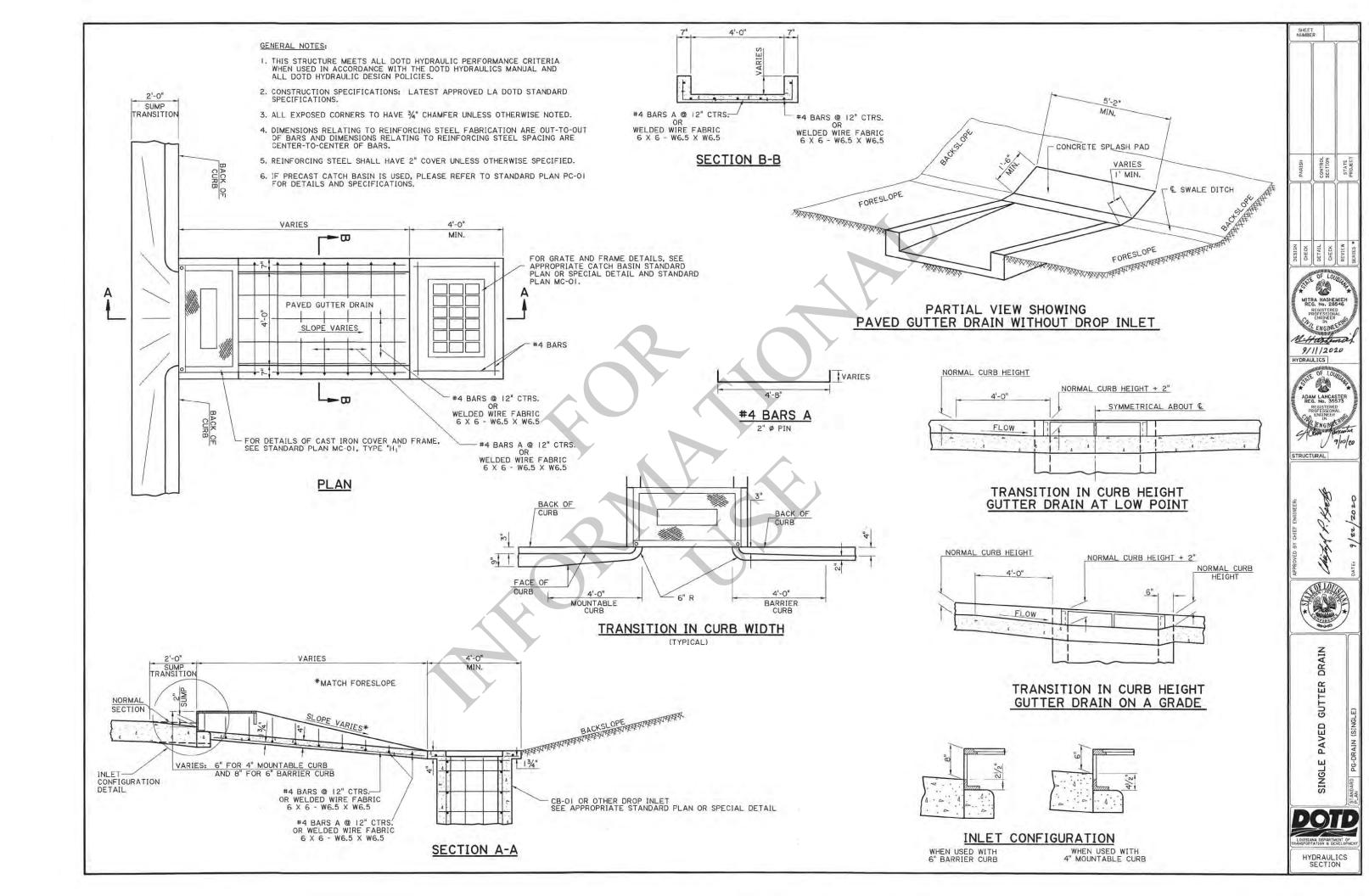
1/21/2022

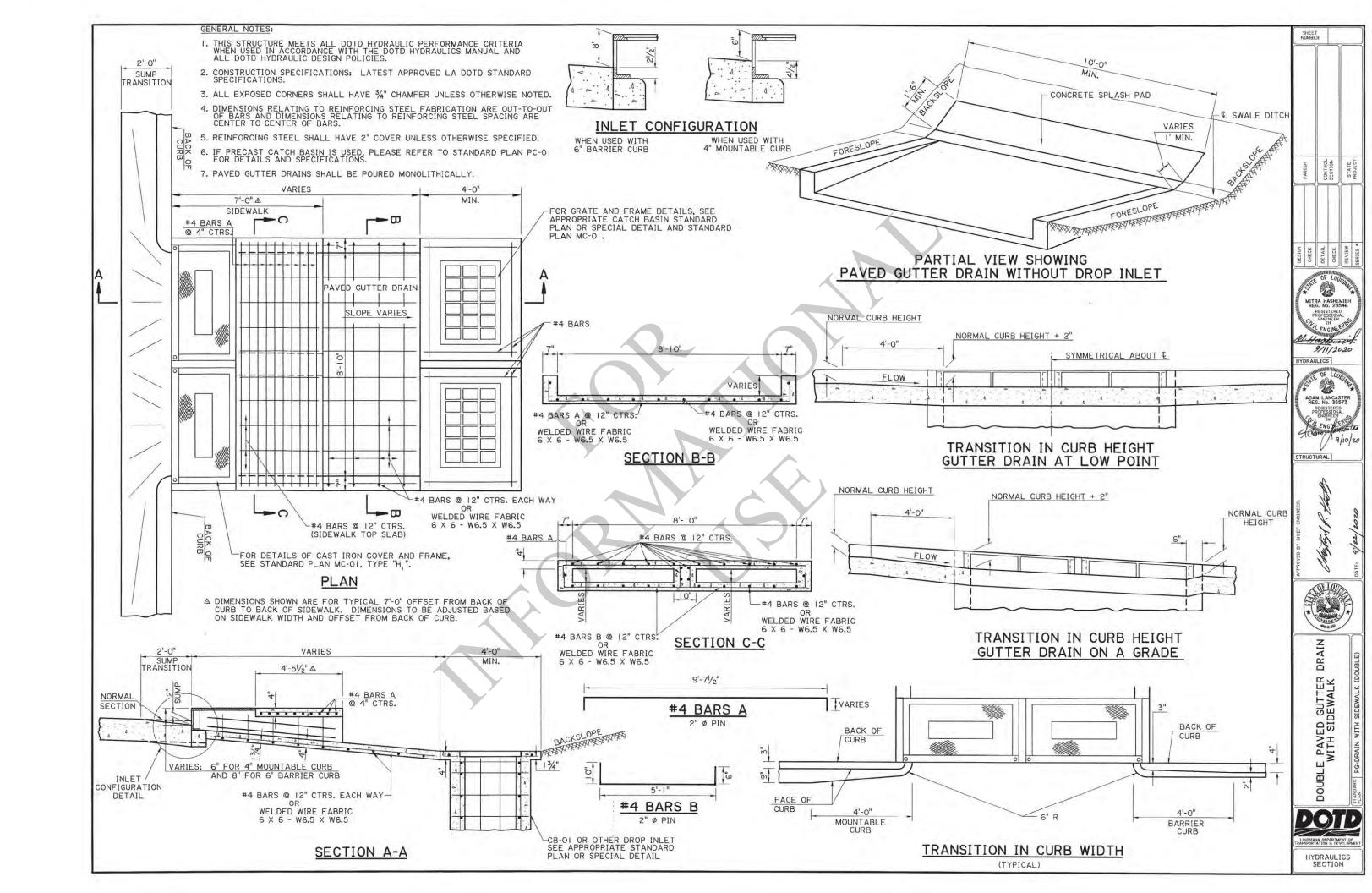
PEDESTRIAN FACILITIES

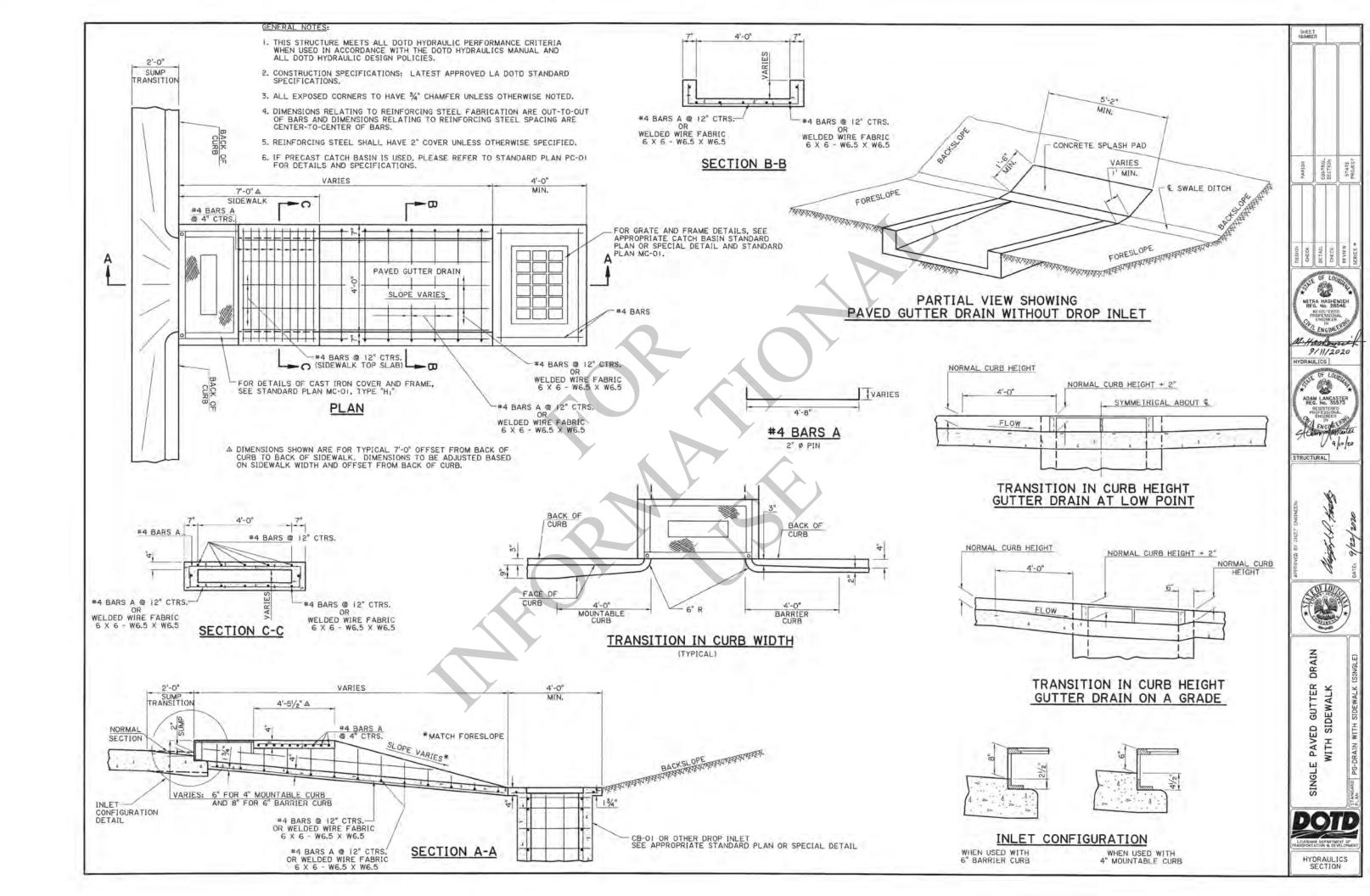


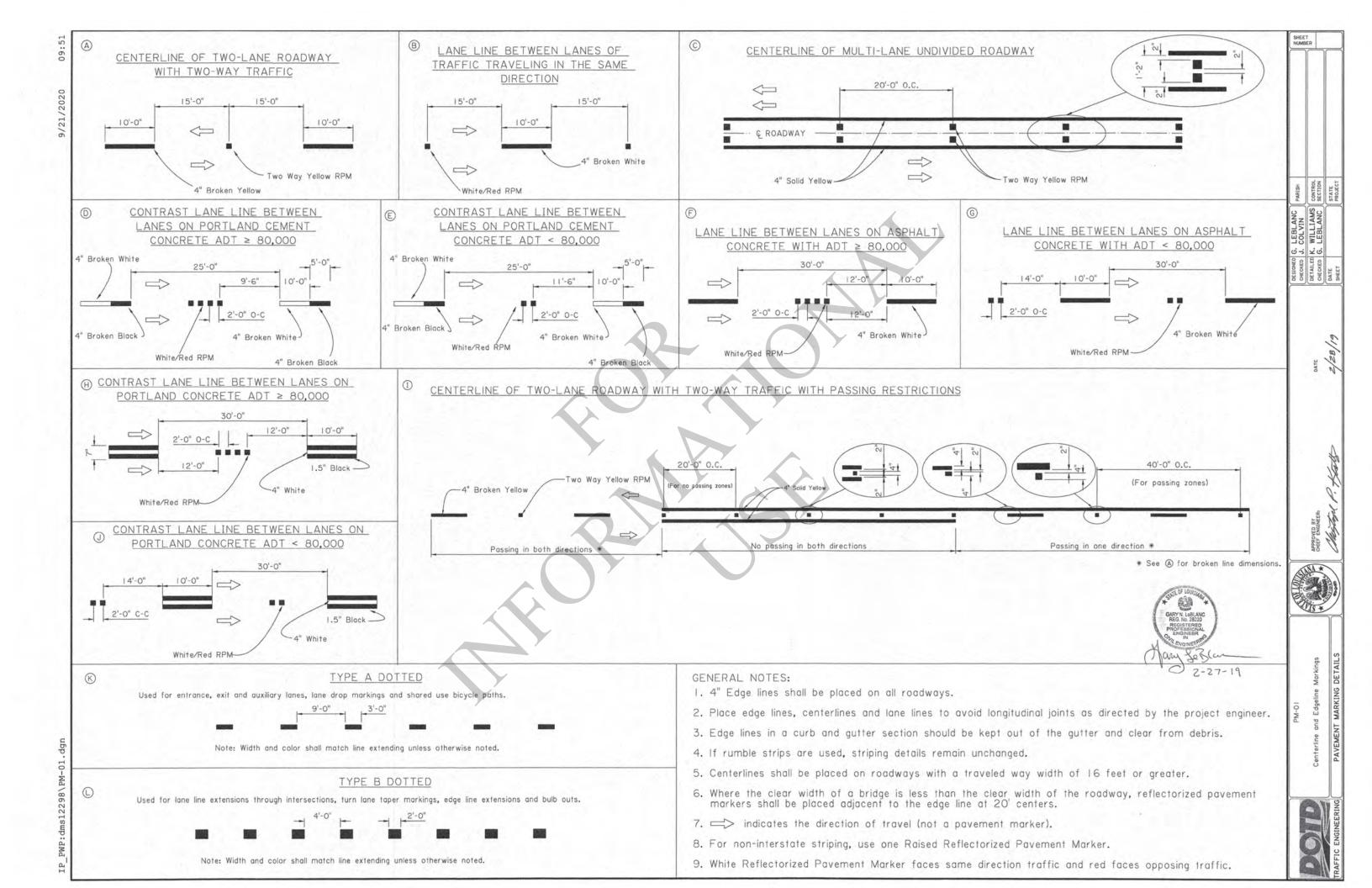
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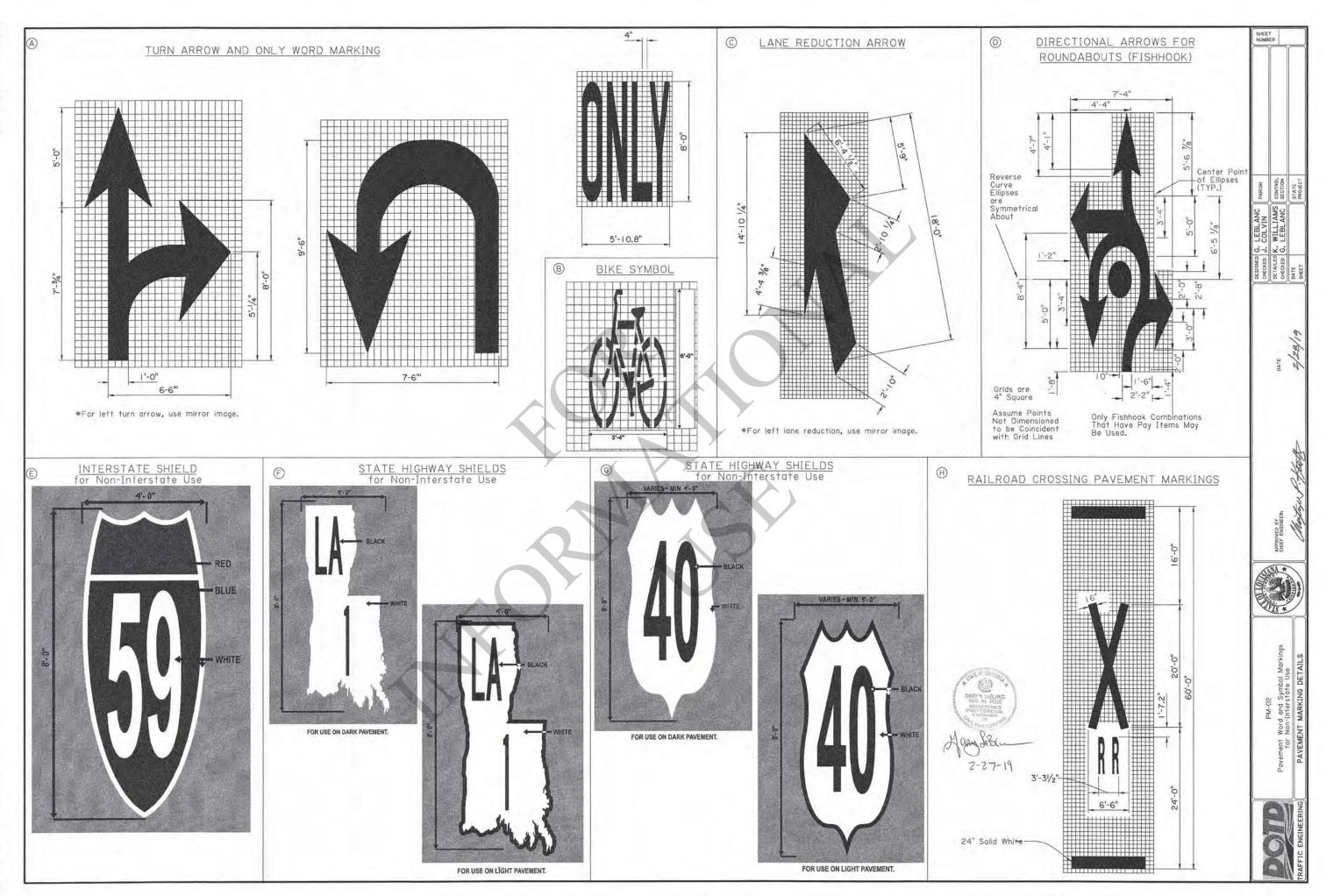


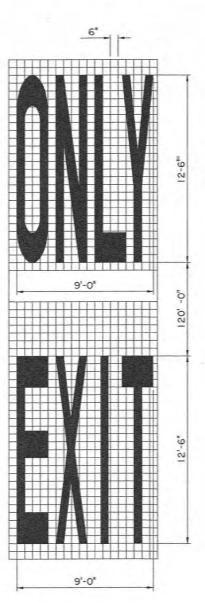




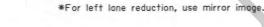


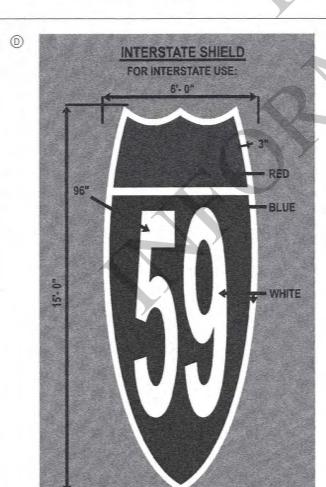


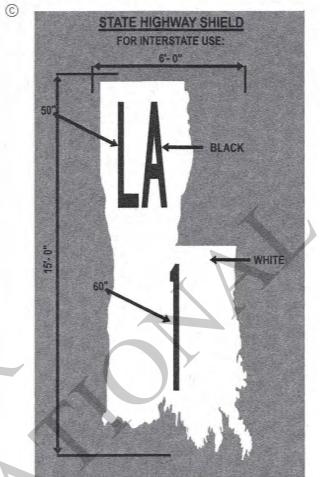


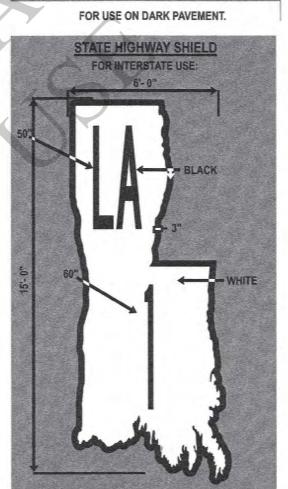


LANE REDUCTION ARROW

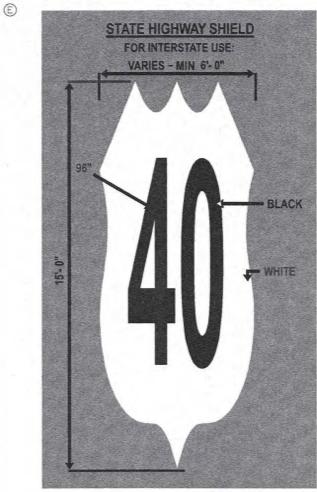




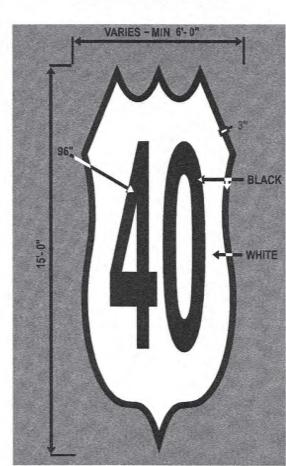




FOR USE ON LIGHT PAVEMENT.



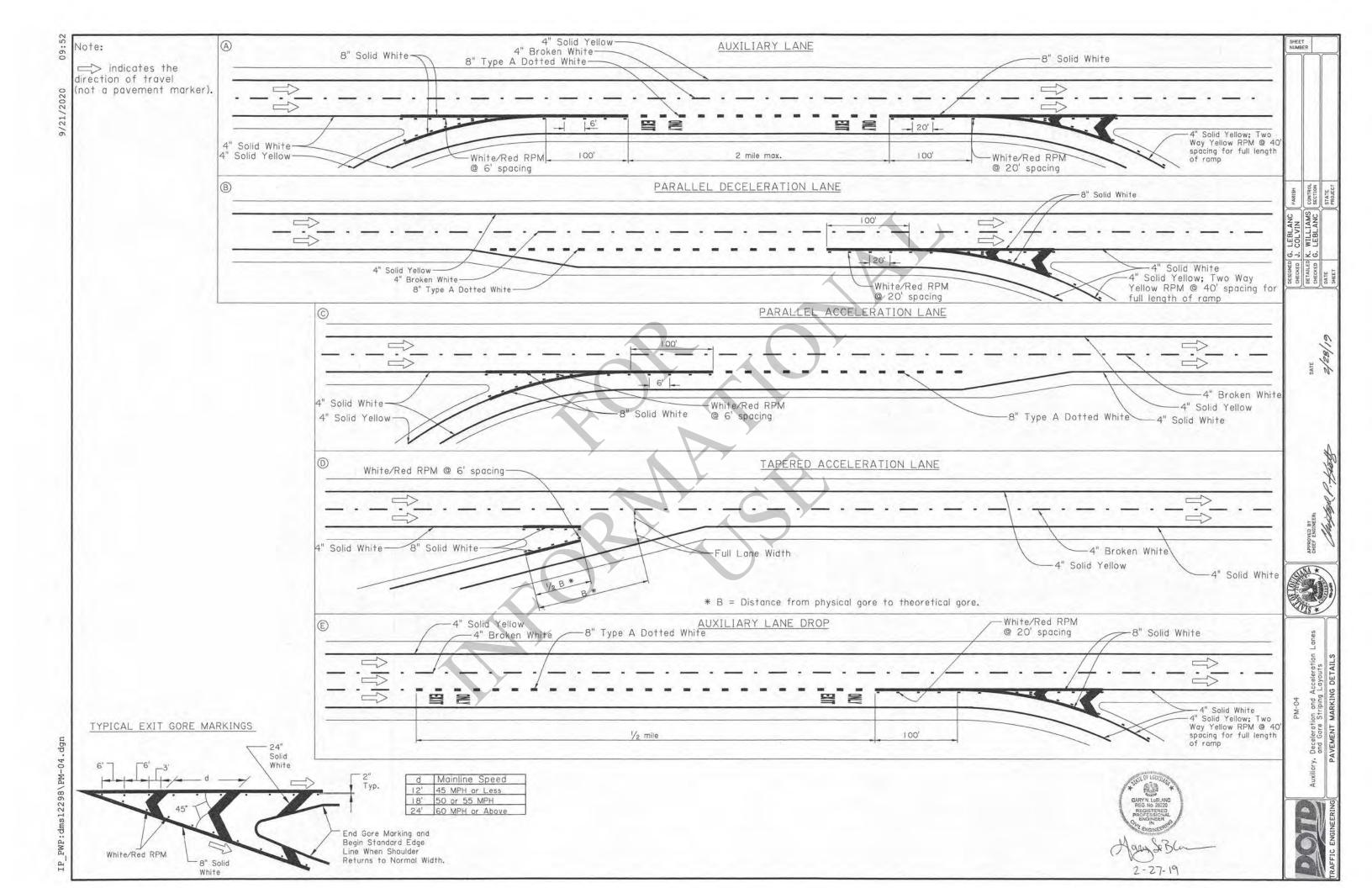
FOR USE ON DARK PAVEMENT.

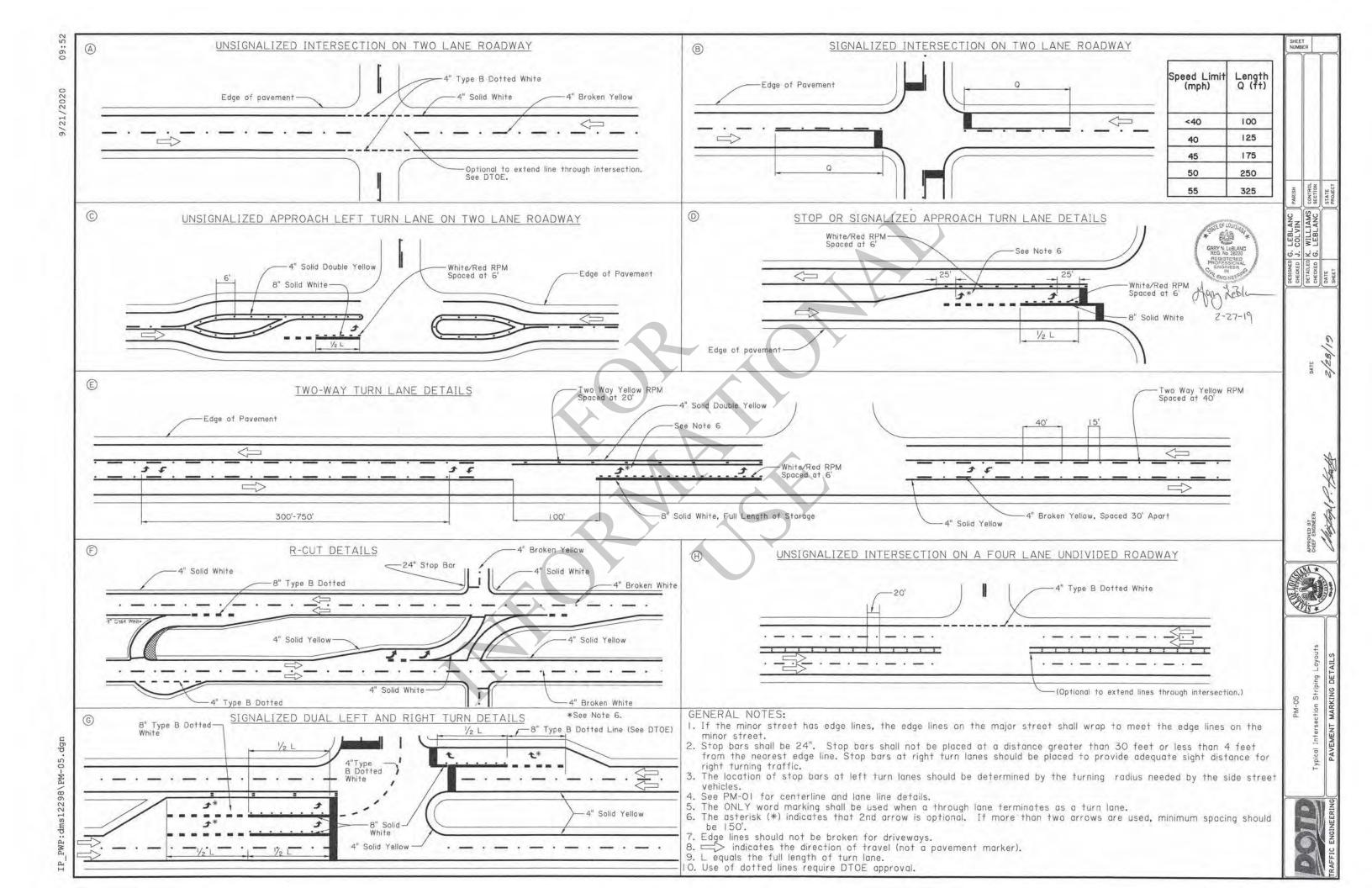


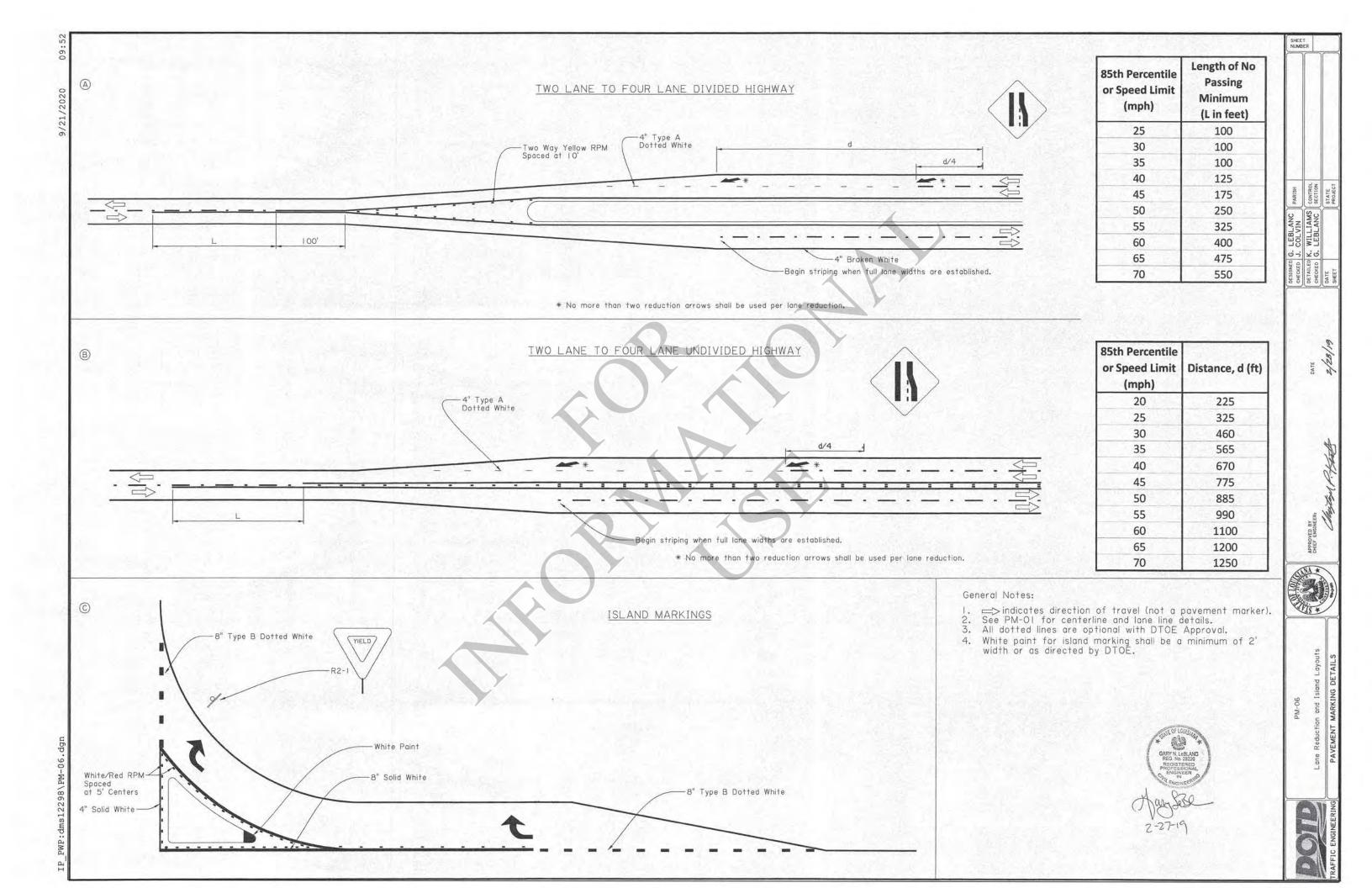
FOR USE ON LIGHT PAVEMENT.

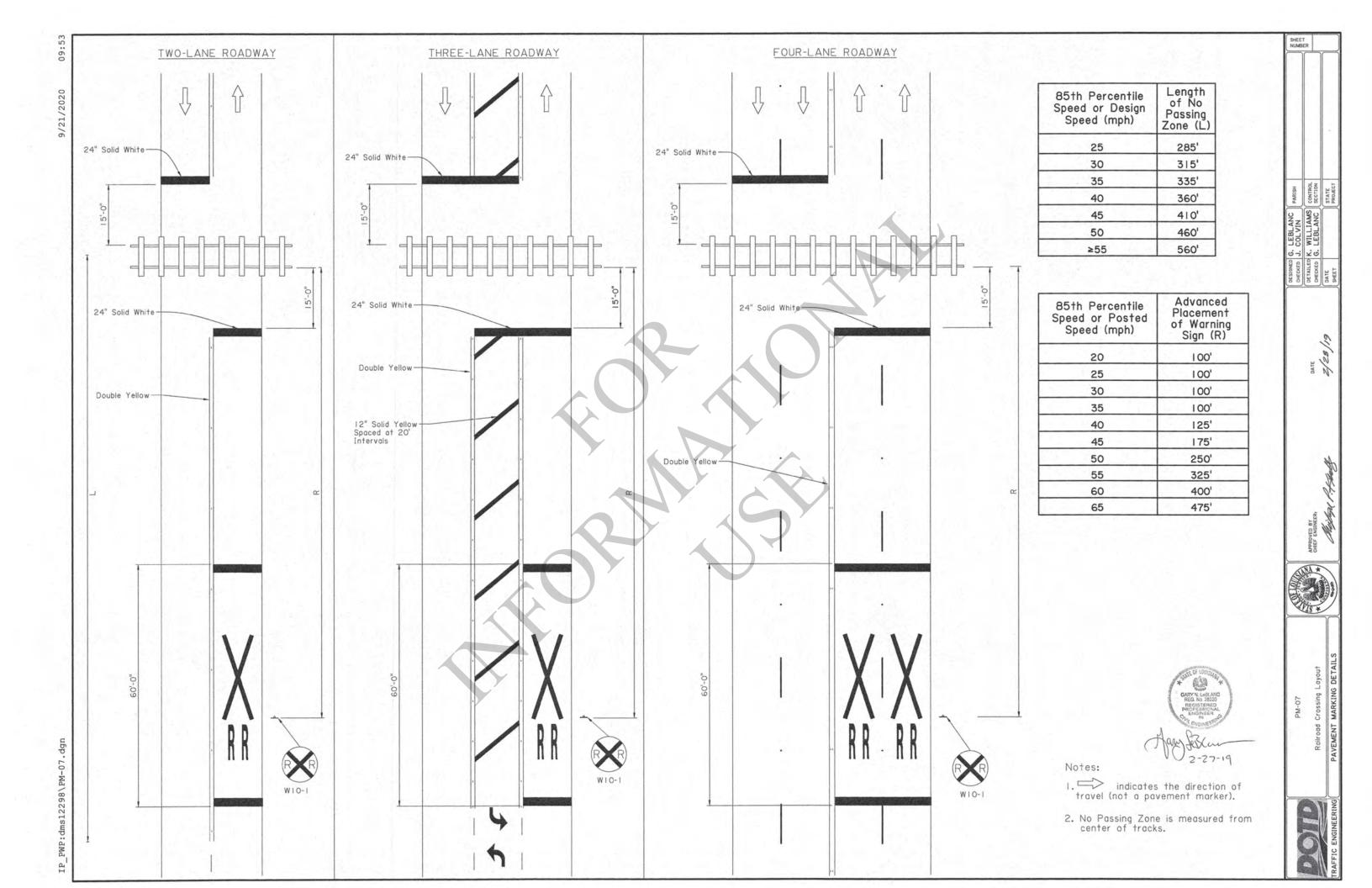


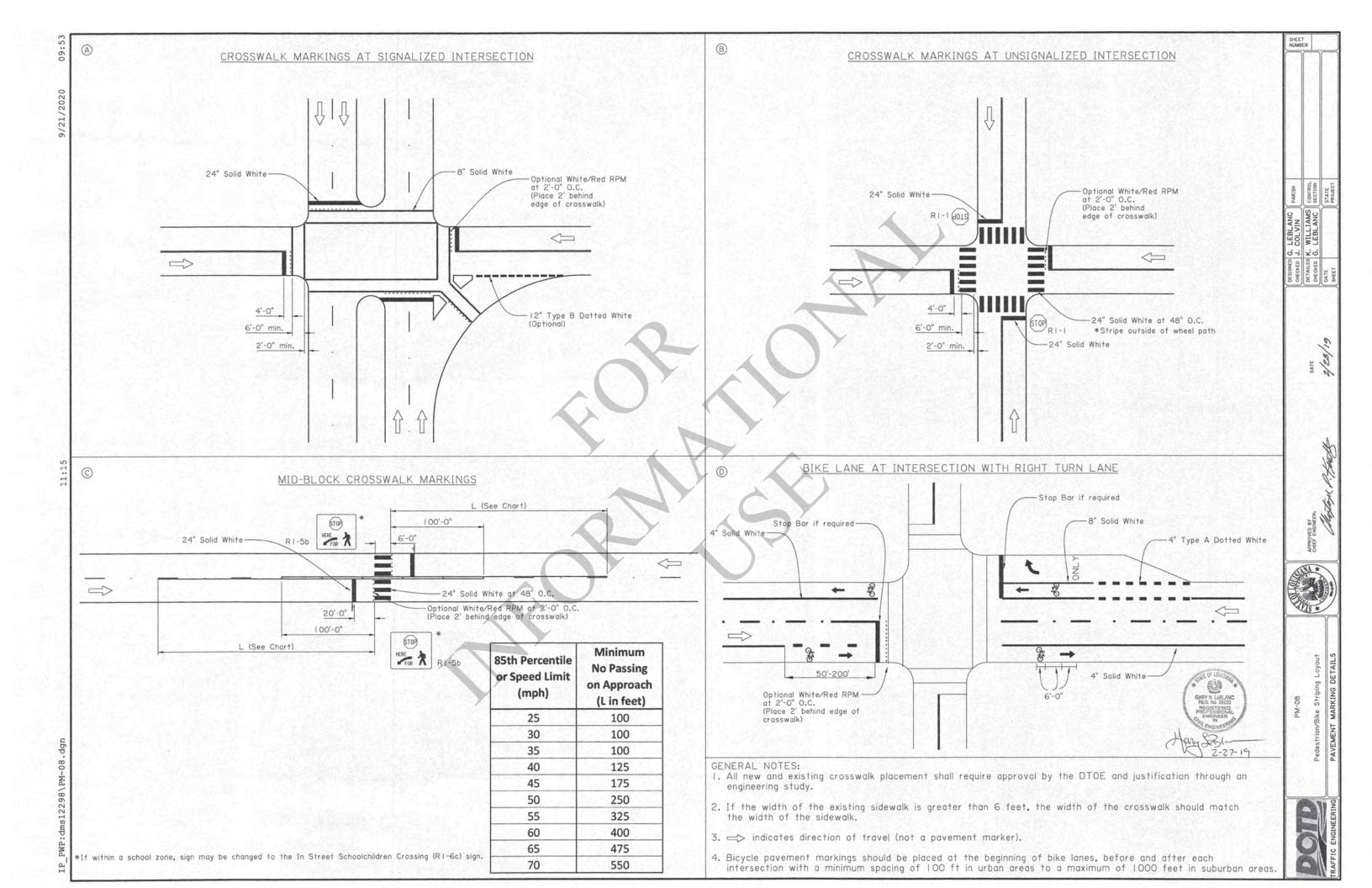


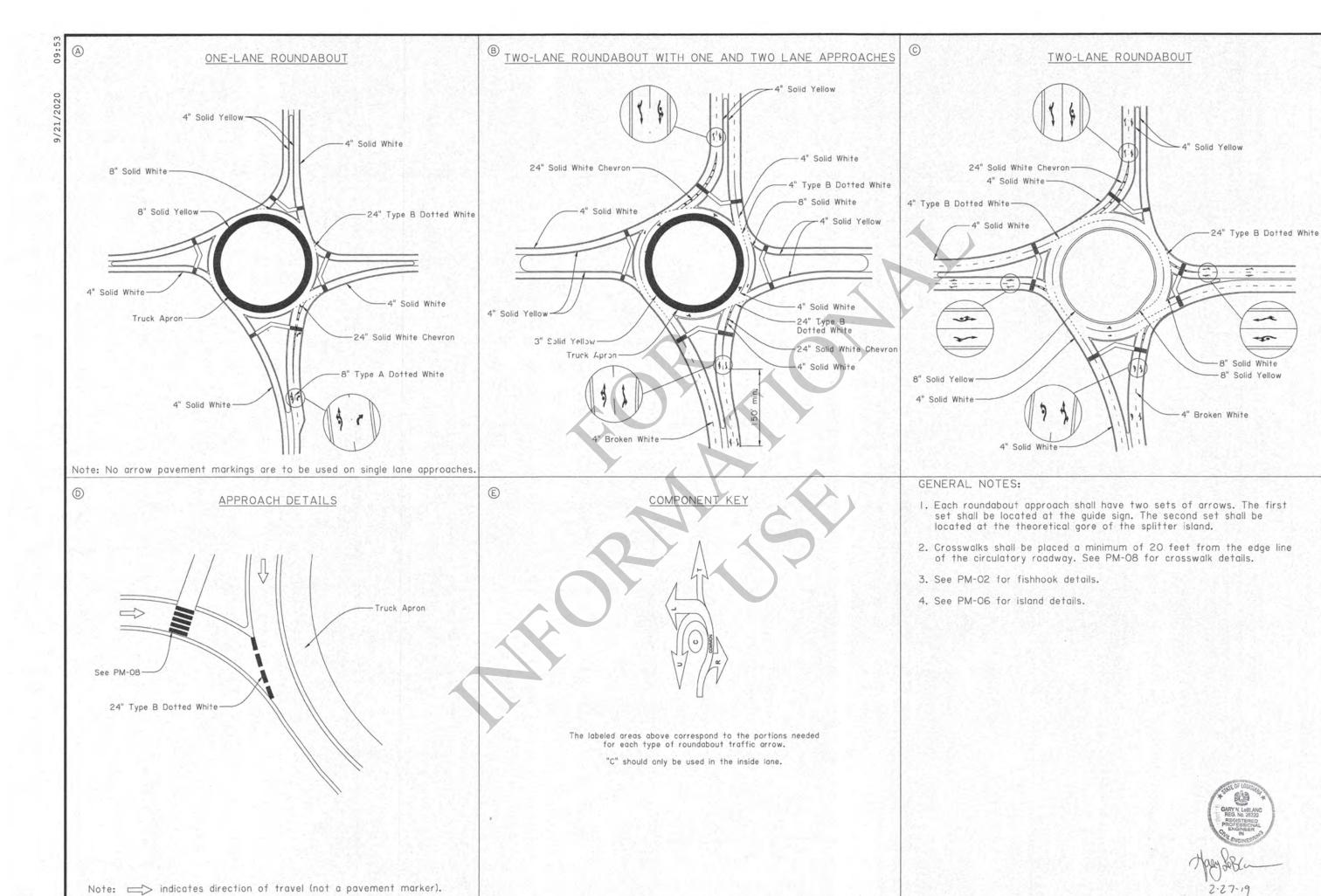




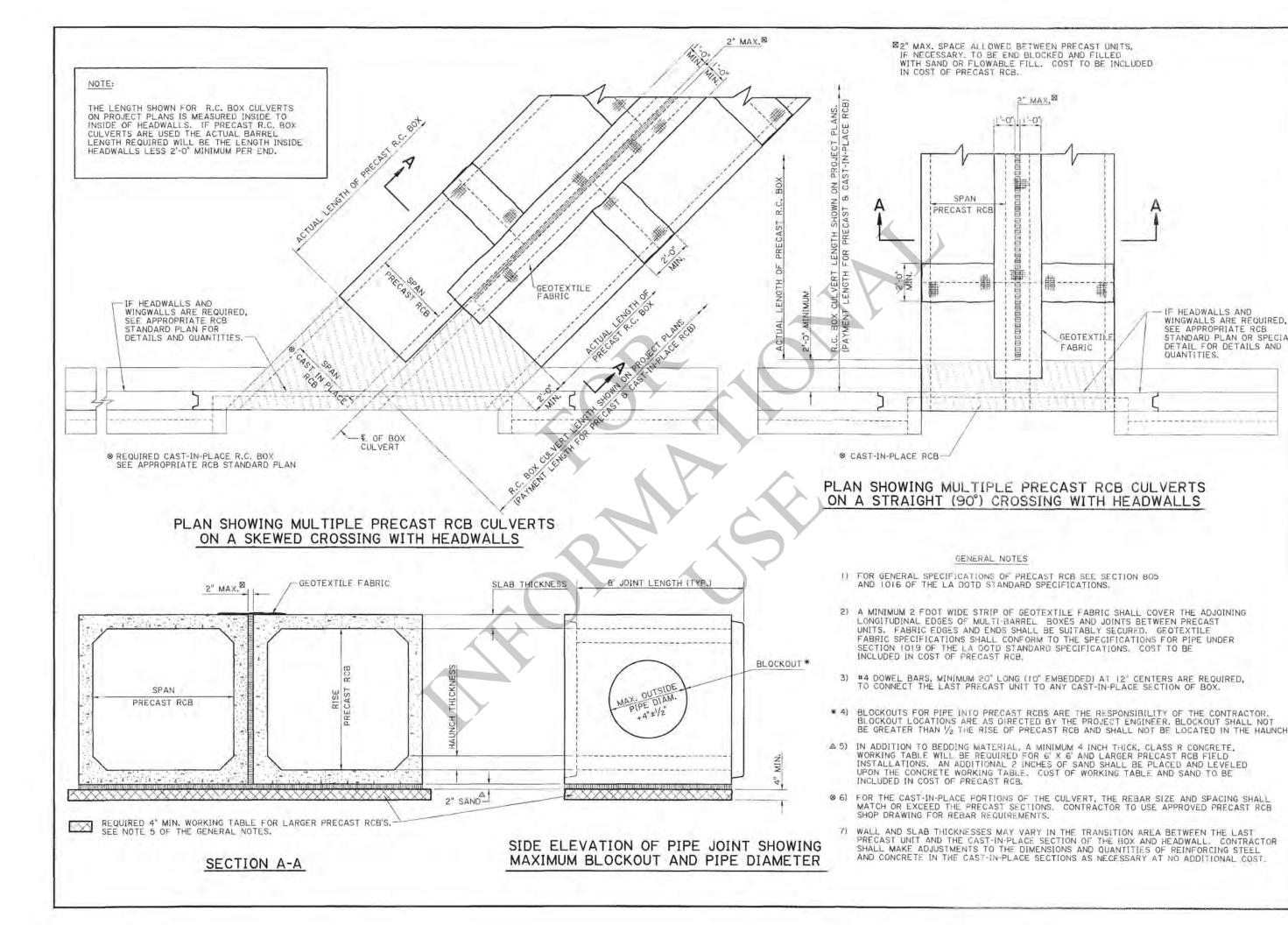








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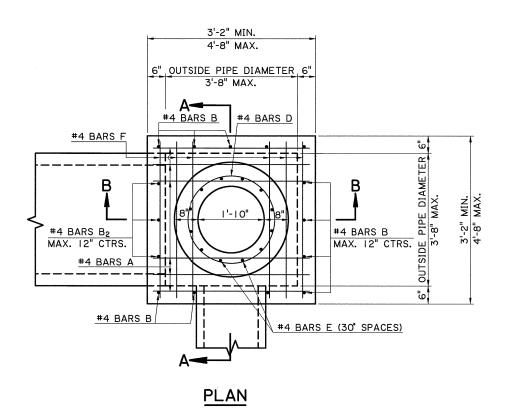
3 M. Hastonich 7/19/2022

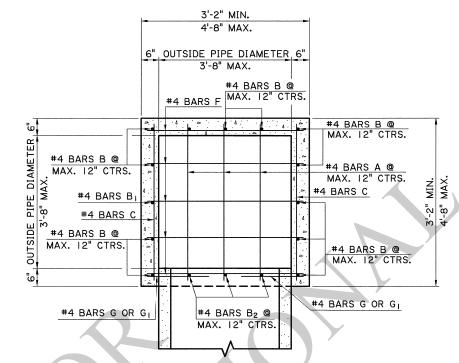




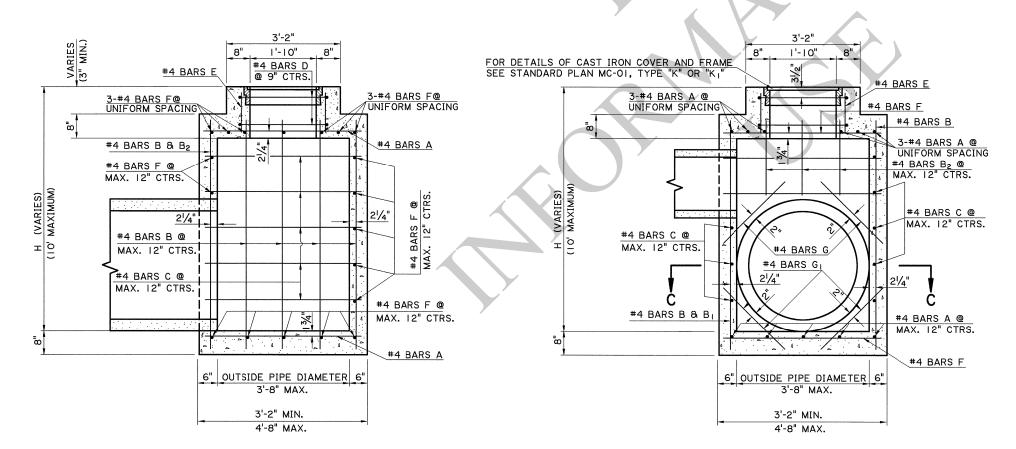
PRECAST REINFORCED CONCRETE BOX CULVERTS DETAILS AND SPECIFICATIONS



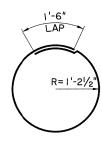




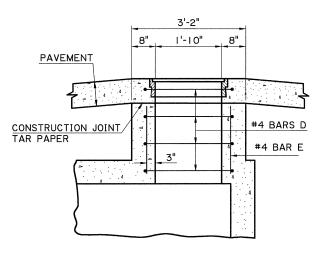
SECTION C-C



SECTION B-B SECTION A-A



#4 BAR D



DETAIL A

(MANHOLE IN PAVEMENT AREA)

GENERAL NOTES:

- I. MANHOLE IS DESIGNED ACCORDING TO 4TH ED. 2007 AASHTO LRFD PROCEDURES. SECTION 702 OF THE DOTD STANDARD SPECIFICATIONS SHALL APPLY.
- 2. CONCRETE: ALL CONCRETE SHALL BE CLASS "M" MINOR STRUCTURE. ALL EXPOSED EDGES SHALL BE CHAMFERED 34 IN. EXCEPT AS NOTED.
- 3. REINFORCING STEEL: REINFORCING STEEL SHALL BE GRADE 60. DIMENSIONS ARE TO BAR CENTERS. MINIMUM COVER FOR REINFORCING BARS SHALL BE 2 IN. CLEAR UNLESS SHOWN OTHERWISE.
- 4. SEE "DETAIL A" FOR DETAILS OF MANHOLE IN A PAVEMENT AREA.
- 5. THE CONTRACTOR WILL NOT POUR ABOVE THE BOTTOM OF THE SLAB UNTIL THE PAVING ADJACENT TO THE MANHOLE HAS BEEN COMPLETED.



FEDERAL PROJECT STATE PROJECT

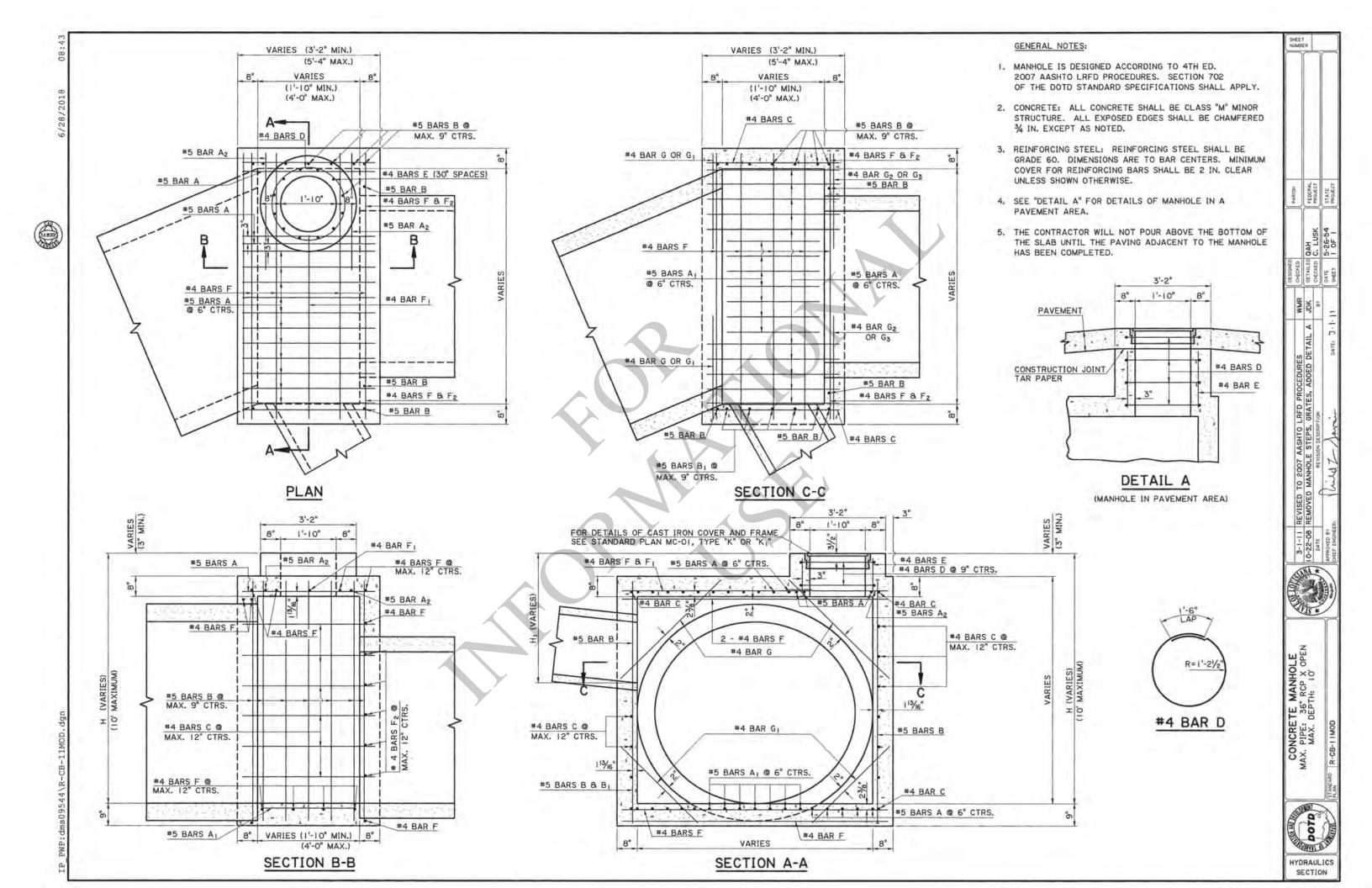
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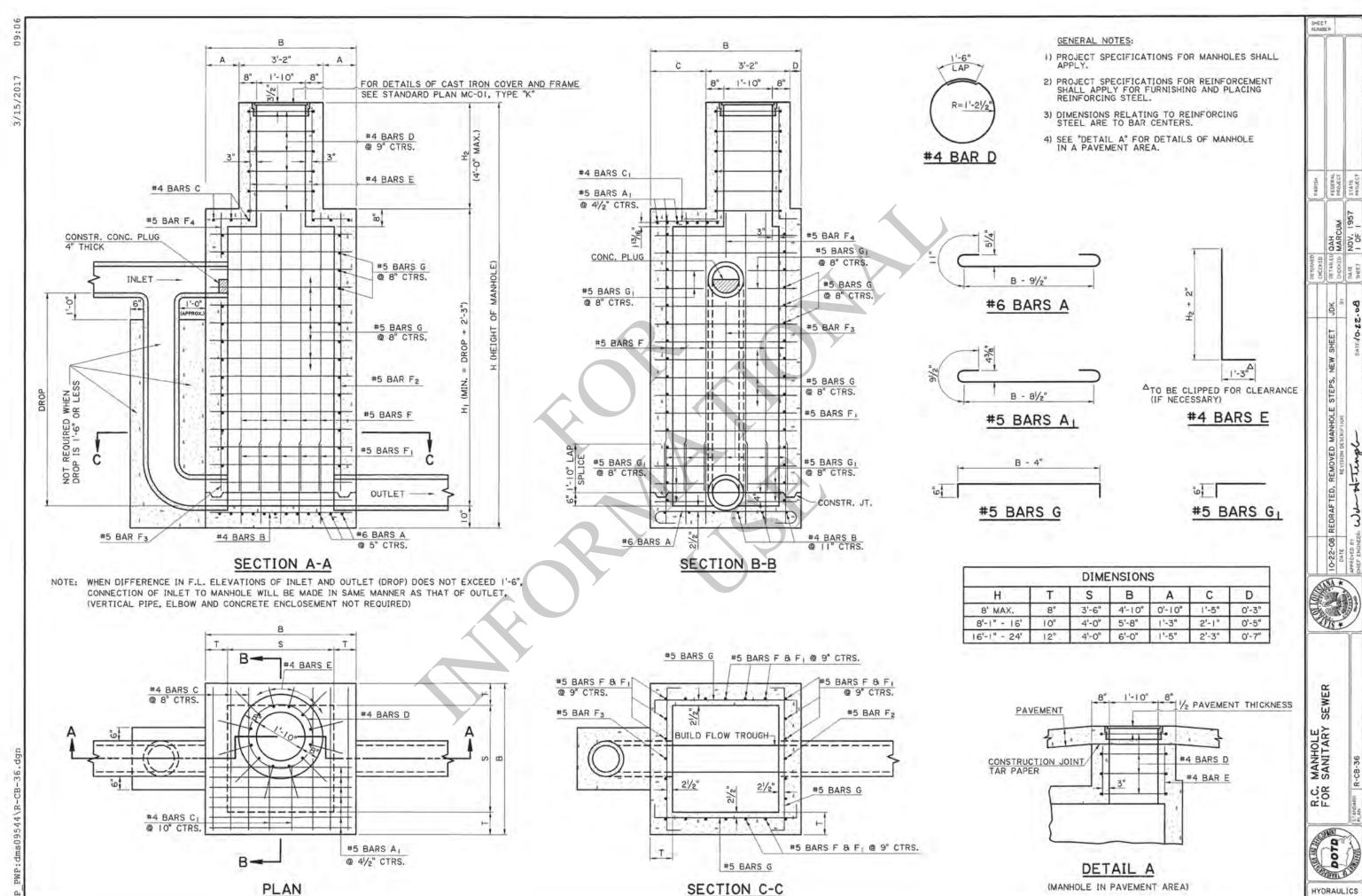
DESIGNED
CHECKED
DETAILED
CHECKED
DATE
SHEFT

WMR

CONCRETE MANHOLE
MAX. PIPES: 36" RCP X 36"
MAX. DEPTH: 10'



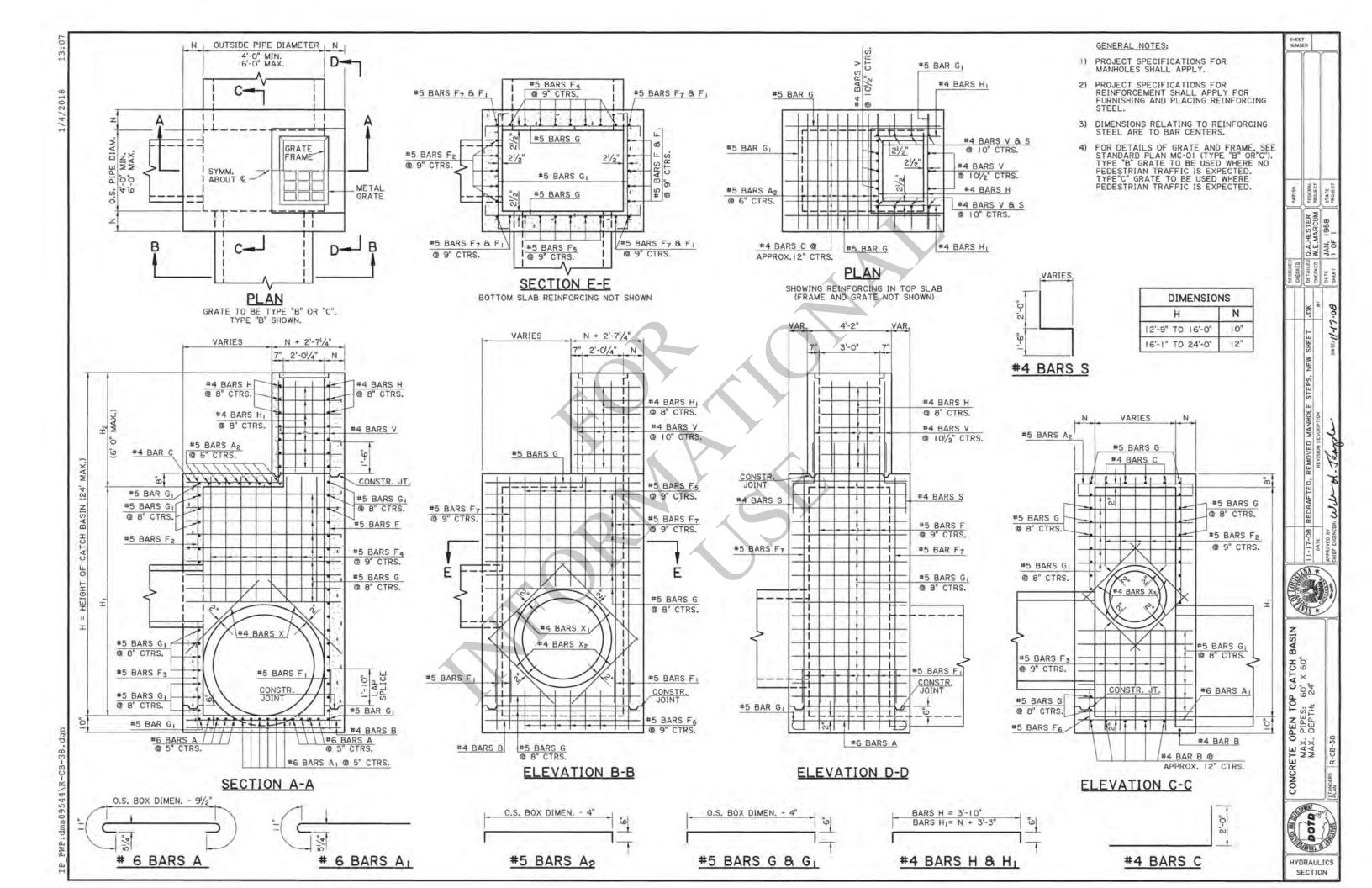


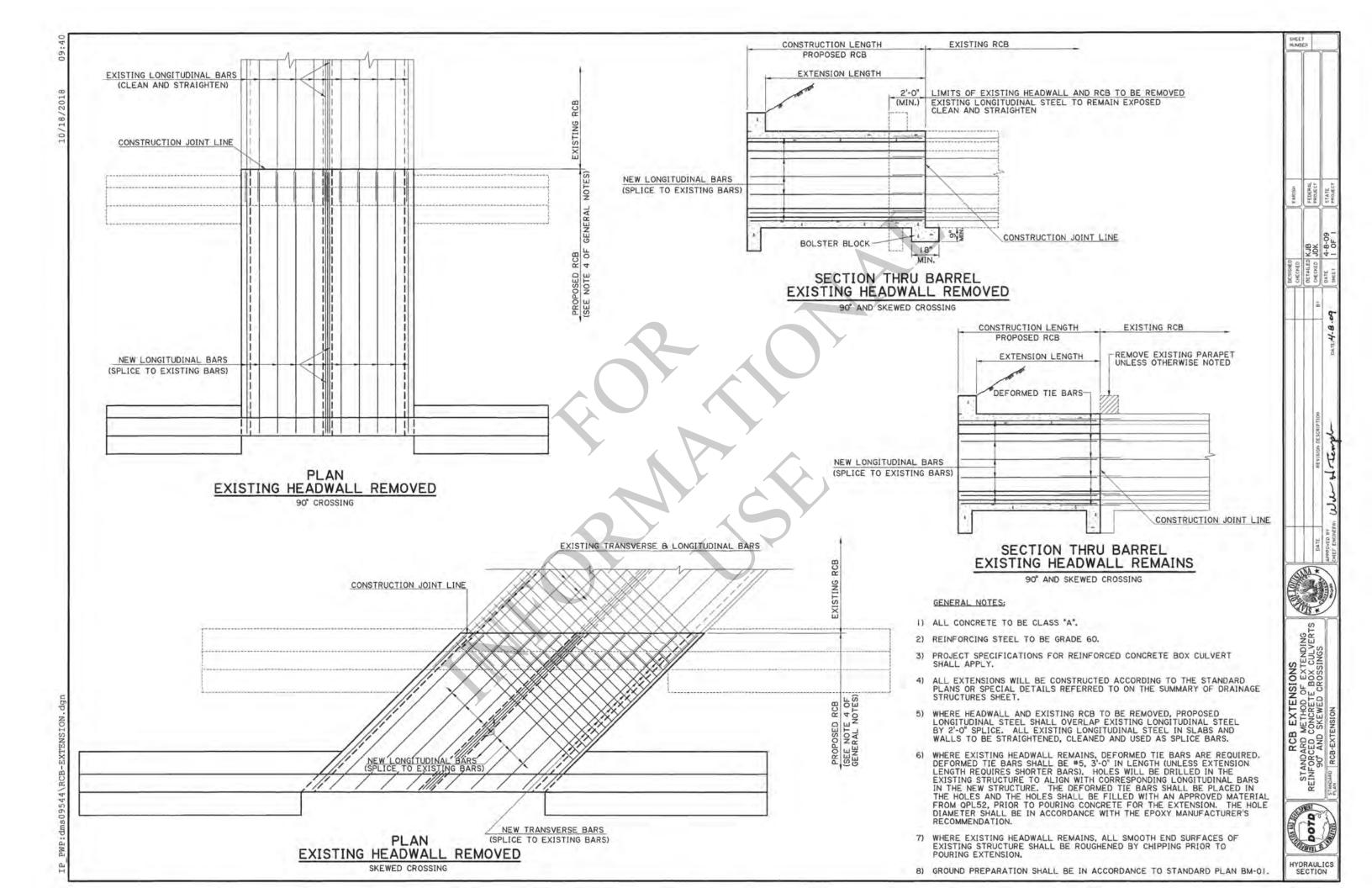


PLAN

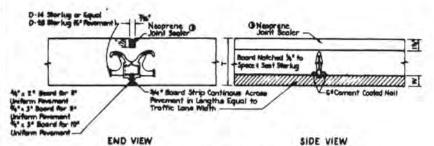
HYDRAULICS

SECTION



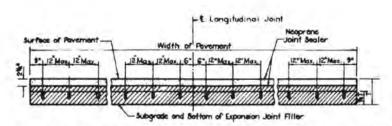




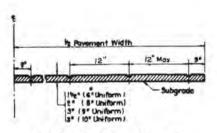


ALTERNATE TYPE OF TRANSVERSE DUMMY JOINT

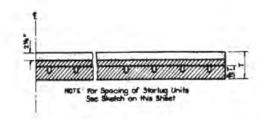
D-14 STARLUG (8", 9", & 10" PAVEMENT) D-28 STARLUG (6" PAVEMENT)



ELEVATION OF EXPANSION JOINT SHOWING SPACING OF STARLUG UNITS



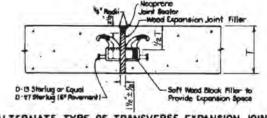
ELEVATION OF DUMMY JOINT SHOWING SPACING OF STARLUS UNITS



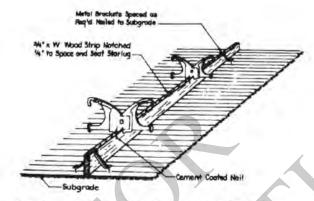
ELEVATION OF BOARD STRIP FOR EXPANSION JOINT



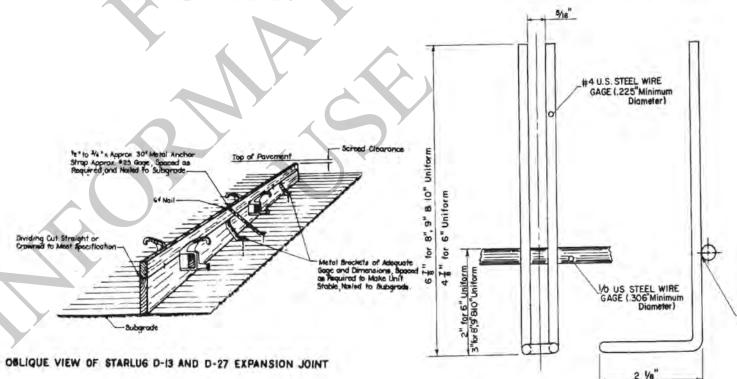
METAL BRACKET To Be Used On Granular Bases Spacing and Installation To Be As Directed By The Engineer.



ALTERNATE TYPE OF TRANSVERSE EXPANSION JOINT D- 13 STARLUG D-27 STARLUG IS" PAVEMENT)



OBLIQUE VIEW OF STARLUG D-14 AND D-28 DUMMY JOINT



Edge of Pay't.

-Anchor to Base with Suitable Nails



METAL BRACKET To Be Used On Stabilized Or Treated Bases, Shell Bases and Asphaltic Concrete Bases.



STATE PROJE

PLAN

ELEVATION STARLUG SUPPORT BRACKET ALTERNATE

12" Typical

See Detail A

DETAIL A

3-19-84 Support Bracket Minimum
10-278 Added Wire Bracket
10-2280 Rev. Transverse Expansion Joint
10-6-75 Revised General Note and Asses Joint Sealer Type

REVISIONS

5-9-75 Added General Note 5-16-73 Revised Storing Specing

3-8-73 Seneral Notes 0-10-16 Persent and Retroced

If the Contractor Desires to Use Any Other Alternate Device, He Shall, Prior to Its Use, Secure Approval by the Engineer.

Alternate Load Transfer Devices or Dowcle Shall be installed Parallel to the Pavement Surface and Center

Joint Braces or Other Surfable Devices May be Used to Align or Hold Joint Assembly in Place White Pavement to Being Loid.

For Povement Crowns See Typical Poving Section.

Prior to Final Assembly, Each Load Transfer Device Shall be Tightened According to Manufacturer's Recommen-dations, to Prevent Excessive Movement Within the Unit Itself. The Contractor Shall Also Ba Responsible for Having Each Load Transfer Dovice Restand to the Wood Strip in Such a Monner as to Prevent Any Movement

Marting Load Transmission Assemblies Shall be As indicated in the "Qualified Products List"

Boards Used for Installation of Storluge Are Subject to

Use Type WorEd Joints For End of Days Run. (See Standard Plan R-CP-108)

Reasonable Tolerances To All Dimensions Will Be Determined By The Engineer and Furnished at Time of Installation

For Sawed Joint Details See Standard Plan R-CP-108.

Weld both Vertical Holders; Each Support

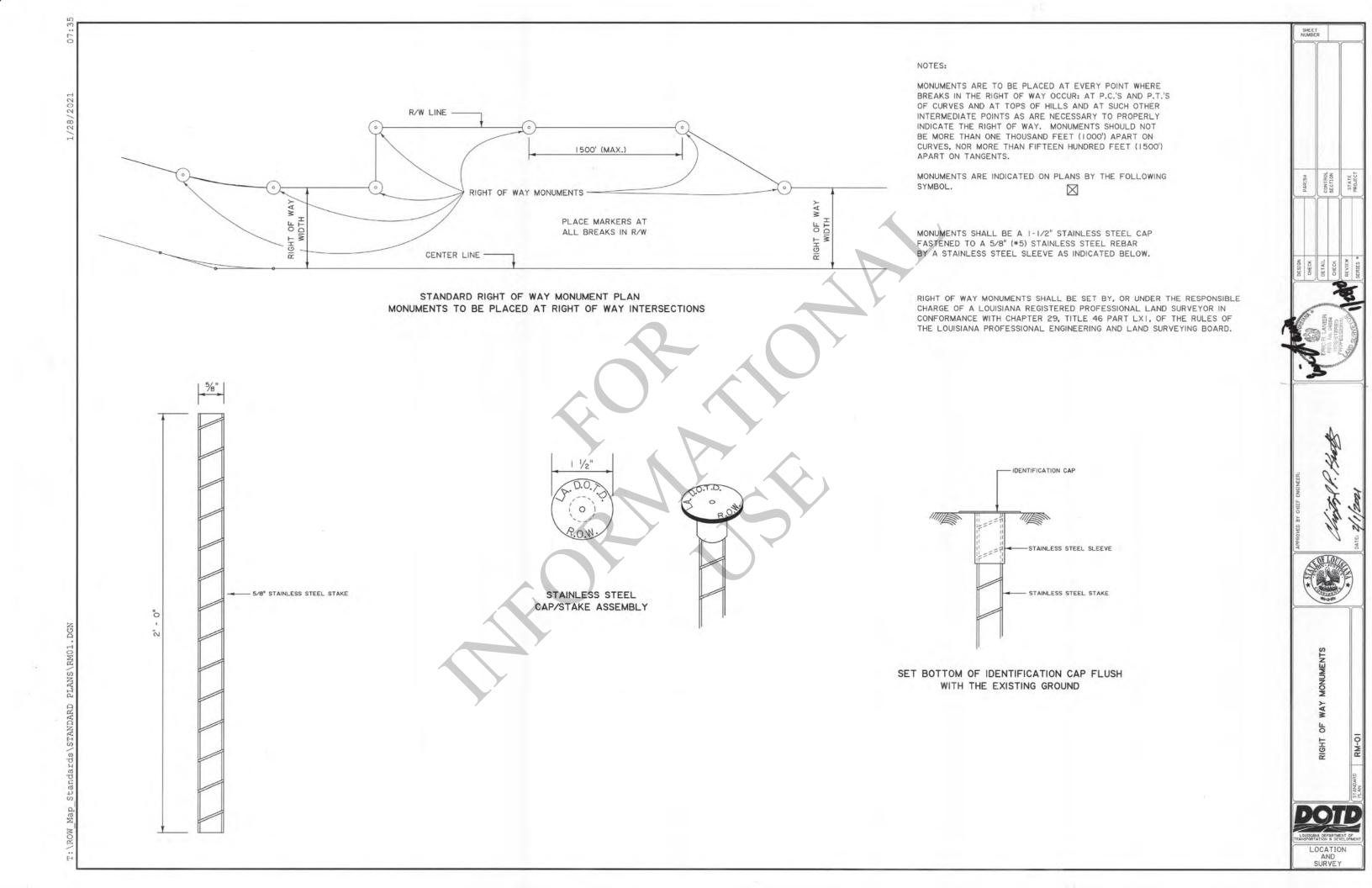
STANDARD PLAN NO R-CP-100 REV.

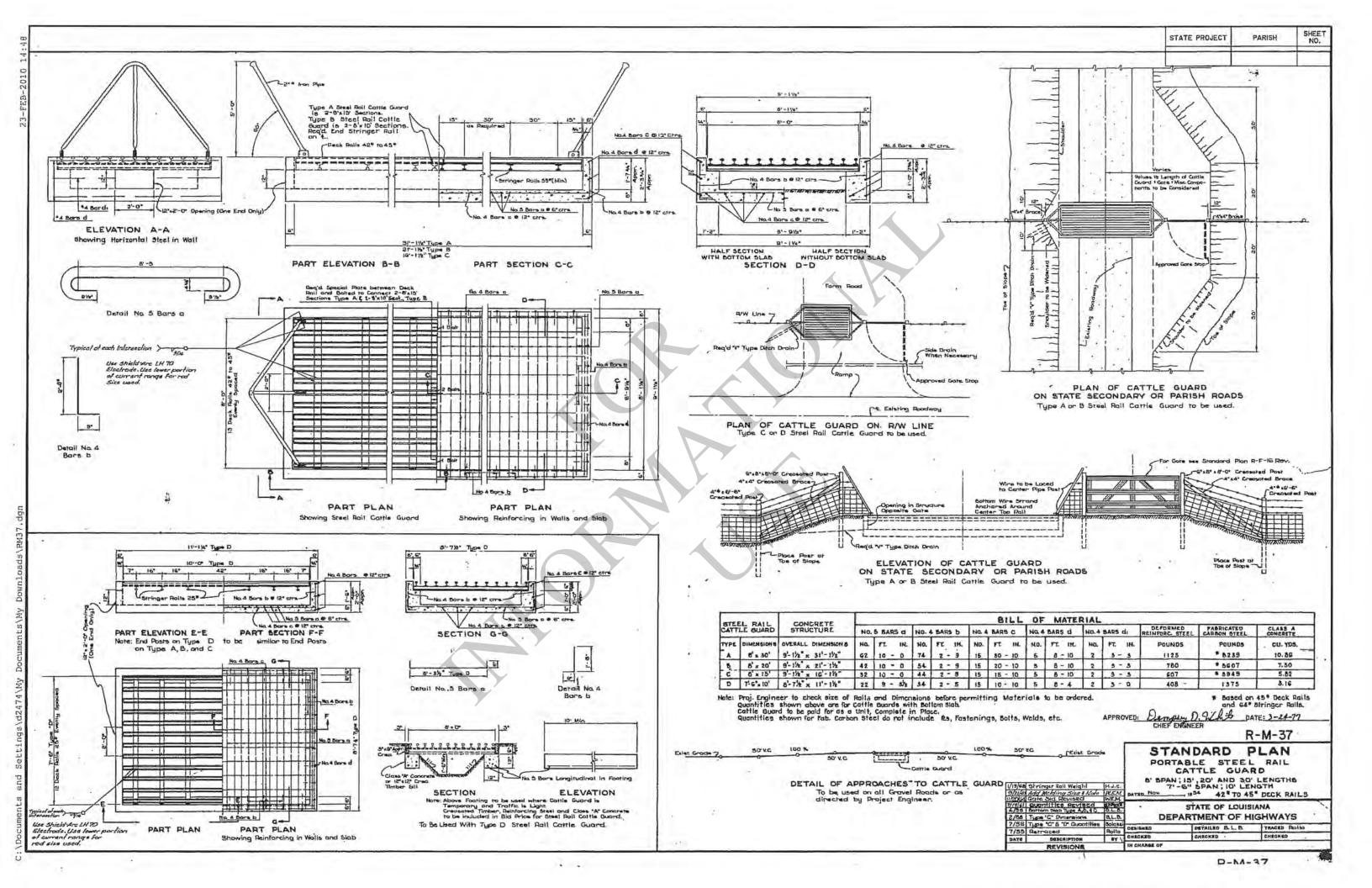
ALTERNATE LOAD TRANSMISSION ASSEMBLY FOR EXPANSION AND DUMMY JOINTS

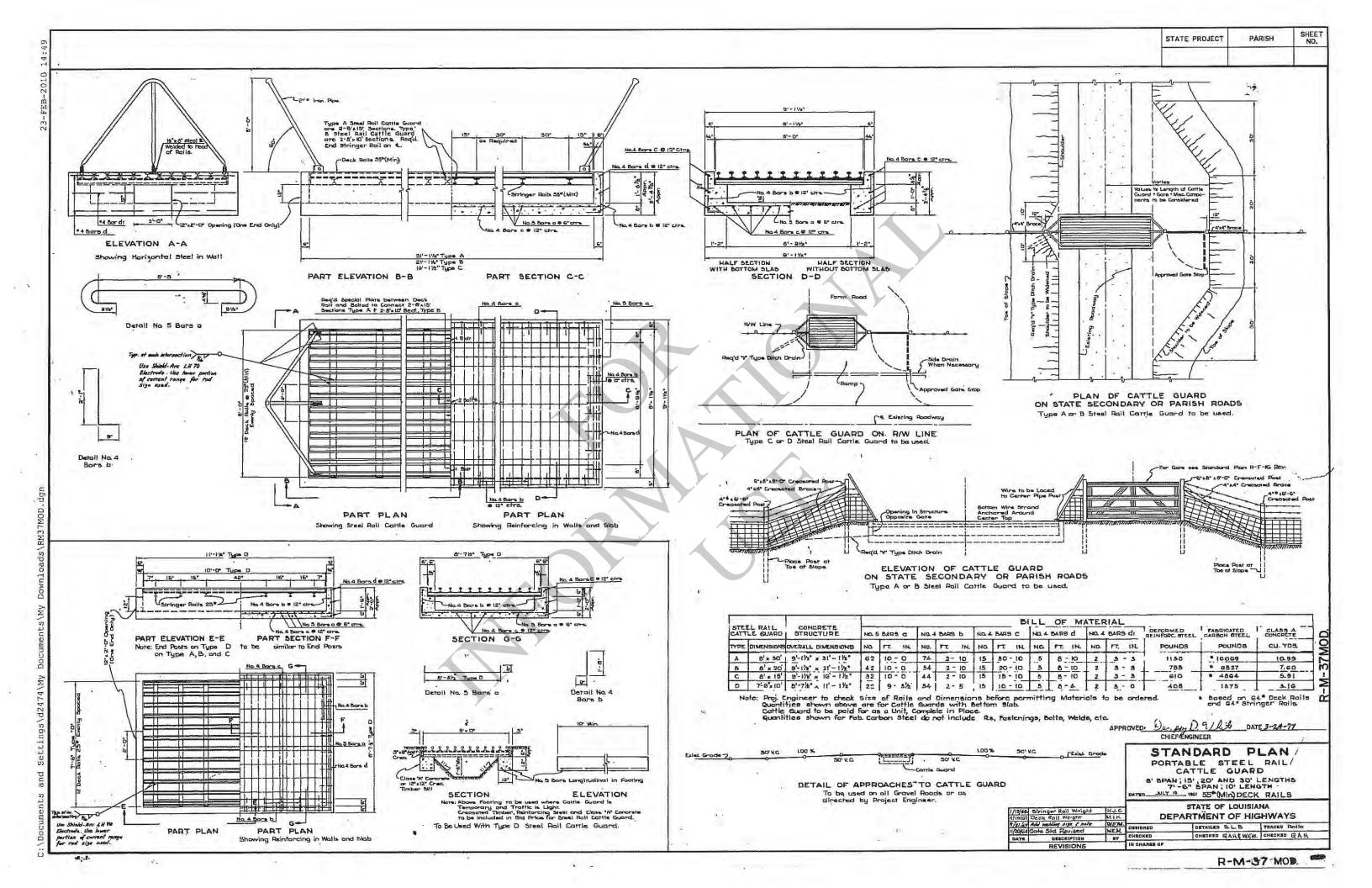
DATED Oct. 1972

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

TRACEC N.M. Brummett CHECKED A! Shows CHECKED Dempsey DWhit DATE 3/19/84







CONSTRUCTION SPECIFICATIONS: CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT, STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES. LATEST EDITION EXCEPT AS SUPPLEMENTED OR AMENDED BY THE PLANS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS, 1994 AND INTERM SPECIFICATIONS.

STEEL: STEEL SHALL CONFORM TO A.S.T.M. A-709, GRADE 36. STEEL TUBING SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF A.S.T.M. DESIGNATION A-36 OR HOT-FORMED TUBING (A-501) OR PIPE (A-53) TYPE "E" OR "S", GRADE "B" OR COLD-FORMED TUBING (A-500) GRADE "B" OR "C". UNLESS OTHERWISE NOTED.

ALUMINUM: ALL ALUMINUM EXCEPT SIGN PANELS SHALL CONFORM TO ASTM B-221, B-308, OR B-429 ALLOY GOG!-TG UNLESS OTHERWISE NOTED. SIGN PANELS SHALL BE .080" THICK ALUMINUM CONFORMING TO ASTM B-209 ALLOY 5052-H38 OR 6061-T6

CONCRETE AND REINFORCING STEEL: CONCRETE SHALL BE CLASS "M". UNLESS OTHERWISE NOTED. DIMENSIONS RELATING TO REINFORCING STEEL FABRICATION ARE OUT TO OUT OF BAR UNLESS OTHERWISE NOTED. DIMENSIONS RELATING TO REINFORCING STEEL SPACING ARE CENTER TO CENTER OF BAR OR FACE OF CONCRETE TO CENTERLINE OF BAR. REINFORCING STEEL SHALL HAVE A MINIMUM COVERING OF 2" EXCEPT WHEN CONCRETE IS CAST AGAINST THE EARTH THEN THE COVERING WILL BE 3". ALL REINFORCING STEEL SHALL BE GRADE 60. THE FIRST DIGIT OF REINFORCING BAR NUMBER INDICATES THE BAR SIZE. THE TOP EDGES OF THE FOOTING SHALL BE CHAMFERED 3/4".

CONCRETE FINISH: ALL PORTIONS OF THE FOOTINGS FOR CANTILEVERS AND TRUSSES ABOVE GROUNDLINE SHALL HAVE A FINISH IN ACCORDANCE WITH LOUISIANA SPECIFICATION, 805.08.3.

WELDING: ALL WELDING SHALL CONFORM TO THE LA. STANDARD SPECIFICATIONS, SECTION 809 AND SUPPLEMENTAL SPECIFICATIONS.

GALVANIZING: ALL STRUCTURAL STEEL AND MISCELLANEOUS STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-123. DAMAGE TO GALVANIZED SURFACES THAT ARE NOT TO BE ENCASED IN CONCRETE SHALL BE REPAIRED IN ACCORDANCE WITH LA. STANDARD SPECIFICATIONS, SECTION 811.08. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-153. ALL FIELD HOLES IN GALVANIZED MATERIAL SHALL BE TREATED WITH A COLD GALVANIZING COMPOUND FROM THE A.M.L.

BOLTS: UNLESS NOTED, ALL THREADED CONNECTIONS SHALL INCORPORATE A LOCKING DEVICE AND HAVE A MINIMUM OF 3 THREADS BEYOND THE NUTS. ALL BOLTS SHALL BE HIGH STRENGTH BOLTS, A.S.T.M. A-325, UNLESS OTHERWISE NOTED. ANCHOR BOLTS SHALL CONFORM TO AASHTO M314, GRADE 55 (OR APPROVED EQUAL) AND BE HOT DIP GALVANIZED TO A.S.T.M. A-153. STAINLESS STEEL FOR BOLTS SHALL CONFORM TO A.S.T.M. DESIGNATION A-320 BB, CLASS 2 TYPE 304, OR A-193 BB, CLASS 2 TYPE 304, UNLESS OTHERWISE NOTED. STAINLESS STEEL NUTS SHALL CONFORM TO A.S.T.M. DESIGNATION A-194, GRADE 8, TYPE 304. ALUMINUM BOLTS SHALL CONFORM TO A.S.T.M. F-468 ALLOY 2024-T4 AND NUTS ARE A.S.T.M. F-467 ALLOY 6061-T6 OR 6262-T9. WHERE BOLTS ARE USED ON BEVELED SURFACES, BEVELED WASHERS SHALL BE PROVIDED TO SIVE FULL BEARING TO THE HEAD AND/OR THE NUT.

RIVETS: ALL RIVETS SHALL BE 1/4" DIAMETER BLIND RIVETS WITH POSITIVE MANDREL RETENTION. THE RIVET BODY AND MANDREL SHALL BE ALUMINUM WITH A 1/2" MAXIMUM DIAMETER DOME HEAD. THE RIVETS SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH = 875 LBS., AND CONFORM TO ASTM B-316 5056-H32.

BREAK-AWAY BASE: BASES FOR SIGNS LOCATED ADJACENT TO MORE THAN ONE ROADWAY (RAMP TERMINALS, INTERSECTIONS, ETC.) SHALL BE ORIENTED IN THE DIRECTION OF THE HIGHEST SPEED TRAFFIC. ALL MULTI-POST SIGNS WITH A DISTANCE BETWEEN POSTS OF 7'-O" GENTERS OR LESS SHALL HAVE BEVELED BASE CONNECTION. BASE CONNECTIONS SHALL BE WRAPPED PRIOR TO POURING THE FOOTING, WITH MATERIAL SUFFICIENT TO PREVENT CONCRETE SPLATTER ON THE BREAK-AWAY BASE ASSEMBLY.

ANCHOR BOLTS: ANCHOR BOLT NUTS TO BE TIGHTENED A MINIMUM ROTATION OF 240° $(^2/_3$ TURNS) FROM THE SNUG TIGHT CONDITION.

SIGN SHEETING: UNLESS OTHERWISE NOTED, ALL SIGN MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 1015 IN THE STANDARD SPECIFICATIONS. IN ORDER TO OBTAIN AN ACCEPTABLE COLOR MATCH BETWEEN MULTIPLE PANELS ON A GUIDE SIGN, ALL OF THE BACKGROUND SHEETING FOR ANY GUIDE SIGN SHALL BE THE MINIMUM WIDTH OF THE LARGEST PANEL AND SHALL COME FROM THE SAME LOT OR RUN NUMBER FROM THE SHEETING MANUFACTURER UNLESS OTHERWISE APPROVED IN WRITING. RETRO-REFLECTIVE SHEETING SHALL BE APPLIED TO ALL PANELS IN SUCH A MANNER THAT THERE ARE NO HORIZONTAL SPLICES.

OVERLAY PANELS FULL SIGN OVERLAY PANELS SHALL BE IN ACCORDANCE WITH SECTION 729.05.3. PARTIAL SIGN OVERLAYS AND ALL SHIELDS SHALL HAVE SHIMS AT ALL RIVETS. SHIMS SHALL BE AT LEAST .080" THICK AND SIZED SO THEY WILL NOT EXTEND BEYOND EDGE OF OVERLAY. RIVETS SHALL BE AS SPECIFIED ON THIS STANDARD DETAIL SHEET.

SIGN LOCATIONS: FOR GROUND MOUNTED SIGN INSTALLATIONS, THE ENGINEER MAY ADJUST THE TYPE D AND E SIGN LOCATIONS INDICATED ON THE PLANS. THIS WILL BE ALLOWED TO AVOID PLACEMENT IN DEEP DITCHES, STEEP BACKSLOPES, TREE LINES, AND ANY OTHER UNACCOUNTED FOR FIELD CONDITIONS AND TO PROVIDE BETTER MESSAGE PRESENTATION. ANY ADJUSTMENTS MUST BE WITH THE CONCURRENCE OF THE GEOMETRIC DESIGN ENGINEER.

SIGN TYPES: TYPE A = SMALL SIGN WITH ONE POST; TYPE B = CLUSTER ASSEMBLY OF TYPE A SIGNS; TYPE D = LARGE RECTANGULAR SIGN ADJACENT TO TRAFFIC MOUNTED WITH MULTIPLE POSTS; TYPE E = SECONDARY SIGN (SUCH AS AN EXIT NUMBER PANEL) ATTACHED TO A LARGE RECTANGULAR PRIMARY SIGN; DELINEATOR, MILEPOST AND OBJECT MARKER SIGNS ARE NOT COVERED UNDER TRAFFIC SIGNS. SEE STANDARD PLAN HS-03.

MISCELLANEOUS: THE CONTRACTOR SHALL MARK THE DATE OF FABRICATION, SHEETING MANUFACTURER CODE, AND SIZE OF SIGN ON THE BACK OF EACH SIGN. FOR EXTRUDED PANEL SIGNS THE LETTER HEIGHT SHALL BE 2". FOR ALL OTHER FLAT SHEETING SIGNS, THE LETTER HEIGHT SHALL BE 34". THE SIGN ID NUMBERS SHALL FOLLOW THE ABOVE REQUIREMENTS BUT SHALL HAVE A BLUE BACKGROUND WITH WHITE NUMBERS. ALL MARKINGS SHALL HAVE A CLEAR UV PROTECTIVE FILM INSTALLED OVER THEM. SEE DETAIL "A" SHEET 5 OF 17.

POST HINGE SPLICE ON MULTI-POST SIGNS WITH ALL POSTS CONNECTED BY A SECONDARY SIGN SHALL BE LOCATED BELOW THE SECONDARY SIGN. STUB POST SHALL BE ASSEMBLED TO SIGN POST WITH REQUIRED BOLTS AND ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES PRIOR TO SHIPMENT. POST SPLICE SLIP PLATE SHALL BE ASSEMBLED TO MINIMUM BOLT TENSION IN SHOP PRIOR TO SHIPMENT. SIGN POST SHALL BE SHIPPED TO JOB SITE ASSEMBLED WITH ALL HARDWARE REQUIRED IN PLACE AND SECURED. EXPOSED ENDS OF ALL PIPE SHALL BE CAPPED. USE OF SECTIONS PROVIDING EQUAL OR GREATER STRENGTH FOR ANY MEMBER DESIGNATED ON THE PLANS SHALL BE SUBMITTED TO THE BRIDGE ENGINEER FOR APPROVAL.

ALL DIMENSIONS REQUIRED FOR SATISFACTORY INSTALLATION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE FABRICATION. ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER.

ALL ALUMINUM SURFACES PLACED IN CONTACT WITH, OR FASTENED TO UNGALVANIZED STEEL MEMBERS SHALL BE THOROUGHLY COATED WITH AN APPROVED ALUMINUM IMPREGNATED CAULKING COMPOUND. PAINT ALUMINUM SECTIONS IN CONTACT WITH CONCRETE WITH A HEAVY COAT OF AN ALKALI RESISTANT BITUMINOUS PAINT OR A COAT OF ZINC CHROMATE PAINT AND ALLOW TO DRY BEFORE PLACING. ALUMINUM ALLOYS SHALL NOT BE PLACED IN CONTACT WITH COPPER, COPPER BASED ALLOYS, LEAD, OR NICKEL.

SHOP DRAWINGS: NOT REQUIRED FOR SIGN BACKING AND SMALL GROUND MOUNTED SIGN SUPPORTS, UNLESS FABRICATOR INTENDS TO DEVIATE FROM THE DETAILS HEREIN. SHOP DRAWING ARE REQUIRED FOR ALL STRUCTURE MOUNTED SIGNS.



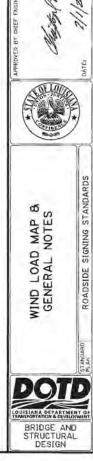
WIND LOAD MAP

WIND	LO	AD MAP L	EGEND
SYMBOL	F	ROADSIDE M	OUNTED
	ZONE	WIND VELOCITY (MPH)⊗	WIND LOAD (PSF) △
	T.	70	20
	2	80	27

⊗ 25 YEAR MEAN RECURRENCE INTERVAL

 Δ INCLUDES $\zeta_i = 1.2$

SHEET	BRIDGE STANDARD INDEX NO.	DESCRIPTION
1 OF 17	BD.2.7.2.0.1	WIND LOAD MAP & GENERAL NOTES
2 OF 17	BD,2.7.2.0.2	PANEL DETAILS (TYPE A & B SIGNS)
3 OF 17	BD.2.7.2.0.3	MOUNTING DETAILS (TYPE A & B SIGNS)
4 OF 17	BD.2.7.2.0.4	SPACING OF POSTS FOR GROUND MOUNTED SIGNS
5 OF 17	BD.2.7.2.0.5	EXTRUDED ALUMINUM SIGNS (TYPE D & E SIGNS)
6 OF 17	BD.2.7.2.0.6	EXTRUDED ALUMINUM PANELS (TYPE D & E SIGNS)
7 OF 17	BD.2.7.2.0.7	ROADSIDE MOUNTED SIGNS (TYPE A, B, & D SIGNS)
8 DF 17	BD.2.7,2.0,8	ROADSIDE MOUNTED SIGN DETAILS (TYPE A & B SIGNS)
9 OF 17	BD.2.7.2.0.9	ROADSIDE MOUNTED SIGN DETAILS (TYPE D SIGNS)
10 OF 17	BD.2.7.2.0.10	SQUARE TUBE SIGN DETAILS
11 OF 17	BD.2.7.2.0.11	Z - BRACKET SIGN SUPPORT (F - SHAPE BARRIER)
12 OF 17	BD.2.7.2.0.12	Z - BRACKET SIGN SUPPORT (F - SHAPE BARRIER)
13 OF 17	BD.2.7.2.0.13	Z - BRACKET SIGN SUPPORT (POST AND RAIL BARRIER)
14 OF 17	BD.2.7.2.0.14	Z - BRACKET SIGN SUPPORT (POST AND RAIL BARRIER)
15 OF 17	BD.2.7.2.0.15	CONTRAFLOW SIGNS (GROUND MOUNTED)
16 OF 17	BD.2.7.2.0.16	CONTRAFLOW SIGNS (F - SHAPE BARRIER)
17 OF 17	BD.2,7.2.0.17	CONTRAFLOW SIGNS (POST AND RAIL BARRIER)



0/24/22

SQUARE, RECTANGLE, CIRCLE, OCTAGON AND ROUTE MARKERS

A B C D H
(IN.) (IN.) (IN.) (IN.)

7.5 21

9

10 28

84 10.5 6 A 21

42

21

6^A 25

6 A 24

A LOCATION OF BORDER ANGLE FROM EDGE

18

24

30 36

48

60

48 96 12 STIFFENER

NUMBER REQUIRED

2 2

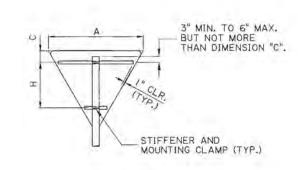
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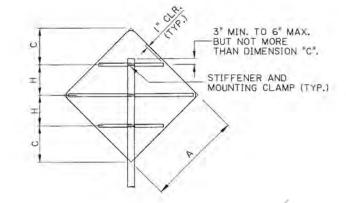
2

3

4

4





DIAMOND

E	QUIL	ATE	RAL TRIANGLE
Α	Ċ	н	STIFFENER
(IN.)	(IN.)	(IN.)	NUMBER REQUIRED
24	8		
30	6	10	2
36	6	12.5	2
48	6	23	2
60	6	33.5	2

EQUILATERAL TRIANGLE

		DIA	MOND
А	C.	Н	STIFFENER
(IN.)	(IN.)	(IN.)	NUMBER REQUIRED
24	10	6.97	
30	12	9.21	2
36	14	11.46	2
48	18.5	15.44	3
60	22.5	19.93	3

TYPE A SIGNS

		0.062R				.0
	1	.084				
1.930		-	.250	2		
	.139		-	1	.500	
4	.223	.409	.260	56	5.	

EXTRUSION STIFFENER
THIS STIFFENER REQUIRES
THE USE OF RIVETS

				-		FENER AND NTING CLAMP (TYP.)
ALUMINUM MOUNTING BRACKET (PL. ½"x I½")	I" TYP.	I P TYP.	3"	*3 C*	B TRAC	* SEE SIGN SUMMARY SHEET IN THE PLAN SET AND THE APPLICABLE SIGN SHAPE TABLE ON THIS SHEET FOR DIMENSIONS CK HEAD BOLT, FLAT HEX LOCK NUT (ALUMINUM) CLIP ASSEMBLIES

TYPE B SIGN CLUSTER ASSEMBLY

NOTES:

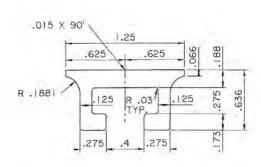
NO BOLTS SHALL BE PLACED THROUGH FACE OF SIGN.

ALL TRACK HEAD BOLTS SHALL HAVE HEADS DESIGNED TO FIT AND TRANSMIT LOAD TO BOLT SLOTS IN THE STIFFENER.

STIFFENERS SHALL BE ALUMINUM EXTRUSIONS AS DETAILED

SIGN PANELS AND POSTS SHALL BE THE SIZE REQUIRED ON THE

THIS SHEET TO BE USED WITH WIND LOAD MAP AND GENERAL



EXTRUDED CHANNEL DETAIL

STIFFENER (AS REQ'D.) RIVET @ EQ. SPS. (9" MAX.)

TYPICAL SIGN BACKING DETAIL

1/4" ALUM. RIVETS

& SIGN & POST

ON THIS SHEET UNLESS OTHERWISE NOTED.

MOUNTING CLAMPS REQUIRED AT EACH HORIZONTAL STIFFENER.

PLANS AND SUMMARY SHEET.

SEE OTHER SHEETS FOR MOUNTING DETAILS.

ALL SIGNS THAT REQUIRE BACKING SHALL BE INSTALLED WITH RIVETS.

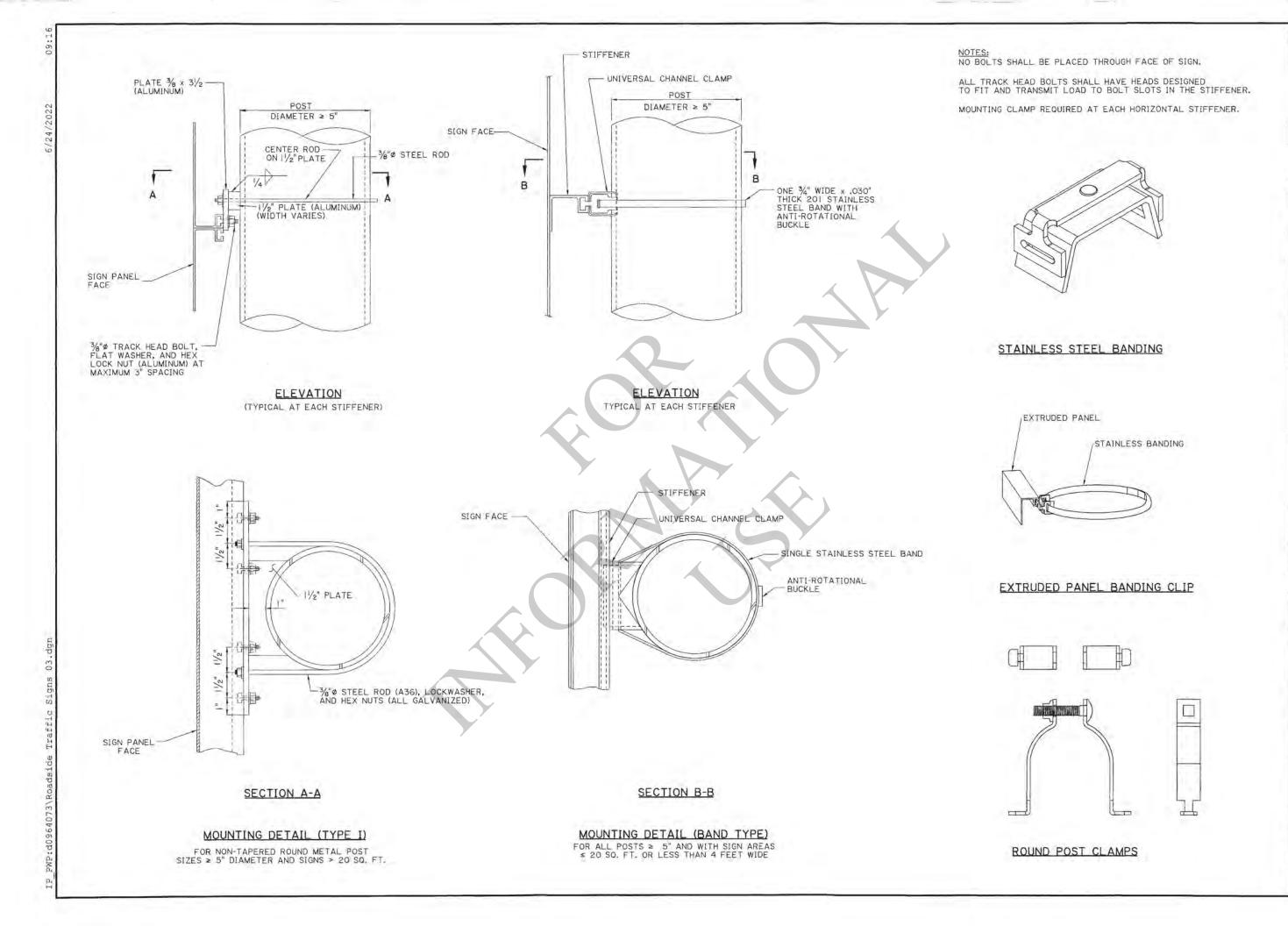
NOTES SHEET.

24/22



B B SIGNS) PANEL YPE A 8



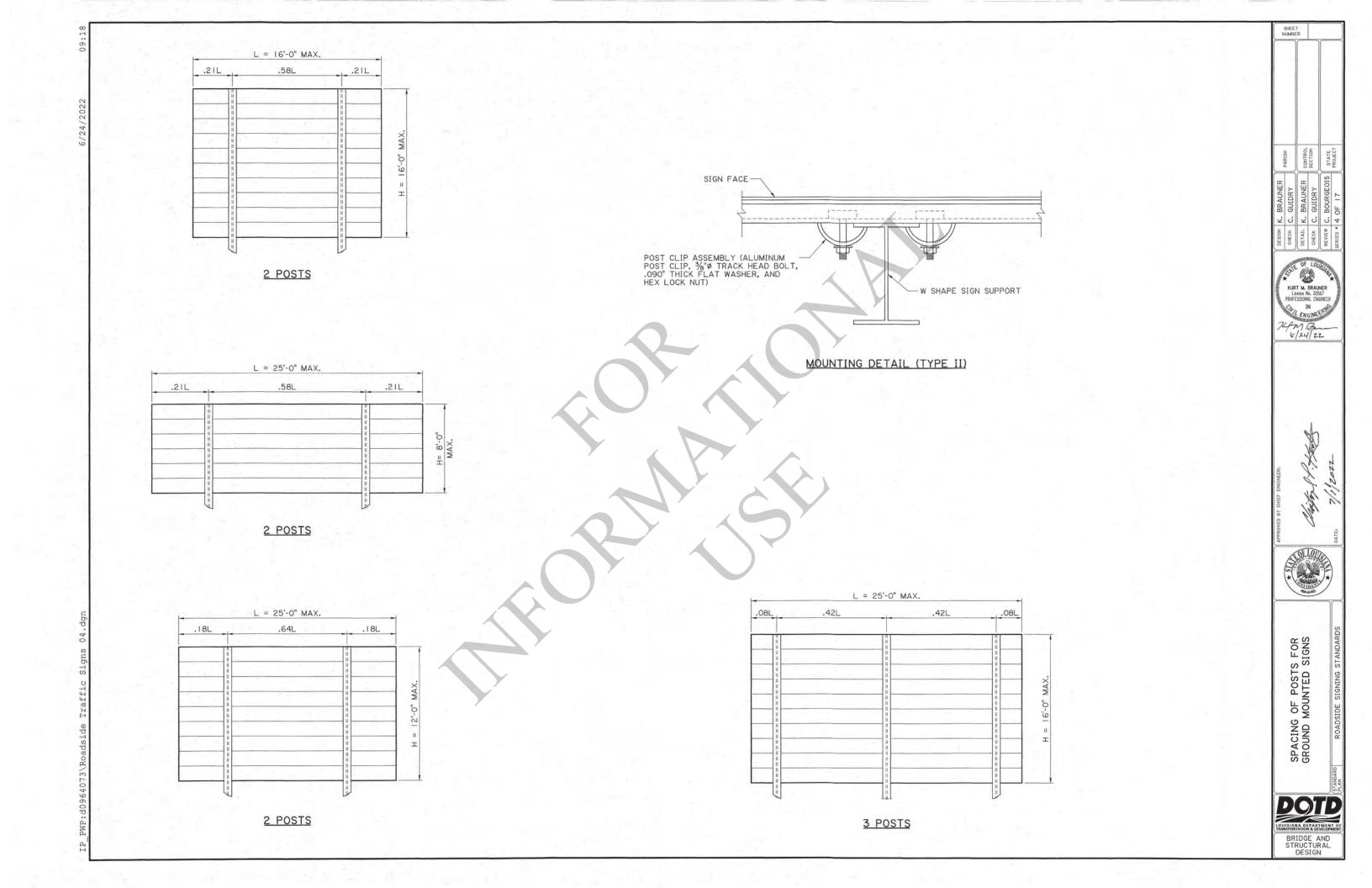


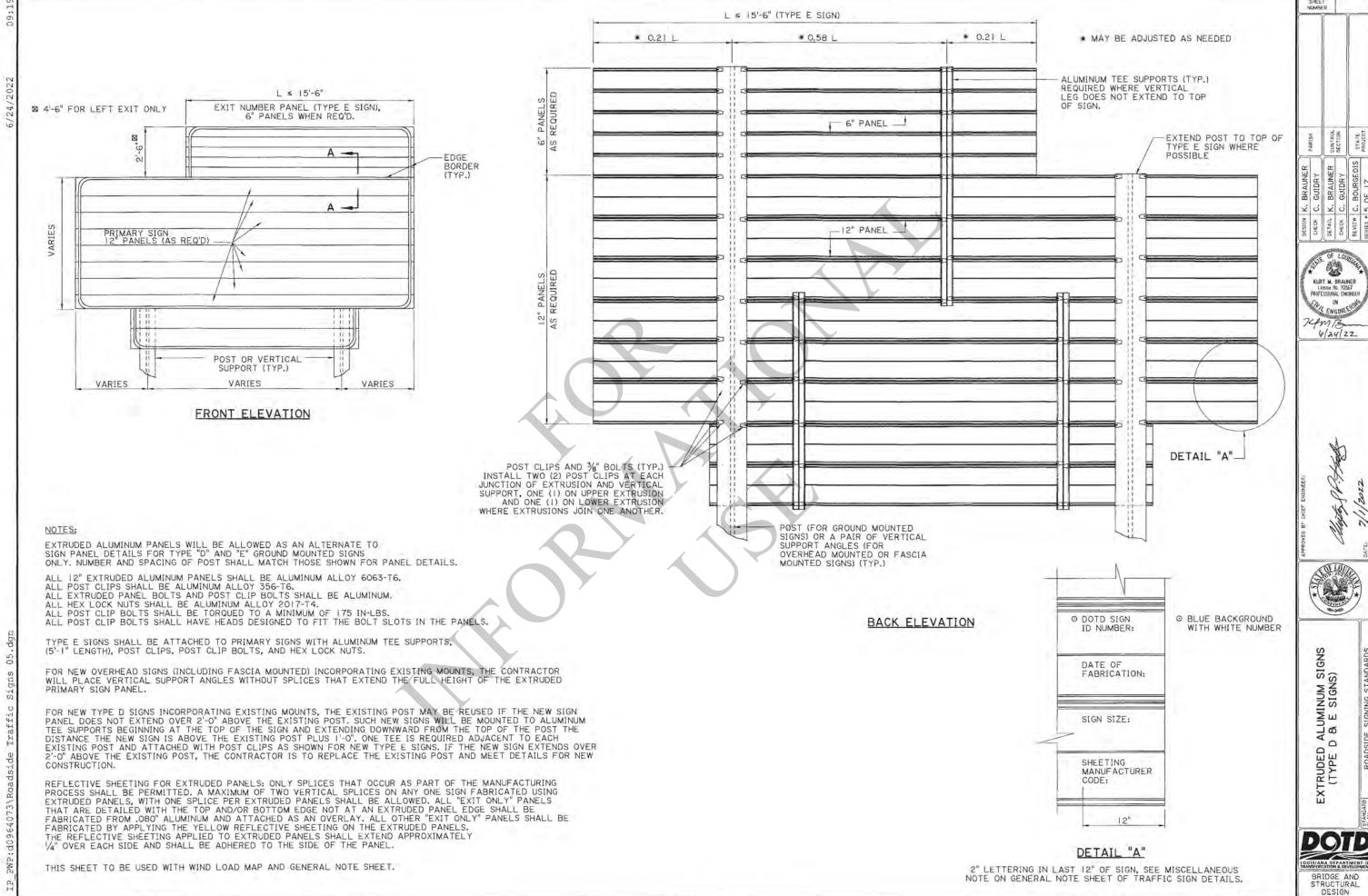
KURT M. BRAUNER Licenso No. 20067 PROFESSIONAL ENGINEER IN ENGINEERING 76/24/22

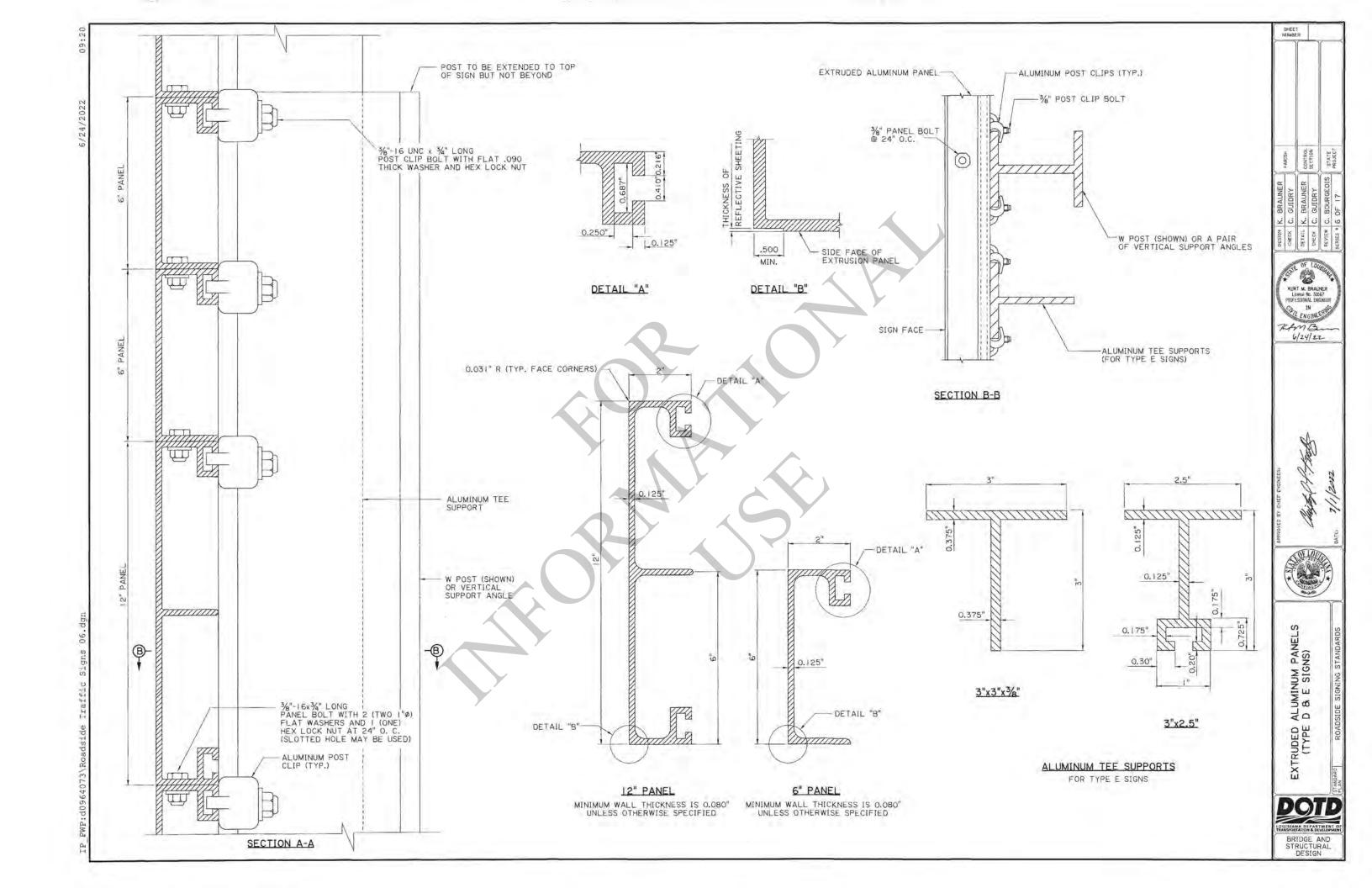


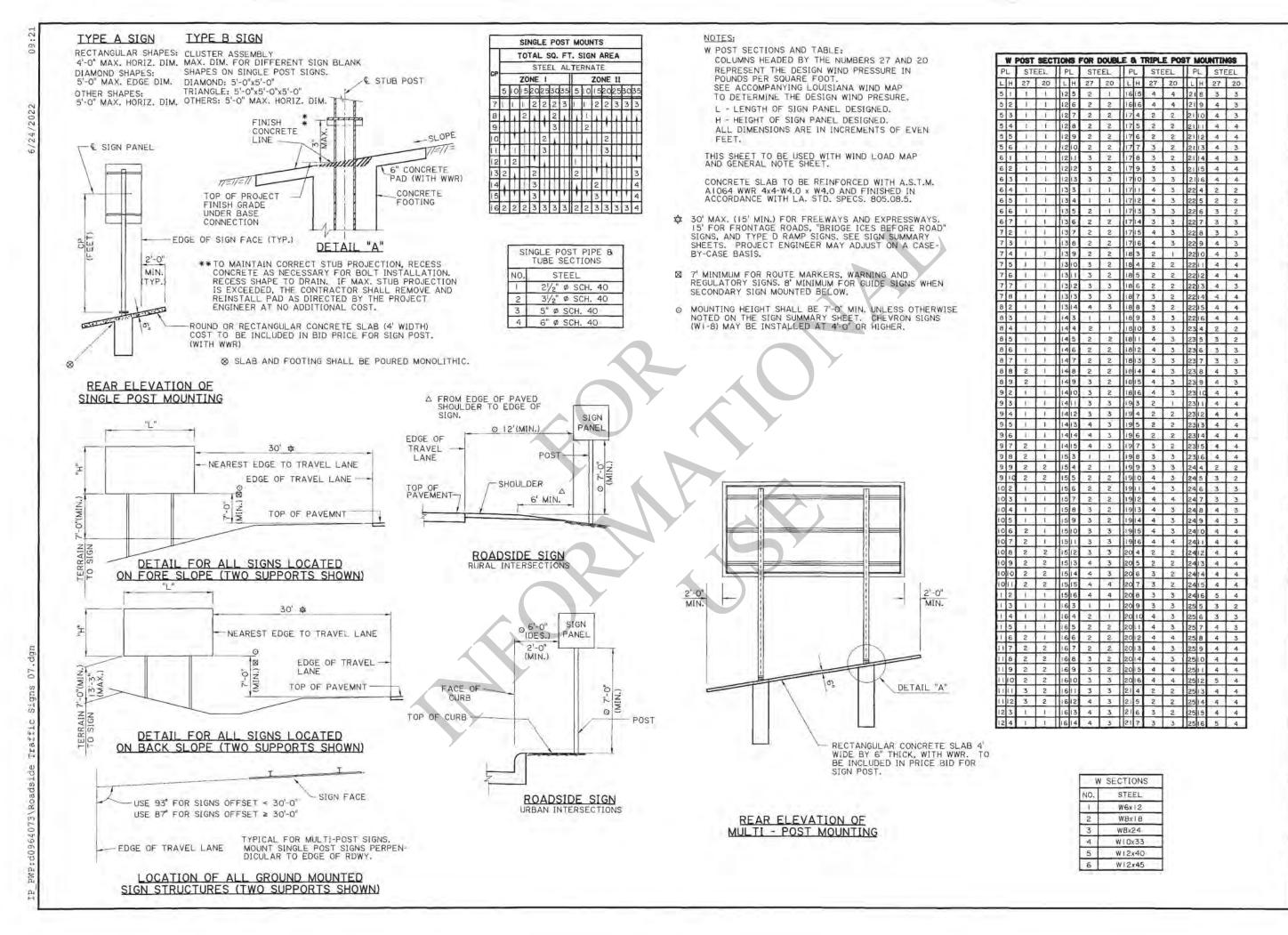
DETAILS B SIGNS) MOUNTING (TYPE A 8

DOTE BRIDGE AND STRUCTURAL DESIGN











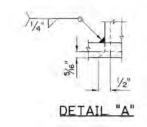


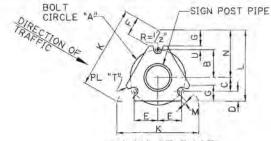
SIGNS (GNS) ONTED S B W A.A. ROADSI

DOTE BRIDGE AND

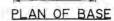
STRUCTURAL

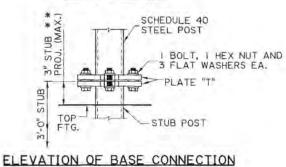
SECTION A-A

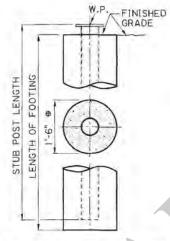












FOR 21/2" Ø (STEEL) POST SECTIONS, FOOTING DIAMETER SHALL BE 1'-0"

FOOTING DETAIL PIPE SECTIONS

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

SPECIAL CARE SHALL BE TAKEN TO SET THE BASE PLUM TO AVOID EXCESSIVE SHIMMING AT THE BREAK-AWAY FEATURE AFTER FINAL INSTALLATION. EXCESSIVE SHIMMING COULD IMPAIR THE BREAK-AWAY FEATURE FOR WHICH THIS INSTALLATION WAS DESIGNED.

- BASE SHALL BE ALIGNED AND SET PLUM BEFORE OR IMMEDIATELY AFTER POURING CONCRETE FOOTING.
- 2. H.S. BOLTS IN BASE PLATE SHALL BE TIGHTENED TO THE PRESCRIBED TORQUE, CARE SHALL BE TAKEN TO AVOID OVERTIGHTING.

FRICTION CAPS:

CAPS MAY BE MANUFACTURED FROM EITHER HOT ROLLED OR COLD ROLLED STEEL SHEETS. FOR PIPE SIZES 31/2" AND SMALLER THE MINIMUM SHEET METAL THICKNESS SHALL BE 24 GAUGE. THE RIM EDGES SHALL BE REASONABLY STRAIGHT AND SMOOTH. CAPS SHALL BE SIZED AND FORMED IN SUCH A MANNER AS TO PRODUCE A DRIVE-ON FRICTION FIT AND HAVE NO TENDENCY TO ROCK WHEN SEATED ON THE PIPE. THE DEPTH SHALL BE SUFFICIENT TO GIVE POSITIVE PROTECTION AGAINST ENTRANCE OF RAINWATER. THEY SHALL BE FREE OF SHARP CREASES OR INDENTATIONS AND SHOW NO EVIDENCE OF METAL FRACTURE. CAPS SHALL HAVE A ELECTRODEPOSITED COATING OF ZINC IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. SPECIFICATION B633 SC4, TYPE 1.

THIS SHEET TO BE USED WITH WIND LOAD MAP AND GENERAL NOTE SHEET.

MULTI-DIRECTIONAL BASE SINGLE STEEL POST ONLY

DETAIL

3 REQ'D.

PIPE INSIDE

DIA./2 FRONT

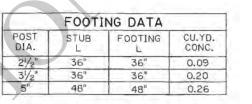
> ** IF MAX. STUB PROJECTION IS EXCEEDED, CONTRACTOR SHALL REMOVE AND REINSTALL PAD AS DIRECTED BY THE PROJECT ENGINEER AT NO COST TO THE DEPARTMENT.

		STE	EL ML	ILTI-D	IRECT	IONAL	BASE	CONN	ECTIO	ON DA	TA					
NOMINAL PIPE SIZE	BOLT SIZE O & TORQUE	WELD SIZE	T	Y	А	В	C	D	E	F	G	K	L	М	N	U.
21/2" OR 31/2" DIA.	5% T=226	3/8"	5/8"	7"	7"	31/2"	13/4"	11/4	3"	25/6"	2"	103/8"	9"	1/2"	6"	1/2

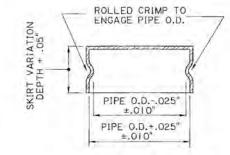
SIDE

"B"

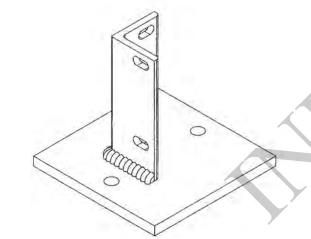
FOR STUB POST LENGTH & FOOTING DIMENSION SEE TABLE BELOW AND FOOTING DETAIL. O TORQUE IN INCH-LBS., BOLTS ARE HIGH STRENGTH



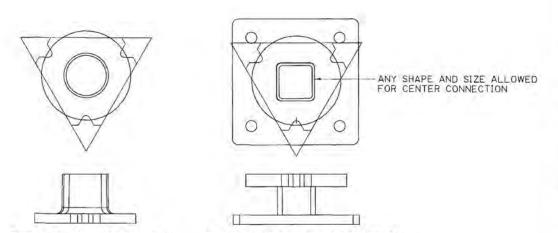
TYPICAL TOP ASSEMBLY



FRICTION CAP DETAIL USED AT TOP OF ALL POSTS



SURFACE MOUNT FOR MILE MARKERS (SQUARE TUBE ONLY)



TYPICAL BOTTOM ASSEMBLY

CONCRETE SURFACE MOUNT

ROADSIDE MOUNTED DOTE BRIDGE AND STRUCTURAL

DETAILS

SIGN [

CONTROL

2 0 2 0 0 0

KURT M. BRAUNER Licease No. 30567 PROFESSIONAL ENGINEE

KAMB.

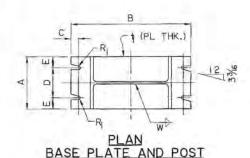
6/24/22

ELEVATION OF HORIZONTAL CONNECTION W SECTION

BOLT, I HEX NUT AND

3 FLAT WASHERS EA.

_ I BOLT, I HEX NUT AND 3 FLAT WASHERS EA.



ADD 1/2" FOR BEVELED BASE PLATES

DIRECTION OF HIGHEST SPEED TRAFFIC

ELEVATION OF BEVELED CONNECTION W SECTION

AT NO COST TO THE DEPARTMENT.

TO BE USED ON ALL MULTI-POST SIGNS WITH DISTANCE BETWEEN POSTS 7'-0" & TO & OR LESS.

IF MAX. STUB PROJECTION IS EXCEEDED, CONTRACTOR SHALL REMOVE AND REINSTALL PAD AS DIRECTED BY THE PROJECT ENGINEER

SIGN POST

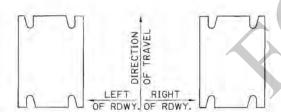
STUB-PROJ.** (MAX.)

TOP

FINISHED GRADE 8-BARS V (SEE TABLE) POST NO.3 SPIRAL ASTM-306 GRADE 70 OR W5 SPIRAL STUB ASTM-A82 WITH 6" PITCH AND 2 FLAT TURNS TOP AND BOTTOM. -STUB POST

CONCRETE FOOTING DETAIL W SECTION

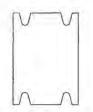
NO REINFORCING STEEL IS REQUIRED FOR 'S' SECTION.



LEFT HAND SLOTS

RIGHT HAND SLOTS

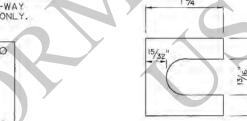
FOR ONE-WAY TRAFFIC LANES, FOR TWO-WAY TRAFFIC LANES, USE RIGHT HAND SLOTS ONLY.



TWO-WAY SLOTS FOR GORE INSTALLATIONS



FOR BRIDGE MOUNTED SIGNS & SIGNS BEHIND GUARDRAIL



HINGE PLATE DETAIL

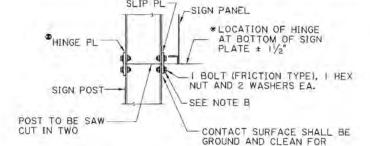
* SHIM DETAIL BOLTS UP TO 34" Ø BOLTS

* SHIM DETAIL BOLTS UP TO I" Ø BOLTS

*FURNISH 2 SHIMS 0.012"± THICK AND 2 SHIMS 0.032"± THICK PER POST, SHIMS SHALL BE BRASS CONFORMING TO A.S.T.M. SPEC. B-36 AND BE USED AS DIRECTED BY THE PROJECT ENGINEER.

HOLES

ORIENTATION AND USE OF SLOTS AND HOLES



SLIP PLATE CONNECTION DETAIL

WHEN SIGN IS LOCATED ON SIDE OF ROADWAY WITH TWO WAY TRAFFIC, A SLIP PLATE WILL BE USED ON BOTH SIDES OF THE POST IN LIEU OF THE HINGE PLATE SHOWN

UNIFORM BEARING

FOR EXTRUSION SIGN PANEL ALTERNATE, LOCATION OF € HINGE SHALL BE 31/2" FROM BOTTOM OF SIGN PANEL.



SLIP PLATE DETAIL BOLT HOLE DIAMETERS TO BE EQUAL TO BOLT DIA. + 1/6" IN POST FLANGE AND SLIP PLATE.

SLIP PLATE CONNECTION NOTES:

- I. POST SHALL BE SAW CUT OR TORCH CUT PRIOR TO GALVANIZING.
- 2. SLIP PLATE SHALL BE INSTALLED WITH H.S. BOLTS AT MINIMUM BOLT TENSION.
- 3. TIGHTING SHALL BE OBTAINED BY (a) TURN OF NUT METHOD; OR
 (b) DIRECT TENSION INDICATOR METHOD USING LOAD INDICATOR WASHER, SEE NOTE A.
- 4. TIGHTING SHALL BE TO SUCH A DEGREE AS TO OBTAIN MINIMUM BOLT TENSION AS SPECIFIED IN STANDARD SPECIFICATIONS SUBSECTION 807.05, CURRENT AT TIME OF FABRICATION.
- TIGHTEN BOLTS IN A SYSTEMATIC ORDER TO THE PRESCRIBED MINIMUM BOLT TENSION.

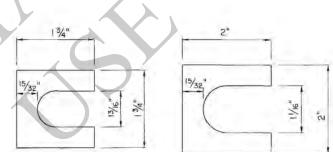
WHEN HIGH STRENGTH BOLT IS TIGHTENED BY USE OF A DIRECT TENSION INDICATOR, THE INSTALLATION AND INSPECTION SHALL BE IN ACCORDANCE WITH SPECIFICATION FOR STRUCTURAL JOINTS, SECTION 5 AND 6 FOR ASTM A-325 BOLTS APPROVED BY THE RESEARCH COUNCIL ON RIVETED AND BOLTED STRUCTURAL JOINTS. FOR DETAILED INSTALLATION AND INSPECTION PROCEDURES
FOLLOWED MANUFACTURER'S RECOMMENDATIONS, CONTRACTOR SHALL BE REQUIRED TO SUBMIT BROCHURES TO THE BRIDGE DESIGN ENGINEER FOR APPROVAL.

WHEN HIGH STRENGTH BOLT IS TIGHTENED BY USE OF A DIRECT TENSION INDICATOR METHOD, THE WASHER UNDER THE BOLT HEAD SHALL BE A LOAD INDICATOR WASHER.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

SPECIAL CARE SHALL BE TAKEN TO SET THE BASE PLUMB TO AVOID EXCESSIVE SHIMMING AT THE BREAK-AWAY FEATURE AFTER FINAL INSTALLATION. EXCESSIVE SHIMMING COULD IMPAIR THE BREAK-AWAY FEATURE FOR WHICH THIS INSTALLATION WAS DESIGNED. SHIM PACKS SHOWN ON THIS DRAWING SHOULD BE SUFFICIENT TO ALLOW FOR NORMAL

- BASE SHALL BE ALIGNED AND SET PLUMB BEFORE OR IMMEDIATELY AFTER POURING CONCRETE FOOTING.
- 2. H.S. BOLTS IN BASE PLATE SHALL BE TIGHTENED TO THE PRESCRIBED TORQUE, CARE SHALL BE TAKEN TO AVOID OVERTIGHTING.



DIMENSION					BASI	E CONN	VECTIO	ON DAT	TA.				SL	P PLA	TE &	HINGE	PLATE	DATA					FC	OTING I	ATA	
SECTION (INCH)	BOLT SIZE & * TORQUE LIMITS	Α	В	С	D	E	tj	R	W	W (ALT.) SEE NOTE	F	G	H	J	K	K	E	М	tz	R ₂	H.S. BOLT DIA.	STUB LTH.	FTG. DIA.	LTH. OF FTG.	BARS V SIZE	CU. YE
W6x12	5/11d T- 000 245	4	10	3/4	2	Πj	11/2	11/32	5/16	5/16	3%	4	21/4	7∕8	_j_	11/4	5/8	41/4	3/8	9/32	1/2	24	24	48	#5	0.46
W8x18	%"¢ T= 226-345	51/4	12	3/4	3	1/8	11/2	11/32	5/16	5/16	41/8	51/4	23/4	11/4	11/8	13/8	3/4	43/4	1/2	11/32	5/8	24	24	60	#6	0.58
W8x24	3/4"ø T= 369-554	61/2	121/2	7/8	31/4	15/8	13/4	13/32	3/8	7/6	41/8	61/2	31/2	11/2	11/8	13/B	3/4	43/4	1/2	11/32	5/8	30	24	72	#7	0.70
W (0x33		8	151/2	11/4	41/2	13/4	2	17/32	3/8	7/16	45/8	8	51/2	11/4	11/4	11/2	7/8	51/4	5/8	13/32	3/4	30	24	96	#9	0.93
W12x40	"ø T= 460-735	8	171/2	11/4	41/2	13/4	2	17/32	3/8	7/16	45/8	8	51/2	11/4	11/4	11/2	7/8	51/4	5/8	13/32	3/4	36	24	120	#10	1,16
W12x45		10	171/2	11/4	6	2	2	17/32	3/8	7/16	51/2	10	51/2	21/4	11/2	13/4	1	61/4	3/4	1,52	7/8	36	36	96	#9	2.09

*BASE PLATE TO POST WELD ALTERNATE (AS AN ALTERNATE TO WELDS SHOWN IN DETAILS, THE POST MEMBERS TABULATED MAY BE WELDED ALL AROUND WITH A FILLET WELD W(ALT.).) ALL BOLTS SHALL HAVE A MINIMUM OF 3 THREADS BEYOND THE NUT. BOLT TORQUE LIMITS ARE IN INCH POUNDS. (THE HIGH STRENGTH BOLTS AT THE BASE CONNECTION SHOULD BE TORQUED WITHIN THE LIMITS SPECIFIED, HOWEVER, THE LOWER LIMIT IS DESIRABLE). FOR NON-BREAKAWAY USE TORQUE LIMITS GIVEN IN THE STANDARD SPECIFICATIONS

KURT M. BRAUNER License No. 30567 PROFESSIONAL ENGINEER ENGINEER! Shudy.

6/24/22

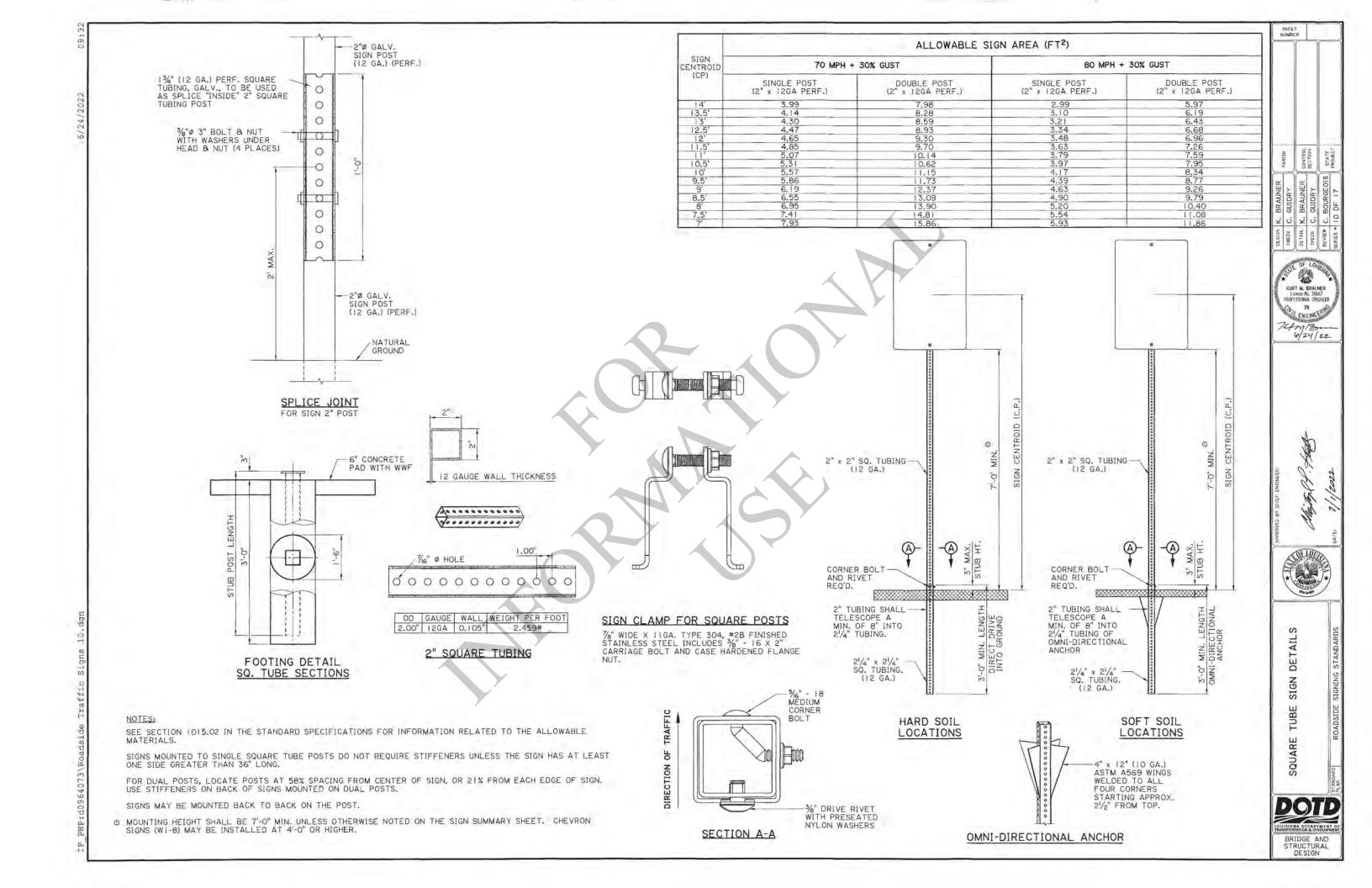


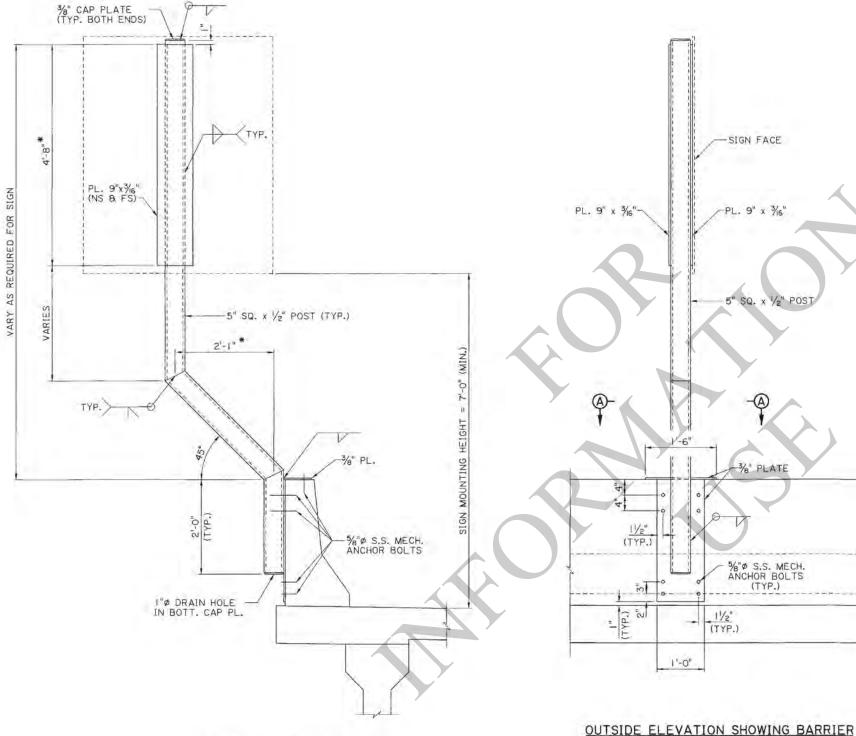


DETAIL SIGN GNS) TYPE D SIC

ROADSIDE DOTE

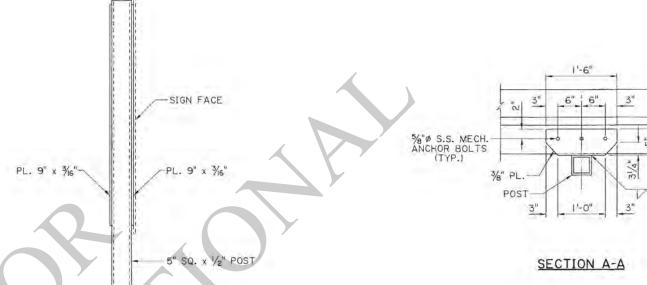
BRIDGE AND





OFFSET SIGN SUPPORT

* DIMENSIONS ARE BASED ON A 5 FT. x 4 FT. SIGN. ADJUST AS NEEDED FOR DIFFERENT SIGN SIZES.



3/8" PLATE

(TYP.)

(TYPICAL INSTALLATION)

NOTES:

STRUCTURAL MEMBERS SHALL BE AASHTO M270 GRADE 50 STEEL AND SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123.

MECHANICAL ANCHOR BOLTS SHALL BE ¾" STAINLESS STEEL (MIN. FY = 55 ks) AND SHALL BE SELECTED FROM THE A.M.L. AND INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS. EACH ANCHOR SHALL HAVE AN ALLOWABLE CAPACITY OF 3 KIPS PULLOUT AND 3 KIPS SHEAR AFTER APPLICATION OF ANY REDUCTION FACTORS FOR ANCHOR SPACING AND EDGE DISTANCE.

WELDING SHALL BE IN ACCORDANCE WITH THE BRIDGE WELDING CODE OF THE AMERICAN WELDING SOCIETY (AWS DI.5-10), AND SECTION 809 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES,

NO PART OF ANY SIGN SHALL PROTRUDE INTO THE SHOULDER AREA. DIMENSIONS OF SUPPORT POST AND BRACKET SHALL BE ADJUSTED AS NEEDED PRIOR TO FABRICATION.

ANY PORTIONS OF THE EXISTING BARRIER THAT ARE DAMAGED SHALL BE REPAIRED TO THE SATISFACTION OF THE PROJECT ENGINEER.

DIMENSIONS RELATED TO THE BARRIER CONNECTION ARE BASED ON AS-BUILT DRAWINGS AND PREVIOUS STANDARDS. DIMENSIONS SHALL BE ADJUSTED AS NEEDED BASED ON FIELD MEASUREMENTS.

A V_{8} " NEOPRENE PAD SHALL BE USED BETWEEN ALL STEEL AND CONCRETE CONTACT SURFACES.

MAX SIGN AREA = 20 SQFT.



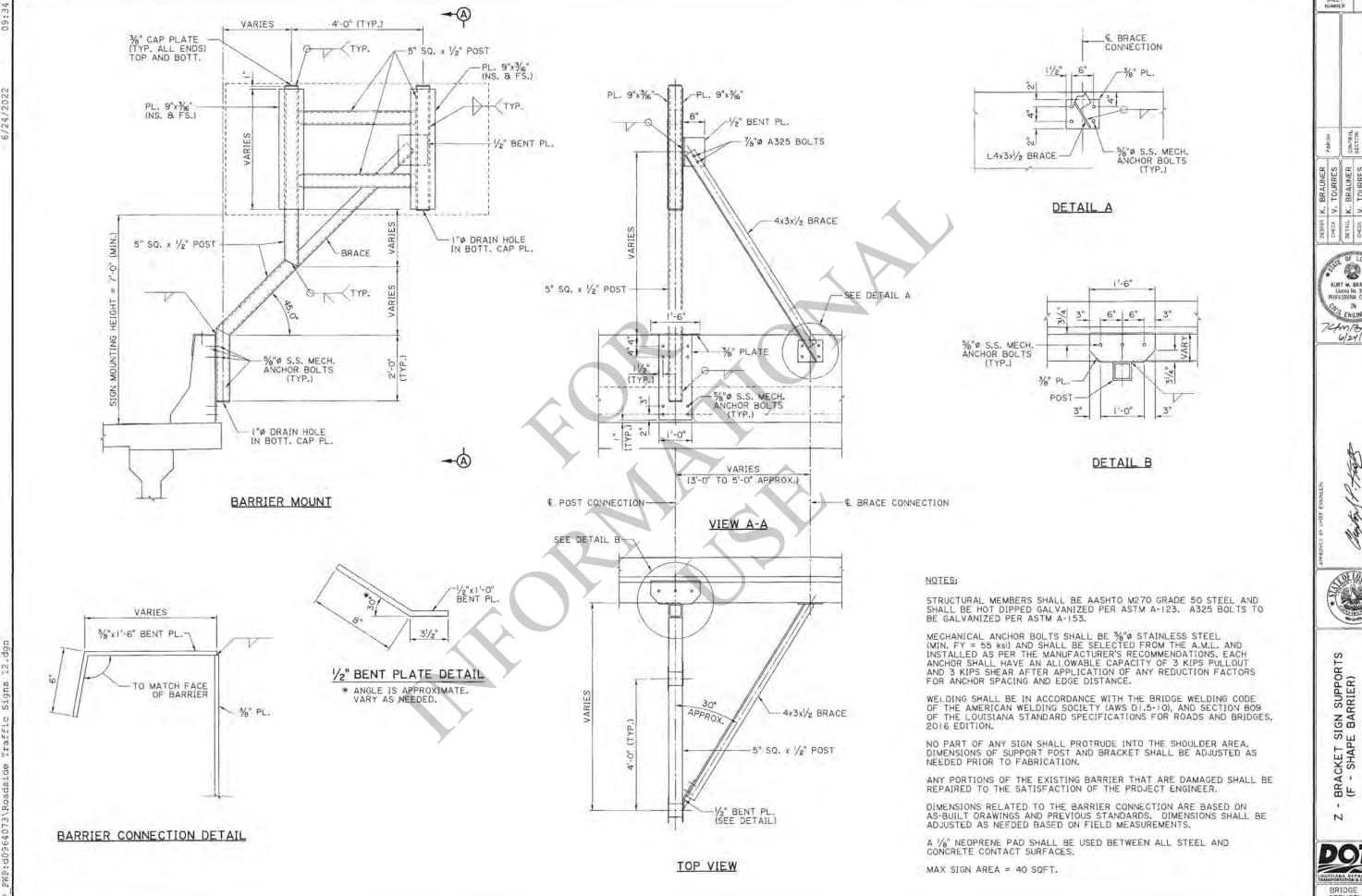
4 KURT M. BRAUNER License No. 30567 PROFESSIONAL ENGINEER

24m/3-

BRACKET SIGN SUPPORT (F - SHAPE BARRIER)

Z





SECTION

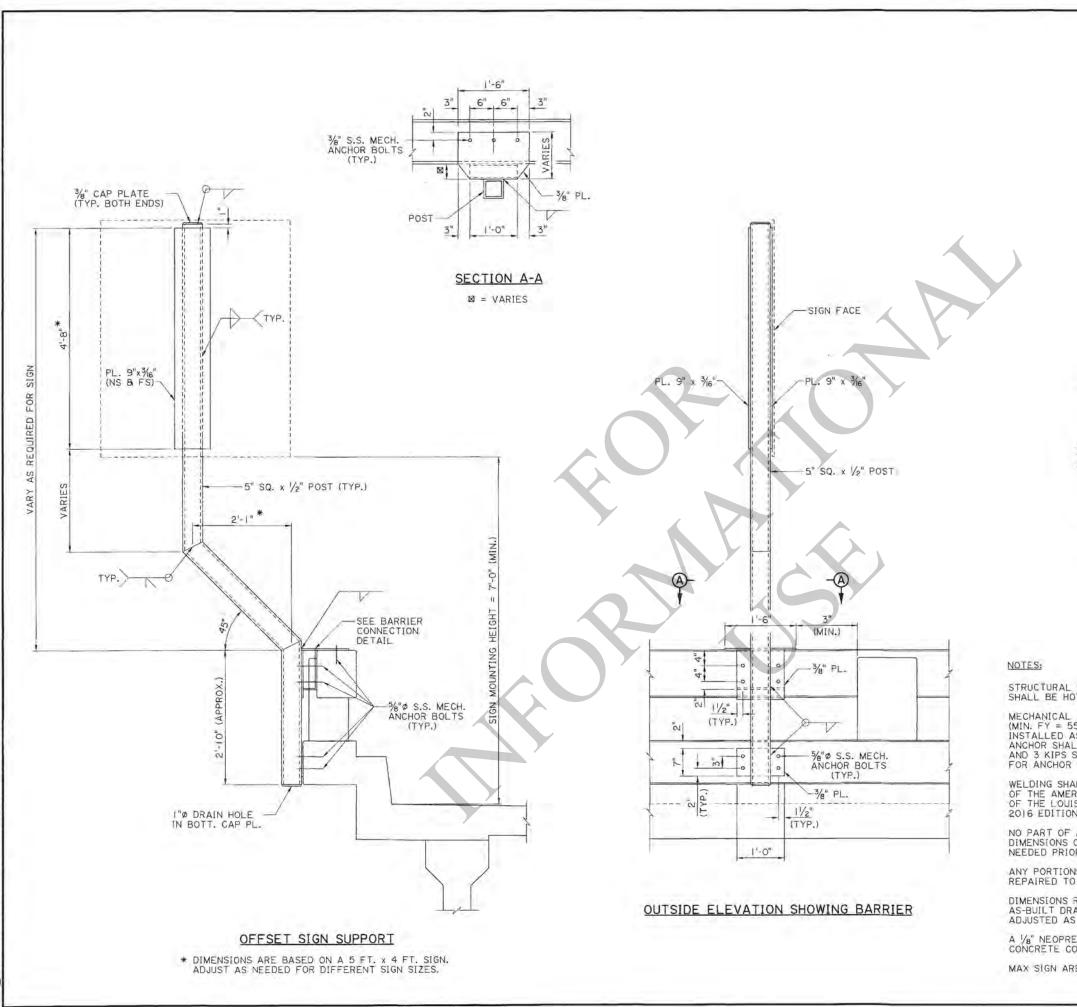
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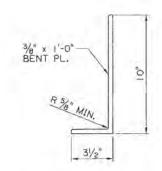
KURT M. BRAUNER ENGINEERIN 74mB 6/24/22



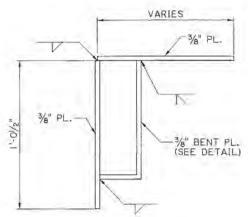
DOTE

BRIDGE AND STRUCTURAL





3/8" BENT PL. DETAIL



BARRIER CONNECTION DETAIL

STRUCTURAL MEMBERS SHALL BE AASHTO M270 GRADE 50 STEEL AND SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123.

MECHANICAL ANCHOR BOLTS SHALL BE % 0 STAINLESS STEEL (MIN. FY = 55 ksi) AND SHALL BE SELECTED FROM THE A.M.L. AND INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS. EACH ANCHOR SHALL HAVE AN ALLOWABLE CAPACITY OF 3 KIPS PULLOUT AND 3 KIPS SHEAR AFTER APPLICATION OF ANY REDUCTION FACTORS FOR ANCHOR SPACING AND EDGE DISTANCE.

WELDING SHALL BE IN ACCORDANCE WITH THE BRIDGE WELDING CODE OF THE AMERICAN WELDING SOCIETY (AWS D1.5-10). AND SECTION 809 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, 20)6 EDITION.

NO PART OF ANY SIGN SHALL PROTRUDE INTO THE SHOULDER AREA. DIMENSIONS OF SUPPORT POST AND BRACKET SHALL BE ADJUSTED AS NEEDED PRIOR TO FABRICATION.

ANY PORTIONS OF THE EXISTING BARRIER THAT ARE DAMAGED SHALL BE REPAIRED TO THE SATISFACTION OF THE PROJECT ENGINEER.

DIMENSIONS RELATED TO THE BARRIER CONNECTION ARE BASED ON AS-BUILT DRAWINGS AND PREVIOUS STANDARDS. DIMENSIONS SHALL BE ADJUSTED AS NEEDED BASED ON FIELD MEASUREMENTS.

A $\ensuremath{/\!/}_8$ "Neoprene pad shall be used between all steel and concrete contact surfaces,

MAX SIGN AREA = 20 SQFT.

K. BRAUNERS

V. TOURRES

L. K. BRAUNER

V. TOURRES

SECTION

13 OF 17

PROJECT







CKET SIGN SUPPORT AND RAIL BARRIER)

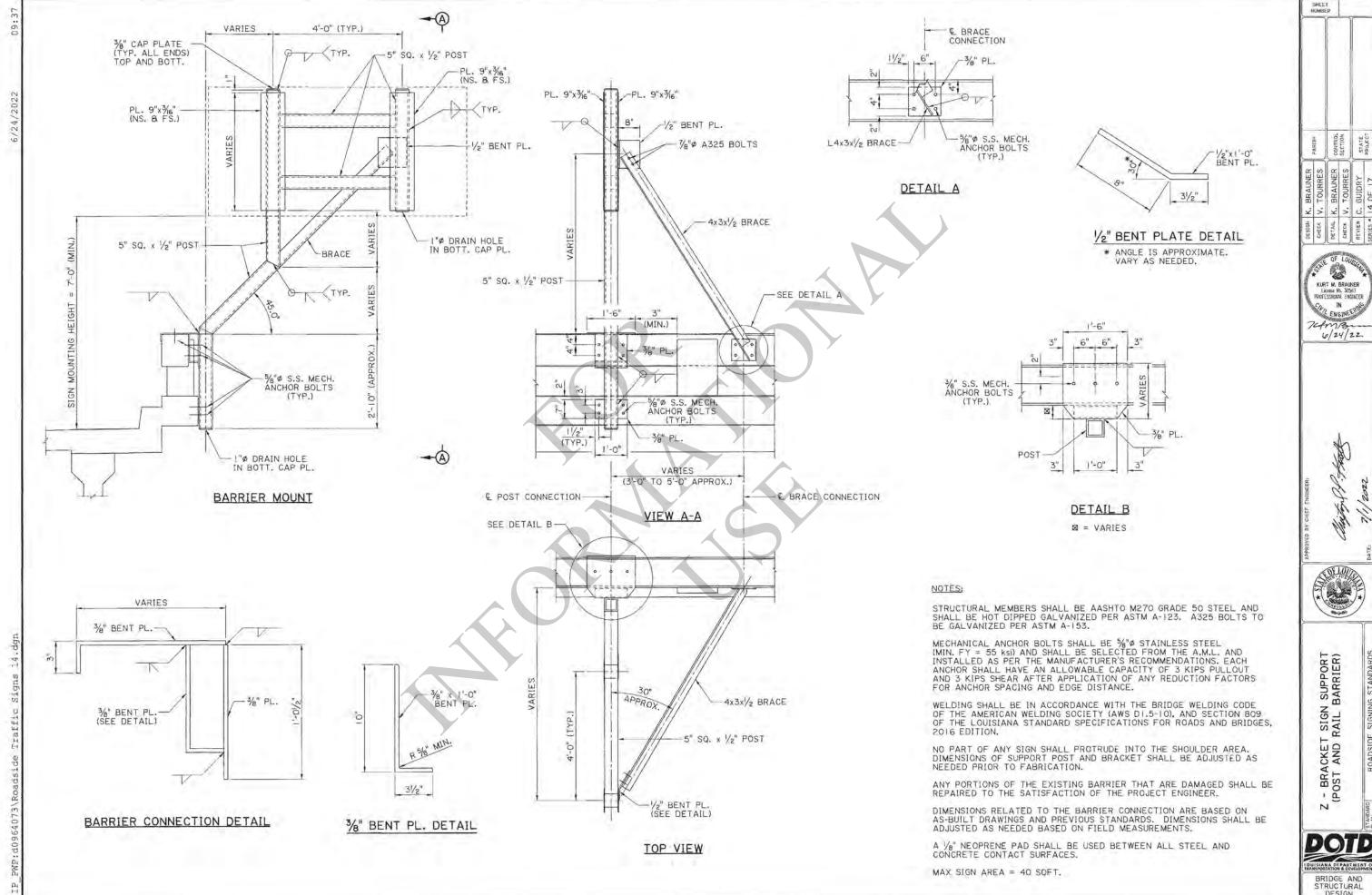
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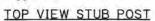
DOTD

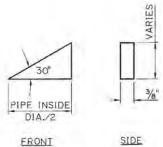
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

BRIDGE AND STRUCTURAL DESIGN

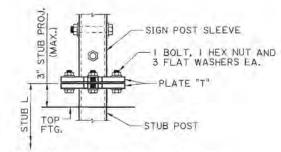
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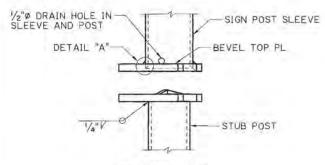




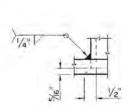
DETAIL 3 REQ'D.



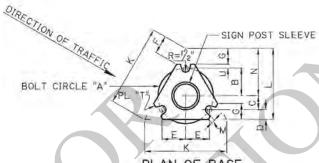
ELEVATION OF BASE CONNECTION



SECTION A-A



DETAIL "A"



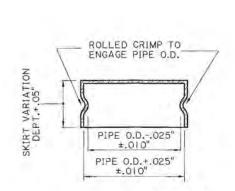
PLAN OF BASE

T	Ţ	0	1	1	GRAD
3'-0"	,0-,1				
STUB POST LENGTH = 3'-0'	ENGTH OF FOOTING = 3'-0"	T	1	1	
T LEN	FOOTIN	.g (0	-)	
B POS	H OF		4	/	
STU	ENGT				

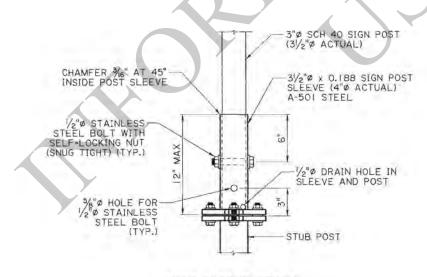
FOOTING DETAIL PIPE SECTIONS

		STEEL	MUL	TI-DIF	RECTIO	NAL	BASE	CONNE	ECTION	V DAT	Α				
NOMINAL PIPE SIZE FOR POST SLEEVE	BOLT SIZE O	WELD SIZE	T	А	В	C	D	E	F	G	K	L	М	N	U
31/2"Ø SCH 40	%"ø T=226	3/8"	5/8"	7"	31/2"	13/4"	11/4"	3"	25/16"	2"	103/8"	9"	1/2"	6"	1/2"

FOR STUB POST LENGTH & FOOTING DIMENSION SEE FOOTING DETAIL. O TORQUE IN INCH-LBS., BOLTS ARE HIGH STRENGTH



FRICTION CAP DETAIL (USED AT TOP OF ALL POSTS)



POST SLEEVE DETAIL

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

SPECIAL CARE SHALL BE TAKEN TO SET THE BASE PLUMB TO AVOID EXCESSIVE SHIMMING AT THE BREAK-AWAY FEATURE AFTER FINAL INSTALLATION. EXCESSIVE SHIMMING COULD IMPAIR THE BREAK-AWAY FEATURE FOR WHICH THIS INSTALLATION WAS DESIGNED. SHIM PACKS SHOWN ON THIS DRAWING SHOULD BE SUFFICIENT TO ALLOW FOR NORMAL MISALIGNMENT.

- I. BASE SHALL BE ALIGNED AND SET PLUMB BEFORE OR IMMEDIATELY AFTER POURING CONCRETE FOOTING.
- 2. H.S. BOLTS IN BASE PLATE SHALL BE TIGHTENED TO THE PRESCRIBED TORQUE. CARE SHALL BE TAKEN TO AVOID OVERTIGHTING.

FRICTION CAPS:

CAPS MAY BE MANUFACTURED FROM EITHER HOT ROLLED OR COLD ROLLED STEEL SHEETS. THE MINIMUM SHEET METAL THICKNESS SHALL BE 24 GAUGE, THE RIM EDGES SHALL BE REASONABLY STRAIGHT AND SMOOTH, CAPS SHALL BE SIZED AND FORMED IN SUCH A MANNER AS TO PRODUCE A DRIVE-ON FRICTION FIT AND HAVE NO TENDENCY TO ROCK WHEN SEATED ON THE PIPE. THE DEPTH SHALL BE SUFFICIENT TO GIVE POSITIVE PROTECTION AGAINST ENTRANCE OF RAINWATER. THEY SHALL BE FREE OF SHARP CREASES OR INDENTATIONS AND SHOW NO EVIDENCE OF METAL FRACTURE. CAPS SHALL HAVE A ELECTRODEPOSITED COATING OF ZING IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. SPECIFICATION B633 SC4, TYPE I.

GALVANIZING:

ALL STEEL POST, PLATE, AND SLEEVE MEMBERS SHALL BE GALVANIZED PER ASTM

ALL MISC. HARDWARE (EXCEPT FOR STAINLESS STEEL BOLTS) SHALL BE GALVANIZED PER ASTM A-153.

SECTION ¥ 0 ¥ 0 5

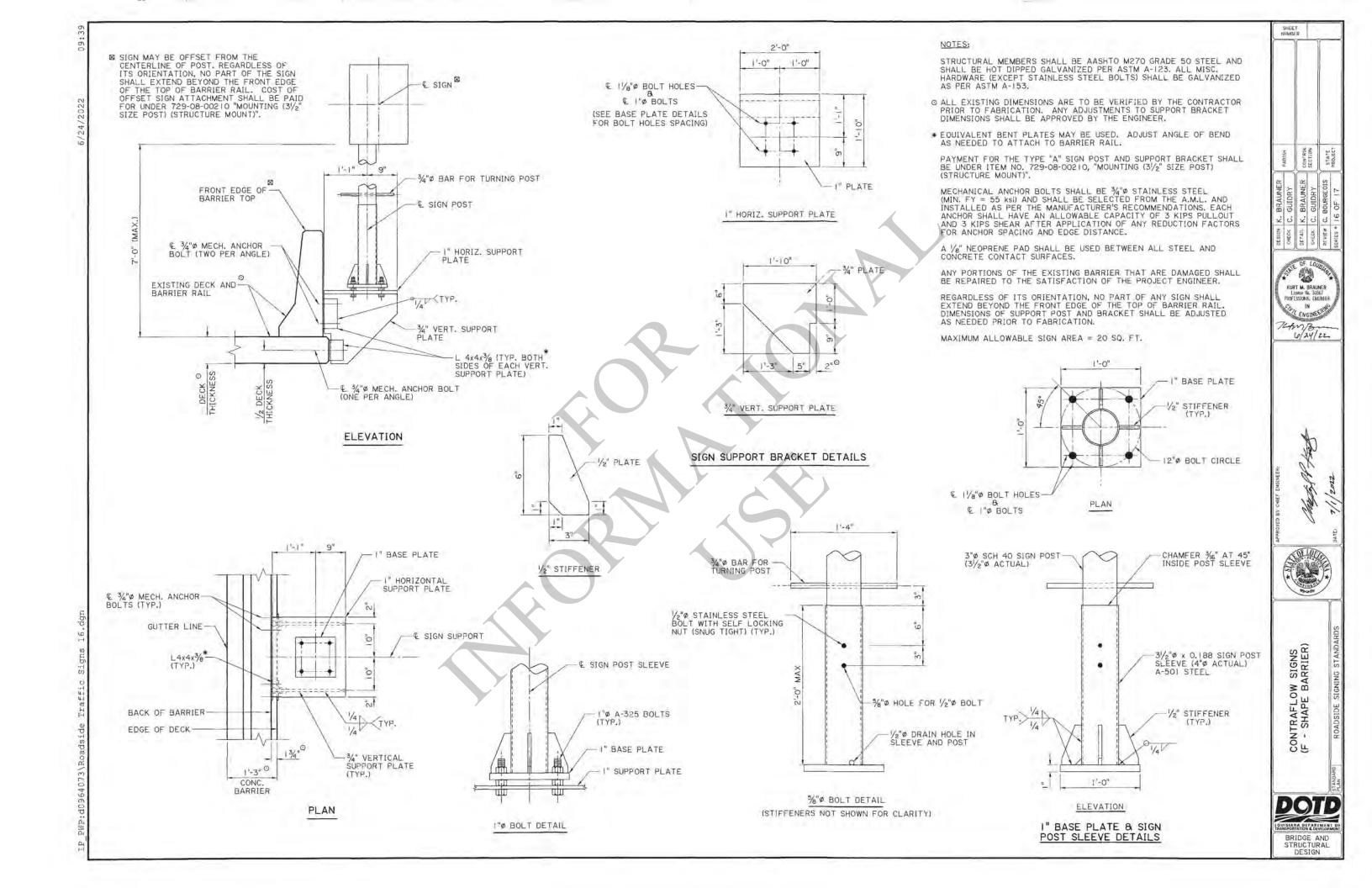


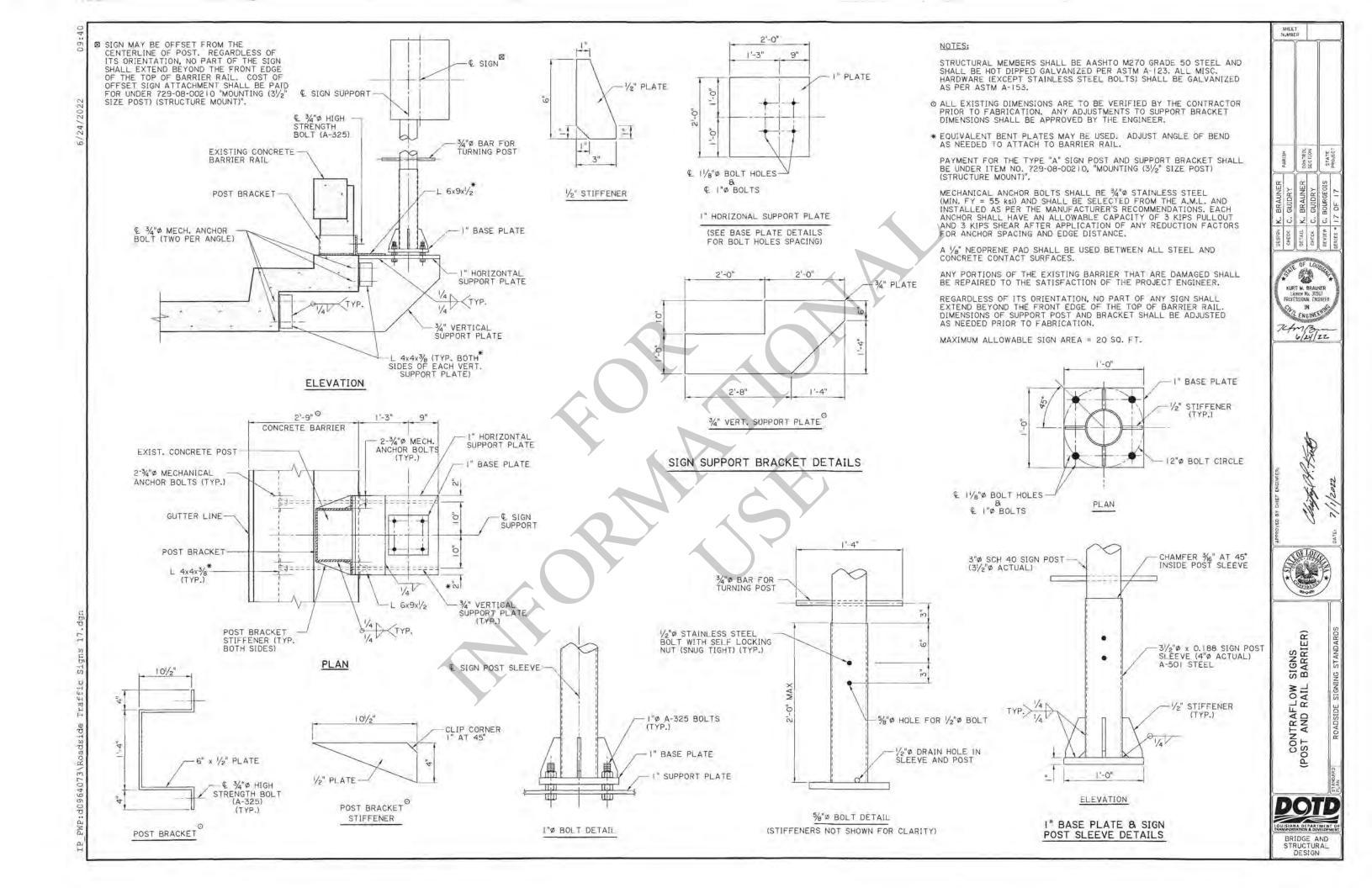


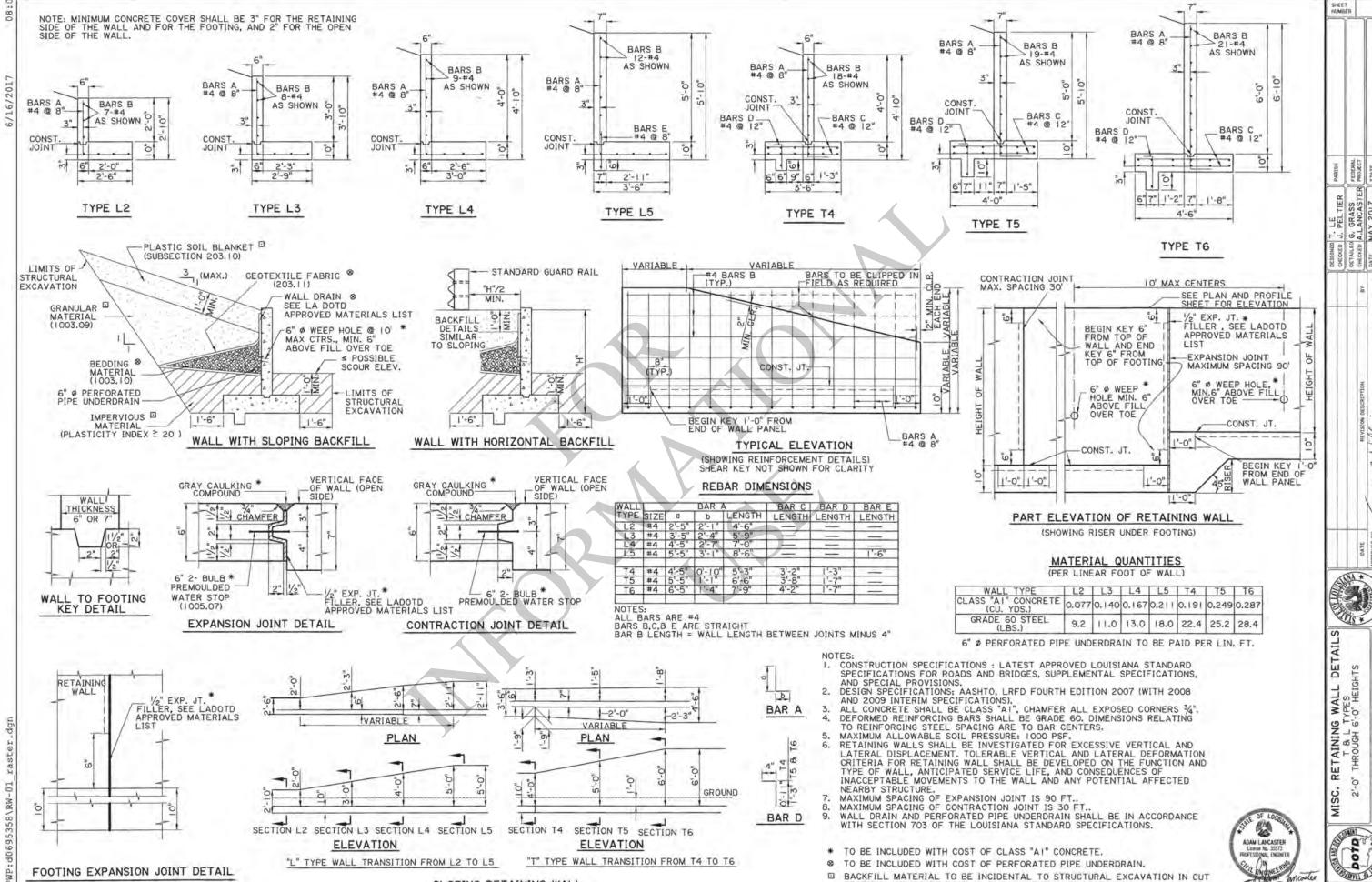


CONTRAFLOW SIGNS (GROUND MOUNTED)

DOTE BRIDGE AND STRUCTURAL







SECTION, AND TO BE PAID AS EMBANKMENT IN FILL SECTION.

BRIDGE AND STRUCTURAL

SLOPING RETAINING WALL

TABLE I

		15 4	3 INCH	X /2	INCH C	ORRUGA	TION)		
PIPE		HEIGH	T OF FI	LL ABOV	E TOP OF	PIPE IN	FEET		MIN.
INCHES	1-10	10.1-15	15.1-20	20.1-25	25.1-30	30,1-35	35.1-40	40,1-50	COVER INCHES
OR LESS	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	9
01	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	9
12	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	9
15	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	9
18	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	9
21	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	9
24	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	12	9
30	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	12	8	9
36	14 (16)	14 (16)	14 (16)	14 (16)	14	14	10		9
42	14 (16)	14 (16)	14 (16)	14 (16)	14	14	12	95	9
48	14 (16)	14 (16)	14 (16)	14 (16)	14	14	12		9
54	14	14	14	14	14	12	12		9
60	12	12	12	12	12	12	12		9
66	10	10	10	10	1.0	10	10		9
72	10	10	10	10	10	10	10	-2	9
78	8	8	8	8	8	8			9
84	8	8	8	8	8	8			9

TABLE 5

		(2 4	F 24.70 07		ALUMI 2 INCH				
PIPE HEIGHT OF FILL ABOVE TOP OF PIPE IN FEET								MIN.	
INCHES	1-10	10.1-15	15.1-20	20.1-25	25.1-30	30.1-35	35.1-40	40.1-50	COVER INCHES
8 OR LESS	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	9
10	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	9
12	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	12	9
15	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	12	12	9
18	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	12	12	12	9
21	14 (16)	14 (16)	14 (16)	14 (16)	12	12	12		9
24	14 (16)	14 (16)	14	12	12	12	10		9
30	14 (16)	14 (16)	12	12	12				9
36	14	14	12	12					9
42	14	14	14	14	12	12	12		9
48	14	14	12	12	12	12	10		9
54	12	12	12	12	12	12			9
60	10	10	10	10	10				9
66	10	10	10	10	10				9
72	8	8	8	8					9

TABLE 2

		(5 INC 3 INC	н х	I INC		PIPE UGATION UGATION			
PIPE HEIGHT OF FILL ABOVE TOP OF PIPE IN FEET							MIN.		
DIAMETER INCHES	1-10	10,1-15	15.1-20	20.1-25	25.1-30	30.1-35	35.1-40	41,1-50	COVER INCHES
36	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	9
42	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	9
48	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	12	9
54	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	14	12	12	9
60	14 (16)	14 (16)	14 (16)	14 (16)	14	14	12	10	9
66	14 (16)	14 (16)	14 (16)	14 (16)	14	12	12	8	9
72	14 (16)	14 (16)	14 (16)	14	12	12	12		9
78	14 (16)	14 (16)	14 (16)	14	12	12	12		9
84	14 (16)	14 (16)	14 (16)	14	12	12	10		9
90	14 (16)	14 (16)	14	12	12	12	10		12
96	14	14	14	12	12	10	8		12
102	14	14	14	12	12	10	8		12
108	12	12	12	12	10	8			12
114	12	12	12	12	10	8			12
(20)	12	12	12	12	10	8			12
126	10	10	10	10	10				12
132	10	10	10	10	8			+	12
138	10	10	10	10	8	~~	~~		12
144	8	8	8	8					12

	X	(3 I		100	NCH CO				
PIPE HEIGHT OF FILL ABOVE TOP OF PIPE IN FEET							MIN.		
DIAMETER INCHES	(-10	10.1-15	15.1-20	20.1-25	25.1-30	30.1-35	35.1-40	40.1-50	COVER INCHES
36	14 (16)	14 (16)	14 (16)	14 (16)	14 (16)	1/4	14	14	9
42	14 (16)	14 (16)	14 (16)	14 (16)	14	14	14	10	9
48	14 (16)	14 (16)	14 (16)	14	14	14	14	8	9
54	14 (16)	14 (16)	14	14	14	14	12		9
60	14 (16)	14 (16)	14	14	14	14	12		9
66	14 (16)	14 (16)	14	14	14	12	12		9
72	14	14	14	14	/12	12	12		9
78	14	14	14	14	12	12	12		9
84	12	12	12	12	12	12	10		9
90	12	12	12	12	12	12	10		12
. 96	12	12	12	12	12	10	8		12
102	10	10	10	10	10	10	8		12
108	10	10	10	10	10	10			12
114	8	8	8	8	8	8			12
120	8	8	8	8	8	8			12

GENERAL NOTES

- MINIMUM PIPE WALL THICKNESS AND COATING REQUIREMENTS FOR ALL METAL PIPE WILL BE AS SHOWN ON THE PROJECT PLANS UNDER "SUMMARY OF DRAINAGE STRUCTURES".
- 2) JOINT TYPES FOR ALL CIRCULAR AND ARCH METAL PIPE SHALL CONFORM TO CURRENT LA DOTD STANDARD SPECIFICATIONS AND SHALL BE AS SHOWN ON THE SUMMARY OF DRAINAGE STRUCTURE PLAN SHEETS.

GAGE NO.	16	14	12	10	8	1
THICKNESS	0.060	0.075	0.105	0.135	0.164	ALUMINUM
(IN.)	0,064	0.079				GALVANIZED STEEL

- 3) PIPE WALL THICKNESS SHOWN ON PROJECT PLANS MAY VARY FROM PIPE WALL THICKNESS SHOWN IN TABLES DUE TO LOCAL PH, RESISTIVITY AND ABRASIVE
- 4) MINIMUM COVER IS MEASURED FROM TOP OF PIPE TO THE TOP OF THE SUBGRADE. MINIMUM COVER SHOWN IS ADEQUATE FOR H-20 LOADING WHEN PAVEMENT IS IN PLACE. DURING CONSTRUCTION, WHEN HEAVY LOADS MAY BE DRIVEN OVER OR CLOSE TO BURIED STRUCTURE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE ADDITIONAL COVER NEEDED TO PROTECT THE PIPE.
- 5) MAXIMUM FILL HEIGHT IS MEASURED FROM TOP OF PIPE TO TOP OF SURFACING.
- 6) SEE STANDARD SPECIFICATIONS AND STANDARD PLAN BM-OI FOR DETAILS OF BACKFILL PROCEDURES. SPECIAL CARE SHOULD BE TAKEN TO THOROUGHLY COMPACT BACKFILL UNDER PIPE HAUNCHES.
- 7) FOR CIRCULAR PIPE, THE AVERAGE INSIDE DIAMETER SHALL NOT VARY MORE THAN 1% OR 1/2", WHICHEVER IS GREATER, FROM THE NOMINAL DIAMETER.
- 8) FOR ARCH PIPE A TOLERANCE OF 1" ± OR 2% OF EQUIVALENT CIRCULAR DIAMETER, WHICHEVER IS GREATER, WILL BE PERMISSIBLE IN SPAN AND RISE.
- 9) GAGES SHOWN IN PARENTHESES MEET AASHTO REQUIREMENTS AND ARE THE GAGE WHICH WOULD NORMALLY BE USED. THE HEAVIER GAGES (NOT IN PARENTHESES) SHOULD BE USED ON DOTD PROJECTS.

TABLE 8

	175			
	RRUGATED AL			
EQUIV. PIPE DIAMETER	C.A. PIPE ARCH SPAN X RISE INCHES	HEIGHT ABOVE TOR (FE	OF FILL P OF ARCH ET)	MIN. COVER
INCHES	MONES	1-4	4.1-9	INGRES
15	17 X 13	14 (16)	14 (16)	9
18	21 X 15	14 (16)	14 (16)	9
21	24 X 18	14 (16)	14 (16)	9
24	28 X 20	14 (16)	14 (16)	9
30	35 X 24	14	14	9
36	42 X 29	14	14	9
42	49 X 33	12	12	9
48	57 X 38	10	10	9
54	64 X 43	10	10	9
60	71 X 47	8	8	9
66	77 X 52	8	8	9

TABLE 3

(5 INC		TEEL PIP CH CORRU	GATION A	
PIPE SPAN X RISE DIAMETER INCHES (FEET)				
INCHES	Indias	1-4	4.1-9	INCHES
36	40 X 31	14 (16)	14 (16)	9
42	46 X 36	14 (16)	14 (16)	9
48	53 X 41	14 (16)	14 (16)	9
54	60 X 46	14 (16)	14 (16)	9
60	66 X 51	14 (16)	14 (16)	9
66	73 X 55	14	14	9
72	81 X 59	14	14	9
78	87 X 63	14	14	9
84	95 X 67	14	14	9
90	103 X 71	12	12	12
96	112 X 75	12	12	12
102	117 X 79	12	12	12
108	128 X 83	10	10	12
114	137 X 87	10	10	12
120	142 X 91	8	8	12

TABLE 4

PIPE SPAN X RISE DIAMETER INCHES HEIGHT OF FILL ABOVE TOP OF ARCH					
INCHES		1-4	4.1-9	INCHES	
15	17 X 13	14 (16)	14 (16)	9	
18	21 X 15	14 (16)	14 (16)	9	
21	24 X 18	14 (16)	14 (16)	9	
24	28 X 20	14 (16)	14 (16)	9	
30	35 X 24	14 (16)	14 (16)	9	
36	42 X 29	14 (16)	14 (16)	9	
42	49 X 33	14	14	9	
48	57 X 38	12	12	9	
54	64 X 43	12	12	9	
60	71 X 47	10	10	9	
66	77 X 52	8	8	9	
72	83 X 57	8	8	9	

TABLE 7

					ALUMIN				
PIPE HEIGHT OF FILL ABOVE TOP OF PIPE IN FEET								MIN.	
INCHES	1-10	10,1-15	15.1-20	20,1-25	25,1-30	30,1-35 35,1-40 40,1-50 COVER			COVER INCHES
30	14 (16)	14 (16)	14 (16)	14 (16)	14	14	12	12	9
36	14 (16)	14 (16)	14 (16)	14	14	14	12	10	9
42	14 (16)	14 (16)	14 (16)	14	14	12	12	10	9
48	14 (16)	14 (16)	14 (16)	14	12	1.2	10		9
54	14 (16)	14 (16)	14 (16)	12	12	10	8		9
60	14 (16)	14 (16)	14 (16)	12	10	10	8		9
66	14 (16)	14 (16)	14	12	10	8			9
72	12	12	12	10	8				9
84	10	10	10	10		100			9
96	8	8	8	8	(max)				12

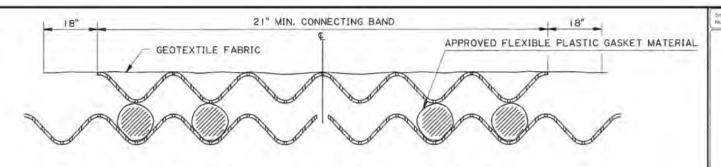


PIPE

METAL PIPE WALL THICKNESS AND CONNECTING BANDS, FILL HEIGHT FOR METAL PIPE

HYDRAULICS SECTION

FOR PIPES LESS THAN OR EQUAL TO 36" ROUND OR EQUIVALENT ARCH

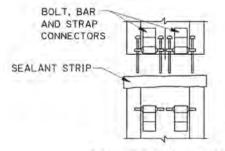


FOR PIPES GREATER THAN 36" ROUND OR EQUIVALENT ARCH AND FOR ALL SIZES OF 6 X | AND 5 X | CORRUGATIONS

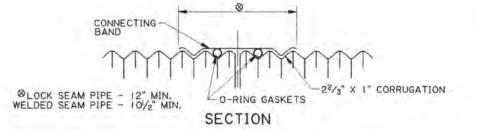
METHOD OF SEALING ANNULAR JOINT AT CONNECTING BAND WHERE TWO PIPE SECTIONS ARE JOINED

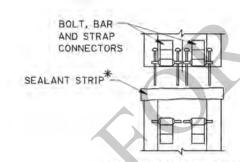
FLEXIBLE PLASTIC GASKET SYSTEM

T2 & T3 JOINTS AS SHOWN (WITH RODS & LUGS). IT JOINT SIMILAR, EXCEPT REQUIRES ONLY ONE STRIP OF PLASTIC GASKET MATERIAL IN SECOND CORRUGATION EACH SIDE OF JOINT.



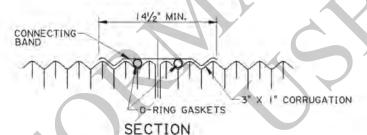
CONNECTION DETAIL DOUBLE HARNESS

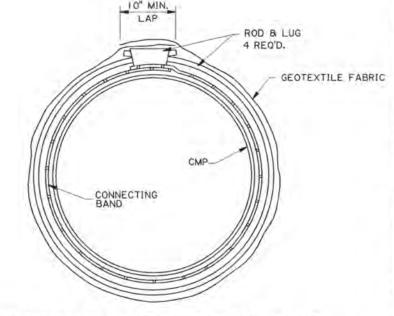




*BAND LAP SEALANT TO BE FLEXIBLE PLASTIC GASKET MATERIAL. REQUIRED THICKNESS IN TABLE. REQUIRED WIDTH IS BAND WIDTH PLUS 2".

CONNECTION DETAIL DOUBLE HARNESS





CONNECTING BAND WITH ROD & LUG

(FLEXIBLE PLASTIC GASKET SYSTEM)

IO" MIN. LAP GEOTEXTILE FABRIC PIPE ARCH TWO PIECE BAND FLEXIBLE PLASTIC GASKET MATERIAL H H H H B R H U H B B B

METHOD OF SEALING LONGITUDINAL JOINTS AT TWO PIECE CONNECTING BAND

(FLEXIBLE PLASTIC GASKET SYSTEM)

ALTERNATE CONNECTING BANDS O-RING SYSTEM

GEOTEXTILE FABRIC CLOTH REQUIRED - SAME AS SHOWN ABOVE.

O-RING AND FLEXIBLE GASKET THICKNESS							
CORRUGATION DEPTH	O-RING THICKNESS	FLEXIBLE GASKET THICKNESS					
1/2"	13/16"	L _n .					
1/2"	7∕8"	Lo					
1.6	13/8"	11/2"					
	CORRUGATION DEPTH 1/2"	CORRUGATION O-RING THICKNESS 1/2" 13/16" 1/2" 7/8"					

GENERAL NOTES:

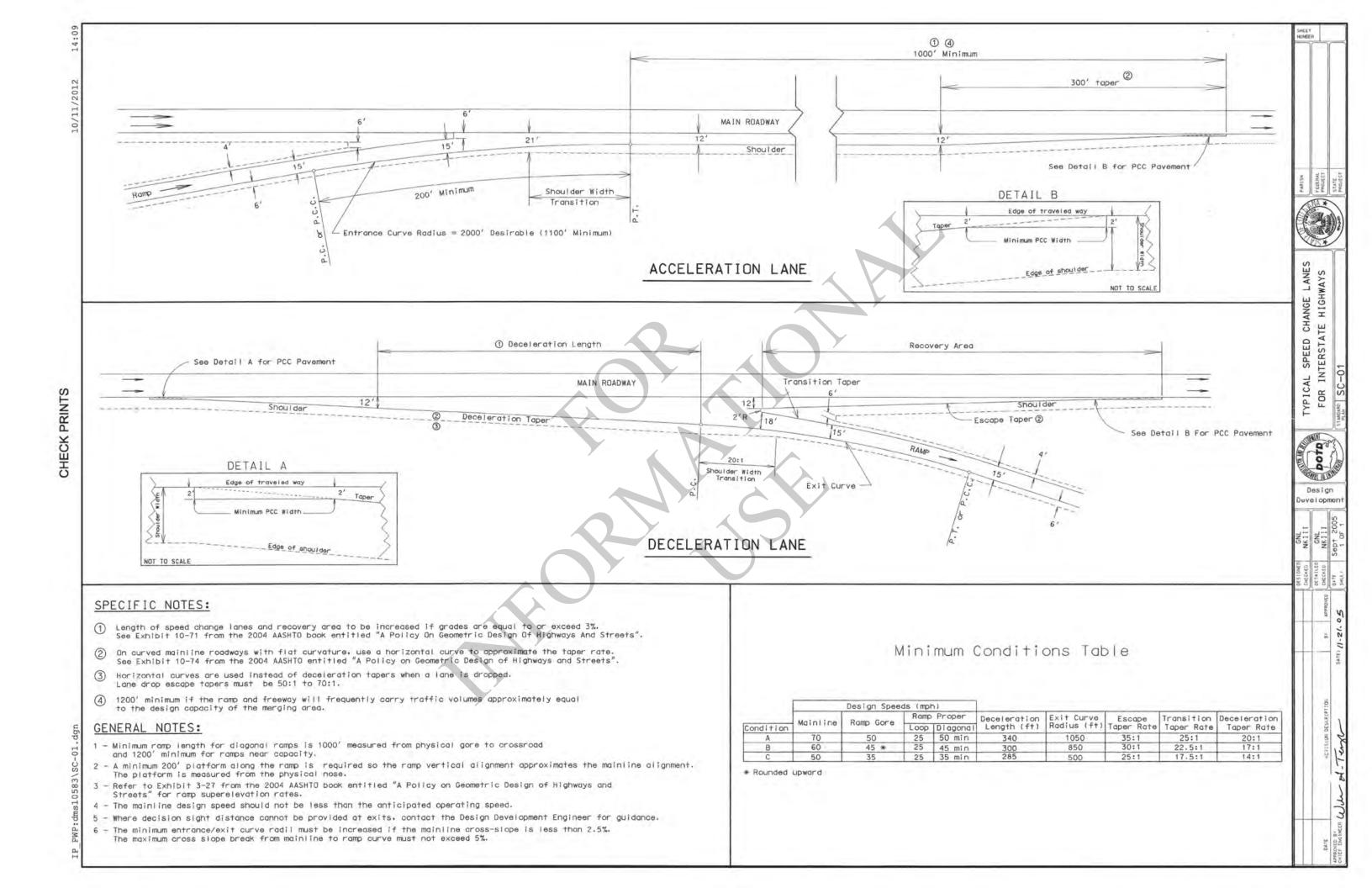
- 1) O-RING GASKETS WILL BE REQUIRED WHENEVER O-RING SYSTEM CONNECTING BANDS ARE USED. O-RING GASKETS SHALL BE IDENTIFIED BY SIZE, DIAMETER, BATCH OR REEL NUMBER AND PLANT.
- 2) HELICAL ENDS SHALL BE RE-ROLLED AS PER CURRENT LA DOTD STANDARD SPECIFICATIONS.
- 3) FOR O-RING JOINT SYSTEMS, BOLTS SHALL BE TORQUED TO A MINIMUM OF 40 FT.LBS.
- FOR FLEXIBLE PLASTIC GASKET SYSTEM ROUND PIPE, A MINIMUM OF 4 GALVANIZED 1/2" DIAMETER STEEL RODS AND LUGS SHALL BE PLACED OVER THE CONNECTING BAND. RODS MAY BE 2 PIECE FOR PIPE LARGER THAN 48".
- 5) GEOTEXTILE FABRIC SHALL CONFORM TO CURRENT LA DOTD STANDARD SPECIFICATIONS.
- 6) ARCH PIPE SHALL USE THE FLEXIBLE PLASTIC GASKET SYSTEM WITH APPROVED ANGLES OR STRAPS.
- 7) ALL GASKET MATERIAL SHALL BE APPROVED PRODUCTS ON CURRENT LA DOTD QUALIFIED PRODUCTS LIST. B) PIPE JOINTS TO BE IN ACCORDANCE WITH CURRENT LA DOTD STANDARD SPECIFICATIONS.

SECTION

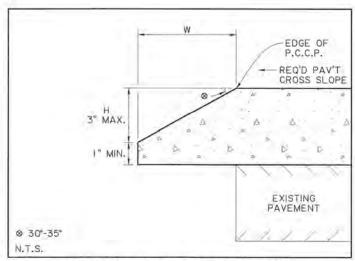
PIPE

WALL THICKNES TING BANDS, FOR METAL PIP

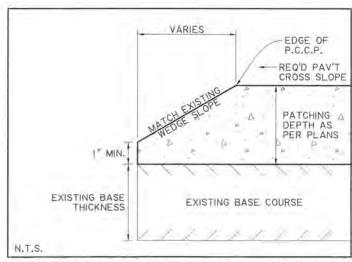
CONNECT



P.C.C. SHOULDER WEDGE FOR NEW CONSTRUCTION



P.C.C. SHOULDER WEDGE FOR WHITETOPPING



P.C.C. SHOULDER WEDGE FOR PAVEMENT PATCHING WITH EXISTING WEDGE

NOTES:

- SHOULDER WEDGES SHALL BE REQUIRED AT THE OUTSIDE EDGES OF THE PAVED ROADWAY (EDGE OF TRAVEL LANE OR EDGE OF PAVED SHOULDER), UNLESS THE TOTAL REQUIRED ASPHALT CONCRETE THICKNESS IS LESS THAN 2" AND FOR PAVEMENT PATCHING PROJECTS WHERE THE EXISTING PAVEMENT DOES NOT HAVE SHOULDER WEDGES.
- 2. FOR ASPHALT CONCRETE PAVEMENTS, SHOULDER WEDGES SHALL BE UTILIZED ON SINGLE LIFTS IF THE LAYER THICKNESS IS GREATER THAN OR EQUAL TO 2" AND, AT A MINIMUM, ON EACH OF THE TOP 2 LIFTS OF A MULTI-LIFT PAVEMENT.
- EQUIP THE PAVER WITH A MECHANICAL DEVICE THAT WILL PRODUCE A WEDGE WITH A UNIFORM TEXTURE, SHAPE, AND DENSITY, WHILE AUTOMATICALLY ADJUSTING TO VARYING HEIGHTS ENCOUNTERED ALONG THE PAVEMENT EDGE.
- 4. THE CONTRACTOR SHALL BLADE AND SHAPE EXISTING GROUND OR SHOULDER MATERIAL TO FORM A UNIFORM SURFACE UNDER THE ASPHALT SHOULDER WEDGE PRIOR TO PLACEMENT OF PAVEMENT.
- 5. FOR ASPHALT CONCRETE PAVEMENTS, THE MAXIMUM SHOULDER WEDGE HEIGHT ("H") SHALL EQUAL 6". IF THE TOTAL ASPHALT THICKNESS IS GREATER THAN 6", THE CONTRACTOR SHALL STAGE CONSTRUCTION BY PULLING UP THE SHOULDERS OR FORE SLOPE MATERIAL IN THE LOWER LIFTS, THEN UTILIZING THE WEDGE IN EACH OF THE FINAL 2 LIFTS.
- 6. REQUIRED BASE WIDTHS ARE AS SHOWN ON TYPICAL SECTIONS. IT IS NOT REQUIRED FOR THE BASE COURSE WIDTH TO INCLUDE THE WIDTH OF THE ASPHALT WEDGE MAY BE SUPPORTED BY THE EXISTING GROUND, EMBANKMENT, OR SHOULDER MATERIAL. HOWEVER, THE DESIGNER SHOULD MAKE EVERY EFFORT TO SUPPORT THE SHOULDER WEDGE WITH NEW BASE COURSE MATERIAL UNLESS PREVENTED BY PROJECT SCOPE, PHYSICAL RESTRAINTS, OR DEEMED IMPRACTICAL. FOR CONCRETE SHOULDER WEDGES, THE REQUIRED BASE WIDTH SHOULD INCLUDE THE WIDTH OF THE SHOULDER WEDGE AND THE DESIRED ADDITIONAL WIDTH BEYOND THE SURFACING, EXCEPT FOR WHITETOPPING.
- 7. SEE TYPICAL SECTION SHEETS FOR PAVEMENT DETAILS.
- 8. THE ANGLE SHOWN FOR AN ASPHALT CONCRETE SHOULDER WEDGE IS MEASURED AFTER COMPACTION.
- THE SHOULDER WEDGE SHALL NOT BE CONSIDERED PART OF THE REQUIRED PAVEMENT WIDTH.
- 10. ANGLE OF SHOULDER WEDGE IS MEASURED FROM THE FACE OF THE WEDGE TO A LINE REPRESENTING THE THEORETICAL PROJECTION OF THE PAVEMENT CROSS SLOPE.
- 11. SHOULDER WEDGES SHALL NOT BE CONSTRUCTED AT INTERSECTIONS, PAVED DRIVEWAYS, OR BEHIND GUARDRAILS UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE PROJECT ENGINEER. IF SHOULDER WEDGES ARE CONSTRUCTED AT THESE LOCATIONS DURING PAVING OPERATIONS, THEY SHALL BE REMOVED BY SAWCUTTING AT NO DIRECT PAY. NO QUANTITY DEDUCTIONS WILL BE MADE IN THE PLANS FOR SUCH GAPS.
- 12. SHOULDER WEDGES SHALL BE REQUIRED AT THE OUTSIDE EDGES OF WHITETOPPING UNLESS THE REQUIRED THICKNESS IS 2" OR AN ASPHALT SHOULDER IS PROPOSED IN ADDITION TO WHITETOPPING. THE PROPOSED ASPHALT SHOULDER IS REQUIRED TO HAVE WEDGES UNLESS THE TOTAL REQUIRED ASPHALT CONCRETE THICKNESS IS LESS THAN 2".

P.C.C.P. SHOULDER WEDGE QUANTITIES

DELEVIE TO	30	* WEDGES	35* WEDGES		
HEIGHT "H"	WIDTH "W"	SQYD PER MILE	WIDTH "W"	SQYD PER MILE	
4.0	6,9	674.7	5.7	557.3	
5.0	8.7	850.7	7.1	694.2	
6.0	10.4	1016.9	8.6	840.9	

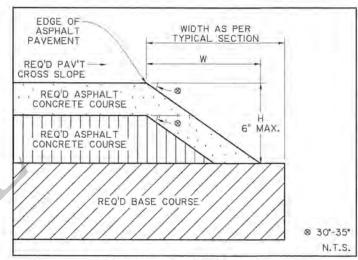
QUANTITIES SHOWN IN PLANS ARE BASED ON A 35° WEDGE QUANTITIES SHOWN ARE FOR 2 WEDGES (ONE AT EACH SIDE OF ROADWAY)

WHITETOPPING WEDGE QUANTITIES

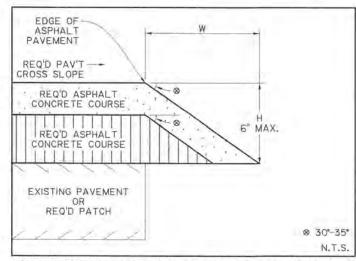
DECOUSE BUIL	30	WEDGES	35° WEDGES		
HEIGHT "H" INCHES		SQYD PER MILE	WIDTH "W" INCHES	SQYD PER MILE	
2.0	3.5	342.2	2.9	283.6	
3.0	5.2	508.4	4.3	420.4	

QUANTITIES SHOWN IN PLANS ARE BASED ON A 35" WEDGE QUANTITIES SHOWN ARE FOR 2 WEDGES (ONE AT EACH SIDE OF ROADWAY)

ASPHALT CONCRETE SHOULDER WEDGE



ASPHALT CONCRETE SHOULDER WEDGE FOR NEW CONSTRUCTION OR BASE REHABILITATION



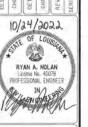
ASPHALT CONCRETE SHOULDER WEDGE FOR OVERLAY OR PATCHING

ASPHALT CONCRETE SHOULDER WEDGE QUANTITIES

HEIGHT "H"	30	* WEDGES	35	* WEDGES
INCHES	WIDTH "W" INCHES	TONS PER MILE	WIDTH "W" INCHES	TONS PER MILE
2.0	3.5	18.8	2.9	15.6
2.5	4.3	28.9	3.6	24.2
3.0	5.2	41.9	4.3	34.7
3.5	6.1	57.4	5.0	47.1
4.0	6.9	74.2	5.7	61.3
4.5	7.8	94.4	6.4	77.4
5.0	8.7	(17.0	7.1	95,5
5.5	9.5	140.5	7.9	116.8
6.0	10.4	167.8	8.6	138.7

QUANTITIES SHOWN IN PLANS ARE BASED ON A 35" WEDGE
QUANTITIES SHOWN IN TABLE ARE BASED ON 110 IN SQYD
QUANTITIES SHOWN ARE FOR 2 WEDGES (ONE AT EACH SIDE OF ROADWAY)

AN EARISH AN CONTROL SECTION SECTION OF 1 SE







SHOULDER WEDGE

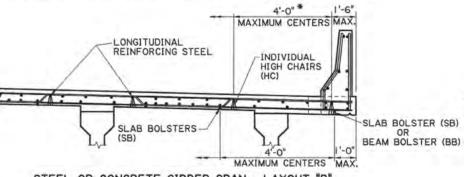


ROAD DESIGN

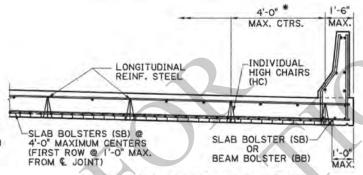
SLAB BOLSTER (SB) OR BEAM BOLSTER (BB)

CONTINUOUS HIGH CHAIRS (CHC) @ 4'-0" MAXIMUM CENTERS (FIRST ROW @ 1'-6" MAX. FROM € JOINT) -SLAB BOLSTERS (SB) @ 4'-0" MAXIMUM CENTERS (FIRST ROW @ 1'-0" MAX. SLAB BOLSTER (SB) OR-BEAM BOLSTER (BB) FROM & JOINT)

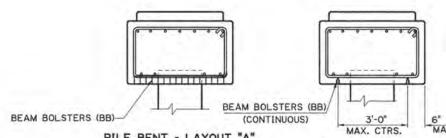
CONCRETE SLAB SPAN - LAYOUT "A"



STEEL OR CONCRETE GIRDER SPAN - LAYOUT "B" (ALTERNATE)

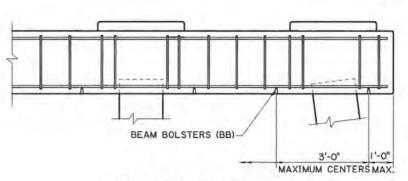


CONCRETE SLAB SPAN - LAYOUT "B" (ALTERNATE)

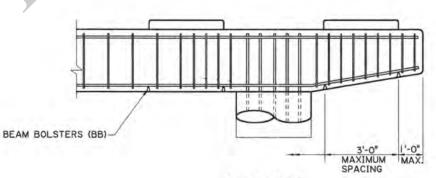


PILE BENT - LAYOUT "A"





PILE BENT - LAYOUT "A"



COLUMN BENT

COLUMN BENT

GENERAL NOTES:

STEEL WIRE BAR SUPPORTS AND REINFORCING STEEL BARS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS AMENDED BY THE SPECIAL PROVISIONS AND/OR SUPPLEMENTAL

HEIGHT OF BAR SUPPORTS ARE TO BE THAT REQUIRED TO SUPPORT THE REINFORCING BARS AT POSITIONS SHOWN IN THE PLANS.
BAR SUPPORTS ARE NOT INTENDED, AND SHALL NOT BE USED, TO SUPPORT RUNWAYS FOR CONCRETE BUGGIES OR SIMILAR LOADS.

WHEN BAR SUPPORTS ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK THE LAST LEGS ON ADJOINING PIECES, BUT NO BAR SHALL BE PLACED MORE THAN 2" BEYOND THE LAST LEG AT THE END OF A RUN OF ANY CONTINUOUS SUPPORTS.

WHERE BAR SUPPORTS ARE USED ON EARTH OR AGGREGATE SUB GRADES, SUITABLE PLATES SHALL BE PROVIDED TO PREVENT DISPLACEMENT OF THE SUPPORT FOOT. ALL BAR SUPPORTS BEARING ON THE FORMS SHALL HAVE RADIUS BEARING LEGS IN THE FORM OF A HOOK (UPTURNED LEGS) OR SPHERICAL FOOT AT THE LOWER END

THE BOTTOM OF BAR SUPPORTS SHALL BE COATED WITH AN ACCEPTABLE EPOXY OR PLASTIC MATERIAL FOR A MINIMUM DISTANCE OF 2 INCHES FROM THE POINT OF CONTACT WITH THE FORMS.

METAL TIE WIRES AND BAR SUPPORTS SHALL BE COATED FULLY WITH AN ACCEPTABLE EPOXY, PLASTIC OR NYLON MATERIAL IF USING EPOXY COATED REINFORCING STEEL.

TYPE OF SUPPORT	BAR SUPPORT	MINIMUM WIRE DIAMETER A			
		HEIGHT	TOP	LEGS	REMARKS
SLAB BOLSTER (SB)	\$ 5, 21	ALL	NO. 4 CORRU- GATED	NO. 6	VERTICAL CORRUGATIONS SPACED I" ON CENTERS
BEAM BOLSTER (BB)	111111 12/12/20/2	UP TO 2" OVER 2"	NO. 7 NO. 4	NO. 7 NO. 4	
CONTINUOUS HIGH CHAIR (CHC)	$\sqrt{\Lambda}$	2" TO 5" 5" TO 9" OVER 9"	NO. 2 NO. 2 NO. 2	NO. 4 NO. 2 NO. 0	LAYOUT "A" FOR SPANS
e INDIVIDUAL HIGH CHAIR (HC)	\mathcal{M}	2" TO 5" 5" TO 9" OVER 9"	N/A N/A N/A	NO. 4 NO. 2 NO. 0	LAYOUT "B" FOR SPANS (ALTERNATE)

- A AMERICAN STEEL AND WIRE GAUGES.
- LEGS SHALL BE 20 DEGREES OR LESS WITH VERTICAL WHEN HEIGHT EXCEEDS 1'-0". REINFORCE LEGS WITH WELDED CROSS WIRES OR ENCIRCLING
- ELEGS SHALL BE 20 DEGREES OR LESS WITH VERTICAL, ON 81/4" CENTER MAXIMUM, WITHIN 4" OF END CHAIR, AND SPREAD BETWEEN LEGS NOT LESS THAN 50% OF NORMAL HEIGHT.
- * IF LONGITUDINAL REINFORCING BARS ARE NO. 4, SPACE THE INDIVIDUAL HIGH CHAIRS (HC) @ 3'-O" MAXIMUM CENTERS LONGITUDINALLY; FOR NO. 5 BARS OR LARGER, SPACE @ 4'-O" MAXIMUM CENTERS.



G. GRASS F. FOSSIER OCT, 2008 P. F.

SUPPOR BAR WIRE STEEL

FOR



CONSTRUCTION SPECIFICATIONS: CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT, STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES. LATEST EDITION EXCEPT AS SUPPLEMENTED OR AMENDED BY THE PLANS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS, 2001 AND INTERM SPECIFICATIONS UP TO 2006.

STEEL: MISCELLANEOUS STEEL SHALL CONFORM TO A.S.T.M. A-709, GRADE 36. STEEL TUBING FOR TRUSS AND POST MEMBERS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF COLD-FORMED TUBING (A-500) GRADE "B" OR "C" (FY=42 KSI MIN.) UNLESS OTHERWISE NOTED.

ALUMINUM: ALL ALUMINUM EXCEPT SIGN PANELS SHALL CONFORM TO ASTM B-221, B-308, OR B-429 ALLOY 6061-T6 UNLESS OTHERWISE NOTED. SIGN PANELS SHALL BE .080" THICK ALUMINUM CONFORMING TO ASTM B-209 ALLOY 5052-H38

CONCRETE AND REINFORCING STEEL: CONCRETE USED IN FOOTINGS FOR OVERHEAD SIGN TRUSSES AND OVERHEAD CANTILEVER TRUSSES SHALL BE CLASS AI. CONCRETE FOR DRILLED SHAFTS SHALL BE CLASS "S". ALL OTHER CONCRETE MAY BE CLASS "M". DIMENSIONS RELATING TO REINFORCING STEEL FABRICATION ARE OUT TO OUT OF BAR UNLESS OTHERWISE NOTED. DIMENSIONS RELATING TO REINFORCING STEEL SPACING ARE CENTER TO CENTER OF BAR OR FACE OF CONCRETE TO CENTERLINE OF BAR. REINFORCING STEEL SHALL HAVE A MINIMUM COVERING OF 2" EXCEPT WHEN CONCRETE IS CAST AGAINST THE EARTH THEN THE COVERING WILL BE 3". ALL REINFORCING STEEL SHALL BE GRADE 60. THE FIRST DIGIT OF REINFORCING BAR NUMBER INDICATES THE BAR SIZE. THE TOP EDGES OF THE FOOTING SHALL BE CHAMFERED 3/4".

CONCRETE FINISH: ALL PORTIONS OF THE FOOTINGS FOR CANTILEVERS AND TRUSSES ABOVE GROUNDLINE SHALL HAVE A FINISH IN ACCORDANCE WITH THE SPECIFICATIONS.

WELDING: ALL WELDING SHALL CONFORM TO THE LA. STANDARD SPECIFICATIONS-SECTION 809 AND SUPPLEMENTAL SPECIFICATIONS. WELDING OF GALVANIZED MEMBERS SHALL NOT BE ALLOWED WITHOUT THE PRIOR, WRITTEN APPROVAL OF THE FABRICATION ENGINEER.

NON-DESTRUCTIVE TEST<u>ING:</u> ALL WELDS SHALL BE VISUALLY INSPECTED. MAGNETIC PARTICLE TESTING IS REQUIRED ON NOT LESS THAN 10% OF THE WELDS ON THE TRUSSES AND THEIR SUPPORT STRUCTURES.

SHOP DRAWINGS: SHOP DRAWINGS ARE REQUIRED FOR ALL OVERHEAD TRUSS. OVERHEAD CANTILEVER, FASCIA, AND ANY STRUCTURE MOUNTED SIGNS. SHOP DRAWINGS ARE NOT REQUIRED FOR EXTRUDED SIGN PANELS, UNLESS FABRICATOR INTENDS TO DEVIATE FROM THE DETAILS HEREIN. CONTRACTOR SHALL NOT INITIATE FABRICATION OF SIGNS OR SUPPORT STRUCTURES UNTIL ALL SHOP DRAWINGS ARE APPROVED BY THE ENGINEER.

GALVANIZING: ALL STRUCTURAL STEEL AND MISCELLANEOUS STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-123. THICKNESS OF GALVANIZING SHALL PROVIDE A MINIMUM 20 YEAR PROTECTION. PROPER VENTING PRACTICES SHALL BE USED AND DETAILED ON THE SHOP DRAWINGS. DAMAGE TO GALVANIZED SURFACES THAT ARE NOT TO BE ENCASED IN CONCRETE SHALL BE REPAIRED IN ACCORDANCE WITH LA. STANDARD SPECIFICATIONS SUBSECTION 811.08. ALL BOLTS, NUTS, WASHERS, AND MISC. HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-153. ALL FIELD HOLES IN GALVANIZED MATERIAL SHALL BE TREATED WITH A COLD GALVANIZING COMPOUND FROM THE A.M.L.

BOLTS: UNLESS NOTED, ALL THREADED CONNECTIONS SHALL INCORPORATE A LOCKING DEVICE AND HAVE A MINIMUM OF 3 THREADS BEYOND THE NUTS. ALL BOLTS SHALL BE HIGH STRENGTH BOLTS, A.S.T.M. A-325, UNLESS OTHERWISE NOTED. STAINLESS STEEL FOR BOLTS SHALL CONFORM TO A.S.T.M. DESIGNATION A-320 B8, CLASS 2 TYPE 304, OR A-193 B8, CLASS 2 TYPE 304, UNLESS OTHERWISE NOTED. STAINLESS STEEL NUTS SHALL CONFORM TO A.S.T.M. DESIGNATION A-194, GRADE 8, TYPE 304. ALUMINUM BOLTS SHALL CONFORM TO A.S.T.M. F-468 ALLOY 2024-T4 AND NUTS ARE A.S.T.M. F-467 ALLOY 6061-T6 OR 6262-T9. WHERE BOLTS ARE USED ON BEVELED SURFACES, BEVELED WASHERS SHALL BE PROVIDED TO GIVE FULL BEARING TO THE HEAD AND/OR THE NUT.

D.T.I. WASHERS: DIRECT TENSION INDICATING (D.T.I.) WASHERS SHALL BE USED ON ALL BOLTS WHERE TENSION VERIFICATION IS REQUIRED.

ANCHOR BOLTS: ANCHOR BOLTS SHALL CONFORM TO AASHTO M314. GRADE 55 (OR APPROVED EQUAL) AND BE HOT DIP GALVANIZED TO A.S.T.M. A-123. ANCHOR BOLT NUTS TO BE TIGHTENED A MINIMUM ROTATION OF 240° (2/3 TURNS) FROM THE SNUG TIGHT CONDITION. UNLESS OTHERWISE NOTED, ALL THREADED CONNECTIONS SHALL INCORPORATE A LOCKING DEVICE AND HAVE A MINIMUM OF 3 THREADS BEYOND THE NUTS.

RIVETS: ALL RIVETS SHALL BE 1/4" DIAMETER BLIND RIVETS WITH POSITIVE MANDREL RETENTION. THE RIVET BODY AND MANDREL SHALL BE ALUMINUM WITH A $\frac{1}{2}$ " MAXIMUM DIAMETER DOME HEAD. THE RIVETS SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH = 875 LBS., AND CONFORM TO ASTM B-316 5056-H32.

SIGN SHEETING: UNLESS OTHERWISE NOTED, ALL SIGN MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 1015 IN THE STANDARD SPECIFICATIONS. IN ORDER TO OBTAIN AN ACCEPTABLE COLOR MATCH BETWEEN MULTIPLE PANELS ON A GUIDE SIGN, ALL OF THE BACKGROUND SHEETING FOR ANY GUIDE SIGN SHALL BE THE MINIMUM WIDTH OF THE LARGEST PANEL AND SHALL COME FROM THE SAME LOT OR RUN NUMBER FROM THE SHEETING MANUFACTURER UNLESS OTHERWISE APPROVED IN WRITING, RETRO-REFLECTIVE SHEETING SHALL BE APPLIED TO PANELS IN SUCH A MANNER THAT THERE ARE NO HORIZONTAL SPLICES.

MISCELLANEOUS: THE CONTRACTOR SHALL MARK THE DATE OF FABRICATION, SHEETING MANUFACTURER CODE, AND SIZE OF SIGN ON THE BACK OF EACH SIGN WITH AN APPROVED WEATHER RESISTANT PAINT STICK. SEE DETAIL "A", SHEET NO. 3 OF 15.

ALL DIMENSIONS REQUIRED FOR SATISFACTORY INSTALLATION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE FABRICATION. ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER.

ALL ALUMINUM SURFACES PLACED IN CONTACT WITH, OR FASTENED TO UNGAL-VANIZED STEEL MEMBERS SHALL BE THROUGHLY COATED WITH AN APPROVED ALUMINUM IMPREGNATED CAULKING COMPOUND.

BEFORE SHIPPING A TRUSS, IT SHALL BE ASSEMBLED IN THE SHOP WITH ALL BOLTS IN PLACE. THE DISTANCE BETWEEN CENTER LINES OF BASE PLATES SHALL BE MEASURED AND CHECKED AGAINST FIELD MEASUREMENTS OF THE COLUMN SUPPORT SYSTEM PRIOR TO SHIPMENT.

IN GENERAL, A STRUCTURE MOUNTED OVERHEAD SIGN SUPPORT SHOULD BE PLACED IN A LOW MOMENT AREA OF THE STRUCTURAL SPAN. THE IDEAL LOCATION IS WITHIN THE END 1/3 OF THE SPAN LENGTH FOR A SIMPLE SPAN STRUCTURE AND NEAR THE POINT OF CONTRAFLEXURE FOR A CONTINUOUS SPAN STRUCTURE. FOR OVERHEAD MOUNTED TYPE SIGNS. THE VERTICAL SUPPORT MEMBERS SHALL BE REPLACED WITH ONE PIECE FULL HEIGHT VERTICAL SUPPORT MEMBERS.

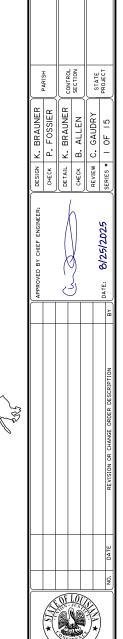
USE OF SECTIONS PROVIDING EQUAL OR GREATER STRENGTH THAN THE MEMBERS DESIGNATED BY THE PLANS SHALL BE SUBMITTED TO THE BRIDGE ENGINEER FOR APPROVAL.

TREE TRIMMING: THE CONTRACTOR SHALL BE RESPONSIBLE FOR MISCELLANEOUS BRUSH AND TREE TRIMMING TO ALLOW FOR FULL SIGN PRESENTATION AS DIRECTED BY THE PROJECT ENGINEER.

GUARD RAIL REQUIREMENTS: A SITE SPECIFIC GUARD RAIL LAYOUT DETAIL SHALL BE PROVIDED FOR EACH GROUND MOUNTED SIGN TRUSS AND CANTILEVER. SEE GUARD RAIL STANDARD PLANS FOR ALL DESIGN CRITERIA AND DETAILS.



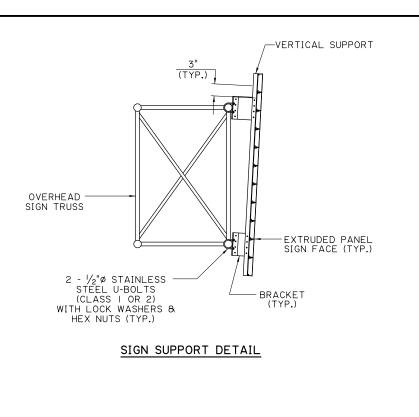
WIND LOAD MAP LEGEND				
SYMBOL	ZONE	DESIGN WIND VELOCITY (MPH)		
	-	90		
	2	110		
	3	130		

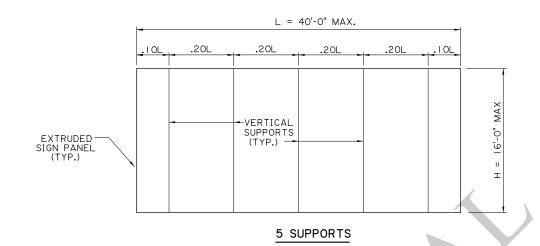


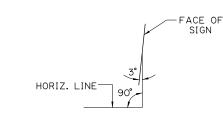


NOTES SIGNS GENERAL TRAFFIC ďΣ OVERHEAD

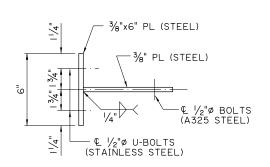


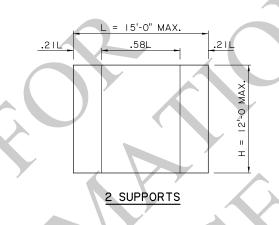


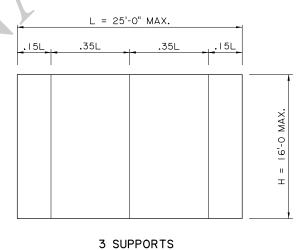




FINAL SIGN PANEL ORIENTATION

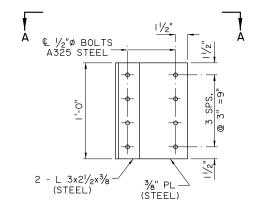


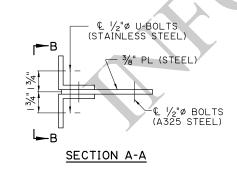


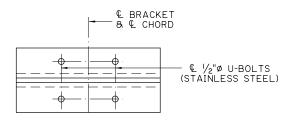


ALT. SECTION A-A

SPACING OF VERTICAL SUPPORTS FOR OVERHEAD SIGN AND FASCIA SIGN INSTALLATIONS







SECTION B-B

BRACKET DETAILS

NOTE: ALL STRUCTURAL STEEL SHALL BE GALVANIZED

NOTES:

VERTICAL SUPPORTS FOR OVERHEAD SIGNS SHALL BE $4x3x\frac{3}{8}$ ALUMINUM ANGLE. TWO (2) ANGLES ARE REQUIRED FOR EACH VERTICAL SUPPORT.

FOR NEW OVERHEAD SIGN PANELS (INCLUDING FASCIA MOUNTED) INCORPORATING EXISTING STRUCTURE SUPPORTS (SIGN TRUSS, SIGN CANTILEVER, AND FASCIA), THE CONTRACTOR WILL PLACE NEW VERTICAL SUPPORT ANGLES WITHOUT SPLICES THAT EXTEND THE FULL HEIGHT OF THE PRIMARY SIGN PANEL. THESE SUPPORTS AND ALL OTHER MATERIALS REQUIRED TO CONNECT TO AN EXISTING MOUNT SHALL BE INCLUDED IN THE COST OF THE SIGN PANEL.



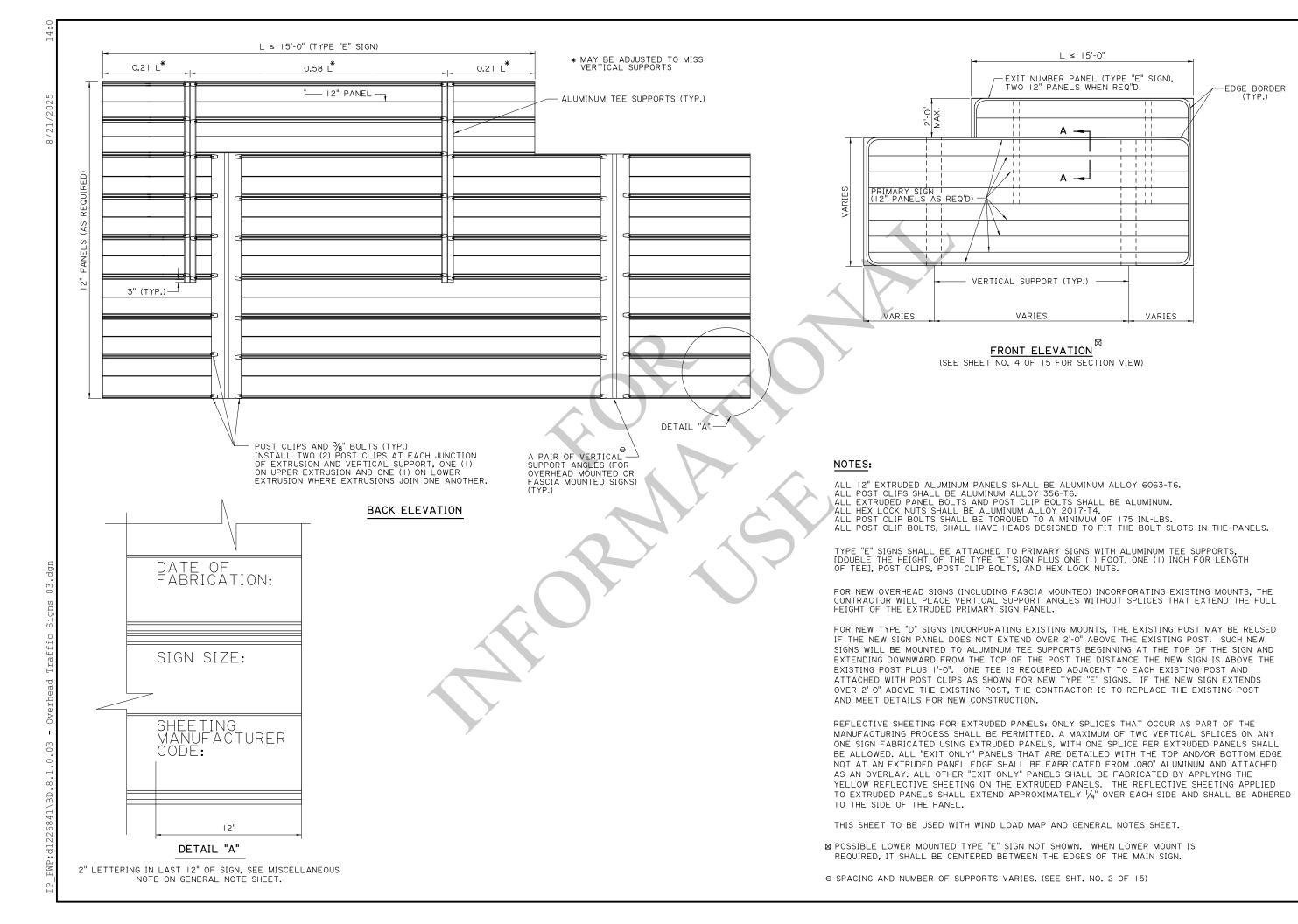
SIGNS

TRAFFIC

OVERHEAD

DETAILS

CONTROL



OVED BY CHIEF ENGINER:

CHECK P. FOSSIER

CHECK P. FOSSIER

DETAIL I. KOURILOVA

CHECK K. BRAUNER

REVIEW C. GAUDRY

REVIEW C. GAUDRY

PARISH

PARISH

TO STATE

PROFECT

PARISH

TO STATE

PROFECT

PROF

ISION OR CHANGE ORDER DESCRIPTION BY DATE.

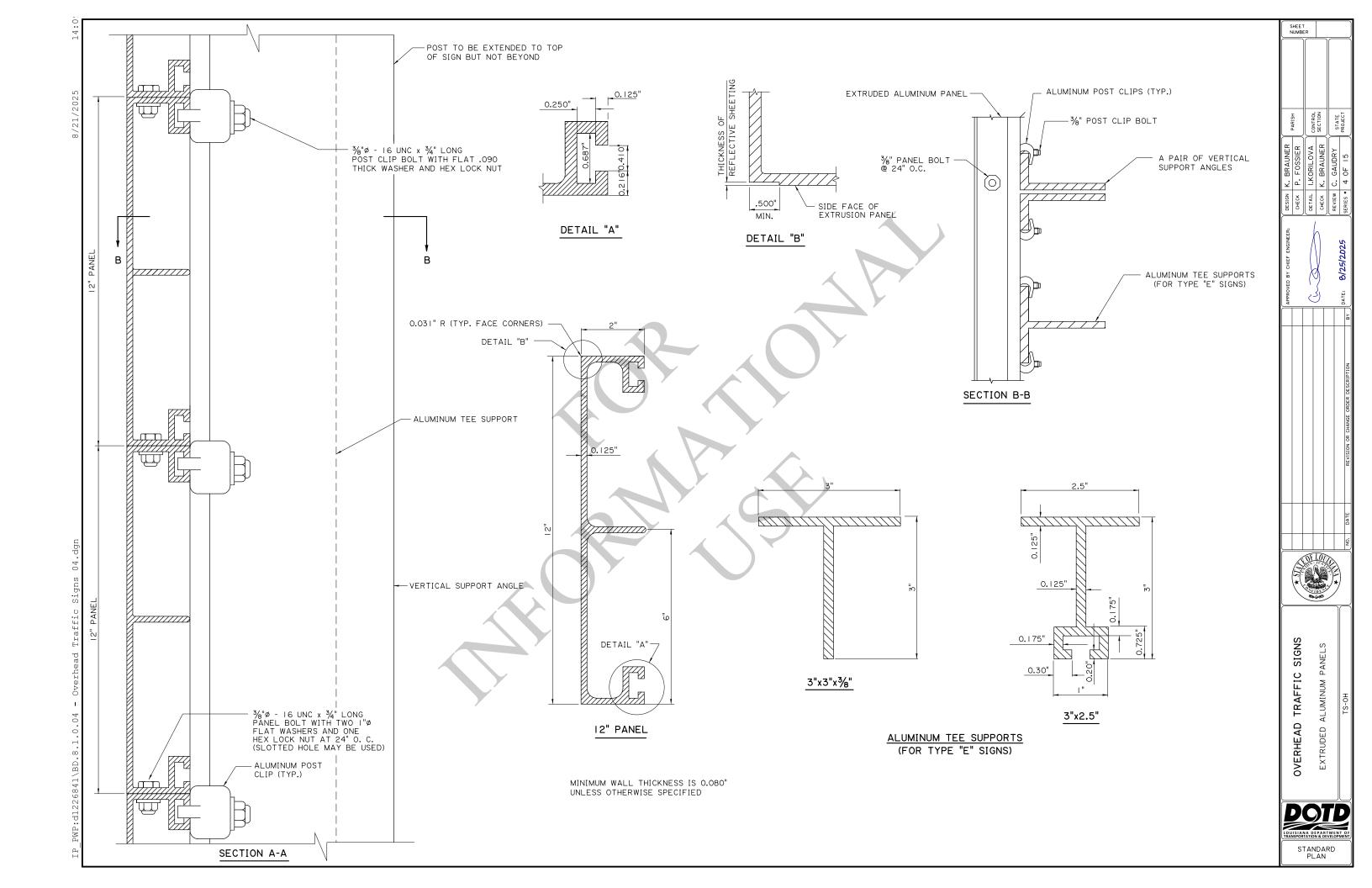
FIC SIGNS

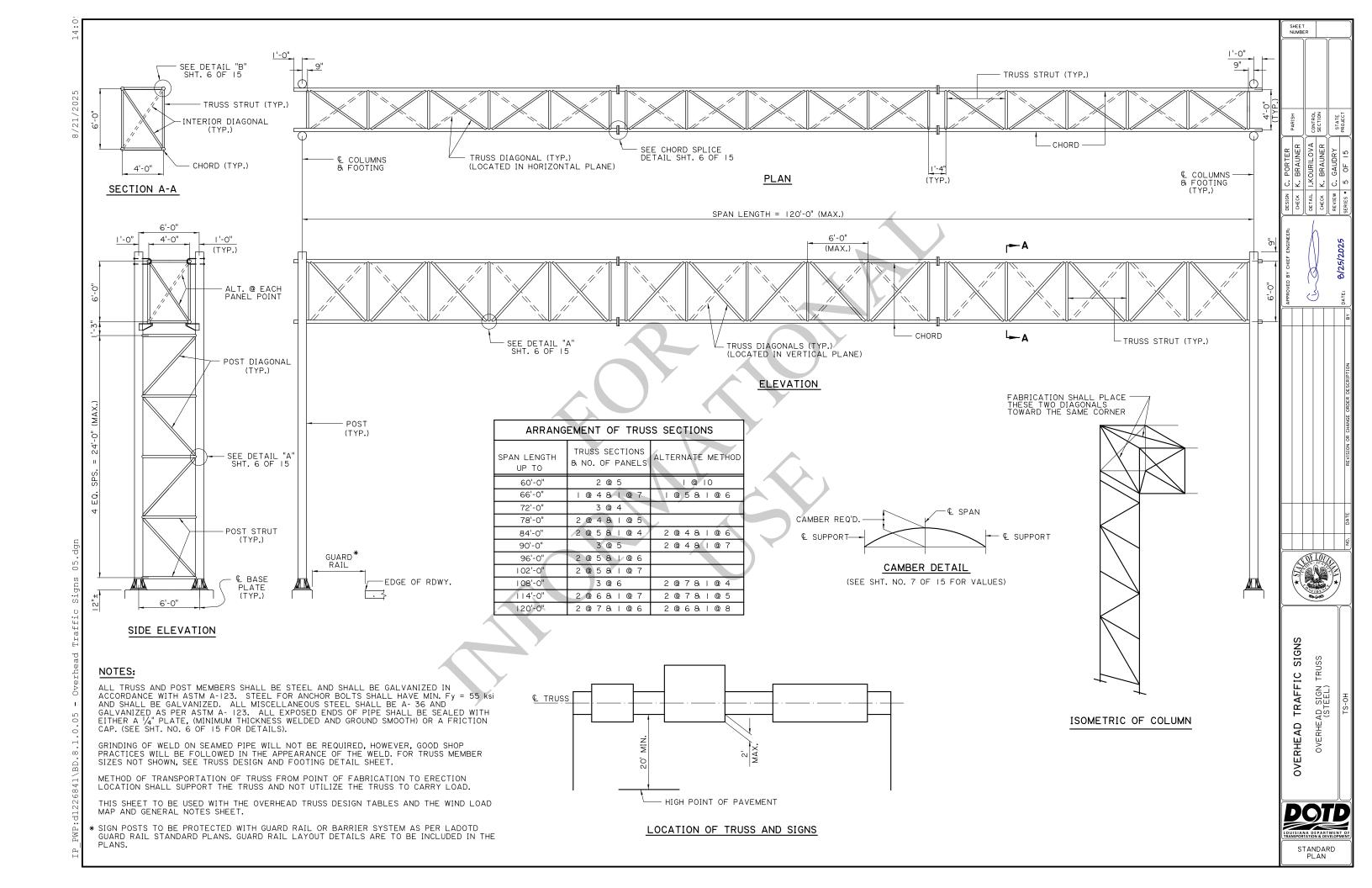
DED ALUMINUM P.

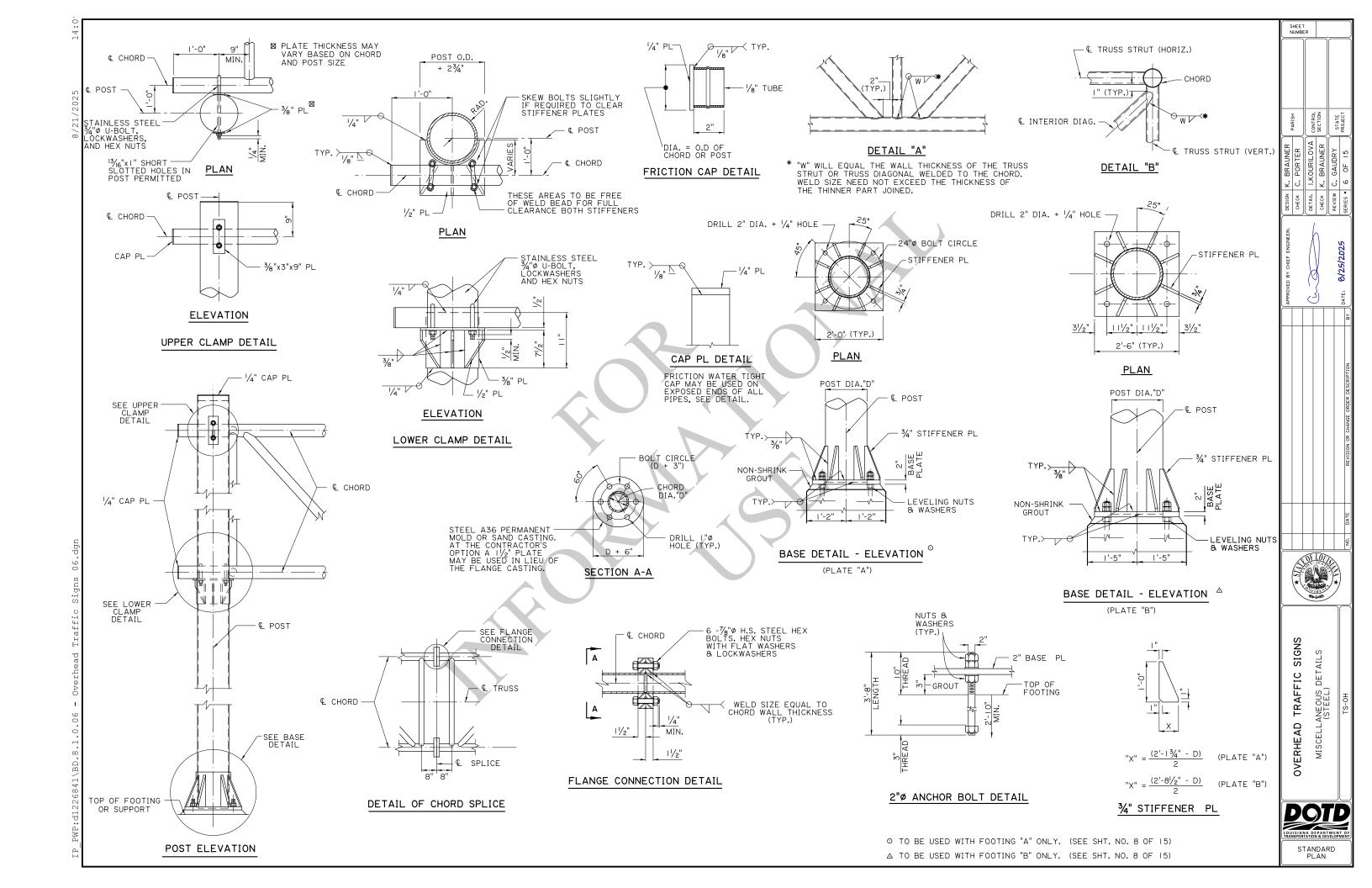
OVERHEAD

EXTRUDED

EXTRUD







GROUND MOUNTED OVERHEAD SIGN TRUSS DESIGN TABLE

90 MPH WIND VELOCITY

SIGN PANEL AREA	< 600 SQ.FT.		600-900 SQ.FT.		900-1100 SQ.FT.	
SPAN	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER
< 60 FT		15/16"	N/A	N/A	N/A	N/A
60 - 84 FT		1 7/16"	2	l %6"	3	11/2"
84 - 96 FT	Ī	ι %"	3	l 15/16"	4	l 13/16"
96 - 120 FT	2	2 ¹³ / ₁₆ "	4	2¾"	5	211/16"

IIO MPH WIND VELOCITY

SIGN PANEL AREA	< 600 SQ.FT.		600-900 SQ.FT.		900-1100 SQ.FT.	
	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER
< 60 FT	1	15/16"	N/A	N/A	N/A	N/A
60 - 84 FT	3	1 7/16"	5	1 ¾6"	6	1 7/6"
84 - 96 FT	3	l 13/16"	5	l 13/16"	6	I 3/4"
96 - 120 FT	5	21/2"	6	21/2"	8*	21/2"

130 MPH WIND VELOCITY

SIGN PANEL AREA	< 600 SQ.FT.		600-9	00 SQ.FT.	900-110	00 SQ.FT.
SPAN	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER
< 60 FT	5	7/8"	N/A	N/A	N/A	N/A
60 - 84 FT	5	۱ % "	8 *	I 3/8"	9 *	1 3/8"
84 - 96 FT	6	l / 6"	8 *	l II/Ie"	9 *	۱ 5⁄8"
96 - 120 FT	7	23/8"	10 *	23/8"	*	23/8"

STRUCTURE MOUNTED OVERHEAD SIGN TRUSS

90 MPH WIND VELOCITY

SIGN PANEL AREA	< 600 SQ.FT.		600-900 SQ.FT.		900-1100 SQ.FT.	
SPAN	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER
< 60 FT		15/16"	N/A	N/A	N/A	N/A
60 - 84 FT	2	1 7/16"	4	1 7/6"	4	1 7/16"
84 - 96 FT	2	l 13/16"	4	l ¹³ /16"	5	13/4"
96 - 120 FT	4	2%"	5	2 ¹¹ / ₁₆ "	7	21/2"

IIO MPH WIND VELOCITY

SIGN PANEL AREA	< 600 SQ.FT.		600-9	00 SQ.FT.	900-1100 SQ.FT.	
SPAN	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER
< 60 FT	3	7/8"	N/A	N/A	N/A	N/A
60 - 84 FT	4	13/8"	7	13/8"	8	1 3/8"
84 - 96 FT	5	l / 6"	7		8	l _{II} \/I6
96 - 120 FT	7	23/8"	8	21/2"	10	23/8"

130 MPH WIND VELOCITY

SIGN PANEL	SIGN PANEL < 600 S		600-900 SQ.FT. 900-1100 SQ.FT.			OO SQ.FT.
	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER
< 60 FT	6	7/8"	N/A	N/A	N/A	N/A
60 - 84 FT	7	1 5/16"	9	I 3/8"	10	1 5/16"
84 - 96 FT	8	15/8"	10	l 5/8"	11	l 5/8"
96 - 120 FT	10	21/4"	I	23/8"	N/A	N/A

DESIGN TABLE

SIGN PANEL AREA	< 60	O SQ.FT.	600-9	00 SQ.FT.	00 SQ.FT.	
_	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER	GROUP NO.	REQ. CAMBER
< 60 FT		15/16"	N/A	N/A	N/A	N/A
60 - 84 FT	2	1 7/16"	4	1 7/16"	4	1 7/16"
84 - 96 FT	2	l ¹³ /16"	4	l 13/16"	5	13/4"
06 120 ET	4	29/ "	5	2 /-"	7	21/-"

NOTES:

ALL MEMBERS LISTED IN THE OVERHEAD TRUSS MEMBER SIZES TABLE SHALL BE STEEL PIPE OR TUBE AND SHALL HAVE A MINIMUM YIELD STRENGTH (Fy) OF 42 KSI.

TUBE OR A.N.S.I. PIPE SECTIONS PROVIDING EQUAL OR GREATER STRENGTH THAN ANY MEMBER DESIGNATED IN THE TABLE MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ALL DESIGNS MUST BE CONFIRMED ON THE FABRICATION DRAWINGS AND APPROVED BY LA DOTD BEFORE FABRICATION

ALL STRUCTURE MOUNTED TRUSSES SHALL USE PLATE "B". (SEE SHT. NO. 6 OF 15.)

- * FOR GROUND MOUNTED TRUSSES, GROUP NOS. 8 THROUGH II SHALL USE PLATE "B" AND FOOTING "B" ONLY. (SEE SHT.
- ☐ GROUND MOUNTED TRUSSES USED ON EMBANKMENTS ≥ 10 FT. HIGH SHALL BE DESIGNED USING THE STRUCTURE MOUNTED
- \otimes A DESIGN REQUEST MUST BE SUBMITTED FOR ALL TRUSSES WHOSE SIGN CENTERS ARE MORE THAN 50 FT. ABOVE THE SURROUNDING GROUNDLINE.

HOW TO USE TABLES:

- I. DETERMINE IF TRUSS IS GROUND MOUNTED OR STRUCTURE MOUNTED.
- 2. FIND WIND VELOCITY USING WIND MAP ON GENERAL NOTES SHEET (SHT. NO. | OF | 15) AND CHOOSE APPROPRIATE SECTION IN TABLE.
- DETERMINE DESIGN SIGN AREA AND SELECT THE APPROPRIATE COLUMN. (DESIGN SIGN AREA = SUM OF ACTUAL SIGN PANEL
- 4. DETERMINE SPAN LENGTH AND CHOOSE APPROPRIATE ROW.
- 5. FIND CORRESPONDING GROUP NUMBER IN THE "OVERHEAD TRUSS MEMBER SIZES" TABLE AND APPLY MEMBER SIZES ACCORDINGLY. SEE PROJECT PLAN SHEET FOR "OVERHEAD TRUSS DATA TABLE".

CONTROL

SIGNS TRAFFIC

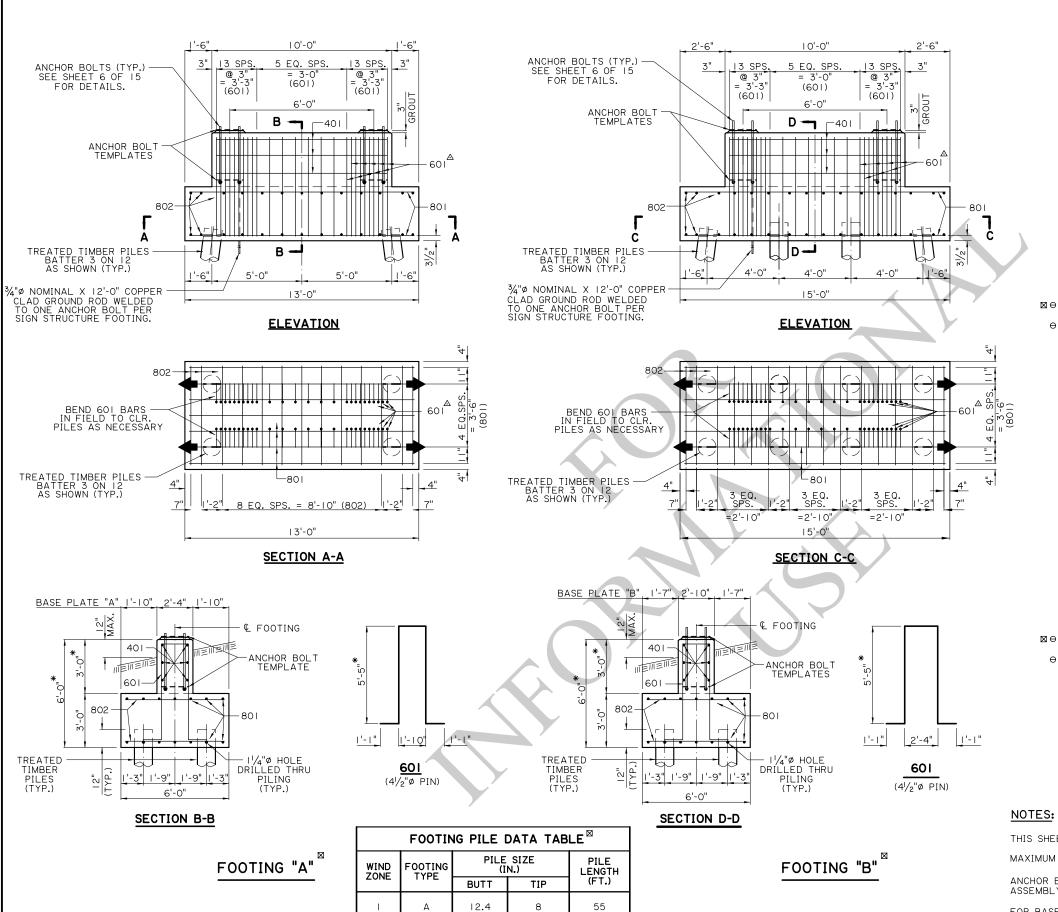
TRUSS DESIGN (STEEL) OVERHEAD OVERHEAD



OVERHEAD TRUSS MEMBER SIZES

MEMBER DIAMETER (IN.) x MEMBER THICKNESS (IN.)

GROUP NO.	POSTS	CHORDS	TRUSS STRUTS	TRUSS DIAGONALS	INTERIOR DIAGONALS	POST STRUTS	POST DIAGONALS
ı	12.75 X 0.25	4.0 X 0.226	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154	3.5 X 0.216	3.5 X 0.216
2	12.75 X 0.25	4.5 X 0.237	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154	3.5 X 0.216	3.5 X 0.216
3	14.00 X 0.25	4.5 X 0.237	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154	3.5 X 0.216	3.5 X 0.216
4	14.00 X 0.25	5.563 X 0.258	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154	3.5 X 0.216	3.5 X 0.216
5	16.00 X 0.25	5.563 X 0.258	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154	3.5 X 0.216	3.5 X 0.216
6	18.00 X 0.25	5.563 X 0.258	2.875 X 0.203	2.875 X 0.203	2.875 X 0.203	3.5 X 0.216	4.0 X 0.226
7	18.00 X 0.25	5.563 X 0.375	2.875 X 0.203	2.875 X 0.203	2.875 X 0.203	3.5 X 0.216	4.0 X 0.226
8	18.00 X 0.312	5.563 X 0.375	2.875 X 0.203	3.5 X 0.216	2.875 X 0.203	3.5 X 0.216	4.5 X 0.237
9	18.00 X 0.375	5.563 X 0.375	2.875 X 0.203	3.5 X 0.216	2.875 X 0.203	3.5 X 0.216	5.563 X 0.258
10	18.00 X 0.375	5.563 X 0.50	2.875 X 0.203	3.5 X 0.216	2.875 X 0.203	3.5 X 0.216	5.563 X 0.258
11	18.00 X 0.438	5.563 X 0.50	2.875 X 0.203	4.0 X 0.226	2.875 X 0.203	3.5 X 0.216	6.625 X 0.432



60

50

75

75

12.7

13.9

13.9

8

ESTIMATED QUANTITIES (FOOTING "A")							
BAR	NO.	UNIT LENGTH	L	LOCATION			
801	14	12'-6"	175'-0"	FOOTING			
802	26	5'-6"	143'-0"	FOOTING			
TOTAL N	0. 8 BAI	RS = 318'	-0"	=	849 LBS.		
601	32	14'-10"	474'-8"	STIRRUPS	IN FOOTING & PED		
TOTAL N	0. 6 BAI	RS = 474'	-8"	=	713 LBS.		
401	6	9'-6"	57'-0"	PEDESTAL			
TOTAL N	0. 4 BAI	RS = 57'-0	0"	=	38 LBS.		
TOTAL D	EFORME	D REINFO	RCING ST	EEL =	1600 LBS.		
TOTAL C	LASS AI	CONCRE	TE	=	II.I4 CU.YDS.		
STRUCTU	RAL EXC	OITAVA	=	40.0 CU.YDS.			
STRUCTU	RAL STE	EL		= (S	EE A.B. DETAILS)		
TREATED	TIMBER	PILES		=	240 LIN. FT.		

 Θ WIND ZONE 2 ASSUMED FOR PILE QUANTITIES. FOR OTHER WIND ZONES, ADJUST QUANTITIES ACCORDINGLY. SEE FOOTING PILE DATA TABLE.

ESTIMATED QUANTITIES (FOOTING "B")							
BAR	NO.	UNIT LENGTH	TOTAL LENGTH	LOG	CATION		
801	14	14'-6"	203'-0"	FOOTING			
802	32	5'-6"	176'-0"	FOOTING			
TOTAL N	O. 8 BAI	RS = 379'	-0"	=	1012 LBS.		
601	32	15'-4"	490'-8"	STIRRUPS IN	N FOOTING & PED		
TOTAL N	O. 6 BAI	RS = 490'	-8"	=	737 LBS.		
401	6	9'-6"	57'-0"	PEDESTAL			
TOTAL N	10. 4 BAI	RS = 57'-0	0"	=	38 LBS.		
TOTAL D	EFORME	D REINFO	RCING ST	EEL =	1787 LBS.		
TOTAL C	LASS AI	CONCRE	TE	=	12.92 CU.YDS.		
STRUCTU	RAL EXC	OITAVA		=	45.0 CU.YDS.		
STRUCTU	RAL STE	EL		= (SE	E A.B. DETAILS)		
TREATED	TIMBER	PILES		=	400 LIN. FT.		

O WIND ZONE 2 ASSUMED FOR PILE QUANTITIES. FOR OTHER WIND ZONES, ADJUST QUANTITIES ACCORDINGLY. SEE FOOTING PILE DATA TABLE.

THIS SHEET TO BE USED WITH WIND LOAD MAP AND GENERAL NOTES SHEET.

- * THESE DIMENSIONS MAY BE VARIED ± ONE FOOT TO ADJUST ELEVATION FOR SITE CONDITIONS, ADJUST BARS 401 & 601 ACCORDINGLY.
- △ NO. 601 BARS MAY BE MOVED TO CLEAR TRUSS ANCHOR BOLTS.

DOTD STANDARD PLAN

DETAILS

SIGNS

CONTROL SECTION

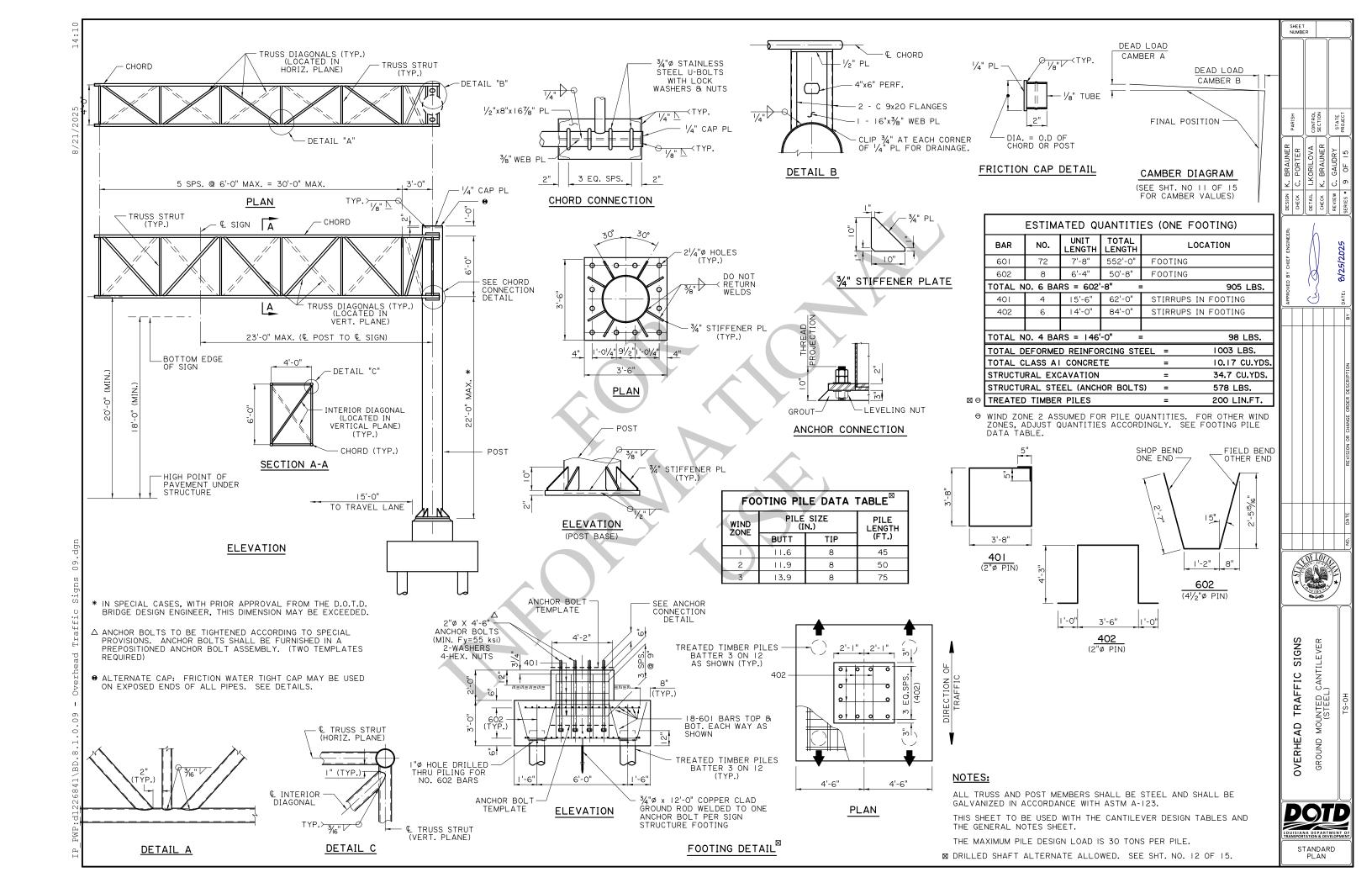
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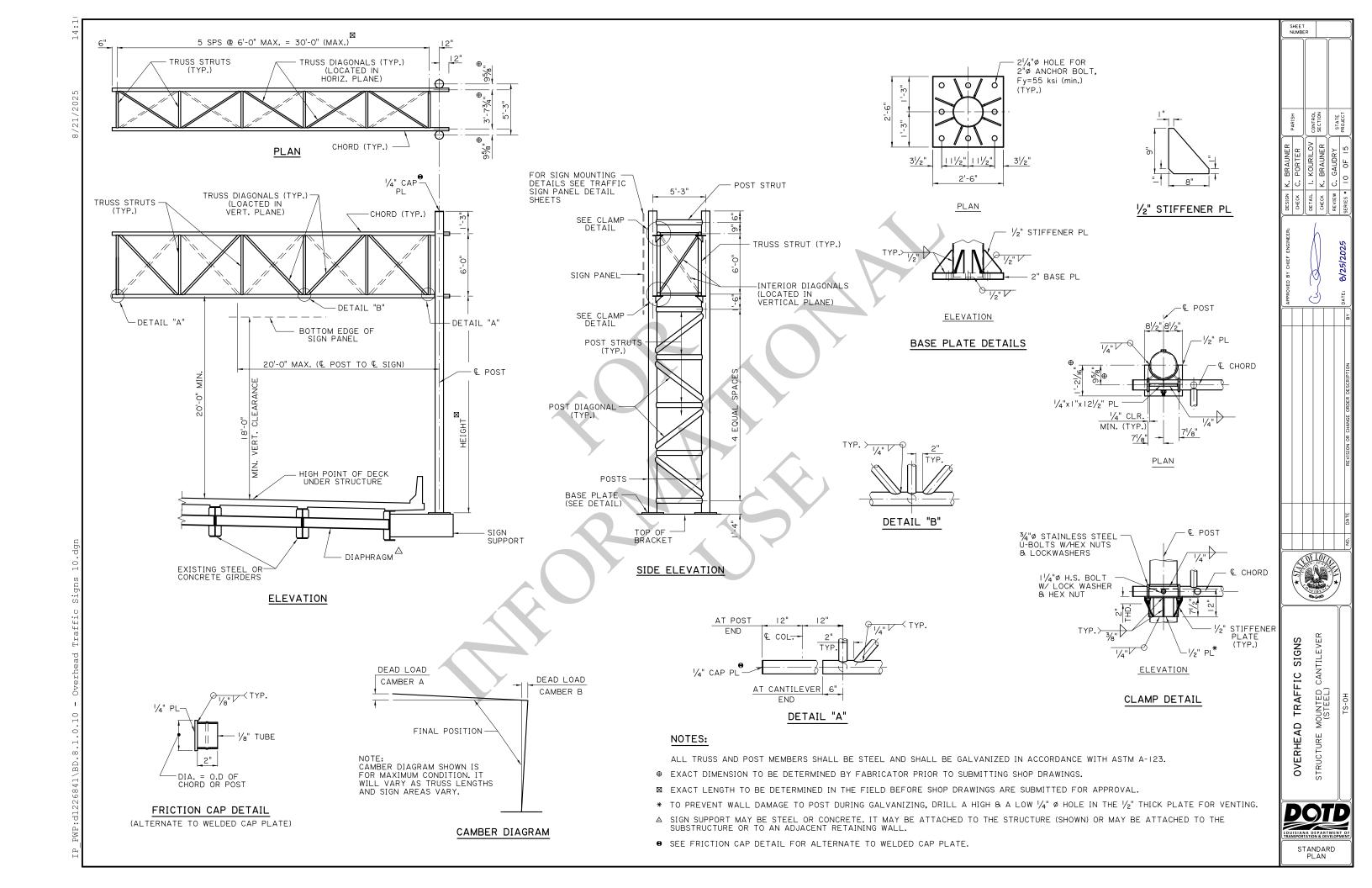
OVERHEAD MAXIMUM PILE DESIGN LOAD IS 30 TONS PER PILE.

ANCHOR BOLTS SHALL BE FURNISHED IN A PREPOSITIONED ANCHOR BOLT ASSEMBLY. (TWO TEMPLATES REQUIRED)

FOR BASE PLATE DETAILS, SEE SHT. NO. 6 OF 15.

- ☑ DRILLED SHAFT ALTERNATE ALLOWED. SEE SHT. NOS. 12 & 13 OF 15.





GROUND MOUNTED CANTILEVER DESIGN TABLE

WIND SPEED	GROUP NO.	CAMBER A	CAMBER B	MAX. SIGN AREA
90 MPH	1	21/8"	3/4"	300 SQ.FT.
IIO MPH	2	l 7/8"	5/8"	300 SQ.FT.
130 MPH	3	l ¹³ /16"	5/8"	300 SQ.FT.

	GROUND MOUNTED CANTILEVER MEMBER SIZES MEMBER DIAMETER (IN.) X MEMBER THICKNESS (IN.)								
GROUP NO.	GROUP POSTS CHORDS TRUSS TRUSS INTERIOR DIAGONALS								
ı	24.0 X 0.375	2.875 X 0.203	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154				
2	24.0 X 0.50	3.5 X 0.216	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154				
3	24.0 X 0.562	4.5 X 0.237	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154				

STRUCTURE MOUNTED CANTILEVER DESIGN TABLE

WIND SPEED	GROUP NO.	CAMBER A	CAMBER B	MAX. SIGN AREA
90 MPH		6"	3¾"	250 SQ.FT.
IIO MPH	2	6"	3¾"	250 SQ.FT.
130 MPH	3	6"	33/4"	200 SQ.FT.

STRUCTURE MOUNTED CANTILEVER MEMBER SIZES

MEMBER DIAMETER (IN.) X MEMBER THICKNESS (IN.)

				MEMBER DIAMETER	((III.) X WEWDER THIC	· · ·		
GROUP NO.		POSTS	CHORDS	TRUSS STRUTS	TRUSS DIAGONALS	INTERIOR DIAGONALS	POST STRUTS	POST DIAGONALS
	1	12.75 X 0.375	5.563 X 0.258	2.875 X 0.203	2.875 X 0.203	2.375 X 0.154	6.625 X 0.280	6.625 X 0.280
	2	14.00 X 0.50	5.563 X 0.375	2.875 X 0.203	2.875 X 0.203	2.875 X 0.203	6.625 X 0.432	6.625 X 0.432
	3	14.00 X 0.50	5.563 X 0.375	2.875 X 0.203	2.875 X 0.203	2.875 X 0.203	6.625 X 0.562	6.625 X 0.562

HOW TO USE TABLES:

- I. DETERMINE IF CANTILEVER IS GROUND MOUNTED OR STRUCTURE MOUNTED.
- 2. FIND WIND VELOCITY USING WIND MAP ON GENERAL NOTES SHEET (SHT. NO. | OF | 15) AND CHOOSE APPROPRIATE ROW IN TABLE.
- 3. VERIFY THAT THE PROPOSED SIGN AREA DOES NOT EXCEED THE MAXIMUM ALLOWABLE AREA.
- 4. FIND CORRESPONDING GROUP NUMBER IN THE APPROPRIATE "CANTILEVER MEMBER SIZES" TABLE AND APPLY MEMBER SIZES ACCORDINGLY. SEE PROJECT PLAN SHEET FOR "CANTILEVER DATA TABLE".

		LO	

NOTES:

ALL MEMBERS LISTED IN THE CANTILEVER MEMBER SIZES TABLE SHALL BE STEEL PIPE OR TUBE AND SHALL HAVE A MINIMUM YIELD STRENGTH (Fy) OF 42 KSI.

TUBE OR A.N.S.I. PIPE SECTIONS PROVIDING EQUAL OR GREATER STRENGTH THAN ANY MEMBER DESIGNATED IN THE TABLE MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ALL DESIGNS MUST BE CONFIRMED ON THE FABRICATION DRAWINGS AND APPROVED BY LA DOTD BEFORE FABRICATION IS INITIATED.

THE CAMBER VALUES LISTED IN THE TABLES ARE THEORETICAL VALUES ONLY. THE CONTRACTOR SHALL ENSURE THAT AFTER ERECTION OF THE SIGN TRUSS AND INSTALLATION OF THE SIGN PANELS, THE TRUSS SPAN DOES NOT DEFLECT BELOW HORIZONTAL.

- ⊕ A DESIGN REQUEST MUST BE SUBMITTED FOR ALL GROUND MOUNTED CANTILEVERS USED ON EMBANKMENTS ≥ 10 FT. HIGH.
- ☐ A DESIGN REQUEST MUST BE SUBMITTED FOR ALL STRUCTURE MOUNTED CANTILEVERS WHOSE SIGN CENTERS ARE MORE THAN 50 FT. ABOVE THE SURROUNDING GROUNDLINE.

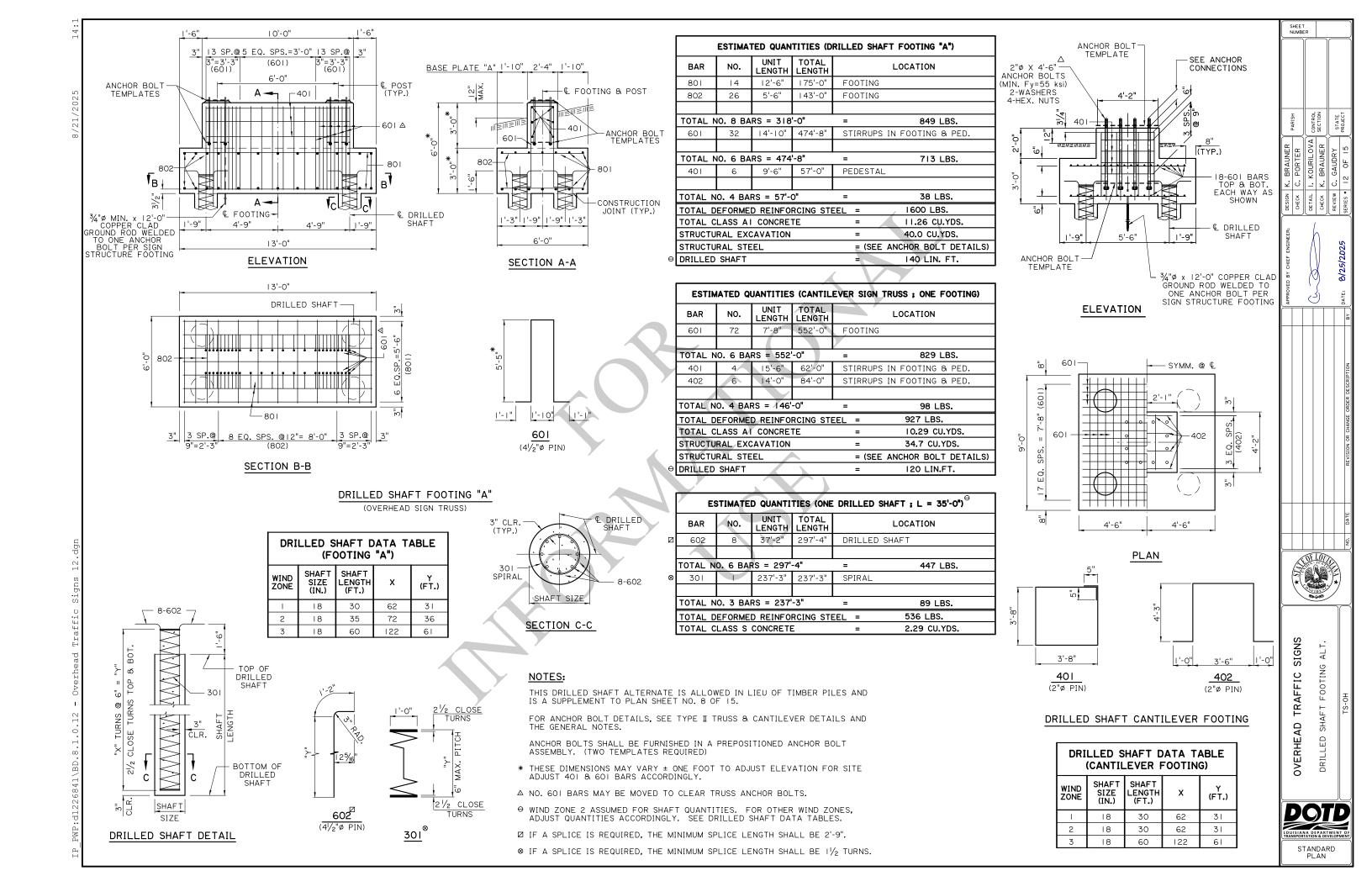
HOLOVO	FARISH	CONTROL	CONTROL		PROJECT
DESIGN K. BRAUNER	C. PORTER	I. KOURILOV	CHECK K. BRAUNER	C. GAUDRY	11 OF 15
DESIGN	снеск	DETAIL	снеск	REVIEW	SERIES #

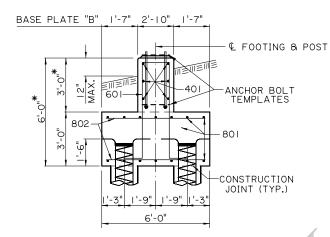
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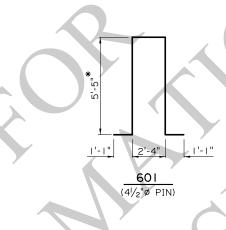
OVERHEAD TRAFFIC
CANTILEVER DESIGN TA







SECTION A-A



		ESTIMATED QUANTITIES (DRILLED SHAFT FOOTING "B")							
	BAR NO. UNIT TOTAL LENGTH LENGTH			TOTAL LENGTH	LOCATION				
	801	14	14'-6"	203'-0"	FOOTING				
	802	32	5'-6"	176'-0"	FOOTING				
	TOTAL N	IO. 8 BA	RS = 379	'-0"	=	1012 LBS.			
	601	32	15'-4"	490'-8"	STIRRUPS	IN FOOTING & PED.			
	TOTAL N	TOTAL NO. 6 BARS = 490'-8"				737 LBS.			
	401	6	9'-6"	57'-0"	PEDESTAL				
	TOTAL N	0. 4 BA	RS = 57'-	0"	=	38 LBS.			
	TOTAL D	EFORME	D REINFO	RCING STE	EL =	1787 LBS.			
	TOTAL C	LASS AI	CONCRE	TE	=	13.15 CU.YDS.			
	STRUCTU	RAL EXC	CAVATION		=	45.0 CU.YDS.			
	STRUCTU	RAL STE	EL		= (SEE	ANCHOR BOLT DETAILS)			
θ	DRILLED	SHAFT			=	240 LIN. FT.			

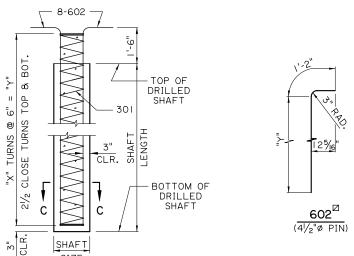
ESTIMATED QUANTITIES (ONE DRILLED SHAFT ; L = 30'-0") ⊖						
	BAR	NO.	UNIT LENGTH	TOTAL LENGTH	LOCATION	
	602	8	32'-2"	257'-4"	DRILLED S	SHAFT
Г						
Г	TOTAL NO. 6 BARS = 257'-4"			-4"	=	387 LBS.
Γ	301	1	206'-5"	206'-5"	SPIRAL	
Γ						
E	TOTAL N	0. 3 BAI	RS = 206	-5"	=	78 LBS.
Ŀ	TOTAL D	EFORME	D REINFO	RCING ST	EEL =	465 LBS.
Ŀ	TOTAL C	LASS S	CONCRETE	<u> </u>	=	I.96 CU.YDS.

601 △ 801 4" 6" I-8" 3 EQ. <u>| 1'-8" | 3 EQ. | 1'-8" | 6" | 4" | 4" | </u> SPS. = 2'-2" SPS. = 2'-2" (802 SPACED AS SHOWN)

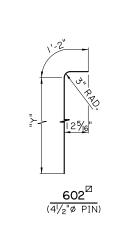
SECTION B-B

DRILLED SHAFT FOOTING "B"

(OVERHEAD SIGN TRUSS)



DRILLED SHAFT DETAIL

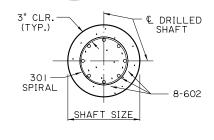


DRILLED SHAFT DATA TABLE (FOOTING "B")							
WIND	SHAFT SIZE (IN.)	SHAFT LENGTH (FT.)	×	Y (FT.)			
1		N/A					
2	18	30	62	31			
3	18	65	132	66			

<u>301</u>[⊗]

2½ CLOSE

TURNS



SECTION C-C

NOTES:

THIS DRILLED SHAFT ALTERNATE IS ALLOWED IN LIEU OF TIMBER PILES AND IS A SUPPLEMENT TO PLAN SHEET NO. 8 OF 15.

FOR ANCHOR BOLT DETAILS, SEE TYPE I TRUSS & CANTILEVER DETAILS AND THE GENERAL NOTES.

ANCHOR BOLTS SHALL BE FURNISHED IN A PREPOSITIONED ANCHOR BOLT ASSEMBLY. (TWO TEMPLATES REQUIRED)

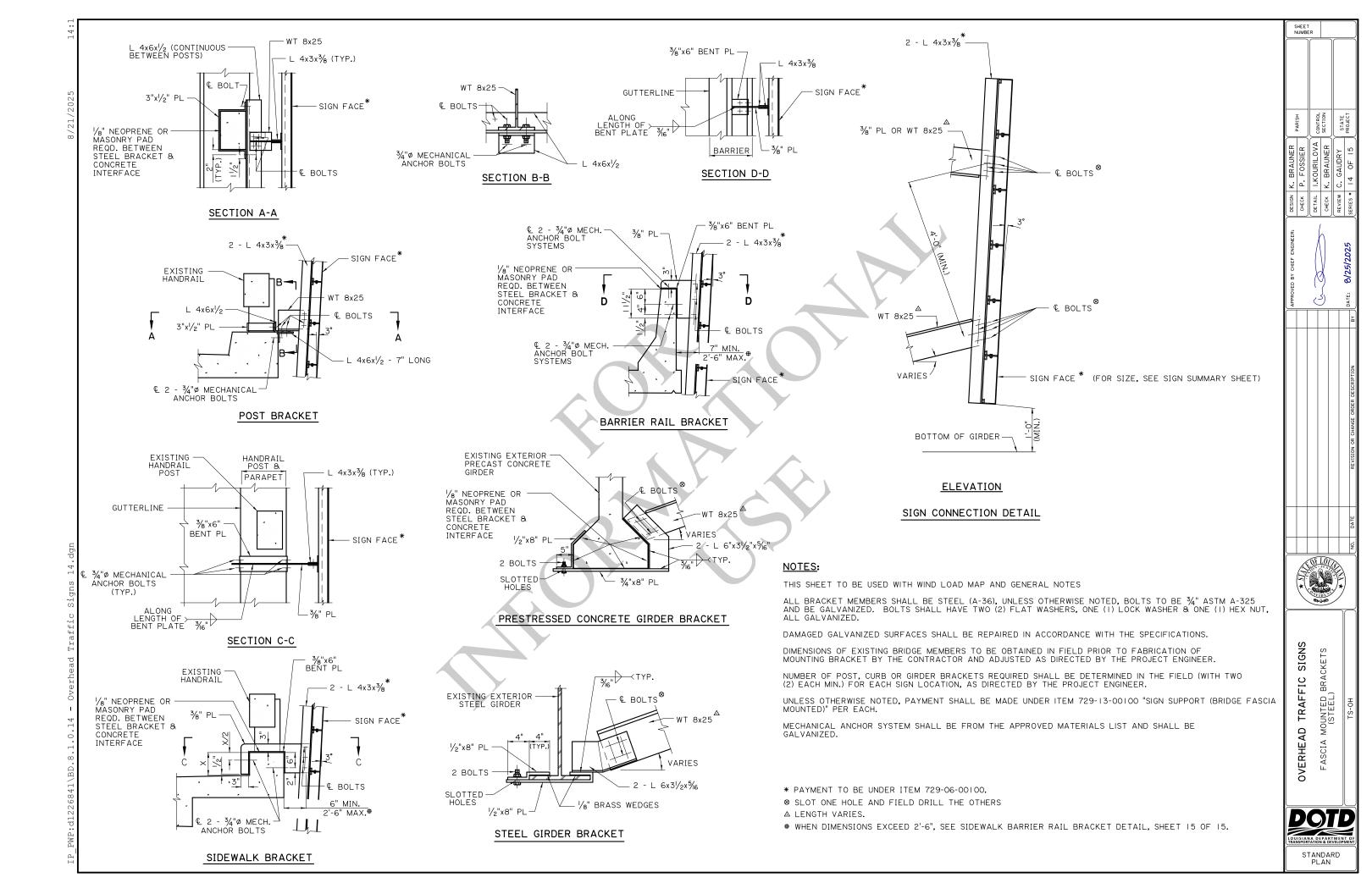
- * THESE DIMENSIONS MAY VARY ± ONE FOOT TO ADJUST ELEVATION FOR SITE ADJUST 401 & 601 BARS ACCORDINGLY.
- △ NO. 601 BARS MAY BE MOVED TO CLEAR TRUSS ANCHOR BOLTS.
- O WIND ZONE 2 ASSUMED FOR SHAFT QUANTITIES. FOR OTHER WIND ZONES, ADJUST QUANTITIES ACCORDINGLY. SEE DRILLED SHAFT DATA TABLES.
- ☑ IF A SPLICE IS REQUIRED, THE MINIMUM SPLICE LENGTH SHALL BE 2'-9".
- \otimes IF A SPLICE IS REQUIRED, THE MINIMUM SPLICE LENGTH SHALL BE $1\frac{1}{2}$ TURNS.

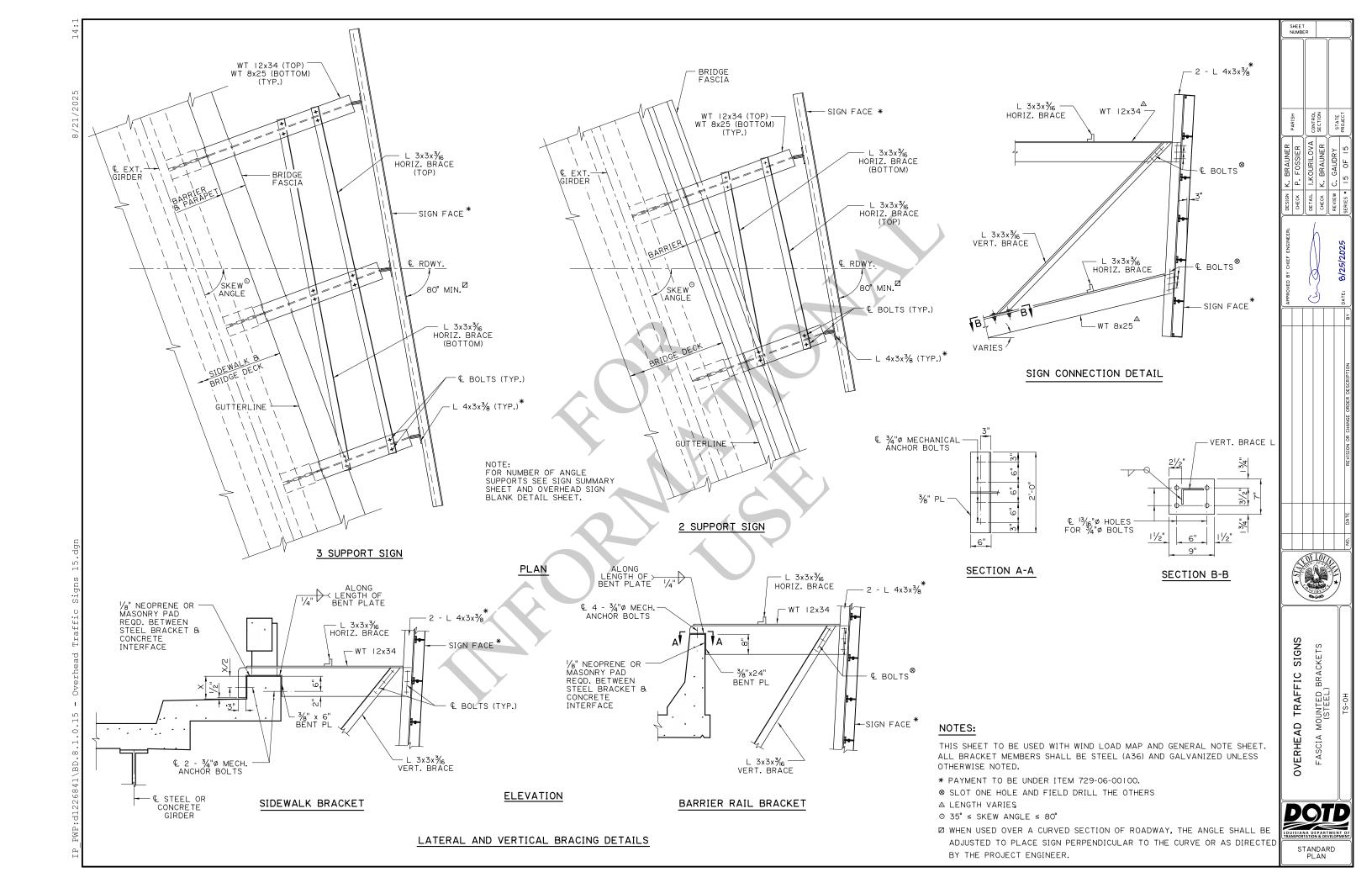


CONTROL SECTION

SIGNS $\mathsf{ALT}.$ TRAFFIC OVERHEAD

DOTD STANDARD PLAN





GENERAL PROVISIONS

- All temporary traffic control (TTC) devices used shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges, the MUTCD, and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices where applicable.
- Materials used for TTC shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges and, when applicable, the LADOTD AML.
- Placement of TTC devices shall not commence without the approval of the Engineer and until work is about to begin, unless they are covered.
- No lane closures, lane shifts, diversions or detours shall occur without the approval of the Engineer.
- Responsibility is hereby placed upon the contractor for the installation, maintenance and operation of all TTC devices called for in these plans or required by the Engineer for the protection of the traveling public as well as all LADOTD and construction personnel.
- The contractor shall also be responsible for the maintenance of all permanent signs, pavement markings, and traffic signals left in place as essential to the safe movement and guidance of traffic within the project limits unless noted in the plans.
- The DTOE shall serve as a technical advisor to the Engineer for all traffic control matters.
- The Chief Construction Engineer or his appointed designee shall approve all signs and situations not addressed in the plans based on the recommendations of the Project Engineer and the DTOE. All changes shall be noted in all project traffic control diaries.
- The Chief Construction Engineer or his appointed designee shall approve all design speeds of diversions or shifts, if it differs from design plans, based on the recommendations of the Project Engineer and the DTOE.
- All temporary traffic control plans shall comply with the Transportation Management Plan.
- Any additional signs shown in the MUTCD and required by the Engineer shall be installed under Item 713-01-00100.
- Neither work activity nor storage of equipment, vehicles, TMAs, or materials shall occur within the buffer space.
- When a work area has been established on one side of the roadway only, there shall be no conflicting operations or parking on the opposite shoulder within 500 feet of the work area.
- A lighting plan shall be submitted to the Engineer 30 days prior to night work for approval. (See section 713.10 of the Louisiana Standard Specifications for Roads and Bridges.)
- Parking of vehicles or unattended equipment or storage of materials, within the work zone clear zone shall not be permitted unless protected by guardrail or barriers. If the work zone clear zone is not defined on the plan sheets, the Engineer shall verify.
- Immediately upon removal of existing guardrail, the contractor shall install and maintain an NCHRP Report 350 or MASH approved device to protect the blunt end of the bridge or column until new guardrail is installed. After removal of the existing guardrail, new guardrail should be installed within seven (7) days. On non-NHS routes with shoulders less than 8 feet wide: If an NCHRP 350 Report Test Level 3 or MASH device is required but the field conditions of the roadway cannot support a Test Level 3 device, then a Test Level 2 device can be substituted in its place upon approval by the Engineer. If utilized, a TMA is allowed for a maximum of 72 hours.
- All costs associated with temporary crash devices are to be included under the appropriate NS-700 pay item.
- Sight distance should be considered when placing traffic control devices.
- On all mainline Interstates, a minimum of 1.5 feet of paved shoulder on the left and right side shall be maintained at all times.

- On Interstates, a minimum of 11 foot lanes shall be maintained. On all other roadways, a 10 foot minimum travellane should be maintained where practical.
- TTC Standards are not drawn to scale.
- The contractor shall develop an internal traffic control plan approved by the Engineer prior to each phase.
- Truck restrictions such as (but not limited to) restricting lanes, oversize loads or times of travel, may be required for narrow lanes or other field conditions.
- Temporary concrete barrier shall be placed on a paved surface. This paved surface should follow current design criteria used for paved embankment widening for guardrails.
- Flare rates for temporary concrete barriers should follow the most current guidance in the AASHTO Roadside Design Guide.

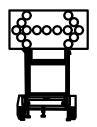
PAVEMENT MARKINGS (see AML)

- All pavement markings within the limits of the project or adjacent to the
 project limits that are in conflict with the project signing or the required
 traffic movements shall be removed from the pavement by blast cleaning
 or grinding. (Existing striping shall not be painted over with black paint or
 covered with tape.)
- If special pavement markings are needed, they shall be reflectorized, removable and accompanied by the proper signage.
- Temporary Raised Pavement Markers may be added to supplement temporary striping in areas of transition, in tapers, in diversions and in other areas of need as shown in the plans or as directed by the Engineer.
- Temporary markings installed in the permanent configuration shall comply with LADOTD pavement marking standard plans, MUTCD and/or the permanent striping plans.

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

- PCMS shall be used on all Interstate Highways. PCMS shall be used on all other roadways (where space is available) with an ADT greater than 20,000.
- When used in advance of a lane closure or a lane shift, the PCMS should be placed on the right hand side of the road a minimum distance of 2 miles in advance of the taper for interstates and to be determined by the Engineer on other highways.
- For interstates and multi-lane highways, if vehicles are queuing beyond the 2 mile PCMS, an additional PCMS should be placed on the right hand side of the road approximately 5 miles in advance of the taper or at the end of the queue, whichever is greater.
- PCMS messages shall be approved by the Engineer. Messages shall be no more than 3 lines and 2 screens.
 - Messages shall display only traffic operational, regulatory, warning, and guidance information. PCMS messages shall not display advertising or safety messages. Messages should only convey information concerning the problem/situation, location, and recommended driver action.
 - PCMS should be placed as far from the traveled lane as possible. They shall be shielded by guardrail or barriers. If this is not possible they shall be delineated with a min. 3 drum taper spaced at 20ft with a 4th drum alongside the PCMS.
- If the PCMS encroaches on the improved shoulder then the contractor shall install a shoulder closure.
- When the PCMS is not displaying a work zone appropriate message pertaining to the ongoing construction project it shall be shielded by guard rail or barriers, or removed from the work zone clear zone.





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SPEED LIMITS

- The Engineer may approve a 10 mph drop in the speed limit for posted speeds of 45 mph or greater and for any construction, maintenance or utility operation that requires one or more of the following:
 - (A) The condition of the traveled way is degraded due to milled surfaces or uneven travel lane lines greater than 1.5 inches.
 - (B) Work is in progress in the immediate vicinity of the travel way requiring lane closures or lane width reductions less than 11 feet.
 - (C) Workers present on the shoulder within 2 feet of the edge of the traveled way without barrier protection.
- The reduced speed zone shall only apply to those portions of the project limits affected. The Engineer may allow SPEED LIMIT WHEN FLASHING signs to supplement reduced speed zones.
- If the speed limit is reduced, speed limit signs shall be placed:
 (A) beyond major intersections;
- (B) at one mile intervals in rural areas;
- (C) at half mile intervals in urban areas.
- At the end of the reduced speed zone, a speed limit sign displaying the original speed limit prior to construction shall be installed.
- For all other speed limit reductions not listed above, the Project Engineer and the DTOE shall recommend the speed reduction to the Chief Construction Engineer or his appointed designee for approval.
- If the speed limit is reduced more than 10 mph, placement of the signs shall be re-evaluated according to the MUTCD.

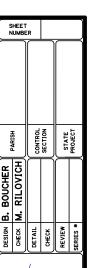
FLASHING ARROW BOARDS

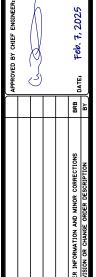
- All Flashing Arrow Boards shall be 4 feet by 8 feet and Type C.
- Flashing Arrow Boards should be placed on the shoulder. When there is no shoulder or median area, the arrow board shall be placed within the closed lane behind the channelizing devices and as close to the beginning of the taper as practical.
- Flashing arrow boards shall be delineated with retroreflective TTC devices.
- At no time shall the arrow board encroach in the traveled way.
 When Flashing Arrow Board signs are not being used, they shall be shielded by guard rail or barriers, or removed.
- Arrow boards shall only be used for lane reduction tapers and shall not be used for lane shifts.

ABBREVIATIONS

	AASHTOAmerican Association of State Highway and
	Transportation Officials
	ADTAverage Daily Traffic
0	AGCAssociated General Contractors of America
	AMLApproved Materials List
	ANSIAmerican National Standards Institute
	ATSSAAmerican Traffic Safety Services Association
	B.O.PBeginning of Project
	DTOEDistrict Traffic Operations Engineer
	E.O.PEnd of Project
	LADOTDLouisiana Department of Transportation and Development
	MASHAASHTO Manual for Assessing Safety Hardware
	MUTCDManual on Uniform Traffic Control Devices
	NCHRPNational Cooperative Highway Research Program
	NHSNational Highway System
	PCMSPortable Changeable Message Sign
	TMATruck Mounted Attenuator
	TMCTraffic Management Center
	TTCTemporary Traffic Control

TTC Standards .. Temporary Traffic Control Standard Plans





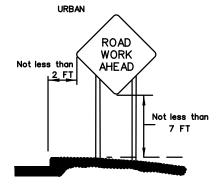


TEMPORARY TRAFFIC CON'GENERAL NOTES SHEET



SIGNS

- All signs used for temporary traffic control shall follow the plans, the LADOTD TTC Standards and the MUTCD.
- Signs shown in the TTC illustrations are typical and may vary with each specific condition.
- One Type B High Intensity light shall be used to supplement the first sign (or pair of signs) that gives warning about a lane closure during nighttime operations (See AML).
- Mesh rollup signs shall not be allowed on any project.
- Contractor shall use caution not to damage existing signs which remain in place. Any LADOTD signs damaged by work operations shall be replaced by the contractor under item 713-01-00100.
- All signs (permanent and temporary) shall be removed or completely covered with a strong, lightweight, opaque material when no longer applicable. (Burlap is not an acceptable material to cover signs).
- At no time shall signs warning against a particular operation be left in place once the operation has been completed or where the condition has been removed.
- Warning signs used for temporary traffic controls shall meet the following guidelines unless otherwise noted in the plans:
- (A) size shall be 48 inches by 48 inches.
- (B) see the Louisiana Standard Specifications for Roads and Bridges and the AML for sheeting information.
- (C) lateral distance of signs shall be a minimum of 6 feet from the edge of shoulder or edge of pavement if no shoulder exists and 2 feet from the back of curb in urban areas (see diagram).
- When portable sign frames are not in use, they shall be moved to an area inaccessible to traffic and not visible to the driver.
- Left side mounted signs will not be required for roadways with a center left turn lane and for undivided roadways.
- ▼ Vinyl roll up signs and 1 foot portable sign stands may be used if work zone is in place for 3 days or less. Signs or stands may not be used if there are more than 2 lanes in each direction and if signs do not meet all size, color, retroreflectivity and NCHRP 350 Report or MASH requirements.
- All signs shall be visible to the drivers (i.e. no obstructions such as on street parking or other traffic control devices shall block the sign).
- On divided highways, signs shall be placed on the right and the left as shown on the TTC standards.
- Sign posts:
- -Signs measuring 10 square feet or less shall be mounted on 1 rigid post -Signs over 10 square feet shall be mounted on 2 rigid posts
- -Signs over 20 square feet shall be mounted on at least 3 rigid posts
- Rigid sign supports shall be driven to a minimum depth of 3 feet. (If splicing is required, see Allowable Lap Splice U-channel Post.)
- For sign height, see the Rural and Urban diagrams:



LANE CLOSURES

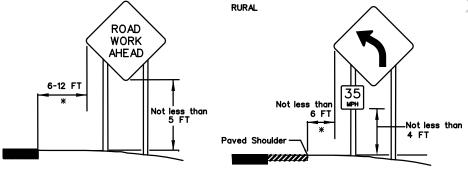
- All proposed lane, road or shoulder closures shall be reviewed by the DTOE and approved by the Engineer.
- Two lane, two-way highways shall have a maximum work area of two miles; all other roadways shall have a four mile maximum work area.
- A queue analysis shall be performed prior to approval of lane closures on all Interstates according to Section 6A.1 of the Traffic Engineering Manual.
- Closure plans and times shall be turned in to the Engineer for review according to the following:
 - (A) 5 working days minimum if traffic control plan has been approved or is contained in the plans.
 - (B) 10 working days minimum and a traffic control plan must be submitted for lane closures not addressed in the plans.
- Weekly updates to the DTOE, Project Engineer, the LADOTD TMC operator and the regional TMC operator (if applicable) will be required for all ongoing lane closures to update the closure status.
- Daily updates to the DTOE, Project Engineer and TMC operator (if applicable) will be required for all projects where active closures are in place.

FLAGGERS

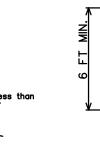
- All flaggers shall be qualified.
- The contractor shall be responsible for training or assuring that all flaggers are qualified to perform flagging duties.
- A Qualified Flagger is one that has completed courses such as those offered by ATSSA or other courses approved by the LADOTD Work Zone Task Force. The contractor shall be responsible for getting the flagger course approved.
- When utilized, a flagger shall use a minimum 18 inch octagonal shape sign on a minimum 6 foot stop/slow paddle and wear ANSI Class 2 Lime Green vest during day time operations and ANSI Class 3 Lime Green ensemble during night operations.
- In all flagging operations, the flagger must be visible from the flagger advance warning sign.
- Flaggers shall not be used on the Interstate.

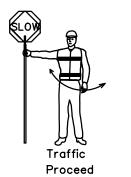
To STOP

Traffic



the sign may be placed no less than 2 feet.







Use of Hand Sign

Use of Hand Sign

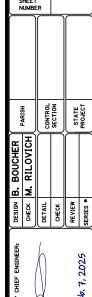
PEDESTRIAN CONSIDERATIONS

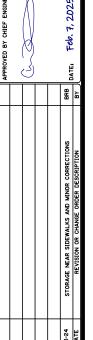
- If the TTC zone affects the movement of pedestrians, adequate pedestrian access and walkways shall be provided either through the TTC zone or a designated alternate route.
- Pedestrians should be provided with a convenient and accessible path that replicates as nearly as practical the most desirable characteristics of the existing sidewalk(s) or footpath(s).
- Advance notification of sidewalk closures shall be provided by the maintaining agency.
- No storage of construction materials, equipment, and/or vehicles will be permitted on permanent or temporary bicycle, pedestrian, or transit facilities for any duration of time.

REFERENCES

- The contractor shall be responsible for understanding all rules and requirements in the current edition of the following documents:
 - 1) Louisiana Standard Specifications for Roads and Bridges. http://www.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Standard_Specifications
 - Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). http://mutcd.fhwa.dot.gov/
 - 3) LADOTD Approved Materials List (AML) Manual. http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/ Engineering/Materials_Lab/Pages/Menu_QPL.aspx
 - 4) LADOTD Traffic Engineering Manual http://www.sp.dotd.la.gov/Inside_LaDOTD/ Divisions/Engineering/Traffic_Engineering/ Misc%20Documents/Traffic%20Engineering%20Manual.pdf
 - 5) National Cooperative Highway Research Program (NCHRP) Report 350: "Guidelines for Work Zones Traffic Control Devices". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_350-a.pdf
 - 6) NCHRP Report 475: "A Procedure for Assessing and Planning Nighttime Highway Construction and Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_475.pdf
 - 7) NCHRP Report 476: "Guidelines for Design and Operation of Nighttime Traffic Control for Highway Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_476.pdf
 - 8) NCHRP Report 498: "Illumination Guidelines for Nighttime Highway Work". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_498.pdf
 - 9) American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide.
 - American Traffic Safety Services Association (ATSSA) Quality Guidelines for Work Zone Traffic Control Devices and Features.
 - U.S. Department of Transportation Federal Highway
 Administration Traffic Control Handbook for Mobile
 Operations at Night. http://www.dot.state.il.us/blr/1023.pd

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TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET



CHANNELIZING DEVICES

- The following devices may be used as channelizing devices: Tubular Markers, Vertical Panels, Cones, Drums and Super Cones.
- 28 inch traffic cones are not allowed on:
 - 1) Interstates
 - 2) Highways with speeds greater than 40 mph.
- During nighttime operations, 28 inch and 36 inch cones are not allowed.
- Retroreflective material pattern used on super cones shall match that used on drums.

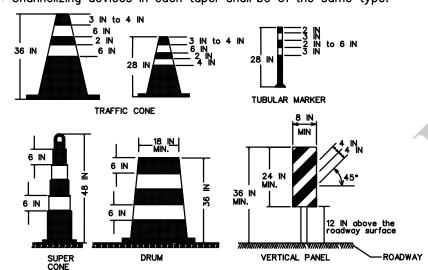
• Tangent Areas:

- A) <u>Standard Spacing</u>: See Standard Device Spacing and Buffer Space table.
- 3) <u>Daylight Operations</u>: Drums and super cones are spaced at standard spacing. All other devices are at $\frac{1}{2}$ standard spacing.
- C) <u>Nighttime Operations</u>: Drums and supercones at standard spacing are the only devices allowed.

Taper Areas:

- A) <u>Standard Spacing</u>: See Standard Device Spacing and Buffer Space table.
- B) <u>Daylight Operations</u>: Drums are spaced at standard spacing.

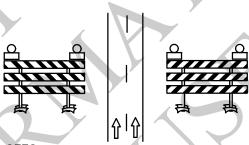
 All other devices are ½ standard spacing.
- C) <u>Nighttime Operations</u>: Drums (at standard spacing) are the only devices allowed.
- D) <u>Downstream Locations & Flaggers:</u> Drums or supercones at 20' max spacing. The length of taper shall be between 50' 100' with a minimum of 6 devices.
- Type C steady burn lights shall be used on all channelizing devices in the taper as well as the first two devices in the tangent at night, (see the AML).
- Typical channelizing device lateral placement (do not include when it is used as a divider for opposing directions of traffic) shall be 2 feet off the lane line in the closed lane or shoulder.
- Devices may be adjusted laterally to accommodate ongoing work in the immediate vicinity but must be returned to the closed lane after the work activity has moved.
- Channelizing devices on the lane line shall be of the same type.
- Channelizing devices in each taper shall be of the same type.



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TYPE III BARRICADES

- Only Type III Barricades shall be used in the roadway or shoulder.
 All barricades shall use Type 3 High Intensity Sheeting on both sides of the barricade.
- All barricades shall be a minimum of 8 feet in length and must meet NCHRP Report 350 or MASH requirements.
- When used for overnight closures, two Type B High Intensity Lights shall supplement all barricades that are placed in a closed lane or that extend across a highway. Two Type A Low Intensity Lights may be used in urban areas if approved by the Engineer (See AML).
- When signs and lights are to be mounted to a barricade, they must meet NCHRP Report 350 or MASH requirements.
- A truck with a TMA may be substituted for a barricade when workers are present.
- Barricades shall be placed:
- (A) at the beginning of a closed lane or shoulder and at 1,000 foot intervals where no active work is ongoing and the lane must remain closed. A minimum of 2 barricades shall be placed if the lane or shoulder closure is less than 2,000 feet. (One barricade shall be placed at the beginning of the lane closure after the buffer space and one shall be placed in the middle of the lane closure.)
- (B) before each or group of unfilled holes or holes filled with temporary material.
- (C) before uncured concrete.
- (D) in the closed lane on each side of every intersection and crossover. (Do not block sight distance.)
- (E) in front of piles of material (dirt, aggregate, broken concrete), culverts and equipment which is near the work zone.



TTC for DROP-OFFS

NON-INTERSTATE

	Average Drop-off	Current Posted Speed (Prior to C	onstruction)						
	Drop-off	> 45 MPH	≤ 45 MPH						
,	≤ 3 IN	Low Shoulder Sign	Low Shoulder Sign						
	= 3 IN	(Optional)	(Optional)						
	> 3 IN	IN Shoulder Drop Off Sign & Edge Lines or Shoulder Drop							
	≤ 6 1N	Shoulder Drop Off Sign & Channelizing Device							
	> 6 IN	No Shoulder Sign, Edge Lines	No Shoulder Sign &						
	≤ 10 IN	& Vertical Panel	Channelizing Device						
	> 10 IN	Concrete Barrier (if drop off is < 12 FT	No Shoulder Sign &						
	> 10 IN	from edge of travellane) & Edge Lines	Vertical Panel						

INTERSTATE

Average Drop-off							
≤ 2 IN	Low Shoulder Sign						
] = 2 IN	(Optional)						
> 2 IN	Shoulder Drop Off Sign & Edge Lines or						
≤ 6 IN	Shoulder Drop Off Sign & Channelizing Device						
> 6 IN	Concrete Barrier (if drop off is < 12 FT from edge						
, e in	of travellane), Shoulder Drop Off Sign, & Edge Lines						

- If a portable concrete barrier will be required then the deflection shall be considered in the design.
- For Interstate ramps, refer to non-Interstate drop offs.

STANDARD DEVICE SPACING AND BUFFER SPACE

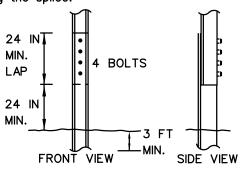
SPEED LIMIT (prior to construction)		SING TAP	PER LEN		STANDARI SPACING		BUFFER SPACE
MPH	9	10	11	12	Along Taper	Along Tangent	FT
25	94	105	115	125	20	40	155
30	135	150	165	180	30	60	200
35	184	205	225	245	35	70	250
40	240	267	294	320	40	80	305
45	405	450	495	540	40	80	360
50	450	500	550	600	40	80	425
55	495	550	605	660	40	80	495
60	540	600	660	720	40	80	570
65	585	650	715	780	40	80	645
70	630	700	770	840	40	80	730
75	675	750	825	900	40	80	820

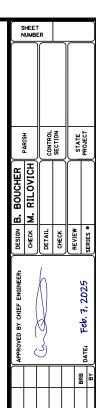
	SPEED LIMIT (prior to	SHIFTING TAPER LENGTH (1/2)(L) STANDARD DEVICE SPACING IN FEET							BUFFER SPACE	
"	construction)				Aless I Aless					
	MPH	2	4	6	8	10	12	Along Taper	Along Tangent	FT
	25	Ξ	21	32	42	52	63	20	40	155
	30	15	30	45	60	75	90	30	60	200
	35	21	41	62	82	102	123	35	70	250
	40	27	54	80	107	134	160	40	80	305
	45	45	90	135	180	225	270	40	80	360
	50	50	100	150	200	250	300	40	80	425
	55	55	110	165	220	275	330	40	80	495
	60	60	120	180	240	300	360	40	80	570
	65	65	130	195	260	325	390	40	80	645
	70	70	140	210	280	350	420	40	80	730
	75	75	150	225	300	375	450	40	80	820
	CDEED									

SPEED LIMIT (prior to construction)	SHOULDER TAPER LENGTH (1/3)(L) Shoulder Width (FT)						STANDARD DEVICE SPACING IN FEET		BUFFER SPACE
MPH	2	4	6	8	10	12	Along Toper	Along Tangent	FT
25	7	14	21	28	35	42	20	40	155
30	10	20	30	40	50	60	30	60	200
35	14	28	41	55	68	82	35	70	250
40	18	36	54	72	89	107	40	80	305
45	30	60	90	120	150	180	40	80	360
50	34	67	100	134	167	200	40	80	425
55	37	74	110	147	184	220	40	80	495
60	40	80	120	160	200	240	40	80	570
65	44	87	130	174	217	260	40	80	645
70	47	94	140	187	234	280	40	80	730
75	50	100	150	200	250	300	40	80	820

- See MUTCD for taper formulas.
- ALLOWABLE LAP SPLICE FOR U-CHANNEL POST

U-Channel posts may be spliced where long lengths are required. The upper section shall overlap the lower section by at least 24 inches. The bottom edge of the upper section of the splice shall be a minimum of 24 inches above the ground. The spliced sections shall be secured with at least four $\frac{5}{16}$ inch diameter hex bolts spaced equally along the splice.

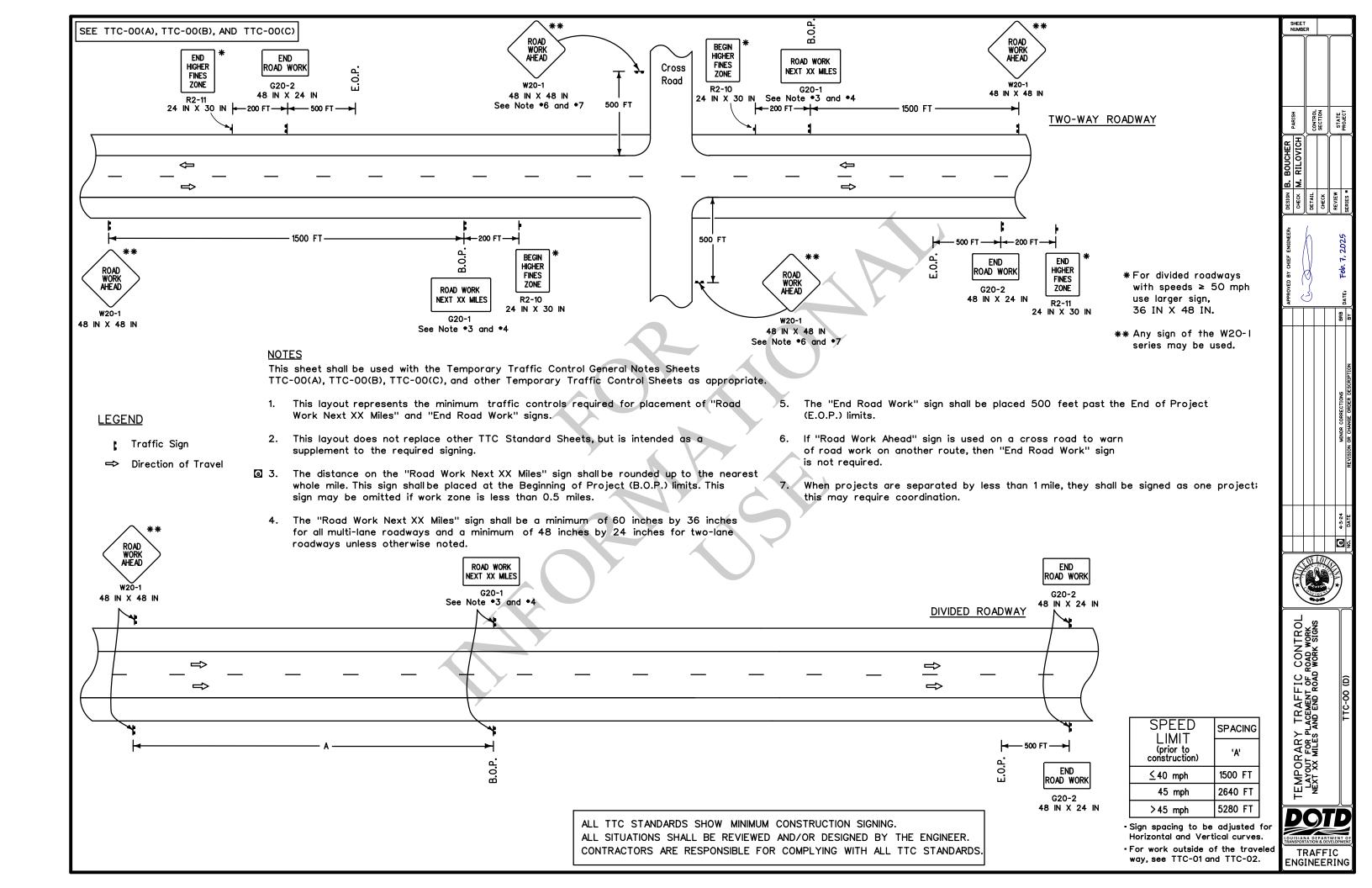


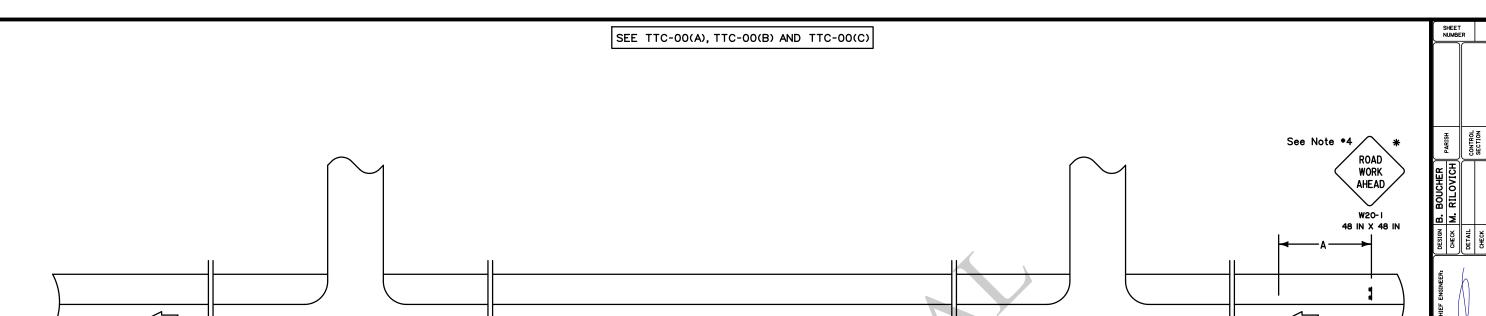


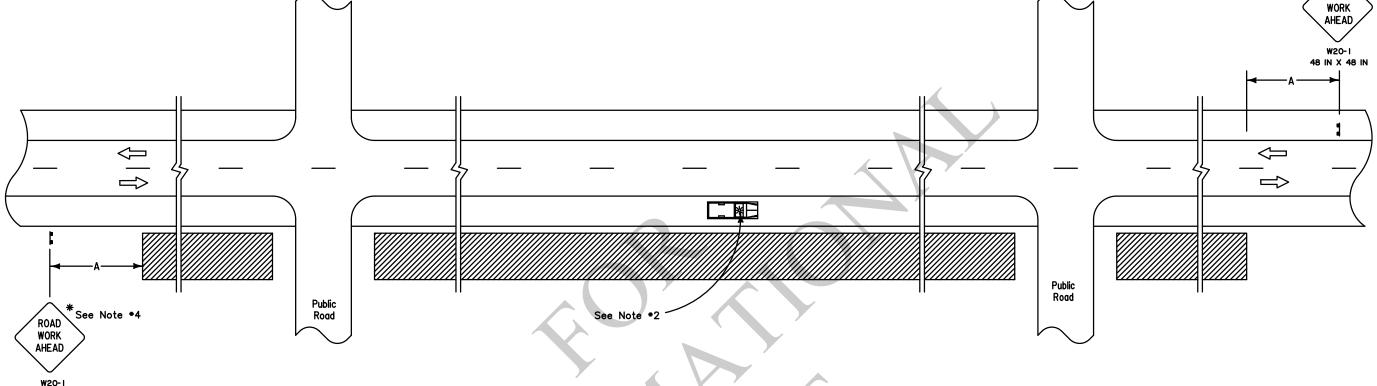




ENGINEERING







LEGEND

Traffic Sign

Work Area

48 IN X 48 IN

⇒ Direction of Travel

☐ ☐ ME Truck with Green/Amber Light

SPEED LIMIT	SPACING				
(prior to construction)	'A'				
≤ 40 mph	500 FT				
45-50 mph	1000 FT				
≥ 55 mph	1500 FT				

NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B) and TTC-00(C).

- 1. This layout represents the minimum traffic controls required for workers and equipment operating more than 15 feet from the travel way.
- ☑ 2. If the operation results in equipment or other vehicles being parked closer than 15 feet to the travel way, but not within the roadway, each vehicle shall have an green/amber light.
- 3. When a work area has been established on one side of the roadway only, there shall be no parking on the opposite shoulder within 500 feet of the work area.
- 4. Other signs may be used in place of the "Road Work Ahead" sign, such as W21-8 (Mowing), W21-7 (Utility), or W21-6 (Survey) when applicable.

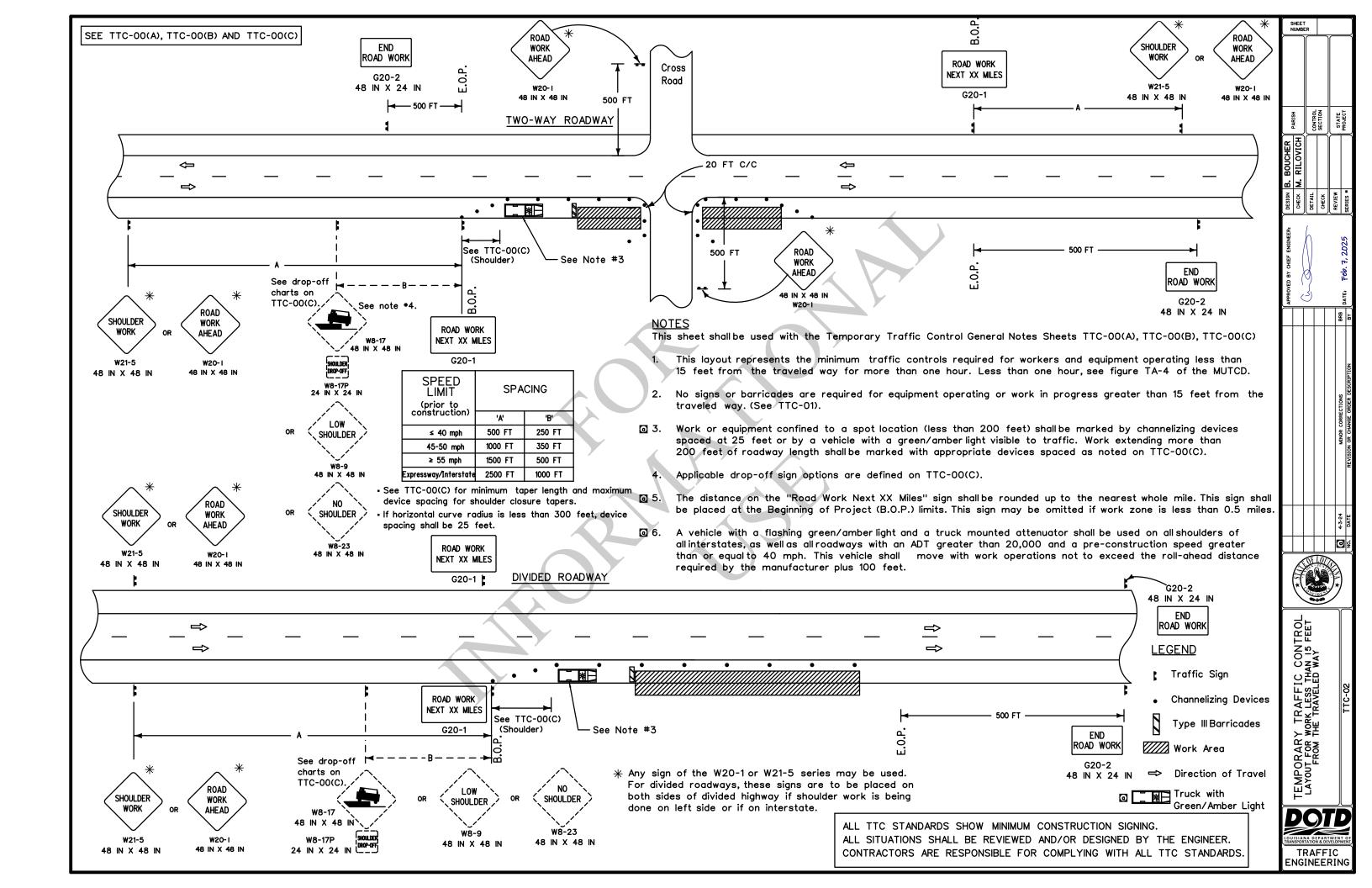
* Any sign of the W20-1 series may be used.

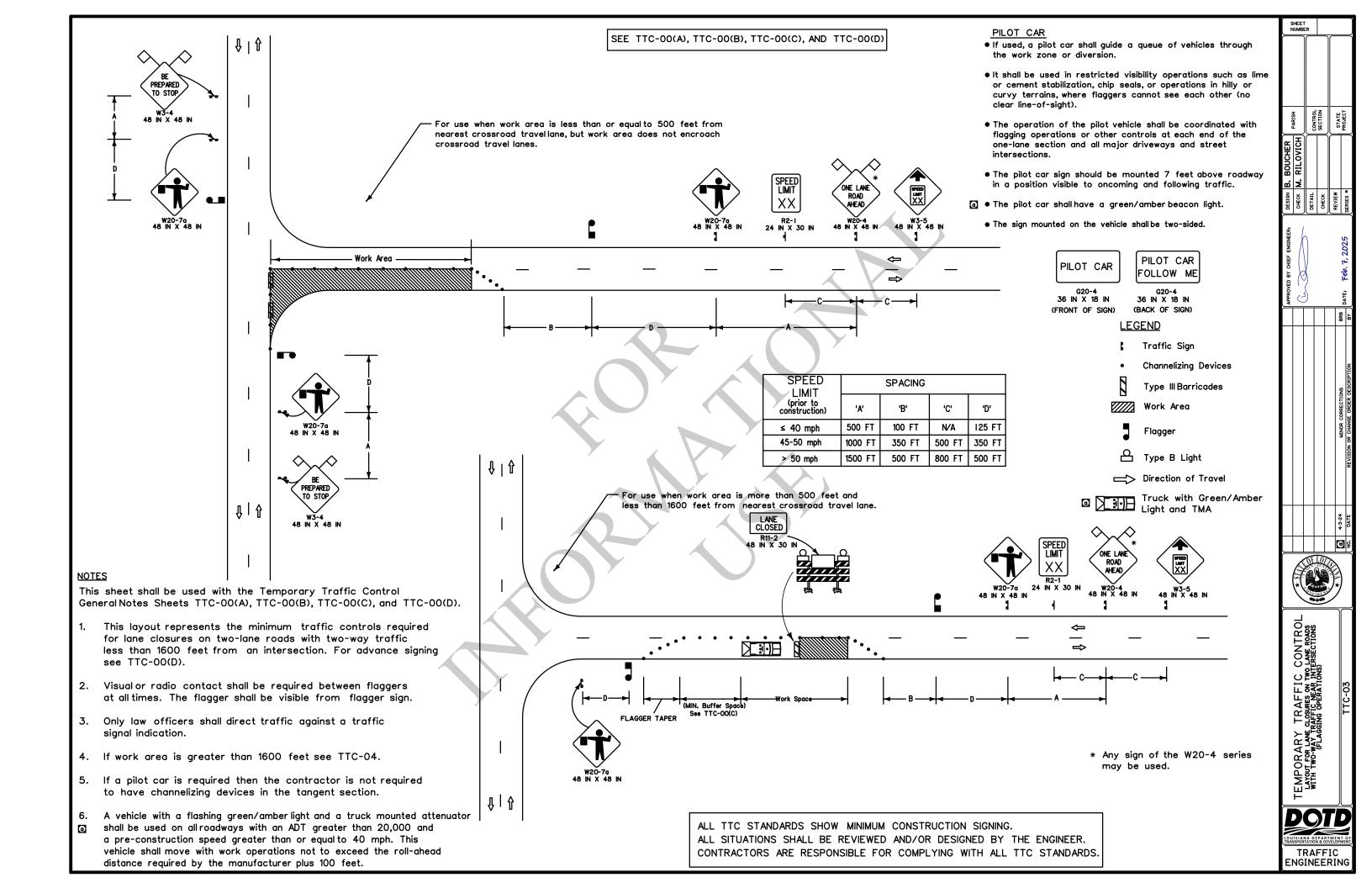
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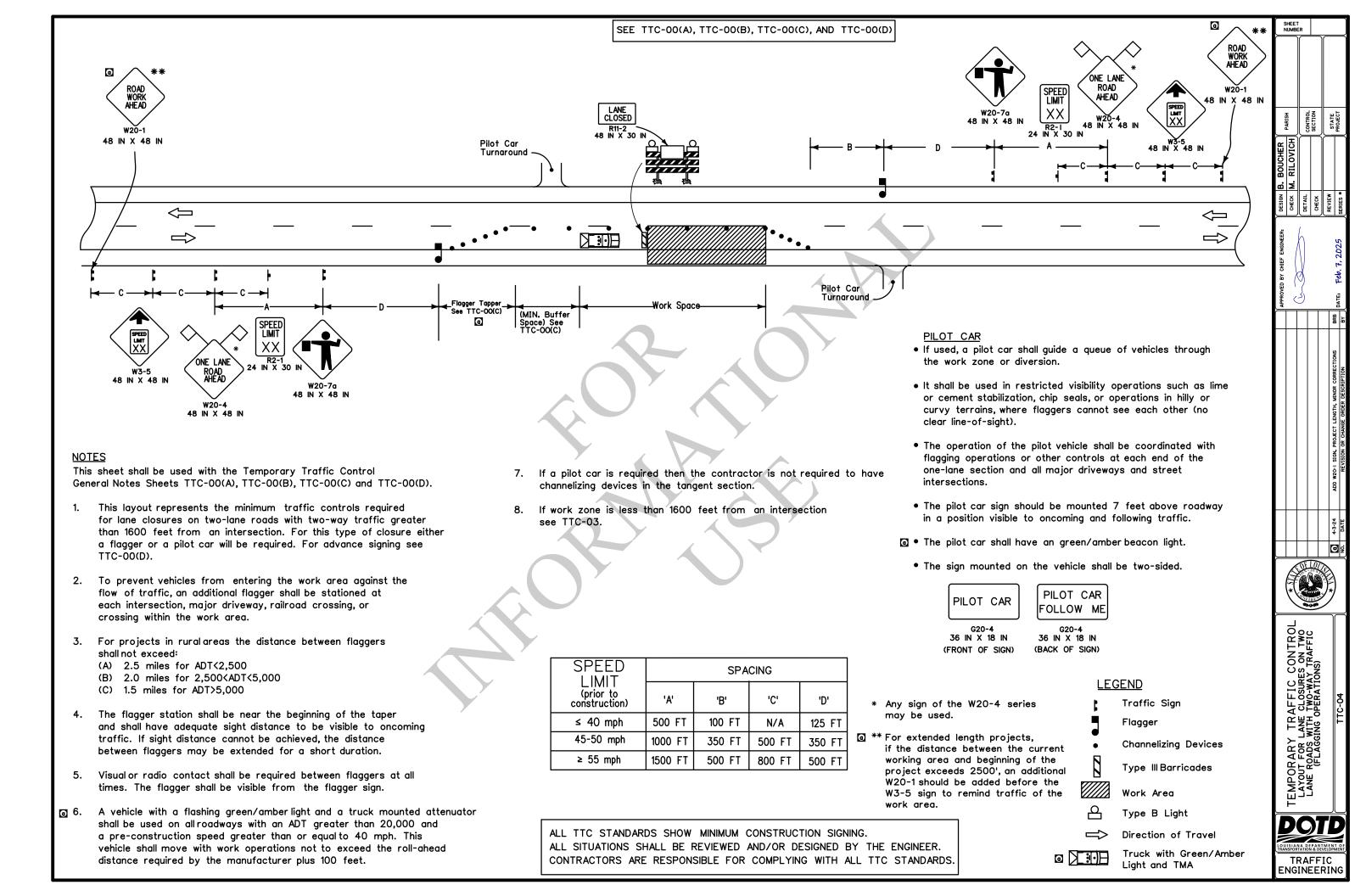


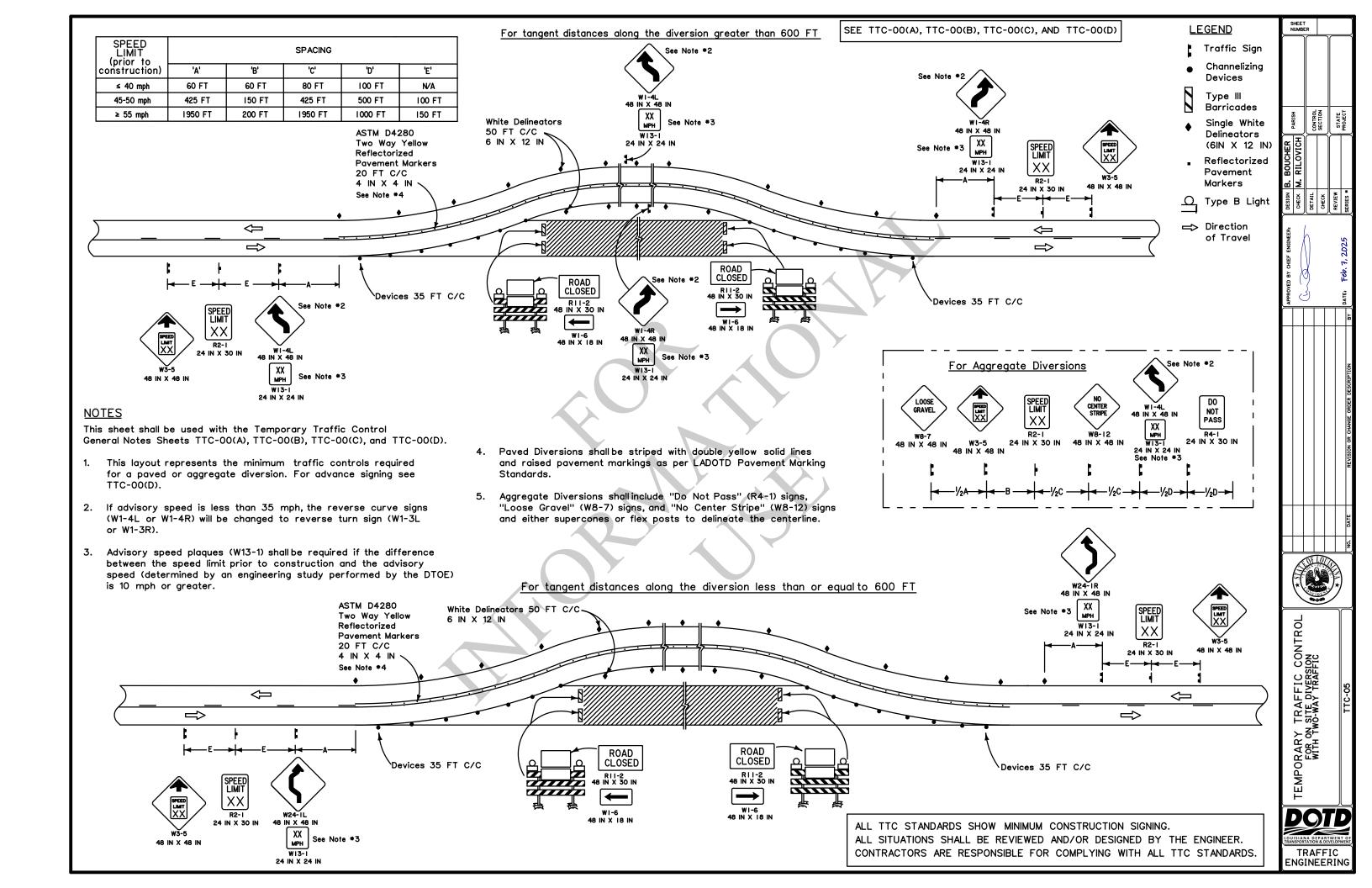
EMPORARY TRAFFIC CONTROI FOR WORK GREATER THAN 15 FEET FROM THE TRAVELED WAY

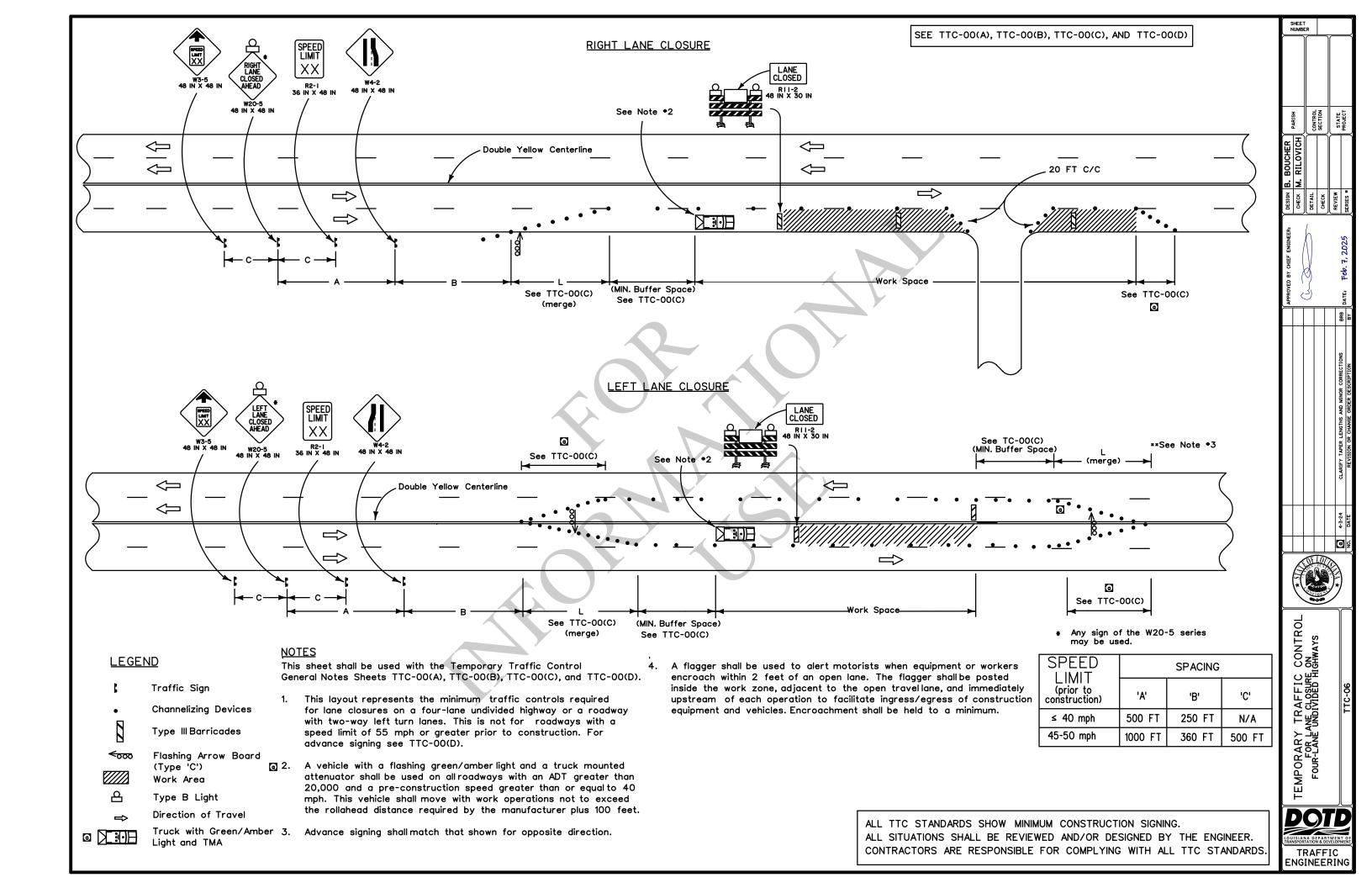
TRAFFIC ENGINEERING

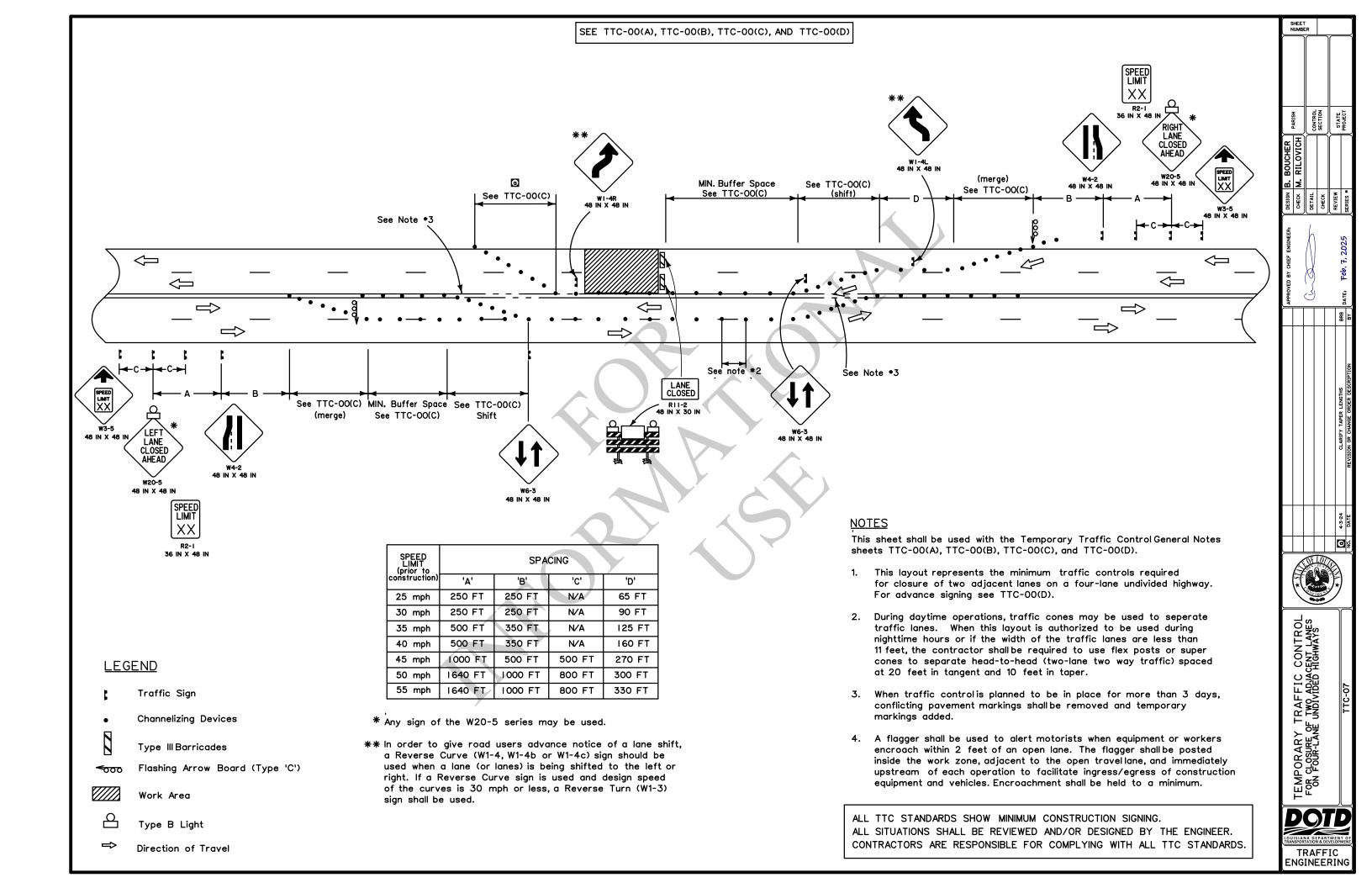


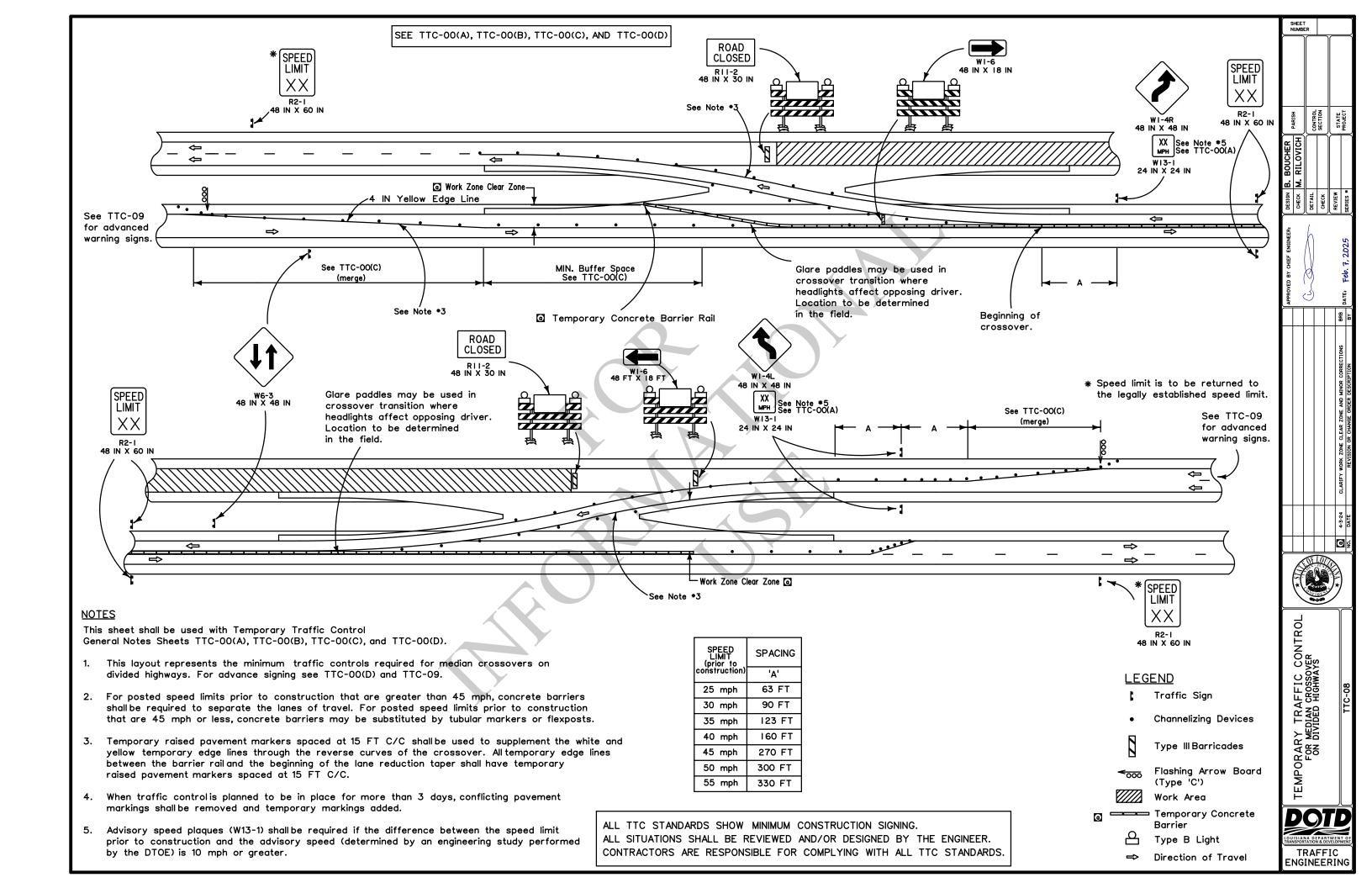


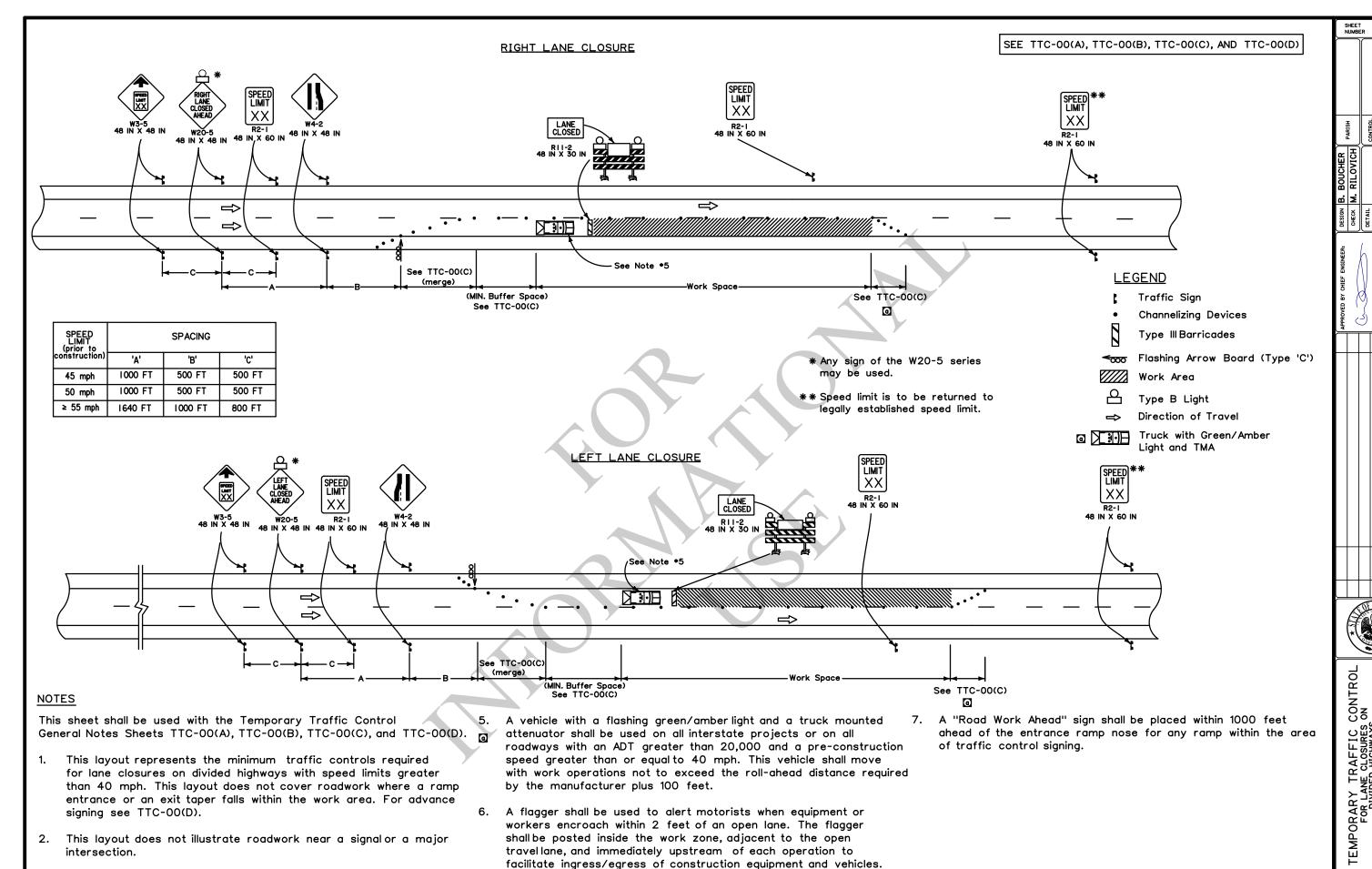












Encroachment shall be held to a minimum.

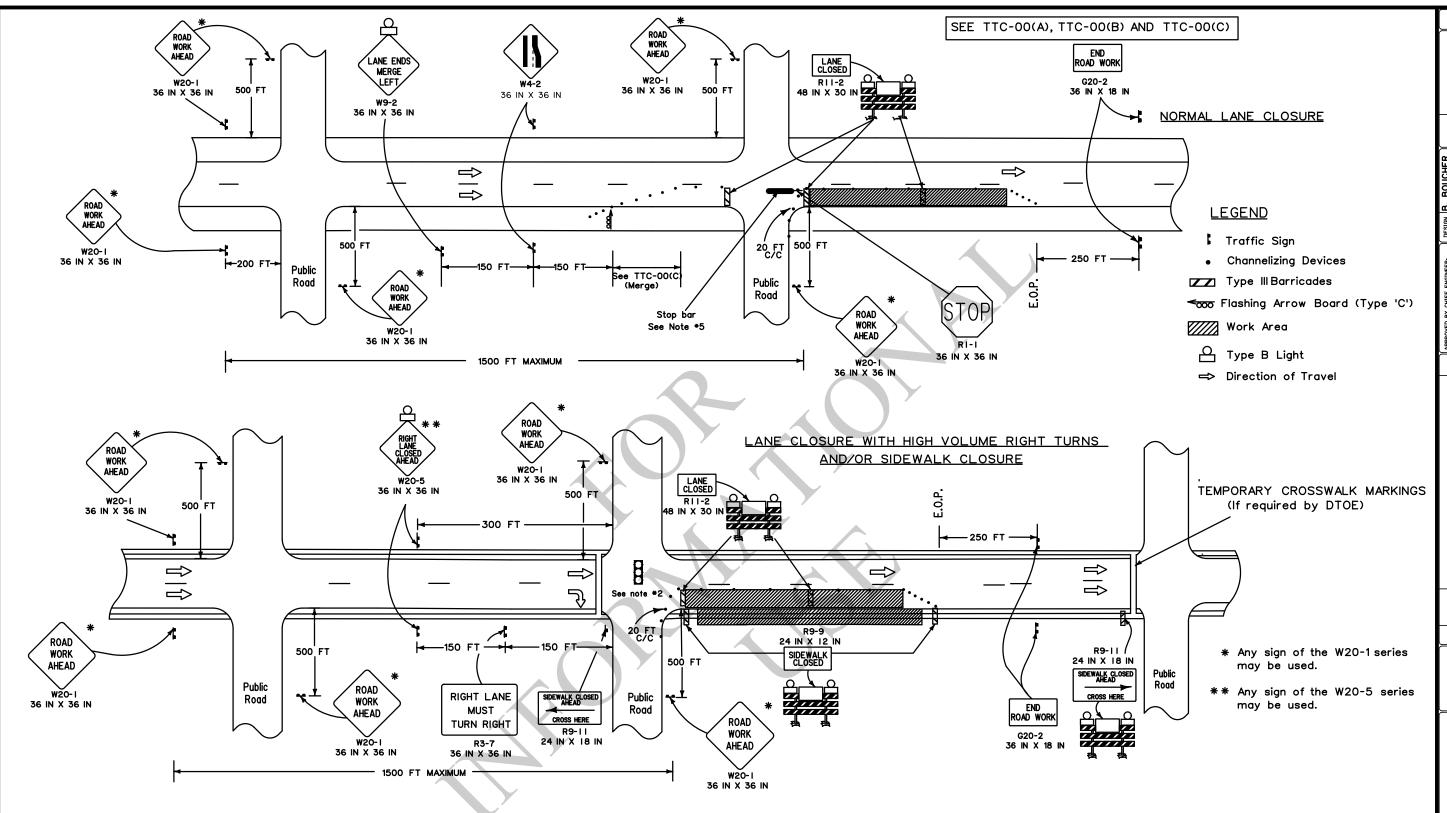
3. Sign spacing may be adjusted due to access conditions of the

4. If speed limit is less than 45 mph, see TTC-10.

corridor.

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
TRAFFIC
ENGINEERING

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NOTES

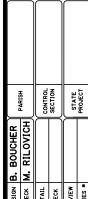
This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B) and TTC-00(C).

- This layout represents the minimum traffic controls required for lane closures in areas with a grid layout and with speed limits of 40 mph and below. This layout illustrates roadwork near a signal or a major intersection with or without sidewalks.
- If a signal is involved in the construction zone, a specific temporary traffic signal timing and phasing plan for each phase of construction shall be developed.
- 3. Bicyclists and pedestrians, including those with disabilities, should be provided with access and reasonably safe passage through the TTC zone.
- 4. The sign height shall be at least 7 feet in business, commercial, and residential areas and also near parking, pedestrians, bicyclists, or other obstructions.
- 5. Place stop bars if work duration is greater than 3 days.

- Place "Road Work Ahead" sign prior to an intersecting alternate route, no more than 1500 feet from the work area.
- 7. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features in the existing pedestrian facility as defined in the MUTCD.

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ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.

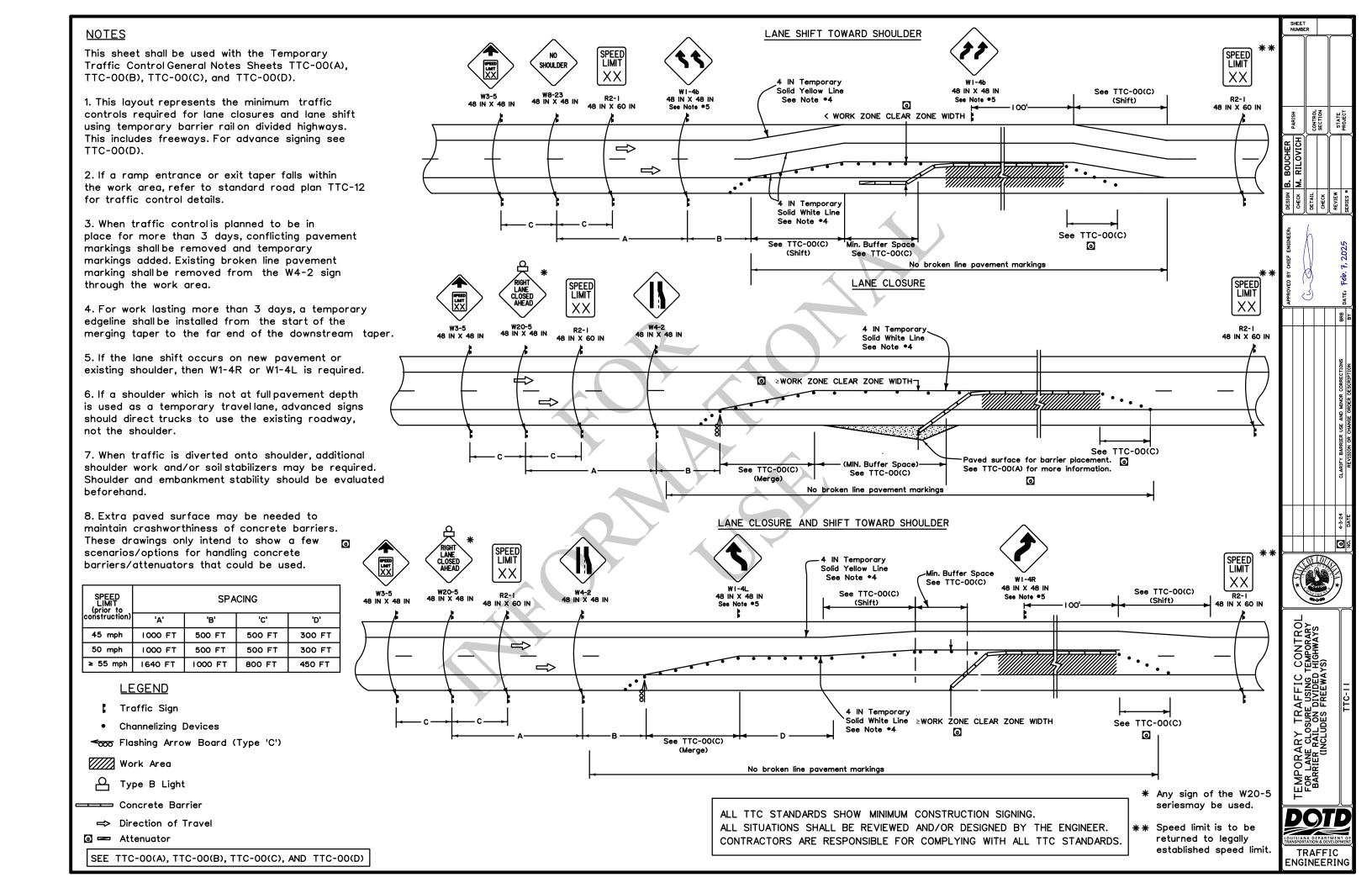


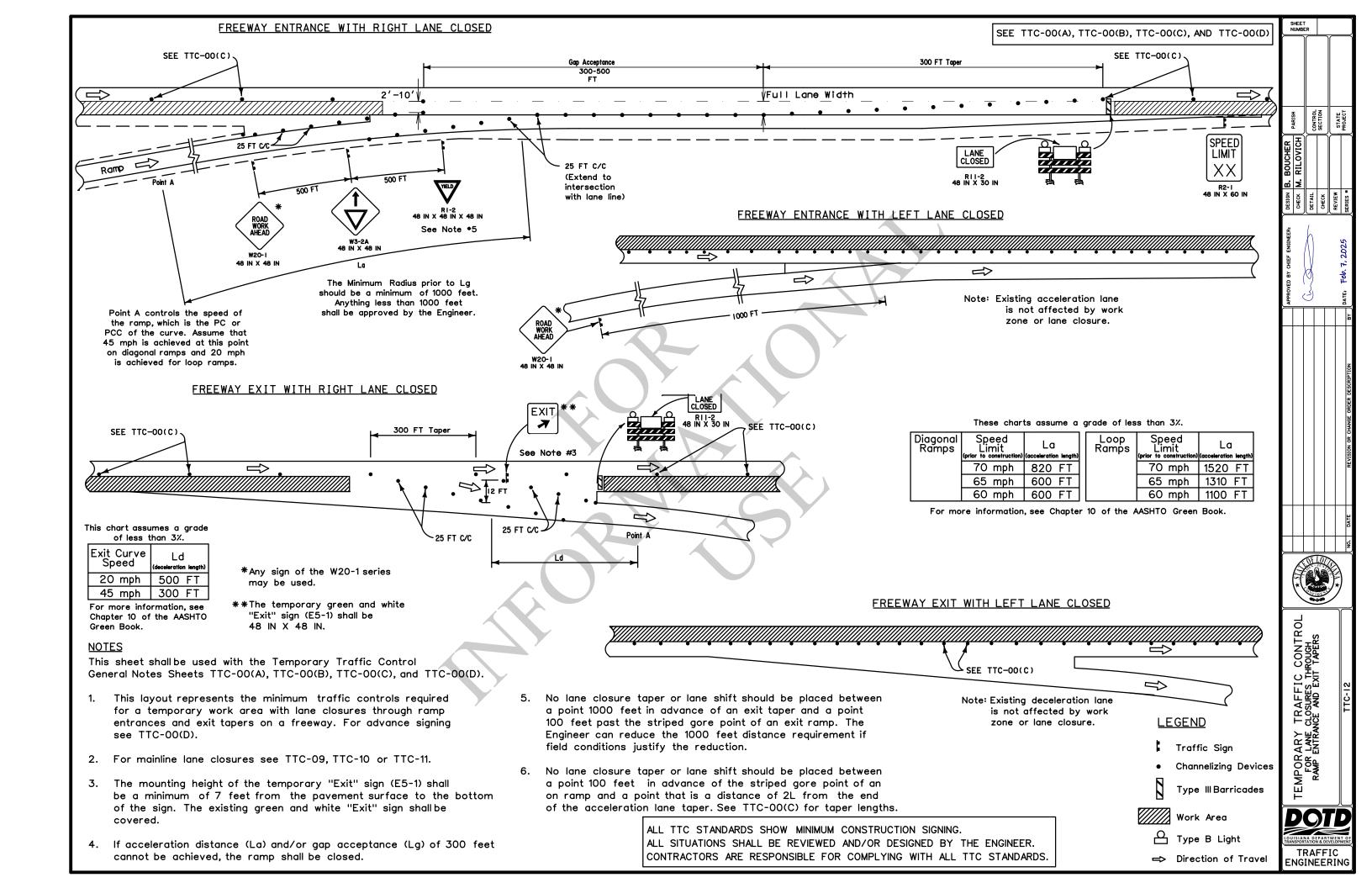


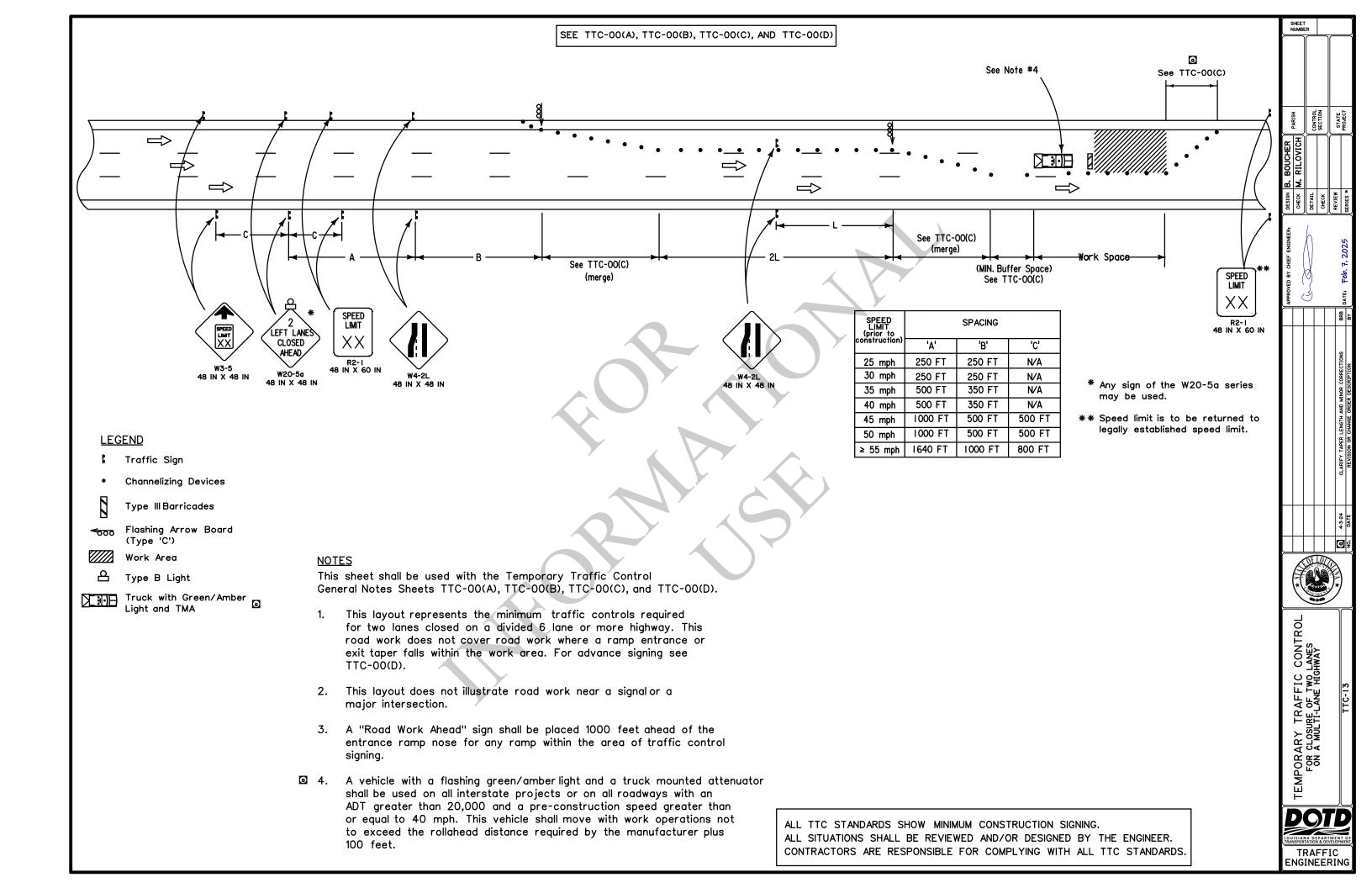


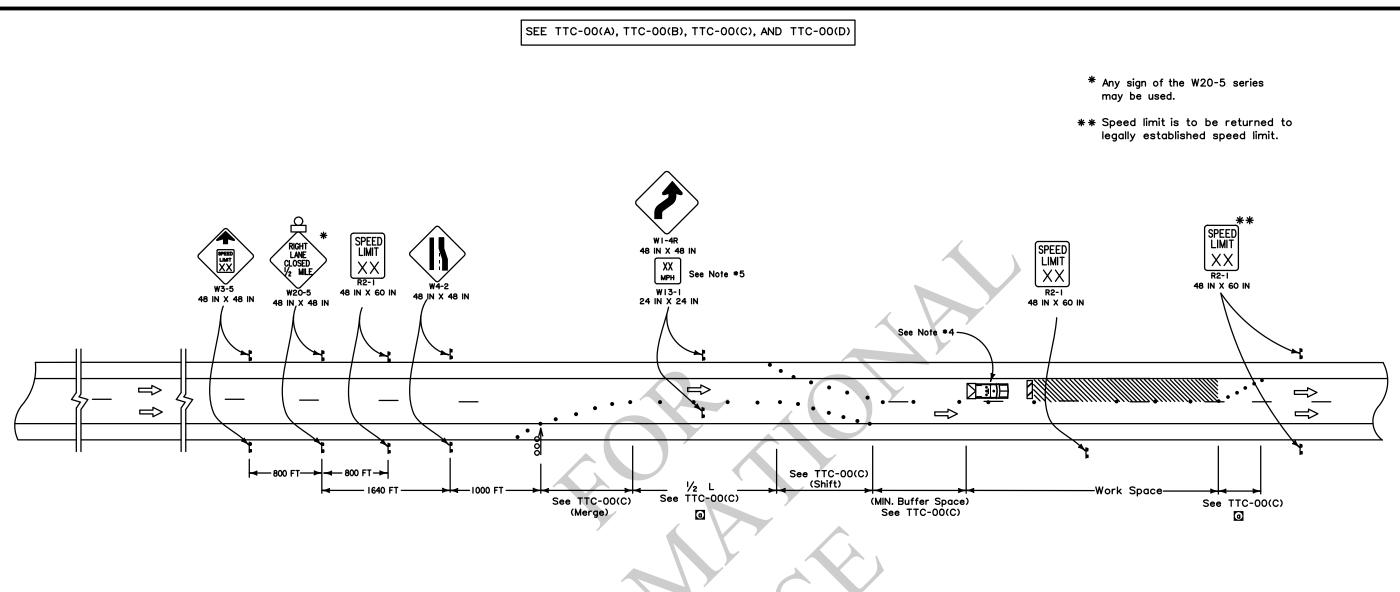
TEMPORARY TRAFFIC CONTROI FOR LANE AND SIDEWALK CLOSURES IN URBAN AREAS WITH SPEED LIMIT LESS THAN OR EQUAL TO 40 MPH











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ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER. CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C) and TTC-00(D).

- This layout represents the minimum traffic controls required for work in the left lane that would require the left lane to be closed on rural multi-lane divided highways and all interstates where left exit and entrance ramps do not exist. For advance signing see TTC-00(D).
- 2. This layout does not illustrate road work where a ramp entrance or an exit taper falls within the work area.
- This layout does not illustrate road work near a signal or a major intersection.
- 4. A vehicle with a flashing green/amber light and a truck mounted attenuator 0 shall be used on all interstate projects or on all roadways with an ADT greater than 20,000 and a pre-construction speed greater than or equal to 40 mph. This vehicle shall move with work operations not to exceed the roll-ahead distance required by the manufacturer plus
 - 5. Advisory speed plaques (W13-1) shall be required if the difference between the speed limit prior to construction and the advisory speed (determined by an engineering study performed by the DTOE) is 10 mph or greater.

Channelizing Devices

Flashing Arrow Board (Type 'C') Work Area

TEMPORARY TRAFFIC CONTROL FOR LOUISIANA LEFT ON INTERSTATE HIGHWAYS

DOTE

TRAFFIC **ENGINEERING**

Type B Light

Direction of Travel

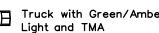
Truck with Green/Amber

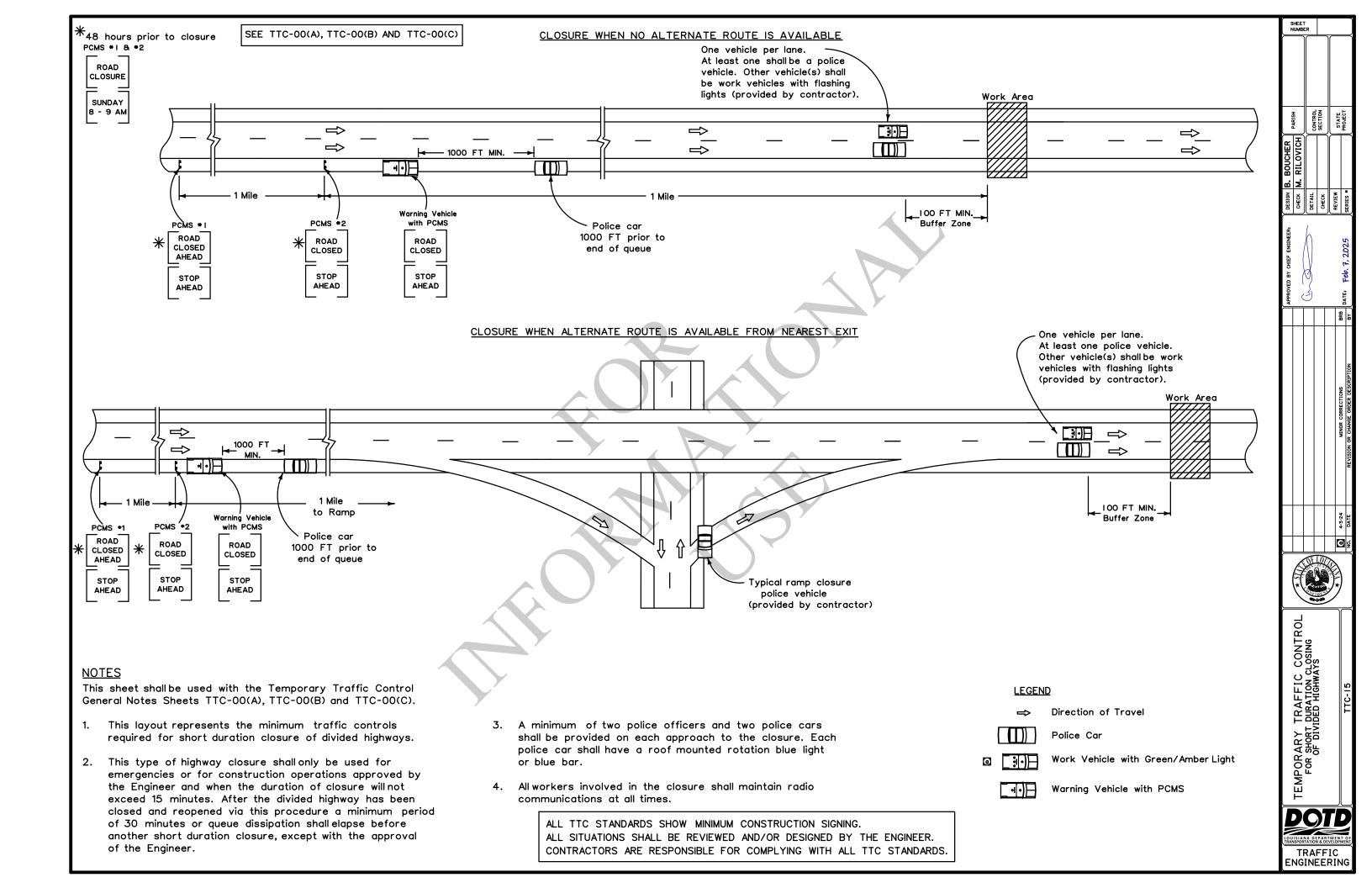
LEGEND

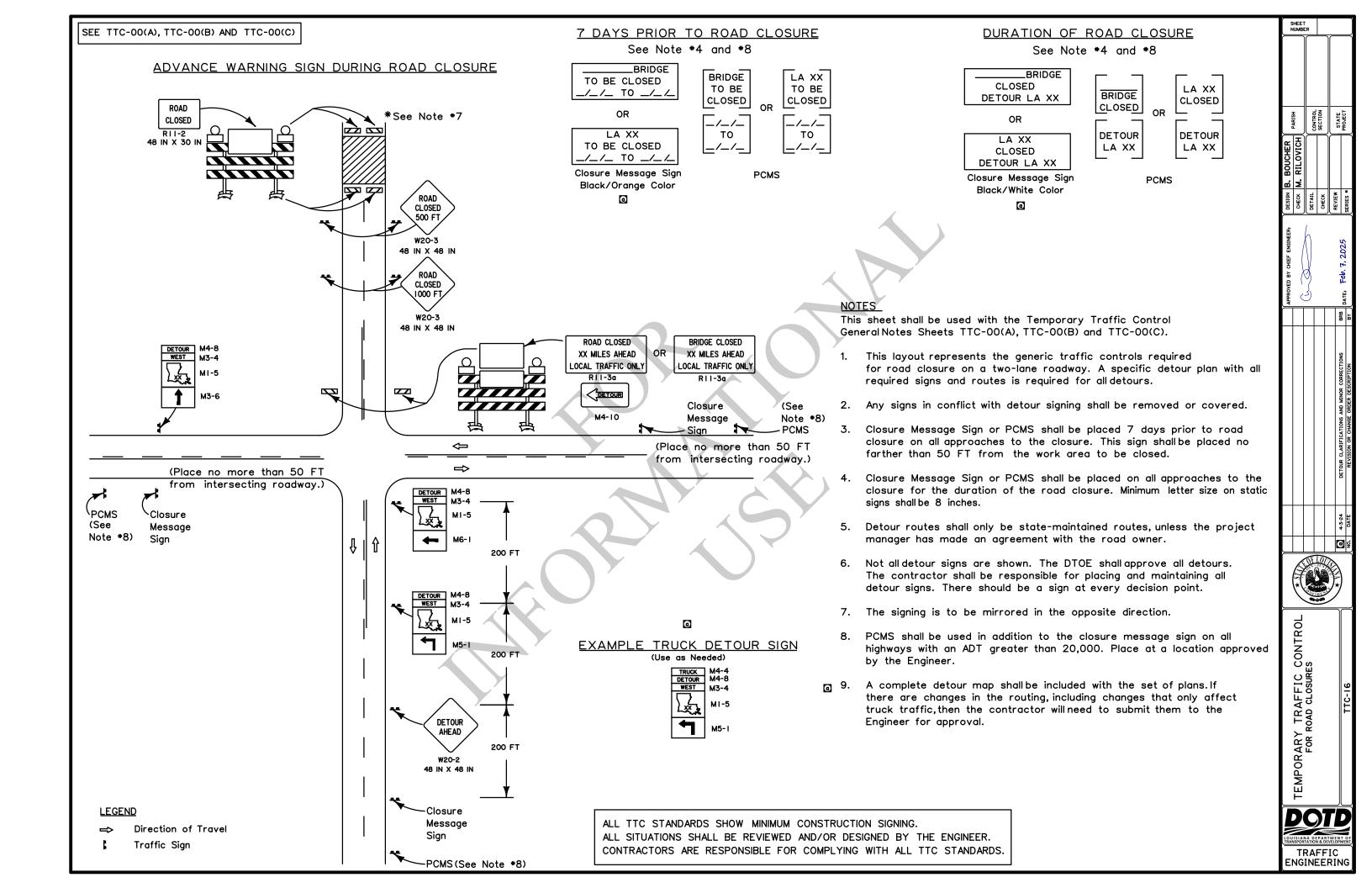
Traffic Sign

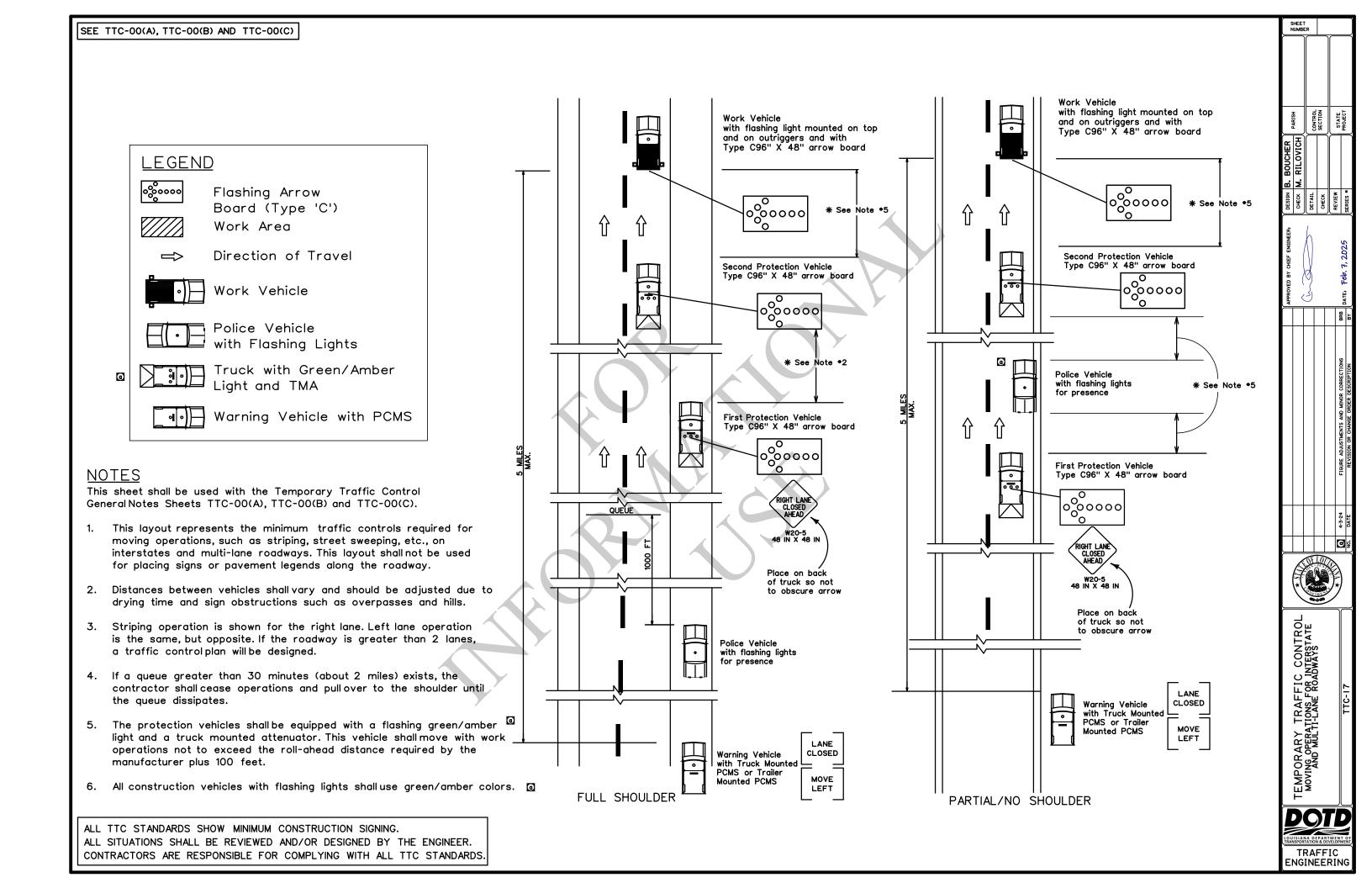
Type III Barricades











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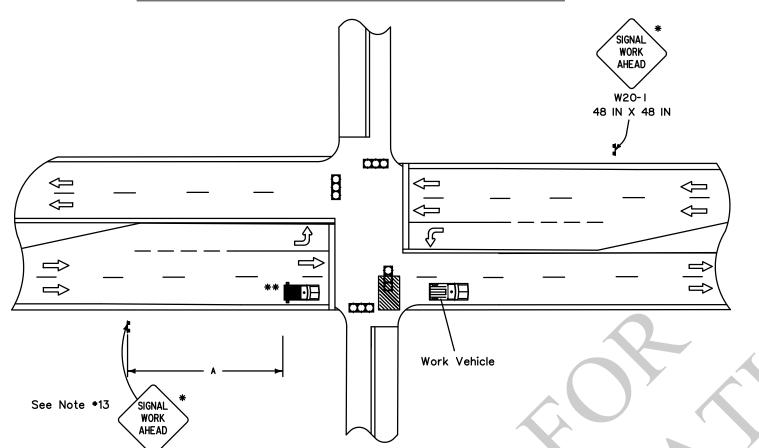
* Any sign of the W20-1 series may be used.

Lead Vehicle

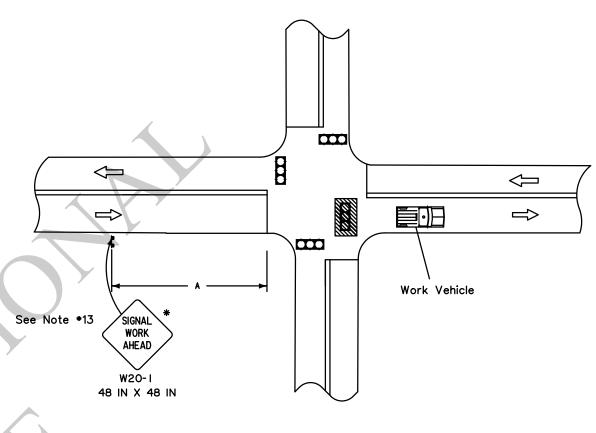
Protection Vehicle

DOTE TRAFFIC ENGINEERING





SIGNAL WORK ON A TWO-LANE TWO-WAY ROADWAY



* Any sign of the W20-1 series may be used.

** For posted speed over 45 mph, use TMA.

SPEED LIMIT	SPACING				
(prior to construction)	'A'				
≤ 40 mph	I25 FT				
45-50 mph	350 FT				
> 50 mph	500 FT				

LEGEND

Traffic Sign



Truck with Flashing Arrow Panel



⇒ Direction of Travel

Traffic Signal

<u>NOTES</u>

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), and TTC-00(C).

1. This layout represents the minimum traffic controls required during signal construction and maintenance.

W20-1 48 IN X 48 IN

- 2. For projects with multiple signals, the contractor shall construct only one signal at a time.
- 3. If the signal at an intersection is turned off, the intersection may operate as a 4-way stop with approval by the Engineer and the DTOE. The contractor shall be responsible for installing and removing all stop signs at the intersection.
- 4. A detour plan is required if the road will be closed to through traffic at all approaches.
- 5. A uniformed police officer shall direct traffic for short duration lane closures and signal turn-ons.
- 6. The turn lane may be used as a through lane if a minimum 10-foot lateral clearance can be maintained and opposing traffic is not impeded.
- 7. A signal timing and phasing plan shall be developed for each phase of construction.

- 8. Place "Road Work Ahead" sign prior to an intersecting alternate route, no more than 1500 feet from the work area.
- The sign height shall be at least 7 feet in business, commercial, and residential areas and also near parking, pedestrians, bicyclists, or other obstructions.
- 10. All work must be done during off-peak hours.
- 11. The contractor shall not work on both through lanes at the same time.
- 12. For signal work on a multi-lane roadway greater than 1 hour, see TTC-09 or TTC-10.
- 13. If the expected or actual queue length exceeds the distance in Table 2C-4 in the MUTCD, place an additional "Signal Work Ahead" sign (W20-1) at the end of the queue.
- 14. For two-lane two-way roadways, a police car with flashing lights and 2 police officers will be required for intersection traffic control.
- 15. Left turn lanes shall be closed whenever work is being performed in path of left hand turner.

 ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
- 16. Position of work vehicle may vary according to work required.

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TEMPORARY TRAFFIC CONTROL FOR TRAFFIC SIGNAL INSTALLATION AND MAINTENANCE AT AN INTERSECTION TTC-19

TTC-19

WO. DATE REVISION OR CHANGE OFFICE THE PROPERTY OF THE PROPERTY O

DOTE

TRAFFIC

ENGINEERING

