FHWA TEXAS DIVISION	PROJECT NO.		SHEET NO.
	BPM 6403-03-001		1
STATE	DISTRICT	COUNTY	
TEXAS	LFK	ANGELINA, ETC.	
CONTROL	SECTION	JOB	HIGHWAY NO.
6403	03	001	US 59, ETC.

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY ROUTINE MAINTENANCE CONTRACT

TYPE OF WORK:

BRIDGE PREVENTATIVE MAINTENANCE

BPM 6403-03-001

US 59, ETC.

ANGELINA, ETC.

LIMITS: VARIOUS LOCATIONS WITHIN THE
ANGELINA, NACOGDOCHES, SAN AUGUSTINE, AND SHELBY MAINTENANCE SECTIONS

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
	GENERAL
1	TITLE SHEET
2-4	LOCATION MAP
5, 5A-5B	GENERAL NOTES
6	ESTIMATE & QUANTITY SHEET
7-9	QUANTITY SUMMARIES
	TRAFFIC CONTROL PLAN
# 10-21	BC(1)-21 THRU BC(12)-21
# 22-26	TCP(2-1)-18 THRU TCP(2-5)-18
# 27	WZ(BRK)-13
# 28	WZ(RS)-22
	BRIDGE
29-61	BRIDGE LAYOUTS
62	CLEANING AND SEALING EXISTING BRIDGE JOINTS
# 63	ARMOR JOINT DETAILS
# 64-65	SRR-19
	ENVIRONMENTAL
66	TXDOT SWP3 INDEX
67-68	EPIC
# 69	EC(1)-16
	RAILROAD
70	RAILROAD SCOPE OF WORK
71-72	RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

SEE LOCATION MAP
SHEET 2 - 4

BARRICADES AND WARNING SIGNS

THE CONTRACTOR SHALL PROVIDE AND ERECT BARRICADES AND WARNING SIGNS IN ACCORDANCE WITH THE BARRICADE & CONSTRUCTION STANDARDS, TCP STANDARDS, THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND AS DIRECTED.

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...

7/29/2022
DATE

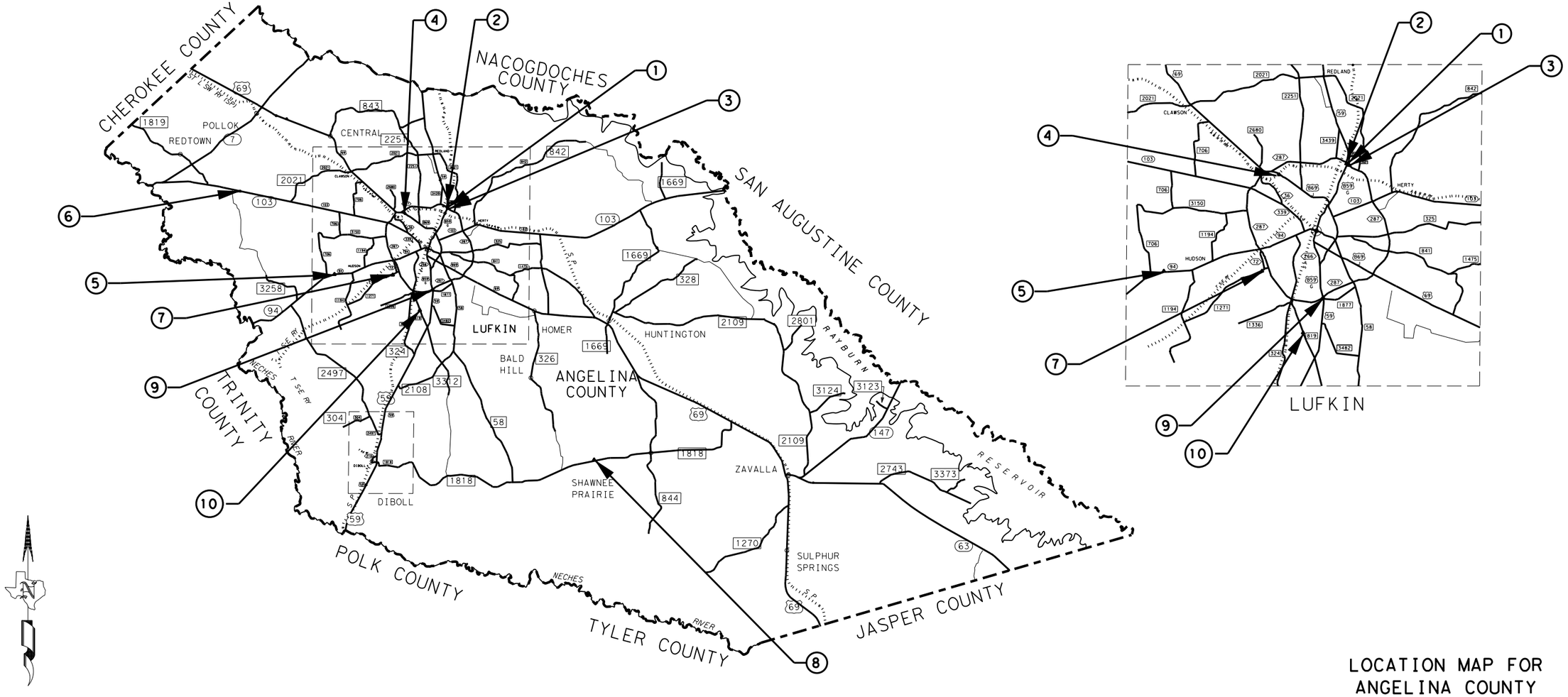
THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

NO EXCEPTIONS
NO EQUATIONS
RR CROSSING: BUS 69 @ A&NR

RECOMMENDED FOR LETTING:
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
DISTRICT MAINTENANCE ENGINEER
7/29/2022
DATE

APPROVED FOR LETTING:
DocuSigned by:
DIRECTOR OF OPERATIONS
7/29/2022
DATE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION NOVEMBER 1, 2014 AND SPECIAL SPECIFICATION ITEMS INCLUDED IN THE CONTRACT SHALL GOVERN ON THIS PROJECT.



SITE	COUNTY	STRUCTURE ID	LATITUDE	LONGITUDE	LOCATION
1	ANGELINA	11-003-0-0176-02-079	31.369844	-94.710308	US 59 NB @ SL 287
2	ANGELINA	11-003-0-0176-02-080	31.370057	-94.710583	US 59 SB @ SL 287
3	ANGELINA	11-003-0-0176-02-142	31.369012	-94.707127	US 59 DIR CONN @ BUS 59 & SL 287
4	ANGELINA	11-003-0-0199-08-027	31.36699	-94.74724	BUS 69 @ UPRR
5	ANGELINA	11-003-0-0319-04-043	31.324347	-94.811224	SH 94 @ JACK CREEK RELIEF
6	ANGELINA	11-003-0-0336-03-012	31.389157	-94.888562	SH 103 @ ROWAN CREEK
7	ANGELINA	11-003-0-1406-01-001	31.322608	-94.759297	FM 1271 @ CEDAR CREEK
8	ANGELINA	11-003-0-1794-01-003	31.176509	-94.593965	FM 1818 @ BUCK CREEK
9	ANGELINA	11-003-0-2553-01-016	31.309695	-94.726429	SL 287 FR U-TURN @ SL 287
10	ANGELINA	11-003-0-3162-01-001	31.293389	-94.7374	FM 819 @ HURRICANE CREEK

LOCATION MAP FOR
ANGELINA COUNTY

NOT TO SCALE

LOCATION MAP

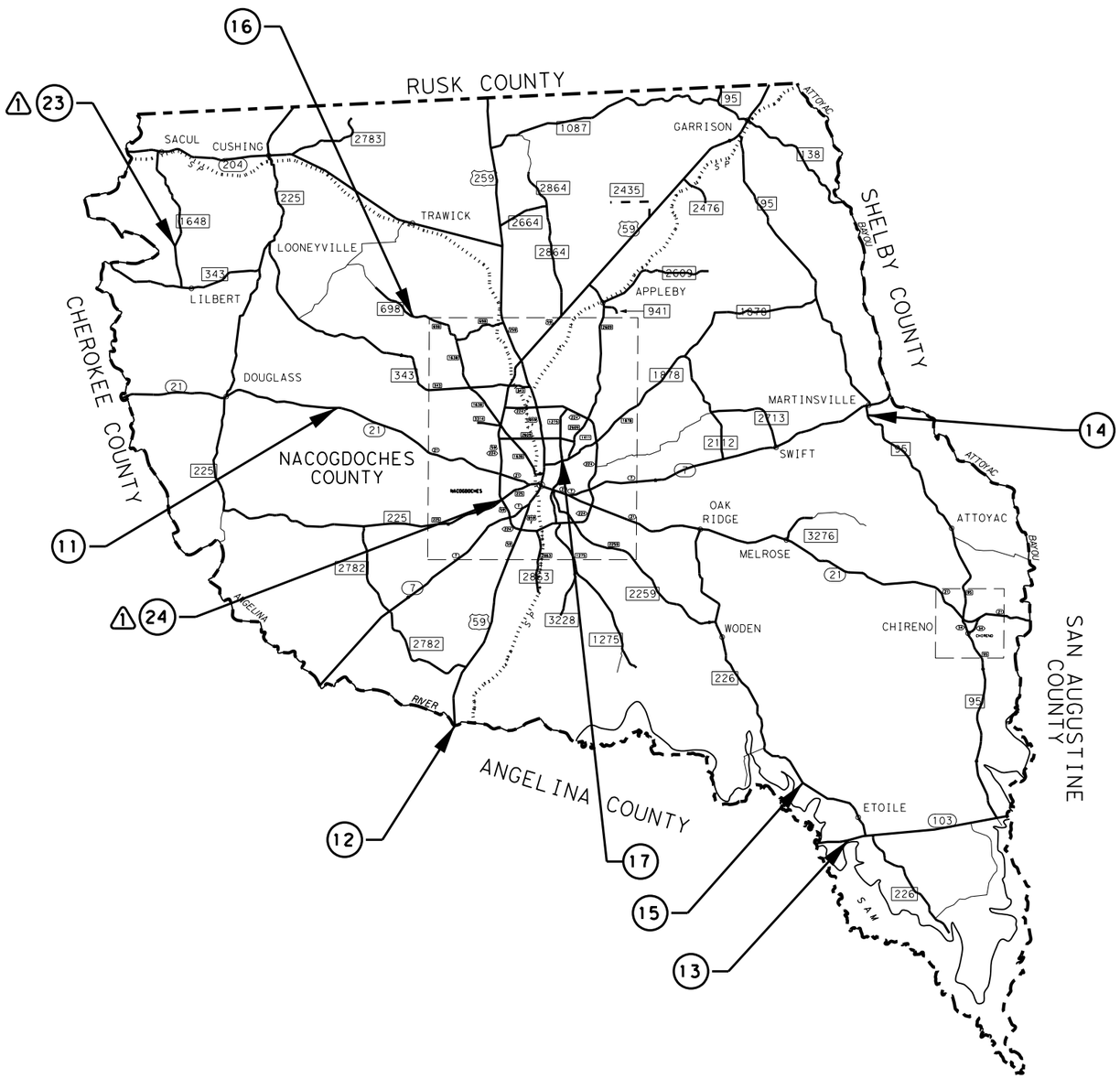
Texas Department of Transportation®

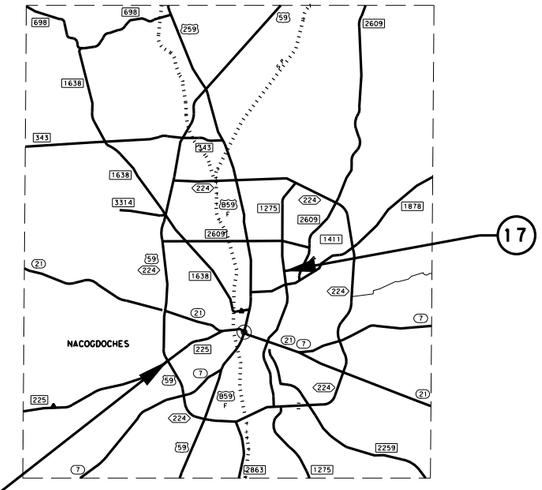
SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		2

7/28/2022 3:08:32 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\LOCATION MAP (Geo).dgn

SITE	COUNTY	STRUCTURE ID	LATITUDE	LONGITUDE	LOCATION
11	NACOGDOCHES	11-174-0-0118-06-019	31.658229	-94.806329	SH 21 @ LITTLE LOCO CREEK RELIEF
12	NACOGDOCHES	11-174-0-0176-01-094	31.455406	-94.726472	US 59 @ ANGELINA RIVER
13	NACOGDOCHES	11-174-0-0336-06-037	31.373344	-94.446169	SH 103 @ DURAZNO BAYOU RELIEF
14	NACOGDOCHES	11-174-0-0706-04-023	31.639088	-94.414813	FM 95 @ TERRAPIN CREEK
15	NACOGDOCHES	11-174-0-0893-01-010	31.403725	-94.464214	FM 226 @ LAVACA CREEK
16	NACOGDOCHES	11-174-0-1074-01-002	31.711821	-94.742155	FM 698 @ LOCO CREEK
17	NACOGDOCHES	11-174-0-1407-03-003	31.621160	-94.639989	FM 1275 @ BURROWS BRANCH
1 23	NACOGDOCHES	11-174-0-2509-03-002	31.761369	-94.914227	FM 1648 @ BEECH CREEK
1 24	NACOGDOCHES	11-174-0-2560-01-018	31.596215	-94.684649	US 59 & LP 224 NB @ FM 225





LOCATION MAP FOR
NACOGDOCHES COUNTY

NOT TO SCALE

1 ADDENDUM 1 08/26/2022

LOCATION MAP

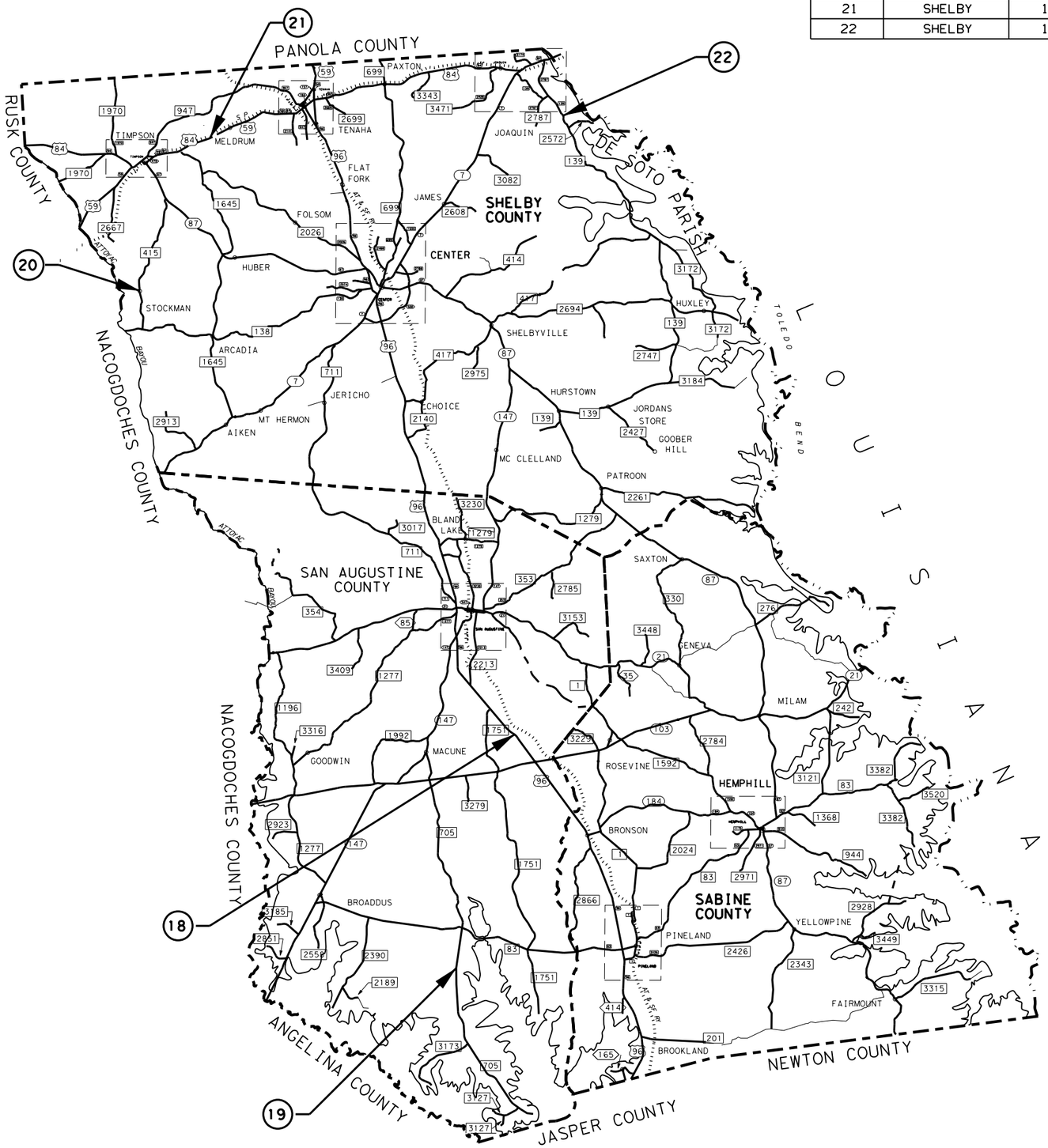
Texas Department of Transportation®

SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		3

8/26/2022 7:41:23 AM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\Addendum\LOCATION MAP (Geo).dgn

SITE	COUNTY	STRUCTURE ID	LATITUDE	LONGITUDE	LOCATION
18	SAN AUGUSTINIE	11-203-0-0809-04-004	31.430547	-94.078801	US 96 @ CHINQUAPINCREEK
19	SAN AUGUSTINIE	11-203-0-1079-01-015	31.239695	-94.143558	FM 705 @ COUCHATANA CREEK
20	SHELBY	11-210-0-0123-08-058	31.796455	-94.407971	FM 415@ BEAR BAYOU
21	SHELBY	11-210-0-0175-04-010	31.920040	-94.339981	US 59 @ FLAT FORK CREEK SLOUGH #1
22	SHELBY	11-210-0-0742-01-017	31.925955	-93.999721	FM 139@ STYLES CREEK RELIEF



LOCATION MAP FOR SHELBY, SAN AUGUSTINE AND SABINE COUNTIES

NOT TO SCALE

LOCATION MAP

Texas Department of Transportation®

SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		4

7/28/2022 3:08:33 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\LOCATION MAP (Geo).dgn

GENERAL NOTES:

PROJECT DESCRIPTION: This project consists of Bridge Preventative Maintenance throughout the Lufkin District.

TXDOT PROJECT SUPERVISORS: All work on this contract will be scheduled and directed by the Maintenance Section Supervisor(s) listed below. Payment will be made on a monthly basis for work completed and accepted according to specifications. All payment requests should be directed to the following Maintenance Section Supervisor(s) listed below.

COUNTY	SUPERVISOR	ADDRESS	CONTACT #
ANGELINA	Josh Bobbitt	1410 Kurth Drive Lufkin, TX 75901	(936) 634-3414
NACOGDOCHES	Jack Smith	918 Industrial Blvd. Nacogdoches, TX 75964	(936) 585-7041
SAN AUGUSTINE	Scott Duffey	551 S El Camino Crossing San Augustine, TX 75972	(936) 275-9671
SHELBY	Clint Norton	638 SH 7 East Center, TX 75935	(936) 598-4113

CONTRACT PROSECUTION:

Each contract awarded by the Department stands on its own and, as such, is separate from other contracts. A Contractor awarded multiple contracts must be capable and sufficiently staffed to concurrently process any or all contracts at the same time.

Existing regulatory, warning, and guide signs within project limits are to remain visible to the traveling public at all times. If a sign must be repositioned during construction operations, move and install the sign to an approved location. Use care when working near existing signs and repair or replace signs damaged by work operations. All work involved repositioning existing signs will be subsidiary to various bid items.

Furnish materials and make repairs to the existing roadway at any location damaged by construction operations. This work shall be done in an approved manner and will be subsidiary to various bid items.

Maintain adequate surface drainage throughout the project limits during all phases of construction.

Dewatering will be considered subsidiary to pertinent items.

Project Number: BPM 6403-03-001 **Control: 6403-03-001**

County: ANGELINA, ETC. **Highway: US 59, ETC.**

There is a potential for work to be done in environmentally sensitive areas within these maintenance sections. All work shall be performed as directed by the appropriate Maintenance Section Supervisor to avoid impacts to these areas.

Remove dirt, silt, rocks, debris and other foreign matter that accumulates in structures due to the Contractor's operations as directed. Keep stream channels open at all times. This work will not be paid for directly, but will be subsidiary to pertinent items.

It is the intent of this contract for work to be performed under traffic.

Prior to beginning the repair operations, a preconstruction conference between the Contractor and Engineer will be conducted.

All work shall be verified in the field by the Engineer prior to construction.

Minimize vehicles and equipment in construction areas to lessen the impact on existing vegetation. The intent of the plans is to prepare only that portion of TxDOT right-of-way necessary for construction.

All workers and/or visitors on TxDOT right-of-way shall wear reflective clothing meeting ANSI Class II requirements during the day and ANSI Class III requirements during the night. Non-compliance with any of these requirements shall be grounds for suspension of work.

Contractor questions on this project are to be emailed to the following individual(s):

Jeremy King Jeremy.King@TxDOT.gov
Tammy Gibson Tamara.Gibson@TxDOT.gov

Contractor questions will be accepted through email, phone, and in person by the above individual(s).

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address:
ftp://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

All questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

In order to maintain compliance with Chapter 64 of the Texas Parks and Wildlife Code and Migratory Bird Treaty Act (MBTA), construction activities that may affect nests (i.e. tree removal, tree limbing, bridge work) shall be conducted outside of the nesting season (March 15 to September 15). In the event birds or active nests (eggs and/or nestlings present) are encountered, contact the engineer prior to conducting work.

ITEM 2: INSTRUCTIONS TO BIDDERS

View plans on-line or download from the web at:
http://www.txdot.gov/business/contractors_consultants/plans_online.htm

Order plans from any of the plan reproduction companies shown on the web at:
http://www.txdot.gov/business/contractors_consultants/repro_companies.htm

ITEM 5: CONTROL OF THE WORK

In the event utility lines needing unforeseen adjustments are encountered during construction operations, alter operations and continue to prosecute the contract in such a manner that will allow utility adjustments to be made by others. An extension of working time may be granted for any delays caused by the utility adjustments if deemed necessary.

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

The proposed work of this project is to perform Bridge Preventative Maintenance at various locations within the Lufkin District. This activity maintains the original line and grade, hydraulic capacity and original purpose of the sites. Therefore, this project meets the definition of a routine maintenance activity as defined in the TPDES General Permit (CGP) No. TXR150000 issued March 5, 2013 and TCEQ's TPDES CGP does not apply.

ITEM 8: PROSECUTION AND PROGRESS

For this project, working days will be computed and charged in accordance with Item 8, Section 3.1.4, “Standard Workweek.”

1 This contract is for 59 working days and is intended to be completed by June 30, 2023.

ITEM 401: FLOWABLE BACKFILL

All forming to contain flowable fill and all work to create access to place flowable fill shall be subsidiary to Item 401.

ITEM 429: CONCRETE STRUCTURE REPAIR

The expected return to service for the deck repairs on US 59 is 8 hours. Use a preapproved Type A Rapid Repair Material meeting the requirements of DMS 4655, *Concrete Repair Materials*. Repairs at this location are to be completed at night. Night work will not begin prior to 7:00 pm and affected lane shall be reopened by 7:00 am.

Repair all concrete in accordance with the TxDOT Concrete Repair Manual shown on the web at: http://onlinemanuals.txdot.gov/txdotmanuals/crm/crm.pdf.

Dewatering for concrete repair shall be considered subsidiary to Item 429.

Project Number: BPM 6403-03-001 **Control: 6403-03-001**

County: ANGELINA, ETC. **Highway: US 59, ETC.**

ITEM 432: RIPRAP

Stone Riprap (Stone Common) (Dry) shall have a minimum thickness of 12 inches.

Stone riprap will require the placement of filter fabric prior to placement of stones.

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

Traffic Control Plan (TCP):

Ensure the Contractor’s Responsible Person (CRP) for Barricades, Signs and Traffic Handling is available at all times and able to receive instructions from the Engineer or authorized Department representative. The CRP shall be a person that is usually at the project site during normal working hours.

For protection of the traveling public, direct traffic through the work area using signs, flaggers and other devices. Required signs are shown in the plans on the Barricade and Construction Standards and Traffic Control Plan Sheets. The latest edition of the "Texas Manual on Uniform Traffic Control Devices" shall also be used as a guide for handling traffic on this project.

Install "No Center Line" (CW8-12) signs as directed.

In general, restrict construction work to single lane widths. Control traffic in accordance with standard drawings

Unless otherwise approved, use an advance warning, flashing arrow panel in addition to the necessary signs, barricades, or other traffic control devices at the work area.

Restrict construction work to single lane widths with only minor disruptions in traffic flow. Lane closures shall conform to the Traffic Control Plan for lane closures as shown in the plans. Overnight closures will only be permitted at Site A.

Limit lane closures for multilane roads (4 or more lanes) to 2 miles in length, unless otherwise approved.

Limit lane closures for 2 lane roads to 1 mile in length, unless otherwise approved.

Lane closure lengths can exclude the end tapers.

Plan the sequence of work to minimize the time lane closures are in place. Install lane closures only where construction operations are anticipated to start within 1 hour and limited to the amount of lane that can be reached by the construction activity within 2 hours unless otherwise approved.

No lane closures will be allowed on US 59 or US 190 after Noon on Fridays or on days preceding Major Holidays unless otherwise approved.

Extra time has been added to the total number of working days allocated for this project to account for not working on Friday afternoons or the afternoon preceding a major holiday. Work shall be planned such that this is not a limiting factor in the schedule.

Provide a flashing arrow panel and a truck-mounted attenuator to supplement required signs and devices for each lane closure.

Provide temporary rumble strips as shown on work zone rumble strip standards.

Provide a pilot car to lead traffic through the work area. The pilot car will not be paid for directly, but will be subsidiary to various bid items.

Install “Be Prepared to Stop” (CW3-4) and “Flagger Ahead” (CW20-7aD) signs when flaggers are present. Position the signs where good visibility and traffic control can be maintained.

When directed, use a flashing arrow board in addition to the required signs to warn motorists of flaggers.

Provide adequate flaggers to protect the traveling public. All flaggers shall wear approved hardhats and reflective safety vests while flagging. Safety vests shall be clean and worn fully fastened.

Use additional flaggers at roadway intersections to direct traffic entering the work area, when deemed necessary by the Engineer.

Open all traffic lanes to traffic at the close of work each day with the exception of Site A.

Provide one high-intensity yellow, rotating dome-light on all equipment such as distributors, spreader boxes, lay-down machines, rollers, backhoes, road graders, loaders, etc. Mount lights high enough to be visible from all directions and operating when the equipment is within 30 feet of the travel way. On all other equipment such as trucks, trailers, automobiles, etc. use emergency flashers while within the work zone.

Restrict construction operations so that no drop off along the edge of pavement will remain overnight.

All blading, rolling and scraper work to construct and remove temporary slopes adjacent to pavement drop-offs, will be considered subsidiary to various bid items.

Notify the Engineer prior to placing any materials or equipment on TxDOT right-of-way. Locate equipment, stockpiles or other materials not in use as far as possible from the driving lanes and in no case closer than 30 feet unless otherwise authorized. Any equipment, stockpiles, or materials placed within 30 feet of the driving lane must have adequate signs, barricades or other warning devices as approved.

As a minimum, place an 8 foot wide TY III Barricade on the approach side of each site that is within 30 feet of the driving lane. Barricade the site similarly on the departure side if the location is within 30 feet of the opposing traffic lane.

Project Number: BPM 6403-03-001 **Control: 6403-03-001**

County: ANGELINA, ETC. **Highway: US 59, ETC.**

The Contractor Force Account “Safety Contingency” that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor’s Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Texas Transportation Code 547.105 authorizes the use of warning lights to promote safety and provides an effective means of gaining the travelling public’s attention as they drive in areas where construction crews are present. In order to influence the public to move over when high risk construction activities are taking place, minimize the utilization of blue warning lights. These lights must be used only while performing work on or near the travel lanes or shoulder where the travelling public encounters construction crews that are not protected by a standard work zone set up such as a lane closure, shoulder closure, or one-way traffic control. Refrain from leaving the warning lights engaged while travelling from one work location to another or while parked on TxDOT right-of-way away from the pavement or a work zone.

ITEM 506: TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

The Best Management Practices for this project shall include using the following erosion control measures as directed:

1. Temporary Sediment Control Fence

Other erosion or water pollution control measures deemed necessary by the Engineer will be paid for in accordance with article 4.4, “Changes in the Work”.

Place temporary sediment control fence at locations as directed.

ITEM 6185: TRUCK MOUNTED ATTENUATORS

Truck Mounted Attenuators (TMA’s) shall meet the requirements of this item and the Department’s Compliant Work Zone Traffic Control Device List.

Truck Mounted Attenuators (TMA’s) as shown on the TCP’s shall be used. Whether shown on the TCP’s or added by the Department, TMA’s shall be paid for under Item 6185, “Truck Mounted Attenuator” for the type of operation being performed.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 6403-03-001 **DISTRICT** Lufkin **COUNTY** Angelina
HIGHWAY US0059

							TOTAL EST.	TOTAL FINAL
			CONTROL SECTION JOB		**6403-03-001**			
			PROJECT ID		**A00187527**			
			COUNTY		**Angelina**			
			HIGHWAY		**US0059**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL		
	104-6009	REMOVING CONC (RIPRAP)		SY	16.000		16.000	
	150-6002	BLADING		HR	4.000		4.000	
	158-6003	SPEC EXCAV WORK (HYD EXCAVATOR)		HR	12.000		12.000	
	400-6005	CEM STABIL BKFL		CY	32.600		32.600	
	401-6001	FLOWABLE BACKFILL		CY	7.000		7.000	
	429-6003	CONC STR REPAIR(DECK REP(PART DEPTH))		SF	20.000		20.000	
	429-6007	CONC STR REPAIR (VERTICAL & OVERHEAD)		SF	787.000		787.000	
	429-6009	CONC STR REPAIR (STANDARD)		SF	17.000		17.000	
	432-6027	RIPRAP (STONE COMMON)(DRY)(24 IN)		CY	401.000		401.000	
	438-6005	CLEANING AND SEALING JOINTS		LF	230.000		230.000	
	480-6002	CLEAN EXIST CULVERTS		CY	1,685.000		1,685.000	
	500-6001	MOBILIZATION		LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING		MO	7.000		7.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)		LF	500.000		500.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)		LF	500.000		500.000	
	778-6011	CONCRETE RAIL REPAIR (TYPE 501)		LF	4.000		4.000	
	6185-6002	TMA (STATIONARY)		DAY	15.000		15.000	
	7000-6002	REML & DISPL DRIFTWOOD & DEBRIS		LS	1.000		1.000	

SUMMARY OF BRIDGE MAINTENANCE ITEMS

SITE	LOCATION/COUNTY	STRUCTURE ID	ITEM NO.	158	400	401	429			432	438	480	778	7000
				6003	6005	6001	6003	6007	6009	6027	6005	6002	6011	6002
			WORK DESCRIPTION	SPEC EXCAV WORK (HYD EXCAVATOR)	CEM STABIL BKFL	FLOWABLE BACKFILL	CONC STR REPAIR (DECK REP(PART DEPTH))	CONC STR REPAIR (VERTICAL & OVERHEAD)	CONC STR REPAIR (STANDARD)	RIPRAP (STONE) (COMMON) (DRY)(24 IN)	CLEANING AND SEALING JOINTS	CLEAN EXIST CULVERTS	CONCRETE RAIL REPAIR (TYPE 501)	REML & DISPL DRIFTWOOD & DEBRIS
				HR	CY	CY	SF	SF	SF	CY	LF	CY	LF	LS
1	US 59 NB @ SL 287 ANGELINA	11-003-0-0176-02-079	REPAIR SPALLS ON SPAN 2 BEAMS 1-3 FROM EAST & SPAN 3 BEAMS 1-7 FROM EAST WITH CONC STR REPAIR (VERTICAL & OVERHEAD)					16						
2	US 59 SB @ SL 287 ANGELINA	11-003-0-0176-02-080	REPAIR SPALLS ON SPAN 2 BEAMS 1-7 FROM EAST & SPAN 3 BEAMS 1-8 FROM EAST WITH CONC STR REPAIR (VERTIAL & OVERHEAD)					151						
3	US 59 DIR CONN @ BUS 59 & SL 287 ANGELINA	11-003-0-0176-02-142	REPAIR SPALLS ON CONCRETE RAIL EAST SIDE OF SPAN 10 WITH CONC STR REPAIR (STANDARD)						15					
4	BUS 69 @ A&NR ANGELINA	11-003-0-0199-08-027	REPAIR SPALLS ON BENT CAPS 3-5 WITH CONC STR REPAIR (VERTICAL & OVERHEAD)					21						
5	SH 94 @ JACK CREEK RELIEF ANGELINA	11-003-0-0319-04-043	CLEAN CULVERT BOXES 4 & 6-10 BY REMOVING SILT BUILD UP. REMOVE SILT AT UPSTREAM & DOWNSTREAM ENDS OF BOX CULVERT WITH SPEC EXCAV WORK	6								1265		
6	SH 103 @ ROWAN CREEK ANGELINA	11-003-0-0336-03-012	CLEAN AND REMOVE SILT BUILD UP IN BOXES 1 & 2 WITH CLEAN EXIST CULVERTS	3								420		
7	FM 1271 @ CEDAR CREEK ANGELINA	11-003-0-1406-01-001	REPAIR SPALL ON SOFFIT WITH CONC STR REPAIR (VERTICAL & OVERHEAD)					20						
8	FM 1818 @ BUCK CREEK ANGELINA	11-003-0-1794-01-003	REPAIR SPALLS ON BENTS 4 & 5 AND SPANS 2, 4 & 5 WITH CONC STR REPAIR (VERTICAL & OVERHEAD)					86						
9	SL 287 FR U-TURN @ SL 287 ANGELINA	11-003-0-2553-01-016	REPAIR DAMAGED RAIL AT NORTHEAST END WITH CONCRETE RAIL REPAIR (TYP 501)										4	
			SHEET SUBTOTALS	**9**	**0.0**	**0**	**0**	**294**	**15**	**0**	**0**	**1685**	**4**	**0**

QUANTITY SUMMARIES

Texas Department of Transportation®

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		7

SUMMARY OF BRIDGE MAINTENANCE ITEMS (CONTINUED)

SITE	LOCATION/COUNTY	STRUCTURE ID	ITEM NO.	104	150	158	400	401	429			432	438	480	778	7000
				6009	6002	6003	6005	6001	6003	6007	6009	6027	6005	6002	6011	6002
			WORK DESCRIPTION	REMOVING CONC (RIPRAP)	BLADING	SPEC EXCAV WORK (HYD EXCAVATOR)	CEM STABIL BKFL	FLOWABLE BACKFILL	CONC STR REPAIR (DECK REP(PART DEPTH))	CONC STR REPAIR (VERTICAL & OVERHEAD)	CONC STR REPAIR (STANDARD)	RIPRAP (STONE) (COMMON) (DRY) (24 IN)	CLEANING AND SEALING JOINTS	CLEAN EXIST CULVERTS	CONCRETE RAIL REPAIR (TYPE 501)	REML & DISPL DRIFTWOOD & DEBRIS
				SY	HR	HR	CY	CY	SF	SF	SF	CY	LF	CY	LF	LS
10	FM 819 @ HURRICANE CREEK ANGELINA	11-003-0-3162-01-001	REPAIR SCOUR ALONG NORTHERN BANK ADDING RIPRAP (STONE)(COMMON)(DRY)(24 IN)									22				
11	SH 21 @ LITTLE LOCO CREEK RELIEF NACOGDOCHES	11-174-0-0118-06-019	REPAIR UNDERMINING OF SOUTHEAST APRON WITH FLOWABLE BACKFILL AND REPAIR SCOUR AT SOUTHEAST CORNER WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)					1				20				
12	US 59 @ ANGELINA RIVER NACOGDOCHES	11-174-0-0176-01-094	REPAIR SPALL ON SPAN 11 SOUTH BOUND LANE WITH CONC STR REPAIR (DECK REP(PART DEPTH))						16							
13	SH 103 @ DURAZNO BAYOU RELIEF NACOGDOCHES	11-174-0-0336-06-037	CLEAN AND RESEAL JOINTS AT BENTS 1, 2, 3, 4 & 5. PATCH SPALL ON BRIDGE RAIL AT SPAN 2.								2		230			
14	FM 95 @ TERRAPIN CREEK NACOGDOCHES	11-174-0-0706-04-023	REPAIR SCOUR DOWNSTREAM FROM FLUME WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN) AND CEMENT STABILIZE BACKFILL AT NORTH ABUTMENT, AND SOUTHEAST BANK FOR SCOUR PROTECTION. REPAIR UNDERMINING AT NORTHWEST APRON CORNER WITH FLOWABLE BACKFILL				18.8	1				45				
15	FM 226 @ LAVACA CREEK NACOGDOCHES	11-174-0-0893-01-010	REPAIR SPALLS WITH CONC STR REPAIR (VERTICAL & OVERHEAD)							55						
16	FM 698 @ LOCO CREEK NACOGDOCHES	11-174-0-1074-01-002	REPAIR SCOUR AT EAST AND WEST RIPRAP TOEWALLS AND DRAINAGE DITCH BY ADDING RIPRAP (STONE)(COMMON)(DRY)(24 IN). REPAIR UNDERMINING AT NORTHEAST, NORTHWEST, AND SOUTHEAST WINGWALLS WITH FLOWABLE BACKFILL			3		3				30				
17	FM 1275 @ BURROWS BRANCH NACOGDOCHES	11-174-0-1407-03-003	FILL HOLE AT NORTH CORNER OF STRUCTURE WITH CEM STABIL BKFL AND REMOVE DEBRIS FROM CULVERT WITH REML & DISPL DRIFTWOOD & DEBRIS AT EAST END OF STRUCTURE				2.1									1
1 23	FM 1648 @ BEECH CREEK NACOGDOCHES	11-174-0-2509-03-002	REPAIR SOUTH ABUTMENT WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN) REPAIR UNDERMINING OF SOUTHEAST WINGWALL WITH FLOWABLE BACKFILL	16	4			2				86				
			SHEET SUBTOTALS	16	4	3	20.9	7	16	55	2	203	230	0	0	1

1 ADDENDUM 1 08/26/2022

QUANTITY SUMMARIES

Texas Department of Transportation®

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		8

SUMMARY OF BRIDGE MAINTENANCE ITEMS (CONTINUED)

SITE	LOCATION/COUNTY	STRUCTURE ID	ITEM NO.	104	150	158	400	401	429			432	438	480	778	7000
				6009	6002	6003	6005	6001	6003	6007	6009	6027	6005	6002	6011	6002
			WORK DESCRIPTION	REMOVING CONC (RIPRAP)	BLADING	SPEC EXCAV WORK (HYD EXCAVATOR)	CEM STABIL BKFL	FLOWABLE BACKFILL	CONC STR REPAIR (DECK REP(PART DEPTH))	CONC STR REPAIR (VERTICAL & OVERHEAD)	CONC STR REPAIR (STANDARD)	RIPRAP (STONE) (COMMON) (DRY) (24 IN)	CLEANING AND SEALING JOINTS	CLEAN EXIST CULVERTS	CONCRETE RAIL REPAIR (TYPE 501)	REML & DISPL DRIFTWOOD & DEBRIS
				SY	HR	HR	CY	CY	SF	SF	SF	CY	LF	CY	LF	LS
24	US 59 & LP 224 @ FM 225 NACOGDOCHES	11-174-0-2560-01-018	REPAIR SPALL ON DECK WITH CONC STR REPAIR (DECK REP(PART DEPTH)) SPAN 2 OUTSIDE LANE						4							
18	US 96 @ CHINQUAPIN CREEK SAN AUGUSTINE	11-203-0-0809-04-004	REPAIR SCOUR WITH RIPRAP (STONE COMMON) (DRY) (24 IN)									15				
19	FM 705 @ COUCHATANA CREEK SAN AUGUSTINE	11-203-0-1079-01-015	REPAIR SPALLS AT NORTHEAST CORNER WITH CONC STR REPAIR							6						
20	FM 415 @ BEAR BAYOU SHELBY	11-210-0-0123-08-058	STABILIZE SOUTH EROSION AROUND BENT 3 WITH RIPRAP (STONE COMMON) (DRY) (24 IN). STABILIZE SOUTHEAST BANK WITH CEMENT STABILIZE AND FILL WITH RIPRAP (STONE COMMON) (DRY) (24 IN)				11.7					103				
21	US 59 @ FLAT FORK CREEK SLOUGH #1 SHELBY	11-210-0-0175-04-010	CLEAN & REPAIR EXPOSED REBAR ON SOFFIT OF BRIDGE WITH CONC STR REPAIR (VERTICAL & OVERHEAD)							432						
22	FM 139 @ STYLES CREEK RELIEF SHELBY	11-210-0-0742-01-017	REPAIR SCOUR ALONG NORTH AND SOUTH ABUTMENTS AND BENT 2 WITH RIPRAP (STONE) (COMMON) (DRY) (24 IN)									80				
			SHEET SUBTOTALS	0	0	0	12	0	4	438	0	198	0	0	0	0
			PROJECT TOTALS	16	4	12	32.6	7	20	787	17	401	230	1685	4	1

1 1 1 1 1

SUMMARY OF EROSION CONTROL ITEMS

ITEM	506	
	6038	6039
LOCATON	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)
	LF	LF
VARIOUS	500	500

USE AS DIRECTED BY THE ENGINEER

SUMMARY OF TRUCK MOUNTED ATTENUATORS (TMA)

ITEM	6185
	6002
LOCATION	TMA (STATIONARY)
	DAY
VARIOUS	15 1

USE AS DIRECTED BY THE ENGINEER

1 ADDENDUM 1 08/26/2022

QUANTITY SUMMARIES

Texas Department of Transportation®

SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		9

DATE: 7/28/2022 2:38:48 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(1)-21 THRU BC(12)-21.dgn

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

Texas Department of Transportation

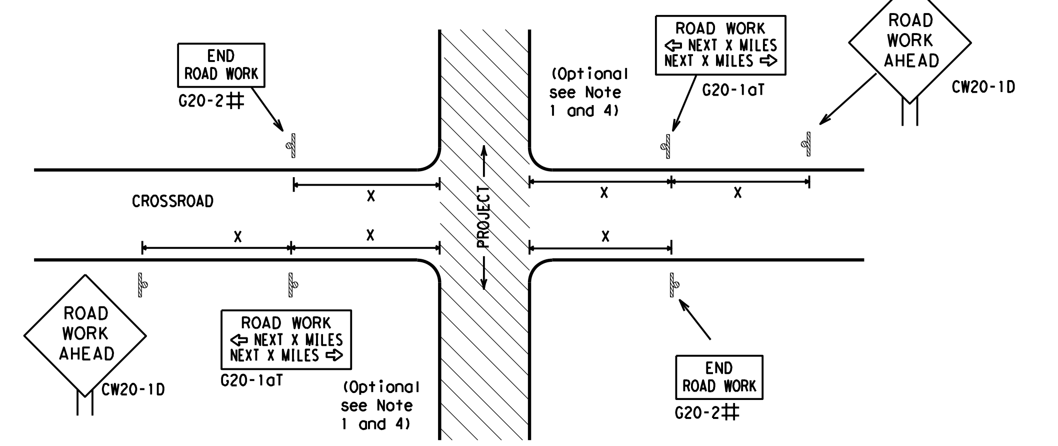
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		10

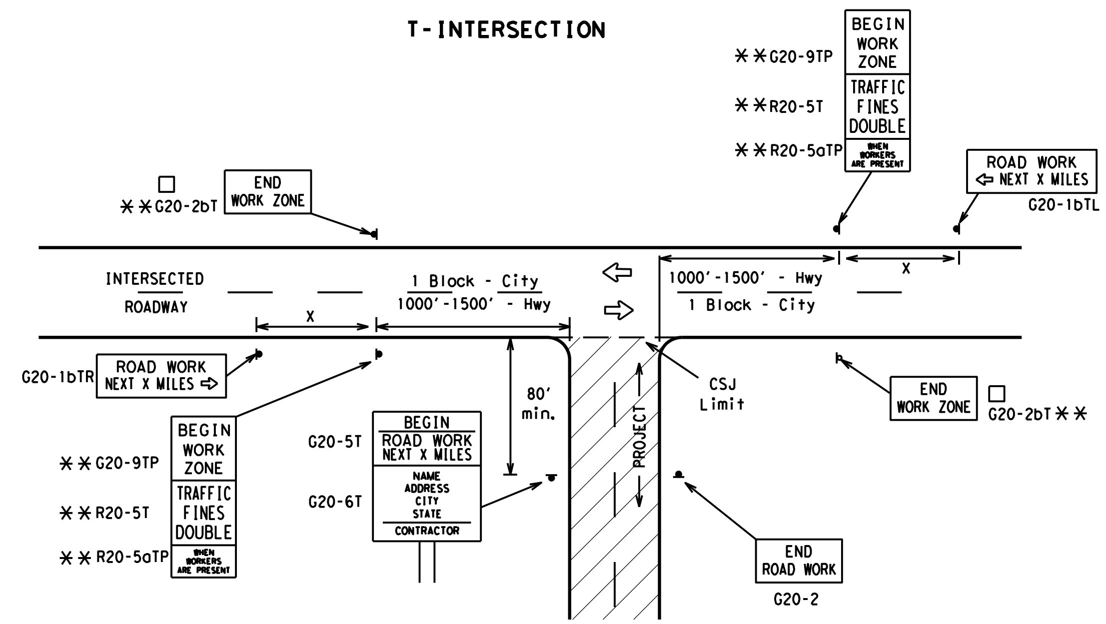
TYPICAL LOCATION OF CROSSROAD SIGNS



\# May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.

2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign △ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
*	*[3]

* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

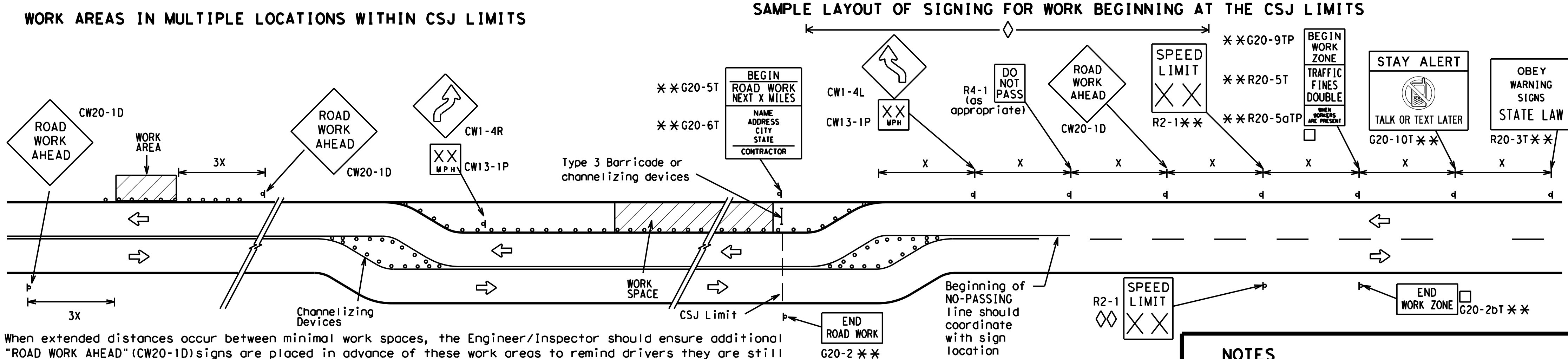
△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

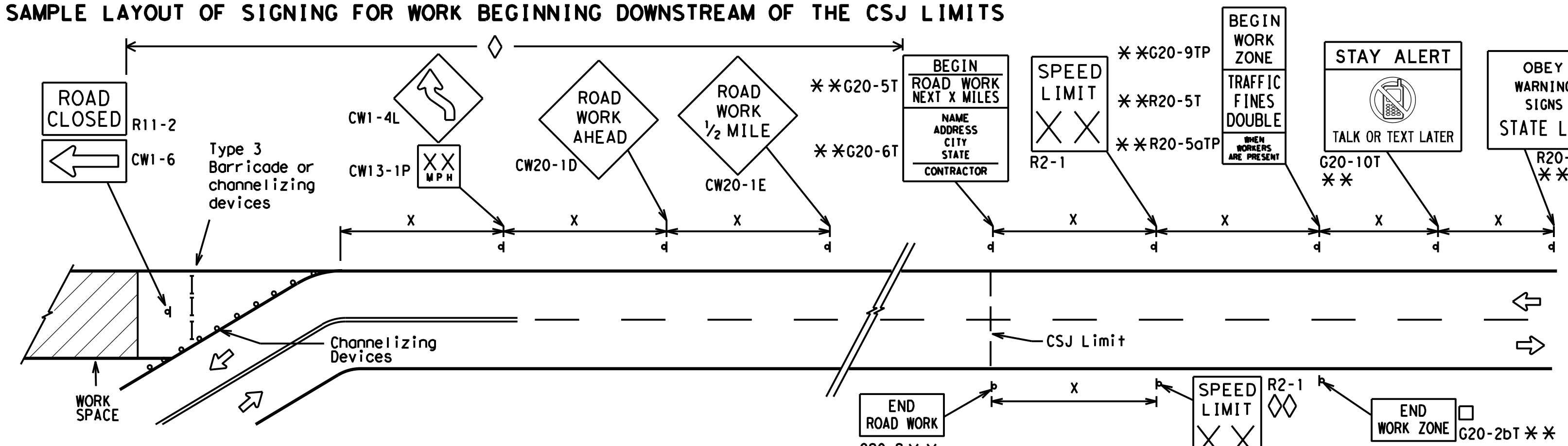
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

Symbol	Description
⊢⊣	Type 3 Barricade
○ ○ ○	Channelizing Devices
⊥	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST		COUNTY	SHEET NO.
7-13 5-21	LFK		ANGELINA, ETC.	11

DATE: 7/28/2022 2:38:48 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(2)-21.dgn

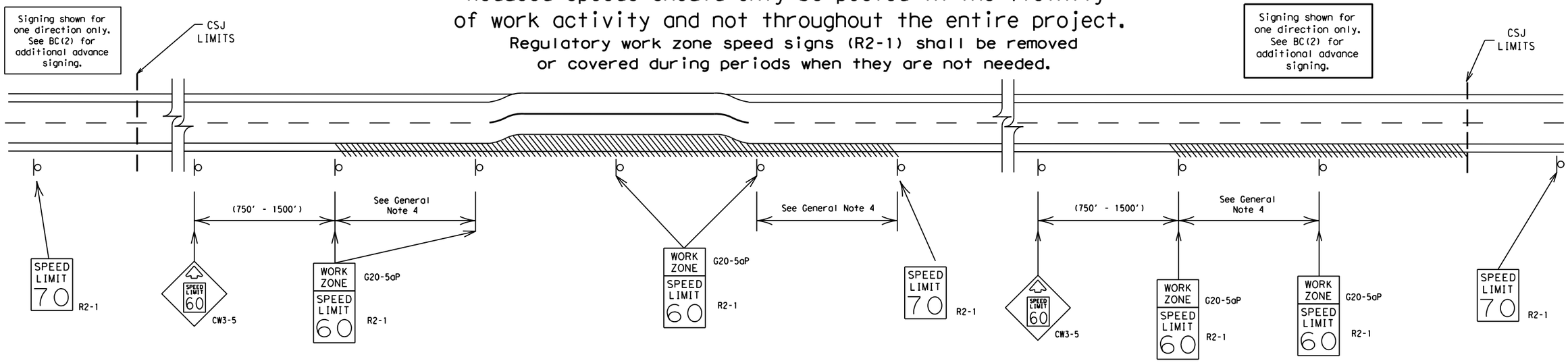
DATE: 7/28/2022 2:38:49 PM
FILE: I:\LFK\DOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\1_STANDARDS\BC(3)-21_THRU_BC(12)-21.dgn

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

Texas Department of Transportation | Traffic Safety Division Standard

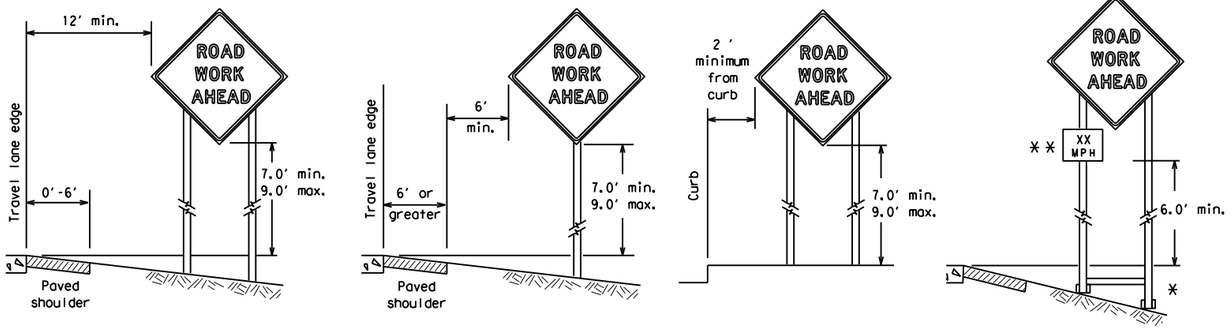
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LFK	ANGELINA, ETC.		12

DATE: 7/28/2022 2:38:49 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(1)-21 THRU BC(12)-21.dgn

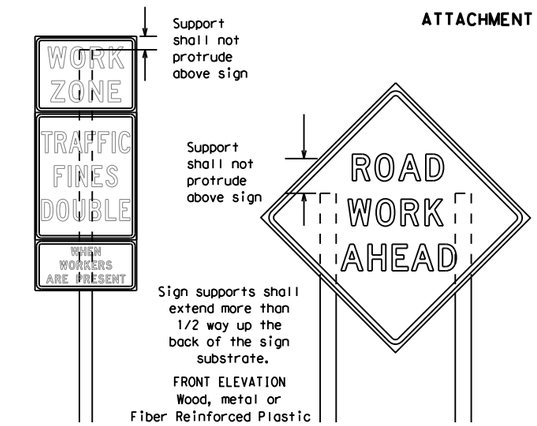
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

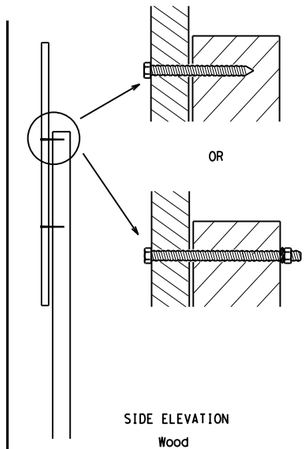


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS





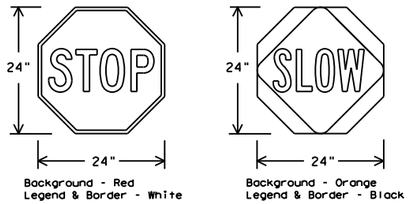
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

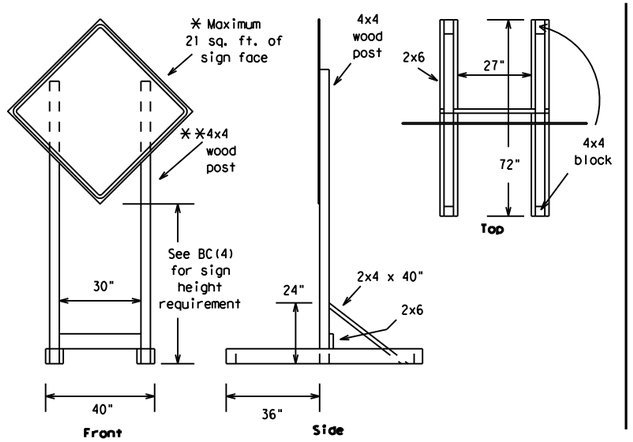
Texas Department of Transportation | Traffic Safety Division Standard

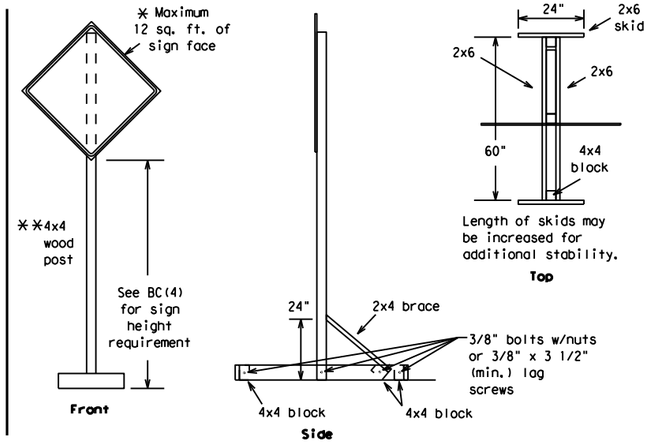
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LFK	ANGELINA, ETC.		13

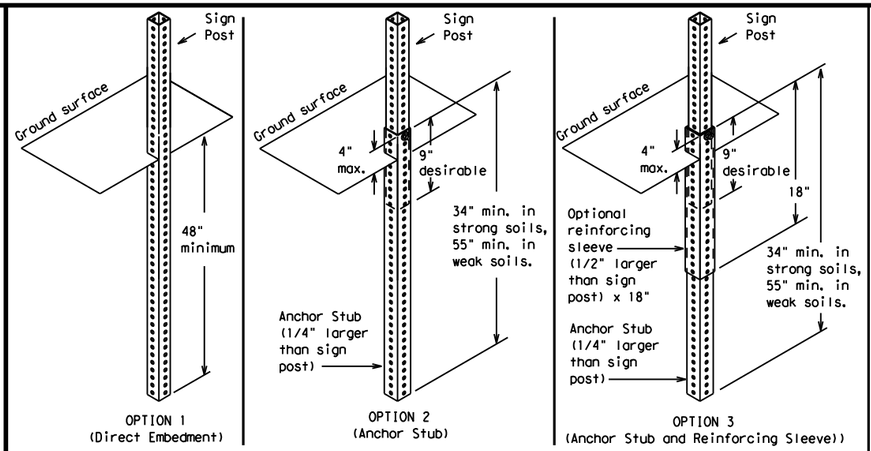
DATE: 7/28/2022 2:38:50 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(1)-21 THRU BC(12)-21.dgn





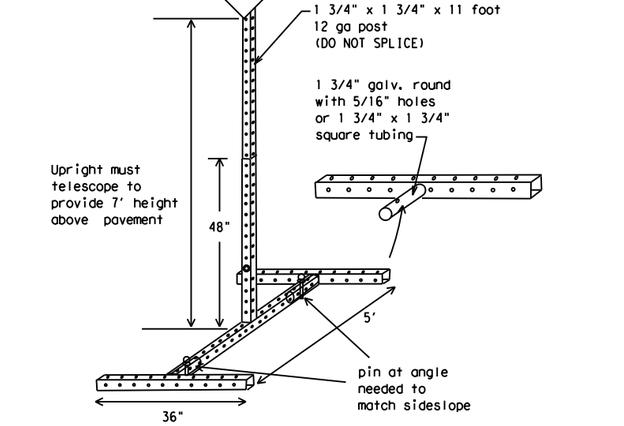
SKID MOUNTED WOOD SIGN SUPPORTS

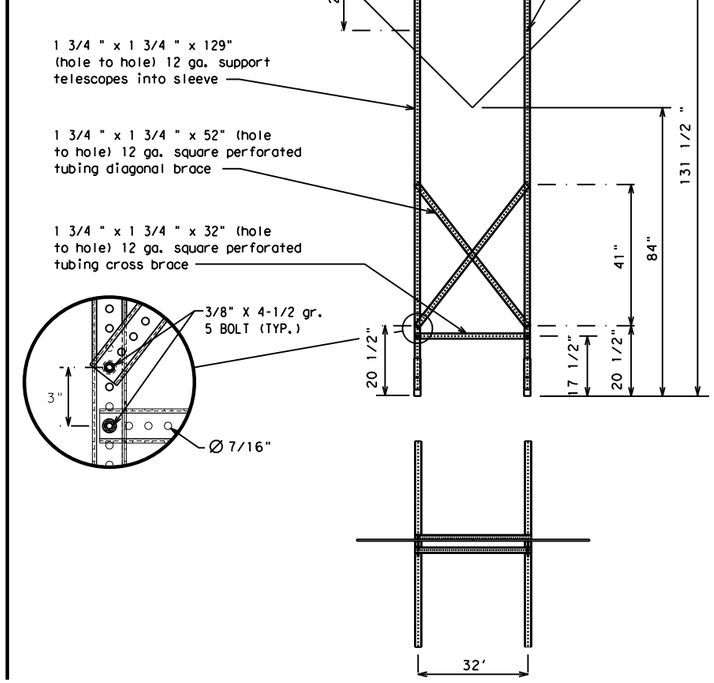
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

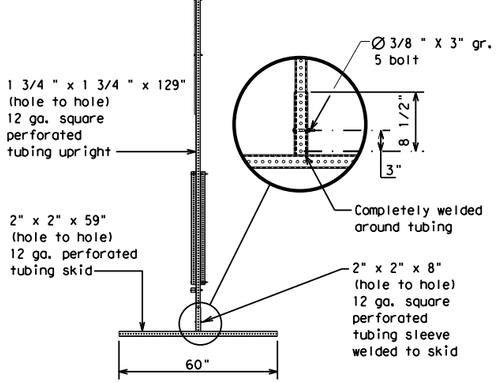


GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

☐ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LFK	ANGELINA, ETC.		14

DATE: 7/28/2022 2:38:51 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(1)-21 THRU BC(12)-21.dgn

WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
8. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation # IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List		Other Condition List	
FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED	ROADWORK XXX FT	ROAD REPAIRS XXXX FT
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT	FLAGGER XXXX FT	LANE NARROWS XXXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT	RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
RIGHT X LANES CLOSED	RIGHT X LANES OPEN	MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
CENTER LANE CLOSED	DAYTIME LANE CLOSURES	LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED	DETOUR X MILE	ROUGH ROAD XXXX FT
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE	ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
EXIT CLOSED	RIGHT LN TO BE CLOSED	BUMP XXXX FT	US XXX EXIT X MILES
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI	TRAFFIC SIGNAL XXXX FT	LANES SHIFT *
XXXXXXXX BLVD CLOSED			

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List		Location List	Warning List	** Advance Notice List
MERGE RIGHT	FORM X LINES RIGHT	AT FM XXXX	SPEED LIMIT XX MPH	TUE-FRI XX AM- X PM
DETOUR NEXT X EXITS	USE XXXXX RD EXIT	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH	APR XX-XX X PM-X AM
USE EXIT XXX	USE EXIT I-XX NORTH	NEXT X MILES	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N	PAST US XXX EXIT	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	WATCH FOR TRUCKS	XXXXXXX TO XXXXXXX	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	EXPECT DELAYS	US XXX TO FM XXXX	USE CAUTION	NEXT FRI-SUN
EXPECT DELAYS	PREPARE TO STOP		DRIVE SAFELY	XX AM TO XX PM
REDUCE SPEED XXX FT	END SHOULDER USE		DRIVE WITH CARE	NEXT TUE AUG XX
USE OTHER ROUTES	WATCH FOR WORKERS			TONIGHT XX PM- XX AM
STAY IN LANE *				

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

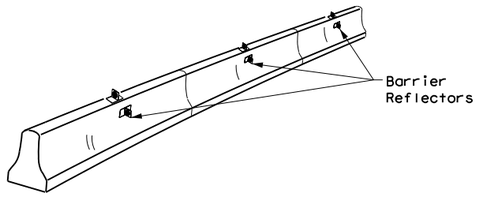
BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LFK	ANGELINA, ETC.		15

100

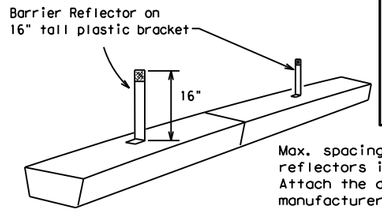
DATE: 7/28/2022 2:38:51 PM
FILE: T:\LFK\DOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(1)-21 THRU BC(12)-21.dgn

1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

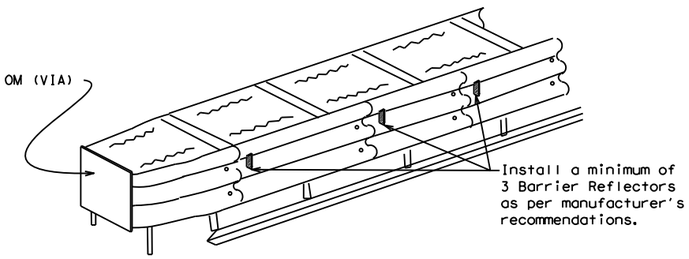


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)

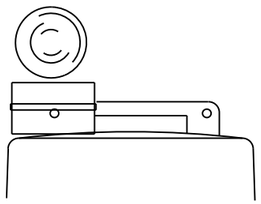


DELINEATION OF END TREATMENTS

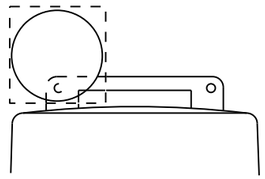
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square.Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

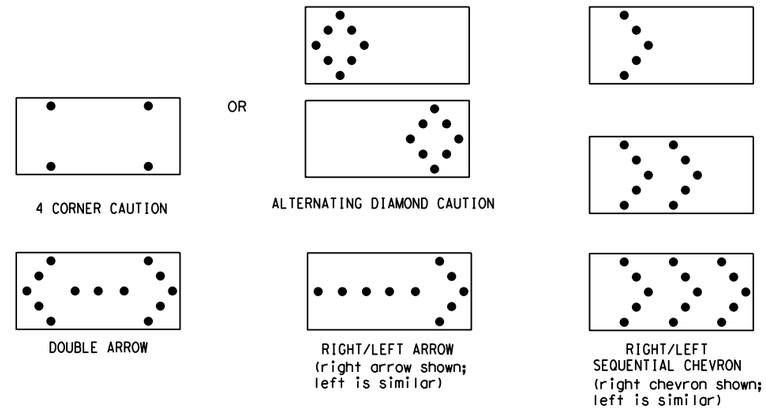
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

SHEET 7 OF 12

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LFK	ANGELINA, ETC.		16

101

DATE: 7/28/2022 2:38:52 PM
FILE: I:\LFK\DOM\Maint Contracts\O_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(11)-21 THRU BC(12)-21.dgn

GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

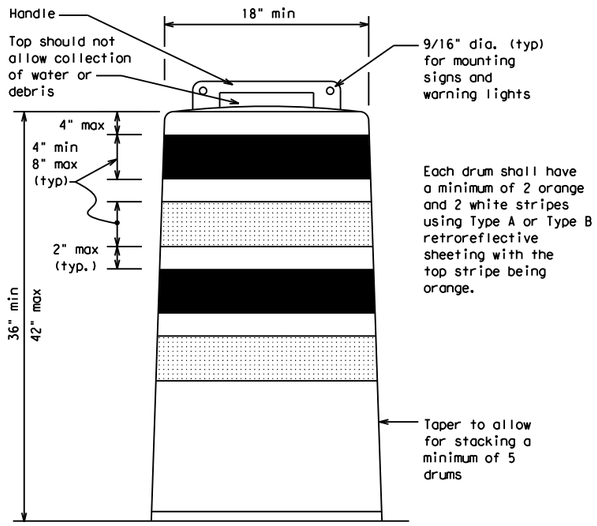
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

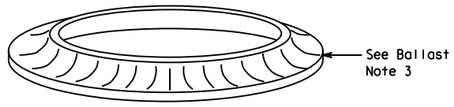
RETROREFLECTIVE SHEETING

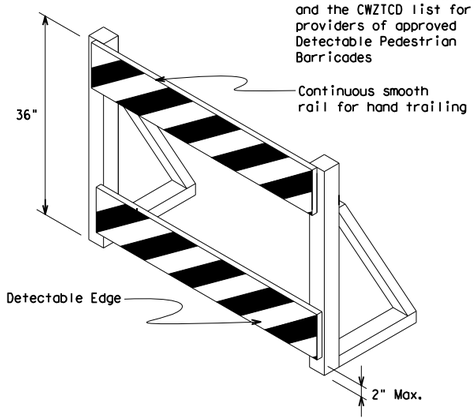
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

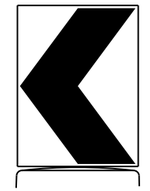




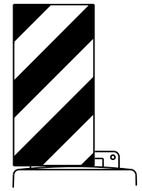


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation | Traffic Safety Division Standard

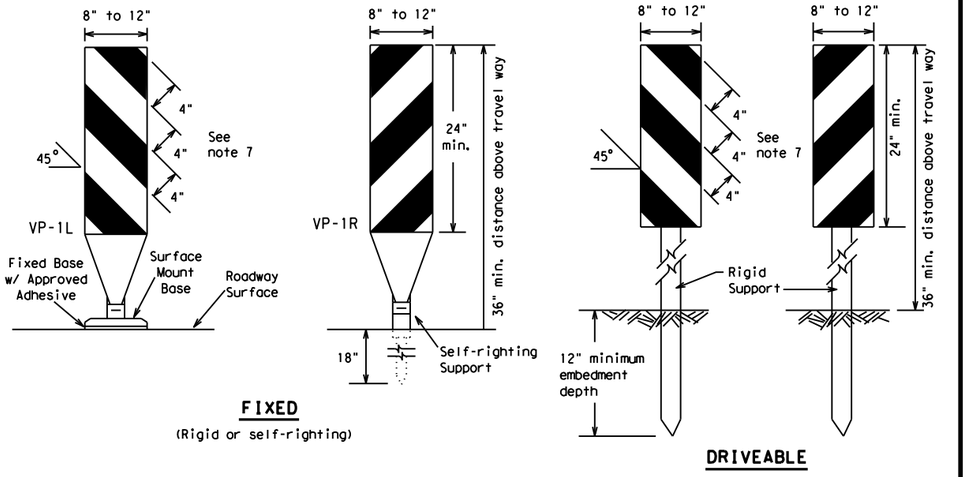
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	LFK	ANGELINA, ETC.		17
7-13				

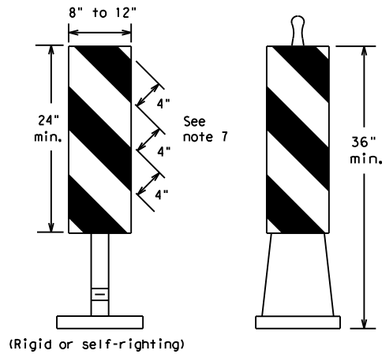
102

DATE: 7/28/2022 2:38:53 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(12)-21 THRU BC(12)-21.dgn



FIXED
(Rigid or self-righting)

DRIVEABLE

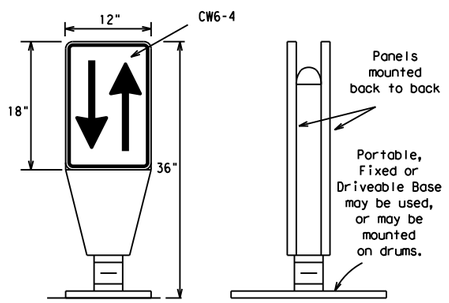


(Rigid or self-righting)

PORTABLE

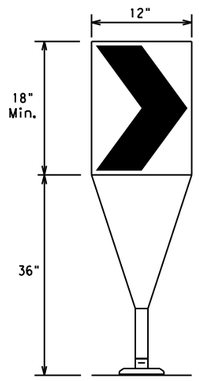
VERTICAL PANELS (VPs)

1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



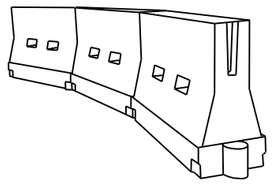
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

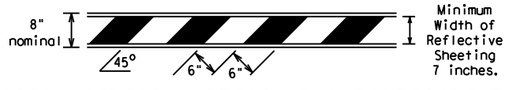
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LFK	ANGELINA, ETC.		18

DATE: 7/28/2022 2:38:53 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(12)-21 THRU BC(12)-21.dgn

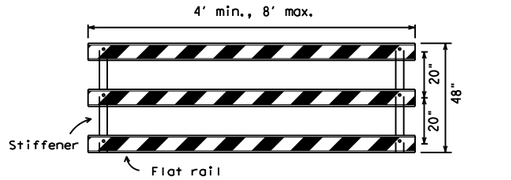
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



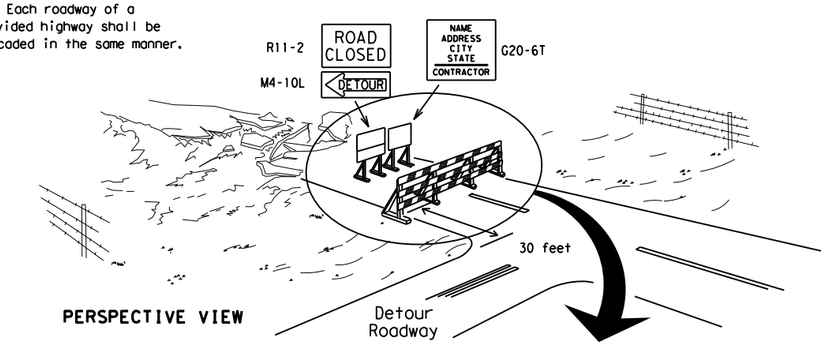
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

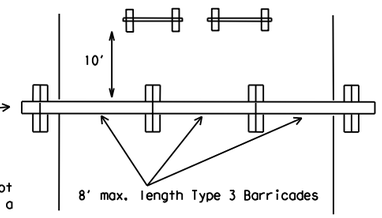
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

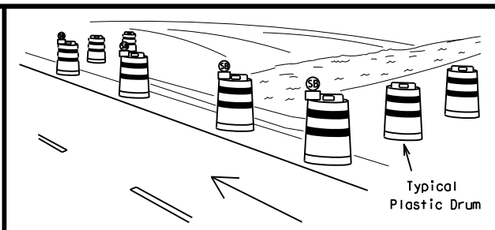
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

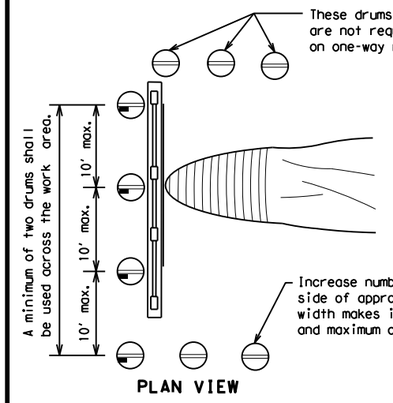
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

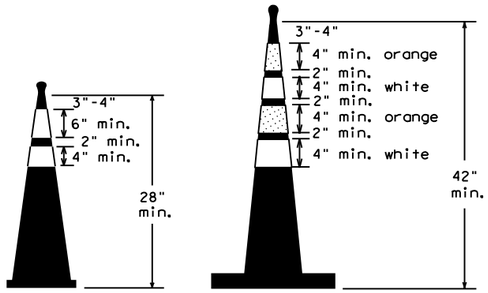
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

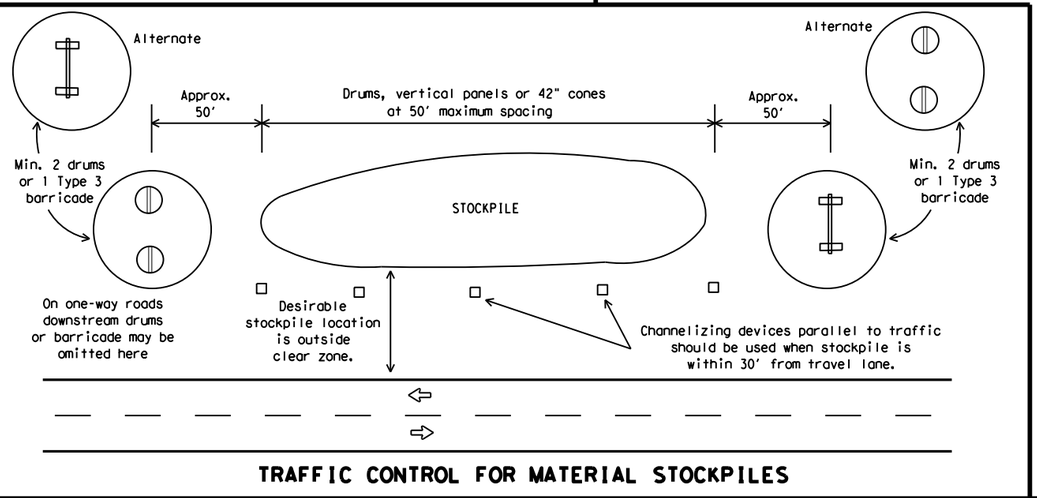
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LFK	ANGELINA, ETC.		19

104

DATE: 7/28/2022 2:38:54 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(1)-21 THRU BC(12)-21.dgn

WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

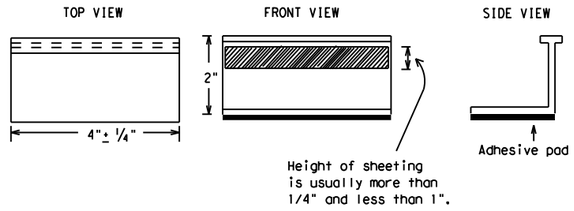
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

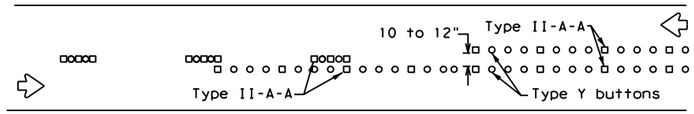
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	LFK	ANGELINA, ETC.		20
11-02 8-14				

105

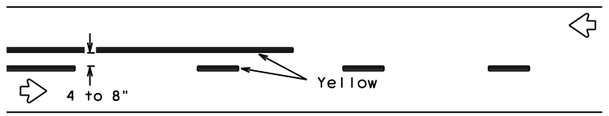
DATE: 7/28/2022 2:38:54 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\BC(12)-21 THRU BC(12)-21.dgn

PAVEMENT MARKING PATTERNS

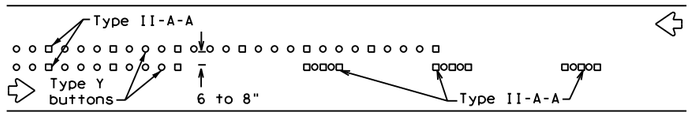
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



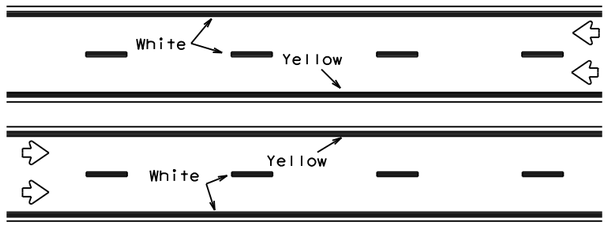
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



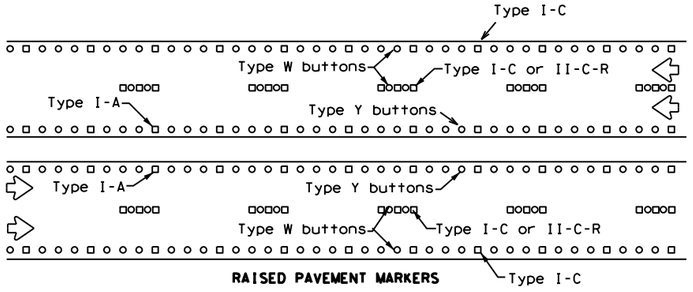
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



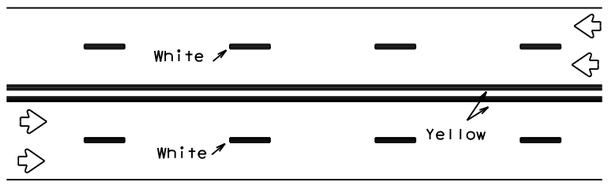
REFLECTORIZED PAVEMENT MARKINGS



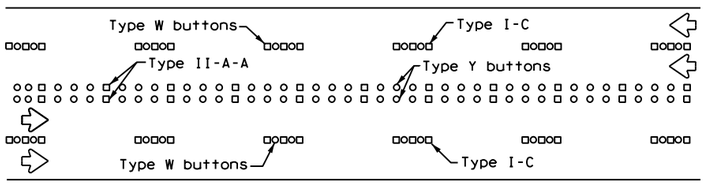
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



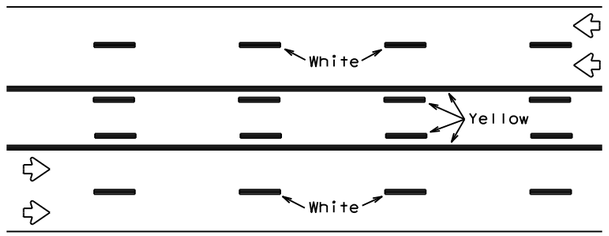
REFLECTORIZED PAVEMENT MARKINGS



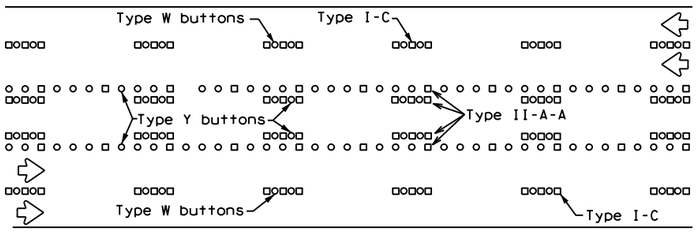
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

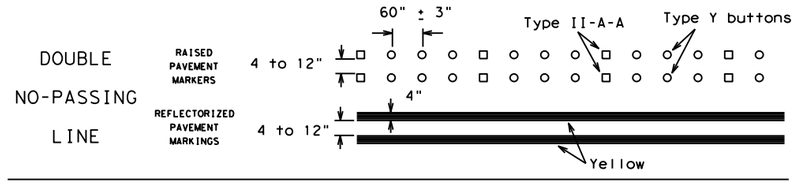
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

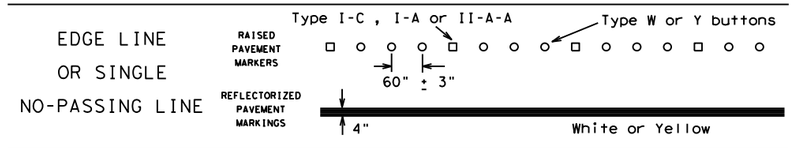
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

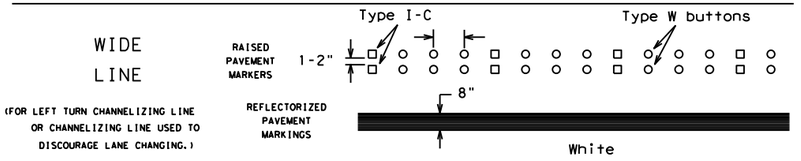


EDGE LINE OR SINGLE NO-PASSING LINE



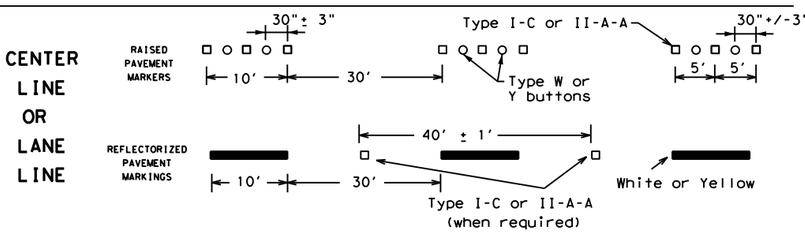
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

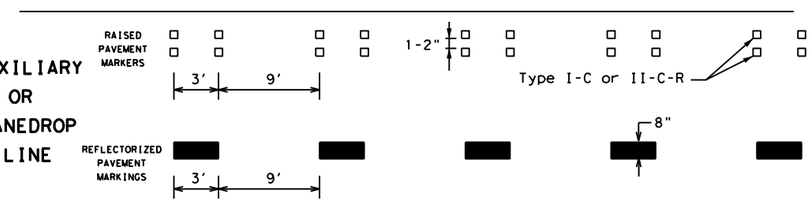


BROKEN LINES

CENTER LINE OR LANE LINE

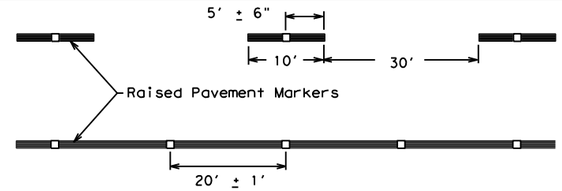


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

SHEET 12 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

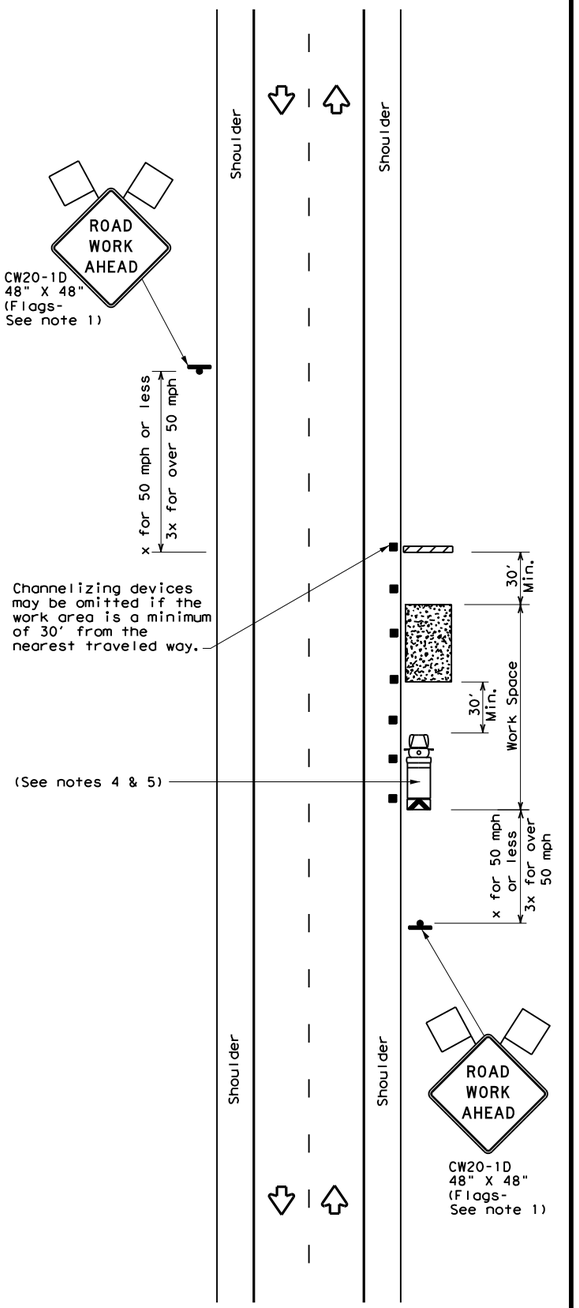
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		21

106

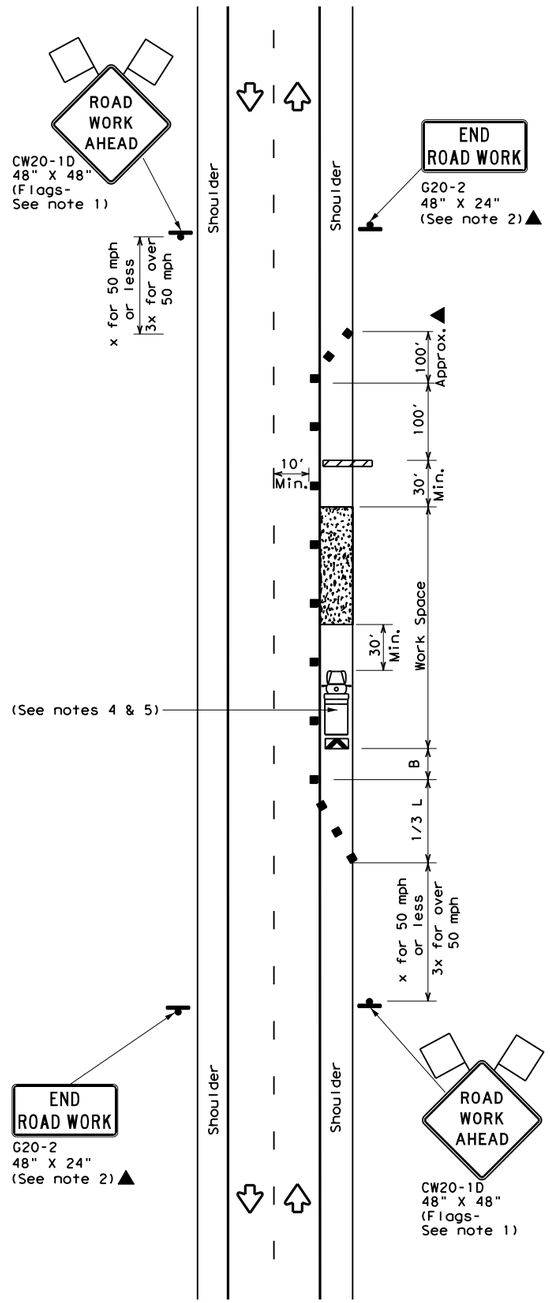
DATE: 7/28/2022 2:38:55 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\TCP(2-1)-18.dgn



TCP (2-1a)

WORK SPACE NEAR SHOULDER

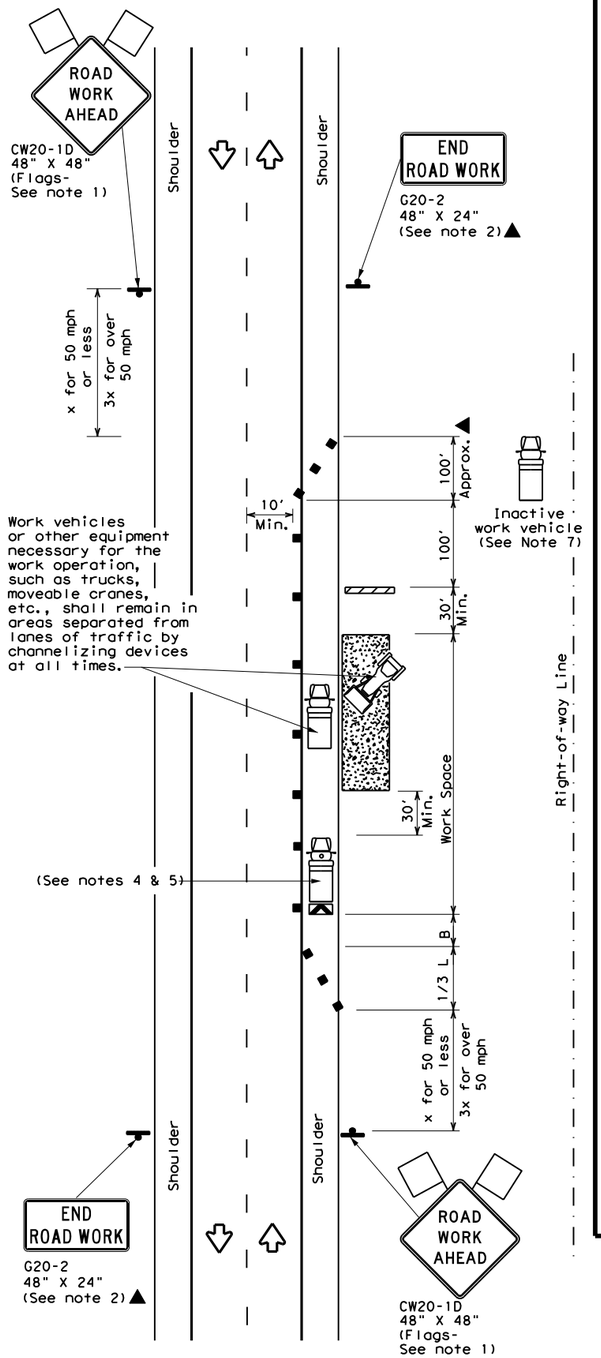
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER

Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER

Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

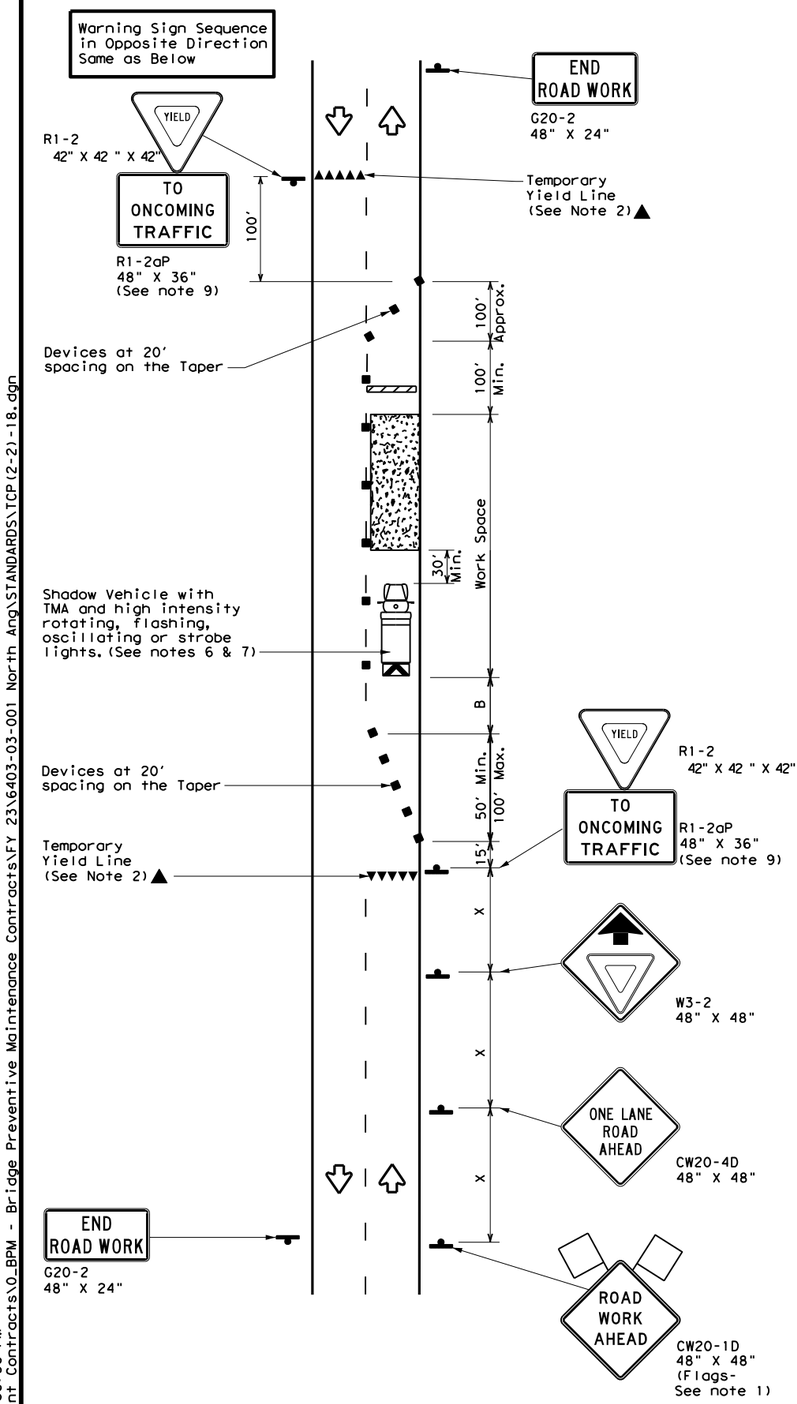
TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

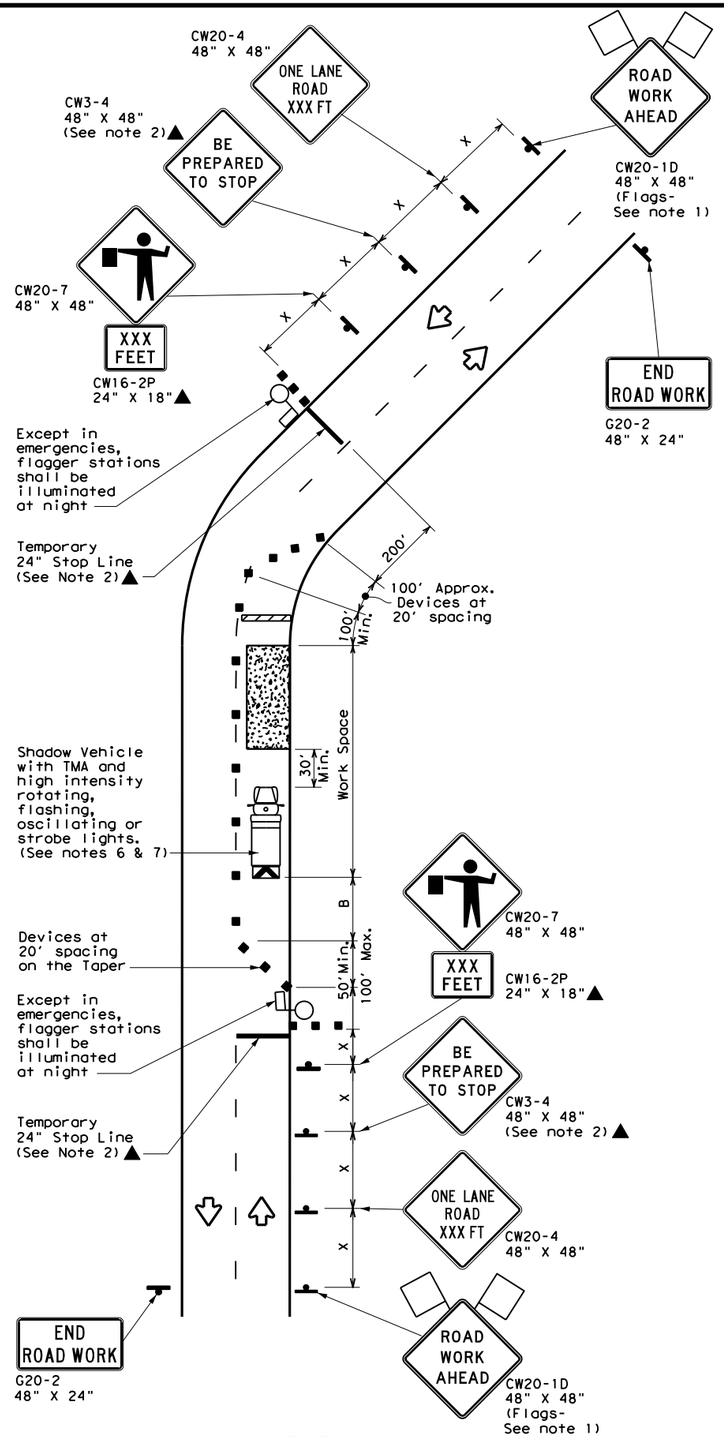
FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	LFK	ANGELINA, ETC.		22
1-97 2-18				

161

DATE: 7/28/2022 2:38:56 PM
FILE: I:\LFK\DOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\TCP(2-2)-18.dgn



TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

LEGEND

	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

8. The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
9. The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.

TCP (2-2b)

10. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
12. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situtations.

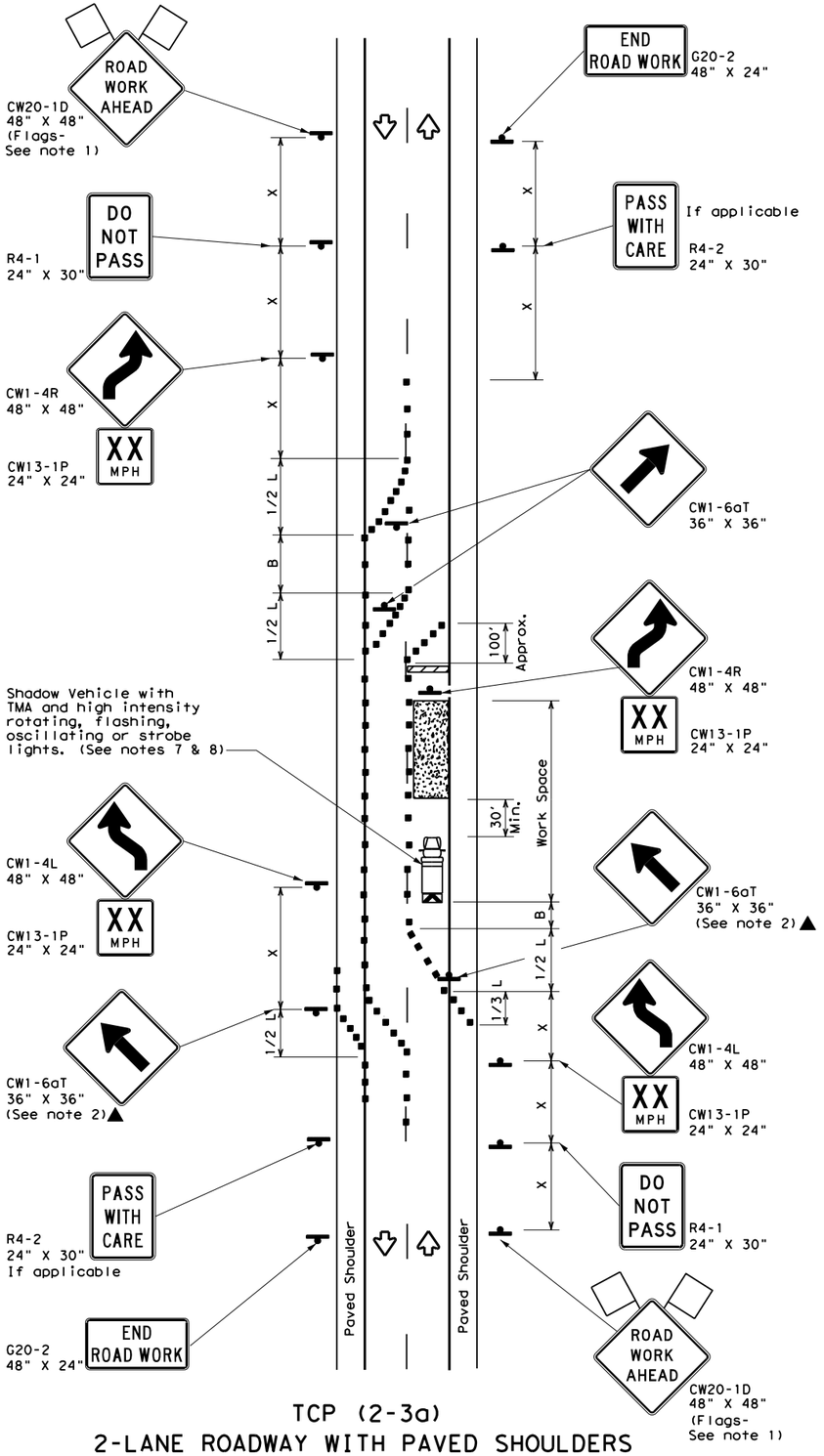
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(2-2)-18

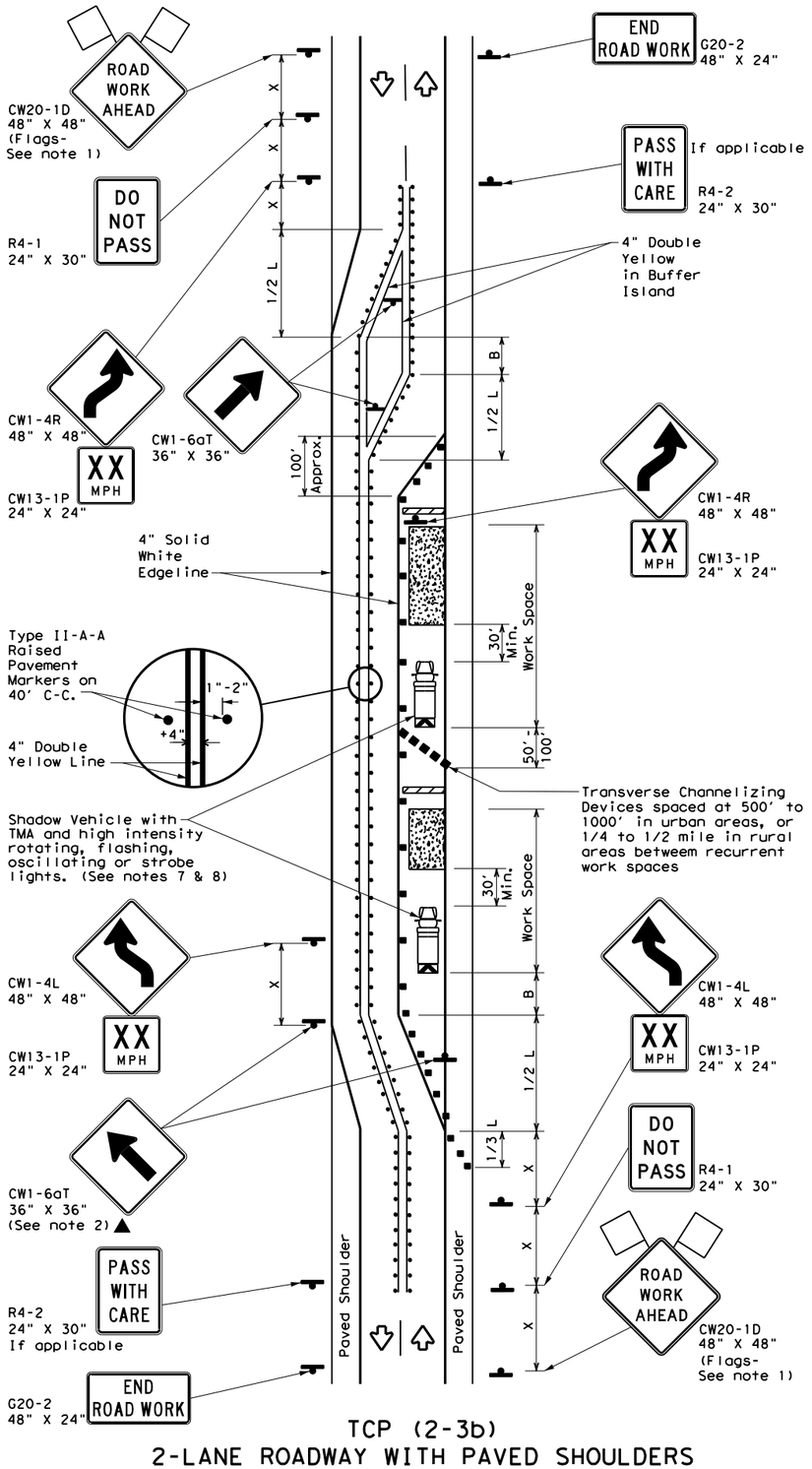
FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		23

DATE: 7/28/2022 2:38:57 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\TCP(2-3)-18.dgn



TCP (2-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



TCP (2-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND

	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	• • • •	Raised Pavement Markers Ty II-AA
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
				TCP(2-3b)ONLY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted.
8. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-3a)

9. Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.

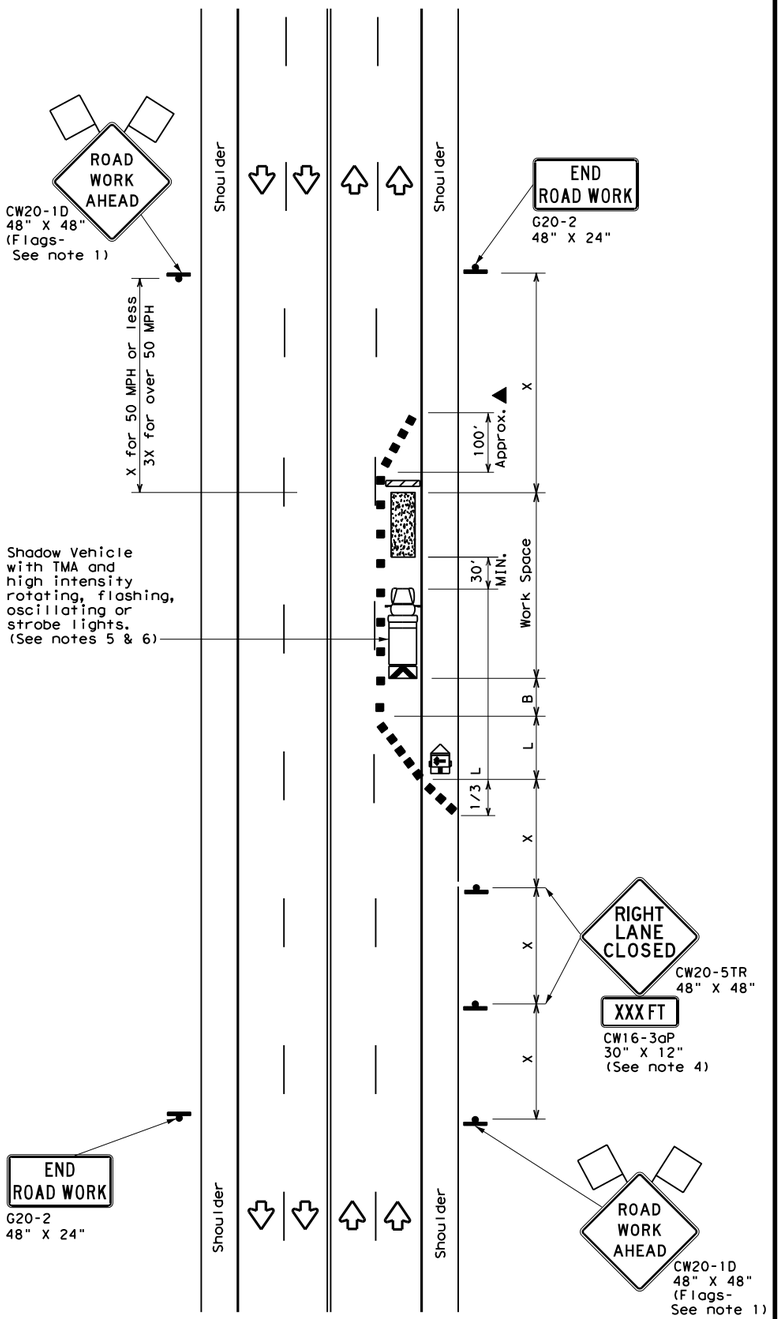
Texas Department of Transportation | *Traffic Operations Division Standard*

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP(2-3)-18

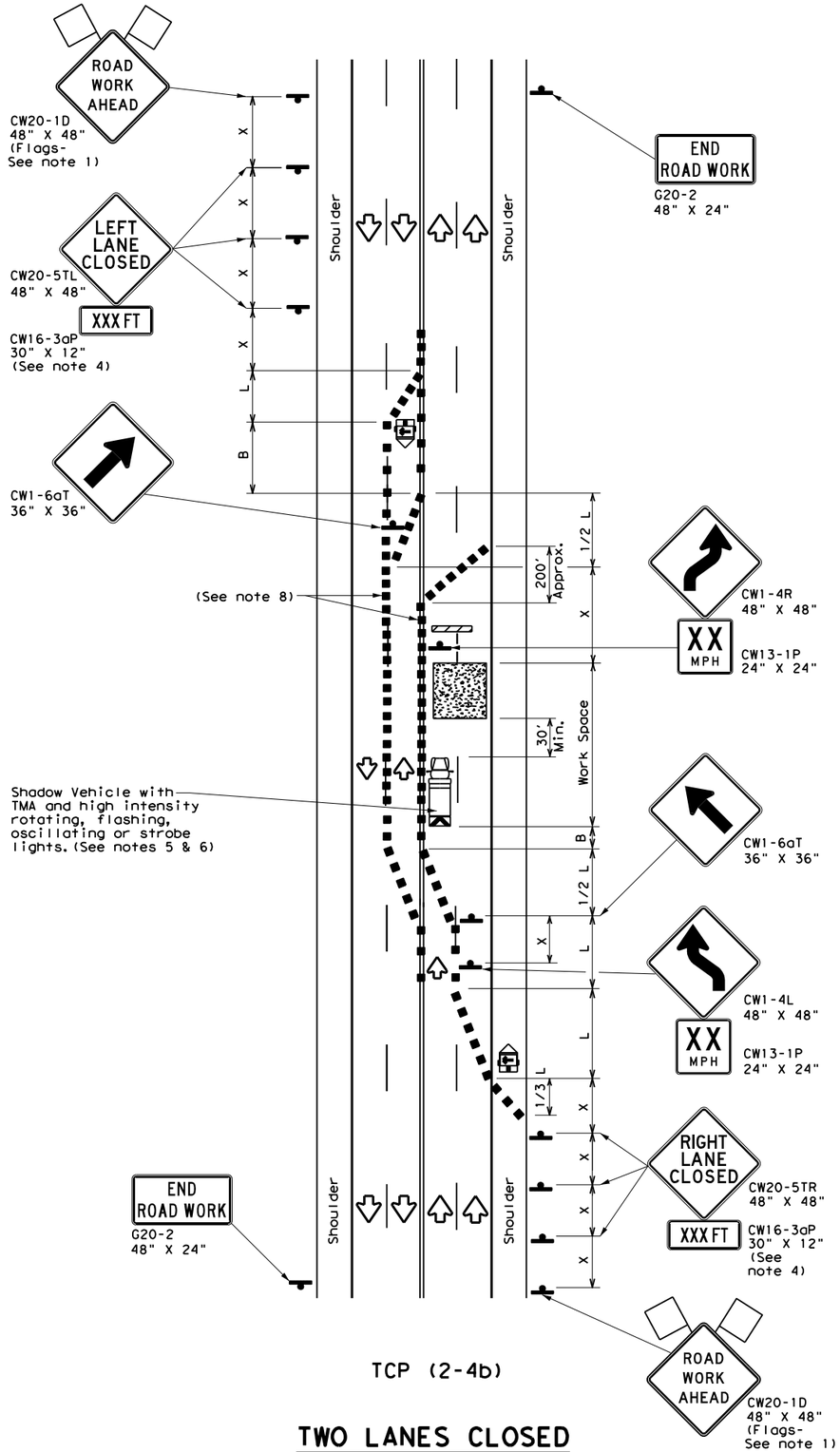
FILE: tcp(2-3)-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	6403	03	001	US 59, ETC.
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	LFK	ANGELINA, ETC.		24

DATE: 7/28/2022 2:38:58 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\TCP(2-4)-18.dgn



TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

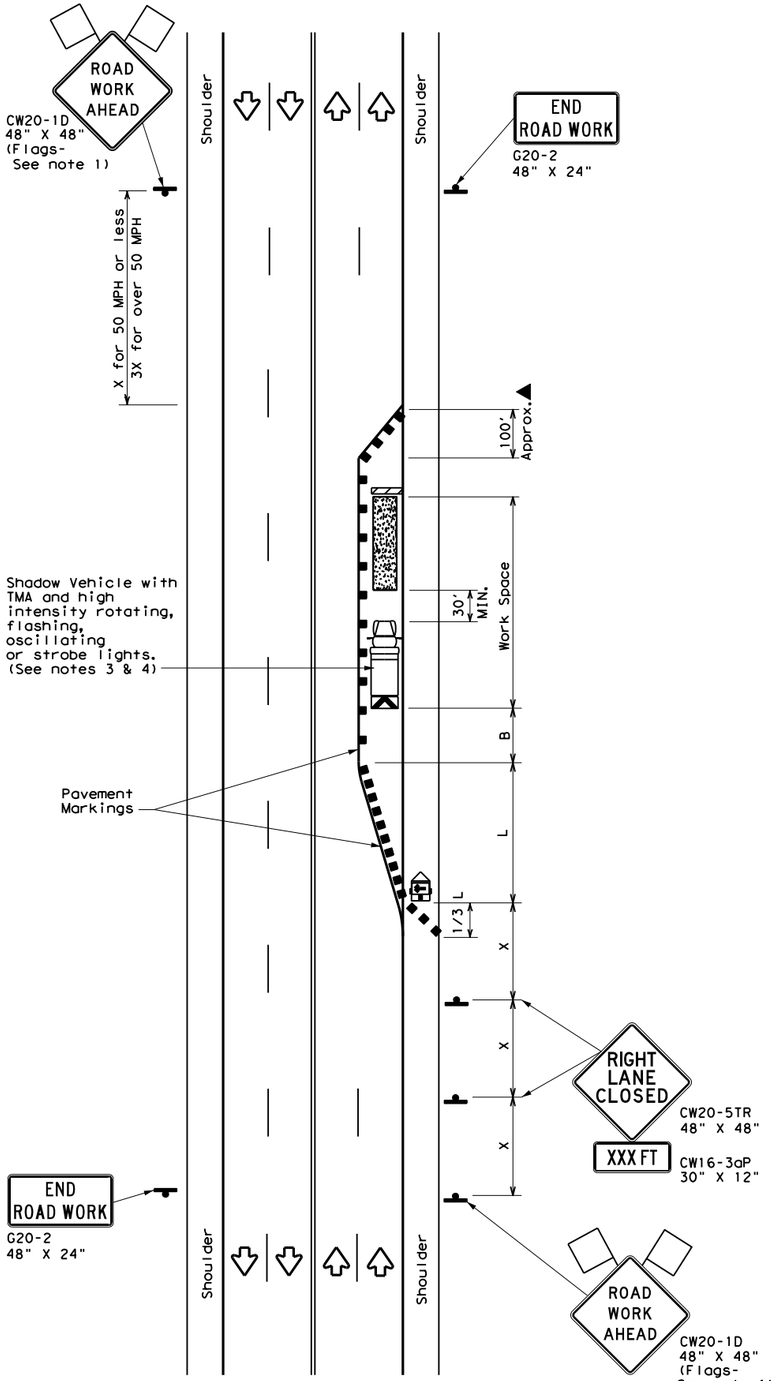
Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

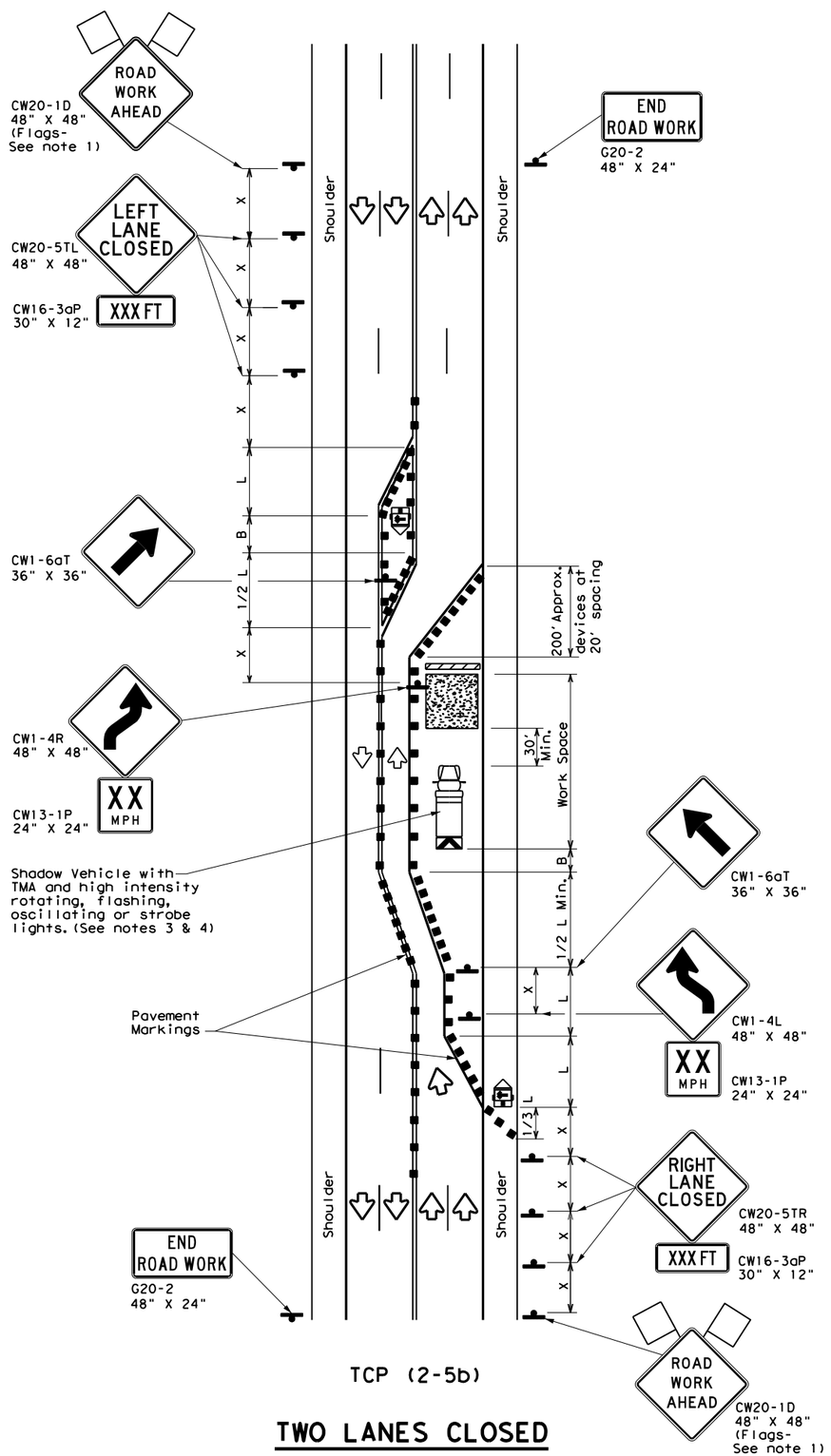
FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	6403	03	001	US 59, ETC.
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	LFK	ANGELINA, ETC.		25

DATE: 7/28/2022 2:38:58 PM
FILE: T:\LFK\DGN\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\TCP(2-5)-18.dgn



TCP (2-5a)

ONE LANE CLOSED



TCP (2-5b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew eposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substitutued for the Shadow Vehicle and TMA.
4. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
5. The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

TCP (2-5a)

6. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic, with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-5b)

7. Conflicting pavement markings shall be removed for long-term projects.

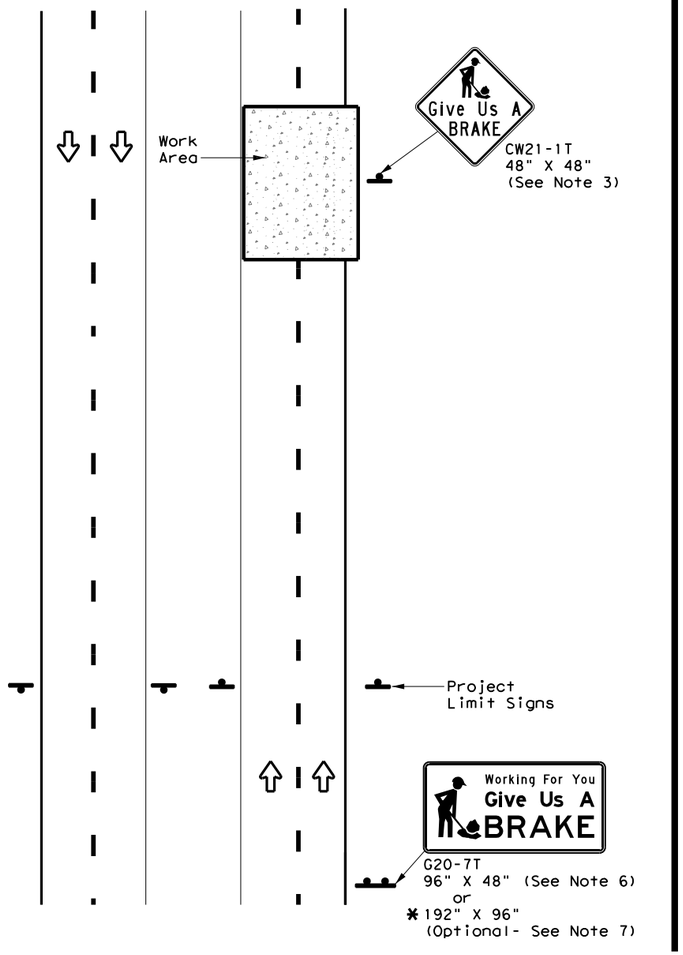
Texas Department of Transportation

Traffic Operations Division Standard

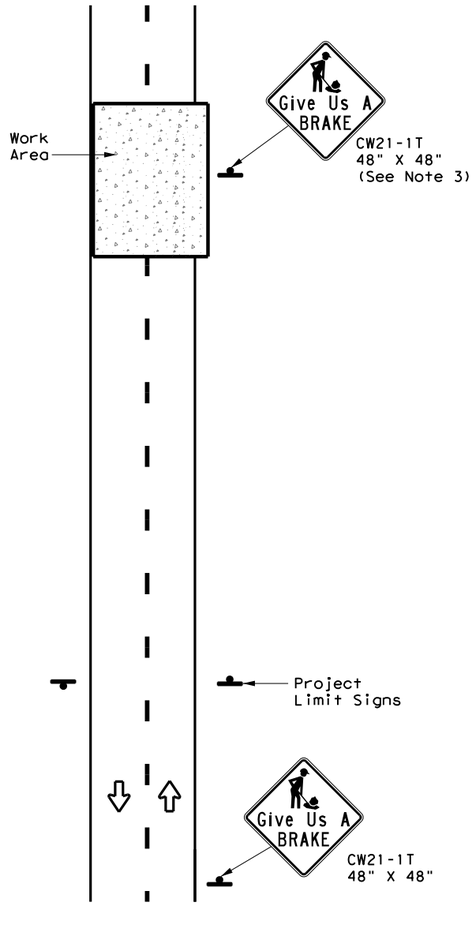
TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS.

TCP(2-5)-18

FILE: tcp2-5-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 2-12	6403	03	001	US 59, ETC.
1-97 3-03	DIST	COUNTY		SHEET NO.
4-98 2-18	LFK	ANGELINA, ETC.		26



DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
6-96 5-98 7-13	DIST	COUNTY		SHEET NO.
8-96 3-03	LFK	ANGELINA, ETC.		27

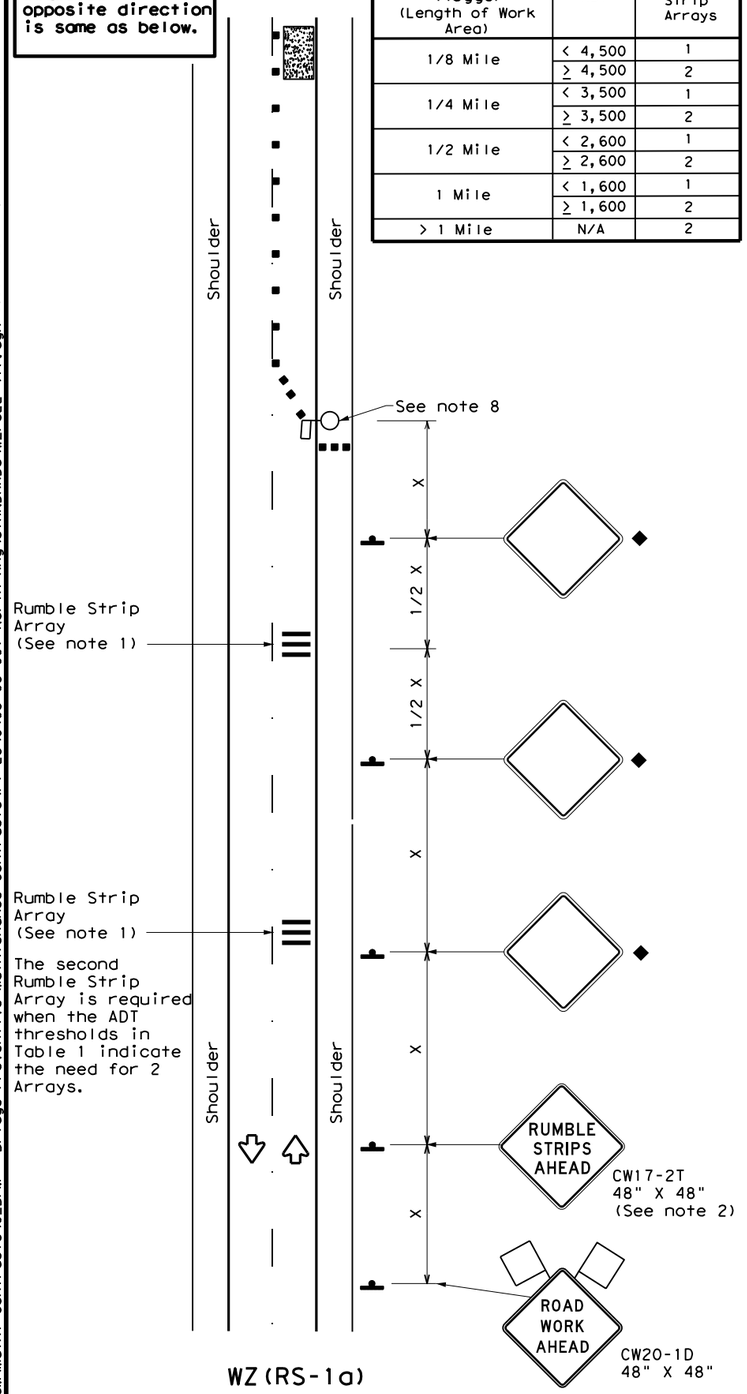
116

DATE: 7/28/2022 2:38:59 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\WZ(BRK)-13.dgn

DATE: 7/28/2022 2:39:00 PM
FILE: T:\LFK\DOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\0_BPM_STANDARDS\wzrs22.dgn

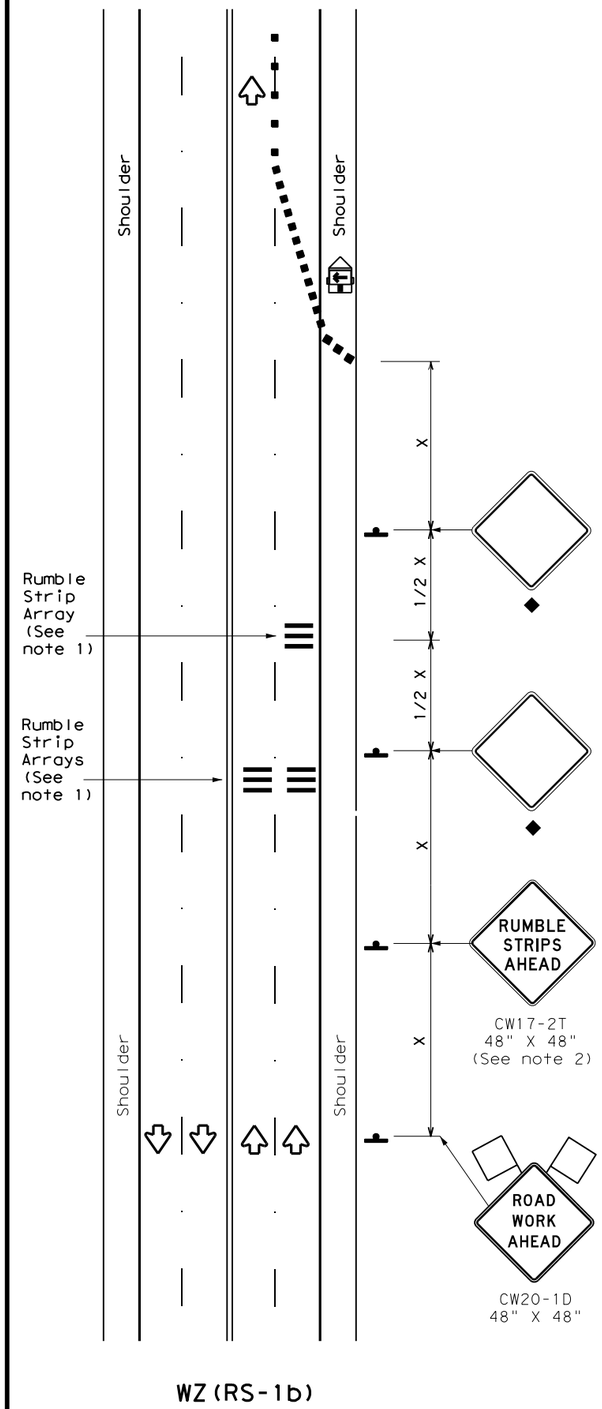
Warning sign and rumble strip sequence in opposite direction is same as below.

TABLE 1		
Flagger to Flagger (Length of Work Area)	ADT	# of Rumble Strip Arrays
1/8 Mile	< 4,500	1
	≥ 4,500	2
1/4 Mile	< 3,500	1
	≥ 3,500	2
1/2 Mile	< 2,600	1
	≥ 2,600	2
1 Mile	< 1,600	1
	≥ 1,600	2
> 1 Mile	N/A	2



WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

1. Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
2. The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
3. Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
4. Remove Temporary Rumble Strips before removing the advanced warning signs.
5. Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
6. Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
7. This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
8. The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
9. Replace defective Temporary Rumble Strips as directed by the Engineer.
10. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Panel	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT)
S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

◆ Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.

* For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.

TABLE 2	
Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35' +

Texas Department of Transportation — Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-22

FILE: wzrs22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-14 1-22 4-16	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		28

117

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL

REPAIR SPALLS WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

SPAN 2 (EASTBOUND LANE):
-BEAM 1 FROM WEST: 1' x 1' = 1 SF
-BEAM 3 FROM WEST: 1' x 1' = 1 SF
-BEAM 6 FROM WEST: 1' x 1' = 1 SF

TOTAL = 3 SF

REPAIR SPALLS WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

SPAN 3 (WESTBOUND LANE):
-BEAM 1 FROM WEST: 2' x 1' = 2 SF
-BEAM 2 FROM WEST: 1' x 1' + 2' x 1' = 3 SF
-BEAM 3 FROM WEST: 1' x 1' + 2' x 1' = 3 SF
-BEAM 4 FROM WEST: 1' x 1' = 1 SF
-BEAM 5 FROM WEST: 1' x 1' = 1 SF
-BEAM 6 FROM WEST: 1' x 1' = 1 SF
-BEAM 7 FROM WEST: 2' x 1' = 2 SF

TOTAL = 13 SF

91

LAYOUT
US 59 UNDERPASS NB
RIGHT ROADWAY

Str.# 0176-02-079

SITE 1 - ANGELINA COUNTY
US 59 NB @ SL 287
11-003-0-0176-02-079

JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 1)

Texas Department of Transportation®

SHEET 01 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		29

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL

REPAIR SPALLS WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

SPAN 2 (EASTBOUND LANE):
-BEAM 1 FROM WEST: 12' x 2' + 2' x 2' = 28 SF
-BEAM 2 FROM WEST: 4' x 2' + 1' x 1' + 1' x 1' + 2' x 2' = 14 SF
-BEAM 3 FROM WEST: 4' x 2' = 8 SF
-BEAM 4 FROM WEST:2' x 2' + 2' x 2' = 8 SF
-BEAM 5 FROM WEST: 3' x 2' = 6 SF
-BEAM 6 FROM WEST: 4(1' x 1') = 4 SF

TOTAL = 68 SF

REPAIR SPALLS WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

SPAN 3 (WESTBOUND LANE):
-BEAM 1 FROM WEST: 4' x 2' + 4' x 2' = 16 SF
-BEAM 2 FROM WEST: 8' x 2' + 4' x 1' = 20 SF
-BEAM 3 FROM WEST: 8' x 2' = 16 SF
-BEAM 4 FROM WEST: 6' x 2' = 12 SF
-BEAM 5 FROM WEST: 4' x 2' = 8 SF
-BEAM 6 FROM WEST: 4' x 2' = 8 SF
-BEAM 7 FROM WEST: 2' x 1' = 2 SF
-BEAM 8 FROM WEST: 1' x 1' = 1 SF

TOTAL = 83 SF

341'-0" TY. T2 Railing
4 SPANS (60-92-92-60) (26° 44' Skew) = 304 FT.

54" Beams

SITE 2 - ANGELINA COUNTY
US 59 SB @ SL 287
11-003-0-0176-02-080

LAYOUT
US. 59 UNDERPASS
LEFT ROADWAY

SU2336(6)

JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 2)

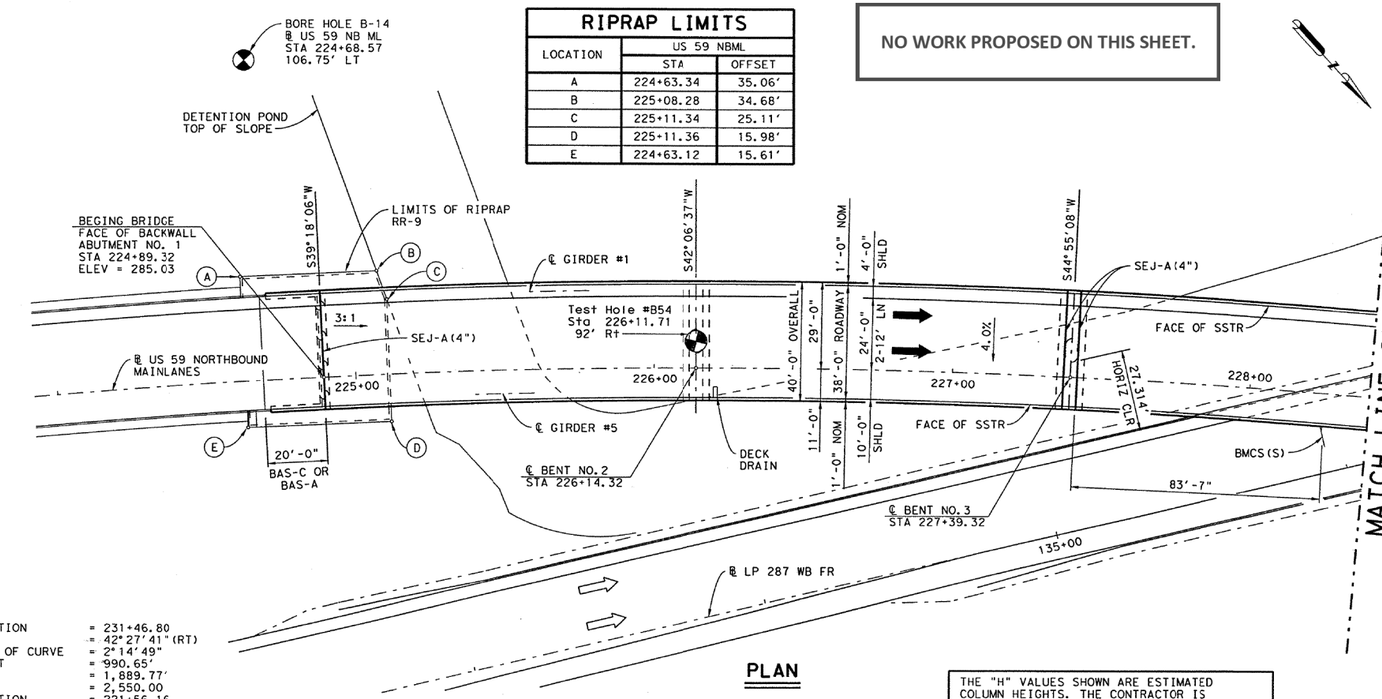
Texas Department of Transportation®

SHEET 02 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		30

RIPRAP LIMITS		
LOCATION	US 59 NBML	
	STA	OFFSET
A	224+63.34	35.06'
B	225+08.28	34.68'
C	225+11.34	25.11'
D	225+11.36	15.98'
E	224+63.12	15.61'

NO WORK PROPOSED ON THIS SHEET.



PLAN

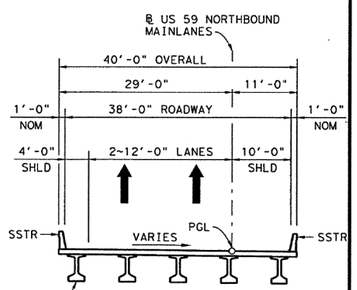
PI STATION	= 231+46.80
DELTA	= 42°27'41"(RT)
DEGREE OF CURVE	= 2°14'49"
TANGENT	= 990.65'
LENGTH	= 1,889.77'
RADIUS	= 2,550.00
PC STATION	= 221+56.16
PT STATION	= 240+45.93

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS

GENERAL NOTES:

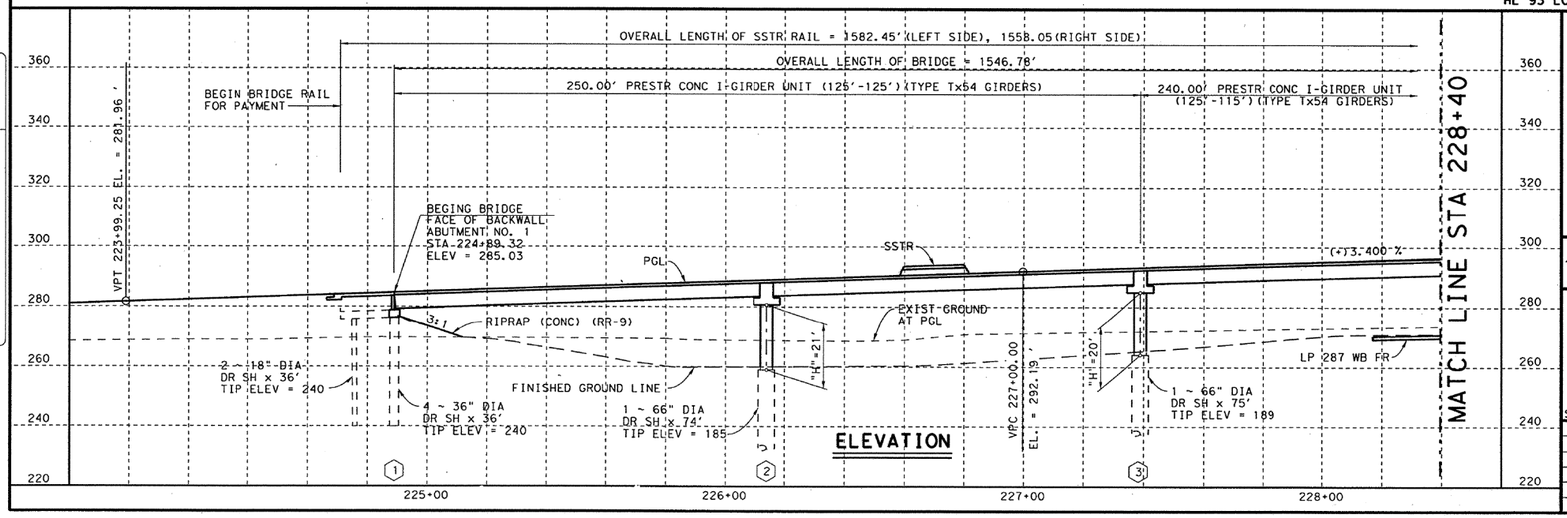
DESIGNED ACCORDING TO AASHTO LRFD BRIDGE SPECIFICATIONS, 5th EDITION (2010)

FOR BORING LOGS, SEE "BORING LOGS" SHEET



TYPICAL TRANSVERSE SECTION

HL 93 LOADING



ELEVATION

FILE NAME: 7340ly01.dgn
DATE: Oct 2011
COMMENTS:

DN: NRN
CK: TGG
DW: NRN
CK: NRN

BRIDGE DESIGN
Nicholas Nemec
12/8/2012

DESIGN SPEED = 50 MPH
ADT (2011) = 34100
(2031) = 47500
NBI #11-003-0-0176-02-142

Texas Department of Transportation

BRIDGE LAYOUT
US 59 NORTHBOUND MAINLANES

STA 224+89.32 TO STA 228+40.00

SCALE: 1" = 40' SHEET 1 OF 4

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6		507

STATE	DISTRICT	COUNTY	
TEXAS	LFK	ANGELINA	
CONTROL	SECTION	JOB	HIGHWAY NO.
0176	02	090	US59

ROADWAY DESIGN
Jesse Daniel Sisco
2/1/12

FOUNDATION DESIGN
Marie Masters Fisk
1-18-12

JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 3)

SITE 3 - ANGELINA COUNTY
US 59 DIR CONN @ BUS 59 & SL 287
11-003-0-0176-02-142

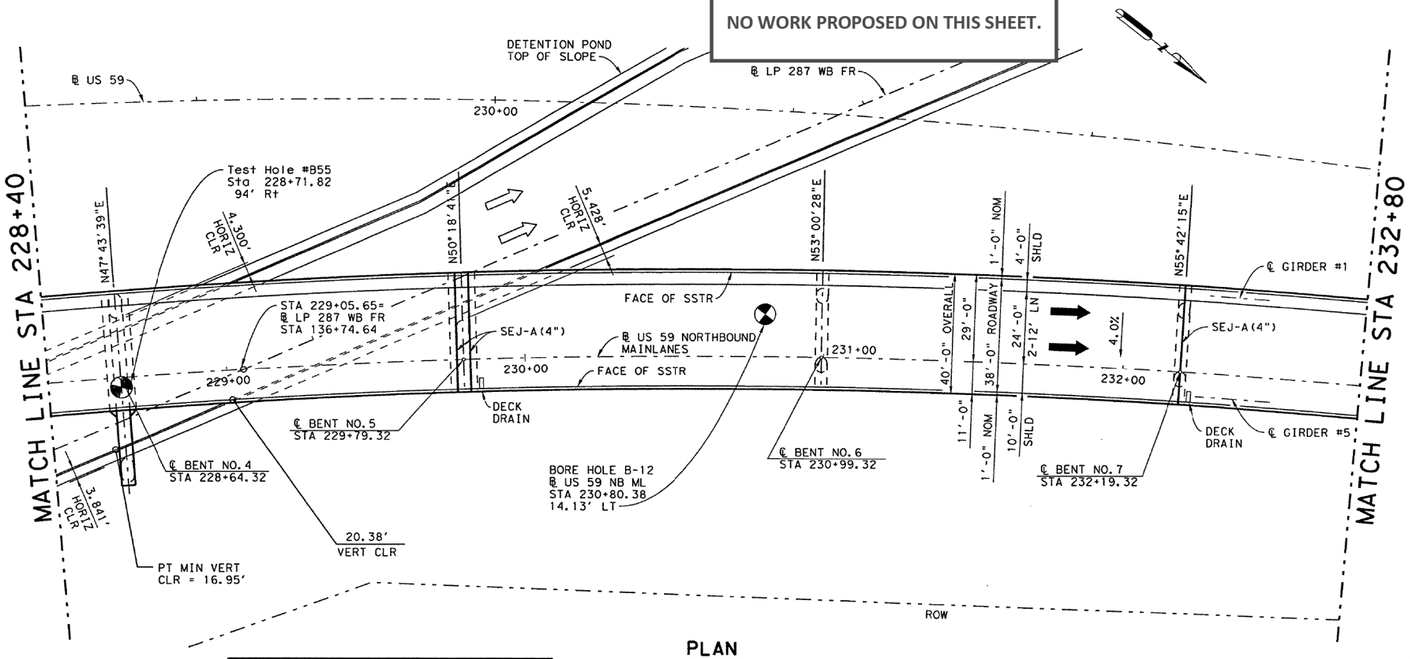
Texas Department of Transportation®

SHEET 03 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		31

7/28/2022 3:20:47 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Angelina F es

NO WORK PROPOSED ON THIS SHEET.



PLAN

PI STATION	= 231+46.80
DELTA	= 42° 27' 41" (RT)
DEGREE OF CURVE	= 2° 14' 49"
TANGENT	= 990.65'
LENGTH	= 1,889.77'
RADIUS	= 2,550.00
PC STATION	= 221+56.16
PT STATION	= 240+45.93

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS

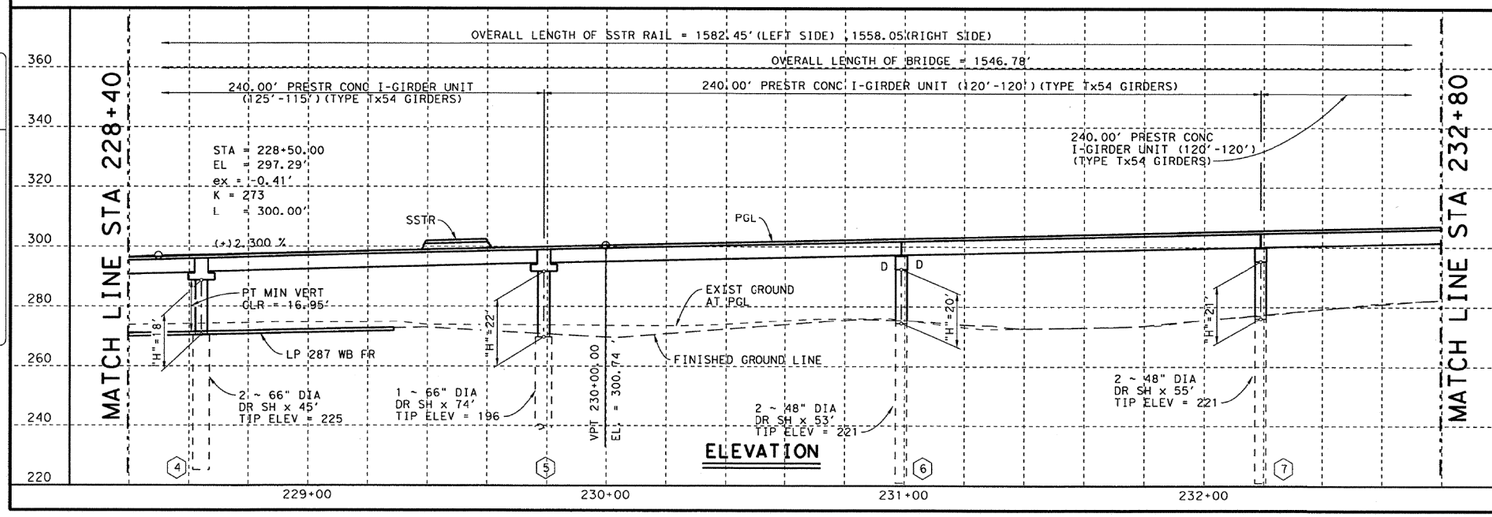
STATE OF TEXAS · JESSE DANIEL SISCO · 92612 · LICENSED PROFESSIONAL ENGINEER

ROADWAY DESIGN
Jesse Sisco
2/1/12

STATE OF TEXAS · MARIE MASTERS FISK · 95790 · LICENSED PROFESSIONAL ENGINEER

FOUNDATION DESIGN
Marie Masters Fisk
1-18-12

HL 93 LOADING



ELEVATION

STATE OF TEXAS · NICHOLAS NEMEC · 102288 · LICENSED PROFESSIONAL ENGINEER

BRIDGE DESIGN
Nicholas Nemec
1/18/2012

DESIGN SPEED = 50 MPH
ADT (2011) = 34100
(2031) = 47500
NBI #11-003-0-0176-02-142

Texas Department of Transportation

BRIDGE LAYOUT US 59 NORTHBOUND MAINLANES

STA 228+40.00 TO STA 232+80.00

SCALE: 1" = 40' SHEET 2 OF 4

FED. ROAD DIV. NO.	PROJECT NO.	SHEET NO.
6		508

STATE	DISTRICT	COUNTY
TEXAS	LFK	ANGELINA

CONTROL	SECTION	JOB	HIGHWAY NO.
0176	02	090	US59

DN: NRN
CK: TGG
DW: NRN
CK: NRN

FILE NAME: 7340jy01.dgn
DATE: Oct 2011
COMMENTS:

STATE OF TEXAS · JEREMY KING · 102170 · LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

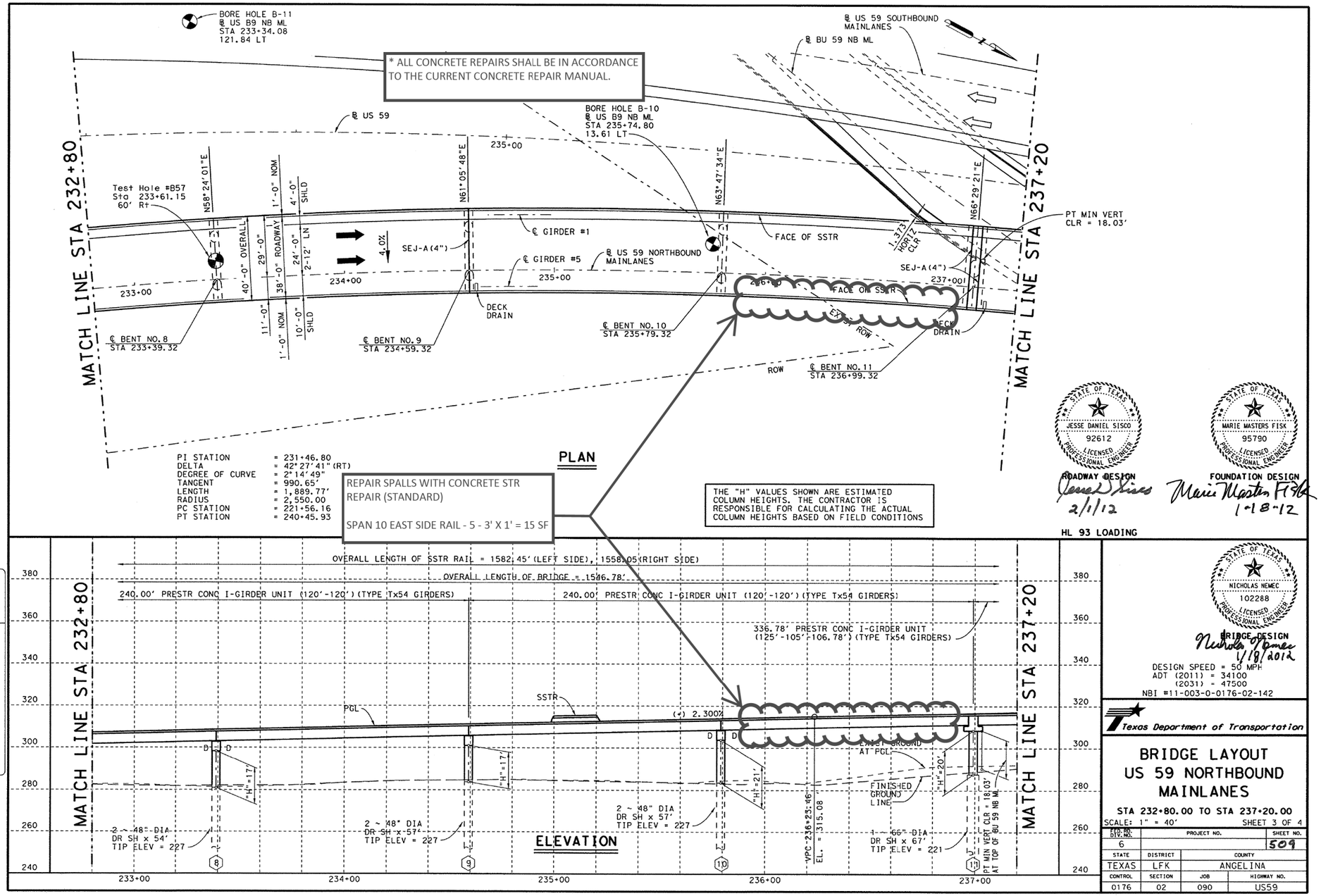
BRIDGE LAYOUTS (SITE 3)

SHEET 04 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		32

SITE 3 - ANGELINA COUNTY
US 59 DIR CONN @ BUS 59 & SL 287
11-003-0-0176-02-142

7/28/2022 3:20:21 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspetions\Angelina F es



JESSE DANIEL SISCO
92612
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
ROADWAY DESIGN
2/1/12

MARIE MASTERS FISK
95790
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
FOUNDATION DESIGN
1-18-12

NICHOLAS NEMEC
102288
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
BRIDGE DESIGN
1/18/2012

DESIGN SPEED = 50 MPH
ADT (2011) = 34100
(2031) = 47500
NBI #11-003-0-0176-02-142

Texas Department of Transportation

BRIDGE LAYOUT US 59 NORTHBOUND MAINLANES

STA 232+80.00 TO STA 237+20.00

SCALE: 1" = 40' SHEET 3 OF 4

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		509

STATE	DISTRICT	COUNTY
TEXAS	LFK	ANGELINA

CONTROL	SECTION	JOB	HIGHWAY NO.
0176	02	090	US59

JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS (SITE 3)

SITE 3 - ANGELINA COUNTY
US 59 DIR CONN @ BUS 59 & SL 287
11-003-0-0176-02-142

SHEET 05 OF 33

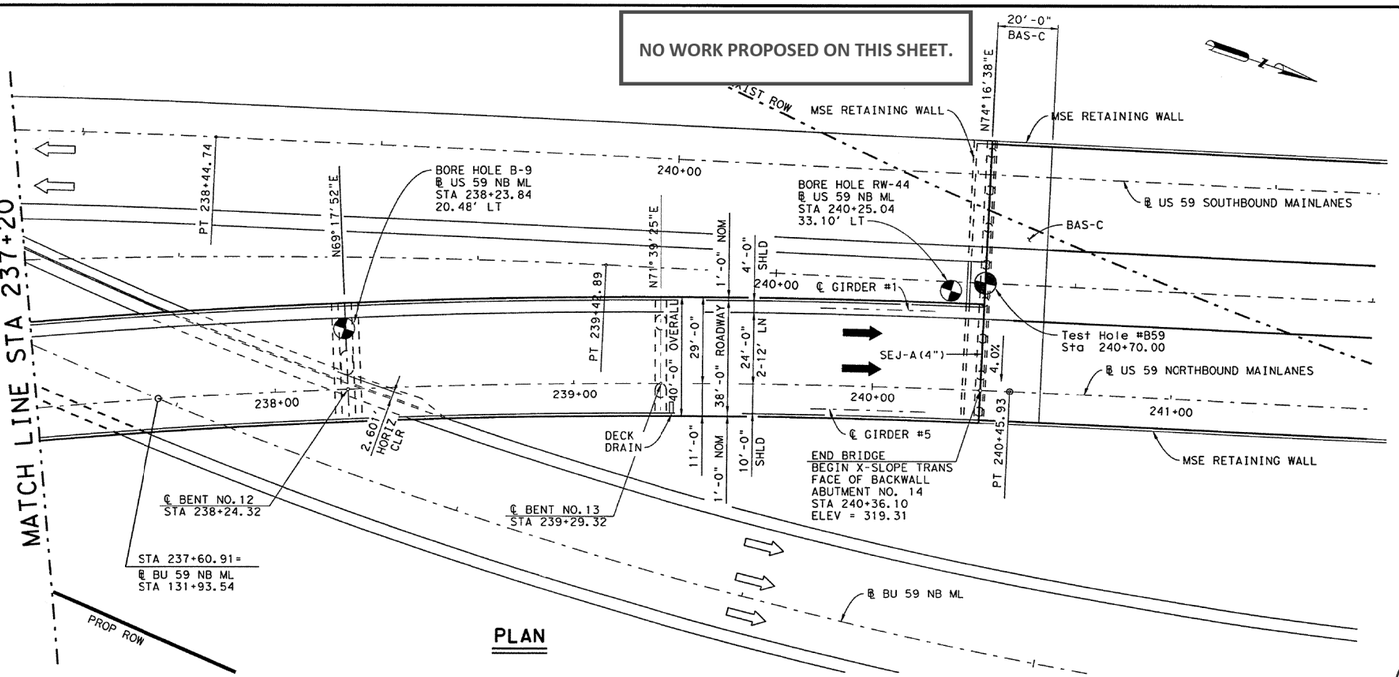
CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		33

DN: NRN
CK: TGG
DW: NRN
CK:

FILE NAME: 73401y01.dgn
DATE: Oct 2011
COMMENTS:

7/28/2022 3:20:30 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Angelina F es

NO WORK PROPOSED ON THIS SHEET.



PLAN

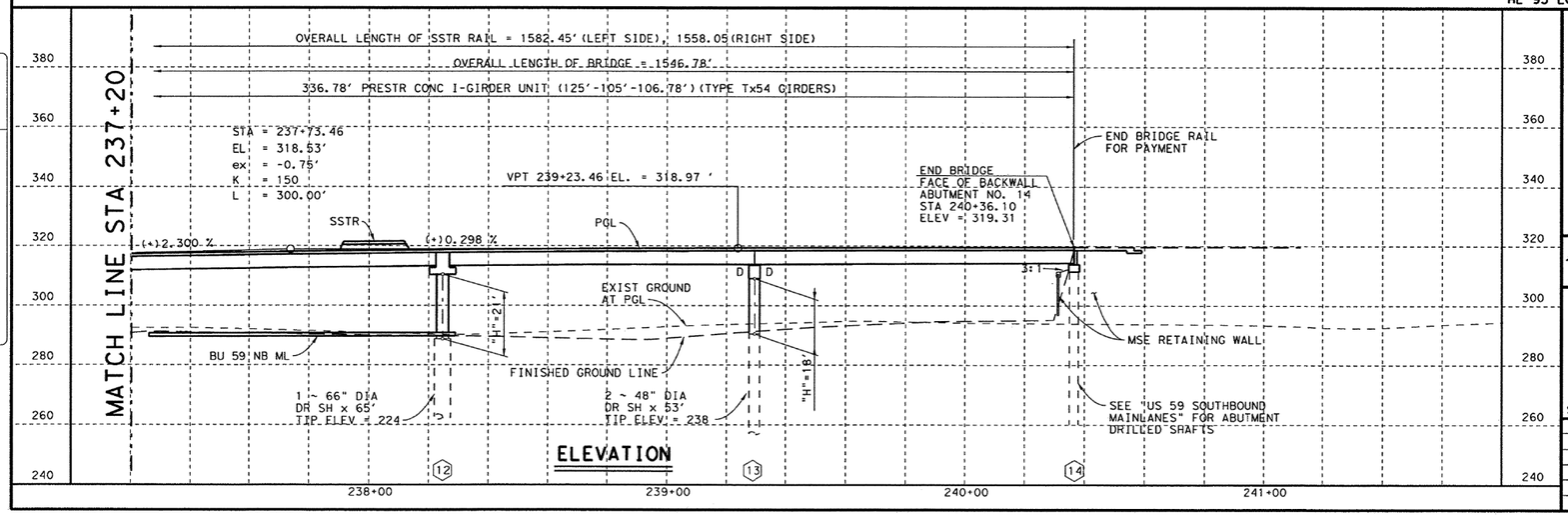
THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS

PI STATION	= 231+46.80
DELTA	= 42°27'41" (RT)
DEGREE OF CURVE	= 2°14'49"
TANGENT	= 990.65'
LENGTH	= 1,889.77'
RADIUS	= 2,550.00
PC STATION	= 221+56.16
PT STATION	= 240+45.93

STATE OF TEXAS · JESSE DANIEL SISCO · 92612 · LICENSED PROFESSIONAL ENGINEER
ROADWAY DESIGN
2/1/12

STATE OF TEXAS · MARIE MASTERS FISK · 95790 · LICENSED PROFESSIONAL ENGINEER
FOUNDATION DESIGN
1-18-12

HL 93 LOADING



ELEVATION

STATE OF TEXAS · NICHOLAS NEMEC · 102288 · LICENSED PROFESSIONAL ENGINEER
BRIDGE DESIGN
1/18/2012

DESIGN SPEED = 50 MPH
ADT (2011) = 34100
(2031) = 47500
NBI #11-003-0-0176-02-142

Texas Department of Transportation

BRIDGE LAYOUT US 59 NORTHBOUND MAINLANES

STA 237+20.00 TO STA 240+36.10

SCALE: 1" = 40' SHEET 4 OF 4

ETC NO. DIV NO.	PROJECT NO.	SHEET NO.
6		510

STATE	DISTRICT	COUNTY	
TEXAS	LFK	ANGELINA	
CONTROL	SECTION	JOB	HIGHWAY NO.
0176	02	090	US59

STATE OF TEXAS · JEREMY KING · 102170 · LICENSED PROFESSIONAL ENGINEER
DocuSigned by: Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS (SITE 3)

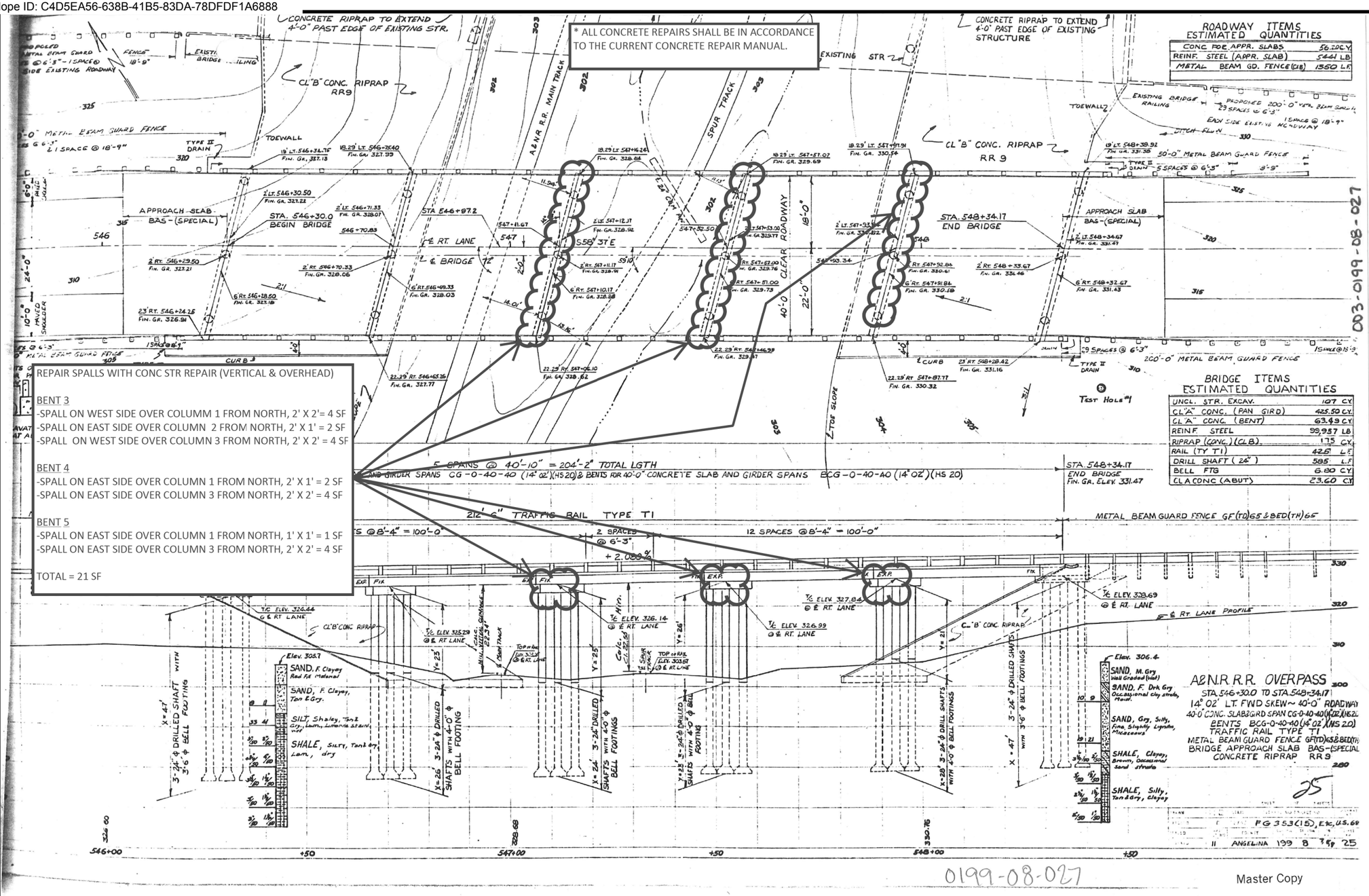
SHEET 06 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		34

SITE 3 - ANGELINA COUNTY
US 59 DIR CONN @ BUS 59 & SL 287
11-003-0-0176-02-142

DN: NRN
CK: TGG
DW: NRN
CK: NRN
FILE NAME: 7340lyo1.dgn
DATE: Oct 2011
COMMENTS:

7/28/2022 3:20:39 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspetions\Angelina F es



REPAIR SPALLS WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

BENT 3
-SPALL ON WEST SIDE OVER COLUMM 1 FROM NORTH, 2' X 2'= 4 SF
-SPALL ON EAST SIDE OVER COLUMN 2 FROM NORTH, 2' X 1' = 2 SF
-SPALL ON WEST SIDE OVER COLUMN 3 FROM NORTH, 2' X 2' = 4 SF

BENT 4
-SPALL ON EAST SIDE OVER COLUMN 1 FROM NORTH, 2' X 1' = 2 SF
-SPALL ON EAST SIDE OVER COLUMN 3 FROM NORTH, 2' X 2' = 4 SF

BENT 5
-SPALL ON EAST SIDE OVER COLUMN 1 FROM NORTH, 1' X 1' = 1 SF
-SPALL ON EAST SIDE OVER COLUMN 3 FROM NORTH, 2' X 2' = 4 SF

TOTAL = 21 SF

ROADWAY ITEMS ESTIMATED QUANTITIES

CONC. FOR APPR. SLABS	56.20 C.Y.
REINF. STEEL (APPR. SLAB)	5441 LB.
METAL BEAM GD. FENCE (CIB)	1550 L.F.

BRIDGE ITEMS ESTIMATED QUANTITIES

UNCL. STR. EXCAV.	107 C.Y.
CL "A" CONC. (PAN GIRD)	425.50 C.Y.
CL "A" CONC. (BENT)	63.49 C.Y.
REINF. STEEL	99,957 LB.
RIPRAP (CONC.) (CL B.)	175 C.Y.
RAIL (TY T1)	425 L.F.
DRILL SHAFT (24")	585 L.F.
BELL FTG	6.80 C.Y.
CL A CONC (ABUT)	23.60 C.Y.

003-0199-08-027

JEREMY KING 102170 LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

0199-08-027

Master Copy

BRIDGE LAYOUTS (SITE 4)

SITE 4 - ANGELINA COUNTY
BUS 69 @ A&NR
11-003-0-0199-08-027

Texas Department of Transportation®

SHEET 07 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		35

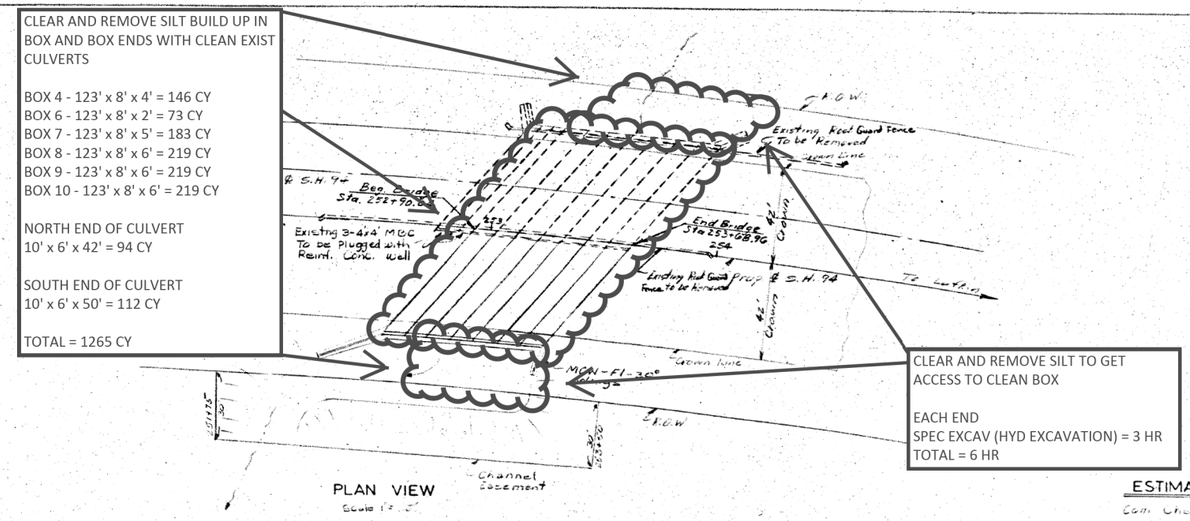
CLEAR AND REMOVE SILT BUILD UP IN BOX AND BOX ENDS WITH CLEAN EXIST CULVERTS

BOX 4 - 123' x 8' x 4' = 146 CY
BOX 6 - 123' x 8' x 2' = 73 CY
BOX 7 - 123' x 8' x 5' = 183 CY
BOX 8 - 123' x 8' x 6' = 219 CY
BOX 9 - 123' x 8' x 6' = 219 CY
BOX 10 - 123' x 8' x 6' = 219 CY

NORTH END OF CULVERT
10' x 6' x 42' = 94 CY

SOUTH END OF CULVERT
10' x 6' x 50' = 112 CY

TOTAL = 1265 CY



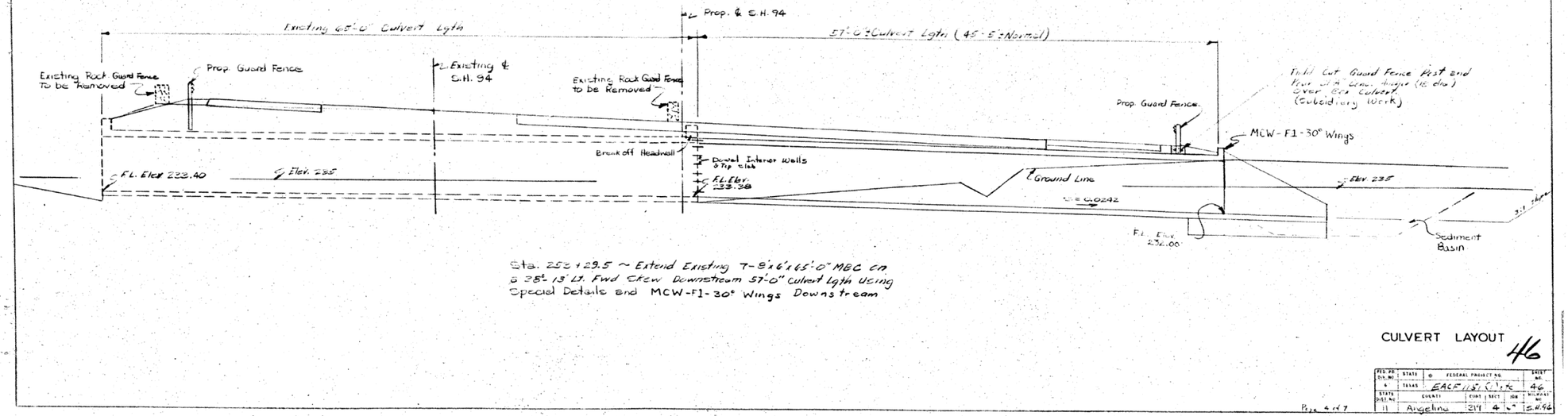
PLAN VIEW
Scale 1" = 2'

CLEAR AND REMOVE SILT TO GET ACCESS TO CLEAN BOX

EACH END
SPEC EXCAV (HYD EXCAVATION) = 3 HR
TOTAL = 6 HR

ESTIMATED QUANTITIES

Conc. Chan. Excav.	790 C.Y.
Unclass. Str. Excav (Culv.)	114 C.Y.
CL"A" Conc. for Ext. Str. (Culv.)	244.72 C.Y.
Reinf. Steel	36,511 LBS
Clean Culv. Barrel	285 C.Y.
Sediment Basin Maint. (one)	50 C.Y.



CULVERT LAYOUT 46

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	EACF(18)_____				46
STATE DIST. NO.	COUNTY	CONT	SECT	JOB		HIGHWAY NO.
11	Angelina	214	4	...		S.H. 94

Page 4 of 7

SITE 5 - ANGELINA COUNTY
SH 94 @ JACK CREEK RELIEF
11-003-0-0319-04-043

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

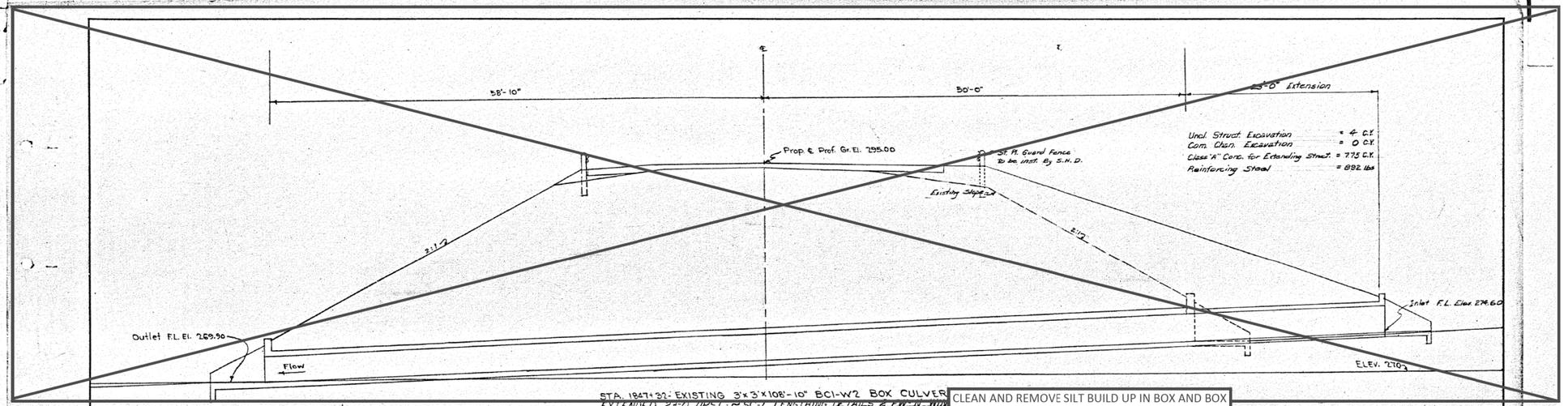
BRIDGE LAYOUTS
(SITE 5)

Texas Department of Transportation®

SHEET 08 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		36

7/28/2022 3:21:05 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Angelina F...es



SITE 6 - ANGELINA COUNTY
SH 103 @ ROWAN CREEK
11-003-0-0336-03-012

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

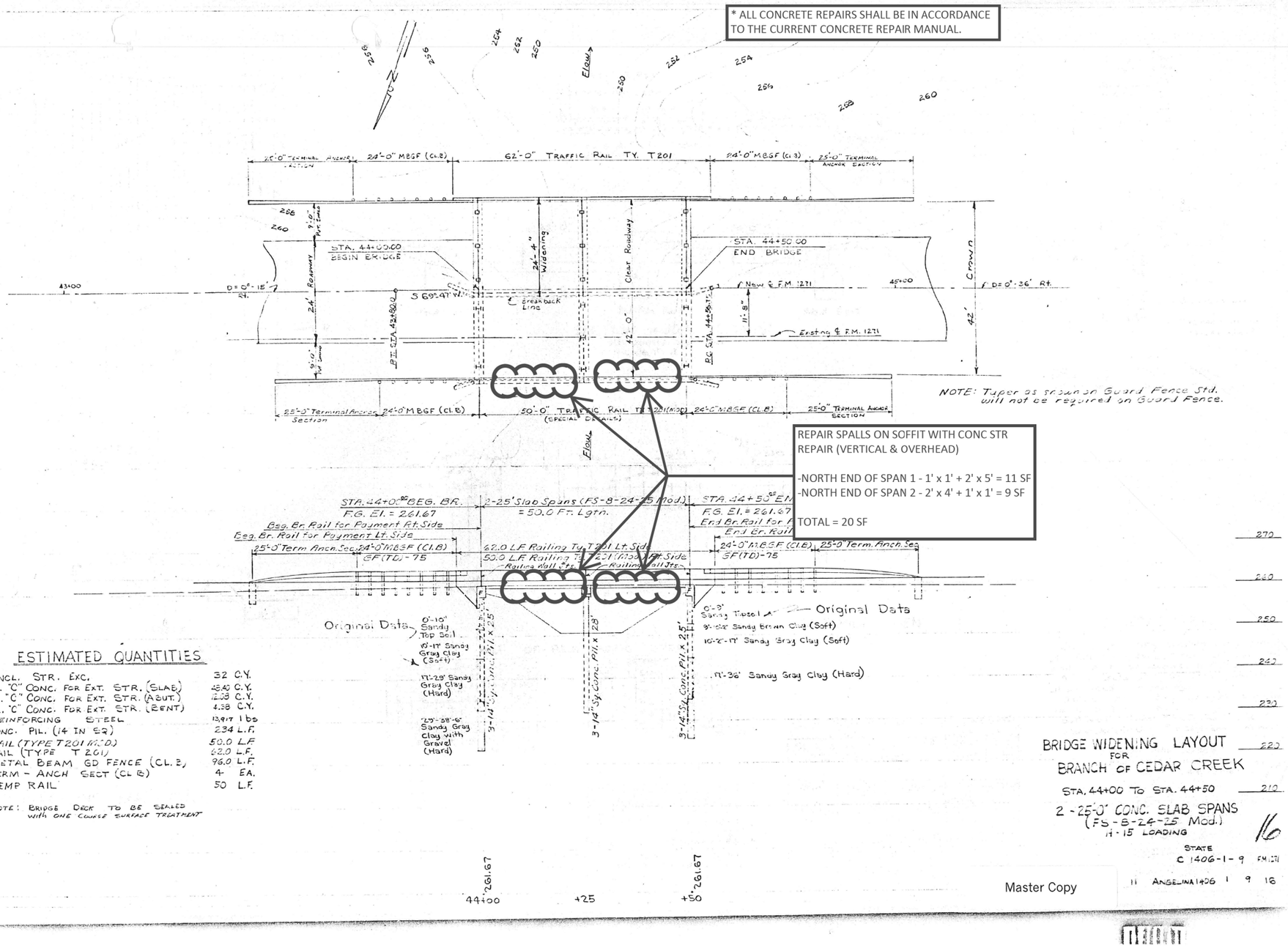
BRIDGE LAYOUTS
(SITE 6)

Texas Department of Transportation®

SHEET 09 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		37

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL.



NOTE: Type 98 Breakaway Guard Fence Std. will not be required on Guard Fence.

REPAIR SPALLS ON SOFFIT WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

-NORTH END OF SPAN 1 - 1' x 1' + 2' x 5' = 11 SF
-NORTH END OF SPAN 2 - 2' x 4' + 1' x 1' = 9 SF

TOTAL = 20 SF

ESTIMATED QUANTITIES

	UNCL. STR. EXC.	32 C.Y.
	CL. "C" CONC. FOR EXT. STR. (SLAB)	48.40 C.Y.
	CL. "C" CONC. FOR EXT. STR. (ABUT.)	12.38 C.Y.
	CL. "C" CONC. FOR EXT. STR. (BENT)	4.38 C.Y.
	REINFORCING STEEL	13,917 lbs
	CONC. PIL. (14 IN SQ)	234 L.F.
	RAIL (TYPE T201 MOD)	50.0 L.F.
	RAIL (TYPE T 201)	62.0 L.F.
Rdwy. Items	METAL BEAM GD FENCE (CL. B)	96.0 L.F.
	(TERM - ANCH SECT (CL B)	4 EA.
	TEMP RAIL	50 L.F.

NOTE: BRIDGE DECK TO BE SEALED WITH ONE COURSE SURFACE TREATMENT

BRIDGE WIDENING LAYOUT
FOR
BRANCH OF CEDAR CREEK
STA. 44+00 TO STA. 44+50
2 - 25'-0" CONC. SLAB SPANS
(FS-B-24-25 Mod.)
H-15 LOADING

STATE
C 1406-1-9 FM 1271
11 ANGELINA 1406 1 9 16

Master Copy

SITE 7 - ANGELINA COUNTY
FM 1271 @ CEDAR CREEK
11-003-0-1406-01-001

003-1406-01-001

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 7)

Texas Department of Transportation®

SHEET 10 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		38

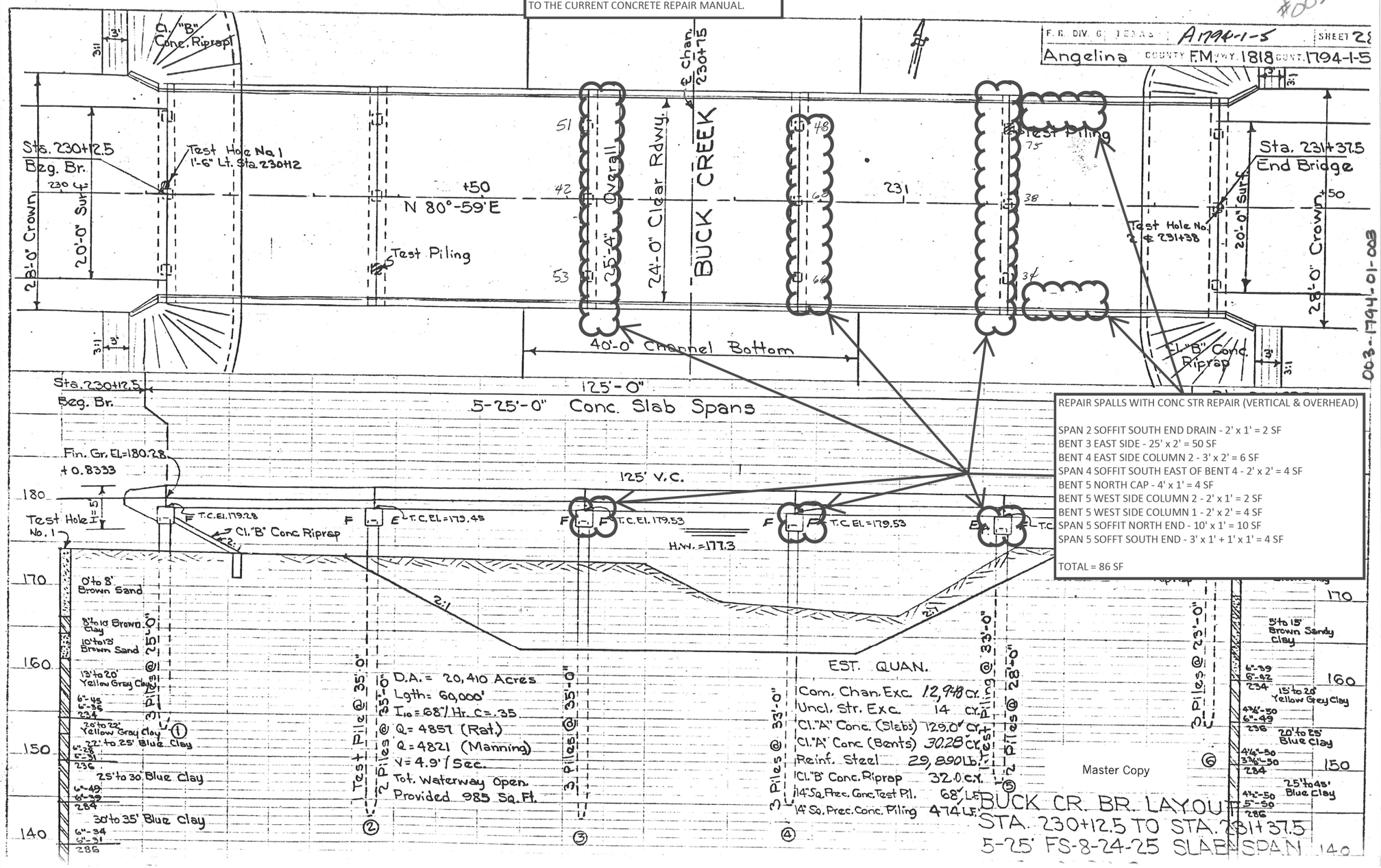
7/28/2022 3:21:25 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\VFY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Angelina Fes

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL.

#003

F.R. DIV. 6 TEXAS | A1794-1-5 | SHEET 28

Angelina COUNTY F.M. HWY. 1818 CONT. 1794-1-5



EST. QUAN.

Com. Chan. Exc.	12,948 cy.
Uncl. Str. Exc.	14 cy.
Cl. "A" Conc. (Slabs)	129.0 cy.
Cl. "A" Conc (Bents)	30.28 cy.
Reinf. Steel	29,890 lb.
Cl. "B" Conc. Riprap	32.0 c.y.
14" Sq. Prec. Conc. Test Pil.	68' L.F.
14" Sq. Prec. Conc. Piling	474 L.F.

REPAIR SPALLS WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

SPAN 2 SOFFIT SOUTH END DRAIN - 2' x 1' = 2 SF
BENT 3 EAST SIDE - 25' x 2' = 50 SF
BENT 4 EAST SIDE COLUMN 2 - 3' x 2' = 6 SF
SPAN 4 SOFFIT SOUTH EAST OF BENT 4 - 2' x 2' = 4 SF
BENT 5 NORTH CAP - 4' x 1' = 4 SF
BENT 5 WEST SIDE COLUMN 2 - 2' x 1' = 2 SF
BENT 5 WEST SIDE COLUMN 1 - 2' x 2' = 4 SF
SPAN 5 SOFFIT NORTH END - 10' x 1' = 10 SF
SPAN 5 SOFFT SOUTH END - 3' x 1' + 1' x 1' = 4 SF

TOTAL = 86 SF

Master Copy

BUCK CR. BR. LAYOUT
STA. 230+12.5 TO STA. 231+37.5
5-25' FS-8-24-25 SLAB SPAN

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 8)

Texas Department of Transportation®

SHEET 11 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		39

SITE 8 - ANGELINA COUNTY
FM 1818 @ BUCK CREEK
11-003-0-1794-01-003

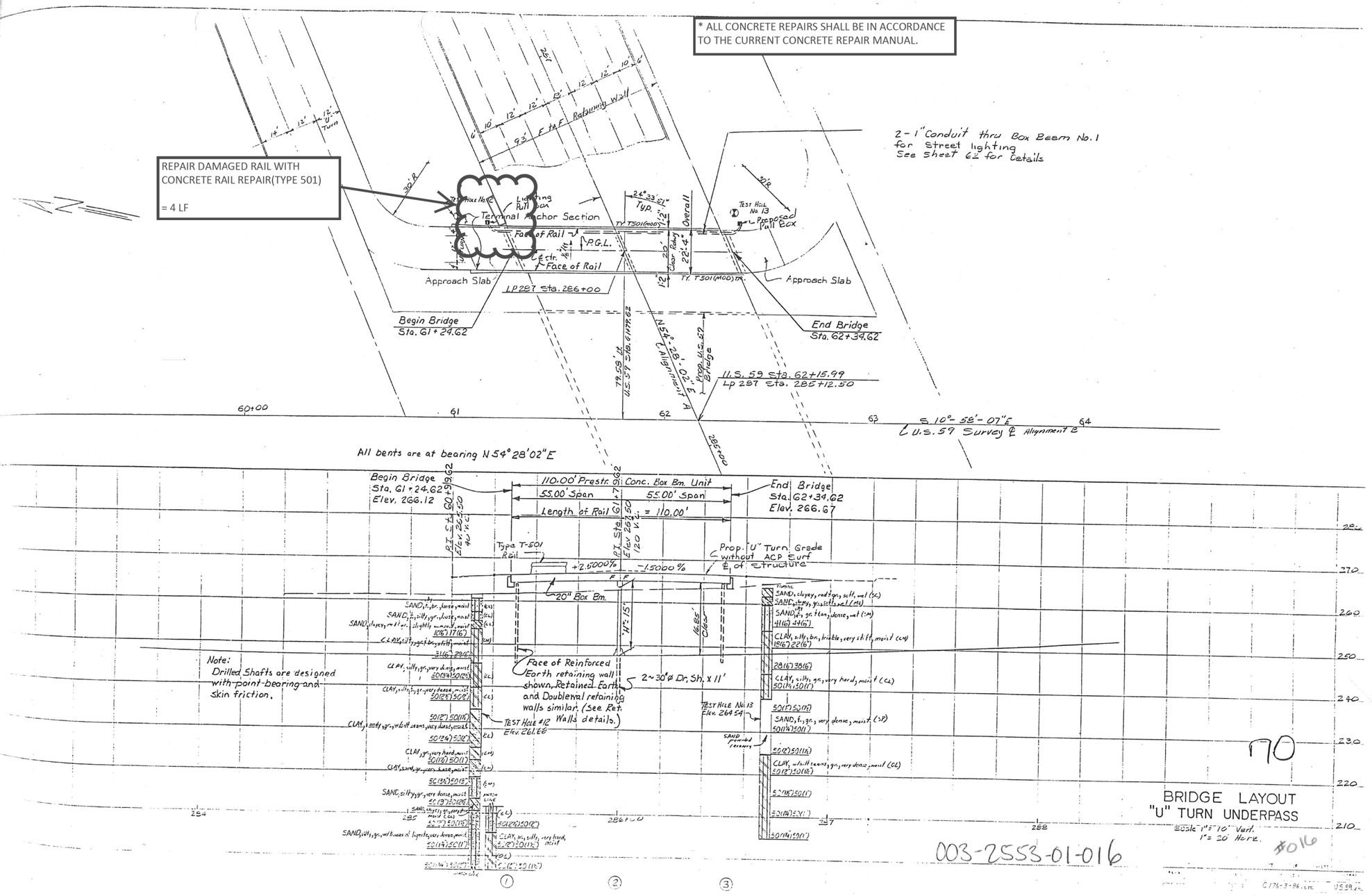
7/28/2022 3:21:34 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Angelina F

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL.

REPAIR DAMAGED RAIL WITH CONCRETE RAIL REPAIR(TYPE 501)

= 4 LF

2-1" Conduit thru Box Beam No.1 for Street lighting See Sheet 62 for details



003-2553-01-016

#016

SITE 9 - ANGELINA COUNTY
SL 287 FR U-TURN @ SL 287
11-003-0-2553-01-013

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

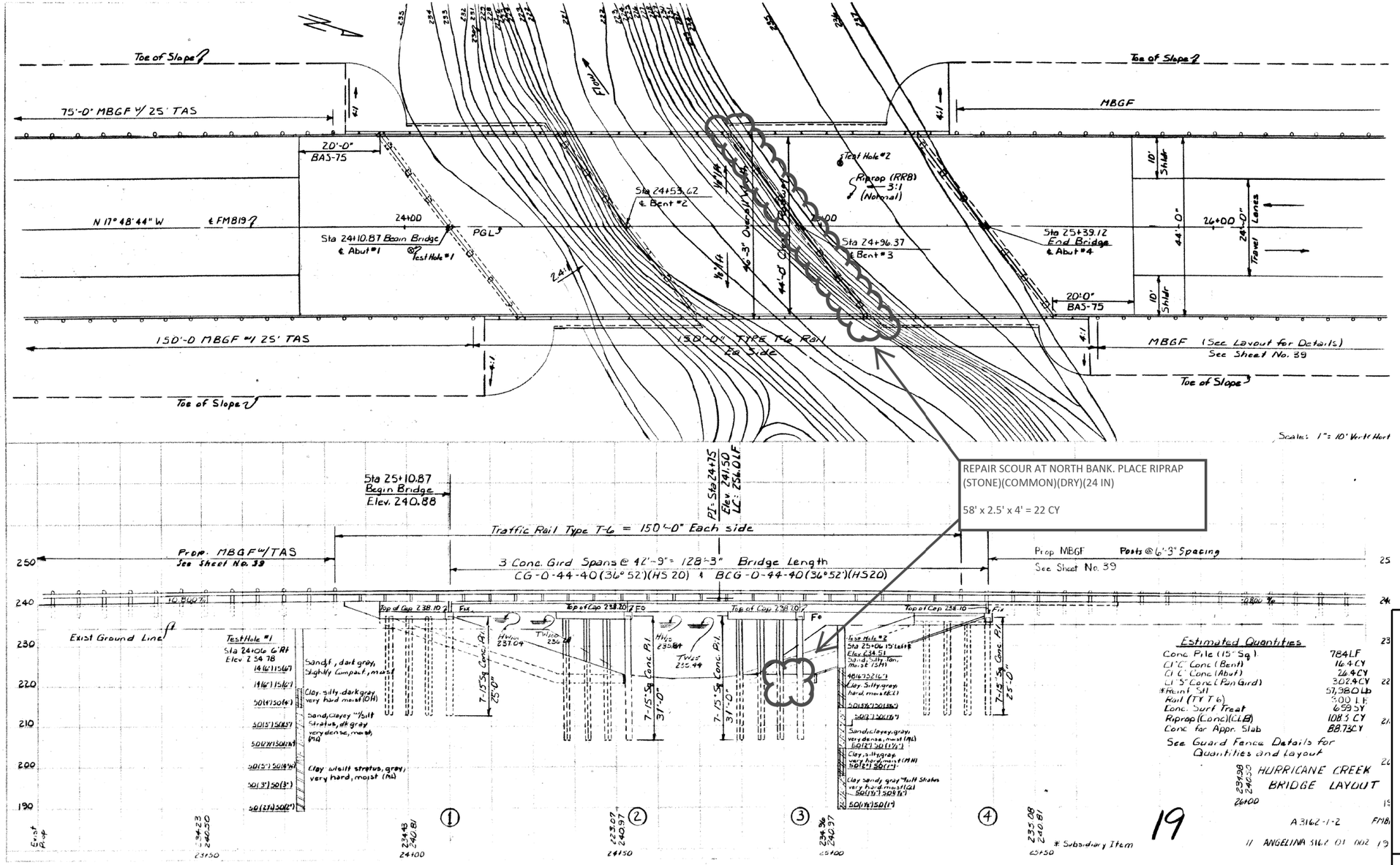
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 9)

Texas Department of Transportation®

SHEET 12 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		40



REPAIR SCOUR AT NORTH BANK. PLACE RIPRAP (STONE)(COMMON)(DRY)(24 IN)

58' x 2.5' x 4' = 22 CY

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 10)

SITE 10 - ANGELINA COUNTY
FM 819 @ HURRICAINE CREEK
11-003-0-3162-01-001

Texas Department of Transportation®

SHEET 13 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		41

REPAIR SCOUR WITH RIPRAP (STONE) (COMMON)(DRY)(24 IN)

SOUTHEAST CORNER
30' x 3' x 6' = 20 CY

REPAIR UNDERMINING WITH FLOWABLE BACKFILL

SOUTHEAST CORNER
3' x 1' x 2' = 1 CY

TEST HOLE NO. 1
65'Lt. Sta. 520+62

NOTE: Remove shaded portion of existing structure, exposing reinforcing. Where specified, existing reinforcing shall be bent into new construction.

BEGIN BRIDGE Sta. 521+38.00 Elev. 292.79'

END BRIDGE Sta. 522+80.50 Elev. 292.81'

@ Abut. No. 1

@ Abut. No. 6

SPAN No.1 SPAN No.2 SPAN No.3 SPAN No.4 SPAN No.5

Existing T.A.S.

Existing M.B.G.F.

Face of Rail

Breakback Line

Railing Type T202

Riprap (RR-6)*

Eastbound N87°26'W Westbound

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD.

All Bent line bearing N 2° 34' E

* Riprap (RR-6) to the limb existing Dry-Pack Riprap as directed by the Engineer.

160.5 L.F. Railing Type T202 Each Side = 321.0 L.F. Total

Proposed 5-28'-6" Prestressed Concrete Beam Spans Length = 142'-6" (Ty. A)

Existing 5-28'-6" Concrete Girder Spans Total Length = 142'-6"

Existing Rail to be removed

+0.14 %

	25 yr.	100 yr.
Design HW Elev.	284.05'	285.24'
Q (cfs)	2927	4644
Velocity (nat. chan)	1.14 fps	1.32 fps
Velocity (thru Struct)	3.72 fps	5.08 fps
Backwater Elev.	284.24'	285.47'

TEST HOLE NO. 1
Elev. 280.5

TOPSOIL, br.
CLAY, sandy, gr., v. stiff, moist. (CL)
SAND, clayey, gr., slightly cmpt, moist. (CL)
CLAY, dk. gr., hard, moist. (CL)
CLAY, silty, w/fly rock, gr., hd., moist (CH) Horizontal & Vertical
CLAY, gr., w/silt stratus, hd., moist. (CH)
CLAY, yr., w/silt stratus, hd., moist. (CH)

TEST HOLE NO. 2
Elev. 281.2

SAND, silty, dk. br., v. soft moist. (SM)
CLAY, sandy, br. & gr., v. soft, moist. (CL)
SAND, clayey, bc. & l. gr., moist. (SC)
CLAY, gr. & br., w/gravel, v. soft, moist.
SAND, tan, loose, moist.
CLAY, w/rock, gr., v. stiff, moist (CH)
CLAY, w/ yellowish gr. v. stiff, moist.
CLAY, w/rock, yr., v. stiff, moist. (CH)
CLAY, w/silt stratus, dk. gr., v. stiff, moist. (CH)

4-#15 "a Conc. Piles x 31'
2-#15 "a Conc. Piles x 31'
4-#15 "a Conc. Piles x 35'

Scale 1"=10'

NOTE: All existing piling are 15" square precast concrete piling. All new piling are to be 16" square precast piling.

LITTLE LOCO BAYOU RELIEF BRIDGE LAYOUT

PREPARED BY AND FOR USE OF TEXAS DOT

ORIGINAL DRAWING DATE: 11-20-09	STATE DISTRICT	FEDERAL AID NO.	PROJECT	SHEET
SHEET 1 OF 1 SHEETS	11	6	STP 92(6)R	2.2
REVISIONS	COUNTY	CONTROL	SECT.	JOB
	Nacogdoches	0118	06	049

SITE 11 - NACOGDOCHES COUNTY
SH 21 @ LITTLE LOCO CREEK RELIEF
11-174-0-0118-06-019

BRIDGE LAYOUTS
(SITE 11)

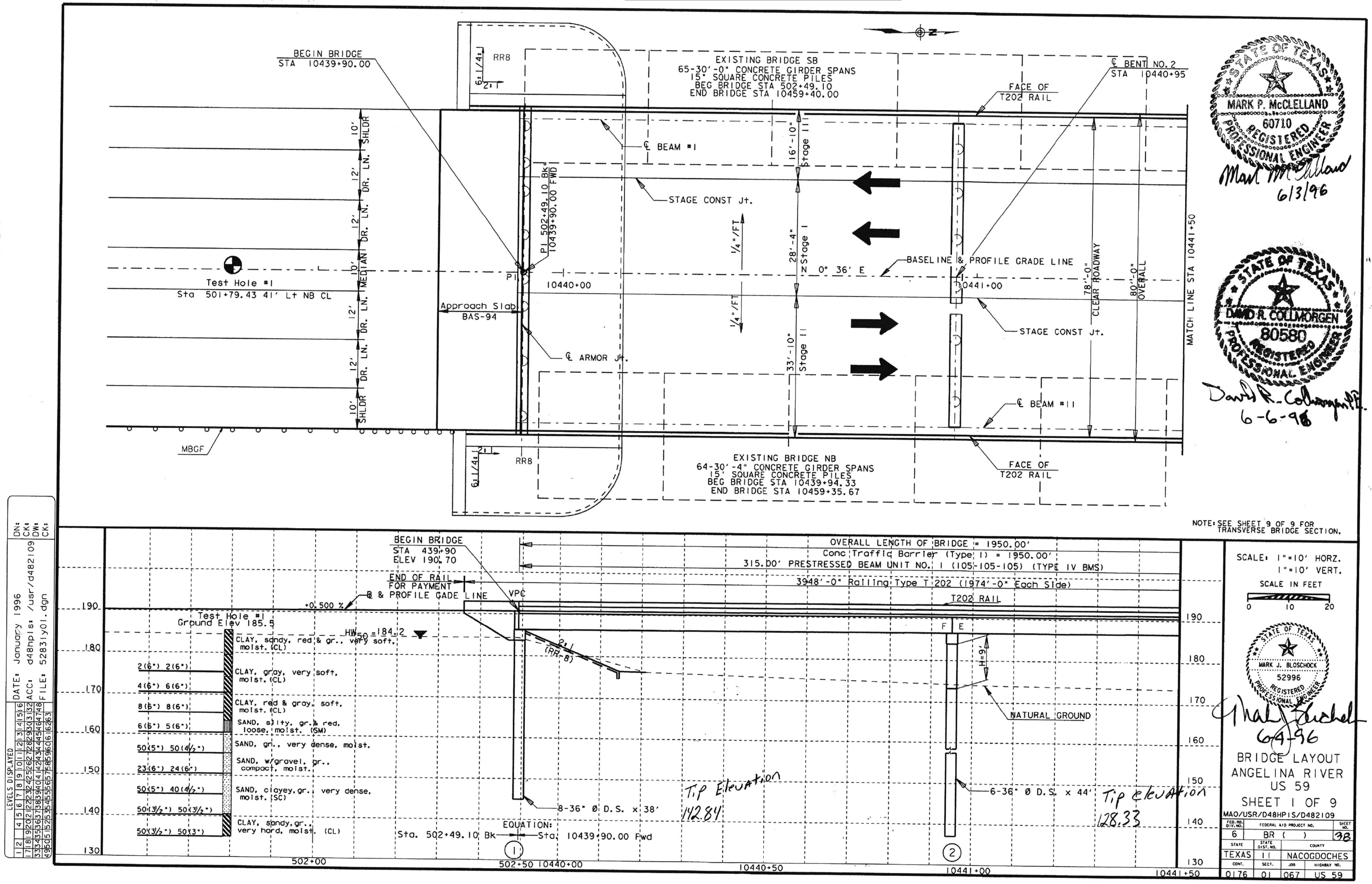
STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

SHEET 14 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		42

NO WORK PROPOSED ON THIS SHEET



SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by: Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 12)

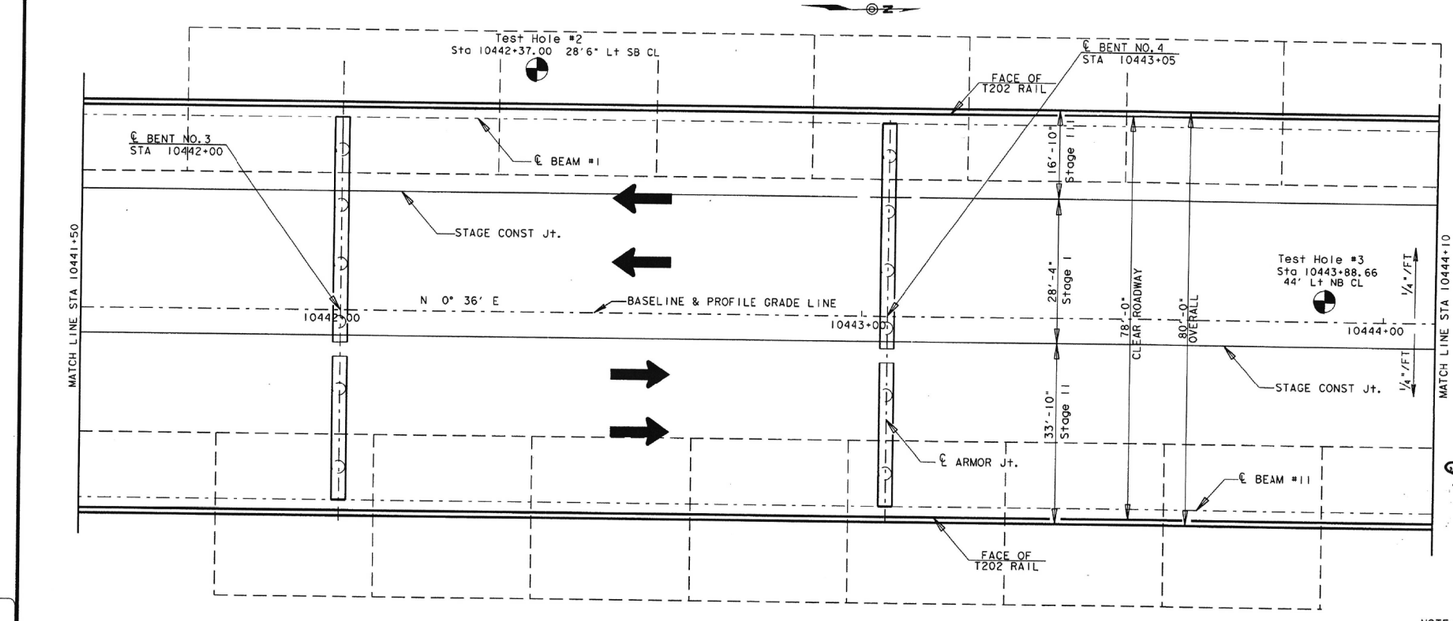
Texas Department of Transportation®

SHEET 15 OF 33

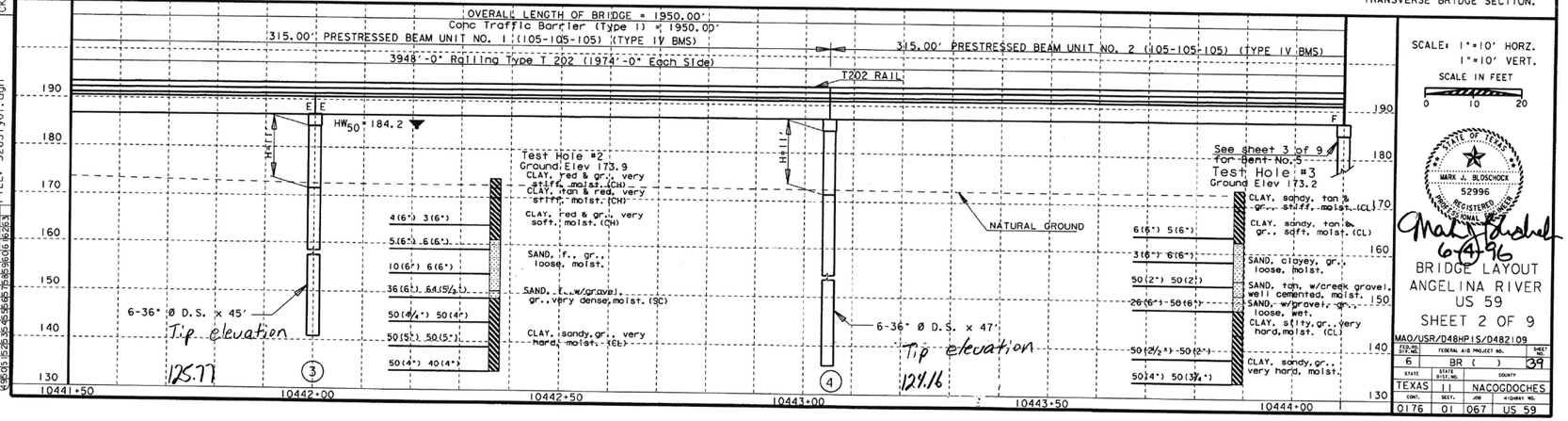
CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.

DIST	COUNTY	SHEET NO.
LFK	ANGELINA, ETC.	43

NO WORK PROPOSED ON THIS SHEET



NOTE: SEE SHEET 9 OF 9 FOR TRANSVERSE BRIDGE SECTION.



SCALE: 1"=10' HORZ.
1"=10' VERT.
SCALE IN FEET
0 10 20

BRIDGE LAYOUT
ANGELINA RIVER
US 59
SHEET 2 OF 9

MAO/USR/D48HPIS/D482109

STA. DIST. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	BR ( )		39
STATE	STATE DIST. NO.	COUNTY	
TEXAS	11	NACOGDOCHES	
CONT.	SECT.	JOB	HIGHWAY NO.
0176	01	067	US 59

STATE OF TEXAS
MARK P. McCLELLAND
60710
REGISTERED PROFESSIONAL ENGINEER
6/3/96

STATE OF TEXAS
DAVID R. COLLMORGEN
80580
REGISTERED PROFESSIONAL ENGINEER
6-6-96

STATE OF TEXAS
MARK J. BLOSCHOCK
52996
REGISTERED PROFESSIONAL ENGINEER
6-4-96

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 12)

SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

Texas Department of Transportation®
SHEET 16 OF 33

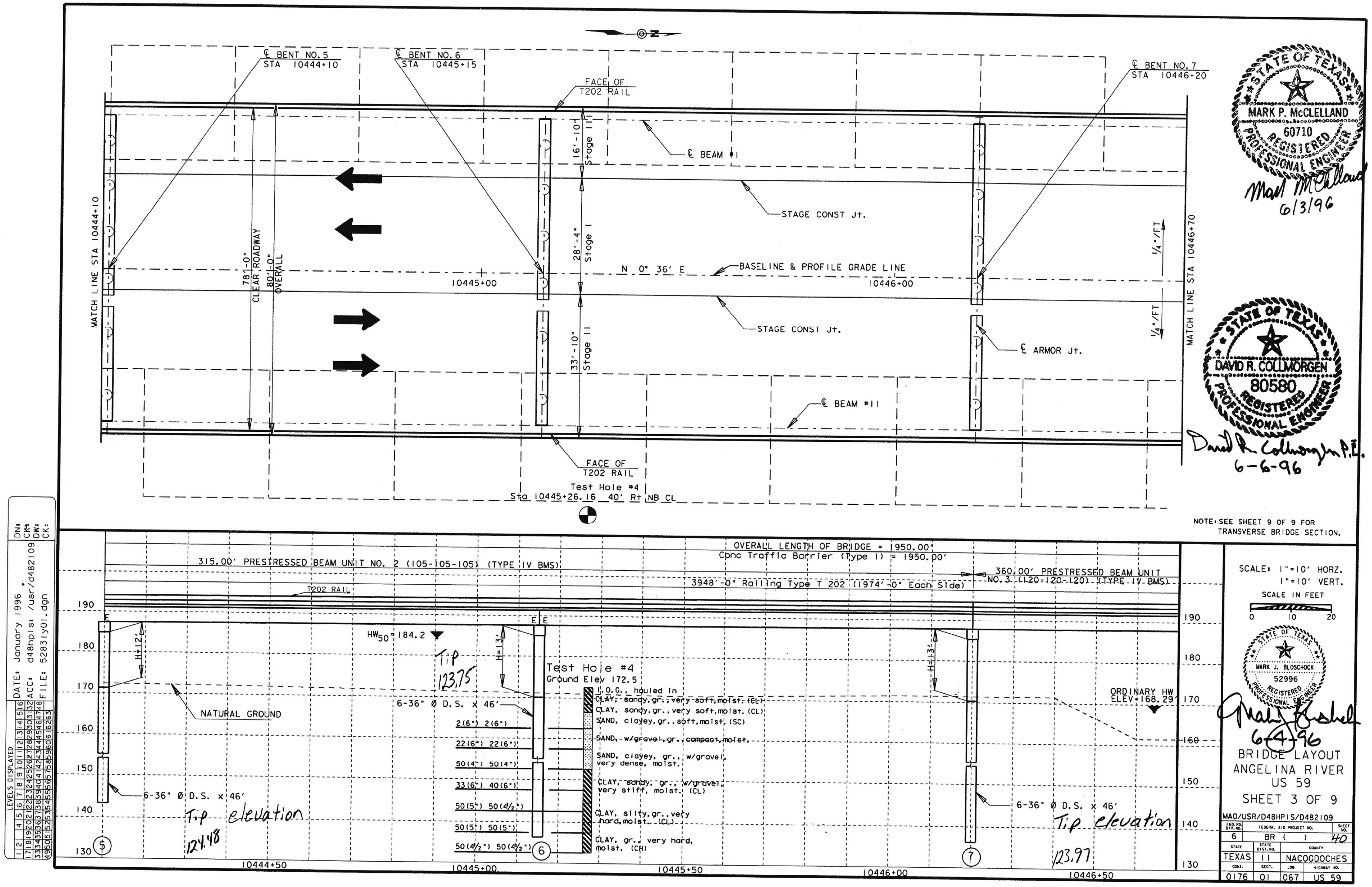
CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		44

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

DN: CK: DW: CK:
DATE: January 1996
ACC: d48hpiis /usr/d482109
FILE: 52831y01.dgn

7/28/2022 3:22:14 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Nacogdoche Fi

NO WORK PROPOSED ON THIS SHEET


℄ BENT NO.5 STA 10444+10
℄ BENT NO.6 STA 10445+15
℄ BENT NO.7 STA 10446+20
FACE OF T202 RAIL
℄ BEAM #1
STAGE CONST Jt.
BASELINE & PROFILE GRADE LINE
N 0° 36' E
10445+00
10446+00
℄ ARMOR Jt.
℄ BEAM #11
MATCH LINE STA 10444+10
MATCH LINE STA 10446+70
78'-0" CLEAR ROADWAY
80'-0" OVERALL
16'-10" Stage II
28'-4" Stage I
33'-10" Stage II
1/4"/FT
Test Hole #4
Sta 10445+26.16 40' Rt NB CL
NOTE: SEE SHEET 9 OF 9 FOR TRANSVERSE BRIDGE SECTION.
MARK P. McCLELLAND 60710 REGISTERED PROFESSIONAL ENGINEER
6/3/96
DAVID R. COLLMORGEN 80580 REGISTERED PROFESSIONAL ENGINEER
6-6-96
OVERALL LENGTH OF BRIDGE = 1950.00'
Conc Traffic Barrier (Type 1) = 1950.00'
315.00' PRESTRESSED BEAM UNIT NO. 2 (105-105-105) (TYPE IV BMS)
360.00' PRESTRESSED BEAM UNIT NO. 3 (120-120-120) (TYPE IV BMS)
3948'-0" Railing Type T 202 (1974'-0" Each Side)
T202 RAIL
HW50 184.2
Tip 123.75
Test Hole #4
Ground Elev 172.5
NATURAL GROUND
6-36" Ø D.S. x 46'
Tip elevation 124.48
Tip elevation 123.97
ORDINARY HW ELEV. 168.29
10444+50
10445+00
10445+50
10446+00
10446+50
SCALE: 1"=10' HORZ. 1"=10' VERT.
SCALE IN FEET
MARK J. BLOSCHOCK 52996
6-4-96
BRIDGE LAYOUT
ANGELINA RIVER
US 59
SHEET 3 OF 9
MAO/USR/D48HPIS/D482109
TEXAS
NACOGDOCHES
0176 01 067 US 59

SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

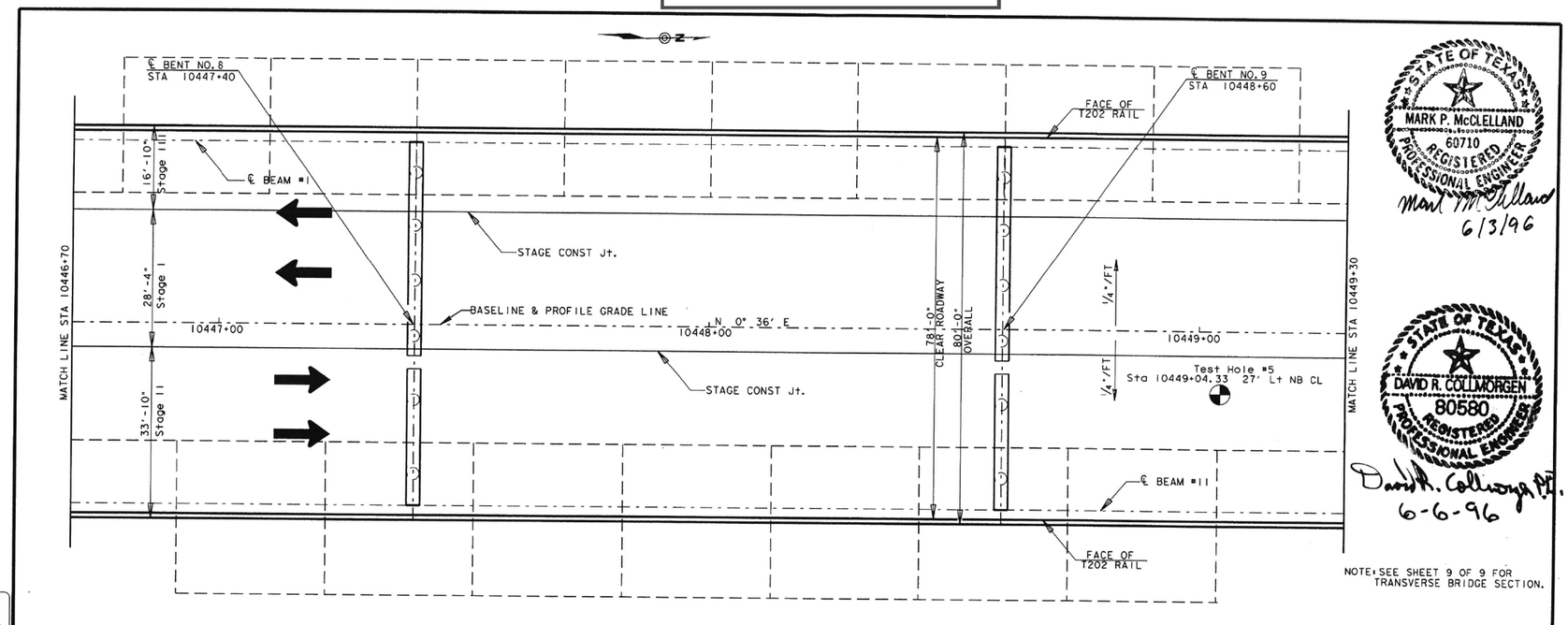
BRIDGE LAYOUTS
(SITE 12)

SHEET 17 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.

DIST	COUNTY	SHEET NO.
LFK	ANGELINA, ETC.	45

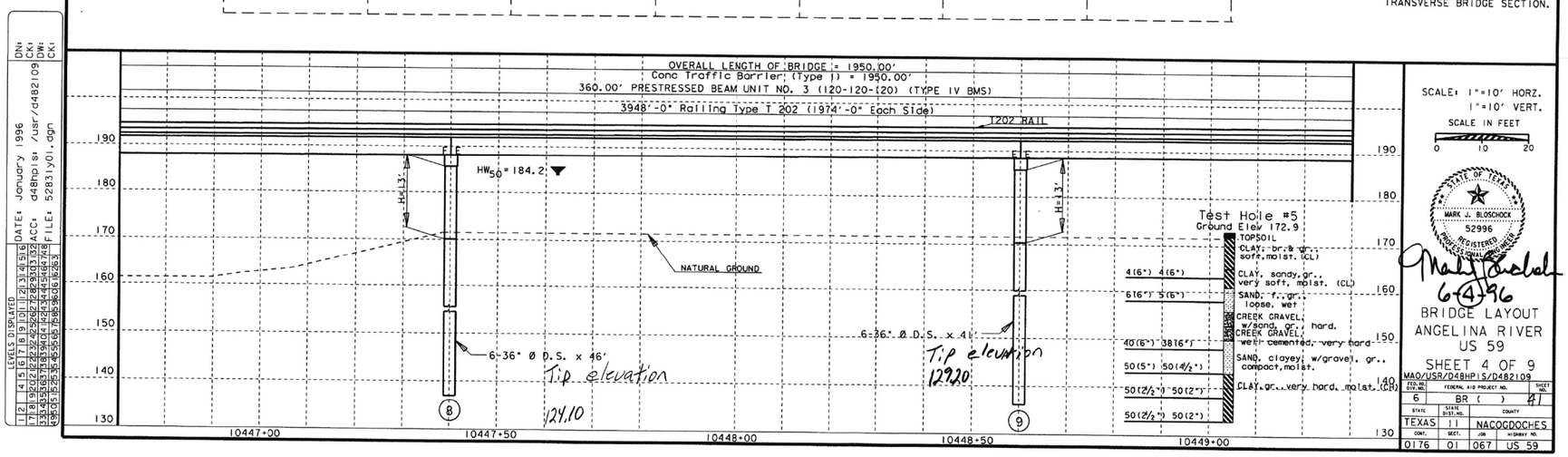
NO WORK PROPOSED ON THIS SHEET



NOTE: SEE SHEET 9 OF 9 FOR TRANSVERSE BRIDGE SECTION.

STATE OF TEXAS
MARK P. McCLELLAND
60710
REGISTERED
PROFESSIONAL ENGINEER
6/3/96

STATE OF TEXAS
DAVID R. COLLMORGEN
80580
REGISTERED
PROFESSIONAL ENGINEER
6-6-96



SCALE: 1"=10' HORZ.
1"=10' VERT.
SCALE IN FEET
0 10 20

STATE OF TEXAS
MARK J. BLOSCHOCK
52996
REGISTERED
PROFESSIONAL ENGINEER
6-4-96

BRIDGE LAYOUT
ANGELINA RIVER
US 59
SHEET 4 OF 9
MAO/USR/D48HPIS/D482109

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
6	BR ( )	41

STATE	STATE DIST. NO.	COUNTY
TEXAS	11	NACOGDOCHES

CONT.	SECT.	JOB	HIGHWAY NO.
0176	01	067	US 59

LEVELS DISPLAYED
1 2 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DATE: January 1996
ACC: d48hpis: /usr/d482109
FILE: 5283lyOl.dgn
DN:
CK:
DW:
CK:

JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 12)

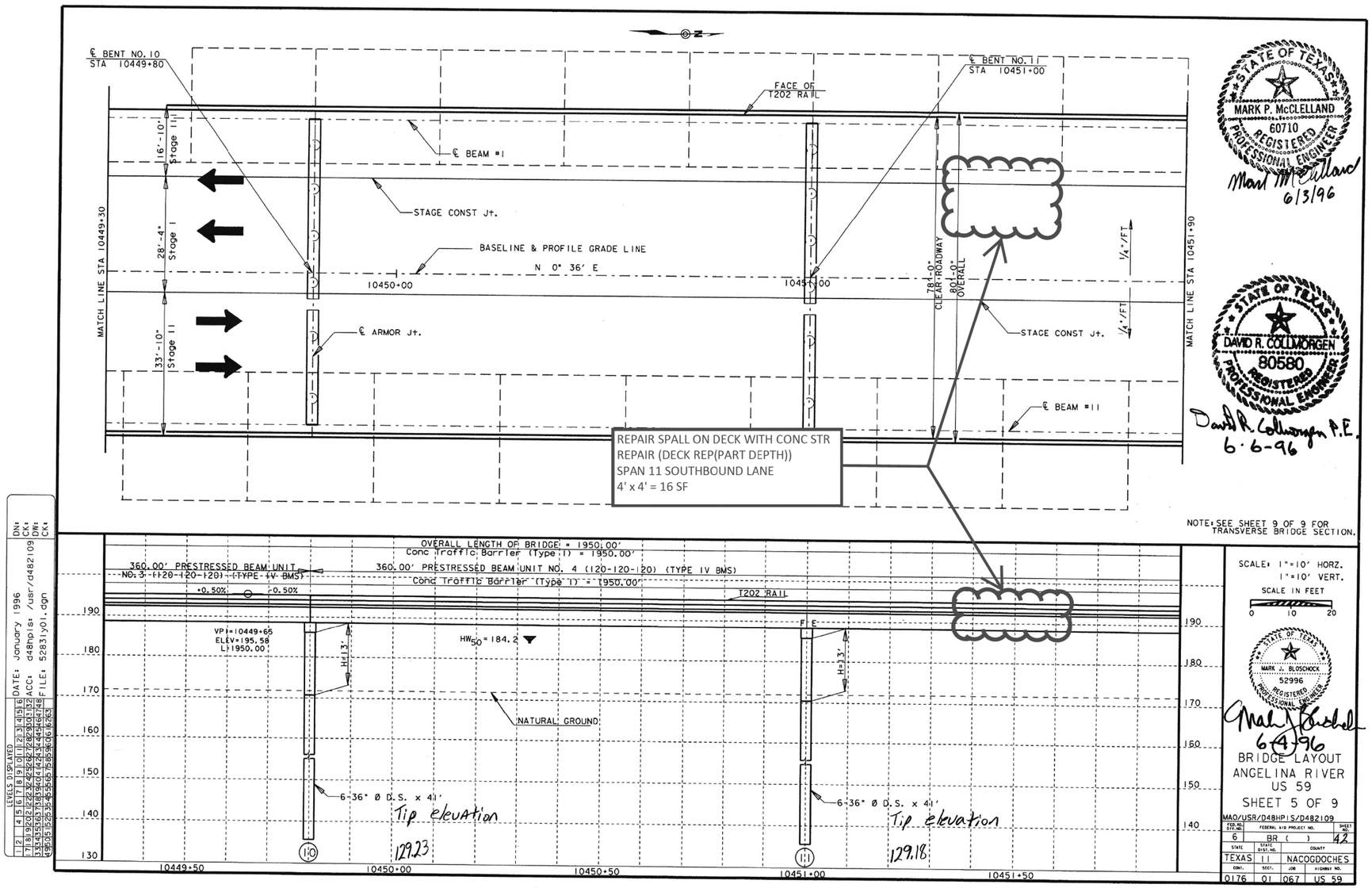
SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

Texas Department of Transportation®

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		46

7/28/2022 3:22:29 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Nacogdoche Fi

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL.



DN: CK: DW: CK:
DATE: January 1996
ACC: d48hpis1 /usr/d482109
FILE: 5283ly01.dgn
LEVELS DISPLAYED
1 2 4 5 7 8 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

SCALE: 1"=10' HORZ.
1"=10' VERT.
SCALE IN FEET
0 10 20

STATE OF TEXAS
MARK J. BLOSCHOCK
52996
REGISTERED PROFESSIONAL ENGINEER
6/4/96

BRIDGE LAYOUT
ANGELINA RIVER
US 59
SHEET 5 OF 9

MAO/USR/D48HPIS/D482109

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	BR ( )		42
STATE	STATE DIST. NO.	COUNTY	
TEXAS	11	NACOGDOCHES	
CONT.	SECT.	JOB	HIGHWAY NO.
0176	01	067	US 59

STATE OF TEXAS
MARK P. McCLELLAND
60710
REGISTERED PROFESSIONAL ENGINEER
6/3/96

STATE OF TEXAS
DAVID R. COLLMORGEN
80580
REGISTERED PROFESSIONAL ENGINEER
6-6-96

EXPECTED RETURN TO SERVICE IS 8 HOURS. USE A PREAPPROVED TYPE A RAPID REPAIR MATERIAL MEETING THE REQUIREMENTS OF DMS 4655 CONCRETE REPAIR MATERIALS. REPAIRS AT THIS LOCATION ARE TO BE COMPLETED AT NIGHT. NIGHT WORK WILL NOT BEGIN PRIOR TO 7:00 PM AND AFFECTED LANE SHALL BE REOPENED BY 7:00 AM.

ALL DECK REPAIRS SHALL BE SAWED RECTANGULAR OR SQUARE.

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 12)

SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

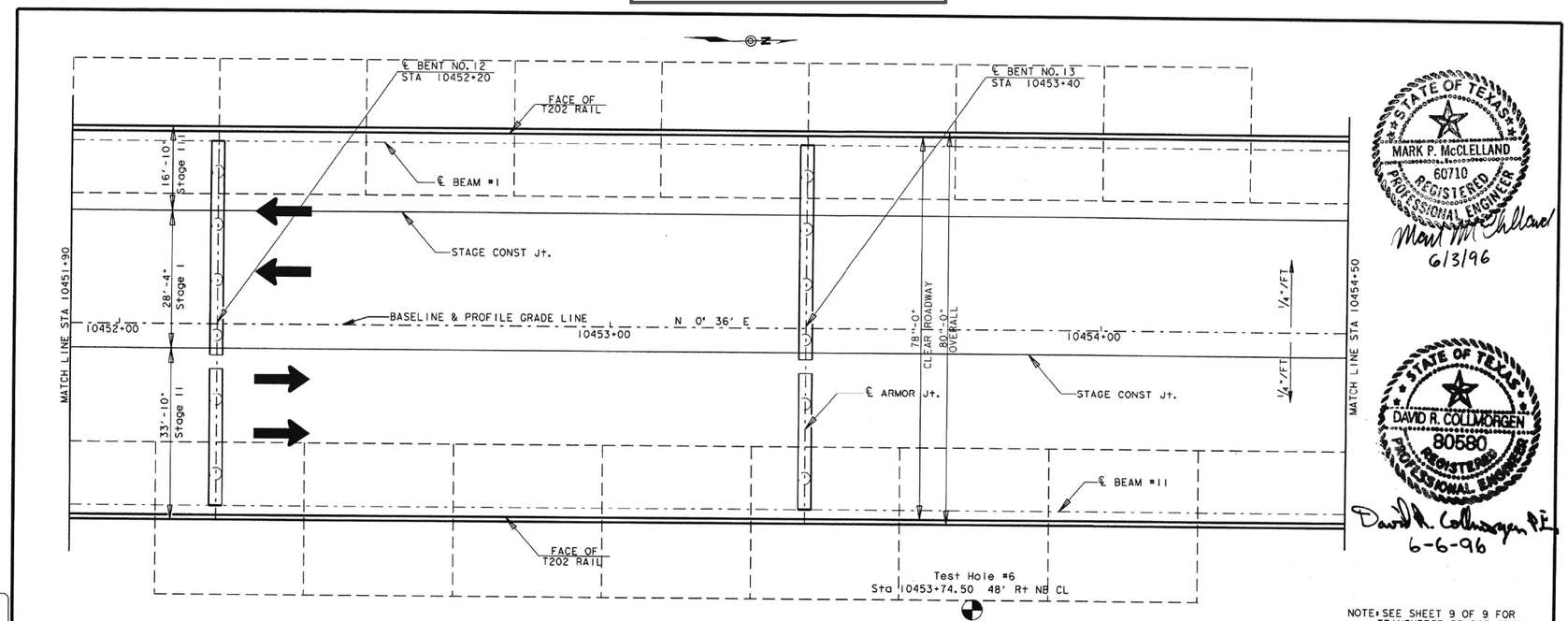
Texas Department of Transportation®

SHEET 19 OF 33

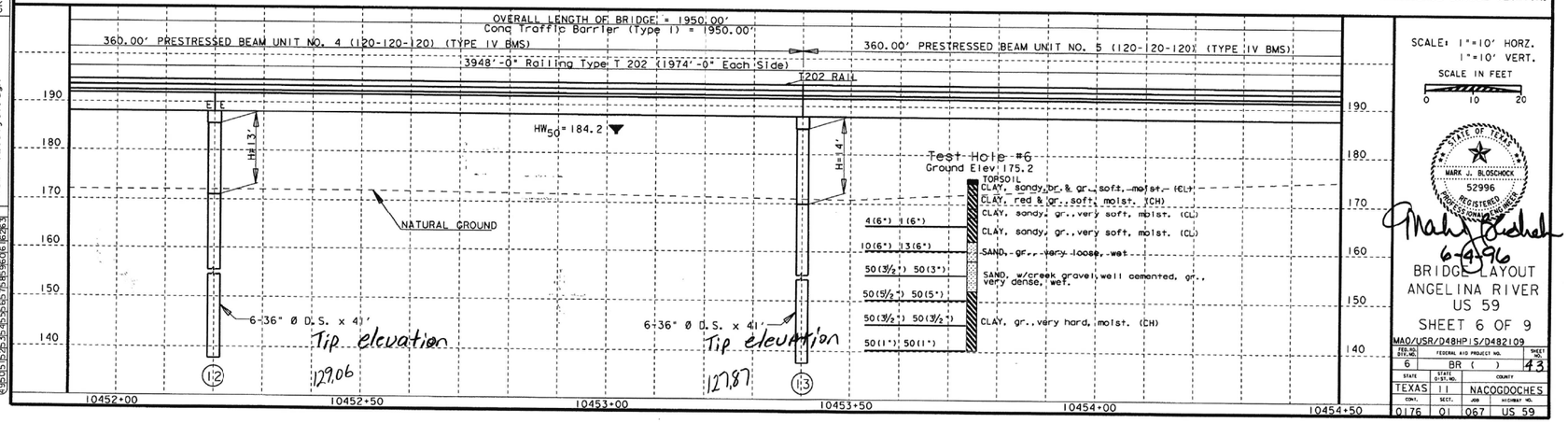
CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		47

7/29/2022 11:20:53 AM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Nacogdoches Files

NO WORK PROPOSED ON THIS SHEET



NOTE: SEE SHEET 9 OF 9 FOR TRANSVERSE BRIDGE SECTION.



SCALE: 1"=10' HORZ.
1"=10' VERT.
SCALE IN FEET
0 10 20

STATE OF TEXAS
MARK P. McCLELLAND
60710
REGISTERED
PROFESSIONAL ENGINEER
6/3/96

STATE OF TEXAS
DAVID R. COLLMORGEN
80580
REGISTERED
PROFESSIONAL ENGINEER
6-6-96

STATE OF TEXAS
MARK J. BLOSCHOCK
52996
REGISTERED
PROFESSIONAL ENGINEER
6-4-96

BRIDGE LAYOUT
ANGELINA RIVER
US 59
SHEET 6 OF 9

MAO/USR/D48HPIS/D482109

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	BR ( )		43
STATE	STATE DIST. NO.	COUNTY	
TEXAS	11	NACOGDOCHES	
CONT.	SECT.	JOB	HIGHWAY NO.
0176	01	067	US 59

DN:
CK:
DW:
CK:
DATE: January 1996
FILE: 52831y01.dgn
ACC: d48hpis: /usr/d482109

LEVELS DISPLAYED
1 2 | 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS (SITE 12)

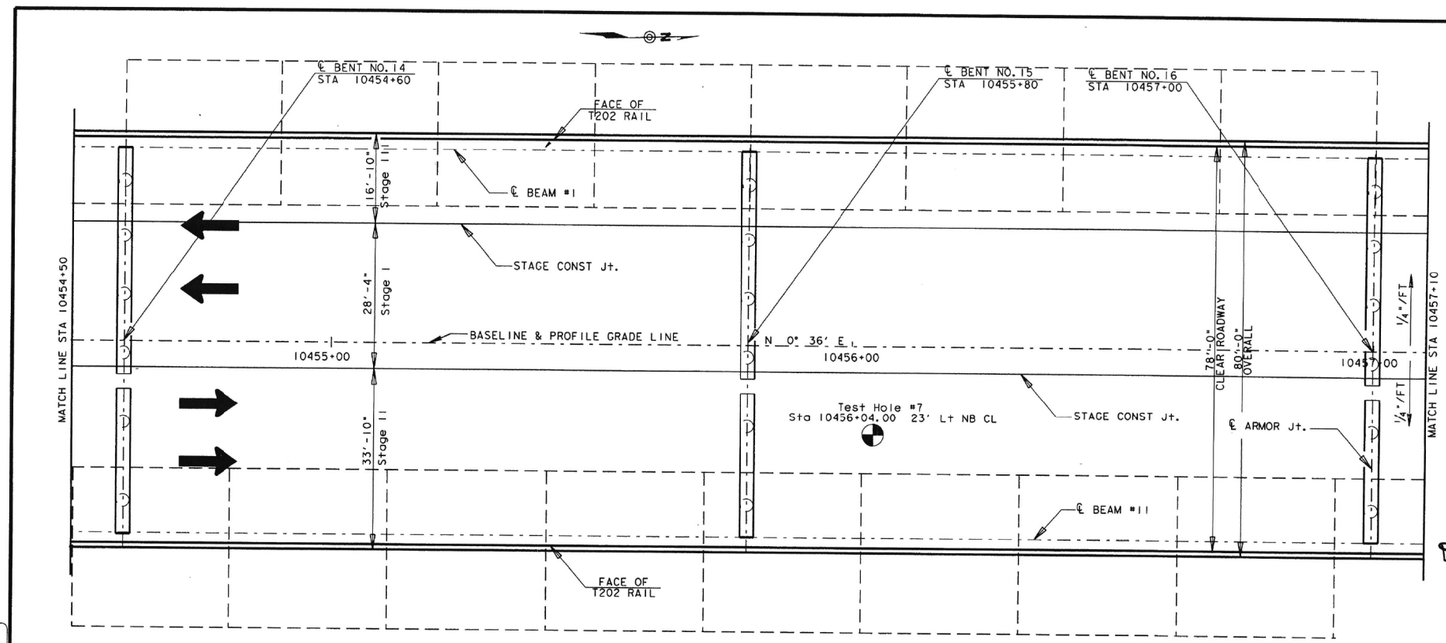
SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

Texas Department of Transportation®

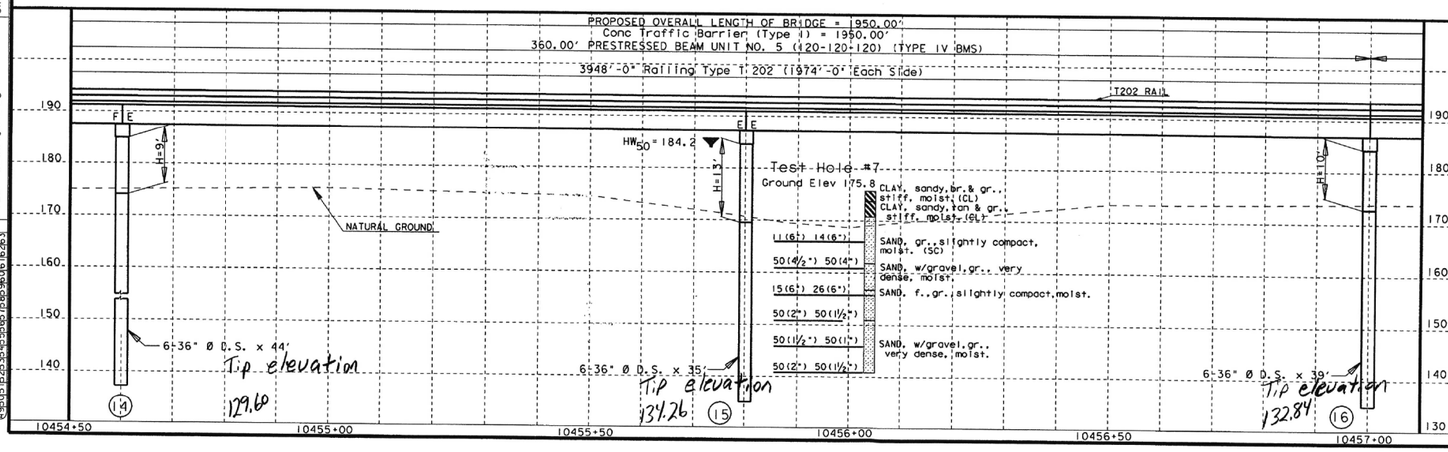
CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		48

7/28/2022 3:22:45 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Nacogdoche Fi

NO WORK PROPOSED ON THIS SHEET



NOTE: SEE SHEET 9 OF 9 FOR TRANSVERSE BRIDGE SECTION.



SCALE: 1"=10' HORZ.
1"=10' VERT.
SCALE IN FEET
0 10 20

BRIDGE LAYOUT
ANGELINA RIVER
US 59
SHEET 7 OF 9
MAO/USR/D48HPIS/D482109

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	BR ( )		44
STATE	STATE DIST. NO.	COUNTY	
TEXAS	11	NACOGDOCHES	
CONT.	SECT.	JOB	HIGHWAY NO.
0176	01	067	US 59

STATE OF TEXAS
MARK P. McCLELLAND
60710
REGISTERED PROFESSIONAL ENGINEER
6/3/96

STATE OF TEXAS
DAVID R. COLLMORGEN
80580
REGISTERED PROFESSIONAL ENGINEER
6-6-96

STATE OF TEXAS
MARK J. BLOSCHOCK
52996
REGISTERED PROFESSIONAL ENGINEER
6-4-96

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

LEVELS DISPLAYED

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DW:																
CH:																
DW:																
CK:																

DATE: January 1996
ACC: d48hpis: /usr/d482109
FILE: 5283lyOl.dgn

BRIDGE LAYOUTS
(SITE 12)

SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

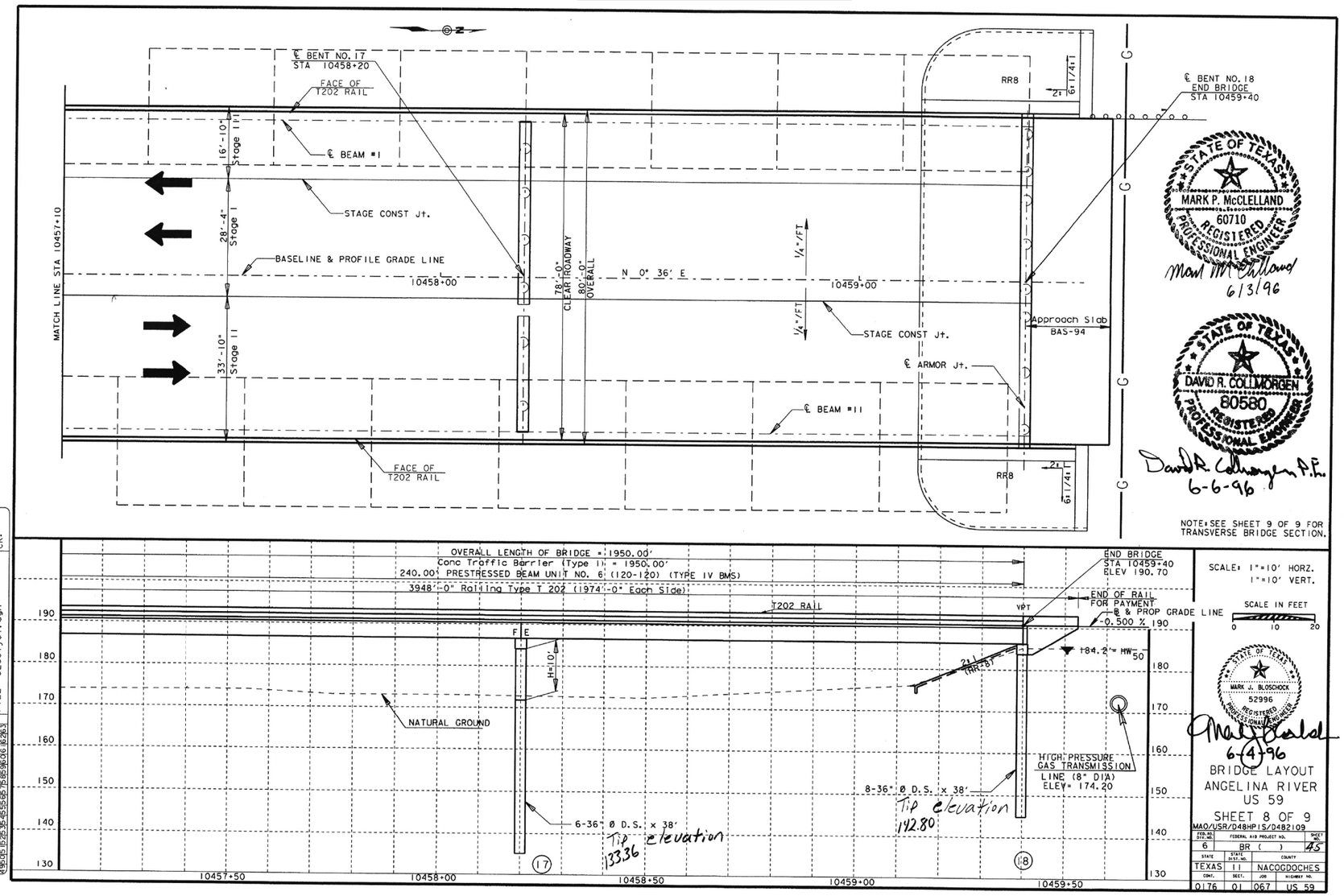
Texas Department of Transportation®

SHEET 21 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		49

7/28/2022 3:22:53 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Nacogdoche Fi

NO WORK PROPOSED ON THIS SHEET



SCALE: 1"=10' HORZ.
1"=10' VERT.

SCALE IN FEET
0 10 20

STATE OF TEXAS
MARK P. McCLELLAND
60710
REGISTERED PROFESSIONAL ENGINEER
6/3/96

STATE OF TEXAS
DAVID R. COLLMORGEN
80580
REGISTERED PROFESSIONAL ENGINEER
6-6-96

STATE OF TEXAS
MARK J. BLOSCHOCK
52996
REGISTERED PROFESSIONAL ENGINEER
6-4-96

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUT
ANGELINA RIVER
US 59
SHEET 8 OF 9
MAO/USR/D48HPIS/D48Z109

FED. RD. DIST. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	BR ( )		45
STATE	STATE DIST. NO.	COUNTY	
TEXAS	11	NACOGDOCHES	
CONT.	SECT.	JOB	HIGHWAY NO.
0176	01	067	US 59

SITE 12 NACOGDOCHES COUNTY
US 59 @ ANGELINA RIVER
11-174-0-0176-01-094

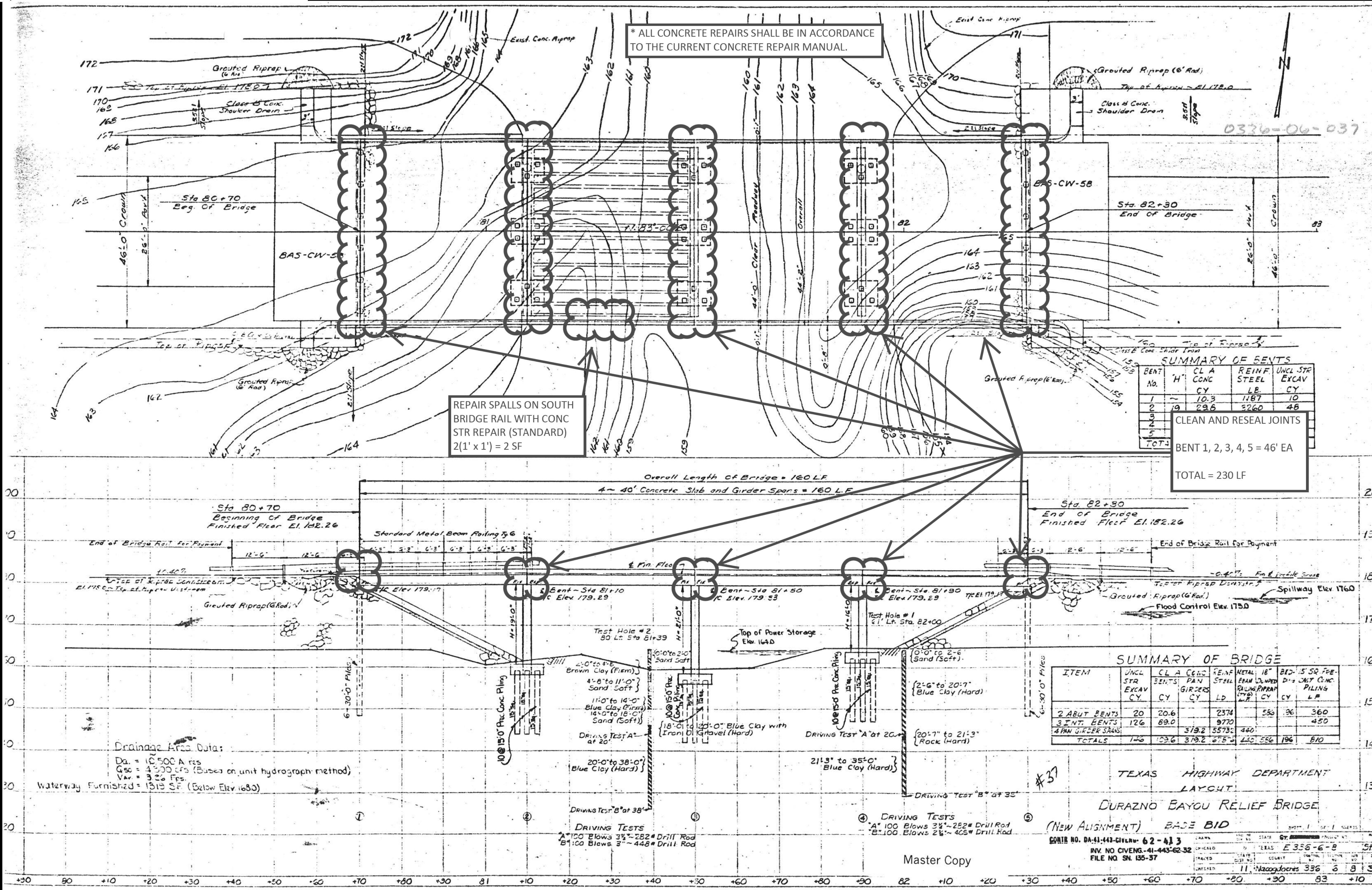
BRIDGE LAYOUTS
(SITE 12)

Texas Department of Transportation®
SHEET 22 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		50

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DN:
CK:
DW:
CK:
DATE: January 1996
ACC: d48hpis: /usr/d482109
FILE: 5283iy01.dgn



STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 13)

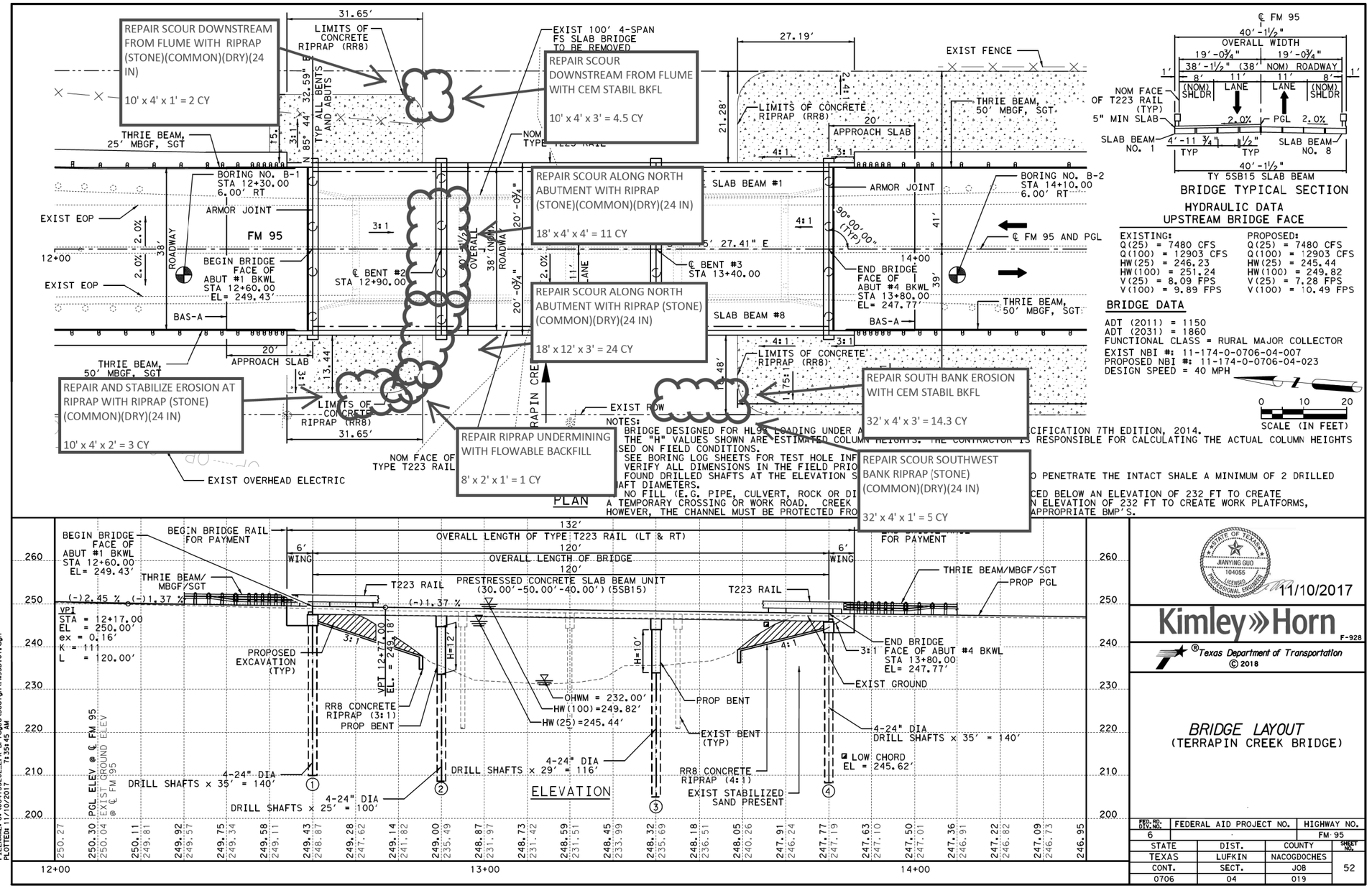
SITE 13 - NACOGDOCHES COUNTY
SH 103 @ DURAZNO BAYOU RELIEF
11-174-0-0336-06-037

Texas Department of Transportation®

SHEET 23 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		51

7/28/2022 3:23:09 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspetions\Nacogdoche



REPAIR SCOUR DOWNSTREAM FROM FLUME WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

10' x 4' x 1' = 2 CY

REPAIR SCOUR DOWNSTREAM FROM FLUME WITH CEM STABIL BKFL

10' x 4' x 3' = 4.5 CY

REPAIR SCOUR ALONG NORTH ABUTMENT WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

18' x 4' x 4' = 11 CY

REPAIR SCOUR ALONG NORTH ABUTMENT WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

18' x 12' x 3' = 24 CY

REPAIR AND STABILIZE EROSION AT RIPRAP WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

10' x 4' x 2' = 3 CY

REPAIR RIPRAP UNDERMINING WITH FLOWABLE BACKFILL

8' x 2' x 1' = 1 CY

REPAIR SOUTH BANK EROSION WITH CEM STABIL BKFL

32' x 4' x 3' = 14.3 CY

REPAIR SCOUR SOUTHWEST BANK RIPRAP (STONE)(COMMON)(DRY)(24 IN)

32' x 4' x 1' = 5 CY

HYDRAULIC DATA
UPSTREAM BRIDGE FACE

EXISTING:	PROPOSED:
Q(25) = 7480 CFS	Q(25) = 7480 CFS
Q(100) = 12903 CFS	Q(100) = 12903 CFS
HW(25) = 246.23	HW(25) = 245.44
HW(100) = 251.24	HW(100) = 249.82
V(25) = 8.09 FPS	V(25) = 7.28 FPS
V(100) = 9.89 FPS	V(100) = 10.49 FPS

BRIDGE DATA

ADT (2011) = 1150
ADT (2031) = 1860
FUNCTIONAL CLASS = RURAL MAJOR COLLECTOR
EXIST NBI #: 11-174-0-0706-04-007
PROPOSED NBI #: 11-174-0-0706-04-023
DESIGN SPEED = 40 MPH

NOTES:
BRIDGE DESIGNED FOR HL93 LOADING UNDER A … CIFICATION 7TH EDITION, 2014.
THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS … SED ON FIELD CONDITIONS.
SEE BORING LOG SHEETS FOR TEST HOLE INF…
VERIFY ALL DIMENSIONS IN THE FIELD PRIO…
FOUND DRILLED SHAFTS AT THE ELEVATION S… O PENETRATE THE INTACT SHALE A MINIMUM OF 2 DRILLED …AFT DIAMETERS.
NO FILL (E.G. PIPE, CULVERT, ROCK OR DI… CED BELOW AN ELEVATION OF 232 FT TO CREATE A TEMPORARY CROSSING OR WORK ROAD. CREEK … N ELEVATION OF 232 FT TO CREATE WORK PLATFORMS, HOWEVER, THE CHANNEL MUST BE PROTECTED FRO… APPROPRIATE BMP'S.

JIANYING GUO
104055
11/10/2017

Kimley»Horn F-928
®Texas Department of Transportation © 2018

BRIDGE LAYOUT
(TERRAPIN CREEK BRIDGE)

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
6		FM 95	
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	LUFKIN	NACOGDOCHES	52
CONT.	SECT.	JOB	
0706	04	019	

JEREMY KING
102170

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
SITE (14)

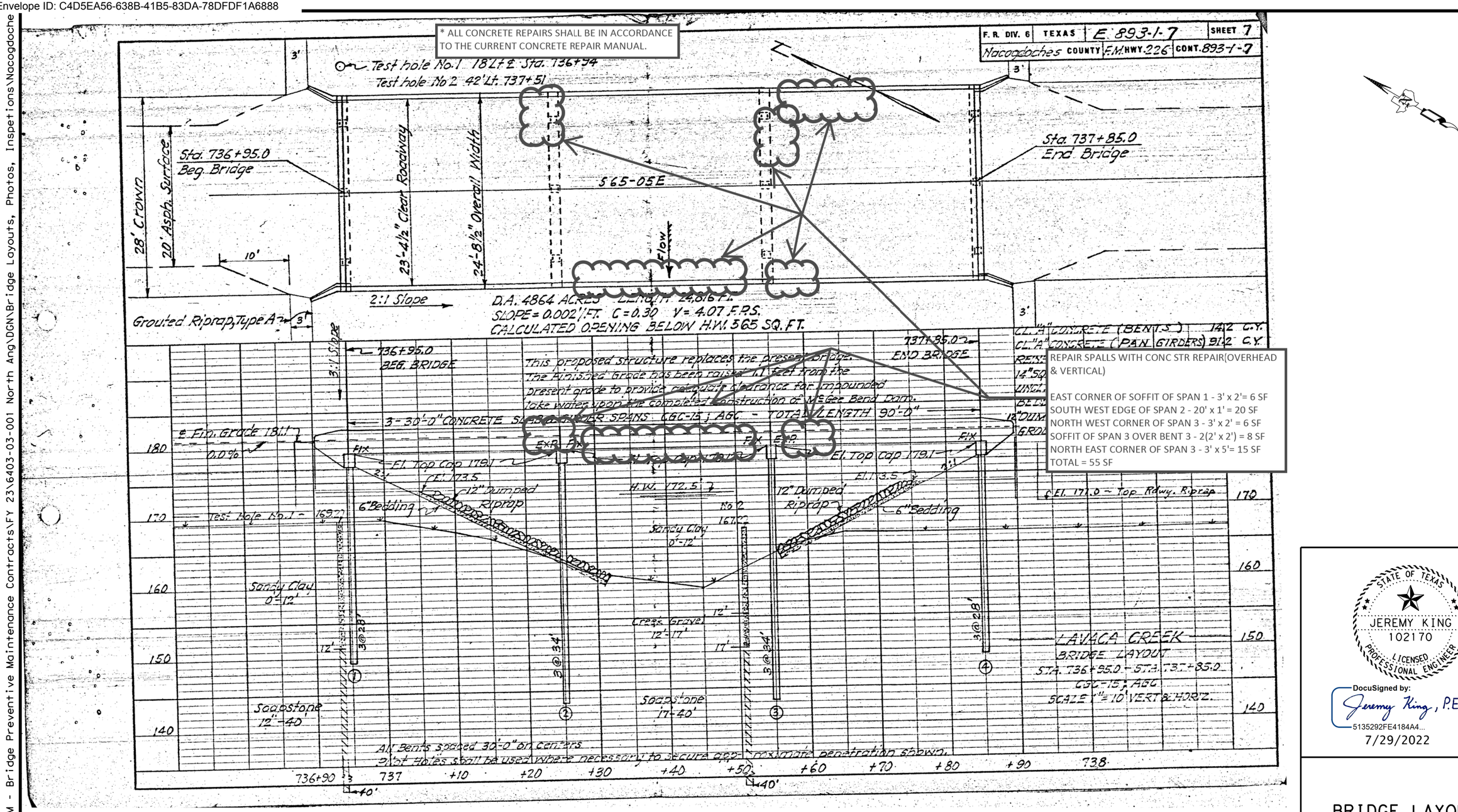
SITE 14 - NACOGDOCHES COUNTY
FM 95 @ TERRAPIN CREEK
11-174-0-0706-04-023

Texas Department of Transportation®
SHEET 24 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		52

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL.

F. R. DIV. 6	TEXAS	E 893-1-7	SHEET 7
Nacogdoches COUNTY	F.M. HWY. 226	CONT. 893-1-7	



REPAIR SPALLS WITH CONC STR REPAIR(OVERHEAD & VERTICAL)

EAST CORNER OF SOFFIT OF SPAN 1 - 3' x 2'= 6 SF
SOUTH WEST EDGE OF SPAN 2 - 20' x 1' = 20 SF
NORTH WEST CORNER OF SPAN 3 - 3' x 2' = 6 SF
SOFFIT OF SPAN 3 OVER BENT 3 - 2(2' x 2') = 8 SF
NORTH EAST CORNER OF SPAN 3 - 3' x 5'= 15 SF
TOTAL = 55 SF

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS (SITE 15)

SITE 15 - NACOGDOCHES COUNTY
FM 226 @ LAVACA CREEK
11-174-0-0893-01-010

Texas Department of Transportation®

SHEET 25 OF 33

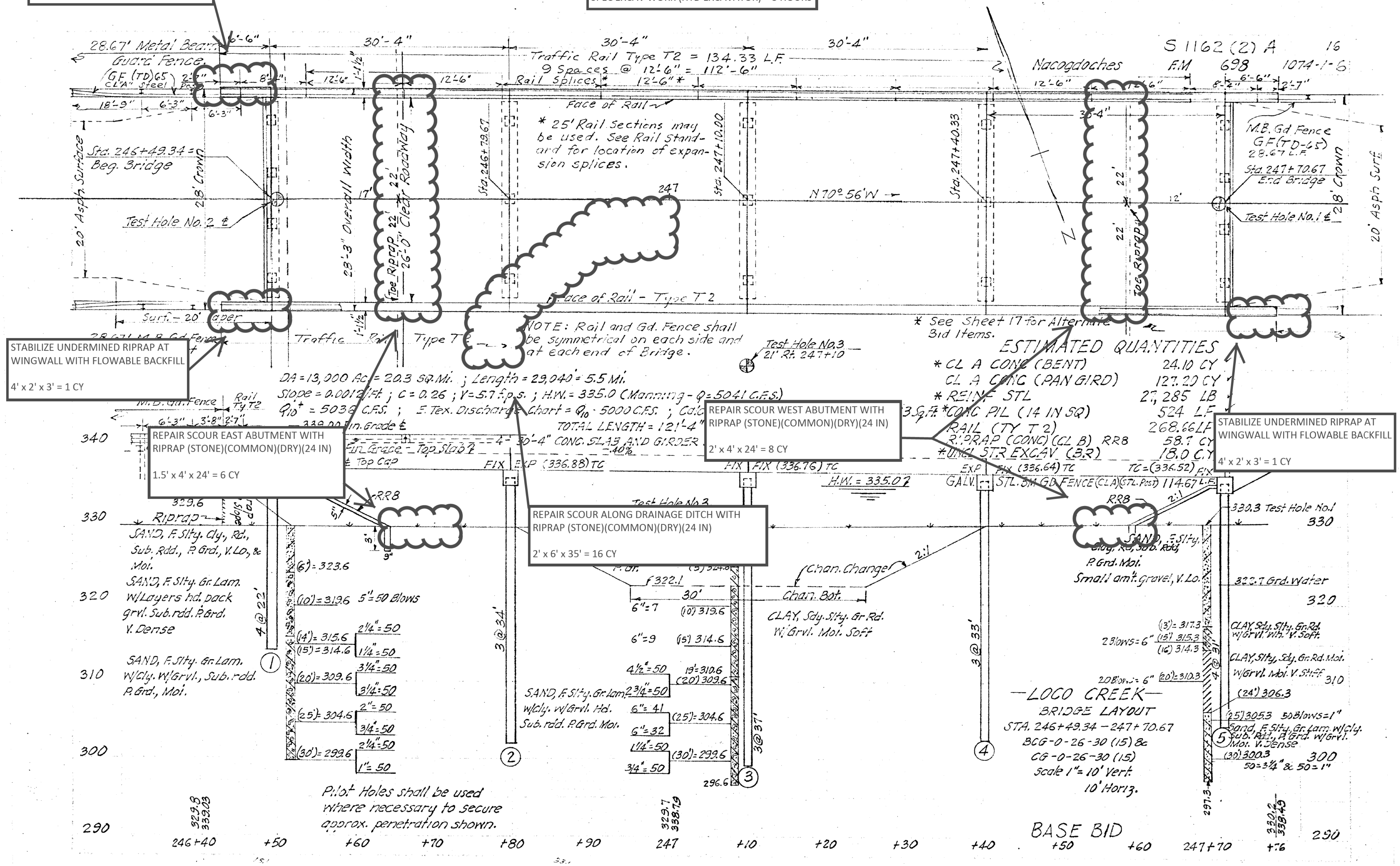
CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		53

STABILIZE UNDERMINED RIPRAP AT WINGWALL WITH FLOWABLE BACKFILL

4' x 2' x 3' = 1 CY

FILL EROSION RILLS WITH SURROUNDING EMBANKMENT PRIOR TO PLACEMENT OF RIPRAP

SPEC EXCAV WORK (HYD EXCAVATOR) = 3 HOURS



STABILIZE UNDERMINED RIPRAP AT WINGWALL WITH FLOWABLE BACKFILL

4' x 2' x 3' = 1 CY

REPAIR SCOUR EAST ABUTMENT WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

1.5' x 4' x 24' = 6 CY

REPAIR SCOUR WEST ABUTMENT WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

2' x 4' x 24' = 8 CY

STABILIZE UNDERMINED RIPRAP AT WINGWALL WITH FLOWABLE BACKFILL

4' x 2' x 3' = 1 CY

REPAIR SCOUR ALONG DRAINAGE DITCH WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

2' x 6' x 35' = 16 CY

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

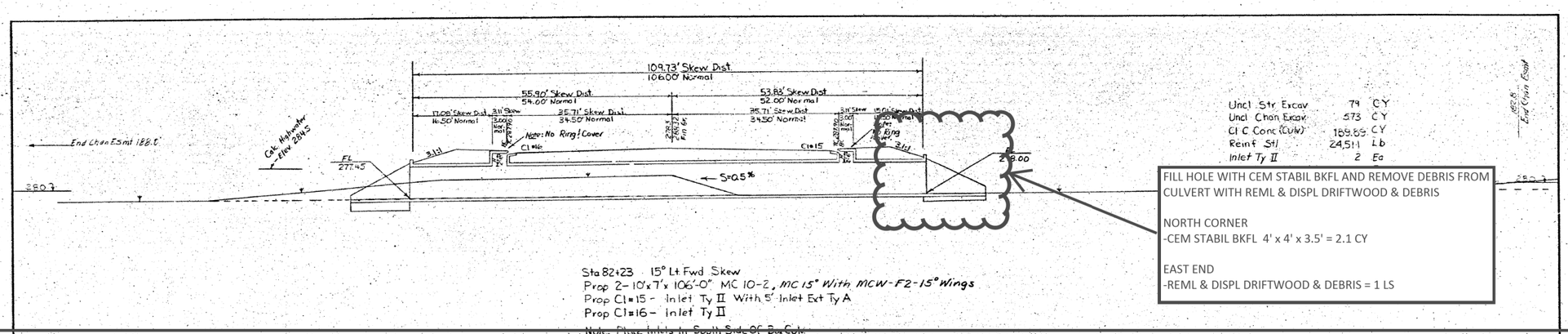
BRIDGE LAYOUTS (SITE 16)

SITE 16 - NACOGDOCHES COUNTY
FM 698 @ LOCO CREEK
11-174-0-1074-01-002

Texas Department of Transportation®

SHEET 26 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		54



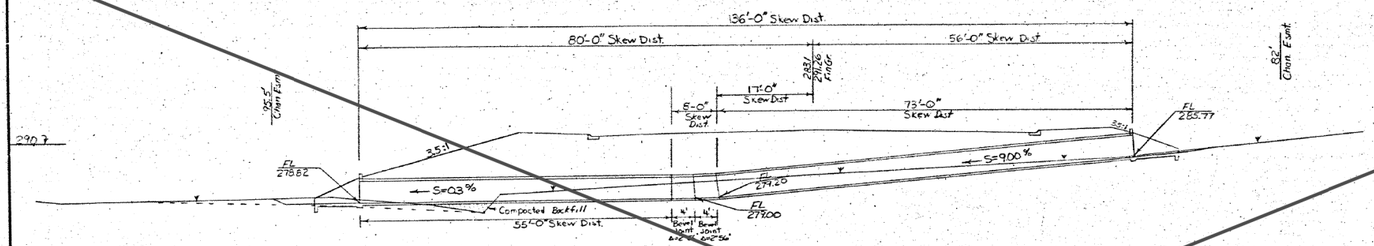
Uncl Str Excav	79	CY
Uncl Chan Excav	573	CY
Cl C Conc (Culv)	188.85	CY
Reinf Stl	24,511	Lb
Inlet Ty II	2	Ea

FILL HOLE WITH CEM STABIL BKFL AND REMOVE DEBRIS FROM CULVERT WITH REML & DISPL DRIFTWOOD & DEBRIS

NORTH CORNER
-CEM STABIL BKFL 4' x 4' x 3.5' = 2.1 CY

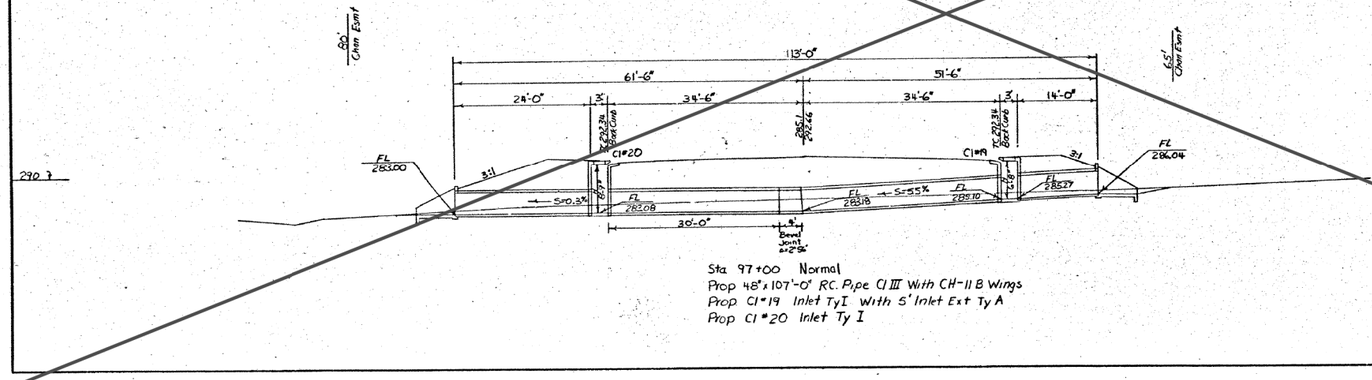
EAST END
-REML & DISPL DRIFTWOOD & DEBRIS = 1 LS

Sta 82+23 15° Lt Fwd Skew
Prop 2-10'x7'x 106'-0" MC 10-2, MC 15° With MCW-F2-15° Wings
Prop C1=15 - Inlet Ty II With 5' Inlet Ext Ty A
Prop C1=16 - Inlet Ty II
Note: Place Inlets In South Side Of Box Culv.



Uncl Str Excav	96	CY
Uncl Chan Excav	7	CY
Cl C Conc (Culv)	59.7	CY
Reinf Stl	511	Lb
48" RC Pipe Cl III	136	LF

Sta 92+35 30° Rt Fwd Skew
Prop 48"x 136'-0" RC Pipe Cl III
With CH-11-B 30° Wings



Uncl Str Excav	75	CY
Uncl Chan Excav	4	CY
Cl C Conc (Culv)	54.5	CY
Reinf Stl.	483	Lb
48" RC Pipe Cl III	107	LF
Inlet Ty I	2	Ea
Inlet Ext Ty A	1	Ea
Ring & Cover	2	Ea

Sta 97+00 Normal
Prop 48"x 107'-0" RC Pipe Cl III With CH-11 B Wings
Prop C1=19 Inlet Ty I With 5' Inlet Ext Ty A
Prop C1=20 Inlet Ty I

CULVERT LAYOUTS 24

DISTRICT	STATE	STATE PROJECT NO.	SHEET NO.
6	TEXAS	A 1407-3-1	24
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
11	Nacogdoches	6403 03 001	FM 1275

SITE 17 - NACOGDOCHES COUNTY
FM 1275 @ BURROWS BRANCH
11-174-0-1407-03-003

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 17)

Texas Department of Transportation®

SHEET 27 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		55

7/28/2022 3:27:17 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspections\Nacogdoches Files

REMOVE CONC (RIPRAP)

12' x 12' = 16 SY

BLADE AREA TO PREPARE SITE FOR RIPRAP INSTALLATION

4 HR

REPAIR SCOUR SOUTHWEST END WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

12' x 9' x 6'= 24 CY

REPAIR UNDERMINED ABUTMENT CAP WITH FLOWABLE BACKFILL

4' x 2' x 3' = 1 CY

REPAIR SCOUR SOUTH ABUTMENT WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)
ERODED 6' ALONG WEST RIPRAP OF SOUTH ABUTMENT AND 1.5' ALONG EAST RIPRAP OF SOUTH ABUTMENT
HEIGHT 6' ON WEST END AND 1.5' ON EAST END

12' x 3.75' x 26' = 44 CY

STABILIZE UNDERMINED RIPRAP AT SOUTHEAST WINGWALL WITH FLOWABLE BACKFILL

5' x 1.5' x 0.5' = 1 CY

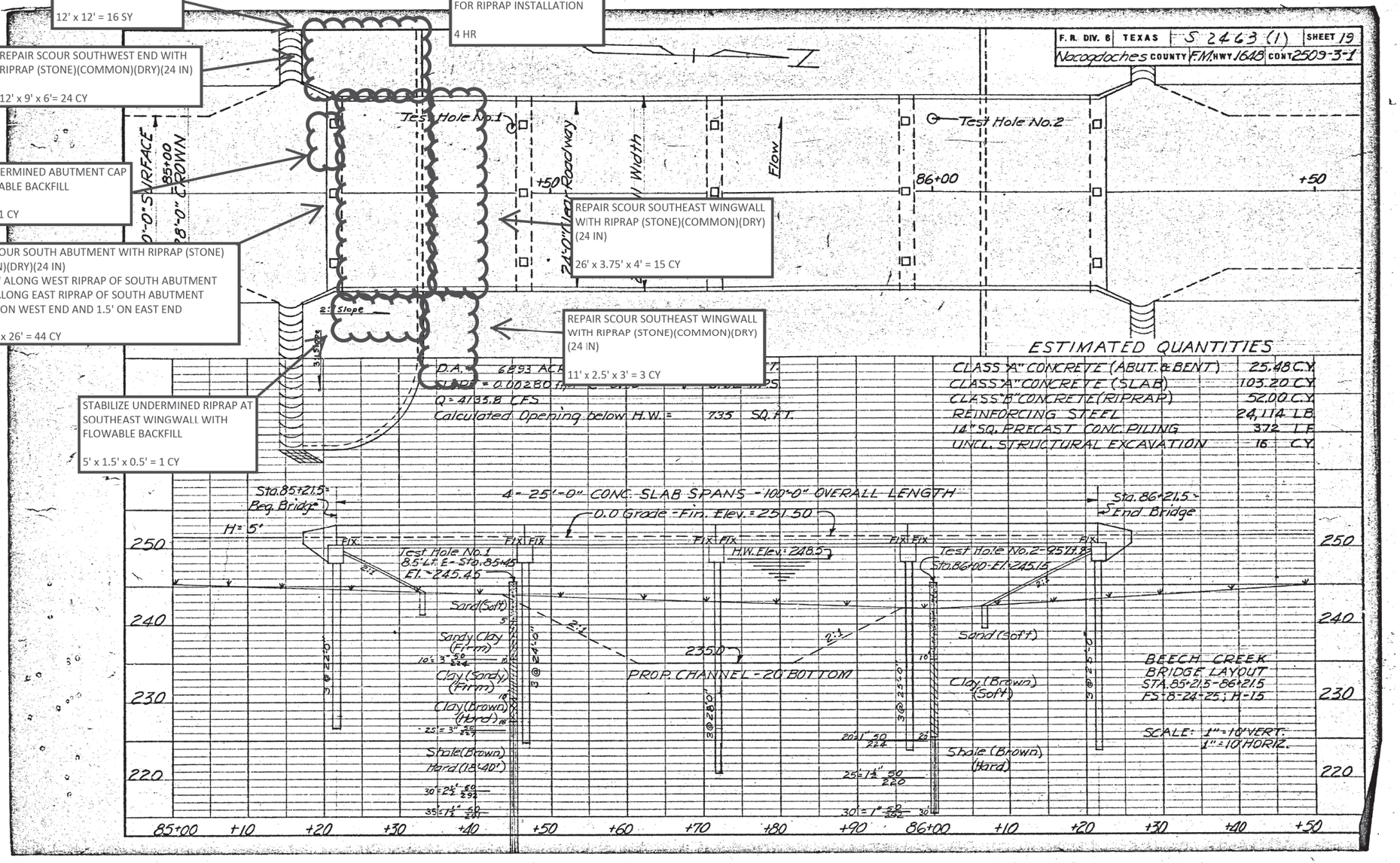
REPAIR SCOUR SOUTHEAST WINGWALL WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

26' x 3.75' x 4' = 15 CY

REPAIR SCOUR SOUTHEAST WINGWALL WITH RIPRAP (STONE)(COMMON)(DRY)(24 IN)

11' x 2.5' x 3' = 3 CY

F. R. DIV. 6 | TEXAS | S 2463 (1) | SHEET 19
Nacogdoches COUNTY | F.M. HWY 1648 | CONT 2509-3-1



ESTIMATED QUANTITIES

CLASS A" CONCRETE (ABUT. & BENT.)	25.48 C.Y.
CLASS A" CONCRETE (SLAB)	103.20 C.Y.
CLASS B" CONCRETE (RIPRAP)	52.00 C.Y.
REINFORCING STEEL	24,114 LB.
14" SQ. PRECAST CONC. PILING	372 L.F.
UNCL. STRUCTURAL EXCAVATION	16 C.Y.

BEECH CREEK
BRIDGE LAYOUT
STA. 85+21.5 - 86+21.5
FS: B-24-25; H-15

SCALE: 1" = 10' VERT.
1" = 10' HORIZ.

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE418444...
8/26/2022

BRIDGE LAYOUTS (SITE 23)

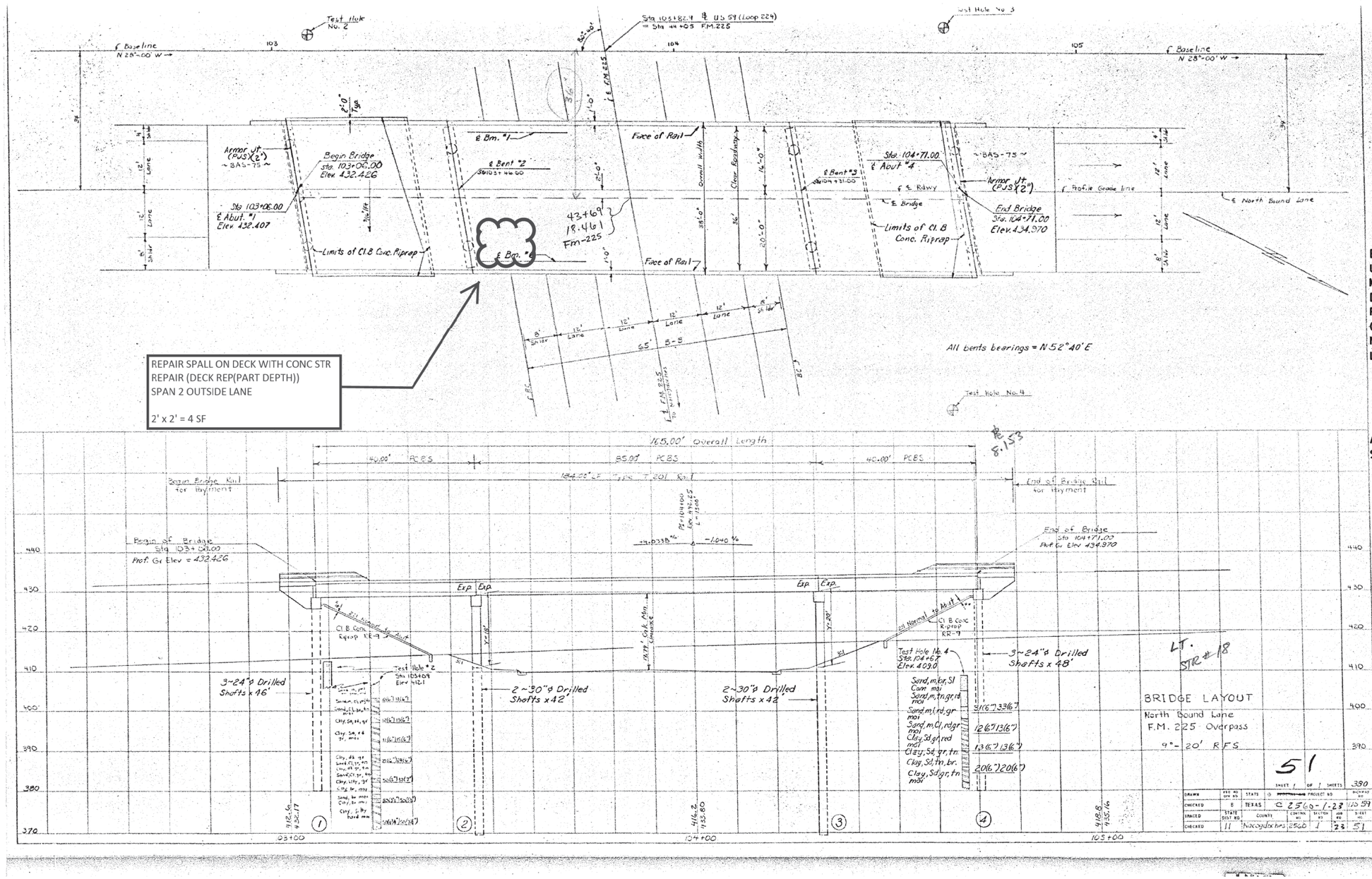
SITE 23 - NACOGDOCHES COUNTY
FM 1648 @ BEECH CREEK
11-174-0-2509-03-002

ADDENDUM 1 08/26/2022

Texas Department of Transportation®

SHEET 27A OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		55A



EXPECTED RETURN TO SERVICE IS 8 HOURS. USE A PREAPPROVED TYPE A RAPID REPAIR MATERIAL MEETING THE REQUIREMENTS OF DMS 4655 CONCRETE REPAIR MATERIALS. REPAIRS AT THIS LOCATION ARE TO BE COMPLETED AT NIGHT. NIGHT WORK WILL NOT BEGIN PRIOR TO 7:00 PM AND AFFECTED LANE SHALL BE REOPENED BY 7:00 AM.

ALL DECK REPAIRS SHALL BE SAWED RECTANGULAR OR SQUARE.

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
8/26/2022

BRIDGE LAYOUTS
(SITE 24)

SITE 24 - NACOGDOCHES COUNTY
US 59 & LP 224 @ FM 225
11-174-0-2560-01-018

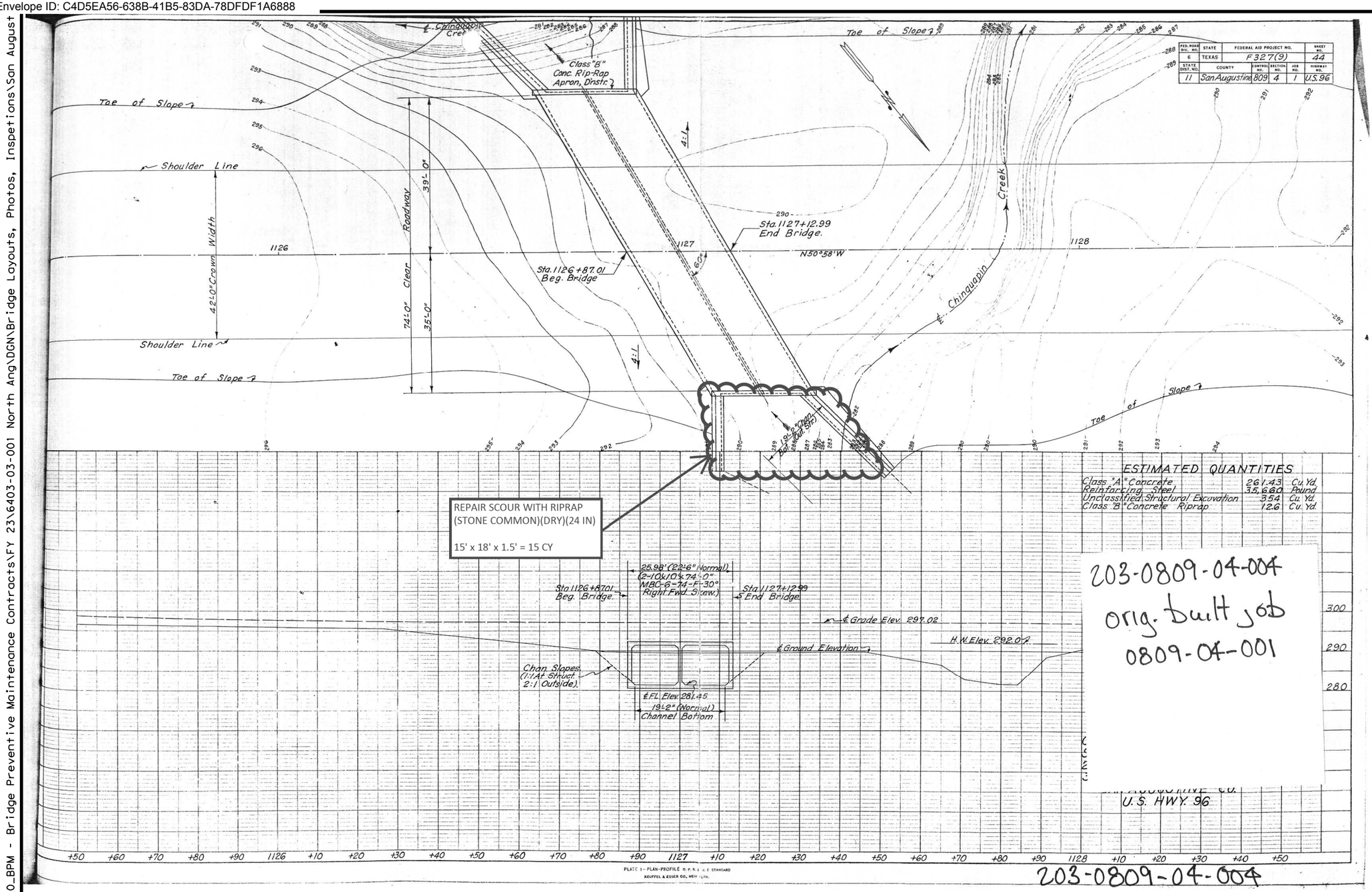
ADDENDUM 1 08/26/2022

Texas Department of Transportation®

SHEET 27B OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		55B

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	F 327(9)			44
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
11	San Augustine	809	4	1	U.S. 96



ESTIMATED QUANTITIES

Class "A" Concrete	261.43	Cu. Yd.
Reinforcing Steel	35,680	Pound
Unclassified Structural Excavation	39.54	Cu. Yd.
Class "B" Concrete Riprap	12.6	Cu. Yd.

203-0809-04-004
orig. built job
0809-04-001

203-0809-04-004

U.S. HWY. 96

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS (SITE 18)

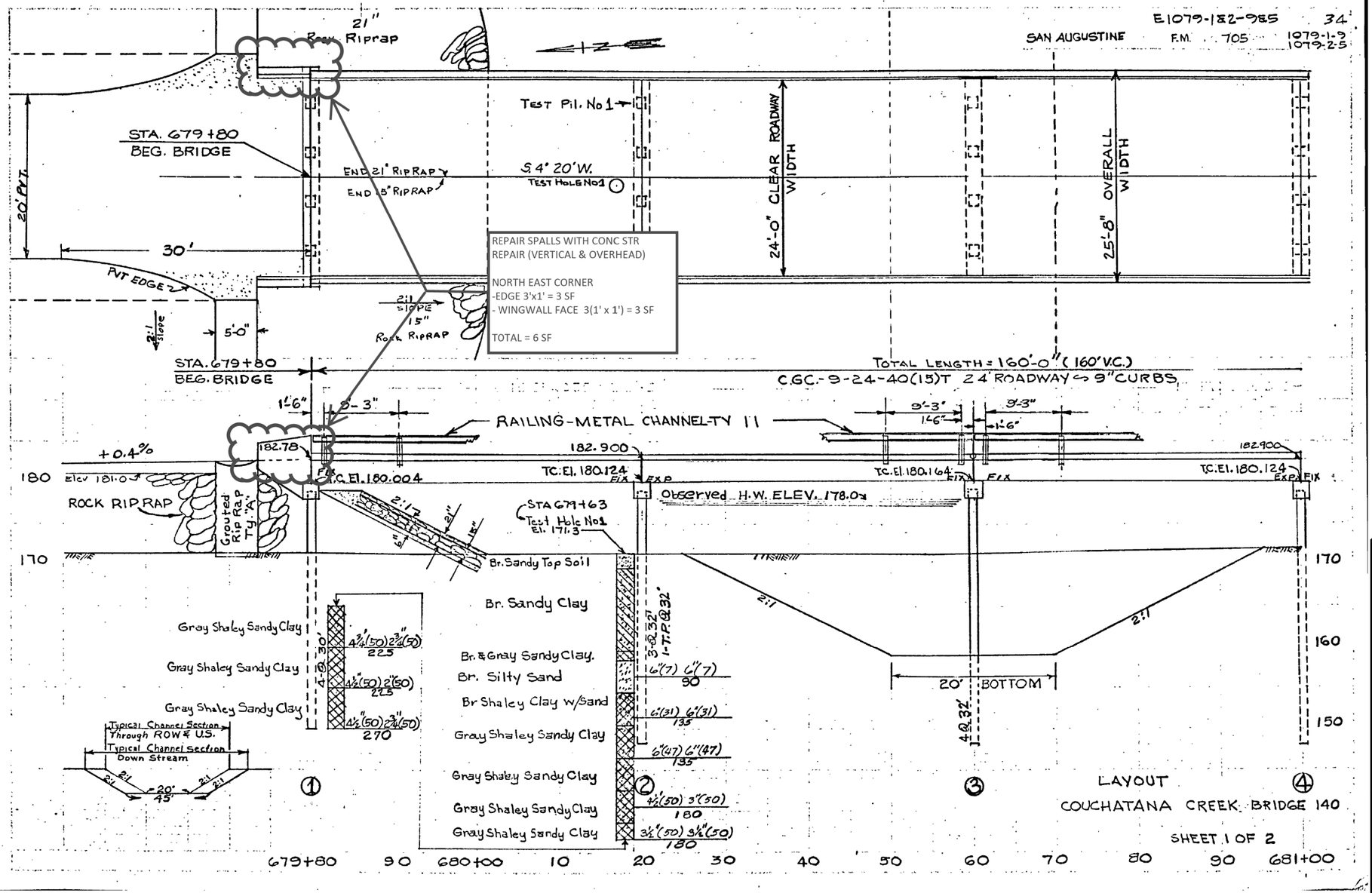
Texas Department of Transportation®

SHEET 28 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		56

SITE 18 - SAN AUGUSTINE COUNTY
US 96 @ CHINQUAPIN CREEK
11-203-0-0809-04-004

* ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE TO THE CURRENT CONCRETE REPAIR MANUAL.



SHEET 1 OF 2

JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS (SITE 19)

Texas Department of Transportation®

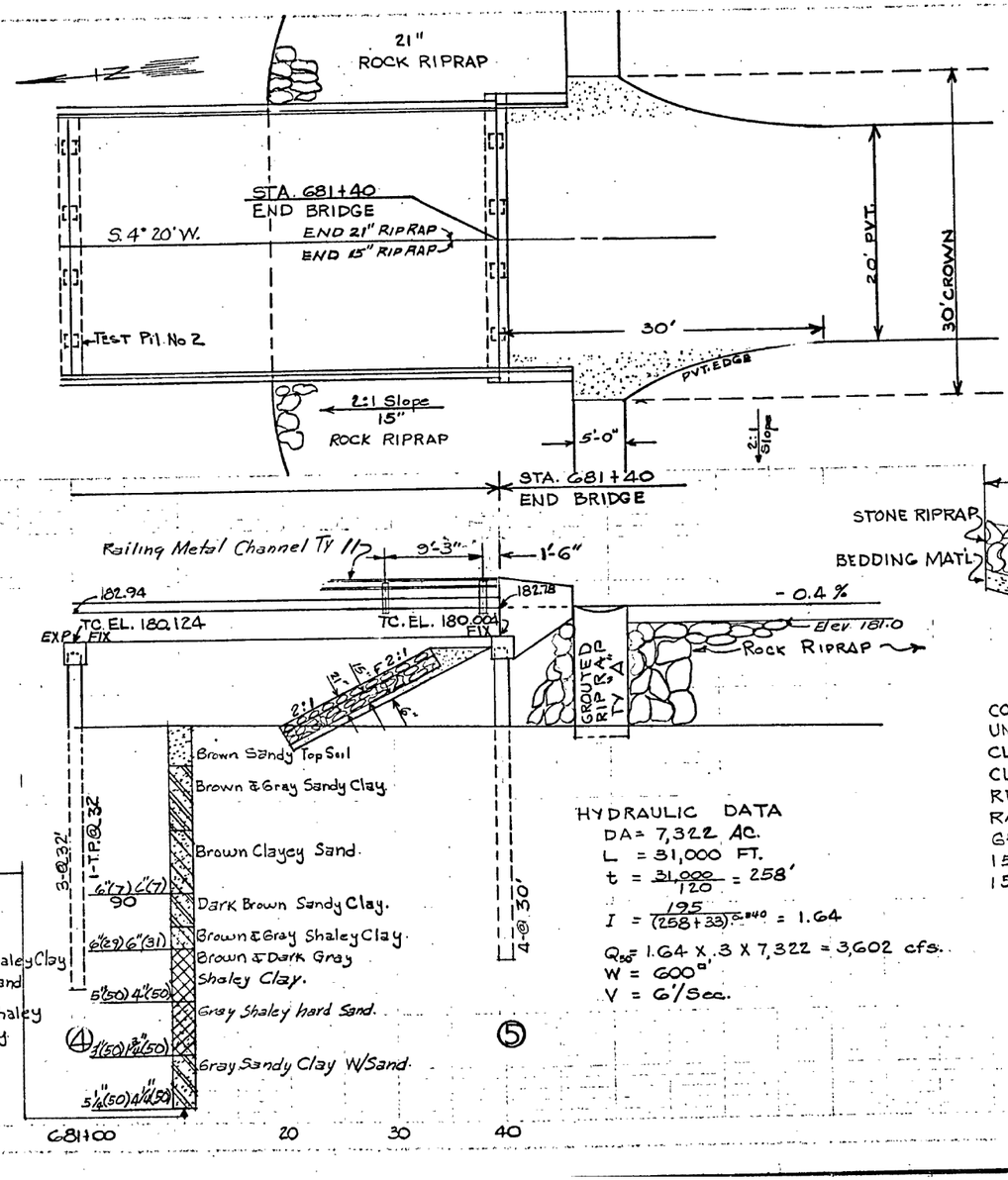
SHEET 29 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		57

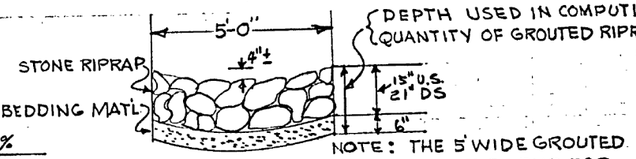
SITE 19 - SAN AUGUSTINE COUNTY
FM 705 @ COUCHATANA CREEK
11-203-0-1079-01-015

NO WORK PROPOSED ON THIS SHEET

E 1079-1&2-9&5 35
SAN AUGUSTINE F.M. 705 1079-1-9 1079-2-5



HYDRAULIC DATA
DA = 7,322 AC.
L = 31,000 FT.
$t = \frac{31,000}{120} = 258'$
$I = \frac{195}{(258+33)^{.840}} = 1.64$
$Q_{50} = 1.64 \times .3 \times 7,322 = 3,602$ cfs.
W = 600'
V = 6'/Sec.



NOTE: THE 5' WIDE GROUTED DRAINS ARE TO BE PAID FOR UNDER ITEM AS GROUTED RIPRAP TY-A"

ESTIMATED QUANTITIES

COM. CHAN. EXC.	28,955	C.Y.
UNCL. STRUCT. EXC.	17	CY
CL. "A" CONC. (PAN GIRDERS)	185.6	C.Y.
CL "A" CONC. (BENTS)	23.9	CY.
REINF. STEEL.	31,542	LB
RAILING - METAL CHAN. - TY II	320	L.F.
GROUTED ROCK RIPRAP TY-A	38.4	CY
15" SQ PRECAST. CONC. PILING	560	L.F.
15" SQ PRECAST CONC TEST PIL.	64	LF

LAYOUT
COUCHATANA CREEK BRIDGE
STA. 679+80 TO STA 681+40

SHEET 2 OF 2

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

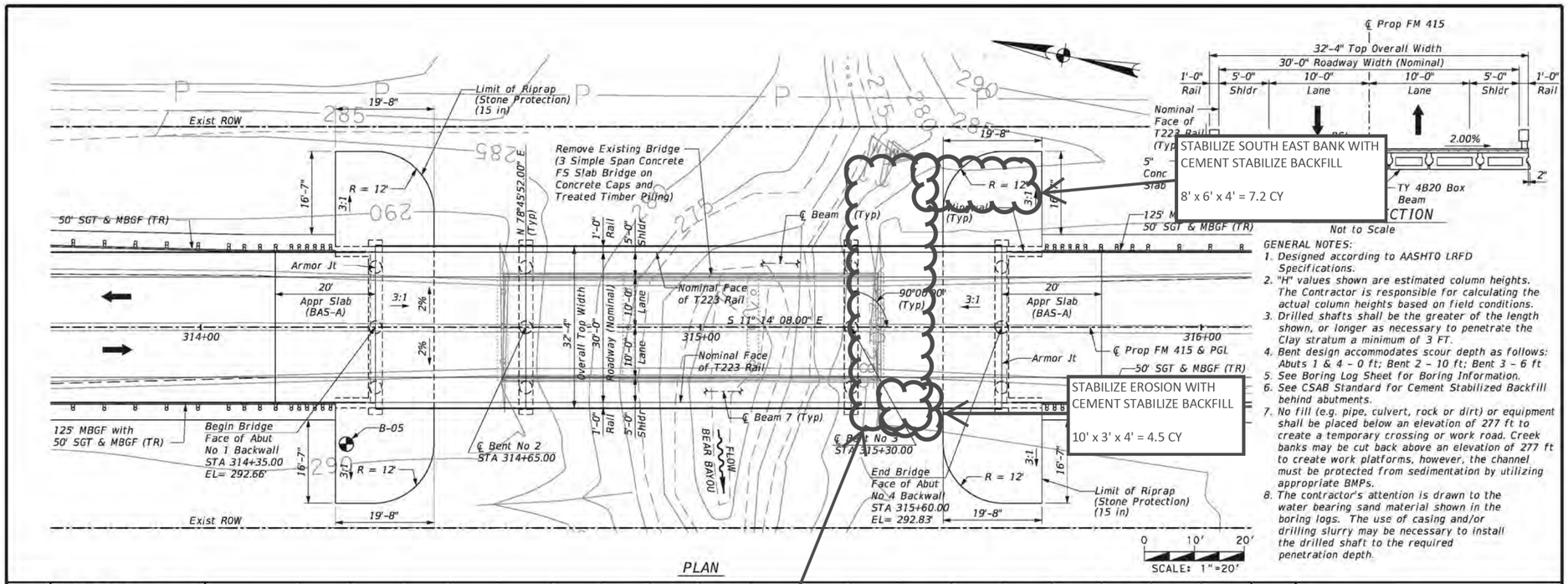
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 19)

SITE 19 - SAN AUGUSTINE COUNTY
FM 705 @ COUCHATANA CREEK
11-203-0-1079-01-015

Texas Department of Transportation®
SHEET 30 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		58



STATE OF TEXAS
AARON DEBORD
96578
LICENSED
PROFESSIONAL ENGINEER
7/1/2015

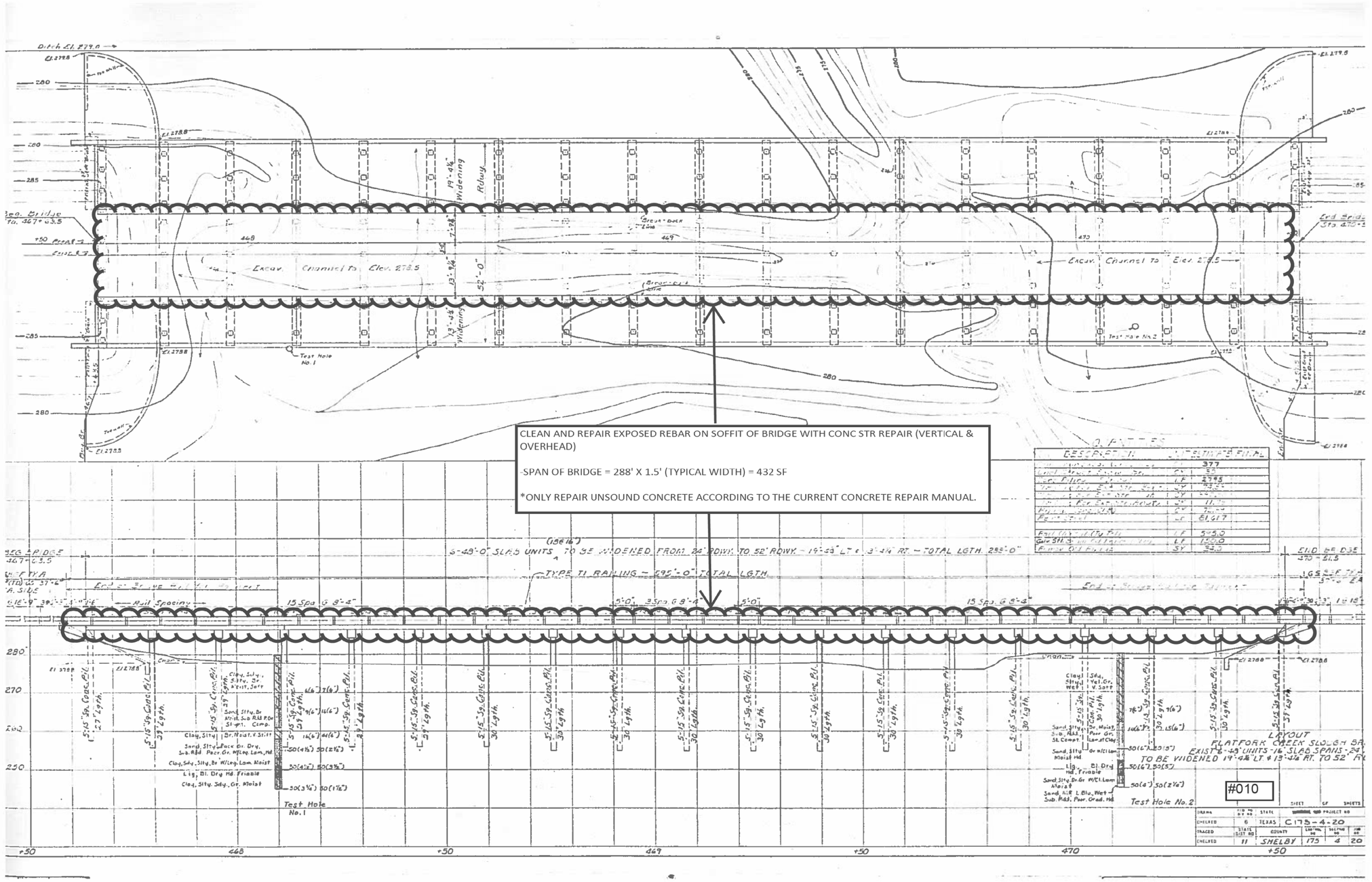
STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 20)

SITE 20 - SHELBY COUNTY
FM 415 @ BEAR BAYOU
11-210-0-0123-08-058

SHEET 31 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		59



CLEAN AND REPAIR EXPOSED REBAR ON SOFFIT OF BRIDGE WITH CONC STR REPAIR (VERTICAL & OVERHEAD)

-SPAN OF BRIDGE = 288' X 1.5' (TYPICAL WIDTH) = 432 SF

*ONLY REPAIR UNSOUND CONCRETE ACCORDING TO THE CURRENT CONCRETE REPAIR MANUAL.

#010

JEREMY KING
102170

DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUT
SITE (21)

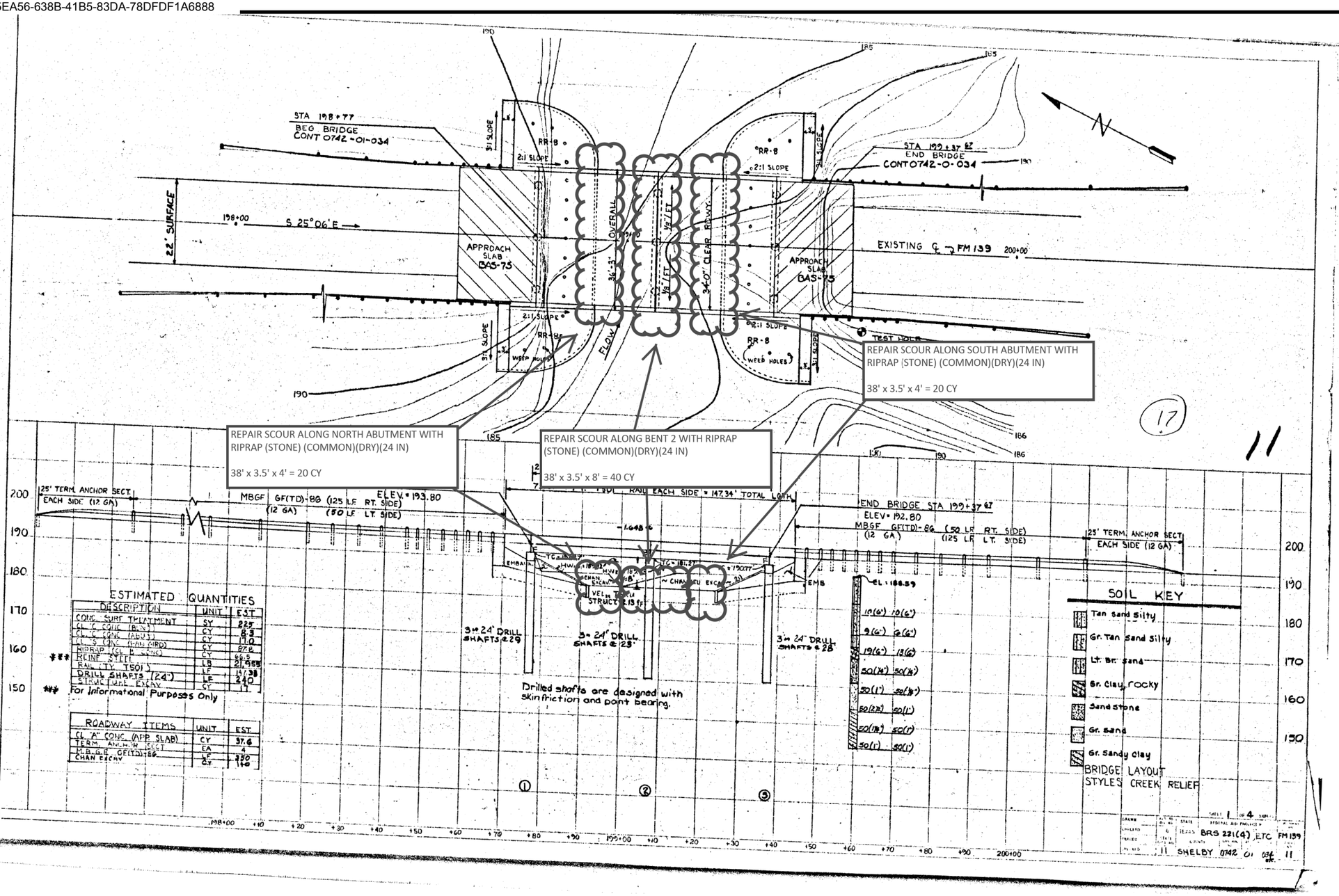
SITE 21 - SHELBY COUNTY
US 59 @ FLAT FORK CREEK SLOUGH #1
11-210-0-0175-04-010

Texas Department of Transportation®

SHEET 32 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		60

7/28/2022 3:23:50 PM
T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Bridge Layouts, Photos, Inspetions\Shelby County



ESTIMATED QUANTITIES

DESCRIPTION	UNIT	EST
CONC SURF TMTMENT	SY	825
CL 'C' CONC (BENT)	CY	8.3
CL 'S' CONC (ABUT)	CY	7.0
CL 'S' CONC (WAN/WRD)	CY	87.8
RIPRAP (CL P STNE)	CY	66.5
REINF STEEL	LB	21,955
RAIL (TY T501)	LF	147.38
DRILL SHAFTS (24")	LF	290
STRUCTURE EXCAV	CY	21

For Informational Purposes Only

ROADWAY ITEMS	UNIT	EST
CL 'A' CONC (APP SLAB)	CY	37.6
TERM. ANCHOR SECT	EA	4
MBGF GF(TD)-8G	LF	350
CHAN EXCAV	CY	140

SITE 22 - SHELBY COUNTY
FM 139 @ STYLES CREEK RELIF
11-210-0-0742-01-017

JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

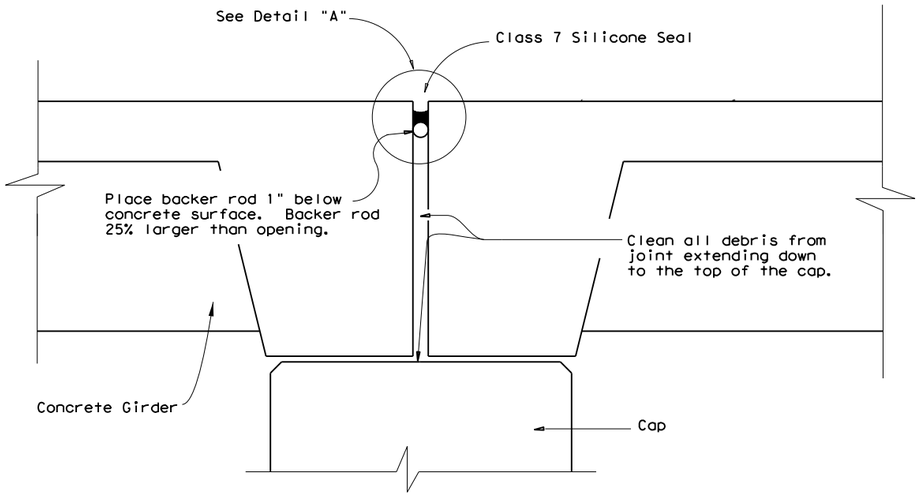
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

BRIDGE LAYOUTS
(SITE 22)

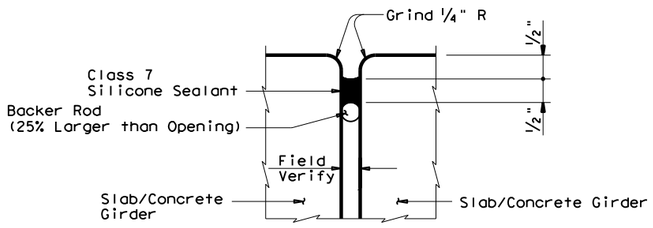
Texas Department of Transportation®

SHEET 33 OF 33

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		61



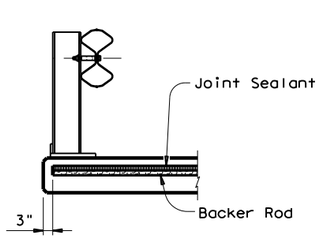
CONCRETE GIRDER JOINT WITH SILICONE SEAL



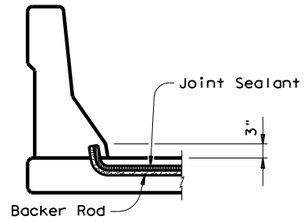
DETAIL "A"

PROCEDURE FOR CLEANING AND SEALING EXISTING CONCRETE GIRDER JOINT WITH SILICONE SEAL:

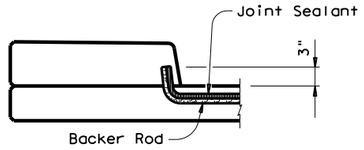
1) Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints and Cracks." Clean joint out full depth of the joint.
2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
3) Place backer rod into joint opening 1" below the top of concrete. The backer rod must be 25% larger than the joint opening.
4) Seal the joint opening with a Class 7 Silicone. Recess seal 1/2" below top of concrete in travel lanes and 1/8" below top of concrete in shoulders.



SHOWN AT STEEL RAIL

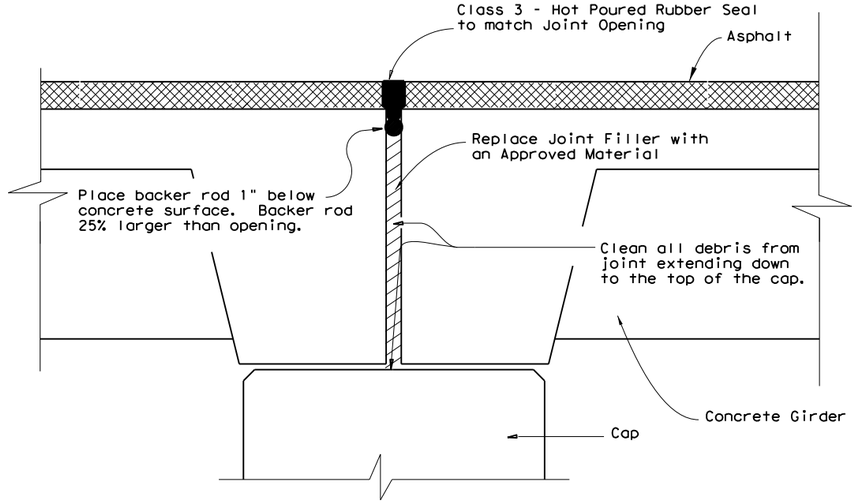


SHOWN AT BARRIER RAIL



SHOWN AT CURB

JOINT SEALANT TERMINATION DETAILS



CONCRETE GIRDER JOINT WITH HOT POURED RUBBER SEAL

PROCEDURE FOR CLEANING AND SEALING EXISTING CONCRETE GIRDER JOINT WITH HOT POURED RUBBER SEAL:

1) Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a 1/2" minimum joint opening or match the existing joint opening. Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints and Cracks."
2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
3) Place backer rod into joint opening 1" below the top of concrete. Backer rod must be of the type that can handle the heat and be compatible with the hot poured rubber seal. The backer rod must be 25% larger than the joint opening.
4) Seal the joint opening with a Class 3, "Hot Poured Rubber." Seal flush with the top of the asphaltic concrete pavement.

GENERAL NOTES:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting joint opening, and sealing joint is paid for by Item 438, "Cleaning and Sealing Joints and Cracks" and measured by the foot of "Cleaning and Sealing of Existing Joints."

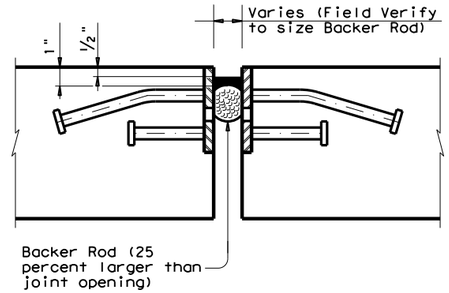
Obtain approval for all tools, equipment, materials and techniques proposed for use to prepare the joint.

For Class 3 Hot Poured Rubber Seal, provide backer rod compatible with the hot poured rubber sealant and rated for for a minimum of 400 F.

Provide Class 3 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in asphalt overlay.

Provide Class 7 silicone joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.

Extend sealant up into rail or curb 6 inches on low side or sides of deck. If the Class 7 Sealant cannot be effectively placed in the vertical position, a Class 4 Sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with manufacturer's specifications.



ARMOR JOINT SECTIONS

PROCEDURE FOR CLEANING AND SEALING EXISTING ARMOR JOINTS:

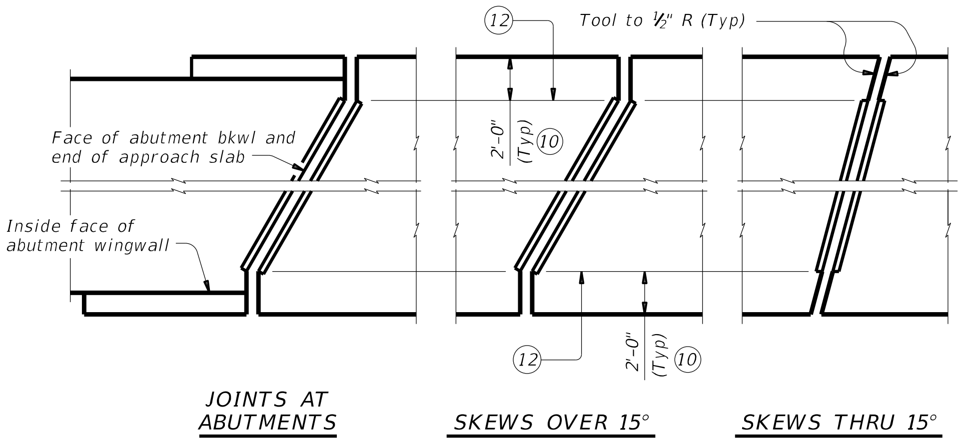
1) Remove existing seal.
2) Sandblast existing steel surface where silicone seal is to be placed.
3) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
4) Place backer rod into joint opening 1" below the top of concrete. The backer rod must be 25% larger than the joint opening.
5) Seal the joint opening with a Class 7 Silicone. Recess seal 1/2" below top of concrete in travel lanes and 1/8" below top of concrete in shoulders.

STATE OF TEXAS
JEREMY KING
102170
LICENSED PROFESSIONAL ENGINEER

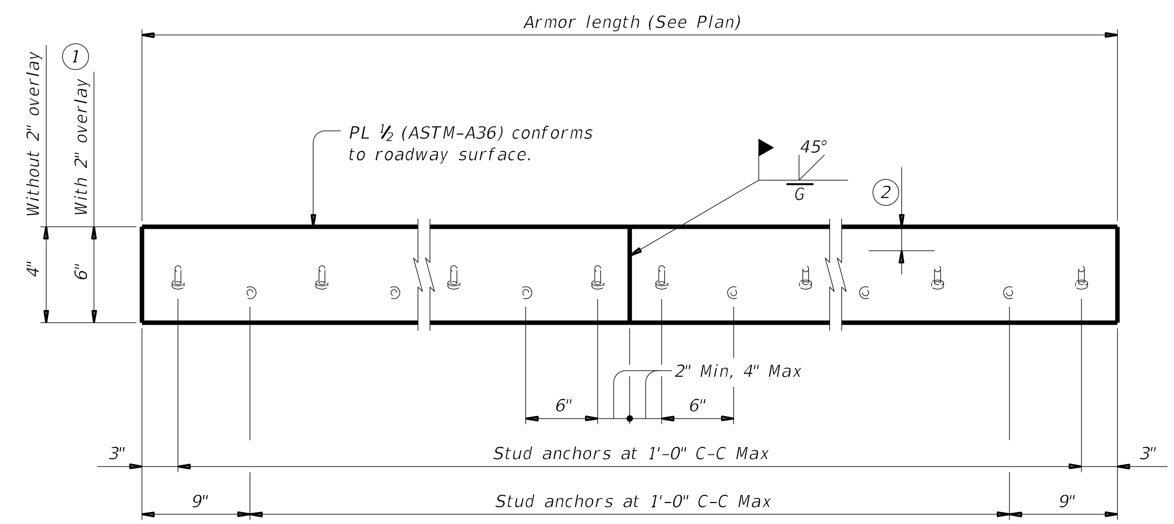
DocuSigned by:
Jeremy King, P.E.
5135292FE4184A4...
7/29/2022

CLEANING AND SEALING EXISTING BRIDGE JOINTS

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		62

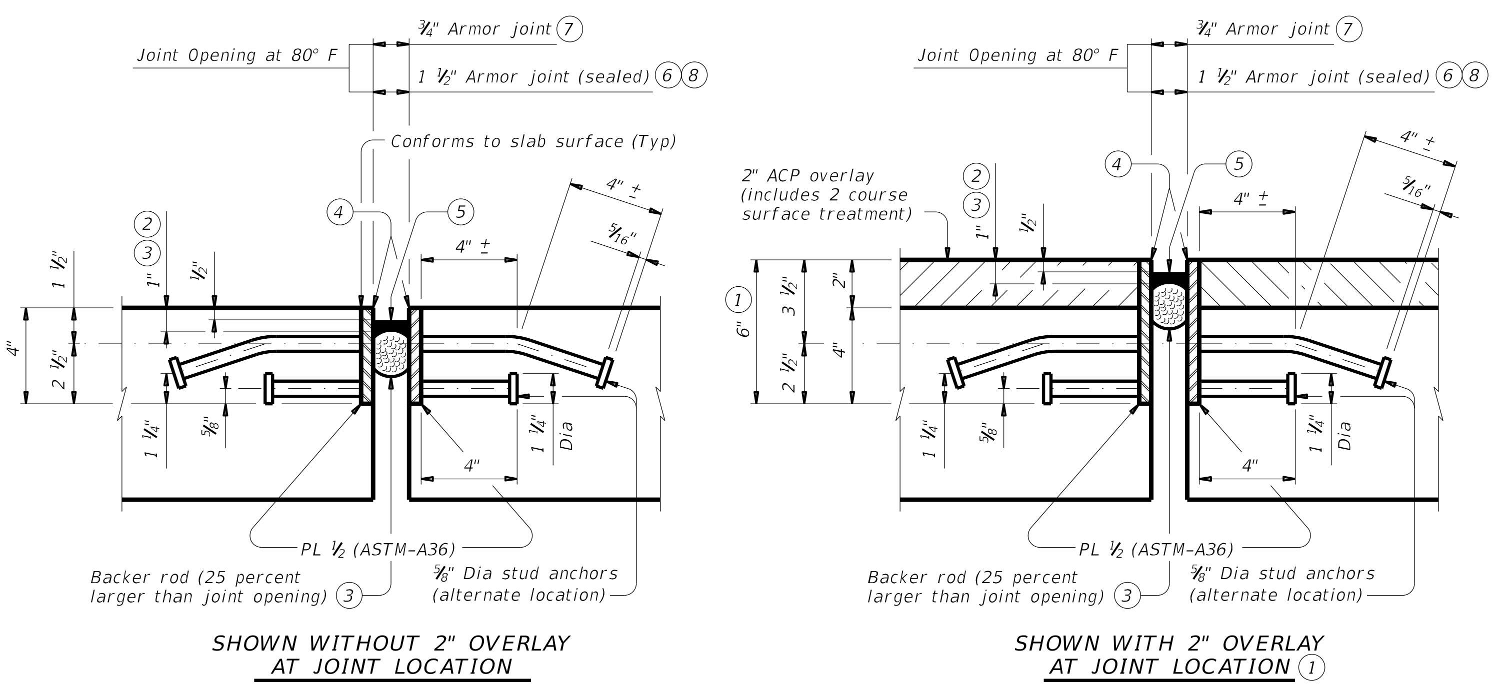


PLANS OF ARMOR PLATES



ELEVATION OF BASIC ARMOR PLATE

1. Adjust 6" plate height for overlay thicknesses other than the 2" shown. Adjust weight by 1.70 plf for each ½" variation in thickness.
2. Do not paint top 1 ½" of plate if using sealed armor joint.
3. Set top of backer rod 1" below top of armor plate. Backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.
4. Blast clean entire contact area between sealant and plate (SSPC-SP10) before installing sealant. Light brush blast and thoroughly clean all dust and debris from concrete surfaces in contact with joint sealant before application of silicone seal.
5. Use Class 7 joint sealant that conforms to DMS-6310.
6. Place sealant while ambient temperature is between 55°F and 80°F and is rising.
7. Armor joint does not include joint sealant or backer rod.
8. Armor joint (sealed) includes Class 7 joint sealant and backer rod.
9. Form vertical leg of seal as per the Manufacturer's recommendations. Use Class 4 joint sealant if Class 7 cannot be installed correctly. Install according to Manufacturer's recommendations.
10. Unless shown otherwise, terminate armor plate at slab break point if break is more than 2'-0" from slab edge.
11. See "Plans of Armor Plates".
12. At Fabricator's option, armor plate may extend up to 6" beyond this point for skews through 15°.
13. Align shipping angle perpendicular to joint.



ARMOR JOINT SECTIONS

Showing Armor Joint (Sealed)

FABRICATION NOTES:

Match mark corresponding plate sections and secure together for shipment with shipping angle. Do not use erection bolts.

Ship armor joints in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for stage construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min and 4" Max.

Weld studs in accordance with AWS D1.1.

Use groove welds for all shop and field butt splices. Grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section, except as stated in Note 2, with System II or IV primer in accordance with Item 446 "Field Cleaning and Painting Steel." Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Items 446.4.7.3 and 446.4.7.4.

Shop drawings for the fabrication of armor joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

CONSTRUCTION NOTES:

Secure armor joints in position and place to proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for Armor Joint.

Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

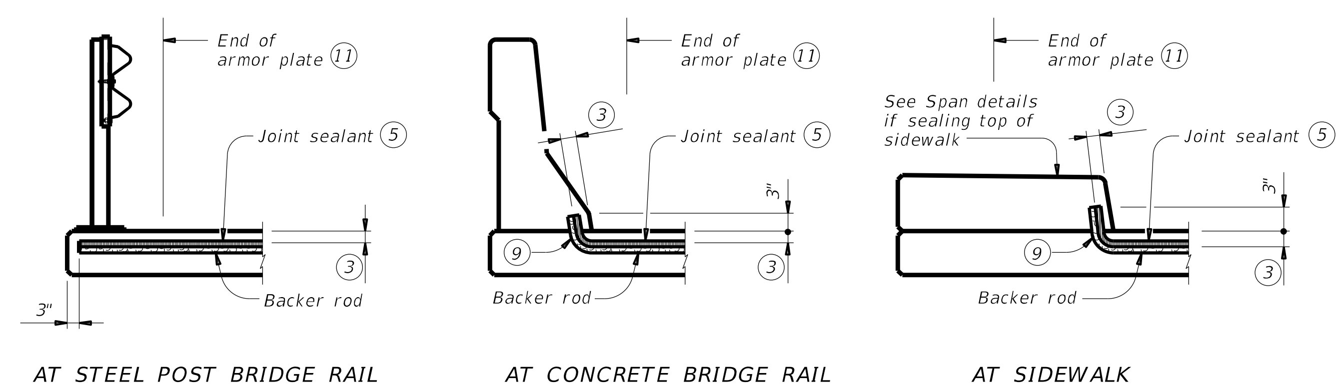
GENERAL NOTES:

Provide armor joints at locations shown on the plans. Provide the seal when "Armor Joint (Sealed)" is noted on the plans.

These joint details accommodate a joint movement range of 1 ⅜" (¾" opening movement and ⅝" closure movement).

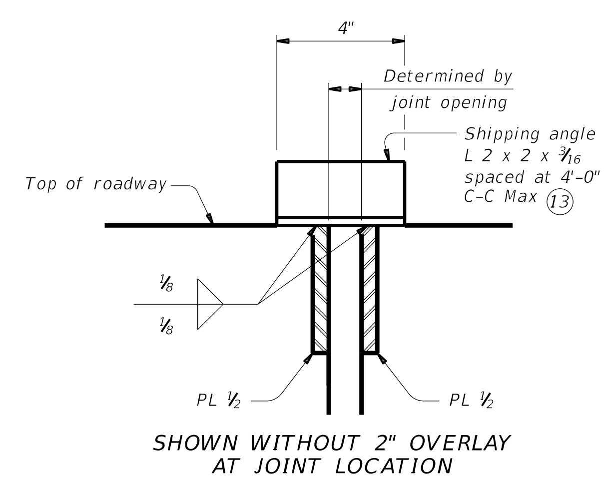
Payment for armor joint, with or without seal, is based on length of armor plate.

WEIGHTS FOR ONE ARMOR JOINT (2 PLATES)	
WITHOUT OVERLAY	16.10 plf
WITH 2" OVERLAY (1)	22.90 plf



JOINT SEALANT TERMINATION DETAILS

Armor joint (sealed) only. Armor plate is not shown for clarity.



With overlay similar

SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.

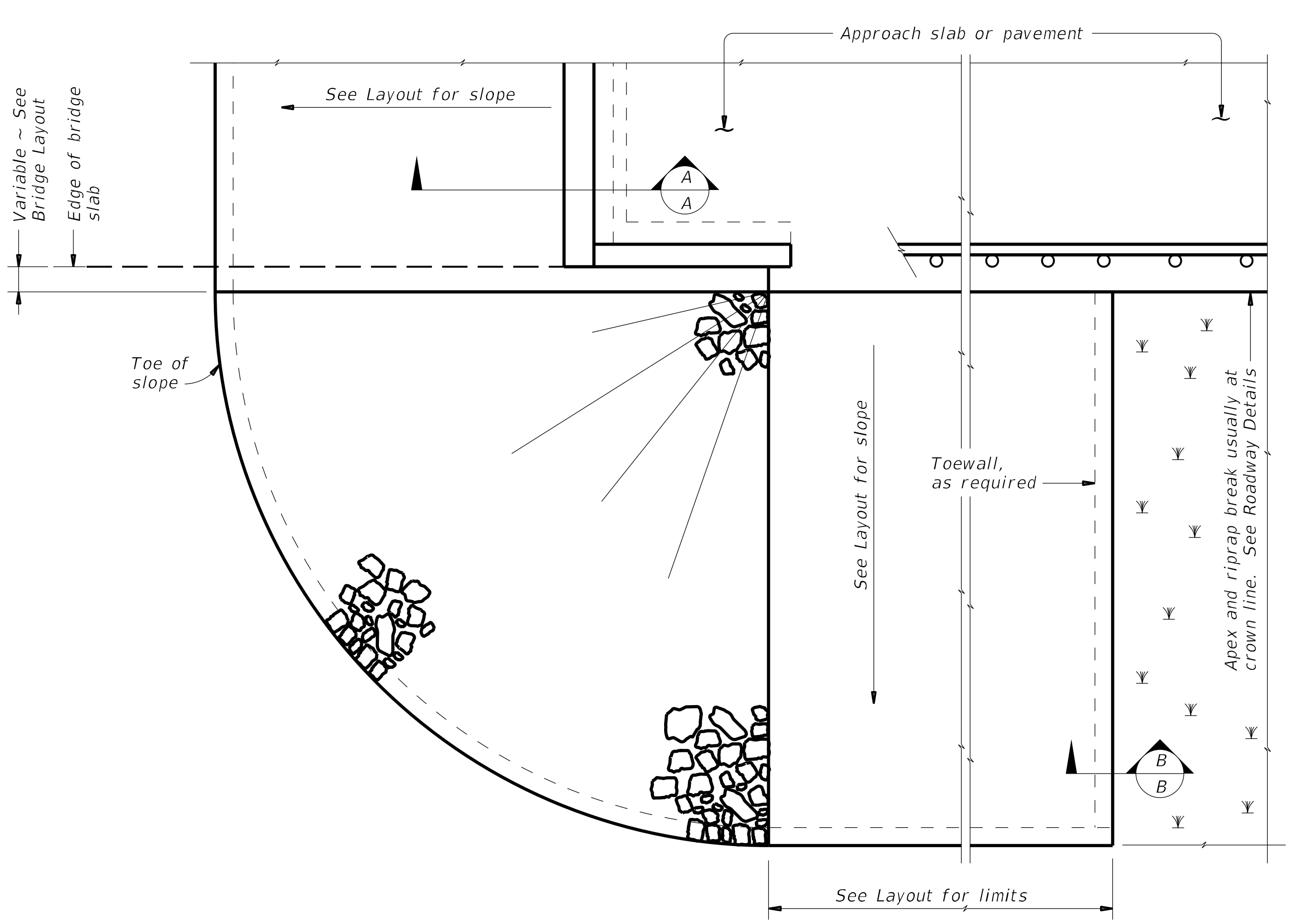
Texas Department of Transportation — Bridge Division Standard

ARMOR JOINT DETAILS

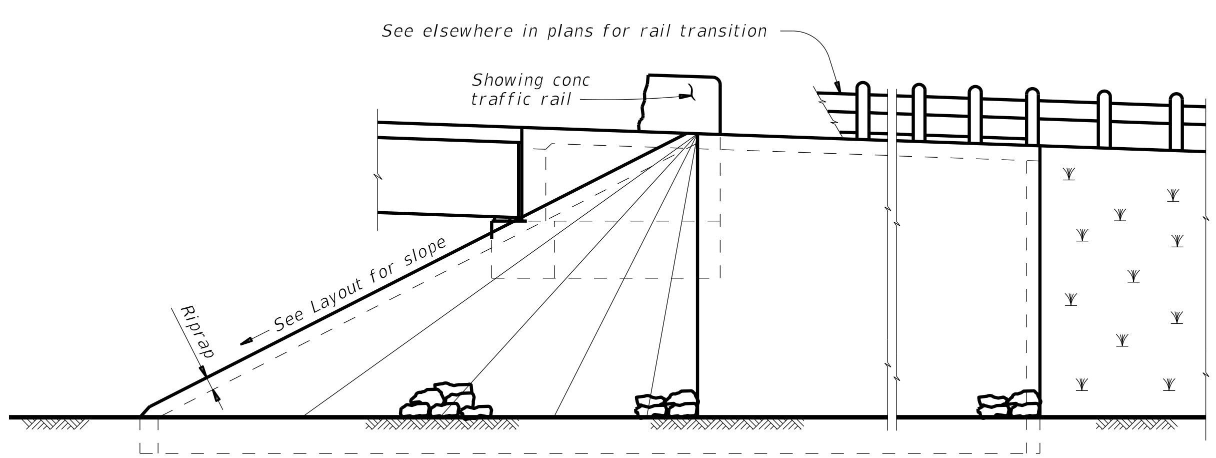
AJ

FILE: ajstde01-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT 6403	SECT 03	JOB 001	HIGHWAY US 59, ETC.
REVISIONS	DIST LFK	COUNTY ANGELINA, ETC.		SHEET NO. 63

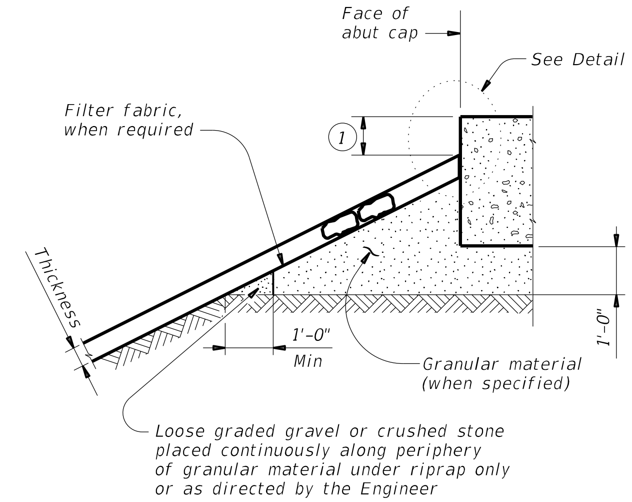
DATE: 2:39:01 PM
FILE: Contracts\0 BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001\...



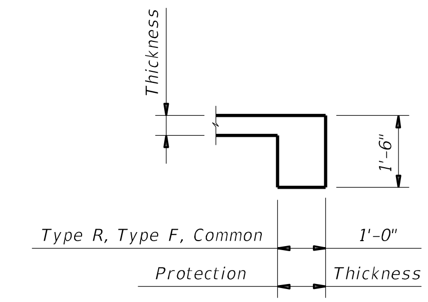
PLAN



ELEVATION

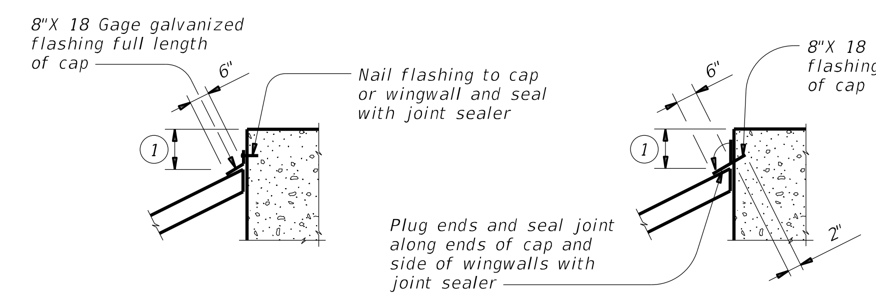


SECTION A-A AT CAP



SECTION B-B

Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".



CAP OPTION A

CAP OPTION B

DETAIL C

GENERAL NOTES:

Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.

See elsewhere in plans for locations and details of shoulder drains.

(1) Top of cap to top of riprap dimension varies as directed by the Engineer. Provide 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

DATE: 7/28/2022 2:39:03 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\SRR(1).dgn

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

STONE RIPRAP

SRR

FILE: srrstde1-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		64

DATE: 7/28/2022 2:39:03 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\SRR(1)-19.dgn

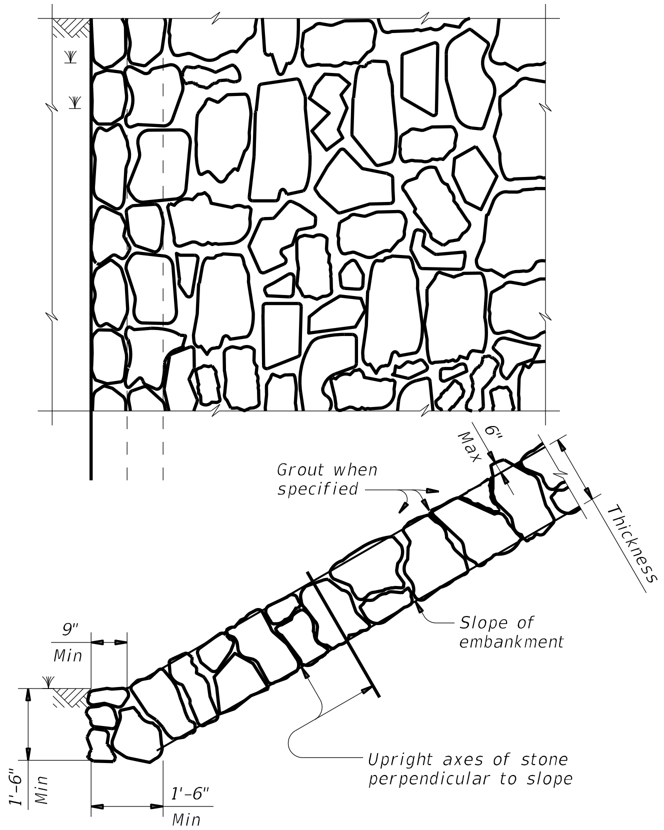


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

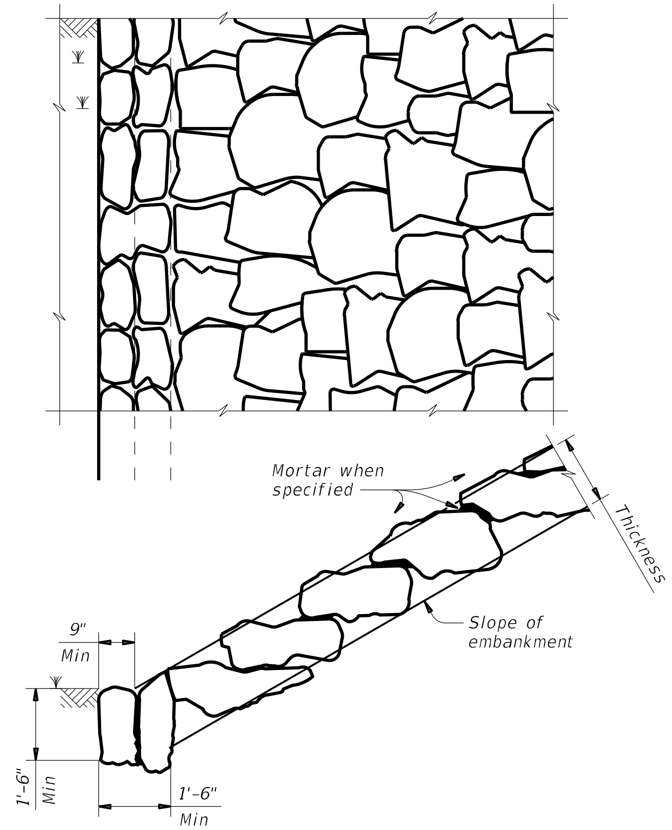


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

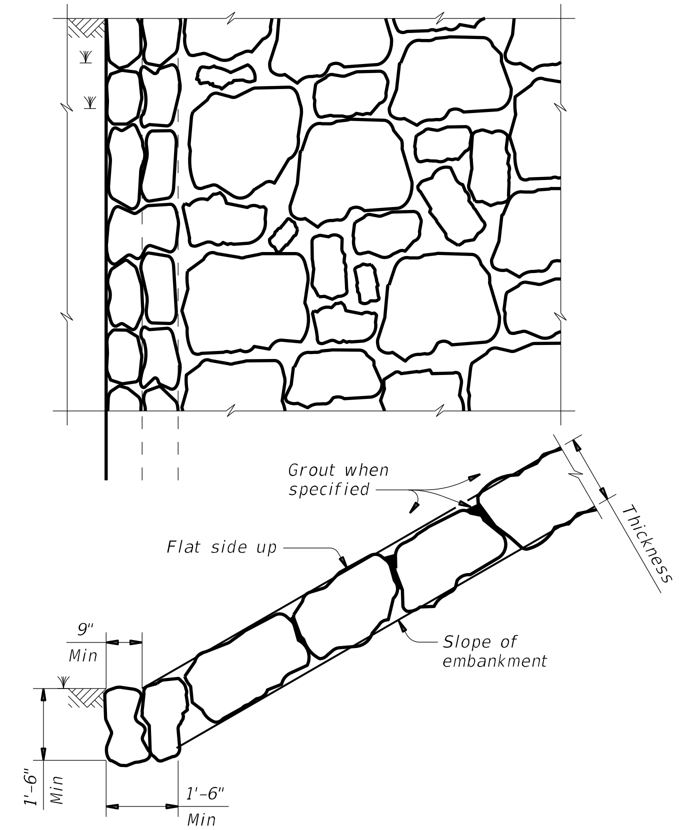


FIGURE 3 ~ TYPE F STONE RIPRAP

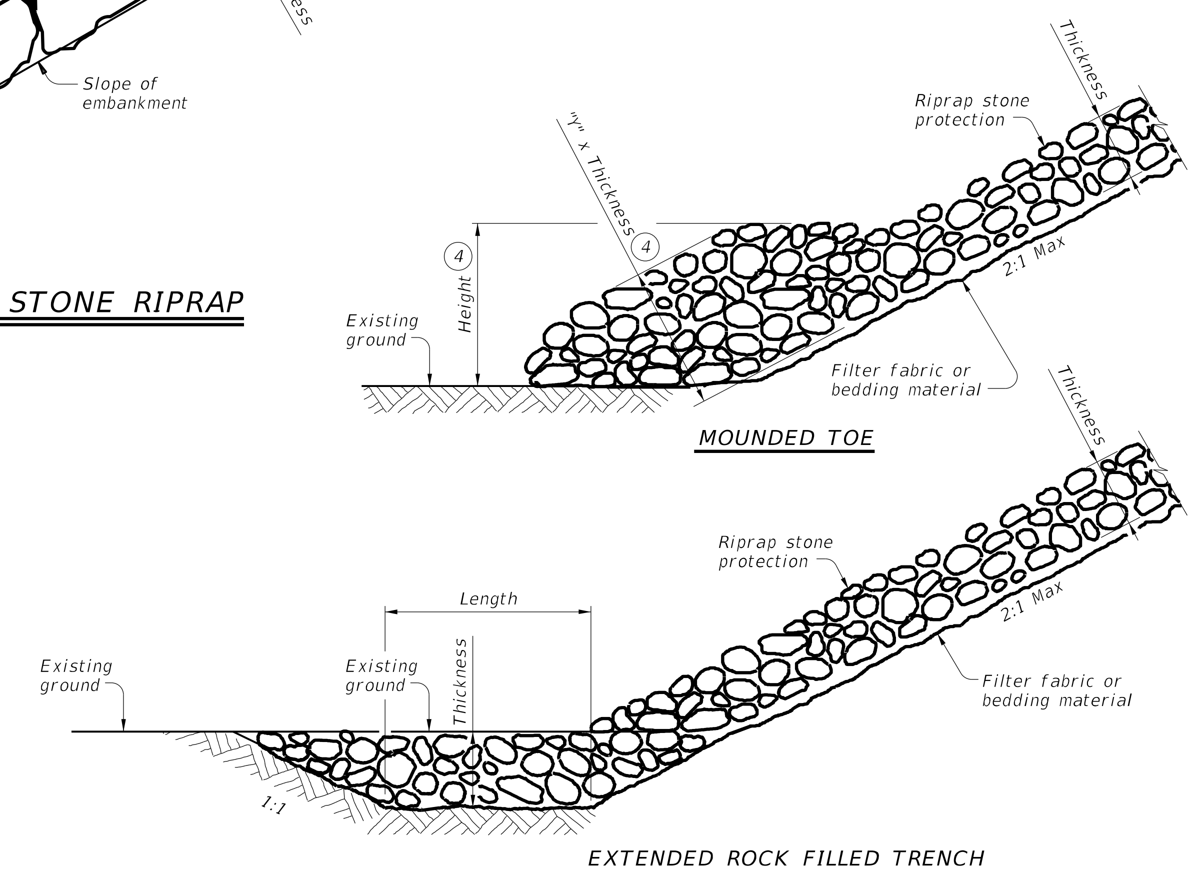
grouted

(2) Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.

(3) Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.

(4) "Y" and Height need to be defined. See layout or detail sheet for values if this option is used.

(5) List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.



PROTECTION STONE RIPRAP TOE OPTIONS (5)

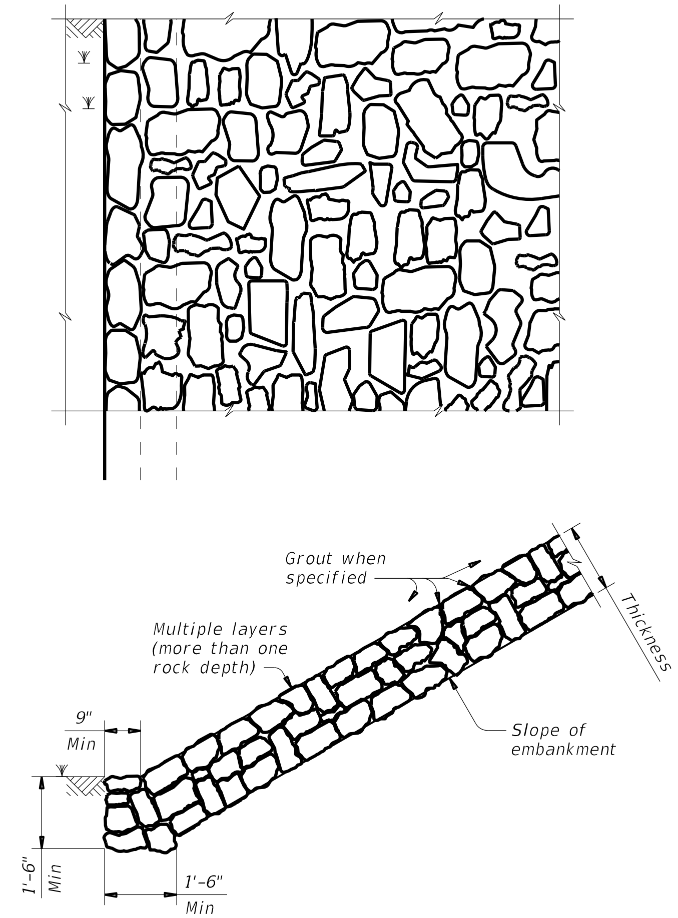


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted

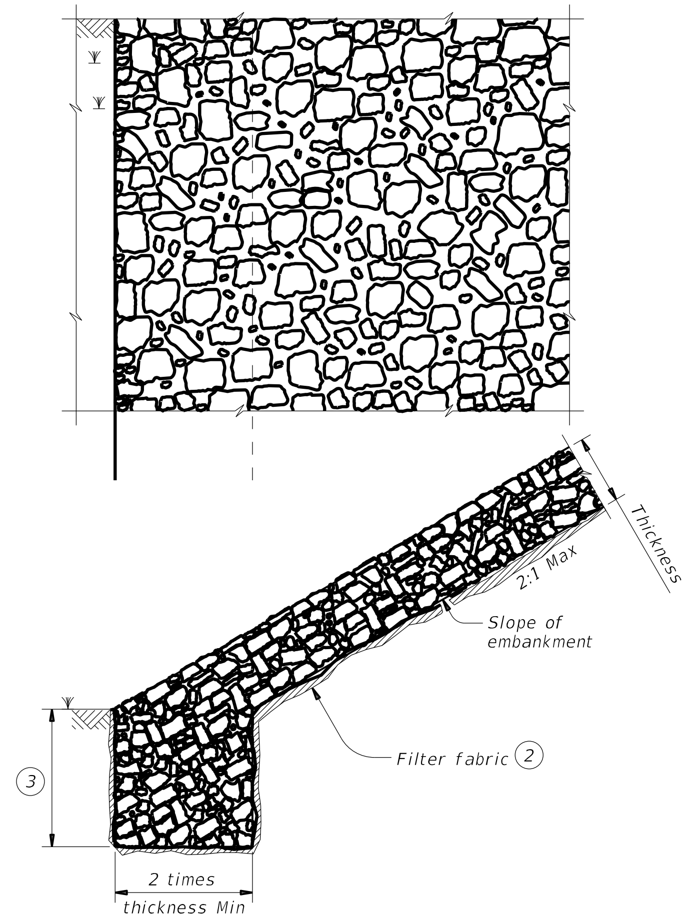


FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

Texas Department of Transportation | Bridge Division Standard

STONE RIPRAP

SRR

FILE: srrstde1-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES			
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY			
REVISIONS	6403	03	001	US 59, ETC.			
	DIST	COUNTY		SHEET NO.			
	LFK	ANGELINA, ETC.		65			

7/28/2022 2:39:04 PM
T:\LFKDOM\Maint Contracts\O*BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\SWP3Index*small disturbance.dgn

THE TOTAL DISTURBED AREA SHOWN IN THE PLANS IS LESS THAN 1 ACRE. THE DISTURBED AREA IN THE PLANS AND THE CONTRACTOR PROJECT SPECIFIC LOCATIONS (PSLS) WITHIN 1 MILE OF THE PROJECT LIMITS FOR THE CONTRACT, WILL FURTHER ESTABLISH THE AUTHORIZATION REQUIREMENTS FOR STORM WATER DISCHARGES. AS THE DISTURBED AREA INCLUDING PSLS IS LESS THAN 1 ACRE, THE TPDES CGP DOES NOT APPLY, HOWEVER, THE CONTRACTOR SHALL PLACE BMP'S AS DIRECTED. IF THE TOTAL AREA DISTURBED SHOWN IN THE PLANS AND PSLS WITHIN 1 MILE OF THE PROJECT LIMITS EXCEEDS 1 ACRE, THE ENGINEER WILL DEVELOP AN SWP3 SITE PLAN AND POST A SMALL CONSTRUCTION SITE NOTICE FOR THE CONSTRUCTION ACTIVITIES.

STATE OF TEXAS
JEREMY KING
102170
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Jeremy King, P.E.
51352925EA181A4
7/29/2022

TXDOT
SWP3
INDEX

TEXAS DEPARTMENT OF TRANSPORTATION
©2022

CONT	SECT	JOB	HIGHWAY
6403	03	001	US 59, ETC.
DIST	COUNTY		SHEET NO.
LFK	ANGELINA, ETC.		66

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. N/A

[x] No Action Required [ ] Required Action

Action No.

1. The proposed work of this project consists of bridge maintenance and repair at varioius locations. These activities maintain the original line and grade, hydraulic capacity and original purpose of the structures. Therefore, this project meets the definition of a routine maintenance activity as defined in the TPDES General Permit No. TXR150000 issued March 5, 2018 and TCEQ's TPDES CGP does NOT apply.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

[ ] No Permit Required

[ ] Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

[ ] Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

[ ] Individual 404 Permit Required

[x] Other Nationwide Permit Required: NWP 3A and 3C-PCN not required

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1. Nationwide Permit applies to the following locations: SH 94 at Jack Creek Relief, SH 103 at Rowan Creek, FM 1271 at Cedar Creek, FM 1818 at Buck Creek, FM 819 at Hurricane Creek, SH 21 at Little Loco Creek Relief, FM 95 at Terrapin, FM 226 at Lavaca Creek,FM 698 at Loco Creek, FM 1275 at Burrows Branch, FM 1648 at Beech Creek, US 59 at Angelina River, SH 103 at Duranzo Creek, US 59 at Flat Fork Creek Slough, FM 415 at Bear Bayou, FM 705 at Couchatana Creek, US 96 at Chinquapin Creek, and FM 139 at Styles Creek.

2. No fill or equipment shall be placed within the stream for use of temporary work access. If methods are deemed necessary, contractor shall develop and provide access plan to Area Engineer for approval. Methods must not obstruct stream flow or life cycles of aquatic species.

3. The following project locations contain wetlands immediately adjacent to the ROW and requires avoidance of those areas: FM 226 at Lavaca Creek Northwest of Bridge, FM 705 at Couchatana Creek West of Bridge, and FM 415 at Bear Bayou Northeast of Bridge.

4. Refer to EPIC Sheet 2 of 2 for Nation Wide Permit (NWP) 3A and 3C requirements in regard to maintaining stream flow, temporary work, temporary acccess, suitable material, and general conditions.

5. All work must be conducted within the existing Right-of-Way.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
[ ] Temporary Vegetation	[x] Silt Fence	[ ] Vegetative Filter Strips
[ ] Blankets/Matting	[ ] Rock Berm	[ ] Retention/Irrigation Systems
[ ] Mulch	[ ] Triangular Filter Dike	[ ] Extended Detention Basin
[x] Sodding	[ ] Sand Bag Berm	[ ] Constructed Wetlands
[ ] Interceptor Swale	[ ] Straw Bale Dike	[ ] Wet Basin
[ ] Diversion Dike	[ ] Brush Berms	[ ] Erosion Control Compost
[ ] Erosion Control Compost	[ ] Erosion Control Compost	[ ] Mulch Filter Berm and Socks
[ ] Mulch Filter Berm and Socks	[ ] Mulch Filter Berm and Socks	[ ] Compost Filter Berm and Socks
[ ] Compost Filter Berm and Socks	[ ] Compost Filter Berm and Socks	[x] Vegetation Lined Ditches
	[ ] Stone Outlet Sediment Traps	[ ] Sand Filter Systems
	[ ] Sediment Basins	[ ] Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

[ ] No Action Required [x] Required Action

1. Equipment storage or stockpiling of materials is NOT permitted in any pulloff or parking area labeled as a historic marker, or where historic markers are present.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

[x] No Action Required [ ] Required Action

1. N/A

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

[ ] No Action Required [x] Required Action

In order to maintain compliance with Chapter 64 of the Texas Parks and Wildlife Code and Migratory Bird Treaty Act (MBTA), construction activities that may affect nests (i.e. tree removal, tree limbing) shall be conducted outside of the nesting season (March 15 to September 15). In the event birds or active nests (eggs and/or nestlings present) are encountered, contact the engineer prior to conducting work.

In order to comply with the Federal Migratory Bird Treaty Act (MBTA) for work on bridge structure, the following actions shall be taken:
1. Inactive nests (unoccupied by birds or eggs) may be removed. The use of exclusion devices, nesting prevention measures or removal and disposal of partially constructed and unoccupied nests on a regular basis to prevent their occupation is permissible.
2. (Nesting Season March 15-September 15) In the event that migratory birds or active nests (nestlings and/or eggs) are present within the immediate construction area, cease work and contact the Area Engineer

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SWP3:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

[ ] Yes [x] No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

[ ] Yes [ ] No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

[x] No Action Required [ ] Required Action

1. N/A

VII. OTHER ENVIRONMENTAL ISSUES

[ ] No Action Required [x] Required Action

The following locations are within USACE Sam Rayburn Flowage Easement Elevation of 179-feet:

US 59 at Angelina River, SH 103 at Duranzo Creek, FM 226 at Lavaca Creek, and FM 705 at Couchatana Creek

1. NO fill below this elevation without the approval of USACE. If fill is deemed necessary, contact the Area Engineer.

ADDENDUM 1 08/26/2022

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

SHEET 1 OF 2

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
© TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS: 12-12-2011 (DS); 05-07-14 ADDED NOTE SECTION IV.; 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	6403	03	001	US 59, ETC.
	DIST		COUNTY	SHEET NO.
	LFK		ANGELINA, ETC.	67

NWP GENERAL CONDITIONS

AS APPLICABLE TO
THIS PROJECT

2. AQUATIC LIFE MOVEMENTS. NO ACTIVITY MAY SUBSTANTIALLY DISRUPT THE NECESSARY LIFE CYCLE MOVEMENTS OF THOSE SPECIES OF AQUATIC LIFE INDIGENOUS TO THE WATERBODY, INCLUDING THOSE SPECIES THAT NORMALLY MIGRATE THROUGH THE AREA, UNLESS THE ACTIVITY'S PRIMARY PURPOSE IS TO IMPOUND WATER.

3. SPAWNING AREAS. ACTIVITIES IN SPAWNING AREAS DURING SPAWNING SEASONS MUST BE AVOIDED TO THE MAXIMUM EXTENT PRACTICABLE. ACTIVITIES THAT RESULT IN THE PHYSICAL DESTRUCTION (E.G., THROUGH EXCAVATION, FILL, OR DOWNSTREAM SMOTHERING BY SUBSTANTIAL TURBIDITY) OF AN IMPORTANT SPAWNING AREA ARE NOT AUTHORIZED.

6. SUITABLE MATERIAL. NO ACTIVITY MAY USE UNSUITABLE MATERIAL (E.G., TRASH, DEBRIS, CAR BODIES, ASPHALT, ETC.). MATERIAL USED FOR CONSTRUCTION OR DISCHARGED MUST BE FREE FROM TOXIC POLLUTANTS IN TOXIC AMOUNTS (SEE SECTION 307 OF THE CLEAN WATER ACT).

8. ADVERSE EFFECTS FROM IMPOUNDMENTS. IF THE ACTIVITY CREATES AN IMPOUNDMENT OF WATER, ADVERSE EFFECTS TO THE AQUATIC SYSTEM DUE TO ACCELERATING THE PASSAGE OF WATER, AND/OR RESTRICTING ITS FLOW MUST BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE.

9. MANAGEMENT OF WATER FLOWS. TO THE MAXIMUM EXTENT PRACTICABLE, THE PRE-CONSTRUCTION COURSE, CONDITION, CAPACITY, AND LOCATION OF OPEN WATERS MUST BE MAINTAINED FOR EACH ACTIVITY, INCLUDING STREAM CHANNELIZATION AND STORM WATER MANAGEMENT ACTIVITIES, EXCEPT AS PROVIDED BELOW. THE ACTIVITY MUST BE CONSTRUCTED TO WITHSTAND EXPECTED HIGH FLOWS. THE ACTIVITY MUST NOT RESTRICT OR IMPEDE THE PASSAGE OF NORMAL OR HIGH FLOWS, UNLESS THE PRIMARY PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER OR MANAGE HIGH FLOWS. THE ACTIVITY MAY ALTER THE PRE-CONSTRUCTION COURSE, CONDITION, CAPACITY, AND LOCATION OF OPEN WATERS IF IT BENEFITS THE AQUATIC ENVIRONMENT (E.G., STREAM RESTORATION OR RELOCATION ACTIVITIES).

11. EQUIPMENT. HEAVY EQUIPMENT WORKING IN WETLANDS OR MUD FLATS MUST BE PLACED ON MATS, OR OTHER MEASURES MUST BE TAKEN TO MINIMIZE SOIL DISTURBANCE.

12. SOIL EROSION AND SEDIMENT CONTROLS. APPROPRIATE SOIL EROSION AND SEDIMENT CONTROLS MUST BE USED AND MAINTAINED IN EFFECTIVE OPERATING CONDITION DURING CONSTRUCTION, AND ALL EXPOSED SOIL AND OTHER FILLS, AS WELL AS ANY WORK BELOW THE ORDINARY HIGH WATER MARK OR HIGH TIDE LINE, MUST BE PERMANENTLY STABILIZED AT THE EARLIEST PRACTICABLE DATE. PERMITTEES ARE ENCOURAGED TO PERFORM WORK WITHIN WATERS OF THE UNITED STATES DURING PERIODS OF LOW-FLOW OR NO-FLOW.

13. REMOVAL OF TEMPORARY FILLS. TEMPORARY FILLS MUST BE REMOVED IN THEIR ENTIRETY AND THE AFFECTED AREAS RETURNED TO PRE-CONSTRUCTION ELEVATIONS. THE AFFECTED AREAS MUST BE REVEGETATED, AS APPROPRIATE.

14. PROPER MAINTENANCE. ANY AUTHORIZED STRUCTURE OR FILL SHALL BE PROPERLY MAINTAINED, INCLUDING MAINTENANCE TO ENSURE PUBLIC SAFETY AND COMPLIANCE WITH APPLICABLE NWP GENERAL CONDITIONS, AS WELL AS ANY ACTIVITY-SPECIFIC CONDITIONS ADDED BY THE DISTRICT ENGINEER TO AN NWP AUTHORIZATION.

23. MITIGATION. THE DISTRICT ENGINEER WILL CONSIDER SEVERAL FACTORS WHEN DETERMINING APPROPRIATE AND PRACTICABLE MITIGATION NECESSARY TO ENSURE THAT ADVERSE EFFECTS ON THE AQUATIC ENVIRONMENT ARE MINIMAL.

25. WATER QUALITY. WHERE STATES AND AUTHORIZED TRIBES, OR EPA WHERE APPLICABLE, HAVE NOT PREVIOUSLY CERTIFIED COMPLIANCE OF AN NWP WITH CWA SECTION 401, INDIVIDUAL 401 WATER QUALITY CERTIFICATION MUST BE OBTAINED OR WAIVED (SEE 33 CFR 330.4(C)). THE DISTRICT ENGINEER OR STATE OR TRIBE MAY REQUIRE ADDITIONAL WATER QUALITY MANAGEMENT MEASURES TO ENSURE THAT THE AUTHORIZED ACTIVITY DOES NOT RESULT IN MORE THAN MINIMAL DEGRADATION OR WATER QUALITY.

27. REGIONAL AND CASE-BY-CASE CONDITIONS. THE ACTIVITY MUST COMPLY WITH ANY REGIONAL CONDITIONS THAT MAY HAVE BEEN ADDED BY THE DIVISION ENGINEER (SEE 33 CFR 330.4(E)) AND WITH ANY CASE SPECIFIC CONDITIONS ADDED BY THE CORPS OR BY THE STATE, INDIAN TRIBE, OR U.S. EPA IN ITS SECTION 401 WATER QUALITY CERTIFICATION, OR BY THE STATE IN ITS COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION.

FOR A COMPLETE LIST OF GENERAL CONDITIONS GO TO:

http://www.swf.usace.army.mil/Missions/Regulatory/Permitting/NationwideGeneralPermits.aspx

USACE - PERMIT #3(A) & (C)

AS APPLICABLE TO
THIS PROJECT

(A) THE REPAIR, REHABILITATION, OR REPLACEMENT OF ANY PREVIOUSLY AUTHORIZED, CURRENTLY SERVICEABLE STRUCTURE, OR FILL, OR OF ANY CURRENTLY SERVICEABLE STRUCTURE OR FILL AUTHORIZED BY 33 CFR 330.3, PROVIDED THAT THE STRUCTURE OR FILL IS NOT TO BE PUT TO USES DIFFERING FROM THOSE USES SPECIFIED OR CONTEMPLATED FOR IT IN THE ORIGINAL PERMIT OR THE MOST RECENTLY AUTHORIZED MODIFICATION. MINOR DEVIATIONS IN THE STRUCTURE'S CONFIGURATION OR FILLED AREA, INCLUDING THOSE DUE TO CHANGES IN MATERIALS, CONSTRUCTION TECHNIQUES, REQUIREMENTS OF OTHER REGULATORY AGENCIES, OR CURRENT CONSTRUCTION CODES OR SAFETY STANDARDS THAT ARE NECESSARY TO MAKE THE REPAIR, REHABILITATION, OR REPLACEMENT ARE AUTHORIZED. ANY STREAM CHANNEL MODIFICATION IS LIMITED TO THE MINIMUM NECESSARY FOR THE REPAIR, REHABILITATION, OR REPLACEMENT OF THE STRUCTURE OR FILL; SUCH MODIFICATIONS, INCLUDING THE REMOVAL OF MATERIAL FROM THE STREAM CHANNEL, MUST BE IMMEDIATELY ADJACENT TO THE PROJECT. THIS NWP ALSO AUTHORIZES THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS WITHIN, AND IN THE IMMEDIATE VICINITY OF, THE STRUCTURE OR FILL. THIS NWP ALSO AUTHORIZES THE REPAIR, REHABILITATION, OR REPLACEMENT OF THOSE STRUCTURES OR FILLS DESTROYED OR DAMAGED BY STORMS, FLOODS, FIRE OR OTHER DISCRETE EVENTS, PROVIDED THE REPAIR, REHABILITATION, OR REPLACEMENT IS COMMENCED, OR IS UNDER CONTRACT TO COMMENCE, WITHIN TWO YEARS OF THE DATE OF THEIR DESTRUCTION OR DAMAGE. IN CASES OF CATASTROPHIC EVENTS, SUCH AS HURRICANES OR TORNADOES, THIS TWO-YEAR LIMIT MAY BE WAIVED BY THE DISTRICT ENGINEER, PROVIDED THE PERMITTEE CAN DEMONSTRATE FUNDING, CONTRACT, OR OTHER SIMILAR DELAYS.

(C) THIS NWP ALSO AUTHORIZES TEMPORARY STRUCTURES, FILLS AND WORK, INCLUDING THE USE OF TEMPORARY MATS, NECESSARY TO CONDUCT THE MAINTENANCE ACTIVITY. APPROPRIATE MEASURES MUST BE TAKEN TO MAINTAIN NORMAL DOWNSTREAM FLOWS AND MINIMIZE FLOODING TO THE MAXIMUM EXTENT PRACTICABLE, WHEN TEMPORARY STRUCTURES, WORK AND DISCHARGES, INCLUDING COFFERDAMS, ARE NECESSARY FOR CONSTRUCTION ACTIVITIES, ACCESS FILLS, OR DEWATERING OF CONSTRUCTION SITES. TEMPORARY FILLS MUST CONSIST OF MATERIALS, AND BE PLACED IN A MANNER, THAT WILL NOT BE ERODED BY EXPECTED HIGH FLOWS. TEMPORARY FILLS MUST BE REMOVED IN THEIR ENTIRETY AND THE AFFECTED AREAS RETURNED TO PRE-CONSTRUCTION ELEVATIONS. THE AREAS AFFECTED BY TEMPORARY FILLS MUST BE REVEGETATED, AS APPROPRIATE.

NOTE: THIS NWP AUTHORIZES THE REPAIR, REHABILITATION, OR REPLACEMENT OF ANY PREVIOUSLY AUTHORIZED STRUCTURE OR FILL THAT DOES NOT QUALIFY FOR THE CLEAN WATER ACT SECTION 404(F) EXEMPTION FOR MAINTENANCE.

NOTE:

THE PROJECT CROSSES JURISDICTIONAL WATERS OF THE U.S. AND A NWP #3A and C WILL BE UTILIZED. THIS PERMIT AUTHORIZES THE REPAIR, REHABILITATION, OR REPLACEMENT OF CURRENTLY SERVICEABLE STRUCTURES OR FILL THAT WERE PREVIOUSLY AUTHORIZED. THE NWP GENERAL CONDITIONS AND THE NWP GUIDELINES MUST BE FOLLOWED IN ORDER TO MAINTAIN COMPLIANCE WITH NWP. NO COORDINATION HAS TAKEN PLACE WITH THE USACE. IF COORDINATION MAY BE NEEDED, CONTACT THE TXDOT LUFKIN DISTRICT ENVIRONMENTAL SECTION AT 1-800-687-8087.

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC):

USACE

ADDENDUM 1 08/26/2022

Texas Department of Transportation

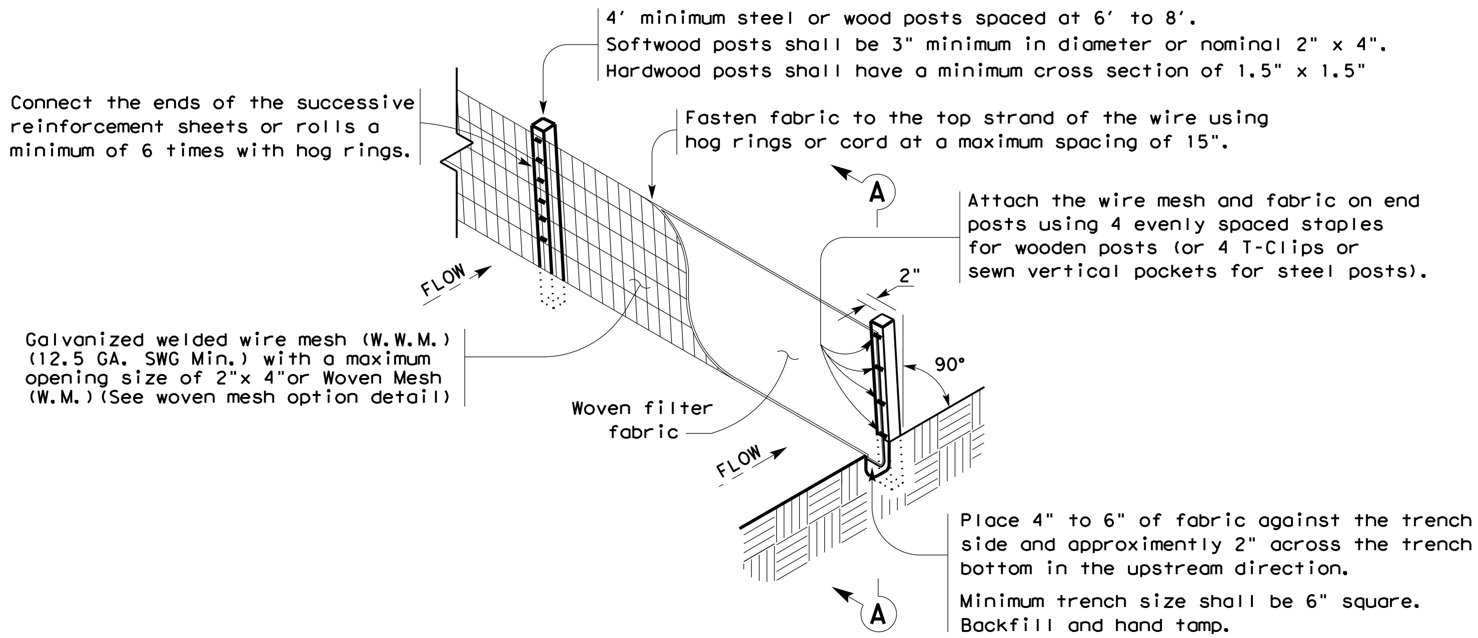
EPIC

(ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS)

SHEET 2 OF 2

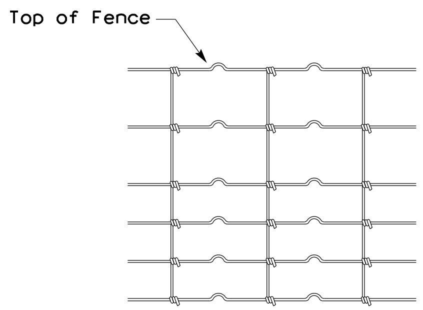
FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR			
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY			
REVISIONS	6403	03	001	US 59, ETC.			
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.			
05-07-14 ADDED NOTE SECTION IV.	LFK	ANGELINA, ETC.		68			
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.							

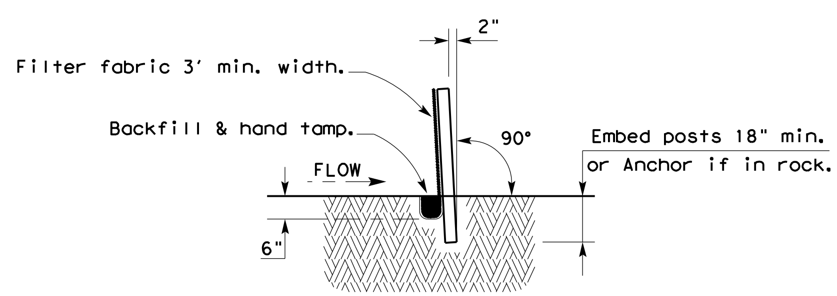
DATE: 8/26/2022 7:41:21 AM
FILE: I:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\Addendum\6403-03-001 EPIC 2_ NWP3.dgn



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

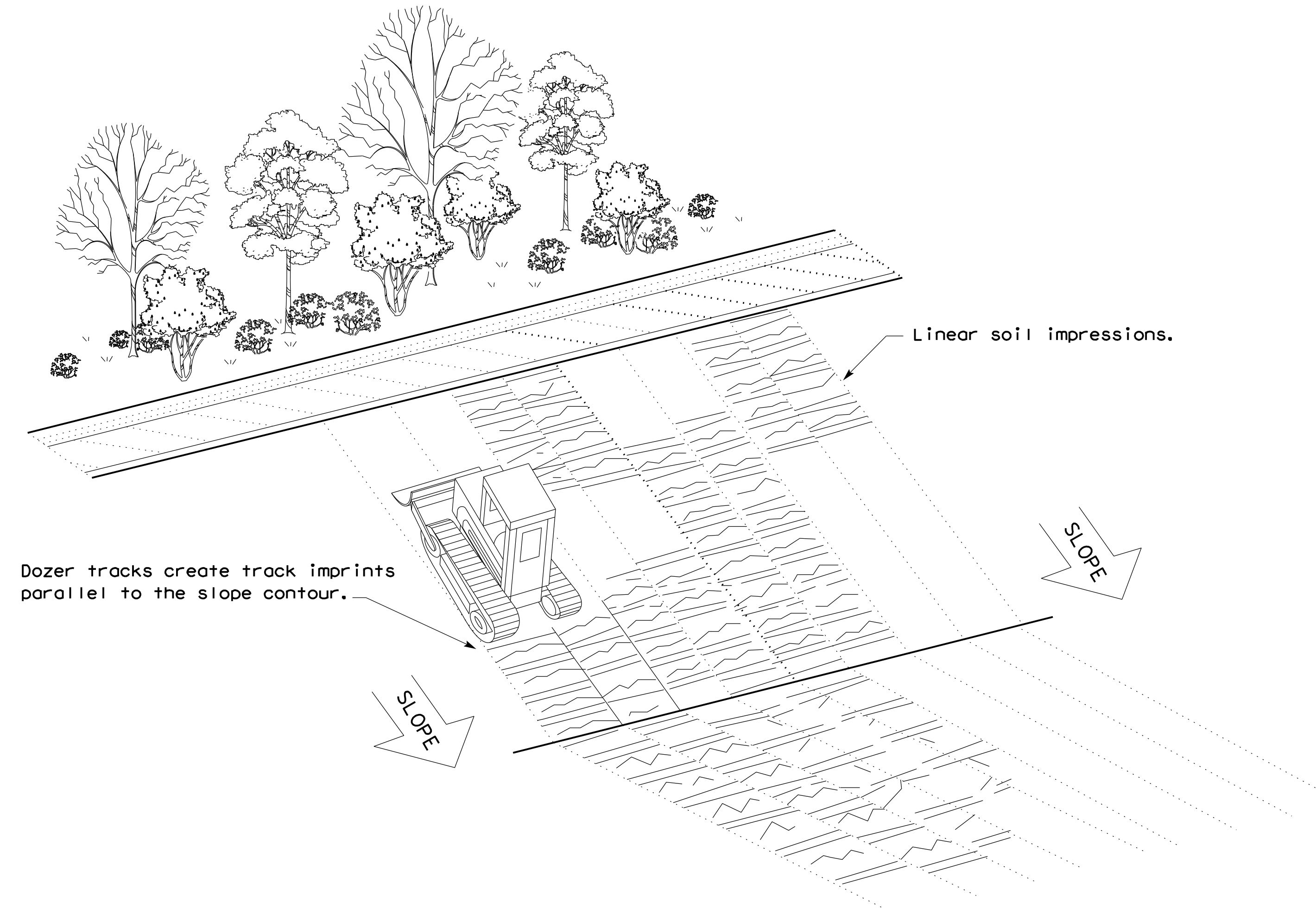
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		69

7/28/2022
TF$LEKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\STANDARDS\EC(1)-16.dgn

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

DOT #: 847113X
Crossing Type: Highway Overpass
RR Company Owning Track at Crossing: Angelina and Neches River Railroad
Operating RR Company at Track: Angelina and Neches River Railroad
RR MP: 3.200
RR Subdivision: N/A
City: Lufkin
County: Angelina
CSJ at this Crossing: 0199-08
Highway/Roadway name crossing the railroad: US BU 69/ Kurth Drive
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 4%

Scope of Work at this Crossing to Be Performed by State Contractor:
This project is for Bridge Preventive Maintenance (BPM) consisting of repairing spalls, fill errosion using riprap and removal of trees on riprap.

Scope of Work at this Crossing to Be Performed by Railroad Company:
Provide flagging services whenever the work is within 25 feet of the nearest rail.

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2
On this project, night or weekend flagging is:

- [ ] Expected
- [X] Not Expected

Flagging services will be provided by:

- [ ] Railroad Company: TxDOT will pay flagging invoices
- [X] Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30 day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

- [ ] UPRR - UP.info@railpros.com
  Call Center 877-315-0513, Select #1 for flagging
- [ ] BNSF - BNSF.info@railpros.com
  Call Center 877-315-0513, Select #1 for flagging
- [ ] KCS - KCS.info@railpros.com
  Call Center 877-315-0513, Select #1 for flagging
  - Bottom Line On-Track Safety Services
  bottomline076@aol.com, 903-767-7630
- [X] OTHERS Timothy Hammond
  936-634-4403 Office
  thammond@anrr.com

Contractor must incorporate Construction Inspection into anticipated construction schedule.

- [X] Not Required
- [ ] Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

- [ ] Required
- [X] Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
[ ] Not Required	
[X] Non - Bridge Projects	$2,000,000 / $6,000,000
[ ] Bridge Projects	$5,000,000 / $10,000,000
[ ] Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

- [X] Not Required
- [ ] Required: TxDOT CST to assist in obtaining with the UPRR (see Item 5, Article 8.3)
- [ ] Required: Contractor to obtain (see Item 5, Article 8.4)
  With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed ROE agreement between the Contractor and the Railroad if required on project.

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

- [X] Not Required
- [ ] Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call Angelina and Neches River Railroad
Railroad Emergency Line at 936-634-4403
Location: DOT 847113X
RR Milepost: 3.200
Subdivision: N/A

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	6403	03	001	US 59, ETC.
3/2020	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		70

DATE:
FILE:

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

A. Complete the railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on railroad property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."

B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR)and 14'-0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		71

DATE: 7/28/2022 2:39:06 PM
FILE: T:\LFKDOM\Maint Contracts\0_BPM - Bridge Preventive Maintenance Contracts\FY 23\6403-03-001 North Ang\DGN\Railroad\Non-Bridge Requirements.dgn

3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

   UPRR 1-800-336-9193
   7:00 AM to 9:00 PM CST Monday-Friday except holidays,
   staffed 24 hrs/day for emergencies
   48 hrs notice required

   BNSF 1-800-533-2891
   24 hour number
   5 working days notice required

   KCS 1-800-344-8377
   Texas One Call, a 24 hour number
   48 hrs notice required, excluding weekends and holidays

   If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation — Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	6403	03	001	US 59, ETC.
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA, ETC.		72