FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	C 906-00-235		1
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS

SEE SHEET 2

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE PROJECT NO. C 906-00-235

ECTOR, ETC
VARIOUS

NET LENGTH OF PROJECT: 0,000.00 FT = 0.000 MI

LIMITS: DISTRICT WIDE

FOR THE CONSTRUCTION OF BRIDGE MAINTENANCE

CONSISTING OF BRIDGE JOINT AND CONCRETE REPAIR

FINAL PLANS

CONTRACTOR:

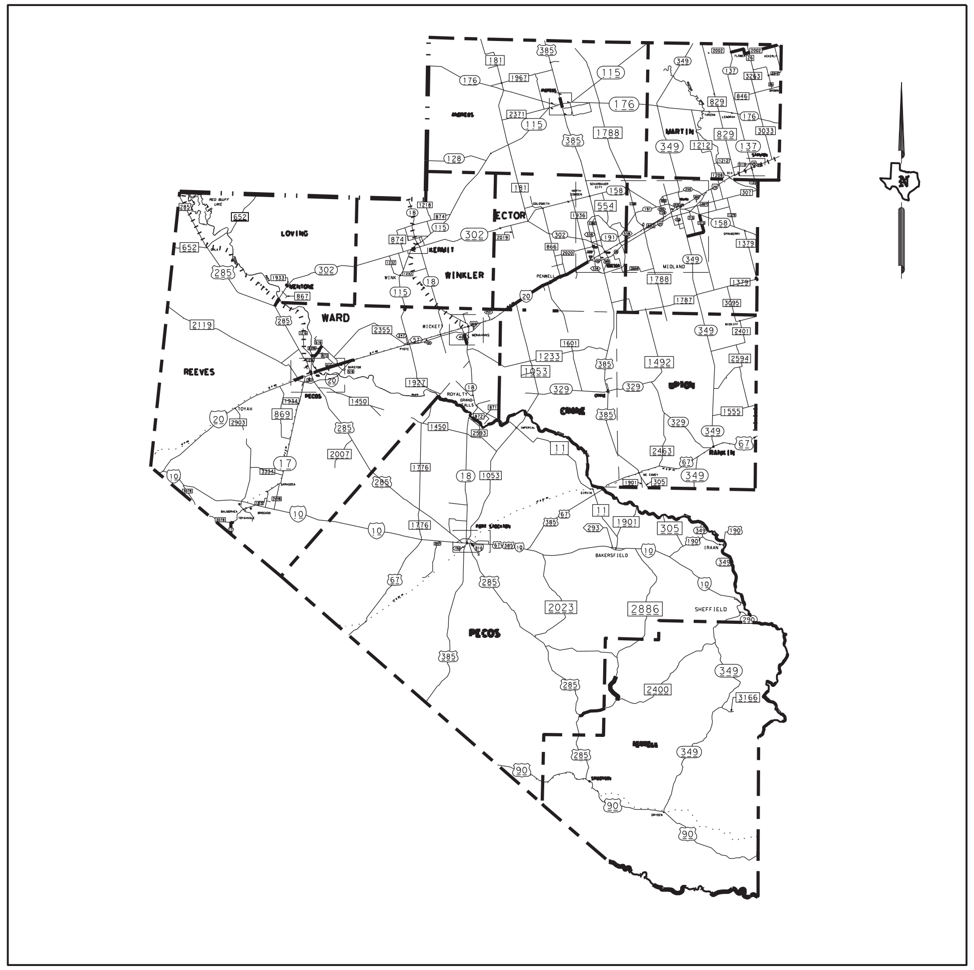
LETTING DATE:

DATE CONTRACTOR BEGAN WORK:

DATE WORK WAS COMPLETED:

DATE WORK WAS ACCEPTED:

FINAL CONTRACT COST: $



SCALE: N/A

EXCEPTIONS: N/A

EQUATIONS: N/A

RR CROSSINGS: UPR AT IH 20 (DOT #441019J)
UPR AT FM 1936/IH 20 (DOT #796232N)
UPR AT IH 20/BUS 20 (DOT #796234C)
UPR AT IH 20/CR 419 (DOT #796224W)
UPR AT IH 20 (CLOSEST DOT #796128M)
UPR AT US 90 (CLOSEST DOT #763867A)
UPR AT US 90 (DOT #763865L)
TXPF AT US 67 (CLOSEST DOT #018877D)
TXPF AT US 67 (CLOSEST DOT #018872U)
TXPF AT US 67 (CLOSEST DOT #018871M)
PVSR AT HWY 17 (CLOSEST DOT #865905P)
PVSR AT IH 20/HWY 17 (DOT #865925B)

TEXAS DEPARTMENT OF TRANSPORTATION

SUBMITTED FOR LETTING: 1/26/2024
DocuSigned by: Nestor T Mendoza, P.E.
9104D8EB1809444... P.E.

RECOMMENDED FOR LETTING: 1/25/2024 20__
DocuSigned by: ______, P.E.
DIRECTOR OF TRANSPORTATION PLANNING AND DEVELOPMENT

APPROVED FOR LETTING: 1/25/2024 20__
DocuSigned by: ______, P.E.
902D0C440F014A4... DISTRICT ENGINEER

COUNTY ______ PROJ. NO. ______
HWY. NO. ______ LETTING DATE ______
DATE ACCEPTED ______

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	

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS. (SP 000-008)

INDEX OF SHEETS

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

DocuSigned by:
Nestor T Mendoza, P.E.
9104D8EB1809444...

1/22/2024
DATE

STATE OF TEXAS
NESTOR T MENDOZA
139194
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Nestor T Mendoza, P.E.
9104D8EB1809444...

INDEX OF SHEETS

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		2
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

Material Specification Information

Contractor questions on this project are to be addressed to the following individual(s):
ODA-PreLettingQuestions@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:
https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

Item 5: Control of the Work

For any structures containing bird nests, schedule all work to complete the demolition of the existing structures identified in the plans between September 15, 2024 and March 15, 2025. Failure to complete this work during the specified timeframe may cause construction delays due to environmental regulations.

The existing alignment is the control for the Contractor staking. Establish reference points for the control prior to removing the existing surface.

Use Method C for construction surveying.

In the event the finished surface does not conform to the typical sections or does not meet the required IRI, rework the non-conforming area to the limits necessary and employ additional survey control as directed.

Item 6: Control of Materials

Restrict storage of equipment and materials to approved areas. The Engineer will not approve storage in any TxDOT yard.

Promptly and properly dispose of any waste generated from servicing equipment on the project.

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit a notarized original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link.

https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html for clarification on material categorization.

The Contractor shall remove and dispose of asbestos-containing materials (ACM) at the following locations if construction activities will disturb the ACM:

a. NBI# 061860014001126: 2% chrysotile asbestos detected on 12,050 SF of white texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, columns, and outer beams.
b. NBI# 061860014004188: 75% chrysotile asbestos detected in 20 CF of isolator pads located under guardrail posts where the deck is met.
c. NBI# 061860014004191: 75% chrysotile asbestos detected in 5 CF of isolator pads at steel guardrail posts.
d. NBI# 061860044108183: 2% chrysotile asbestos detected in 15,000 SF of texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, and outer beam.
e. NBI# 061950000306075: 20% chrysotile asbestos detected in 70 CF of ¼ inch felt under pier caps. 2% chrysotile asbestos detected in 22,500 SF of texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, and columns.
f. NBI# 061950044109063: 8-12% chrysotile asbestos detected in 5 CF of black tar/felt at pier caps.
g. NBI# 061950044109128: 2% chrysotile asbestos on 14,500 SF of texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, columns, and outer beams.
h. NBI# 062220002202065: 3% chrysotile asbestos detected on 1,850 SF of texture on concrete surfaces including wingwalls, culvert walls, and guardrails. This material is not present on the interior portions of the culvert.

For asbestos abatement work, provide personnel or subcontractors that are licensed, registered, or accredited by the Texas Department of State Health Services (DSHS) and insured for the appropriate asbestos related activity.

Provide an on-site supervisor, or ensure the subcontractor has a supervisor, meeting the requirements under OSHA for a “Competent Person” for all work involving ACM where the asbestos content is greater than 1%. The competent person must be familiar with and experienced in asbestos abatement and other related work and must enforce the use of all safety procedures and equipment. The supervisor must be knowledgeable of all EPA, OSHA and NIOSH requirements and guidelines. Provide documentation of the supervisor’s qualifications to the Engineer.

Submit required notifications to DSHS. Assume responsibility for ensuring that all required notifications are submitted by the deadlines and in the manner required by DSHS. Provide copies of all required notifications to the Engineer. No time extensions or suspension of time charges will be made for failure to submit timely notifications or revised notifications.

Employ an Individual Asbestos Consultant or an Asbestos Consulting Agency licensed by DSHS to develop an Asbestos Abatement Plan (AAP) for the indicated materials. The AAP must comply with all applicable provisions of NESHAP, TAHPR and OSHA. Include in the AAP the acceptable removal or abatement methods, worker protection requirements, air monitoring provisions, temporary storage of removed ACM, and the proposed method and location for disposal of ACM. Provide a copy of the AAP to the Engineer. Approval of the AAP by the Engineer is not required.

Use qualified personnel or subcontractors as specified herein to remove or abate ACM as described in the AAP. Do not deviate from the requirements in the AAP unless written approval is obtained from the developer of the AAP or the AAP is properly revised. Retain the services of the developer of the AAP throughout the duration of abatement work to ensure compliance with the AAP and applicable regulations. The developer of the AAP and the abatement subcontractor can be the same entity. The developer of the AAP is responsible for ensuring compliance with all applicable regulations.

ACM that has been removed may be temporarily stored on-site provided the storage methods comply with the provisions in the AAP. Do not allow any accidental release of dust. Take removed ACM to a disposal facility licensed or approved to accept such materials as indicated in the AAP. Comply with NESHAP and TAHPR regulations regarding handling and transporting ACM. Take coating chips and spent abrasives with no ACM present to an appropriate disposal facility. Transport all materials in a manner to prevent accidental release of dust. In accordance with NESHAP, indicate on any shipping manifest for containers of ACM that the Department is the generator of the waste, the name of the transporter, the name of the administering agency (DSHS), and the name of the disposal facility.

Contractor Force Account “Environmental” has been established for the payment of any removal and disposal of ACM.

The Contractor shall remove and dispose of the lead-containing paint (LCP) at the following locations if construction activities will disturb the LCP:

a. NBI# 061860002106103: Approximately 20 SF of silver paint on four steel guardrail posts contains a lead concentration of 490 ppm.
b. NBI# 061860014006044: Approximately 275 SF of silver paint on steel guardrails contains a lead concentration of 790 ppm.
c. NBI# 061860014015078: Approximately 150 SF of silver paint on steel guardrails contains a lead concentration of 270 ppm.
d. NBI# 061860044107039: Approximately 2,500 SF of silver paint on steel guardrails and guardrail posts contains a lead concentration of 36,000 ppm.
e. NBI# 061950010302008: Approximately 750 SF of old silver paint on steel pedestrian walkway contains a lead concentration of 31,000 ppm. Approximately 950 SF of new silver paint on steel columns and I-beam guardrail posts on pedestrian walkway contains a lead concentration of 17,000 ppm.

f. NBI# 060690000407023: Approximately 7,500 SF of silver paint on steel beams, cross beams, and bearings contains a lead concentration of 47,000 ppm.

Implement worker protections or engineering and work practice controls as needed to minimize worker risk of lead exposure when torch-cutting, heating, welding, or grinding metal components with lead-containing coatings. Comply with all applicable OSHA requirements including OSHA Standards and Interpretations, 29 CFR Part 1926.62 “Lead in Construction” and 29 CFR Part 1926.134 “Respiratory Protection”, as well as all other applicable Local, State, and Federal regulatory requirements.

When practical, use mechanical methods (unbolting, mechanical shearing) to dismantle painted steel structural components. Where torch cutting, welding, burning, or grinding must be performed on steel components with lead-containing coatings, stripping back of lead paint at the affected areas may be used as a work practice control to minimize employee exposure to lead fumes.

Provide qualified personnel or subcontractors to perform lead paint mitigation work. Qualified personnel include those that are licensed, registered, or accredited by the Texas Department of State Health Services (DSHS) and insured for the appropriate lead-containing coating abatement activity, or personnel working under current, written Lead Compliance and Training Programs meeting the requirements specified in OSHA Standards and Interpretations, 29 CFR Part 1926.62 “Lead in Construction”.

When stripping back of lead-containing coatings is required, include paint-stripping procedures in the project Demolition or in a separate Lead Paint Removal Work Plan. Use qualified personnel or subcontractors, as specified, to strip back lead paint as described in the plan or as directed.

Perform paint stripping work in accordance with the recommended procedures for stripping back lead-based paint found in the OSHA Technical Manual, Section V: Chapter 3 – Controlling Lead Exposure in the Construction Industry, under work practice controls for welding, burning, and torch-cutting, or use an equivalent OSHA compliant method.

The Contractor must store all coating removal wastes in approved, secured, and leak-proof containers following completion of each work shift. Upon completion of the abatement activities, the Contractor must properly characterize the waste materials for transportation and disposal at an appropriate disposal facility. The Department, or the contractor performing the removal work, may sign as the Generator of the waste material produced by this item.

Contractor Force Account “Environmental” has been established for the payment of any removal and disposal of LCP.

Item 7: Legal Relations and Responsibilities

If access to the project is required through a new or unapproved driveway (i.e. Material source, stockpile location, field office, etc.), obtain an approved "Permit to Construct Access Driveway Facilities on Highway Right Of Way" (TxDOT Form 1058) before beginning any construction operations.

Utilities (public, private and TxDOT) exist throughout the project. Prior to any excavation, investigate to determine the utility locations within the project right of way. Contact the TxDOT Odessa Traffic Operations shop at 432-498-4690 to investigate and determine the location of any TxDOT utility that may exist within the project right of way. Exercise caution when excavating in areas where investigations have determined that utilities exist. The contractor is responsible for maintaining utility markings

No significant traffic generator events identified.

As an element of ensuring public safety and convenience under Article 7.2.4, the Contractor is hereby directed to open all closed lanes and shoulder and remove all traffic control devices from any areas where work is not being actively performed unless overnight traffic control is required and approved by the engineer. Removed devices must be stored outside of the clear zones near the right of way line or removed from the right of way line entirely.

At any time during construction that a previously installed crash cushion is damaged by the traveling public and is requested to be repaired by the Engineer, the repair will be paid at the same unit cost as the original installation.

Item 8: Prosecution and Progress

The following portions of the plans may affect the Contractor's planned construction sequencing. The Contractor's attention is directed to the appropriate plan sheet or standard sheet.

-Traffic Control Plan

-Storm Water Pollution Prevention Plan

-Environmental Permit, Issues And Commitments (EPIC)

-Railroad Exhibits and/or Notes

Maintain ingress and egress to side streets and private property at all times.

Maintain ingress and egress to the frontage roads at all times.

Working days will be computed and charged in accordance with Article 8. 3.1.4. "Standard Workweek."

Incentive for early contract completion shall be based on contract administrative liquidated damage rates.

90 day lead time is needed to allow for sufficient time to obtain and produce materials needed for various bid items in this project.

Item 502: Barricades, Signs, and Traffic Handling

Stop work immediately if any major traffic control element such as an advanced warning flashing panel or TMA or PCMS is not in good working order or control setup.

Use Shoulder Drop-Off (CW8-9A) signs during construction when shoulder drop-off conditions are 3 inches or greater or as directed. Placement shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices".

This project has a regulatory work zone speed reduction within the project limits. Placement of speed reduction zone signs shall comply with BC (3)-21. Speed resumption sign(s) is required at the end of a speed reduction zone.

Place chevrons, at a minimum, on every other drum used for outsides of curves, merging tapers and shifting tapers.

Vertical panels shall be self-righting.

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.

When construction operations result in a drop-off of more than 2 inches, a 3:1 or flatter slope will be required. The slope must be constructed with a compacted material capable of supporting vehicles as approved by the Engineer. This work shall be done expeditiously during daylight hours. Flaggers and appropriate signing to safely guide traffic through the work area will be required as directed by the Engineer. This shall be considered subsidiary to Item 502.

Item 506: Temporary Erosion, Sedimentation, and Environmental Controls

In accordance with the Construction General Permit (CGP), erosion control and stabilization measures should be initiated as soon as practicable to include (list what our stabilization measures are – for example, replacing topsoil from windrow, erosion control blankets, seeding, etc.)

It is not anticipated that erosion control devices will be needed on this project. In the event that devices are needed, the Storm Water Pollution Prevention Plan shall consist of using the following items and/or items as directed by the Engineer. Payment for the work may be determined in accordance with Item 4, Article 4. "Changes in the Work".

-Temporary Sediment Control Fence

-Rock Filter Dams

-Biodegradable Erosion Control Logs

-Construction Exits

-Earthwork For Erosion Control

The total disturbed area for this project is 0 Acres. The disturbed area in this project, all project locations in the contract, and 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. The department will obtain an authorization to discharge storm water from the Texas Commission On Environmental Quality (TCEQ) for the construction activities shown on the plans. The Contractor is to obtain any required authorization from the TCEQ for any Contractor PSLS for construction support activities on or off the right of way. When the total area disturbed for all projects in the contract and PSLS within 1 mile of the project limits exceeds 5 acres, provide a copy of the Contractor NOI for PSLS on the right of way, to the Engineer (or to the appropriate MS4 operator when on an off-state system route).

Upon acceptance of the project, all SW3P devices will become property of the State and maintenance responsibility is transferred to the State until final stabilization is attained.

When applying cement for emulsion, asphalt treatment, or any other soil stabilization, sprinkle water as needed to control cement from blowing and contaminating adjacent vegetation and waters.

Provide a minimum of two SW3P Signs. Obtain from the Engineer a copy of the project's completed TPDES Storm Water Program Construction Site Notice (TxDOT) and Contractor's copy of the Construction Site Notice. Laminate the sheets and bond with adhesive to 36" X 36" plywood sign blanks. Ensure the sheets remain dry. Apply Type C Blue reflective sheeting as the background and add the text "SW3P" in 5" white lettering, centered at the top. Attach the signs to approved temporary mounts and locate at each of the project limits just inside the right of way line at a readable height or as directed by the Engineer. If the sign cannot be placed outside the clear zone, it must adhere to the TMUTCD. SW3P signs, maintenance, and reposting (for replacement or as needed to ensure readability) will be subsidiary to Item 502.

Item 6001: Portable Changeable Message Sign

PCMS shall be placed in operation a minimum of one (1) week prior to construction. Location(s) and duration for PCMS shall be as directed by the Engineer;

Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

General Note 6 of TCP (1-2)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 6 of TCP (2-4)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

There are no General Notes for additional shadow vehicle(s) with truck mounted attenuator (TMA) on TCP (6-1)-12; the shadow vehicle(s) with TMA specified on the traffic control plan as "required" is the quantity that has been estimated for this operation.

General Note 7 of TCP (2-2)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 6 of TCP (2-4)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

The Contractor will be responsible for determining if one or more operations will be ongoing at the same time to determine the total number of TMAs needed for the project.

Basis of Estimate for Stationary TMA's			
Standard	TMA (Stationary)		
	Required	Optional	Total
TCP (1-2) - 18	1	1	2
TCP (2-4) - 18	1	1	2
TCP (6-1) - 18	2	0	2

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0906-00-235 **DISTRICT** Odessa **COUNTY** Ector
HIGHWAY Various

		CONTROL SECTION JOB		**0906-00-235**		TOTAL EST.	TOTAL FINAL
		PROJECT ID		**A00133504**			
		COUNTY		**Ector**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	429-6004	CONC STR REPAIR(RAPID DECK REP(PRT DPT)	SF	260.000		260.000	
	429-6006	CONC STR REPR(RAPID DECK REP(FULL DPT))	SF	260.000		260.000	
	429-6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	5,335.000		5,335.000	
	429-6011	CONC STR REPR(REMOV AND REPL WINGWALL)	CY	4.000		4.000	
	438-6001	CLEANING AND SEALING EXISTING JOINTS	LF	2,709.000		2,709.000	
	454-6008	HEADER TYPE EXPANSION JOINT	CF	74.000		74.000	
	454-6009	JOINT SEALANT	LF	2,709.000		2,709.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	22.000		22.000	
	780-6004	CONC CRCK REPR(DISCRETE)(ROUT AND SEAL)	LF	1,201.000		1,201.000	
	785-6010	BRIDGE JOINT REPLACEMENT (ARMOR)	LF	265.000		265.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	844.000		844.000	
	6185-6002	TMA (STATIONARY)	DAY	422.000		422.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		ENVIRONMENTAL: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

SUMMARY OF BRIDGE ITEMS

REF#	NBI #	ROADWAY	COUNTY	LOCATION	TOTAL # OF JOINTS	JOINTS TO BE REPAIRED	LENGTH OF JOINT (ROUNDED)	DEPTH OF OVERLAY	WIDTH (PER SIDE)	429 6004 CONC STR REPAIR (RAPID DECK REP(PRT DPT)	429 6006 CONC STR REPR (RAPID DECK REP (FULL DPT))	429 6007 CONC STR REPAIR (VERTICAL & OVERHEAD)	429 6011 CONC STR REPR (REMOV AND REPL WINGWALL)	438 6001 CLEAN AND SEALING EXISTING JOINTS	454 6008 HEADER TYPE EXPANSION JOINT	454 6009 JOINT SEALANT	780 6004 CONC CRCK REPR (DISCRETE) (ROUTE AND SEAL)
						EA	LF	IN	IN	SF	SF	SF	CY	LF	CF	LF	LF
1	06-069-0-0004-07-023	IH 20 EB	ECTOR	1.90 MI E OF FM 1601	2	1	40	-	20	-	-	-	-	40	-	40	-
2	06-069-0-0004-07-024	IH 20 EB	ECTOR	0.80 MI W OF FM 1601	4	1	38	-	18	-	-	-	-	38	-	38	-
3	06-069-0-0004-07-025	IH 20 WB	ECTOR	0.80 MI W OF FM 1601	4	1	38	-	18	-	-	-	-	38	-	38	-
4	06-069-0-0004-07-036	IH 20 EB	ECTOR	0.60MI W OF US 385	7	7	40	-	14	-	-	-	-	280	-	280	-
5	06-069-0-0004-07-040	IH 20 WB	ECTOR	1.85 MI W OF US 385	5	2	38	-	14	-	-	-	-	76	-	76	-
6	06-069-0-0004-07-045	FM 1936	ECTOR	IH 20 & UP RR	11	11	32	6	24	-	-	-	-	320	54	320	-
7	06-069-0-0004-07-070	SH 302 NB/LP 338	ECTOR	3.55 MI W OF US 385	7	2	34	-	10	-	-	-	-	68	-	68	-
8	06-069-0-0004-07-080	IH 20 EB	ECTOR	3.45 MI SW OF FM 866	4	2	38	-	16	-	-	-	-	76	-	76	-
9	06-069-0-0004-07-225	IH 20 WB	ECTOR	4.5 MI W OF US 385	11	2	40	-	26	-	-	-	-	80	-	80	-
10	06-069-0-0004-07-226	IH 20 EB	ECTOR	4.5 MI W OF US 385	11	1	40	-	26	-	-	-	-	40	-	40	-
11	06-069-0-0005-13-185	IH 20 WB	ECTOR	4.15 MI E OF US 385	5	2	38	4	14	-	-	-	-	76		76	-
12	06-069-0-0005-13-186	IH 20 EB	ECTOR	4.15 MI E OF US 385	5	1	38	4	14	-	-	-	-	38		38	-
13	06-069-0-2224-01-011	W LOOP 338 SB	ECTOR	SH 302/SPUR 450	4	2	53	-	14	-	-	-	-	106	-	106	-
14	06-069-0-2224-01-012	W LOOP 338 NB	ECTOR	W LOOP 338 AT SH 302	4	1	53	-	15	-	-	-	-	53	-	53	-
15	06-069-0-2224-01-013	SH 302/LP 338 SB	ECTOR	SH 302 AT FM 2020	4	4	38	-	15	-	-	-	-	152	-	152	-
16	06-069-0-2224-01-014	SH 302/LP 338 NB	ECTOR	SH 302 AT FM 2020	4	4	38	-	13	-	-	-	-	152	-	152	-
17	06-069-0-2224-01-015	SH 302/LP 338 SB	ECTOR	SH 302 AT FM 3472	4	4	38	-	14	-	-	-	-	152	-	152	-
18	06-069-0-2224-01-016	SH 302/LP 338 NB	ECTOR	SH 302 AT FM 3472	4	4	38	-	14	-	-	-	-	152	-	152	-
19	06-069-0-2296-01-019	SH 191 WB	ECTOR	SH 191 at Loop 338	-	-	-	-	-	130	130	92	-	-	-	-	200
20	06-069-0-2296-01-020	SH 191 EB	ECTOR	SH 191 at Loop 338	-	-	-	-	-	130	130	72	-	-	-	-	200
21	06-186-0-0021-06-103	US 90	PECOS	20.2 Mi W of US 285	-	-	-	-	-	-	-	250	-	-	-	-	-
22	06-186-0-0076-01-001	US 67 SB to IH 10 WB	PECOS	0.1 Mi NE of IH 10	-	-	-	-	-	-	-	24	-	-	-	-	-
23	06-186-0-0140-03-020	IH 10 SFR	PECOS	7.65 Mi W of FM 11	-	-	-	-	-	-	-	28	4	-	-	-	10
24	06-186-0-0140-01-126	US 67 NB	PECOS	14.40 Mi E of SH 18	-	-	-	-	-	-	-	63	-	-	-	-	-
25	06-186-0-0140-04-188	IH 10 WB	PECOS	0.40 Mi E of US 190	-	-	-	-	-	-	-	73	-	-	-	-	-
26	06-186-0-0140-04-191	IH 10 EB	PECOS	1.15 Mi SE of US 190	-	-	-	-	-	-	-	24	-	-	-	-	8
27	06-186-0-0140-06-044	IH 10 SFR	PECOS	4.0 Mi W of SH 349	-	-	-	-	-	-	-	22	-	-	-	-	5
28	06-186-0-0140-15-078	Spur 293	PECOS	0.30 Mi E of FM 11	-	-	-	-	-	-	-	81	-	-	-	-	3
29	06-186-0-0293-01-035	US 285	PECOS	4.30 Mi SE of IH 10 BUS	-	-	-	-	-	-	-	36	-	-	-	-	-
30	06-186-0-0293-02-006	US 285	PECOS	24.3 Mi SE of IH 10 BUS	-	-	-	-	-	-	-	116	-	-	-	-	-
31	06-186-0-0293-02-007	US 285	PECOS	25.0 Mi SE of IH 10 BUS	-	-	-	-	-	-	-	20	-	-	-	-	10
32	06-186-0-0293-02-009	US 285	PECOS	33.0 Mi SE of IH 10 BUS	-	-	-	-	-	-	-	475	-	-	-	-	-
33	06-186-0-0293-03-017	US 285	PECOS	5.8 Mi N of RM 2400	-	-	-	-	-	-	-	130	-	-	-	-	-
34	06-186-0-0441-07-023	IH 10 NFR	PECOS	5.90 Mi W of US 67	-	-	-	-	-	-	-	45	-	-	-	-	-
35	06-186-0-0441-07-039	IH 10 NFR	PECOS	14.3 Mi E of Reeves C/L	-	-	-	-	-	-	-	63	-	190	-	190	-
36	06-186-0-0441-07-071	IH 10 WB	PECOS	14.3 MI E OF REEVES C/L	-	-	-	-	-	-	-	51	-	-	-	-	-
37	06-186-0-0441-07-072	IH 10 EB	PECOS	14.3 MI E OF REEVES C/L	-	-	-	-	-	-	-	19	-	-	-	-	30
38	06-186-0-0441-08-092	IH 10 WB	PECOS	3.50 MI E US 67/FM 1776	-	-	-	-	-	-	-	22	-	-	-	-	-
39	06-186-0-0441-07-086	IH 10	PECOS	2.3 Mi W of US 67/FM 1776	-	-	-	-	-	-	-	24	-	-	-	-	-
72	06-186-0-0441-08-098	IH 10	PECOS	4.8 Mi E of US 67/FM 1776	-	-	-	-	-	-	-	87	-	-	-	-	-
41	06-186-0-0441-08-183	US 285	PECOS	1.6 Mi W of SH 18	-	-	-	-	-	-	-	231	-	-	-	-	-
42	06-186-0-0140-01-119	IH 10	PECOS	5.35 MI E OF SH 18	1	1	34	-	-	-	-	-	-	34	-	34	-
43	06-186-0-0140-01-316	FM 1053	PECOS	0.6 MI E OF SH 18	2	2	72	1	10	-	-	-	-	144	20	144	-
44	06-186-0-0140-01-323	IH 10 WB	PECOS	2.3 MI E OF SH 18	2	2	37	-	-	-	-	-	-	74	-	74	-
45	06-186-0-0140-02-149	IH 10	PECOS	7.80 Mi E of FM 2023	-	-	-	-	-	-	-	73	-	-	-	-	-
46	06-186-0-0140-02-103	FM 2023	PECOS	3.75 Mi E of US 67	-	-	-	-	-	-	-	120	-	-	-	-	-
47	06-186-0-0140-17-002	US 385 / IH 10 BUS	PECOS	0.60 Mi E of US 285	-	-	-	-	-	-	-	255	-	-	-	-	-
48	06-186-0-1640-01-002	US 190	PECOS	2.40 Mi E of FM 305	-	-	-	-	-	-	-	24	-	-	-	-	-
									TOTAL	260	260	2,520	4	2,379	74	2,379	466

STATE OF TEXAS
NESTOR T MENDOZA
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LICENSED PROFESSIONAL ENGINEER

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CONSOLIDATED SUMMARY

SHEET 1 OF 4

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		5
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

SUMMARY OF BRIDGE ITEMS

REF#	NBI #	ROADWAY	COUNTY	LOCATION	TOTAL # OF JOINTS	JOINTS TO BE REPAIRED	LENGTH OF JOINT (ROUNDED)	DEPTH OF OVERLAY	WIDTH (PER SIDE)	429 6004 CONC STR REPAIR (RAPID DECK REP(PRT DPT)	429 6006 CONC STR REPR (RAPID DECK REP (FULL DPT))	429 6007 CONC STR REPAIR (VERT & OVERHEAD)	429 6011 CONC STR REPR (REMOV AND REPL WINGWALL)	438 6001 CLEAN AND SEALING EXISTING JOINTS	454 6008 HEADER TYPE EXPANSION JOINT	454 6009 JOINT SEALANT	780 6004 CONC CRCK REPR (DISCRETE)(ROUTE AND SEAL)
						EA	LF	IN	IN	SF	SF	SF	CY	LF	CF	LF	LF
49	06-195-0-0003-05-043	IH 20 S FR	REEVES	4.85 Mi NE of IH 10						-	-	117					15
50	06-195-0-0003-06-076	IH 20 WB	REEVES	4.35 Mi W of FM 869	-	-	-	-	-	-	-	145	-	-	-	-	-
51	06-195-0-0003-06-146	IH 20 WB	REEVES	2.70 MI SW of FM 2903	-	-	-	-	-	-	-	35	-	-	-	-	-
52	06-195-0-0003-06-147	IH 20 EB	REEVES	2.70 MI SW of FM 2903	-	-	-	-	-	-	-	20	-	-	-	-	-
53	06-195-0-0003-07-062	IH 20	REEVES	0.43 Mi W of US 285	-	-	-	-	-	-	-	85	-	-	-	-	90
54	06-195-0-0003-07-071	IH 20	REEVES	3.15 ME E of US 285	-	-	-	-	-	-	-	65	-	-	-	-	10
55	06-195-0-0003-07-072	IH 20	REEVES	3.55 Mi E of US 285	-	-	-	-	-	-	-	70	-	-	-	-	5
56	06-195-0-0003-07-073	IH 20	REEVES	5.85 Mi E of US 285	-	-	-	-	-	-	-	127	-	-	-	-	56
57	06-195-0-0103-01-003	SH 17	REEVES	12.25 Mi S of IH 20	-	-	-	-	-	-	-	25	-	-	-	-	32
58	06-195-0-0103-02-007	SH 17	REEVES	2.95 MI S of FM 869	-	-	-	-	-	-	-	11	-	-	-	-	-
59	06-195-0-0103-02-008	SH 17	REEVES	2.40 Mi N of IH 10	-	-	-	-	-	-	-	75	-	-	-	-	25
60	06-195-0-0104-01-042	SH 17	REEVES	0.25MI S. of FM 3078	-	-	-	-	-	-	-	12	-	-	-	-	-
61	06-195-0-0441-05-150	IH 10 EB	REEVES	3.35 MI E of FM 2448	-	-	-	-	-	-	-	52	-	-	-	-	-
62	06-195-0-0441-05-151	IH 10 WB	REEVES	3.35 MI E of FM 2448	-	-	-	-	-	-	-	62	-	-	-	-	-
63	06-195-0-0441-09-063	IH 10 EB	REEVES	1.95 Mi E of IH 20	-	-	-	-	-	-	-	156	-	-	-	-	
64	06-195-0-0441-09-119	IH 10 EB	REEVES	6.8 Mi W of FM 2903	-	-	-	-	-	-	-	67	-	-	-	-	-
65	06-195-0-0441-09-121	IH 10 WB	REEVES	4.30 Mi W of FM 2903	-	-	-	-	-	-	-	7	-	-	-	-	-
66	06-195-0-0441-09-128	FM 2903/IH 10 BUF	REEVES	At INT of IH 10 & FM 2903	-	-	-	-	-	-	-	84	-	-	-	-	32
67	06-195-0-0003-07-051	IH 20 BUS	REEVES	1.90 MI W of SH 17	-	-	-	-	-	-	-	68	-	-	-	-	-
68	06-195-0-0003-07-058	IH 20 WB	REEVES	IH 20@SH 17	-	-	-	-	-	-	-	72	-	-	-	-	-
69	06-195-0-2968-02-009	IH 10 BUS F	REEVES	1.75 MI S of IH 10	-	-	-	-	-	-	-	70	-	-	-	-	-
70	06-222-0-0021-07-036	US 60	TERRELL	1.20 MI E of US 285	-	-	-	-	-	-	-	-	-	-	-	-	470
71	06-222-0-0022-02-065	US 90	TERRELL	0.50 Mi W of SH 349	-	-	-	-	-	-	-	60	-	-	-	-	-
72	06-222-0-0022-01-060	US 90	TERRELL	4.5 MI E OF US 285	-	-	-	-	-	-	-	341	-	-	-	-	-
73	06-222-0-0022-03-011	US 90	TERRELL	19.6 Mi E of SH 349	-	-	-	-	-	-	-	25	-	-	-	-	-
74	06-222-0-2297-02-001	RM 2400	TERRELL	4.8 Mi E of RM 2886	-	-	-	-	-	-	-	198	-	-	-	-	-
75	06-231-0-0076-06-021	US 67	WARD	5.15 MI W OF SH 329	-	-	-	-	-	-	-	100	-	-	-	-	-
76	06-231-0-0076-07-024	US 67	WARD	1.45 MI NE OF SH 329	-	-	-	-	-	-	-	145	-	-	-	-	-
77	06-231-0-0076-07-025	US 67	WARD	4.55 MI NE OF SH 329	-	-	-	-	-	-	-	81	-	-	-	-	-
78	06-238-0-0004-04-027	SPUR 65	WARD	3.35 MI W OF FM 1219	5	3	24	-	14	-	-	-	-	72	-	72	-
79	06-238-0-0004-04-028	FM 1219	WARD	IH 20 @ FM 1219	-	-	-	-	-	-	-	370	-	-	-	-	-
80	06-238-0-0004-04-029	FM 1219	WARD	IH 20 @ FM 1219	-	-	-	-	-	-	-	70	-	-	-	-	-
81	06-238-0-0004-04-030	IH 20 BUS	WARD	2.75 MI W OF LP 464	5	1	30	-	14	-	-	-	-	30	-	30	-
82	06-238-0-0004-04-031	IH 20 WB	WARD	IH 20 @ SH 18	5	2	38	-	14	-	-	-	-	76	-	76	-
83	06-238-0-0004-04-032	IH 20 EB	WARD	IH 20 @ SH 18	5	4	38	-	14	-	-	-	-	152	-	152	-
									TOTAL	0	0	2,815	0	330	0	330	735
									PROJECT TOTALS	260	260	5,335	4	2,709	74	2,709	1,201

STATE OF TEXAS
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CONSOLIDATED SUMMARY

SHEET 2 OF 4

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		6
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

SUMMARY OF WORKZONE

REF#	NBI #	ROADWAY	COUNTY	LOCATION	6001 6001 PORTABLE CHANGEABLE MESSAGE SIGN DAY	6185 6002 TMA (STATIONARY) DAY
1	06-069-0-0004-07-023	IH 20 EB	Ector	1.90 MI E OF FM 1601	8	4
2	06-069-0-0004-07-024	IH 20 EB	Ector	0.80 MI W OF FM 1601	8	4
3	06-069-0-0004-07-025	IH 20 WB	Ector	0.80 MI W OF FM 1601	8	4
4	06-069-0-0004-07-036	IH 20 EB	Ector	0.60MI W OF US 385	14	7
5	06-069-0-0004-07-040	IH 20 WB	Ector	1.85 MI W OF US 385	10	5
6	06-069-0-0004-07-045	FM 1936	Ector	IH 20 & UP RR	18	9
7	06-069-0-0004-07-070	SH 302 NB/LP 338	Ector	IH 20	8	4
8	06-069-0-0004-07-080	IH 20 EB	Ector	3.45 MI SW OF FM 866	10	5
9	06-069-0-0004-07-225	IH 20 WB	Ector	4.5 MI W OF US 385	10	5
10	06-069-0-0004-07-226	IH 20 EB	Ector	4.5 MI W OF US 385	8	4
11	06-069-0-0005-13-185	IH 20 WB	Ector	4.15 MI E OF US 385	10	5
12	06-069-0-0005-13-186	IH 20 EB	Ector	4.15 MI E OF US 385	8	4
13	06-069-0-2224-01-011	W LOOP 338 SB	Ector	SH 302/SPUR 450	10	5
14	06-069-0-2224-01-012	W LOOP 338 NB	Ector	W LOOP 338 AT SH 302	8	4
15	06-069-0-2224-01-013	SH 302/LP 338 SB	Ector	SH 302 AT FM 2020	12	6
16	06-069-0-2224-01-014	SH 302/LP 338 NB	Ector	SH 302 AT FM 2020	12	6
17	06-069-0-2224-01-015	SH 302/LP 338 SB	Ector	SH 302 AT FM 3472	12	6
18	06-069-0-2224-01-016	SH 302/LP 338 NB	Ector	SH 302 AT FM 3472	12	6
19	06-069-0-2296-01-019	SH 191 WB	Odessa	SH 191 at Loop 338	10	5
20	06-069-0-2296-01-020	SH 191 EB	Odessa	SH 191 at Loop 338	14	7
21	06-186-0-0021-06-103	US 90	Pecos	20.2 Mi W of US 285	16	8
22	06-186-0-0076-01-001	US 67 SB to IH 10 WB	Pecos	0.1 Mi NE of IH 10	8	4
23	06-186-0-0140-03-020	IH 10 SFR	Pecos	7.65 Mi W of FM 11	8	4
24	06-186-0-0140-03-021	IH 10 SFR	Pecos	4.2 Mi W of FM 11	8	4
25	06-186-0-0140-01-126	US 67 NB	Pecos	14.40 Mi E of SH 18	10	5
26	06-186-0-0140-04-188	IH 10 WB	Pecos	0.40 Mi E of US 190	10	5
27	06-186-0-0140-04-191	IH 10 EB	Pecos	1.15 Mi SE of US 190	8	4
28	06-186-0-0140-06-044	IH 10 SFR	Pecos	4.0 Mi W of SH 349	8	4
29	06-186-0-0140-15-078	Spur 293	Pecos	0.30 Mi E of FM 11	10	5
30	06-186-0-0293-01-035	US 285	Pecos	4.30 Mi SE of IH 10 BUS	8	4
31	06-186-0-0293-02-006	US 285	Pecos	24.3 Mi SE of IH 10 BUS	12	6
32	06-186-0-0293-02-007	US 285	Pecos	25.0 Mi SE of IH 10 BUS	8	4
33	06-186-0-0293-02-009	US 285	Pecos	33.0 Mi SE of IH 10 BUS	26	13
34	06-186-0-0293-03-017	US 285	Pecos	5.8 Mi N of RM 2400	12	6
35	06-186-0-0441-07-023	IH 10 NFR	Pecos	5.90 Mi W of US 67	8	4
36	06-186-0-0441-07-039	IH 10 NFR	Pecos	14.3 Mi E of Reeves C/L	10	5
37	06-186-0-0441-07-071	IH 10 WB	Pecos	14.3 MI E OF REEVES C/L	10	5
38	06-186-0-0441-07-072	IH 10 EB	Pecos	14.3 MI E OF REEVES C/L	10	5
39	06-186-0-0441-08-092	IH 10 WB	Pecos	3.50 Mi E US 67/FM 1776	8	4
40	06-186-0-0441-07-086	IH 10	Pecos	2.3 Mi W of US 67/FM 1776	8	4
41	06-186-0-0441-08-098	IH 10	Pecos	4.8 Mi E of US 67/FM 1776	10	5
42	06-186-0-0441-08-183	US 285	Pecos	1.6 Mi W of SH 18	10	5
43	06-186-0-0140-01-119	IH 10	Pecos	5.35 MI E OF SH 18	8	4
44	06-186-0-0140-01-316	FM 1053	Pecos	0.6 MI E OF SH 18	12	6
45	06-186-0-0140-01-323	IH 10 WB	Pecos	2.3 MI E OF SH 18	8	4
46	06-186-0-0140-02-149	IH 10	Pecos	7.80 Mi E of FM 2023	10	5
47	06-186-0-0140-02-103	FM 2023	Pecos	3.75 Mi E of US 67	10	5
				Page Totals	484	242

STATE OF TEXAS
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9104D8EB1809444...
NESTOR T MENDOZA, P.E. 01/22/24

CONSOLIDATED SUMMARY

SHEET 3 OF 4

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		7
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

SUMMARY OF WORKZONE

REF#	NBI #	ROADWAY	COUNTY	LOCATION	6001 6001 PORTABLE CHANGEABLE MESSAGE SIGN DAY	6185 6002 TMA (STATIONARY) DAY
48	06-195-0-0003-05-043	IH 20 S FR	Reeves	4.85 Mi NE of IH 10	10	5
49	06-195-0-0003-06-076	IH 20 WB	Reeves	4.35 Mi W of FM 869	10	5
50	06-195-0-0003-06-146	IH 20 WB	Reeves	2.70 MI SW of FM 2903	18	9
51	06-195-0-0003-06-147	IH 20 EB	Reeves	2.70 MI SW of FM 2903	8	4
52	06-195-0-0003-07-062	IH 20	Reeves	0.43 Mi W of US 285	10	5
53	06-195-0-0003-07-071	IH 20	Reeves	3.15 ME E of US 285	8	4
54	06-195-0-0003-07-072	IH 20	Reeves	3.55 Mi E of US 285	8	4
55	06-195-0-0003-07-073	IH 20	Reeves	5.85 Mi E of US 285	10	5
56	06-195-0-0103-01-003	SH 17	Reeves	12.25 Mi S of IH 20	10	5
57	06-195-0-0103-02-007	SH 17	Reeves	2.95 MI S of FM 869	8	4
58	06-195-0-0103-02-008	SH 17	Reeves	2.40 Mi N of IH 10	10	5
59	06-195-0-0104-01-042	SH 17	Reeves	0.25MI S. of FM 3078	8	4
60	06-195-0-0441-05-150	IH 10 EB	Reeves	3.35 MI E of FM 2448	12	6
61	06-195-0-0441-05-151	IH 10 WB	Reeves	3.35 MI E of FM 2448	12	6
62	06-195-0-0441-09-118	IH 10 WB	Reeves	6.75 Mi W of FM 2903	10	5
63	06-195-0-0441-09-119	IH 10 EB	Reeves	6.8 Mi W of FM 2903	14	7
64	06-195-0-0441-09-121	IH 10 WB	Reeves	4.30 Mi W of FM 2903	16	8
65	06-195-0-0441-09-128	FM 2903/IH 10 BUF	Reeves	At INT of IH 10 & FM 2903	8	4
66	06-195-0-0003-07-051	IH 20 BUS	Reeves	1.90 MI W of SH 17	8	4
67	06-195-0-0003-07-058	IH 20 WB	Reeves	IH 20@SH 17	8	4
68	06-195-0-2968-02-009	IH 10 BUS F	Reeves	1.75 MI S of IH 10	10	5
69	06-222-0-0021-07-036	US 90	Terrell	1.20 MI E of US 285	10	5
70	06-222-0-0022-02-065	US 90	Terrell	0.50 Mi W of SH 349	8	4
71	06-222-0-0022-01-060	US 90	Terrell	4.5 MI E OF US 285	8	4
72	06-222-0-0022-03-011	US 90	Terrell	19.6 Mi E of SH 349	10	5
73	06-222-0-2297-02-001	RM 2400	Terrell	4.8 Mi E of RM 2886	8	4
74	06-231-0-0076-06-021	US 67	Ward	5.15 MI W OF SH 329	8	4
75	06-231-0-0076-07-024	US 67	Ward	1.45 MI NE OF SH 329	26	13
76	06-231-0-0076-07-025	US 67	Ward	4.55 MI NE OF SH 329	12	6
77	06-238-0-0004-04-027	SPUR 65	Ward	3.35 MI W OF FM 1219	8	4
78	06-238-0-0004-04-028	FM 1219	Ward	IH 20 @ FM 1219	10	5
79	06-238-0-0004-04-029	FM 1219	Ward	IH 20 @ FM 1219	10	5
80	06-238-0-0004-04-030	IH 20 BUS	Ector	2.75 MI W OF LP 464	10	5
81	06-238-0-0004-04-031	IH 20 WB	Ector	IH 20 @ SH 18	8	4
82	06-238-0-0004-04-032	IH 20 EB	Ector	IH 20 @ SH 18	8	4
				Page Totals	360	180
				Total	844	422

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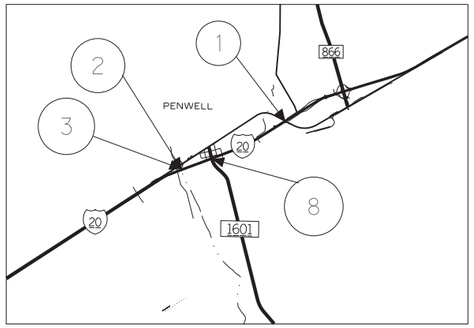
CONSOLIDATED SUMMARY

SHEET 4 OF 4

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		8
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



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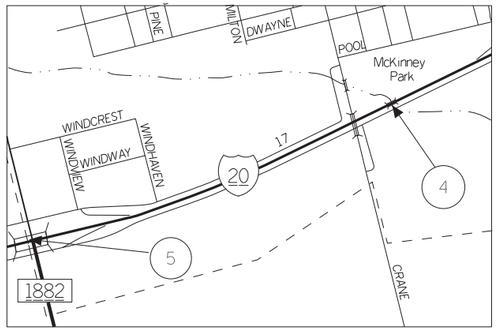

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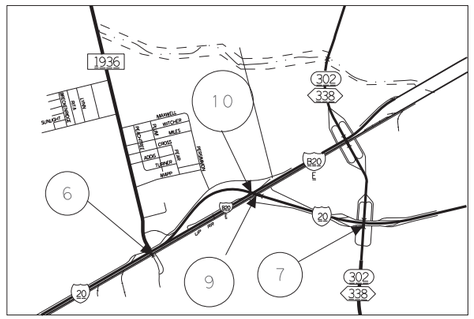
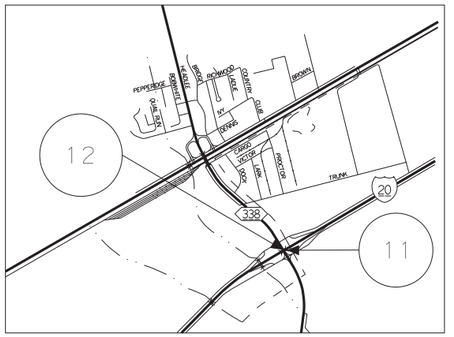
5. 06-069-0-0004-07-040

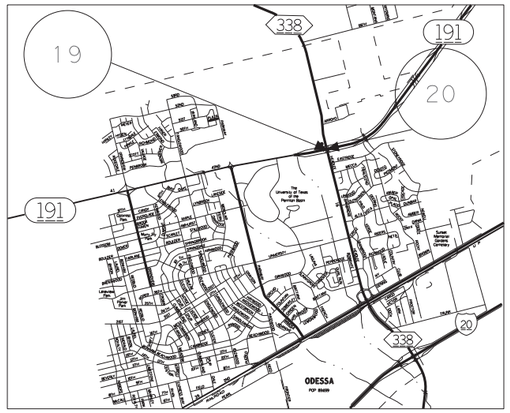


6. 06-069-0-0004-07-045
7. 06-069-0-0004-07-070
9. 06-069-0-0004-07-225
10. 06-069-0-0004-07-226

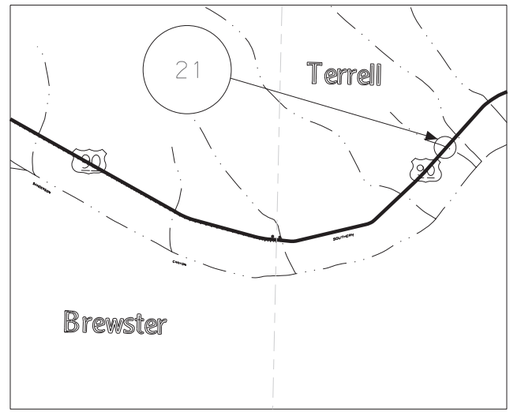


11. 06-069-0-0005-13-185
12. 06-069-0-0005-13-186

13. 06-069-0-2224-01-011
14. 06-069-0-2224-01-012
15. 06-069-0-2224-01-013
16. 06-069-0-2224-01-014
17. 06-069-0-2224-01-015
18. 06-069-0-2224-01-016



19. 06-069-0-2296-01-019
20. 06-069-0-2296-01-020



21. 06-186-0-0021-06-103

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
1	06-069-0-0004-07-023	IH 20 EB	ECTOR	1.90 MI E OF FM 1601	31.75044211,-102.56265771
2	06-069-0-0004-07-024	IH 20 EB	ECTOR	0.80 MI W OF FM 1601	31.73319394,-102.60308282
3	06-069-0-0004-07-025	IH 20 WB	ECTOR	0.80 MI W OF FM 1601	31.73334772,-102.60315566
4	06-069-0-0004-07-036	IH 20 EB	ECTOR	0.60MI W OF US 385	31.82460756,-102.36451030
5	06-069-0-0004-07-040	IH 20 WB	ECTOR	1.85 MI W OF US 385	31.81853494,-102.38237184
6	06-069-0-0004-07-045	FM 1936	ECTOR	IH 20 & UP RR	31.81020978,-102.43343185
7	06-069-0-0004-07-070	SH 302 NB/LP 338	ECTOR	IH 20	31.81398907,-102.40596428
8	06-069-0-0004-07-080	IH 20 EB	ECTOR	3.45 MI SW OF FM 866	31.73724659,-102.59126801
9	06-069-0-0004-07-225	IH 20 WB	ECTOR	4.5 MI W OF US 385	31.81704175,-102.42026032
10	06-069-0-0004-07-226	IH 20 EB	ECTOR	4.5 MI W OF US 385	31.81690570,-102.42050766
11	06-069-0-0005-13-185	IH 20 WB	ECTOR	4.15 MI E OF US 385	31.86660388,-102.30187368
12	06-069-0-0005-13-186	IH 20 EB	ECTOR	4.15 MI E OF US 385	31.86613029,-102.30216791
13	06-069-0-2224-01-011	W LOOP 338 SB	ECTOR	SH 302/SPUR 450	31.87494634,-102.42010953
14	06-069-0-2224-01-012	W LOOP 338 NB	ECTOR	W LOOP 338 AT SH 302	31.87486742,-102.41985473
15	06-069-0-2224-01-013	SH 302/LP 338 SB	ECTOR	SH 302 AT FM 2020	31.86077202,-102.41509325
16	06-069-0-2224-01-014	SH 302/LP 338 NB	ECTOR	SH 302 AT FM 2020	31.86083223,-102.41487566
17	06-069-0-2224-01-015	SH 302/LP 338 SB	ECTOR	SH 302 AT FM 3472	31.84682061,-102.40970117
18	06-069-0-2224-01-016	SH 302/LP 338 NB	ECTOR	SH 302 AT FM 3472	31.84687375,-102.40949717
19	06-069-0-2296-01-019	SH 191 WB	Odessa	SH 191 at Loop 338	31.89625583,-102.31757065
20	06-069-0-2296-01-020	SH 191 EB	Odessa	SH 191 at Loop 338	31.89623986,-102.31757879
21	06-186-0-0021-06-103	US 90	Pecos	20.2 Mi W of US 285	30.17270930,-102.71106901

STATE OF TEXAS
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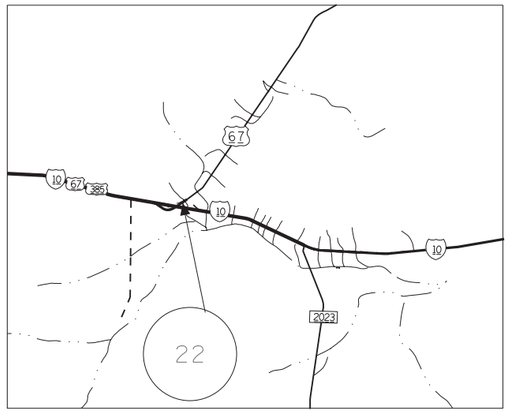
LOCATION MAP

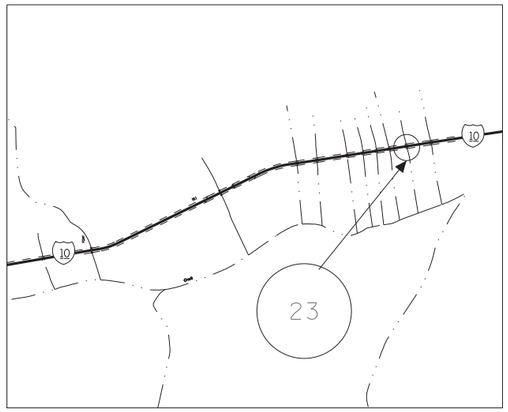
SHEET 1 OF 8

Texas Department of Transportation

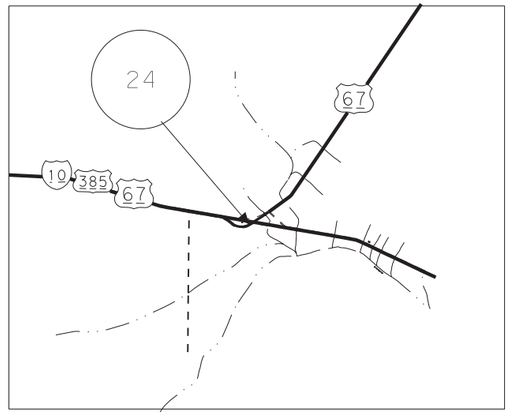
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		9
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



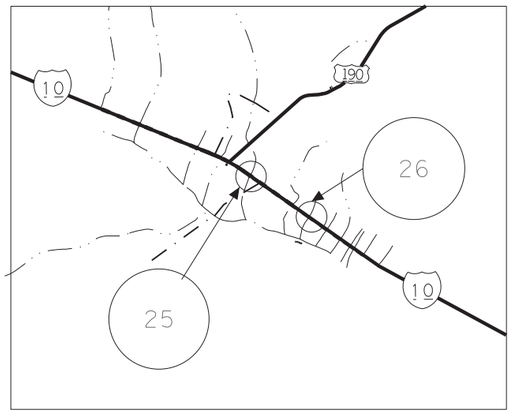
22. 061860-0076-01-001



23. 06-186-0-0140-03-020

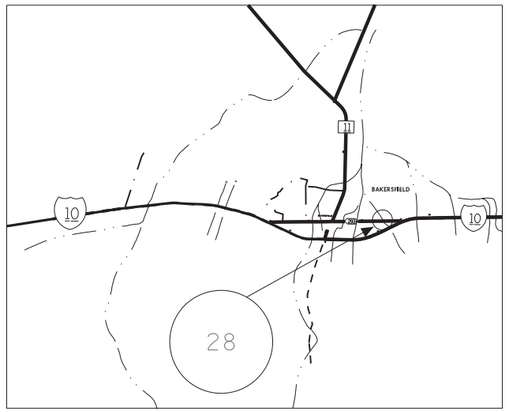


24. 06-186-0-0140-01-126

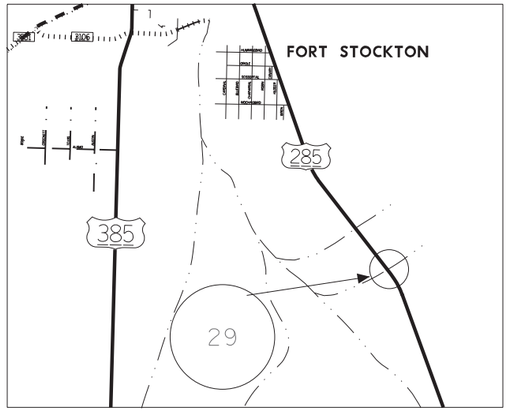


25. 06-186-0-0140-04-188
26. 06-186-0-0140-04-191

27. 06-186-0-0140-06-044



28 06-186-0-0140-15-078



29. 06-186-0-0293-01-035

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
22	06-186-0-0076-01-001	US 67 SB to IH 10 WB	Pecos	0.1 Mi NE of IH 10	30.87886678, -102.64765515
23	06-186-0-0140-03-020	IH 10 SFR	Pecos	7.65 Mi W of FM 11	30.88614442, -102.42760805
24	06-186-0-0140-01-126	US 67 NB	Pecos	14.40 Mi E of SH 18	30.87743774, -102.64878197
25	06-186-0-0140-04-188	IH 10 WB	Pecos	0.40 Mi E of US 190	30.86599868, -102.08819738
26	06-186-0-0140-04-191	IH 10 EB	Pecos	1.15 Mi SE of US 190	30.85920385, -102.07744021
27	06-186-0-0140-06-044	IH 10 SFR	Pecos	4.0 Mi W of SH 349	30.75252349, -101.90637668
28	06-186-0-0140-15-078	Spur 293	Pecos	0.30 Mi E of FM 11	30.89108552, -102.29380086
29	06-186-0-0293-01-035	US 285	Pecos	4.30 Mi SE of IH 10 BUS	30.83796436, -102.84241928

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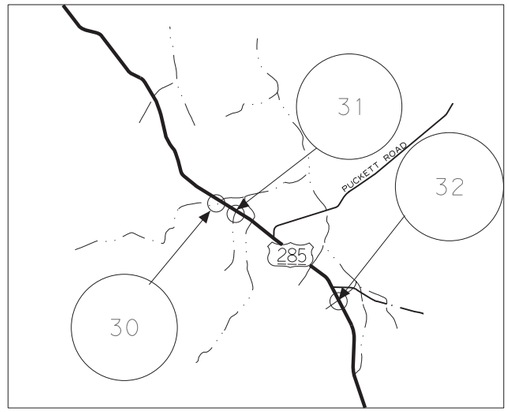
LOCATION MAP

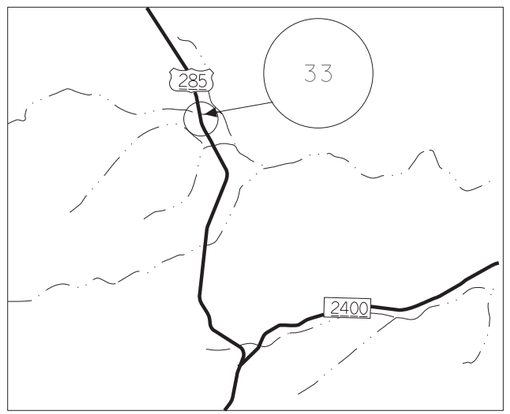
SHEET 2 OF 8

Texas Department of Transportation

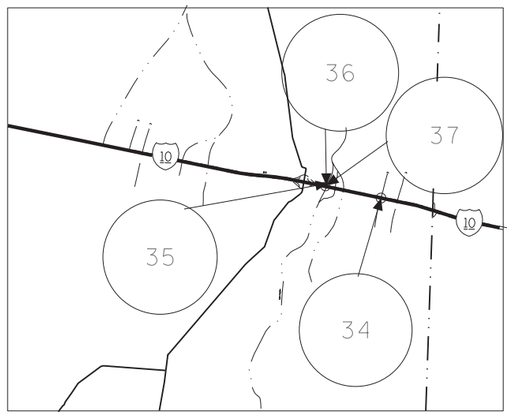
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		10
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



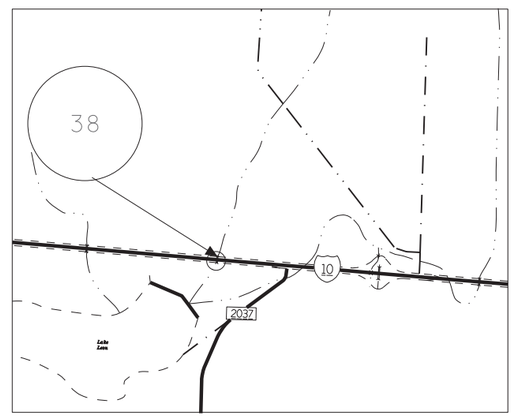
30. 06-186-0-0293-02-006
31. 06-186-0-0293-02-007
32. 06-186-0-0293-02-009



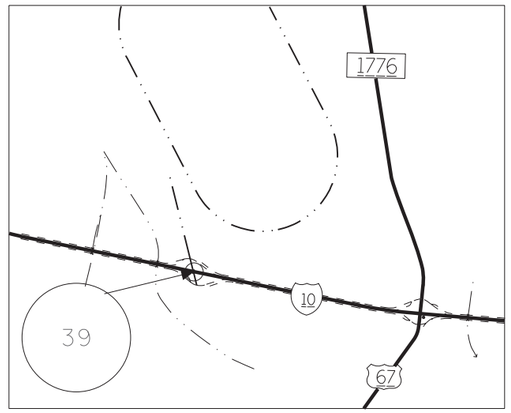
33. 06-186-0-0293-03-017



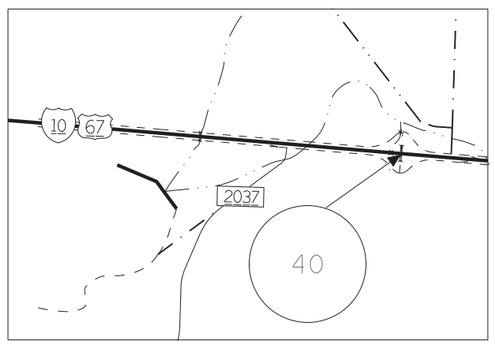
34. 06-186-0-0441-07-023
35. 06-186-0-0441-07-039
36 06-186-0-0441-07-071
37 06-186-0-0441-07-072



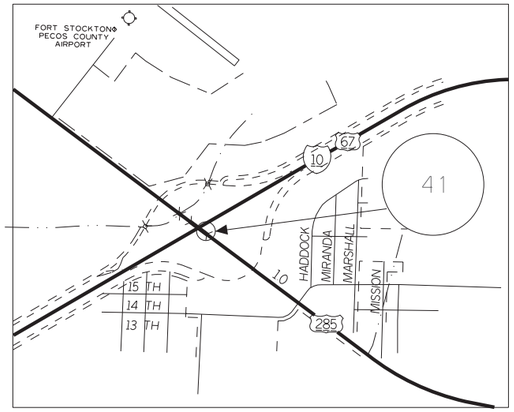
38. 06-186-0-0441-08-092



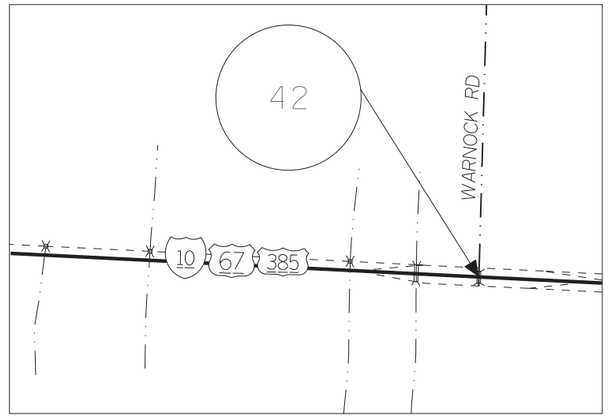
39. 06-186-0-0441-07-086



40. 06-186-0-0441-08-098



41. 06-186-0-0441-08-183



42. 06-186-0-0140-01-119

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
30	06-186-0-0293-02-006	US 285	Pecos	24.3 Mi SE of IH 10 BUS	30.61572961,-102.64043440
31	06-186-0-0293-02-007	US 285	Pecos	25.0 Mi SE of IH 10 BUS	30.61074291,-102.63060952
32	06-186-0-0293-02-009	US 285	Pecos	33.0 Mi SE of IH 10 BUS	30.52397692,-102.55482156
33	06-186-0-0293-03-017	US 285	PECOS	5.8 Mi N of RM 2400	30.41761168,-102.44778916
34	06-186-0-0441-07-023	IH 10 NFR	Pecos	5.90 Mi W of US 67	30.91645582,-103.15239980
35	06-186-0-0441-07-039	IH 10 NFR	Pecos	14.3 Mi E of Reeves C/L	30.91921716,-103.17086168
36	06-186-0-0441-07-071	IH 10 WB	PECOS	14.3 MI E OF REEVES C/L	30.91884333,-103.17042689
37	06-186-0-0441-07-072	IH 10 EB	PECOS	14.3 MI E OF REEVES C/L	30.91838230,-103.17003808
38	06-186-0-0441-08-092	IH 10 WB	Pecos	3.50 Mi E US 67/FM 1776	30.89755566,-102.99605683
39	06-186-0-0441-07-086	IH 10	PECOS	2.3 Mi W of US 67/FM 1776	30.90557782,-103.09385273
40	06-186-0-0441-08-098	IH 10	PECOS	4.8 Mi E of US 67/FM 1776	30.89637080,-102.97394838
41	06-186-0-0441-08-183	US 285	Pecos	1.6 Mi W of SH 18	30.90099530,-102.90923467
42	06-186-0-0140-01-119	IH 10	PECOS	5.35 MI E OF SH 18	30.89117442,-102.79872484

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LOCATION MAP

SHEET 3 OF 8

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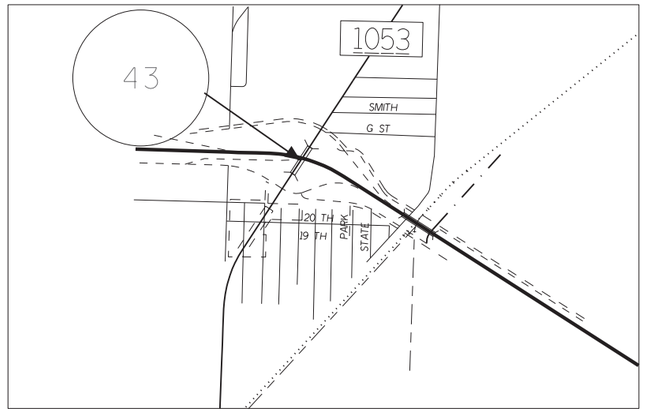
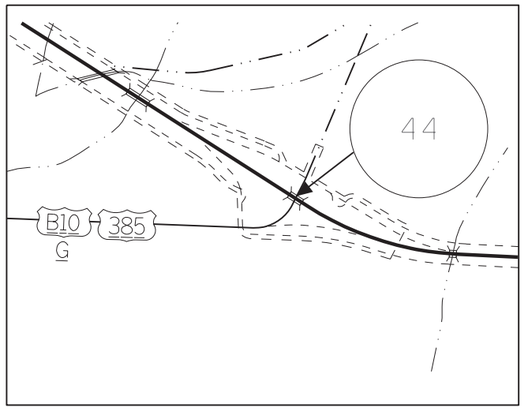
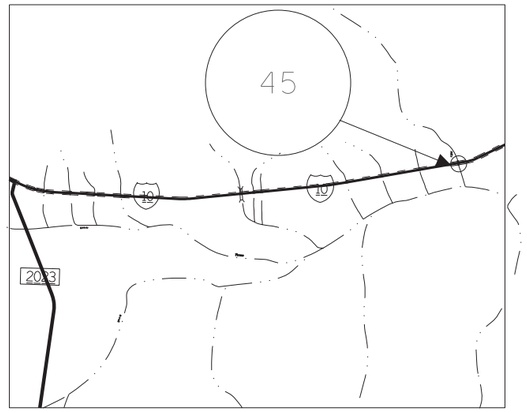
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		11
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



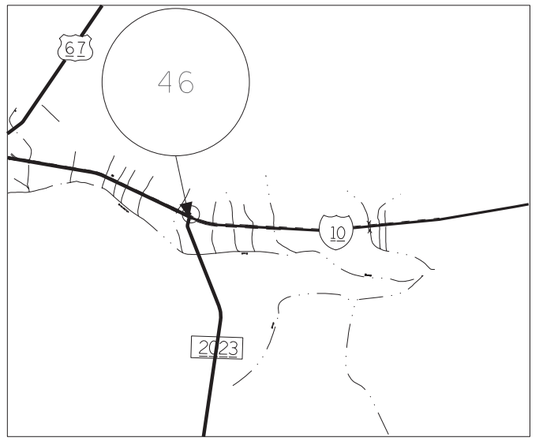
43. 06-186-0-0140-01-316



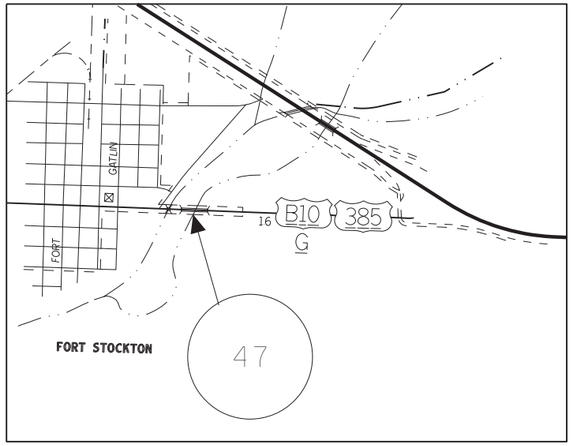
44. 06-186-0-0140-01-323



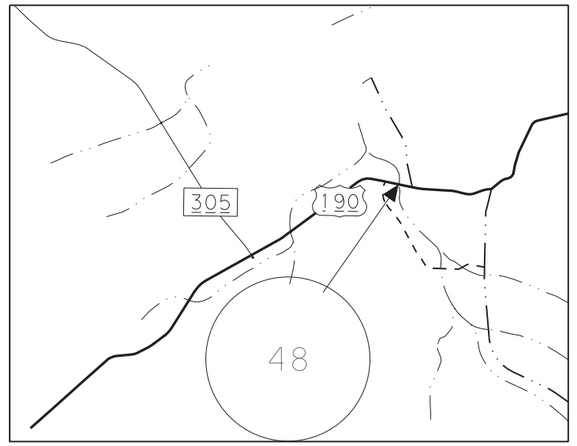
45. 06-186-0-0140-02-149



46. 06-186-0-0140-103



47. 06-186-0-0140-17-002



48. 06-186-0-1640-01-002

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
43	06-186-0-0140-01-316	FM 1053	PECOS	0.6 MI E OF SH 18	30.90720910,-102.87471906
44	06-186-0-0140-01-323	IH 10 WB	PECOS	2.3 MI E OF SH 18	30.89377845,-102.84839288
45	06-186-0-0140-02-149	IH 10	PECOS	7.80 Mi E of FM 2023	30.87946311,-102.46081163
46	06-186-0-0140-02-103	FM 2023	PECOS	3.75 Mi E of US 67	30.86359835,-102.58790648
47	06-186-0-0140-17-002	US 385/IH 10 BUS	PECOS	0.60 Mi E of US 285	30.89294364,-102.86214931
48	06-186-0-1640-01-002	US 190	PECOS	2.40 MI E OF FM 305	30.92044227,-102.00706796

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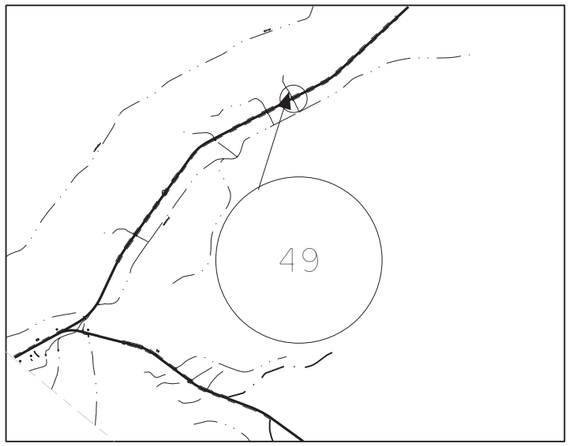
LOCATION MAP

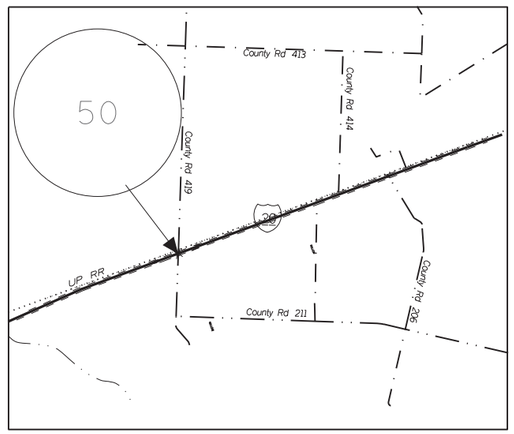
SHEET 4 OF 8

Texas Department of Transportation

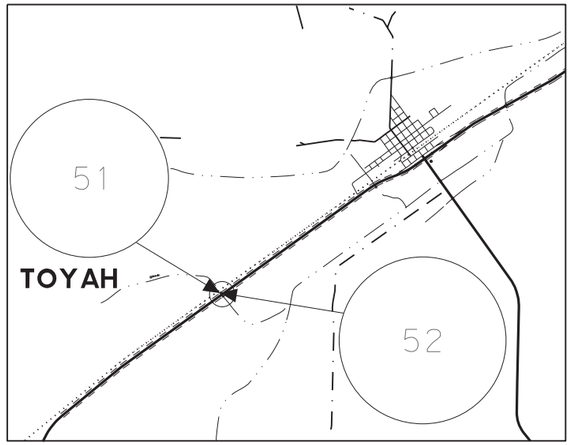
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		12
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



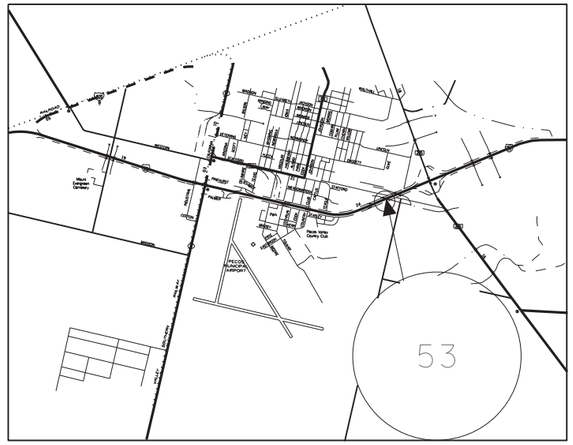
49. 06-195-0-0003-05-043



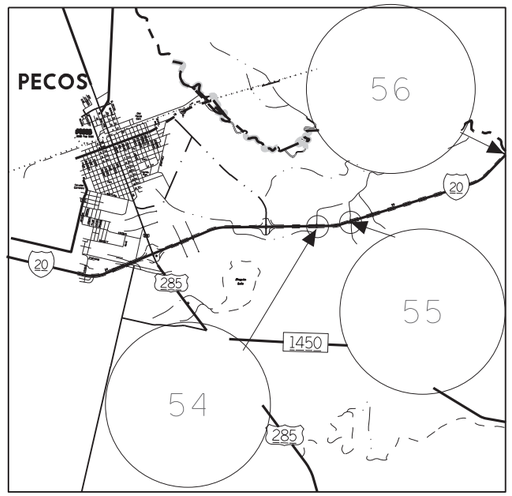
50. 06-195-0-0003-06-076



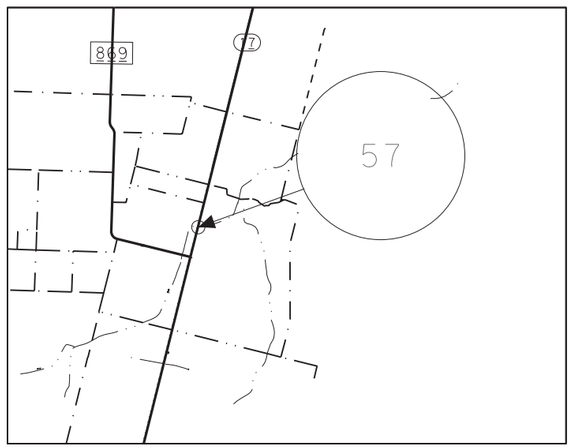
51. 06-195-0-0003-06-146
52. 06-195-0-0003-06-147



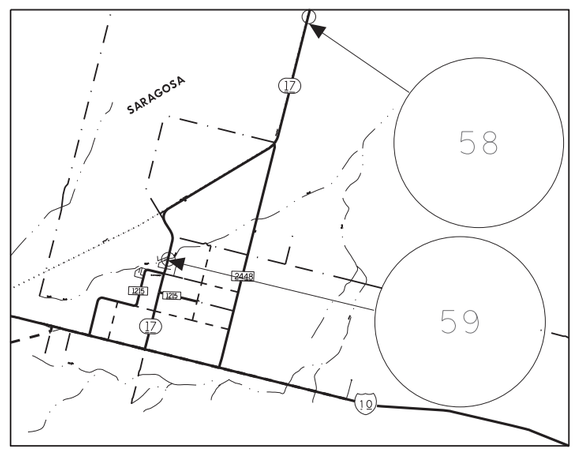
53. 06-195-0-0003-07-062



54. 06-195-0-0003-07-071
55. 06-195-0-0003-07-072
56. 06-195-0-0003-07-073



57. 06-195-0-0103-01-003



58. 06-195-0-0103-02-007
59. 06-195-0-0103-02-008

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
49	06-195-0-0003-05-043	IH 20 S FR	REEVES	4.85 Mi NE of IH 10	31.14313813,-104.00161540
50	06-195-0-0003-06-076	IH 20 WB	REEVES	4.35 Mi W of FM 869	31.36147986,-103.68636368
51	06-195-0-0003-06-146	IH 20 WB	REEVES	2.70 MI SW of FM 2903	31.28924403,-103.82602573
52	06-195-0-0003-06-147	IH 20 EB	REEVES	2.70 MI SW of FM 2903	31.28866879,-103.82622658
53	06-195-0-0003-07-062	IH 20	REEVES	0.43 Mi W of US 285	31.41167637,-103.42508928
54	06-195-0-0003-07-071	IH 20	REEVES	3.15 ME E of US 285	31.40975331,-103.43161329
55	06-195-0-0003-07-072	IH 20	REEVES	3.55 Mi E of US 285	31.41167331,-103.42509048
56	06-195-0-0003-07-073	IH 20	REEVES	5.85 Mi E of US 285	31.42600127,-103.39011785
57	06-195-0-0103-01-003	SH 17	REEVES	12.25 Mi S of IH 20	31.22692213,-103.56864846
58	06-195-0-0103-02-007	SH 17	REEVES	2.95 MI S of FM 869	31.17415272,-103.58150276
59	06-195-0-0103-02-008	SH 17	REEVES	2.40 Mi N of IH 10	31.02827035,-103.65319902

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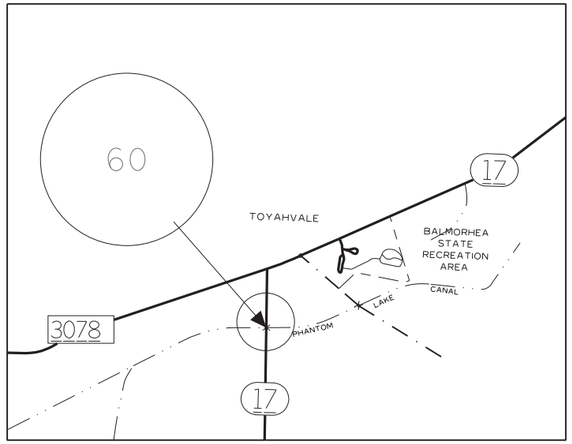
LOCATION MAP

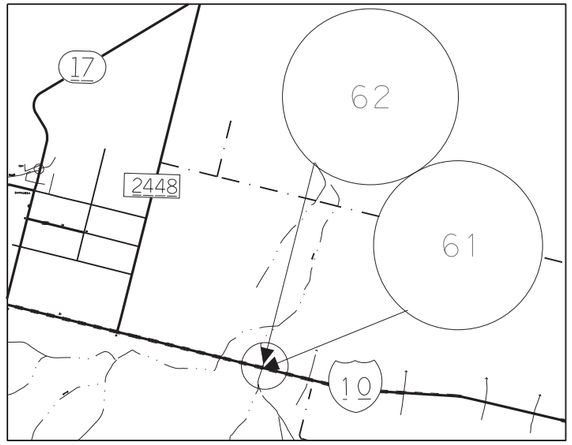
SHEET 5 OF 8

Texas Department of Transportation

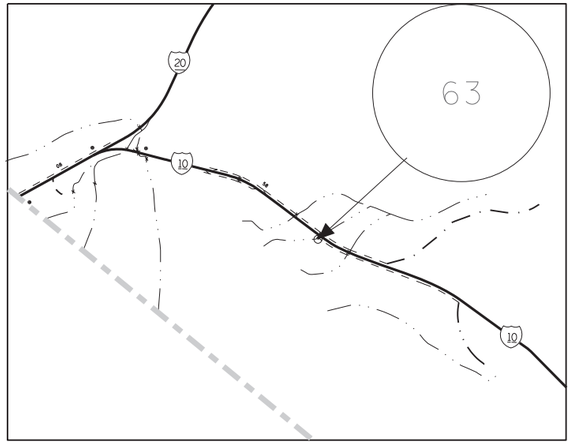
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		13
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



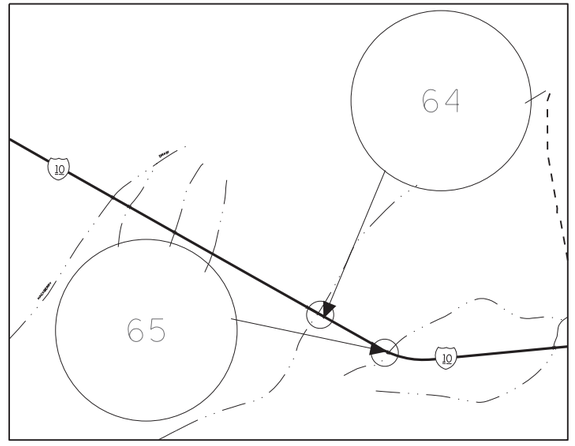
60. 16-195-0-0104-01-042



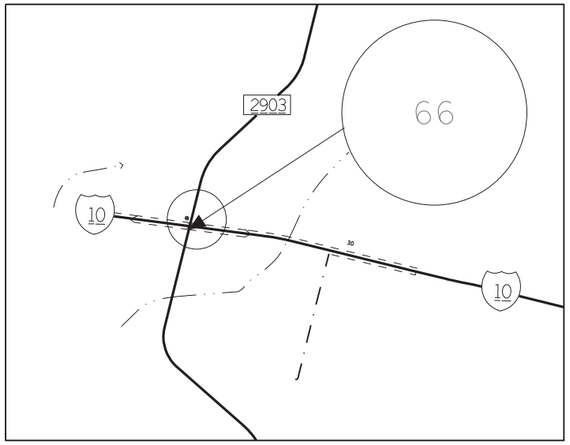
61. 06-195-0-0441-05-150
61. 06-195-0-0441-05-151



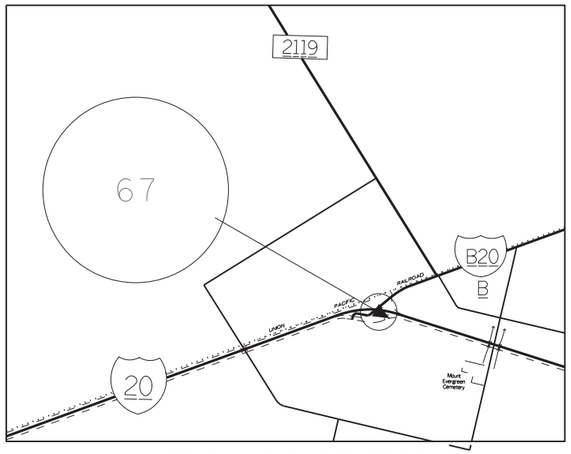
63. 06-195-0-0441-09-063



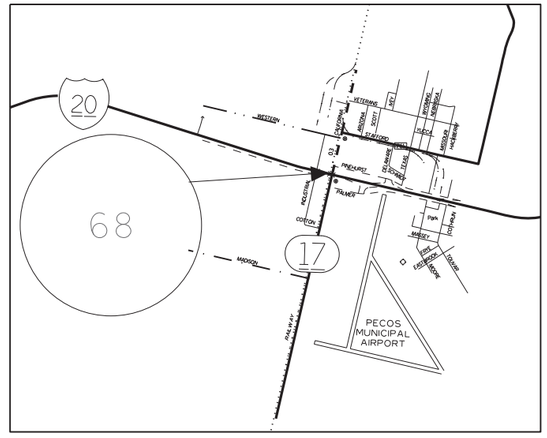
64. 06-195-0-0441-09-119
65. 06-195-0-0441-09-121



66. 06-195-0-0441-09-128



67. 06-195-0-0003-07-051



68. 06-195-0-0003-07-058

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
60	06-195-0-0104-01-042	SH 17	REEVES	0.25MI S. of FM 3078	30.93999193,-103.79180766
61	06-195-0-0441-05-150	IH 10 EB	REEVES	3.35 MI E of FM 2448	30.97727482,-103.57348778
62	06-195-0-0441-05-151	IH 10 WB	REEVES	3.35 MI E of FM 2448	30.97758110,-103.57346677
63	06-195-0-0441-09-063	IH 10 EB	REEVES	1.95 MI E of IH 20	31.08039534,-104.02536408
64	06-195-0-0441-09-119	IH 10 EB	REEVES	6.8 Mi W of FM 2903	31.01289437,-103.86419589
65	06-195-0-0441-09-121	IH 10 WB	REEVES	4.30 Mi W of FM 2903	31.00897398,-103.82298949
66	06-195-0-0441-09-128	FM 2903/IH 10 BUF	REEVES	At INT of IH 10 & FM 2903	31.00891822,-103.75313059
67	06-195-0-0003-07-051	IH 20 BUS	REEVES	1.90 MI W of SH 17	31.40655885,-103.55317854
68	06-195-0-0003-07-058	IH 20 WB	REEVES	IH 20@SH 17	31.39958022,-103.52175831

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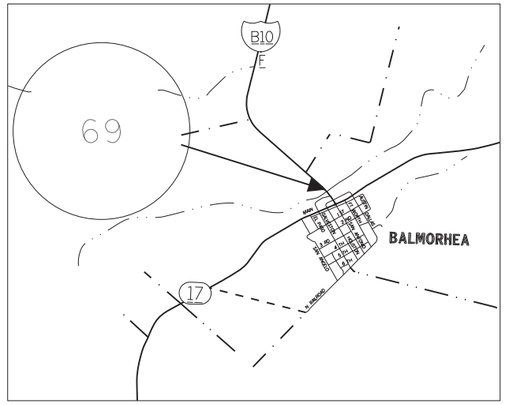
LOCATION MAP

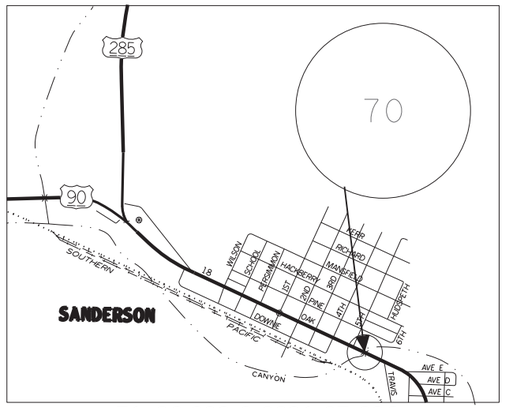
SHEET 6 OF 8

Texas Department of Transportation

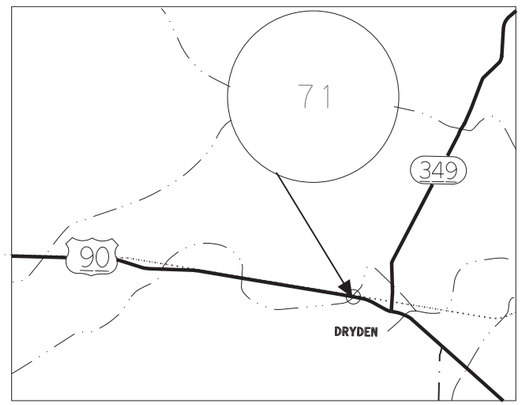
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		14
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



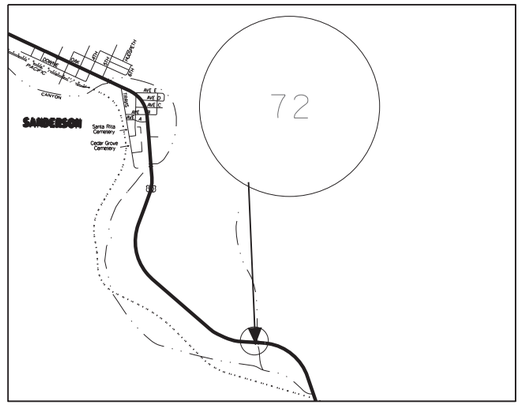
69. 06-195-0-2968-02-009



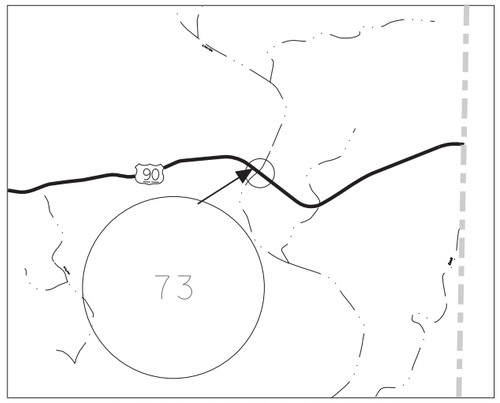
71. 06-222-0-0021-07-036



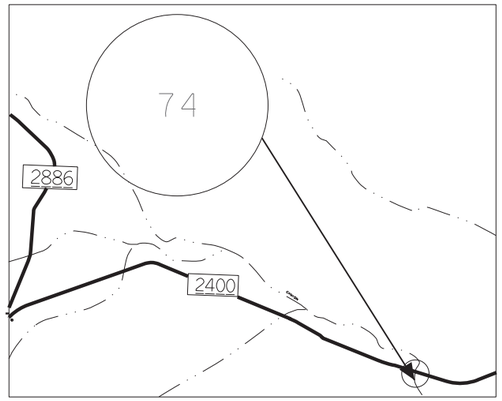
71. 06-222-0-0022-02-065



72. 06-222-0-0022-01-060



73. 06-222-0-0022-03-011



74. 06-222-0-2297-02-001

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
69	06-195-0-2968-02-009	US 285	PECOS	33.0 Mi SE of IH 10 BUS	30.98810876,-103.74421611
70	06-222-0-0021-07-036	US 90	TERRELL	1.20 MI E of US 285	30.13840898,-102.39046596
71	06-222-0-0022-02-065	US 90	TERRELL	0.50 Mi W of SH 349	30.04709440,-102.12216151
72	06-222-0-0022-01-060	US 90	TERRELL	4.5 MI E OF US 285	30.10428784,-102.36381145
73	06-222-0-0022-03-011	US 90	TERRELL	19.6 Mi E of SH 349	29.89950549,-101.85143563
74	06-222-0-2297-02-001	RM 2400	TERRELL	4.8 Mi E of RM 2886	30.39068127,-102.23286022

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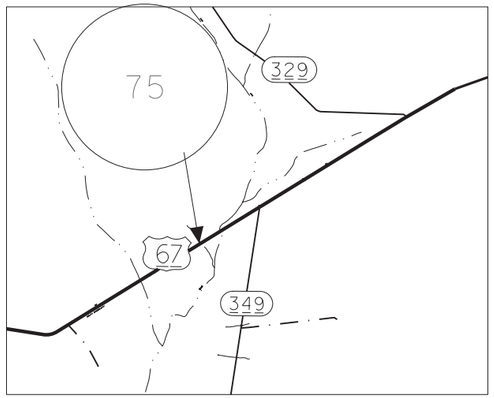
LOCATION MAP

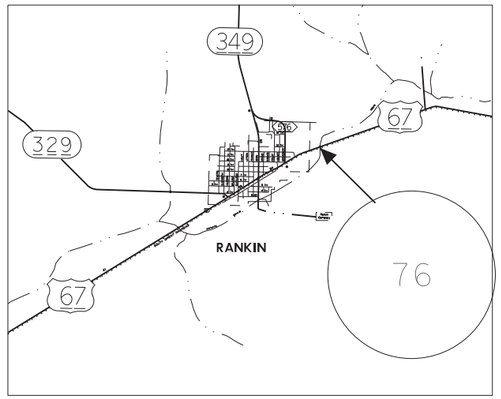
SHEET 7 OF 8

Texas Department of Transportation

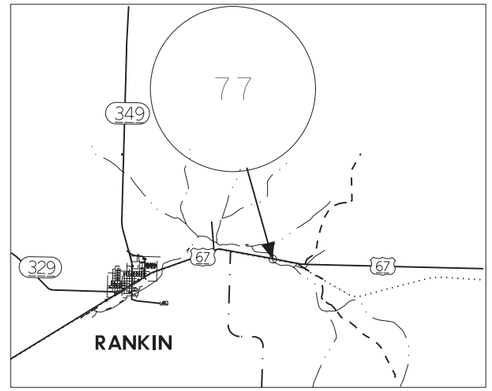
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		15
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



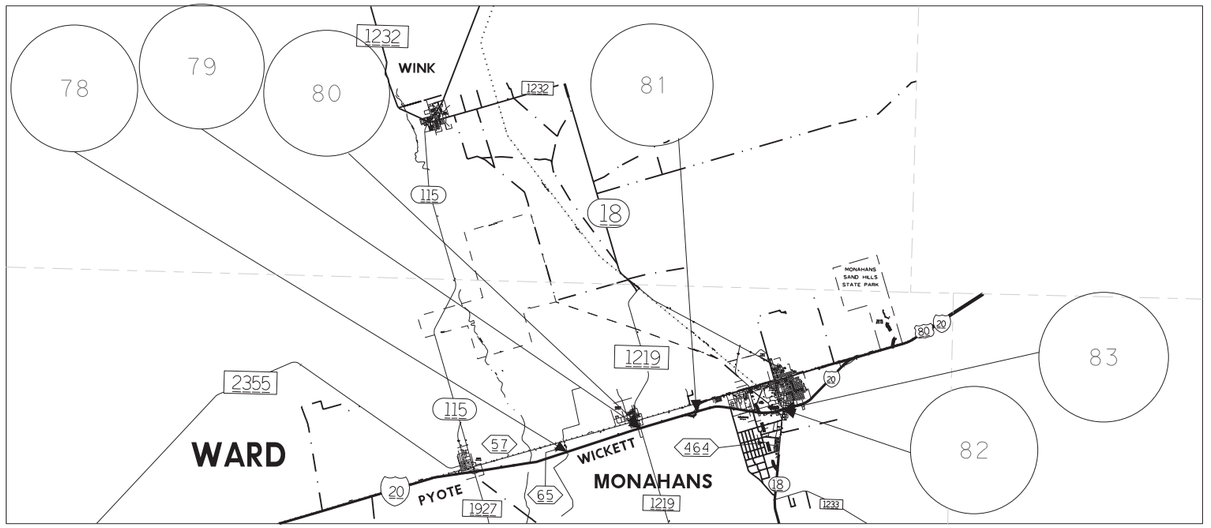
75. 06-231-0-0076-06-021



76. 06-231-0-0076-06-024



77. 06-231-0-0076-06-025



78. 06-238-0-0004-04-027
79. 06-238-0-0004-04-028
80. 06-238-0-0004-04-029
81. 06-238-0-0004-04-030
82. 06-238-0-0004-04-031
83. 06-238-0-0004-04-032

REF#	NBI#	HWY#	COUNTY	LOCATION	GPS
75	06-231-0-0076-06-021	US 67	WARD	5.15 MI W OF SH 329	31.17912635,-102.01823384
76	06-231-0-0076-07-024	US 67	WARD	1.45 MI NE OF SH 329	31.22905297,-101.92513708
77	06-231-0-0076-07-025	US 67	WARD	4.55 MI NE OF SH 329	31.23393204,-101.87368769
78	06-238-0-0004-04-027	SPUR 65	WARD	3.35 MI W OF FM 1219	31.54444163,-103.05103680
79	06-238-0-0004-04-028	FM 1219	WARD	IH 20 @ FM 1219	31.56092939,-102.99708424
80	06-238-0-0004-04-029	FM 1219	WARD	IH 20 @ FM 1219	31.56075744,-102.99701924
81	06-238-0-0004-04-030	IH 20 BUS	ODESSA	2.75 MI W OF LP 464	31.57215419,-102.95594837
82	06-238-0-0004-04-031	IH 20 WB	ODESSA	IH 20 @ SH 18	31.57511030,-102.89188317
83	06-238-0-0004-04-032	IH 20 EB	ODESSA	IH 20 @ SH 18	31.57491837,-102.89189358

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LOCATION MAP

SHEET 8 OF 8

Texas Department of Transportation

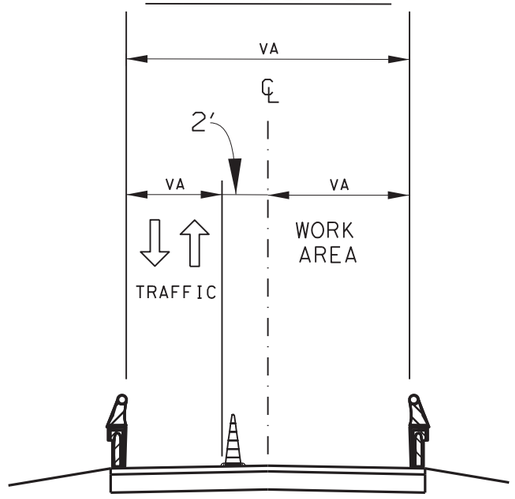
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		16
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

LOCATIONS	
DAY WORK	21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 41, 43, 46, 47, 48, 49, 57, 58, 59, 60, 66, 67, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81

LEGEND:

- CHANNELIZING DEVICE
- EXISTING RAIL
- TRAFFIC FLOW

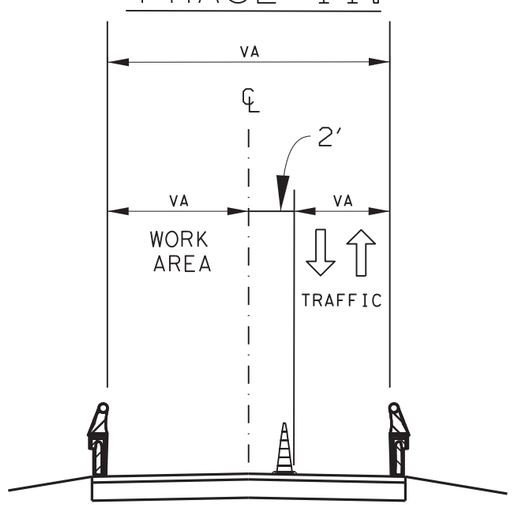
PHASE I.



* 12′ MINIMUM TRAFFIC LANE WIDTH

1. PLACE TRAFFIC CONTROL ACCORDING TO TCP (2-2)-18
   -MOVE TRAFFIC TO TRAVEL LANE.
2. CONSTRUCT BRIDGE JOINTS.
3. OPEN LANES AT THE END OF EACH WORK DAY
4. CLEAN WORK AREA

PHASE II.



* 12′ MINIMUM TRAFFIC LANE WIDTH

1. PLACE TRAFFIC CONTROL ACCORDING TO TCP (2-2)-18
   -MOVE TRAFFIC TO TRAVEL LANE.
2. CONSTRUCT BRIDGE JOINTS.
3. OPEN LANES AT THE END OF EACH WORK DAY
3. CLEAN WORK AREA.
4. REMOVE TRAFFIC CONTROL.

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PHASE NARRATIVE

(ONE LANE TWO WAY TRAFFIC TYPICAL)

Texas Department of Transportation

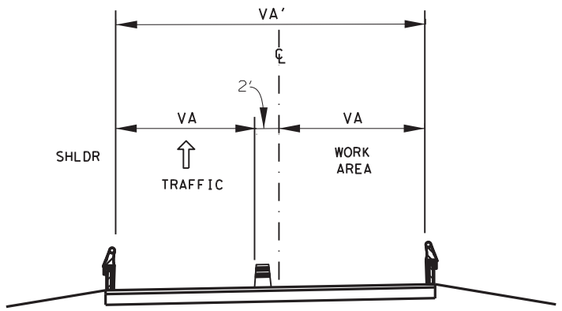
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		17
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

	LOCATIONS	
NIGHT WORK	4, 5, 7	Nighttime work only between the hours of 9PM-5AM
DAY WORK	1, 2, 3, 6, 8, 25, 26, 36, 37, 38, 39, 40, 44, 45, 50, 51, 52, 53, 54, 55, 56, 61, 62, 63, 64, 65, 68, 82, 83	Open lanes at the end of each work day
OFF PEAK	9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,	Daytime work only between the hours of 9AM-4PM

LEGEND:

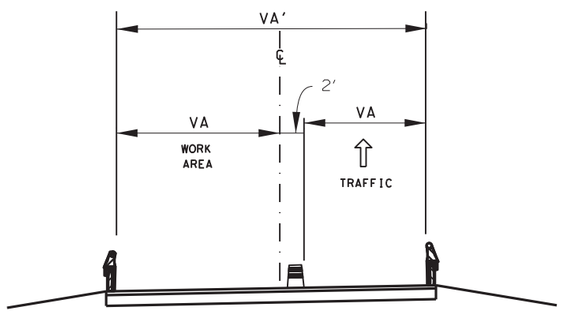
- CHANNELIZING DEVICE
- EXISTING RAIL
- TRAFFIC FLOW

PHASE I.



1. PLACE TRAFFIC CONTROL ACCORDING TO TCP (6-1)-12 -MOVE TRAFFIC TO TRAVEL LANE.
2. CONSTRUCT BRIDGE JOINTS.
3. CLEAN WORK AREA

PHASE II.



1. PLACE TRAFFIC CONTROL ACCORDING TO TCP (6-1)-12 -MOVE TRAFFIC TO TRAVEL LANE.
2. CONSTRUCT BRIDGE JOINTS.
3. CLEAN WORK AREA.
4. REMOVE TRAFFIC CONTROL.

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PHASE NARRATIVE

(INTERSTATE TYPICAL)

Texas Department of Transportation

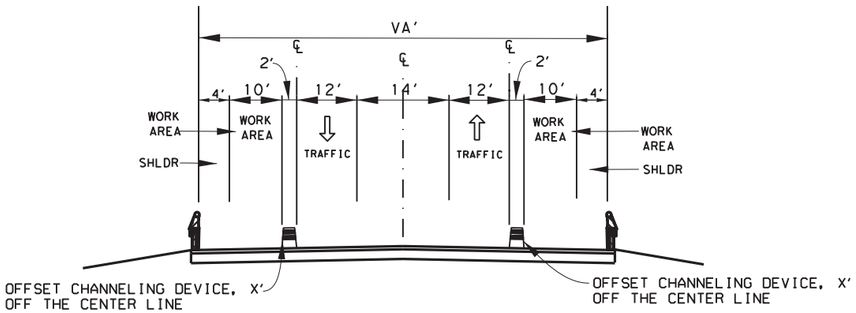
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		18
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

	LOCATIONS	
OFF PEAK	43, 51	Daytime work only between the hours of 9AM-4PM

LEGEND:

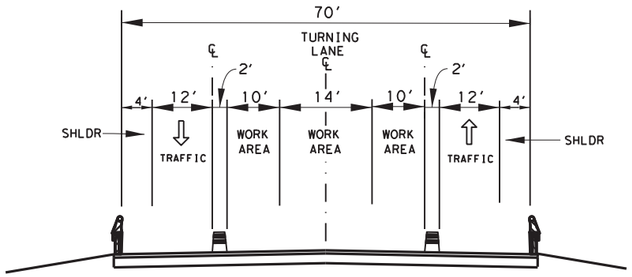
- CHANNELIZING DEVICE
- EXISTING RAIL
- TRAFFIC FLOW

PHASE I.



1. PLACE TRAFFIC CONTROL ACCORDING TO TCP (2-4)-18
   -MOVE TRAFFIC TO TRAVEL LANE.
2. CONSTRUCT BRIDGE JOINTS.
3. CLEAN WORK AREA.

PHASE II.



1. PLACE TRAFFIC CONTROL ACCORDING TO TCP (2-4)-18
   -MOVE TRAFFIC TO TRAVEL LANE.
2. CONSTRUCT BRIDGE JOINTS.
3. CLEAN WORK AREA.
4. REMOVE TRAFFIC CONTROL.

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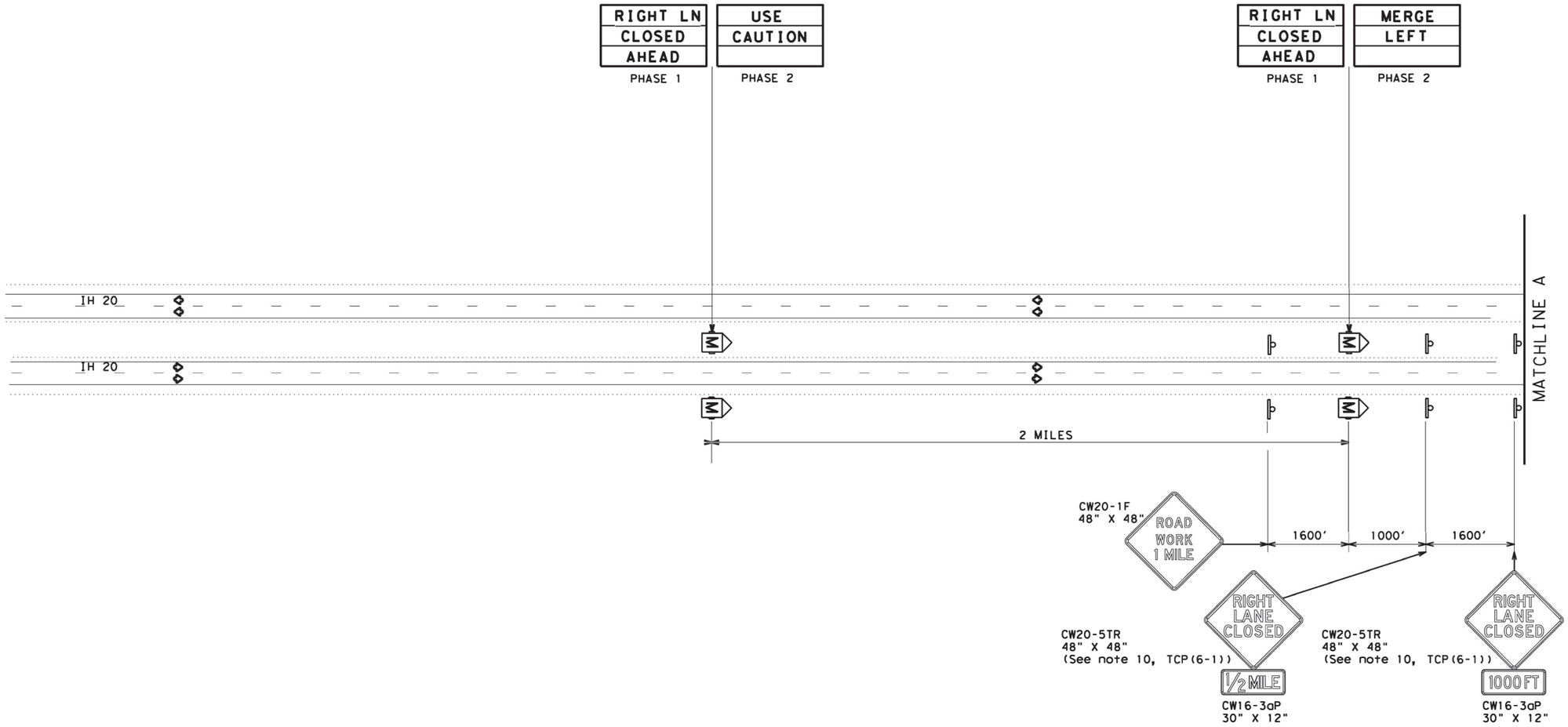
NESTOR T MENDOZA, P.E. 0139194

PHASE NARRATIVE

(TWO LANE ROADWAY TYPICAL)

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		19
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Traffic Barrier
	Traffic Flow		CRASH CUSHION
	Work Area		Portable Changeable Message Sign

NOTE: THIS TCP WILL BE REQUIRED ON ALL INTERSTATE LANE CLOSURES.
REFER TO TCP(6-1)-12 STANDARD FOR ADDITIONAL INFORMATION ON SIGNS, DEVICES, AND SPACINGS.

NOT TO SCALE

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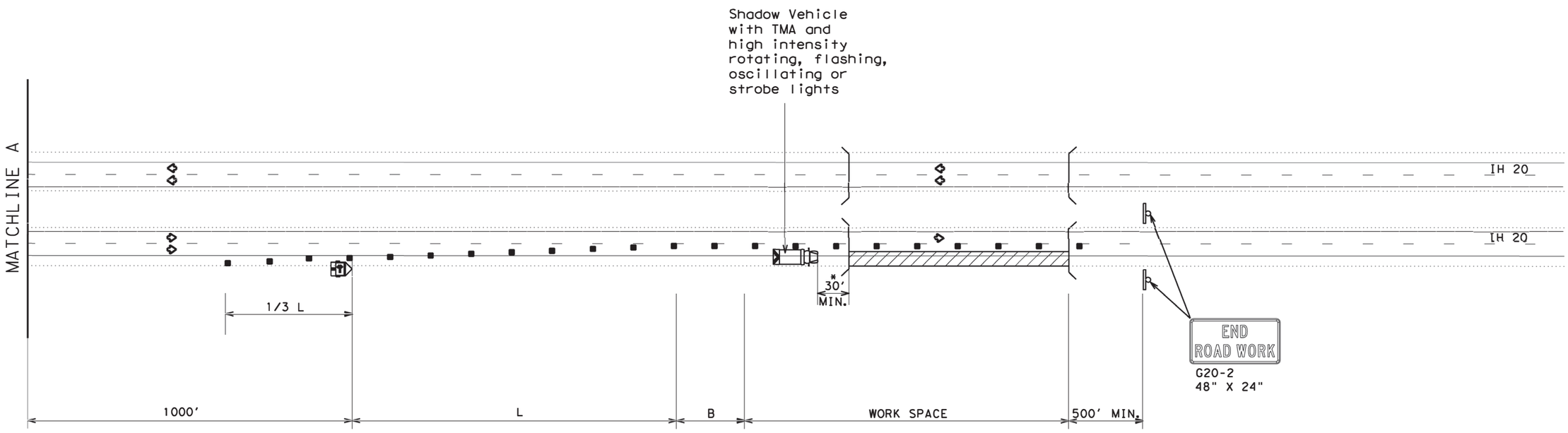
INTERSTATE & LP 250 LANE CLOSURES TRAFFIC CONTROL PLAN

SHEET 1 OF 2

Texas Department of Transportation®

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		20
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Traffic Barrier
	Traffic Flow		CRASH CUSHION
	Work Area	M	Portable Changeable Message Sign

NOTE: THIS TCP WILL BE REQUIRED ON ALL INTERSTATE LANE CLOSURES.
REFER TO TCP(6-1)-12 STANDARD FOR ADDITIONAL INFORMATION ON SIGNS, DEVICES, AND SPACINGS.

NOT TO SCALE

STATE OF TEXAS
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NESTOR T MENDOZA 01/23/24

INTERSTATE & LP 250 LANE CLOSURES TRAFFIC CONTROL PLAN

SHEET 2 OF 2

Texas Department of Transportation®

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		21
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

DATE: 1/16/2024 11:58:13 AM
FILE: C:\Users\JRamey\D drive\Projects\0906-00-235 Bridge Maintenance(2023)\DGN\018 BC-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

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REVISIONS	0906	00	235	VARIOUS
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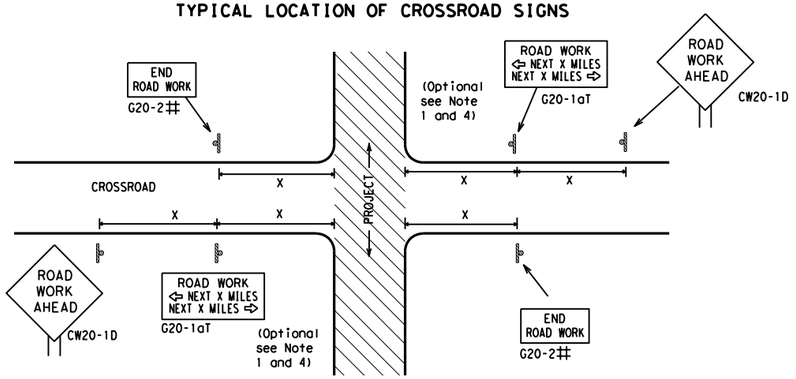
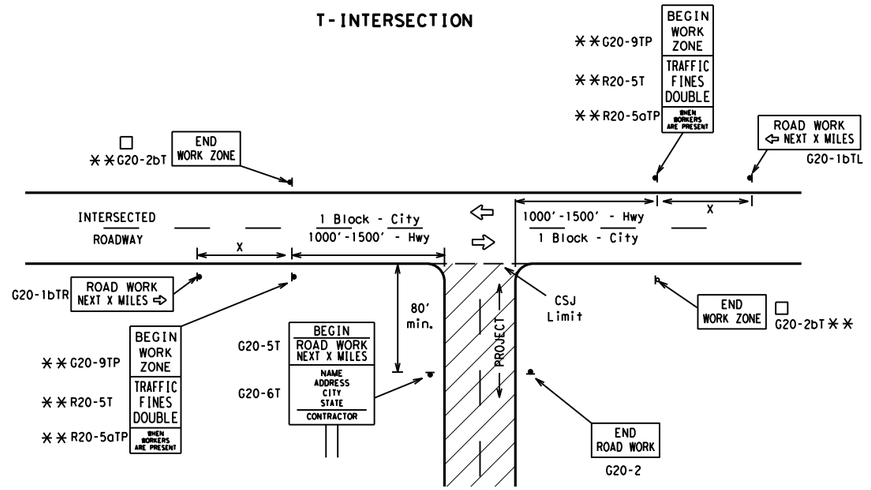
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

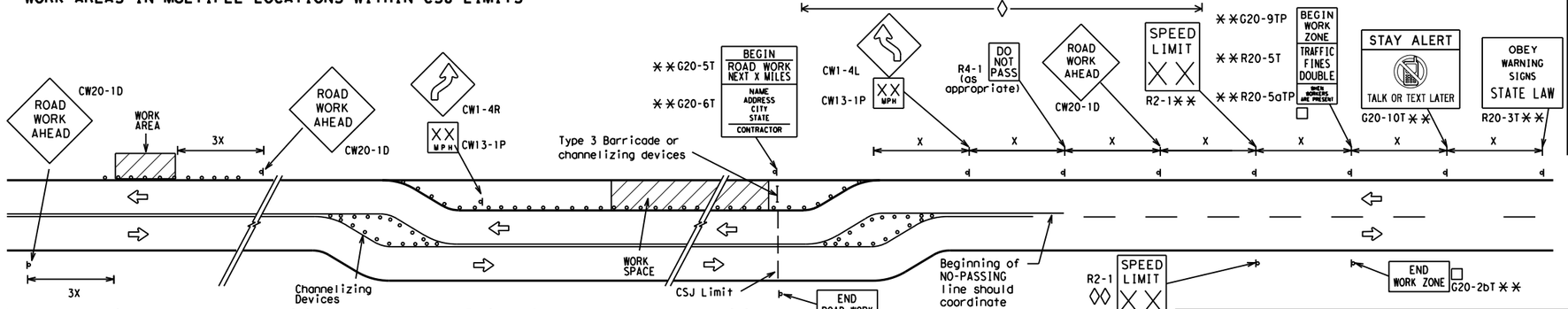
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ 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.

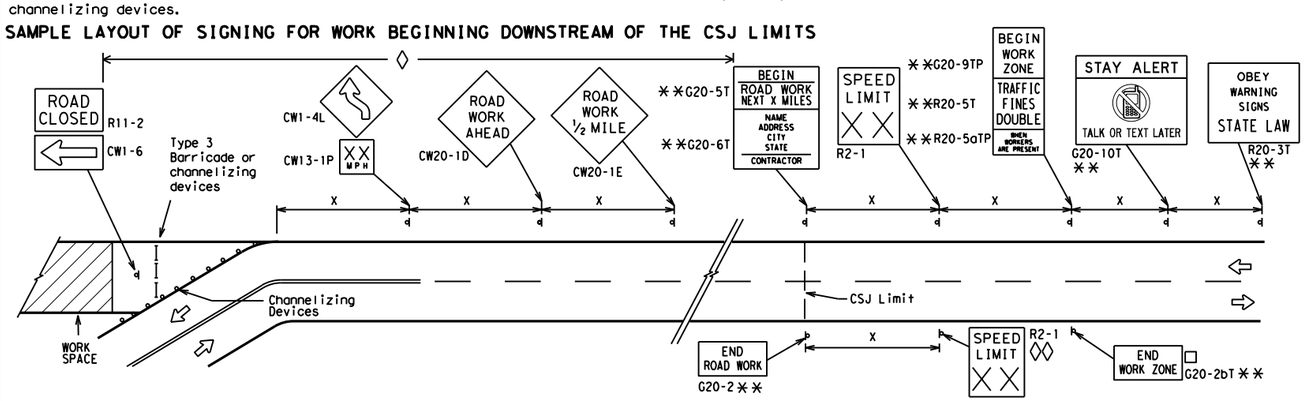
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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 AT THE CSJ LIMITS

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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REVISIONS	0906	00	235	VARIOUS
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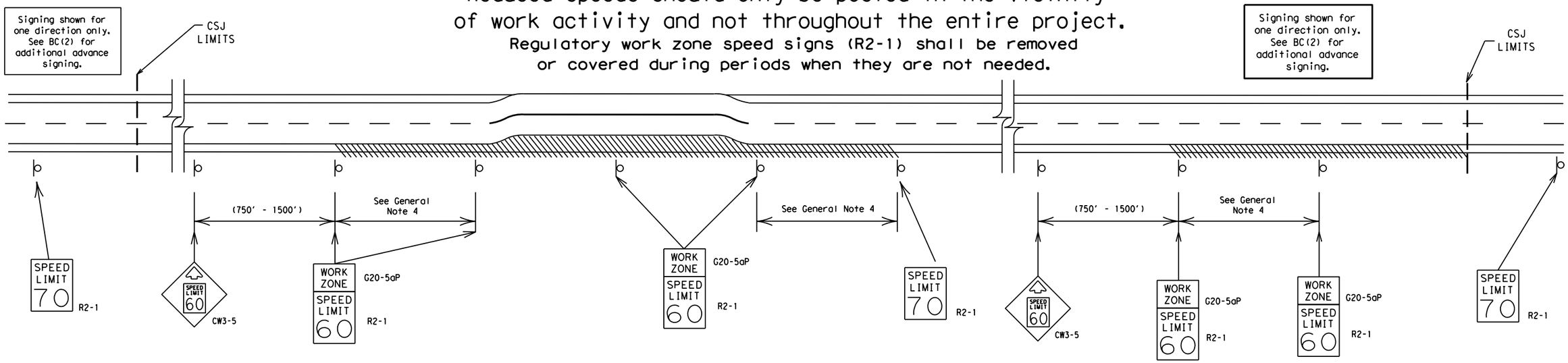
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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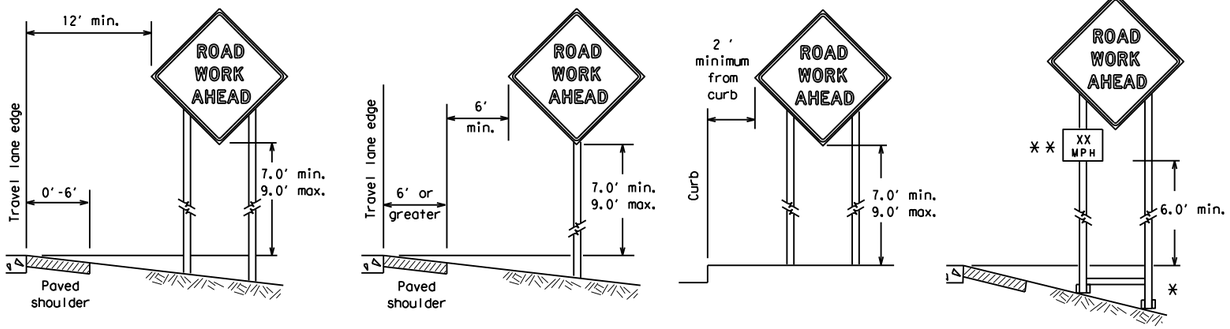
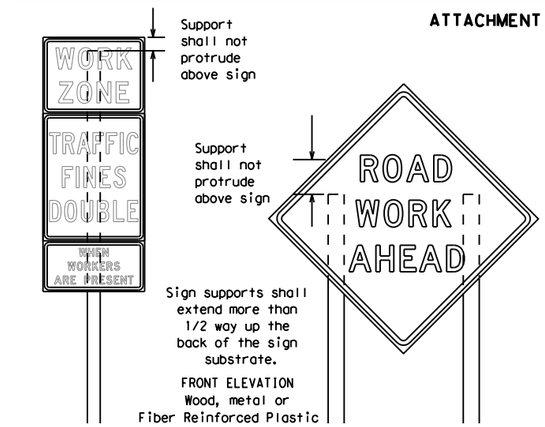
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

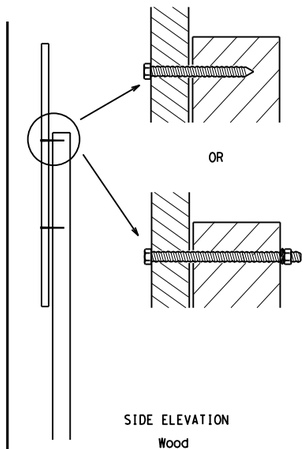


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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





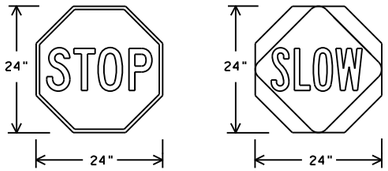
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.



Background - Red
Legend & Border - White

Background - Orange
Legend & Border - Black

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

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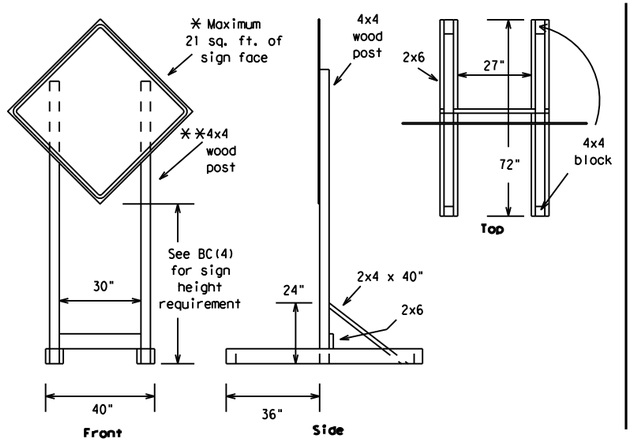
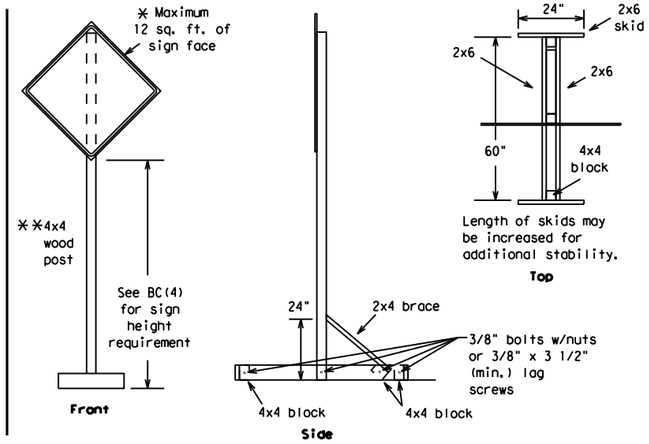
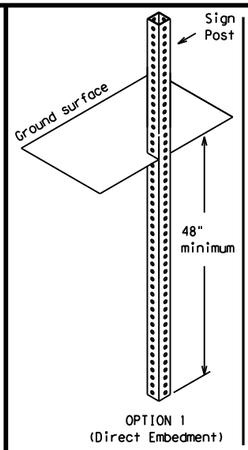
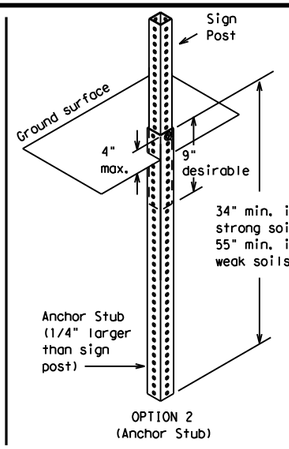


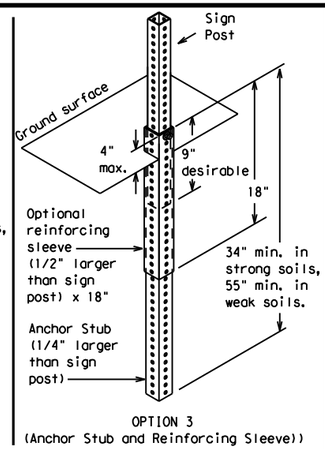


SKID MOUNTED WOOD SIGN SUPPORTS

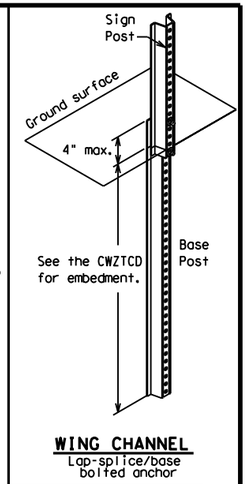
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







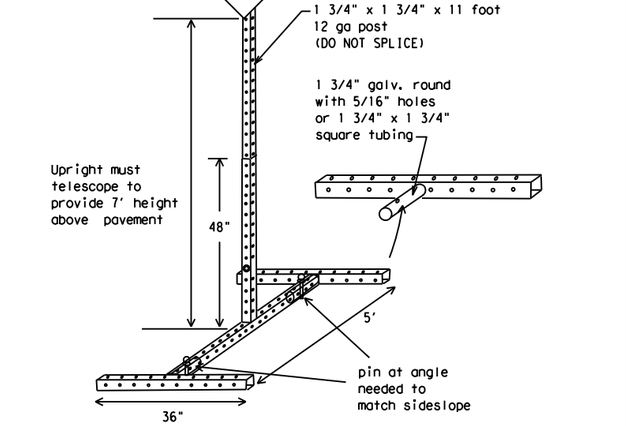
PERFORATED SQUARE METAL TUBING

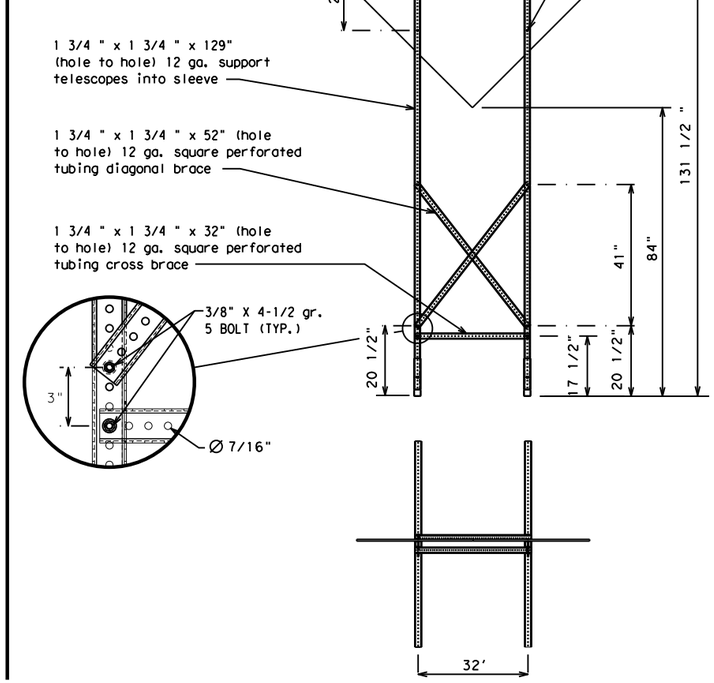


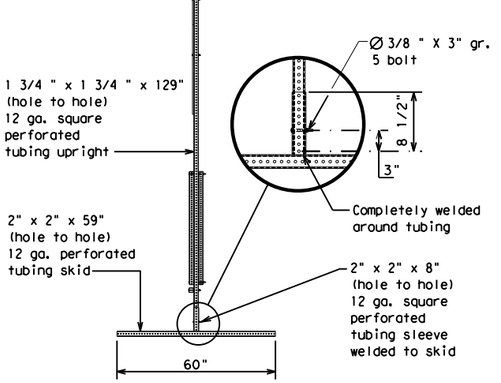
WING CHANNEL
Lap-splice/base bolted anchor

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	0906	00	235	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ODA	ECTOR, ETC		26

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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

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ODA	ECTOR, ETC		27

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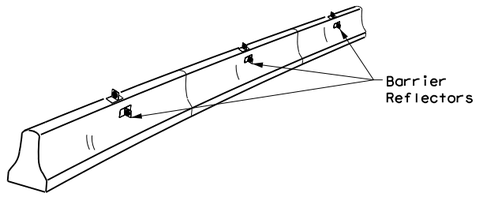
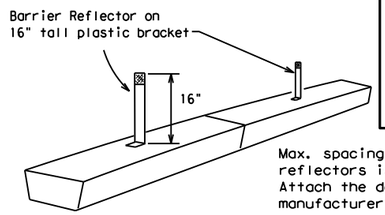
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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

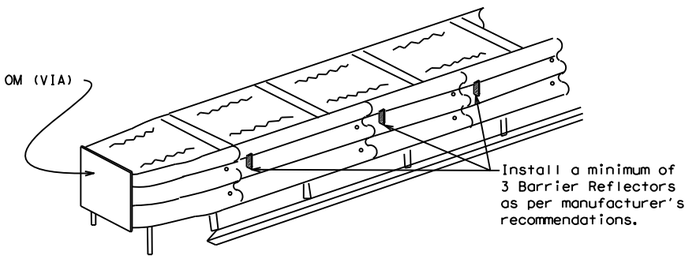


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

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)

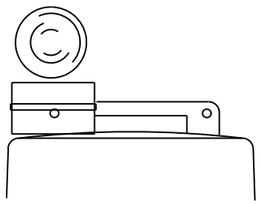


DELINEATION OF END TREATMENTS

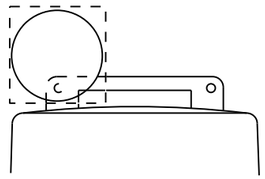
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

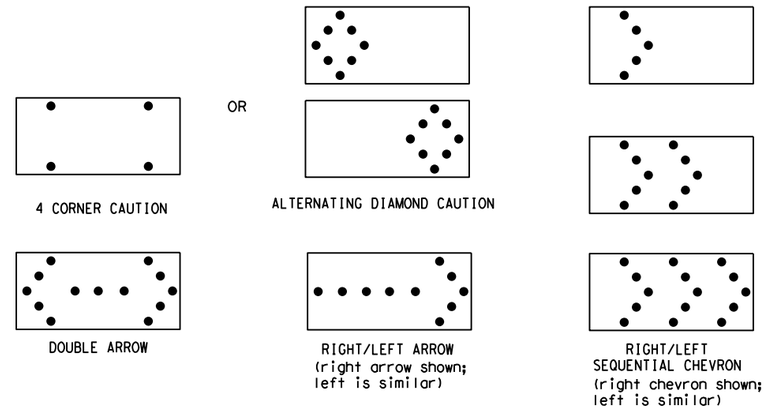
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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.

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
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REVISIONS	0906	00	235	VARIOUS
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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:

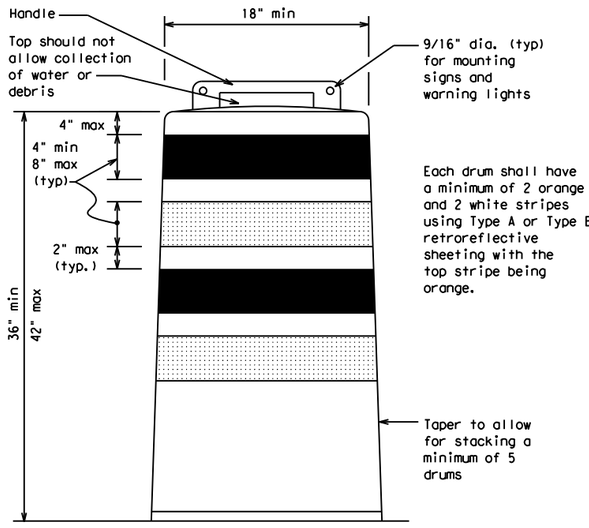
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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.

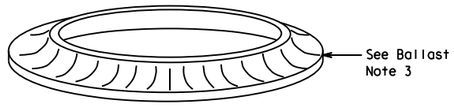
RETROREFLECTIVE SHEETING

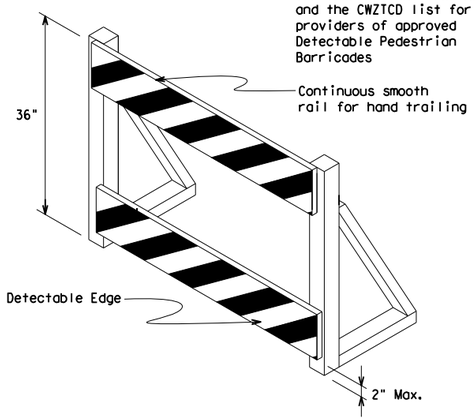
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall 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.

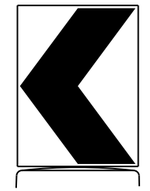




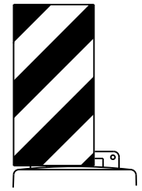


DETECTABLE PEDESTRIAN BARRICADES

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.

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

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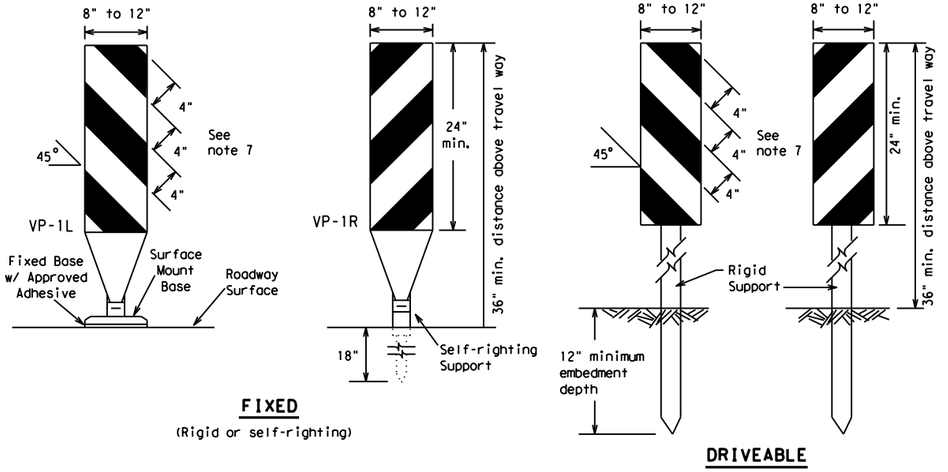


FIXED
(Rigid or self-righting)

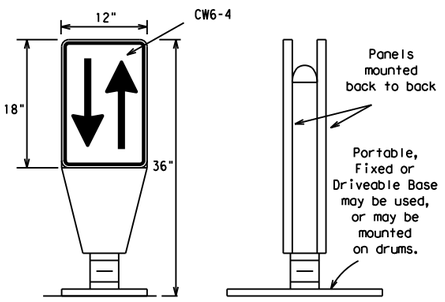
DRIVEABLE

(Rigid or self-righting)

PORTABLE

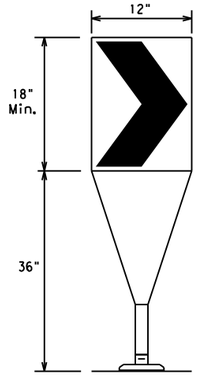
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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.

VERTICAL PANELS (VPs)



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.

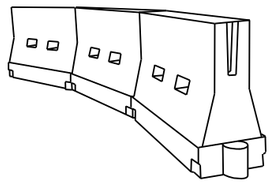
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



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



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

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.

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

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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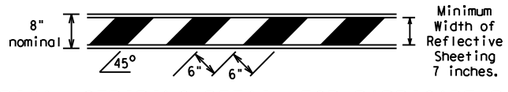
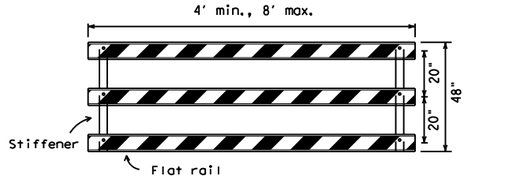
TYPE 3 BARRICADES

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.



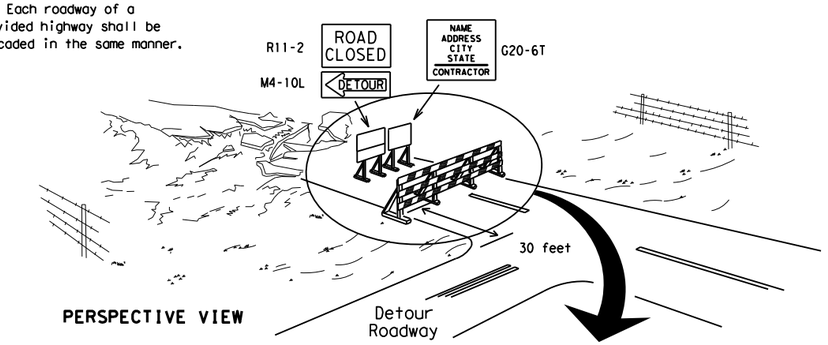
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

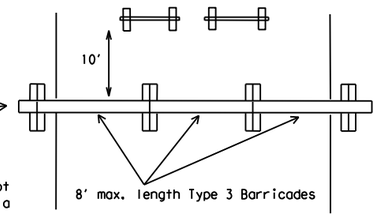
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

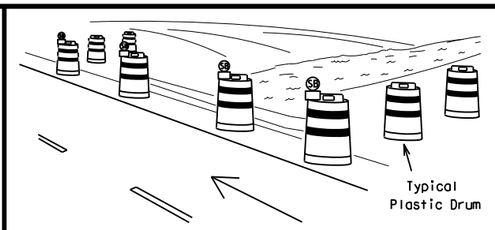
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

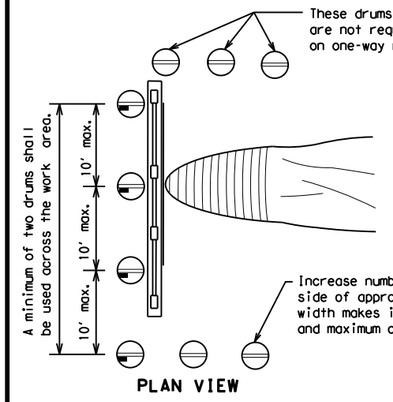
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

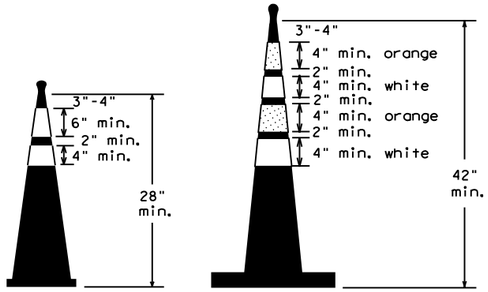
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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.



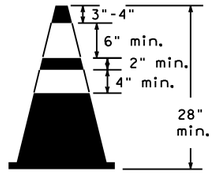
LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

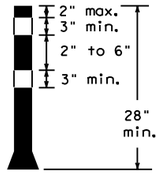
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

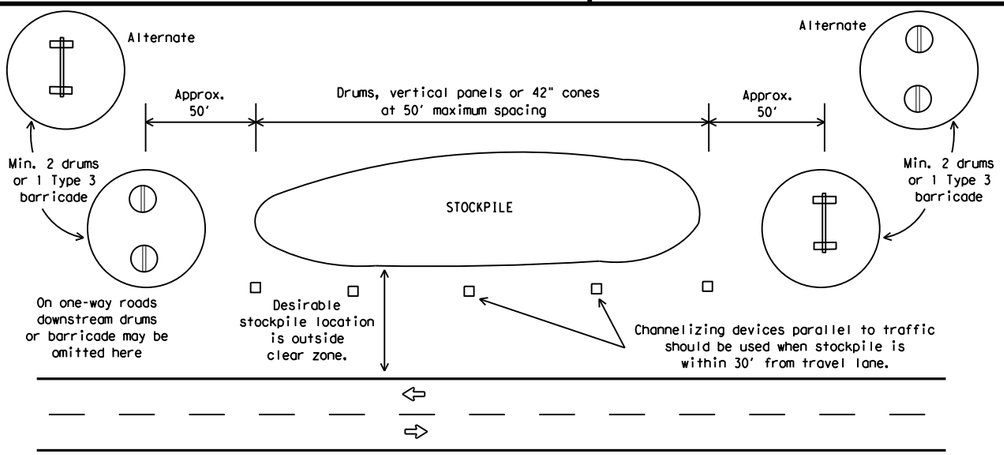


Tubular Marker

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

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	0906	00	235	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ODA	ECTOR, ETC		31

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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.

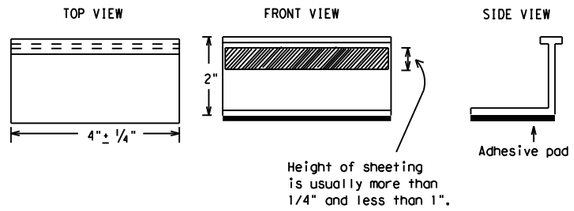
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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	0906	00	235	VARIOUS
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	ODA	ECTOR, ETC		32
11-02 8-14				

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DATE: 1/16/2024 1:12:27 PM
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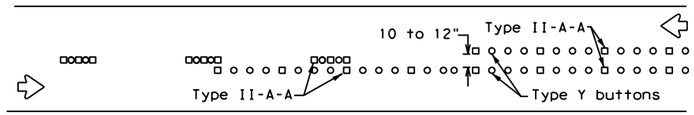
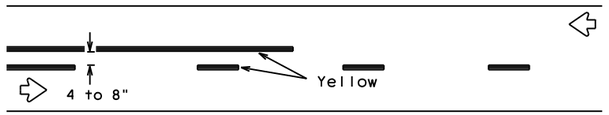
PAVEMENT MARKING PATTERNS

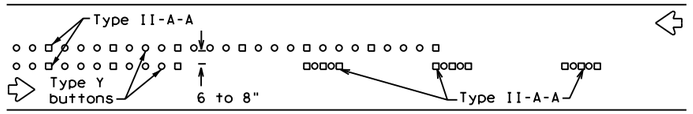
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



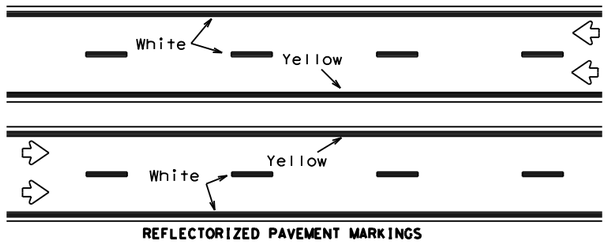
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



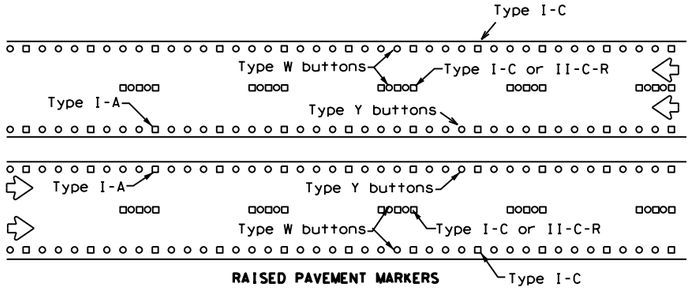
RAISED PAVEMENT MARKERS - PATTERN B

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



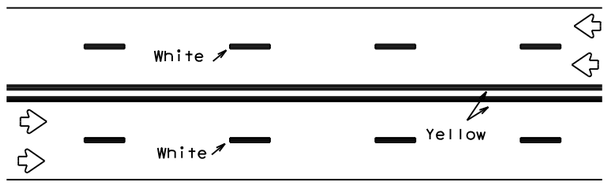
REFLECTORIZED PAVEMENT MARKINGS



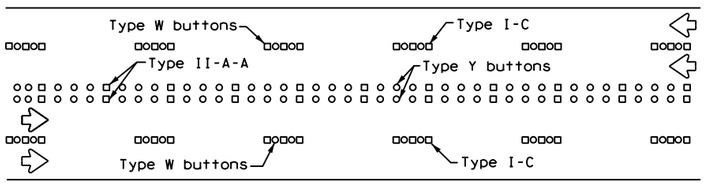
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



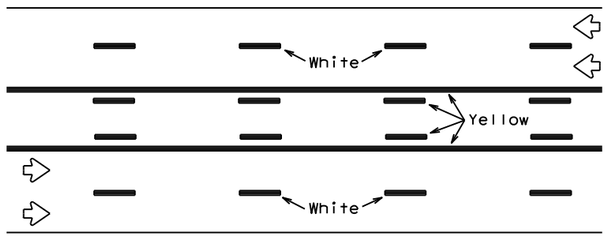
REFLECTORIZED PAVEMENT MARKINGS



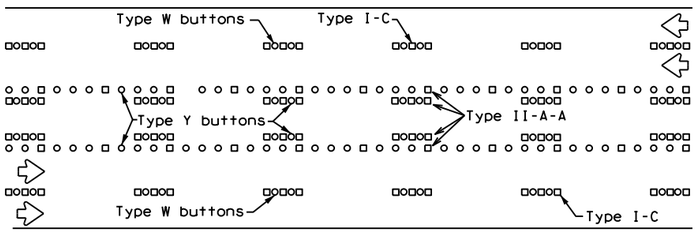
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

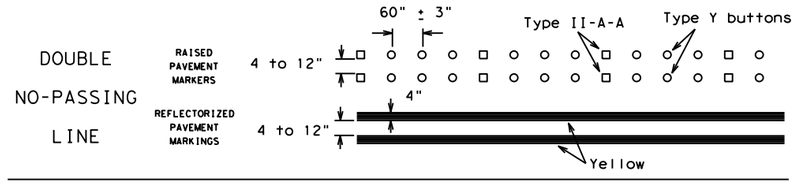
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

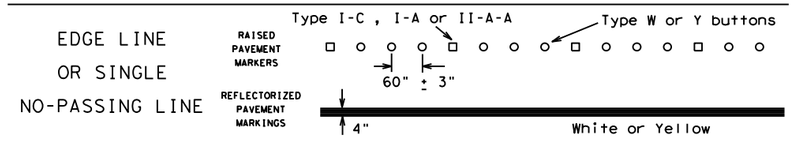
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

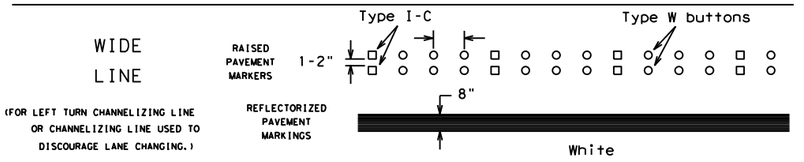


EDGE LINE OR SINGLE NO-PASSING LINE



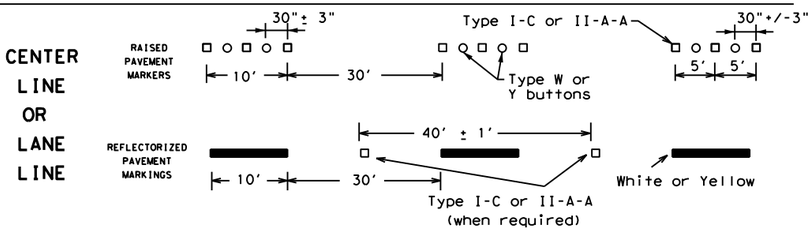
WIDE LINE

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

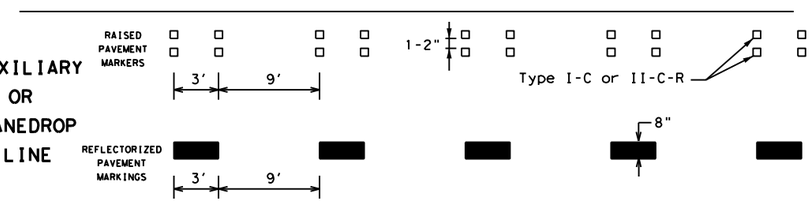


BROKEN LINES

CENTER LINE OR LANE LINE

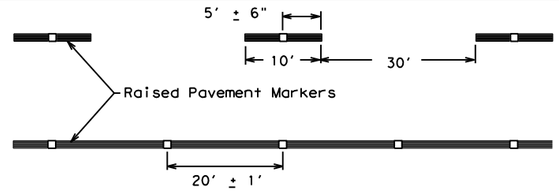


AUXILIARY OR LANEDROP LINE



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."

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
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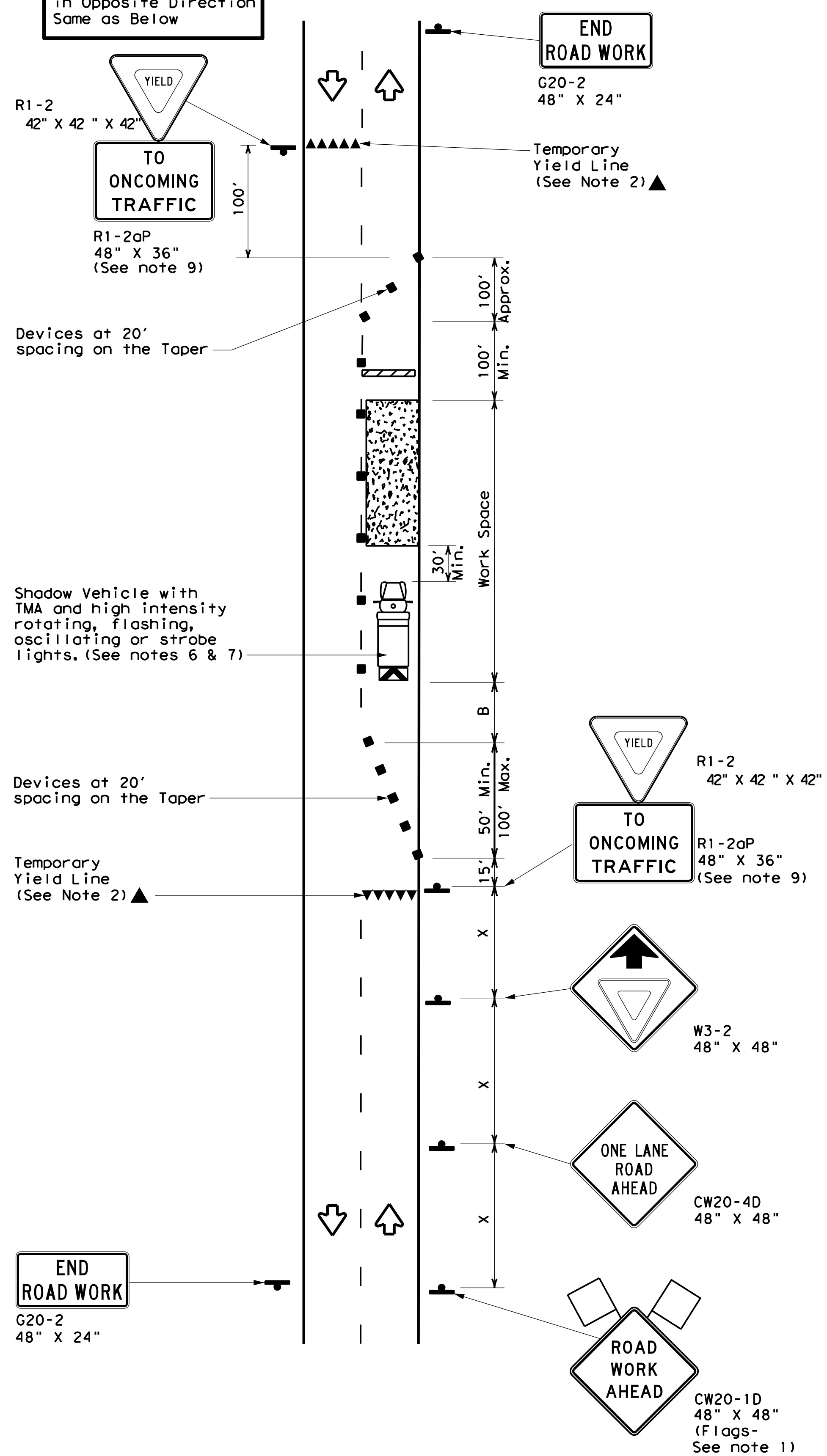


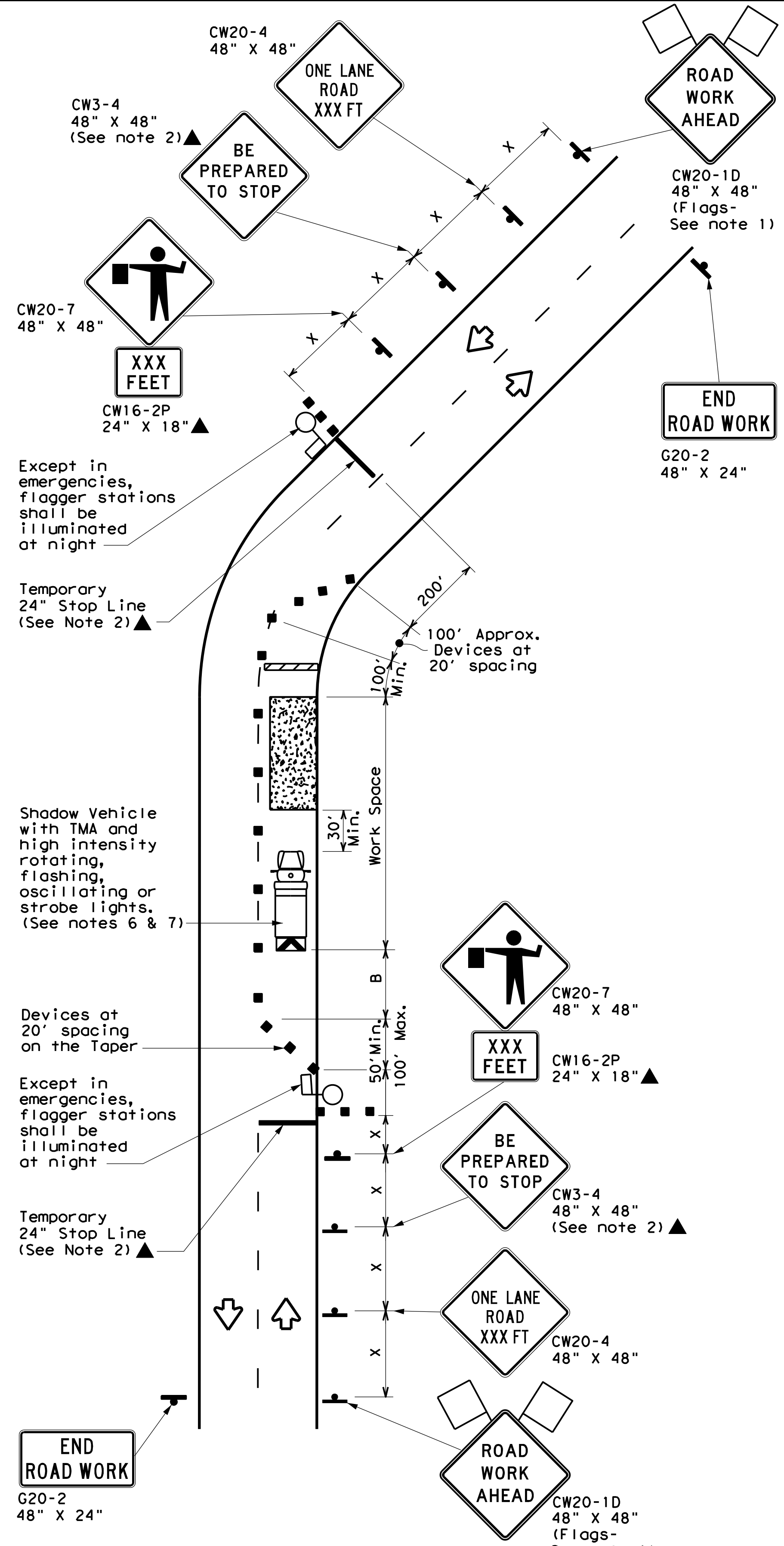
TCP (2-2a)

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

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
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
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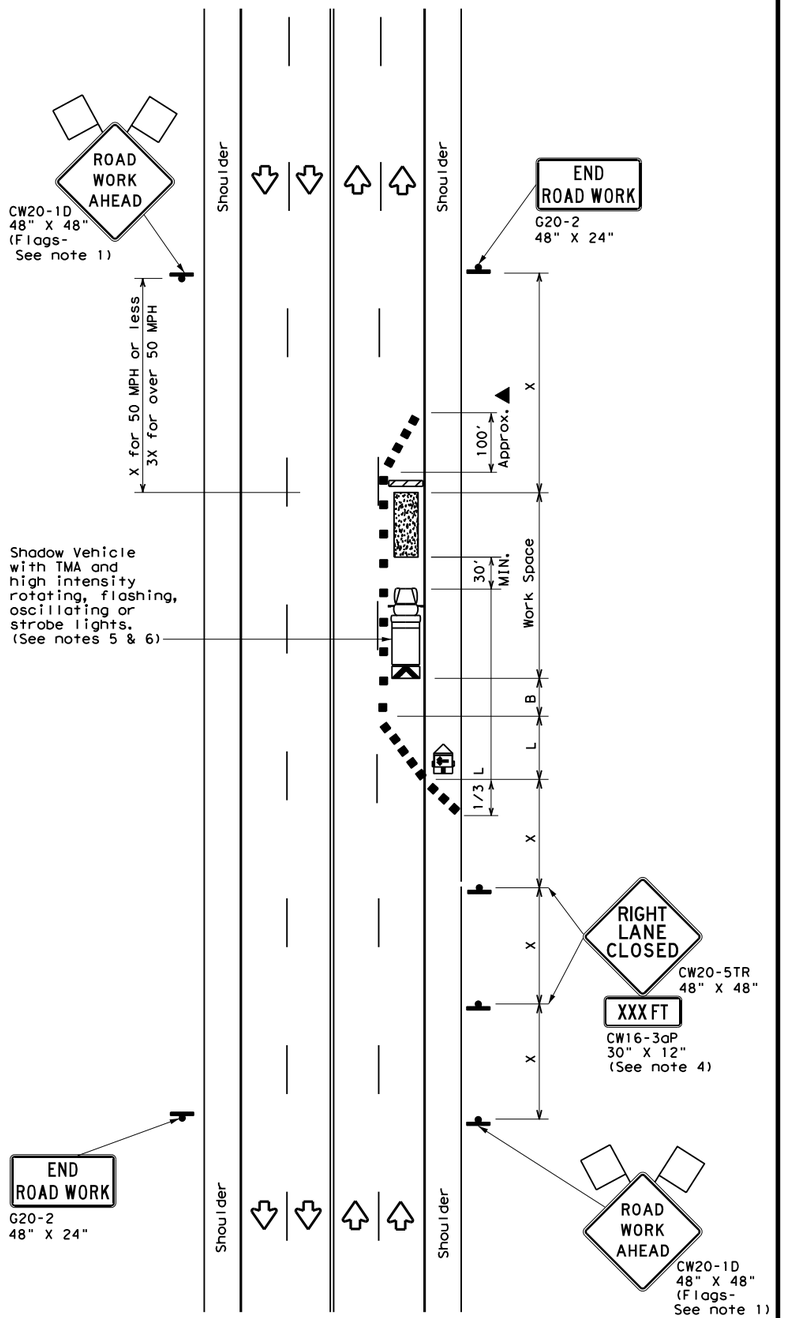
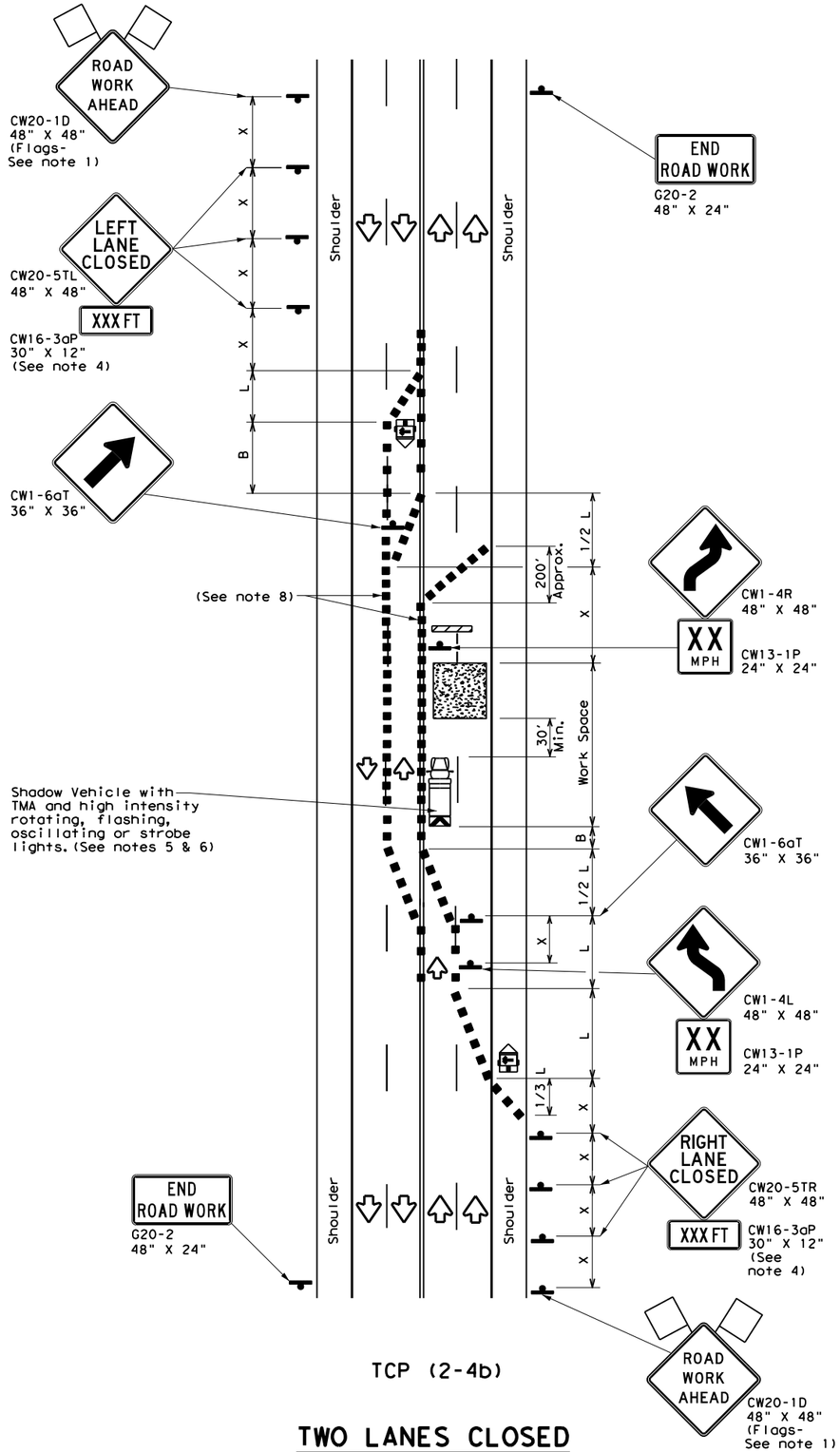


TCP (2-4a)

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	0906	00	235	VARIOUS
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	ODA	ECTOR, ETC		35

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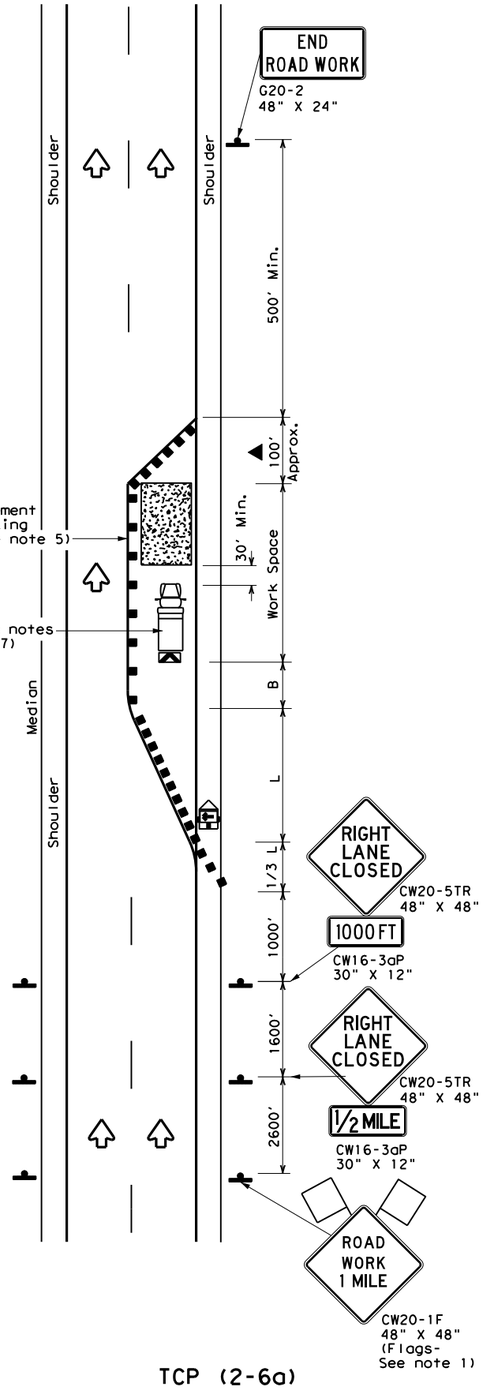
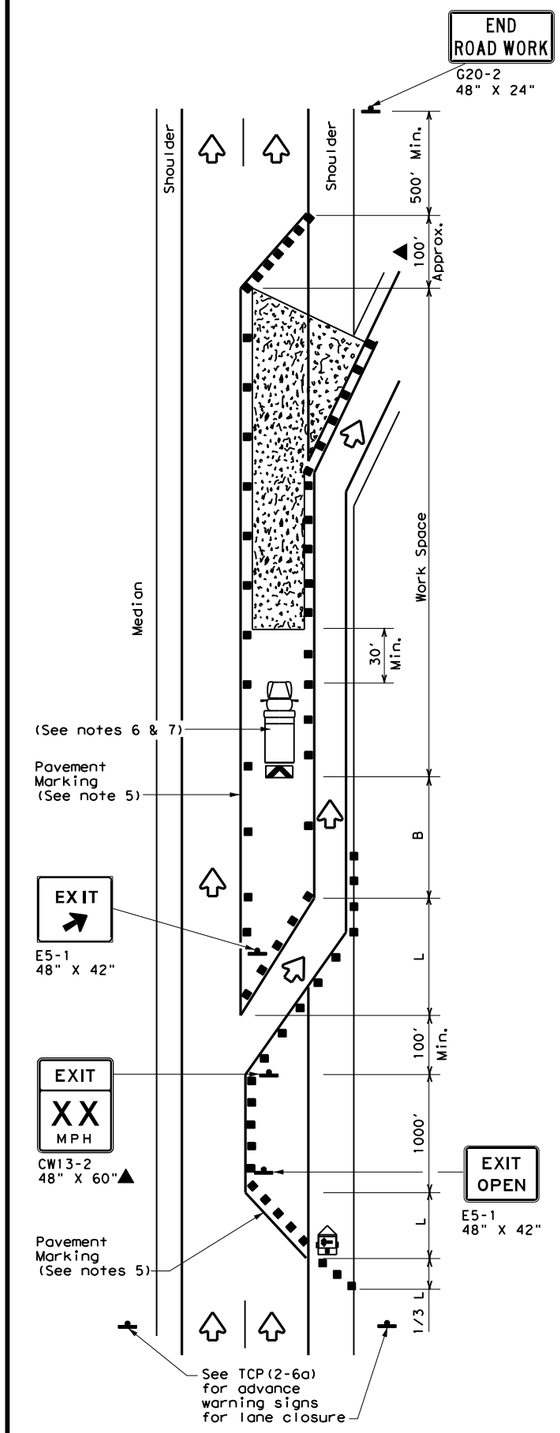


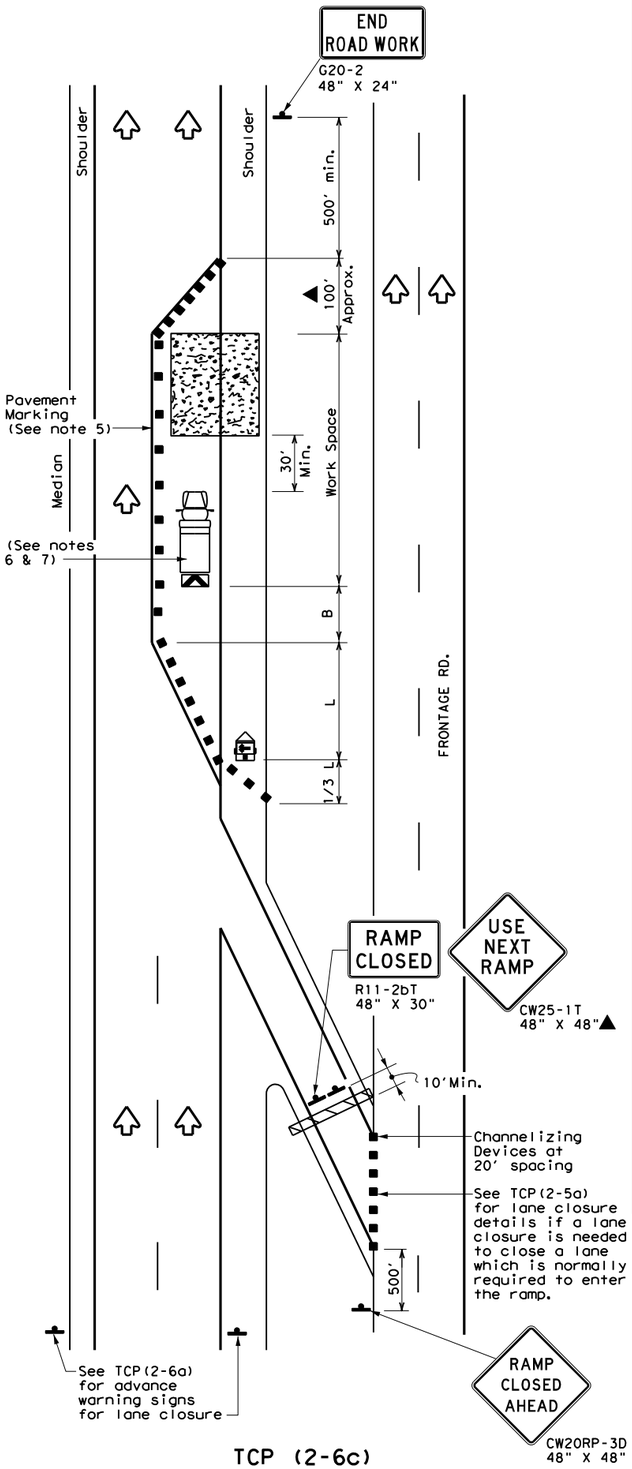
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. 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.
7. 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.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0906	00	235	VARIOUS
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	ODA	ECTOR, ETC		36

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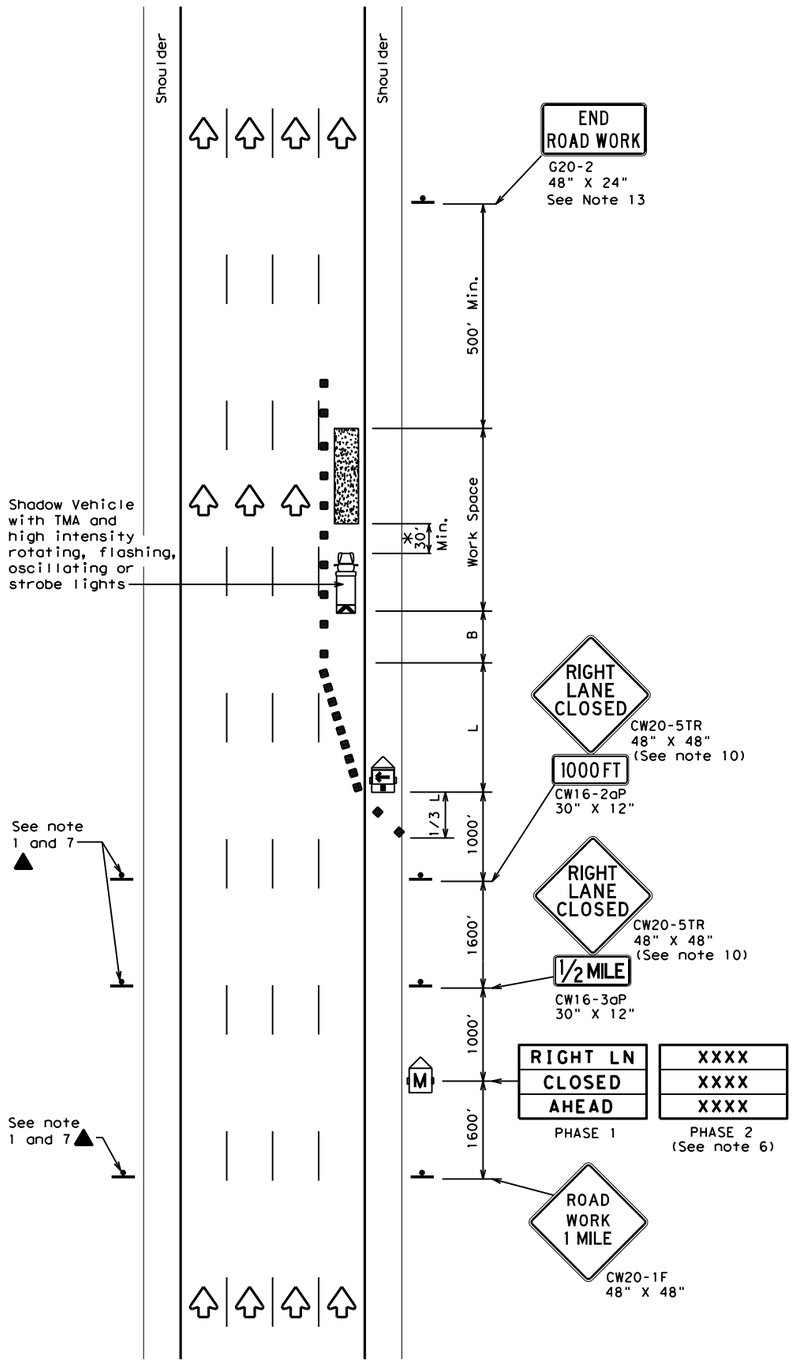
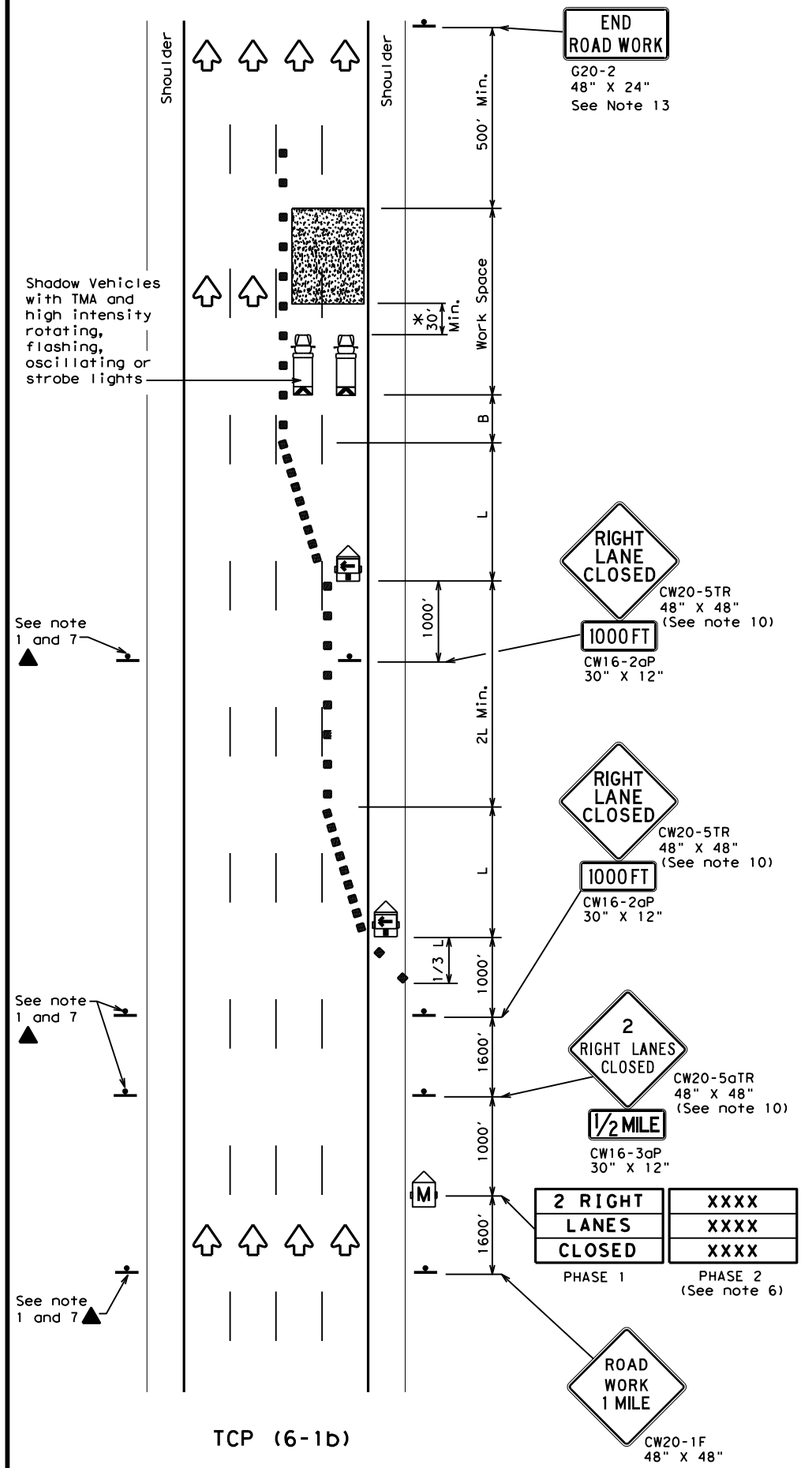


TCP (6-1a)

TYPICAL FREEWAY ONE LANE CLOSURE



TCP (6-1b)

TYPICAL FREEWAY TWO LANE CLOSURE

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 "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

** 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. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Drums or 42"cones are the typical channelizing devices. For Intermediate Term Stationary work, drums shall be used on tapers with drums or 42" cones used on tangent sections. Other channelizing devices may be used as directed by the Engineer.
3. All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
4. The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
5. Static message boards or changeable message signs stating the date and duration of ramp or freeway lane closures shall be placed a minimum of seven (7) calendar days in advance of the actual closure.
6. Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE LEFT," recommended advisory speed, delay information, or other specific warnings.
7. Duplicate construction warning signs should be erected on the medians side of freeways where median width will permit and traffic volume justifies the signing.
8. The number of closed lanes may be increased provided the spacing of traffic control devices, taper lengths and tangent lengths meet the requirements of the TMUTCD.
9. Warning signs for intermediate term stationary work should be mounted at 7' to the bottom of the sign.
10. Warning signs shown shall be appropriately altered for left lane closures. When signs are mounted at 1' height for short term stationary or short duration work, sign versions shown in the SHSD for Texas with distances on the sign face rather than mounted on a plaque below the sign may be used.
11. When possible, PCMS units should be located in advance of the last available exit ramp prior to the lane closure to allow motorists an alternate route. They may also be relocated to improve advance warning in case of unanticipated queuing or congestion.
12. For Intermediate Term Stationary work at night, floodlights should be used to illuminate the work area and equipment crossings. Floodlights shall not produce a disabling glare condition for road users or workers.
13. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN FREEWAY LANE CLOSURES

TCP(6-1)-12

FILE: tcp6-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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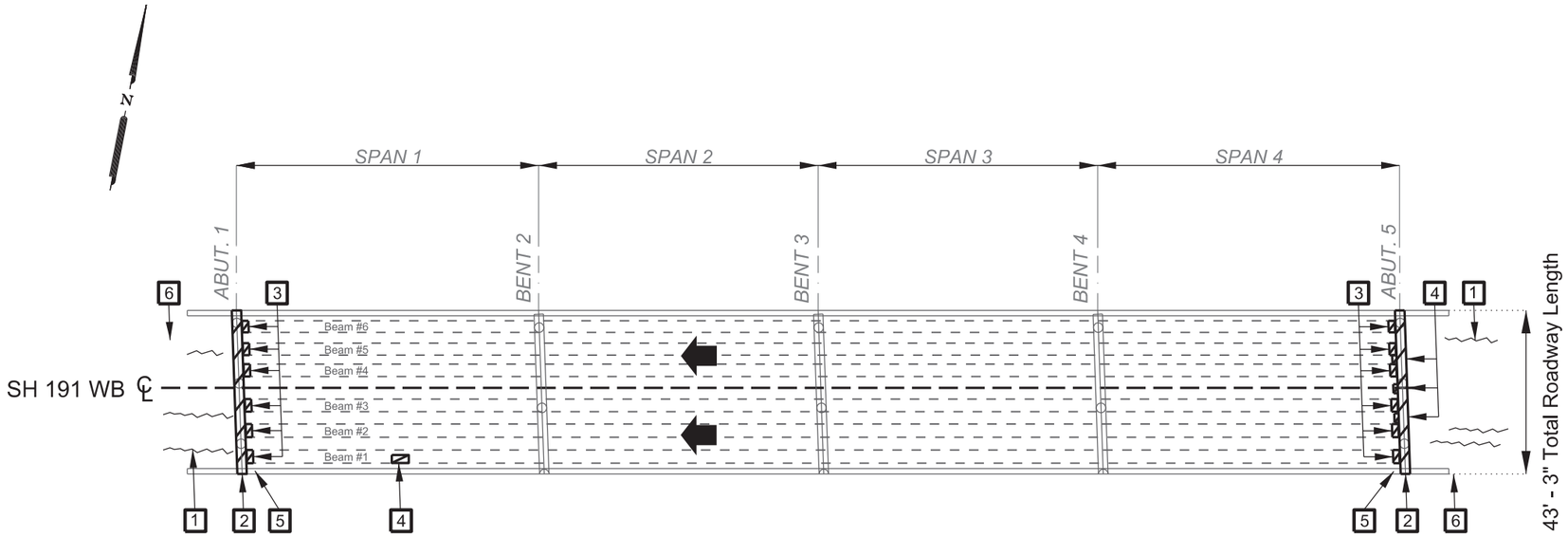
	ODA	ECTOR, ETC		37



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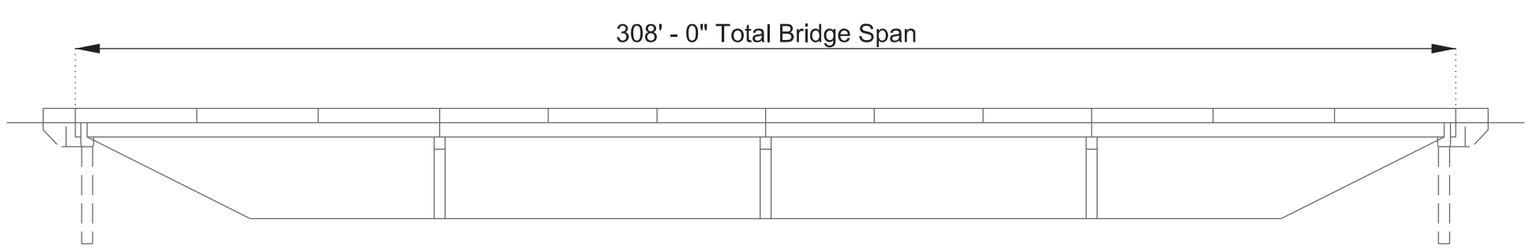

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	200
2	0785 6010	BRIDGE JOINT REPLACEMENT (ARMOR)	LF	175
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	72
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20
5	0429 6006	CONC STR REPAIR (RAPID DECK REP(FULL DPT))	SF	130
6	0429 6004	CONC STR REPAIR (RAPID DECK REP(PRT DPT))	SF	130

1. Approach slab on West and East side of bridge has multiple moderate cracks. (200 LF Total)
(See Photo 1)
2. Joints at Abutments 1 and 5 are failing and need to be replaced. (90 SF Total)
Refer to Removal Detail on Sheet 2 of 2
(See Photo 2)
3. Spalling at ends of all Beams in both Abutments 1 and 5 on the Northwest and Northeast side of bridge. (72 SF Total)
(See Photo 3)
4. Spalling on Beam 1 on the Southwest side of the bridge. Also, spalling on Abutment 5 between Beams 1 - 2, 3 - 4, and 5 - 6. (20 SF Total)
(See Photo 4)
5. Full Depth Repair for both West and East Deck. (130 SF Total)
6. Partial Depth Repair for both West and East Approach Slab. (130 SF Total)

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
1/12/2024
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SHEET 1 OF 2

LOCATION REPAIRS

Photo 1

Photo 2

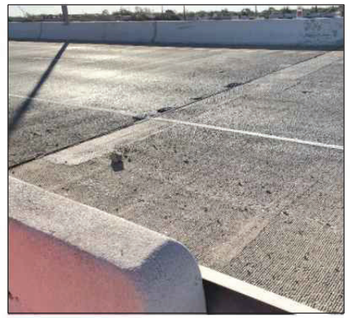

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-069-0-2296-01-019

SH 191 WB at LP 338

REF. MARKER 264+0.061

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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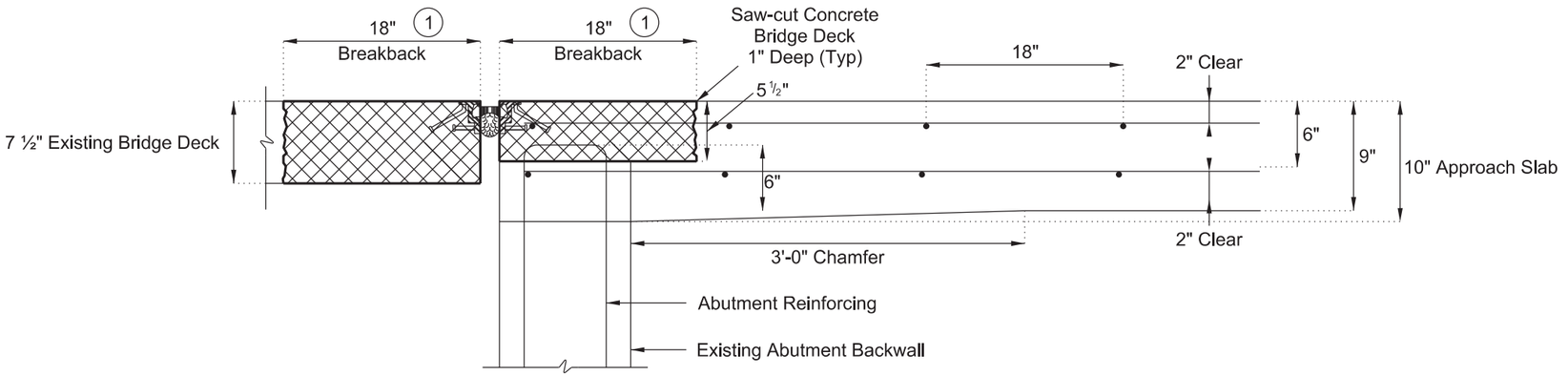
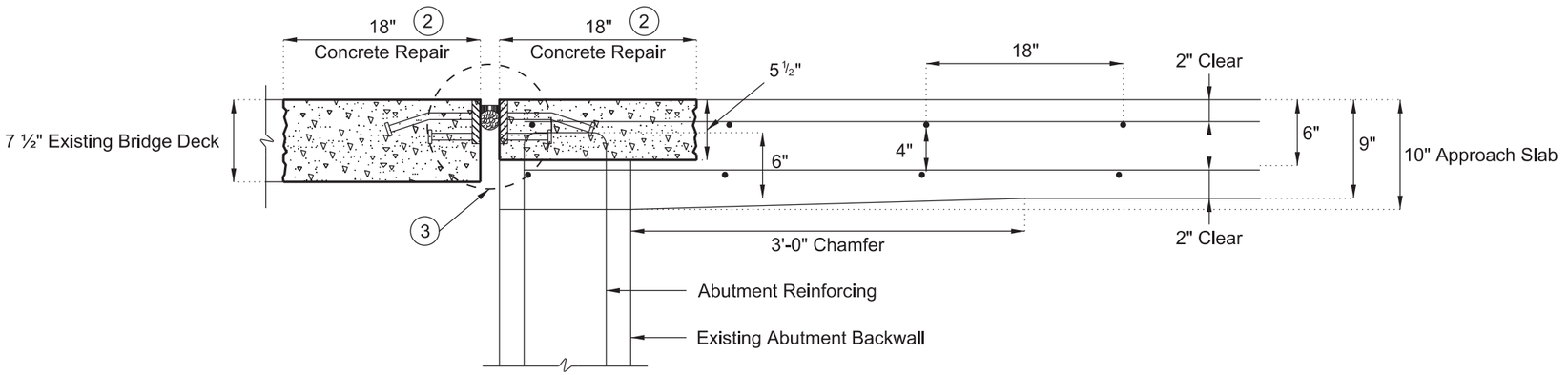


REMOVAL DETAIL



RECONSTRUCTION DETAIL

REMOVAL AND REPAIR NOTES

1. Saw cut deck 18" at the breakback line prior to concrete removal. Remove concrete bridge deck as shown. Use hand tools, power driven chipping hammers (30-lb class maximum), or hydro-demolition to remove concrete. Do Not damage existing reinforcing, existing beams, or any other portion of the structure to remain.

2. Clean and extend existing reinforcing. Repair damaged coating for epoxy coated or galvanized rebar. Contractor may opt for replacing transverse reinforcing at no additional cost to the Department. Provide a 1'-0" minimum lap if bars are cut. Extend repair concrete to be flush with existing surface. Removal or expansion joint, if present, is subsidiary to Item 785.

3. See Armor Joint Detail standard for reference.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide Class K or Class S concrete.

GENERAL NOTES:

Perform work in accordance with the TXDOT Concrete Repair Manual, Chapter 3, Section 4 and Item 785, "Bridge Joint Repair or Replacement". All work to remove existing joint and install new joint, including repair concrete and installing new reinforcing steel is paid in accordance with Item 785 and measured by the linear foot. Obtain approval for all tools, equipment, materials and techniques proposed before beginning work.

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SHEET 2 OF 2

LEGEND
Removal
Concrete
Armor Joint
Rebar

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-069-0-2296-01-019

SH 191 WB at LP 338

REF. MARKER 264+0.061

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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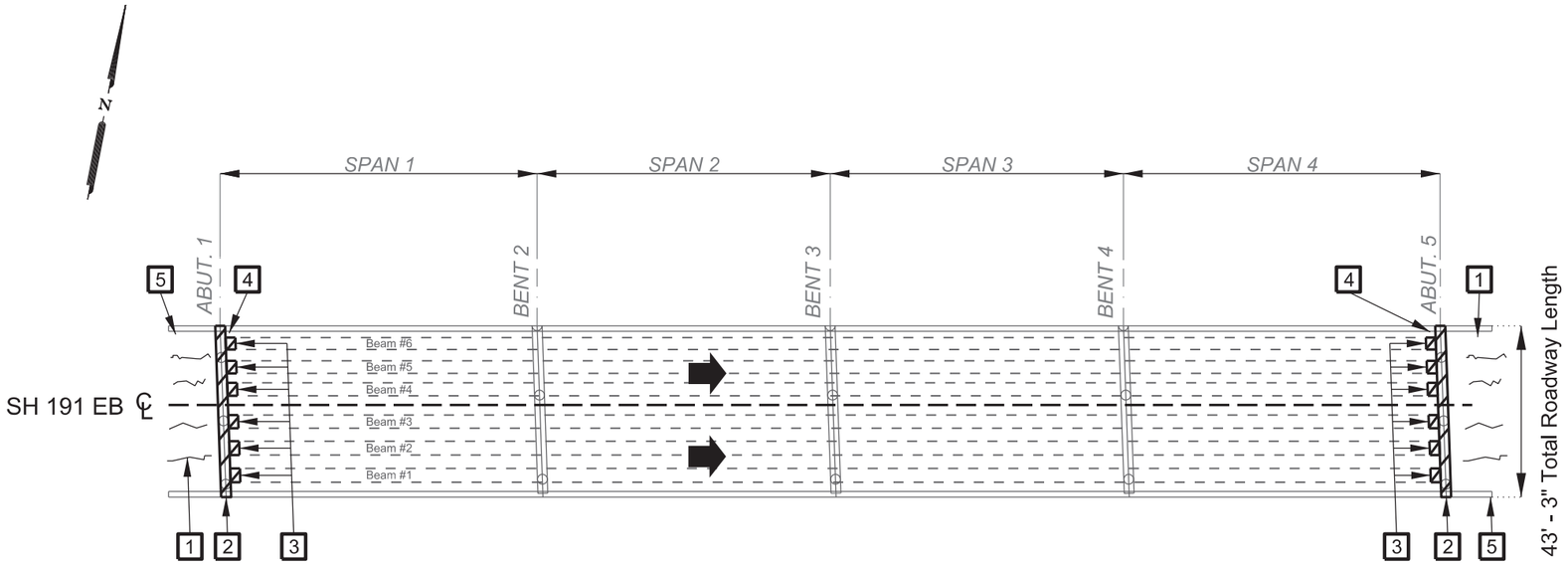

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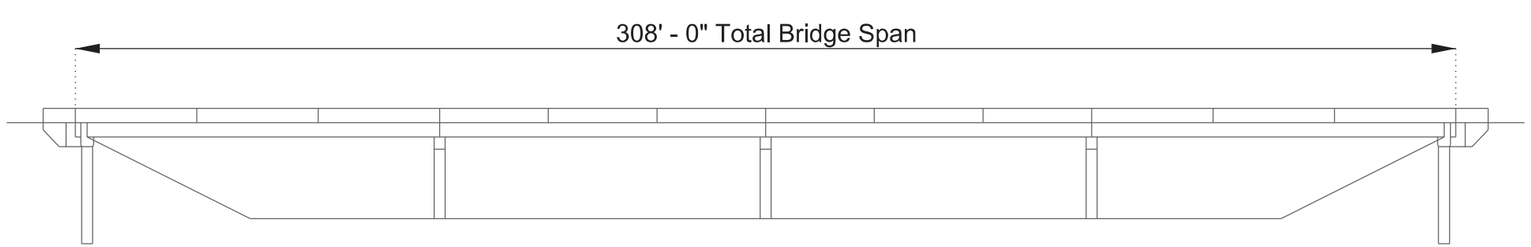

ELEVATION

LOCATION REPAIRS

Photo 1

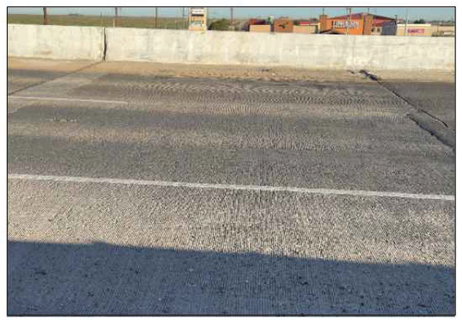

Photo 2

Photo 3

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	200
2	0785 6010	BRIDGE JOINT REPLACEMENT (ARMOR)	LF	90
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	72
4	0429 6006	CONC STR REPAIR (RAPID DECK REP(FULL DPT))	SF	130
5	0429 6004	CONC STR REPAIR (RAPID DECK REP(PRT DPT))	SF	130

1 Approach slab on West side of bridge has multiple moderate cracks. (200 LF Total)
(See Photo 1)

2 Joints at Abutments 1 and 5 are failing and need to be replaced. *Refer to Removal Detail on Sheet 2 of 2.*
(90 LF Total)
(See Photo 2)

3 Spalling at ends of all Beams in both Abutments 1 and 5 on the Northwest and Northeast side of bridge. (72 SF Total)
(See Photo 3)

4 Full Depth Repair for both West and East Deck. (130 SF Total)

5 Partial Depth Repair for both West and East Approach Slab. (130 SF Total)

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SHEET 1 OF 2

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-069-0-2296-01-020

SH 191 EB at LP 338

REF. MARKER 264+0.061

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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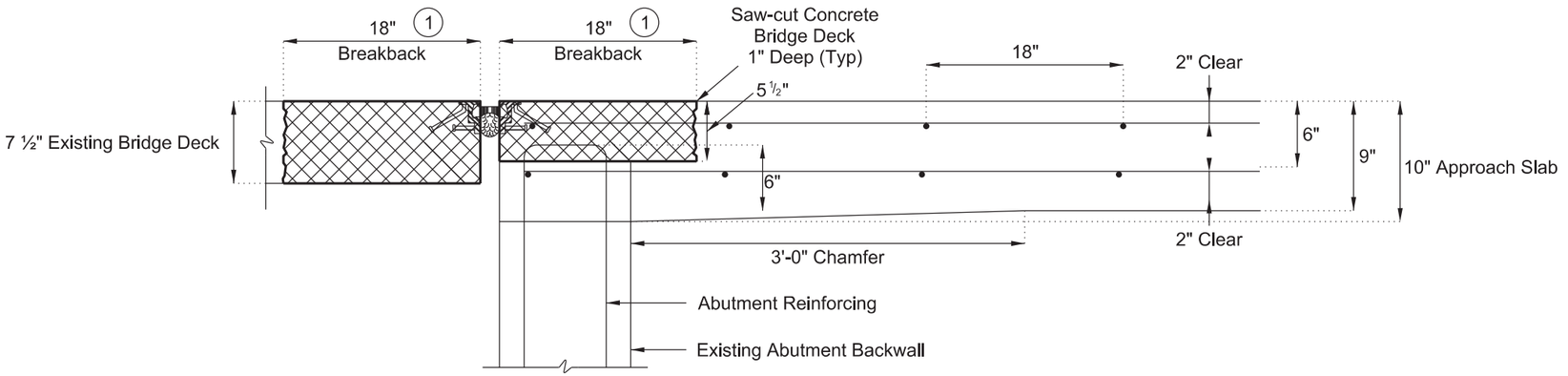
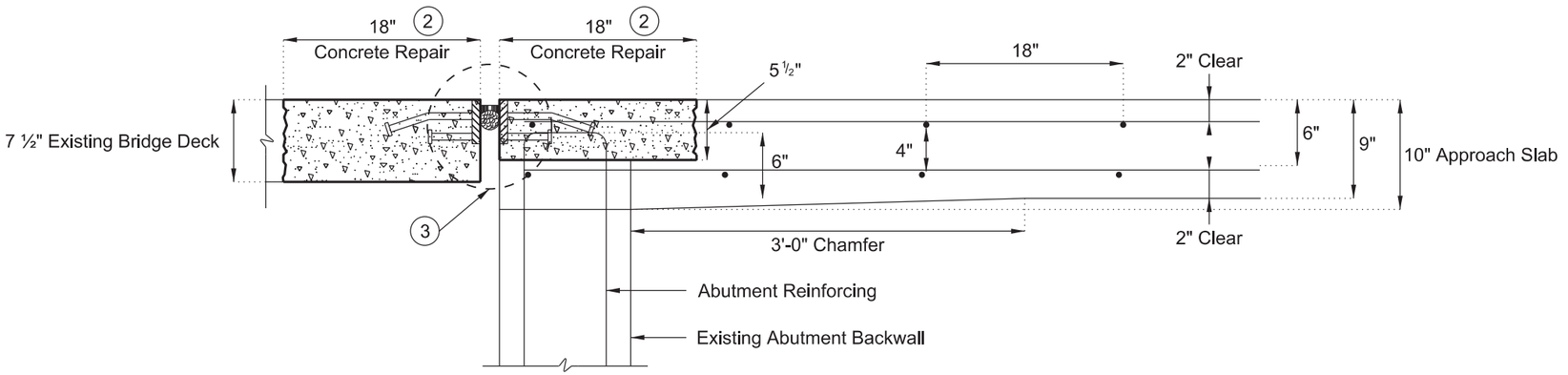


REMOVAL DETAIL



RECONSTRUCTION DETAIL

REMOVAL AND REPAIR NOTES

1. Saw cut deck 18" at the breakback line prior to concrete removal. Remove concrete bridge deck as shown. Use hand tools, power driven chipping hammers (30-lb class maximum), or hydro-demolition to remove concrete. Do Not damage existing reinforcing, existing beams, or any other portion of the structure to remain.

2. Clean and extend existing reinforcing. Repair damaged coating for epoxy coated or galvanized rebar. Contractor may opt for replacing transverse reinforcing at no additional cost to the Department. Provide a 1'-0" minimum lap if bars are cut. Extend repair concrete to be flush with existing surface. Removal or expansion joint, if present, is subsidiary to Item 785.

3. See Armor Joint Detail standard for reference.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide Class K or Class S concrete.

GENERAL NOTES:

Perform work in accordance with the TXDOT Concrete Repair Manual, Chapter 3, Section 4 and Item 785, "Bridge Joint Repair or Replacement". All work to remove existing joint and install new joint, including repair concrete and installing new reinforcing steel is paid in accordance with Item 785 and measured by the linear foot. Obtain approval for all tools, equipment, materials and techniques proposed before beginning work.

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SHEET 2 OF 2

LEGEND
Removal
Concrete
Armor Joint
Rebar

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-069-0-2296-01-020

SH 191 EB at LP 338

REF. MARKER 264+0.061

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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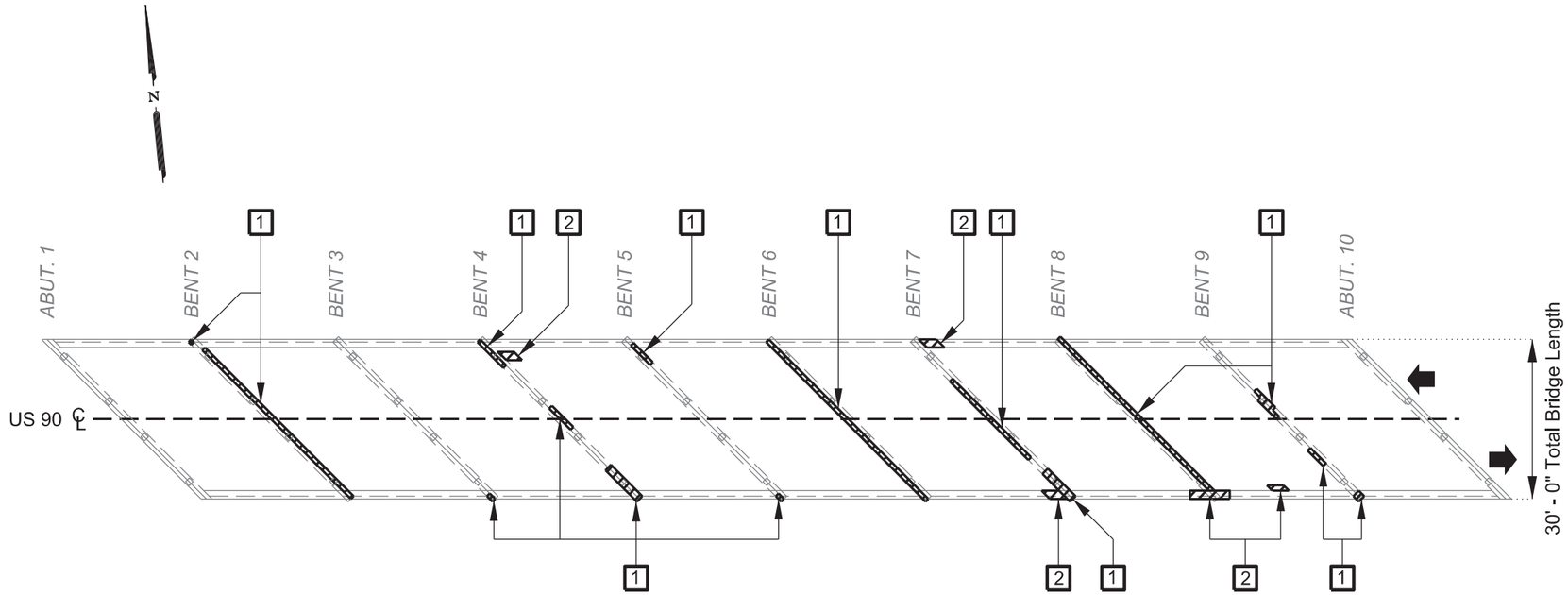

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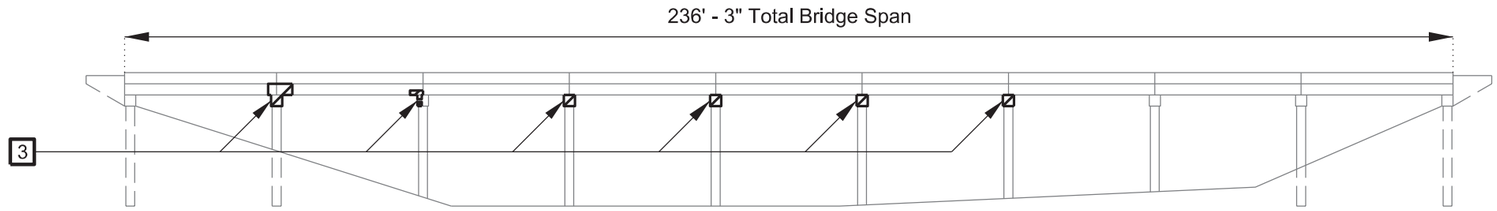

ELEVATION (EAST SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	210
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	25

1 Bents 2, 6, 7, and 8 is damaged with minor to severe cracks, scaling, delaminations and spalls with exposed rebar throughout entire Bent and Joint. Scattered minor to moderate delaminations and spalls with exposed rebar through Bents 4, 5, and 9.
(210 SF Total)
(See Photos 1 and 2)

2 Scattered minor to moderate delaminations and spalls with exposed rebar along top slab in Spans 4, and 6 on the North side. Minor to moderate spalls with exposed rebar also on top slab in Spans 6, 7, and 8 on the South side of the bridge.
(15 SF Total)
(See Photo 3)

3 Multiple minor to severe cracks, delaminations and spalls with exposed rebar at end of Bent caps 2, 3, 4, 5, 6, and 7 on the South side of bridge. (25 SF Total)
(See Photo 4)

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1/12/2024

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0021-06-103

US 90 at DRY CREEK

REF. MARKER 276-0.760

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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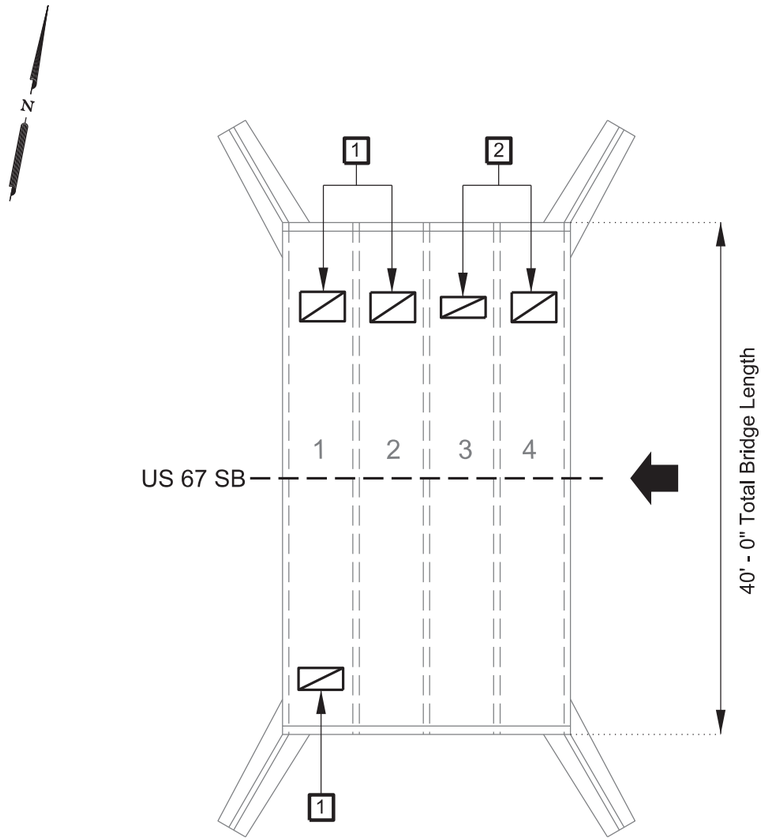

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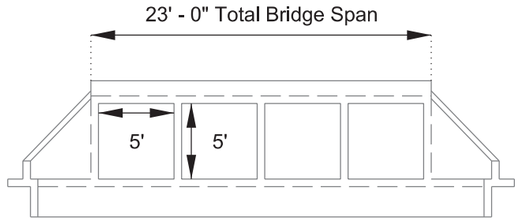

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	9

1 Severe spalls and delamination on the top slab of Barrel 1 and 2 on Northwest and Southwest side of the bridge. (15 SF Total) (See Photos 1 and 2)

2 Severe spalls and delamination on the top slab of Barrel 3 and 4 on Northeast side of the bridge. (9 SF Total) (See Photos 3 and 4)

STATE OF TEXAS
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1/12/2024

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LOCATION REPAIRS

Photo 1

Photo 2

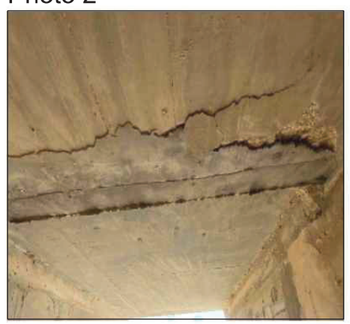

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0076-01-001

US 67 SB TO IH10 WB at DRAW

REF. MARKER 826+0.264

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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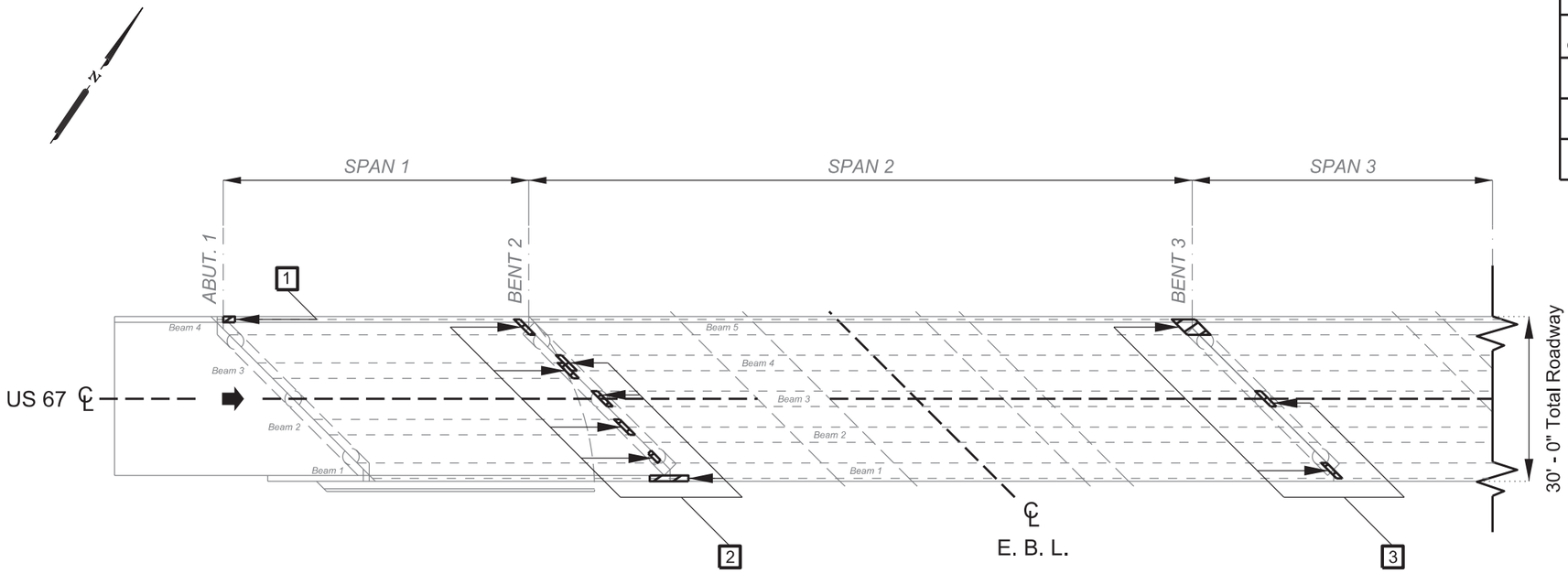
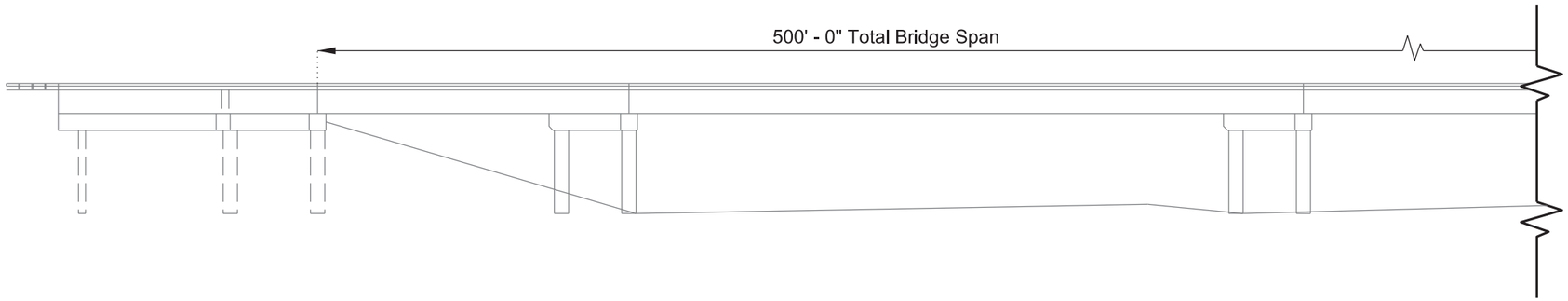


PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	2
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10

1 Minor spall at Northwest Abutment. (2 SF)
(See Photo 1)

2 At Bent 2, all ends of Beams have cracks and spalls in Span 1. In Span 2, end of Beams 3 and 4 have minor spalls. Also, overhang on the South side of bridge has a 2'x2' spall. (15 SF Total)
(See Photos 2 and 3)

3 At Bent 3, both ends of Beam 5 have spalling at end of Bent 3. End of Beam 1 in Span 2 and end of Beam 3 in Span 3 have cracking. (10 SF Total)
(See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-01-126

US 67 NB at IH 10

REF. MARKER 826+0.375

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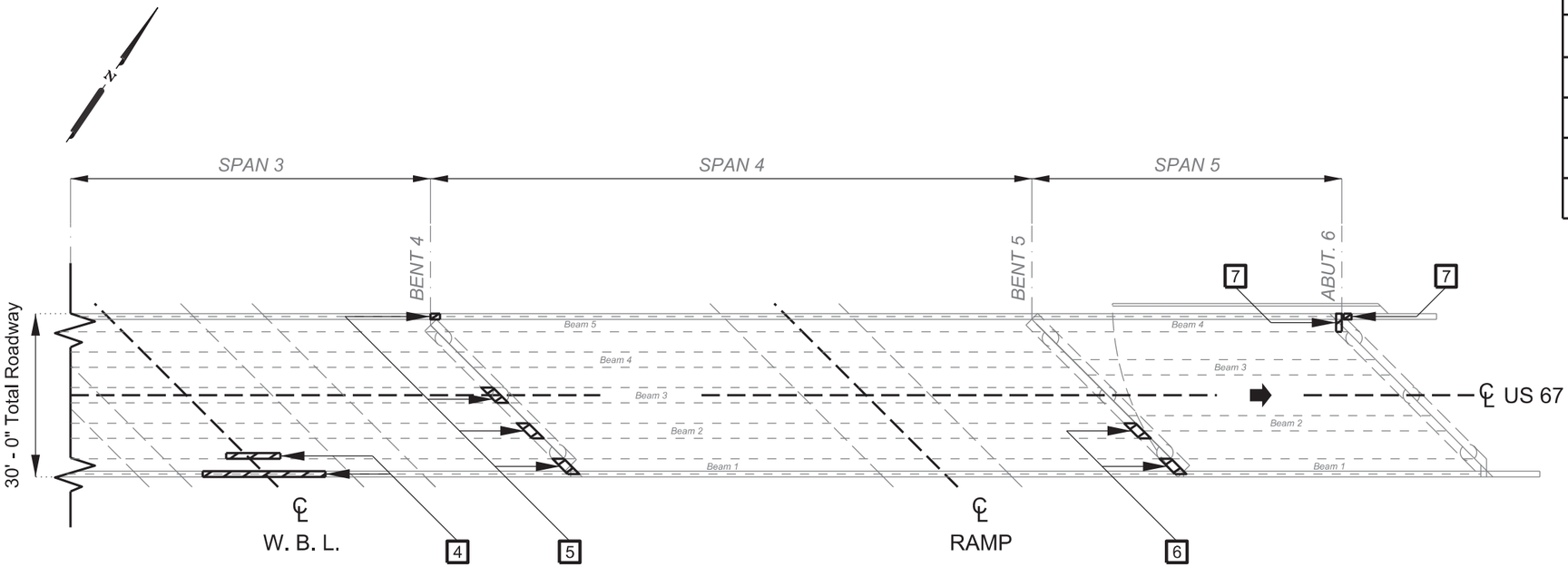

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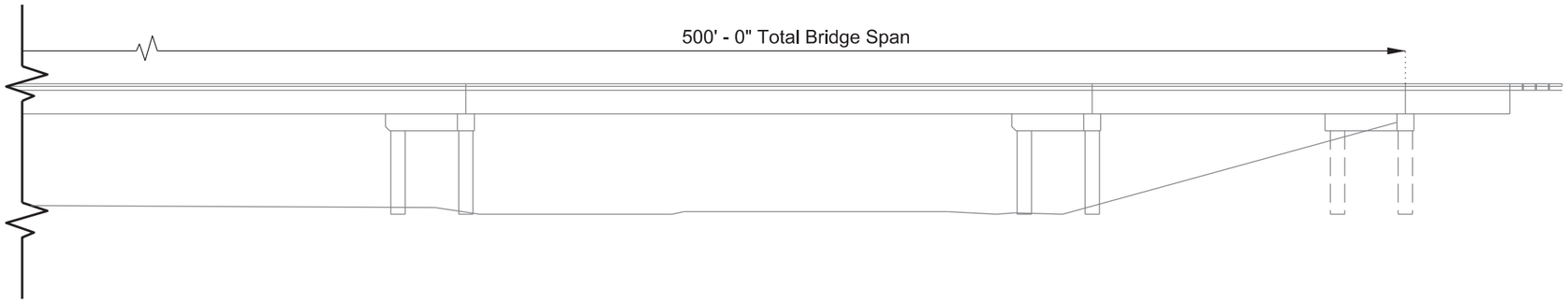

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
6	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
7	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	7

4 Beams 1 and 2 have impact damage in Span 3 on the South side of bridge. (15 SF Total)
(See Photo 5)

5 At Bent 4, ends of Beams 1, 2, and 3 have spalling and cracking in Span 3. Overhang on North side of bridge above Bent 4 has a minor spall. (10 SF Total)
(See Photo 6)

6 At Bent 5, ends of Beams 1 and 2 have spalling and cracking in Span 4. (4 SF Total)
(See Photo 7)

7 Abutment 6 has spalling and delaminations on the Northeast side of bridge. (7 SF Total)
(See Photo 8)

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LOCATION REPAIRS

Photo 5

Photo 6

Photo 7

Photo 8

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-01-126

US 67 NB at IH 10

REF. MARKER 826+0.375

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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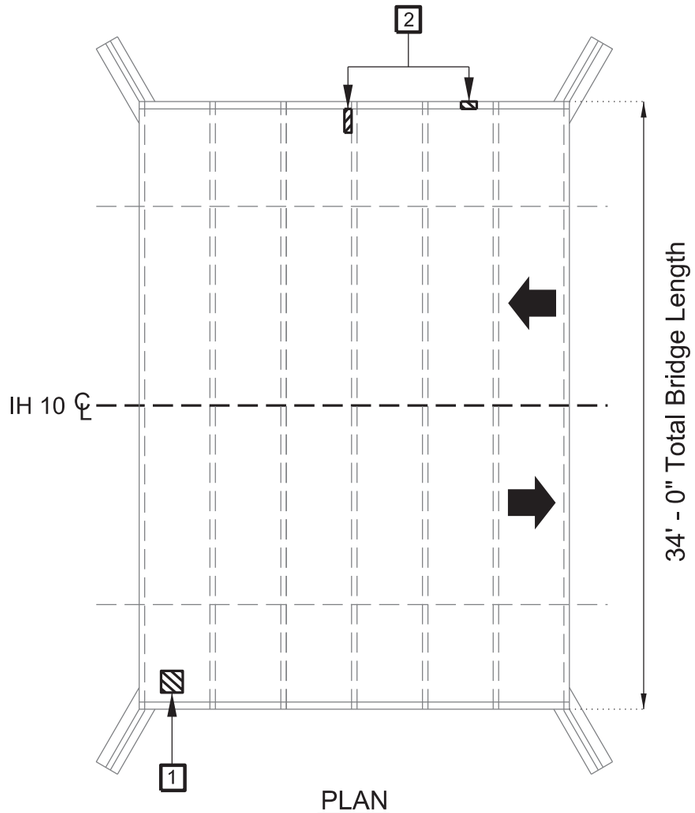
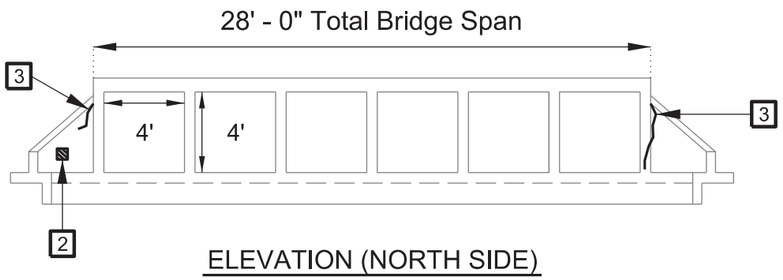
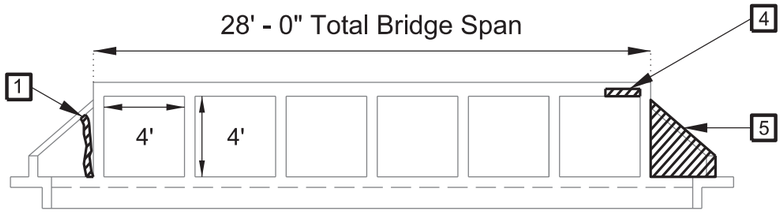


PLAN



ELEVATION (NORTH SIDE)



ELEVATION (SOUTH SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	10
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
5	0429 6011	CONC STR REPAIR (REMOV AND REPL WINGWALL)	CY	0.178

1. Southwest of Barrel 1 has minor spalling on entrance ceiling and Wingwall. (20 SF Total)
(See Photos 1 and 2)
2. Multiple spalling with exposed rebar in Barrel 3, Curb, and Northeast Wingwall. Spalling in the Curb above Barrel 5.
(4 SF Total)
(See Photo 3)
3. Both Wingwalls have cracking on North end of Bridge. (10 LF Total)
4. Large section of Headwall is missing above Barrel 6. (4 SF Total)
(See Photo 4)
5. See Sheet 2 of 2 for Wingwall details.
(See Photo 4)

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SHEET 1 OF 2

LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-03-020

IH 10 SFR at DRAW

REF. MARKER 287+0.101

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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (1~wing) ③	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	22.88	0.178

TABLE OF WINGWALL REINFORCING
(2~wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

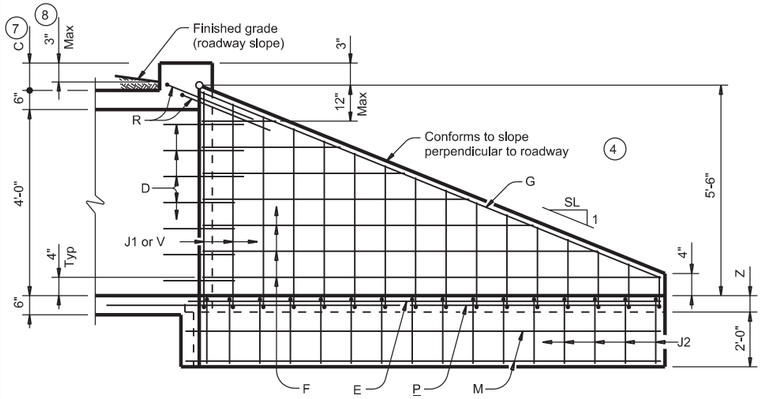
TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

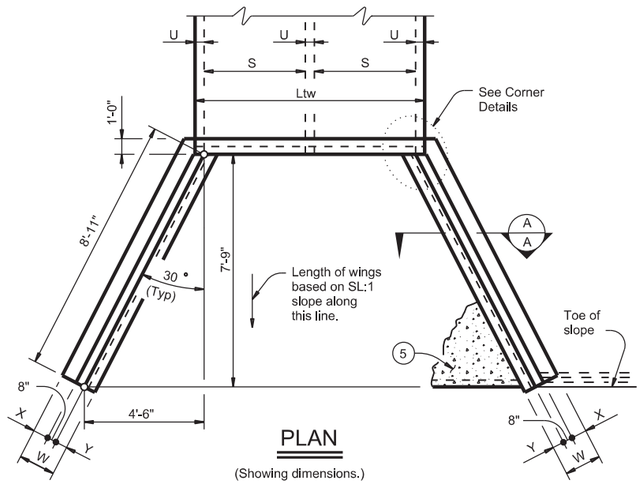
WING DIMENSION FORMULAS:
(All values are in feet.)

Hw = H + T + C - 0.250' = 4' + 0.5' + 1.25' - 0.25' = 5.5'
A = (Hw - 0.333') (SL) = (5.5' -0.333')(1.5) = 7.75'
B = (A) tangent (30°) = (7.75) tan(30°) = 4.47'
Lw = (A) ÷ cosine (30°) = 8.94'

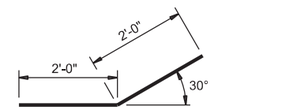
Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans



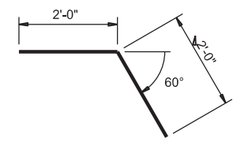
INSIDE ELEVATION
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)



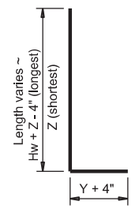
PLAN
(Showing dimensions.)



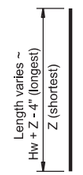
BARS D



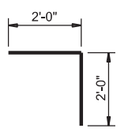
BARS R



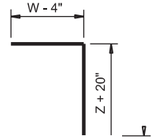
BARS J1



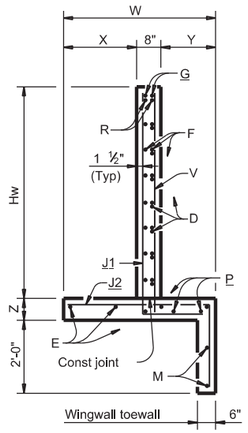
BARS V



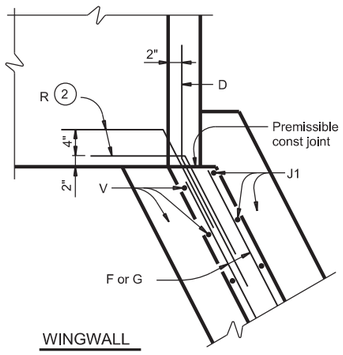
BARS L



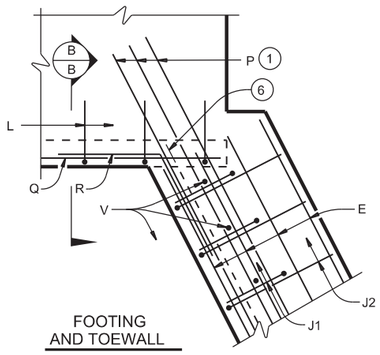
BARS J2



SECTION A-A

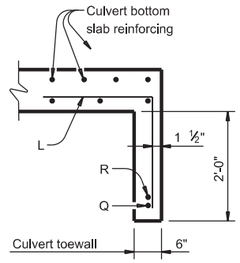


WINGWALL



FOOTING AND TOEWALL

CORNER DETAILS
(Culvert and culvert toewall reinforcing not shown for clarity.)



SECTION B-B ⑤

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Refer to "CONCRETE WINGWALLS WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS for more details.

1. *Extend Bars P 3'-0" minimum into bottom slab of box culvert.*
2. *Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.*
3. *Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.*
4. *Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.*
5. *When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.*
6. *At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.*
7. *0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.*
8. *For vehicle safety, the following requirements must be met:*
   - *For structures without bridge rail, construct curbs no more than 3" above finished grade.*
   - *For structures with bridge rail, construct curbs flush with finished grade.*

   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing dimensions are out-to-out of bars.

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-03-020

IH 10 SFR at DRAW

REF. MARKER 287+0.101

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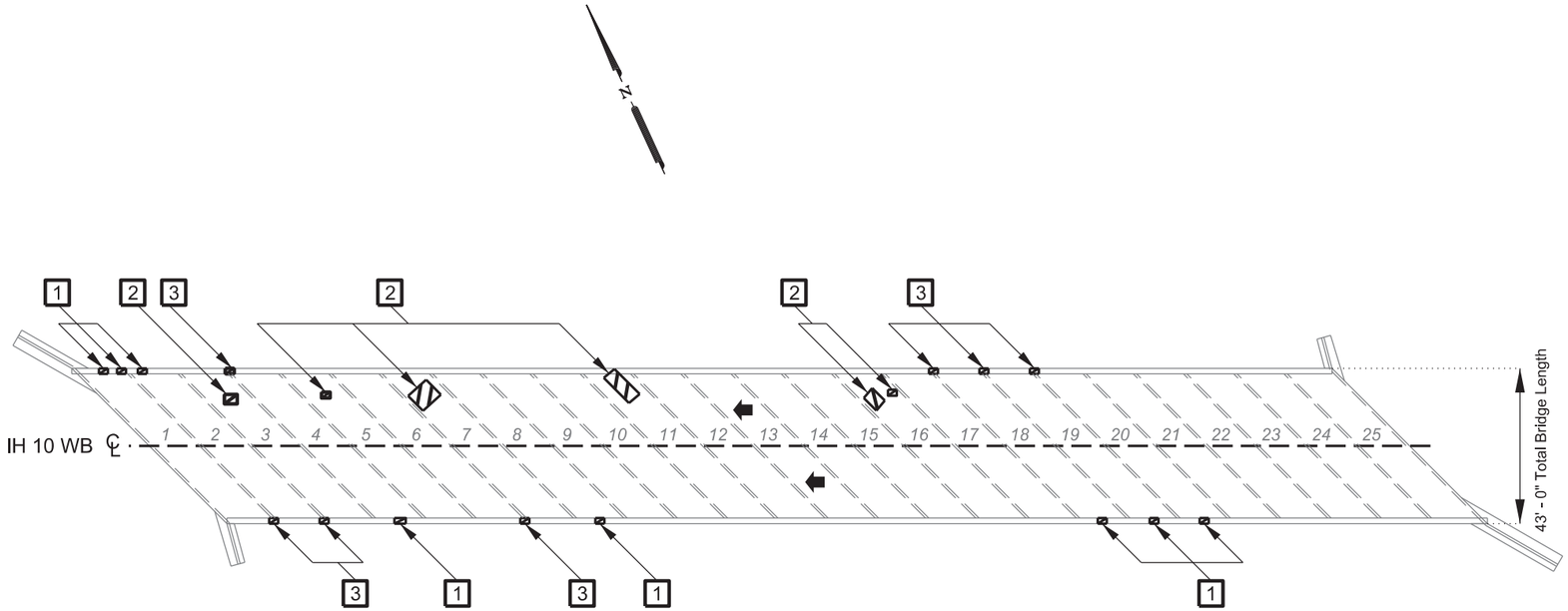

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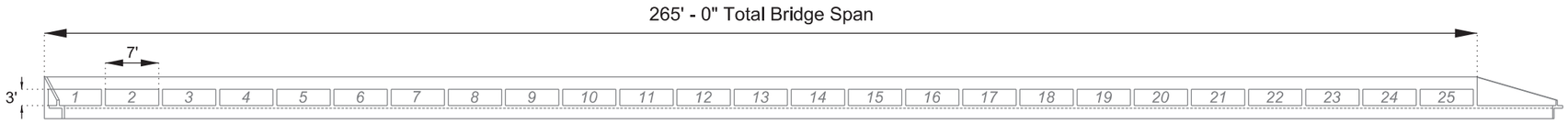

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	9
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	57
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	7

1 Moderate spalling with exposed rebar on Northwest headwall of Barrel 1 and Barrel 2. Similar damages on South headwall of Barrels 4, 8, 18, 19, and 20. (9 SF Total)
(See Photo 1)

2 Spalling with exposed rebar at North end top slab of Barrels 3, 5, 7, 11, and 16. (57 SF Total)
(See Photos 2 and 3)

3 Spalling at North end of intermediate wall of Barrels 3, 7, 18, and 19. Similar spalls at Southwest end of intermediate wall of Barrels 1, 2, and 6. (7 SF Total)
(See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-04-188

IH 10 WB at DRAW

REF. MARKER 308-0.094

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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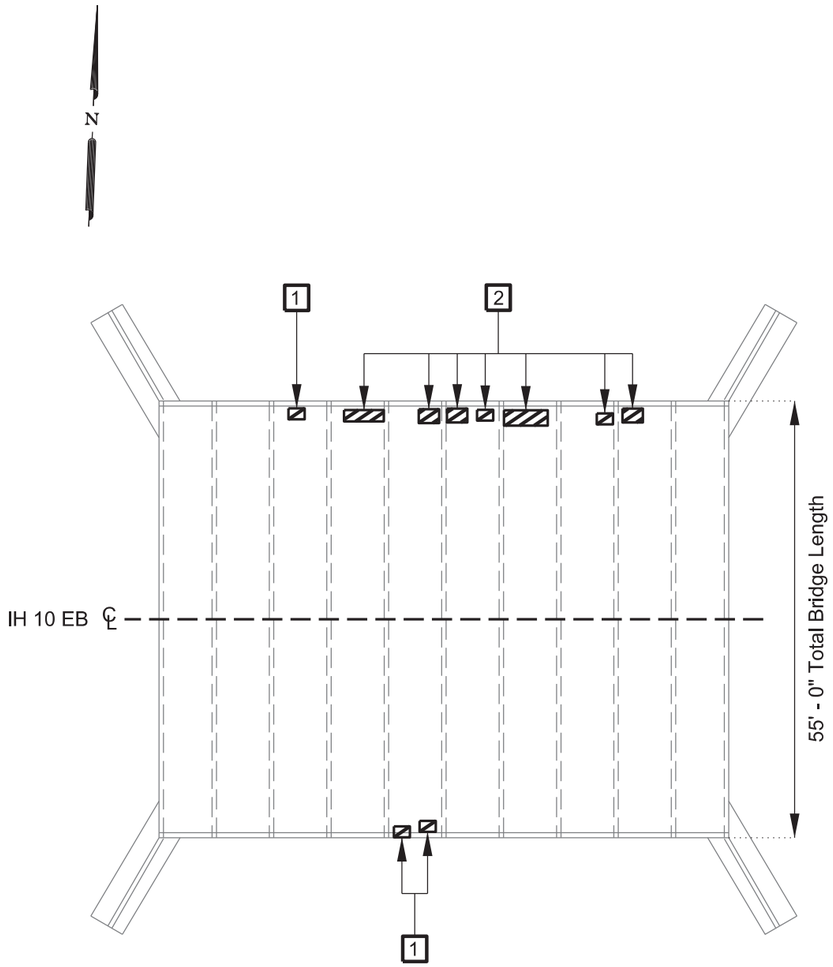


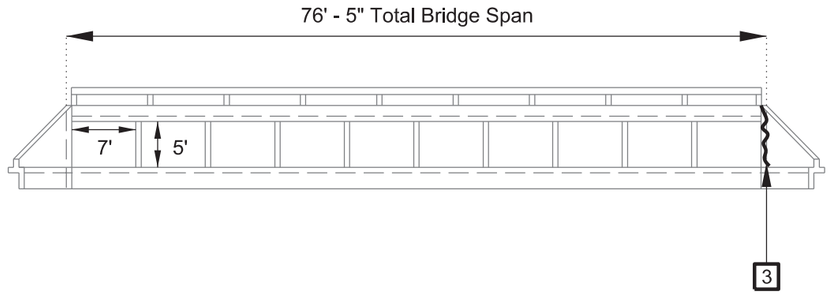
PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	21
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	7.5

1 Moderate spalling with exposed rebar on Northwest headwall of Barrel 3 and South headwall of Barrel 5. (3 SF Total)
(See Photo 1)

2 North end/edge top slab of Barrels 4, 5, 6, 7, 8 and 9 have moderate spalls with exposed rebar. (21 SF Total)
(See Photos 2 and 3)

3 Southeast wingwall has vertical cracking. (7.5 LF)
(See Photo 4)



ELEVATION (SOUTH SIDE)

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1/12/2024

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-04-191

IH 10 EB at DRAW

REF. MARKER 309-0.296

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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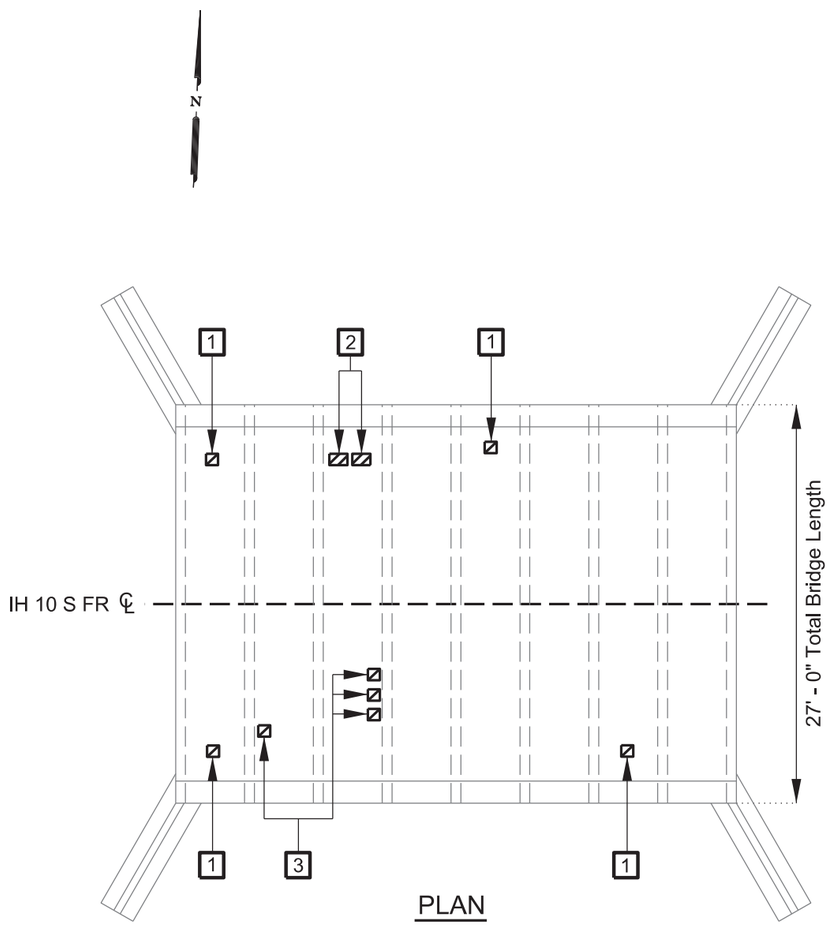

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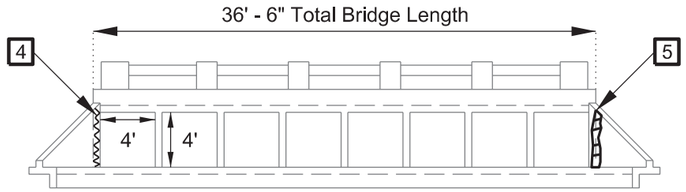
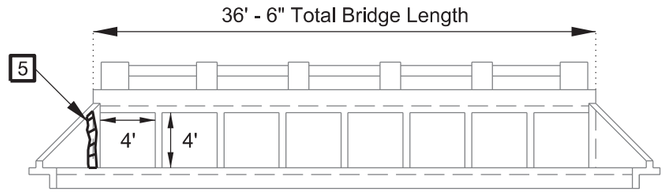


ELEVATION (NORTH SIDE)



ELEVATION (SOUTH SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
4	0780 6004	CONC CRCK REPAIR (DISCRETE)(ROUT AND SEAL)	LF	5
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10

1. Spalling on North side near the drain holes of Barrels 1 and 5. Similar spalling on South side near the drain holes of Barrels 1 and 7. (4 SF Total) (See Photo 1)
2. Northwest top slab of Barrel 2 has moderate spalls. (4 SF Total)
3. Southwest edge top slab of Barrel 2 has moderate spalling and there is multiple spallings in Barrel 3. (4 SF Total)
4. Vertical 5 ft crack on Northeast wingwall. (5 LF) (See Photo 2)
5. Northwest wingwall has moderate spall with exposed rebar. Southwest wingwall has moderate spall with exposed rebar. (10 SF Total). (See Photo 3 and 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-06-044

IH 10 S FR at DRAW

REF. MARKER 321+0.351

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©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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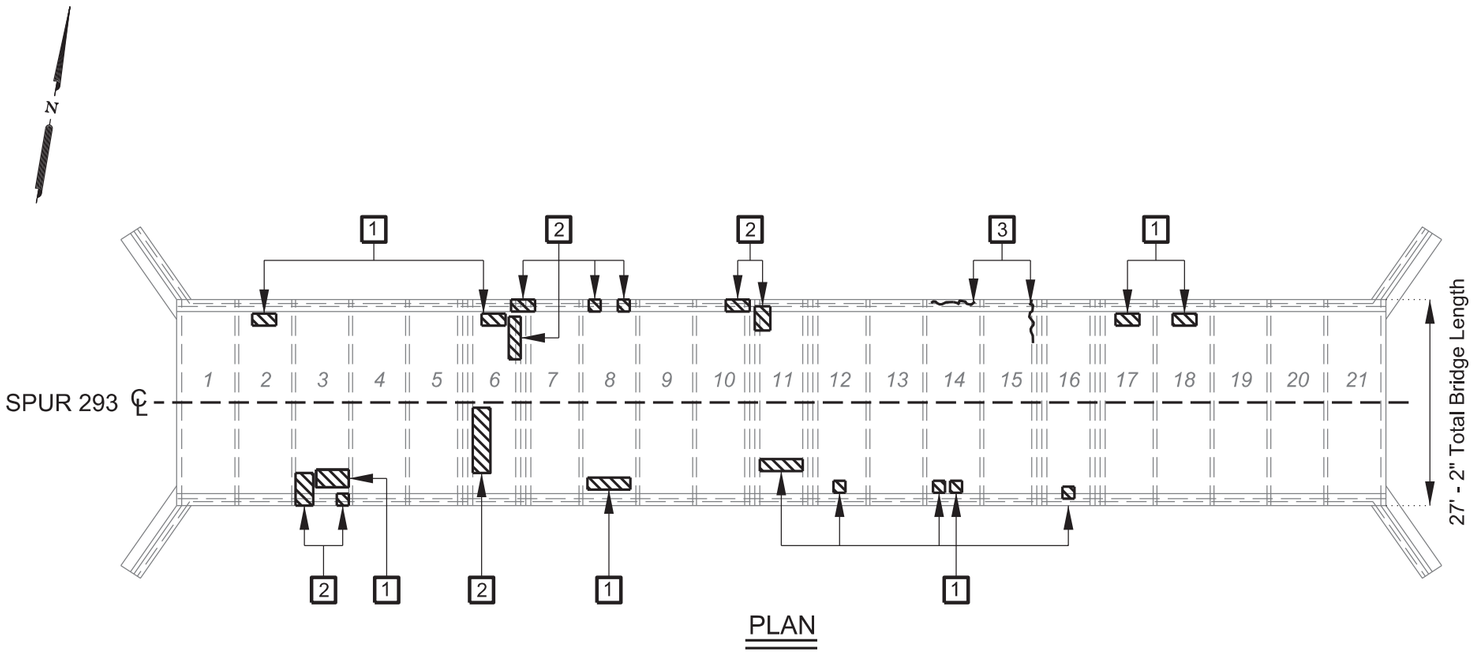

PLAN

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	35
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	42
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	3
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4

1. Multiple minor cracks, delaminations, and spalls, some with exposed rebar, along top slab near drain holes. (35 SF Total) (See Photo 1)
2. Multiple minor to moderate spalling along headwall, top slab, and culvert walls throughout the culvert. (42 SF Total) (See Photos 2 and 3)
3. Vertical crack on headwall on North side of Barrel 14 and horizontal crack on inner wall of Barrel 15. (3 LF Total)
4. Minor spall on Southeast Wingwall at Headwall connection. (4 SF) (See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0140-15-078

SPUR 293 at DRAW

REF. MARKER 264+0.372

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©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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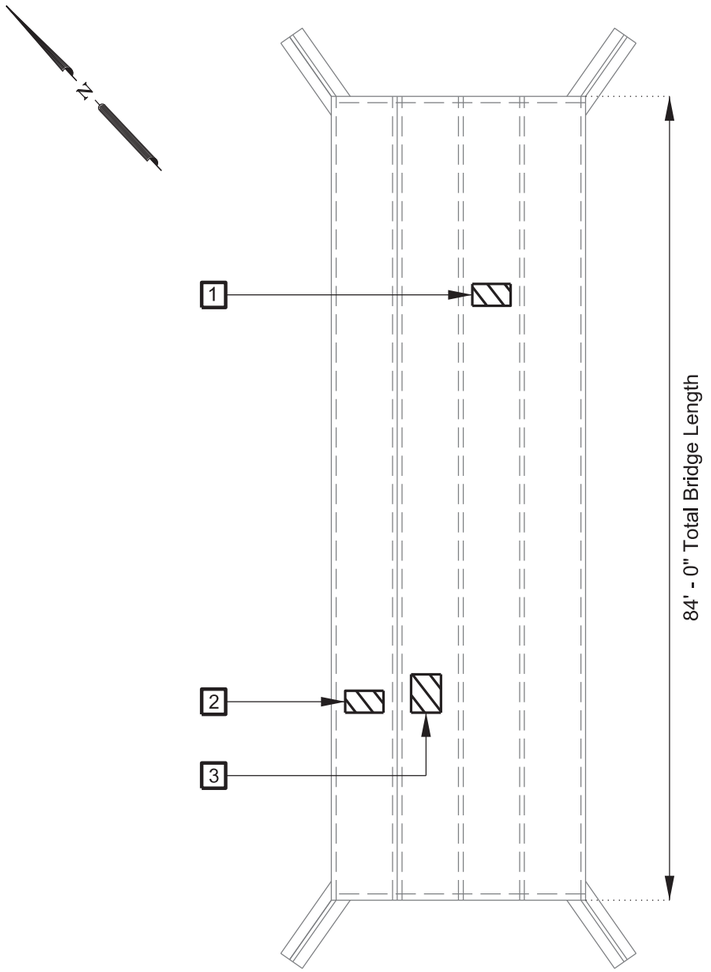
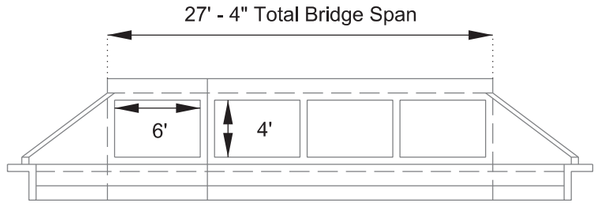


PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	16

1. Isolated moderate delamination and spall with exposed rebar along top slab at widening joint in Barrel 3. (10 SF) (See Photo 1)
2. Isolated moderate delamination and spall with exposed rebar along top slab at widening joint in Barrel 1. (10 SF) (See Photo 2)
3. Isolated moderate delamination and spall with exposed rebar along top slab at widening joint in Barrel 2. (16 SF) (See Photo 3)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0293-01-035

US 285 at DRAW

REF. MARKER 428+0.211

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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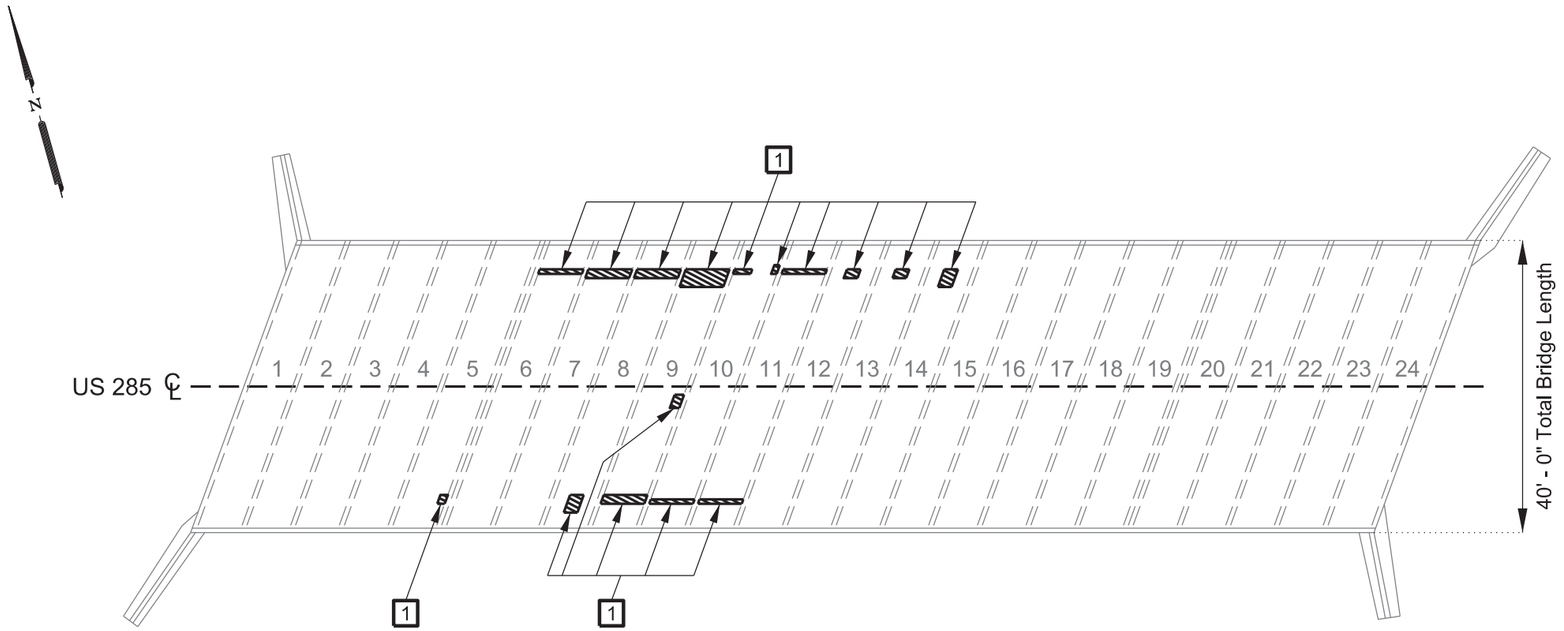

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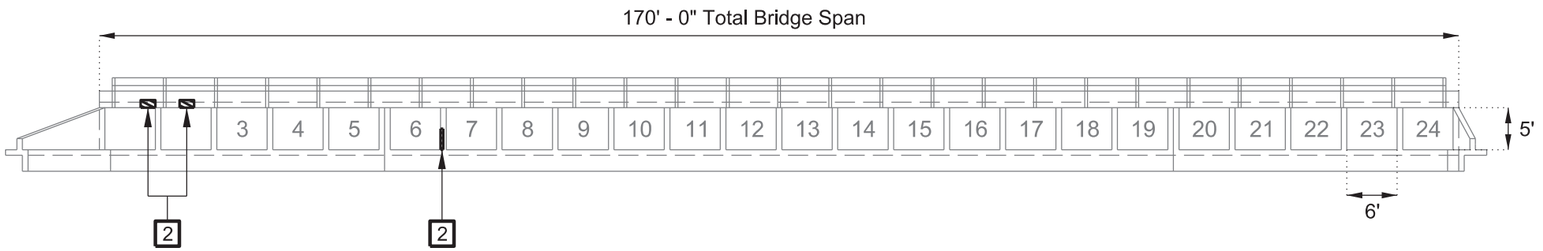

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	110
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	6

1 Multiple severe spalls with exposed rebar at both widening joints, for width of Barrel, in Barrels 6, 8, 9, 10, and 11. Multiple moderate to severe spalls with exposed rebar on North side of bridge at widening joints in Barrels 7, 12, 13, and 14. Also, moderate spall on wall in middle of Barrel 9. (110 SF Total)
(See Photos 1, 2, 3, and 4)

2 Two minor spalls located above Barrels 1 and 2 on headwall. Also, minor spall on Southeast wall in Barrel 6.
(6 SF Total)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

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REPAIR DETAILS

NBI# 06-186-0-0293-02-006

US 285 at NINETEEN DRAW

REF. MARKER 448+0.329

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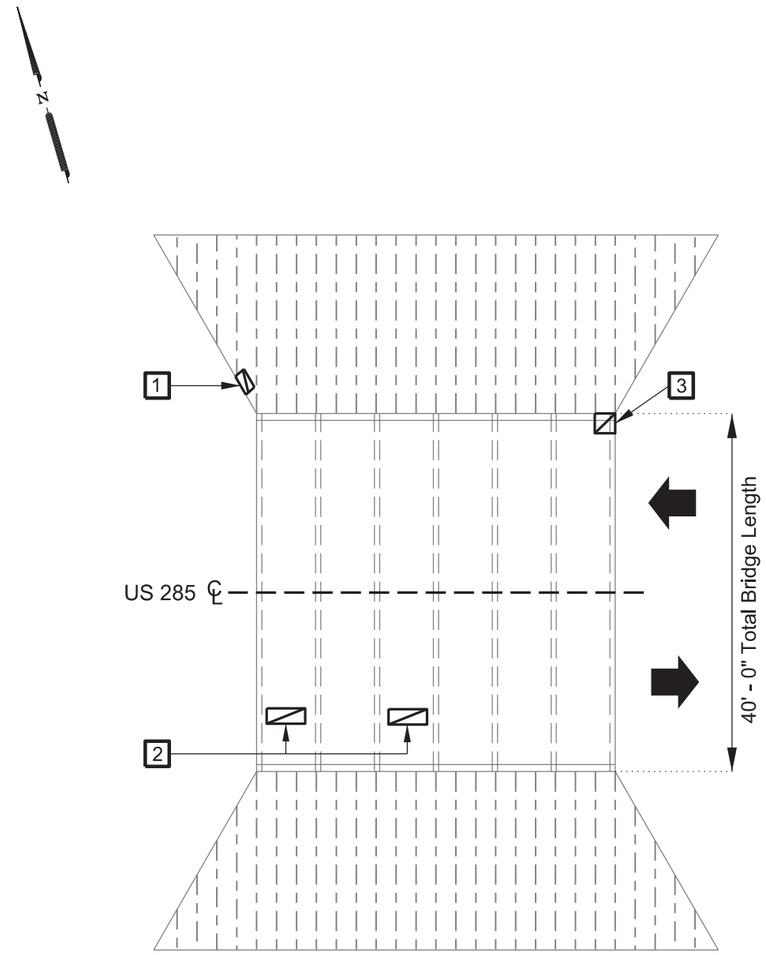

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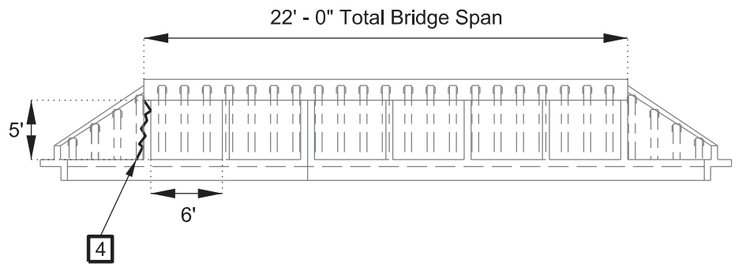
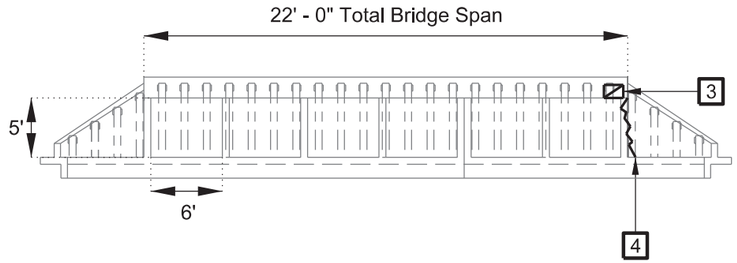


ELEVATION (NORTH SIDE)



ELEVATION (SOUTH SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	5
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	5
4	0780 6004	CONC CRCK REPAIR (DISCRETE)(ROUT AND SEAL)	LF	10

1. Spalling on the Northwest wingwall near the headwall. (5 SF) (See Photo 1)
2. Top slab on Barrels 1 and 3 in the Southeast of bridge has moderate spalling. (10 SF Total) (See Photo 2)
3. Spalling on the top slab of Barrel 6 on the Southeast of bridge. (5 SF Total) (See Photo 3)
4. 5 FT vertical crack on both the Northeast and Southeast wingwall. (10 SF Total) (See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0293-02-007

US 285 at DRAW

REF. MARKER 448+1.021

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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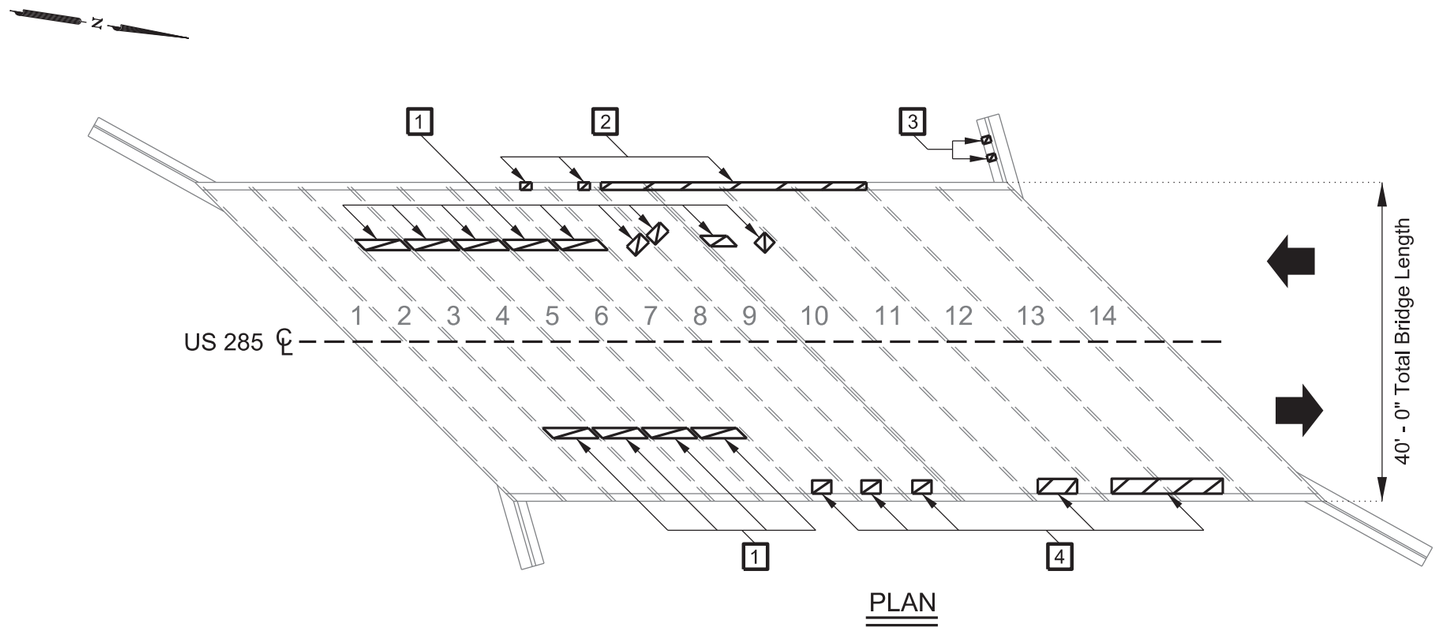

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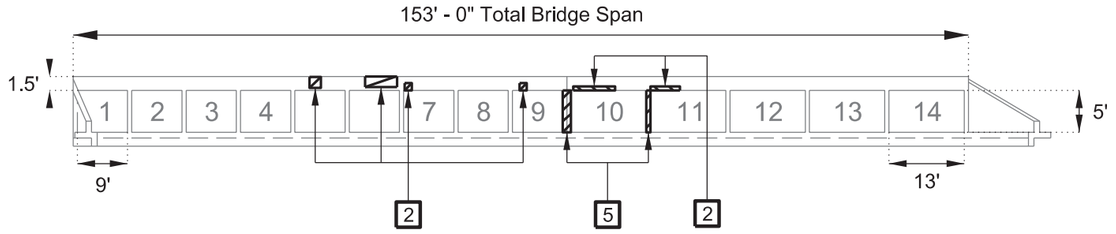

ELEVATION (EAST SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	200
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	160
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	5
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	75
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	35

1. Severe spalls with exposed rebar on the top slab in Barrels 3, 4, 5, 6, and 7 in both the East and West widening joints of the bridge. Also, moderate to severe spalls with exposed rebar in the West top slab in Barrels 8, 9, and 10. (200 SF Total)
(See Photo 1)

2. Moderate to severe spalls with exposed rebar, on the West and East headwall. (160 SF Total)
(See Photo 2)

3. Moderate spalls in the Northwest wingwall. (5 SF Total)

4. Severe spalls with exposed rebar on the top slab near the drain hole in Barrels 7, 8, 9, 11, 12, and 13 in the East side of bridge. (75 SF Total)
(See Photo 3)

5. Severe spalls with exposed rebar in the East wall between Barrels 9, 10, and 11. (35 SF Total)
(See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

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REPAIR DETAILS

NBI# 06-186-0-0293-02-009

US 285 at ESCONDIDO DRAW

REF. MARKER 456+0.942

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©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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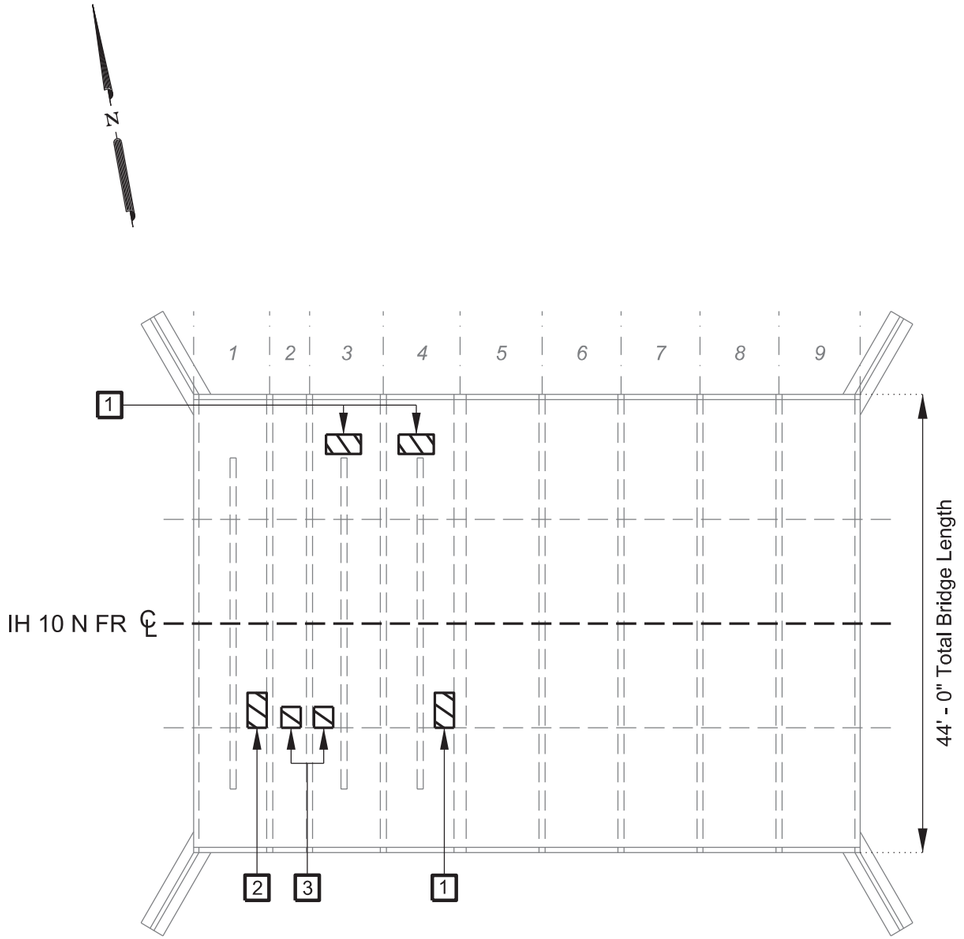


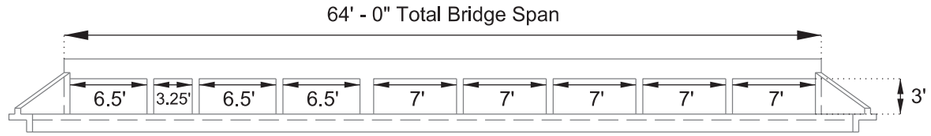
PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15

1 Barrels 3 and 4 have spalling with exposed rebar on North and South ends. (15 SF Total)
(See Photos 1 and 2)

2 East of Barrel 1 has large spalling with exposed rebar. (15 SF Total)
(See Photo 3)

3 Spalling with exposed rebar at South end of Barrel 2 and West of Barrel 3. (15 SF Total)
(See Photo 4)



ELEVATION

LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

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REPAIR DETAILS

NBI# 06-186-0-0441-07-023

IH 10 N FR at DRAW

REF. MARKER 243+0.165

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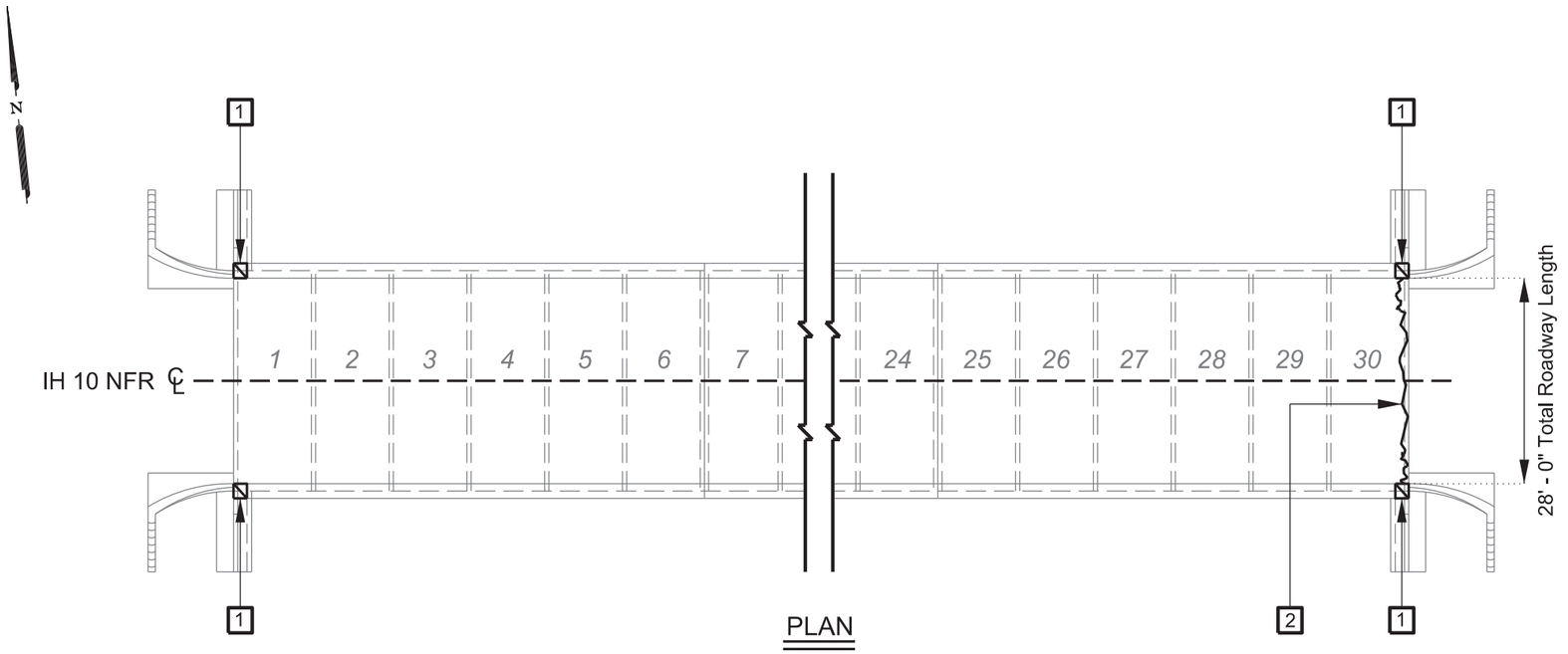

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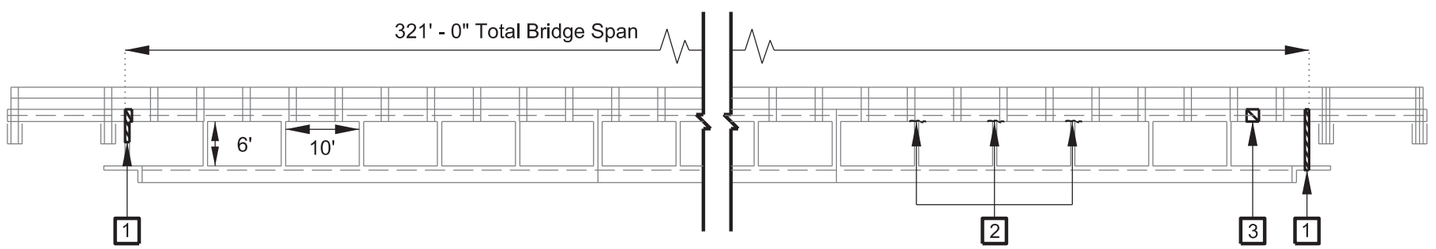

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	28
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	31
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
4	0438 6001	CLEANING AND SEALING EXISTING JOINTS	LF	190

1. All Wingwalls have moderate cracking and spalling at abutment connections (up to ~1/4" wide cracks) with exposed rebar. (28 SF Total) (See Photo 1)
2. Joints have cracked open in Barrel 30 and towards top of walls at South end of Barrels 26-28. (31 SF) (See Photos 2 and 3)
3. Moderate spall on headwall above Barrel 30. (4 SF) (See Photo 4)
4. Joints have failed and surfacing has cracked open at joints. Clean and reseal all existing joints. (190 LF Total)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0441-07-039

IH 10 NFR at COYANOSA DRAW WEST REL

REF. MARKER 242-0.269

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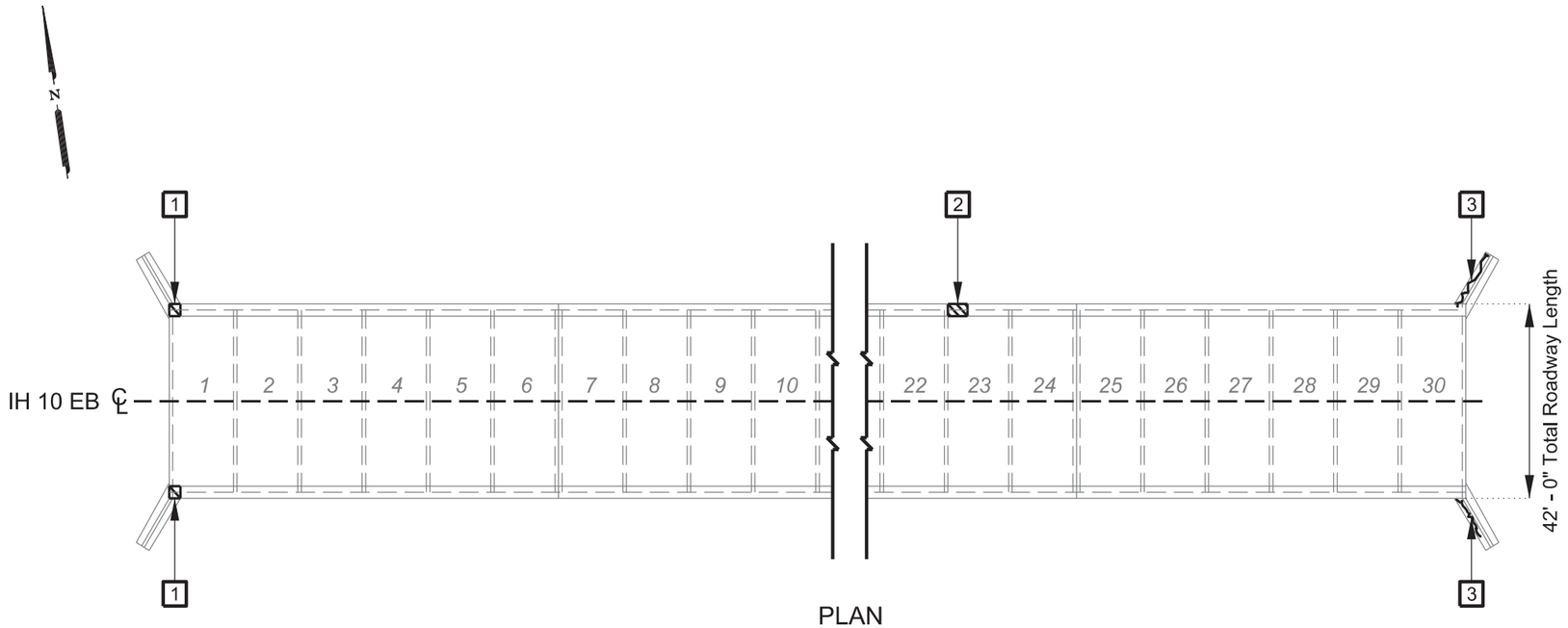

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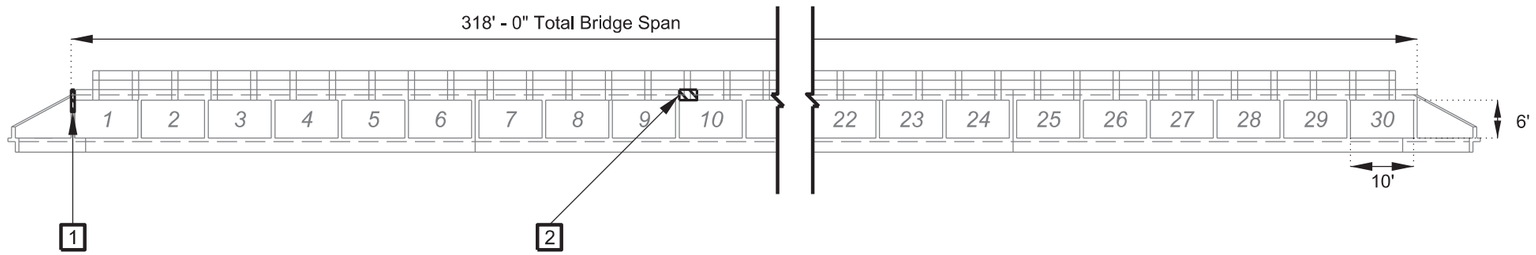

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	30

1. Moderate 3' x 3' spall with exposed rebar in connection area of Southwest wingwall. Similar 3' x 2' spall on Northwest corner. (15 SF Total)
(See Photo 1)

2. Multiple minor spalls along North Headwall above Barrel 23 and South Headwall above Barrel 10. (3 SF Total)
(See Photo 2)

3. Southeast wingwall has multiple moderate to heavy cracking near connection area (3/8"). Northeast wingwall has simlar but less severe cracking. (30 LF Total)
(See Photos 3 and 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0441-07-072

IH 10 EB at COYANOSA DRAW WEST REL

REF. MARKER 242-0.210

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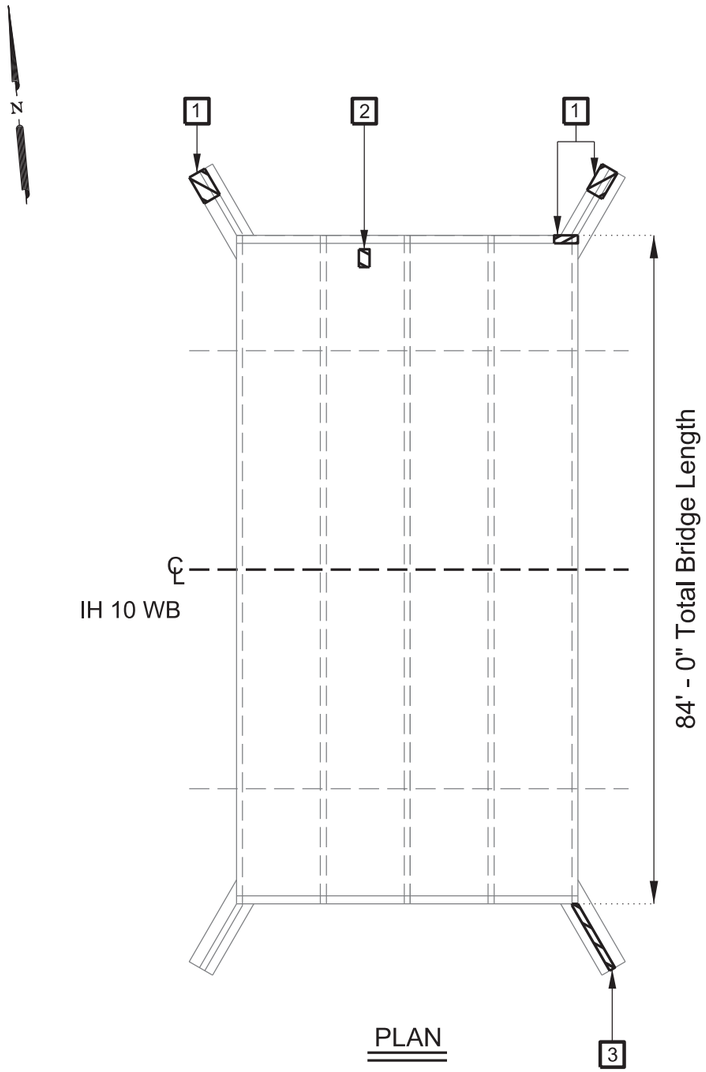

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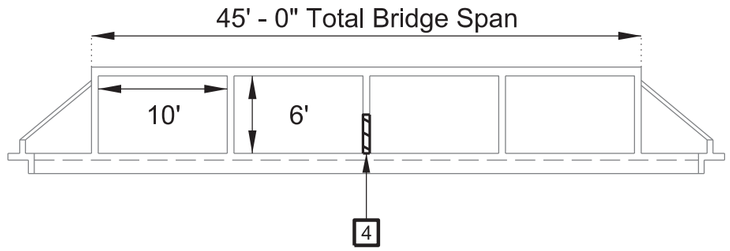

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4.5
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	1
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	13
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3

1. Both North Wingwalls have small spalls with exposed rebar. (4.5 SF Total) (See Photo 1 and 2)
2. Barrel 2 has spall at the drainage hole. (1 SF Total) (See Photo 3)
3. The Southeast wingwall has a spall with top layer missing of the length below the spall. (13 SF Total) (See Photo 4)
4. North middle Barrel has spalling on wall. (3 SF Total)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

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REPAIR DETAILS

NBI# 06-186-0-0441-08-092

IH 10 WB at DRAW

REF. MARKER 252+0.267

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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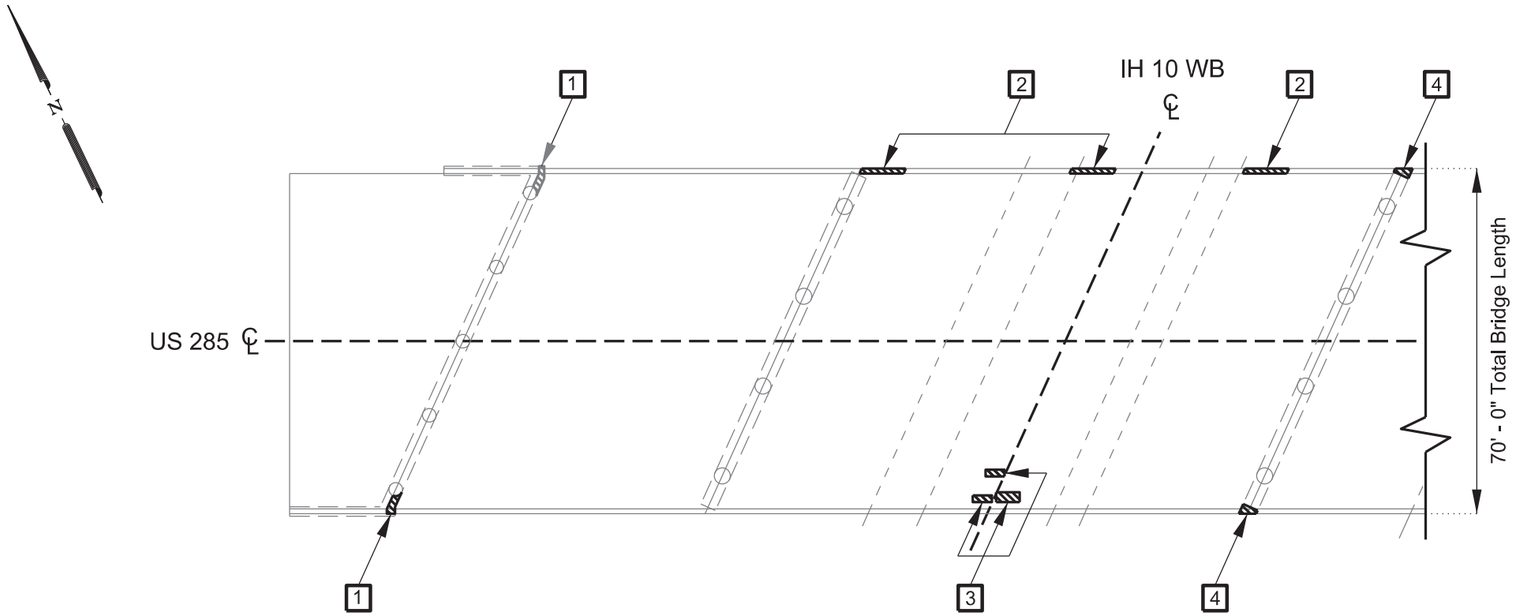

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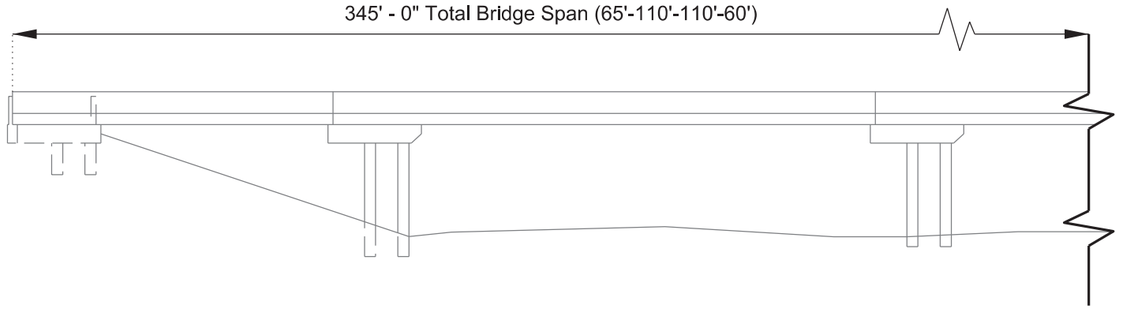

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	24
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	150
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	5
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20

1. Joints are overfilled at connections along North and South ends of Abutment Walls 1 and 5. (24 SF Total) (Refer to Sheet 2 of 2) (See Photo 1)
2. Multiple minor spalling on railing above Span 2 towards North side of bridge. (150 SF Total) (See Photo 2)
3. Two moderate impact spalls with exposed prestressing strands on Beam 1 in Span 3 over IH 10 WB. (5 SF Total) (See Photo 3)
4. Two moderate cracking with delaminations on overhang into railing at both ends of Bent 3. (20 SF Total) (See Photo 4)

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SHEET 1 OF 2

LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

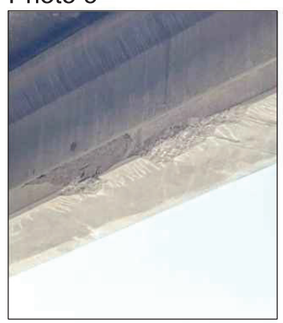

Photo 4

Photo 5

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0441-08-183

US 285 at IH 10

REF. MARKER 421+0.345

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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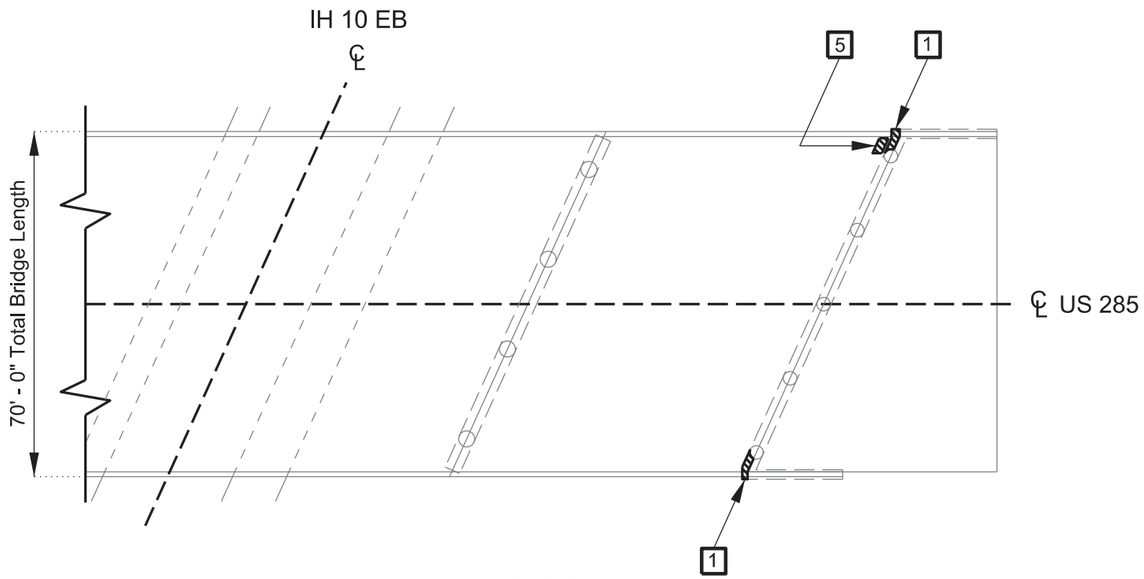
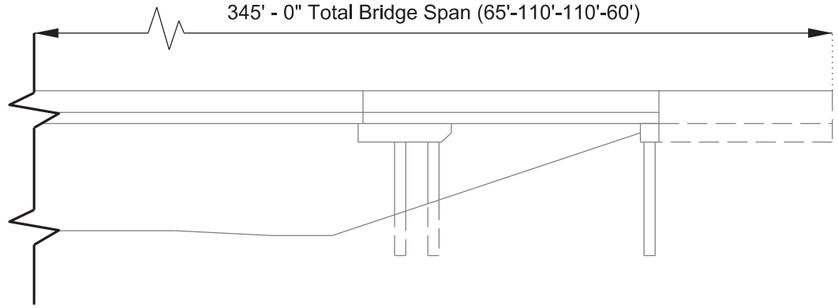


PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	24
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	8

1 Joints are overfilled at connections along North and South ends of Abutment Walls 1 and 5. (24 SF Total) (See Photo 1)

5 Beam 8 towards Northeast at East abutment has an exposed bearing pad with moderate spalling. (8 SF Total) (See Photo 5)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-186-0-0441-08-183

US 285 at IH 10

REF. MARKER 421+0.345

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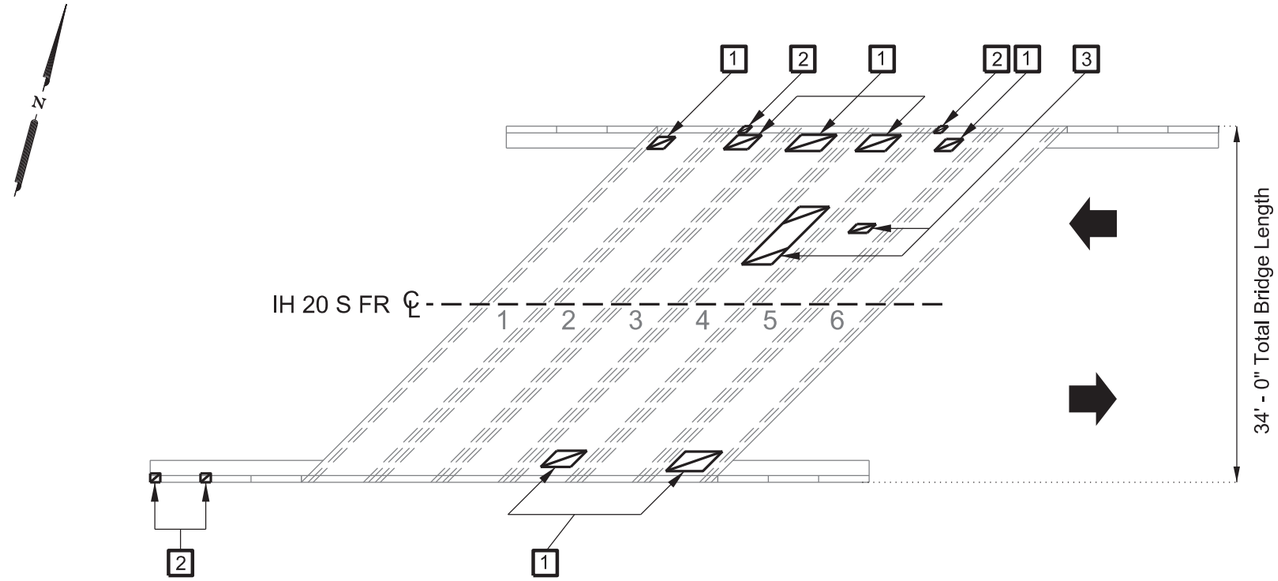
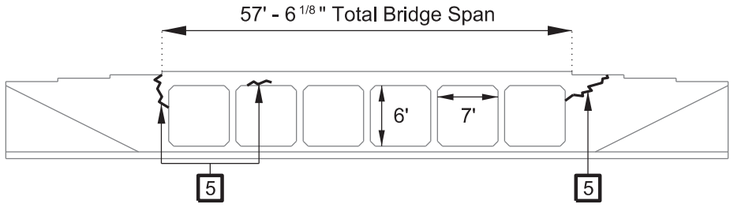


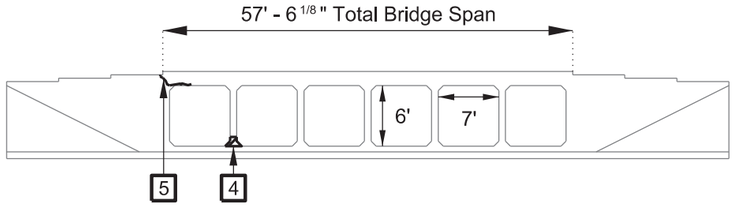
PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	90
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	12
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	12
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3
5	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	15

1. Severe spalls near the drain hole in Barrels 1, 2, 3, 4, and 5 on North side of bridge. Also, moderate to severe spalls in Barrels 4 and 6 on South side of bridge. (90 SF Total)
(See Photo 1)
2. Moderate spalls on the wingwall on Southwest of bridge. Also, on Northeast of top plate near the headwall. (12 SF Total)
(See Photo 2)
3. Moderate spalls and delamination on the top slab of Barrel 4 and 6 on Northeast side of bridge. (12 SF Total)
4. Minor spalling in the South interior wall between Barrels 1, 2, and 3. (3 SF)
(See Photo 3)
5. Moderate horizontal crack above the headwall of Barrel 1 on South side of bridge and on Barrel 5 on the North side of bridge. A moderate vertical crack near the wingwall of Barrel 1 and 6 on North side of bridge that goes up to the curb. (15 LF Total)
(See Photo 4)



ELEVATION (NORTH SIDE)



ELEVATION (SOUTH SIDE)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0003-05-043

IH 20 S FR at DRAW

REF. MARKER 5+0.251

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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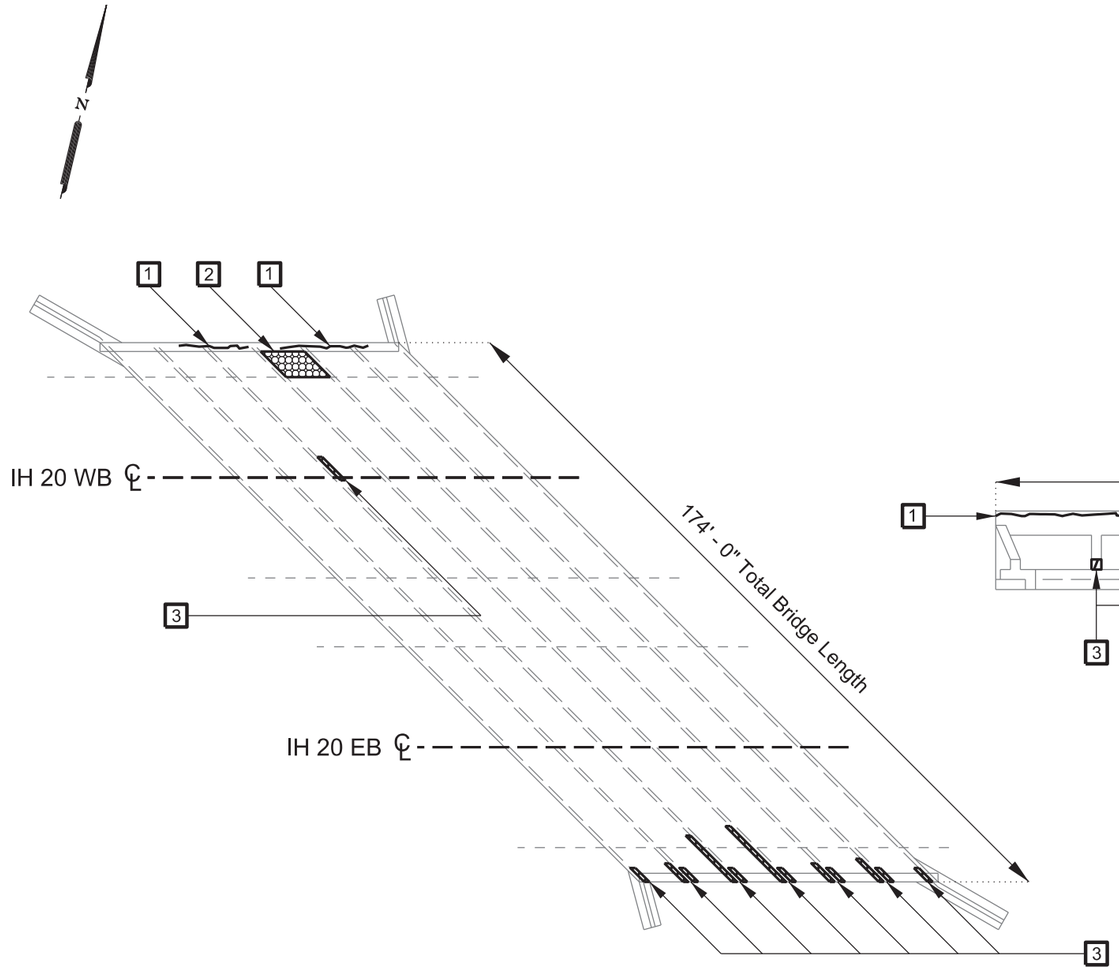
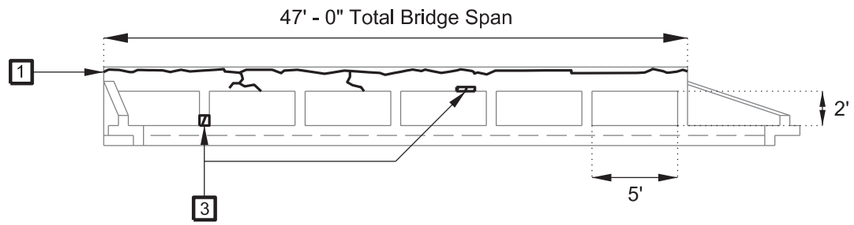


PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	90
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	70

1 Headwall above Barrels 2 through 6 has a horizontal crack on the North side. The entire headwall has a crack from end to end on the South side of culvert, with 2 vertical cracks above Barrels 2 and 3. (90 LF Total)
(See Photos 1 and 2)

2 The North end of culvert has honeycombed on the top slab near opening of Barrel 3. (15 SF Total)

3 The North end of culvert has spalling on the Western interior wall in Barrel 3. All interior walls on South side of culvert has spalling and delaminations (ranging from 3'x1' to 12'x1'). Also, minor spalling located at the bottom of interior wall between Barrels 1 and 2. Lastly, minor spalling is above Barrel 4. (70 SF Total)
(See Photos 3 and 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0003-07-062

IH 20 at DRAW

REF. MARKER 42-0.193

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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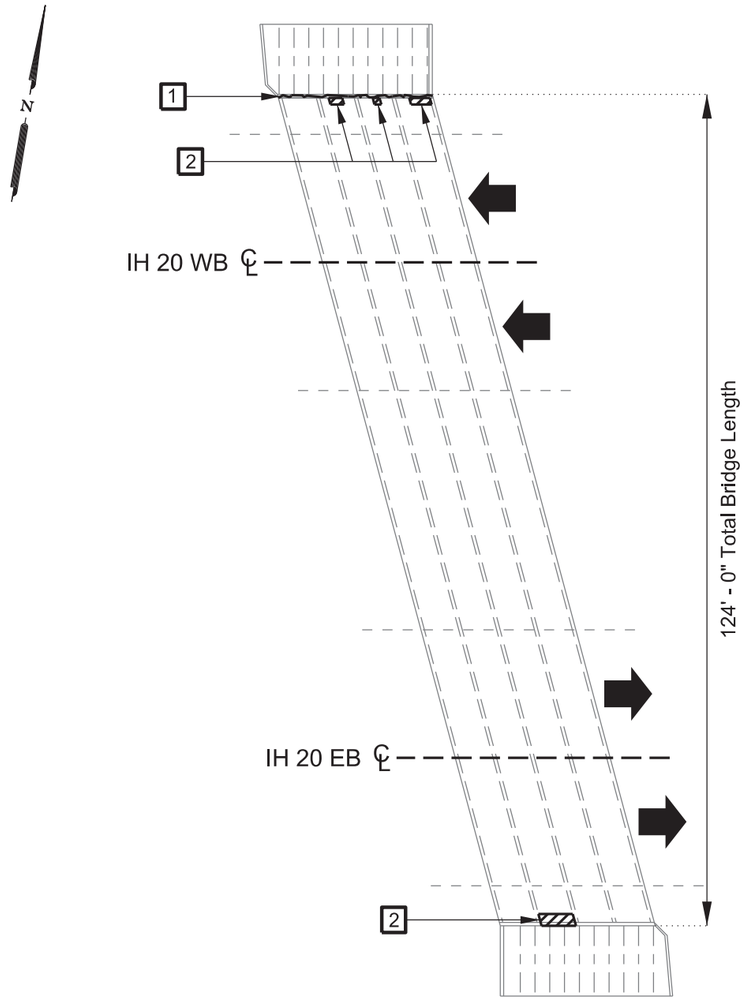
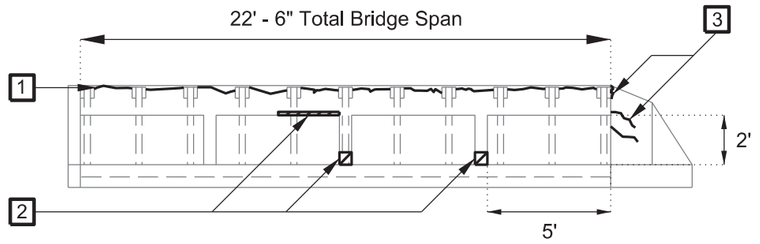


PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	45
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	10

1. Entire length of North and South headwalls, up to the curb, exhibit moderate cracking between pipe runners. (45 SF Total) (See Photo 1)
2. On North side, the top slabs in Barrels 2, 3, and 4 have minor to moderate spalling. On South side, top slab in Barrel 2 has minor spalling. Also, moderate spalling and delaminations above Barrel 2 and interior walls between Barrels 2, 3, and 4. (20 SF Total) (See Photos 2 and 3)
3. The Southeast wingwall has two horizontal cracks starting from headwall connection. (10 LF) (See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0003-07-071

IH 20 at DRAW

REF. MARKER 45+0.392

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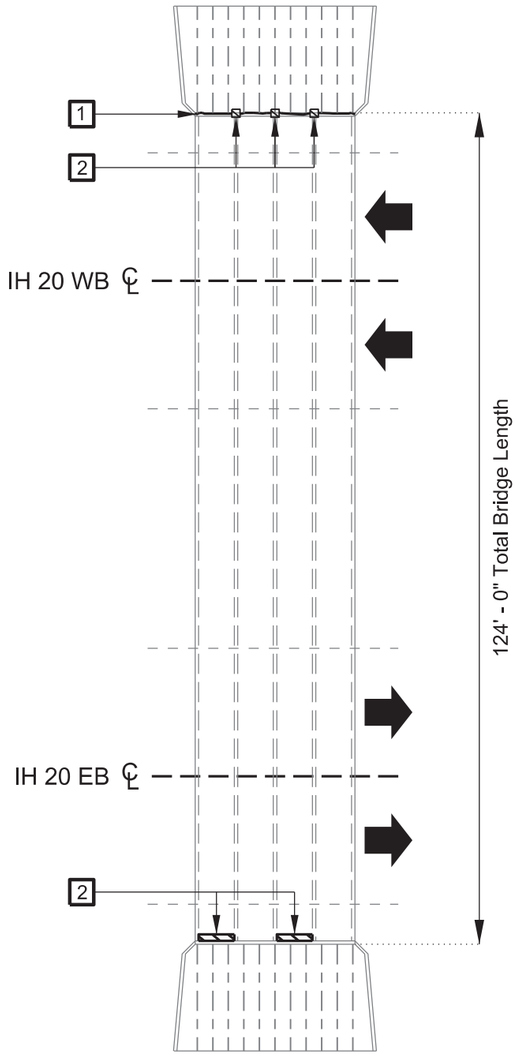

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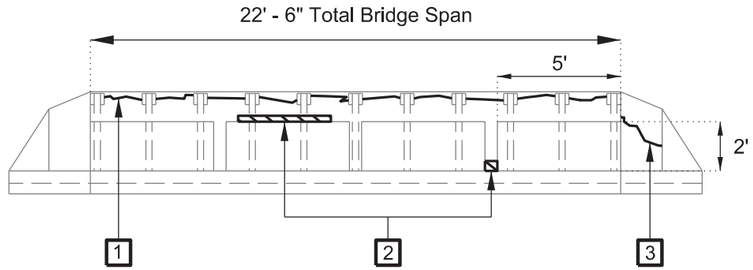

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	45
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	25
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	5

1 Entire length of North and South headwalls, up to the curb, exhibit moderate cracking between pipe runners. (45 SF Total)
(See Photo 1)

2 On North side of culvert, all interior walls towards the bottom have minor spalling. On South side, interior wall between Barrels 3 and 4 has minor spalling. Also, delaminations and moderate spalling on top slab of Barrels 1, 2, and 3. (25 SF Total)
(See Photos 2 and 3)

3 Southwest Wingwall has a 4 foot horizontal crack. (5 LF)
(See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0003-07-072

IH 20 at DRAW

REF. MARKER 46-0.205

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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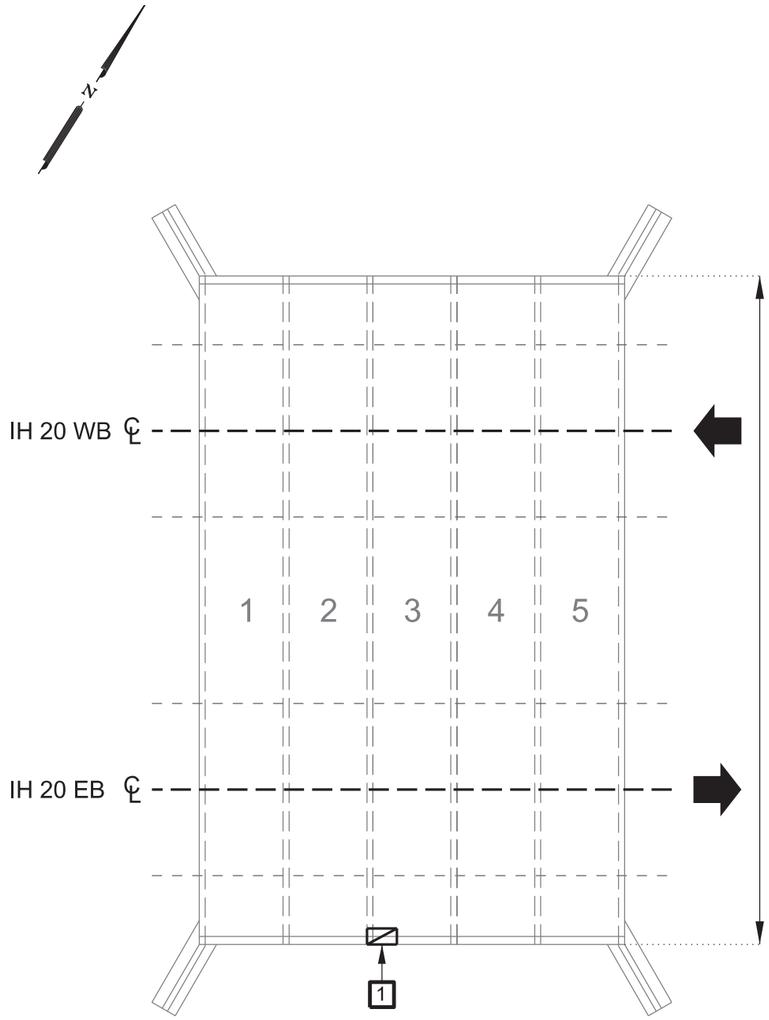

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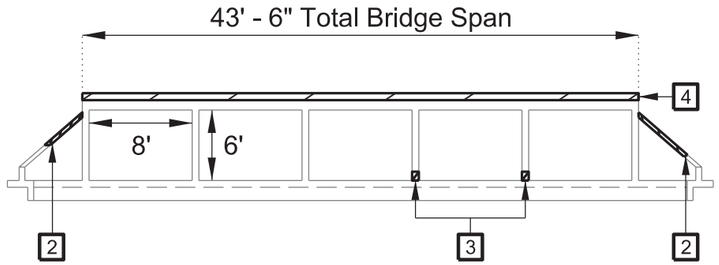
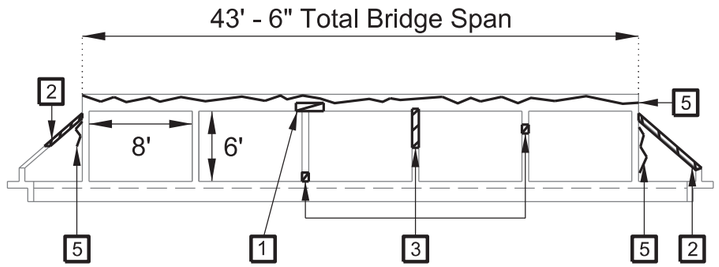


ELEVATION (NORTH SIDE)



ELEVATION (SOUTH SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	8
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	64
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	11
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	44
5	0780 6004	CONC CRCK REPAIR (DISCRETE)(ROUT AND SEAL)	LF	56

1. Moderate delamination and spalling with exposed rebar on the top slab and interior wall in Barrel 3. (8 SF Total)
(See Photo 1)
2. Both wingwalls have moderate delamination cracks along their tops with moderate spalling with exposed rebar on both the North and South side of the bridge. (64 SF Total)
(See Photo 2)
3. Severe spalls with exposed rebar in the South wall between Barrels 2, 3, and 4. Also, spalling in the North wall between Barrels 1 and 2. (11 SF Total)
(See Photo 3)
4. Severe spalling with exosed rebar on the headwall in the South side of bridge. (44 SF Total)
(See Photo 4)
5. Horizontal crack throughout the headwall on the South side of the bridge. Both side of the wingwalls on the South side of the bridge has vertical crack. (56 LF Total)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0003-07-073

IH 20 at DRAW

REF. MARKER 48+0.132

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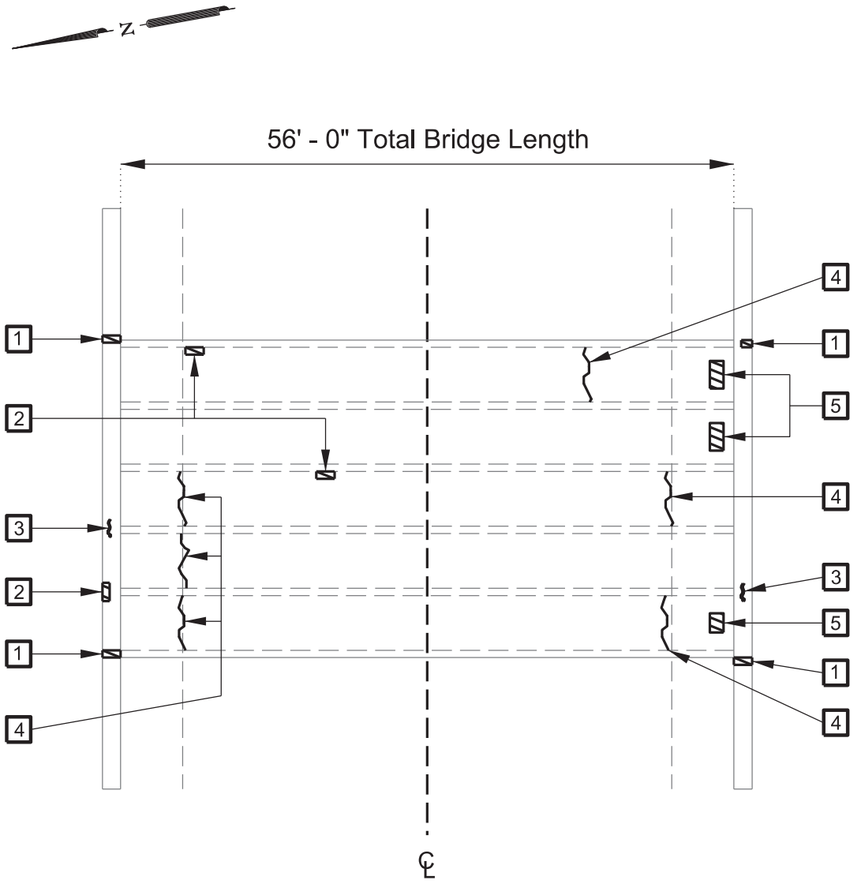

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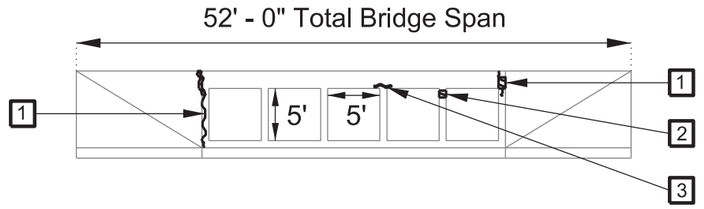

ELEVATION (NORTH SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	16
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	2
4	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	30
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	6

1. Wingwall to headwall connection to Northeast (7 SF), Northwest (3 SF), Southeast (2 SF), and Southwest (4 SF) have moderate spalling and cracks. Northwest, Northeast, and Southwest cracks go up to curb. (16 SF Total) (See Photos 1 and 2)
2. Multiple minor spalls inside Barrels 1 and 3. One spall on outer wall between Barrels 4 and 5 on North side of culvert. (3 SF Total) (See Photo 3)
3. One minor crack on outer wall between Barrels 3 and 4 on North side of culvert. One minor crack also on outer wall between Barrels 4 and 5 on South side of culvert. (2 LF Total)
4. Multiple horizontal cracks along top slab soffit near expansion joints of Barrels 3, 4, and 5 on North side of culvert. Multiple horizontal cracks along top slab soffit near expansion joints in Barrels 1, 3, and 5 on South side of culvert. (30 LF Total) (See Photo 4)
5. 3 minor delaminations at top slab soffit of Barrels 1, 2, and 3 on South side of culvert. (6 SF Total)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0103-01-003

SH 17 at CHERRY CREEK

REF. MARKER 372-0.062

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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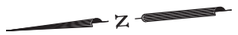
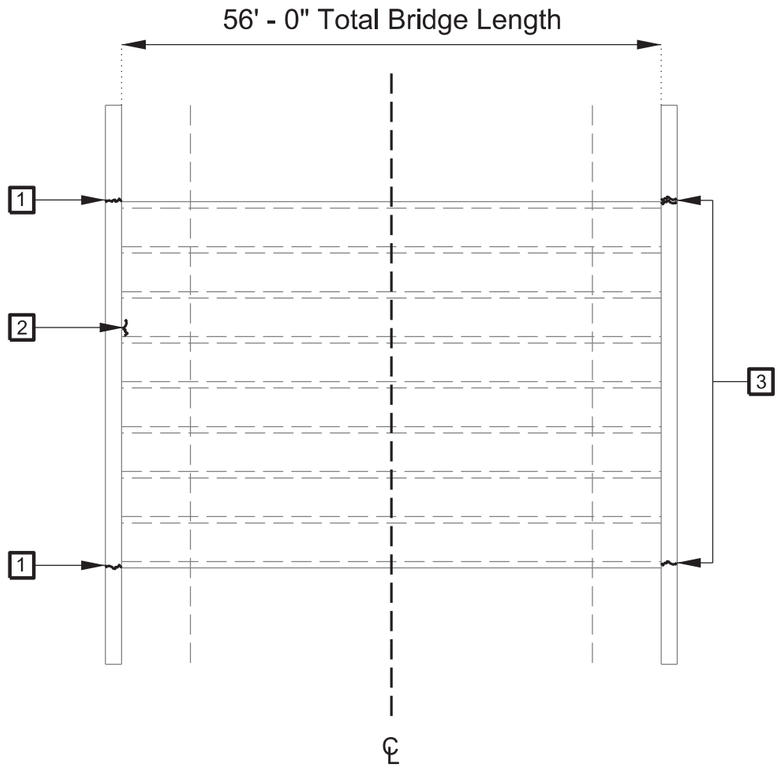
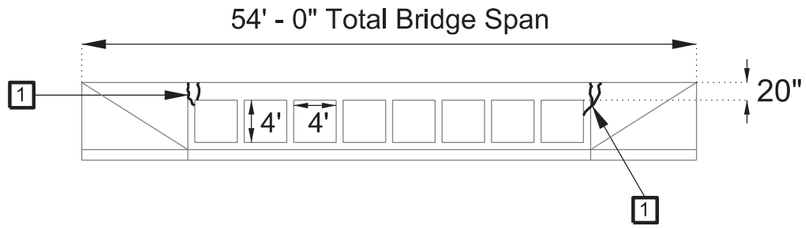




PLAN



ELEVATION (NORTH SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	5
2	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	2
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	4

1. Wingwall to headwall connection to Northwest and Northeast of culvert have moderate cracks that go up to curb. (5 LF Total) (See Photos 1 and 2)
2. Minor vertical crack in Barrel 3 on Wall 4 on North side of culvert. (2 LF)
3. Wingwall to headwall connection to Southwest and Southeast of culvert have moderate cracks that go up to curb. (4 LF Total) (See Photos 3 and 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0103-02-007

SH 17 at DRAW

REF. MARKER 376-0.305

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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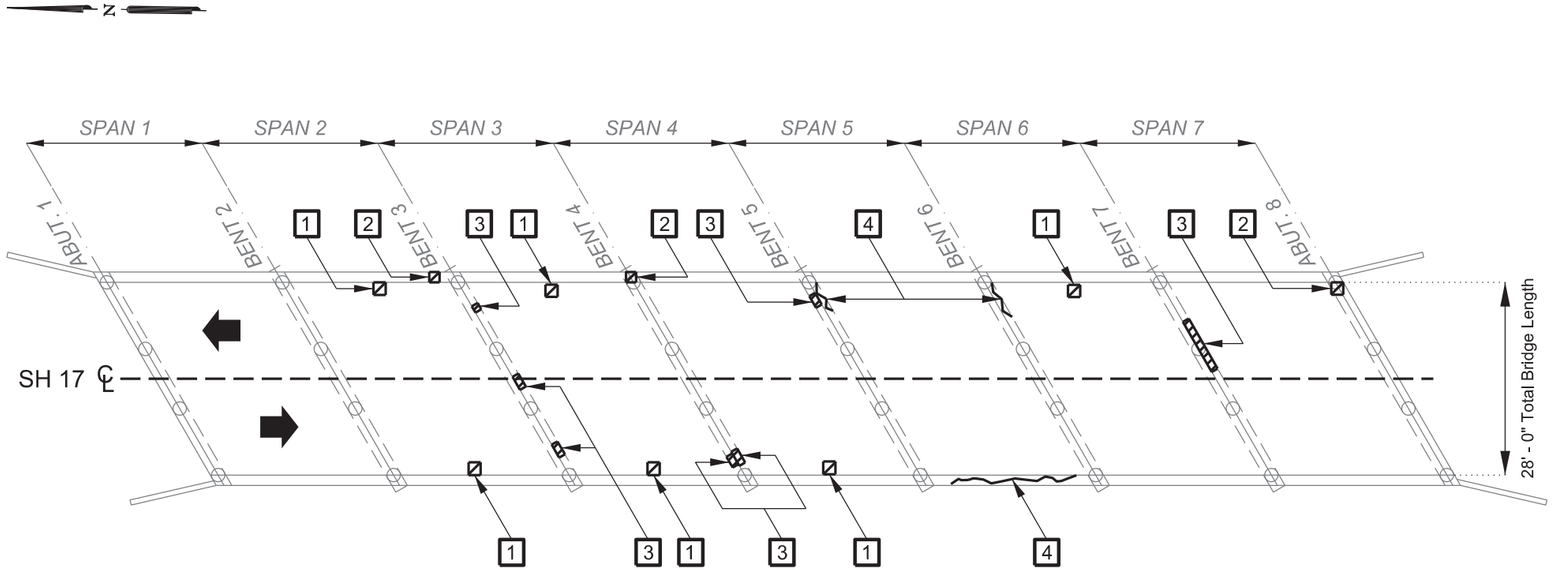

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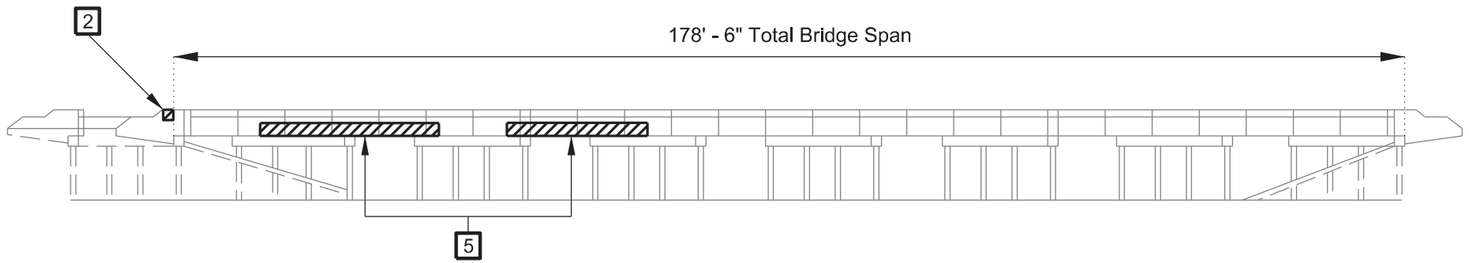

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	25
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	25
4	0780 6004	CONC CRCK REPAIR (DISCRETE)(ROUT AND SEAL)	LF	25
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15

1 Multiple spalling on the drain hole areas on Span 2, 3, 4, and 6. (25 SF Total)
(See Photo 1)

2 There is spalling on the Northwest corner of Abutment 1 and on the Southeast corner of Abutment 8. Northeast of Bent 4 has moderate spalling on top slab. (10 SF Total)
(See Photo 2)

3 Delaminations on the side of Bent 3, 4, 5, and 7. (25 SF Total)
(See Photo 3)

4 Northwest of the bridge has vertical crack on the top slab. Also, on the sidewall in the Northeast end of Bent 5 and 6. (25 LF Total)

5 Northwest girder of bridge has minor delaminations and moderate spalls with exposed rebar. (15 SF)
(See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0103-02-008

SH 17 at TOYAH CREEK

REF. MARKER 388-0.502

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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REVISIONS	0906	00	235	VARIOUS
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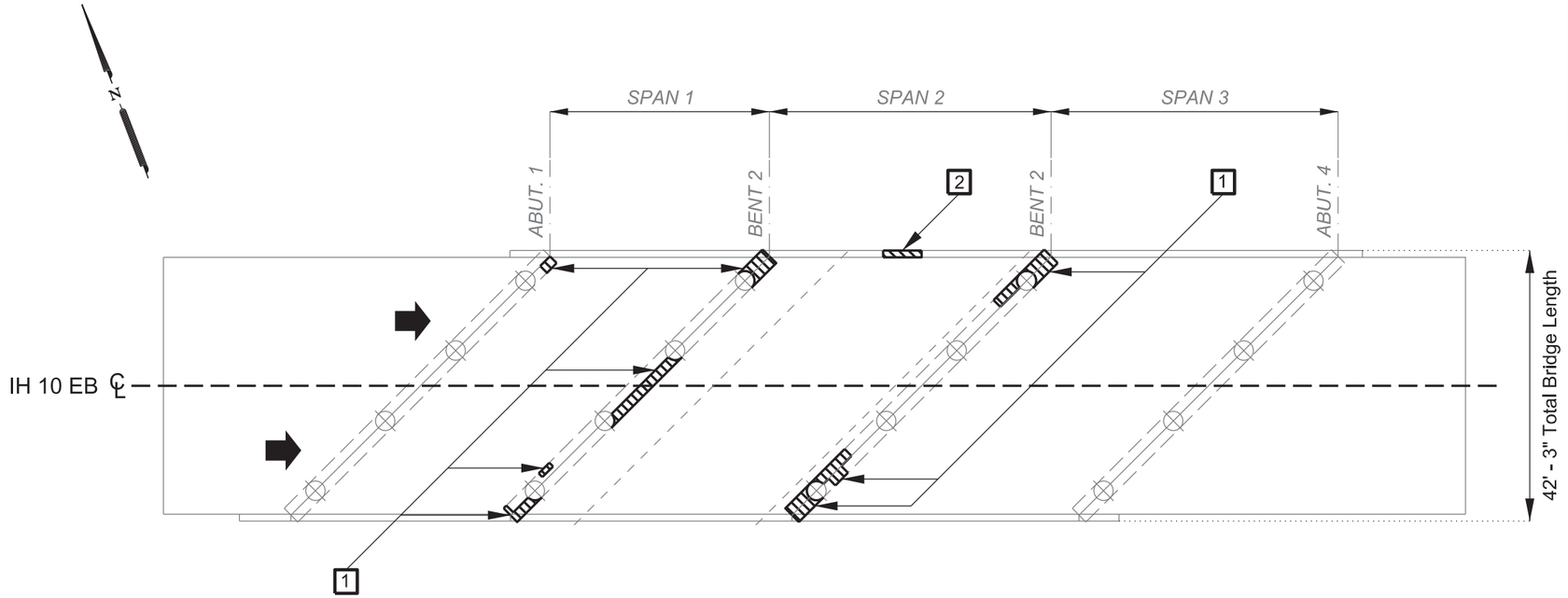
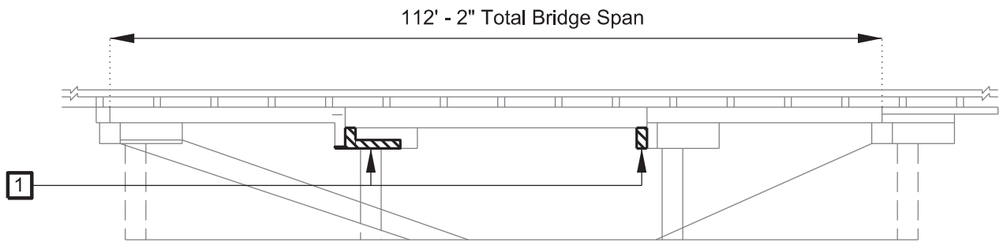


PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	150
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	6

1 Bent caps have some heavy delamination cracking along bottom corners and minor to moderate delamination cracking along top corners at both ends. Bent 2 has severe spalling in between Columns 2 and 3 at the bottom. Bent 3 has severe spalling between Columns 1 and 2. (150 SF Total)
(See Photos 1, 2, 3, and 4)

2 Overhang in Span 2 on North side of bridge has moderate spalling around bottom of Rail Post. (6 SF)



ELEVATION (SOUTH SIDE)

STATE OF TEXAS
JOSE ALVINO RENTERIA
137506
LICENSED PROFESSIONAL ENGINEER

1/12/2024

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0441-09-063

IH 10 EB at SERVICE RD

REF. MARKER 189+0.038

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
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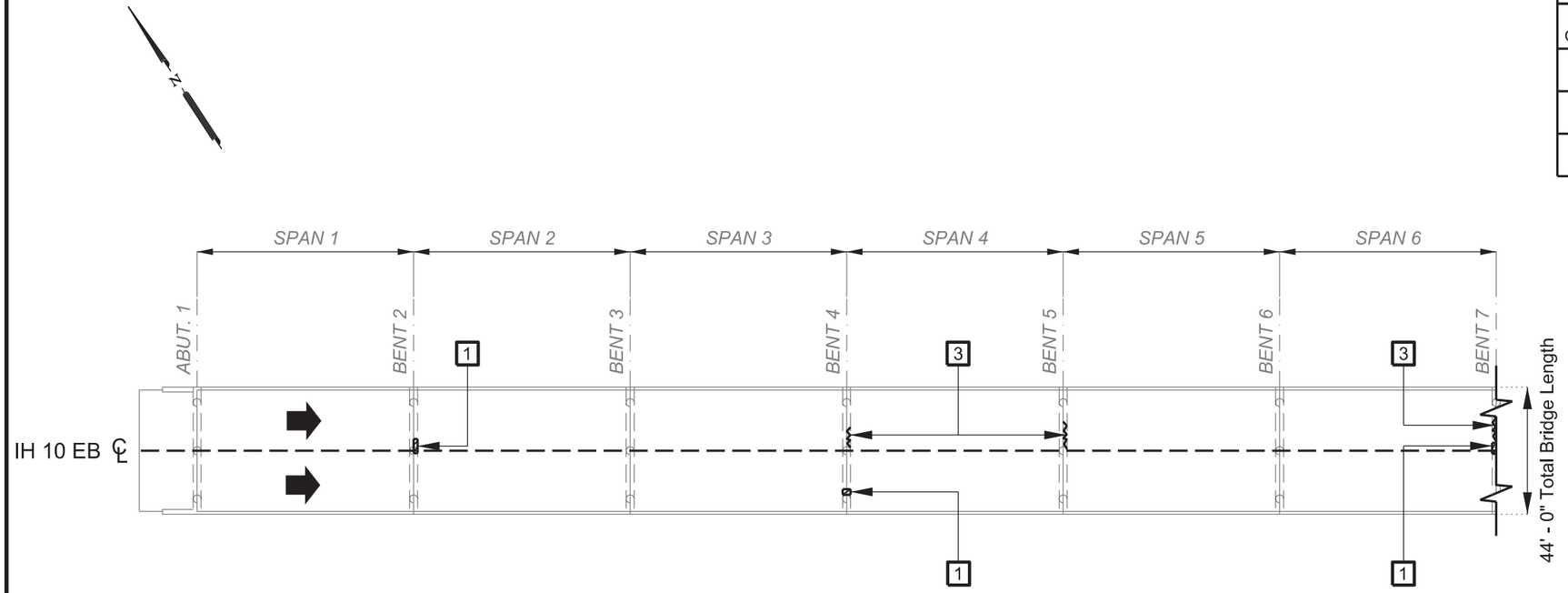
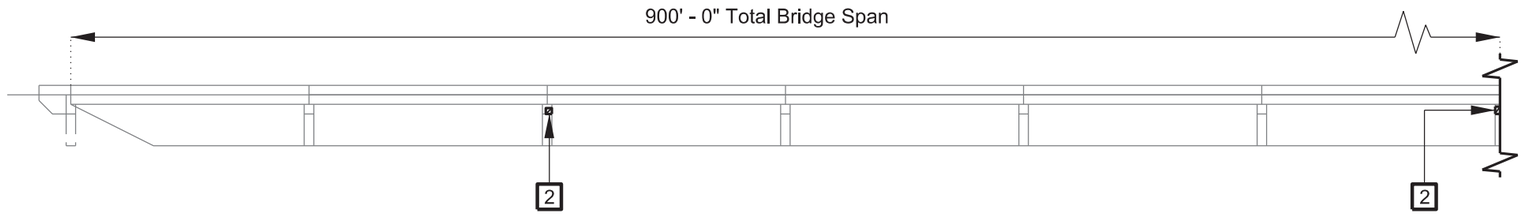
	ODA	ECTOR, ETC.		070



PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	20

1 Moderate spalling on Bent 2 on Northeast side of bridge. Moderate spalling and delamination in between Southeast and Southwest side of Bent 4. Also, Bent 7 on Northwest side of bridge has moderate spalling. (20 SF Total)
(See Photos 1 and 2)

2 Bent cap of Bent 3 and 4 on South side of bridge has moderate spalling and delaminations. (3 SF Total)
(See Photo 3)

3 Vertical crack on Northeast side of Bent 4 and 5. Also, on Northwest side of Bent 7. (20 LF Total)
(See Photo 4)

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SHEET 1 OF 2

LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0441-09-119

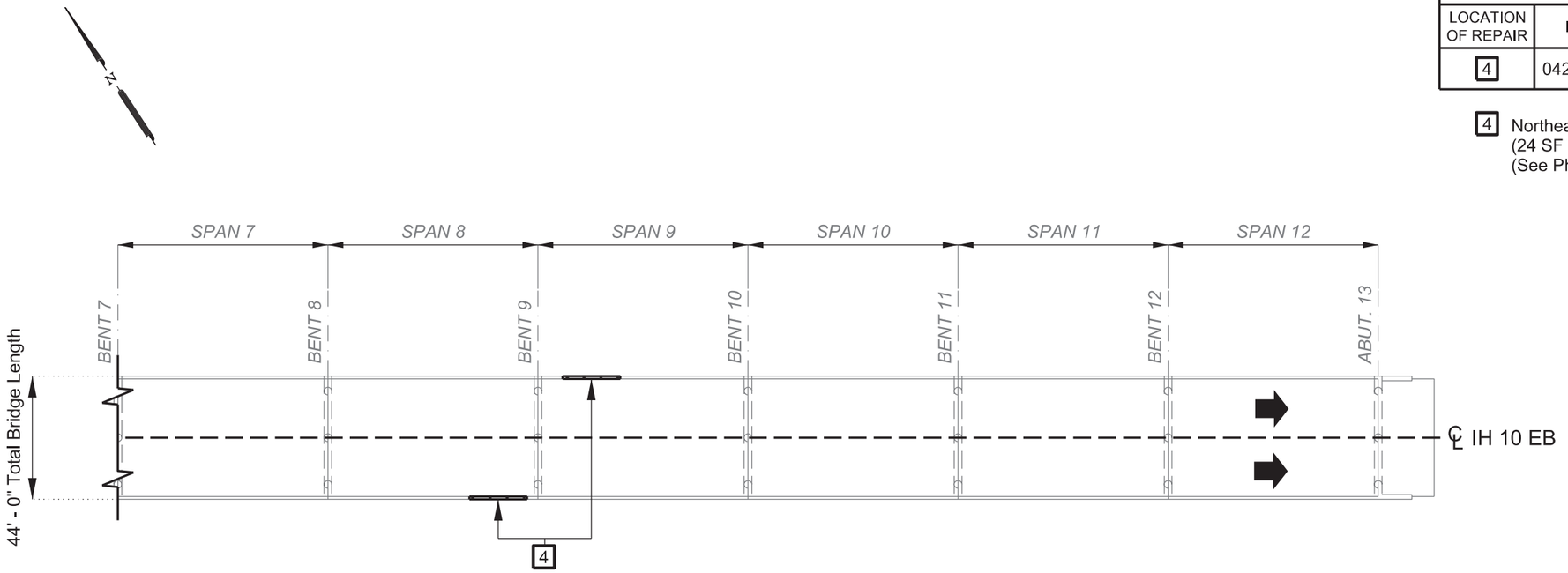
IH 10 EB at CHERRY CREEK

REF. MARKER 200-0.130

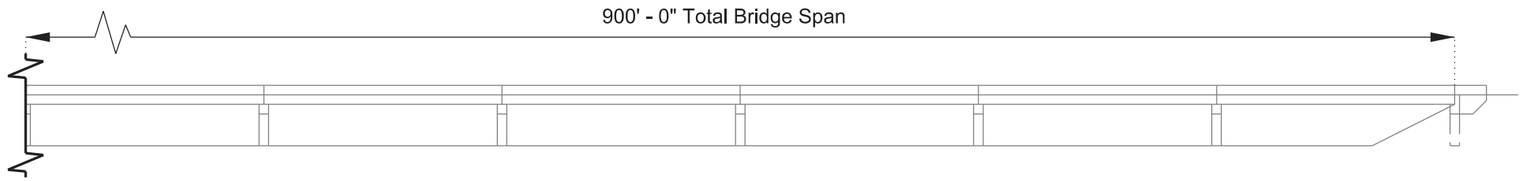
FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC.		071

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	24

4 Northeast and Southwest overhang has moderate spalling.
(24 SF Total)
(See Photos 5 and 6)



PLAN



ELEVATION

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SHEET 2 OF 2

LOCATION REPAIRS

Photo 5

Photo 6

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0441-09-119

IH 10 EB at CHERRY CREEK

REF. MARKER 200-0.130

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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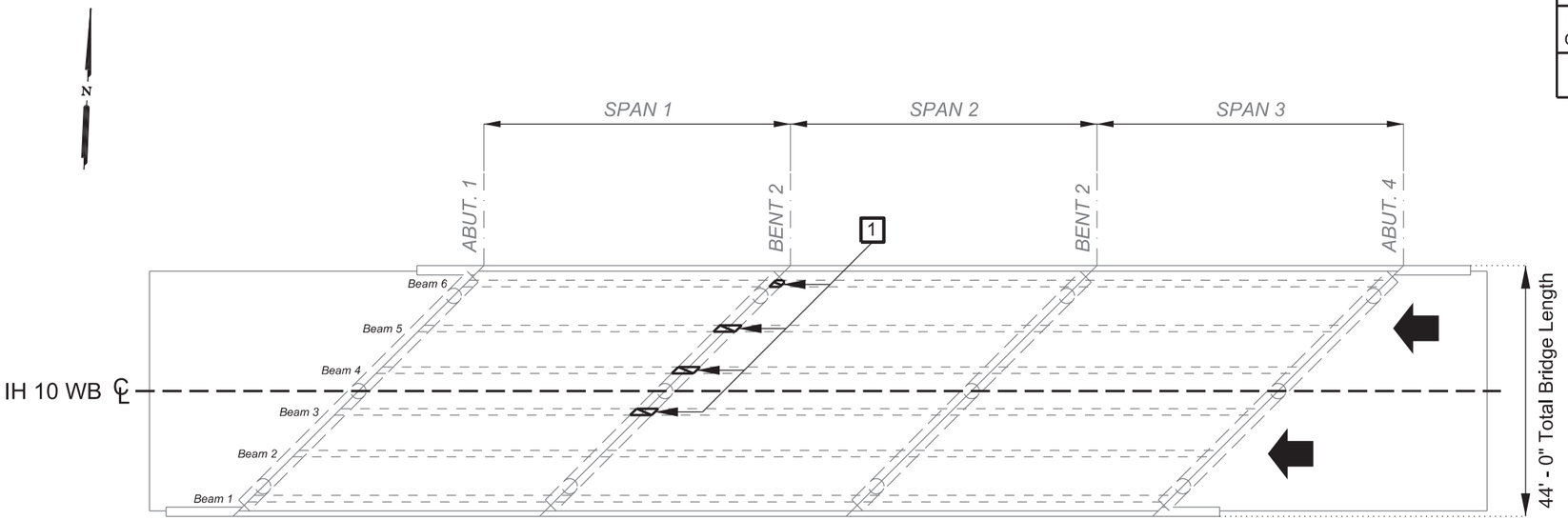
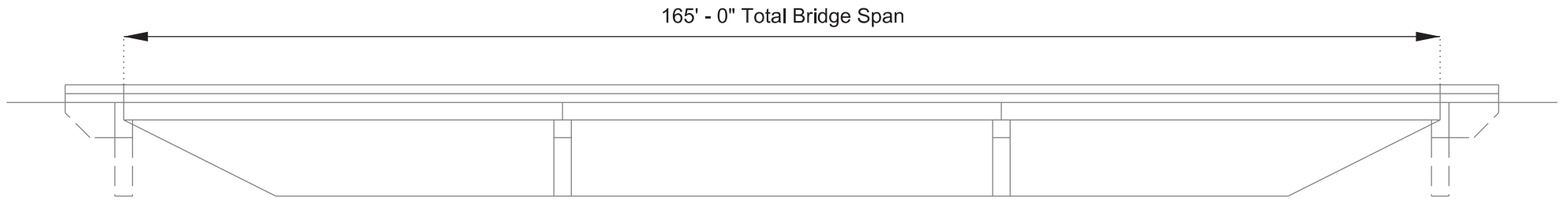


PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	7

1 A few bottom flange ends have delaminations with some exposed tension strands at both ends of Beams 3, 4, and 5 at Bent 2. Also, at the end of Beam 6 on East side, at Bent 2. (7 SF Total) (See Photos 1, 2, 3, and 4)



ELEVATION

STATE OF TEXAS
JOSE ALVINO RENTERIA
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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0441-09-121

IH 10 WB at ADOBE DRAW

REF. MARKER 202+0.436

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
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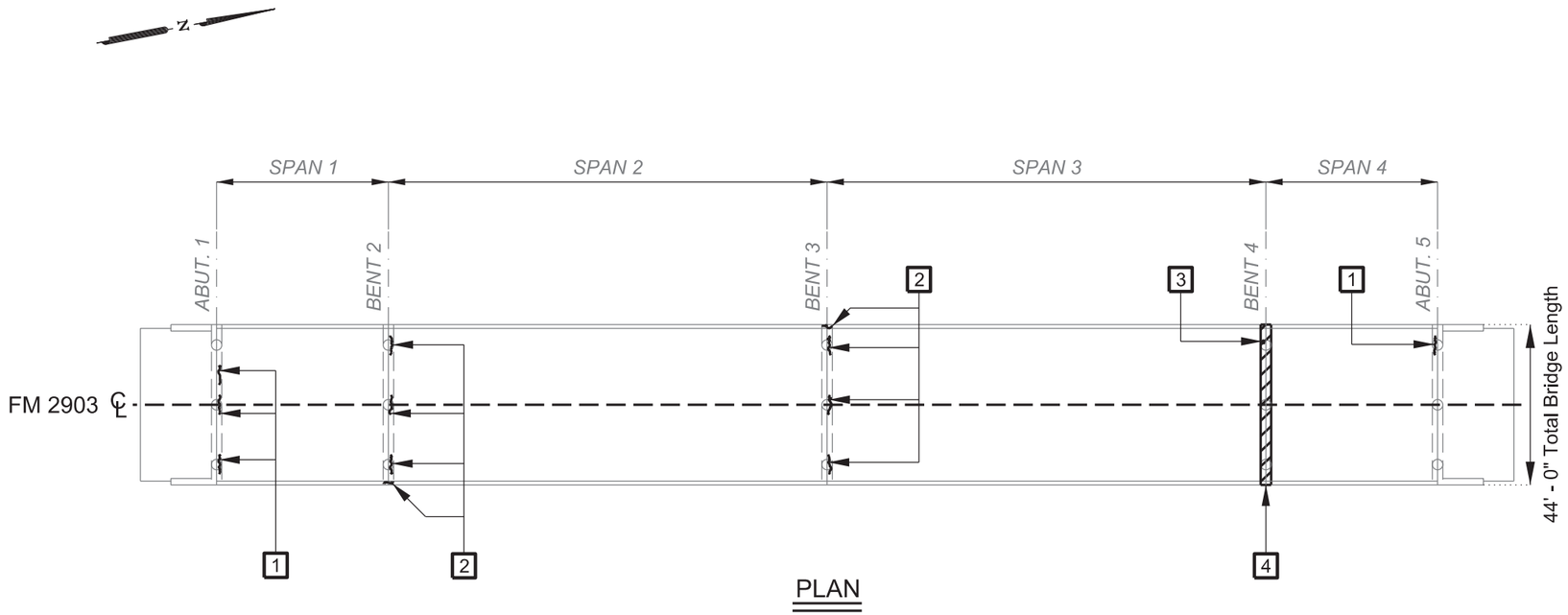
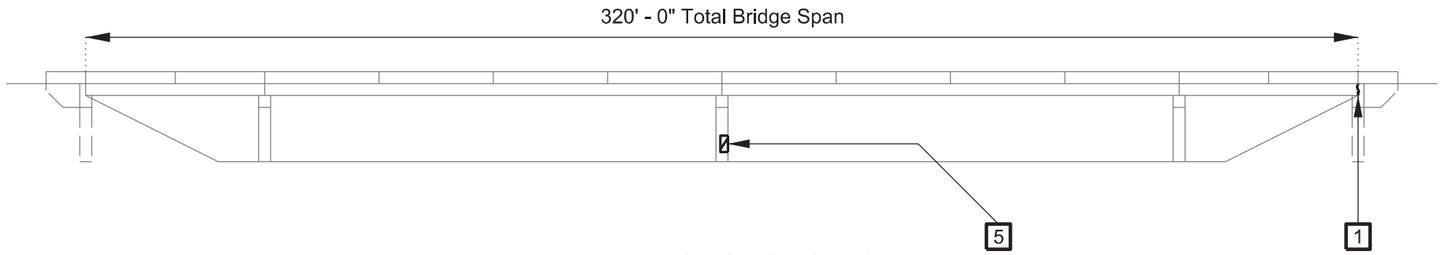
	ODA	ECTOR, ETC.		073



PLAN



ELEVATION (EAST SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	25
2	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	25
3	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	7
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	44
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15

1. At Abutment 1, there is a horizontal crack between Beams 1 and 2; 3 and 4; 4 and 5. At Abutment 5, there is a horizontal crack between Beams 5 and 6. Also, there is cracking at the North end of Beam 1. (25 SF Total) (See Photos 1 and 2)
2. There is cracking above Columns 1, 2, and 3 at Bent 2 and Bent 3. Additional horizontal crack at West end of Bent 3 and East end of Bent 2. (25 LF Total)
3. Top half of Column 3 at Bent 4 has vertical cracking, facing to the West. (7 LF)
4. At Bent 4, full length of joint shows signs of deterioration. (44 SF) (See Photo 3)
5. Large spall with exposed corroded reinforcing steel and delaminations in lower part of Column 1 at Bent 3. (15 SF) (See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-0441-09-128

FM 2903/IH 10 BU F at IH 10

REF. MARKER 176+0.138

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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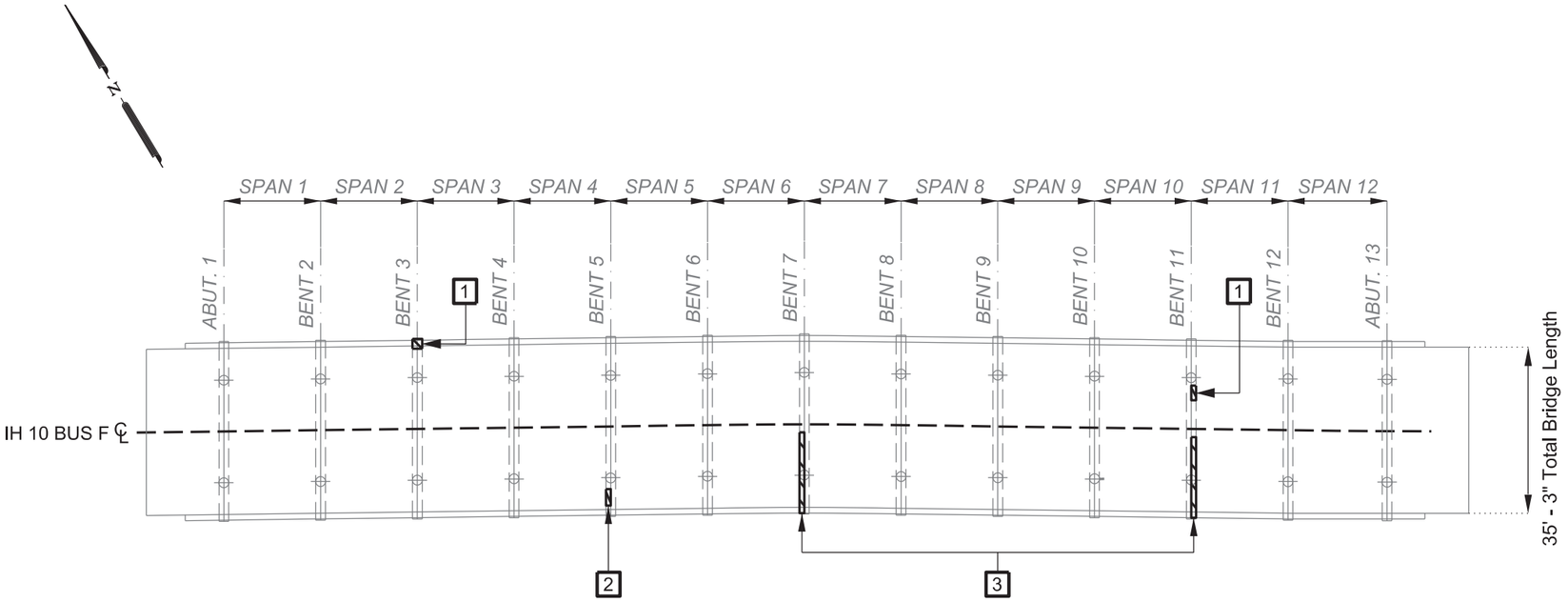
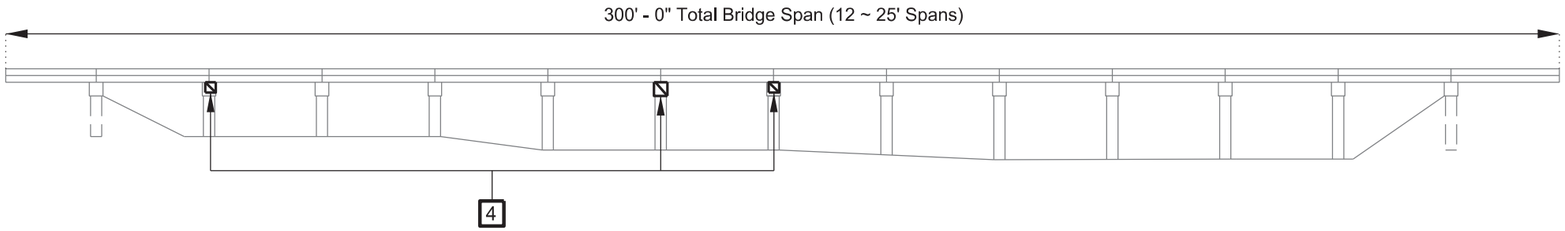
	ODA	ECTOR, ETC.		074



PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	40
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10

1. Minor spalling on the Northwest and Northeast area of Bent 3 and Bent 11. (10 SF Total)
(See Photo 1)
2. Bent 5 has a 2'x2' spall with minor delamination on the South side. (10 SF)
3. Bent 7 and Bent 11 exhibit scattered moderate spalls with exposed rebar. (40 SF Total)
(See Photos 2 and 3)
4. Multiple spalls in Bents 2, 6, and 7 along the South section of the bridge. (10 SF Total)
(See Photo 4)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-195-0-2968-02-009

IH 10 BUS F at TOYAH CREEK

REF. MARKER 178-0.037

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
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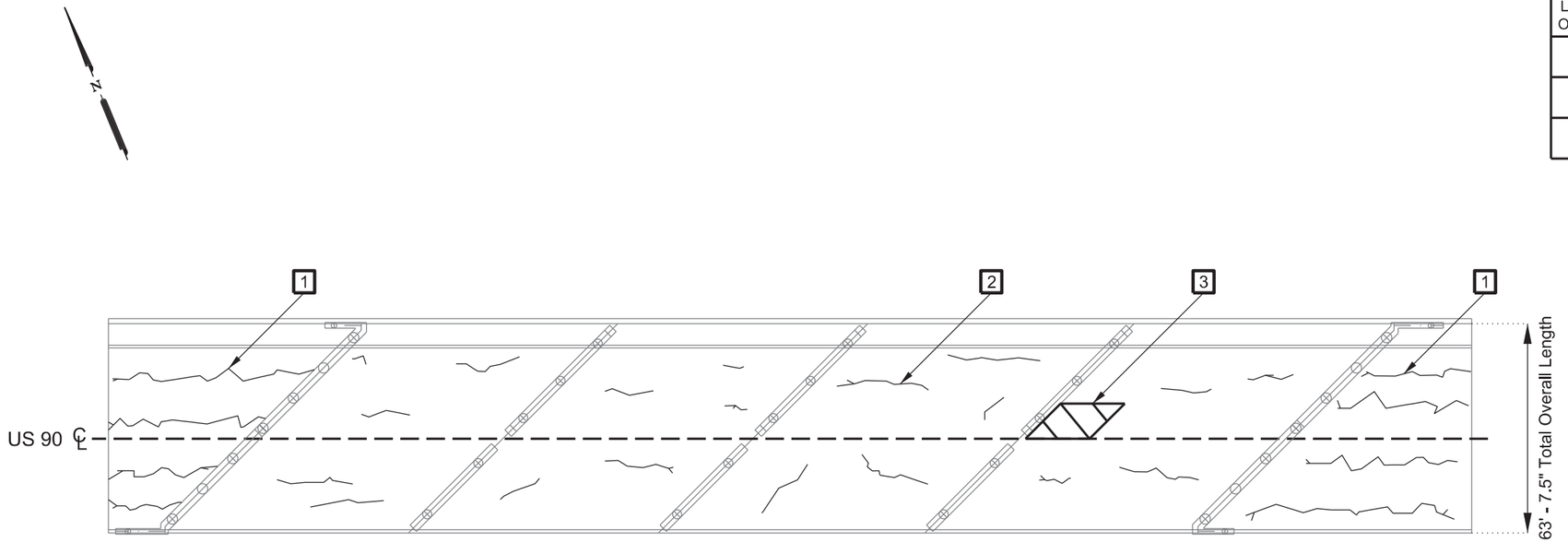
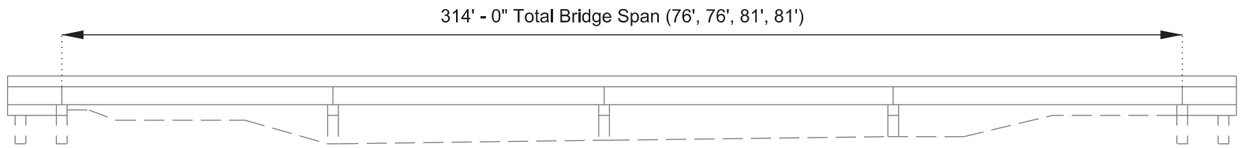
	ODA	ECTOR, ETC.		075



PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	250
2	0780 6004	CONC CRCK REPR (DISCRETE)(ROUT AND SEAL)	LF	200
3	0429 6004	CONC STR REPAIR (RAPID DECK REP)(PRT DPT)	SF	20

1 Approach slabs have multiple moderate random cracks up to ~3/16" wide with some old sealant present. (250 LF Total)
(See Photos 1 and 2)

2 Various locations on top surface of deck have multiple minor (~1/32" to 1/16") longitudinal cracks and isolated light diagonal cracks that extend perpendicular from deck construction joints. (200 LF Total)

3 Minor spalling in Westbound lane near Centerline. (20 SF)
(See Photo 3)

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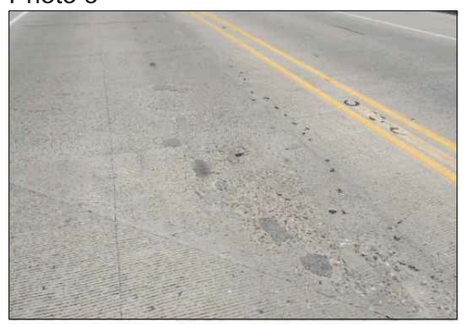
LOCATION REPAIRS

Photo 1

Photo 2

Photo 3



Texas Department of Transportation

REPAIR DETAILS

NBI# 06-222-0-0021-07-036

US 90 at SANDERSON CANYON

REF. MARKER 298+0.330

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
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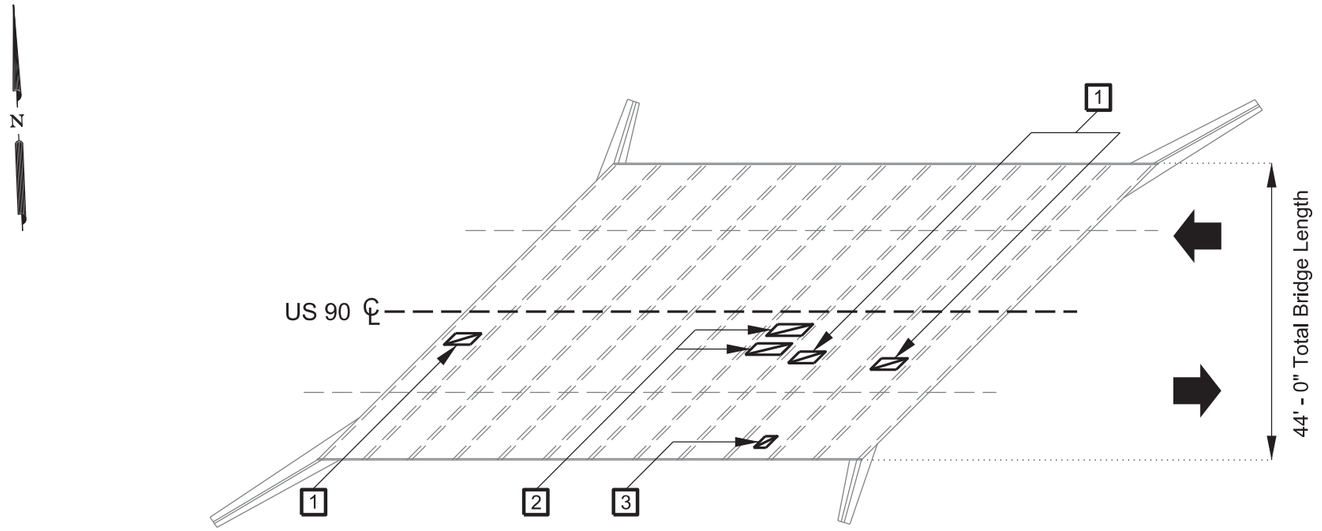
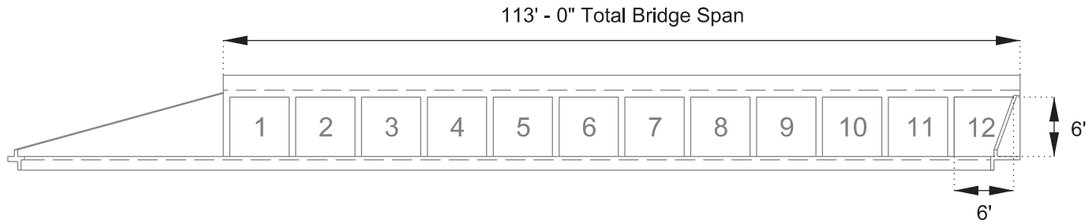


PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	25
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	5

1. Barrels 1, 9, and 11 has severe spalling with exposed rebar on the top slab in the Southwest and Southeast side of the bridge. (20 SF Total) (See Photo 1)
2. Barrel 8 has multiple spalling on the top slab with exposed rebar in the Southeast of the bridge. (25 SF Total) (See Photo 2 and 3)
3. Barrel 10 has minor spalling on the top slab on the Southeast of the bridge. (5 SF) (See Photo 4)



ELEVATION (SOUTH SIDE)

STATE OF TEXAS
JOSE ALVINO RENTERIA
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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

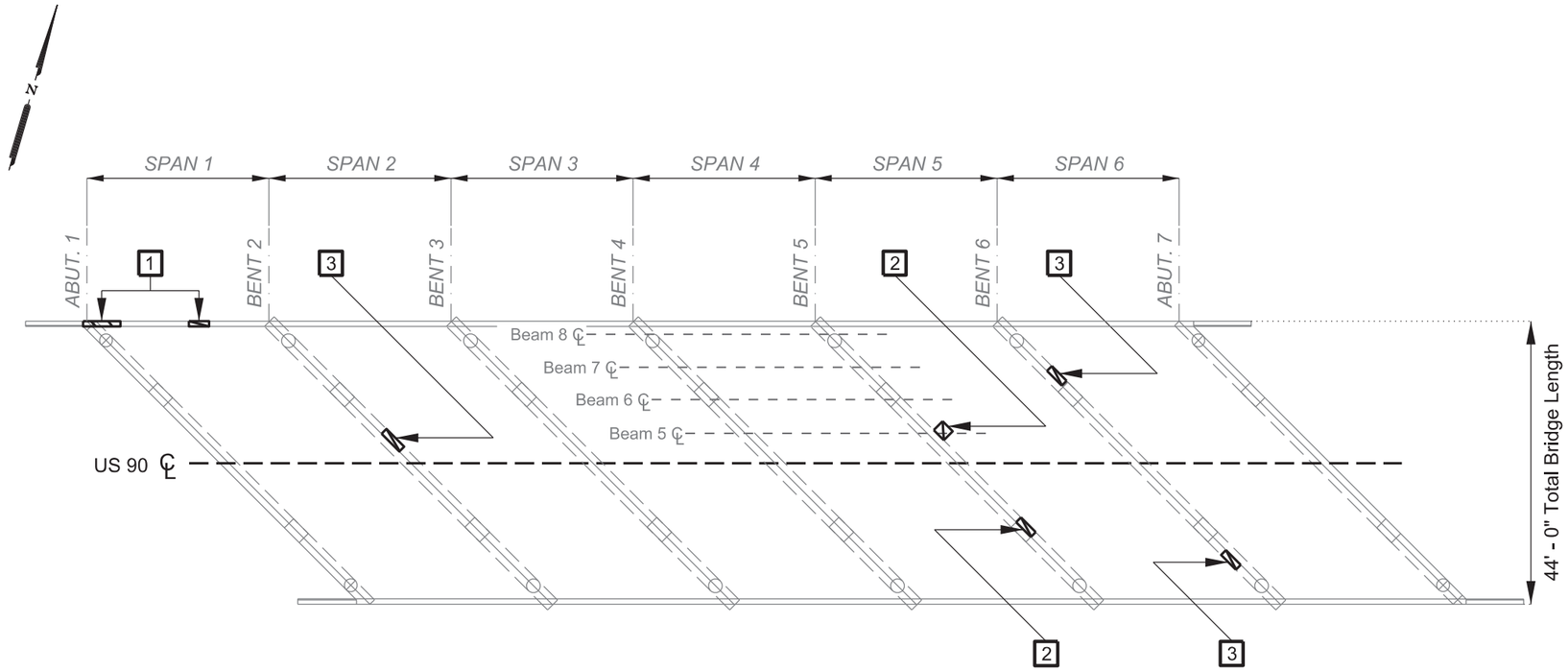
REPAIR DETAILS

NBI# 06-222-0-0022-02-065

US 90 at DRYDEN CREEK

REF. MARKER 318+0.145

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC.		077



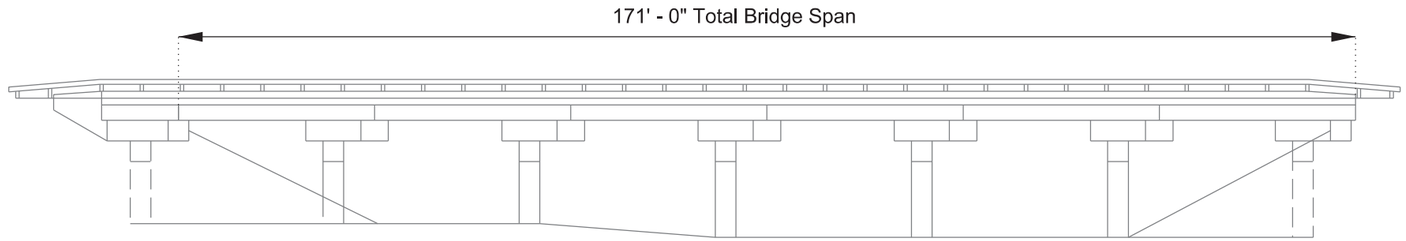
PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	5

1. Moderate spall with exposed rebar in North curb at West rail post anchorage. Also, 1' x 1' spall with exposed rebar at West rail post. (10 SF Total)
(See Photos 1 and 2)

2. Beam 5 has a 1' x 1' spall with exposed rebar next to Bent 5 on the North side. Also, spalling with exposed rebar on the Column of Bent 5 in the South side. (10 SF Total)
(See Photos 3 and 4)

3. Mild to moderate spalling with exposed rebar on the North and Northwest of Bent 2 and Bent 6. Including, on South side of Bent 6. (5 SF Total)



ELEVATION

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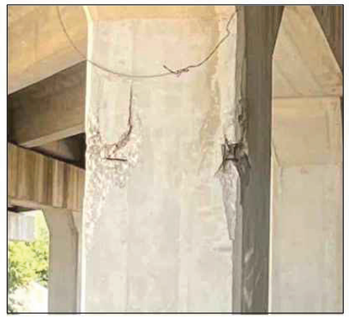
LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4



Texas Department of Transportation

REPAIR DETAILS

NBI# 06-222-0-0022-03-011

US 90 at PALMA CANYON

REF. MARKER 338+0.135

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
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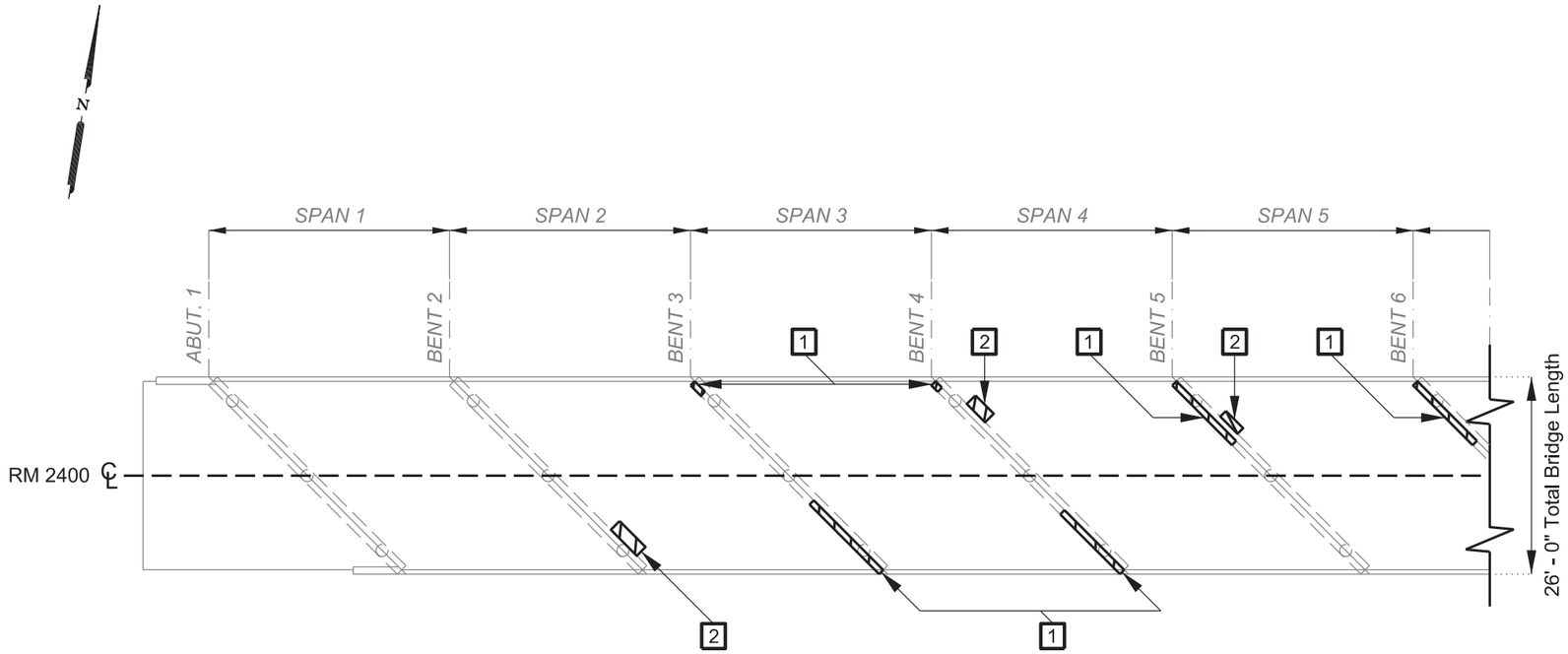


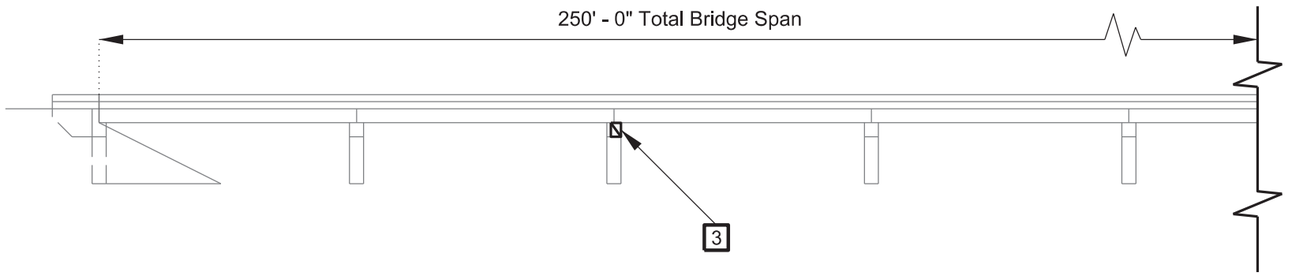
PLAN

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	70
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10

1 Several severe spalls with exposed rebar on the ends of Bents 3, 4, 5, and 6 on North side. Similarly, Bents 3 and 4 on South side. (70 SF Total)
(See Photos 1 and 2)

2 Top slabs exhibit moderate spalling with exposed rebar. (20 SF Total)
(See Photo 3)

3 Spalling on the North side at the end of Bent Cap 3. (10 SF Total)
(See Photo 4)



ELEVATION (NORTH SIDE)

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LOCATION REPAIRS

Photo 1

Photo 2

Photo 3

Photo 4

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-222-0-2297-02-001

RM 2400 at BIG CANYON

REF. MARKER 268-0.597

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
©TxDOT JANUARY 2024	CONT	SECT	JOB	HIGHWAY
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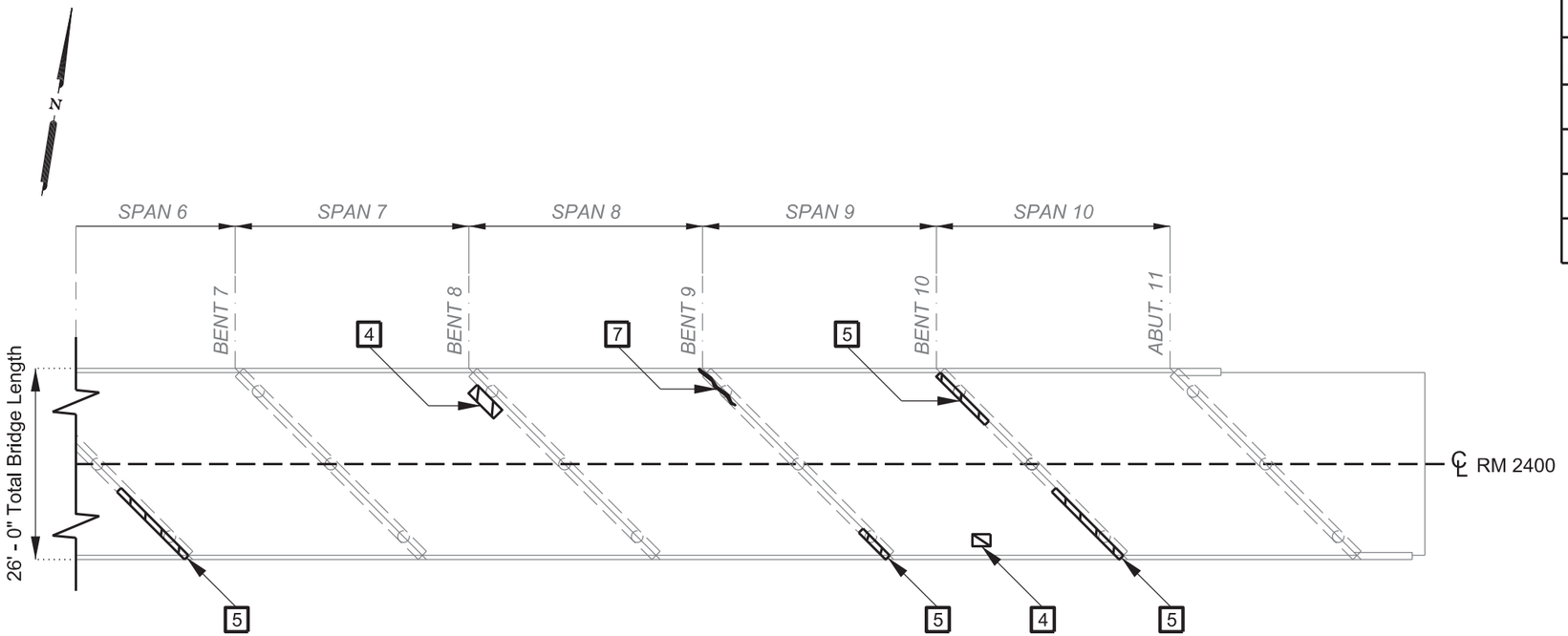
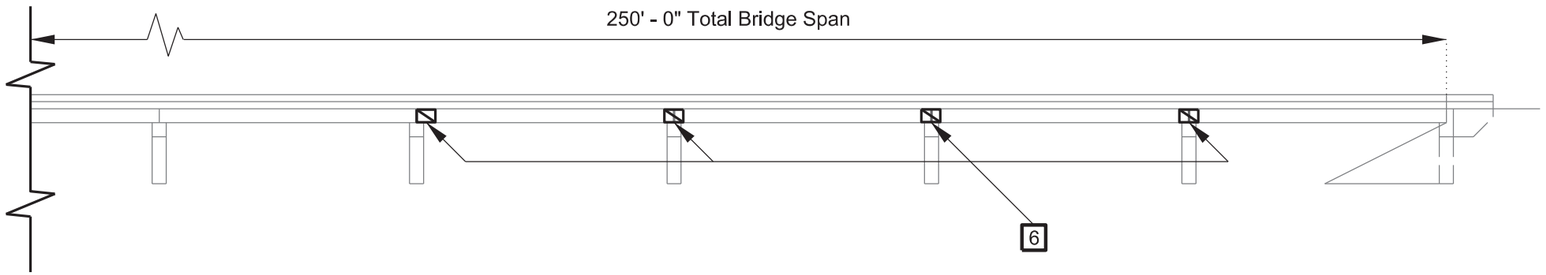
	ODA	ECTOR, ETC.		079



PLAN



ELEVATION (SOUTH SIDE)

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	60
6	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
7	0780 6004	CNC STR REPAIR (DISCRETE)(ROUT AND SEAL)	LF	5

4 Tob slab of Bent 8 has moderate spalling on the Northwest side. The drain hole on the South side has moderate spall. (20 SF Total) (See Photo 5)

5 Several severe spalling with exposed rebar on the ends of Bents 6, 9, and 10. Also, minor to moderate delamination included to Bent 9 on the South side of bridge. (60 SF Total) (See Photos 6 and 7)

6 The top of Bent caps 7, 8, 9, and 10 have moderate delamination and spalling with some exposed rebar. (10 SF Total) (See Photo 8)

7 Crack found on the North side end of Bent 9. (5 LF)

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LOCATION REPAIRS

Photo 5

Photo 6

Photo 7

Photo 8

Texas Department of Transportation

REPAIR DETAILS

NBI# 06-222-0-2297-02-001

RM 2400 at BIG CANYON

REF. MARKER 268-0.597

FILE:	DN: SL	CK: AR	DW: SL	CK: JR
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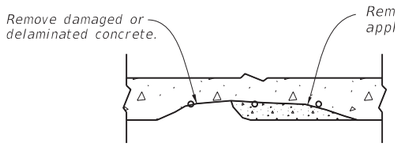
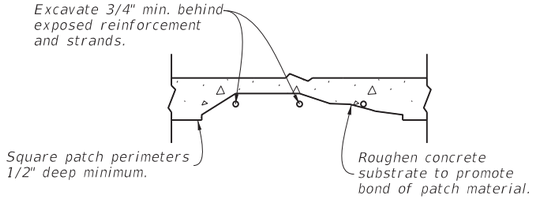
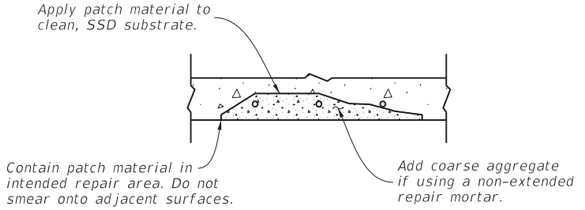
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC.		080



DAMAGED CONDITION



EXCAVATION & PREPARATION



PATCHING

CONCRETE REPAIR DETAILS

Refer to the TxDOT "Concrete Repair Manual" for additional guidance.

CONCRETE REPAIR NOTES:

1) Verify extent of damage and repairs prior to proceeding. Immediately notify Engineer if any discrepancies are noted between the plans and actual conditions.

2) Submit detailed repair procedures, including proposed proprietary materials, for approval prior to commencing work.

3) Perform work in accordance with Item 429, "Concrete Structure Repair," and these plans. For patching use a pre-approved Type A repair material per DMS 4655, "Concrete Repair Materials."

4) Remove delaminated, loose, and unsound concrete where indicated on the plans. Remove all previously applied repair material. Use only hand tools or power-driven chipping hammers (15 lb. max) to remove concrete and to excavate behind reinforcing bars.

5) Bend, but do not remove, damaged steel reinforcement to ensure there will be 1" minimum concrete cover in the patch area.

6) Remove rust, oil, and other contaminants from concrete and reinforcing steel surfaces. Just prior to patching blast the repair area using a high-pressure air compressor equipped with filters to remove oil.

7) Pre-bagged repair material:

- Mixing, use measuring cups or buckets to determine the proper quantity of each component per the manufacturer's requirements, then dispense into a clean container. Mix the components thoroughly until they are well-blended (3 minutes minimum) using a low-speed drill and a "jiffy" type mixing paddle.
- Do not mix until the surface preparation is complete and the substrate is ready for application of the repair material. Mix only the amount of material necessary for the immediate application.
- Mixing by hand is not permitted. Do not attempt to make the material workable by over-mixing or adding additional liquid after it begins to set.
- Add coarse aggregate in accordance with the manufacturer's instructions if using a non-extended repair mortar.

8) Obtain a Saturated Surface-Dry (SSD) substrate just prior to patching using a high-pressure water blast for a brief period (1 minute minimum) or other approved method. Surface may be damp but must be free of standing water.

9) If using a trowel-applied material, apply a bond coat consisting of a thin layer of non-extended repair mortar scrubbed into the substrate. Apply repair material while scrub coat is still wet. Do not exceed the maximum lift depth permitted by the manufacturer. Wet the surface just prior to applying the next lift.

10) Moist cure the patch material for a minimum of 48 hours using wet mats, water spray, ponding, or other method approved by Engineer.

STATE OF TEXAS
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139194
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
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Texas Department of Transportation | Bridge Division

CONCRETE REPAIR DETAILS

FILE: 0906-00-235	DN:	CK:	DW:	CK:
©2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
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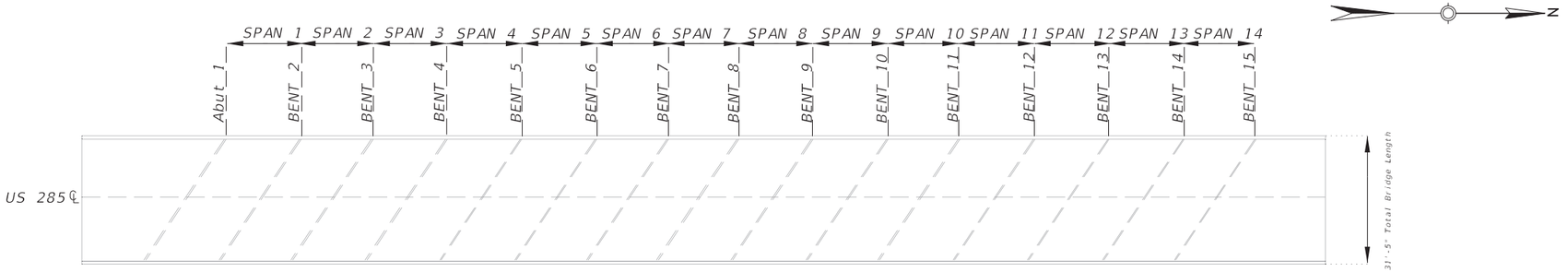
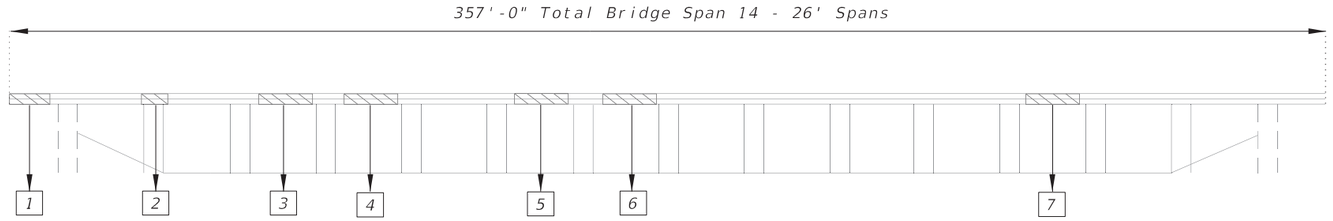


PLAN



ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	6
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	18
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	10
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	22
6	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	12
7	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	45

GENERAL NOTES:

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Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

STATE OF TEXAS
NESTOR T MENDOZA
139194
PROFESSIONAL LICENSED ENGINEER

DocuSigned by:
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9104D8EB1809444...
NESTOR T MENDOZA, P.E. 01/22/24

Texas Department of Transportation

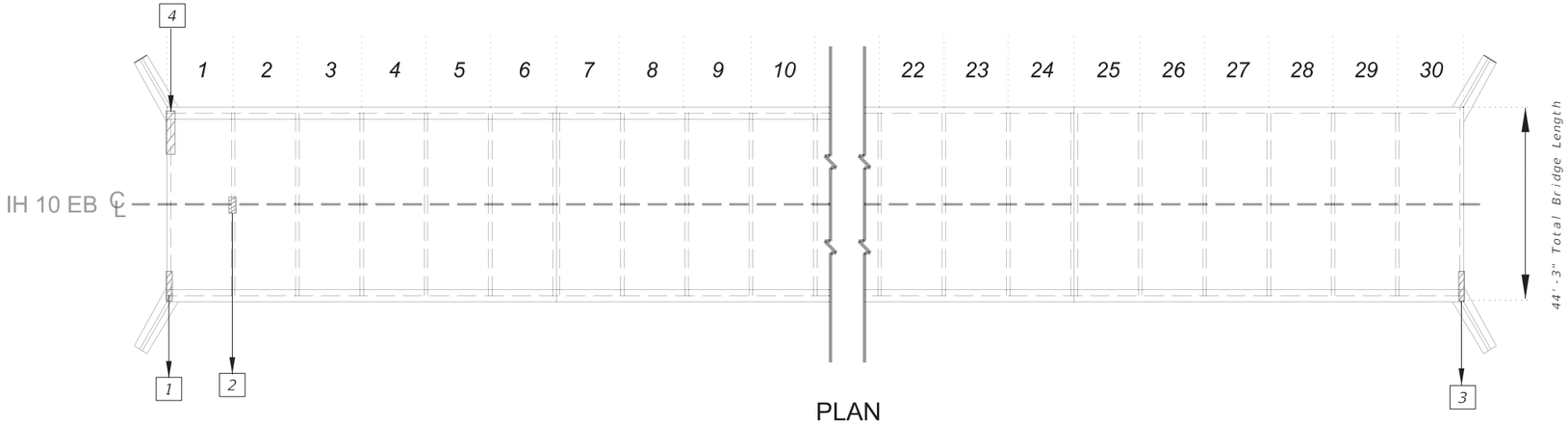
REPAIR DETAILS

06-186-0-0293-017

US 285

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		082

DATE:
FILE:



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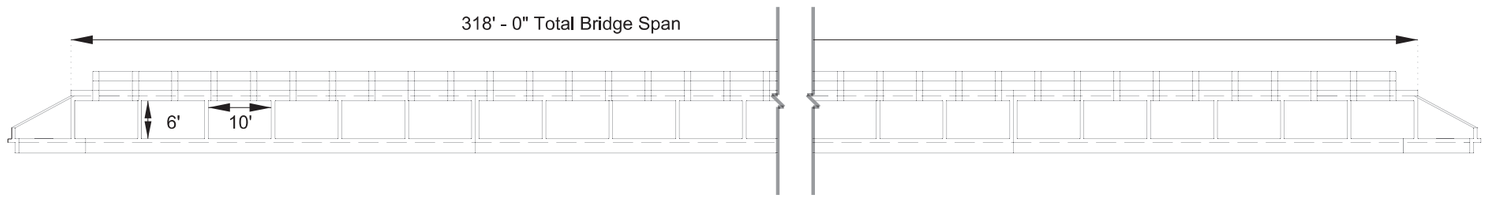

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	15
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	2
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	6
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	6

GENERAL NOTES:

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Photo 1

Photo 2

Photo 3

Photo 4

STATE OF TEXAS
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139194
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NESTOR T MENDOZA, P.E. 01/22/24

Texas Department of Transportation

REPAIR DETAILS

06-186-0-0441-07-071

IH 10 WB

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
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REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
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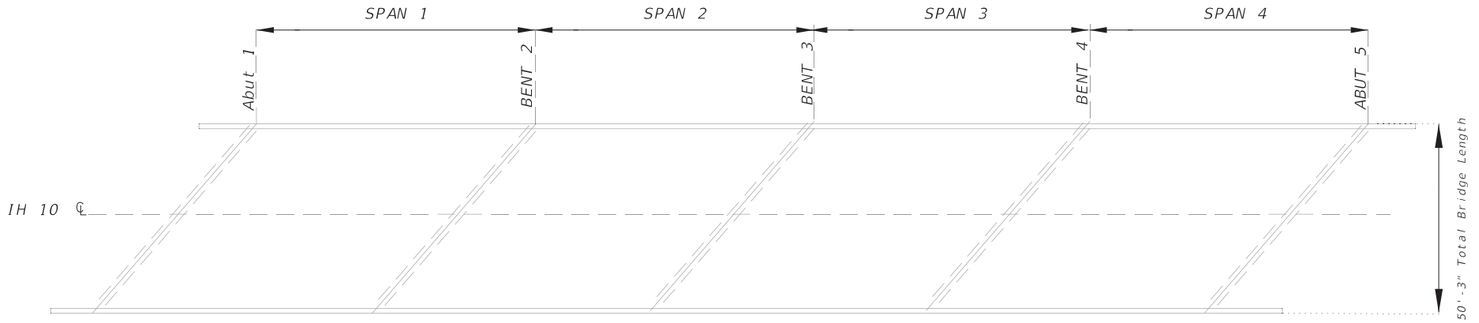

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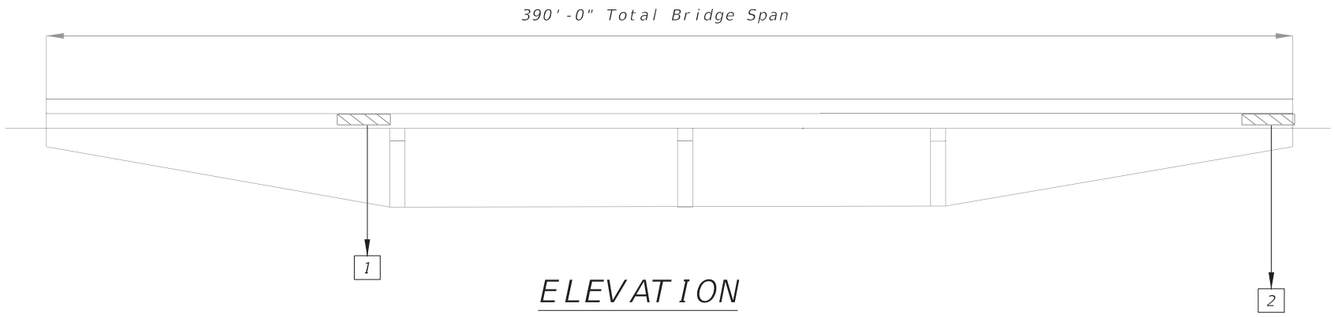

ELEVATION

Photo 1

Photo 2

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	42
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	17

GENERAL NOTES:

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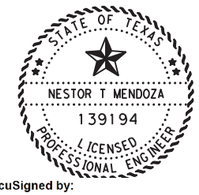

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9104D8EB1809444...

Texas Department of Transportation

REPAIR DETAILS

06-1806-186-0-0441-07-086

Firestone Rd at IH 10

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
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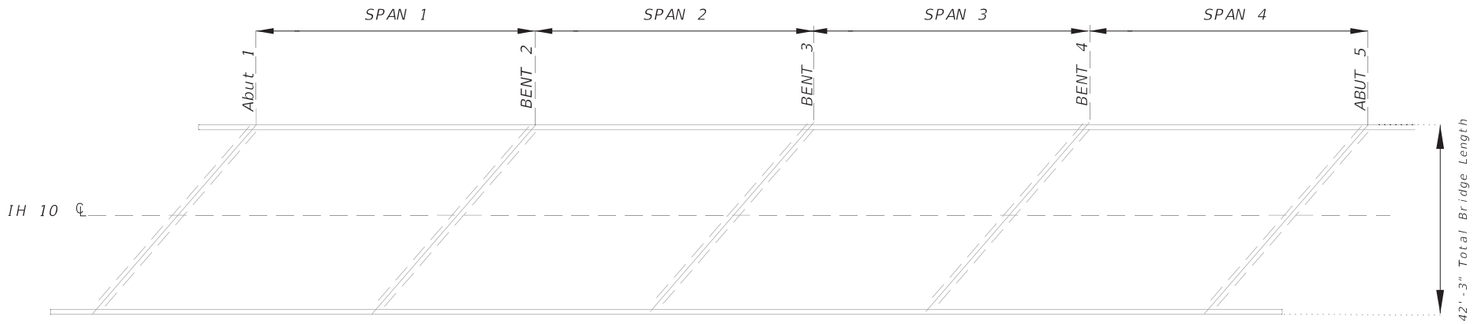

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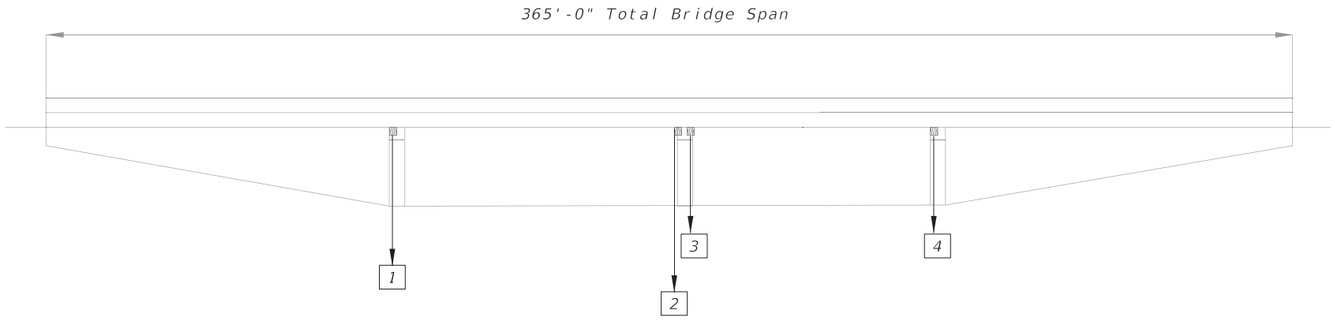

ELEVATION

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	42
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	17
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	22
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	6

GENERAL NOTES:

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Photo 1

Photo 2

STATE OF TEXAS
NESTOR T MENDOZA
139194
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Nestor T Mendoza, P.E.
9104D8EB1809444...

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REPAIR DETAILS

06-186-0-0441-08-098
FM 2037 AT IH 10

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
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REVISIONS	0906	00	235	VARIOUS
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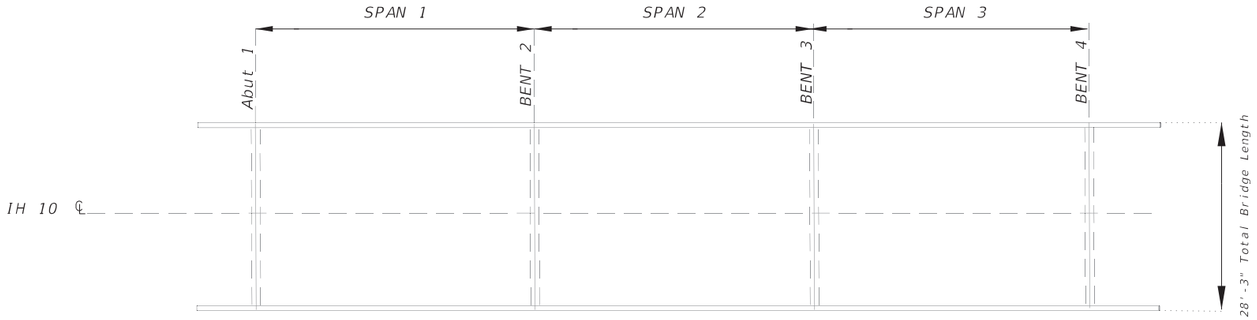

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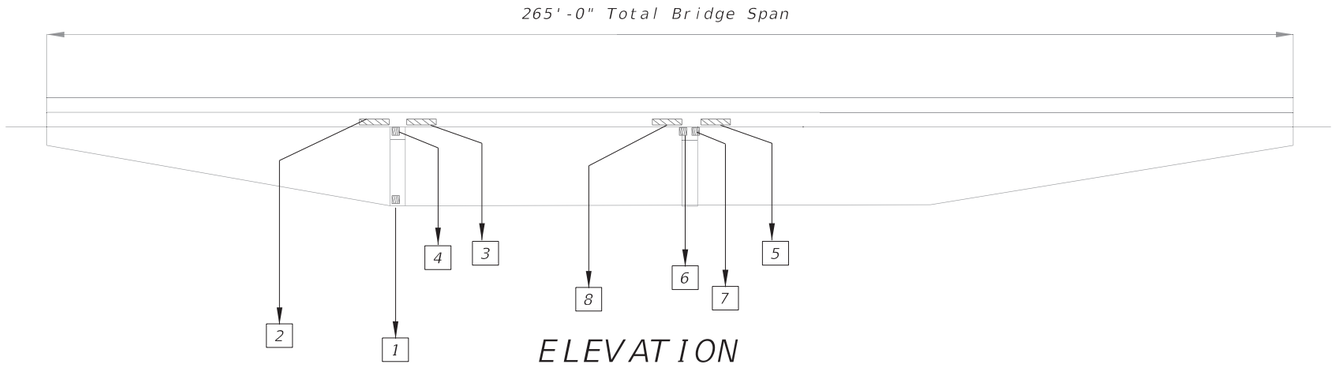

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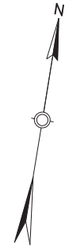

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	9
3	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	4
4	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	18
5	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	18
6	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	3
7	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	8
8	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	9

GENERAL NOTES:

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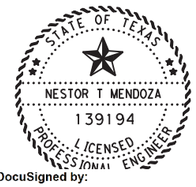

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Nestor T Mendoza, P.E.
9104D8EB1809444...
NESTOR T MENDOZA, P.E. 01/22/24

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Texas Department of Transportation

REPAIR DETAILS

06-186-0-0140-02-149

McKenzie Rd at IH 10

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
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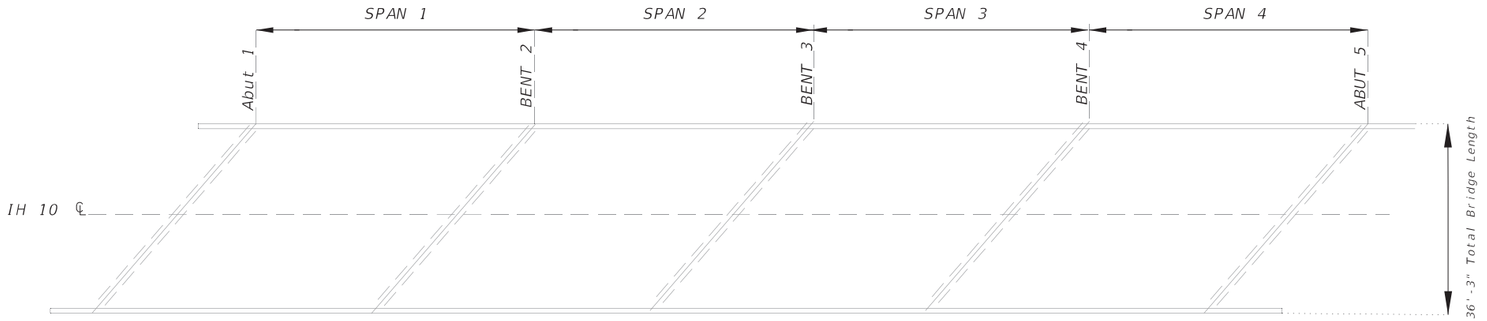

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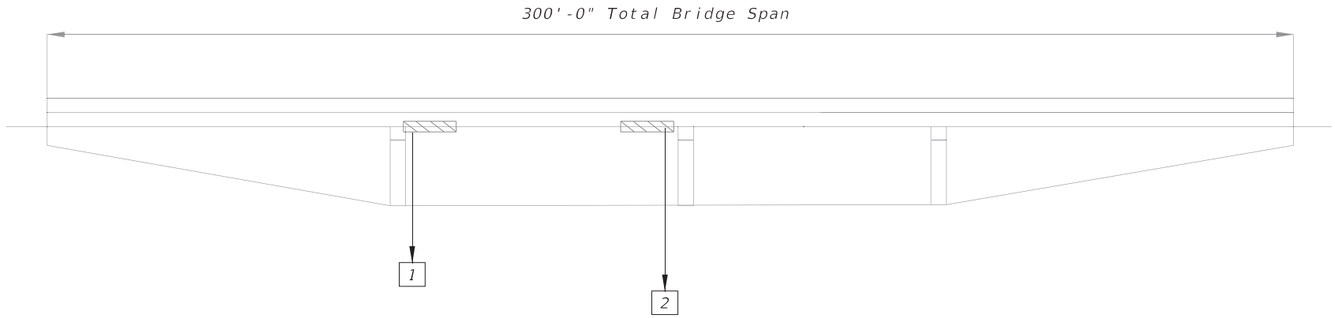

ELEVATION

Photo 1

Photo 2

N

TABLE OF REPAIRS AND ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	90
2	0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	30

GENERAL NOTES:

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STATE OF TEXAS
NESTOR T MENDOZA
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Texas Department of Transportation

REPAIR DETAILS

06-186-0-0140-02-103
RM 2023 at IH 10

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		087

N

GENERAL NOTES:

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TABLE OF REPAIRS AND ESTIMATED QUANTITIES (06-186-0-0140-17-002)			
ITEM	DESCRIPTION	UNIT	QTY
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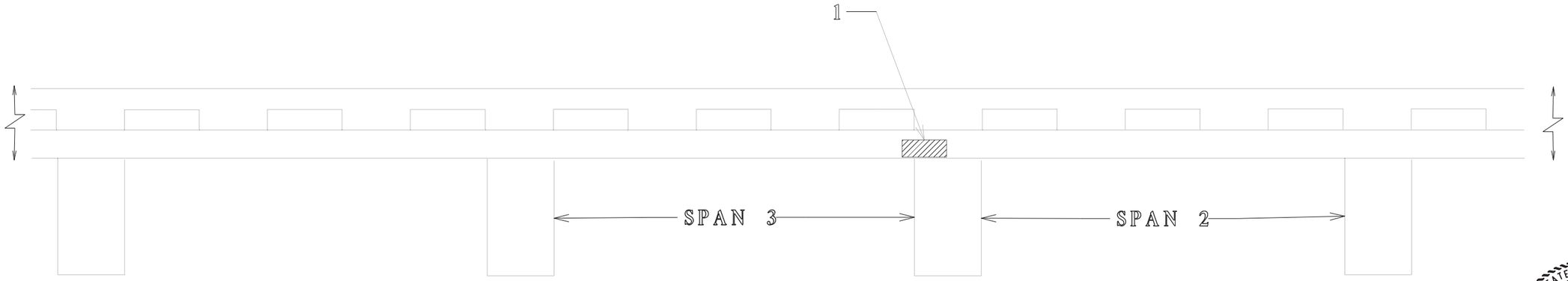

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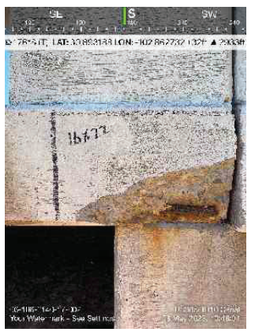

STATE OF TEXAS
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Nestor T Mendoza, P.E.
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Texas Department of Transportation

REPAIR DETAILS

06-186-0-0140-17-002

RM 2023 at IH 10

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
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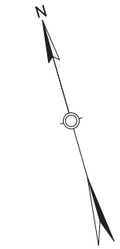

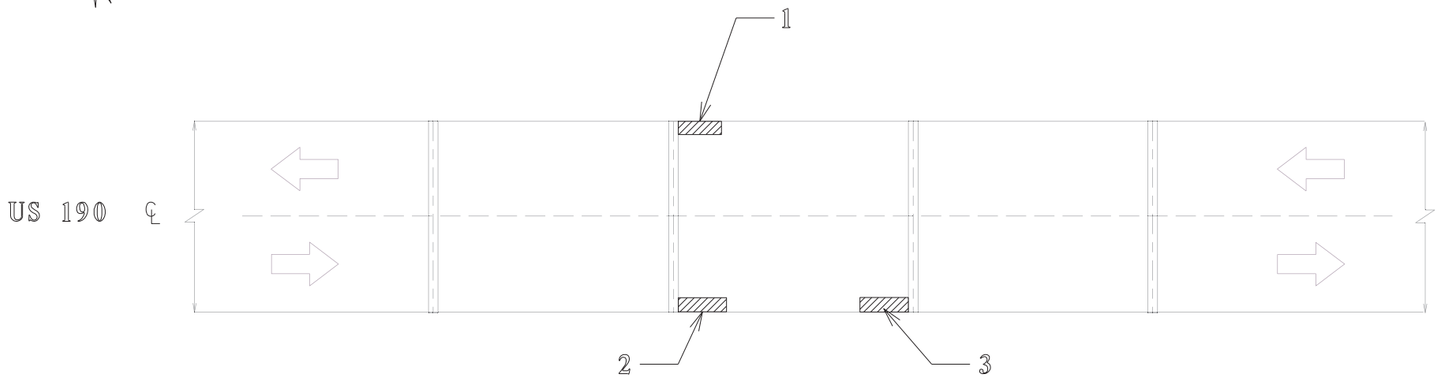

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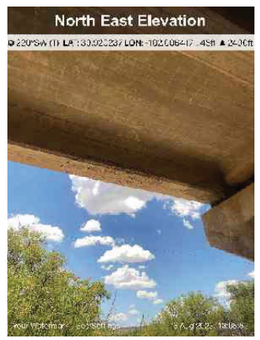
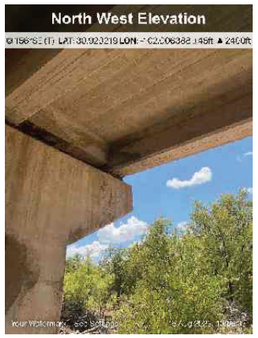
TABLE OF REPAIRS AND ESTIMATED QUANTITIES
(06-186-0-1640-01-002)

ITEM	DESCRIPTION	UNIT	QTY
0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	24





STATE OF TEXAS
NESTOR T MENDOZA
139194
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Nestor T Mendoza, P.E.
9104D8EB1809444...
NESTOR T MENDOZA, P.E. 01/22/24

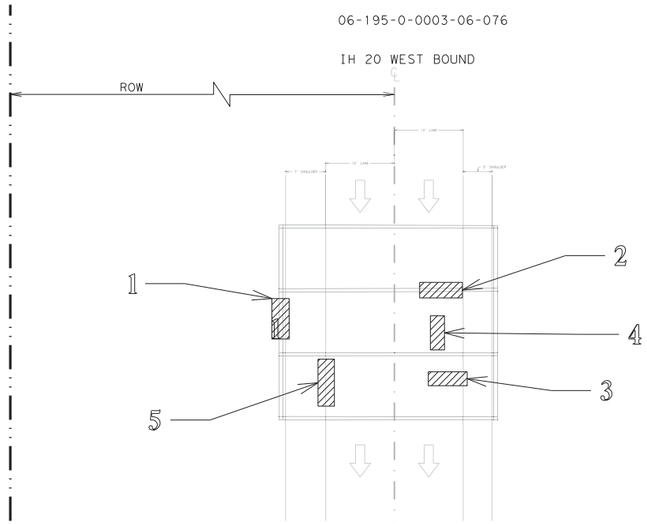
Texas Department of Transportation

REPAIR DETAILS

06-186-0-1640-01-002

2.40 MILES EAST OF FM 305

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		089



GENERAL NOTES:

CONTRACTOR TO FIELD VERIFY ALL EXISTING DIMENSIONS AND LIMITS OF REPAIR ON BRIDGE PRIOR TO ORDERING MATERIAL AND COMMENCING REPAIR WORK. THE REPAIR DETAILS PRESENTED IN BRIDGE PLANS ARE BASED ON THE BRIDGE CONDITIONS AS DESCRIBED ON THE LATEST TXDOT BRIDGE INSPECTION REPORT. CONTRACTOR TO PERFORM FIELD VERIFICATION FOR ADDITIONAL DAMAGE NOT SHOWN THAT MAY HAVE OCCURRED AFTER THE DATE OF INSPECTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ADDITIONAL DAMAGE OBSERVED BEFORE PERFORMING ADDITIONAL REPAIRS.

TABLE OF REPAIRS AND ESTIMATED QUANTITIES
(06-195-0-0003-06-076)

ITEM	DESCRIPTION	UNIT	QTY
0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	145

Photo 1

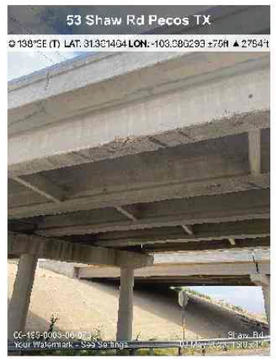


Photo 2

Photo 3

Photo 4

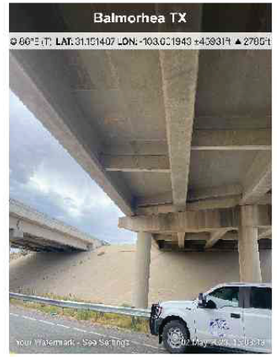
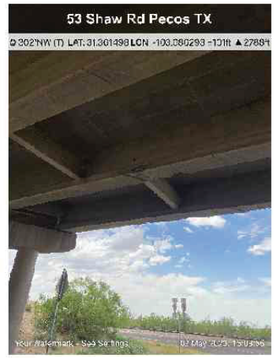


Photo 5



STATE OF TEXAS
NESTOR T MENDOZA
139194
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PROFESSIONAL ENGINEER

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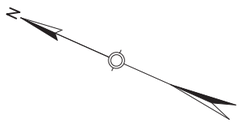
Texas Department of Transportation

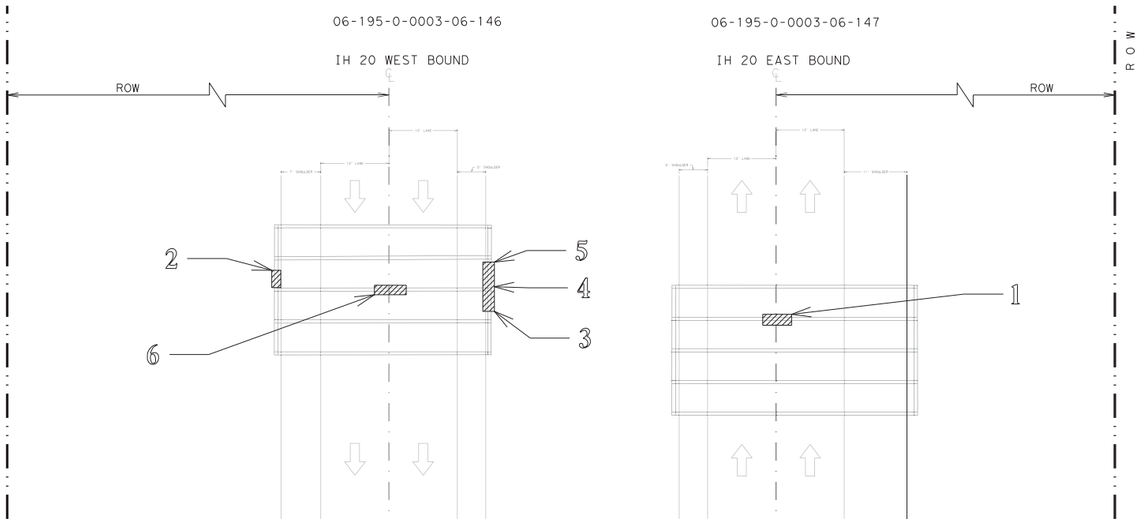
REPAIR DETAILS

06-195-0-0003-06-076

4.35 MILES WEST OF FM 869

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		090





GENERAL NOTES:

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TABLE OF REPAIRS AND ESTIMATED QUANTITIES (06-195-0-0003-06-146)			
ITEM	DESCRIPTION	UNIT	QTY
0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	35

TABLE OF REPAIRS AND ESTIMATED QUANTITIES (06-195-0-0003-06-147)			
ITEM	DESCRIPTION	UNIT	QTY
0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	20

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

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REPAIR DETAILS

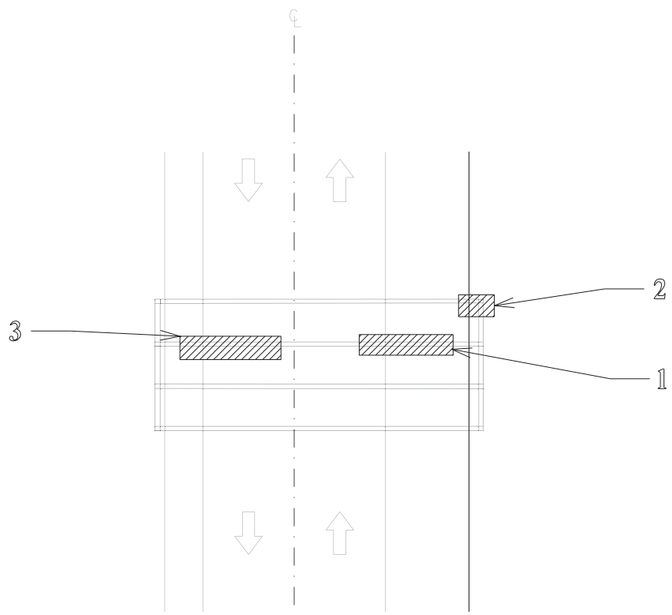
06-195-0-0003-06-146
06-195-0-0003-06-147

2.70 MILES SOUTH WEST OF FM 2903

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		091

06-195-0-0104-01-042

SH 17



GENERAL NOTES:

CONTRACTOR TO FIELD VERIFY ALL EXISTING DIMENSIONS AND LIMITS OF REPAIR ON BRIDGE PRIOR TO ORDERING MATERIAL AND COMMENCING REPAIR WORK. THE REPAIR DETAILS PRESENTED IN BRIDGE PLANS ARE BASED ON THE BRIDGE CONDITIONS AS DESCRIBED ON THE LATEST TXDOT BRIDGE INSPECTION REPORT. CONTRACTOR TO PERFORM FIELD VERIFICATION FOR ADDITIONAL DAMAGE NOT SHOWN THAT MAY HAVE OCCURRED AFTER THE DATE OF INSPECTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ADDITIONAL DAMAGE OBSERVED BEFORE PERFORMING ADDITIONAL REPAIRS.

TABLE OF REPAIRS AND ESTIMATED QUANTITIES (06-195-0-0104-01-042)			
ITEM	DESCRIPTION	UNIT	QTY
0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	12

Photo 1

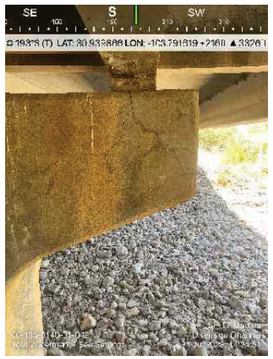


Photo 2

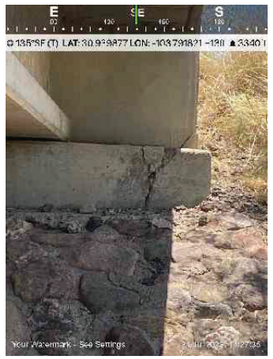
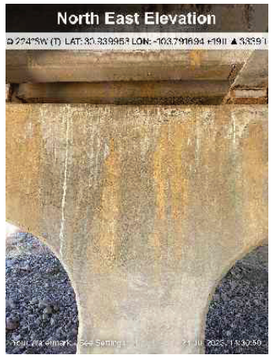


Photo 3



STATE OF TEXAS
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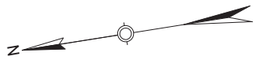
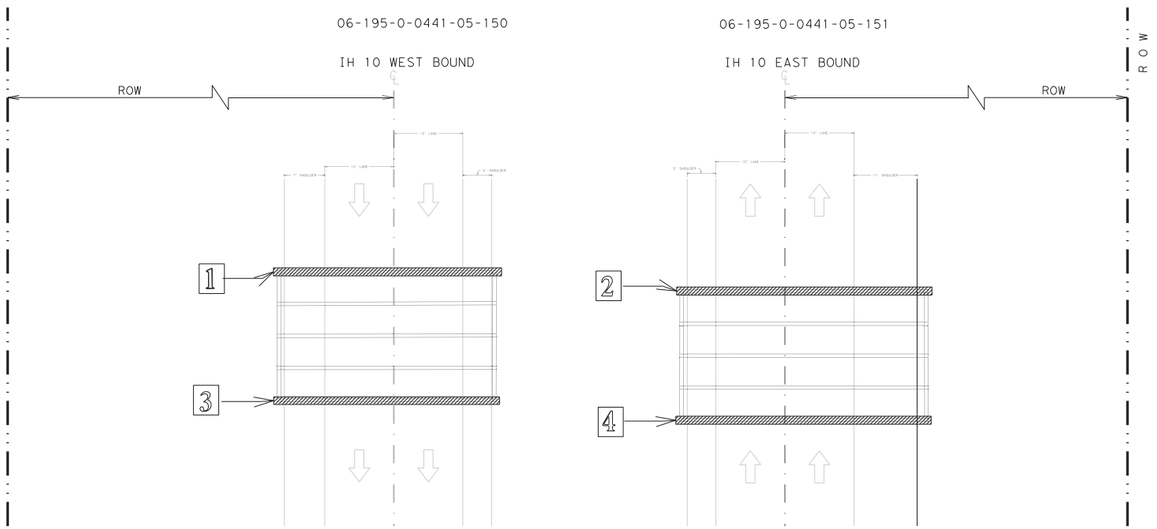
REPAIR DETAILS

06-186-0-0104-01-042

0.25 MILES SOUTH OF FM 3078

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		092





GENERAL NOTES:

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TABLE OF REPAIRS AND ESTIMATED QUANTITIES (06-195-0-0441-05-150)			
ITEM	DESCRIPTION	UNIT	QTY
0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	52

TABLE OF REPAIRS AND ESTIMATED QUANTITIES (06-195-0-0441-05-151)			
ITEM	DESCRIPTION	UNIT	QTY
0429 6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	62

Photo 1

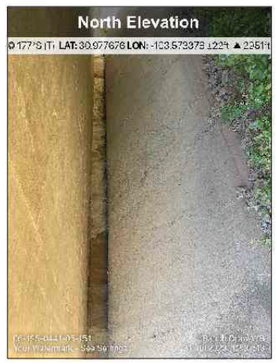
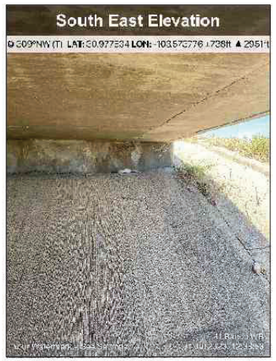


Photo 2

Photo 3

Photo 4



STATE OF TEXAS
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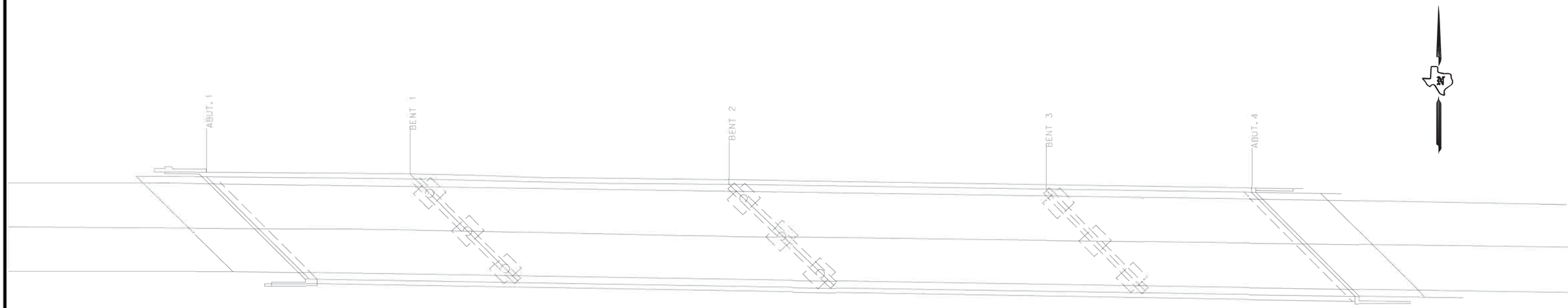
Texas Department of Transportation

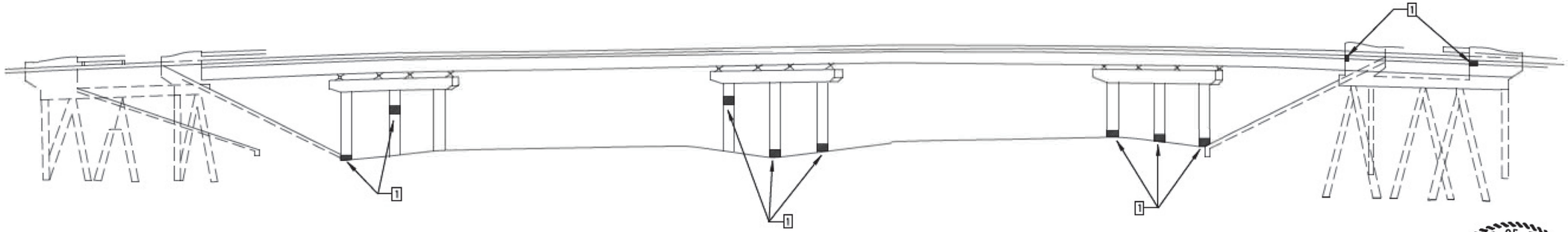
REPAIR DETAILS

06-195-0-0441-05-150
06-195-0-0441-05-151
3.35 MILES EAST OF FM 2448

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		093



PLAN



ELEVATION

PHOTO 1:

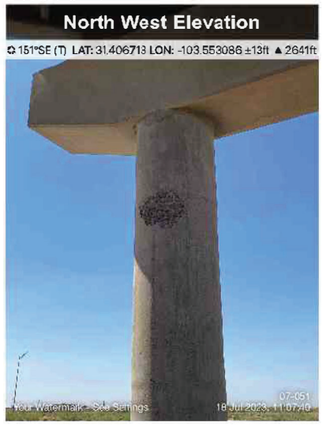


PHOTO 2:

PHOTO 3:

TABLE OF ESTIMATED QUANTITIES

LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	68

STATE OF TEXAS
NESTOR T MENDOZA
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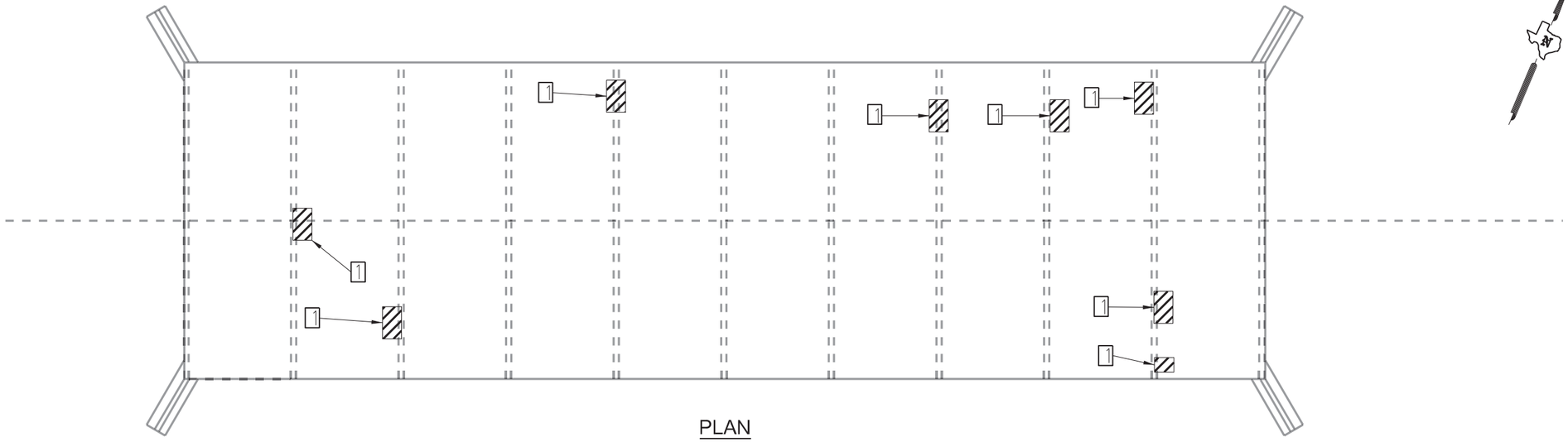
Texas Department of Transportation

REPAIR DETAILS

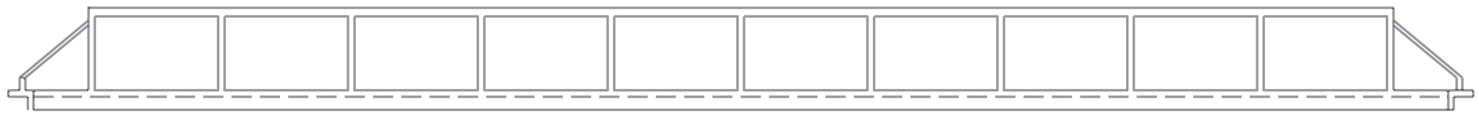
06-195-0-0003-07-051

US 80 @ BI20

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		094

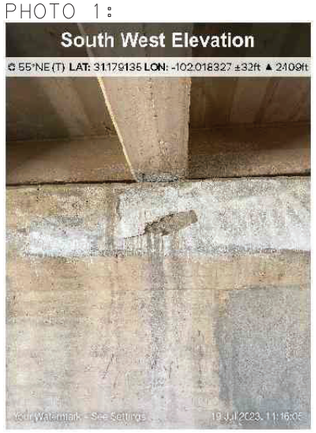


PLAN



ELEVATION

PHOTO 1:



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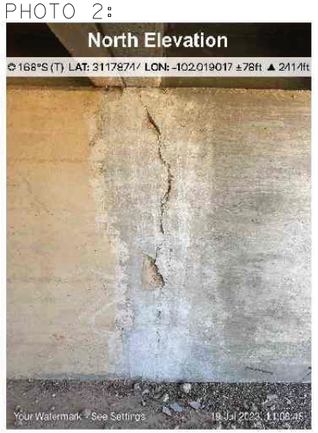

PHOTO 3:

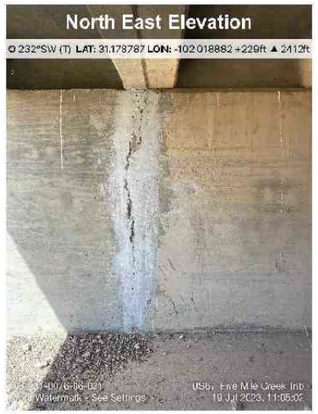

TABLE OF ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	100

STATE OF TEXAS
NESTOR T MENDOZA
139194
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NESTOR T MENDOZA, P.E. 01/22/24

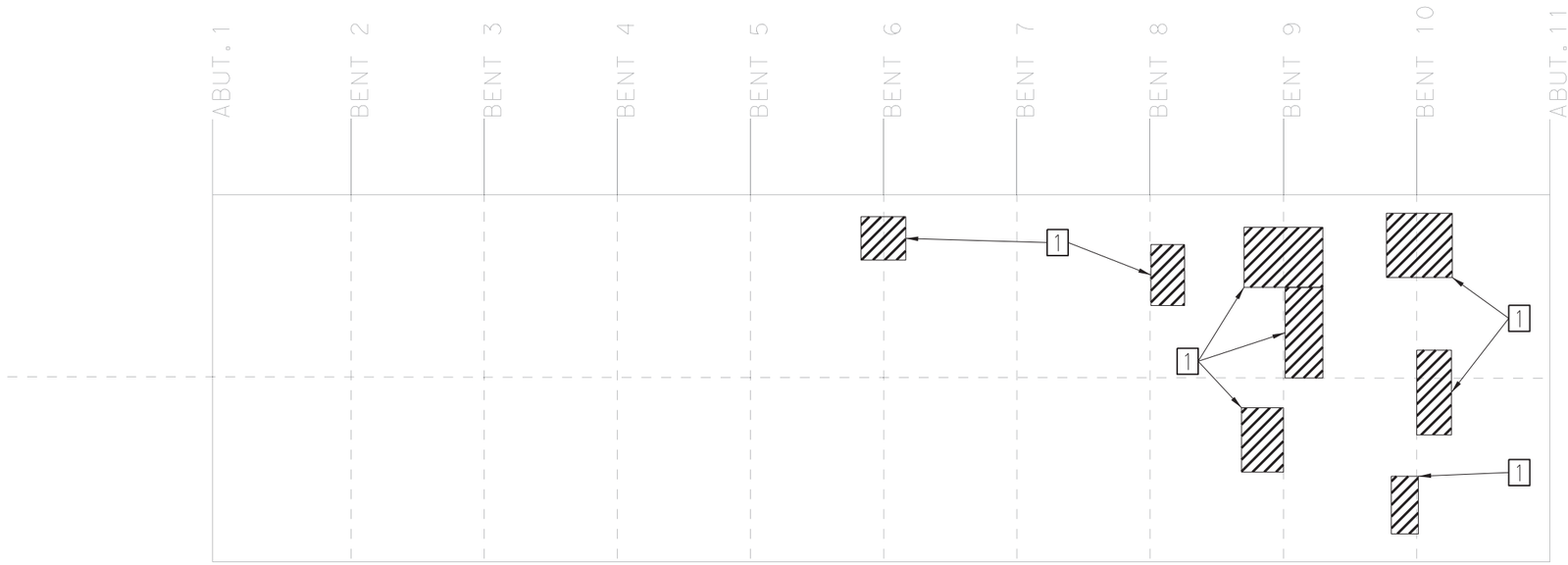
Texas Department of Transportation

REPAIR DETAILS

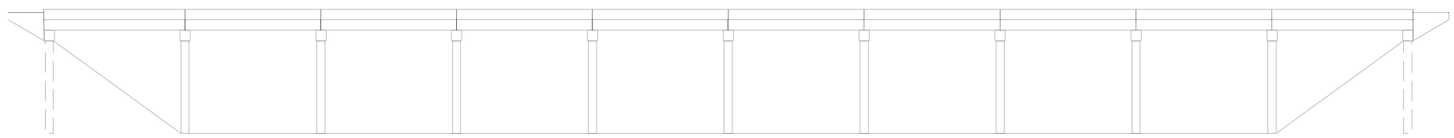
06-231-0-0076-06-021

FIVE MILE CREEK TRIB.

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		095



PLAN



ELEVATION

TABLE OF ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	145

PHOTO 1:

PHOTO 2:

PHOTO 3:

STATE OF TEXAS
NESTOR T MENDOZA
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NESTOR T MENDOZA, P.E. 01/22/24

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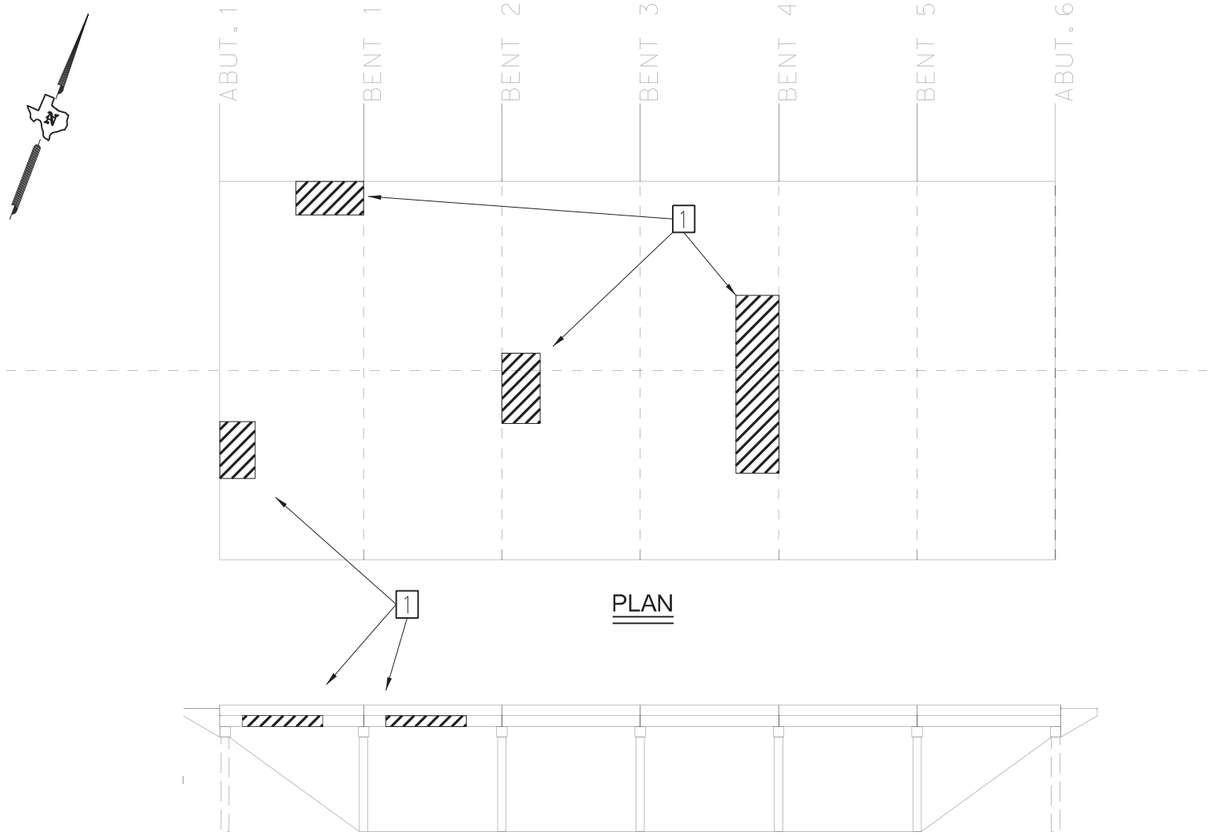
REPAIR DETAILS

06-231-0-0076-07-024
RANKIN DRAW

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		096



PLAN

ELEVATION

TABLE OF ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	81

PHOTO 1:

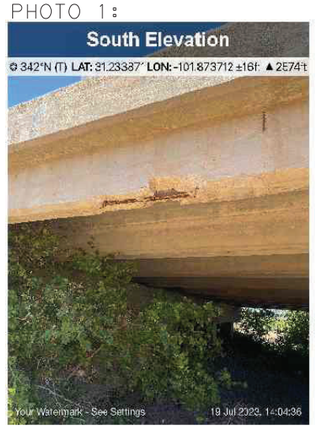


PHOTO 2:

PHOTO 3:

PHOTO 4:

STATE OF TEXAS
NESTOR T MENDOZA
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REPAIR DETAILS

06-231-0-0076-07-025

RANKIN DRAW

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		097

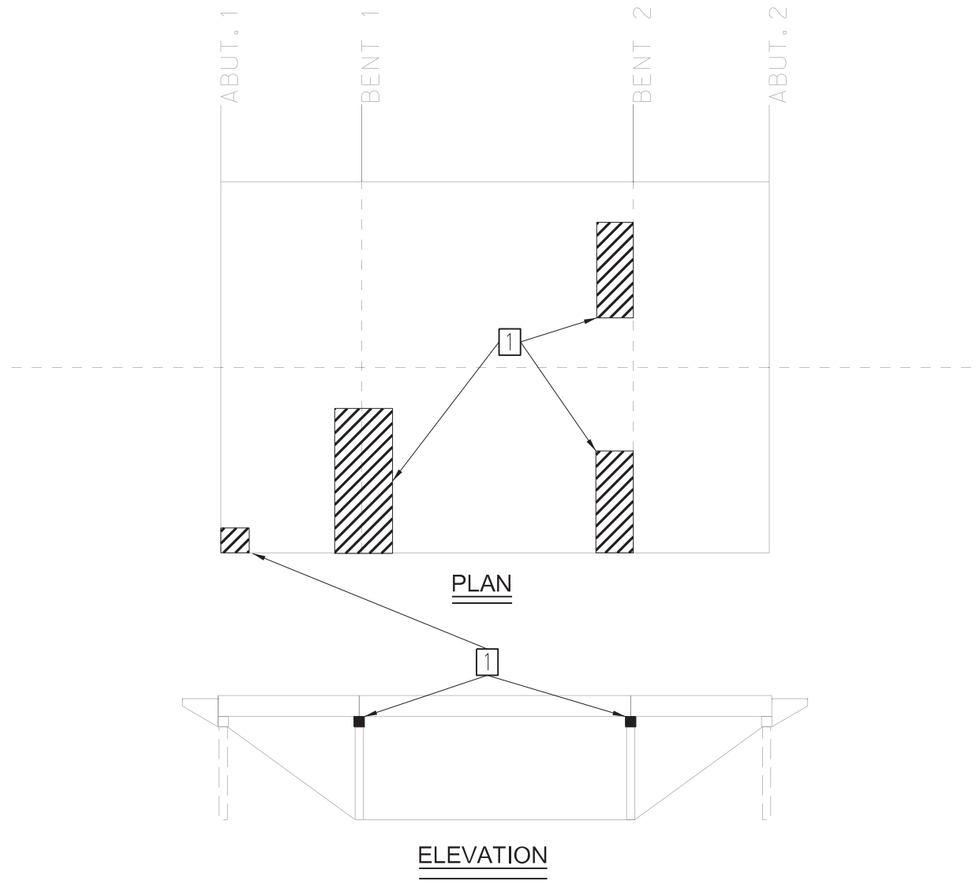


TABLE OF ESTIMATED QUANTITIES				
LOCATION OF REPAIR [ ]	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	370

PHOTO 1:

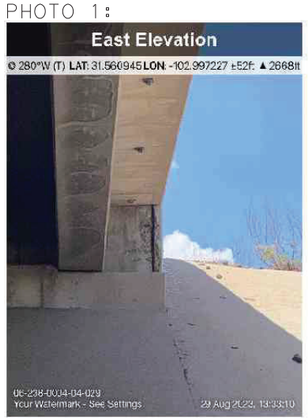
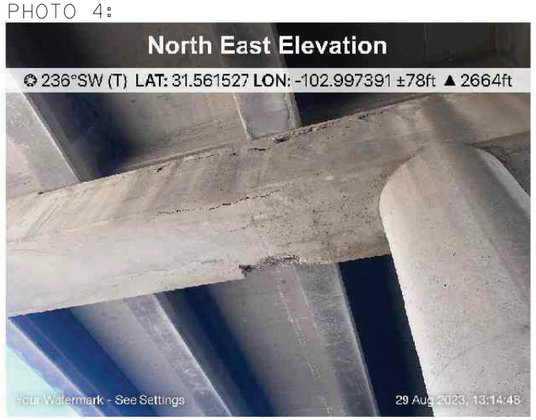


PHOTO 2:

PHOTO 3:

PHOTO 4:



STATE OF TEXAS
NESTOR T MENDOZA
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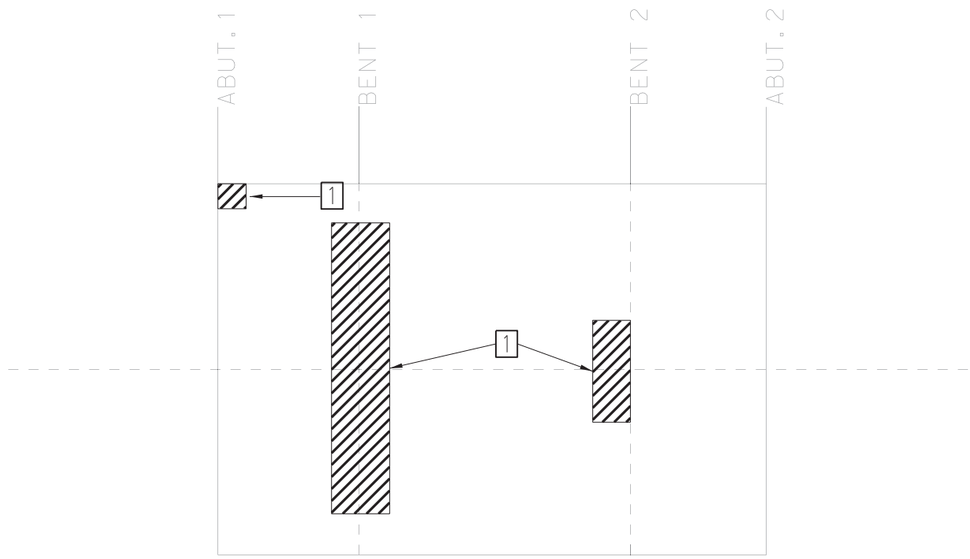
Texas Department of Transportation

REPAIR DETAILS

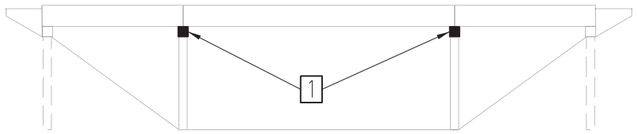
06-238-0-0004--04-028
FM 1219 @ IH 20 WB

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		098

TABLE OF ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	70



PLAN



ELEVATION

PHOTO 1:

PHOTO 2:

STATE OF TEXAS
NESTOR T MENDOZA
139194
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PROFESSIONAL ENGINEER

DocuSigned by:
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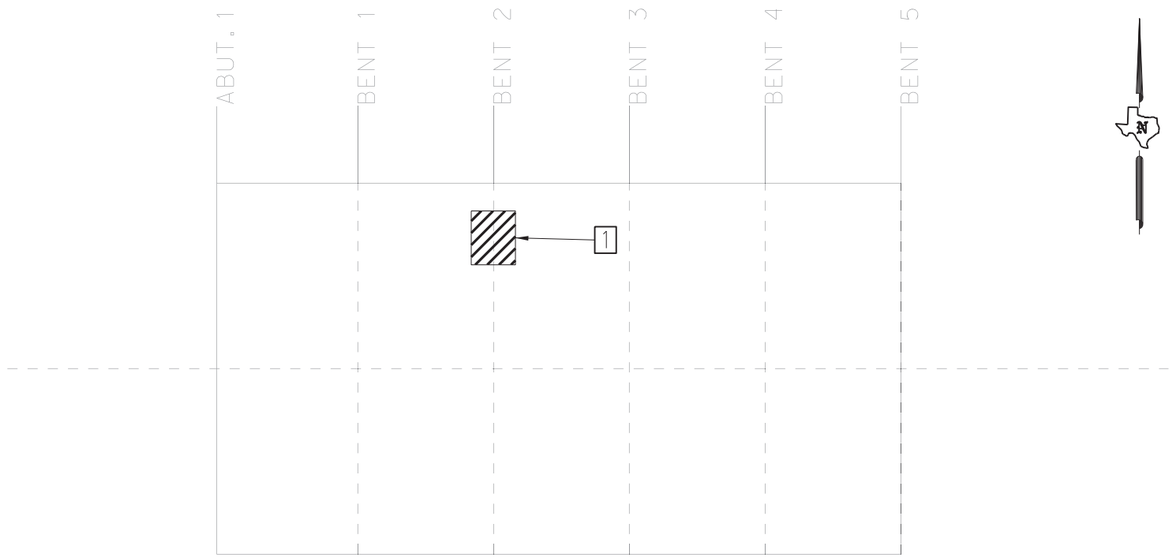
Texas Department of Transportation

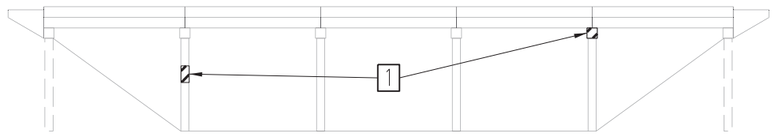
REPAIR DETAILS

06-238-0-0004--04-029
FM 1219 @ IH 20 EB

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		099



PLAN



ELEVATION

TABLE OF ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	72

PHOTO 1:

PHOTO 2:

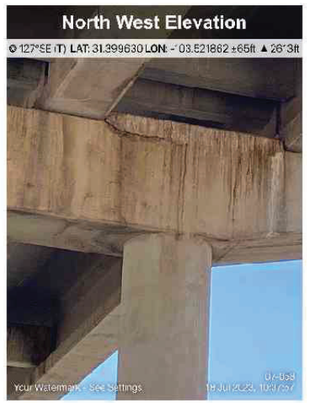
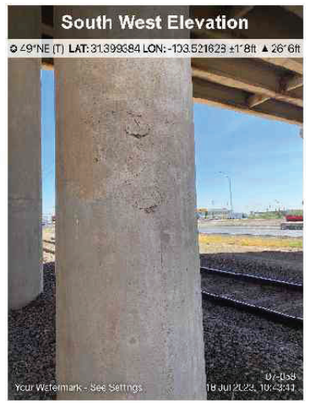


PHOTO 3:



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REPAIR DETAILS

06-195-0-0003-07-058

SH 17 @ BI 20 WB

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		100

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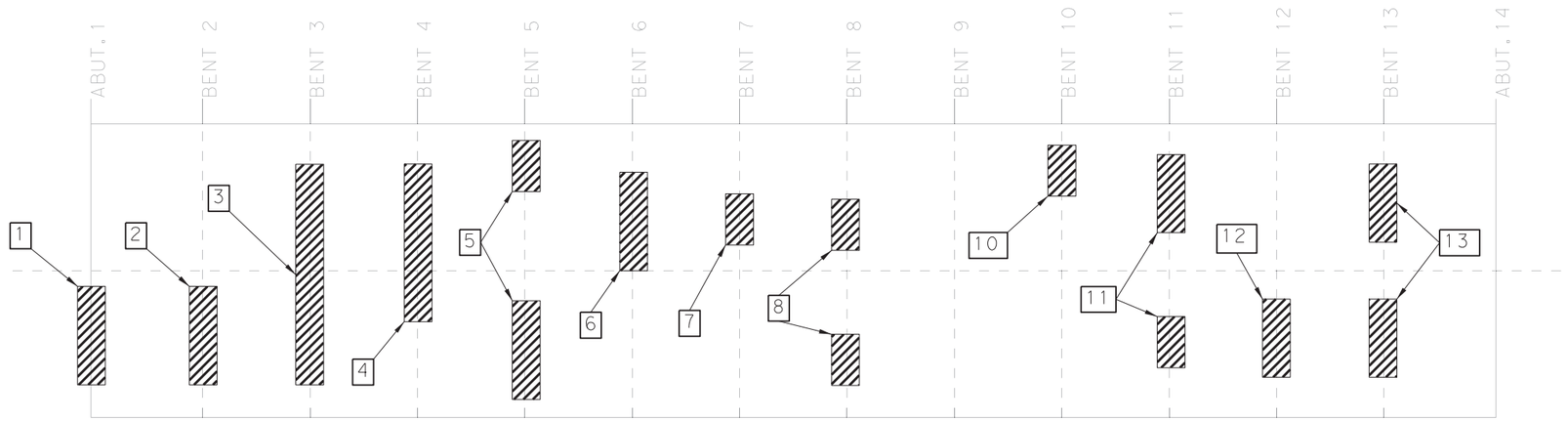
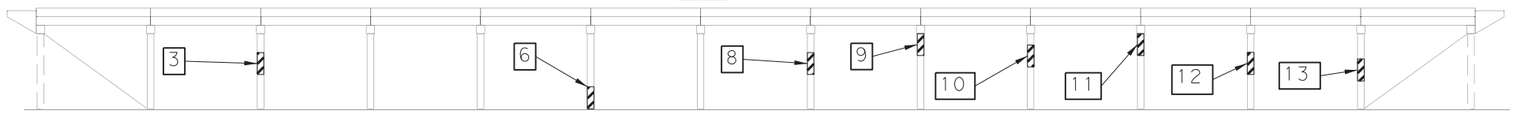


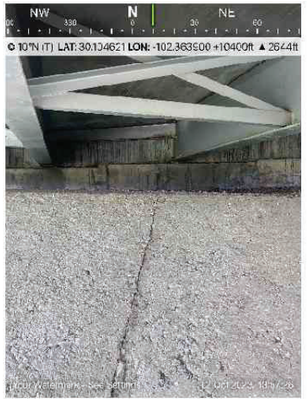
PLAN



ELEVATION

TABLE OF ESTIMATED QUANTITIES				
LOCATION OF REPAIR	ITEM	DESCRIPTION	UNIT	QTY
1	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	6
2	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	41
3	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	54
4	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	38
5	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	21
6	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	18
7	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	1
8	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	38
9	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	14
10	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	10
11	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	35
12	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	28
13	0429 6007	CONC STR REPAIR (VERT & OVERHEAD)	SF	37

PHOTO 1:



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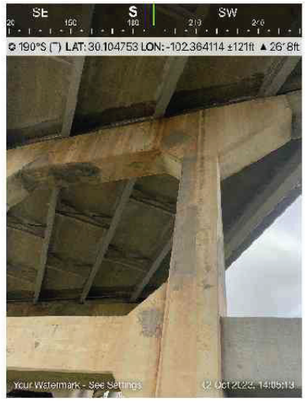

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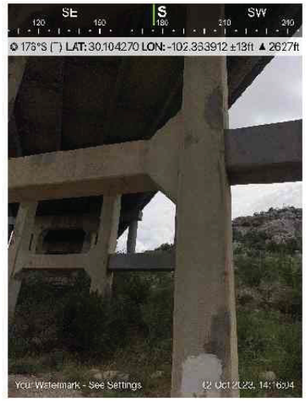

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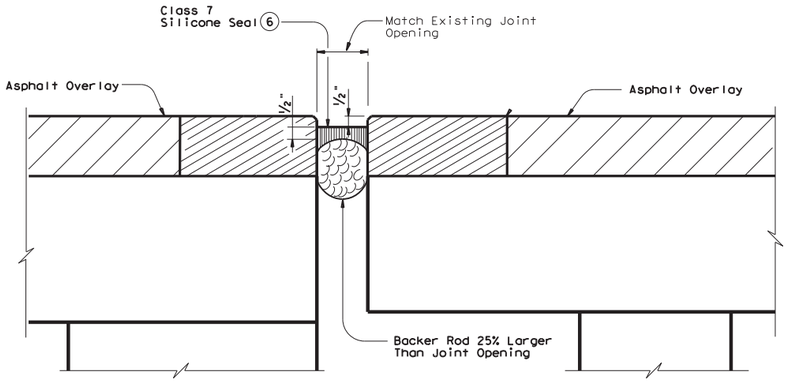
REPAIR DETAILS

06-231-0-0076-06-021

US 67 FIVE MILE CREEK TRIB.

FILE:	DN: JR	CK: NM	DW: JR	CK: NM
©TxDOT	CONT.	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		101



**PROPOSED CONCRETE HEADER TYPE "A"
JOINT REPAIR - OPTION "A"
CLEAN AND SEAL**

NOTES:

(1) Saw cut overlay to top of deck and remove material to expose existing joint.

(2) Condition of existing steel angle, plate, or rail must be determined prior to placing nosing/header material. The entire length of existing joint must be checked and any portion that is determined unsound by the Engineer must be removed as directed by the Engineer. The existing seal must be removed and disposed of.

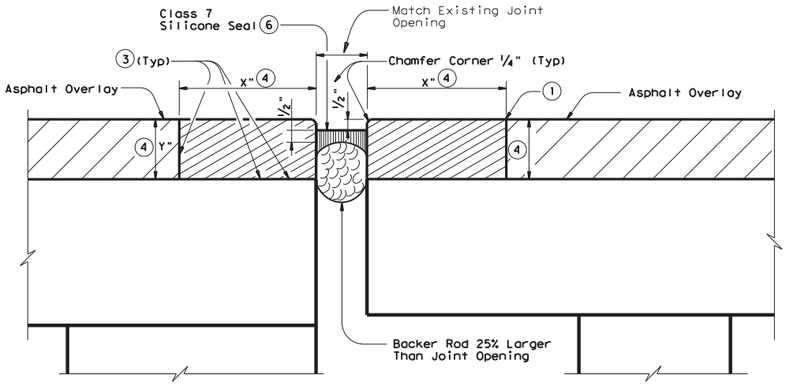
(3) Surfaces where nosing/header material is to be placed must be clean and dry in accordance with the manufacturer's specifications. Apply primer to surfaces as directed by manufacturers's specifications.

(4) Match the existing thickness of the header (Y") and the existing width of header (X") as shown on sheet 33.

(5) Match existing joint opening or set at the minimum shown below or as directed by the Engineer. Do not cantilever header over joint opening.

1" at 70° F when distance between joints is 150 feet or less.
2" at 70° F when distance between joints is greater than 150 feet.

(6) Seal when required as Directed by the Engineer. 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.



**PROPOSED CONCRETE HEADER TYPE "A"
JOINT REPAIR - OPTION "B"
HEADER MATERIAL**

GENERAL NOTES:

Contractor will verify all dimensions before ordering materials.

Provide header material conforming to DMS-6140, "Polymer Concrete for Bridge Joint Systems."

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JOINT DETAIL

FILE:	DN:	CK:	DW: STD	CK:
©TxDOT MAY 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	06	ECTOR, ETC		102

BRIDGE JOINT QUANTITIES

REF#	NBI #	ROADWAY	COUNTY	LOCATION	TOTAL # OF JOINTS	JOINTS TO BE REPAIRED	LENGTH OF JOINT (ROUNDED)	DEPTH OF OVERLAY	WIDTH (PER SIDE)	438 6001	454 6008	454 6009	785 6001	REPAIR TYPE
										CLEAN AND SEALING EXISTING JOINTS	HEADER TYPE EXPANSION JOINT	JOINT SEALANT	BRIDGE JOINT REPAIR (CONCRETE)	OPTION "A" OR "B"
						EA	LF	IN	IN	LF	CF	LF	LF	
1	06-069-0-0004-07-023	IH 20 EB	ECTOR	1.90 MI E OF FM 1601	2	1	40	-	20	40	-	40	-	A
2	06-069-0-0004-07-024	IH 20 EB	ECTOR	0.80 MI W OF FM 1601	4	1	38	-	18	38	-	38	-	A
3	06-069-0-0004-07-025	IH 20 WB	ECTOR	0.80 MI W OF FM 1601	4	1	38	-	18	38	-	38	-	A
4	06-069-0-0004-07-036	IH 20 EB	ECTOR	0.60MI W OF US 385	7	7	40	-	14	280	-	280	-	A
5	06-069-0-0004-07-040	IH 20 WB	ECTOR	1.85 MI W OF US 385	5	2	38	-	14	76	-	76	-	A
6	06-069-0-0004-07-045	FM 1936	ECTOR	IH 20 & UP RR	11	11	32	6	24	320	54	320	-	B
7	06-069-0-0004-07-070	SH 302 NB/LP 338	ECTOR	3.55 MI W OF US 385	7	2	34	-	10	68	-	68	-	A
8	06-069-0-0004-07-080	IH 20 EB	ECTOR	3.45 MI SW OF FM 866	4	2	38	-	16	76	-	76	-	A
9	06-069-0-0004-07-225	IH 20 WB	ECTOR	4.5 MI W OF US 385	11	2	40	-	26	80	-	80	-	A
10	06-069-0-0004-07-226	IH 20 EB	ECTOR	4.5 MI W OF US 385	11	1	40	-	26	40	-	40	-	A
11	06-069-0-0005-13-185	IH 20 WB	ECTOR	4.15 MI E OF US 385	5	2	38	4	14	76		76	-	A
12	06-069-0-0005-13-186	IH 20 EB	ECTOR	4.15 MI E OF US 385	5	1	38	4	14	38		38	-	A
13	06-069-0-2224-01-011	W LOOP 338 SB	ECTOR	SH 302/SPUR 450	4	2	53	-	14	106	-	106	-	A
14	06-069-0-2224-01-012	W LOOP 338 NB	ECTOR	W LOOP 338 AT SH 302	4	1	53	-	15	53	-	53	-	A
15	06-069-0-2224-01-013	SH 302/LP 338 SB	ECTOR	SH 302 AT FM 2020	4	4	38	-	15	152	-	152	-	A
16	06-069-0-2224-01-014	SH 302/LP 338 NB	ECTOR	SH 302 AT FM 2020	4	4	38	-	13	152	-	152	-	A
17	06-069-0-2224-01-015	SH 302/LP 338 SB	ECTOR	SH 302 AT FM 3472	4	4	38	-	14	152	-	152	-	A
18	06-069-0-2224-01-016	SH 302/LP 338 NB	ECTOR	SH 302 AT FM 3472	4	4	38	-	14	152	-	152	-	A
19	06-069-0-2296-01-019	SH 191 WB	ECTOR	SH 191 at Loop 338	-	-	-	-	-	-	-	-	90	A
20	06-069-0-2296-01-020	SH 191 EB	ECTOR	SH 191 at Loop 338	-	-	-	-	-	-	-	-	90	A
35	06-186-0-0441-07-039	IH 10 NFR	PECOS	14.3 Mi E of Reeves C/L	-	-	-	-	-	190	-	190	-	A
42	06-186-0-0140-01-119	IH 10	PECOS	5.35 MI E OF SH 18	1	1	34	-	-	34	-	34	-	A
43	06-186-0-0140-01-316	FM 1053	PECOS	0.6 MI E OF SH 18	2	2	72	1	10	144	20	144	-	B
44	06-186-0-0140-01-323	IH 10 WB	PECOS	2.3 MI E OF SH 18	2	2	37	-	-	74	-	74	-	A
78	06-238-0-0004-04-027	SPUR 65	WARD	3.35 MI W OF FM 1219	5	3	24	-	14	72	-	72	-	A
81	06-238-0-0004-04-030	IH 20 BUS	WARD	2.75 MI W OF LP 464	5	1	30	-	14	30	-	30	-	A
82	06-238-0-0004-04-031	IH 20 WB	WARD	IH 20 @ SH 18	5	2	38	-	14	76	-	76	-	A
83	06-238-0-0004-04-032	IH 20 EB	WARD	IH 20 @ SH 18	5	4	38	-	14	152	-	152	-	A
									TOTAL	2709	74	2709	180	

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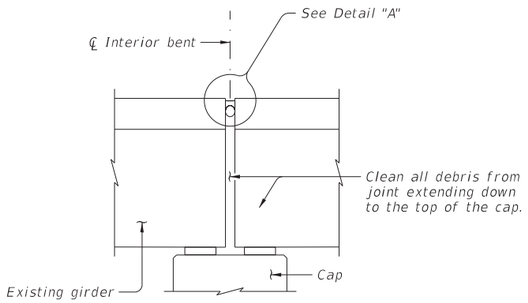
BRIDGE JOINT QUANTITIES

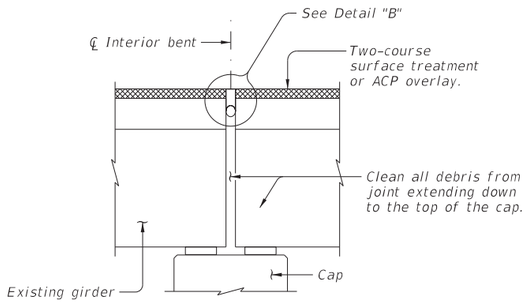
Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		103
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



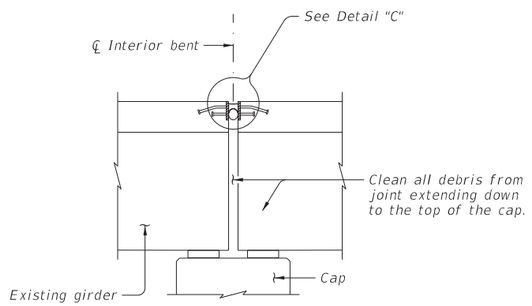
JOINT WITH SILICONE SEAL

(Used without ACP overlay)



JOINT W/ HOT-POURED RUBBER SEAL

(Used with ACP overlay)



ARMOR JOINT

(Used with ACP overlay)

1. Use Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers." Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints."
2. Provide backer rod 25% larger than joint opening and compatible with the sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.
3. Use Class 3 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers". Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints."
4. Backer rod must be compatible with the hot poured rubber sealant and rated for a minimum of 400°F.

GENERAL NOTES:

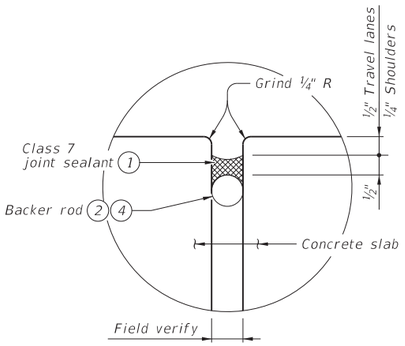
Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joint is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.

Obtain approval for all tools, equipment, materials and techniques proposed to clean and seal the joint.

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

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

Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical position, a Class 4 joint sealant compatible with the Class 7 joint 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.



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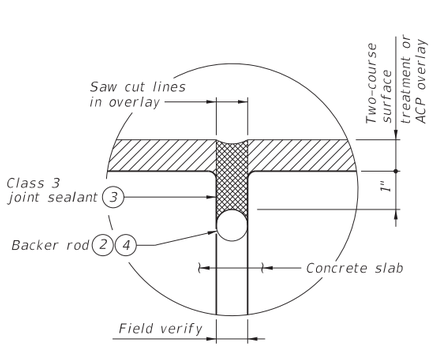

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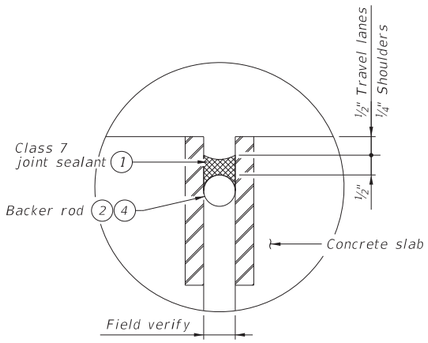

DETAIL "C"

(Stud anchors not shown for clarity.)

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILICONE SEAL:

1) Clean joint opening of all existing expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." 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. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.
4) Seal the joint opening with a Class 7 joint sealant. Recess seal ½" below top of concrete in travel lanes and ¼" below top of concrete in shoulders.

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

1) Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a ½" 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." 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. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.
4) Seal the joint opening with a Class 3 joint sealant. Seal flush to the top of the asphaltic concrete pavement.

PROCEDURE FOR CLEANING AND SEALING EXISTING ARMOR JOINTS:

1) Remove existing seal, if present. Clean joint opening of all dirt and other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." Clean joint out full depth of the joint.
2) Abrasive blast clean 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. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.
5) Seal the joint opening with a Class 7 joint sealant. Recess seal ½" below top of concrete in travel lanes and ¼" below top of concrete in shoulders.

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NESTOR T MENDOZA, P.E. 8/22/24

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CLEANING AND SEALING EXISTING BRIDGE JOINTS

SHEET 1 OF 3

FILE: WD-CSBJ-22.dgn	DN:	CK:	DW:	CK:
©TxDOT August 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC		104

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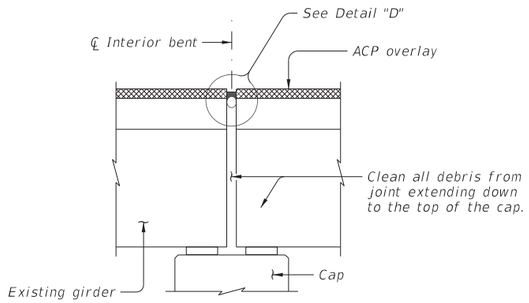
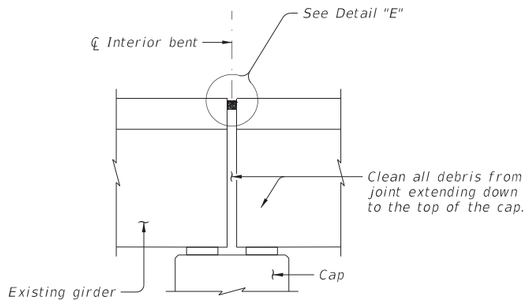


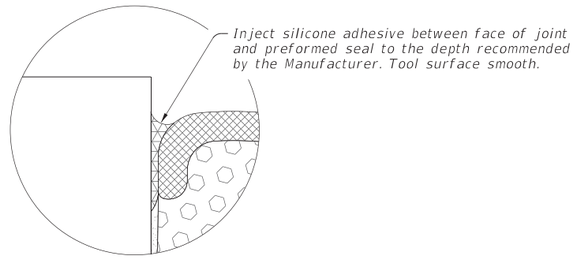
HEADER JOINT WITH SILICONE SEAL

(used with ACP overlay with joints more than 100 ft apart)

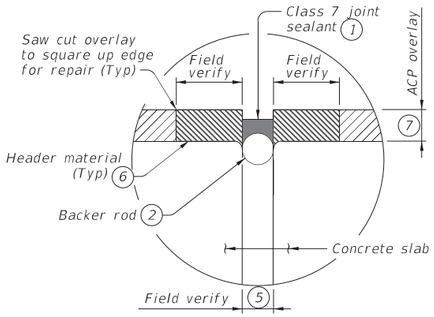


JOINT WITH PRECOMPRESSED FOAM AND SILICONE SEAL

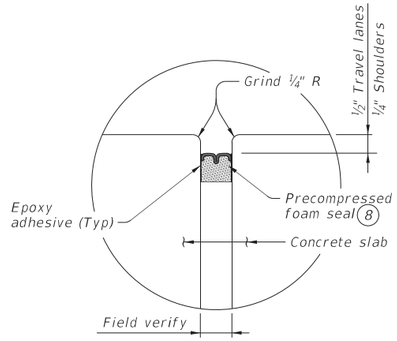
(used without ACP overlay)



SILICONE INJECTION



DETAIL "D"



DETAIL "E"

PROCEDURE FOR CLEANING AND SEALING HEADER JOINT WITH SILICONE SEAL AND HEADER JOINT REPAIR

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."

2) Saw cut and remove damaged portions of existing header material to neat lines. Repair deck joint spalls greater than 2" deep in accordance with Item 785, "Bridge Joint Repair or Replacement." Shallower spalls may be filled with header material.

3) Clean the voided region of all materials that could inhibit the bond between header material and concrete or steel.

4) Form the joint opening to the required width and place header material to fill voided region. Repair header material in accordance with Item 785, "Bridge Joint Repair or Replacement."

5) Place backer rod into joint opening 1" below the top of header material. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.

6) Seal the joint opening with a Class 7 joint sealant. Recess seal ½" below top of header in travel lanes and ¼" below top of header in shoulders.

PROCEDURE FOR CLEANING AND SEALING JOINT WITH PRECOMPRESSED FOAM AND 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." When sealing joints for slab spans, slab beam spans, pan girder spans, or box beam spans, fill void below proposed seal with extruded polystyrene foam.

2) Correctly size joint seal based on field measurement and in accordance with Manufacturer's specifications. Multiple seal widths may be required. Ensure proper seal is selected for each joint.

3) Abrasive blast clean existing joint surfaces where seal is to be applied.

4) Wipe down joint surfaces to remove contaminants.

5) Mask areas adjacent to joint opening sufficiently to keep epoxy off deck surface.

6) Apply epoxy to joint opening side surfaces.

7) While epoxy is still tacky, remove shrink wrap from seal and install in joint opening.

8) Recess top of joint seal ½" in travel lanes and ¼" in shoulders.

9) Inject silicone adhesive along top interface of seal with joint side surface according to Manufacturer's recommendations. Tool to spread adhesive as necessary. See Silicone Injection detail.

(1) Use Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers." Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints."

(2) Provide backer rod 25% larger than joint opening and compatible with the sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

(5) Match existing joint opening or set at a minimum:
- a. 1" at 70°F when the distance between joints is 150 ft or less
- b. 2" at 70°F when the distance between joints is greater than 150 ft.
- c. As directed by the Engineer.

(6) Cleaning and sealing existing header joints does not necessitate replacement of existing header material. If replacement of header material is necessary, as determined by the Engineer, use header material in accordance with DMS-6140, "Polymer Concrete for Bridge Joint Systems." Match the thickness of the header material with the thickness of the overlay as shown in the plans, but do not exceed 4". Place header material flush with roadway surface. Do not cantilever header material over the joint opening. Repair of header material will be paid for in accordance with Item 785-6006, "Bridge Joint Repair (Header)."

(7) Maximum thickness is 4".

(8) See table of Approved Precompressed Foam Seal Manufacturers on Sheet 3 of 3.

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NESTOR T MENDOZA, P.E. 01/22/24

Texas Department of Transportation | Bridge Division

CLEANING AND SEALING EXISTING BRIDGE JOINTS

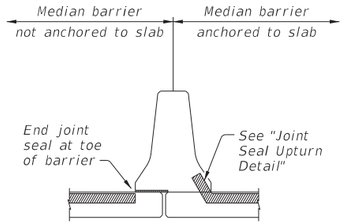
SHEET 2 OF 3

FILE: WD-CSBJ-22.dgn	DN:	CK:	DW:	CK:
©TxDOT August 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC		105

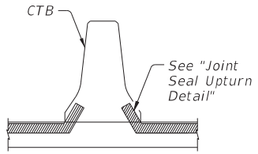
DATE: 1/18/2024 1:34:28 PM
FILE: C:\Users\JRamey\D drive\Projects\0906-00-235 Bridge Maintenance(2023)\DGN\064 WD-CSBJ-22.dgn

APPROVED PRECOMPRESSED FOAM SEAL MANUFACTURERS

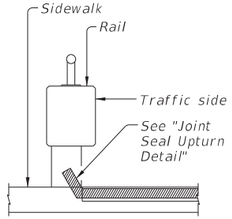
MANUFACTURER	SEAL TYPE
Watson Bowman Acme	Wabo FS
SSI	Silspec SES
Sealtite	Sealtite 50N
EMSEAL	BEJS



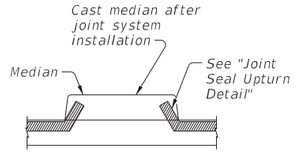
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



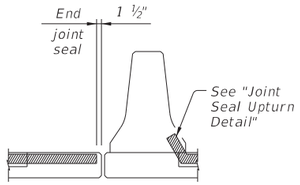
AT CONCRETE TRAFFIC BARRIER



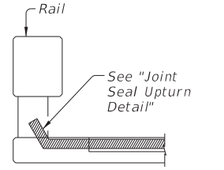
AT SIDEWALK BEHIND BRIDGE RAIL



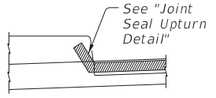
AT RAISED MEDIAN



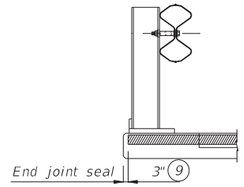
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL



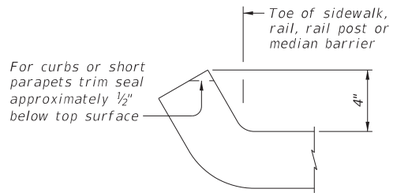
AT SIDEWALK



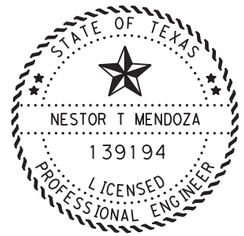
AT STEEL POST BRIDGE RAIL

JOINT SEALANT TERMINATION DETAILS

(9) 1 ½" for precompressed foam and silicone seal



JOINT SEAL UPTURN DETAIL



DocuSigned by:
Nestor T Mendoza, P.E.
9104D8EB1809444...
NESTOR T MENDOZA, P.E. 01/22/24

Texas Department of Transportation | Bridge Division

CLEANING AND SEALING EXISTING BRIDGE JOINTS

SHEET 3 OF 3

FILE: WD-CSBJ-22.dgn	DN:	CK:	DW:	CK:
©TxDOT August 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC		106

DATE: 1/18/2024 1:34:48 PM
FILE: C:\Users\JRamey\OneDrive\Projects\0906-00-235 Bridge Maintenance(2023)\DGN\064 WD-CSBJ-22.dgn

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

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: (SEE ATTACHED SPREADSHEET)
Crossing Type: PUBLIC
RR Company Operating Track at Crossing: PECOS VALLEY SOUTHERN RAILWAY (WATCO)
RR Company Owning Track at Crossing: PECOS VALLEY SOUTHERN RAILWAY (WATCO)
RR MP: (SEE ATTACHED SPREADSHEET)
RR Subdivision: PECOS
City: PECOS
County: REEVES
CSJ at this Crossing: (SEE ATTACHED SPREADSHEET)
Latitude: (SEE ATTACHED SPREADSHEET)
Longitude: (SEE ATTACHED SPREADSHEET)

Scope of Work, including any TCP, to be performed by State Contractor:

BRIDGE MAINTENANCE AND REPAIR ON CROSSINGS LISTED IN THE ATTACHED SPREADSHEET. THIS WORK CONSISTS OF MINOR CONCRETE STRUCTURAL REPAIRS TO CORRECT [BRIDGE] SPALLS, CRACKS AND EXPOSED AREAS OF REBAR, ALONG WITH CLEANING AND REPAIRING BRIDGE JOINTS.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 5

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☑ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☐ 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
UP.request@nrssinc.net
Call Center 877-984-6777

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☐ **CPKCR** 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

☑ OTHERS:

WATCO RAIL SERVICES
ATT: ROBBY RODRIGUEZ
P.O. BOX 819
EUNICE, NM 88231
806-787-0658

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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.

IV. RAILROAD INSURANCE REQUIREMENTS

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

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

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.

Escalated Limits

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

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☐ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☑ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☑ Other Railroads: PECOS VALLEY SOUTHERN RAILWAY (WATCO)

To view previously approved CROE templates agreed upon between the State and Railroad, see: https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html

Approved CROE 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 CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: PECOS VALLEY SOUTHERN RAILWAY
Railroad Emergency Line at: 1-866-386-9321
Location: DOT (SEE ATTACHED SPREADSHEET)
RR Milepost: (SEE ATTACHED SPREADSHEET)
Subdivision: PECOS SUBDIVISION

RRD Review Only
Initials: _____
Date: 01/12/2024

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS	6/2023	0906	00	235		VARIOUS	
		DIST	COUNTY			SHEET NO.	
		06	VARIOUS			107	

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

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: (SEE ATTACHED SPREADSHEET)
Crossing Type: PUBLIC
RR Company Operating Track at Crossing: TEXAS PACIFICO TRANSPORTATION
RR Company Owning Track at Crossing: TEXAS PACIFICO TRANSPORTATION
RR MP: (SEE ATTACHED SPREADSHEET)
RR Subdivision: BIG LAKE
City: REAGAN
County: UPTON
CSJ at this Crossing: 0076-06 & 0076-07
Latitude: (SEE ATTACHED SPREADSHEET)
Longitude: (SEE ATTACHED SPREADSHEET)

Scope of Work, including any TCP, to be performed by State Contractor:

BRIDGE MAINTENANCE AND REPAIR ON BRIDGES LISTED IN ATTACHED SPREADSHEET. THIS WORK CONSISTS OF MINOR CONCRETE STRUCTURAL REPAIRS TO CORRECT [BRIDGE] SPALLS, CRACKS AND EXPOSED AREAS OF REBAR, ALONG WITH CLEANING AND REPAIRING BRIDGE JOINTS.

Scope of Work to be performed by Railroad Company:

NONE

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 5

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☑ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☐ 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.

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☐ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☐ **CPKCR** 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

☑ OTHERS:

TEXAS PACIFICO TRANSPORTATION
ATT: JAKE WARD (325.212.0806)
106 S. CHADBOURGE ST.
SAN ANGELO, TX 76903
325.924.8159 or 325.942.8164

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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.

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Escalated Limits

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

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☑ Not Required
☐ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☐ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html

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IX. EMERGENCY NOTIFICATION

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Call: TEXAS PACIFICO TRANSPORTATION
Railroad Emergency Line at: 1.800-742.8905
Location: DOT (SEE ATTACHED SPREADSHEET)
RR Milepost: (SEE ATTACHED SPREADSHEET)
Subdivision: FT STOCKTON

RRD Review Only
Initials: _____
Date: 01/13/2024

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY
REVISIONS		0906	00	235		VARIOUS
6/2023		DIST	COUNTY			SHEET NO.
		06	VARIOUS			108

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

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DOT No.: (SEE ATTACHED SPREADSHEET)
Crossing Type: PUBLIC
RR Company Operating Track at Crossing: UNION PACIFIC RAILROAD COMPANY
RR Company Owning Track at Crossing: UNION PACIFIC RAILROAD COMPANY
RR MP: (SEE ATTACHED SPREADSHEET)
RR Subdivision: TOYAH
City: (SEE ATTACHED SPREADSHEET)
County: (SEE ATTACHED SPREADSHEET)
CSJ at this Crossing: (SEE ATTACHED SPREADSHEET)
Latitude: (SEE ATTACHED SPREADSHEET)
Longitude: (SEE ATTACHED SPREADSHEET)

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Scope of Work to be performed by Railroad Company:

N/A

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Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☐ **CPKCR** 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

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

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☐ Required.
☑ Not Required

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☐ Required: TxDOT to assist in obtaining the UPRR CROE
☐ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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IX. EMERGENCY NOTIFICATION

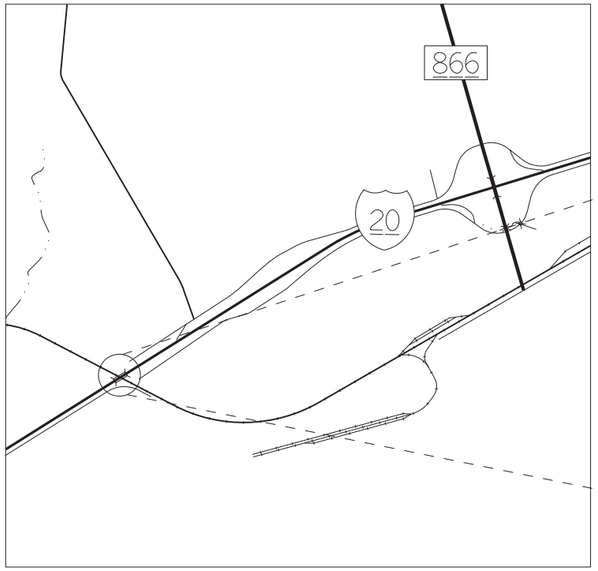
In Case of Railroad Emergency
Call: UNION PACIFIC RAILROAD COMPANY
Railroad Emergency Line at: 1-888-877-7267
Location: DOT (SEE ATTACHED SPREADSHEET)
RR Milepost: (SEE ATTACHED SPREADSHEET)
Subdivision: TOYAH

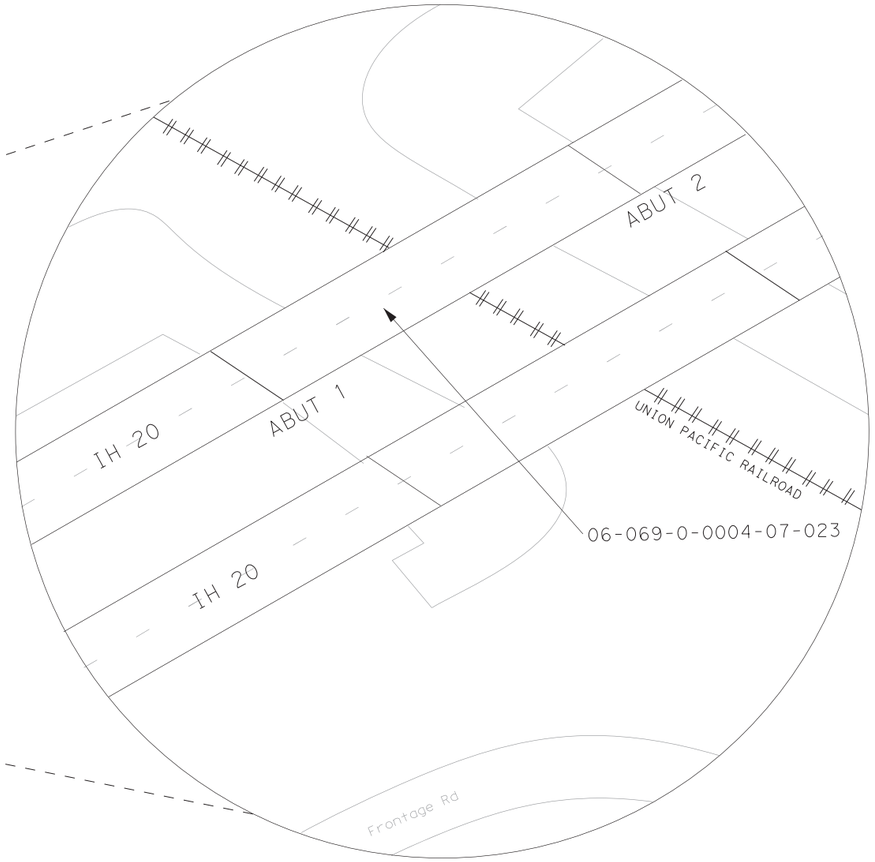
RRD Review Only
Initials: _____
Date: 01/12/2024

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0906	00	235		VARIOUS	
6/2023		DIST	COUNTY			SHEET NO.	
		06	VARIOUS			109	

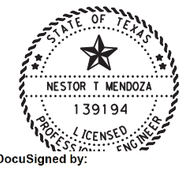




*BRIDGE JOINT REPAIR

LOCATION 1

Railroad Company: UNION PACIFIC RAILROAD
DOT:441019J
MP: 586.80
CSJ: 0004-07
Project: 2024 Bridge Maintenance Project
County: ODESSA
Hwy: IH 20



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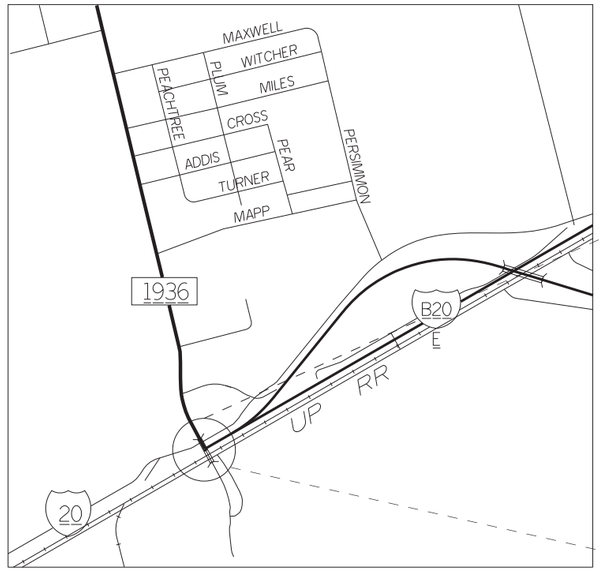
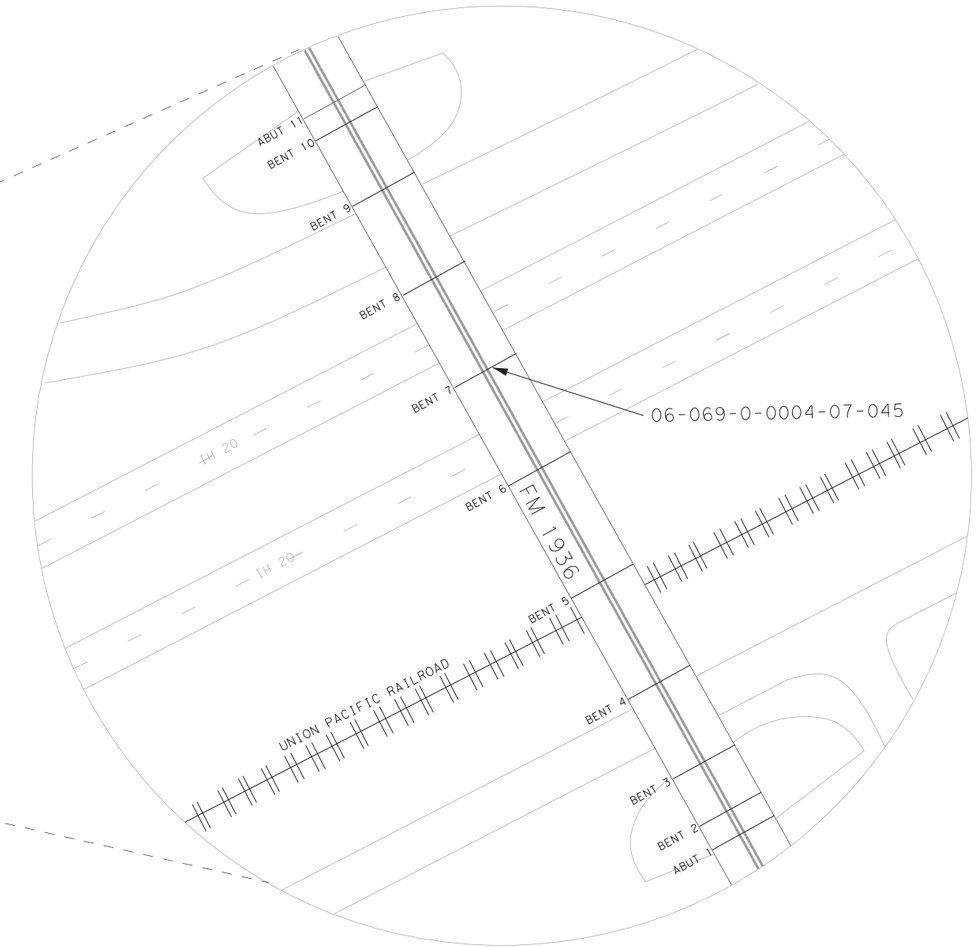
RAILROAD CROSSING LOCATIONS

SHEET 1 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		110
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





*BRIDGE JOINT REPAIR

LOCATION 6

Railroad Company: UNION PACIFIC RAILROAD
DOT:796232N
MP: 577.99
CSJ: 0004-07
Project: 2024 Bridge Maintenance Project
County: ODESSA
Hwy: IH 20

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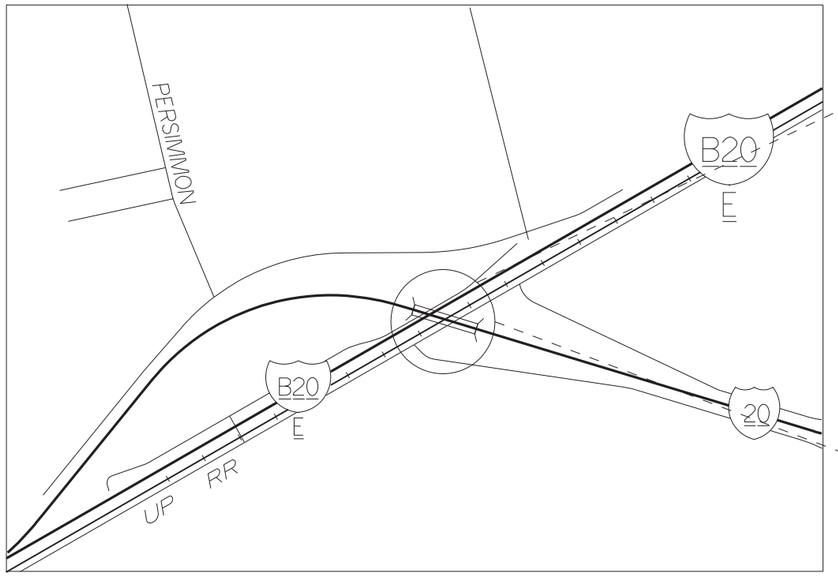
NESTOR T MENDOZA, P.E. 01/22/24

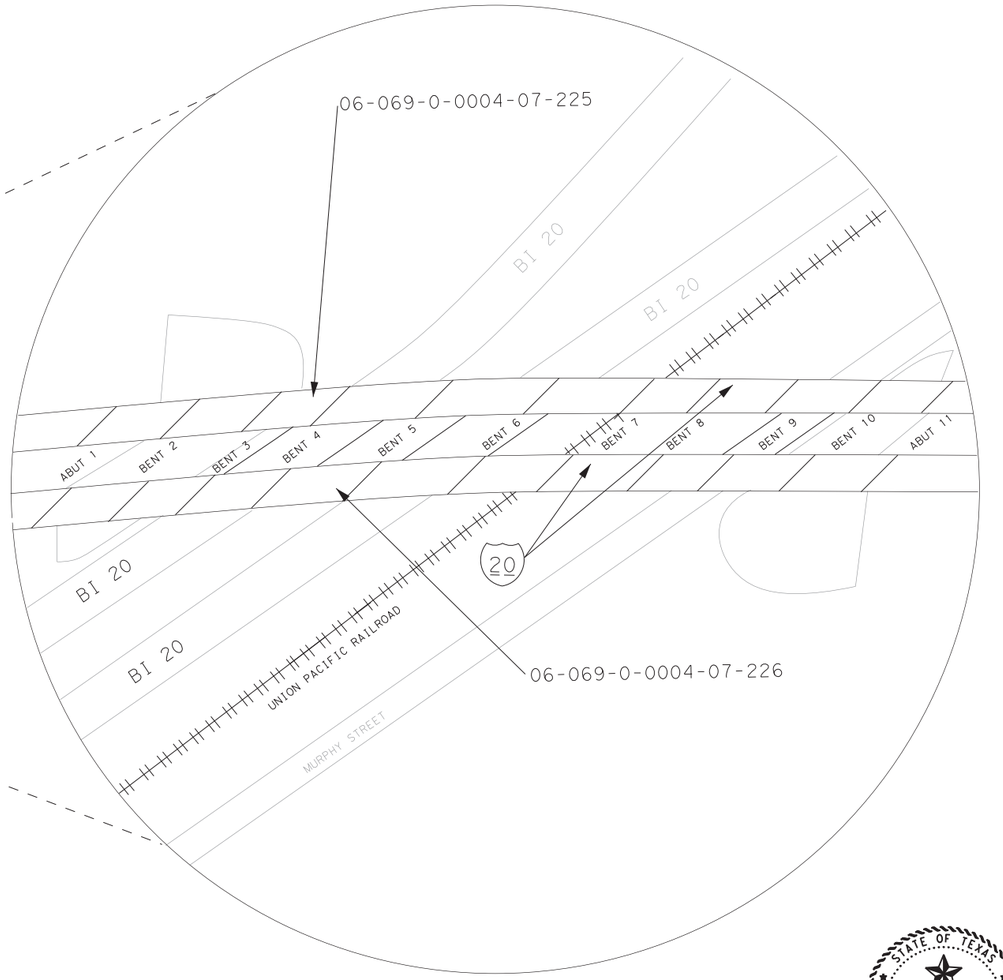
RAILROAD CROSSING LOCATIONS

SHEET 2 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		111
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





*BRIDGE JOINT REPAIR

LOCATIONS 9 & 10

Railroad Company: UNION PACIFIC RAILROAD
DOT:796234C
MP: 577.10
CSJ: 0005-01
Project: 2024 Bridge Maintenance Project
County: ODESSA
Hwy: IH 20

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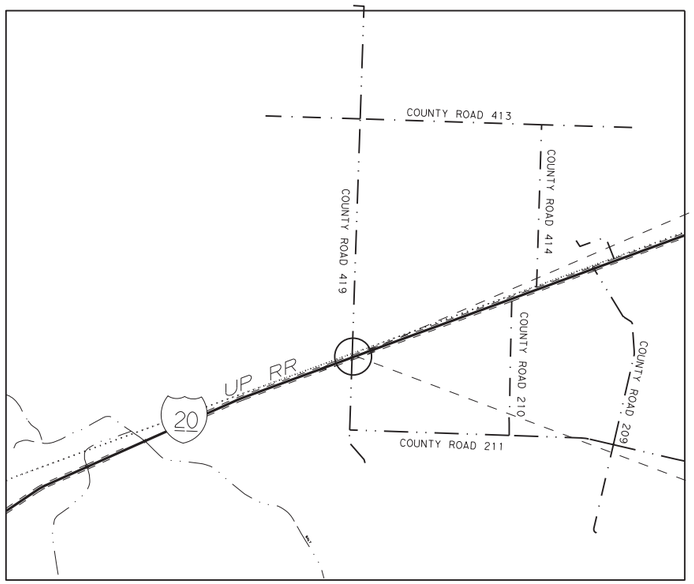
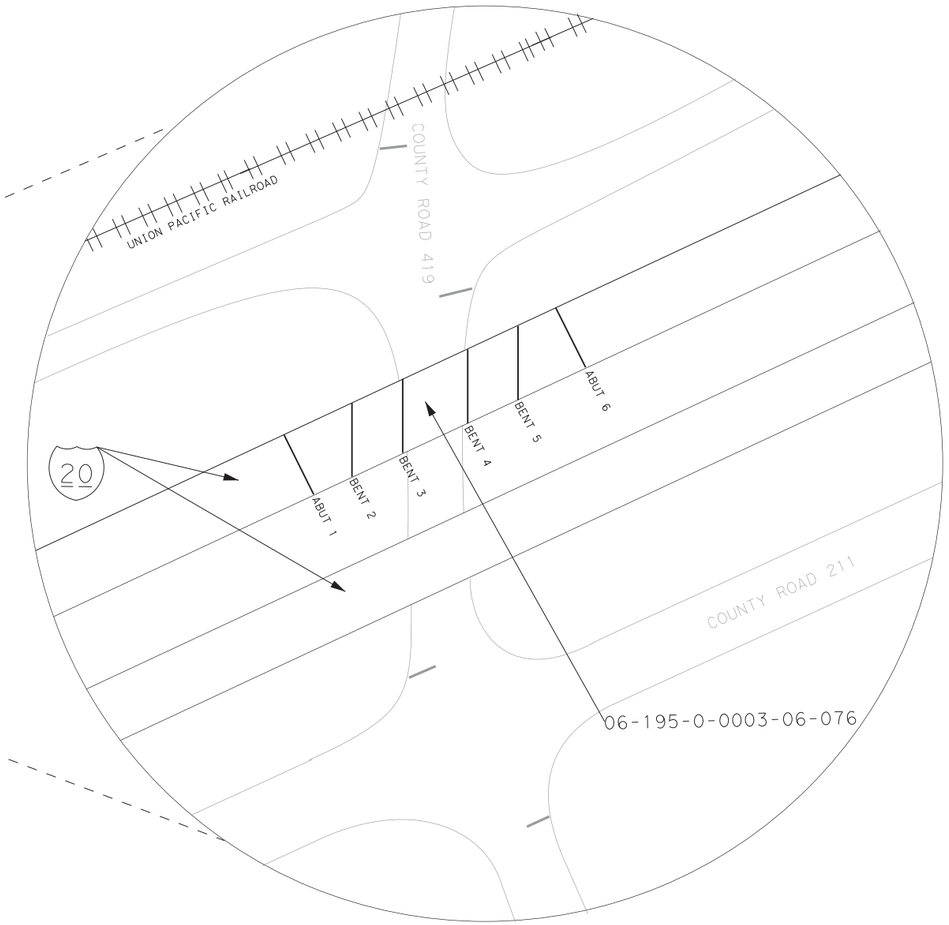
RAILROAD CROSSING LOCATIONS

SHEET 3 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		112
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





*BRIDGE JOINT REPAIR

LOCATION 50

Railroad Company: UNION PACIFIC RAILROAD
DOT:796224W
MP: 658.92
CSJ: 0003-06
Project: 2024 Bridge Maintenance Project
County: REEVES
Hwy: IH 20

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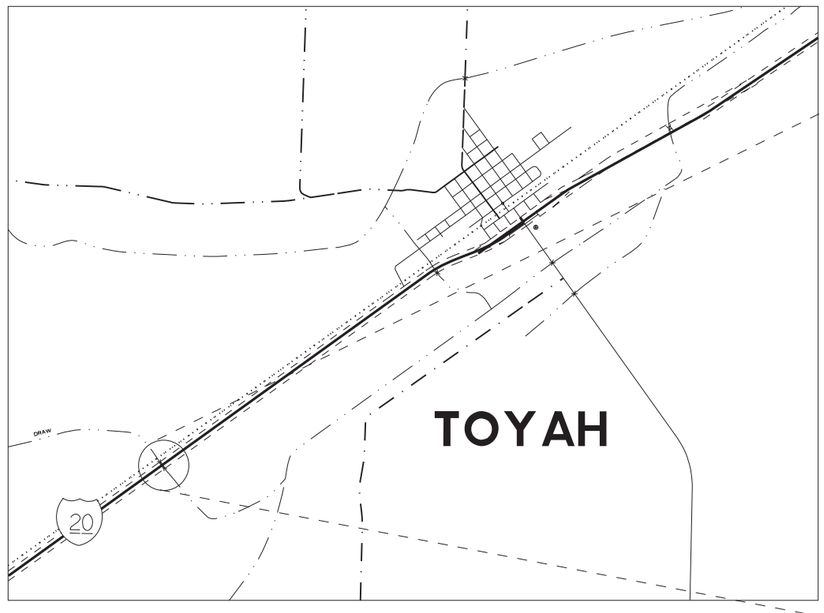
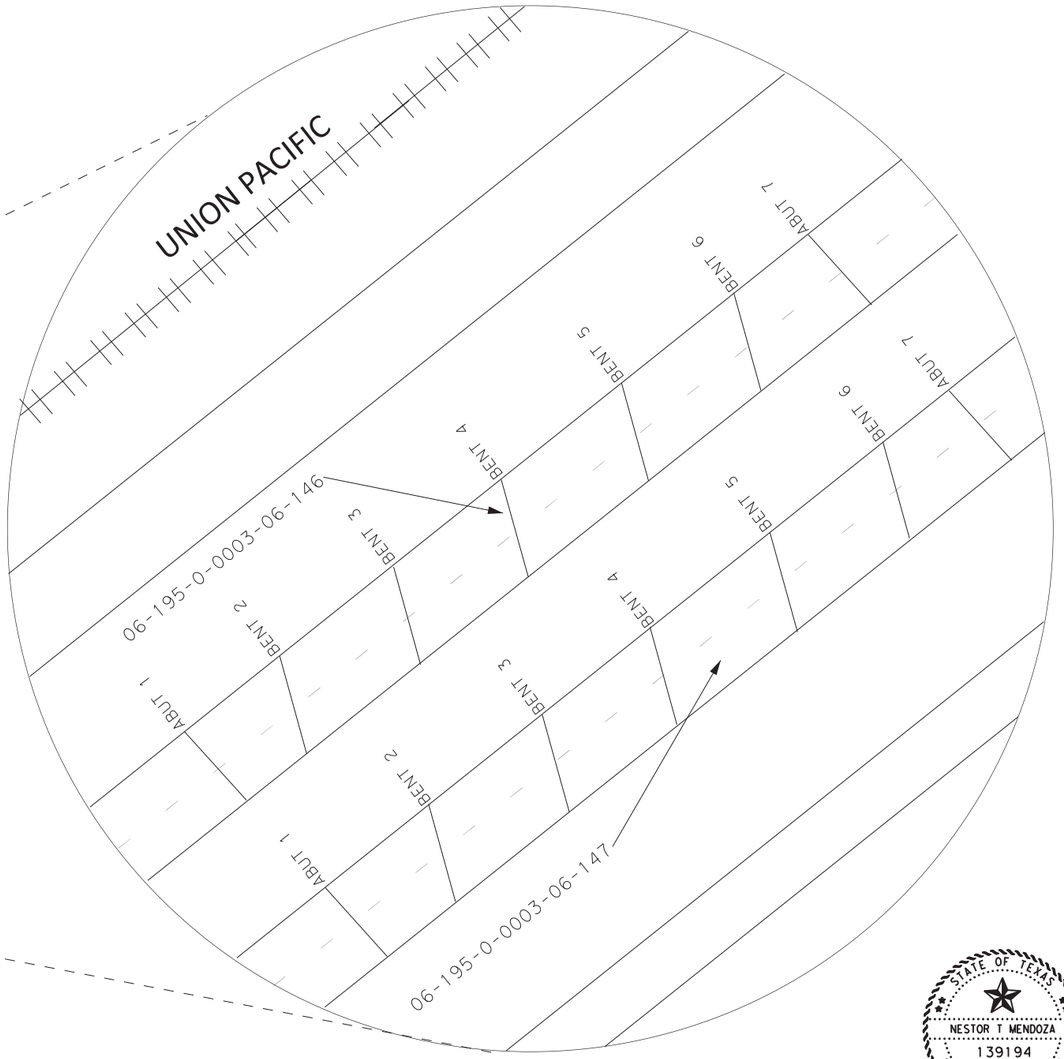
RAILROAD CROSSING LOCATIONS

SHEET 4 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	ECTOR, ETC		113
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ODESSA	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





LOCATION 51 & 52

Railroad Company: Union Pacific Railroad
CSJ: 0003-06
NBI: 06-195-0-0003-06-146
NBI: 06-195-0-0003-06-147
Project: 2024 Bridge Maintenance Project
County: REEVES
Hwy: IH 20 WB
Distance from the
closest DOT# 1.81 MI (DOT 796182M)

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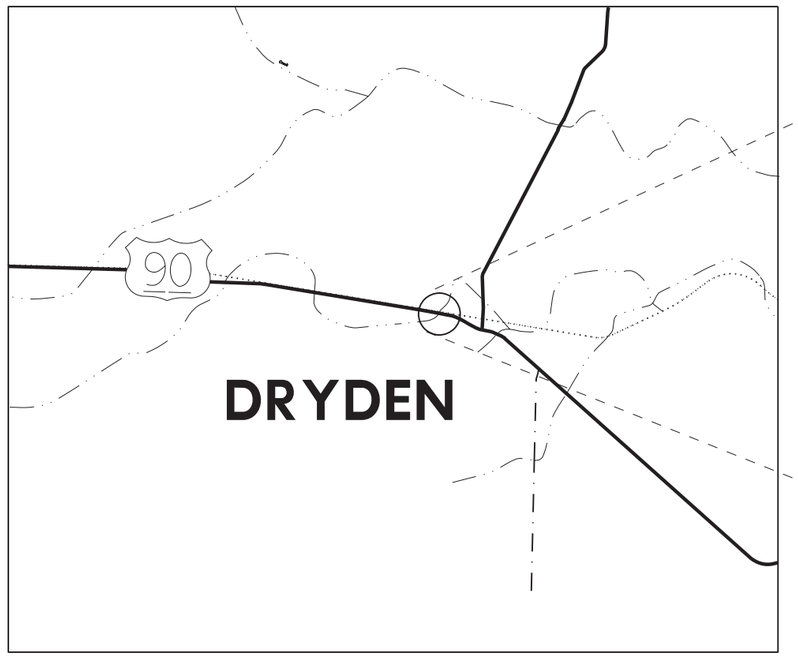
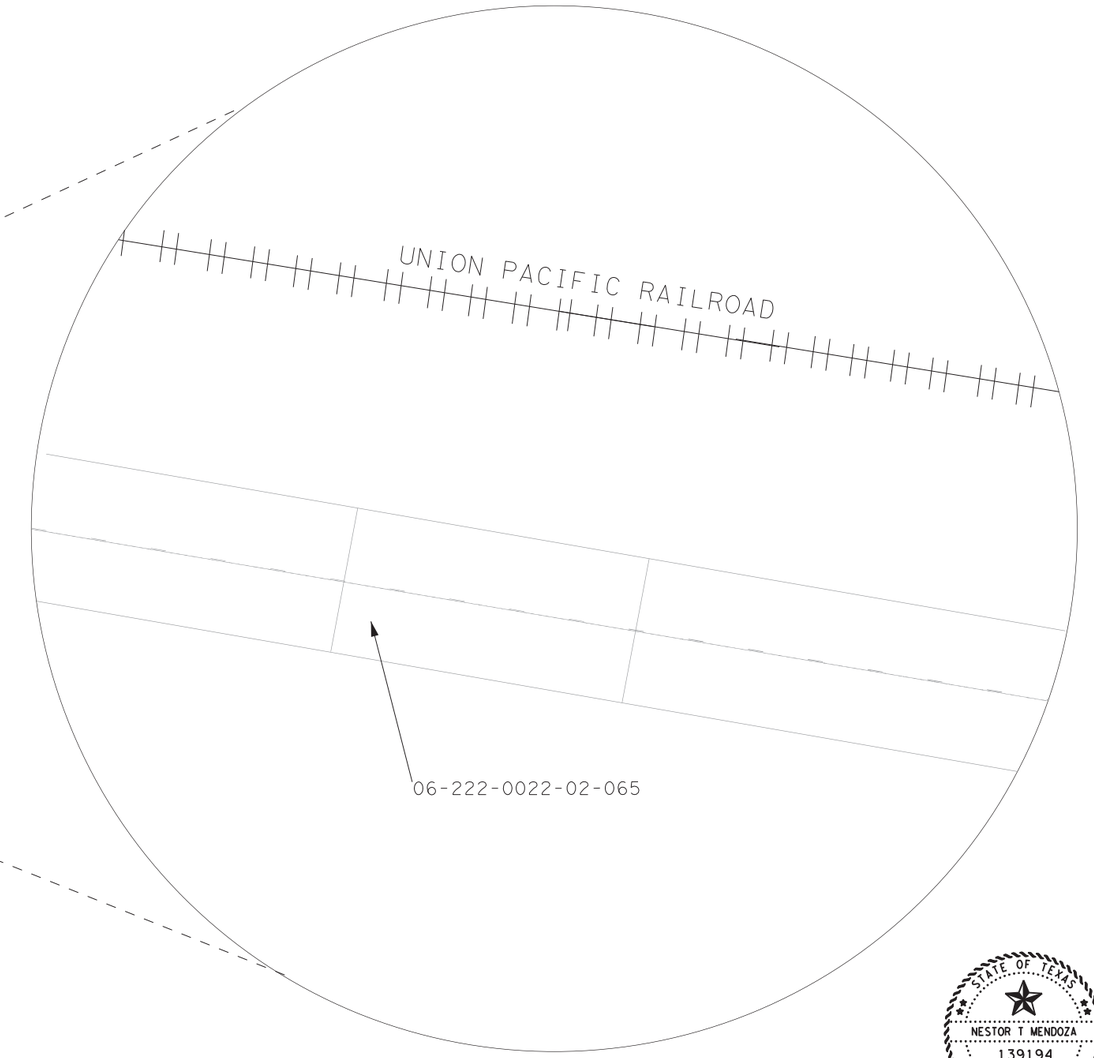
RAILROAD CROSSING LOCATIONS

SHEET 5 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		114
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ODESSA	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





LOCATION 71

Railroad Company: UNION PACIFIC RAILROAD
CSJ: 0022-02
NBI: 06-222-0-0022-02-065
Project: 2024 Bridge Maintenance Project
County: TERRELL
Hwy: US 90
Distance from the
closest DOT# 0.47 MI (DOT 763867A)

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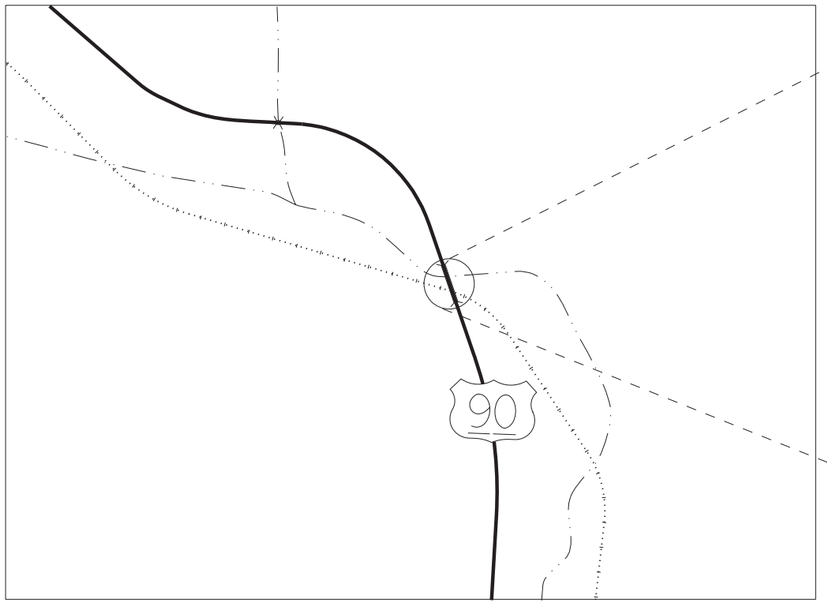
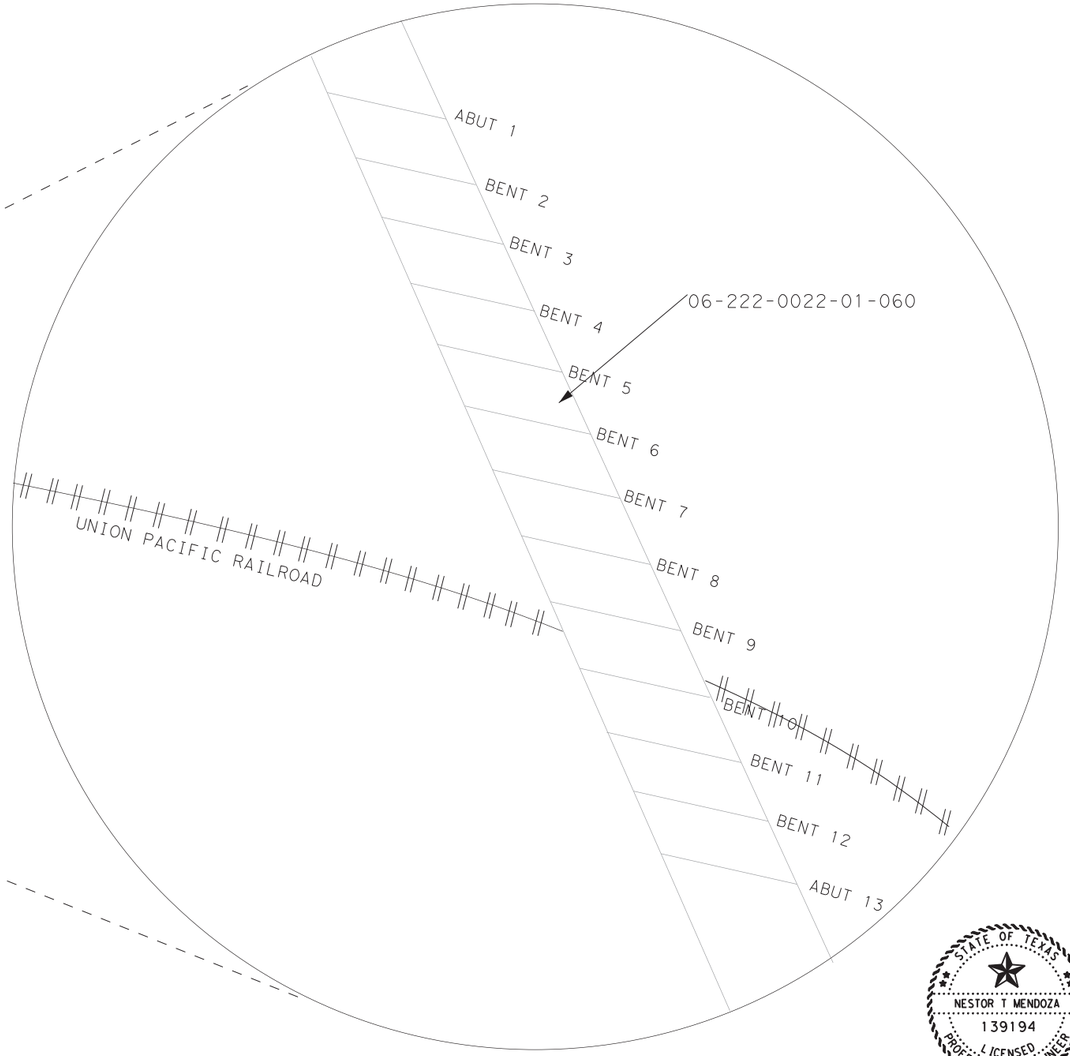
RAILROAD CROSSING LOCATIONS

SHEET 6 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		115
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





LOCATION 72

Railroad Company: Union Pacific Railroad
DOT:763865L
MP: 502.98
CSJ:0022-01
Project: 2024 Bridge Maintenance Project
County: TERRELL
Hwy: US 90

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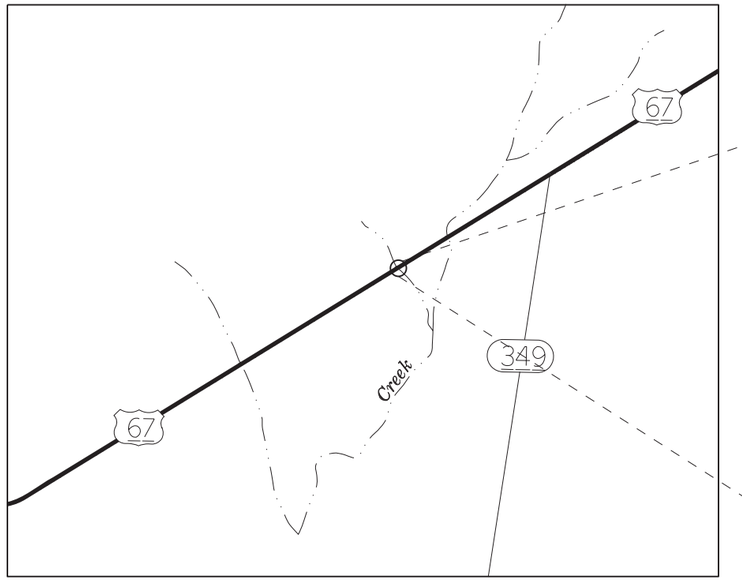
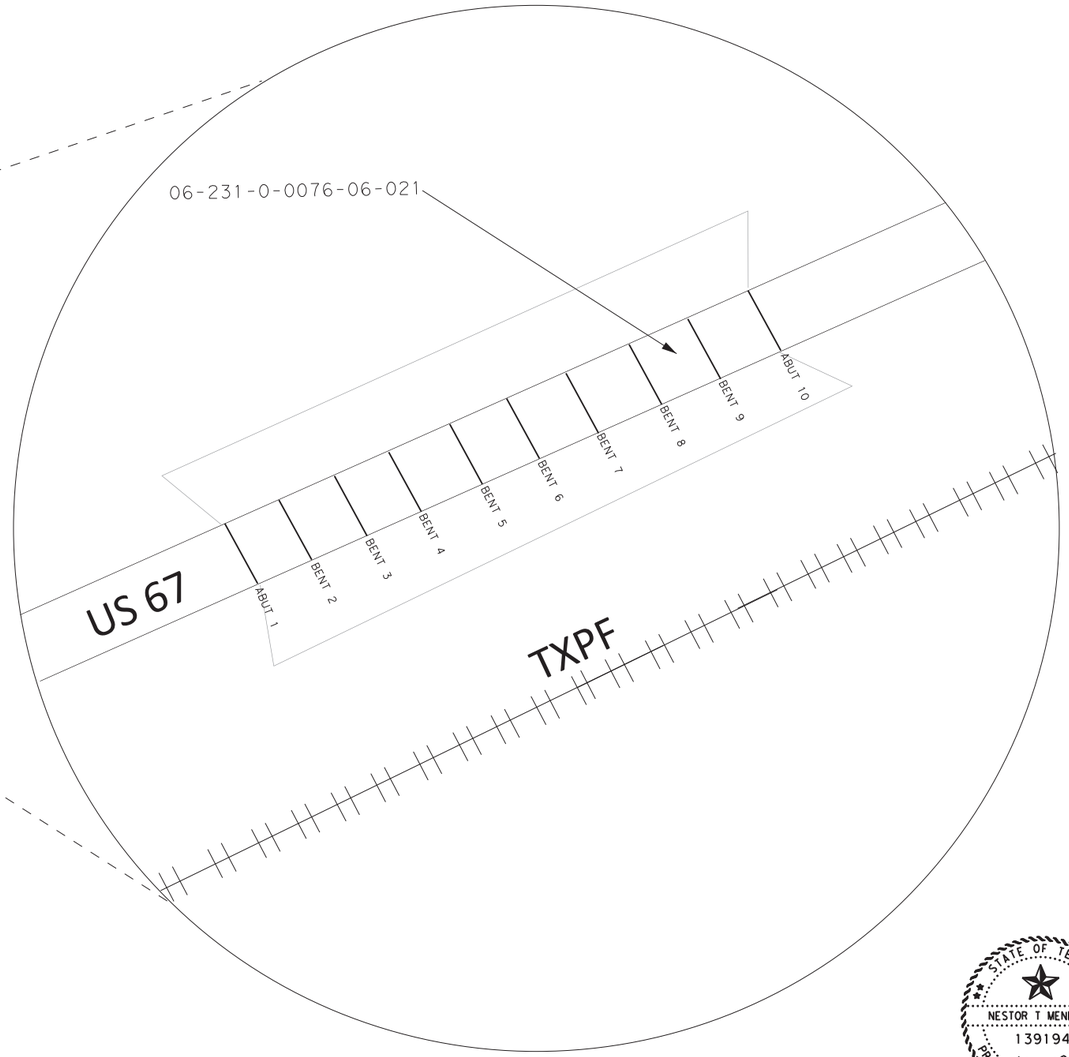
RAILROAD CROSSING LOCATIONS

SHEET 7 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		116
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





LOCATION 59

Railroad Company: TXPF
CSJ: 0076-06
NBI: 06-231-0-0076-06-021
Project: 2024 Bridge Maintenance Project
County: UPTON
Hwy: US 67
Distance from the
closest DOT# 3.71 MI (DOT 018877D)

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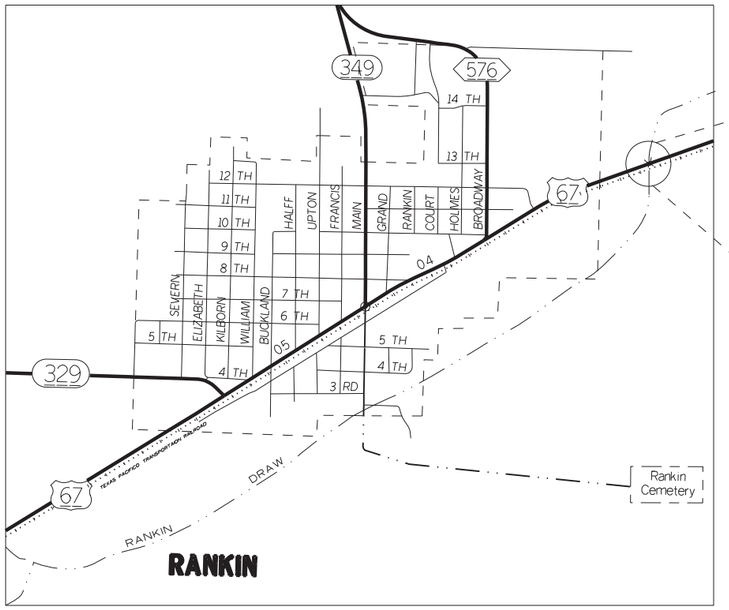
RAILROAD CROSSING LOCATIONS

SHEET 8 OF 14

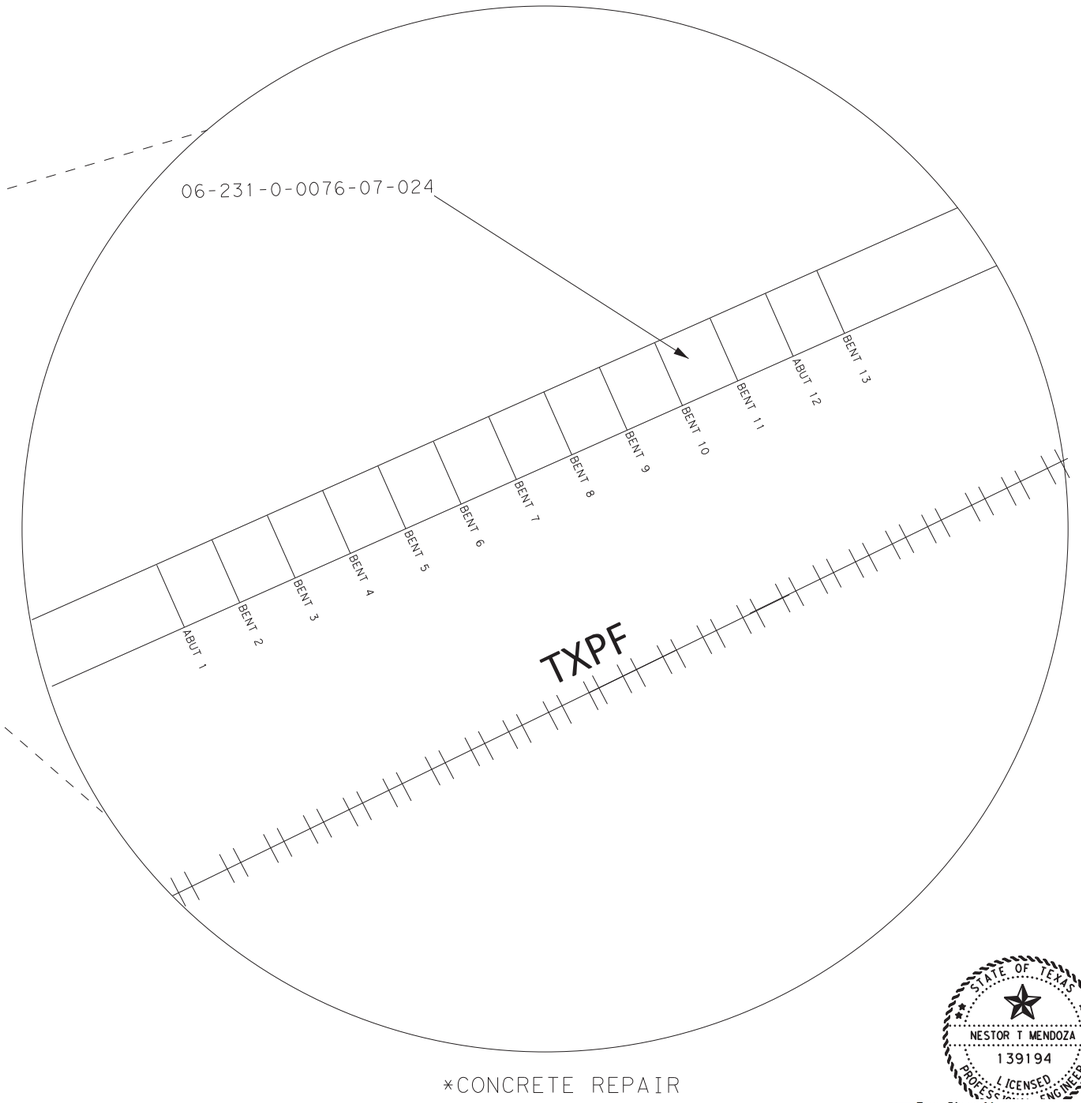
Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		117
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS



LOCATION 60

Railroad Company: TXPF
CSJ: 0076-07
NBI: 06-231-0-0076-07-024
Project: 2024 Bridge Maintenance Project
County: UPTON
Hwy: US 67
Distance from the
closest DOT# 0.85 MI (DOT 018872U)



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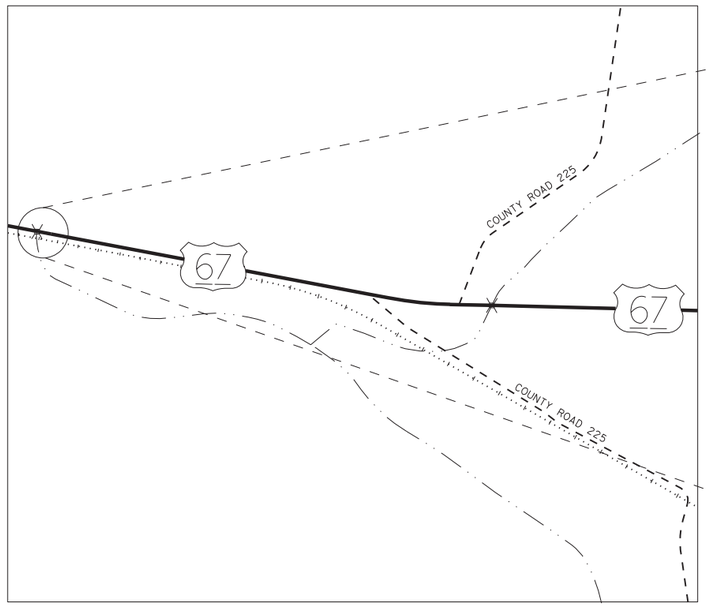
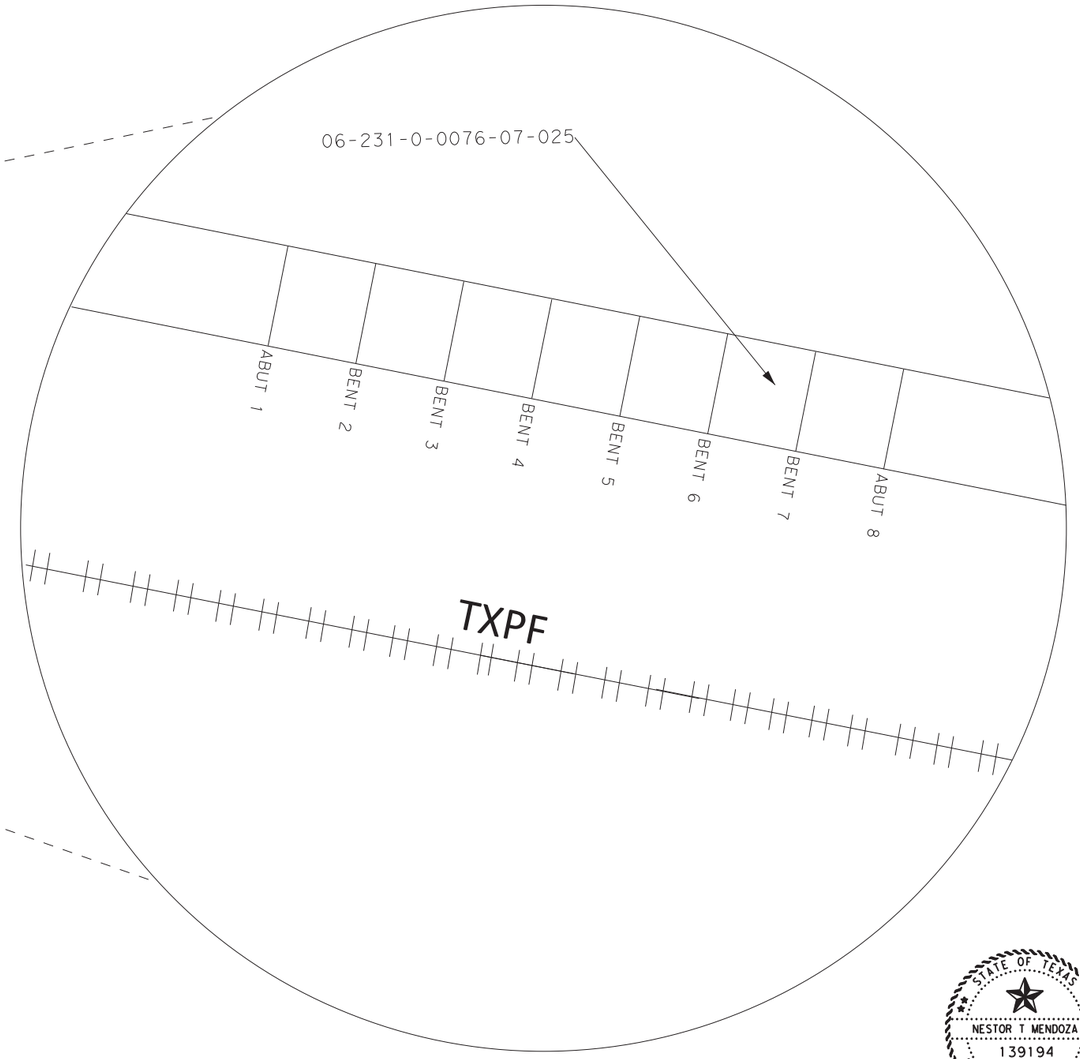
RAILROAD CROSSING LOCATIONS

SHEET 9 OF 14

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		118
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





*CONCRETE REPAIR

LOCATION 61

Railroad Company: TXPF
CSJ: 0076-07
NBI: 06-231-0-0076-07-025
Project: 2024 Bridge Maintenance Project
County: UPTON
Hwy: US 67
Distance from the
closest DOT# 1.26 MI (DOT 018871M)

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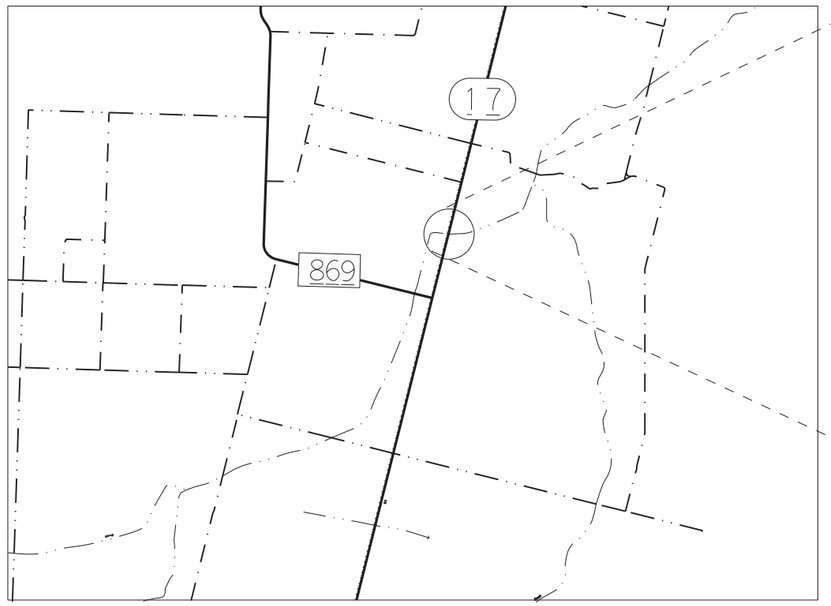
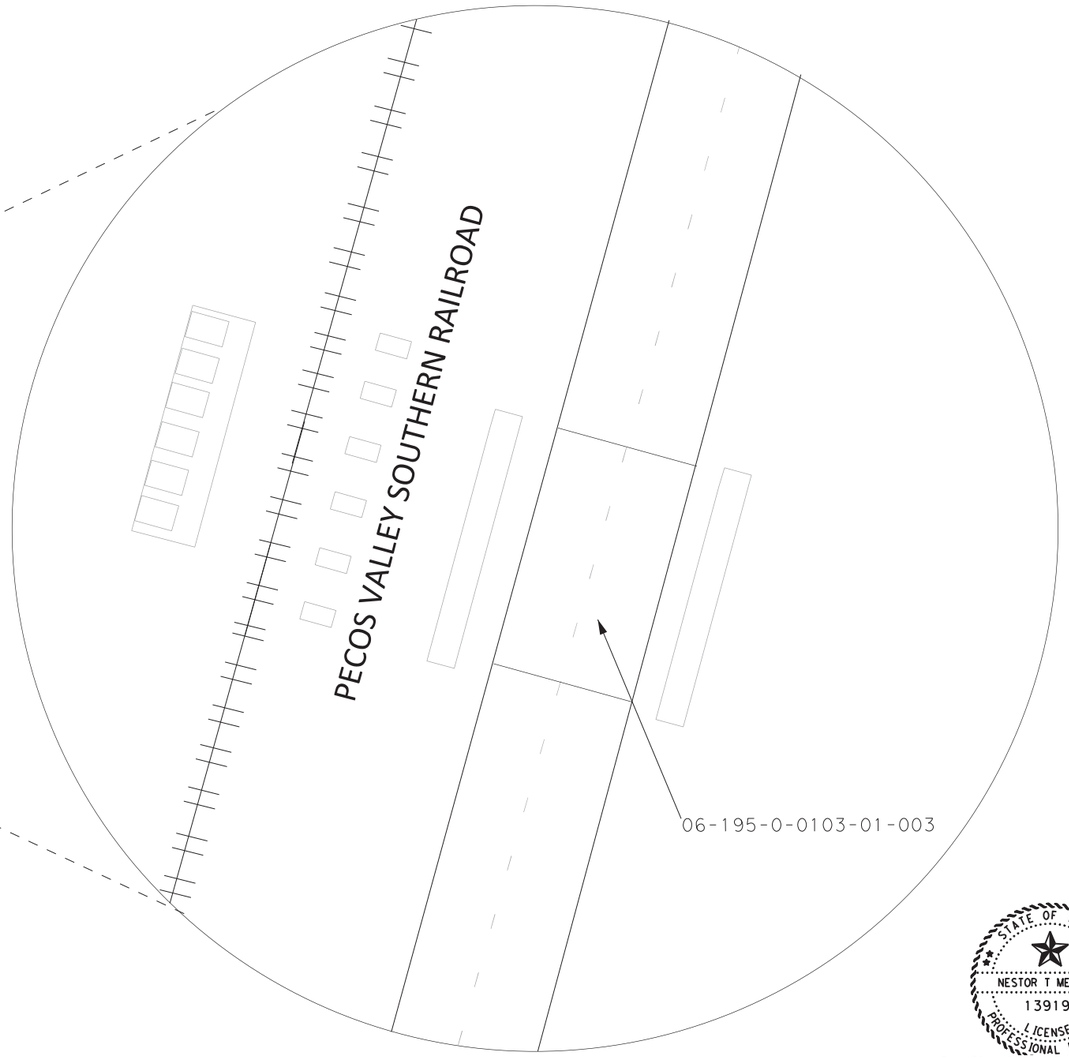
RAILROAD CROSSING LOCATIONS

SHEET 10 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		119
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





LOCATION 73

Railroad Company: PECOS VALLEY SOUTHERN RAILROAD
CSJ: 0103-01
NBI: 06-195-0-0103-01-003
Project: 2024 Bridge Maintenance Project
County: REEVES
Hwy: SH 17
Distance from the
closest DOT# 0.86 MI (DOT 865905P)

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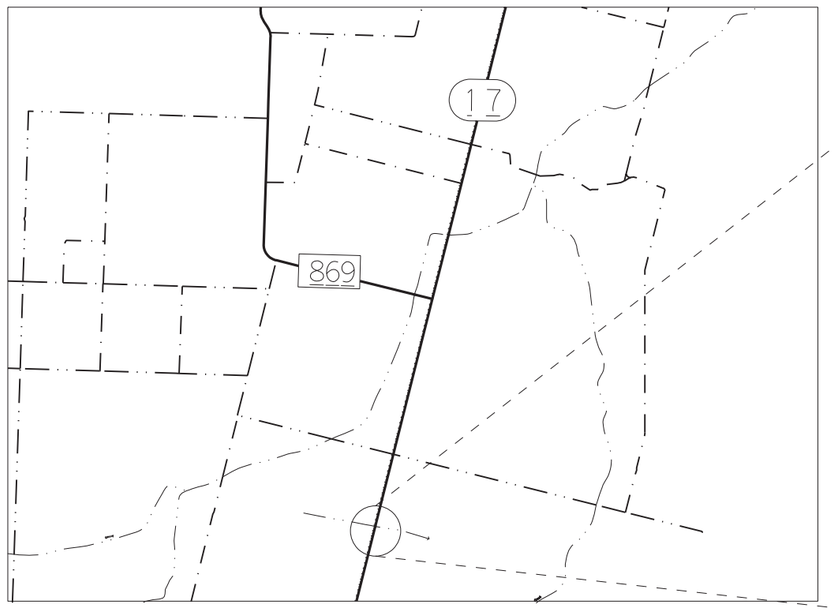
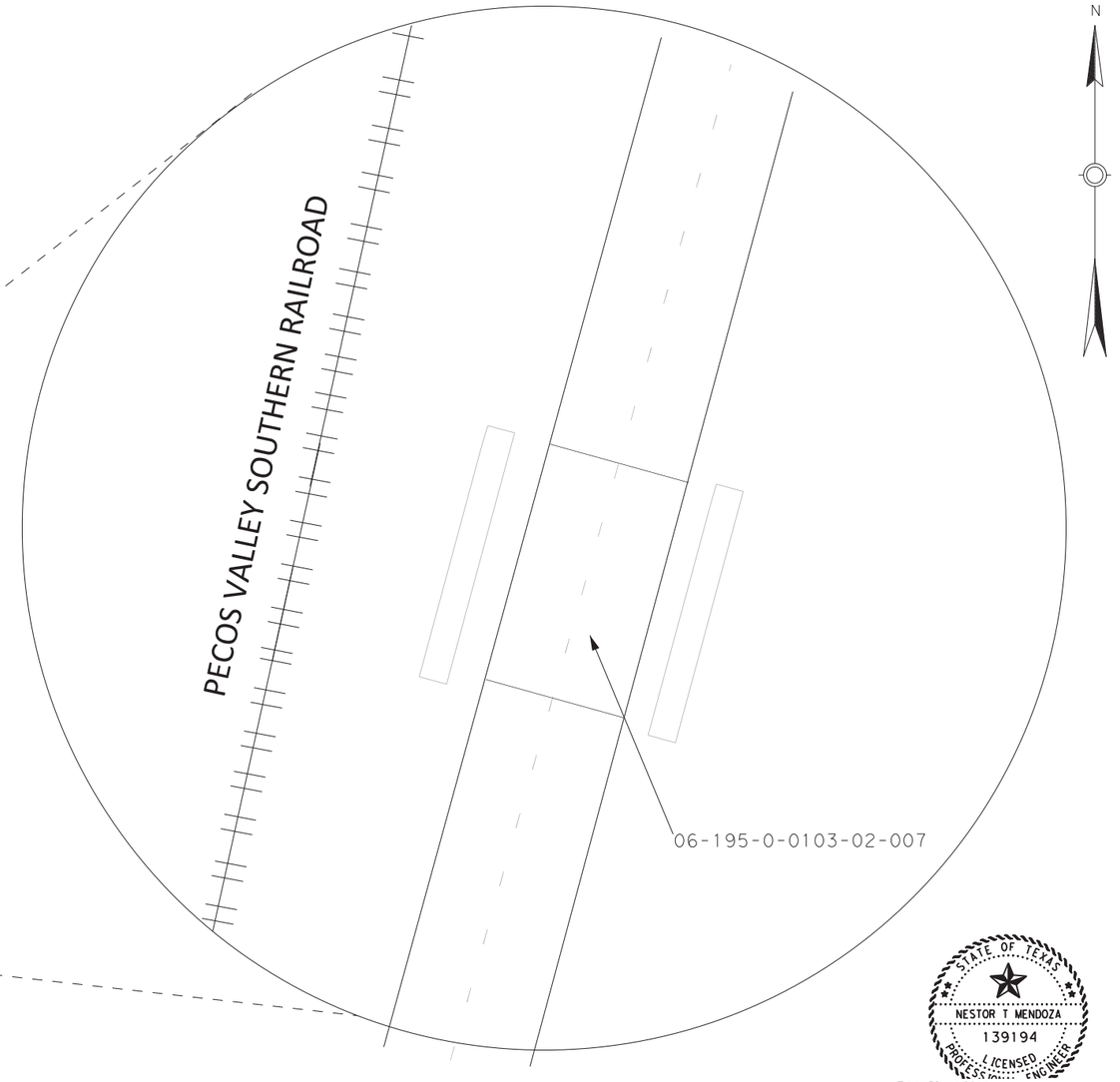
RAILROAD CROSSING LOCATIONS

SHEET 11 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		120
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





LOCATION 74

Railroad Company: PECOS VALLEY SOUTHERN RAILROAD
CSJ: 0103-02
NBI: 06-195-0-0103-02-007
Project: 2024 Bridge Maintenance Project
County: REEVES
Hwy: SH 17
Distance from the
closest DOT# 0.93 MI (DOT 865908K)

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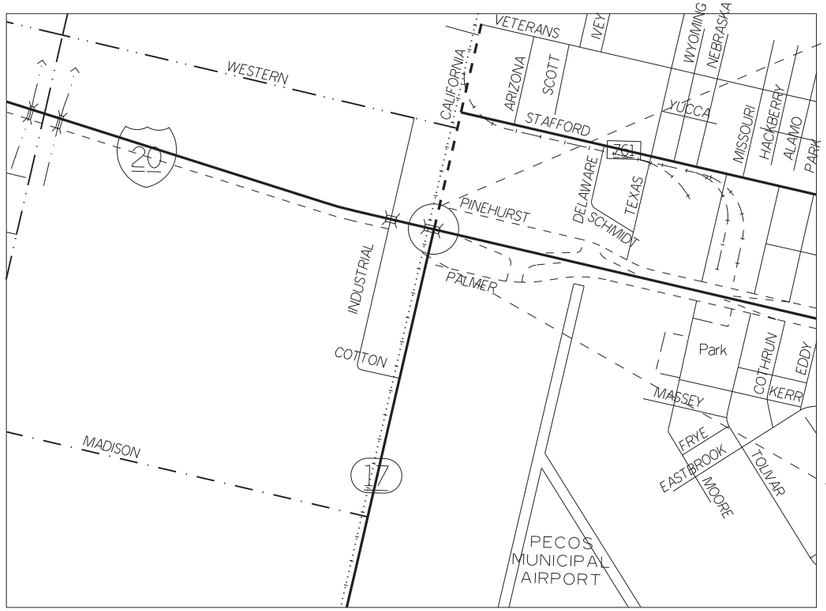
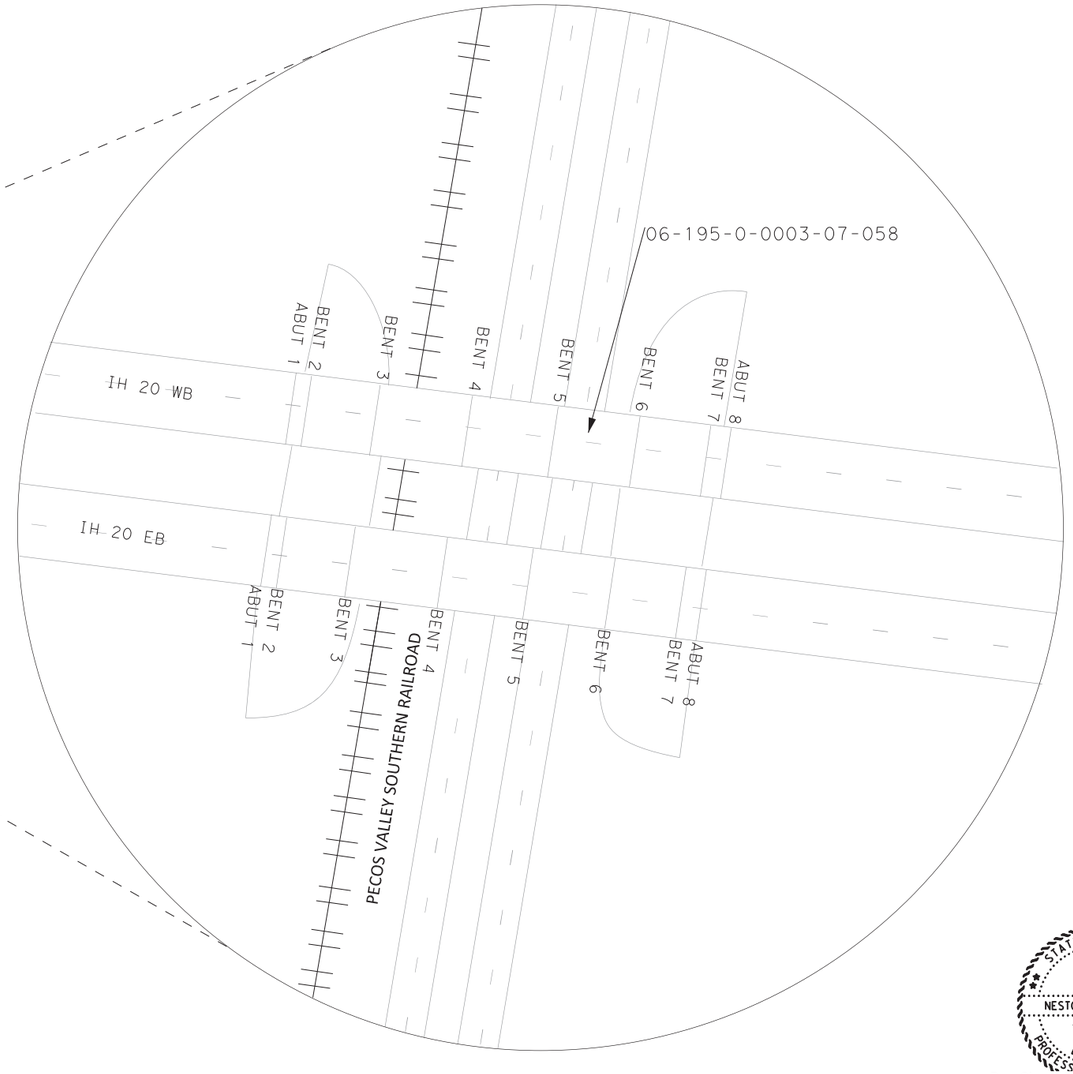
RAILROAD CROSSING LOCATIONS

SHEET 12 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		121
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS





LOCATION 87

Railroad Company: PECOS VALLEY SOUTHERN RAILROAD
DOT:865925B
MP: 24.80
CSJ: 0003-07
Project: 2024 Bridge Maintenance Project
County: REEVES
Hwy: IH 20 WB

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RAILROAD CROSSING LOCATIONS

SHEET 13 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		122
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ODESSA	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

RAILROAD CROSSING LOCATIONS

DOT #	CROSSING TYPE	RR COMPANY OPERATOR	RR COMPANY OWNER	RR MILEPOST	RR SUBDIVISION	CITY	COUNTY	ROADWAY	CSJ	LATITUDE (LAT)°	LONGITUDE (LONG)°	*BRIDGE ID (NBI) # (IF NO DOT #)	*DOT # OF CLOSEST CROSSING	*DISTANCE FROM CLOSEST DOT
441019J	PUBLIC	UP	UP	586.8	TOYAH	ODESSA	ECTOR	IH 20	0004-07	31.75044211	-102.5626577	06-069-0-0004-07-023		
796232N	PUBLIC	UP	UP	577.99	TOYAH	ODESSA	ECTOR	IH 20	0004-07	31.81020978	-102.4334319	06-069-0-0004-07-045		
796234C	PUBLIC	UP	UP	577.1	TOYAH	ODESSA	ECTOR	IH 20	0005-01	31.8169215	-102.4200286	06-069-0-0004-07-225		
796234C	PUBLIC	UP	UP	577.1	TOYAH	ODESSA	ECTOR	IH 20	0005-01	31.8169215	-102.4200286	06-069-0-0004-07-226		
796224W	PUBLIC	UP	UP	658.92	TOYAH	TOYAH	REEVES	CR 419/SHAW RD	0003-06	31.3620978	-103.6862843	06-195-0-0003-06-076		
		UP	UP	668.27	TOYAH	TOYAH	REEVES	IH 20 WB	0003-06	31.28924378	-103.8260217	06-195-0-0003-06-146	796182M	1.81 MI
		UP	UP	668.27	TOYAH	TOYAH	REEVES	IH 20 EB	0003-06	31.2887217	103.8263286	06-195-0-0003-06-147	796182M	1.81 MI
		UP	UP	485.18	SANDERSON	SANDERSON	TERRELL	US 90	0022-02	30.046527	-102.1143997	06-222-0-0022-02-065	763867A	0.47 MI
763865L	PUBLIC	UP	UP	502.98	SANDERSON	SANDERSON	TERRELL	US 90	0022-01	30.103972	-102.363786	06-222-0-0022-01-060		
		TXPF	TXPF		BIG LAKE	REAGAN	UPTON	HWY 67	0076-06	31.17922607	-102.0181697	06-231-0-0076-06-021	018877D	3.71 MI
		TXPF	TXPF		BIG LAKE	REAGAN	UPTON	HWY 67	0076-07	31.22902875	-101.9250777	06-231-0-0076-07-024	018872U	0.85 MI
		TXPF	TXPF		BIG LAKE	REAGAN	UPTON	HWY 67	0076-07	31.23402863	-101.873657	06-231-0-0076-07-025	018871M	1.26 MI
		PVS	PVS	15.34	PECOS	PECOS	REEVES	SH 17	0103-01	31.215244	??-103.571868	06-195-0-0103-01-003	865905P	0.86 MI
		PVS	PVS	17.34	PECOS	PECOS	REEVES	SH 17	0103-02	??31.1868588	??-103.579027	06-195-0-0103-02-007	865908K	0.93 MI
865925B	PUBLIC	PVS	PVS	24.8	PECOS	PECOS	REEVES	IH 20 WB	0003-07	??31.399542	??-103.522098	06-195-0-0003-07-058		

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RAILROAD CROSSING LOCATIONS

SHEET 14 OF 14

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		123
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

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	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC		124

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.

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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	0906	00	235	VARIOUS
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC		125

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0906-00-235

1.2 PROJECT LIMITS:
From: VARIOUS LOCATIONS

To: VARIOUS LOCATIONS

1.3 PROJECT COORDINATES:
BEGIN: (Lat)_____,(Long)_____

END: (Lat)_____,(Long)_____

1.4 TOTAL PROJECT AREA (Acres): 0

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0

1.6 NATURE OF CONSTRUCTION ACTIVITY:
Bridge Maintenance consisting of concrete work and bridge joint repair.

1.7 MAJOR SOIL TYPES:

Soil Type	Description

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):
PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- ☐ PSLs determined during preconstruction meeting
- ☐ PSLs determined during construction
- ☒ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:
(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

- ☒ Mobilization
- ☐ Install sediment and erosion controls
- ☐ Blade existing topsoil into windrows, prep ROW, clear and grub
- ☐ Remove existing pavement
- ☐ Grading operations, excavation, and embankment
- ☐ Excavate and prepare subgrade for proposed pavement widening
- ☐ Remove existing culverts, safety end treatments (SETs)
- ☐ Remove existing metal beam guard fence (MBGF), bridge rail
- ☐ Install proposed pavement per plans
- ☐ Install culverts, culvert extensions, SETs
- ☐ Install mow strip, MBGF, bridge rail
- ☐ Place flex base
- ☐ Rework slopes, grade ditches
- ☐ Blade windrowed material back across slopes
- ☐ Revegetation of unpaved areas
- ☐ Achieve site stabilization and remove sediment and erosion control measures
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- ☐ Sediment laden stormwater from stormwater conveyance over disturbed area
- ☒ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- ☒ Solvents, paints, adhesives, etc. from various construction activities
- ☐ Transported soils from offsite vehicle tracking
- ☒ Construction debris and waste from various construction activities
- ☐ Contaminated water from excavation or dewatering pump-out water
- ☒ Sanitary waste from onsite restroom facilities
- ☒ Trash from various construction activities/receptacles
- ☐ Long-term stockpiles of material and waste
- ☒
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.11 RECEIVING WATERS:
Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- ☒ Development of plans and specifications
- ☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- ☒ Post Construction Site Notice
- ☒ Submit NOI/CSN to local MS4
- ☒ Perform SWP3 inspections
- ☒ Maintain SWP3 records and update to reflect daily operations
- ☒ Complete and submit Notice of Termination to TCEQ
- ☒ Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- ☒ Day To Day Operational Control
- ☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- ☒ Post Construction Site Notice
- ☒ Submit NOI/CSN to local MS4
- ☒ Maintain schedule of major construction activities
- ☒ Install, maintain and modify BMPs
- ☒ Complete and submit Notice of Termination to TCEQ
- ☒ Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity

STATE OF TEXAS
NESTOR T MENDOZA
139194
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Nestor T Mendoza, P.E.
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STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		126
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR,ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ ☐ Permanent Planting, Sodding or Seeding
- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☐ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - ☐ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☐ Required (>10 acres), but not feasible due to:
    - ☐ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☐ Excess dirt/mud on road removed daily
- ☐ Haul roads dampened for dust control
- ☐ Loaded haul trucks to be covered with tarpaulin
- ☐ Stabilized construction exit
- ☐ Daily street sweeping
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☐ Chemical Management
- ☐ Concrete and Materials Waste Management
- ☐ Debris and Trash Management
- ☐ Dust Control
- ☐ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ☒ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

2.9 INSPECTIONS:

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

STATE OF TEXAS
NESTOR T MENDOZA
139194
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Nestor T Mendoza, P.E.
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STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		127
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ECTOR,ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0906	00	235	VARIOUS

DATE: 1/16/2024
FILE: C:\Users\JRamey\D drive\Projects\0906-00-235 Bridge Maintenance(2023)\DGN\075 EPIC.dgn

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.

2.

☒ No Action Required ☐ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000

2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.

3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.

4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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

☐ Other Nationwide Permit Required: NWP# _____

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.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ 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	☐ 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 ☐ Required Action

Action No.

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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.

☒ No Action Required ☐ Required Action

Action No.

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

☐ No Action Required ☒ Required Action

Action No.

1. See item 5: Control of Work

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If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	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 ☐ 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:

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES (CONT)

☐ No Action Required ☒ Required Action

Texas Department of Transportation — Design Division Standard

ENVIROMENTAL PERMITS ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0906	00	235	VARIOUS
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.
05-07-14 ADDED NOTE SECTION IV.	ODA	ECTOR, ETC		128
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.				

DATE: 1/16/2024
FILE: C:\Users\JRamey\D drive\Projects\0906-00-235 Bridge Maintenance(2023)\DGN\075 EPIC.dgn

Action No.

1. Asbestos-containing material (ACM) is located within the following bridge components and will need to be removed if construction activities will disturb the ACM:
   a. NBI# 061860014001126: 2% chrysotile asbestos detected on 12,050 SF of white texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, columns, and outer beams.
   b. NBI# 061860014004188: 75% chrysotile asbestos detected in 20 CF of isolator pads located under guardrail posts where the deck is met.
   c. NBI# 06186001400419\: 75% chrysotile asbestos detected in 5 CF of isolator pads at steel guardrail posts.
   d. NBI# 061860044108183: 2% chrysotile asbestos detected in 15,000 SF of texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, and outer beam.
   e. NBI# 061950000306075: 20% chrysotile asbestos detected in 70 CF of 5/64 inch felt under pier caps. 2% chrysotile asbestos detected in 22,500 SF of texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, and columns.
   f. NBI# 061950044109063: 8-12% chrysotile asbestos detected in 5 CF of black tar/felt at pier caps.
   g. NBI# 061950044109128: 2% chrysotile asbestos on 14,500 SF of texture on concrete surfaces including wingwalls, abutments, guardrails, pier caps, columns, and outer beams.
   h. NBI# 062220002202065: 3% chrysotile asbestos detected on 1,850 SF of texture on concrete surfaces including wingwalls, culvert walls, and guardrails. This material is not present on the interior portions of the culvert.
   i. NBI# 060690222401013: 3% chrysotile asbestos detected on 5,130 SF of texture on concrete surfaces including guardrails, concrete support columns, and beams.
   j. NBI# 060690222401014: 3% chrysotile asbestos detected on 5,130 SF of texture on concrete surfaces including guardrails, concrete support columns, and beams.
   k. NBI# 060690222401015: 3% chrysotile asbestos detected on 5,130 SF of texture on concrete surfaces including guardrails, concrete support columns, and beams.
   l. NBI# 060690222401016: 3% chrysotile asbestos detected on 5,130 SF of texture on concrete surfaces including guardrails, concrete support columns, and beams.
   m. NBI# 061860029303017: 2% chrysotile asbestos detected on 7,812 SF of white coating on concrete surfaces including beams, embankments, and columns.
   n. NBI# 061860014001119: 2% chrysotile asbestos detected on 26,844 SF of white coating on concrete surfaces including beams, embankments, and columns.
   o. NBI# 061860014001316: 2% chrysotile asbestos detected on 620 SF of white joint compound on surfaces including columns and joints.
   b. NBI# 061860014002149: 2% chrysotile asbestos detected on 14,600 SF of white coating on concrete surfaces including embankments and columns.
   c. NBI# 061860014002103: 2% chrysotile asbestos detected on 20,800 SF of white coating on concrete surfaces including beams, joints, and embankments.
   d. NBI# 061950044105140: 2% chrysotile asbestos detected on 35,576 SF of joint compound coating on concreated surfaces including beams, joints, embankments, and columns.
   e. NBI# 0619502968020O9: 2% chrysotile asbestos detected on 13,600 SF of joint compound/coating on surfaces including bridge superstructure concrete, joints, and embankment concrete.
2. Asbestos Survey Reports are available for reference at the Odessa District Office.

Required Action
Action No.

1. Lead-containing paint (LCP) is located on or near the following structures and will need to be removed if construction activities will disturb the LCP:
   a. NBI# 061860002106103: Approximately 20 SF of silver paint on four steel guardrail posts contains a lead concentration of 490 ppm.
   b. NBI# 061860014006044: Approximately 275 SF of silver paint on steel guardrails contains a lead concentration of 790 ppm.
   c. NBI# 061860014015078: Approximately 150 SF of silver paint on steel guardrails contains a lead concentration of 270 ppm.
   d. NBI# 061860044107039: Approximately 2,500 SF of silver paint on steel guardrails and guardrail posts contains a lead concentration of 36,000 ppm.
   e. NBI# 061950010302008: Approximately 750 SF of old silver paint on steel pedestrian walkway contains a lead concentration of 31,000 ppm. Approximately 950 SF of new silver paint on steel columns and I-beam guardrail posts on pedestrian walkway contains a lead concentration of 17,000 ppm.
   f. NBI# 060690000407023: Approximately 7,500 SF of silver paint on steel beams, cross beams, and bearings contains a lead concentration of 47,000 ppm.
2. For tasks which might expose an employee to lead above the permissible exposure limit (PEL), the Contractor shall be responsible for providing exposure assessment and worker protection as required under OSHA 1926.62 (Lead in Construction). Where stripping back of lead paint is performed as a protective measure, strip back sufficient LCP to facilitate the project work, as outlined in the project plans.
3. Lead-Containing Paint Inspection Report dated November 21, 2023 were performed by InControl Technologies and are available for reference at the Odessa District Office.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

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3.

Texas Department of Transportation — Design Division Standard

ENVIROMENTAL PERMITS ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
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