FHWA TEXAS DIVISION	PROJECT NO.		SHEET NO.
	C 908-00-119		1
STATE	DISTRICT	COUNTY	
TEXAS	ABL	TAYLOR, ETC.	
CONTROL	SECTION	JOB	HIGHWAY NO.
0908	00	119	VARIOUS

DESIGN SPEED : N/A
CURRENT A.D.T. : N/A
PROJECTED A.D.T. : N/A
FUNCTIONAL CLASS : VARIOUS
EXISTING NBI# : SEE PROJECT LAYOUT
PROPOSED NBI#: N/A

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

PROJECT NO. C 908-00-119

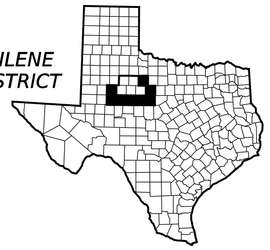
VARIOUS HIGHWAYS
TAYLOR COUNTY, ETC

LIMITS FROM: VARIOUS
FOR THE CONSTRUCTION OF: BRIDGE MAINTENANCE
CONSISTING OF: BRIDGE MAINTENANCE

INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

ABILENE DISTRICT



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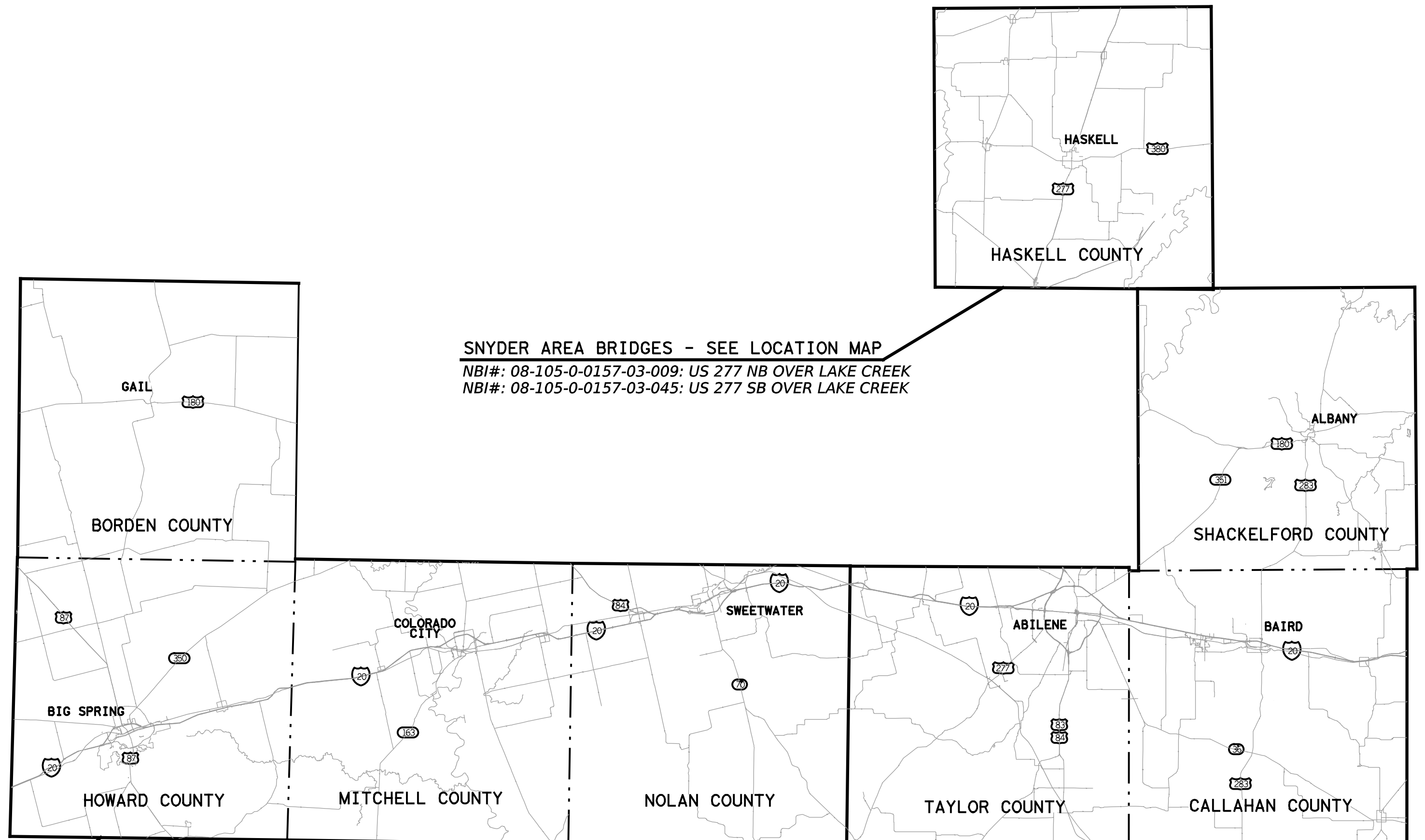


SNYDER AREA BRIDGES - SEE LOCATION MAP
NBI#: 08-105-0-0157-03-009: US 277 NB OVER LAKE CREEK
NBI#: 08-105-0-0157-03-045: US 277 SB OVER LAKE CREEK

BIG SPRING AREA BRIDGES - SEE LOCATION MAP
NBI#: 08-017-0-0558-02-020: FM 669 OVER BULL CREEK
NBI#: 08-115-0-0005-06-129: IH 20 EB OVERPASS AT BUS 20 & BEALS CREEK
NBI#: 08-168-0-0005-08-101: IH 20 EB OVERPASS AT SH 208 (SOUTH)
NBI#: 08-168-0-0006-01-266: IH 20 UNDERPASS AT BUS 20 WB
NBI#: 08-177-0-0006-02-233: IH 20 EB OVERPASS AT HOPKINS RD
NBI#: 08-177-0-0006-02-237: IH 20 UNDERPASS AT ROBERT LEE ST
NBI#: 08-177-0-0006-03-065: IH 20 WBML OVER BIG STINK CREEK
NBI#: 08-177-0-0006-03-322: IH 20 EBML OVER PLUM CREEK
NBI#: 08-177-0-0264-01-003: SH 70 OVER WALNUT CREEK
NBI#: 08-177-0-0264-03-008: SH 70 OVER COTTONWOOD CREEK (SOUTH)
NBI#: 08-177-0-0650-01-003: SH 153 OVER FISH CREEK BRANCH

ABILENE AREA BRIDGES - SEE LOCATION MAP
NBI#: 08-030-0-0006-07-279: IH 20 UNDERPASS AT FM 603
NBI#: 08-030-0-0006-07-283: IH 20 EB OVERPASS AT FM 604
NBI#: 08-030-0-0006-07-290: IH 20 WB OVERPASS AT UNION HILL / CR 119
NBI#: 08-030-0-0007-01-091: IH 20 UNDERPASS AT GUN RD
NBI#: 08-209-0-0107-02-008: SH6 AT CLEAR FORK BRAZOS RIVER
NBI#: 08-221-0-0006-05-207: IH 20 AT ELM CREEK RELIEF
NBI#: 08-221-0-0006-05-216: IH 20 UNDERPASS AT FULWILER RD
NBI#: 08-221-0-0034-01-088: US 83/US 84 UNDERPASS AT BUS 83 SB CONN

MAP SCALE: 1" = 20 MI

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)

EXCEPTIONS: N/A
EQUATIONS: N/A
R.R. CROSSINGS: N/A

FINAL PLANS

LETTING DATE: *MAY 2024*
DATE CONTRACTOR BEGAN WORK: ____
DATE WORK WAS COMPLETED: ____
DATE WORK WAS ACCEPTED: ____
FINAL CONTRACT COST: $ ____
CONTRACTOR : ____

CERTIFICATION FOR FINAL PLANS

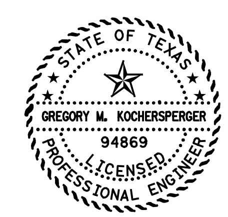
THIS PROJECT WAS BUILT ACCORDING TO THE PLANS AND SPECIFICATIONS. THESE FINAL PLANS REFLECT THE WORK DONE AND THE QUANTITIES SHOWN THEREON AND ON THE FINAL ESTIMATE ARE FINAL QUANTITIES

AREA ENGINEER ____ *DATE* ____

THE DISTRICT TRAFFIC SAFETY COMMITTEE HAS REVIEWED THE TRAFFIC CONTROL PLAN FOR THIS PROJECT AND IT IS IN COMPLIENCE WITH CURRENT TRAFFIC CONTROL STANDARDS

DocuSigned by: Michael Wittie, P.E. 62A1809BE662415...
COMMITTEE CHAIRMAN
2/15/2024
DATE

Texas Department of Transportation



SUBMITTED FOR LETTING: 2/9/2024
GREGORY M. KOCHERSPERGER, P.E.
HDR PROJECT MANAGER

RECOMMENDED FOR LETTING: 2/14/2024
DocuSigned by: Michael Roetheli 77DE2F0EB2204710...
MICHAEL ROETHELI, P.E.
TXDOT PROJECT MANAGER

RECOMMENDED FOR LETTING: 2/15/2024
DocuSigned by: 11C7B898B7A1425...
BRYCE TURENTINE, P.E.
ABILENE AREA ENGINEER

RECOMMENDED FOR LETTING: 2/15/2024
DocuSigned by: Ryan Sayles EBF7BE6315F3497...
RYAN R. SAYLES, P.E.
BIG SPRING AREA ENGINEER

RECOMMENDED FOR LETTING: 2/15/2024
DocuSigned by: Michael Wittie, P.E. 62A1809BE662415...
MICHAEL WITTIE, P.E.
INTERUM SNYDER AREA ENGINEER

RECOMMENDED FOR LETTING: 2/15/2024
DocuSigned by: Michael Haithcock 5757E28B786A4CD...
MICHAEL A. HAITHCOCK, P.E.
DIRECTOR OF T P & D

APPROVED FOR LETTING: 2/15/2024
DocuSigned by: Thomas G. Allbritton, P.E. 0F6F7EF4C3D3430...
THOMAS G. ALLBRITTON, P.E.
DISTRICT ENGINEER

DW: LJG CK: GK | DW: LJG CK: GK

INDEX OF SHEETS

STATE OF TEXAS
YAVOR V. YOTOV
111804
LICENSED
PROFESSIONAL ENGINEER

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

SIGNATURE OF REGISTRANT , P.E. 2/9/2024 DATE

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER

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

SIGNATURE OF REGISTRANT , P.E. 2/9/2024 DATE

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

INDEX OF SHEETS

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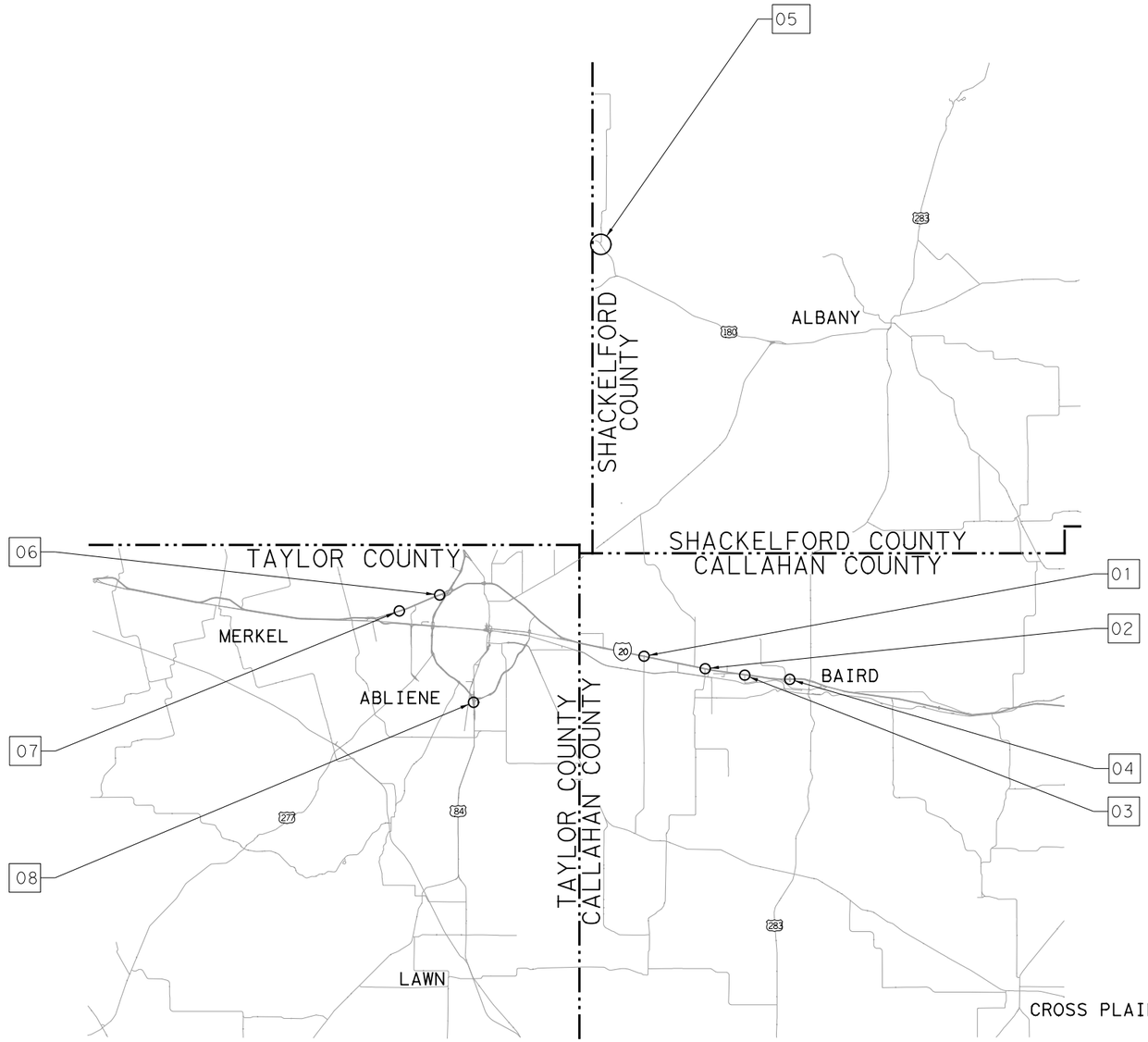
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		2

DATE:
FILE:

DW: JD | CK: GK | DW: NS | CK: JD



LOCATION SUMMARY

LOCATION	COUNTY	NBI NUMBER	HIGHWAY	CROSSING	LENGTH OF BRIDGE	LENGTH OF ROADWAY
REF 01	CALLAHAN	08-030-0-0006-07-279	FM 603	IH 20	250.0 FT = 0.047 MI	0.0 FT = 0.000 MI
REF 02	CALLAHAN	08-030-0-0006-07-283	IH 20 EB	FM 604	112.3 FT = 0.021 MI	0.0 FT = 0.000 MI
REF 03	CALLAHAN	08-030-0-0006-07-290	IH 20 WB	UNION HILL RD/CR 119	112.3 FT = 0.021 MI	0.0 FT = 0.000 MI
REF 04	CALLAHAN	08-030-0-0007-01-091	GUN ROAD	IH 20	250.0 FT = 0.047 MI	0.0 FT = 0.000 MI
REF 05	SHAKELFORD	08-209-0-0107-02-008	SH 6	CLEAR FORK BRAZOS RIVER	380.0 FT = 0.072 MI	0.0 FT = 0.000 MI
REF 06	TAYLOR	08-221-0-0006-05-207	IH 20	ELM CREEK RELIEF	211.0 FT = 0.040 MI	0.0 FT = 0.000 MI
REF 07	TAYLOR	08-221-0-0006-05-216	FULWILER RD	IH 20	230.0 FT = 0.044 MI	0.0 FT = 0.000 MI
REF 08	TAYLOR	08-221-0-0034-01-088	BUS 83 SB CONN	US 83 / US 84	370.0 FT = 0.070 MI	0.0 FT = 0.000 MI
			TOTAL ABILENE AREA (CSJ 0908-00-119)		1915.7 FT = 0.363 MI	0.0 FT = 0.000 MI

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

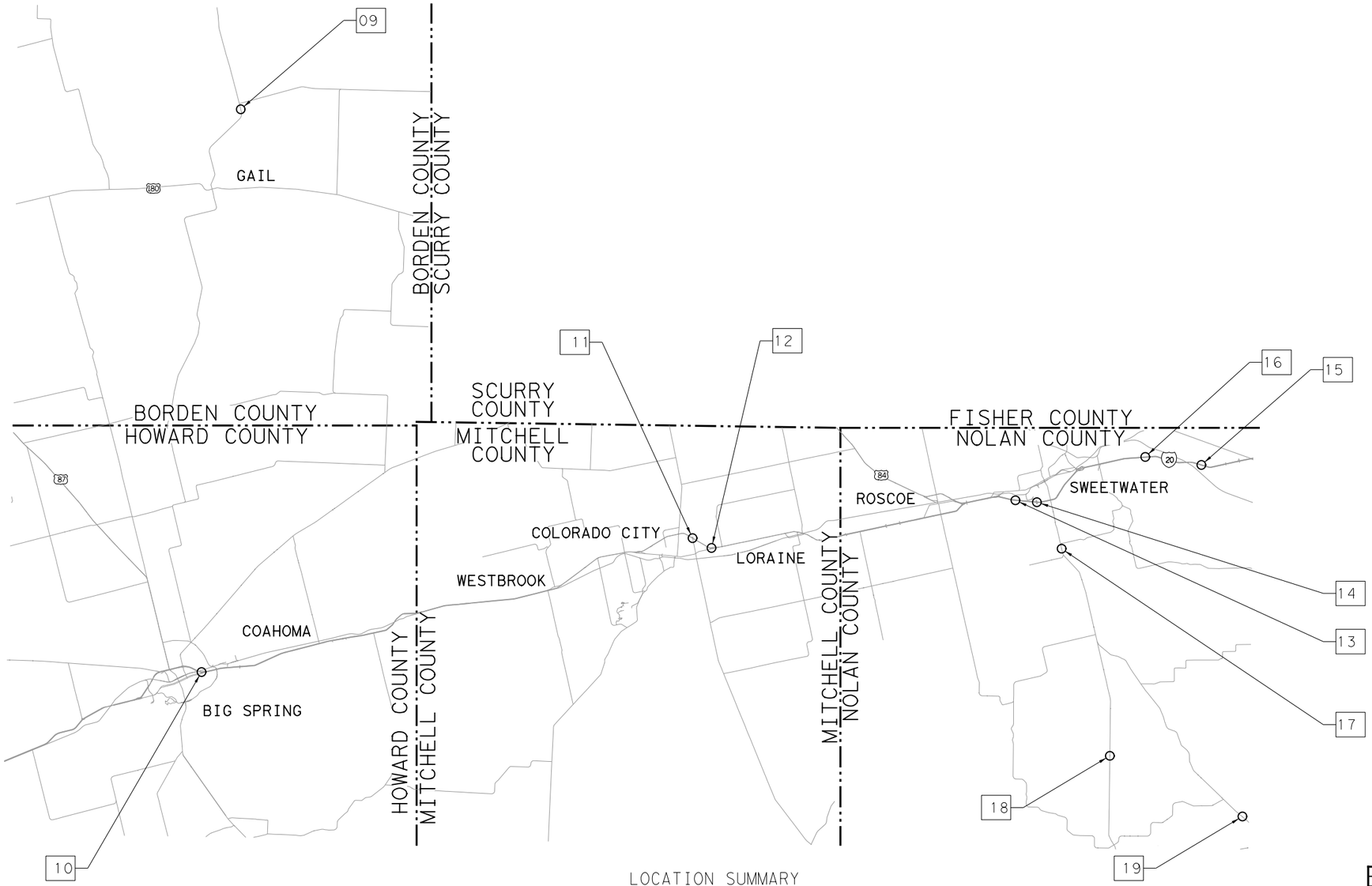
LOCATION MAP
ABILENE AREA

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		3

DATE:
FILE:

DW: JD | CK: GK | DW: NS | CK: JD



LOCATION SUMMARY

LOCATION	COUNTY	NBI NUMBER	HIGHWAY	CROSSING	LENGTH OF BRIDGE	LENGTH OF ROADWAY
REF 09	BORDEN	08-017-0-0558-02-020	FM 669	BULL CREEK	213.8 FT = 0.040 MI	0.0 FT = 0.000 MI
REF 10	HOWARD	08-115-0-0005-06-129	IH 20 EB	BUS 20 & BEALS CREEK	550.0 FT = 0.104 MI	0.0 FT = 0.000 MI
REF 11	MITCHELL	08-168-0-0005-08-101	IH 20 EB	SH 208 (SOUTH)	165.0 FT = 0.031 MI	0.0 FT = 0.000 MI
REF 12	MITCHELL	08-168-0-0006-01-266	BUS 20 WB	IH 20	400.0 FT = 0.076 MI	0.0 FT = 0.000 MI
REF 13	NOLAN	08-177-0-0006-02-233	IH 20 EB	HOPKINS RD	114.0 FT = 0.022 MI	0.0 FT = 0.000 MI
REF 14	NOLAN	08-177-0-0006-02-237	ROBERT LEE ST	IH 20	300.0 FT = 0.057 MI	0.0 FT = 0.000 MI
REF 15	NOLAN	08-177-0-0006-03-065	IH 20 WBML	BIG STINK CREEK	121.3 FT = 0.023 MI	0.0 FT = 0.000 MI
REF 16	NOLAN	08-177-0-0006-03-322	IH 20 EBML	PLUM CREEK	105.0 FT = 0.020 MI	0.0 FT = 0.000 MI
REF 17	NOLAN	08-177-0-0264-01-003	SH 70	WALNUT CREEK	79.7 FT = 0.015 MI	0.0 FT = 0.000 MI
REF 18	NOLAN	08-177-0-0264-03-008	SH 70	COTTONWOOD CREEK (SOUTH)	99.0 FT = 0.019 MI	0.0 FT = 0.000 MI
REF 19	NOLAN	08-177-0-0650-01-003	SH 153	FISH CREEK BRANCH	55.3 FT = 0.010 MI	0.0 FT = 0.000 MI
				TOTAL BIG SPRING AREA (CSJ 0908-00-119)	2203.0 FT = 0.417 MI	0.0 FT = 0.000 MI

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

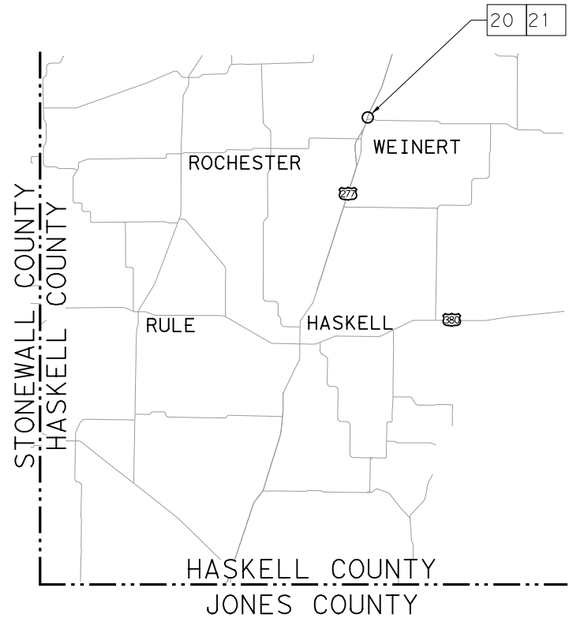
LOCATION MAP
BIG SPRING AREA

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		4

DATE:
FILE:

DW:	JD	CK:	JD
DW:	GK	CK:	NS
DW:	JD	CK:	JD



LOCATION SUMMARY

LOCATION	COUNTY	NBI NUMBER	HIGHWAY	CROSSING	LENGTH OF BRIDGE	LENGTH OF ROADWAY
REF 20	HASKELL	08-105-0-0157-03-009	US 277 NB	LAKE CREEK	212.0 FT = 0.040 MI	0.0 FT = 0.000 MI
REF 21	HASKELL	08-105-0-0157-03-045	US 277 SB	LAKE CREEK	212.3 FT = 0.040 MI	0.0 FT = 0.000 MI
			TOTAL SNYDER AREA (CSJ 0908-00-119)		424.3 FT = 0.080 MI	0.0 FT = 0.000 MI

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

LOCATION MAP
SNYDER AREA

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		5

DATE:
FILE:

CK
DW
CK
DW

CCSJ: 0908-00-119
County: Taylor, Etc
Highway: Various

ABILENE DISTRICT GENERAL NOTES
2014 SPECIFICATIONS

General

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

Bryce Turentine, P.E. / Phone: 325-690-9821 / Bryce.Turentine@txdot.gov
Chad Carter, P.E. / Phone: 325-676-6850 / Chad.W.Carter@txdot.gov
(Abilene Area Office)

Ryan R. Sayles, P.E. / Phone: 432-263-4768 / Ryan.Sayles@txdot.gov
LaRissa Halford, E.I.T. / Phone: 806-356-3226 / larissa.halford@txdot.gov
(Big Spring Area Office)

Stewart Chapman, P.E. / Phone: 325-573-0143 / Stewart.Chapman@txdot.gov
Maxie Allen, P.E. / Phone: 325-573-0142 / Maxie.Allen@txdot.gov
Jose Cabrera, P.E. / Phone: 325-573-0143 / Jose.Cabrera@txdot.gov
(Snyder Area Office)

Contractor questions will be accepted through email, phone, and in person by the above individuals.

For Q&A's on Proposals navigate to
https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors
Use 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.

All relevant project documentation including contract time, cross sections,etc will be posted on the districts FTP website. https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

Failure to make necessary corrections to SWP3 based on SWP3 inspections will be cause for withholding the monthly estimate until such corrections have been made.

Failure to make necessary corrections to traffic control items based on barricade inspections will be cause for withholding the monthly estimate until such corrections have been made.

Provide ingress/egress to the adjacent properties in areas under construction. Phased construction of driveways and streets shall be required to provide uninterrupted access to adjacent properties. Coordinate work with the property owners before beginning any construction in the vicinity of the drive.

DATE:
FILE:

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County: Taylor, Etc
Highway: Various

Cut neat, straight lines with vertical faces along pavement edges or along joints between existing asphalt or concrete pavement and new pavement perpendicular or parallel to the direction of traffic by methods described in applicable bid items, or as directed. Provide clean edges or joints without jagged appearance or chunks broken out. This work is considered subsidiary to various bid items.

Environmental

Endangered and Protected Species

1. Migratory Birds
    a. **Bird nesting season is typically 15Feb through 15Sep annually.**
    b. The Contractor will avoid disturbing, destroying, removing, or relocating migratory birds and active nests found in trees, culverts, bridges, on the ground, or anywhere they are encountered.
    c. Perform all tree trimming and other vegetation clearing activities during the non-breeding season (typically 15Sep-15Feb annually). Perform any inactive nest removal and bird exclusion methods to prevent birds from establishing nests. Phasing of work during construction may be necessary to stay in compliance.
    d. When active nests are unexpectedly encountered on-site during construction, the Contractor will stop work and immediately notify the Engineer. Take measures to avoid disturbance of these birds, their occupied nest, eggs, and/or young, in accordance with the Migratory Bird Treaty Act, Texas Parks and Wildlife Code, and TxDOT policy.
    e. The Engineer will notify the Contractor when work may resume.
    f. The Contractor should be prepared to prevent migratory birds from building nests by utilizing nest prevention methods, such as bird-deterrent netting and bird-repelling sprays and/or gels, between 15Feb and 15Sep. The Contractor can discuss other preventative measures with the Engineer and/or District Environmental Staff.

Best Management Practices

1. Bird BMPs
    a. Not disturbing, destroying, or removing active nests, including ground nesting birds, during the nesting season.
    b. Avoiding the removal of unoccupied, inactive nests, as practicable.
    c. Preventing the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair.
    d. Not collecting, capturing, relocating, or transporting birds, eggs, young, or active nests without a permit.

Item 5, "Control of Work"
Use Method C for construction surveying.

All known utilities are identified in the plans, including the crossing of power lines. Use this information to identify potential issues with power poles and power lines prior to bidding.

Make necessary arrangements with utility owners regarding temporary protections such as bracing power poles, and de-energizing power lines. The Department will not reimburse the cost of such temporary protections to the Contractor, unless the Engineer determines that inadequate information was available at the time the project was bid. **"Call Before You Dig" "Call 811"**

Provide notification to the District Traffic Engineering Section by telephone at 325-676-6991 and by email at ABL_TrafficFix@txdot.gov when planning drilling or excavation work in areas where existing TxDOT underground utilities exist. Visual evidence of TxDOT underground utilities in the area include illumination poles, ground boxes, flashing beacons, traffic signals, etc. This notification must be provided 72 hours in advance of performing the work.

Drilled shaft locations or excavation areas must be staked prior to the notification so that the underground utilities can be located in relationship to the proposed work. Preserve and document the marked utility locations to prevent unnecessary secondary notifications. Notify the Engineer of conflicts between proposed work and underground utilities.

Item 7, "Legal Relations and Responsibilities"

The total area disturbed for this project is **0.1** acres. The disturbed area in this project, all project locations in the Contract, and the Contractor project specific locations (PSLs), within 1 mile of the project limits, for the Contract will further establish the authorization requirements for storm water discharges. 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 required authorization from the TCEQ for Contractor PSLs for construction support activities on or off the ROW. When the total area disturbed 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 ROW to the Engineer and to the government that operates a separate storm sewer system.

Provide one SW3P Notification Board for this project. Notification Boards are to be placed at locations within the right-of-way but outside the clear zone as directed by the Engineer. Consider this work to be subsidiary to the various bid items of the contract.

No significant traffic generator events identified.

Hard hats are required at all times during construction when construction personnel are in TxDOT Right-of-Way.

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County: Taylor, Etc
Highway: Various

Patrol vehicles must be clearly marked to correspond with the officer's agency and equipped with appropriate lights to identify them as law enforcement. For patrol vehicles not owned by a law enforcement agency, markings will be retroreflective and legible from 100 ft. from both sides and the rear of the vehicle. Lights will be high intensity and visible from all angles.

LIGHTING STANDARDS FOR HIGHWAY MAINTENANCE OR CONSTRUCTION VEHICLES AND SERVICE VEHICLES

VEHICLE LIGHTING SUMMARY

Vehicle	Color of Flashing Lights	Transportation Code
Police Vehicles	Red/Blue/White/Amber	547.305 & 547.702
Fire/EMS Vehicles	Red/Blue/White/Amber	547.305 & 547.702
Volunteer Fire/EMS	Red/Blue/White/Amber	547.305 & 547.702
School	Bus Red/White (rooftop) /Amber	547.305 & 547.701
Highway Maintenance or Construction Vehicles and Service Vehicles	Amber/Blue	547.105 & TxDOT Lighting Standards

Item 8 "Prosecution and Progress"
Each contract awarded by the Department stands on its own and as such, is separate from other contracts. A Contractor awarded multiple contracts must be capable and sufficiently staffed to concurrently process and/or execute all contracts at the same time.

Coordinate and update the work schedule with the project inspector daily. Give a minimum of 24 hours of notice to project inspector if work requiring inspection or testing is to be performed. Failure to do so may cause that work to be delayed or postponed if TxDOT personnel are not available. Work performed without suitable inspection, as determined by the Engineer, may be ordered removed and replaced at Contractor's expense.

Prepare the progress schedule as a Critical Path Method (CPM).

Item 9, "Measurement and Payment"
The progress payment period shall end on the 25th of each month, unless directed by the Area Office Engineer. Material on Hand (MOH) is due two business days before estimate cut off.

Item 429, "Concrete Structure Repair"
Areas to be repaired at each location shall be marked in the field by the Engineer.

Areas to be repaired at each location shall be repaired in accordance with the Department's Concrete Repair Manual. The Contractor must prepare and submit formal procedures outlining repair plans and which proprietary implementation so the Engineer has sufficient time to review. The Engineer must approve in writing any procedures that differ from those in the Concrete Repair Manual or materials that are not included in one of TxDOT's MPLS materials they plan to utilize. Submit the package a minimum of two weeks prior to.

For Vertical and Overhead repairs use preapproved Type C Repair Material. For Deck repairs use preapproved Type B Ultra-Rapid Extended Repair Material.

Item 446, "Cleaning and Painting Steel"
Provide a System I-B Overcoat Paint with a Federal Standard 595B #35630 color.

The existing coating to be removed contains lead or other hazardous materials.

Item 502, "Barricades, Signs and Traffic Handling"
Provide the Engineer with written notification seven (7) days in advance of major traffic changes. A major traffic change is defined as the temporary (greater than one day) or permanent relocation of traffic lanes typically in an urban setting. The notice will, at a minimum, include the expected date, time and scope of the traffic change. The Department will utilize the information provided to inform the traveling public of the changes. Failure to provide advance notice, or to provide accurate information, will result in delaying the work until such time that the public has been notified.

Additional signs, barricades and traffic handling may be necessary to complete the work shown herein and will be provided by the contractor as required and will be considered subsidiary to this item.

Provide separate attenuators for each work area within a common lane closure as approved or directed by the Engineer.

In sections where traffic is restricted to one lane, two-way traffic, flaggers will be stationed at each end of that section with two-way communication devices and a pilot car will control operations.

Pilot car is subsidiary to item 502.

Relocate existing roadside signs to temporary supports as approved by the engineer.

All safety appurtenances such as signs, delineators, object markers and route markers will be in place prior to opening each phase of the construction to traffic, unless otherwise directed.

During construction on all underpass structures erect and maintain accurate clearance signs in accordance with the "Texas Manual on Uniform Traffic Control Device for Streets and

CCSJ: 0908-00-119
County: Taylor, Etc
Highway: Various

Highways". The mounting method for the temporary clearance sign is subject to approval of the Engineer. Temporary clearance signs are considered subsidiary to the various bid items.
Movement of construction equipment and haul trucks will be prohibited from crossing the median unless specifically authorized by the Engineer. Ingress and egress to main lanes will be at entrance and exit ramps.

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.

The Contractor's person responsible for TCP compliance must be available by local telephone and have a response time within 45 minutes.

Work will not be allowed on both sides of the roadbed at the same time.

Equip all work vehicles within 30 feet of the traveled way with a functioning amber strobe light or rotating beacon visible from all directions.

Repair barricades within the timeline shown on the barricade inspection report. Failure to comply will cease all work until barricades are repaired to the satisfaction of the Department. Replace all damaged traffic control devices immediately. Remove any damaged traffic control devices from the project within 24 hours.

Conflicting guide signs shall be covered as approved by the Engineer. This work shall be subsidiary to Item 502.

Reduced regulatory speed limit signs should only be posted in the vicinity of ongoing work activity as shown on BC (3)-21 and not throughout the entire project. Removing, relocating or covering speed limit signs shall be considered subsidiary to item 502.

Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls"
On site concrete washout shall not be allowed on this project.

The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and minimal use of erosion control measures is anticipated. Place BMPs at any location where soil is disturbed by construction or access, as directed by the Engineer.

DATE:
FILE:

GENERAL NOTES

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		6B

CK
DW
CK
DW

CCSJ: 0908-00-119
County: Taylor, Etc
Highway: Various

Item 510, "One-way Traffic Control"
Multiple locations of one-lane two-way control with flaggers will be required for this project. All flaggers and associated work will be considered subsidiary to other TCP items.

Item 636 "Signs"
Contractor will measure bridge height according to the TxDot Sign Guidelines and Applications Manual (Chap. 6 Sec. 2) and the Engineer or his representative will verify this information for sign manufacturing.

Item 644, "Small Roadside Sign Supports and Assemblies"
Use the latest edition of the "Standard Highway Sign Designs for Texas" for Sign types for which design details are not shown on the plans.

Sign placement shall be in accordance with the latest edition of the TMUTCD & TxDOT's Sign Crew Field Book located at the following addresses.
TMUTCD - https://www.txdot.gov/business/resources/signage/tmutcd.html
TxDOT's Sign Crew Field Book - http://onlinemanuals.txdot.gov/txdotmanuals/sfb/index.htm
Before final sign installation, stake all sign locations for approval by the engineer.

Deliver and stockpile all signs to be salvaged to the Sweetwater Maintenance Facility, located approximately 4 miles from the IH20 over Hopkins Rd bridge location.

Item 6185, "Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)"
Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA) will not be considered a major item of work on this project.

TMA,s will only be paid while workers are present or to protect a blunt object.

The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs needed for the project. The Contractor must get approval from the Engineer for any changes in the number of TMA as shown in the plans.

If a TMA is used for both mobile and stationary traffic control on the same day, it will be paid for as stationary for that day.

CCSJ: 0908-00-119
County: Taylor, Etc
Highway: Various

	BASIS OF ESTIMATE FOR STATIONARY TMAs				
			TMA (Stationary)		
Location	Phase	Standard	Required	Additional	TOTAL
REF 01	1	TCP(5-1)-18	1	0	1
REF 02	1	TCP(6-1)-12	1	0	1
REF 03	1	TCP(6-1)-12	1	0	1
REF 04	1	TCP(6-1)-12	1	0	1
REF 05	1	TCP(2-2)-18	1	0	1
REF 06	1	TCP(5-1)-18	1	0	1
REF 07	1	TCP(6-1)-12	1	0	1
REF 08	1	TCP(6-6)-12	1	0	1
REF 09	1 & 2	TCP(2-2)-18	1	0	1
REF 10	1 & 2	TCP(6-4)-12	1	0	1
REF 11	1	TCP(6-1)-12	1	0	1
REF 12	1 & 2	TCP(1-5)-18	1	0	1
	1 & 2	TCP(6-1)-12	1	0	1
REF 13	1	TCP(6-1)-12	1	0	1
REF 14	1	TCP(2-2)-18	1	0	1
REF 15	1	TCP(6-1)-12	1	0	1
REF 16	1	TCP(6-1)-12	1	0	1
REF 17	1	TCP(2-2)-18	1	0	1
REF 18	1	TCP(2-2)-18	1	0	1
REF 19	1	TCP(2-2)-18	1	0	1
REF 20	1	TCP(5-1)-18	1	0	1
REF 21	1	TCP(5-1)-18	1	0	1

DATE:
FILE:

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0908-00-119 **DISTRICT** Abilene **COUNTY** Taylor
HIGHWAY Various

			CONTROL SECTION JOB		**0908-00-119**	TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00192239**		
			COUNTY		**Taylor**		
			HIGHWAY		**Various**		
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	104-6009	REMOVING CONC (RIPRAP)	SY	45.000		45.000	
	401-6001	FLOWABLE BACKFILL	CY	20.000		20.000	
	427-6007	EPOXY WATERPROOF FINISH (TY X)	SF	3,197.000		3,197.000	
	429-6003	CONC STR REPAIR(DECK REP(PART DEPTH))	SF	20.000		20.000	
	429-6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	1,758.000		1,758.000	
	432-6009	RIPRAP (CONC) (CL B) (4")	CY	5.000		5.000	
	432-6031	RIPRAP (STONE PROTECTION)(12 IN)	CY	45.000		45.000	
	434-6003	ELASTOMERIC BEARING (SPECIAL)	EA	8.000		8.000	
	438-6002	CLEANING AND SEALING EXIST JOINTS(CL3)	LF	128.000		128.000	
	438-6008	CLEANING AND SEALING JOINTS (CL 7)	LF	117.000		117.000	
	438-6016	CLEAN AND SEAL EXIST JTS (STRIP SEAL)	LF	38.000		38.000	
	442-6011	STR STEEL (PEDESTAL)	LB	1,390.000		1,390.000	
	446-6051	SPOT CLEAN & PAINT EXT STR(SPL PRT SYS)	EA	1.000		1.000	
	495-6001	RAISING EXIST STRUCT	LS	1.000		1.000	
	496-6043	REMOV STR (SMALL FENCE)	LF	33.000		33.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	9.000		9.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	1,200.000		1,200.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	1,200.000		1,200.000	
	552-6001	WIRE FENCE (TY A)	LF	33.000		33.000	
	636-6011	REPLACE EXISTING ALUMINUM SIGNS (TY O)	EA	1.000		1.000	
	644-6064	IN BRIDGE MNT CLEARANCE SGN ASSM(TY N)	EA	1.000		1.000	
	644-6077	REMOVE BRDG MNT CLEARANCE SIGN ASSM	EA	1.000		1.000	
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF	288.000		288.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	288.000		288.000	
	738-6010	CLEANING / SWEEPING (SPOT)	MI	0.200		0.200	
	784-6003	REP STL BRIDGE MEMBER (DIAPHRAGM)	EA	2.000		2.000	
	784-6034	REP STL BRIDGE MEMBER(STRAIGHTEN MEMB)	EA	1.000		1.000	
	785-6001	BRIDGE JOINT REPAIR (CONCRETE)	LF	43.000		43.000	
	785-6011	BRIDGE JOINT REPLACEMENT (SEJ)	LF	12.000		12.000	
	786-6001	CARBON FIBER REINF POLYMER PROTECTION	SF	132.000		132.000	
	4002-6001	REPLACE ELASTOMERIC BEARING PADS	EA	22.000		22.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	4.000		4.000	
	6185-6002	TMA (STATIONARY)	DAY	169.000		169.000	
	7309-6002	CLEANING STRUCTURE (ABUTMENT)	EA	6.000		6.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0908-00-119 **DISTRICT** Abilene **COUNTY** Taylor
HIGHWAY Various

		CONTROL SECTION JOB		**0908-00-119**		TOTAL EST.	TOTAL FINAL
		PROJECT ID		**A00192239**			
		COUNTY		**Taylor**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	

DW: L JG | CK: GK | DW: L JG | CK: GK

SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS

	662 6016	677 6007	6001 6002	6185 6002
	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	ELIM EXT PAV MRK & MRKS (24")	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)
	LF	LF	EA	DAY
REF 01, IH 20 UNDERPASS AT FM 603				7
REF 02, IH 20 EB OVERPASS AT FM 604				6
REF 03, IH 20 WB OVERPASS AT UNION HILL RD/CR 119				4
REF 04, IH 20 UNDERPASS AT GUN RD				5
REF 05, SH 6 OVER CLEAR FORK BRAZOS RIVER	48	48		4
REF 06, IH20 OVER ELM CREEK RELIEF				7
REF 07, IH 20 UNDERPASS AT FULWILER RD				7
REF 08, US 83 / US 84 UNDERPASS AT BUS 83 SB CONN				2
ABILENE AREA TOTALS	**48**	**48**	**2**	**42**

NOTE: FLAGGERS SHALL BE SUBSIDIARY TO OTHER TCP ITEMS.

SUMMARY OF EROSION ITEMS

	506 6041	506 6043
	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)
	LF	LF
REF 01, IH 20 UNDERPASS AT FM 603		
REF 02, IH 20 EB OVERPASS AT FM 604		
REF 03, IH 20 WB OVERPASS AT UNION HILL RD/CR 119		
REF 04, IH 20 UNDERPASS AT GUN RD		
REF 05, SH 6 OVER CLEAR FORK BRAZOS RIVER		
REF 06, IH20 OVER ELM CREEK RELIEF	250	250
REF 07, IH 20 UNDERPASS AT FULWILER RD		
REF 08, US 83 / US 84 UNDERPASS AT BUS 83 SB CONN		
ABILENE AREA TOTALS	**250**	**250**

NOTE: EROSION CONTROL TO BE PLACED AT DIRECTION OF THE ENGINEER.

SUMMARY OF BRIDGE ITEMS

CSJ	BRIDGE NBI#		DESIGN		BRIDGE LOCATION		LENGTH	WIDTH		429 6003	429 6007	438 6008	495 6001	785 6001	4002 6001	7309 6002
										CONC STR REPAIR(DECK REP(PART DEPTH))	CONC STR REPAIR (VERTICAL & OVERHEAD)	CLEANING AND SEALING JOINTS (CL 7)	RAISING EXIST STRUCT	BRIDGE JOINT REPAIR (CONCRETE)	REPLACE ELASTOMERIC BEARING PADS	CLEANING STRUCTURE (ABUTMENT)
	EXISTING	PROPOSED	EXISTING	PROPOSED	COUNTY	DESCRIPTION	FT	FT		SF	SF	LF	LS	LF	EA	EA
0908-00-119	08-030-0-0006-07-279	N/A	4-SPAN CONCRETE T-BEAM	N/A	CALLAHAN	REF 01: IH 20 UNDERPASS AT FM 603	250	27.2							6	2
0908-00-119	08-030-0-0006-07-283	N/A	3-SPAN CONCRETE SLAB	N/A		REF 02: IH 20 EB OVERPASS AT FM 604	112.3	40.2		10		52		28		
0908-00-119	08-030-0-0006-07-290	N/A	3-SPAN CONCRETE SLAB	N/A		REF 03: IH 20 WB OVERPASS AT UNION HILL RD/CR 119	111.5	40.2		10		65		15		
0908-00-119	08-030-0-0007-01-091	N/A	4-SPAN CONCRETE T-BEAM	N/A		REF 04: IH 20 UNDERPASS AT GUN RD	250	27.2							6	
0908-00-119	08-209-0-0107-02-008	N/A	6-SPAN STEEL BEAM WIDENED WITH PRESTRESSED I-BEAM	N/A	SHAKELFORD	REF 05: SH 6 OVER CLEAR FORK BRAZOS RIVER	380	42.3							4	
0908-00-119	08-221-0-0006-05-207	N/A	9 BARREL CULVERT	N/A	TAYLOR	REF 06: IH20 OVER ELM CREEK RELIEF	86.8	211			180					
0908-00-119	08-221-0-0006-05-216	N/A	4-SPAN CONCRETE T-BEAM	N/A		REF 07: IH 20 UNDERPASS AT FULWILER RD	230	29.2			41				6	
0908-00-119	08-221-0-0034-01-088	N/A	4-SPAN PRESTRESSED I-BEAM	N/A		REF 08: US 83 / US 84 UNDERPASS AT BUS 83 SB CONN	370	40					0.3			
						ABILENE AREA TOTALS				**20**	**221**	**117**	**0.3**	**43**	**22**	**2**

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

QUANTITY SUMMARIES ABILENE AREA

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS

DIST	COUNTY	SHEET NO.
ABL	TAYLOR, ETC.	8

DATE:
FILE:

DW:	CK:	DW:	CK:
LJG	GK	LJG	GK

SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS

	662 6016	677 6007	6001 6002	6185 6002
	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	ELIM EXT PAV MRK & MRKS (24")	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)
	LF	LF	EA	DAY
REF 09, FM 669 OVER BULL CREEK	48	48		8
REF 10, IH 20 EB OVERPASS AT BUS 20 & BEALS CREEK				4
REF 11, IH 20 EB OVERPASS AT SH 208 (SOUTH)				7
REF 12, IH 2 UNDERPASS AT BUS 20 WB				14
REF 13, IH 20 EB OVERPASS AT HOPKINS RD				8
REF 14, IH 20 UNDERPASS AT ROBERT LEE ST	48	48		4
REF 15, IH 20 WBML OVER BIG STINK CREEK				16
REF 16, IH 20 EBML OVER PLUM CREEK				8
REF 17, SH 70 OVER WALNUT CREEK	48	48		4
REF 18, SH 70 OVER COTTONWOOD CREEK (SOUTH)	48	48		7
REF 19, SH 153 OVER FISH CREEK BRANCH	48	48		5
BIG SPRING AREA TOTALS	**240**	**240**	**2**	**85**

NOTE: FLAGGERS SHALL BE SUBSIDIARY TO OTHER TCP ITEMS.

SUMMARY OF EROSION ITEMS

	506 6041	506 6043
	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)
	LF	LF
REF 09, FM 669 OVER BULL CREEK		
REF 10, IH 20 EB OVERPASS AT BUS 20 & BEALS CREEK		
REF 11, IH 20 EB OVERPASS AT SH 208 (SOUTH)		
REF 12, IH 2 UNDERPASS AT BUS 20 WB		
REF 13, IH 20 EB OVERPASS AT HOPKINS RD		
REF 14, IH 20 UNDERPASS AT ROBERT LEE ST		
REF 15, IH 20 WBML OVER BIG STINK CREEK	200	200
REF 16, IH 20 EBML OVER PLUM CREEK		
REF 17, SH 70 OVER WALNUT CREEK	150	150
REF 18, SH 70 OVER COTTONWOOD CREEK (SOUTH)	500	500
REF 19, SH 153 OVER FISH CREEK BRANCH	100	100
BIG SPRING AREA TOTALS	**950**	**950**

NOTE: EROSION CONTROL TO BE PLACED AT DIRECTION OF THE ENGINEER.

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

QUANTITY SUMMARIES
BIG SPRING AREA

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		9

DATE:
FILE:

DW: LJG
CK: GK
DW: LJG
CK: GK

SUMMARY OF BRIDGE ITEMS

CSJ	BRIDGE NBI#		DESIGN		BRIDGE LOCATION		LENGTH	WIDTH		104 6009	401 6001	427 6007	429 6007	432 6009	432 6031	434 6003	438 6002	438 6016
										REMOVING CONC (RIPRAP)	FLOWABLE BACKFILL	EPOXY WATERPROOF FINISH (TY X)	CONC STR REPAIR (VERTICAL & OVERHEAD)	RIPRAP (CONC) (CL B) (4")	RIPRAP (STONE PROTECTION) (12 IN)	ELASTOMERIC BEARING (SPECIAL)	CLEANING AND SEALING EXIST JOINTS(CL3)	CLEAN AND SEAL EXIST JTS (STRIP SEAL)
	EXISTING	PROPOSED	EXISTING	PROPOSED	COUNTY	DESCRIPTION	FT	FT		SY	CY	SF	SF	CY	CY	EA	LF	LF
0908-00-119	08-017-0-0558-02-020	N/A	5-SPAN CONCRETE PAN GIRDER	N/A	BORDEN	REF 09: FM 669 OVER BULL CREEK	213.8	29.3				229	113					
0908-00-119	08-115-0-0005-06-129	N/A	9-SPAN STEEL BEAM	N/A	HOWARD	REF 10: IH 20 EB OVERPASS AT BUS 20 & BEALS CREEK	550	43.2					15					
0908-00-119	08-168-0-0005-08-101	N/A	3-SPAN STEEL BEAM	N/A	MITCHELL	REF 11: IH 20 EB OVERPASS AT SH 208 (SOUTH)	165	42										
0908-00-119	08-168-0-0006-01-266	N/A	4-SPAN STEEL BEAM	N/A		REF 12: IH 20 UNDERPASS AT BUS 20 WB	400	31.2					88			8		
0908-00-119	08-177-0-0006-02-233	N/A	3-SPAN CONCRETE SLAB	N/A	NOLAN	REF 13: IH 20 EB OVERPASS AT HOPKINS RD	114	40		45	20		33	5				
0908-00-119	08-177-0-0006-02-237	N/A	6-SPAN CONCRETE T-BEAM	N/A		REF 14: IH 20 UNDERPASS AT ROBERT LEE ST	300	30.2									128	
0908-00-119	08-177-0-0006-03-065	N/A	4-SPAN CONCRETE PAN GIRDER	N/A		REF 15: IH 20 WBML OVER BIG STINK CREEK	121.3	39.7				1046	270					
0908-00-119	08-177-0-0006-03-322	N/A	2-SPAN PRESTRESSED I-BEAM	N/A		REF 16: IH 20 EBML OVER PLUM CREEK	105	39.4										38
0908-00-120	08-177-0-0264-01-003	N/A	3-SPAN CONCRETE T-BEAM WIDENED WITH CONCRETE SLAB	N/A		REF 17: SH 70 OVER WALNUT CREEK	79.7	46.3					45					
0908-00-120	08-177-0-0264-03-008	N/A	4-SPAN CONCRETE T-BEAM WIDENED WITH CONCRETE SLAB	N/A		REF 18: SH 70 OVER COTTONWOOD CREEK (SOUTH)	98	43					11		30			
0908-00-120	08-177-0-0650-01-003	N/A	5 BARREL CULVERT	N/A		REF 19: SH 153 OVER FISH CREEK BRANCH	44.5	55.3							15			
						BIG SPRING AREA TOTALS				45	20	1275	575	5	45	8	128	38

SUMMARY OF BRIDGE ITEMS (CONTINUED)

BRIDGE LOCATION		CSJ		442 6011	446 6051	495 6001	496 6043	552 6001	636 6011	644 6064	644 6077	738 6010	784 6003	784 6034	785 6011	786 6001	7309 6002
				STR STEEL (PEDESTAL)	SPOT CLEAN & PAINT EXT STR (SPL PRT SYS)	RAISING EXIST STRUCT	REMOV STR (SMALL FENCE)	WIRE FENCE (TY A)	REPLACE EXISTING ALUMINUM SIGNS(TY O)	IN BRIDGE MNT CLEARANCE SGN ASSM(TY N)	REMOVE BRDG MNT CLEARANCE SIGN ASSM	CLEANING / SWEEPING (SPOT)	REP STL BRIDGE MEMBER (DIAPHRAGM)	REP STL BRIDGE MEMBER (STRAIGHTEN MEMB)	BRIDGE JOINT REPLACEMENT (SEJ)	CARBON FIBER REINF POLYMER PROTECTION	CLEANING STRUCTURE (ABUTMENT)
COUNTY	DESCRIPTION			LB	EA	LS	LF	LF	EA	EA	EA	MI	EA	EA	LF	SF	EA
BORDEN	REF 09: FM 669 OVER BULL CREEK	0908-00-119															
HOWARD	REF 10: IH 20 EB OVERPASS AT BUS 20 & BEALS CREEK	0908-00-119															
MITCHELL	REF 11: IH 20 EB OVERPASS AT SH 208 (SOUTH)	0908-00-119			1								2	1			
	REF 12: IH 20 UNDERPASS AT BUS 20 WB	0908-00-119		1390		0.7											2
NOLAN	REF 13: IH 20 EB OVERPASS AT HOPKINS RD	0908-00-119							1	1	1					132	
	REF 14: IH 20 UNDERPASS AT ROBERT LEE ST	0908-00-119										0.2					
	REF 15: IH 20 WBML OVER BIG STINK CREEK	0908-00-119															
	REF 16: IH 20 EBML OVER PLUM CREEK	0908-00-119													12		
	REF 17: SH 70 OVER WALNUT CREEK	0908-00-120															
	REF 18: SH 70 OVER COTTONWOOD CREEK (SOUTH)	0908-00-120															
	REF 19: SH 153 OVER FISH CREEK BRANCH	0908-00-120					33	33									
	BIG SPRING AREA TOTALS			1390	1	0.7	33	33	1	1	1	0.2	2	1	12.0	132	2

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

QUANTITY SUMMARIES
BIG SPRING AREA

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		10

DATE:
FILE:

DW: LJG CK: GK
DW: LJG CK: GK

SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS

	6185 6002
	TMA (STATIONARY)
	DAY
REF 20, US 277 NB OVER LAKE CREEK	22
REF 21, US 277 SB OVER LAKE CREEK	20
SNYDER AREA TOTALS	**42**

SUMMARY OF BRIDGE ITEMS

CSJ	BRIDGE NBI#		DESIGN		BRIDGE LOCATION		LENGTH	WIDTH		427 6007 EPOXY WATERPROOF FINISH (TY X)	429 6007 CONC STR REPAIR (VERTICAL & OVERHEAD)
	EXISTING	PROPOSED	EXISTING	PROPOSED	COUNTY	DESCRIPTION	FT	FT		SF	SF
0908-00-119	08-105-0-0157-03-009	N/A	8-SPAN CONCRETE T-BEAM WIDENED WITH CONCRETE SLAB	N/A	HASKELL	REF 20: US 277 NB OVER LAKE CREEK	212	46		366	803
0908-00-119	08-105-0-0157-03-045	N/A	7-SPAN CONCRETE PAN GIRDER	N/A		REF 21: US 277 SB OVER LAKE CREEK	212.3	44.3		1556	159
						SNYDER AREA TOTALS				**1922**	**962**

DATE:
FILE:

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

QUANTITY SUMMARIES
SNYDER AREA

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		11

CK: GK
DW: GK
CK:
DW:

TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS, BARRICADES, WORK ZONE MARKINGS AND DEVICES AS SHOWN HEREON SHALL BE IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (T.M.U.T.C.D.), LATEST REVISION.

2. FOR SPACING OF SIGNS AND BARRICADES SEE "BC" AND "TCP" STANDARD SHEETS OR AS DIRECTED BY ENGINEER.

3. BARRICADES, SIGNS, CHANNELIZING DEVICES AND OTHER TRAFFIC HANDLING DEVICES, MAY BE ADJUSTED OR SHIFTED TO FIT FIELD CONDITIONS OR AS REQUIRED FOR CONSTRUCTION AND SET UP, FOR THE VARIOUS PHASES, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

4. ADEQUATE SIGNS AND BARRICADES SHALL BE INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO OPENING ANY SECTION TO TRAFFIC. THE ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH ADDITIONAL SIGNS, BARRICADES AND CHANNELIZING DEVICES, AS REQUIRED TO MAINTAIN TRAFFIC AND MOTORIST SAFETY DURING CONSTRUCTION. ANY SUCH ADDITIONAL SIGNS AND BARRICADES, ETC. SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502 "BARRICADES, SIGNS, AND TRAFFIC HANDLING".

5. ALL SIGNS, BARRICADES, AND POSTS SHALL BE NEW AND KEPT CLEAN FOR THE DURATION OF THE PROJECTS.

6. IF NIGHT WORK IS REQUIRED, THE CONTRACTOR SHALL MAINTAIN ADEQUATE LIGHTING DURING CONSTRUCTION. A LIGHTING PLAN MUST BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. LIGHTING NEEDED TO PERFORM WORK SHALL NOT BE PAID FOR DIRECTLY AND SHOULD BE CONSIDERED SUBSIDIARY TO ITEM 502.

7. ALL ARROW BOARDS ARE SUBSIDIARY TO ITEM 502. FLAGGERS SHALL BE SUBSIDIARY TO OTHER TCP ITEMS.

8. THE CONTRACTOR SHALL PROVIDE FOR SAFE AND CONVENIENT INGRESS AND EGRESS TO ABUTTING PROPERTY, HIGHWAY, PUBLIC ROAD, AND STREET CROSSINGS WITHIN PROJECT LIMITS AT ALL TIMES. CONTRACTOR SHALL COORDINATE HIGH WORK ACTIVITIES TO MINIMIZE ANY INCONVENIENCE TO THE PUBLIC.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING THE LOCATION OF ALL TRAFFIC CONTROL STRIPING AND PERMANENT STRIPING AS DIRECTED BY THE ENGINEER.

10. PERMANENT STRIPING SHALL THEN BE PLACED IN ACCORDANCE WITH ALL APPLICABLE STANDARDS.

11. THE CONTRACTOR MAY SUBMIT AN ALTERNATE TCP AND/OR AN ALTERNATE SEQUENCE OF CONSTRUCTION, IN ADVANCED AND IN WRITING, SUBJECT TO THE APPROVAL OF THE ENGINEER. ALL PCTB SHALL BE USED IN ACCORDANCE WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS AND SHALL HAVE TY "C" DELINEATOR AS SHOWN ON BC(7)-13.

12. REFER TO PROJECT GENERAL NOTES FOR SPECIFIC MILESTONES AND OTHER REQUIREMENTS.

13. THE CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE FACILITIES UNTIL THOSE FACILITIES ARE REPLACED BY PERMANENT CONSTRUCTION OR THEIR FLOWS ARE REROUTED.

ABILENE AREA BRIDGES – SEQUENCE OF CONSTRUCTION BY LOCATION

REF 01: 08-030-0-0006-07-279 IH 20 UNDERPASS AT FM 603

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. DETOUR TRAFFIC AS SHOWN ON FM 603 DETOUR LAYOUT SHEET. CLOSE BRIDGE TO TRAFFIC.
5. CLOSE IH 20 OUTSIDE SHOULDER IN ACCORDANCE WITH TCP (5-1)-18 FOR WORK ZONE ACCESS BELOW BRIDGE.
6. PERFORM JACKING AND REPLACEMENT OF ELASTOMERIC BEARINGS.
7. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
8. REMOVE TRAFFIC CONTROL DEVICES AND RESTORE TRAFFIC TO FM 603 AND IH 20.

REF 02: 08-030-0-0006-07-283 IH 20 EB OVERPASS AT FM 604

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 LANES IN ACCORDANCE WITH TCP (6-1)-12 AS REQUIRED FOR DECK LEVEL REPAIRS. KEEP MINIMUM 1 LANE OPEN EACH DIRECTION AT ALL TIMES.
5. REPAIR JOINTS AND RESEAL JOINTS.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 03: 08-030-0-0006-07-290 IH 20 WB OVERPASS AT UNION HILL RD & CR 119

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 LANES IN ACCORDANCE WITH TCP (6-1)-12 AS REQUIRED FOR DECK LEVEL REPAIRS. KEEP MINIMUM 1 LANE OPEN EACH DIRECTION AT ALL TIMES.
5. REPAIR JOINTS AND RESEAL JOINTS.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 04: 08-030-0-0007-01-091 IH 20 UNDERPASS AT GUN RD

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. DETOUR TRAFFIC AS SHOWN ON GUN RD DETOUR LAYOUT SHEET. CLOSE BRIDGE TO TRAFFIC.
5. CLOSE IH 20 OUTSIDE LANES IN ACCORDANCE WITH TCP (6-1)-12 TO PROVIDE ADEQUATE WORK ZONE UNDER THE BRIDGE. KEEP MINIMUM 1 LANE OPEN EACH DIRECTION ON IH 20 AT ALL TIMES.
6. PERFORM JACKING AND REPLACEMENT OF ELASTOMERIC BEARINGS.
7. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
8. REMOVE TRAFFIC CONTROL DEVICES AND RESTORE TRAFFIC TO GUN RD AND IH 20.

REF 05: 08-209-0-0107-02-008 SH 6 OVER CLEAR FORK BRAZOS RIVER

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. PROVIDE ONE-LANE TWO-WAY OPERATION WITH FLAGGERS IN ACCORDANCE WITH TCP (2-2)-18. SHIFT SH 6 TRAFFIC TO NORTHBOUND LANE. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.
4. PERFORM JACKING AND REPLACEMENT OF ELASTOMERIC BEARINGS.
5. SHIFT SH 6 TRAFFIC TO SOUTHBOUND LANE PROVIDING ONE-LANE TWO-WAY OPERATION WITH FLAGGERS IN ACCORDANCE WITH TCP (2-2)-18. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.
6. COMPLETE BEARING REPAIRS.
7. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
8. REMOVE TRAFFIC CONTROL DEVICES AND RESTORE TRAFFIC TO SH 6.

REF 06: 08-221-0-0407-05-207 IH 20 OVER ELM CREEK RELIEF

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 SHOULDER IN ACCORDANCE WITH TCP (5-1)-18 AS REQUIRED FOR CONSTRUCTION STAGING.
5. PERFORM CULVERT REPAIRS.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 07: 08-221-0-0006-05-216 IH 20 UNDERPASS AT FULWILER RD

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. DETOUR TRAFFIC AS SHOWN ON FULWILER RD DETOUR LAYOUT SHEET. CLOSE BRIDGE TO TRAFFIC.
5. CLOSE IH 20 LANES IN ACCORDANCE WITH TCP (6-1)-12 TO PROVIDE ADEQUATE WORK ZONE UNDER THE BRIDGE. KEEP MINIMUM 1 LANE OPEN EACH DIRECTION ON IH 20 AT ALL TIMES.
6. PERFORM JACKING AND REPLACEMENT OF ELASTOMERIC BEARINGS.
7. PERFORM CONCRETE SUBSTRUCTURE REPAIRS.
8. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
9. REMOVE TRAFFIC CONTROL DEVICES.

REF 08: 08-221-0-0034-01-088 US 83 / US 84 UNDERPASS AT BUS 83 SB CONN

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. SHIFT BUS 83 SB CONN TRAFFIC AS SHOWN ON BUS 83 SB CONN TCP LAYOUT SHEET AND IN ACCORDANCE WITH TCP(6-6)-12.
5. PERFORM JACKING AND RESET SLIPPED ELASTOMERIC BEARINGS WITHIN WORK ZONE.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

STATE OF TEXAS
YAVOR V. YOTOV
111804
LICENSED
PROFESSIONAL ENGINEER
02-09-2024

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

TCP NARRATIVE
ABILENE AREA

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		12

DATE:
FILE:

DW: GK CK
DW: GK CK

TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS, BARRICADES, WORK ZONE MARKINGS AND DEVICES AS SHOWN HEREON SHALL BE IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (T.M.U.T.C.D.), LATEST REVISION.
2. FOR SPACING OF SIGNS AND BARRICADES SEE "BC" AND "TCP" STANDARD SHEETS OR AS DIRECTED BY ENGINEER.
3. BARRICADES, SIGNS, CHANNELIZING DEVICES AND OTHER TRAFFIC HANDLING DEVICES, MAY BE ADJUSTED OR SHIFTED TO FIT FIELD CONDITIONS OR AS REQUIRED FOR CONSTRUCTION AND SET UP, FOR THE VARIOUS PHASES, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
4. ADEQUATE SIGNS AND BARRICADES SHALL BE INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO OPENING ANY SECTION TO TRAFFIC. THE ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH ADDITIONAL SIGNS, BARRICADES AND CHANNELIZING DEVICES, AS REQUIRED TO MAINTAIN TRAFFIC AND MOTORIST SAFETY DURING CONSTRUCTION. ANY SUCH ADDITIONAL SIGNS AND BARRICADES, ETC. SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502 "BARRICADES, SIGNS, AND TRAFFIC HANDLING".
5. ALL SIGNS, BARRICADES, AND POSTS SHALL BE NEW AND KEPT CLEAN FOR THE DURATION OF THE PROJECTS.
6. IF NIGHT WORK IS REQUIRED, THE CONTRACTOR SHALL MAINTAIN ADEQUATE LIGHTING DURING CONSTRUCTION. A LIGHTING PLAN MUST BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. LIGHTING NEEDED TO PERFORM WORK SHALL NOT BE PAID FOR DIRECTLY AND SHOULD BE CONSIDERED SUBSIDIARY TO ITEM 502.
7. ALL ARROW BOARDS ARE SUBSIDIARY TO ITEM 502. FLAGGERS SHALL BE SUBSIDIARY TO OTHER TCP ITEMS.
8. THE CONTRACTOR SHALL PROVIDE FOR SAFE AND CONVENIENT INGRESS AND EGRESS TO ABUTTING PROPERTY, HIGHWAY, PUBLIC ROAD, AND STREET CROSSINGS WITHIN PROJECT LIMITS AT ALL TIMES. CONTRACTOR SHALL COORDINATE HIGH WORK ACTIVITIES TO MINIMIZE ANY INCONVENIENCE TO THE PUBLIC.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING THE LOCATION OF ALL TRAFFIC CONTROL STRIPING AND PERMANENT STRIPING AS DIRECTED BY THE ENGINEER.
10. PERMANENT STRIPING SHALL THEN BE PLACED IN ACCORDANCE WITH ALL APPLICABLE STANDARDS.
11. THE CONTRACTOR MAY SUBMIT AN ALTERNATE TCP AND/OR AN ALTERNATE SEQUENCE OF CONSTRUCTION, IN ADVANCED AND IN WRITING, SUBJECT TO THE APPROVAL OF THE ENGINEER. ALL PCTB SHALL BE USED IN ACCORDANCE WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS AND SHALL HAVE TY "C" DELINEATOR AS SHOWN ON BC(7)-13.
12. REFER TO PROJECT GENERAL NOTES FOR SPECIFIC MILESTONES AND OTHER REQUIREMENTS.
13. THE CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE FACILITIES UNTIL THOSE FACILITIES ARE REPLACED BY PERMANENT CONSTRUCTION OR THEIR FLOWS ARE REROUTED.

BIG SPRING AREA BRIDGES – SEQUENCE OF CONSTRUCTION BY LOCATION

REF 09: 08-017-0-0558-02-020 FM 669 OVER BULL CREEEK

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. PROVIDE ONE-LANE TWO-WAY OPERATION WITH FLAGGERS IN ACCORDANCE WITH TCP (2-2)-18. SHIFT FM 669 TRAFFIC TO SOUTHBOUND LANE. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.
5. PERFORM CONCRETE REPAIRS TO SUPERSTRUCTURE AND SUBSTRUCTURE ELEMENTS.
6. SHIFT FM 669 TRAFFIC TO NORTHBOUND LANE. PROVIDE ONE-LANE TWO-WAY OPERATION WITH FLAGGERS IN ACCORDANCE WITH TCP (2-2)-18. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.
7. PERFORM CONCRETE REPAIRS TO SUPERSTRUCTURE.
8. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
9. REMOVE TRAFFIC CONTROL DEVICES.

REF 10: 08-115-0-0005-06-129 IH 20 EB OVERPASS AT BUS 20 & BEALS CREEK

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE OUTSIDE LANE OF IH 20 EB IN ACCORDANCE WITH TCP (6-4b)-12.
5. PERFORM JACKING, REPAIR BEARING PEDESTALS AND RESET STEEL BEARINGS.
6. SHIFT TRAFFIC AND CLOSE INSIDE LANE OF IH 20 EB IN ACCORDANCE WITH TCP (6-4b)-12.
7. PERFORM JACKING, REPAIR BEARING PEDESTALS AND RESET STEEL BEARINGS.
8. REPAIR ABUTMENTS AND REPAIR DIAPHRAGM. CLEAN BENT CAPS.
9. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
10. REMOVE TRAFFIC CONTROL DEVICES.

REF 11: 08-168-0-0005-08-101 IH 20 EB OVERPASS AT SH 208 (SOUTH)

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 EB LANES IN ACCORDANCE WITH TCP (6-1)-12 AS REQUIRED FOR CONSTRUCTION STAGING. KEEP MINIMUM 1 LANE OPEN AT ALL TIMES.
5. REPAIR STEEL BRIDGE MEMBERS.
6. REPLACE CLEARANCE SIGN.
7. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
8. REMOVE TRAFFIC CONTROL DEVICES.

REF 12: 08-168-0-0006-01-266 IH 20 UNDERPASS AT BUS 20 WB

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 LANES IN ACCORDANCE WITH TCP (6-1)-12 TO PROVIDE ADEQUATE WORK ZONE UNDER THE BRIDGE.
5. CLOSE OUTSIDE LANE OF BUS 20 WB IN ACCORDANCE WITH TCP (1-5)-18.
6. PERFORM JACKING AND REPAIR STEEL BEARINGS.
7. SHIFT TRAFFIC AND CLOSE INSIDE LANE OF BUS 20 WB IN ACCORDANCE WITH TCP (1-5)-18.
8. PERFORM JACKING AND REPAIR STEEL BEARINGS.
9. PERMORM CONCRETE REPAIRS TO SUBSTRUCTURE ELEMENTS. CLEAN ABUTMENT CAPS AND PAINT BEARINGS.
10. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
11. REMOVE TRAFFIC CONTROL DEVICES.

REF 13: 08-177-0-0006-02-233 IH 20 EB OVERPASS AT HOPKINS RD

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 EB LANES IN ACCORDANCE WITH TCP (6-1)-12 AS REQUIRED FOR THE REPAIRS.
5. REPAIR DECK SOFFIT AND RIPRAP.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 14: 08-177-0-0006-02-237 IH 20 UNDERPASS AT ROBERT LEE ST

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. PROVIDE DAILY LANE CLOSURES ON ROBERT LEE ST AS NEEDED UTILIZING ONE-LANE TWO-WAY OPERATION WITH FLAGGERS IN ACCORDANCE WITH TCP (2-2)-18. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.
5. CLEAN AND SEAL DECK JOINTS. SWEEP BRIDGE DECK.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 15: 08-177-0-0006-03-065 IH 20 WBML OVER BIG STINK CREEK

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 LANES IN ACCORDANCE WITH TCP (6-1)-12 AS NEEDED FOR WORK ZONE ACCESS BELOW BRIDGE.
5. REPAIR CONCRETE SUBSTRUCTURE.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 16: 08-177-0-0006-03-322 IH 20 EBML OVER PLUM CREEK

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE IH 20 LANES IN ACCORDANCE WITH TCP (6-1)-12 AS REQUIRED FOR DECK LEVEL REPAIRS.
5. REPLACE SECTION OF ARMOR JOINT AND CLEAN & SEAL STRIP SEAL.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 17: 08-177-0-0264-01-003 SH 70 OVER WALNUT CREEK

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. PROVIDE ONE-LANE TWO-WAY OPERATION WITH FLAGGERS ALONG SH 70 AS NEEDED IN ACCORDANCE WITH TCP(2-2)-18. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.
5. REPAIR CONCRETE SUPERSTRUCTURE.
6. REPAIR CONCRETE DECK SOFFIT.
7. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
8. REMOVE TRAFFIC CONTROL DEVICES.

STATE OF TEXAS
YAVOR V. YOTOV
111804
LICENSED
PROFESSIONAL ENGINEER
02-09-2024

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

TCP NARRATIVE
BIG SPRING AREA

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		13

DATE:
FILE:

DW: GK CK
DW: GK CK

REF 18: 08-177-0-0264-03-008 SH 70 OVER COTTONWOOD CREEK (SOUTH)

1. *SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.*
2. *INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.*
3. *INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.*
4. *PROVIDE ONE-LANE TWO-WAY OPERATION WITH FLAGGERS ALONG SH 70 AS NEEDED IN ACCORDANCE WITH TCP(2-2)-18. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.*
5. *REPAIR CONCRETE SUPERSTRUCTURE.*
6. *REPAIR CONCRETE DECK SOFFIT.*
7. *REPLACE RIPRAP.*
8. *PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.*
9. *REMOVE TRAFFIC CONTROL DEVICES.*

REF 19: 08-177-0-0650-01-003 SH 153 OVER FISH CREEK BRANCH

1. *SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.*
2. *INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.*
3. *INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.*
4. *PROVIDE ONE-LANE TWO-WAY OPERATION WITH FLAGGERS ALONG SH 153 AS NEEDED IN ACCORDANCE WITH TCP(2-2)-18. TCP (2-2b)-18 WITH FLAGGERS SHALL ONLY BE USED DURING DAYTIME AND RESET AT END OF EACH DAY. FLAGGER AND ONE-LANE TWO-WAY OPERATION DURING NIGHTTIME IS NOT ALLOWED.*
5. *REPAIR EROSION ITEMS.*
6. *PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.*
7. *REMOVE TRAFFIC CONTROL DEVICES.*

DATE:
FILE:

STATE OF TEXAS
YAVOR V. YOTOV
111804
LICENSED
PROFESSIONAL ENGINEER

02-09-2024

NO.	DATE	REVISION	APPR BY

Texas Department of Transportation

TCP NARRATIVE
BIG SPRING AREA

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		14

DW: GK CK
DW: GK CK

TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS, BARRICADES, WORK ZONE MARKINGS AND DEVICES AS SHOWN HEREON SHALL BE IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (T.M.U.T.C.D.), LATEST REVISION.

2. FOR SPACING OF SIGNS AND BARRICADES SEE "BC" AND "TCP" STANDARD SHEETS OR AS DIRECTED BY ENGINEER.

3. BARRICADES, SIGNS, CHANNELIZING DEVICES AND OTHER TRAFFIC HANDLING DEVICES, MAY BE ADJUSTED OR SHIFTED TO FIT FIELD CONDITIONS OR AS REQUIRED FOR CONSTRUCTION AND SET UP, FOR THE VARIOUS PHASES, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

4. ADEQUATE SIGNS AND BARRICADES SHALL BE INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO OPENING ANY SECTION TO TRAFFIC. THE ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH ADDITIONAL SIGNS, BARRICADES AND CHANNELIZING DEVICES, AS REQUIRED TO MAINTAIN TRAFFIC AND MOTORIST SAFETY DURING CONSTRUCTION. ANY SUCH ADDITIONAL SIGNS AND BARRICADES, ETC. SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502 "BARRICADES, SIGNS, AND TRAFFIC HANDLING".

5. ALL SIGNS, BARRICADES, AND POSTS SHALL BE NEW AND KEPT CLEAN FOR THE DURATION OF THE PROJECTS.

6. IF NIGHT WORK IS REQUIRED, THE CONTRACTOR SHALL MAINTAIN ADEQUATE LIGHTING DURING CONSTRUCTION. A LIGHTING PLAN MUST BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. LIGHTING NEEDED TO PERFORM WORK SHALL NOT BE PAID FOR DIRECTLY AND SHOULD BE CONSIDERED SUBSIDIARY TO ITEM 502.

7. ALL ARROW BOARDS ARE SUBSIDIARY TO ITEM 502.

8. THE CONTRACTOR SHALL PROVIDE FOR SAFE AND CONVENIENT INGRESS AND EGRESS TO ABUTTING PROPERTY, HIGHWAY, PUBLIC ROAD, AND STREET CROSSINGS WITHIN PROJECT LIMITS AT ALL TIMES. CONTRACTOR SHALL COORDINATE HIGH WORK ACTIVITIES TO MINIMIZE ANY INCONVENIENCE TO THE PUBLIC.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING THE LOCATION OF ALL TRAFFIC CONTROL STRIPING AND PERMANENT STRIPING AS DIRECTED BY THE ENGINEER.

10. PERMANENT STRIPING SHALL THEN BE PLACED IN ACCORDANCE WITH ALL APPLICABLE STANDARDS.

11. THE CONTRACTOR MAY SUBMIT AN ALTERNATE TCP AND/OR AN ALTERNATE SEQUENCE OF CONSTRUCTION, IN ADVANCED AND IN WRITING, SUBJECT TO THE APPROVAL OF THE ENGINEER. ALL PCTB SHALL BE USED IN ACCORDANCE WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS AND SHALL HAVE TY "C" DELINEATOR AS SHOWN ON BC(7)-13.

12. REFER TO PROJECT GENERAL NOTES FOR SPECIFIC MILESTONES AND OTHER REQUIREMENTS.

13. THE CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE FACILITIES UNTIL THOSE FACILITIES ARE REPLACED BY PERMANENT CONSTRUCTION OR THEIR FLOWS ARE REROUTED.

SNYDER AREA BRIDGES – SEQUENCE OF CONSTRUCTION BY LOCATION

REF 20: 08-105-0-0157-03-009 US 277 NB OVER LAKE CREEK

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE US 277 NB SHOULDER IN ACCORDANCE WITH TCP (5-1)-18 AS REQUIRED FOR WORK ZONE ACCESS BELOW BRIDGE.
5. PERFORM CONCRETE REPAIRS TO SUPERSTRUCTURE & SUBSTRUCTURE ELEMENTS.
6. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
7. REMOVE TRAFFIC CONTROL DEVICES.

REF 21: 08-105-0-0157-03-045 US 277 SB OVER LAKE CREEK

1. SETUP BARRICADES AND ADVANCE WARNING SIGNS AS SHOWN IN THE TCP AND BC STANDARDS. SIGNS MAY BE ADJUSTED IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
2. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED LIMITING INSTALLATION TO INDIVIDUAL WORK AREA.
3. INSTALL TRAFFIC CONTROL DEVICES. REMOVE OR COVER SIGNS IN CONFLICT WITH THE TCP.
4. CLOSE US 277 SB SHOULDER IN ACCORDANCE WITH TCP (5-1)-18 AS REQUIRED FOR WORK ZONE ACCESS BELOW BRIDGE.
5. PERFORM CONCRETE REPAIRS TO SUPERSTRUCTURE & SUBSTRUCTURE ELEMENTS.
5. PERFORM FINAL CLEAN UP AND REMOVE ANY SW3P DEVICES.
6. REMOVE TRAFFIC CONTROL DEVICES.

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TCP NARRATIVE
SNYDER AREA

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		15

DATE:
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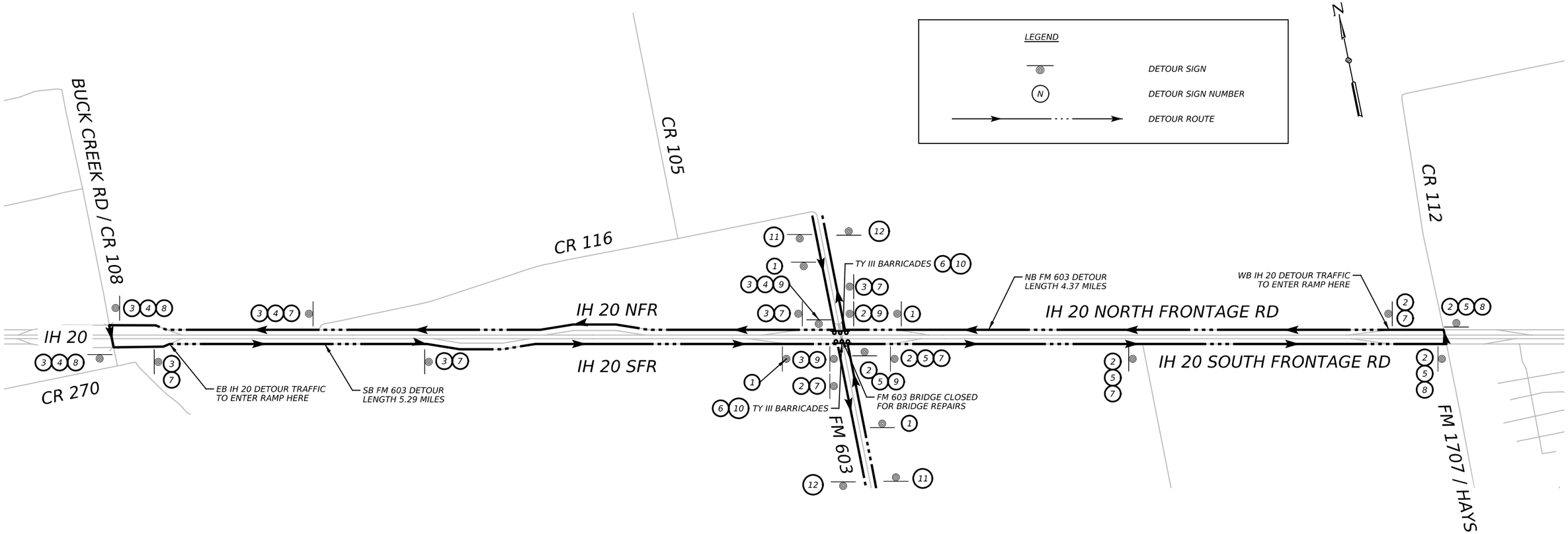

1. DETOUR AHEAD — CW20-2D
2. DETOUR / NORTH / FARM 603 ROAD — M4-8, M3-1, M1-6F
3. DETOUR / SOUTH / FARM 603 ROAD — M4-8, M3-3, M1-6F
4. DETOUR / EAST / INTERSTATE 20 — M4-8, M3-2, M1-1
5. DETOUR / WEST / INTERSTATE 20 — M4-8, M3-4, M1-1
6. BRIDGE CLOSED — R11-2aT
7. M6-3
8. M6-1L
9. M6-1R
10. DETOUR — M4-10R
11. ROAD CLOSED AHEAD — CW20-3D
12. END DETOUR — M4-8a

DETOUR ROUTES NARRATIVE

CLOSE FM 603 BRIDGE BETWEEN IH 20 NFR (NORTH FRONTAGE ROAD) AND IH 20 SFR (SOUTH FRONTAGE ROAD).

NB FM 603 DETOUR:
ALL NORTHBOUND FM 603 TRAFFIC AT IH 20 SFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 SFR, LEFT AT FM 1707/HAYS RD, LEFT AT IH 20 NFR, AND RIGHT AT FM 603 END DETOUR.
ALL EASTBOUND IH 20 SFR TRAFFIC AT FM 603 INTERSECTION INCLUDING EASTBOUND EXIT RAMP TO FM 603 TO BE DETOURED STRAIGHT ONTO IH 20 SFR, LEFT AT FM 1707/HAYS RD, LEFT AT IH 20 NFR, AND RIGHT AT FM 603 END DETOUR.

SB FM 603 DETOUR:
ALL SOUTHBOUND FM 603 TRAFFIC AT IH 20 NFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 NFR, LEFT AT BUCK CREEK RD, LEFT AT IH 20 SFR, AND RIGHT AT FM 603 END DETOUR.
ALL WESTBOUND IH 20 NFR TRAFFIC AT FM 603 INTERSECTION INCLUDING WESTBOUND EXIT RAMP TO FM 603 TO BE DETOURED STRAIGHT ONTO IH 20 NFR, LEFT AT BUCK CREEK RD, LEFT AT IH 20 SFR, AND RIGHT AT FM 603 END DETOUR.

WB IH 20 DETOUR:
ALL NORTHBOUND FM 603 TRAFFIC AT IH 20 SFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 SFR, LEFT AT FM 1707/HAYS RD, LEFT AT IH 20 NFR, AND SLIGHT LEFT TO ENTER WESTBOUND IH 20 RAMP END DETOUR.

EB IH 20 DETOUR:
ALL SOUTHBOUND FM 603 TRAFFIC AT IH 20 NFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 NFR, LEFT AT BUCK CREEK RD, LEFT AT IH 20 SFR, AND SLIGHT LEFT TO ENTER EASTBOUND IH 20 RAMP END DETOUR.

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FM 603
DETOUR LAYOUT

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		16

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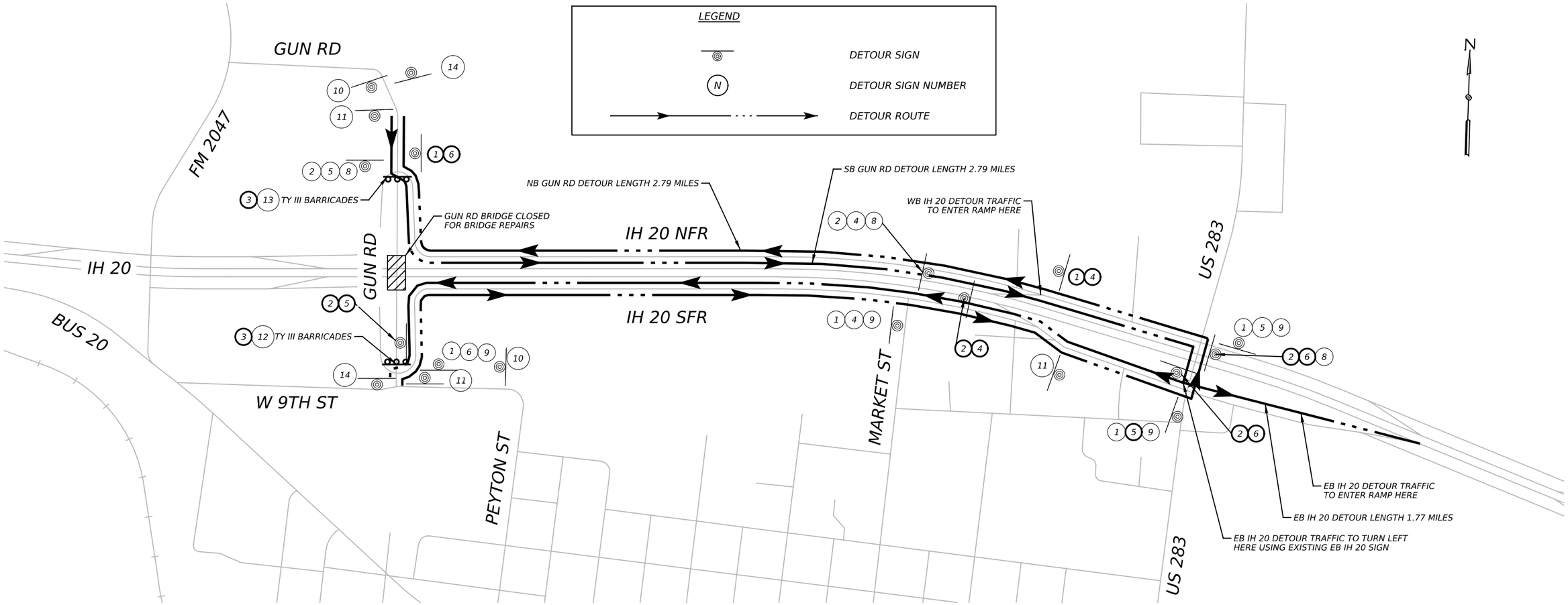

1 DETOUR / NORTH / GUN RD — M4-8, M3-1, M4-12T

2 DETOUR / SOUTH / GUN RD — M4-8, M3-3, M4-12T

3 BRIDGE CLOSED — R11-2aT

4 — M6-3

5 — M6-1L

6 — M6-1R

7 — M6-2L

8 DETOUR / EAST / INTERSTATE 20 — M4-8, M3-2, M1-1

9 DETOUR / WEST / INTERSTATE 20 — M4-8, M3-4, M1-1

10 ROAD CLOSED AHEAD — CW20-3D

11 DETOUR AHEAD — CW20-2D

12 DETOUR — M4-10R

13 DETOUR — M4-10L

14 END DETOUR — M4-8a

DETOUR ROUTES NARRATIVE

CLOSE GUN RD BRIDGE BETWEEN IH 20 NFR (NORTH FRONTAGE ROAD) JUGHANDLE RAMPS AND IH 20 SFR (SOUTH FRONTAGE ROAD) JUGHANDLE RAMPS.

NB GUN RD DETOUR:
ALL NORTHBOUND GUN RD TRAFFIC AT IH 20 SFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 SFR, LEFT AT US 283, LEFT AT IH 20 NFR, AND RIGHT AT GUN RD. END DETOUR.

SB GUN RD DETOUR:
ALL SOUTHBOUND GUN RD TRAFFIC AT IH 20 NFR INTERSECTION TO BE DETOURED LEFT ONTO IH 20 NFR, RIGHT AT US 283, RIGHT AT IH 20 SFR, AND LEFT AT GUN RD. END DETOUR.

WB IH 20 DETOUR:
ALL NORTHBOUND GUN RD TRAFFIC AT IH 20 SFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 SFR, LEFT AT US 283, LEFT AT IH 20 NFR, AND SLIGHT LEFT TO ENTER WESTBOUND IH 20 RAMP. END DETOUR.

EB IH 20 DETOUR:
ALL SOUTHBOUND GUN RD TRAFFIC AT IH 20 NFR INTERSECTION TO BE DETOURED LEFT ONTO IH 20 NFR, RIGHT AT US 283, LEFT AT IH 20 SFR, AND SLIGHT LEFT TO ENTER EASTBOUND IH 20 RAMP. END DETOUR.

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GUN RD
DETOUR LAYOUT

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		17

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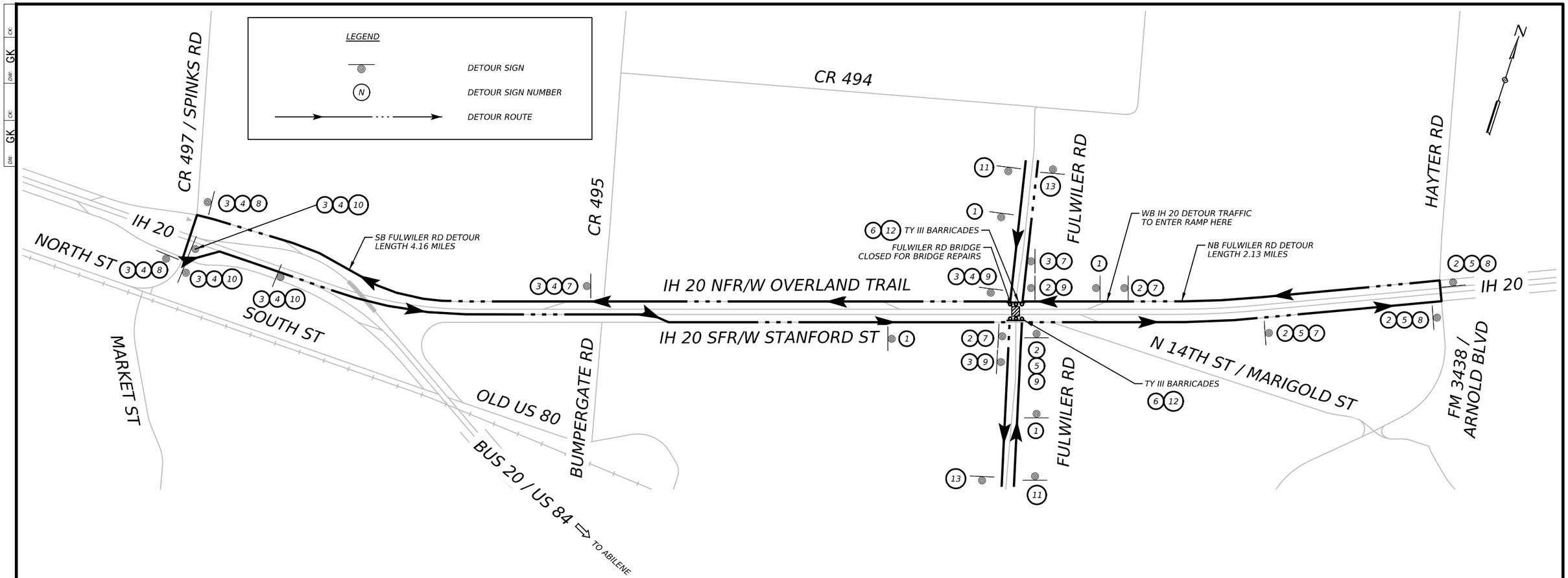

1 DETOUR AHEAD — CW20-2D

2 DETOUR — M4-8
NORTH — M3-1
FULWILER RD — M4-12T

3 DETOUR — M4-8
SOUTH — M3-3
FULWILER RD — M4-12T

4 DETOUR — M4-8
EAST — M3-2
INTERSTATE 20 — M1-1

5 DETOUR — M4-8
WEST — M3-4
INTERSTATE 20 — M1-1

6 BRIDGE CLOSED — R11-2aT

7 — M6-3

8 — M6-1L

9 — M6-1R

10 — M6-2L

11 ROAD CLOSED AHEAD — CW20-3D

12 DETOUR — M4-10R

13 END DETOUR — M4-8a

DETOUR ROUTES NARRATIVE

CLOSE FULWILER RD BRIDGE BETWEEN IH 20 NFR (NORTH FRONTAGE ROAD/W OVERLAND TRAIL) AND IH 20 SFR (SOUTH FRONTAGE ROAD/W STAMFORD ST).

NB FULWILER RD DETOUR:
ALL NORTHBOUND FULWILER RD TRAFFIC AT IH 20 SFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 SFR, LEFT AT FM 3438/ARNOLD BLVD, LEFT AT IH 20 NFR, AND RIGHT AT FULWILER RD. END DETOUR.
ALL EASTBOUND IH 20 SFR TRAFFIC AT FULWILER RD INTERSECTION INCLUDING EASTBOUND EXIT RAMP TO FULWILER RD TO BE DETOURED STRAIGHT ONTO IH 20 SFR, LEFT AT FM 3438/ARNOLD BLVD, LEFT AT IH 20 NFR, AND RIGHT AT FULWILER RD. END DETOUR.

SB FULWILER RD DETOUR:
ALL SOUTHBOUND FULWILER RD TRAFFIC AT IH 20 NFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 NFR, LEFT AT CR 497/SPINKS RD, LEFT AT IH 20 SFR, SLIGHT LEFT TO ENTER EASTBOUND IH 20 RAMP, SHIFT ONE LANE TO THE LEFT TO STAY ON EB IH 20, TAKE EXIT 280 TOWARDS FULWILER RD, AND RIGHT AT FULWILER RD. END DETOUR.

WB IH 20 DETOUR:
ALL NORTHBOUND FULWILER RD TRAFFIC AT IH 20 SFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 SFR, LEFT AT FM 3438/ARNOLD BLVD, LEFT AT IH 20 NFR, AND SLIGHT LEFT TO ENTER WESTBOUND IH 20 RAMP. END DETOUR.

EB IH 20 DETOUR:
ALL SOUTHBOUND FULWILER RD TRAFFIC AT IH 20 NFR INTERSECTION TO BE DETOURED RIGHT ONTO IH 20 NFR, LEFT AT CR 497/SPINKS RD, LEFT AT IH 20 SFR, SLIGHT LEFT TO ENTER EASTBOUND IH 20 RAMP, AND SHIFT ONE LANE TO THE LEFT TO STAY ON EB IH 20. END DETOUR.

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FULWILER RD DETOUR LAYOUT

SHEET 1 OF 1

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0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		18

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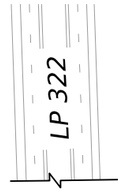
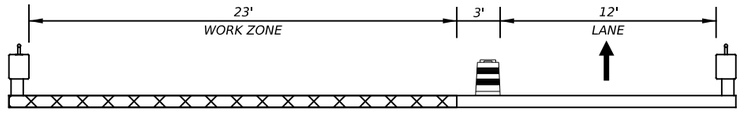
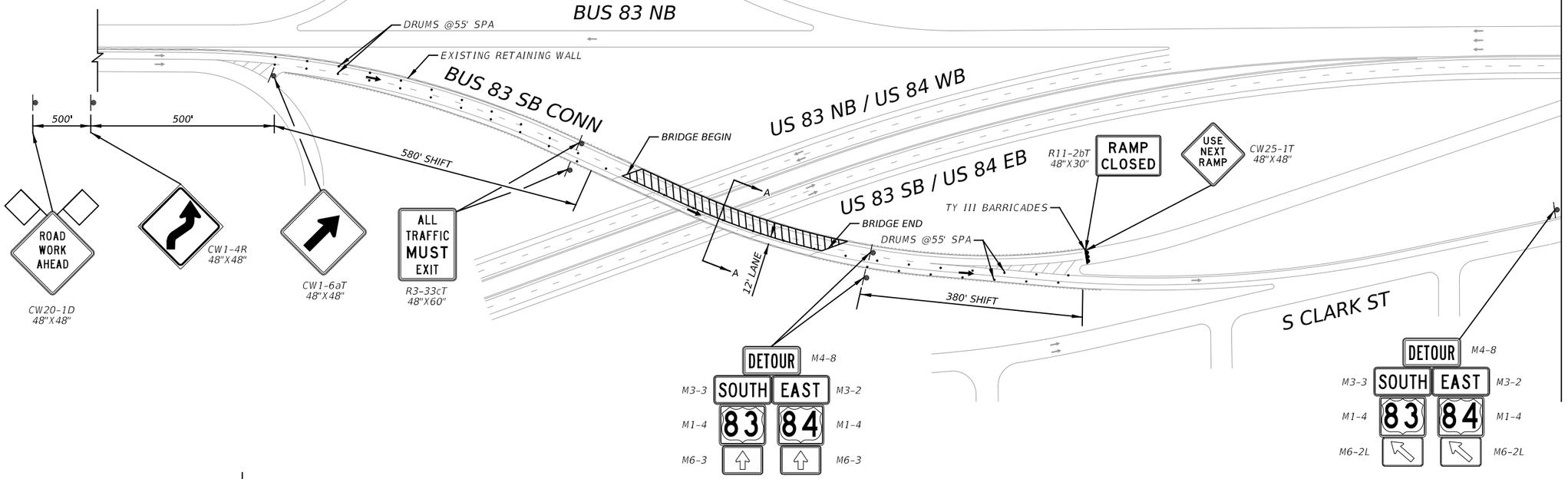
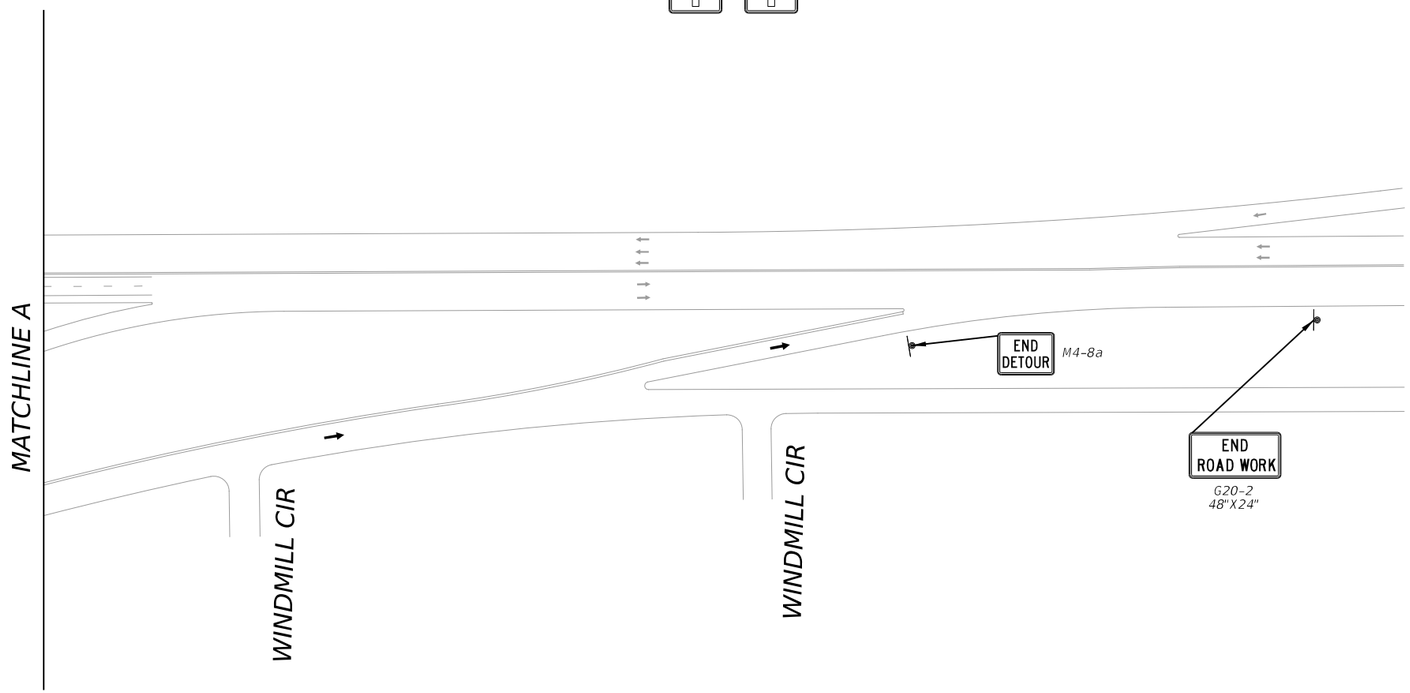




TCP TYPICAL SECTION A-A
N.T.S.





LEGEND

- PROPOSED WORK AREA
- DETOUR SIGN
- TY III BARRICADES

02-09-2024

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BUS 83 SB CONN
TCP LAYOUT

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		19

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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

SHEET 1 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	ABL	TAYLOR, ETC.		20
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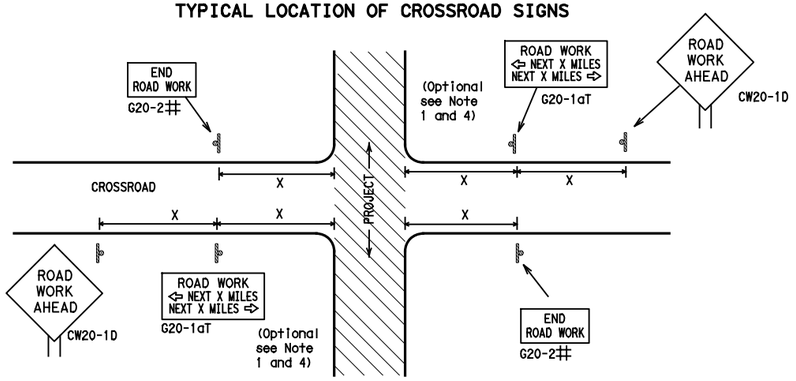
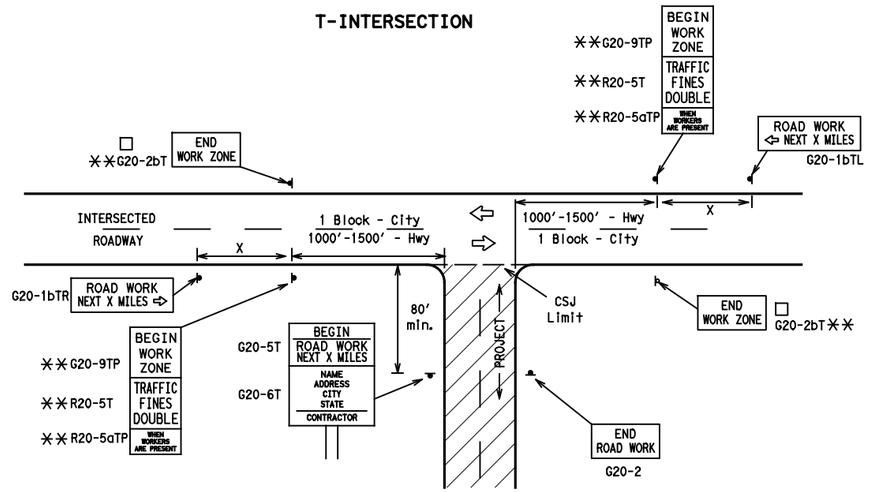
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

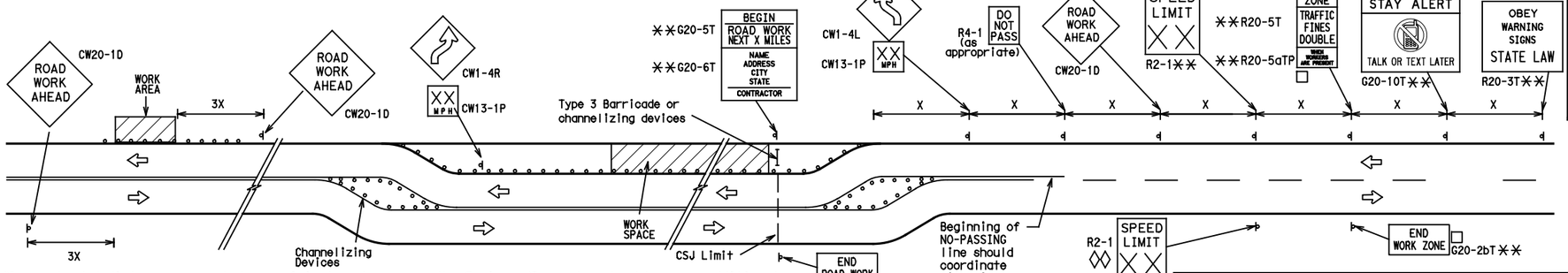
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ 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.

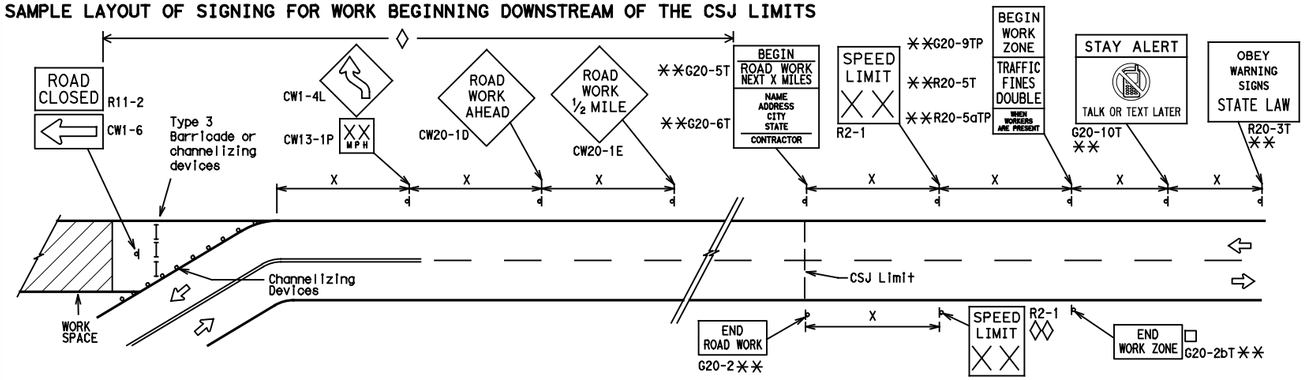
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ABL	TAYLOR, ETC.		21

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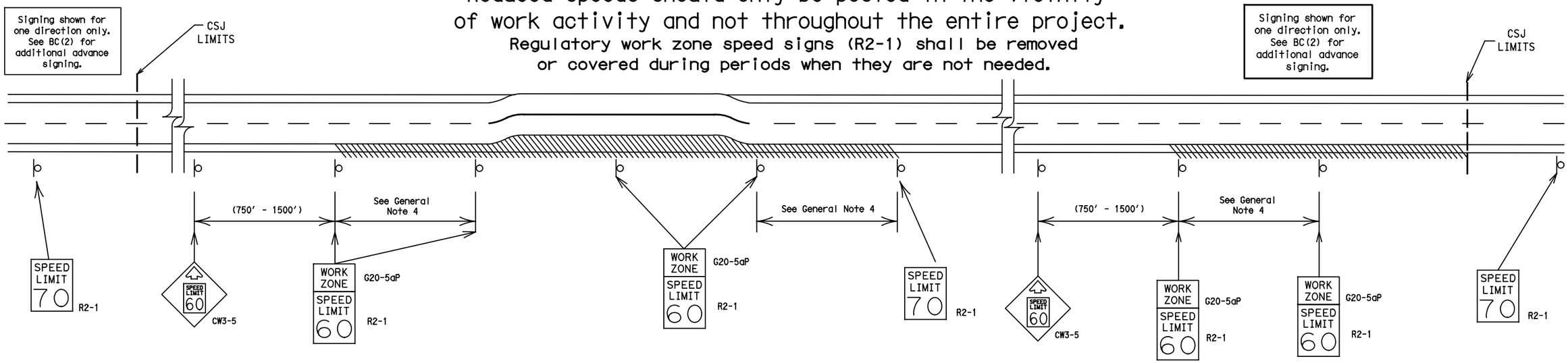
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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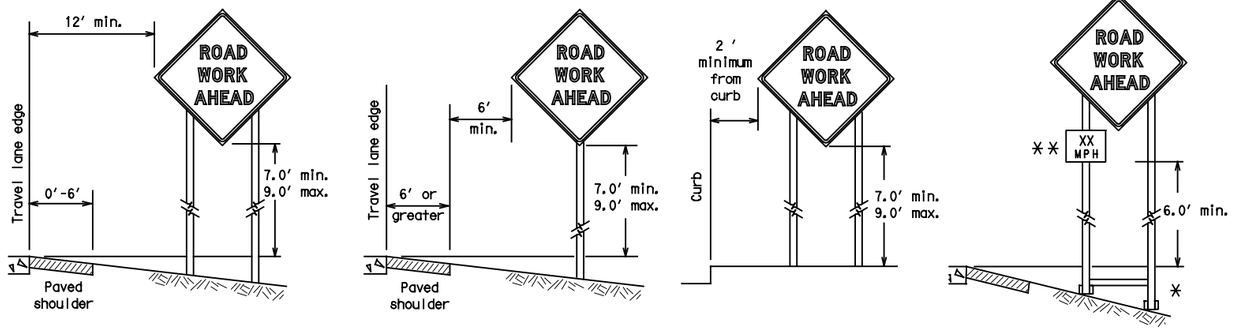
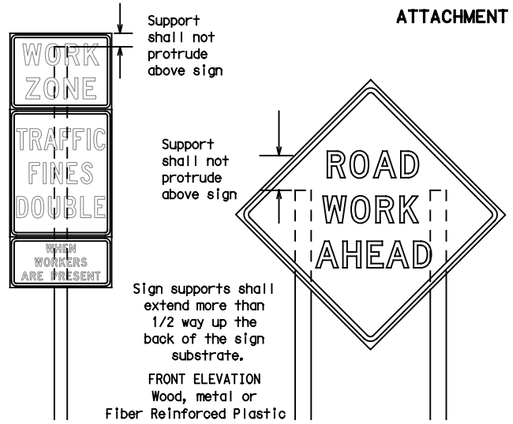
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



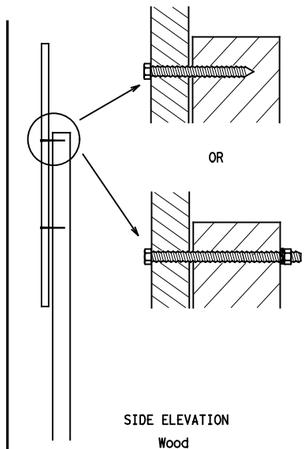
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ 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



FRONT ELEVATION
Wood, metal or
Fiber Reinforced Plastic



SIDE ELEVATION
Wood

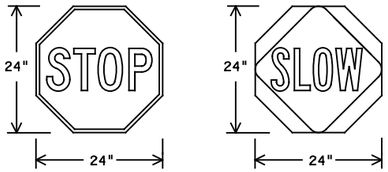
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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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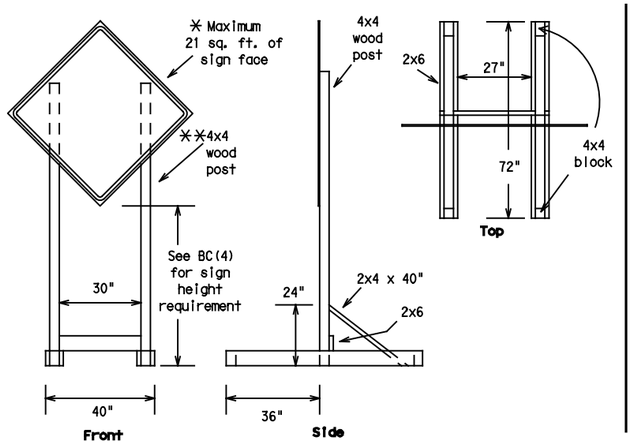
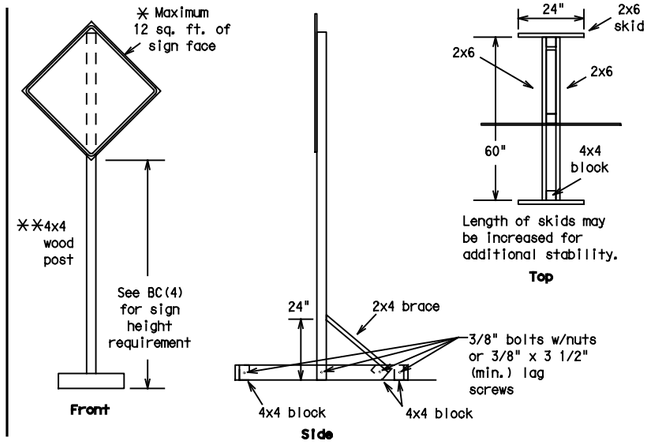
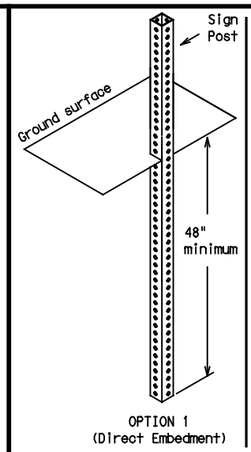
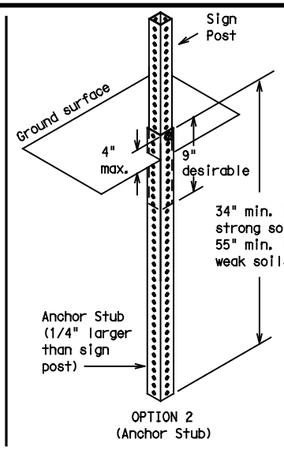


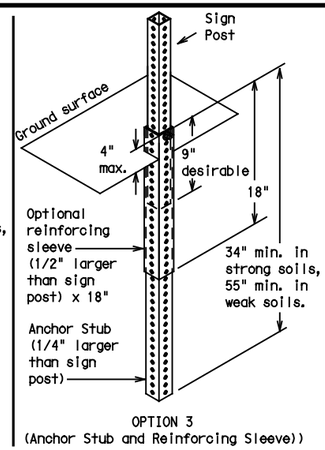


SKID MOUNTED WOOD SIGN SUPPORTS

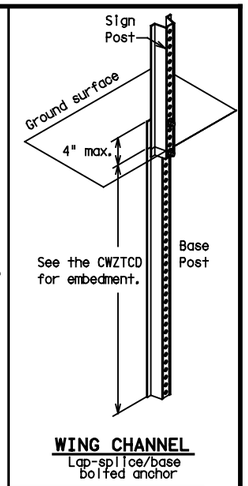
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







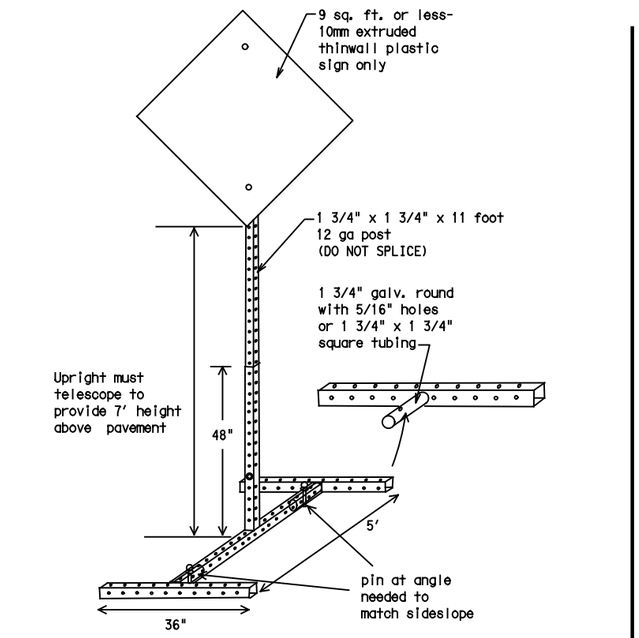
PERFORATED SQUARE METAL TUBING

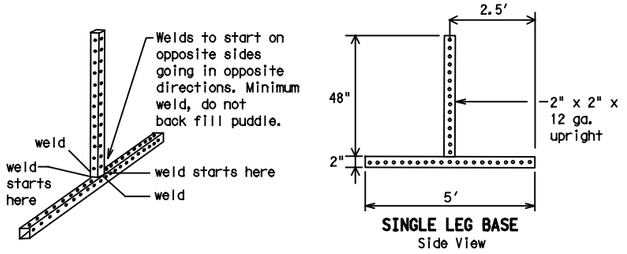


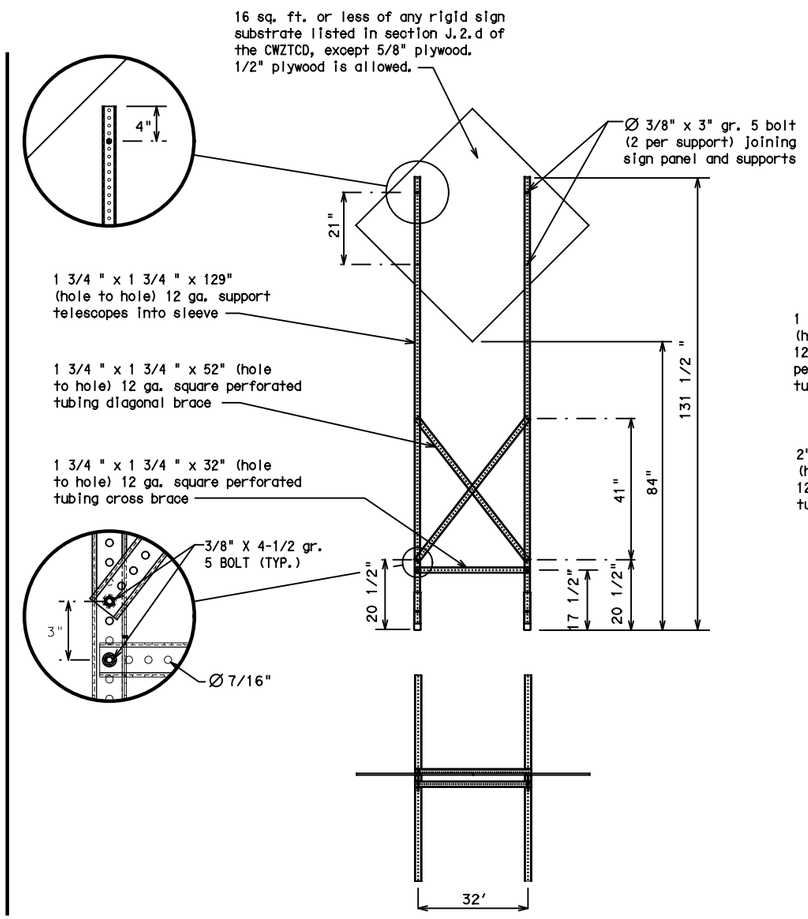
WING CHANNEL
Lap-splice/base bolted anchor

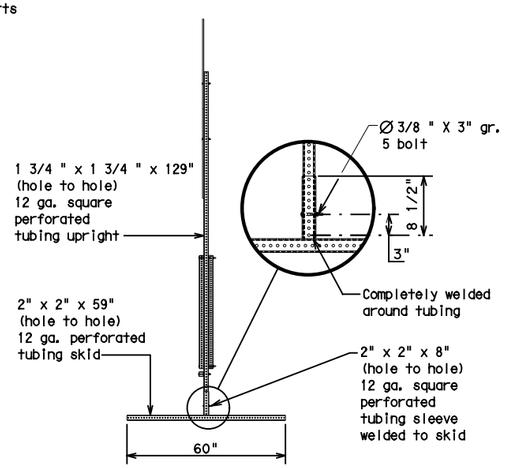
GROUND MOUNTED SIGN SUPPORTS

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.

SHEET 5 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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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

- FREEWAY CLOSED X MILE
- FRONTAGE ROAD CLOSED
- ROAD CLOSED AT SH XXX
- SHOULDER CLOSED XXX FT
- ROAD CLSD AT FM XXXX
- RIGHT LN CLOSED XXX FT
- RIGHT X LANES CLOSED
- RIGHT X LANES OPEN
- CENTER LANE CLOSED
- DAYTIME LANE CLOSURES
- NIGHT LANE CLOSURES
- I-XX SOUTH EXIT CLOSED
- VARIOUS LANES CLOSED
- EXIT XXX CLOSED X MILE
- EXIT CLOSED
- RIGHT LN TO BE CLOSED
- MALL DRIVEWAY CLOSED
- X LANES CLOSED TUE - FRI
- XXXXXXXX BLVD CLOSED

Other Condition List

- ROADWORK XXX FT
- ROAD REPAIRS XXXX FT
- FLAGGER XXXX FT
- LANE NARROWS XXXX FT
- RIGHT LN NARROWS XXXX FT
- TWO-WAY TRAFFIC XX MILE
- MERGING TRAFFIC XXXX FT
- CONST TRAFFIC XXX FT
- LOOSE GRAVEL XXXX FT
- UNEVEN LANES XXXX FT
- DETOUR X MILE
- ROUGH ROAD XXXX FT
- ROADWORK PAST SH XXXX
- ROADWORK NEXT FRI-SUN
- BUMP XXXX FT
- US XXX EXIT X MILES
- TRAFFIC SIGNAL XXXX FT
- LANES SHIFT *

* 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

- MERGE RIGHT
- FORM X LINES RIGHT
- DETOUR NEXT X EXITS
- USE XXXXX RD EXIT
- USE EXIT XXX
- USE EXIT I-XX NORTH
- STAY ON US XXX SOUTH
- USE I-XX E TO I-XX N
- TRUCKS USE US XXX N
- WATCH FOR TRUCKS
- WATCH FOR TRUCKS
- EXPECT DELAYS
- EXPECT DELAYS
- PREPARE TO STOP
- REDUCE SPEED XXX FT
- END SHOULDER USE
- USE OTHER ROUTES
- WATCH FOR WORKERS
- STAY IN LANE *

Location List

- AT FM XXXX
- BEFORE RAILROAD CROSSING
- NEXT X MILES
- PAST US XXX EXIT
- XXXXXXX TO XXXXXXX
- US XXX TO FM XXXX

Warning List

- SPEED LIMIT XX MPH
- MAXIMUM SPEED XX MPH
- MINIMUM SPEED XX MPH
- ADVISORY SPEED XX MPH
- RIGHT LANE EXIT
- USE CAUTION
- DRIVE SAFELY
- DRIVE WITH CARE

** Advance Notice List

- TUE-FRI XX AM- X PM
- APR XX-XX X PM-X AM
- BEGINS MONDAY
- BEGINS MAY XX
- MAY X-X XX PM - XX AM
- NEXT FRI-SUN
- XX AM TO XX PM
- NEXT TUE AUG XX
- TONIGHT XX PM- XX AM

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

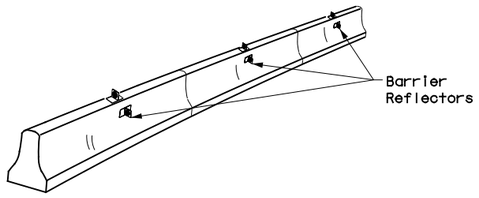
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

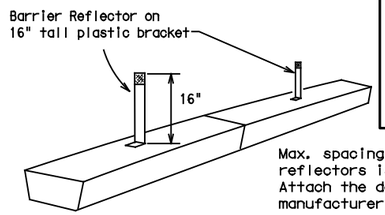
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ABL	TAYLOR, ETC.		25

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.



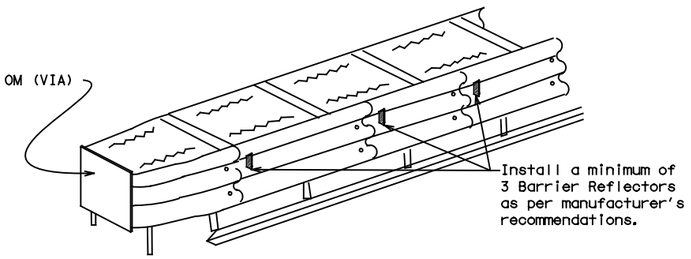
CONCRETE TRAFFIC BARRIER (CTB)

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)



DELINEATION OF END TREATMENTS

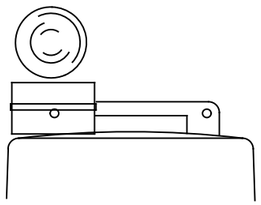
LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

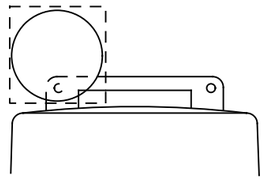
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate 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

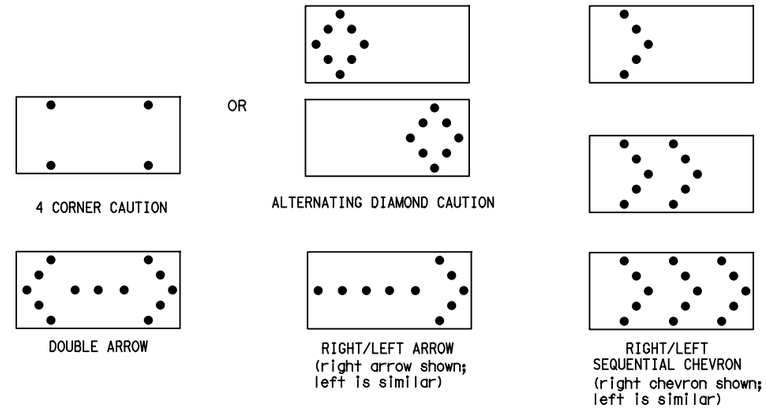
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ABL	TAYLOR, ETC.		26

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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:

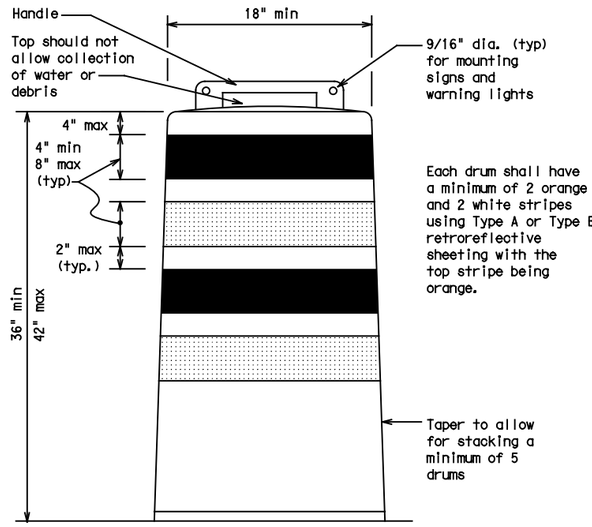
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

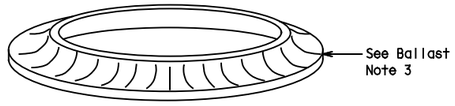
RETROREFLECTIVE SHEETING

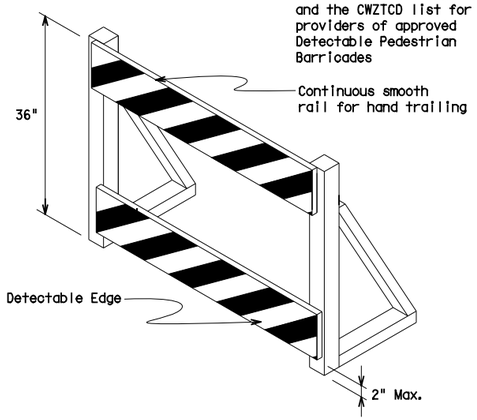
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

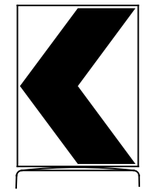




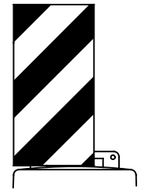


DETECTABLE PEDESTRIAN BARRICADES

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.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	ABL	TAYLOR, ETC.		27
7-13				

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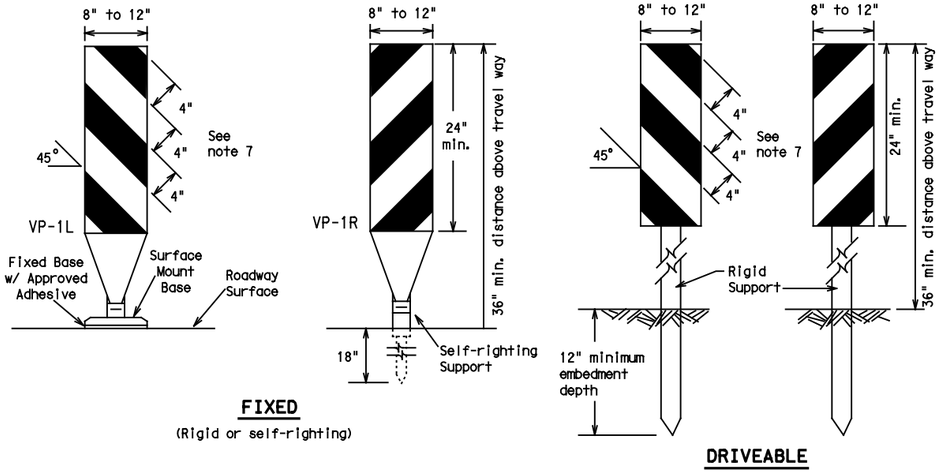
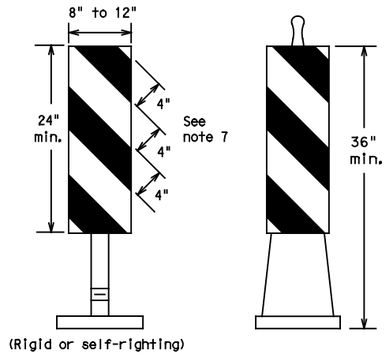


FIXED
(Rigid or self-righting)

DRIVEABLE

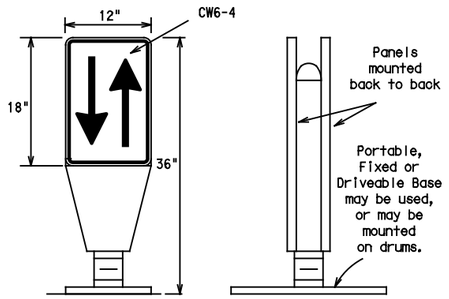


(Rigid or self-righting)

PORTABLE

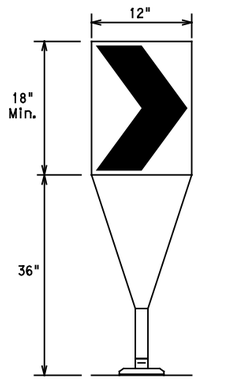
VERTICAL PANELS (VPs)

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



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



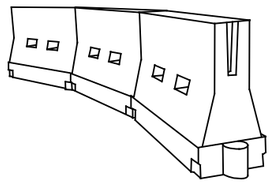
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

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Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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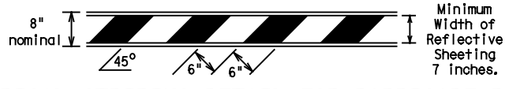
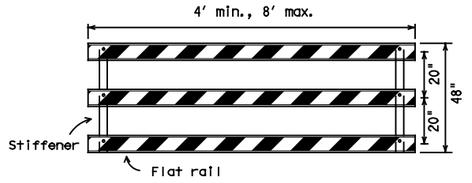
TYPE 3 BARRICADES

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.



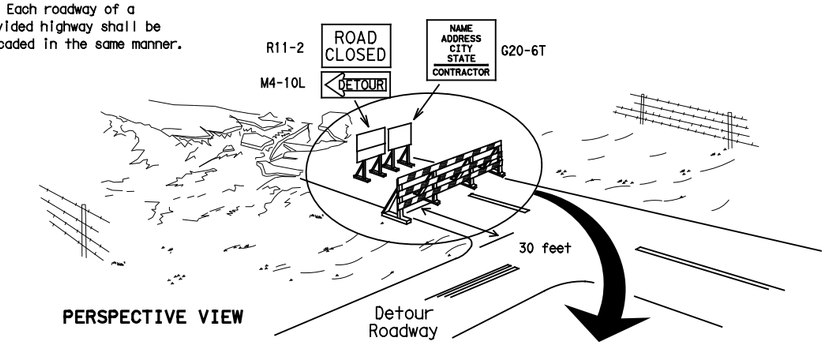
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

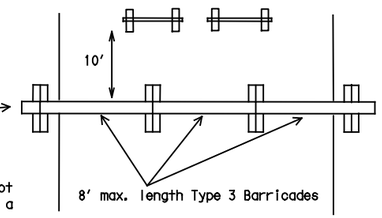
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

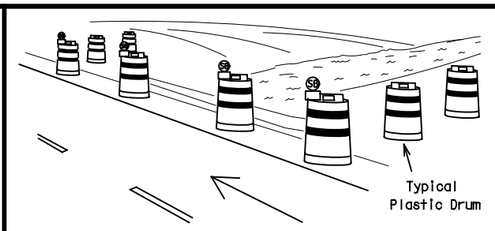
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

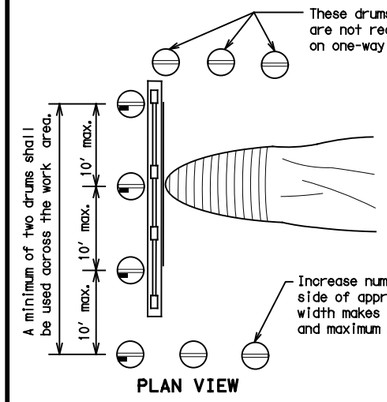
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

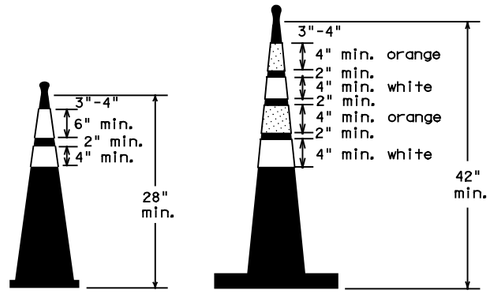
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



PLAN VIEW

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

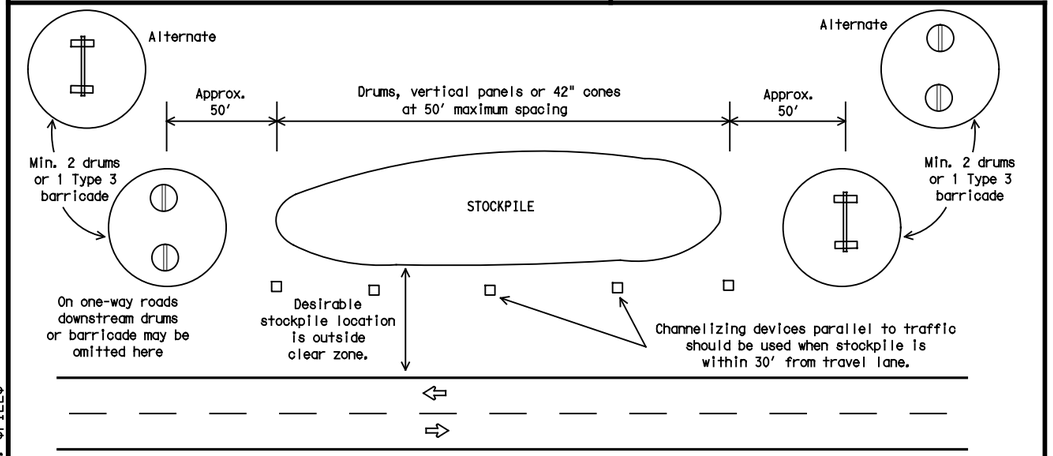
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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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.

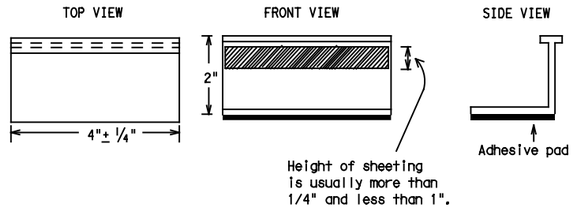
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

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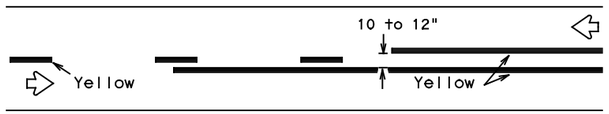
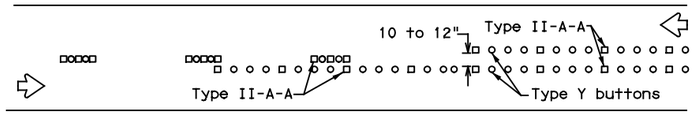
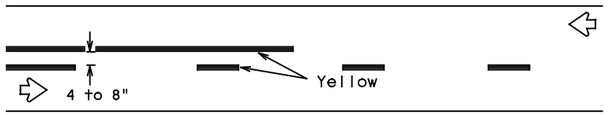
PAVEMENT MARKING PATTERNS



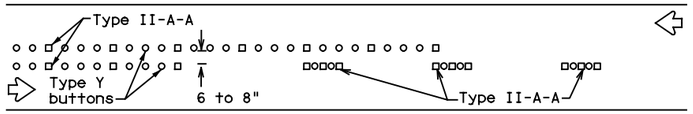
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



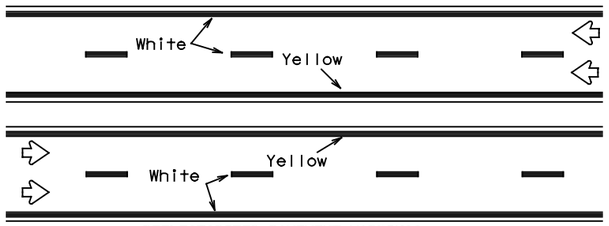
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



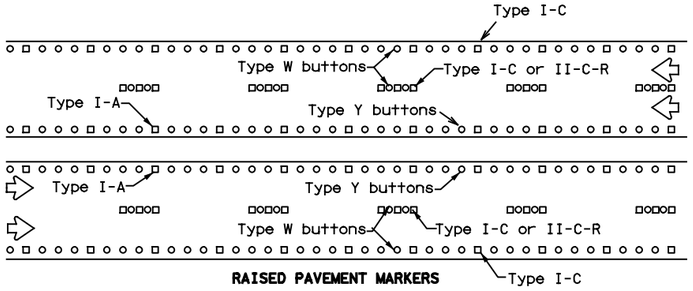
RAISED PAVEMENT MARKERS - PATTERN B

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



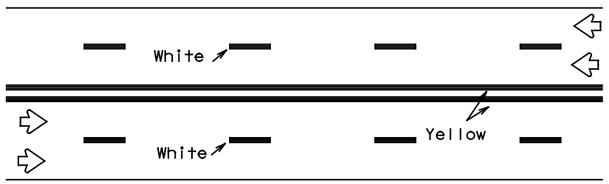
REFLECTORIZED PAVEMENT MARKINGS



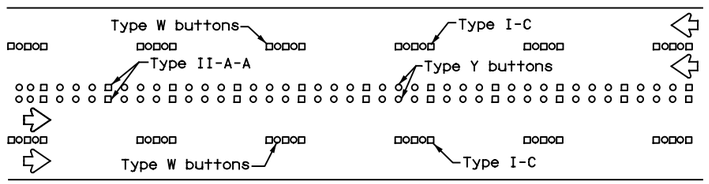
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



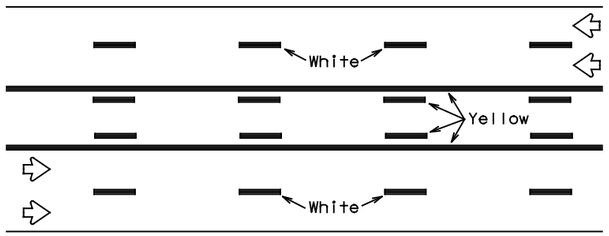
REFLECTORIZED PAVEMENT MARKINGS



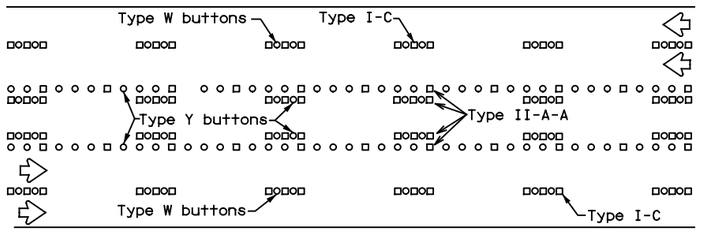
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

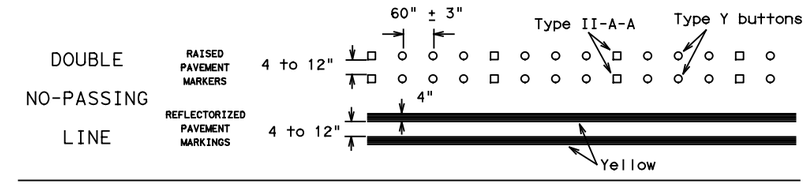
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

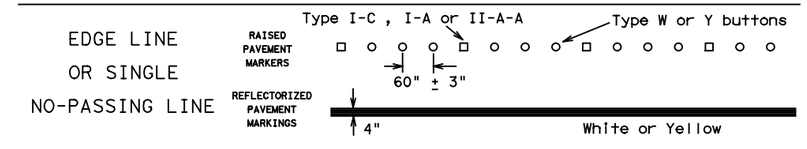
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

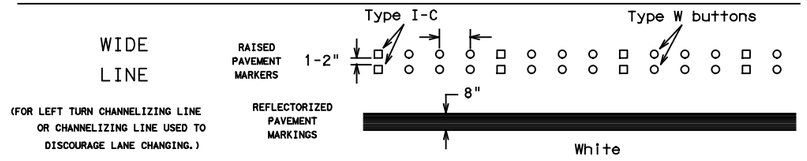


EDGE LINE OR SINGLE NO-PASSING LINE



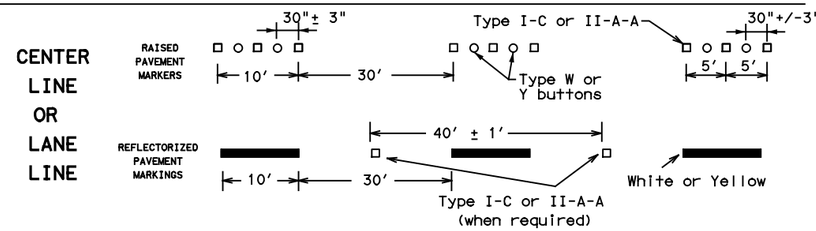
WIDE LINE

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

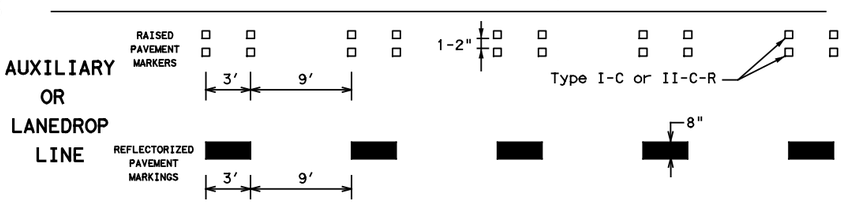


BROKEN LINES

CENTER LINE OR LANE LINE

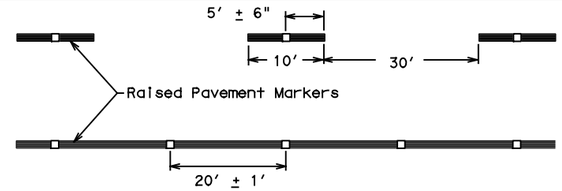


AUXILIARY OR LANEDROP LINE



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
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		31

106

DATE: 2/8/2024 7:55:00 PM
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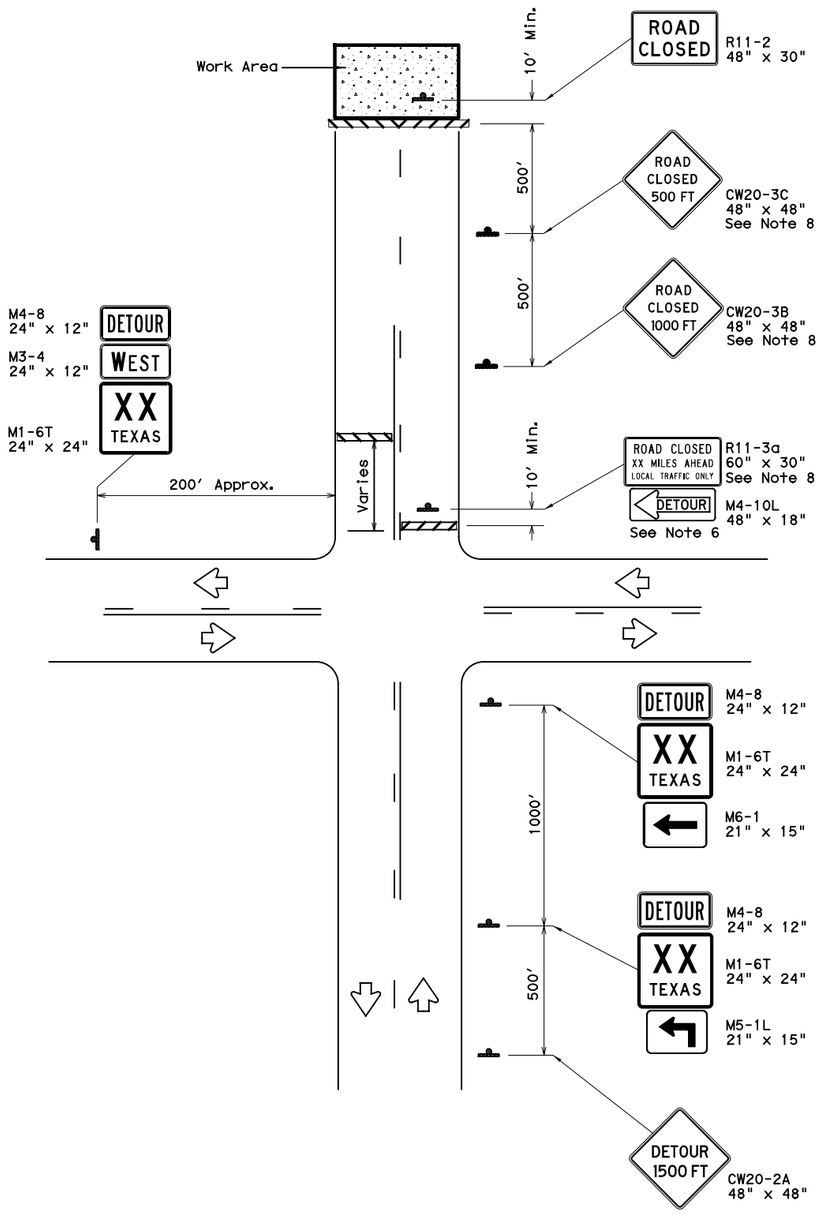
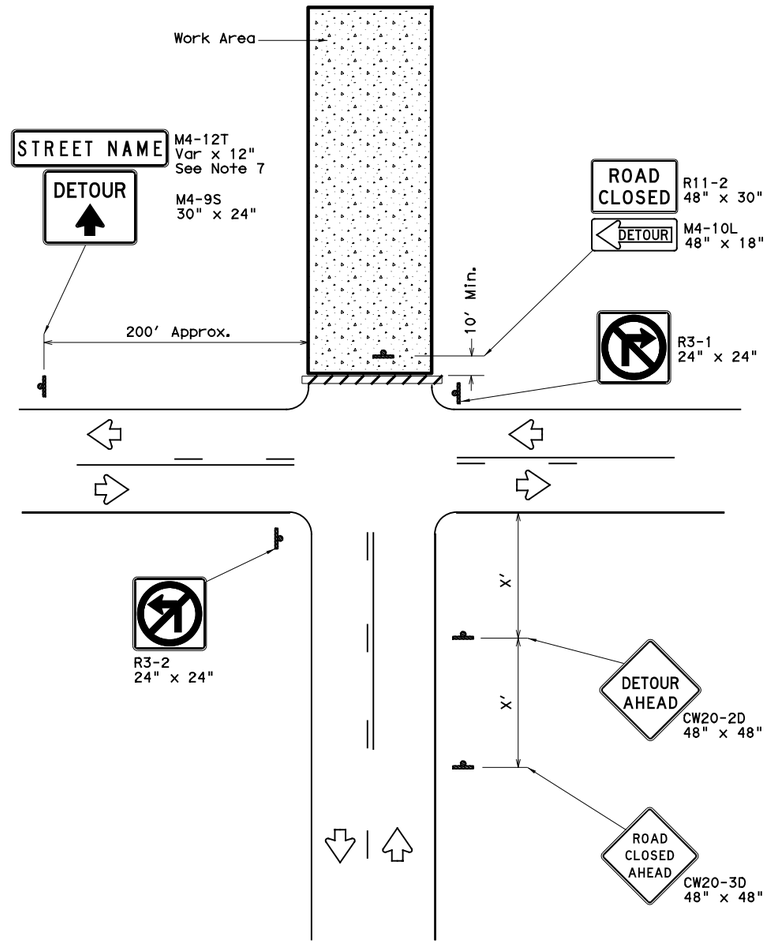
DATE: 2/8/2024 7:55:09 PM
FILE: $FILE$



ROAD CLOSURE BEYOND THE INTERSECTION

Signing for a Numbered Route with an Off-Site Detour



ROAD CLOSURE AT THE INTERSECTION

Signing for an Un-numbered Route with an Off-Site Detour

LEGEND	
	Type 3 Barricade
	Sign

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

GENERAL NOTES

1. This sheet is intended to provide details for temporary work zone road closures. For permanent road closure details see the D&OM standards.
2. Barricades used shall meet the requirements shown on Barricade and Construction Standard BC(10) and listed on the Compliant Work Zone Traffic Control Devices list (CWZTCD).
3. Stockpiled materials shall not be placed on the traffic side of barricades.
4. Barricades at the road closure should extend from pavement edge to pavement edge.
5. Detour signing shown is intended to illustrate the type of signing that is appropriate for numbered routes or un-numbered routes as labeled. It does not indicate the full extent of detour signing required. Detour routes should be signed as shown elsewhere in the plans.
6. If the road is open for a significant distance beyond the intersection or there are significant origin/destination points beyond the intersection, the signs and barricades at this location should be located at the edge of the traveled way.
7. The Street Name (M4-12T) sign is to be placed above the DETOUR (M4-9S) sign.
8. For urban areas where there is a shorter distance between the intersection and the actual closure location, the ROAD CLOSED XX MILES AHEAD (R11-3a) sign may be replaced with a ROAD CLOSED TO THRU TRAFFIC (R11-4) sign. If adequate space does not exist between the intersection and the closure a single ROAD CLOSED AHEAD (CW20-3D) sign spaced as per the table above may replace the ROAD CLOSED 1000 FT (CW20-3B) and ROAD CLOSED 500 FT (CW20-3C) signs.
9. Signs and barricades shown shall be subsidiary to Item 502. Locations where these details will be required shall be as shown elsewhere in the plans.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE ROAD CLOSURE DETAILS

WZ(RCD)-13

FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
1-97 4-98 7-13	DIST	COUNTY		SHEET NO.
2-98 3-03	ABL	TAYLOR, ETC.		32

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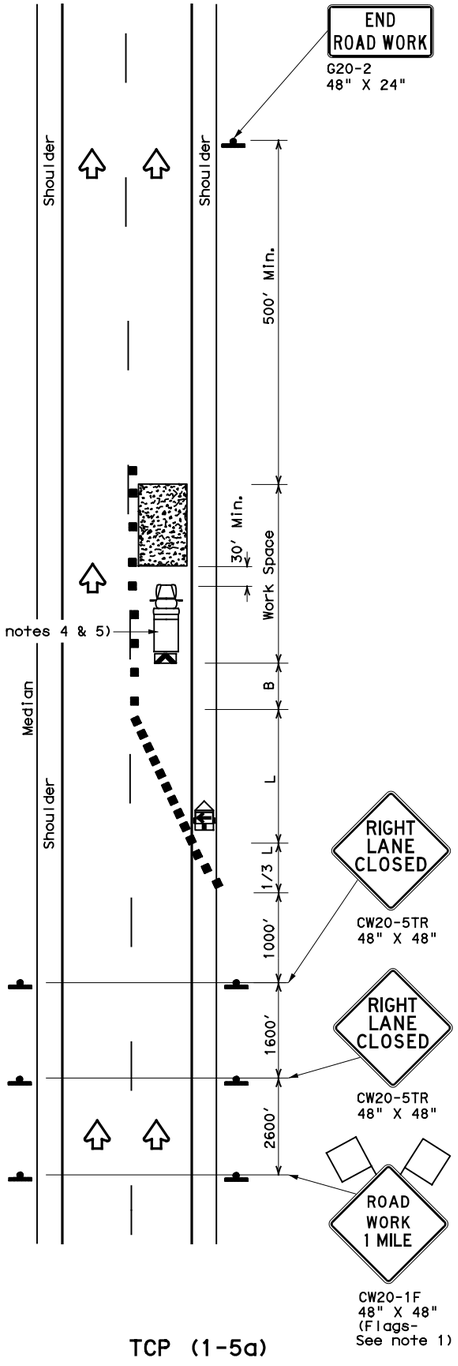
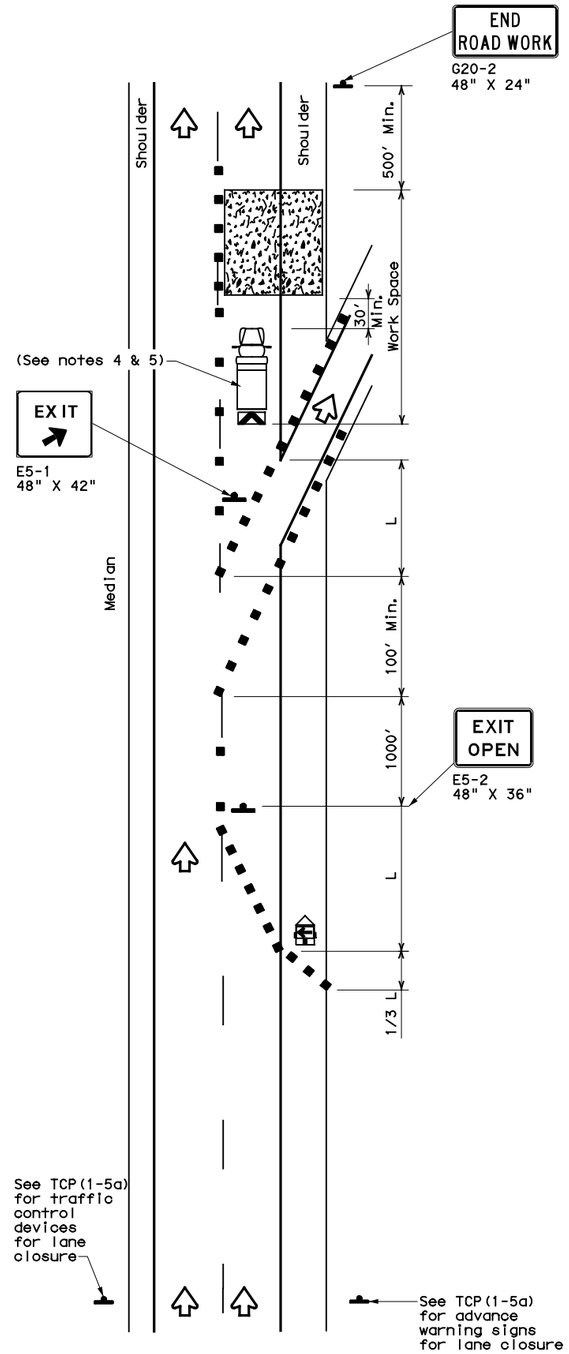
DATE:
FILE:



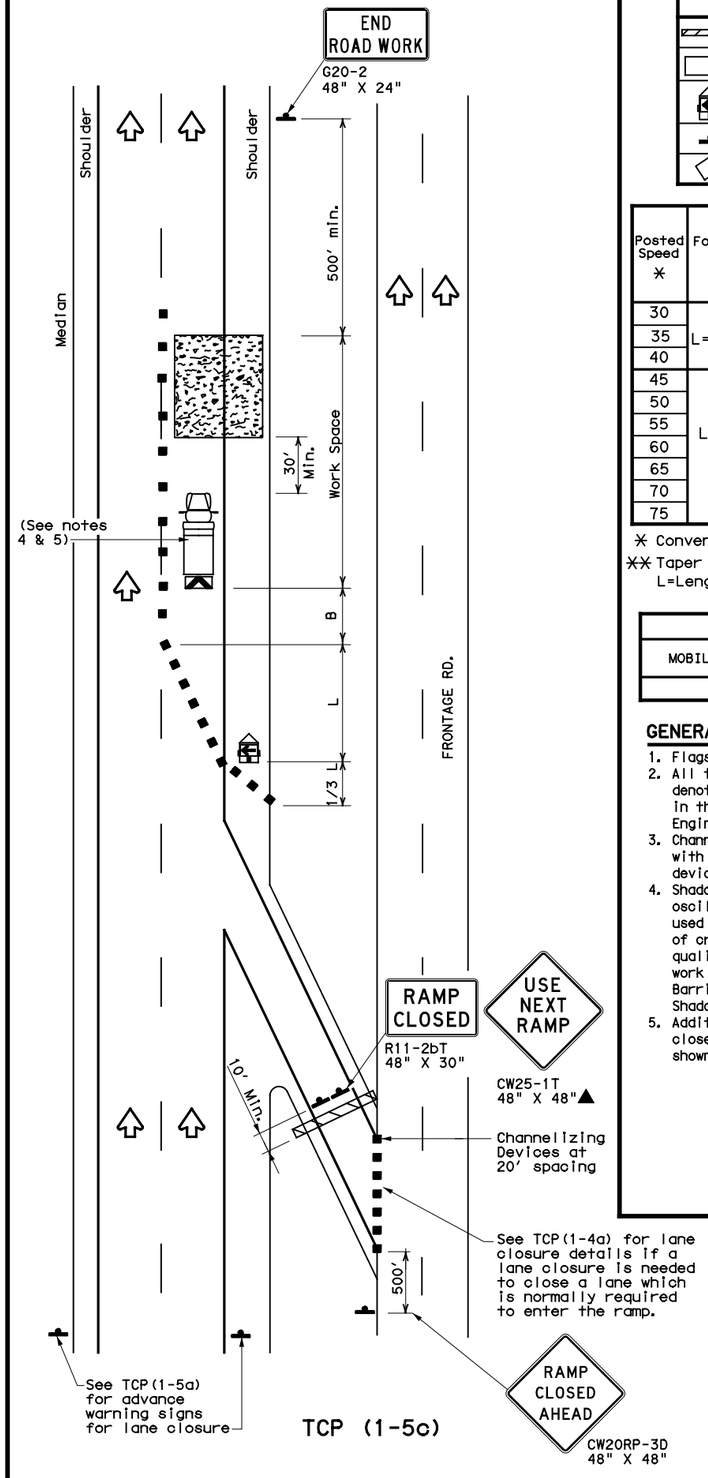
TCP (1-5a)

ONE LANE CLOSURE



TCP (1-5b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (1-5c)

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. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

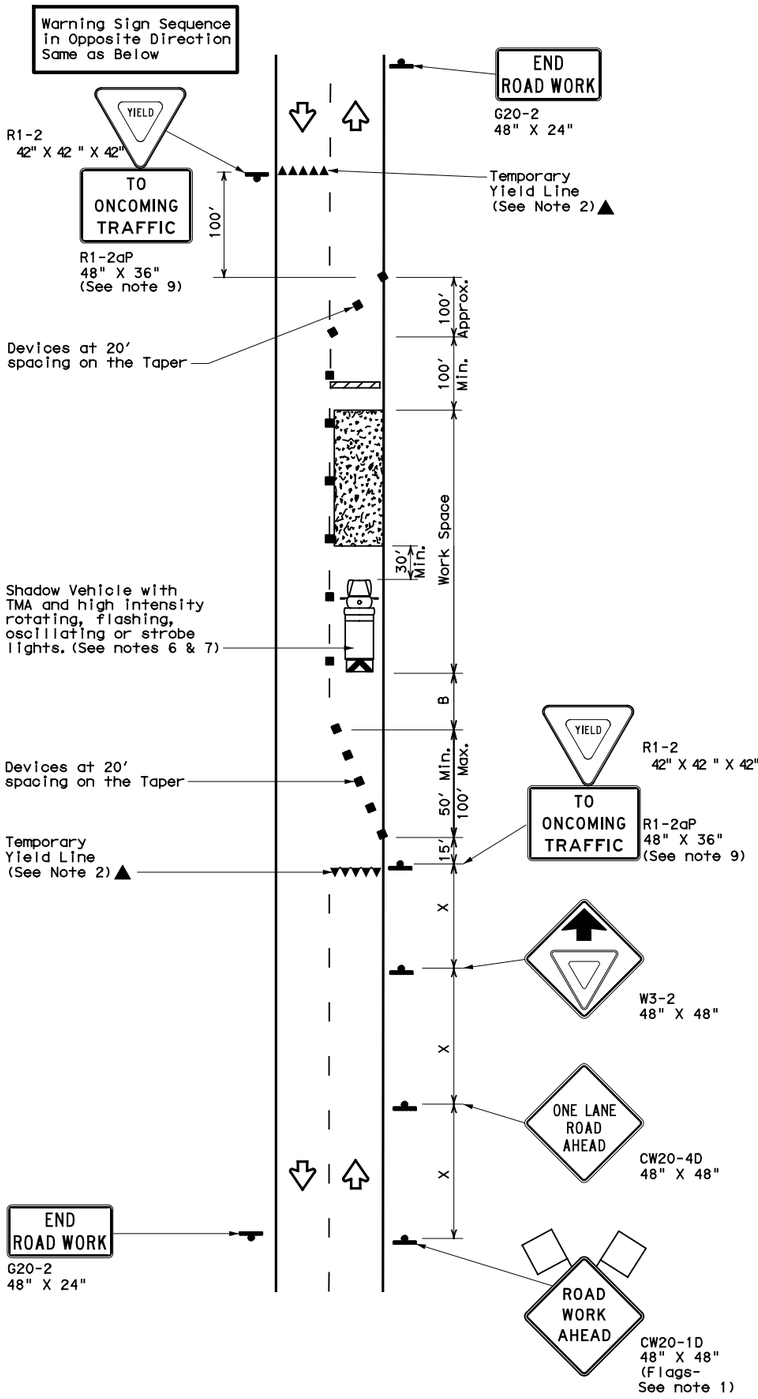
Texas Department of Transportation

Traffic Operations Division Standard

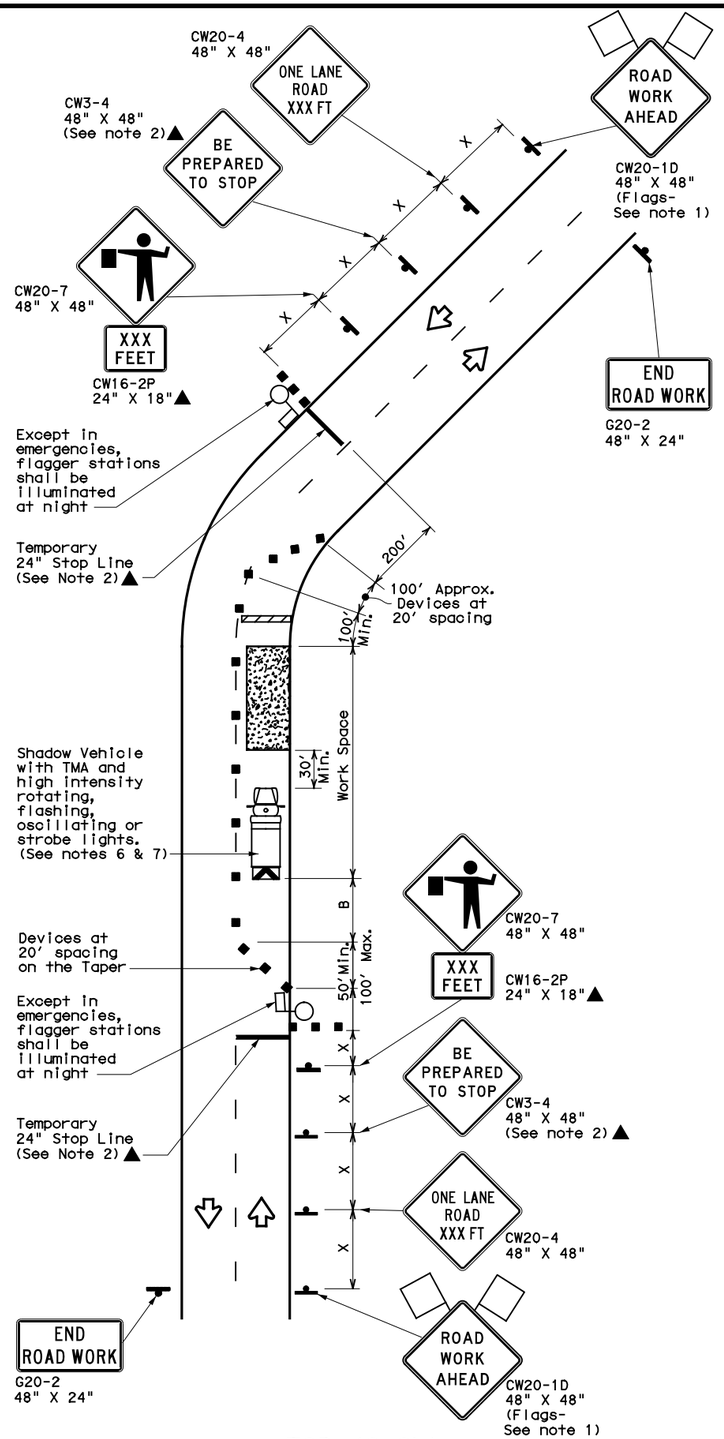
TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

TCP(1-5)-18

FILE: tcp1-5-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		33



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



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

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

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

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

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

GENERAL NOTES

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

TCP (2-2a)

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

TCP (2-2b)

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

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP (2-2)-18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		34

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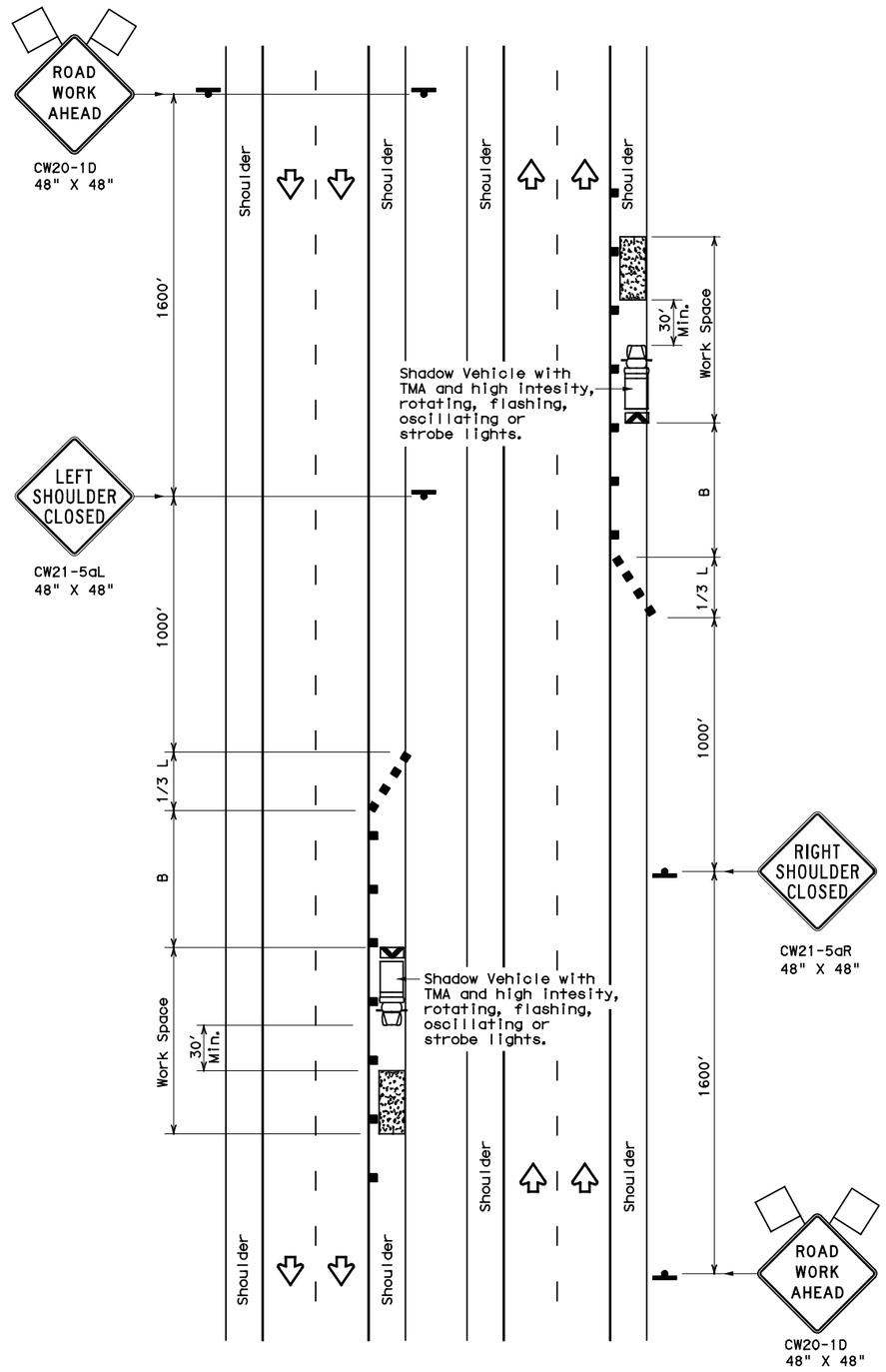
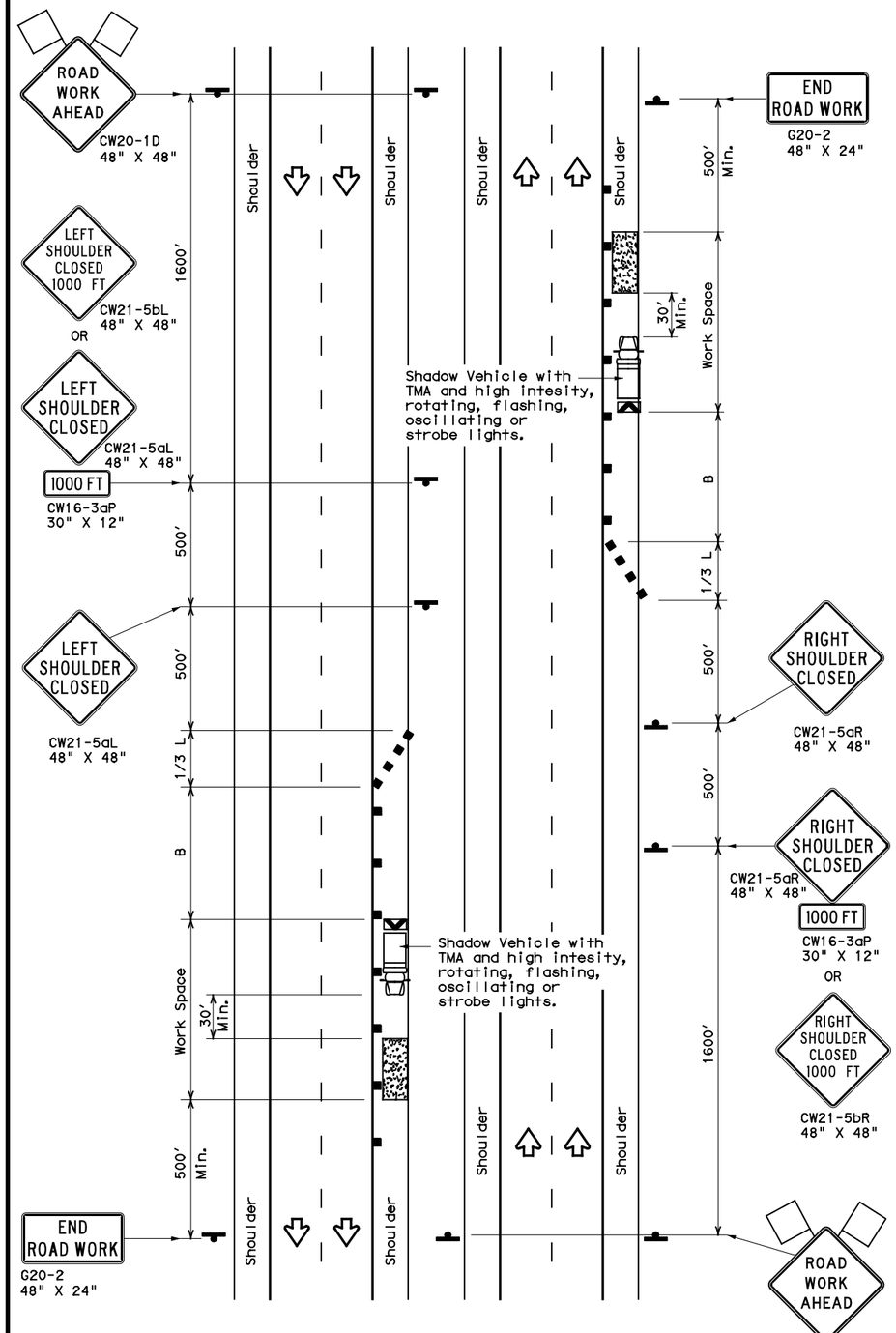


TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

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	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	90'
35		205'	225'	245'	35'	70'	120'
40		265'	295'	320'	40'	80'	155'
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'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	TCP(5-1a)	TCP(5-1b)	TCP(5-1b)	

GENERAL NOTES

1. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30' to 100' in advance of the area of crew exposure without adversely effecting the performance or quality of the work. Type 3 barricades or drums may be substituted when workers on foot are no longer present when approved by the Engineer.
2. 28" tall or taller one-piece cones will be allowed only for Short Duration or Short Term stationary operations when workers are present to maintain the devices upright and in proper location. Intermediate Term stationary work areas should use Drums, Vertical Panels or 42" tall two-piece cones.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHOULDER WORK FOR FREEWAYS / EXPRESSWAYS

TCP(5-1)-18

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
2-18	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		35

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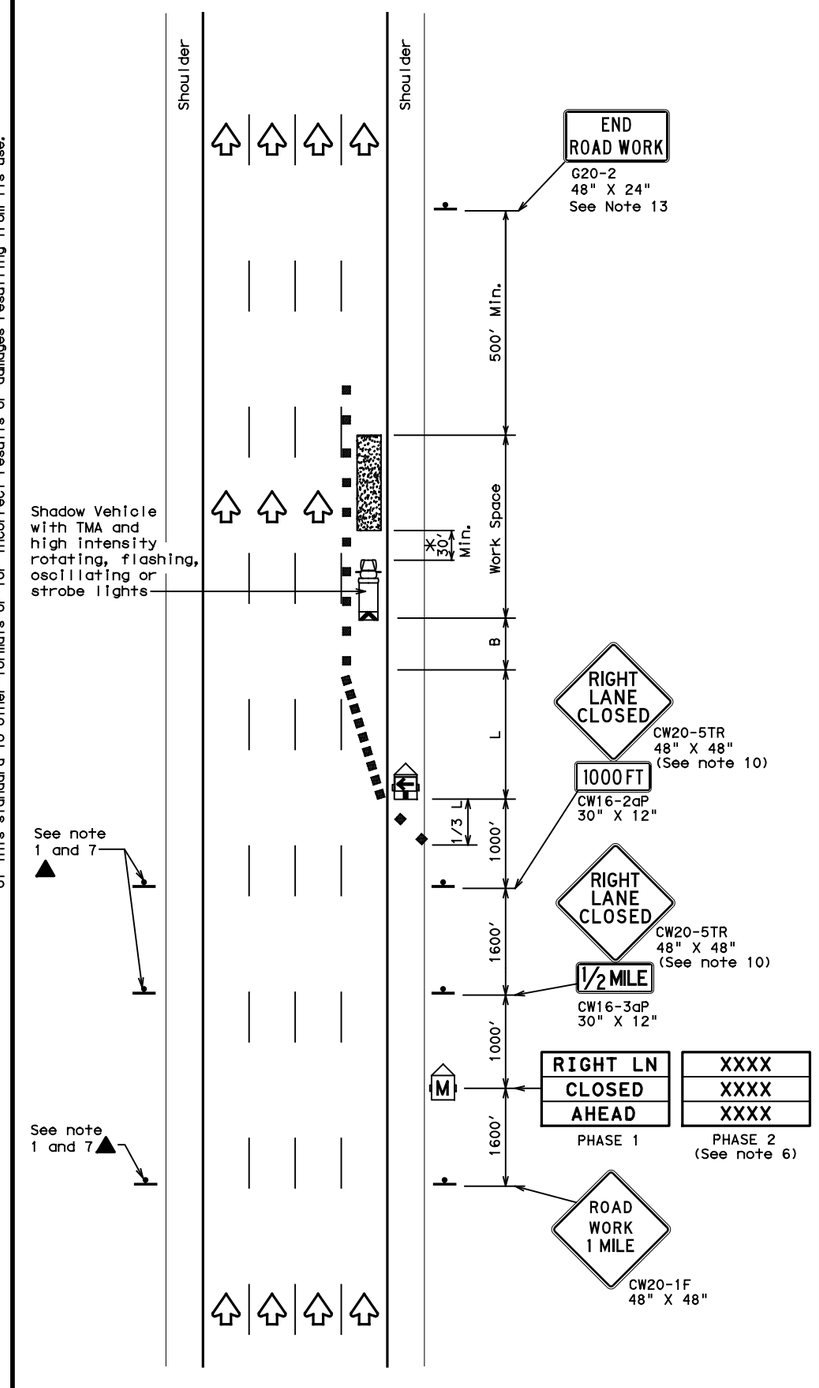
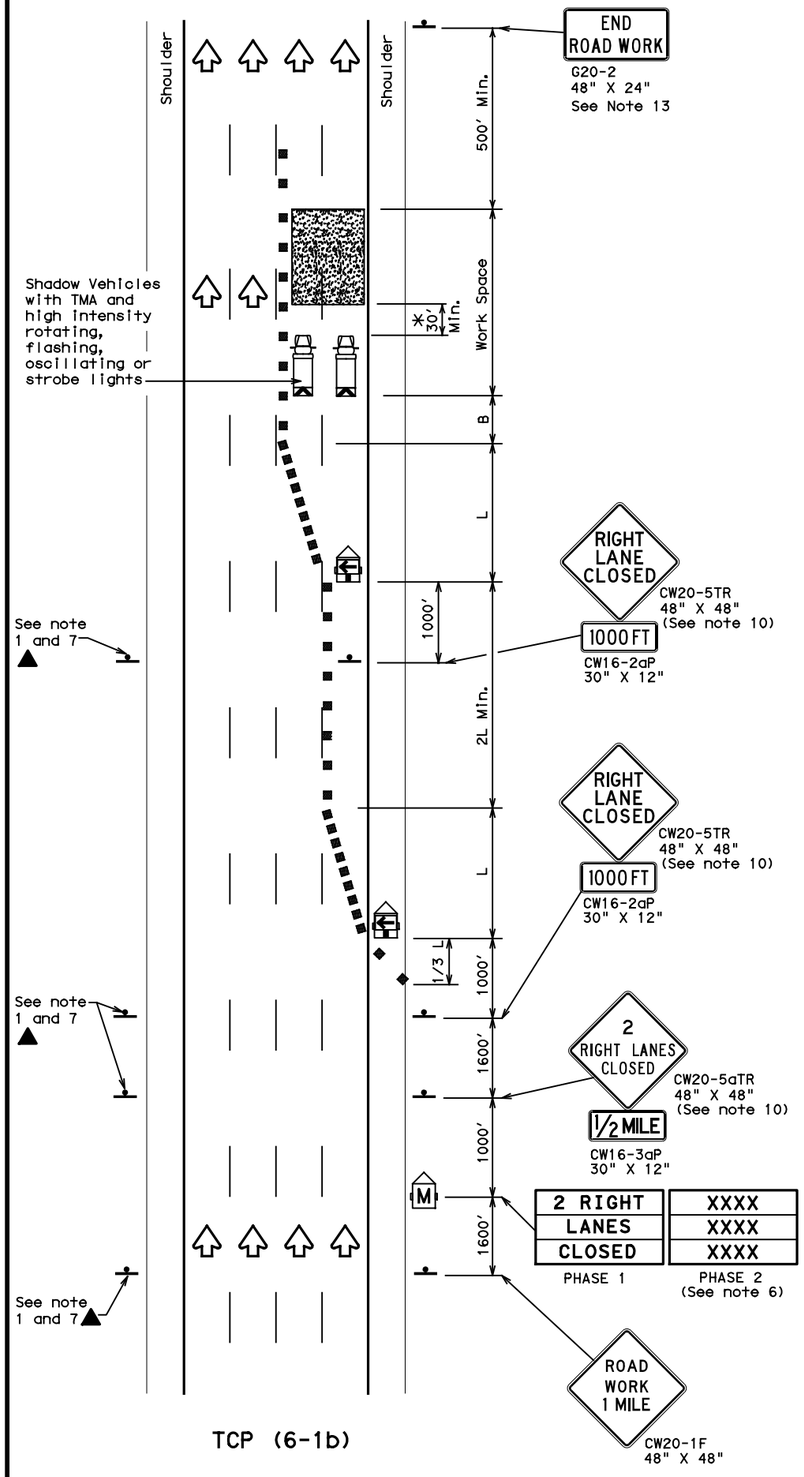


TCP (6-1a)

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
REVISIONS 8-12	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		36

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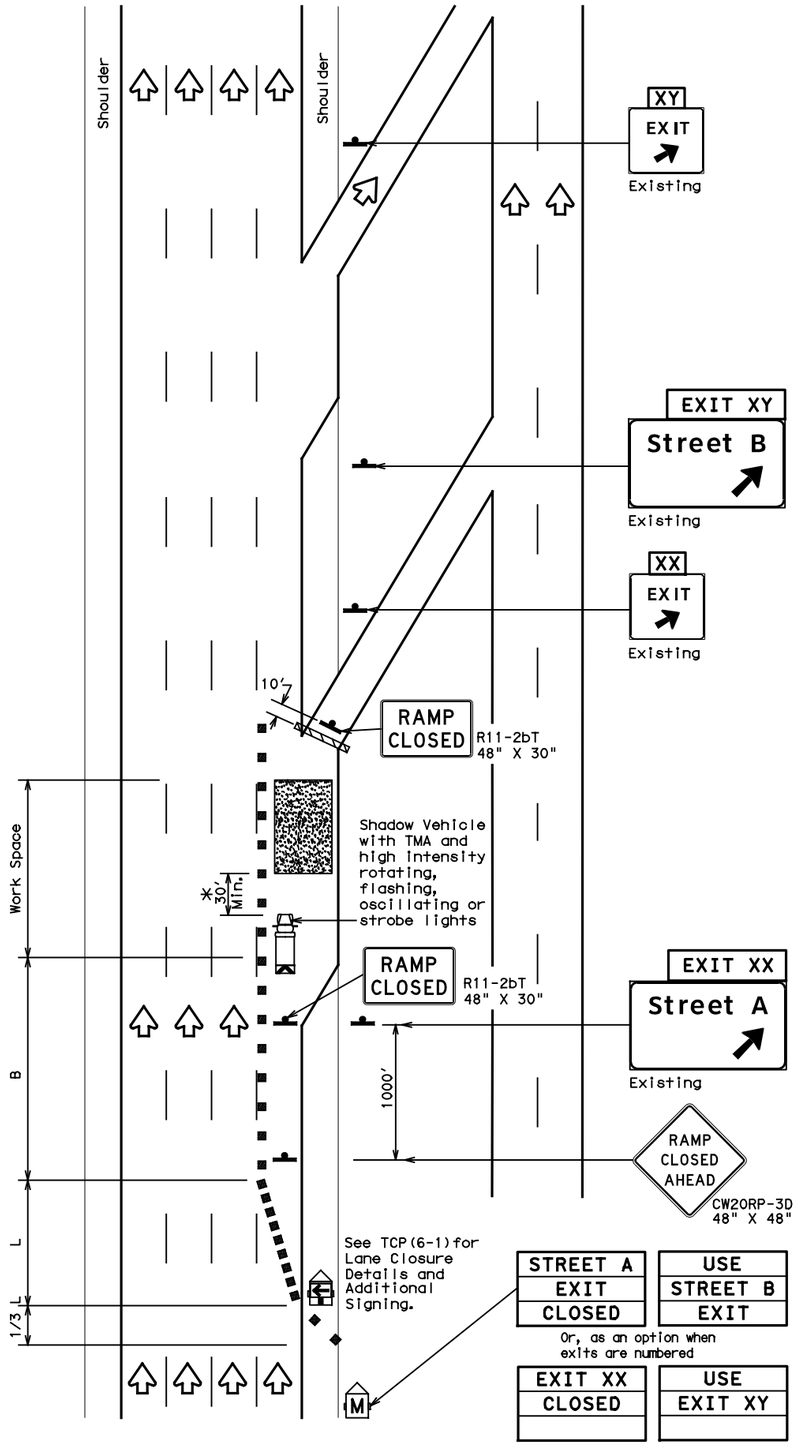
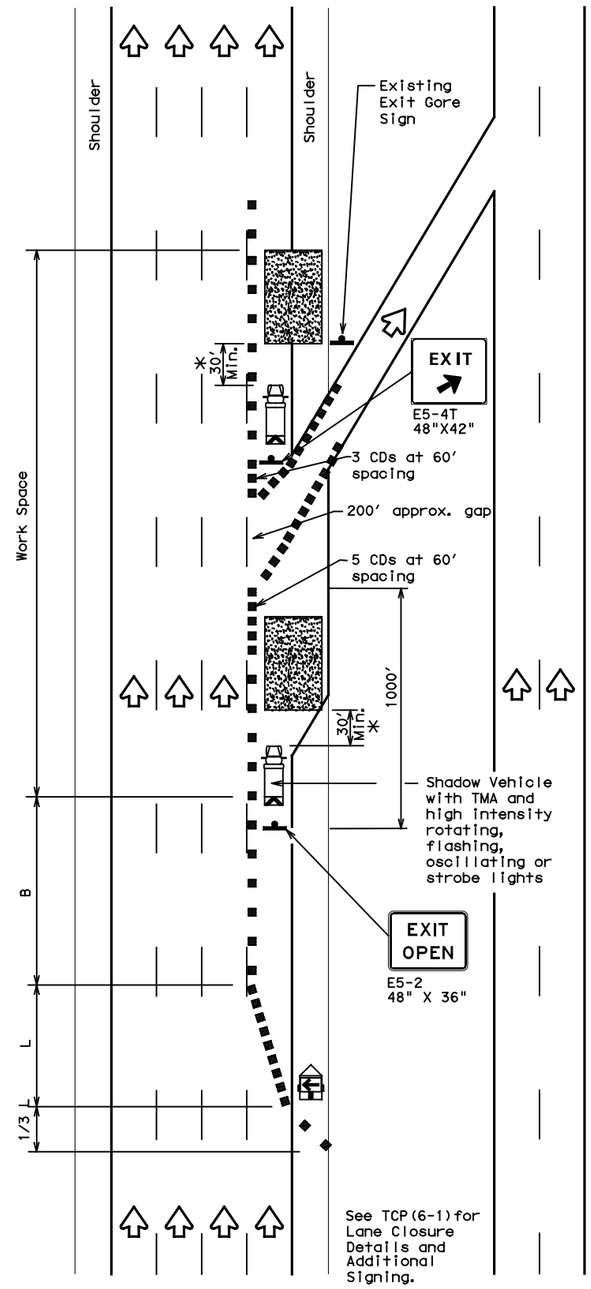


TCP (6-4a)

EXIT RAMP CLOSED
TRAFFIC EXITS PAST CLOSED RAMP



TCP (6-4b)

EXIT RAMP OPEN

LEGEND			
	Type 3 Barricade	■ ■	Channelizing Devices (CDs)
	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 Spaoe "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. See BC Standards for sign details.

*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.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA AT EXIT RAMP

TCP(6-4)-12

FILE: tcp6-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Feburary 1994	CONT	SECT	JOB	HIGHWAY
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1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	ABL	TAYLOR, ETC.		37

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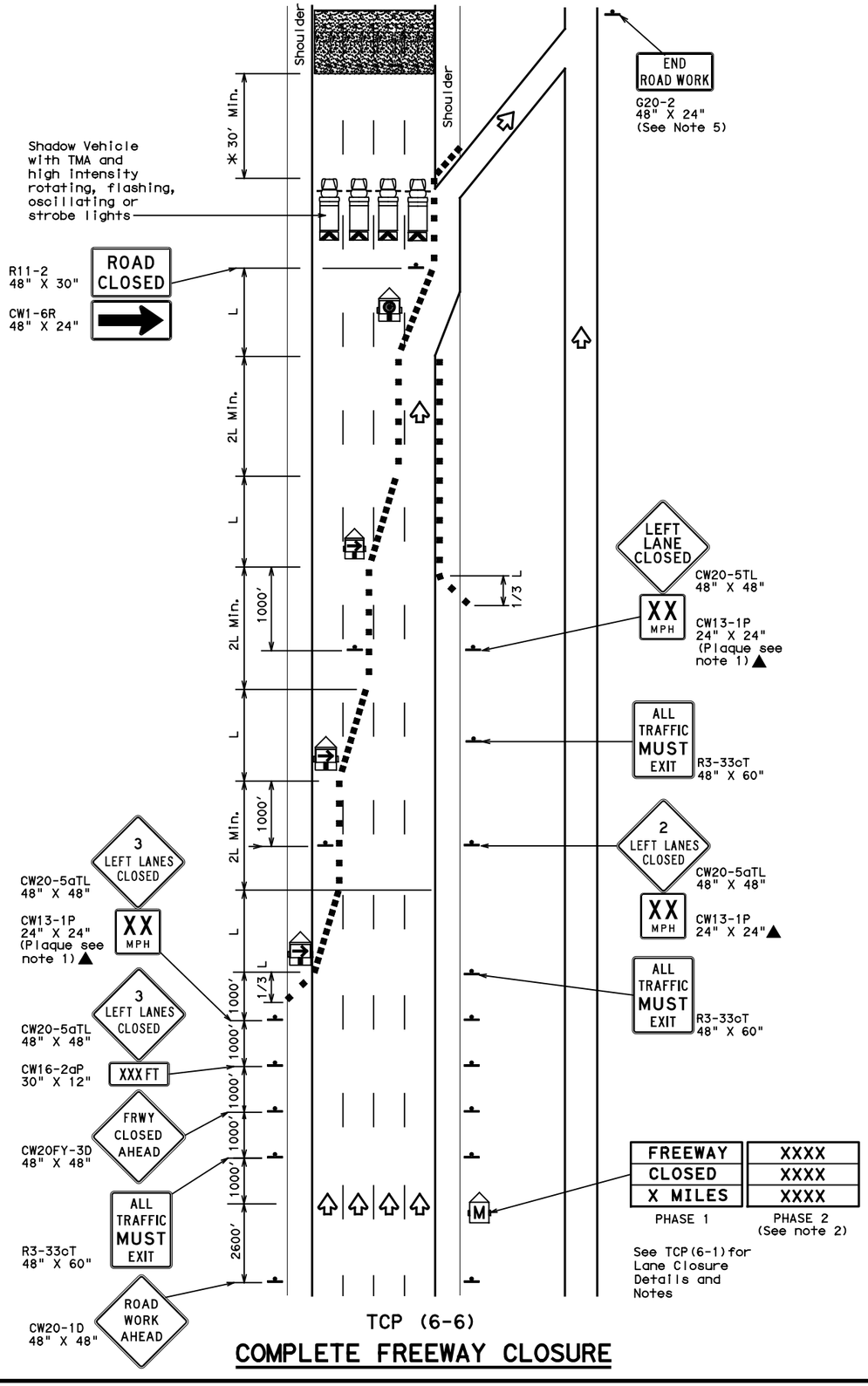

TCP (6-6)

COMPLETE FREEWAY 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)
	Flashing Arrow Board in Caution Mode		Traffic Flow
	Sign		

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. Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE RIGHT," recommended speed, delay, exit information, or other specific warnings.
3. Where queuing is anticipated beyond signing shown, additional PCMS signs, other warning signs, devices or Law Enforcement Officers should be available to warn approaching high speed traffic of the end of the queue, as directed by the Engineer.
4. Entrance ramps located from the advance warning area to the exit ramp should be closed whenever possible.
5. 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.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN FREEWAY CLOSURE

TCP(6-6)-12

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©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
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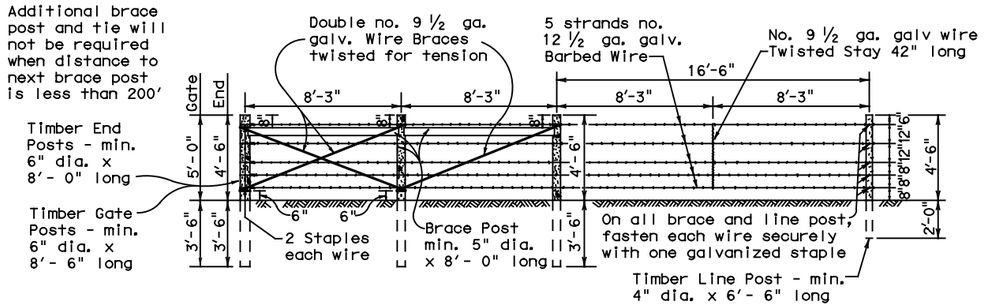
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	ABL	TAYLOR, ETC.		38

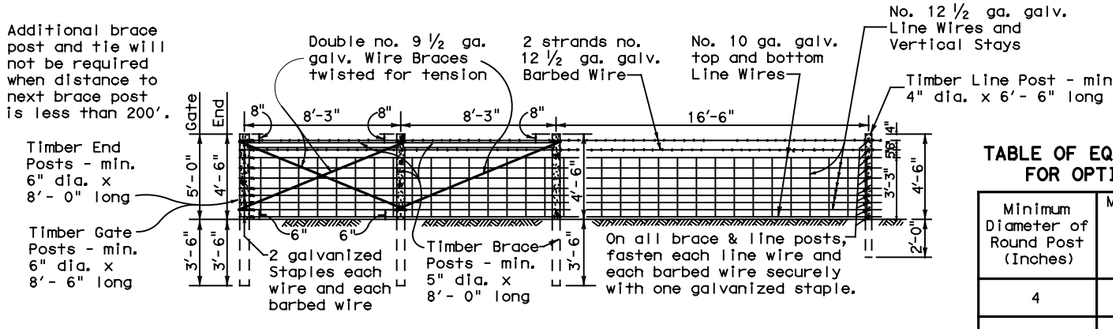


SECTION GALVANIZED BARBED WIRE FENCE WITH WOOD POSTS

Bracing Detail Used at Ends and Gates

TYPE "A" FENCE

(See General Note 6)



SECTION GALVANIZED WOVEN WIRE FENCE WITH WOOD POSTS

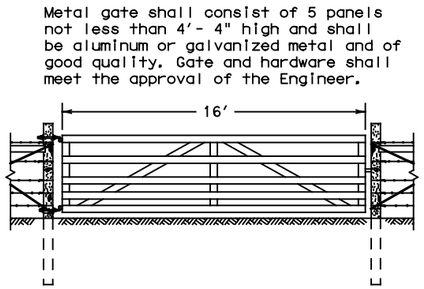
Bracing Detail Used at Ends and Gates

TYPE "B" FENCE

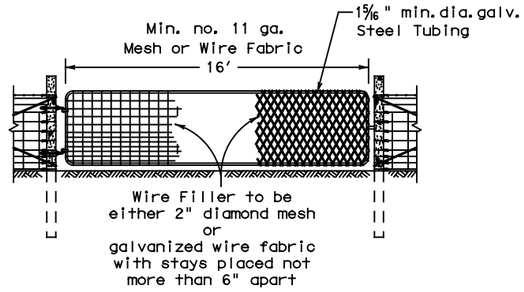
(See General Note 6)

TABLE OF EQUIVALENT SIZES FOR OPTIONAL SHAPE

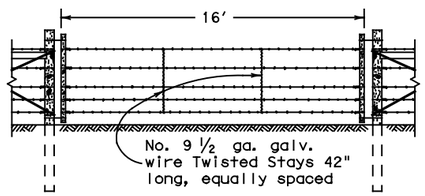
Minimum Diameter of Round Post (Inches)	Minimum Equivalent Dimension for Each Side of Square Post (Inches)
4	3 ½
5	4 ½
6	5 ¼



DETAIL TYPE 1 GATE



DETAIL TYPE 2 GATE

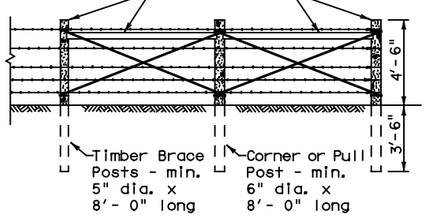


DETAIL TYPE 3 GATE

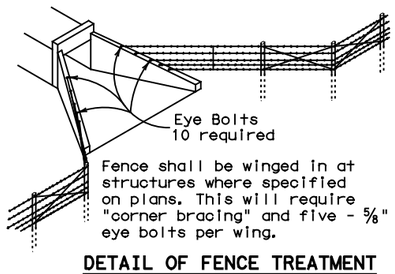
GENERAL NOTES

1. Any high point which interferes with the placing of wire mesh shall be excavated to provide 2" clearance.
2. Latches for Type 1 and Type 2 gates shall be good commercial quality and design latches of the spring, fork or chain type. All latches shall be suitable for the gate and shall be approved by the Engineer.
3. Hinges for Type 2 gates shall be commercial design approved by the Engineer suitable for post and gate.
4. Concrete shall be of the design and consistency approved by the Engineer and shall contain not less than 4 sacks of cement per cubic yard. Concrete footings are to be crowned at the top to shed water.
5. If rock is encountered at a depth less than the embedded depth required, a 15" or larger diameter hole shall be drilled for the post and the post shall be set in concrete. If rock is encountered at a depth of 1'- 6" or more below the ground surface, the hole shall be drilled to the required depth. If rock is encountered at a depth less than 1'- 6" below the ground surface, the holes shall be drilled a minimum of 2'- 0" into the rock or to the depth whichever is the lesser depth.
6. Barbed Wire shall be in accordance with ASTM A 121 (Class 1) Design designation 12-2-4-1 4R or 12-2-5-1 4R, or as approved by the Engineer.

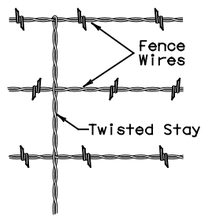
   Woven Wire Fence (Type B) shall be in accordance with ASTM A 116 (Class 1) No. 12-1/2 Grade 60 (See Table 1 ASTM A 116) to the height and design shown on the plans, or as approved by the Engineer.
7. The location of gates and corner posts will be as indicated elsewhere on these plans.
8. Square wood posts may be used in lieu of round posts provided minimum equivalent size requirements, as shown are met. All wood posts shall be in accordance with Item 552, "Wire Fence."



CORNER OR PULL POST ASSEMBLY

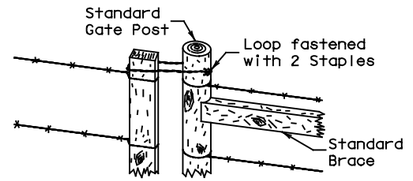


DETAIL OF FENCE TREATMENT AT STRUCTURES



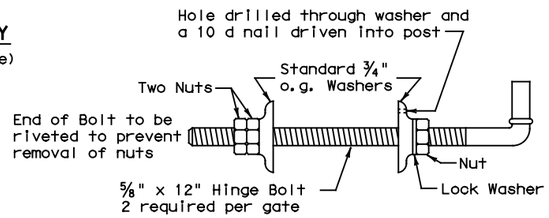
DETAIL OF STAY

(Barbed wire fence)

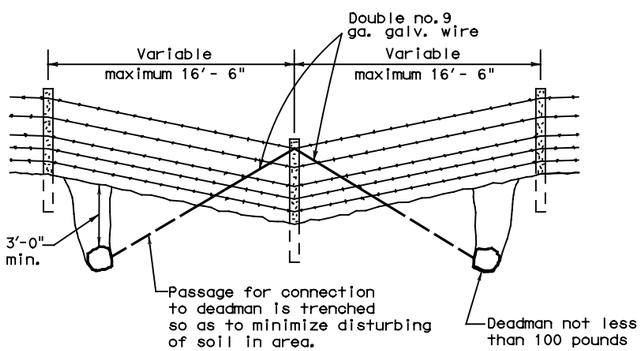


Loop to be made from two strands twisted no. 9 ½ ga. galv. smooth wire, and to be securely fastened to gate post with two galv. staples.

DETAIL FASTENER TYPE 3 GATE

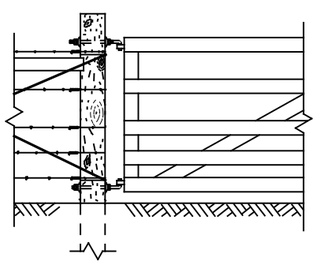


DETAIL OF GATE HINGE BOLT ASSEMBLY

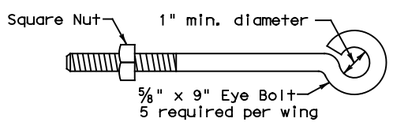


DETAIL OF FENCE SAG

(Single Line Connection)



DETAIL SHOWING INSTALLATION OF HINGES OF TYPE 1 & 2 GATE



DETAIL OF EYE BOLT

Texas Department of Transportation — Design Division Standard

BARBED WIRE AND WOVEN WIRE FENCE

(WOOD POSTS)

WF(1)-10

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©TxDOT 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		39

DATE: 2/8/2024
FILE: $FILE$

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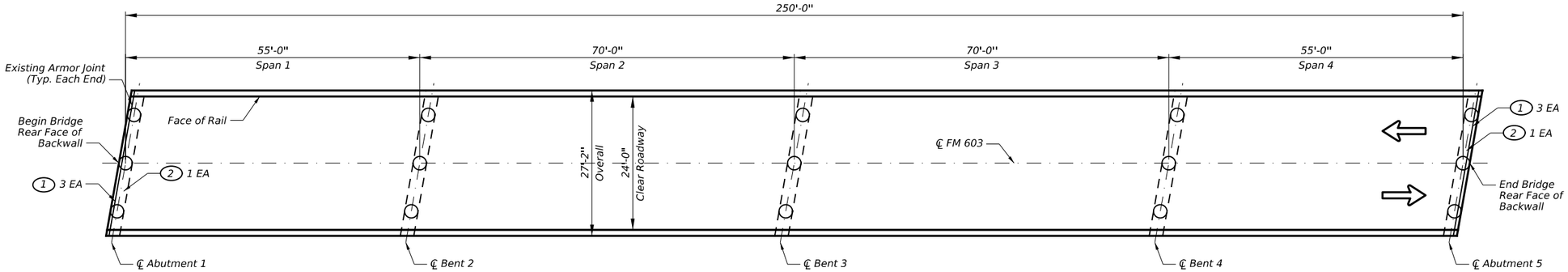
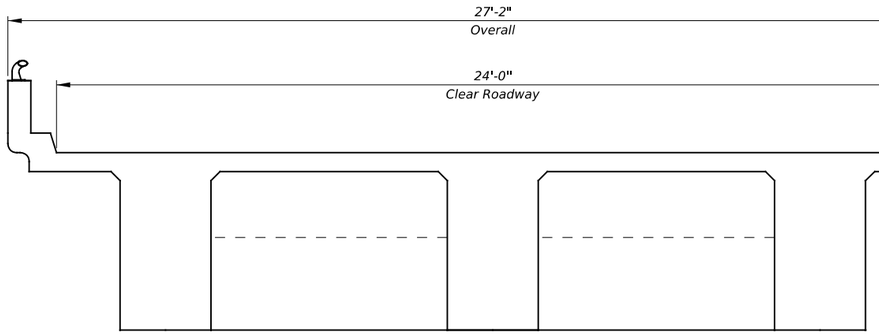


PLAN

① REPLACE ELASTOMERIC PADS AND CLEAN ABUTMENT TOPS - TYPICAL



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Locations and dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Jack beams and replace bearing pads. See Plan for locations.	544927	4002	REPLACE ELASTOMERIC BEARING PADS	6	EA	See Elastomeric Bearing Replacement Details for Concrete Beams on Elastomeric Bearing Replacement Detail Sheets
2	Remove dirt and debris from the top of the abutments. See Plan for locations.	N/A	7309	CLEANING STRUCTURE (ABUTMENT)	2	EA	

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

IH 20 UNDERPASS AT FM 603 BRIDGE REPAIR LOCATION PLAN

NBI# 08-030-0-0006-07-279

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
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ABL	TAYLOR, ETC.		40

DATE:
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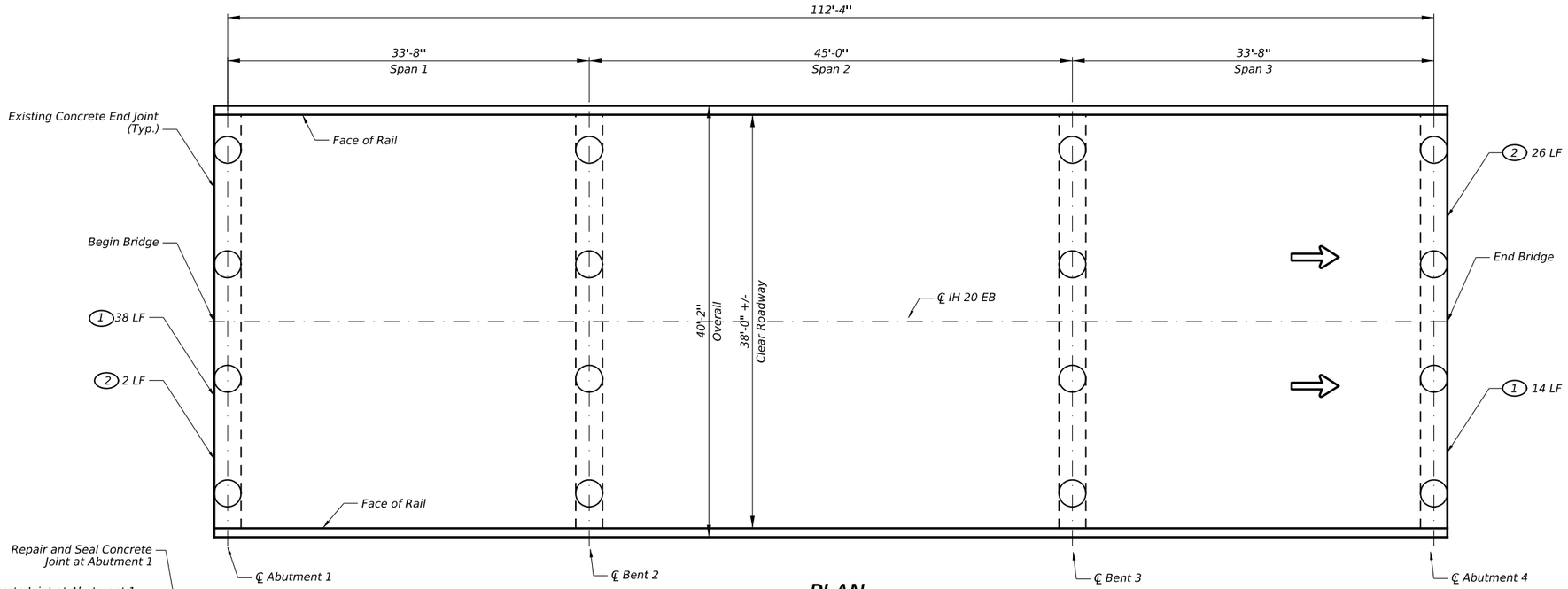


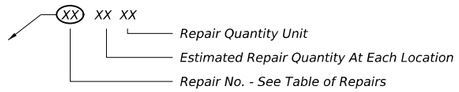
PLAN

N

GENERAL NOTES:

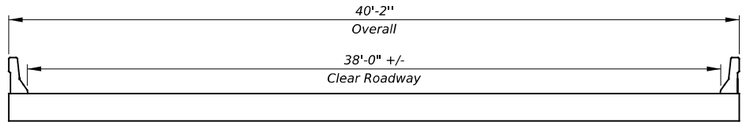
1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Locations and dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND



① ② JOINT AT ABUTMENT 1

① ② JOINT AT ABUTMENT 4



EXISTING TYPICAL SECTION

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Reseal concrete joints outside the limits of concrete joint repairs. See Plan for locations.	544764	0438	CLEANING AND SEALING JOINTS (CL 7)	52	LF	See Cleaning and Sealing Existing Bridge Joints Detail on Bridge Joint Repair Detail Sheets.
2	Repair Concrete Joint. See Plan for locations.	544762	0785	BRIDGE JOINT REPAIR (CONCRETE)	28	LF	See Concrete Joint Repair Detail on the Bridge Joint Repair Detail Sheets.
3	Repair spalls and delamination found to be outside the limits of the joint repair. To be used as directed by the Engineer.	544762	0429	CONC STR REPAIR(DECK REP(PART DEPTH))	10	SF	Repair as partial-depth deck repairs per the TxDOT Concrete Repair Manual, Chapter 3, Section 4.

STATE OF TEXAS
GREGORY W. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

IH 20 EB OVERPASS AT FM 604 BRIDGE REPAIR LOCATION PLAN

NBI# 08-030-0-0006-07-283

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
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ABL	TAYLOR, ETC.		41

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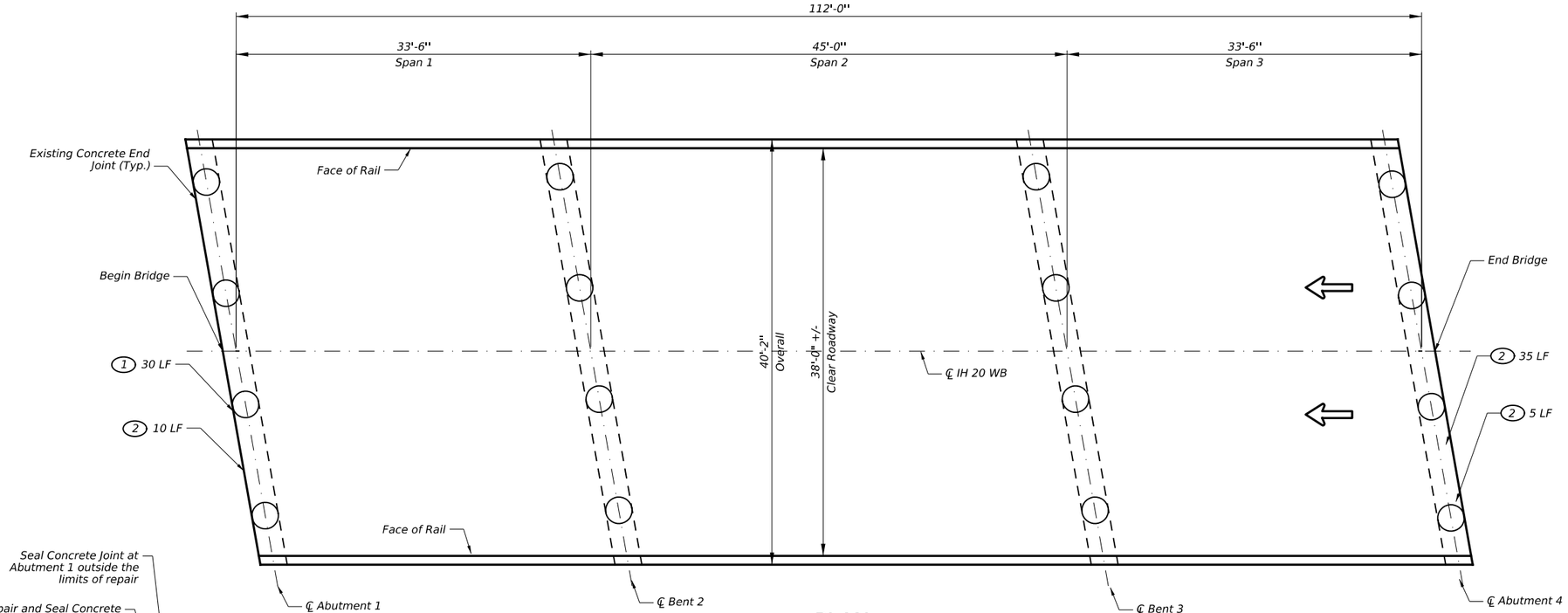
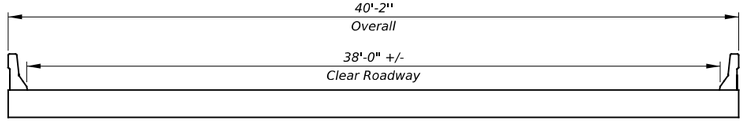


PLAN

①② JOINT AT ABUTMENT 1

①② JOINT AT ABUTMENT 4



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Locations and dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

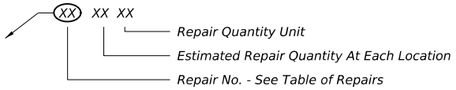


TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Reseal concrete joints outside the limits of concrete joint repairs. See Plan for locations.	646949	0438	CLEANING AND SEALING JOINTS (CL 7)	65	LF	See Cleaning and Sealing Existing Bridge Joints Detail on Bridge Joint Repair Detail Sheets.
2	Repair Concrete Joint. See Plan for locations.	544771	0785	BRIDGE JOINT REPAIR (CONCRETE)	15	LF	See Concrete Joint Repair Detail on the Bridge Joint Repair Detail Sheets.
3	Repair spalls and delamination found to be outside the limits of the joint repair. To be used as directed by the Engineer.	544771	0429	CONC STR REPAIR(DECK REP(PART DEPTH))	10	SF	Repair as partial-depth deck repairs per the TxDOT Concrete Repair Manual, Chapter 3, Section 4.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

IH 20 WB OVERPASS AT UNION HILL RD/CR 119 BRIDGE REPAIR LOCATION PLAN

NBI# 08-030-0-0006-07-290

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
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ABL	TAYLOR, ETC.		42

DATE:
FILE:

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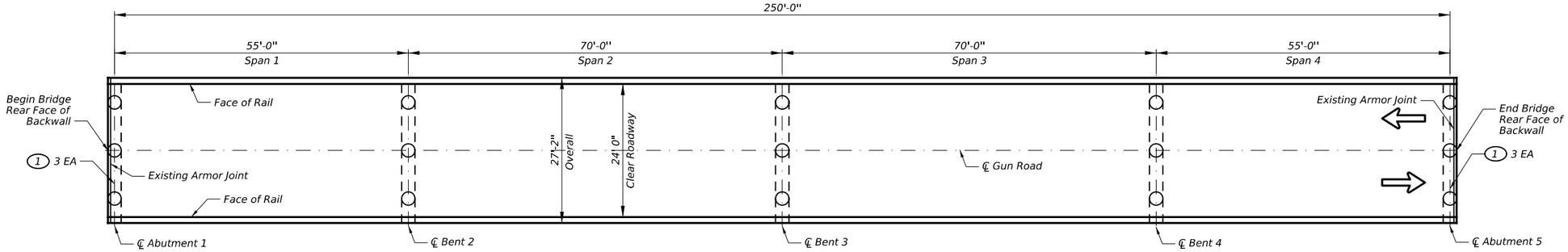
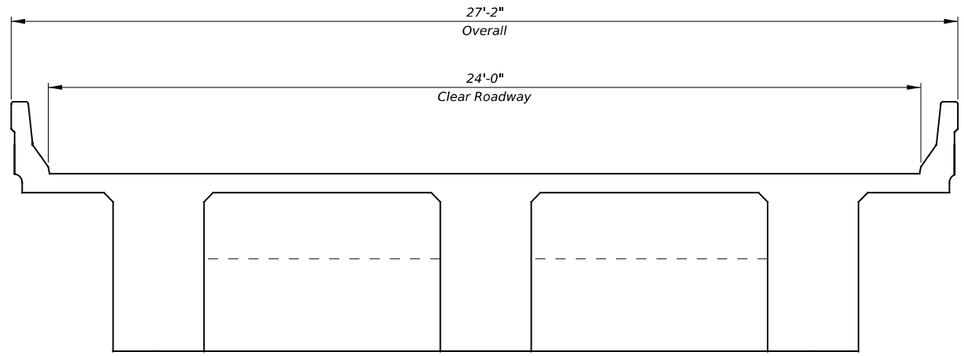


PLAN

① REPLACE ELASTOMERIC PADS - TYPICAL



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Locations and dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

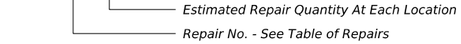


TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Jack beams and replace bearing pads. See Plan for locations.	544927	4002	REPLACE ELASTOMERIC BEARING PADS	6	EA	See Elastomeric Bearing Replacement Details for Concrete Beams on Elastomeric Bearing Replacement Detail Sheets
2	Remove dirt and debris from the top of the abutments. See Plan for locations.	N/A	7309	CLEANING STRUCTURE (ABUTMENT)	2	EA	

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

IH 20 UNDERPASS AT GUN RD BRIDGE REPAIR LOCATION PLAN

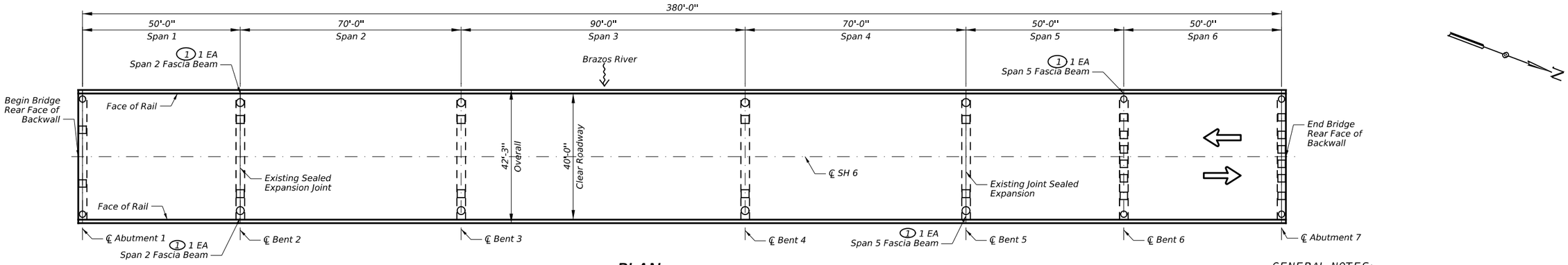
NBI# 08-030-0-0007-01-091

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		43

DATE:
FILE:

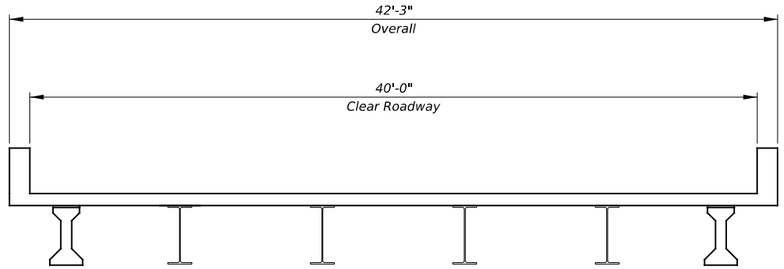
DW: JD
CK: NS
DW: GK
CK: JD



PLAN

Replace Elastomeric Bearing Pads on Concrete Exterior Fascia Beams at the locations shown on the Plans. Existing Elastomeric Bearing Plans are not available. Verify all field dimension prior to fabrication of bearing pads.

① ELASTOMERIC BEARING PADS



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Locations and dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
①	Jack beams and replace bearing pads. See Plan for locations.	545014	4002	REPLACE ELASTOMERIC BEARING PADS	4	EA	See Elastomeric Bearing Replacement Details for Concrete Beams on Elastomeric Bearing Replacement Detail Sheets

STATE OF TEXAS
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PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

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Texas Department of Transportation

SH 6 OVER CLEAR FORK BRAZOS RIVER BRIDGE REPAIR LOCATION PLAN

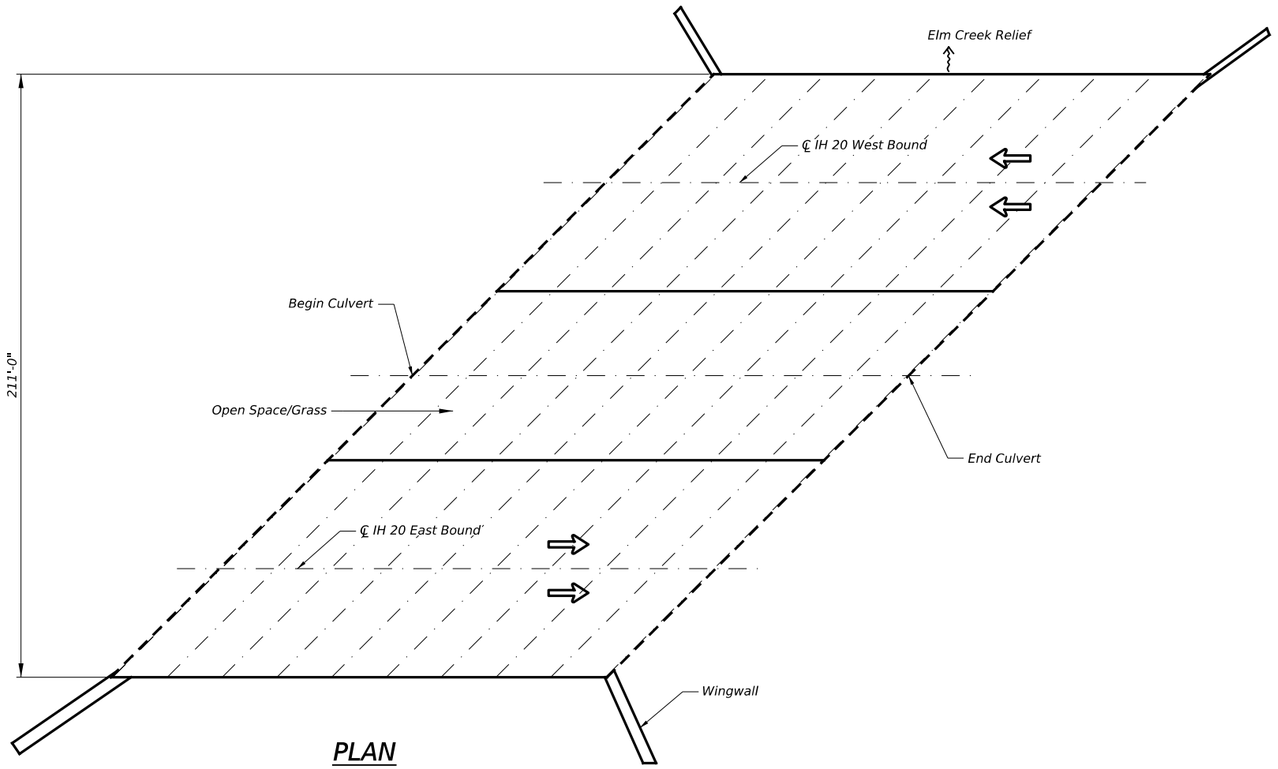
NBI# 08-209-0-0107-02-008

SHEET 1 OF 1

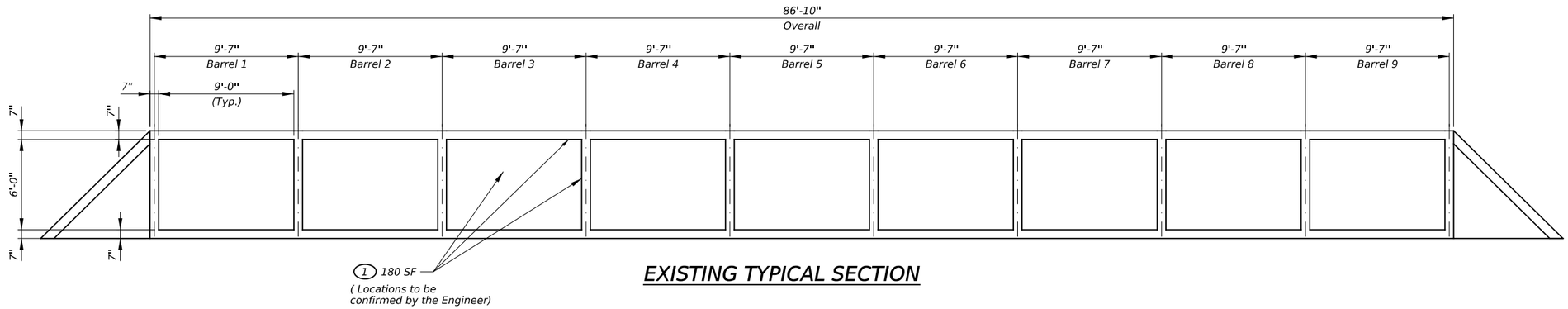
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		44

DATE:
FILE:

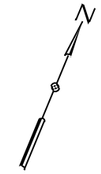
DW: JD | CK: GK | DW: NS | CK: JD



PLAN



EXISTING TYPICAL SECTION



GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

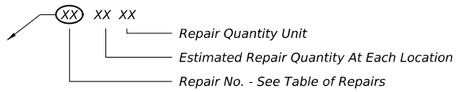


TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Repair concrete at culvert barrel joint along tops and walls as directed by the Engineer.	652493	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	180	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
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2/9/2024

NO.	DATE	REVISION	APPR BY

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Texas Department of Transportation

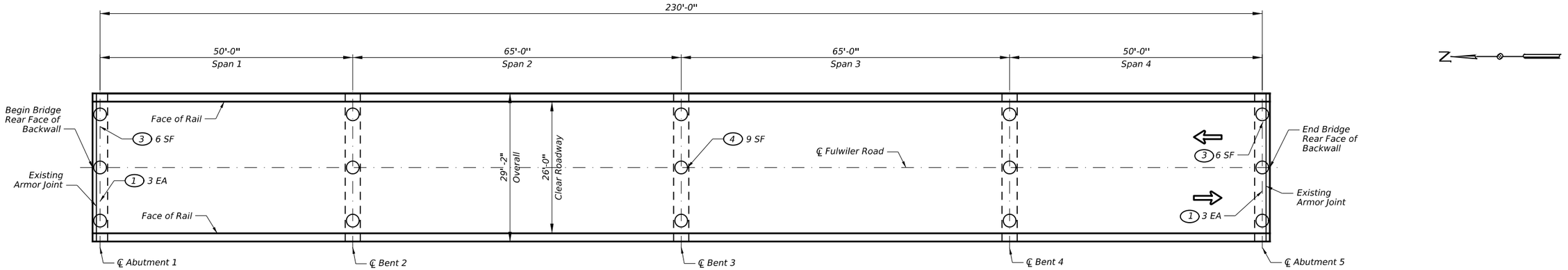
IH 20 OVER ELM CREEK RELIEF BRIDGE REPAIR LOCATION PLAN

NBI# 08-221-0-0006-05-207

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		45

DATE:
FILE:

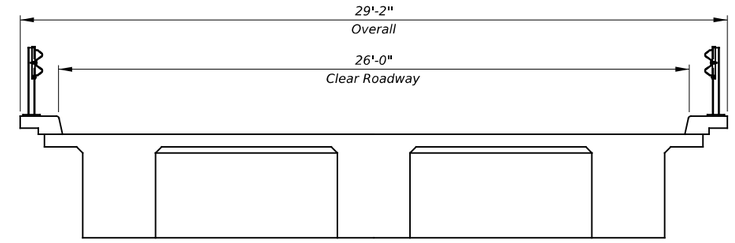
DW: JD | CK: JD | DW: GK | CK: NS | DW: JD



PLAN

1 2 REPLACE STEEL BEARINGS WITH ELASTOMERIC PADS - TYPICAL

3 PATCH CONCRETE BEAM ENDS - TYPICAL



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

(XX) XX XX
- XX XX — Repair Quantity Unit
- XX XX — Estimated Repair Quantity At Each Location
- (XX) — Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Jack beams and replace bearing pads. See Plan for locations.	545028	4002	REPLACE ELASTOMERIC BEARING PADS	6	EA	See Elastomeric Bearing Replacement Details for Concrete Beams on Elastomeric Bearing Replacement Detail Sheets
2	Repair Spalls and Delaminations found adjacent to or under proposed bearing replacements as directed by the Engineer	545028	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	20	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
3	Repair spall at end of concrete beams. See Plan for Locations	545028	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	12	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
4	Repair damaged column. See Plan for location.	545417	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	9	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
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LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

IH 20 UNDERPASS AT FULWILER RD BRIDGE REPAIR LOCATION PLAN

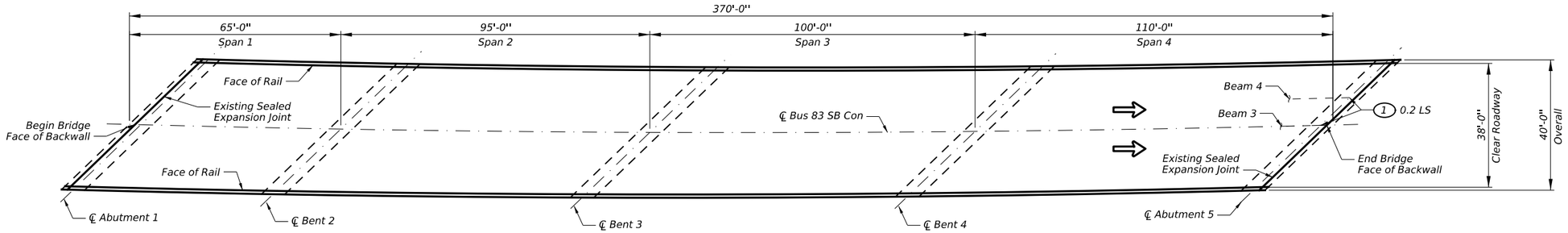
NBI# 08-221-0-0006-05-216

SHEET 1 OF 1

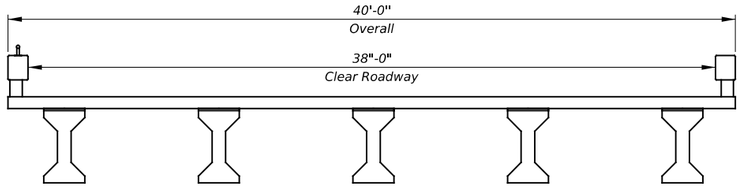
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		46

DATE:
FILE:

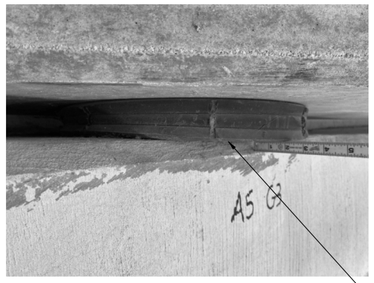
DW: JD | CK: NS | DW: GK | CK: JD

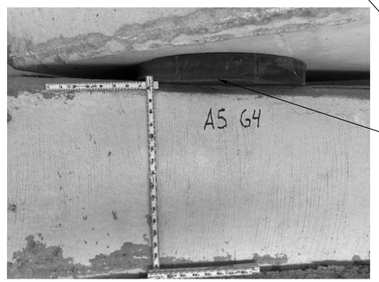


PLAN



EXISTING TYPICAL SECTION





Raise existing structure and re-set Elastomeric Pads as directed by the engineer. Existing Elastomeric Bearing Plans are not available.

(1) RESET ELASTOMERIC BEARINGS

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

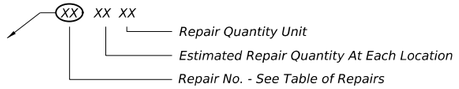


TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
(1)	Jack beams and reset elastomeric pads at Abutment 5, beams 3 and 4. See Plan for locations.	545054	0495	RAISING EXIST STRUCT	0.3	LS	Re-setting existing elastomeric bearings is subsidiary to raising the existing structure.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
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LICENSED
PROFESSIONAL ENGINEER
3/21/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

US 83 / US 84 UNDERPASS AT BUS 83 SB CONN BRIDGE REPAIR LOCATION PLAN

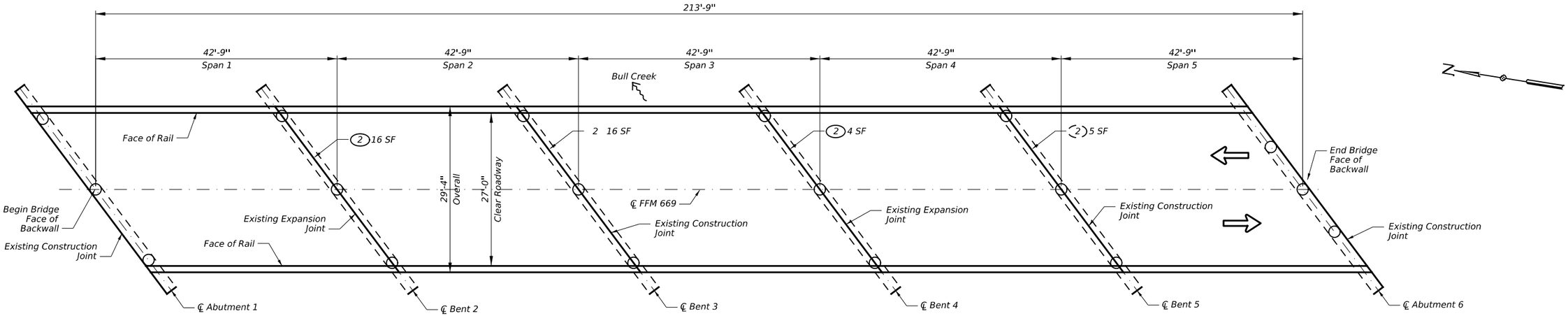
NBI# 08-221-0-0034-01-088

SHEET 1 OF 1

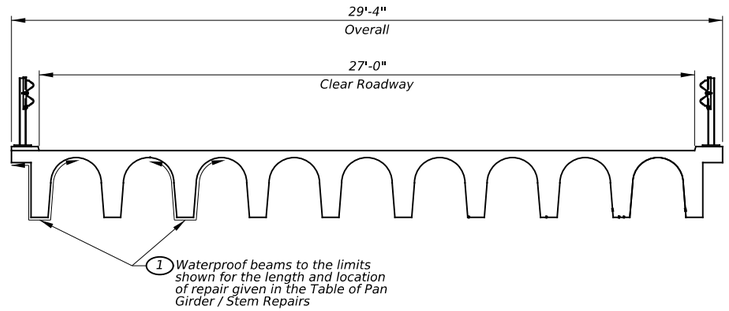
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		47

DATE:
FILE:

DW: JD CK: NS DW: GK CK: JD



PLAN



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
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5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

(XX) XX XX
- XX: Repair No. - See Table of Repairs
- XX: Estimated Repair Quantity At Each Location
- XX: Repair Quantity Unit

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Repair damaged pan girders and apply Type X Waterproof Finish to pan girder ends. See Table of Pan Girder / Stem Repairs for locations.	543566	0427	EPOXY WATERPROOF FINISH (TY X)	229	SF	Waterproof beams to the limits shown.
			0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	72	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
2	Repair delaminations and cracks in bent caps and columns.	663452	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	41	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
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LICENSED
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2/9/2024

NO.	DATE	REVISION	APPR BY

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Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

FM 669
OVER BULL CREEK
BRIDGE REPAIR LOCATION PLAN

NBI# 08-017-0-0558-02-020

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		48

DATE:
FILE:

DW: JD | CK: JD | DW: GK | CK: NS | DW: JD | CK: JD

(1) BEAM ENDS - TYPICAL

(2) PIER COLUMN REPAIR - TYPICAL

TABLE OF PAN GIRDER / STEM REPAIRS

Span	Location	Beam	Repair Length	Repair Quantity	Waterproofing Area
1	Abutment 1	1	2 LF	2 SF	10.4 SF
1	Bent 2	3	1 LF	1 SF	5.2 SF
1	Bent 2	4	1 LF	1 SF	5.2 SF
1	Bent 2	8	1 LF	1 SF	5.2 SF
1	Bent 2	9	2 LF	2 SF	10.4 SF
1	Bent 2	10	1 LF	1 SF	5.2 SF
2	Bent 3	9	1 LF	1 SF	5.2 SF
2	Bent 3	10	1 LF	1 SF	5.2 SF
3	Bent 3	1	5 LF	13.75 SF	26 SF
3	Bent 3	2	1 LF	1 SF	5.2 SF
3	Bent 3	3	1 LF	1 SF	5.2 SF
3	Bent 3	4	1 LF	1 SF	5.2 SF
3	Bent 3	7	1 LF	1 SF	5.2 SF
3	Bent 4	10	8 LF	22 SF	41.6 SF
4	At Downspout	1	3 LF	3 SF	15.6 SF
5	Bent 5	1	2 LF	2 SF	10.4 SF
5	Bent 5	2	2 LF	2 SF	10.4 SF
5	Bent 5	7	1 LF	1 SF	5.2 SF
5	Bent 5	9	2 LF	2 SF	10.4 SF
5	Midspan	2	1 LF	1 SF	5.2 SF
5	Midspan	3	1 LF	1 SF	5.2 SF
5	Midspan	10	2 LF	2 SF	10.4 SF
5	Abutment 6	10	3 LF	8.25 SF	15.6 SF

Beam 1 is West Fascia Beam

REPAIR CALL-OUT LEGEND

(XX) XX XX
- XX — Repair Quantity Unit
- XX — Estimated Repair Quantity At Each Location
- (XX) — Repair No. - See Table of Repairs

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

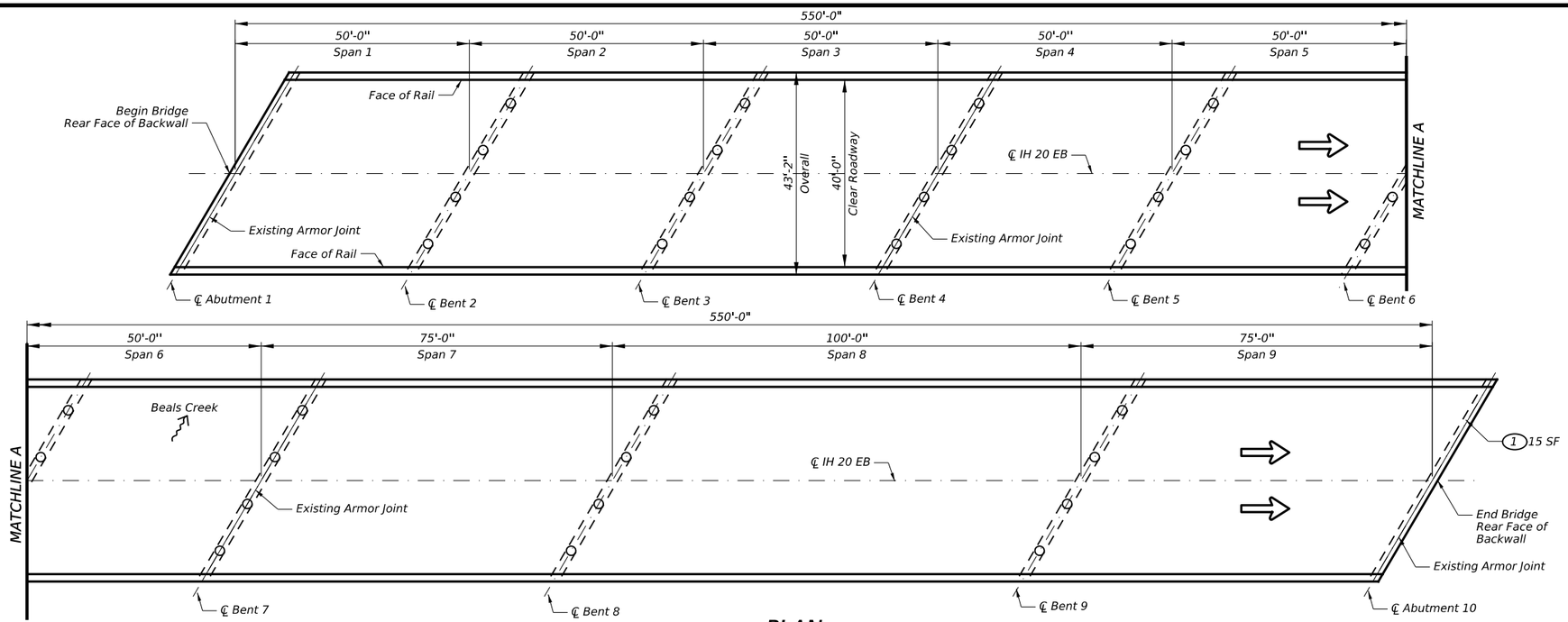
FM 669
OVER BULL CREEK
BRIDGE REPAIR LOCATION PLAN

NBI# 08-017-0-0558-02-020

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		49

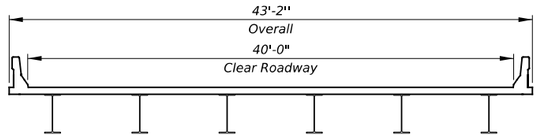
DATE:
FILE:

DW: JD | CK: GK | DW: NS | CK: JD



PLAN

1 ABUTMENT REPAIR - TYPICAL



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

Crack/Spall/Delamination Repair

(XX) XX XX
- XX XX — Repair Quantity Unit
- XX — Estimated Repair Quantity At Each Location
- (XX) — Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
(1)	Repair damaged cap and backwall at Abutmnet No. 10. See Plan for locations	544247	429	CONC STR REPAIR (VERTICAL & OVERHEAD)	15	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

IH 20 EB OVERPASS AT BUS 20 & BEALS CREEK BRIDGE REPAIR LOCATION PLAN

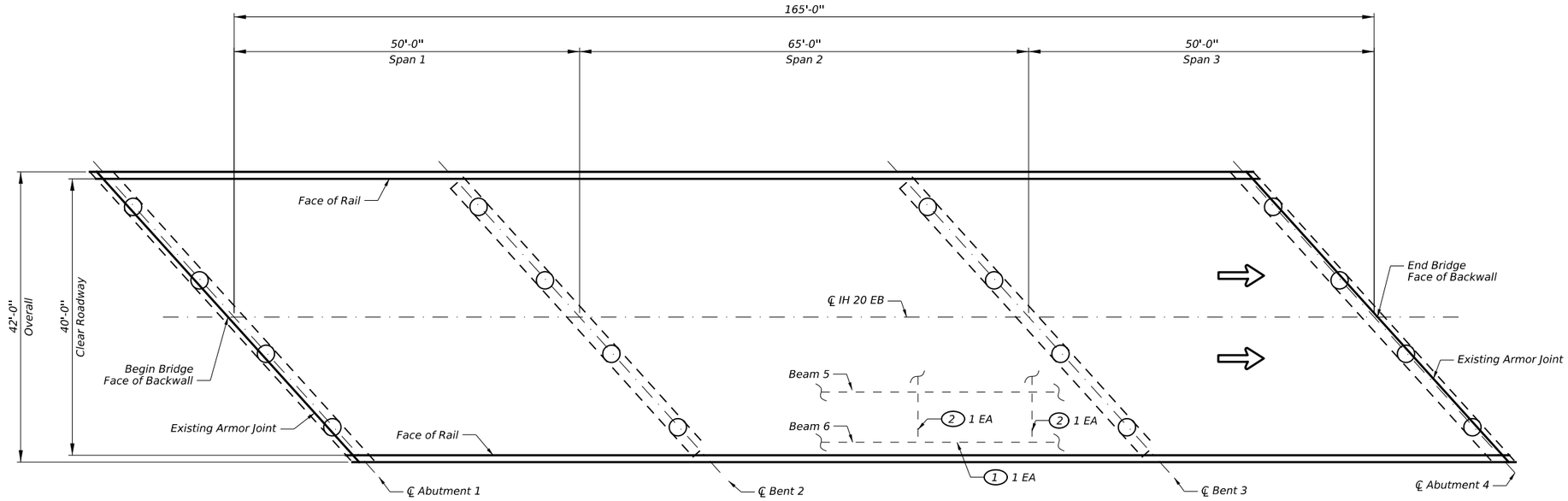
NBI# 08-115-0-0005-06-129

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		50

DATE:
FILE:

DW: JD | CK: JD | DW: GK | CK: NS | DW: JD



PLAN

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
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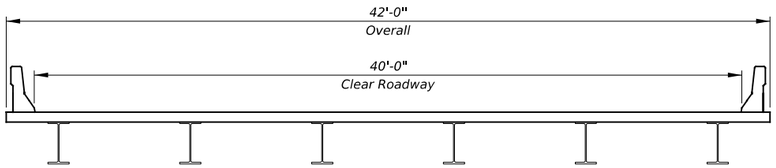
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

Remove and salvage clearance sign prior to heat straightening and re-install after painting. This work is subsidiary to heat straightening.

1 HEAT STRAIGHTENING



EXISTING TYPICAL SECTION

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Heat Straighten steel beam damaged by vehicular impact and repair. See Plan for location.	544009	0784	REP STL BRIDGE MEMBER (STRAIGHTEN MEMB)	1	EA	See Steel Beam Repair Detail Sheet for heat straightening detail.
2	Repair / Replace steel diaphragms and connections damaged by vehicular impact. See Plan for locations.	544009	0784	REP STL BRIDGE MEMBER (DIAPHRAGM)	2	EA	See Steel Beam Repair Detail Sheet.
3	Clean and paint damaged beam. See Steel Beam Repair Detail Sheet for limits.	544009	0446	SPOT CLEAN & PAINT EXT STR(SPL PRT SYS)	1	EA	Provide System I-B overcaot of flange and fascia web of exsiting beam per Item 446. Area is approximately 800 sf.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
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LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

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Texas Department of Transportation

IH 20 EB OVERPASS AT SH 208 (SOUTH) BRIDGE REPAIR LOCATION PLAN

NBI# 08-168-0-0005-08-101

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		51

DATE:
FILE:

CK:
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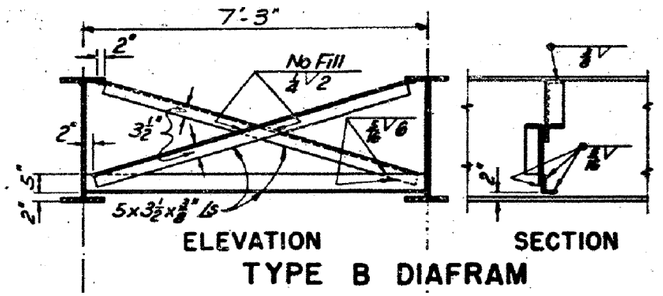
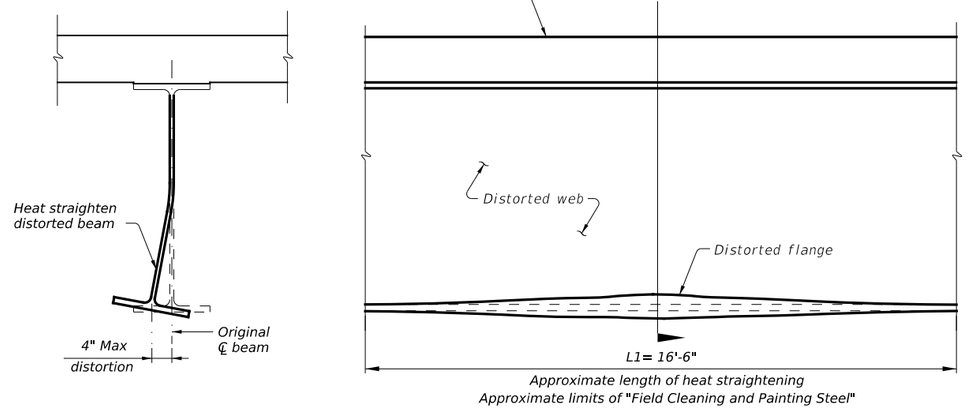
Radiographic Inspection of diaphragm connection welds are required. Field Weld per item 784 "Replace Steel Member (Diaphragm)" as directed by the Engineer.

IMPACT DAMAGE AT BEAM 1



EXISTING DIAPHRAGM CONNECTION



SECTION A-A

Maximum distortion per Bridge Inspection Report, inspected on 5/09/2023

BEAM ELEVATION

Diaphragm Spacing is 16'-6". Approximate length assumed to be the full length between diaphragms.

HEAT STRAIGHTENING

GENERAL NOTES:

Notify TxDOT Bridge Division at least two weeks in advance by e-mailing BRG-FO-STL@txdot.gov prior to beginning work to allow for inspection of repairs by a Bridge Division structural steel inspector.

Use heat-straightening to repair and restore the shape of beams and diaphragms. Heat straighten the members in accordance with Item 784, "Steel Member Repair." Apply sufficient force combined with heat to accomplish work but do not fracture member. Repair additional damage caused by Contractor's operations at no additional cost to the Department.

****Restore the paint protection for repaired beams and diaphragms with System I-B per Item 446, "Field Cleaning and Painting Steel," and as directed by the Engineer. Match the appearance coat with the existing structure. Assume existing paint coating contains hazardous materials, unless otherwise noted.*

HEAT STRAIGHTENING PROCEDURE:

1. *Set traffic control. Close lanes on top of the bridge as directed by the Engineer.*
2. *Check gap (if any) between top of top flange and bottom of deck for any debris and clear to allow complete contact to occur.*
3. *Remove the diaphragms, if necessary, for heat straightening.*
4. *Heat straighten distorted beam in accordance with Item 784, "Steel Member Repair."*
5. **Repair/replace/re-weld damaged diaphragms as shown in the detail after the beam is restored in both shape and alignment.*
6. *Clean and paint the repair area as directed by the Engineer.*
7. *Open the roadways to normal traffic as directed by the Engineer.*

STATE OF TEXAS
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Texas Department of Transportation

IH 20 EB OVERPASS AT SH 208 (SOUTH) STEEL BEAM REPAIR DETAILS

NBI# 08-168-0-0005-08-101

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		52

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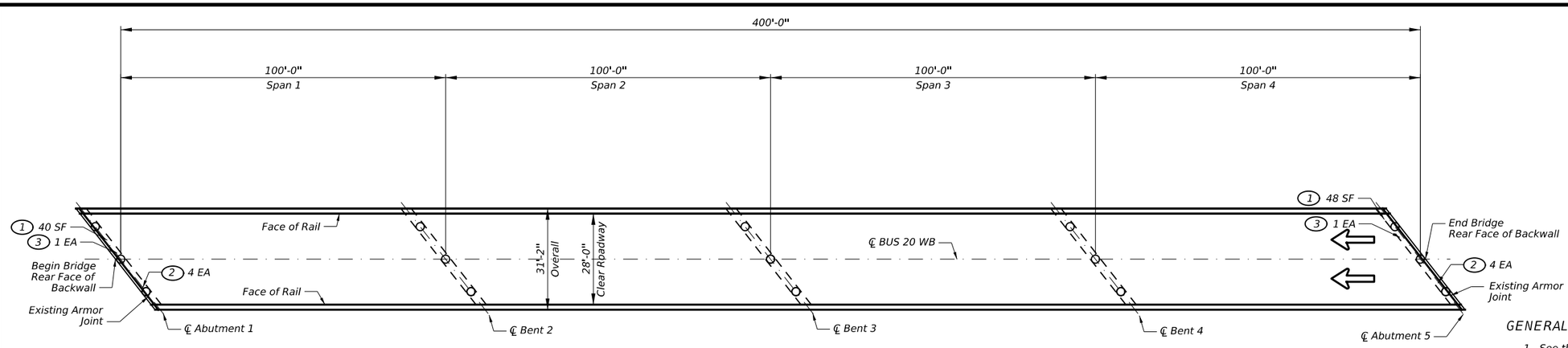
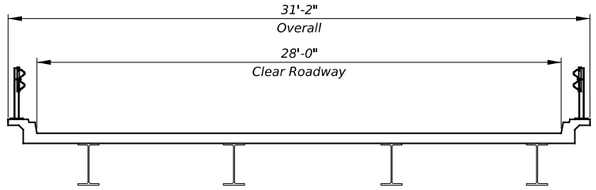


PLAN

①②③ REPLACE STEEL SHOE BEARINGS AT ABUTMENTS AND CLEAN ABUTMENT TOP SURFACE - TYPICAL



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

Crack/Spall/Delamination Repair

XX XX
- Repair Quantity Unit
- Estimated Repair Quantity At Each Location
- Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Repair spalls and delaminations found adjacent to or under proposed bearing replacements as directed by the Engineer.		0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	88	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
2	Replace Rocker Bearings at Abutment 1 and Abutment 5 with Elastomeric Bearings.	544012	0434	ELASTOMERIC BEARING (SPECIAL)	8	EA	See Elastomeric Bearing Replacement Details for Steel Beams on Elastomeric Bearing Replacement Detail Sheets
			0442	STR STEEL (PEDESTAL)	1390	LB	
			0495	RAISING EXIST STRUCT	0.7	LS	
3	Remove dirt and debris from the top of the abutments. See Plan for locations.		7309	CLEANING STRUCTURE (ABUTMENT)	2	EA	

STATE OF TEXAS
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Texas Department of Transportation

IH 20 UNDERPASS AT BUS 20 WB BRIDGE REPAIR LOCATION PLAN

NBI# 08-168-0-0006-01-266

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		53

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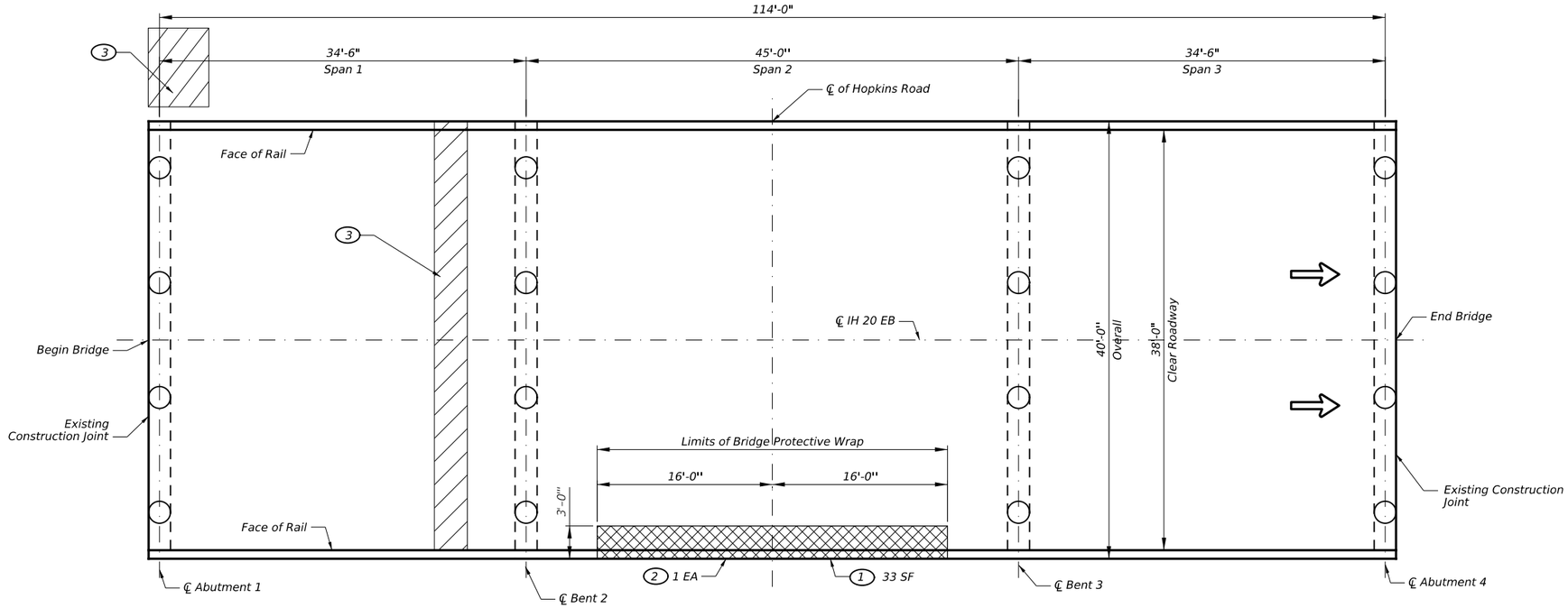
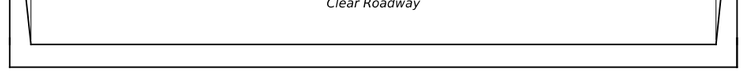


PLAN

③ WEST RIPRAP OF EB BRIDGE

③ RIPRAP BETWEEN EB AND WB BRIDGE



EXISTING TYPICAL SECTION

REPAIR CALL-OUT LEGEND

- Concrete RipRap
- Carbon Fiber Protective Wrap

(XX) XX XX
- XX XX — Repair Quantity Unit
- XX — Estimated Repair Quantity At Each Location
- (XX) — Repair No. - See Table of Repairs

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
(1)	Repair slab fascia damaged by vehicular impact on span 2. See Plan for location	544019	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	33	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
	Install Carbon Fiber Protection on span 2 slab fascia.	544019	0786	CARBON FIBER REINF POLYMER PROTECTION	132	SF	See Bridge Protective Wrap Detail Sheet.
(2)	Remove and replace damaged clearance sign and assembly within limits of CFRP protection.	N/A	0644	REMOVE BRDG MNT CLEARANCE SIGN ASSM	1	EA	Measure and verify bridge clearance prior to fabrication of new clearance sign. Place new clearance sign in accordance with item 644 and Bridge Mounted Clearance Sign Assembly Standard Plan (BMCS).
			0644	IN BRIDGE MNT CLEARANCE SGN ASSM(TY N)	1	EA	
			0636	REPLACE EXISTING ALUMINUM SIGNS(TY O)	1	EA	
(3)	Remove and replace concrete riprap under EB bridge and between EB and WB bridge. Fill void with flowable fill. Flowable fill quantity is assumed.	649948	0104	REMOVING CONC (RIPRAP)	45	SY	Sawcut and remove existing riprap 6" beyond damaged areas. Verify limits with Engineer prior to removal. Block cracks and holes at based of riprap apron to prevent spillage of flowable fill. Fill void to base of riprap. Reconstuct riprap in-kind per Item 432.
			0401	FLOWABLE BACKFILL	20	CY	
			0432	RIPRAP (CONC) (CL B) (4")	5	CY	

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Texas Department of Transportation

IH 20 EB OVERPASS AT HOPKINS RD BRIDGE REPAIR LOCATION PLAN

NBI# 08-177-0-0006-02-233

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		54

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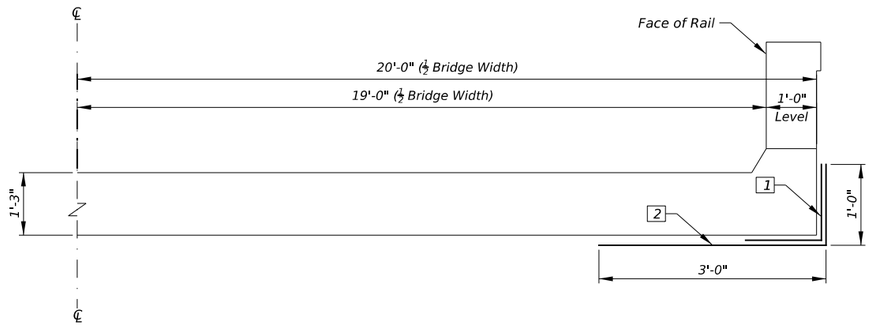
Remove clearance sign, repair fascia, install carbon fiber protection wrap and install new clearance sign.

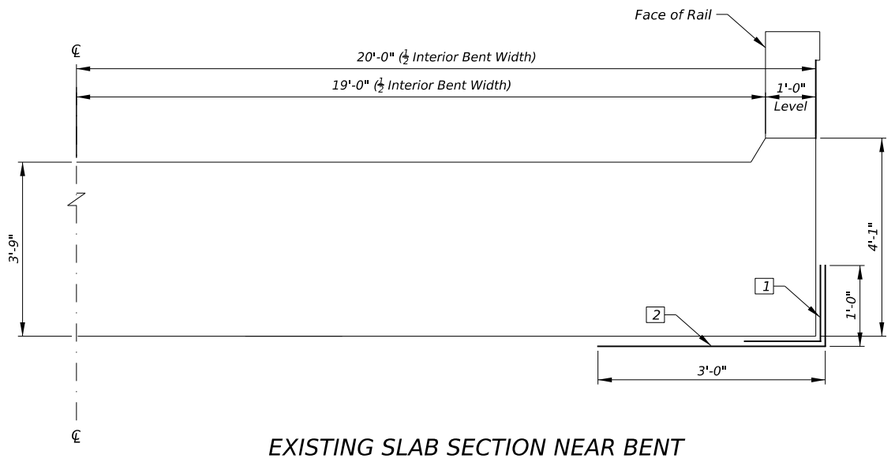
(1) (2) EXISTING SOUTH SLAB FASCIA ELEVATION

[1] *First layer - place 24" wide carbon fiber fabric sheets longitudinally on slab, with fiber orientation parallel to slab centerline. Locate sheets on corners of slab as shown. Overlap fabric sheets a minimum of 6" in the longitudinal direction to achieve full installation length.*

[2] *Second layer - place carbon fiber fabric sheets transversely on slab, with fiber orientation perpendicular to slab centerline. Wrap sheets on bottom and sides of slab to limits shown. Wrap butt joints in the longitudinal direction to achieve full installation length. Placement of carbon fiber on 45 degree bias is allowed to achieve protection along curved slab profile.*



EXISTING SLAB SECTION MIDSPAN



EXISTING SLAB SECTION NEAR BENT

CONSTRUCTION NOTES:

If beams or girders are spaced closely together, install CFRP wrap prior to beam erection. For unpainted beams/girders, install approved CFRP system and apply the protective top coating with color and texture to match adjacent concrete. Mask adjacent concrete prior to coating.

For painted beams/girders, install approved CFRP system and apply the protective top coating prior to painting. Paint concrete and CFRP to produce uniform finish, as specified elsewhere.

GENERAL NOTES:

Provide and apply CFRP system, including protective top coating, in accordance with Item 786, "Carbon Fiber Reinforced Polymer (CFRP)".

Install CFRP wrap to beams/girders shown on the layout, in the location and to the limits given.

Payment for the Bridge Protective Beam Wrap is in accordance with Item 786, "Carbon Fiber Reinforced Polymer (CFRP)". Quantity is measured by the square foot of beam/girder surface area covered. Carbon fiber system is for protection of slab fascia only. Calculations are not required.

STATE OF TEXAS
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Texas Department of Transportation

IH 20 EB OVERPASS AT HOPKINS RD BRIDGE PROTECTIVE REPAIR DETAILS

NBI # 08-177-0-0006-02-233

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		55

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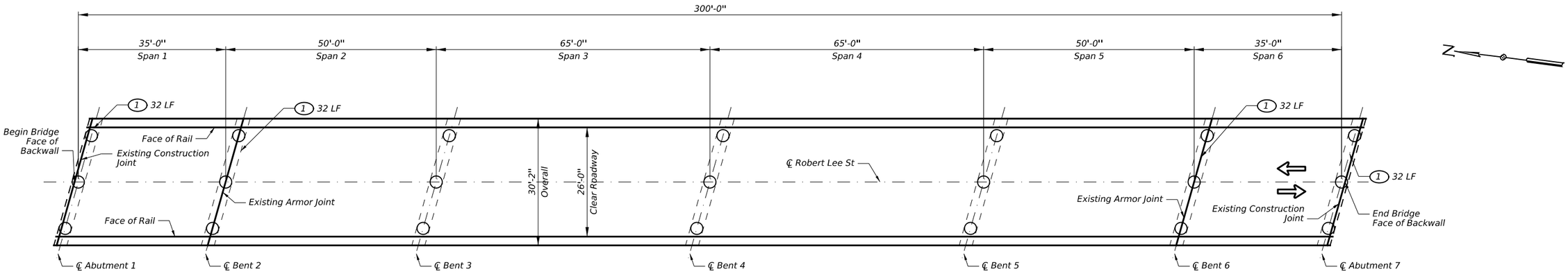
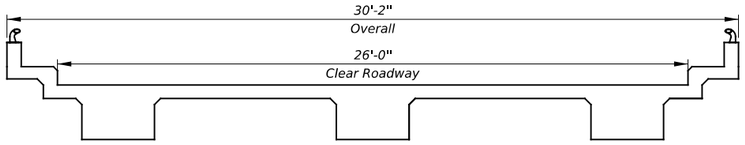


PLAN



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

(1) TYPICAL END JOINT

(1) TYPICAL ARMOR JOINT

(2) BRIDGE DECK SURFACE

REPAIR CALL-OUT LEGEND

(XX) XX XX
- XX XX — Repair Quantity Unit
- XX — Estimated Repair Quantity At Each Location
- (XX) — Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
(1)	Reseal existing armor joints and end joints. See Plan for locations.	544021	0438	CLEANING AND SEALING EXIST JOINTS(CL3)	128	LF	See Cleaning and Sealing Existing Bridge Joints Detail on Bridge Joint Repair Detail Sheets.
(2)	Remove excess aggregate accumulated on shoulders of bridge and approaches as directed by the Engineer.	N/A	0738	CLEANING / SWEEPING (SPOT)	0.2	MI	Perform sweeping prior to joint repairs.

STATE OF TEXAS
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2/9/2024

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Texas Department of Transportation

IH 20 UNDERPASS AT ROBERT LEE ST BRIDGE REPAIR LOCATION PLAN

NBI# 08-177-0-0006-02-237

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		56

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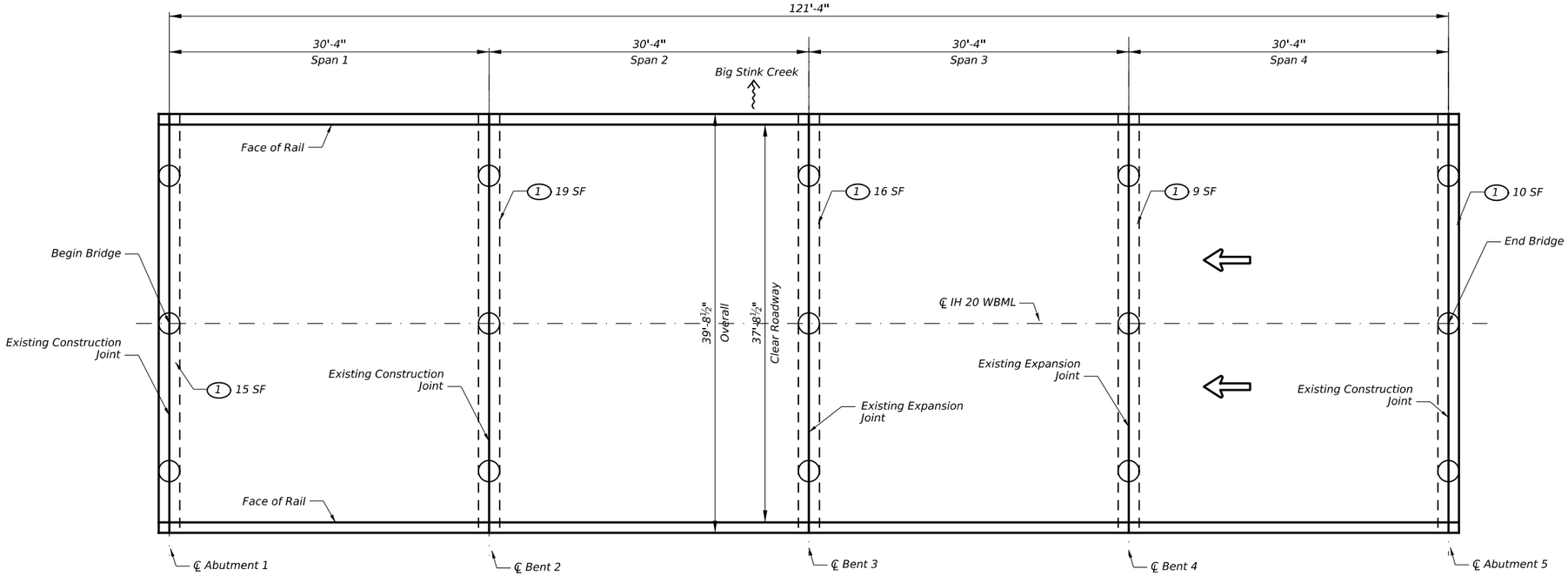
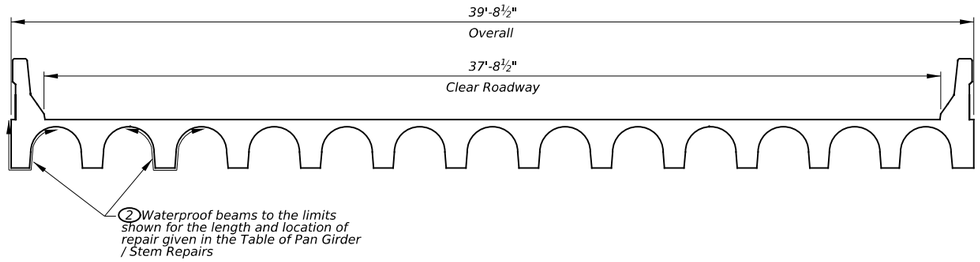


PLAN



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

(XX) XX XX
- XX: Repair Quantity Unit
- XX: Estimated Repair Quantity At Each Location
- (XX): Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Repair damaged bent caps and abutments. See Plan for locations.	545195	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	69	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
2	Repair damaged concrete beams and apply Type X Waterproof Finish to beam ends. See Table of Pan Girder / Stem Repairs for locations.	544026	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	201	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
			0427	EPOXY WATERPROOF FINISH (TY X)	1046	SF	Waterproof beams to the limits shown.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
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2/9/2024

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Texas Department of Transportation

IH 20 WBML
OVER BIG STINK CREEK
BRIDGE REPAIR LOCATION PLAN

NBI# 08-177-0-0006-03-065

SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		57

DATE:
FILE:

DES: JD | CK: GK | DW: NS | CK: JD

1 DELAMINATION AND SPALLING IN NORTHWEST QUADRANT OF ABUTMENT 1 AND DIAPHRAGM OF BAY 1N

1 DELAMINATION AND CRACKING AT ABUTMENT 1 UNDER BEAM 14N AND BETWEEN BEAMS 12N AND 13N

1 CRACKING AND SPALLING IN BAY 7N DIAPHRAGM AT BENT 2

1 BOTTOM OF CAP CRACKING AT WEST FACE OF BENT 2

1 SPALLING IN NORTH CANTILEVER OF BENT 2 ON NORTH SIDE

1 EAST FACE BENT 2W SHOWING DELAMINATION IN DIAPHRAGM IN BAY 7N

3 CRACKING AND DELAMINATION ON BOTTOM OF WEST FACE OF SOUTH OVERHANG OF BENT 3

1 CRACKING AND DELAMINATION ON THE BOTTOM OF NORTH OVERHANG OF BENT 3

1 CRACKING AND DELAMINATION ON WEST FACE OF BENT 3 UNDER BEAM 9N

1 CRACKING AND SPALING IN DIAPHRAGMS 7N AND 6N AT BENT 3

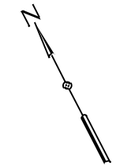
1 CRACKING AND SPALLING ON THE BOTTOM OF SOUTH OVERHANG OF BENT 3

1 EAST FACE BENT 3 SHOWING 3FT OF CORNER CRACKING ON BOTTOM OF BENT 2 NORTH CANTILEVER

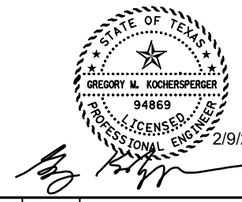
1 DELAMINATION ON WEST FACE BENT 4 UNDER BEAMS 9N, 12N, 13N, AND 14N

1 DELAMINATION ON EAST FACE OF BENT 4 BETWEEN BEAMS 5N AND 6N

1 DELAMINATION AND SPALLING SOUTHEAST QUADRANT OF ABUTMENT 5



REPAIR CALL-OUT LEGEND



2/9/2024

NO.	DATE	REVISION	APPR BY

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972.960.4400

Texas Department of Transportation

IH 20 WBML
OVER BIG STINK CREEK
BRIDGE REPAIR LOCATION PLAN

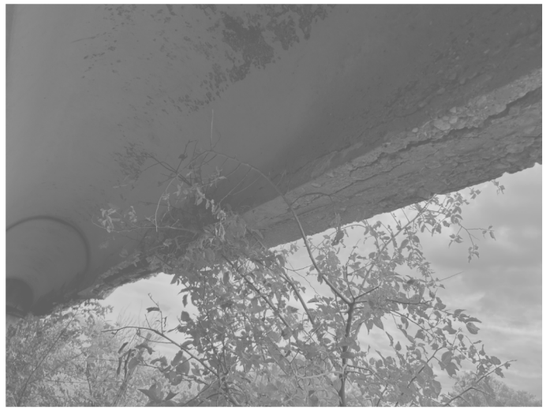
NBI# 08-177-0-0006-03-065

SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		58

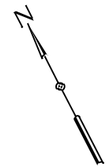
DATE:
FILE:

DW: JD | CK: GK | DW: NS | CK: JD



② *FASCIA BEAM STEM REPAIR - TYPICAL*

② *BEAM END STEM REPAIR - TYPICAL*



REPAIR CALL-OUT LEGEND

XX XX
- Repair Quantity Unit
- Estimated Repair Quantity At Each Location
- Repair No. - See Table of Repairs

TABLE OF PAN GIRDER / STEM REPAIRS

Span	Location	Beam	Repair Length	Repair Quantity	Waterproofing Area
1	Full Span Length	1	30 LF	30 SF	156 SF
1	Bent 2	4	4 LF	4 SF	20.8 SF
1	Bent 2	5	1 LF	1 SF	5.2 SF
1	Bent 2	6	1 LF	1 SF	5.2 SF
1	Bent 2	7	2 LF	2 SF	10.4 SF
1	Bent 2	8	2 LF	2 SF	10.4 SF
1	Bent 2	12	2 LF	2 SF	10.4 SF
1	Midspan	13	3 LF	3 SF	15.6 SF
1	Full Span Length	14	30 LF	30 SF	156 SF
2	Midspan	13	3 LF	3 SF	15.6 SF
2	Full Span Length	14	30 LF	30 SF	156 SF
3	Midspan	13	3 LF	3 SF	15.6 SF
3	Full Span	14	30 LF	30 SF	156 SF
4	Full Span Length	1	30 LF	30 SF	156 SF
4	Full Span Length	14	30 LF	30 SF	156 SF

Beam 1 is North Fascia beam
Beam 14 is South Fascia beam

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
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PROFESSIONAL ENGINEER
2/9/2024

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Firm Registration No. F-754
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Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

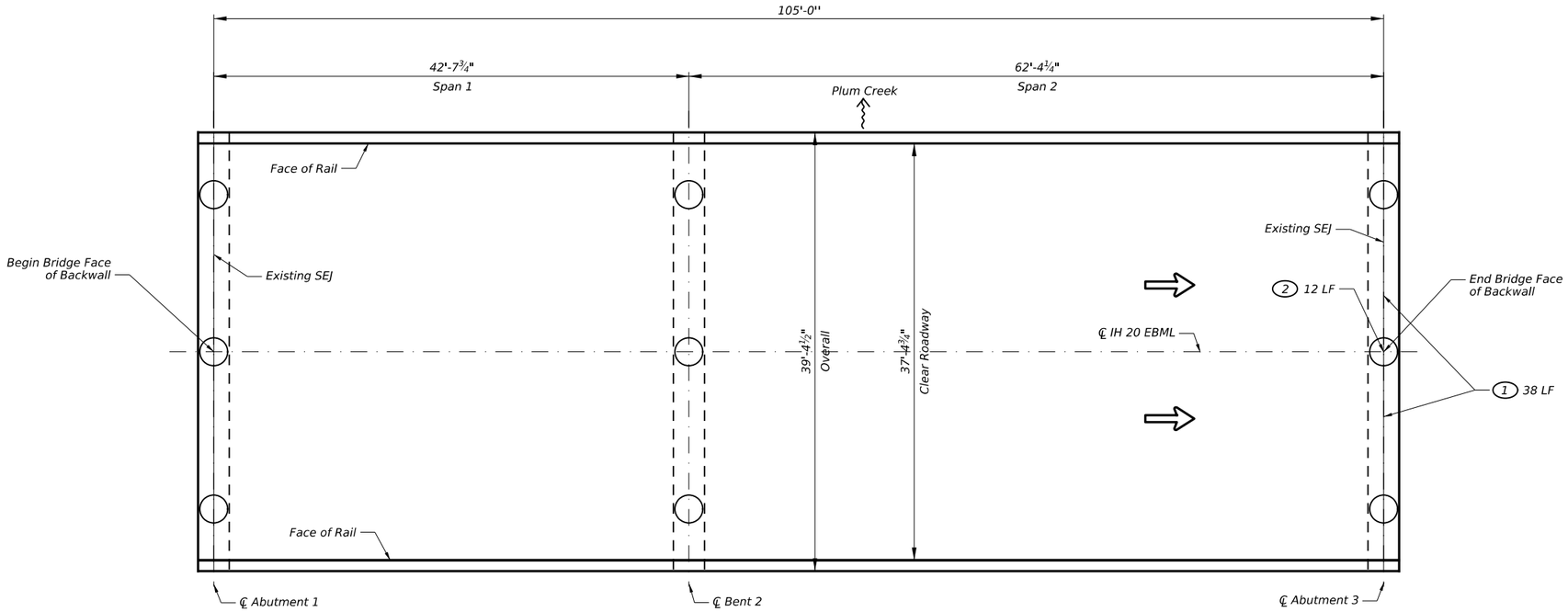
IH 20 WBML OVER BIG STINK CREEK BRIDGE REPAIR LOCATION PLAN

NBI# 08-177-0-0006-03-065

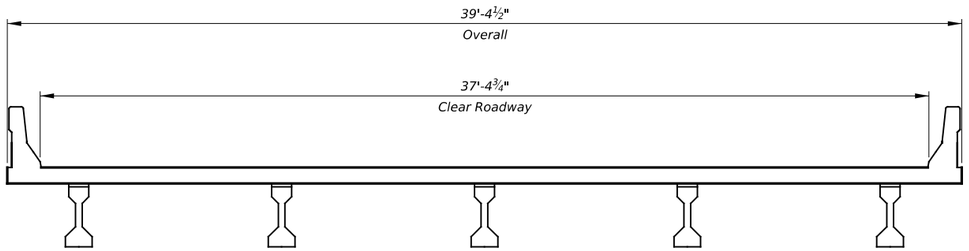
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		59

DATE:
FILE:

DW:	CK:	DW:	CK:
JD	JD	GK	NS



PLAN



EXISTING TYPICAL SECTION

(1) (2) JOINT AT ABUTMENT 3

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

(XX) XX XX
- XX XX — Repair Quantity Unit
- XX — Estimated Repair Quantity At Each Location
- (XX) — Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
(1)	Clean Strip Seal Joint and Replace Strip Seal Gland at Abutment 3 outside the limits of Repair 2.	545223	0438	CLEAN AND SEAL EXIST JTS (STRIP SEAL)	38	LF	See Cleaning and Sealing Existing Bridge Joints Detail on Bridge Joint Repair Detail Sheets.
(2)	Replace existing sealed expansion joint in the center lane at Abutment 3. See Plan for locations.	545223	0785	BRIDGE JOINT REPLACEMENT (SEJ)	12	LF	See Repair Detail on the Bridge Joint Repair Detail Sheets.

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17111 Preston Road, Suite 300
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972.960.4400

Texas Department of Transportation

IH 20 EBML OVER PLUM CREEK BRIDGE REPAIR LOCATION PLAN

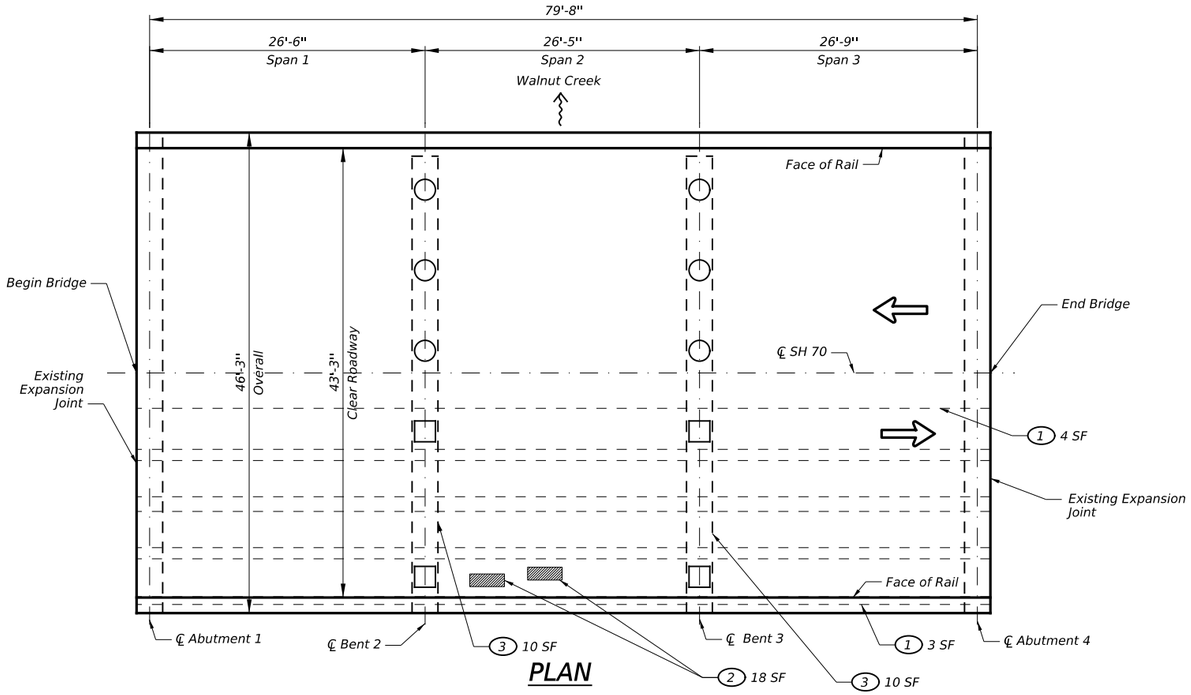
NBI# 08-177-0-0006-03-322

SHEET 1 OF 1

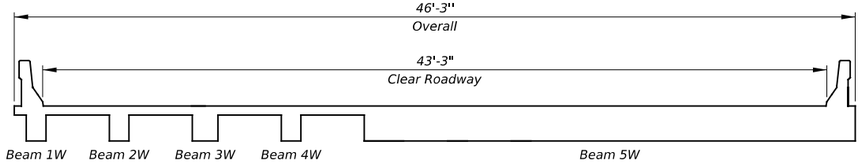
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		60

DATE:
FILE:

DW: JD | CK: JD | DW: GK | CK: NS | DW: JD



PLAN



EXISTING TYPICAL SECTION

1 CRACKING AND DELAMINATION AT BOTTOM OF STEM ON BEAM 1W, SPAN 3

1 CRACKING AND DELAMINATION AT BOTTOM OF STEM ON BEAM 5W, SPAN 3

2 REPAIR DAMAGED SOFFIT

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

Crack/Spall/Delamination Repair

(XX) XX XX
- XX XX — Repair Quantity Unit
- XX XX — Estimated Repair Quantity At Each Location
- (XX) — Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Repair damaged concrete beam stems. See repair photos for location.	544043	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	7	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
2	Repair damaged deck soffit between Beams 1 and 2 West. See Plan for location.	545245	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	18	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
3	Repair cracks, delaminations and spalls in original bent caps. Quantity is assumed. Confirm final locations with Engineer prior to performing repairs.	545246	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	20	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.

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972.960.4400

Texas Department of Transportation

SH 70 OVER WALNUT CREEK BRIDGE REPAIR LOCATION PLAN

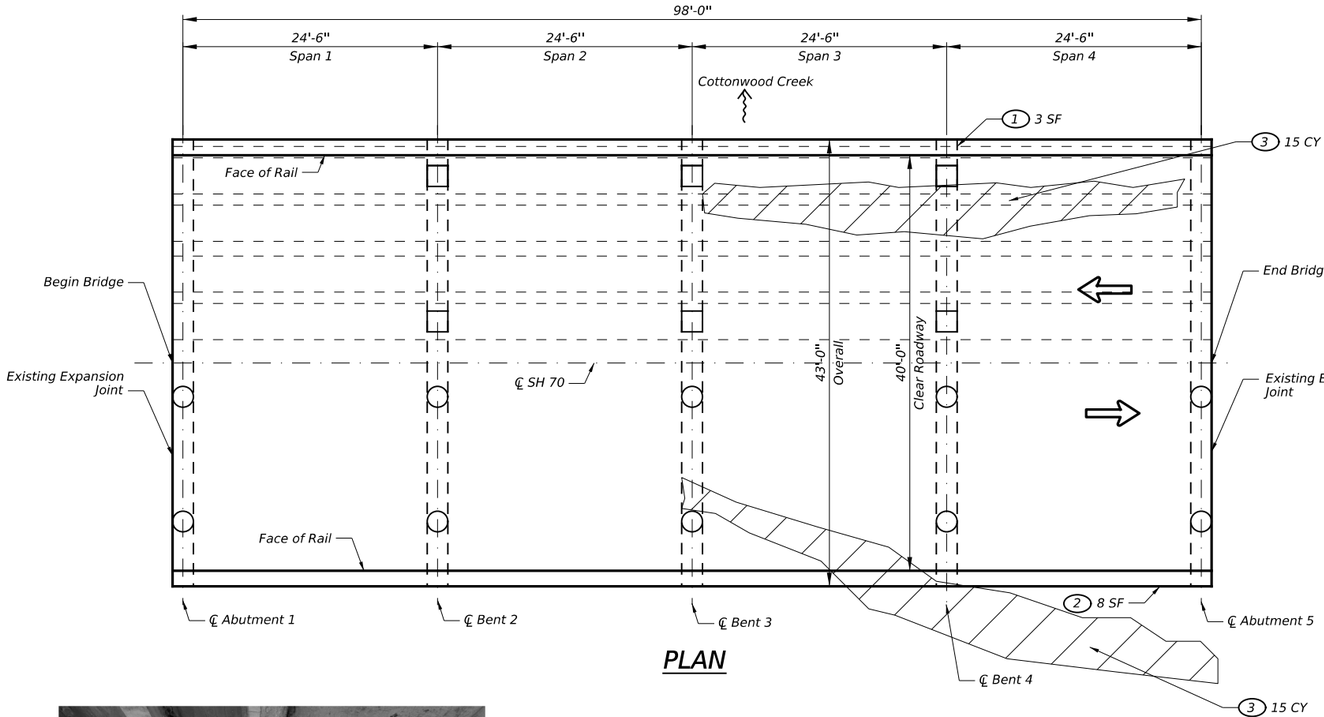
NBI# 08-177-0-0264-01-003

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		61

DATE:
FILE:

DW: JD | CK: GK | DW: NS | CK: JD



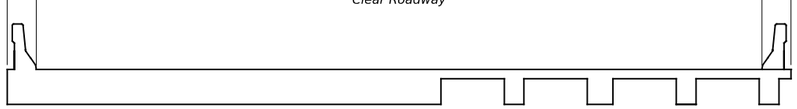
PLAN

(2) REPAIR SLAB SOFFIT

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

(3) WASHOUT REPAIR



EXISTING TYPICAL SECTION

(1) REPAIR SPALL ON BEAM 1E

REPAIR CALL-OUT LEGEND

(XX) XX XX
- Repair Quantity Unit
- Estimated Repair Quantity At Each Location
- Repair No. - See Table of Repairs

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
(1)	Repair damaged concrete beam stems. See repair photos for location.	544047	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	3	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
(2)	Repair damaged widening slab fascia. See Plan for location.	544047	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	8	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
(3)	Fill erosion gullies with stone riprap to match surrounding grade, as directed by the Engineer. See Plan for approximate locations. Quantities are approximate.	545274	0432	RIPRAP (STONE PROTECTION) (12 IN)	30	CY	

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Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 70 OVER COTTONWOOD CREEK (SOUTH) BRIDGE REPAIR LOCATION PLAN

NBI# 08-177-0-0264-03-008

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		62

DATE:
FILE:

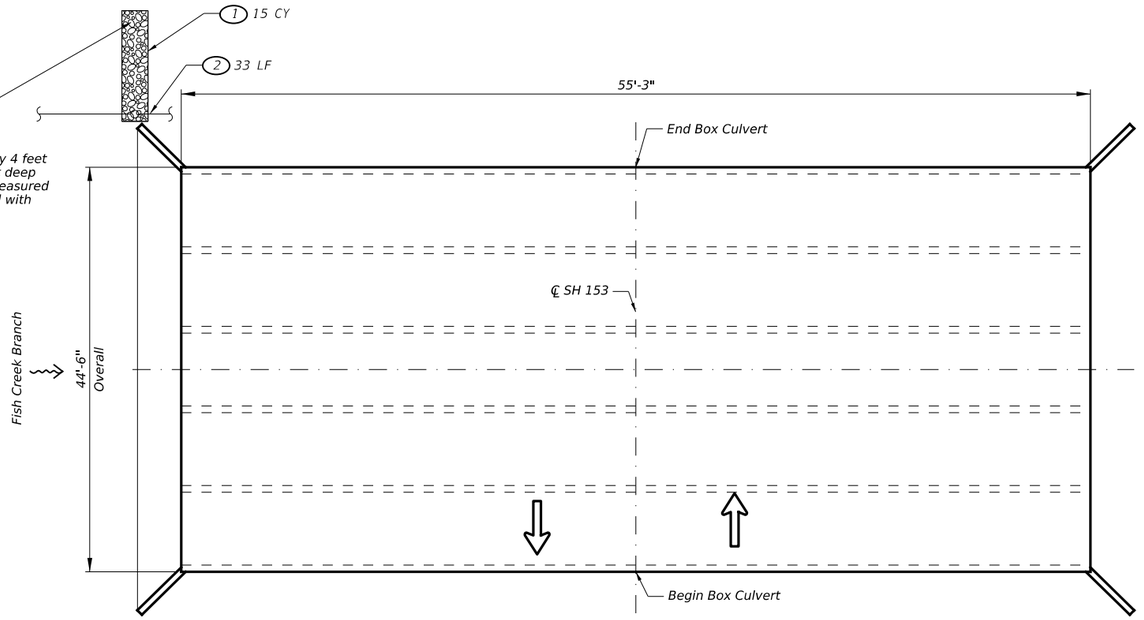
DW: JD | CK: GK | DW: NS | CK: JD

23 feet long by 4 feet wide by 3 feet deep washout as measured 9/30/2023. Fill with stone.

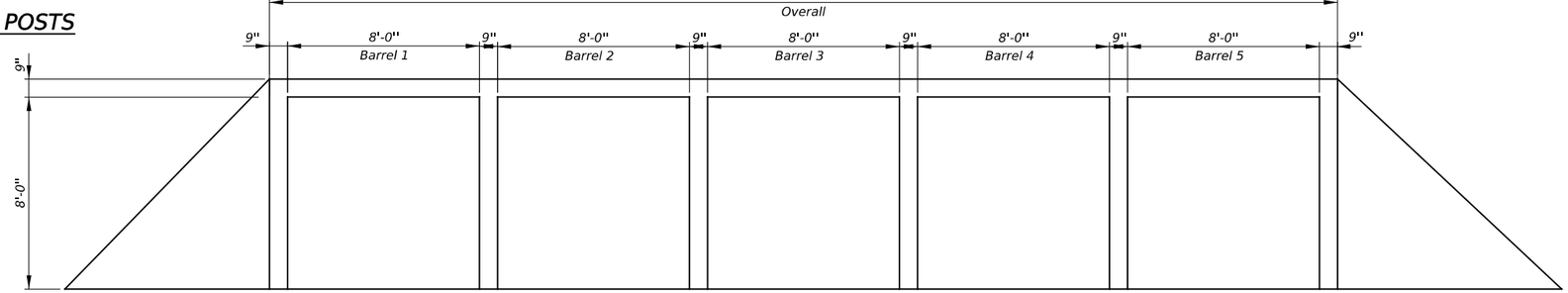
1 REPAIR EROSION AREAS

Remove and replace wire fence located within washout repair as directed by the Engineer, to facilitate placement of stone protection.

2 REPLACE FENCE POSTS



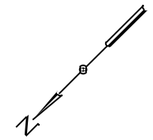
PLAN



EXISTING TYPICAL SECTION

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Fill washout in northeast quadrant, as directed by the Engineer. See Plan for locations.	545292	0432	RIPRAP (STONE PROTECTION) (12 IN)	15	CY	
2	Remove and replace washed out Type A Wire Fence	N/A	0496	REMOV STR (SMALL FENCE)	33	LF	Restore minimal amount of fence required to repair washout. Construct in accordance with item 552 and Barbed Wire Fence and Woven Wire Fence (Wood Posts) Standard Plan WF(1)-10
			0552	WIRE FENCE (TY A)	33	LF	



GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
5. Refer to Traffic Control Plans for information not shown.

REPAIR CALL-OUT LEGEND

Riprap Repair

XX XX
- Repair Quantity Unit
- Estimated Repair Quantity At Each Location
- Repair No. - See Table of Repairs

STATE OF TEXAS
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2/9/2024

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Texas Department of Transportation

SH 153 OVER FISH CREEK BRANCH BRIDGE REPAIR LOCATION PLAN

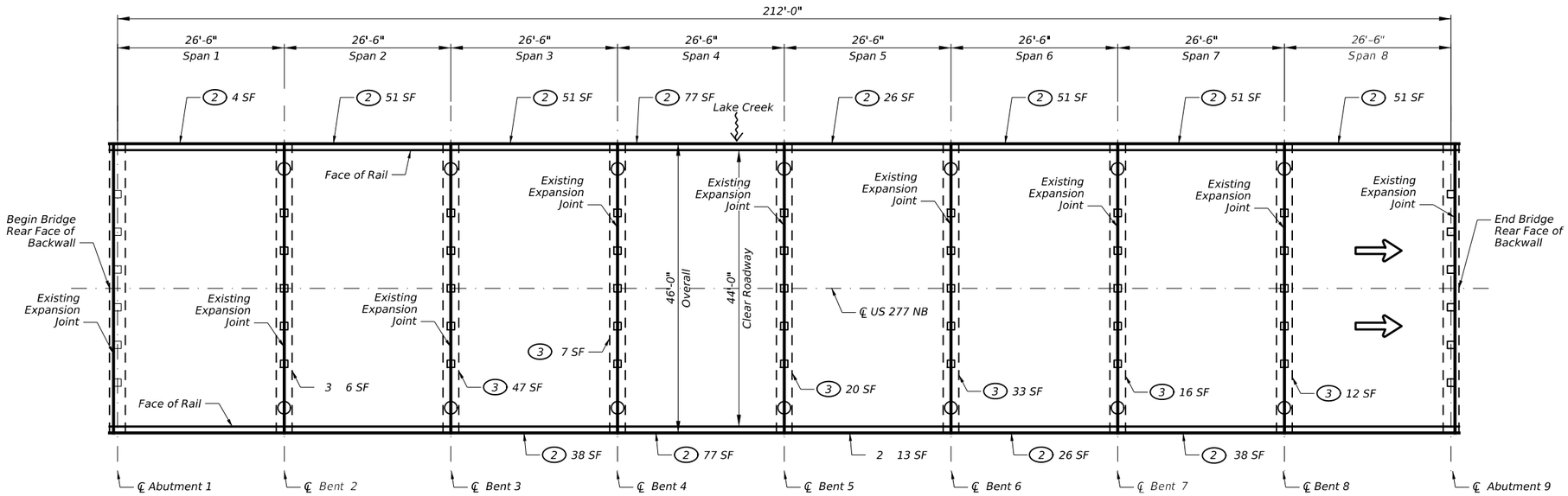
NBI# 08-177-0-0650-01-003

SHEET 1 OF 1

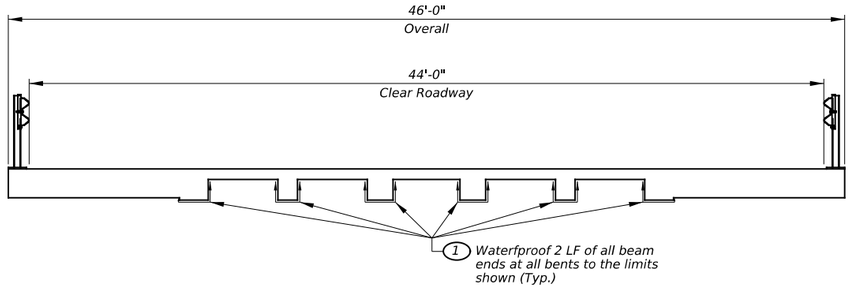
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		63

DATE:
FILE:

DW: JD CK: GK DW: NS CK: JD



PLAN



EXISTING TYPICAL SECTION

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
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3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
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REPAIR CALL-OUT LEGEND

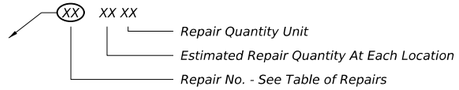

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Repair damaged beam ends. See Table of Concrete T-Beam, Beam End Repairs for locations. Waterproof 2 LF of all beam ends at pier bents.	666582	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	48	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
			0427	EPOXY WATERPROOF FINISH (TY X)	366	SF	Waterproof beams to the limits shown.
2	Repair spalls / delaminations in widening slab soffit / fascia corner. Measured 554 SF. See Plan for location. Additional 50 SF to be used as directed by the Engineer.	544084	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	614	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
3	Repair damaged bent caps. See Plan for locations.	666591	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	141	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.

STATE OF TEXAS
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17111 Preston Road, Suite 300
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972.960.4400

Texas Department of Transportation

US 277 NB
OVER LAKE CREEK
BRIDGE REPAIR LOCATION PLAN

NBI# 08-105-0-0157-03-009

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		64

DATE:
FILE:

DW:	JD	CK:	JD
DW:	GK	CK:	NS
DW:	JD	CK:	GK

TABLE OF CONCRETE T-BEAM, BEAM END REPAIRS

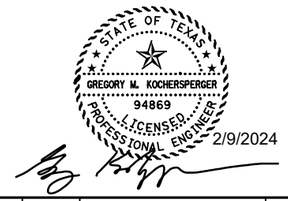
Span	Location	Beam	Repair Length	Beam Width	Repair Quantity
8	Bent 8	1	1 LF	2.0 LF	2.0 SF
8	Bent 8	2	1 LF	1.0 LF	1.0 SF
8	Bent 8	3	0.5 LF	1.4 LF	0.7 SF
8	Bent 8	5	1 LF	1.0 LF	1.0 SF
7	Bent 8	2	1 LF	1.0 LF	1.0 SF
7	Bent 7	1	1 LF	0.7 LF	0.7 SF
7	Bent 7	2	1 LF	1.0 LF	1.0 SF
7	Bent 7	3	1 LF	1.4 LF	1.4 SF
7	Bent 7	4	1 LF	1.4 LF	1.4 SF
7	Bent 7	5	1 LF	1.0 LF	1.0 SF
7	Bent 7	6	1 LF	0.7 LF	0.7 SF
6	Bent 7	1	1 LF	0.7 LF	0.7 SF
6	Bent 7	2	1 LF	1.0 LF	1.0 SF
6	Bent 6	1	1 LF	1 LF	1 SF
6	Bent 6	4	1 LF	1.5 LF	1.5 SF
6	Bent 6	5	1 LF	1.2 LF	1.2 SF
6	Bent 6	6	1 LF	1.2 LF	1.2 SF
5	Bent 6	2	1 LF	1.5 LF	1.5 SF
5	Bent 6	3	1 LF	1.2 LF	1.2 SF
5	Bent 6	6	2 LF	0.7 LF	1.5 SF
5	Bent 5	1	1 LF	1.2 LF	1.2 SF
5	Bent 5	2	1 LF	1.0 LF	1.0 SF
5	Bent 5	3	1 LF	1.5 LF	1.5 SF
5	Bent 5	4	1 LF	1.5 LF	1.5 SF
5	Bent 5	5	1 LF	1.2 LF	1.2 SF
5	Bent 5	6	1 LF	1.2 LF	1.2 SF
4	Bent 5	3	2 LF	1.4 LF	2.8 SF
4	Bent 5	5	1 LF	1.2 LF	1.2 SF
4	Bent 5	6	1 LF	0.7 LF	0.7 SF
3	Bent 4	1	1 LF	1.2 LF	1.2 SF
3	Bent 4	2	1 LF	1.0 LF	1.0 SF
3	Bent 4	4	1 LF	1.4 LF	1.4 SF
3	Bent 3	1	1 LF	0.7 LF	0.7 SF
3	Bent 3	2	1 LF	1.7 LF	1.7 SF
3	Bent 3	6	1 LF	0.7 LF	0.7 SF
2	Bent 3	1	1 LF	2 LF	2 SF
2	Bent 3	2	1 LF	1.7 LF	1.7 SF
2	Bent 2	2	1 LF	1 LF	1 SF

Beam 1 is West Fascia Beam

② SLAB SOFFIT / CORNER REPAIR - TYPICAL

①③ REPAIR T-BEAM STEMS AND BENT CAPS - TYPICAL

REPAIR CALL-OUT LEGEND



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972.960.4400

Texas Department of Transportation

US 277 NB
OVER LAKE CREEK
BRIDGE REPAIR LOCATION PLAN

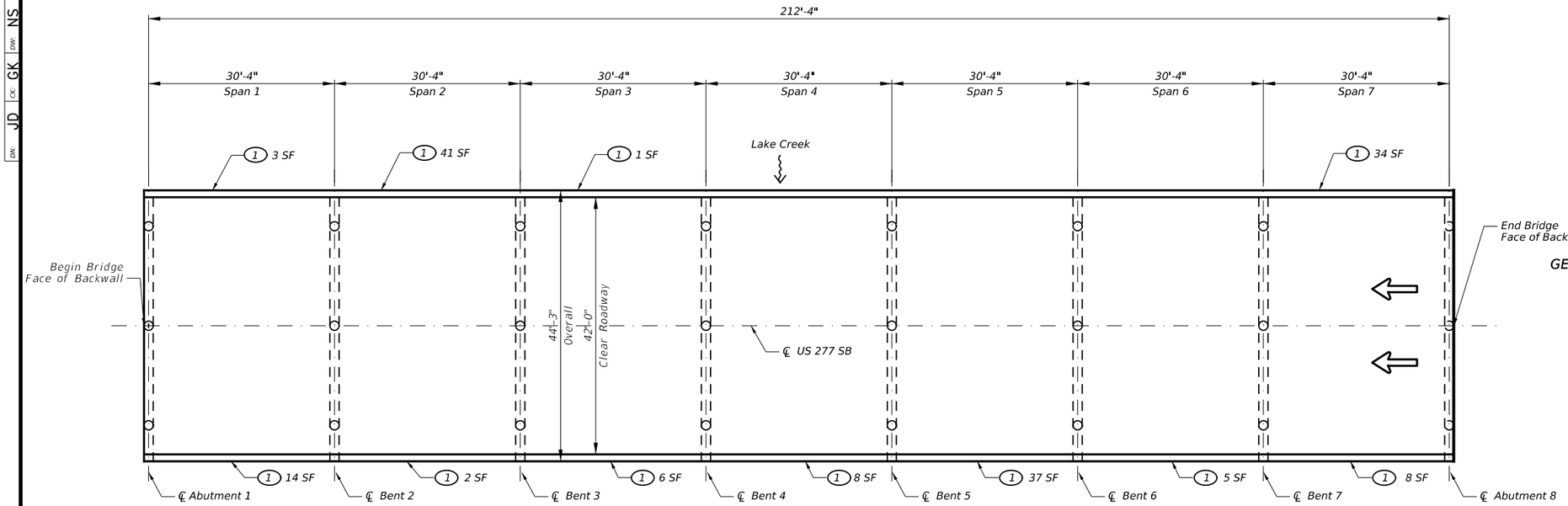
NBI# 08-105-0-0157-03-009

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		65

DATE:
FILE:

DW: JD CK: GK DW: NS CK: JD



PLAN

GENERAL NOTES:

1. See the Table of Repairs for scope of rehabilitation.
2. Existing plans are available upon request.
3. Dimensions are based on as-built drawings and are for reference only. Beams are labeled from left to right looking in the direction of increasing station.
4. Locations indicated in plans and details are for visual aids, and all repair locations shall be approved by the Engineer prior to beginning repair work. Field verify limits and quantities with the Engineer. Payment will be for the field measured repair at the unit price bid.
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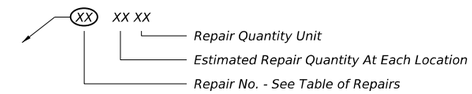
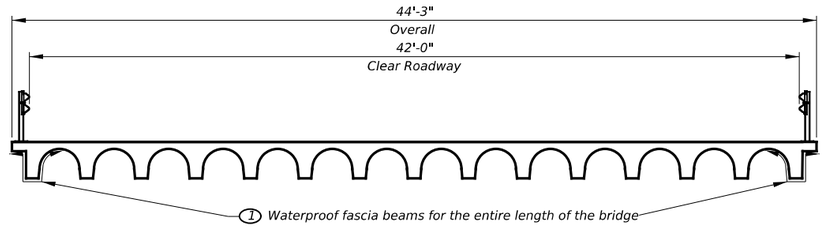
REPAIR CALL-OUT LEGEND



1 STEM VERTICAL FACE REPAIR - TYPICAL

1 STEM BOTTOM REPAIR - TYPICAL



EXISTING TYPICAL SECTION

TABLE OF REPAIRS

REPAIR NO.	REPAIR DESCRIPTION/LOCATION	FOLLOW UP ACTION (FUA) ID	ITEM	BID ITEM DESCRIPTION	QUANTITY	UNIT	DETAILS/NOTES
1	Repair damaged fascia beams. See Plan for locations. Apply Type X Waterproof Finish to the full length of all fascia beams.	544087	0429	CONC STR REPAIR (VERTICAL & OVERHEAD)	159	SF	Repair as intermediate spalls per the TxDOT Concrete Repair Manual, Chapter 3, Section 2.
			0427	EPOXY WATERPROOF FINISH (TY X)	1556	SF	Waterproof beams to the limits shown.

STATE OF TEXAS
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2/9/2024

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Texas Department of Transportation

US 277 SB
OVER LAKE CREEK
BRIDGE REPAIR LOCATION PLAN

NBI# 08-105-0-0157-03-045

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		66

DATE:
FILE:

CK:
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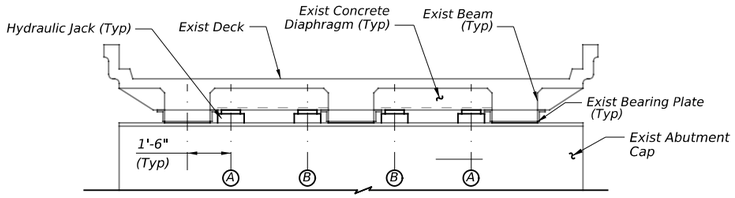


JACKING DETAIL

JACKING DIAGRAM NOTES:

Superstructure jacking will be performed in accordance with Item 495, "Raising Existing Structures".

Submit calculations and detailed plans to raise superstructure.

Hydraulic jacks should have adequate capacity to support 2 times the unfactored dead load. Apply required jacking forces in a balanced controlled manner. Required loads to be supported at each jack per the table below.

Location	Unfactored Dead Load (Lb.)
A	108,000
B	54,000

BEARING PAD SUMMARY TABLE

NBI#	Abut / Bent No.	Dowels (Y/N)	Bearing Pad Dimensions			Total No. of Layers (NL)	Beam Slope (N)	Bearing Pad Type	Quantity
			L (inch)	W (inch)	T (inch)				
08-030-0-0006-07-279	Abut 1	N	9	22	1	3	0	Elastomeric	3
	Abut 5	N	9	22	1	3	0	Elastomeric	3
08-030-0-0007-01-091	Abut 1	N	9	22	1	3	0	Elastomeric	3
	Abut 5	N	9	22	1	3	0	Elastomeric	3
08-221-0-0006-05-216	Abut 1	N	9	22	3.5	10	0	Elastomeric	3
	Abut 5	N	9	22	3.5	10	0	Elastomeric	3
08-209-0-0107-02-008	Bent 2	N	9	22	1	3	0	Elastomeric	2
	Bent 5	N	9	22	1	3	0	Elastomeric	1
	Bent 6	N	9	22	1	3	0	Elastomeric	1

LIFTING NOTES:

1. All work and materials for bearing pad replacement must be performed and paid for in accordance with Special Specification 4002, "Elastomeric Bearing Pads". Verify all locations and beam slopes prior to ordering materials.

2. Submit lifting plans and calculations to the Engineer for approval. Design lifting device and supports for live load and dead load with appropriate load factors in accordance with Item 495, "Raising Existing Structures". See Table for lifting loads.

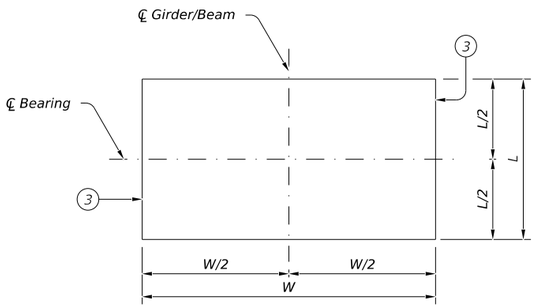
3. Limit lifting to ½" maximum to allow for pad replacement. Note that dowels may restrain existing pads. Do not damage deck, beams, or cap during any stage of bearing pad replacement.

4. Supporting falsework on existing bent caps is permitted following requirements of Lifting Note 2 above.

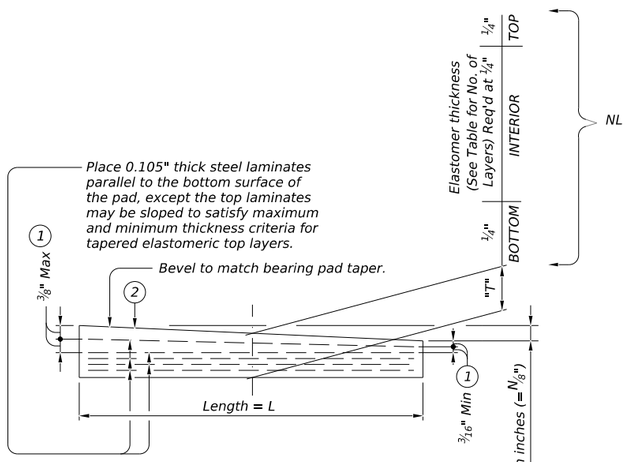
5. Jacking against the slab is not allowed. Jacking from existing bent cap is permitted following requirements of Lifting Note 2 above.

6. Place new bearing pads and lower beams back onto pads. Ensure that all new bearing pads compress when jacking force is removed. If load is not transferred as intended, place steel shims under pad or use epoxy injection or grout mixture as specified in Article 784.4.3 to properly engage bearing pad and transfer load.

Live load is permitted on the bridge only after the structure has been raised and is supported by cribbing or temporary supports.



BEARING PAD PLAN WITHOUT DOWEL



BEARING PAD ELEVATION

LAMINATED ELASTOMERIC BEARING REPLACEMENT DETAILS FOR CONCRETE BEAMS

(50 DUROMETER)

(1) Maximum and minimum layer thicknesses shown are for elastomer only, on tapered layers.

(2) Indicate BEARING TYPE on all pads. For tapered pads, locate BEARING TYPE on the high side. Include the value of "N" (amount of taper in ⅛" increments) in this mark.
Examples: N=0, (for 0" taper)
N=1, (for ⅛" taper)
N=2, (for ¼" taper)
(etc.)
Fabricated pad top surface slope must not vary from plan beam slope by more than $\left(\frac{0.0625"}{Length}\right)$ IN/IN.

(3) Locate permanent mark here.

GENERAL NOTES:

Replace existing bearings per Special Specification 4002, "Elastomeric Bearing Pads". Payment for lifting the structure is included in the price bid for replacing elastomeric bearing pads.
Raise the existing span in accordance with Item 495, "Raising Existing Structures." It is acceptable to cut existing pad to facilitate removal.
Following installation of new bearing pad apply stripe coat of Type V epoxy at interface of pad and concrete pedestal to secure pad.

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ELASTOMERIC BEARING REPLACEMENT DETAILS FOR CONCRETE BEAMS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		67

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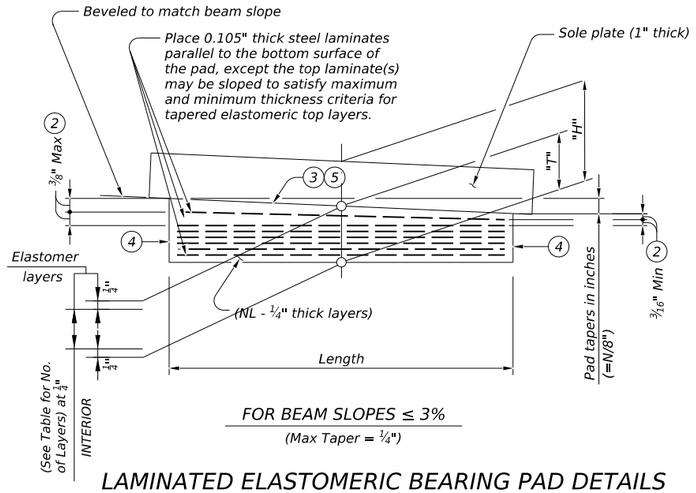
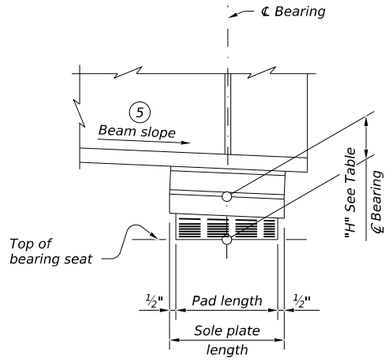


FOR BEAM SLOPES ≤ 3%

(Max Taper = ¼")

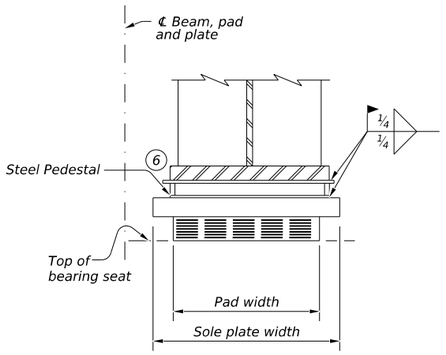
LAMINATED ELASTOMERIC BEARING PAD DETAILS

(50 Durometer) (Vulcanize sole plate to elastomer.)

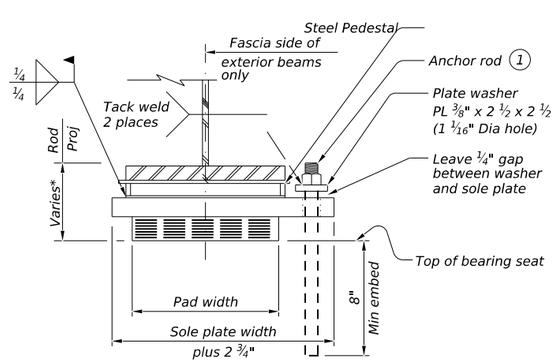


FOR BEAM SLOPES ≤ 3%

TYPICAL EXISTING BEARING



INTERIOR BEAMS



EXTERIOR BEAMS

TRANSVERSE SECTIONS

BEARING PAD SUMMARY TABLE

NBI#	Abut / Bent No.	Bearing Pad Dimensions				Sole Plate Dimensions		H (inch) (H=T+1")	Beam Slope (N)	Bearing Pad Type	Quantity
		L (inch)	W (inch)	T (inch)	Total No. of Layers (NL)	L (inch)	W (inch)				
08-209-0-0107-02-070	Abut 1	9	15	3.445	10	10	20	4.445	0	Elastomeric	5
	Abut 4	9	15	3.445	10	10	20	4.445	0	Elastomeric	5
08-168-0-0006-01-266	Abut 1	9	15	2.735	8	10	20	3.735	0	Elastomeric	4
	Abut 5	9	15	2.735	8	10	20	3.735	0	Elastomeric	4

LIFTING NOTES:

1. All work and materials for bearing pad replacement must be performed and paid for in accordance with Item 495, "Raising Existing Structures," and Item 434, "Bridge Bearings", and Item 442 "Metal for Structures". Verify all locations and beam slopes prior to ordering materials.

2. Submit lifting plans and calculations to the Engineer for approval. Design lifting device and supports for live load and dead load with appropriate load factors in accordance with Item 495, "Raising Existing Structures."
   Unfactored loads are as follows:
   DL = 57 kips per beam end
   LL = 82 kips per beam end
   (including impact)

3. Limit lifting to ½" maximum to allow for pad replacement. Note that anchor bolts may restrain existing bearings. Do not damage deck, beams, or cap during any stage of bearing replacement.

4. Supporting falsework on existing bent caps is permitted following requirements of Lifting Note 2 above.

5. Jacking against the slab is not allowed. Jacking from existing bent cap is permitted following requirements of Lifting Note 2 above.

6. Place new bearing pads and lower beams back onto pads. Ensure that all new bearing pads compress when jacking force is removed. If load is not transferred as intended, place steel shims under pad or use epoxy injection or grout mixture as specified in Article 784.4.3 to properly engage bearing pad and transfer load.

(1) 1" Dia threaded rod (ASTM A 193 Gr B7 or F 1554 Gr 105) with heavy hex nut and plate waher. Hot-dip galvanize rod, nut and washer. Sizing, drilling and cleaning rod roles must follow the adhesive Manufacturer's directions. Embed using a Type III (Class C, D, E or F) adhesive, meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense with Manufacturer's static mixing nozzle/dual cartridge system. Allow reuse of existing anchors with Engineer's approval. Existing anchors will need to be cleaned and painted with a zinc-rich paint.

(2) Maximum and minimum layer thickness shown are for elastomer only, on tapered layers.

(3) Indicate BEARING TYPE on all pads. For tapered pads, locate BEARING TYPE on the high side. Include the value of "N" (amount of taper in ⅛" increments) in this mark.
Examples: N=0, (for 0" taper)
N=1, (for ⅛" taper)
N=2, (for ¼" taper)
(etc.)
Fabricated pad top surface slope must not vary from plan beam slope by more than $(\frac{0.0625"}{Length})$ IN/IN.

(4) Locate permanent mark here.

(5) All work and materials for bearing pad replacement must be performed and paid for in accordance with Special Specification 4004, "Elastomeric Bearing Pads". Verify all locations and beam slopes prior to ordering materials.

(6) Weld steel Pedestals to bottom flange of girders and top of sole plate in accordance with Item 448 Structural Field Welding in the TxDOT Standard Specifications.

MATERIAL NOTES:

Provide sole plates conforming to ASTM A588.

Provide anchor bolts conforming to ASTM F1554 Grade 105 or ASTM A193 Grade B7. Provide nuts conforming to ASTM A563 Grade DH, heavy hex or A194 Grade 2H, heavy hex. Provide washers conforming to ASTM F436.

Hot dip galvanize rpd, nut, washer as per Item 445, "Galvanizing". Sizing, drilling, and cleaning rod holes must follow the epoxy Manufacturer's directions. Use a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense adhesive with the Manufacturer's static mixing nozzle/dual cartridge system.

GENERAL NOTES:

Raise structure per Item 495, "Raising Existing Structures" to facilitate bearing pad replacement. Costs of furnishing and installing elastomeric bearing pads, sole plates, and anchor rod assembly are paid for in accordance with Item 434, "Bridge Bearings". Material for permanent steel pedestels will be measured and paid for in accordance with Item 442, "Metal for Structures".

The bearing fabricator is required to develop a bearing layout which identifies location and orientation of all bearings. A copy of the bearing layout is to be provided to the Engineer. Permanently mark each bearing in accordance with the bearing layout.

Provide shop drawings for approval.

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ELASTOMERIC BEARING REPLACEMENT DETAILS FOR STEEL BEAMS

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		68

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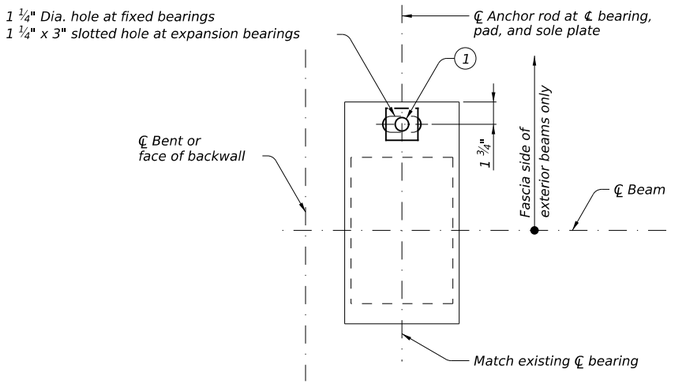
ELASTOMERIC BEARING REPLACEMENT DETAILS FOR STEEL BEAMS

DW: JD | CK: GK | DW: NS | CK: JD

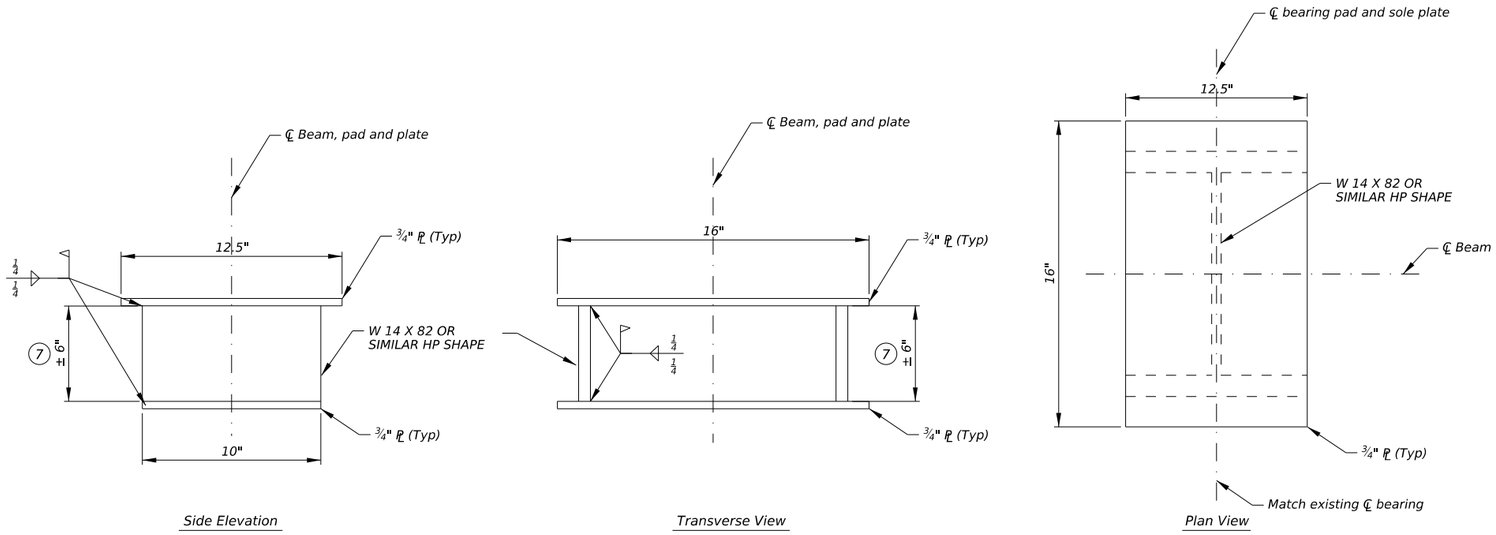


BEARING PLACEMENT AND ANCHOR ROD DETAILS

(Anchor rods at exterior beams only.)

(1) *1" Dia threaded rod (ASTM A 193 Gr B7 or F 1554 Gr 105) with heavy hex nut and plate waher. Hot-dip galvanize rod, nut and washer. Sizing, drilling and cleaning rod roles must follow the adhesive Manufacturer's directions. Embed using a Type III (Class C, D, E or F) adhesive, meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense with Manufacturer's static mixing nozzle/dual cartridge system. Allow reuse of existing anchors with Engineer's approval. Existing anchors will need to be cleaned and painted with a zinc-rich paint.*

(7) *Dimensions shown based on existing plans for IH 20 Underpass at Bus 20 WB (NBI# 08-168-0-0006-01-266). No bearing plans exist for US 180EB Underpass at SH 351 SB (NBI# 08-209-0-0107-02-070). Bearing design assumed similar. Field verify and adjust based on actual conditions. Notify the Engineer if conditions vary from what is shown by more than 10%.*



STEEL PEDESTAL

ELASTOMERIC BEARING REPLACEMENT DETAILS FOR STEEL BEAMS

STATE OF TEXAS
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ELASTOMERIC BEARING REPLACEMENT DETAILS FOR STEEL BEAMS

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		69

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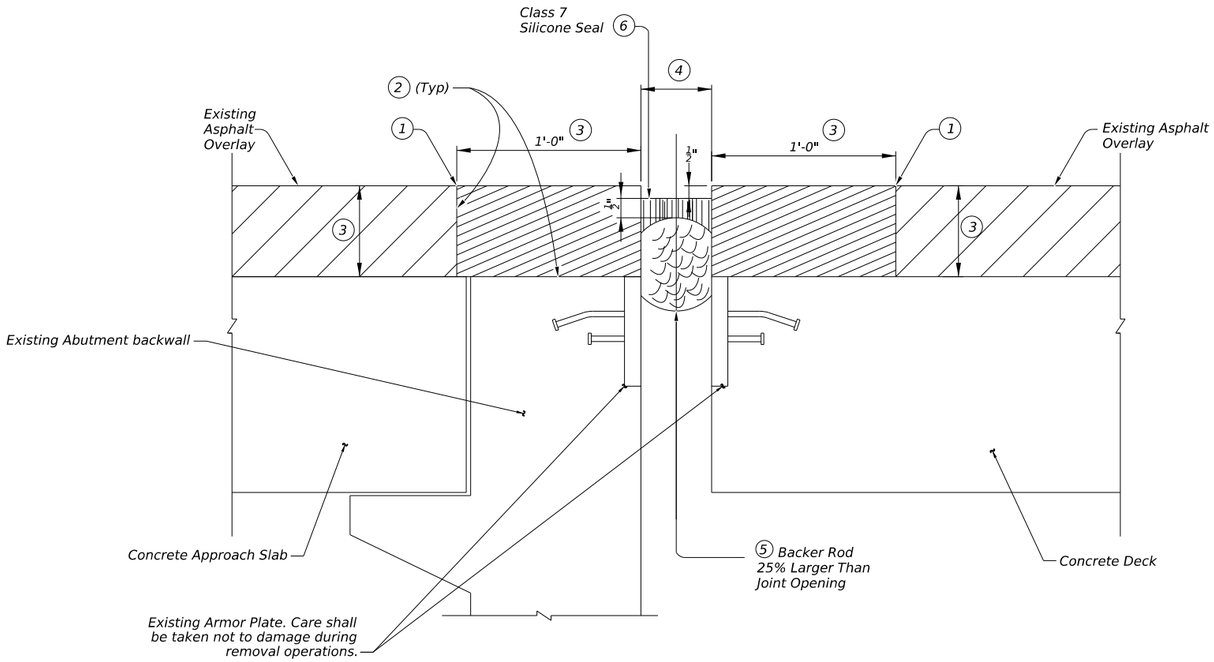
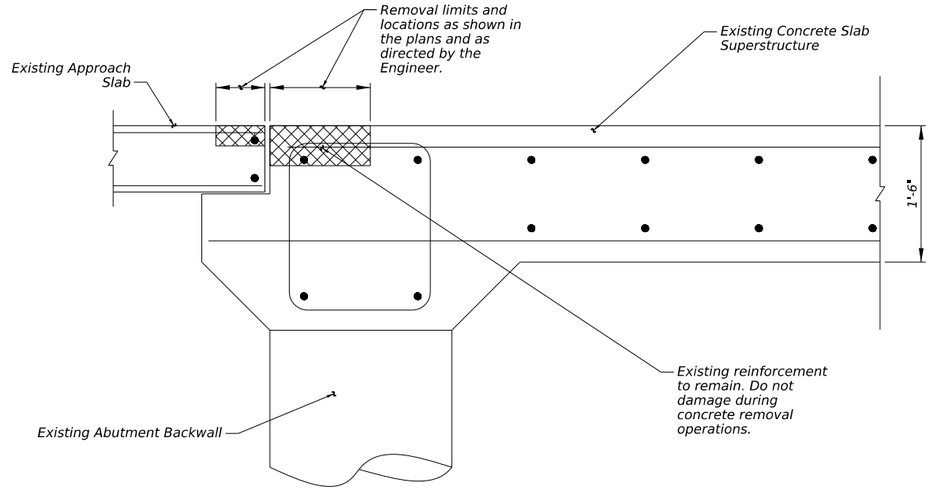


HEADER TYPE EXPANSION JOINT REPLACEMENT DETAIL



AT ABUTMENT

Joint sealant not shown for clarity. See Detail "A", Joint with Silicone Seal.

CONCRETE JOINT REPAIR DETAIL

Perform all work in accordance with item 785 "Bridge Joint Repair or Replacement". Clean and seal joints in accordance with item 438 "Cleaning and Sealing Joints".

1. *Saw cut overlay to the top of deck at the limits shown and remove asphaltic overlay and polymer concrete header material within the limits to expose the joint. Notify engineer of any unsound concrete exposed, and repair in accordance with 429 "Concrete Structure Repair". Repair of unsound concrete is subsidiary to joint replacement work.*
2. *Surfaces where header material is to be placed must be clean and dry in accordance with the manufacturer's specifications. Roughen exposed concrete surface to promote bond. Remove any debris and asphaltic materials from surfaces where the header material is placed. Blast clean entire joint block-out.*
3. *Place header material in accordance with Item 454, "Bridge Expansion Joints - Header Type Expansion Joint" and manufacturers recommendations. Match the thickness of the header material with the thickness of the existing overlay as shown in plans. Do not cantilver header material over the joint opening. Allow full cure duration before opening to traffic.*
4. *Match existing joint opening.*
5. *Install backer rod 25% larger than joint opening. Backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.*
6. *Install Class 7 Joint Sealant that conforms to DMS-6310, "Joint Sealants and Fillers". 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.*

HEADER JOINT NOTES:

Header Type Joint must be in accordance with Item 454, "Bridge Expansion Joints".

Unless shown otherwise on the plans, header material will be paid for by the cubic foot and sealant by the linear foot in accordance with Item 454, "Bridge Expansion Joints".

Removal and replacement of loose existing steel and repair of deck must be in accordance with Item 785, :Bridge Joint Repair or Replacement". This work will not be paid for directly, but will be considered subsidiary to the other Pay Items for the Joints.

Work performed and materials furnished for clearning existing joints will be paid for by the linear foot under Item 438, "Cleaning Existing Joints".

Any asphaltic material deposited on bent or abutment caps must be removed.

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BRIDGE JOINT REPAIR DETAILS

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		70

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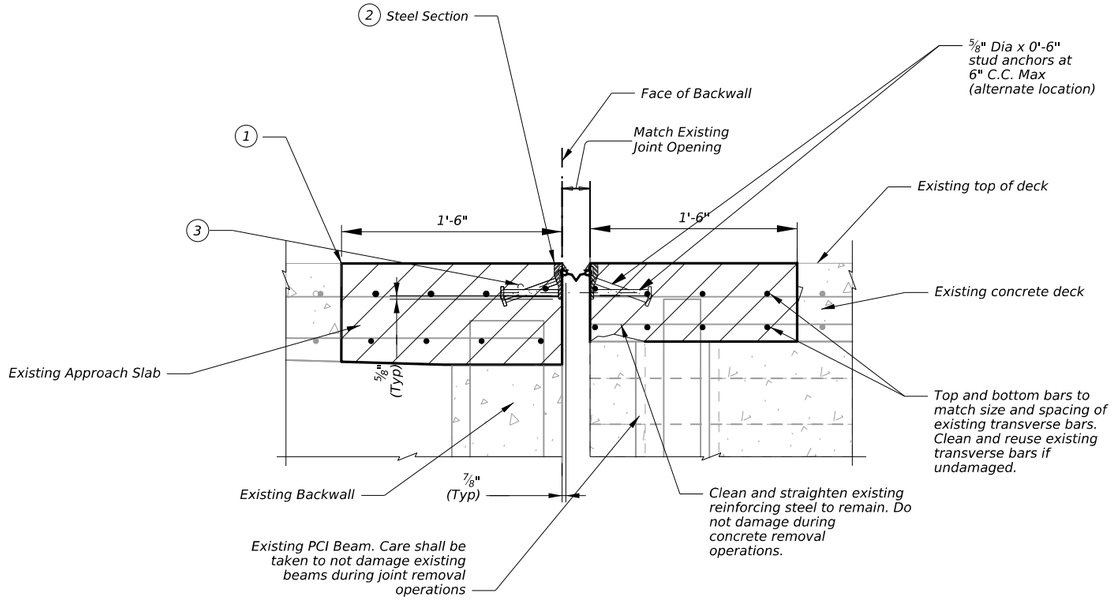

SEJ JOINT TYPE M AT ABUTMENT

1. Sawcut and remove existing concrete to the limits shown, or as directed by the Engineer. Ensure all unsound concrete adjacent to joint is removed. Blast clean all exposed concrete surfaces after removal.
2. Field measure and verify shape of existing steel section prior to fabrication. Order replacement rail section compatible with existing rail sections to remain. Field splice new rail sections and construct new joint in accordance with "Sealed Expansion Joint (Type M)" Standard Plan.
3. Move transverse bars that are in conflict with SEJ studs, in either the bridge slab or approach slab, to rest at the junction of the studs.

SEJ NOTES:

Identify and mark all repair areas prior to beginning work. Verify areas and quantities with the Engineer.

Prepare detailed repair procedure in accordance with Item 785, "Bridge Joint Repair or Replacement" and Chapter 3, Section 4 of the TxDOT Concrete Repair Manual and detail herein.

Deck concrete shall be Class 5 concrete ($f'c = 4000$ psi)

Reinforcing steel shall be Grade 60, and all new reinforcing steel in the deck shall be expoy coated. Replace existing reinforcing as directed by the Engineer. Lap length is 2'-5" for #4 bars. Refer to Item 440 of the General Notes about reinforcement.

Avoid damage to existing beams and bents. Repair concrete damage per Item 785, "Bridge Joint Repair or Replacement".

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-M is 6 ½".

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous. Supply seal in sufficient length to replace seal for the full length of the joint. Included in the price bid for "CLEAN AND SEAL EXIST JTS (STRIP SEAL)" and "BRIDGE JOINT REPLACEMENT (SEJ)"

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

Weld studs in accordance with AWS D1.1.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section with System II or IV primer in accordance with Item 446, "Field Cleaning and Painting Steel", unless required to galvanize when shown in the plans. Provide galvanizing in accordance with Item 445, "Galvanizing". Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Item 446.4.7.3 and 446.4.7.4.

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

CONSTRUCTION NOTES:

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

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

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

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BRIDGE JOINT REPAIR DETAILS

SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		71

DATE:
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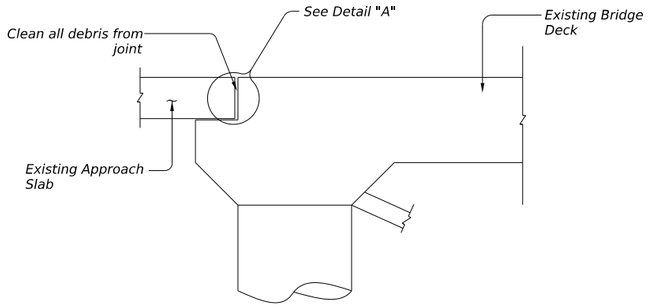
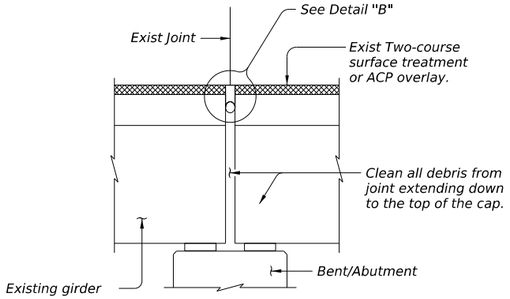


JOINT WITH SILICONE SEAL

(Used without ACP overlay)

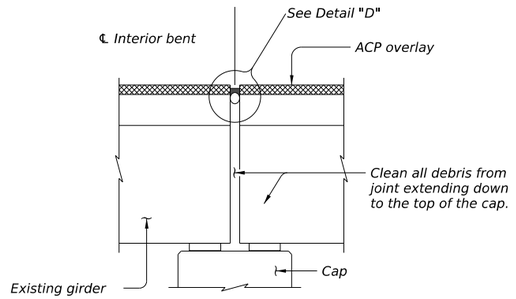
For use on NBI# 08-030-0-0006-07-283 and 08-030-0-0006-07-290



JOINT W/ HOT-POURED RUBBER SEAL

(Used with ACP overlay)

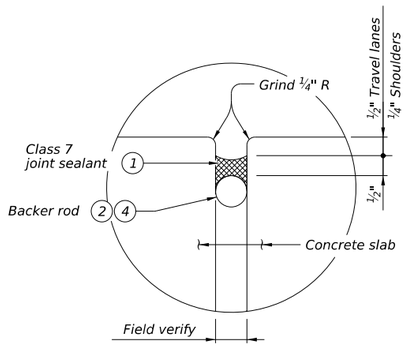
For use on NBI# 08-177-0-0006-02-237



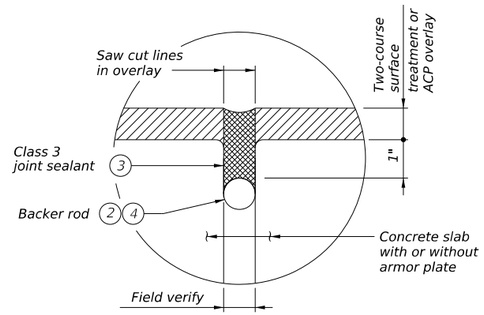
HEADER JOINT WITH SILICONE SEAL

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

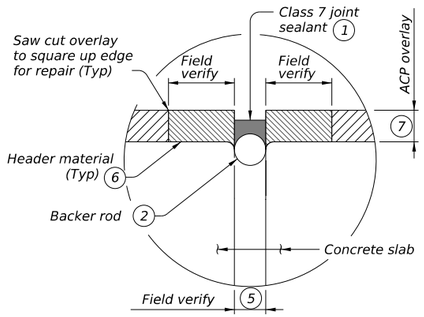
For use on NBI# 08-168-0-0005-08-099



DETAIL "A"



DETAIL "B"



DETAIL "D"

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 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.

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 Sealant 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.

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".

JOINT SEALING 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.

STATE OF TEXAS
GREGORY W. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

BRIDGE JOINT REPAIR DETAILS

SHEET 3 OF 4

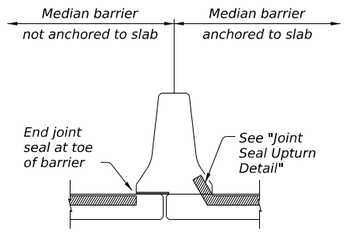
CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		72

DATE:
FILE:

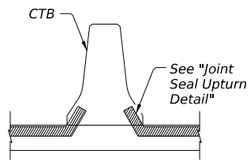
CK:
DW:
CK:
DW:

TABLE OF ESTIMATED QUANTITIES

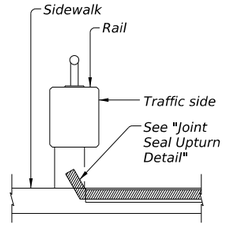
STRUCTURE NUMBER (FEATURE CROSSED)		ITEM	DESCRIPTION	NUMBER OF JOINTS	QUANTITY (LF)
NBI# 08-030-0-0006-07-283	Concrete Joint w/ Class 7 Sealant	438	Cleaning and Sealing Joints (CL7)	2	67
NBI# 08-030-0-0006-07-290	Concrete Joint w/ Class 7 Sealant	438	Cleaning and Sealing Joints (CL7)	2	70
NBI# 08-168-0-0005-08-099	Header Joint w/ Class 7 Joint Sealant	454	Joint Sealant	1	40
NBI# 08-177-0-0006-02-237	Joint w/ Hot-Poured Rubber Seal (Class 3)	438	Cleaning and Sealing Joints (CL3)	2	128



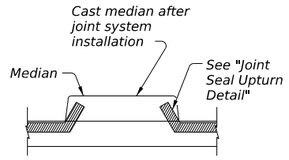
WITH OPEN DECK JOINT
BELOW MEDIAN BARRIER



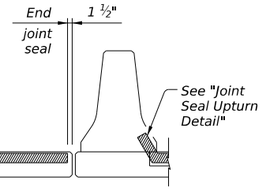
AT CONCRETE TRAFFIC BARRIER



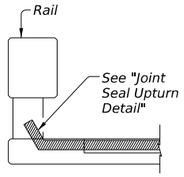
AT SIDEWALK
BEHIND BRIDGE RAIL



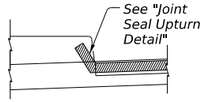
AT RAISED MEDIAN



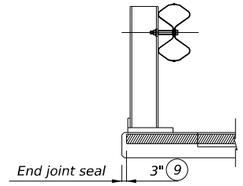
WITH OPEN DECK JOINT
ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL



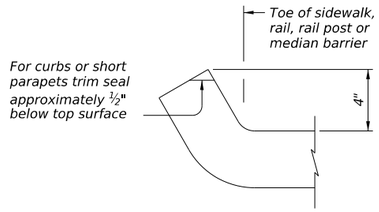
AT SIDEWALK



AT STEEL POST BRIDGE RAIL

JOINT SEALANT TERMINATION DETAILS

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



JOINT SEAL UPTURN DETAIL

NO.	DATE	REVISION	APPR BY

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

BRIDGE JOINT REPAIR DETAILS

SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY
0908	00	119	VARIOUS
DIST	COUNTY		SHEET NO.
ABL	TAYLOR, ETC.		73

DATE:
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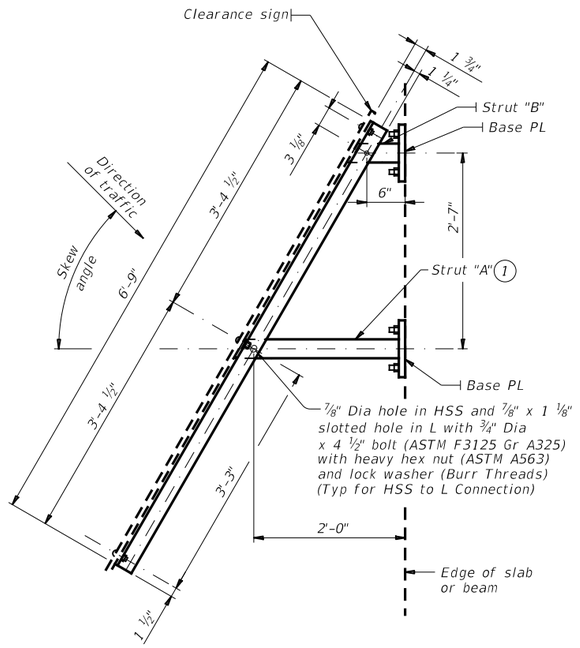
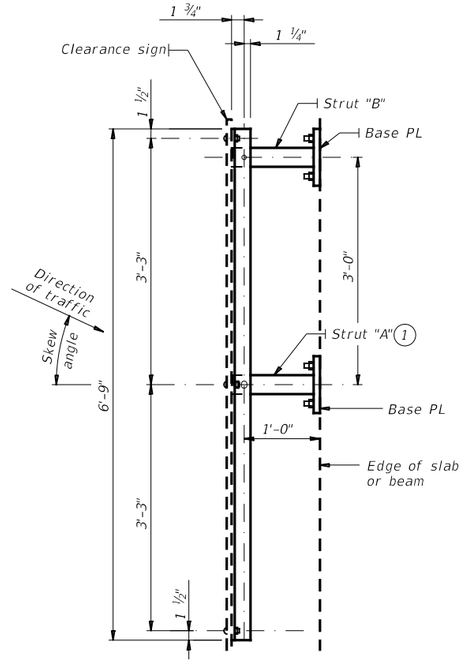


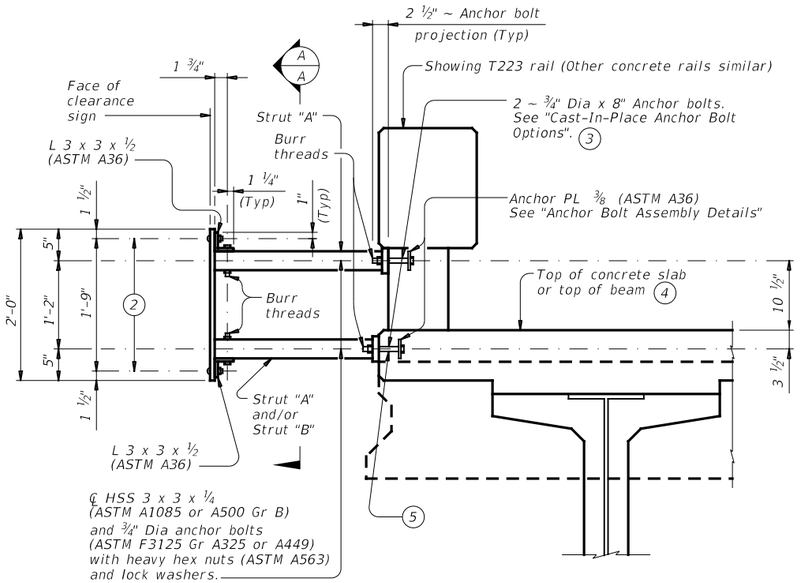
PLAN OF TYPE S MOUNT

(Used for skews over 30°)

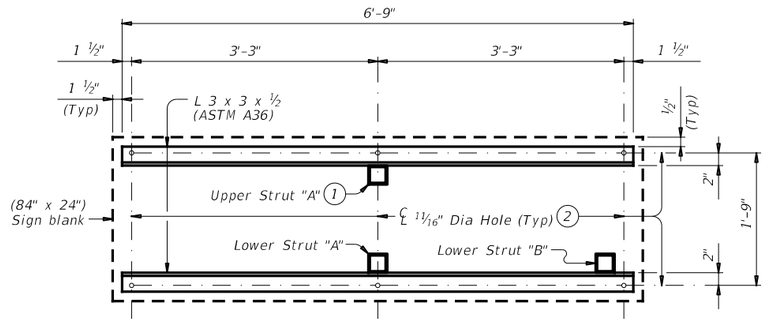


PLAN OF TYPE N MOUNT

(Used for 0° to 30° skews)



SECTION



SECTION A-A

1 Locate centerline of Strut A no closer than 12" from a vertical concrete edge.

2 ℄ ⅝" Dia x 2" Hexagon socket button head cap screws (ASTM A574) with hex nuts. Attach hex nuts to L 3 x 3 x ½ by tack welding in two places. Threads must have Class 3A fit tolerance in accordance ASME B1.1. Six screws required.

3 At the Contractor's option fully threaded adhesive anchors may be use instead of cast-in-place anchor bolts. Expansion anchors are not allowed. Provide adhesive anchors that are ¾" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). Embed fully threaded rods using a Type III, Class C, D, E, or F anchor adhesive. Adhesive anchor embedment depth is 8". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 2.2 kips per anchor (edge distance and spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

4 For decked slab beams topped with a 2 course surface treatment and ACP overlay.

5 Anchor bolts to be cast into decked slab beams topped with a 2 course surface treatment or ACP overlay. Anchor bolts with heavy hex nuts, regular lock washers, hardened washers and anchor plate that is embedded in the beam will be provided by the beam Fabricator.

CONSTRUCTION NOTES:

Install the vertical face of clearance sign plumb unless otherwise approved by the Engineer.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 1 anchor per bridge mounted clearance sign installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

MATERIAL NOTES:

Galvanize all steel components after fabrication unless otherwise noted.

GENERAL NOTES:

This standard provides details to mount a vertical clearance sign (84" x 24") to bridges. Rail Types T631, T631LS, PR11, PR22 and PR3 are not accommodated.

The Engineer will furnish the clearance to be shown on the sign.

See Bridge Layout for sign location and mounting type (Type N or S).

Cost of furnishing, installing, relocating or removing a clearance sign, including structural steel for sign mount, is included in unit price bid for Item 644, "Small Roadside Sign Assemblies".

One Sign Blank (84" x 24") is 14 SF.

Average steel weight for one complete Type N Mount is 219 Lb.

Average steel weight for one complete Type S Mount is 233 Lb.

Texas Department of Transportation

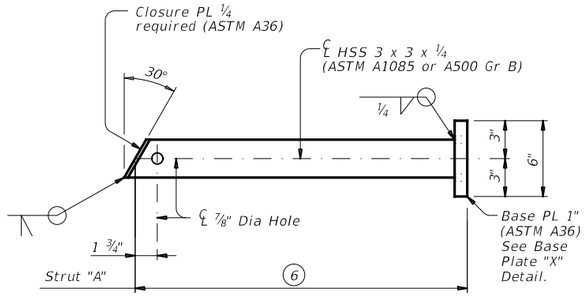
Bridge Division Standard

BRIDGE MOUNTED CLEARANCE SIGN ASSEMBLY

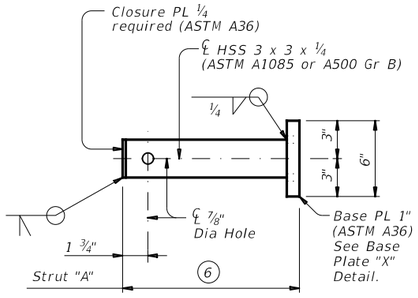
BMCS

FILE: MS-BMCS-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		74

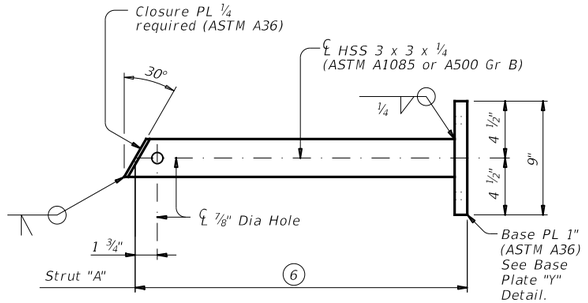
DATE:
FILE:



FOR T411 AND C411 RAIL TYPES



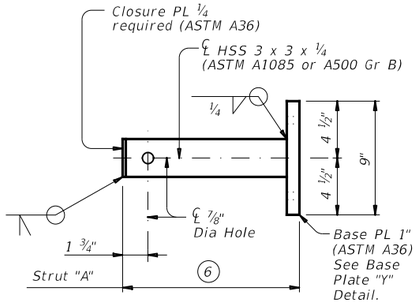
FOR T411 AND C411 RAIL TYPES



FOR T221, C221, T222, T223, C223, T401, T402, C402, T551, T552, T80HT, T80SS AND SSTR RAIL TYPES

UPPER STRUT DETAIL FOR (TYPE S MOUNT)

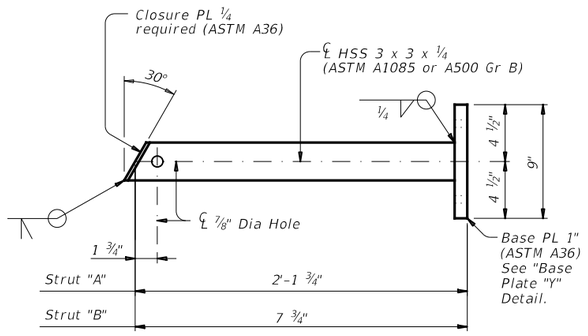
(Used for skews over 30°)



FOR T221, C221, T222, T223, C223, T401, T402, C402, T551, T552, T80HT, T80SS AND SSTR RAIL TYPES

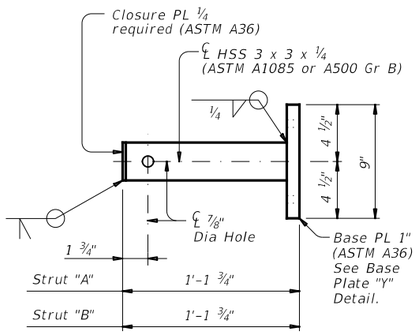
UPPER STRUT DETAIL FOR (TYPE N MOUNT)

(Used for 0° to 30° skews)



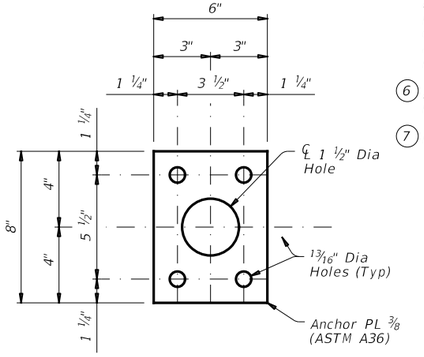
LOWER STRUT DETAILS FOR (TYPE S MOUNT)

(Used for skews over 30°)

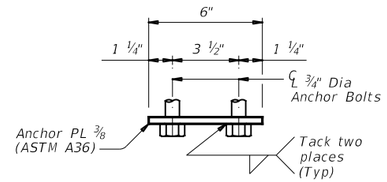


LOWER STRUT DETAILS FOR (TYPE N MOUNT)

(Used for 0° to 30° skews)



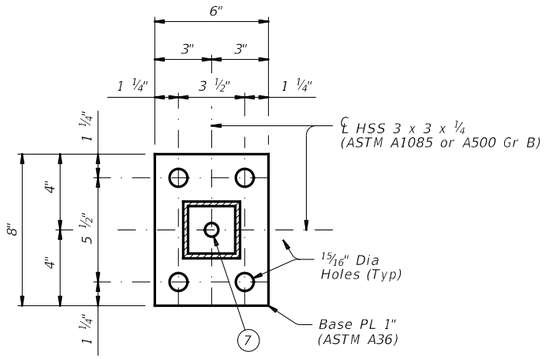
PLAN OF ANCHOR PLATE



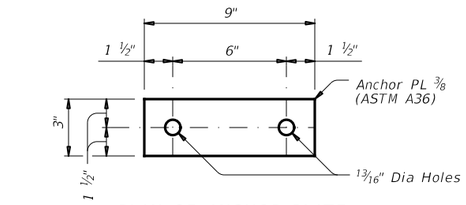
ELEVATION

ANCHOR BOLT ASSEMBLY DETAILS (3)

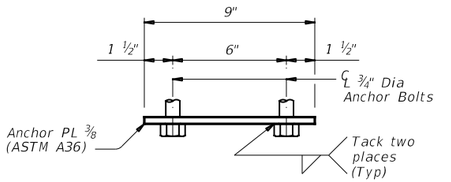
(Used on Base Plate "X" with T411 and C411 rail types.)



BASE PLATE "X" DETAIL



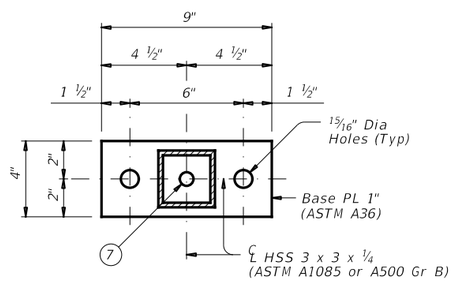
PLAN OF ANCHOR PLATE



ELEVATION

ANCHOR BOLT ASSEMBLY DETAILS (3)

(Used on Base Plate "Y" and with T1F, T2P, C2P, T1W, C1W, T66 and C66 rail types.)

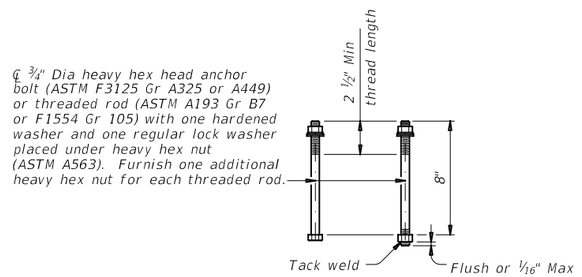


BASE PLATE "Y" DETAIL

(3) At the Contractor's option fully threaded adhesive anchors may be use instead of cast-in-place anchor bolts. Expansion anchors are not allowed. Provide adhesive anchors that are ¾" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). Embed fully threaded rods using a Type III, Class C, D, E, or F anchor adhesive. Adhesive anchor embedment depth is 8". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 2.2 kips per anchor (edge distance and spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

(6) Adjust length to accommodate edge of slab to back of rail for specific project conditions and to help plumb the vertical face of clearance sign.

(7) Hole required to drain zinc from base plate during galvanizing.



CAST-IN-PLACE ANCHOR BOLT OPTIONS (3)

Texas Department of Transportation

Bridge Division Standard

BRIDGE MOUNTED CLEARANCE SIGN ASSEMBLY

BMCS

FILE: MS-BMCS-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
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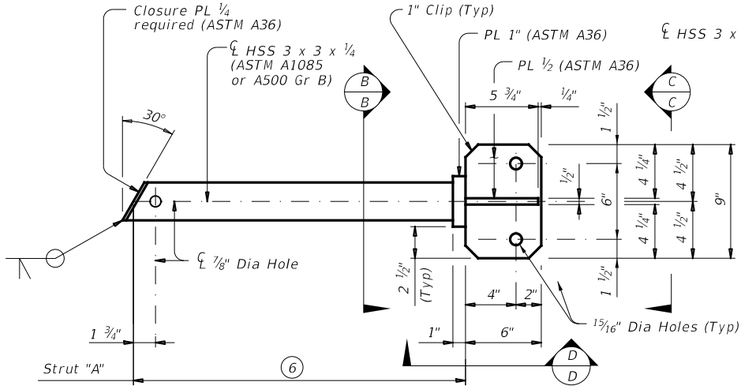
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		75

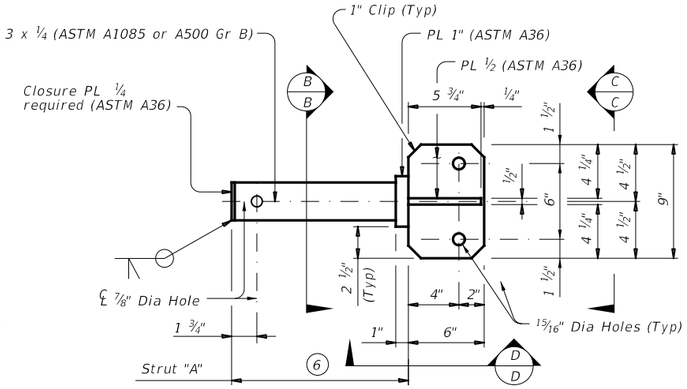
DATE:
FILE:



FOR T1F, T2P, C2P, T1W, C1W, T66 AND C66 RAIL TYPES

UPPER STRUT DETAIL FOR (TYPE S MOUNT)

(Used for skews over 30°)



FOR T1F, T2P, C2P, T1W, C1W, T66 AND C66 RAIL TYPES

UPPER STRUT DETAIL FOR (TYPE N MOUNT)

(Used for 0° to 30° skews)

(2) ℄ ⅝" Dia x 2" Hexagon socket button head cap screws (ASTM A574) with hex nuts. Attach hex nuts to L 3 x 3 x ½ by tack welding in two places. Threads must have Class 3A fit tolerance in accordance ASME B1.1. Six screws required.

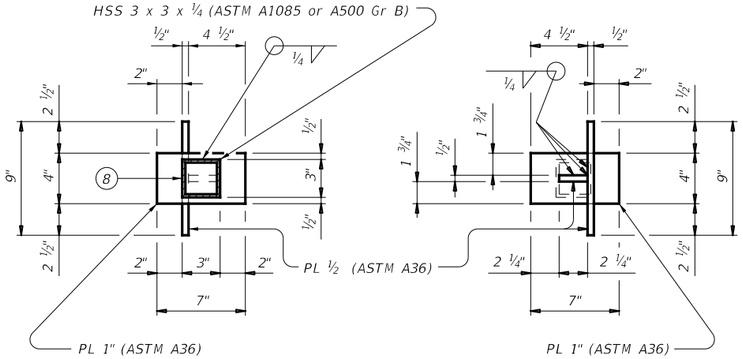
(3) At the Contractor's option fully threaded adhesive anchors may be use instead of cast-in-place anchor bolts. Expansion anchors are not allowed. Provide adhesive anchors that are ¾" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). Embed fully threaded rods using a Type III, Class C, D, E, or F anchor adhesive. Adhesive anchor embedment depth is 8". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 2.2 kips per anchor (edge distance and spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

(4) For decked slab beams topped with a 2 course surface treatment and ACP overlay.

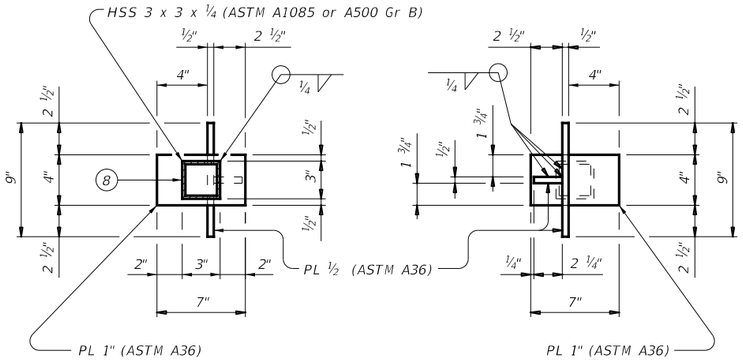
(6) Adjust length to accommodate edge of slab to back of rail for specific project conditions and to help plumb the vertical face of clearance sign.

(8) Hole required in bottom of HSS to drain zinc during galvanizing.

(9) 11" curb is for structures with 2" ACP overlay.

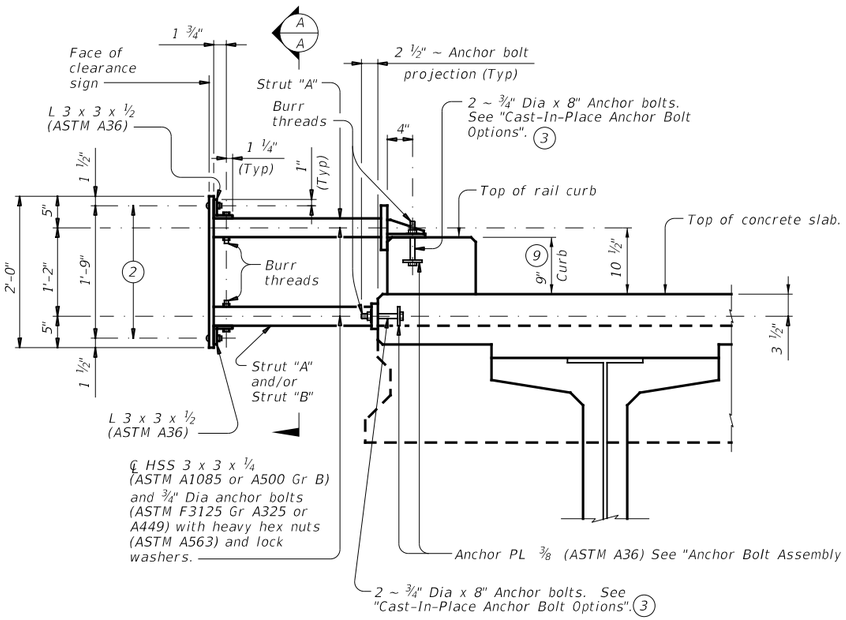


FOR 9" HIGH CURBS



FOR 11" HIGH CURBS

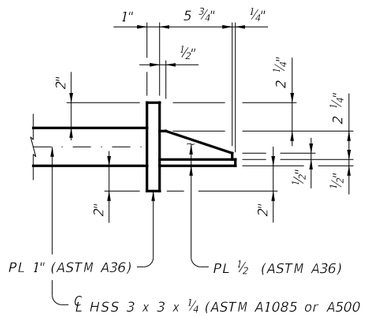
SECTION B-B



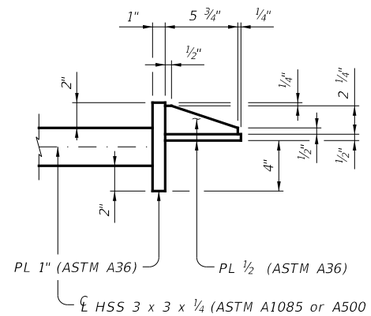
SECTION THRU T1F, T2P, C2P, T1W, C1W, T66 AND C66 RAIL CURB

Showing sign mount on a 9" high curb, 11" high curb similar.

VIEW C-C



FOR 9" HIGH CURBS



FOR 11" HIGH CURBS

VIEW D-D

SHEET 3 OF 3

Texas Department of Transportation

Bridge Division Standard

BRIDGE MOUNTED CLEARANCE SIGN ASSEMBLY

BMCS

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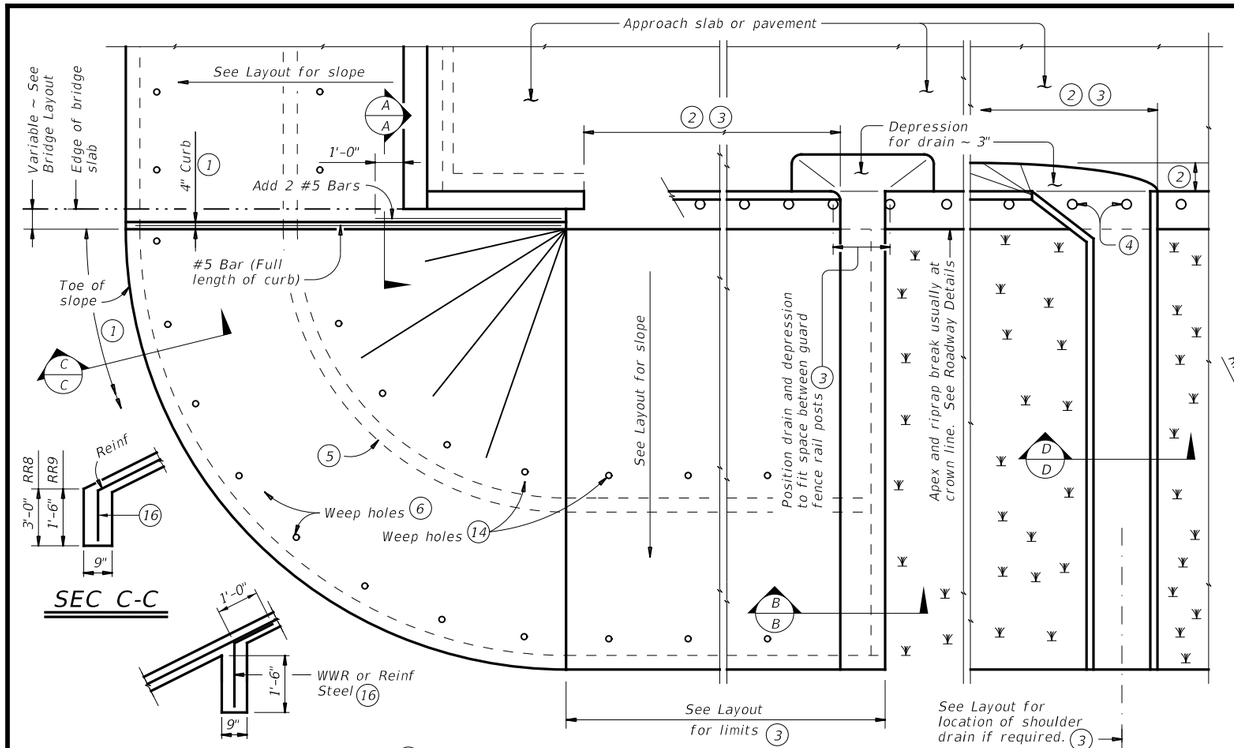
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		76

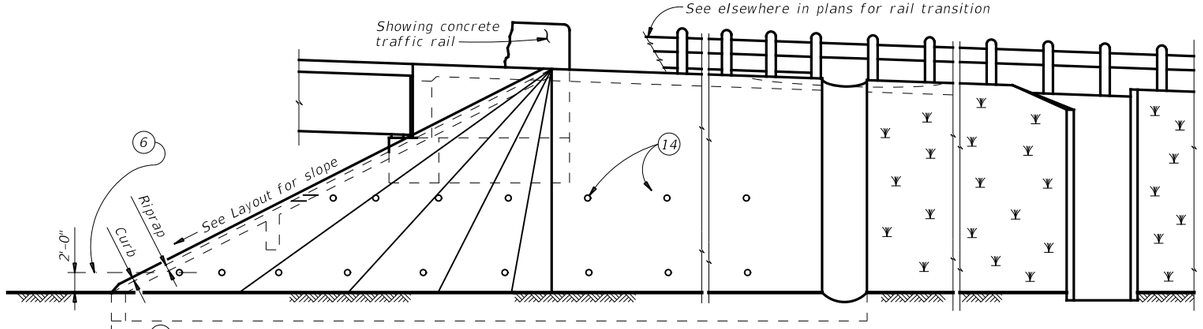
DATE:
FILE:



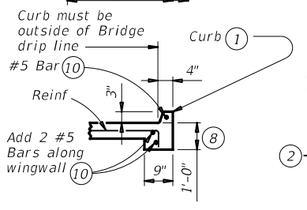
PLAN

SEC C-C

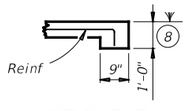
INTERMEDIATE TOEWALL



ELEVATION

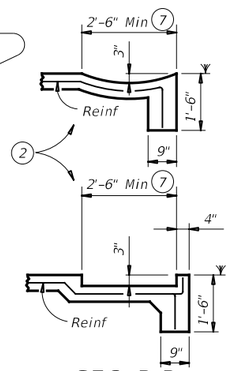


SEC A-A



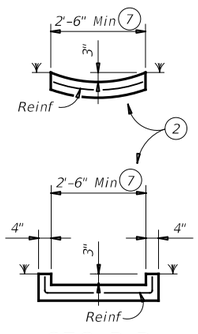
SEC B-B

(No drain)



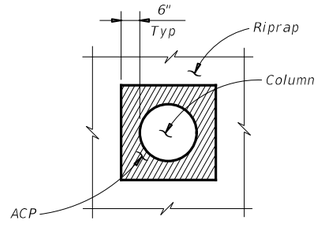
SEC B-B

(Shoulder drain integral with riprap)



SEC D-D

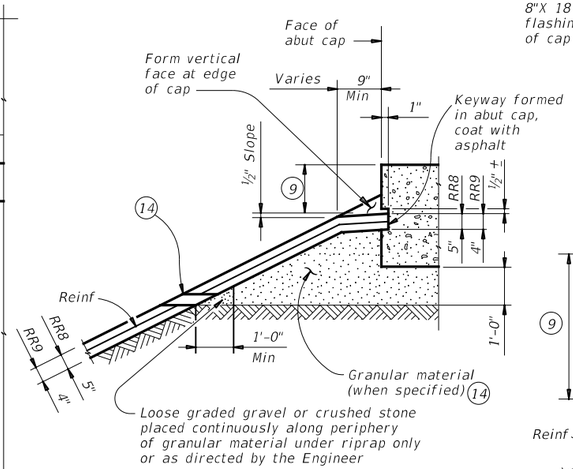
(Shoulder drain)



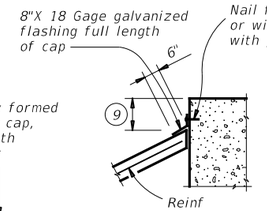
Riprap blockout to be filled with ACP. (Subsidiary to riprap)

RIPRAP DETAIL AT COLUMNS

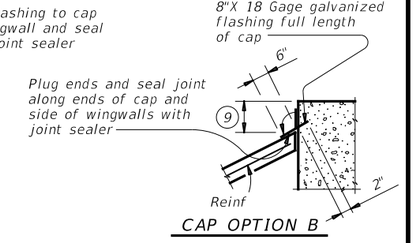
(As directed by the Engineer)



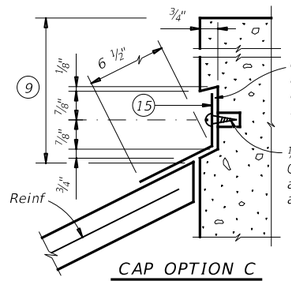
SHOWING KEYWAY OPTION



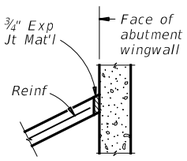
CAP OPTION A



CAP OPTION B

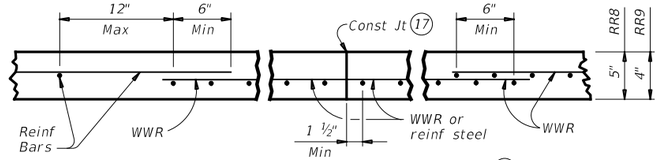


CAP OPTION C



SECT THRU RIPRAP AT WINGWALL 12

SECTIONS THRU RIPRAP AT CAP 11



REINFORCEMENT DETAILS 13

See General Notes for optional synthetic fiber reinforcement.

(1) When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 4" curb.

(2) Limits and configuration of drains and depressions are as shown elsewhere in plans or as directed by the Engineer.

(3) Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.

(4) See details elsewhere in plans for installation of guard fence posts through concrete riprap.

(5) Provide intermediate toewall only when designated elsewhere in the plans or included in the specifications.

(6) Provide lower level of 2" Dia weep holes at 10' c-c backed by 1 CF packet of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.

(7) Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer.

(8) Wall extension may be reduced or modified if approved by the Engineer. Increase wall extension to 1'-6" whenever the optional intermediate toewall is called for in the plans.

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

(10) #5 bars shown are required even when synthetic fiber reinforcing option is selected.

(11) Provide sealing option for joint between the face of cap and riprap as designated by the Engineer or as shown elsewhere on plans.

(12) Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp Jt Mat'l if shown on plans or directed by the Engineer.

(13) Provide #3 reinforcing bars at 18" Spa c-c. Provide Welded Wire Reinforcement (WWR) as 6x6-D2.9xD2.9 or D3xD3. Combinations of WWR and reinforcing bars may be used if both are permitted. Use lap splices of a minimum 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars.

(14) If granular material is specified, provide upper level of 2" Dia weep holes at 10' c-c backed by galvanized hardware cloth.

(15) 8" x 18 Gage Galv Sheet Metal

(16) Provide WWR or #3 bars, with 1'-0" extension into slope.

(17) WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic reinforcing fiber is utilized.

FOR CONTRACTOR'S INFORMATION ONLY:
5" of RR8 = 0.015 CY/SF
4" of RR9 = 0.012 CY/SF
#3 Reinf at 18" c-c = 0.501 Lbs/SF
6x6-D3xD3 = 0.408 Lbs/SF

GENERAL NOTES:

Provide Class "B" concrete (f'c = 2,000 psi) unless noted elsewhere in plans.

Provide Grade 60 reinforcing steel.

Provide deformed welded wire reinforcement (WWR) meeting ASTM A1064, unless otherwise shown.

Provide reinforcing bars, deformed WWR, or any suitable combination of both types for riprap reinforcing, unless specified elsewhere in the plans.

Optionally synthetic fibers may be used if approved by the Engineer. Provide synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) in lieu of steel reinforcing in riprap concrete.

Install construction joints or grooved joints extending the full slant slope height at intervals of approximately 20 feet unless otherwise directed by the Engineer.

Hardware cloth, loose grade stone behind weep holes, flashing, or other sealing material are subsidiary to the bid item "Riprap".

See Layout for limits of riprap.

RR8 is to be used on stream crossings.

RR9 is to be used on other embankments.

Texas Department of Transportation

Bridge Division Standard

CONCRETE RIPRAP AND SHOULDER DRAINS
EMBANKMENTS AT BRIDGE ENDS (TYPES RR8 & RR9)

CRR

FILE: MS-CRR-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		77

DATE:
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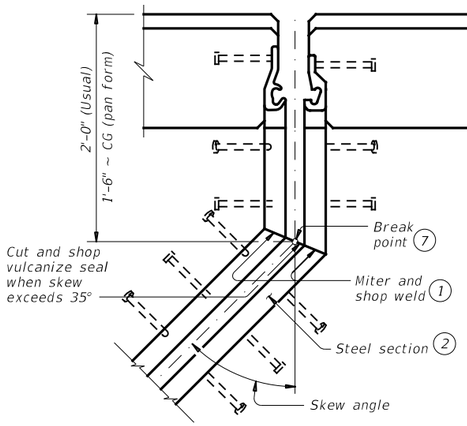
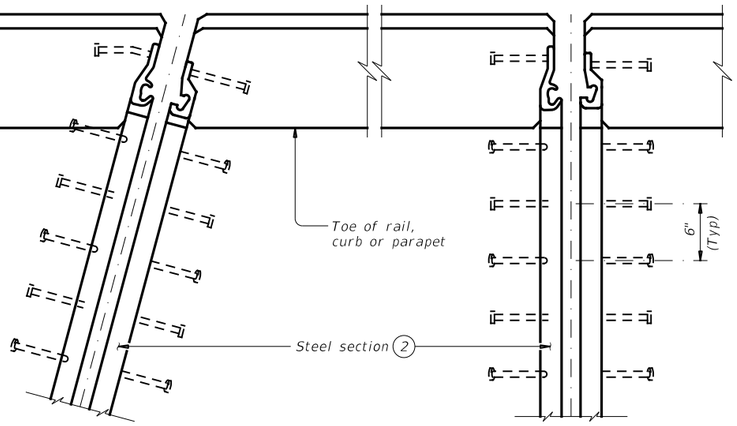


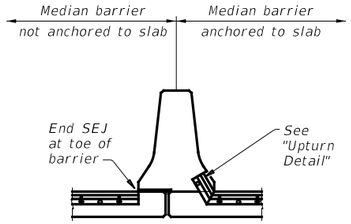
SHOWING SKEWS WITH SLAB BREAKBACKS



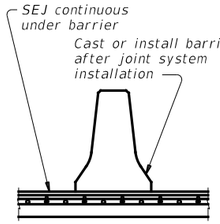
SHOWING SKEWS WITHOUT SLAB BREAKBACKS

SHOWING WITHOUT SKEWS AND SLAB BREAKBACKS

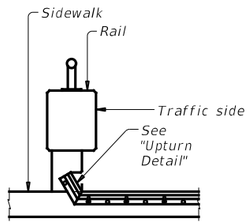
PLANS OF END CONDITIONS



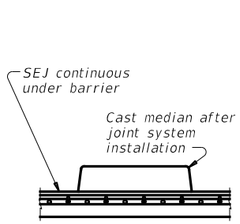
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



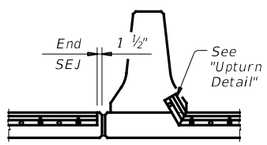
AT MEDIAN BARRIER



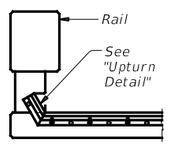
AT SIDEWALK BEHIND BRIDGE RAIL



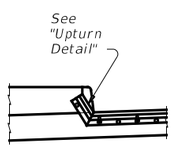
AT RAISED MEDIAN



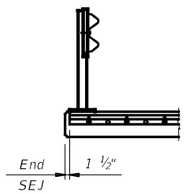
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL

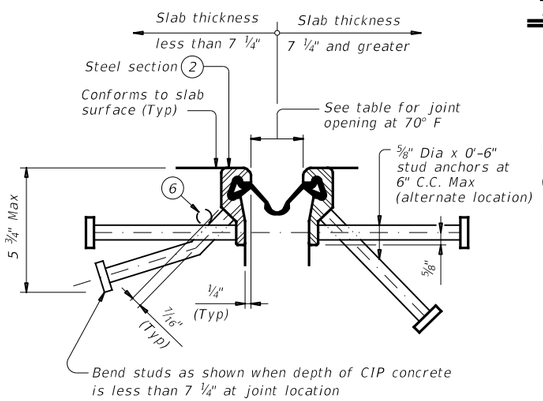


AT SIDEWALK

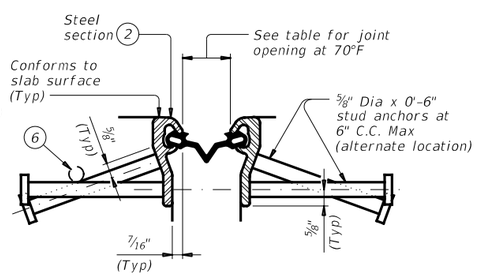


AT STEEL POST BRIDGE RAIL

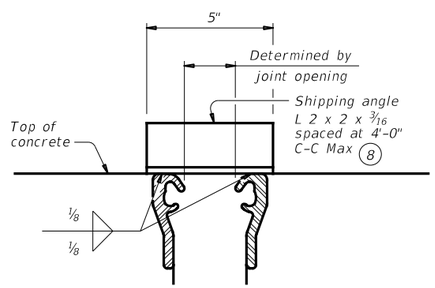
TYPICAL SECTIONS (5)



SECTION THRU WATSON BOWMAN ACME (SE-400 OR SE-500) JOINTS



SECTION THRU D.S. BROWN (A2R-400 OR A2R-XTRA) JOINTS



SHOWING D.S. BROWN (Ty SSCM2)
(All joints are similar.) (Studs are not shown for clarity.)

SHIPPING ANGLE

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

TABLE OF SEALED EXPANSION JOINT INFORMATION

MANUFACTURER	STEEL SECTION (2)	STRIP SEAL			
		4" JOINT		5" JOINT	
		Seal Type	Joint Opening (3)	Seal Type	Joint Opening (3)
D.S. Brown	Type SSCM2	A2R-400	1 ¾"	A2R-XTRA	2"
Watson Bowman Acme	Type R	SE-400	1 ¾"	SE-500	2"

REDUCED LONGITUDINAL MOVEMENT RANGE

SKEW (deg)	JOINT SIZE	
	4"	5"
0	4.0"	5.0"
15	4.0"	5.0"
30	3.5"	4.3"
45	2.8"	3.5"

DESIGN NOTES:

Joints installed on a skew have reduced ability to accommodate longitudinal movement. Use table values to determine the correct joint size for skewed installations.

For other skews over 25 degrees, calculate reduced movement range by multiplying joint size by cosine (skew).

(1) Remove all burrs which will be in contact with seal prior to making splice.

(2) Shape of steel section shown is typical. Variations in sections must be approved by the Engineer.

(3) These openings are also the recommended minimum installation openings.

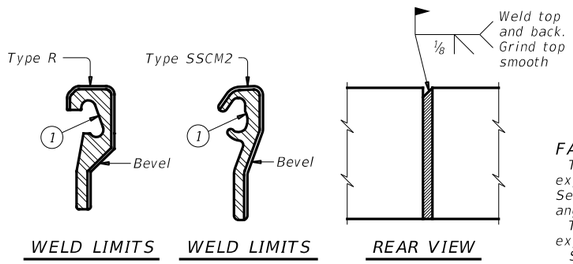
(4) Reduce for sidewalk or parapet heights less than 6".

(5) Other conditions affecting the joint profile should be noted elsewhere.

(6) Move transverse bars that are in conflict with SEJ studs, in either the bridge slab or approach slab, to rest at the junction of the studs.

(7) See Span details for location of break point.

(8) Align shipping angle perpendicular to joint.



WELD LIMITS WELD LIMITS REAR VIEW

FIELD SPLICE DETAIL

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous and included in the price bid for sealed expansion joint.

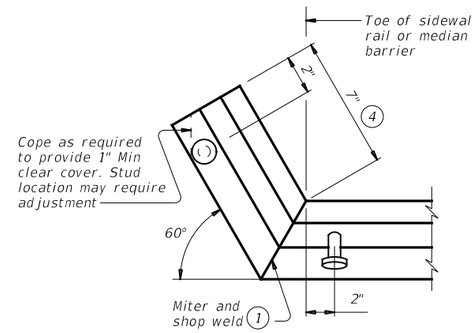
Ship steel sections in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for staged construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min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

Weld studs in accordance with AWS D1.1.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section with System II or IV primer in accordance with Item 446, "Field Cleaning and Painting Steel", unless required to galvanize when shown in the plans. Provide galvanizing in accordance with Item 445, "Galvanizing". Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Item 446.4.7.3 and 446.4.7.4.

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



UPTURN DETAIL

CONSTRUCTION NOTES:

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

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

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

GENERAL NOTES:

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-M is 6 ½".

Texas Department of Transportation

Bridge Division Standard

SEALED EXPANSION JOINT TYPE M
WITHOUT OVERLAY

SEJ-M

FILE: MS-SEJ-M-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
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	ABL	TAYLOR, ETC.		78

DATE:
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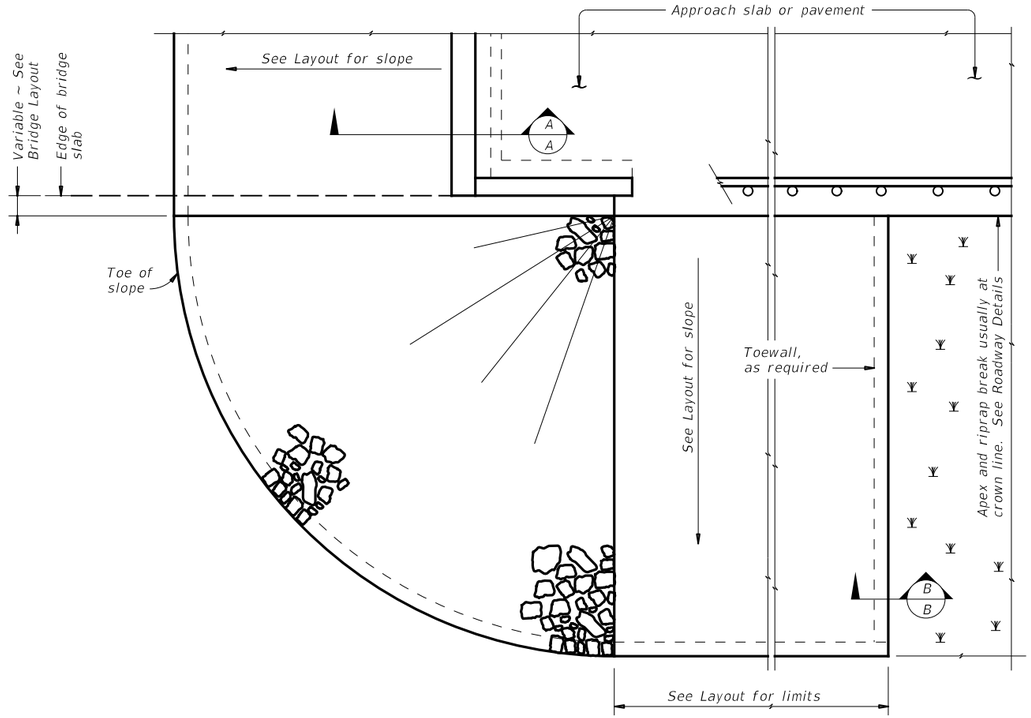
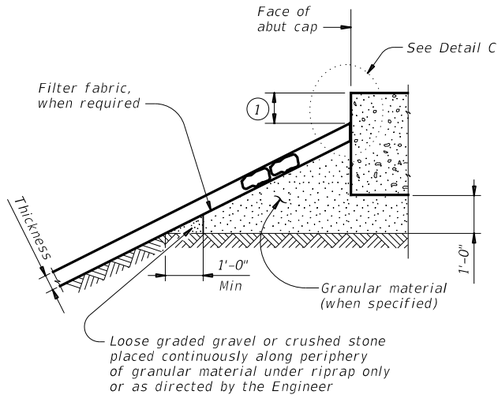
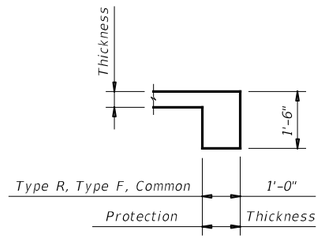


PLAN

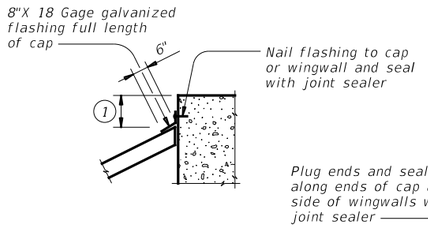


SECTION A-A AT CAP

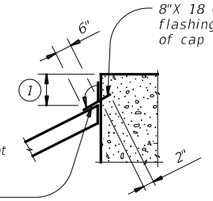


SECTION B-B

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

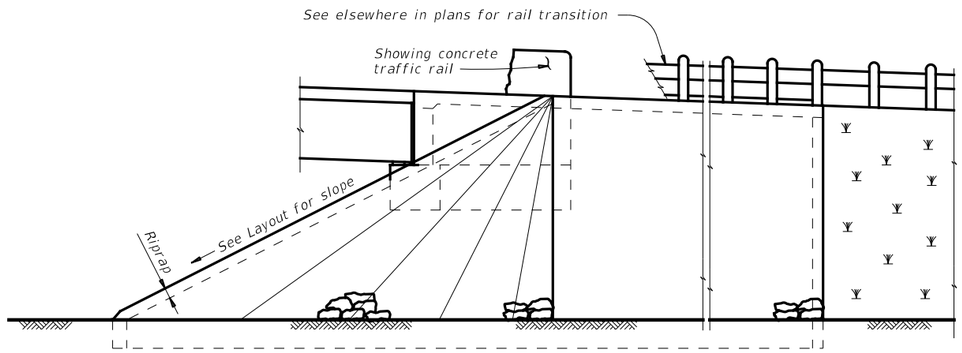


CAP OPTION A



CAP OPTION B

DETAIL C



ELEVATION

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

GENERAL NOTES:
Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.
See elsewhere in plans for locations and details of shoulder drains.

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

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©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0908	00	119	VARIOUS
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DATE:
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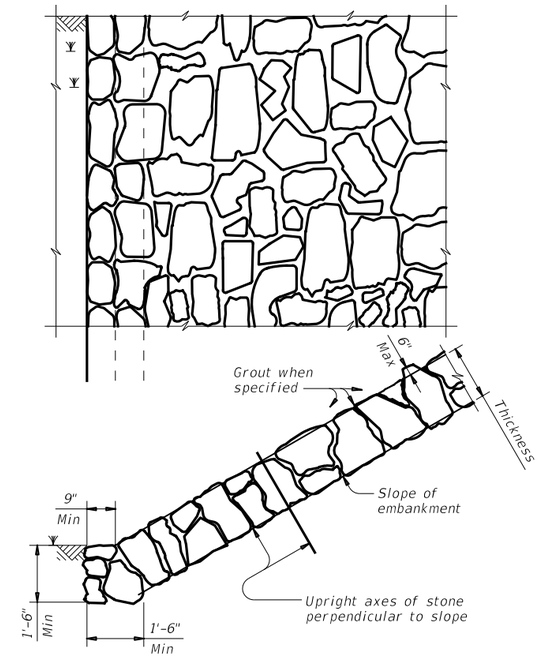


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

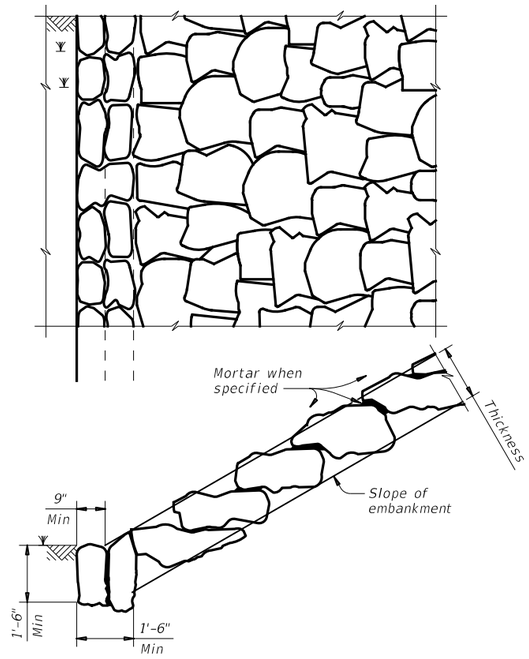


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

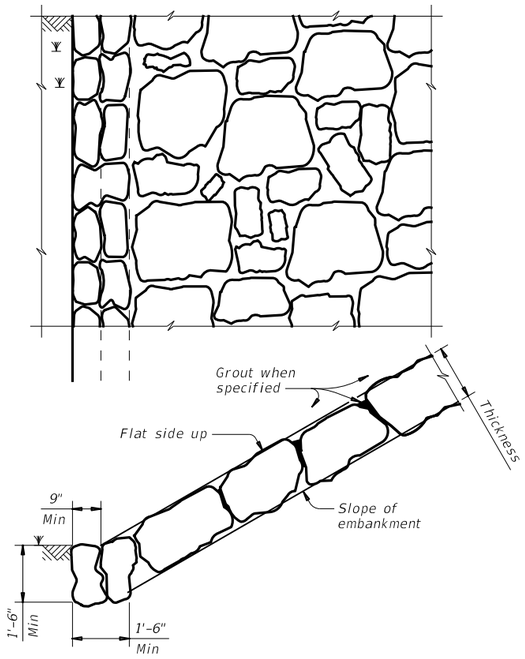
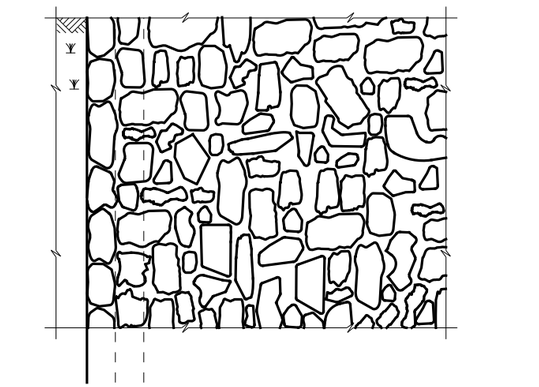


FIGURE 3 ~ TYPE F STONE RIPRAP

grouted



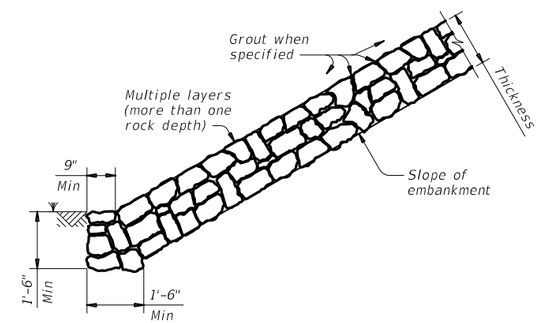
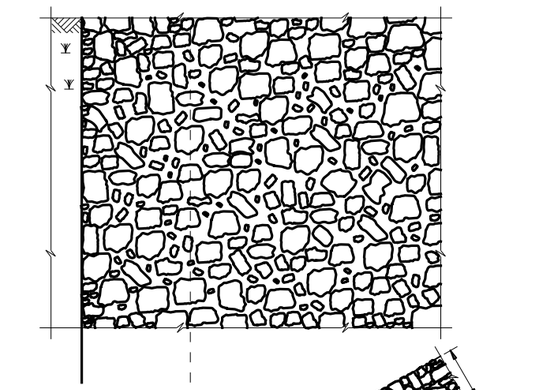


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted



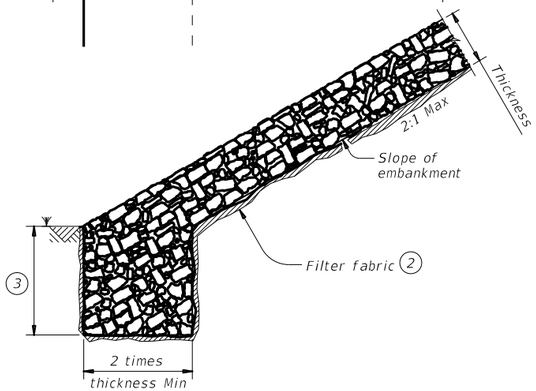


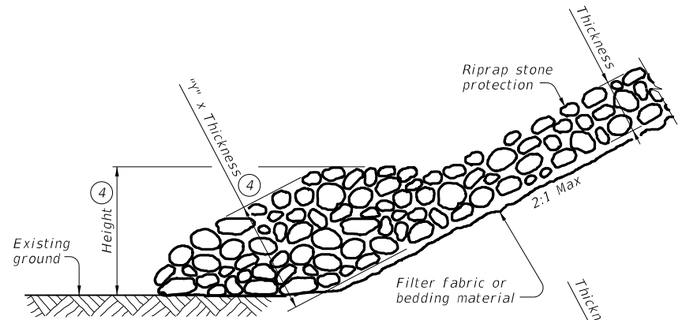
FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

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

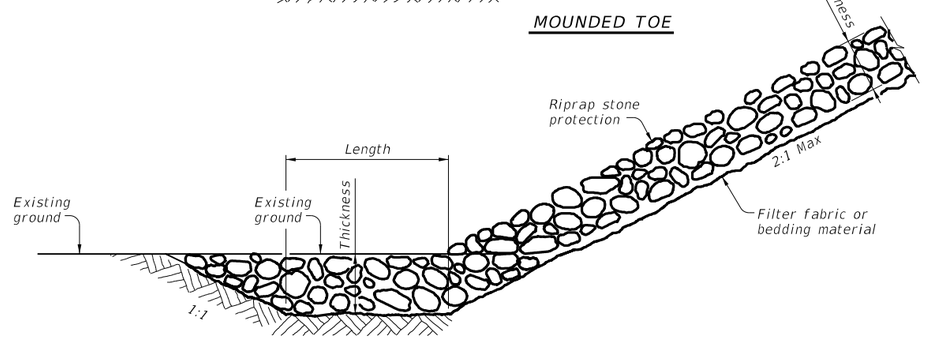
(3) Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.

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

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



MOUNDED TOE



EXTENDED ROCK FILLED TRENCH

PROTECTION STONE RIPRAP TOE OPTIONS (5)

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: MS-SRR-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES			
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY			
REVISIONS	0908	00	119	VARIOUS			
	DIST	COUNTY		SHEET NO.			
	ABL	TAYLOR, ETC.		80			

PREPARED BY (NAME OF DESIGNER)
DATE: 2/8/2024
FILE: $FILE$

I. STORM WATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Storm water 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.

☐ No Action Required ☒ Required Action

Action No.

1. The project disturbs less than one acre of surface area. The contractor is responsible for the PSL as defined in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (2014 Edition, Section 7.6., Page 44). The total disturbed acreage is the combined acreage to be disturbed on the project and the contractors PSL.
2. Prevent storm water pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
3. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
4. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
5. 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, WATER BODIES 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.

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	☐ Sedimentation Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw & Hay Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost & Mulch
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Sand Filter Systems
☒ Temporary Erosion Control Logs (BIOLOGS)	☒ Temporary Erosion Control Logs (BIOLOGS)	☐ Temporary Erosion Control Logs (BIOLOGS)
☒ Preservation of Natural Resources	☐ Sediment Traps	☐ PermanentVegetation (Planting, Sodding, or Seeding)
☐ Construction Exits	☐ 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.

1.

2.

3.

4.

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.

1. Comply with E.O. 13112 on use of native vegetation.

2.

3.

4.

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

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.

☐ No Action Required ☒ Required Action

Action No.

1. Comply with Migratory Bird Treaty Act on protection of Birds, their young, and nests.
2. Refer to General Notes for further details.

3.

4.

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 Storm water 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:

☐ No Action Required ☒ Required Action

Action No.

1. Existing Steel Structures are assumed to be positive for lead. Contractor is responsible for any abatement required.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

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

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VARIOUS ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC

Texas Department of Transportation

NO SCALE SHEET 1 OF 1

FHWA DIVISION	PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		VARIOUS
STATE	COUNTY		SHEET NO.
TEXAS	TAYLOR, ETC		81
DISTRICT	CONTROL	SECTION	JOB
ABL	0908	00	119

REV. DATE: 02/2015

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

For projects with less than one acre of soil disturbing activity and that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):

0908-00-119

1.2 PROJECT LIMITS:

From: Various Locations

To: Various Locations

1.3 PROJECT COORDINATES:

BEGIN: Various Locations

END: Various Locations

1.4 TOTAL PROJECT AREA (Acres): ~ 10

1.5 TOTAL AREA TO BE DISTURBED (Acres): < 0.5

1.6 NATURE OF CONSTRUCTION ACTIVITY:

Rehabilitate existing road consisting of rehabiliting bridges and culverts, repair erosion

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Colorado, 0 to 1% slopes ocassionally flooded	40% sand, 25% clay, well drained, negligible runoff, low erosion
Shep, 1 to 15% slopes	38% sand, 26% clay, well drained low runoff, low erosion potential
Clairemont, 0 to 2% slopes	15% sand, 33% clay, well drained low runoff, very low erosion
Spur, 0 to 2% slopes	45% sand, 21% clay, well drained negligible runoff, very low erosion

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 2.3.)

- ☒ 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
- ☒ Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities
- ☐ 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
Elm Creek	Fort Phantom Hill Reservoir (1236), Not Impaired
Cottonwood Creek	Oak Creek Reservoir (1426A), Not Impaired
Big Stink Creek	Clear Fork Brazos River (1232), Imparied (Bacteria)
Plum Creek	Clear Fork Brazos River (1232), Imparied (Bacteria)
Walnut Creek	Clear Fork Brazos River (1232), Imparied (Bacteria)
Fish Creek Branch	Colorado River (1426), Not Impaired

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

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- X Development of plans and specifications
- X Perform SWP3 inspections
- X Maintain SWP3 records and update to reflect daily operations
- ☐ Other: _____
- ☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- X Day To Day Operational Control
- X Maintain schedule of major construction activities
- X Install, maintain and modify BMPs
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER
2/9/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			82
STATE	STATE DIST.	COUNTY	
TEXAS	ABL	TAYLOR, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0908	00	119	VARIOUS

STORMWATER POLLUTION PRVENTION 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

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: _____

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:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

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 2.3 of this SWP3.

STATE OF TEXAS
GREGORY M. KOCHERSPERGER
94869
LICENSED
PROFESSIONAL ENGINEER

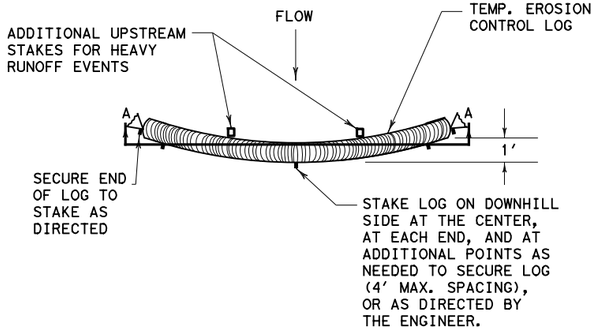
2/9/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

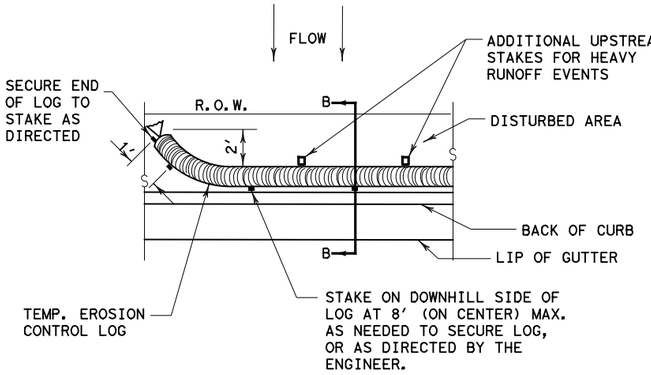
July 2023 Sheet 2 of 2

Texas Department of Transportation

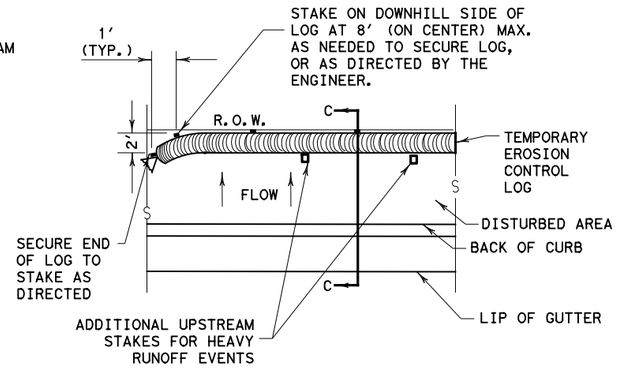
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			83
STATE	STATE DIST.	COUNTY	
TEXAS	ABL	TAYLOR, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0908	00	119	VARIOUS



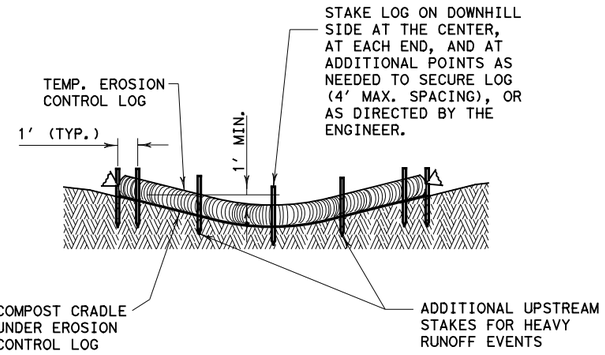
PLAN VIEW



PLAN VIEW



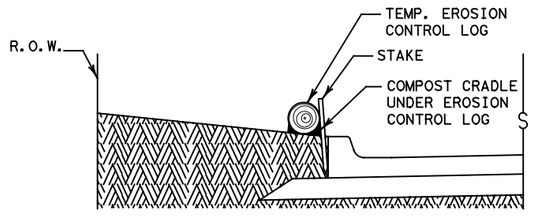
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

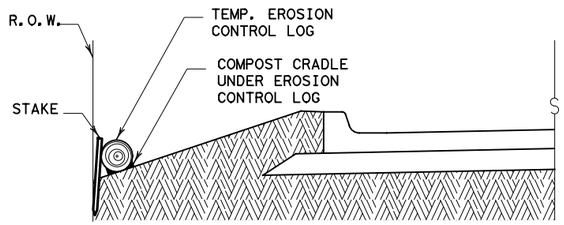
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



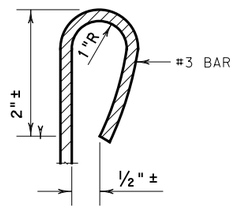
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

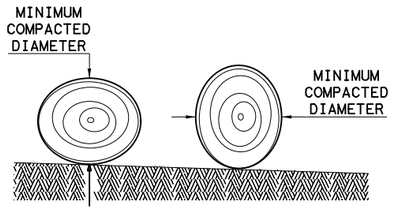
Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916		DN: TxDOT	CK: KM	DW: LS/PT	CK: LS		
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY		
REVISIONS	0908	00	119		VARIOUS		
	DIST	COUNTY			SHEET NO.		
	ABL	TAYLOR, ETC.			84		

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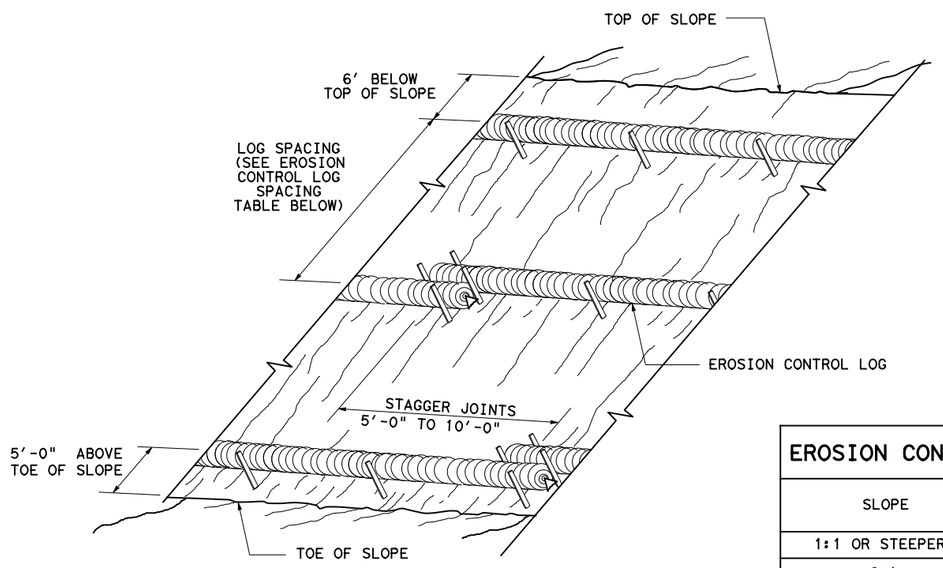
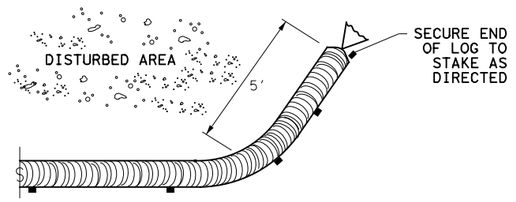


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

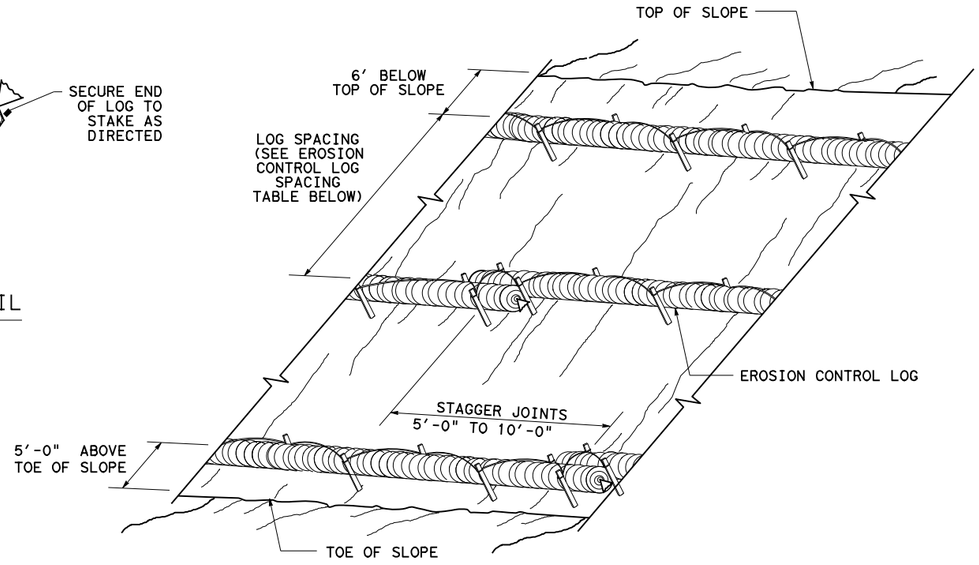
CL-SST



END SECTION RAP DETAIL

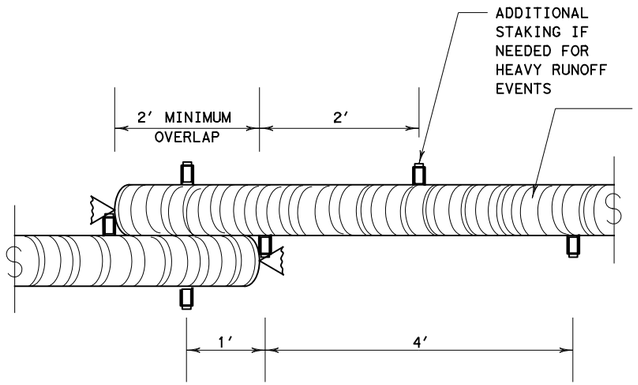
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

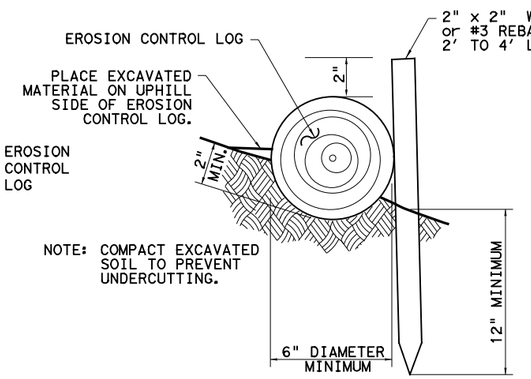
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

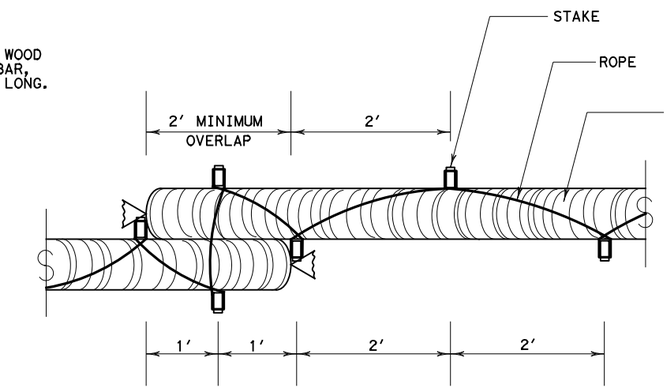


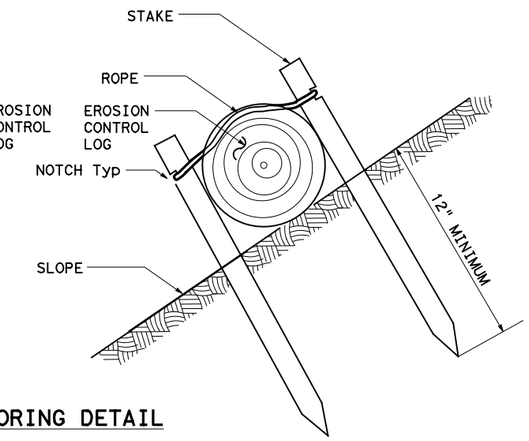


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

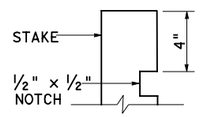
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

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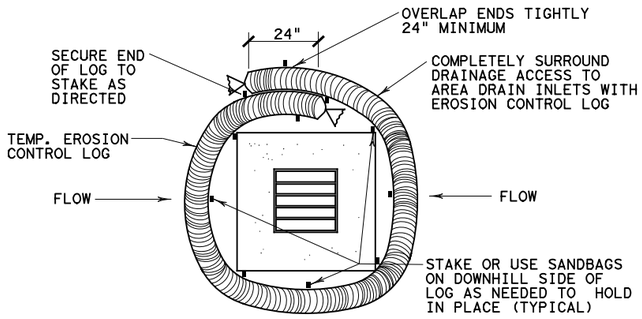
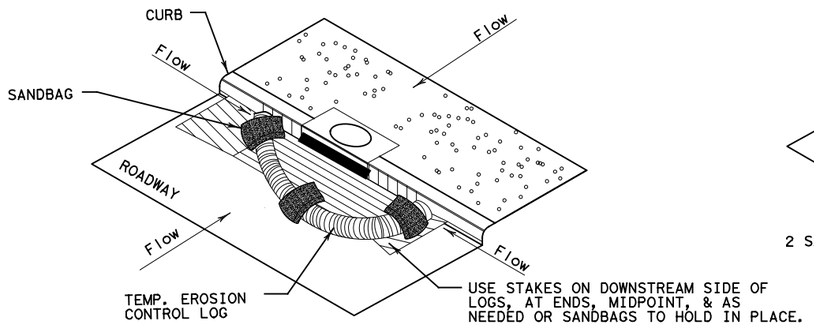
	DIST	COUNTY		SHEET NO.
	ABL	TAYLOR, ETC.		85

DATE: 2/8/2024
FILE: $FILE$



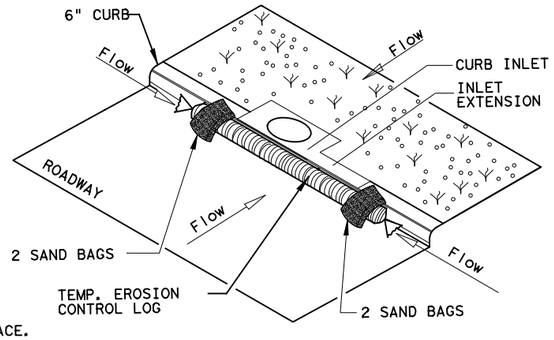
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

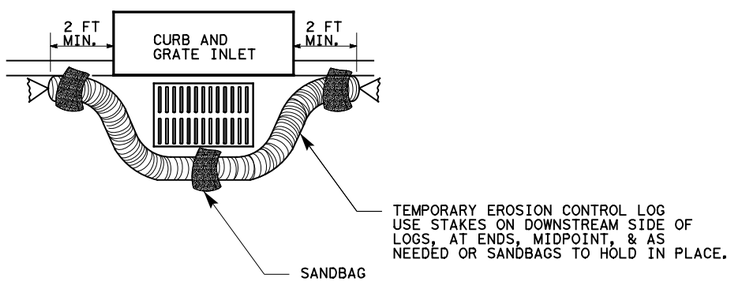
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

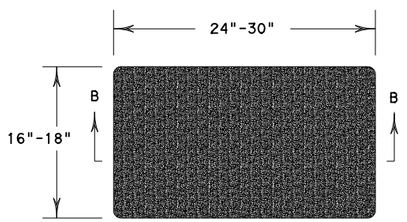
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

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