STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
HIGHWAY ROUTINE MAINTENANCE CONTRACT

GRAPHICS FILE	MAINTENANCE PROJECT NO.			SHEET NO.
Title2025.dgn	BPM-646378001			1
CHECKED	STATE	STATE DIST.	COUNTY	
MS	TEXAS	DALLAS	COLLIN	
CHECKED	CONT.	SECT.	JOB	HIGHWAY NO.
JRV	6463	78	001	US0075

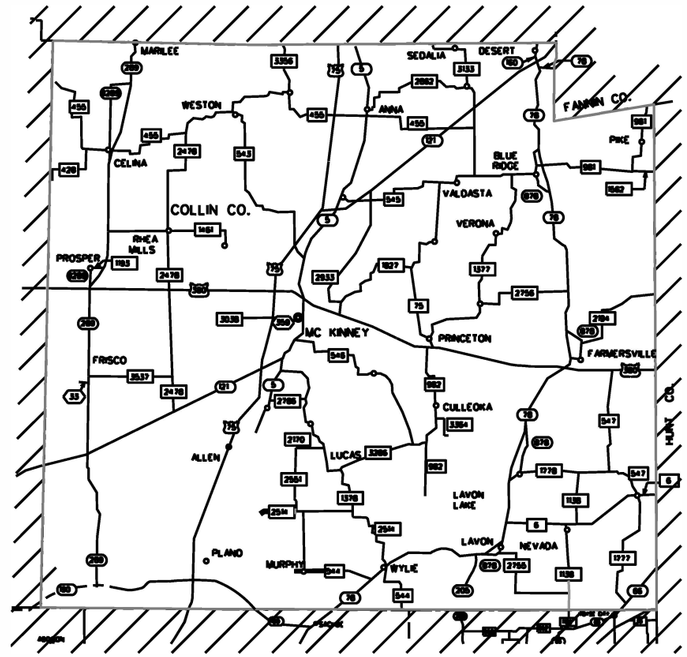
TYPE OF WORK:

BRIDGE JOINT CLEANING AND SEALING

PROJECT NO. : BPM-646378001

HIGHWAY : US0075

LIMITS : VARIOUS LOCATIONS IN THE COLLIN COUNTY MAINTENANCE SECTION



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32-111	AS-BUILT BRIDGE SHEETS

Signed by:

STATE OF TEXAS
MADHU SASTRY
82864
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.

DocuSigned by:
Madhu Sastry
5C42129C7BAA41B... , PE

8/15/2024
DATE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION SEPTEMBER 1, 2024 AND SPECIAL SPECIFICATION ITEMS INCLUDED IN THE CONTRACT SHALL GOVERN ON THIS PROJECT.

LEVELS DISPLAYED
1 2 3 4

RECOMMENDED FOR LETTING

DocuSigned by:
Jennifer Vorster
4DB88ED9338D4F7...
AREA ENGINEER

8/15/2024
DATE

RECOMMENDED FOR LETTING

DocuSigned by:
David Morren, P.E.
72258D0350B94E4...
DISTRICT MAINTENANCE ENGINEER

8/19/2024
20__

RECOMMENDED FOR LETTING

DocuSigned by:
JEFFREY BUSH
345B765EB03F406...
DIRECTOR OF OPERATIONS

8/19/2024
20__

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 6463-78-001 **DISTRICT** Dallas **COUNTY** Collin
HIGHWAY US0075

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**6463-78-001**			
		PROJECT ID		**A00207313**			
		COUNTY		**Collin**			
		HIGHWAY		**US0075**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	1,482.000		1,482.000	
	438-7013	CLEANING & SEALING EXISTING JOINT (SEJ)	LF	2,192.000		2,192.000	
	500-7001	MOBILIZATION	LS	1.000		1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	2.000		2.000	
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	30.000		30.000	
	505-7001	TMA (STATIONARY)	DAY	70.000		70.000	

General:

This project consists of performing "Bridge Joint Cleaning and Sealing" on roadways as detailed on the Summary Sheets in the Collin County Maintenance Section.

Work to be performed under this contract is Site Specific.

TABLE 1

REF NO.	COUNTY	HIGHWAY	LOCATION	NBI#
1	COLLIN	US0075 NB	COMEGYS CREEK	18-043-0-0047-06-631
2	COLLIN	US0075 SB	COMEGYS CREEK	18-043-0-0047-06-632
3	COLLIN	US0075 NB	SPUR0359/FM3038	18-043-0-0047-14-640
4	COLLIN	US0075 NB	WHITE AVE	18-043-0-0047-14-642
5	COLLIN	US0075 SB	WHITE AVE	18-043-0-0047-14-643
6	COLLIN	US0075 SB	HONEY CREEK	18-043-0-0047-14-653
7	COLLIN	US0075 NBFR	COMEGYS CREEK	18-043-0-0047-06-633
8	COLLIN	US0075 NB RAMP	COMEGYS CREEK	18-043-0-0047-06-635
9	COLLIN	SH0121 NB	CLEMONS CREEK	18-043-0-0549-03-225
10	COLLIN	SH0121 SB	DART	18-043-0-0549-03-227
11	COLLIN	SH0078 EB	MAXWELL CREEK	18-043-0-0281-02-046
12	COLLIN	SH0078 WB	MAXWELL CREEK	18-043-0-0281-02-047
13	COLLIN	FM2514	MUDDY CREEK	18-043-0-2679-02-012
14	COLLIN	US0380 EB	PILOT GROVE CREEK	18-043-0-0135-04-094
15	COLLIN	SH0078	BNSF RR	18-043-0-0281-01-037
16	COLLIN	FM0982	TICKEY CREEK	18-043-0-0387-05-003
17	COLLIN	FM0546	E. FORK TRINITY RIVER	18-043-0-1013-01-002
18	COLLIN	SH0121 CONN	US0075 NBFR	18-043-0-0047-14-659

Bids will be received at 4777 E. Hwy 80, Mesquite, Texas 75150-6643.

The Department reserves the right to revise schedule as it deems necessary.

Provide and maintain a dedicated email address for receipt of work orders and correspondence throughout the term of this contract. Acknowledgement of emailed work order/callouts is required no more than 12 hr. from notification.

Contractor's attention is called to the fact that all adjoining pavement sections will be protected during all phases of construction and any damages incurred due to Contractor's operation will be repaired and replaced at the Contractor's expense.

Project Number: BPM-646378001 **Control:** 6463-78-001

County: Collin **Highway:** US0075

Coordinate work through:

Derick Davis
2205 S. SH 5
McKinney, Texas 75069
972-542-2461

Contractor questions on this project are to be addressed to the following individuals:

Jennifer Vorster, P.E. Jennifer.Vorster@txdot.gov
Derick Davis Derick.Davis@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

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

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

Attention is directed to the possible presence of underground utilities owned by the Texas Department of Transportation (irrigation, signal, illumination and surveillance, communication, and control) on the right of way. Call the Department for locates at 214-320-6682 48 hr. in advance of excavation. Contact the appropriate department of the local city or town a minimum of 48 hr. in advance of excavation.

If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Cost associated with de-energizing the power lines or other protective measures required are at no expense to the Department.

If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

Working over the Dart crossing will require a Contract Right of Entry provided by Dart to TxDOT. Do not commence work until received.

Item 2 – Instructions to Bidders:

This project includes plan sheets that are not part of the bid proposal.

View or download plans at:

http://www.dot.state.tx.us/business/plansonline/agreement.htm

Item 7 – Legal Relations and Responsibilities:

Pre-construction safety meeting will be conducted with Contractor's personnel prior to work beginning on a continuously prosecuted contract or before each callout work request.

Attendance of this meeting will not be paid directly but considered subsidiary to the various bid items.

Holiday restrictions – the Engineer may decide that no lane closures or construction operations will be allowed during the restricted periods listed in the following holiday schedule. TxDOT has the right to lengthen, shorten, or otherwise modify these restricted periods as actual, or expected, traffic conditions may warrant. Working days will not be charged for these restricted periods. No additional compensation will be allowed for these restricted closures (i.e., overhead, delays, stand-by, barricades or any other associated cost impacts).

- New Year's Eve and Day (noon on December 31 thru 10 P.M. January 1)
- Easter Holiday weekend (noon on Friday thru 10 P.M. Sunday)
- Memorial Day weekend (noon on Friday thru 10 P.M. Monday)
- Independence Day (noon on July 3 thru 10 P.M. on July 5)
- Labor Day weekend (noon on Friday thru 10 P.M. Monday)
- Thanksgiving Holiday (noon on Wednesday thru 10 P.M. Sunday)
- Christmas Holiday (noon on December 23 thru 10 P.M. December 26)

Holiday restrictions for Independence Day, Thanksgiving Holiday, and the Christmas Holiday may be extended for the "week of" due to the nature of work being performed and the work location at the discretion of the Engineer for safety of the traveling public.

Roadway closures during the following key dates and/or special events are prohibited.

- The University of Texas vs. University of Oklahoma football game (no lane closures beginning 4 hr. prior to the event and ending 3 hr. following event completion).

Item 8 – Prosecution and Progress:

Working days will be charged in accordance with Section 8.3.1.4, "Standard Workweek".

Nighttime work will be charged in accordance with Section 8.3.3.2.1.

Project Number: BPM-646378001 **Control:** 6463-78-001

County: Collin **Highway:** US0075

Contractor will submit a bar chart or CPM chart for progress of schedule. Present work to begin no later than 7 calendar days from the work order letter unless otherwise approved.

Perform work during the shaded months presented in the "Schedule of Work" Table.

TABLE 2
SCHEDULE OF WORK

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Site-Specific Work												

Item 502 – Barricades, Signs, and Traffic Handling:

All work requiring lane closures on US 75 will be performed Sunday through Thursday between 9 P.M. and 5 A.M., unless otherwise approved.

When closing a lane on roadways other than US 75, closure times will be Monday through Friday, 9 A.M. to 3:30 P.M. Close no more than one lane at a time, unless otherwise approved. Provide proposed lane closure information to the Engineer by 1 P.M. on the day prior to the proposed closures. Furnish information for Monday closures or closures following a national or state holiday on the last office workday prior to the closures. Do not close lanes if the above reporting requirements have not been met.

Nighttime and weekend work will be allowed with prior approval.

Maximum length of lane closure will be 2 miles.

Traffic Control Plans with a lane closure causing backups of 10 minutes or greater in duration will be modified by the Engineer.

Erect barricades and signs in locations not obstructing the traveling public's view of the normal roadway signing or necessary sight distance.

Provide sufficient and qualified staff and equipment to revise the traffic control as directed.

Trailer all slow-moving vehicles (designed to operate 25 mph or less) crossing freeway main lanes.

Item 503 – Portable Changeable Message Sign:

Provide Portable Changeable Message Signs (PCMS) units as approved.

Project Number: BPM-646378001 **Control:** 6463-78-001

County: Collin **Highway:** US0075

PCMS will be placed as directed.

Item 505 – Truck Mounted Attenuator (TMA):

The total number of truck mounted attenuators (TMAs) or trailer attenuators (TAs) required when utilizing the traffic control standards are shown in the tables below.

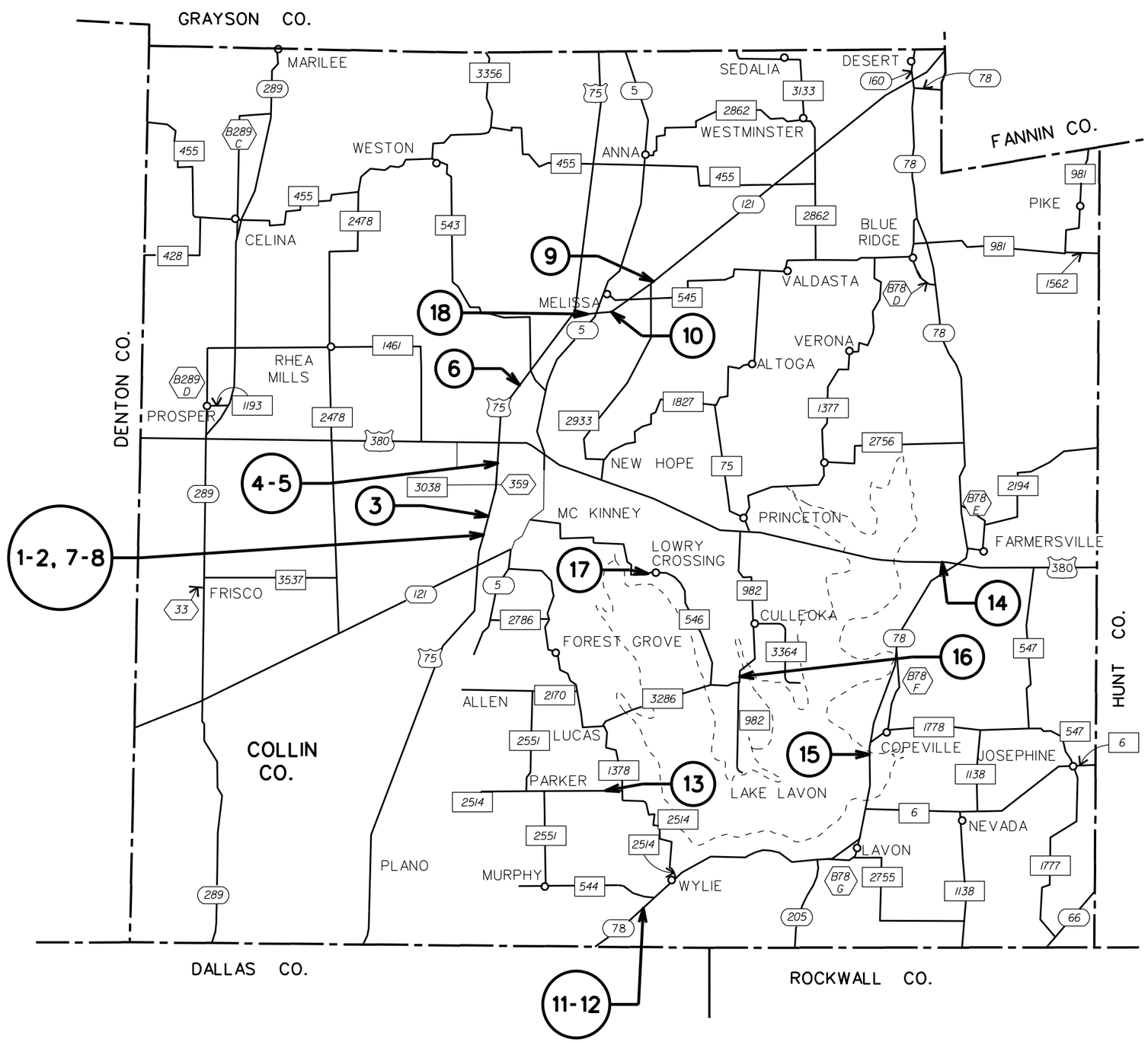
TCP 2 Series	Scenario		Required TMA/TA	
(2-1)-18 / (2-2)-18 / (2-4)-18 / (2-6)-18	All		1	
(2-3)-23	A	B	1	2

TCP 6 Series	Scenario		Required TMA/TA	
(6-1)-12	A	B	1	2
(6-2)-12 / (6-3)-12	All		1	
(6-4)-12	A	B	1	2
(6-5)-12	A	B	1	2

Shadow vehicles equipped for truck mounted attenuators (TMA) for mobile and stationary operations must be available for use at any time as determined by the Engineer.

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/TAs needed for the project for those times per plan requirements. Additional TMAs/TAs used that are not specified in the plans in which the Contractor expects compensation will require prior approval from the Engineer.

When TMAs are paid by the hour or day, “ready for operation” is defined as all equipment, material, personnel, etc. are present on the project ready to begin work.



NOTE: APPROXIMATE LOCATIONS. SEE SHEET 4 FOR TRM LOCATIONS

LOCATION MAP

DESIGN	FED.RD. DIV.NO.	MAINTENANCE PROJECT NO.		HIGHWAY NO.
SVL	6	BPM-646378001		US0075
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
SVL	TEXAS	DALLAS	COLLIN	4
CHECK	CONTROL	SECTION	JOB	
JRV	6463	78	001	
CHECK				
JRV				

CLEANING AND SEALING JOINTS

REF #	ROADWAY	CROSSING	APPROXIMATE LOCATION	NBI #	TRM	AADT	438-7007 CLEANING AND SEALING EXIST JOINTS (CL 7)	438-7013 CLEANING AND SEALING EXISTING JOINT (SEJ)	DAYS TO COMPLETE
							LF	LF	EA
1	US0075 NB	COMEGYS CREEK	2.50 MI S OF US 380	180430004706631	240+0.172	58,081		192	
2	US0075 SB	COMEGYS CREEK	2.50 MI S OF US 380	180430004706632	240+0.172	58,081		168	
3	US0075 NB	SPUR0359/FM3038	1.30 MI S OF US 380	180430004714640	238+0.864	47,521		294	
4	US0075 NB	WHITE AVE	0.50 MI S OF US 380	180430004714642	238+0.078	47,521		194	
5	US0075 SB	WHITE AVE	0.50 MI S OF US 380	180430004714643	238+0.078	47,521		194	
6	US0075 SB	HONEY CREEK	2.30 MI NE OF US 380	180430004714653	234+1.321	36,343		207	
7	US0075 NBFR	COMEGYS CREEK	2.50 MI S OF US 380	180430004706633	240+0.172	5,368		80	
8	US0075 NB RAMP	COMEGYS CREEK	2.50 MI S OF US 380	180430004706635	240+0.172	4,500		48	
9	SH0121 NB	CLEMONS CREEK	0.30 MI W OF FM 2933	180430054903225	238+2.039	18,800		92	
10	SH0121 SB	DART	1.00 MI N OF MELISSA	180430054903227	240+1.669	16,527		129	30
11	SH0078 EB	MAXWELL CREEK	1.30 MI SW OF FM 544	180430028102046	268+0.699	13,298		111	
12	SH0078 WB	MAXWELL CREEK	1.30 MI SW OF FM 544	180430028102047	268+0.699	13,298		111	
13	FM2514	MUDDY CREEK	0.40 MI W OF FM 1378	180430267902012	598+0.598	12,696		203	
14	US0380 EB	PILOT GROVE CREEK	2.75 MI W OF SH 78	180430013504094	650+0.588	9,697	462		
15	SH0078	BNSF RR	6.70 MI S OF US 380	180430028101037	256+0.983	9,383	300		
16	FM0982	TICKEY CREEK	1.05 MI N OF FM 546	180430038705003	242+0.421	6,176	320		
17	FM0546	E. FORK TRINITY RIVER	5.60 MI E OF SH 5	180430101301002	242+1.241	3,361	400		
18	SH0121 CONN	US0075 NBFR	0.50 MI NE INT US75 & CR276	180430004714659	N/A	1,784		169	
						CONTRACT TOTALS:	**1482**	**2192**	**30**

NOTE: REF 10 AND 15 GO OVER RAILROAD TRACKS. DO NOT COMMENCE WORK IN THESE AREAS UNTIL A CONTRACT RIGHT OF ENTRY IS PROVIDED

SUMMARY SHEET

DESIGN	FED.RD. DIV.NO.	MAINTENANCE PROJECT NO.		HIGHWAY NO.
SVL	6	BPM-646378001		US0075
GRAPHICS SVL	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRV	TEXAS	DALLAS	COLLIN	5
CHECK JRV	CONTROL	SECTION	JOB	
	6463	78	001	

FILE NAME: $FILE$
DATE: $DATE$

DATE:
FILE:

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	DAL	COLLIN		6
5-10 5-21				

DISCLAIMER:
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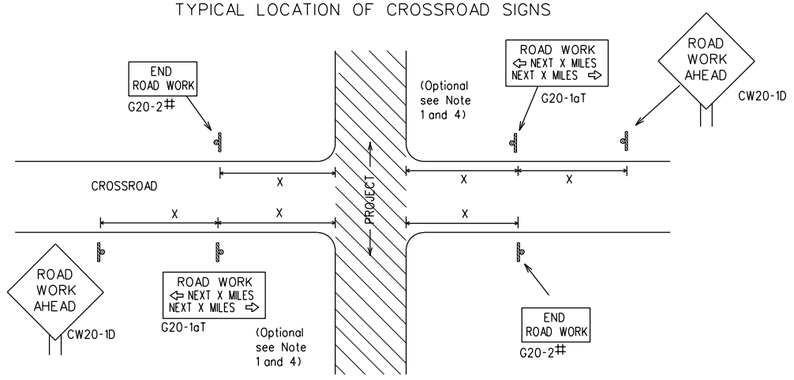
DATE:
FILE:

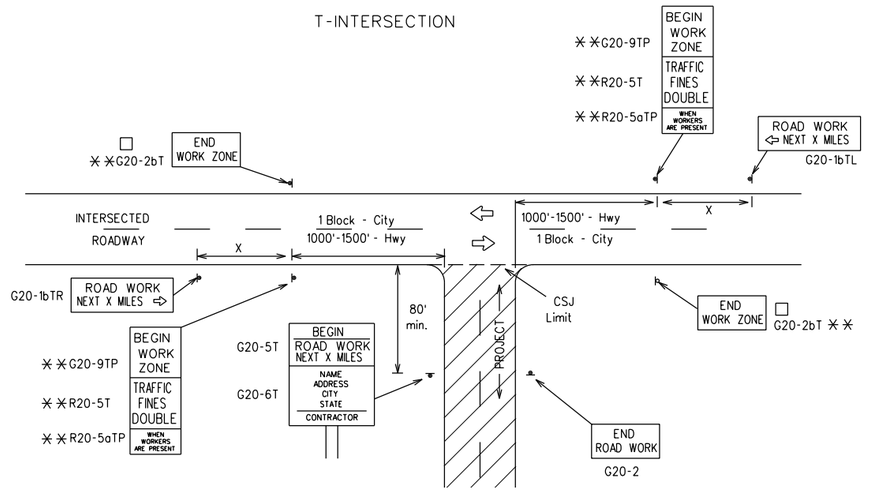
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

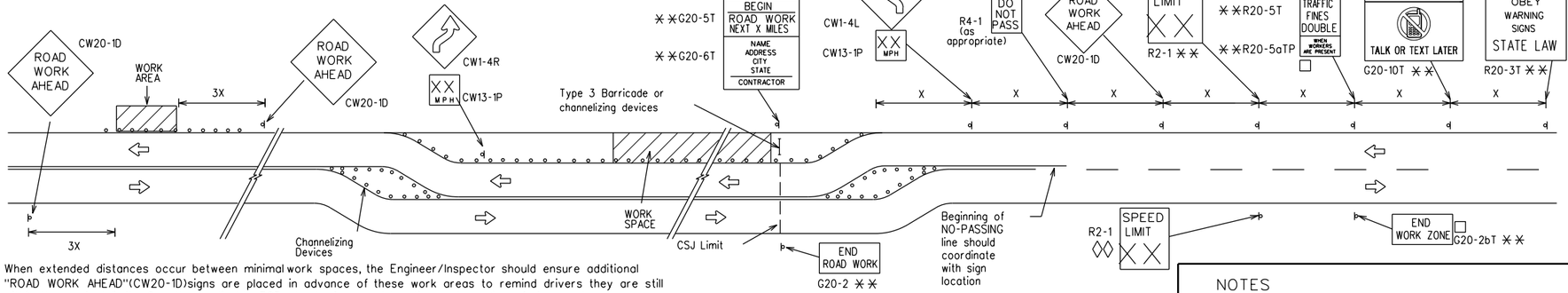
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

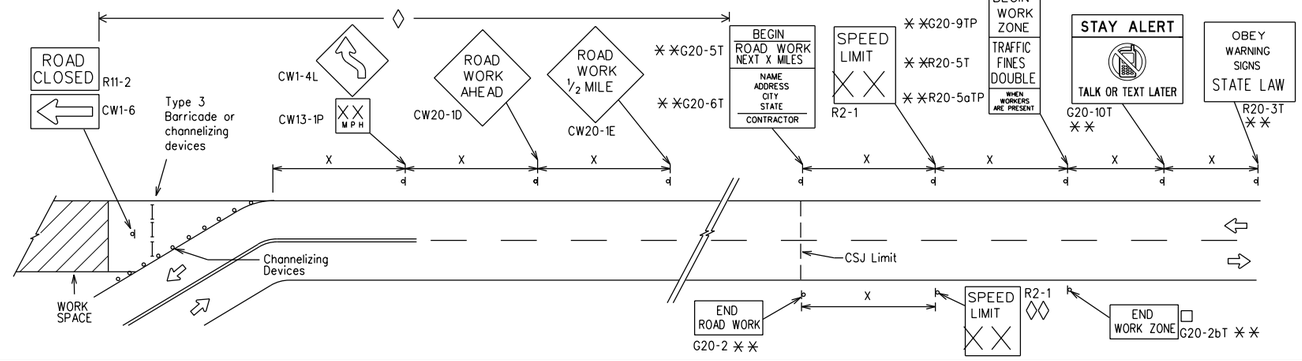
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may 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 DOWNSTREAM OF THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

NOTES

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

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

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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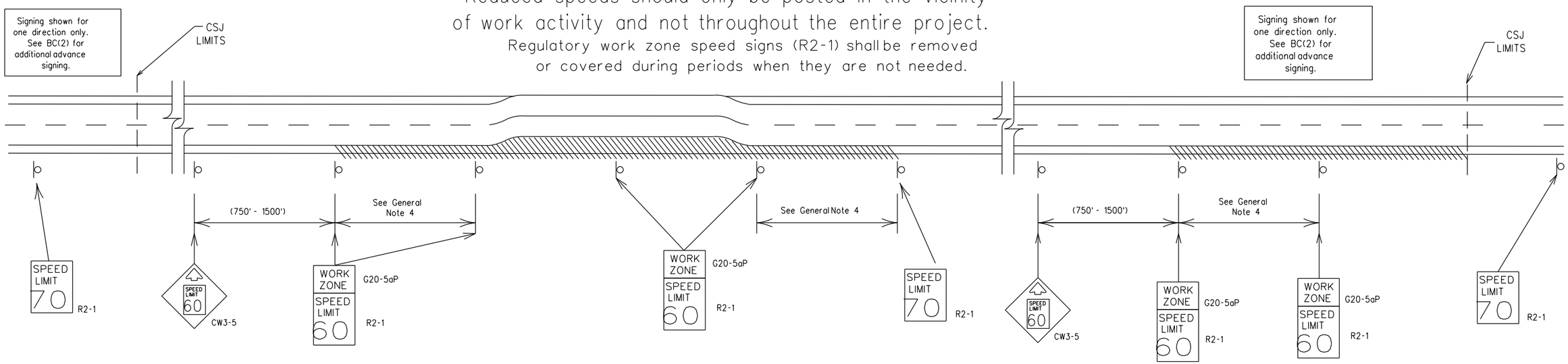
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.
Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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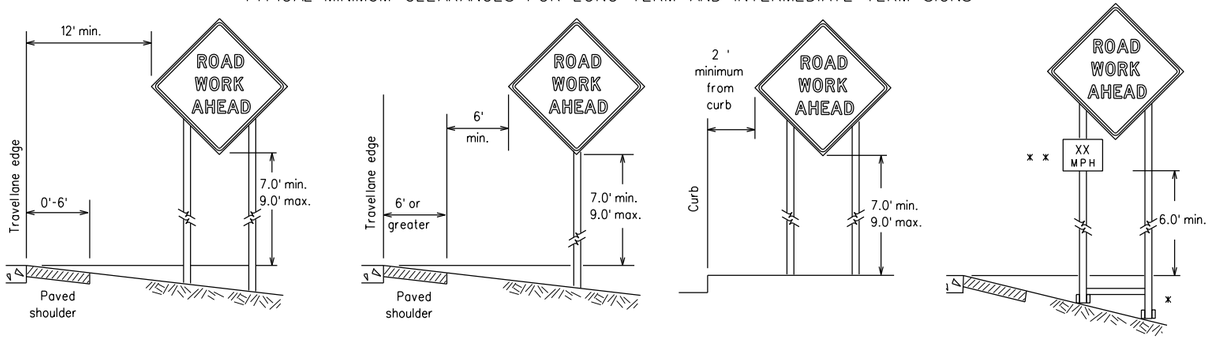
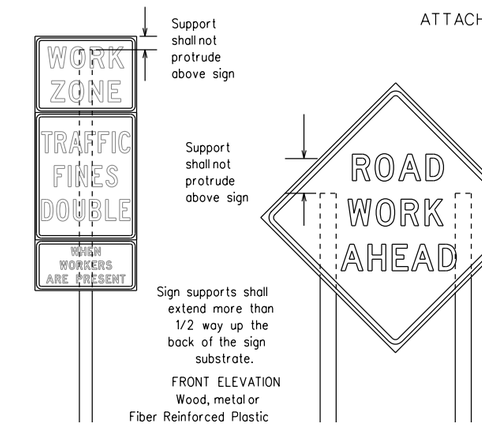
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



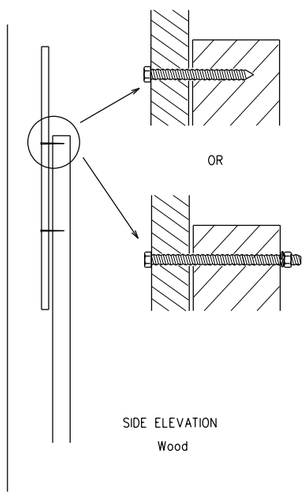
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS



FRONT ELEVATION
Wood, metal or
Fiber Reinforced Plastic



SIDE ELEVATION
Wood

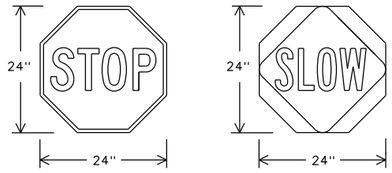
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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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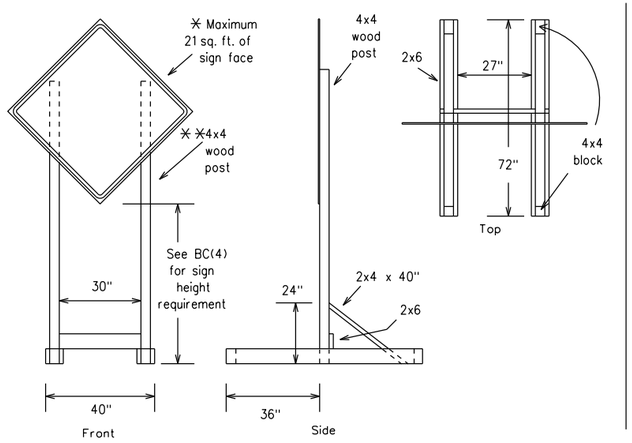
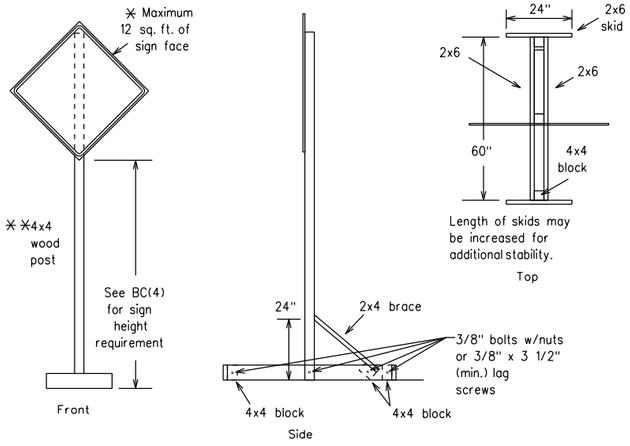
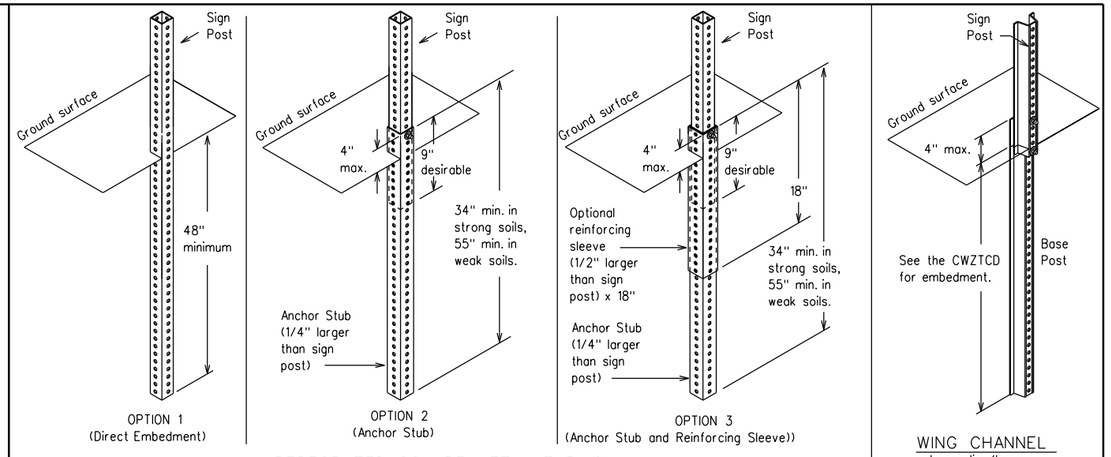




SKID MOUNTED WOOD SIGN SUPPORTS

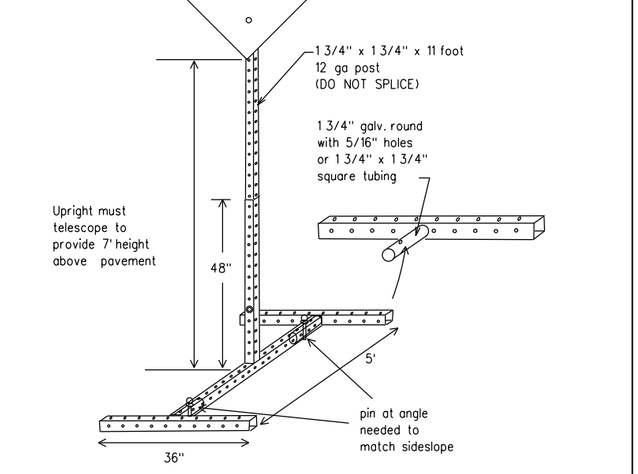
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

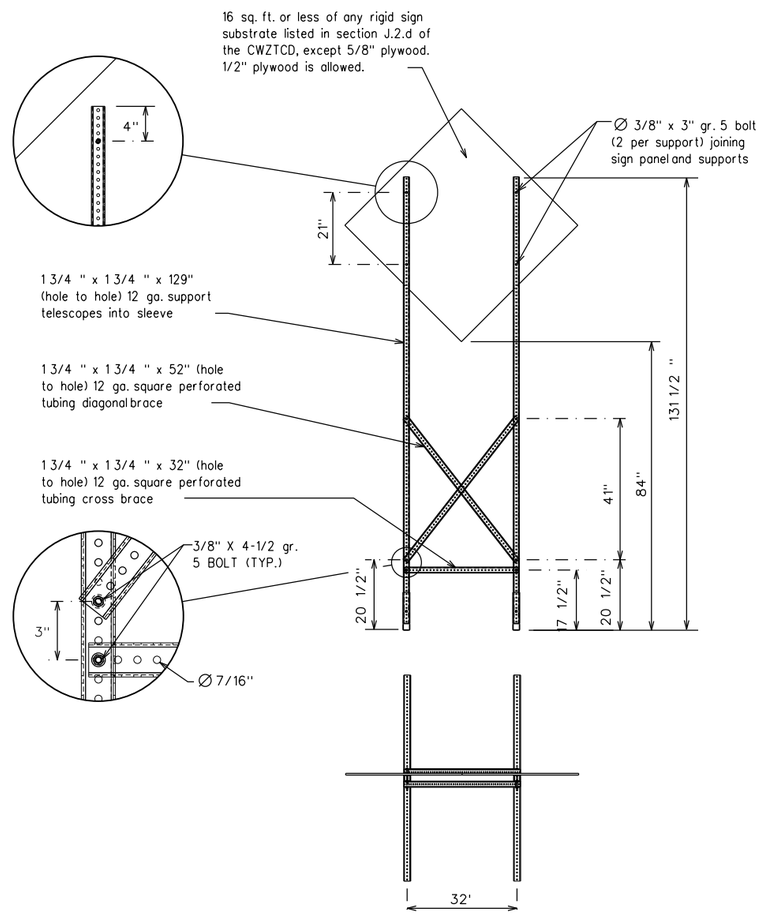


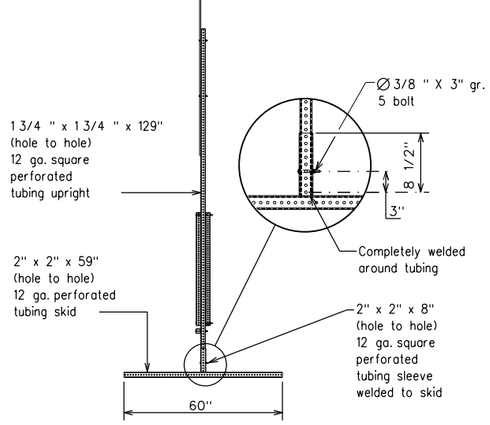
PERFORATED SQUARE METAL TUBING

GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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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
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REVISIONS	6463	78	001	US0075
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7-13 5-21	DAL	COLLIN		11

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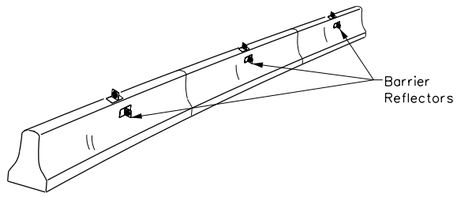
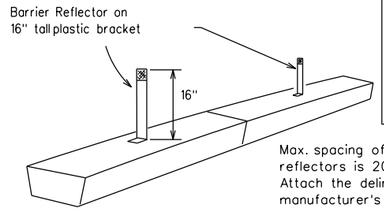
DATE:
FILE:

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.



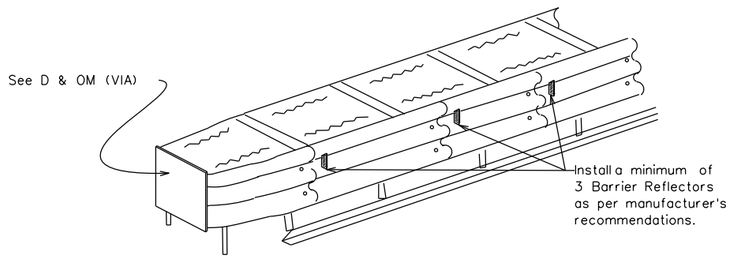
CONCRETE TRAFFIC BARRIER (CTB)

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

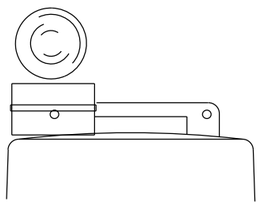
LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

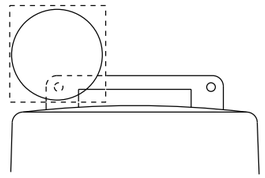
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B 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

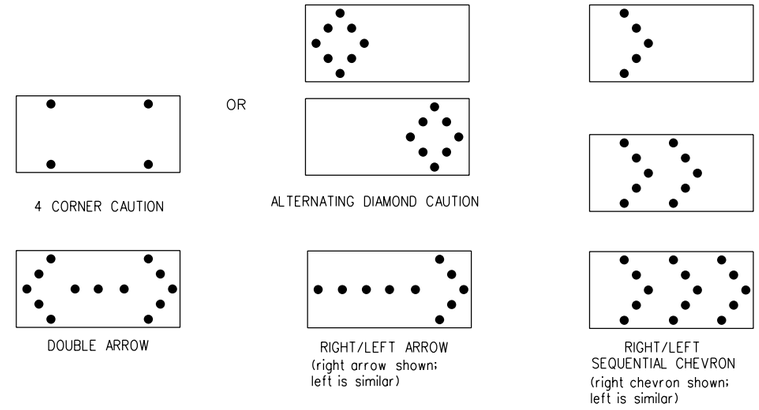
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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



4 CORNER CAUTION

ALTERNATING DIAMOND CAUTION

DOUBLE ARROW

RIGHT/LEFT ARROW
(right arrow shown;
left is similar)

RIGHT/LEFT
SEQUENTIAL CHEVRON
(right chevron shown;
left is similar)

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

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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:

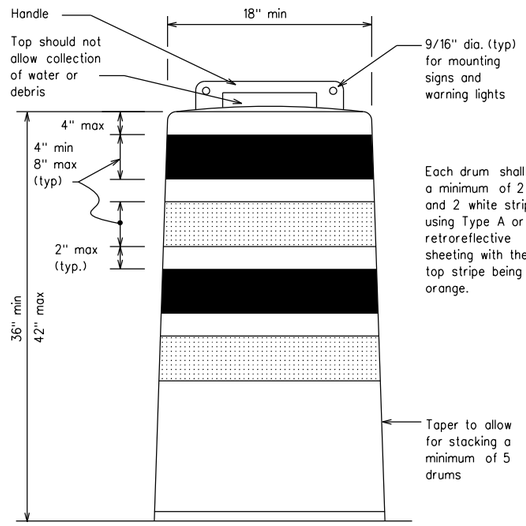
1. Plastic drums shall be a two-piece design: the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

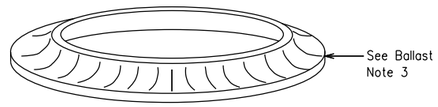
RETROREFLECTIVE SHEETING

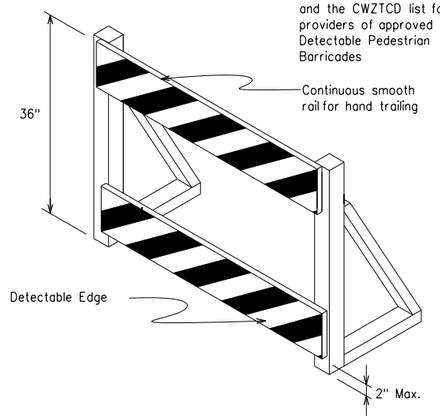
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

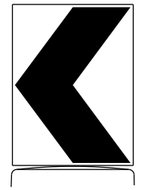




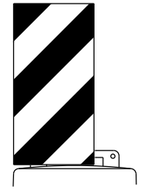


DETECTABLE PEDESTRIAN BARRICADES

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

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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 or Type C 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

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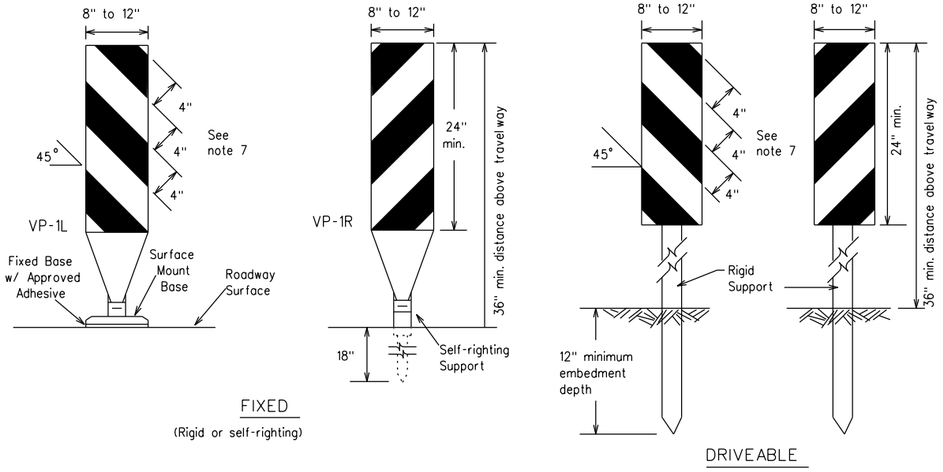
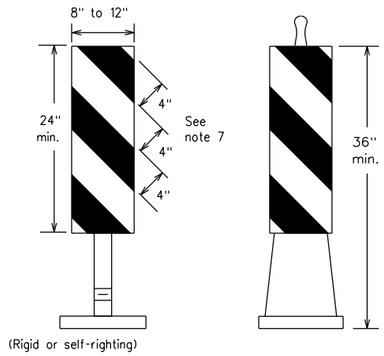


FIXED

(Rigid or self-righting)

DRIVEABLE

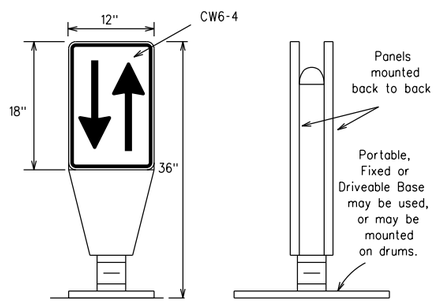


(Rigid or self-righting)

PORTABLE

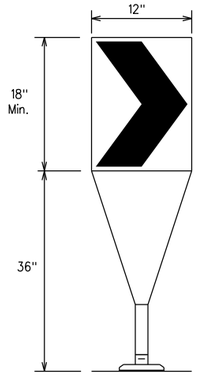
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

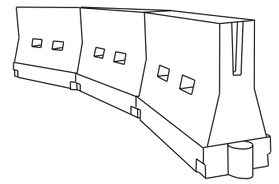
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



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 or Type C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

GENERAL NOTES

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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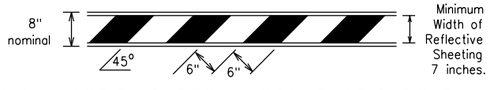
REVISIONS	6463	78	001	US0075
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	DAL	COLLIN		14

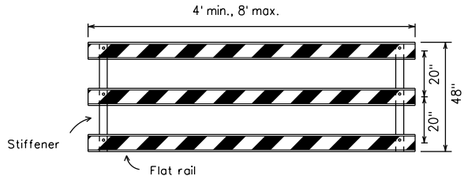
TYPE 3 BARRICADES

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.



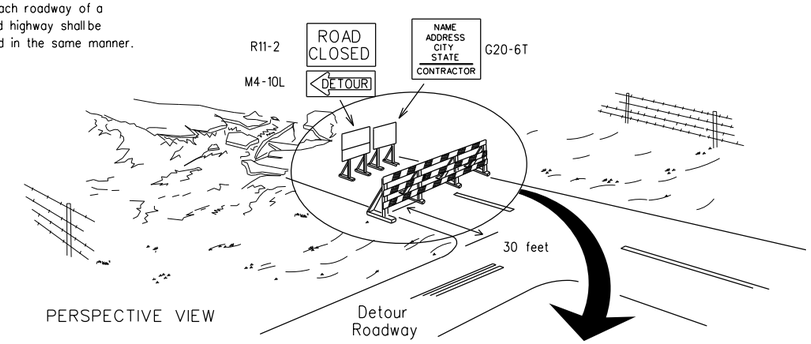
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

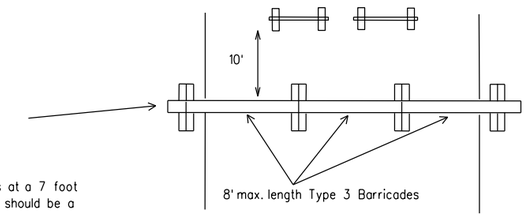
Each roadway of a divided highway shall be barricaded in the same manner.



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.

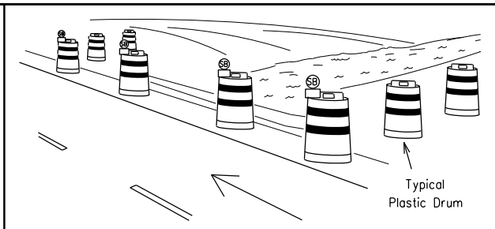
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

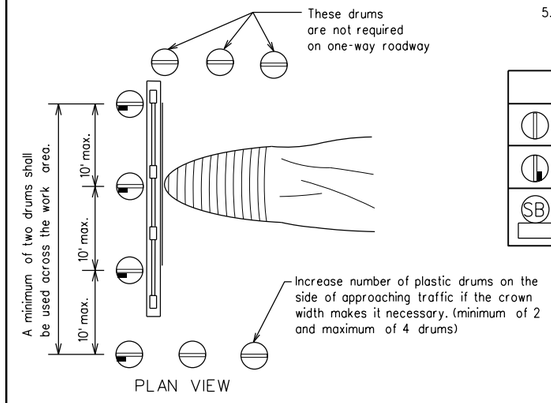
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

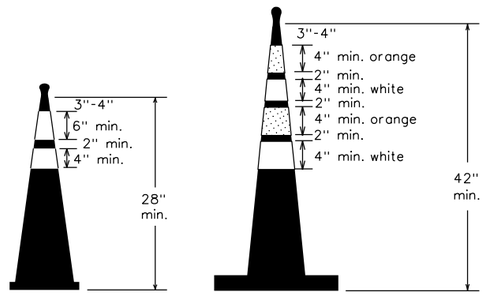
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



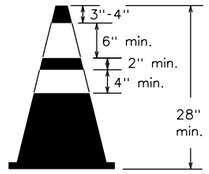
PLAN VIEW

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

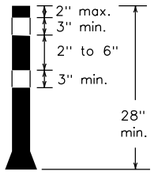
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

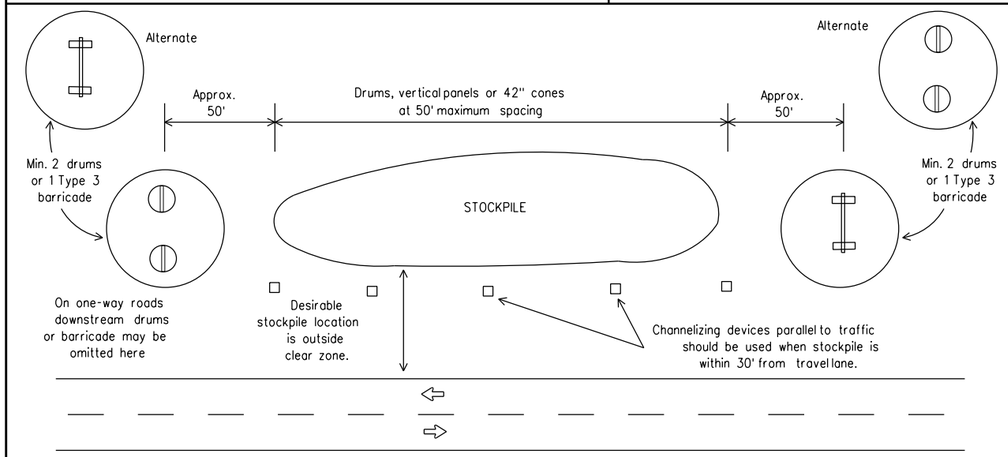


Tubular Marker

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

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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	6463	78	001	US0075
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	DAL	COLLIN		15

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

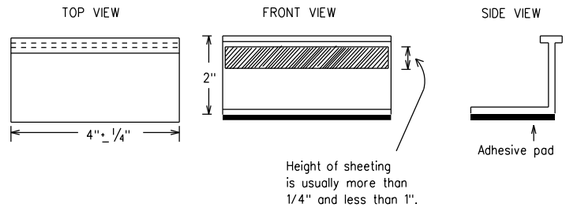
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	6463	78	001	US0075
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	DAL	COLLIN		16
11-02 8-14				

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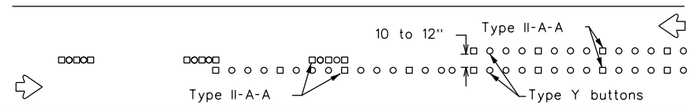
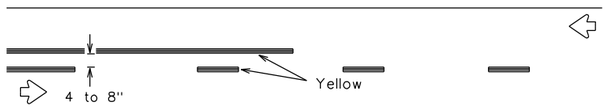
PAVEMENT MARKING PATTERNS

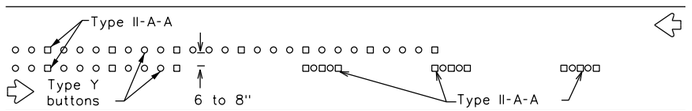
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



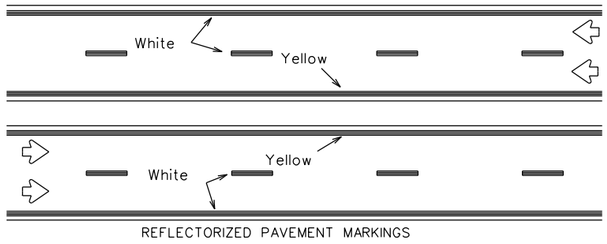
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



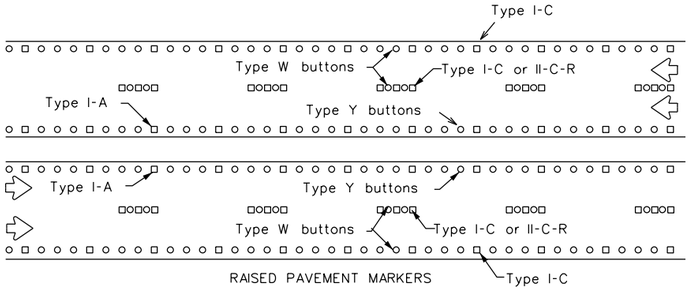
RAISED PAVEMENT MARKERS - PATTERN B

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



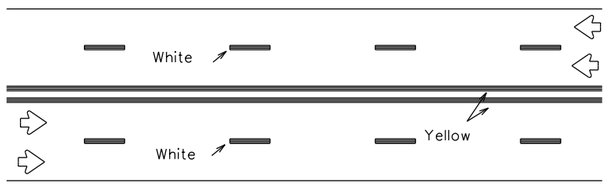
REFLECTORIZED PAVEMENT MARKINGS



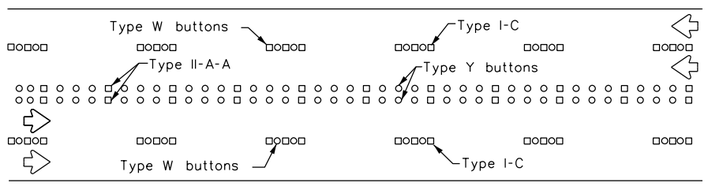
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



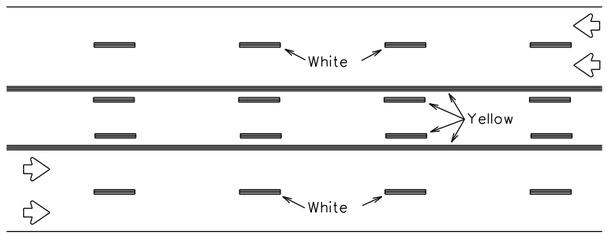
REFLECTORIZED PAVEMENT MARKINGS



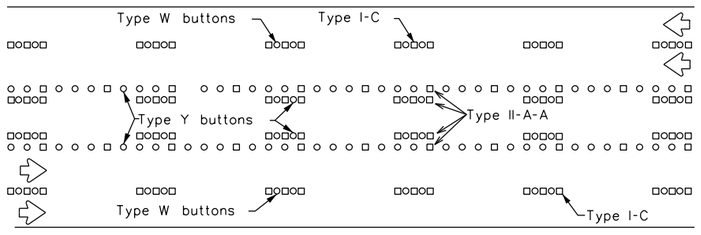
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

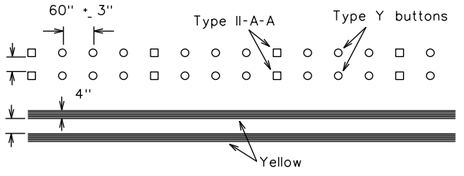
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

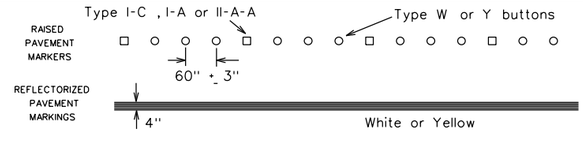
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

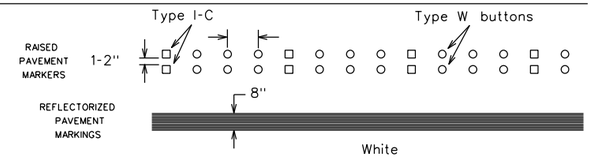


EDGE LINE OR SINGLE NO-PASSING LINE



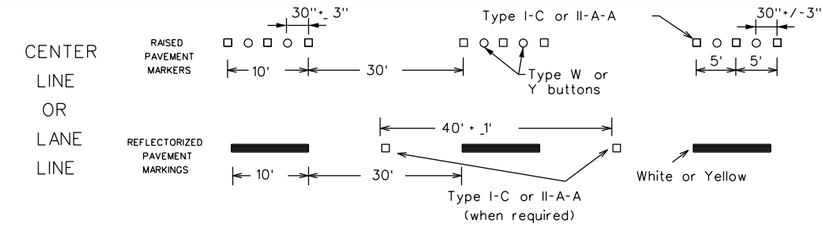
WIDE LINE

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

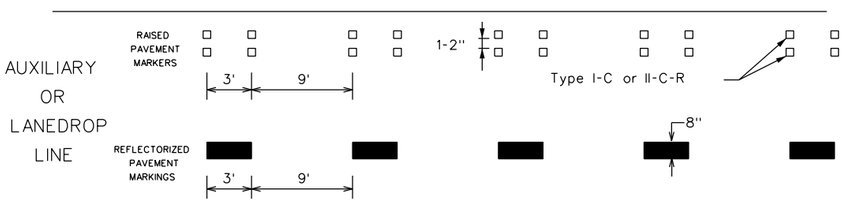


BROKEN LINES

CENTER LINE OR LANE LINE

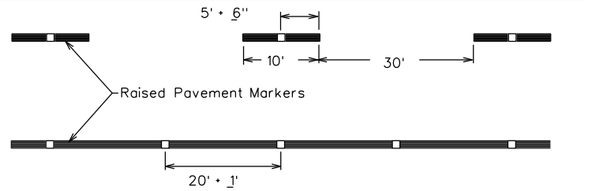


AUXILIARY OR LANEDROP LINE



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

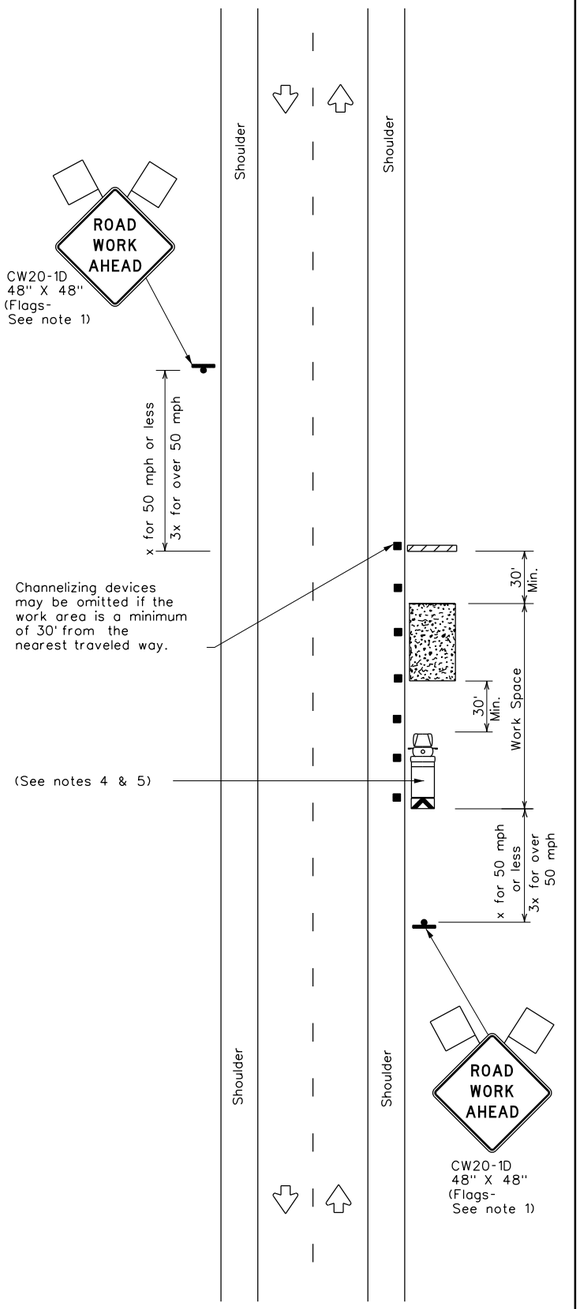
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

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	6463	78	001	US0075
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		17

106

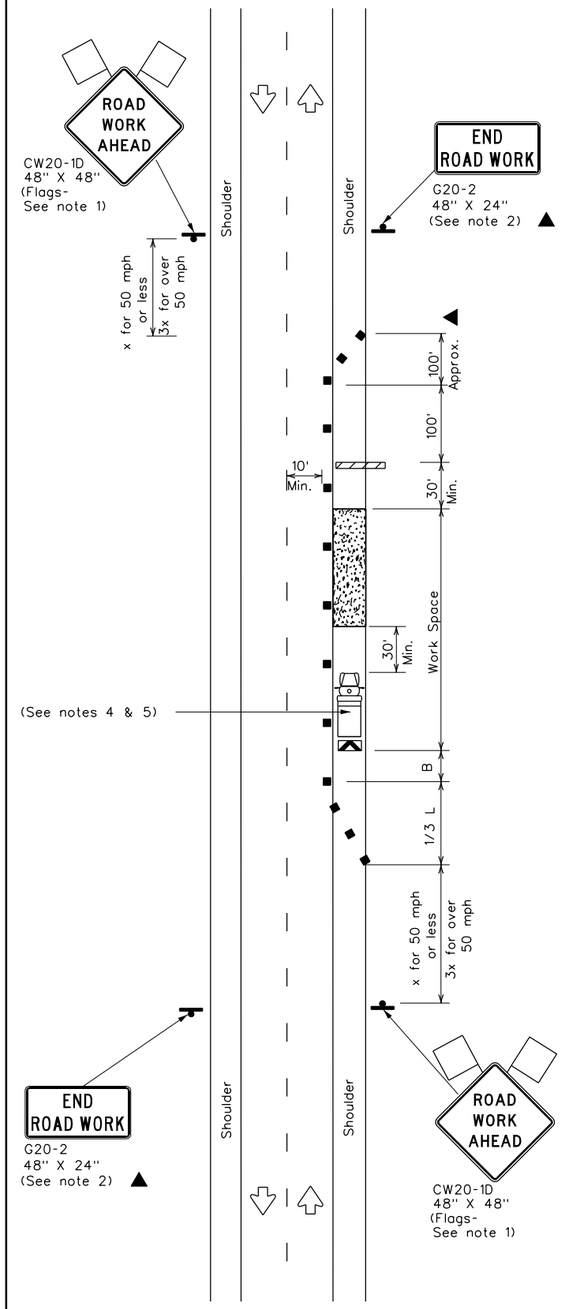
DATE:
FILE:



TCP (2-1a)

WORK SPACE NEAR SHOULDER

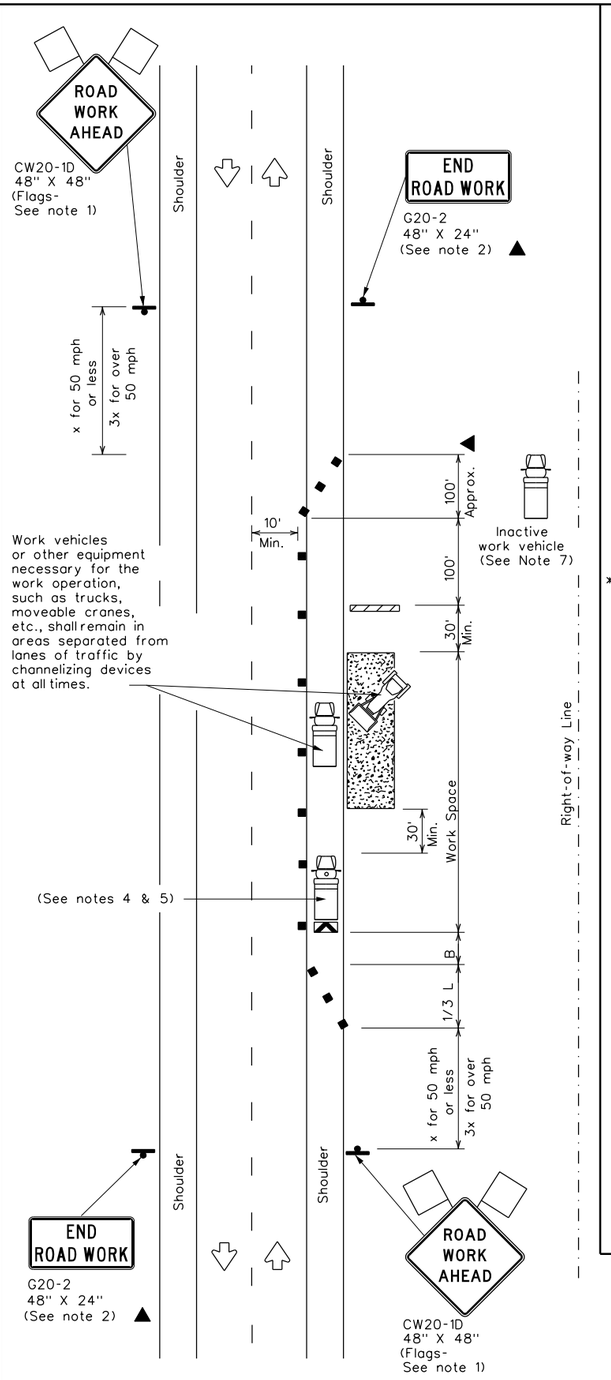
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER

Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER

Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

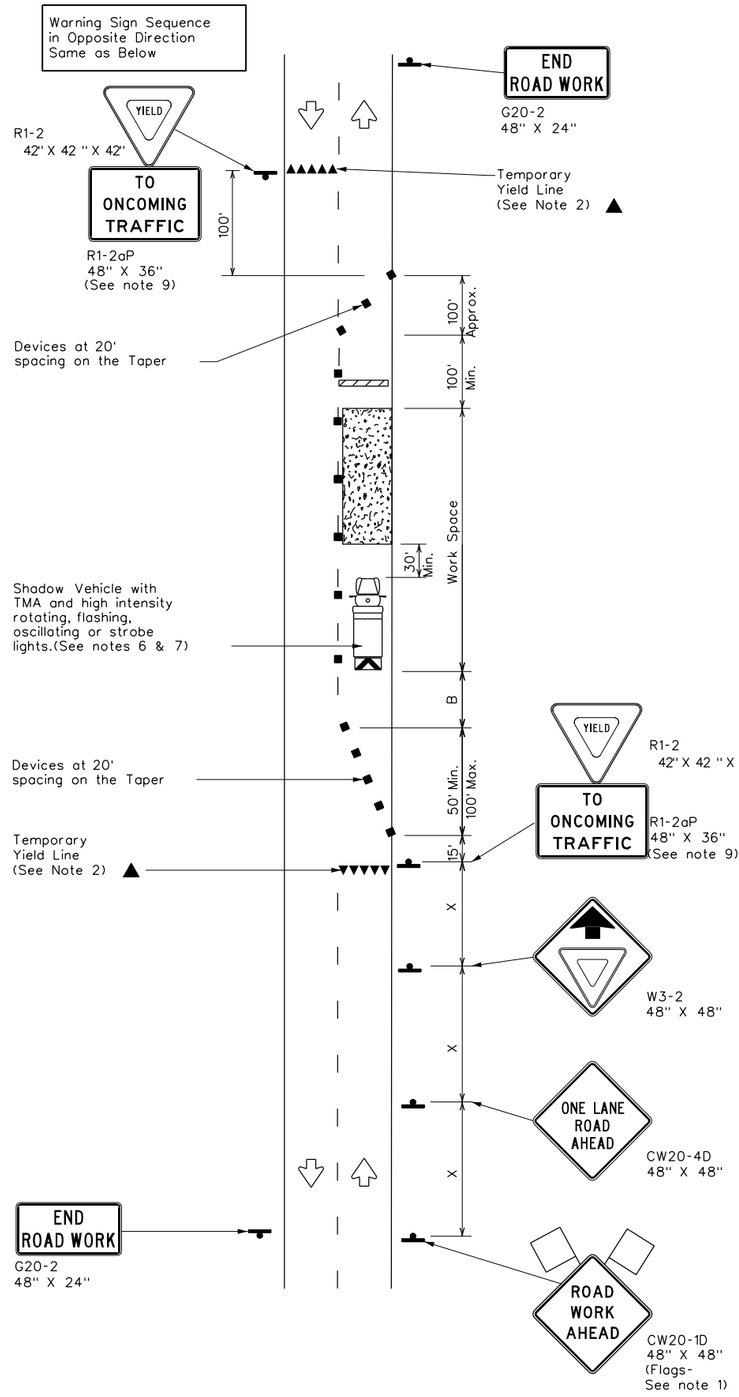
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

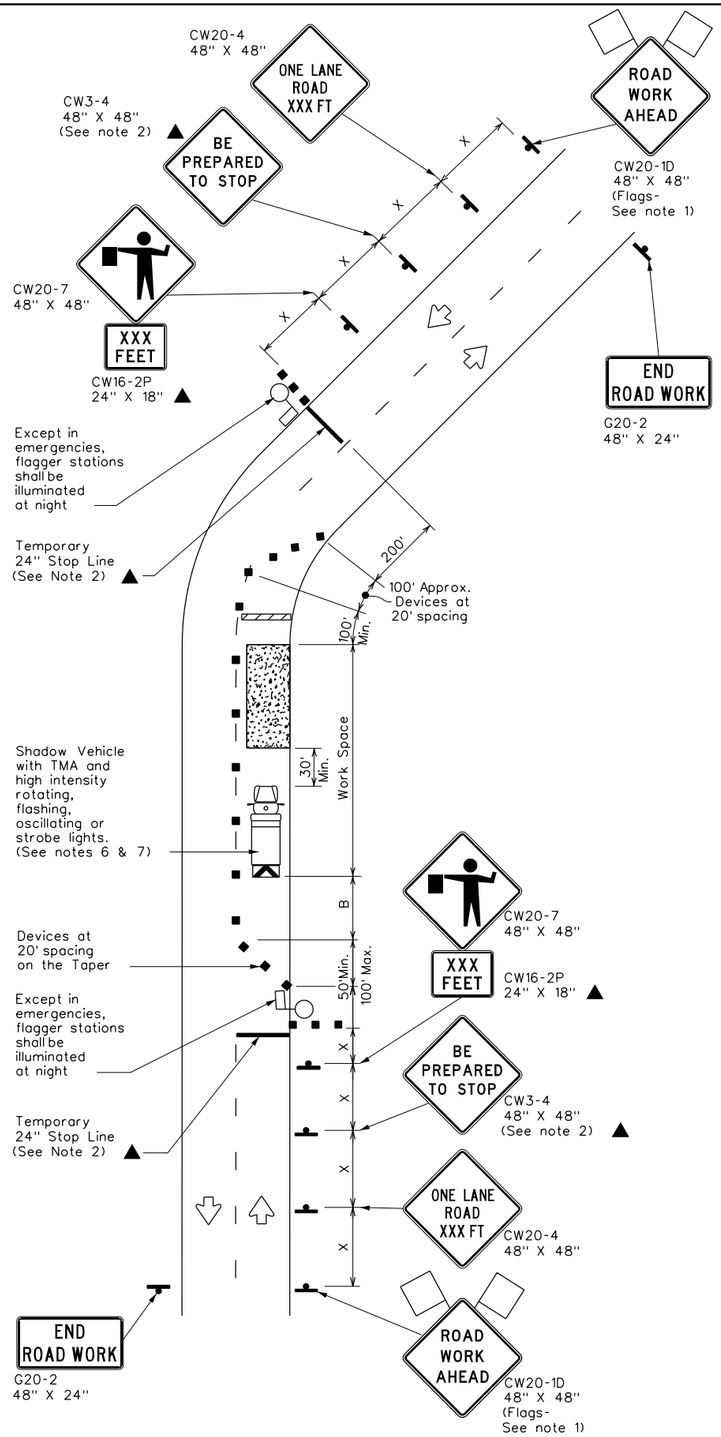
TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12				
1-97 2-18	DAL	COLLIN		18

DATE:
FILE:



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.

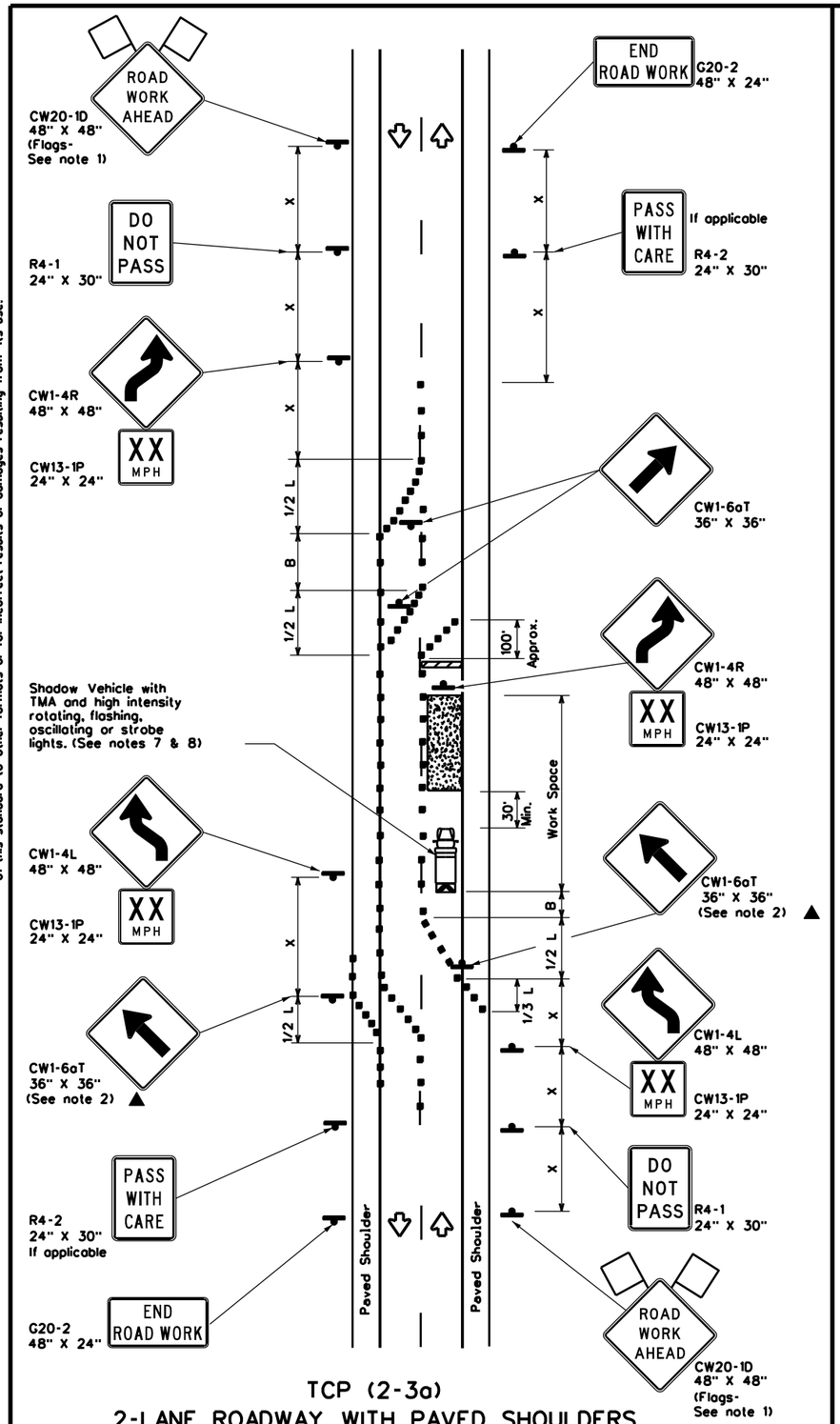
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(2-2)-18

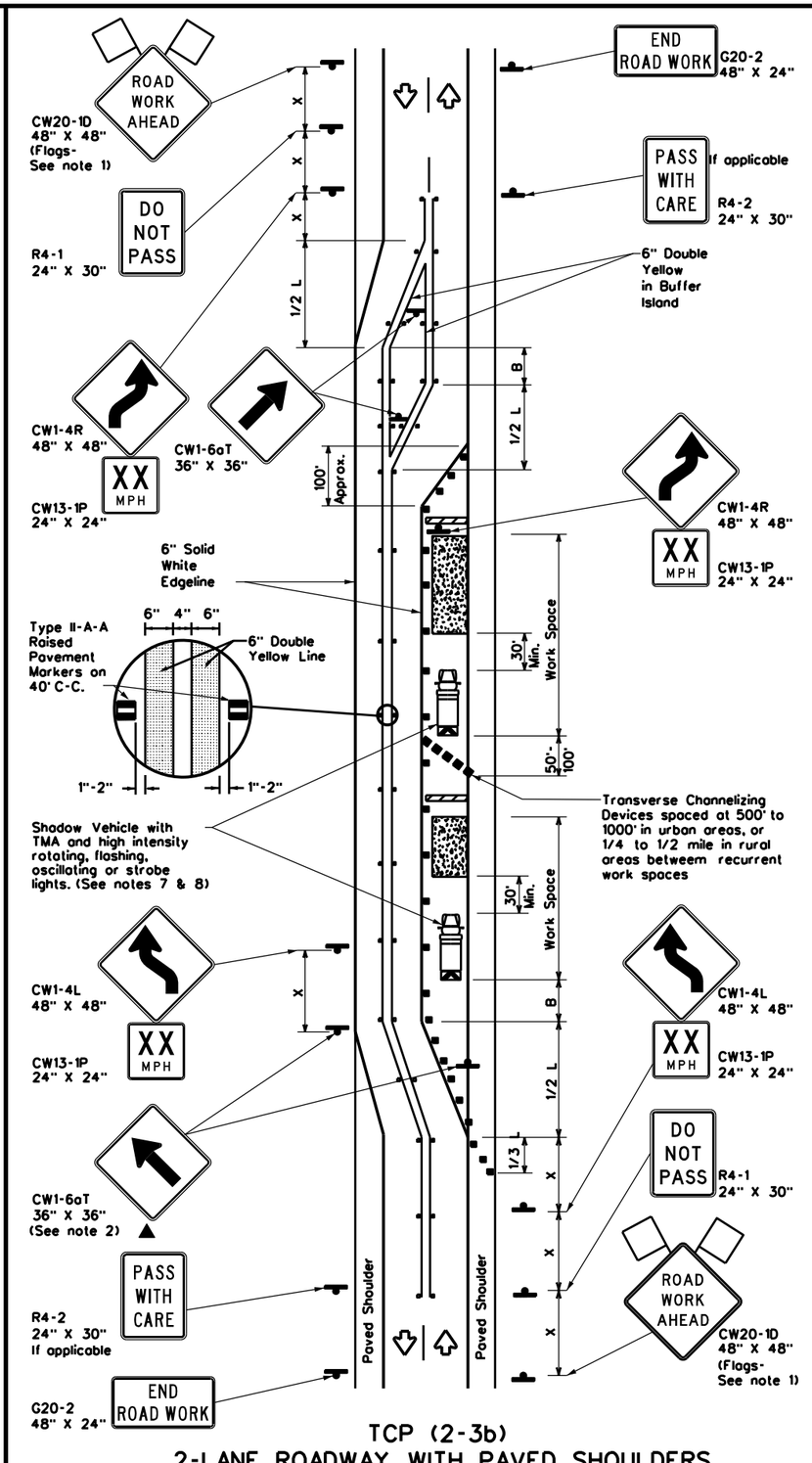
FILE: tcp2-2-18.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	6463	78	001	US0075
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	DAL	COLLIN		19

DATE:
FILE:



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

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



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

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND

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

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

* Conventional Roads Only

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

TYPICAL USAGE

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

GENERAL NOTES

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

TCP (2-3a)

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

Texas Department of Transportation

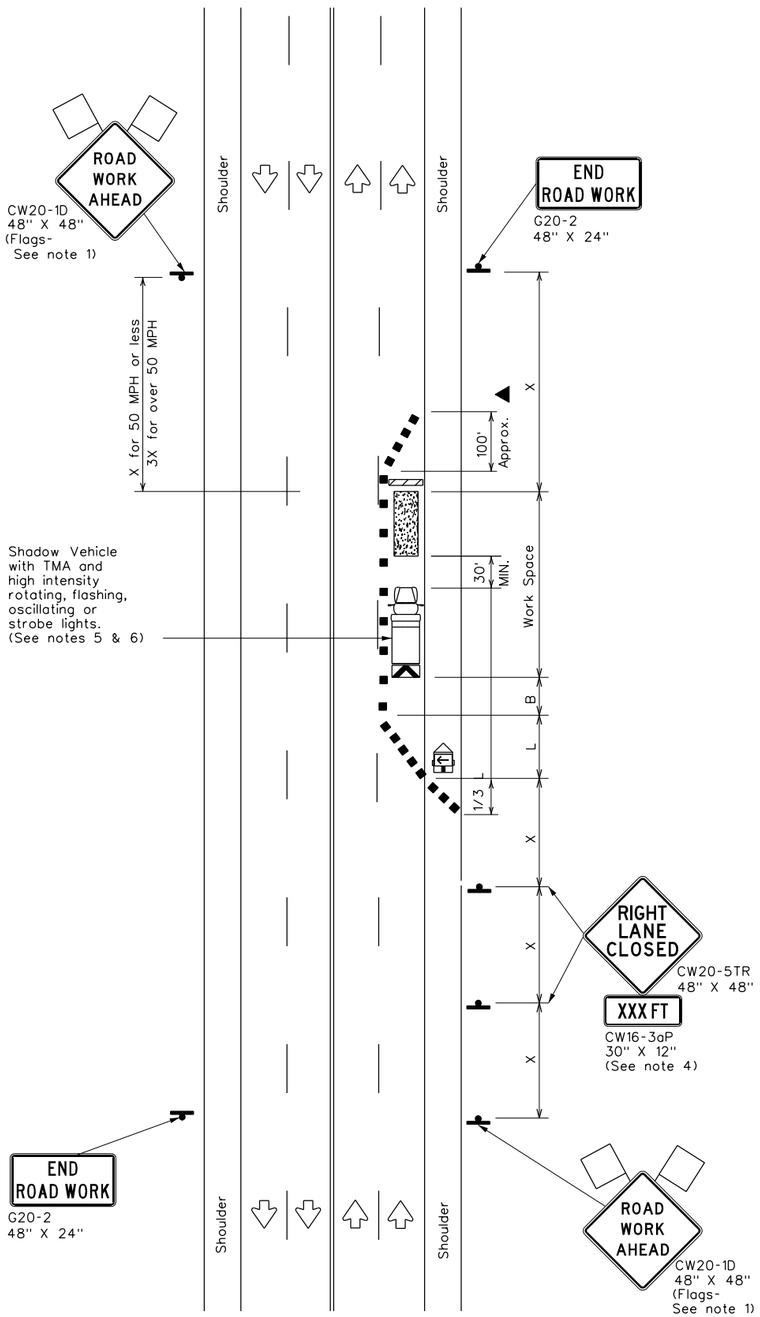
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP(2-3)-23

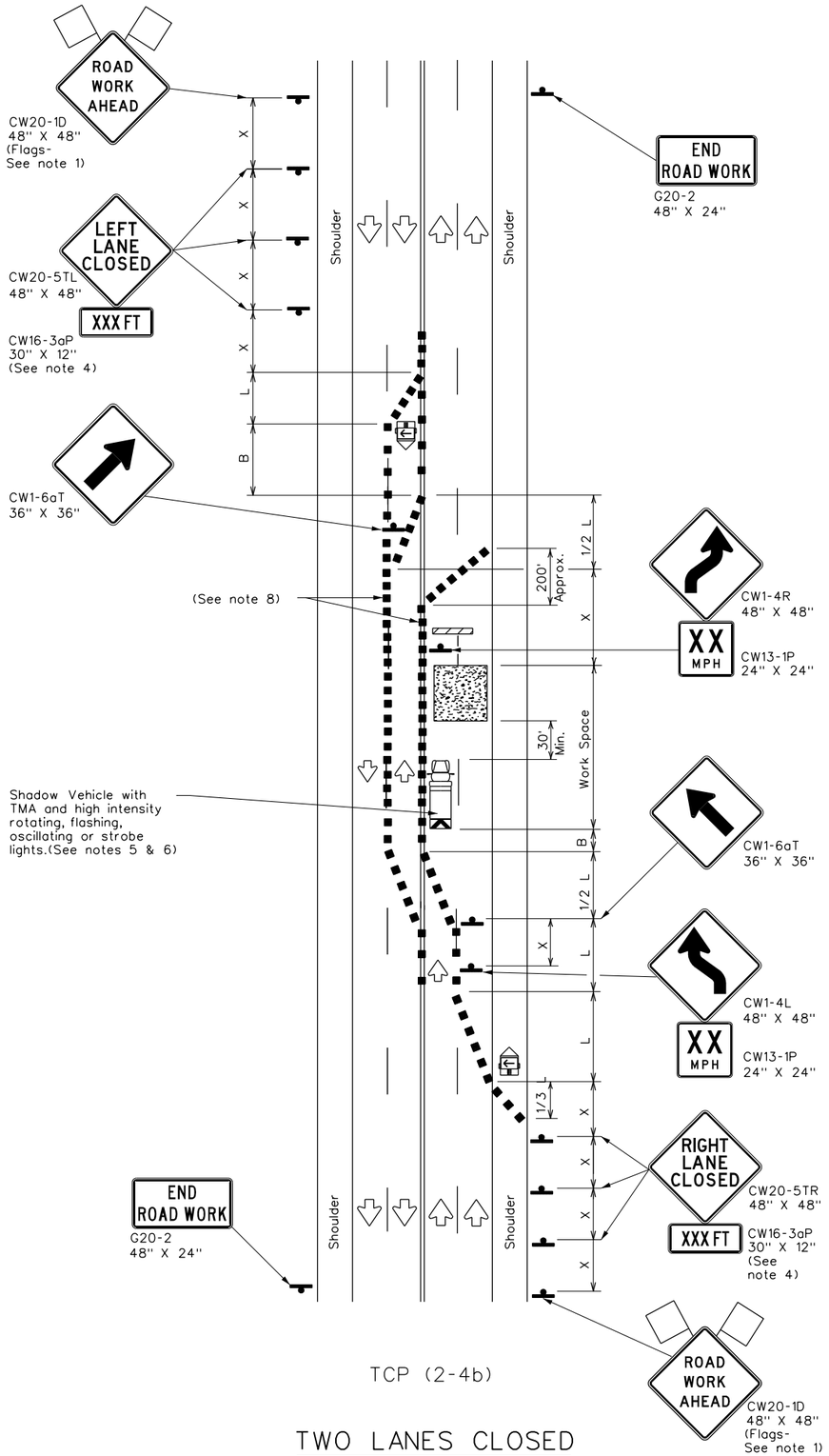
FILE: tcp(2-3)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-85 4-98 2-18 8-95 3-03 4-23 1-97 2-12	6463	78	001	US0075
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		20

DATE:
FILE:



TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

TCP (2-4a)

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

TCP (2-4b)

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

Texas Department of Transportation

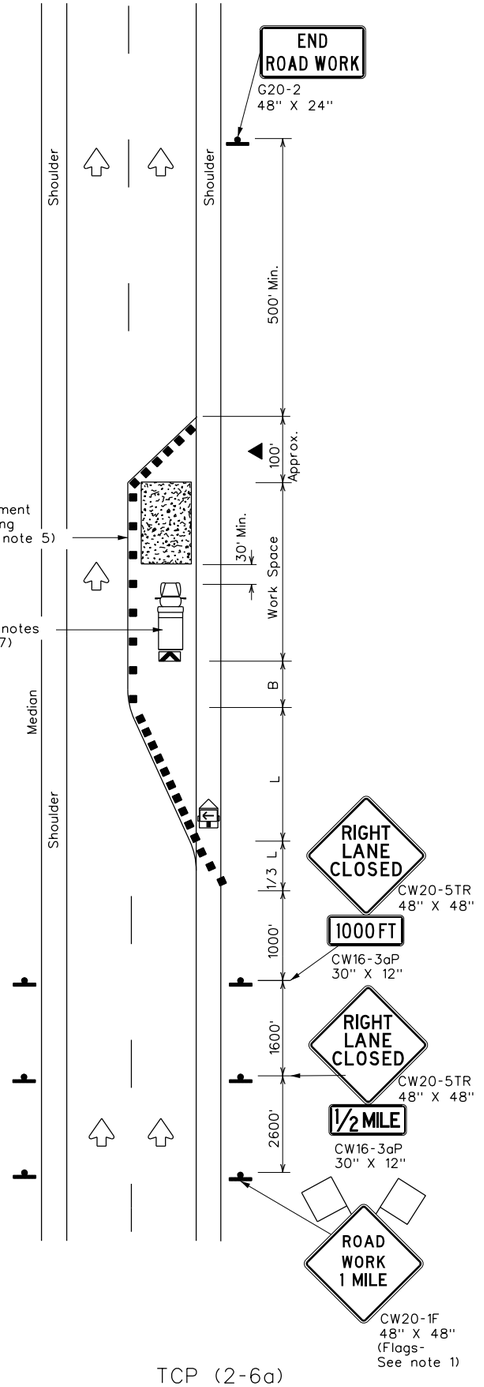
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

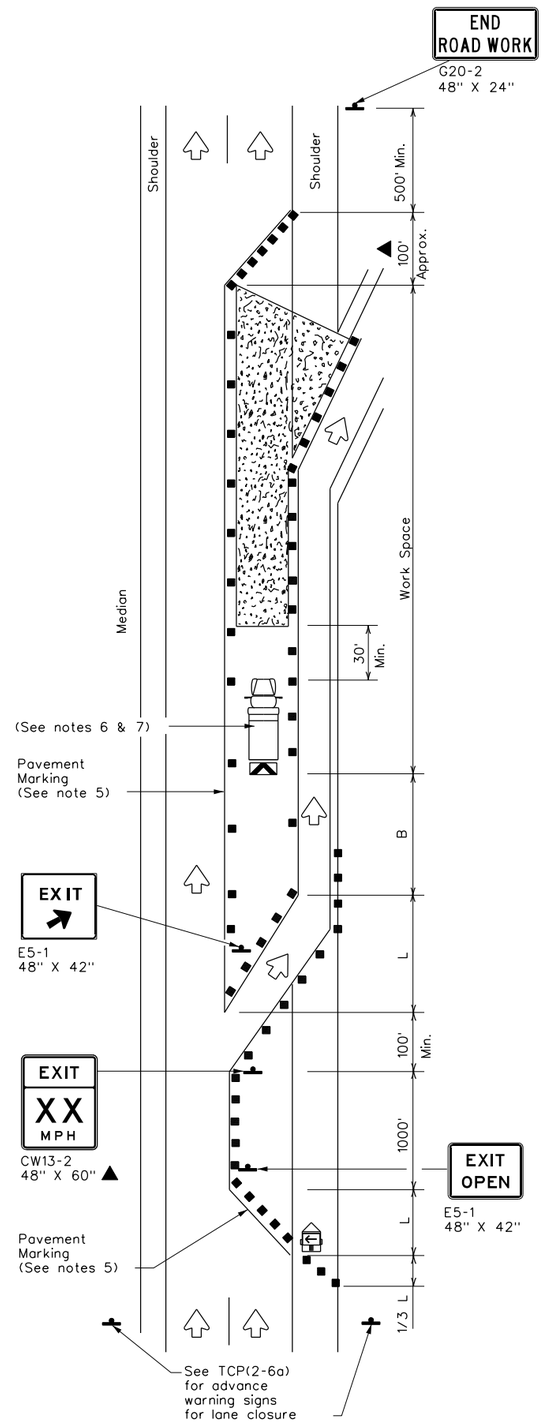
FILE: tcp2-4-18.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	6463	78	001	US0075
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	DAL	COLLIN		21

DATE:
FILE:



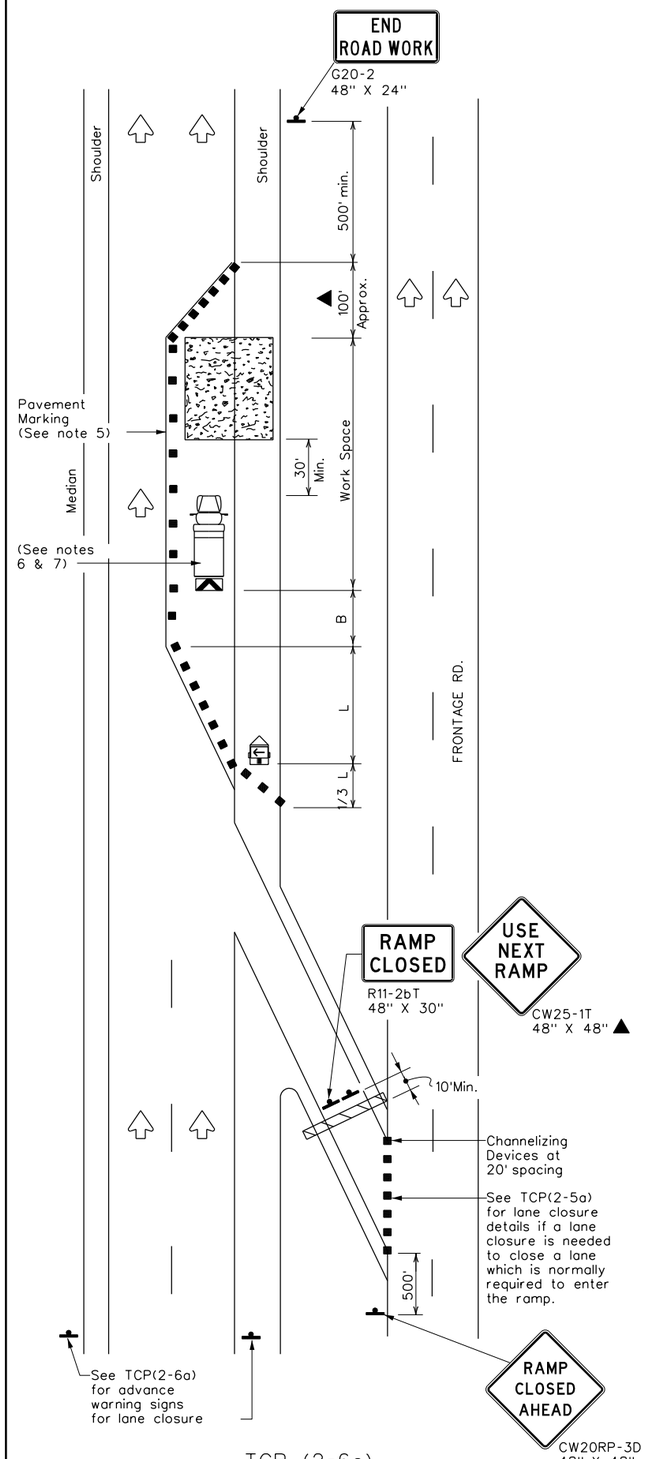
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

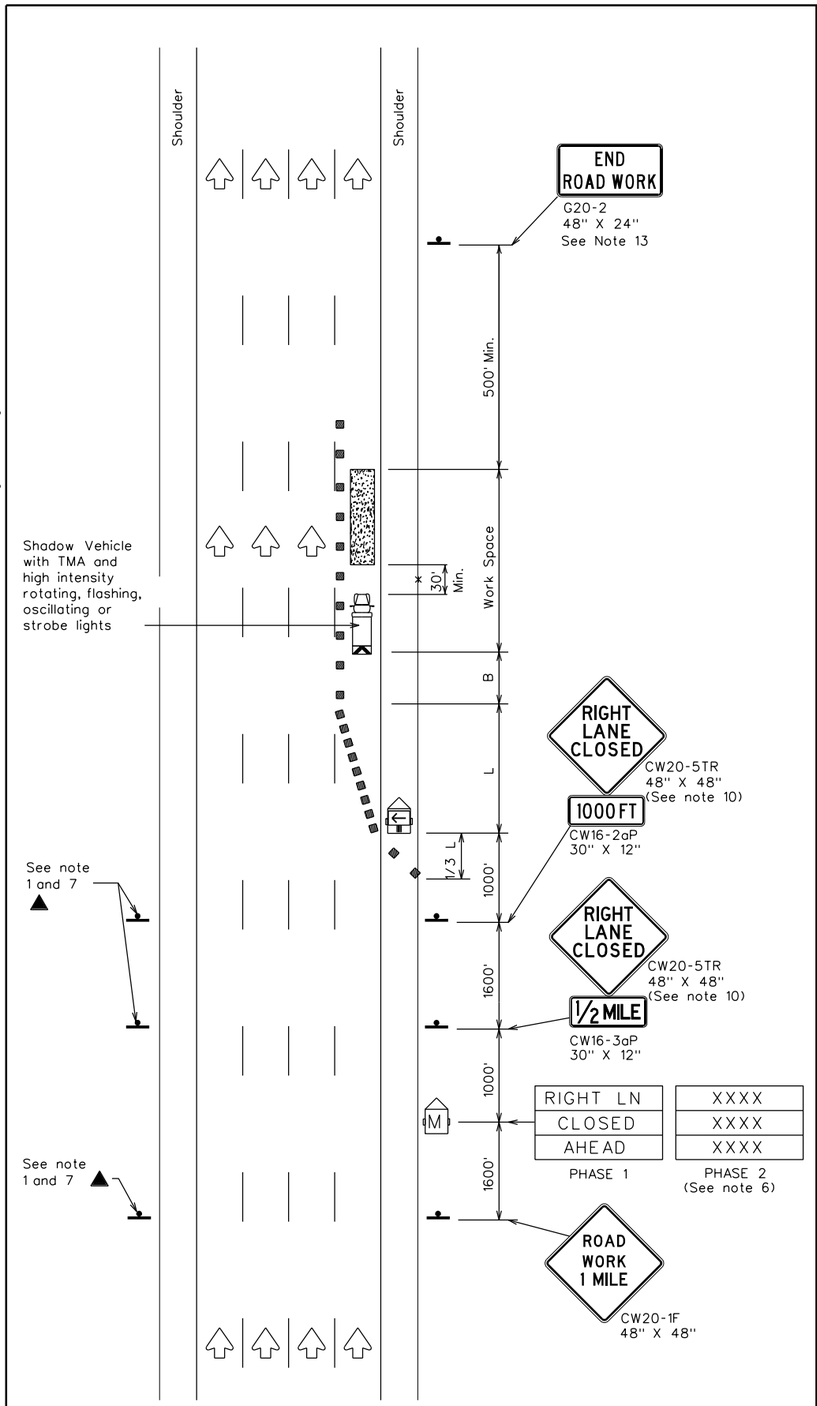
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

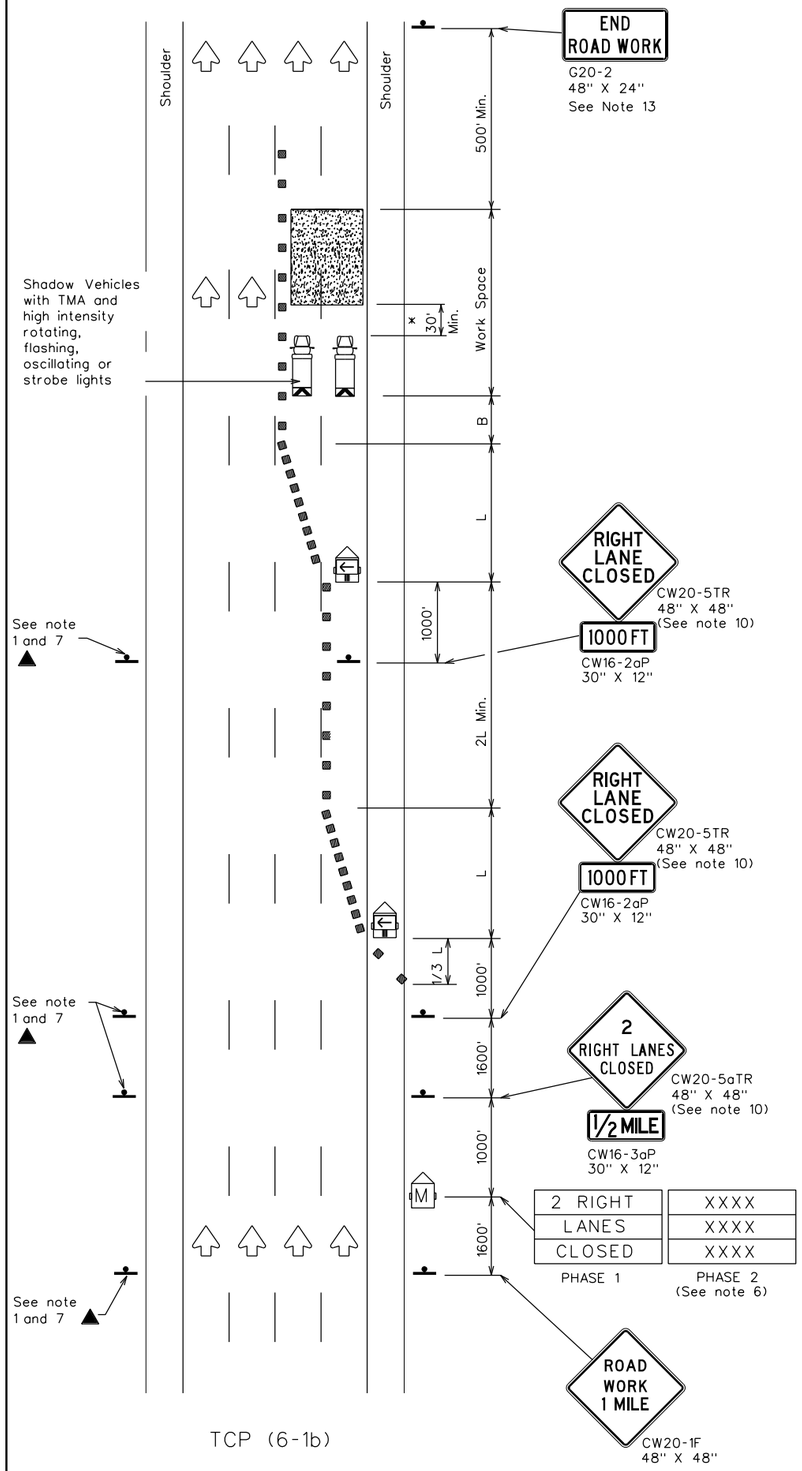
FILE: tcp2-6-18.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	646378		001	US0075
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	DAL	COLLIN		22
1-97 2-18				

DATE:
FILE:



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.

x 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

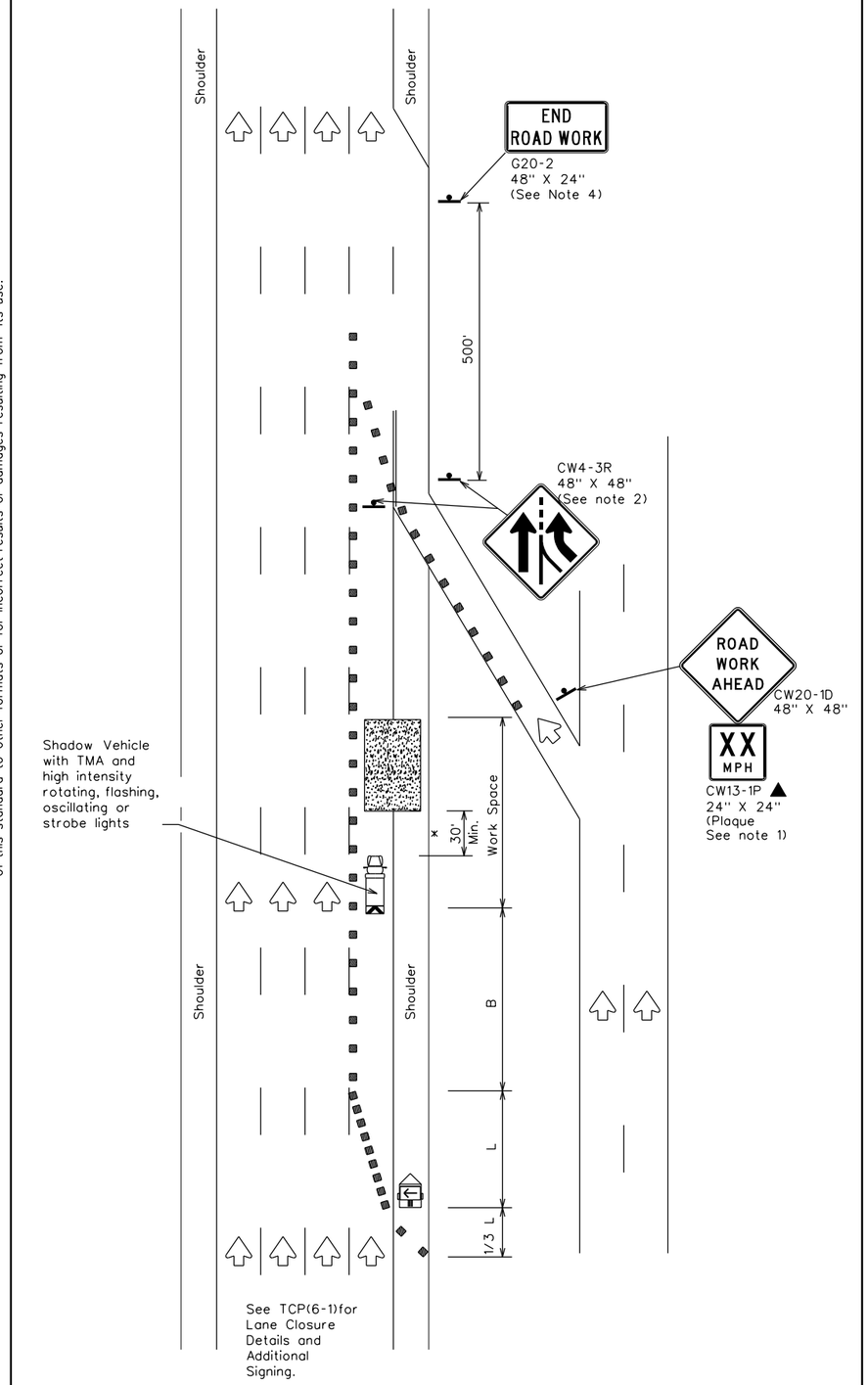
TRAFFIC CONTROL PLAN FREEWAY LANE CLOSURES

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	6463	78	001	US0075
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		23

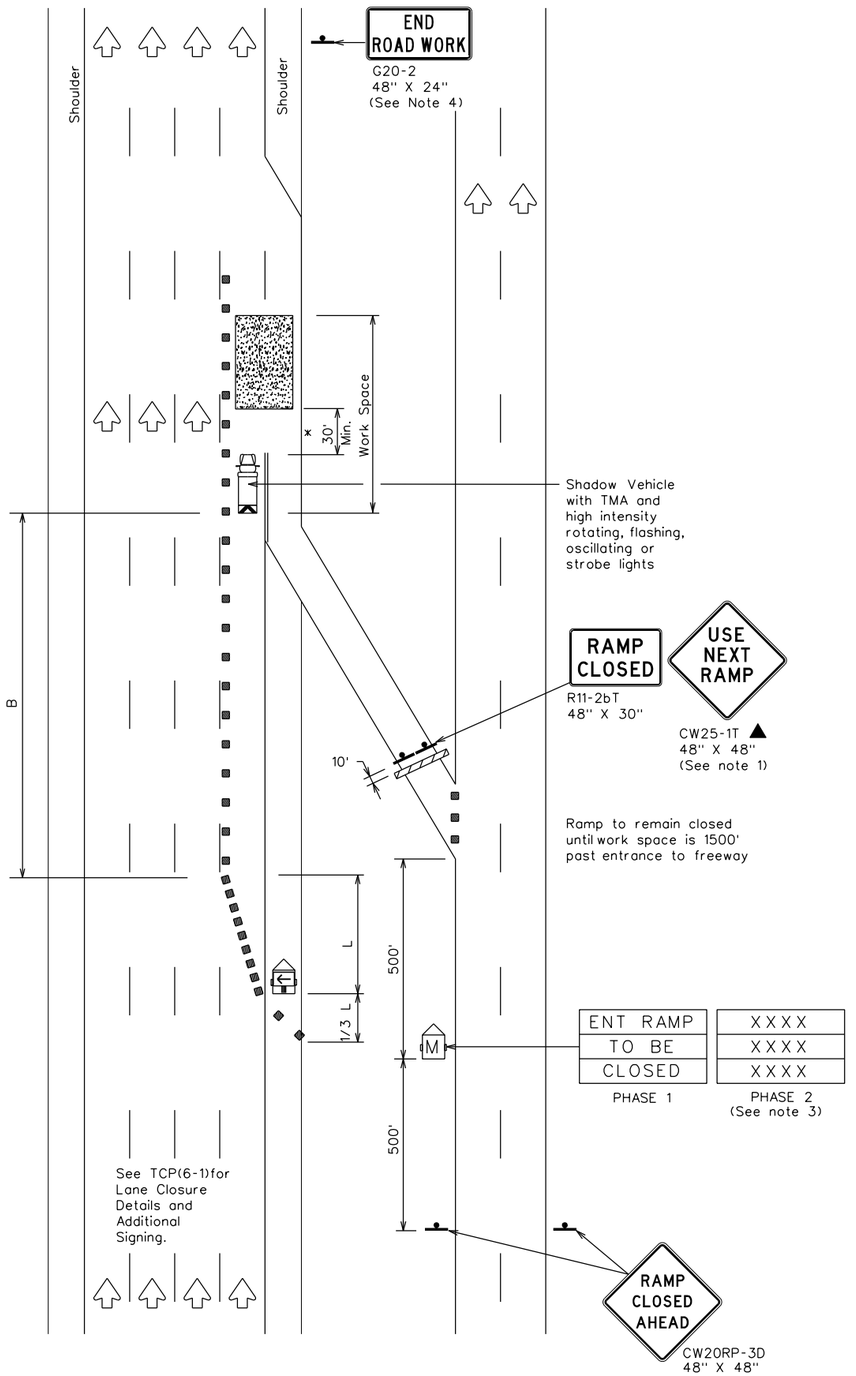
201

DATE:
FILE:



TCP (6-2a)

ENTRANCE RAMP OPEN
WORK WITHIN 500' OF RAMP



TCP (6-2b)

ENTRANCE RAMP CLOSED

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "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. ADDED LANE Symbol (CW4-3) sign may be omitted when sign between ramp and mainlane can be seen from both roadways.
3. See "Advance Notice List" on BC(6) for recommended date and time formatting options for PCMS Phase 2 message.
4. 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.

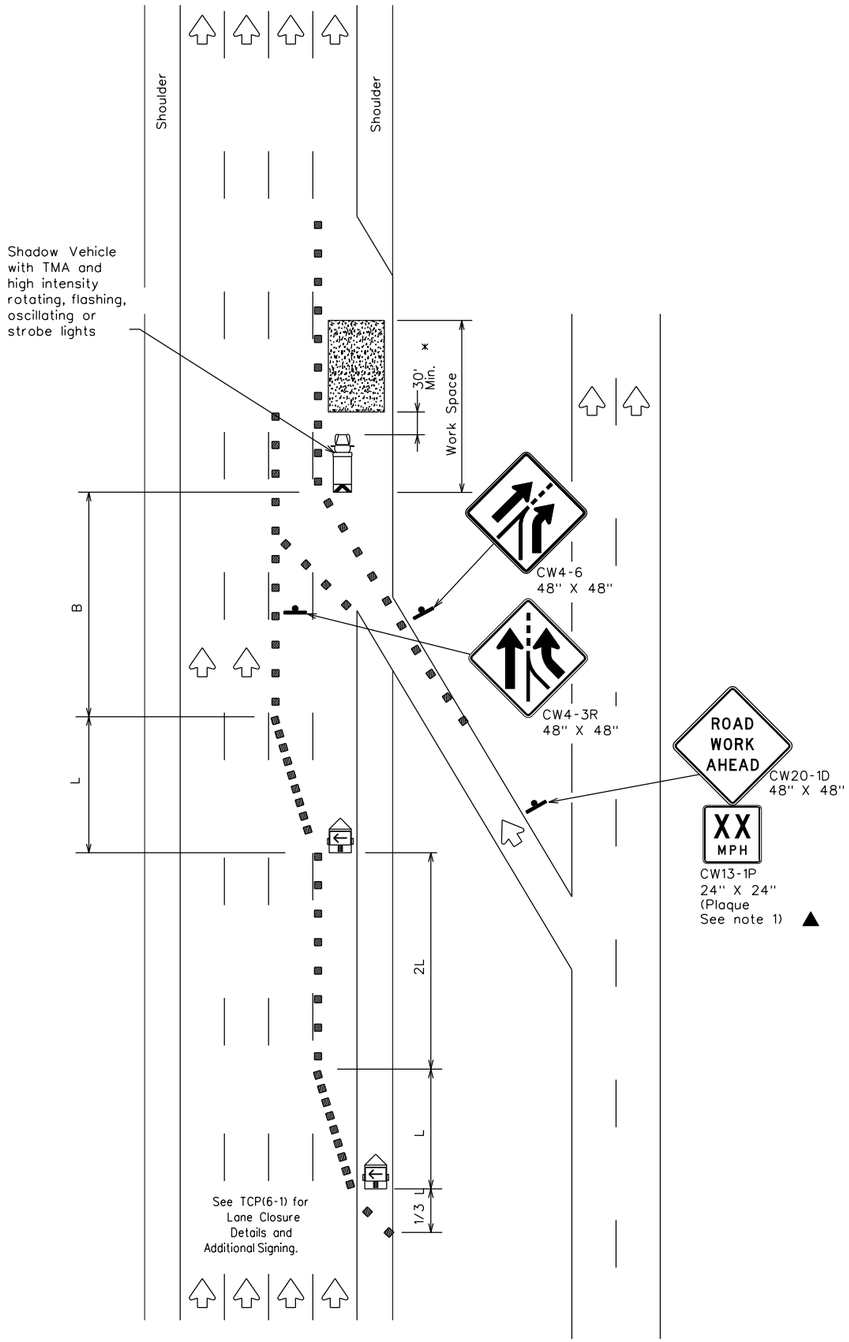
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA NEAR RAMP

TCP(6-2)-12

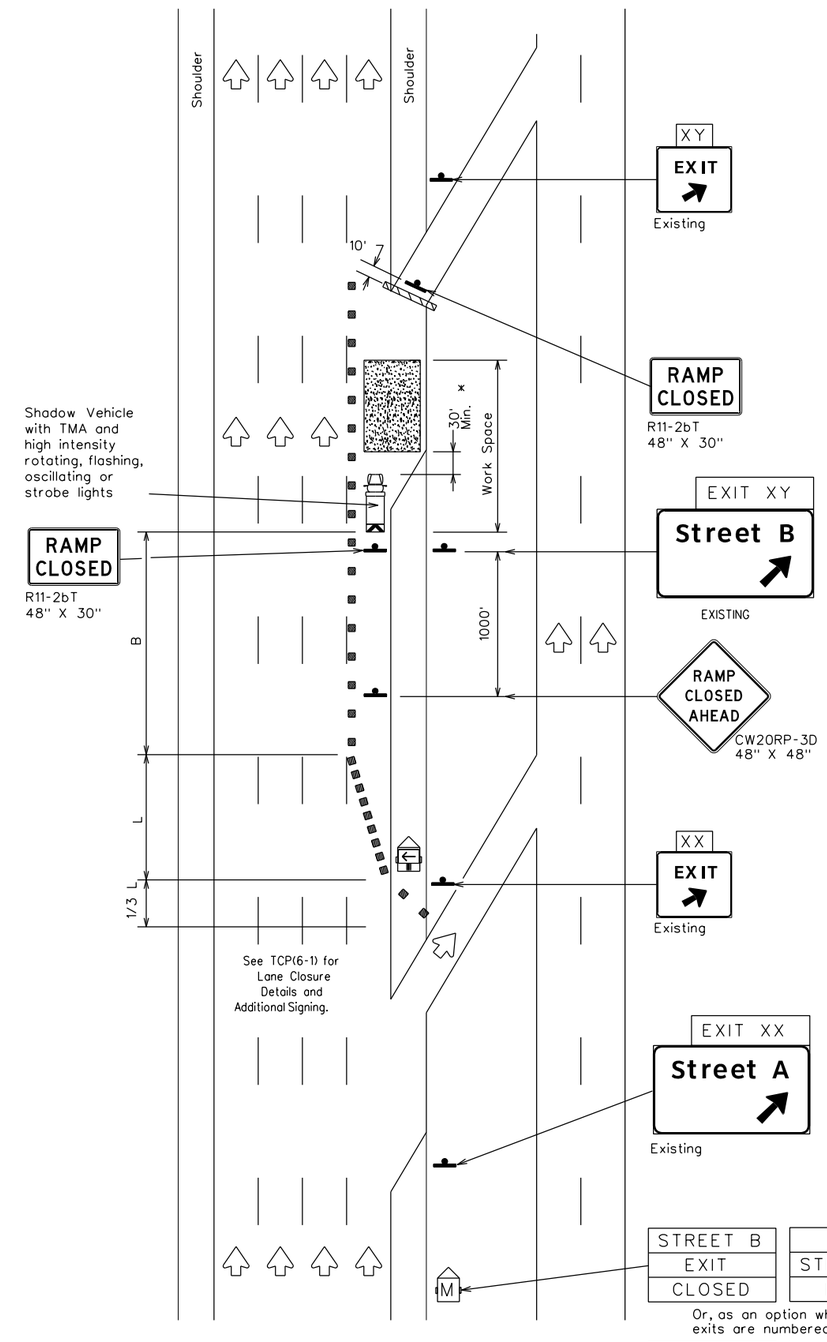
FILE: tcp6-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	DAL	COLLIN		24

202



TCP (6-3a)

ENTRANCE RAMP OPEN



TCP (6-3b)

EXIT RAMP CLOSED

TRAFFIC EXITS PRIOR TO CLOSED RAMP

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.

* 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

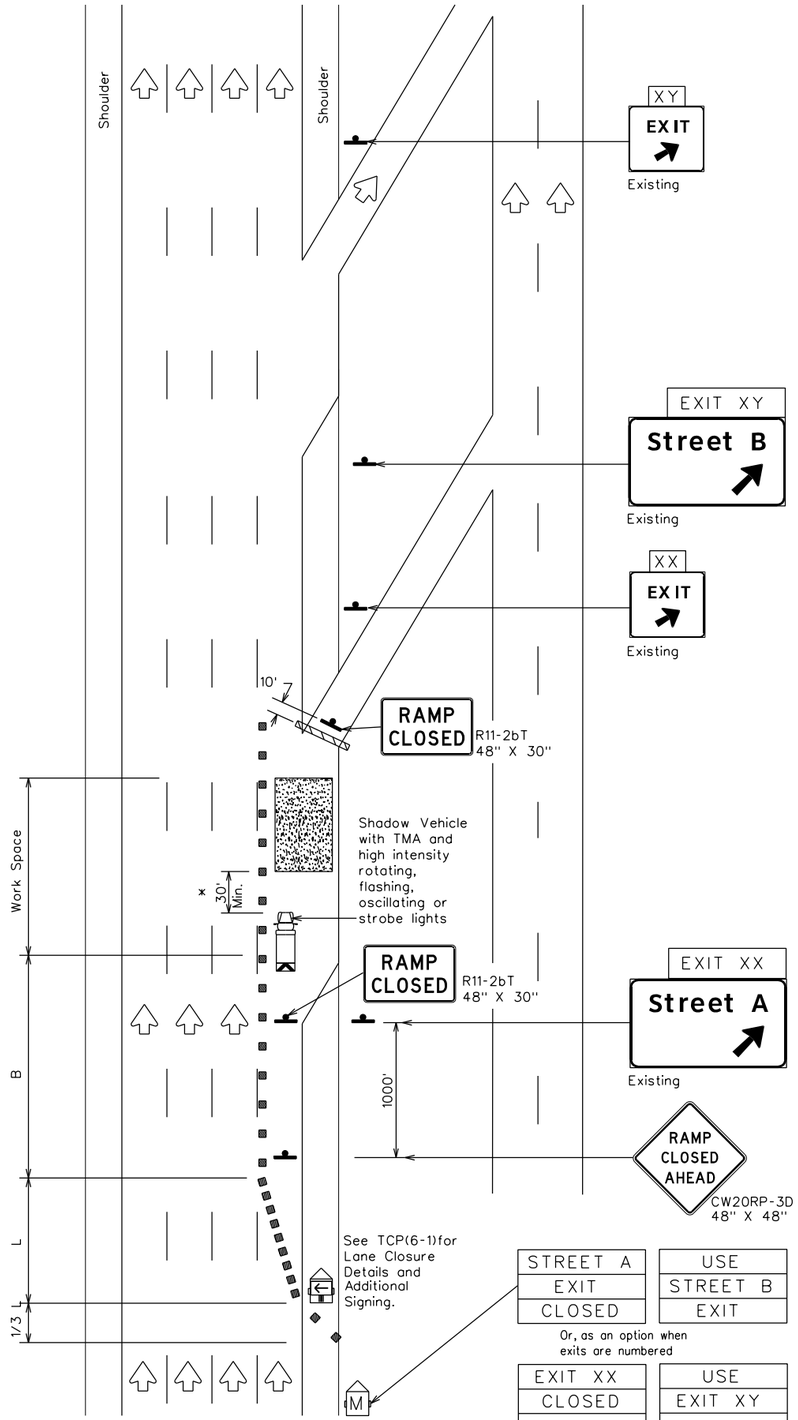
TRAFFIC CONTROL PLAN
WORK AREA BEYOND RAMP

TCP(6-3)-12

FILE: tcp6-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	DAL	COLLIN		25

DATE:
FILE:

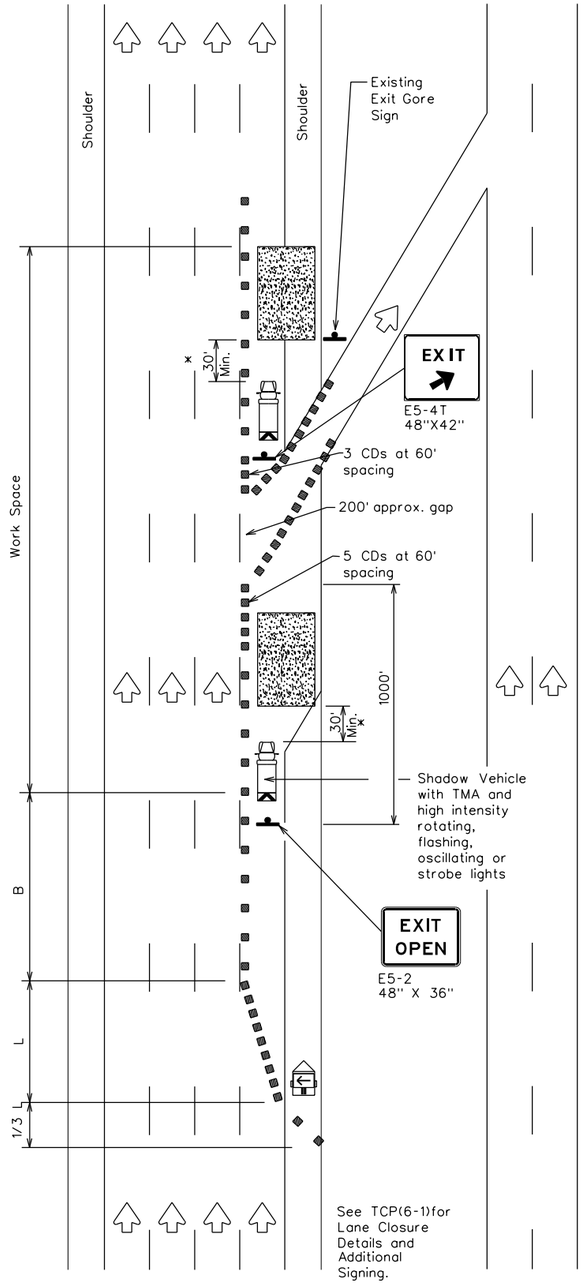
DATE:
FILE:



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 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. 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.

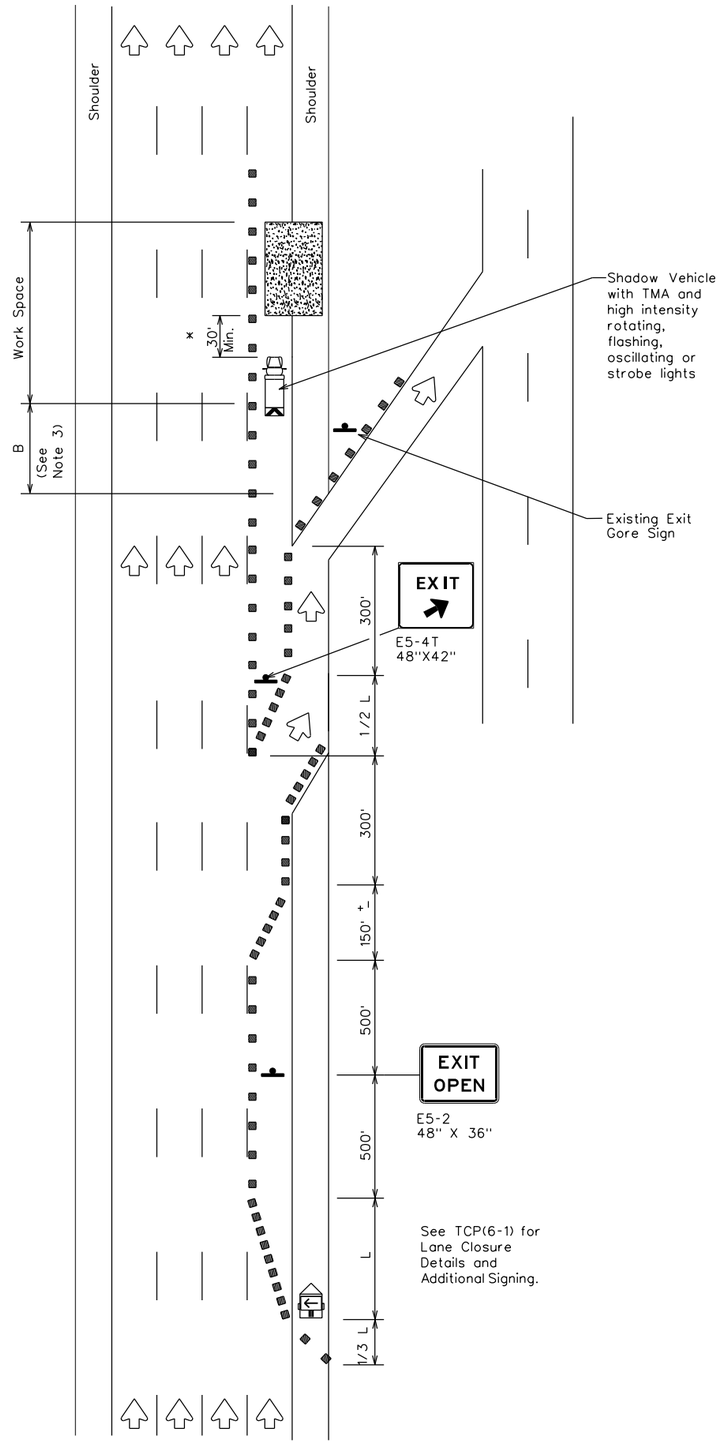
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA AT EXIT RAMP

TCP(6-4)-12

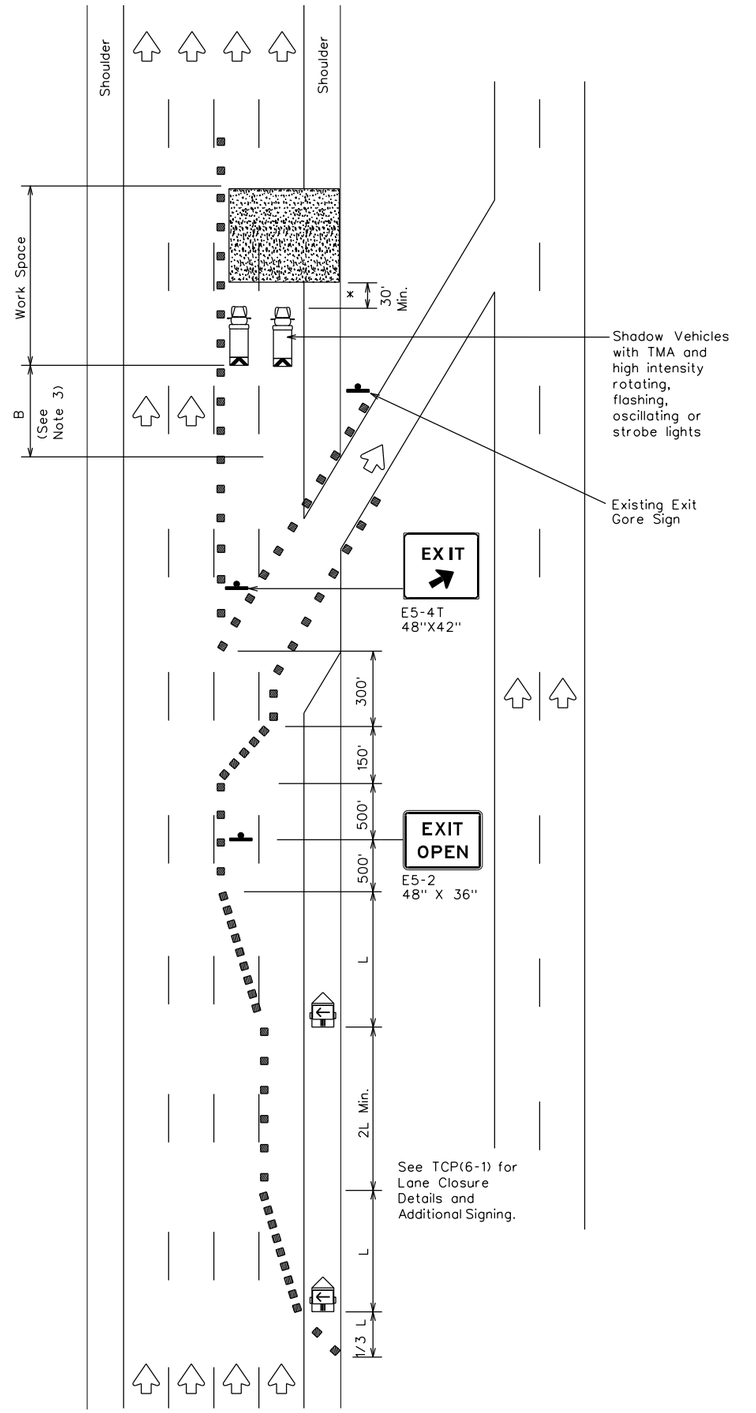
FILE: tcp6-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Feburary 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	DAL	COLLIN		26

DATE:
FILE:



TCP (6-5a)

EXIT RAMP OPEN



TCP (6-5b)

EXIT RAMP OPEN
TWO LANE CLOSURE WITHIN 1500' PAST EXIT RAMP

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" * *			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
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.
3. If adequate longitudinal buffer length "B" does not exist between the work space and the exit ramp, consideration should be given to closing the ramp.

* 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

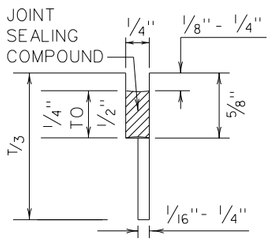
TRAFFIC CONTROL PLAN
WORK AREA BEYOND EXIT RAMP

TCP(6-5)-12

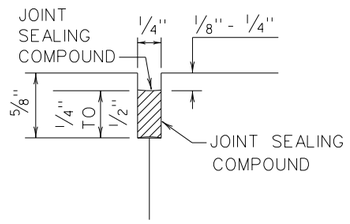
FILE: tcp6-5.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Feburary 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	DAL	COLLIN		27

DATE:
FILE:

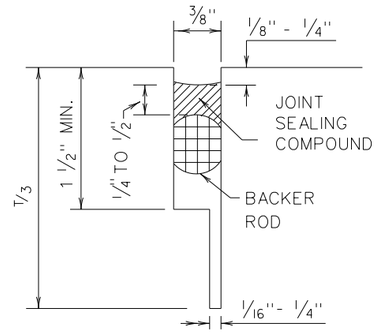
METHOD B: JOINT SEALING COMPOUND



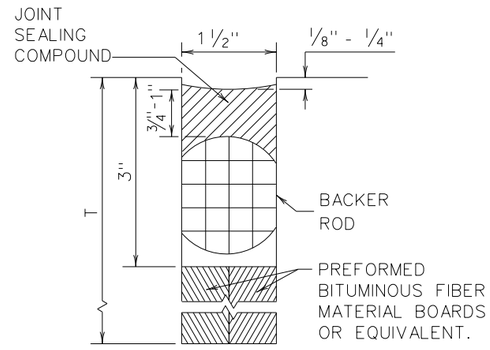
LONGITUDINAL SAWED CONTRACTION JOINT



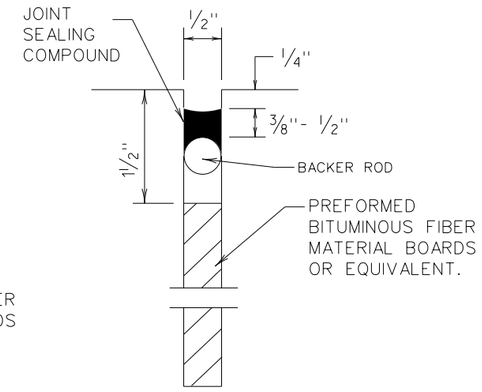
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT

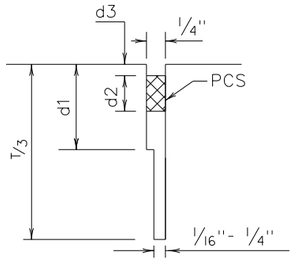


TRANSVERSE FORMED EXPANSION JOINT

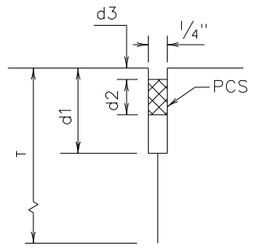


FORMED ISOLATION JOINT

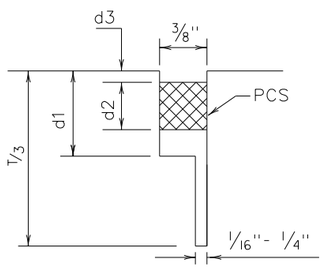
METHOD A: PREFORMED COMPRESSION SEALS (PCS)(DMS-6310 CLASS 6)



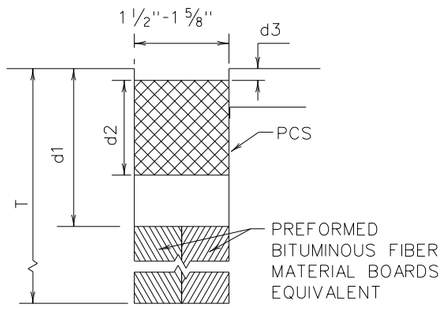
LONGITUDINAL SAWED CONTRACTION JOINT



LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT



TRANSVERSE FORMED EXPANSION JOINT

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
2. THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
3. THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
4. DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
5. REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
6. FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
7. FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4,5,7,OR 8 FOR MAINTAINING EXISTING JOINTS.
8. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
9. ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.

Texas Department of Transportation | Design Division Standard

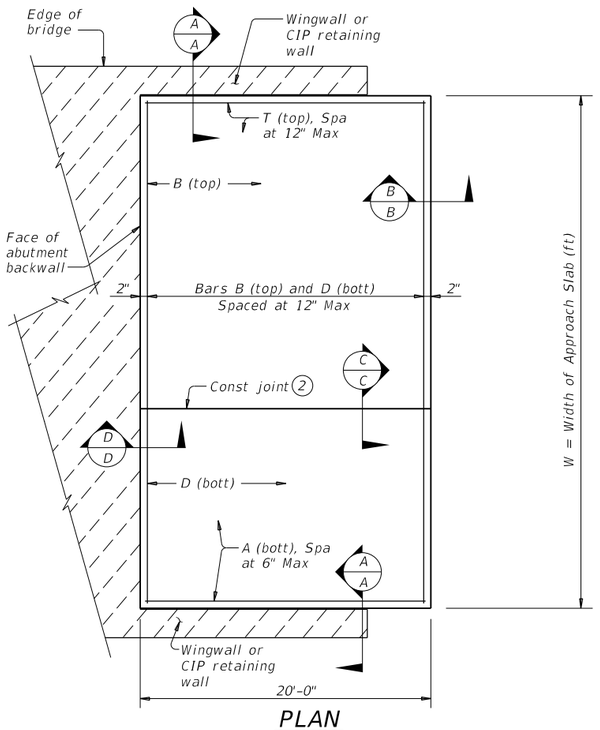
CONCRETE PAVING DETAILS

JOINT SEALS

JS-14

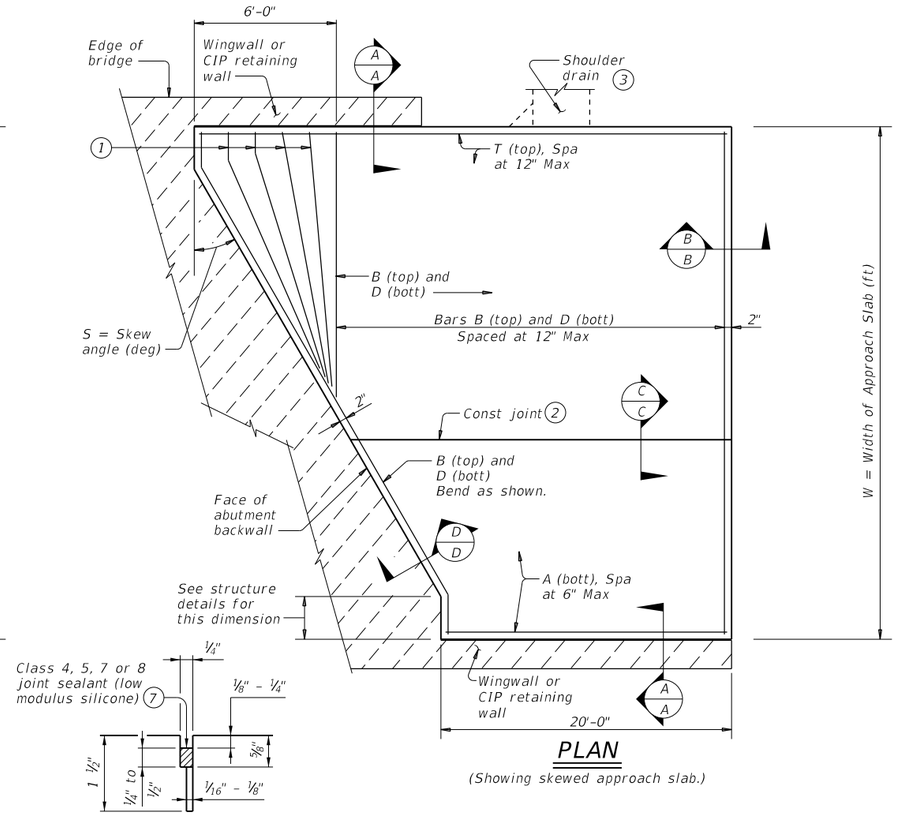
FILE: js14.dgn	DN: TxDOT	DN: HC	DW: HC	CK: AN
©TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	646378		001	US0075
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		28

DATE:
FILE:



PLAN

(Showing non-skewed approach slab.)



PLAN

(Showing skewed approach slab.)

BAR TABLE

BAR	SIZE
A	#8
B	#5
D	#5
T	#5

APPROXIMATE QUANTITIES (4)

Reinf steel weight = 8.5 Lbs/SF of Approach Slab

Volume of Appr Slab Conc (CY) = $0.802W + 0.02W^2 \tan S$

W = Width of Approach Slab (ft)

S = Skew Angle (deg)

(1) Flare Bars B and D in this region (1'-6" Max Spa, 3" Min Spa). Minimum flared bar length = 2'-6". Bend bars as necessary.

(2) Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.

(3) See details elsewhere in plans for shoulder drain location and details.

(4) For Contractor's information only. Quantities shown are for one approach slab.

(5) Multiple piece tie bars are acceptable at longitudinal construction joints provided minimum laps shown are achieved.

(6) See details elsewhere in plans for required cross-slope.

(7) Place in accordance with Item 438.

(8) Provide backer rod that is 25% larger than joint opening and compatible with the sealant.

(9) If bridge rail is present at the wingwall or CIP retaining wall, place ½" rebonded recycled tire rubber between concrete railing and top of approach slab as shown when concrete railing projects over the approach slab.

GENERAL NOTES:

Construct approach slab in accordance with Item 422.

Provide Class "S" concrete with a minimum compressive strength of 4,000 psi.

Provide Grade 60 reinforcing steel.

Provide longitudinal joints as shown on the Longitudinal Saw Cut Joint Detail at lane lines and shoulders when width between longitudinal construction joints or edges of approach slab exceeds 16 feet. Saw cut joints within 24 hours of concrete placement to a depth of 1 ½" and seal in accordance with Item 438. Alternately, provide a controlled joint consisting of 1 ½" vinyl or plastic joint former (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

Provide rebonded recycled tire rubber joint filler that meets the requirements of DMS-6310. "Joint Sealants and Fillers."

Construct the subgrade or subbase away from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.

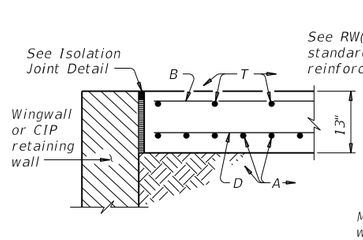
Compact and finish the subgrade or foundation for the approach slab to the typical cross-section and to the lines and grades shown on the plans.

Cure for 4 days using water or membrane curing per Item 422.

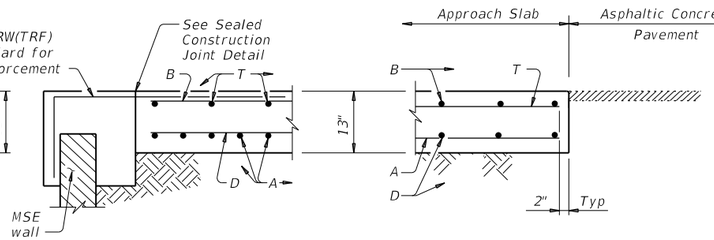
All details shown herein are subsidiary to bridge approach slab.

Cover dimensions are clear dimensions, unless noted otherwise.

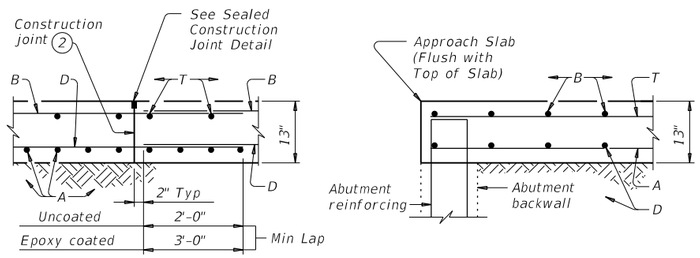
LONGITUDINAL SAW CUT JOINT DETAIL



SHOWING WINGWALL OR CIP RETAINING WALL



SHOWING MSE WALL

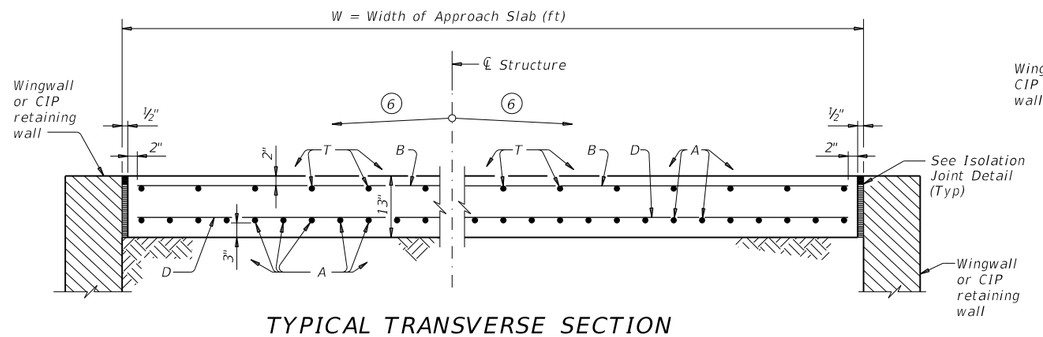


SECTION C-C (5)

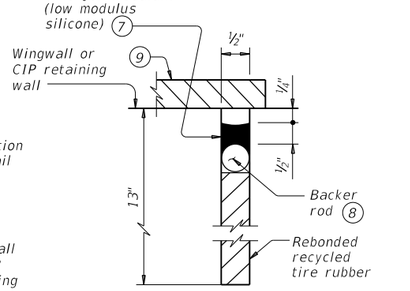
SECTION D-D

SECTION A-A

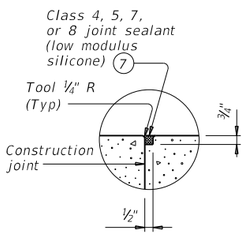
SECTION B-B



TYPICAL TRANSVERSE SECTION



ISOLATION JOINT DETAIL



SEALED CONSTRUCTION JOINT DETAIL

Texas Department of Transportation

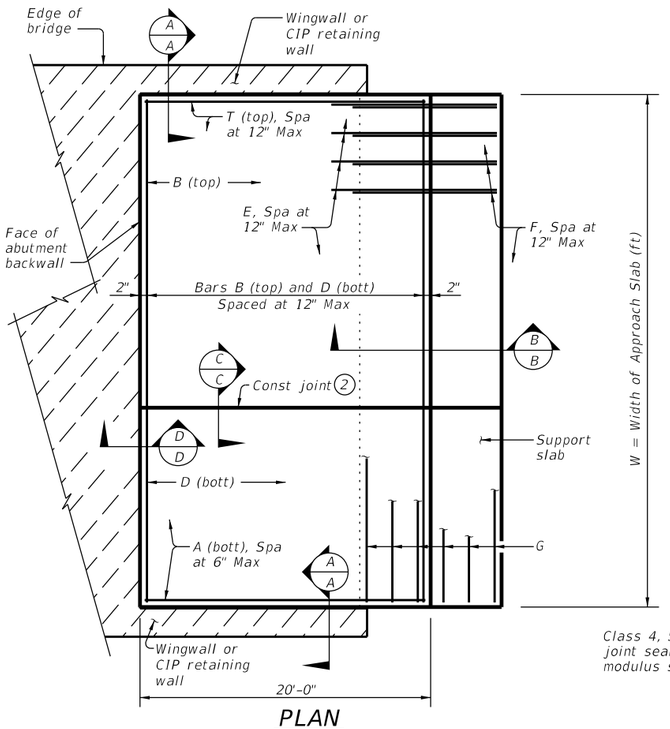
Bridge Division Standard

BRIDGE APPROACH SLAB

ASPHALTIC CONCRETE PAVEMENT

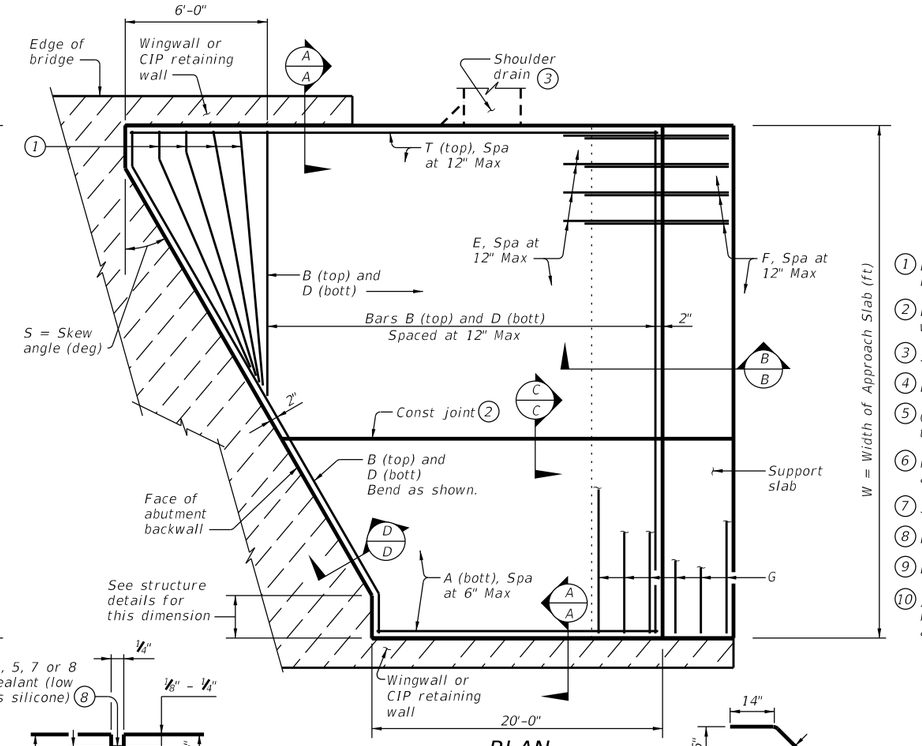
BAS-A

FILE: basaste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
02-20: Removed stress relieving pad.	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		29



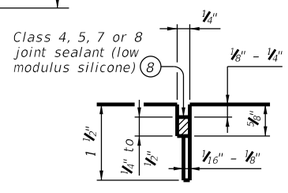
PLAN

(Showing non-skewed approach slab.)

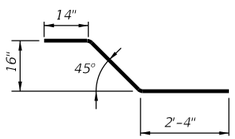


PLAN

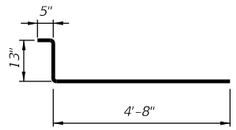
(Showing skewed approach slab.)



LONGITUDINAL SAW CUT JOINT DETAIL



BARS E (#5)



BARS F (#5)

BAR TABLE	
BAR	SIZE
A	#8
B	#5
D	#5
E	#5
F	#5
G	#5
T	#5

APPROXIMATE QUANTITIES (4)

Reinf steel weight = 8.5 Lbs/SF of Approach Slab
= 18.4 Lbs/LF of Support Slab

Vol of Appr Slab Conc (CY) = 1.057W – 0.008W x T + 0.02W² Tan S
(Includes Support Slab)

W = Width of Approach Slab (ft)

T = Conc Pavement Thickness (in)

S = Skew Angle (deg)

(1) Flare Bars B and D in this region (1'-6" Max Spa, 3" Min Spa). Minimum flared bar length = 2'-6". Bend bars as necessary.

(2) Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.

(3) See details elsewhere in plans for shoulder drain location and details.

(4) For Contractor's information only. Quantities shown are for one approach slab only.

(5) On portion of support slab that supports the concrete pavement, adjust top surface elevation, if required, to accommodate concrete pavement thickness. Smooth trowel finish. Place two layers of 30# roofing felt.

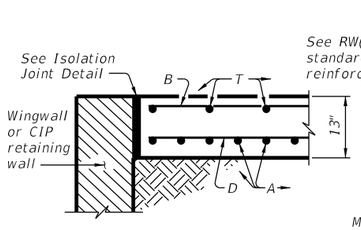
(6) Multiple piece tie bars are acceptable at longitudinal construction joints provided minimum laps shown are achieved.

(7) See details elsewhere in plans for required cross-slope.

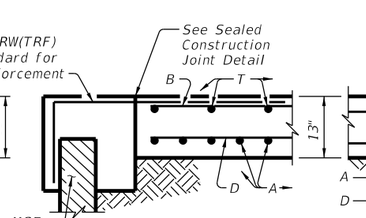
(8) Place in accordance with Item 438.

(9) Provide backer rod that is 25% larger than joint opening and compatible with the sealant.

(10) If bridge rail is present at the wingwall or CIP retaining wall, place ½" rebonded recycled tire rubber between concrete railing and top of approach slab as shown when concrete railing projects over the approach slab.

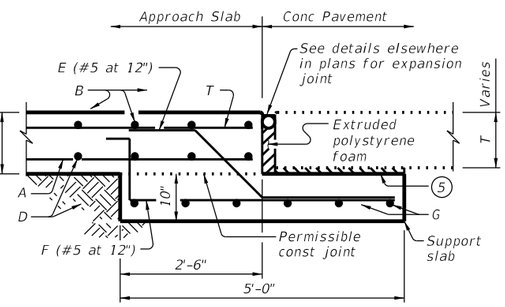


SHOWING WINGWALL OR CIP RETAINING WALL

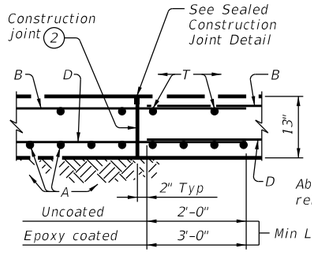


SHOWING MSE WALL

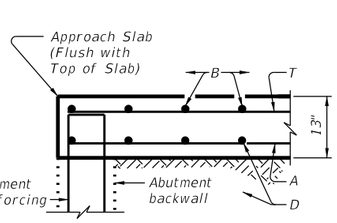
SECTION A-A



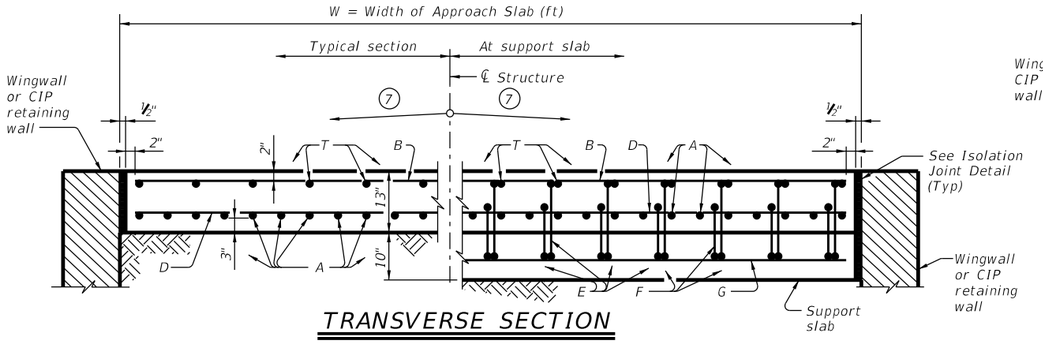
SECTION B-B



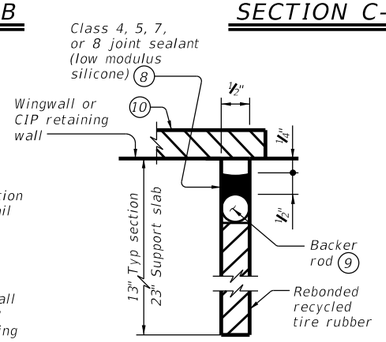
SECTION C-C (6)



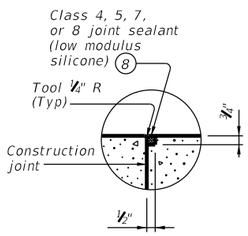
SECTION D-D



TRANSVERSE SECTION



ISOLATION JOINT DETAIL



SEALED CONSTRUCTION JOINT DETAIL

GENERAL NOTES:

Construct approach slab in accordance with Item 422.

Provide Class "S" concrete with a minimum compressive strength of 4,000 psi.

Provide Grade 60 reinforcing steel.

Provide longitudinal joints as shown on the Longitudinal Saw Cut Joint Detail at lane lines and shoulders when width between longitudinal construction joints or edges of approach slab exceeds 16 feet. Saw cut joints within 24 hours of concrete placement to a depth of 1 ½" and seal in accordance with Item 438. Alternately, provide a controlled joint consisting of 1 ½" vinyl or plastic joint former (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

Provide rebonded recycled tire rubber joint filler that meets the requirements of DMS-6310. "Joint Sealants and Fillers."

Construct the subgrade or subbase away from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.

Compact and finish the subgrade or foundation for the approach slab to the typical cross-section and to the lines and grades shown on the plans.

Cure for 4 days using water or membrane curing per Item 422.

All details shown herein are subsidiary to bridge approach slab.

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

Texas Department of Transportation

Bridge Division Standard

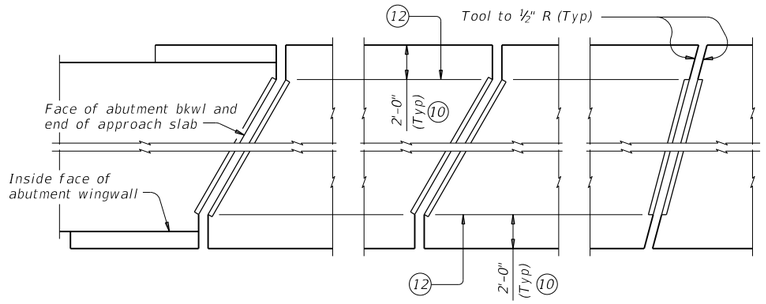
BRIDGE APPROACH SLAB
CONCRETE PAVEMENT

BAS-C

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
02-20: Removed stress relieving pad. 03-23: Note 5 changed.	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		30

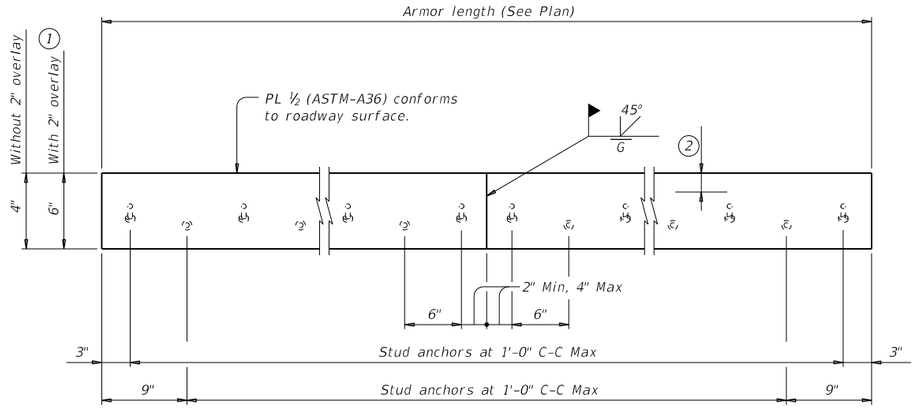
DATE:
FILE:

DATE:
FILE:



JOINTS AT ABUTMENTS | SKEWS OVER 15° | SKEWS THRU 15°

PLANS OF ARMOR PLATES



ELEVATION OF BASIC ARMOR PLATE

(1) Adjust 6" plate height for overlay thicknesses other than the 2" shown. Adjust weight by 1.70 plf for each ½" variation in thickness.

(2) Do not paint top 1 ½" of plate if using sealed armor joint.

(3) Set top of backer rod 1" below top of armor plate. Backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

(4) Blast clean entire contact area between sealant and plate (SSPC-SP10) before installing sealant. Light brush blast and thoroughly clean all dust and debris from concrete surfaces in contact with joint sealant before application of silicone seal.

(5) Use Class 7 joint sealant that conforms to DMS-6310.

(6) Place sealant while ambient temperature is between 55°F and 80°F and is rising.

(7) Armor joint does not include joint sealant or backer rod.

(8) Armor joint (sealed) includes Class 7 joint sealant and backer rod.

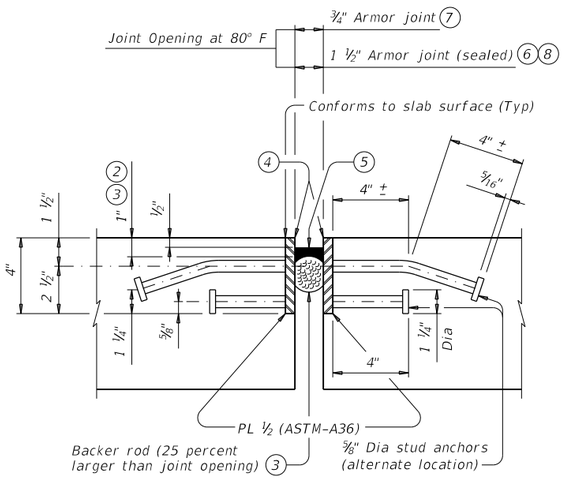
(9) Form vertical leg of seal as per the Manufacturer's recommendations. Use Class 4 joint sealant if Class 7 cannot be installed correctly. Install according to Manufacturer's recommendations.

(10) Unless shown otherwise, terminate armor plate at slab break point if break is more than 2'-0" from slab edge.

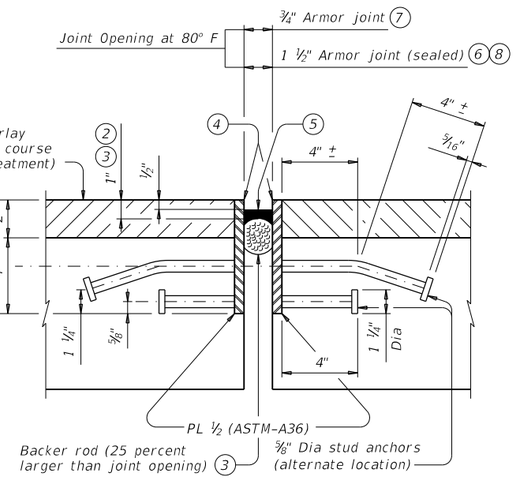
(11) See "Plans of Armor Plates".

(12) At Fabricator's option, armor plate may extend up to 6" beyond this point for skews through 15°.

(13) Align shipping angle perpendicular to joint.



SHOWN WITHOUT 2" OVERLAY AT JOINT LOCATION



SHOWN WITH 2" OVERLAY AT JOINT LOCATION (1)

ARMOR JOINT SECTIONS

Showing Armor Joint (Sealed)

FABRICATION NOTES:

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

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

Weld studs in accordance with AWS D1.1.

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

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

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

CONSTRUCTION NOTES:

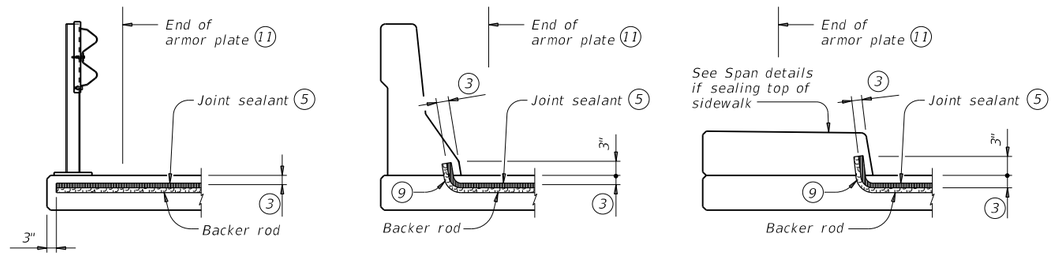
Secure armor joints in position and place to proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for Armor Joint.

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

GENERAL NOTES:

Provide armor joints at locations shown on the plans. Provide the seal when "Armor Joint (Sealed)" is noted on the plans. These joint details accommodate a joint movement range of 1 ⅜" (¾" opening movement and ⅜" closure movement).

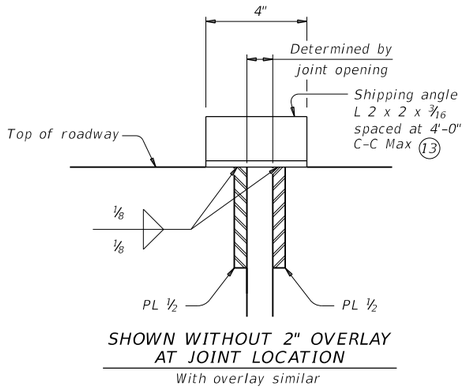
Payment for armor joint, with or without seal, is based on length of armor plate.



AT STEEL POST BRIDGE RAIL | AT CONCRETE BRIDGE RAIL | AT SIDEWALK

JOINT SEALANT TERMINATION DETAILS

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



SHOWN WITHOUT 2" OVERLAY AT JOINT LOCATION

With overlay similar

SHIPPING ANGLE

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

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

Texas Department of Transportation

Bridge Division Standard

ARMOR JOINT DETAILS

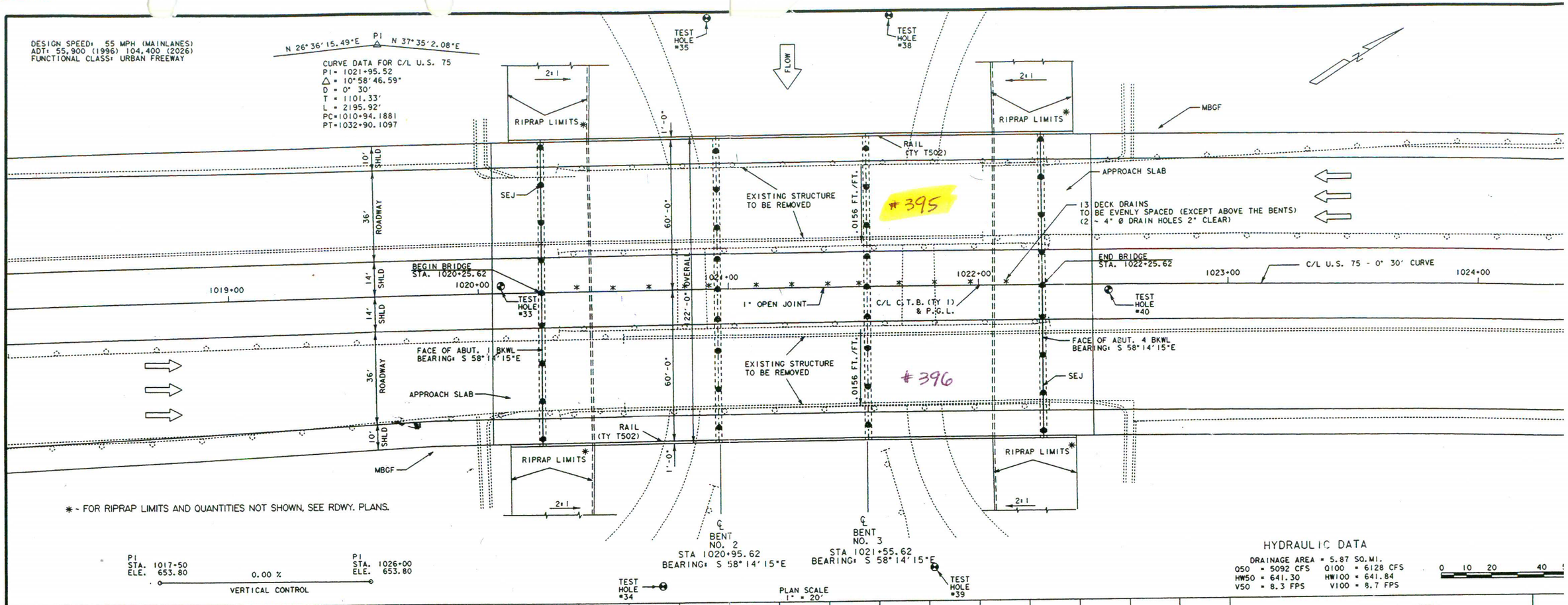
AJ

FILE: ajstde01-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	6463	78	001	US0075
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		31

DESIGN SPEED: 55 MPH (MAINLANES)
ADT: 55,900 (1996) 104,400 (2026)
FUNCTIONAL CLASS: URBAN FREEWAY

N 26°36'15.49"E — PI — N 37°35'2.08"E

CURVE DATA FOR C/L U.S. 75
PI = 1021+95.52
Δ = 10°58'46.59"
D = 0° 30'
T = 1101.33'
L = 2195.92'
PC=1010+94.1881
PT=1032+90.1097



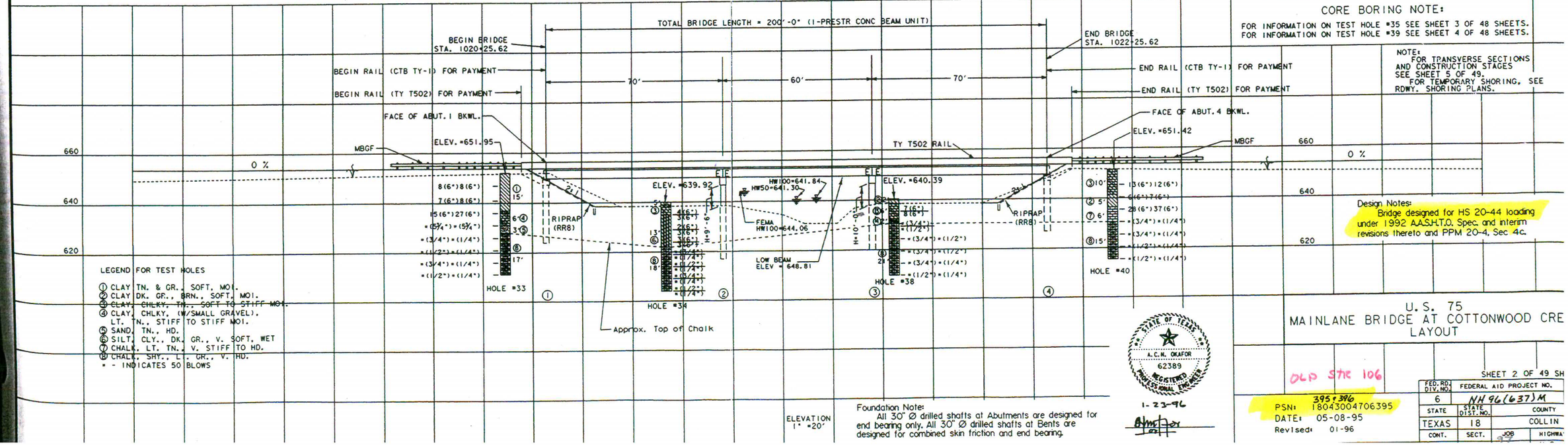
* - FOR RIPRAP LIMITS AND QUANTITIES NOT SHOWN, SEE RDWY. PLANS.

PI STA. 1017+50 ELE. 653.80 — 0.00 % — PI STA. 1026+00 ELE. 653.80
VERTICAL CONTROL

PLAN SCALE 1" = 20'

HYDRAULIC DATA
DRAINAGE AREA = 5.87 SQ.MI.
Q50 = 5092 CFS Q100 = 6128 CFS
HW50 = 641.30 HW100 = 641.84
V50 = 8.3 FPS V100 = 8.7 FPS

0 10 20 40



LEGEND FOR TEST HOLES
① CLAY, TN. & GR., SOFT, MOI.
② CLAY, DK. GR., BRN., SOFT, MOI.
③ CLAY, CHLKY, TN., SOFT TO STIFF MOI.
④ CLAY, CHLKY, (W/SMALL GRAVEL), LT. TN., STIFF TO STIFF MOI.
⑤ SAND, TN., HD.
⑥ SILT, CLY., DK. GR., V. SOFT, WET
⑦ CHALK, LT. TN., V. STIFF TO HD.
⑧ CHALK, SHY., LT. GR., V. HD.
* - INDICATES 50 BLOWS

ELEVATION 1" =20'

Foundation Note:
All 30" Ø drilled shafts at Abutments are designed for end bearing only. All 30" Ø drilled shafts at Bents are designed for combined skin friction and end bearing.

CORE BORING NOTE:
FOR INFORMATION ON TEST HOLE #35 SEE SHEET 3 OF 48 SHEETS.
FOR INFORMATION ON TEST HOLE #39 SEE SHEET 4 OF 48 SHEETS.

NOTE:
FOR TRANSVERSE SECTIONS AND CONSTRUCTION STAGES SEE SHEET 5 OF 49.
FOR TEMPORARY SHORING, SEE RDWY. SHORING PLANS.

Design Notes:
Bridge designed for HS 20-44 loading under 1992 AASHTO. Spec. and interim revisions thereto and PPM 20-4, Sec 4c.

STATE OF TEXAS
A.C.K. OKAFOR
62389
REGISTERED PROFESSIONAL ENGINEER
1-23-96

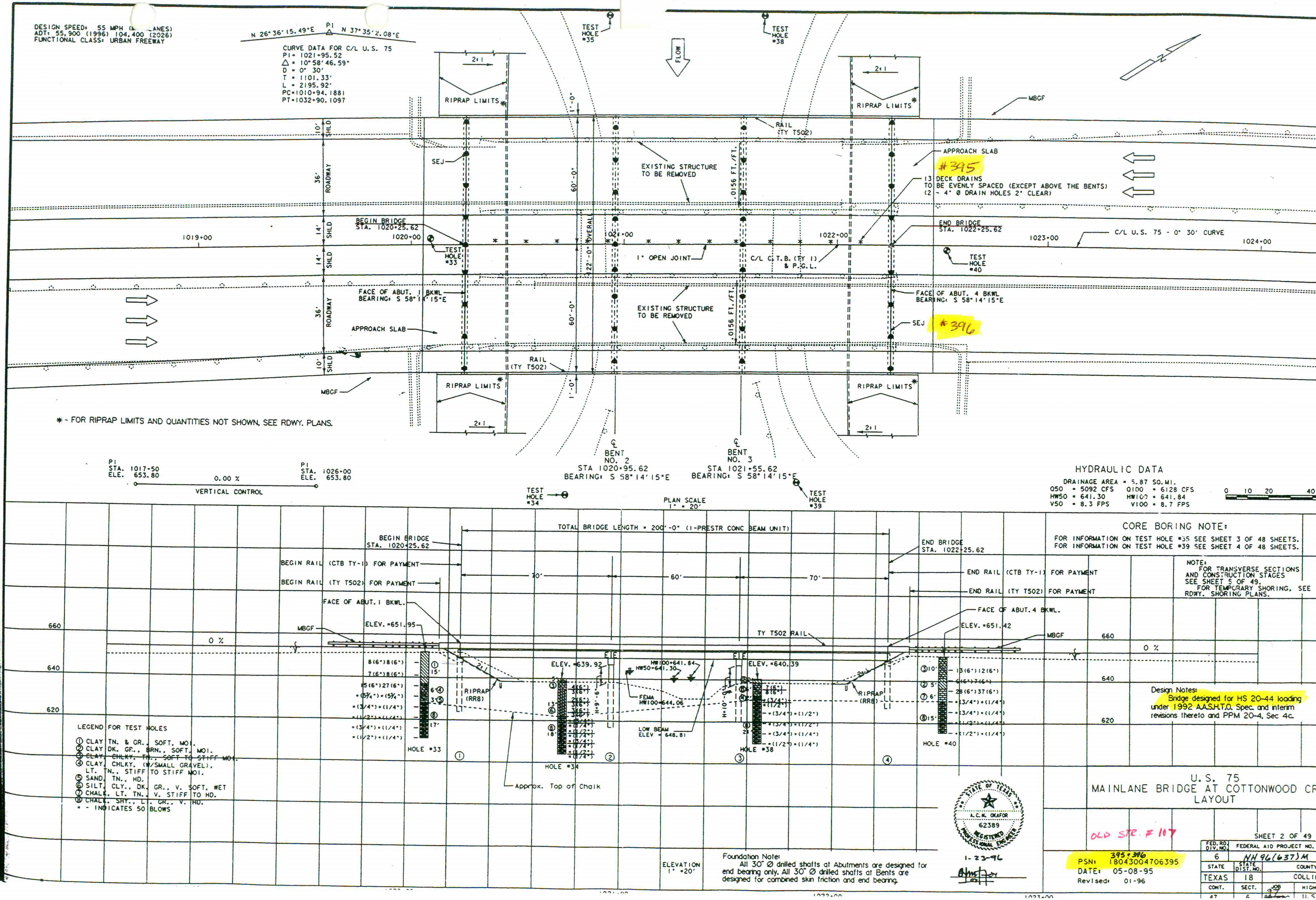
U.S. 75
MAINLANE BRIDGE AT COTTONWOOD CRE
LAYOUT

OLD STK 106

395+396
PSN: 18043004706395
DATE: 05-08-95
Revised: 01-96

SHEET 2 OF 49 SH

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	
6	NH 96(637)M	
STATE	STATE DIST.NO.	COUNTY
TEXAS	18	COLLIN
CONT.	SECT.	JOB / HIGHWA


DESIGN SPEED: 55 MPH
ADT: 55,900 (1996) 104,400 (2026)
FUNCTIONAL CLASS: URBAN FREEWAY
N 26° 36' 15.49" E
PI
N 37° 35' 2.08" E
CURVE DATA FOR C/L U.S. 75
PI = 1021+95.52
Δ = 10° 58' 46.59"
D = 0° 30'
T = 1101.33'
L = 2195.92'
PC=1010+94.1881
PT=1032+90.1097
TEST HOLE #35
TEST HOLE #38
FLOW
RIPRAP LIMITS
2:1
MBGF
RAIL (TY T502)
SEJ
EXISTING STRUCTURE TO BE REMOVED
APPROACH SLAB
#395
13 DECK DRAINS TO BE EVENLY SPACED (EXCEPT ABOVE THE BENTS) (2 ~ 4" Ø DRAIN HOLES 2" CLEAR)
BEGIN BRIDGE STA. 1020+25.62
1019+00
1020+00
1021+00
1022+00
1023+00
1024+00
TEST HOLE #33
1" OPEN JOINT
C/L C.T.B. (TY 1) & P.G.L.
END BRIDGE STA. 1022+25.62
C/L U.S. 75 - 0° 30' CURVE
TEST HOLE #40
FACE OF ABUT. 1 BKWL BEARING: S 58° 14' 15" E
FACE OF ABUT. 4 BKWL BEARING: S 58° 14' 15" E
#396
ROADWAY
SHLD
60'-0"
22'-0" OVERALL
0156 FT./FT.
* - FOR RIPRAP LIMITS AND QUANTITIES NOT SHOWN, SEE RDWY. PLANS.
C BENT NO. 2 STA 1020+95.62 BEARING: S 58° 14' 15" E
C BENT NO. 3 STA 1021+55.62 BEARING: S 58° 14' 15" E
PI STA. 1017+50 ELE. 653.80
0.00 %
PI STA. 1026+00 ELE. 653.80
VERTICAL CONTROL
TEST HOLE #34
PLAN SCALE 1" = 20'
TEST HOLE #39
HYDRAULIC DATA
DRAINAGE AREA = 5.87 SQ.MI.
Q50 = 5092 CFS
HW50 = 641.30
V50 = 8.3 FPS
Q100 = 6128 CFS
HW100 = 641.84
V100 = 8.7 FPS
0 10 20 40
TOTAL BRIDGE LENGTH = 200'-0" (1-PRESTR CONC BEAM UNIT)
BEGIN BRIDGE STA. 1020+25.62
BEGIN RAIL (CTB TY-1) FOR PAYMENT
BEGIN RAIL (TY T502) FOR PAYMENT
FACE OF ABUT. 1 BKWL.
70'
60'
70'
END BRIDGE STA. 1022+25.62
END RAIL (CTB TY-1) FOR PAYMENT
END RAIL (TY T502) FOR PAYMENT
FACE OF ABUT. 4 BKWL.
ELEV. =651.42
ELEV. =651.95
MBGF
TY T502 RAIL
660
640
620
0 %
ELEV. =639.92
HW100=641.84
HW50=641.30
ELEV. =640.39
FEMA HW100=644.06
LOW BEAM ELEV = 648.81
RIPRAP (RR8)
HOLE #33
HOLE #34
HOLE #38
HOLE #40
Approx. Top of Chalk
CORE BORING NOTE:
FOR INFORMATION ON TEST HOLE #35 SEE SHEET 3 OF 48 SHEETS.
FOR INFORMATION ON TEST HOLE #39 SEE SHEET 4 OF 48 SHEETS.
NOTE:
FOR TRANSVERSE SECTIONS AND CONSTRUCTION STAGES SEE SHEET 5 OF 49.
FOR TEMPORARY SHORING, SEE RDWY. SHORING PLANS.
Design Notes:
Bridge designed for HS 20-44 loading under 1992 AASHTO Spec. and interim revisions thereto and PPM 20-4, Sec 4c.
LEGEND FOR TEST HOLES
① CLAY TN. & GR., SOFT, MOI.
② CLAY DK. GR., BRN., SOFT, MOI.
③ CLAY, CHLKY, TN., SOFT TO STIFF MOI.
④ CLAY, CHLKY, (W/SMALL GRAVEL), LT. TN., STIFF TO STIFF MOI.
⑤ SAND, TN., HD.
⑥ SILT, CLY., DK. GR., V. SOFT, WET
⑦ CHALK, LT. TN., V. STIFF TO HD.
⑧ CHALK, SHY., LT. GR., V. HD.
• - INDICATES 50 BLOWS
ELEVATION 1" = 20'
Foundation Note:
All 30" Ø drilled shafts at Abutments are designed for end bearing only. All 30" Ø drilled shafts at Bents are designed for combined skin friction and end bearing.
STATE OF TEXAS
A.C.K. OKAFOR
62389
REGISTERED PROFESSIONAL ENGINEER
1-23-96
U.S. 75
MAINLANE BRIDGE AT COTTONWOOD CRE
LAYOUT
OLD STR. # 107
SHEET 2 OF 49 SH
395+396
PSN: 18043004706395
DATE: 05-08-95
Revised: 01-96
FED. RD. DIV. NO. 6
FEDERAL AID PROJECT NO. NH 96(637)M
STATE TEXAS
STATE DIST. NO. 18
COUNTY COLLIN
CONT. 47
SECT. 6
HIGHWAY U.S.

PART 2 OF 4

RV=-74.3549'

FILE NAME: 752170.DGN

#401-(SB)

#400 (NB)

CURVE DATA FOR C/L U.S. 75
PI = 943+84.93
Δ = 6°32'54" RT.
D = 0°30'
T = 655.54'
L = 1309.66'

PLAN SCALE 1" = 20'

APPROACH SLAB

TEST HOLE NO. 26

BEGIN BRIDGE STA. 939+66.07

LIMITS OF RIPRAP (RR9)

STAGE I CONST.

STAGE II CONST.

EXISTING STRUCTURE TO BE REMOVED

C/L STA. 940+27.41

C/L STA. 940+60.07

2+82.76

TEST HOLE NO. 27

C/L C.T.B. (TY I)

20° CURVE

C/L STA. 941+85.07

2+91.26

C/L STA. 941+97.73

TEST HOLE NO. 28

S.E.J. (4")

RAIL (TY T501)

POINT OF MIN. CLEAR.

END BRIDGE STA. 942+65.07

TEST HOLE NO. 29

C/L U.S. 75 - 0° 30' CURVE

C/L ABUT. NO. 1

C/L BENT NO. 2

C/L BENT NO. 3

C/L ABUT. NO. 4

C/L F.M. 2170 (McDERMOTT DRIVE)

U.S. 75 STA. 941+12.57
STA. 7+21.4 F.M. 2170

941+65.07

940+60.07

FACE OF BKWL.

BEG. BR. STA. 939+66.07
F.G. ELEV. = 690.15

OVERALL LENGTH OF BRIDGE = 299.00'

TOTAL LENGTH OF T501 RAIL = 333.06' STAGE II & 332.94' STAGE III

END BRIDGE STA. 942+65.07
F.G. ELEV. = 692.25

299'-0" PRESTRESSED CONCRETE BEAM UNIT
(94'-0"-105'-0"-100'-0") (TYPE IV BEAMS)

BEGIN RAIL (TY 501) FOR PAYMENT

END RAIL (TY T501) FOR PAYMENT

2.989% -1.009%

PI = 940+00
ELEV = 698.50
VC = 1600

M.B.G.F.

ELEV. = 679.31

ELEV. = 681.21

ELEV. = 682.20

2 ~ 18"ø D.S. x 21'

12 ~ 36"ø D.S. x 23'

6 ~ 36"ø D.S. x 12' (STAGE II & III)

3 ~ 36"ø D.S. x 29' (STAGE II)

9 ~ 36"ø D.S. x 14'

2 ~ 18"ø D.S. x 32'

12 ~ 36"ø D.S. x 34'

HOLE #26

HOLE #27

HOLE #28

HOLE #29

Existing ground line

VERTICAL CURVE DATA

SOUTH TURNAROUND
PI = 3+93.00
ELEV = 666.91
VC = 180.00

NORTH TURNAROUND
PI = 3+90
ELEV = 667.65
VC = 160.00

-3.527% 6.301%

0.478% 4.883%

VERTICAL CURVE DATA FOR F.M. 2170
-0.815% 5.623%
PI = 7+20
ELEV. = 663.0
VC = 320'

ELEVATION 1" = 20'

LEGEND FOR TEST HOLES
① CLAY, LT. TN. & GR., SOFT, MOI.
② CLAY, CHLKY, LT. TN., SOFT, MOI.
③ CHALK, LT. TN., HD.
④ CHALK, SHY, LT. GR., HD.

② DRILLED SHAFTS IN STAGE I SHALL BE FORMED BY SONOTUBE OR EQUAL.

DRILLED SHAFTS SHALL BE FOUNDED AT THE ELEVATIONS SHOWN OR DEEPER AS NECESSARY TO PROVIDE 3' MINIMUM PENETRATION INTO HARD CHALK.

NOTE: FOR TRANSVERSE SECTIONS AND CONSTRUCTION STAGES SEE SHEET 2 OF 2

James K. Schaap, P.E. 1/19/96

R. L. WILKISON 38362 REGISTERED PROFESSIONAL ENGINEER 2/15/96

R. L. McLOVE, JR. 40638 REGISTERED PROFESSIONAL ENGINEER 9/20/91

Existing structures #109 & 110

Bridge 043 0047-06-401

D45350A1 (ZFA2) (355171) 4487LAY01.DGN

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

OVERPASS AT F.M. 2170 (McDERMOTT DRIVE) LAYOUT

SHEET 1 OF 2

PSN 400 & 401

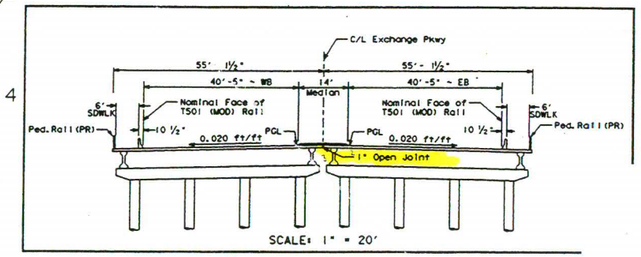
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
6	NH 96 (637) M	145
STATE	STATE DIST. NO.	COUNTY
TEXAS	18	COLLIN
CONT.	SECT.	JOB	HIGHWAY NO.
47	6	097	U.S. 75

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	NH 96(637)M		
STATE	STATE DIST. NO.	COUNTY	
TEXAS	18	COLLIN	
CONTROL	SECTION	JOB	HIGHWAY NO.
0047	06	~~089~~ 097	U. S. 75

DESIGN SPEED = 45 MPH
ADT (2010) = 18,000 VEH/DAY
FUNC. CLASS: URBAN ARTERIAL

26' F-F FRNT. ROAD
SHLD
36' ROADWAY
28' MEDIAN
36' ROADWAY
10' SHLD
26' F-F FRNT. ROAD
Pedestrian Rail
BPA-1 ~ 30' Long ℄ ⊀ 29.00' From ℄ Bent 2
BPA-1 ~ 40' Long ℄ ⊀ 32.00' From ℄ Bent 3
90°
C/L BENT #2 STA 67+65
C/L BENT #4 STA 69+45
Exchange Pkwy STA 68+50 = U.S. 75 STA 1000+56.20
TEST HOLE #1
TEST HOLE #2
TEST HOLE #3
TEST HOLE #4
Approach Slab
Begin Bridge STA 66+70
Riprap limits (RR9)
3:1
Traffic Rail TY T501 (MOD)
Type 3 C.T.B.
Bent #3 STA 68+50
W.B. Traffic
E.B. Traffic
2'
MBGF
End Bridge STA 70+60
40' F-F ROADWAY
14'
C/L Exchange Pkwy
S 63° 23' 44" E
67+00
68+00
69+00
70+00
71+00
72+00
SEJ
Face of Abut. #1 Backwall
PT. OF MIN. VERT. CLEAR.
Face of Abut. #5 Backwall
2'
3' MIN HORIZ. CLEAR.
30' MIN HORIZ. CLEAR.
Type 3 C.T.B.
1000+00
C/L U.S. 75
BPA-1 ~ 30'-0" Long ℄ ⊀ 26.75' From ℄ Bent 4
BPA-1 ~ 40' Long ℄ ⊀ 32.00' From ℄ Bent 3
Pedestrian Rail
PLAN SCALE 1"=20'

Exchange Pkwy.
Vertical Curve Data
PI STA 69+00
el = 692.09
L = 900'
E = -11.53



SCALE: 1" = 20'

Begin Bridge STA 66+70
Face of Abut. #1 Backwall
OVERALL BRIDGE LENGTH = 390'
180' Prestress Conc. Beam Unit (95', 85')
210' Prestress Conc. Beam Unit (95', 115')
End Bridge STA 70+60
End T501 (Mod) Rail for Payment
430'-0"
Beg. T501 (Mod) Rail for Payment
410'-0"
Face of Abut. #5 Bkwl.
Exchange Pkwy.
Begin Ped. Rail (PR) for Payment
End Ped. Rail (PR) for Payment
5 Drng. Holes @10' = 40'-0"
3 Drng. Holes @15' = 30'-0"
3 Drng. Holes @18' = 36'-0"
5 Drainage Holes @ 15' = 60'-0"
5.5 %
-4.75 %
℄ U.S. 75
℄ PI
5'
10'
10'
690
670
650
E|E
3:1
17'-0" CALC.
U.S. 75 PGL
PROP. RIPRAP (RR9)
H=17'-9"
H=16'-5"
H=20'-8"
Approx. Top of Chalk.
CLAY, GREY, SOFT
CLAY, TN, W/POORLY GRD GRVL
CLAY, TAN&GREY, SOFT
CLAY, TAN&GREY, V. STIFF
CLAY, CHALKY, TAN, HARD TO V. HARD
CHALK, LT. GREY, V. HARD
CLAY, GREY&TAN, SOFT
CLAY, CHALKY, TAN, V. STIFF TO V. HARD
CLAY, GREY&TAN, SOFT
CLAY, TAN&GREY, HARD
CLAY, CHALKY, LT. TAN, V. HARD
CLAY, CHALKY, TAN&GR, STIFF TO V. STIFF
CLAY, CHALKY, LT. GR & TN, HARD
CHALK, GREY, V. HARD
TEST HOLE NO. 1 NATURAL GROUND ELEV. 658.3
TEST HOLE NO. 2 NATURAL GROUND ELEV. 655.3
TEST HOLE NO. 3 NATURAL GROUND ELEV. 652.9
TEST HOLE NO. 4 NATURAL GROUND ELEV. 652.6
67+00
68+00
69+00
70+00
71+00

Foundation Note:
All 36" Ø drilled shafts at Abutments are designed for end bearing only.
All 36" Ø drilled shafts at Bents are designed for combined skin friction and end bearing.

SCALE: 1" = 20'

Design Notes:
Bridge designed for HS 20-44 loading under 1992 A.A.S.H.T.O. Spec. and interim revisions thereto and PPM 20-4, Sec 4c.

STATE OF TEXAS
A.C.N. OKAFOR
62389
REGISTERED PROFESSIONAL ENGINEER
1-23-96

DATE: 5-23-95
PSN: 403
Revised: 01-96

Sheet 25 of 49 sheets

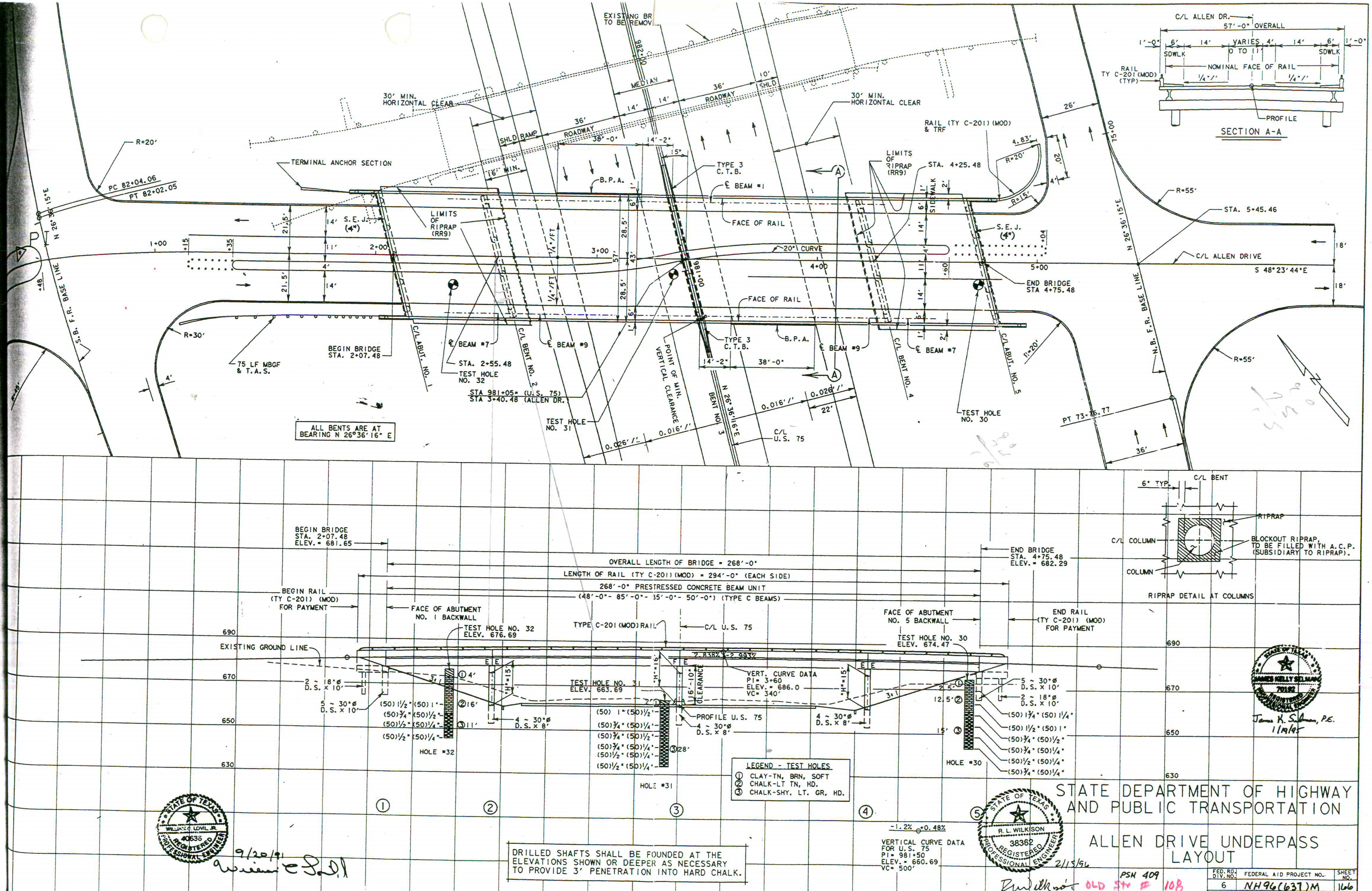
U. S. 75 UNDERPASS AT EXCHANGE PKWY LAYOUT

(New Structure)

214

Bridge 043-0047-06-403

22-JAN-1996 16:07


C/L ALLEN DR.
57'-0" OVERALL
SDWLK
VARIES 0 TO 11'
NOMINAL FACE OF RAIL
RAIL TY C-201 (MOD) (TYP)
PROFILE
SECTION A-A
EXISTING BR TO BE REMOVED
30' MIN. HORIZONTAL CLEAR
MEDIAN
ROADWAY
SHLD
SHLD RAMP
TERMINAL ANCHOR SECTION
R=20'
PC 82+04.06
PT 82+02.05
N 26°36'15"E
S.B. F.R. BASE LINE
B.P.A.
TYPE 3 C.T.B.
BEAM #1
FACE OF RAIL
LIMITS OF RIPRAP (RR9)
STA. 4+25.48
RAIL (TY C-201) (MOD) & TRF
SIDEWALK
S.E.J. (4")
20' CURVE
C/L ALLEN DRIVE
S 48°23'44"E
STA. 5+45.46
R=55'
END BRIDGE STA 4+75.48
N.B. F.R. BASE LINE
BEGIN BRIDGE STA. 2+07.48
75 LF MBGF & T.A.S.
R=30'
C/L ABUT. NO. 1
C/L BENT NO. 2
BEAM #7
BEAM #9
STA. 2+55.48
TEST HOLE NO. 32
STA 981+05= (U.S. 75)
STA 3+40.48 (ALLEN DR.)
TEST HOLE NO. 31
POINT OF MIN. VERTICAL CLEARANCE
BENT NO. 3 N 26°36'16"E
C/L U.S. 75
C/L BENT NO. 4
C/L ABUT. NO. 5
TEST HOLE NO. 30
PT 73+75.77
ALL BENTS ARE AT BEARING N 26°36'16" E
C/L BENT
6" TYP.
RIPRAP
BLOCKOUT RIPRAP, TO BE FILLED WITH A.C.P. (SUBSIDIARY TO RIPRAP).
C/L COLUMN
COLUMN
RIPRAP DETAIL AT COLUMNS
BEGIN BRIDGE STA. 2+07.48 ELEV. = 681.65
END BRIDGE STA. 4+75.48 ELEV. = 682.29
OVERALL LENGTH OF BRIDGE = 268'-0"
LENGTH OF RAIL (TY C-201) (MOD) = 294'-0" (EACH SIDE)
268'-0" PRESTRESSED CONCRETE BEAM UNIT
(48'-0"- 85'-0"- 85'-0"- 50'-0") (TYPE C BEAMS)
BEGIN RAIL (TY C-201) (MOD) FOR PAYMENT
FACE OF ABUTMENT NO. 1 BACKWALL
TEST HOLE NO. 32 ELEV. 676.69
TYPE C-201 (MOD) RAIL
C/L U.S. 75
FACE OF ABUTMENT NO. 5 BACKWALL
TEST HOLE NO. 30 ELEV. 674.47
END RAIL (TY C-201) (MOD) FOR PAYMENT
EXISTING GROUND LINE
TEST HOLE NO. 31 ELEV. 663.69
VERT. CURVE DATA PI= 3+60 ELEV.= 686.0 VC= 340'
PROFILE U.S. 75
16'-10" CLEARANCE
2 ~ 18"ø D.S. x 10'
5 ~ 30"ø D.S. x 10'
4 ~ 30"ø D.S. x 8'
HOLE #32
HOLE #31
HOLE #30
LEGEND - TEST HOLES
① CLAY-TN, BRN, SOFT
② CHALK-LT TN, HD.
③ CHALK-SHY, LT. GR, HD.
-1.2% +0.48%
VERTICAL CURVE DATA FOR U.S. 75 PI= 981+50 ELEV.= 660.69 VC= 500'
690
670
650
630
1+00
2+00
3+00
4+00
5+00

DRILLED SHAFTS SHALL BE FOUNDED AT THE ELEVATIONS SHOWN OR DEEPER AS NECESSARY TO PROVIDE 3' PENETRATION INTO HARD CHALK.

STATE OF TEXAS — WILLIAM C. LOVIL, JR. — 40635 — REGISTERED PROFESSIONAL ENGINEER 9/20/91

STATE OF TEXAS — R. L. WILKISON — 38362 — REGISTERED PROFESSIONAL ENGINEER 2/15/96

STATE OF TEXAS — JAMES KELLY SELMAN — 70182 — James K. Selman, P.E. 1/19/95

STATE DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION

ALLEN DRIVE UNDERPASS LAYOUT

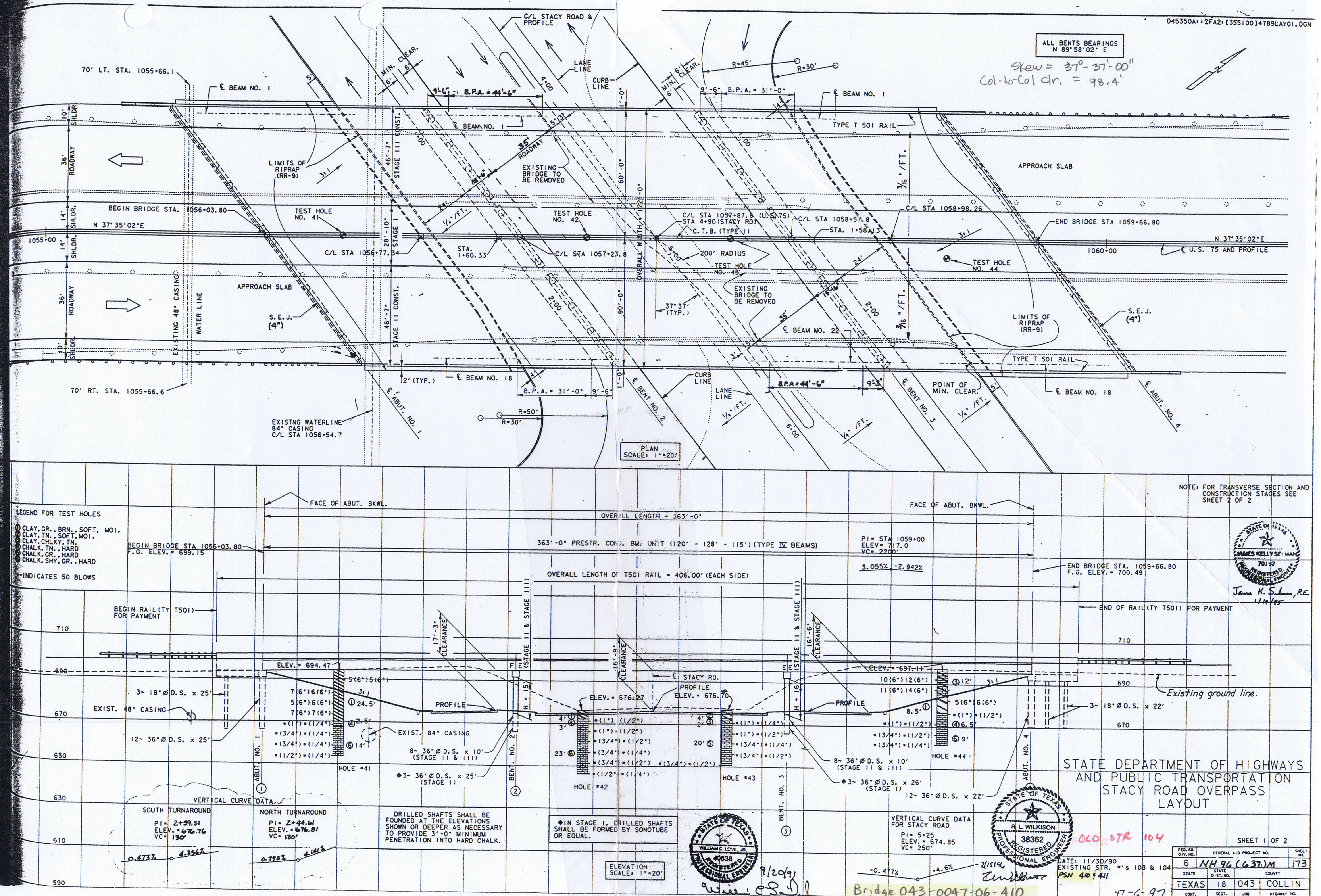
PSN 409 OLD Str # 108

DATE: 11/30/90
EXISTING STR. # 108

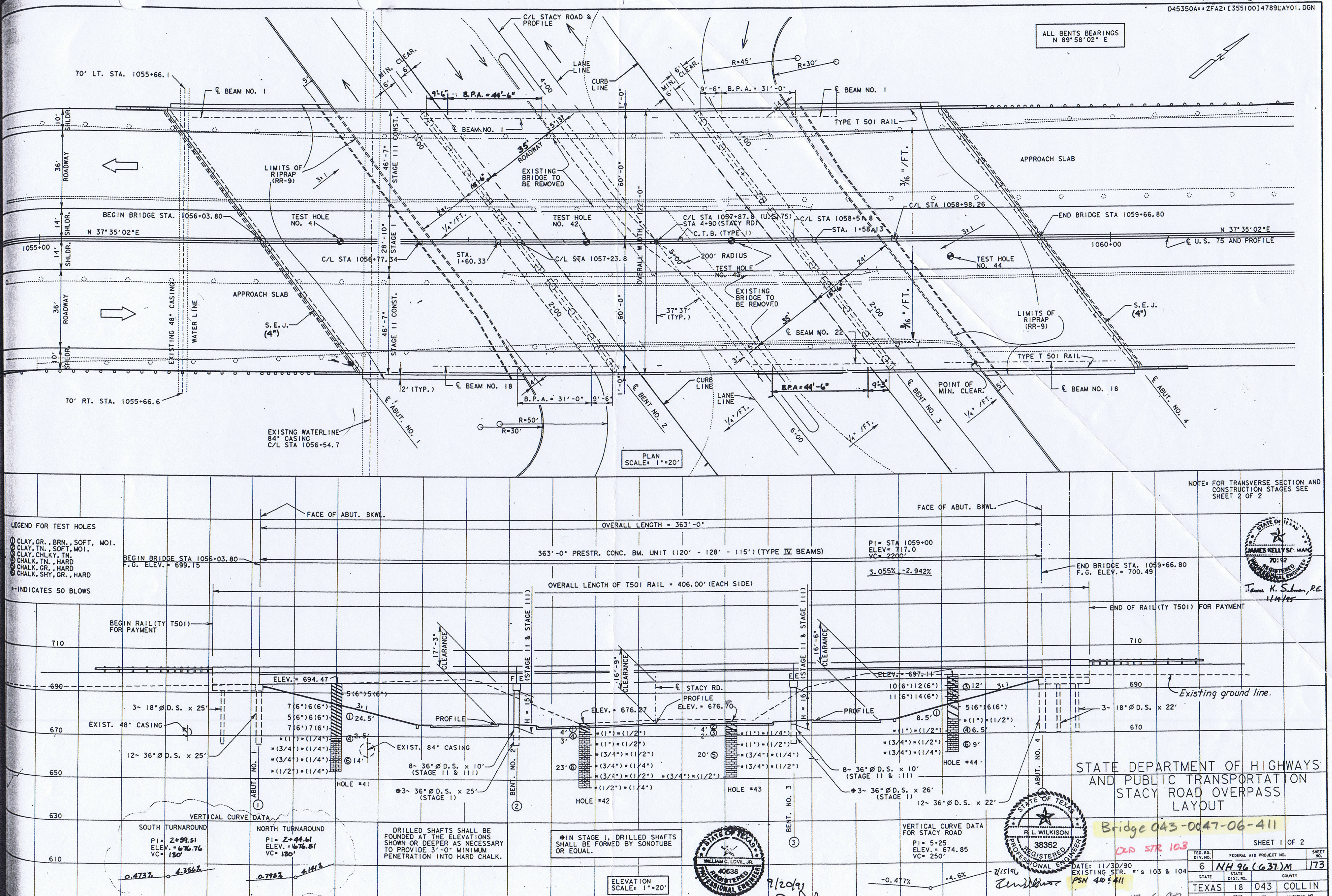
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
6	NH96(637)M	166
STATE	STATE DIST. NO.	COUNTY
TEXAS	18	COLLIN
CONT.	SECT.	JOB	HIGHWAY NO.
47	6	097	U.S. 75

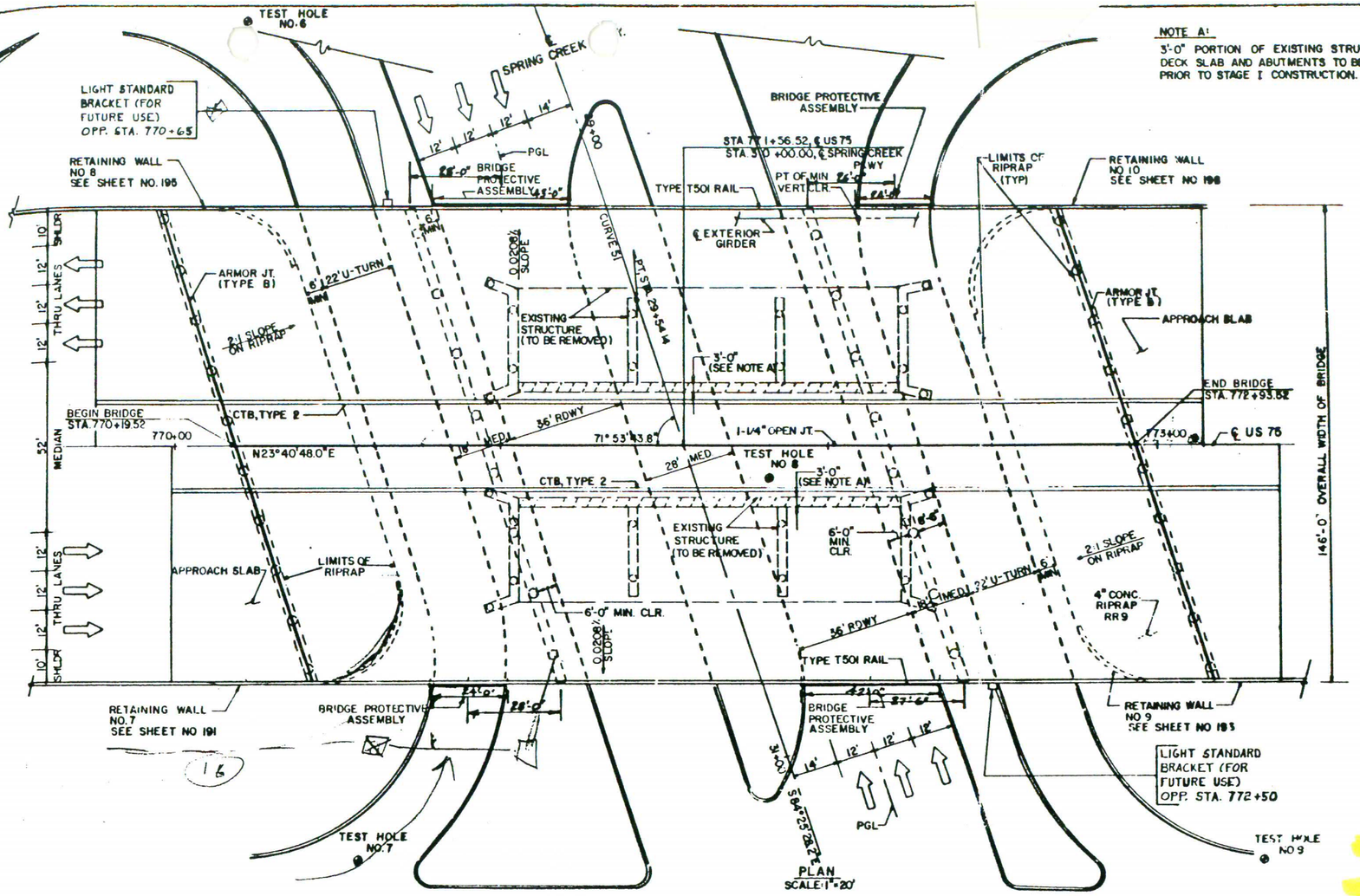
D45350A:: ZFA2: [35517]]4488LAYOI.DGN

Bridge 043-0047-06-409

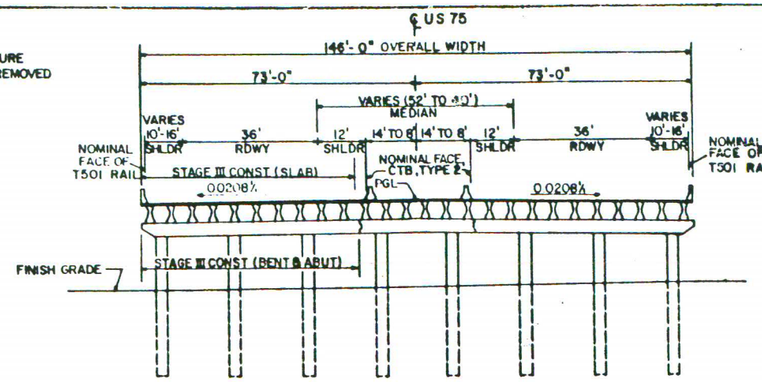


D45350A: ZFA2: [35510]4789LAY01.DGN
ALL BENTS BEARINGS N 89°58'02" E
Skew = 37°-37'-00"
Col-to-Col Ctr. = 98.4'
C/L STACY ROAD & PROFILE
70' LT. STA. 1055+66.1
℄ BEAM NO. 1
TYPE T 501 RAIL
APPROACH SLAB
LIMITS OF RIPRAP (RR-9)
EXISTING BRIDGE TO BE REMOVED
BEGIN BRIDGE STA. 1056+03.80
N 37°35'02"E
TEST HOLE NO. 41
TEST HOLE NO. 42
TEST HOLE NO. 43
TEST HOLE NO. 44
C/L STA 1056+77.34
C/L STA 1057+23.8
C/L STA 1058+98.26
END BRIDGE STA 1059+66.80
U.S. 75 AND PROFILE
200' RADIUS
S.E.J. (4")
EXISTING 48" CASING
WATER LINE
70' RT. STA. 1055+66.6
℄ BEAM NO. 18
℄ BEAM NO. 22
℄ ABUT. NO. 1
℄ BENT NO. 2
℄ BENT NO. 3
℄ ABUT. NO. 4
EXISTNG WATERLINE 84" CASING C/L STA 1056+54.7
POINT OF MIN. CLEAR.
PLAN SCALE: 1"=20'
LEGEND FOR TEST HOLES
CLAY, GR., BRN., SOFT, MOI.
CLAY, TN., SOFT, MOI.
CLAY, CHLKY, TN.
CHALK, TN., HARD
CHALK, GR., HARD
CHALK, SHY, GR., HARD
INDICATES 50 BLOWS
FACE OF ABUT. BKWL.
OVERALL LENGTH = 363'-0"
363'-0" PRESTR. CONC. BM. UNIT (120' - 128' - 115') (TYPE IV BEAMS)
OVERALL LENGTH OF T501 RAIL = 406.00' (EACH SIDE)
BEGIN BRIDGE STA 1056+03.80 F.G. ELEV. = 699.15
PI = STA 1059+00 ELEV = 717.0 VC = 2200'
3.055% -2.942%
END BRIDGE STA. 1059+66.80 F.G. ELEV. = 700.49
BEGIN RAIL (TY T501) FOR PAYMENT
END OF RAIL (TY T501) FOR PAYMENT
NOTE: FOR TRANSVERSE SECTION AND CONSTRUCTION STAGES SEE SHEET 2 OF 2
Existing ground line.
3~ 18" Ø D.S. x 25'
3~ 18" Ø D.S. x 22'
12~ 36" Ø D.S. x 25'
12~ 36" Ø D.S. x 22'
8~ 36" Ø D.S. x 10' (STAGE II & III)
3~ 36" Ø D.S. x 25' (STAGE I)
3~ 36" Ø D.S. x 26' (STAGE I)
EXIST. 48" CASING
EXIST. 84" CASING
STACY RD. PROFILE ELEV. = 676.70
VERTICAL CURVE DATA
SOUTH TURNAROUND PI = 2+59.51 ELEV. = 676.76 VC = 130'
NORTH TURNAROUND PI = 2+44.61 ELEV. = 676.81 VC = 130'
DRILLED SHAFTS SHALL BE FOUNDED AT THE ELEVATIONS SHOWN OR DEEPER AS NECESSARY TO PROVIDE 3'-0" MINIMUM PENETRATION INTO HARD CHALK.
IN STAGE I, DRILLED SHAFTS SHALL BE FORMED BY SONOTUBE OR EQUAL.
ELEVATION SCALE: 1"=20'
VERTICAL CURVE DATA FOR STACY ROAD PI = 5+25 ELEV. = 674.85 VC = 250'
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
STACY ROAD OVERPASS LAYOUT
SHEET 1 OF 2
DATE: 11/30/90
EXISTING STR. #'s 103 & 104
PSN 410 & 411
OLD STR 104
6 NH 96 (637) M 173
TEXAS 18 043 COLLIN
Bridge 043-0047-06-410

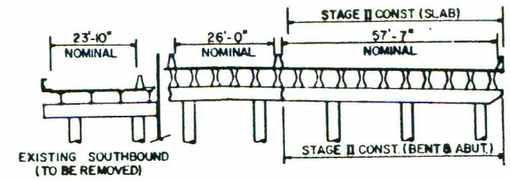

D45350A::ZFA2:[35510]4789LAY01.DGN
ALL BENTS BEARINGS N 89°58'02" E
C/L STACY ROAD & PROFILE
70' LT. STA. 1055+66.1
70' RT. STA. 1055+66.6
℄ BEAM NO. 1
℄ BEAM NO. 18
℄ BEAM NO. 22
B.P.A. = 44'-6"
B.P.A. = 31'-0"
TYPE T 501 RAIL
APPROACH SLAB
LIMITS OF RIPRAP (RR-9)
EXISTING BRIDGE TO BE REMOVED
BEGIN BRIDGE STA. 1056+03.80
END BRIDGE STA 1059+66.80
N 37°35'02"E
℄ U.S. 75 AND PROFILE
TEST HOLE NO. 41
TEST HOLE NO. 42
TEST HOLE NO. 43
TEST HOLE NO. 44
C/L STA 1056+77.34
C/L STA 1057+23.8
C/L STA 1057+87.8 (U.S. 75) STA 4+90 (STACY RD)
C/L STA 1058+51.8
C/L STA 1058+98.26
C.T.B. (TYPE I)
200' RADIUS
S.E.J. (4")
EXISTING 48" CASING
WATER LINE
EXISTNG WATERLINE 84" CASING C/L STA 1056+54.7
OVERALL WIDTH = 122'-0"
STAGE I
STAGE II CONST.
STAGE III CONST.
℄ ABUT. NO. 1
℄ BENT NO. 2
℄ BENT NO. 3
℄ ABUT. NO. 4
POINT OF MIN. CLEAR.
PLAN SCALE: 1"=20'
NOTE: FOR TRANSVERSE SECTION AND CONSTRUCTION STAGES SEE SHEET 2 OF 2
FACE OF ABUT. BKWL.
OVERALL LENGTH = 363'-0"
363'-0" PRESTR. CONC. BM. UNIT (120' - 128' - 115') (TYPE IV BEAMS)
OVERALL LENGTH OF T501 RAIL = 406.00' (EACH SIDE)
BEGIN BRIDGE STA 1056+03.80 F.G. ELEV. = 699.15
END BRIDGE STA. 1059+66.80 F.G. ELEV. = 700.49
PI = STA 1059+00 ELEV = 717.0 VC = 2200'
3.055% -2.942%
BEGIN RAIL (TY T501) FOR PAYMENT
END OF RAIL (TY T501) FOR PAYMENT
LEGEND FOR TEST HOLES
① CLAY, GR., BRN., SOFT, MOI.
② CLAY, TN., SOFT, MOI.
③ CLAY, CHLKY, TN.
④ CHALK, TN., HARD
⑤ CHALK, GR., HARD
⑥ CHALK, SHY, GR., HARD
* INDICATES 50 BLOWS
17'-3" CLEARANCE
16'-9" CLEARANCE
16'-6" CLEARANCE
ELEV. = 694.47
ELEV. = 676.27
ELEV. = 697.14
℄ STACY RD. PROFILE ELEV. = 676.70
Existing ground line.
3~ 18"⌀ D.S. x 25'
3~ 18"⌀ D.S. x 22'
12~ 36"⌀ D.S. x 25'
12~ 36"⌀ D.S. x 22'
8~ 36"⌀ D.S. x 10' (STAGE II & III)
*3~ 36"⌀ D.S. x 25' (STAGE I)
*3~ 36"⌀ D.S. x 26' (STAGE I)
EXIST. 48" CASING
EXIST. 84" CASING
HOLE #41
HOLE #42
HOLE #43
HOLE #44
VERTICAL CURVE DATA
SOUTH TURNAROUND PI = 2+59.51 ELEV. = 676.76 VC = 130'
NORTH TURNAROUND PI = 2+44.61 ELEV. = 676.81 VC = 130'
DRILLED SHAFTS SHALL BE FOUNDED AT THE ELEVATIONS SHOWN OR DEEPER AS NECESSARY TO PROVIDE 3'-0" MINIMUM PENETRATION INTO HARD CHALK.
* IN STAGE I, DRILLED SHAFTS SHALL BE FORMED BY SONOTUBE OR EQUAL.
ELEVATION SCALE: 1"=20'
VERTICAL CURVE DATA FOR STACY ROAD PI = 5+25 ELEV. = 674.85 VC = 250'
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
STACY ROAD OVERPASS
LAYOUT
Bridge 043-0047-06-411
OLD STR 103
SHEET 1 OF 2
DATE: 11/30/90
EXISTING STR. #'s 103 & 104
PSN 410 & 411
6 NH 96 (637) M 173
TEXAS 18 043 COLLIN
STATE OF TEXAS JAMES KELLY SEAMAN 70192 REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS R. L. WILKISON 38362 REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS WILLIAM C. LOVIL, JR. 40638 REGISTERED PROFESSIONAL ENGINEER



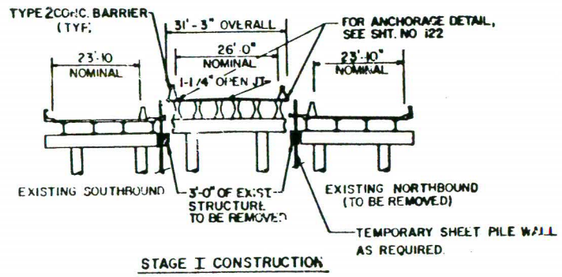
NOTE A:
3'-0" PORTION OF EXISTING STRUCTURE DECK SLAB AND ABUTMENTS TO BE REMOVED PRIOR TO STAGE I CONSTRUCTION.



TRANSVERSE SECTION
SCALE: 1"=20'

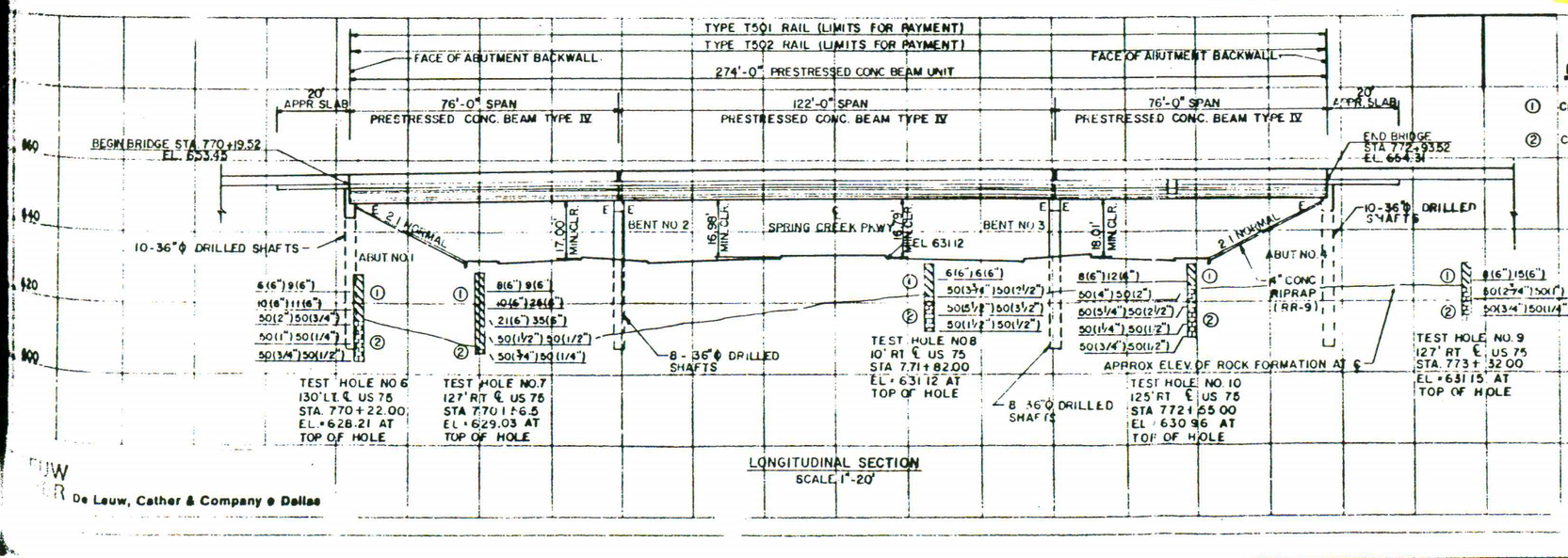


STAGE II CONSTRUCTION



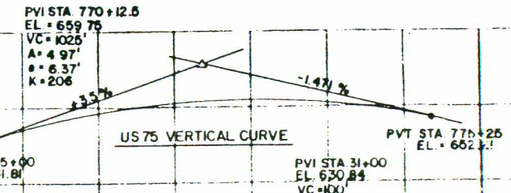
STAGE I CONSTRUCTION

DESIGN NOTE:
BRIDGE DESIGNED FOR HS-20-44 LOADING UNDER 1977 AASHTO SPECIFICATION AND INTERIM REVISIONS THERETO.



LONGITUDINAL SECTION
SCALE: 1"=20'

LEGEND
① CLAY
② CHALK, LIMESTONE



FOUNDATION NOTE:
DRILLED SHAFTS ARE DESIGNED WITH SKIN FRICTION AND POINT BEARING AND SHALL BE FOUNDED INTO HARD CHALK A MINIMUM OF 7'-0" FOR BENTS NO. 2 AND NO. 3 AND A MINIMUM OF 2'-0" FOR ABUTMENTS NO.1 AND NO. 4.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

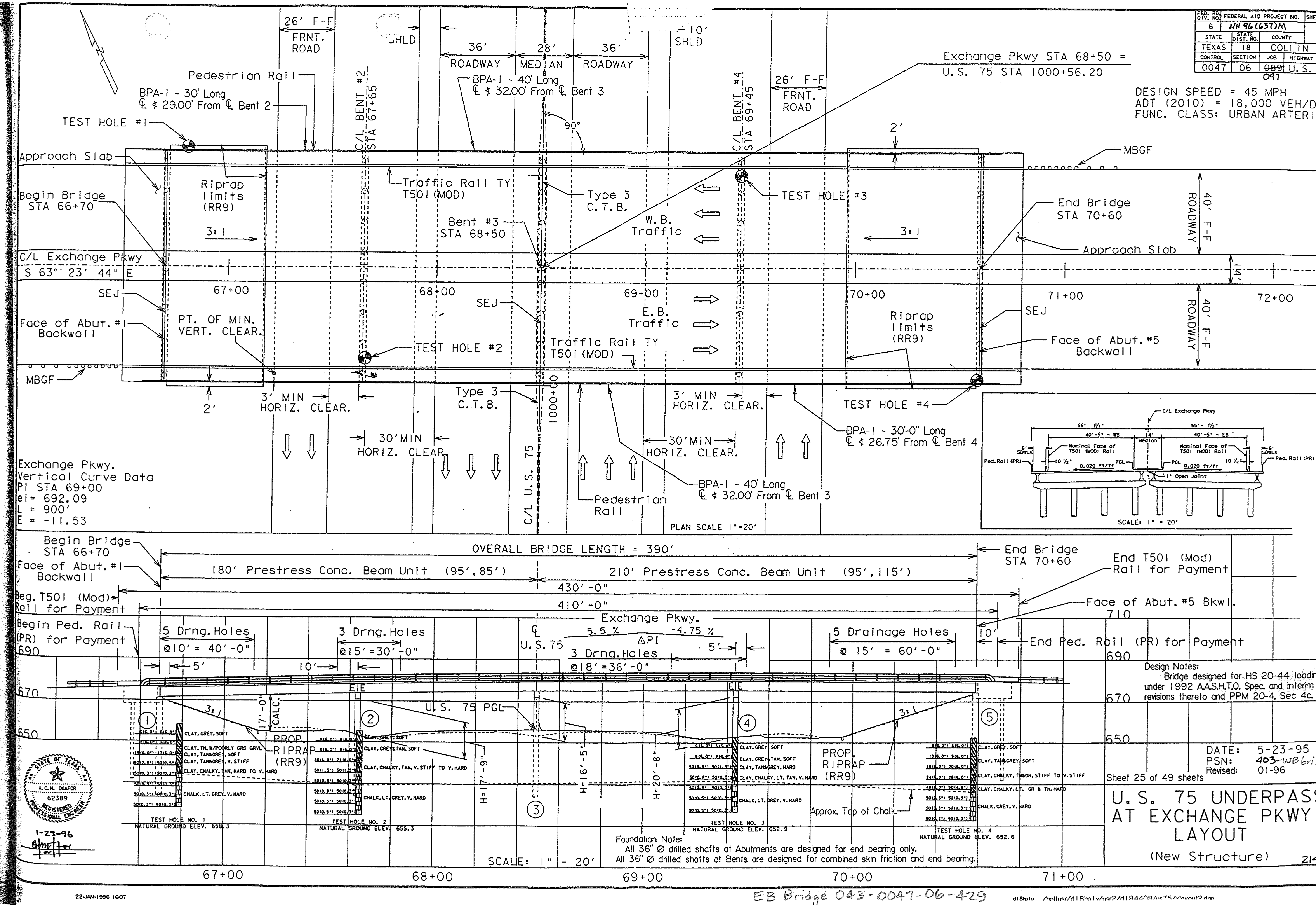
BRIDGE LAYOUT
US 75 OVER SPRING CREEK PARKWAY

DIST	COUNTY	SECT	JOB	HIGHWAY
18	COLLIN	47	6	70
		F 539 (4)		US 75

166

De Leuw, Cather & Company • Dallas

Bridge 043-0047-06-428 SB



FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | SHEET
6 | NH 96(657)M
STATE | STATE DIST. NO. | COUNTY
TEXAS | 18 | COLLIN
CONTROL | SECTION | JOB | HIGHWAY NO.
0047 | 06 | 089 097 | U.S. 75
DESIGN SPEED = 45 MPH
ADT (2010) = 18,000 VEH/DAY
FUNC. CLASS: URBAN ARTERIAL
Exchange Pkwy STA 68+50 =
U.S. 75 STA 1000+56.20
26' F-F FRNT. ROAD
SHLD
36' ROADWAY
28' MEDIAN
36' ROADWAY
10' SHLD
26' F-F FRNT. ROAD
Pedestrian Rail
BPA-1 ~ 30' Long
℄ ⋅ 29.00' From ℄ Bent 2
BPA-1 ~ 40' Long
℄ ⋅ 32.00' From ℄ Bent 3
90°
TEST HOLE #1
C/L BENT #2 STA 67+65
C/L BENT #4 STA 69+45
2'
MBGF
Approach Slab
Riprap limits (RR9)
Traffic Rail TY T501 (MOD)
Type 3 C.T.B.
TEST HOLE #3
Begin Bridge STA 66+70
3:1
Bent #3 STA 68+50
W.B. Traffic
End Bridge STA 70+60
40' F-F ROADWAY
C/L Exchange Pkwy
S 63° 23' 44" E
14'
67+00
68+00
69+00
70+00
71+00
72+00
SEJ
E.B. Traffic
Face of Abut. #1 Backwall
PT. OF MIN. VERT. CLEAR.
TEST HOLE #2
Traffic Rail TY T501 (MOD)
Face of Abut. #5 Backwall
TEST HOLE #4
3' MIN HORIZ. CLEAR.
1000+00
BPA-1 ~ 30'-0" Long
℄ ⋅ 26.75' From ℄ Bent 4
30' MIN HORIZ. CLEAR.
C/L U.S. 75
Exchange Pkwy. Vertical Curve Data
PI STA 69+00
el = 692.09
L = 900'
E = -11.53
Pedestrian Rail
BPA-1 ~ 40' Long
℄ ⋅ 32.00' From ℄ Bent 3
PLAN SCALE 1" = 20'
C/L Exchange Pkwy
55' 1/2"
40'-5" ~ WB
14' Median
40'-5" ~ EB
Nominal Face of T501 (MOD) Rail
6' SDWLK
Ped. Rail (PR)
PGL
0.020 ft/ft
1" Open Joint
SCALE: 1" = 20'
OVERALL BRIDGE LENGTH = 390'
End Bridge STA 70+60
180' Prestress Conc. Beam Unit (95', 85')
210' Prestress Conc. Beam Unit (95', 115')
End T501 (Mod) Rail for Payment
430'-0"
Beg. T501 (Mod) Rail for Payment
410'-0"
Face of Abut. #5 Bkwl.
Exchange Pkwy.
Begin Ped. Rail (PR) for Payment
5 Drng. Holes @10' = 40'-0"
3 Drng. Holes @15' = 30'-0"
℄ U.S. 75
5.5 %
-4.75 %
ΔPI
3 Drng. Holes @18' = 36'-0"
5 Drainage Holes @ 15' = 60'-0"
End Ped. Rail (PR) for Payment
710
690
670
650
5'
10'
E E
17'-0" CALC.
U.S. 75 PGL
PROP. RIPRAP (RR9)
H = 17'-9"
H = 16'-5"
H = 20'-8"
CLAY, GREY, SOFT
CLAY, TAN & GREY, V. STIFF
CLAY, CHALKY, TAN, HARD TO V. HARD
CHALK, LT. GREY, V. HARD
TEST HOLE NO. 1 NATURAL GROUND ELEV. 658.3
TEST HOLE NO. 2 NATURAL GROUND ELEV. 655.3
TEST HOLE NO. 3 NATURAL GROUND ELEV. 652.9
TEST HOLE NO. 4 NATURAL GROUND ELEV. 652.6
Approx. Top of Chalk
Design Notes:
Bridge designed for HS 20-44 loading under 1992 A.A.S.H.T.O. Spec. and interim revisions thereto and PPM 20-4, Sec 4c.
DATE: 5-23-95
PSN: 403-WB bridge
Revised: 01-96
Sheet 25 of 49 sheets
U.S. 75 UNDERPASS AT EXCHANGE PKWY LAYOUT
(New Structure)
214
Foundation Note:
All 36" Ø drilled shafts at Abutments are designed for end bearing only.
All 36" Ø drilled shafts at Bents are designed for combined skin friction and end bearing.
SCALE: 1" = 20'
STATE OF TEXAS
A.C.N. OKAFOR
62389
REGISTERED PROFESSIONAL ENGINEER
1-23-96
22-JAN-1996 16:07
EB Bridge 043-0047-06-429

COLLIN 0047-06-134

DEPARTMENT OF TRANSPORTATIO

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMEN

FEDERAL AID PROJECT

PROJECT CSJ: 0047-06-134

US 75 UNDERPASS AT PARKER R

COLLIN

LIMITS: US 75 AT PARKER ROAD

FINAL PLANS

NAME OF CONTRACTOR: _____

DATE OF LETTING: _____

DATE WORK BEGAN: _____

DATE WORK COMPLETED: _____

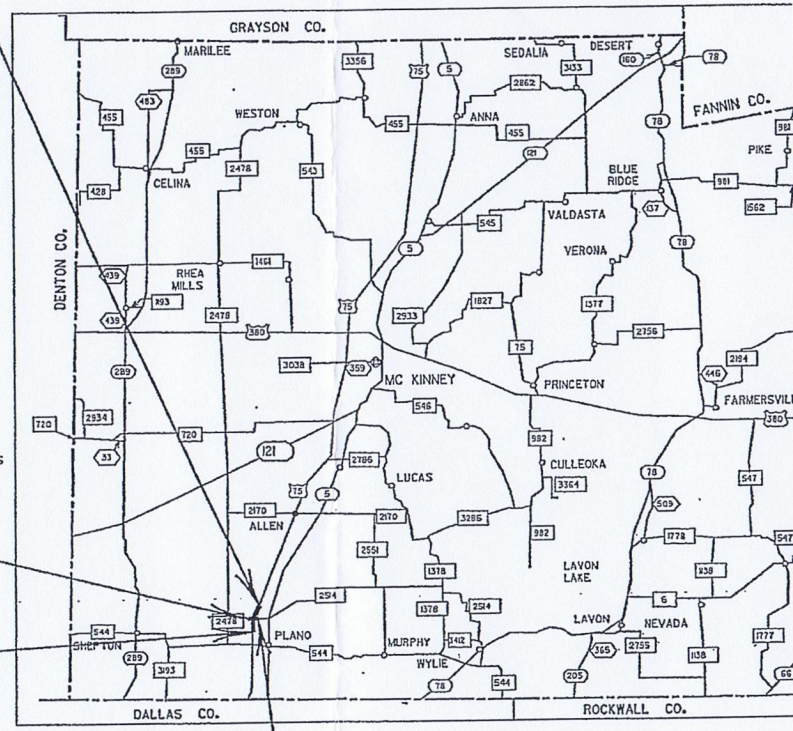
DATE WORK ACCEPTED: _____

SUMMARY OF CHANGE ORDERS:

TOTAL LENGTH OF PROJECT =			
	ROADWAY = 3,850.00FT. =		0.729
	BRIDGE = 0.00 FT. =		0.000
	TOTAL = 3,850.00 FT. =		0.729

TYPE: FOR THE CONSTRUCTION OF SINGLE POINT URBAN INTERCH
CONSISTING OF: GRADING, DRAINAGE, RETAINING WALLS, BRI
CONCRETE PAVEMENT, SIGNING,
PAVEMENT MARKINGS, LIGHTING, ETC.

END PROJECT
CSJ 0047-06-134
US 75 STA 709+50.00
TRM 250+0.358 MI



N

COLLIN COUNTY
SCALE 0 1 2 3 4 5 6 MILES

DALLAS DISTRICT

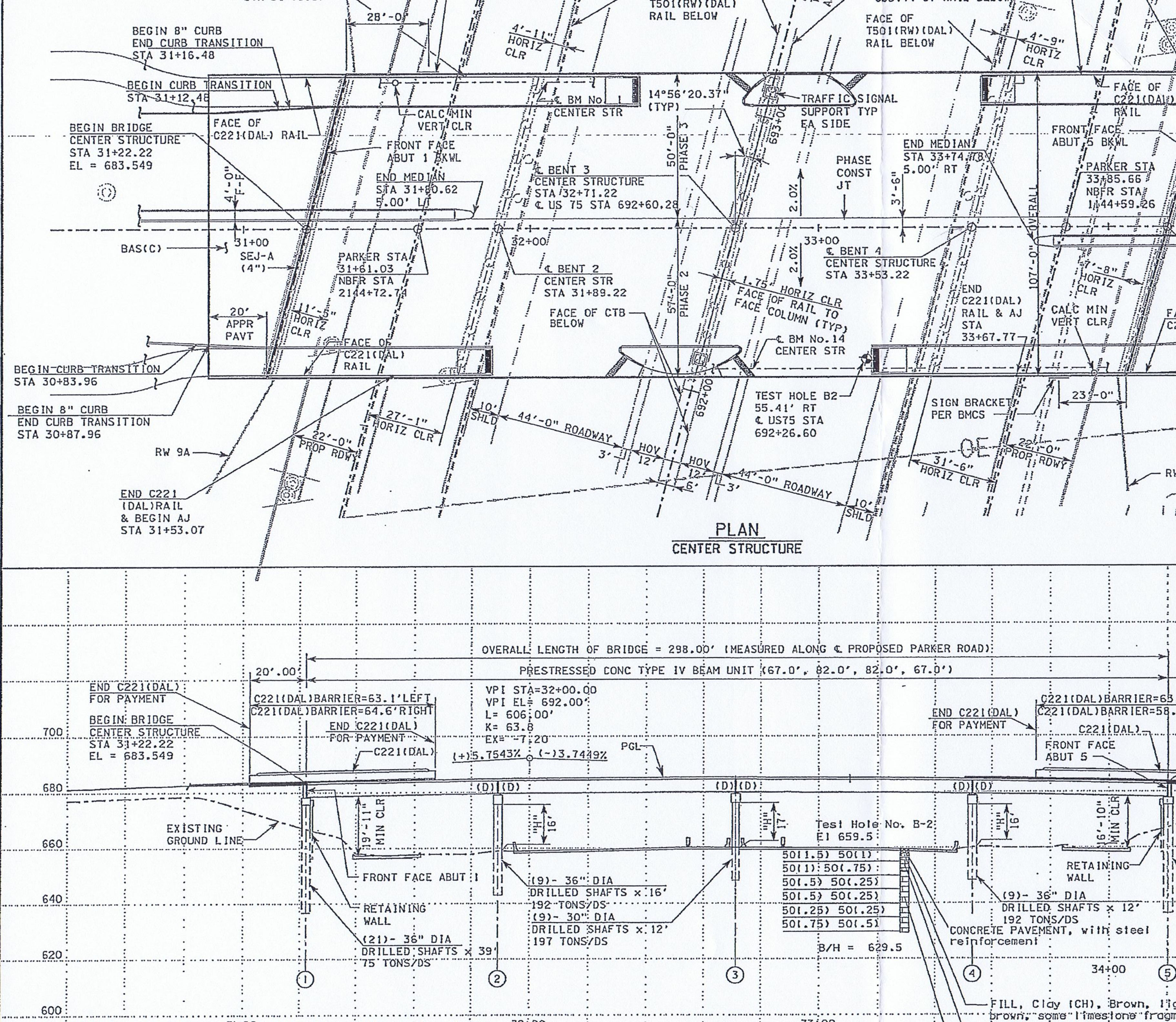
BEGIN PROJECT
CSJ 0047-06-134
PARKER STA 16+00

BEGIN PROJECT
CSJ 0047-06-134
US 75 STA 671+00.00
TRM 250+1.087 MI

END PROJECT
CSJ 0047-06-134
PARKER STA 48+70.00

NO EQUATIONS
NO EXCEPTIONS
NO RAILROADS

ED: 10-23-02



dT:25
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0047-06-134

COLLIN

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GKL	6	STP 2008(360) MM		US 75
GRAPHICS QTJ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK FRK	TEXAS	DALLAS	COLLIN	1
CHECK SFI	CONTROL	SECTION	JOB	
	0047	06	134	

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT

PROJECT CSJ: 0047-06-134

US 75 UNDERPASS AT PARKER ROAD

COLLIN

LIMITS: US 75 AT PARKER ROAD

DESIGN SPEED = 60MPH MAINLANE
40 MPH FRONTAGE ROADS
40 MPH FRWY AND FRTG RD RAMPS
20 MPH QUADRANT RAMPS

US 75 MAINLANE TRAFFIC VOLUME PROJECTION
ADT (YR 2005) = 139,820
ADT (YR 2025) = 198,810

FINAL PLANS

NAME OF CONTRACTOR: _____

DATE OF LETTING: _____

DATE WORK BEGAN: _____

DATE WORK COMPLETED: _____

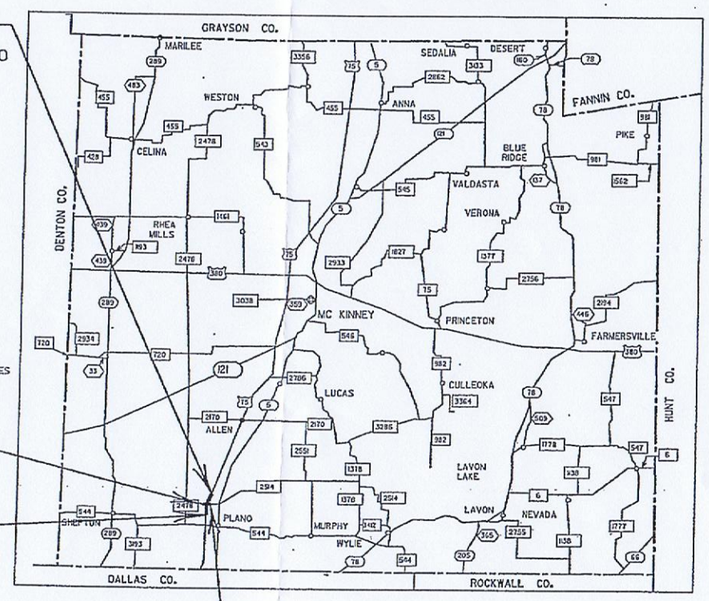
DATE WORK ACCEPTED: _____

SUMMARY OF CHANGE ORDERS:

TOTAL LENGTH OF PROJECT =			
ROADWAY	= 3,850.00FT. =	0.729MI.
BRIDGE	= 0.00 FT. =	0.000 MI.
TOTAL	= 3,850.00 FT. =	0.729 MI.

TYPE: FOR THE CONSTRUCTION OF SINGLE POINT URBAN INTERCHANGE (SPUI)
CONSISTING OF: GRADING, DRAINAGE, RETAINING WALLS, BRIDGE BASE, CONCRETE PAVEMENT, SIGNING, PAVEMENT MARKINGS, LIGHTING, ETC.

END PROJECT
CSJ 0047-06-134
US 75 STA 709+50.00
TRM 250+0.358 MI



N

COLLIN COUNTY
SCALE 0 1 2 3 4 5 6 MILES
DALLAS DISTRICT

BEGIN PROJECT
CSJ 0047-06-134
PARKER STA 16+00

BEGIN PROJECT
CSJ 0047-06-134
US 75 STA 671+00.00
TRM 250+1.087 MI

END PROJECT
CSJ 0047-06-134
PARKER STA 48+70.00

NO EQUATIONS
NO EXCEPTIONS
NO RAILROADS

NOTE:
SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, JUNE 1, 2004, AND THE CONTRACT PROVISIONS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, MARCH, 1994)

TDLR INSPECTION REQUIRED

JACOBS

TEXAS DEPARTMENT OF TRANSPORTATION

CONCURRENCE: 12/20 2007
CITY OF PLANO

CONCURRENCE: 12/20/2007
COLLIN COUNTY

SUBMITTED FOR LETTING 1/7/2008
P.E.
PROJECT MANAGER, TxDOT

SUBMITTED FOR LETTING 12/20/2007
P.E.
DESIGN ENGINEER, JACOBS

RECOMMENDED FOR LETTING 01/07 2007
P.E.
AREA ENGINEER

APPROVED FOR LETTING 200
P.E.
DIRECTOR OF BRIDGE DIVISION

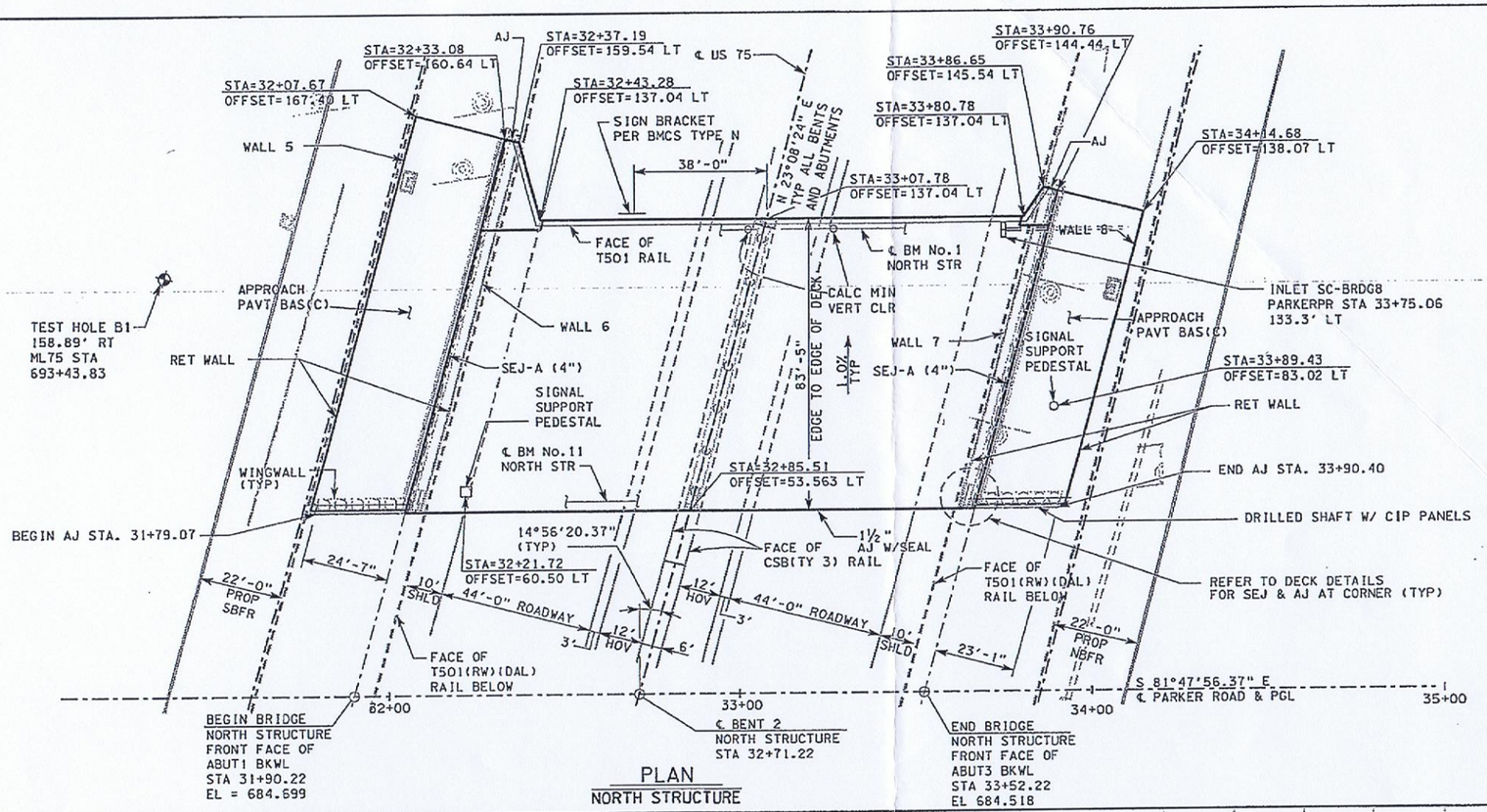
RECOMMENDED FOR LETTING 1-14 2008
P.E.
DIRECTOR OF TRANSPORTATION PLANNING & DEVELOPMENT

APPROVED FOR LETTING 200
P.E.
DIRECTOR, TRAFFIC OPERATIONS DIVISION

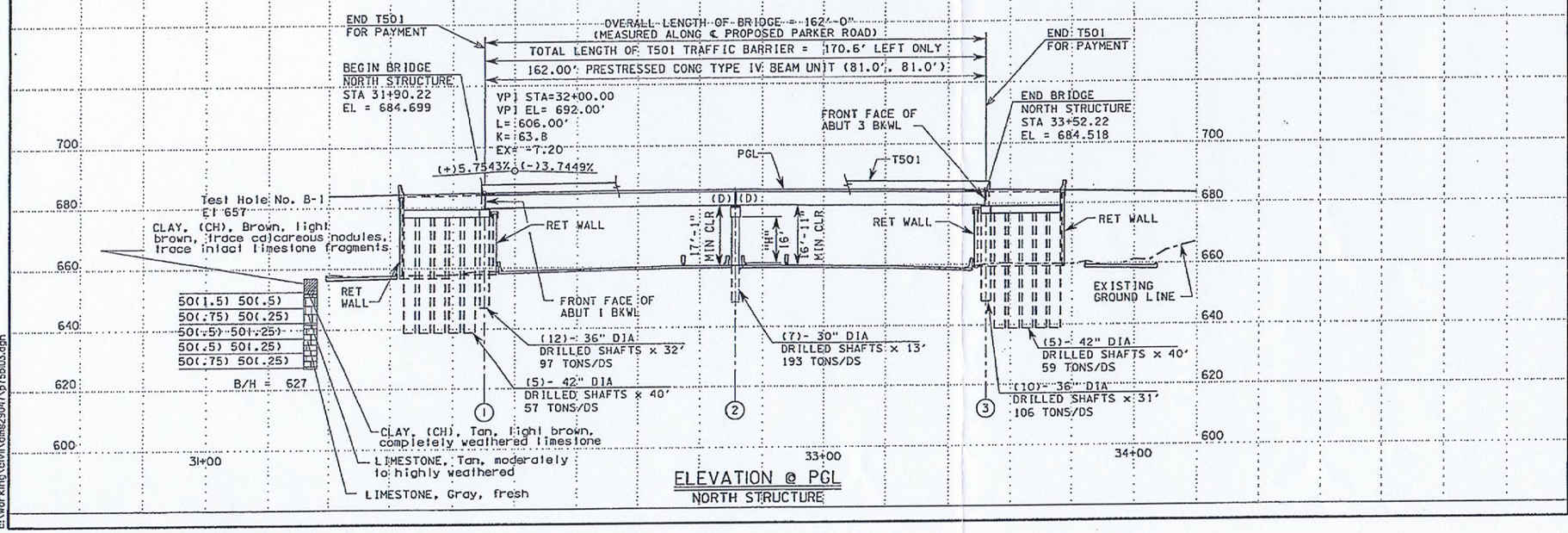
RECOMMENDED FOR LETTING: 1/14 2008
P.E.
DISTRICT ENGINEER

APPROVED FOR LETTING 12.29, 2008
P.E.
FOR DIRECTOR, DESIGN DIVISION

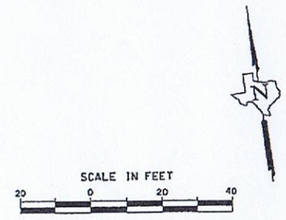
TEMPLATE REVISED: 10-23-02



PLAN
NORTH STRUCTURE



ELEVATION @ PGL
NORTH STRUCTURE



GENERAL
NOTES:

1. SEE NOTES ON GENERAL PLAN SHEET.

FOUNDATION
NOTES:

ALL DRILLED SHAFTS AT ABUTMENTS ARE DESIGNED FOR COMBINATION OF POINT BEARING AND SKIN FRICTION. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE THE LIMESTONE. THE FOLLOWING MINIMUM DISTANCES
INTERIOR BENTS: 9.0 FT
36" Ø SHAFTS AT ABUTMENTS = 9.0 FT
42" Ø SHAFTS AT ABUTMENTS = 21.0 FT

EXISTING STRUCTURE NBI: 18-043-0-8025-18-227
NORTH STRUCTURE NBI: 18-043-0-0047-06-610
SOUTH STRUCTURE NBI: 18-043-0-0047-06-611
CENTER STRUCTURE NBI: 18-043-0-0047-06-609

HS20 LOADING

Franklin R Kelly II 12/27/2007

STATE OF TEXAS
FRANKLIN R. KELLY II
86960
LICENSED
PROFESSIONAL ENGINEER

JACOBS

Texas Department of Transportation

US 75 AT PARKER ROAD

BRIDGE LAYOUT
US 75 UNDERPASS AT PARKER ROAD
NORTH STRUCTURE

H:1"=40'
SCALE: V:1"=40'

SHEET: 1 OF 1

DESIGN	FED.RD. DIV.NO.			HIGHWAY NO.
KY	6			US 75
GRAPHICS WJR	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK FRK	TEXAS	DALLAS	COLLIN	326
CHECK CEH	CONTROL 0047	SECTION 06	JOB 134	

morris2
27 DEC 2007 18:18:03
c:\working\civil\dms290471\pt750103.dgn

COLLIN 0047-06-134

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GKL	6	STP 2008(360) MM		US 75
GRAPHICS QTJ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK FRK	TEXAS	DALLAS	COLLIN	1
CHECK SFI	CONTROL 0047	SECTION 06	JOB 134	

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT

PROJECT CSJ: 0047-06-134

US 75 UNDERPASS AT PARKER ROAD

COLLIN

LIMITS: US 75 AT PARKER ROAD

DESIGN SPEED = 60MPH MAINLANE
40 MPH FRONTAGE ROADS
40 MPH FRWY AND FRTG RD RAMPS
20 MPH QUADRANT RAMPS

US 75 MAINLANE TRAFFIC VOLUME PROJECTION
ADT (YR 2005) = 139,820
ADT (YR 2025) = 198,810

FINAL PLANS

NAME OF CONTRACTOR: _____

DATE OF LETTING: _____

DATE WORK BEGAN: _____

DATE WORK COMPLETED: _____

DATE WORK ACCEPTED: _____

SUMMARY OF CHANGE ORDERS:

NOTE:
SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, JUNE 1, 2004, AND THE CONTRACT PROVISIONS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, MARCH, 1994)

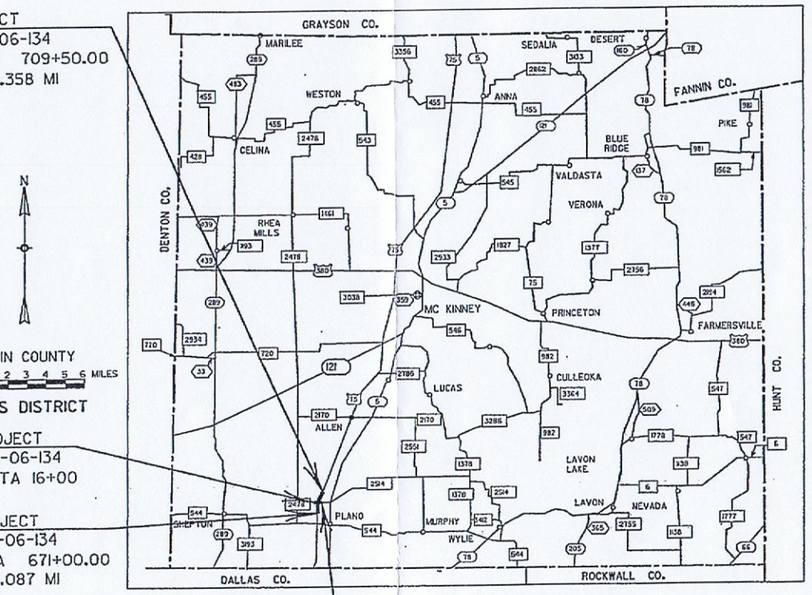
TDLR INSPECTION REQUIRED

TOTAL LENGTH OF PROJECT =

ROADWAY	= 3,850.00FT. =	0.729MI.
BRIDGE	= 0.00 FT. =	0.000 MI.
TOTAL	= 3,850.00 FT. =	0.729 MI.

TYPE: FOR THE CONSTRUCTION OF SINGLE POINT URBAN INTERCHANGE (SPUI)
CONSISTING OF: GRADING, DRAINAGE, RETAINING WALLS, BRIDGE BASE, CONCRETE PAVEMENT, SIGNING, PAVEMENT MARKINGS, LIGHTING, ETC.

END PROJECT
CSJ 0047-06-134
US 75 STA 709+50.00
TRM 250+0.358 MI



BEGIN PROJECT
CSJ 0047-06-134
PARKER STA 16+00

BEGIN PROJECT
CSJ 0047-06-134
US 75 STA 671+00.00
TRM 250+1.087 MI

END PROJECT
CSJ 0047-06-134
PARKER STA 48+70.00

NO EQUATIONS
NO EXCEPTIONS
NO RAILROADS

JACOBS

TEXAS DEPARTMENT OF TRANSPORTATION

CONCURRENCE: 12/20 2007
Allan L. Richard
CITY OF PLANO

CONCURRENCE: 12/20/2007
Ruben C. Delgado
COLLIN COUNTY

SUBMITTED FOR LETTING 1/7 2008
G. A. W. , P.E.
PROJECT MANAGER, TxDOT

SUBMITTED FOR LETTING 12/20/2007
Sperita F. Irani P.E.
DESIGN ENGINEER, JACOBS

RECOMMENDED FOR LETTING 01/07 2007
, P.E.
AREA ENGINEER

APPROVED FOR LETTING 200
, P.E.
DIRECTOR OF BRIDGE DIVISION

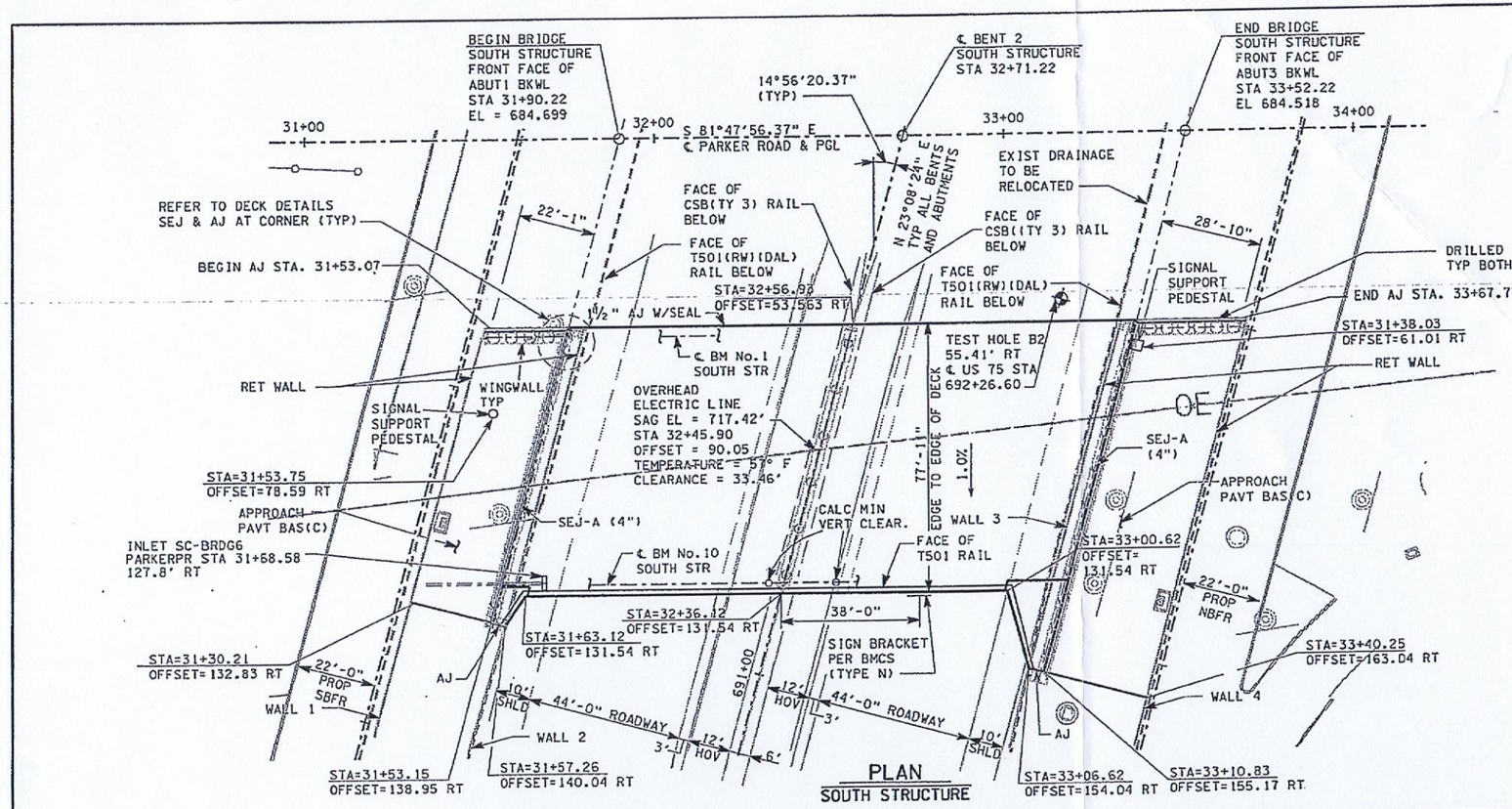
RECOMMENDED FOR LETTING 1-14 2008
Bruce R. Barton , P.E.
DIRECTOR OF TRANSPORTATION PLANNING & DEVELOPMENT

APPROVED FOR LETTING 200
, P.E.
DIRECTOR, TRAFFIC OPERATIONS DIVISION

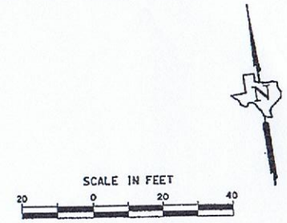
RECOMMENDED FOR LETTING: 1/14 2008
William L. Hale , P.E.
DISTRICT ENGINEER

APPROVED FOR LETTING 02.29, 2008
FOR , P.E.
DIRECTOR, DESIGN DIVISION

TEMPLATE REVISED: 10-23-02



PLAN
SOUTH STRUCTURE



GENERAL NOTES:

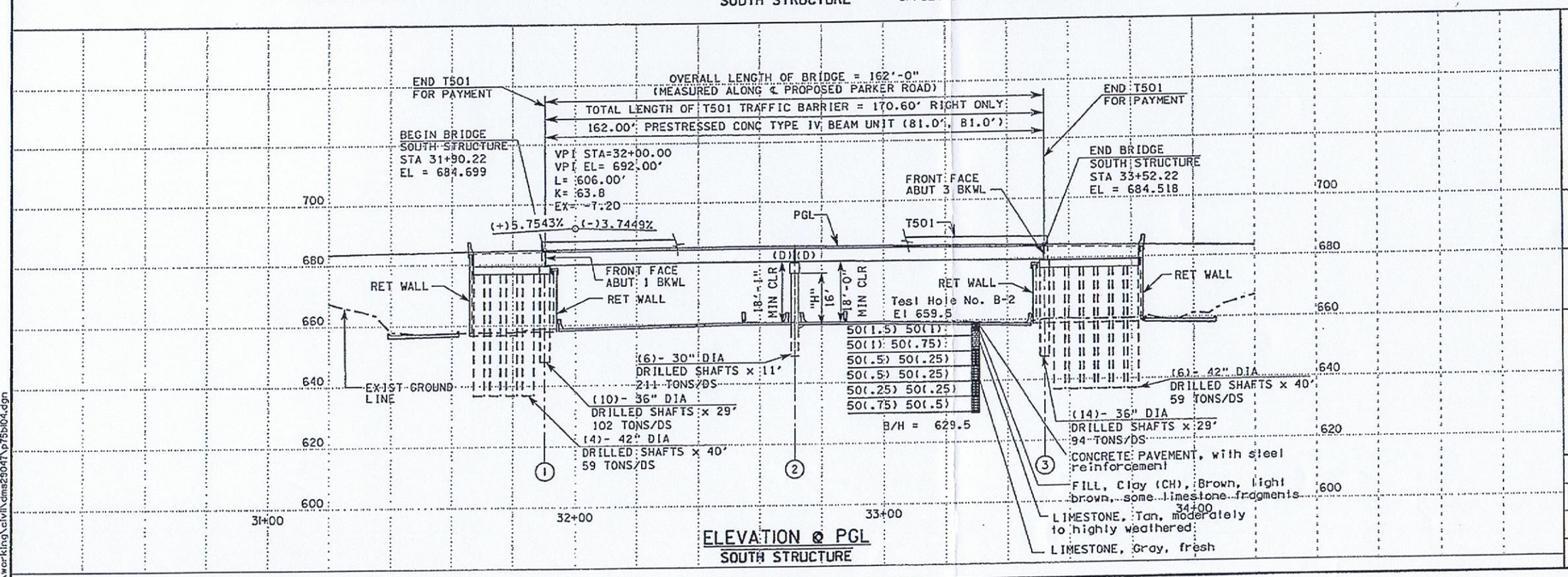
1. SEE NOTES ON GENERAL PLAN SHEET.

FOUNDATION
NOTES:

ALL DRILLED SHAFTS AT ABUTMENTS ARE DESIGNED FOR COMBINATION OF POINT BEARING AND SKIN FRICTION. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE THE LIMESTONE. THE FOLLOWING MINIMUM DISTANCES
INTERIOR BENTS: 9.0 FT
36" Ø SHAFTS AT ABUTMENTS = 9.0 FT
42" Ø SHAFTS AT ABUTMENTS = 21.0 FT

EXISTING STRUCTURE NBI: 18-043-0-8025-18-227
NORTH STRUCTURE NBI: 18-043-0-0047-06-610
SOUTH STRUCTURE NBI: 18-043-0-0047-06-611
CENTER STRUCTURE NBI: 18-043-0-0047-06-609

HS20 LOADING



ELEVATION @ PGL
SOUTH STRUCTURE

Franklin R Kelly II 12/27/2007

STATE OF TEXAS
FRANKLIN R. KELLY II
86980
LICENSED
PROFESSIONAL ENGINEER

JACOBS

Texas Department of Transportation

US 75 AT PARKER ROAD

BRIDGE LAYOUT
US 75 UNDERPASS AT PARKER ROAD
SOUTH STRUCTURE

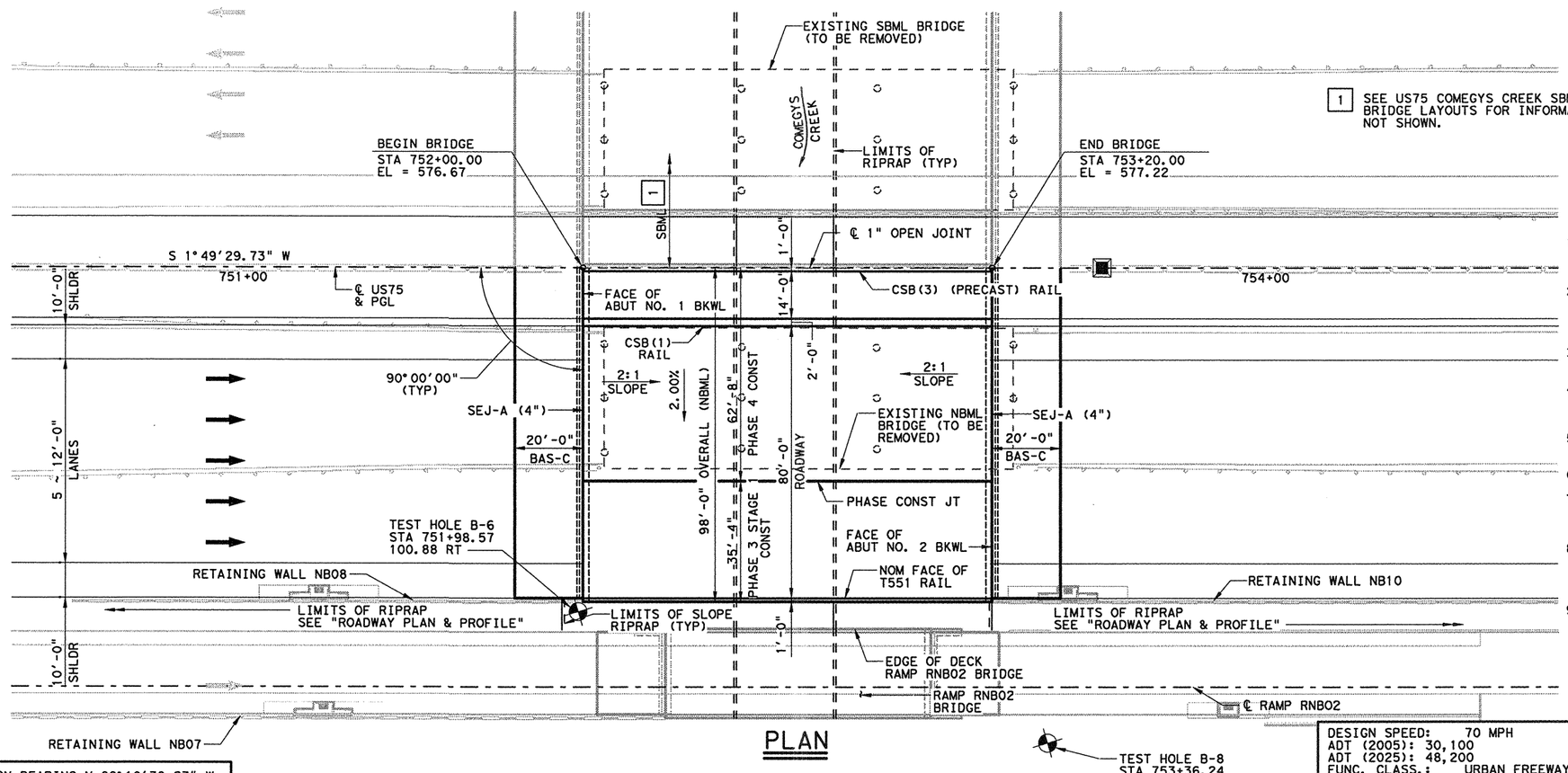
SCALE: H:1"=40'
V:1"=40'

SHEET: 1 OF 1

DESIGN	FED.RD. DIV.NO.			HIGHWAY NO.
KY	6			US 75
GRAPHICS VH	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK FRK	TEXAS	DALLAS	COLLIN	342
CHECK CEH	CONTROL 0047	SECTION 06	JOB 134	

morris2
21 DEC 2007 18:45:28
c:\working\civil\dms29047\p75b04.dgn

FINAL PLANS

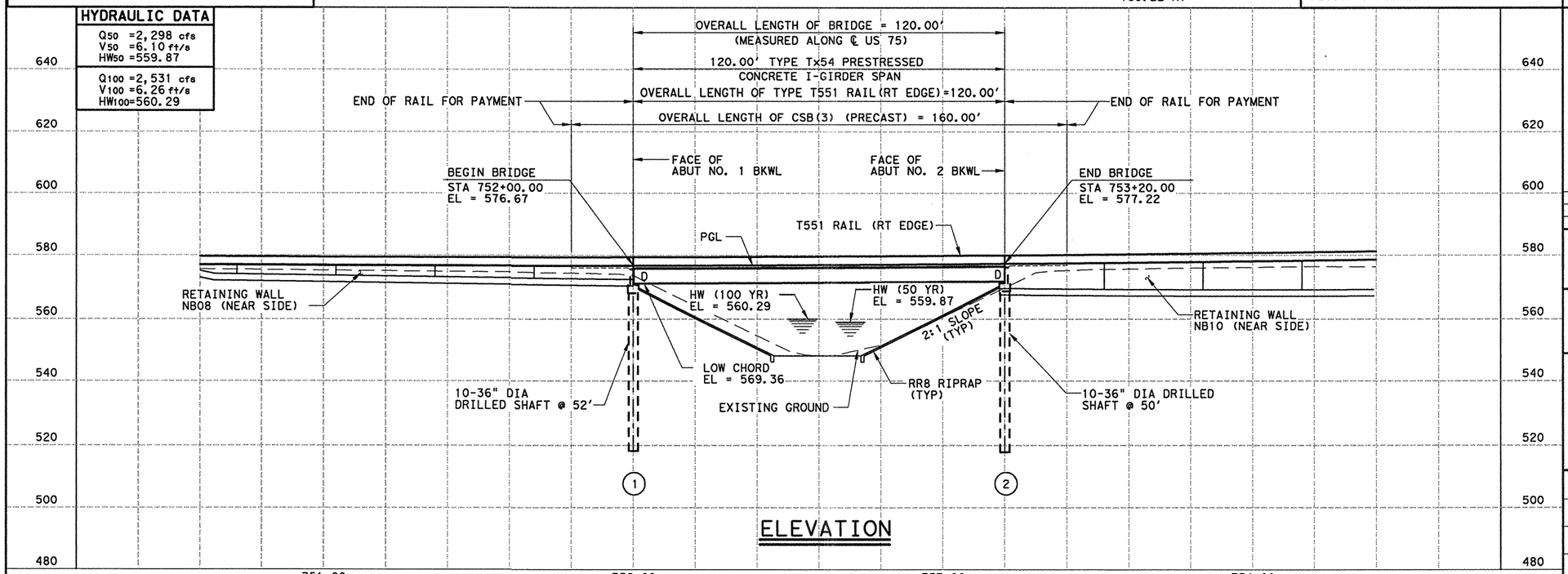


PLAN

ALL BENTS ON BEARING N 88°10'30.27" W

HYDRAULIC DATA

Q_{50}	2,298 cfs
V_{50}	6.10 ft/s
HW_{50}	559.87
Q_{100}	2,531 cfs
V_{100}	6.26 ft/s
HW_{100}	560.29



ELEVATION

DESIGN SPEED: 70 MPH
ADT (2005): 30,100
ADT (2025): 48,200
FUNC. CLASS.: URBAN FREEWAY
DESIGN INCLUDES FUTURE 2" OVERLAY

HL93 LOADING

EXISTING NBI: 18-043-0-0047-06-162
NEW NBI: 18-043-0-0047-06-631

DESIGN NOTES:

1. DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE SPECIFICATIONS, 4TH EDITION WITH ALL INTERIM SPECIFICATIONS.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL STRUCTURES AND UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEER IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
3. "D" DENOTES BENTS WITH D BARS AND SLOTTED HOLES AT EXTERIOR BEAMS.
4. FOR SECTION DETAILS & STAGING INFORMATION, SEE "BRIDGE LAYOUT COMEGYS CREEK MAINLANE BRIDGES TYPICAL SECTIONS" SHEETS.
5. SEE RETAINING WALL LAYOUTS FOR LIMITS AND DETAILS NOT SHOWN.
6. SEE BORING LOG SHEET FOR BORING DATA.
7. SEE ROADWAY SUMMARY FOR MANAGED LANE CSB (1) (PRECAST) BARRIER. SEE BRIDGE SUMMARY FOR ℄ US75 CSB (3) (PRECAST) BARRIER QUANTITIES.
8. SEE TRAFFIC CONTROL PLAN FOR LIMITS AND LOCATIONS OF TEMP WALLS AND TEMP SPL SHORING. SEE TRAFFIC CONTROL SUMMARY FOR TEMP WALLS AND TEMP SPL QUANTITIES.
9. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE HARD GRAY LIMESTONE A MINIMUM DISTANCE OF 3 FT.

0 20 40 60 80
SCALE IN FEET

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett P.E.
1-21-2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
© 2011

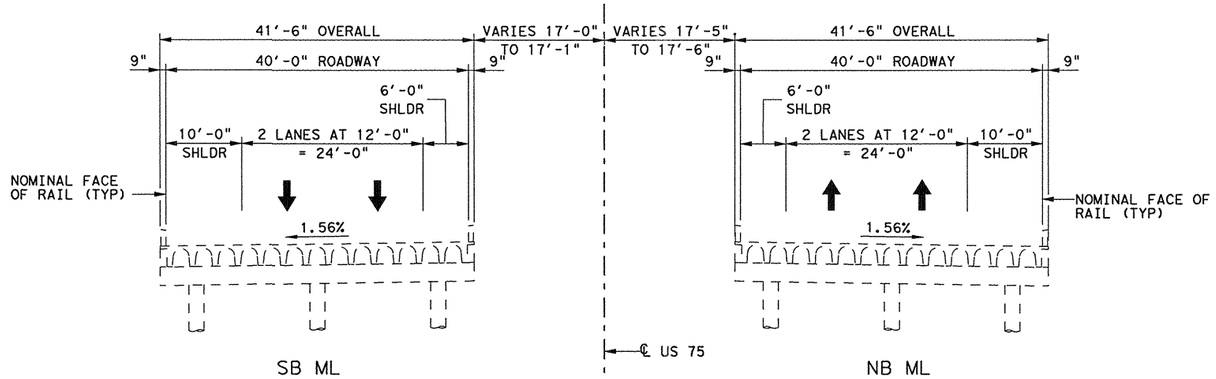
US 75
BRIDGE LAYOUT
COMEGYS CREEK NBML BRIDGE

SCALE: 1"=40' SHEET 1 OF 1

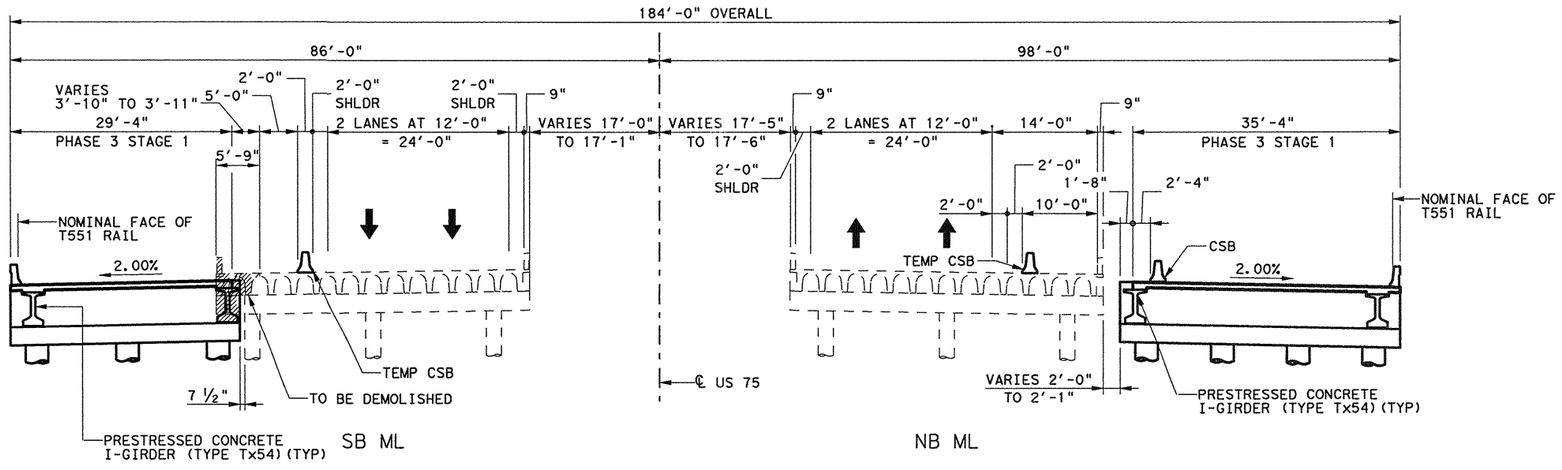
DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS DE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1236
CHECK DMW	CONTROL 0047	SECTION 06	JOB 108, ETC.	

PLOT DRIVER: TxDOT_SER_BW_PDF.pltPENTABLE: 000000000070218.tbl
USER: jquinter DATE: 1/21/2011 TIME: 10:10:44 AM SCALE: 1:40
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75BLO4NA.DGN

FINAL PLANS



EXISTING STRUCTURE



PHASE 3 STAGE 1 CONSTRUCTION

NOTES:

SEE TRAFFIC CONTROL PLANS FOR STAGING SEQUENCE INFORMATION.

DIMENSIONS SHOWN ARE BASED ON SURVEY AND EXISTING BRIDGE PLANS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

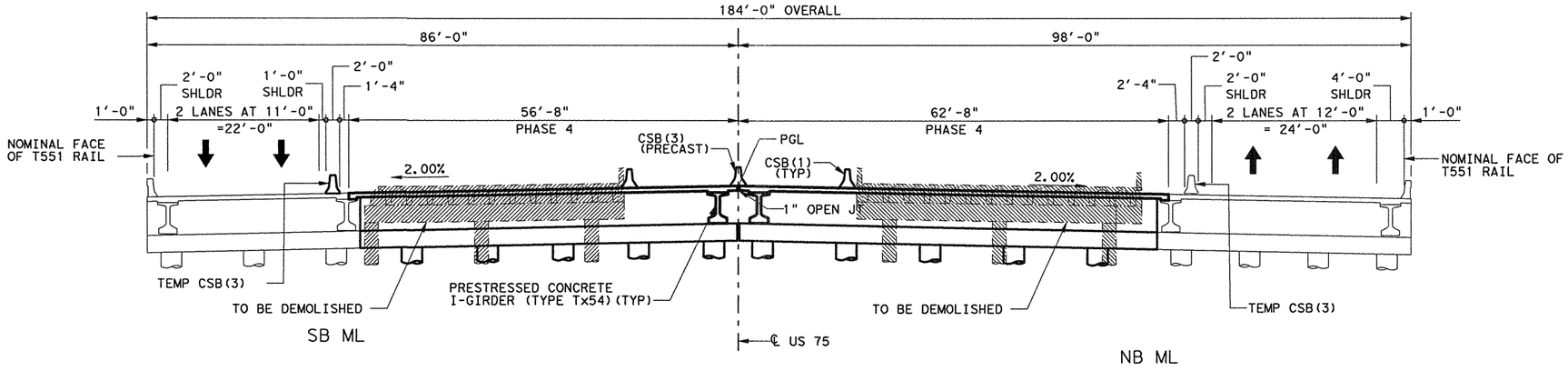
US 75
TYPICAL SECTIONS & PHASE CONST
COMEGYS CREEK
MAINLANE BRIDGES

SCALE: 1"=20' SHEET 1 OF 2

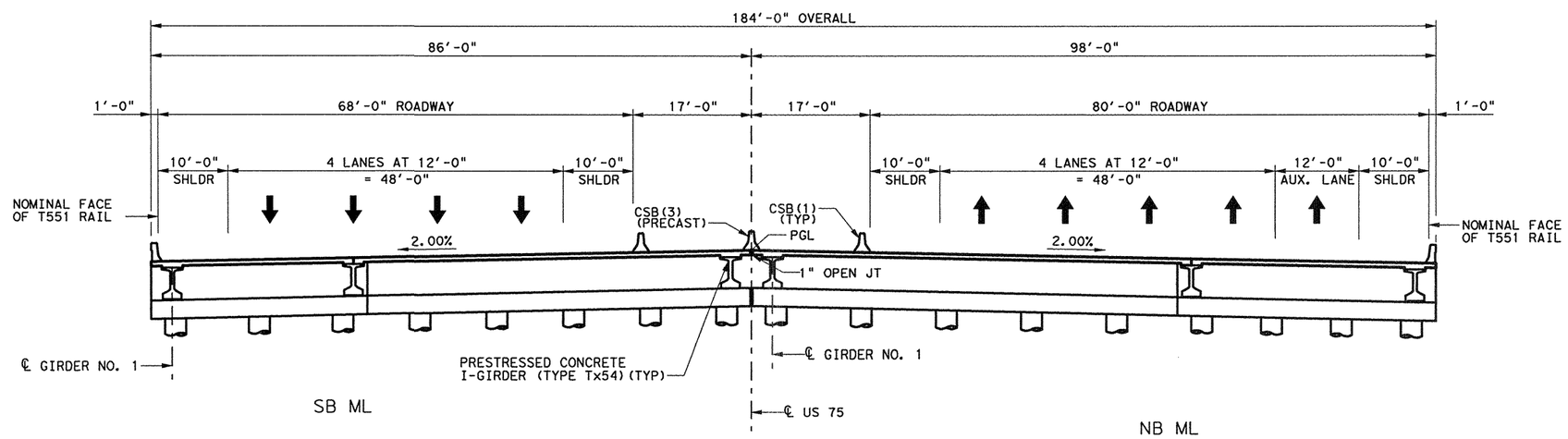
DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DE	TEXAS	DAL	COLLIN	1237
CHECK	CONTROL	SECTION	JOB	
GMK	0047	06	108, ETC.	
CHECK				
DMW				

PLOT DRIVER: TXDOT_LASER_BW_PDF.plt PENTABLE: 000000000070218.tbl
USER: mboutist DATE: 12/6/2010 TIME: 7:33:57 PM SCALE: 1:20
FILE: TxDOT_Dallas_District\US75_FC160_RoadwayV3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75SC04A.DGN

FINAL PLANS



PHASE 4 CONSTRUCTION



FINAL STRUCTURE

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

US 75
TYPICAL SECTIONS & PHASE CONST
COMEGYS CREEK
MAINLANE BRIDGES

SCALE: 1"=20' SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS DE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1238
CHECK DMW	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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FILE: T:\DOT_Dallas_District\US75_FC\60_Roadway\V3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75SC04B.DGN

FINAL PLANS

SUMMARY OF ESTIMATED QUANTITIES - PHASE 3 STAGE 1

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)	S14 2053 PERM CONC TRF BARR (F-SHAPE) (BRIDGE)
	LF	CY	CY	SF	LF	SY	CY	LF	LF	LF
2 ~ ABUTMENTS	408	36.2	59.9				68		68	
1 ~ 120.00' TY Tx54 PCPS GDR SPAN				4,240	597.50	452		120.0		0
TOTAL	408	36.2	59.9	4,240	597.50	452	68	120.0	68	0

SUMMARY OF ESTIMATED QUANTITIES - PHASE 4

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)	S14 2053 PERM CONC TRF BARR (F-SHAPE) (BRIDGE)
	LF	CY	CY	SF	LF	SY	CY	LF	LF	LF
2 ~ ABUTMENTS	612	61.2	110.9				99		124	40.0
1 ~ 120.00' TY Tx54 PCPS GDR SPAN				7,515	956.00	822		0		120.0
TOTAL	612	61.2	110.9	7,515	956.00	822	99	0	124	160.0

SUMMARY OF ESTIMATED QUANTITIES - TOTAL

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)	S14 2053 PERM CONC TRF BARR (F-SHAPE) (BRIDGE)
	LF	CY	CY	SF	LF	SY	CY	LF	LF	LF
2 ~ ABUTMENTS	1,020	97.4	170.8				167		192	40.0
1 ~ 120.00' TY Tx54 PCPS GDR SPAN				11,755	1,553.50	1,274		120.0		120.0
TOTAL	1,020	97.4	170.8	11,755	1,553.50	1,274	167	120.0	192	160.0

(1) Sulfate Resistant Concrete

NOTES:

1. See Traffic Control Plans for quantities of Temporary Barriers and/or Temporary Walls.
2. Existing Bridge is a 120' long Concrete Slab and Girder Span Bridge supported on Concrete Abutments, Bents, and Drilled Shafts.
3. Existing Drilled Shafts shall be cutoff and removed to 2' below Proposed Finished Grade.

BEARING SEAT ELEVATIONS

		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 1	(FWD)	570.734	570.584	570.434	570.284	570.134	569.984	569.834
		BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 13	
	(FWD)	569.684	569.534	569.374	569.214	569.054	568.894	
		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 2	(BK)	571.280	571.130	570.980	570.830	570.680	570.530	570.380
		BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 13	
	(BK)	570.230	570.080	569.920	569.760	569.600	569.440	

HL93 LOADING

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E.
1-21-2011

US 75
ESTIMATED QUANTITIES & BEARING SEAT ELEVATIONS COMEGYS CREEK NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRE	TEXAS	DAL	COLLIN	
CHECK DLS	CONTROL	SECTION	JOB	1239
	0047	06	108, ETC.	

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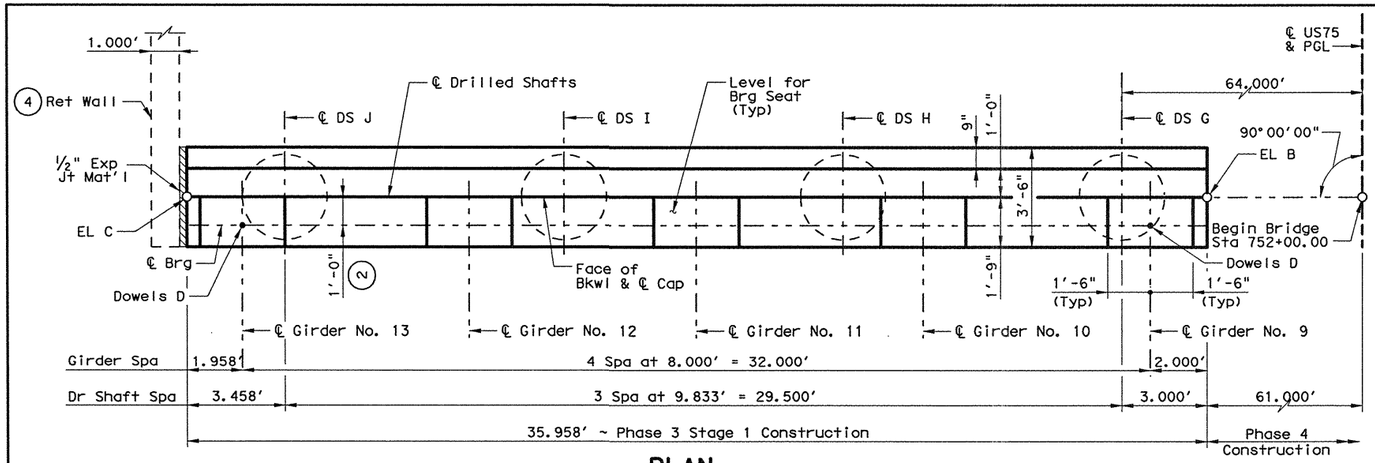
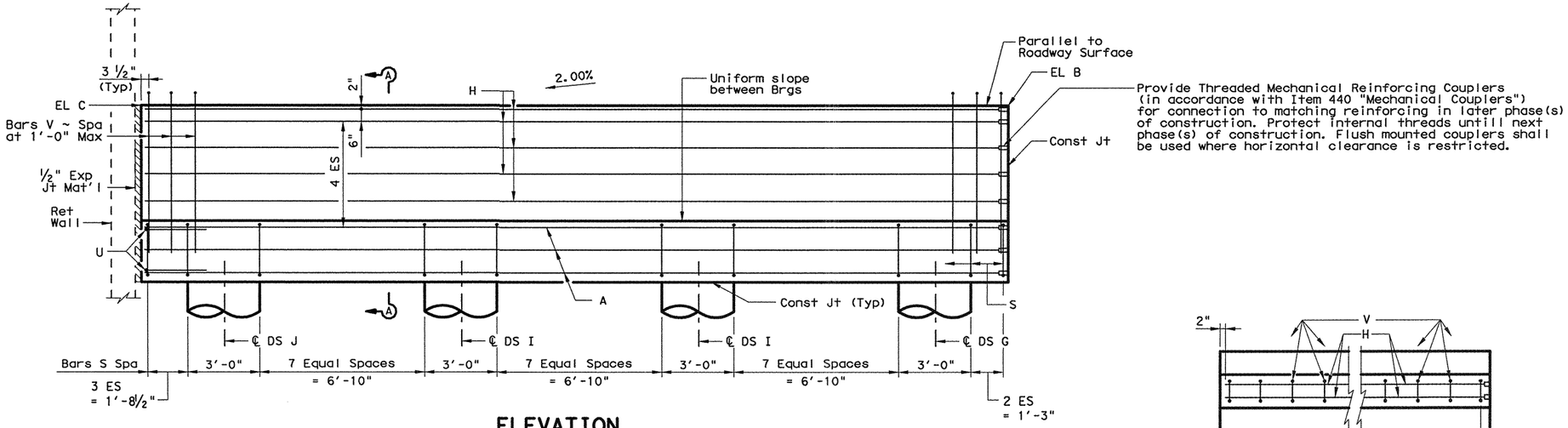
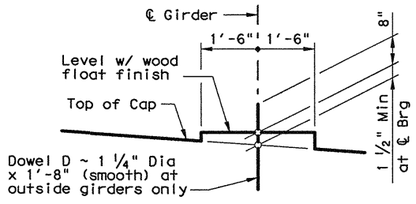


PLAN



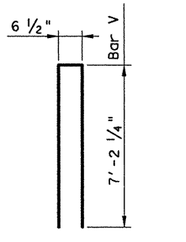
ELEVATION

CONTROL ELEVATIONS		
EL A	EL B	EL C
575.586	574.367	593.648

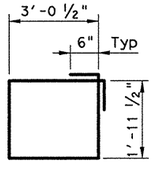


BEARING SEAT DETAIL

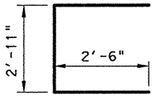
(Bearing surface must be clean and free of all loose material before placing bearing pad.)



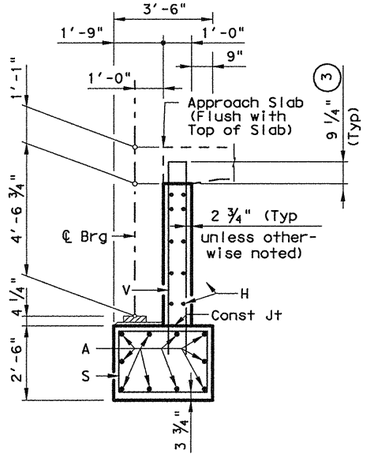
BARS V



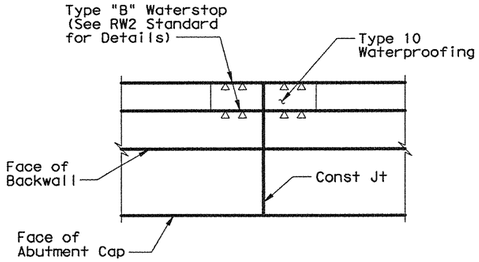
BARS S



BARS U

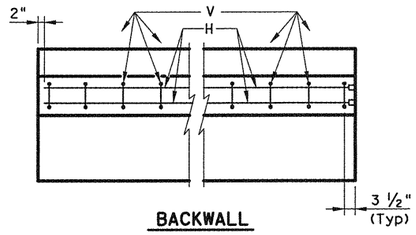


SECTION A-A

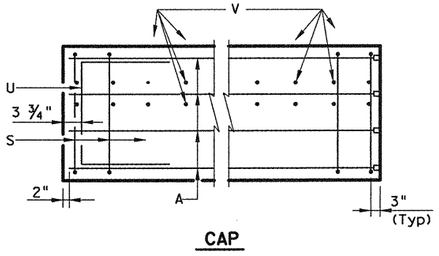


CONSTRUCTION JOINT DETAIL

(Plan View)



BACKWALL



CAP

CORNER DETAILS

TABLE OF ESTIMATED QUANTITIES

	Bar	No.	Size	Length	Weight
(5)	A	10	#11	35'-10"	1,904
	D	2	1¼"D	1'-8"	14
(6)	H	10	#6	35'-10"	538
	S	31	#5	11'-0"	356
	U	2	#6	7'-11"	24
	V	37	#5	14'-11"	576
(1)	Reinforcing Steel			Lb	3,412
	Class "C" Conc (Abut) (HPC)			CY	18.1

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 ¾" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

(5) Provide 10 Threaded Mechanical Reinforcing Couplers for #11 bars.

(6) Provide 10 Threaded Mechanical Reinforcing Couplers for #6 bars.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 140 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

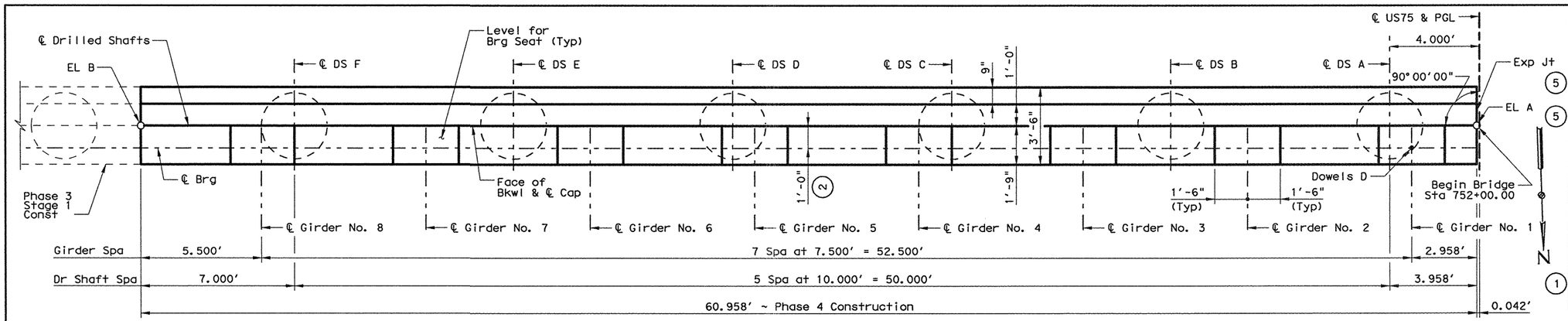
Texas Department of Transportation

US 75
ABUTMENT NO. 1
PHASE 3 STAGE 1 CONSTRUCTION
COMEGYS CREEK NBML BRIDGE

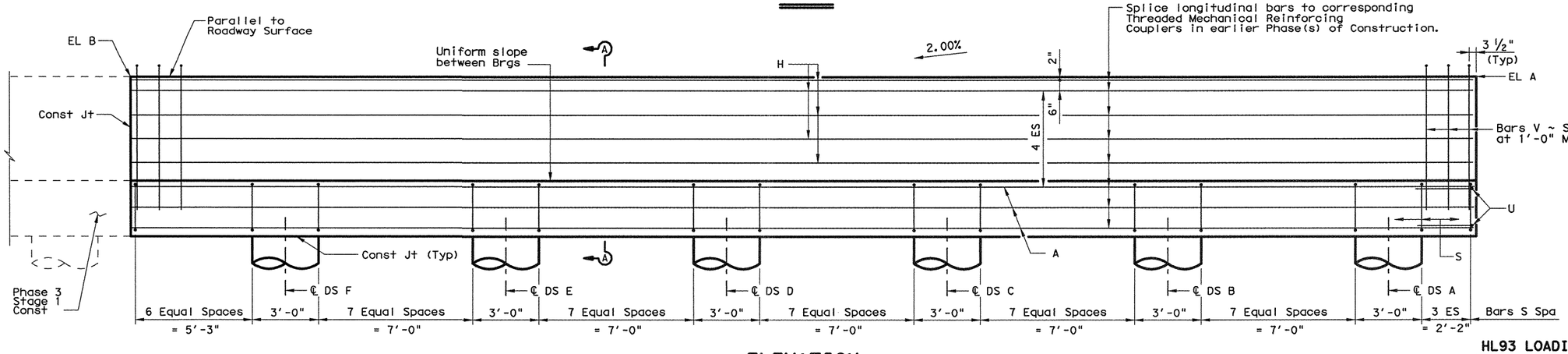
SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRE	TEXAS	DAL	COLLIN	
CHECK DLS	CONTROL	SECTION	JOB	1241
	0047	06	108, ETC.	

FINAL PLANS



PLAN



ELEVATION

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	10	#11	70'-10"	3,763
D	1	1¼"D	1'-8"	7
H	10	#6	63'-9"	958
S	51	#5	11'-0"	585
U	2	#6	7'-11"	24
V	62	#5	14'-11"	965
(1) Reinforcing Steel			Lb	6,302
Class "C" Conc (Abut) (HPC)			CY	30.6

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 ¾" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

(5) Quantities include the following lap splices:
Bars A ~ 10'-0"
Bars H ~ 2'-11"

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

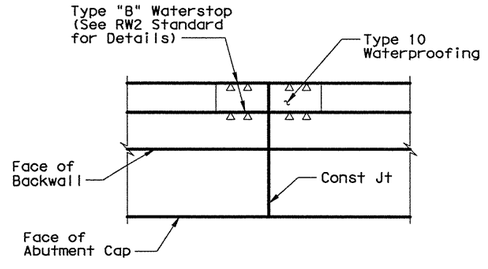
See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 140 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

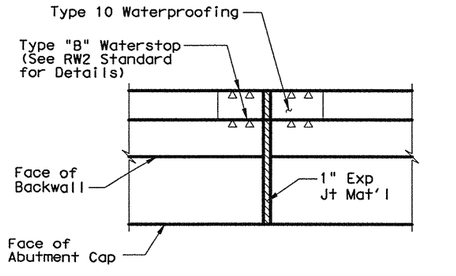
For framing details not shown, see Framing Plan.

HL93 LOADING



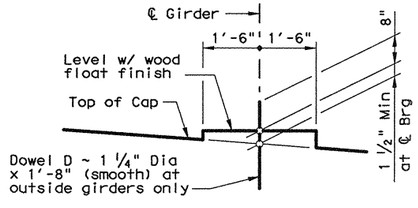
CONSTRUCTION JOINT DETAIL

(Plan View)



EXPANSION JOINT DETAIL

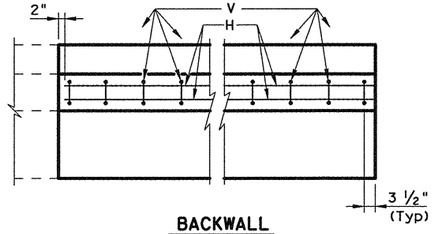
(Plan View)



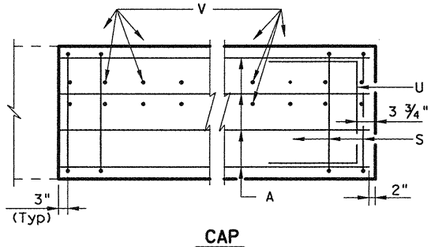
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

CONTROL ELEVATIONS		
EL A	EL B	EL C
See Phase 3 Abut. No. 1		

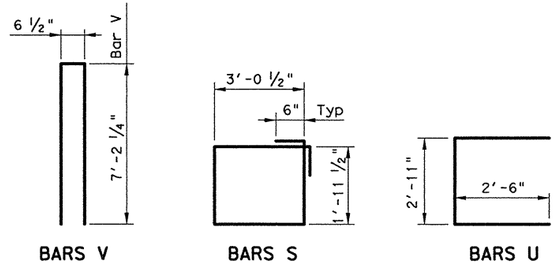


BACKWALL

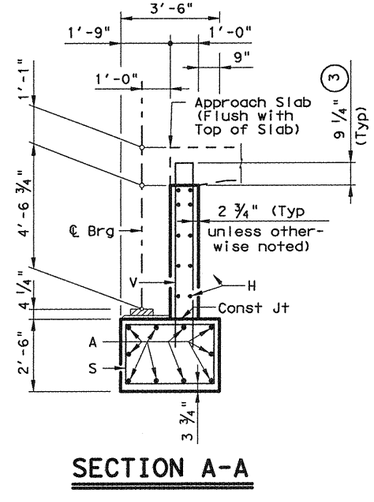


CAP

CORNER DETAILS



BARS V | BARS S | BARS U



SECTION A-A

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ABUTMENT NO. 1
PHASE 4 CONSTRUCTION
COMEGYS CREEK NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRE	TEXAS	DAL	COLLIN	1242
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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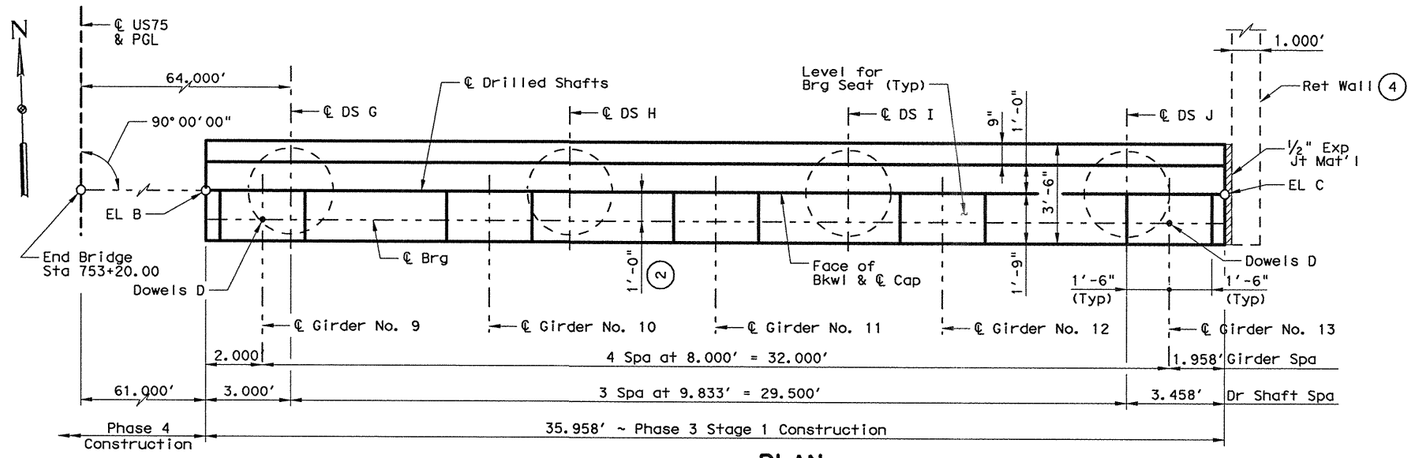
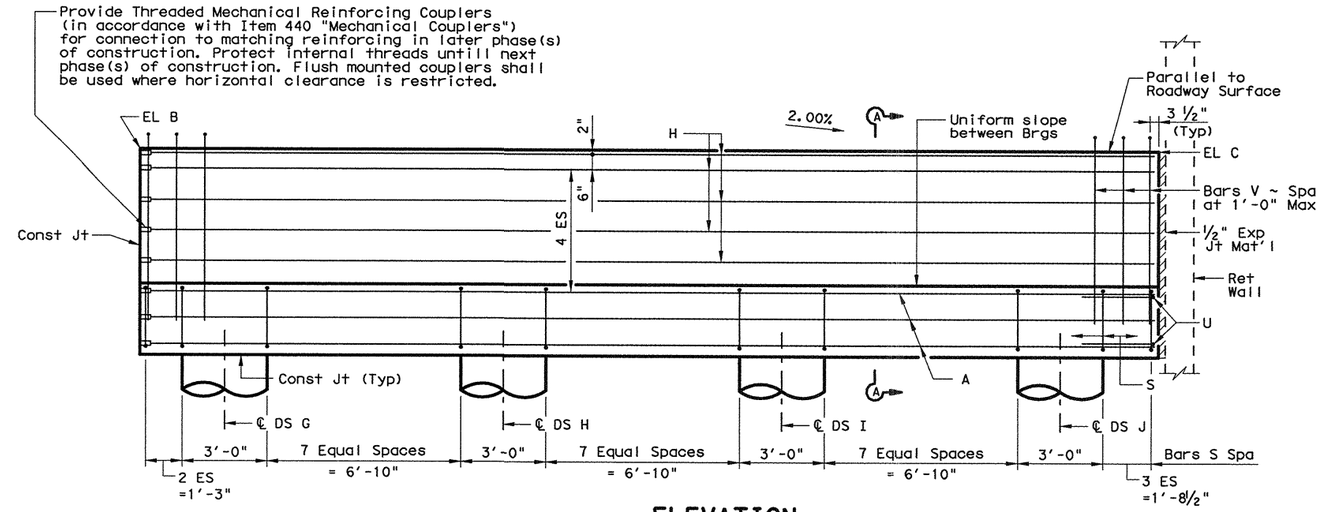
USER: mboutist DATE: 12/6/2010 TIME: 7:34:0 PM SCALE: 1:5.33333
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\3_00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75VD04NB.DGN

FINAL PLANS

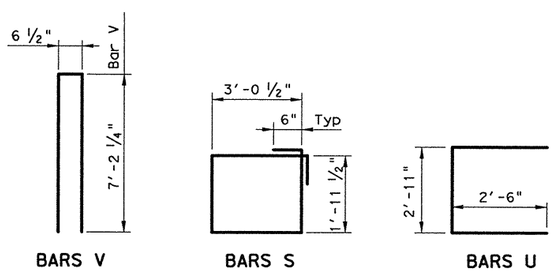


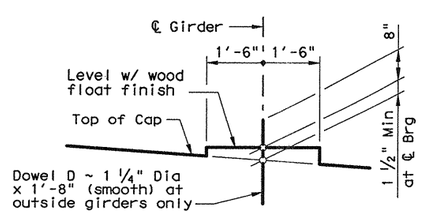
PLAN



ELEVATION

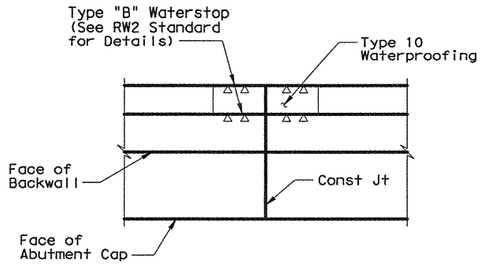
CONTROL ELEVATIONS		
EL A	EL B	EL C
576.142	574.923	574.204





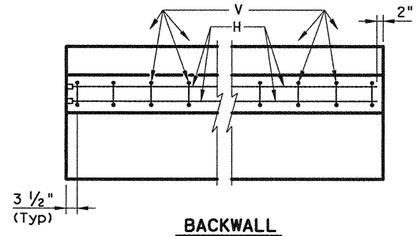
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

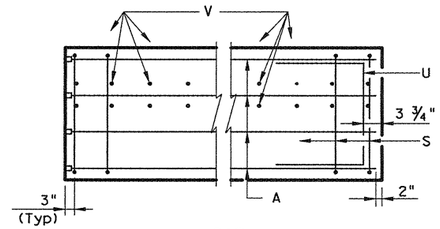


CONSTRUCTION JOINT DETAIL

(Plan View)

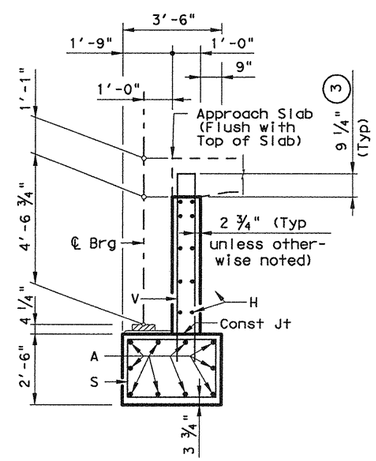


BACKWALL



CAP

CORNER DETAILS



SECTION A-A

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
(5) A	10	#11	35'-10"	1,904
D	2	1¼"D	1'-8"	14
(6) H	10	#6	35'-10"	538
S	31	#5	11'-0"	356
U	2	#6	7'-11"	24
V	37	#5	14'-11"	576
(1) Reinforcing Steel			Lb	3,412
Class "C" Conc (Abut) (HPC)			CY	18.1

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 ¾" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

(5) Provide 10 Threaded Mechanical Reinforcing Couplers for #11 bars.

(6) Provide 10 Threaded Mechanical Reinforcing Couplers for #6 bars.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 140 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ABUTMENT NO. 2
PHASE 3 STAGE 1 CONSTRUCTION
COMEGYS CREEK NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRE	TEXAS	DAL	COLLIN	1243
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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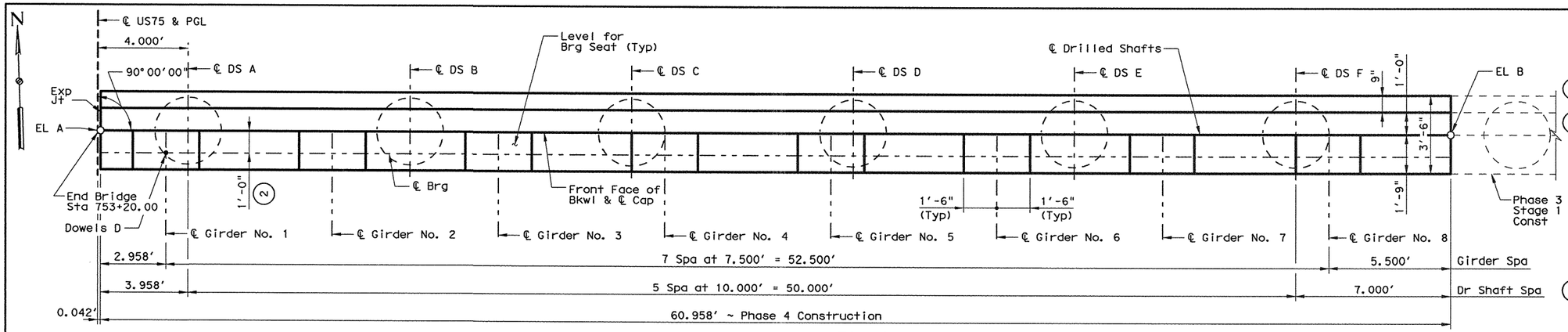
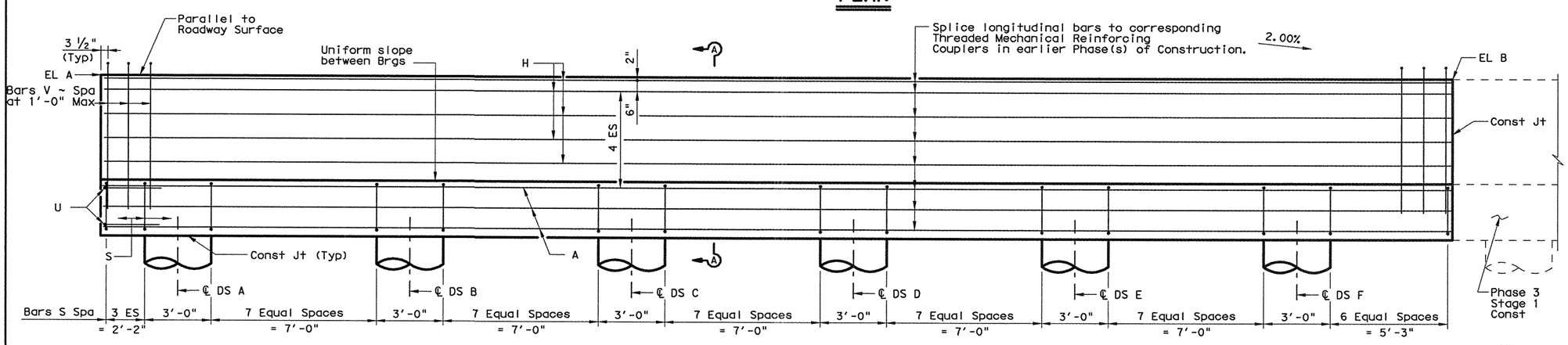


PLAN



ELEVATION

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
(5) A	10	#11	70'-10"	3,763
D	1	1¼"D	1'-8"	7
(5) H	10	#6	63'-9"	958
S	51	#5	11'-0"	585
U	2	#6	7'-11"	24
V	62	#5	14'-11"	965
(1) Reinforcing Steel			Lb	6,302
Class "C" Conc (Abut) (HPC)			CY	30.6

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 ¾" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

(5) Quantities include the following lap splices:
Bars A ~ 10'-0"
Bars H ~ 2'-11"

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

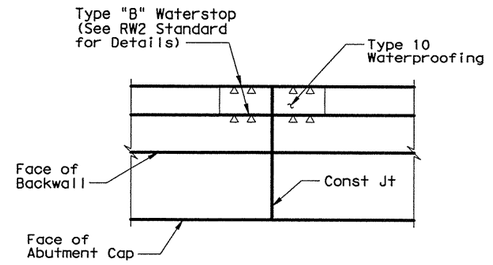
See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 140 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

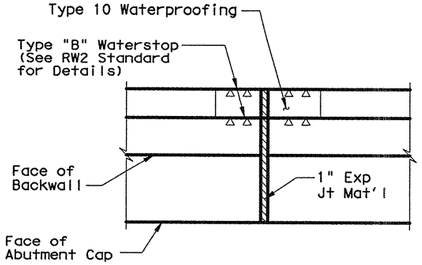
For framing details not shown, see Framing Plan.

HL93 LOADING



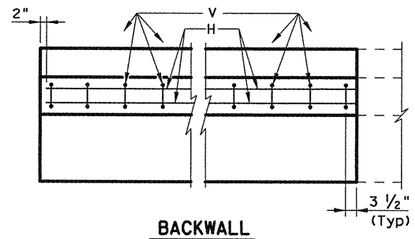
CONSTRUCTION JOINT DETAIL

(Plan View)



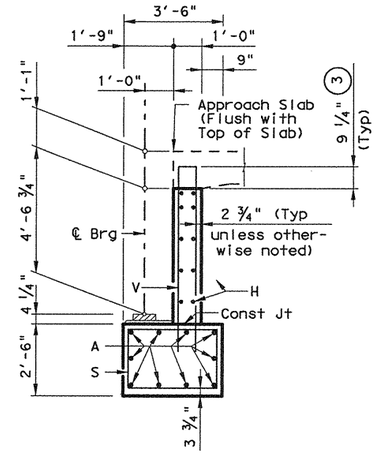
EXPANSION JOINT DETAIL

(Plan View)

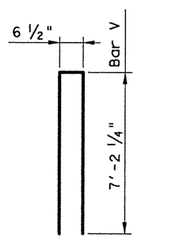


BACKWALL

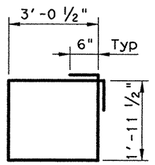
CONTROL ELEVATIONS		
EL A	EL B	EL C
See Phase 3 Abut. No. 2		



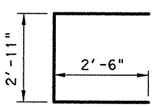
SECTION A-A



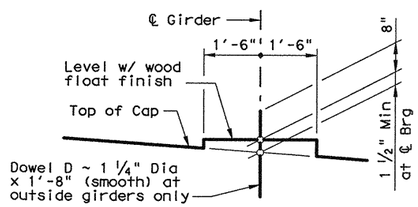
BARS V



BARS S

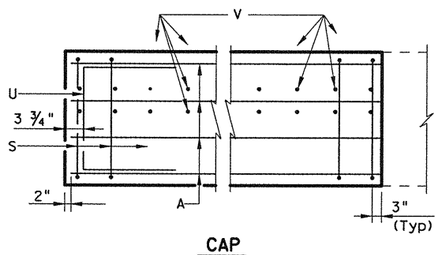


BARS U



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



CAP

CORNER DETAILS

George E. Tillett, P.E.
12-6-2010

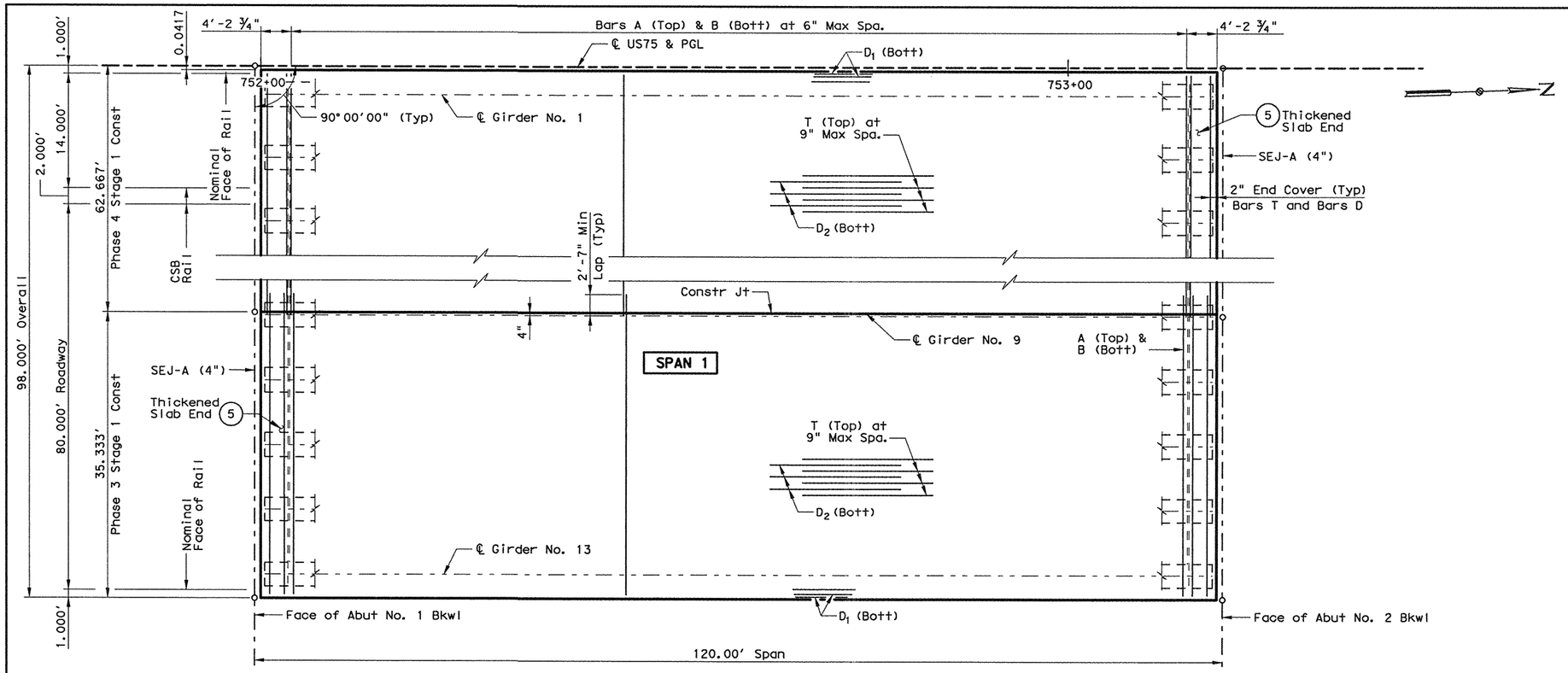
NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

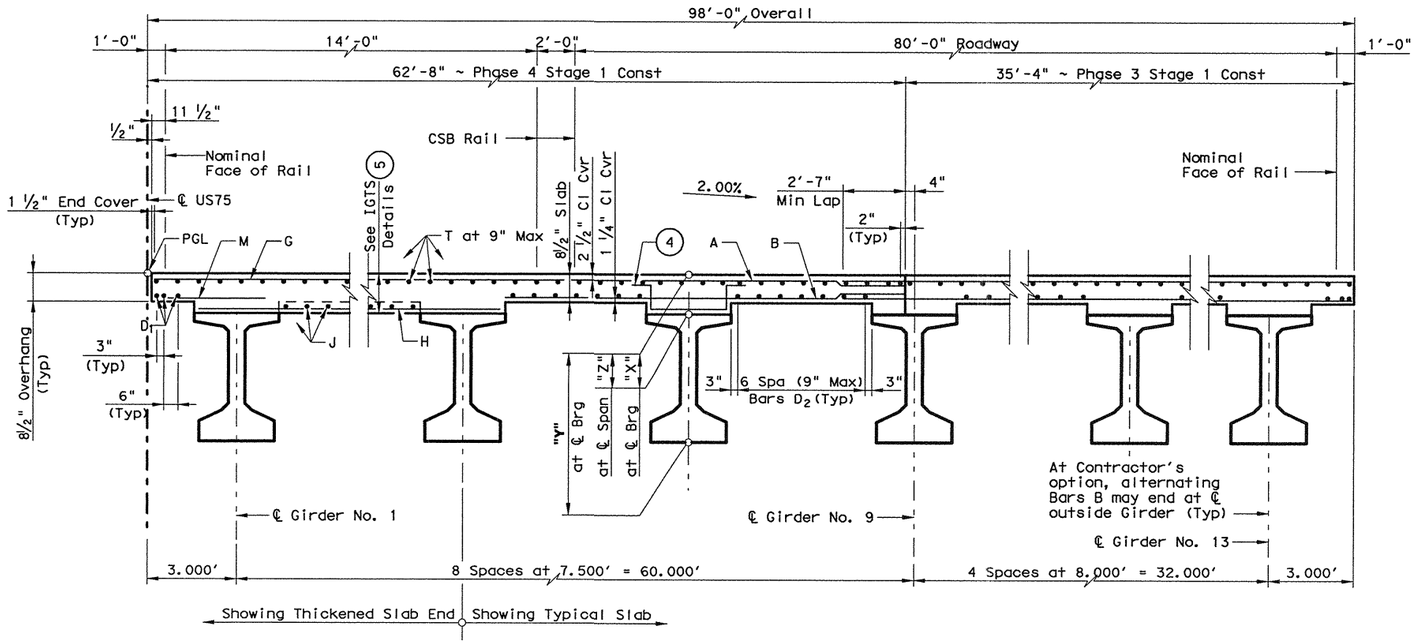
US 75
ABUTMENT NO. 2
PHASE 4 CONSTRUCTION
COMEGYS CREEK NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRE	TEXAS	DAL	COLLIN	1244
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	



PLAN



TYPICAL TRANSVERSE SECTION

TABLE OF ESTIMATED QUANTITIES

Span	Reinf Concrete Slab (HPC) (CLS)	Prestressed Concrete Girders (TY Tx54)	Class "S" (1) Concrete (HPC)	Total (2) Reinf Steel
No.	SF	LF	CY	Lb
1	11,755	15,530.50	355.6	76,408
Total	11,755	15,530.50	355.6	76,408

BAR TABLE

BAR	SIZE
A	#5
B	#5
D	#5
G	#5
H	#5
J	#5
M	#5
T	#4
U	#4

(1) Quantities include Thickened Slab Ends and Haunches.

(2) Reinforcing steel weight is calculated using an approximate factor of 6.5 lbs/SF.

(3) Theoretical dimension.

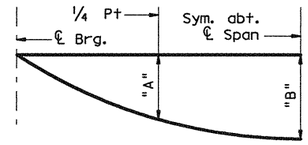
(4) Provide U bars in areas where measured haunch exceeds 3 ½". See IGMS for Haunch Reinforcing Detail.

(5) See IGTS for Thickened Slab End details, Bars G, H, J & M.

GENERAL NOTES:

Provide Class S High Performance Concrete, f'c = 4 ksi.
For beam, bearing pad, misc. slab and thickened slab end details not shown, see IGD, IGEB, IGMS, IGTS and IGND.
For Sealed Expansion Joint details not shown, see SEJ-A.
For Sealed Expansion Joint Quantities not shown, see Summary of Estimated Quantities.
Place and finish not less than 30 feet of Bridge Deck concrete per hour.
For Temp Barrier locations, see Traffic Control Plans.
For rail details not shown, see Traffic Rail Type T551.
For Concrete Safety Barrier details not shown, see CSB(3) Precast.
For framing details not shown, see Framing Plan.
Provide epoxy coated, Grade 60 reinforcing.
Where required, provide bar laps as follows:
#4 = 2'-1"
#5 = 2'-7"
See PCP or PMDF Standards for details and quantity adjustments if either of these options are used.

Span	Beam	"A"	"B"
1	1	0.129	0.180
	2-4	0.147	0.206
	5-12	0.138	0.193
	13	0.124	0.174



Note: Deflections shown are due to concrete slab only. (E = 5000 ksi) Calculated deflections shown are theoretical and actual dimensions may be less. Deflections shall be adjusted based on field observations.

DEAD LOAD DEFLECTION DIAGRAM

TABLE OF SECTION DEPTHS

Span No.	Beam No.	"X" at ℄ Brg (4)	"Y" at ℄ Brg	"Z" at ℄ Span (3)
1	1, 13	1'-1 ¾"	5'-7 ¾"	10 ¼"
	2-12	1'-1 ¾"	5'-7 ¾"	10 ½"

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
120.00' PRESTR GIRDER UNIT
COMEGYS CREEK NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRE	TEXAS	DAL	COLLIN	1245
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

FINAL PLANS

PLOT DRIVER: TXDOT_LASER_BW_PDF.plt PENTABLE: 000000000070218.tbl
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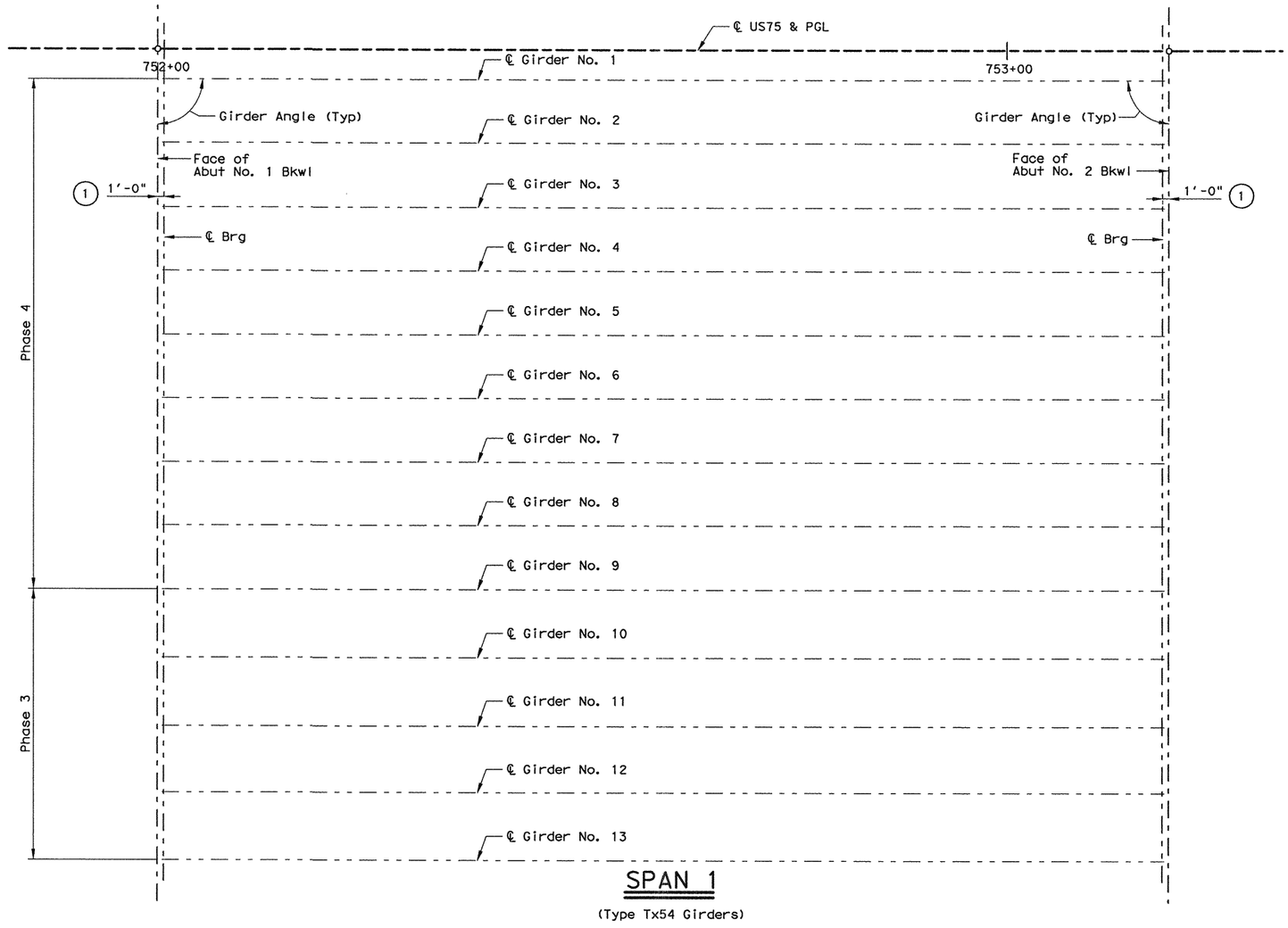
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CADD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75YD04WA.DGN

FINAL PLANS



SPAN 1

(Type Tx54 Girders)

N

(1) See Standard IGEB for orientation and dimension.

(2) Girder lengths shown are bottom girder flange lengths with adjustments made for girder slope.

HL93 LOADING

BENT REPORT

ABUT NO. 1 (S 88 10 30.27 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.000	90	0	0
	BEAM	2	7.500	90	0	0
	BEAM	3	7.500	90	0	0
	BEAM	4	7.500	90	0	0
	BEAM	5	7.500	90	0	0
	BEAM	6	7.500	90	0	0
	BEAM	7	7.500	90	0	0
	BEAM	8	7.500	90	0	0
	BEAM	9	7.500	90	0	0
	BEAM	10	8.000	90	0	0
	BEAM	11	8.000	90	0	0
	BEAM	12	8.000	90	0	0
	BEAM	13	8.000	90	0	0
	TOTAL		92.000			

ABUT NO. 2 (S 88 10 30.27 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.000	90	0	0
	BEAM	2	7.500	90	0	0
	BEAM	3	7.500	90	0	0
	BEAM	4	7.500	90	0	0
	BEAM	5	7.500	90	0	0
	BEAM	6	7.500	90	0	0
	BEAM	7	7.500	90	0	0
	BEAM	8	7.500	90	0	0
	BEAM	9	7.500	90	0	0
	BEAM	10	8.000	90	0	0
	BEAM	11	8.000	90	0	0
	BEAM	12	8.000	90	0	0
	BEAM	13	8.000	90	0	0
	TOTAL		92.000			

BEAM REPORT

BEAM REPORT, SPAN 1

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE (2) BOT. BM. FLG.	BEAM SLOPE
BEAM	1	120.000	118.000	119.50	.0046
BEAM	2	120.000	118.000	119.50	.0046
BEAM	3	120.000	118.000	119.50	.0046
BEAM	4	120.000	118.000	119.50	.0046
BEAM	5	120.000	118.000	119.50	.0046
BEAM	6	120.000	118.000	119.50	.0046
BEAM	7	120.000	118.000	119.50	.0046
BEAM	8	120.000	118.000	119.50	.0046
BEAM	9	120.000	118.000	119.50	.0046
BEAM	10	120.000	118.000	119.50	.0046
BEAM	11	120.000	118.000	119.50	.0046
BEAM	12	120.000	118.000	119.50	.0046
BEAM	13	120.000	118.000	119.50	.0046

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
FRAMING PLAN (SPAN NO. 1)
COMEGYS CREEK NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JRE	TEXAS	DAL	COLLIN	
CHECK DLS	CONTROL	SECTION	JOB	1246
	0047	06	108, ETC.	

PLOT DRIVER: TXDOT_LASER_BW_PDF.plt PENTABLE: 000000000702I8.tbl
USER: mboutist DATE: 12/6/2010 TIME: 7:34:26 PM SCALE: 1:16
FILE: TxDOT_Dallas_District\US75_FC160_RoadwayV3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75ML04NA.DGN

FINAL PLANS

TEST HOLE B-5
STA 751+97.85
120.10' LT

TEST HOLE B-7
STA 753+80.20
122.77' LT

EXISTING SBFR BRIDGE
(TO BE REMOVED)

SBFR BRIDGE

COMEGYS CREEK

LIMITS OF RIPRAP (TYP)

RETAINING WALL SB05

RETAINING WALL SB06

10'-0" SHLDR

4 ~ 12'-0" LANES

10'-0" SHLDR

EXISTING SBML BRIDGE
(TO BE REMOVED)

FRONT FACE OF
ABUT NO. 1 BKWL

PHASE 3 STAGE 1 CONST

29'-4"

PHASE CONST JT

NOM FACE
OF T551 RAIL

SEJ-A (4")

SEJ-A (4")

2:1 SLOPE

20'-0" BAS-C

86'-0" OVERALL (SBML)

56'-8" PHASE 4 CONST

68'-0" ROADWAY

2.00%

2:1 SLOPE

20'-0" BAS-C

FRONT FACE OF
ABUT NO. 2 BKWL

2'-0"

CSB(1) RAIL

14'-0"

90°00'00" (TYP)

CSB(3) (PRECAST) RAIL

S 1°49'29.73" W

751+00

752+00

753+00

754+00

℄ US75
& PGL

1

NBML

1'-0"

℄ 1" OPEN JOINT

BEGIN BRIDGE
STA 752+00.00
EL = 576.67

END BRIDGE
STA 753+20.00
EL = 577.22

EXISTING NBML BRIDGE
(TO BE REMOVED)

PLAN

1 SEE US75 COMEGYS CREEK NBML BRIDGE LAYOUTS FOR INFORMATION NOT SHOWN.

Z

0 20 40 60 80

SCALE IN FEET

DESIGN NOTES:

1. DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE SPECIFICATIONS, 4TH EDITION WITH ALL INTERIM SPECIFICATIONS.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL STRUCTURES AND UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEER IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
3. "D" DENOTES BENTS WITH D BARS AND SLOTTED HOLES AT EXTERIOR BEAMS.
4. FOR SECTION DETAILS & STAGING INFORMATION, SEE "BRIDGE LAYOUT COMEGYS CREEK MAINLANE BRIDGES TYPICAL SECTIONS" SHEETS.
5. SEE RETAINING WALL LAYOUTS FOR LIMITS AND DETAILS NOT SHOWN.
6. SEE BORING LOG SHEET FOR BORING DATA.
7. SEE ROADWAY SUMMARY FOR MANAGED LANE CSB (1) (PRECAST) BARRIER.
8. SEE TRAFFIC CONTROL PLAN FOR LIMITS AND LOCATIONS OF TEMP WALLS AND TEMP SPL SHORING. SEE TRAFFIC CONTROL SUMMARY FOR TEMP WALLS AND TEMP SPL QUANTITIES.
9. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE HARD GRAY LIMESTONE A MINIMUM DISTANCE OF 3 FT.

ALL BENTS ON BEARING N 88°10'30.27" W

DESIGN SPEED: 70 MPH
ADT (2005): 30,100
ADT (2025): 48,000
FUNC. CLASS.: URBAN FREEWAY
DESIGN INCLUDES FUTURE 2" OVERLAY

HL93 LOADING

EXISTING NBI: 18-043-0-0047-06-161
NEW NBI: 18-043-0-0047-06-632

HYDRAULIC DATA

Q50 =2,298 cfs
V50 =6.10 ft/s
HW50 =559.87

Q100 =2,531 cfs
V100 =6.26 ft/s
HW100=560.29

OVERALL LENGTH OF BRIDGE = 120.00'
(MEASURED ALONG ℄ US 75)

120.00' TYPE Tx54 PRESTRESSED CONCRETE I-GIRDER SPAN

OVERALL LENGTH OF TYPE T551 RAIL (LT EDGE) =120.00'

END OF RAIL FOR PAYMENT

END OF RAIL FOR PAYMENT

FRONT FACE OF ABUT NO. 1 BKWL

FRONT FACE OF ABUT NO. 2 BKWL

BEGIN BRIDGE
STA 752+00.00
EL = 576.67

END BRIDGE
STA 753+20.00
EL = 577.22

T551 RAIL (LT EDGE)

PGL

640
620
600
580
560
540
520
500
480

D

D

HW (100 YR)
EL = 560.29

HW (50 YR)
EL = 559.87

2:1 SLOPE (TYP)

RETAINING WALL SB05 (FAR SIDE)

(-)1.93% (+)1.68%

VPI STA = 751+50.00
EL = 573.62'
ex = 3.04'
K = 187
L = 675.00'

LOW CHORD
EL = 569.16

EXISTING GROUND

RR8 RIPRAP (TYP)

RETAINING WALL SB06 (FAR SIDE)

9-36" DIA DRILLED SHAFT @ 53'

9-36" DIA DRILLED SHAFT @ 54'

1

2

751+00 752+00 753+00 754+00

ELEVATION

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
1-21-2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

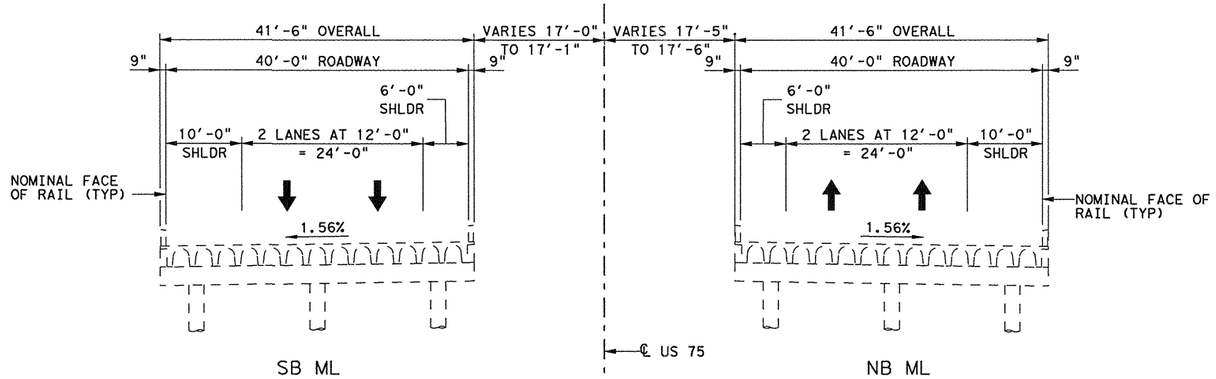
US 75
BRIDGE LAYOUT
COMEGYS CREEK SBML BRIDGE

SCALE: 1"=40' SHEET 1 OF 1

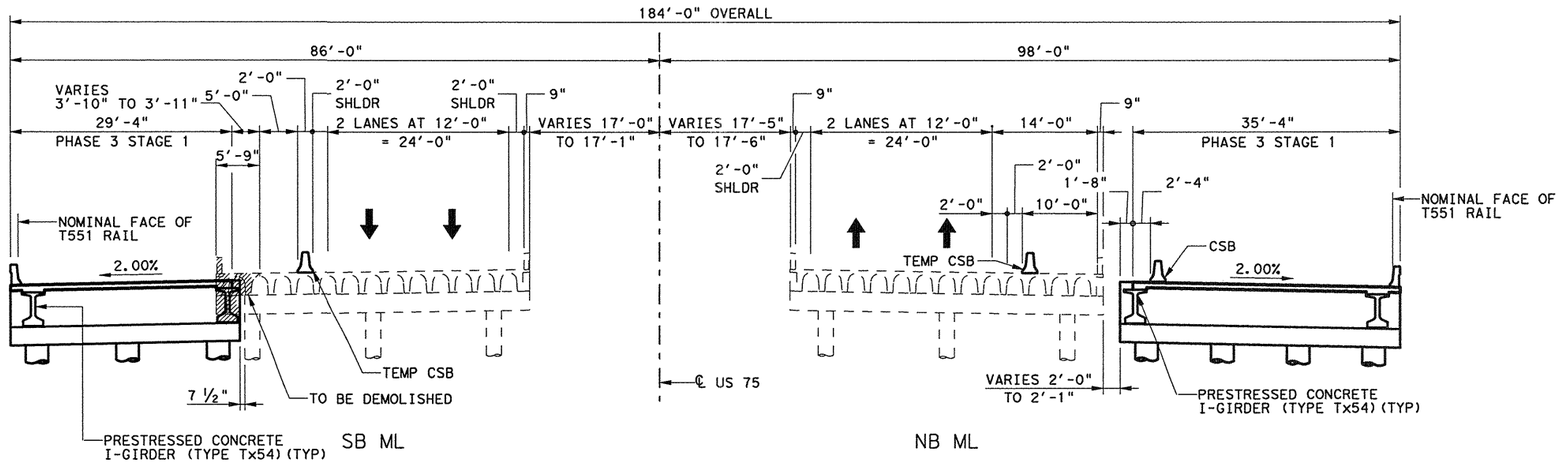
DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS DE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1247
CHECK DMW	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

PLOT DRIVER: TXDOT_USER_BW_PDF.plt PENTABLE: 000000000702I8.tbl
USER: jquinter DATE: 1/21/2011 TIME: 10:10:54 AM SCALE: 1:40
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75BL04SA.DGN

FINAL PLANS



EXISTING STRUCTURE



PHASE 3 STAGE 1 CONSTRUCTION

NOTES:

SEE TRAFFIC CONTROL PLANS FOR STAGING SEQUENCE INFORMATION.

DIMENSIONS SHOWN ARE BASED ON SURVEY AND EXISTING BRIDGE PLANS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
TYPICAL SECTIONS & PHASE CONST
COMEGYS CREEK
MAINLANE BRIDGES

SCALE: 1"=20' SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DE	TEXAS	DAL	COLLIN	1237
CHECK	CONTROL	SECTION	JOB	
GMK	0047	06	108, ETC.	
CHECK				
DMW				

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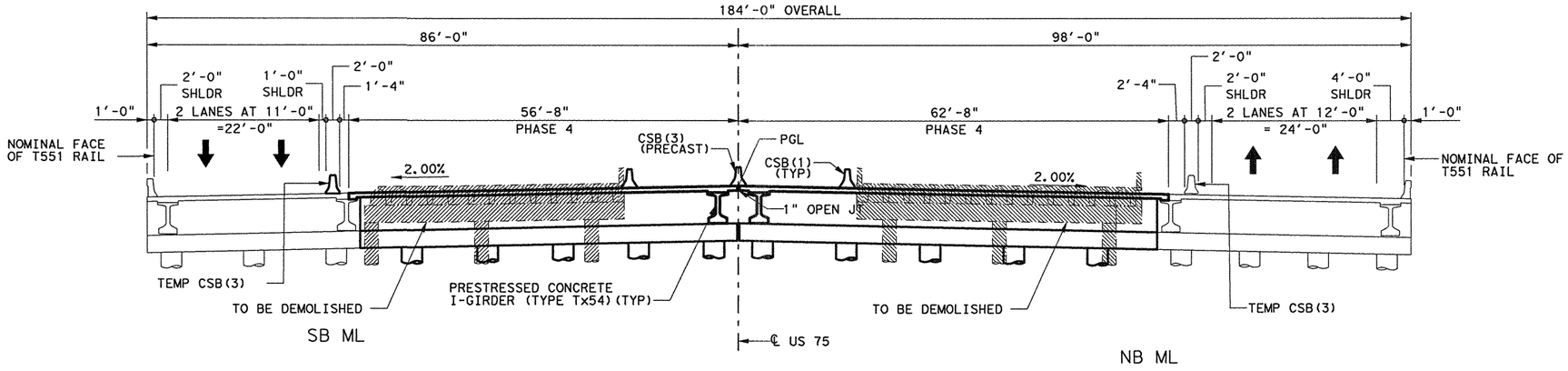
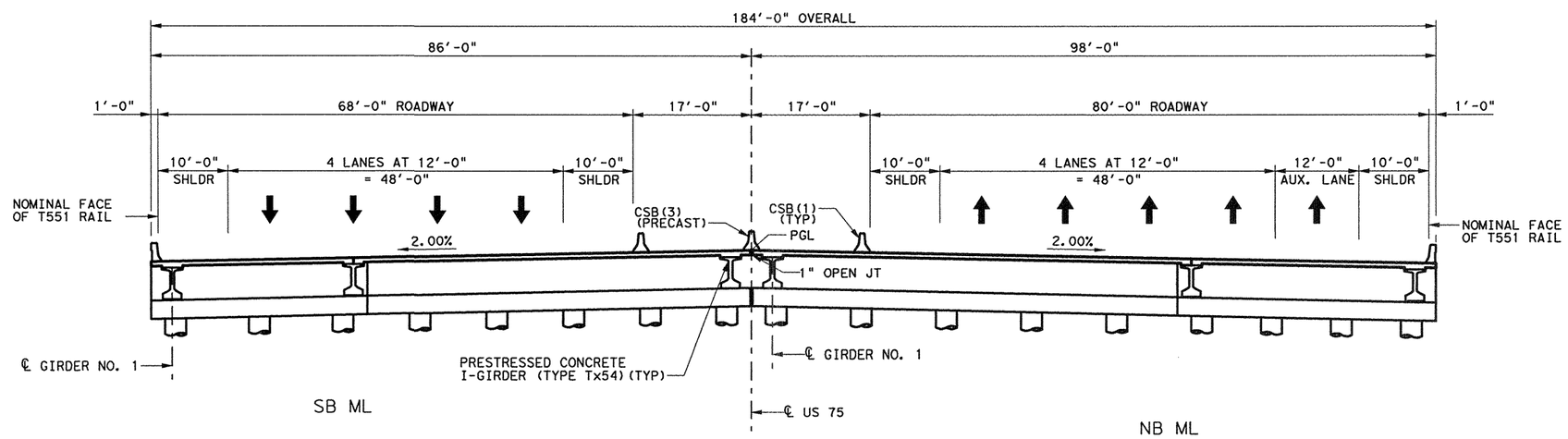
USER: mboutist DATE: 12/6/2010 TIME: 7:33:57 PM SCALE: 1:20
FILE: TxDOT_Dallas_District\US75_FC160_RoadwayV3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75SC04A.DGN

FINAL PLANS



PHASE 4 CONSTRUCTION



FINAL STRUCTURE

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

US 75
TYPICAL SECTIONS & PHASE CONST
COMEGYS CREEK
MAINLANE BRIDGES

SCALE: 1"=20' SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS DE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1238
CHECK DMW	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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FILE: T:\DOT_Dallas_District\US75_FC\60_Roadway\V3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75SC04B.DGN

FINAL PLANS

SUMMARY OF ESTIMATED QUANTITIES - PHASE 3 STAGE 1

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)
	LF	CY	CY	SF	LF	SY	CY	LF	LF
2 ~ ABUTMENTS	315	30.2	53.6				106		56
1 ~ 120.00' TY Tx54 PCPS GDR SPAN				3,520	478.00	372		120.0	
TOTAL	315	30.2	53.6	3,520	478.00	372	106	120.0	56

SUMMARY OF ESTIMATED QUANTITIES - PHASE 4

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)
	LF	CY	CY	SF	LF	SY	CY	LF	LF
2 ~ ABUTMENTS	630	55.6	109.0				89		112
1 ~ 120.00' TY Tx54 PCPS GDR SPAN				6,795	836.50	742		0	
TOTAL	630	55.6	09.0	6,795	836.50	742	89	0	112

SUMMARY OF ESTIMATED QUANTITIES - TOTAL

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)
	LF	CY	CY	SF	LF	SY	CY	LF	LF
2 ~ ABUTMENTS	945	85.8	162.6				195		168
1 ~ 120.00' TY Tx54 PCPS GDR SPAN				10,315	1,314.50	1,114		120.0	
TOTAL	945	85.8	162.6	10,315	1,314.50	1,114	195	120.0	168

(1) Sulfate Resistant Concrete

NOTES:

1. See Traffic Control Plans for quantities of Temporary Barriers and/or Temporary Walls.
2. Existing Bridge is a 120' long Concrete Slab and Girder Span Bridge supported on Concrete Abutments, Bents, and Drilled Shafts.
3. Existing Drilled Shafts shall be cutoff and removed to 2' below Proposed Finished Grade.

BEARING SEAT ELEVATIONS

		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 1	(FWD)	569.155	569.328	569.502	569.675	569.829	569.983	570.138
		BEAM 8	BEAM 9	BEAM 10	BEAM 11			
	(FWD)	570.292	570.446	570.601	570.755			
		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 2	(BK)	569.701	569.875	570.048	570.221	570.375	570.530	570.684
		BEAM 8	BEAM 9	BEAM 10	BEAM 11			
	(BK)	570.838	570.993	571.147	571.301			

HL93 LOADING

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E.
1-21-2011

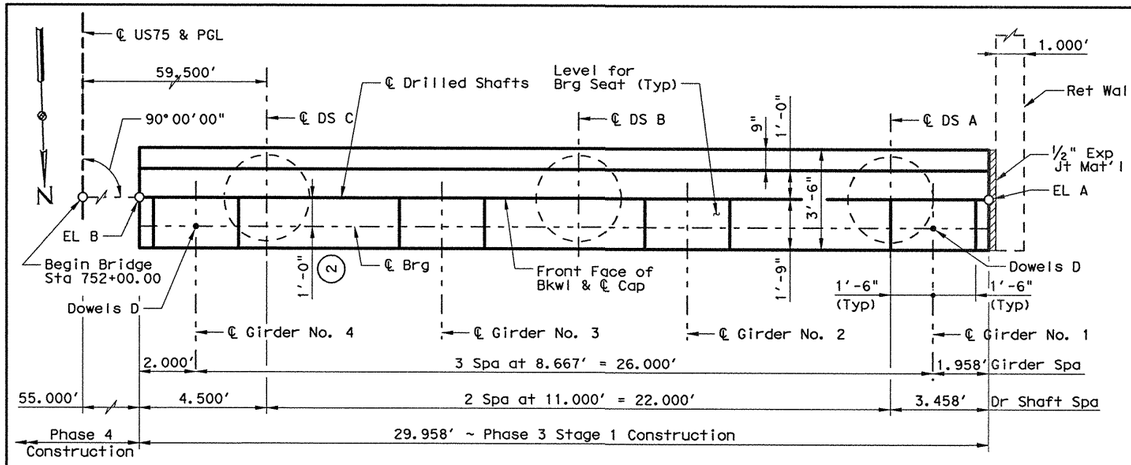
US 75
ESTIMATED QUANTITIES & BEARING SEAT ELEVATIONS COMEGYS CREEK SBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1248
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

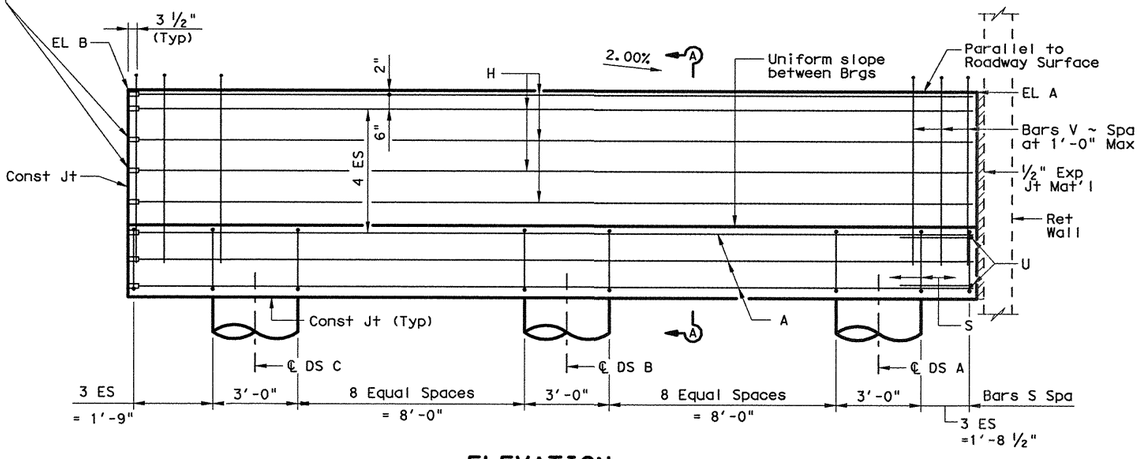
PLOT DRIVER: TX00...IN_LASER.plt PENTABLE: 000000000070218.tbl
USER: mbautist DATE: 1/21/2011 TIME: 3:17:44 PM SCALE: 1:1
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CAD\Bridge\04_UST5 MLs OVER COMEGYS CRK\UST5B004SA.DGN

FINAL PLANS



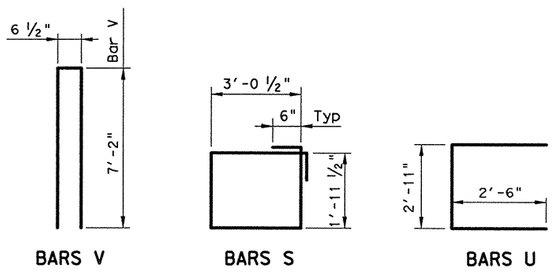
PLAN

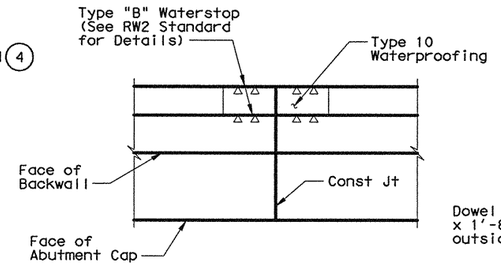
Provide Threaded Mechanical Reinforcing Couplers (in accordance with Item 440 "Mechanical Couplers") for connection to matching reinforcing in later phase(s) of construction. Protect internal threads untill next phase(s) of construction. Flush mounted couplers shall be used where horizontal clearance is restricted.



ELEVATION

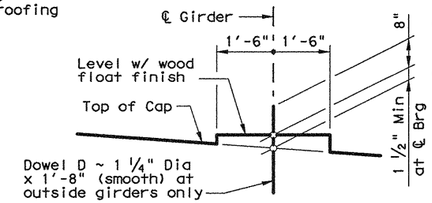
CONTROL ELEVATIONS		
EL A	EL B	EL C
573.888	574.487	575.586





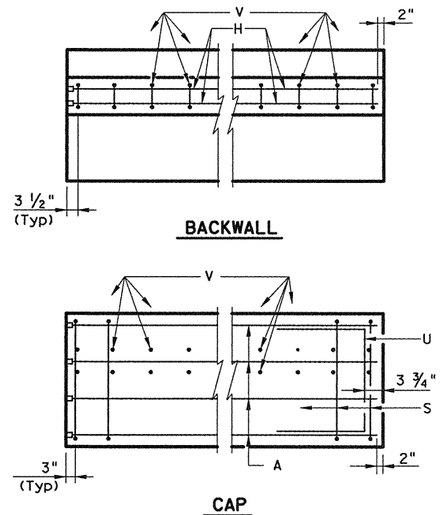
CONSTRUCTION JOINT DETAIL

(Plan View)

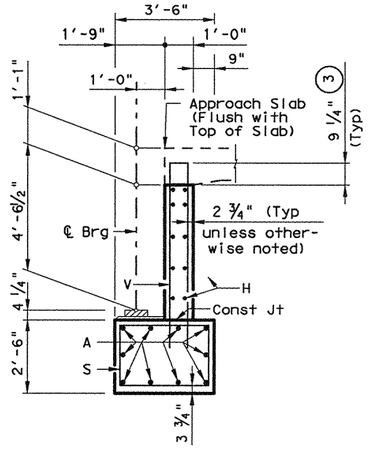


BEARING SEAT DETAIL

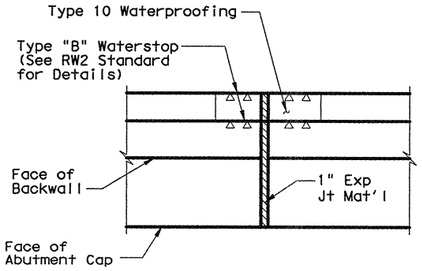
(Bearing surface must be clean and free of all loose material before placing bearing pad.)



CORNER DETAILS



SECTION A-A



EXPANSION JOINT DETAIL

(Plan View)

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	10	#11	29'-10"	1,585
D	2	1¼"D	1'-8"	14
H	10	#6	29'-10"	448
S	26	#5	11'-0"	298
U	2	#6	7'-11"	24
V	31	#5	14'-11"	482
(1) Reinforcing Steel			Lb	2,851
Class "C" Conc (Abut) (HPC)			CY	15.1

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 ¾" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

(5) Provide 10 Threaded Mechanical Reforcing Couplers for #11 bars.

(6) Provide 10 Threaded Mechanical Reforcing Couplers for #6 bars.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 135 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

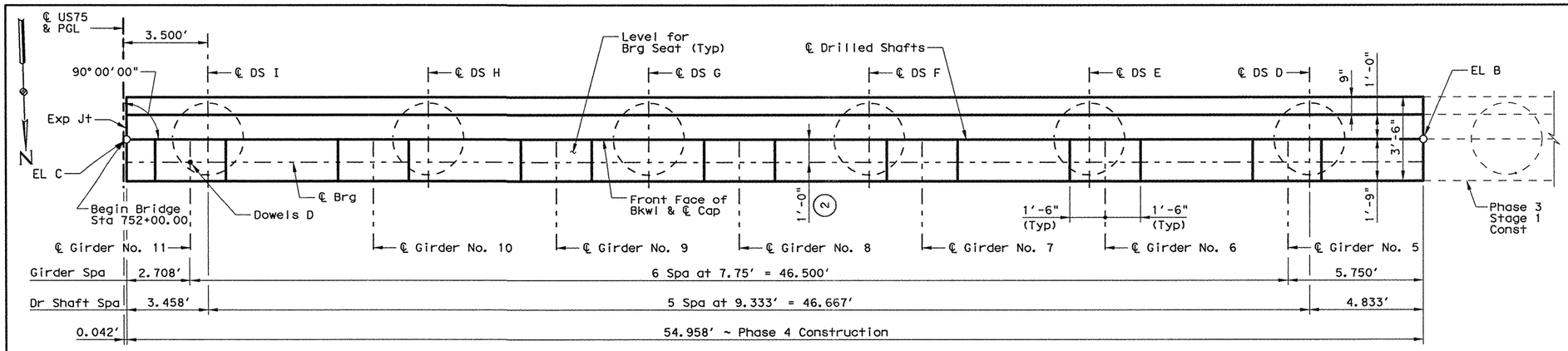
US 75
ABUTMENT NO. 1
PHASE 3 STAGE 1 CONSTRUCTION
COMEGYS CREEK SBML BRIDGE

SHEET 1 OF 1

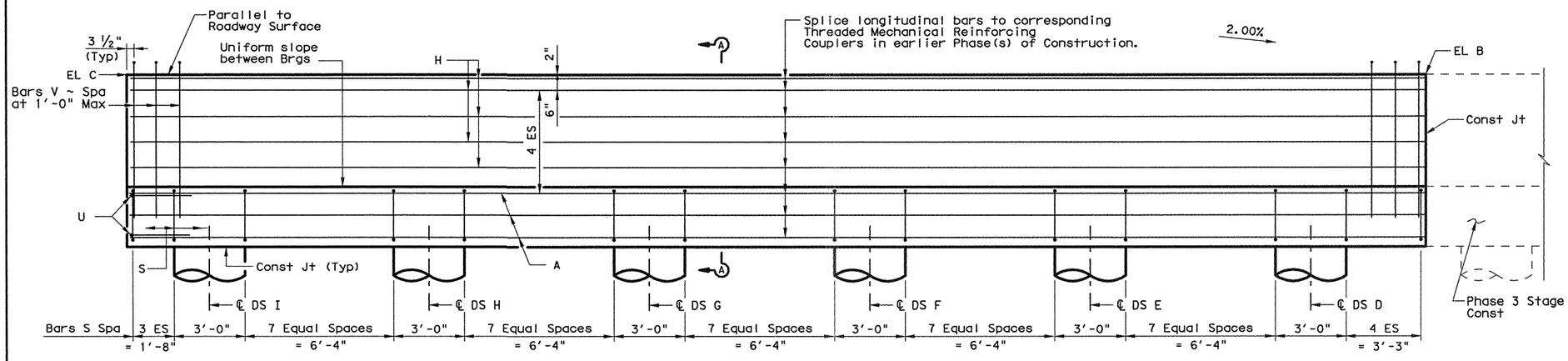
DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	
CHECK DLS	CONTROL	SECTION	JOB	1250
	0047	06	108, ETC.	

PLOT DRIVER: TXDOT_LASER_BW_PDF.plt PENTABLE: 000000000702I8.tbl
USER: mboutist DATE: 12/6/2010 TIME: 7:34:41 PM SCALE: 1:5.33333
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CAD\Bridge\V04_US75 MLs OVER COMEGYS CRK\US75VD04SA.DGN

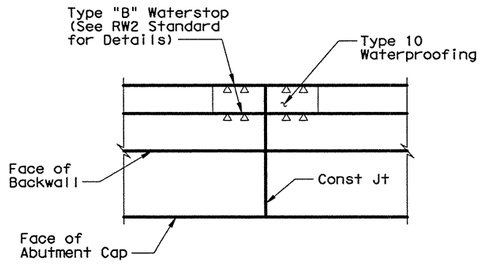
FINAL PLANS



PLAN

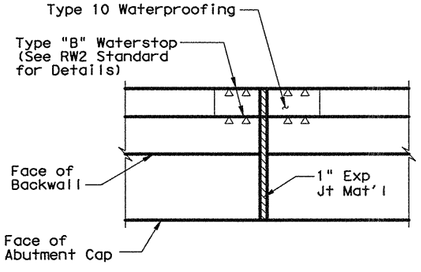


ELEVATION



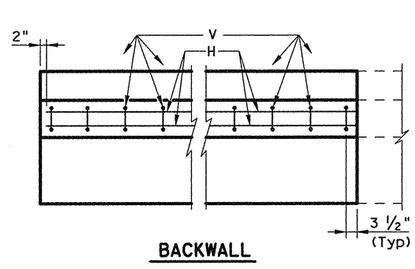
CONSTRUCTION JOINT DETAIL

(Plan View)

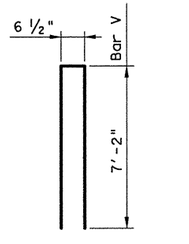


EXPANSION JOINT DETAIL

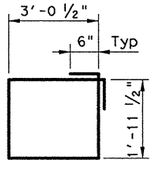
(Plan View)



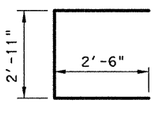
BACKWALL



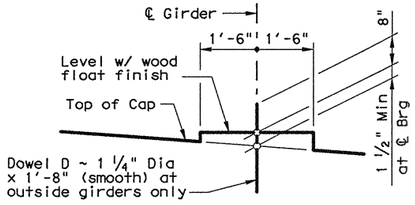
BARS V



BARS S

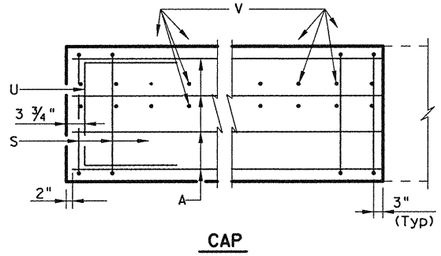


BARS U



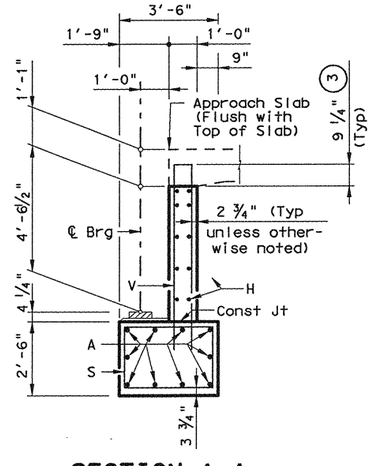
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



CAP

CORNER DETAILS



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

Bar	No.	Size	Length	Weight
A	10	#11	54'-10"	2,913
D	1	1¼"D	1'-8"	7
H	10	#6	54'-10"	824
S	49	#5	11'-0"	562
U	2	#6	7'-11"	24
V	56	#5	14'-11"	871

(1)	Reinforcing Steel	Lb	5,201
	Class "C" Conc (Abut) (HPC)	CY	27.8

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 ¾" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 135 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

CONTROL ELEVATIONS

EL A	EL B	EL C
See Phase 3 Abut. No. 1		

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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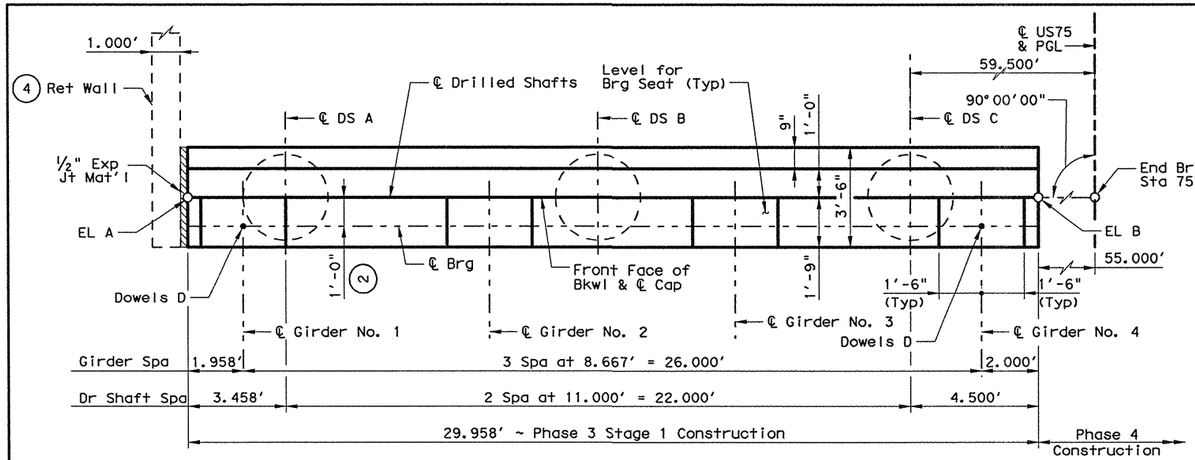
US 75
ABUTMENT NO. 1
PHASE 4 CONSTRUCTION
COMEGYS CREEK SBML BRIDGE

SHEET 1 OF 1

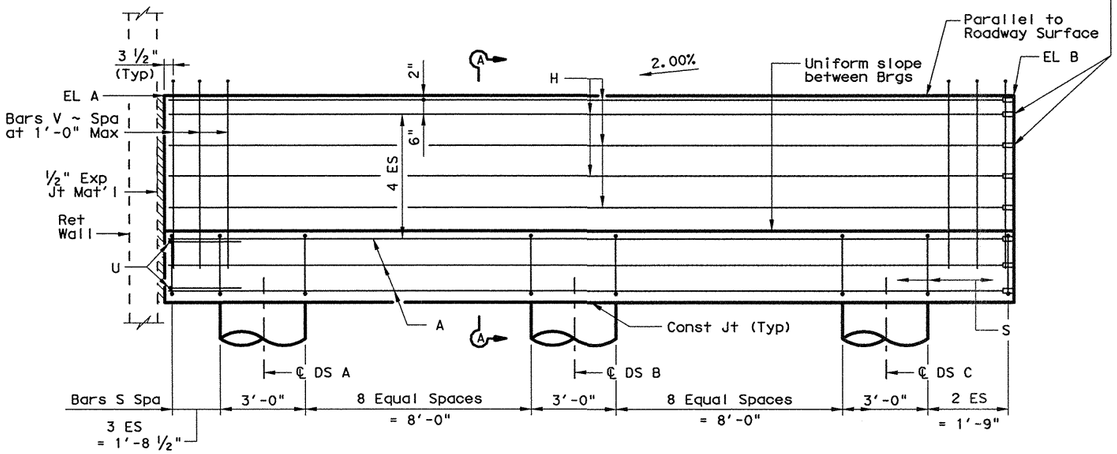
DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1251
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

PLOT DRIVER: TXDOT_LASER_BW_PDF.plt PENTABLE: 000000000702I8.tbl
USER: mboutist DATE: 12/6/2010 TIME: 7:34:45 PM SCALE: 1:5.33333
FILE: TxDOT_Dallas_District\US75_FCI6O_Roadway\V3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75\D04SB.DGN



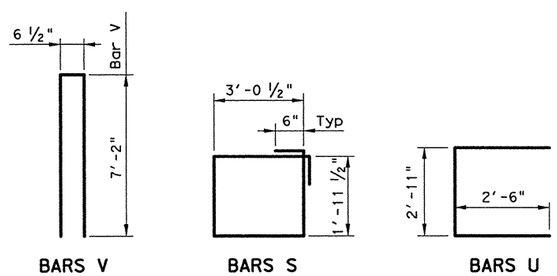
PLAN

Provide Threaded Mechanical Reinforcing Couplers (in accordance with Item 440 "Mechanical Couplers") for connection to matching reinforcing in later phase(s) of construction. Protect internal threads untill next phase(s) of construction. Flush mounted couplers shall be used where horizontal clearance is restricted.

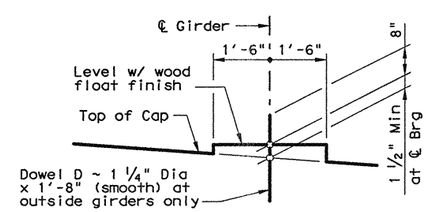


ELEVATION

CONTROL ELEVATIONS		
EL A	EL B	EL C
574.444	575.043	576.142

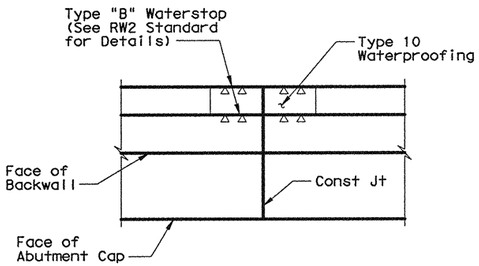


BARS V BARS S BARS U



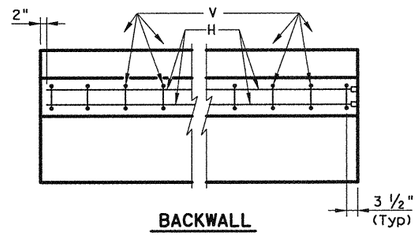
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

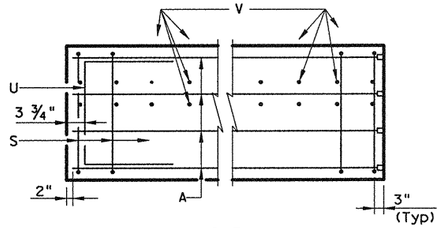


CONSTRUCTION JOINT DETAIL

(Plan View)

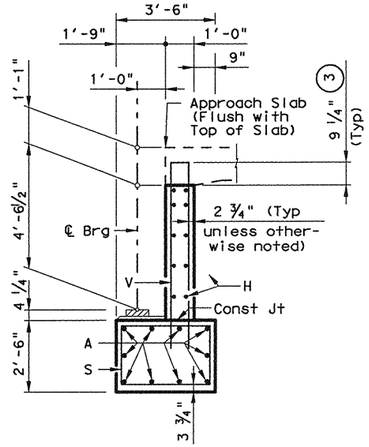


BACKWALL



CAP

CORNER DETAILS



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

	Bar	No.	Size	Length	Weight
(5)	A	10	#11	29'-10"	1585
	D	2	1 1/4"D	1'-8"	14
(6)	H	10	#6	29'-10"	448
	S	25	#5	11'-0"	287
	U	2	#6	7'-11"	24
	V	31	#5	14'-11"	482
(1)	Reinforcing Steel			Lb	2,840
	Class "C" Conc (Abut) (HPC)			CY	15.1

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 3/4" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

(5) Provide 10 Threaded Mechanical Reforcing Couplers for #11 bars.

(6) Provide 10 Threaded Mechanical Reforcing Couplers for #6 bars.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 135 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E. 12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
ABUTMENT NO. 2
PHASE 3 STAGE 1 CONSTRUCTION
COMEGYS CREEK SBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1252
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

FINAL PLANS

PLOT DRIVER: TXDOT_LASER_BW_PDF.plt PENTABLE: 000000000702IB.tbl
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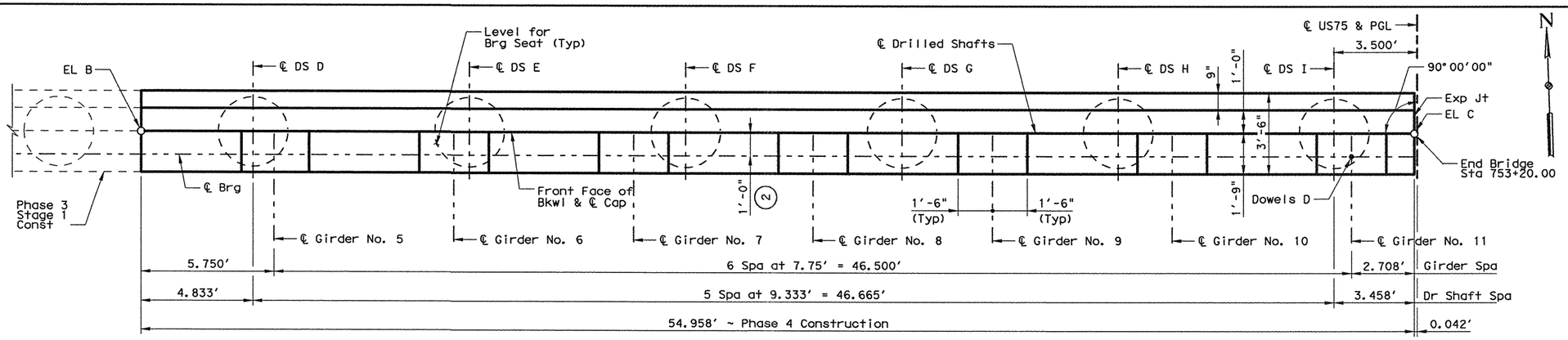
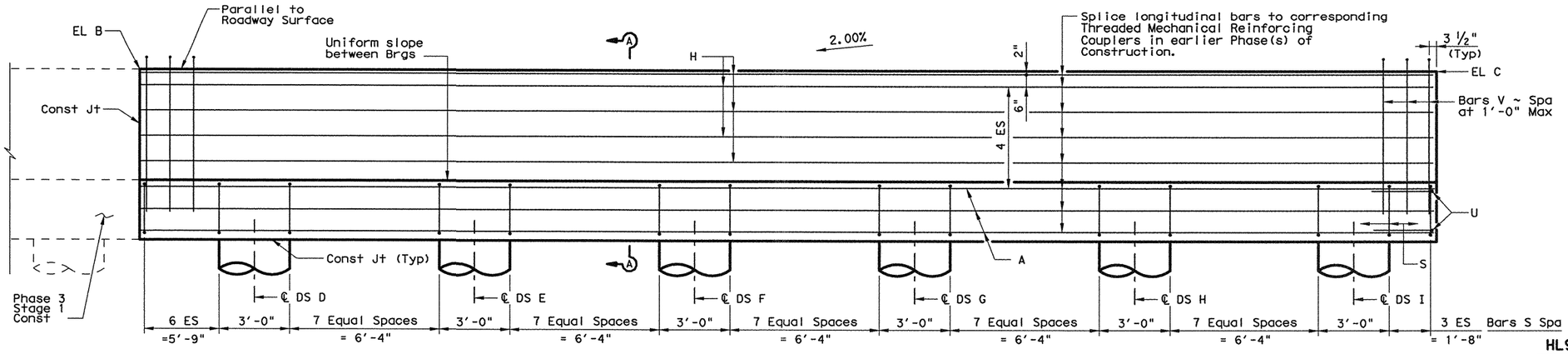
FILE: TxDOT_Dallas_Distrlct\US75_FCl60_RoadwayN3.00_CADD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75V004SC.DGN

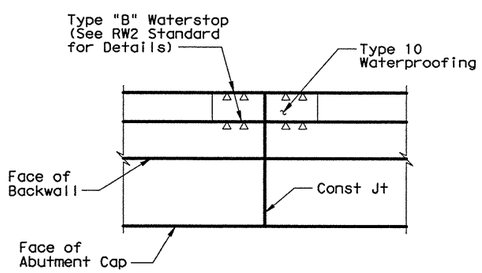
FINAL PLANS



PLAN

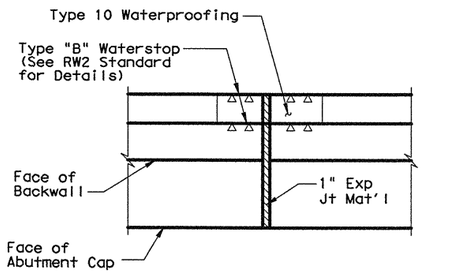


ELEVATION



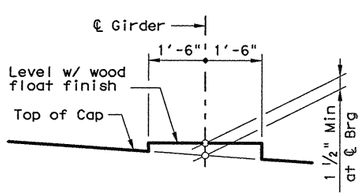
CONSTRUCTION JOINT DETAIL

(Plan View)



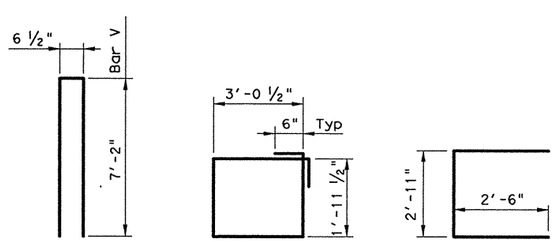
EXPANSION JOINT DETAIL

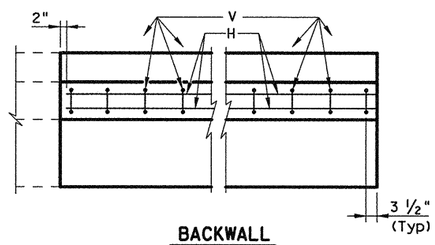
(Plan View)



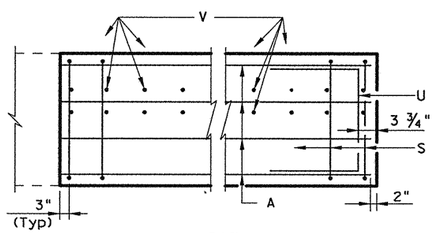
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)





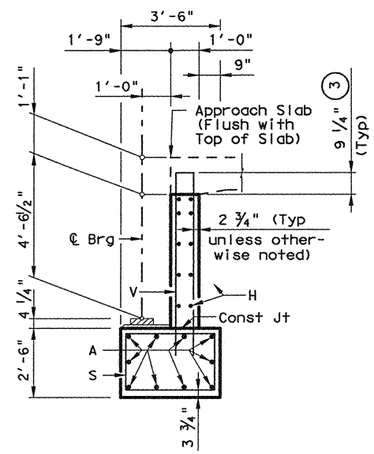
BACKWALL



CAP

CORNER DETAILS

CONTROL ELEVATIONS		
EL A	EL B	EL C
See Phase 3 Abut. No. 2		



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

Bar	No.	Size	Length	Weight
A	10	#11	54'-10"	2,913
D	1	1¼"D	1'-8"	7
H	10	#6	54'-10"	824
S	51	#5	11'-0"	585
U	2	#6	7'-11"	24
V	56	#5	14'-11"	871

(1) Reinforcing Steel	Lb	5,224
Class "C" Conc (Abut) (HPC)	CY	27.8

(1) For Contractor's information only.
(2) See IGEB standard for dimension and orientation.
(3) Increase as required to maintain 3 ¾" from Finished Grade.
(4) See Retaining Wall plans for retaining wall details.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 135 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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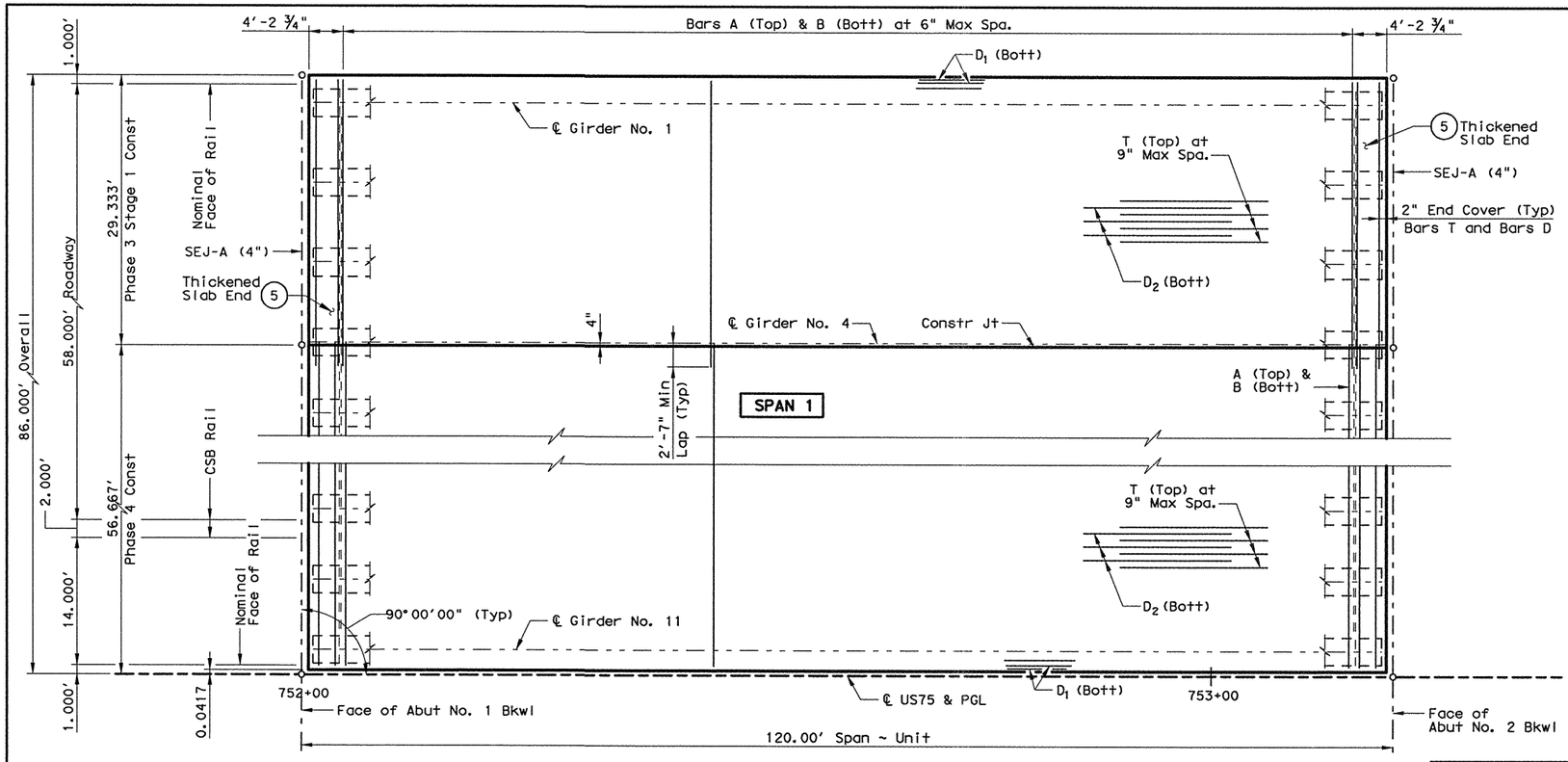
US 75
ABUTMENT NO. 2
PHASE 4 CONSTRUCTION
COMEGYS CREEK SBML BRIDGE

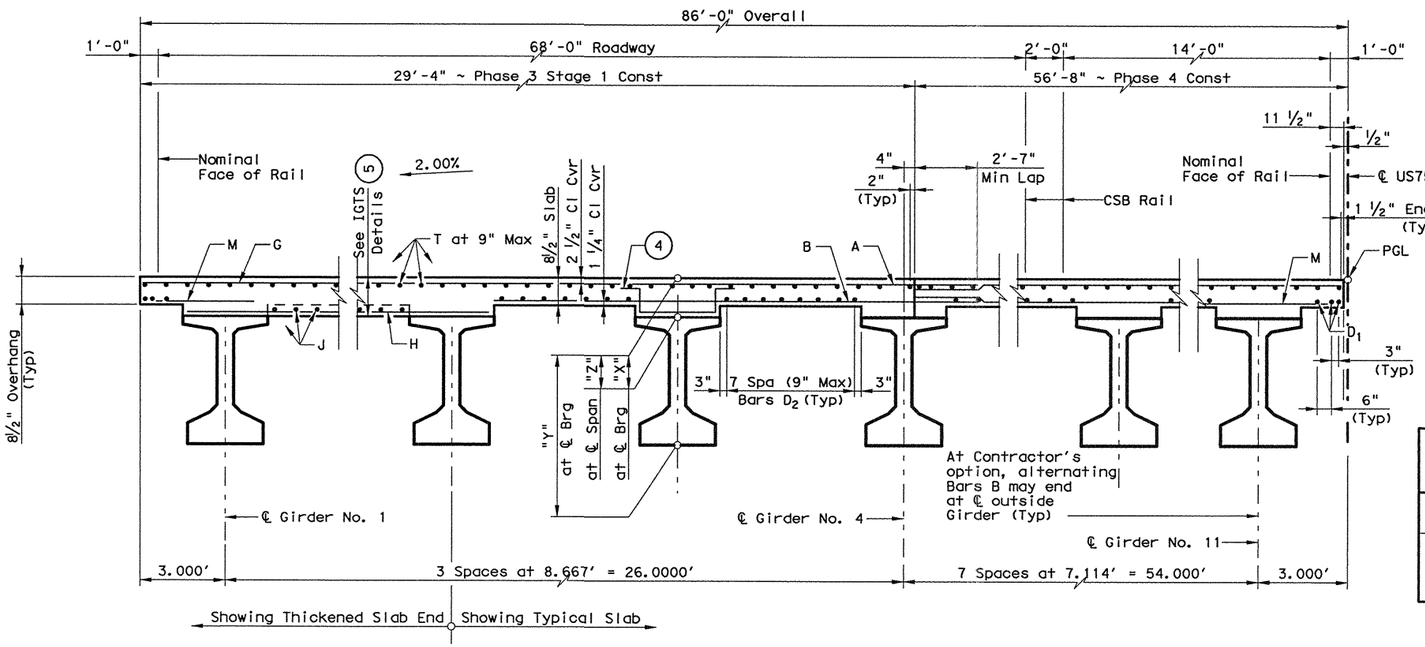
SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1253
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

FINAL PLANS



PLAN



TYPICAL TRANSVERSE SECTION

TABLE OF ESTIMATED QUANTITIES

Span	Reinf Concrete Slab (HPC) (CLS)	Prestressed Concrete Girders (TY Tx54)	Class "S" (1) Concrete (HPC)	Total Reinf (2) Steel
No.	SF	LF	CY	Lb
1	10,315	1,314.50	307.5	67,047

BAR TABLE

BAR	SIZE
A	#5
B	#5
D	#5
G	#5
H	#5
J	#5
M	#5
T	#4
U	#4

(1) Quantities include Thickened Slab Ends and Haunches.

(2) Reinforcing steel weight is calculated using an approximate factor of 6.5 lbs/SF.

(3) Theoretical dimension.

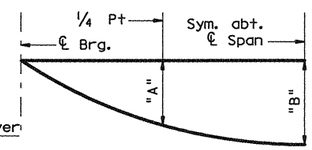
(4) Provide U bars in areas where measured haunch exceeds 3 ½". See IGMS for Haunch Reinforcing Detail.

(5) See IGTS for Thickened Slab End details, Bars G, H, J & M.

GENERAL NOTES:

Provide Class S High Performance Concrete, f'c = 4 ksi.
For beam, bearing pad, misc. slab and thickened slab end details not shown, see IGD, IGEB, IGMS, IGTS and IGND.
For Sealed Expansion Joint details not shown, see SEJ-A.
For Sealed Expansion Joint Quantities not shown, see Summary of Estimated Quantities.
Place and finish not less than 30 feet of Bridge Deck concrete per hour.
For Temp Barrier locations, see Traffic Control Plans.
For rail details not shown, see Traffic Rail Type T551.
For Concrete Safety Barrier details not shown, see CSB(3) Precast.
For framing details not shown, see Framing Plan.
Provide epoxy coated, Grade 60 reinforcing.
Where required, provide bar laps as follows:
#4 = 2'-1"
#5 = 2'-7"
See PCP or PMDF Standards for details and quantity adjustments if either of these options are used.

Span	Beam	"A"	"B"
1	1	0.135	0.189
	2-3	0.159	0.223
	4-10	0.142	0.200
	11	0.122	0.171



Note: Deflections shown are due to concrete slab only. (E = 5000 ksi) Calculated deflections shown are theoretical and actual dimensions may be less. Deflections shall be adjusted based on field observations.

DEAD LOAD DEFLECTION DIAGRAM

TABLE OF SECTION DEPTHS

Span No.	Beam No.	"X" at ℄ Brg (4)	"Y" at ℄ Brg	"Z" at ℄ Span (3)
1	1, 11	1'-1 ½"	5'-7 ½"	10"
	2-3	1'-1 ½"	5'-7 ½"	10 ½"
	4-10	1'-1 ½"	5'-7 ½"	10 ¼"

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
120.00' PRESTR GIRDER UNIT
COMEGYS CREEK SBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1254
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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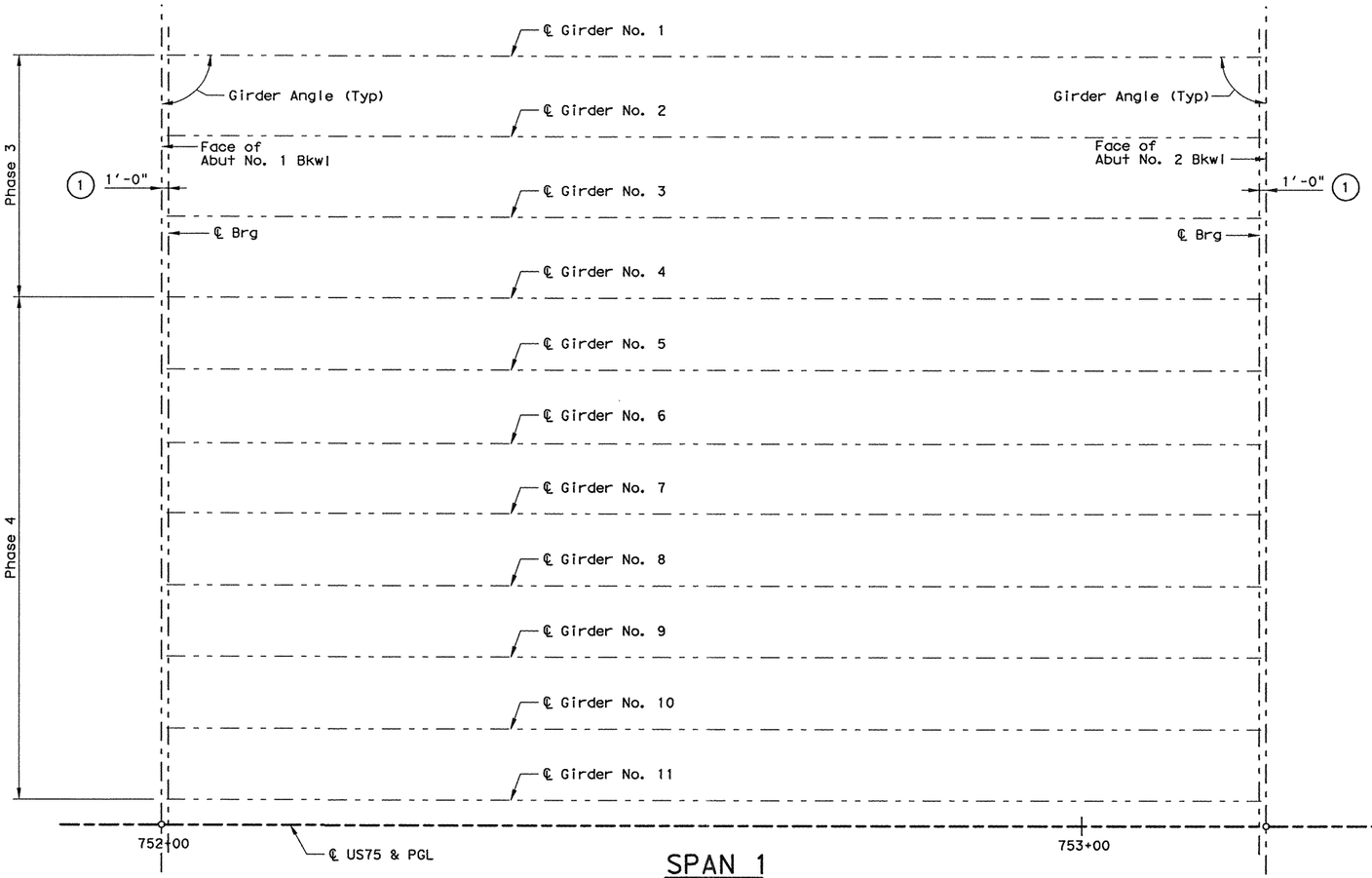
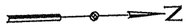
FILE: TxDOT_Dallas_DistrictNUS75_FC160_RoadwayV3.00_CADDBridge\04_US75 MLs OVER COMEGYS CRK\US75YD045A.DGN

FINAL PLANS



SPAN 1

(Type Tx54 Girders)



(1) See Standard IGEB for orientation and dimension.

(2) Girder lengths shown are bottom girder flange lengths with adjustments made for girder slope.

BENT REPORT

ABUT NO. 1 (S 88 10 30.27 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 83.000 L

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.000	90	0	0
	BEAM	2	8.667	90	0	0
	BEAM	3	8.667	90	0	0
	BEAM	4	8.667	90	0	0
	BEAM	5	7.714	90	0	0
	BEAM	6	7.714	90	0	0
	BEAM	7	7.714	90	0	0
	BEAM	8	7.714	90	0	0
	BEAM	9	7.714	90	0	0
	BEAM	10	7.714	90	0	0
	BEAM	11	7.714	90	0	0
	TOTAL		80.000			

ABUT NO. 2 (S 88 10 30.27 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 83.000 L

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.000	90	0	0
	BEAM	2	8.667	90	0	0
	BEAM	3	8.667	90	0	0
	BEAM	4	8.667	90	0	0
	BEAM	5	7.714	90	0	0
	BEAM	6	7.714	90	0	0
	BEAM	7	7.714	90	0	0
	BEAM	8	7.714	90	0	0
	BEAM	9	7.714	90	0	0
	BEAM	10	7.714	90	0	0
	BEAM	11	7.714	90	0	0
	TOTAL		80.000			

BEAM REPORT

BEAM REPORT, SPAN 1

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE (2) BOT. BM. FLG.	BEAM SLOPE
BEAM	1	120.000	118.000	119.50	.0046
BEAM	2	120.000	118.000	119.50	.0046
BEAM	3	120.000	118.000	119.50	.0046
BEAM	4	120.000	118.000	119.50	.0046
BEAM	5	120.000	118.000	119.50	.0046
BEAM	6	120.000	118.000	119.50	.0046
BEAM	7	120.000	118.000	119.50	.0046
BEAM	8	120.000	118.000	119.50	.0046
BEAM	9	120.000	118.000	119.50	.0046
BEAM	10	120.000	118.000	119.50	.0046
BEAM	11	120.000	118.000	119.50	.0046

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
FRAMING PLAN (SPAN NO. 1)
COMEGYS CREEK SBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK GMK	TEXAS	DAL	COLLIN	1255
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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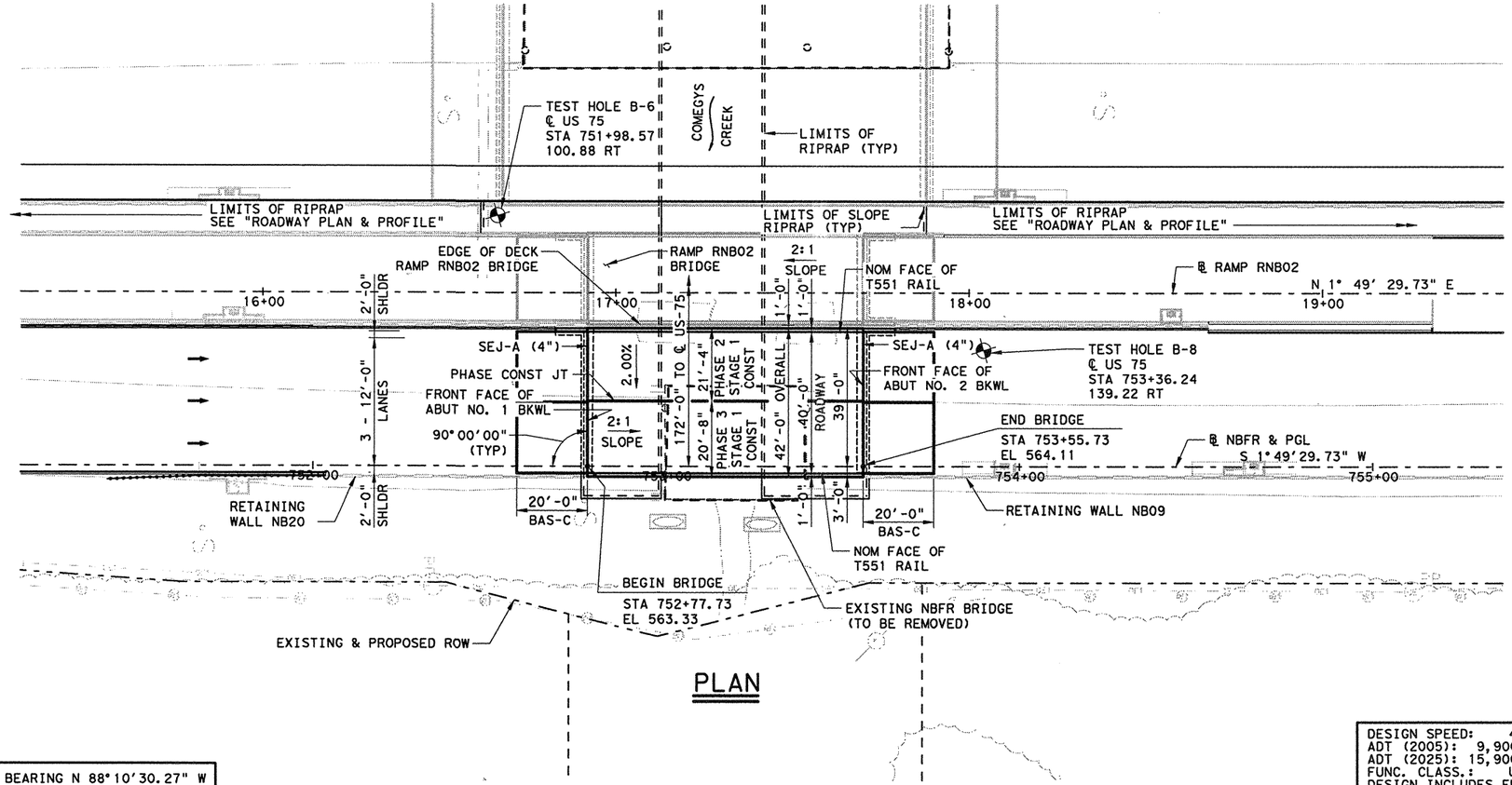
FILE: TxDOT_Dallas_District\US75_FC160_RoadwayN3.00_CAD\Bridge\04_US75 MLs OVER COMEGYS CRK\US75ML04SA.DGN

FINAL PLANS



PLAN

DESIGN NOTES:

1. DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE SPECIFICATIONS, 4TH EDITION WITH ALL INTERIM SPECIFICATIONS.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL STRUCTURES AND UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEER IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
3. "D" DENOTES BENTS WITH D BARS AND SLOTTED HOLES AT EXTERIOR BEAMS
4. SEE RETAINING WALL LAYOUTS FOR LIMITS AND DETAILS NOT SHOWN.
5. SEE BORING LOG SHEET FOR BORING DATA.
6. SEE TRAFFIC CONTROL PLAN FOR LIMITS AND LOCATIONS OF TEMP WALLS AND TEMP SPL SHORING. SEE TRAFFIC CONTROL SUMMARY FOR TEMP WALLS AND TEMP SPL QUANTITIES.
7. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE HARD GRAY LIMESTONE A MINIMUM DISTANCE OF 3 FT.

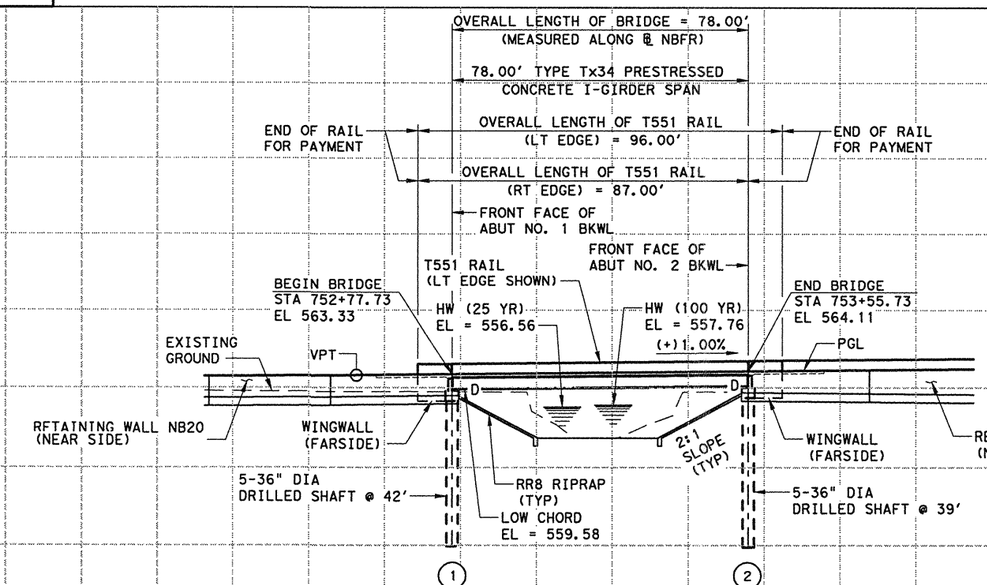
ALL BENTS ON BEARING N 88° 10' 30.27" W

DESIGN SPEED: 40 MPH
ADT (2005): 9,900
ADT (2025): 15,900
FUNC. CLASS.: URBAN FREEWAY
DESIGN INCLUDES FUTURE 2" OVERLAY

HL93 LOADING

EXISTING NBI: 18-043-0-0047-06-163
NEW NBI: 18-043-0-0047-06-633

NBFR VERTICAL CURVE DATA
(-)5.27% (+) 1.00%
VPI STA = 750+50.00
EL = 561.04'
ex = 3.18'
K = 65
L = 405.00'



ELEVATION

HYDRAULIC DATA
Q25 =2,065 cfs V25 =8.33 ft/s HW25 =556.56
Q100 =2,531 cfs V100 =9.02 ft/s HW100=557.76

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
1-21-2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
© 2011

US 75
BRIDGE LAYOUT
COMEGYS CREEK NBFR BRIDGE

SCALE: 1"=20' SHEET 1 OF 3

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS DE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1256
CHECK DMW	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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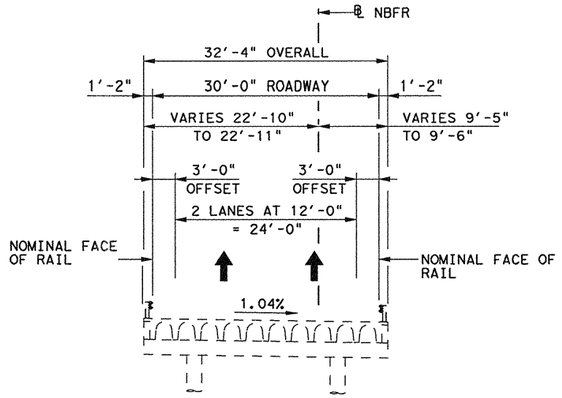
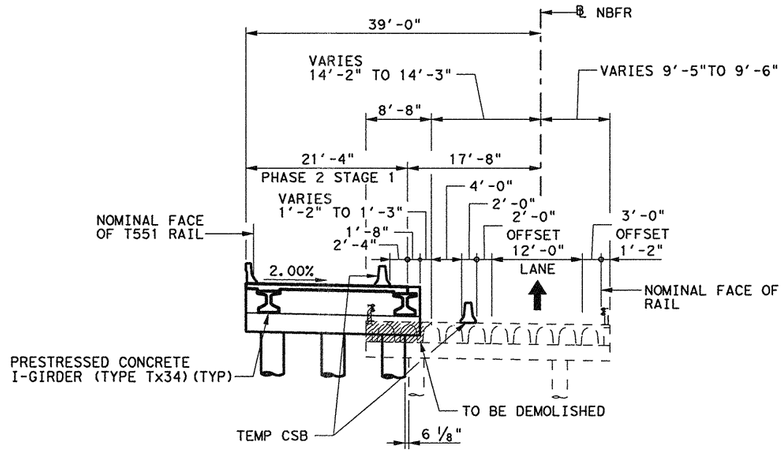
USER: jquinter DATE: 1/21/2011 TIME: 10:11:03 AM SCALE: 1:40
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CAD\Bridge\05_US75 NBFR OVER COMEGYS CRK\US75BL05A.DGN

FINAL PLANS



EXISTING STRUCTURE



PHASE 2 STAGE 1 CONSTRUCTION

NOTES:

SEE TRAFFIC CONTROL PLANS FOR STAGING SEQUENCE INFORMATION.

DIMENSIONS SHOWN ARE BASED ON SURVEY AND EXISTING BRIDGE PLANS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
BRIDGE LAYOUT
TYPICAL SECTION & PHASE CONST
COMEGYS CREEK NBFR BRIDGE

SCALE: 1"=20' SHEET 2 OF 3

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DE	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1257
DLS	0047	06	108, ETC.	
CHECK				
DMW				

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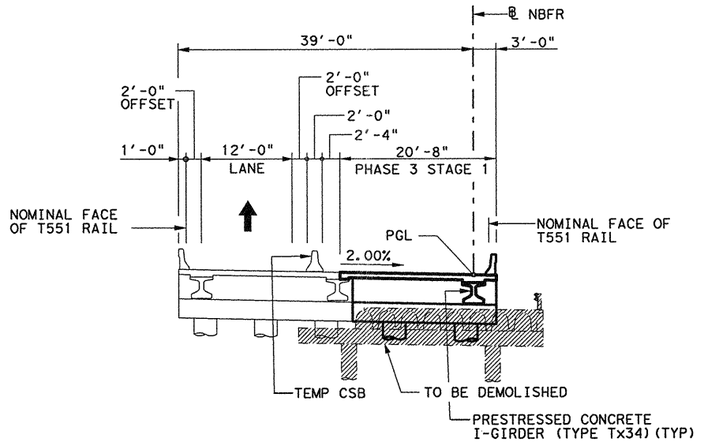
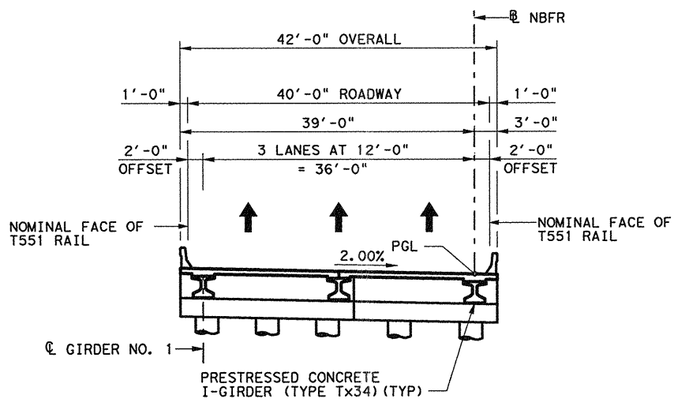
USER: mbautist DATE: 12/6/2010 TIME: 7:35:11 PM SCALE: 1:20
FILE: TxDOT_Dallas_District\US75_FC\60_Roadway\V3.00_CAD\Bridge\05_US75 NBFR OVER COMEGY'S CRK\US75SC05A.DGN

FINAL PLANS



PHASE 3 STAGE 1 CONSTRUCTION



FINAL STRUCTURE

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
BRIDGE LAYOUT
TYPICAL SECTION & PHASE CONST
COMEGYS CREEK NBFR BRIDGE

SCALE: 1"=20' SHEET 3 OF 3

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DE	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1258
DLS				
CHECK	0047	06	108, ETC.	
DMW				

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FILE: TxDOT_Dallas_District\US75_FCI60_Roadway\V3.00_CAD\Bridge\V05_US75 NBFR OVER COMEGY'S CRK\US75SCC05B.DGN

FINAL PLANS

SUMMARY OF ESTIMATED QUANTITIES - PHASE 2 STAGE 1

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2065 PRESTR CONC GIRDER (TX34)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)
	LF	CY	CY	SF	LF	SY	CY	LF	LF
2 ~ ABUTMENTS	243	25.2	38.2				21	18.0	40
1 ~ 78.00' TY Tx34 PCPS GDR SPAN				1,664	232.50	167		78.0	
TOTAL	243	25.2	38.2	1,664	232.50	167	21	96.0	40

SUMMARY OF ESTIMATED QUANTITIES - PHASE 3 STAGE 1

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2065 PRESTR CONC GIRDER (TX34)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)
	LF	CY	CY	SF	LF	SY	CY	LF	LF
2 ~ ABUTMENTS	162	15.6	38.2				31		40
1 ~ 78.00' TY Tx34 PCPS GDR SPAN				1,612	155.00	173		78.0	
TOTAL	162	15.6	38.2	1,612	155.00	173	31	78.0	40

SUMMARY OF ESTIMATED QUANTITIES - TOTAL

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2065 PRESTR CONC GIRDER (TX34)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)
	LF	CY	CY	SF	LF	SY	CY	LF	LF
2 ~ ABUTMENTS	405	40.8	76.4				52	18.0	80
1 ~ 78.00' TY Tx34 PCPS GDR SPAN				3,276	387.50	340		156.0	
TOTAL	405	40.8	76.4	3,276	387.50	340	52	174.0	80

(1) Sulfate Resistant Concrete

NOTES:

1. See Traffic Control Plans for quantities of Temporary Barriers and/or Temporary Walls.
2. Existing Bridge is a 40' long Continuous Slab Unit Bridge supported on Concrete Abutments, Bents, and Drilled Shafts.
3. Existing Drilled Shafts shall be cutoff and removed to 2' below Proposed Finished Grade.

BEARING SEAT ELEVATIONS

	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5
BENT 1 (FWD)	560.115	559.935	559.755	559.575	559.395
BENT 2 (BK)	560.877	560.697	560.517	560.337	560.157

HL93 LOADING

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E.
1-21-2011

US 75
ESTIMATED QUANTITIES & BEARING SEAT ELEVATIONS COMEGYS CREEK NBFR BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	
CHECK DLS	CONTROL	SECTION	JOB	1259
	0047	06	108, ETC.	

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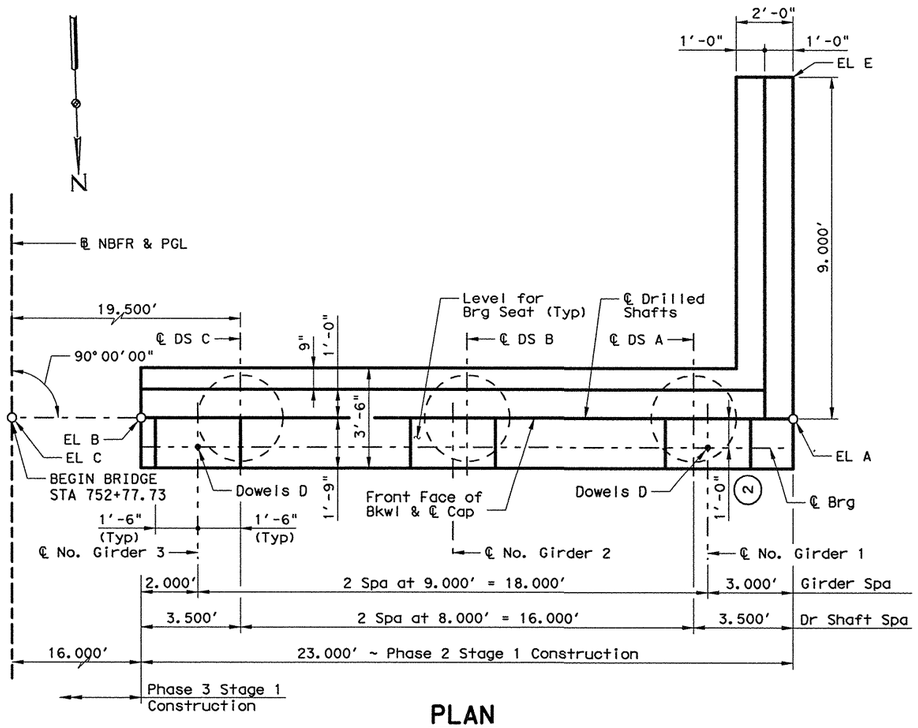
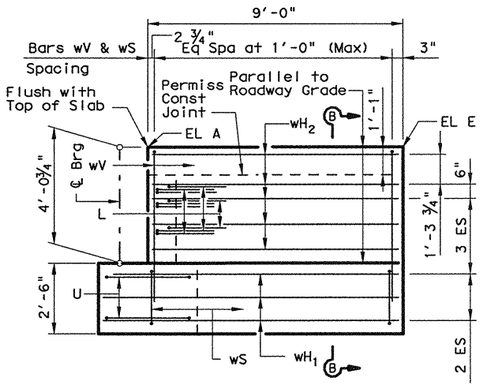
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CAD\Bridge\05_US75 NBFR OVER COMEGYS CRK\US75B005A.DGN

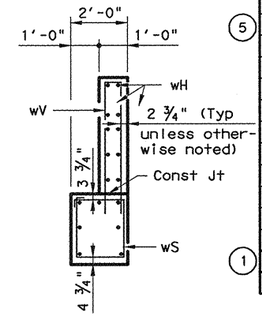
FINAL PLANS



PLAN



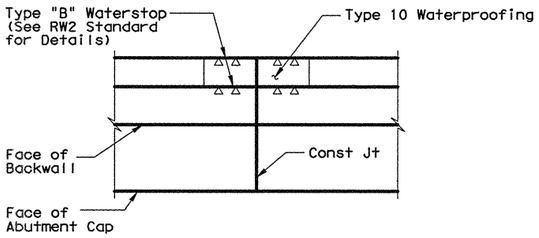
WINGWALL ELEVATION



SECTION B-B

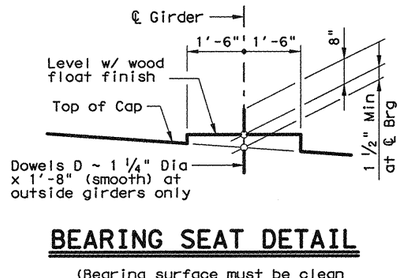
TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
(4) A	10	#11	22'-6"	1,195
D	2	1 ¼"D	1'-8"	14
(5) H	8	#6	22'-6"	270
L	9	#6	4'-0"	54
S	20	#5	11'-0"	229
U	2	#6	7'-11"	24
V	23	#5	11'-1"	266
wH1	7	#6	10'-5"	110
wH2	10	#6	8'-8"	130
wS	10	#4	7'-6"	50
wV	10	#5	11'-4"	118
(1) Reinforcing Steel			Lb	2,446
Class "C" Conc (Abut) (HPC)			CY	12.6

(1) For Contractor's information only.
(2) See IGEB standard for dimension and orientation.
(3) Increase as required to maintain 3 ¾" from Finished Grade.
(4) Provide 10 Threaded Mechanical Reinforcing Couplers for #11 bars
(5) Provide 8 Threaded Mechanical Reinforcing Couplers for #6 bars



CONSTRUCTION JOINT DETAIL

(Plan View)



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

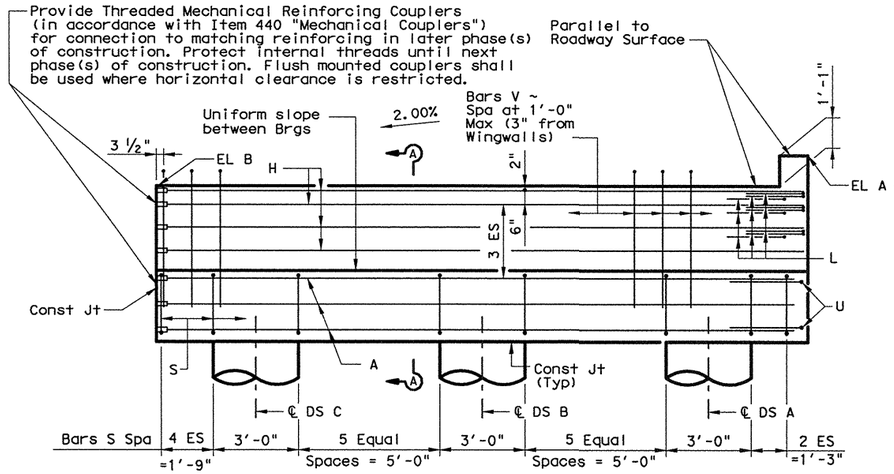
See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 80Tons/D.S.

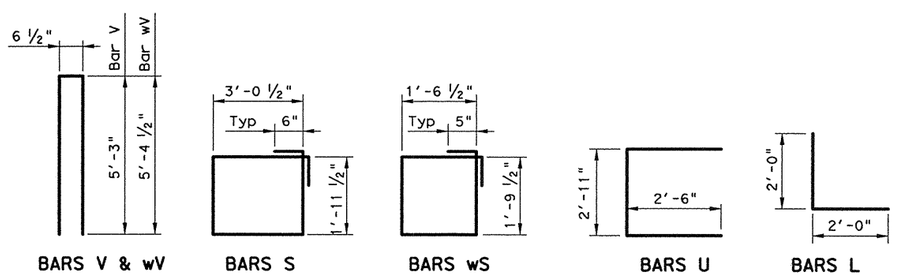
Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

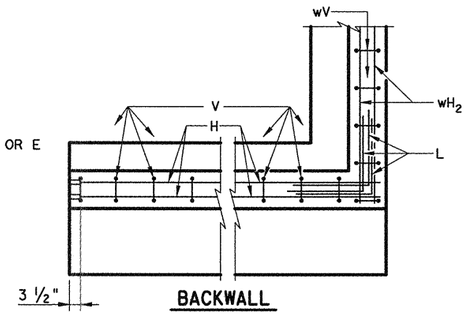
HL93 LOADING



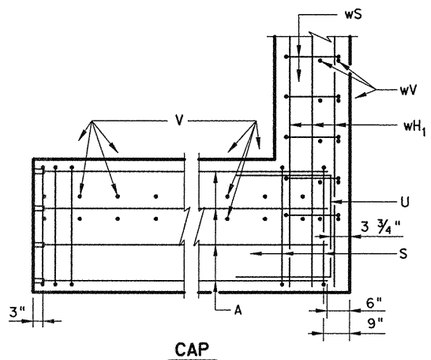
ELEVATION



CORNER DETAILS

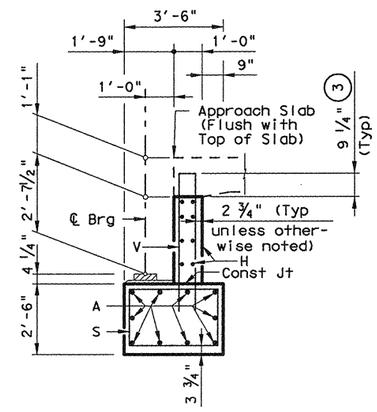


BACKWALL



CAP

CONTROL ELEVATIONS				
EL A	EL B	EL C	EL D	EL E
564.097	562.554	562.234	562.195	564.007



SECTION A-A

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ABUTMENT NO. 1
PHASE 2 STAGE 1 CONSTRUCTION
COMEGYS CREEK NBFR BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1261
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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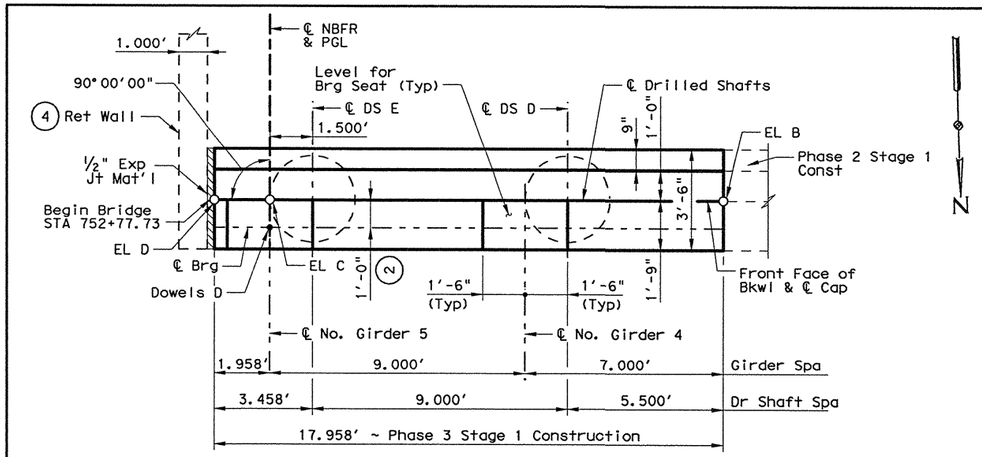
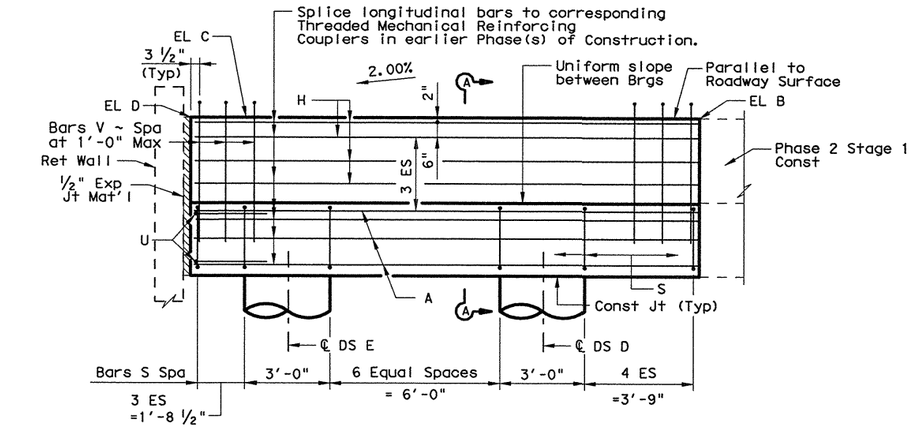
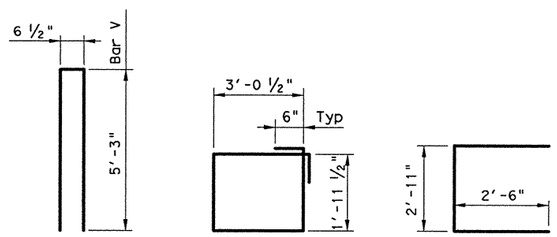


PLAN

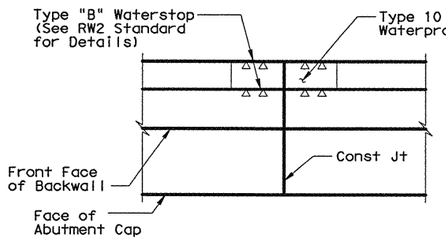


ELEVATION

CONTROL ELEVATIONS				
EL A	EL B	EL C	EL D	EL E
See Phase 2 Abutment No. 1				

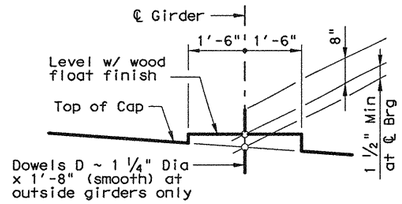


BARS V BARS S BARS U



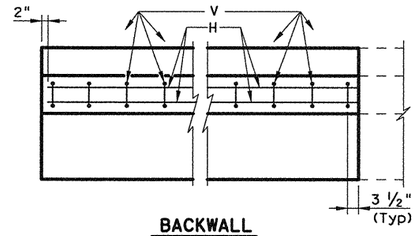
CONSTRUCTION JOINT DETAIL

(Plan View)

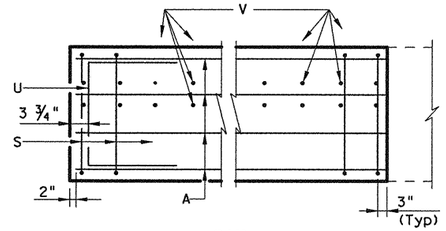


BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.) (1)

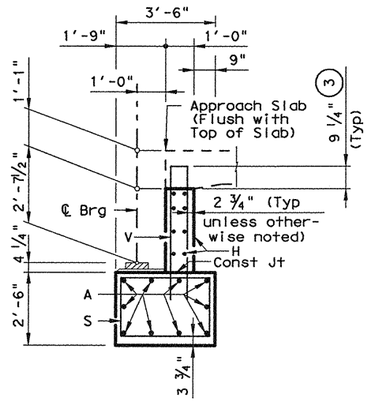


BACKWALL



CAP

CORNER DETAILS



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

Bar	No.	Size	Length	Weight
A	10	#11	17'-10"	947
D	1	1 ¼" D	1'-8"	7
H	8	#6	17'-10"	214
S	16	#5	11'-0"	184
U	2	#6	7'-11"	24
V	19	#5	11'-1"	220
(1) Reinforcing Steel			Lb	1582
Class "C" Conc (Abut) (HPC)			CY	7.8

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 ¾" from Finished Grade.

(4) See Retaining Wall plans for retaining wall details.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 80 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

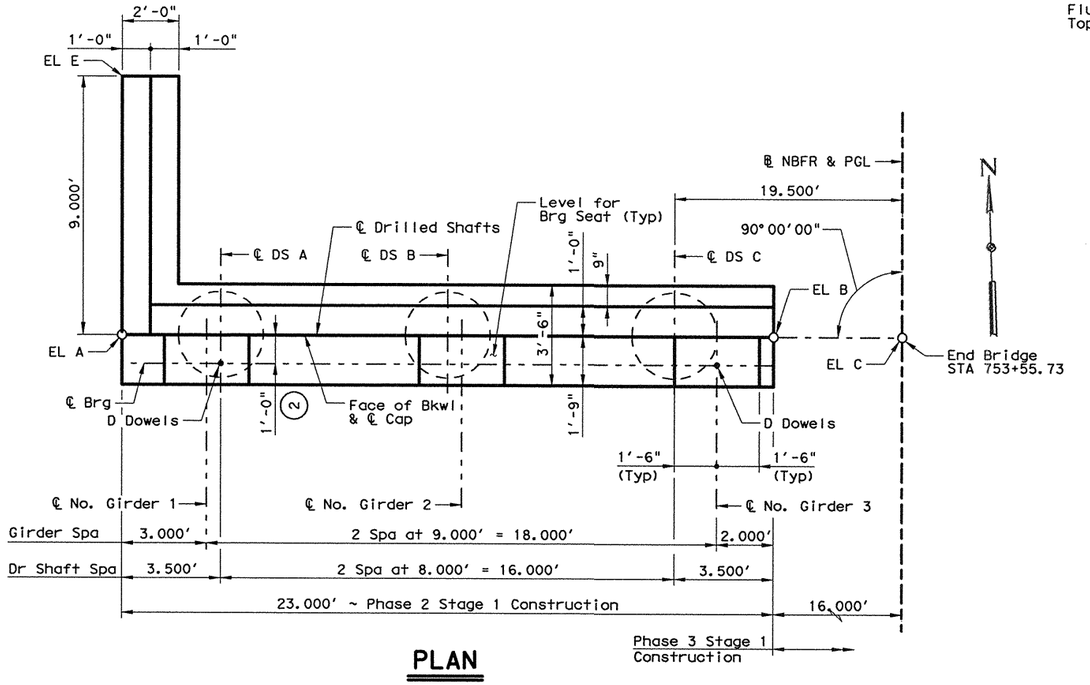
Texas Department of Transportation

US 75
ABUTMENT NO. 1
PHASE 3 STAGE 1 CONSTRUCTION
COMEGYS CREEK NBFR BRIDGE

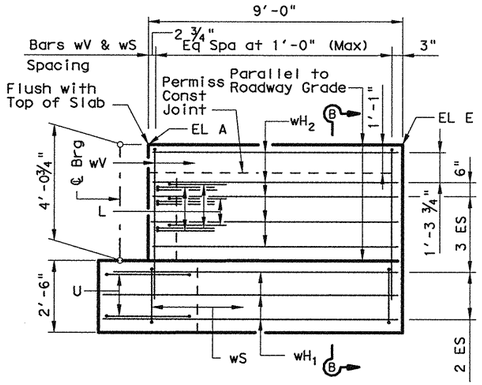
SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DEB	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1262
DLS	0047	06	108, ETC.	
CHECK				
DLS				

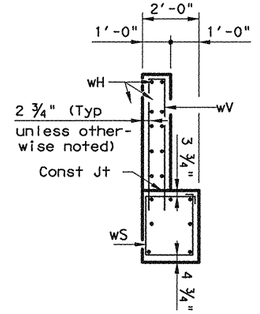
FINAL PLANS



PLAN



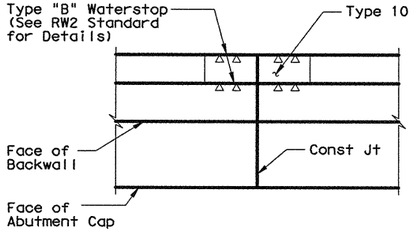
WINGWALL ELEVATION



SECTION B-B

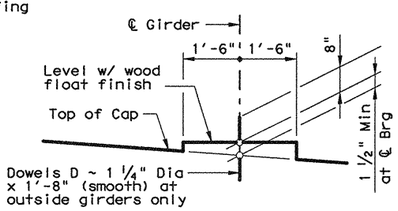
	Bar	No.	Size	Length	Weight
4	A	10	#11	22'-6"	1,195
	D	2	1 ¼" D	1'-8"	14
5	H	8	#6	22'-6"	270
	L	9	#6	4'-0"	54
	S	20	#5	11'-0"	229
	U	2	#6	7'-11"	24
	V	23	#5	11'-1"	266
	wH_1	7	#6	10'-5"	110
	wH_2	10	#6	8'-8"	130
	wS	10	#4	7'-6"	50
	wV	10	#5	11'-4"	118
1	Reinforcing Steel			Lb	2,446
	Class "C" Conc (Abut) (HPC)			CY	12.6

TABLE OF ESTIMATED QUANTITIES



CONSTRUCTION JOINT DETAIL

(Plan View)



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

1. For Contractor's information only.
2. See IGEB standard for dimension and orientation.
3. Increase as required to maintain 3 ¾" from Finished Grade.
4. Provide 10 Threaded Mechanical Reinforcing Couplers for #11 bars
5. Provide 8 Threaded Mechanical Reinforcing Couplers for #6 bars

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

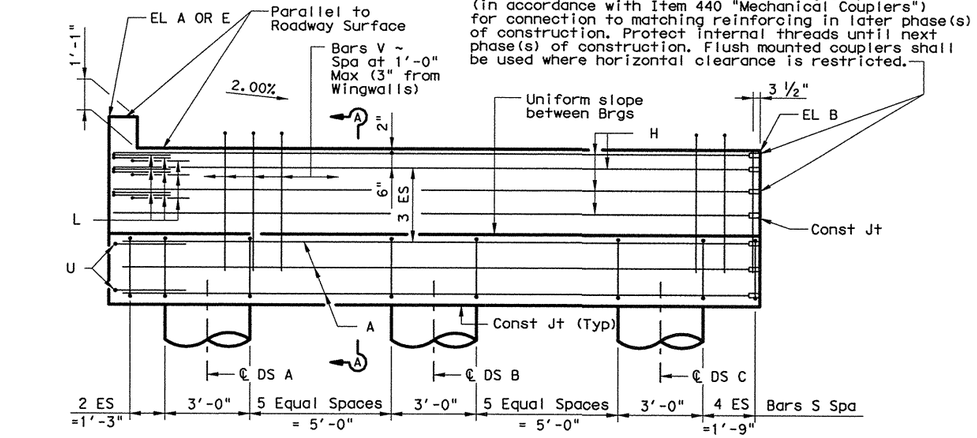
All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 80 Tons/D.S.

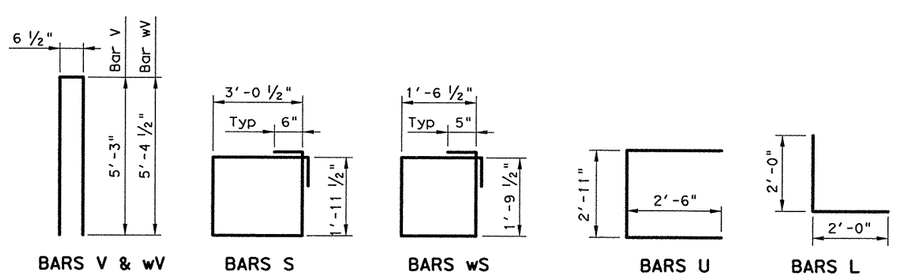
Provide Class C High Performance Concrete (HPC).

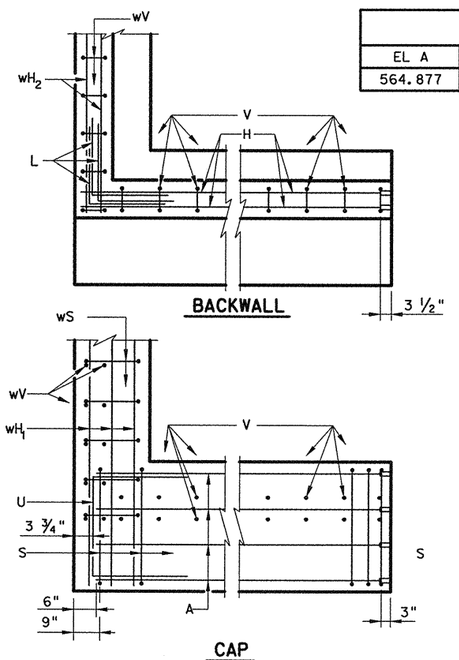
For framing details not shown, see Framing Plan.



Provide Threaded Mechanical Reinforcing Couplers (in accordance with Item 440 "Mechanical Couplers") for connection to matching reinforcing in later phase(s) of construction. Protect internal threads until next phase(s) of construction. Flush mounted couplers shall be used where horizontal clearance is restricted.

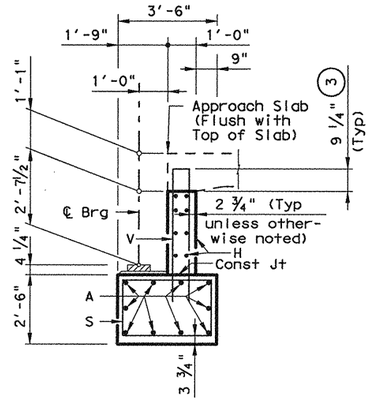
ELEVATION





CORNER DETAILS

CONTROL ELEVATIONS				
EL A	EL B	EL C	EL D	EL E
564.877	563.334	563.014	562.975	564.967



SECTION A-A

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
ABUTMENT NO. 2
PHASE 2 STAGE 1 CONSTRUCTION
COMEGYS CREEK NBFR BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1263
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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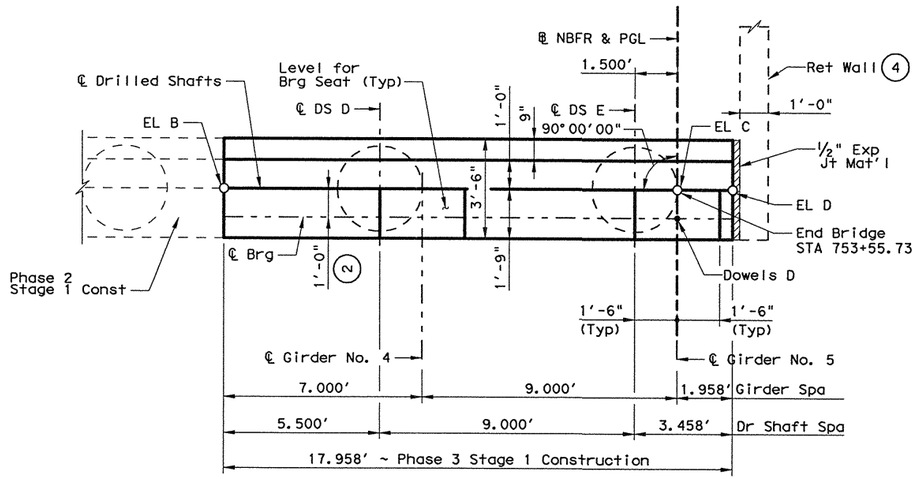
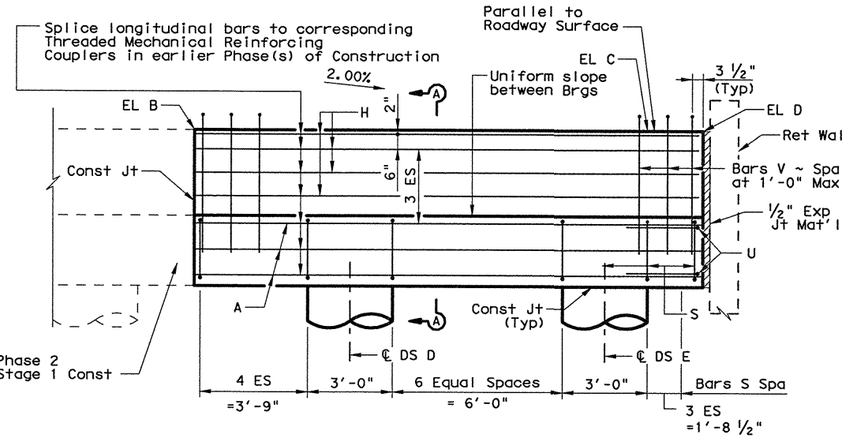
FILE: TxDOT_Dallas_District\US75_FC160_RoadwayV3.00_CAD\Bridge\05_US75 NBFR OVER COMEGY'S CRK\US75\D05C.DGN

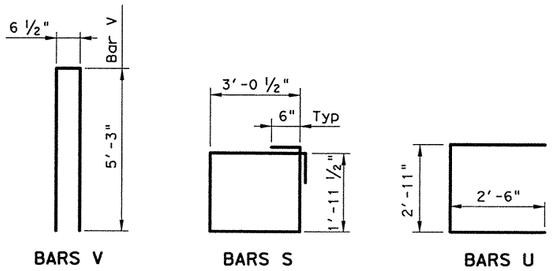
FINAL PLANS

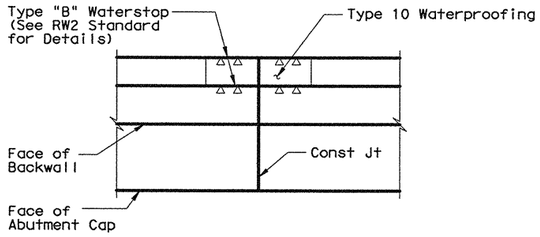


PLAN



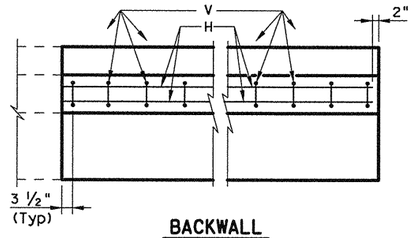
ELEVATION



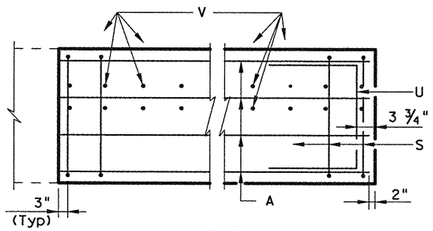


CONSTRUCTION JOINT DETAIL

(Plan View)

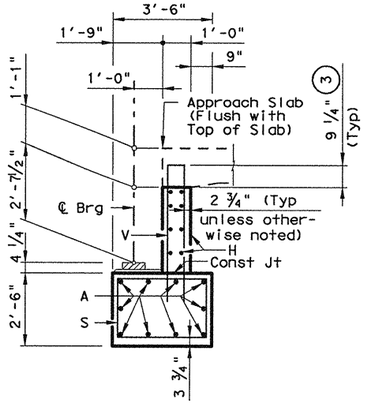


BACKWALL

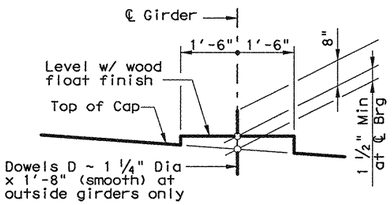


CAP

CORNER DETAILS



SECTION A-A



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

TABLE OF ESTIMATED QUANTITIES

Bar	No.	Size	Length	Weight
A	10	#11	17'-10"	947
D	1	1 1/4"D	1'-8"	7
H	8	#6	17'-10"	214
S	16	#5	11'-0"	184
U	2	#6	7'-11"	24
V	19	#5	11'-1"	220

(1) Reinforcing Steel	Lb	1,596
Class "C" Conc (Abut) (HPC)	CY	7.8

(1) For Contractor's information only.
(2) See IGEB standard for dimension and orientation.
(3) Increase as required to maintain 3 3/4" from Finished Grade.
(4) See Retaining Wall plans for retaining wall details.

CONTROL ELEVATIONS

EL A	EL B	EL C	EL D	EL E
See Phase 2 Abutment No. 2				

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 80 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ABUTMENT NO. 2
PHASE 3 STAGE 1 CONSTRUCTION
COMEGYS CREEK NBFR BRIDGE

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS DEB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1264
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108,ETC.	

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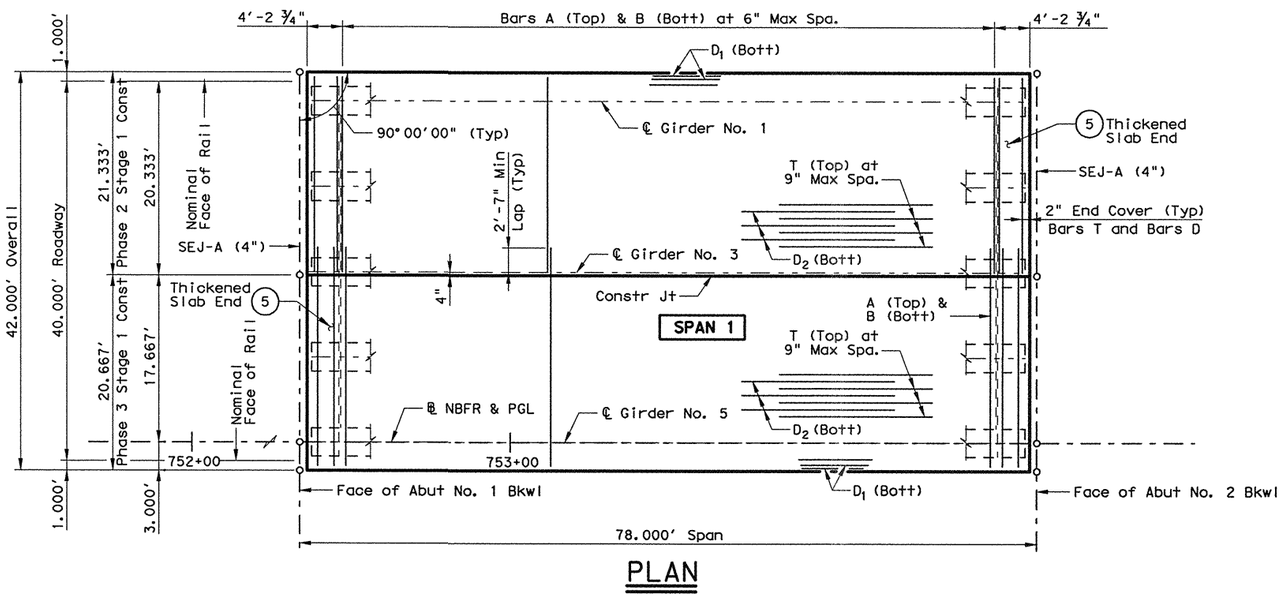
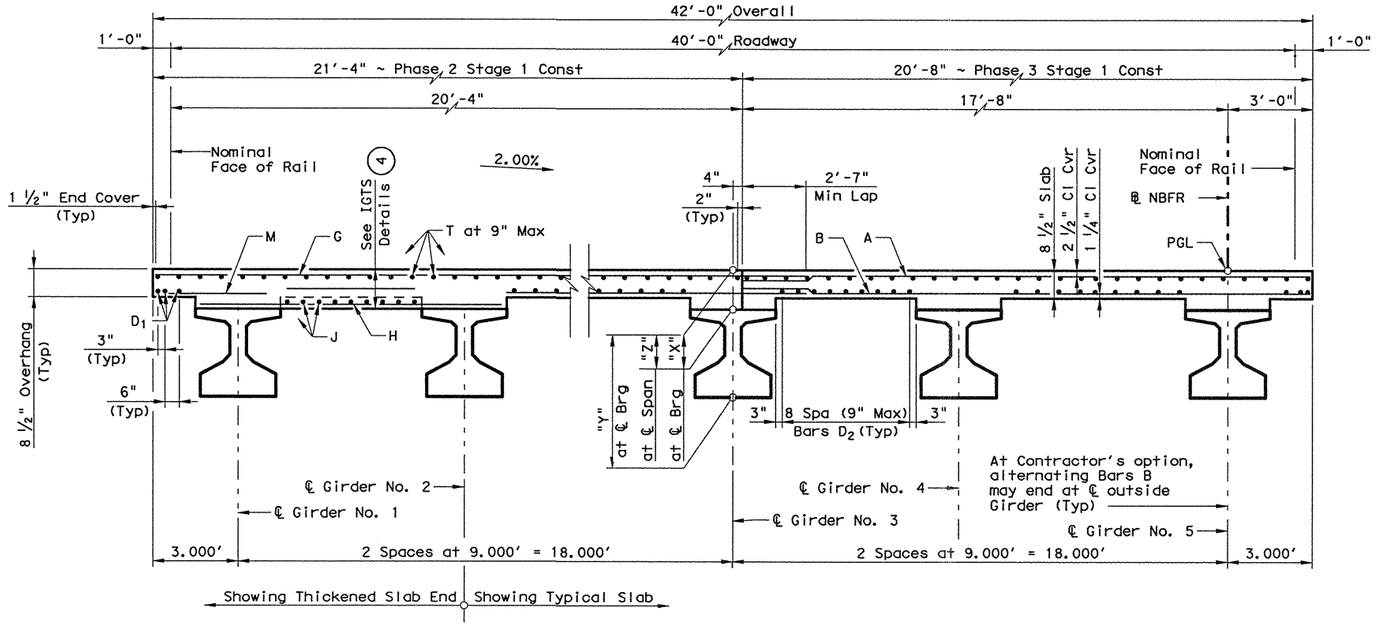
FINAL PLANS

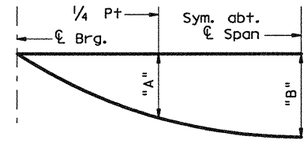


PLAN



TYPICAL TRANSVERSE SECTION

Span	Beam	"A"	"B"
1	1, 5	0.080	0.113
	2-4	0.097	0.135



Note: Deflections shown are due to concrete slab only. (E = 5000 ksi) Calculated deflections shown are theoretical and actual dimensions may be less. Deflections shall be adjusted based on field observations.

DEAD LOAD DEFLECTION DIAGRAM

TABLE OF SECTION DEPTHS

Span No.	Beam No.	"X" at ℄ Brg (4)	"Y" at ℄ Brg	"Z" at ℄ Span (3)
1	1, 5	10 1/2"	3'- 8 1/2"	10 1/2"
	2-4	10 1/2"	3'- 8 1/2"	10 3/4"

TABLE OF ESTIMATED QUANTITIES

Span	Reinf Concrete Slab (HPC) (CLS)	Prestressed Concrete Girders (TY Tx34)	Class "S" (1) Concrete (HPC)	Total Reinf Steel (2)
No.	SF	LF	CY	Lb
1	3,276	387.50	92.4	21,294
Total	3,276	387.50	92.4	21,294

(1) Quantities include Thickened Slab Ends and Haunches.

(2) Reinforcing steel weight is calculated using an approximate factor of 6.5 lbs/SF.

(3) Theoretical dimension.

(4) See IGTS for Thickened Slab End details, Bars G, H, J & M.

BAR TABLE

BAR	SIZE
A	#5
B	#5
D	#5
G	#5
H	#5
J	#5
M	#5
T	#4
U	#4

GENERAL NOTES:

Provide Class S High Performance Concrete, f'c = 4 ksi.
For beam, bearing pad, misc. slab and thickened slab end details not shown, see IGD, IGEB, IGMS, IGTS and IGND.
For Sealed Expansion Joint details not shown, see SEJ-A.
For Sealed Expansion Joint Quantities not shown, see Summary of Estimated Quantities.
Place and finish not less than 30 feet of Bridge Deck concrete per hour.
For Temp Barrier locations, see Traffic Control Plans.
For rail details not shown, see Traffic Rail Type T551.
For Concrete Safety Barrier details not shown, see CSB(3) Precast.
For framing details not shown, see Framing Plan.
Provide epoxy coated, Grade 60 reinforcing.
Where required, provide bar laps as follows:
#4 = 2'-1"
#5 = 2'-7"
See PCP or PMDF Standards for details and quantity adjustments if either of these options are used.

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

US 75
78.00' PRESTR GIRDER UNIT
COMEGYS CREEK NBFR BRIDGE

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1265
CHECK DLS	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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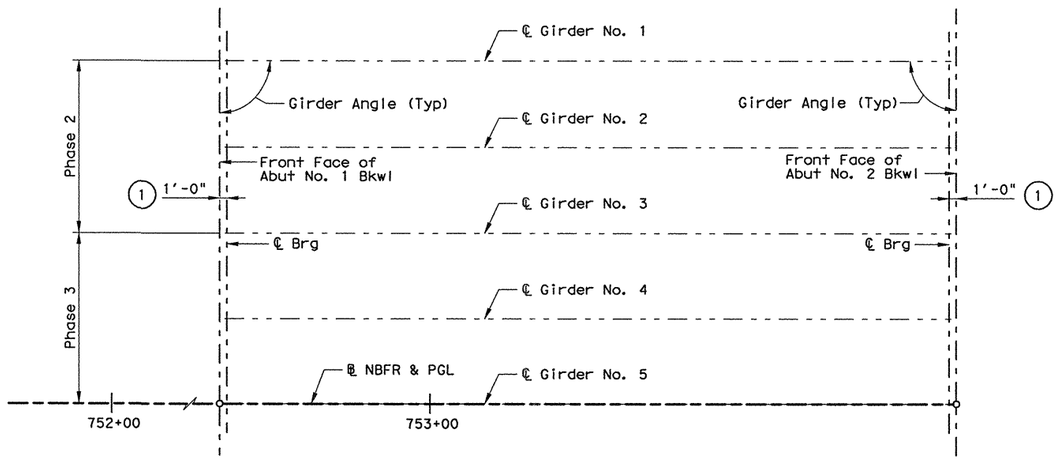
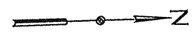


SPAN 1

(Type Tx34 I Giders)



(1) See Standard IGEB for orientation and dimension.

(2) Girder lengths shown are bottom girder flange lengths with adjustments made for girder slope.

BENT REPORT

BENT NO. 1 (S 88 10 30.29 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 36.000 L

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.000	90	0	0
	BEAM	2	9.000	90	0	0
	BEAM	3	9.000	90	0	0
	BEAM	4	9.000	90	0	0
	BEAM	5	9.000	90	0	0
	TOTAL		36.000			

ABUT NO. 2 (S 88 10 30.29 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 36.000 L

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.000	90	0	0
	BEAM	2	9.000	90	0	0
	BEAM	3	9.000	90	0	0
	BEAM	4	9.000	90	0	0
	BEAM	5	9.000	90	0	0
	TOTAL		36.000			

BEAM REPORT

BEAM REPORT, SPAN 1

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. BM. FLG.	(2) BEAM SLOPE
BEAM 1	78.000	76.000	77.50	.0100
BEAM 2	78.000	76.000	77.50	.0100
BEAM 3	78.000	76.000	77.50	.0100
BEAM 4	78.000	76.000	77.50	.0100
BEAM 5	78.000	76.000	77.50	.0100

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
FRAMING PLAN (SPAN NO. 1)
COMEGYS CREEK NBFR BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
AKM	6	SEE TITLE SHEET		US 75
GRAPHICS JAS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK DLS	TEXAS	DAL	COLLIN	1266
CHECK DLS	CONTROL 0047	SECTION 06	JOB 108, ETC.	

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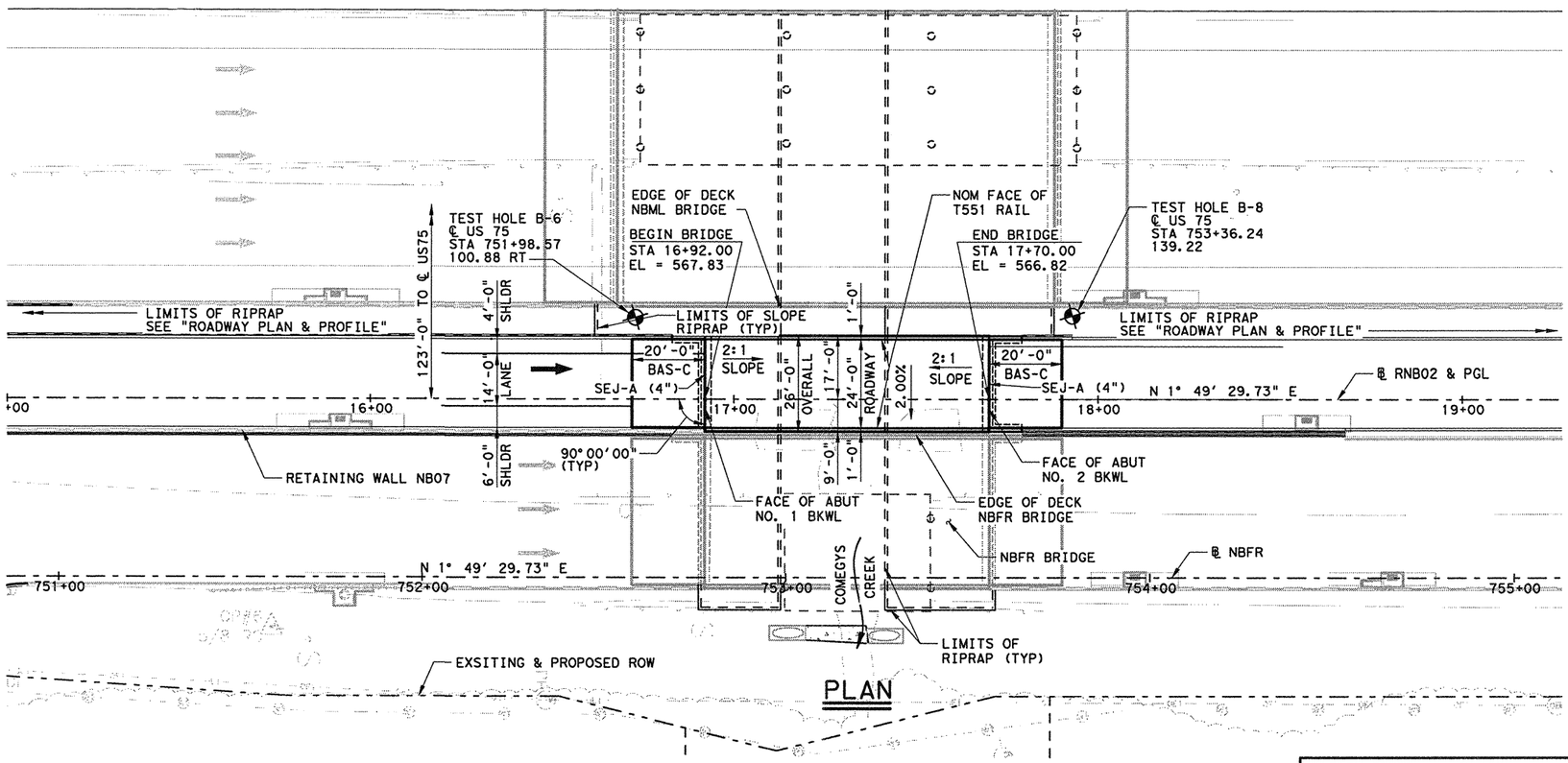
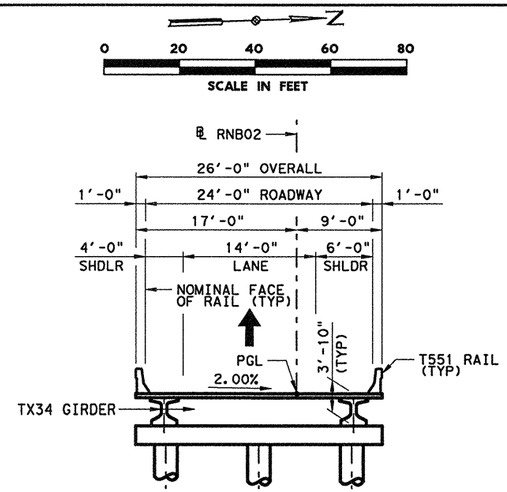
FINAL PLANS



PLAN



TYPICAL SUPERSTRUCTURE SECTION

DESIGN NOTES:

1. DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE SPECIFICATIONS, 4TH EDITION WITH ALL INTERIM SPECIFICATIONS.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL STRUCTURES AND UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEER IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
3. "D" DENOTES BENTS WITH D BARS AND SLOTTED HOLES AT EXTERIOR BEAMS.
4. SEE RETAINING WALL LAYOUTS FOR LIMITS AND DETAILS NOT SHOWN.
5. SEE BORING LOG SHEET FOR BORING DATA.
6. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE HARD GRAY LIMESTONE A MINIMUM DISTANCE OF 3 FT.

HL93 LOADING NEW NBI: 18-043-0-0047-06-635

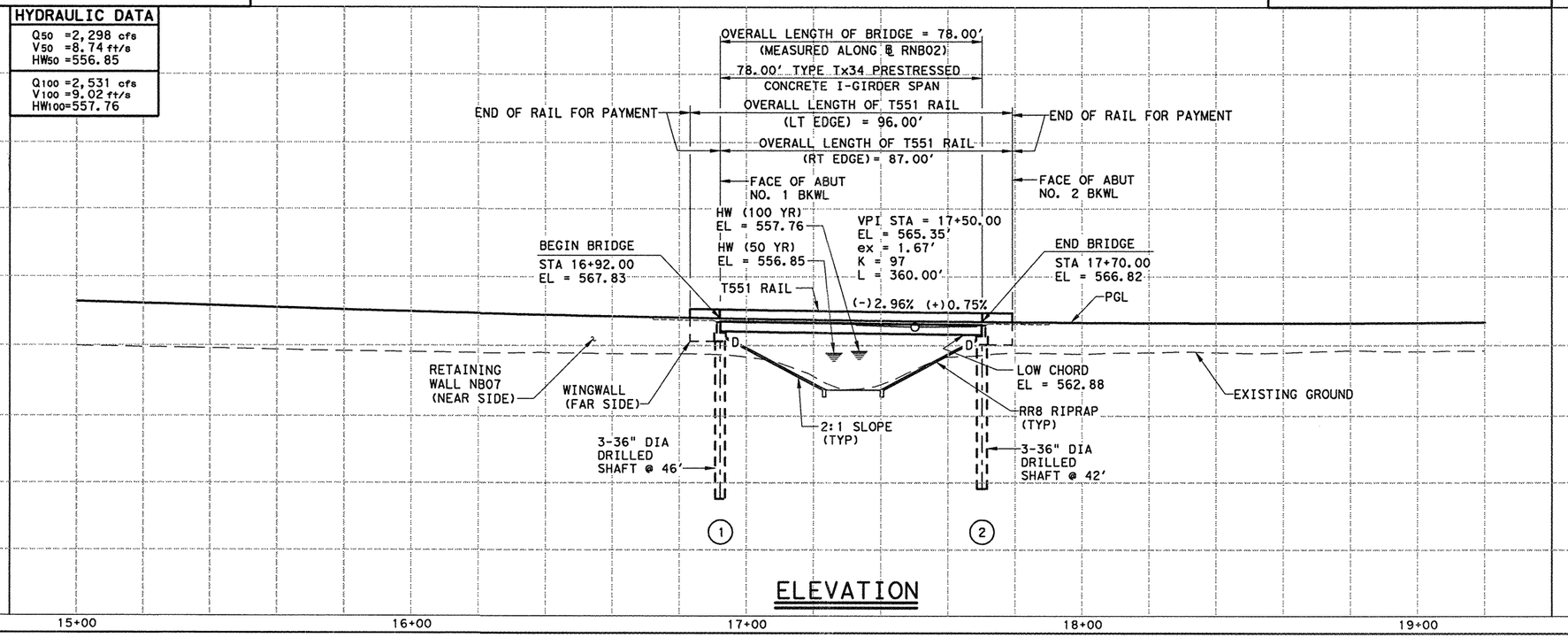
ALL BENTS ON BEARING N 88° 10' 30.27" W

HYDRAULIC DATA

Q50 = 2,298 cfs
V50 = 8.74 ft/s
HW50 = 556.85

Q100 = 2,531 cfs
V100 = 9.02 ft/s
HW100 = 557.76

DESIGN SPEED: 45 MPH
ADT (2005): 4,500
ADT (2025): 7,200
FUNC. CLASS.: URBAN FREEWAY
DESIGN INCLUDES FUTURE 2" OVERLAY



ELEVATION

Henry E. Tillett, P.E.
1-21-2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
BRIDGE LAYOUT
COMEGYS CREEK RNB02 BRIDGE

SCALE: 1"=40' SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
DMW	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JRQ	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	
ALL	0047	06	108, ETC.	1278
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ALL				

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FINAL PLANS

SUMMARY OF ESTIMATED QUANTITIES - TOTAL

ITEM / DESCRIPTION	416 2004	420 2041	420 2256	422 2003	425 2065	428 2002	432 2002	450 2143	454 2001
	DRILL SHAFT (36 IN) (1)	CL C CONC (ABUT) (HPC)	CL S CONC (APPR SLAB) (HPC)	REINF CONC SLAB (HPC) (CL S)	PRESTR CONC GIRDER (TX34)	CONC SURF TREAT (CLASS II)	RIPRAP (CONC) (5 IN)	RAILING (TY T551)	SEALED EXPANSION JOINT (4 IN) (SEJ-A)
	LF	CY	CY	SF	LF	SY	CY	LF	LF
2 ~ ABUTMENTS	264	30.4	53.3				41		
1 ~ 78.00' TY Tx34 PCPS GDR UNIT				2,028	310.03	201		183.0	48
TOTAL	264	30.4	53.3	2,028	310.03	201	41	183.0	48

(1) Sulfate Resistant Concrete

BEARING SEAT ELEVATIONS

	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 1 (FWD)	564.035	563.902	563.768	563.635
BENT 2 (BK)	563.046	562.913	562.780	562.646

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E.
1-21-2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ESTIMATED QUANTITIES & BEARING SEAT ELEVATIONS
COMEGYS CREEK RNB02 BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
JC	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
MB	TEXAS	DAL	COLLIN	1279
CHECK	CONTROL	SECTION	JOB	
ARC	0047	06	108, ETC.	
CHECK				
JC				

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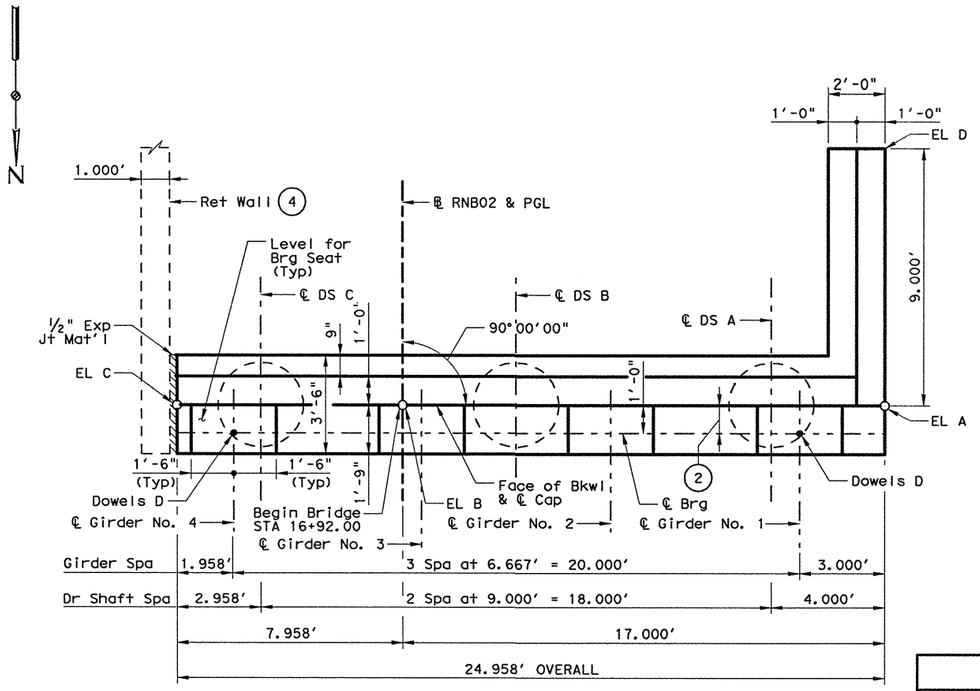
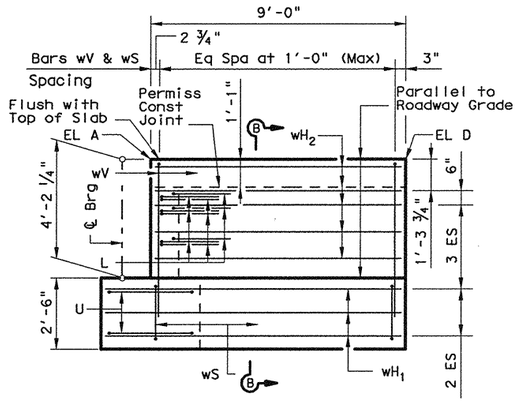
FINAL PLANS

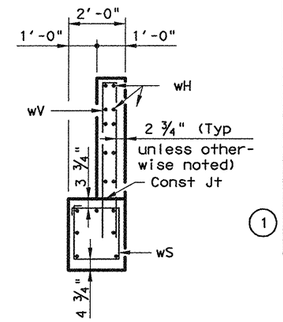


PLAN

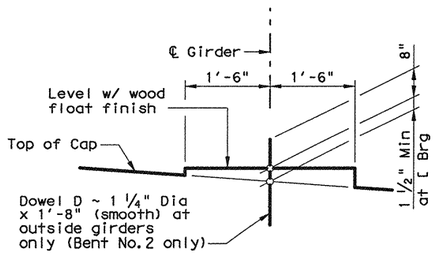
CONTROL ELEVATIONS			
EL A	EL B	EL C	EL D
568.175	566.752	566.592	568.332



WINGWALL ELEVATION



SECTION B-B



BEARING SEAT DETAIL

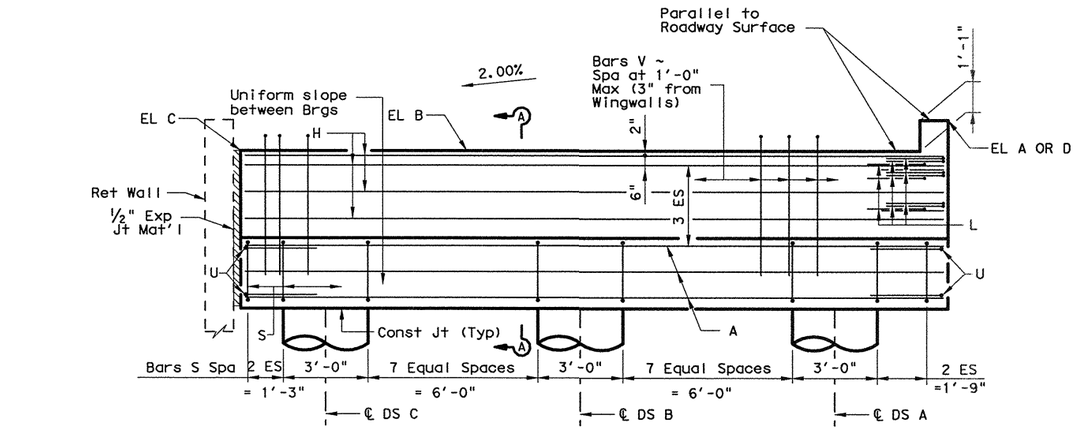
(Bearing surface must be clean and free of all loose material before placing bearing pad.)

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	10	#11	24'- 0"	1,275
D	2	11/4"D	1'- 8"	14
H	8	#6	24'- 8"	296
L	9	#6	4'- 0"	54
S	22	#5	11'- 0"	252
U	4	#6	7'- 11"	48
V	25	#5	11'- 4"	296
wH_1	7	#6	10'- 5"	110
wH_2	10	#6	8'- 8"	130
wS	10	#4	7'- 6"	50
wV	10	#5	11'- 7"	121
(1) Reinforcing Steel			Lb	2,646
Class "C" Conc(Abut)(HPC)			CY	13.7

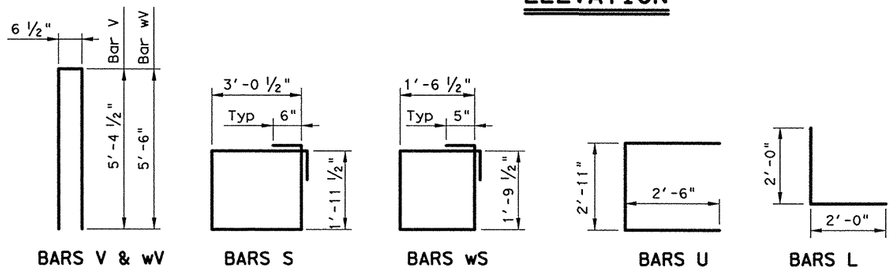
(1) For Contractor's information only.
(2) See IGEB standard for dimension and orientation.
(3) Increase as required to maintain 3 3/4" from Finished Grade.
(4) See Retaining Wall plans for retaining wall details.

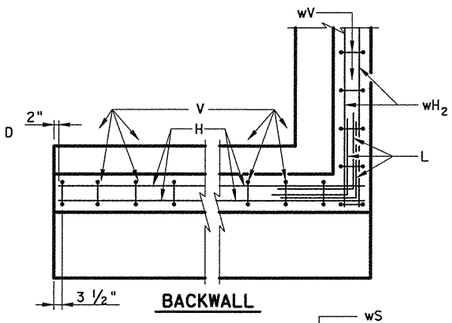
GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.
Concrete strength f'c = 3,600 psi.
All cap and wall reinforcing shall be Grade 60.
See FD Standard for all foundation details and notes.
Calculated Foundation Load ~ Drilled Shafts = 85 Tons/D.S.
Provide Class C High Performance Concrete (HPC).
For framing details not shown, see Framing Plan.

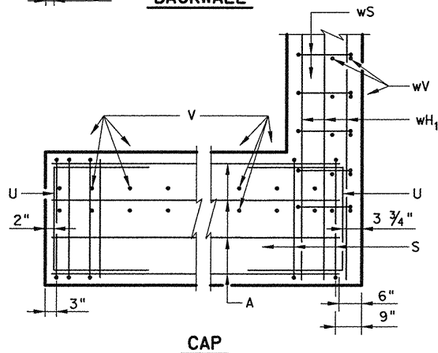


ELEVATION



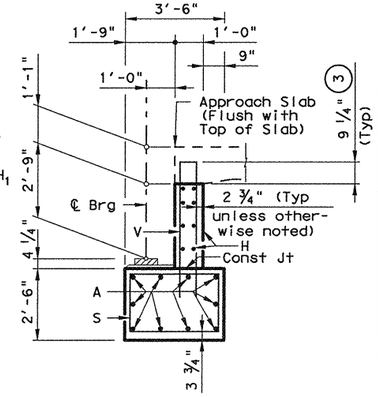


BACKWALL



CAP

CORNER DETAILS



SECTION A-A

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

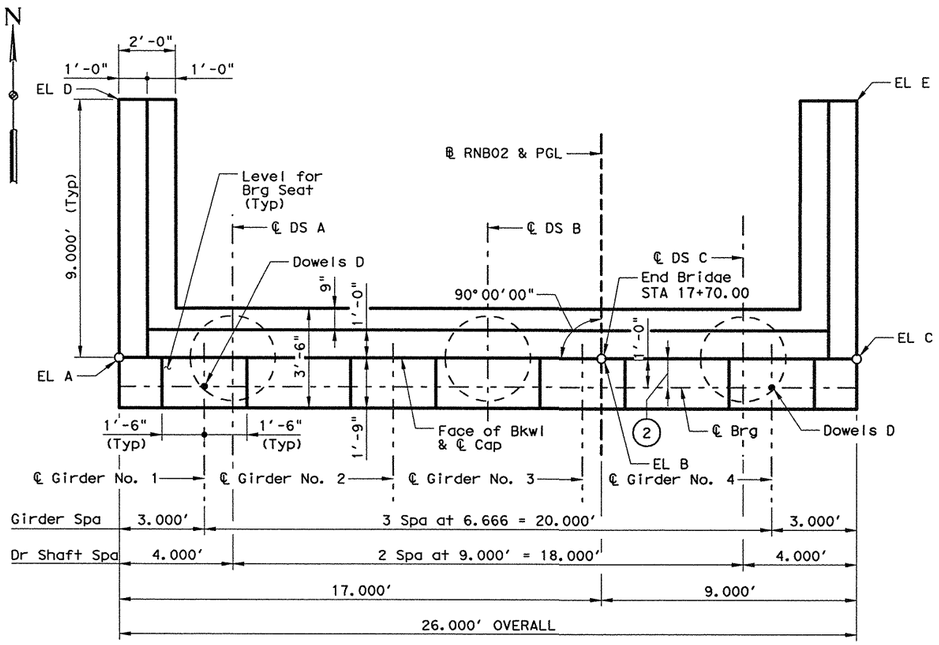
Texas Department of Transportation
© 2011

US 75
ABUTMENT NO. 1
COMEGYS CREEK RNB02 BRIDGE

SHEET 1 OF 1

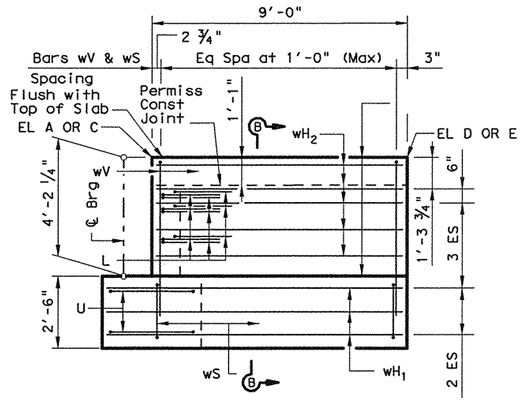
DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
JC	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
MB	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1281
ALL	0047	06	108, ETC.	
CHECK				
JC				

FINAL PLANS

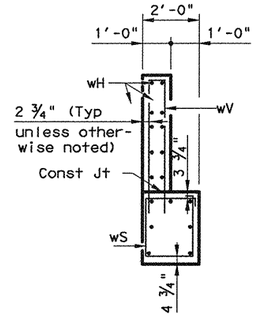


PLAN

CONTROL ELEVATIONS				
EL A	EL B	EL C	EL D	EL E
567.161	565.738	566.641	567.084	566.564



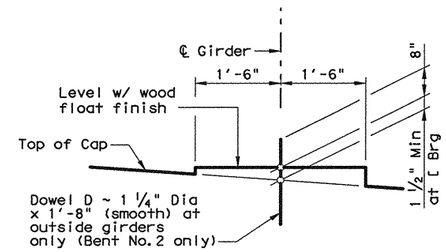
WINGWALL ELEVATION



SECTION B-B

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	10	#11	25′- 0"	1,328
D	2	1 1/4"D	1′- 8"	14
H	8	#6	25′- 8"	308
L	18	#6	4′- 0"	108
S	22	#5	11′- 0"	252
U	4	#6	7′- 11"	48
V	25	#5	11′- 4"	296
wH_1	14	#6	10′- 5"	219
wH_2	20	#6	8′- 8"	260
wS	20	#4	7′- 6"	100
wV	20	#5	11′- 7"	242
(1) Reinforcing Steel			Lb	3,175
Class "C" Conc (Abut) (HPC)			CY	16.7

(1) For Contractor's information only.
(2) See IGEB standard for dimension and orientation.
(3) Increase as required to maintain 3 ¾" from Finished Grade.



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

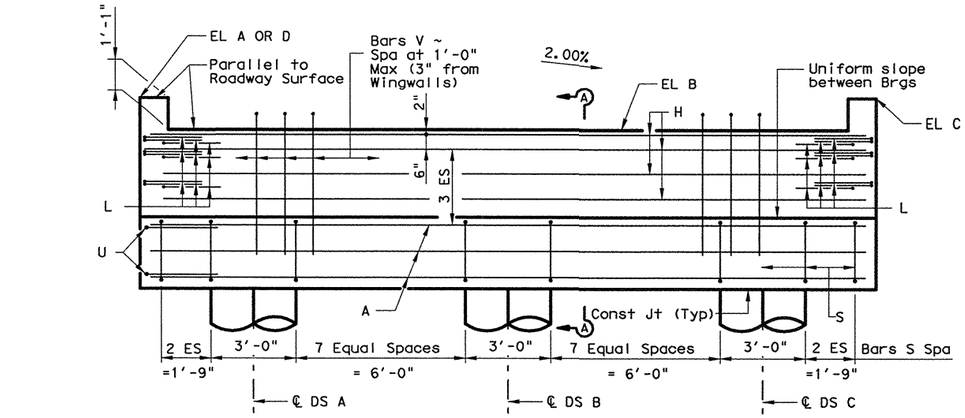
See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 87 Tons/D.S.

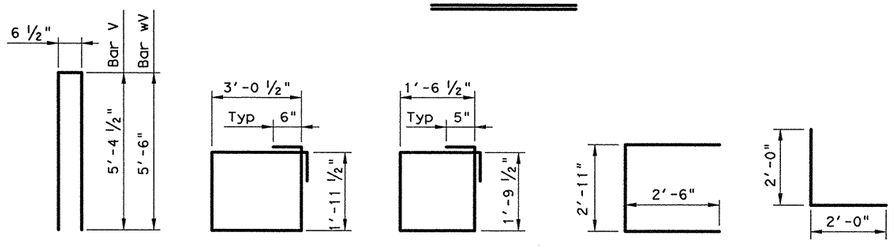
Provide Class C High Performance Concrete (HPC).

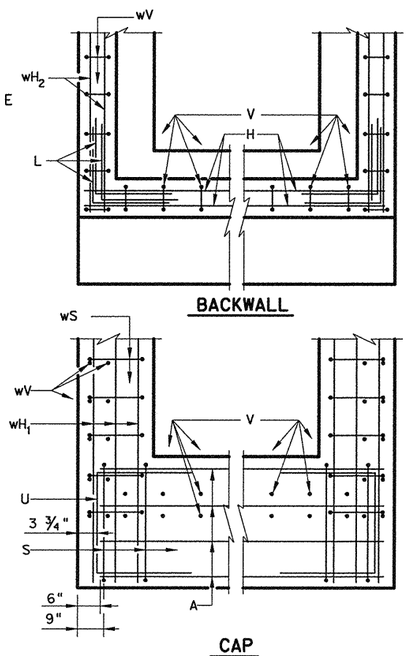
For framing details not shown, see Framing Plan.

HL93 LOADING

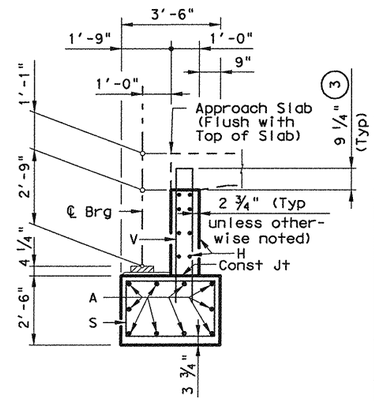


ELEVATION





CORNER DETAILS



SECTION A-A

GEORGE E. TILLETT 80310 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

George E. Tillett, P.E. 12-16-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
© 2011

US 75
ABUTMENT NO. 2
COMEGYS CREEK RNB02 BRIDGE

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
JC	6	SEE TITLE SHEET		US 75
GRAPHICS MB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ALL	TEXAS	DAL	COLLIN	1282
CHECK JC	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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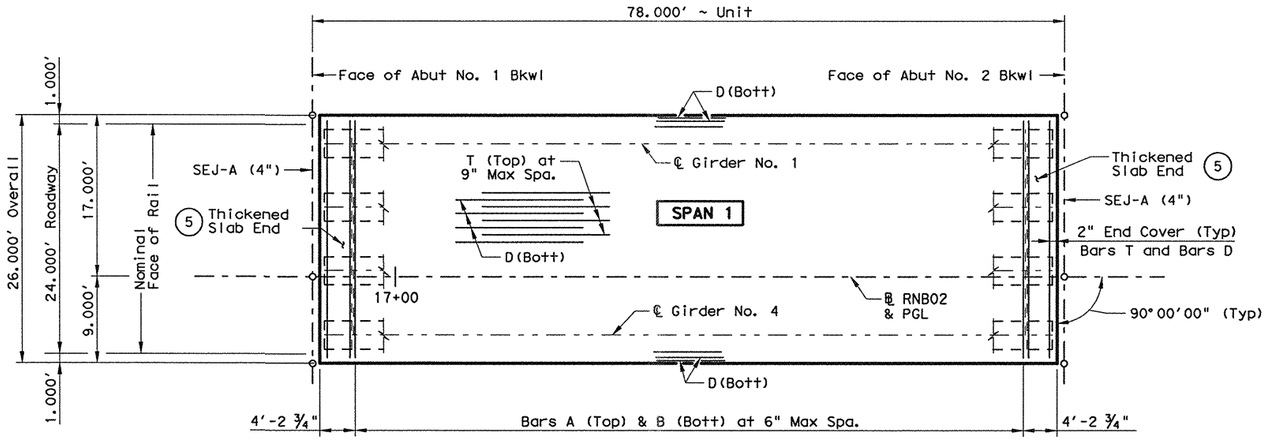
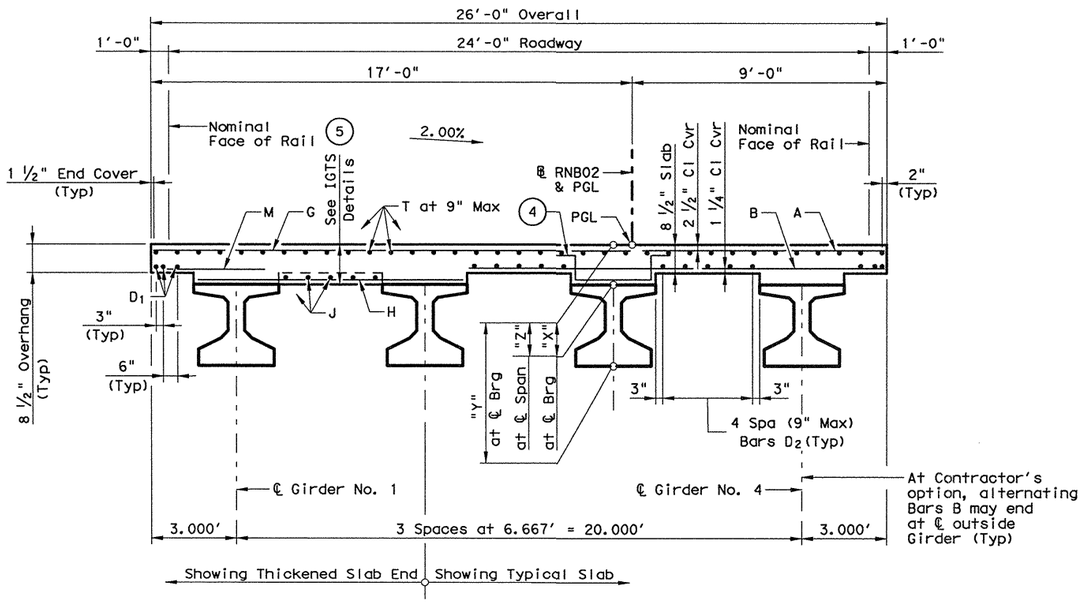
FINAL PLANS



PLAN



TYPICAL TRANSVERSE SECTION

TABLE OF ESTIMATED QUANTITIES

Span	Reinf Concrete Slab (HPC) (CLS)	Prestressed Concrete Girders (TY Tx34)	Class "S" (1) Concrete (HPC)	Total (2) Reinf Steel
No.	SF	LF	CY	Lb
1	2,028	310.03	59.7	13,182

(1) Quantities include Thickened Slab Ends and Haunches.

(2) Reinforcing steel weight is calculated using an approximate factor of 6.5 lbs/SF.

(3) Theoretical dimension.

(4) Provide U bars in areas where measured haunch exceeds 3 ½". See IGMS for Haunch Reinforcing Detail.

(5) See IGTS for Thickened Slab End details, bars G, H, J and M.

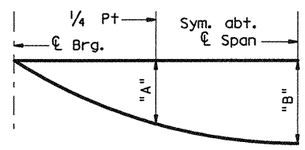
BAR TABLE

BAR	SIZE
A	#5
B	#5
D	#5
G	#5
H	#5
J	#5
M	#5
T	#4
U	#4

GENERAL NOTES:

Provide Class S High Performance Concrete, f'c = 4 ksi.
For beam, bearing pad, misc. slab and thickened slab end details not shown, see IGD, IGEB, IGMS, IGTS and IGND.
For Sealed Expansion Joint details not shown, see SEJ-A.
For Sealed Expansion Joint Quantities not shown, see Summary of Estimated Quantities.
Place and finish not less than 30 feet of Bridge Deck concrete per hour.
For Temp Barrier locations, see Traffic Control Plans.
For rail details not shown, see Traffic Rail Type T551.
For Concrete Safety Barrier details not shown, see CSB(3) Precast.
For framing details not shown, see Framing Plan.
Provide epoxy coated, Grade 60 reinforcing.
Where required, provide bar laps as follows:
#4 = 2'-1"
#5 = 2'-7"
See PCP or PMDF Standards for details and quantity adjustments if either of these options are used.

Span	Beam	"A"	"B"
1	1&4	-0.068	-0.095
	2&3	-0.072	-0.100



Note: Deflections shown are due to concrete slab only. (E = 5000 ksi) Calculated deflections shown are theoretical and actual dimensions may be less. Deflections shall be adjusted based on field observations.

DEAD LOAD DEFLECTION DIAGRAM

TABLE OF SECTION DEPTHS

Span No.	Beam No.	"X" at ℄ Brg (4)	"Y" at ℄ Brg	"Z" at ℄ Span (3)
1	1-4	1'-0"	3'-10"	9 ½"

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED PROFESSIONAL ENGINEER

George E. Tillett, P.E.
12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
78.00' PRESTR GIRDER UNIT
COMEGYS CREEK RNB02 BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
JC	6	SEE TITLE SHEET		US 75
GRAPHICS MB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ALL	TEXAS	DAL	COLLIN	1283
CHECK JC	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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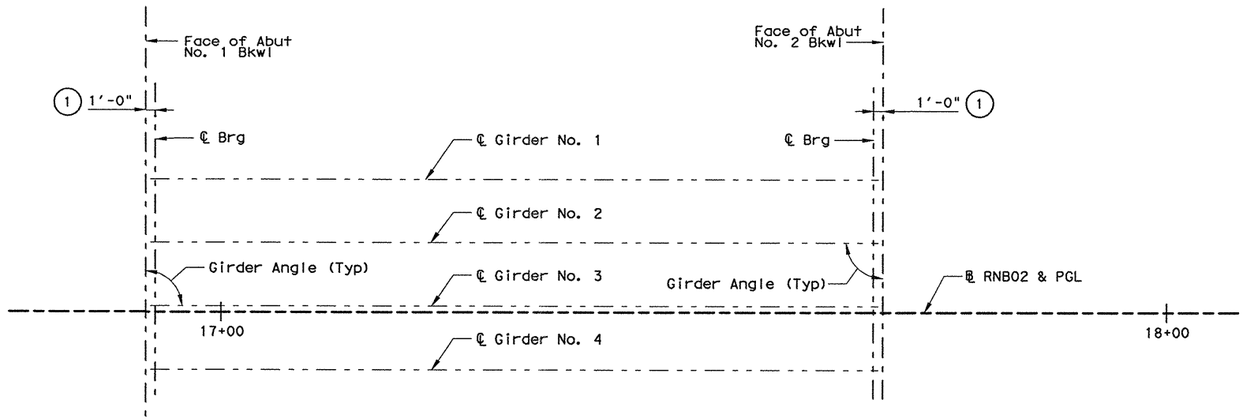
FINAL PLANS



SPAN 1

(TYPE Tx34 GIRDERS)

N

(1) See Standard IGEB for orientation and dimension.

(2) Girder lengths shown are bottom girder flange lengths with adjustments made for girder slope.

BENT REPORT

ABUT NO. 1 (S 88 10 30.25 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 14.0000 L

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.0000	90	0	0
	BEAM	2	6.6667	90	0	0
	BEAM	3	6.6667	90	0	0
	BEAM	4	6.6667	90	0	0
	TOTAL		20.0000			

ABUT NO. 2 (S 88 10 30.25 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 14.0000 L

			BEAM SPAC. (C.L. BENT)	BEAM ANGLE D	M	S
SPAN 1	BEAM	1	.0000	90	0	0
	BEAM	2	6.6667	90	0	0
	BEAM	3	6.6667	90	0	0
	BEAM	4	6.6667	90	0	0
	TOTAL		20.0000			

BEAM REPORT

BEAM REPORT, SPAN 1

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE (2) BOT. BM. FLG.	BEAM SLOPE
BEAM 1	78.000	76.000	77.51	-.0130
BEAM 2	78.000	76.000	77.51	-.0130
BEAM 3	78.000	76.000	77.51	-.0130
BEAM 4	78.000	76.000	77.51	-.0130

HL93 LOADING

STATE OF TEXAS
GEORGE E. TILLETT
80310
REGISTERED
PROFESSIONAL ENGINEER

George E. Tillett, P.E. 12-6-2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
FRAMING PLAN (SPAN NO. 1)
COMEGYS CREEK RNB02 BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
JC	6	SEE TITLE SHEET		US 75
GRAPHICS MB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ALL	TEXAS	DAL	COLLIN	1284
CHECK JC	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CAD\Bridge\07_US75 NB EXIT RAMP OVER COMEGY'S CRK\US75ML07A.DGN

FINAL PLANS

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT. F-539(29), F-1119(6), LSF-539(1)

SCALES: PLAN: 1 IN. = 100 FT. PROFILE: 1 IN. HOR. = 100 FT. 1 IN. VERT. = 10 FT. CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 10 FT. OTHERS AS NOTED.

NET LENGTH OF PROJECTS = 72,772.85 FT. = 13.782 MI.

COLLIN CO. F-539(29) CONT. 47-14-4

RDWY (URBAN)	188_.60 FT.	[illegible] MI.
BRIDGES (URB)	[illegible] FT.	0.000 MI.
RDWY (RURAL)	66,173.90 FT.	12.533 MI.
BRIDGES (RURAL)	1374.83 FT.	0.260 MI.
	69435.53 FT.	13.150 MI.

GRAYSON CO. F-539(29) CONT. 47-13-3

RDWY (RURAL)	1837.35 FT.	0.348 MI.
BRIDGES (RURAL)	0.00 FT.	0.000 MI.
	1837.35 FT.	0.348 MI.

COLLIN CO. F-1119(6) CONT. 543-3-5

RDWY (RURAL)	1500.00 FT.	0.284 MI.
BRIDGES (RURAL)	0.00 FT.	0.000 MI.
	1500.00 FT.	0.284 MI.

COLLIN CO. LSF-539(1) CONT. 47-14-5

RDWY (RURAL) 1500.00 FT. 0.284 MI.

NO PROJECT LENGTH

GRAYSON AND COLLIN COUNTIES

U.S. HIGHWAY NO. 75

F-539(29) ◇ FROM 0.4 MILE NORTH STATE HIGHWAY 24, NORTH TO 0.347 MILES NORTH OF COLLIN-GRAYSON CO. LINE

SPUR 399

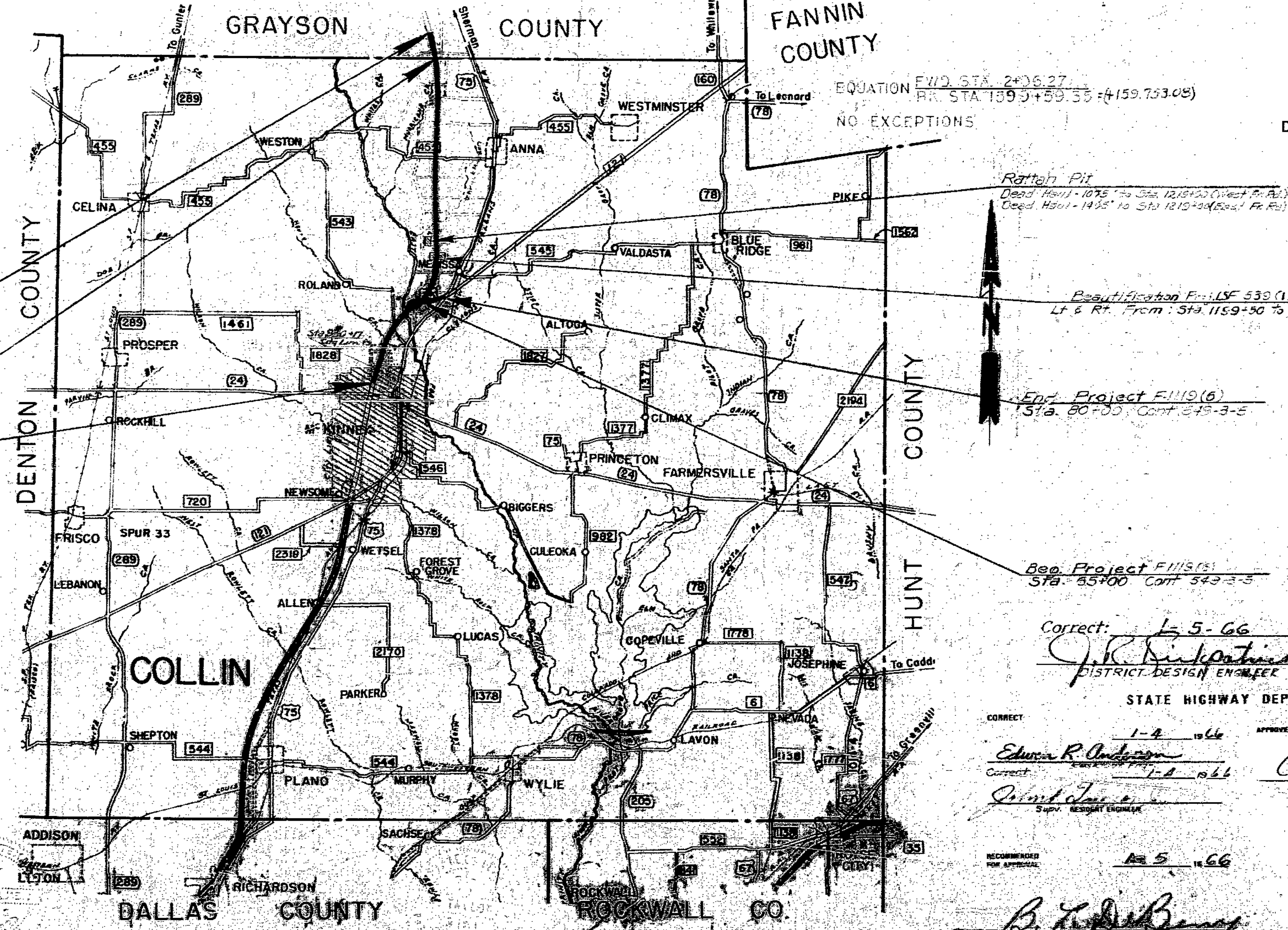
F-1119(6) ◇ FROM NEW LOCATION OF U.S. HIGHWAY 75 TO INTERSECTION OF PRESENT U.S. HIGHWAY 75 AND STATE HIGHWAY 121 NORTH OF MCKINNEY

GRADING & STRUCTURES

LSF-539(1) ◇ HIGHWAY BEAUTIFICATION; TYPE: GRADING & STRUCTURES FOR BEAUTIFICATION PROJECT

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	Typical Section
3-9	Detour Layout
10	Estimate Summary
10A-10D	Specification Data
11-19	Summaries
20	Hydraulic Data
21	Drainage Area
22-35	Foundation Crse; Haul Diagram
21-79	Plan & Profile
80-89	Ramp Details
90-177	Intersection Details
103-145	Culvert X-Sections
150	Inlet Details
151-152	Riprap Details
153-225A	Large Structure Layout & Details
226-227	Traffic Rail (Type T3)
228	EKS-65A (SPL.)
229	PRS & PFS (Mod.)
230	Guard Fence Layout FM 543
231	GF-63 (SPL.)
232	SMD-6
233	CH-11
234	CH-11-B-15
235	CH-11-B-30°
236	CH-11-B-45
237	SC-11 A, B, & C
238	SC-NH
239	SC-NH (Mod)
240	SC-15° A, B, & C
241	SC-15 A B & C (Mod)
242	SC-30° A
243	SC-30° B & C
244-245	SC-30° B & C (Mod)
246	SC-45° B & C
247	PW-15
248	FW-N
249	FW-30°
250	FW-45°
251	MC 5-1
252	MC 5-2
253	MC 5-2 (Mod)
254	MC 6-2
255-256	MC 6-2 (Mod)
257	MC 6-3
258	MC 6-3 (Mod)
259-260	MC-15°
261-262	MC-15° (Mod)
263-264	MC-30°
265-266	MC-30° (Mod)
267-268	MC-45°
269-270	MC-45° (Mod)
271	MSW-P-15°
272	MCW-P-30°
273	MCW-F1
274	MCW-F2
275	MCW-F1-15
276	MCW-F1-30°
277	MCW-F1-45°
278	CH-7-AC-N & 15°
279	CH-7-AC-30° & 45°
280	FLCH-AC
281	CST 52
282-283	BW-61(1) & (2)
284	CIS 64



Note: The name, Dale Road in these plans, has been changed to Davis Road, by Order of Commissioners Court, of Collin County, Texas, dated January 31, 1968.

Date Work Began - April 4, 1966

Date of Completion - August 8, 1968

The contractor shall erect barricades and warning signs in accordance with BW-61 (1), BW-61 (2) and CIS 64. Barricades and signs shall be placed as indicated on sheet 3. Such other signs and barricades as may be deemed necessary to safeguard the public shall be placed at locations as directed or approved by the Engineer.

Field Change No. 1 — Change Item 14C, Overhaul from Y.Q. to Lump Sum payment.

Field Change No. 2 — Reduce roadway excavation and replace with borrow.

Field Change No. 3 — Delete the Items 162, block sod, Item 166, Fertilizer and reduce the Item 204, Sprinkling.

Field Change No. 4 — Change post spacing from 12'-6" to 6'-3" for MBG Fence, Item 560.

Note: Specifications adopted by the State Highway Department of Texas, January 2, 1962, and Special Provisions as listed, with the following, shall govern on this project: Required Contract Provisions Federal-Aid Contracts Primary Highways (Form PR1273, February 1965, And Supplement October 21, 1965)

Correct: 1-5-66 J. R. Kirkpatrick DISTRICT DESIGN ENGINEER

STATE HIGHWAY DEPARTMENT

APPROVED Imre [illegible] MAYOR OF MCKINNEY

CORRECT 1-4 1966 Edwin R. Anderson

Correct 1-4 1966 [illegible] SUPV. RESIDENT ENGINEER

APPROVED Feb. 16 1966 Clyde F. Silvus

RECOMMENDED FOR APPROVAL Jan. 5 1966 B. L. DeBerry

DEPARTMENT OF [illegible] BUREAU OF [illegible]

8

50-34

FINAL

COUNTY	CONTROL	SECTION	JOB	SHEET	TOTAL SHEETS	KP CARDS
Grayson etc.	47-13-3, etc.			4	286	3

TICKET NUMBER 1016 DATE FILMED 12-3-68

COUNTY Collin & Grayson PROJ. NO. F-539(29) etc.

HWY. NO. 75 & [illegible] LETTING DATE

DATE ACCEPTED

SUMMARY OF LARGE STRUCTURES

Sheet No. Plan Profile	Sheet No. Layout	NAME	SKEW	LOCATION Sta.	LOCATION Sta.	LENGTH	DESCRIPTION	Uncl. Str. Excav. (Br.) C.Y.	Drilled Shafts 18" L.F.	Drilled Shafts 24" L.F.	Drilled Shafts 30" L.F.	Class "A" Conc. (Bents) C.Y.	Class "C" Conc. (Slabs) C.Y.	Class "C" Conc. (Slab Span) C.Y.	Class "C" Conc. (Pan Gird) C.Y.	Prestressed Conc. Beams Type "A" L.F.	Prestressed Conc. Beams Type "B" L.F.	Prestressed Conc. Beams Type "C" L.F.	Riprop (Conc.) (Class "B") C.Y.	Reinf. Steel Lb.	Structural Steel (Shoe & Armor Jt.) Lb.	Structural Steel (I-Beam H.V.C.) Lb.	Rail (Type T-3) L.F.	Conc. Surf. Treat. S.Y.	Perm. Str. No.
25	153	McEntire Road Underpass	15° L.F.	935+14		375.00'	(50-70-70-70-70-45) Prestr. Conc. Bm. Spans - Gp 26h-15°(Mod)	50	56		202	97.4	240.8			178.67	198.67	1,114.68	65.	68,116	750		793.	1,219	207
26	157	McClary Road Underpass	22°54' L.F.	974+24.1		260.00'	(60-75-75-50) Prestr. Conc, Bm. Spans-Gp26h-30°(Mod)	52	14		62	75.1	165.9				198.67	836.01	46.	43,573	672		559.	846	206
27	162	Honey Creek Bridge		1003+00	1007+00	*400.00'	(10-40 Conc. Slab & Girder Spans-CG-0-33-40 - Twin Strs.	47		2,307		201.4			1,348.				140.	309,564			1,652.	3,133	204 Rt. N.B. 203 Lt. S.B.
27	165	East Fr. Rd. Br. Honey Creek		1005+20	1006+00	80.00'	(25-30-25) Cont. Conc. Slab Unit-CS-0-80 (Mod)	23		240		31.6		111.8						31,816			180.67	287	205
27	166	West Fr. Rd. Br. Honey Creek		1005+20	1006+00	80.00'	(25-30-25) Cont. Conc. Slab Unit-CS-0-80 (Mod)	23		208		31.6		111.8						31,816			180.67	287	202
30	174	East Fork Trinity River Bridge-Rt.	26°34' L.F.	1059+81.63	1066+49.63	*668.00'	16-41'-9" CG Spans-CG-0-33-40																		200
30	174	East Fork Trinity River Bridge-Lt.	26°34' L.F.	1060+17.63	1066+85.63	668.00'	10-41'-9" CG Spans-CG-0-33-40 & 6-41'-9" CG Spans (Mod.)	51		4,073		386.3			2391.6				172.	553,288			2,731.	5,310	199
31	185	Telephone Road Underpass	45° R.F.	1080+67.4		395.00'	(80-105-105-80) Cont. I-Beam Unit & 1-25' Simple I-Beam Span	90	44		193	119.3	232.7						70.	72,762	6,270	275,840	872.	1,287	198
32	192	Spur 395 Underpass	45° L.F.	1107+05.15		420.00'	(60-100-100-60) Cont. I-Beam Unit with 40' & 60' Simple I-Beam Spans - Twin STRS.	172	184		1,038	267.8	474.8						233.	165,964	16,952	554,774	1,844.	2,544	197 Rt. N.B. 196 Lt. S.B.
32	201	Dale Road Underpass	24°45' L.F.	1129+15		305.00'	(70-75-80-80) Prestr. Conc. Bm. Spans - Gp 26h-30°(Mod.)	66	56		191	83.8	193.0					1,214.68	71.	56,603	680		670.	991	195
28	169	F.M. 543 Underpass	2° Curve	1027+86.6		410.00'	(60-70-80-80-60-60) Prestr. Conc. Bm. Spans-33' Rdway	74	130		728	143.8	347.1					2,039.90	60	114,891	1,477		880.	1,652	201
36	206	Melissa Road Underpass		1184+77.61		270.00'	(60-70-70-70) Prestr. Conc. Bm. Spans - Gp 26h (Mod.)	58	56		166	75.5	173.7					1,074.68	65.	48,125	488		592.	878	194
38	210	Throckmorton Creek Bridge-Rt.	45° R.F.	1240+64.59	1243+71.42	*306.83'	7-43'-10" CG Spans-CG-0-33-40																		193
38	210	Throckmorton Creek Bridge-Lt.	45° R.F.	1239+92.59	1242+99.42	306.83'	7-43'-10" CG Spans-CG-0-33-40	72		1,568		190.0			1,131.2				141.	255,468			1,299.33	2,404	192
39	212	Throckmorton Road Underpass		1274+15.5		280.00'	(75-75-75-55) Prestr. Conc. Bm. Spans - Gp 26h (Mod)	55	56		230	75.5	179.4				218.67	896.01	60.	49,962	488		609.	910	191
41	213	Foster Crossing Road Underpass		1309+11		280.00'	(75-75-75-55) Prestr. Conc. Bm. Spans - Gp 26h (Mod)	55	56		146	75.2	179.4				218.67	896.01	72.	49,896	488		609.	910	190
45	214	F.M. 455 Underpass	9°18' L.F.	1406+51.65		270.00'	(65-70-70-65) Prestr. Conc. Bm. Spans - 33' Rdway	64	64		251	94.3	232.8					1,343.32	73	70,067	821		592.	1,086	189
50	218	Kelly Road Underpass		1539+90.5		275.00'	(70-70-70-65) Prestr. Conc. Bm. Spans - Gp 26h (Mod)	58	56		144	76.2	176.6					1,094.67	62.	48,919	488		602.	894	188
							Sub-Total (Cont. 47-14-4)	1,010	772	8,396	3,351	2,024.8	2,596.2	223.6	4,870.8	178.67	834.68	10,509.96	1,336.	1,976,830	23,574	830,614	14,665.67	24,640	
53	219	County Line Road Underpass	3°53' R.F.	8+80.77		280.00'	(65-70-75-70) Prestr. Conc. Bm. Spans - 26' Rdway	58	36		86	76.6	179.6					1,114.68	61.	49,895	638		612.	910	187
							Sub-Total (Cont. 47-13-3)	58	36		86	76.6	179.6					1,114.68	61.	49,895	638		612.	910	
							Grand Total	1,068	808	8,396	3,437	2,101.4	2,775.8	223.6	4,870.8	178.67	834.68	11,624.64	1,397.	2,026,725	30,212.	830,614	15,277.67	25,550	

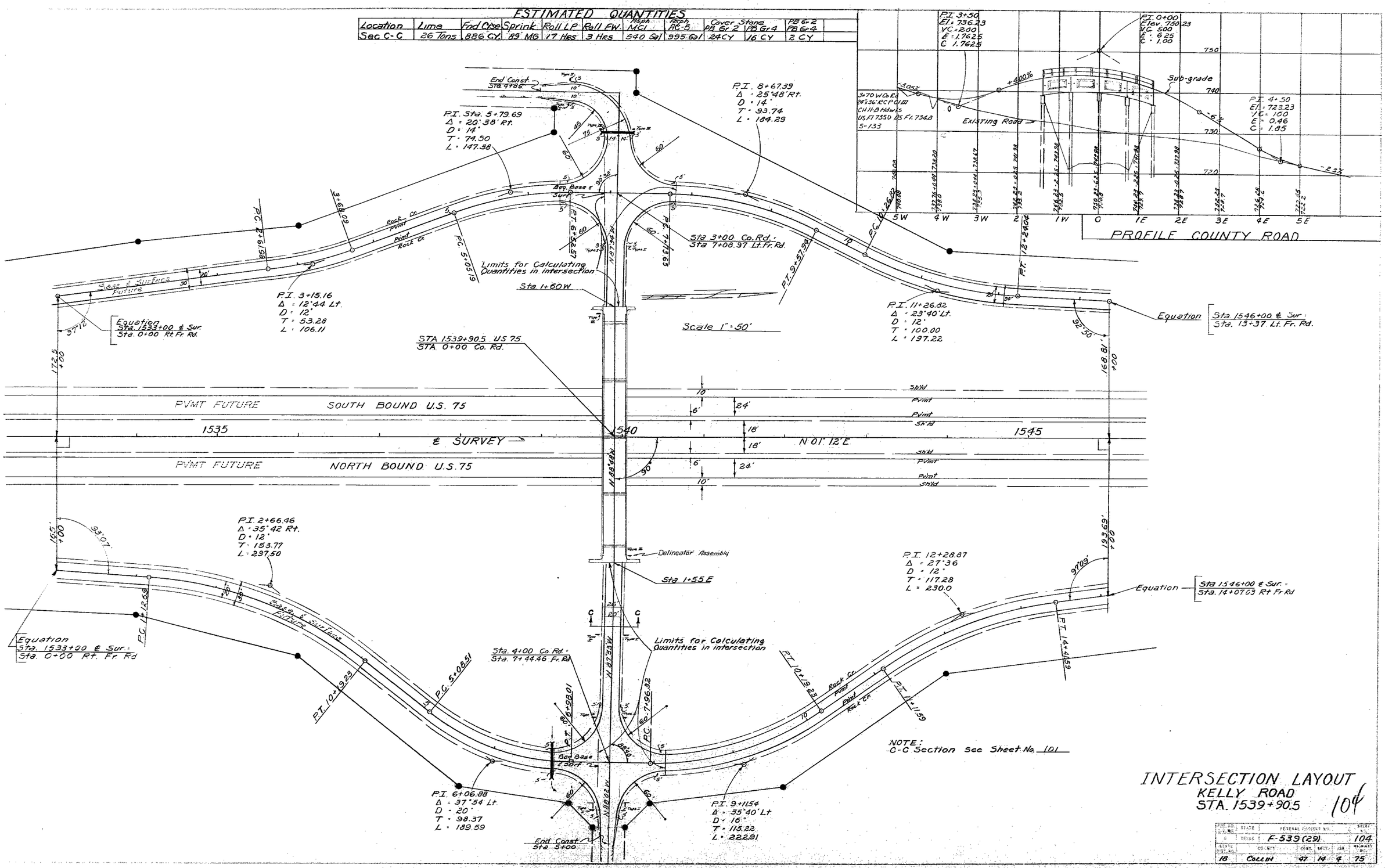
* Use for Project Length

STRUCTURE SUMMARY 16

DR.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DES.			6	TEXAS	F639(29)	16
CK. DET.			DIST.	COUNTY		
CK. TR.			18	COLLIN	47-14-4	

ESTIMATED QUANTITIES

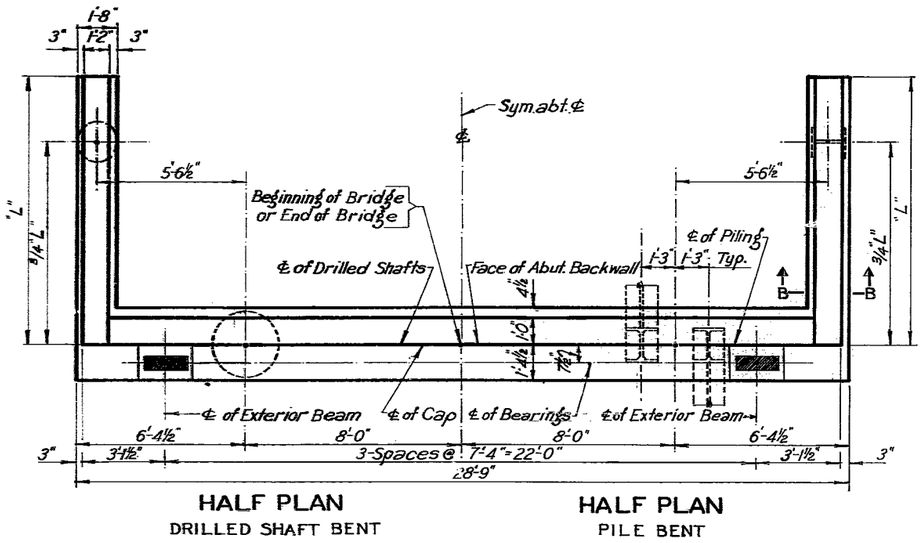
Location	Lime	Fnd Conse	Sprink	Roll LP	Roll FW	Asph MCI	Asph AC-5	Cover Stone PB Gr 2	PB Gr 4	PB Gr 2 PB Gr 4
Sec C-C	26 Tons	886 CY.	89 MG	17 Hrs	3 Hrs	540 Gal	995 Gal	24 CY	16 CY	2 CY



INTERSECTION LAYOUT
KELLY ROAD
STA. 1539+90.5

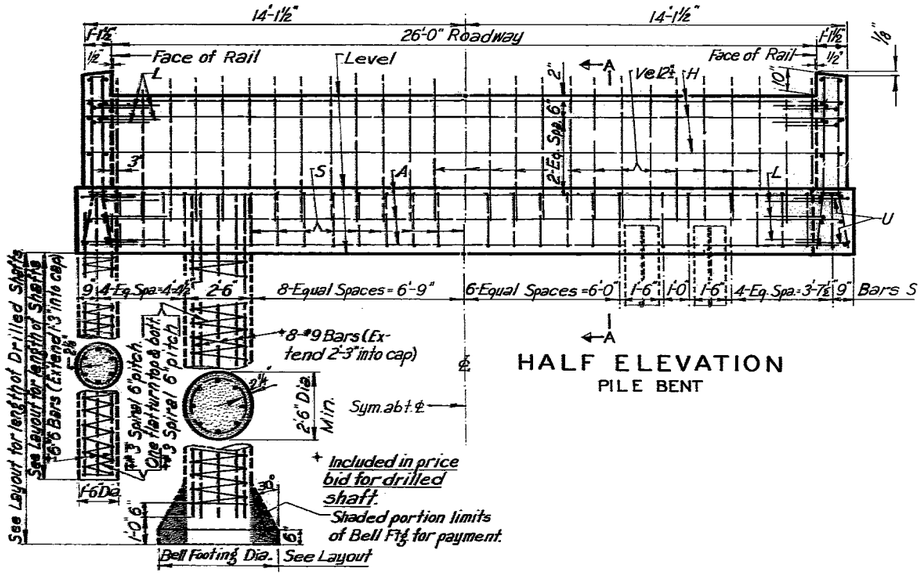
104

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	F-539(29)	104
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
18	COLLIN	47	14	4	75



HALF PLAN
DRILLED SHAFT BENT

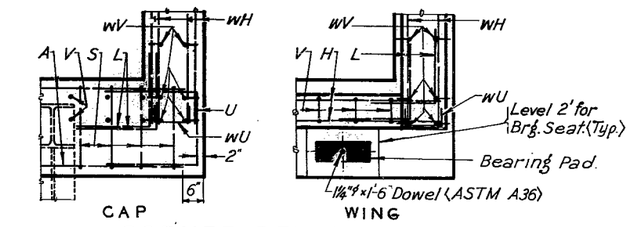
HALF PLAN
PILE BENT



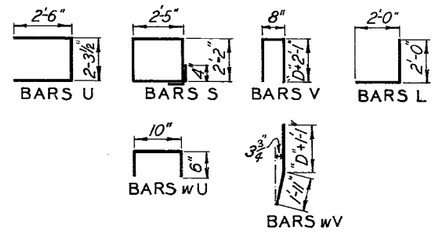
HALF ELEVATION
DRILLED SHAFT BENT

BACKWALL DETAIL
FOR USE WHEN NO APPROACH SLAB IS USED

See Standard RR-8 & RR-9 for keyway to be formed in abutment cap.



CORNER DETAILS
Showing Reinforcing Steel



BAR DETAILS

CONSTANT STEEL & CONCRETE

Bar	No.	Size	Length	Weight
A	5	#11	27'-9"	737
H	6	#5	28'-0"	175
L	14	#6	4'-0"	84
S	27	#4	9'-10"	177
U	4	#6	7'-4"	44
wU	16	#5	1'-10"	31
Reinforcing Steel Lbs.				1248
Class A Concrete Cap C.Y.				7.3

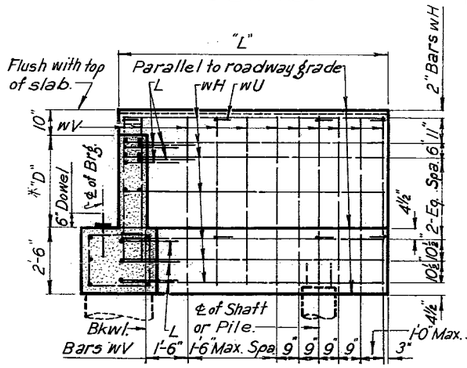
VARIABLE STEEL & CONCRETE

Beam Type	Header Slope	"L" & "D"		Bar	No.	Size	Length	Weight Lb.	Class "A" Conc. C.Y.
A	2:1	L	7'-0"	wH	28	#6	6'-9"	284	3.5
				wV	32	#5	5'-1"	170	
		D	2'-1"	V	27	#4	9'-0"	162	2.0
	3:1	L	10'-0"	wH	28	#6	9'-9"	410	5.2
				wV	44	#5	5'-1"	233	
B	2:1	L	8'-0"	wH	28	#6	7'-9"	326	4.4
				wV	40	#5	5'-7"	233	
		D	2'-7"	V	27	#4	10'-0	180	2.5
	3:1	L	11'-6"	wH	28	#6	11'-3"	473	6.5
				wV	52	#5	5'-7"	303	
C	2:1	L	9'-0"	wH	28	#6	8'-9"	368	5.4
				wV	40	#5	6'-1"	254	
		D	3'-1"	V	27	#4	11'-0"	198	3.0
	3:1	L	13'-0"	wH	28	#6	12'-9"	536	8.0
				wV	52	#5	6'-1"	330	

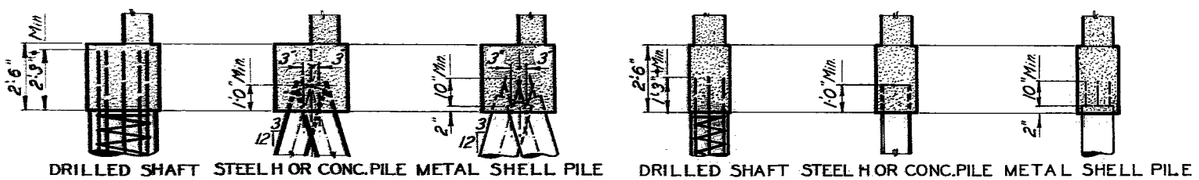
TOTAL ESTIMATED QUANTITIES

Beam Type	Header Slope	Struct. Excav. C.Y.	Reinf. Steel Lb.	Class A Conc. C.Y.	Struct. Steel Lb.	Shaft Load T/Shaft	Pile Load T/Pile
A	2:1	20	1,864	12.8	25	46	30
	3:1	24	2053	14.5			
B	2:1	22	1,987	14.2	25	56	35
	3:1	26	2204	16.3			
C	2:1	24	2,068	15.7	25	80	48
	3:1	29	2,312	18.3			

Add 0.9 C.Y. of Class A Concrete when no approach slab is used.



ELEVATION OF WINGWALL

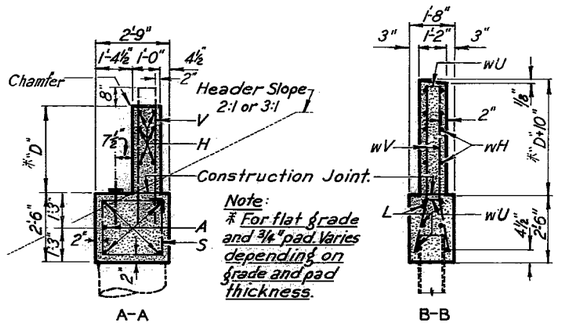


DRILLED SHAFT STEEL H OR CONC. PILE METAL SHELL PILE

CAP

DRILLED SHAFT STEEL H OR CONC. PILE METAL SHELL PILE

WINGWALL



A-A B-B

SECTIONS

GENERAL NOTES:
Designed according to AASHO 1961 Standard Specifications and Interim Revisions there to.
All concrete shall be Class A. Chamfer exposed corners ¾" unless otherwise noted.
Piling under wings shall be driven to a minimum resistance of 10 Tons.
For use with any span shown on Gp 26h.

H 15 LOADING

TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

ABUTMENTS
FOR
PRESTRESSED CONCRETE BEAM SPANS
26'-0" ROADWAY

207

AGP 26h

ORIGINAL DRAWING DATE: JAN. 1965	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN. R.L.R. REVISIONS	18	6	F539(29)	207
CK.:-	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
DW.:- H.M.	COLLIN	47	14	4	US75
CK.:- J.J.P.					

BILLS OF REINFORCING STEEL AND ESTIMATED QUANTITIES FOR ONE CAP – (SPAN AVERAGES SHOWN)

40'

Bar	No.	Size	Length	Weight
A1	2	#11	25'-2"	267
A2	2	#8	9'-11"	53
B1	2	#11	25'-5"	270
B2	1	#8	16'-0"	43
S1	15	#5	10'-6"	164
S2-8	14	#5	9'-7⅞"	140
T	2	#5	25'-2"	52
W	4	#5	6'-0"	25
Reinf. Steel			Lb.	1,014
Cl. A Conc.			C.Y.	6.8
Struct. Steel			Lb.	50

50'

Bar	No.	Size	Length	Weight
A1	2	#11	25'-2"	267
A2	4	#9	9'-11"	135
B1	2	#11	25'-5"	270
B2	1	#8	16'-0"	43
S1	15	#5	10'-6"	164
S2-8	14	#5	9'-7⅞"	140
T	2	#5	25'-2"	52
W	4	#5	6'-0"	25
Reinf. Steel			Lb.	1,096
Cl. A Conc.			C.Y.	6.8
Struct. Steel			Lb.	50

60'

Bar	No.	Size	Length	Weight
A1	2	#11	25'-2"	267
A2	6	#9	9'-11"	202
B1	2	#11	25'-5"	270
B2	1	#9	16'-0"	54
S1	17	#5	10'-6"	186
S2-8	14	#5	9'-7⅞"	140
T	2	#5	25'-2"	52
W	4	#5	6'-0"	25
Reinf. Steel			Lb.	1,196
Cl. A Conc.			C.Y.	6.8
Struct. Steel			Lb.	50

70'

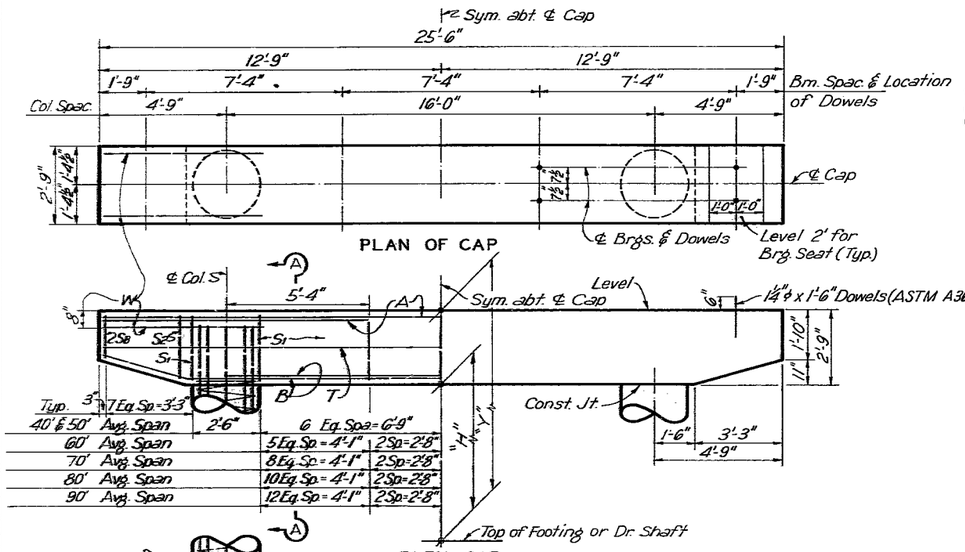
Bar	No.	Size	Length	Weight
A1	2	#11	25'-2"	267
A2	8	#9	9'-11"	270
B1	2	#11	25'-5"	270
B2	1	#11	16'-0"	85
S1	23	#5	10'-6"	252
S2-8	14	#5	9'-7⅞"	140
T	2	#5	25'-2"	52
W	4	#5	6'-0"	25
Reinf. Steel			Lb.	1,361
Cl. A Conc.			C.Y.	6.8
Struct. Steel			Lb.	50

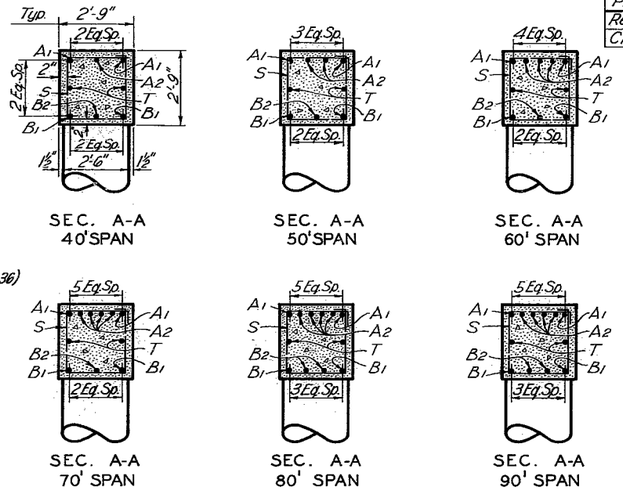
80'

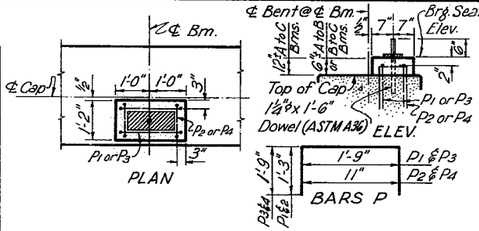
Bar	No	Size	Length	Weight
A1	2	#11	25'-2"	267
A2	8	#10	9'-11"	341
B1	2	#11	25'-5"	270
B2	2	#9	16'-0"	109
S1	27	#5	10'-6"	296
S2-8	14	#5	9'-7⅞"	140
T	2	#5	25'-2"	52
W	4	#5	6'-0"	25
Reinf. Steel			Lb.	1,500
Cl. A Conc.			C.Y.	6.8
Struct. Steel			Lb.	50

90'

Bar	No	Size	Length	Weight
A1	2	#11	25'-2"	267
A2	8	#11	9'-11"	421
B1	2	#11	25'-5"	270
B2	2	#10	16'-0"	138
S1	31	#5	10'-6"	339
S2-8	14	#5	9'-7⅞"	140
T	2	#5	25'-2"	52
W	4	#5	6'-0"	25
Reinf. Steel			Lb.	1,652
Cl. A Conc.			C.Y.	6.8
Struct. Steel			Lb.	50







TRANSITION PEDESTAL DETAILS

BILL OF REINF. & EST. QUANT. FOR 4 PEDESTALS

Transition - A to Bar B to C Bms.				
Bar	No.	Size	Length	Weight
P1	8	#4	4'-3"	23
P2	8	#4	3'-5"	18
Reinf. Steel			Lb.	41
Cl. A Conc.			C.Y.	0.2

Transition - A Bms. to C Bms.				
Bar	No.	Size	Length	Weight
P3	8	#4	5'-3"	28
P4	8	#4	4'-5"	24
Reinf. Steel			Lb.	52
Cl. A Conc.			C.Y.	0.3

BILL OF REINF. STEEL FOR 2 COL.

"H"	Bars Z 2-#3 Length	Bars Z 2-#3 Weight	Bars V 16-#9 Length	Bars V 16-#9 Weight
8'	120	90	10'-3"	558
9'	134	101	11'-3"	612
10'	147	111	12'-3"	666
11'	161	121	13'-3"	721
12'	174	131	14'-3"	775
13'	187	141	15'-3"	830
14'	201	151	16'-3"	884
15'	214	161	17'-3"	938
16'	228	171	18'-3"	993
17'	241	181	19'-3"	1,047
18'	254	191	20'-3"	1,102
19'	268	202	21'-3"	1,156
20'	281	211	22'-3"	1,210
21'	294	221	23'-3"	1,265

EST. QUANT. FOR 2 COL.

Reinf. Steel Lbs.	Cl. A Conc. C.Y.
648	2.9
713	3.3
777	3.6
842	4.0
906	4.4
971	4.7
1,035	5.1
1,099	5.5
1,164	5.8
1,228	6.2
1,293	6.5
1,358	6.9
1,421	7.3
1,486	7.6

BILL OF REINF. & EST. QUANT. FOR ONE 2 PILE FOOT.

Bar	No.	Size	Length	Weight
F1	2	#6	10'-9"	32
F2	2	#6	7'-1"	21
F3	5	#4	3'-1"	10
FD	8	#9	6'-3"	170
Reinf. Steel			Lb.	233
Cl. A Conc.			C.Y.	2.4

FOR ONE 3 PILE FOOT.

Bar	No.	Size	Length	Weight
F1	2	#6	10'-9"	32
F2	2	#6	7'-1"	21
F3	3	#4	3'-1"	6
F4	1	#6	13'-9"	21
F5	2	#6	6'-1"	18
FD	8	#9	6'-3"	170
Reinf. Steel			Lb.	268
Cl. A Conc.			C.Y.	3.4

FOR ONE 4 PILE FOOT.

Bar	No.	Size	Length	Weight
F6	8	#6	9'-9"	117
FD	8	#9	6'-3"	170
Reinf. Steel			Lb.	287
Cl. A Conc.			C.Y.	3.9

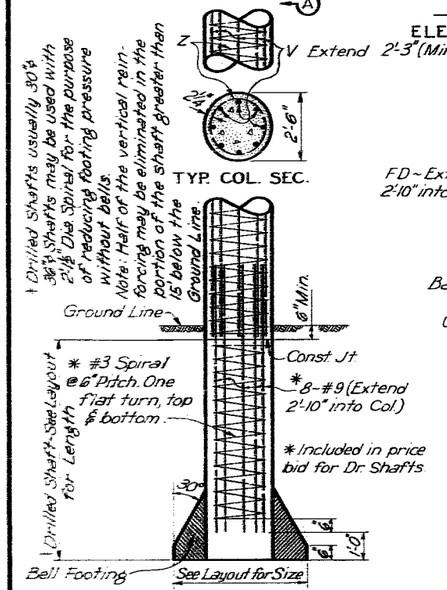
FOOTING LOADS & EST. QUANT.

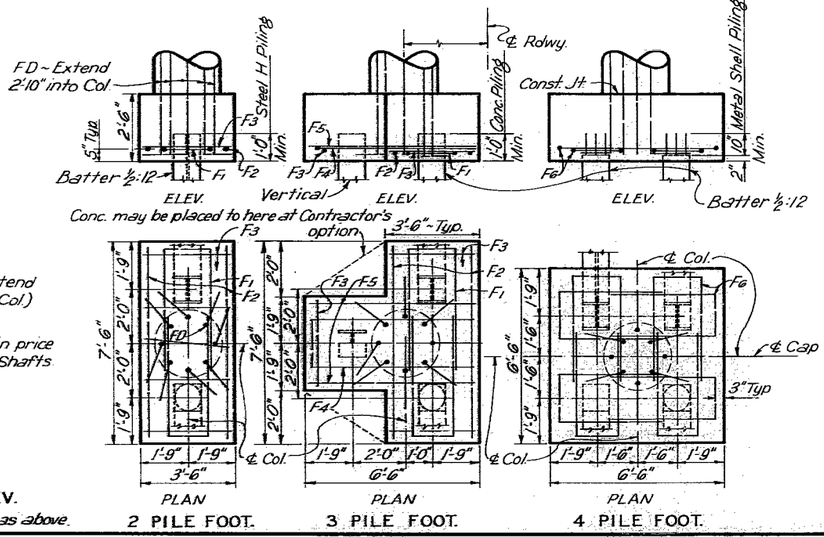
Span Avg.	Column Load T/col.	Drilled Shaft Foundation 2'-4'0"ϕ Bell Ftgs.	2'-5'0"ϕ Bell Ftgs.	2'-6'0"ϕ Bell Ftgs.	2'-7'0"ϕ Bell Ftgs.	Pile Foundation 2 Pile Ftgs.	3 Pile Ftgs.	4 Pile Ftgs.
		Footing Pressure (T/sf)				Pile Load (T/Pile)		
40'	74	5.9	3.8	2.6	1.9	37		
50'	93	7.4	4.7	3.3	2.4	47	31	
60'	113	9.0	5.8	4.0	2.9	57	38	
70'	128	10.2	6.5	4.5	3.3		43	32
80'	142	11.3	7.2	5.0	3.7		47	36
90'	157	12.5	8.0	5.6	4.1		52	39
	ESTIMATED FOUNDATION QUANTITIES – ONE BENT							
Bell Ftg.	C.Y.	0.6	1.6	3.1	5.3			
	Cl. A Conc.				C.Y.	4.8	6.8	7.8
	Reinf. Steel				Lb.	466	536	574

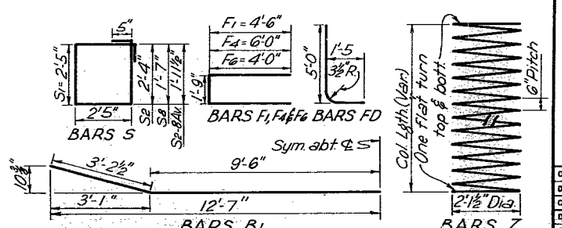
Designed according to A.A.S.H.O. 1961 Standard Specifications and Interim Revisions thereto.

These bents are for use with any span combination available on Gp 26h. Where the average length of the two adjacent spans is 40' or less, use the bent design for "40' Span Average." Where the average supported length is from 40' thru 50' use the bent design for "50' Span Average," etc.

H 15 LOADING







TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

INTERIOR BENTS

FOR USE WITH 208

PRESTRESSED CONC. BM. SPANS

26'-0" ROADWAY

BGp 26h

ORIGINAL DRAWING DATE: JAN. 1965	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
DN.:-RLR REVISIONS	18	6	F 539(29)				208
CK.:-	COUNTY		CONTROL	SECTION	JOB	HIGHWAY	
DW.:-GCK	COLLIN		47	14	4	US 75	
CK.:-JJP							

BILLS OF REINFORCING STEEL AND ESTIMATED TOTAL QUANTITIES

40'-0" SPAN

Bar	No.	Size	Length	Weight
A	38	#5	28'-7"	1,138
B	39	#4	27'-3"	710
C	39	#5	28'-0"	1,139
D	25	#5	39'-9"	1,036
T	27	#4	39'-9"	717
dK	36	#5	6'-1"	228
dS1	36	#4	4'-0"	96
dS2	18	#4	3'-8"	44
dN	3	#8	22'-11"	184
Reinf. Steel			Lb.	5,287
Cl. A Conc.			C.Y.	25.2
Type A Bms.			L.F.	158.67

45'-0" SPAN

Bar	No.	Size	Length	Weight
A	43	#5	28'-7"	1,282
B	44	#4	27'-3"	801
C	44	#5	28'-0"	1,431
D	25	#5	44'-9"	1,167
T	27	#4	44'-9"	807
dK	36	#5	6'-1"	228
dS1	36	#4	4'-0"	96
dS2	18	#4	3'-8"	44
dN	3	#8	22'-11"	184
Reinf. Steel			Lb.	5,894
Cl. A Conc.			C.Y.	28.0
Type A Bms.			L.F.	178.67

50'-0" SPAN

Bar	No.	Size	Length	Weight
A	48	#5	28'-7"	1,431
B	49	#4	27'-3"	892
C	49	#5	28'-0"	1,577
D	25	#5	49'-9"	1,297
T	27	#4	49'-9"	897
dK	36	#5	6'-1"	228
dS1	36	#4	4'-0"	96
dS2	18	#4	4'-4"	52
dN	3	#8	22'-11"	184
Reinf. Steel			Lb.	6,508
Cl. A Conc.			C.Y.	31.0
Type B Bms.			L.F.	198.67

55'-0" SPAN

Bar	No.	Size	Length	Weight
A	53	#5	28'-7"	1,580
B	54	#4	27'-3"	983
C	54	#5	28'-0"	1,577
D	25	#5	54'-9"	1,428
T	29	#4	54'-9"	1,061
dK	48	#5	6'-1"	305
dS1	36	#4	4'-0"	96
dS2	36	#4	4'-4"	104
dN	4	#8	22'-11"	245
E	56	#4	1'-3"	47
Reinf. Steel			Lb.	7,426
Cl. C Conc.			C.Y.	35.7
Type B Bms.			L.F.	218.67

60'-0" SPAN

Bar	No.	Size	Length	Weight
A	57	#5	28'-7"	1,699
B	58	#4	27'-3"	1,056
C	58	#5	28'-0"	1,694
D	25	#5	59'-9"	1,558
T	29	#4	59'-9"	1,157
dK	48	#5	5'-11"	296
dS1	36	#4	4'-0"	96
dS2	36	#4	5'-0"	120
dN	4	#8	22'-11"	245
E	60	#4	1'-3"	50
Reinf. Steel			Lb.	7,971
Cl. C Conc.			C.Y.	39.0
Type C Bms.			L.F.	238.67

65'-0" SPAN

Bar	No.	Size	Length	Weight
A	62	#5	28'-7"	1,848
B	63	#4	27'-3"	1,147
C	63	#5	28'-0"	1,840
*D	25	#5	65'10"	1,717
*T	29	#4	65'9"	1,274
dK	48	#5	5'-11"	296
dS1	36	#4	4'-0"	96
dS2	36	#4	5'-0"	120
dN	4	#8	22'-11"	245
E	64	#4	1'-3"	53
Reinf. Steel			Lb.	8,636
Cl. C Conc.			C.Y.	41.9
Type C Bms.			L.F.	258.67

70'-0" SPAN

Bar	No.	Size	Length	Weight
A	67	#5	28'-7"	1,997
B	68	#4	27'-3"	1,238
C	68	#5	28'-0"	1,986
*D	25	#5	70'10"	1,847
*T	29	#4	70'-9"	1,371
dK	48	#5	5'-11"	296
dS1	36	#4	4'-0"	96
dS2	36	#4	5'-0"	120
dN	4	#8	22'-11"	245
E	70	#4	1'-3"	58
Reinf. Steel			Lb.	9,254
Cl. C Conc.			C.Y.	44.9
Type C Bms.			L.F.	278.67

75'-0" SPAN

Bar	No.	Size	Length	Weight
A	72	#5	28'-7"	2,146
B	73	#4	27'-3	1,329
C	73	#5	28'-0"	2,132
*D	25	#5	75'10"	1,977
*T	29	#4	75'-9"	1,467
dK	48	#5	5'-11"	296
dS1	36	#4	4'-0"	96
dS2	36	#4	5'-0"	120
dN	4	#8	22'-11"	245
E	74	#4	1'-3"	62
Reinf. Steel			Lb.	9,870
Cl. C Conc.			C.Y.	47.9
Type C Bms.			L.F.	298.67

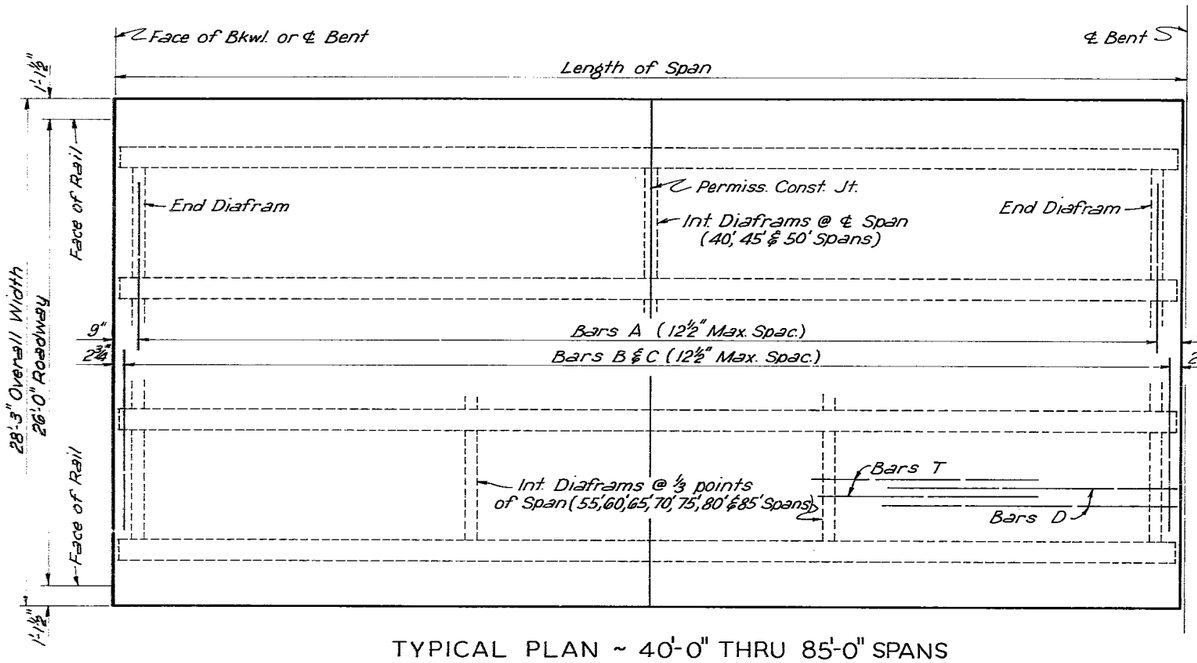
80'-0" SPAN

Bar	No.	Size	Length	Weight
A	77	#5	28'-7"	2,296
B	78	#4	27'-3"	1,420
C	78	#5	28'-0"	2,278
*D	25	#5	80'-10"	2,108
*T	27	#4	80'-9"	1,456
dK	48	#5	5'-11"	296
dS1	36	#4	4'-0"	96
dS2	36	#4	5'-0"	120
dN	4	#8	22'-11"	245
Reinf. Steel			Lb.	10,315
Cl. A Conc.			C.Y.	49.4
Type C Bms.			L.F.	318.67

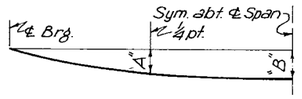
85'-0" SPAN

Bar	No.	Size	Length	Weight
A	81	#5	28'-7"	2,415
B	82	#4	27'-3"	1,493
C	82	#5	28'-0"	2,395
*D	25	#5	85'-10"	2,238
*T	27	#4	85'-9"	1,547
dK	48	#5	5'-11"	296
dS1	36	#4	4'-0"	96
dS2	36	#4	5'-0"	120
dN	4	#8	22'-11"	245
Reinf. Steel			Lb.	10,845
Cl. A Conc.			C.Y.	52.3
Type C Bms.			L.F.	338.67

*Includes one 20 dia. Lap (1'-0" Min.)



TYPICAL PLAN ~ 40'-0" THRU 85'-0" SPANS



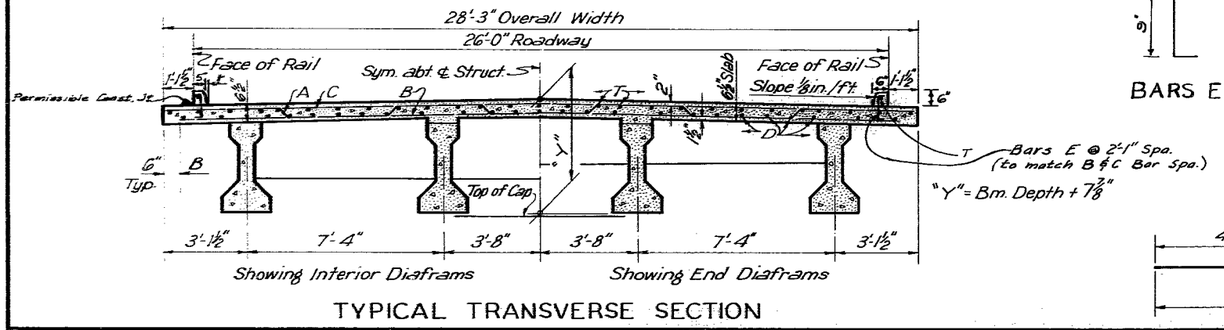
SPAN	"A"	"B"
40'	.016'	.022'
45'	.026'	.036'
50'	.021'	.029'
55'	.031'	.043'
60'	.023'	.032'
65'	.032'	.045'
70'	.043'	.060'
75'	.057'	.080'
80'	.074'	.104'
85'	.095'	.133'

DEAD LOAD DEFLECTION DIAGRAM

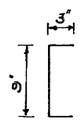
Note: Deflections shown are due to cast-in-place concrete & railing only and shall be taken into account in setting of slab forms.

Transverse screeding with an approved machine screed will be permitted, provided the Contractor's detailed construction procedure is submitted through the Engineer and approved by the Bridge Division.

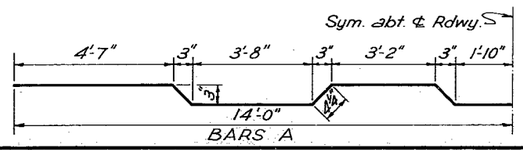
Designed according to A.A.S.H.O. 1961 Standard Specifications and Interim Revisions thereto.



TYPICAL TRANSVERSE SECTION



BARS E



BARS A

H15 LOADING

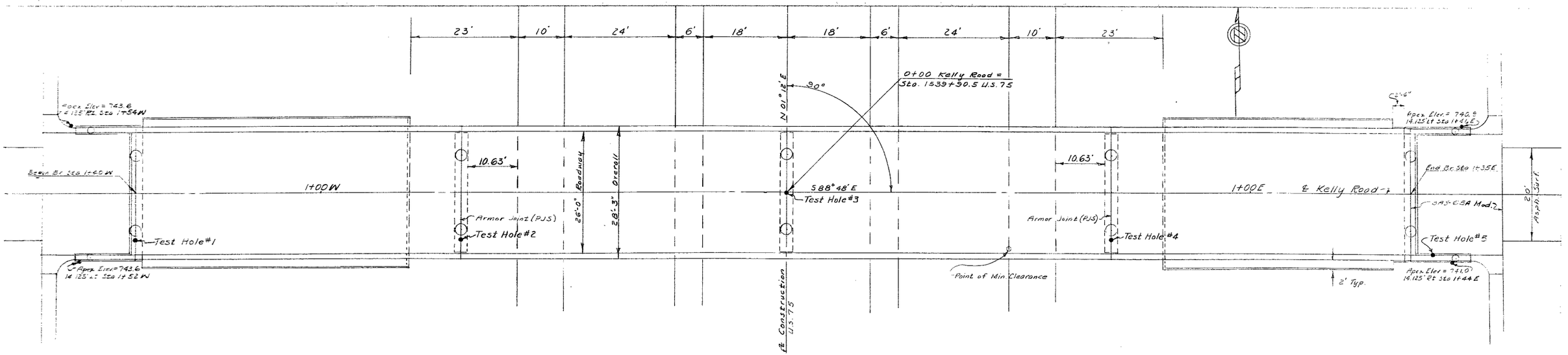
TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

PRESTRESSED CONCRETE BEAM SPANS
40'-0" THRU 85'-0"
26'-0" ROADWAY

209

Gp 26 h (Mod.)

ORIGINAL DRAWING DATE: JAN. 1965		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DN.:-JJP	REVISIONS	18	6	F 539(23)		209
CK.:-RLR	Curbs Added	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW.:-OCK		COLLIN		47	14	4	U.S.75
CK.:-JJP							

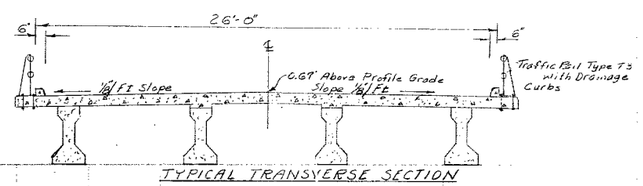


ESTIMATED QUANTITIES

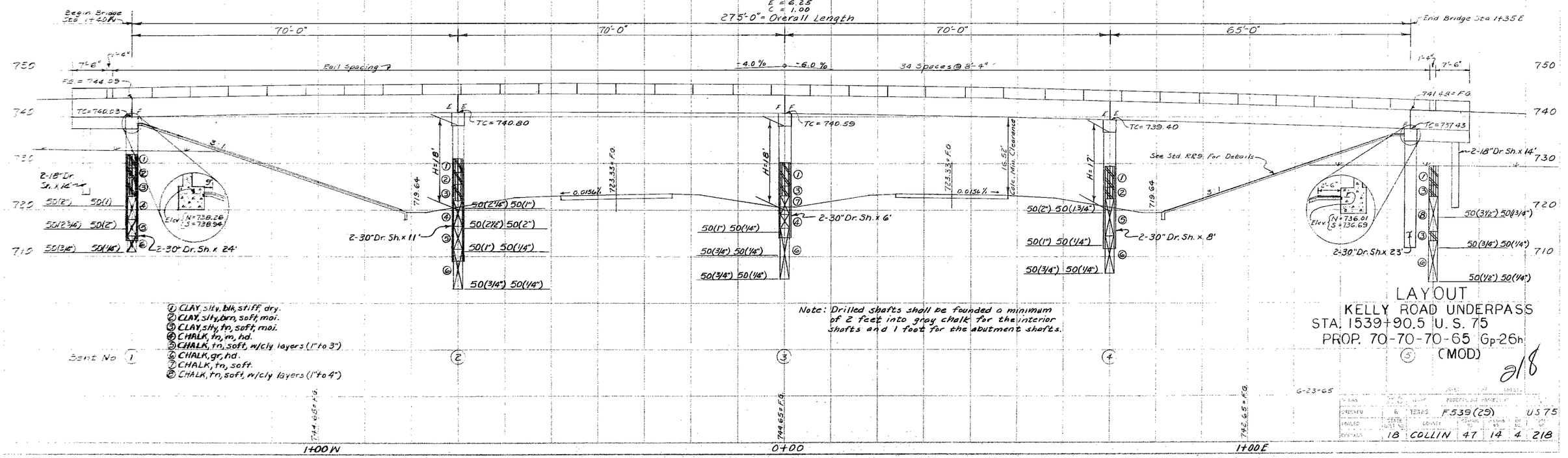
Structural Unit	Unclass Str Excav. (Br) C.Y.	Drill Shaft 18 in L.F.	Drill Shaft 30 in L.F.	Class "A" Conc. (Bent) C.Y.	Class "C" Conc (Slab) C.Y.	Prestr. Conc Beam (Type C) L.F.	Riprap Conc. (Class B) C.Y.	Reinf Steel Lb.	Str. Stl. (Shoe & Armor Jt.) Lb.	Traffic Rail (Type T3) L.F.	Conc. Surface Trtmt. S.Y.
3- ASp 26h	58	56	94	38.6			62	4,624	50'	52	
3- BSp 26h			50	39.6				7,897	150'		
1- Sp 26h 65' Span					41.9	258.67'		8,636'	72'	130	211'
3- Sp 26h 70' Spans					134.7	836.		27,762	216'	420.	683'
Totals	58	56.	144	76.2	176.6	1,094.67'	62	48,919	488'	602'	894'

NOTE: % Grade U.S. 75 = - 2.4%

Vertical Curve Data Kelly Road
P.I. = 0+00
Elev. = 750.90 = 0.67 Above Profile Grade or F.G.
V.C. = 500'
E = 6.25'
C = 1.00
275'-0" = Overall Length



TYPICAL TRANSVERSE SECTION



① CLAY, silty, blk, stiff, dry.
② CLAY, silty, brn, soft, moi.
③ CLAY, silty, tn, soft, moi.
④ CHALK, tn, m, hd.
⑤ CHALK, tn, soft, w/cly layers (1" to 3")
⑥ CHALK, gr, hd.
⑦ CHALK, tn, soft.
⑧ CHALK, tn, soft, w/cly layers (1" to 4")

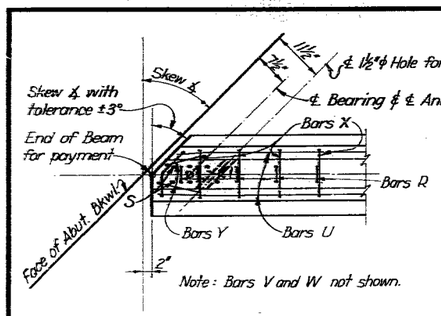
Note: Drilled shafts shall be founded a minimum of 2 feet into gray chalk for the interior shafts and 1 foot for the abutment shafts.

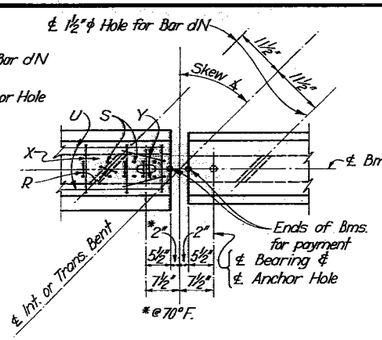
LAYOUT
KELLY ROAD UNDERPASS
STA. 1539+90.5 U. S. 75
PROP. 70-70-70-65 Gp-26h (MOD)

218

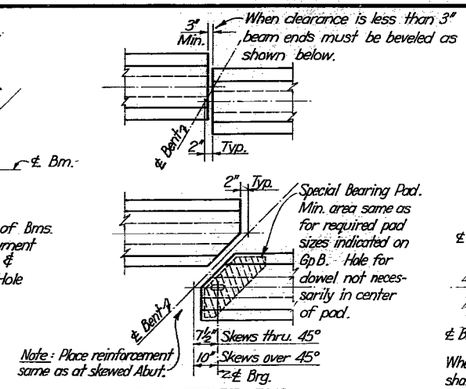
6-23-65

STATE	DISTRICT	COUNTY	PROJECT OR HIGHWAY NO.
TEXAS	DALLAS	COLLIN	F539(29) US 75
SHEET NO.			
18			



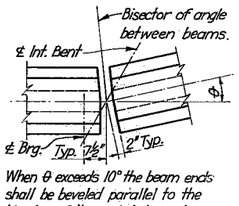


FOR OPPOSING BMS.



Note: Place reinforcement same as at skewed Abut.

FOR OFFSET BMS.



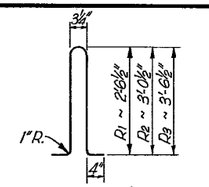
When θ exceeds 10° the beam ends shall be beveled parallel to the bisector of the angle between beams.

FOR BMS. AT HORIZ. DEFLECTION POINTS

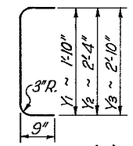
AT SKEWED ABUTMENT BENTS **AT SKEWED INTERIOR BENTS**

Note: Details shown above will apply unless shown otherwise on span details.

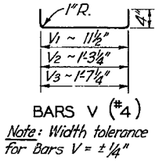
PLAN OF BEAM ENDS FOR SKEWED OR SPECIAL CONDITIONS



BARS R (#4)
(OR #3 HIGH STRENGTH A431 OR A432)

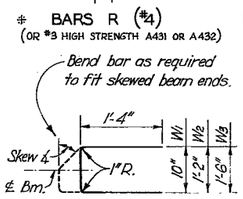


BARS Y (#6)

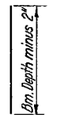


BARS V (#4)

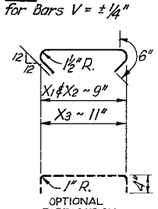
Note: Width tolerance for Bars V = ± 1¼"



BARS W (#5)



BARS S (#5)



BARS X (#4)

SAMPLE REINFORCING TABLE

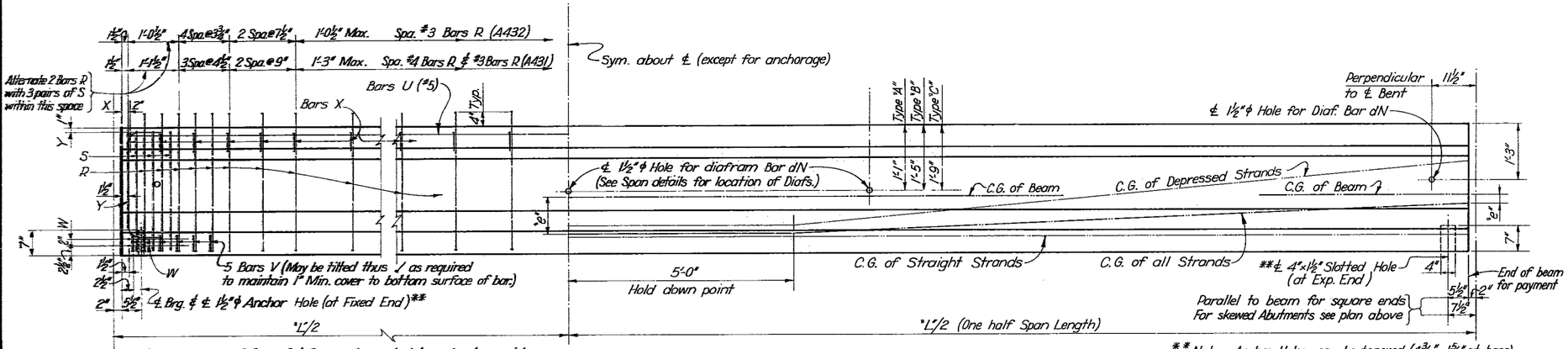
For One Beam Type "C" (L = 65'-0")

Bar	No.	Size	Spac.	Length	Weight
R3	61	#4	Shown	8'-0"	326
S3	12	#5	~	3'-2"	40
U	2	#5	~	66'-3"	138
V3	10	#4	Shown	2'-3"	15
W3	4	#5	~	4'-2"	17
X3	57	#4	Shown	1'-8"	63
Y3	4	#6	~	4'-4"	26
			Total Weight	Lbs.	625

°Includes 1'-10" lap for bars over 60'-0" in length.

ESTIMATED BM. QUANTITIES

Beam Type	P.L.F. Quantities Conc. C.Y.	Reinf. Stl. Lb.	Extra Reinf. Steel for 2 beam-ends Lb.
A	.071	6.105	113
B	.093	6.639	131
C	.127	7.263	151

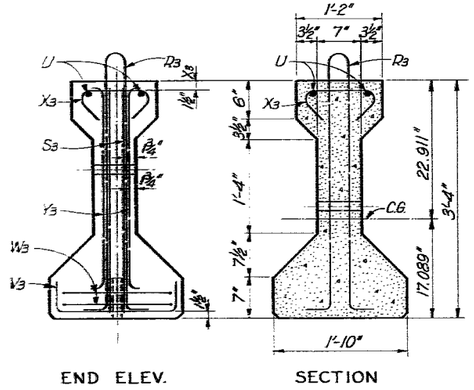


Note: Spacing of Bars R & S may be varied in order to avoid skewed diafram holes. It is permissible for reinforcing bars and or strands to come in contact with materials used in forming anchor & diafram holes.

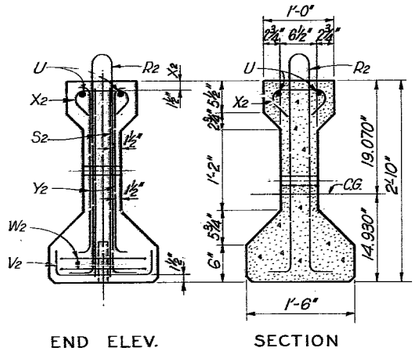
ELEVATION OF BEAM

** Note: Anchor Holes may be tapered (4¾"×1⅞" at base) & (1⅞"ϕ at base-fixed end). If holes are formed with sheet metal, forms may be left in place.

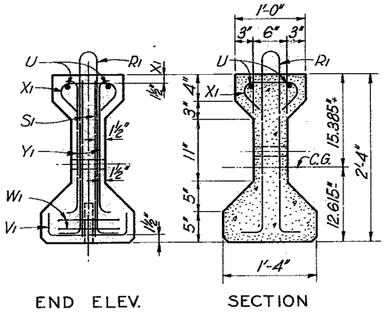
Note: In general, diaframs shall be located at mid-points of span for spans 50' & less. For spans in excess of 50', diaframs shall be located at ⅓ pts. of span. For skewed spans, location of diaframs will vary from beam to beam.



TYPE "C" BEAM



TYPE "B" BEAM



TYPE "A" BEAM

SECTION PROPERTIES

Beam Type	Area In.²	I In.⁴	Wt/Ft. Lb.
A	275.44	22,658	286.9
B	360.31	43,177	375.3
C	494.94	82,602	515.6

GENERAL NOTES:

All exposed corners of beams shall be chamfered ¾" or rounded to a ¾" radius unless otherwise shown.

Suitable holes or anchorage devices for supporting forms for cast-in-place concrete may be cast in the beams at the option of the Contractor, provided they are indicated on the shop drawings and approved by the Engineer.

Attention is called to the increased difficulty of lifting beams without end blocks. The Contractor's proposed lifting details should be given careful consideration before being submitted on shop drawings for approval. The use of diafram holes for lifting purposes will not be permitted.

The Prestressed Beam Fabricator shall prepare and submit for approval shop drawings for each structure. Such drawings shall be sufficient in detail to enable correct fabrication and inspection without reference to this sheet.

TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

PRESTRESSED CONCRETE BEAMS

323

Gp A1

ORIGINAL DRAWING DATE: JAN. '65	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DR.:-RLR REVISIONS Rev. 9-65	18	6	F539(29), Etc.			223
CK.:-JJP	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DR.:-RNS	COLLIN		47	14	4	US75
CK.:-JJP						

BEAM DESIGN REQUIREMENTS

Standard	Span	Beam Type	DESIGNED BEAM: Prestressing Strands: Total: Number	Total: Size	Total: Strength	Total: e at End	Depressed: No.	Depressed: To	Concrete: Release Strength f'ci (#/□")	Concrete: Design Strength f'c (#/□")	OPTIONAL DESIGN: Minimum Initial Prest (Bott ℄) fcbi (#/□")	Design Load Comp. Stress (Top ℄) fct (#/□")	Minimum Release Strength f'ci (#/□")
Gp 26 h Gp 26 h-15° Gp 26 h-30° Gp 26 h-45°	40'	A	14	7/16	250 K	9.19"	7.47	6	A-10	4,000	5,000	+2110	+1510	4,000
	45'	A	18	7/16	250 K	8.39"	5.73	8	A-14	4,000	5,000	+2640	+1900	4,000
	50'	B	16	7/16	250 K	11.93"	8.93	4	A-16	4,000	5,000	+2080	+1720	4,000
	55'	B	20	7/16	250 K	11.33"	8.33	6	A-16	4,000	5,000	+2520	+2100	4,000
	60'	C	22	7/16	250 K	13.82"	10.54	6	A-18	4,000	5,000	+1920	+1830	4,000
	65'	C	26	7/16	250 K	13.40"	9.70	6	A-22	4,000	5,000	+2260	+2130	4,000
	70'	C	30	7/16	250 K	13.09"	9.49	6	A-24	4,000	5,000	+2630	+2460	4,000
	75'	C	36	7/16	250 K	12.42"	7.09	8	A-32	4,000	5,100	+3030	+2820	4,000
H 15 Loading 7'-4" Bm. Spa. 6½" Slab	80'	C	42	7/16	250 K	11.76"	6.04	10	A-34	4,300	6,000	+3450	+3200	4,100
	85'	C	48	7/16	250 K	11.01"	5.01	12	A-36	4,700	7,200	+3900	+3600	4,620
Gp 33 H Gp 33 H-15° Gp 33 H-30° Gp 33 H-45°	40'	A	16	7/16	250 K	8.86	6.61	6	A-12	4,000	5,000	+2440	+1570	4,000
	45'	B	16	7/16	250 K	11.93	8.93	4	A-16	4,000	5,000	+1940	+1470	4,000
	50'	B	20	7/16	250 K	11.33	8.33	6	A-16	4,000	5,000	+2360	+1800	4,000
	55'	B	24	7/16	250 K	10.76	6.76	8	A-20	4,000	5,000	+2840	+2190	4,000
	60'	C	24	7/16	250 K	13.59	10.09	6	A-20	4,000	5,000	+2140	+1910	4,000
	65'	C	28	7/16	250 K	13.23	9.80	6	A-22	4,000	5,000	+2520	+2230	4,000
	70'	C	34	7/16	250 K	12.62	7.91	8	A-28	4,000	5,000	+2920	+2570	4,000
H 20 Loading 7'-3" Bm. Spa. 7" Slab	75'	C	40	7/16	250 K	11.99	6.49	10	A-32	4,300	5,400	+3360	+2940	4,140
	80'	C	48	7/16	250 K	11.01	5.51	12	A-34	4,900	6,500	+3820	+3340	4,700
Gp 33 HS Gp 33 HS-15° Gp 33 HS-30° Gp 33 HS-45°	40'	B	14	7/16	250 K	12.07"	9.22	4	A-14	4,000	5,000	+1770	+1200	4,000
	45'	B	18	7/16	250 K	11.60"	8.26	6	A-16	4,000	5,000	+2250	+1510	4,000
	50'	B	22	7/16	250 K	11.11"	7.84	6	A-18	4,000	5,000	+2760	+1850	4,000
	55'	C	24	7/16	250 K	13.59"	10.09	6	A-20	4,000	5,000	+2110	+1680	4,000
	60'	C	28	7/16	250 K	13.23"	9.80	6	A-22	4,000	5,000	+2490	+1980	4,000
	65'	C	34	7/16	250 K	12.62"	7.91	8	A-28	4,000	5,000	+2890	+2310	4,000
HS 20 Loading 7'-3" Bm Spa 7" Slab	70'	C	40	7/16	250 K	11.99"	6.99	10	A-30	4,400	5,300	+3320	+2660	4,270
	75'	C	46	7/16	250 K	11.26"	6.57	12	A-30	4,900	5,900	+3760	+3030	4,820
Gp 35 H Gp 35 H-15° Gp 35 H-30° Gp 35 H-45°	40'	B	14	7/16	250 K	12.07"	9.22	4	A-14	4,000	5,000	+1660	+1230	4,000
	45'	B	16	7/16	250 K	11.93"	8.93	4	A-16	4,000	5,000	+2080	+1550	4,000
	50'	B	20	7/16	250 K	11.33"	8.33	6	A-16	4,000	5,000	+2520	+1900	4,000
	55'	C	22	7/16	250 K	13.82"	10.54	6	A-18	4,000	5,000	+1920	+1690	4,000
	60'	C	26	7/16	250 K	13.40"	9.70	6	A-22	4,000	5,000	+2280	+2000	4,000
H 20 Loading 7'-9" Bm Spa 7¼" Slab	65'	C	30	7/16	250 K	13.09"	9.49	6	A-24	4,000	5,000	+2680	+2340	4,000
	70'	C	36	7/16	250 K	12.42"	7.09	8	A-32	4,000	5,000	+3110	+2700	4,000
	75'	C	44	7/16	250 K	11.54"	6.54	10	A-32	4,700	5,800	+3560	+3090	4,490
Gp 40 HS Gp 40 HS-15° Gp 40 HS-30° Gp 40 HS-45°	40'	B	18	7/16	250 K	11.60"	8.26	6	A-16	4,000	5,000	+2210	+1430	4,000
	45'	C	20	7/16	250 K	14.09"	10.89	4	A-20	4,000	5,000	+1740	+1310	4,000
	50'	C	24	7/16	250 K	13.59"	10.09	6	A-20	4,000	5,000	+2140	+1610	4,000
	55'	C	30	7/16	250 K	13.09"	9.49	6	A-24	4,000	5,000	+2600	+1970	4,000
HS 20 Loading 9'-0" Bm Spa. 8" Slab	60'	C	36	7/16	250 K	12.42"	8.42	8	A-26	4,300	5,100	+3060	+2330	4,190
	65'	C	42	7/16	250 K	11.76"	7.41	10	A-28	4,800	5,700	+3550	+2720	4,840
Gp 44 H Gp 44 H-15° Gp 44 H-30° Gp 44 H-45°	40'	B	14	7/16	250 K	12.07"	9.22	4	A-14	4,000	5,000	+1710	+1250	4,000
	45'	B	18	7/16	250 K	11.60"	8.26	6	A-16	4,000	5,000	+2140	+1580	4,000
	50'	B	22	7/16	250 K	11.11"	7.84	6	A-18	4,000	5,000	+2590	+1940	4,000
	55'	C	22	7/16	250 K	13.82"	10.54	6	A-18	4,000	5,000	+1970	+1720	4,000
	60'	C	26	7/16	250 K	13.40"	9.70	6	A-22	4,000	5,000	+2330	+2030	4,000
H 20 Loading 8'-0" Bm Spa 7¼" Slab	65'	C	32	7/16	250 K	12.84"	9.34	8	A-22	4,000	5,000	+2740	+2380	4,000
	70'	C	38	7/16	250 K	12.25"	7.19	8	A-32	4,200	5,000	+3180	+2750	4,040
	75'	C	44	7/16	250 K	11.54"	6.54	10	A-32	4,700	5,900	+3650	+3150	4,630

All concrete shall be Class H.

The intent of this system is to allow the fabricator as much freedom as is practical in selecting the combination of strand arrangement and concrete strengths, compatible with his particular type of operation, which will meet the design requirements.

The Contractor shall have the option of furnishing either the "Designed Beam" or a beam of the same type with other straight or depressed strand arrangements and concrete strengths meeting the "Optional Design" requirments. Prestressed Concrete Beam Design Charts A2, B2 & C2 are available to aid in the design of optional beams.

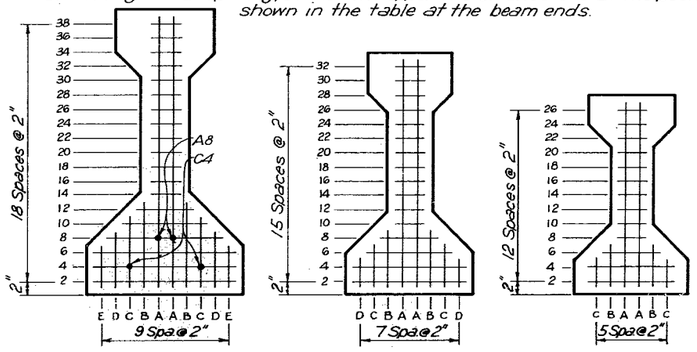
For "Optional Designs" the minimum design strength shall be 1.2 times the minimum release strength shown in the table. The actual strengths required may be greater, depending on the calculated stresses in the approved optional beam.

Required release and design strengths for each optional design shall be computed by the Fabricator and shown on the shop drawings.

Seven wire strands, sizes from ⅜" diam. through ½" diam., conforming to the Standard Specifications will be permitted. The same sizes, but of greater strengths, (ie. 270 K), will be considered provided the physical properties as outlined in A.S.T.M. 416 are shown on the shop drawings.

The possibilities of end splitting and cracking upon release of hold-down devices should be considered while selecting either a "Designed" or an "Optional" Beam. If these problems can be predicted by the latest accepted design methods, suitable measures will be required to prevent their occurrence. If these problems occur during manufacture, without being anticipated, immediate notification shall be given the Bridge Division, and suitable corrective measures will be initiated. In general, cracking or splitting will be anticipated whenever the calculated tensile stress exceeds 400 p.s.i.

Strands for the "Designed Beam" shall be located as low as possible on the 2" Grid System shown below. Fill Row "2", then Row "4", then Row "6" etc., beginning each Row in the "A" position and working outward, until the required number of strands is reached. All strands in the "A" position shall be depressed, maintaining the 2" spacing, so that the upper two strands are at the position shown in the table at the beam ends.



The initial pretension for strands shall be:

Strand Strength	Size Strand ⅜"	7/16"	½"
250 K	14.0 k	18.9 k	25.2 k
270 K	16.1 k	21.7 k	28.9 l K

TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

PRESTRESSED CONCRETE BEAMS

STANDARD SPANS

Gp A2

224

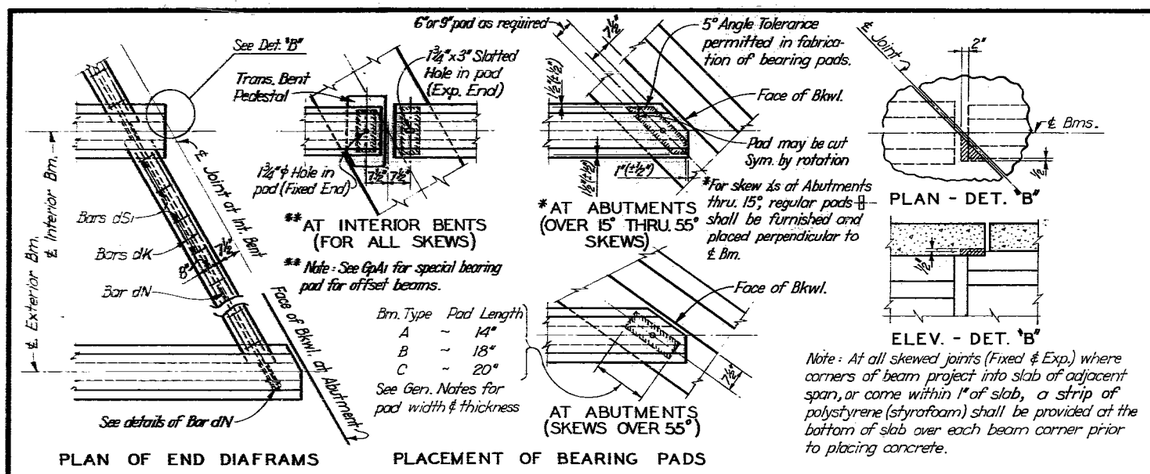
ORIGINAL DRAWING DATE: JAN 1965

REVISIONS
3-8-65 Gp 33H, 40° End Pattern
4-12-65 Min. ½" = 1.2 × Min. ½"

DN.:- CK.:- DW.:-GCK CK.:-JJP

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
1	6	F 539(29) etc.	224

COUNTY	CONTROL	SECTION	JOB	HIGHWAY
GRAYSON	47	13	3	US 75



PLAN OF END DIAFRAMS

** AT INTERIOR BENTS (FOR ALL SKEWS)

** Note: See Gp A1 for special bearing pad for offset beams.

* AT ABUTMENTS (OVER 15° THRU. 55° SKEWS)

AT ABUTMENTS (SKEWS OVER 55°)

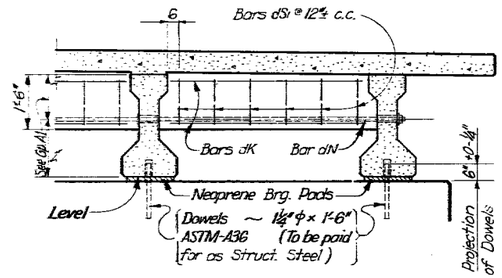
PLACEMENT OF BEARING PADS

PLAN - DET. "B"

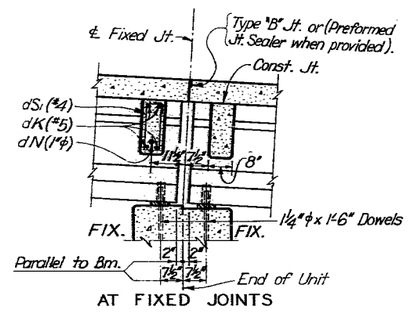
ELEV. - DET. "B"

Note: At all skewed joints (Fixed & Exp.) where corners of beam project into slab of adjacent span, or come within 1" of slab, a strip of polystyrene (styrofoam) shall be provided at the bottom of slab over each beam corner prior to placing concrete.

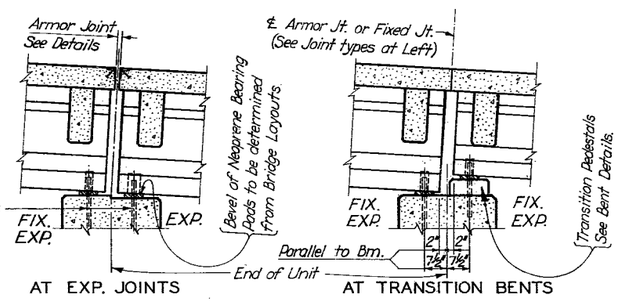
SKEWED END CONDITIONS



ELEVATION - END DIAFRAMS

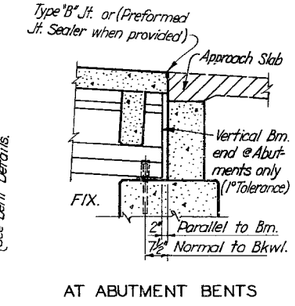


AT FIXED JOINTS



AT EXP. JOINTS

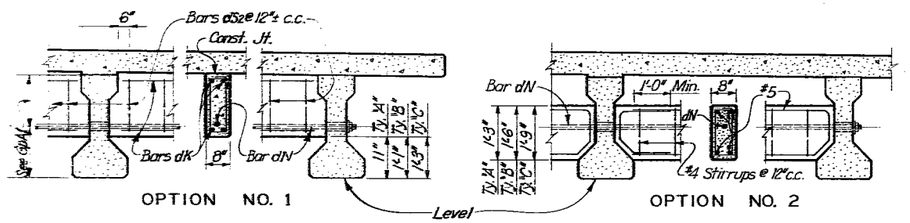
AT TRANSITION BENTS



AT ABUTMENT BENTS

SECTIONS THRU. END DIAFRAMS AND DETAILS OVER BENTS

Note: Dimensions and reinforcing steel same for all end diaframs. Sections are taken perpendicular to ℄ Bent.

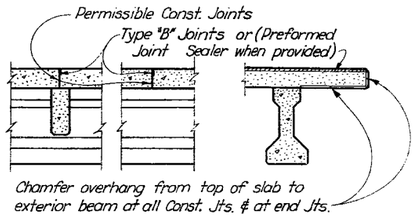


OPTION NO. 1

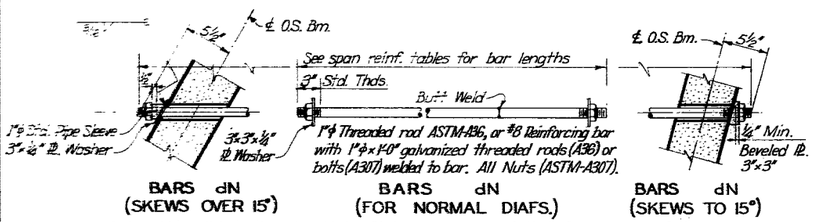
OPTION NO. 2

OPTION NO. 3 - PRECAST (FOR NORMAL DIAFS. ONLY)

DETAILS OF INTERIOR DIAFRAMS



CONST. JT. DETAIL

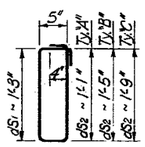


BARS dN (SKEWS OVER 15°)

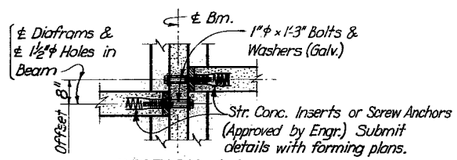
BARS dN (FOR NORMAL DIAFS.)

BARS dN (SKEWS TO 15°)

Note: After fabrication, the Nuts, Plates, Sleeves, and 1'-0" of each end of the bar shall be galvanized. Field splices if needed shall be made by butt welding.
See Span Details for skew angles of diaframs to beams.
Pipe Washers & Pipe Sleeves are to be considered subsidiary to reinforcing steel.

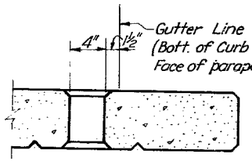


BARS dS (#4)



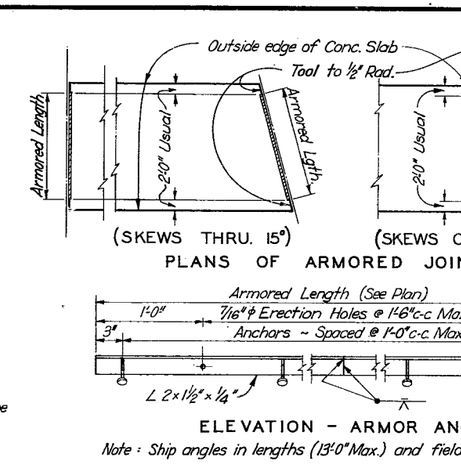
SECTION A-A

Precast diaframs shall be positioned and bolts secured snugly against beam. Care must be taken to avoid lateral deflection of beams due to excessive tightening of bolts prior to filling of mortar joints. After mortar has set for 48 hours, the bolts shall be firmly tightened.

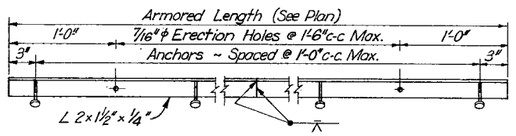


DRAIN DETAILS

4"x 6" Formed Drains. Provide a ¾" drip bead around drain. Bend reinforcing steel to clear drain 1". Drains if any shall be located as directed by Engineer. No drains shall be placed over railroad tracks or roadways.

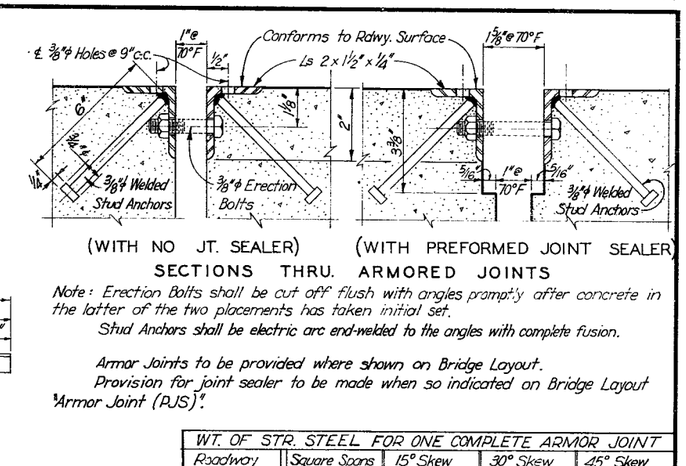


PLANS OF ARMORED JOINTS



ELEVATION - ARMOR ANGLES

Note: Ship angles in lengths (13'-0" Max.) and field butt weld.



SECTIONS THRU. ARMORED JOINTS

Note: Erection Bolts shall be cut off flush with angles promptly after concrete in the latter of the two placements has taken initial set.
Stud Anchors shall be electric arc end-welded to the angles with complete fusion.

Armor Joints to be provided where shown on Bridge Layout.
Provision for joint sealer to be made when so indicated on Bridge Layout "Armor Joint (PJS)".

ARMORED JOINT DETAILS

WT. OF STR. STEEL FOR ONE COMPLETE ARMOR JOINT				
Roadway Width	Square Spans	15° Skew	30° Skew	45° Skew
	Lb.	Lb.	Lb.	Lb.
26'-0"	144	150	168	204
33'-0"	186	194	216	264
35'-0"	198	206	230	280
40'-0"	228	236	264	322
44'-0"	252	260	292	356

Weight of Armor Joint = 5.97 Lb. per Lin. Ft.

GENERAL NOTES:

All cast-in-place concrete shall be Class A unless otherwise shown on span details. Chamfer all exposed corners ¾" unless otherwise shown. No concrete shall be placed in the bridge slab until the diaframs are in place, the diafram concrete has reached a minimum flexural strength of 300 psi, and the nuts of Bars dN have subsequently been firmly tightened.

Contractor shall notify fabricators which Interior Diafram Option he intends to use. Proposed connection to beams shall be indicated on shop drawings. Payment for concrete and reinf. steel for interior diaframs will be based on the quantities for Option No. 1.

Concrete for optional precast diaframs shall be of the same class as that used in bridge slab.

Beams shall be seated on neoprene bearing pads of 70-durometer hardness. Pads shall be furnished with their thickness varying in one or both directions depending on the slope of the erected beam and the skew angle of the pad. The allowable dimensional tolerances given in the specifications should be used to determine if constant thickness pads are suitable for moderate beam slopes and skews. Pad sizes as follows:

Bm. Type	Span Lgth.	Pad Size
A	All	6"x12"x ⅜" (Min.)
B	All	6"x16"x ¾" "
C	Thru. 65'-0"	6"x19"x ¾" "
C	Thence thru. 70'-0"	9"x19"x ⅞" "
C	" " 75'-0"	9"x19"x 1⅜" "

Bm. Type	Span Lgth.	Pad Size
	Thence thru. 80'-0"	9"x19"x 1"(Min.)
C	" " 85'-0"	9"x19"x 1⅛" "
C	" " 90'-0"	9"x19"x 1⅛" "
C	" " 95'-0"	9"x19"x 1⅜" "

For skewed beam ends at Abutments the pad lengths shall vary as shown in detail for Skewed End Conditions.

Cost of furnishing and installing neoprene pads shall be included in unit price bid for "Prestressed Concrete Beams."

TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

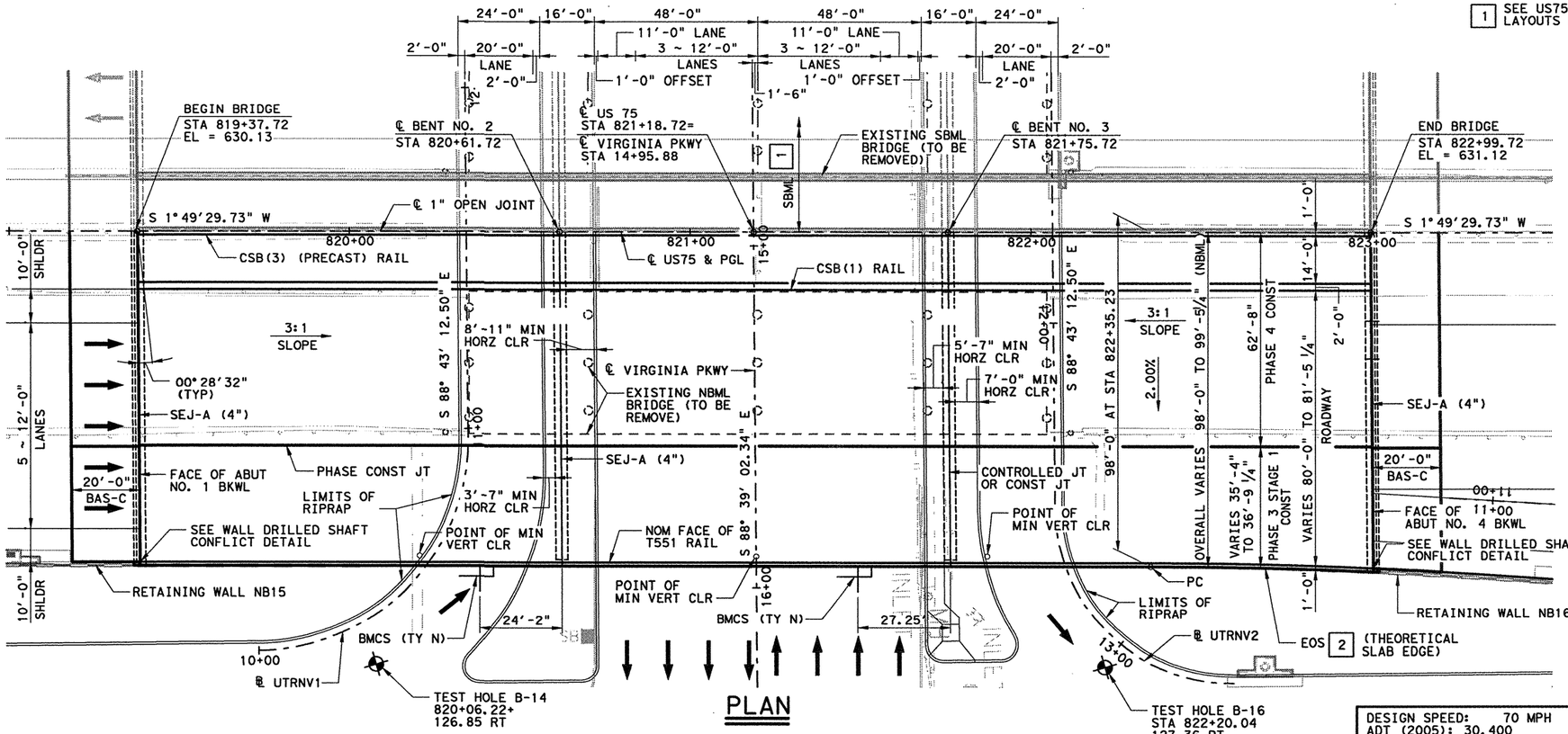
PRESTRESSED CONCRETE BEAM SPAN DETAILS

225

Gp B

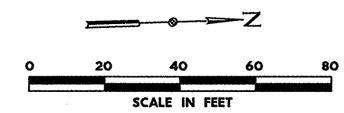
ORIGINAL DRAWING DATE: JAN. '65	REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DN.:-RLR	Rev. 5-'65 Rev. 9-'65	18	6	F S 89(29), Etc.			225
CK.:-JJP		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW.:-RNS							
CK.:-JJP		COLLIN		47	14	4	US 75

FINAL PLANS



PLAN

1 SEE US75 VIRGINIA PKWY SBML BRIDGE LAYOUTS FOR INFORMATION NOT SHOWN.



2 EDGE OF SLAB CURVE DATA (EOS)

PC STA = 822+35.23
OFFSET = 98.00'RT
PT STA = 823+25.84
OFFSET = 100.76'RT
RADIUS = 1491.00'

DESIGN NOTES:

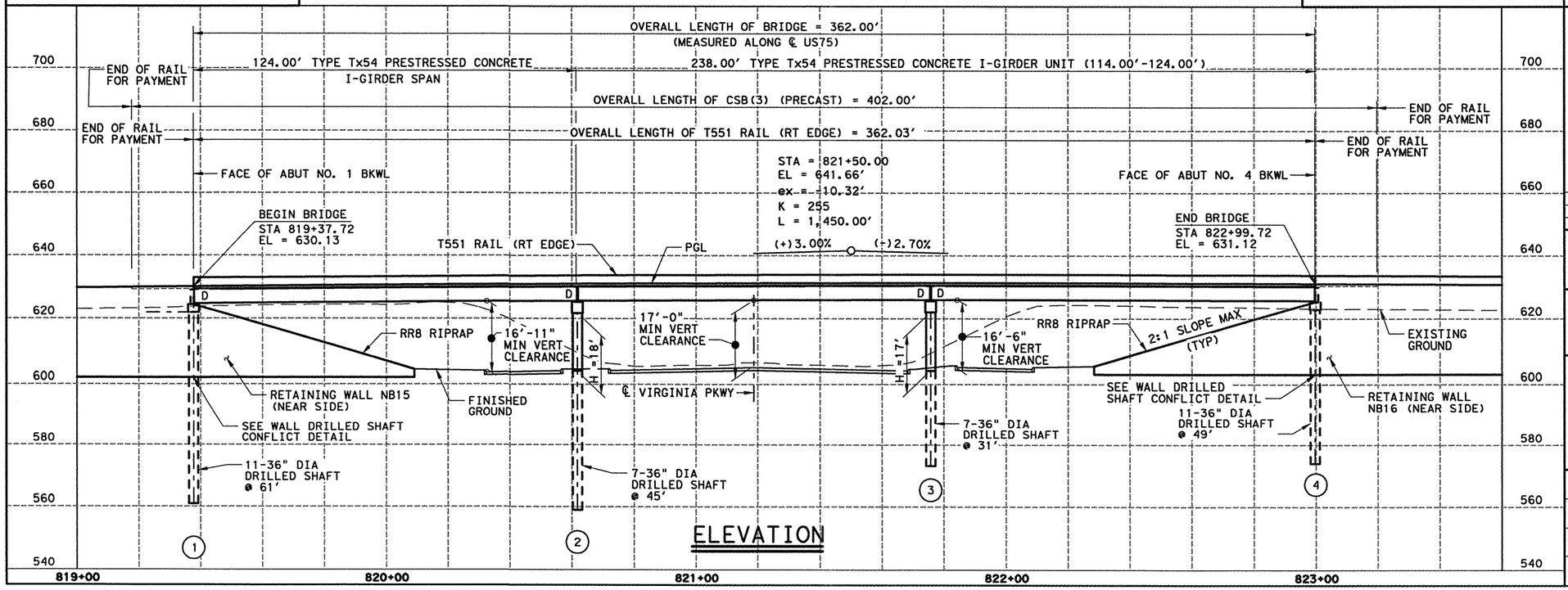
1. DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE SPECIFICATIONS, 4TH EDITION WITH ALL INTERIM SPECIFICATIONS.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL STRUCTURES AND UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEER IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
3. "D" DENOTES BENTS WITH D BARS AND SLOTTED HOLES AT EXTERIOR BEAMS.
4. FOR SECTION DETAILS & STAGING INFORMATION, SEE "BRIDGE LAYOUT VIRGINIA PKWY MAINLANE OVERPASSES TYPICAL SECTIONS" SHEETS.
5. FOR VIRGINIA PKWY TURNAROUND HORIZONTAL CURVE AND RAMP GEOMETRY, SEE ROADWAY PLANS.
6. SEE RETAINING WALL LAYOUTS FOR LIMITS AND DETAILS NOT SHOWN.
7. SEE BORING LOG SHEET FOR BORING DATA.
8. SEE ROADWAY SUMMARY FOR MANAGED LANE CSB (1) (PRECAST) BARRIER. SEE BRIDGE SUMMARY FOR ℄ US75 CSB (3) (PRECAST) BARRIER QUANTITIES.
9. SEE TRAFFIC CONTROL PLAN FOR LIMITS AND LOCATIONS OF TEMP WALLS AND TEMP SPL SHORING. SEE TRAFFIC CONTROL SUMMARY FOR TEMP WALLS AND TEMP SPL QUANTITIES.
10. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE HARD GRAY LIMESTONE A MINIMUM DISTANCE OF 3 FT.

DESIGN SPEED: 70 MPH
ADT (2005): 30,400
ADT (2025): 48,700
FUNC. CLASS.: URBAN FREEWAY
DESIGN INCLUDES FUTURE 2" OVERLAY

HL93 LOADING

EXISTING NBI: 18-043-0-0047-14-169
NEW NBI: 18-043-0-0047-14-640

ALL BENTS ON BEARING S 88°39'02.34" E



ELEVATION

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
01/24/2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
BRIDGE LAYOUT
VIRGINIA PKWY NBML OVERPASS

SCALE: 1"=40' SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	1354
CHECK ALL	CONTROL 0047	SECTION 06	JOB 108, ETC.	

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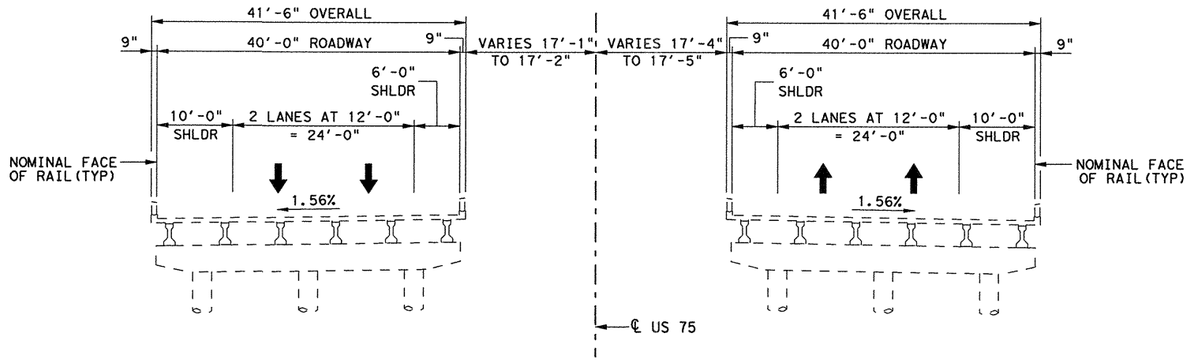
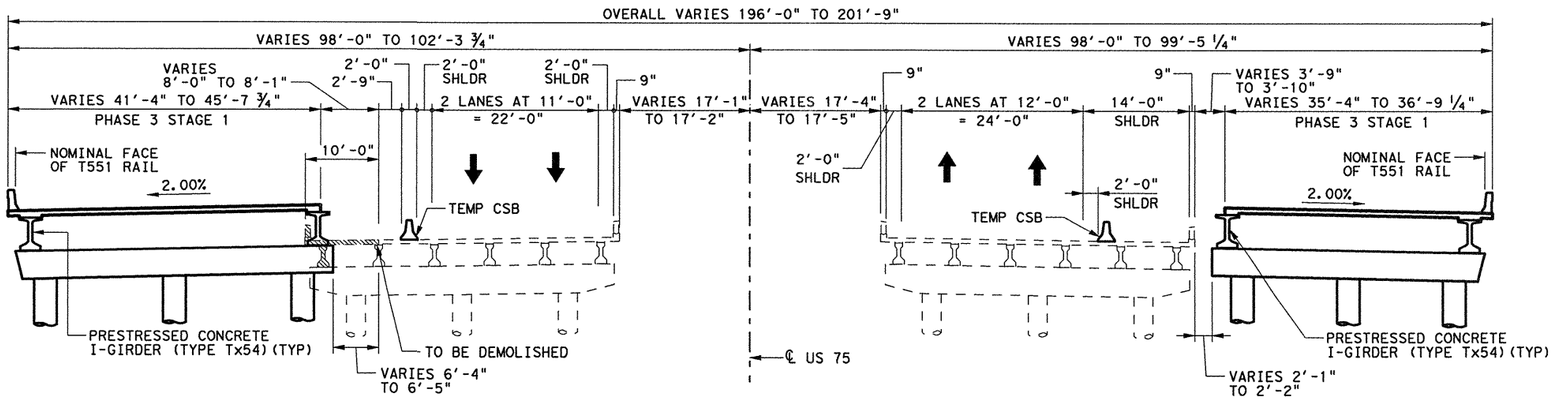
FINAL PLANS



EXISTING STRUCTURE



PHASE 3 STAGE 1 CONSTRUCTION

NOTES:

SEE TRAFFIC CONTROL PLANS FOR STAGING SEQUENCE INFORMATION.

DIMENSIONS SHOWN ARE BASED ON SURVEY AND EXISTING BRIDGE PLANS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
12/10/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
TYPICAL SECTIONS & PHASE CONST
VIRGINIA PKWY
MAINLANE OVERPASSES

SCALE: 1"=20' SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DE	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1355
MKR	0047	06	108, ETC.	
CHECK				
MKR				

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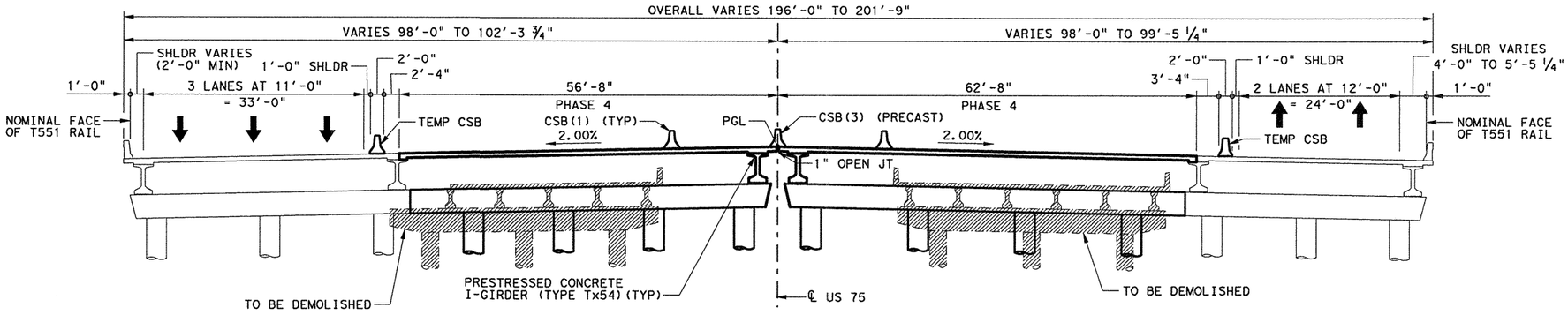
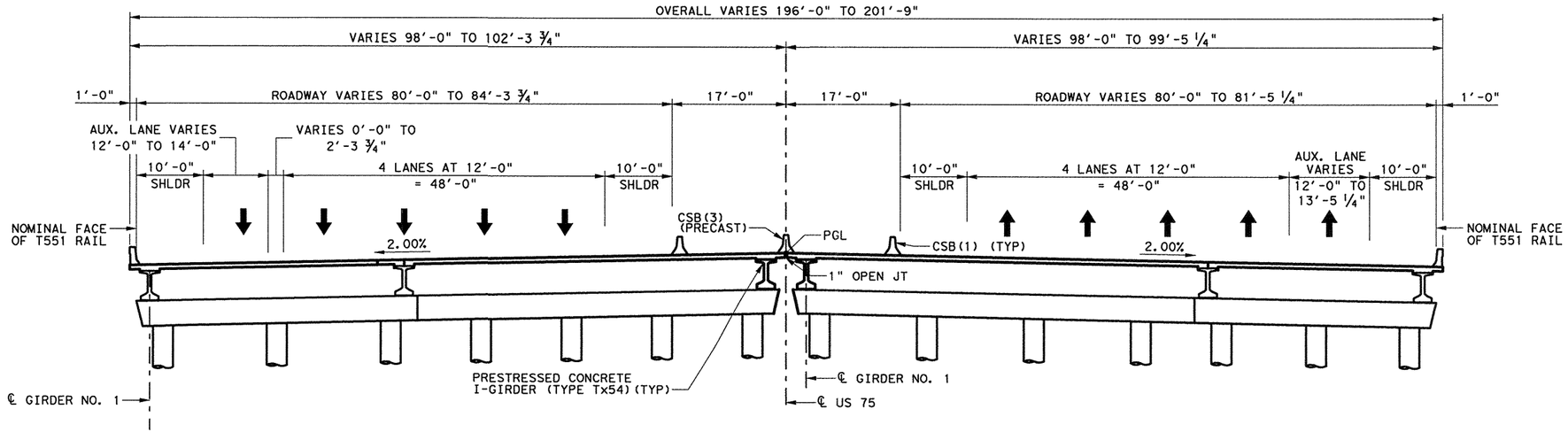
FINAL PLANS



PHASE 4 CONSTRUCTION



FINAL STRUCTURE

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED PROFESSIONAL ENGINEER
12/08/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
TYPICAL SECTIONS & PHASE CONST
VIRGINIA PKWY
MAINLANE OVERPASSES

SCALE: 1"=20' SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
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GRAPHICS DE	STATE	DISTRICT	COUNTY	SHEET NO.
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CHECK DMW	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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FINAL PLANS

SUMMARY OF ESTIMATED QUANTITIES - PHASE 3 STAGE 1

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2223 CL C CONC (COLUMN) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	420 CL C CONC (CAP) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	442 2048 STRUCTURAL STEEL (MISC NON-BRIDGE)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)	514 2053 PERM CONC TRF BARR (F-SHAPE) (BRIDGE)	636 2001 ALUMINUM SIGNS (TY A)
	LF	CY	CY	CY	CY	SF	LF	SY	CY	LB	LF	LF	LF	SF
2 ~ ABUTMENTS	440	37.9		72.0					102			70		
2 ~ INTERIOR BENTS	228		33.1		33.2									
1 ~ 124.00' TY Tx GDR UNIT						4,381	617.52	467		209	124.0	35	0.0	28
1 ~ 238.00' TY Tx GDR UNIT						8,440	1,185.05	900		209	238.0			
TOTAL	668	37.9	33.1	72.0	33.2	12,821	1,802.57	1,367	102	418	362.0	105	0.0	28

SUMMARY OF ESTIMATED QUANTITIES - PHASE 4

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2223 CL C CONC (COLUMN) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	420 CL C CONC (CAP) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	442 2048 STRUCTURAL STEEL (MISC NON-BRIDGE)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)	514 2053 PERM CONC TRF BARR (F-SHAPE) (BRIDGE)	636 2001 ALUMINUM SIGNS (TY A)
	LF	CY	CY	CY	CY	SF	LF	SY	CY	LB	LF	LF	LF	SF
2 ~ ABUTMENTS	770	60.2		117.7					291			126	40.0	
2 ~ INTERIOR BENTS	304		44.1		54.4									
1 ~ 124.00' TY Tx GDR UNIT						7,766	988.03	849				63		
1 ~ 234.00' TY Tx GDR UNIT						14,905	1,782.50	1,630		0	0.0		362.0	0
TOTAL	1,074	60.2	44.1	117.7	54.4	22,671	2,770.53	2,479	291	0	0.0	189	402.0	0

SUMMARY OF ESTIMATED QUANTITIES - TOTAL

ITEM / DESCRIPTION	416 2004 DRILL SHAFT (36 IN) (1)	420 2041 CL C CONC (ABUT) (HPC)	420 2223 CL C CONC (COLUMN) (HPC)	420 2256 CL S CONC (APPR SLAB) (HPC)	420 CL C CONC (CAP) (HPC)	422 2003 REINF CONC SLAB (HPC) (CL S)	425 2068 PRESTR CONC GIRDER (TX54)	428 2002 CONC SURF TREAT (CLASS II)	432 2002 RIPRAP (CONC) (5 IN)	442 2048 STRUCTURAL STEEL (MISC NON-BRIDGE)	450 2143 RAILING (TY T551)	454 2001 SEALED EXPANSION JOINT (4 IN) (SEJ-A)	514 2053 PERM CONC TRF BARR (F-SHAPE) (BRIDGE)	636 2001 ALUMINUM SIGNS (TY A)
	LF	CY	CY	CY	CY	SF	LF	SY	CY	LB	LF	LF	LF	SF
2 ~ ABUTMENTS	1,210	98.1		189.7					393			196	40.0	
2 ~ INTERIOR BENTS	532		77.2		87.6									
1 ~ 124.00' TY Tx GDR UNIT						12,147	1,605.55	1,316		209	124.0	98		
1 ~ 234.00' TY Tx GDR UNIT						23,345	2,967.55	2,530		209	238.0		362.0	28
TOTAL	1,742	98.1	77.2	189.7	87.6	35,492	4,573.10	3,846	393	418	362.0	294	402.0	28

(1) Sulfate Resistant Concrete

BEARING SEAT ELEVATIONS

		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 1	(FWD)	624.390	624.241	624.092	623.942	623.793	623.644	623.494
		BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 13	
	(FWD)	623.345	623.195	623.036	622.877	622.717	622.558	
		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 2	(BK)	625.296	625.146	624.997	624.847	624.697	624.548	624.398
	(FWD)	625.286	625.115	624.944	624.773	624.602	624.431	624.260
		BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 13	
	(BK)	624.248	624.099	623.939	623.779	623.620	623.460	
	(FWD)	624.089	623.929	623.769	623.609	623.450		
		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 3	(BK)	625.594	625.423	625.251	625.080	624.908	624.737	624.566
	(FWD)	625.615	625.465	625.315	625.165	625.015	624.865	624.715
		BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 13	
	(BK)	624.394	624.234	624.074	623.914	623.754		
	(FWD)	624.565	624.415	624.255	624.095	623.935	623.775	
		BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
BENT 4	(BK)	625.380	625.230	625.079	624.929	624.779	624.629	624.478
		BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 13	
	(BK)	624.328	624.178	624.010	623.843	623.676	623.508	

NOTES:

1. See Traffic Control Plans for quantities of Temporary Barriers and/or Temporary Walls.
2. Existing Bridge is a 4~Span 171.5' long Continuous Slab Unit Bridge supported on Concrete Abutments, Bents, and Drilled Shafts.
3. Existing Drilled Shafts shall be cutoff and removed to 2' below Proposed Finished Grade.

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
01/21/2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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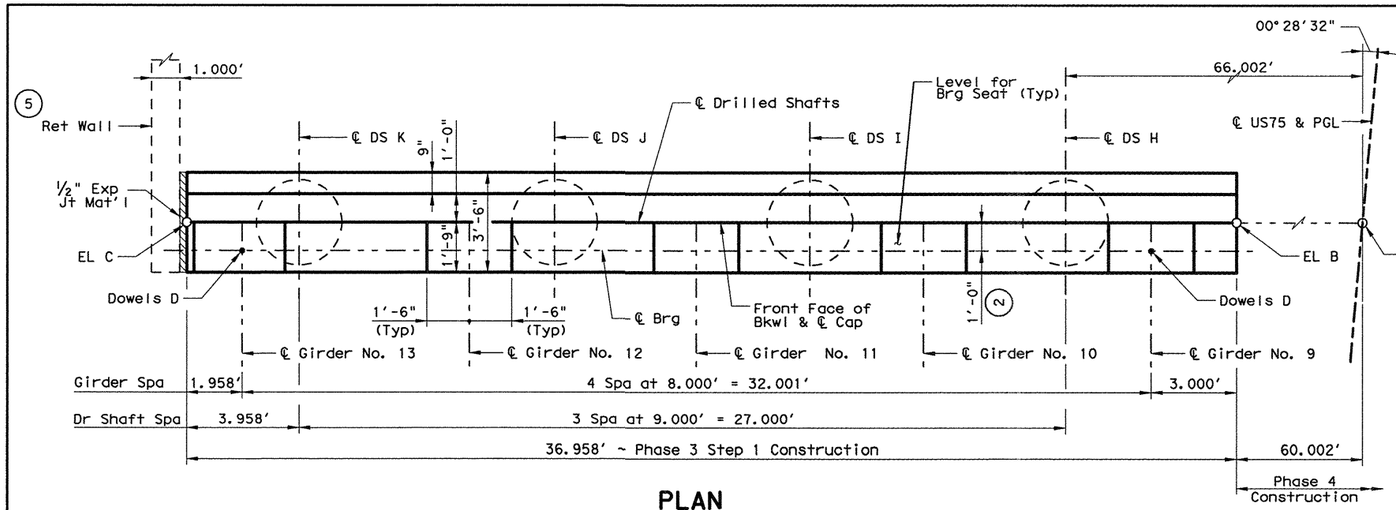
US 75
ESTIMATED QUANTITIES & BEARING SEAT ELEVATIONS
VIRGINIA PKWY NBML BRIDGE

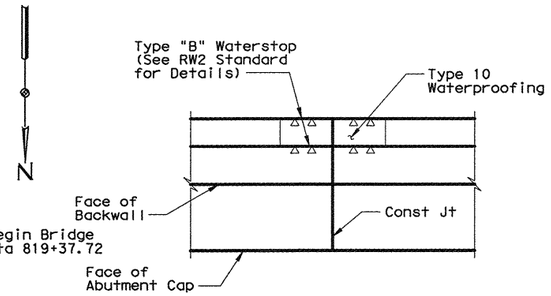
SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
MKR	6	SEE TITLE SHEET		US 75
GRAPHICS BM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ALL	TEXAS	DAL	COLLIN	1357
CHECK MKR	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

FINAL PLANS



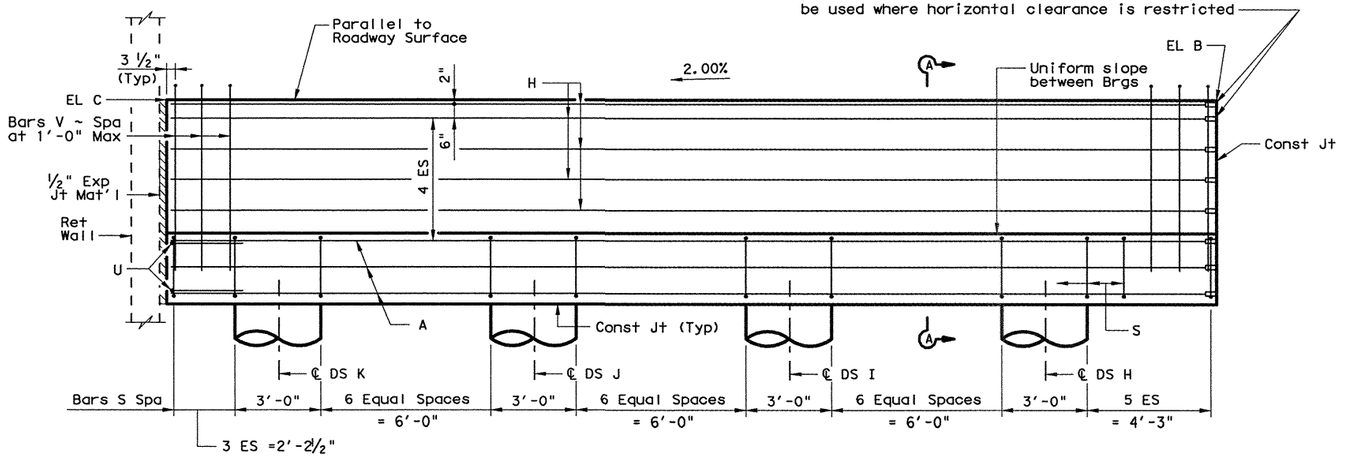
PLAN



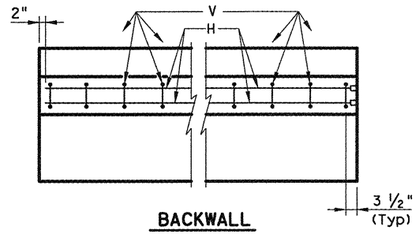
CONSTRUCTION JOINT DETAIL

(Plan View)

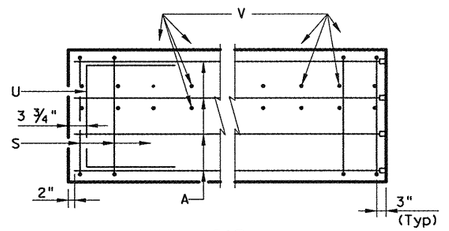
Provide Threaded Mechanical Reinforcing Couplers (in accordance with Item 440 "Mechanical Couplers") for connection to matching reinforcing in later phase(s) of construction. Protect internal threads until next phase(s) of construction. Flush mounted couplers shall be used where horizontal clearance is restricted



ELEVATION



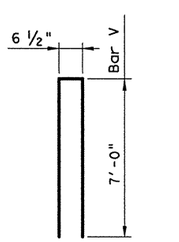
BACKWALL



CAP

CORNER DETAILS

CONTROL ELEVATIONS		
EL A	EL B	EL C
629.040	627.846	627.110



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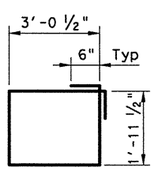

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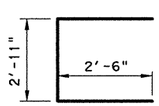

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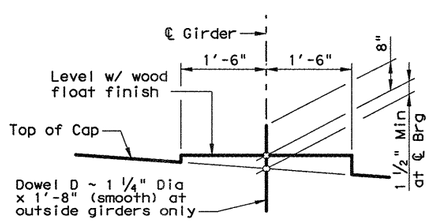
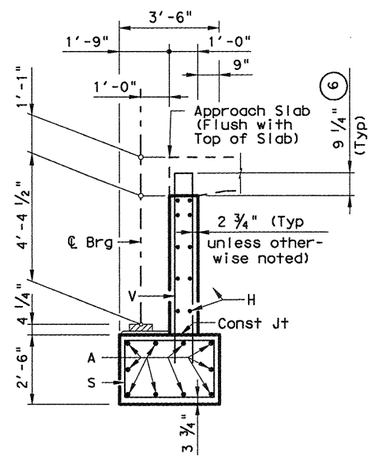


BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

	Bar	No.	Size	Length	Weight
(3)	A	10	#11	36'- 9"	1,953
(4)	D	2	1 1/4"D	1'- 8"	14
	H	10	#6	36'- 9"	552
	S	31	#5	11'- 0"	356
	U	2	#6	7'- 11"	24
	V	38	#5	14'- 7"	578

(1) Reinforcing Steel	Lb	3,477
Class "C" Conc(Abut) (HPC)	CY	18.6

(1) For Contractor's information only.
(2) See IGEB standard for dimension and orientation.
(3) Provide 10 Threaded Mechanical Reinforcing Couplers for #11 bars
(4) Provide 10 Threaded Mechanical Reinforcing Couplers for #6 bars
(5) See Retaining Wall plans for retaining wall details.
(6) Increase as required to maintain 3 ¾" from Finished Grade.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 115 Tons/p.s.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED PROFESSIONAL ENGINEER
12/02/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ABUTMENT NO. 1
PHASE 3 STAGE 1 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	
CHECK MKR	CONTROL	SECTION	JOB	1358
	0047	06	108, ETC.	

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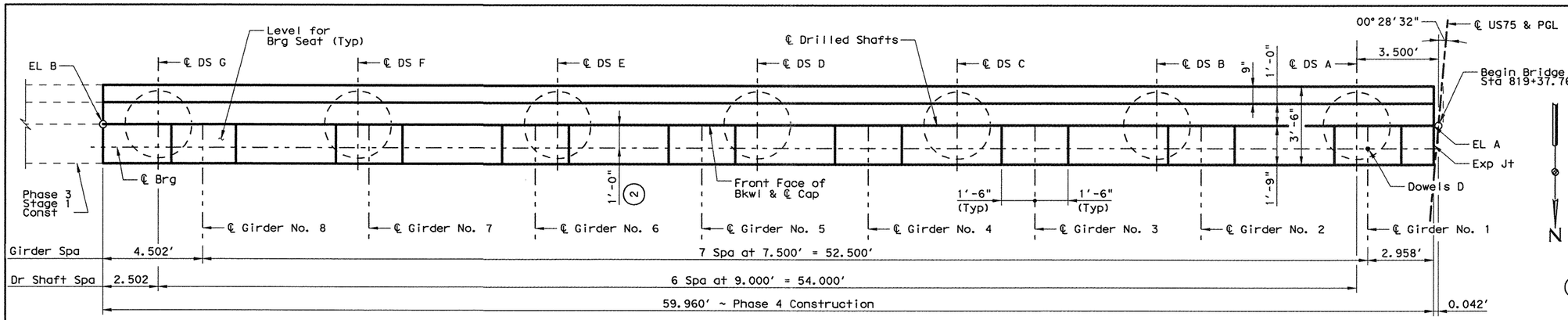
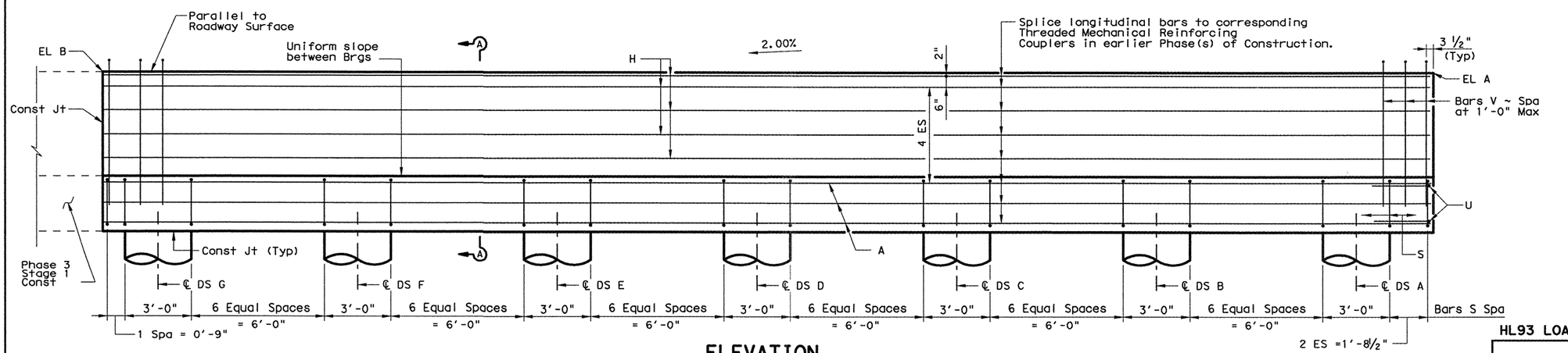
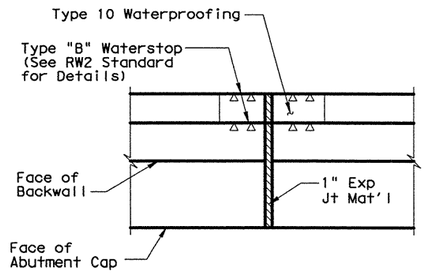
FINAL PLANS



PLAN

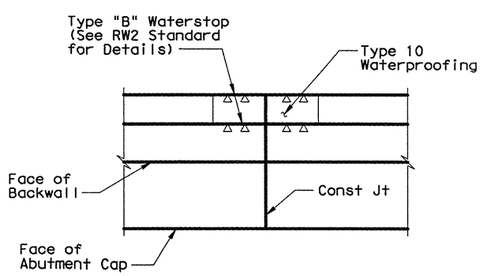


ELEVATION



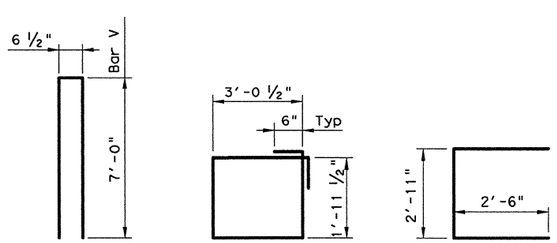
EXPANSION JOINT DETAIL

(Plan View)

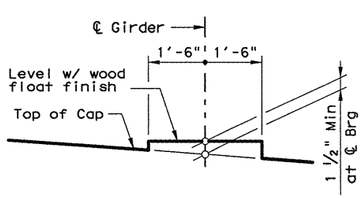


CONSTRUCTION JOINT DETAIL

(Plan View)

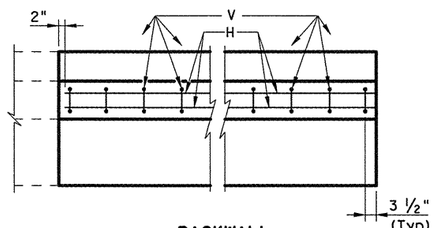


BARS V BARS S BARS U

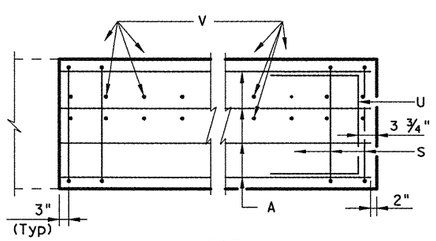


BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



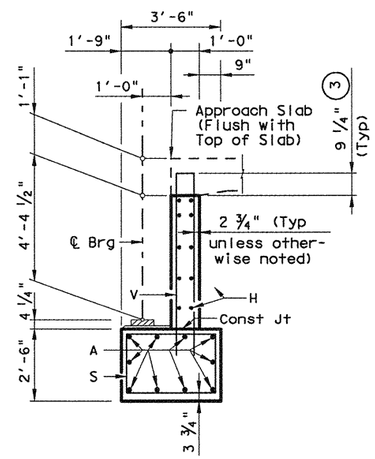
BACKWALL



CAP

CORNER DETAILS

CONTROL ELEVATIONS		
EL A	EL B	EL C
See Phase 3 Abut No. 1		



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

Bar	No.	Size	Length	Weight
A	10	#11	59'- 9"	3,175
D	1	1 1/4"	1'- 8"	7
H	10	#6	59'- 9"	897
S	47	#5	11'- 0"	539
U	2	#6	7'- 11"	24
V	61	#5	14'- 7"	928
(1) Reinforcing Steel			Lb	5,570
Class "C" Conc(Abut) (HPC)			CY	30.1

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) See Retaining Wall plans for retaining wall details.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 115 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
12/06/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ABUTMENT NO. 1
PHASE 4 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	1359
CHECK MKR	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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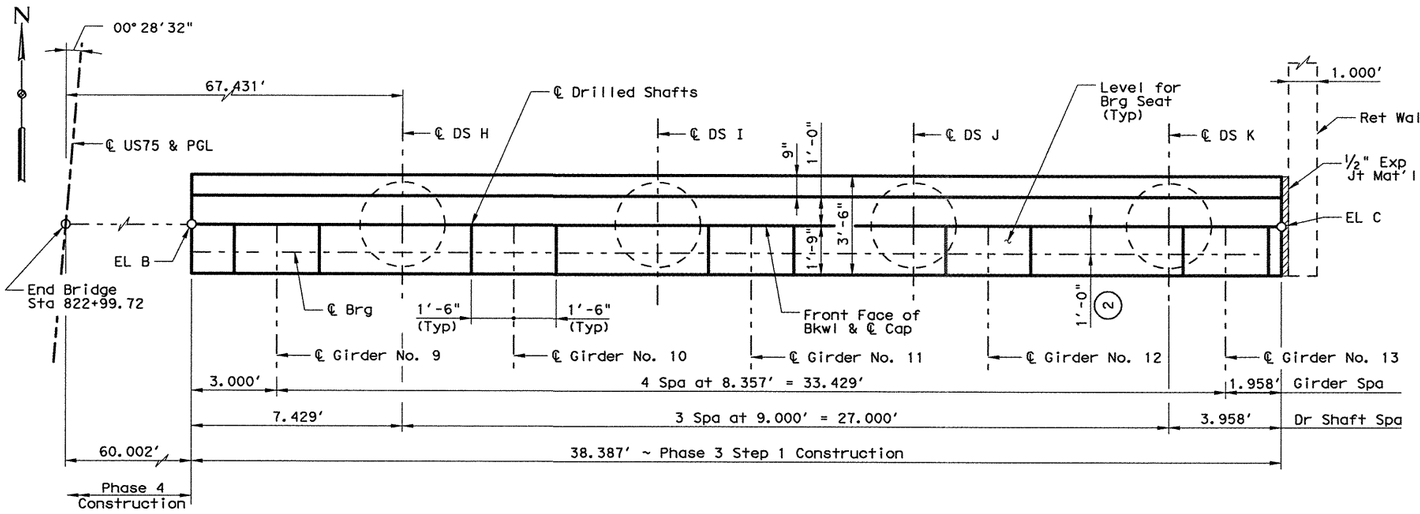
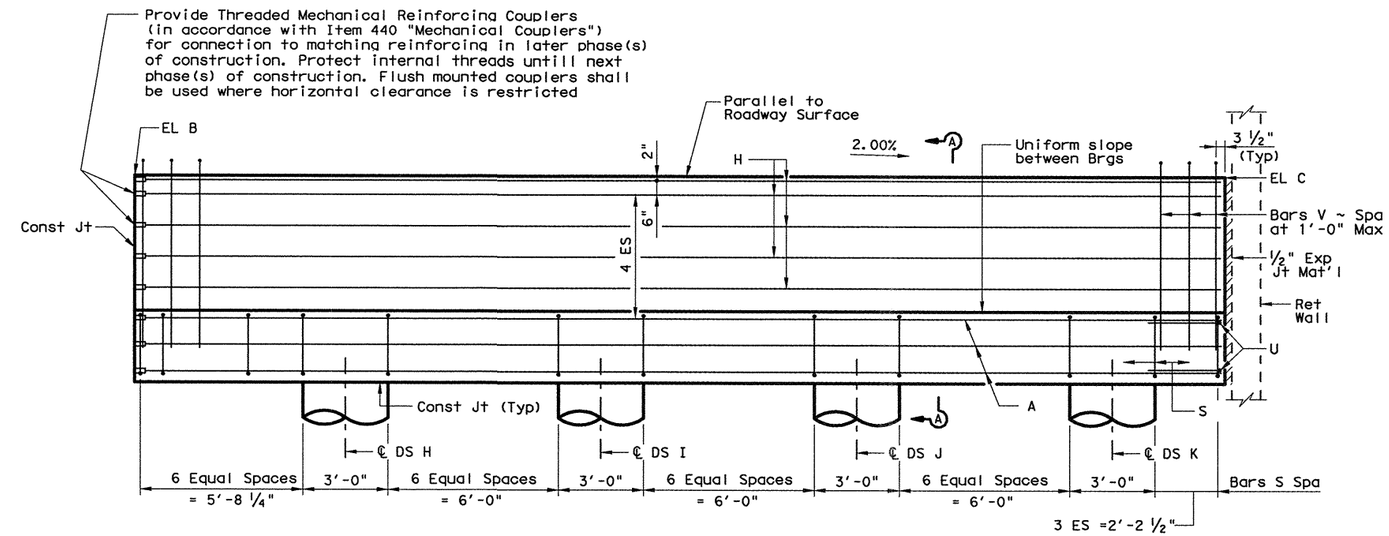
FINAL PLANS

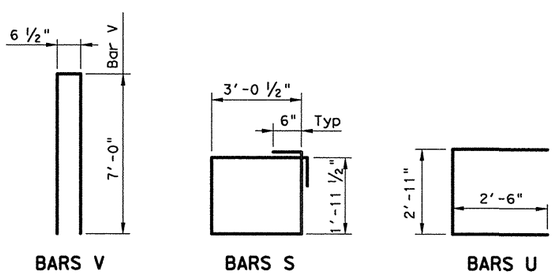


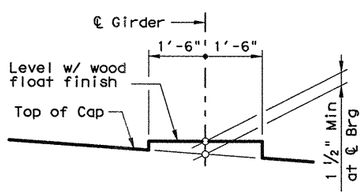
PLAN



ELEVATION

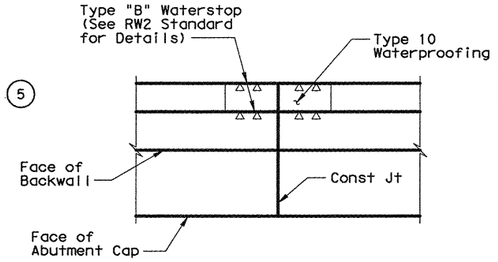
CONTROL ELEVATIONS		
EL A	EL B	EL C
630.029	628.827	628.059





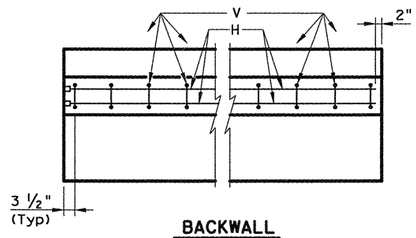
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

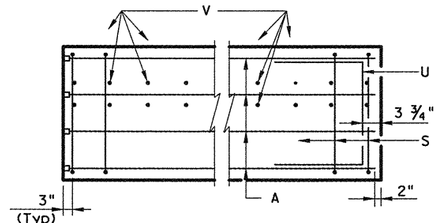


CONSTRUCTION JOINT DETAIL

(Plan View)

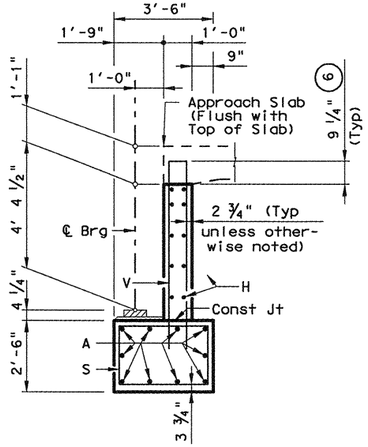


BACKWALL



CAP

CORNER DETAILS



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

	Bar	No.	Size	Length	Weight
(3)	A	10	#11	38'- 2"	2,028
(4)	H	10	#6	38'- 2"	573
	S	32	#5	11'- 0"	367
	U	2	#6	7'- 11"	24
	V	39	#5	14'- 7"	593
(1)	Reinforcing Steel			Lb	3,585
	Class "C" Conc (Abut) (HPC)			CY	19.3

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Provide 10 Threaded Mechanical Reinforcing Couplers for #11 bars

(4) Provide 10 Threaded Mechanical Reinforcing Couplers for #6 bars

(5) See Retaining Wall plans for retaining wall details.

(6) Increase as required to maintain 3 ¾" from Finished Grade.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 115 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED PROFESSIONAL ENGINEER
14 OCT 2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
ABUTMENT NO. 4
PHASE 3 STAGE 1 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	
CHECK MKR	CONTROL	SECTION	JOB	1360
	0047	06	108, ETC.	

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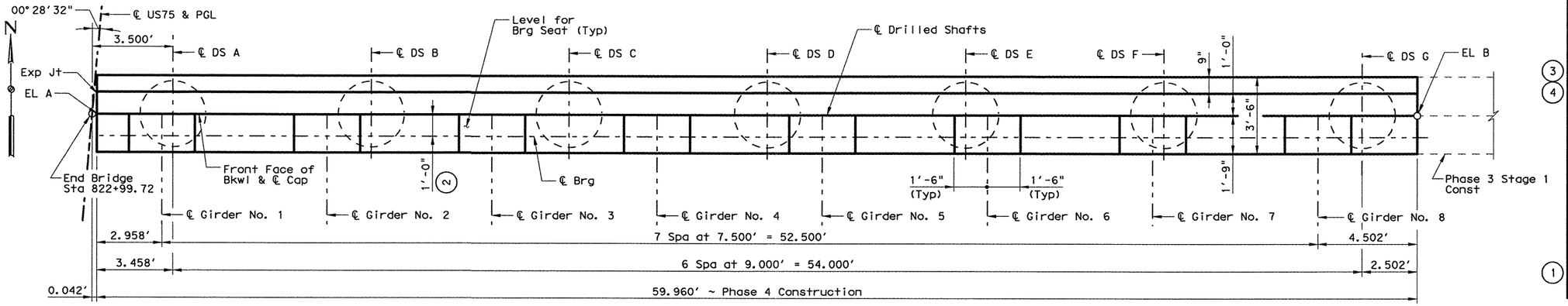
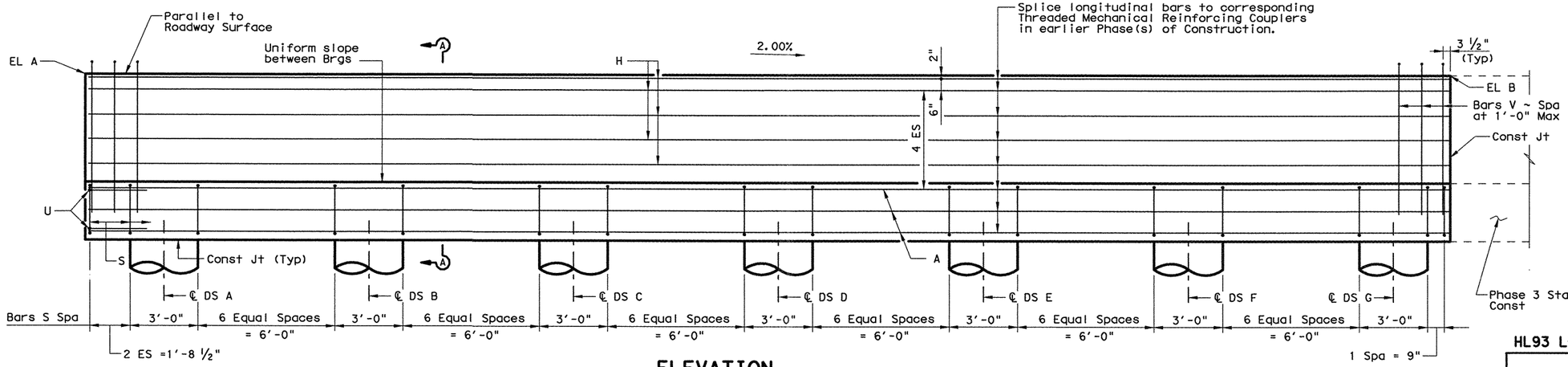
USER: mbautist DATE: 12/6/2010 TIME: 6:54:28 PM SCALE: i:5.33333
FILE: TxDOT_Dallas_District\US75_FC160_Roadway\V3.00_CADD\Bridge\VI_US75 OVER VIRGINIA PKWY\US75VDIIF.DGN

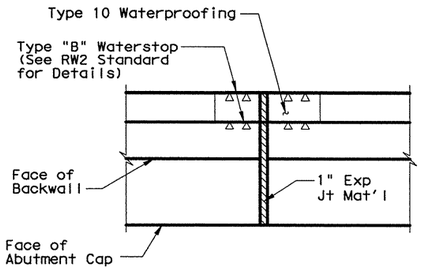
FINAL PLANS



PLAN

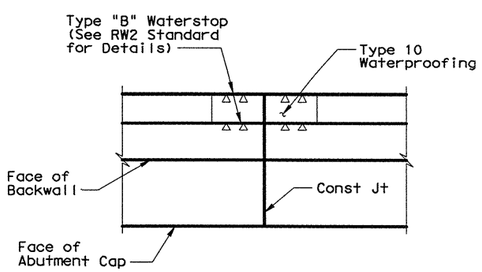


ELEVATION



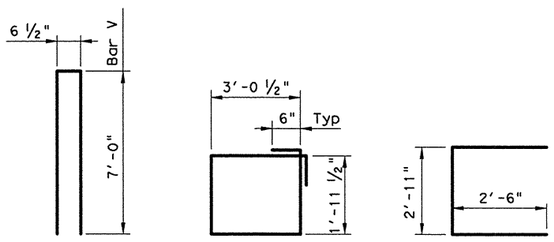
EXPANSION JOINT DETAIL

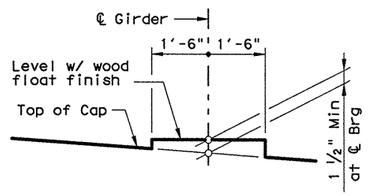
(Plan View)



CONSTRUCTION JOINT DETAIL

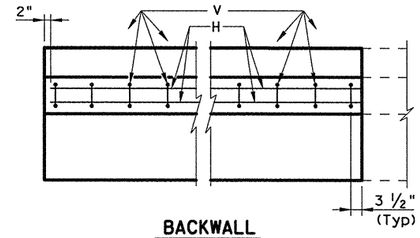
(Plan View)



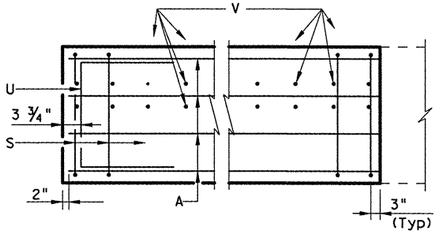


BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

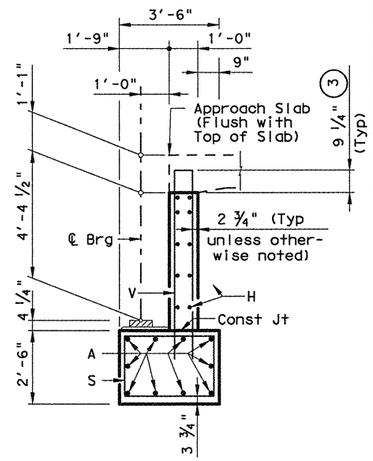


BACKWALL



CAP

CORNER DETAILS



SECTION A-A

TABLE OF ESTIMATED QUANTITIES

	Bar	No.	Size	Length	Weight
(3)	A	10	#11	59'- 9"	3,175
(4)	H	10	#6	59'- 9"	897
	S	47	#5	11'- 0"	539
	U	2	#6	7'- 11"	24
	V	61	#5	14'- 7"	928
(1)	Reinforcing Steel			Lb	5,563
	Class "C" Conc (Abut) (HPC)			CY	30.1

(1) For Contractor's information only.

(2) See IGEB standard for dimension and orientation.

(3) Increase as required to maintain 3 3/4" from Finished Grade.

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All cap and wall reinforcing shall be Grade 60.

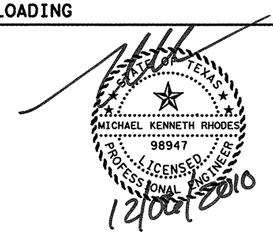
See FD Standard for all foundation details and notes.

Calculated Foundation Load ~ Drilled Shafts = 115 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For framing details not shown, see Framing Plan.

HL93 LOADING



CONTROL ELEVATIONS		
EL A	EL B	EL C
See Phase 3 Abut No. 4		

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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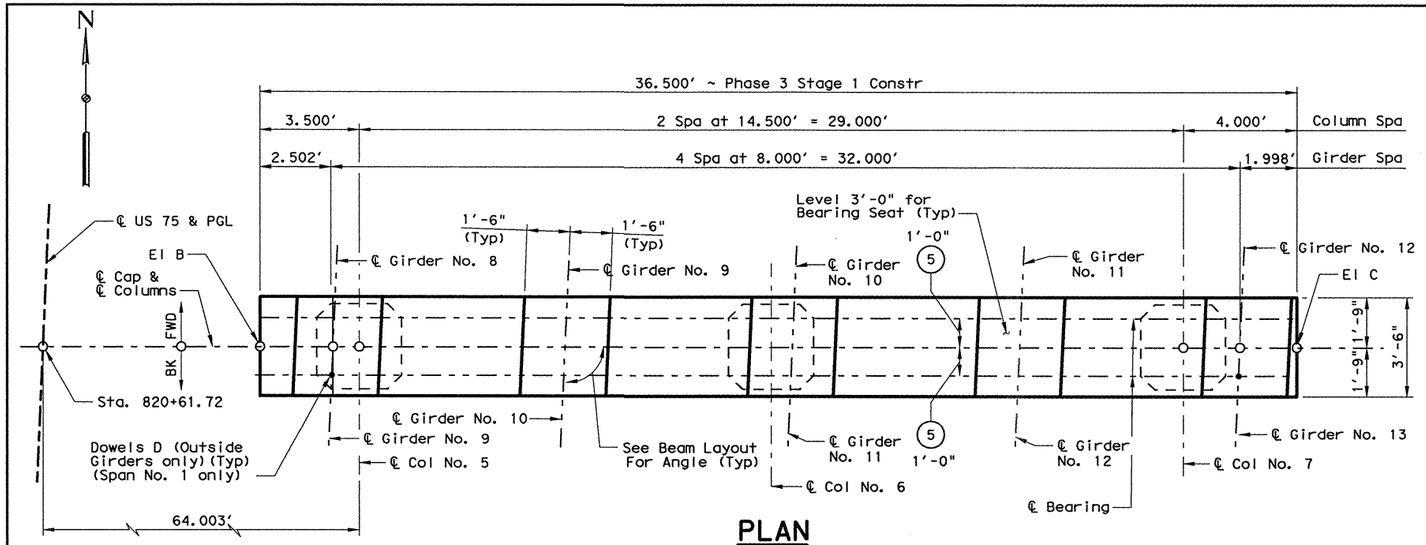
US 75
ABUTMENT NO. 4
PHASE 4 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

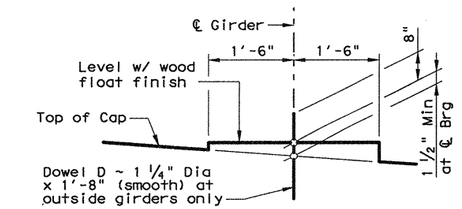
SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	
CHECK MKR	CONTROL	SECTION	JOB	1361
	0047	06	108, ETC.	

FINAL PLANS



PLAN



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

	Bar	No.	Size	Length	Weight
6	A	6	#11	36'- 3"	1,156
6	B	6	#11	35'- 6"	1,132
	D	2	11/4"Ø	1'- 8"	14
	S	36	#5	13'- 2"	494
7	T	10	#5	35'- 6"	370
	U	1	#5	9'- 5"	10
3	V	36	#9	21'- 0"	2,570
3	Z	3	#3	299'- 0"	337
2	Reinforcing Steel			Lb	6,083
3	Class "C" Conc (Cap)(HPC)			CY	16.6
3	Class "C" Conc (Col)(HPC)			CY	17.0

TABLE OF ESTIMATED QUANTITIES (1)

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All Cap reinforcing shall be Grade 60.

Column and Drilled Shaft reinforcing may be Grade 40.

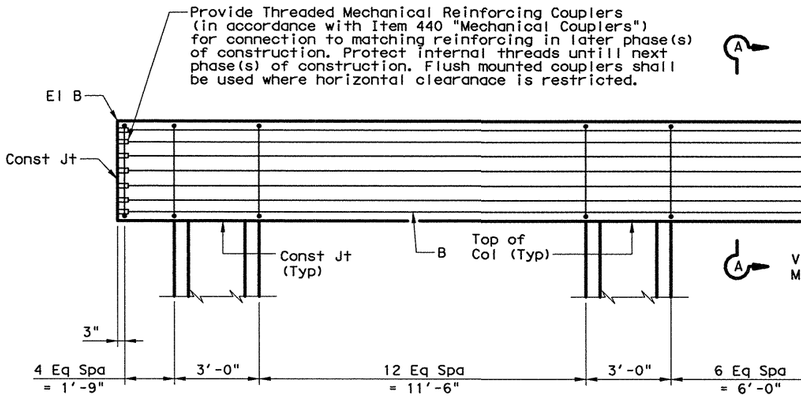
See Bridge Layout for foundation type, size and length.

See Foundation Detail standard FD for all foundation details and notes.

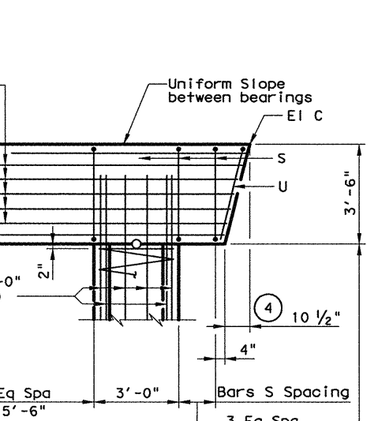
Calculated Foundation Loads ~
Drilled Shafts = 282 Tons/D.S.

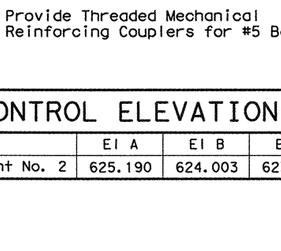
Provide Class C High Performance Concrete (HPC).

For Framing Details not shown, see Framing Plan.

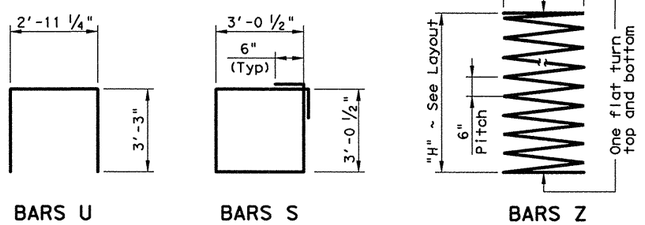


ELEVATION





SECTION A-A



BARS U BARS S BARS Z

(1) Quantities shown are for one bent only.

(2) For Contractor's information only.

(3) Quantities shown are based on an "H" = 18'.
For each Linear Foot Variation in "H" Value, Make the following adjustments (per Col):
Bars V, 1'-0"
Bars Z, 15'-9"
Reinforceing Steel, 47 Lb
Class "C" Conc. (Col), 0.3 CY

(4) Measured parallel to top of cap cross-slope.

(5) See IGEB Standard for dimension, skew girder ends and orientation.

(6) Provide Threaded Mechanical Reinforcing Couplers for #11 Bars.

(7) Provide Threaded Mechanical Reinforcing Couplers for #5 Bars.

CONTROL ELEVATIONS

	El A	El B	El C
Int Bent No. 2	625.190	624.003	623.274

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED PROFESSIONAL ENGINEER
12/02/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
INTERIOR BENT NO. 2
PHASE 3 STAGE 1 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	1362
CHECK ALL	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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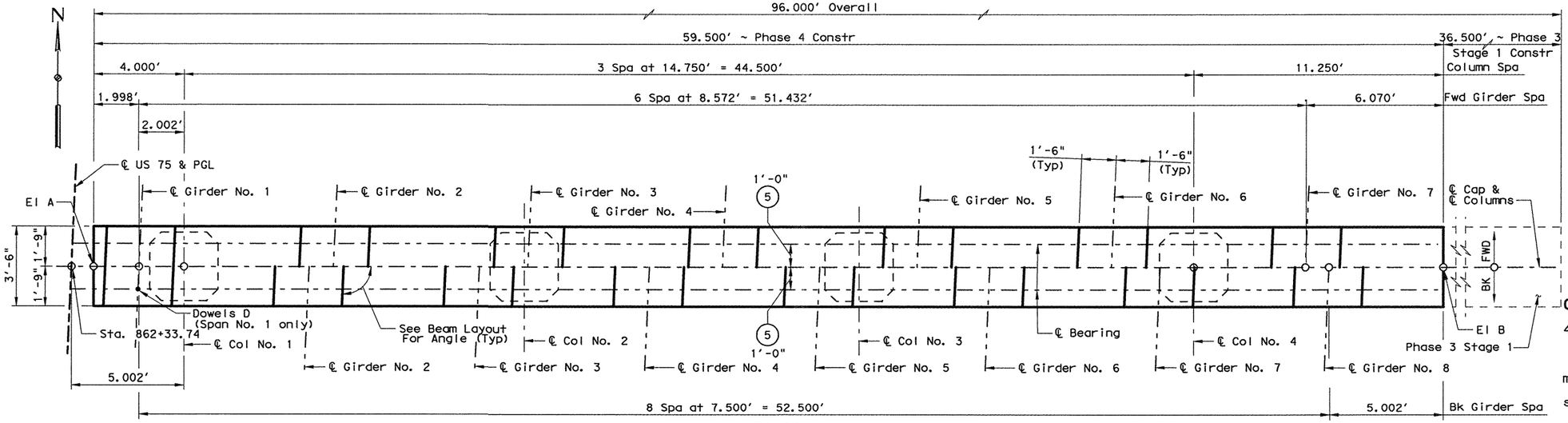
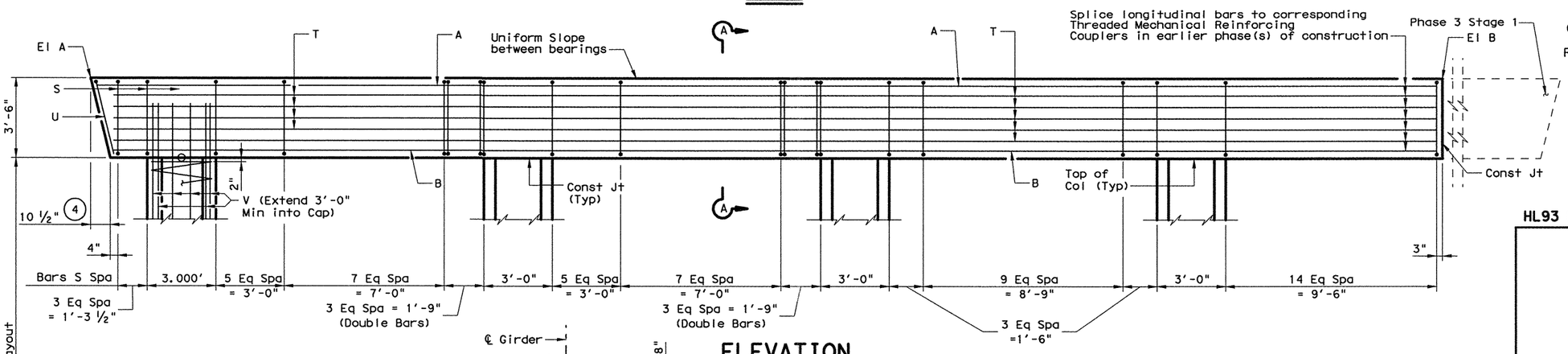
FINAL PLANS



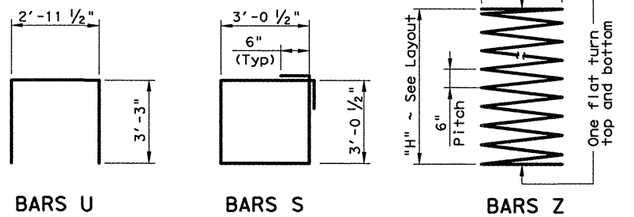
PLAN



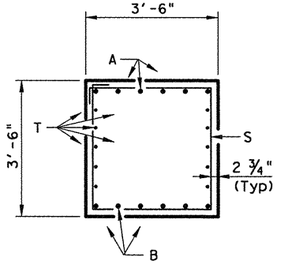
ELEVATION

BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



BARS U BARS S BARS Z



SECTION A-A

(1) Quantities shown are for one bent only.

(2) For Contractor's information only.

(3) Quantities shown are based on an "H" = 18'.
For each Linear Foot Variation in "H" Value, make the following adjustments (per Col):
Bars V, 1'-0"
Bars Z, 15'-9"
Reinforceing Steel, 47 Lb
Class "C" Conc. (Col), 0.3 CY

(4) Measured parallel to top of cap cross-slope.

(5) See IGEB Standard for dimension and orientation.

(1)
(3)
(3)
(2)
(3) (HPC)
(3) (HPC)

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All Cap reinforcing shall be Grade 60.

Column and Drilled Shaft reinforcing may be Grade 40.

See Bridge Layout for foundation type, size and length.

See Foundation Detail standard FD for all foundation details and notes.

Calculated Foundation Loads ~
Drilled Shafts = 282 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For Framing Details not shown, see Framing Plan.

HL93 LOADING

CONTROL ELEVATIONS			
	El A	El B	El C
Int Bent No.	See Phase 3 Int Bent No. 2		

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED PROFESSIONAL ENGINEER
12/09/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
INTERIOR BENT NO. 2
PHASE 4 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	1363
CHECK ALL	CONTROL 0047	SECTION 06	JOB 108, ETC.	

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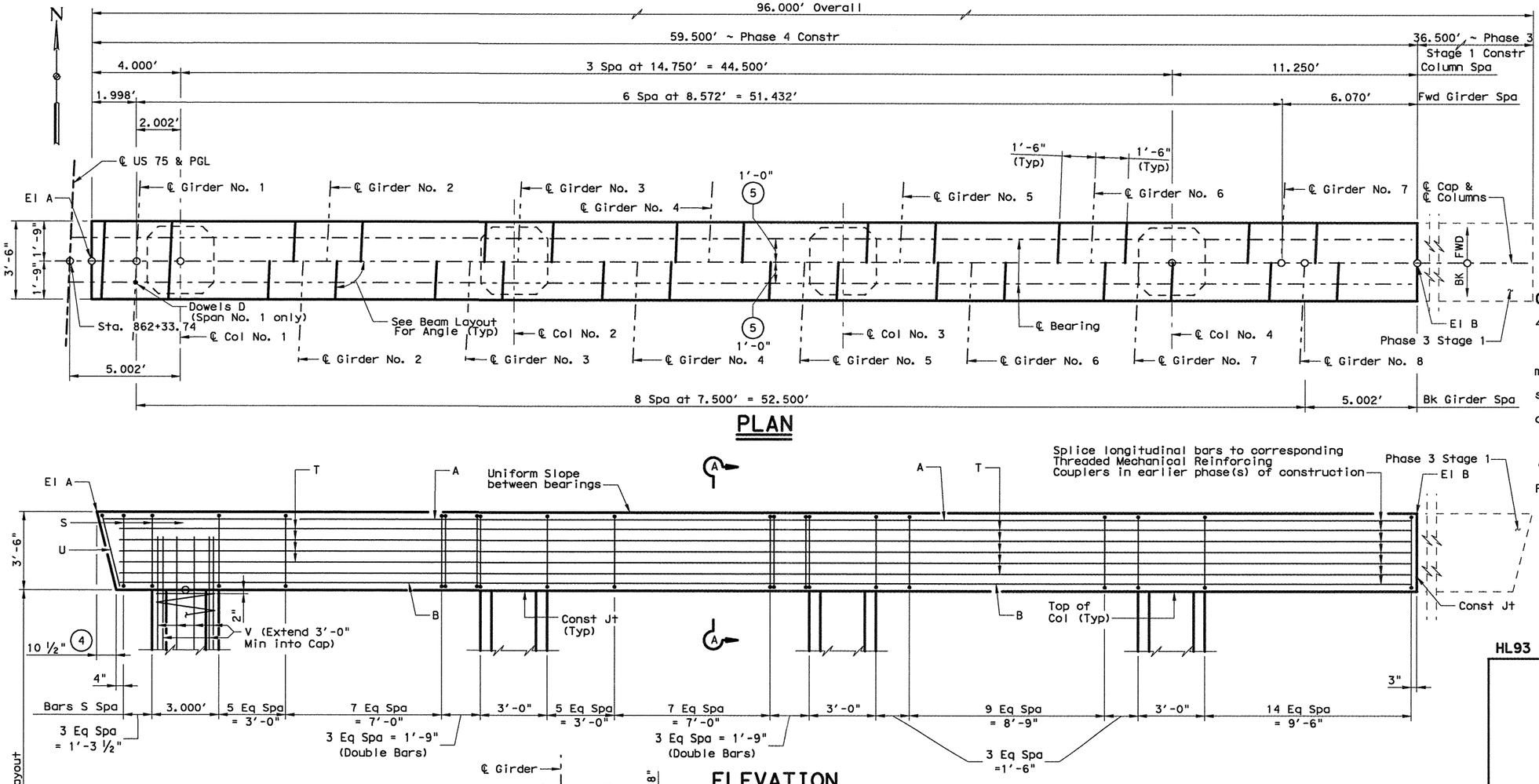
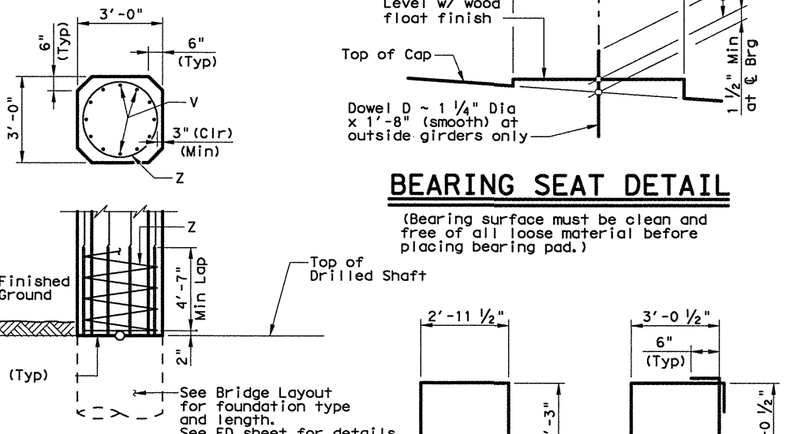
FINAL PLANS



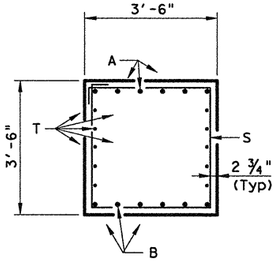
PLAN

ELEVATION

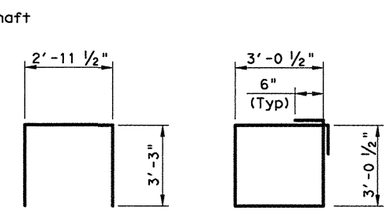


BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



SECTION A-A



BARS U BARS S BARS Z

TABLE OF ESTIMATED QUANTITIES (1)				
Bar	No.	Size	Length	Weight
A	6	#11	59'- 3"	1,889
B	6	#11	58'- 6"	1,865
D	1	1 1/4"D	1'- 8"	7
S	75	#5	13'- 2"	1,030
T	10	#5	58'- 0"	605
U	1	#5	9'- 5"	10
(3) V	48	#9	21'- 0"	3,427
(3) Z	4	#3	299'- 0"	450
(2) Reinforcing Steel			Lb	9,283
Class "C" Conc (Cap)(HPC)			CY	27.2
(3) Class "C" Conc (Col)(HPC)			CY	22.7

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All Cap reinforcing shall be Grade 60.

Column and Drilled Shaft reinforcing may be Grade 40.

See Bridge Layout for foundation type, size and length.

See Foundation Detail standard FD for all foundation details and notes.

Calculated Foundation Loads ~

Drilled Shafts = 282 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For Framing Details not shown, see Framing Plan.

HL93 LOADING

(1) Quantities shown are for one bent only.

(2) For Contractor's information only.

(3) Quantities shown are based on an "H" = 18'.
For each Linear Foot Variation in "H" Value, make the following adjustments (per Col):
Bars V, 1'-0"
Bars Z, 15'-9"
Reinforceing Steel, 47 Lb
Class "C" Conc. (Col), 0.3 CY

(4) Measured parallel to top of cap cross-slope.

(5) See IGEB Standard for dimension and orientation.

CONTROL ELEVATIONS			
	El A	El B	El C
Int Bent No.	See Phase 3 Int Bent No. 2		

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED PROFESSIONAL ENGINEER
3/19/2011

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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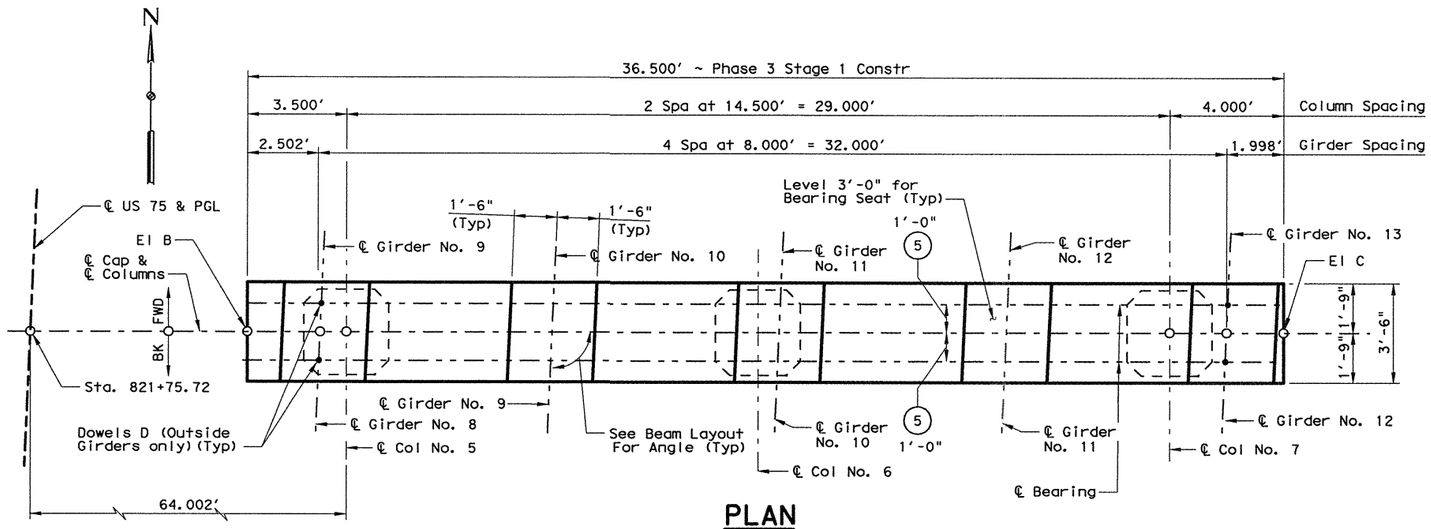
US 75
INTERIOR BENT NO. 2
PHASE 4 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

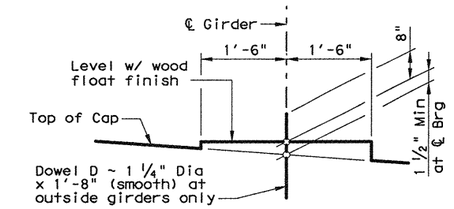
SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	
CHECK ALL	CONTROL	SECTION	JOB	1363 R1
	0047	06	108, ETC.	

FINAL PLANS



PLAN



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

TABLE OF ESTIMATED QUANTITIES (1)

	Bar	No.	Size	Length	Weight
(6)	A	6	#11	36'- 3"	1,156
(6)	B	6	#11	35'- 6"	1,132
	D	4	1 1/4"D	1'- 8"	28
	S	36	#5	13'- 2"	494
(7)	T	10	#5	35'- 6"	370
	U	1	#5	9'- 5"	10
(3)	V	36	#9	21'- 0"	2,570
(3)	Z	3	#3	299'- 0"	337
(2)	Reinforcing Steel			Lb	6,097
(3)	Class "C" Conc (Cap)			CY	16.6
(3)	Class "C" Conc (Col)			CY	16.1

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All Cap reinforcing shall be Grade 60.

Column and Drilled Shaft reinforcing may be Grade 40.

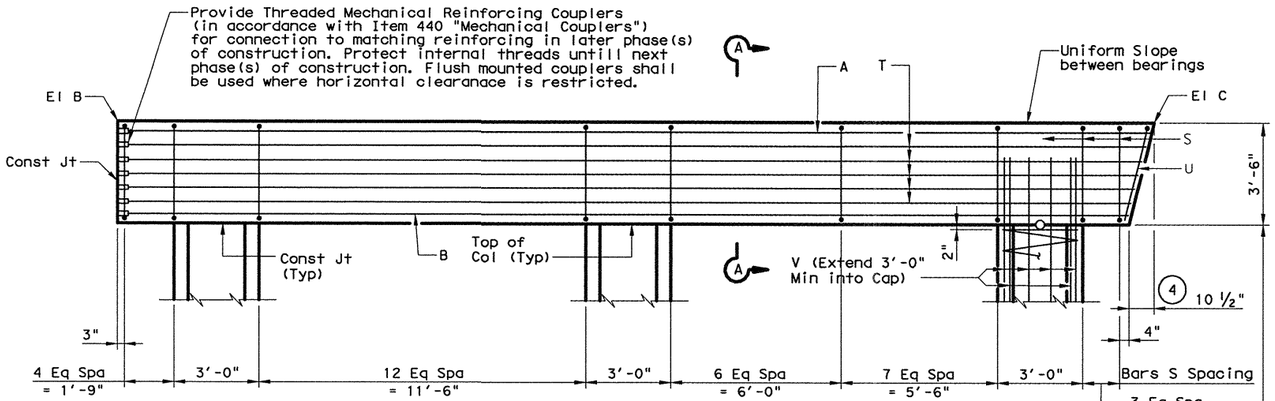
See Bridge Layout for foundation type, size and length.

See Foundation Detail standard FD for all foundation details and notes.

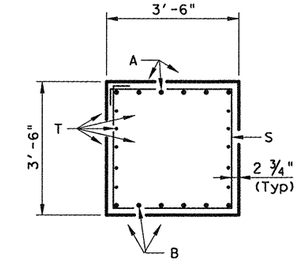
Calculated Foundation Loads ~
Drilled Shafts = 282 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

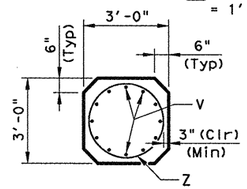
For Framing Details not shown, see Framing Plan.

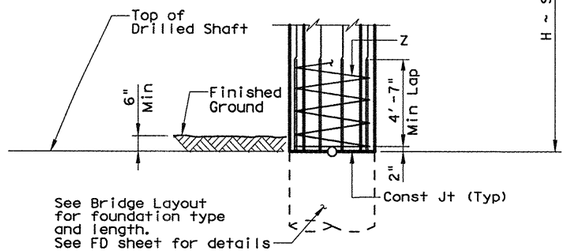


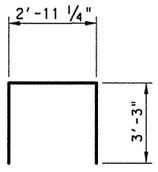
ELEVATION



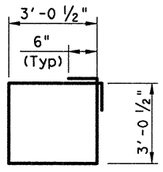
SECTION A-A



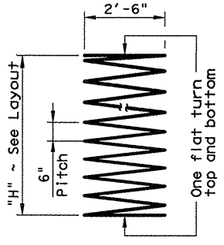




BARS U



BARS S



BARS Z

(1) Quantities shown are for one bent only.

(2) For Contractor's information only.

(3) Quantities shown are based on an "H" = 17'.
For each Linear Foot Variation in "H" Value, Make the following adjustments (per Col):
Bars V, 1'-0"
Bars Z, 15'-9"
Reinforceing Steel, 47 Lb
Class "C" Conc. (Col), 0.3 CY

(4) Measured parallel to top of cap cross-slope.

(5) See IGEB Standard for dimension, skew girder ends and orientation.

(6) Provide Threaded Mechanical Reinforcing Couplers for #11 Bars.

(7) Provide Threaded Mechanical Reinforcing Couplers for #5 Bars.

CONTROL ELEVATIONS

	El A	El B	El C
Int Bent No. 3	625.501	624.312	623.582

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
12/09/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

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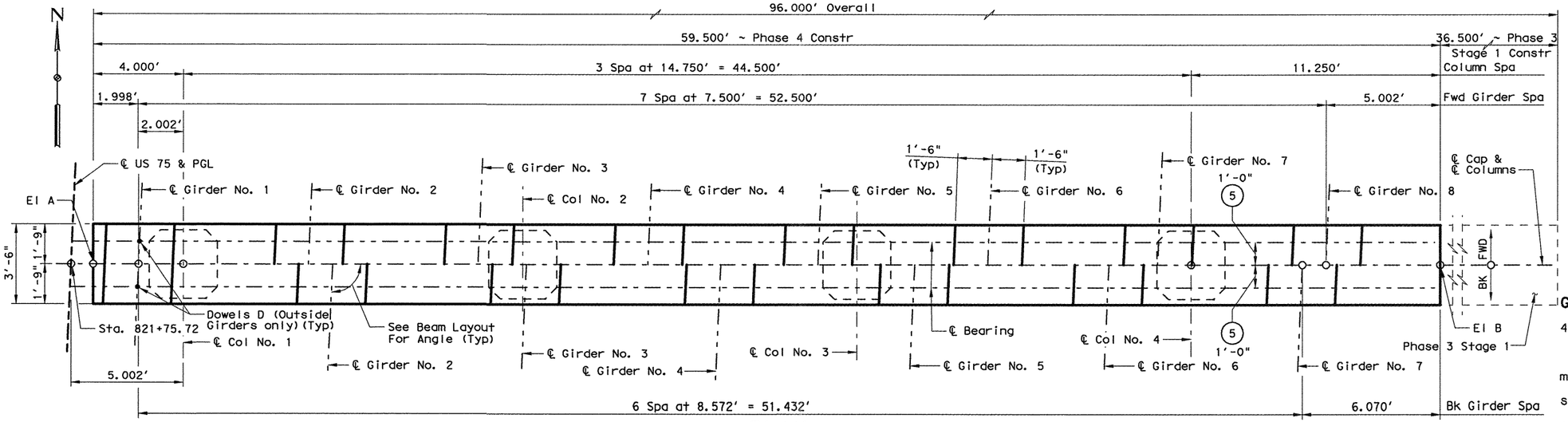
US 75
INTERIOR BENT NO. 3
PHASE 3 STAGE 1 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

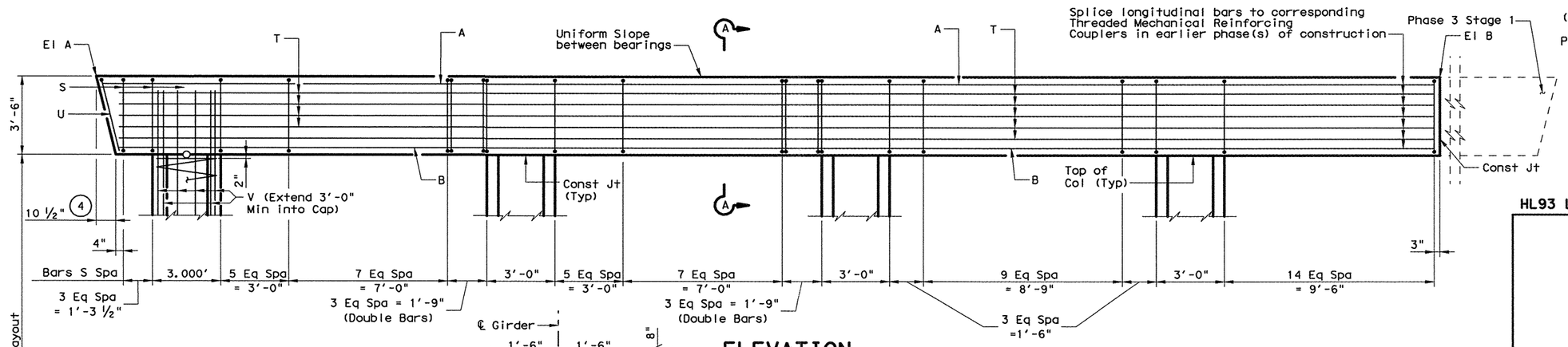
SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS: JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MKR	TEXAS	DAL	COLLIN	1364
CHECK: ALL	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

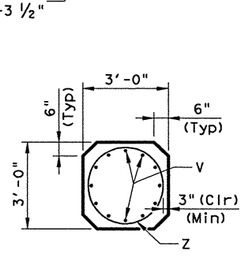
FINAL PLANS

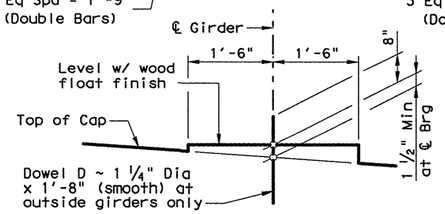


PLAN



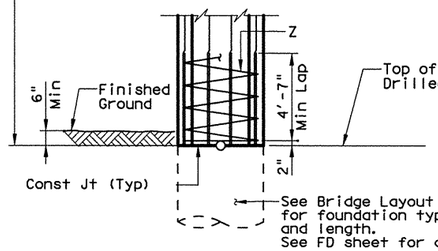
ELEVATION

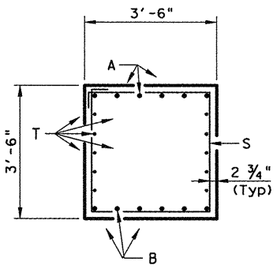




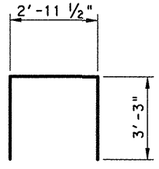
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

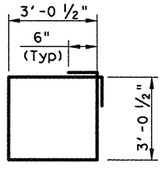




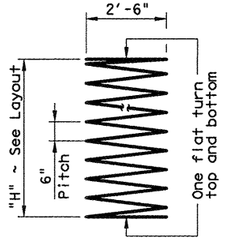
SECTION A-A



BARS U



BARS S



BARS Z

TABLE OF ESTIMATED QUANTITIES (1)

	Bar	No.	Size	Length	Weight
	A	6	#11	59'- 3"	1,889
	B	6	#11	58'- 6"	1,865
	D	2	1 1/4"D	1'- 8"	14
	S	75	#5	13'- 2"	1,030
	T	10	#5	58'- 6"	610
	U	1	#5	9'- 5"	10
(3)	V	48	#9	20'- 0"	3,264
(3)	Z	4	#3	283'- 3"	426

(2)	Reinforcing Steel	Lb	9,108
(3)	Class "C" Conc (Cap)(HPC)	CY	27.2
(3)	Class "C" Conc (Col)(HPC)	CY	21.4

GENERAL NOTES:

Designed according to AASHTO LRFD 4th Edition and all Interim Specifications.

Concrete strength f'c = 3,600 psi.

All Cap reinforcing shall be Grade 60.

Column and Drilled Shaft reinforcing may be Grade 40.

See Bridge Layout for foundation type, size and length.

See Foundation Detail standard FD for all foundation details and notes.

Calculated Foundation Loads ~
Drilled Shafts = 282 Tons/D.S.

Provide Class C High Performance Concrete (HPC).

For Framing Details not shown, see Framing Plan.

HL93 LOADING

(1) Quantities shown are for one bent only.

(2) For Contractor's information only.

(3) Quantities shown are based on an "H" =17'.
For each Linear Foot Variation in "H" Value, make the following adjustments (per Col):
Bars V, 1'-0"
Bars Z, 15'-9"
Reinforcing Steel, 47 Lb
Class "C" Conc. (Col), 0.3 CY

(4) Measured parallel to top of cap cross-slope.

(5) See IGEB Standard for dimension and orientation.

CONTROL ELEVATIONS

	El A	El B	El C
Int Bent No.	See Phase 3 Int Bent No. 3		

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
12/08/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

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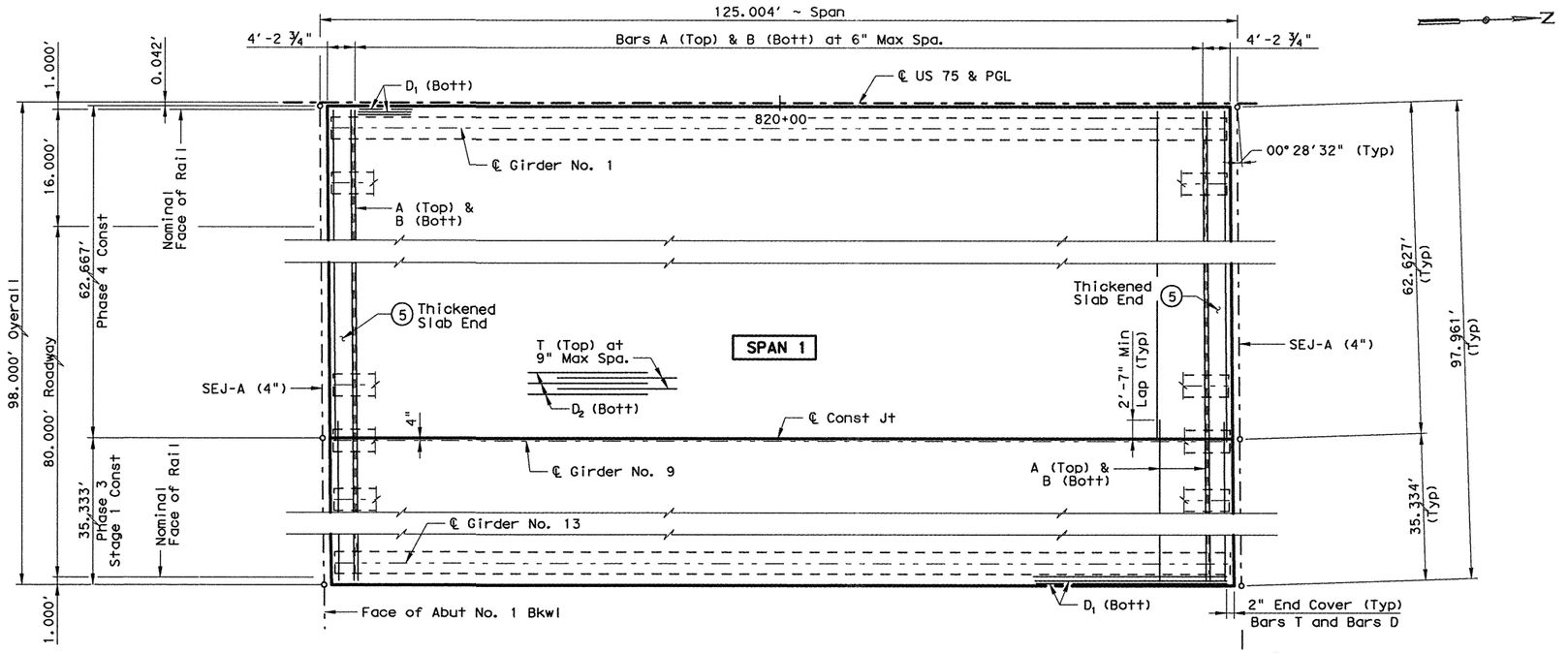
US 75
INTERIOR BENT NO. 3
PHASE 4 CONSTRUCTION
VIRGINIA PKWY NBML OVERPASS

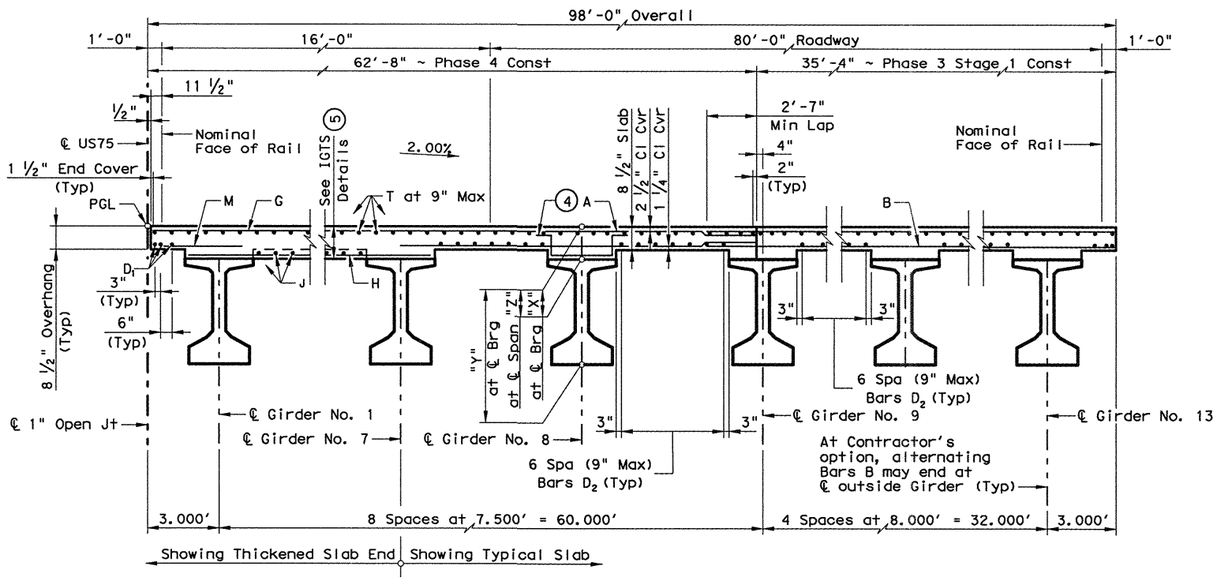
SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS JRQ	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	1365
CHECK ALL	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

FINAL PLANS

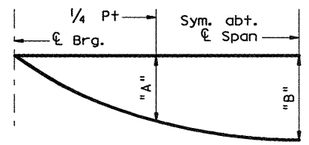


PLAN



TYPICAL TRANSVERSE SECTION

Span	Beam	"A"	"B"
1	1&13	-0.147	-0.206
	2-12	-0.167	-0.236



Note: Deflections shown are due to concrete slab only. (E = 5000 ksi) Calculated deflections shown are theoretical and actual dimensions may be less. Deflections shall be adjusted based on field observations.

DEAD LOAD DEFLECTION DIAGRAM

Span No.	Beam No.	"X" at ℄ Brg (4)	"Y" at ℄ Brg	"Z" at ℄ Span (3)
1	1&13	11 1/2"	5'-5 1/2"	10 1/4"
	2-12	11 1/2"	5'-5 1/2"	10 1/2"

TABLE OF SECTION DEPTHS

TABLE OF ESTIMATED QUANTITIES

Span	Reinf Concrete Slab (HPC) (CLS)	Prestressed Concrete Girders (TY Tx54)	Class "S" Concrete (HPC) (1)	Total Reinf Steel (2)
No.	SF	LF	CY	Lb
1	12,147	1,605.55	355.55	78,956
Total	12,147	1,605.55	355.55	78,956

(1) Quantities include Thickened Slab Ends and Haunches.

(2) Reinforcing steel weight is calculated using an approximate factor of 6.5 lbs/SF.

(3) Theoretical dimension.

(4) Provide U bars in areas where measured haunch exceeds 3 1/2". See IGMS for Haunch Reinforcing Detail.

(5) See IGTS for Thickened Slab End details, Bars G, H, J & M.

BAR TABLE	
BAR	SIZE
A	#5
B	#5
D	#5
G	#5
H	#5
J	#5
M	#5
T	#4
U	#4

GENERAL NOTES:

Provide Class S High Performance Concrete, f'c = 4 ksi.
For beam, bearing pad, misc. slab and thickened slab end details not shown, see IGD, IGEB, IGMS, IGTS and IGND.
For Sealed Expansion Joint details not shown, see SEJ-A.
For Sealed Expansion Joint Quantities not shown, see Summary of Estimated Quantities.
Place and finish not less than 30 feet of Bridge Deck concrete per hour.
For Temp Barrier locations, see Traffic Control Plans.
For rail details not shown, see Traffic Rail Type T551.
For Concrete Safety Barrier details not shown, see CSB(3) Precast.
For framing details not shown, see Framing Plan.
Provide epoxy coated, Grade 60 reinforcing.
Where required, provide bar laps as follows:
#4 = 2'-1"
#5 = 2'-7"
See PCP or PMDF Standards for details and quantity adjustments if either of these options are used.

HL93 LOADING

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
12/06/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
124.00' PRESTR
GIRDER UNIT (SPAN NO. 1)
VIRGINIA PKWY NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
MB	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1366
MKR	0047	06	108, ETC.	
CHECK				
ALL				

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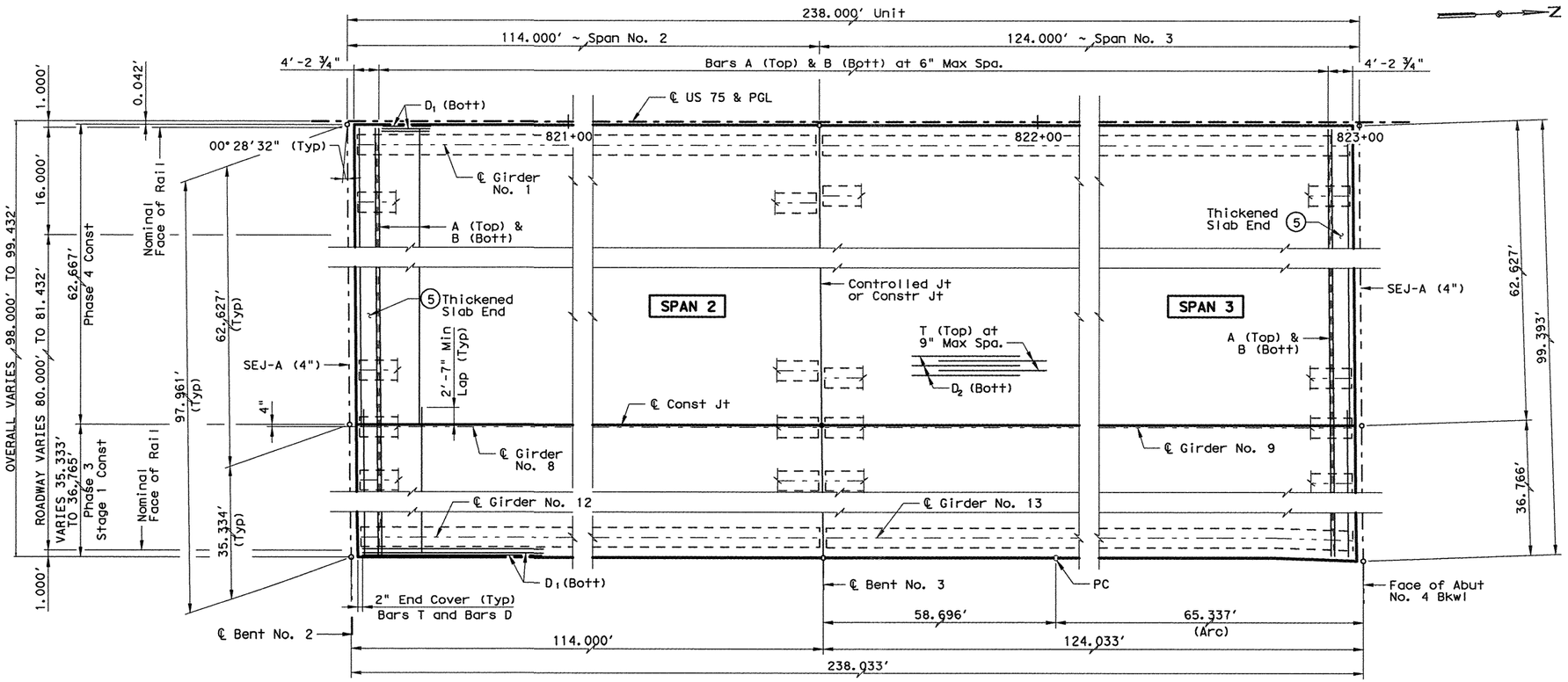
FINAL PLANS



PLAN

TABLE OF ESTIMATED QUANTITIES

Span	Reinf Concrete Slab (HPC) (CLS)	Prestressed Concrete Girders (TY Tx54)	Class "S" (1) Concrete (HPC)	Total Reinf Steel (2)
No.	SF	LF	CY	Lb
2	11,167	1,362.00	322.14	72,586
3	12,178	1,605.55	357.29	79,158
Total	23,345	2,967.55	679.43	151,744

(1) Quantities include Thickened Slab Ends and Haunches.

(2) Reinforcing steel weight is calculated using an approximate factor of 6.5 lbs/SF.

(3) Theoretical dimension.

(4) Provide U bars in areas where measured haunch exceeds 3 ½". See IGMS for Haunch Reinforcing Detail.

(5) See IGTS for Thickened Slab End details, Bars G, H, J & M.

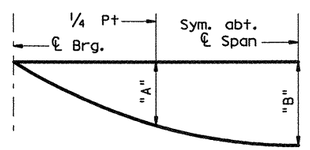
BAR TABLE

BAR	SIZE
A	#5
B	#5
D	#5
G	#5
H	#5
J	#5
M	#5
T	#4
U	#4

GENERAL NOTES:

Provide Class S High Performance Concrete, f'c = 4 ksi.
For beam, bearing pad, misc. slab and thickened slab end details not shown, see IGD, IGEB, IGMS, IGTS and IGND.
For Sealed Expansion Joint details not shown, see SEJ-A.
For Sealed Expansion Joint Quantities not shown, see Summary of Estimated Quantities.
Place and finish not less than 30 feet of Bridge Deck concrete per hour.
For Temp Barrier locations, see Traffic Control Plans.
For rail details not shown, see Traffic Rail Type T551.
For Concrete Safety Barrier details not shown, see CSB(3) Precast.
For framing details not shown, see Framing Plan.
Provide epoxy coated, Grade 60 reinforcing.
Where required, provide bar laps as follows:
#4 = 2'-1"
#5 = 2'-7"
See PCP or PMDF Standards for details and quantity adjustments if either of these options are used.

Span	Beam	"A"	"B"
2	1&12	-0.109	-0.153
	2-11	-0.128	-0.179
3	1&13	-0.149	-0.210
	2-12	-0.173	-0.243



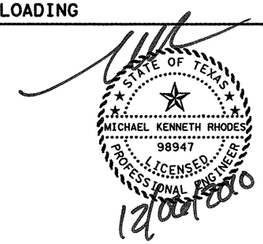
Note: Deflections shown are due to concrete slab only. (E = 5000 ksi) Calculated deflections shown are theoretical and actual dimensions may be less. Deflections shall be adjusted based on field observations.

DEAD LOAD DEFLECTION DIAGRAM

TABLE OF SECTION DEPTHS

Span No.	Beam No.	"X" at ℄ Brg (4)	"Y" at ℄ Brg	"Z" at ℄ Span (3)
2	1&12	11 ¾"	5'-5 ¾"	10"
	2-11	11 ¾"	5'-5 ¾"	10 ¼"
3	1&13	11 ½"	5'-5 ½"	10 ¼"
	2-9	11 ½"	5'-5 ½"	10 ½"
	10-12	11 ½"	5'-5 ½"	10 ¾"

HL93 LOADING



NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

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US 75
238.00' PRESTR
GIRDER UNIT (SPAN NOS. 2 & 3)
VIRGINIA PKWY NBML BRIDGE

SHEET 1 OF 2

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS MB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	1367
CHECK ALL	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	

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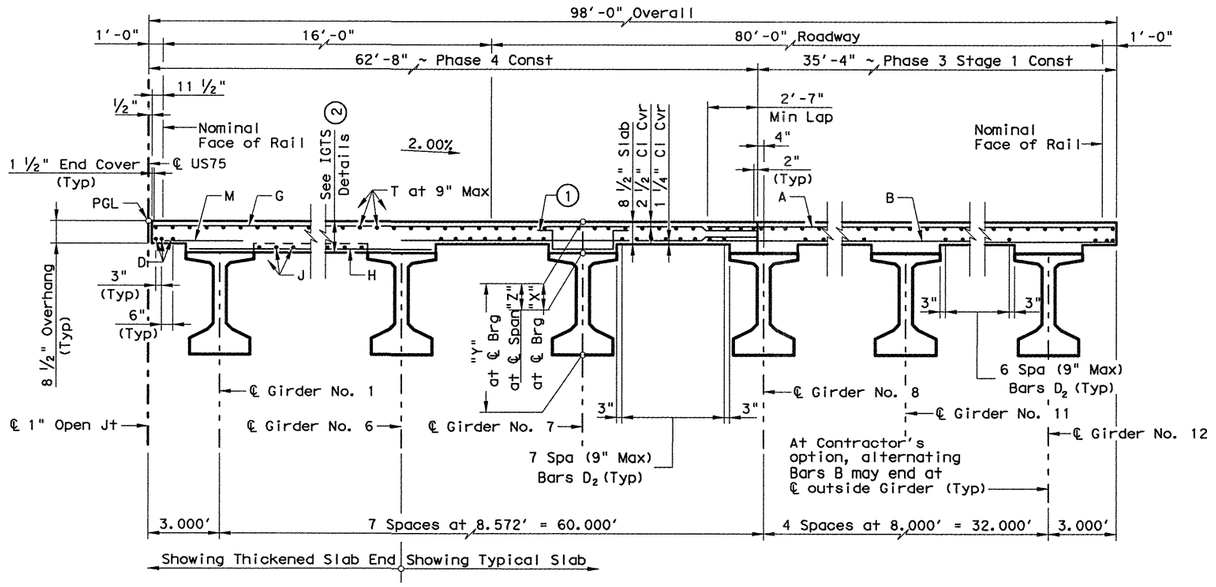
FINAL PLANS

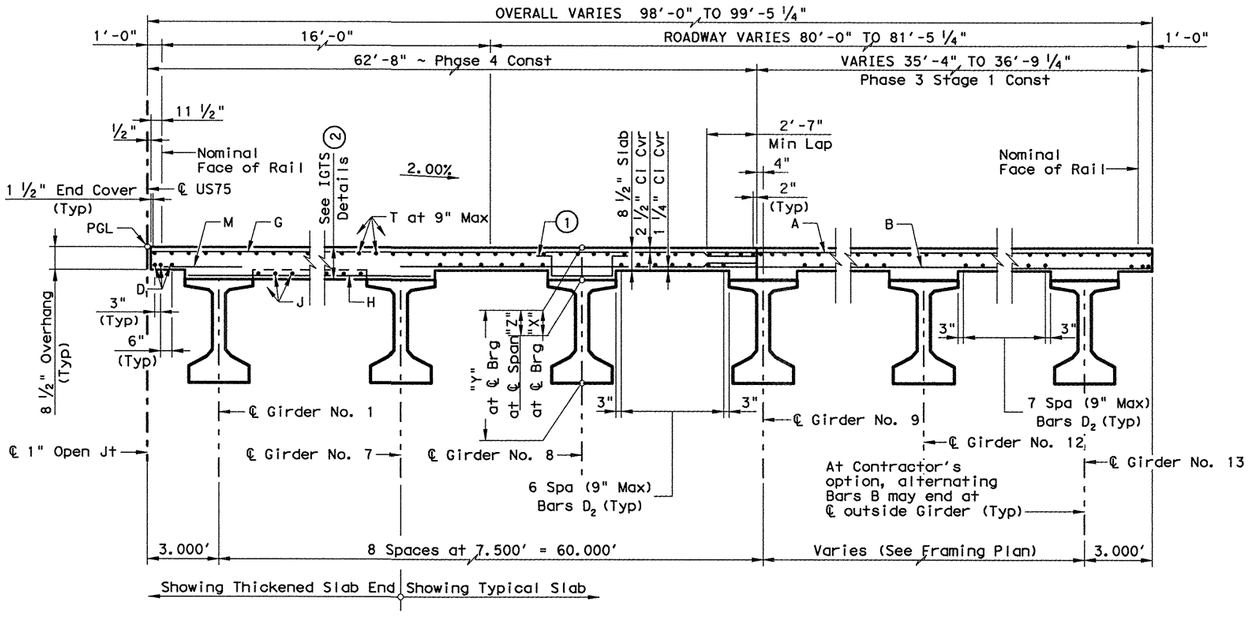


TYPICAL TRANSVERSE SECTION

(SPAN NO. 2)

(1) Provide U bars in areas where measured haunch exceeds 3 1/2". See IGMS for Haunch Reinforcing Detail.

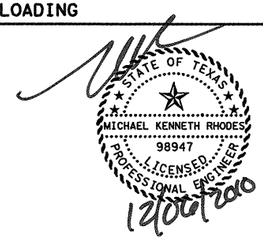
(2) See IGTS for Thickened Slab End details, Bars G, H, J & M.



TYPICAL TRANSVERSE SECTION

(SPAN NO. 3)

HL93 LOADING



NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation
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US 75
238.00' PRESTR
GIRDER UNIT (SPAN NOS. 2 & 3)
VIRGINIA PKWY NBML BRIDGE

SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
MB	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1368
MKR	0047	06	108, ETC.	
CHECK				
ALL				

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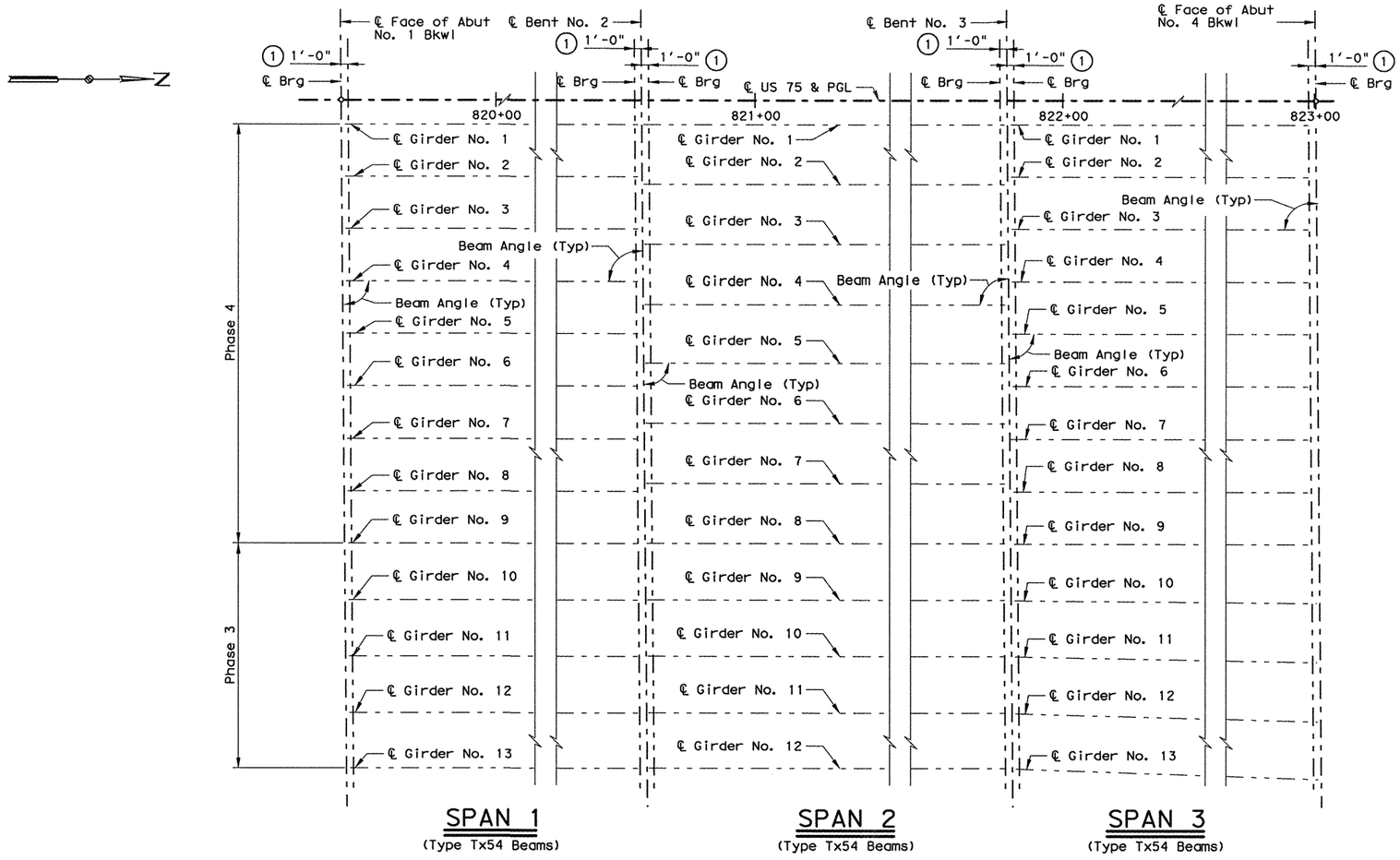
USER: mbaultst DATE: 12/6/2010 TIME: 6:54:56 PM SCALE: 1:20
FILE: T:\DOT_Dallas_District\US75_FC160_RoadwayV3.00_CADD\BridgeVI_US75 OVER VIRGINIA PKWY\US75YDIC.DGN



(1) See Standard IGEB for orientation and dimension.

(2) Beam lengths shown are bottom beam flange lengths with adjustments made for beam slope.

(3) See Standard IGEB for Girder End and Girder Conflict Details.

BEAM REPORT

BEAM REPORT, SPAN 1

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE (2) BOT. BM. FLG.	BEAM SLOPE
BEAM 1	124.000	122.000	123.50	.0074
BEAM 2	124.000	122.000	123.50	.0074
BEAM 3	124.000	122.000	123.50	.0074
BEAM 4	124.000	122.000	123.50	.0074
BEAM 5	124.000	122.000	123.50	.0074
BEAM 6	124.000	122.000	123.50	.0074
BEAM 7	124.000	122.000	123.50	.0074
BEAM 8	124.000	122.000	123.50	.0074
BEAM 9	124.000	122.000	123.50	.0074
BEAM 10	124.000	122.000	123.50	.0074
BEAM 11	124.000	122.000	123.50	.0074
BEAM 12	124.000	122.000	123.50	.0074
BEAM 13	124.000	122.000	123.50	.0074

BEAM REPORT, SPAN 2

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE (2) BOT. BM. FLG.	BEAM SLOPE
BEAM 1	114.000	112.000	113.50	.0027
BEAM 2	114.000	112.000	113.50	.0027
BEAM 3	114.000	112.000	113.50	.0027
BEAM 4	114.000	112.000	113.50	.0027
BEAM 5	114.000	112.000	113.50	.0027
BEAM 6	114.000	112.000	113.50	.0027
BEAM 7	114.000	112.000	113.50	.0027
BEAM 8	114.000	112.000	113.50	.0027
BEAM 9	114.000	112.000	113.50	.0027
BEAM 10	114.000	112.000	113.50	.0027
BEAM 11	114.000	112.000	113.50	.0027
BEAM 12	114.000	112.000	113.50	.0027

BEAM REPORT, SPAN 3

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE (2) BOT. BM. FLG.	BEAM SLOPE
BEAM 1	124.000	122.000	123.50	-.0019
BEAM 2	124.000	122.000	123.50	-.0019
BEAM 3	124.000	122.000	123.50	-.0019
BEAM 4	124.000	122.000	123.50	-.0019
BEAM 5	124.000	122.000	123.50	-.0019
BEAM 6	124.000	122.000	123.50	-.0019
BEAM 7	124.000	122.000	123.50	-.0019
BEAM 8	124.000	122.000	123.50	-.0019
BEAM 9	124.000	122.000	123.50	-.0019
BEAM 10	124.003	122.003	123.50	-.0019
BEAM 11	124.008	122.008	123.51	-.0018
BEAM 12	124.014	122.013	123.51	-.0018
BEAM 13	124.020	122.020	123.52	-.0017

HL93 LOADING

BENT REPORT (3)

ABUT NO. 1 (S 88 39 2.34 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

		BEAM SPAC. (C.L. BENT)	BEAM ANGLE D M S
SPAN 1	BEAM 1	.000	89 31 27
	BEAM 2	7.500	89 31 27
	BEAM 3	7.500	89 31 27
	BEAM 4	7.500	89 31 27
	BEAM 5	7.500	89 31 27
	BEAM 6	7.500	89 31 27
	BEAM 7	7.500	89 31 27
	BEAM 8	7.500	89 31 27
	BEAM 9	7.500	89 31 27
	BEAM 10	8.000	89 31 27
	BEAM 11	8.000	89 31 27
	BEAM 12	8.000	89 31 27
	BEAM 13	8.000	89 31 27
	TOTAL	92.000	

BENT NO. 2 (S 88 39 2.34 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

		BEAM SPAC. (C.L. BENT)	BEAM ANGLE D M S
SPAN 1	BEAM 1	.000	89 31 27
	BEAM 2	7.500	89 31 27
	BEAM 3	7.500	89 31 27
	BEAM 4	7.500	89 31 27
	BEAM 5	7.500	89 31 27
	BEAM 6	7.500	89 31 27
	BEAM 7	7.500	89 31 27
	BEAM 8	7.500	89 31 27
	BEAM 9	7.500	89 31 27
	BEAM 10	8.000	89 31 27
	BEAM 11	8.000	89 31 27
	BEAM 12	8.000	89 31 27
	BEAM 13	8.000	89 31 27
	TOTAL	92.000	

BENT NO. 2 (S 88 39 2.34 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

		BEAM SPAC. (C.L. BENT)	BEAM ANGLE D M S
SPAN 2	BEAM 1	.000	89 31 27
	BEAM 2	8.572	89 31 27
	BEAM 3	8.572	89 31 27
	BEAM 4	8.572	89 31 27
	BEAM 5	8.572	89 31 27
	BEAM 6	8.572	89 31 27
	BEAM 7	8.572	89 31 27
	BEAM 8	8.572	89 31 27
	BEAM 9	8.000	89 31 27
	BEAM 10	8.000	89 31 27
	BEAM 11	8.000	89 31 27
	BEAM 12	8.000	89 31 27
	TOTAL	92.004	

BENT NO. 3 (S 88 39 2.34 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

		BEAM SPAC. (C.L. BENT)	BEAM ANGLE D M S
SPAN 2	BEAM 1	.000	89 31 27
	BEAM 2	8.572	89 31 27
	BEAM 3	8.572	89 31 27
	BEAM 4	8.572	89 31 27
	BEAM 5	8.572	89 31 27
	BEAM 6	8.572	89 31 27
	BEAM 7	8.572	89 31 27
	BEAM 8	8.572	89 31 27
	BEAM 9	8.000	89 31 27
	BEAM 10	8.000	89 31 27
	BEAM 11	8.000	89 31 27
	BEAM 12	8.000	89 31 27
	TOTAL	92.004	

BENT NO. 3 (S 88 39 2.34 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

		BEAM SPAC. (C.L. BENT)	BEAM ANGLE D M S
SPAN 3	BEAM 1	.000	89 31 27
	BEAM 2	7.500	89 31 27
	BEAM 3	7.500	89 31 27
	BEAM 4	7.500	89 31 27
	BEAM 5	7.500	89 31 27
	BEAM 6	7.500	89 31 27
	BEAM 7	7.500	89 31 27
	BEAM 8	7.500	89 31 27
	BEAM 9	7.500	89 31 27
	BEAM 10	8.000	89 21 34
	BEAM 11	8.000	89 11 40
	BEAM 12	8.000	89 1 47
	BEAM 13	8.000	88 51 53
	TOTAL	92.000	

ABUT NO. 4 (S 88 39 2.34 E)
DISTANCE BETWEEN STATION LINE AND BEAM 1 3.000 R

		BEAM SPAC. (C.L. BENT)	BEAM ANGLE D M S
SPAN 3	BEAM 1	.000	89 31 27
	BEAM 2	7.500	89 31 27
	BEAM 3	7.500	89 31 27
	BEAM 4	7.500	89 31 27
	BEAM 5	7.500	89 31 27
	BEAM 6	7.500	89 31 27
	BEAM 7	7.500	89 31 27
	BEAM 8	7.500	89 31 27
	BEAM 9	7.500	89 31 27
	BEAM 10	8.357	89 21 34
	BEAM 11	8.357	89 11 40
	BEAM 12	8.357	89 1 47
	BEAM 13	8.357	88 51 53
	TOTAL	93.428	

STATE OF TEXAS
MICHAEL KENNETH RHODES
98947
LICENSED
PROFESSIONAL ENGINEER
12/01/2010

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
FIRM REGISTRATION No. F-754

Texas Department of Transportation

US 75
FRAMING PLAN
VIRGINIA PKWY NBML BRIDGE

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
ALL	6	SEE TITLE SHEET		US 75
GRAPHICS MB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MKR	TEXAS	DAL	COLLIN	1369
CHECK ALL	CONTROL	SECTION	JOB	
	0047	06	108, ETC.	