

THE STANDARD SHEETS IDENTIFIED ON SHEETS 2 AND 3 BY * HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Gregory A. Jacobs
GREGORY A. JACOBS, P.E. 4-15-96
DATE



THE STANDARD SHEETS IDENTIFIED ON SHEETS 2 AND 3 BY + HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Christopher H. Neufeld
CHRISTOPHER H. NEUFELD, P.E. 4-15-96
DATE



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Charles R. Strong
CHARLES R. STRONG, P.E. 4-15-96
DATE



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Harold C. Scheffler III
HAROLD C. SCHEFFLER III, P.E. 4-15-96
DATE



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Roberto D. Garza Jr.
ROBERTO D. GARZA, JR., P.E. 4/26/96
DATE



STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

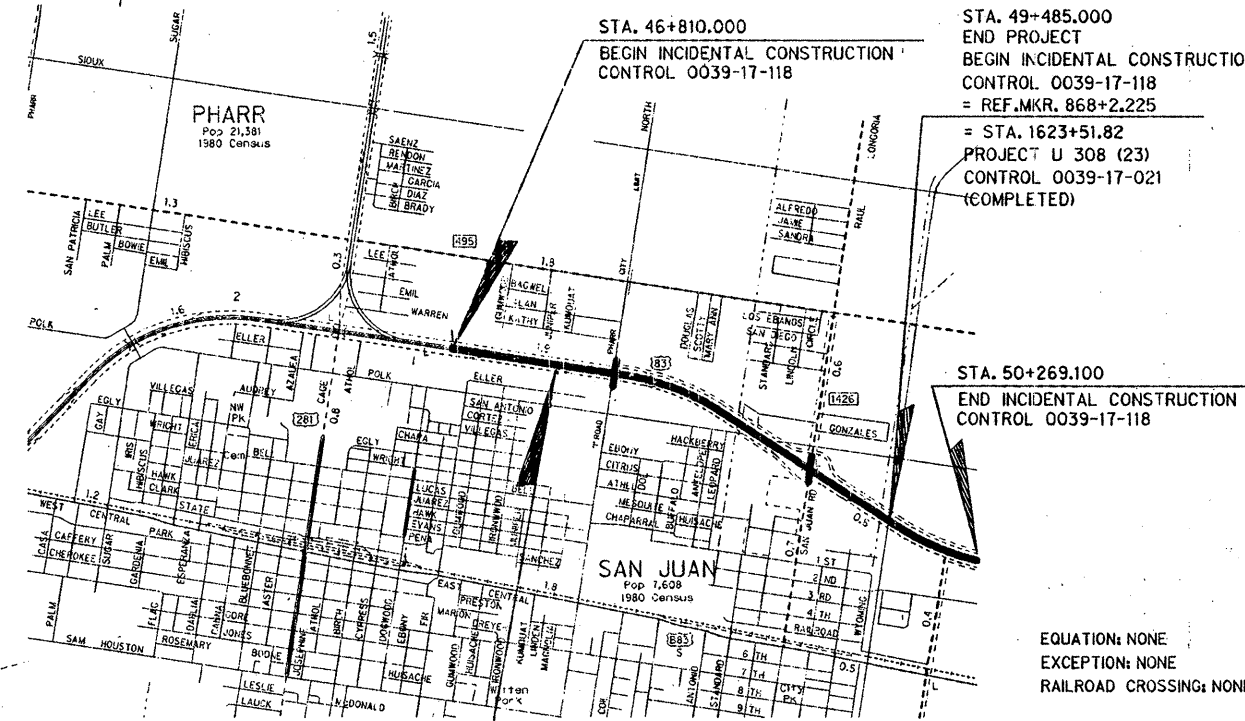
FINAL PLANS OF STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NH 96(791)M
NET LENGTH OF PROJECT ROADWAY = 1,944.700 m
BRIDGE = 148.800 m
TOTAL = 2,093.500 m

HIDALGO COUNTY
U.S. 83

LIMITS: FROM: 382 m WEST OF "I" ROAD
TO: 483 m EAST OF FM 1426 (RAUL LONGORIA RD.)

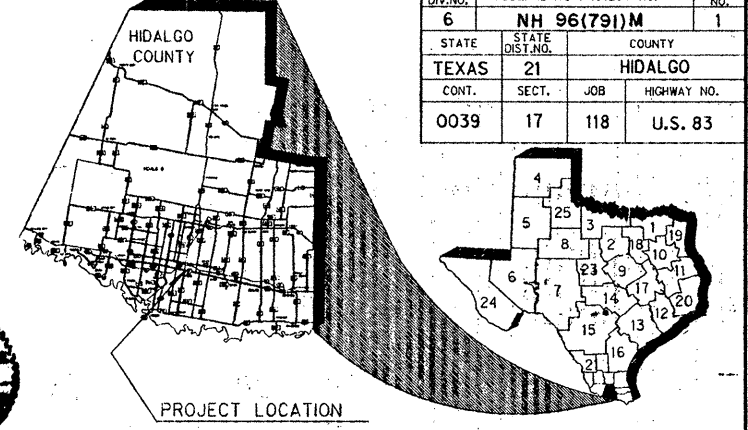
CONSTRUCTION AND REHABILITATION OF A FREEWAY FACILITY CONSISTING OF WIDENING, STORM DRAINAGE SYSTEM, GRADING, STRUCTURES, ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE, LIME TREATED SUBGRADE, CURB & GUTTER, RETAINING WALLS, TRAFFIC SIGNALS, SIGNING, ILLUMINATION AND PAVEMENT MARKINGS.



STA. 47+391.500
BEGIN PROJECT
END INCIDENTAL CONSTRUCTION
CONTROL 0039-17-118
= REF. MKR. 868+0.924
= STA. 1554+83.58
PROJECT: NH 92()M
CONTROL 0039-17-097
(COMPLETED)



RECOMMENDED FOR LETTING: 4/23/96
Harold C. Scheffler III
AREA ENGINEER
APPROVED FOR LETTING: _____
DIRECTOR, TRAFFIC OPERATIONS DIVISION
RECOMMENDED FOR LETTING: 4/30/96
Christopher H. Neufeld
DIRECTOR OF TRANSPORTATION
PLANNING & DEVELOPMENT
APPROVED FOR LETTING: 4/30/96
Roberto D. Garza Jr.
DISTRICT ENGINEER
APPROVED FOR LETTING: 5/6/96
Mauro J. Melan P.E.
DIRECTOR, DESIGN DIVISION



FED. AID DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	NH 96(791)M	1	
STATE	DIST. NO.	COUNTY	
TEXAS	21	HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
0039	17	118	U.S. 83

DESIGN SPEED: 110 Km/h U.S. 83 MAINLANES
60 Km/h U.S. 83 RAMPS
90 Km/h U.S. 83 FRONTAGE ROADS

FINAL PLANS:

FINAL CONTRACT PRICE: \$14,772,883.26
CONTRACTORS NAME: FOREMOST PAVING, INC.
CONTRACTORS ADDRESS: WESLACO, TEXAS 78599
LETTING DATE: JUNE-96
DATE WORK BEGAN: 8-29-96
DATE WORK COMPLETED: 8-06-99
DATE OF ACCEPTANCE: 8-06-99

APPROVED FIELD CHANGE(S) AND SUPPLEMENTAL AGREEMENTS: SHEET 3A, 3B - CHANGE ORDER summary

* ATTACHMENT NO. 1 TO SPECIAL AGREEMENT FOR CONSTRUCTION, MAINTENANCE, AND OPERATION OF CONTINUOUS HIGHWAY LIGHTING SYSTEMS WITHIN A MUNICIPALITY, (BLANKET), DATED MARCH 7, 1996. THE CITY-STATE CONSTRUCTION, MAINTENANCE AND OPERATION RESPONSIBILITIES SHALL BE AS HERETOFORE AGREED TO, ACCEPTED, AND SPECIFIED IN THE AGREEMENT TO WHICH THESE PLANS ARE MADE A PART.

Arturo Argandoña Mayor 4/30/96
NAME TITLE DATE
PLANS APPROVED:
HIDALGO COUNTY IRRIGATION DISTRICT #2
George Hidalgo General Manager 4/18/96
NAME TITLE DATE
PLANS APPROVED:
CITY OF PHARR
Victor Davis Mayor 4/23/96
NAME TITLE DATE
PLANS APPROVED:
CITY OF SAN JUAN
Arturo Argandoña Mayor 4/22/96
NAME TITLE DATE
PLANS APPROVED:
HIDALGO COUNTY DRAINAGE DISTRICT #1
Antonio Lopez Jr. 4/23/96
NAME TITLE DATE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED: _____
DIVISION ADMINISTRATOR DATE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION MARCH 1, 1995 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT. REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, DECEMBER 1993).

NH 96(791)M
HIDALGO

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SHEET NO. DESCRIPTION

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Gregory A. Jacobs 5-13-96
GREGORY A. JACOBS DATE

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Half Associates										
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
	CADD			TEXAS	171	91-18-001				
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	JOB NO.	SECTION NO.	ROW NO.	ROW NO.	U.S. 83
APRIL 1996	8201001	NONE	21	HIDALGO	0028	17	18	19		

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SHEET NO. DESCRIPTION

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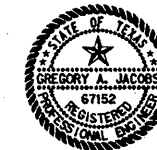
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GREGORY A. JACOBS 5-13-96
GREGORY A. JACOBS DATE

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U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
	CADD		#	TEXAS	116 917791A	1				
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	ROADWAY NO.			
APRIL 1996	62110DX2	NONE	21	HIDALGO	00 36	17	116			U.S. 83

REV. 5/28/96

2
2

Change Order Summary

3A

CHANGE ORDER NUMBER 1

The 60m construction access opening at stations 48+370 to 48+380 will be relocated to the beginning of the project at station 46+980. The existing construction access opening does not allow enough deceleration/acceleration room for construction equipment/vehicles. TXDOT has evaluated the situation and concurs with the contractor that the present location of the construction access opening is unsafe. The P.C.T.B., G.R.E.A.T. and striping will be relocated an additional 1.5 m. away from the center line allowing construction vehicles to have access to the entire project by crossing existing structures on the inside shoulder. As a partnering effort, the contractor has agreed to remove and reset the GREAT system and part of concrete traffic barrier at his expense. 61A, 73A-76A

CHANGE ORDER NUMBER 2

Jack or Bore a 900 mm steel casing, to encase a 600 mm PVC pipe, in lieu of open cutting across the expressway to install a 600 mm Reinforced Concrete Low Head Pressure Pipe as required by the contract item. 317A

CHANGE ORDER NUMBER 3

A roadway design standard for Precast Concrete Traffic Barrier type 2 (PCTB(2)-95(M)) will be added to the contract plans. This Standard was inadvertently omitted from the plans by the consultant. It is necessary to add this standard to approve the shop drawing for PCTB type #2. PCTB(2)-95(M)

CHANGE ORDER NUMBER 4

A bid item will be added to the Contract for the cost of the San Juan Police Officers assigned to the Traffic control Detail. This cost is in accordance to General Notes and Specification Data, Item 502 Barricades, Signs and Traffic Handling and Special Provision (009-008). The General Notes state that the contractor shall provide full-time off-duty certified uniformed law enforcement officers and vehicles for traffic control operations.

CHANGE ORDER NUMBER 5

Temporary earth wall quantities were reduced by moving the traffic to the outside shoulder of the existing main lanes through Change Order No. 1. This allowed 3:1 sloping of the embankment backfill and reduced the height of the earth walls or eliminated the need for shoring completely. The temporary earth walls select backfill is a specification requirement that was omitted from the proposal. The contractor was not aware of the requirement at bidding time. This change order will introduce a new item and price of the select backfill and reduce the original embankment quantity by that amount.

CHANGE ORDER NUMBER 6

The proposed storm sewer was constructed according to the plans during Phase II Construction. It interrupted the existing drainage and was not scheduled for completion until Phase III. Flooding occurred and temporary drainage tie-ins consisting of 18" RCP and concrete collars were made on Line D at Station 48+840 and Line G at 49+345. When line D and G are completed drainage is restored according to plan, the temporary tie-ins will be plugged.

CHANGE ORDER NUMBER 7

The proposed east bound entrance ramp will be located between FM 1426 and Cesar Chavez Road, outside the limits of the current project. The ramp is greatly needed to relieve the heavy frontage road traffic and reduce the daily congestion at the Cesar Chavez intersection. The existing entrance ramp is currently being replaced with an exit ramp, leaving the area with two exit ramps between FM 1426 and Cesar Chavez Road. Another entrance ramp will not be built until the subsequent US 83 project begins, some 3 to 5 years later. The Cesar Chavez intersection is currently a four way stop and a study prepared by Traffic Engineer, Inc. indicates a need for both signalization and an entrance ramp for Cesar Chavez Road. The current frontage road traffic volumes of 4550 ADT are predicted to more than double by the year 2015. The temporary ramp can be installed at a lower cost than signalization and its proposed location will benefit the current US 83 Construction Project. The ramp location will accelerate the current US 83 Project by allowing the contractor to complete the main lane section, without waiting for ramp sequencing through Phase 3. Through partnering efforts with the contractor the proposed ramp will assist his construction needs and also provide for the future safety and convenience of the traveling public. Typical sections for the ramp will include 10" of RAP millings in lieu of flexible base and can achieve a performance period of eight years before requiring an overlay, according to a flexible pavement design analysis. This ramp will provide the traveling public with an entrance ramp before construction of the next US 83 Project and will accelerate the current construction project on US 83. 197A and 197B.

CHANGE ORDER NUMBER 8

Describe the work being revised: To install a firm joint filler to seal a 2" longitudinal expansion opening in the center of the bridge. This will assist motorcycle motorist while crossing the opening. The opening is subject to direct traffic during construction phasing. 365A, 393A

CHANGE ORDER NUMBER 9

An existing box culvert canal siphon that always carries water is leaking under the proposed east and west bound frontages road and interfering with construction. The water leak will have to be repaired in order to complete the planned roadway construction and eliminate future maintenance problems. A pipe underdrain is proposed at the same location for preventative maintenance. 343A

CHANGE ORDER NUMBER 10

A plan quantity error for the shear key concrete was discovered during the construction of the "I" Road Bridge. The contractor will be compensated for 227.991 m³ of Class "S" concrete (Shear Key) instead of the plan quantity amount of 149.700 m³.

CHANGE ORDER NUMBER 11

The plans did not include a general note or bid item for painting structures and barriers on the US 83 project. Plan details only address finishing certain areas such as the form liner and star locations and not the rest of the bridges or barriers. The proposed surface finish for the structures shall be a Type I, Class B, Type II finish and the color will be a standard cement white, to match the color on the US 83 Interchange.

0039-17-118

Change Order Summary

CHANGE ORDER NUMBER 12

An existing cantilevered sign bridge will not have the required roadway clearance (5.34 m) as proposed during the design of the project. In order to meet the minimal height requirement a new drill shaft will be required and the sign structure relocated. The price for the work to be performed is reasonable when compared to the State bid averages.

CHANGE ORDER NUMBER: 13

Describe the work being revised: Removal of concrete pavement. Concrete pavement was encountered while milling under the FM 1426 and "I" Rd overpasses. A pay item is not set up on contract to compensate contractor for this work, therefore one needs to be set up. Contractor's price is acceptable due to it being within statewide average.

CHANGE ORDER NUMBER: 14

Describe the work being revised: The frontage roads have become worn and worked for two years of construction and heavy traffic movement. They require an asphalt overlay for stability, endurance and reduced maintenance. The proposed work entails using Item 305, Salvage, Haul and Stockpile reclaimed asphalt, for milling a 1.83 meter section at the curb lines and Item 3000, Hot Mix Asphalt, for a twenty five millimeter overlay on the frontage roads. 22A

CHANGE ORDER NUMBER: 15

Describe the work being revised: Current policy requires a 32 polish value course aggregates for the US 83 main lanes, for skid resistance. The plans did not address this requirement for the surface hot mix. This change order will incorporate the polish value requirement for the main lanes of travel. The change order includes payment for a pay prep material that was used for sealing cracks, inherent to the retaining walls. The change order also includes additional quantities of asphalt for extending the overlay limits to include the detour transition sections at the east and west ends of the project.

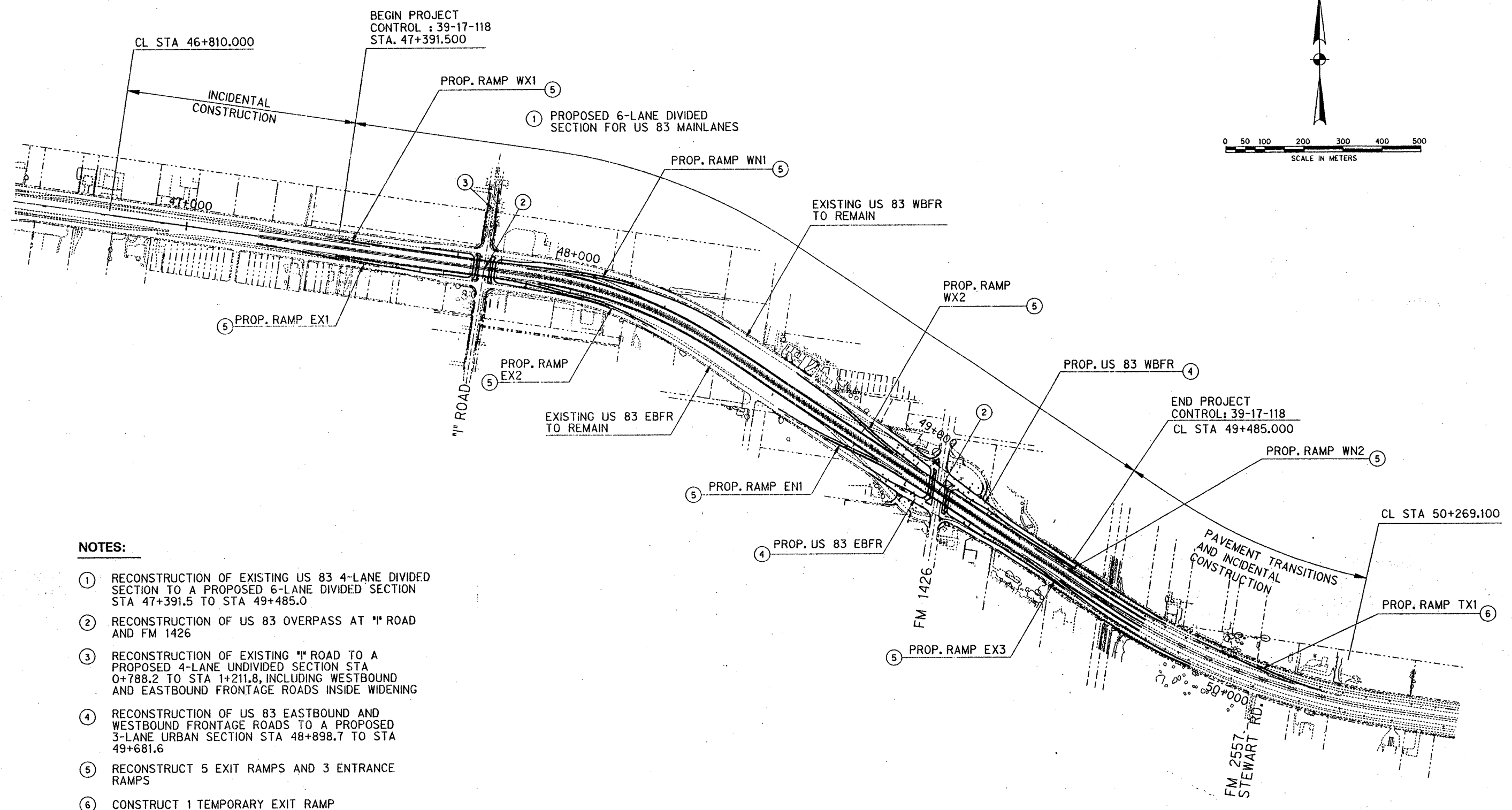
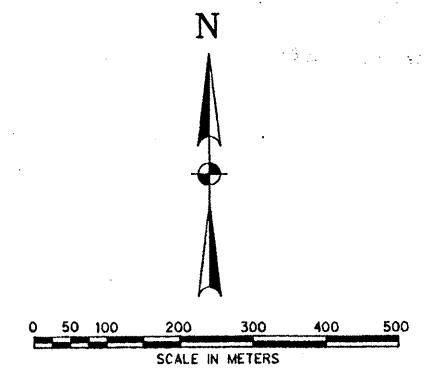
CHANGE ORDER NUMBER: 16

Describe the work being revised: The single slope concrete barriers that were used during construction phasing are now being placed permanently as median barriers. Each barrier has two, four inch lateral drain slots that can trap water after a final two inch overlay is placed over the roadway. In order to eliminate any water ponding in the longitudinal slot used for electrical conduit, each lateral drain slot will be sealed with concrete grout.

CHANGE ORDER NUMBER: 17

Describe the work being revised: A TxDOT Directive 2-98, "Year 2000 Compliance" will ensure that all products under our present and future construction and maintenance contracts are Year 2000 compliant

0039-17-118



NOTES:

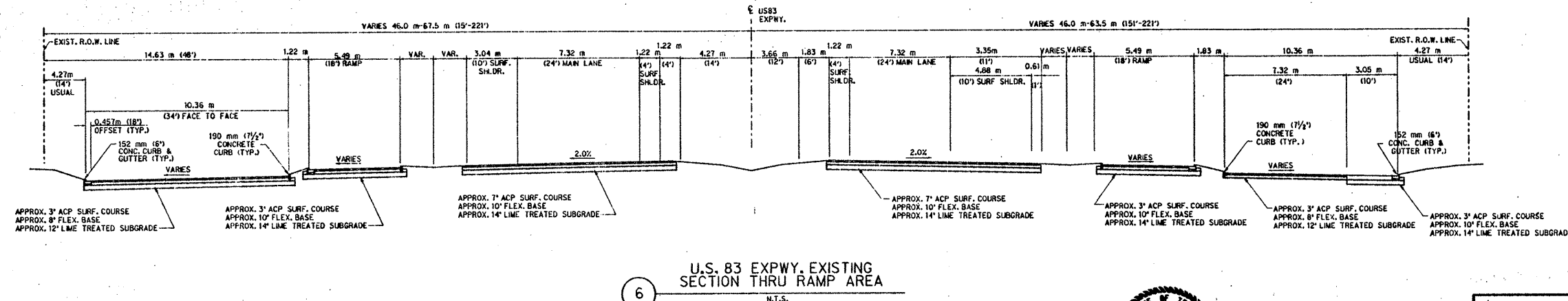
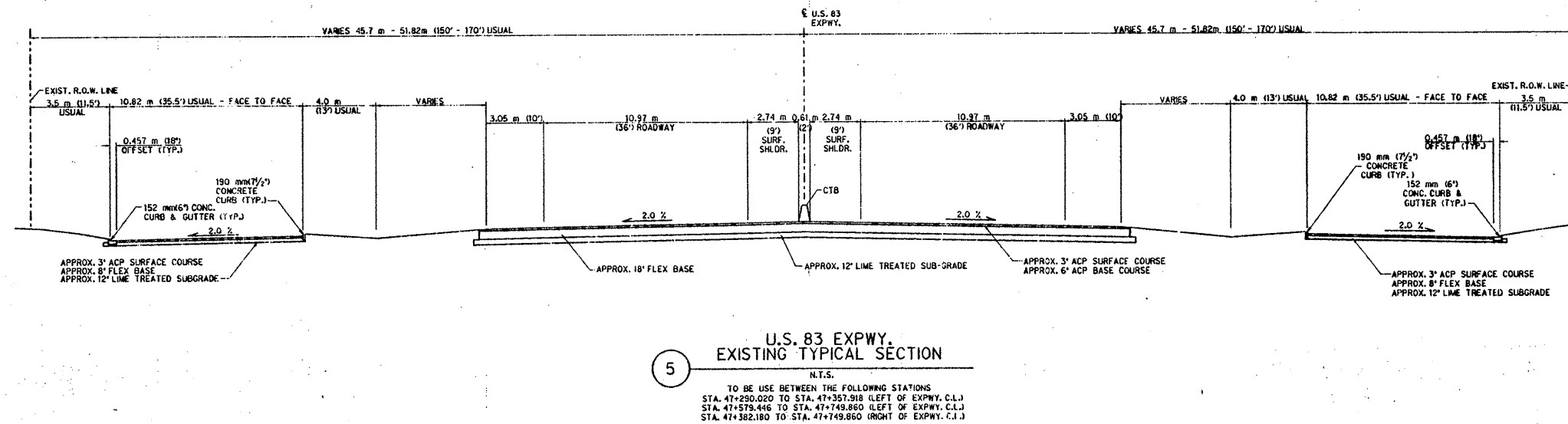
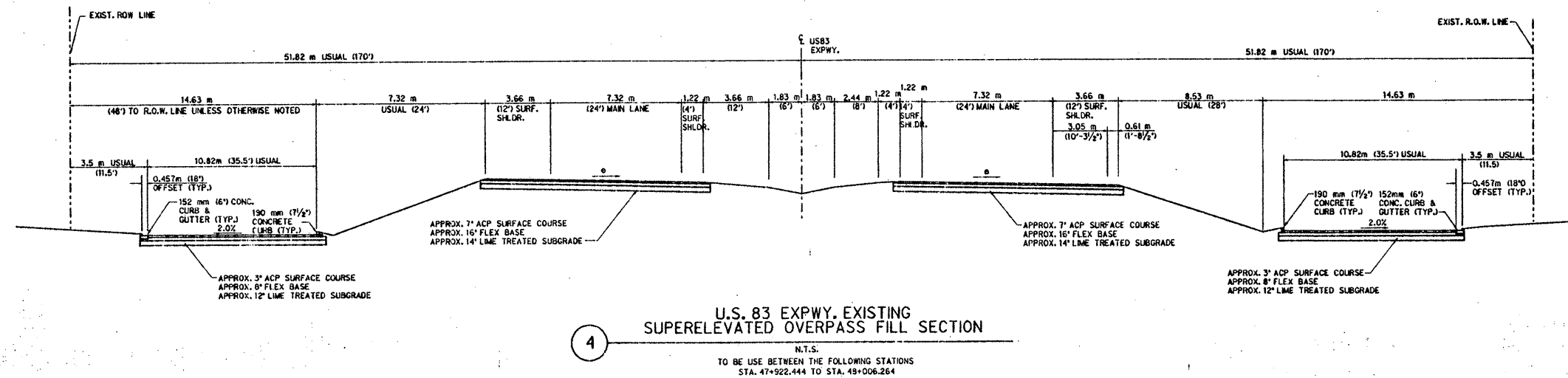
- (1) RECONSTRUCTION OF EXISTING US 83 4-LANE DIVIDED SECTION TO A PROPOSED 6-LANE DIVIDED SECTION STA 47+391.5 TO STA 49+485.0
- (2) RECONSTRUCTION OF US 83 OVERPASS AT "I" ROAD AND FM 1426
- (3) RECONSTRUCTION OF EXISTING "I" ROAD TO A PROPOSED 4-LANE UNDIVIDED SECTION STA 0+788.2 TO STA 1+211.8, INCLUDING WESTBOUND AND EASTBOUND FRONTAGE ROADS INSIDE WIDENING
- (4) RECONSTRUCTION OF US 83 EASTBOUND AND WESTBOUND FRONTAGE ROADS TO A PROPOSED 3-LANE URBAN SECTION STA 48+898.7 TO STA 49+681.6
- (5) RECONSTRUCT 5 EXIT RAMP AND 3 ENTRANCE RAMP
- (6) CONSTRUCT 1 TEMPORARY EXIT RAMP



Michael W. King 4/15/96
MICHAEL W. KING DATE

1
1

US 83 EXPRESSWAY PROJECT LAYOUT							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Halff Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
	CADD		#	TEXAS	NH 46	4	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	HIGHWAY NO.
APRIL 1996	620PRJCT	1:5000	21	HIDALGO	0038	17	118 U.S. 83

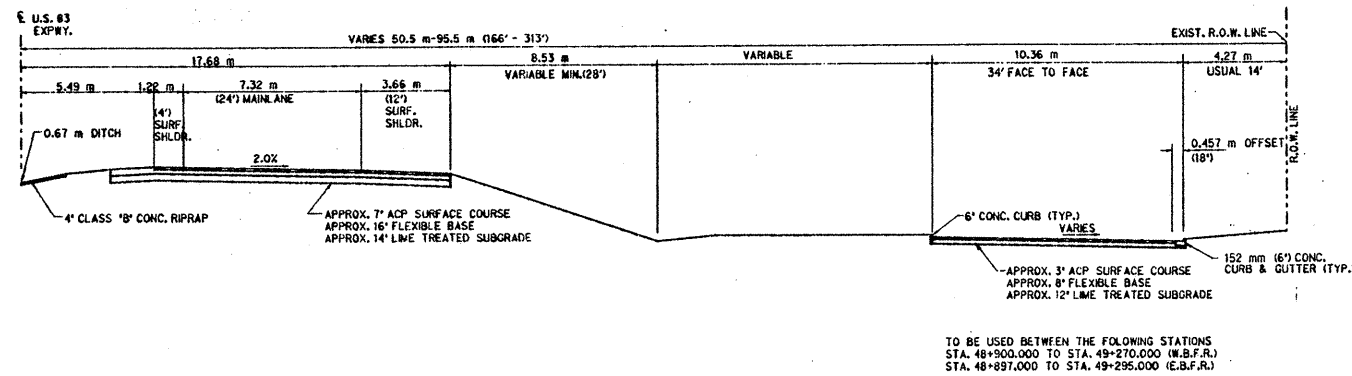


Michael W. King
 MICHAEL W. KING
 DATE 4/15/96

EXISTING TYPICAL SECTIONS							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FIG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
	CADD		8	TEXAS	RM 96 (74) JN	6	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	100' NO.	10' NO.
APRIL 1996	820EXC2	1:100 HORIZ	21	HIDALGO	0030	17	18

NOTE:
 1. DIMENSIONS, STATION LIMITS, AND MATERIAL CALL OUTS ARE APPROXIMATE ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
 2. SEE PROJECTS CSJ 39-17-20421, 39-17-097, 39-17-18-9, 10-44 FOR ORIGINAL TYPICAL SECTIONS.

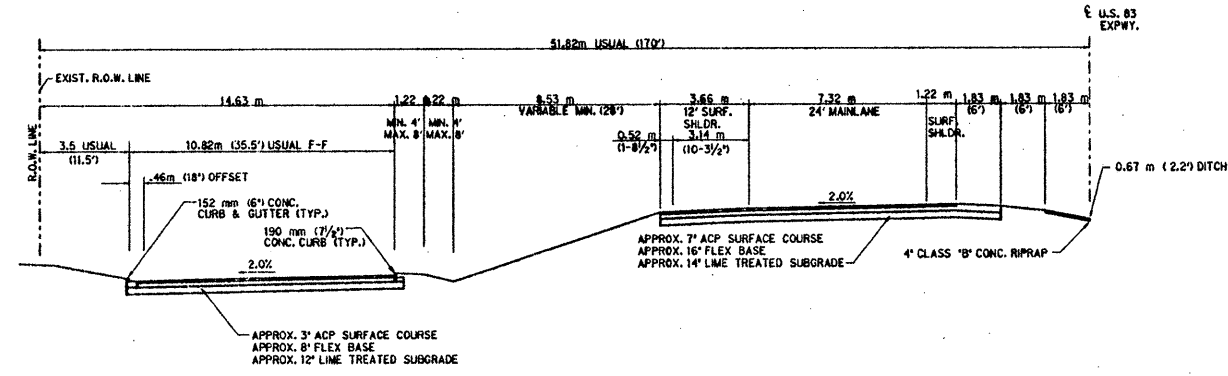
2
4



U.S. 83 EXPWY. EXISTING HALF SECTION WITH FLARED OUT FRONTAGE ROADS

7

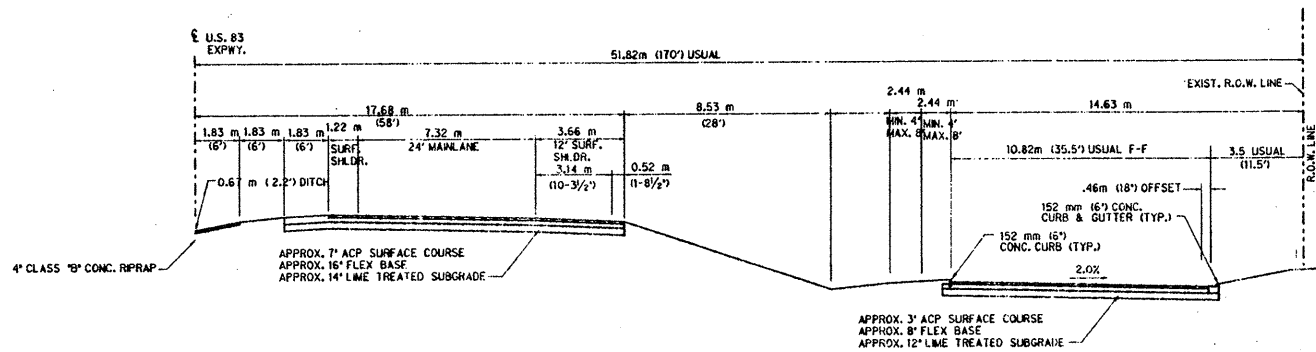
N.T.S.
TO BE USED BETWEEN THE FOLLOWING STATIONS
STA. 48+890.184 TO STA. 49+066.968
STA. 49+127.528 TO STA. 49+225.464



U.S. 83 EXPWY. EXISTING HALF HIGH FILL SECTION

9

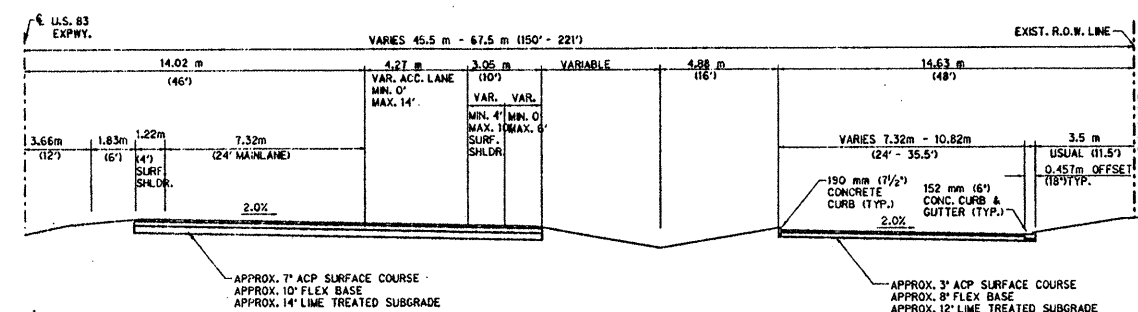
N.T.S.
TO BE USED BETWEEN THE FOLLOWING STATIONS
STA. 47+792.797 TO STA. 47+853.864
STA. 47+853.864 TO STA. 47+922.444
(TRANSITION SECTION 4 TO SECTION 5)



U.S. 83 EXPWY. EXISTING HALF LOW FILL SECTION

8

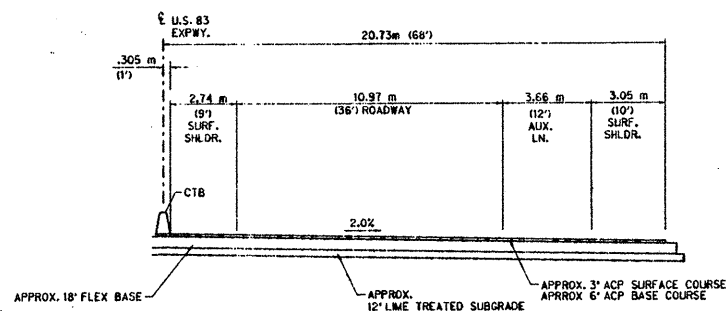
N.T.S.
TO BE USED BETWEEN THE FOLLOWING STATIONS
STA. 48+844.464 TO STA. 48+992.184
STA. 49+164.504 TO STA. 49+225.464



U.S. 83 EXPWY. EXISTING SECTION THRU RAMP AREA

10

N.T.S.
TO BE USED BETWEEN THE FOLLOWING STATIONS
STA. 48+191.278 TO STA. 48+329.352 (RIGHT OF EXPWY. C.L.)
STA. 48+446.090 TO STA. 48+674.690 (LEFT OF EXPWY. C.L.)
STA. 49+456.636 TO STA. 49+682.664 (RIGHT OF EXPWY. C.L.)



U.S. 83 EXPWY. EXISTING HALF SECTION (36' MAINLANE W/12' AUXILIARY LANE)

11

N.T.S.
TO BE USED BETWEEN THE FOLLOWING STATIONS
STA. 47+179.000 TO STA. 47+303.236 (RIGHT OF EXPWY. C.L.)

NOTE:

- DIMENSIONS, STATION LIMITS, AND MATERIAL CALL OUTS ARE APPROXIMATE ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
- SEE PROJECTS C5J 39-17-208(2), 39-17-091, 39-17A18-3, 10&44 FOR ORIGINAL TYPICAL SECTIONS.



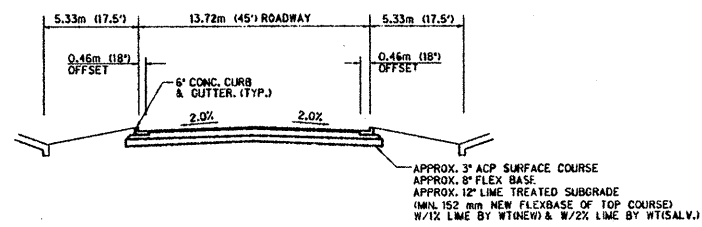
Michael W. King
DATE 4/15/96

EXISTING TYPICAL SECTIONS
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

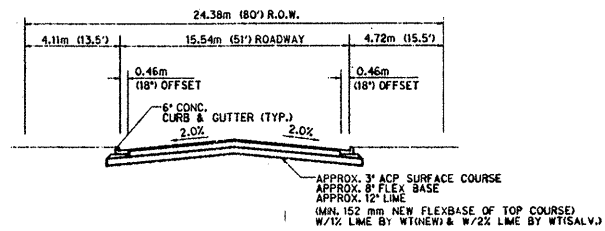
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	CAOD		6	TEXAS	178 (07/70) (1)	7
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1996	6202/EC3	1:80 HORIZ	21	HIDALGO	0020	17

3
4



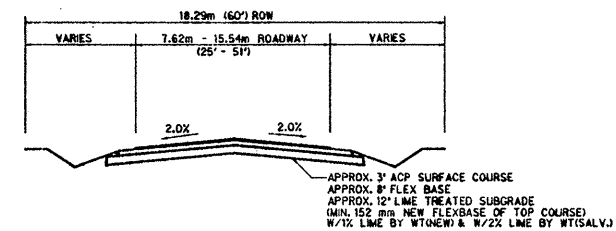
12 I-ROAD TYPICAL SECTION

N.T.S.
TO BE USE BETWEEN THE FOLLOWING STATIONS
STA. 0+963.00 TO STA. 1+037.000



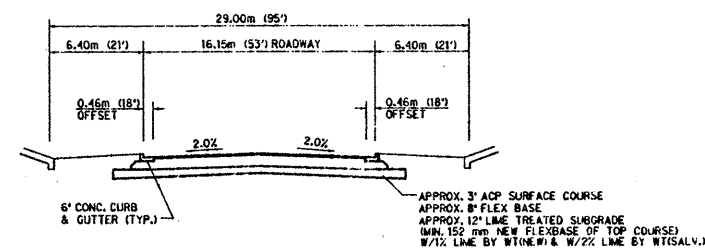
13 I-ROAD TYPICAL SECTION

N.T.S.
TO BE USE BETWEEN THE FOLLOWING STATIONS
STA. 1+064.000 TO STA. 1+211.839



14 I-ROAD TYPICAL SECTION

N.T.S.
TO BE USE BETWEEN THE FOLLOWING STATIONS
STA. 0+788.168 TO STA. 0+934.000



15 FM 1426 TYPICAL SECTION

N.T.S.
TO BE USE BETWEEN THE FOLLOWING STATIONS
STA. 0+918.000 TO STA. 1+067.000

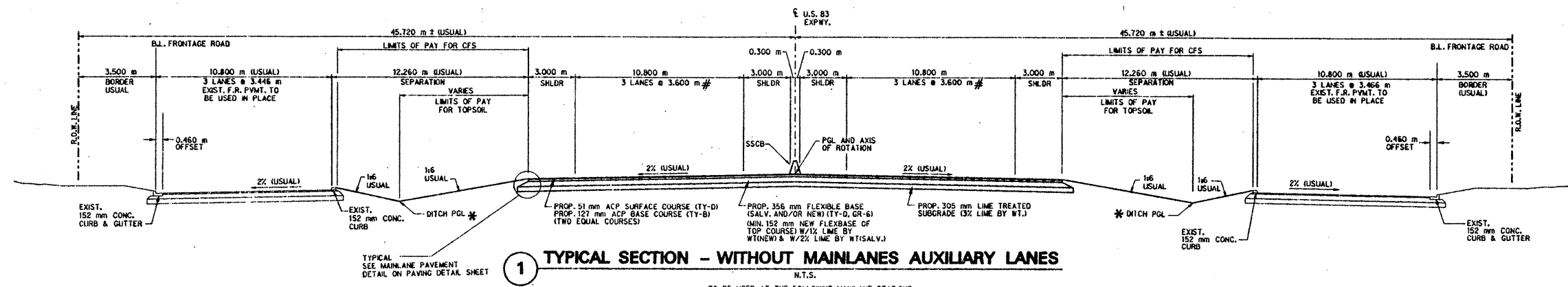


Michael W. King
MICHAEL W. KING
DATE 4/15/96

EXISTING TYPICAL SECTIONS							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AND PROJECT NO.	SHEET NO.	
	CADD		6	TEXAS	NH 96/1811A	8	
DATE	FILE	SCALE	COUNTY	CONTROL SECTION NO.	JOB NO.	JOB NO.	HIGHWAY NO.
APRIL 1996	820EX04	1"=100' HORIZ	21	HIDALGO	2030	17	118 U.S. 83

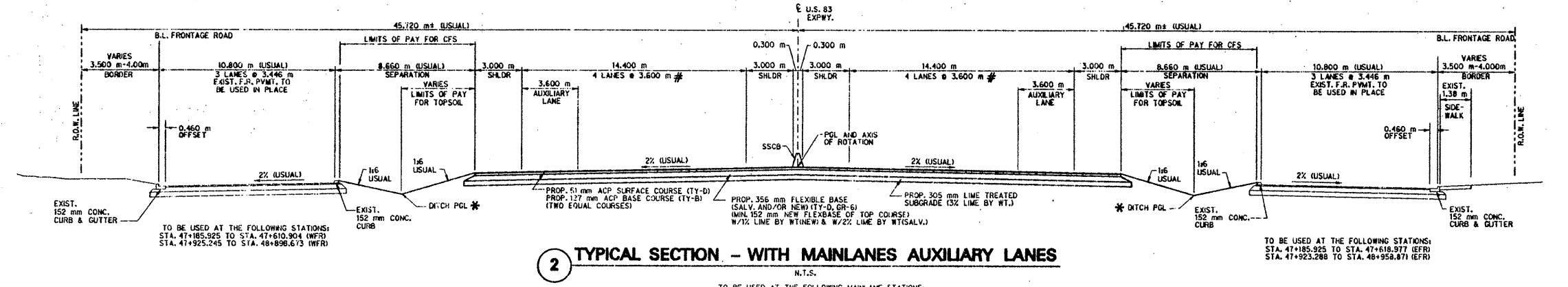
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NOTE:
1. DIMENSIONS, STATION LIMITS, AND MATERIAL CALL OUTS ARE APPROXIMATE ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
2. SEE PROJECTS CS-39-17-20&21, 39-17-097, 39-17A10-3, 10&44 FOR ORIGINAL TYPICAL SECTIONS.



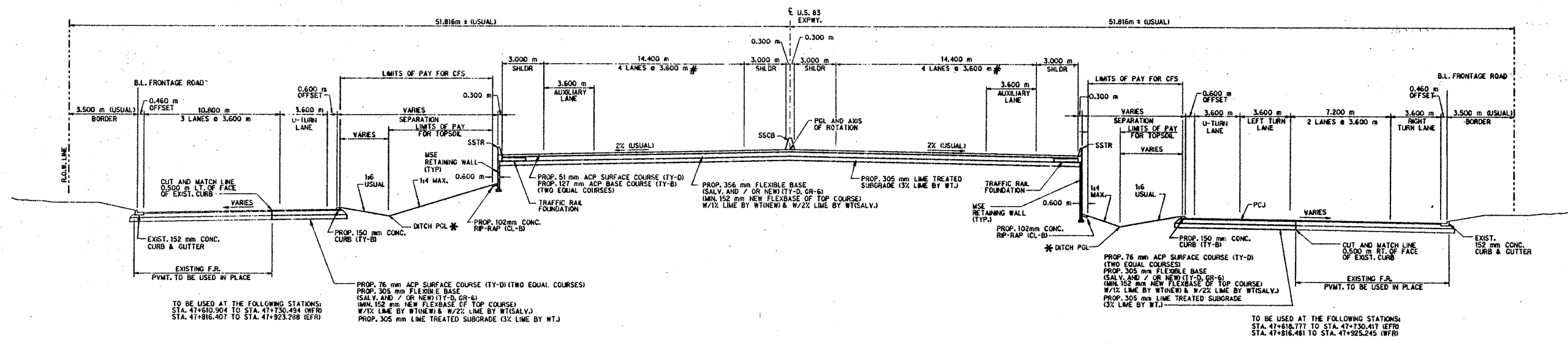
1 TYPICAL SECTION - WITHOUT MAINLANES AUXILIARY LANES

N.T.S.
TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
STA. 47+981.400 TO STA. 48+942.200 (LEFT OF EXPWY. C.L.)
STA. 47+919.000 TO STA. 48+911.000 (RIGHT OF EXPWY. C.L.)



2 TYPICAL SECTION - WITH MAINLANES AUXILIARY LANES

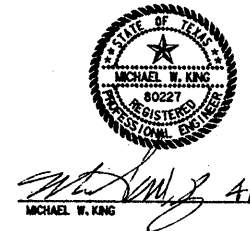
N.T.S.
TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
STA. 47+391.500 TO STA. 47+452.604 (RIGHT OF EXPWY. C.L.)



3 TYPICAL SECTION - WITH MAINLANES AUXILIARY LANES AND RETAINING WALLS

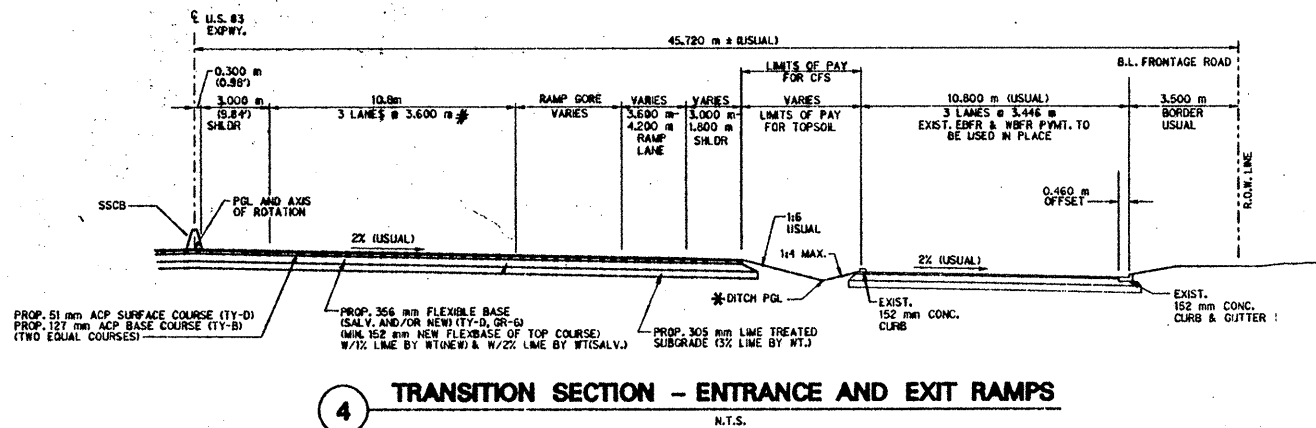
N.T.S.
TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
STA. 47+519.925 TO STA. 47+730.414 (LEFT OF EXPWY. C.L.)
STA. 47+452.604 TO STA. 47+738.644 (RIGHT OF EXPWY. C.L.)

- NOTES:**
- * SEE DRAINAGE DITCH PROFILES SHEETS FOR DITCH PROFILE DATA.
 - * PERMISSIBLE CONSTRUCTION JOINTS (P.C.) AND PERMANENT PAYMENT MARKINGS TO BE PLACED AT 3.600 m INTERVALS FROM INSIDE SHOULDER LINE.



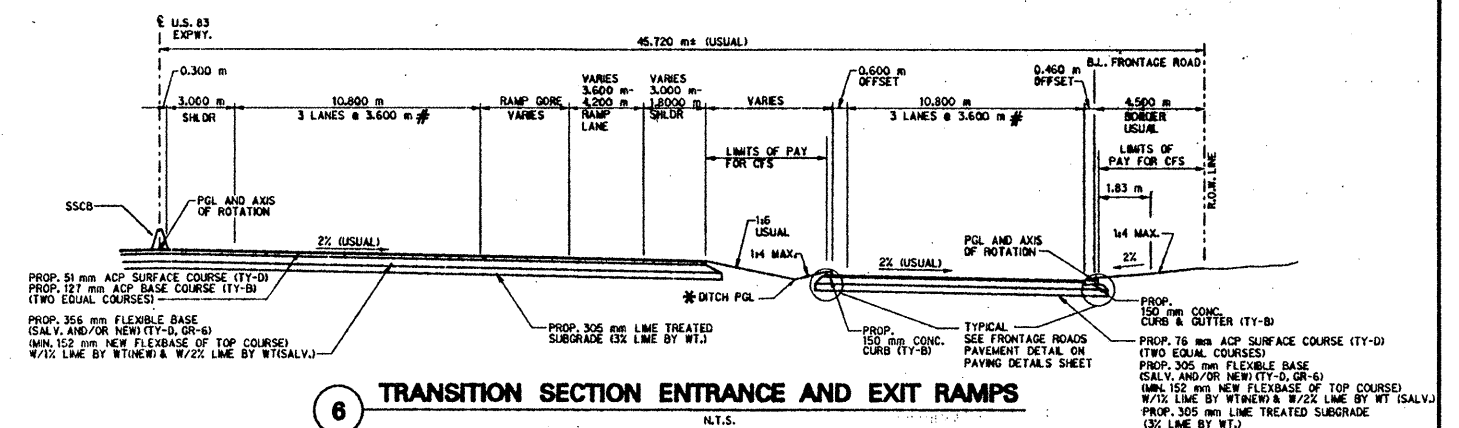
PROPOSED TYPICAL SECTIONS												
U.S. 83 RECONSTRUCTION												
HIDALGO COUNTY, TEXAS												
TEXAS DEPARTMENT OF TRANSPORTATION												
Half Associates												
DESIGNER - ARCHITECTS - ENGINEERS - PLANNERS - SURVEYORS												
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	DATE	SCALE	STATE PROJ. NO.	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
				TX		96/79/1A	APRIL 1996	1:100 HORIZ	0030	17	118	U.S. 83

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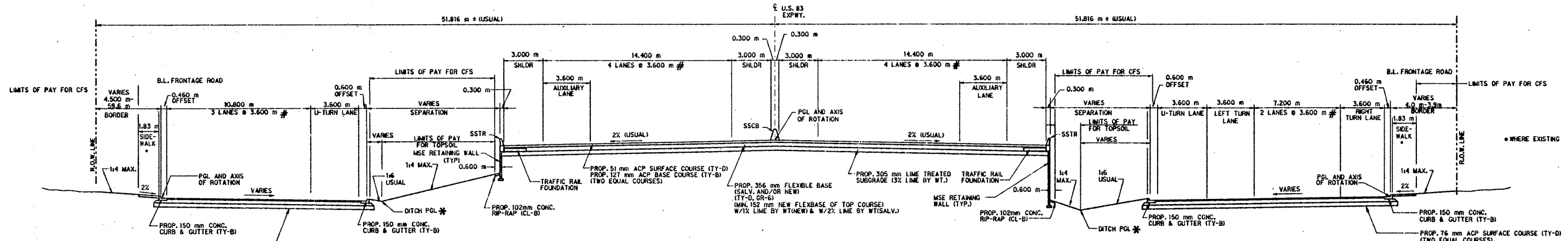
4 TRANSITION SECTION - ENTRANCE AND EXIT RAMPS
N.T.S.

TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
STA. 47+391.500 TO STA. 47+519.951 (LEFT OF EXPWY. C.L.)
STA. 47+189.325 TO STA. 47+391.500 (RIGHT OF EXPWY. C.L.)



6 TRANSITION SECTION ENTRANCE AND EXIT RAMPS
N.T.S.

TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
STA. 49+449.277 TO STA. 49+485.000 (LEFT OF EXPWY. C.L.)
STA. 49+470.581 TO STA. 49+485.000 (RIGHT OF EXPWY. C.L.)

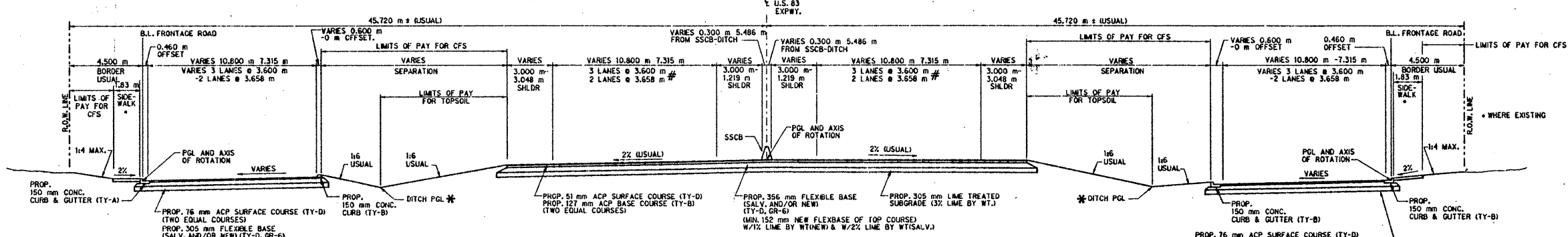


5 TYPICAL SECTION - WITH MAINLANES AUXILIARY LANES AND RETAINING WALLS
N.T.S.

TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
STA. 49+136.389 TO STA. 49+250.000 (LEFT OF EXPWY. C.L.)
STA. 49+136.389 TO STA. 49+317.000 (RIGHT OF EXPWY. C.L.)

TO BE USED AT THE FOLLOWING STATIONS:
STA. 49+958.871 TO STA. 49+062.226 (EFR)
STA. 49+137.576 TO STA. 49+239.603 (RFR)

TO BE USED AT THE FOLLOWING STATIONS:
STA. 49+898.673 TO STA. 49+038.658 (RFR)
STA. 49+156.762 TO STA. 49+259.056 (EFR)



7 TRANSITION SECTION - FROM PROPOSED TO EXISTING
N.T.S.

TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
STA. 49+485.000 TO STA. 49+725.000

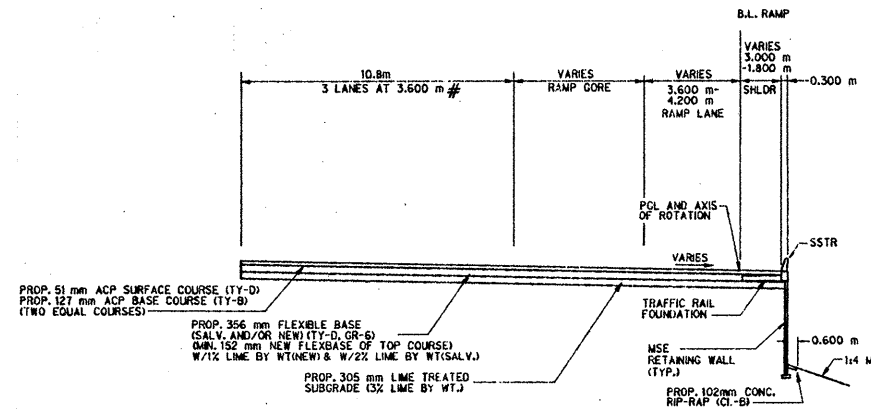
TO BE USED AT THE FOLLOWING STATIONS:
STA. 49+259.056 TO STA. 49+840.161 (EFR)



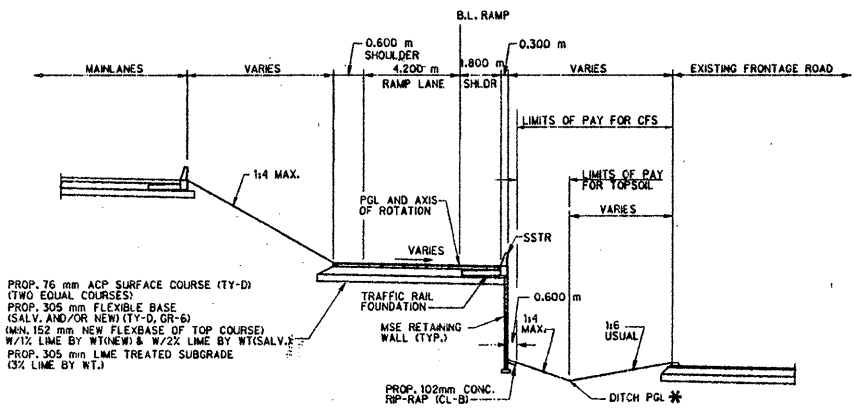
Michael W. King
DATE 4/15/96

PROPOSED TYPICAL SECTIONS										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
ENGINEERS - ARCHITECTS - ROADSIDE DESIGNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	REVISION	STATE	FEDERAL AID PROJECT NO.	SHEET				
	CADD			TEXAS	NH 91 (79) 111	10				
DATE	FILE	SCALE	DATE	COUNTY	CONTROL SECTION NO.	JOB NO.	ROW	NO.	NO.	HIGHWAY NO.

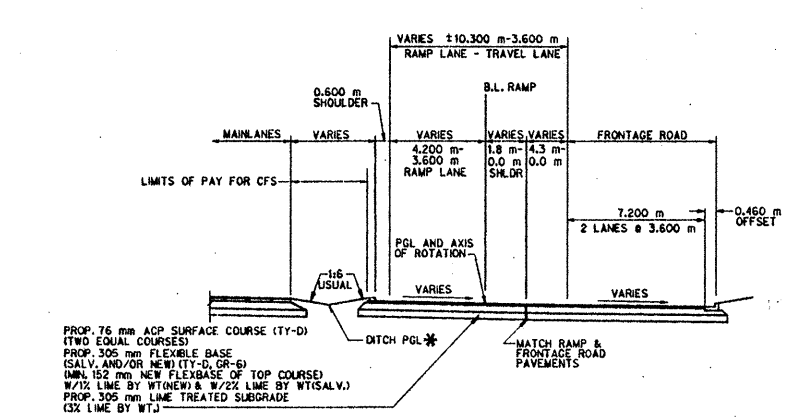
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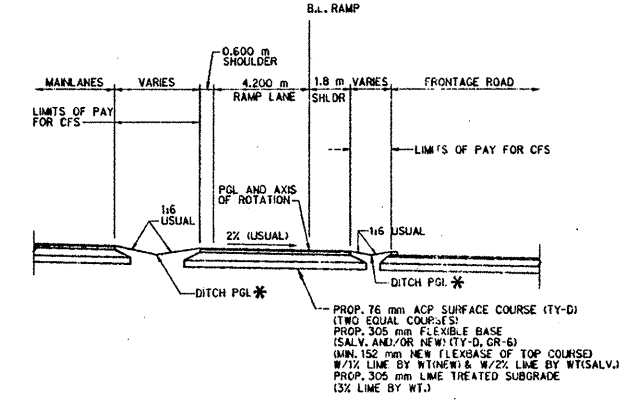
8 **TRANSITION SECTION AT ENTRANCE & EXIT RAMP W/RET. WALLS**
 N.T.S.
 TO BE USED AT THE FOLLOWING MAINLANE STATIONS:
 STA. 47+808.244 TO STA. 47+981.400 (LEFT OF EXPRY. C.L.)
 STA. 47+808.244 TO STA. 47+919.000 (RIGHT OF EXPRY. C.L.)
 STA. 48+942.200 TO STA. 49+057.189 (LEFT OF EXPRY. C.L.)
 STA. 48+916.000 TO STA. 49+057.189 (RIGHT OF EXPRY. C.L.)
 STA. 49+250.000 TO STA. 49+449.277 (LEFT OF EXPRY. C.L.)
 STA. 49+317.000 TO STA. 49+470.561 (RIGHT OF EXPRY. C.L.)



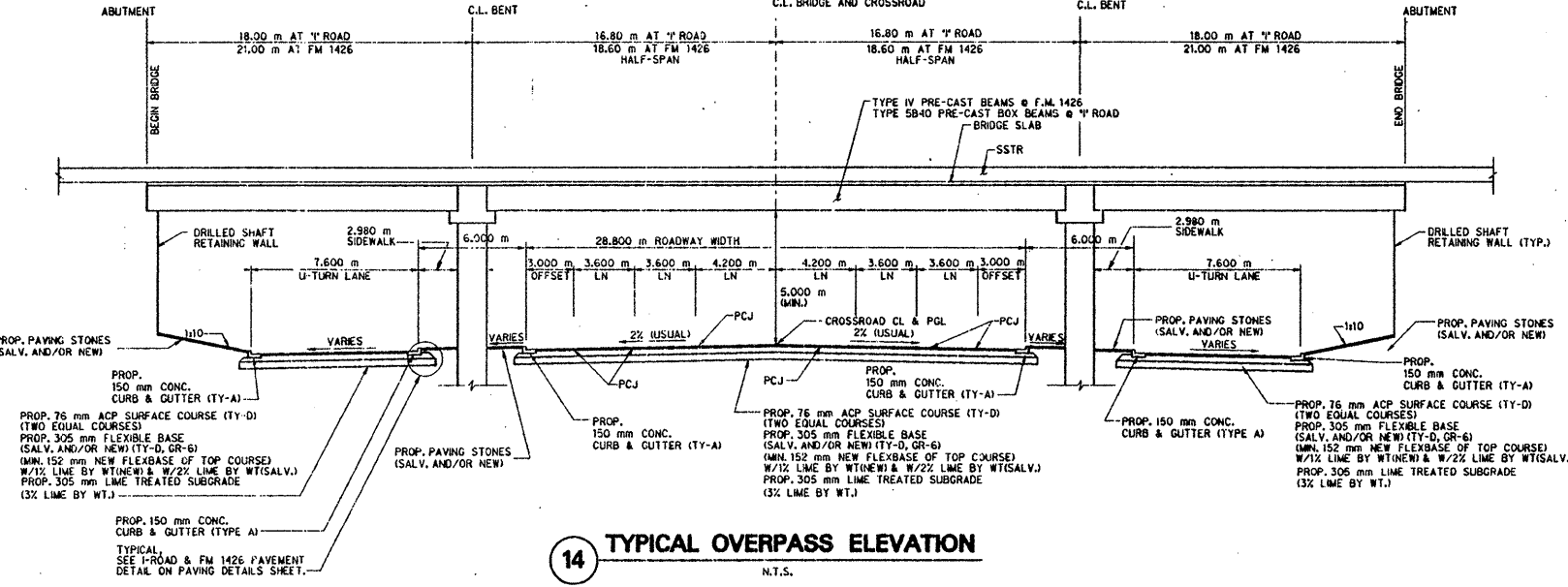
9 **TYPICAL SECTION - ENTRANCE AND EXIT RAMP BETWEEN "I" ROAD AND FM 1426**
 N.T.S.
 TO BE USED AT THE FOLLOWING RAMP STATIONS:
 STA. 1+233.000 TO STA. 1+390.500 (RAMP WN)
 STA. 1+142.717 TO STA. 1+319.326 (RAMP EX2)
 STA. 1+111.008 TO STA. 1+300.243 (RAMP EX2)
 STA. 1+134.925 TO STA. 1+261.750 (RAMP EN1)



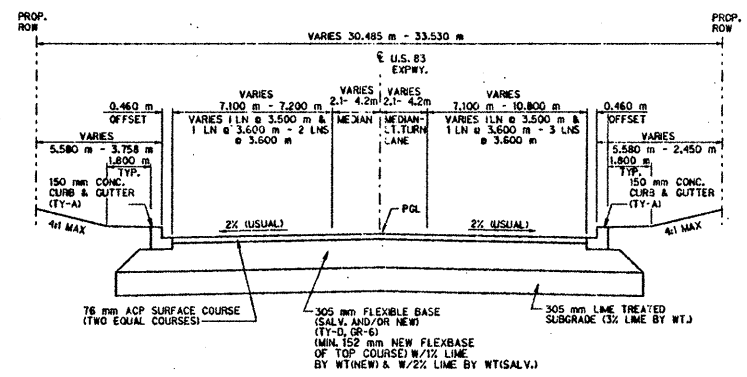
10 **TRANSITION SECTION - ENTRANCE AND EXIT RAMP AT GRADE**
 N.T.S.
 TO BE USED AT THE FOLLOWING RAMP STATIONS:
 STA. 1+213.539 TO STA. 1+328.283 (RAMP EXD)
 STA. 1+410.970 TO STA. 1+662.873 (RAMP WN)
 STA. 1+334.361 TO STA. 1+443.203 (RAMP EX2)
 STA. 1+000.000 TO STA. 1+116.045 (RAMP WN2)
 STA. 1+000.000 TO STA. 1+134.925 (RAMP EN2)
 STA. 1+250.107 TO STA. 1+386.028 (RAMP WN2)
 STA. 1+186.909 TO STA. 1+366.325 (RAMP EX3)
 STA. 1+000.000 TO STA. 1+095.142 (RAMP TX1)



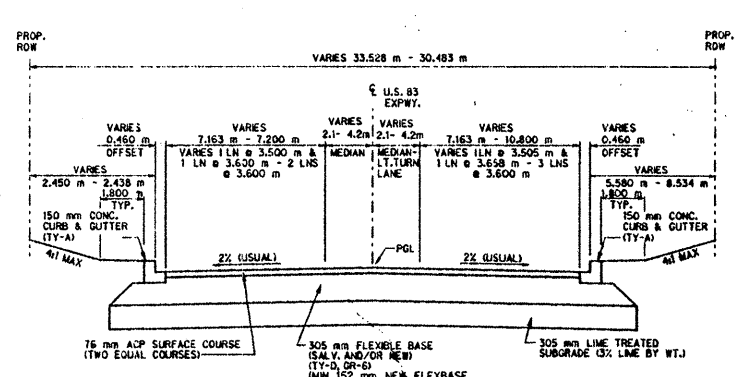
11 **TYPICAL SECTION ENTRANCE AND EXIT RAMP AT GRADE**
 N.T.S.
 TO BE USED AT THE FOLLOWING RAMP STATIONS:
 STA. 1+213.539 TO STA. 1+328.283 (RAMP EXD)
 STA. 1+250.107 TO STA. 1+386.028 (RAMP WN2)
 STA. 1+168.217 TO STA. 1+186.909 (RAMP EX3)
 STA. 1+059.142 TO STA. 1+134.925 (RAMP TX1)
 STA. 1+319.326 TO STA. 1+334.361 (RAMP EX2)
 STA. 1+116.045 TO STA. 1+111.008 (RAMP WN2)
 STA. 1+120.000 TO STA. 1+134.925 (RAMP EN1)
 STA. 1+390.580 TO STA. 1+410.970 (RAMP WN1)



14 **TYPICAL OVERPASS ELEVATION**
 N.T.S.



15 **PROPOSED TYPICAL SECTION - I-ROAD**
 N.T.S.
 TO BE USED AT THE FOLLOWING STATIONS:
 STA. 0+788.168 TO STA. 0+951.389



16 **PROPOSED TYPICAL SECTION - I-ROAD**
 N.T.S.
 TO BE USED AT THE FOLLOWING STATIONS:
 STA. 1+048.479 TO STA. 1+211.839

LEGEND:
 PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT
 PGL DENOTES PROFILE GRADE LINE
 CFS DENOTES CELLULOSE FIBER MULCH SEEDING

GENERAL NOTES:
 1. WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS, THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.
 2. WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPPING LINES AS SHOWN ON STRIPPING DETAILS.
 3. THE SUBGRADE SHALL BE SHAPED AND BLADED A MINIMUM DISTANCE OF 0.6 m BEYOND THE EDGE OF THE PROPOSED BASE COURSE. THE COMPLETE BASE SHALL BE ROLLED BEFORE THE EARTH SHOULDER IS SHAPED AND FINAL COMPACTION SHALL BE DONE OVER BASE AND EDGE OF SHOULDER. ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS.



Michael W. King
 4/15/96
 DATE

PROPOSED TYPICAL SECTIONS									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET			
			DIV. NO.	NO.	NO.	NO.			
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB			
APR 1996	620PKEC3	1:100 HORIZ	TX	HIDALGO	08	17			

3
3

F.R. DIV.6	TEXAS	NH 96(791)M	SHEET 12
HIDALGO	COUNTY	HWY US 83	CONT 0039-17-118

GENERAL NOTES AND SPECIFICATION DATA--

---GENERAL---

THE FOLLOWING STANDARD DETAIL SHEETS HAVE BEEN MODIFIED:

SSCB (4)-95 (M) (MOD), DRIVEWAY DETAILS (MOD), M1-6 (COMPL) (MOD), TYPE "CC" (MOD 1) INLET (COMPL), TYPE "CC" (MOD 11 & 111) INLET (COMPL), TYPE "M" (MOD) MANHOLE (COMPL), TYPE "M" (MOD 1) MANHOLE (COMPL), TYPE "A" (MOD) INLET (COMPL), PB-D-5-40 (MOD), PB-D-4-40 (MOD), PRECAST TRAFFIC RAIL TYPE T504 (M) (1 OF 2) (MOD), PRECAST TRAFFIC RAIL TYPE T504 (M) (2 OF 2) (MOD), SSCB (1)-95 (M) (MOD), 1BDD (M) (MOD), 1BMS (M) (MOD), PRECAST TRAFFIC RAIL TYPE T503 (M) (1 OF 2) (MOD), PRECAST TRAFFIC RAIL T503 (M) (2 OF 2) (MOD), SSCB (1)-95 (M) (MOD) (2), SSCB (4)-95 (M) (MOD) (2), RH (HSE) (MOD), RH (TRF) (MOD).

EXCAVATION OF MATERIAL WHICH IS TO BE USED FOR ROADWAY CONSTRUCTION AND WOULD RESULT IN CREATING A PIT 1.5 METERS OR GREATER BELOW NATURAL GROUND WITHIN 61 METERS OF ANY ROAD DESIGNATED OR MAINTAINED AS A PART OF THE SYSTEM OF ROADS UNDER THE JURISDICTION OF THE TxDOT WILL NOT BE PERMITTED, WHERE THE DEPARTMENT HAS ACQUIRED ADDITIONAL RIGHT OF WAY FOR THIS PROJECT WHICH RESULTS IN THE PERIMETER OF AN EXISTING QUARRY OR MATERIALS PIT TO BE LOCATED 61 METERS OR LESS FROM THE EDGE OF THE NEAREST TRAVEL LANE, THE SAFETY TREATMENT OF THE PIT OR QUARRY SHALL BE ADDRESSED IN ACCORDANCE WITH THE PLANS OR AS REQUIRED BY H.B. 451 LEGISLATION. ANY NECESSARY TREATMENT SHALL BE ADDRESSED AND PAID FOR UNDER SPECIAL SPECIFICATION ITEM "PIT AND QUARRY TREATMENT". THE CONTRACTOR WILL BE RESPONSIBLE FOR INFORMING THE DEPARTMENT OF ANY SUCH PITS NOT IDENTIFIED IN THE PLANS WHICH ARE ENCOUNTERED DURING CONSTRUCTION.

THE CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY PRIOR TO BEGINNING OF SIGNAL CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY FOR THE RAISING OF POWER LINES WHERE DEEMED NECESSARY.

---ITEM 5 CONTROL OF THE WORK---

TO ENSURE ACCURATE MEASUREMENT FOR FINAL PAY QUANTITIES AND TO FACILITATE THE ENGINEER'S CHECK ON THE CONTRACTOR'S SURVEY WORK, THE CONTRACTOR SHALL BE REQUIRED TO SET CONSTRUCTION STAKES BASED ON PLAN STATIONS AND AT 20 METERS MAXIMUM INTERVALS OR AS DIRECTED BY THE ENGINEER.

---ITEM 6 CONTROL OF MATERIALS---

THE CONTRACTOR WILL BE REQUIRED TO FURNISH THE AREA ENGINEER THE MAXIMUM GROSS HEIGHTS, INCLUDING LOADS, FOR ALL VEHICLES, INCLUDING

SPECIFICATION DATA

05/28 SHEET A

F.R. DIV.6	TEXAS	NH 96(791)M	SHEET 12
HIDALGO	COUNTY	HWY US 83	CONT 0039-17-118

GENERAL NOTES AND SPECIFICATION DATA--

---ITEM 6 CONTROL OF MATERIALS---, CONT'D

TRUCKS, TRUCK-TRACTORS, TRAILERS, SEMI-TRAILERS OR ANY COMBINATION OF SUCH VEHICLES USED TO DELIVER MATERIALS TO THE PROJECT. MAXIMUM GROSS WEIGHTS ARE TO BE DETERMINED IN ACCORDANCE WITH ITEM 6, ARTICLE 6.7 OF THE STANDARD SPECIFICATIONS.

---ITEM 100 PREPARING RIGHT OF WAY---

UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER, ALL OBSTRUCTIONS, OBJECTIONABLE MATERIAL AND CONCRETE SHALL BE DISPOSED OF BY HAULING IT OFF THE PROJECT AND OUT OF SIGHT FROM STATE HIGHWAYS TO DISPOSAL SITES ARRANGED FOR BY THE CONTRACTOR AND SATISFACTORY TO THE ENGINEER.

---ITEM 110 EXCAVATION---

INFORMATION REGARDING HAUL IS AVAILABLE AT THE OFFICE OF THE AREA ENGINEER. ALL HAULING OF MATERIALS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED AS SUBSIDIARY TO THE BID ITEMS INVOLVED.

PRIOR TO CONTRACT LETTING, EARTHWORK CROSS SECTIONS WILL BE AVAILABLE AT THE AREA ENGINEER'S OFFICE FOR THE PROSPECTIVE BIDDERS.

---ITEM 132 EMBANKMENT---

THE PERCENT OF DENSITY, AS DETERMINED BY TEST METHOD TEX-113-E, SHALL BE A MINIMUM OF 95 PERCENT. DENSITY TOLERANCES WILL BE PERMITTED.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE FOLLOWING NOTE FOR THIS ITEM APPLIES TO ANY MATERIAL USED FOR EMBANKMENT OTHER THAN THAT WHICH WAS EXCAVATED FROM THE ROADWAY:

EXCAVATION OF MATERIAL WHICH WOULD BE USED FOR EMBANKMENT AND WOULD RESULT IN CREATING A PIT 1.5 METERS OR GREATER BELOW NATURAL GROUND WITHIN 61 METERS OF ANY ROAD DESIGNATED OR MAINTAINED AS A PART OF THE SYSTEM OF ROADS UNDER THE JURISDICTION OF THE TxDOT WILL NOT BE PERMITTED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER AND SUCH EXCAVATION OF MATERIAL WITHIN 61 METERS OF THE OUTSIDE EDGE OF THE TRAVEL LANE WILL NOT BE PERMITTED WITHOUT THE CONSENT OF THE GOVERNMENTAL AGENCY WHICH HAS JURISDICTION OF THE ROAD. THE SECURING OF EMBANKMENT MATERIAL BY THE EXCAVATION OF DITCHES FOR BENEFICIAL DRAINAGE PURPOSES, THE REMOVAL OF SPOIL BANKS, AND THE REMOVAL OF HILLS FOR LAND LEVELLING WITHIN 61 METERS OF ANY PUBLIC ROAD WILL BE PERMITTED, PROVIDED THAT SELECTION CRITERIA IS MET. EXISTING BORROW

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---ITEM 132 EMBANKMENT---, CONT'D

PITS MAY BE EXTENDED TO NO CLOSER THAN PRESENT CLEARANCE OR THE 61 METER CLEARANCE CITED ABOVE, PROVIDED THERE IS ADEQUATE NATURAL OR PLANTED VEGETATIVE SCREENING AS DETERMINED BY THE ENGINEER.

EMBANKMENT (DENSITY CONT) SHALL BE TYPE C WITH A MAX. P.I. OF 40. BORROW USED AS EMBANKMENT MATERIAL IN THE TOP TWO FEET BELOW THE BOTTOM OF FLEXIBLE BASE SHALL MEET THE FOLLOWING REQUIREMENTS BASED ON PRELIMINARY TESTS AND SUCH OTHER TESTS FOUND NECESSARY BY THE ENGINEER.

- THE MATERIAL SHALL BE SUCH AS TO PRODUCE A WELL-BONDED EMBANKMENT AND SHALL HAVE A MINIMUM P.I. OF 8 AND A MAXIMUM P.I. OF 30.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE PRELIMINARY TEST WILL REQUIRE APPROXIMATELY 15 DAYS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADVISE THE ENGINEER OF THE LOCATION OF THE SOURCE SUFFICIENTLY IN ADVANCE TO AVOID DELAY.

---ITEM 164 SEEDING FOR EROSION CONTROL---

CELLULOSE FIBER MULCH SEEDING SHALL BE APPLIED IN AREAS DESIGNATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. PRIOR TO SEEDING, THE AREAS DESIGNATED SHALL BE FINISHED TO A SMOOTH SURFACE FOR A UNIFORM APPLICATION OF SEED.

SEEDING SHALL BE ACCOMPLISHED BY THE HYDRONULCH METHOD IN THO APPLICATIONS AS SHOWN BELOW:

- 1ST APPLICATION - GRASS SEED AND FERTILIZER
- 2ND APPLICATION - CELLULOSE FIBER MULCH SHALL BE APPLIED ACCORDING TO THE RATE SHOWN IN THE STANDARD SPECIFICATION BOOK.

FERTILIZER SHALL BE APPLIED AT THE RATE OF 112 KILOGRAMS OF NITROGEN PER HECTARE. FERTILIZER SHALL BE HOMOGENIZED.

---RESEEDING---

AREAS REQUIRING RESEEDING DUE TO THE NON-ESTABLISHMENT OF SUFFICIENT VEGETATIVE COVER, SHALL BE RESEED IN ACCORDANCE WITH ITEMS 164 AND 168. THE COST FOR RESEEDING SHALL BE PAID FOR BY THE STATE PROVIDED THAT THE CONTRACTOR HAS FOLLOWED THE SEEDING AND WATERING REQUIREMENTS AS SPECIFIED IN ITEMS 164 AND 168.

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---ITEM 164 SEEDING FOR EROSION CONTROL---, CONT'D

---SEED MIXTURE---

SEED MIXTURE SHALL BE AS SPECIFIED UNDER ITEM 164.

COOL SEASON OR WARM SEASON GRASSES SHALL BE INCLUDED AS PART OF ITEM 164 (SEE TABLE 4A OR 5 IN THE STANDARD SPECIFICATION MANUAL FOR DATES AND SEED TYPE).

---ITEM 166 FERTILIZER---

AREAS TO RECEIVE FERTILIZER ARE THE SAME AS SHOWN FOR ITEM 164.

---ITEM 168 VEGETATIVE WATERING---

WATER SHALL BE APPLIED UNIFORMLY OVER AREAS AFTER SEEDING OR SODDING AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH APPLICABLE PROVISIONS OF ITEM 168 "VEGETATIVE WATERING". IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR A 70% GRASS COVERAGE IN ORDER TO COMPLY WITH STABILIZATION REQUIREMENTS. VEGETATIVE COVERAGE SHALL BE UNIFORM. DURING THIS PERIOD, WATER EQUIPMENT SHALL BE METERED AND OPERATED UNDER PUMPING PRESSURE CAPABLE OF DELIVERING THE REQUIRED QUANTITIES OF WATER NECESSARY. EACH CYCLE SHALL BE EXECUTED EVERY TWO (2) DAYS, OR AS DIRECTED BY THE ENGINEER. WATER SHALL BE APPLIED IN SUCH A MANNER AS TO ENSURE ADEQUATE MOISTURE AND BE MAINTAINED ON THE GRASS SEEDING AND NOT ERODE THE SOIL IN PLACE. DURING PERIODS OF ADEQUATE MOISTURE AS DETERMINED BY THE ENGINEER, MECHANICAL WATERING MAY NOT BE REQUIRED. IN ADDITION TO METERING THE WATER EQUIPMENT, THE CONTRACTOR SHALL UPON REQUEST OF THE ENGINEER, PROVIDE A LOG BOOK SHOWING DAILY WATER USAGE AND RECEIPTS OF WATER APPLIED.

UPON ESTABLISHMENT OF 70% VEGETATIVE COVERAGE AS DETERMINED BY THE ENGINEER, THE ENGINEER SHALL HAVE THE OPTION TO REQUIRE THE CONTRACTOR TO CONTINUE WATERING AS SPECIFIED FOR A PERIOD NOT TO EXCEED 30 DAYS.

THE BASIS OF THE ESTIMATE BELOW ESTABLISHES THE APPROXIMATE QUANTITY OF WATER REQUIRED TO COMPLETE ONE (1) FULL WATERING CYCLE:

* GRASS AREAS	KL/HECTARE	HECTARE	TOTAL KILOLITERS (MINIMUM)
	91.75	10.75	341.2

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---ITEM 168 VEGETATIVE WATERING---, CONT'D

---ITEM 192 ROADSIDE PLANTING AND ESTABLISHMENT---

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MATERIAL SAMPLES AS WELL AS ANY MANUFACTURER'S LITERATURE OF MATERIALS USED ON THIS PROJECT AS REQUIRED BY THE ENGINEER. ANY COSTS ASSOCIATED WITH ANY SAMPLING AND TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THESE COSTS SHALL BE CONSIDERED AS INCIDENTAL AND THE CONTRACTOR WILL NOT BE ENTITLED TO ANY ADDITIONAL COMPENSATION.

ANY WATER HAULED TO THE SITE DURING THE PLANT TRANSPLANTATION PERIOD AND A 90 DAY MAINTENANCE PERIOD SHALL BE PAID FOR BY THE CONTRACTOR.

THE CONTRACTOR SHALL BE REQUIRED TO VERIFY AND ADHERE TO THE REQUIREMENTS AND CODES OF THE CONTROLLING UTILITY AUTHORITIES IN THE EVENT ANY MATERIALS OR INSTALLATION OF ANY UTILITIES SHOWN ON THE PLANS ARE NOT ADEQUATE TO MEET THE REQUIREMENTS OR CODES OF THE CONTROLLING UTILITY AUTHORITIES. ANY CHANGES THAT MAY BE NECESSARY SHALL BE CONSIDERED INCIDENTAL AND THE CONTRACTOR SHALL NOT BE ENTITLED TO ANY ADDITIONAL COMPENSATION.

---PRE-CONSTRUCTION CONFERENCE---

PRIOR TO BEGINNING WORK ON THE PROJECT AND SOON AFTER THE AWARD OF THE CONTRACT, A CONFERENCE WILL BE HELD BETWEEN THE REPRESENTATIVES OF TxDOT, THE CONTRACTOR, AND ANY SUB-CONTRACTORS THAT WILL BE INVOLVED IN THE WORK. AT THIS TIME THE CONTRACTOR SHALL SUBMIT CHARTS OR BRIEFS OUTLINING THE MANNER OF EXECUTION OF THE WORK THAT IS INTENDED IN ORDER TO COMPLETE THE SPECIFIED WORK WITHIN THE ALLOTTED TIME. THIS CONFERENCE WILL MORE COMPLETELY ESTABLISH THE SEQUENCE OF WORK TO BE FOLLOWED AND ESTABLISH THE ESTIMATED PROGRESS SCHEDULE FOR COMPLETION OF THE VARIOUS TASKS.

IN ADDITION, AT THIS CONFERENCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING THE ENGINEER WITH ALL OF THE FOLLOWING, AS SPECIFIED HEREIN OR AS DIRECTED BY THE ENGINEER:

- SAMPLES OF ALL MATERIALS, EXCEPT PLANTS, TO BE USED ON THE PROJECT WITH IDENTIFICATION AS TO PRODUCT NAME; NAME, LOCATION, PHONE NUMBER (INCLUDING AREA CODE), AND MAILING ADDRESS OF PRODUCT SOURCE AND MANUFACTURER, IF DIFFERENT

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---PRE-CONSTRUCTION CONFERENCE---, CONT'D

FROM SOURCE; CONTENT OF PRODUCT; AMOUNT OF EACH INGREDIENT IN THE PRODUCT, AND MANUFACTURER'S DIRECTIONS AS TO USE AND APPLICATION OF THE PRODUCT, IF APPLICABLE.

- MANUFACTURER'S LITERATURE OF ALL MATERIALS AND EQUIPMENT INSTALLED ON THE PROJECT.
- ANY AND ALL STATE AND FEDERAL CERTIFICATIONS STATING THAT THE PLANTING MATERIALS ARE FREE FROM DISEASE AND INSECT INFESTATION.
- ALL NURSERY LOCATIONS, NAMES, PHONE NUMBERS (INCLUDING AREA CODES), AND MAILING ADDRESSES WHERE THE CONTRACTOR INTENDS TO PROCURE PLANTING MATERIAL FOR THE PROJECT SO THAT CRITICAL PLANTING MATERIALS MAY BE INSPECTED AT THE SOURCE, IF NECESSARY. ALSO, INDICATE WHICH MATERIALS SHALL BE USED FROM EACH NURSERY.
- A PLAN FOR TRANSPORTING PLANTING MATERIALS AS SPECIFIED UNDER ITEM 192 OF THESE GENERAL NOTES.
- THE SOURCE OF WATER AND THE MEANS OF DISTRIBUTION ON THE PROJECT (THIS MAY BE IRRIGATION SYSTEM OR BY OTHER MEANS AS REQUIRED BY THE PROJECT).

ALL OF THE REQUIREMENTS LISTED UNDER THE "PRE-CONSTRUCTION CONFERENCE" WILL BE SUBJECT TO REVIEW, TESTING, AND APPROVAL BY THE ENGINEER. IF ITEMS FAIL TO MEET APPROVAL, THE CONTRACTOR SHALL CORRECT THE DEFICIENCIES AND RESUBMIT FOR APPROVAL AS DIRECTED BY THE ENGINEER PRIOR TO BEGINNING WORK ON THE PROJECT. IF THESE ITEMS FAIL A SECOND APPROVAL, THE ENGINEER WILL DETERMINE THE COURSE OF ACTION FOR THE CONTRACTOR TO FOLLOW. ANY APPROVAL GIVEN, AS STATED ABOVE, SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING QUALITY MATERIALS, PRODUCTS, AND EQUIPMENT DURING CONSTRUCTION. THE ENGINEER HAS THE OPTION TO REVIEW, TEST, APPROVE, OR DISAPPROVE ANY PHASE OF THE CONSTRUCTION OR MAINTENANCE AS THE WORK PROGRESSES. IT IS UNDERSTOOD THAT SOME MATERIALS FOR THE PROJECT WILL REQUIRE MIXING. THEREFORE, THESE MATERIALS AFTER MIXING MAY BE REVIEWED, TESTED, AND APPROVED AS STATED WITHIN THESE GENERAL NOTES.

CONTRACTOR SHALL REMOVE ALL PLANTS, STUMPS, ROOTS AND OTHER OBJECTIONABLE MATERIAL FROM THE SITE AS DIRECTED BY THE ENGINEER.

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---MULCH MATERIALS---

1. MULCH MATERIAL FOR SOIL AMENDMENT REQUIRED IN THE BACKFILL MIX SHALL BE 100% ORGANIC COMPOSTED MATERIAL, FACTORY BLENDED TO CONTAIN NON-FOLIATED (ARSENIC ACID FREE) WEEED FREE, AND CONTAINING AN APPROXIMATE NON-LEACHABLE N-P-K ANALYSIS OF 2.0- 2.0-2.0 WITH TRACE ELEMENTS.

EXAMPLE: SHEET SOIL , SOIL AMENDMENT MANUFACTURED BY:

ORGANIC COMPOST INC.
BOX 1637
EDINBURG, TEXAS 78504
(512)383-1121
(OR APPROVED EQUAL)

2. ALL MULCH FOR SURFACE APPLICATION SHALL BE SHREDDED PINE BARK. THE TEXTURE SHALL CORRESPOND TO THE TYPE I, CLASS B CLASSIFICATION OF THE FEDERAL SPECIFICATION Q-P-166E, WITH PARTICLES RANGING BETWEEN THE SIZE FROM 9 MM TO ABOUT 25 MM, WITH A MINIMUM (NOT OVER 25% BY VOLUME) OF FINER PARTICLES AND DUST. MULCH OF THIS TYPE AND CLASS SHALL BE FREE OF STICKS, STONES, CLAY, OR OTHER FOREIGN MATTER.

3. 0.03 M3 SAMPLES OF EACH TYPE OF INGREDIENT ALONG WITH A LABEL FROM THE MANUFACTURER'S PACKAGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. IF BULK MATERIALS ARE USED, TYPICAL SAMPLES OF EACH TYPE OF MATERIAL SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO THE PREPARATION OF THE PLANTING MIX. THESE SAMPLES, IF APPROVED BY THE ENGINEER, SHALL BE USED AS THE STANDARD BY WHICH OTHER MATERIALS SHALL BE JUDGED. ANY MATERIAL THAT, IN THE JUDGMENT OF THE ENGINEER, IS BELOW THE QUALITY OF THESE SAMPLES MAY BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS SET FORTH HEREIN. ANY REJECTED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE SITE AT THE CONTRACTORS EXPENSE. PAYMENT FOR ANY TESTING REQUIRED UNDER THIS SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

---PLANTING SOIL MIX---

BACKFILLING OF ALL PLANT PITS SHALL BE DONE WITH A PLANTING SOIL MIX AS SPECIFIED HEREIN. NATIVE SOIL REMOVED FROM THE PLANTING PITS AND BEDS SHALL BE USED TO FORM THE WATERING BASINS. EXCESS SOIL SHALL BE REMOVED FROM THE SITE OR DISTRIBUTED AND LEVELED ON THE SITE BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

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---PLANTING SOIL MIX---, CONT'D

PLANTING SOIL MIX USED FOR BACKFILLING PLANTING PITS SHALL BE PREPARED IN THE FOLLOWING PROPORTIONS BY VOLUME:

60% SANDY LOAM TOPSOIL (PH 7.0-7.8). SOIL SHALL BE TYPICAL OF THE AREA WITH NO NOXIOUS WEEDS, GRASSES, STICKS, ROOTS, OR STONES PRESENT AND SHALL BE CONSISTENT IN TEXTURE. (MAXIMUM LUMP SIZE IS 25 MM).

40% MULCH AS LISTED ABOVE.

THE ENGINEER MAY REQUIRE THE CONTRACTOR TO MIX ALL INGREDIENTS OF THE PLANTING SOIL MIX IN THE PRESENCE OF THE ENGINEER.

ALL INGREDIENTS SHALL BE THOROUGHLY BLENDED TO PROVIDE A HOMOGENEOUS MIXTURE. MIXING SHALL BE IN ONE CUBIC METER OR GREATER BATCHES USING MECHANICAL MIXING EQUIPMENT APPROVED BY THE ENGINEER. MIXING MAY BE DONE IN A DESIGNATED ON-SITE AREA OR IT MAY BE ACCOMPLISHED OFF-SITE IF APPROVED BY THE ENGINEER AND THE FINISHED MATERIAL TRANSPORTED TO THE SITE.

SAMPLES OF AT LEAST 0.03 M3 FOR EACH 7M3 OF PLANTING SOIL MIX USED ON THE SITE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. IN THE EVENT DEFICIENCIES ARE FOUND IN THE PLANTING MIX THEY SHALL BE CORRECTED IMMEDIATELY. IF THE MATERIAL IS REJECTED ON THE PROJECT SITE BY THE ENGINEER FOR ANY REASON, ALL OF THE REJECTED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE. IF ANY OF THE REJECTED MATERIAL HAS BEEN USED IN THE PLANTING OPERATIONS, THE ENGINEER, AT HIS DISCRETION, MAY REQUIRE THE CONTRACTOR TO REMOVE AND REPLACE THE SOIL MIX WITH AN APPROVED MIXTURE. ANY TESTING REQUIRED BY THE ENGINEER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CONSIDERED SUBSIDIARY TO THE WORK AND NO ADDITIONAL COMPENSATION SHALL BE AWARDED.

---FERTILIZER APPLICATION AT PLANTING---

ALL PLANTS SHALL BE FERTILIZED WITH AN APPROVED SLOW RELEASE TABLET APPLIED AT THE RATE SHOWN ON THE PLANS OR AT A COMPARABLE RATE FOR AN APPROVED SUBSTITUTE. THE CONTRACTOR SHALL SUBMIT COMPLETE MANUFACTURER'S LITERATURE AND ANALYSIS DATA FOR APPROVAL OF THE ENGINEER PRIOR TO BEGINNING WORK ON THE PROJECT.

APPLICATION SHALL BE AS FOLLOWS:

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---FERTILIZER APPLICATION AT PLANTING---, CONT'D

PALMS - 8 TABLETS EACH

PLACEMENT OF TABLETS ARE AS DESIGNATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

---STAKING OF PLANT MATERIAL LOCATIONS---

ALL PLANTS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO ANY EXCAVATION OF PLANT PITS. STAKES SHALL BE COLOR CODED TO DENOTE PLANT LOCATIONS AT THE TIME WHEN PLANTS HAVE BEEN STAKED. THE ENGINEER SHALL HAVE THE RIGHT TO MAKE ADJUSTMENTS TO THE PLANT LOCATIONS TO MEET FIELD CONDITIONS. THESE CHANGES SHALL BE CONSIDERED INCIDENTAL AND THE CONTRACTOR SHALL NOT BE ENTITLED TO ANY ADDITIONAL COMPENSATION.

---STAKING AND GUYING---

THE CONTRACTOR SHALL INSTALL AND MAINTAIN THE GUYING MATERIAL AS DETAILED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

---WATER AND WATERING---

WATER FOR ALL PLANTING AND 3 MONTH MAINTENANCE OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. WATER SHALL BE CLEAN, CLEAR, AND FREE OF INDUSTRIAL WASTES OR OTHER SUBSTANCES HARMFUL TO PLANTS. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED FACILITIES, TO MAKE CONNECTIONS AND CONVEY THE WATER TO THE PLACES WHERE IT WILL BE USED AND TO INCREASE THE WATER PRESSURE IF REQUIRED. AT THE PRECONSTRUCTION CONFERENCE, THE CONTRACTOR SHOULD BE PREPARED TO IDENTIFY THE SOURCE OF WATER AND THE MEANS FOR DELIVERY AND DISTRIBUTION OF WATER ON THE SITE.

DURING THE PLANTING OPERATIONS, THE CONTRACTOR SHALL PROVIDE A QUANTITY AND FREQUENCY OF WATER APPLICATION TO KEEP THE GROUND AND BACKFILL MATERIAL MOIST TO A DEPTH OF AT LEAST 300 MM BELOW THE ROOT BALL. FOR THE DURATION OF THE 3 MONTH MAINTENANCE PERIOD AS A PART OF THIS CONTRACT, THE CONTRACTOR SHALL BE REQUIRED TO ADEQUATELY WATER ALL PLANT MATERIAL IN ORDER TO PROVIDE AND PROMOTE VIGOROUS GROWTH.

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---PRUNING---

ANY NECESSARY PRUNING SHALL BE DONE AT THE TIME OF PLANTING AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH APPROVED HORTICULTURAL METHODS. ALL PRUNING SHALL BE ACCOMPLISHED WITH CLEAN SHARP TOOLS SPECIFICALLY DESIGNED FOR THESE PURPOSES. PRUNING AND SELECTIVE THINNING EQUAL TO CLASS 1 "FINE PRUNING" SHALL BE ACCOMPLISHED AS NEEDED DURING THE CONTRACT PERIOD. THE REMOVAL OF SUCKER GROWTH SHALL BE REQUIRED TO KEEP THE PLANT MATERIAL FREE OF SUCKER GROWTH.

PLANT BASIN MAINTENANCE

----- DURING THE INSTALLATION AND THE 3 MONTH MAINTENANCE PERIOD ALL PLANT BASINS AND PLANTING BEDS SHALL BE MAINTAINED WEEED FREE. NYLON STRING TRIMMERS SHALL NOT BE USED WITHIN THE PLANT BASINS OR PLANTING BEDS. A 50 MM LAYER OF PINE BARK MULCH OR SHREDDED CYPRESS MULCH, FINE GRADE AND FREE OF DEBRIS, SHALL BE ESTABLISHED AND MAINTAINED AT ALL TIMES WITHIN THE BASINS AND BEDS. EXISTING MULCH SHALL BE WORKED AS TO ELIMINATE MULCH COMPACTION.

WATERING BASINS SHALL BE MAINTAINED AS PER DETAILS. BACK FILL MATERIAL LISTED ABOVE, FREE OF WEEED SEED OR OTHER UNDESIRABLE DEBRIS, SHALL BE USED TO BUILD BASINS AND SHALL BE COMPACTED TO ADEQUATELY REDUCE EROSION DURING WATERING OR EXCESSIVE RAINFALL.

---PLANT MATERIAL---

AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL BE REQUIRED TO RELOCATE THE PLANTS WITHIN THE PROJECT LIMITS AS NEEDED. THE QUANTITY OF EACH PLANT TYPE LISTED WITHIN THE ESTIMATE SUMMARY SHEET AND WITHIN THE PROJECT PROPOSAL MAY BE INCREASED OR DECREASED AS NECESSARY. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL NUMBER OF PLANTS RELOCATED BASED ON THE UNIT PRICE BID FOR EACH TYPE. REPLACEMENT PLANT MATERIAL SHALL MEET OR EXCEED THE FOLLOWING SPECIFICATIONS:

PLANT RELOCATION SHALL INCLUDE ALL BACK FILL, MULCH, FERTILIZER, STAKING AND GUYING, WATER, LABOR ECT. TO INSTALL AND ESTABLISH PLANT MATERIAL, COMPLETE AND IN PLACE.

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A PLAN TO THE ENGINEER FOR TRANSPORTING PLANT MATERIAL FROM THE PLACE OF GROWTH TO THE SITE. SUCH A PLAN SHALL INCLUDE: DATE OF PICK-UP, PLACE OF GROWTH, NURSERY OR PLACE OF STORAGE, TYPE OF VEHICLE USED FOR SHIPPING, METHOD OF PROTECTING PLANTS DURING TRANSIT, DATE OF DELIVERY TO SITE, PROJECTED DATE OF INSTALLATION, A MEANS OF STORAGE AND CARE. WATERING AND

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---PLANT MATERIAL---, CONT'D

SHADING USED BETWEEN DELIVERY AND PLANTING SHALL BE SUBJECT TO REVIEW BY THE ENGINEER. DO NOT STORE PLANT MATERIALS ON HARD SURFACES AND IMMEDIATELY UNTIE MATERIAL UPON DELIVERY.

THE FOLLOWING CONSIDERATIONS FOR PRODUCT HANDLING BY THE CONTRACTOR SHALL BE EVALUATED DURING HOT WEATHER AND WHEN PRACTICAL:

- 1) THE CONTRACTOR MAY BE REQUIRED TO TRANSPORT PLANT MATERIALS BETWEEN SUNSET AND SUNRISE IF TRANSPORTED IN AN OPEN TRAILER OR UNREFRIGERATED VAN.
- 2) DUG MATERIAL SHALL BE MAINTAINED AND WATERED AS REQUIRED AT THE NURSERY TO GUARANTEE THEIR VITALITY AND HEALTH UNTIL INSTALLATION.
- 3) PROTECT TRUNKS, STEMS, BRANCHES, AND ROOT BALLS FROM ALL DAMAGE DURING DIGGING, HANDLING, TYING, WRAPPING, LOADING, UNLOADING, AND UNTYING OPERATIONS.
- 4) LOAD CONTAINERS ONTO TRANSPORT VEHICLE AND SECURE IN A MANNER THAT PROTECTS THE STRUCTURAL INTEGRITY OF THE ROOT BALLS AND BRANCHES.
- 5) THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFE TRANSPORTATION OF PLANTS TO THE SITE AND THEIR CONDITION UPON ARRIVAL.
- 6) PLANTS DAMAGED, DEHYDRATED OR ABUSED DURING TRANSIT AND STORAGE WILL BE REJECTED.
- 7) PLANT MATERIALS SHALL NOT BE STORED ON CONCRETE OR LEFT EXPOSED TO THE SUN.
- 8) PROTECT THE ROOT BALLS AND WATER REGULARLY UNTIL PLANTING.
- 9) IF PLANTS ARE LEFT IN STORAGE OVER THE WEEKEND OR HOLIDAY A MEANS OF PERIODICALLY WATERING AND INSPECTING ROOT BALL MOISTURE SHALL BE PROVIDED.

THE ENGINEER MAY INSPECT ANY PHASE OF PRODUCT HANDLING AND MAY REJECT ANY PLANT MATERIAL IMPROPERLY HANDLED DURING ANY POINT OF THIS OPERATION.

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---PLANT MATERIAL---, CONT'D

THE CONTRACTOR SHALL NEITHER WORK SUBSOIL FOR PLANTING OPERATIONS WHEN MOISTURE CONTENT IS SO GREAT THAT EXCESSIVE COMPACTION WILL OCCUR NOR WHEN IT IS SO DRY THAT THE CLOUDS WILL NOT BREAK READILY. WATER SHALL BE APPLIED, IF NECESSARY.

DO NOT BIND OR HANDLE ANY PLANT WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE BARK OR BREAK BRANCHES. LIFT AND HANDLE PLANTS ONLY FROM BOTTOM OF BALL.

THE CONTRACTOR SHALL FOLLOW THESE STEPS FOR THE INSTALLATION OF PIT PLANTED MATERIALS:

- 1) SCARIFY THE WALLS AND BOTTOM OF ALL PLANT PITS IMMEDIATELY PRIOR TO THE PLACEMENT OF PLANT AND BACKFILL MIX TO INSURE THE REMOVAL OF ALL GLAZING CAUSED BY AN AUGER OR MECHANICAL HOLE DIGGER.
- 2) FILL PLANT PITS WITH BACKFILL MIX TO COMPACT DEPTH TO RECEIVE ROOT BALL, SO THAT THE TOP OF THE ROOT BALL IS 100 TO 150 MM BELOW FINISHED GRADE.
- 3) PRUNE AWAY GIRDLED ROOTS AND TEASE ROOT HAIR MASSES. CAREFULLY FILL PIT WITH BACKFILL MIX AND COMPACT BY WATERING IN TO SUPPORT ROOT BALL.
- 4) SMOOTH PLANTED AREAS TO CONFORM TO SPECIFIED GRADES AFTER FULL SETTLEMENT HAS OCCURRED. CREATE WATERING BASINS AS SHOWN ON THE PLANS. WATER ALL PLANTS IMMEDIATELY AFTER PLANTING.
- 5) SPREAD MULCH IN REQUIRED AREAS TO THE COMPACTED DEPTH OF 50 MM OR AS SPECIFIED IN THE DETAILS OR BY THE ENGINEER.
- 6) PLANTS SHALL STAND PLUMB AFTER STAKING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATERIAL REMAINING PLUMB AND STRAIGHT FOR ALL GIVEN CONDITIONS THROUGHOUT THE CONTRACT PERIOD. FREE SUPPORT SHALL BE DONE AS OUTLINED IN THE DETAILS.

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REPLACEMENT OF MATERIAL

IF AT ANY TIME DURING THE CONTRACT PERIOD, A PLANT IS FOUND TO BE DEAD, IT SHALL BE REPLACED TO THE SATISFACTION OF THE ENGINEER, AND WITHIN THE PERIOD SPECIFIED IN THE FORMAL WRITTEN NOTIFICATION FROM THE ENGINEER. FAILURE TO ACCOMPLISH REPLACEMENT OF PLANT MATERIALS DURING THE SPECIFIED TIME PERIOD WILL BE CONSIDERED NON-PERFORMANCE OF THE GUARANTEE AND MAINTENANCE REQUIREMENTS INCLUDED IN THIS CONTRACT AND THE ENGINEER MAY WITHHOLD PAYMENT UNTIL THE REQUIRED REPLACEMENT HAS BEEN ACCOMPLISHED.

PLANTING REQUIREMENT FOR PLANT REPLACEMENT

THE CONTRACTOR SHALL UTILIZE THE SAME PROCESS FOR REPLACEMENT OF PLANTING OR MATERIALS AS USED IN THE ORIGINAL INSTALLATION PROCESS.

---ITEM 247 FLEXIBLE BASE ---

FLEXIBLE BASE WILL BE COMPOSED OF CALICHE (ARGILLACEOUS LIMESTONE, CALCAREOUS OR CALCAREOUS CLAY PARTICLES, WITH OR WITHOUT STONE, CONGLOMERATE, GRAVEL, SAND OR GRANULAR MATERIALS).

FLEXIBLE BASE (TY D GR 6) SHALL CONFORM TO THE FOLLOWING REQUIREMENTS: BEFORE LIME IS ADDED

RETAINED ON SQ. SIEVE	PERCENT RETAINED
50 MM	0
12.5 MM	20-60
4.75 MM	40-75
0.425 MM	75-85
MAX. P.I.	15
MAX. WET BALL P.I.	15
WET BALL MILL MAX AMOUNT	50
MIN. COMP STRENGTH, KPA:	1035 AT 103 KPA LATERAL PRESSURE

THE WET BALL TEST (TEX-116-E) SHALL BE RUN AND THE PLASTICITY INDEX OF THE MATERIAL PASSING THE NO. 40 SIEVE SHALL BE DETERMINED (WET BALL P.I.).

AFTER 1/22 OR 12 LIME (LABORATORY) IS ADDED TO UNLINED MATERIAL

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---ITEM 247 FLEXIBLE BASE ---, CONT'D

MAX. P.I. 12
MIN. COMP. STRENGTH, KPA: 1240 AT 103 KPA LATERAL PRESSURE
TRIAxIAL TEST (LIME TREATED) TEST METHOD TEX-121-E

IF 1/22 LIME (LABORATORY) IS REQUIRED TO MEET P.I. AND TRIAXIAL REQUIREMENTS, 1 % LIME WILL BE INCORPORATED INTO THE FLEXIBLE BASE AT STATE'S EXPENSE.

IF 12 LIME (LABORATORY) IS REQUIRED TO MEET P.I. AND TRIAXIAL REQUIREMENTS, 12 LIME WILL BE INCORPORATED INTO THE FLEXIBLE BASE AT STATE'S EXPENSE AND AN ADDITIONAL 12 LIME SHALL BE INCORPORATED AT THE CONTRACTOR'S EXPENSE IN ACCORDANCE WITH THE PROVISIONS OF ITEMS 262 AND 264, EXCEPT FOR MEASUREMENT AND PAYMENT.

THE PERCENT OF DENSITY AS DETERMINED BY COMPACTION RATIO (TEST METHOD TEX-113-E) FOR THE NEW FLEXIBLE BASE SHALL BE A MINIMUM OF 98%. DENSITY, GRADATION AND P.I. TOLERANCES WILL BE PERMITTED.

SAMPLES FOR TESTING THE MATERIAL FOR SOIL CONSTANTS, GRADATION AND WET BALL MILL SHALL BE TAKEN FROM PRODUCTION OR STOCKPILE AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT CERTAIN EXISTING AND/OR PROPOSED STRUCTURES MAY BE WITHIN THE LIMITS OF THE FLEXIBLE BASE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION OPERATIONS WITHOUT DAMAGE TO THESE STRUCTURES.

---ITEM 251 REWORKING BASE MATERIAL---

QUANTITIES OF FLEXIBLE BASE TO BE SALVAGED, SHOWN ON THE TYPICAL SECTIONS, ARE FOR ESTIMATING PURPOSES ONLY. ALL ACCEPTABLE BASE MATERIAL ENCOUNTERED IN EXISTING BASE IS TO BE SALVAGED AS DIRECTED BY THE ENGINEER REGARDLESS OF THE QUANTITIES INVOLVED.

SALVAGED BASE SHALL BE USED IN THE BOTTOM COURSE ON ANY OF THE PROPOSED ROADWAY AND/OR TURNOUT SECTIONS. THE SALVAGED FLEXIBLE BASE SHALL BE LAID TO A COMPACTED THICKNESS THAT WILL ALLOW A MINIMUM COVER OF 100 MILLIMETERS OF NEW FLEXIBLE BASE ON THE PROPOSED ROADWAY AND/OR TURNOUT SECTIONS.

SALVAGED BASE MAY BE USED ON ANY OF THE PROPOSED DRIVEWAY SECTIONS.

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---ITEMS 260-262 LIME TREATMENT FOR MATERIALS USED AS SUBGRADE AND LIME TREATMENT FOR BASE COURSES---

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT CERTAIN EXISTING AND/OR PROPOSED STRUCTURES ARE WITHIN THE LIMITS OF THE LIME-TREATED SUBGRADE. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, THESE STRUCTURES SHALL BE INSTALLED BEFORE THE FINAL ROLLING OF THIS SUBGRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE PROPER LIME TREATING OPERATION WITHOUT DAMAGE TO THESE STRUCTURES.

SOFT SPOTS IN THE SUBGRADE ARE TO RECEIVE LIME STABILIZATION AS DIRECTED BY THE ENGINEER. ADDING, MIXING, ETC., OF THE LIME FOR SOFT SPOTS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM, "LIME TREATMENT FOR MATERIALS USED AS SUBGRADE".

THE SLURRY METHOD OF APPLYING LIME WILL BE REQUIRED, EXCEPT WHEN THE LIME IS TO BE ADDED TO NATURALLY WET MATERIALS AS DIRECTED BY THE ENGINEER.

FOR THIS PROJECT, THE ENGINEER WILL DIRECT A RANDOM NUMBER OF LIME TRUCKS TO BE CHECK WEIGHED.

THE MINIMUM SEVEN-DAY CURING PERIOD AND THE MINIMUM TWO-DAY REQUIREMENT BEFORE OPENING TO TRAFFIC SHALL NOT APPLY TO THIS PROJECT. THE LIME TREATED MATERIAL SHALL BE KEPT MOIST UNTIL THE TREATED MATERIAL IS SEALED OR COVERED BY OTHER MATERIAL.

A LIME SPREADER BOX WILL NOT BE REQUIRED IF LIME CAN BE DISTRIBUTED WITHOUT IT, AT A UNIFORM RATE, TO THE SATISFACTION OF THE ENGINEER.

---ITEM 301 ASPHALT ANTISTRIPPING AGENTS---

LIME SHALL BE USED AS AN ANTISTRIPPING AGENT.

--- ITEM 305 SALVAGING, HAULING AND STOCKPILING RECLAIMABLE ASPHALTIC PAVEMENT

ALL SALVAGED ASPHALTIC PAVEMENT NOT INCORPORATED BY THE CONTRACTOR IN THIS PROPOSED IMPROVEMENTS SHALL BE DELIVERED BY THE CONTRACTOR TO THE TxDOT MAINTENANCE YARD LOCATED IN PHARR, TEXAS.

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---ITEM 310 PRIME COAT (CUTBACK ASPHALTIC MATERIAL)---

THE CONTRACTOR SHALL EXERCISE DILIGENCE IN THE APPLICATION OF ASPHALT BY THE USE OF FLAGGING AND ROLLING PROCEDURES TO KEEP FROM SPRAYING OR SPLATTERING THE TRAVELING PUBLIC WITH ASPHALTIC MATERIAL.

---ITEM 400 EXCAVATION AND BACKFILL FOR STRUCTURES---

CEMENT STABILIZED BACKFILL SHALL CONTAIN AGGREGATE, WATER AND A MINIMUM OF 2 SACKS OF PORTLAND CEMENT PER CUBIC YARD OF MATERIAL. CEMENT AND WATER SHALL CONFORM TO THE REQUIREMENTS OF THE ITEM "CONCRETE PAVEMENT". AGGREGATE SHALL BE CLEAN SAND OR OTHER SUITABLE MATERIAL AND SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

---ITEM 416 DRILLED SHAFT FOUNDATIONS---

CLASS "C" CONCRETE WILL BE REQUIRED FOR THIS ITEM.

THE CONTRACTOR SHALL PROBE BEFORE DRILLING FOUNDATIONS TO DETERMINE THE LOCATIONS OF ALL UNDERGROUND UTILITIES AND STRUCTURES.

---ITEM 420 CONCRETE STRUCTURES---

A MECHANICAL LONGITUDINAL SCREED WILL BE REQUIRED FOR CONCRETE SLABS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

--- ITEM 420 FORM LINER TREATMENT ---

THE CONTRACTOR SHALL NOT BE ALLOWED THE SPLICING, CUT AND JOINTING, GLUING ETC. OF FORM LINER PANELS. EACH FORM LINER PANEL SHALL BE FABRICATED TO FORM A ONE PIECE UNIT TO THE SIZE AND SPECIFICATIONS SET FORTH IN THE PLAN SHEETS. FORM LINERS MADE OF MULTI-USE MATERIAL SHALL BE WASHED AND CLEANED AFTER EACH USAGE. FORM LINERS THAT HAVE IN THE OPINION OF THE ENGINEER BECOME DAMAGED OR WORN SHALL BE REPLACED BY THE CONTRACTOR. REPLACEMENT OF FORM LINERS SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL COMPENSATION.

THE CONTRACTOR SHALL POUR AND FINISH A 1M X 1M SAMPLE PANEL OF ALL FORM LINER FINISHES. THE PANELS SHALL MEET WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS AND BE APPROVED BY THE ENGINEER BEFORE ANY FORM LINERS MAY BE ORDERED, OBTAINED OR USED. THE SAMPLE PANEL SHALL

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--- ITEM 420 FORM LINER TREATMENT ---, CONT'D

BE CONSIDERED TYPICAL FOR THE FINISH, ANY DEVIATION OF COLOR, GRADE, OR DEPTH FROM THE SAMPLE PANEL SHALL BE GROUNDS FOR REJECTION OF THE FORM LINER FINISH AND SHALL BE REMOVED AND REPLACED AS SPECIFIED BY THE CONTRACT. THE SAMPLE PANEL OR ANY REQUIRED REPLACEMENT OF THE FORM LINER TREATMENT SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

---ITEM 421 PORTLAND CEMENT CONCRETE---

CONCRETE FOR BENTS AND SHEAR KEYS SHALL BE PAID AS PLAN QUANTITIES.

--- ITEM 423 RETAINING WALL ---

THE CONTRACTOR HAS THE OPTION OF CONSTRUCTING ANY OF THE TYPES OF RETAINING WALLS FOR WHICH DETAILS ARE INCLUDED IN THE PLANS. LISTED BELOW ARE THE SUPPLIERS OF THE "MECHANICAL STABILIZED EARTH WALLS":

- * REINFORCED EARTH WALLS
 - THE REINFORCED EARTH COMPANY
 - 1905 CENTRAL DR. SUITE 100
 - BEDFORD, TEXAS 76021
 - (817) 283-5503
- * TENSAR PANEL WALL
 - TENSAR EARTH TECHNOLOGIES, INC.
 - 5775-B GLEN RIDGE DR. STE. 450
 - ATLANTA, GEORGIA 30328
 - (404) 250-1290
- * STRENGTHENED EARTH WALLS
 - GILLFORD-HILL AND COMPANY
 - CONCRETE PRODUCTS DIVISION
 - 2515 MCKINNEY AVE.
 - DALLAS, TEXAS 75201
 - (214) 754-5500
- * REINFORCED SOIL EMBANKMENT WALLS
 - THE HILFBIKER RETAINING WALL COMPANY
 - 621 N. HURST BLVD.
 - HURST, TEXAS 76053
 - (817) 260-1044

THE CONTRACTOR IS ADVISED THAT A COPING AND MOMENT ARM WILL BE REQUIRED FOR THE FULL LENGTH OF THE WALL AS SHOWN ON STANDARD RH(TR). THIS COPING AND MOMENT ARM SHALL BE SUBSIDIARY TO THE RETAINING WALL ITEM.

BACKFILL FOR MECHANICAL STABILIZED EARTH (MSE) WALLS ON THIS PROJECT SHALL BE TYPE "A".

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---ITEM 425 PRESTRESSED CONCRETE STRUCTURAL MEMBERS---

WHERE ROAD CLOSURES OR DETOURS AROUND STRUCTURES ARE NECESSARY TO ACCOMPLISH PROPOSED WORK, THE REMOVAL OF EXISTING STRUCTURES AND/OR CUTTING OF EXISTING PAVEMENT WILL NOT BE PERMITTED UNTIL ALL PRECAST AND/OR PRESTRESSED MEMBERS FOR THE PROPOSED STRUCTURE HAVE BEEN CAST, TESTED AND APPROVED FOR USE.

---ITEM 427 SURFACE FINISHES FOR CONCRETE---

A SURFACE AREA I, CLASS C FINISH WILL BE REQUIRED ON ALL GRADE SEPARATION STRUCTURES.

THE SURFACE FINISH FOR ALL PROPOSED RETAINING WALLS SHALL BE THE ASHLAR STONE FINISH AND SHALL BE COLORED BY THE USE OF A NATURALLY PIGMENTED CEMENT OR BY THE USE OF A COLOR- CONDITIONING AD MIXTURE TO MATCH THE FINISH AND COLOR OF THE RETAINING WALLS CONSTRUCTED FOR THE US 281/US83 INTERCHANGE.

AS A GUIDE, COLOR SHALL BE SIMILAR TO BUFF COLOR PRODUCED BY THE TYPE IP BUFF CEMENT, L.M. SCOFIELD COMPANY, COLOR "MESA BEIGE" (CODE C-12) OR IP BUFF PRODUCED BY TEXAS INDUSTRIES, INC., OR EQUIVALENT AS APPROVED BY THE ENGINEER. THE COLOR-CONDITIONING AD MIXTURE SHALL BE A SINGLE COMPONENT, PIGMENTED, WATER REDUCING CONCRETE AD MIXTURE, FACTORY FORMULATED AND PACKAGED IN CUBIC YARD OR METER DOSAGE INCREMENTS. MULTIPLE COLOR ADDITIVES AND PIGMENTS TO BE DOSED SEPARATELY INTO THE MIX WILL NOT BE PERMITTED. MATERIALS FOR COLORING THE CONCRETE SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. COPING FOR RETAINING WALLS SHALL NOT BE COLORED. THE SAME AGGREGATE SOURCE AND GRADATION, AND THE SAME CEMENT TYPE AND SOURCE SHALL BE USED FOR ALL CONCRETE RECEIVING THE STONE FINISH.

THE CONTRACTOR SHALL POUR AND FINISH A 1M X 1M SAMPLE PANEL OF THE COLORED ASHLAR STONE FINISH. THE PANEL SHALL MEET WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS AND BE APPROVED BY THE ENGINEER BEFORE FURTHER RETAINING WALL PANELS MAY BE POURED. THE SAMPLE PANEL MAY BE CONSIDERED TYPICAL FOR THE FINISH. ANY DEVIATION OF COLOR, GRADE, OR DEPTH FROM THE SAMPLE PANEL SHALL BE GROUNDS FOR REJECTION AND IT SHALL BE REMOVED AND REPLACED AS SPECIFIED BY THE ENGINEER. THE SAMPLE PANEL SHALL NOT BE PAID FOR, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 427.

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---ITEM 432 RIPRAP---

ALL CONCRETE RIPRAP EXCEPT CONCRETE RIPRAP USED ON SAFETY END TREATMENTS SHALL BE 100 MILLIMETERS THICK. CONCRETE USED ON THIS RIPRAP SHALL BE CLASS "B" AND REINFORCING SHALL BE 150MM X 150MM W3 X W3 (NO.6 GAUGE) WELDED WIRE FABRIC OR #3 BARS AT 460 MILLIMETERS C.C. UNLESS OTHERWISE SHOWN ON THE PLANS.

---ITEM 442 METAL FOR STRUCTURES---

ALL STRUCTURAL STEEL (ARMOR JOINT) SHALL RECEIVE PROTECTION SYSTEM II ALUMINUM.

ALL STRUCTURAL STEEL (ARMOR JOINT) SHALL RECEIVE PROTECTION SYSTEM I PRIME COAT.

---ITEM 446 CLEANING, PAINT AND PAINTING---

SOURCE OF SUPPLY:

ALL PAINT SHALL BE PURCHASED FROM THE DEPARTMENT. PAINT SHALL BE CHARGED TO THE CONTRACTOR AT THE FOLLOWING PRICES:

PROTECTION SYSTEM I PRIME COAT-----\$83.56---PER 5 GALLON BUCKET
 APPEARANCE COAT (GRAY)-----\$59.83---PER 5 GALLON BUCKET
 ALUMINUM FAST DRY-----\$48.00---PER 5 GALLON BUCKET

ALL PRIMING SHALL BE DONE IN SUCH A MANNER AND SEQUENCE THAT NO PRIME COAT SHALL BE DEPOSITED ON THE FINISH COAT.

THE ATTENTION OF PROSPECTIVE BIDDERS IS DIRECTED TO ORDINANCE AND REGULATIONS OF LOCAL MUNICIPAL AND COUNTY GOVERNMENT AND THE TEXAS AIR CONTROL BOARD WHICH ARE APPLICABLE TO THIS PROJECT.

THE CONTRACTOR'S ATTENTION IS CALLED TO REQUIREMENTS OF ARTICLE 446.4. THE CONTRACTOR SHALL NOTIFY THE DIRECTOR, EQUIPMENT AND PROCUREMENT DIVISION, IN AUSTIN WITHIN 30 DAYS AFTER THE DATE OF THE AUTHORIZATION TO BEGIN WORK. THIS WRITTEN NOTIFICATION SHALL INCLUDE THE APPROXIMATE QUANTITIES OF EACH TYPE OF PAINT TO BE USED AND THE ANTICIPATED DELIVERY DATES REQUIRED FOR ANY PAINTS BEING PURCHASED FROM THE DEPARTMENT.

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---ITEM 450 RAILING---

METAL BEAM GUARD FENCE TERMINAL CONNECTORS ARE REQUIRED.

---ITEM 464 REINFORCED CONCRETE PIPE ---

TONGUE AND GROOVE PIPE WILL BE REQUIRED FOR INSTALLATIONS WHERE PART OF THE STRUCTURE MAY PROTRUDE INTO THE LIME TREATED SUBGRADE. THE 1.2 METER DEPTH RESTRICTION FOR HEAVY EQUIPMENT PASSAGE OVER PIPE STRUCTURES IS VOIDED. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY CONSTRUCTION DAMAGE TO THESE FACILITIES.

COLD APPLIED, PLASTIC ASPHALT SEWER JOINT COMPOUND MAY BE USED ON THIS PROJECT.

---ITEM 471 FRAMES, GRATES, RINGS AND COVERS---

ALL GRATES WILL BE WELDED TO THE FRAMES IN A MANNER SATISFACTORY TO THE ENGINEER.

ALL MANHOLES LOCATED ON PAVED SURFACES WILL BE CONSTRUCTED WITH A COVER OF THE TYPE THAT WILL ENABLE IT TO BE BOLTED TO THE RING.

---ITEM 496 REMOVING OLD STRUCTURES---

UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER, ALL OBSTRUCTIONS, OBJECTIONABLE MATERIAL AND OLD CONCRETE SHALL BE DISPOSED OF BY HAULING IT OFF THE PROJECT AND OUT OF SIGHT FROM STATE HIGHWAYS TO DISPOSAL SITES ARRANGED FOR BY THE CONTRACTOR AND SATISFACTORY TO THE ENGINEER.

MATERIALS NOT CONSIDERED SALVABLE SHALL BE DISPOSED OF BY HAULING IT OFF THE PROJECT OUT OF SIGHT OF STATE HIGHWAYS TO DISPOSAL SITES ARRANGED FOR BY THE CONTRACTOR AND SATISFACTORY TO THE ENGINEER.

---ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING---

THE TRAFFIC CONTROL PLAN FOR THIS PROJECT SHALL BE AS SHOWN IN THE PLANS, AS DETAILED ON BC (1) THRU (9)-94(M), AND AS PROVIDED FOR IN THE 1980 "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

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---ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING---, CONT'D

THE CONTRACTOR SHALL REPLACE/RELOCATE ALL REGULATORY SIGNS REMOVED DUE TO CONSTRUCTION OPERATIONS WITH A SAME SIGN ON FIXED OR TEMPORARY SUPPORT(S) IMMEDIATELY UPON ITS REMOVAL. THE CONTRACTOR WILL FIRST OBTAIN PROJECT ENGINEER APPROVAL BEFORE REMOVING ANY REGULATORY ROADWAY SIGN. A SIGN, IF REQUIRED BY CONSTRUCTION, SHALL BE RELOCATED TO A LOCATION IN COMPLIANCE WITH THE 1980 "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". IN NO CASE WILL A SIGN BE REMOVED WITHOUT A REPLACEABLE SIGN AND SUPPORT BEING READILY AVAILABLE AND A LOCATION ESTABLISHED. REQUIRED FLAGGERS ARE TO BE AVAILABLE TO DIRECT TRAFFIC DURING SIGN INTERMEDIATE DOWN TIME.

PLASTIC DRUMS SHALL BE USED IN ACCORDANCE WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS AS APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL PROVIDE FULL-TIME OFF-DUTY CERTIFIED UNIFORMED LAW ENFORCEMENT OFFICER(S), AND VEHICLE(S), NUMBER AS DETERMINED BY THE ENGINEER, WITH JURISDICTION IN THE PROJECT AREA, FOR TRAFFIC CONTROL OPERATIONS, INCLUDING BUT NOT LIMITED TO SPEED LIMIT ENFORCEMENT, LANE CLOSURES, INTERSECTION CONSTRUCTION AND SIGNAL ADJUSTMENT AND CONSTRUCTION. PAYMENT FOR THIS WORK WILL BE IN ACCORDANCE WITH SPECIAL PROVISIONS TO ITEM 9, ARTICLE 9.4 FORCE ACCOUNT.

TOP MOUNTED DELINEATORS SHALL BE PLACED ON CONCRETE TRAFFIC BARRIERS (CTB) AT 9 METER CENTERS, WHEN USED TO TRANSITION OR CHANNEL TRAFFIC OR WHEN A TRAFFIC LANE IS ADJACENT TO OR LESS THAN ONE METER FROM THE BARRIER ON THE RIGHT OR LEFT SIDE OF THE TRAVEL LANE. THE DELINEATORS SHALL BE CLASS A REFLECTORS, COLOR CONFORMING TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". THE CONTRACTOR SHALL MAINTAIN THESE DELINEATORS IN A CLEAR CONDITION AND REPLACE AS NECESSARY THROUGHOUT THE DURATION OF THE PROJECT. THESE ITEMS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM 502.

TEMPORARY BARRIER END-TREATMENT AND ALL WORK AND MATERIALS REQUIRED FOR ITS INSTALLATION AND ATTACHMENT TO THE CONCRETE MEDIAN BARRIERS WILL BE MEASURED AND PAID FOR UNDER ITEMS AS SHOWN IN THE PLANS AND SPECIFICATIONS.

FOR THIS PROJECT, THE CONTRACTOR SHALL INSTALL "GIVE US A BRAKE" WORK ZONE (E020-7) SIGNS AT EACH APPROACH TO THE CONSTRUCTION AREA AT LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER AND AS SHOWN ON STANDARD SHEETS WZ(BRK-1)&(BRK-2)-95A(M). THESE SIGNS SHALL BE PAID FOR UNDER ITEM 634; PLYWOOD SIGN TYPE A, ITEM 647; LARGE ROADSIDE SIGN SUPPORTS AND ITEM 656; FOUNDATIONS FOR SIGNS, TRAFFIC SIGNALS AND ROADSIDE ILLUMINATION ASSEMBLIES.

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---ITEM 504 FACILITIES FOR FIELD OFFICE AND LABORATORY---

THE CONTRACTOR SHALL FURNISH ONE AIR-CONDITIONED FIELD OFFICE (TY E) AT A LOCATION SATISFACTORY TO THE ENGINEER. THIS BUILDING SHALL NOT BE LESS THAN 2.4 METERS BY 4.8 METERS AND 2.4 METERS HIGH OR AN APPROVED EQUIVALENT AND SHALL NOT HAVE LESS THAN FOUR GLASS WINDOWS AND ONE DOOR. A WORKBENCH AND A TABLE, EACH 0.9 METERS WIDE AND 1.8 METERS LONG, SHALL BE PROVIDED.

THE CONTRACTOR SHALL FURNISH 120-240 VOLT SINGLE PHASE ELECTRICITY TO THE FIELD OFFICE.

THE CONTRACTOR SHALL PURCHASE AND PROVIDE FOR THE DEPARTMENT'S USE THE FOLLOWING SOFTWARE AND HARDWARE LISTED BELOW OR APPROVED EQUAL.

SOFTWARE	HARDWARE
1 EA. MS-DOS 6.22	1 EA. PENTIUM 100 MHZ 256 CACHE
1 EA. WINDOWS 3.1	16 MB RAM 70 NS
1 EA. WORDPERFECT 6.1 (WINDOWS)	3.5 1.44 FLOPPY
1 EA. LOTUS 1-2-3 VERSION 5.0	850 MB HB
1 EA. DBASE IV (LATEST VERSION)	21" MONITOR
1 EA. PRIMAVERA FOR WINDOWS (LATEST VERSION)	101 KEYBOARD
1 EA. MICROSTATION 5.0 (WINDOWS VERSION)	SERIAL MOUSE
	2 MB PCI VIDEO CARD
	1 EA. HP LASERJET 5 MP
	1 EA. IBM 4079 PRINTER 11X17 COLOR
	1 EA. 10' PARALLEL PRINTER CABLE
	2 EA. 40' DB25 M/M
	1 EA. AUTOMATIC PRINTER SHARING DEVICE FOR 2 PRINTERS

THE CONTRACTOR SHALL PURCHASE AND DELIVER THE SPECIFIED HARDWARE AND SOFTWARE TO BE USED BY THE DEPARTMENT TO THE LOCATION SPECIFIED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT. THE CONTRACTOR SHALL PURCHASE AND PROVIDE TO THE DEPARTMENT UPDATES TO THE SOFTWARE AS REQUIRED TO REMAIN COMPATIBLE WITH THE CONTRACTOR'S SOFTWARE. IN THE CASE OF NEEDED REPAIRS FOR THE SOFTWARE OR HARDWARE, THE CONTRACTOR SHALL COMPLETE REPAIRS OR SHALL PROVIDE REPLACEMENT SOFTWARE OR HARDWARE WITHIN 48 HOURS OF WRITTEN NOTICE FROM THE ENGINEER. AT THE COMPLETION OF THE PROJECT, ALL HARDWARE AND SOFTWARE SHALL BE RETURNED TO THE CONTRACTOR.

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---ITEM 506 TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION PREVENTION AND CONTROL---

THE SWP FOR THIS PROJECT SHALL CONSIST OF USING THE FOLLOWING ITEMS AS DIRECTED BY THE ENGINEER:

TEMPORARY SEDIMENT CONTROL FENCE
 ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL
 BALED HAY FOR EROSION AND SEDIMENTATION CONTROL
 CONSTRUCTION EXITS

---ITEM 508 CONSTRUCTING DETOURS---

AFTER THE DETOUR IS NO LONGER NEEDED FOR TRAFFIC, THE MATERIALS, INCLUDING BASE, SHALL BE REMOVED AND UTILIZED AS DIRECTED BY THE ENGINEER.

FLEXIBLE BASE AND PRIME COAT USED FOR DETOURS SHALL MEET THE REQUIREMENTS OF ITEMS 247 AND 310 RESPECTIVELY, EXCEPT FOR MEASUREMENT AND PAYMENT.

EXIT AND ENTRANCE RAMPS EXTENDED FROM NEWLY CONSTRUCTED MAINLANES TO EXISTING RAMPS, ACROSS EXISTING MAINLANE ROADWAYS SHALL BE CONSTRUCTED WITH TYPE "B" HOT-MIX ASPHALTIC CONCRETE PAVEMENT. THIS WORK SHALL BE MEASURED AND PAID FOR UNDER ITEM 3000.

---ITEM 512 PORTABLE CONCRETE TRAFFIC BARRIER---

THE CONTRACTOR SHALL HAUL APPROXIMATELY 509 CONCRETE MEDIAN BARRIERS FROM THE TXDOT DISTRICT YARD IN PHARR, TEXAS TO THE PROJECT SITE, TO BE USED IN CONJUNCTION WITH THE SUGGESTED TRAFFIC CONTROL SHEETS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN THE CONCRETE MEDIAN BARRIER IN FIRST CLASS CONDITION AND WHEN NO LONGER NEEDED FOR TRAFFIC CONTROL, RETURN THE CONCRETE MEDIAN BARRIERS TO THE TXDOT DISTRICT YARD IN PHARR, TEXAS. ANY CONCRETE MEDIAN BARRIER DAMAGED BEYOND REASONABLE REPAIR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL USE SLING TYPE LIFTING DEVICES WHEN MOVING THE CONCRETE BARRIERS. IF HOLES ARE NEEDED FOR SLING LIFTING, THE CONTRACTOR SHALL DRILL OR CORE APPROXIMATELY 2-75 MM HOLES (NON-IMPACTED) 1.9 M (PLUS OR MINUS 50 MM) FROM EACH END AND 350 MM FROM THE TOP FOR SLING LIFTING OF THE BARRIERS. THE EXISTING THREADED SLEEVES SHALL NOT BE USED.

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---ITEM 512 PORTABLE CONCRETE TRAFFIC BARRIER---, CONT'D

THE CONTRACTOR SHALL PROVIDE ADDITIONAL PORTABLE CONCRETE TRAFFIC BARRIER AS REQUIRED FOR THE VARIOUS PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE A SUFFICIENT QUANTITY OF PRECAST & PORTABLE UNSLOTTED SINGLE SLOPE CONCRETE BARRIER (SSCB) FOR ULTIMATE INSTALLATION ALONG THE MAINLANES CENTERLINE IN CONSTRUCTION PHASE 5. THIS QUANTITY OF PRECAST & PORTABLE UNSLOTTED SSCB SHALL BE INSTALLED IN CONSTRUCTION PHASE 2 ALONG THE NORTHERLY EDGE OF THE EXISTING EASTBOUND MAINLANES PAVEMENT. THE CONTRACTOR MAY PROVIDE EITHER PRECAST & PORTABLE SLOTTED CONCRETE TRAFFIC BARRIER (CTB) OR PRECAST & PORTABLE SLOTTED SSCB FOR THE REMAINING QUANTITY OF PORTABLE CONCRETE TRAFFIC BARRIER REQUIRED FOR USE IN CONJUNCTION WITH THE SUGGESTED TRAFFIC CONTROL PLAN.

DRAINAGE SLOTS IN THE PORTABLE CONCRETE TRAFFIC BARRIER SHALL BE KEPT REASONABLY UNOBSTRUCTED IN ORDER TO HANDLE TEMPORARY DRAINAGE DURING THE VARIOUS CONSTRUCTION PHASES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING THE TRAVEL LANES CLEAR OF CONCENTRATED STORM WATER RUNOFF DURING THE VARIOUS CONSTRUCTION PHASES.

SECTIONS OF PRECAST & PORTABLE UNSLOTTED SSCB DAMAGED WHILE BEING USED DURING THE VARIOUS CONSTRUCTION PHASES SHALL NOT BE INCORPORATED INTO THE FINAL IMPROVEMENTS. EACH SECTION OF PRECAST & PORTABLE UNSLOTTED SSCB USED FOR TRAFFIC CONTROL PURPOSES SHALL BE INDIVIDUALLY APPROVED BY THE ENGINEER PRIOR TO ULTIMATE INSTALLATION ALONG THE MAINLANES CENTERLINE IN CONSTRUCTION PHASE 5.

ALL WORK INVOLVED INCLUDING LOADING, HAULING, UNLOADING, PLACING, MOVING AND RESETTING, STORING, FURNISHING OF MATERIALS, FOR ALL PREPARATION, INCLUDING MODIFYING THE MEDIAN BARRIER ENDS, FOR REASONABLE REPAIR OF DAMAGED SECTIONS RECEIVED FROM TXDOT, ERECTION, MAINTAINING, REMOVING AND RETURNING THE MEDIAN BARRIERS AND ALL LABOR AND TOOLS REQUIRED FOR UTILIZATION OF THE CONCRETE MEDIAN BARRIERS IN CONJUNCTION WITH THE TRAFFIC CONTROL PLAN WILL BE PAID FOR UNDER ITEM 512.

---ITEM 514 PERMANENT CONCRETE TRAFFIC BARRIER---

THE LIGHT POLE SPACING ON THE CONCRETE TRAFFIC BARRIER SHALL BE 82.3 METERS.

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---ITEM 529 CONCRETE CURB, GUTTER AND COMBINED CURB AND GUTTER---
MEMBRANE CURING, TYPE 2, WILL BE REQUIRED.

IN THE EVENT THAT AN EXTRUSION MACHINE IS NOT USED, APPLICATION OF MORTAR PASTE TO ACCURATELY SHAPE THE FACE OF THE CONCRETE CURB OR CURB AND GUTTER SHALL NORMALLY BE PLACED WITHIN 15 MINUTES AND NOT LATER THAN 25 MINUTES AFTER THE CONCRETE IS PLACED IN THE FORMS.

THE ENTRAINED AIR REQUIREMENT SHALL NOT APPLY TO THIS ITEM.

BEFORE FINAL ACCEPTANCE OF THE PROJECT, DISCOLORATION CAUSED BY TIRE MARKS, MUD, ASPHALT, PAINT OR OTHER SIMILAR MATERIAL SHALL BE REMOVED BY ANY METHOD SATISFACTORY TO THE ENGINEER TO ACHIEVE A UNIFORM COLOR AND TEXTURE OF THE FINISHED SURFACE EXPOSED TO VIEW.

---ITEM 530 DRIVEWAYS AND TURNOUTS---
FLEXIBLE BASE SHALL MEET THE REQUIREMENTS OF ITEM 247 AND PRIME COAT SHALL MEET THE REQUIREMENTS OF ITEM 310, EXCEPT FOR MEASUREMENT AND PAYMENT.

FLEXIBLE BASE USED TO CONSTRUCT PRIVATE AND/OR COMMERCIAL DRIVEWAYS WILL NOT REQUIRE LIME ADJUTURE.

DAILY TESTING REQUIREMENTS FOR HOT MIX ASPHALTIC CONCRETE PAVEMENTS FOR DRIVES, COMMERCIAL ENTRANCES AND/OR TURNOUTS MAY BE WAIVED BY THE ENGINEER.

THE RATE OF PRIME SHALL BE 0.045 LITERS PER SQUARE METER FOR PRIVATE AND/OR COMMERCIAL DRIVEWAYS AND 0.090 LITERS PER SQUARE METER FOR PUBLIC TURNOUTS.

---ITEM 531 SIDEWALKS---
CONCRETE SIDEWALKS SHALL BE 100 MILLIMETERS IN DEPTH. SIDEWALK CONCRETE REINFORCEMENT SHALL BE 150MM X 150MM - #3 X #3 (NO. 6 GAUGE) WELDED WIRE FABRIC OR #3 BARS AT 460 MILLIMETERS C.C. UNLESS OTHERWISE SHOWN ON THE PLANS.

---ITEM 540 METAL BEAM GUARD FENCE---

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GENERAL NOTES AND SPECIFICATION DATA--

---ITEM 540 METAL BEAM GUARD FENCE---, CONT'D
GUARD FENCE LOCATIONS AND QUANTITIES SHOWN ON THE PLANS ARE FOR ESTIMATING PURPOSES ONLY. FINAL LOCATIONS AND QUANTITIES WILL BE AS DIRECTED BY THE ENGINEER AFTER COMPLETION OF GRADING OPERATIONS.

---ITEM 542 REMOVING METAL BEAM GUARD FENCE---
CONTRACTOR SHALL DELIVER ALL SALVAGEABLE METAL BEAM GUARD FENCE MATERIALS TO THE TXDOT MAINTENANCE YARD LOCATED IN PHARR, TEXAS.

---ITEM 618 CONDUIT---
ALL UNDERGROUND CONDUIT BENDS 45 DEGREES OR MORE IN PVC CONDUIT SYSTEMS, INCLUDING BENDS INTO GROUND BOXES, SHALL BE MADE WITH PVC COATED RIGID METAL CONDUIT, WHERE THE RIGID METAL CONDUIT IS EXPOSED AT ANY POINT AND WHERE RIGID METAL CONDUIT EXTENDS INTO GROUND BOXES, THE METAL CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR WITH GROUNDING TYPE BUSHINGS OR BY OTHER UL LISTED GROUNDING CONNECTORS APPROVED BY THE ENGINEER. RIGID METAL BENDS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCIDENTAL TO THE PVC CONDUIT SYSTEM.

UNDERGROUND CONDUIT FOR SIGNAL CABLE SHALL BE PVC CONDUIT UNLESS OTHERWISE NOTED ON THE PLANS. ALL COUPLINGS AND CONNECTIONS SHALL BE TIGHT AND WATERPROOF. ALL CONDUIT ENDS IN POLE BASES, CONTROLLERS AND GROUND BOXES SHALL BE PLUGGED WITH POLYURETHANE SEALANT OR ITS EQUIVALENT AFTER CABLES ARE IN PLACE.

CONDUIT SHALL BE PLACED IN AN AREA NOT EXCEEDING 0.6 METER IN ANY DIRECTION FROM A STRAIGHT LINE AND THE DEPTH OF THE CONDUIT SHALL BE 0.6 METER EXCEPT WHEN CROSSING A ROADWAY WHERE THE DEPTH SHALL NOT BE MORE THAN 1.0 METER NOR LESS THAN 0.3 METER BELOW THE BOTTOM OF THE BASE MATERIAL IN THE ROADWAY WHEN PLACED BY THE JACKING OR BORING METHOD. ANY EVIDENCE OF DAMAGE TO THE ROADWAY DURING THE JACKING OR BORING OPERATION SHALL BE SUFFICIENT GROUNDS TO STOP THE METHOD BEING USED.

CONDUIT RUNS UNDER PAVED ROADWAYS OR DRIVEWAYS SHALL BE JACKED OR BORED AND THEN PUSHED ACROSS. AT THESE LOCATIONS, GALVANIZED RIGID METAL MAY BE USED. ALL OTHER RUNS SHALL BE MADE BY TRENCHING. THE CONTRACTOR MAY TRENCH ACROSS EXISTING PAVEMENT WHICH WILL EITHER BE REMOVED, RECONSTRUCTED OR OVERLAPPED WITH NEW PAVEMENT. CONDUIT SHALL BE PAID UNDER ITEM 618 "CONDUIT".

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---ITEM 620 ELECTRICAL CONDUCTORS---
A #8 AWG BARE COPPER WIRE SHALL BE INSTALLED IN ALL CONDUIT RUNS FOR GROUNDING, EXCEPT FOR THE POWER SERVICE CONDUIT TO THE CONTROLLER SHALL CONTAIN A #6 AWG FOR GROUNDING PURPOSES. ALL GROUNDING SHALL BE IN ACCORDANCE WITH THE NEC. GROUNDING CONDUCTOR SHALL BE CONNECTED TO ALL GROUND RODS, METAL POLES, METAL ENCLOSURES, METAL RACEWAYS AND METAL GROUND BOX COVERS.

---ITEM 628 ELECTRICAL SERVICES---
THE PROPOSED ELECTRICAL SERVICE SHALL BE CONSTRUCTED AS SHOWN ON ED(3) AND (4)-99A(M) AND AS CALLED FOR IN THE PLANS AND SPECIFICATIONS. ELECTRICAL SERVICE SHALL BE PAID UNDER ITEM 628, "ELECTRICAL SERVICES".

THE CONTRACTOR SHALL ARRANGE FOR AND COOPERATE WITH THE UTILITY COMPANY TO PROVIDE POWER SERVICE TO THE SIGNALS. A METER WILL NOT BE NECESSARY.

ED (3)-93 REQUIRES THAT THE ENCLOSURE AND DISCONNECT COMBINATION BE RATED AS SERVICE ENTRANCE EQUIPMENT. THE MERE ASSEMBLY OF UL LISTED COMPONENTS DOES NOT MEET THIS SPECIFICATION AND WILL NOT BE ACCEPTED. THE ENCLOSURE AND DISCONNECT COMBINATION MUST HAVE A UL LABEL STATING "ENCLOSED INDUSTRIAL CONTROL PANEL" OR OTHER WORDING INDICATING THAT THE PANEL ASSEMBLY IS UL LISTED.

THE DISCONNECT OPERATING HANDLE FOR THE SERVICE ENCLOSURE SHALL BE FLANGE MOUNTED, NOT DOOR MOUNTED, AND WILL LATCH THE DOOR WHEN THE SWITCH IS IN THE CLOSED POSITION. THE HANDLE SHALL BE LOCKABLE IN BOTH OPEN AND CLOSED POSITIONS.

---ITEMS 634 & 636 PLYWOOD SIGNS AND ALUMINUM SIGNS---
COMPLETE SIGN BLANKS AND PANELS SHALL BE HANDLED AND STORED AT THE JOB SITE IN SUCH A MANNER THAT CORNERS, EDGES AND FACES ARE NOT DAMAGED. FINISHED SIGN BLANKS SHALL BE STORED IN EITHER A WEATHER PROOF WAREHOUSE OR OUTSIDE AND OFF THE GROUND IN A VERTICAL POSITION. ALL PAPER, CARDBOARD AND CHEMICALLY TREATED SEPARATORS AND PACKAGING SHALL BE REMOVED PRIOR TO OUTSIDE STORAGE.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT ALL SIGNS WITH BLUE, BROWN, GREEN, ORANGE, RED, AND YELLOW BACKGROUNDS SHALL BE FABRICATED WITH TYPE C (HIGH SPECIFIC INTENSITY) REFLECTIVE SHEETING.

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---ITEMS 634 & 636 PLYWOOD SIGNS AND ALUMINUM SIGNS---, CONT'D
WHITE BACKGROUND SIGNS SHALL BE FABRICATED WITH TYPE A (ENGINEER GRADE) REFLECTIVE SHEETING.

WHITE LEGENDS AND BORDERS SHALL BE WHITE TYPE C (HIGH SPECIFIC INTENSITY) REFLECTIVE SHEETING.

---ITEM 644 SMALL ROADSIDE SIGN ASSEMBLIES---
ALL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE 1980 "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

ANY DETAIL THAT CONFLICTS WITH THE STANDARD PLAN SHEETS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO FABRICATION UNLESS A NOTE IS PLACED ADJACENT TO THE DETAIL TO INDICATE AN INTENTIONAL DEVIATION FROM THE STANDARD PLAN SHEETS.

THE CONTRACTOR SHALL DETERMINE THE POST LENGTHS AND VERIFY THEM WITH THE ENGINEER PRIOR TO ORDERING THE MATERIALS IN ORDER TO MEET THE FIELD CONDITIONS AND TO CONFORM TO THE MINIMUM SIGN MOUNTING HEIGHTS IN ACCORDANCE WITH THE 1980 "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

THE CONTRACTOR SHALL PROBE BEFORE DRILLING FOR FOUNDATIONS TO DETERMINE THE LOCATION OF ALL UTILITIES AND STRUCTURES. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO THE BID ITEMS INVOLVED.

ALL EXCESS EXCAVATION SHALL BE SPREAD UNIFORMLY INSIDE THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER AND SHALL BE INCLUDED IN THE PRICE OF THESE ITEMS.

ALL SIGNS SHALL BE ERECTED ACCORDING TO THE LOCATIONS SHOWN ON THE SIGNING LAYOUT SHEETS EXCEPT THAT THE ENGINEER MAY SHIFT A SIGN IN ORDER TO SECURE A MORE DESIRABLE LOCATION. THE CONTRACTOR WILL STAKE ALL SIGN LOCATIONS AS SHOWN IN THE PLANS AND APPROVED BY THE ENGINEER. IT IS THE INTENT OF THE PLANS TO ERECT ALL ROADSIDE TRAFFIC SIGNS WITH THE SIGN EDGE A MINIMUM OF 1.8 METERS FROM THE EDGE OF THE SHOULDER, OR IF NONE, 3.6 METERS FROM THE EDGE OF TRAVEL LANE. IN CURB AND GUTTER SECTIONS THE SIGN EDGE SHALL BE A MINIMUM OF 0.6 METERS FROM THE FACE OF THE CURB.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE SIGNING STANDARD PLAN SHEETS FOR REGULATORY AND WARNING SIGNS SPECIFY THAT 16 MILLIMETER PLYWOOD BE USED FOR SIGN BLANK MATERIAL, AS INDICATED BY ITEM 634. FOR THIS PROJECT, ALUMINUM TYPE A MAY BE FURNISHED FOR THE

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---ITEM 644 SMALL ROADSIDE SIGN ASSEMBLIES---, CONT'D
SIGNS SHOWN ON THESE PLAN SHEETS. MOUNTING DETAILS FOR THE ALUMINUM TYPE A SIGNS SHALL BE THE SAME AS SHOWN FOR PLYWOOD SIGNS ON SMD(1-1), (1-2), (1-3), AND (1-4)-95(M) UNLESS OTHERWISE SPECIFIED, ALUMINUM TYPE A SIGNS SHALL BE 2.0 MILLIMETERS THICK.

SIGN TYPES FOR WHICH DESIGN DETAILS ARE NOT SHOWN ON THE PLANS SHALL CONFORM WITH THE LATEST EDITION OF THE DEPARTMENT'S "STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS" MANUAL.

---ITEM 647 LARGE ROADSIDE SIGN SUPPORTS---
NEW SIGN FOUNDATION STUBS, WHEN LEFT OVERTIGHT WITHOUT INSTALLED SIGNS AND POSTS, SHALL BE PROTECTED BY THE CONTRACTOR WITH FLASHING ELECTRIC LIGHTS.

---ITEM 649 REMOVING OR RELOCATING ROADSIDE SIGN ASSEMBLIES---
THE CONTRACTOR SHALL REMOVE THE COMPLETE SIGN INSTALLATION AND SEPARATE THE SIGN POST AT THE CONCRETE FOUNDATION. THE CONTRACTOR SHALL DISPOSE OF THE CONCRETE FOUNDATION IN ACCORDANCE WITH THIS BID ITEM. EXCEPT FOR CONCRETE FOUNDATIONS, ALL REMOVED SIGN PANELS, SIGN POSTS, AND HARDWARE SHALL REMAIN THE PROPERTY OF THE DEPARTMENT. ALL REMOVED SIGN INSTALLATIONS SHALL BE COMPLETELY DISASSEMBLED. ALL SALVAGEABLE SECTIONS OF THE WOOD SIGN SHALL BE RECYCLED BY TXDOT. THE CONTRACTOR WILL BE REQUIRED TO HAUL THE REMOVED SIGN MATERIAL TO THE MAINTENANCE YARD LOCATED IN PHARR, TEXAS. NO SIGNS SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

---ITEM 658 DELINEATOR AND OBJECT MARKER ASSEMBLIES---
DELINEATOR ASSEMBLIES SHALL BE INSTALLED 2.4 METERS FROM THE EDGE OF THE SHOULDER UNLESS RESTRICTED BY SOME OBSTRUCTION, IN WHICH CASE, THE DELINEATOR ASSEMBLY SHALL BE PLACED BETWEEN 0.6 METERS AND 2.4 METERS FROM THE EDGE OF THE SHOULDER.

BI-DIRECTIONAL INSTALLATION OF OBJECT MARKERS SHALL BE BY ANY METHOD SATISFACTORY TO THE ENGINEER.

---ITEMS 662 AND 666 WORK ZONE PAVEMENT MARKINGS AND REFLECTORIZED PAVEMENT MARKINGS---

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---ITEMS 662 AND 666 WORK ZONE PAVEMENT MARKINGS AND REFLECTORIZED, CONT'D
PAVEMENT SURFACE PREPARATION FOR MARKINGS AND MARKERS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 666.

---ITEM 677 ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS---
ASPHALT AND AGGREGATE TYPES AND GRADES SHALL BE AS APPROVED IN WRITING BY THE ENGINEER WHEN A SURFACE TREATMENT IS USED TO ELIMINATE EXISTING PAVEMENT MARKINGS.

---ITEM 680 "INSTALLATION OF HIGHWAY TRAFFIC SIGNALS"---
THE INSTALLATION OF HIGHWAY TRAFFIC SIGNALS SHALL CONSIST OF THE FOLLOWING PRINCIPAL ITEMS:

1. INSTALLING AND COMPLETE WIRING OF DIAMOND INTERCHANGE TRAFFIC ACTUATED CONTROLLER PROVIDED BY THE STATE. FURNISHING AND INSTALLING CONTROLLER CONCRETE FOUNDATION, CONFLICT MONITOR, LOAD SWITCHES AND LOOP AMPLIFIERS.
2. FURNISHING AND INSTALLING CONTROLLER CONCRETE FOUNDATION, STEEL MAST ARM POLES, ELECTRICAL SERVICE, SIGNAL HEADS AND CABLES, PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSH BUTTONS WITH SIGNS THAT MEET THE "AMERICANS WITH DISABILITIES ACT" STANDARDS (ADA), LUMINAIRES, LOOP DETECTORS, GROUND BOXES AND CONDUIT RUNS.
3. REMOVAL AND DISPOSAL OF EXISTING SIGNAL MATERIAL SPECIFIED IN THE PLANS.
4. THE CONTRACTOR SHALL ALSO FURNISH AND INSTALL ALL OTHER ITEMS NOT LISTED ABOVE WHICH ARE NEEDED TO PROVIDE FOR COMPLETE TRAFFIC SIGNAL INSTALLATIONS AND FOR PROPER SIGNAL OPERATION AS CALLED FOR IN THE PLANS AND SPECIFICATIONS.

ANY DEVIATION OF LOCATION FOR PROPOSED SIGNAL WORK SHALL BE AS APPROVED BY THE ENGINEER.

---SIGNAL CONTROLLER---
THE SIGNAL INSTALLATIONS SHALL BE WIRED IN ACCORDANCE WITH THE PHASE DIAGRAMS IN THE PLANS. THE PROPOSED BASE MOUNTED CABINETS SHALL CONTAIN A CONFLICT MONITOR WHICH DISPLAY THE "R-V-G" AND "WALK" PHASES. IN ADDITION TO DETECTING PHASING CONFLICTS, THE CONFLICT MONITOR SHALL ALSO BE ABLE TO DETECT MULTIPLE SIGNAL HEAD INDICATIONS WITHIN EVERY PHASE. THE CONFLICT MONITOR SHALL CONTINUE TO OPERATE IN THE EVENT OF A POWER SUPPLY FAILURE IN THE TIMER AND SHALL BE ABLE TO RETAIN IN

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---SIGNAL CONTROLLER--- CONT'D
MEMORY THE TIME AND DATE OF THE FAILURE DETECTION.

ALL WIRING NOT COVERED BY THE PLANS AND SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

---CONDUCTORS AND SPLICES---

SPLICES FOR LOOP CABLE WILL BE PERMITTED ONLY AT GROUND BOXES WITH SCOTCHCAST OR HYSOL ELECTRICAL INSULATING RESIN WEATHERPROOF SPLICE KITS OR APPROVED EQUAL.

A MINIMUM LENGTH OF 0.5 METER FOR EACH CABLE SHALL BE LEFT IN EACH GROUND BOX. SPLICES FOR LOOP WIRE WILL BE PERMITTED ONLY AT GROUND BOXES AND WITH WEATHERPROOF SPLICE KITS AS APPROVED BY THE ENGINEER.

---DETECTORS AND LOOP AMPLIFIERS---

LOOP VEHICLE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERSECTION LAYOUTS IN THE PLANS OR AS DIRECTED BY THE ENGINEER. EACH LOOP DETECTOR LEAD-IN CABLE SHALL BE TAGGED INSIDE THE CONTROLLER CABINET WITH ITS LOOP NUMBER. THE LOOP AMPLIFIERS SHALL INDICATE THE LOOP AND PHASE OF CONTROL OR DIRECTION OF CONTROL. LOOP WIRES IN STREET SHALL BE #14 AWG. PEDESTRIAN DETECTORS SHALL MEET THE MINIMUM REQUIREMENTS CALLED FOR BY THE "AMERICAN DISABILITIES ACT".

VEHICLE AND PEDESTRIAN DETECTORS SHALL BE PAID FOR UNDER ITEM 688 "TRAFFIC SIGNAL DETECTORS".

---VEHICLE AND PEDESTRIAN SIGNAL HEADS---

ALL SIGNAL HEADS SHALL BE COVERED WITH BURLAP FROM THE TIME OF INSTALLATION UNTIL THE SIGNAL IS PLACED IN OPERATION. ALL SIGNAL HEADS SHALL BE OF POLYCARBONATE MATERIAL AND YELLOW IN COLOR. ALL SIGNAL HEADS SHALL HAVE BACKPLATES AND STANDARD DETACHABLE VISORS UNLESS OTHERWISE SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDE ALL TRAFFIC SIGNAL BULBS (150W).

SIGNAL HEADS SHALL BE POSITIONED CAREFULLY TO PROVIDE THE BEST VIEW OF SIGNAL INDICATIONS TO MOTORISTS. ALL SIGNAL HEADS SHALL BE INSTALLED TO A NEAT OVERALL APPEARANCE.

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---VEHICLE AND PEDESTRIAN SIGNAL HEADS--- CONT'D
NOMINAL HEIGHT FOR SIGNAL HEADS ABOVE PAVEMENT SURFACE SHALL BE 5.5 METERS.

---PEDESTRIAN SIGNAL HEADS---

PEDESTRIAN SIGNAL HEADS SHALL BE POSITIONED CAREFULLY TO PROVIDE THE BEST VIEW TO PEDESTRIANS.

THE TRAFFIC SIGNAL HEADS AND PEDESTRIAN HEADS SHALL BE PAID FOR UNDER ITEM 682 "VEHICLE AND PEDESTRIAN SIGNAL HEADS".

---TRAFFIC SIGNAL CABLE---

ALL SIGNAL CABLE SHALL BE #12 AWG AND 2/C LOOP LEAD-IN SHALL BE #14 AWG. ALL SIGNAL CABLE SHALL BE PAID UNDER ITEM 684 "TRAFFIC SIGNAL CABLES".

---FOUNDATIONS---

THE DIMENSIONS SHOWN ON THE PLANS FOR LOCATION OF SIGNAL POLE FOUNDATIONS, CONDUIT AND OTHER ITEMS MAY BE VARIED TO MEET EXISTING CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER.

THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ALL LOOSE MATERIAL RESULTING FROM THE CONTRACT OPERATIONS EACH DAY BEFORE WORK IS SUSPENDED.

NO TRAFFIC SIGNAL POLE SHALL BE PLACED ON THE FOUNDATIONS PRIOR TO SEVEN (7) DAYS FOLLOWING PLACEMENT OF CONCRETE.

FOUNDATIONS SHALL BE PAID FOR UNDER ITEM 656 "FOUNDATIONS FOR SIGNS, TRAFFIC SIGNALS AND ROADWAY ILLUMINATION ASSEMBLIES".

---TRAFFIC SIGNAL POLES---

THE LOCATIONS FOR THE PROPOSED TRAFFIC SIGNAL POLES ARE APPROXIMATE. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER IN COORDINATION WITH THE PHARR DISTRICT SIGNAL SHOP.

SIGNAL POLES SHALL BE PAID UNDER ITEM 686 "TRAFFIC SIGNAL POLE ASSEMBLIES (STEEL)".

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---TRAFFIC SIGNAL POLES--- CONT'D

LUMINAIRES SHALL BE RATED FOR OPERATION AT 120 VAC. WATTAGE AND TYPE AS SHOWN ON THE PLANS.

LUMINAIRE ARMS MOUNTED ON TRAFFIC SIGNAL POLES SHALL BE AIMED SO THAT THE ARM IS PERPENDICULAR TO THE CENTERLINE OF "I" ROAD AND TO THE CENTERLINE OF "FH 1426" IN ORDER TO DEVELOP THE PROPER ILLUMINATION PATTERN FOR THE PROSPECTIVE INTERSECTIONS.

---EXISTING UTILITIES---

ALL FEES AND COSTS FOR PERMITS AND WORK DONE BY THE UTILITY COMPANIES FOR ANY UTILITY ADJUSTMENTS WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS OF THIS PROJECT AND WILL NOT BE PAID FOR DIRECTLY.

THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION TO AVOID CONFLICT WITH OR DAMAGE TO THESE UTILITIES.

THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO MAKE ANY ADJUSTMENTS, DUE TO UTILITY CONFLICTS, AS DEFINED IN THE SPECIFICATIONS OR DEEMED NECESSARY BY THE ENGINEER.

---REFERENCES---

REFERENCES TO MANUFACTURERS' TRADE NAMES OR CATALOG NUMBERS ARE FOR THE PURPOSE OF IDENTIFICATION ONLY AND THE CONTRACTOR WILL BE PERMITTED TO FURNISH LIKE MATERIALS OF OTHER MANUFACTURERS PROVIDED THEY ARE OF EQUAL QUALITY AND COMPLY WITH THE SPECIFICATIONS AND ARE APPROVED BY THE ENGINEER.

---UNIFORMITY IN EQUIPMENT---

1. ALL TRAFFIC SIGNAL HEADS FURNISHED BY THE CONTRACTOR SHALL BE BY THE SAME MANUFACTURER.
2. ALL PEDESTRIAN SIGNAL HEADS FURNISHED BY THE CONTRACTOR SHALL BE BY THE SAME MANUFACTURER.
3. ALL SIGNAL FITTINGS AND PIPE BRACKETS SHALL BE OF AN APPROVED METALLIC MATERIAL AND OF THE SAME DESIGN AND MANUFACTURER.
4. ALL TRAFFIC SIGNAL POLES FURNISHED BY THE CONTRACTOR SHALL BE BY THE SAME MANUFACTURER.
5. ALL LOOP DETECTOR AMPLIFIERS FURNISHED BY THE CONTRACTOR SHALL

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---UNIFORMITY IN EQUIPMENT--- CONT'D
BE BY THE SAME MANUFACTURER.

---HANDLING OF TRAFFIC---

ROADS AND STREETS SHALL BE KEPT OPEN TO TRAFFIC AT ALL TIMES. THE CONTRACTOR SHALL ARRANGE THE SETTING OF LOOP DETECTORS SO AS TO CLOSE ONLY ONE LANE OF A ROADWAY AT A TIME. THE CONTRACTOR SHALL ARRANGE THE INSTALLATION OF SIGNAL HEADS, POLES AND CONDUIT SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF TRAFFIC IN BOTH DIRECTIONS AT ALL TIMES.

ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC AS SHOWN ON THE PLANS, AS PROVIDED FOR IN THE SPECIFICATIONS AND/OR AS DIRECTED BY THE ENGINEER. ALL SIGNING, BARRICADING AND HANDLING OF TRAFFIC SHALL CONFORM TO THE "1980 TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

---SEQUENCE OF WORK---

1. THE EXISTING TRAFFIC SIGNAL INSTALLATIONS SHALL REMAIN IN OPERATION AT ALL TIMES DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL INSTALLATIONS.
2. THE CONTRACTOR SHALL COMPLETELY REMOVE THE EXISTING TRAFFIC SIGNAL INSTALLATIONS AND RELATED ITEMS WHEN THE PROPOSED TRAFFIC SIGNAL INSTALLATIONS ARE IN PLACE AND OPERATIONAL.
3. ALL LABOR, TOOLS, AND MATERIALS USED TO REMOVE THE SPECIFIED TRAFFIC SIGNAL MATERIAL WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM 680, "INSTALLATION OF HIGHWAY TRAFFIC SIGNALS".
4. FINAL INSPECTION SHALL BE DONE IN CONJUNCTION WITH THE DISTRICT SIGNAL SHOP.

---TRAFFIC SIGNAL CONTROLLER ASSEMBLY---

UNDER THIS ITEM, THE PROPOSED CABINETS SHALL BE BASE MOUNTED OR AS SHOWN IN THE PLANS.

---ITEM 681 TEMPORARY TRAFFIC SIGNALS FOR CONSTRUCTION---

THE STATE WILL FURNISH 8-PHASE FULL ACTUATED N.E.M.A. CONTROLLERS WITH TIME BASE COORDINATION, POLE MOUNTED CABINETS, CONFLICT MONITORS, LOAD SWITCHES AND AMPLIFIERS.

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---ITEM 681 TEMPORARY TRAFFIC SIGNALS FOR CONSTRUCTION--- CONT'D

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL OTHER TEMPORARY TRAFFIC SIGNAL MATERIAL. MATERIALS FURNISHED BY THE STATE SHALL BE RETURNED TO THE DEPARTMENT UPON REMOVAL OF THE TEMPORARY TRAFFIC SIGNAL. ALL OTHER MATERIALS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

EXISTING TRAFFIC SIGNAL PHASING AND TIMING SHALL BE UTILIZED FOR THE TEMPORARY TRAFFIC SIGNAL PHASING AND TIMING. THE TRAFFIC SIGNALS OPERATION AND TRAFFIC MOVEMENTS SHALL BE MONITORED AND SETTING ADJUSTED FOR BEST SIGNAL OPERATION AND TO THE SATISFACTION OF THE ENGINEER IN THE FIELD.

---ITEM 3000 QC/QA OF HOT MIX ASPHALT---

IN ADDITION TO THE TACK COAT MATERIALS SPECIFIED IN THESE STANDARD SPECIFICATIONS, THE CONTRACTOR, IF DESIRED MAY USE HS-2. THE CONTRACTOR SHALL EXERCISE DILIGENCE IN THE APPLICATION OF "TACK COAT" BY THE USE OF FLAGGING AND ROLLING PROCEDURES TO KEEP FROM SPRAYING OR SPLATTERING THE TRAVELING PUBLIC WITH ASPHALTIC MATERIAL.

BLADING MAY ALSO BE NECESSARY TO CLEAN DIRT AND GRASS FROM PAVEMENT EDGES AND TURNOUT AREAS AS WORK UNDER THIS BID ITEM. THE COST OF THIS BLADING WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO THIS BID ITEM.

A MINIMUM POLISH VALUE OF 32 WHEN TESTED IN ACCORDANCE WITH TEST METHOD TEX-438-A WILL BE REQUIRED FOR THE AGGREGATE USED IN THE SURFACE COURSE OF THE TRAVEL LANES, UNLESS SILICEOUS AGGREGATE WITH KNOWN SATISFACTORY SKID HISTORY BASED ON TXDOT SKID TRAILER MEASUREMENTS IS USED. THE SOURCES FOR THESE SATISFACTORY AGGREGATES MAY BE REVIEWED WITH THE AREA ENGINEER ASSIGNED TO THIS PROJECT AND LISTED IN "NOTICE TO CONTRACTORS".

STONE SCREENINGS SHALL BE LIMESTONE.

NO POLISH VALUE IS REQUIRED FOR THE AGGREGATE USED IN THE BASE COURSE.

IF THE CONTRACTOR ELECTS TO USE STATE OWNED RAP THAT IS NEITHER AVAILABLE ON THIS PROJECT NOR DESIGNATED IN THE PLANS, A SPECIAL DEDUCTION OF \$ 6.60 PER MEGAGRAM OF RAP WILL BE APPLIED.

SHOULD THE CONTRACTOR ELECT TO USE RECLAIMED ASPHALT PAVEMENT (RAP) ON ASPHALTIC CONCRETE PAVEMENT, 50 PERCENT OF THE NEW MATERIAL IN THE MIX

SPECIFICATION DATA

05/28 SHEET I1

F.R. DIV.6	TEXAS	NH 96(791)M	SHEET 17
HIDALGO	COUNTY	HWY US 83	CONT 0039-17-118

GENERAL NOTES AND SPECIFICATION DATA--

---ITEM 3000 QC/QA OF HOT MIX ASPHALT--- CONT'D
DESIGN SHALL BE LIMESTONE.

A MINIMUM POLISH VALUE AS SHOWN IN PLANS WILL BE REQUIRED FOR THE LIMESTONE USED IN THE SURFACE COURSE OF THE TRAVEL LANES.

---ASPHALT ANTISTRIPPING AGENTS---

LINE SHALL BE USED AT THE RATE OF 1% BY WT. OF ASPHALTIC CONCRETE. THE MOISTURE SUSCEPTIBILITY TESTING REQUIREMENTS SHALL BE WAIVED FOR THIS PROJECT. (REF. ITEM 301 ASPHALT ANTISTRIPPING AGENTS)

---RIDE QUALITY FOR PAVEMENT SURFACES---

RIDE QUALITY SHALL BE MEASURED UTILIZING SURFACE TEST TYPE "B".

---ITEM 4020 TEMPORARY EARTH WALLS---

THE DESIGN OF THE TEMPORARY EARTH WALLS SHALL BE BASED ON THE FOLLOWING PARAMETERS:

UNIT HEIGHT OF SOIL= 18.8 KN/CUBIC METER, PHI ANGLE OF SOIL= 30 DEGREES COHESION= 0 KPA

MINIMUM FACTORS OF SAFETY SHALL BE 2.0 FOR OVERTURNING AND 1.5 FOR SLIDING. THE BASE PRESSURE RESULTANT SHALL FALL IN THE MIDDLE THIRD OF THE WALL. MINIMUM EARTH REINFORCING LENGTH SHALL BE 2 METERS. THE SOIL PARAMETERS GIVEN ABOVE SHALL APPLY TO BOTH THE RETAINED AND SELECT FILL.

SPECIFICATION DATA

05/28 SHEET J1

REV. 5/28/96

BASIS OF ESTIMATE

ITEM	DESCRIPTION	RATE	UNIT	QUANTITY	
				ESTIMATED	FINISH
168	VEG. WATER FOR CELL. FIB. MULCH SEED	3.175 L/m ²	kL		
260	LIME TREATED SUBGRADE (305 mm)	* 3% BY WT.	Mg		
262	* LIME TREATED FLEXBASE (NEW)	** 1% BY WT.	Mg		
262	* LIME TREATED FLEXBASE (SALV.)	** 2% BY WT.	Mg		
3000	1 ASPHALT CONC. PAVEMENT (TY B)(BASE)	309.245 Kg/m ²	Mg		
3000	1 ASPHALT CONC. PAVEMENT (TY D)(SURF)(ML)	124.185 Kg/m ²	Mg		
3000	1 ASPHALT CONC. PAVEMENT (TY D)(SURF)(FR)	185.060 KG/m ²	Mg		

- * ESTIMATED WEIGHT OF SUBGRADE = 1.780 Mg/m³ (COMPACTED).
 - * ESTIMATED WEIGHT OF FLEXIBLE BASE (NEW & SALV.) = 2.000 Mg/m³ (COMPACTED DRY WEIGHT).
 - ** PERCENTAGE OF LIME MAY BE VARIED WHERE REQUIRED TO MEET P.I. & TRIAXIAL REQUIREMENTS AS DIRECTED BY ENGINEER. ADDITIONAL LIME WILL BE INCIDENTAL TO ITEM 262.
- 1 2.435 kg/m² IS EQUIVALENT TO 1 mm IN DEPTH OF ASPHALTIC CONCRETE PAVEMENT.

The estimated quantity of existing asphaltic concrete pavement (ACP) and flexible base was determined from the typical sections contained in the construction plans for the existing facilities and supplemented by borings of the existing mainline pavement.

The estimated total quantity of salvaged flexible base is based on recovering all but the lower 50 mm of each section of flexible base. The estimated compacted dry mass density of new and salvaged flexible base is 2000 kg/m³. The quantity of lime for salvaged flexible base shall be 2% by weight and the quantity of lime for new flexible base shall be 1% by weight. This lime is separate from and in addition to lime which may be required to meet P.I. and triaxial requirements added at the Contractor's expense.

The estimated total quantity of salvaged asphaltic concrete pavement is based on recovering 100% of each layer or section of asphaltic concrete pavement. The estimated compacted mass density of new and salvaged asphaltic concrete pavement is 2435 kg/m³.

The Contractor has the option of recycling salvaged ACP or placing new ACP. If the Contractor elects to recycle salvaged asphaltic concrete pavement (RAP), salvaged asphaltic concrete pavement can be used in Type B ACP and Type D ACP at a maximum percentage of 30% RAP and 20% RAP, respectively. During each construction phase, the maximum amount of salvaged asphaltic concrete pavement that the Contractor can stockpile is 30% of the Type B ACP and 20% of the Type D ACP to be placed during that phase. All remaining salvaged ACP is to be delivered to a TxDOT stockpile, as directed by the Engineer. For each phase, the maximum amount of salvaged ACP that can be stockpiled by the Contractor in a location other than a TxDOT stockpile is as follows:

PHASE III - 4600 Mg
 PHASE IV - 4700 Mg
 PHASE V - 1400 Mg

If additional salvaged ACP is needed to complete a phase of work or to construct the final mainline Type D ACP surface course, the additional salvaged ACP may be obtained from the TxDOT stockpile, as directed by the Engineer.



Michael W. King 4/15/96
 MICHAEL W. KING DATE

BASIS OF ESTIMATE									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>									
DESIGN	DRAWN	NOTES	FED. AID DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
			TEXAS	11A	000001	11			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	CONTRACT NO.	NO.	NO.
4/15/96	820781	AS NOTED	21	HIDALGO	0038	17	11	11	U.S. 83

1
1

MAINLANE PAVING SUMMARY

SHT NO.	CL STATION LIMITS	* (110) EXCAVATION m ³	* (132) EMBANKMENT (DC) (TY C) m ³	(160) FUR & RPL TOPSOIL (150 mm) m ²	(260) LTS (305 mm) m ²	(260) LIME (3% BY WT) Mg	(247) FLEXBASE (356 mm) (TY DXGR 6) m ³	(251) REWORK BS MTRL (DC) (TY BXCL 5) m ³	(262) LIME TRT BS (NEW/EX BS) (356 mm)(DC) m ²	(262) LIME (1% NEW) (2% EXIST) Mg	(310) ASPH MATRL (MC-30) L	(3000) TY-B ACP (BASE) (127 mm) MgA
1	STA 46+700 TO STA 47+000	0.00	0.00									
2	STA 47+000 TO STA 47+300	43.10	6.70	0.00			0.00	138.00	387.64	5.52		
3	STA 47+300 TO STA 47+600	1198.70	7020.30	2520.00	9068.40	147.70	0.00	3380.00	9494.38	135.20	8041.83	2726.92
4	STA 47+600 TO STA 47+900	9993.00	9212.70	3355.00	10038.40	163.50	0.00	3080.00	8651.69	123.20	8919.68	3048.92
5	STA 47+900 TO STA 48+200	1232.90	23463.40	6580.00	11430.40	186.17	605.86	2580.00	8949.04	115.32	10179.44	3423.34
6	STA 48+200 TO STA 48+500	864.60	5473.60	12000.00	10656.40	173.56	1981.21	1780.00	10565.20	110.82	9478.97	3172.85
7	STA 48+500 TO STA 48+800	1793.90	2168.10	12000.00	10656.40	173.56	1702.21	1980.00	10343.29	113.24	9478.97	3172.85
8	STA 48+800 TO STA 49+100	5752.10	13250.00	8530.00	9070.40	147.73	437.60	2700.00	8813.48	116.75	8043.64	2720.12
9	STA 49+100 TO STA 49+400	8200.00	20149.30	3146.00	11246.40	183.17	1414.63	2450.00	10855.70	126.29	10012.92	3421.49
10	STA 49+400 TO STA 49+700	2107.80	3815.70	550.00	4265.68	69.48	0.00	2350.00	6601.12	94.00	3813.67	1296.05
11	STA 49+700 TO STA 50+000	1735.20	61.00					46.00		1.84		
12	STA 50+000 TO STA 50+300	293.90	93.00									
MAINLANE PAVING TOTALS		33214.8	84714.00	48,681.00	76,432.48	1,244.86	6,141.51	20,484.00	74,661.54	942.19	67,969.12	22,982.54

* INCLUDES FRONTAGE RD. & RAMP SUMMARIES.

MAINLANE PAVING SUMMARY

SHT NO.	CL STATION LIMITS	(3000) TY-D ACP (SURFACE) (51 mm) MgA	(514) SSCB (TY 2) MV & RESET (HT=1070) m	(514) SSCB TY-4 (HT=1070) M	(450) SSTR m	(432) CONC RIP-RAP (CL B) m ³	(540) MBGF m	(501B) SGT EA	(502B) CCAT EA	(164) CFMS (TEMP) (COOL) m ²	(164) CFMS (PERM)(URBAN) (SAND) m ²	(168) VEG WATER KL
1	STA 46+700 TO STA 47+000		190.00									
2	STA 47+000 TO STA 47+300		300.00				36.96	1.00		1150.00	1150.00	328.58
3	STA 47+300 TO STA 47+600	1095.06	300.00		334.42	32.76	7.62	1.00		3180.00	3180.00	908.60
4	STA 47+600 TO STA 47+900	1223.97	230.40		460.80	42.02				4806.00	4806.00	1373.19
5	STA 47+900 TO STA 48+200	1374.73	284.75	15.25	439.54	72.75			1.00	9286.00	9286.00	2653.24
6	STA 48+200 TO STA 48+500	1274.14	284.75	15.25						19140.00	19140.00	5468.77
7	STA 48+500 TO STA 48+800	1274.14	287.80	12.20	34.28	6.75			1.00	19633.00	19633.00	5609.63
8	STA 48+800 TO STA 49+100	1092.33	244.99	12.20	521.31	47.54				13048.00	13048.00	3728.14
9	STA 49+100 TO STA 49+400	1373.98	251.41	12.20	527.22	48.08				4826.00	4826.00	1378.91
10	STA 49+400 TO STA 49+700	520.46	170.85	9.15	119.86	31.87			1.00	6166.00	6166.00	1761.78
11	STA 49+700 TO STA 50+000								1.00	5070.00	5070.00	1448.62
12	STA 50+000 TO STA 50+300									2305.00	2305.00	658.60
MAINLANE PAVING TOTALS		9,228.81	2,544.95	76.25	2,437.43	281.77	44.58	2.00	4.00	88,610.00	88,610.00	25,318.07



Michael W. King 4/15/96
MICHAEL W. KING DATE

MAINLANE PAVING SUMMARY											
U.S. 83 RECONSTRUCTION											
HIDALGO COUNTY, TEXAS											
TEXAS DEPARTMENT OF TRANSPORTATION											
Half Associates											
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS											
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	BSRT					
	CADD		NO.	NO.	NO.	NO.					
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB					
APRIL 1996	802782	AS NOTED	21	HIDALGO	009	17					

FRONTAGE ROADS PAVING SUMMARY

SHT NO.	CL STATION LIMITS	(110) EXCAVATION m ³	(132) EMBANKMENT m ³	(260) LTS (305 mm) m ²	(260) LIME (3% BY WT) Mg	(247) FLEXBASE (305 mm) (TY BXGR 6) m ³	(251) REWORK BS MTRL (DC) (TY BXCL 5) m ³	(262) LIME TRT BS (NEW/EX BS) (305 mm)(DC) m ²	(262) LIME (1% NEW) (2% EXIST) Mg	(310) ASPH MATRL (MC-30) L	(3000) TY-D ACP (SURFACE) (76 mm) MgR	(529) CONC CURB (TY-B) MOUNT m	(529) CONC CURB & GUTTER (TY-B)(MOUNT) m	(531) CONC SIDEWALK (100 mm) m ²	(164) CFMS (TEMP) (COOL) m ²	(164) CFMS (PERMKURBAN) (SAND) m ²	(168) VEG WATER kl	(5024) LANDSCAPE PAVERS m ²
1	STA 47+500 TO STA 47+800	.	.	1368.82	22.30	401.99		1318.00	8.04	1192.79	206.53	336.41						
2	STA 47+800 TO STA 48+100	.	.	1353.76	22.05	395.28		1296.00	7.91	1172.88	196.72	382.34						
3	STA 48+800 TO STA 49+100	.	.	2359.17	38.42	267.88	332.00	2316.00	18.64	2095.98	400.84	165.36	112.98	163.50	1266.00	1266.00	361.73	
4	STA 49+100 TO STA 49+400	.	.	3412.57	55.58	517.90	381.00	3339.02	25.60	3021.81	575.54	245.52	180.43	290.00	787.00	787.00	224.87	
5	STA 49+400 TO STA 49+700	.	.	4047.12	65.92	783.41	315.00	3962.00	28.27	3585.61	690.09	104.00	418.00		1251.00	1251.00	357.44	
6	STA 49+700 TO STA 50+000	.	.				64.00	167.21	2.56						1073.00	1073.00	306.58	
1	STA 48+800 TO STA 49+100	.	.	2006.56	32.68	269.02	223.00	1796.79	14.30	1626.09	341.07	139.51	81.66	148.00	1137.00	1137.00	324.87	
2	STA 49+100 TO STA 49+400	.	.	3836.04	62.48	472.89	513.00	3757.02	29.98	3400.10	648.45	263.48	211.08	240.00	1839.00	1839.00	525.45	
3	STA 49+400 TO STA 49+700	.	.	3556.14	57.92	583.93	371.00	3485.02	26.52	3153.94	598.85	237.00	237.00		1350.00	1350.00	385.73	
4	STA 49+700 TO STA 50+000	.	.				110.00	367.21	4.40						403.00	403.00	115.15	
1	SOUTH ACCESS ROAD	.	.	407.20	6.63	7.56		24.79	0.15	22.43	60.14		148.06		4477.00	4477.00	1279.19	62.00
2	NORTH ACCESS ROAD	.	.	422.40	6.88	86.32		283.02	1.73	256.13	40.17		141.10		5271.00	5271.00	1506.06	62.00
FRONT. ROADS PAVING TOTALS				22,769.88	370.85	3,786.18	2,309.00	22,112.07	168.08	19,527.76	3,758.40	1,873.62	1,530.31	841.50	18,854.00	18,854.00	5,387.06	124.00

• INCLUDED IN MAINLANE PAVING SUMMARY

RAMP PAVING SUMMARY

SHT NO.	RAMP NO.	CL STATION LIMITS	(110) EXCAVATION m ³	(132) EMBANKMENT m ³	(260) LTS (305 mm) m ²	(260) LIME (3% BY WT) Mg	(247) FLEXBASE (305 mm) (TY BXGR 6) m ³	(262) LIME TRT BS (NEW/EX BS) (305 mm)(DC) m ²	(262) LIME (1% NEW) Mg	(310) ASPH MATRL (MC-30) L	(3000) TY-D ACP (SURFACE) (76 mm) MgR	(529) CONC CURB (TY-B) MOUNT m	(529) CONC CURB & GUTTER (TY-B)(MOUNT) m
1	EX1	STA 1+000 TO STA 1+200	.	.	606.00	9.87	184.83	606.00	3.70	548.43	106.41		17.00
2	EX1	STA 1+200 TO STA 1+328	.	.	599.00	9.76	182.70	599.00	3.66	542.10	110.11	123.00	15.00
3	EX2	STA 1+000 TO STA 1+250	.	.	741.00	12.07	226.01	741.00	4.52	670.61	131.02		
4	EX2	STA 1+250 TO STA 1+443	.	.	1196.00	19.48	364.78	1196.00	7.30	1082.38	205.79	159.00	21.70
5	EN1	STA 1+000 TO STA 1+200	.	.	1841.00	29.58	561.51	1841.00	11.24	1666.11	327.37	175.00	
6	EN1	STA 1+200 TO STA 1+472	.	.	427.00	6.95	130.24	427.00	2.61	386.44	75.50		
7	EX3	STA 1+000 TO STA 1+200	.	.	137.00	2.23	41.79	137.00	0.84	123.99	23.32		43.10
8	EX3	STA 1+200 TO STA 1+366	.	.									
9	WN1	STA 1+000 TO STA 1+300	.	.	463.00	7.54	141.22	463.00	2.83	419.02	81.80		
10	WN1	STA 1+300 TO STA 1+633	.	.	2172.00	35.38	662.46	2172.00	13.26	1965.66	380.30	277.00	
11	WX2	STA 1+000 TO STA 1+250	.	.	1459.00	23.76	445.00	1459.00	8.91	1320.40	250.76	166.00	15.20
12	WX2	STA 1+250 TO STA 1+439	.	.	347.00	5.65	105.84	347.00	2.12	314.04	61.44		
13	WN2	STA 1+000 TO STA 1+200	.	.									
14	WN2	STA 1+200 TO STA 1+366	.	.	108.00	1.76	32.94	108.00	0.66	97.74	18.32	15.00	34.90
RAMP PAVING TOTALS					10,096.00	164.43	3,079.32	10,096.00	61.65	9,136.88	1,772.14	915.00	146.90

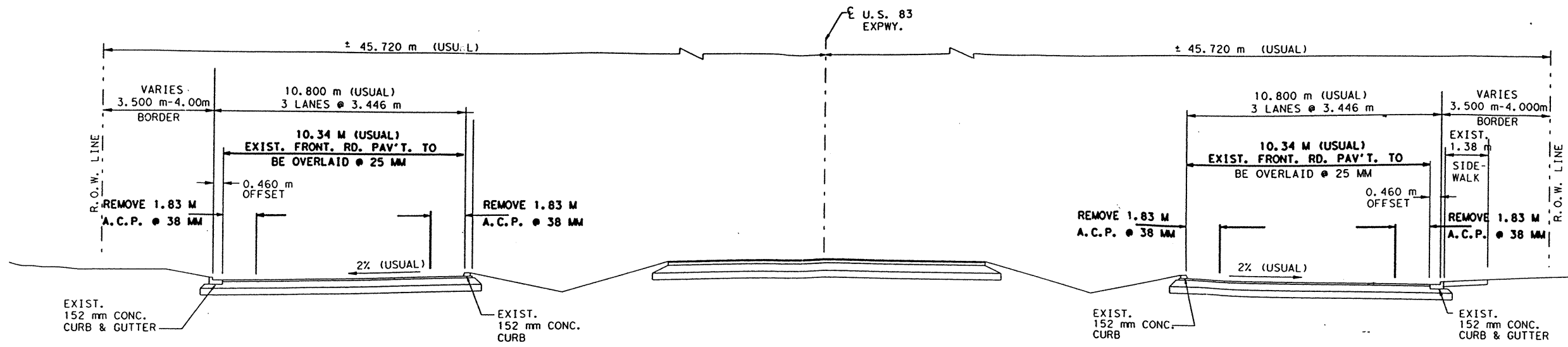
• INCLUDED IN MAINLANE PAVING SUMMARY



Michael W. King 7/15/96
MICHAEL W. KING DATE

F.R. & RAMP PAVING SUMMARY							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
CADD			4	TEXAS	NH 96 (701)A	22	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
APRIL 1996	8070183	AS NOTED	21	HIDALGO	0228	17	18 U.S. 83

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TO BE USED AT THE FOLLOWING STATIONS:
STA. 47+610 TO STA. 48+900 (W.B.F.R.)

TO BE USED AT THE FOLLOWING STATIONS:
STA. 47+429 TO STA. 48+920 (E.B.F.R.)

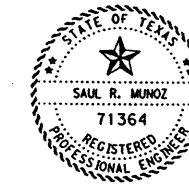
C.O. NO. 14 FRONTAGE ROAD OVERLAY

⊗ LIMITS	AVG. WIDTH (M)	LENGTH (M)	AREA (M ²)	RATE	(3000) TY D ACP SURFACE (25 MM)
WESTBOUND FRONT. RD. LIMITS					
STA. 47+429 TO STA. 47+600	10.34	171	1768.14	(61.8 KG/M ²)	109.3
STA. 47+600 TO STA. 47+900	15.17	300	4551.0	(61.8 KG/M ²)	281.3
STA. 47+900 TO STA. 48+900	10.34	1000	10340.0	(61.8 KG/M ²)	639.0
SUBTOTAL:					1029.6
EASTBOUND FRONT. RD. LIMITS					
STA. 48+900 TO STA. 47+923	10.34	977	10102.2	(61.8 KG/M ²)	624.3
STA. 47+923 TO STA. 47+610	15.17	313	4748.2	(61.8 KG/M ²)	293.4
SUBTOTAL:					917.7
TOTAL:					1947.3

⊗ NOTE: CENTERLINE STATIONS

C.O. NO. 14 FRONTAGE ROAD REMOVAL

⊗ CENTERLINE STATION	AVG. WIDTH (M)	LENGTH (M)	AREA (M ²)	AVG. THK. (M)	ITEM 305 A.C.P. SALVAGE (M ³)
WESTBOUND FRONT. RD.					
STA. 48+900 TO STA. 47+800 @ R.O.W.	1.83	1100	2013.00	0.019	38.25
STA. 48+900 TO STA. 48+760 @ RAMP WX-2	1.83	140	256.20	0.019	4.87
STA. 48+760 TO STA. 48+160 @ RAMP WN-1	1.83	600	1098.00	0.019	20.86
STA. 47+740 TO STA. 47+610 @ R.O.W.	1.83	130	237.90	0.019	4.52
SUBTOTAL:			3605.10		68.50
EASTBOUND FRONT. RD.					
STA. 47+429 TO STA. 47+740 @ R.O.W.	1.83	311	569.13	0.019	10.81
STA. 47+740 TO STA. 47+815 @ R.O.W.	1.83	75	137.25	0.019	2.61
STA. 47+815 TO STA. 48+120 @ RAMP EX-2	1.83	305	558.15	0.019	10.60
STA. 48+120 TO STA. 48+200 @ R.O.W.	1.83	80	146.40	0.019	2.78
STA. 48+250 TO STA. 48+635 (BARR. CURB)	1.83	385	704.55	0.019	13.38
STA. 48+200 TO STA. 48+800 @ R.O.W.	1.83	600	1098.00	0.019	20.86
STA. 48+250 TO STA. 48+640 (BARR. CURB)	1.83	390	713.70	0.019	13.56
STA. 48+780 TO STA. 48+920 BARR. CURB @ RAMP EN-1	1.83	140	256.20	0.019	4.87
STA. 48+800 TO STA. 48+920 @ R.O.W.	1.83	120	219.60	0.019	4.17
SUBTOTAL:			4549.38		83.64
TOTAL:			8154.48		152.14



C.O. # 14 - CHANGE ORDER NO. 14
OVERLAY FRONTAGE ROADS

1
3

PROPOSED TYPICAL SECTIONS
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS . ARCHITECTS . SCIENTISTS . PLANNERS . SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		6	TEXAS	HL-96 (791)M	22A
DATE	FILE	SCALE	STATE DIST.	NO. COUNTY	CONTR. NO.	SECTION JOB NO.
APRIL 1996	620PXEC1	1: 150 HORIZ	1121	HIDALGO	0039	17 118

J. S. 83

CROSS STREET PAVING SUMMARY

SHT NO.	CL STATION LIMITS	(110) EXCAVATION m ³	(132) EMBANKMENT m ³	(260) LTS (305 mm) m ²	(260) LIME (3 % BY WT) Mg	(247) FLEXBASE (305 mm) (TY D)(GR 6) m ³	(251) REWORK BS MTRL (DC) (TY B)(CL 5) m ³	(262) LIME TRT BS (NEW/EX BS) (305 mm)(DC) m ²	(262) LIME (1% NEW) (2% EXIST) Mg	(310) ASPH MATRL (MC-30) L	(3000) TY-D ACP (SURFACE) (76 mm) MgR	(529) CONC CURB & GUTTER (TY-A) m	(531) CONC WHL CHR RAMP (100 mm) m ²	(5024) LANDSCAPE PAVERS m ²
I ROAD														
1	STA 0+788.168 TO STA 1+070	12815.00	10.00	9387.00	152.89	2133.44	547.00	8788.33	64.55	7953.44	1663.87	840.84	23.76	1476.00
2	STA 1+070 TO STA 1+211.839	931.00	4.00	3429.00	55.85	503.45	408.00	2988.36	26.39	2704.47	610.70	201.68		
FM 1426														
3	STA 0+891.597 TO STA 1+094.217	13974.00	10.00	9085.00	147.97	2051.13	539.00	8492.23	62.58	7685.47	1601.69	955.77		2246.00
CROSS STREET PAVING TOTALS		27,720.00	24.00	21,901.00	356.71	4,688.02	1,494.00	20,268.92	153.52	18,343.37	3,876.26	1,998.29	23.76	3,722.00

TRANSITION PAVING SUMMARY

SHT NO.	LOCATION	(110) EXCAVATION m ³	(132) EMBANKMENT m ³	(247) FLEXBASE (305 mm) (TY D) (GR 6) m ³	(262) LIME TRT BS (NEW/EX BX) (305mm) (DC) m ²	(262) LIME (1% NEW) Mg	(310) ASPH MATRL (MC-30) L	(3000) TY-D ACP (SURFACE) (VAR DEPTH) MgR
1	MAINLANE TRANSITION	192.00		1069.36	3506.10	21.39	3173.02	648.84
2	EBFR TRANSITION	796.00		619.15	2030.00	12.38	1837.15	375.97
3	WBFR TRANSITION	102.00	40.00	446.22	1463.02	8.92	1324.03	270.74
4	TEMP. RAMP TXI			462.38	1516.00	9.25	1371.98	280.55
TRANSITION PAVING TOTALS		1,090.00	40.00	2,597.11	8,515.11	51.94	7,706.18	1,575.80

DRIVEWAY AND TURNOUT SUMMARY

Sheet	Centerline Station	Alignment	Item 530				Item 529		
			PRB-1 [sq m]	PB-1 [sq m]	P1 [sq m]	PCC [sq m]	Ty A Barrier [m] (C & G)	Ty B Mount. [m]	
	0+799.127	LT			24.064		15.606		
	0+799.158	RT			51.113		14.579		
	0+825.350	LT			29.500		13.716		
	0+884.993	LT	16.233				11.858		
	1+079.706	RT				32.179	6.875	16.982	
	1+112.979	LT			44.907		13.077		
	1+121.782	RT			14.700		6.218		
	1+139.034	LT			64.624		15.768		
	1+157.655	RT			15.648		6.280		
	1+185.174	LT			54.413		20.697		
	48+903.568	LT			7.745		5.602		
	48+979.241	LT			124.122		23.253		
	49+171.143	RT				103.421	20.285		
	49+247.435	RT				64.482	12.988	17.972	
	49+297.442	RT			43.076		14.352		
	49+362.858	LT			49.502		16.803		
	49+460.554	RT			48.964		15.281		
	49+477.018	RT			39.171		12.736		
	49+547.044	RT			37.237		12.747		
	49+578.070	RT			101.873		13.414		
	49+625.332	RT			42.819		13.470		
Totals			16.233	0	648.787	200.082	258.721	34.954	



Michael W. King
MICHAEL W. KING
DATE: 4/15/96

CROSS ST, TRANSITIONS, AND DRIVEWAY SUMMARY							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates <small>ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS</small>							
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
	CADD		8	TEXAS	NH 49741A	23	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	SUB NO.	HIGHWAY NO.
APRIL 1996	8207ELM	AS NOTED	21	HIDALGO	0030	17	78 U.S. 83

SUMMARY OF THE REMOVAL ITEMS

Sheet No.	Station Limits	Item 100		Item 305		Item 305		Item 305		Item 305		Item 305		Item 305		Item 251		Item 251	
		Preparation of R.O.W. (km)	** 38 mm Rubberized A.C.P. Salvage (m2)	25 mm A.C.P. Salvage (m2)	114 mm A.C.P. Salvage (m2)	50 mm A.C.P. Salvage (m2)	38 mm A.C.P. Salvage (m2)	75 mm A.C.P. Salvage (m2)	Total A.C.P. Salvage (MGR)	406 mm Flex Base Salvage (m2)	356 mm Flex Base Salvage (m2)								
		Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.
1	46+700 ~ 47+200	0.014												8		42			
2	47+200 ~ 47+700	0.500								1151		12000		2298		12000			
3	47+700 ~ 47+950	0.250		2297		2297		2297		1723		2750		1720		1556		1720	2297
4	47+700 ~ 47+950											3995				370			
5	47+950 ~ 48+450	0.500		7315		7315		7315		5486		2260				3353			820
6	48+450 ~ 48+950	0.500		7315		7315		7315		5486		3710				3487			1536
7	48+950 ~ 49+200	0.250		2897		2897		2897		7968		2173				1982			2897
8	49+200 ~ 49+700	0.481		5560		5560		5560		4400		11488				3481			1266
9	49+700 ~ 50+300									167		1145				126			
Total		2.617		25384		25384		25384		19435		34467		13762		16660		13762	8816

* For contractor's information only, subsidiary to pertinent bid item.
 ** To be delivered to TxDOT maintenance yard in Pharr, Texas.

SUMMARY OF THE REMOVAL ITEMS

Sheet No.	Station Limits	Item 251		Item 251		Item 251		Item 251		Item 251		Item 104		Item 104		Item 104		Item 104		Item --	
		203 mm Flex Base Salvage (m2)	152 mm Flex Base Salvage (m2)	432 mm Flex Base Salvage (m2)	279 mm Flex Base Salvage (m2)	Total Flex Base Salvage (m3)	102 mm Conc. SideWalk Removal (m2)	102 mm Conc. Riprap Median Removal (m2)	102 mm Conc. Riprap Removal (m2)	30 mm A.C.P. Island Removal (m2)	Brick Paver Removal & Salvage (m2)										
		Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.
1	46+700 ~ 47+200							17													
2	47+200 ~ 47+700	836		315				5090													
3	47+700 ~ 47+950	76		2750		1723		2694		235		560		1850							
4	47+700 ~ 47+950							607													
5	47+950 ~ 48+450	8760		440		615		4875		3765		295		6		407					
6	48+450 ~ 48+950	8254		1235		1152		4334		4118		40		780		6		270			
7	48+950 ~ 49+200			7968		2173		3181		214		687		1715						1375	
8	49+200 ~ 49+700	7256		8526		950		3451		4596		95		530				615			
9	49+700 ~ 50+300			1145				167		221				19							
Total		25182		26374		6612		12827				584		2852		3596		1292		1375	

SUMMARY OF THE REMOVAL ITEMS

Sheet No.	Station Limits	Item 104		Item 104		Item 542		Item 104		Item 542		Item 542		ITEM 1002		Item 104		
		Concrete Curb Removal (m)	Concrete Curb & Gutter Removal (m)	Metal Beam Guard Fence Removal (m)	Conc. Riprap Down Drain Removal (m2)	Single Guard Rail Terminal Removal (Ea.)	Terminal-Anchor Section Removal (Ea.)	Terminal-Anchor Section Removal (Ea.)	TRANSPLANTING PALM TREES (Ea.)	Pre-Cast C.T.B. Removal (m)	Cast in Place Ty II C.T.B. Removal (m)							
		Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	Est.	Fin.	
1	46+700 ~ 47+200																390	
2	47+200 ~ 47+700	450		122		217		47		2				1		50		451
3	47+700 ~ 47+950	840		140		606		80		2				19		50		
4	47+700 ~ 47+950																	
5	47+950 ~ 48+450	600		300		115		8		2				1				
6	48+450 ~ 48+950	865		435		213		55		2				3				
7	48+950 ~ 49+200	647		730		736		64		4				35				
8	49+200 ~ 49+700	1136		381		176		79		2				5				
9	49+700 ~ 50+300																	
Total		4538		2108		2063		333		2		14		64		100		841



Gregory A. Jacobs 1-15-16
 GREGORY A. JACOBS DATE

REMOVAL SUMMARY							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
CADD			6	TEXAS	NA 467411A	24	

SUMMARY OF PERMANENT RETAINING WALLS

MECHANICALLY STABILIZED EARTH WALLS (MSE)				
Designation	Location Description	ITEM 0423		
		RETAINING WALL (SM)		
		EST.	FIN.	
RW-A	South West Corner of US83 & "I" Rd.	963.00		
RW-C	North West Corner of US83 & "I" Rd.	1145.74		
RW-D	South East Corner of US83 & "I" Rd.	1002.28		
RW-F	North East Corner of US83 & "I" Rd.	1435.84		
RW-G	South West Corner of US83 & FM1426	958.97		
RW-I	North West Corner of US83 & FM1426	969.83		
RW-J	South East Corner of US83 & FM1426	1032.50		
RW-L	North East Corner of US83 & FM1426	1178.46		
	TOTAL	8686.62		

DRILLED SHAFT RETAINING WALL FACIA				
Designation	Location Description	ITEM 423		
		RETAINING WALL (SM)		
		EST.	FIN.	
RW-B	West of "I" Rd.	310.14		
RW-E	East of "I" Rd.	291.03		
RW-H	West of FM1426	287.69		
RW-K	East of FM1426	295.52		
	TOTAL	1184.38		

SUMMARY OF TEMPORARY EARTH WALLS

(Item 4020)

Designation	Location Description	Est. (m2)	Fin. (m2)
TEWE1	East Bound US83 West of "I" Rd.	341	
TEWW1	West Bound US83 West of "I" Rd.	343	
TEWE2	East Bound US83 East of "I" Rd.	378	
TEWW2	West Bound US83 East of "I" Rd.	759	
TEWE3	East Bound US83 West of FM1426	202	
TEWW3	West Bound US83 West of FM1426	208	
TEWE4	East Bound US83 East of FM1426	501	
TEWW4	West Bound US83 East of FM1426	510	
TOTAL		3242	

SUMMARY OF IRRIGATION AND TEMPORARY DRAINAGE (SLOTTED DRAINS)

Sheet No.	CL Station	Alignment	Item 400		Item 464		Item 474		Item 476		Item 496	
			#Cut & Rest. Pymnt. [sq. m]	Cement Stab. Backfill [cu. m]	RG RCP Sewer CIV 600 mm [m]	Slotted Drain [m]	Slotted Drain Outfall [m]	Jack or Bore RG RCP CL IN 600 mm [m]	Remove Old Str. (Pipe) [m]			
			EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
		US 83										
	48+010.0						6	5,610				
	48+070.0						3	5,461				
	48+150.0						3	5,311				
	48+240.0						3	5,311				
	48+330.0						3	5,311				
	48+400.0		40.382		2,520	62.786	18	5,311	59.673		3,962	
	48+440.0											
	48+143.5											
	Totals		40.382		2,520	62.786	40	37.925	59.673		3,962	

* See Irrigation relocation sheet for typical section.



GREGORY A. JACOBS 4-15-96
GREGORY A. JACOBS DATE

IRRIGATION, TEMP. DRAINAGE, & WALL SUMMARY										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO. DW. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
			8	TEXAS	NH 87791A	25				
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.			
APRIL 1996	8207158	AS NOTED	21	HIDALGO	00 36	17	118			U.S. 83

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MAINLANE PAVING SUMMARY

SHT NO.	CL STATION LIMITS	* (110) EXCAVATION m ³	* (132) EMBANKMENT (DC) (TY C) m ³	(160) FUR & RPL TOPSOIL (150 mm) m ²	(260) LTS (305 mm) m ²	(260) LIME (3% BY WT) Mg	(247) FLEXBASE (356 mm) (TY D) (GR 6) m ³	(251) REWORK BS MTR (DC) (TY B) (CL 5) m ³	(262) LIME TRT BS (NEW/EX BS) (356 mm) (DC) m ²	(262) LIME (1% NEW) (2% EXIST) Mg	(310) ASPH MATRL (MC-30) L	(3000) TY-B ACP (BASE) (127 mm) Mg
1	STA 46+700 TO STA 47+000	0.00	0.00				0.00	138.00	387.64	5.52		
2	STA 47+000 TO STA 47+300	43.10	6.70	0.00								
3	STA 47+300 TO STA 47+600	1196.70	7020.30	2520.00	9068.40	147.70	0.00	3380.00	9494.38	135.20	8041.83	2726.92
4	STA 47+600 TO STA 47+900	9993.00	9212.70	3355.00	10038.40	163.50	0.00	3080.00	8651.69	123.20	8919.68	3048.92
5	STA 47+900 TO STA 48+200	1232.90	23463.40	6580.00	11430.40	186.17	605.86	2580.00	8949.04	115.32	10179.44	3423.34
6	STA 48+200 TO STA 48+500	864.60	5473.60	12000.00	10656.40	173.56	1981.21	1780.00	10565.20	110.82	9478.97	3172.85
7	STA 48+500 TO STA 48+800	1793.90	2168.10	12000.00	10656.40	173.56	1702.21	1980.00	10343.29	113.24	9478.97	3172.85
8	STA 48+800 TO STA 49+100	5752.10	13250.00	8530.00	9070.40	147.73	437.60	2700.00	8813.48	116.75	8043.64	2720.12
9	STA 49+100 TO STA 49+400	8200.00	20149.30	3146.00	11246.40	183.17	1414.63	2450.00	10855.70	126.29	10012.92	3421.49
10	STA 49+400 TO STA 49+700	2107.80	3815.70	550.00	4265.68	69.48	0.00	2350.00	6601.12	94.00	3813.67	1296.05
11	STA 49+700 TO STA 50+000	1735.20	61.00					46.00		1.84		
12	STA 50+000 TO STA 50+300	283.90	193.00									
MAINLANE PAVING TOTALS		33214.4	84714.00	48,681.00	76,432.48	1,244.86	6,141.51	20,484.00	74,661.54	942.19	67,969.12	22,982.54

* INCLUDES FRONTAGE RD. & RAMP SUMMARIES.

MAINLANE PAVING SUMMARY

SHT NO.	CL STATION LIMITS	(3000) TY-D ACP (SURFACE) (51 mm) Mg	(514) SSCB (TY 2) MV & RESET (HT=1070) m	(514) SSCB TY-4 (HT=1070) M	(450) SSTR m	(432) CONC RIP-RAP (CL B) m ³	(540) MBGF m	(5165) SGT EA	() CCAT EA	(164) CFMS (TEMP) (COOL) m ²	(164) CFMS (PERM/URBAN) (SAND) m ²	(168) VEG WATER KL	(540) TERM. ANCHOR SECT. (EA)
1	STA 46+700 TO STA 47+000		190.00										
2	STA 47+000 TO STA 47+300		300.00				36.96	1.00		1150.00	1150.00	328.58	
3	STA 47+300 TO STA 47+600	1095.06	300.00		334.42	32.76	7.62	1.00		3180.00	3180.00	908.60	1
4	STA 47+600 TO STA 47+900	1223.97	230.40		460.80	42.02				4806.00	4806.00	1373.19	
5	STA 47+900 TO STA 48+200	1374.73	284.75	15.25	439.54	72.75			1.00	9286.00	9286.00	2653.24	
6	STA 48+200 TO STA 48+500	1274.14	284.75	15.25						19140.00	19140.00	5468.77	
7	STA 48+500 TO STA 48+800	1274.14	287.80	12.20	34.28	6.75			1.00	19633.00	19633.00	5609.63	
8	STA 48+800 TO STA 49+100	1092.33	244.99	12.20	521.31	47.54				13048.00	13048.00	3728.14	
9	STA 49+100 TO STA 49+400	1373.98	251.41	12.20	527.22	48.08				4826.00	4826.00	1378.91	
10	STA 49+400 TO STA 49+700	520.46	170.85	9.15	119.86	31.87			1.00	6166.00	6166.00	1761.78	
11	STA 49+700 TO STA 50+000								1.00	5070.00	5070.00	1448.62	
12	STA 50+000 TO STA 50+300									2305.00	2305.00	658.60	
MAINLANE PAVING TOTALS		9,228.29	2,544.93	76.25	2,437.43	281.77	44.58	2.00	4.00	88,610.00	88,610.00	25,318.07	1



Michael W. King
MICHAEL W. KING
5/13/96
DATE

MAINLANE PAVING SUMMARY
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. AID DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS	111 81(711) AA	26
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT SECTION NO.	JOB NO. HIGHWAY NO.
APR 96	020162	AS NOTED	21	HIDALGO	0030	17 19

REV. 5/28/96

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SUMMARY OF REFLECTORIZED PAVEMENT MARKINGS (ITEM 666)																																	
STATION LIMITS		TY 1 - THERMOPLASTIC																															
		100 mm (W) SOLID METER		100 mm (W) BROKEN METER		100 mm (W) DASHED METER		150 mm (W) SOLID METER		200 mm (W) SOLID METER		200 mm (W) LANE DROP METER		300 mm (W) SOLID METER		600 mm (W) SOLID METER		ARROW (STRAIGHT) (W) EACH		DBL ARROW (LT TN/STR) (W) EACH		ARROW (TND) (W) EACH		WORD ('ONLY') (W) EACH		ENTR GORE (W) EACH		EXIT GORE (W) EACH		100 mm (Y) SOLID METER		100 mm (Y) BROKEN METER	
EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
US 83 (46+340 TO 50+352)		16,745		23,283		810		592		2,598		1,039		146		190		38		8		8		26		8		12		15,634		500	

SUMMARY OF REFLECTORIZED PAVEMENT MARKINGS (ITEM 666)									
STATION LIMITS		TY 1 - THERMOPLASTIC							
		200 mm (Y) SOLID METER		600 mm (Y) SOLID METER		ARROW (LT TURN) (W) EACH		ARROW (RT TURN) (W) EACH	
EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
US 83 (46+340 TO 50+352)		985		306		40		21	

SUMMARY OF RAISED PAVEMENT MARKERS (ITEM 672)															
STATION LIMITS		CL A (JIGGLE)				CL B (REFL)									
		TY I-C (SGL REFL)		TY II-A-A (SGL REFL)		TY I-A (SGL REFL)		TY I-C (SGL REFL)		TY I-R (SGL REFL)		TY II-A-A (DBL REFL)		TY II-C-R (DBL REFL)	
		EACH		EACH		EACH		EACH		EACH		EACH		EACH	
EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
US 83 (46+340 TO 50+352)		562		408		972		2,672		168		300		1,998	

NOTES

1. ALL PERMANENT STRIPING SHALL BE INSTALLED BY THE CONTRACTOR.
2. ALL PAVEMENT MARKERS, JIGGLE BAR TILES AND PREFABRICATED PAVEMENT MARKINGS SHALL BE INSTALLED BY THE CONTRACTOR.
3. ALL TY I-A AND I-C PAVEMENT MARKERS AND JIGGLE BAR TILES SHALL BE INSTALLED WITH THE REFLECTIVE LENS FACING APPROACHING TRAFFIC.
4. BEFORE APPLICATION OF PERMANENT STRIPING AND PAVEMENT MARKERS, THE PAVEMENT SURFACE AND STRUCTURE DECK SURFACE SHALL BE FREE OF DELETERIOUS MATERIAL. IF THE SURFACE NEEDS TO BE CLEANED, AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL PREPARE THE SURFACE IN ACCORDANCE WITH ITEM 678, 'PAVEMENT SURFACE PREPARATION FOR MARKINGS AND MARKERS', EXCEPT FOR 'MEASUREMENT' AND 'PAYMENT'. THE PREPARATION OF PAVEMENT SURFACE SHALL BE SUBSIDIARY TO ITEMS 666 AND 672.



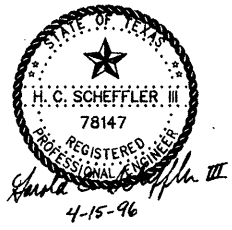
GREGORY A. JACOBS 4-15-76
GREGORY A. JACOBS DATE


PAVEMENT MARKING SUMMARY														
U.S. 83 RECONSTRUCTION														
HIDALGO COUNTY, TEXAS														
TEXAS DEPARTMENT OF TRANSPORTATION														
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS														
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	DATE	SCALE	STATE	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
			6	TEXAS	HH 467201A	27	APRIL 1976	AS NOTED	21	HIDALGO	0030	17	18	U.S. 83


SUMMARY OF WORK ZONE PAVEMENT MARKINGS (ITEM 662)													
DESCRIPTION													
NON-REMOVABLE (THERMOPLASTIC)													
LOCATION	UNIT	100 MM SOLID WHITE		100 MM SOLID YELLOW		100 MM BROKEN WHITE		200 MM SOLID WHITE		300 MM SOLID WHITE		600 MM SOLID WHITE	
		ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL
PHASE 1	M												
PHASE 2	M	7310		7310		7310							
PHASE 3 STEP 1	M	2180		3205									
PHASE 3 STEP 2	M												
PHASE 3 STEP 3	M	630											
PHASE 4 STEP 1	M	6745		2250		5650		680		240			
PHASE 4 STEP 2	M												
PHASE 4 STEP 3	M												
PHASE 5 STEP 1	M	7655		3630		4790		560		250		40	
PHASE 5 STEP 2	M												
PHASE 6 STEP 1	M												
PHASE 6 STEP 2	M												
TOTALS	M	24520		16395		17750		1240		490		40	


SUMMARY OF ELIMINATING EXISTING PAVEMENT MARKINGS (ITEM 677)					
DESCRIPTION					
REMOVAL					
LOCATION	UNIT	100 MM PAV MARKINGS		600 MM PAV MARKINGS	
		ESTIMATE	FINAL	ESTIMATE	FINAL
PHASE 1	M				
PHASE 2	M	8905			
PHASE 3 STEP 1	M	2650			
PHASE 3 STEP 2	M	220			
PHASE 3 STEP 3	M	1015			
PHASE 4 STEP 1	M	11145			
PHASE 4 STEP 2	M	990			
PHASE 4 STEP 3	M	220			
PHASE 5 STEP 1	M	9335		70	
PHASE 5 STEP 2	M	7150		45	
PHASE 6 STEP 1	M	2455		90	
PHASE 6 STEP 2	M	2725		90	
TOTALS	M	46810		295	

SUMMARY OF WORK ZONE PAVEMENT MARKINGS (ITEM 662)													
DESCRIPTION													
REMOVABLE													
LOCATION	UNIT	100 MM SOLID WHITE		100 MM SOLID YELLOW		100 MM BROKEN WHITE		200 MM SOLID WHITE		300 MM SOLID WHITE		600 MM SOLID WHITE	
		ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL
PHASE 1	M												
PHASE 2	M	350		910		210							
PHASE 3 STEP 1	M	4820		4520		4145		245		65			
PHASE 3 STEP 2	M	330		165		165		135		30			
PHASE 3 STEP 3	M	1300		1060				80		25			
PHASE 4 STEP 1	M	5355		8180		3775		55		25			
PHASE 4 STEP 2	M	2400		1170		45							
PHASE 4 STEP 3	M	705		660		240		155		35			
PHASE 5 STEP 1	M	1155		4550		45						90	
PHASE 5 STEP 2	M	1650		1010		555						30	
PHASE 6 STEP 1	M	1655		2070		35						130	
PHASE 6 STEP 2	M	1555		1135		175		50				55	
TOTALS	M	21275		25430		9390		720		180		305	



 **Texas Department of Transportation**

 **TRAFFIC ENGINEERING & DESIGN SYSTEMS, INC.**
Traffic & Transportation Consultants
 1200 Brown Ave. • Suite C • McAllen, Texas 78501
 (210) 682-8666

 **Half Associates**
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS

**ESTIMATE AND QUANTITY SHEET
FOR TRAFFIC CONTROL DURING
CONSTRUCTION**

SHEET 1 OF 2

DN: BS	PR. NO.	STATE	FEDERAL AID PROJECT NO.	WISDOM
CK DN: JLS	REV. NO.	TEXAS	NH 96 (19)(M)	US 83
DN: JCP	STATE	COUNTY	CORRAL SECTION	JOB
CK DN:	DIST. NO.	HIDALGO	0039	17 118
TR:				SHEET
CK TR:				28

RECORD NO. 82284-0002
 SHEET 1 OF 2

SUMMARY OF PORTABLE BARRIERS & RAILINGS																	
DESCRIPTION																	
LOCATION	UNIT	ITEM 512 CONCRETE TRAFFIC BARRIERS								ITEM 450 RAILING				ITEM 452 REMOVE RAILING			
		TYPE A (FURNISH & INSTALL)		TYPE B (STKPL, INST & RTN)		TYPE C (MOVE & RESET)		TYPE D (REMOVE)		T503		T504		T503		T504	
		ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL
PHASE 1	M																
PHASE 2	M	* 1372		* 4655													
PHASE 3 STEP 1	M	* 4710				* 485		* 2570		154		166					
PHASE 3 STEP 2	M																
PHASE 3 STEP 3	M							* 567					77		83		
PHASE 4 STEP 1	M					* 3211		* 3055					77		83		
PHASE 4 STEP 2	M					* 265		* 631									
PHASE 4 STEP 3	M					* 229		* 302									
PHASE 5 STEP 1	M					* 2945											
PHASE 5 STEP 2	M							* 5524									
PHASE 6 STEP 1	M																
PHASE 6 STEP 2	M																
TOTALS	M	6082		4655		7135		7994		154		166		154		166	

* FOR CONTRACTOR INFORMATION ONLY

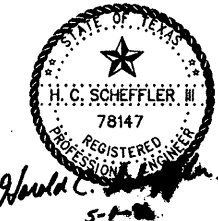
SUMMARY OF CONC. TRAF. BARRIER END TREATMENTS (ITEM 5007 AND ITEM 5013)					
DESCRIPTION					
LOCATION	UNIT	ITEM 5007		ITEM 5013	
		G.R.E.A.T. TYPE "CZ"		G.E.T.	
		ESTIMATE	FINAL	ESTIMATE	FINAL
PHASE 1	M				
PHASE 2	M	* 2			
PHASE 3 STEP 1	M	1		1	
PHASE 3 STEP 2	M				
PHASE 3 STEP 3	M				
PHASE 4 STEP 1	M	1			
PHASE 4 STEP 2	M				
PHASE 4 STEP 3	M	1			
PHASE 5 STEP 1	M	2			
PHASE 5 STEP 2	M				
PHASE 6 STEP 1	M				
PHASE 6 STEP 2	M				
TOTALS	M	* 2		1	

* REMOVE & RE-USE AS REQ'D IN PROJECT PHASES. THE REMOVING AND RESETING RELATED COSTS SHALL NOT BE PAID DIRECTLY, BUT SHALL BE SUBSIDIARY TO ITEM 502.

SUMMARY OF TEMPORARY DETOUR PAVEMENT (ITEM 508)					
DESCRIPTION					
LOCATION	UNIT	MAINLANE DETOURS CLASS "3"		NON-MAINLANE DETOURS CLASS "3"	
		ESTIMATE	FINAL	ESTIMATE	FINAL
		PHASE 1	M2		
PHASE 2	M2	4425			
PHASE 3 STEP 1	M2				
PHASE 3 STEP 2	M2				
PHASE 3 STEP 3	M2			445	
PHASE 4 STEP 1	M2			125	
PHASE 4 STEP 2	M2				
PHASE 4 STEP 3	M2				
PHASE 5 STEP 1	M2			1855	
PHASE 5 STEP 2	M2				
PHASE 6 STEP 1	M2				
PHASE 6 STEP 2	M2				
TOTALS	M2	4425		2425	

SUMMARY OF TEMPORARY PAVEMENT (MAINLANE RAMP EXTENSIONS) (ITEM 3000)					
DESCRIPTION					
LOCATION	UNIT	A.C.P. TYPE "B"		A.C.P. TYPE "D"	
		ESTIMATE	FINAL	ESTIMATE	FINAL
		* PHASE 1	MGR		
PHASE 2	MGR			14	
PHASE 3 STEP 1	MGR	46		22	
PHASE 3 STEP 2	MGR				
PHASE 3 STEP 3	MGR				
PHASE 4 STEP 1	MGR	1220		22	
PHASE 4 STEP 2	MGR				
PHASE 4 STEP 3	MGR				
PHASE 5 STEP 1	MGR				
PHASE 5 STEP 2	MGR				
PHASE 6 STEP 1	MGR				
PHASE 6 STEP 2	MGR				
TOTALS	MGR	1266		2133	

* QUANTITY INCLUDES MATERIAL NEEDED FOR OVERLAY OF EXISTING SHOULDERS.



Texas Department of Transportation

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1200 Fresno Ave. Suite C McAllen, Texas 78501
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**ESTIMATE AND QUANTITY SHEET
FOR TRAFFIC CONTROL DURING
CONSTRUCTION**

SHEET 2 OF 2

DN: BS	FILE NO.	STATE	FEDERAL AID PROJECT NO.	HSR NO.
CK: JLS	6	TEXAS	NH 94 (781) M)	US 83
DR: JCP	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
CK: DR	21	HIDALGO	0039	17
TR:				118
CK TR:				29

TERRACON, INC. 800-44-6066
FILED 5/11/00

EARTHWORK QUANTITIES

U.S. 83 EXPRESSWAY

STATION	STATION EXCAV (M ³)	STATION EMBANK (M ³)	ACCUM EXCAV (M ³)	ACCUM EMBANK (M ³)	MASS ORDINATE (M ³)
47+213.700	0.0	0.0	0.0	0.0	0.0
47+244.180	19.8	1.4	19.8	1.4	18.4
47+274.660	23.3	5.3	43.1	6.7	36.4
47+305.140	20.0	11.6	63.1	18.3	44.8
47+335.620	11.6	15.4	74.7	33.7	41.0
47+366.100	311.4	17.2	386.0	50.9	335.1
47+396.580	415.6	27.4	801.6	78.3	723.3
47+427.060	173.1	70.0	974.7	148.3	826.5
47+457.540	103.3	294.3	1078.1	442.6	635.5
47+488.020	55.2	798.7	1133.2	1241.3	-108.0
47+518.500	23.3	1445.8	1156.6	2687.1	-1530.5
47+548.980	14.5	2070.2	1171.0	4757.3	-3586.3
47+579.460	70.7	2269.7	1241.8	7027.0	-5785.2
47+609.940	231.5	1994.9	1473.3	9021.9	-7548.7
47+640.420	614.0	1583.3	2087.3	10605.2	-8517.9
47+670.900	1143.2	1169.7	3230.4	11774.9	-8544.4
47+701.380	1544.4	883.5	4774.8	12658.3	-7883.5
47+731.860	1883.5	710.6	6658.4	13369.0	-6710.6
47+739.599	543.8	119.9	7202.2	13488.8	-6286.7
47+807.289	0.0	0.0	7202.2	13488.8	-6286.7
47+823.300	1141.7	390.5	8343.8	13879.4	-5535.5
47+853.780	1759.2	957.4	10103.0	14836.7	-4733.7
47+884.260	1131.7	1402.9	11234.7	16239.6	-5004.9
47+914.740	530.1	1981.8	11764.8	18221.4	-6456.6
47+945.220	244.9	2817.3	12009.7	21038.6	-9029.0
47+975.700	61.7	3744.5	12071.4	24783.1	-12711.7
48+006.180	18.9	4075.8	12090.3	28858.9	-16768.6
48+036.660	34.9	3698.2	12125.2	32457.1	-20331.9
48+067.140	16.3	2659.8	12141.5	35116.9	-22975.4
48+097.620	12.3	1682.2	12153.8	36799.1	-24645.3
48+128.100	79.9	1111.3	12233.7	37910.4	-25676.7
48+158.580	131.2	937.4	12364.9	38847.8	-26482.9
48+189.060	102.7	855.1	12467.6	39702.9	-27235.3
48+219.540	55.5	825.6	12523.1	40528.5	-28005.4
48+250.020	44.8	797.2	12567.9	41325.7	-28757.8
48+280.500	63.1	794.0	12631.0	42119.7	-29488.7
48+310.980	74.8	645.4	12705.8	42765.1	-30059.2
48+341.460	132.3	781.5	12838.1	43546.5	-30708.4
48+371.940	177.1	647.7	13015.2	44194.2	-31179.0
48+402.420	119.9	421.2	13135.2	44615.5	-31480.3
48+432.900	99.4	323.1	13234.5	44938.6	-31704.1
48+463.380	49.5	182.0	13284.1	45120.5	-31836.5
48+493.860	48.2	55.9	13332.2	45176.5	-31844.3
48+524.340	111.4	13.9	13443.6	45190.3	-31746.7
48+554.820	185.3	0.8	13628.9	45191.1	-31562.2
48+585.300	151.9	0.6	13780.9	45191.7	-31410.8
48+615.780	92.5	15.3	13873.4	45207.0	-31333.6
48+646.260	105.0	36.0	13978.4	45242.9	-31264.5
48+676.740	107.6	83.5	14086.0	45326.4	-31240.5
48+707.220	265.3	211.1	14351.3	45537.5	-31186.2
48+737.700	371.6	405.4	14722.9	45942.9	-31220.1
48+768.180	266.4	599.7	14989.3	46542.6	-31553.3
48+798.660	136.9	801.8	15126.1	47344.4	-32218.3
48+829.140	38.0	1270.1	15164.1	48614.5	-33450.4
48+859.620	86.3	2019.1	15250.3	50633.6	-35383.3
48+890.100	199.6	2482.5	15450.0	53116.1	-37666.1
48+920.580	330.6	2286.2	15780.5	55402.2	-39621.7
48+951.060	439.8	1716.2	16220.4	57118.4	-40898.0
48+981.540	533.9	1350.6	16754.2	58469.0	-41714.7
49+012.020	1042.1	1015.9	17796.3	59484.8	-41688.5
49+042.500	1764.5	732.9	19560.8	60217.7	-40656.9
49+058.247	862.2	269.7	20423.0	60487.4	-40064.4
49+072.980	455.1	107.6	20878.1	60595.0	-39716.9
49+104.420	2608.5	1741.0	23486.6	62336.0	-38849.4
49+134.900	1997.5	1940.5	25484.1	64276.5	-38792.4
49+165.380	1606.5	2335.4	27090.6	66611.9	-39521.3
49+195.860	963.5	2892.4	28054.1	69504.3	-41450.3
49+226.340	519.1	3262.3	28573.1	72766.6	-44193.5
49+256.820	270.2	3231.5	28843.3	75998.1	-47154.8
49+287.300	145.2	2782.5	28988.6	78780.6	-49792.0
49+317.780	89.5	1963.7	29078.0	80744.3	-51666.3
49+348.260	37.6	1179.3	29115.7	81923.6	-52807.9
49+378.740	28.2	682.6	29143.9	82606.2	-53462.3
49+409.220	66.3	443.5	29210.2	83049.7	-53839.5
49+439.700	70.7	431.4	29280.9	83481.1	-54200.2

U.S. 83 EXPRESSWAY

STATION	STATION EXCAV (M ³)	STATION EMBANK (M ³)	ACCUM EXCAV (M ³)	ACCUM EMBANK (M ³)	MASS ORDINATE (M ³)
49+530.180	63.6	400.4	29344.4	83881.5	-54537.0
49+560.660	87.3	305.4	29431.7	84186.9	-54755.1
49+591.140	200.9	236.8	29632.6	84423.7	-54791.1
49+621.620	379.3	105.3	30011.9	84529.0	-54517.1
49+652.100	539.3	25.1	30551.3	84554.1	-54002.9
49+682.580	634.6	5.9	31185.9	84560.1	-53374.2
49+713.060	636.6	4.9	31822.4	84565.0	-52742.5
49+743.540	556.1	2.3	32378.5	84567.2	-52188.7
49+774.020	292.5	4.9	32671.0	84572.1	-51901.1
49+804.500	63.4	9.8	32734.4	84581.9	-51847.5
49+834.980	27.9	11.4	32762.3	84593.3	-51831.0
49+865.460	46.9	12.8	32809.2	84606.1	-51796.9
49+895.940	31.9	0.0	32841.1	84606.1	-51765.0
49+926.420	38.9	0.0	32879.9	84606.1	-51726.2
49+956.900	41.0	14.9	32920.9	84621.0	-51700.1
50+017.860	43.0	30.2	32963.9	84651.2	-51687.3
50+048.340	30.0	19.2	32993.9	84670.4	-51676.5
50+078.820	13.8	2.1	33007.7	84672.5	-51664.8
50+109.300	19.8	2.4	33027.5	84675.0	-51647.4
50+139.780	59.1	7.9	33086.7	84682.9	-51596.2
50+170.260	61.9	13.0	33148.5	84695.8	-51547.3
50+200.740	41.5	14.2	33190.0	84710.0	-51520.0
50+231.220	24.8	4.0	33214.8	84714.0	-51499.1
TOTAL FOR PAYMENT			33214.8	84714.0	

"I" ROAD

STATION	STATION EXCAV (M ³)	STATION EMBANK (M ³)	ACCUM EXCAV (M ³)	ACCUM EMBANK (M ³)	MASS ORDINATE (M ³)
0+788.168	0.0	0.0	0	0	0
0+820.000	570.7	0.0	570.7	0	570.7
0+850.000	598.5	0.0	1169.2	0	1169.2
0+880.000	541.0	0.0	1710.2	0	1710.2
0+910.000	480.3	0.0	2190.5	0	2190.5
0+940.000	465.9	1.3	2656.4	1.3	2655.1
0+970.000	1242.0	1.3	3898.4	2.6	3895.8
1+000.000	4162.4	0.0	8060.8	2.6	8058.2
1+030.000	4092.2	0.0	12153	2.6	12150.4
1+060.000	1205.6	0.0	13358.6	2.6	13356
1+090.000	416.4	2.0	13775	4.6	13770.4
1+120.000	333.0	3.3	14108	7.9	14100.1
1+150.000	405.9	1.3	14513.9	9.2	14504.7
1+180.000	450.7	0.0	14964.6	9.2	14955.4
1+211.839	355.6	3.5	15320.2	12.7	15307.5
NET TOTAL FOR PAYMENT			13825	13	13812

NOTE: EXCAVATION QUANTITY FOR PAYMENT SHALL BE REDUCED TO COMPENSATE FOR REMOVAL OF THE FOLLOWING ITEMS:

EXISTING PAVEMENT	1189.0			
RIP-RAP	282.0			
SIDEWALK	24.0			

FM 1426

STATION	STATION EXCAV (M ³)	STATION EMBANK (M ³)	ACCUM EXCAV (M ³)	ACCUM EMBANK (M ³)	MASS ORDINATE (M ³)
0+891.597	0.0	0.0	0	0	0
0+910.000	211.4	1.7	211.4	1.7	209.7
0+940.000	657.3	2.1	868.7	3.8	864.9
0+970.000	2257.9	0.0	3126.6	3.8	3122.8
1+000.000	5138.4	0.0	8265	3.8	8261.2
1+030.000	5043.6	0.0	13308.6	3.8	13304.8
1+060.000	2112.5	2.7	15421.1	6.5	15414.6
1+090.000	566.5	2.7	15987.6	9.2	15978.4
1+094.217	48.0	0.0	16035.6	9.2	16026.4
NET TOTAL FOR PAYMENT			14015	9	14006

NOTE: EXCAVATION QUANTITY FOR PAYMENT SHALL BE REDUCED TO COMPENSATE FOR REMOVAL OF THE FOLLOWING ITEMS:

EXISTING PAVEMENT	1495.0			
RIP-RAP	259.0			
PAVERS/SIDEWALK	267.0			

GRAND TOTAL (US83, "I" RD. & FM1426) 61054.8 84736.0 -23681



Gregory A. Jacobs 4-15-96
DATE

ESTIMATE & QUANTITY										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
			2	TEXAS	NH 467(21)A	31				
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.				HIGHWAY NO.
APRIL 1996	509WTR	NONE	21	HIDALGO	00	17				U.S. 83

SUMMARY OF REFLECTORIZED PAVEMENT MARKINGS (ITEM 666)

STATION LIMITS	TY I - THERMOPLASTIC																															
	100 mm (W) SOLID METER		100 mm (W) BROKEN METER		100 mm (W) DASHED METER		150 mm (W) SOLID METER		200 mm (W) SOLID METER		200 mm (W) LANE DROP METER		300 mm (W) SOLID METER		600 mm (W) SOLID METER		ARROW (STRAIGHT) (W) EACH		DBL ARROW (LT TN/STR) (W) EACH		ARROW (TND) (W) EACH		WORD ("ONLY") (W) EACH		ENTR GORE (W) EACH		EXIT GORE (W) EACH		100 mm (Y) SOLID METER		100 mm (Y) BROKEN METER	
	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
US 83 (46+340 TO 50+352)	16,745		23,283		810		592		2,598		1,039		146		190		38		8		8		26		8		12		15,634		500	

SUMMARY OF REFLECTORIZED PAVEMENT MARKINGS (ITEM 666)

STATION LIMITS	TY I - THERMOPLASTIC							
	200 mm (Y) SOLID METER		600 mm (Y) SOLID METER		ARROW (LT TURN) (W) EACH		ARROW (RT TURN) (W) EACH	
	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
US 83 (46+340 TO 50+352)	985		306		40		21	

SUMMARY OF RAISED PAVEMENT MARKERS (ITEM 672)

STATION LIMITS	CL A (JIGGLE)				CL B (REFL)									
	TY I-C (SGL REFL)		TY II-A-A (SGL REFL)		TY I-A (SGL REFL)		TY I-C (SGL REFL)		TY I-R (SGL REFL)		TY II-A-A (DBL REFL)		TY II-C-R (DBL REFL)	
	EACH		EACH		EACH		EACH		EACH		EACH		EACH	
	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
US 83 (46+340 TO 50+352)	562		400		972		2,672		168		300		1,998	

SUMMARY OF RAISED PAVEMENT MARKERS (ITEM 658)

STATION LIMITS	CL A (JIGGLE)		DELINEATOR ASSY.					
	TYPE 2 DM-2HP		TY A (D-SW) (DBL REFL)		TY A (D-DW) (DBL REFL)		TY A (D-DY) (DBL REFL)	
	EACH		EACH		EACH		EACH	
	EST.	FIN.	EST.	FIN.	EST.	FIN.	EST.	FIN.
US 83 (47+185 TO 50+269)	6		65		22		6	

NOTES

1. ALL PERMANENT STRIPING SHALL BE INSTALLED BY THE CONTRACTOR.
2. ALL PAVEMENT MARKERS, JIGGLE BAR TILES AND PREFABRICATED PAVEMENT MARKINGS SHALL BE INSTALLED BY THE CONTRACTOR.
3. ALL TY I-A AND I-C PAVEMENT MARKERS AND JIGGLE BAR TILES SHALL BE INSTALLED WITH THE REFLECTIVE LENS FACING APPROACHING TRAFFIC.
4. BEFORE APPLICATION OF PERMANENT STRIPING AND PAVEMENT MARKERS, THE PAVEMENT SURFACE AND STRUCTURE DECK SURFACE SHALL BE FREE OF DELETERIOUS MATERIAL. IF THE SURFACE NEEDS TO BE CLEANED, AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL PREPARE THE SURFACE IN ACCORDANCE WITH ITEM 678, "PAVEMENT SURFACE PREPARATION FOR MARKINGS AND MARKERS". EXCEPT FOR "MEASUREMENT" AND "PAYMENT", THE PREPARATION OF PAVEMENT SURFACE SHALL BE SUBSIDIARY TO ITEMS 666 AND 672.



Gregory A. Jacobs 5-13-96
GREGORY A. JACOBS DATE

PAVEMENT MARKING SUMMARY										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET				
CADD			DIV. NO.	9	TEXAS	14	1			
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.	HIGHWAY NO.		
APRIL 1996	820PM03	AS NOTED	TX	HIDALGO	0020	07	18	U.S. 83		

REV. 5/25/96

1
1

ESTIMATE SUMMARY

								PROJ: NH 96(791)M US 83 ALL BID ITEMS		ALT	ITEM- CODE			DESCRIPTION	UNIT	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP NO			EST.	FINAL
						2.517				100	5002		PREP ROW	KM	2.517	2.517	
						3596.000				104	5003		REMOV CONC (RIPRAP)	M2	3596.000	3596.000	
						2852.000				104	5005		REMOV CONC (MED)	M2	2852.000	2852.000	
						584.000				104	5009		REMOV CONC (SDWLK)	M2	584.000	584.000	
						2108.000				104	5013		REMOV CONC (CURB & GUTTER)	M	2108.000	2108.000	
						4538.000				104	5014		REMOV CONC (CURB)	M	4538.000	4538.000	
						1292.000				104	5017		REMOV CONC (DRCTN ISL)	M2	1292.000	1292.000	
						333.000				104	5029		REMOV CONC (SHLDR DRAIN)	M2	333.000	333.000	
						100.000				104	5032		REMOV CONC (CTB) (PRE-CAST)	M	100.000	100.000	
						841.000				104	5033		REMOV CONC (CTB) (CAST-IN-PLACE)	M	841.000	841.000	
						61054.800				110	5001		EXCAVATION (RDWY)	M3	61054.800	61054.800	
						84736.000				132	5009		EMBANK (DENS CONT) (TY C) (CL 3)	M3	84736.000	84736.000	
						48681.000				160	5002		FURN AND PLAC TPSL (CL 2) (150 MM)	M2	48681.000	48681.000	
						107464.000				164	5009	001	CELL FIB SEED (TEMP) (COOL)	M2	107464.000	107464.000	
						107464.000				164	5035	001	CELL FIB SEED (PERM) (URBAN) (SAND)	M2	107464.000	107464.000	
						30705.130				168	5001		VEGETATIVE WATERING	KL	30705.130	30705.130	
						20292.140				247	5241	002	FLEX BASE (RDWY DEL) (TY D GR 6 CL 4)	M3	20292.140	20292.140	
						24287.000				251	5060		REWRKING BS MTL (DC) (TY B' CL 5) (VAR)	M3	24287.000	24287.000	
						2136.850				260	5014		LIME (TY A SLURRY) OR (TY B)	MGR	2136.850	2136.850	
						131199.360				260	5022		LIME TREAT SUBGR (DC) (305 MM)	M2	131199.360	131199.360	
						1377.380				262	5012		LIME (TY A SLURRY) OR (TY B)	MGR	1377.380	1377.380	
						74661.540				262	5024		LME TRT FOR BS CRS (NEW/EXT BS) (DC) 356MM	M2	74661.540	74661.540	
						60992.100				262	5025		LME TRT FOR BS CRS (NEW/EXT BS) (DC) 305MM	M2	60992.100	60992.100	
						143816.000				305	5030		SALV, HAUL & STKPL RCL APH PV (0-150MM)	M2	143816.000	143816.000	
						122683.310				310	5001		ASPH MATRL (MC-30)	L	122683.310	122683.310	
						412.520				400	5007		CEM STABIL BKFL	M3	412.520	412.520	
						205.882				400	5010		CUT AND RESTORING PAV (ASPH)	M2	205.882	205.882	
						4285.800				402	5001		TRENCH EXCAV PROTECTION	M	4285.800	4285.800	
										416	5008		DRILL SHAFT (1200 MM)	M	2264.600	2264.600	
										416	5010		DRILL SHAFT (1500 MM)	M	240.000	240.000	
						28.700				416	5016		DRILL SHAFT (SIGN MTS) (1200 MM)	M	28.700	28.700	
						21.600				416	5017		DRILL SHAFT (SIGN MTS) (1350 MM)	M	21.600	21.600	
						10.700				416	5020		DRILL SHAFT (HIGH MAST POLE) (1500 MM)	M	10.700	10.700	
										420	5013	001	CL C CONC (ABUT)	M3	254.200	254.200	
										420	5014	001	CL C CONC (BENT)	M3	1020.200	1020.200	
										420	5018	001	CL S CONC (SLAB)	M3	369.700	369.700	
										420	5020	001	CL S CONC (SHEAR KEY)	M3	149.700	149.700	
										422	5001		REINF CONC SLAB	M2	3326.460	3326.460	
						8686.620				423	5001		RETAINING WALL (MSE)	M2	8686.620	8686.620	
						1184.380				423	5013		RETAINING WALL (ABUT FACIA)	M2	1184.380	1184.380	
										425	5006	001	PRESTR CONC BEAM (TY IV)	M	1679.061	1679.061	
										425	5015	001	PRESTR CONC BOX BEAM (BB40-1220)	M	268.000	268.000	
										425	5016	001	PRESTR CONC BOX BEAM (BB40-1520)	M	1608.000	1608.000	
										428	5001		CONC SURF TREAT	M2	6181.000	6181.000	
						344.824				432	5001		RIPRAP (CONC) (CL B)	M3	344.824	344.824	
										444	5001		BRIDGE PROTECT ASSEM	EA	8.000	8.000	
						166.000				450	5007		RAIL (TY T503)	M	166.000	166.000	
						166.000				450	5008		RAIL (TY T504)	M	166.000	166.000	
						2437.430				450	5044		RAIL (TY SINGLE SLOPE)	M	2437.430	2437.430	
						332.000				452	5003		REMOV RAIL (CONC POST)	M	332.000	332.000	

ESTIMATE & QUANTITY SHEET

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
21	HIDALGO	NH 96(791)M	32

REV. 5/28/96

ESTIMATE SUMMARY

								PROJ: NH 96(791)M US 83 ALL BID ITEMS		A L T	ITEM- CODE			DESCRIPTION	U N I T	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP NO			EST.	FINAL
										454	5002		SEALED EXPANSION JOINTS (75 MM)	M	176.820	176.820	
								541.900		464	5001		RC PIPE (CL III) (300 MM)	M	541.900	541.900	
								1201.600		464	5003		RC PIPE (CL III) (450 MM)	M	1201.600	1201.600	
								963.000		464	5005		RC PIPE (CL III) (600 MM)	M	963.000	963.000	
								517.500		464	5007		RC PIPE (CL III) (750 MM)	M	517.500	517.500	
								1093.800		464	5009		RC PIPE (CL III) (900 MM)	M	1093.800	1093.800	
								444.400		464	5010		RC PIPE (CL III) (1050 MM)	M	444.400	444.400	
								667.200		464	5011		RC PIPE (CL III) (1200 MM)	M	667.200	667.200	
								125.100		464	5012		RC PIPE (CL III) (1350 MM)	M	125.100	125.100	
								161.600		464	5020		RC PIPE (CL IV) (600 MM)	M	161.600	161.600	
								50.500		464	5021		RC PIPE (CL IV) (750 MM)	M	50.500	50.500	
								70.000		464	5023		RC PIPE (CL IV) (1050 MM)	M	70.000	70.000	
								12.000		464	5029		RC PIPE (CL V) (450 MM)	M	12.000	12.000	
								12.000		465	5001		INLET (COMPL) (TY C)	EA	12.000	12.000	
								10.000		465	5005		INLET EXT	EA	10.000	10.000	
								20.000		465	5013		INLET (COMPL) (TY A)	EA	20.000	20.000	
								6.000		465	5017		MANH (COMPL) (TY A)	EA	6.000	6.000	
								8.000		465	5018		INLET (COMPL) (TY A) (MOD)	EA	8.000	8.000	
								2.000		465	5019		INLET (COMPL) (TY CC) (MOD I)	EA	2.000	2.000	
								1.000		465	5020		INLET (COMPL) (TY CC) (MOD II)	EA	1.000	1.000	
								4.000		465	5021		INLET (COMPL) (TY CC) (MOD III)	EA	4.000	4.000	
								54.000		465	5022		INLET (COMPL) (TY L-1)	EA	54.000	54.000	
								17.000		465	5023		MANH (COMP) (TY A+1)	EA	17.000	17.000	
								4.000		465	5024		MANH (COMP) (TY M) (MOD)	EA	4.000	4.000	
								1.000		465	5025		MANH (COMP) (TY M) (MOD I)	EA	1.000	1.000	
								3.000		471	5003		GRATE & FRAME	EA	3.000	3.000	
								37.925		474	5004		SLOTTED DRAIN OUTFALL (375 MM)	M	37.925	37.925	
								64.400		474	5005		SLOTTED DRAIN (450 MM)	M	64.400	64.400	
								26.800		476	5003		JACK OR BOR PIPE (RC) (CL III) (750 MM)	M	26.800	26.800	
								20.600		476	5004		JACK OR BOR PIPE (RC) (CL III) (900 MM)	M	20.600	20.600	
								38.400		476	5005		JACK OR BOR PIPE (RC) (CL III) (1050 MM)	M	38.400	38.400	
								22.000		476	5006		JACK OR BOR PIPE (RC) (CL III) (1200 MM)	M	22.000	22.000	
								40.300		476	5016		JACK OR BOR PIPE (RC) (CL IV) (1050 MM)	M	40.300	40.300	
								4.000		479	5001		ADJ MANHS	EA	4.000	4.000	
								1.000		479	5002		ADJ INLETS	EA	1.000	1.000	
								6.000		479	5005		ADJ INLET (CAP)	EA	6.000	6.000	
								50.100		481	5002		PVC PIPE (SDR-35) (150 MM)	M	50.100	50.100	
								4.000		496	5001		REMOV OLD STR (LARGE)	EA	4.000	4.000	
								25.000		496	5002		REMOV OLD STR (SMALL)	EA	25.000	25.000	
								39.962		496	5004		REMOV OLD STR (PIPE)	M	39.962	39.962	
								1.000		500	5001		MOBILIZATION	LS	1.000	1.000	
								24.000		502	5001		BARRICADES, SIGNS AND TRAF HANDLE	MO	24.000	24.000	
								6205.000		508	5003		CONSTRUCT DETOURS (CL 3)	M2	6205.000	6205.000	
								6082.000		512	5001		PORT CONC TRAF BAR (FURN & INSTL)	M	6082.000	6082.000	
								4655.000		512	5002		PORT CONC TRAF BAR (STKPL, INSTL & RETRN)	M	4655.000	4655.000	
								7135.000		512	5003		PORT CONC TRAF BAR (MOVE & RESET)	M	7135.000	7135.000	
								7994.000		512	5004		PORT CONC TRAF BAR (REMOVE)	M	7994.000	7994.000	
										514	5013		PERM CONC TRAF BAR (TY 1) (MOD) (1)	M	69.600	69.600	
										514	5014		PERM CONC TRAF BAR (TY 1) (MOD) (2)	M	76.150	76.150	
										514	5015		PERM CONC TRAF BAR (TY 4) (MOD) (2)	M	3.050	3.050	

ESTIMATE & QUANTITY SHEET

REV. 5/28/16

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
21	HIDALGO	NH 96(791)M	33

ESTIMATE SUMMARY

PROJ: NH 96(791)M US 83 ALL BID ITEMS										A L T	ITEM- CODE			DESCRIPTION	U N I T	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP RD			EST.	FINAL
								2544.950			514	5016		PERM CONC TRAF BAR(TY 2)(MV & RESET)	M	2544.950	2621.000
								76.250			514	5017		PERM CONC TRAF BAR(TY 4)(MOD)(1)	M	76.250	83.500
								2257.011			529	5016		CONC CURB AND GUTTER (TY A)(BARRIER)	M	2257.011	2304.190
								2823.574			529	5045		CONC CURB (TY B)(MOUNTABLE)	M	2823.574	2977.230
								1677.210			529	5046		CONC CURB AND GUTTER(TY B)(MOUNTABLE)	M	1677.210	1635.187
								200.082			530	5001		DRVWYS (CONC)(150 MM)	M2	200.082	170.149
								16.233			530	5041		DRVWYS (ASPH-CONC PAV)(TY PRB-1)	M2	16.233	228.370
								648.787			530	5044		DRVWYS (ASPH-CONC PAV)(TY P-1)	M2	648.787	186.300
								841.500			531	5002		CONCRETE SIDEWALKS	M2	841.500	1504.924
								23.760			531	5003		CONCRETE SIDEWALK (WHEELCHAIR RAMP)	M2	23.760	79.280
								44.580			540	5006		MTL BEAM GD FEN (TIM POST)(2.67 MM)	M	44.580	44.580
								1.000			540	5010		TERM ANCHOR SECT (3.43 MM)	EA	1.000	1.000
								2063.000			542	5002		REMOV METAL BEAM GUARD FENCE (BARRIER)	M	2063.000	2063.000
								14.000			542	5003		REMOV TERMINAL-ANCHOR SECTION	EA	14.000	14.000
								2.000			542	5005		REMOV TERM-ANCHOR SECT (SNGL GD RAIL)	EA	2.000	2.000
								11.000			610	5003001		RDWY ILL ASSEM (TY SA 12T-3)(.25 KW)S	EA	11.000	11.000
								26.000			610	5016001		RDWY ILL ASSEM (TY SP 11S-3-3)(.25 KW)S	EA	26.000	26.000
								24.000			610	5019001		RDWY ILL AM U/P(.15KW)S(TY3)	EA	24.000	24.000
								1.000			613	5003		HIGH MAST ILL POLE (45 M)(161 KM/H)	EA	1.000	1.000
								1.000			614	5001001		HI MST ILL ASM (12-400 WATT)(ASYM)	EA	1.000	1.000
								231.000			618	5002		CONDUIT (RM)(25 MM)	M	231.000	231.000
								182.000			618	5003		CONDUIT (RM)(32 MM)	M	182.000	37.000
								3436.000			618	5011		CONDUIT (PVC)(SCHD 40)(50 MM)	M	3436.000	3436.000
								82.000			618	5013		CONDUIT (PVC)(SCHD 40)(75 MM)	M	82.000	60.000
								392.000			618	5014		CONDUIT (PVC)(SCHD 40)(100 MM)	M	392.000	448.500
								189.000			618	5032		CONDUIT (PVC)(SCHD 40)(BORE)(50 MM)	M	189.000	204.489
								39.000			618	5034		CONDUIT (PVC)(SCHD 40)(BORE)(75 MM)	M	39.000	39.000
								130.000			618	5035		CONDUIT (PVC)(SCHD 40)(BORE)(100 MM)	M	130.000	0.000
								18.000			618	5039		CONDUIT (PVC)(SCHD 80)(BORE)(50 MM)	M	18.000	18.000
								664.000			618	5045		CONDUIT (PVC)(SCHD 40)(25 MM)	M	664.000	89.800
								15.000			618	5067		CONDUIT (PVC)(SCHD 40)(BORE)(25 MM)	M	15.000	0.000
								2678.000			620	5003		ELEC CONDUCTOR (NO. 8) BARE	M	2678.000	2678.000
								2620.000			620	5008		ELEC CONDUCTOR (NO. 10) INSULATED	M	2620.000	2620.000
								3742.000			620	5009		ELEC CONDUCTOR (NO. 8) INSULATED	M	3742.000	3742.000
								3073.000			620	5010		ELEC CONDUCTOR (NO. 6) INSULATED	M	3073.000	3073.000
								5.000			624	5001		GROUND BOX TY A (122311) W/APRON	EA	5.000	5.000
								48.000			624	5006		GROUND BOX TY A (122311)	EA	48.000	41.000
								1.000			624	5007		GROUND BOX TY B (122322)	EA	1.000	1.000
								1.000			624	5008		GROUND BOX TY C (162911)	EA	1.000	1.000
								1.000			624	5009		GROUND BOX TY D (162922)	EA	1.000	1.000
								4.000			628	5011		ELEC SERV TYA(240/480)060(NS)GS(T)TP(O)	EA	4.000	4.000
								2.000			628	5045		ELEC SERV TYD(120/240)070(NS)GS(T)TP(O)	EA	2.000	2.000
								98.627			634	5001		PLYWOOD SIGNS (TY A)	M2	98.627	110.462
								29.285			636	5001		ALUM SIGNS (TY A)	M2	29.285	29.285
								82.393			642	5001		ALUM SIGNS (TY O)	M2	82.393	82.393
								186.000			644	5001		SMALL RDSG SGN ASSM (TY A)	EA	186.000	198.000
								11.000			644	5004		SMALL RDSG SGN ASSM (TY C)	EA	11.000	11.000
								15.000			644	5011		SMALL RDSG SGN ASSM (TY F)	EA	15.000	16.000
								5.000			644	5012		SMALL RDSG SGN ASSM (TY G)	EA	5.000	5.000
								3221.820			647	5001		LG RDSG SGN SUPT (STRUCT STL)	KG	3221.820	3221.820

ESTIMATE & QUANTITY SHEET

REV. 5/28/16

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
21	HIDALGO	NH 96(791)M	34

ESTIMATE SUMMARY

								PROJ: NH 96(791)M US 83 ALL BID ITEMS		A L T	ITEM- CODE			DESCRIPTION	U N I T	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP NO			EST.	FINAL
								2.000		648	5001		REPLAC LARGE RSDS SIGNS	EA	2.000	2.000	
								1.000		648	5003		REFURB LARGE RSDS SIGNS	EA	1.000	1.000	
								10.000		649	5001		REMOV LARGE RSDS SGN ASSMS	EA	10.000	10.000	
								123.000		649	5002		REMOV SMALL RSDS SGN ASSMS	EA	123.000	123.000	
								3.000		650	5093		OVHD SGN SUPT (10 M CANT) (5.36 M HT)	EA	3.000	3.000	
								2.000		650	5095		OVHD SGN SUPT (13 M CANT) (5.36 M HT)	EA	2.000	2.000	
								14.000		652	5001		HWY SGN LIGHT FIXT (MV) (100 WATT)	EA	14.000	14.000	
								27.230		654	5003		SGN WLKWAY W/HNDRL (1200 MM)	M	27.230	27.230	
								43.820		656	5002		FND LG RSDS SGN SUPT (600 MM DRIL SHFT)	M	43.820	43.820	
								16.000		656	5003		FND FOR TRAF SIG (600 MM DRIL SHFT)	M	16.000	16.000	
								18.000		656	5005		FND FOR TRAF SIG (TYA) (900MM DRIL SHFT)	M	18.000	18.000	
								20.000		656	5007		FND FOR TRAF SIG (1050 MM DRIL SHFT)	M	20.000	20.000	
								66.000		656	5010		FND FOR RDWAY ILL ASM (TYA) (750MM DR SH)	M	66.000	66.000	
								2.000		656	5013		TRAF SIG CNTRL FND	M3	2.000	2.000	
								65.000		658	5001		DEL ASM TY A (D-SW)	EA	65.000	65.000	
								22.000		658	5005		DEL ASM TY A (D-DW)	EA	22.000	22.000	
								6.000		658	5006		DEL ASM TY A (D-DY)	EA	6.000	6.000	
								6.000		658	5064		OBJ MRK ASM TY 2 (OM-2VP) (A)	EA	6.000	6.000	
								24520.000		662	5001	001	WRK ZN PAV MRK REMOV (W) (SLD) (100 MM)	M	24520.000	15480.610	
								17750.000		662	5002	001	WRK ZN PAV MRK REMOV (W) (BRK) (100 MM)	M	17750.000	3281.008	
								1240.000		662	5007	001	WRK ZN PAV MRK REMOV (W) (SLD) (200 MM)	M	1240.000	2203.589	
								490.000		662	5009	001	WRK ZN PAV MRK REMOV (W) (SLD) (300 MM)	M	490.000	0.000	
								40.000		662	5011	001	WRK ZN PAV MRK REMOV (W) (SLD) (600 MM)	M	40.000	12.990	
								16395.000		662	5023	001	WRK ZN PAV MRK REMOV (Y) (SLD) (100 MM)	M	16395.000	16776.698	
								21275.000		662	5049	001	WRK ZN PAV MRK NON-REMOV (W) (SLD) 100 MM	M	21275.000	10528.744	
								9390.000		662	5050	001	WRK ZN PAV MRK NON-REMOV (W) (BRK) 100 MM	M	9390.000	2085.786	
								720.000		662	5053	001	WRK ZN PAV MRK NON-REMOV (W) (SLD) 200 MM	M	720.000	1359.000	
								180.000		662	5055	001	WRK ZN PAV MRK NON-REMOV (W) (SLD) 300 MM	M	180.000	0.000	
								305.000		662	5057	001	WRK ZN PAV MRK NON-REMOV (W) (SLD) 600 MM	M	305.000	557.791	
								25430.000		662	5069	001	WRK ZN PAV MRK NON-REMOV (Y) (SLD) 100 MM	M	25430.000	12976.468	
								16745.000		666	5001	001	REFL PAV MRK TY I (W) (SLD) (100 MM)	M	16745.000	11056.010	
								23283.000		666	5002	001	REFL PAV MRK TY I (W) (BRK) (100 MM)	M	23283.000	8240.336	
								810.000		666	5003	001	REFL PAV MRK TY I (W) (DOT) (100 MM)	M	810.000	42.000	
								592.000		666	5004	001	REFL PAV MRK TY I (W) (SLD) (150 MM)	M	592.000	0.000	
								2598.000		666	5006	001	REFL PAV MRK TY I (W) (SLD) (200 MM)	M	2598.000	5671.340	
								1039.000		666	5008	001	REFL PAV MRK TY I (W) (LNDR) (200 MM)	M	1039.000	213.000	
								146.000		666	5009	001	REFL PAV MRK TY I (W) (SLD) (300 MM)	M	146.000	0.000	
								190.000		666	5012	001	REFL PAV MRK TY I (W) (SLD) (600 MM)	M	190.000	1418.100	
								99.000		666	5013	001	REFL PAV MRK TY I (W) (ARROW)	EA	99.000	149.000	
								8.000		666	5014	001	REFL PAV MRK TY I (W) (DBL ARROW)	EA	8.000	16.000	
								8.000		666	5016	001	REFL PAV MRK TY I (W) (TND ARROW)	EA	8.000	8.000	
								26.000		666	5017	001	REFL PAV MRK TY I (W) (WORD)	EA	26.000	26.000	
								8.000		666	5019	001	REFL PAV MRK TY I (W) (ENTR GORE)	EA	8.000	12.000	
								12.000		666	5020	001	REFL PAV MRK TY I (W) (EXIT GORE)	EA	12.000	16.000	
								15634.000		666	5024	001	REFL PAV MRK TY I (Y) (SLD) (100 MM)	M	15634.000	14433.712	
								500.000		666	5025	001	REFL PAV MRK TY I (Y) (BRK) (100 MM)	M	500.000	36.576	
								985.000		666	5029	001	REFL PAV MRK TY I (Y) (SLD) (200 MM)	M	985.000	985.000	
								306.000		666	5032	001	REFL PAV MRK TY I (Y) (SLD) (600 MM)	M	306.000	331.300	
								562.000		672	5002		RAIS PAV MRKR CL A (JIGGLE) TY I-C	EA	562.000	1000.000	
								408.000		672	5003		RAIS PAV MRKR CL A (JIGGLE) TY II-A-A	EA	408.000	408.000	

ESTIMATE & QUANTITY SHEET

REV 5/28/96

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
21	HIDALGO	NH 96(791)M	35

ESTIMATE SUMMARY

								PROJ: NH 96(791)M US 83 ALL BID ITEMS		ALT	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	ITEM NO	DESC CODE		SP NO	EST.	FINAL				
									672	5006		RAIS PAV MRKR CL B (REFL) TY I-A	EA	972.000	1015.000		
									672	5007		RAIS PAV MRKR CL B (REFL) TY I-C	EA	2672.000	2784.000		
									672	5008		RAIS PAV MRKR CL B (REFL) TY I-R	EA	168.000	168.000		
									672	5009		RAIS PAV MRKR CL B (REFL) TY II-A-A	EA	300.000	300.000		
									672	5010		RAIS PAV MRKR CL B (REFL) TY II-C-R	EA	1998.000	1370.000		
									677	5001		ELIM EXT PAV MRK & MRKR (100 MM)	M	46810.000	24492.210		
									677	5006		ELIM EXT PAV MRK & MRKR (600 MM)	M	295.000	59.435		
									680	5001		INSTAL OF HWY TRAF SIG (ISOLATED)	EA	2.000	2.000		
									681	5001		TEMP TRAF SIGNALS FOR CONSTRUCTION	EA	5.000	5.000		
									682	5002		VEH SIG SEC (300 MM)	EA	92.000	92.000		
									682	5004		PED SIG SEC (1 INDICATION) (300 MM)	EA	52.000	52.000		
									682	5009		BACK PLATE (3 SEC) (300 MM)	EA	24.000	24.000		
									682	5011		BACK PLATE (5 SEC) (300 MM)	EA	4.000	4.000		
									684	5002		TRAF SIG CBL (TY A) (2 CONDR) (12 AWG)	M	620.000	554.000		
									684	5004		TRAF SIG CBL (TY A) (4 CONDR) (12 AWG)	M	210.000	210.000		
									684	5005		TRAF SIG CBL (TY A) (5 CONDR) (12 AWG)	M	3961.000	3961.000		
									684	5007		TRAF SIG CBL (TY A) (7 CONDR) (12 AWG)	M	630.000	630.000		
									684	5044		TRAF SIG CBL (TY C) (2 CONDR) (14 AWG)	M	6036.000	6036.000		
									686	5014		TRAF SIG POLE ASM (STL)1 ARM (13.4 M)	EA	1.000	1.000		
									686	5040		TRAF SIG POL ASM (STL)2 ARM(13.4-11.0M)	EA	1.000	1.000		
									686	5059		TRF SIG POL ASM (STL)2 ARM 12.2-9.8MLUM	EA	2.000	2.000		
									686	5065		TRF SIG POL ASM (STL)2 ARM13.4-11.0MLUM	EA	1.000	1.000		
									686	5071		TRAF SIG POLE ASM (STL)1 ARM(12.2 M)LUM	EA	1.000	1.000		
									686	5072		TRAF SIG POLE ASM (STL)1 ARM(13.4 M)LUM	EA	2.000	2.000		
									688	5001		PED DETECT (PUSH BTN)	EA	26.000	24.000		
									688	5011		VEH DETECT (SAWCUT)	M	2561.000	2561.000		
									1002	5001		TRANSPLANT EXIST PALMS	EA	64.000	105.000		
									3000	5001 001		HOT MIX ASPH (TY D)	MGR	22344.410	20810.346		
									3000	5006 001		HOT MIX ASPH (TY B) (BASE)	MGR	24248.540	25759.201		
									4014	5001		RC LOW-HEAD PRSSR PIPE (CL III) (600 MM)	M	59.673	0.000		
									4014	5002		RC LOW-HEAD PRSSR PIPE (CL V) (600 MM)	M	62.786	63.390		
									4020	5001		TEMPORARY EARTH WALLS	M2	3242.000	1658.265		
									5002	5007		ROCK FILTER DAMS (TY 3)	M	35.000	0.000		
									5002	5009		ROCK FILTER DAMS (REMOV) (TY 3)	M	35.000	0.000		
									5003	5001		BALED HAY FOR EROSN & SEDMT CONT	EA	224.000	8.000		
									5003	5002		BL HAY FOR ERSN & SED CONT (RMV & REPL)	EA	14.000	0.000		
									5003	5003		BALED HAY FOR EROSN & SED CONT (REMOV)	EA	224.000	0.000		
									5006	5004		CONSTRUCT EXIT (TY 2)	M2	15.000	78.035		
									5006	5005		CONSTRUCT EXIT (REMOV & REPLAC) (TY 2)	M2	11.000	0.000		
									5006	5006		CONSTRUCT EXIT (REMOV) (TY 2)	M2	15.000	78.035		
									5007	5008		GD RAIL EN ABS TERM (610MM)6 BAY(TY CZ)	EA	2.000	2.000		
									5012	5001		TEMP SEDMT CONT FENCE	M	135.000	2774.744		
									5012	5002		TEMP SEDMT CONT FENCE (REMOV & REPLAC)	M	103.000	649.279		
									5012	5003		TEMP SEDMT CONT FENCE (REMOV)	M	135.000	2747.284		
									5013	5001		SINGLE GDRAIL TERM	EA	3.000	3.000		
									5024	5001		REM, LAY AND RELAY LANDSCAPE PAV UNITS	M2	3846.000	3846.000		
									5025	5001		CRASH CUSH ATTEN TERM	EA	4.000	4.000		
									6006	5001		PEDESTAL POLE ASSEM	EA	9.000	9.000		
									6008	5001		SALV TRAF SIGNALS	EA	2.000	2.000		
									3000			HOT MIX ASPH (TY D)	MGR	3650.297	3650.297		

ESTIMATE & QUANTITY SHEET

5/28/96

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
21	HIDALGO	NH 96(791)M	36

ESTIMATE SUMMARY

ITEM- CODE	DESCRIPTION	UNIT	TOTAL	
			EST.	FINAL
3022	HOT MIX TY-D	MGR	7029.660	7029.600
9000	REM. & REP. OF UNSAFE MATERIAL	M ³	20.070	20.070
9002	JACK-OR BORE 900MM STEEL CASING W/600MM	M	1.000	1.000
9003	TRAFFIC CONTROL POLICE OFFICER	LS	1.000	15650.000
9006	TEMP DRAINAGE TIE INS	EA	2.000	2.000
9005	EMBANKMENT (TEMP SHOULDER) (SPL)	M ³	5879.760	5879.760
9007	RAP (RDWY DEL)	M ³	806.000	745.415
9035	TRAFFIC CONTROL (SAN JUAN P.D.)	LS	1.000	0.000
9035	TRAFFIC CONTROL (SAN JUAN PD)	EA	1.000	0.000
9009	SIPHON REPAIR	LS	1.000	1.000
0556	PIPE UNDDR (TYB) (150MM)	M	60.000	60.000
9040	DJT'S	HR	1.000	5841.000
0104	REMOV CONC (PAV)	M2	3963.410	3963.410
0427	CL B FINISH FOR EXISTING CONC	M2	10407.000	15185.562
9014	SEAL MEDIAL BARRIER DRAIN SCOTS	EA	408.000	408.000
0649	RELOC LARGE RSD SGN ASSMS	EA	1.000	1.000
9015	PAV PREP 24"0	M	964.680	964.680
9008	EXPANSION JOINT SEALER (50MM)	M	69.600	69.600
9008	EXPANSION JOINT SEALER (50MM)	M	79.200	79.200
9001	QC/QA BONUS/PENALTY TYPE D	LS	1.000	1.000
9002	QC/QA BONUS/PENALTY TYPE D	LS	1.000	1.000
9003	QC/QA BONUS/PENALTY TYPE D	LS	1.000	1.000
9004	QC/QA BONUS/PENALTY TYPE B	LS	1.000	1.000
9016	RIDE QUACITY	LS	1.000	1.000

ESTIMATE & QUANTITY SHEET

**STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION**

FED. REG.	PROJECT NO.	FILE NO.	SHEET
6	NH 96079 DM		36A
DISTRICT	STATE	COUNTY	CONTROL SECT. JOB HIGHWAY
21	TEXAS	HIDALGO	0039 17 118 45-83

SITE DESCRIPTION

PROJECT LIMITS: U.S. HIGHWAY 83 FROM STA. 47+391.5 APPROXIMATELY 382 METERS WEST OF "I" ROAD TO STA. 49+485.0 APPROXIMATELY 388 METERS EAST OF FM 1426

PROJECT DESCRIPTION: MAINLANES, RAMPS, AND FRONTAGE ROAD RECONSTRUCTION INCLUDING GRADING, REMOVAL ITEMS, DRAINAGE FACILITIES, RETAINING WALLS, ASPHALTIC CONCRETE PAVEMENT, BRIDGE STRUCTURES, SIGNING, ILLUMINATION, TRAFFIC SIGNALS, IRRIGATION LINE MODIFICATIONS AND PAVEMENT MARKINGS.

MAJOR SOIL DISTURBING ACTIVITIES: CONSTRUCTION OF DRAINAGE FACILITIES, REMOVAL OF EXISTING ASPHALTIC CONCRETE PAVEMENT, AND EXCAVATION AND FILL OF SUBGRADE MATERIAL FOR ROADWAY RECONSTRUCTION.

TOTAL PROJECT AREA: 22 HECTARES (APPROXIMATE)

TOTAL AREA TO BE DISTURBED: 17 HECTARES (APPROXIMATE)

WEIGHTED RUNOFF COEFFICIENT (AFTER CONSTRUCTION): 0.60

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: VIRTUALLY ALL (95% PLUS) UNIMPROVED SURFACES ARE COVERED BY MOWED STANDS OF GRASS AND/OR WEEDS.

NAME OF RECEIVING WATERS: HIDALGO COUNTY IRRIGATION DISTRICT #2 AND HIDALGO COUNTY DRAINAGE AT TRACT #1 DRAINAGE CHANNELS

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- PERMANENT PLANTING, SODDING, OR SEEDING
- MULCHING
- SOIL RETENTION BLANKET
- BUFFER ZONES
- PRESERVATION OF NATURAL RESOURCES

OTHER: Disturbed areas on which construction activity has ceased (temporarily or permanently) shall be stabilized within 14 days unless activities are scheduled to resume and do so within 21 days.

STRUCTURAL PRACTICES:

- SILT FENCES
- HAY BALES
- ROCK BERMS
- DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- DIVERSION DIKE AND SWALE COMBINATIONS
- PIPE SLOPE DRAINS
- PAVED FLUMES
- ROCK BEDDING AT CONSTRUCTION EXIT
- TIMBER MATTING AT CONSTRUCTION EXIT
- CHANNEL LINERS
- SEDIMENT TRAPS
- SEDIMENT BASINS
- STORM INLET SEDIMENT TRAP
- STONE OUTLET STRUCTURES
- CURBS AND GUTTERS
- STORM SEWERS
- VELOCITY CONTROL DEVICES

OTHER:

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

The order of activities will be as follows:

REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION PHASES I THROUGH VI. THE STORMWATER POLLUTION PREVENTION PLANS SHOW THE TEMPORARY EROSION CONTROL DEVICES TO BE INSTALLED IN EACH PHASE.

STORM WATER MANAGEMENT:

REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION PHASES I THROUGH VI. THE STORMWATER POLLUTION PREVENTION PLANS SHOW THE TEMPORARY EROSION CONTROL DEVICES TO BE INSTALLED IN EACH PHASE.

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to creeks and drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: An inspection will be performed by a TxDOT Inspector every week as well as after every rain of one-half inch or more (as recorded on a non-freezing rain gauge to be located at the Project Site). An Inspection and Maintenance Report will be made per each inspection. Based on the inspection results, the controls shall be revised per the inspection report.

WASTE MATERIALS: WASTE MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS AND THE RULES AND REGULATIONS OF ALL GOVERNING ENTITIES WHICH HAVE JURISDICTION OVER THIS PROJECT.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): HAZARDOUS WASTE SHALL BE DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS AND THE RULES AND REGULATIONS OF ALL GOVERNING ENTITIES WHICH HAVE JURISDICTION OVER THIS PROJECT. SPILL REPORTING SHALL BE AS REQUIRED BY THE SPECIFICATIONS OF SUCH GOVERNING ENTITIES.

SANITARY WASTE: SANITARY WASTE SHALL BE DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS AND THE RULES AND REGULATIONS OF ALL GOVERNING ENTITIES WHICH HAVE JURISDICTION OVER THIS PROJECT.

OFFSITE VEHICLE TRACKING:

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY
- STABILIZED CONSTRUCTION ENTRANCE

OTHER:

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are not a part of the finished work.



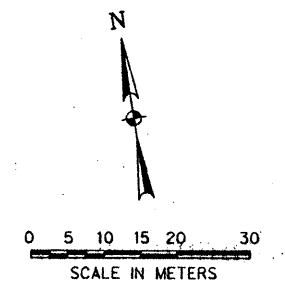
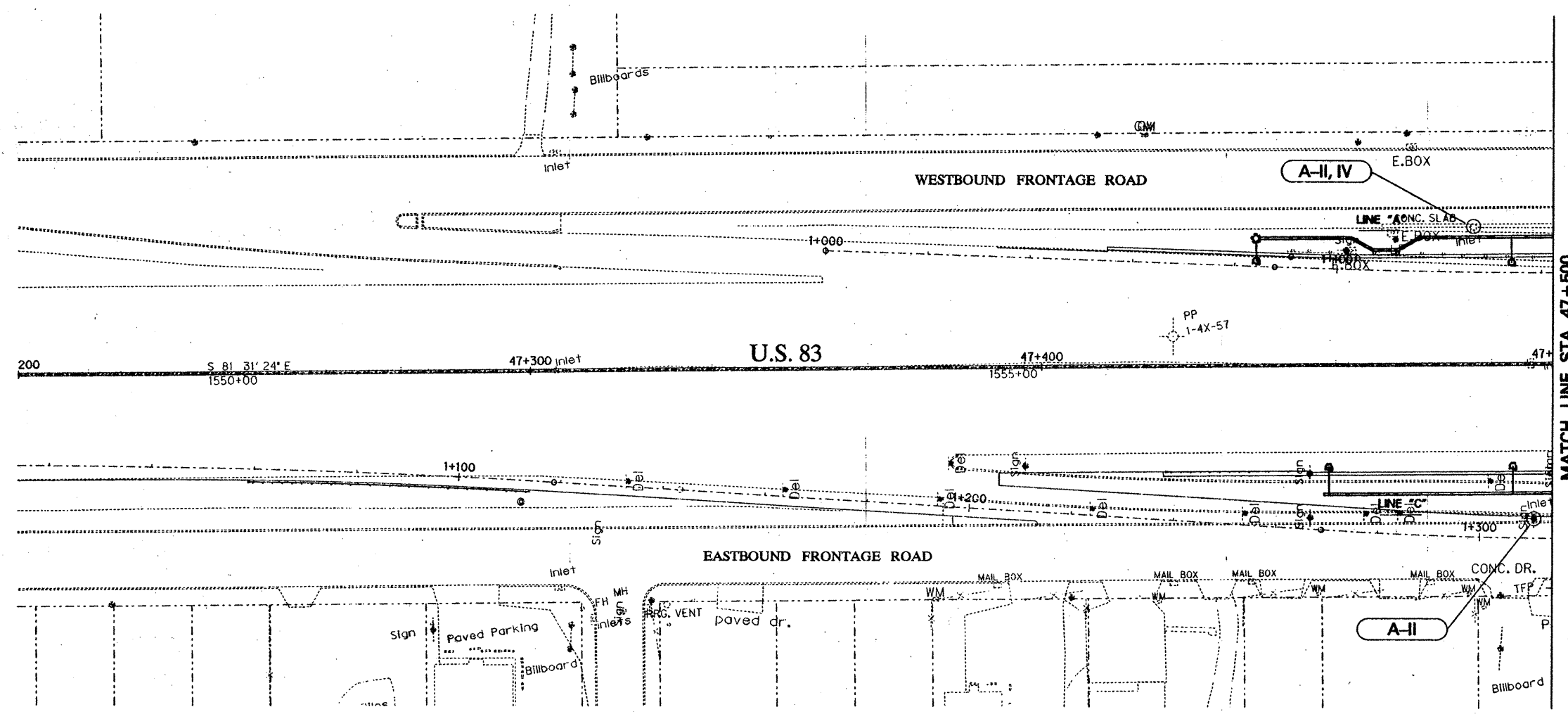
Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

TxDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)

STORM WATER POLLUTION PREVENTION PLAN
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
EJR	CAH		8	TEXAS	NA 816741A	37
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CENTRAL SECTION NO.	JOB NO.
APRIL 1996	020W7700	NONE	21	HIDALGO	05 30	17 118
						U.S. 83



LEGEND

- RFD3 ROCK FILTER DAM TYPE 3 (SEE TXDOT STANDARD DETAIL EC(2)-93)
- A-II CONSTRUCTION PHASE
- DETAIL

HAY BALES (ITEM 5003)

PHASE	INSTALL	REMOVE & REINSTALL	REMOVE	REMAINS IN PLACE
II	7 EA			
III	28 EA			7 EA
IV		7 EA	28 EA	
VI	189 EA	7 EA		
PERMANENT STABILIZATION			196 EA	
TOTALS	224 EA	14 EA	224 EA	7 EA

SEDIMENT CONTROL FENCE (ITEM 5004)

PHASE	INSTALL	REMOVE & REINSTALL	REMOVE	REMAINS IN PLACE
II	129 M			
III		30 M	29 M	70 M
IV		39 M	15 M	46 M
VI	6 M	34 M		51 M
PERMANENT STABILIZATION			91 M	
TOTALS	135 M	103 M	135 M	167 M

ROCK FILTER DAM (ITEM 5002)

PHASE	INSTALL	REMOVE
II-VI	35 M	
PERMANENT STABILIZATION		35 M

TYPE 2 STABILIZED CONSTRUCTION EXITS (ITEM 5006)

PHASE	INSTALL	REMOVE & REINSTALL	REMOVE
II	3		
III	1	3	
IV		4	
VI	11	4	15
TOTALS	15	11	15

GENERAL NOTES

- ALL TEMPORARY EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL PERMANENT STABILIZATION HAS BEEN ESTABLISHED.
- STABILIZED CONSTRUCTION EXITS ARE REQUIRED FOR ALL LOCATIONS OF EXIT FROM THE CONSTRUCTION AREA. THE EXACT LOCATION OF EACH STABILIZED CONSTRUCTION EXIT MUST BE APPROVED BY THE CONSTRUCTION ENGINEER. SEE TABLE FOR THE APPROXIMATE NUMBER OF CONSTRUCTION EXITS FOR EACH CONSTRUCTION PHASE.
- STABILIZED CONSTRUCTION EXITS SHALL BE IN ACCORDANCE WITH TXDOT STANDARD DETAIL EC(3)-93.



Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

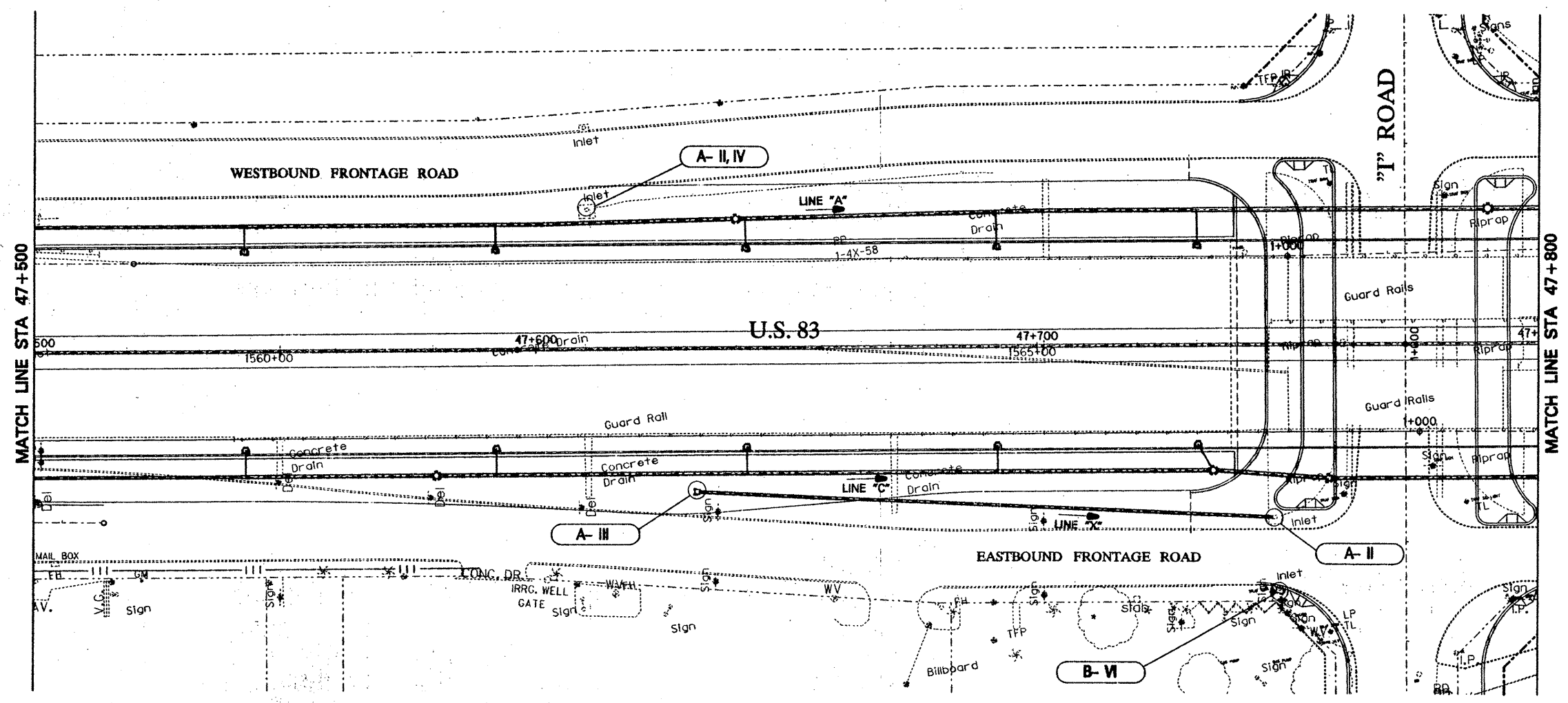
STORM WATER POLLUTION PREVENTION PLAN
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		8	TEXAS	NH 06701AA	38
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1996	820WPP01	1:500	21	HIDALGO	0030	17 118 U.S. 83

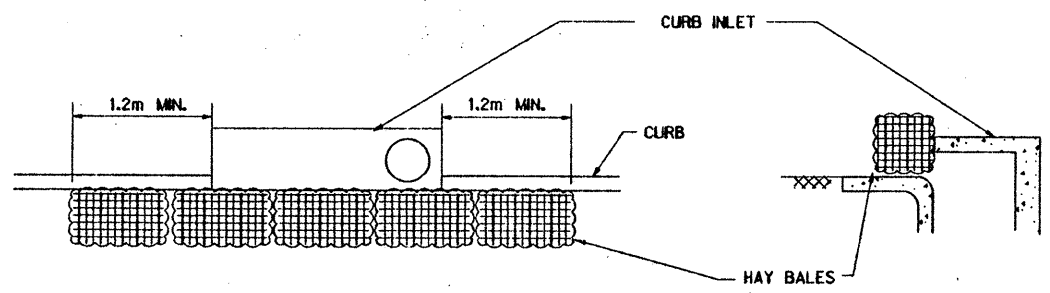


0 5 10 15 20 30
SCALE IN METERS



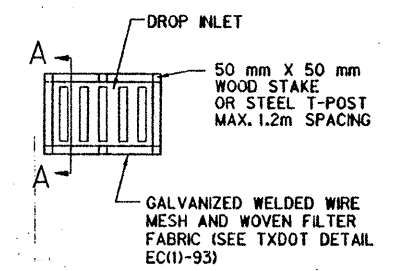
LEGEND

- RFD3 ROCK FILTER DAM TYPE 3
(SEE TXDOT STANDARD
DETAIL EC(2)-93)
- A-II** CONSTRUCTION
PHASE
- A-II** DETAIL



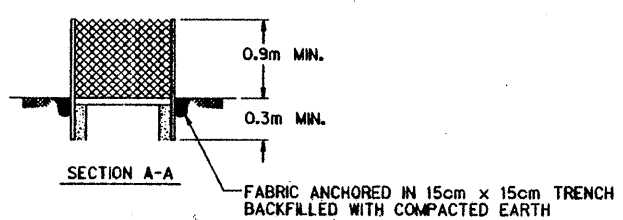
DETAIL B - CURB INLET PROTECTION WITH HAY BALES

N.T.S.



DETAIL A - DROP INLET PROTECTION WITH SEDIMENT CONTROL FENCE

N.T.S.



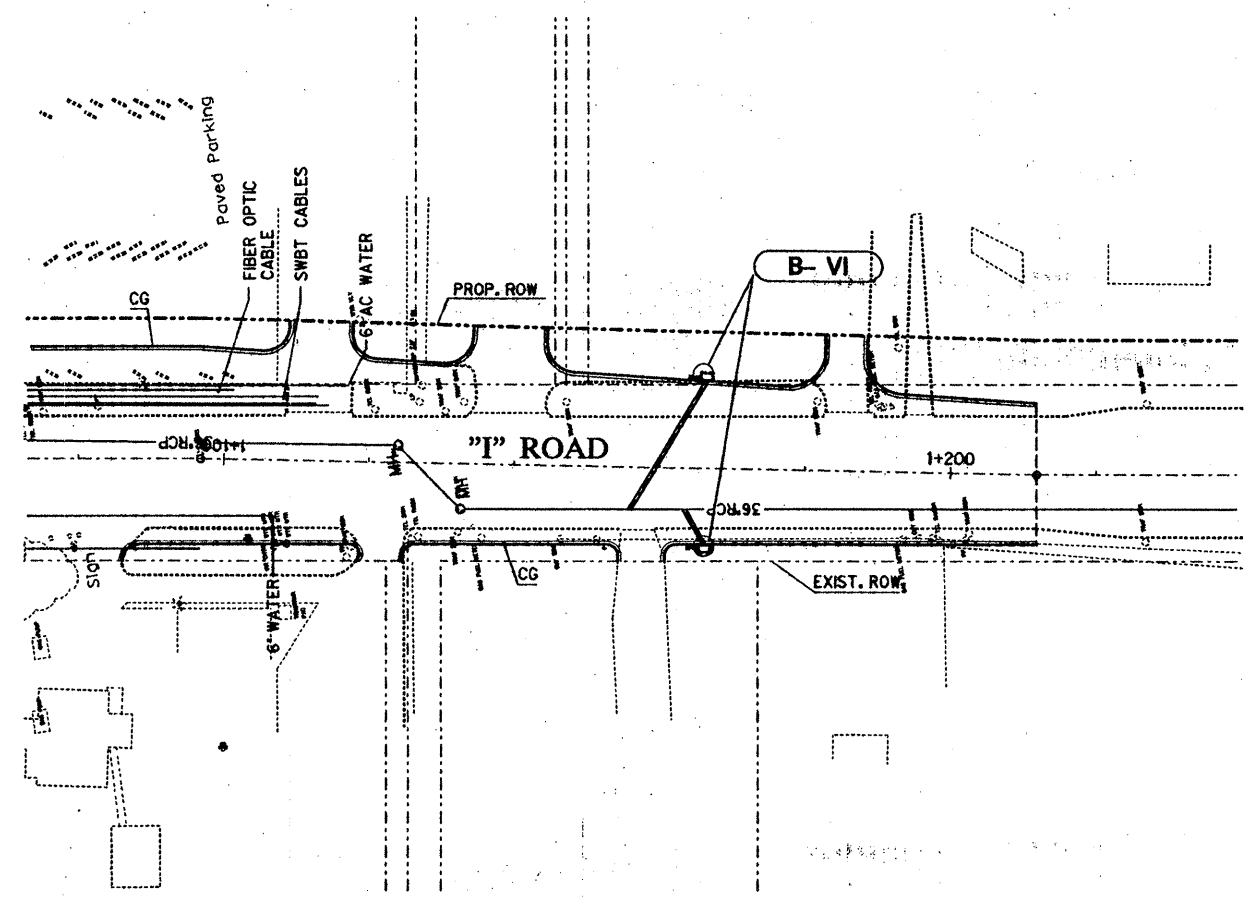
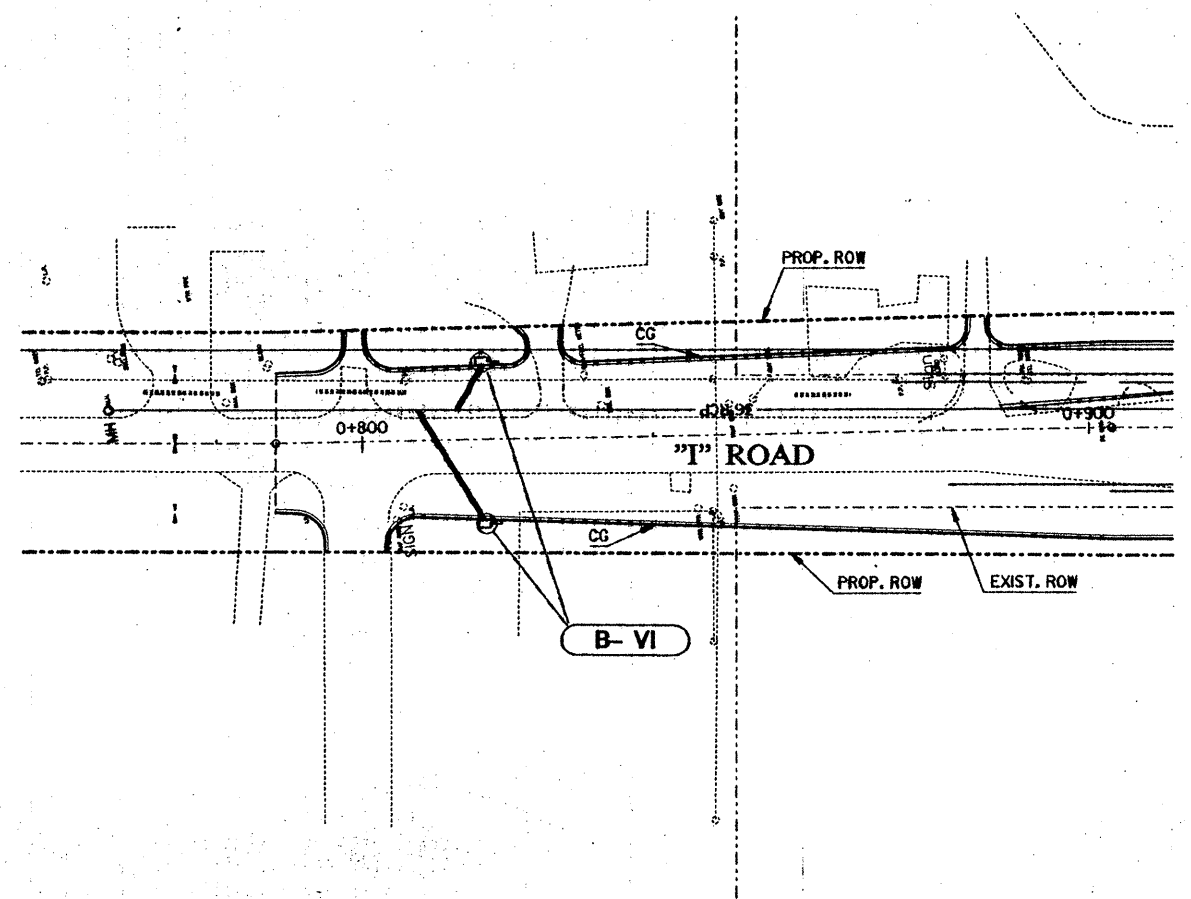
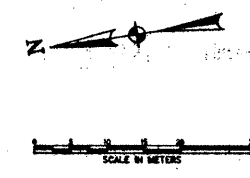
NOTES:

1. HAY BALES SHALL BE A MINIMUM OF 0.76 m IN LENGTH AND WEIGH A MINIMUM OF 22.7 KG.
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. HAY BALES SHALL BE INSTALLED SO THAT NO UNFILTERED WATER MAY FLOW UNDERNEATH OR BETWEEN THE BALES.
4. HAY BALES SHALL BE INSTALLED SO THAT ALL INLET OPENINGS ARE PROTECTED FROM SEDIMENT-LADEN RUNOFF.
5. FOR PROPOSED INLETS PRIOR TO PAVING HAY BALES SHALL BE EMBEDDED AND ANCHORED IN ACCORDANCE WITH TXDOT STANDARD DETAIL EC (1)-93



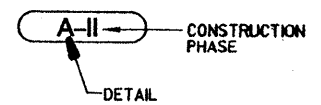
Gregory A. Jacobs 4-15-21
DATE

STORM WATER POLLUTION PREVENTION PLAN									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - ROADSIDE - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
CADD			6	TEXAS	NH 86/7810A	39			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.		
APRIL 2021	620WPP02	1:500	21	HIDALGO	10/30	17	44	U.S. 83	



LEGEND

RFD3 ROCK FILTER DAM TYPE 3
(SEE TXDOT STANDARD
DETAIL EC(2)-93)



NOTE:
EACH LATERAL SHALL BE CONSTRUCTED
MAINTAINING A MINIMUM GRADE OF 1.0%.



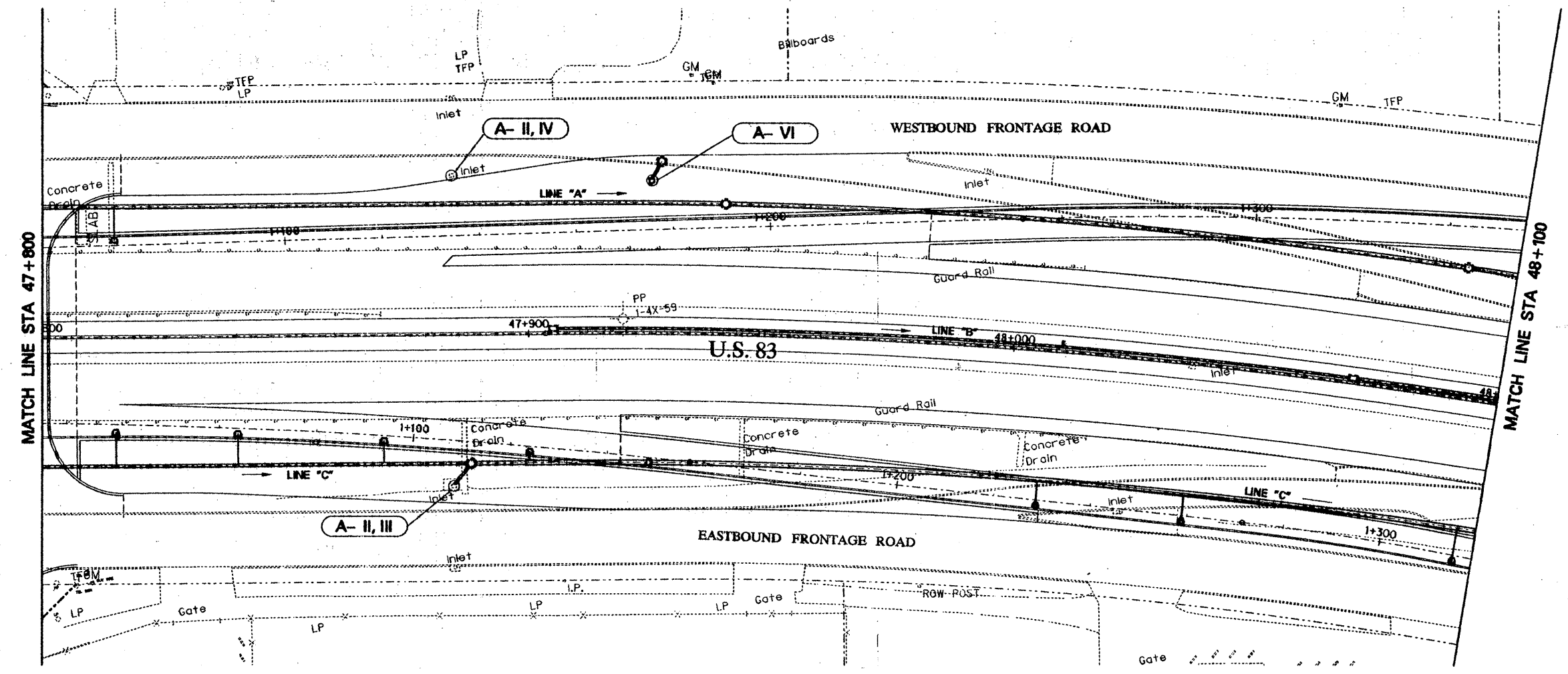
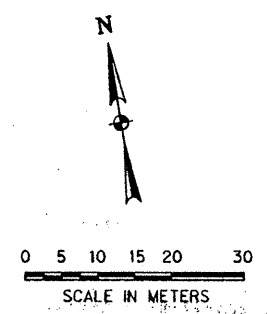
Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

STORM WATER POLLUTION PREVENTION PLAN
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - ENVIRONMENTALISTS

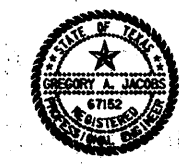
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DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	SECTION	CONTRACT NO.
APRIL 1996	82047442	1" = 50' (GENERAL) 1" = 20' (DETAIL)	20	HIDALGO	CD-20	17



LEGEND

- RFD3 ROCK FILTER DAM TYPE 3
(SEE TXDOT STANDARD
DETAIL EC(2)-93)
- A-II CONSTRUCTION
PHASE
- DETAIL



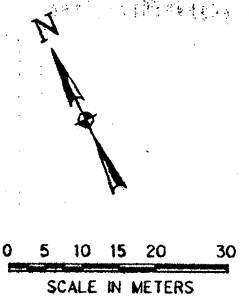
Gregory A. Jacobs 4-15-16
GREGORY A. JACOBS DATE

STORM WATER POLLUTION PREVENTION PLAN
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION



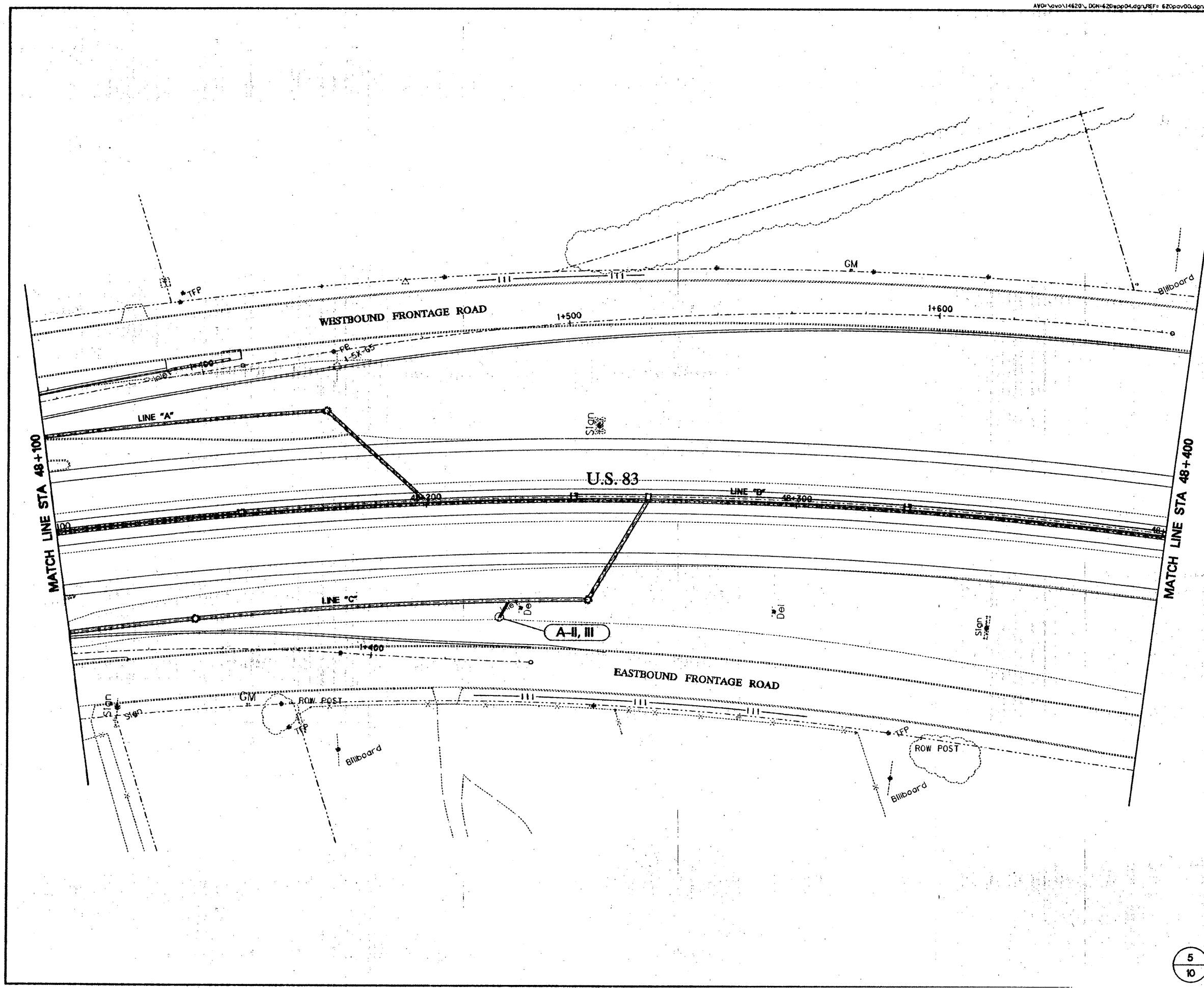
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DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
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LEGEND

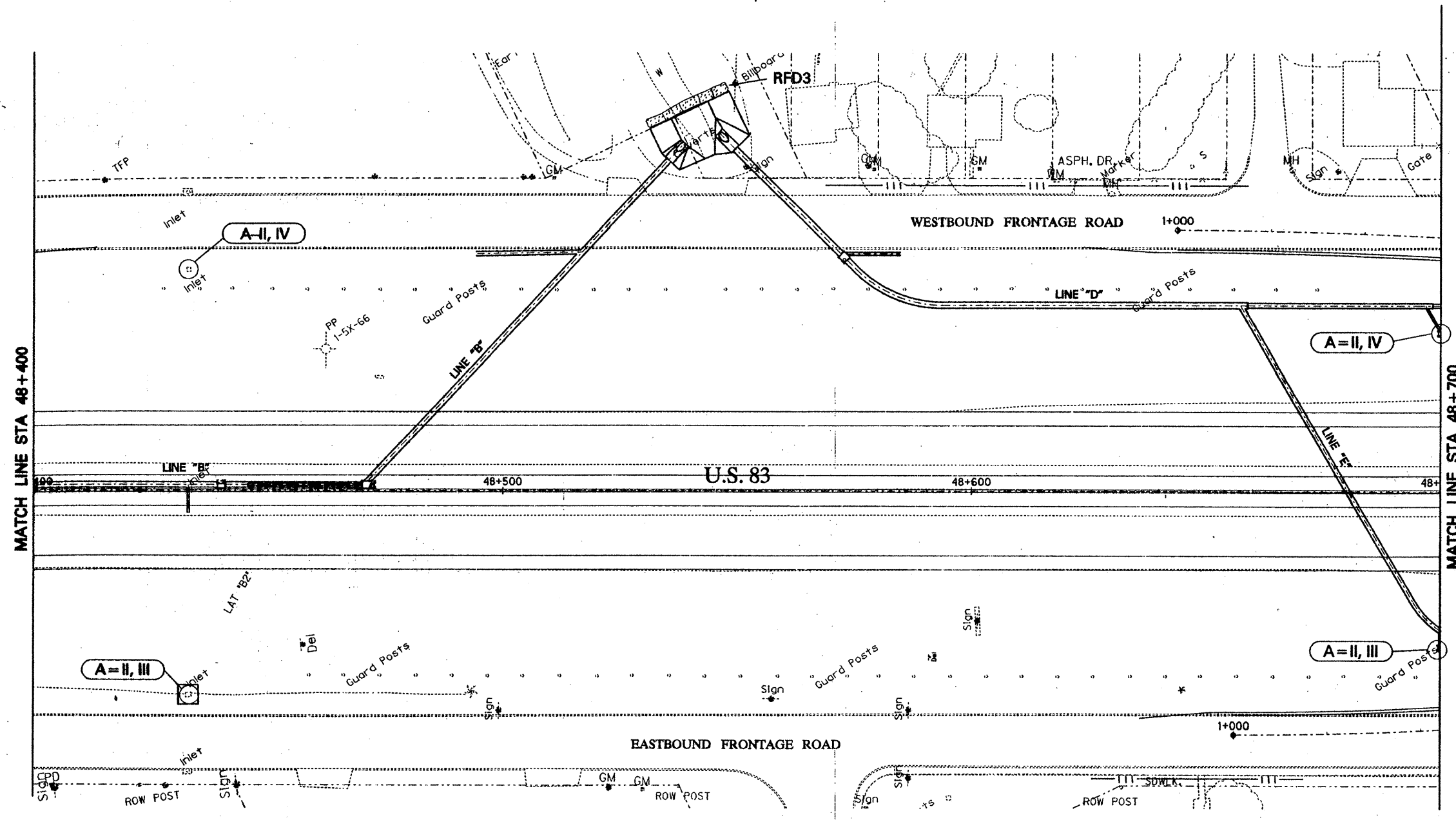
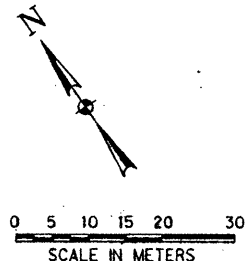
- RFD3 ROCK FILTER DAM TYPE 3
(SEE TXDOT STANDARD
DETAIL EC(2)-93)
- CONSTRUCTION
PHASE
- DETAIL



Gregory A. Jacobs 4-15-91
GREGORY A. JACOBS DATE

STORM WATER POLLUTION PREVENTION PLAN									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
	CADD		6	TEXAS	NR 91(0)11A	42			
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT NO.	SECTION NO.	SUB	SECTION	NO.
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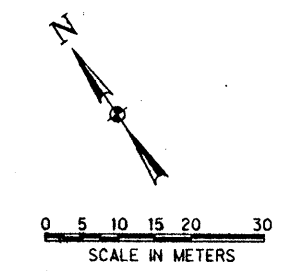
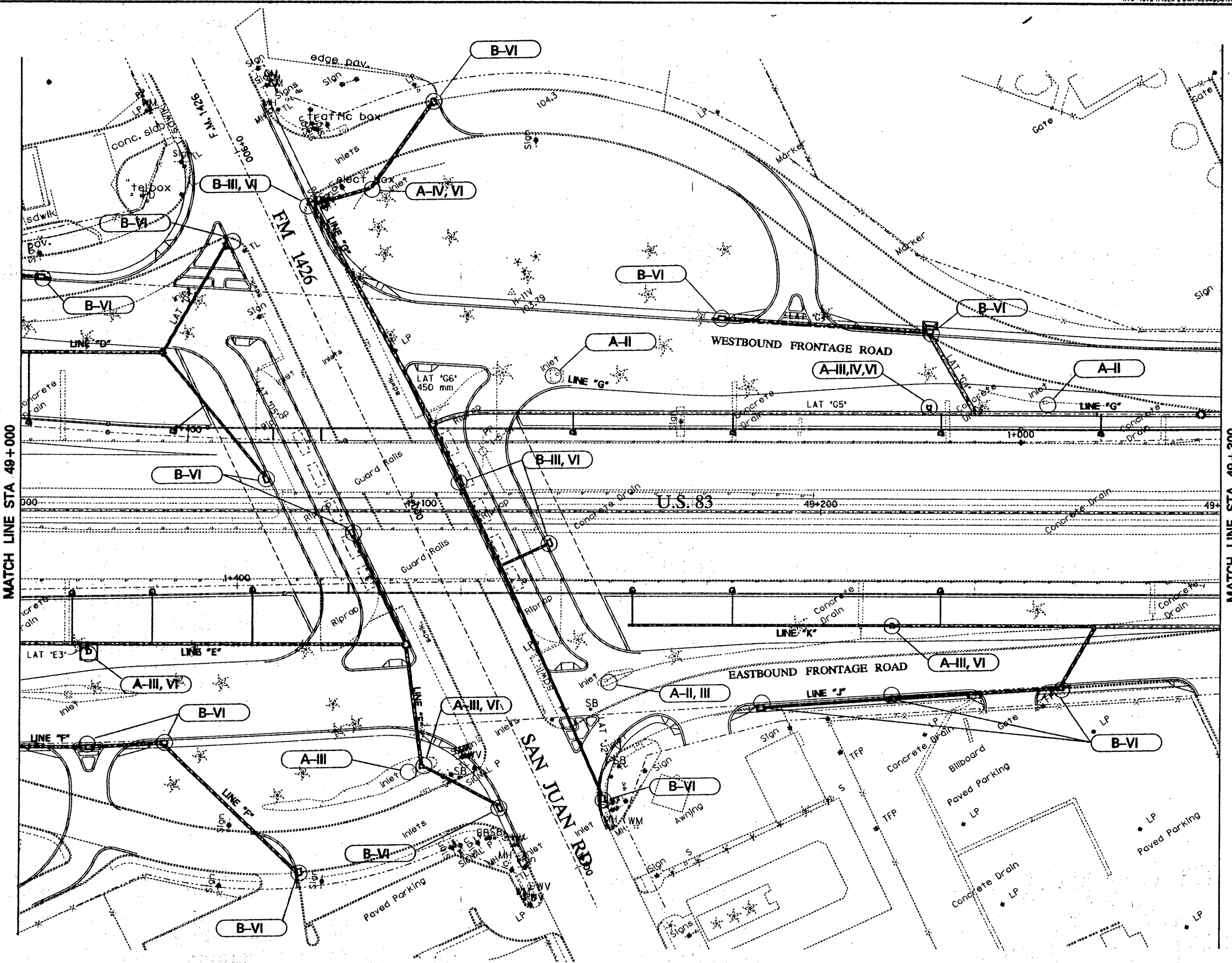
LEGEND

- RFD3 ROCK FILTER DAM TYPE 3
(SEE TXDOT STANDARD
DETAIL EC(2)-93)
- A-II CONSTRUCTION
PHASE
- DETAIL



Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

STORM WATER POLLUTION PREVENTION PLAN										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET				
CADD			NO.	NO.	NO.	NO.				
DATE	FILE	SCALE	DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.	CONTRACT NO.	SECTION NO.	CONTRACT NO.	SECTION NO.
4/15/96	630VFP04	1:800	21	HIDALGO	0038	17	17	17	17	17



LEGEND

- RFD3 ROCK FILTER DAM TYPE 3
(SEE TXDOT STANDARD
DETAIL EC(2)-93)
- A-II CONSTRUCTION
PHASE
- DETAIL

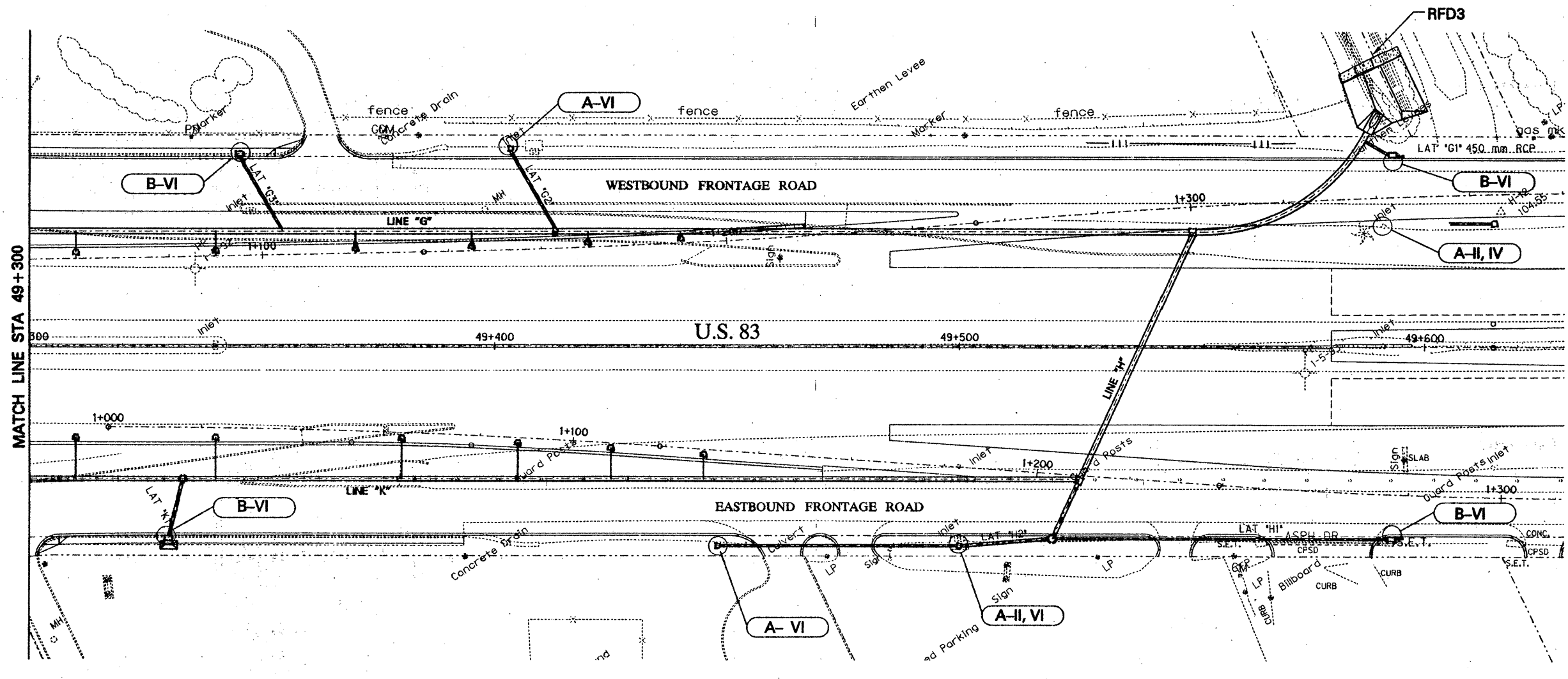


Gregory A. Jacobs 4-15-91
DATE

STORM WATER POLLUTION PREVENTION PLAN									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET			
			NO.			NO.			
DATE	FILE	SCALE	DATE	COUNTY	CONTRACT NO.	SECTION NO.	NO.	NO.	NO.
4/15/91	620WP07	1:800	21	HIDALGO	2038	17	18	18	U.S. 83



0 5 10 15 20 30
SCALE IN METERS



MATCH LINE STA 49+300

LEGEND

RFD3 ROCK FILTER DAM TYPE 3
(SEE TXDOT STANDARD
DETAIL EC(2)-93)

A-II CONSTRUCTION
PHASE
DETAIL



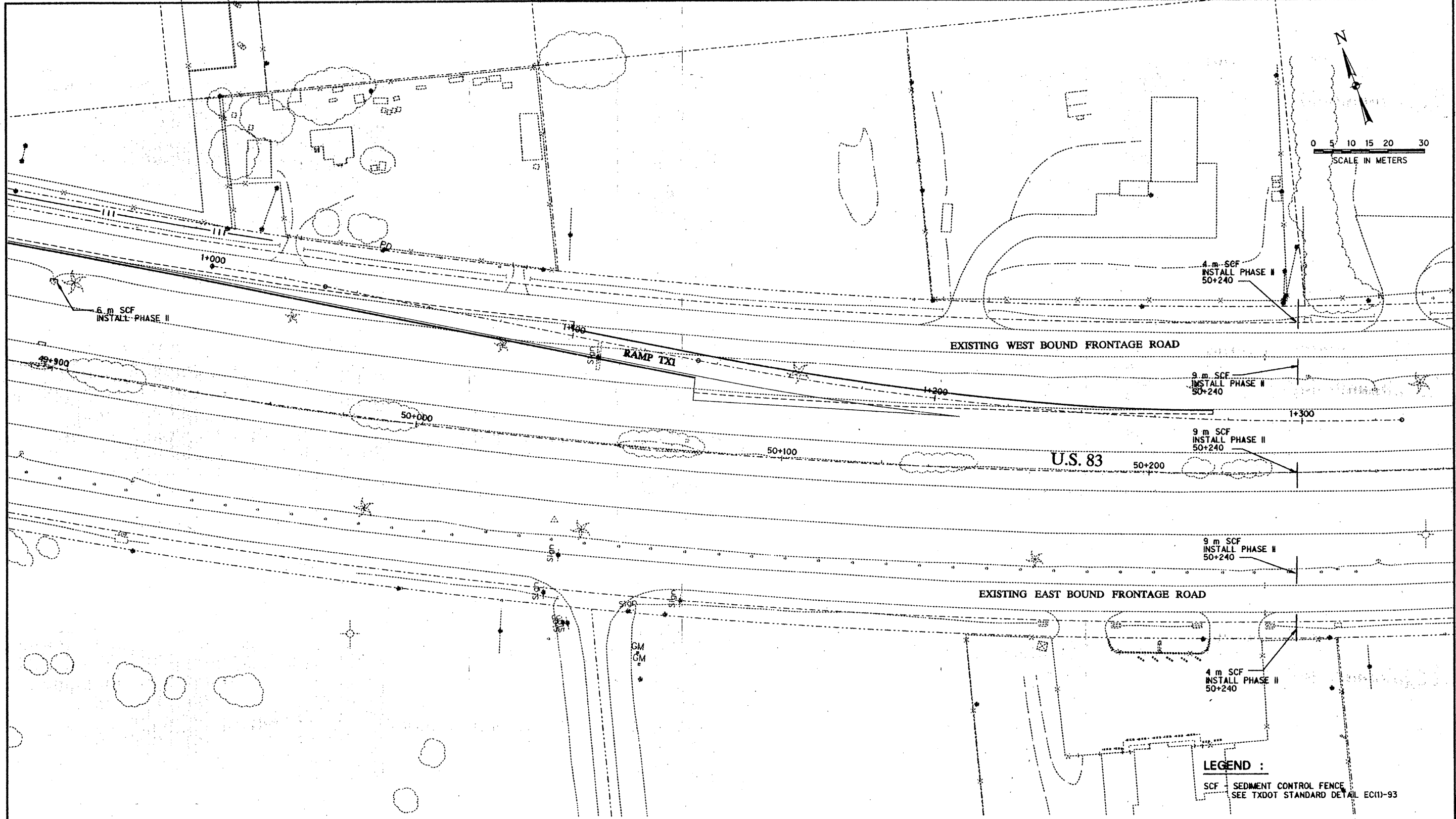
Gregory A. Jacobs 4-15-96
DATE

STORM WATER POLLUTION PREVENTION PLAN
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

9
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DESIGN	DRAWN	NOTES	PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			1	TEXAS	NH 017-11	22
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APR 96	620WPP08	1:500	21	HIDALGO	DD 39	17



LEGEND :
 SCF - SEDIMENT CONTROL FENCE
 SEE TXDOT STANDARD DETAIL EC11-93



Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

STORM WATER POLLUTION PREVENTION PLAN
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

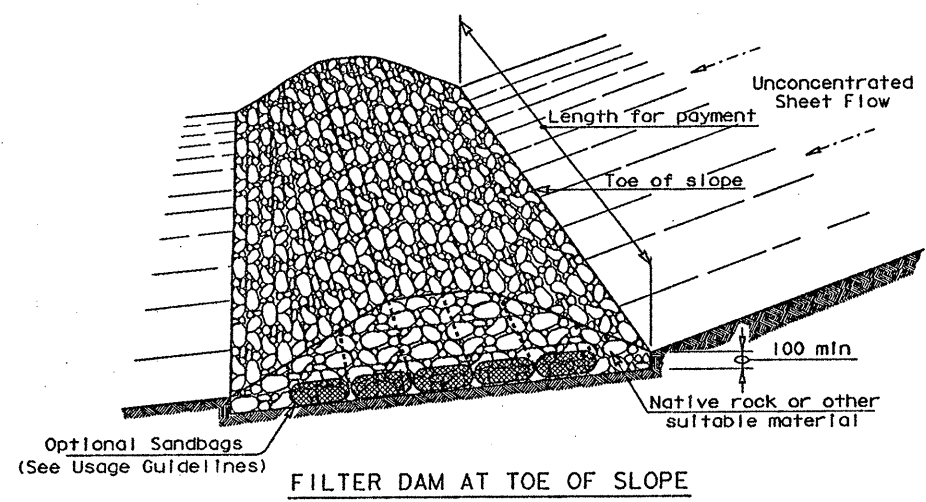


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DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1996	6209P09	1:80 HORIZ 1:25 VERT	21	HIDALGO	0039	17

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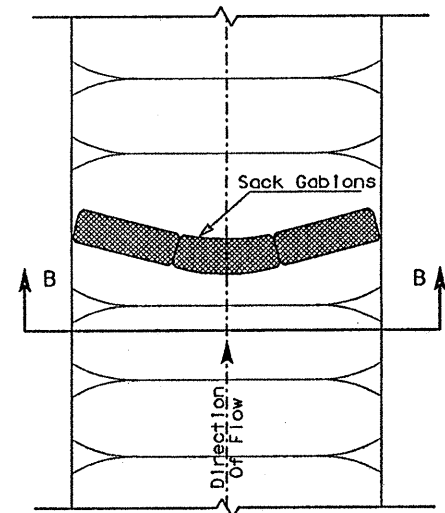
DISCLAIMER: The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED	
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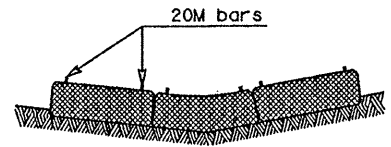


FILTER DAM AT TOE OF SLOPE

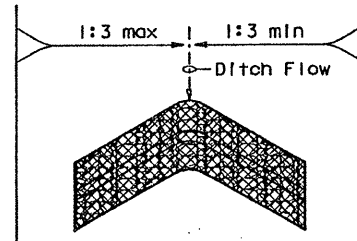
(RFD1)
TYPE 1



PLAN VIEW

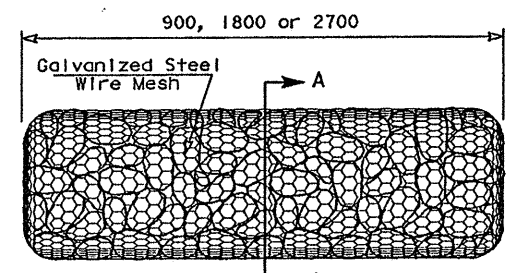


SECTION B-B

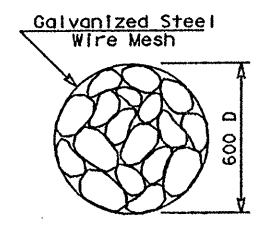


"V" SHAPE
(Plan View)

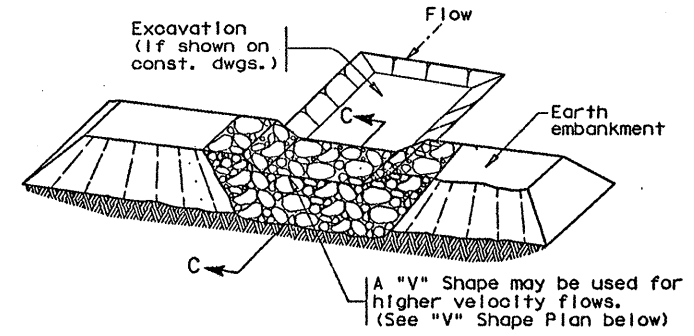
- PLANS SHEET LEGEND
- (RFD1) Type 1 Rock Filter Dam
 - (RFD2) Type 2 Rock Filter Dam
 - (RFD3) Type 3 Rock Filter Dam



TYPE 4 (SACK GABLONS)

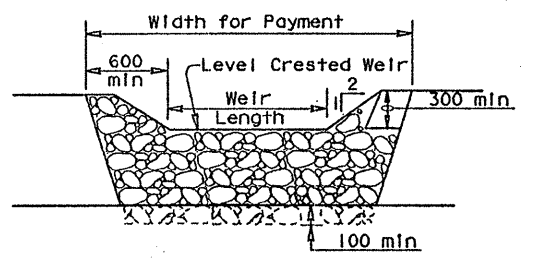


SECTION A-A

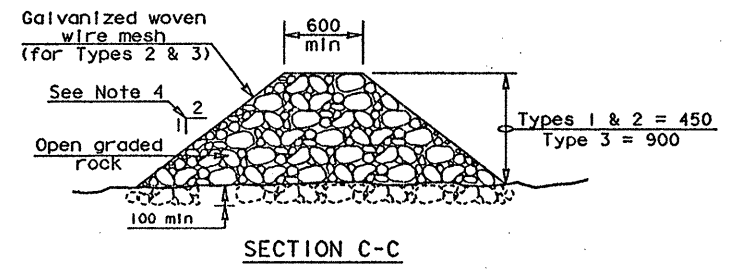


FILTER DAM AT SEDIMENT TRAP

(RFD1) OR (RFD2)
TYPE 1 OR TYPE 2



PROFILE



SECTION C-C

ROCK FILTER DAM USAGE GUIDELINES

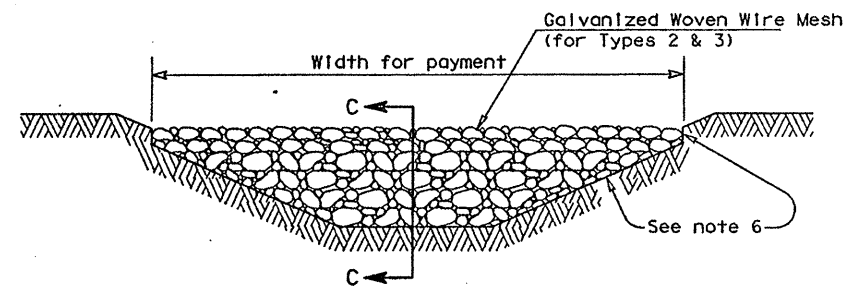
Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of $0.04 \frac{m^3}{sec \cdot m^2}$ of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (450 mm high with no wire mesh): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 2 ha. or less. Type 1 may not be used in concentrated high velocity flows (approx. 2.4 m/sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (100 mm deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (450 mm high with wire mesh): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (900 mm high with wire mesh): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gablons): Type 4 May be used in ditches and smaller channels to form an erosion control dam.



FILTER DAM AT CHANNEL SECTIONS

(RFD1) OR (RFD2) OR (RFD3)
TYPE 1 OR TYPE 2

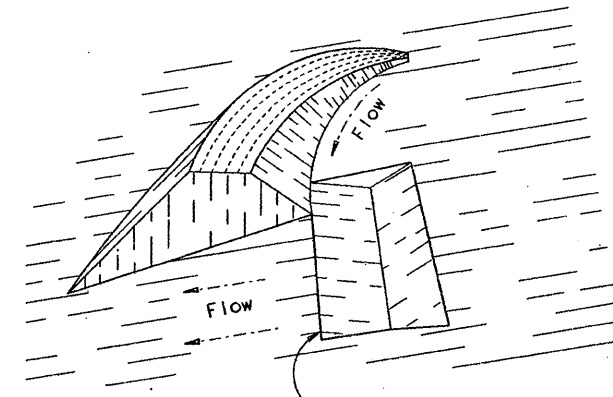
GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 1:2 (vertical:horizontal) or flatter. Dams within the safety zone shall have sideslopes of 1:6 or flatter.
5. Maintain a minimum of 300mm between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 100 mm into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 25 mm diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. In stream use the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gablons should be staked down with #6 bars.
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation
 Design Division (Roadway)
**TEMPORARY EROSION,
 SEDIMENT AND WATER
 POLLUTION CONTROL MEASURES**
ROCK FILTER DAMS
EC(2)-95(M)

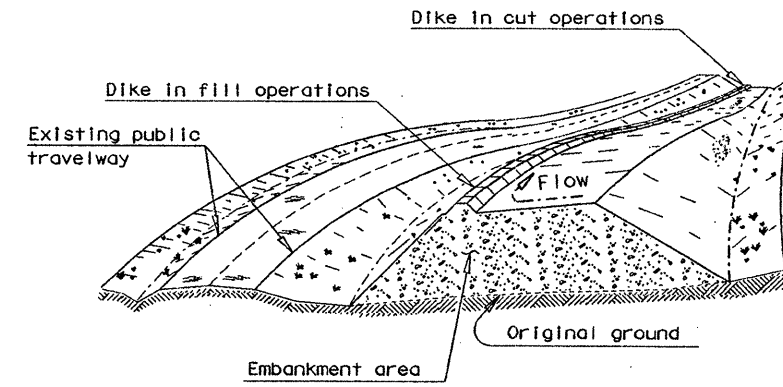
FILE#	EC295M.DGN	DN#	HEJ	CK#	HEJ	DN#	BGD	CK#	NEG#
ORIG DATE#	JUNE 1993	DIST	FED REG	FEDERAL AID PROJECT					SHEET
REVISIONS		21	6	NH 96(79)M					49
		COUNTY	CONTROL SECT	JOB	HIGHWAY				
		HIDALGO	003917	118	US83				

R = Radius
 D = Diameter
 All unit-less dimensions are millimeters

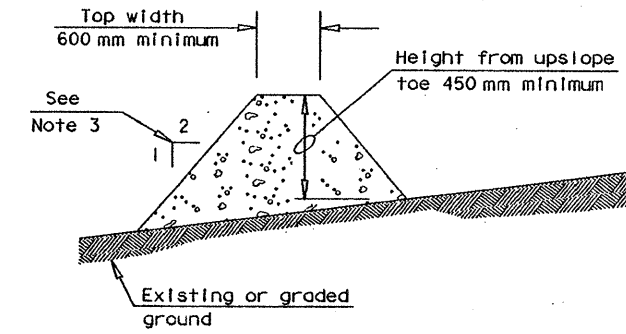


Control discharge onto stabilized area or sediment trapping device (level spreader shown)

PERIMETER DIKE



DIVERSION DIKE

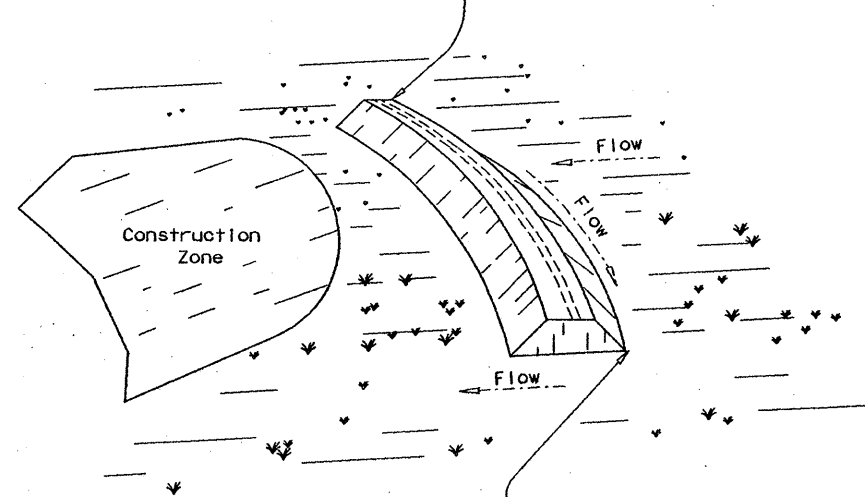


TYPICAL DIKE CONFIGURATION

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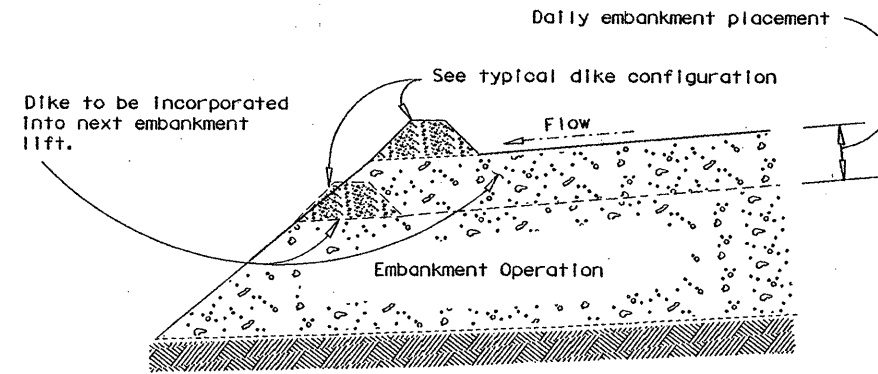
LEVELS DISPLAYED

See typical dike configuration



Discharge to perimeter diversion structure, sediment trap, or stabilized area.

INTERCEPTOR DIKE



EMBANKMENT SECTION - DIVERSION DIKE

DIKE USAGE GUIDELINES

A dike may be used to intercept runoff and divert it around unstabilized areas or to divert sediment laden runoff to an erosion control device (sediment basin or trap, rock filter dam, etc.).

The drainage area contributing runoff to a dike should not exceed 2 ha. The spacing of dikes should be as follows:

Slope of disturbed areas above dike	greater than 10%	5 - 10%	less than 5%
Maximum distance between dikes	30 m	60 m	90 m

Intercepted runoff flowing along a dike should outlet to a stabilized area (vegetation, rock, etc.).

GENERAL NOTES

- Soil used in dike construction shall be machine compacted.
- Top width and height of dike may be modified with prior approval of the Engineer.
- Side slopes within the safety clear zone of a roadway shall be 1:6 (vertical:horizontal) or flatter.
- Grading shall be shown elsewhere in the plans or as directed by the Engineer.
- The Engineer reserves the right to modify the dimensions shown for the dike dependent on runoff volume characteristics.
- Dikes that are in place for more than 14 calendar days should be stabilized to prevent sediment runoff.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.

R = Radius
D = Diameter

All unit-less dimensions are millimeters

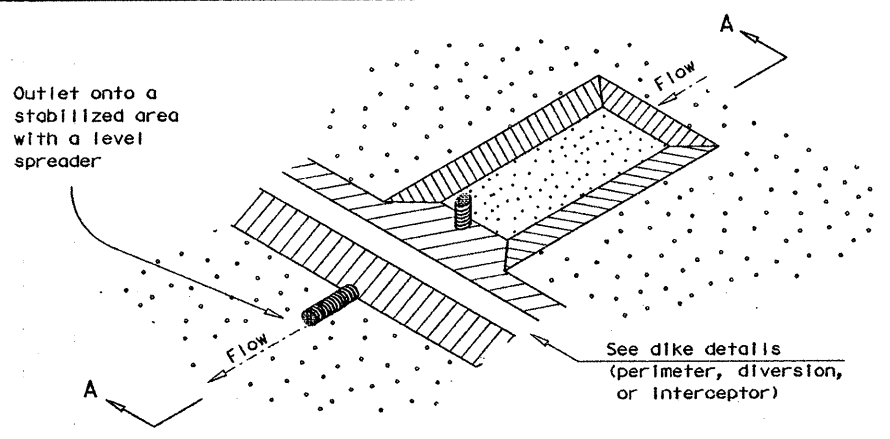
Texas Department of Transportation
Design Division (Roadway)

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES DIKES (EARTHWORK FOR EROSION CONTROL)

EC (4) - 95 (M)

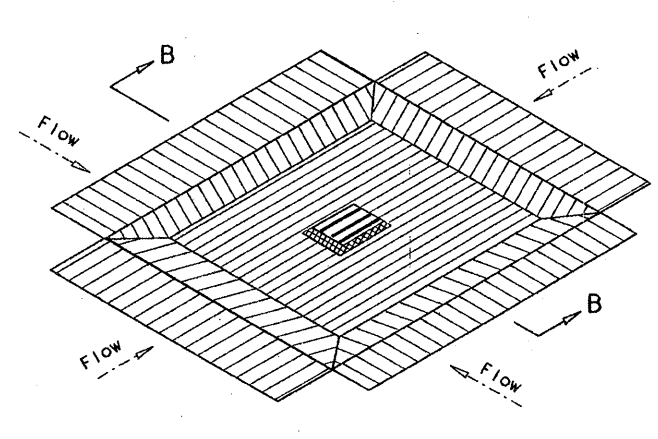
FILE#	EC495M.DGN	DN#	HEJ	CK#	HEJ	DN#	BGD	CK#	NEG#
ORIG DATE#	JUNE 1993	DIST	FED REG	FEDERAL AID PROJECT	SHEET				
REVISIONS		21	6	NH 96(79) M	51				
		COUNTY	CONTROL	SECT	JOB	HIGHWAY			
		H19ALGO	0039	17	118	US83			

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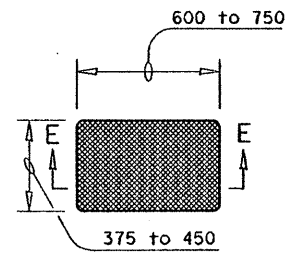
SEDIMENT BASIN AND/OR TRAP WITH PIPE OUTLET

(ST/PO)

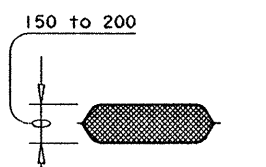


DROP INLET SEDIMENT TRAP

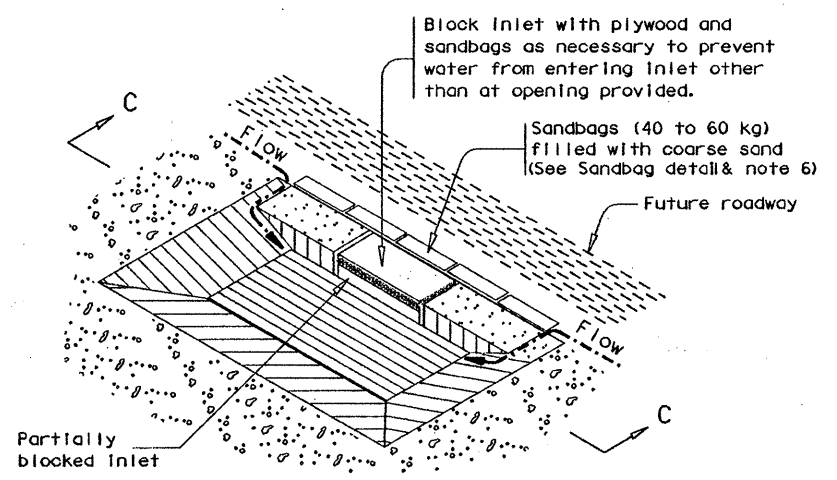
(ST-DI)



SANDBAG DETAIL

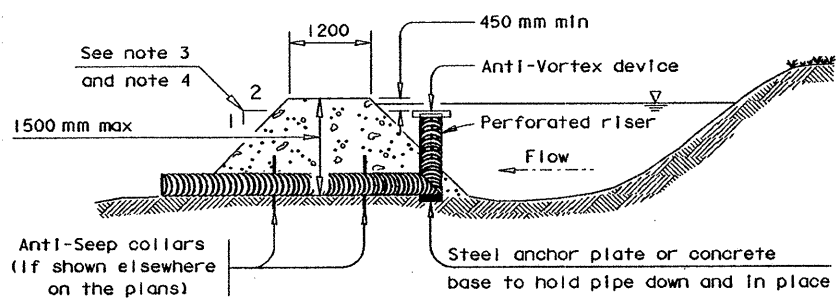


SECTION E-E

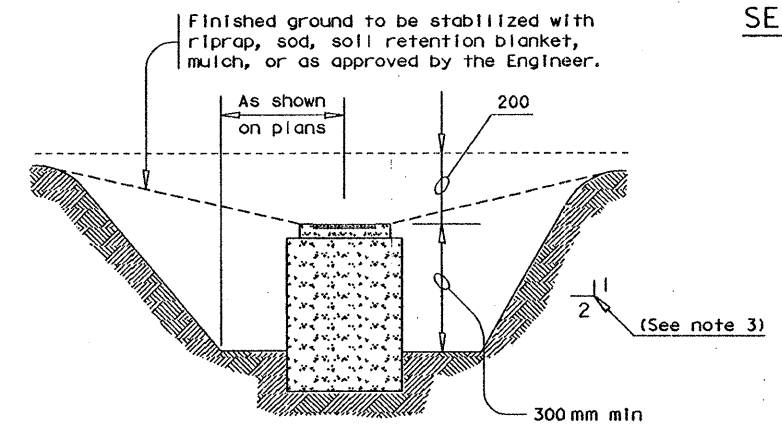


CURB INLET SEDIMENT TRAP

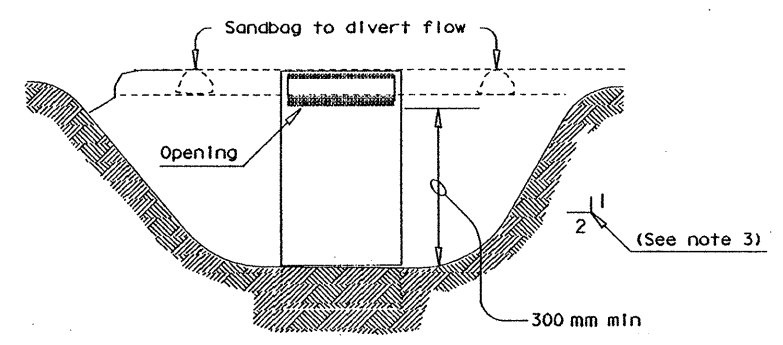
(ST-CI)



SECTION A-A



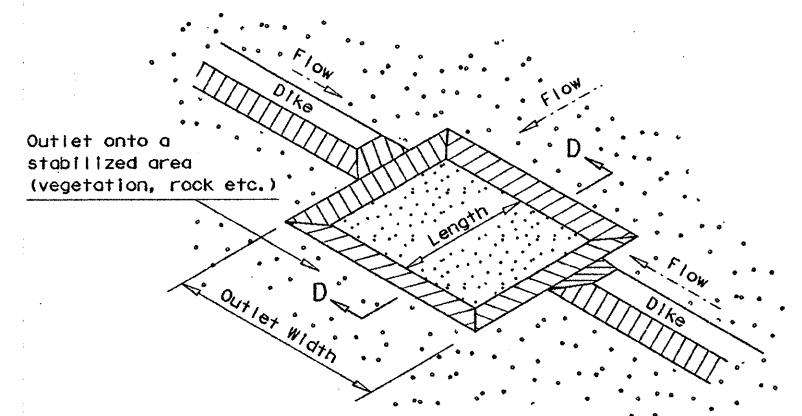
SECTION B-B



SECTION C-C

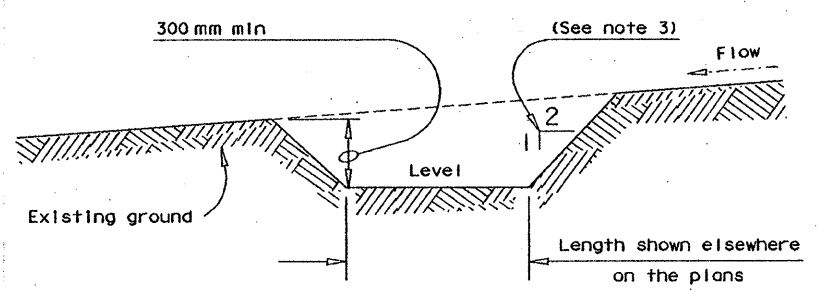
GENERAL NOTES

1. Pipe outlet material shall conform to the Item "Pipe Underdrains" or as accepted by the Engineer.
2. All pipe connections shall be watertight.
3. Side slopes within the safety clear zone of a roadway shall be 1:6 (vertical:horizontal) or flatter. Protect the traveling public from inlet stacks within the clear zone.
4. Sediment basins shall have side slopes of 1:3 (vertical:horizontal) or flatter.
5. The dimensions and limits of excavation for sediment basins and traps will be as shown elsewhere on the plans.
6. The sandbag material shall be made of polypropylene, polyethylene or polyamide woven fabric, min. unit weight 125 grams/m², Mullen burst strength exceeding 2000 kPa and ultraviolet stability exceeding 70%.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.



SEDIMENT TRAP WITH LEVEL STABILIZED OUTLET

(ST)



SECTION D-D

PLANS SHEET LEGEND

- (ST/PO) Sediment Basin and/or Trap with Pipe Outlet
- (ST-DI) Drop Inlet Sediment Trap
- (ST-CI) Curb Inlet Sediment Trap
- (ST) Sediment Trap with Level Stabilized Outlet

SEDIMENT BASIN & TRAP USAGE GUIDELINES

A sediment basin and/or trap may be used to precipitate sediment out of runoff draining from an unstabilized area.

Basins: The drainage area for a sediment basin should not exceed 40 ha. The basin capacity shall be at least 125 m³/ha of drainage area (13mm over the drainage area). If the disturbed area draining to the basin is larger than 4 ha, the basin capacity should be 250 m³/ha (25mm over the drainage area).

The basin should have a 40 hour draw-down time with an emergency spillway. The spillway may be designed to pass the peak rate of runoff from a 25 year frequency storm. The 100 year storm should be investigated to consider possible flooding impacts.

The entrance into the basin should be protected from erosion. The basin should be cleaned when the capacity has been reduced by one-third.

Traps: The drainage area for a sediment trap should not exceed 2 ha. The trap capacity should be 125 m³/ha (13mm over the drainage area).

Sediment traps should be placed in the following locations:

1. Within drainage ditches spaced at 150± meters on center
2. Immediately preceding ditch inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way

The trap outlet may either be through a perforated riser and pipe assembly designed to achieve a 40 hour draw-down time or over a level stabilized area (vegetation, rock, etc.).

The trap should be cleaned when the capacity has been reduced by one-half or the sediment has accumulated to a depth of 300 mm, whichever is less.

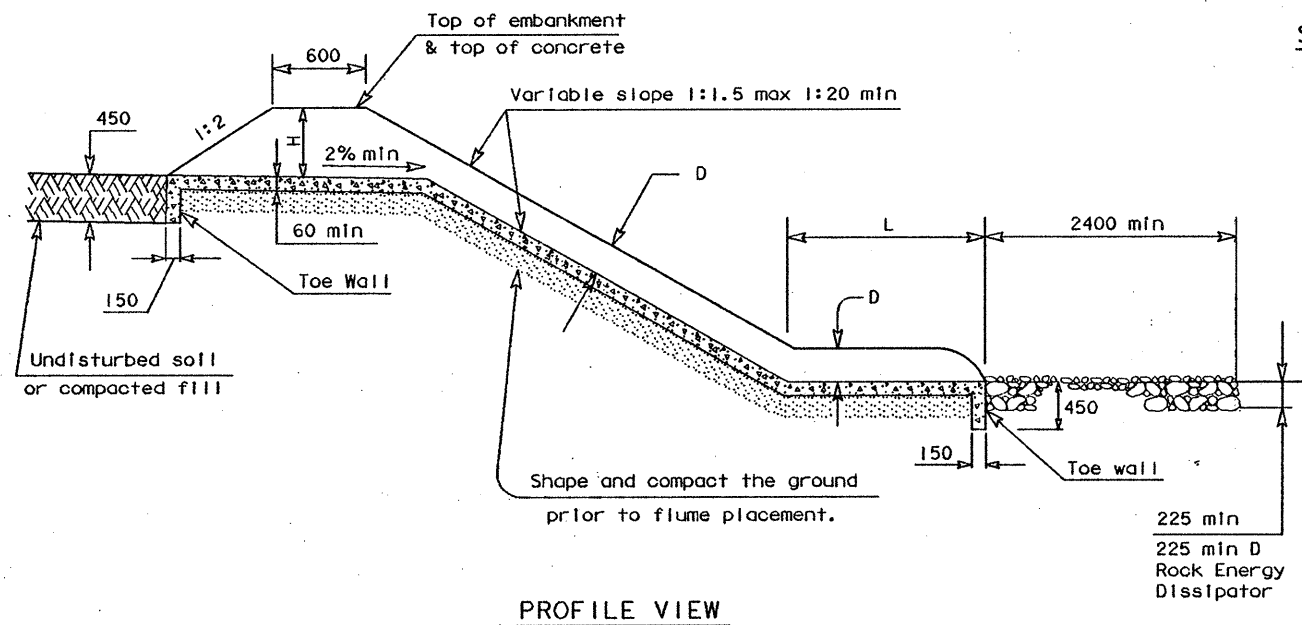
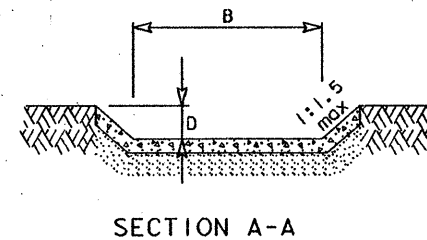
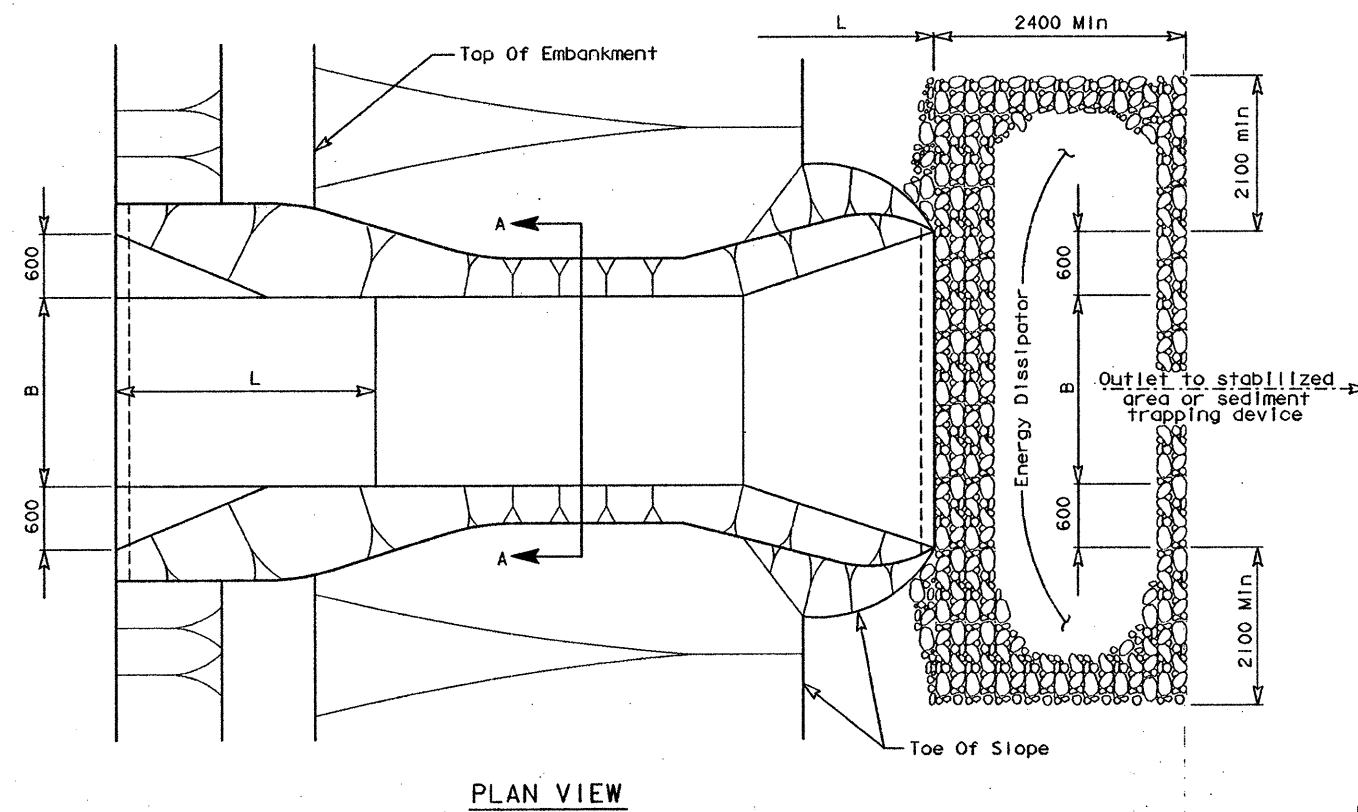
Texas Department of Transportation
Design Division (Roadway)
**TEMPORARY EROSION,
SEDIMENT AND WATER
POLLUTION CONTROL MEASURES
SEDIMENT BASINS AND TRAPS
(EARTHWORK FOR EROSION CONTROL)**
EC (6) - 95 (M)

FILE#	EC695M.DGN	DN#	HEJ	CK#	HEJ	DN#	BGD	CK#	NEG#
ORIG DATE#	MAY 1993	DIST	FED REG	FEDERAL AID PROJECT #	SHEET				
REVISIONS	21	6	NH 96/791M		53				
	COUNTY	CONTROL SECT	JOB	HIGHWAY					
	H10AL60	003A	17	118 US83					

R = Radius
D = Diameter
All unit-less dimensions are millimeters

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	



DESIGN CRITERIA					
Group/Size	B Bottom Width	H Min	D Min	L Min	Maximum Drainage Area
A-2	600	450	200	1500	2.0 ha
A-4	1200	450	200	1500	3.2 ha
A-6	1800	450	200	1500	4.4 ha
A-8	2400	450	200	1500	5.6 ha
A-10	3000	450	200	1500	7.2 ha
B-4	1200	600	250	1800	5.6 ha
B-6	1800	600	250	1800	8.0 ha
B-8	2400	600	250	1800	10.0 ha
B-10	3000	600	250	1800	12.5 ha
B-12	3600	600	250	1800	14.5 ha

PAVED FLUME USAGE GUIDELINES

A Paved Flume should be constructed to drain concentrated surface runoff safely down slopes without causing erosion. The drainage area contributing runoff to a paved flume should not exceed that given in the Design Criteria above. The paved flume should be sized to drain the peak rate of runoff without overtopping the embankment at the earth dike entrance. A 25 year storm frequency may be used to calculate the flow rate.

GENERAL NOTES

1. The group/size is a designator for the dimensions of the paved flume. The group/size is designated by a letter (A or B) and the bottom (B) dimension. The appropriate size shall be indicated on the construction plans.
2. For high velocity flows, the aggregate of the energy dissipator should be secured with 20 gauge galvanized woven wire mesh with 25 mm diameter hexagonal openings. The aggregate should be placed on the mesh to the dimensions specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings.
3. The guidelines hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation
Design Division (Roadway)

**TEMPORARY EROSION,
SEDIMENT AND WATER
POLLUTION CONTROL MEASURES
TEMPORARY PAVED FLUMES
EC (8) - 95 (M)**

R = Radius
D = Diameter

All unit-less dimensions are millimeters

FILE#	EC895M.DGN	DN#	HEJ	CK#	HEJ	DR#	BGD	CK#	NEG#
ORIG DATE#	MAY 1993	DIST	FED REG	FEDER	AID PROJECT	SHEET		55	
REVISIONS		21	6	NH 96/991M					
		COUNTY	CONTROL	SECT	JOB	HIGHWAY			
		HIDALGO	0039	17	118	U583			

GENERAL NOTES

THIS SUGGESTED TRAFFIC CONTROL PLAN IS SUBMITTED FOR THE CONTRACTOR'S CONSIDERATION. THE CONTRACTOR MAY SUBMIT AN ALTERNATE CONSTRUCTION SEQUENCE AND TRAFFIC PLAN TO THE ENGINEER FOR APPROVAL.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7, "LEGAL REGULATIONS AND RESPONSIBILITIES TO THE PUBLIC" OF THE STANDARD SPECIFICATIONS.

ALL SIGNS, BARRICADES, WORK ZONE MARKINGS AND DEVICES AS SHOWN HEREON SHALL BE IN ACCORDANCE WITH BOTH THE 1980 "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (T.M.U.T.C.D.), INCLUDING REVISIONS THERETO, AND TXDOT-DISTRICT 21 STANDARDS AND SPECIFICATIONS.

THE TRAFFIC CONTROL PLAN HAS BEEN DIVIDED INTO SIX (6) PHASES OF CONSTRUCTION. THE VARIOUS PHASE SEQUENCES WILL REQUIRE DETOURS, LANE DETOUR TRANSITIONS, AND LANE OR SHOULDER CLOSURE TRANSITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING ALL CONFLICTING PAVEMENT MARKINGS AND FOR INSTALLING THE REQUIRED TEMPORARY CONC. TRAFFIC BARRIERS, CHANNELING DEVICES WITH APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS AND CONSTRUCTION WARNING SIGNS AS SHOWN ON THE TRAFFIC CONTROL PLANS, THE BARRICADES AND CONSTRUCTION STANDARD SHEETS, THE T.M.U.T.C.D. OR AS DIRECTED BY THE ENGINEER. SINCE THE TRAFFIC CONTROL PLAN IS COMPLEX DUE TO THE VARIOUS PHASES AND SEQUENCES OF WORK INVOLVED, THE CONTRACTOR WILL BE REQUIRED TO ASSIGN A KNOWLEDGEABLE AND RESPONSIBLE TRAFFIC CONTROL PERSON TO PROVIDE COORDINATION IN THIS REGARD, WITH HIS WORK FORCES, SUB-CONTRACTORS AND WITH THE DEPARTMENT, MOVING FROM ONE PHASE OR SEQUENCE TO ANOTHER WILL REQUIRE ADVANCE COMPREHENSIVE PLANNING SO AS TO MAXIMIZE SAFETY AND MINIMIZE INCONVENIENCE FOR THE TRAVELING PUBLIC.

THE PORTION OF THIS PROJECT WHICH COINCIDES WITH EXISTING ROADS AND/OR PRIVATE DRIVES SHALL BE KEPT OPEN TO TRAFFIC AT ALL TIMES, UNLESS OTHERWISE PROVIDED FOR OR APPROVED BY THE ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN, AT ALL TIMES, TWO LANES OF EASTBOUND AND WESTBOUND SURFACED MAINLANE ROADWAYS, DURING MAINLANE RE-CONSTRUCTION; TWO LANES OF ONE-WAY SURFACED FRONTAGE ROADS (MIN 3.3 METER LANE); DURING FRONTAGE ROAD RE-CONSTRUCTION AND TWO-WAY SURFACED ROADWAYS (MIN 3.3 METERS) ON ALL OTHER ROAD RE-CONSTRUCTION, UNLESS OTHERWISE NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ALL WORK ZONE PAVEMENT MARKINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH STANDARD SHEETS WZ(STPM)-95 (M) AND BC(8) & (9)-95 (M) AND THE T.M.U.T.C.D..

THE CONTRACTOR SHALL MAINTAIN THE EXISTING PAVEMENT MARKINGS IN A GOOD VISIBLE CONDITION THROUGHOUT THE LENGTH OF THE PROJECT. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY "METHODS AS APPROVED BY THE ENGINEER" AND WILL BE PAID FOR UNDER ITEM 677 ELIMINATING EXISTING PAVEMENT MARKINGS & MARKERS.

ALL WORK ZONE GUIDEMARKS, SHORT TERM MARKINGS AND STANDARD MARKINGS USED ON THIS PROJECT AS REQUIRED BY THE T.M.U.T.C.D. WILL BE PAID FOR UNDER ITEM 662 "WORK ZONE PAVEMENT MARKINGS."

WHEN CONNECTING PROPOSED ROADWAY AND/OR DETOURS TO SECTIONS OF EXISTING PAVEMENT BEING USED BY TRAFFIC AND SUCH OPERATIONS RESULT IN A DROP-OFF OF MORE THAN 51MM, A 1:3 SLOPE WILL BE REQUIRED. SEE "TXDOT GUIDELINES FOR WARNING AND PROTECTIVE DEVICES FOR PAVEMENT DROPOFFS". THIS WORK SHALL BE DONE EXPEDITIOUSLY DURING DAYLIGHT HOURS. NECESSARY FLAGMEN AND APPROPRIATE SIGNING TO SAFELY GUIDE TRAFFIC THROUGH THE WORK AREA WILL BE REQUIRED AS DIRECTED BY THE ENGINEER.

THE REMOVAL AND REPLACEMENT OF APPROXIMATELY 270 LINEAR METERS OF EXISTING CURB AS REQUIRED FOR THE TEMPORARY INSIDE FRONTAGE ROAD WEST OF FM 1426 INTERSECTION, BOTH NORTH AND SOUTH SIDES, WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING" AND ITEM 508 "CONSTRUCTING DETOURS".

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

TYPE III PROJECT LIMIT BARRICADES WITH TYPE A WARNING LIGHT AND ACCOMPANYING SIGNS AND SPECIAL INFORMATION SIGNS SHALL BE REQUIRED AT EACH END OF THE PROJECT. THESE SHALL REMAIN IN PLACE UNTIL FINAL PROJECT ACCEPTANCE. BARRICADES, SIGNS, CHANNELIZING DEVICES AND TRAFFIC HANDLING DEVICES AS SHOWN SHALL BE ADJUSTED OR SHIFTED TO FIT FIELD CONDITIONS, AND AS REQUIRED FOR CONSTRUCTION AND SET UP AS DETAILED ON THESE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL INSURE THAT BARRICADES, SIGNS, CHANNELIZING DEVICES, WARNING LIGHTS AND TRAFFIC HANDLING DEVICES ARE MAINTAINED IN A CLEAN FUNCTIONAL CONDITION AT ALL TIMES, INCLUDING MAINTENANCE DUE TO ACTS OF VANDALISM OR ACCIDENT. THE CONTRACTOR SHALL HAVE ENOUGH SIGNS AND BARRICADES AVAILABLE, AT ALL TIMES, TO REPLACE THOSE DAMAGED.

DETOUR STRIPING AND SIGNING SHALL BE AS SHOWN IN THE PLANS AND IN ACCORDANCE WITH THE T.M.U.T.C.D.

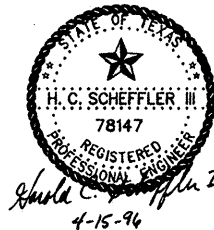
CHANNELIZING DEVICES SHALL BE REQUIRED ALONG THE PORTIONS OF THE ROADWAY OPEN TO TRAFFIC, AND SHALL BE FIXED BASE TYPE IN ACCORDANCE WITH "WORK ZONE CHANNELIZING DEVICES ON FLEXIBLE SUPPORTS" (WZ(CD)-95).


WORK ZONE PAVEMENT MARKINGS ON BRIDGES OR THOSE WHICH WILL BE INSTALLED AFTER THE COMPLETION OF WORK ON A CERTAIN PHASE SEQUENCE BUT WILL BE REQUIRED TO BE REMOVED ON A SUBSEQUENT SEQUENCE OF WORK, SHALL BE OF THE REMOVABLE TYPE. ALL NON-REMOVABLE WORK ZONE PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.

CONTRACTOR SHALL UTILIZE TRAFFIC CONTROL DEVICES AS SHOWN IN THESE DRAWINGS ON A PER PHASE BASIS. THEREFORE, ANY DEVICES UTILIZED IN A PREVIOUS PHASE THAT CONFLICT WITH THE TRAFFIC CONTROL FOR THE CURRENT PHASE SHALL BE REMOVED. ANY DEVICES THAT ARE UTILIZED IN CONSECUTIVE PHASES ARE NOTED AS SUCH IN THE PLANS.

THE CONTRACTOR SHALL COVER THE EXISTING ADVANCE AND SUPPLEMENTAL GUIDE SIGNS AND EXIT GORE SIGNS CORRESPONDING TO THE EXIT RAMP CLOSURES FOR THAT PARTICULAR SEQUENCE OF PHASE CONSTRUCTION. COVERING OF THESE SIGNS SHALL BE WITH A MATERIAL AS APPROVED BY THE ENGINEER AND ATTACHED TO THE SIGN IN A MANNER WHICH WILL PRESENT A NEAT APPEARANCE AND NOT DAMAGE THE SIGN. THE CONTRACTOR SHALL MAINTAIN THESE SIGN COVERINGS FOR THE DURATION OF THE SEQUENCE OF CONSTRUCTION. WHEN THE EXIT OR ENTRANCE RAMP IS RE-OPENED TO TRAFFIC, ALL EXISTING PERMANENT SIGNS SHALL BE UNCOVERED AND ALL APPLICABLE TEMPORARY GUIDE AND DETOUR SIGNS SHALL BE REMOVED.


TEMPORARY GUIDE SIGNS SHALL BE INSTALLED ON TIMBER BREAKWAY ROADSIDE SIGN SUPPORTS AS SHOWN ON BARRICADE STANDARD BC (4)-95 (M). ALL WORK AND MATERIALS REQUIRED FOR THE INSTALLATION AND REMOVAL OF THE TEMPORARY GUIDE SIGNS AND FOR THE COVERING OF EXISTING SIGNS REQUIRED FOR THE VARIOUS SEQUENCES OF PHASE 3 CONSTRUCTION WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502. ALL TEMPORARY GUIDE SIGNS INSTALLED SHALL REMAIN THE PROPERTY OF THE CONTRACTOR. SEE "TEMPORARY GUIDE SIGNS FOR EXIT RAMP CLOSURES" FOR A TYPICAL APPLICATION.





Texas Department of Transportation

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Half Associates
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS

GENERAL NOTES FOR TRAFFIC CONTROL DURING CONSTRUCTION

SHEET 1 OF 2

DIN: BS	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK DIN: JLS	8	TEXAS	NH 96 (791) M7	US 83
DIN: JCP	STATE	COUNTY	CONTRACT SECTION NO.	SHEET NO.
CK DIN: TR	21	HIDALGO	0039 17	118 57

GENERAL NOTES

ON THIS PROJECT, THE CONTRACTOR SHALL UTILIZE TWO (2) TxDOT OWNED PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) WHICH SHALL BE IN PLACE SEVENTY-TWO (72) HOURS PRIOR TO ALL TRAFFIC PHASE CHANGES. THE PCMS SHOULD BE PLACED FAR ENOUGH IN ADVANCE OF THE WORK SITE TO ALLOW TRAFFIC AMPLE OPPORTUNITY TO EXIT THE FREEWAY. THE CONTRACTOR SHALL PICK UP, INSTALL AND RETURN THE PCMS TO THE TxDOT, PHARR DISTRICT YARD UPON COMPLETION OF EVERY USE. ALL RELATED COSTS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES DUE TO NORMAL USE, ACCIDENTS, AND/OR VANDALISM.

ALL DRUMS USED ON THIS PROJECT FOR TRAFFIC CONTROL SHALL BE PLASTIC. PLASTIC DRUMS SHALL BE USED IN ACCORDANCE WITH PLANS AND MANUFACTURERS RECOMMENDATION, OR AS APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL COORDINATE THE TRAFFIC CONTROL PLAN AND THE VARIOUS SEQUENCES OF CONSTRUCTION WITH ANY ADJACENT CONSTRUCTION PROJECTS, TO INSURE THE UNINTERRUPTED FLOW OF TRAFFIC.

ONE HIGH-INTENSITY, YELLOW, ROTATING DOME LIGHT SHALL BE REQUIRED ON ALL EQUIPMENT SUCH AS DISTRIBUTORS, SPREADER BOXES, LAY-DOWN MACHINES, ROLLERS, BACK HOES, ROAD GRADERS, LOADERS, ETC. THIS LIGHT SHALL BE MOUNTED HIGH ENOUGH TO BE VISIBLE FROM ALL DIRECTIONS AND SHALL BE USED WHEN THE EQUIPMENT IS WITHIN 9m OF THE TRAVELWAY. ALL OTHER EQUIPMENT SUCH AS TRUCKS, TRAILERS, AUTOS, ETC., SHALL BE EQUIPPED WITH EMERGENCY FLASHERS AND THE FLASHERS SHALL BE USED WHILE WITHIN THE SECTION OF WORK.

THE CONTRACTOR SHALL PROVIDE TRUCK MOUNTED ATTENUATORS ON ALL SHADOW VEHICLES AS SHOWN ON THE TCP STANDARD SHEETS. THE TRUCK MOUNTED ATTENUATORS SHALL BE ONE OF THE FOLLOWING MODELS OR APPROVED EQUAL:
ALPHA 1000 MODEL (2590J) BY ENERGY ABSORPTION SYSTEM, INC.
MODEL TMCC BY HEXCEL, INC.

THE PROJECT AREA IS TO BE SIGNED FOR A WORK-ZONE SPEED OF 45 MPH. THIS WILL BE AN ENFORCEABLE REGULATORY SPEED FOR THE US 83 MAINLANES ONLY, AS NOTED ON THE PLANS. ADVISORY SPEED SIGNS IN SUFFICIENT NUMBER AS DETERMINED BY THE ENGINEER SHALL BE FURNISHED IN ALL OTHER AREAS OF THE PROJECT.

THE CONTRACTOR SHALL PROVIDE OFF-DUTY UNIFORMED LAW ENFORCEMENT OFFICER(S), NUMBER AS DETERMINED BY THE ENGINEER WITH JURISDICTION IN THE PROJECT AREA, FOR TRAFFIC CONTROL OPERATIONS. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF TAKING OTHER STEPS AND PROVIDING OTHER PERSONNEL WHICH THE CONTRACTOR MAY DEEM NECESSARY FOR THE PROTECTION OF THE WORKERS AND THE PUBLIC.

THE CONTRACTOR SHALL NOTIFY THE PROPER CITY OR COUNTY AND STATE TRANSPORTATION DEPARTMENT OFFICIAL WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. THE NOTIFICATION MUST BE MADE THREE DAYS PRIOR TO THE CHANGE.

THE CONTRACTOR SHALL RESTORE TRAFFIC AND SITE TO ORIGINAL CONDITION UPON COMPLETION OF THE PROJECT. ALL TEMPORARY PAVEMENT AND TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE PROJECT. THIS MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

FOR THIS PROJECT, 509 9-METER SECTIONS OF TEMPORARY CONC. TRAFFIC BARRIERS WITH CONNECTING HARDWARE WILL BE FURNISHED BY THE TxDOT AND MADE AVAILABLE AT THE DISTRICT OFFICE YARD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAULING THE BARRIERS TO AND FROM THE DISTRICT 21 OFFICE YARD LOCATED AT 600 W. EXPRESSWAY 83 IN PHARR, TEXAS.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOAD AND HAUL THE TEMPORARY CONC. BARRIERS FROM THE DISTRICT OFFICE YARD TO THE PROJECT AREA. THE CONTRACTOR SHALL MAINTAIN THE TEMPORARY CONC. BARRIERS IN FIRST CLASS CONDITION UNTIL ALL WORK REQUIRING THE BARRIERS HAS BEEN COMPLETED. UPON COMPLETION OF THIS WORK ALL BARRIERS AND CONNECTING HARDWARE FURNISHED SHALL REMAIN THE PROPERTY OF THE TxDOT AND SHALL BE DELIVERED TO THE DISTRICT OFFICE YARD IN PHARR, TEXAS. THOSE PORTIONS OF THE TEMPORARY CONC. BARRIER DAMAGED BEYOND REASONABLE REPAIR, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL USE THE SLING TYPE LIFTING DEVICES WHEN MOVING THE TEMPORARY CONC. TRAFFIC BARRIERS FURNISHED BY THE TxDOT. IF HOLES ARE NEEDED FOR SLING LIFT, THE CONTRACTOR SHALL DRILL OR CORE APPROXIMATELY 51mm HOLES (NON-IMPACTED) 1.905m (+/-)51mm FROM EACH END AND 356mm FROM THE TOP FOR SLING LIFTING OF THE BARRIERS. THE EXISTING THREADED SLEEVES SHALL NOT BE USED.

THE CONTRACTOR SHALL PROVIDE ADDITIONAL TEMPORARY CONC. TRAFFIC BARRIERS AS REQUIRED FOR THE VARIOUS PHASES OF CONSTRUCTION. THE CONTRACTOR MAY PROVIDE PORTABLE CONCRETE TRAFFIC BARRIERS (PCTB) OR SINGLE SLOPE CONCRETE BARRIERS (SSCB) WHICH SHALL BE SLOTTED AND UNSLOTTED. THE SLOTTED BARRIER SHALL BE USED WHERE TEMPORARY ROADWAY DRAINAGE IS REQUIRED. THE CONTRACTOR WILL BE ALLOWED TO RE-USE THE UNSLOTTED SSCB FOR THE PROPOSED PERMANENT CONCRETE TRAFFIC BARRIER IN MEDIAN, EXCEPT FOR THE PROPOSED CAST-IN-PLACE TYPE CONC. TRAFFIC BARRIERS, PROVIDED THAT THEY HAVE NOT BEEN DAMAGED WHILE BEING USED FOR TRAFFIC CONTROL. EACH BARRIER SECTION TO BE RE-USED WILL BE INDIVIDUALLY APPROVED BY THE ENGINEER. THIS ITEM SHALL BE PAID FOR UNDER ITEM 512 PORTABLE CONCRETE TRAFFIC BARRIER.

ALL TEMPORARY CONC. TRAFFIC BARRIERS AND TEMPORARY PRECAST T503 AND T504 BRIDGE RAILINGS FURNISHED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE TxDOT. THE CONTRACTOR SHALL REMOVE AND DELIVER THESE BARRIERS AND RAILINGS TO TxDOT DISTRICT 21 OFFICE YARD IN PHARR.

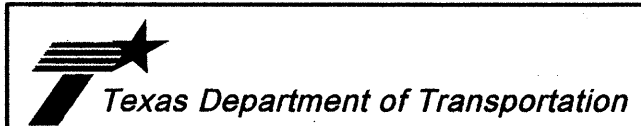
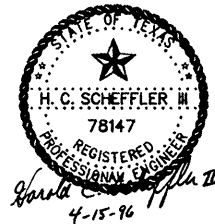
THE CONTRACTOR SHALL PERFORM THE FULL-DEPTH PHASE WORK ONLY IN THE AREA NOT TO EXCEED THE LENGTH OF THE ERECTED TEMPORARY CONCRETE BARRIER. THE CONTRACTOR MAY WORK IN THE REMAINING LENGTH OF THE PROPOSED SECTION BEYOND THE CONC. BARRIER BY SCARIFYING & REMOVING THE EXIST. ACP WITH SALVAGE FLEX BASE SO AS NOT TO EXCEED A DROP OFF OF MORE THAN 102mm. THE CONSTRUCTION AREA BEYOND THE CONC. BARRIER WILL REQUIRE DRUMS AS TEMPORARY BARRIER.

CONSTRUCTION OF STORM SEWER LINES BENEATH THE FRONTAGE ROADS SHALL BE DONE BY THE OPEN CUT METHOD IN ALL PHASES OF CONSTRUCTION. DURING THIS WORK ONE LANE OF FRONTAGE ROAD TRAFFIC SHALL BE OPEN AT ALL TIMES. THIS HALF-WIDTH METHOD OF CONSTRUCTION SHALL BE DONE DURING OFF-PEAK HOURS, BETWEEN 9am. AND 4pm. AND AT NIGHTTIME, DURING THE PEAK HOURS OF 6am. TO 9am. AND 4pm TO 7pm., THE FRONTAGE ROAD SHALL BE OPEN TO TWO LANES OF TRAFFIC.

CONSTRUCTION OF STORM SEWER LINES BENEATH THE MAIN LANES SHALL BE DONE BY JACKING, BORING OR TUNNELING METHODS. THIS CONSTRUCTION SHALL BE DONE DURING THE APPROPRIATE PHASE(S), SO THAT THE LINES MAY BE CONNECTED TO THE MAIN TRUNKLINE BENEATH THE MEDIAN. TWO LANES OF TRAFFIC FOR THE MAIN LANES, IN BOTH DIRECTIONS, SHALL BE PROVIDED AT ALL TIMES.

FOR PEDESTRIAN SAFETY, PLASTIC CONSTRUCTION FENCING, A MINIMUM OF 1.2 m HIGH, SHALL BE USED AROUND OPEN EXCAVATIONS.

PHASES 2, 3, 4, & 5 WILL REQUIRE THE USE OF G.R.E.A.T. TY "CZ" SYSTEMS AND GUARDRAIL EXTRUDER TERMINALS (SGT) OR DEPARTMENT APPROVED CTB END TREATMENTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THESE SYSTEMS AT THE DESIGNATED LOCATIONS AS SHOWN ON THE PLANS. TWO G.R.E.A.T. TY "CZ" SYSTEMS SHALL BE INSTALLED AND PAID FOR IN ACCORDANCE TO ITEM 5653 GUARD ENERGY ABSORBING TERMINAL. THESE SYSTEMS SHALL BE RE-USED AS REQUIRED DURING THE OTHER PHASES OF CONSTRUCTION. ON COMPLETION OF THE PROJECT THESE SYSTEMS SHALL BE REMOVED AND DELIVERED TO THE TxDOT MAINTENANCE YARD IN PHARR, TX. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE SYSTEMS. ANY DAMAGED TEMPORARY G.R.E.A.T. SYSTEMS SHALL BE REPAIRED OR REPLACED IMMEDIATELY. ALL WORK, LABOR, TOOLS, MATERIALS AND EQUIPMENT NECESSARY TO REMOVE AND RELOCATE THESE SYSTEMS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING".



GENERAL NOTES FOR TRAFFIC CONTROL DURING CONSTRUCTION

SHEET 2 OF 2

DN: BS	FED. AID DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK DN: JLS	6	TEXAS	NH 96 (791) M)	US 83
DN: JCP	STATE DIST. NO.	COUNTY	CONTRACT SECTION	JOB SHEET NO.
CK DN:	21	HIDALGO	0039 17	118 58
TR:				
CK TR:				

PHASE 1 CONSTRUCTION

- OVERLAY EXISTING OUTSIDE SHOULDERS ON BOTH SIDES OF US 83 MAINLANES WITH ACP (TY "D") LEVEL-UP TO MATCH EXISTING MAINLANE CROSS-SLOPES FROM STA. 47+810 TO STA. 50+272 PRIOR TO UTILIZING THE SHOULDERS AS TRAVEL LANES. CONTRACTOR SHALL APPLY TxDOT TCP MOVING OPERATIONS STANDARDS DURING CONSTRUCTION.
- REMOVE 100 mm SOLID WHITE EDGE STRIPE AND 100mm BROKEN WHITE STRIPES AND RAISED REFLECTIVE MARKERS FROM STA. 47+109 TO STA. 50+272 EASTBOUND AND FROM STA. 46+950 TO STA. 50+272 WESTBOUND, AS SHOWN.
- INSTALL 100 mm SOLID WHITE EDGE STRIPE AND 100mm BROKEN WHITE STRIPES (NON-REMOVABLE) FROM STA. 47+109 TO STA. 50+272 EASTBOUND AND FROM STA. 46+950 TO STA. 50+272 WESTBOUND, AS SHOWN.
- CONSTRUCT TEMPORARY TRAFFIC SIGNALIZATION AT 'I' ROAD AND US 83 FRONTAGE ROAD INTERSECTIONS, PRIOR TO COMMENCING PHASE 2 CONSTRUCTION. THE EXISTING TRAFFIC SIGNAL SHALL REMAIN IN PLACE UNTIL TEMPORARY TRAFFIC SIGNALS ARE PLACED INTO SERVICE. THE EXISTING FM 1426 AT US 83 FRONTAGE ROAD TRAFFIC SIGNALS SHALL REMAIN IN PLACE.

PHASE 2 CONSTRUCTION

- SHIFT AND MERGE EXISTING MAINLANE TRAFFIC TO OUTSIDE MAINLANES AND SHOULDERS FOR BOTH DIRECTIONS OF TRAVEL.
- INSTALL TEMPORARY CONC. TRAFFIC BARRIER (TCTB) WITH TERMINAL END TREATMENTS AS SHOWN ON THE PLANS. PROVIDE OPENING IN TCTB FOR CONSTRUCTION EQUIPMENT IN THE EASTBOUND TRAFFIC LANE BARRIER BETWEEN 'I' ROAD AND FM 1426 AND AT BOTH ENDS OF THE PROJECT AREA. REMOVE EXISTING PERMANENT MEDIAN BARRIER FROM STA. 46+980 TO STA. 47+750. PROVIDE APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS, SIGNING, AND OTHER TRAFFIC CONTROL DEVICES.
- STORM SEWER CONSTRUCTION AS FOLLOWS:
 CONSTRUCT ALL OF LINE 'B' AND THE CENTERLINE TY CC INLETS.
 CONSTRUCT LATERAL B1 AND B2 (KEEP INLET B-2 IN SERVICE).
 CONSTRUCT LINES 'A' AND 'C' (BY JACKING, BORING OR TUNNELING METHOD) FROM 9m (CLEAR ZONE) OF THE OUTSIDE LANE TO MEDIAN AND CONNECT TO TRUNKLINE 'B'.
 EXTEND LINE 'C' AS REQUIRED TO CONSTRUCT LATERAL "C" AND KEEP INLET C-1 IN SERVICE.
 CONSTRUCT LINE 'D' FROM OUTFALL TO STA 48+702 (AS REQUIRED TO CONNECT LATERAL "D2" & INLET D-1).

CONSTRUCT LINE 'E' FROM LINE 'D' TO STA 48+702 (AS REQUIRED TO CONNECT LATERAL "E1" & INLET E-1).

CONSTRUCT LATERAL "D1".

CONSTRUCT LINE 'H' UNDER MAINLANES (BY JACKING, BORING OR TUNNELING METHOD).

- CONSTRUCT PROPOSED CENTER PORTION OF MAINLANE ROADWAY SECTION UP THRU THE TYPE "B" ACP AND CENTER PORTION OF MAINLANE BRIDGES.
- CONSTRUCT TEMPORARY FM 1426 WESTBOUND EXIT RAMP AT EAST END OF PROJECT AND TEMPORARY MAINLANE DETOUR PAVEMENT FROM STA. 49+725 TO STA. 49+094.

PHASE 3 CONSTRUCTION

STEP 1

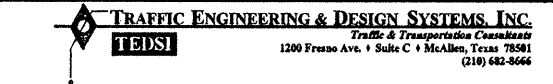
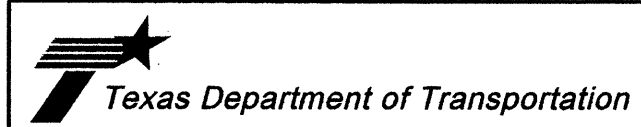
- REMOVE EXISTING PERMANENT MEDIAN BARRIER FROM STA. 46+804 TO STA. 46+980. INSTALL TCTB AS SHOWN ON THE PLANS.
- SHIFT EASTBOUND TRAFFIC TO THE NEWLY CONSTRUCTED MIDDLE PORTION OF ROADWAY SECTION.
- OPEN THE TEMPORARY FM 1426 WESTBOUND EXIT RAMP AT EAST END OF PROJECT. PROVIDE APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS, SIGNING, AND OTHER TRAFFIC CONTROL DEVICES. CLOSE EXISTING WESTBOUND EXIT RAMP TO FM 1426.
- STORM SEWER CONSTRUCTION AS FOLLOWS:
 COMPLETE CONSTRUCTION OF LINES 'C' AND 'X', AND LINE 'K' TO STA. 49+340 ALONG SOUTH SIDE OUTER SEPARATION.
 CONSTRUCT LINE 'J' PARALLEL TO FM 1426 (AS REQUIRED TO INTERCEPT LINE 'K'), WITH LATERAL 'J1' AND LINE 'G' ALONG NORTH SIDE OUTER SEPARATION.
- CONSTRUCT THE PROPOSED SOUTH PORTION OF THE MAINLANE ROADWAY SECTION, INCLUDING MAINLANE BRIDGES, AND THE PROPOSED "I" ROAD AND FM 1426 EASTBOUND EXIT RAMP. MAINTAIN THE EXISTING FM 1426 EXIT RAMP OPEN TO TRAFFIC AS SHOWN. CONSTRUCT THE MAXIMUM POSSIBLE OF PROPOSED "I" ROAD EASTBOUND ENTRANCE RAMP, AS SHOWN.

STEP 2

- OPEN NEWLY CONSTRUCTED "I" ROAD EASTBOUND EXIT RAMP, AS SHOWN.
- CONSTRUCT STORM SEWER LINE 'E' TO INLET 'E12', WITH LATERALS 'E2' AND 'E3', AND LINE 'F' UP TO EXISTING FRONTAGE ROAD STA. 49+055.
- CLOSE THE EXISTING FM 1426 EASTBOUND EXIT RAMP, AND COMPLETE THE CONSTRUCTION OF THE PROPOSED "I" ROAD EASTBOUND ENTRANCE RAMP.
- CONSTRUCT THE CORRESPONDING ENTRANCE RAMP LEAVE-OUT SECTION OF THE MAINLANES.

STEP 3

- OPEN THE NEWLY CONSTRUCTED FM 1426 EASTBOUND EXIT AND "I" ROAD EASTBOUND ENTRANCE RAMPS, AS SHOWN.
- COMPLETE CONSTRUCTION OF STORM SEWER LINE 'K' AND CONSTRUCT SOUTH PORTION OF LINE 'H', CROSSING EASTBOUND FRONTAGE ROAD.
- CONSTRUCT THE SOUTH PORTION OF THE MAINLANES FROM STA 49+325 TO STA 49+725.
- CONSTRUCT THE CESAR CHAVEZ EASTBOUND EXIT RAMP AND ONE INSIDE LANE OF THE EASTBOUND FRONTAGE ROADS, AS SHOWN.



SEQUENCE FOR TRAFFIC CONTROL DURING CONSTRUCTION

SHEET 1 OF 2

DN: BS	STATE	FEDERAL AID PROJECT NO.	ROUTE
CK DN: JLS	6 TEXAS	NH 96(79) (M)	US 83
DN: JCP	STATE	COUNTY	SECTION
CK DN:	21	HIDALGO	0039 17 118 59
TR:			
CK TR:			

PHASE 4 CONSTRUCTION

STEP 1

1. SHIFT EASTBOUND TRAFFIC TO THE NEWLY CONSTRUCTED SOUTH PORTION OF THE MAINLANE ROADWAY. SHIFT WESTBOUND TRAFFIC TO THE NEWLY CONSTRUCTED MIDDLE PORTION OF THE MAINLANE ROADWAY.
2. MAINTAIN EXISTING N. CAGE WESTBOUND EXIT RAMP OPEN TO TRAFFIC.
3. INSTALL TCTB AS SHOWN ON THE PLANS, AND PROVIDE APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS, SIGNING, AND OTHER TRAFFIC CONTROL DEVICES.
4. COMPLETE CONSTRUCTION OF STORM SEWER LINE 'A' ALONG THE NORTH SIDE OUTER SEPARATION.
5. CONSTRUCT PROPOSED NORTH PORTION OF MAINLANE ROADWAY SECTION FROM STA. 47+680 TO STA. 49+730, INCLUDING MAINLANE BRIDGES, AS SHOWN ON THE PLANS.
6. CONSTRUCT PROPOSED FM 1426 WESTBOUND ENTRANCE RAMP.
7. MAINTAIN EXISTING FM 1426 WESTBOUND ENTRANCE RAMP OPEN TO TRAFFIC AS SHOWN. CONSTRUCT THE MAXIMUM POSSIBLE OF THE PROPOSED "I" ROAD WESTBOUND EXIT RAMP.
8. CONSTRUCT THE CESAR CHAVEZ WESTBOUND ENTRANCE RAMP AND CONSTRUCT TWO LANES OF THE WESTBOUND FRONTAGE ROADS, AS SHOWN.
9. CONSTRUCT THE REMAINING TWO LANES OF THE EASTBOUND FRONTAGE ROADS AT THE CESAR CHAVEZ EASTBOUND EXIT RAMP AS SHOWN.

STEP 2

1. OPEN THE FM 1426 WESTBOUND ENTRANCE RAMP, AS SHOWN.
2. COMPLETE CONSTRUCTION OF STORM SEWER LINE 'D' ALONG THE NORTH SIDE OUTER SEPARATION.
3. CLOSE THE EXISTING FM 1426 WESTBOUND ENTRANCE RAMP, AND COMPLETE CONSTRUCTION OF THE PROPOSED "I" ROAD WESTBOUND EXIT RAMP, AS SHOWN.
4. CONSTRUCT THE CORRESPONDING ENTRANCE RAMP LEAVE-OUT SECTION OF THE MAINLANES.
5. OPEN THE CESAR CHAVEZ WESTBOUND ENTRANCE RAMP AND CONSTRUCT THE REMAINING LANES OF THE WESTBOUND FRONTAGE ROAD AT THE CESAR CHAVEZ ENTRANCE RAMP, AS SHOWN.

STEP 3

1. CONSTRUCT REMAINDER OF PROPOSED NORTH PORTION OF MAINLANE ROADWAY SECTION FROM STA 47+180 TO STA 47+620 AND FROM STA 47+980 TO STA 48+940.
2. CONSTRUCT TEMPORARY TRAFFIC SIGNALIZATION AT FM 1426 AND US 83 FRONTAGE ROAD INTERSECTIONS, PRIOR TO COMMENCING PHASE 5 CONSTRUCTION. THE EXISTING TRAFFIC SIGNAL SHALL REMAIN IN PLACE UNTIL TEMPORARY TRAFFIC SIGNALS ARE PLACED INTO SERVICE.

PHASE 5 CONSTRUCTION

STEP 1

1. SHIFT EASTBOUND AND WESTBOUND TRAFFIC ONTO THE NEWLY CONSTRUCTED EASTBOUND AND WESTBOUND MAINLANES, RESPECTIVELY. ALLOW SUFFICIENT AREA FOR PLACEMENT OF PERMANENT SINGLE-SLOPE CONC. BARRIER (SSCB) IN MAINLANE MEDIAN.
2. REMOVE TEMPORARY T503 BARRIERS, AND PROVIDE APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS, SIGNING, AND OTHER TRAFFIC CONTROL DEVICES.
3. CONSTRUCT FINAL (TYPE "D") ACP SURFACING AND PERMANENT PAVEMENT MARKINGS ON MAINLANES PRIOR TO OPENING ALL LANES TO TRAFFIC. UTILIZE TxDOT STD MOVING OPERATION TCP DURING CONSTRUCTION.
4. STORM SEWER CONSTRUCTION AS FOLLOWS:
COMPLETE CONSTRUCTION OF LINES 'E', 'F', AND 'J' WITH LATERAL 'J2'. ALSO CONSTRUCT LATERALS 'D3', 'D4', 'G1' THROUGH 'G6', 'H1', 'H2', AND 'K1' ALONG FRONTAGE ROADS.
5. CONSTRUCT THE TEMPORARY DETOUR ON "I" ROAD NORTH OF WESTBOUND FRONTAGE ROAD, AS SHOWN.
6. SHIFT TRAFFIC TO WEST HALF OF "I" ROAD NORTH AND SOUTH OF US 83, AND PROVIDE APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS, SIGNING AND OTHER TRAFFIC DEVICES, AS SHOWN.
7. CONSTRUCT THE EAST PORTION OF THE "I" ROAD APPROACHES.
8. SHIFT TRAFFIC TO THE WEST HALF OF FM 1426, PROVIDE APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS, SIGNING AND OTHER TRAFFIC DEVICES, AS SHOWN.
9. CONSTRUCT THE EAST AND WEST PORTIONS OF FM 1426 AND ASSOCIATED FRONTAGE ROADS AND TURNAROUNDS, AS SHOWN.

STEP 2

1. CONSTRUCT EAST PORTION OF "I" ROAD AND ASSOCIATED FRONTAGE ROAD AND TURN-AROUND AS SHOWN, AND PROVIDE PAVEMENT MARKING, SIGNING AND OTHER TRAFFIC CONTROL DEVICES.
2. SHIFT TRAFFIC ONTO THE NEWLY CONSTRUCTED EAST PORTION OF FM 1426 AND CONSTRUCT THE WEST HALF OF FM 1426, AS SHOWN.
3. CONSTRUCT TEMPORARY DETOUR FOR WESTBOUND FRONTAGE ROAD WEST OF FM 1426.

PHASE 6 CONSTRUCTION

STEP 1

1. SHIFT TRAFFIC ONTO THE NEWLY CONSTRUCTED EAST PORTION OF "I" ROAD AND CONSTRUCT THE WEST HALF OF "I" ROAD, AND PROVIDE PAVEMENT MARKINGS, SIGNING AND OTHER TRAFFIC CONTROL DEVICES, AS SHOWN.
2. CONSTRUCT WEST PORTION OF "I" ROAD AND ASSOCIATED FRONTAGE ROAD AND TURNAROUNDS, AS SHOWN.
3. CONSTRUCT WEST PORTION OF NEW FM 1426 APPROACHES AND ASSOCIATED FRONTAGE ROAD, AS SHOWN.


STEP 2

1. CONSTRUCT EAST PORTION OF NEW FM 1426 APPROACHES AND ASSOCIATED FRONTAGE ROAD, AS SHOWN.
2. COMPLETE PERMANENT PAVEMENT MARKINGS FOR THE "I" ROAD AND FM 1426 INTERSECTIONS AND PLACE PERMANENT TRAFFIC SIGNALS INTO PROPER OPERATION, PRIOR TO REMOVING TEMPORARY SIGNALIZATION AND OPENING ALL TRAVEL LANES TO TRAFFIC.


NOTES:

1. DURING BRIDGE DEMOLITION, ERECTING BEAMS AND BRIDGE DECK PLACEMENT, THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION TO TRAFFIC. THE CONTRACTOR SHALL CLOSE THE ROAD AND DETOUR TRAFFIC DURING THIS CONSTRUCTION, AS SHOWN ON PLANS. THIS WORK SHALL BE PERFORMED DURING OFF-PEAK HOURS AND NIGHTTIME IN SUCH A MANNER AS TO MINIMIZE DELAY AND PROVIDE SAFETY TO THE TRAVELING PUBLIC. THIS WORK WILL BE DONE WITHIN THE APPROPRIATE PHASES OF CONSTRUCTION AS SHOWN ON THE PLANS.
2. TEMPORARY EXTENSIONS OF EXISTING ENTRANCE AND EXIT RAMP TO NEWLY CONSTRUCTED MAINLANES SHALL BE TRANSITIONED AT ONE-PERCENT GRADE FROM MAINLANES TO EXISTING RAMP ROADWAY. TYPE "B" ACP SHALL BE USED FOR LEVEL-UP AND ROADWAY TRANSITION.






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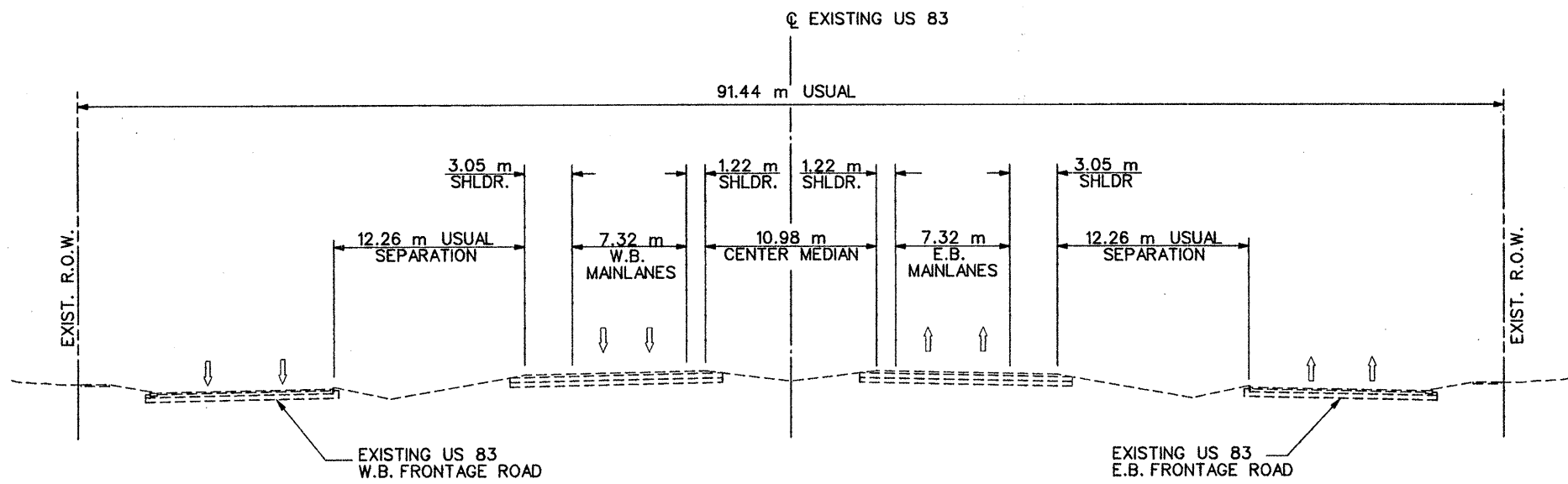


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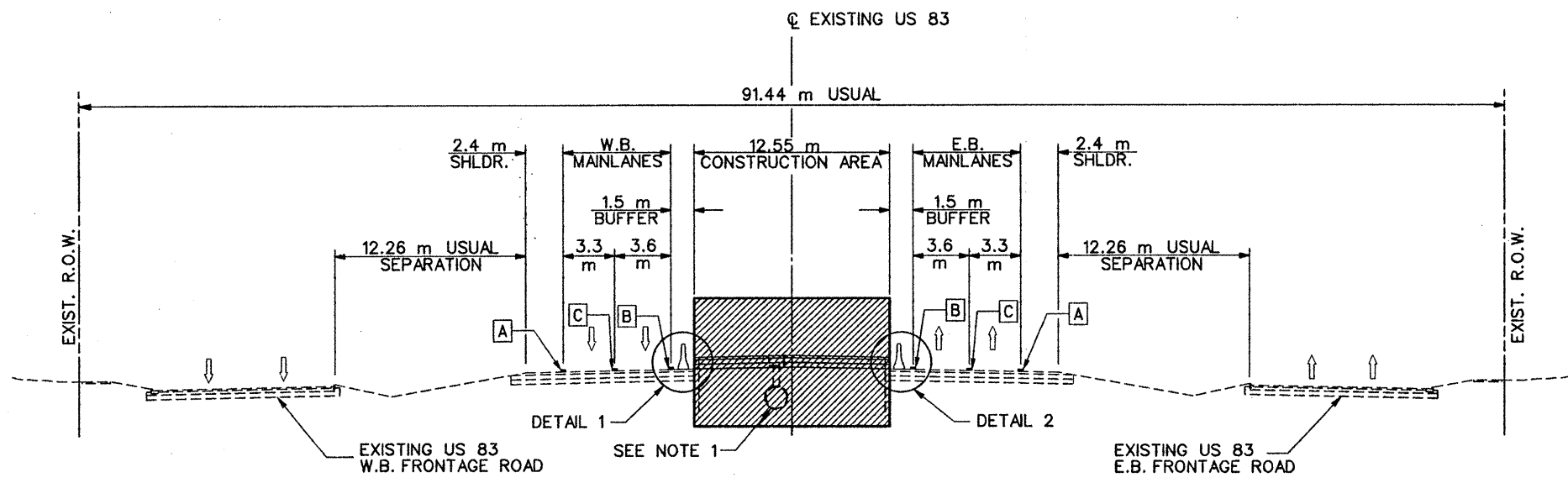
SEQUENCE FOR TRAFFIC CONTROL DURING CONSTRUCTION

SHEET 2 OF 2

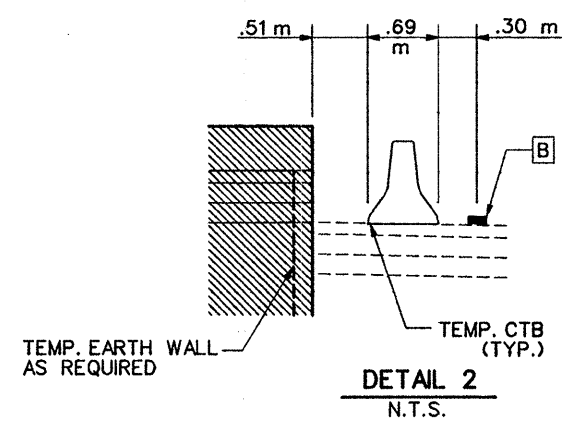
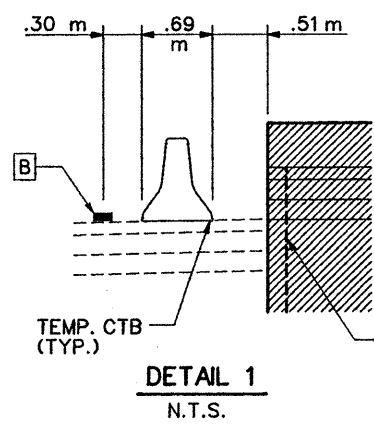
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CK DN: JLS	6	TEXAS	NH 96(179) M)	US 83
DN: JCP				
CK DN:	STATE DIST. NO.	COUNTY	CENTRAL SECTION NO.	JOB NO.
TR:	21	HIDALGO	0039	17 118
CK TR:				60



EXISTING TYPICAL US 83



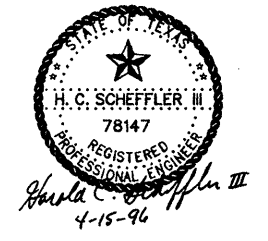
TYPICAL SECTION - PHASE 2 CONSTRUCTION US 83



- LEGEND**
- CONSTRUCTION AREA
 - DIRECTION OF TRAFFIC FLOW
 - A** WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B** WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C** WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D** WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E** WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F** WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN

NOTES:

1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

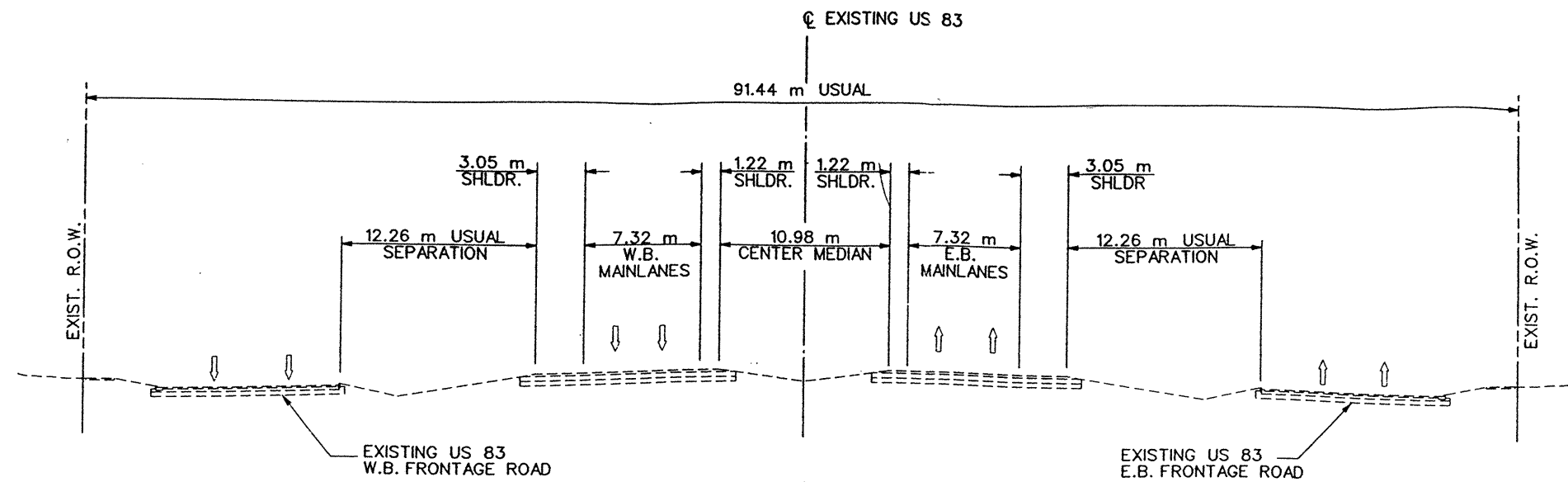


PROPOSED TRAFFIC CONTROL DURING CONSTRUCTION TYPICAL ROADWAY SECTIONS US 83

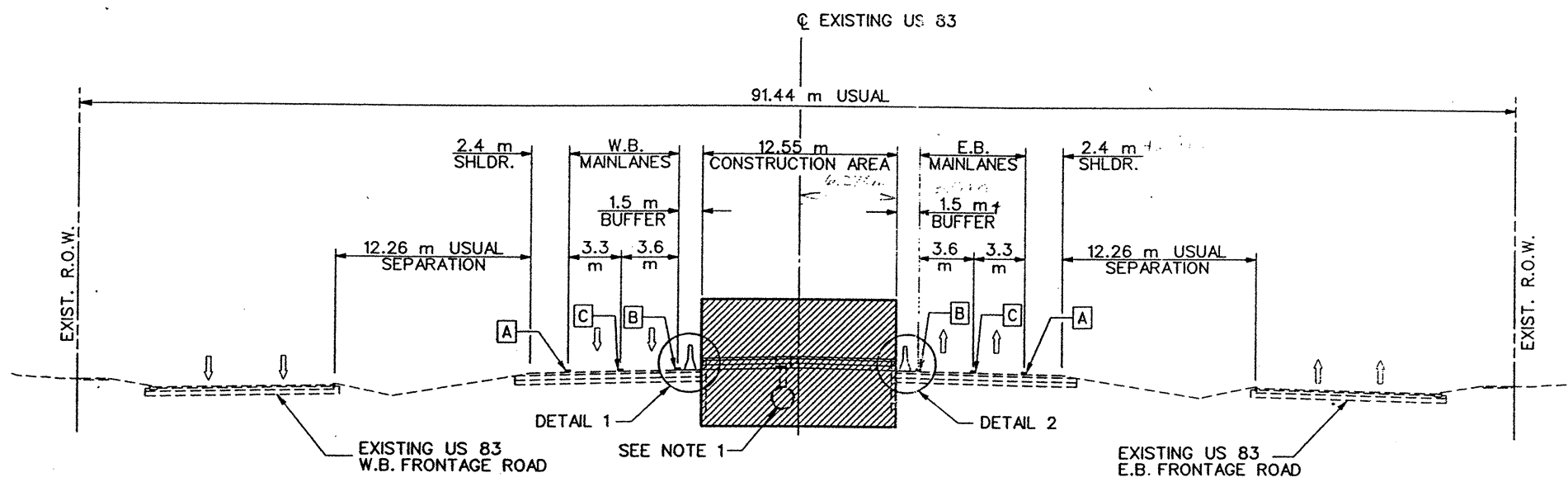
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DESIGNED BY: BS	CHECKED BY: JLS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 961 (94) MD)	ROUTE NO.: US 83
DRAWN BY: JCP	CHECKED BY: JCP	DIST. NO.: 21	COUNTY: HIDALGO	CENTRAL SECTION NO.: 0039
DATE: TR	DATE: TR			JOB NO.: 17
				SHEET NO.: 118
				TOTAL SHEETS: 61

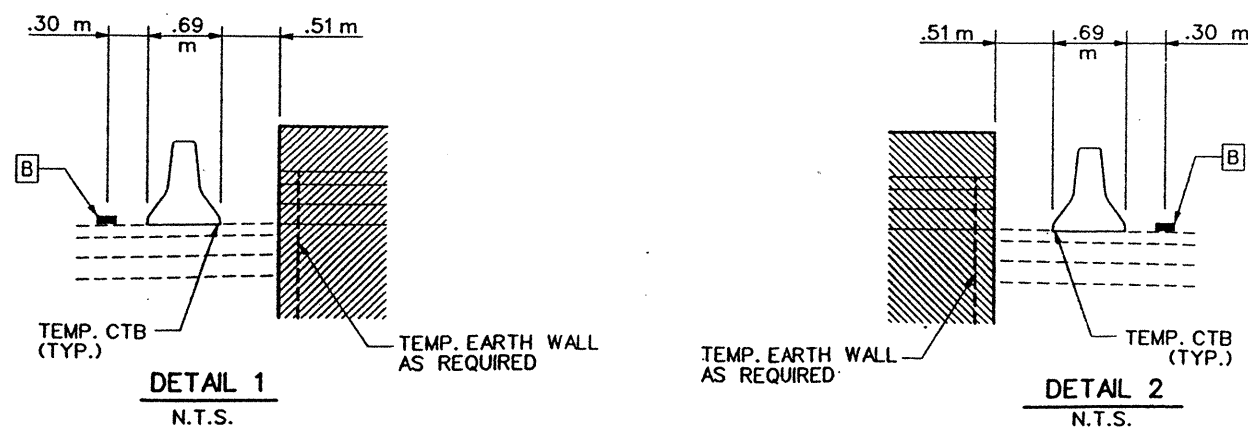
FILED IN: 10/24/96
 FILED IN: 10/24/96
 FILED IN: 10/24/96



EXISTING TYPICAL US 83



TYPICAL SECTION - PHASE 2 CONSTRUCTION US 83



- LEGEND**
- CONSTRUCTION AREA
 - DIRECTION OF TRAFFIC FLOW
 - A** WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B** WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C** WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D** WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E** WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F** WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN

NOTES:

1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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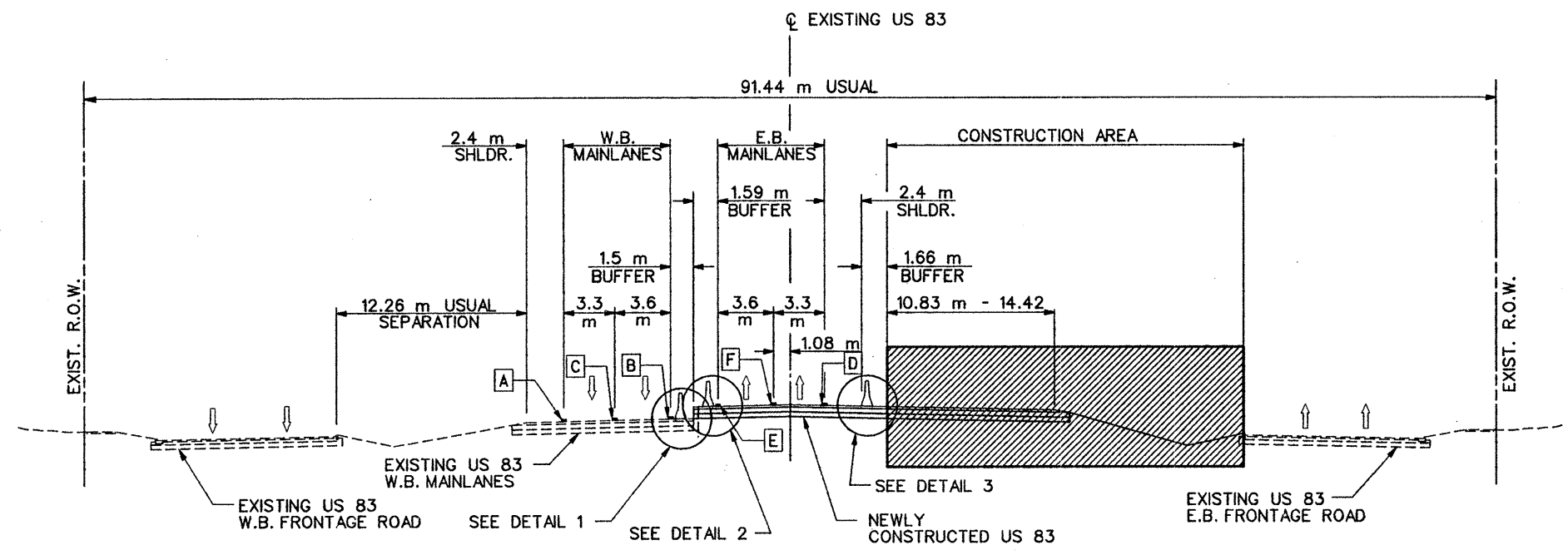
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PROPOSED
TRAFFIC CONTROL DURING CONSTRUCTION
TYPICAL ROADWAY SECTIONS
US 83

SCALE: 1:200

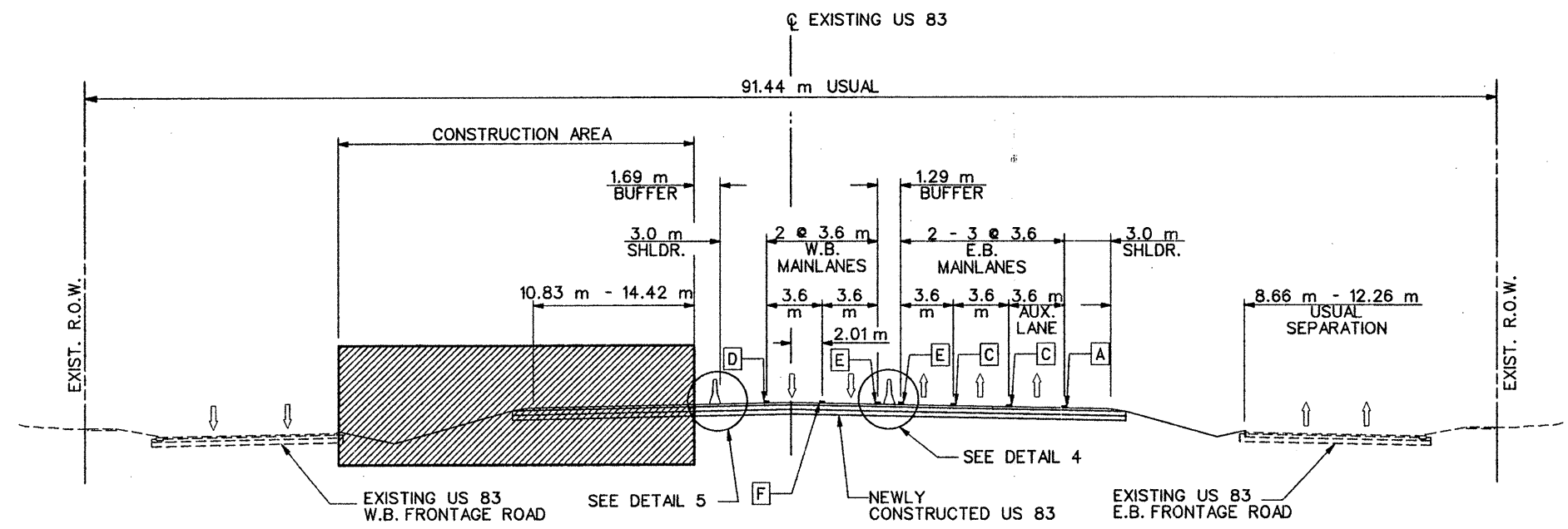
SHEET 1 OF 4

DR: BS	PUB. NO.	STATE	FEDERAL AID PROJECT NO.	ROUTE NO.
CK DR: JLS	6	TEXAS	NH ((M))	US 83
DR: JCP	STATE	COUNTY	CONTRACT NO.	SECTION NO.
CK DR:	21	HIDALGO	0039	17 118
TR:				61 A
CK TR:				

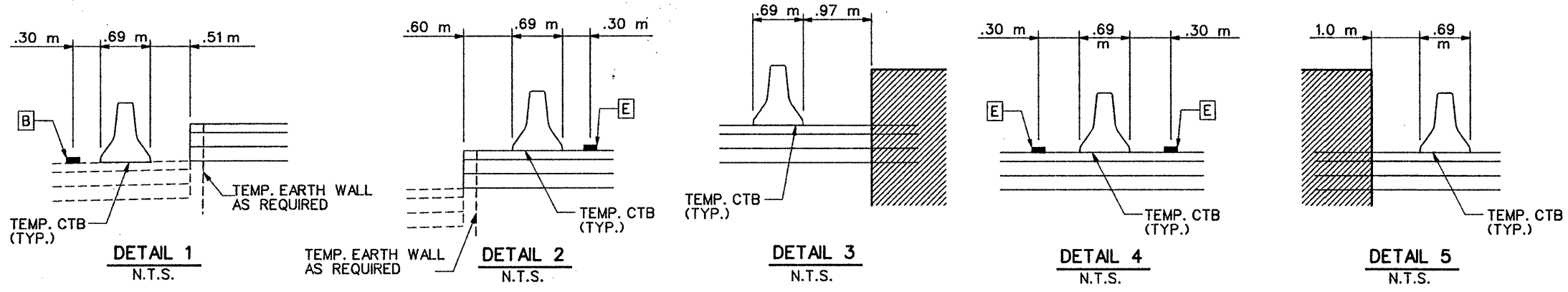
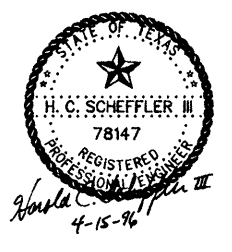


TYPICAL SECTION - PHASE 3 CONSTRUCTION
US 83

- LEGEND**
- CONSTRUCTION AREA
 - DIRECTION OF TRAFFIC FLOW
 - A** WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE SOLID
 - B** WORK ZONE PVMT MARK (NON-REM)
100 mm YELLOW SOLID
 - C** WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE BROKEN
 - D** WORK ZONE PVMT MARK (REM)
100 mm WHITE SOLID
 - E** WORK ZONE PVMT MARK (REM)
100 mm YELLOW SOLID
 - F** WORK ZONE PVMT MARK (REM)
100 mm WHITE BROKEN



TYPICAL SECTION - PHASE 4 CONSTRUCTION
US 83



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
**PROPOSED
TRAFFIC CONTROL DURING CONSTRUCTION
TYPICAL ROADWAY SECTIONS
US 83**

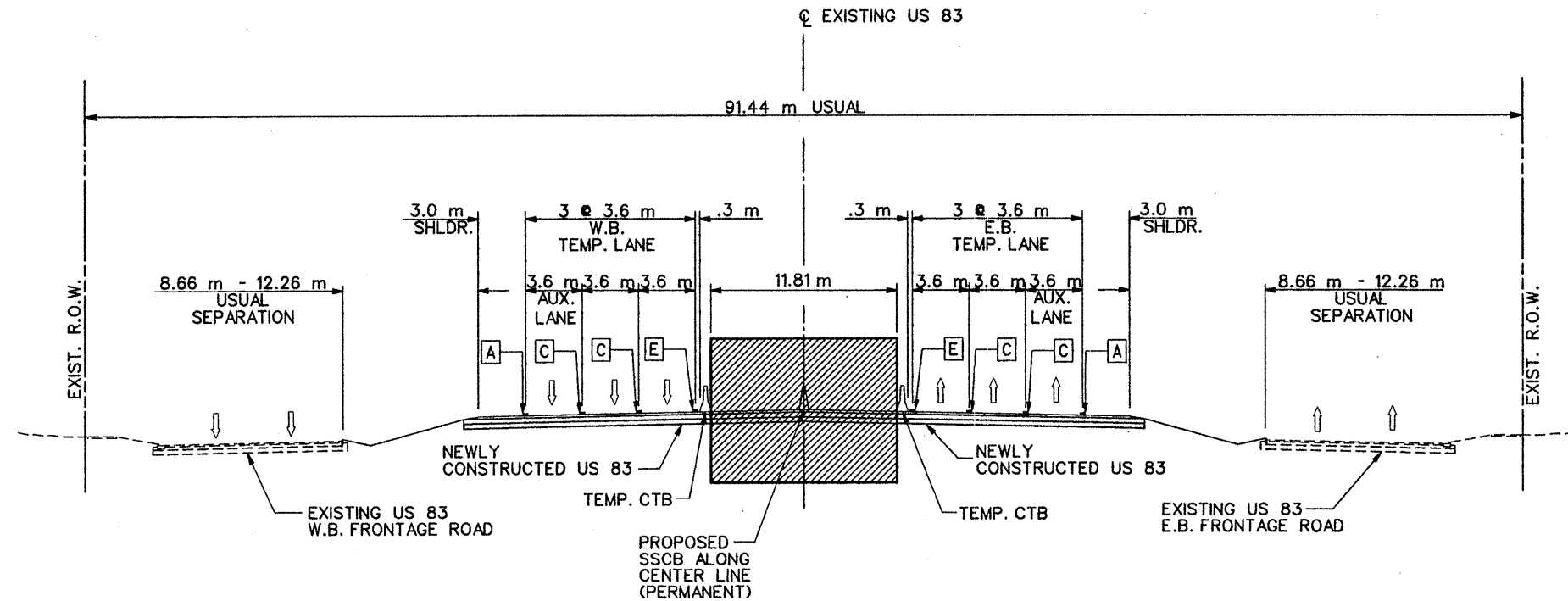
SCALE: 1:200 SHEET 2 OF 4

DESIGNER: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96(799) M)	ROUTE: US 83
CHECKED BY: JLS	COUNTY: HIDALGO	CONTRACT NO.: 0039	SHEET NO.: 62
DRAWN BY: JCP	DIST. NO.: 21	SECTION NO.: 17	
DATE: 4/15/96			

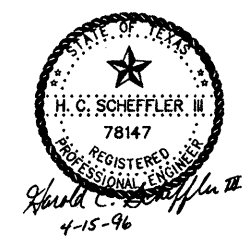
TEXAS DEPARTMENT OF TRANSPORTATION
 FILED: 4/15/96


LEGEND

-  CONSTRUCTION AREA
-  DIRECTION OF TRAFFIC FLOW
- A** WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE SOLID
- B** WORK ZONE PVMT MARK (NON-REM)
100 mm YELLOW SOLID
- C** WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE BROKEN
- D** WORK ZONE PVMT MARK (REM)
100 mm WHITE SOLID
- E** WORK ZONE PVMT MARK (REM)
100 mm YELLOW SOLID
- F** WORK ZONE PVMT MARK (REM)
100 mm WHITE BROKEN




**TYPICAL SECTION - PHASE 5 CONSTRUCTION
US 83**






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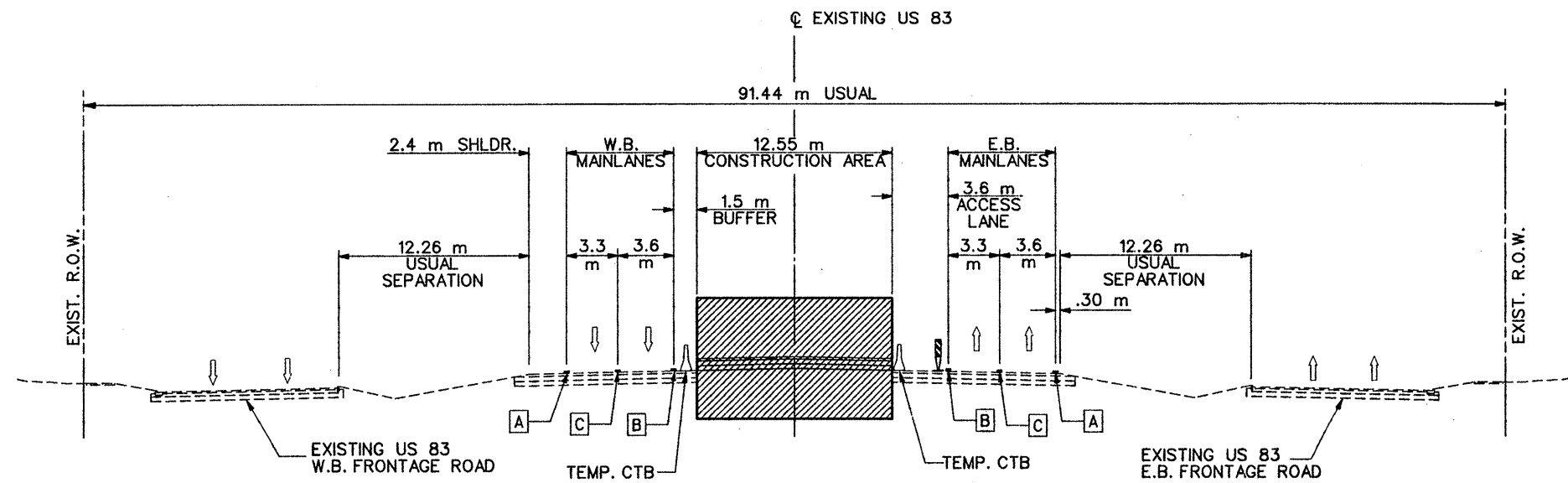
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**PROPOSED
TRAFFIC CONTROL DURING CONSTRUCTION
TYPICAL ROADWAY SECTIONS
US 83**

SCALE: 1:200 SHEET 3 OF 4

DN: BS	FED. AID PROJECT NO.	STATE	FEDERAL AID PROJECT NO.	BIGHTM
CK: DM: JLS	6	TEXAS	NH 96(79) (M)	US 83
DR: JCP	STATE DIST. NO.	COUNTY	CORNER SECTION JOB SHEET	
TR:	21	HIDALGO	0039 17 118 63	

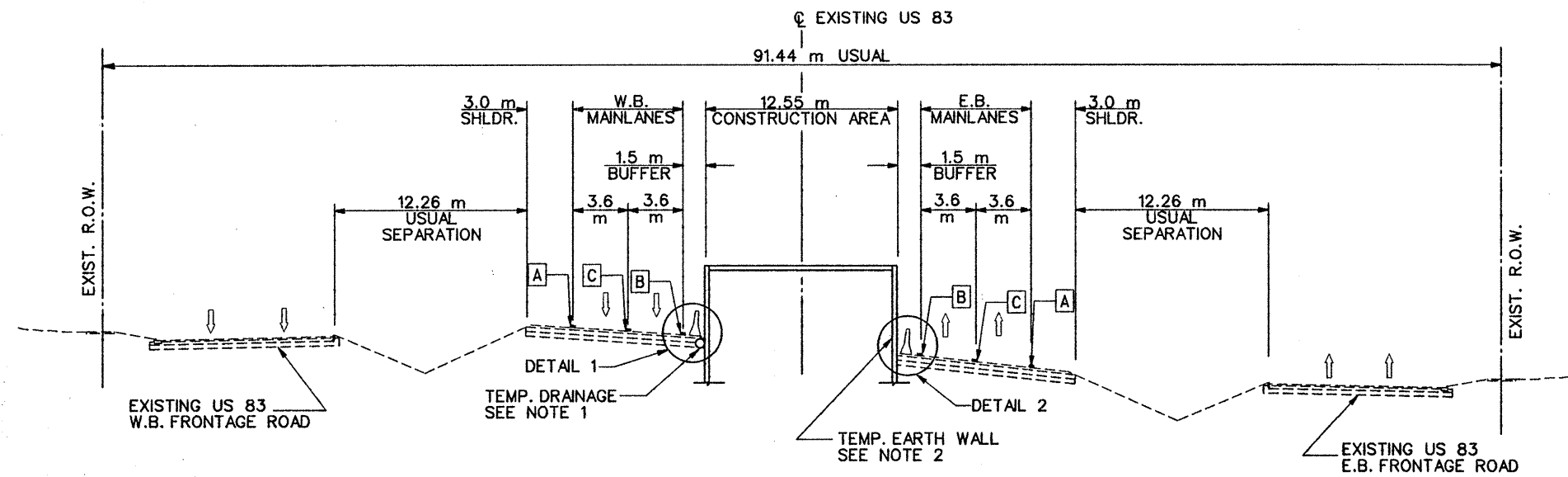
PROJECT NO. 9604-002
 PLAN NUMBER 118



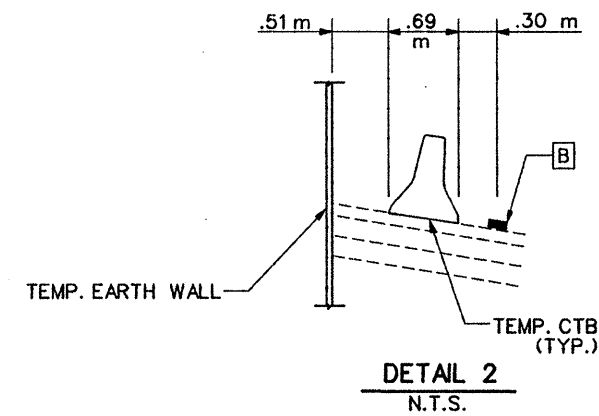
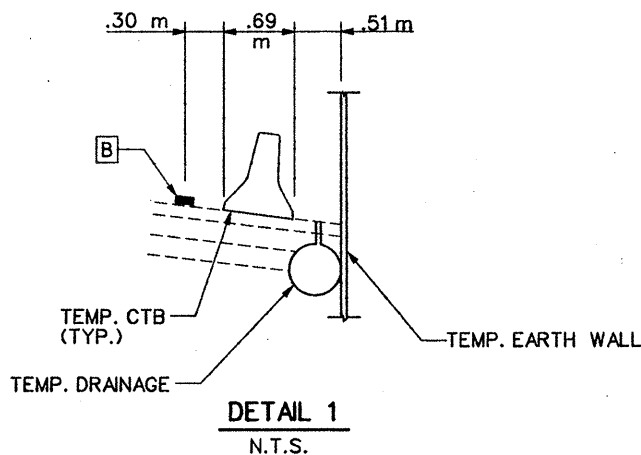
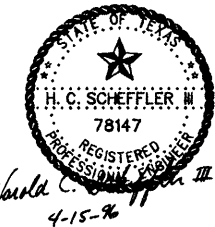
TYPICAL SECTION - PHASE 2
US 83 - EASTBOUND CONSTRUCTION ACCESS LANE
FROM STATION 48+150 TO STATION 48+650

- LEGEND**
- CONSTRUCTION AREA
 - DIRECTION OF TRAFFIC FLOW
 - A** WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE SOLID
 - B** WORK ZONE PVMT MARK (NON-REM)
100 mm YELLOW SOLID
 - C** WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE BROKEN
 - D** WORK ZONE PVMT MARK (REM)
100 mm WHITE SOLID
 - E** WORK ZONE PVMT MARK (REM)
100 mm YELLOW SOLID
 - F** WORK ZONE PVMT MARK (REM)
100 mm WHITE BROKEN

- NOTES:**
- SEE "TEMPORARY DRAINAGE" SHEETS FOR LOCATIONS.
 - SEE "TEMPORARY EARTH WALL" SHEETS FOR LOCATIONS.



TYPICAL SUPERELEVATED SECTION - PHASE 2 CONSTRUCTION
US 83

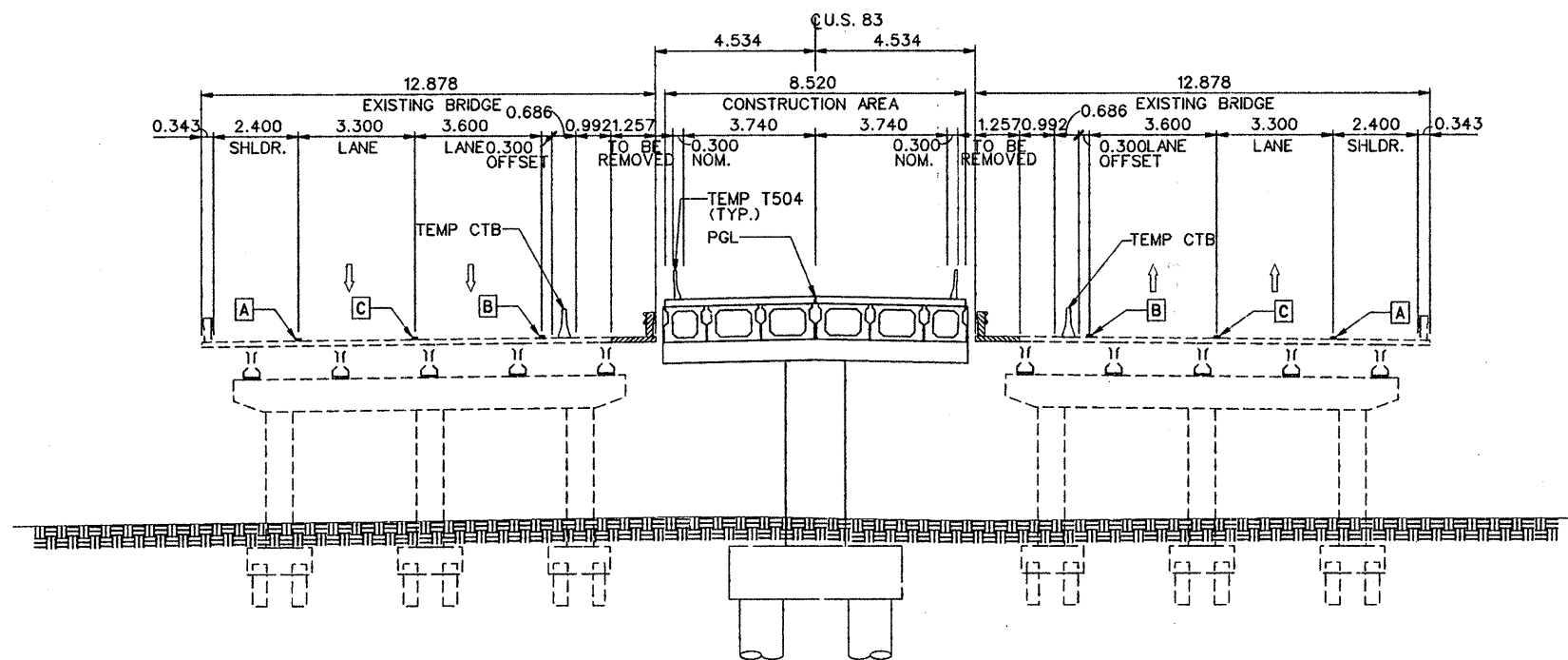


PROPOSED
TRAFFIC CONTROL DURING CONSTRUCTION
TYPICAL ROADWAY SECTIONS
US 83

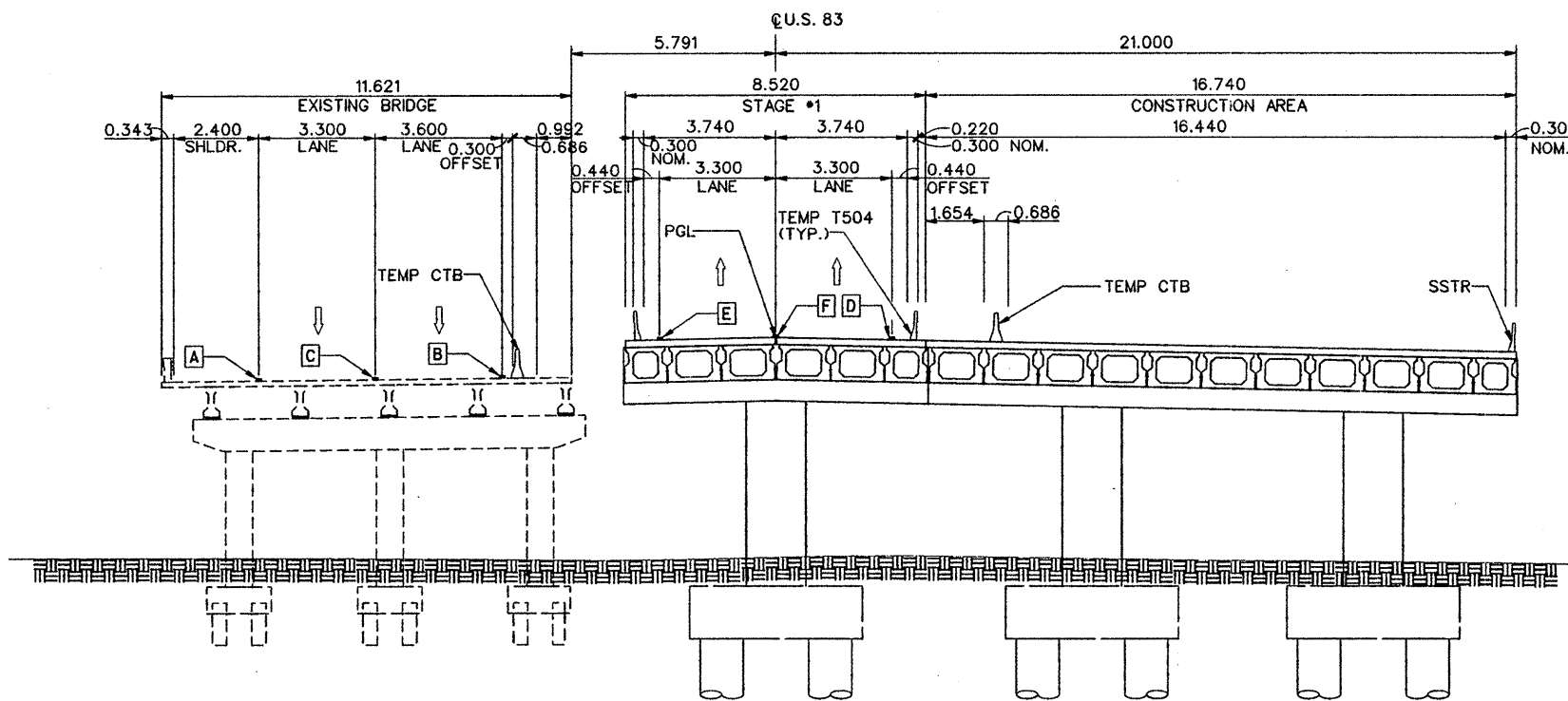
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SHEET 4 OF 4

DESIGNER	STATE	FEDERAL AID PROJECT NO.	ROUTE
CK: DNH, JLS	6 TEXAS	NH 96(71)(M)	US 83
DESIGNED BY	STATE	COUNTY	SECTION NO.
CK: DNH	21	HIDALGO	0039 17 118
DATE			SHEET NO.
CK: TR			64



TYPICAL SECTION - PHASE 2 CONSTRUCTION
"I" ROAD OVERPASS



TYPICAL SECTION - PHASE 3 CONSTRUCTION
"I" ROAD OVERPASS

LEGEND

- ➔ DIRECTION OF TRAFFIC FLOW
- A WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM)
100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM)
10 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM)
100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM)
100 mm WHITE BROKEN

NOTES:

1. REFER TO "BRIDGE TYPICAL SECTION" SHEETS FOR PHASING AND DIMENSIONS.
2. ALL DIMENSIONS SHOWN IN METERS UNLESS OTHERWISE NOTED.

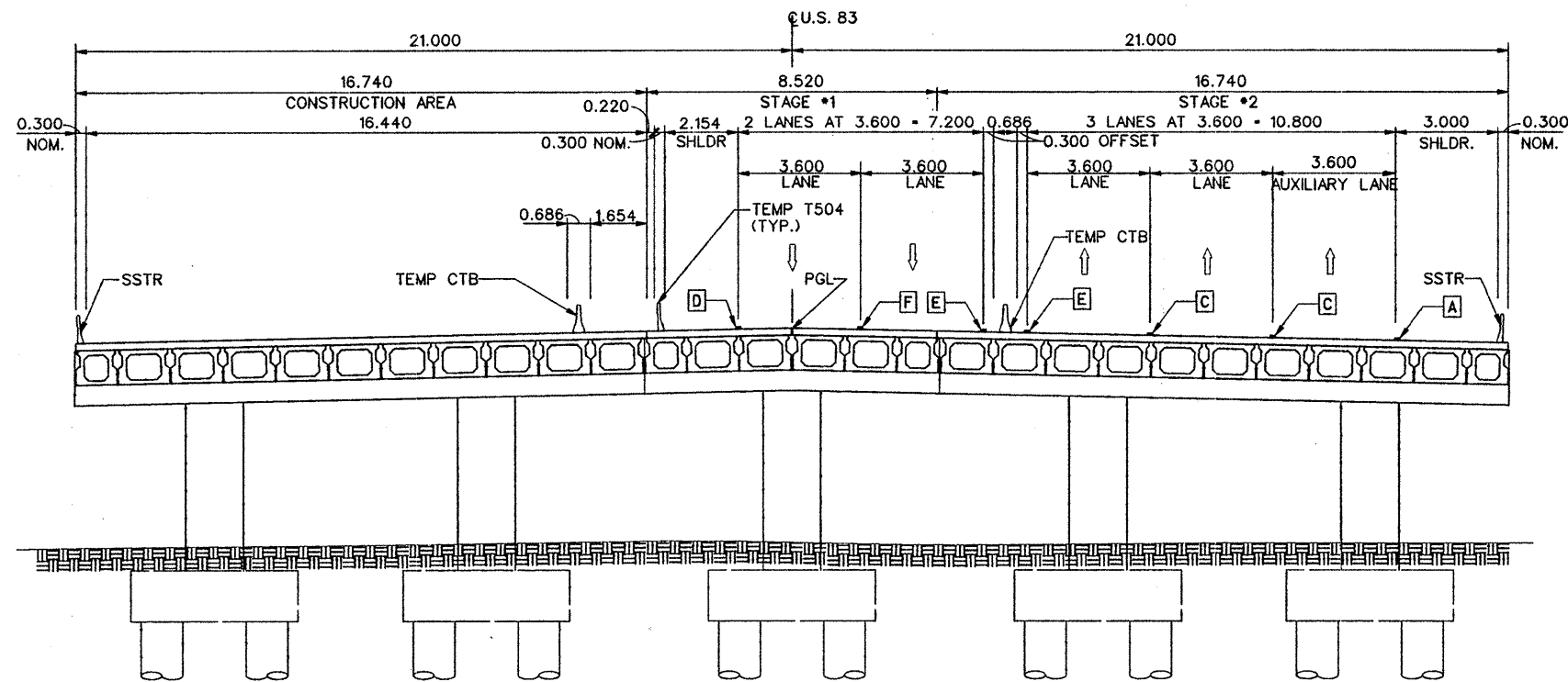


PROPOSED
TRAFFIC CONTROL DURING CONSTRUCTION
"I" ROAD OVERPASS SECTIONS

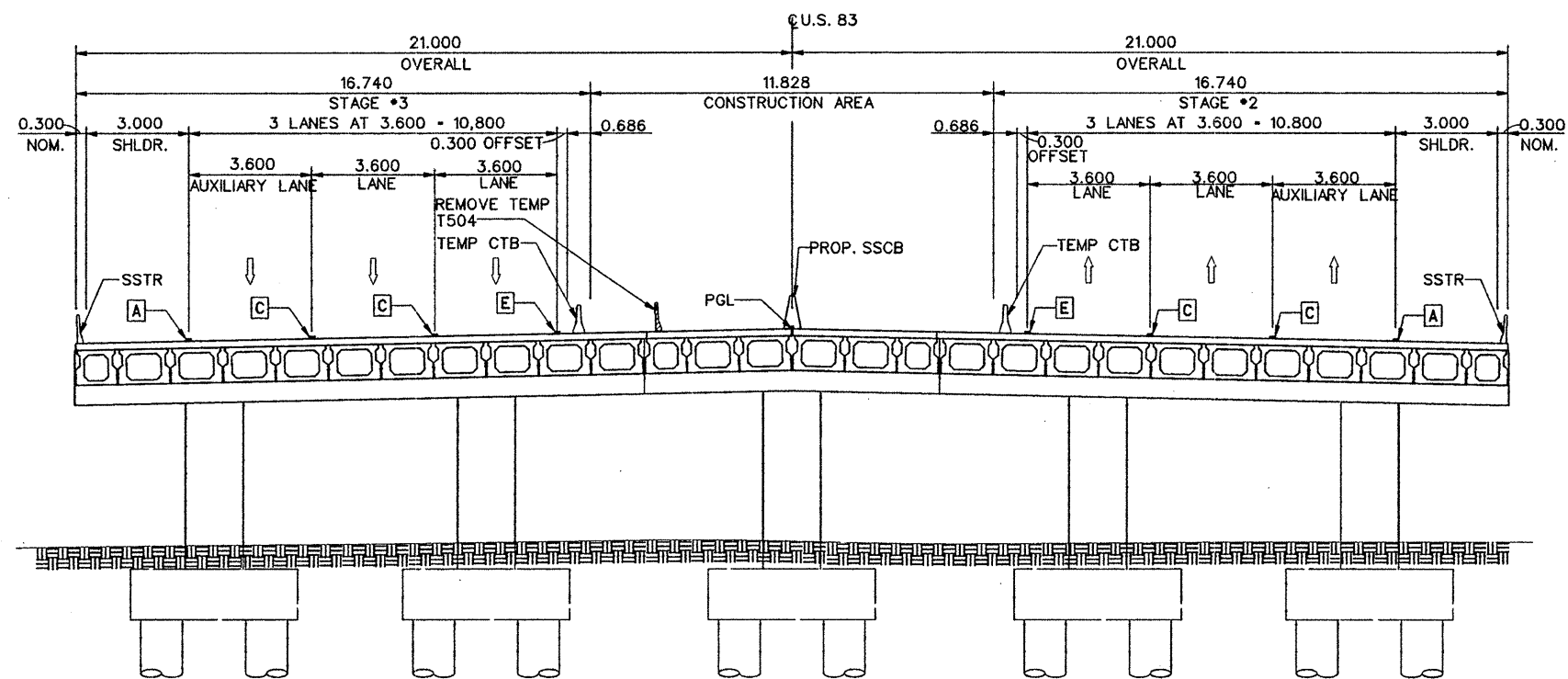
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SHEET 1 OF 2

DESIGNED BY: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.:	MSHP NO.:
CHECKED BY: JLS	6	TEXAS NH 9(291) M)	US 83
DRAWN BY: JCP	STATE DIST. NO.:	COUNTY:	CONTROL SECTION JOB SHEET NO.:
DATE: TR:	21	HIDALGO	0039 17 118 65



TYPICAL SECTION - PHASE 4 CONSTRUCTION
"I" ROAD OVERPASS



TYPICAL SECTION - PHASE 5 CONSTRUCTION
"I" ROAD OVERPASS

LEGEND

- DIRECTION OF TRAFFIC FLOW
- [A] WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE SOLID
- [B] WORK ZONE PVMT MARK (NON-REM)
100 mm YELLOW SOLID
- [C] WORK ZONE PVMT MARK (NON-REM)
100 mm WHITE BROKEN
- [D] WORK ZONE PVMT MARK (REM)
10 mm WHITE SOLID
- [E] WORK ZONE PVMT MARK (REM)
100 mm YELLOW SOLID
- [F] WORK ZONE PVMT MARK (REM)
100 mm WHITE BROKEN

NOTES:

1. REFER TO "BRIDGE TYPICAL SECTION" SHEETS FOR PHASING AND DIMENSIONS.
2. ALL DIMENSIONS SHOWN IN METERS UNLESS OTHERWISE NOTED.



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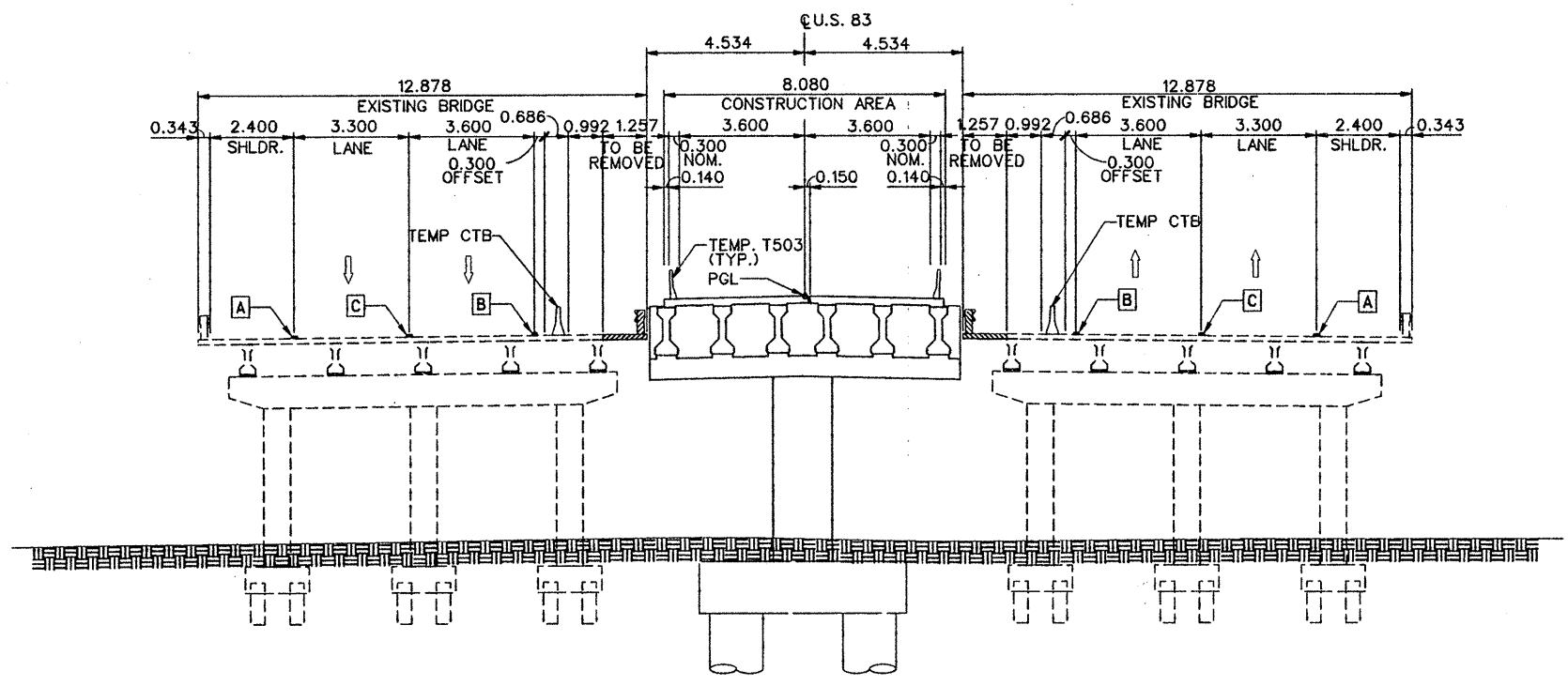
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PROPOSED TRAFFIC CONTROL DURING CONSTRUCTION "I" ROAD OVERPASS SECTIONS

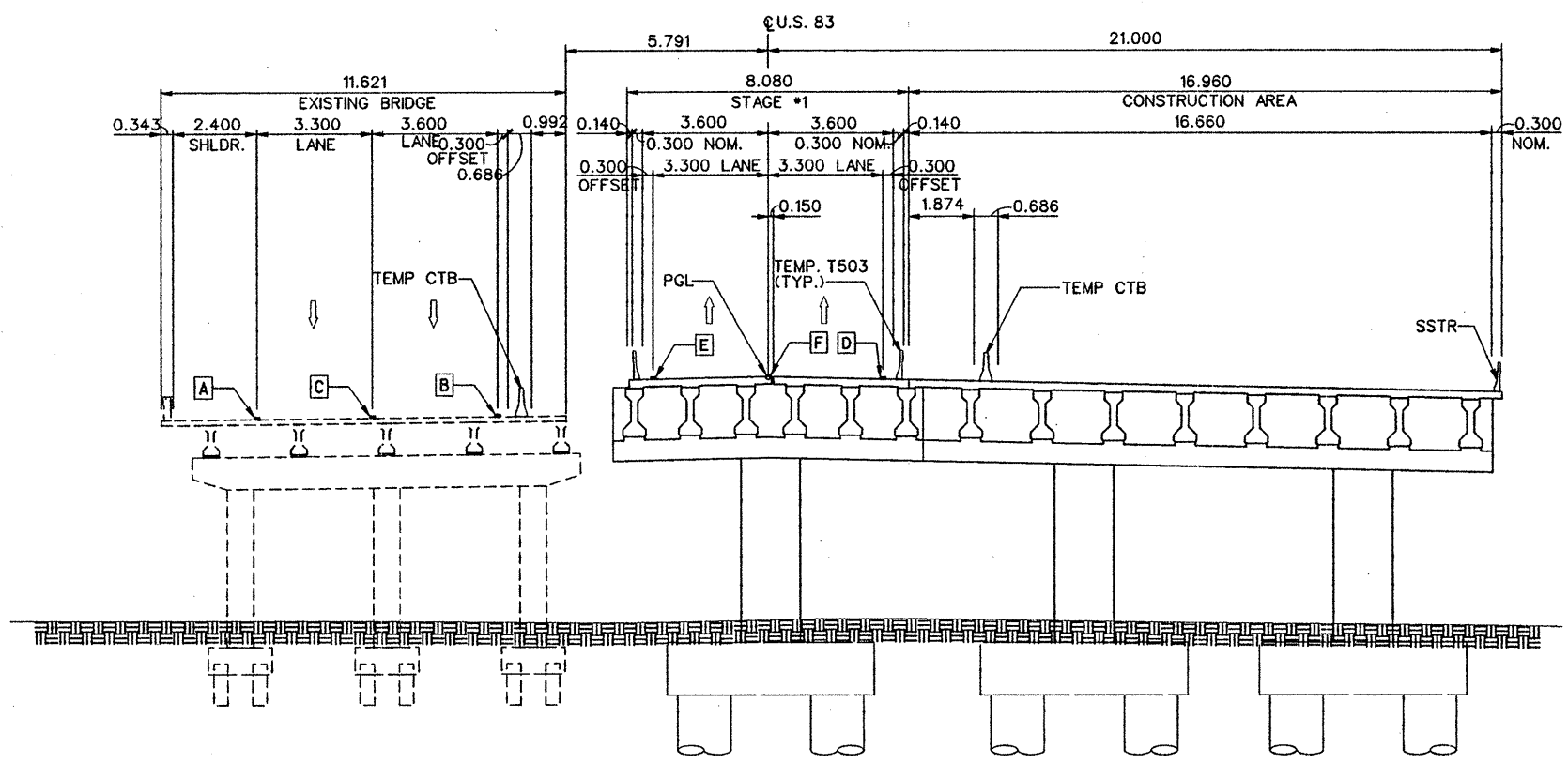
SCALE: 1:100 SHEET 2 OF 2

DN: BS	STATE	FEDERAL AID PROJECT NO.	BRIDGE NO.
CK DN: JLS	6 TEXAS	NH 96(71)	US 83
DIR: JCP	STATE DIST. NO.	COUNTY	CENTRAL SECTION NO.
CK DN:	21 HIDALGO	0039	17 118 66
TR:			
CK TR:			

TEXAS DEPARTMENT OF TRANSPORTATION
 FILE NUMBER: 96-0626



TYPICAL SECTION - PHASE 2 CONSTRUCTION
FM 1426 OVERPASS



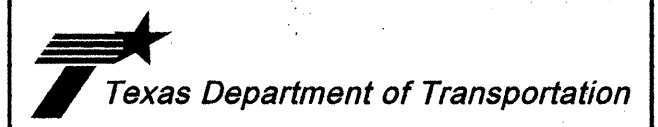
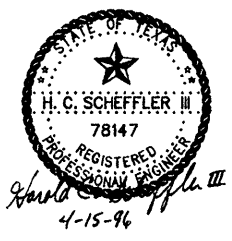
TYPICAL SECTION - PHASE 3 CONSTRUCTION
FM 1426 OVERPASS

LEGEND

- ➔ DIRECTION OF TRAFFIC FLOW
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 10 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN

NOTES:

1. REFER TO "BRIDGE TYPICAL SECTION" SHEETS FOR PHASING AND DIMENSIONS.
2. ALL DIMENSIONS SHOWN IN METERS UNLESS OTHERWISE NOTED.

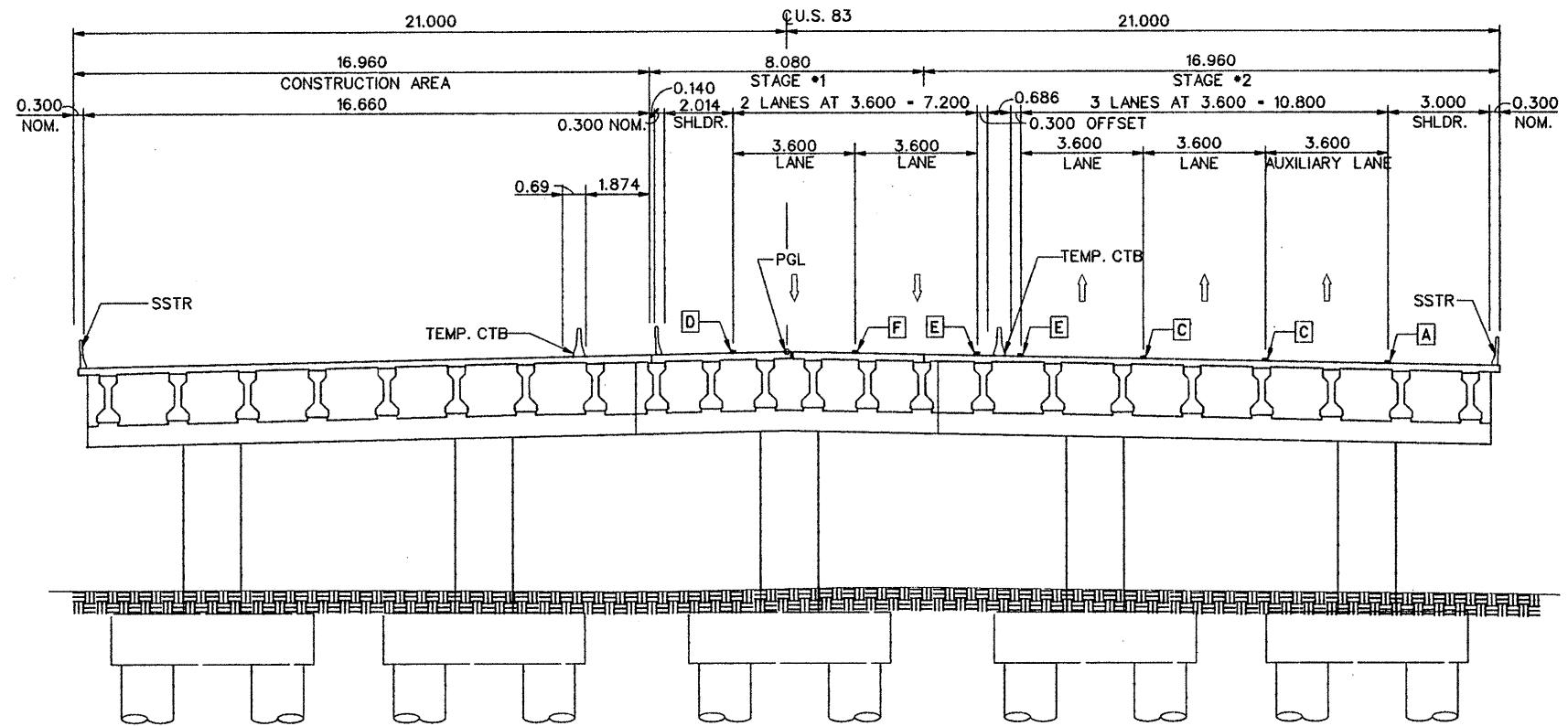


PROPOSED TRAFFIC CONTROL DURING CONSTRUCTION FM 1426 OVERPASS SECTIONS

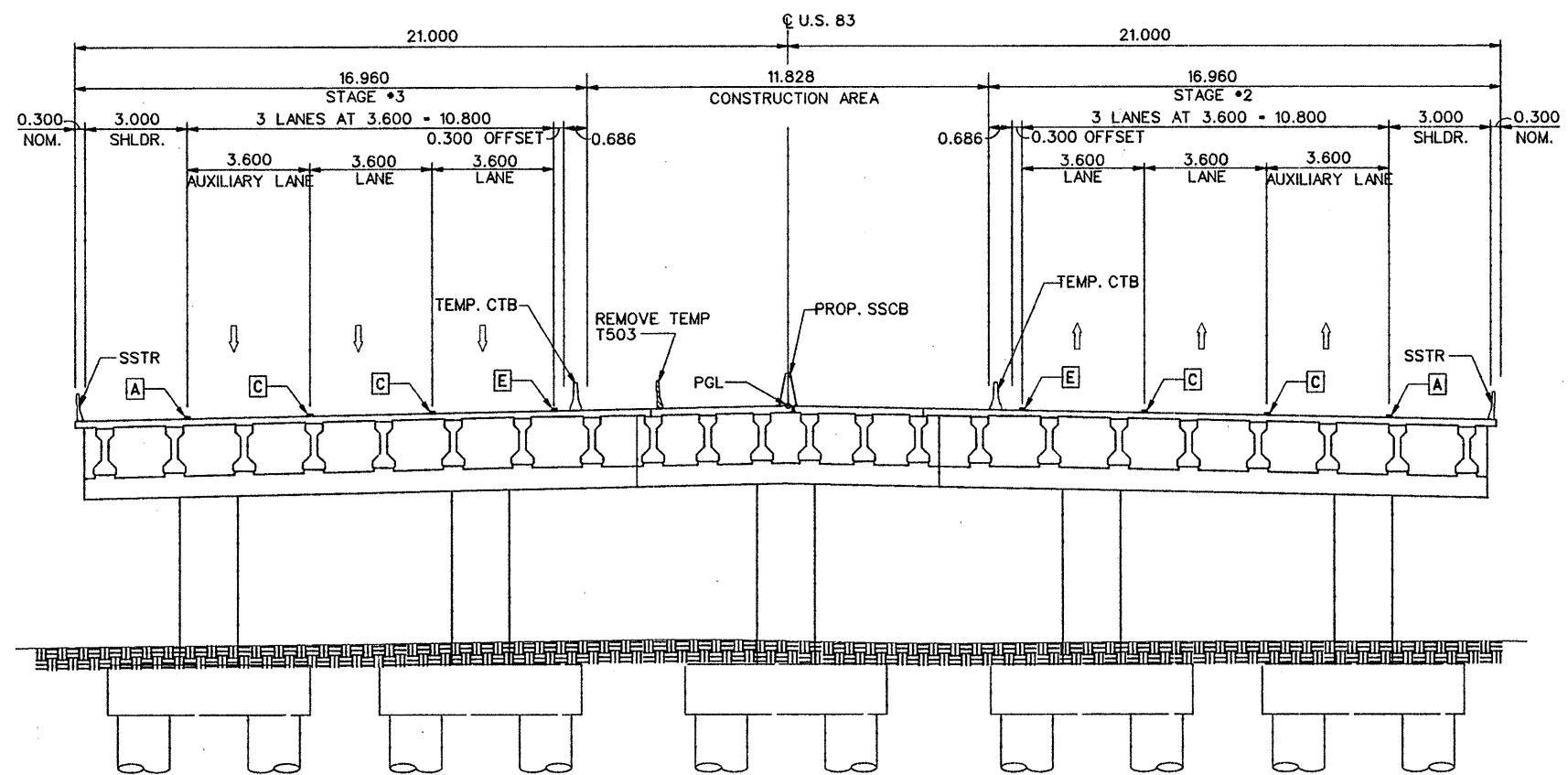
SCALE= 1:100 SHEET 1 OF 2

DN: BS	STATE	FEDERAL AID PROJECT NO.	ROUTE
CK DN: JLS	6 TEXAS	NH-96(74) M)	US 83
DN: JCP	STATE DIST. NO.	COUNTY	CONTROL SECTION JOB SHEET
CK DN:	21	HIDALGO	0039 17 118 67
TR:			
CK TR:			

TEXAS REGISTERED PROFESSIONAL ENGINEER
 LICENSE NO. 78147
 H. C. SCHEFFLER III



TYPICAL SECTION - PHASE 4 CONSTRUCTION
FM 1426 OVERPASS



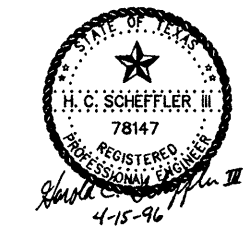
TYPICAL SECTION - PHASE 5 CONSTRUCTION
FM 1426 OVERPASS

LEGEND

- DIRECTION OF TRAFFIC FLOW
- [A] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- [B] WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- [C] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- [D] WORK ZONE PVMT MARK (REM) 10 mm WHITE SOLID
- [E] WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- [F] WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN

NOTES:

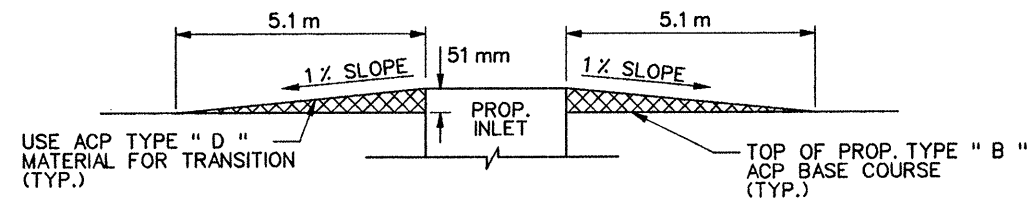
1. REFER TO "BRIDGE TYPICAL SECTION" SHEETS FOR PHASING AND DIMENSIONS.
2. ALL DIMENSIONS SHOWN IN METERS UNLESS OTHERWISE NOTED.



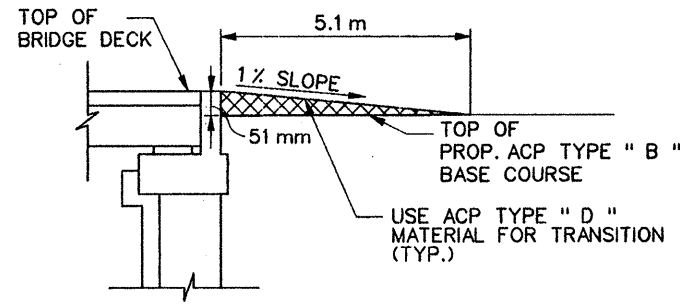
**PROPOSED
TRAFFIC CONTROL DURING CONSTRUCTION
FM 1426 OVERPASS SECTIONS**

SCALE: 1:100		SHEET 2 OF 2			
DESIGNER: DNB/BS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 961700	HIGHWAY NO.: US 83		
CHECKED: JLS	COUNTY: HIDALGO	CONTRACT NO.: 0039	SECTION NO.: 17	JOB NO.: 118	SHEET NO.: 68
APPROVED: JCP	DIST. NO.: 21				

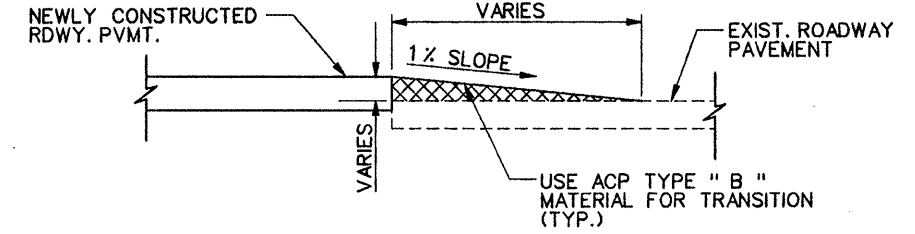
ES&S INC. 96284-1002
 LE 5/20/96



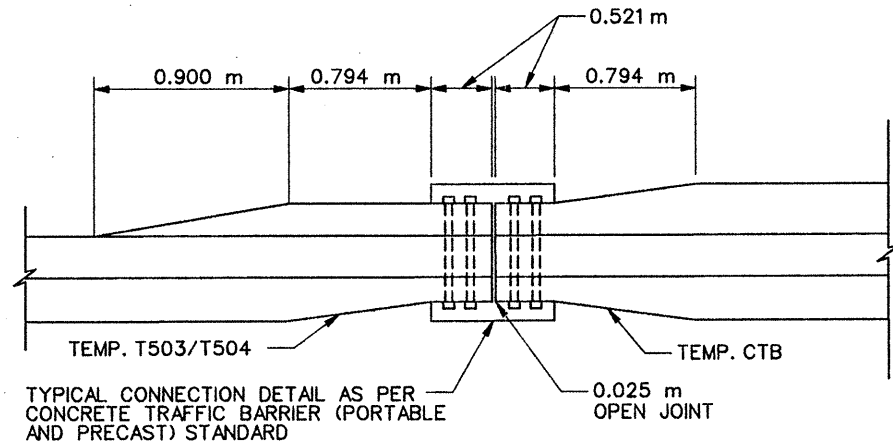
ROADWAY TRANSITION DETAIL
INLET TO ACP BASE COURSE (TYP.)
(NOT TO SCALE)



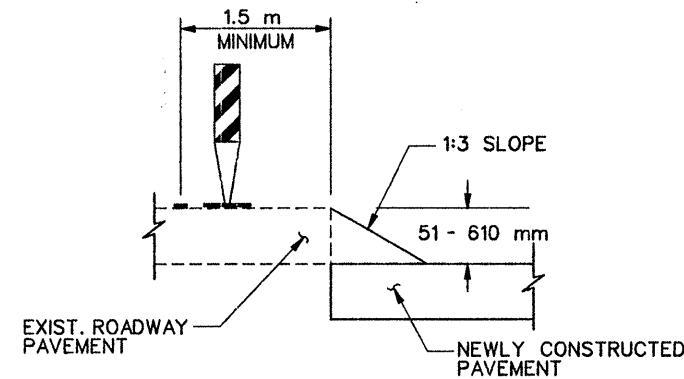
ROADWAY TRANSITION DETAIL
BRIDGE DECK TO ACP BASE (TYP.)
(NOT TO SCALE)



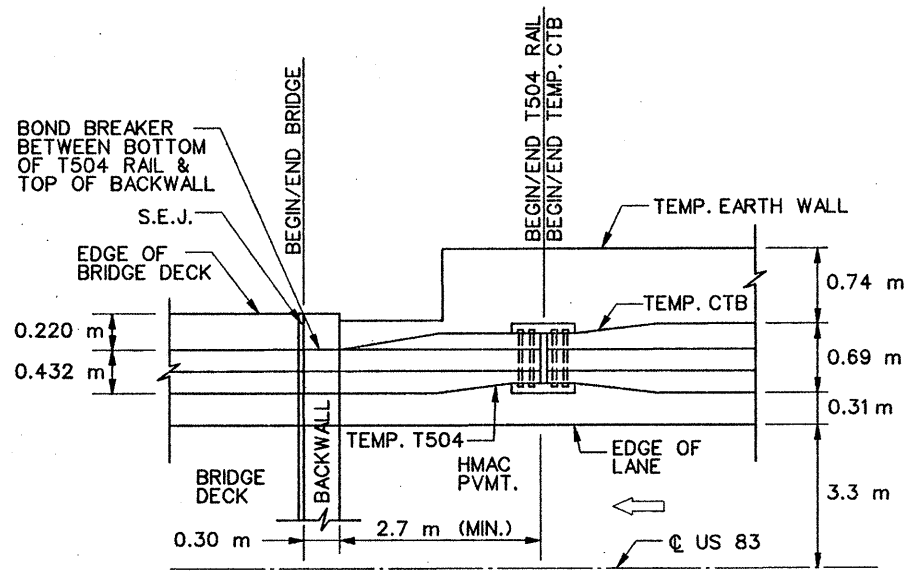
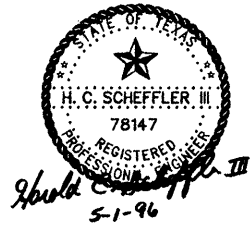
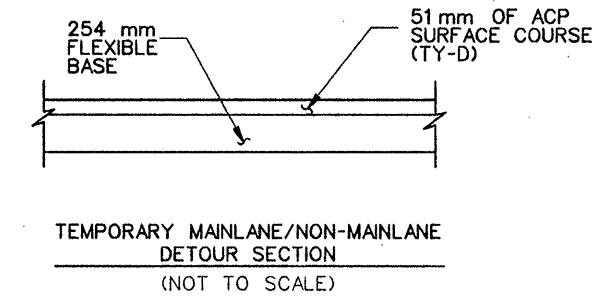
TEMPORARY RAMP EXTENSION TRANSITION
FROM PROP. MAINLANE TO EXIST. MAINLANE (TYP.)
(NOT TO SCALE)



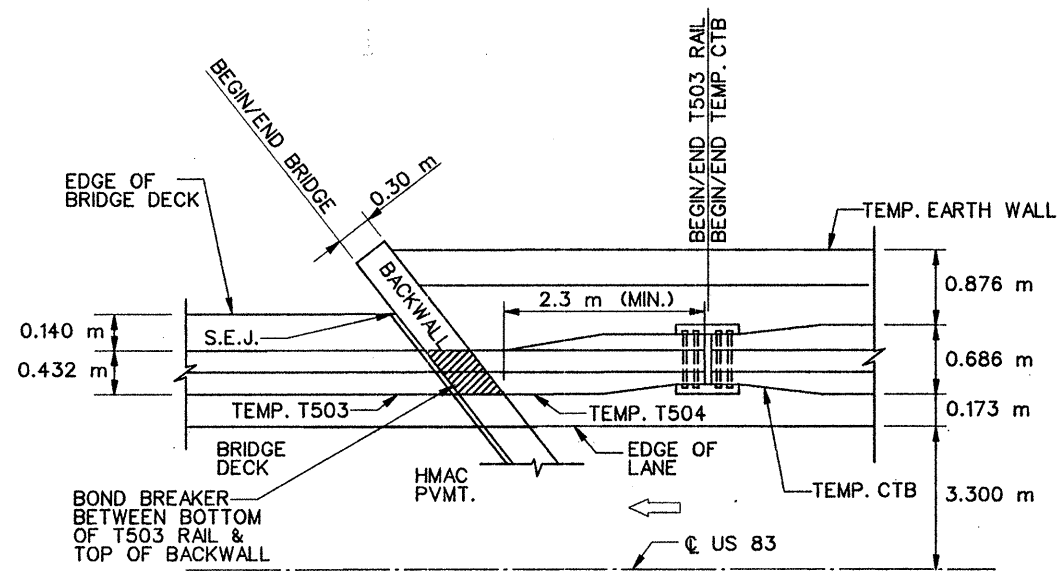
TYPICAL CTB TO T503/T504 CONNECTION DETAIL
(NOT TO SCALE)



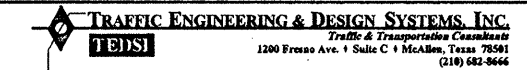
TYPICAL PAVEMENT DROPOFF DETAIL
(NOT TO SCALE)



"1" ROAD - TEMP. CTB TO TEMP. T504
RAIL CONNECTION DETAIL
(NOT TO SCALE)








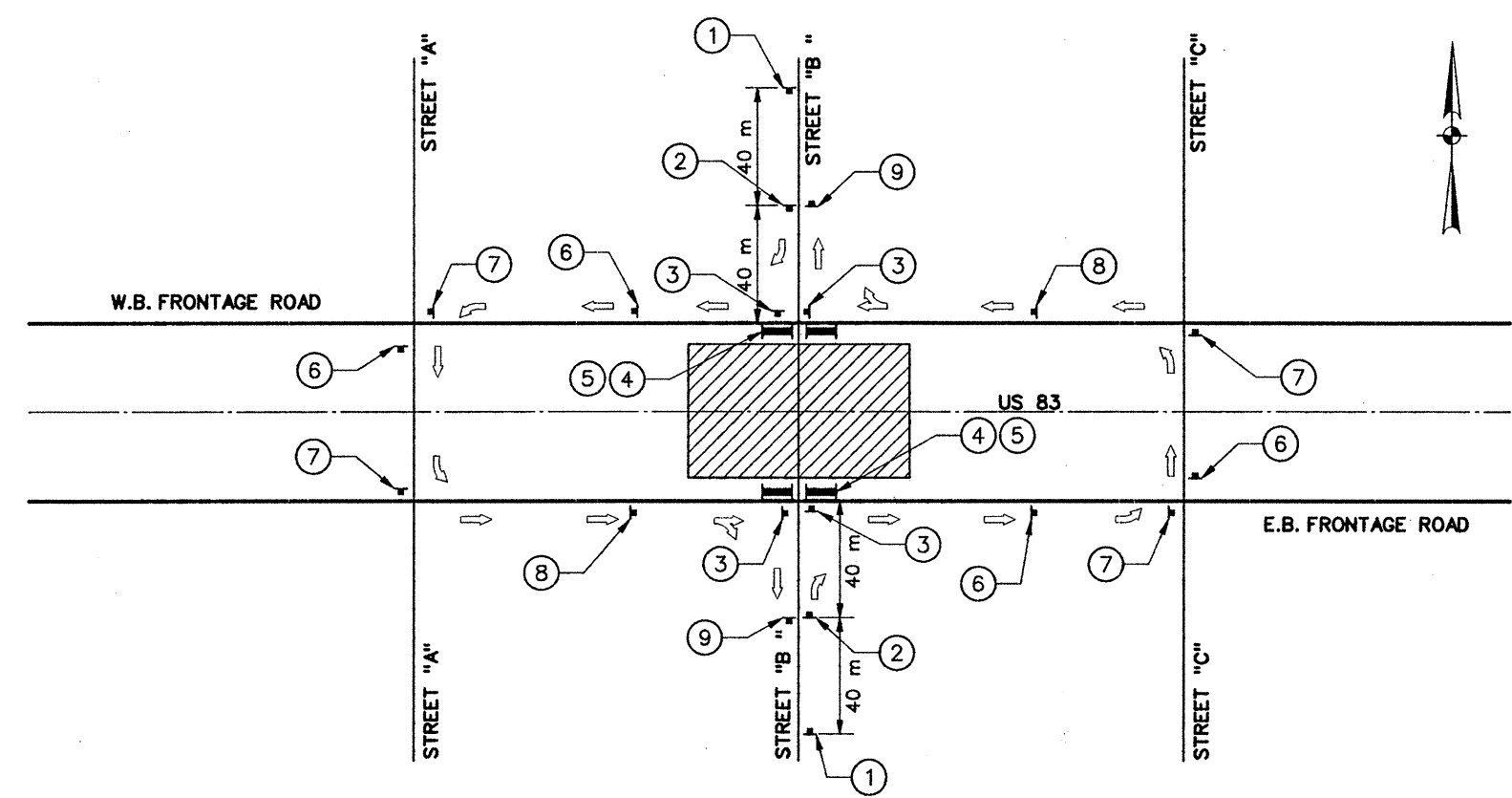
FM 1426 - TEMP. CTB TO TEMP. T503
RAIL CONNECTION DETAIL
(NOT TO SCALE)



TYPICAL TRAFFIC CONTROL
DURING CONSTRUCTION
DETAILS

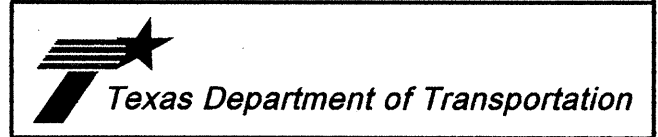
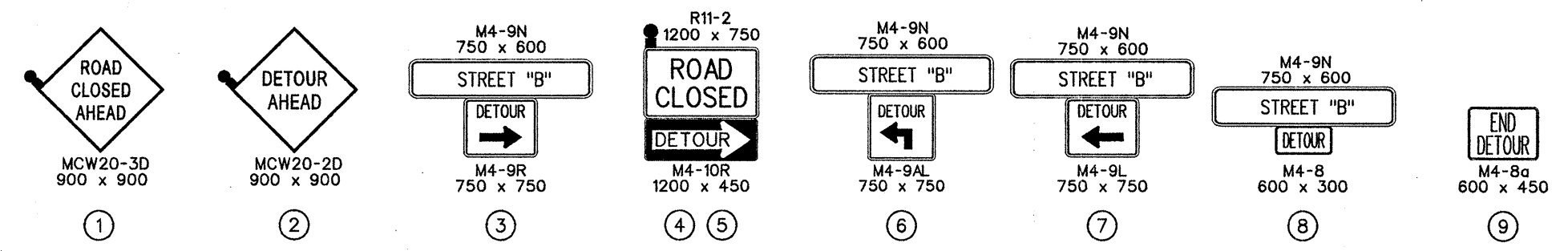
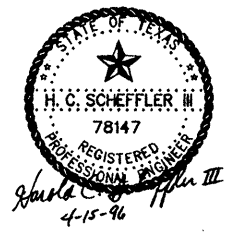
N.T.S.		SHEET 1 OF 1			
DN: BS	STATE	FEDERAL AID PROJECT NO.	HIGHWAY		
CK DN: JLS	6 TEXAS	NH 96 (791) (M)	US 83		
DR: JCP	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.
CK DR:	21	HIDALGO	0039	17	118
TR:					
CK TR:					69

- LEGEND**
-  CONSTRUCTION AREA
 -  DIRECTION OF TRAFFIC FLOW
 -  TYPE A WARNING LIGHT
 -  TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 -  TYPE III BARRICADE



NOTES:

1. UNLESS AN ALTERNATE CONSTRUCTION SEQUENCE AND TRAFFIC CONTROL PLAN IS APPROVED BY THE ENGINEER, ALL OVERHEAD OVERPASS CONSTRUCTION OPERATIONS, WHICH REQUIRE ROADWAY CLOSURES, SHALL BE PERFORMED DURING OFF-PEAK HOURS, NIGHTTIME AND WEEKEND HOURS BETWEEN 7:00 P.M. FRIDAY AND 6:00 A.M. MONDAY, OR AS APPROVED BY THE ENGINEER. WHEN A COMPLETE ROADWAY CLOSURE IS REQUIRED, TRAFFIC IS TO BE DETOURED AS SHOWN AND/OR AS DIRECTED BY THE ENGINEER.
2. ALL PERMANENT SIGN MARKERS IN CONFLICT WITH THE DETOUR OR DIRECTION OF TRAFFIC SHALL BE TEMPORARILY COVERED FOR THE DURATION OF THE DETOUR.
3. ALL DETOUR SIGNING SHALL BE EITHER REMOVED OR TURNED AWAY FROM VIEW OF TRAFFIC WHEN NOT IN USE.



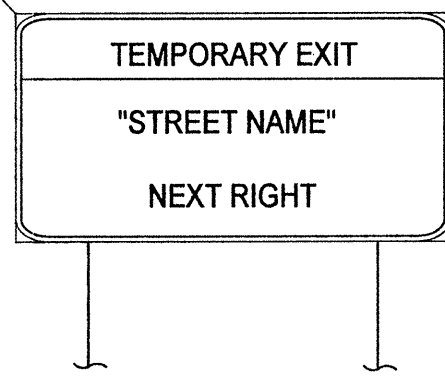
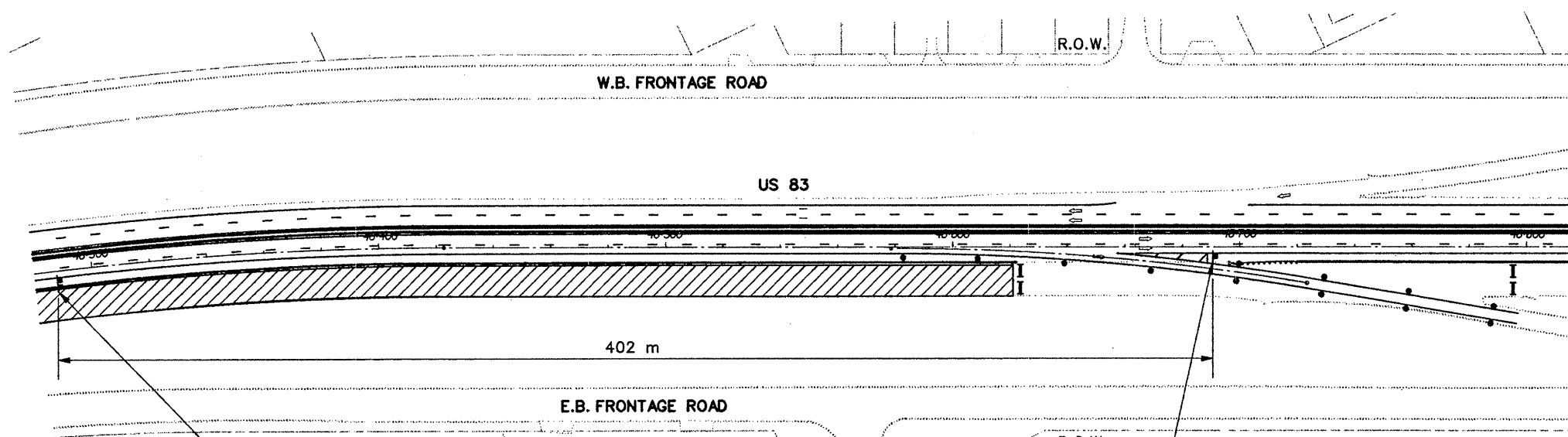
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 (214) 682-8666

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TYPICAL DETOUR FOR CLOSED STREET

N.T.S. SHEET 1 OF 1

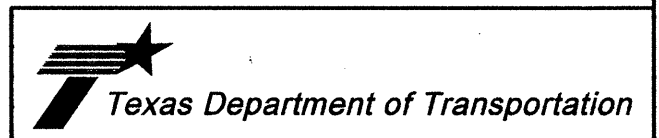
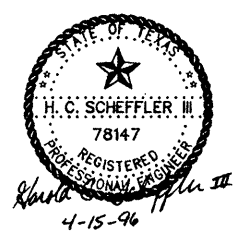
DN: BS	FILE NO.	STATE	FEDERAL AID PROJECT NO.	ROUTE NO.
CK DN: JLS	6	TEXAS	NH-96 (79) MJ)	US 83
DN: JCP	STATE	COUNTY	CONTRACT NO.	SECTION NO.
CK DN:	21	HIDALGO	0039	17
TR:				11B
CK TR:				70



E5-1
1200 x 1050
(SEE TRAFFIC CONTROL PLAN)

NOTES:

1. CONTRACTOR SHALL ERECT TEMPORARY GUIDE SIGNS PRIOR TO OPENING PROPOSED TEMPORARY RAMPS.
2. TEMPORARY GUIDE SIGNS SHALL BE BUILT AND INSTALLED IN ACCORDANCE WITH BARRICADE STANDARD BC(4)-95M. SEE GENERAL NOTES FOR PLACEMENT AND PAYMENT.



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**TEMPORARY GUIDE SIGNS FOR
EXIT RAMP CLOSURES**

SCALE: 1:1000 SHEET 1 OF 1

DR: BS	FED. AID DIST. NO.	STATE	FEDERAL AID PROJECT NO.	PROJECT NO.
CK DR: JLS	6	TEXAS	NH 96 (791) M)	US 83
DR: JOP	STATE DIST. NO.	COUNTY	CORNER NO.	SECTION NO.
CK DR:	21	HIDALGO	0039	17
TR:				118
CK TR:				71

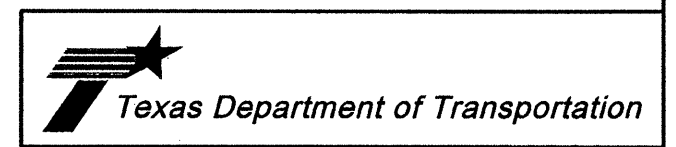
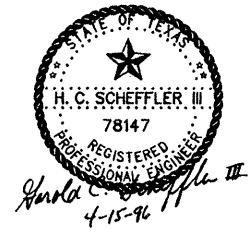
TDD/REF. NO. 8524-0002
 FILE: TDD/REF. TCR

LEGEND

- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE

NOTES:

1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
2. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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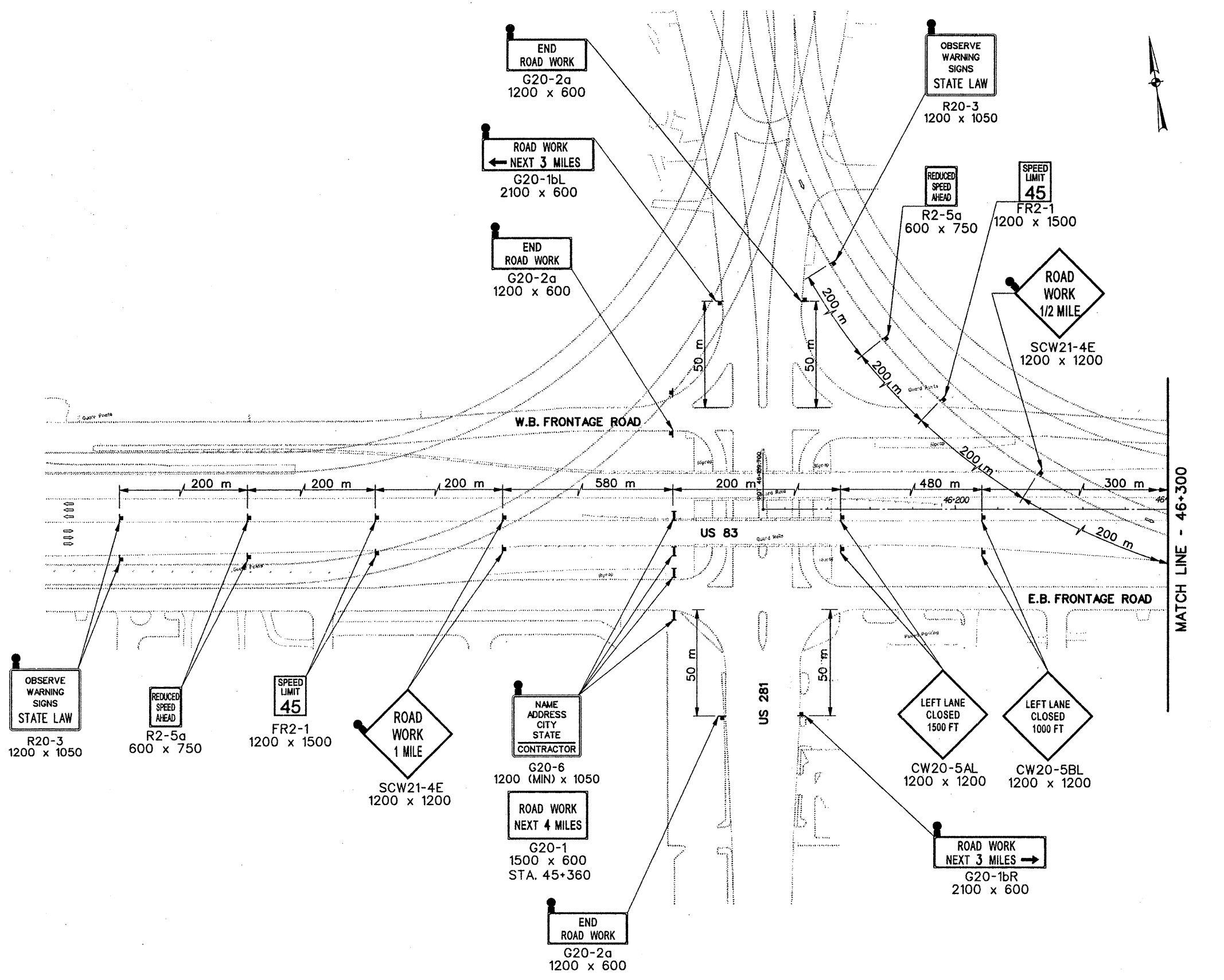
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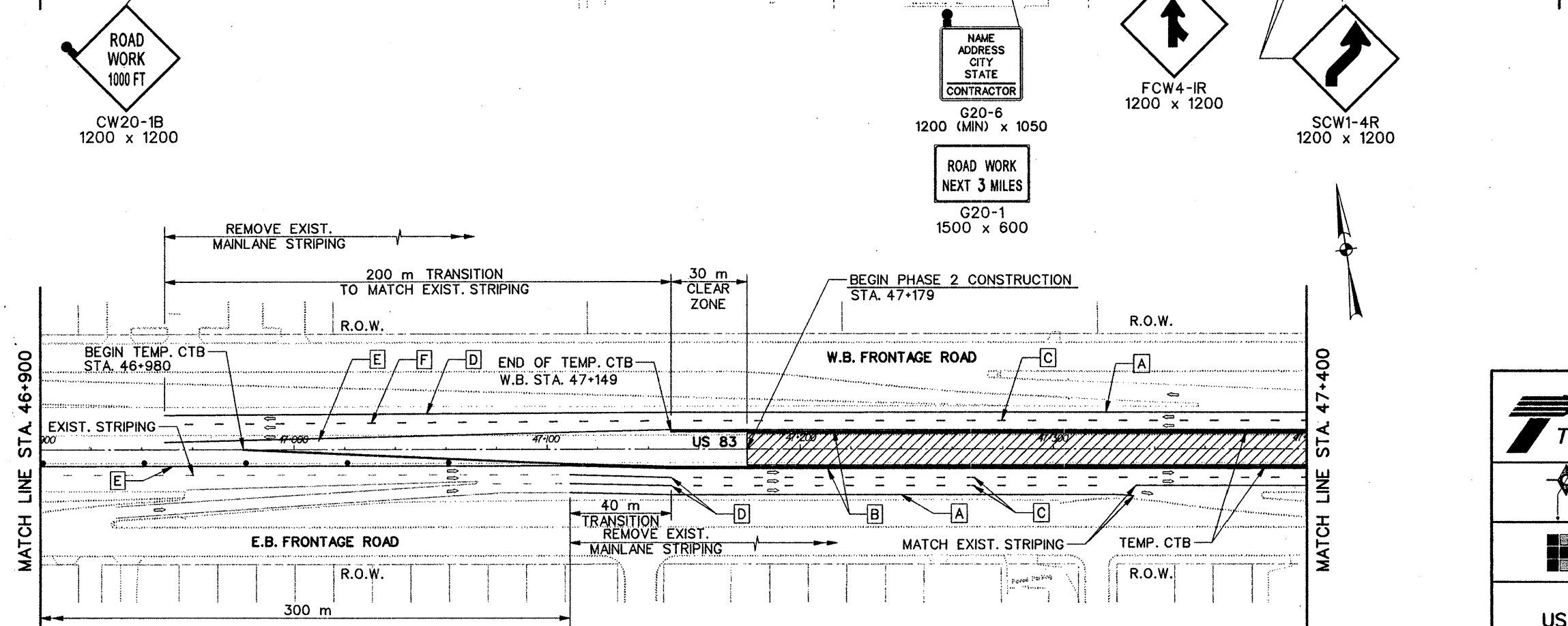
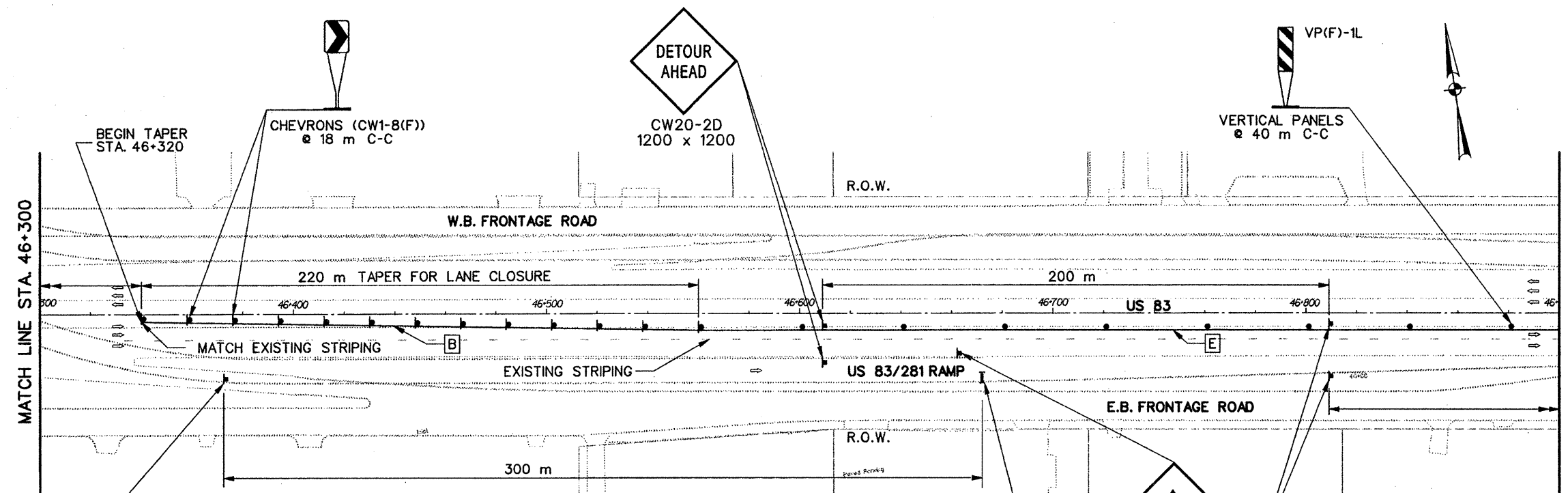
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2**

SCALE: 1:1000

SHEET 1 OF 5

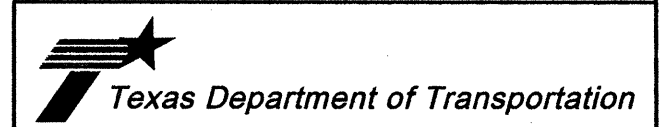
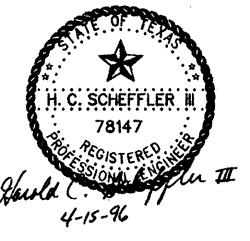
DN: BS	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN: JLS	6 TEXAS	NH 96(701)	US 83
DN: JCP	STATE DIST. NO.	COUNTY	SECTION NO.
CK DN:	21 HIDALGO	0039	17
TR:			
CK TR:			





- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - INSTALL WORK ZONE PVMT MARK AS SHOWN ON PHASE 2 CONSTRUCTION SECTION.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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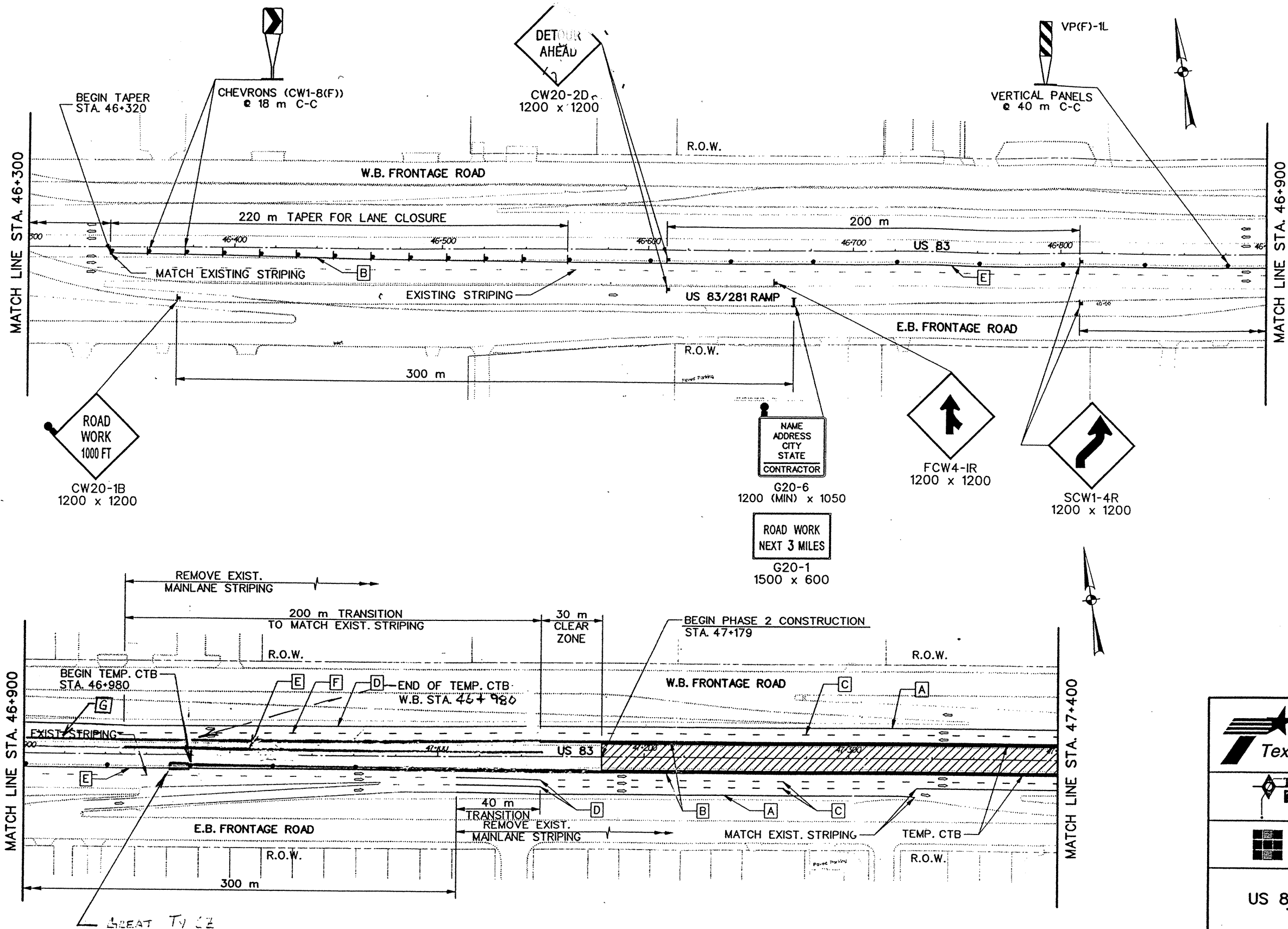
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 46+300 TO STA. 47+400**

SCALE: 1:1000 SHEET 2 OF 5

DN: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96(791)(1)	ROUTE: US 83
CK DN: JLS	COUNTY: HIDALGO	DIST. NO.: 0039	SECTION NO.: 17
DWG: JCP			SHEET NO.: 118
CK DN: TR			73

TEDI/REF. NO. 85284-0002
 FILE: P25P152.TCP



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE
 - G 200 mm V.P.M. (70m)

- NOTES:**
1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 2. INSTALL WORK ZONE PVMT. MARK AS SHOWN ON PHASE 2 CONSTRUCTION SECTION.
 3. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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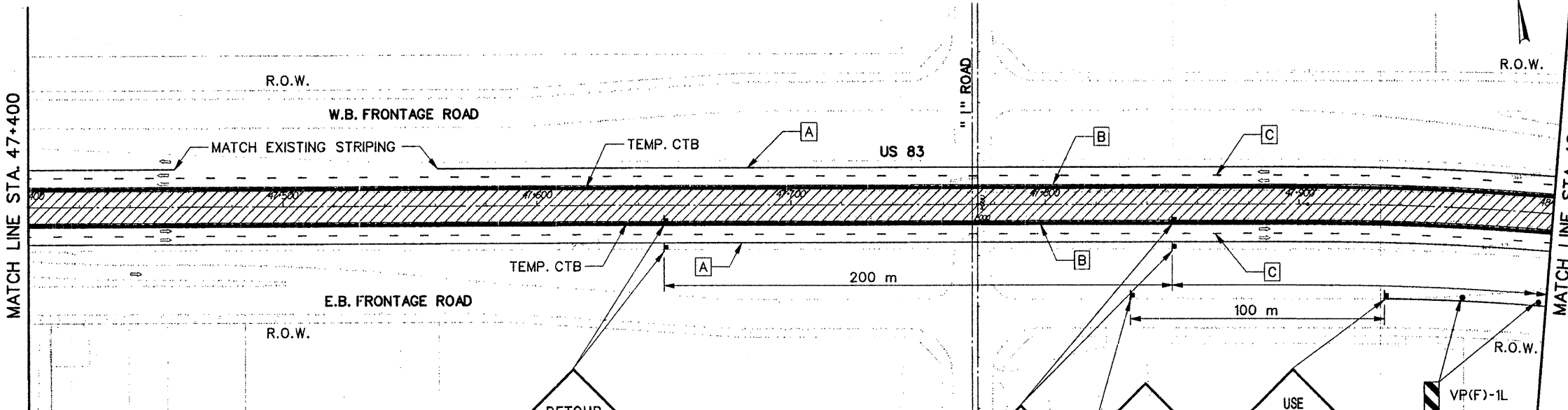
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 46+300 TO STA. 47+400**

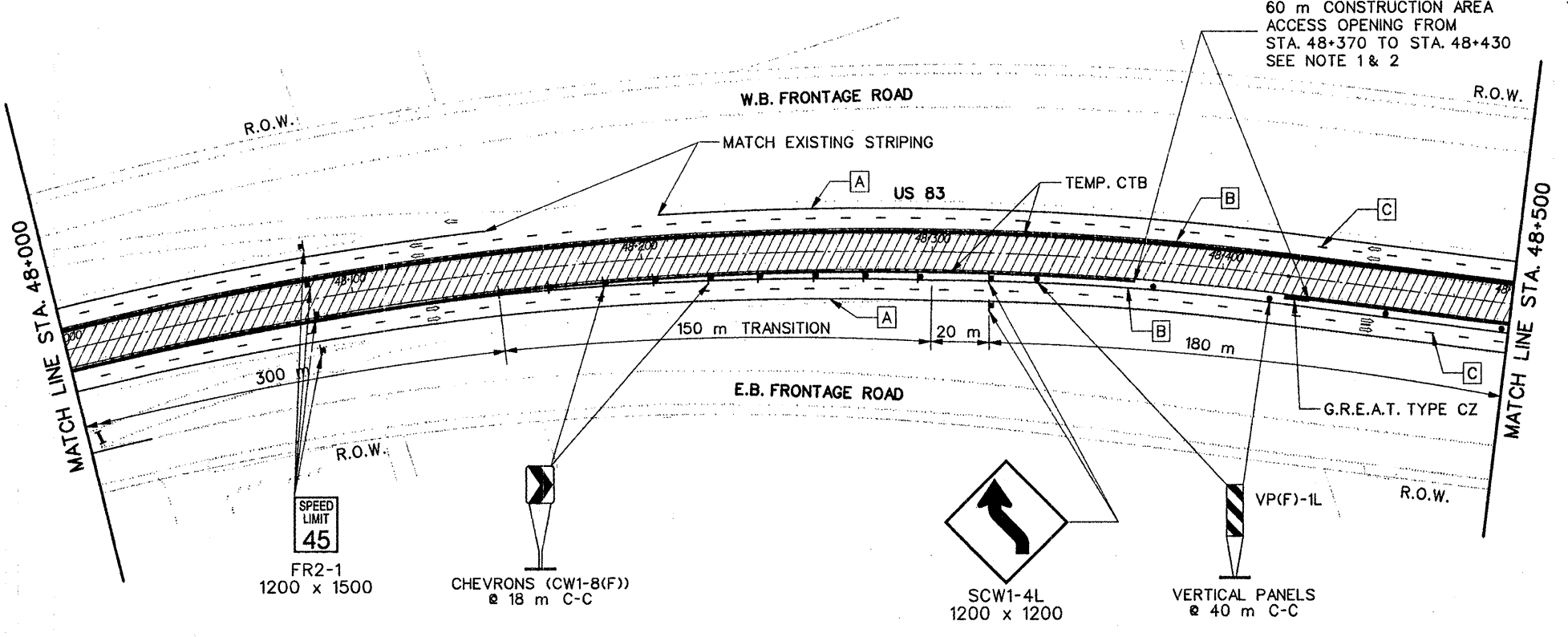
SCALE: 1:1000 SHEET 2 OF 5

DESIGNER: D.M. BS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH (C (M))	ROUTE: US 83
CHECKED BY: J.C.P.	DIST. NO.: 21	COUNTY: HIDALGO	SECTION NO.: 17
CHECKED BY: TR			SHEET NO.: 73



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - CONTRACTOR SHALL TRANSITION THE TEMPORARY CTB @ 20:1 AWAY FROM TRAFFIC.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 47+400 TO STA. 48+500**

SCALE: 1:1000 SHEET 3 OF 5

DN: BS	REV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN: JLS	6	TEXAS	NH 96(79) M1)	US 83
CK DN: JCP	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.
TR:	21	HIDALGO	0039	17
CK TR:				118
				74

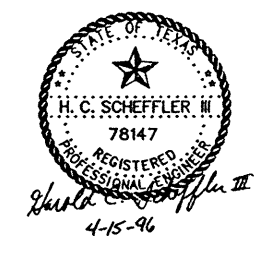
TEDI REF. NO. 05284-0002
 FILE P285P2LCP

LEGEND

- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE

NOTES:

1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
2. CONTRACTOR SHALL TRANSITION THE TEMPORARY CTB @ 20:1 AWAY FROM TRAFFIC.
3. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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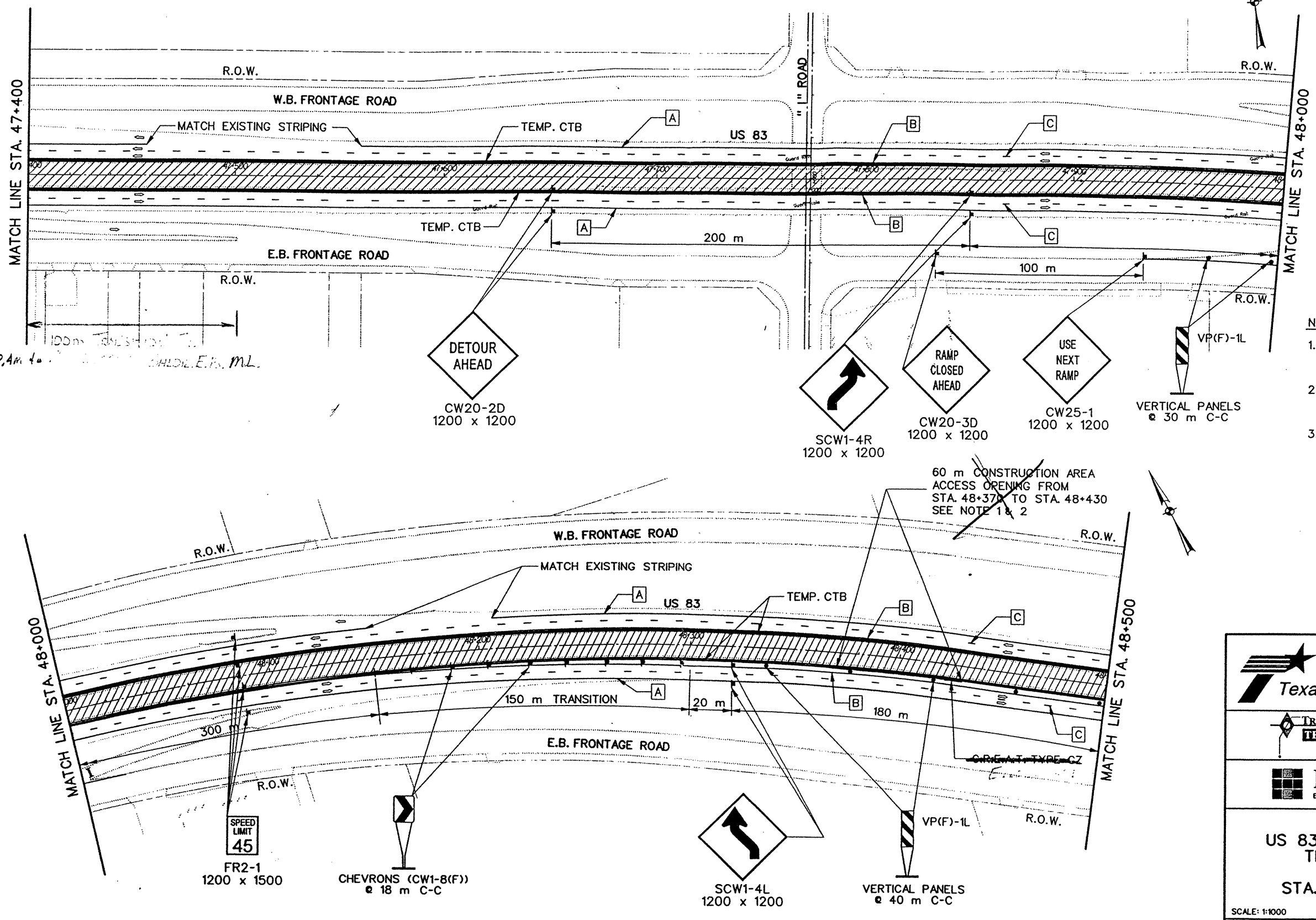
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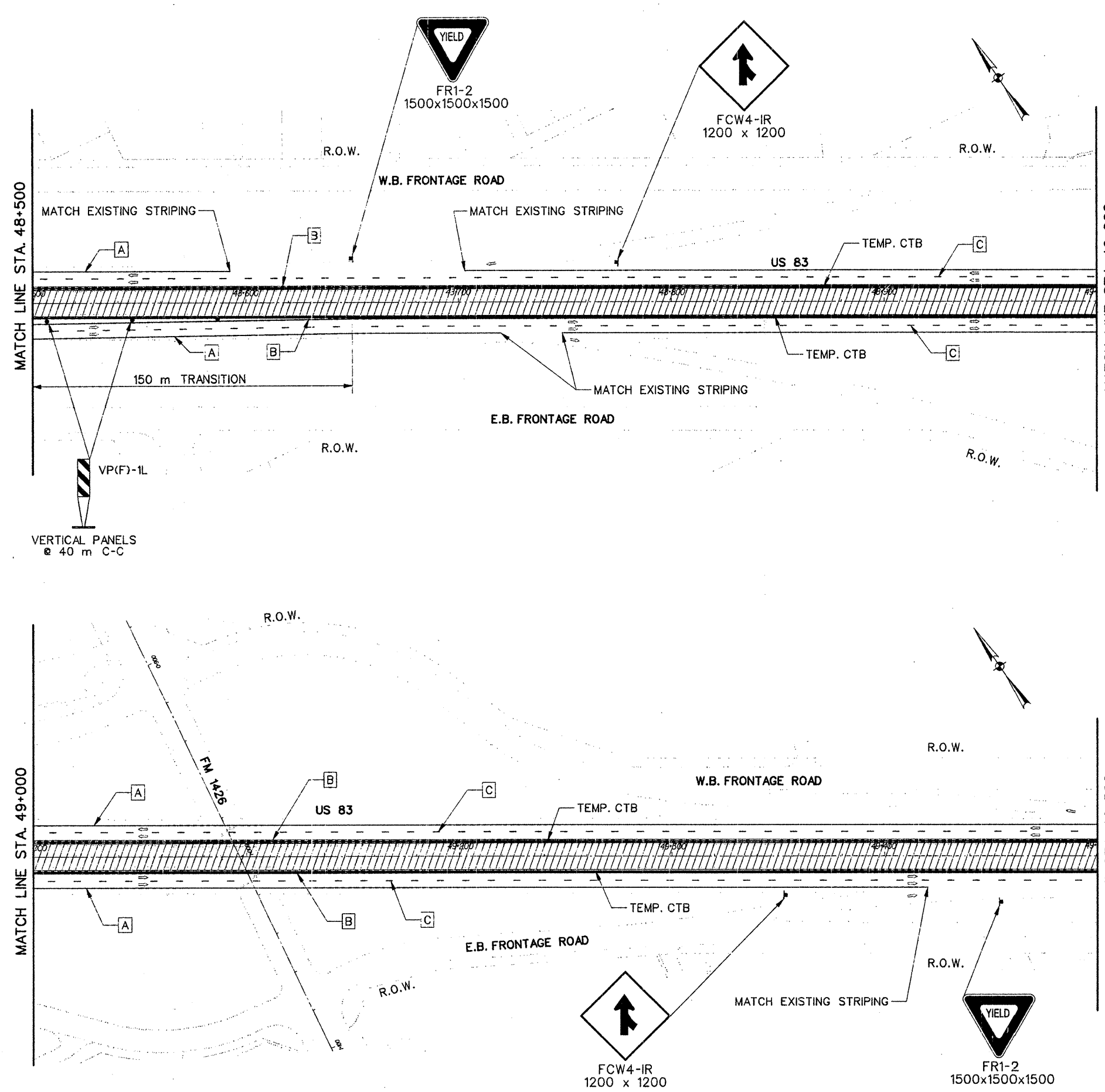
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 47+400 TO STA. 48+500**

SCALE: 1:1000

SHEET 3 OF 3

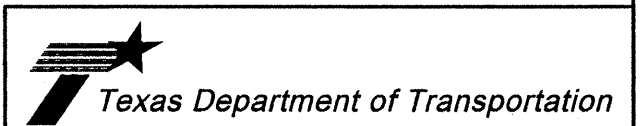
CHK'D BY: BS	FED. DIST. NO.	STATE	FEDERAL AID PROJECT NO.	PROJECT NO.
CHK'D BY: JCP	6	TEXAS	NH (C-M)	US 6
CHK'D BY: TR	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.
CHK'D BY: TR	21	HIDALGO	0039	17
CHK'D BY: TR				118





- LEGEND**
- [A] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - [B] WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - [C] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - [D] WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - [E] WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - [F] WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - [Hatched Box] CONSTRUCTION AREA
 - [Cross-hatched Box] TEMPORARY ROAD CONSTRUCTION
 - [Arrow] DIRECTION OF TRAFFIC FLOW
 - [Light Symbol] TYPE A WARNING LIGHT
 - [Sign on Post Symbol] TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - [Channelizing Device Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - [Channelizing Device with Sign Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - [Barricade Symbol] TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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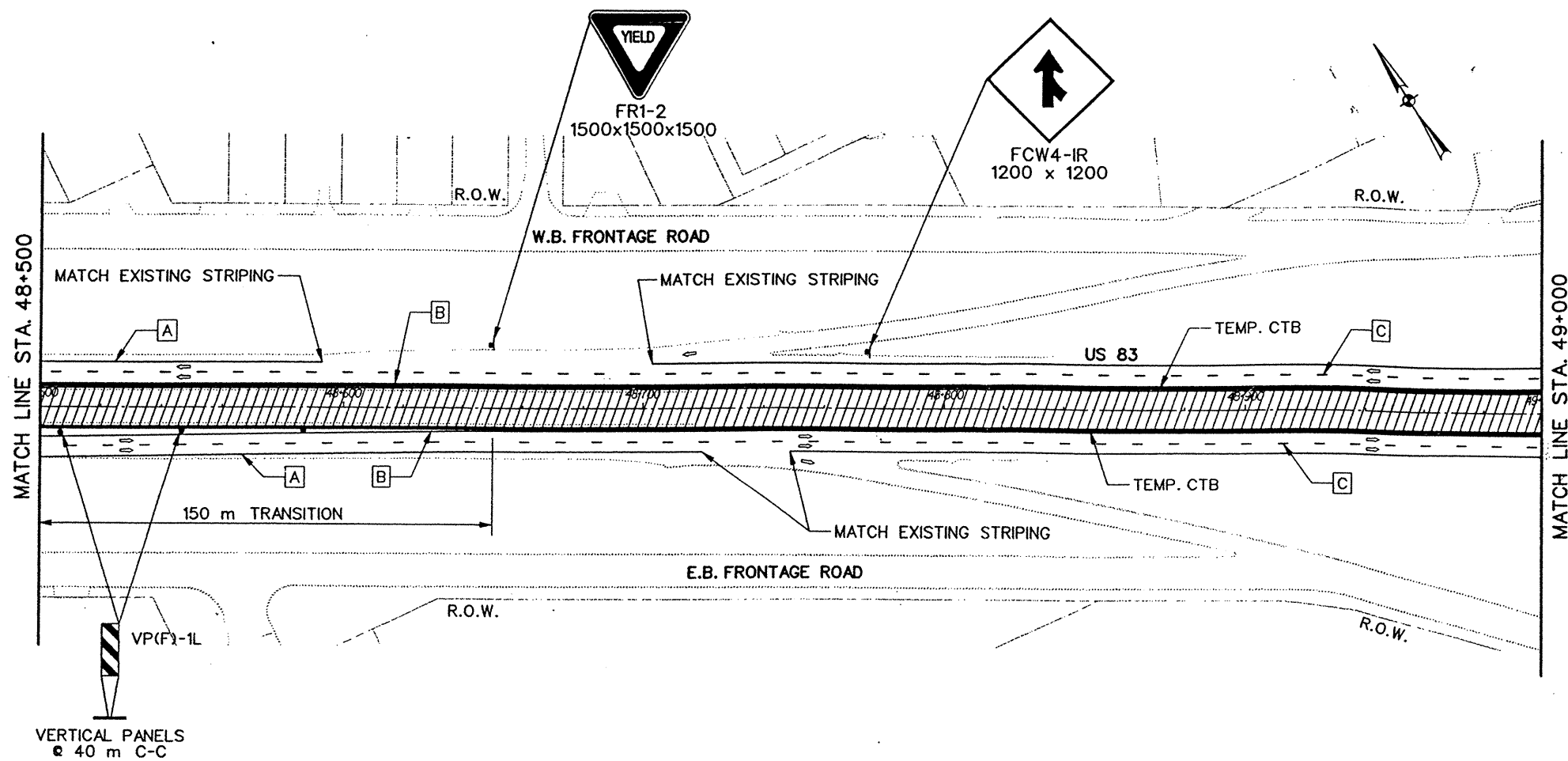
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 48+500 TO STA. 49+500**

SCALE: 1:1000 SHEET 4 OF 5

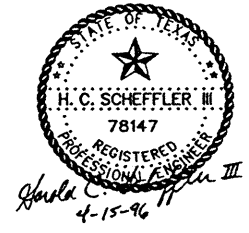
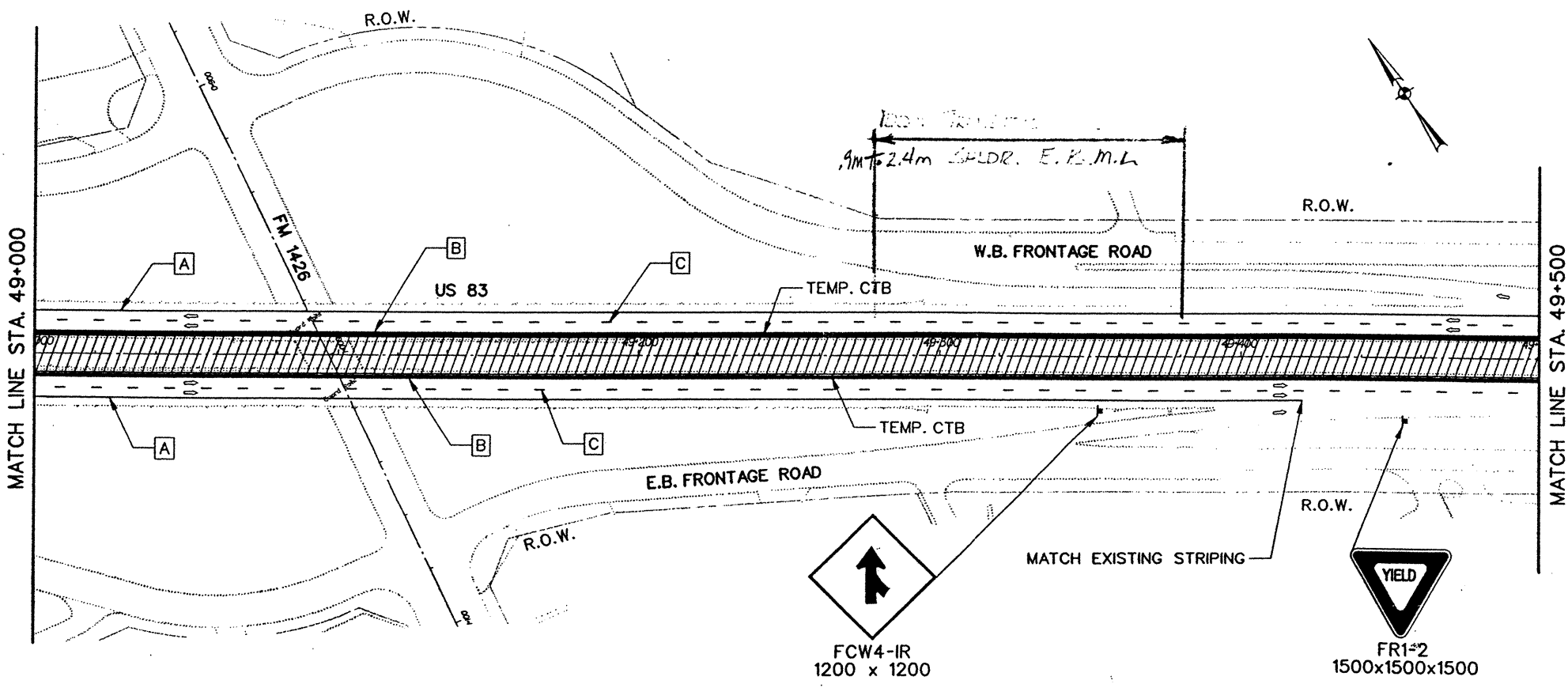
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CK DN: JLS	6 TEXAS	NH 961790 M)	US 83
DR: JCP	STATE DIST. NO.	COUNTY	CONTRACT NO.
TR:	21	HIGALGO	0039
CK TR:			17 118 75

TEDI/REF. NO. 0529*-0002
 T&P: HIGALGO/1/1/96



- LEGEND**
- [A] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - [B] WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - [C] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - [D] WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - [E] WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - [F] WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - [Hatched Box] CONSTRUCTION AREA
 - [Cross-hatched Box] TEMPORARY ROAD CONSTRUCTION
 - [Arrow] DIRECTION OF TRAFFIC FLOW
 - [Light Symbol] TYPE A WARNING LIGHT
 - [Post Symbol] TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - [Dot Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - [Post with Dot Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - [Barricade Symbol] TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



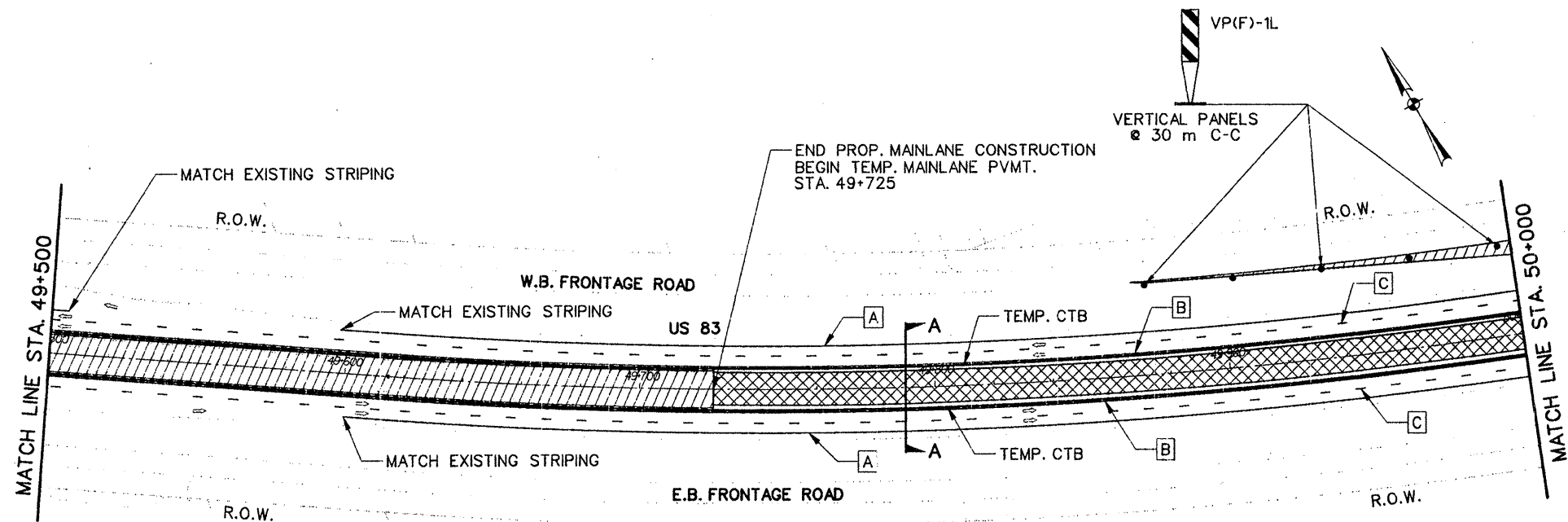
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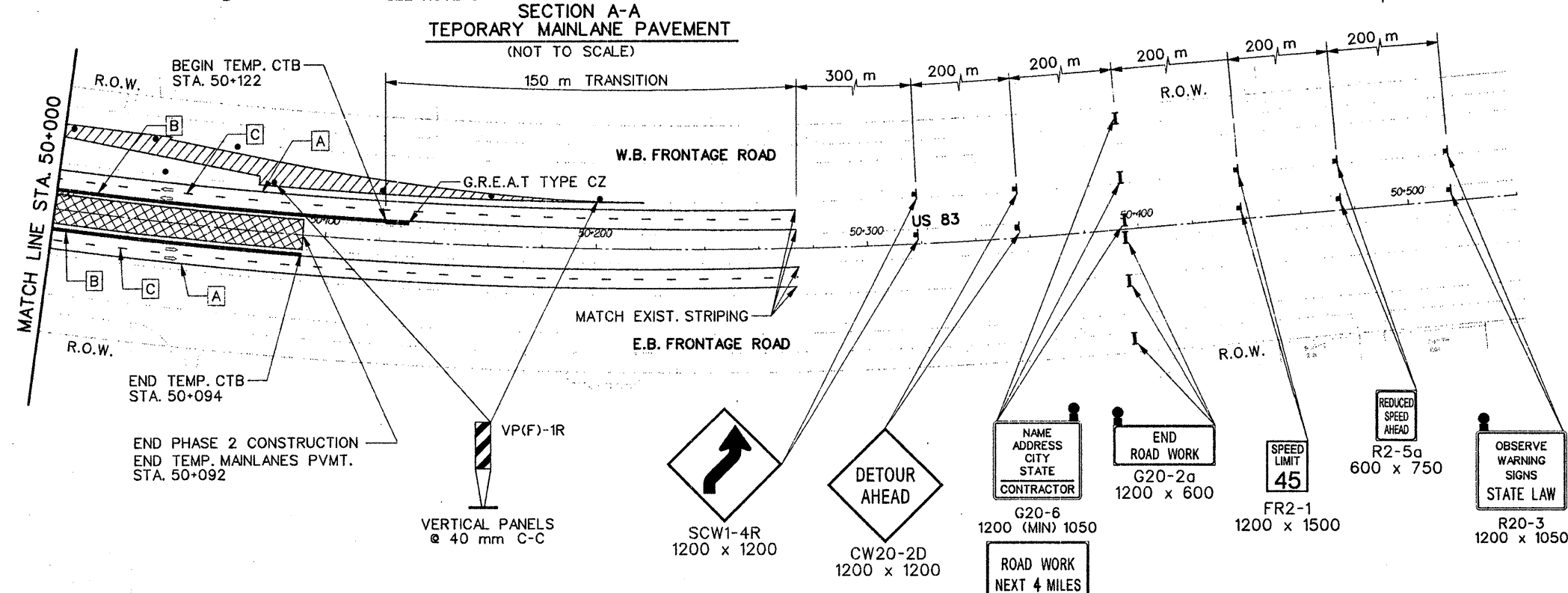
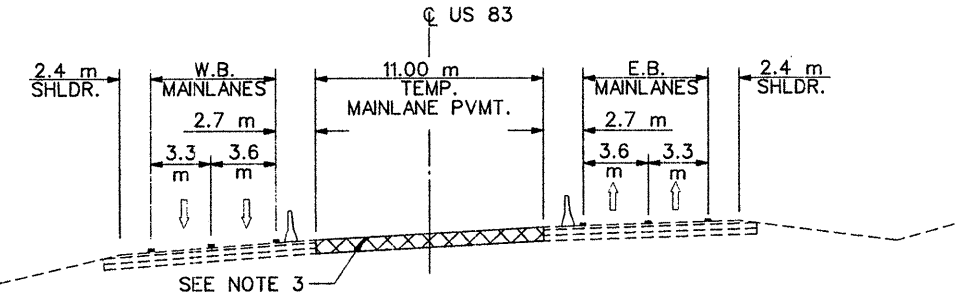
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 48+500 TO STA. 49+500**

SCALE: 1:1000 SHEET 4 OF 7

DRN: BS	REV. NO.	STATE	FEDERAL AID PROJECT NO.	ROUTE NO.
CK DRN: JLS	6	TEXAS	NH (79) M)	US
CK DR: JCP	STATE	COUNTY	CONTRACT SECTION NO.	SHEET NO.
TR:	21	HIGALGO	0039 17 11B	75A
CK TR:				



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE



- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.
 - SEE "TEMPORARY DRAINAGE" SHEETS FOR APPROPRIATE DETAIL REFERENCE.



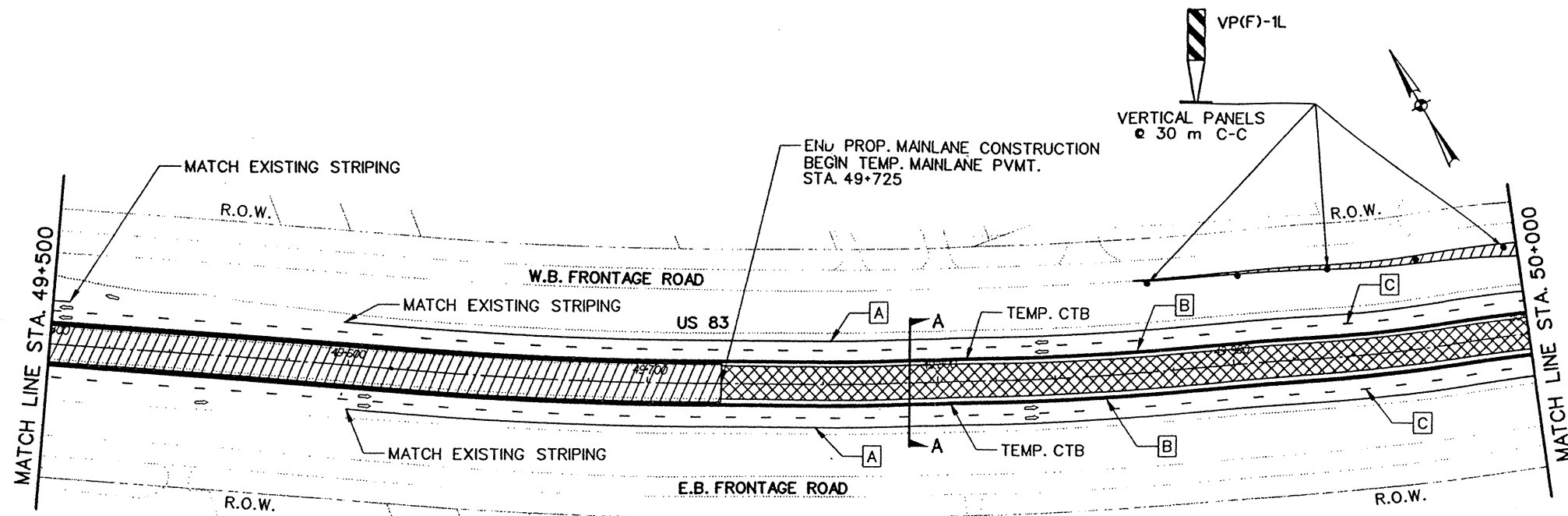
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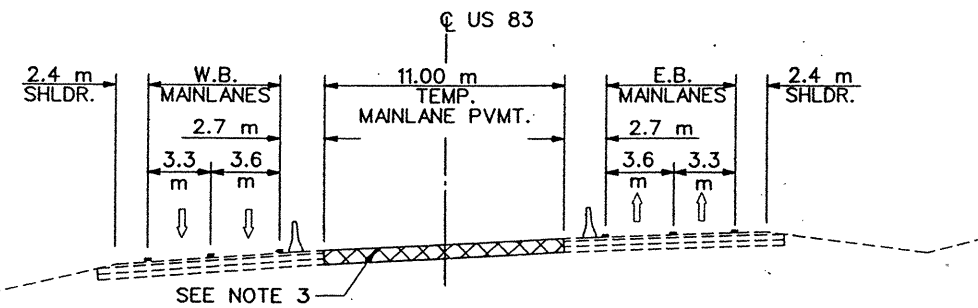
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 49+500 TO END PROJECT**

SCALE: 1:1000 SHEET 5 OF 5

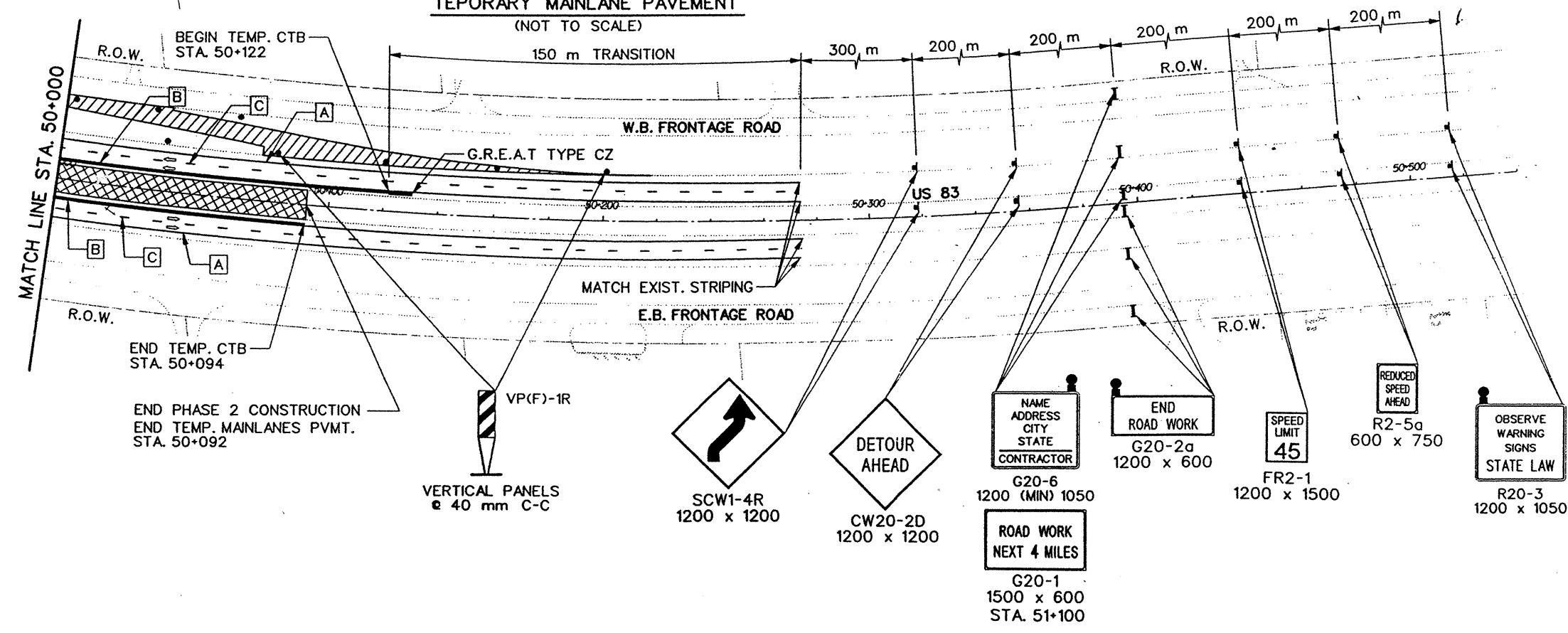
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CK DN: JLS	6 TEXAS	NH 96 (791) M)	US 83
DR: JCP	STATE DIST. NO.	COUNTY	CONTROL NO.
CK DR:	21	HIDALGO	0039
TR:			17
CK TR:			118
			76



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE



- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.
 - SEE "TEMPORARY DRAINAGE" SHEETS FOR APPROPRIATE DETAIL REFERENCE.



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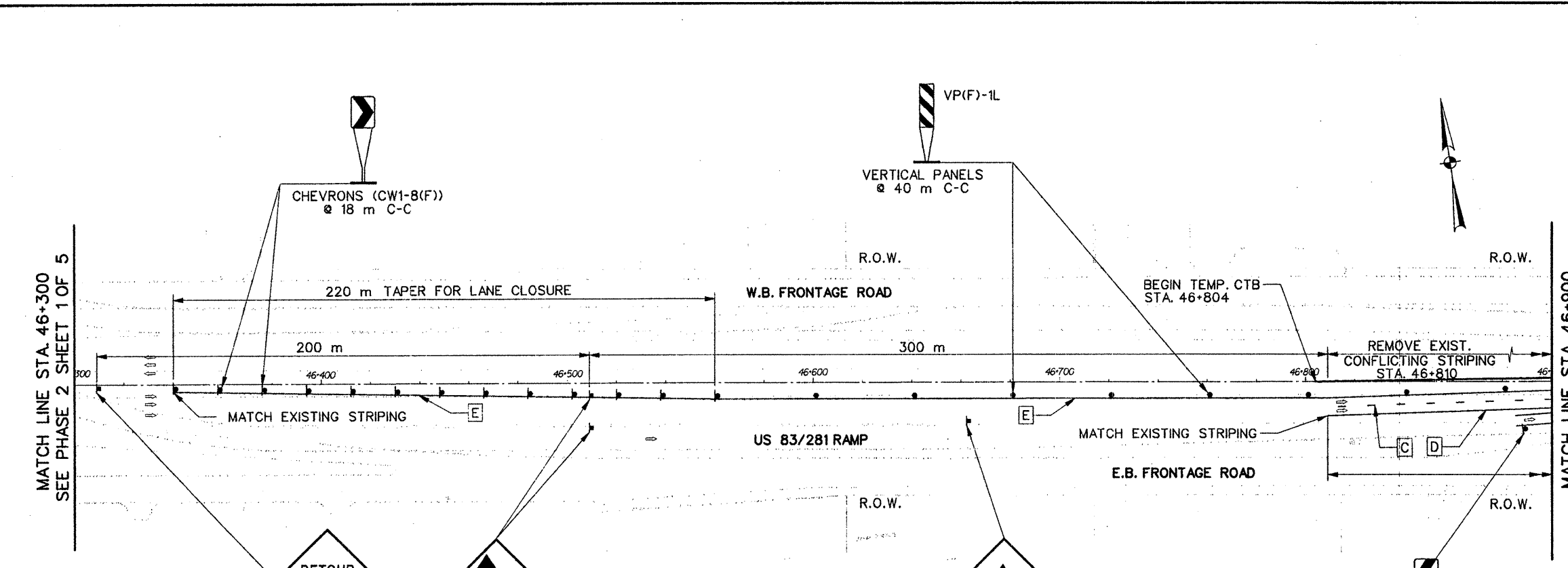
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 2
 STA. 49+500 TO END PROJECT**

SCALE: 1:1000 SHEET 5 OF 5

DATE: BS	FED. AID PROJECT NO.	STATE	FEDERAL AID PROJECT NO.	ROUTE NO.
CK DATE: JLS	6	TEXAS	NH-1(790)	US 83
DW: JCP	COUNTY	COUNTY	SECTION	JOB NO.
TR:	21	HIDALGO	0039	17
CK TR:				118
				76A



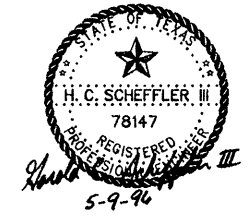
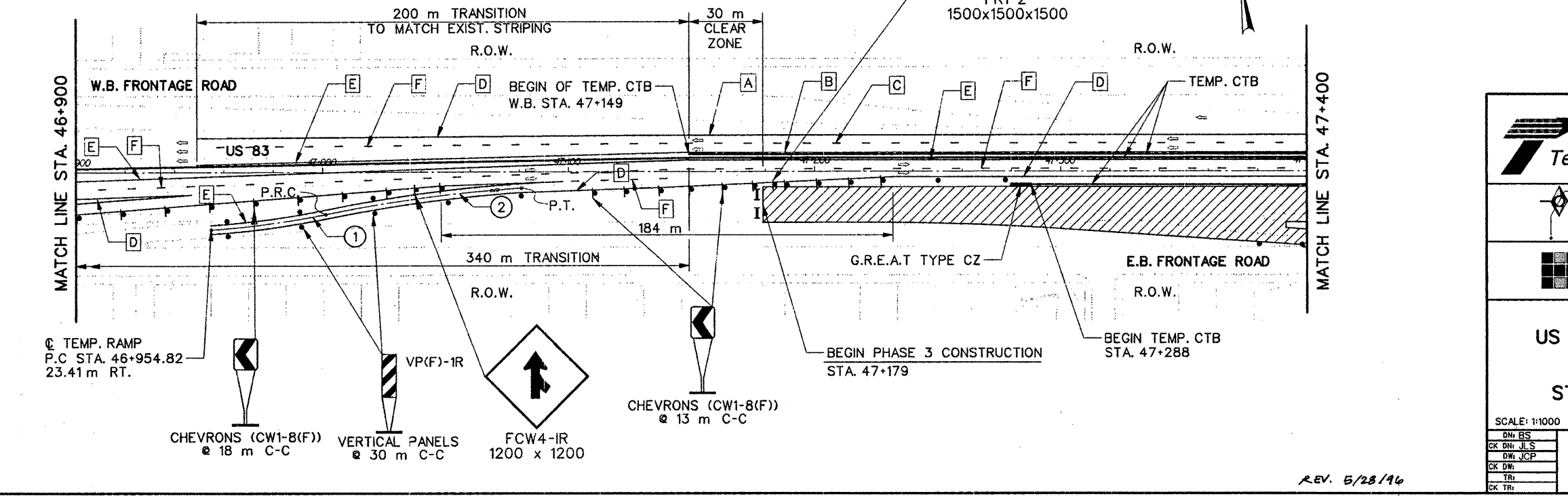
- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

TEMPORARY RAMPS
HORIZONTAL CURVE DATA *

	(1)	(2)
R	349.36 m	582.27 m
Δ	7° 41' 22" LT.	7° 54' 40" RT.
T	23.48 m	40.26 m
L	46.89 m	80.40 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - INSTALL WORK ZONE PVMT. MARK AS SHOWN ON PHASE 3 CONSTRUCTION SECTION.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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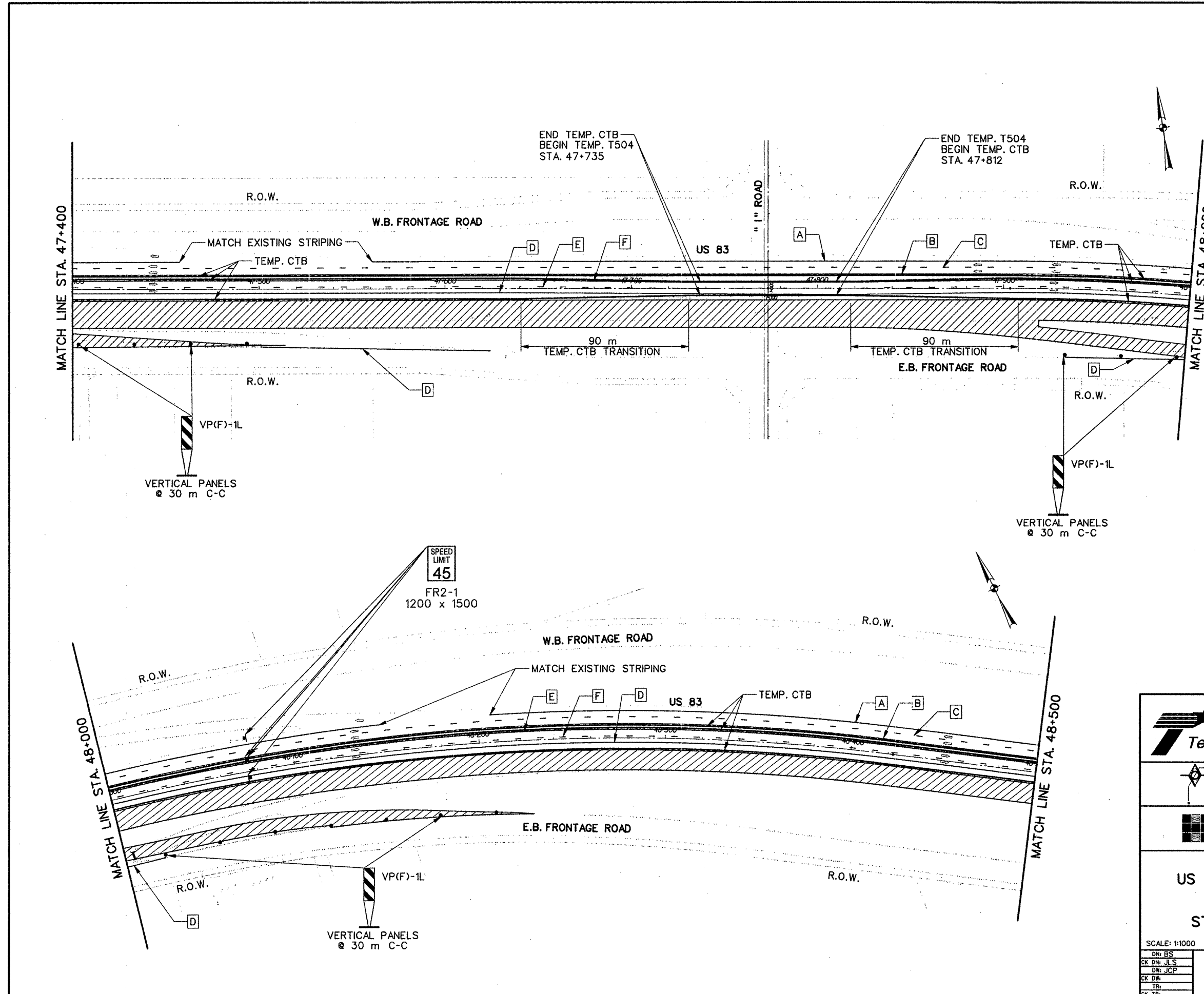
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**US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 3 STEP 1
STA. 46+300 TO STA. 47+400**

SCALE: 1:1000 SHEET 1 OF 4

DN: BS	NO.:	STATE:	FEDERAL AID PROJECT NO.:	ROUTE:
CK: DNI, JLS	6	TEXAS	NH 96 (70) M)	US 83
DN: JCP	STATE DIST. NO.:	COUNTY:	CONTRACT NO.:	SECTION NO.:
CK: DNI	21	HIDALGO	0039	17
TR:				118
CK: TR:				77

REV. 5/28/96



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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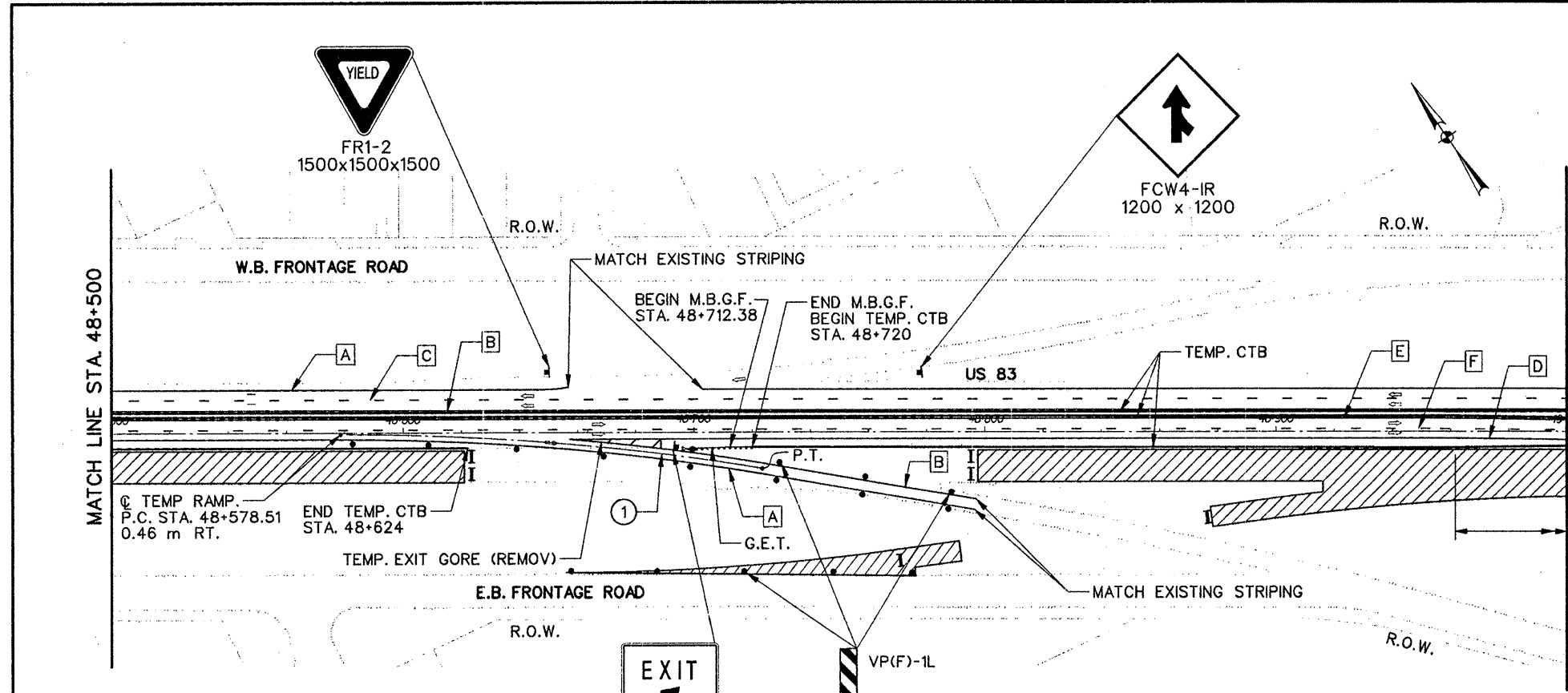
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 3 STEP 1
 STA. 47+400 TO STA. 48+500**

SCALE: 1:1000 SHEET 2 OF 4

DESIGNER: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96 (791) M1	HIGHWAY NO.: US 83
CHECKED BY: JLS	COUNTY: HIDALGO	CONTRACT NO.: 0039	SECTION NO.: 17
DATE: JCP	DIST. NO.: 21	SHEET NO.: 118	TOTAL SHEETS: 78
DATE: JCP	TR: TR	CK: TR	

TYPED BY: JLS
 DATE: 5/1/96
 PLOT FILE: P3127.PLOT



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

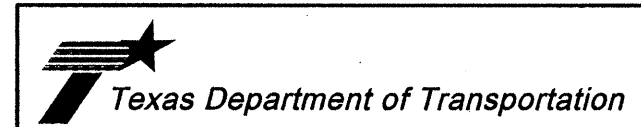
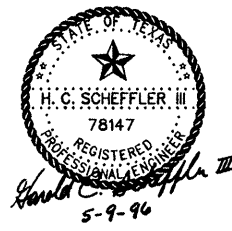
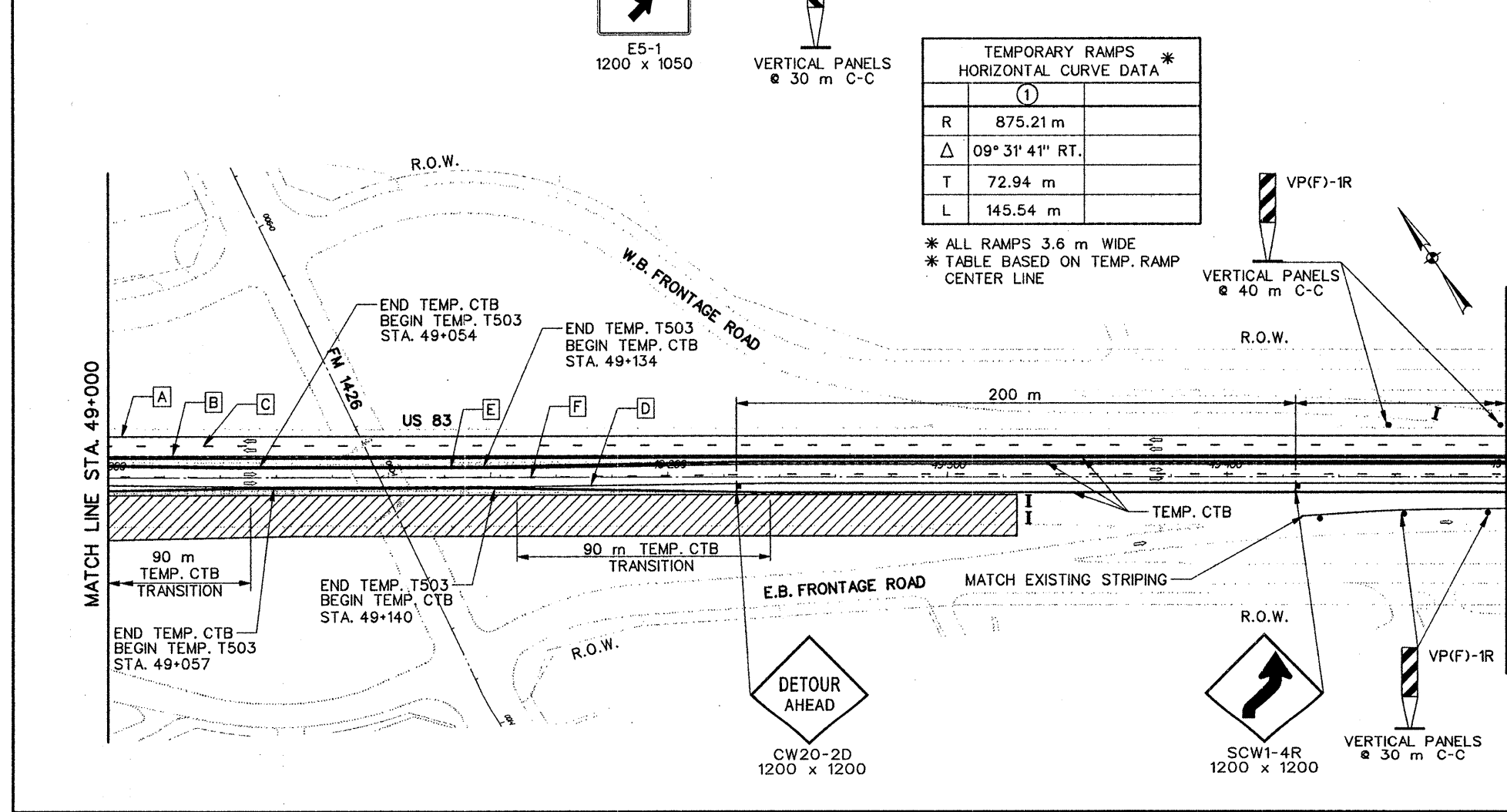
NOTES:

1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
2. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

**TEMPORARY RAMPS *
HORIZONTAL CURVE DATA**

	①
R	875.21 m
Δ	09° 31' 41" RT.
T	72.94 m
L	145.54 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE



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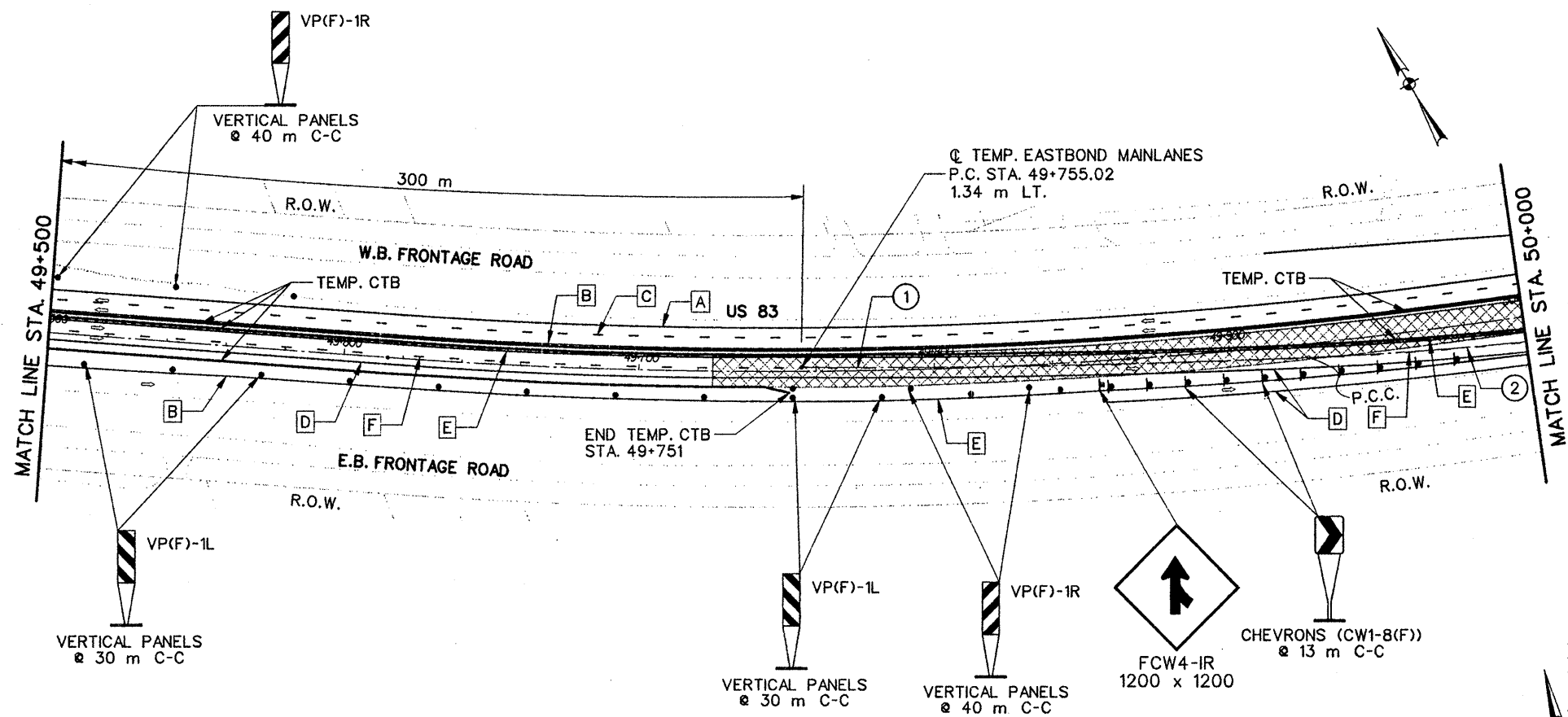
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**US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 3 STEP 1
STA. 48+500 TO STA. 49+500**

SCALE: 1:1000 SHEET 3 OF 4

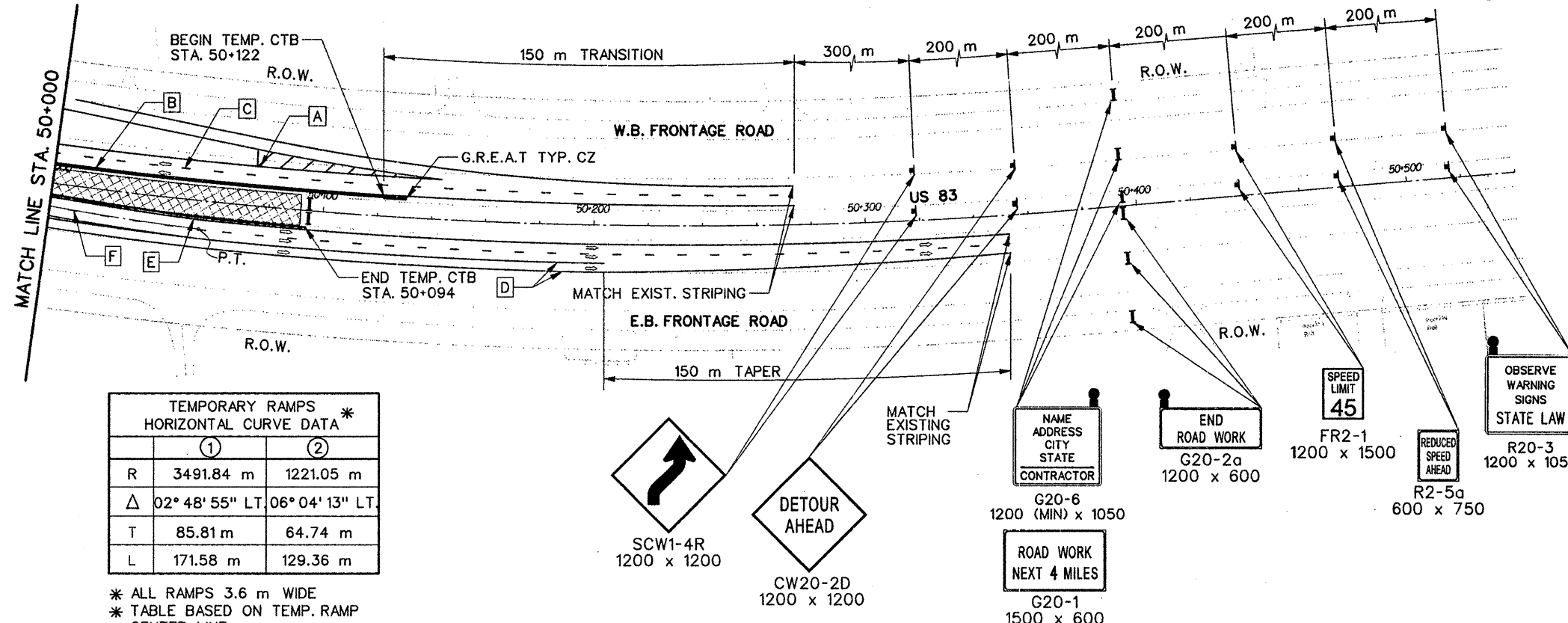
DESIGNER	DATE	STATE	FEDERAL AID PROJECT NO.	ROUTE
CK'D BY	6	TEXAS	NH 96 (791) (M)	US 83
DATE		COUNTY	SECTION	SHEET
		HIDALGO	0039	17
				118
				79

REV. 5/28/96



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



TEMPORARY RAMPS HORIZONTAL CURVE DATA *		
	①	②
R	3491.84 m	1221.05 m
Δ	02° 48' 55" LT.	06° 04' 13" LT.
T	85.81 m	64.74 m
L	171.58 m	129.36 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE



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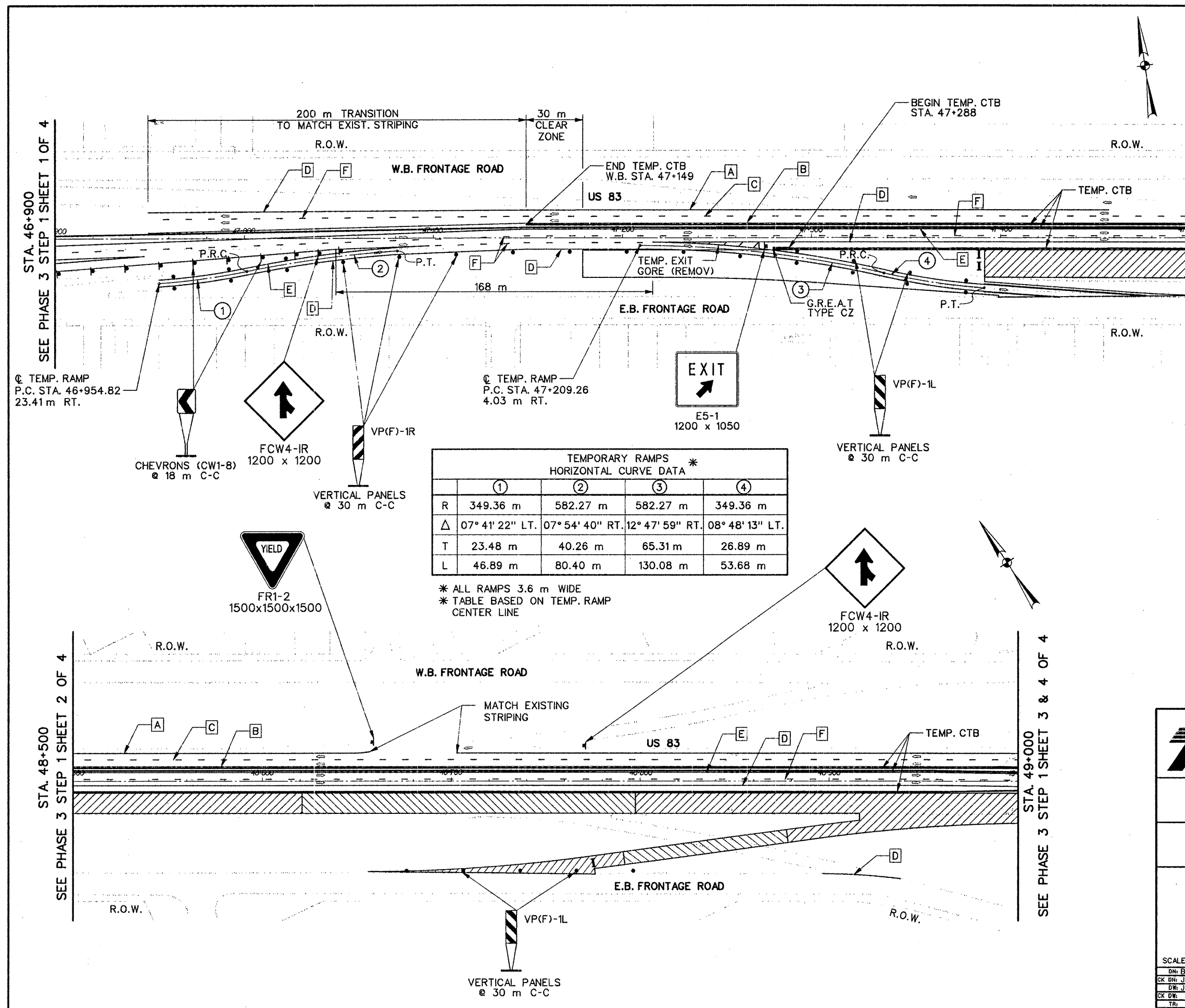
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**US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 3 STEP 1
STA.49+500 TO END PROJECT**

SCALE: 1"=1000' SHEET 4 OF 4

DESIGNED BY	STATE	FEDERAL AID PROJECT NO.	SECTION
CK'D BY JLS	6 TEXAS	NH 46(791)	US 83
DRAWN BY JCP	STATE DIST. NO.	COUNTY	SECTION NO.
TR	21	HIDALGO	0039
CK'D BY			JOB NO.
			118
			SHEET NO.
			80

TRAFFIC CONTROL PLAN
 4-15-96



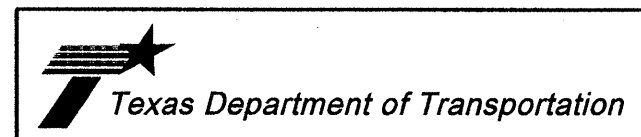
- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - CONSTRUCTION AREA STEP 2
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

TEMPORARY RAMPS
HORIZONTAL CURVE DATA *

	①	②	③	④
R	349.36 m	582.27 m	582.27 m	349.36 m
Δ	07° 41' 22" LT.	07° 54' 40" RT.	12° 47' 59" RT.	08° 48' 13" LT.
T	23.48 m	40.26 m	65.31 m	26.89 m
L	46.89 m	80.40 m	130.08 m	53.68 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE



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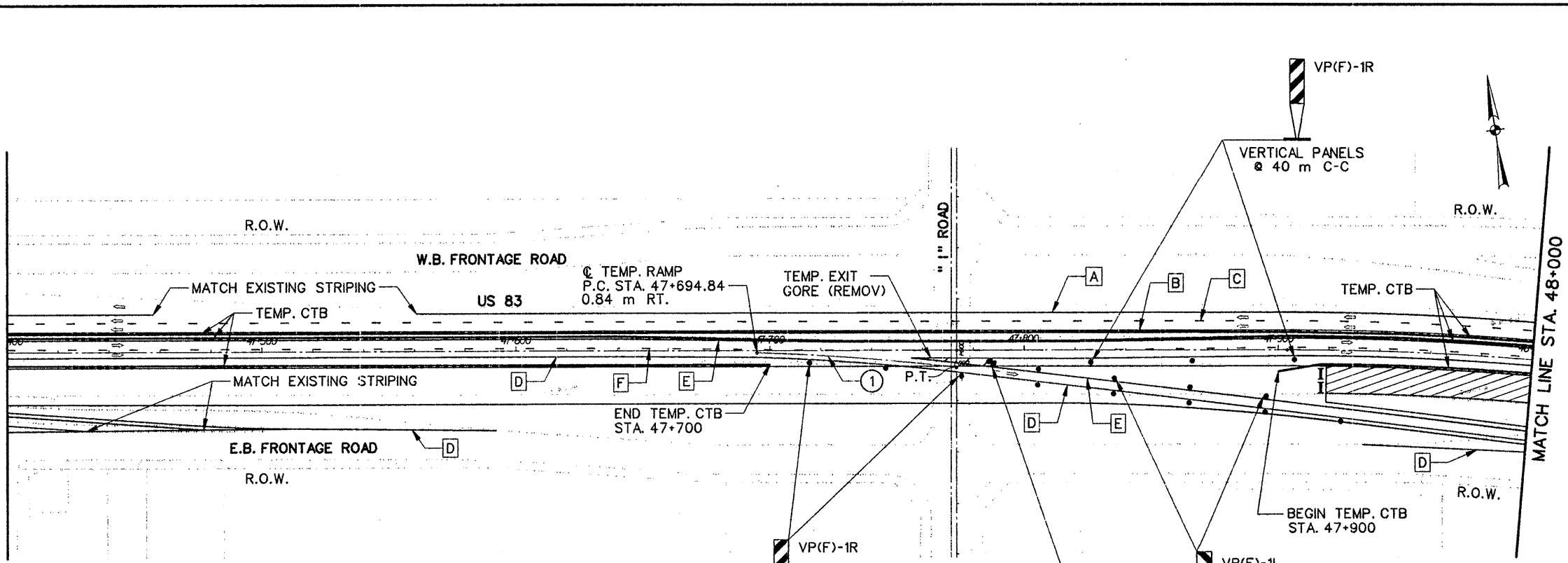
US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 3 STEP 2
STA. 46+300 TO STA. 47+400

SCALE: 1:1000 SHEET 1 OF 1

DIST. NO.	STATE	FEDERAL AID PROJECT NO.	ROUTE NO.
21	TEXAS	NH 96 (791)	US 83
COUNTY	COUNTY	SECTION NO.	JOB NO.
HIDALGO	HIDALGO	0039	17
CONTRACT NO.	SECTION NO.	JOB NO.	SHEET NO.
0039	17	118	81

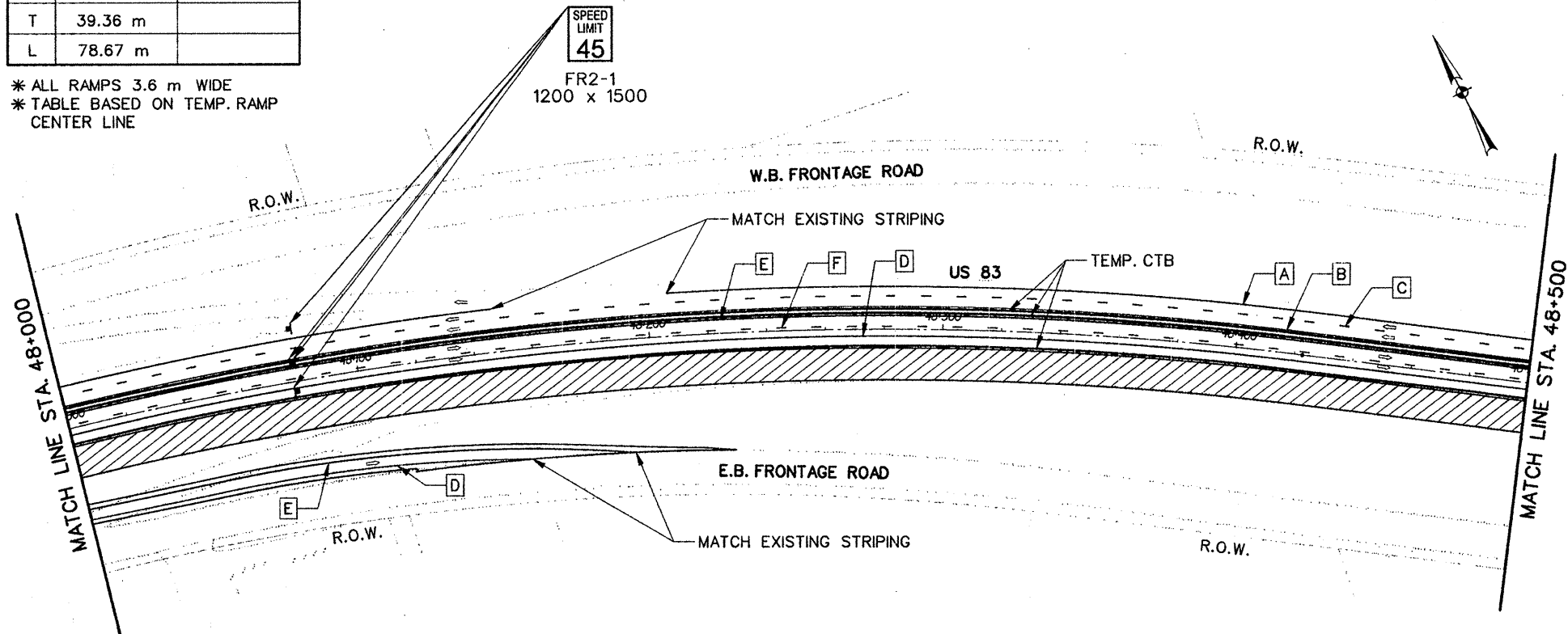
TERRY W. ANDERSON
 FILED IN PROJECT FOLDER

MATCH LINE STA. 47+400
SEE PHASE 3 STEP 1 SHEET 1 OF 4



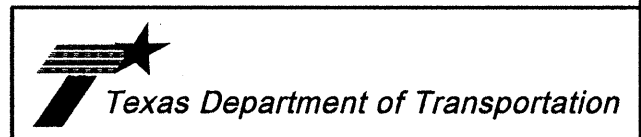
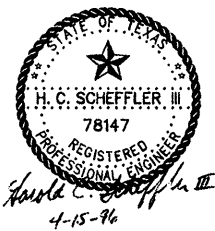
TEMPORARY RAMPS HORIZONTAL CURVE DATA *	
①	
R	875.21 m
Δ	05° 09' 01" RT.
T	39.36 m
L	78.67 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



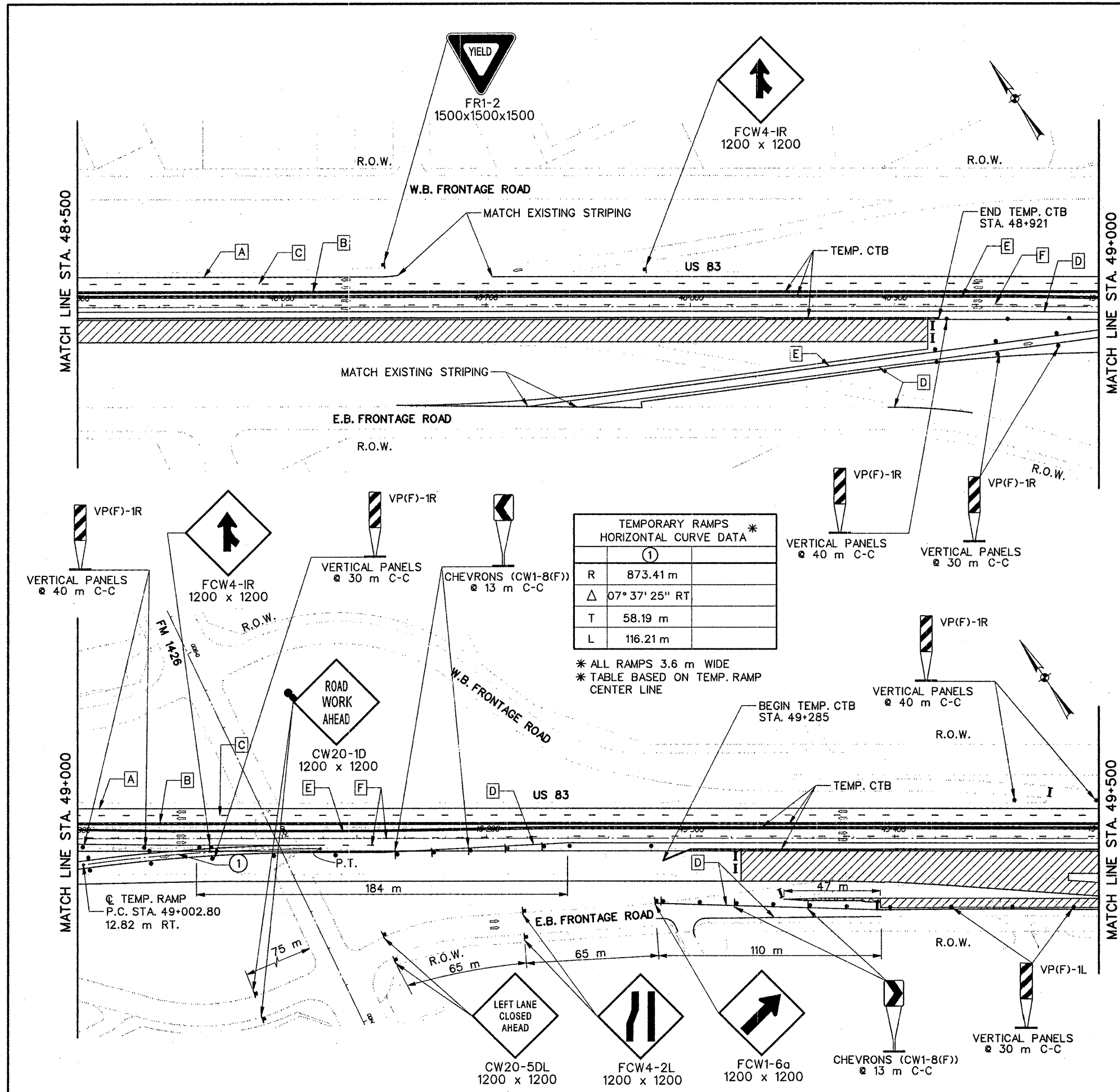
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(210) 682-8666

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**US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 3 STEP 3
STA. 47+400 TO STA. 48+500**

SCALE: 1:1000 SHEET 1 OF 3

DES. NO.	STATE	FEDERAL AID PROJECT NO.	ROUTE NO.
CK. DN: JLS	6	TX 1667(1)	US 83
CK. DN: JCP	STATE DIST. NO.	COUNTY	CORNER SECTION JOB SHEET NO.
CK. TR:	21	HIDALGO	0039 17 118 82

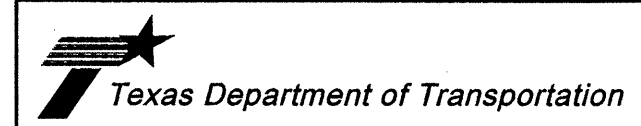


TEMPORARY RAMPS HORIZONTAL CURVE DATA *	
①	
R	873.41 m
Δ	07° 37' 25" RT
T	58.19 m
L	116.21 m

* ALL RAMPS 3.6 m WIDE
 * TABLE BASED ON TEMP. RAMP CENTER LINE

- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
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 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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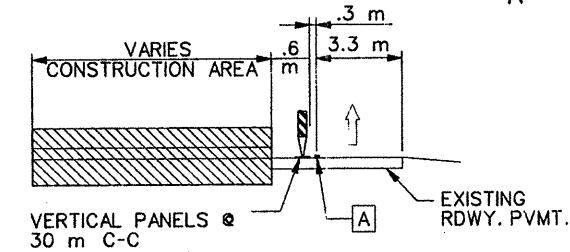
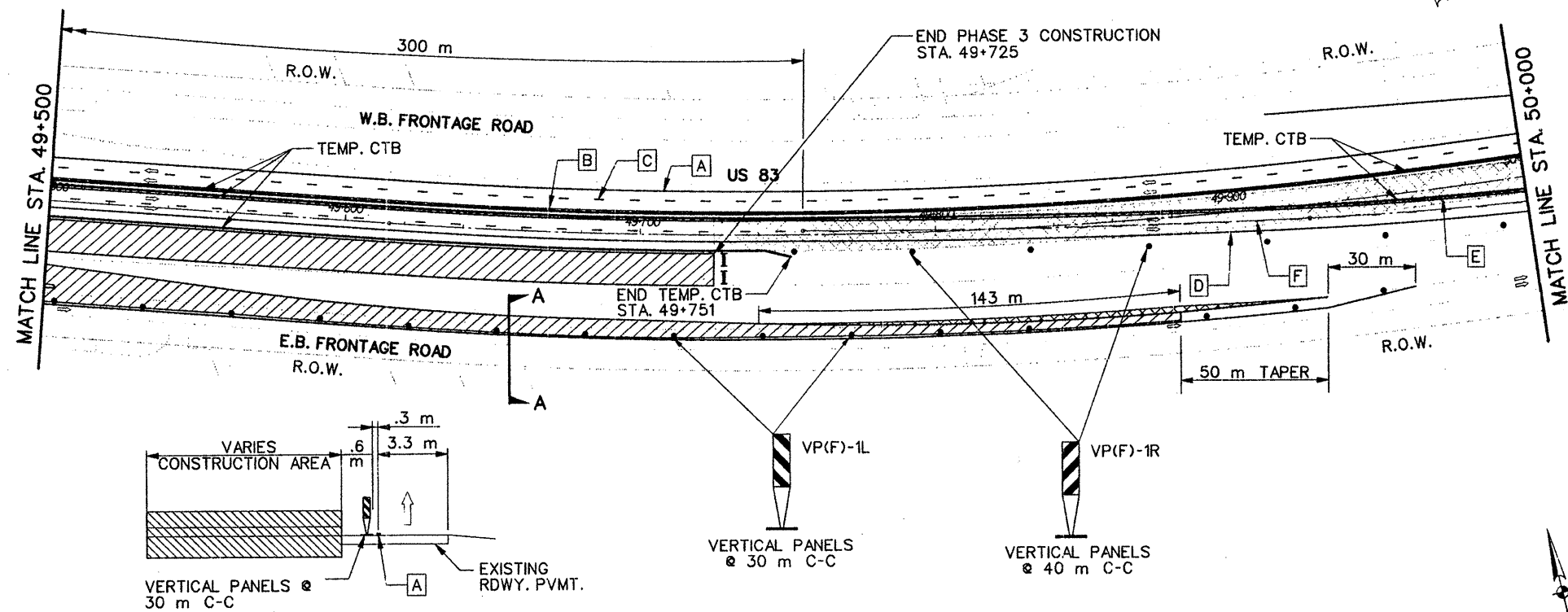
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 3 STEP 3
 STA. 48+500 TO STA. 49+500**

SCALE: 1:1000 SHEET 2 OF 3

DATE: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.:	ROUTE NO.:
CK: JLS	6	NH 96(71)	US 83
DATE: JCP	STATE DIST. NO.:	COUNTY:	CORNER SECTION NO.:
CK: JLS	21	HIDALGO	0039 17
TR: JLS			JOB NO.:
CK: TR			118
			SHEET NO.:
			83

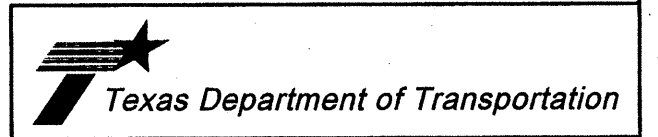
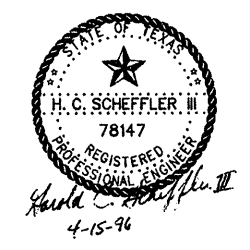
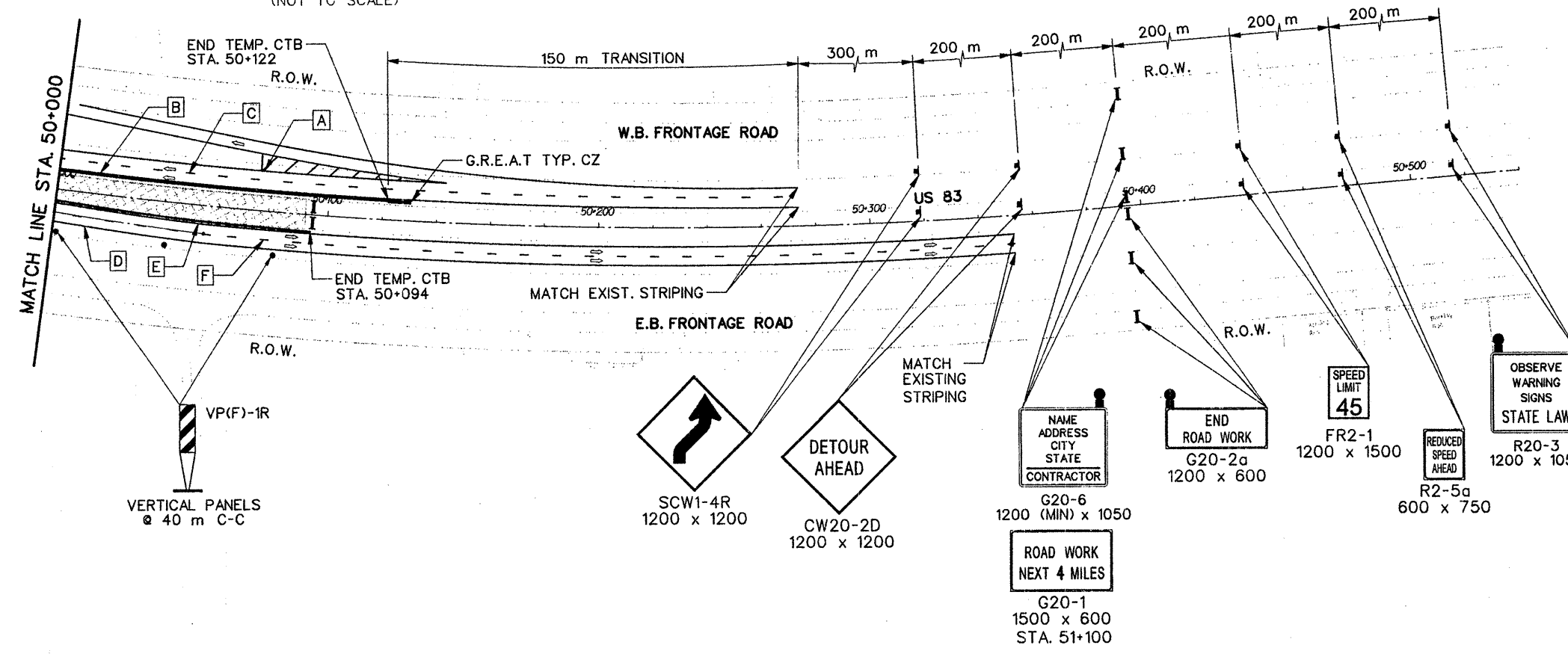
TYPED BY: JLS
 FILE: P3S3R2.TXD



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

NOTES:

1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
2. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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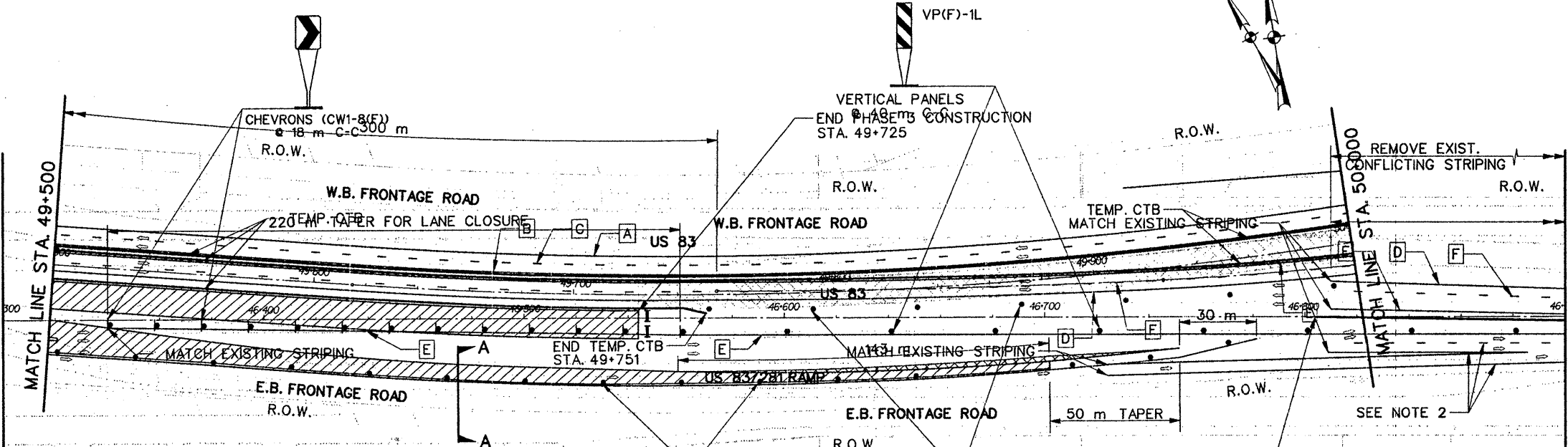
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 3 STEP 3
 STA. 49+500 TO END PROJECT**

SCALE: 1:1000 SHEET 3 OF 3

DN: BS	STATE	FEDERAL AID PROJECT NO.	MILEAGE
CK: DNE: JLS	6 TEXAS	NH 96(791) M1)	US 83
CK: DNE: JCP	STATE DIST. NO.	COUNTY	SECTION NO.
CK: DNE: TR	21	HIDALGO	0039 17
CK: TR			118 84

MATCH LINE STA. 46+300
SEE PHASE 2 SHEET 1 OF 5



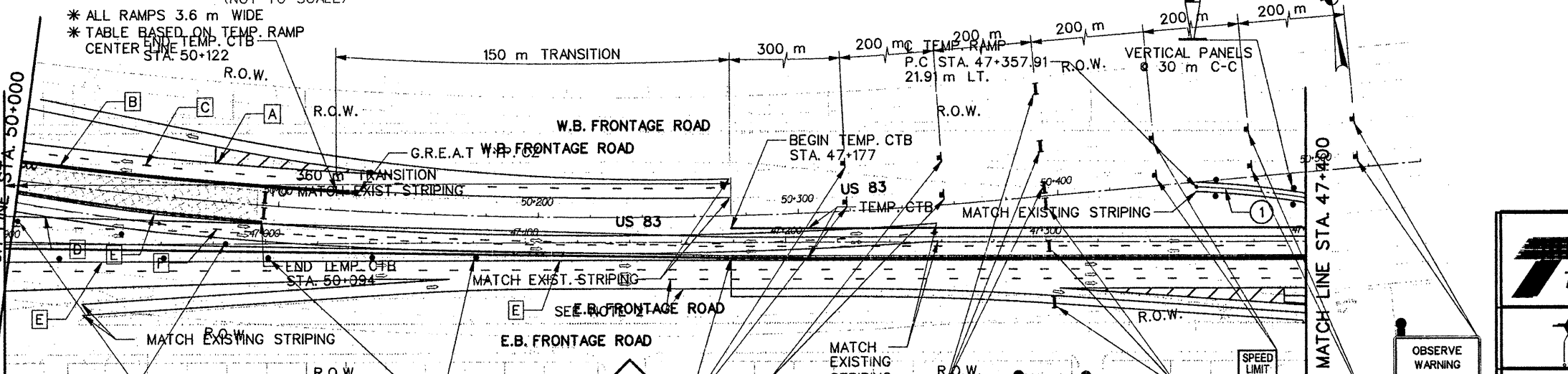
CONSTRUCTION AREA
TEMPORARY RAMPS
HORIZONTAL CURVE DATA

R	389.36 m
Δ	09° 50' 03" RT
T	30.06 m
L	59.96 m

SECTION A-A
(NOT TO SCALE)

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTERLINE TEMP. CTB STA. 50+122

MATCH LINE STA. 46+900
SEE PHASE 2 SHEET 1 OF 5



VERTICAL PANELS @ 40 m C-C

VERTICAL PANELS @ 40 m C-C

BEGIN PHASE 4 CONSTRUCTION STA. 47+177
SCW1-4R 1200 x 1200

DETOUR AHEAD
CW20-2D 1200 x 1200

NAME ADDRESS CITY STATE CONTRACTOR
G20-6 1200 (MIN) x 1050

ROAD WORK NEXT 4 MILES
G20-1 1500 x 600 STA. 51+100

END ROAD WORK
G20-2a 1200 x 600

SPEED LIMIT 45
FR2-1 1200 x 1500

REGISTERED PROFESSIONAL ENGINEER
4-15-96

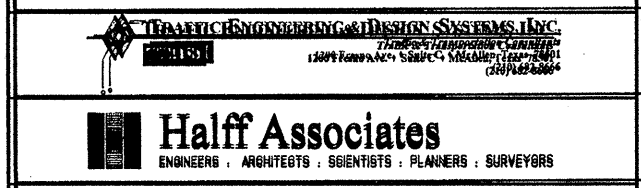
OBSERVE WARNING SIGNS STATE LAW

LEGEND

- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE

NOTES:

1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.
1. SEE "TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE REFERENCE. ALL EASTBOUND TRAFFIC SHALL BE DIVERTED TO WESTBOUND TRAFFIC.
2. SEE "DRAINAGE PLAN" SHEET FOR APPROPRIATE DRAINAGE REFERENCE. PVMT. MARK (NON-REM) TYPE.
3. ALL PROPOSED EASTBOUND MAINLANE PERMANENT STRIPING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
4. INSTALL WORK ZONE PVMT MARK AS SHOWN ON PHASE 4 CONSTRUCTION SECTION.
5. SEE "DRAINAGE PLAN" SHEET FOR APPROPRIATE DRAINAGE REFERENCE.

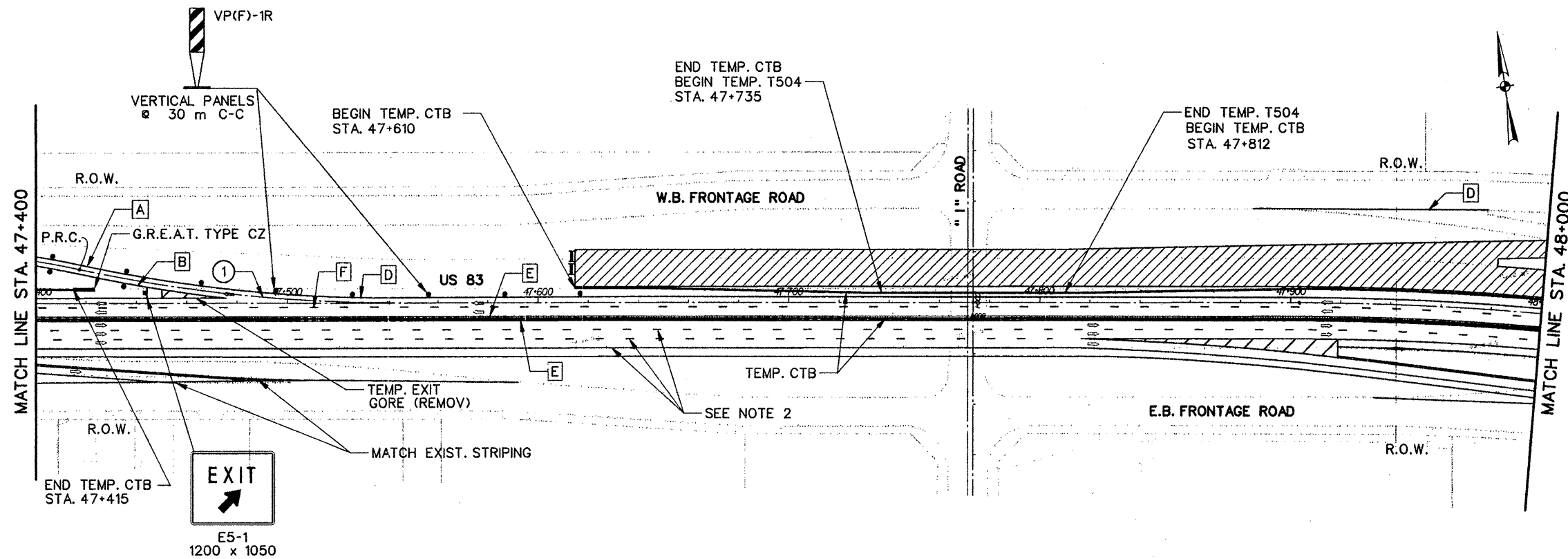


US 83 - 11" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 4 STEP 3
STA. 46+300 TO STA. 47+400

SCALE: 1:1000 SHEET 2 OF 43

DATE	6/15/96	DESIGNED BY	HA/STP/3
DRAWN BY	HA/STP/3	CHECKED BY	HA/STP/3
DATE	6/15/96	DATE	6/15/96
DATE	6/15/96	DATE	6/15/96

REF: 01-02-002
LET PRODUCTION

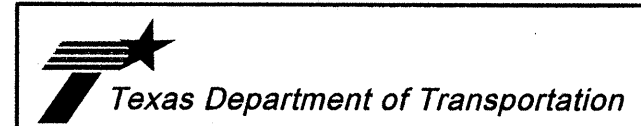
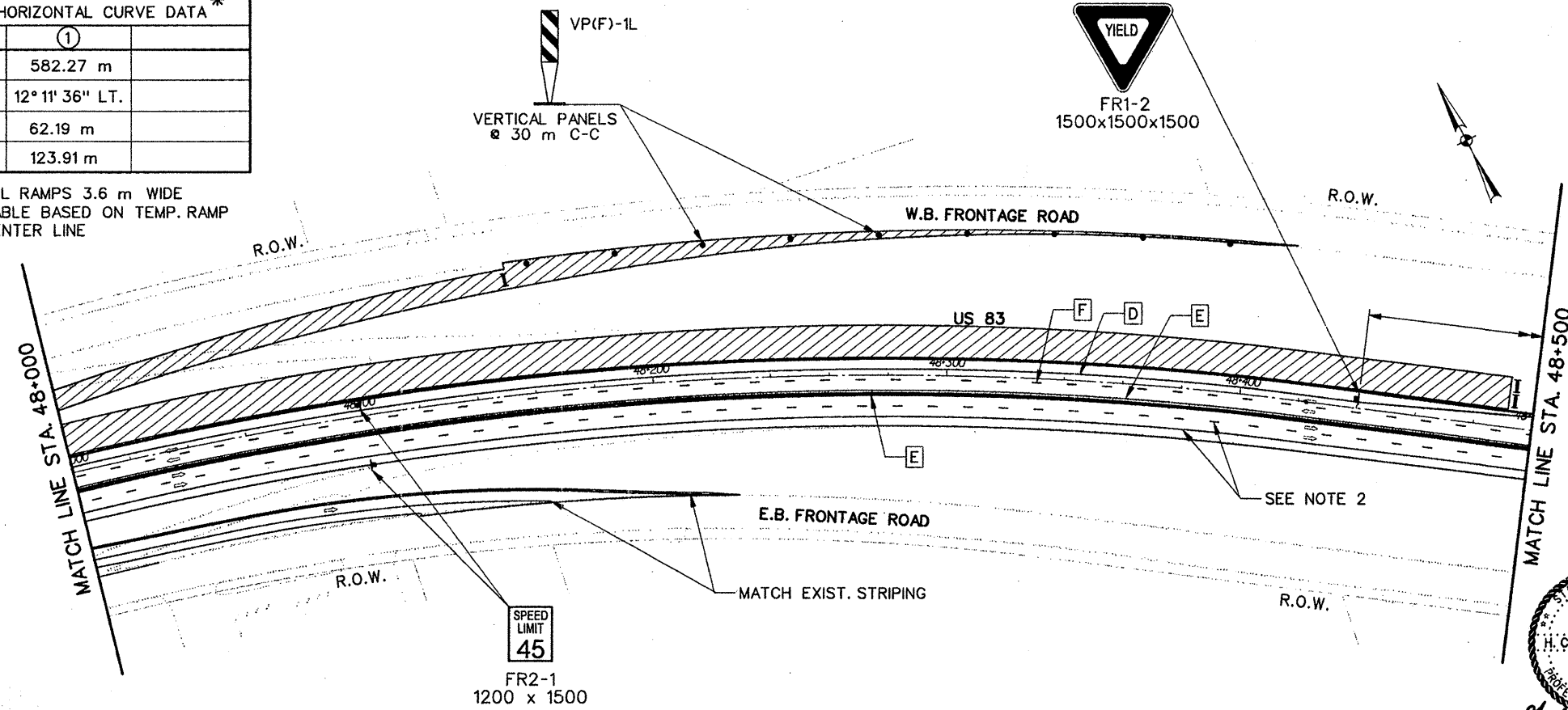


- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
 - UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
 - ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

TEMPORARY RAMPS HORIZONTAL CURVE DATA *	
①	
R	582.27 m
Δ	12° 11' 36" LT.
T	62.19 m
L	123.91 m

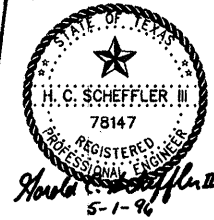
* ALL RAMPS 3.6 m WIDE
 * TABLE BASED ON TEMP. RAMP CENTER LINE



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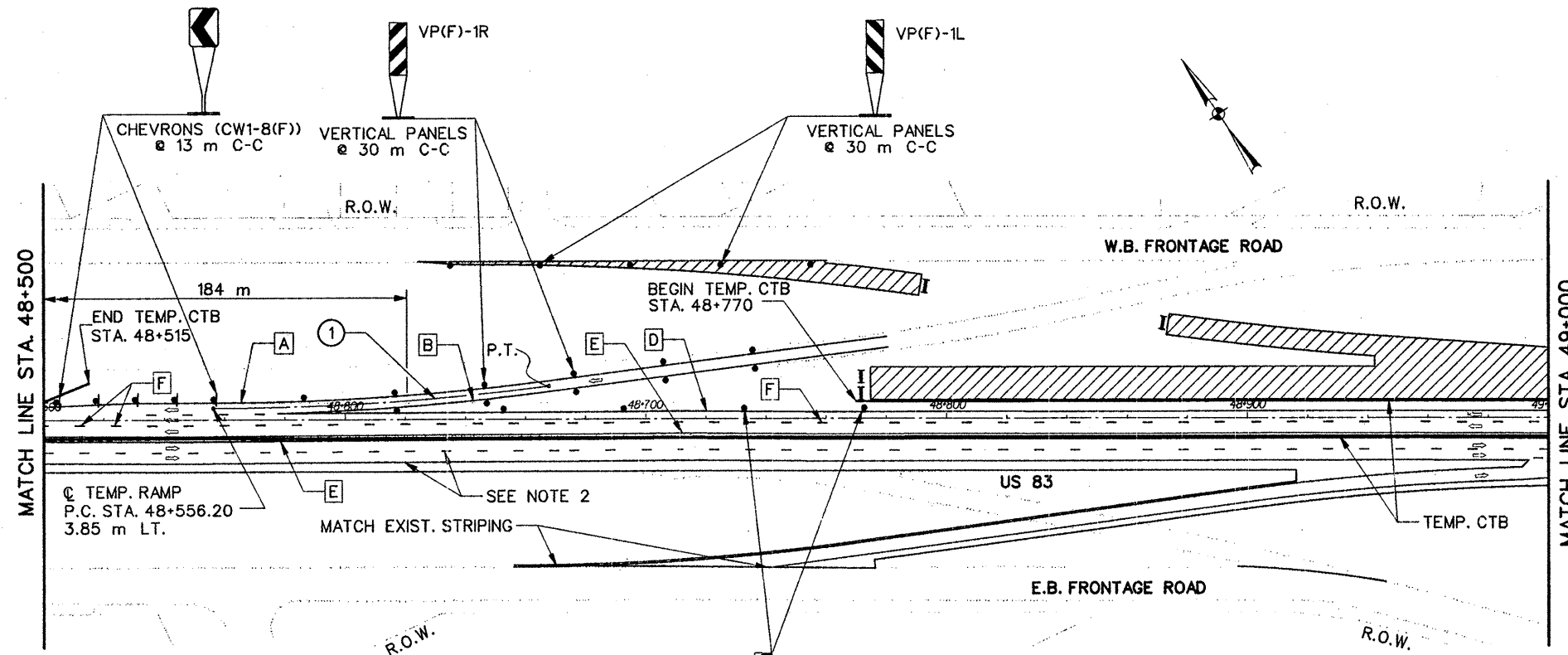
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 4 STEP 1
 STA. 47+400 TO STA. 48+500**



SCALE: 1:1000 SHEET 2 OF 4

DN: BS	STATE	FEDERAL AID PROJECT NO.	ROUTE
CK DN: JLS	6 TEXAS	NH 96(79) MI)	US 83
DW: JCP	COUNTY	CONTROL SECTION	JOB NO.
CK DW:	21 HIDALGO	0039 17	118
TR:			86
CK TR:			



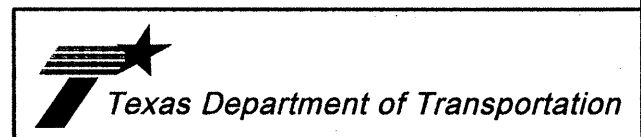
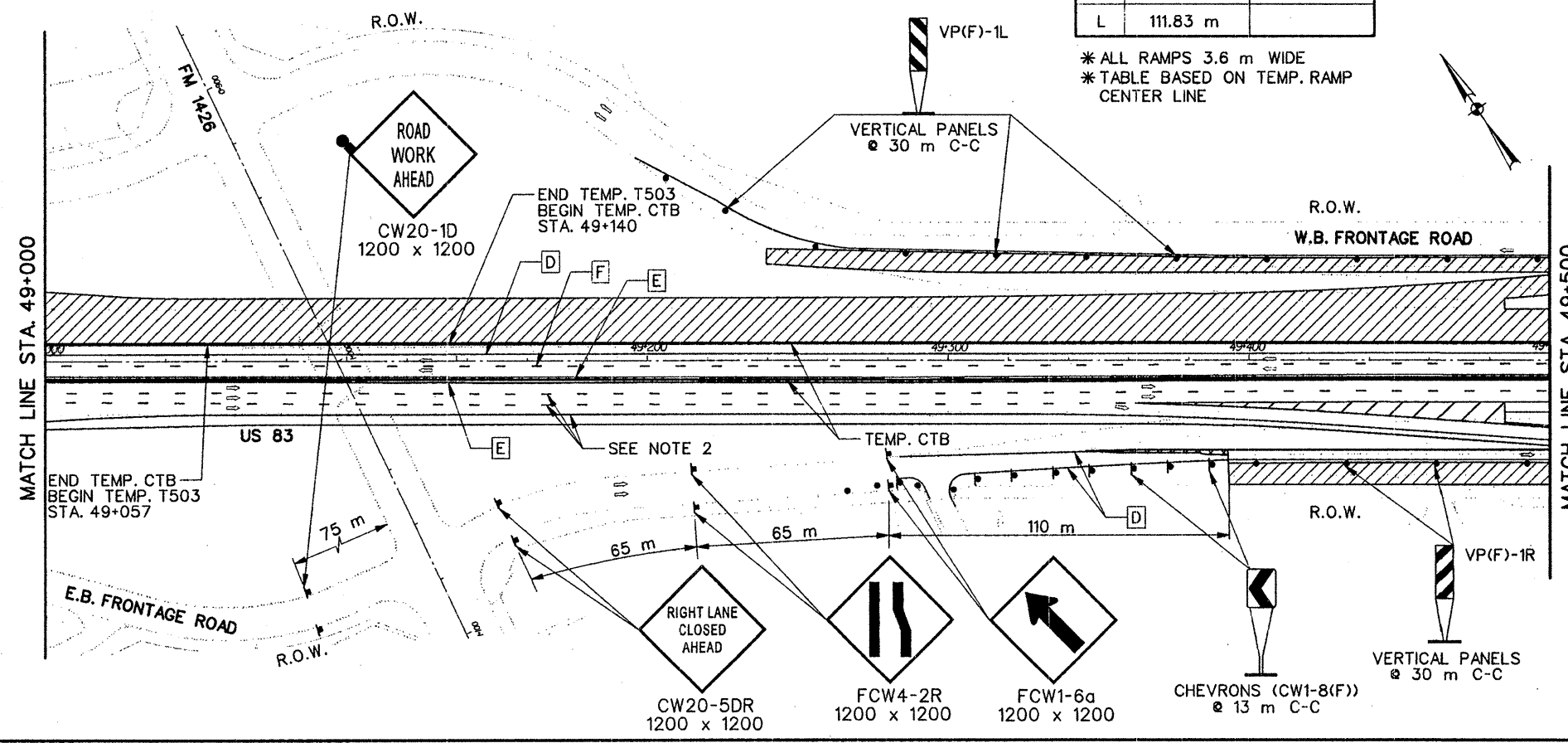
- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

TEMPORARY RAMPS
HORIZONTAL CURVE DATA *

	①
R	875.21 m
Δ	07° 19' 15" LT.
T	56.00 m
L	111.83 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
 - UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
 - ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



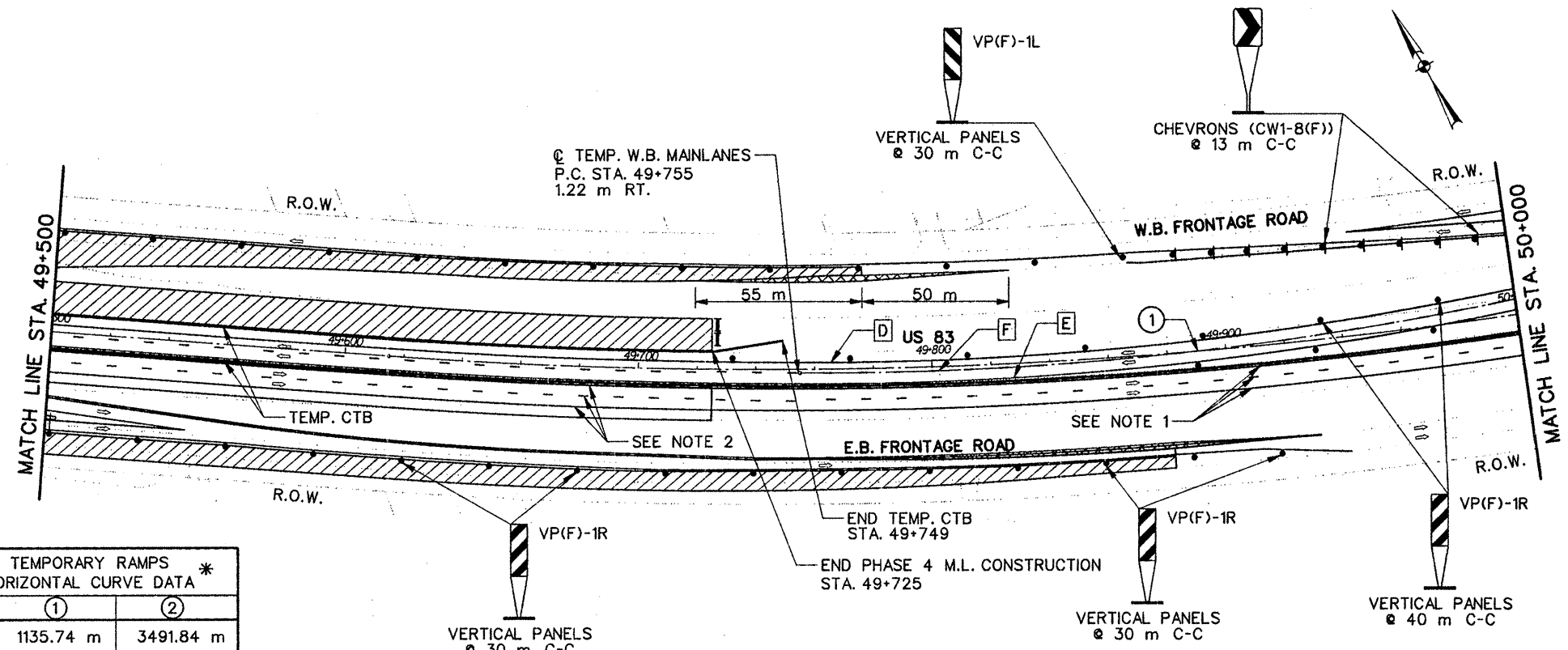
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US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 4 STEP 1
STA. 48+500 TO STA. 49+500

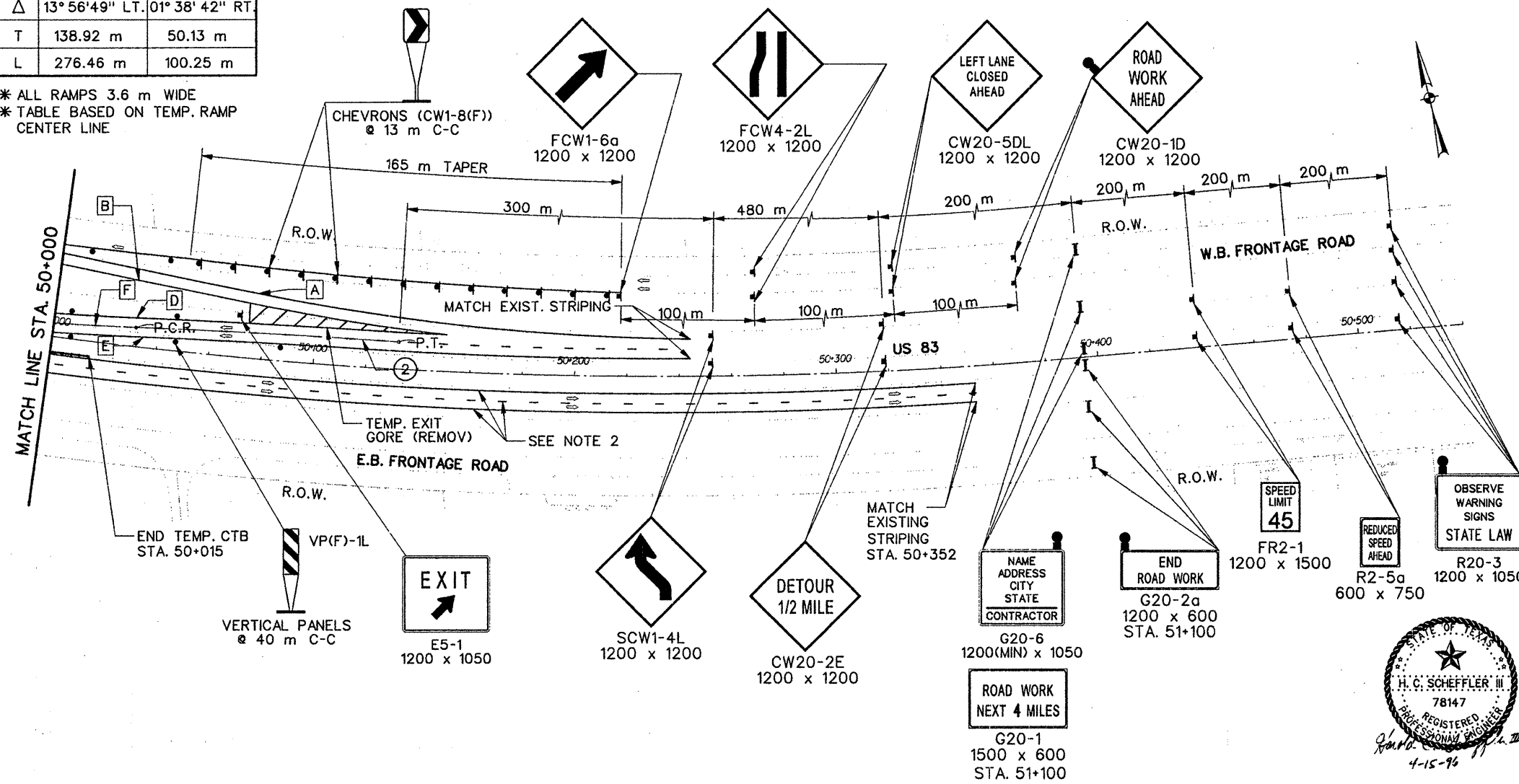
SCALE: 1:1000 SHEET 3 OF 4

DN: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96(791)	HIGHWAY NO.: US 83
CK DN: JLS	STATE DIST. NO.: 21	COUNTY: HIDALGO	CONTRACT NO.: 0039
DWG: JCP	SECTION NO.: 17	SHEET NO.: 118	87



TEMPORARY RAMPS HORIZONTAL CURVE DATA *		
	①	②
R	1135.74 m	3491.84 m
Δ	13° 56' 49" LT.	01° 38' 42" RT.
T	138.92 m	50.13 m
L	276.46 m	100.25 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE

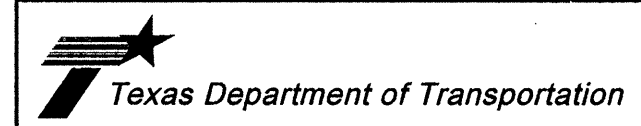


LEGEND

- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE

NOTES:

1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
2. UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
3. ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
4. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



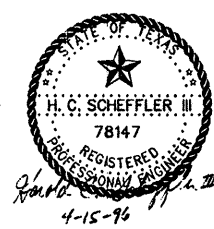
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Traffic & Transportation Consultants
1200 Franco Ave. • Suite C • McAllen, Texas 78501
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**US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 4 STEP 1
STA. 49+500 TO END PROJECT**

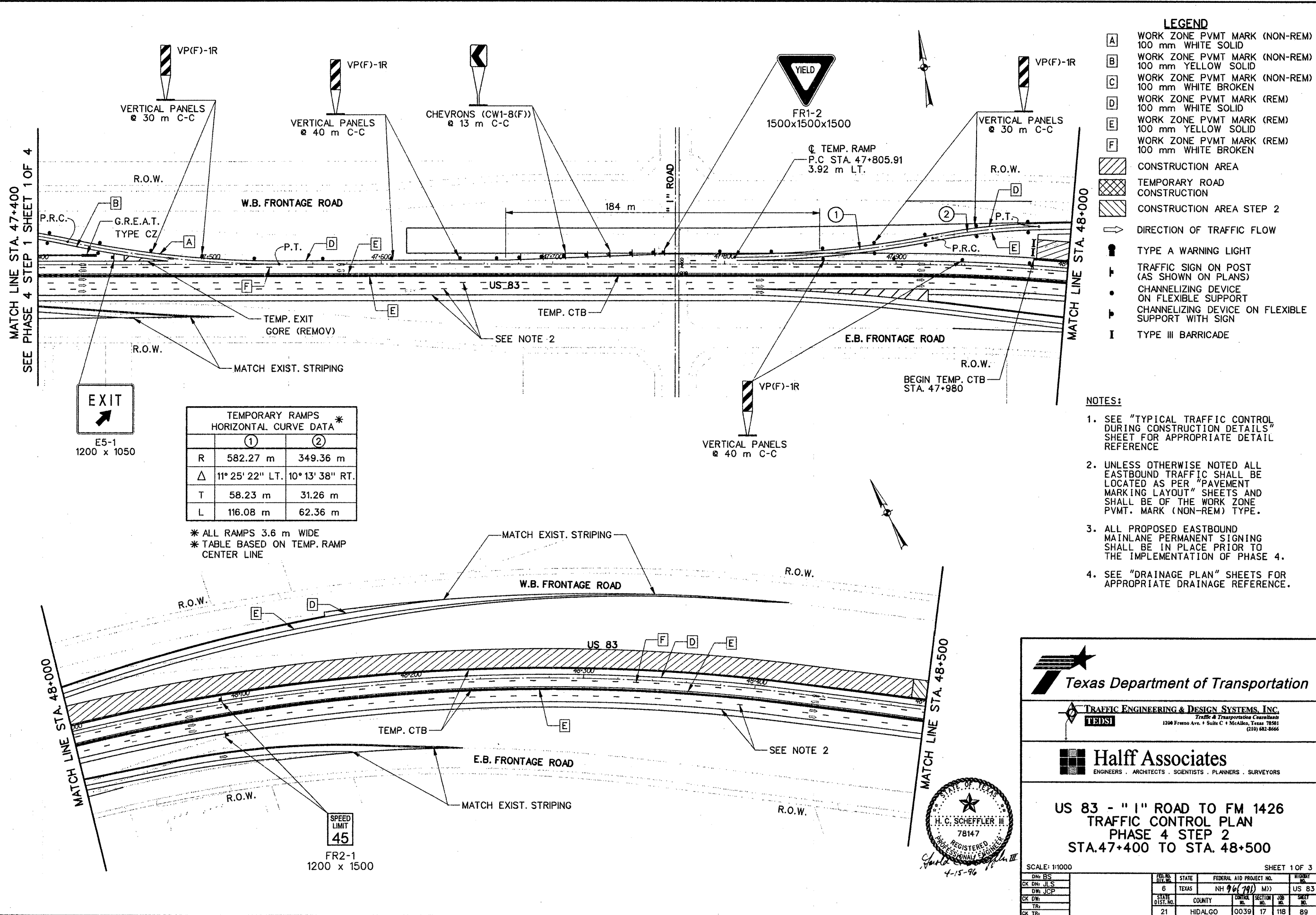
SCALE: 1:1000 SHEET 4 OF 4

DATE: 4-15-96	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96(201)	SECTION: 17	SHEET NO.: 88
CK: DN: JLS	COUNTY: HIDALGO	CONTROL NO.: 0039	JOB NO.: 118	
CK: JCP				
CK: DW				
CK: TR				



TEXAS REG. NO. 0284-0002
 FILE # PLS 854703

MATCH LINE STA. 47+400
SEE PHASE 4 STEP 1 SHEET 1 OF 4



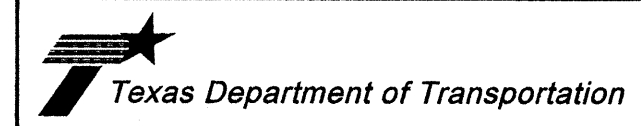
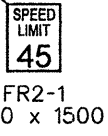
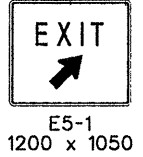
- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - CONSTRUCTION AREA STEP 2
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
 - UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
 - ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

TEMPORARY RAMP HORIZONTAL CURVE DATA *

	①	②
R	582.27 m	349.36 m
Δ	11° 25' 22" LT.	10° 13' 38" RT.
T	58.23 m	31.26 m
L	116.08 m	62.36 m

* ALL RAMP 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE



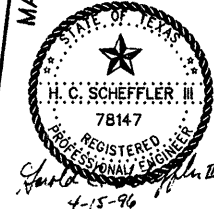
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(210) 682-8666



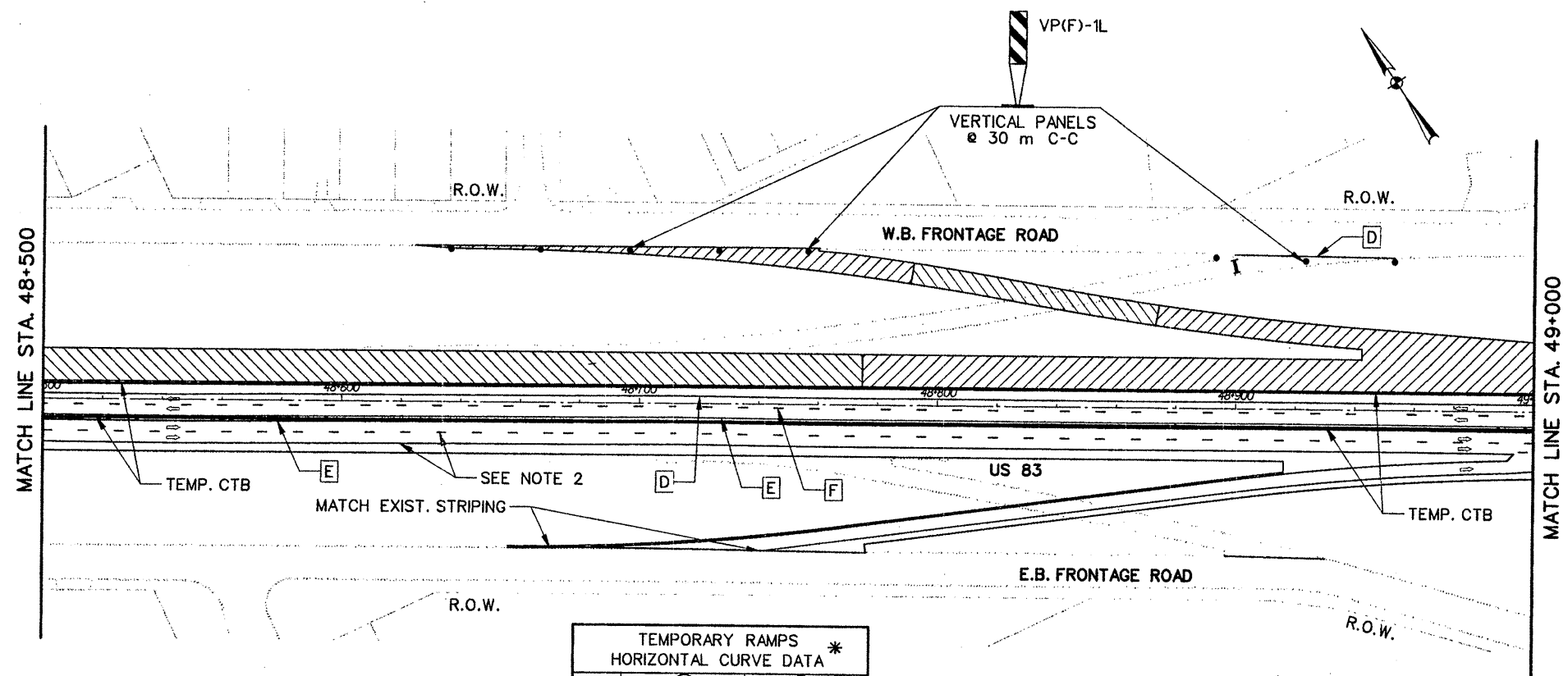
US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 4 STEP 2
STA. 47+400 TO STA. 48+500

SCALE: 1:1000 SHEET 1 OF 3

DWG. NO.	STATE	FEDERAL AID PROJECT NO.	SECTION
CK. DWT. JLS	6 TEXAS	NH 96(781)	US 83
CK. DWT. JOP	STATE DIST. NO.	COUNTY	CONTRACT NO.
CK. DWT. TR	21	HIDALGO	0039
CK. TR			17
			118
			89



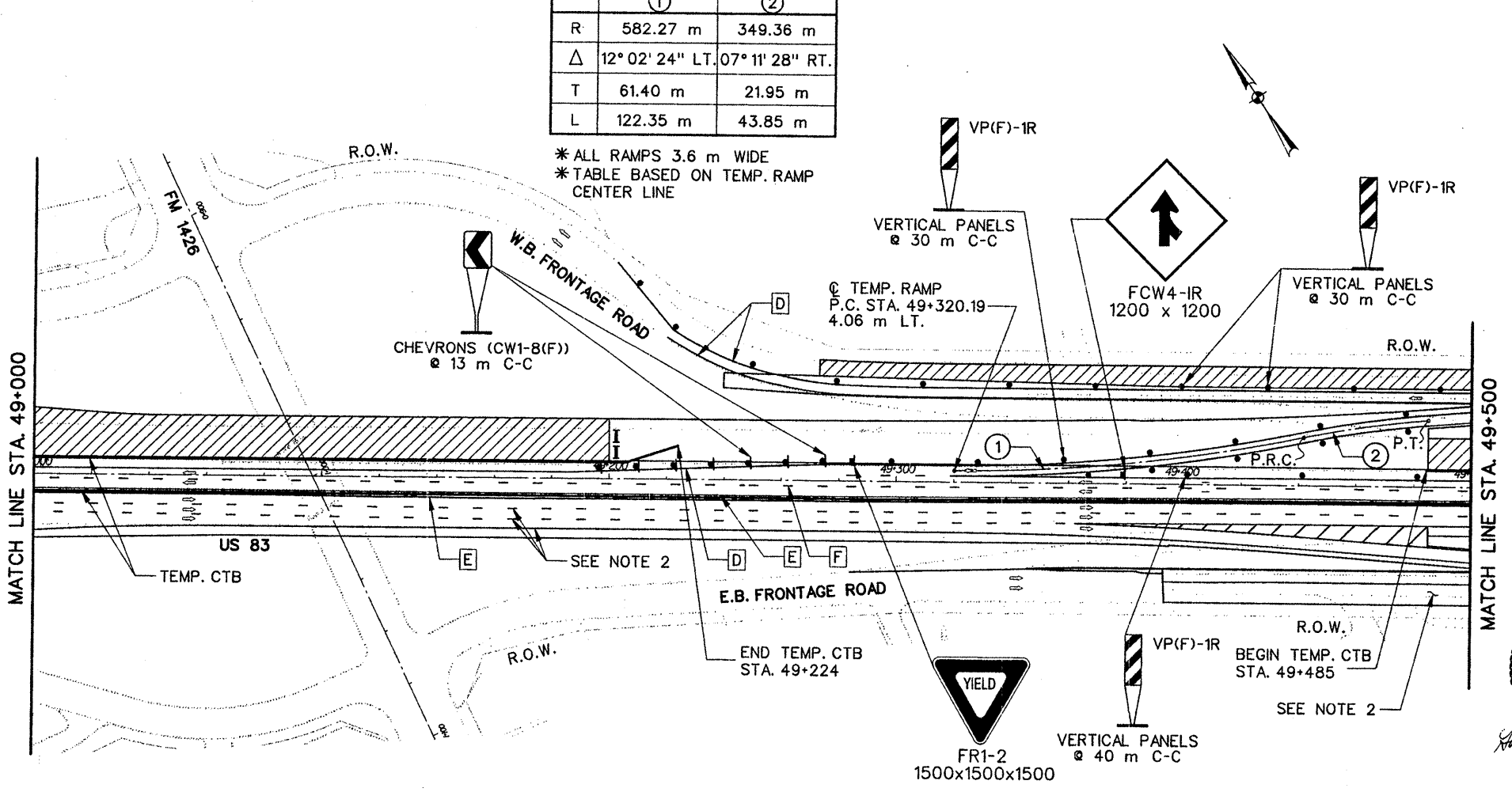
TECHNICAL DRAWING NO. 9824-0000 FILED IN PHASE 4 STEP 2



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - CONSTRUCTION AREA STEP 2
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

TEMPORARY RAMPS HORIZONTAL CURVE DATA *		
	①	②
R	582.27 m	349.36 m
Δ	12° 02' 24" LT.	07° 11' 28" RT.
T	61.40 m	21.95 m
L	122.35 m	43.85 m

* ALL RAMPS 3.6 m WIDE
 * TABLE BASED ON TEMP. RAMP CENTER LINE



- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
 - UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
 - ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

Texas Department of Transportation

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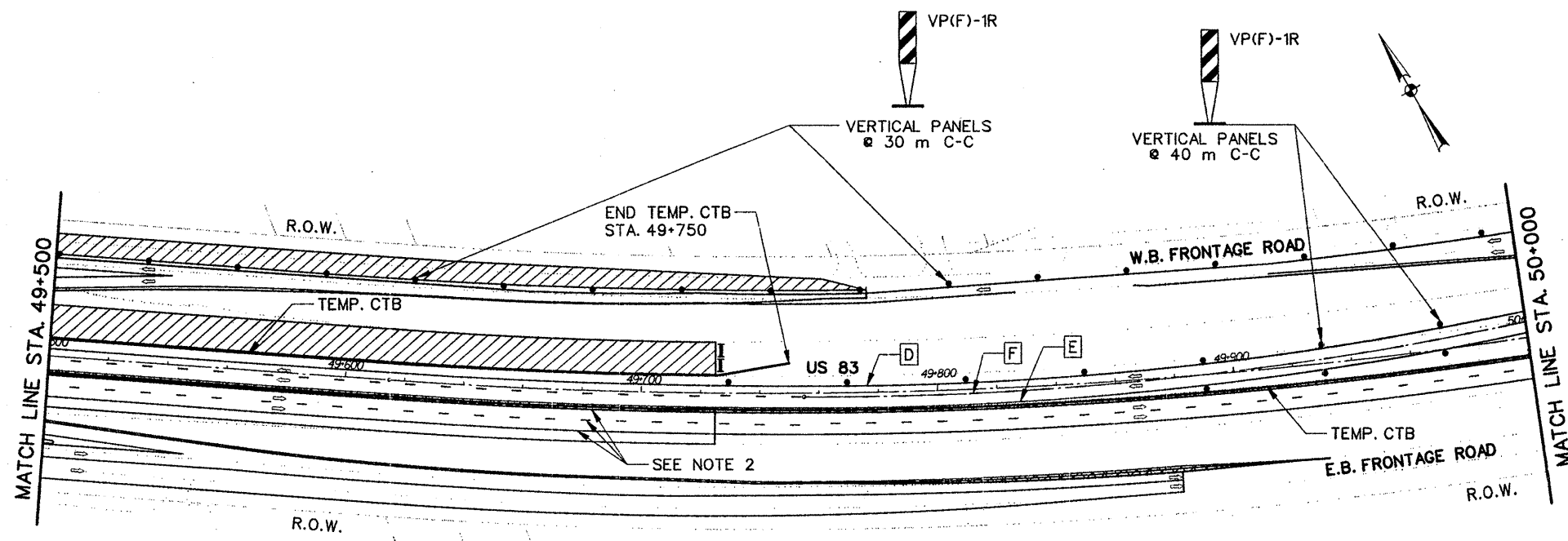
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 4 STEP 2
 STA. 48+500 TO STA. 49+500**

SCALE: 1:1000 SHEET 2 OF 3

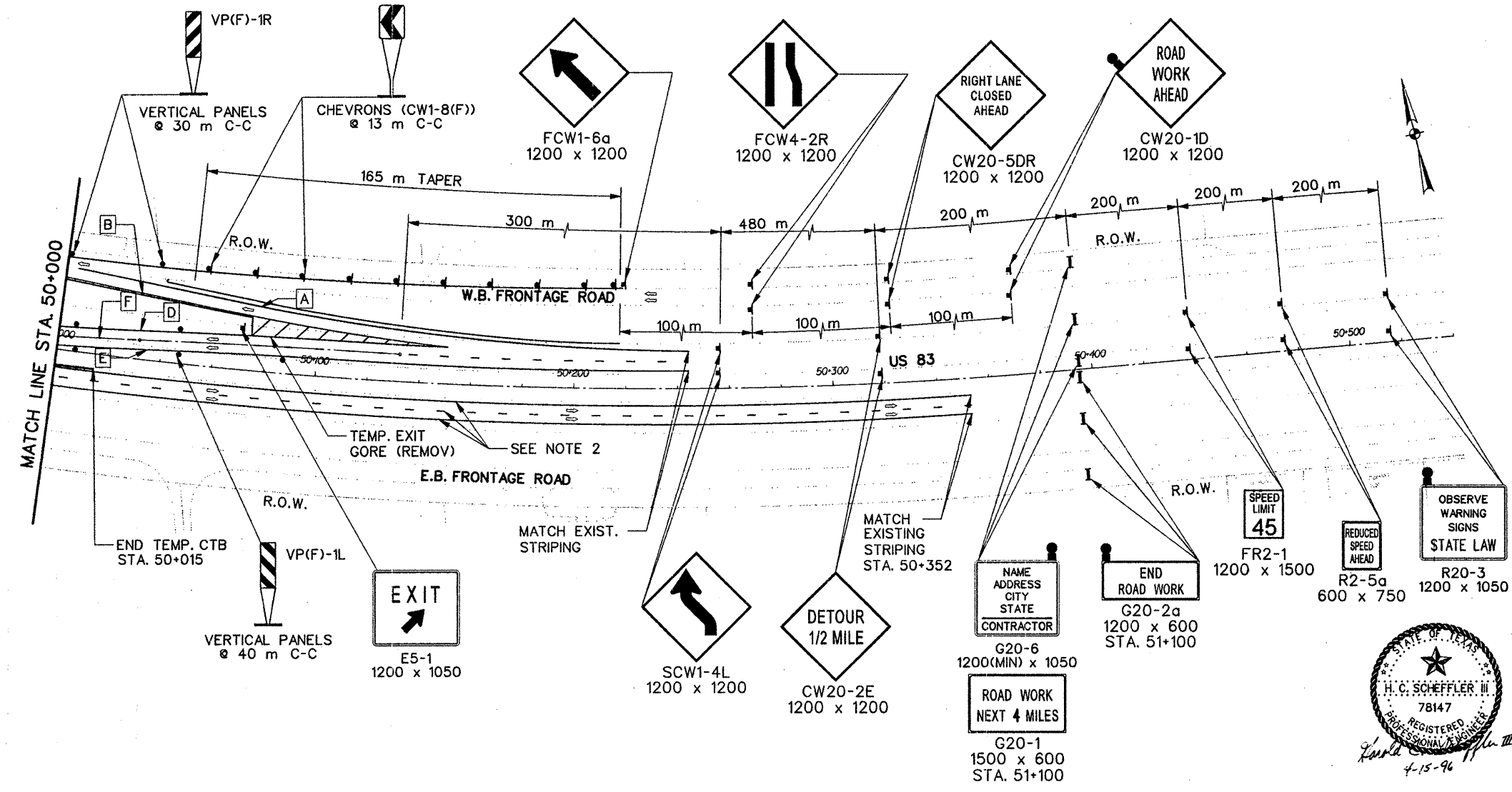
DN: BS	STATE	FEDERAL AID PROJECT NO.	ROUTE
CK: DN: JLS	6 TEXAS	NH96 (791) MD	US 83
DN: JCP	STATE DIST. NO.	COUNTY	SECTION NO.
CK: DW:	21	HIDALGO	0039
TR:			17
CK: TR:			118
			90



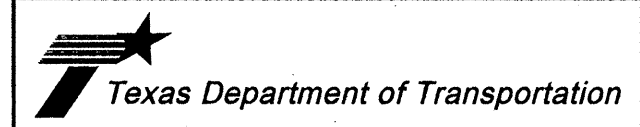
TERRACON, INC. 9524-0022 FILE: PMS/STP/210



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE



- NOTES:**
- SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
 - UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
 - ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



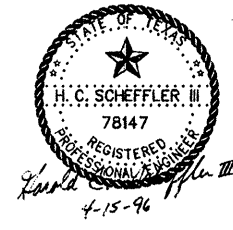
TRAFFIC ENGINEERING & DESIGN SYSTEMS, INC.
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 4 STEP 2
 STA.49+500 TO END PROJECT**

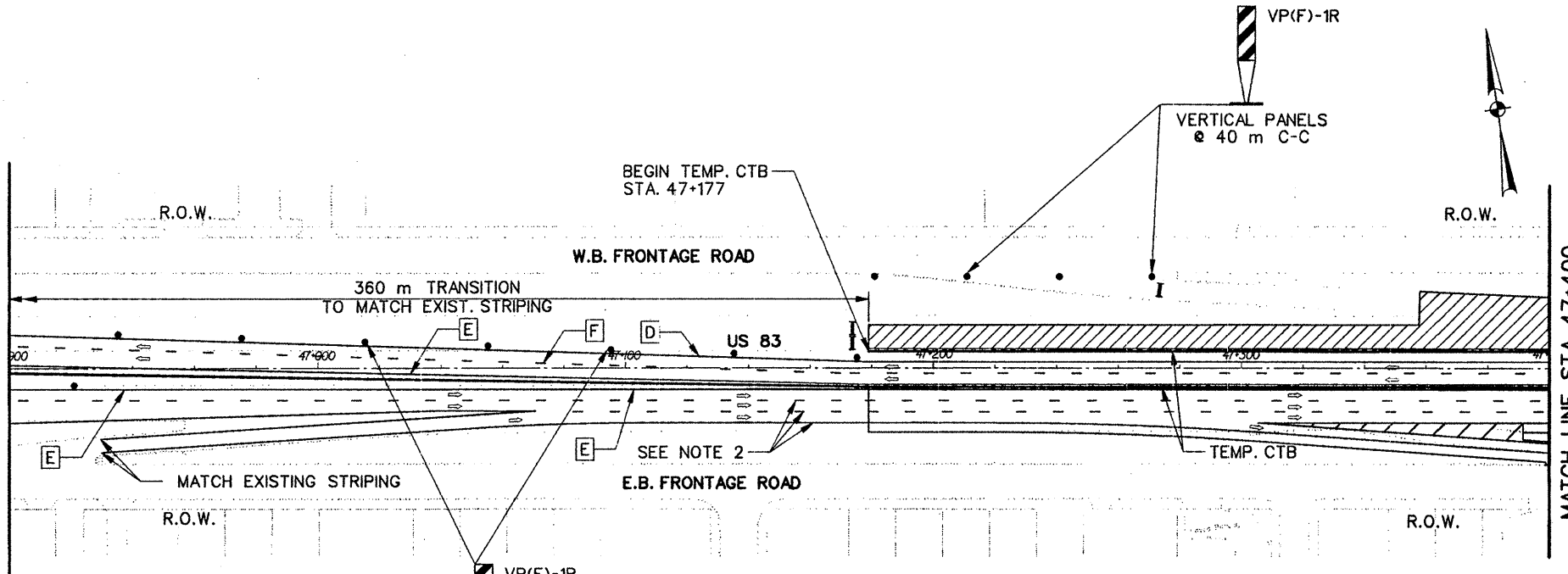
SCALE: 1:1000 SHEET 3 OF 3

CHK'D BY: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96(791) M1)	HIGHWAY: US 83
CK'D BY: JLS	COUNTY: HIDALGO	CONTROL NO.: 0039	SECTION NO.: 17
CK'D BY: JCP	JOB NO.: 118	SHEET NO.: 91	
TR: _____			
CK TR: _____			



T&E REF. NO. 95284-0022
 FILE: PHHSP2412P

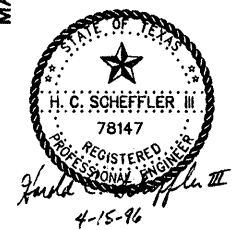
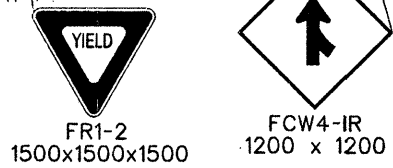
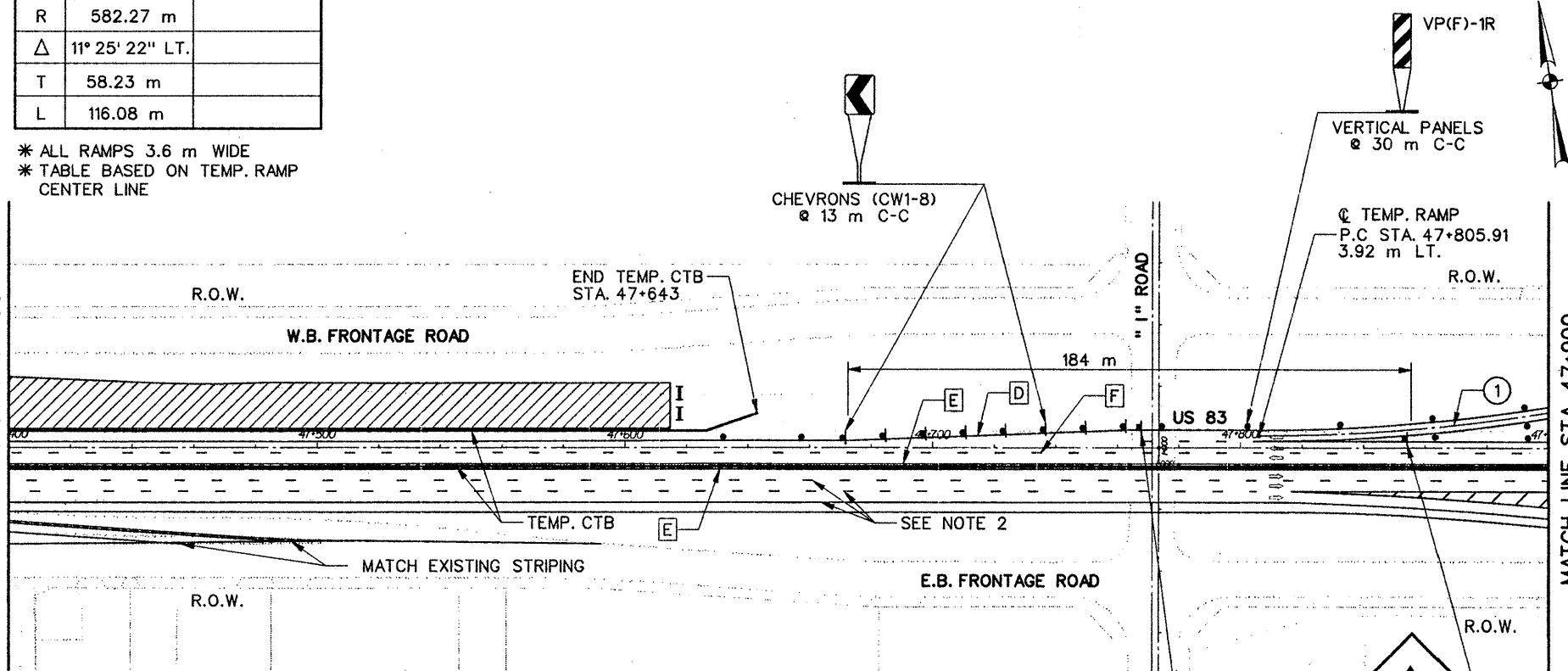
MATCH LINE STA. 46+900
SEE PHASE 4 STEP 1 SHEET 1 OF 4



TEMPORARY RAMPS HORIZONTAL CURVE DATA *	
①	
R	582.27 m
Δ	11° 25' 22" LT.
T	58.23 m
L	116.08 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE

MATCH LINE STA. 47+400

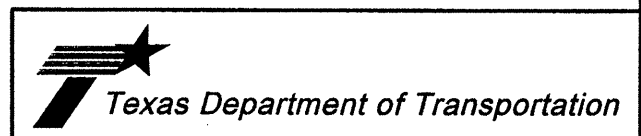


LEGEND

- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE

NOTES:

1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
2. UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
3. ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
4. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

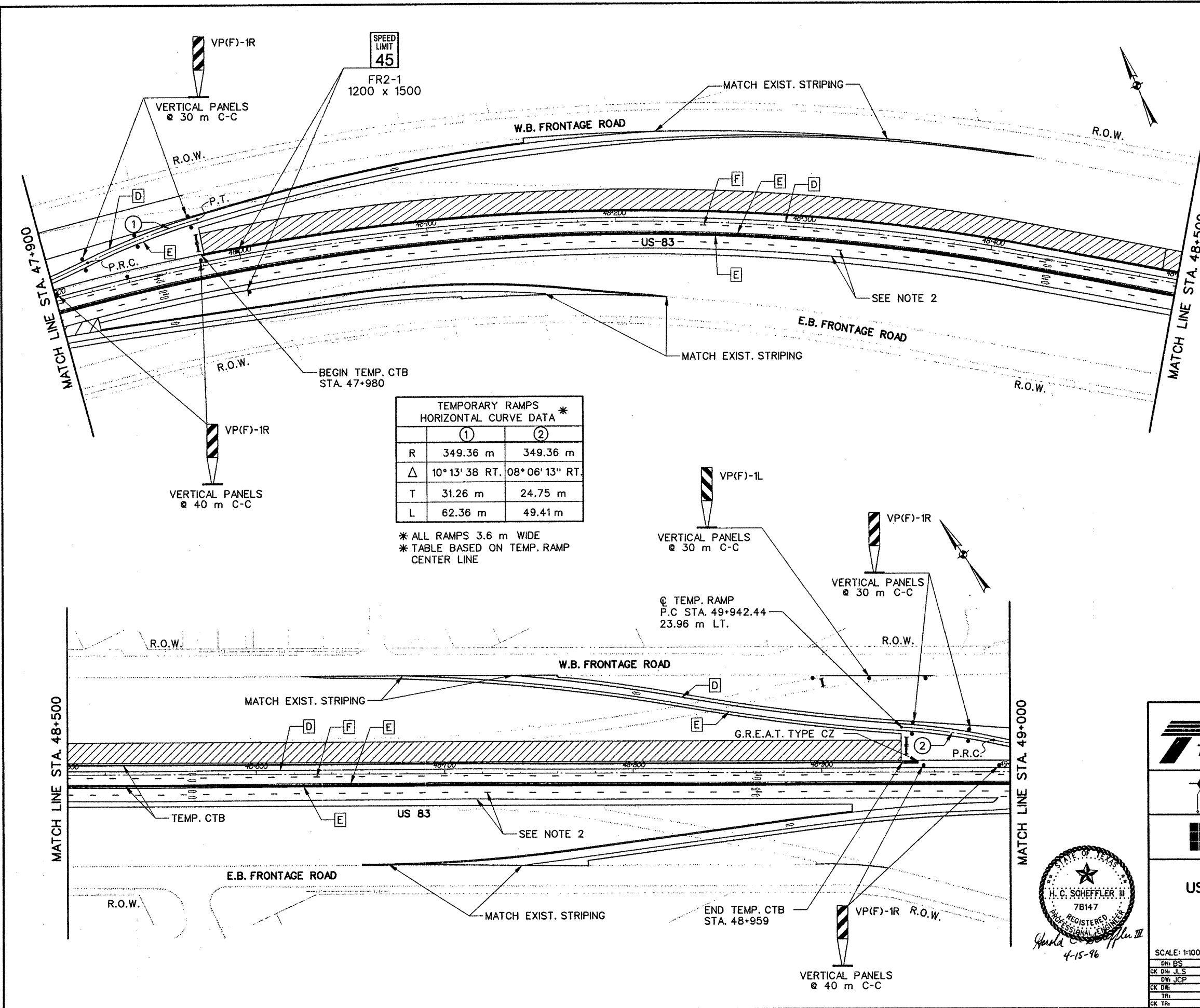


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US 83 - " I " ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 4 STEP 3
STA. 46+900 TO STA. 47+900

SCALE: 1:1000		SHEET 1 OF 3			
DN: BS	STATE	FEDERAL AID PROJECT NO.	JOB NO.		
CK DN: JLS	6 TEXAS	NH 96(791) M(1)	US 83		
DW: JCP	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	SHEET NO.
TR:	21	HIDALGO	0039	17	118 92
CK TR:					



SPEED LIMIT 45

FR2-1
1200 x 1500

TEMPORARY RAMPS HORIZONTAL CURVE DATA *		
	(1)	(2)
R	349.36 m	349.36 m
Δ	10° 13' 38 RT.	08° 06' 13" RT.
T	31.26 m	24.75 m
L	62.36 m	49.41 m

* ALL RAMPS 3.6 m WIDE
* TABLE BASED ON TEMP. RAMP CENTER LINE

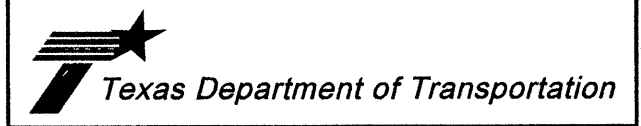
TEMP. RAMP
P.C. STA. 49+942.44
23.96 m LT.

LEGEND

- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE

NOTES:

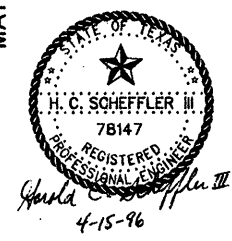
1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
2. UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
3. ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
4. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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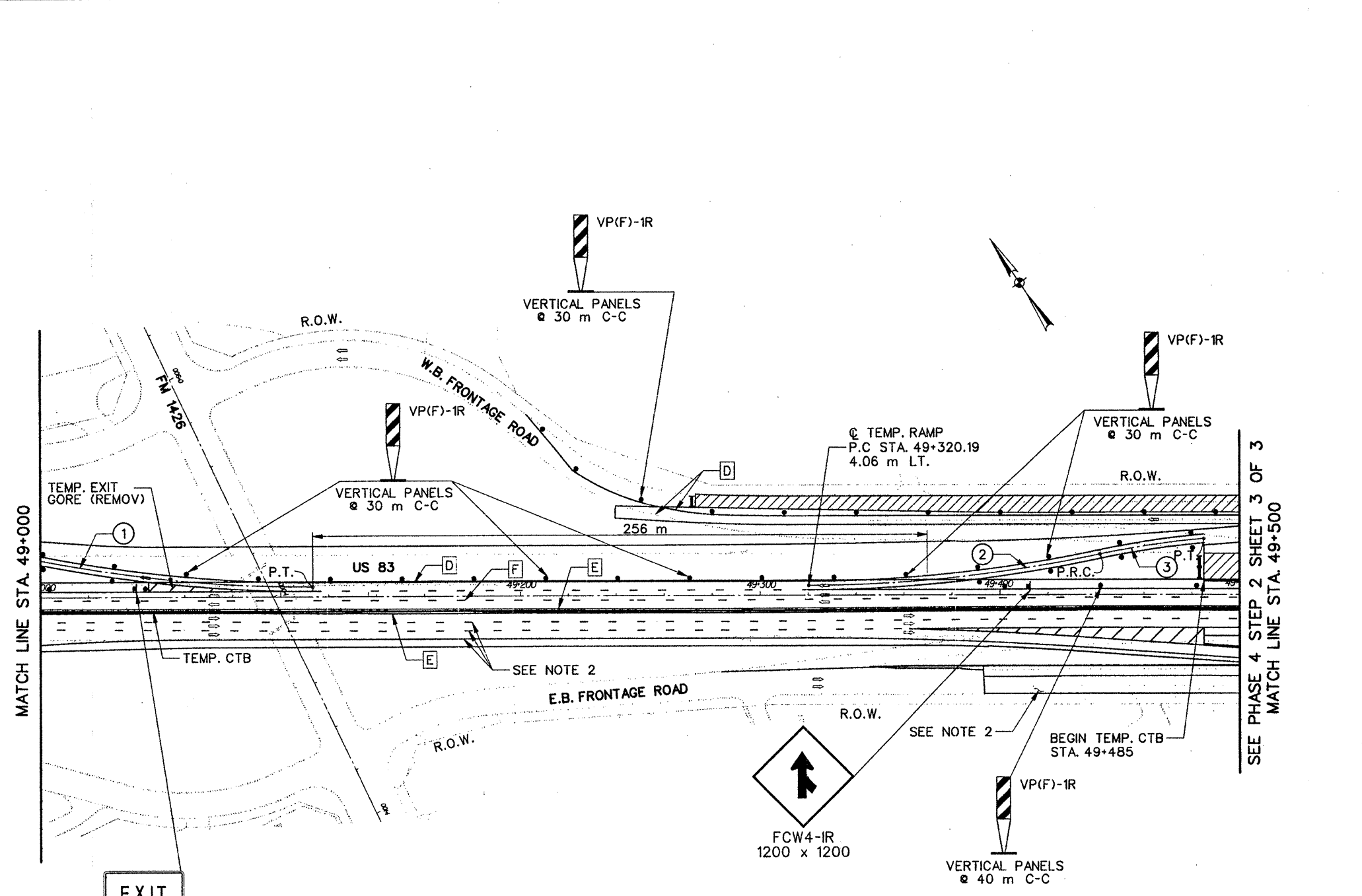
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**US 83 - "1" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 4 STEP 3
STA. 47+900 TO STA. 49+000**



SCALE: 1:1000		SHEET 2 OF 3			
DESIGNER: BS	DATE: 4/15/96	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96 (791) M)	HIGHWAY NO.: US 83	
CHECKER: JLS					
DATE: JCP					
CHECKER: TR1		STATE DIST. NO.: 21	COUNTY: HIDALGO	CONTRACT NO.: 0039	SECTION NO.: 17
CHECKER: TR1				JOB NO.: 118	SHEET NO.: 93

T&E REF. NO. 85284-10002
 FILE: PMS052.TCP

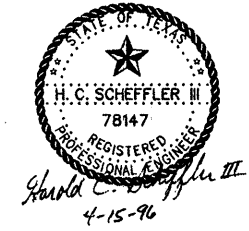


- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
1. SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE
 2. UNLESS OTHERWISE NOTED ALL EASTBOUND TRAFFIC SHALL BE LOCATED AS PER "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK (NON-REM) TYPE.
 3. ALL PROPOSED EASTBOUND MAINLANE PERMANENT SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 4.
 4. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

TEMPORARY RAMPS HORIZONTAL CURVE DATA *			
	①	②	③
R	582.27 m	582.27 m	349.36 m
Δ	12° 05' 26" LT.	12° 02' 24" LT.	07° 11' 28" RT.
T	61.66 m	61.40 m	21.95 m
L	122.87 m	122.35 m	43.85 m

* ALL RAMPS 3.6 m WIDE
 * TABLE BASED ON TEMP. RAMP CENTER LINE



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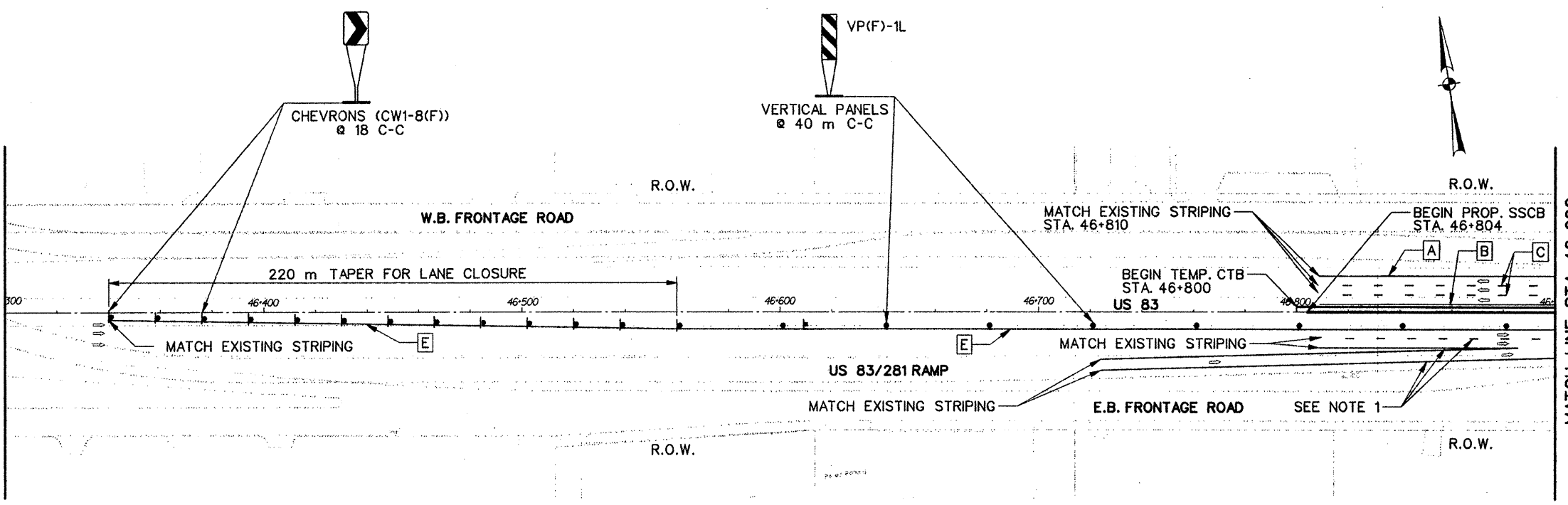
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 4 STEP 3
 STA. 49+000 TO 49+500**

SCALE: 1:1000 SHEET 3 OF 3

DESIGNER	DATE	STATE	FEDERAL AID PROJECT NO.	BID NO.
CK DRG: JLS		6	TEXAS NH 90(790) M3	US 83
DRG: JICP				
CK DRG:		STATE	COUNTY	CONTRACT NO.
TR:		21	HIDALGO	0039
CK TR:				
			SECTION NO.	JOB NO.
			17	118
				SHEET NO.
				94

PREPARED BY: JLS
 FILE: PHAS03.DWG

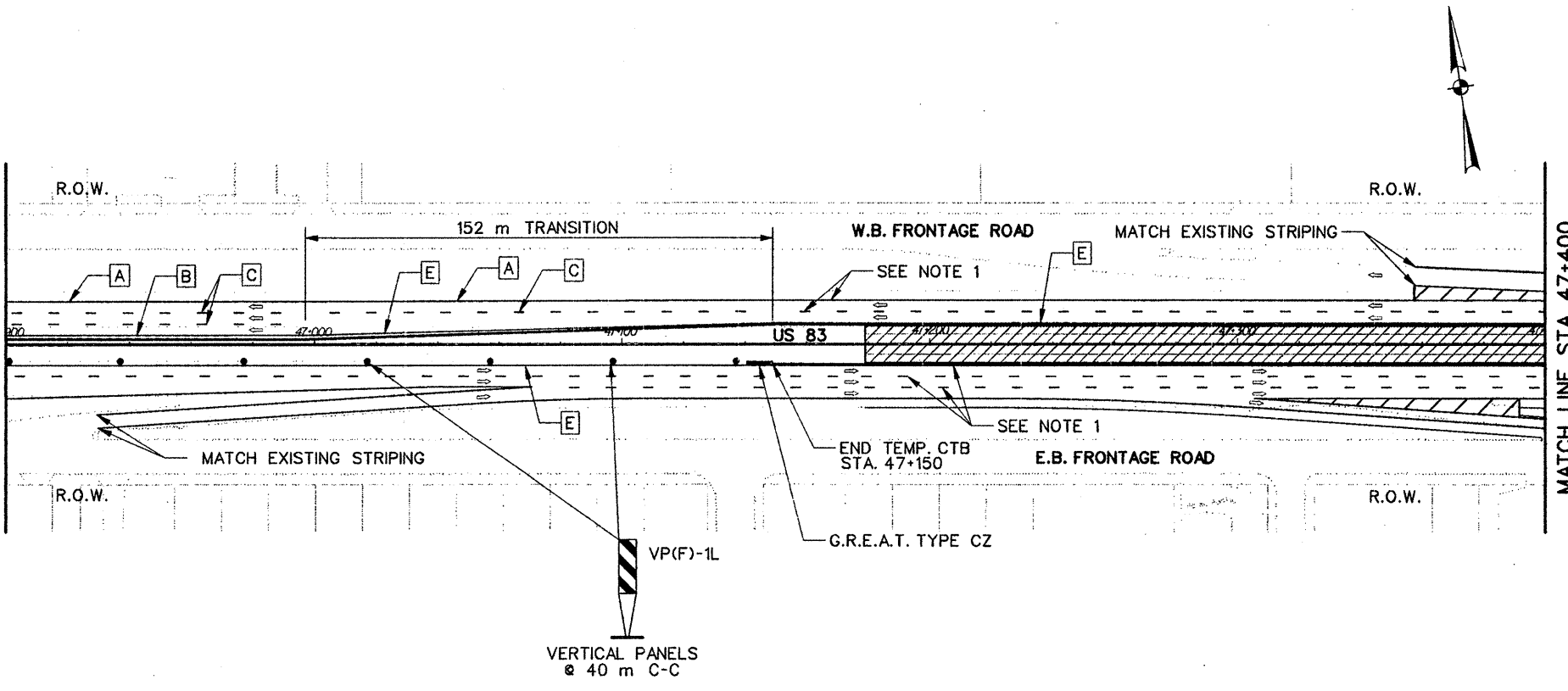
MATCH LINE STA. 46+300
SEE PHASE 2 SHEET 1 OF 5



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- UNLESS OTHERWISE NOTED ALL EASTBOUND AND WESTBOUND TRAFFIC LANES SHALL BE AS SHOWN AS PER THE "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK. (NON-REM) TYPE.
 - ALL FINAL SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 5.
 - INSTALL WORK ZONE PVMT. MARK. AS SHOWN ON PHASE 5 CONSTRUCTION SECTION.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

MATCH LINE STA. 46+900



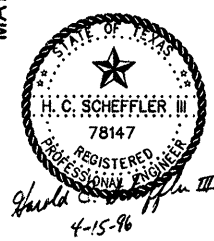
MATCH LINE STA. 47+400



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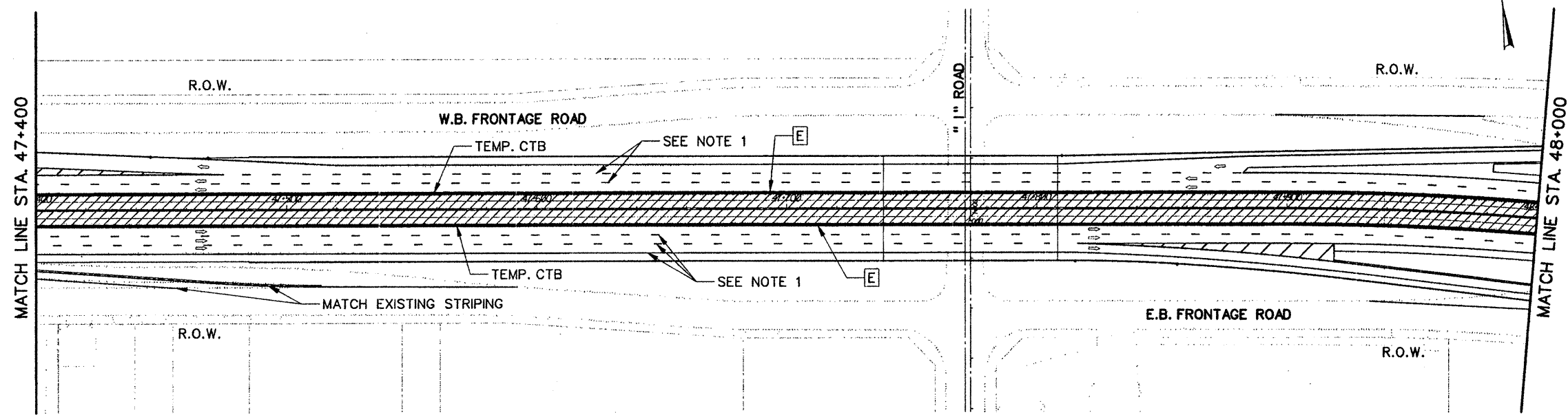
**US 83 - "I" ROAD TO FM 1426
TRAFFIC CONTROL PLAN
PHASE 5 STEP 1
STA. 46+300 TO STA. 47+400**



SCALE: 1:1000 SHEET 1 OF 4

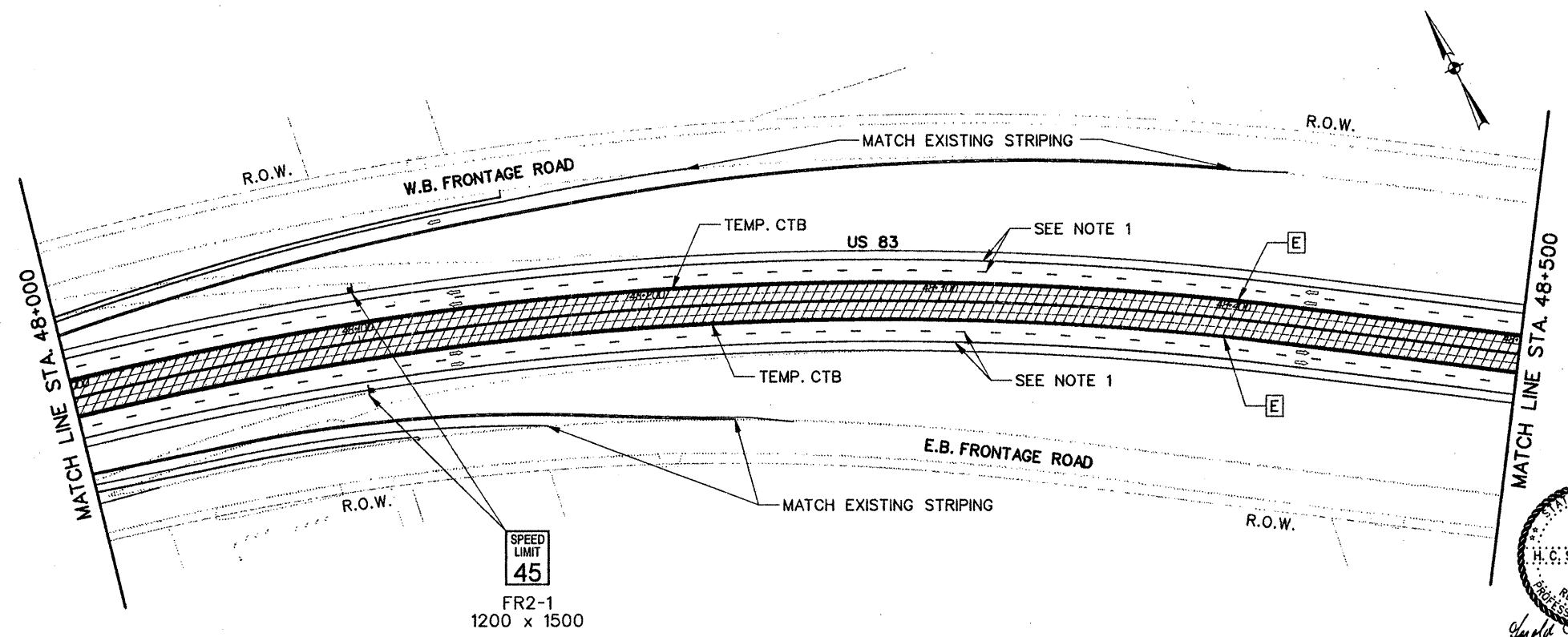
DN: BS	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN: JLS	6 TEXAS	NH 96(791) M)	US 83
DW: JCP	STATE DIST. NO.	COUNTY	SECTION NO.
CK DW:	21	HIDALGO	0039 17
TR:			118
CK TR:			95

TEDI/REF. AND. 9524-0002
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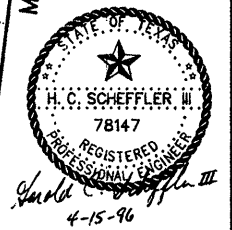


- LEGEND**
- [A] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - [B] WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - [C] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - [D] WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - [E] WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - [F] WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - [Hatched Box] CONSTRUCTION AREA
 - [Cross-hatched Box] TEMPORARY ROAD CONSTRUCTION
 - [Arrow] DIRECTION OF TRAFFIC FLOW
 - [Light Symbol] TYPE A WARNING LIGHT
 - [T Sign Symbol] TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - [Channelizing Device Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - [Channelizing Device with Sign Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - [Barricade Symbol] TYPE III BARRICADE

- NOTES:**
- UNLESS OTHERWISE NOTED ALL EASTBOUND AND WESTBOUND TRAFFIC LANES SHALL BE AS SHOWN AS PER THE "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK. (NON-REM) TYPE.
 - ALL FINAL SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 5.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



SPEED LIMIT
45
FR2-1
1200 x 1500



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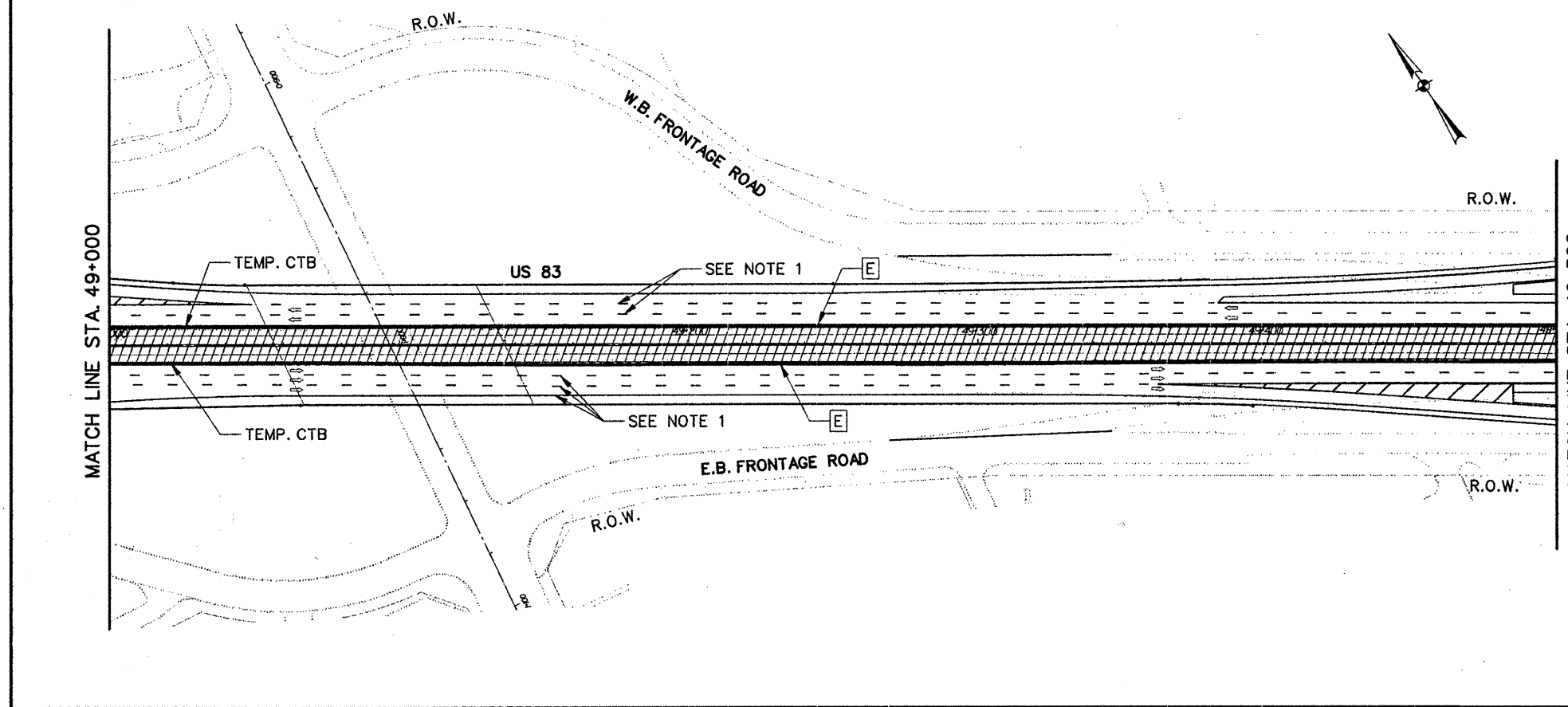
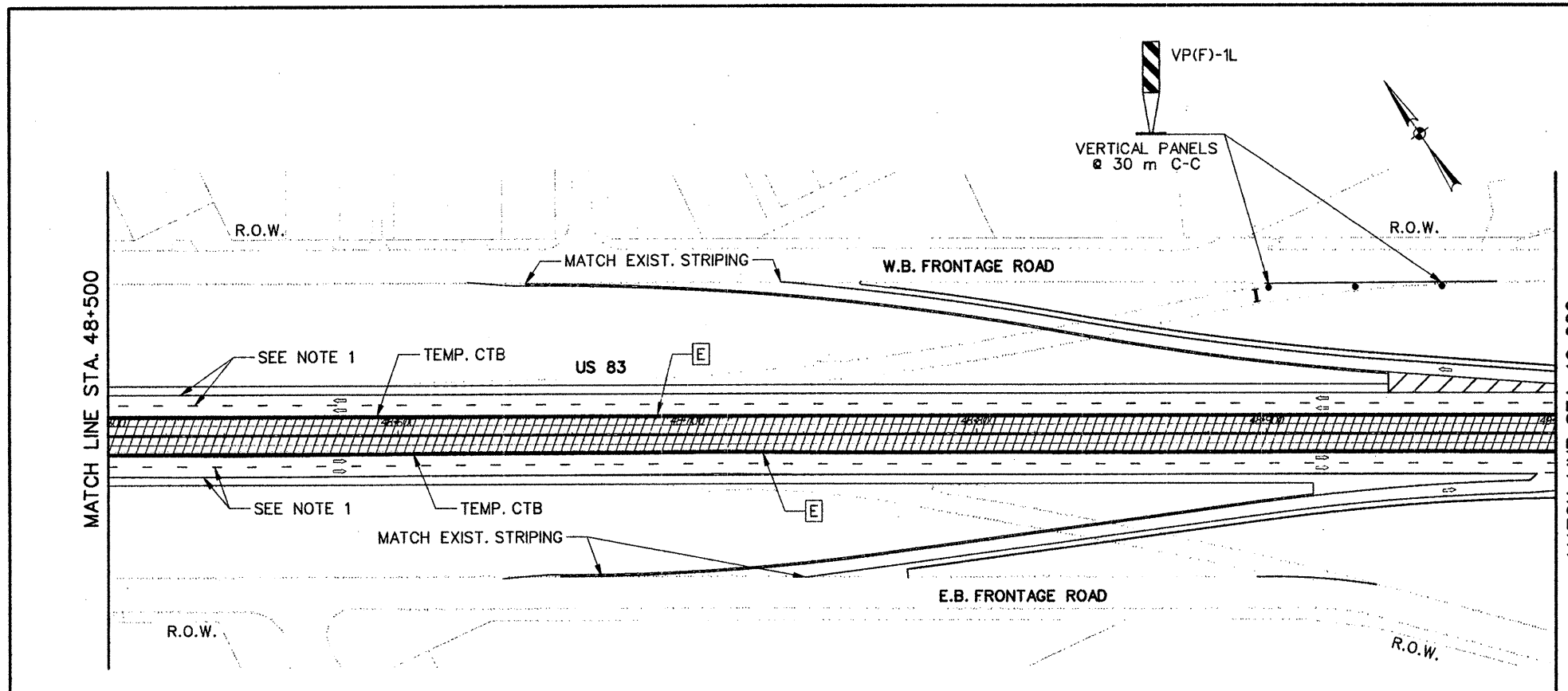
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**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 1
 STA. 47+400 TO STA. 48+500**

SCALE: 1:1000 SHEET 2 OF 4

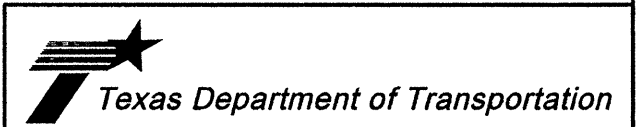
DWG. BY	CHK. BY	DATE	STATE	FEDERAL AID PROJECT NO.	RIGHTWAY NO.
DNE JLS	DNE JCP		6 TEXAS	NH 96 (798) (M)	US 83
CK DNE	TR		STATE DIST. NO.	COUNTY	CONTROL NO.
CK TR			21	HIDALGO	0039
					SECTION NO.
					17
					JOB NO.
					118
					SHEET NO.
					96

TEXAS REGISTERED PROFESSIONAL ENGINEER
 FILE INSPECTOR



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

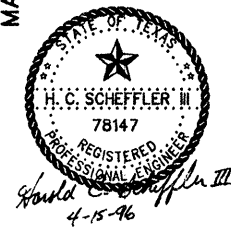
- NOTES:**
- UNLESS OTHERWISE NOTED ALL EASTBOUND AND WESTBOUND TRAFFIC LANES SHALL BE AS SHOWN AS PER THE "PAVEMENT MARKING LAYOUT" SHEETS AND SHALL BE OF THE WORK ZONE PVMT. MARK. (NON-REM) TYPE.
 - ALL FINAL SIGNING SHALL BE IN PLACE PRIOR TO THE IMPLEMENTATION OF PHASE 5.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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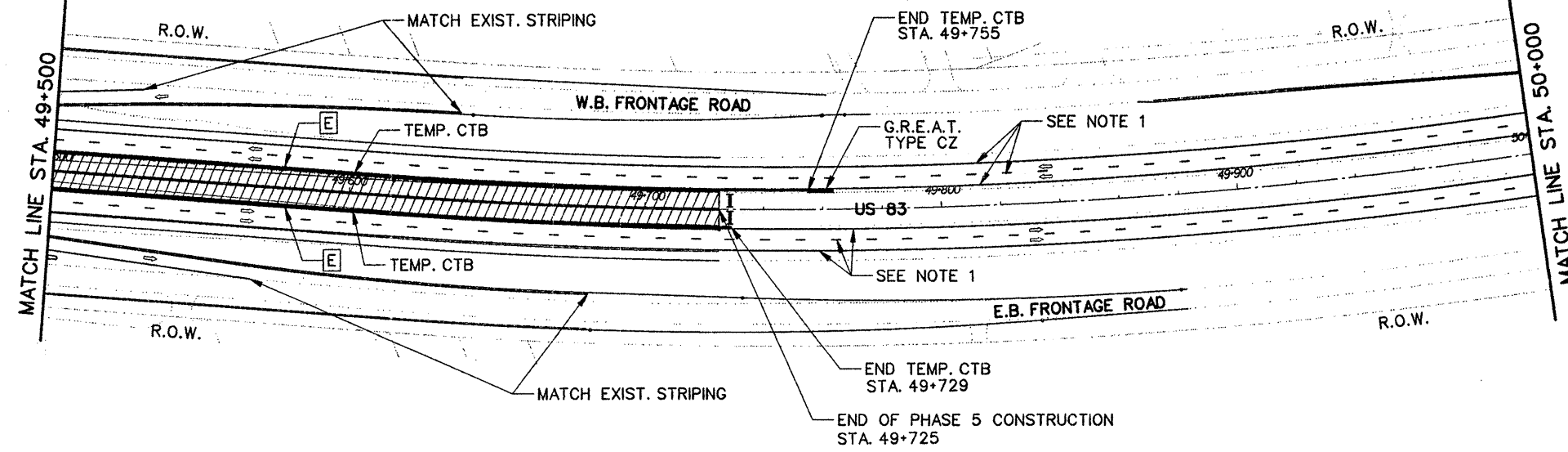
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 1
 STA. 48+500 TO STA. 49+500**



SCALE: 1:1000 SHEET 3 OF 4

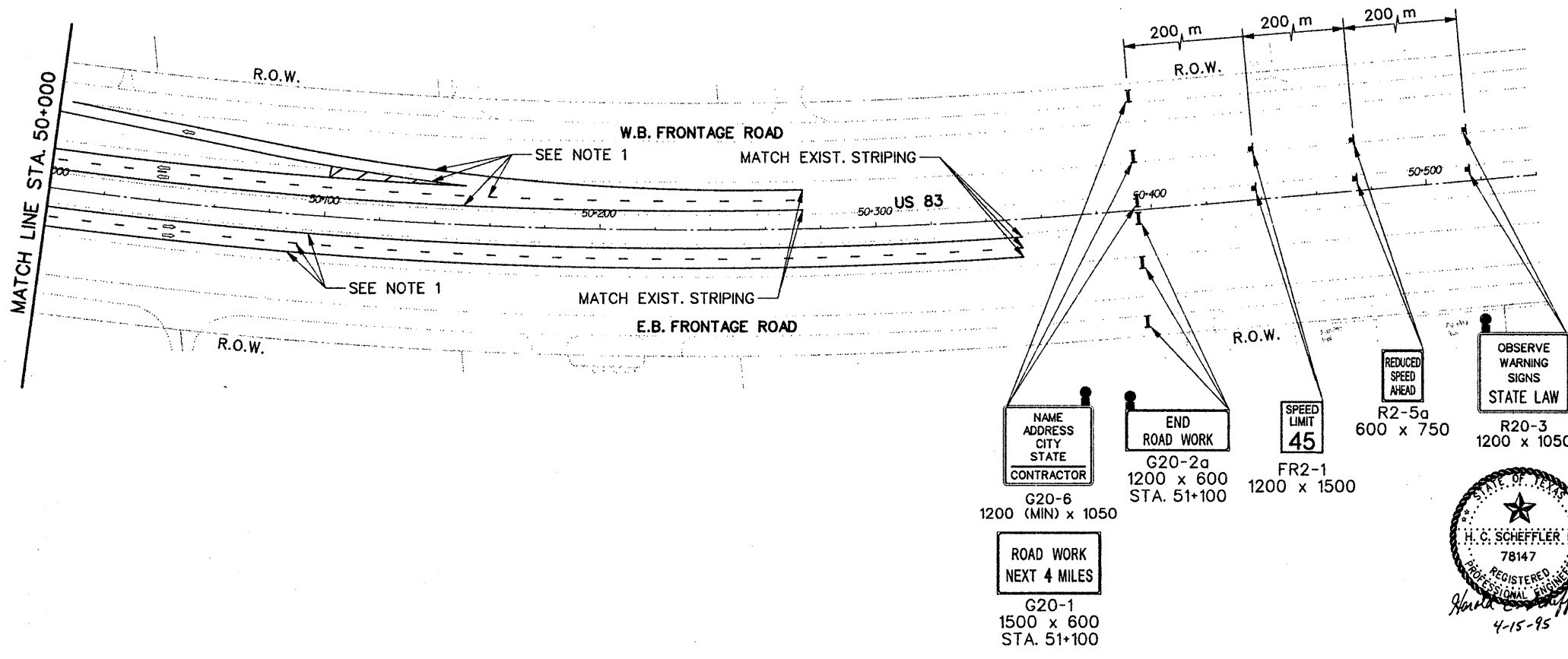
DR: BS	FED. AID PROJECT NO.	STATE	FEDERAL AID PROJECT NO.	SECTION	JOB	SHEET
CK: DW: JLS	6	TEXAS	NH 96(791)	MJ	US 83	
DR: JCP	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.	SHEET NO.
TR:	21	HIDALGO	0039	17	118	97
CK TR:						

TYPED AND CHECKED BY: JLS
 DATE: 4-15-96



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
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 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
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- NOTES:**
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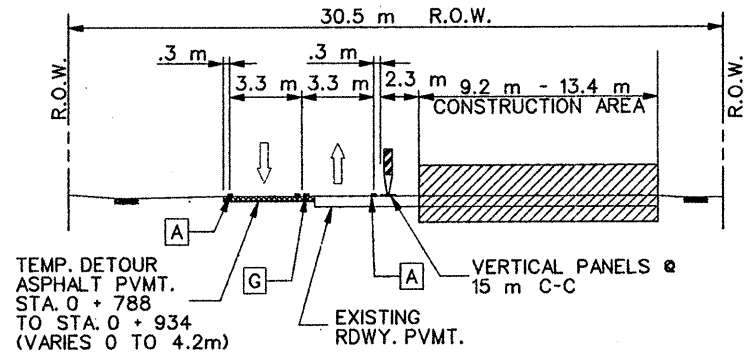
**US 83 - "I" ROAD TO FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 1
 STA. 49+500 TO END PROJECT**

SCALE: 1:1000 SHEET 4 OF 4

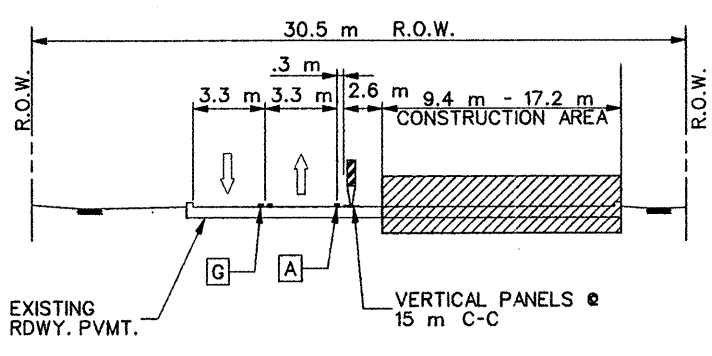
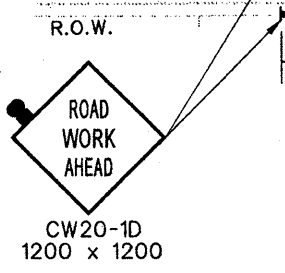
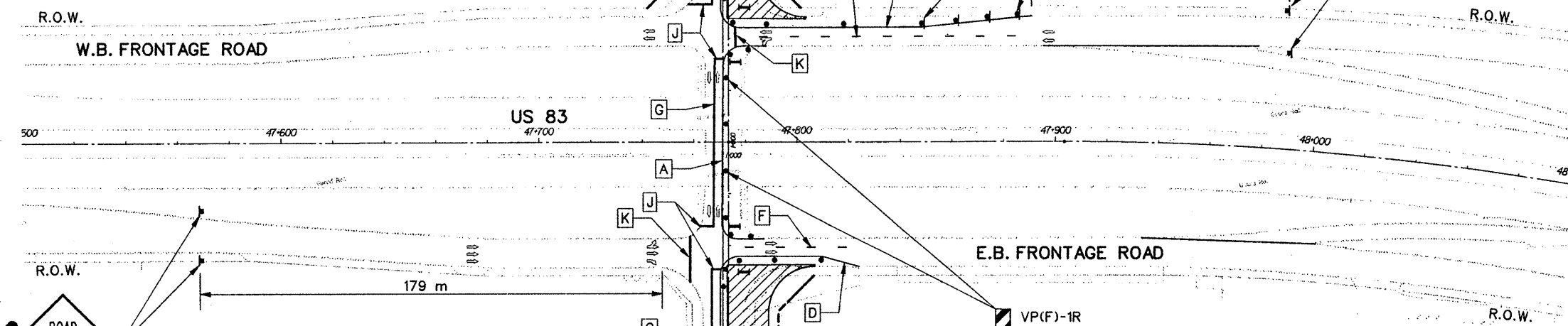
DWG. NO.	STATE	FEDERAL AID PROJECT NO.	RIGHT
CK. DWS. JLS	6 TEXAS	NH 96(791)	US 83
DWG. JCP			
CK. DW.	STATE DIST. NO.	COUNTY	CONTRACT NO.
TR.	21	HIDALGO	0039
CK. TR.			SECTION NO. JOB NO. SHEET NO.
			17 118 98



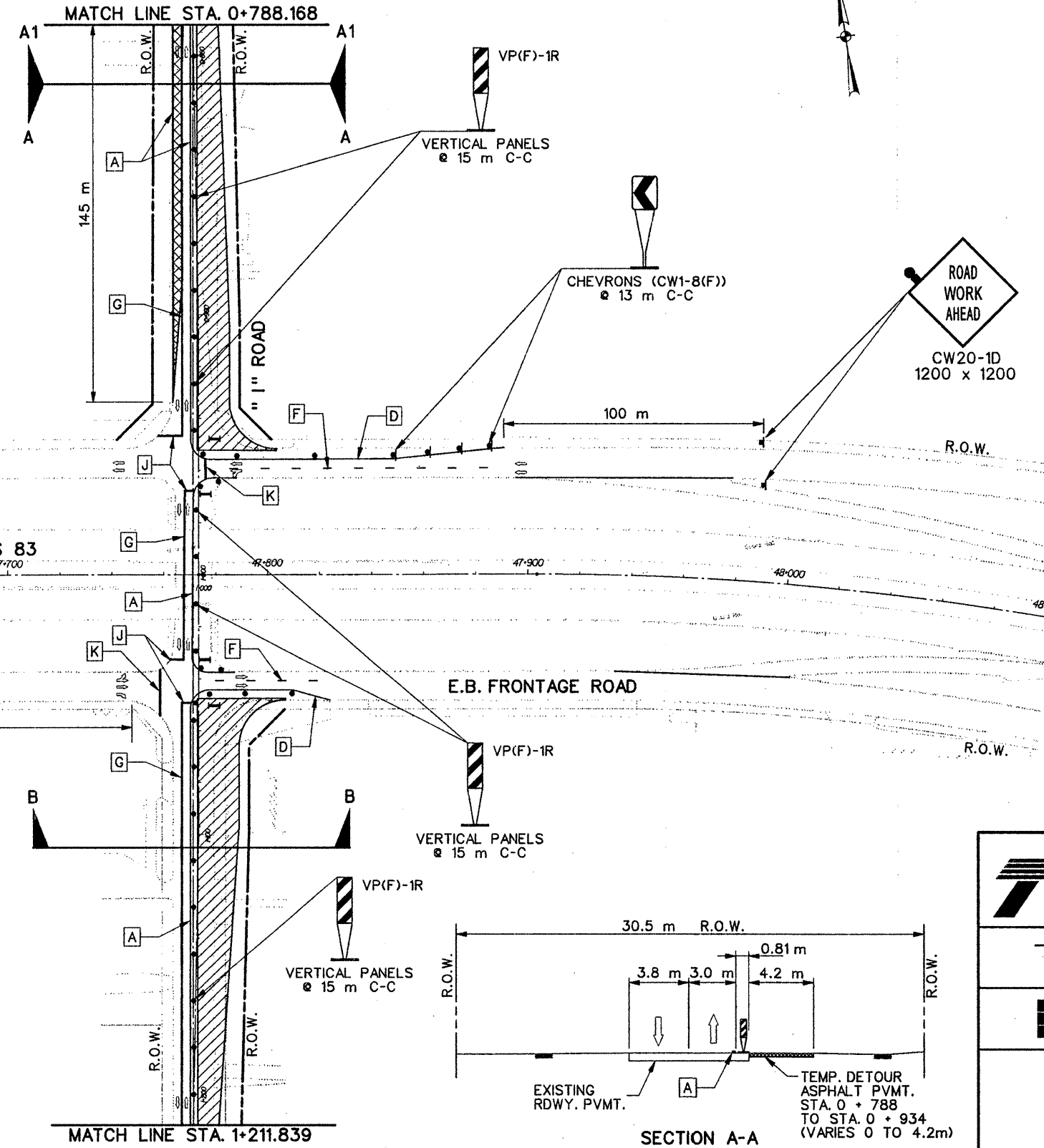
T&E 002-002-002
 FILE PREPARED



SECTION A1-A1
"I" ROAD - FACING NORTH
 (NOT TO SCALE)



SECTION B-B
"I" ROAD - FACING NORTH
 (NOT TO SCALE)



SECTION A-A
TEMPORARY DETOUR
"I" ROAD - FACING SOUTH
 (NOT TO SCALE)

- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - G WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
 - H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - J WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - L WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.
 - SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.



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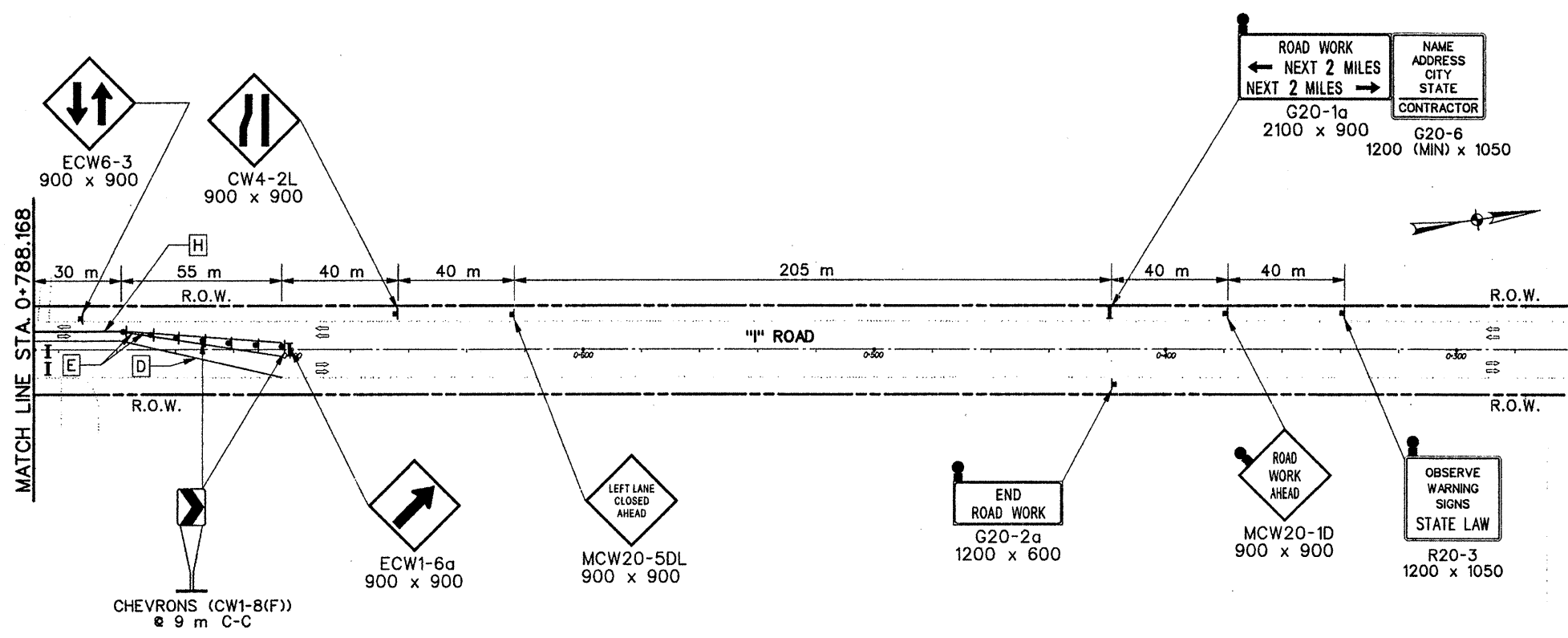
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US 83 AT "I" ROAD
TRAFFIC CONTROL PLAN
PHASE 5 STEP 1

SCALE: 1:1000 SHEET 1 OF 2

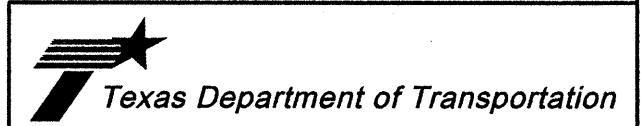
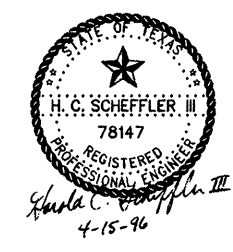
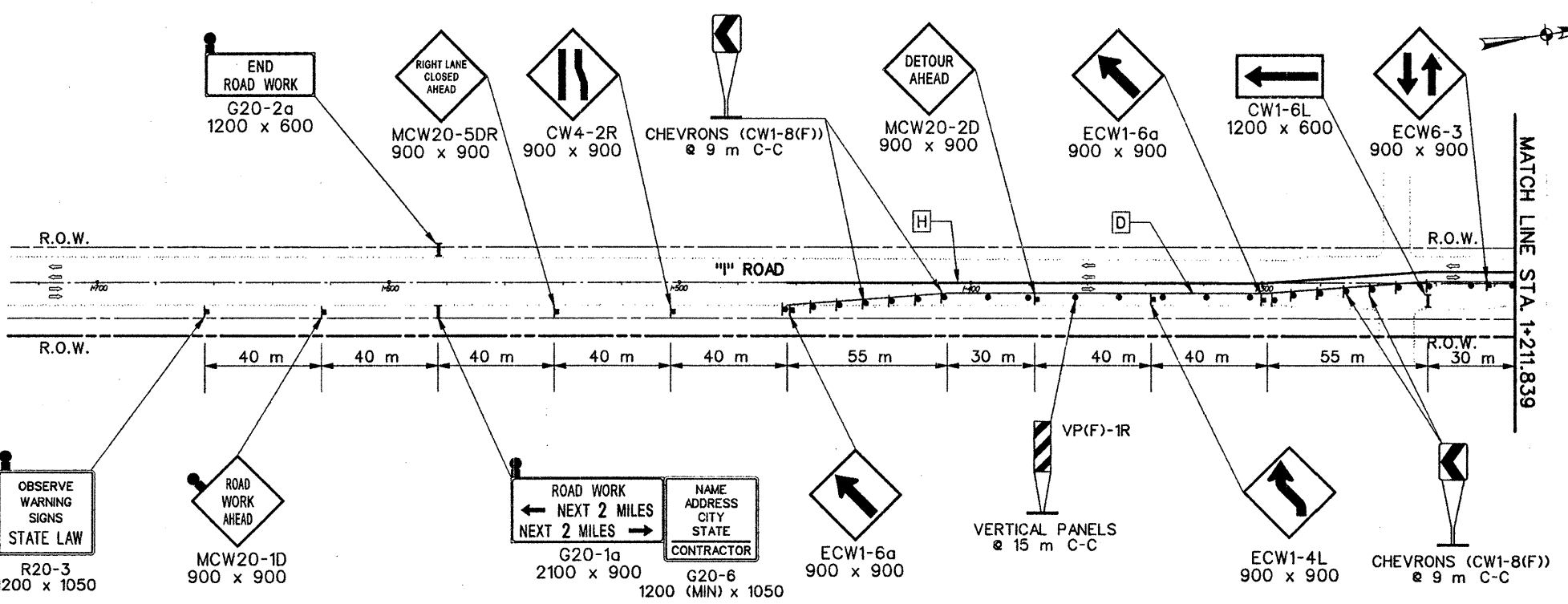
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CK DN: JLS	6	TXAS NH 96 (799) M)	US 83
DW: JCP	STATE DIST. NO.	COUNTY	CORNER SECTION JOB NO. SHEET NO.
CK DW: TR	21	HIDALGO	0039 17 118 99
CK TR:			

T&E: JLS
 P&E: JCP



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - G WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
 - H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - J WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - L WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

NOTES:
 1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



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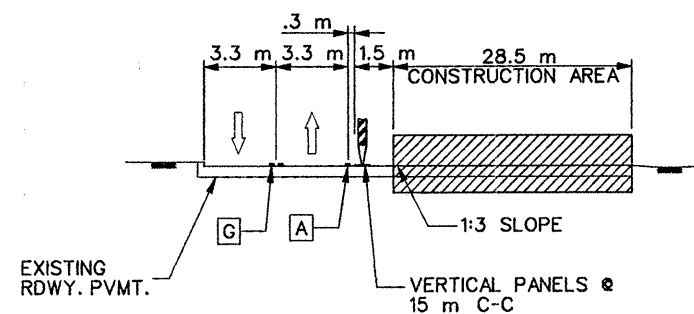
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**US 83 AT "I" ROAD
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 1**

SCALE: 1:1000 SHEET 2 OF 2

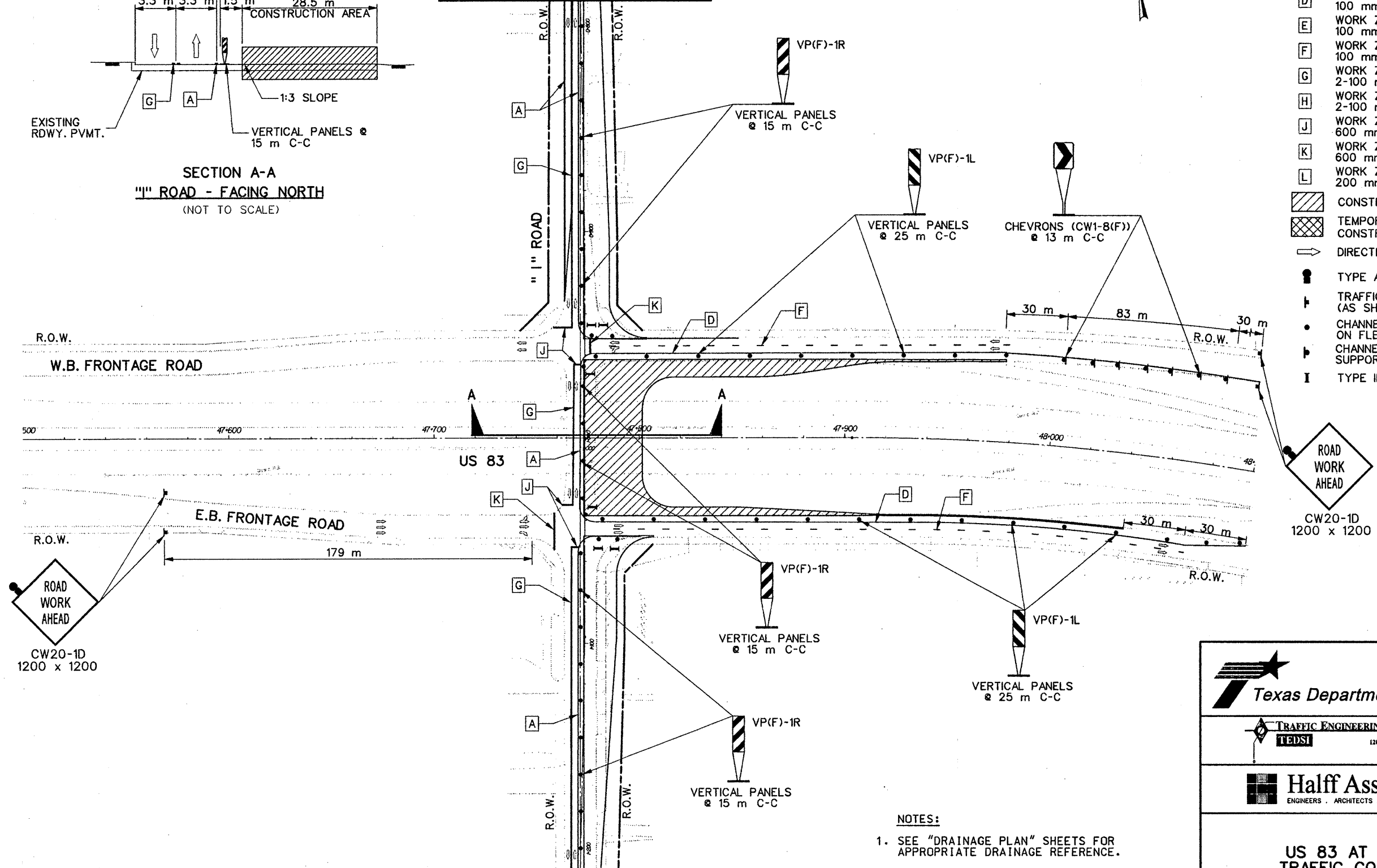
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CK DN: JLS	COUNTY: HIDALGO	CONTRACT NO.: 0039	SECTION NO.: 17
DN: JCP	DIST. NO.: 21	JOB NO.: 118	SHEET NO.: 100
CK DN:			
TR:			
CK TR:			

TECSI REF. NO. 05294-0002 FILE: PHS53A.TCP



SECTION A-A
"I" ROAD - FACING NORTH
(NOT TO SCALE)

MATCH LINE STA. 0+788.168
SEE PHASE 5 STEP 1 SHEET 2 OF 2



LEGEND

- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
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- H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
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- K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
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- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE



NOTES:
1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

MATCH LINE STA. 1+211.839
SEE PHASE 5 STEP 1 SHEET 2 OF 2



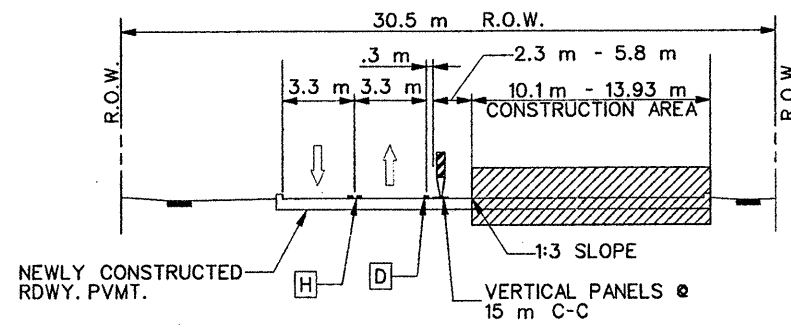
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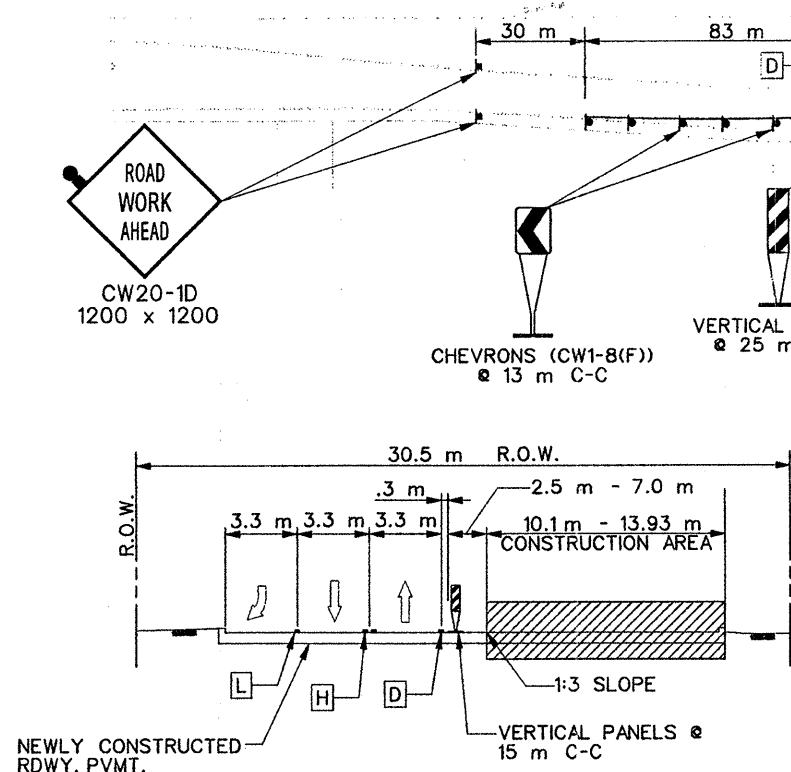
**US 83 AT "I" ROAD
TRAFFIC CONTROL PLAN
PHASE 5 STEP 2**

SCALE: 1:1000 SHEET 1 OF 1

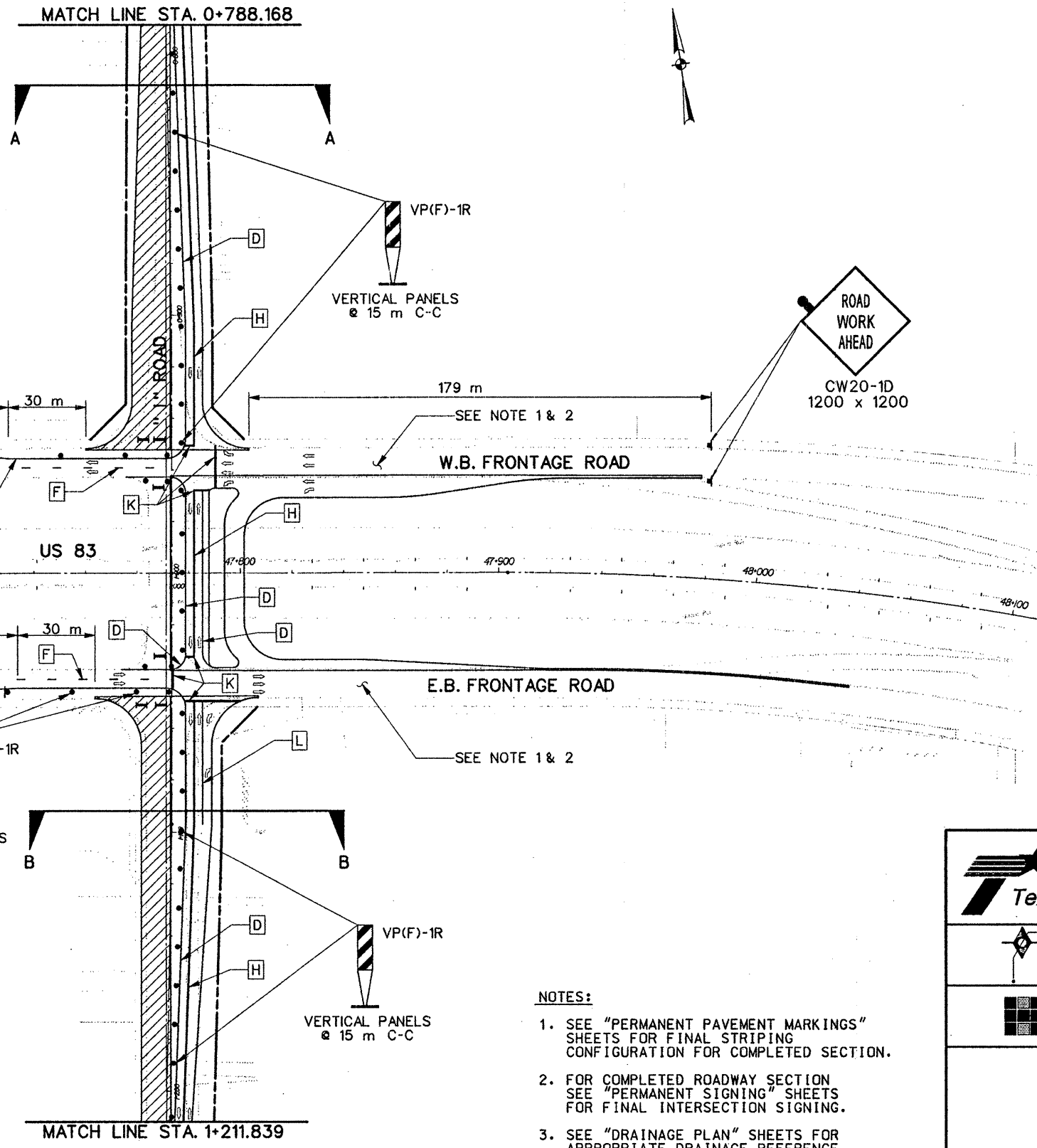
DESIGNED BY: Dm BS	CHECKED BY: Dm JLS	DATE: 04/15/96	STATE: TEXAS	FEDERAL AID PROJECT NO.: NH 96 (790) M)	SHEET NO.: 101
DATE: 04/15/96	DATE: 04/15/96	DATE: 04/15/96	STATE DIST. NO.: 21	COUNTY: HIDALGO	CONTROL NO.: 0039
DATE: 04/15/96	DATE: 04/15/96	DATE: 04/15/96	SECTION NO.: 17	JOB NO.: 118	SHEET NO.: 101



SECTION A-A
"I" ROAD - FACING SOUTH
 (NOT TO SCALE)



SECTION B-B
"I" ROAD - FACING SOUTH
 (NOT TO SCALE)



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - G WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
 - H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - J WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - L WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE



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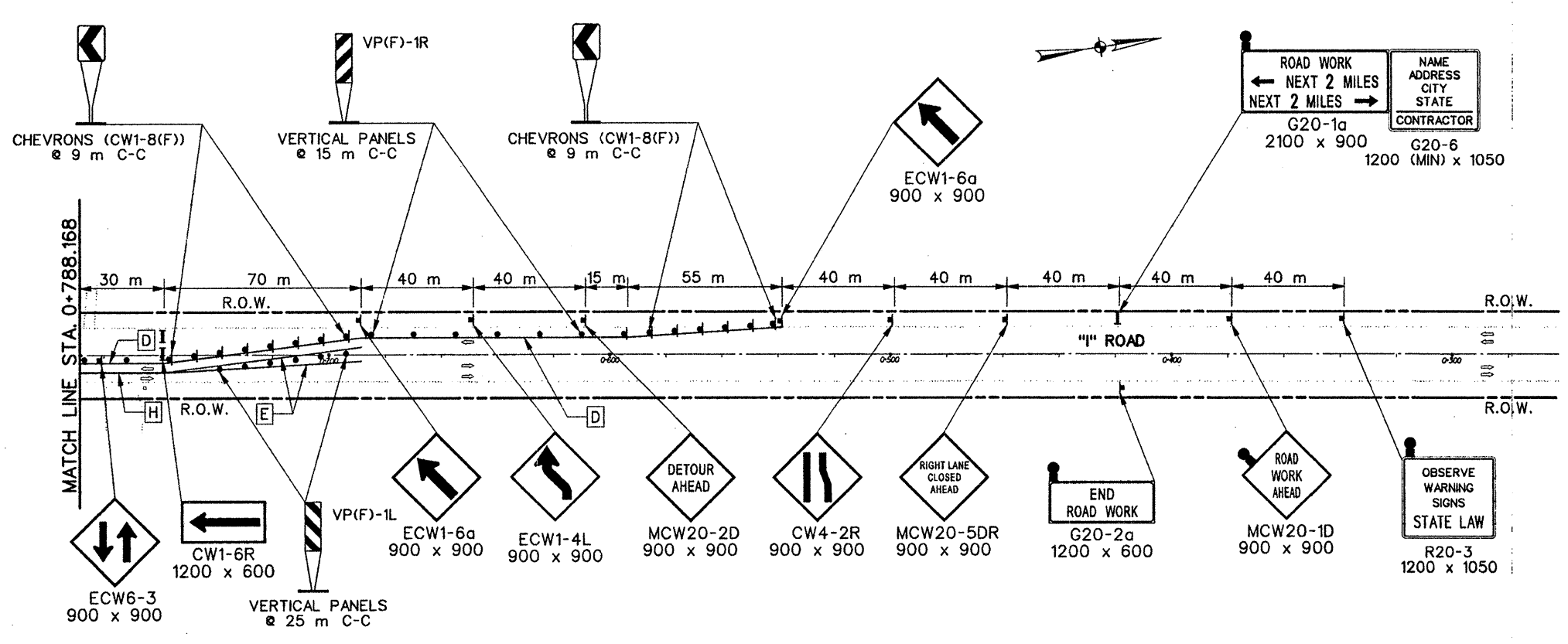
**US 83 AT "I" ROAD
 TRAFFIC CONTROL PLAN
 PHASE 6 STEP 1**

- NOTES:**
- SEE "PERMANENT PAVEMENT MARKINGS" SHEETS FOR FINAL STRIPING CONFIGURATION FOR COMPLETED SECTION.
 - FOR COMPLETED ROADWAY SECTION SEE "PERMANENT SIGNING" SHEETS FOR FINAL INTERSECTION SIGNING.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

SCALE: 1:1000 SHEET 1 OF 2

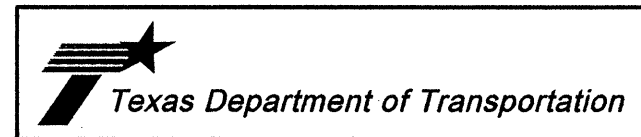
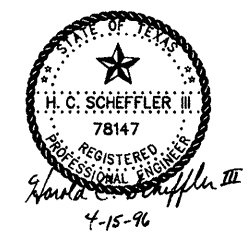
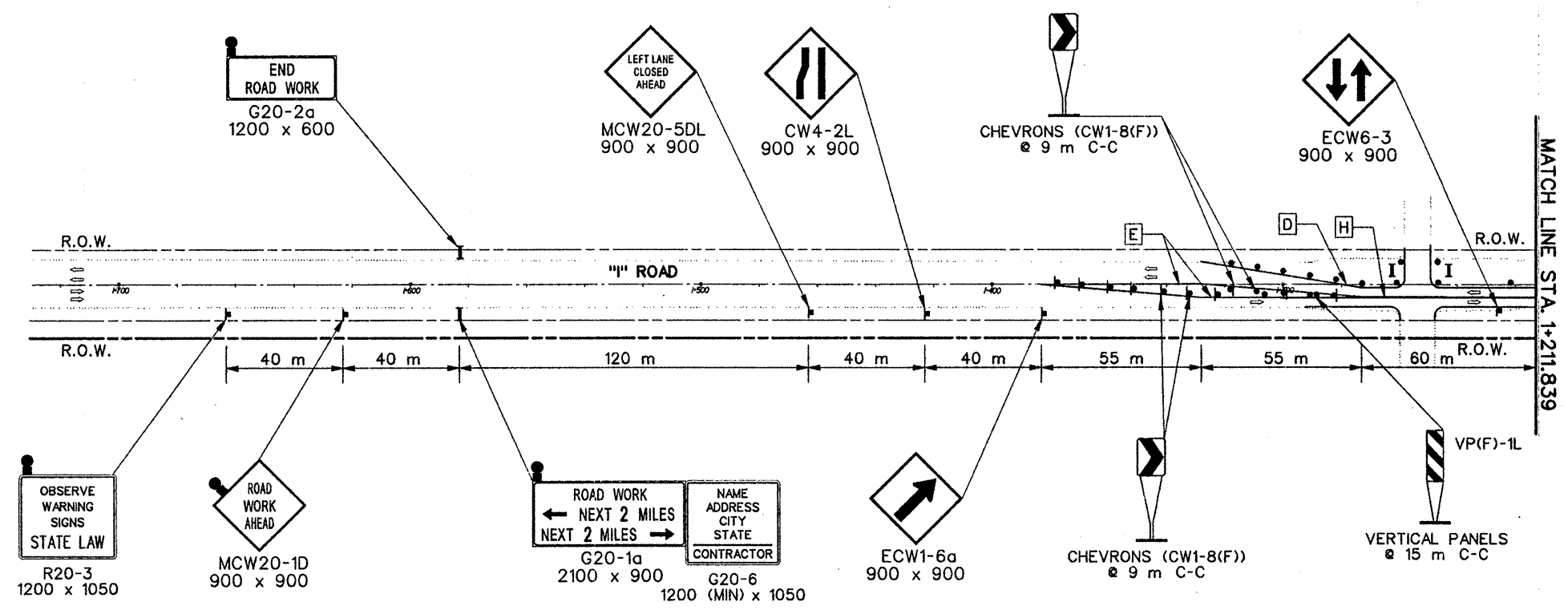
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CK DN: JLS	6	TEXAS	NH 96(79) M1	US 83
DW: JCP	STATE DIST. NO.	COUNTY	SECTION NO.	SHEET NO.
CK DW:	21	HIDALGO	0039 17	118 102
TR:				
CK TR:				

TEDI/REF. NO. 02294-0002
 FILED/PRES/ST/CD



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
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 - H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - J WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - L WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

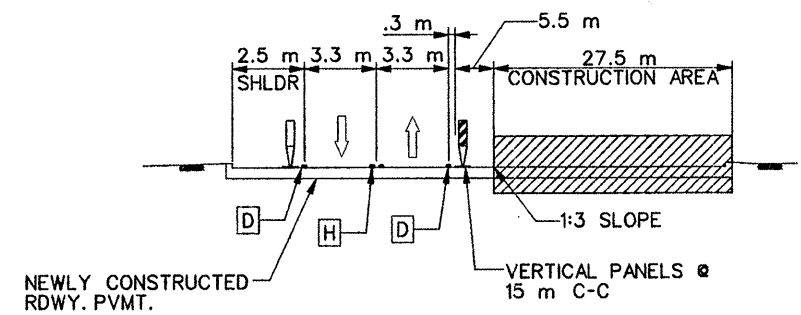
NOTES:
 1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



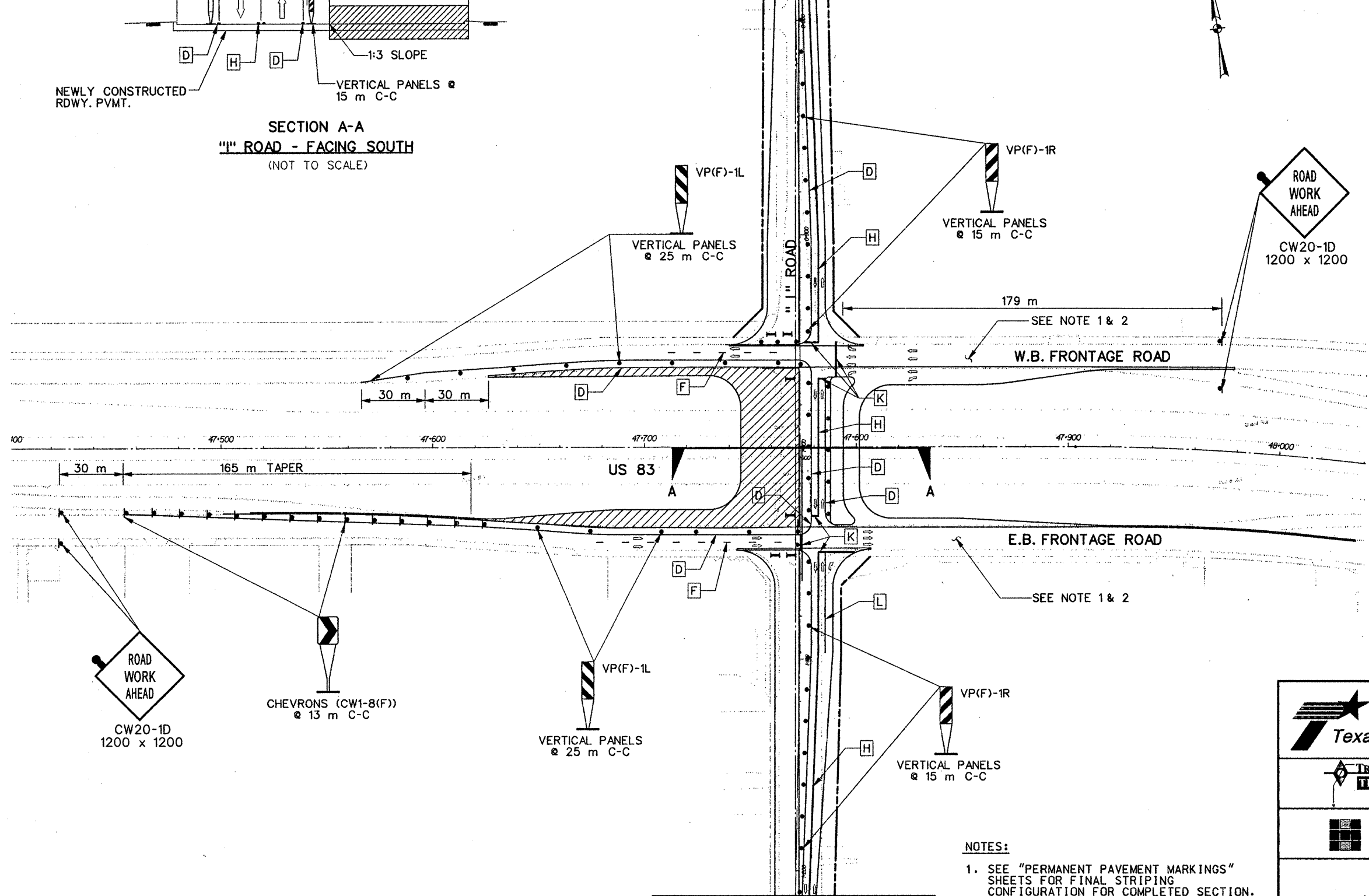
**US 83 AT "I" ROAD
 TRAFFIC CONTROL PLAN
 PHASE 6 STEP 1**

SCALE: 1:1000 SHEET 2 OF 2

DESIGNER: BS	FED. AID PROJECT NO.:	171	171
CHK'D BY: JLS	STATE:	TEXAS	US 83
DATE: JCP	FED. AID DIST. NO.:	NH 96 (79)	
CHK'D BY: TR	STATE DIST. NO.:	21	
DATE: TR	COUNTY:	HIDALGO	
	CONTROL NO.:	0039	
	SECTION NO.:	17	
	JOB NO.:	118	
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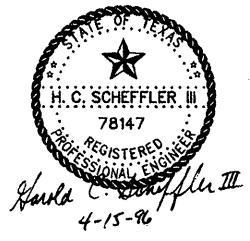


MATCH LINE STA. 0+788.168
SEE PHASE 6 STEP 1 SHEET 2 OF 2



MATCH LINE STA. 1+211.839
SEE PHASE 6 STEP 1 SHEET 2 OF 2

- LEGEND**
- [A] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - [B] WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - [C] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - [D] WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - [E] WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - [F] WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - [G] WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
 - [H] WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - [J] WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - [K] WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - [L] WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - [Hatched Box] CONSTRUCTION AREA
 - [Cross-hatched Box] TEMPORARY ROAD CONSTRUCTION
 - [Arrow] DIRECTION OF TRAFFIC FLOW
 - [Light Symbol] TYPE A WARNING LIGHT
 - [Post Symbol] TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - [Circle Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - [Post with Sign Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - [Barricade Symbol] TYPE III BARRICADE



- NOTES:**
1. SEE "PERMANENT PAVEMENT MARKINGS" SHEETS FOR FINAL STRIPING CONFIGURATION FOR COMPLETED SECTION.
 2. FOR COMPLETED ROADWAY SECTION SEE "PERMANENT SIGNING" SHEETS FOR FINAL INTERSECTION SIGNING.
 3. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.

Texas Department of Transportation

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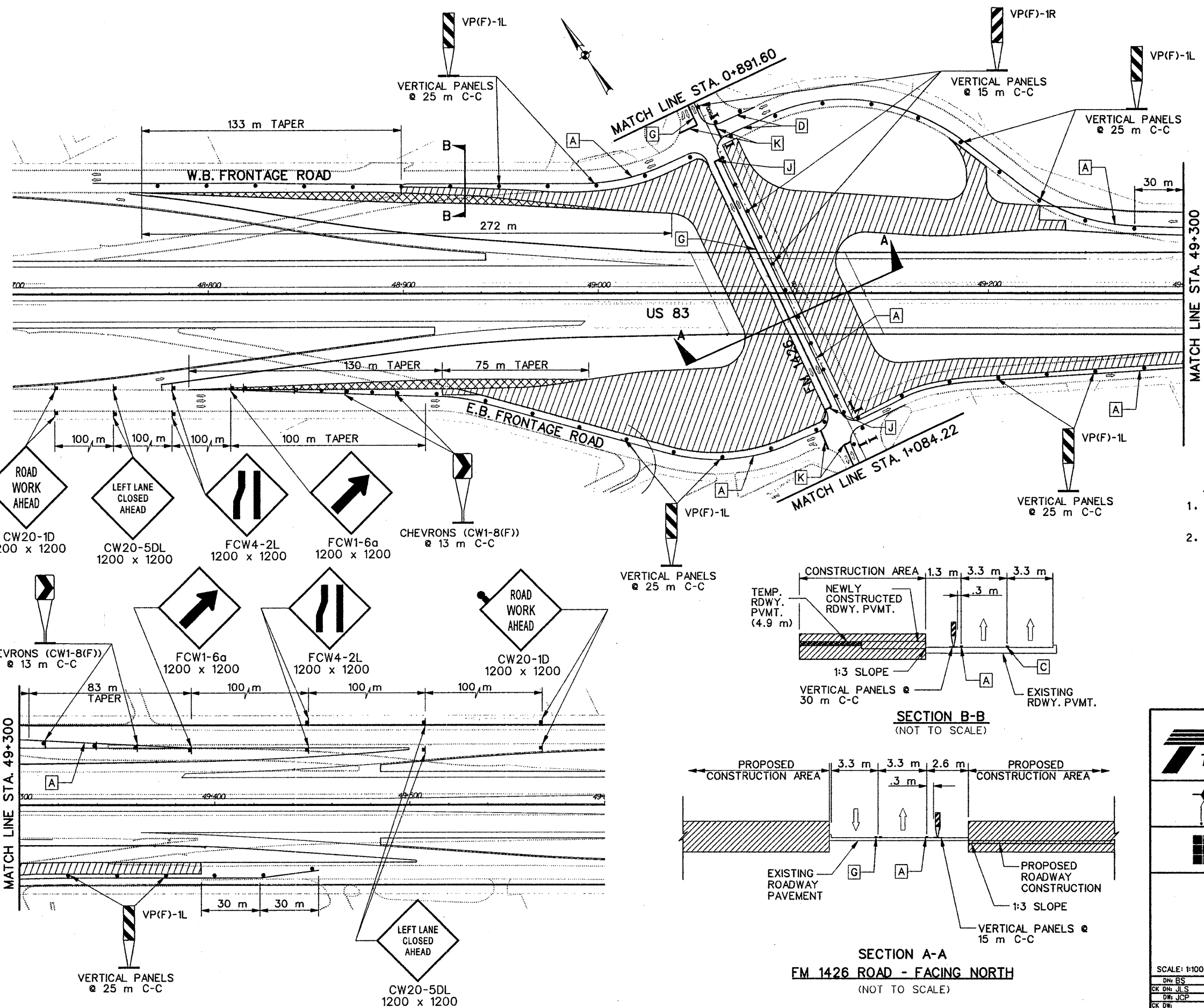
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**US 83 AT "I" ROAD
TRAFFIC CONTROL PLAN
PHASE 6 STEP 2**

SCALE: 1:1000 SHEET 1 OF 1

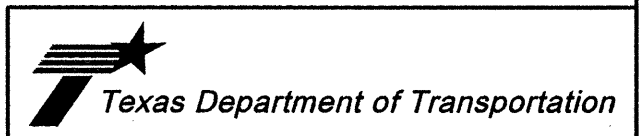
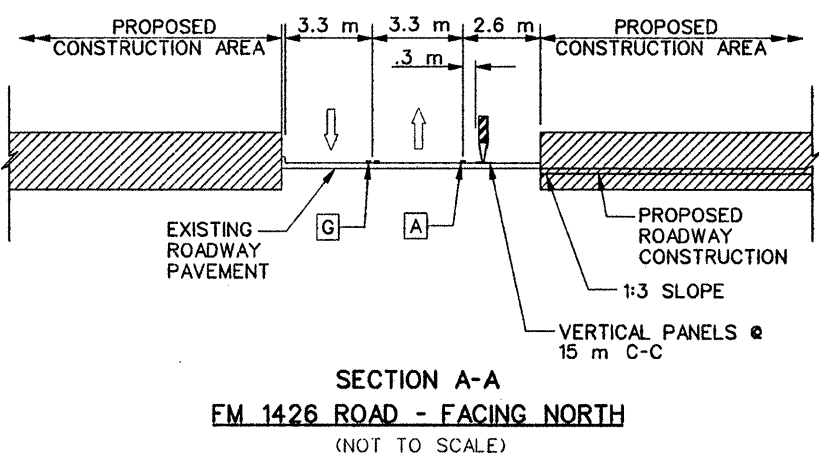
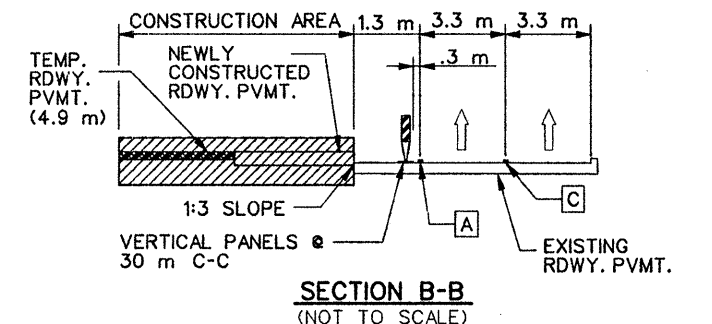
DN: BS	FED. AID PROJECT NO.	STATE	FEDERAL AID PROJECT NO.	ALIGNMENT
CK DR: JLS	6	TEXAS	NH 96(790)	US 83
DR: JCP				
CK DR:	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
TR:	21	HIDALGO	0039	17 118 104
CK TR:				

TEDESIGN, INC. 05/28/96-0002
FILE: TR02/2511CP



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
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 - G WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
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 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.
 - SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.



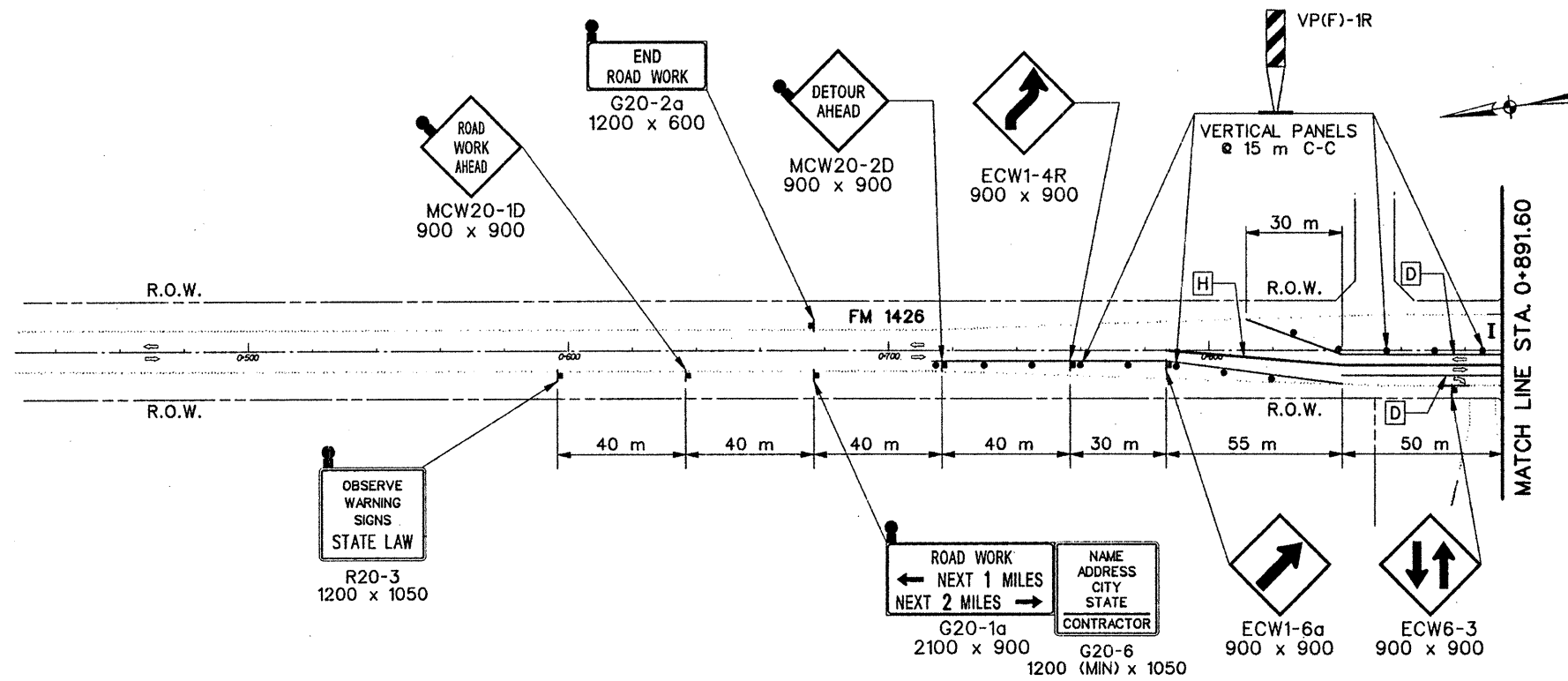
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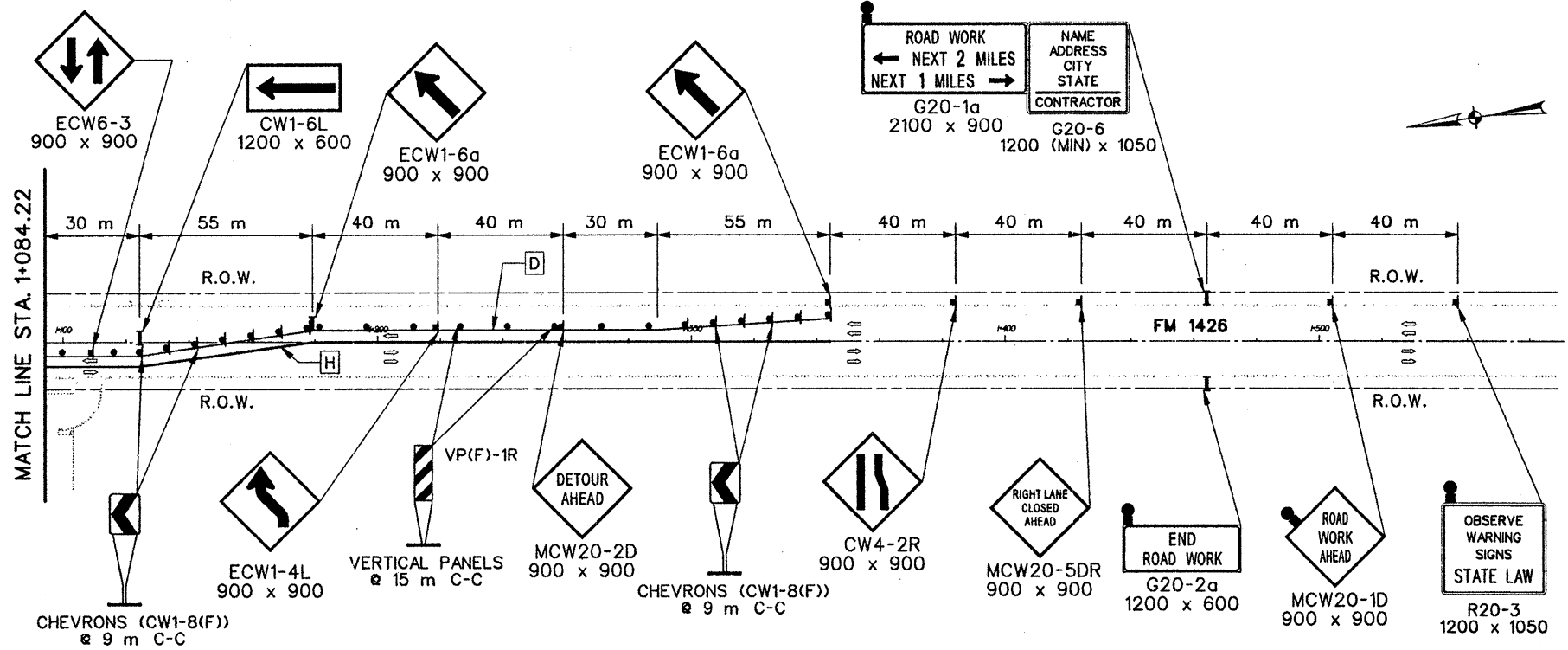
**US 83 AT FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 1**

SCALE: 1:1000 SHEET 1 OF 2

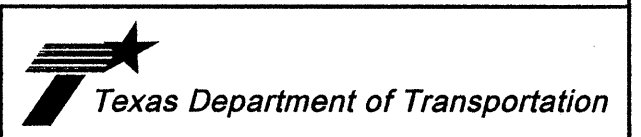
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CK: DM: JLS	6 TEXAS	NH 96 (791) M)	US 83
DR: JCP	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.
CK: DM:	21	HIDALGO	0039 17 118
TR:			105
CK TR:			



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
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 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE



NOTES:
 1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



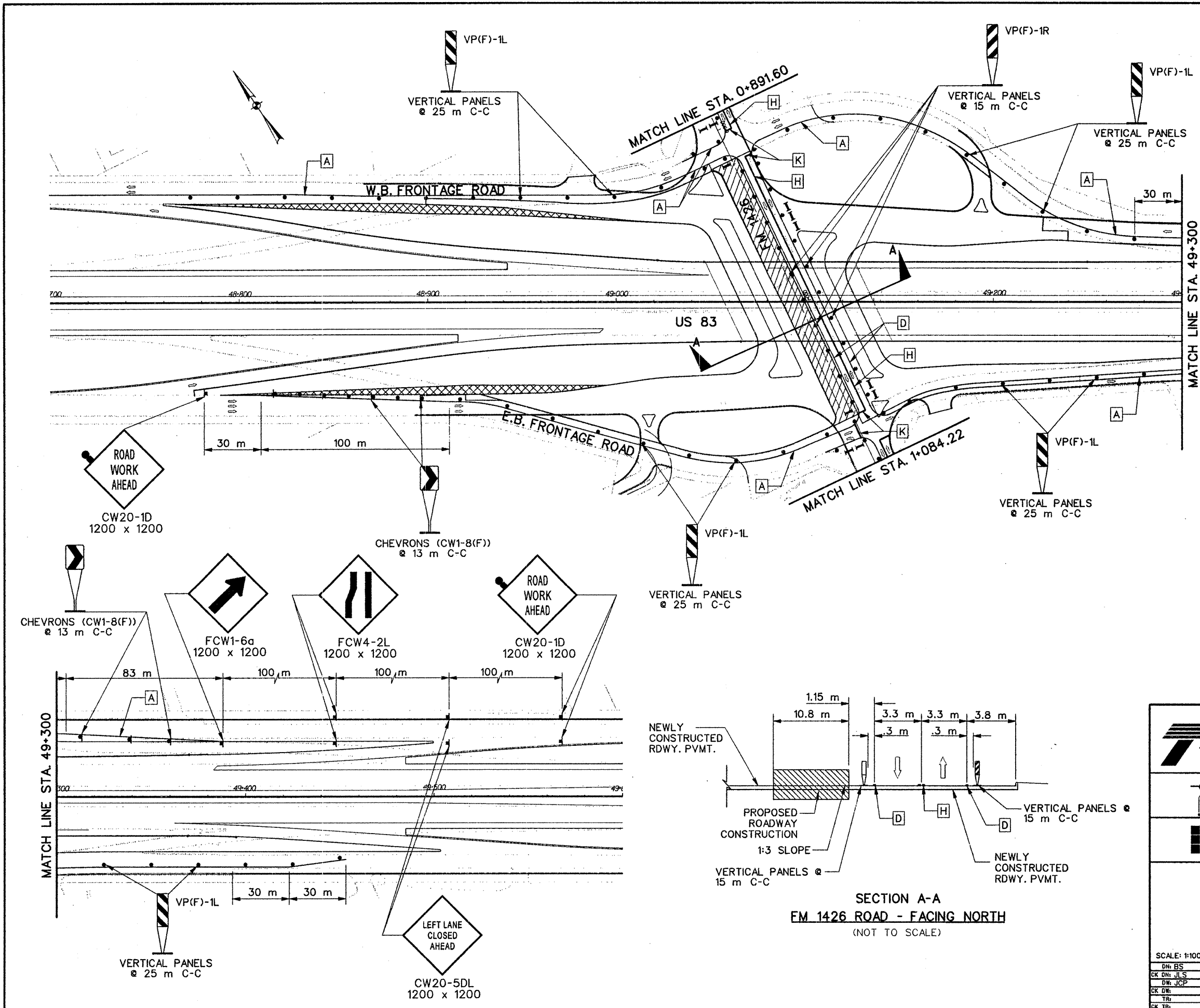
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**US 83 AT FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 1**

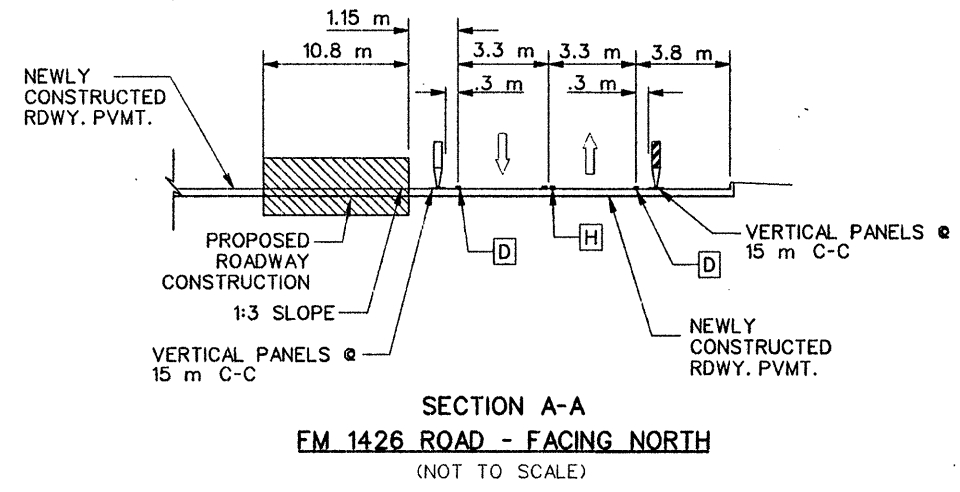
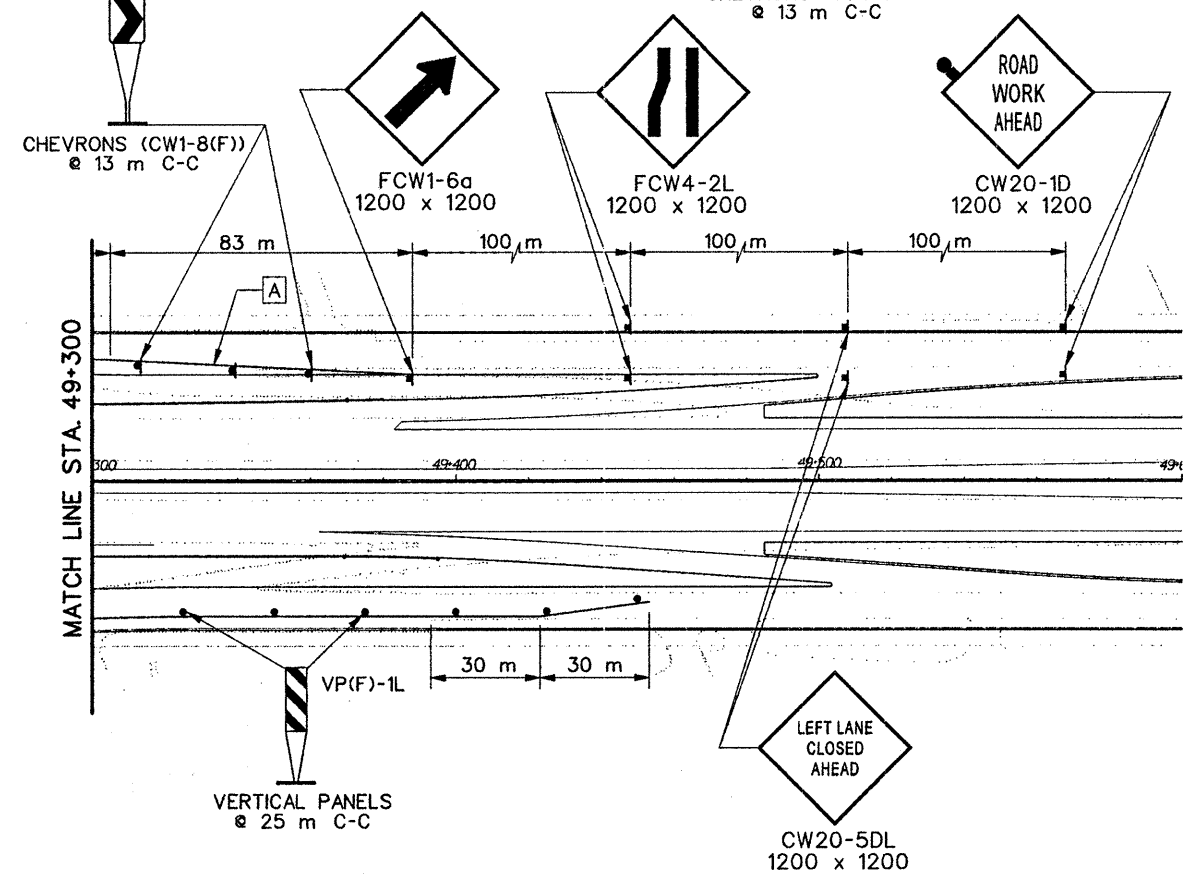
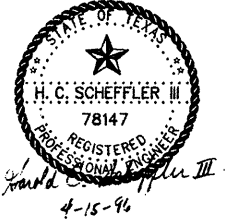
SCALE: 1:1000 SHEET 2 OF 2

DWG. BY	DATE	STATE	FEDERAL AID PROJECT NO.	BIDDING NO.
CK'D BY J.S.		6 TEXAS	NH(96(791) M)	US 83
DWG. JCP				
CK'D BY		STATE	COUNTY	CONTROL SECTION JOB SHEET
TR		21	HIDALGO	0039 17 118 106
CK TR				



- LEGEND**
- [A] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - [B] WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - [C] WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - [D] WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - [E] WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - [F] WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - [G] WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
 - [H] WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - [J] WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - [K] WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - [L] WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - [Hatched Box] CONSTRUCTION AREA
 - [Cross-hatched Box] TEMPORARY ROAD CONSTRUCTION
 - [Arrow] DIRECTION OF TRAFFIC FLOW
 - [Light Symbol] TYPE A WARNING LIGHT
 - [Sign on Post Symbol] TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - [Channelizing Device Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - [Channelizing Device with Sign Symbol] CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - [Barricade Symbol] TYPE III BARRICADE

NOTES:
 1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



Texas Department of Transportation

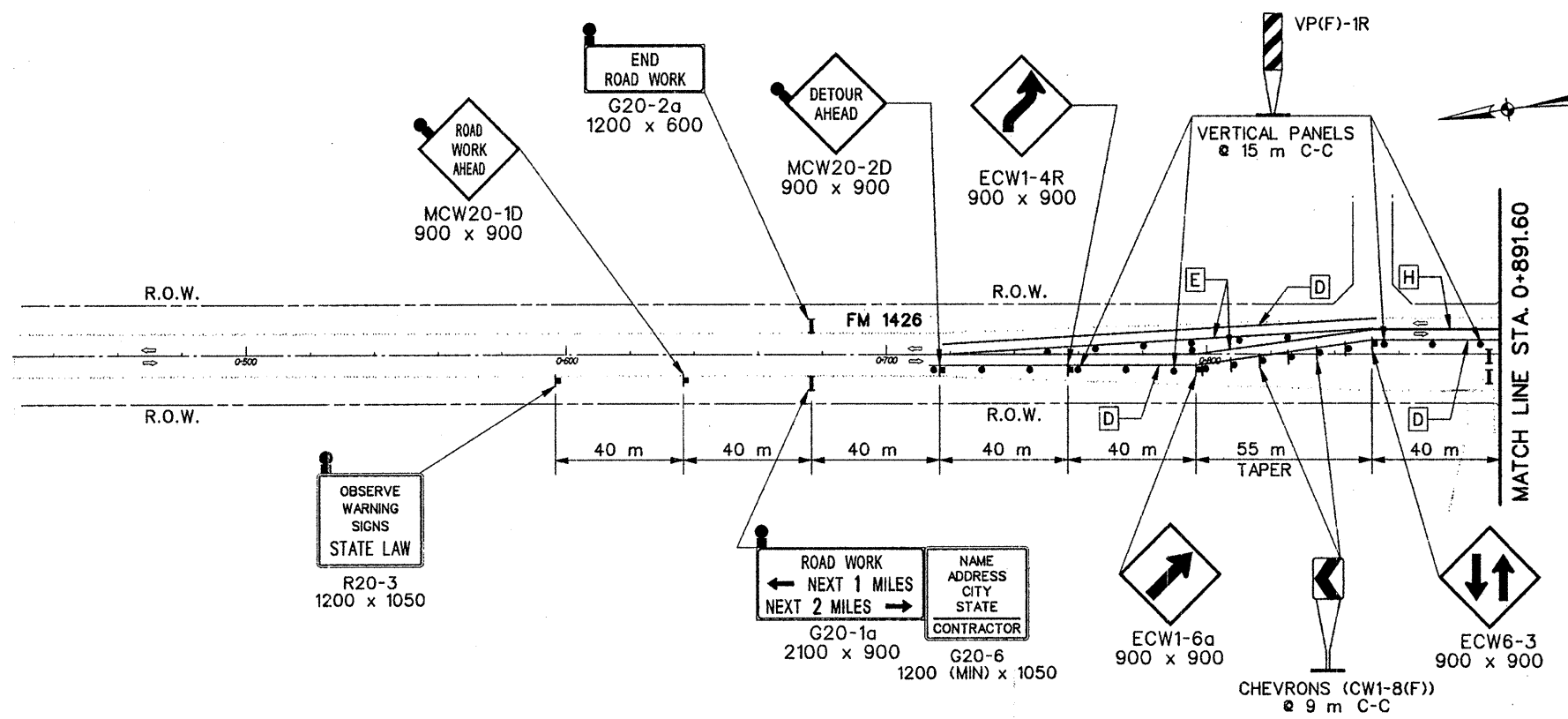
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**US 83 AT FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 2**

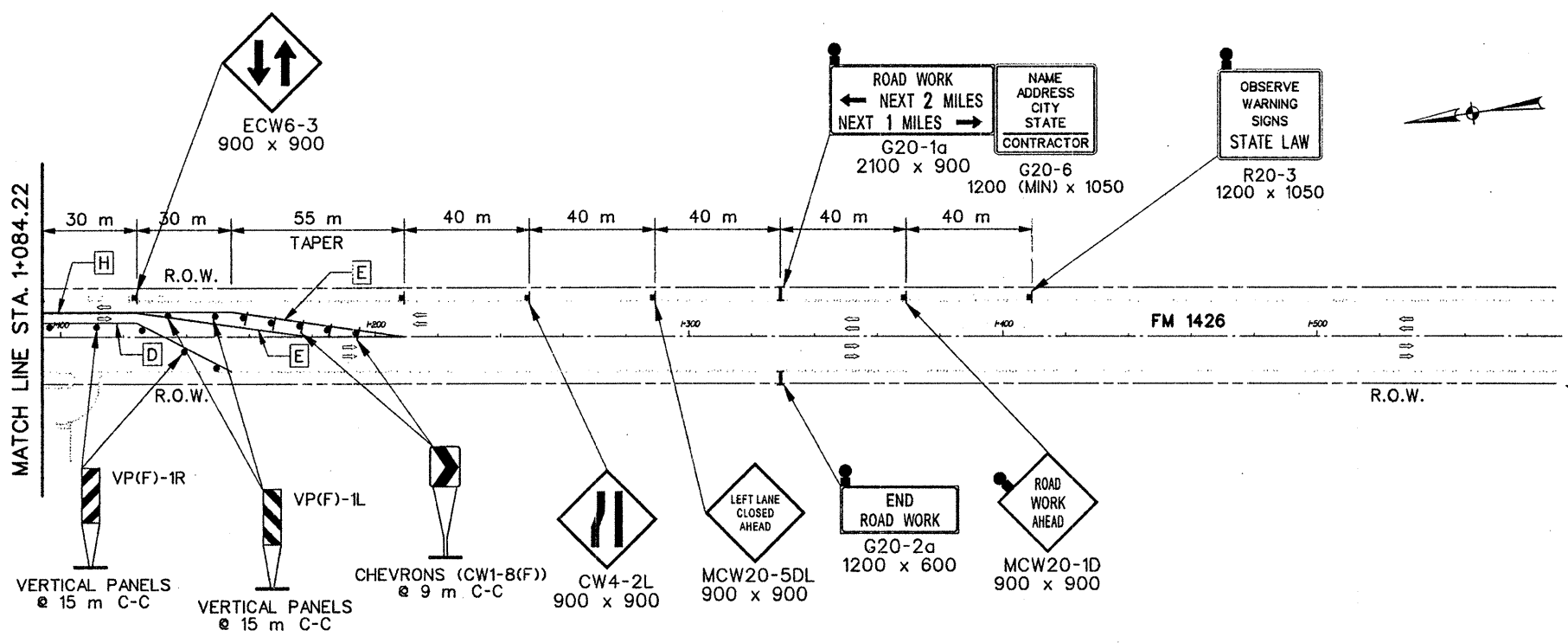
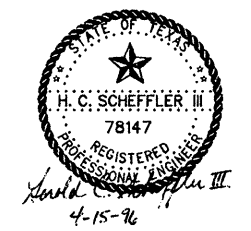
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DN: BS	STATE: TEXAS	FEDERAL AID PROJECT NO.:	ROUTE:
CK DN: JLS	6	NH 466(700)	US 83
DN: JCP			
CK DN:	STATE DIST. NO. 21	COUNTY HIDALGO	CONTRACT NO. 0039
			SECTION NO. 17
			JOB NO. 118
			SHEET NO. 107



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - G WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
 - H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - J WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - L WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

NOTES:
 1. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



Texas Department of Transportation

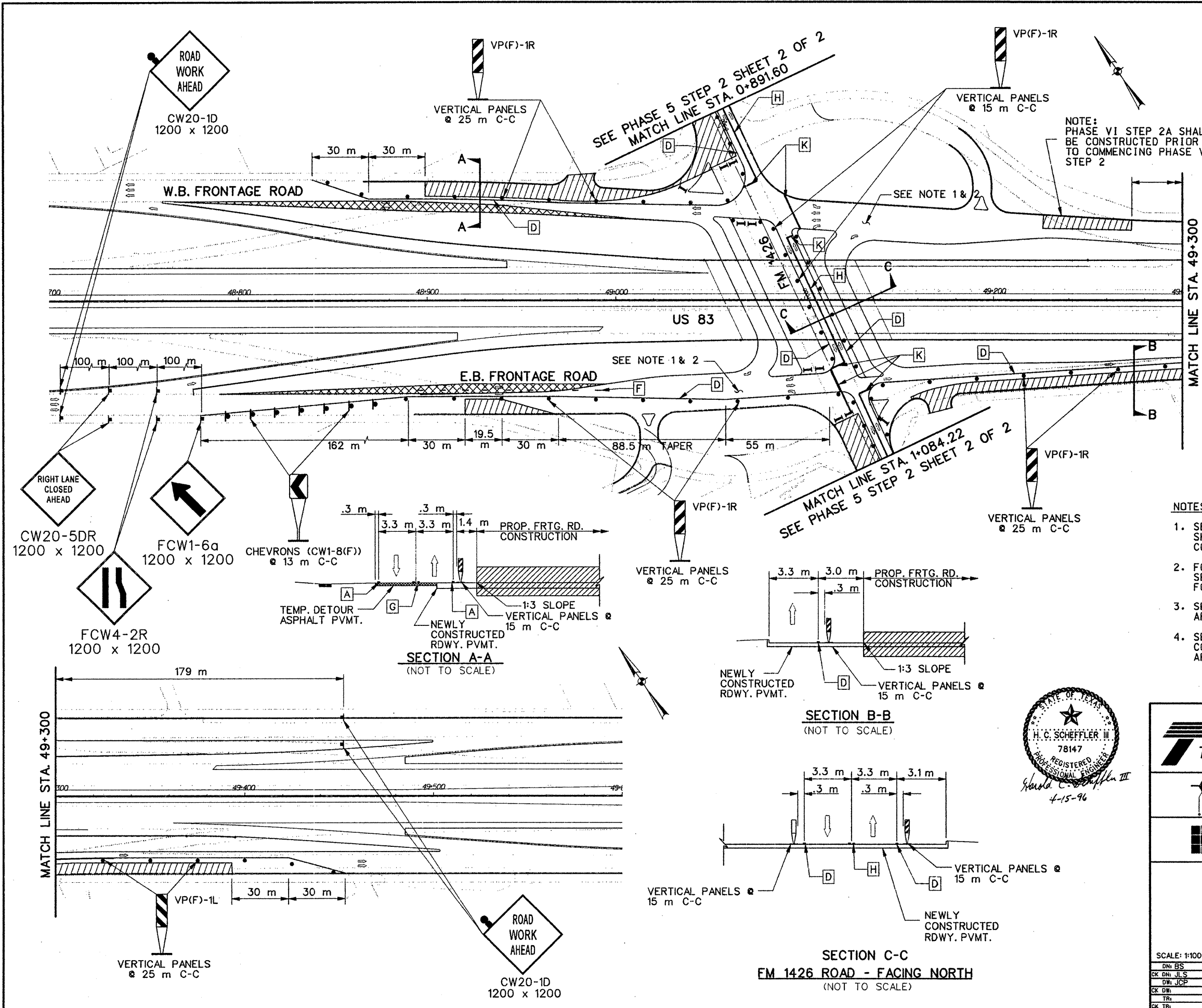
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**US 83 AT FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 5 STEP 2**

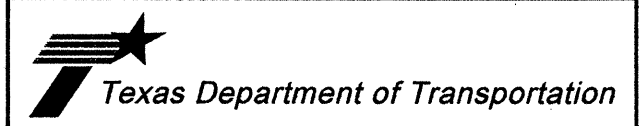
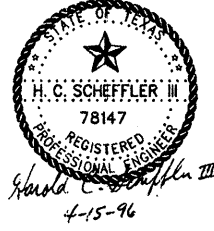
SCALE: 1:1000 SHEET 2 OF 2

DN: BS	STATE	FEDERAL AID PROJECT NO.	BIDDER NO.
CK DN: JLS	6 TEXAS	NH96(791) MD)	US 83
CK DN: JCP	STATE	COUNTY	SECTION NO.
CK DN: TR	21	HIDALGO	0039
CK DN: TR			17 118 108



- LEGEND**
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
 - B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
 - C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
 - D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
 - E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
 - F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
 - G WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
 - H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
 - J WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
 - K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
 - L WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
 - CONSTRUCTION AREA
 - TEMPORARY ROAD CONSTRUCTION
 - DIRECTION OF TRAFFIC FLOW
 - TYPE A WARNING LIGHT
 - TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
 - TYPE III BARRICADE

- NOTES:**
- SEE "PERMANENT PAVEMENT MARKINGS" SHEETS FOR FINAL STRIPING CONFIGURATION FOR COMPLETED SECTION.
 - FOR COMPLETED ROADWAY SECTION SEE "PERMANENT SIGNING" SHEETS FOR FINAL INTERSECTION SIGNING.
 - SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.
 - SEE "TYPICAL TRAFFIC CONTROL DURING CONSTRUCTION DETAILS" SHEET FOR APPROPRIATE DETAIL REFERENCE.



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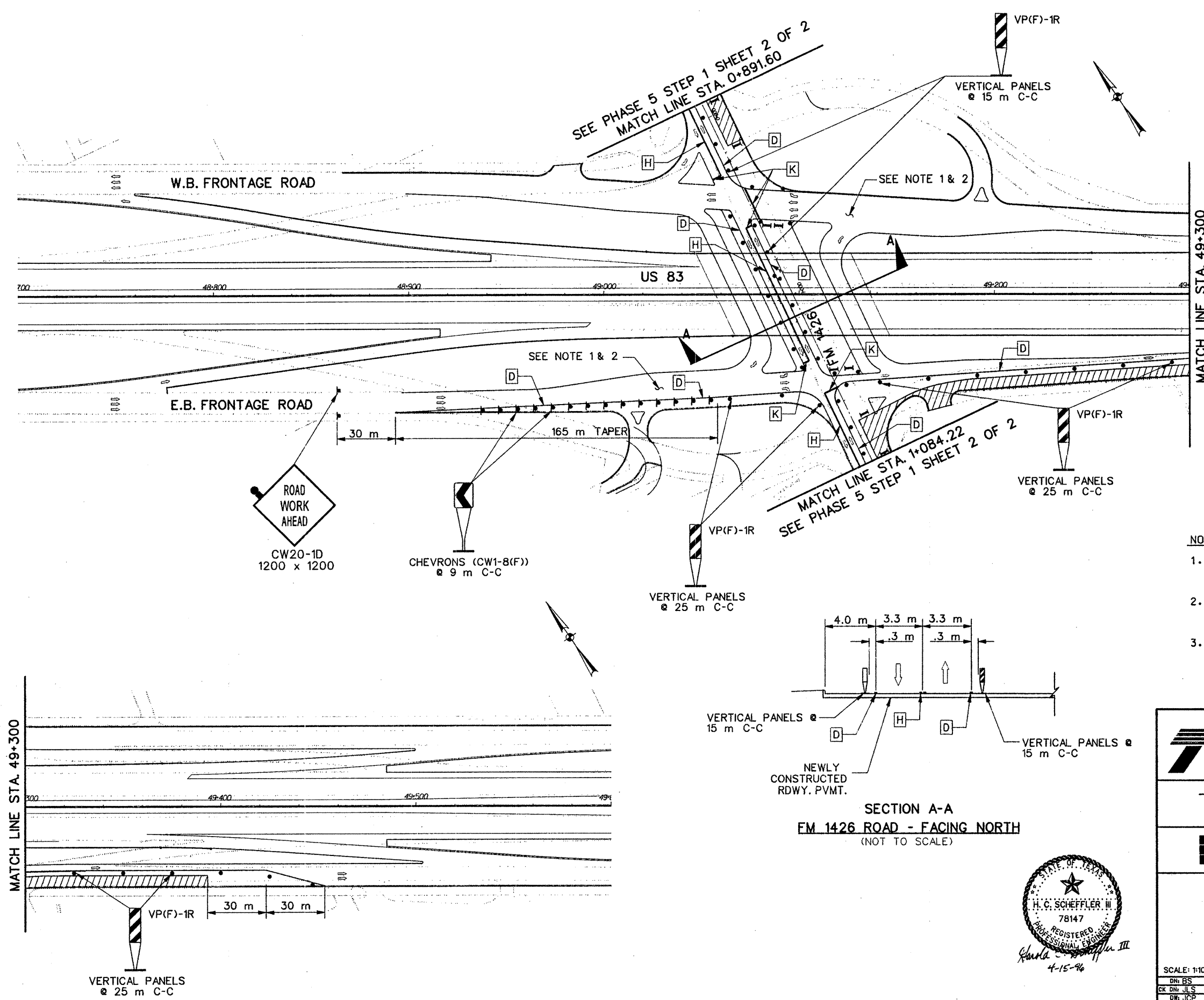
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**US 83 AT FM 1426
 TRAFFIC CONTROL PLAN
 PHASE 6 STEP 1**

SCALE: 1:1000 SHEET 1 OF 1

DN: BS	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN: JLS	6 TEXAS	NH 96 (791) M)	US 83
DN: JCP			
CK DN: TR	STATE DIST. NO.	COUNTY	CORNER NO.
CK TR:	21	HIDALGO	0039
			SECTION NO.
			17
			JOB NO.
			118
			SHEET NO.
			109

T&E/REF. NO. 0528-0002
 FILE: P605/SET:TOP

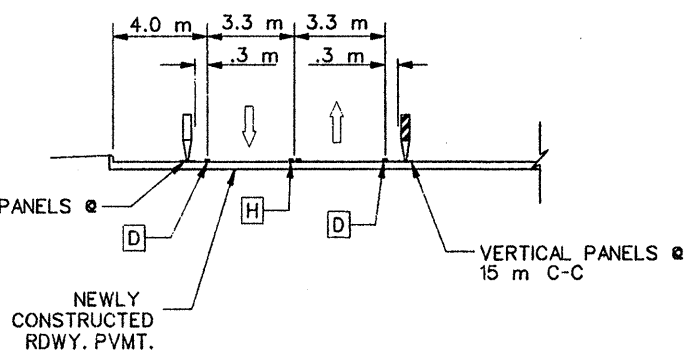


LEGEND

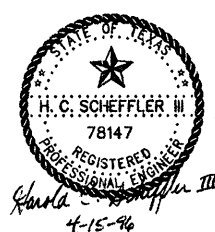
- A WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE SOLID
- B WORK ZONE PVMT MARK (NON-REM) 100 mm YELLOW SOLID
- C WORK ZONE PVMT MARK (NON-REM) 100 mm WHITE BROKEN
- D WORK ZONE PVMT MARK (REM) 100 mm WHITE SOLID
- E WORK ZONE PVMT MARK (REM) 100 mm YELLOW SOLID
- F WORK ZONE PVMT MARK (REM) 100 mm WHITE BROKEN
- G WORK ZONE PVMT MARK (NON-REM) 2-100 mm YELLOW SOLID
- H WORK ZONE PVMT MARK (REM) 2-100 mm YELLOW SOLID
- J WORK ZONE PVMT MARK (NON-REM) 600 mm WHITE SOLID
- K WORK ZONE PVMT MARK (REM) 600 mm WHITE SOLID
- L WORK ZONE PVMT MARK (REM) 200 mm WHITE SOLID
- CONSTRUCTION AREA
- TEMPORARY ROAD CONSTRUCTION
- DIRECTION OF TRAFFIC FLOW
- TYPE A WARNING LIGHT
- TRAFFIC SIGN ON POST (AS SHOWN ON PLANS)
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
- CHANNELIZING DEVICE ON FLEXIBLE SUPPORT WITH SIGN
- TYPE III BARRICADE

NOTES:

1. SEE "PERMANENT PAVEMENT MARKINGS" SHEETS FOR FINAL STRIPING CONFIGURATION FOR COMPLETED SECTION.
2. FOR COMPLETED ROADWAY SECTION SEE "PERMANENT SIGNING" SHEETS FOR FINAL INTERSECTION SIGNING.
3. SEE "DRAINAGE PLAN" SHEETS FOR APPROPRIATE DRAINAGE REFERENCE.



SECTION A-A
FM 1426 ROAD - FACING NORTH
(NOT TO SCALE)



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**US 83 AT FM 1426
TRAFFIC CONTROL PLAN
PHASE 6 STEP 2**

SCALE: 1:1000 SHEET 1 OF 1

DIST. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
21	TEXAS	NH96(791) M)	US 83
COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.
HIDALGO	0039	17	118
SHEET NO.			
110			

GENERAL NOTES (TEMPORARY SIGNALS)

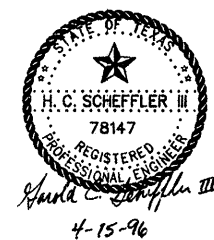
1. THE LOCATIONS SHOWN FOR THE TEMPORARY TRAFFIC SIGNAL EQUIPMENT IS APPROXIMATE. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER IN COORDINATION WITH THE TXDOT PHARR DISTRICT FIELD OPERATION TRAFFIC SECTION.
2. THE TEMPORARY SIGNAL EQUIPMENT SHOWN ON THE LIST OF MATERIALS FOR TEMPORARY TRAFFIC SIGNALS SHALL BE USED THROUGHOUT ALL PHASES AND STEPS OF THE TRAFFIC CONTROL PLAN FOR ROADWAY CONSTRUCTION.
3. THE SIGNAL SPANS SHALL BE PROVIDED WITH SUFFICIENT SPARE SIGNAL CABLE TO ALLOW FOR ADJUSTMENTS NECESSARY TO LOCATE THE SIGNAL HEADS OVER THE APPROPRIATE LANES DURING EACH PHASE OF ROADWAY CONSTRUCTION. TEMPORARY SIGNALS WILL BE PAID FOR BY ITEM 681, "TEMPORARY TRAFFIC SIGNALS FOR CONSTRUCTION".
4. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRAFFIC SIGNAL EQUIPMENT AS SHOWN ON THE TEMPORARY TRAFFIC SIGNAL LAYOUTS. THE TEMPORARY TRAFFIC CONTROLLERS SHALL BE SUPPLIED BY TXDOT AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL PICK-UP THE CONTROLLERS & CABINETS FROM THE TXDOT MAINTENANCE YARD IN PHARR. THE CONTROLLER SHALL BE A POLE MOUNTED 8-PHASE FULLY ACTUATED TRAFFIC CONTROLLER AND CABINET. THE PERMANENT TRAFFIC SIGNAL SYSTEM SHALL BE INSTALLED PRIOR TO COMPLETION OF ROADWAY CONSTRUCTION AS DIRECTED BY THE ENGINEER IN THE FIELD.
5. THE EXISTING SIGNAL INSTALLATION SHALL REMAIN IN SERVICE UNTIL THE TEMPORARY SIGNAL INSTALLATION IS OPERATIONAL.
6. ALL SIGNAL HEADS SHALL BE MOUNTED AT A MINIMUM 5.5 m ABOVE THE ROADWAY.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE ADJUSTMENTS AND/OR RELOCATION OF THE SIGNAL HEADS THROUGHOUT ALL PHASES AND STEPS OF THE TRAFFIC CONTROL PLAN FOR ROADWAY CONSTRUCTION.
8. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE AND OPERATION OF THE EXISTING AND TEMPORARY SIGNALS WHEN CONSTRUCTION BEGINS AND UNTIL THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) ACCEPTS THE PERMANENT SIGNAL INSTALLATION. THE CONTRACTOR SHALL MAINTAIN THE CONTINUOUS OPERATION OF THE EXISTING AND/OR TEMPORARY TRAFFIC SIGNALS IN CONFORMANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.).
10. THE CONTRACTOR SHALL BE ABLE TO IMMEDIATELY RESPOND AT ANY TIME (24 HOURS A DAY) TO REPORTS OF TRAFFIC SIGNAL MALFUNCTIONS AT THE INTERSECTIONS ONCE THE RESPONSIBILITY FOR THE MAINTENANCE OF THE SIGNAL EQUIPMENT IS ASSUMED AS OUTLINED ABOVE.
11. THE CONTRACTOR SHALL REMOVE THE EXISTING SIGNAL SYSTEM, AND THOSE ITEMS DEEMED SALVAGEABLE BY THE ENGINEER IN THE FIELD SHALL BE DELIVERED TO THE TXDOT MAINTENANCE YARD IN PHARR. ALL OTHER ITEMS REMOVED ARE TO BE DISPOSED OF BY THE CONTRACTOR AT THEIR EXPENSE. REMOVAL AND DELIVERY OF THE EXISTING TRAFFIC SIGNAL EQUIPMENT WILL NOT BE PAID FOR DIRECTLY, BUT IS CONSIDERED INCIDENTAL TO THE VARIOUS BID ITEMS FOR THIS PROJECT.
12. AFTER REMOVAL OF THE TEMPORARY SIGNAL, ALL TEMPORARY TRAFFIC SIGNAL EQUIPMENT FURNISHED BY THE CONTRACTOR SHALL REMAIN THE PROPERTY OF THE CONTRACTOR. THE POLE MOUNTED CONTROLLERS AND CABINETS SHALL BE RETURNED IN GOOD CONDITION TO THE TXDOT MAINTENANCE YARD IN PHARR.
13. THE CONTRACTOR SHALL PROVIDE A FULL-TIME QUALIFIED TRAFFIC SIGNAL TECHNICIAN TO BE RESPONSIBLE FOR THE MAINTENANCE AND/OR REPLACEMENT OF ALL TRAFFIC SIGNAL DEVICES.
14. THE CONTRACTOR SHALL REMOVE THE EXISTING CONCRETE POLE FOUNDATIONS TO 0.6 METERS BELOW FINISH GRADE. THE REMAINING HOLE SHALL BE BACKFILLED WITH LIKE MATERIAL EQUAL IN COMPOSITION AND DENSITY TO THE SURROUNDING AREA, AND BY REPLACING ANY SURFACING WITH LIKE MATERIAL TO EQUIVALENT CONDITION. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCIDENTAL TO ITEM 681.
15. DOWN GUYS FOR THE TEMPORARY WOOD TRAFFIC SIGNAL POLES SHALL BE 9 mm GALVANIZED STEEL GUY WIRE. SCREW ANCHORS SHALL BE 2.6 METERS. "SIDEWALK" DOWN GUYS SHALL BE INSTALLED WHERE FIELD CONDITIONS DO NOT ALLOW FOR THE STANDARD DOWN GUY ASSEMBLY.
16. TRAFFIC SIGNAL HEADS WHICH MAY NOT BE USED DURING CERTAIN PHASES OR STEPS OF THE TRAFFIC CONTROL PLAN SHALL BE WRAPPED WITH BURLAP SO THAT SIGNAL FACES CANNOT BE SEEN UNTIL THEY ARE PLACED IN OPERATION.
17. THE CONTROLLER HOUSING, SIGNAL COMMON, CONDUIT AND SPANS SHALL BE BONDED WITH NO. 6 AWG COPPER WIRE TO FORM A CONTINUOUS SYSTEM AND EFFECTIVELY GROUNDED TO A 16 mm X 2.4 m COPPERCLAD GROUND ROD AS INDICATED IN THE PLANS.
18. ALL CONDUCTORS SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE SIGNAL CONTROLLER TO SIGNAL HEADS, LUMINAIRES AND SIGN LIGHTS.
19. THE CONTRACTOR MAY INSTALL CERTAIN PORTIONS OF THE PERMANENT TRAFFIC SIGNAL SYSTEMS DURING CONSTRUCTION AS LONG AS THERE IS NOT A CONFLICT WITH ROADWAY CONSTRUCTION. SUCH WORK IS SUBJECT TO APPROVAL BY THE ENGINEER IN THE FIELD.
20. THE EXISTING TRAFFIC SIGNAL PHASING & TIMING WILL BE USED FOR THE TEMPORARY TRAFFIC SIGNALS DURING ALL PHASES OF CONSTRUCTION.
21. ALL EQUIPMENT UTILIZED FOR THE TEMPORARY TRAFFIC SIGNAL INSTALLATION SHALL CONFORM TO, AND BE INSTALLED IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS.



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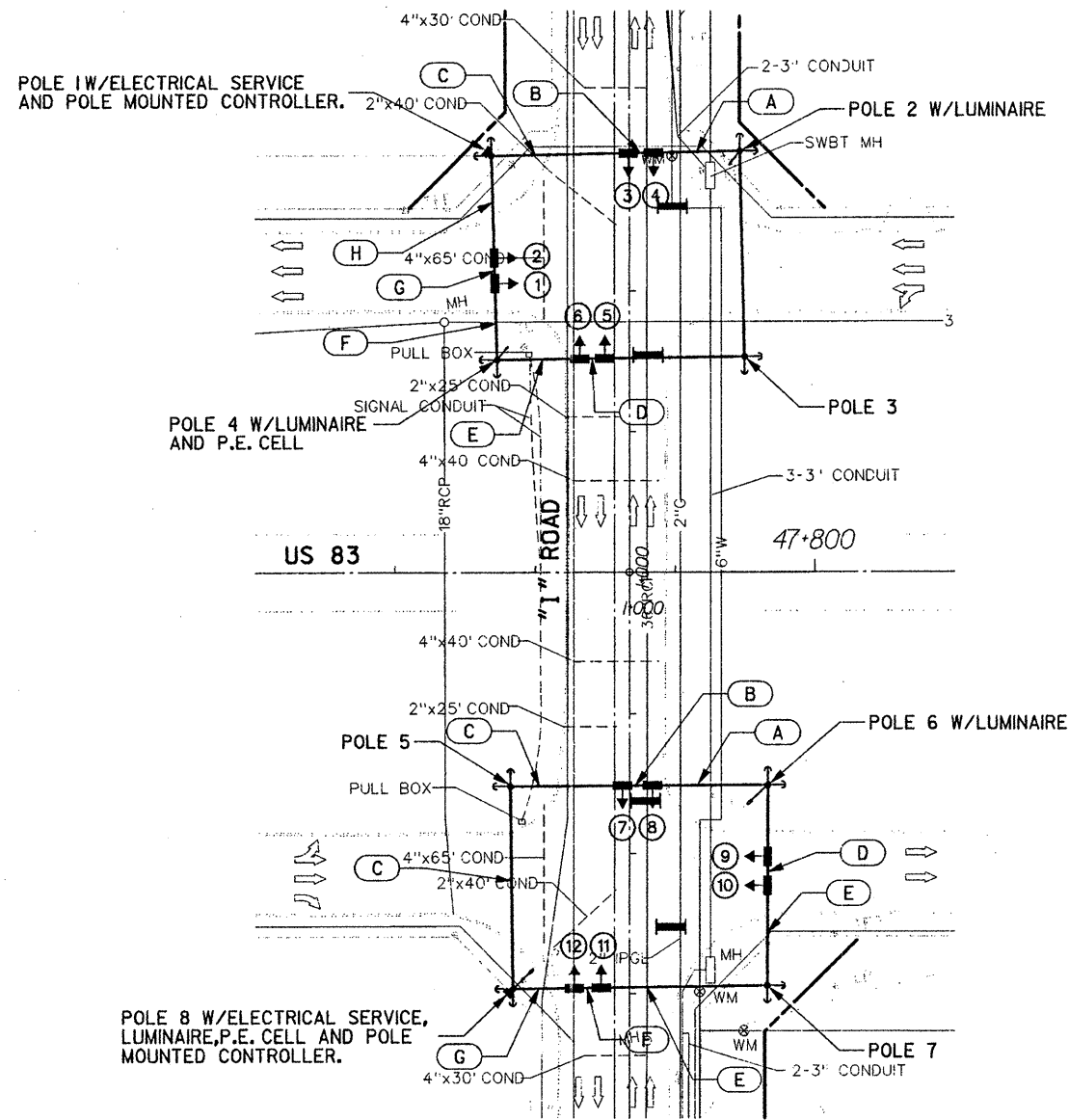
**GENERAL NOTES FOR
 TEMPORARY SIGNAL CONSTRUCTION**



SHEET 1 OF 1

DN: BS	NO. 6	STATE	FEDERAL AID PROJECT NO.	PROJECT NO.
CK DN: JLS	6	TEXAS	NH96(791) M)	US 83
DN: JCP				
CK DN:	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.
TR:	21	HIDALGO	0039	17
CK TR:				118
				111

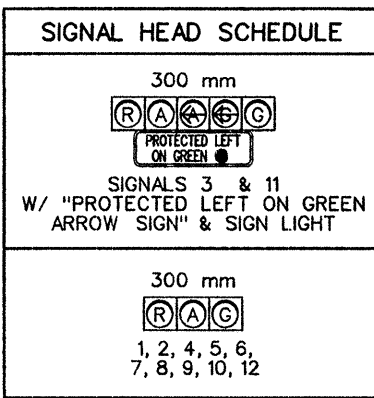
TEDISET, NO. 05284-0002
 USE PREVIOUS EDITIONS



PHASE 1 THRU 4

NOTE:

INFORMATION SHOWN RELATIVE TO EXISTING UNDERGROUND UTILITIES AND CONDUITS IS BASED ON THE BEST AVAILABLE INFORMATION SUPPLIED BY TxDOT, LOCAL ENTITIES, VARIOUS UTILITY COMPANIES AND FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION TO AVOID CONFLICT OR DAMAGE TO THESE UTILITIES.



- LEGEND**
- ← HORIZONTAL SIGNAL HEAD
 - ▼ POLE MOUNTED CONTROLLER CABINET
 - 12 m WOOD TRAFFIC SIGNAL POLE
 - ← GUY WIRE AND ANCHOR ASSEMBLY
 - 3 m LUMINAIRE ARM
 - ⇒ DIRECTION OF TRAFFIC FLOW
 - WIRE RUN DESIGNATION

ELECTRICAL SCHEDULE

ITEM	TOTAL QTY*	RUN NUMBER	A	B	C	D	E	F	G	H
POWER	120m	3-#6								
SIGNAL CABLE	115m	2/C-#12	1	1	1			1	1	1
	55m	4/C-#12						1	1	1
	225m	5/C-#12		1	1	1	2	2	3	4
	35m	7/C-#12			1					
LOOP LEAD	m	LOOP WIRE								
	m	2/C-(SHIELD)								
CONDUIT	m	25 mm PVC								
	15m	32 mm RMC								
	10m	75 mm PVC								
	m	100 mm PVC								

* INCLUDES QUANTITY ON SERVICE POLE, SIGNAL POLE, AND/OR LUMINAIRE ARM. ABOVE ELECTRICAL SCHEDULE ALSO APPLIES TO PHASE 5 & 6

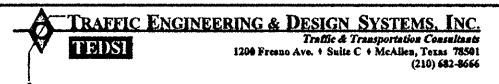
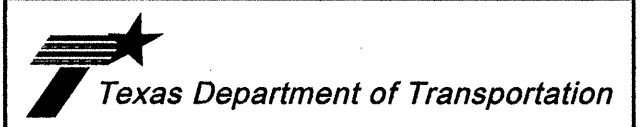
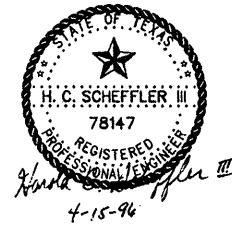
WESTBOUND U.S. 83 FR. RD. AT "I" ROAD TEMPORARY SIGNAL

ELECTRICAL SCHEDULE

ITEM	TOTAL QTY*	RUN NUMBER	A	B	C	D	E	F	G
POWER	120m	3-#6							
SIGNAL CABLE	110m	2/C-#12	1	1	1				
	10m	4/C-#12							
	310m	5/C-#12		1	2	1	2	2	3
	25m	7/C-#12						1	1
LOOP LEAD	m	LOOP WIRE							
	m	2/C-(SHIELD)							
CONDUIT	m	25 mm PVC							
	15m	32 mm RMC							
	10m	75 mm RMC							
	m	100 mm PVC							

* INCLUDES QUANTITY ON SERVICE POLE, SIGNAL POLE, AND/OR LUMINAIRE ARM. ABOVE ELECTRICAL SCHEDULE ALSO APPLIES TO PHASE 5 & 6

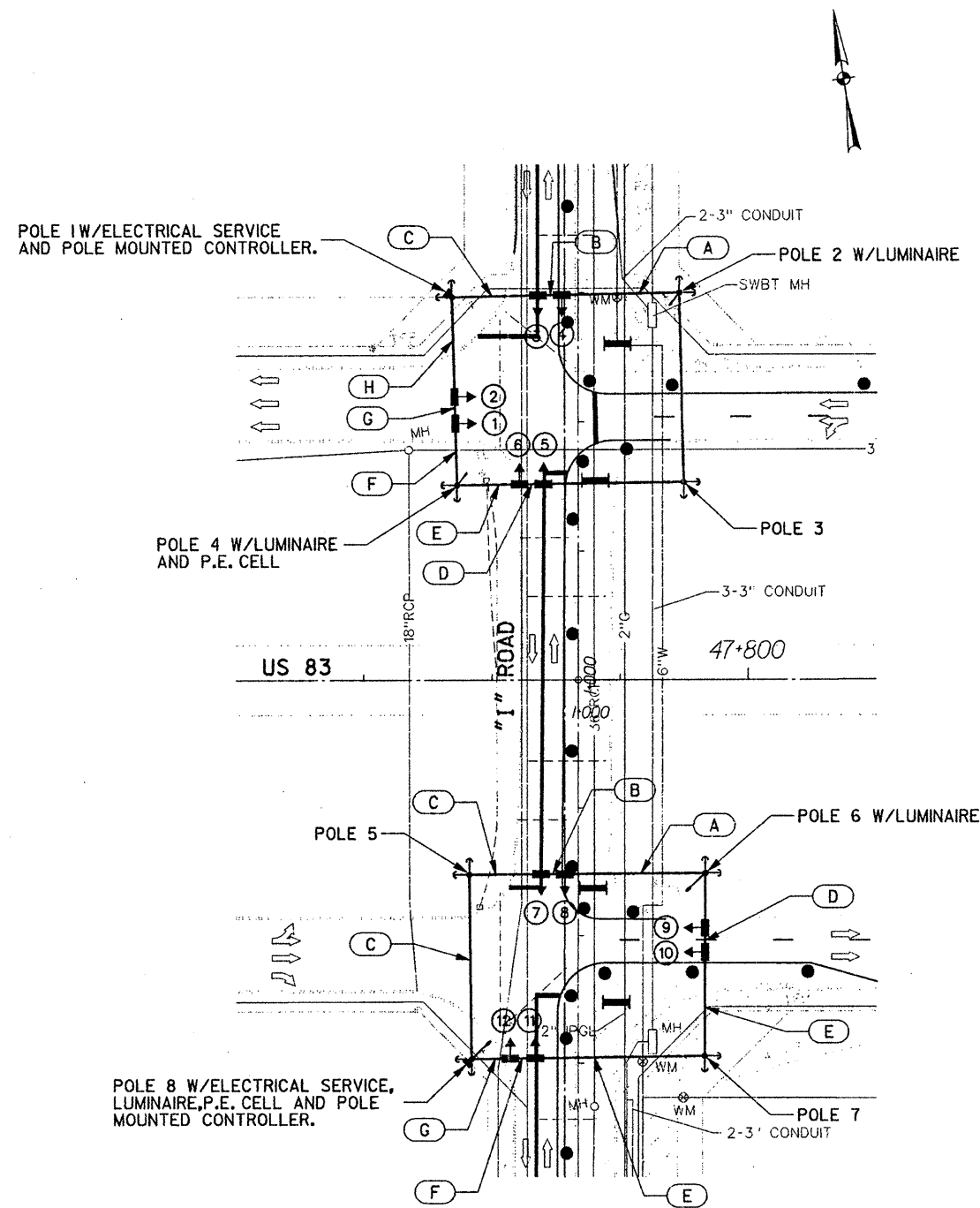
EASTBOUND U.S. 83 FR. RD. AT "I" ROAD TEMPORARY SIGNAL



US 83 AT "I" ROAD TEMPORARY TRAFFIC SIGNAL LAYOUT PHASE 1 THRU 4

SCALE: 1:500 SHEET 1 OF 1

DN: BS	FILE NO.	STATE	FEDERAL AID PROJECT NO.	WISDOM NO.
CK DN: JLS	6	TEXAS	NH 96 (791) M0	US 83
DIR: JCP	STATE DIST. NO.	COUNTY	CORNER NO.	SECTION NO.
CK DN:	21	HIDALGO	0039	17 118
TR:				112
CK TR:				



PHASE 5 AND 6 - STEP 1 THRU 2

SIGNAL HEAD SCHEDULE	
300 mm	
1 THRU 12	

- LEGEND**
- HORIZONTAL SIGNAL HEAD
 - POLE MOUNTED CONTROLLER CABINET
 - 12 m WOOD TRAFFIC SIGNAL POLE
 - GUY WIRE AND ANCHOR ASSEMBLY
 - 3 m LUMINAIRE ARM
 - DIRECTION OF TRAFFIC FLOW
 - WIRE RUN DESIGNATION
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - TYPE III BARRICADE

- NOTES:**
- THE TEMPORARY SIGNALS IN PHASE 1 THRU 4 SHALL BE UTILIZED IN PHASE 5 AND 6. TEMPORARY SIGNAL HEADS SHALL BE ADJUSTED AND/OR RELOCATED TO THE CURRENT TRAFFIC CONTROL PHASE. SEE TRAFFIC CONTROL PLANS FOR LANE CONFIGURATIONS. ALL RELATED COSTS SHALL BE INCIDENTAL TO ITEM 681.
 - USE EXISTING TRAFFIC SIGNAL PHASING & TIMINGS DURING ALL PHASES OF CONSTRUCTION.



NOTE:
 INFORMATION SHOWN RELATIVE TO EXISTING UNDERGROUND UTILITIES AND CONDUITS IS BASED ON THE BEST AVAILABLE INFORMATION SUPPLIED BY TxDOT, LOCAL ENTITIES, VARIOUS UTILITY COMPANIES AND FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION TO AVOID CONFLICT OR DAMAGE TO THESE UTILITIES.

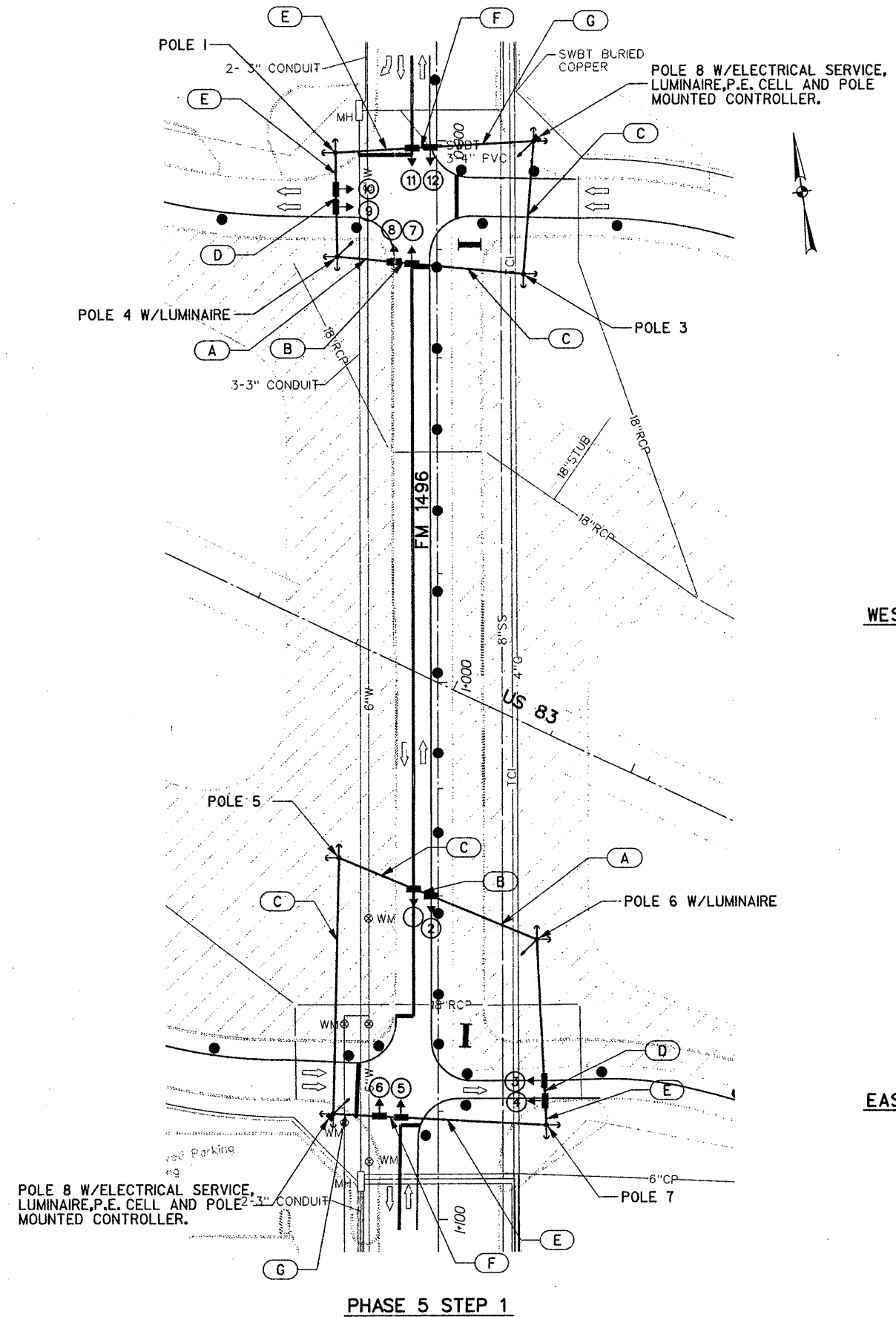


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**US 83 AT "I" ROAD
 TEMPORARY TRAFFIC SIGNAL LAYOUT
 PHASE 5 AND 6 - STEP 1 THRU 2**

SCALE: 1:500		SHEET 1 OF 1			
DR: BS	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.		
CK DR: JLS	6 TEXAS	NH 96(791) M)	US 83		
DR: JCP	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.
CK DR:	21	HIDALGO	0039	17	118
TR:					113
CK TR:					



SIGNAL HEAD SCHEDULE	
300 mm	(RAG)
1 THRU 12	

- LEGEND**
- ← HORIZONTAL SIGNAL HEAD
 - ▼ POLE MOUNTED CONTROLLER CABINET
 - 12 m WOOD TRAFFIC SIGNAL POLE
 - ← GUY WIRE AND ANCHOR ASSEMBLY
 - 3 m LUMINAIRE ARM
 - ⇒ DIRECTION OF TRAFFIC FLOW
 - WIRE RUN DESIGNATION
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - I TYPE III BARRICADE

ELECTRICAL SCHEDULE										
ITEM	TOTAL QTY*	RUN NUMBER	RUN LENGTH	A	B	C	D	E	F	G
				11m	4m	46m	4m	22m	4m	19m
POWER	120m	3-#6								
SIGNAL CABLE	100m	2/C-#12		1	1	1				
	10m	4/C-#12								
	335m	5/C-#12			1	2	1	2	3	4
		7/C-#12								
LOOP LEAD	m	LOOP WIRE								
	m	2/C-(SHIELD)								
CONDUIT	m	25 mm PVC								
	15m	32 mm RMC								
	10m	75 mm RMC								
	m	100 mm PVC								

* INCLUDES QUANTITY ON SERVICE POLE, SIGNAL POLE, AND/OR LUMINAIRE ARM.

- NOTES:**
1. THE EXISTING SIGNAL OPERATION SHALL REMAIN IN PLACE THROUGHOUT PHASE 1, 2, 3, & 4 OF ROADWAY CONSTRUCTION.
 2. THE TEMPORARY SIGNALS AS SHOWN SHALL BE ADJUSTED AND/OR RELOCATED THROUGHOUT PHASE 5 OF ROADWAY CONSTRUCTION. SEE TRAFFIC CONTROL PLANS FOR LANE CONFIGURATIONS.
 3. USE EXISTING TRAFFIC SIGNAL PHASING & TIMINGS DURING ALL PHASES OF CONSTRUCTION.
 4. TEMPORARY POLES 5 & 6 SHALL BE PLACED TO CLEAR PROPOSED ROADWAY (MIN. .6 METER BACK OF CURB)

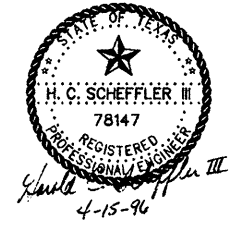
WESTBOUND U.S. 83 FR. RD. AT FM 1426 TEMPORARY SIGNAL

ELECTRICAL SCHEDULE										
ITEM	TOTAL QTY*	RUN NUMBER	RUN LENGTH	A	B	C	D	E	F	G
				19m	4m	63m	4m	33m	4m	9m
POWER	120m	3-#6								
SIGNAL CABLE	130m	2/C-#12		1	1	1				
	10m	4/C-#12								
	355m	5/C-#12			1	2	1	2	3	4
		7/C-#12								
LOOP LEAD	m	LOOP WIRE								
	m	2/C-(SHIELD)								
CONDUIT	m	25 mm PVC								
	15m	32 mm RMC								
	10m	75 mm RMC								
	m	100 mm PVC								

* INCLUDES QUANTITY ON SERVICE POLE, SIGNAL POLE, AND/OR LUMINAIRE ARM. ABOVE ELECTRICAL SCHEDULE ALSO APPLIES TO PHASE 6.

EASTBOUND U.S. 83 FR. RD. AT FM 1426 TEMPORARY SIGNAL

NOTE:
 INFORMATION SHOWN RELATIVE TO EXISTING UNDERGROUND UTILITIES AND CONDUITS IS BASED ON THE BEST AVAILABLE INFORMATION SUPPLIED BY TxDOT, LOCAL ENTITIES, VARIOUS UTILITY COMPANIES AND FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION TO AVOID CONFLICT OR DAMAGE TO THESE UTILITIES.

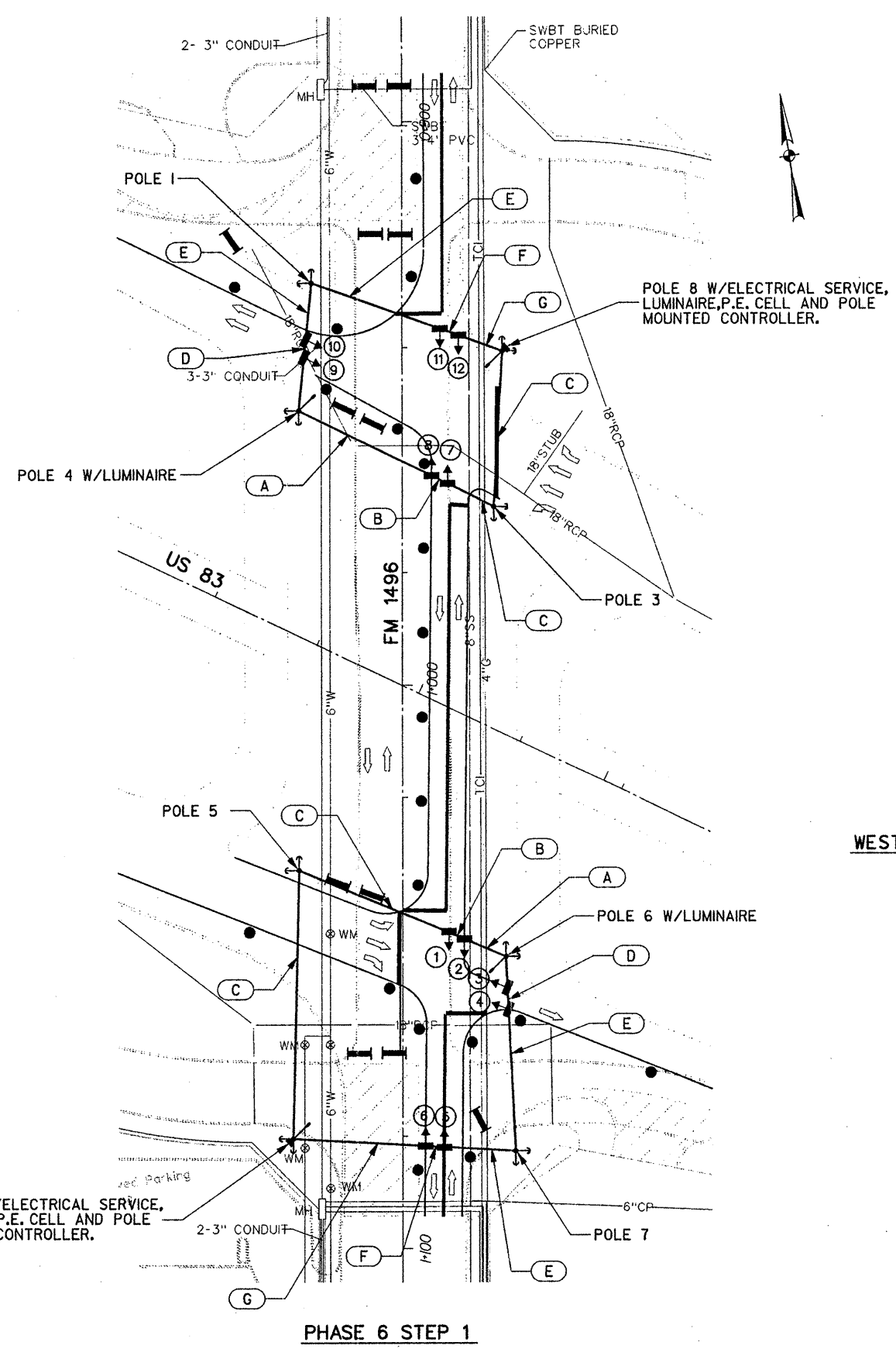


TRAFFIC ENGINEERING & DESIGN SYSTEMS, INC.
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 (214) 682-8466

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**US 83 AT FM 1426
 TEMPORARY TRAFFIC SIGNAL LAYOUT
 PHASE 5 STEP 1 THRU 2**

SCALE: 1:500		SHEET 1 OF 1			
DN: BS	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.		
CK DN: JLS	6 TEXAS	NH 96 (91) MD)	US 83		
DR: JGP	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.
CK DR: JGP	21	HIDALGO	0039	17	118
TR:					
CK TR:					



SIGNAL HEAD SCHEDULE	
300 mm	(R) (A) (G)
1 THRU 12	

- LEGEND**
- ← HORIZONTAL SIGNAL HEAD
 - ▼ POLE MOUNTED CONTROLLER CABINET
 - 12 m WOOD TRAFFIC SIGNAL POLE
 - ← GUY WIRE AND ANCHOR ASSEMBLY
 - 3 m LUMINAIRE ARM
 - ⇒ DIRECTION OF TRAFFIC FLOW
 - WIRE RUN DESIGNATION
 - CHANNELIZING DEVICE ON FLEXIBLE SUPPORT
 - ⊥ TYPE III BARRICADE

ELECTRICAL SCHEDULE									
ITEM	TOTAL QTY*	RUN NUMBER	A	B	C	D	E	F	G
	120m	3-#6							
POWER									
SIGNAL CABLE	110m	2/C-#12	1	1	1				
	10m	4/C-#12							
LOOP LEAD	295m	5/C-#12		1	2	1	2	3	4
		7/C-#12							
CONDUIT	m	25 mm PVC							
	15m	32 mm RMC							
	10m	75 mm RMC							
	m	100 mm PVC							

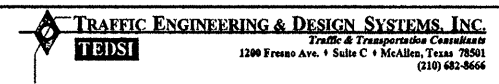
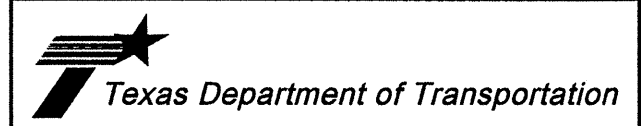
* INCLUDES QUANTITY ON SERVICE POLE, SIGNAL POLE, AND/OR LUMINAIRE ARM.

WESTBOUND U.S. 83 FR. RD. AT FM 1426 TEMPORARY SIGNAL

- NOTES:**
1. THE TEMPORARY SIGNAL IN PHASE 5 AT THE INTERSECTION OF E.B. U.S. 83 FR. RD. AT FM 1426 SHALL BE UTILIZED THROUGHOUT PHASE 6 OF CONSTRUCTION. THE TEMPORARY SIGNAL HEADS SHALL BE ADJUSTED AND/OR RELOCATED TO THE CURRENT TRAFFIC CONTROL PHASE. SEE TRAFFIC CONTROL PLANS FOR LANE CONFIGURATIONS.
 2. THE TEMPORARY SIGNAL AS SHOWN SHALL BE ADJUSTED AND/OR RELOCATED THROUGHOUT PHASE 6 OF ROADWAY CONSTRUCTION. SEE TRAFFIC CONTROL PLANS FOR LANE CONFIGURATIONS.
 3. USE EXISTING TRAFFIC SIGNAL PHASING & TIMINGS DURING ALL PHASES OF CONSTRUCTION.



NOTE:
 INFORMATION SHOWN RELATIVE TO EXISTING UNDERGROUND UTILITIES AND CONDUITS IS BASED ON THE BEST AVAILABLE INFORMATION SUPPLIED BY TxDOT, LOCAL ENTITIES, VARIOUS UTILITY COMPANIES AND FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION TO AVOID CONFLICT OR DAMAGE TO THESE UTILITIES.



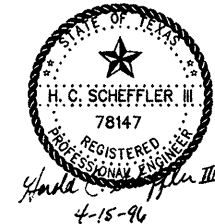
**US 83 AT FM 1426
 TEMPORARY TRAFFIC SIGNAL LAYOUT
 PHASE 6 STEP 1 THRU 2**


SCALE: 1:500		SHEET 1 OF 1			
DN: BS	REV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
CK DN: JLS	6	TEXAS	NH 92 (M)	US 83	
DN: JCP	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	SHEET NO.
CK DN:	21	HIDALGO	0039	17	118
Tr:					
CK Tr:					

LIST OF MATERIALS FOR TEMPORARY TRAFFIC SIGNALS


ITEM	CODE	DESCRIPTION	UNIT	"I" ROAD AT W.B. US 83 FR. RD.		"I" ROAD AT E.B. US 83 FR. RD.		FM 1426 AT W.B. US 83 FR. RD.(PH 5)		FM 1426 AT W.B. US 83 FR. RD.(PH 6)		FM 1426 AT E.B. US 83 FR.RD.(PH 5-6)		TOTAL
				ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL	
681	5001	TEMP TRAF SIGNALS FOR CONSTRUCTION	EA	1		1		1		1		1		5
*		ASSEMBLY, GUY WIRE AND ANCHOR	EA	4		4		4		4		4		20
*		3 m LUMINAIRE ARM	EA	2		2		2		2		2		10
*		4.7 mm GALV STEEL SPAN WIRE	M	145		145		130		140		180		740
*		7.8 mm GALV STEEL SPAN WIRE	M	225		225		205		220		255		1130
*		250 WATT HPS LUMINAIRE	EA	2		2		2		2		2		10
*		VEH SIG SEC (300 mm)	EA	23		23		18		18		18		100
*		SIGN PROTECTED LEFT ON GREEN ● .450mm X 300mm	EA	1		1								2
*		SIGN LIGHT, FLUORESCENT	EA	1		1								2
*		PHOTOELECTRIC CELL	EA	1		1		1		1		1		5
**		CONTROLLER, FULL TRAFFIC ACTUATED W/ INT TBC	EA	1		1		1		1		1		5
**		CONTROLLER CABINET (POLE MOUNTED)	EA	1		1		1		1		1		5
*		CONDUIT (RM) (32 mm)	M	15		15		15		15		15		75
*		CONDUIT (RM) (75 mm)	M	10		10		10		10		10		50
*		ELEC CONDUCTOR (NO. 6) INSULATED	M	120		120		120		120		120		600
*		TRAF SIG CBL (TY A) (2 CONDR) (12 AWG)	M	115		110		100		110		130		565
*		TRAF SIG CBL (TY A) (4 CONDR) (12 AWG)	M	55		10		10		10		10		95
*		TRAF SIG CBL (TY A) (5 CONDR) (12 AWG)	M	225		310		335		295		355		1520
*		TRAF SIG CBL (TY A) (7 CONDR) (12 AWG)	M	35		25								60
*		ROD, GROUND 15.6 mm X 2.4 m	EA	1		1		1		1		1		5
*		DISCONNECT, SERVICE	EA	1		1		1		1		1		5
*		MISCELLANEOUS MATERIAL	LS	1		1		1		1		1		5
*		12 m WOOD POLE	EA	4		4		4		4		4		20
*		REMOVE AND SALVAGE MISC SIGNAL MATERIAL	LS	1		1		1		1		1		5

- * FOR CONTRACTOR INFORMATION ONLY.
- ** MATERIALS FURNISHED BY TEXAS DEPARTMENT OF TRANSPORTATION AND INSTALLED BY THE CONTRACTOR.






Texas Department of Transportation



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(210) 682-8666



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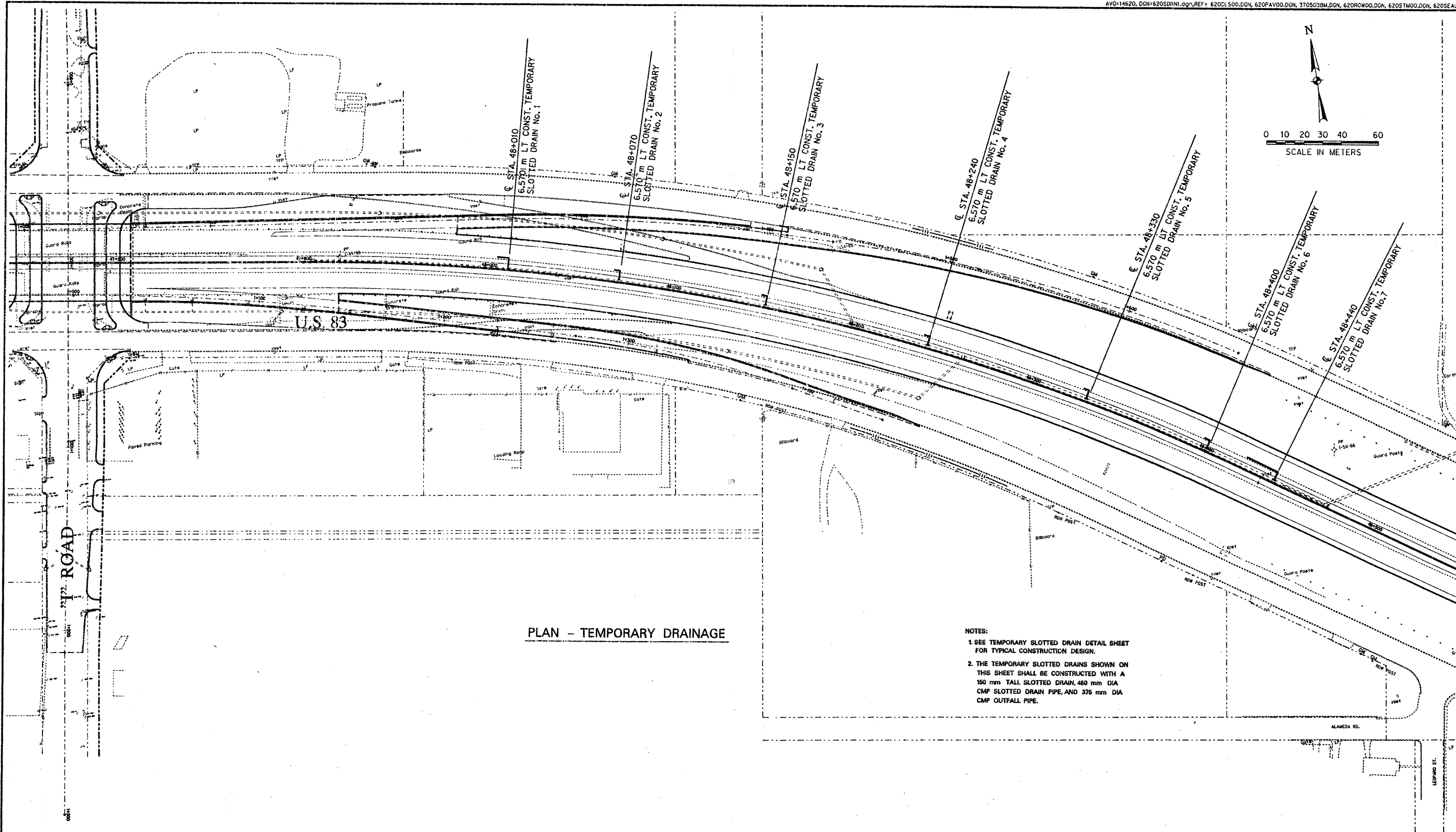
**BASIS OF ESTIMATE FOR
TEMPORARY TRAFFIC SIGNALIZATION**

SHEET 1 OF 1

DN: BS	REV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN: JLS	6	TEXAS	NH 96(791) M)	US 83
CK DN: JCP	STATE DIST. NO.	COUNTY	CORNER NO.	SECTION NO.
CK DN: TR:	21	HIDALGO	0039	17
CK TR:				118
				116



0 10 20 30 40 60
SCALE IN METERS



PLAN - TEMPORARY DRAINAGE

- NOTES:
1. SEE TEMPORARY SLOTTED DRAIN DETAIL SHEET FOR TYPICAL CONSTRUCTION DESIGN.
 2. THE TEMPORARY SLOTTED DRAINS SHOWN ON THIS SHEET SHALL BE CONSTRUCTED WITH A 150 mm TALL SLOTTED DRAIN, 450 mm DIA CMP SLOTTED DRAIN PIPE, AND 375 mm DIA CMP OUTFALL PIPE.

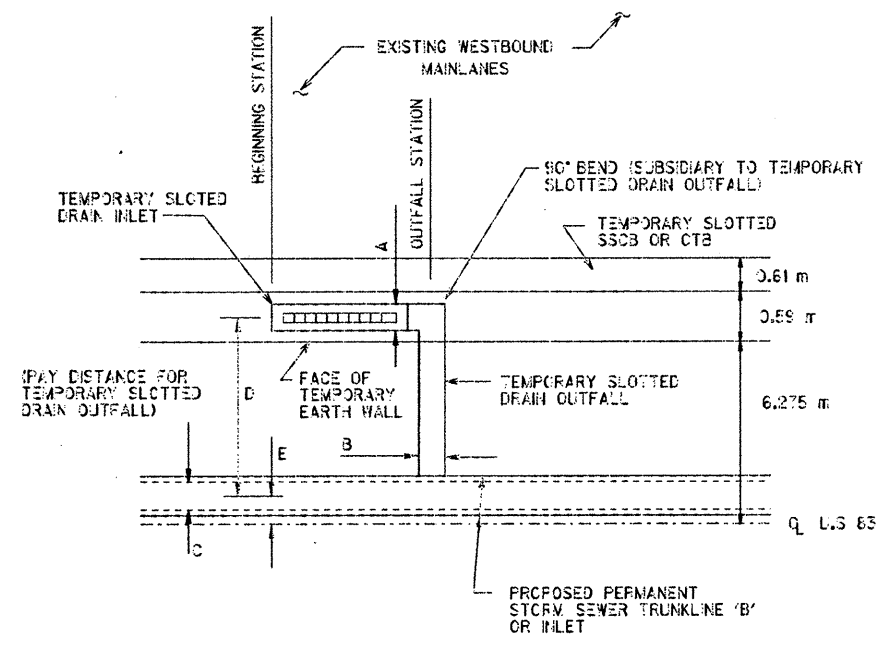


GREGORY A. JACOBS 4-15-97
GREGORY A. JACOBS DATE

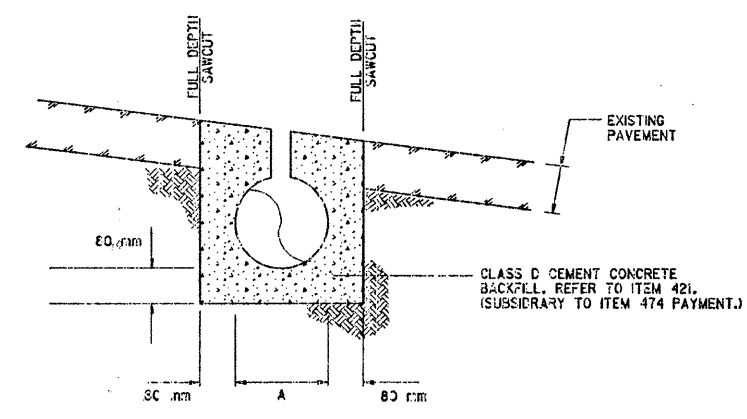
TEMPORARY DRAINAGE CONSTRUCTION STAGE 2 U.S. 83 RECONSTRUCTION HIDALGO COUNTY, TEXAS TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
	CADD		6	TEXAS	NH 46717M	117			
DATE	FILE	SCALE	STATE	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.	
APRIL 1997	6205DRN1	1: 500	21	HIDALGO	06 30	17	118	U.S. 83	

1
2

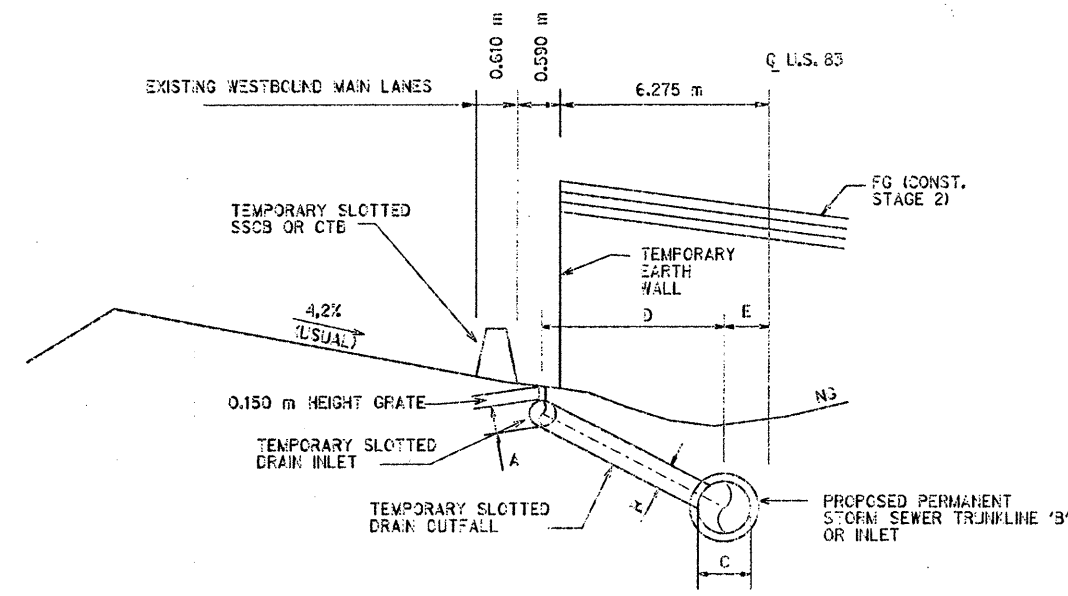
SLOTTED DRAIN No.	BEGINNING C.L. STATION	OUTFALL C.L. STATION	DRAIN DIAMETER A [mm]	OUTFALL DIAMETER B [mm]	OUTFALL DISCHARGE [cms]	TRUNK DIAMETER C [mm]	TRUNK CL OFFSET E [m]	HORIZONTAL SEPARATION D [m]	TOP OF DRAIN ELEVATION AT OUTFALL [m]	OUTFALL SLOPE [m/m]	LENGTH OF SLOTTED DRAIN [m]	CONNECTION	
												OUTFALL TO PIPE	OUTFALL TO INLET
1	48+004	48+010	450	375	0.081	0.450	0.96	5.610	33.523	0.0628	6		
2	48+067	48+070	450	375	0.028		0.96	5.610	33.027	0.0401	3		
3	48+147	48+150	450	375	0.038		1.109	5.461	32.619	0.1000	3		
4	48+237	48+240	450	375	0.043		1.259	5.311	32.169	0.1000	3		
5	48+327	48+330	450	375	0.043		1.259	5.311	31.719	0.1000	3		
6	48+397	48+400	450	375	0.033		1.259	5.311	31.369	0.1000	3		
7	48+422	48+440	450.0	375	0.019		1.259	5.311	31.169	0.1000	18		



PLAN VIEW
N.T.S.



TEMPORARY SLOTTED DRAIN BACKFILL DETAIL
N.T.S.



PROFILE VIEW
N.T.S.

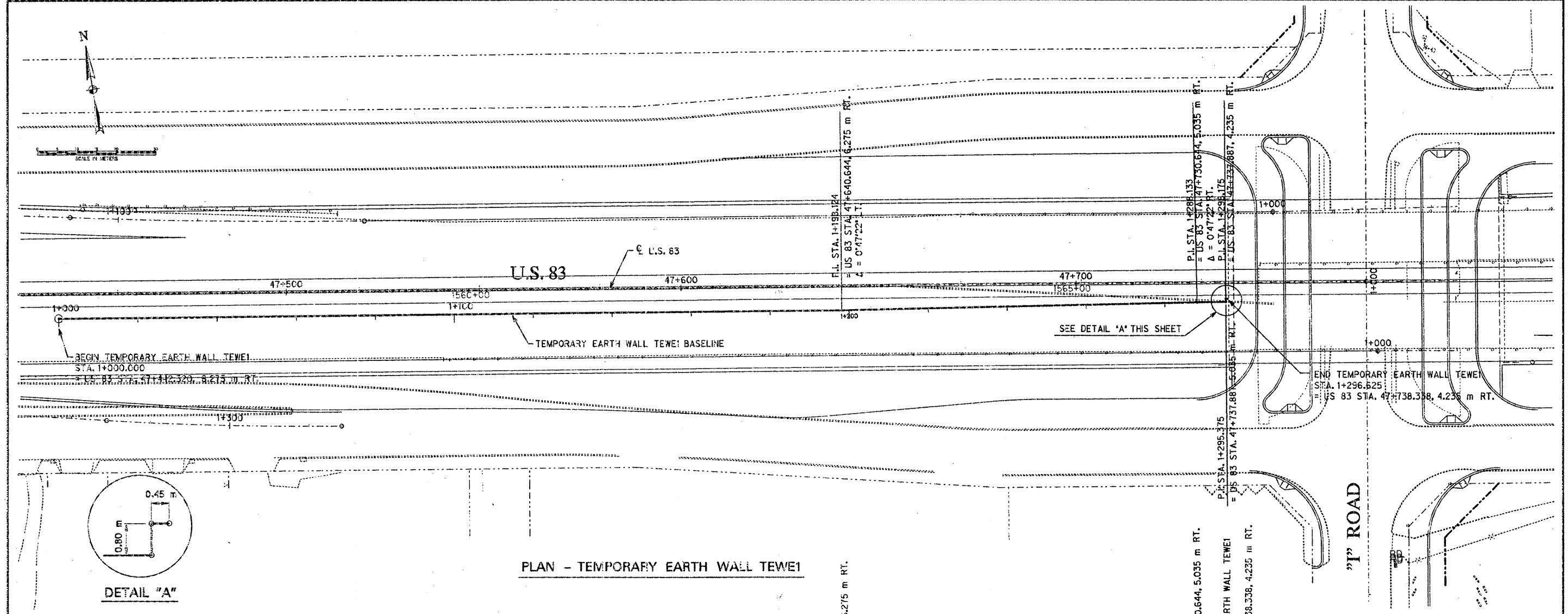
NOTES:

1. SLOTTED DRAIN INLET AND SLOTTED DRAIN OUTFALL SHALL MEET THE REQUIREMENTS FOR ITEM 474-SLOTTED DRAIN.
2. TEMPORARY SLOTTED DRAIN INLETS AND SLOTTED DRAIN OUTFALLS SHALL BE CONSTRUCTED AND OPERATIONAL PRIOR TO CONSTRUCTING TEMPORARY EARTH WALLS. TEMPORARY SLOTTED DRAIN INLETS AND SLOTTED DRAIN OUTFALLS SHALL REMAIN IN SERVICE UNTIL WESTBOUND MAINLANES TRAFFIC IS RELOCATED IN CONSTRUCTION STAGE 4. TEMPORARY SLOTTED DRAIN INLETS SHALL THEN BE REMOVED AND THE SLOTTED DRAIN OUTFALLS SHALL BE PLUGGED. THE SLOTTED DRAIN OUTFALL SHALL BE FILLED WITH CONCRETE OR FLOWABLE FILL. TEMPORARY SLOTTED DRAIN REMOVAL AND ABANDONMENT SHALL BE SUBSIDIARY TO THE VARIOUS BID ITEMS.

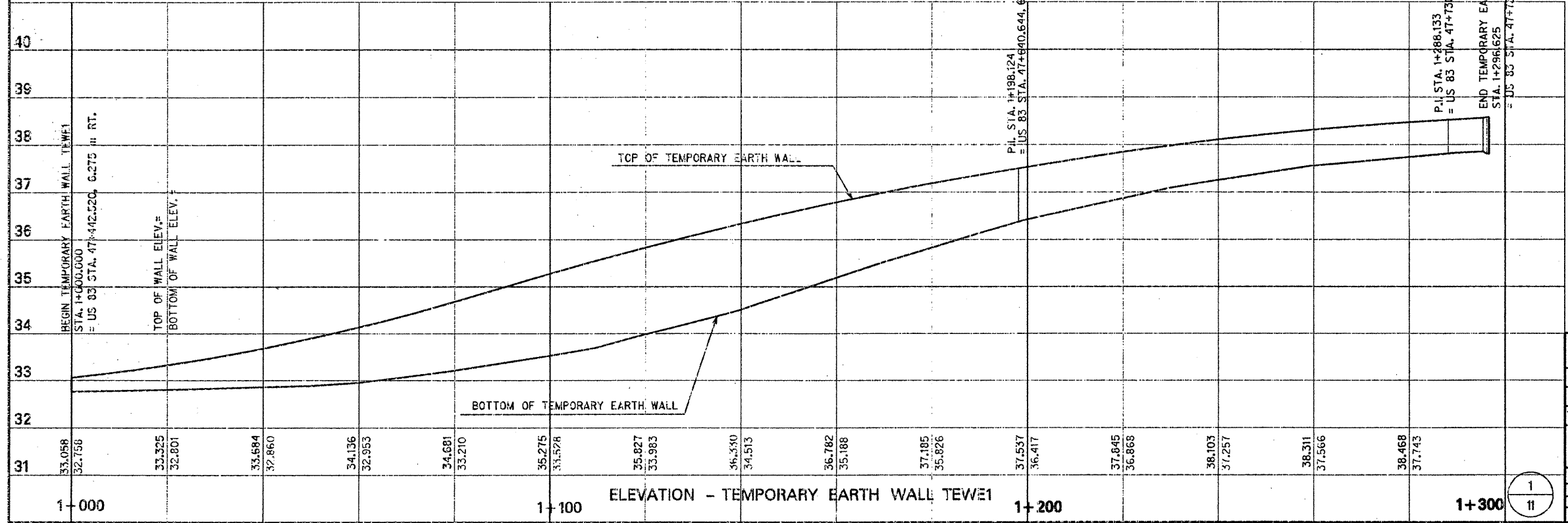


Gregory A. Jacobs 4-2-91
DATE

TEMPORARY SLOTTED DRAIN DETAILS							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
			8	TEXAS	17801	118	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	CS NO.	HIGHWAY NO.
APRIL 1991	826SDT1	N.T.S.	21	HIDALGO	1730	17	118 U.S. 83



PLAN - TEMPORARY EARTH WALL TWE1



ELEVATION - TEMPORARY EARTH WALL TWE1



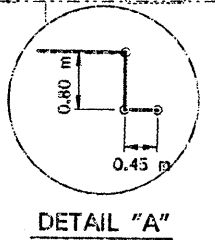
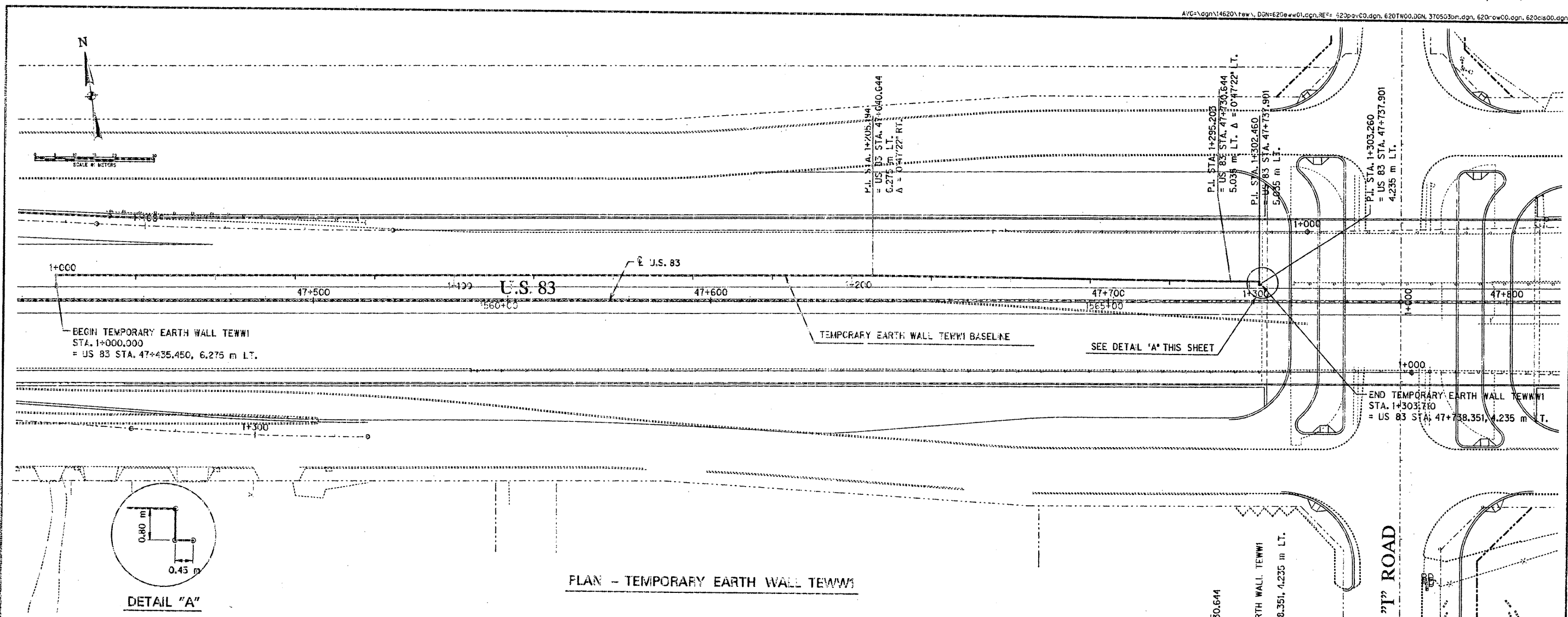
Gregory A. Jacobs 1-15-11
GREGORY A. JACOBS DATE

TEMPORARY EARTH WALL LAYOUT
PLAN & ELEVATION WALL TWE1
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

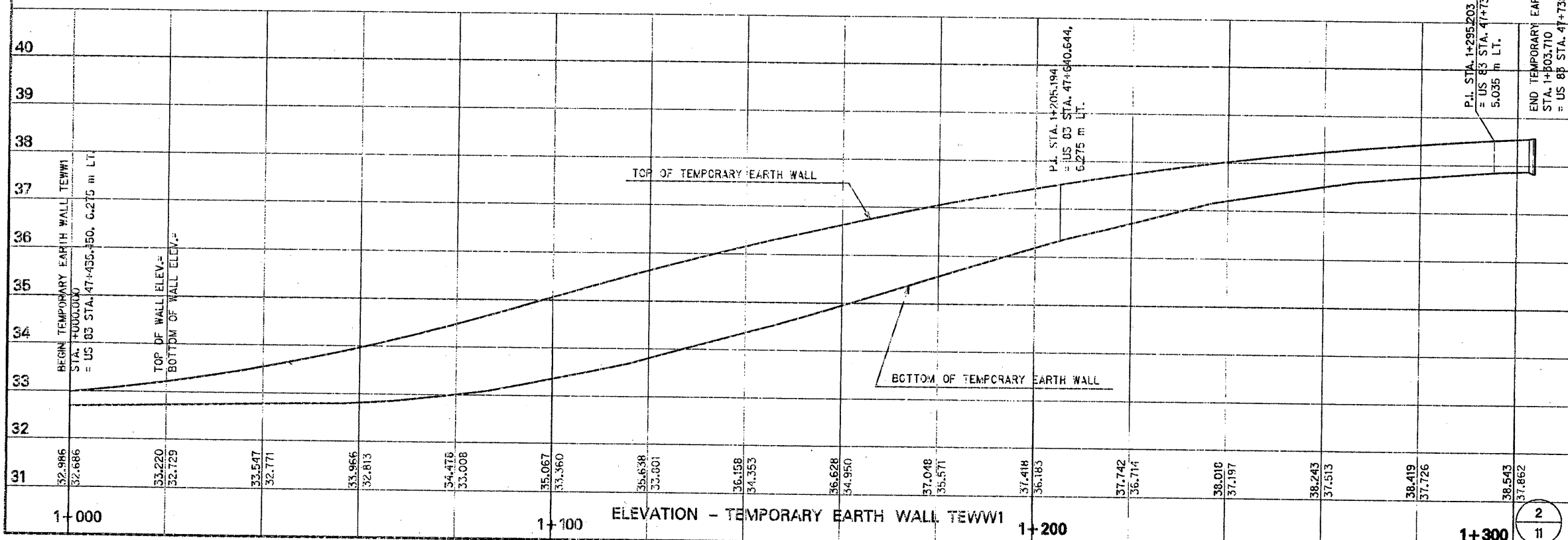
Half Associates
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DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			111647	TEXAS	111647	1/2
DATE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.	HIGHWAY NO.
1-15-11	1:800 HORIZ 1:50 VERT	21	HIDALGO	29	17	118 U.S. 83

1
11



PLAN - TEMPORARY EARTH WALL TEWW1



ELEVATION - TEMPORARY EARTH WALL TEWW1



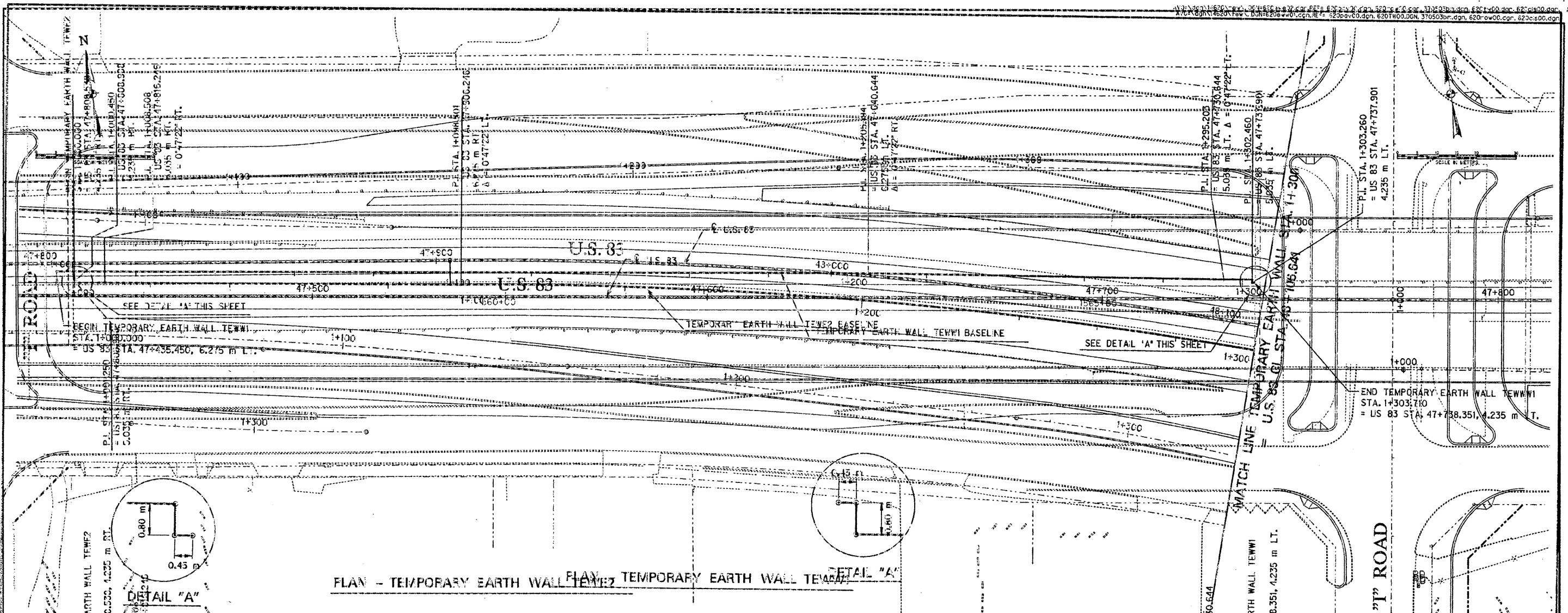
GREGORY A. JACOBS DATE

TEMPORARY EARTH WALL LAYOUT
 PLAN & ELEVATION WALL TEWW1
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

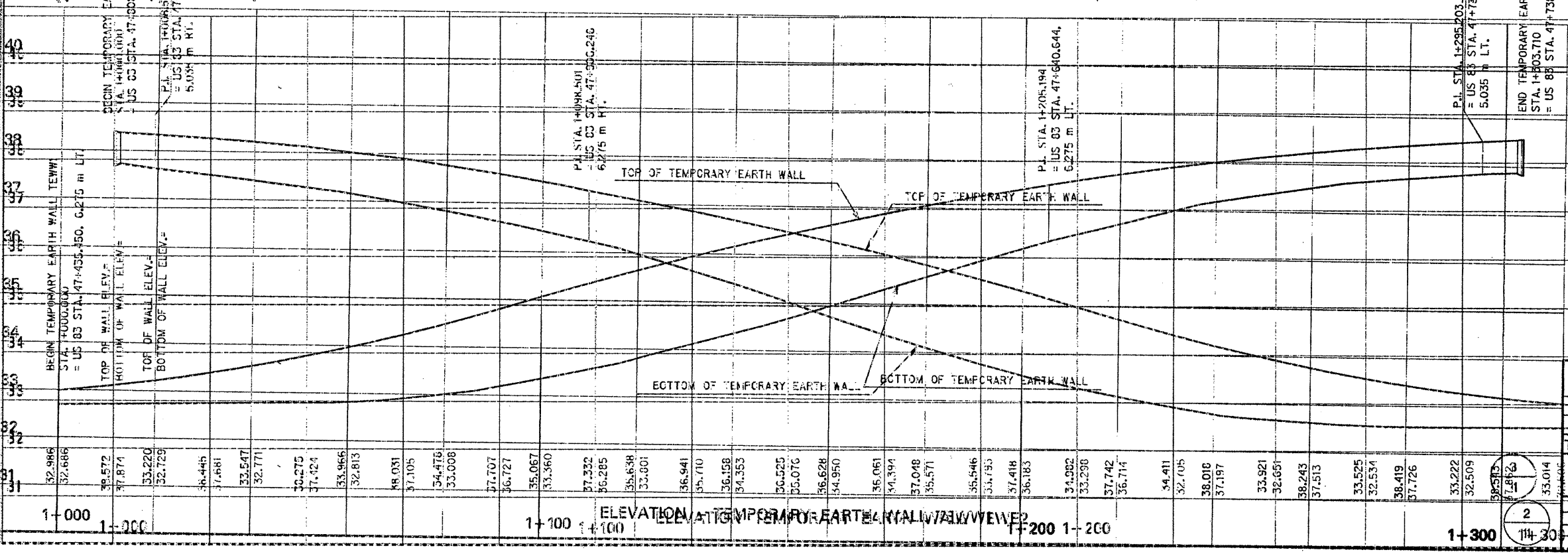
Half Associates
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DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			TX	TX	17-1717-7317M	73-2
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	HIGHWAY NO.
APRIL 2000	620E\WV01	1:50 HORIZ 1:20 VERT	TX	HIDALGO	0030	17 114

2
11



PLAN - TEMPORARY EARTH WALL TEWMI



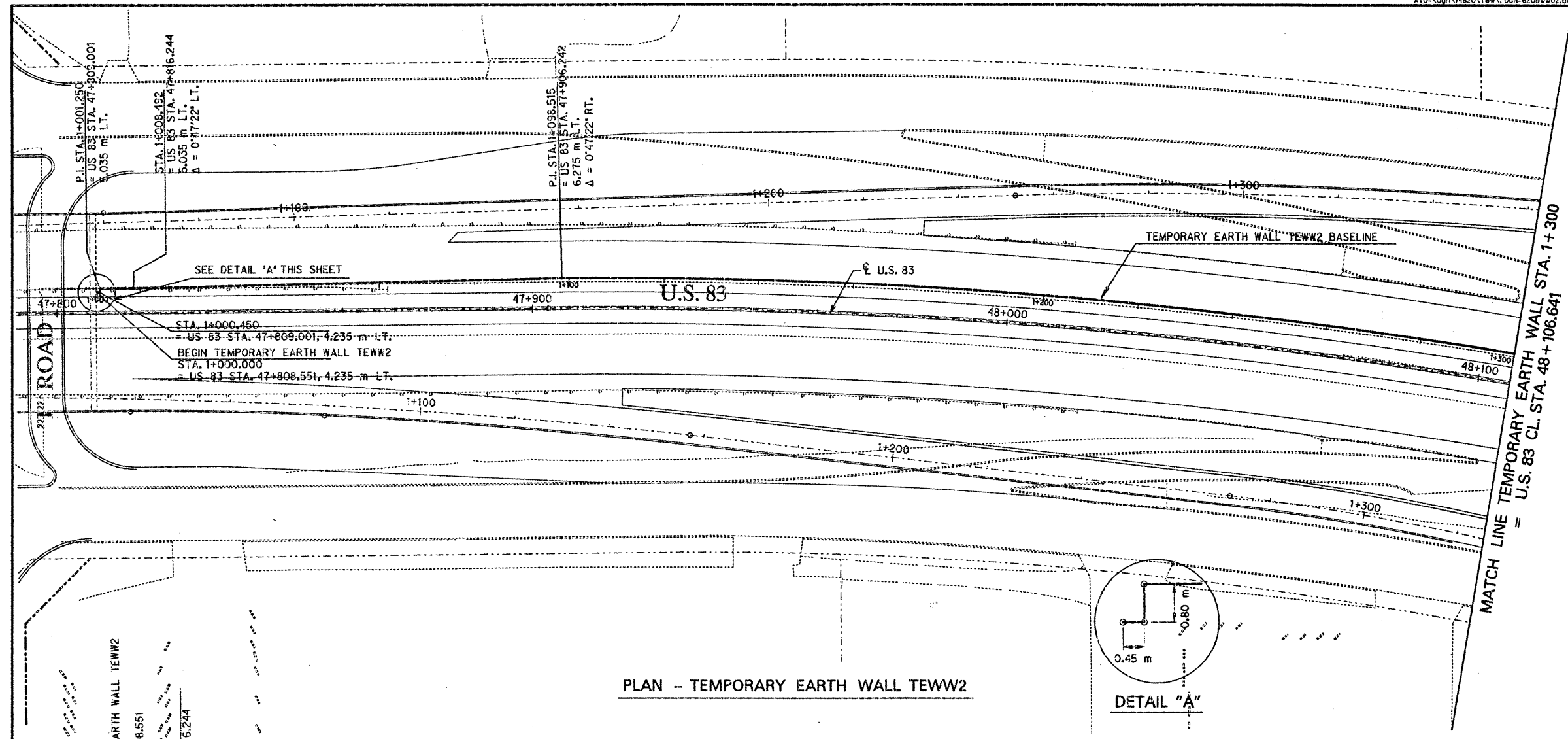
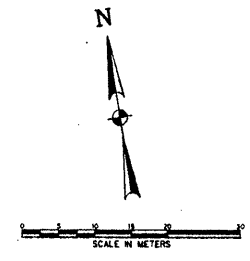
ELEVATION AT TEMPORARY EARTH WALL TEWMI

TEMPORARY EARTH WALL LAYOUT
 PLAN & ELEVATION WALL TEWMI
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

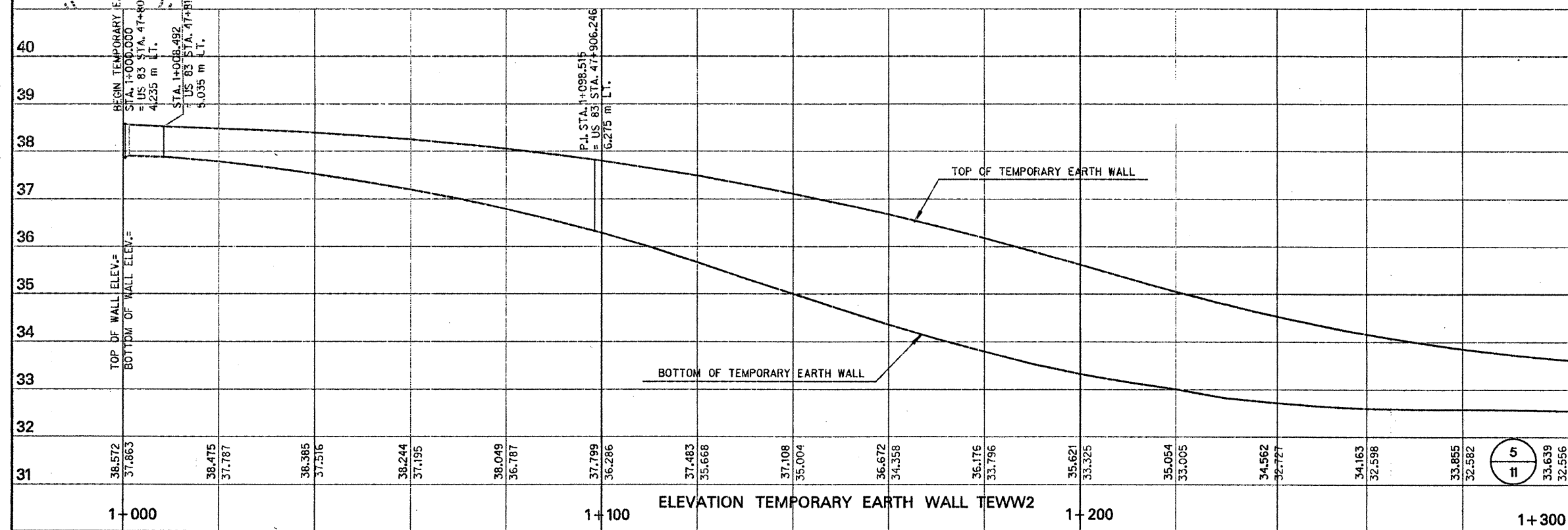
Hamm Associates
 ENGINEERS ARCHITECTS SURVEYORS

DATE	DESCRIPTION	BY	CHECKED





PLAN - TEMPORARY EARTH WALL TEWW2



ELEVATION TEMPORARY EARTH WALL TEWW2



Gregory A. Jacobs
Gregory A. Jacobs
4-30-96
DATE

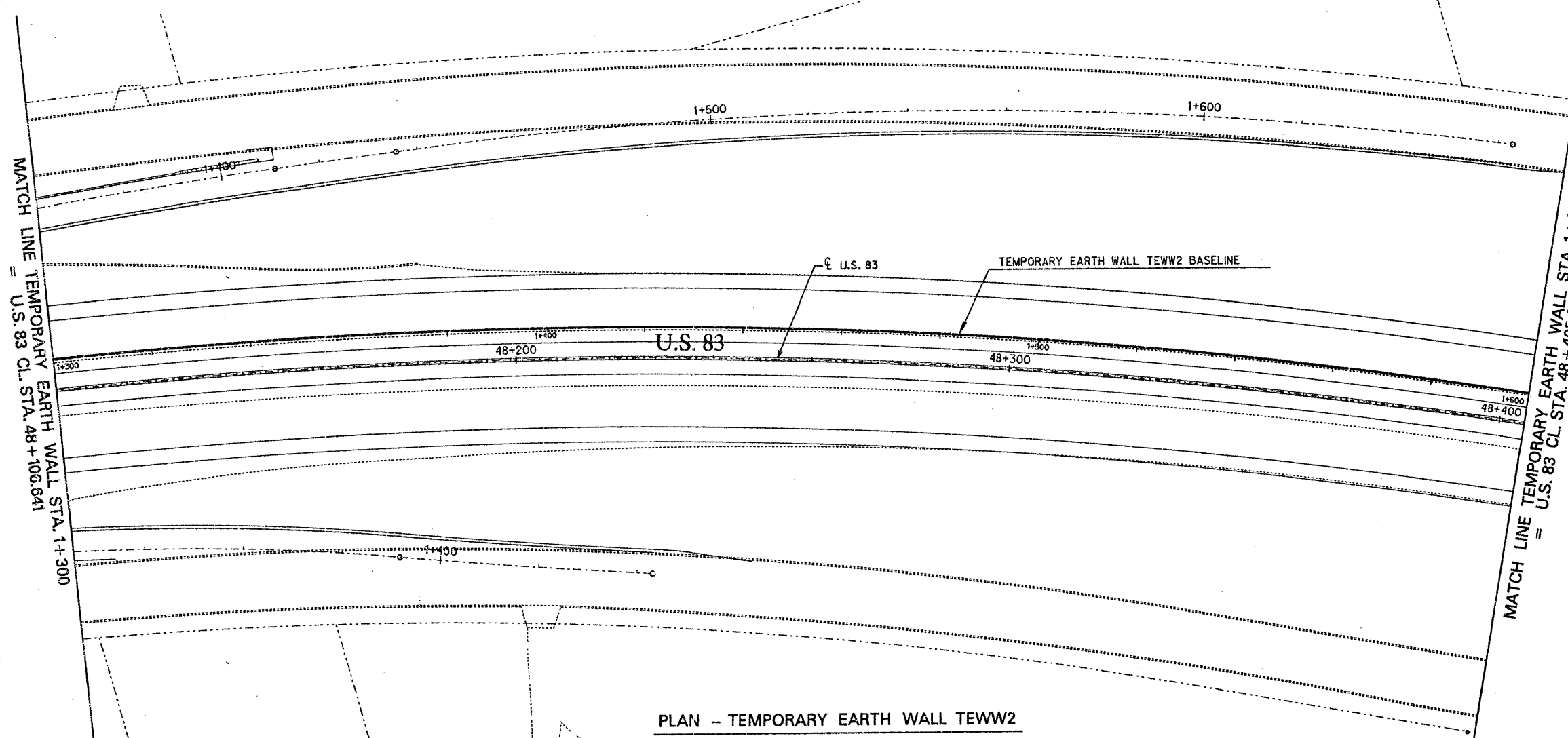
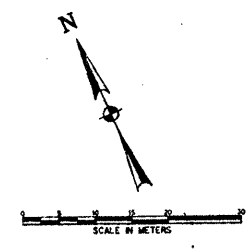
TEMPORARY EARTH WALL LAYOUT
PLAN & ELEVATION WALL TEWW2
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION



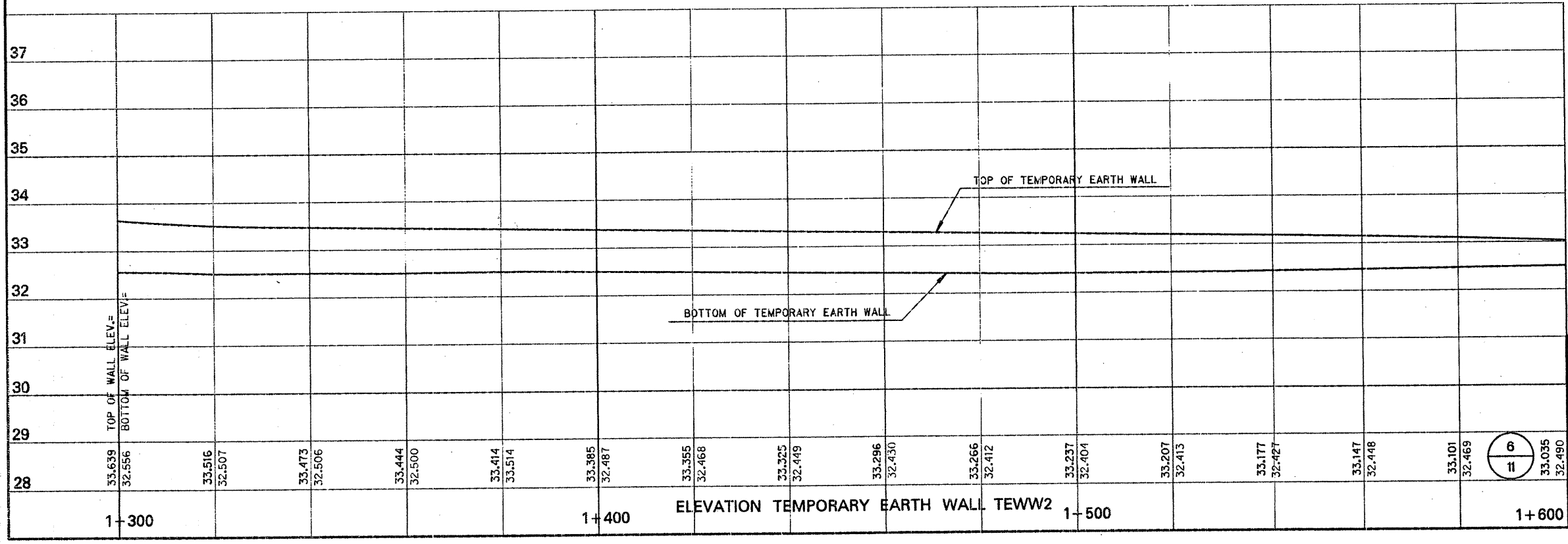
DESIGN	DRAWN	NOTES	FED. DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			6	TEXAS	N 13-7171A	123
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	620EYW02	1:800 HORIZ 1:60 VERT	21	HIDALGO	DC 30	17

5
11

1+300



PLAN - TEMPORARY EARTH WALL TEWW2



ELEVATION TEMPORARY EARTH WALL TEWW2



Gregory A. Jacobs 4-3-16
 GREGORY A. JACOBS DATE

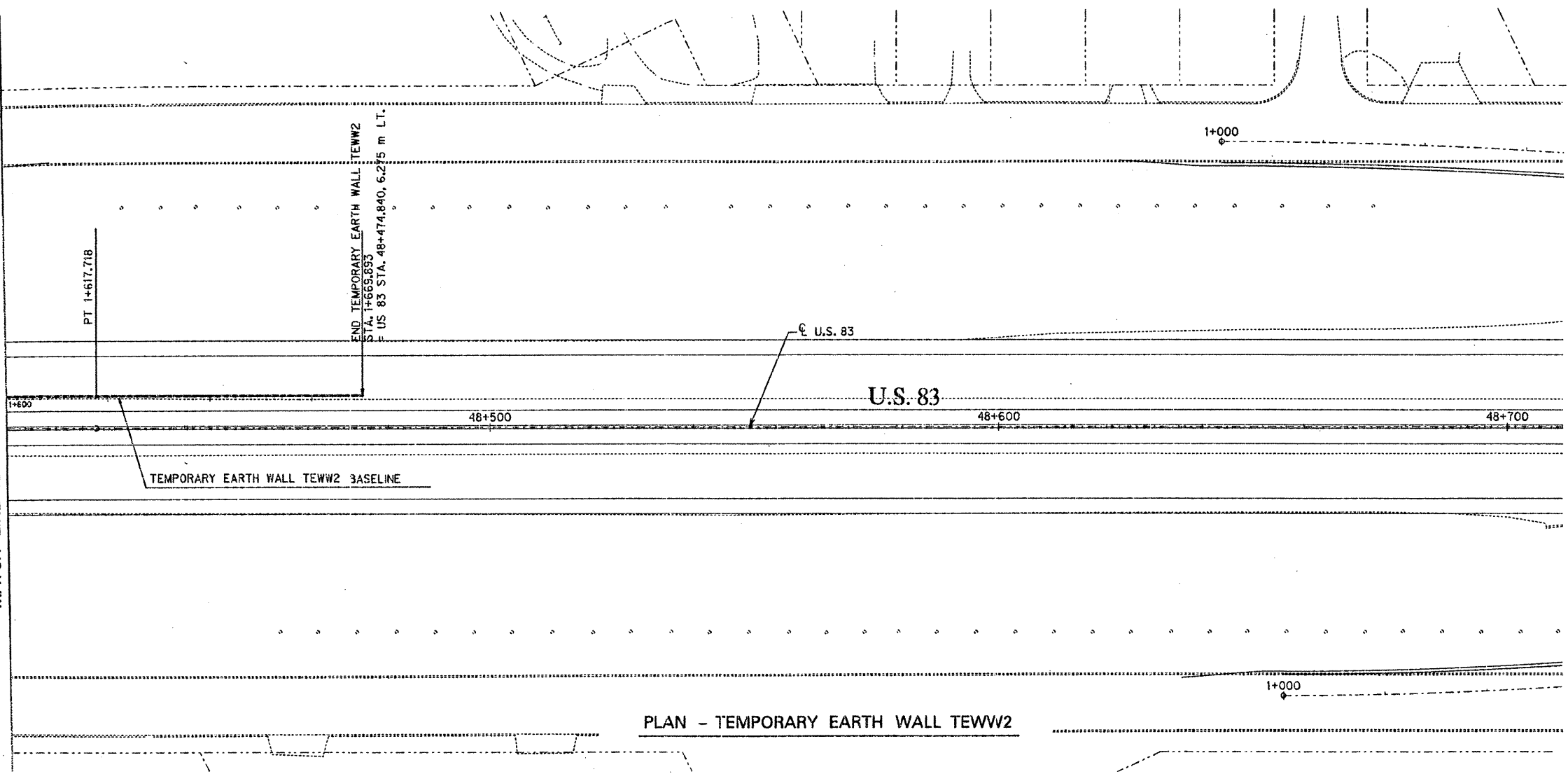
TEMPORARY EARTH WALL LAYOUT
 PLAN & ELEVATION WALL TEWW2
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

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DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			6	TEXAS	NW 32747A	124
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
APR 1998	820EWW02	1:800 HORIZ 1:80 VERT	21	HIDALGO	6900	17
						118 U.S. 83

6
11

U.S. 83 CL. STA. 48+405.007
 MATCH LINE TEMPORARY EARTH WALL STA. 1+600



PLAN - TEMPORARY EARTH WALL TEWW2

37																						
36																						
35																						
34																						
33																						
32																						
31																						
30																						
29																						
28	33.035	32.490	32.950	32.505	32.844	32.492	32.730	32.479														
	TOP OF WALL ELEV. =																					
	BOTTOM OF WALL ELEV. =																					
	ELEVATION TEMPORARY EARTH WALL TEWW2																					
	1+600						1+700						1+800									



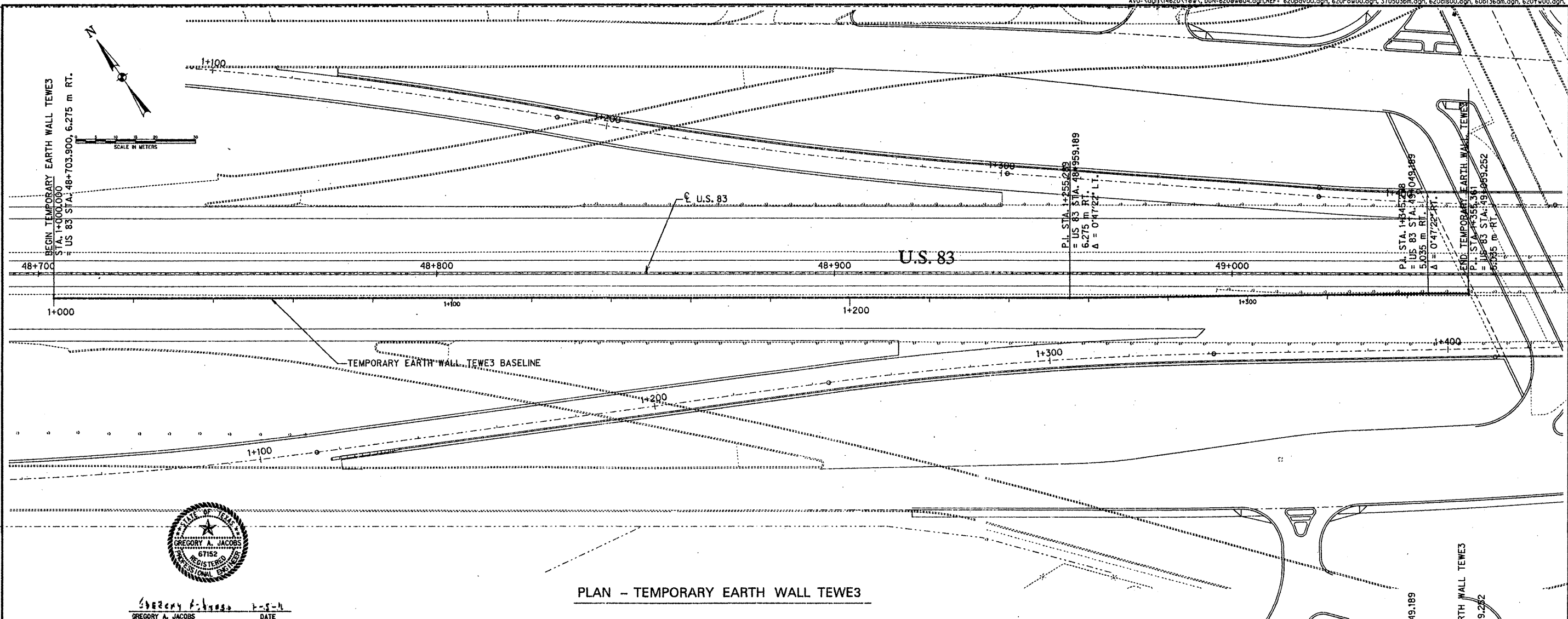
Gregory A. Jacobs 4-30-96
 GREGORY A. JACOBS DATE

TEMPORARY EARTH WALL LAYOUT
 PLAN & ELEVATION WALL TEWW2
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION



DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			9	TEXAS	17-017-13A	12
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	620EWW04	1:500 HORIZ 1:500 VERT	21	HIDALGO	17	118 U.S. 83

7
11



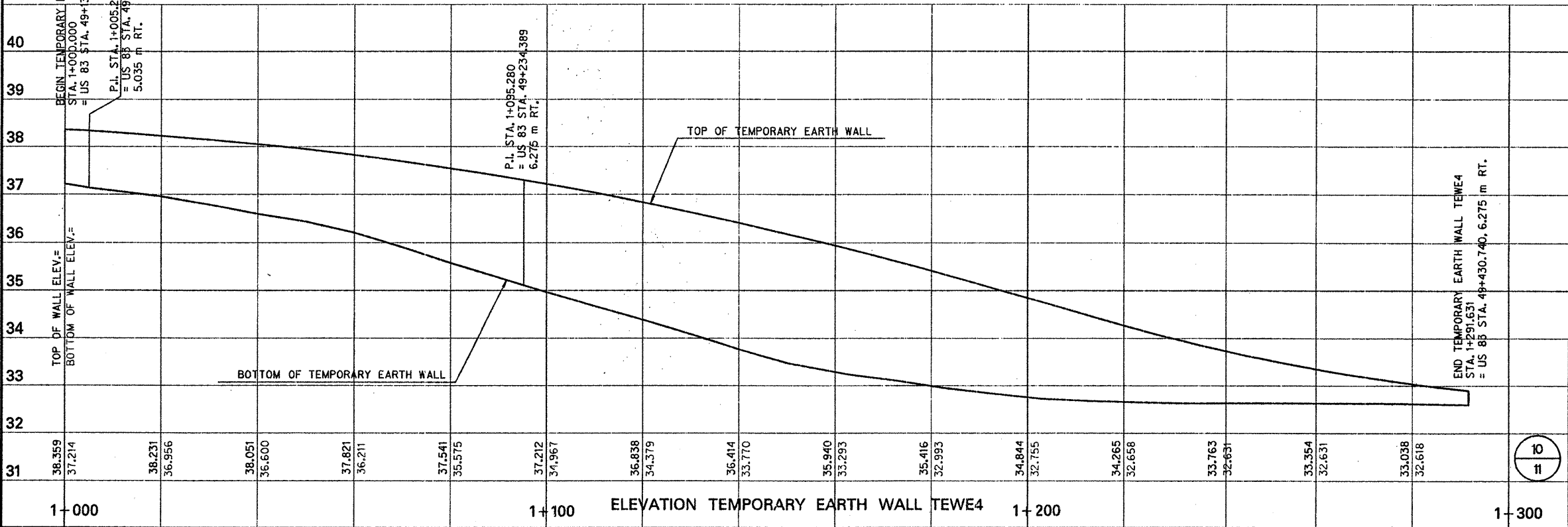
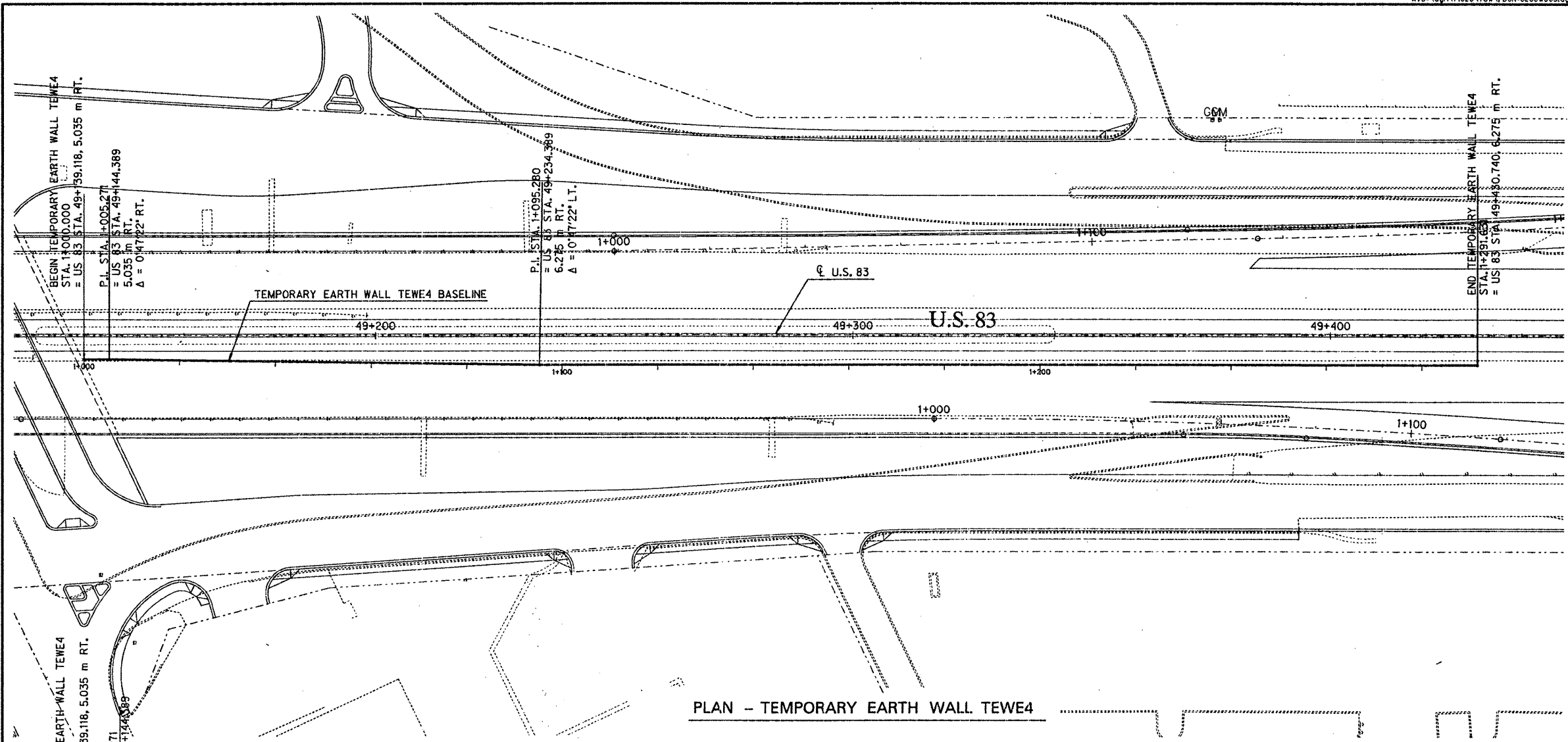
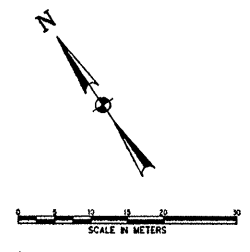
Gregory A. Jacobs 1-5-11
 GREGORY A. JACOBS DATE

Station	Top of Wall Elev.	Bottom of Wall Elev.
40		
39		
38		
37		
36		
35		
34		
33		
32		
31	32.637	32.337
	32.656	32.296
	32.723	32.271
	32.883	32.362
	33.135	32.612
	33.480	32.926
	33.918	33.283
	34.445	33.738
	34.996	34.243
	35.544	34.708
	36.058	35.215
	36.520	35.749
	36.932	36.248
	37.295	36.704
	37.614	37.088
	37.882	37.354
	38.100	37.547
	38.268	37.629

**TEMPORARY EARTH WALL LAYOUT
 PLAN & ELEVATION WALL TEWE3
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			4	TEXAS	AH 06741	724
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APR 1999	609WE04	1:100 HORIZ 1:50 VERT	21	HIDALGO	0036	17



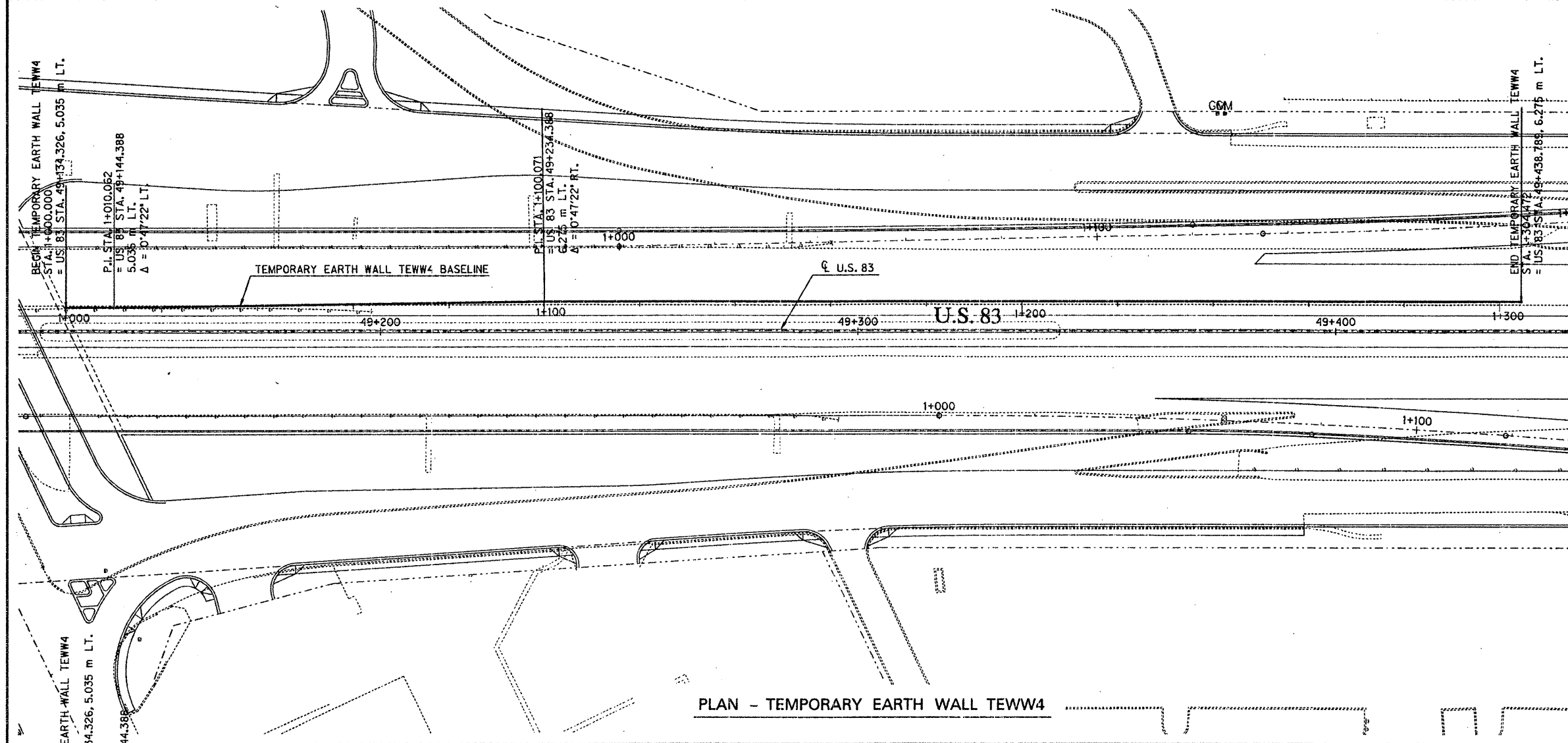
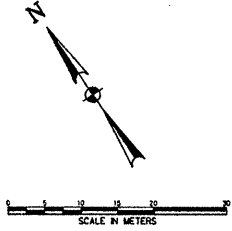
GREGORY A. JACOBS, 7-15-88
DATE

TEMPORARY EARTH WALL LAYOUT
PLAN & ELEVATION WALL TEWE4
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

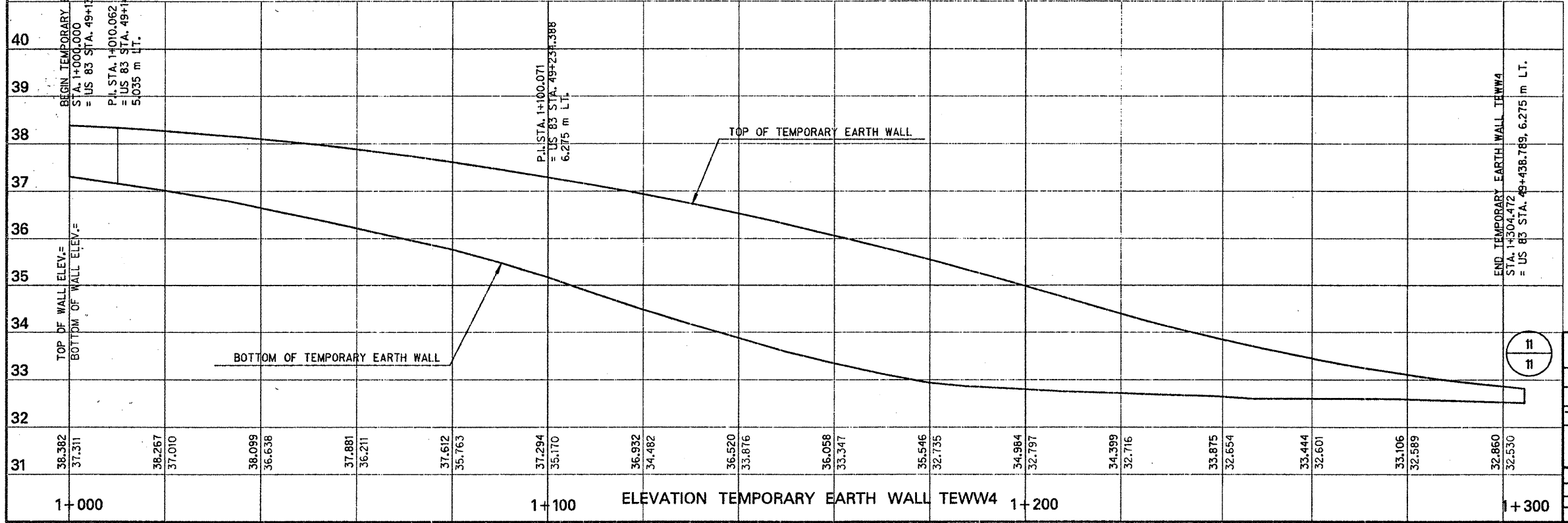
Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			8	TEXAS	AP 4771A	728
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY
APRIL 1997	620EVE08	1:800 HORIZ 1:50 VERT	21	HIDALGO	0036	17 118 U.S. 83

10
11



PLAN - TEMPORARY EARTH WALL TEWW4



ELEVATION TEMPORARY EARTH WALL TEWW4



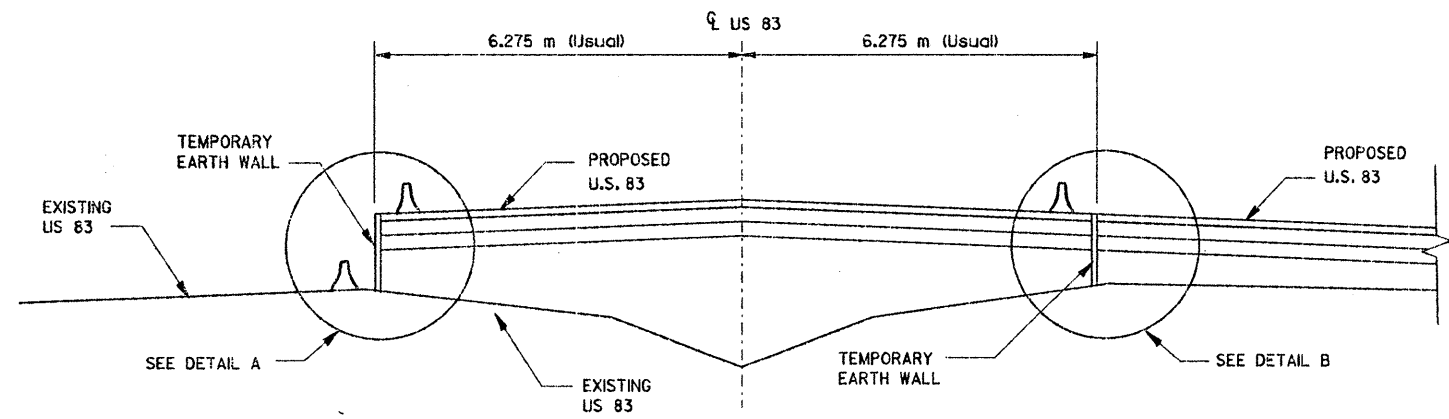
GREGORY A. JACOBS
DATE

TEMPORARY EARTH WALL LAYOUT
PLAN & ELEVATION WALL TEWW4
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

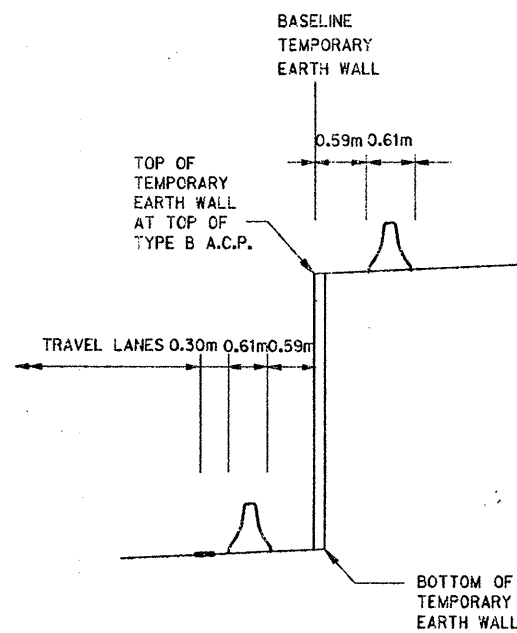
Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD			TEXAS	011-3-1111A	123
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT SECTION NO.	JOB NO.
APRIL 2008	620EWH08	1:50 HORIZ 1:50 VERT	21	HIDALGO	70 30	17 118

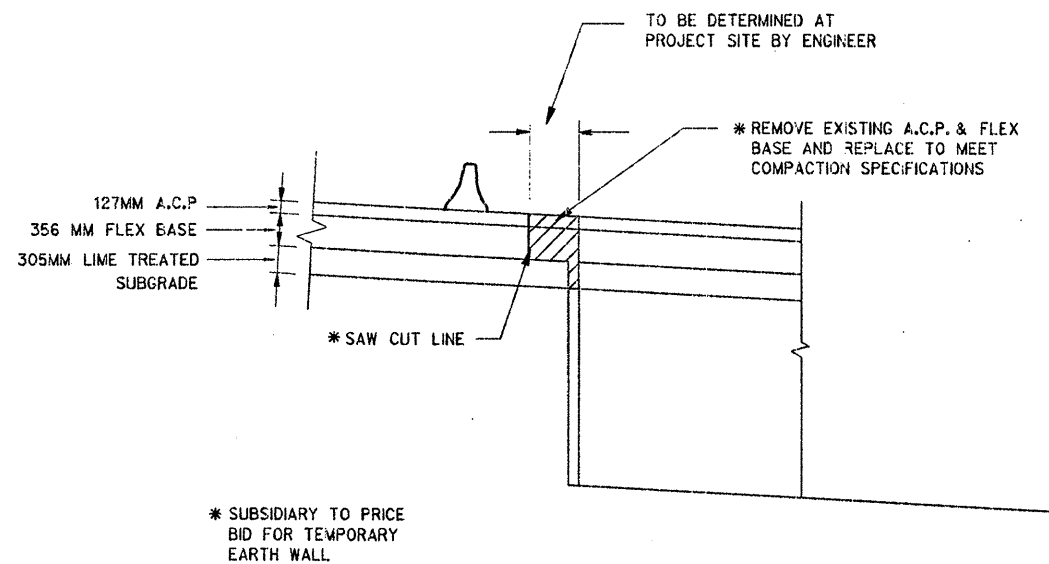
U.S. 83



TEMPORARY EARTH WALL LOCATIONS
N.T.S.



DETAIL A (PHASE II)
N.T.S.



DETAIL B (PHASE III & IV)
N.T.S.

GENERAL NOTES:

- TEMPORARY EARTH WALL**
- REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION SEQUENCING.
 - REFER TO TEMPORARY-SLOTTED DRAIN DETAILS FOR LOCATIONS OF TEMPORARY SLOTTED DRAIN.
 - DESIGN PARAMETERS FOR THE TEMPORARY EARTH WALL SYSTEMS SHALL BE BASED ON THE FOLLOWING MINIMUM DESIGN PARAMETERS:
 UNIT WEIGHT OF SOIL = 21.2 KN/CUBIC METER
 PHI ANGLE OF SOIL = 30 DEGREES
 COHESION = 0 kPa
 MINIMUM FACTORS OF SAFETY SHALL BE 2.0 FOR OVERTURNING AND 1.5 FOR SLIDING.
 THE BASE PRESSURE RESULTANT SHALL FALL WITHIN THE MIDDLE THIRD OF THE TEMPORARY EARTH WALL.
 MINIMUM LENGTH OF EARTH REINFORCEMENTS SHALL BE 2 METERS.
 THE MINIMUM SOIL PARAMETERS GIVEN ABOVE SHALL APPLY TO BOTH RETAINED AND SELECT FILL.
 - A GEOTECHNICAL ENGINEERING STUDY, PROJECT No. AMA95-091-01, PREPARED BY RABA-KISTNER CONSULTANTS, INC. IS AVAILABLE THROUGH THE ENGINEER FOR USE BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS/HER INTERPRETATION OF THE DATA CONTAINED IN THE GEOTECHNICAL ENGINEERING STUDY.



GREGORY A. JACOBS
DATE

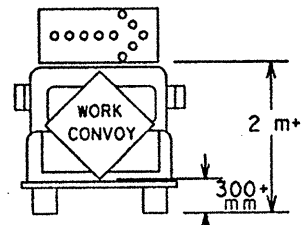
TEMPORARY EARTH WALL DETAILS									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
	CADD		6	TEXAS	114 3/10/96	100			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.	ROWWAY NO.		
APRIL 1996	AS01EVDTL	NONE	21	HIDALGO	06 20	17	10	U.S. 83	

1
1

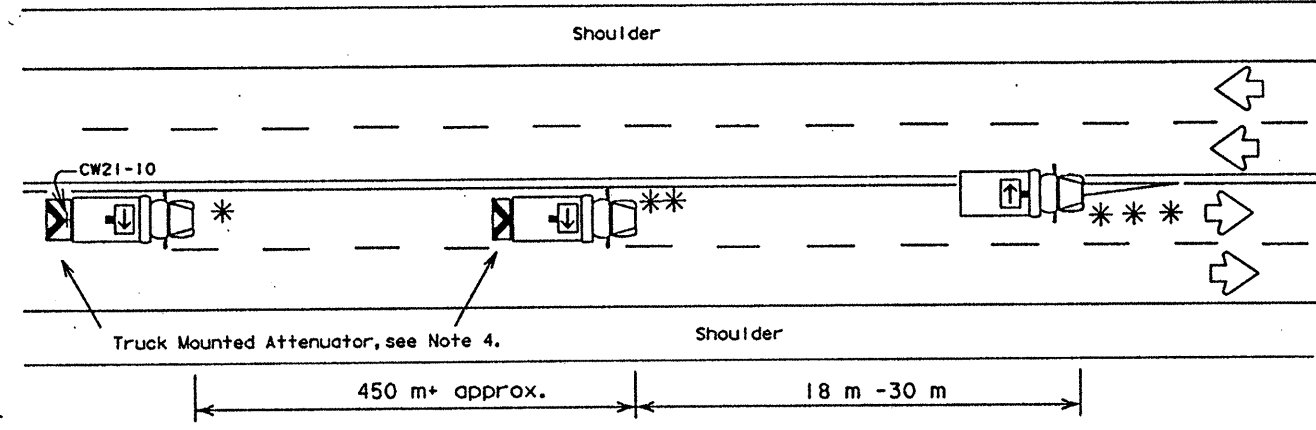
A-71 5/28/96

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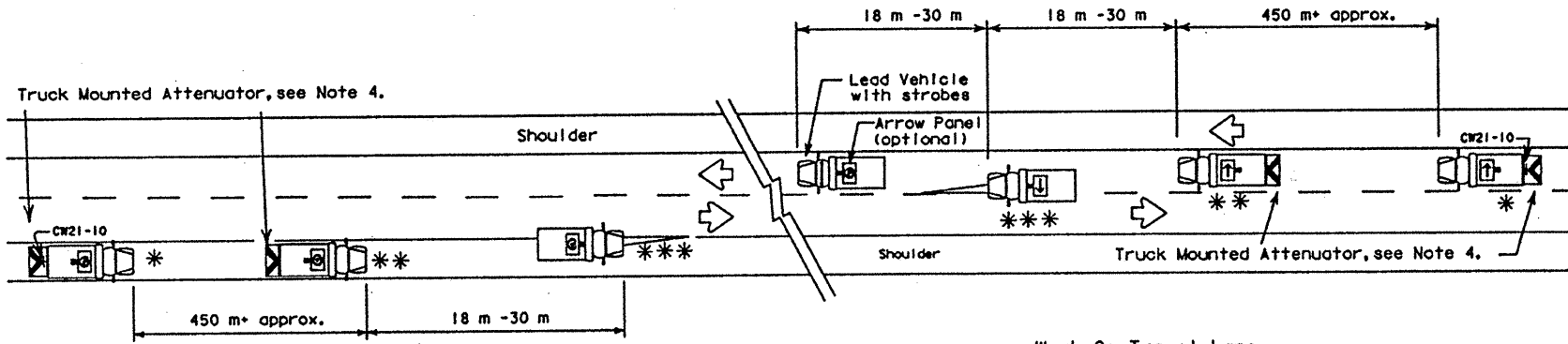
DN: LR	DATE:
CK: CW	1/2 1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20 1/21 1/22 1/23 1/24 1/25 1/26 1/27 1/28 1/29 1/30 1/31 1/32 1/33 1/34 1/35 1/36 1/37 1/38 1/39 1/40 1/41 1/42 1/43 1/44 1/45 1/46 1/47 1/48 1/49 1/50 1/51 1/52 1/53 1/54 1/55 1/56 1/57 1/58 1/59 1/60 1/61 1/62 1/63 1/64 1/65 1/66 1/67 1/68 1/69 1/70 1/71 1/72 1/73 1/74 1/75 1/76 1/77 1/78 1/79 1/80 1/81 1/82 1/83 1/84 1/85 1/86 1/87 1/88 1/89 1/90 1/91 1/92 1/93 1/94 1/95 1/96 1/97 1/98 1/99 1/100
DW: DN	FILE:
CK: MT	



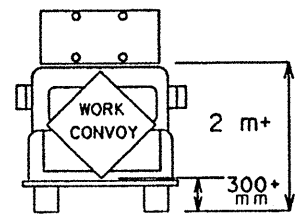
Typical Trail Vehicle with Right DIRECTIONAL Flashing Arrow Panel



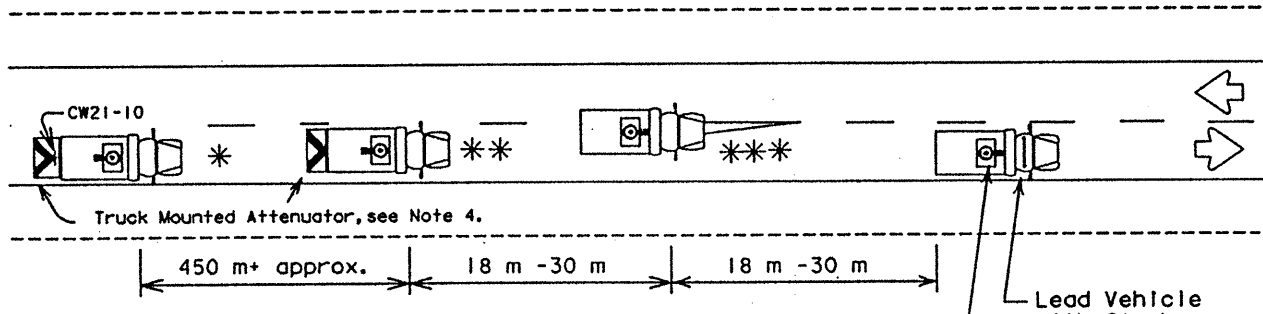
TCP (3-1a)M
 Undivided Multilane Roadway



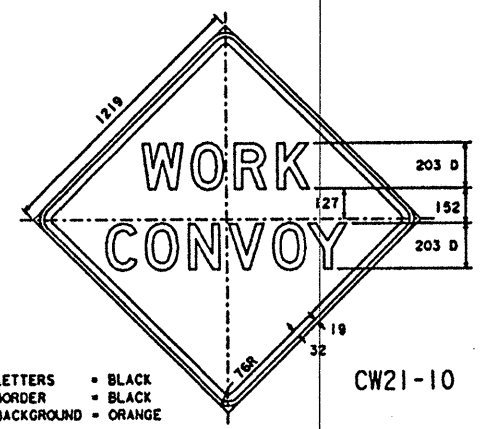
TCP (3-1b)M
 Two-Way Roadway With Paved Shoulders



Typical Trail Vehicle with CAUTION mode Flashing Arrow Panel



TCP (3-1c)M
 Two-Way Roadway Without Paved Shoulders



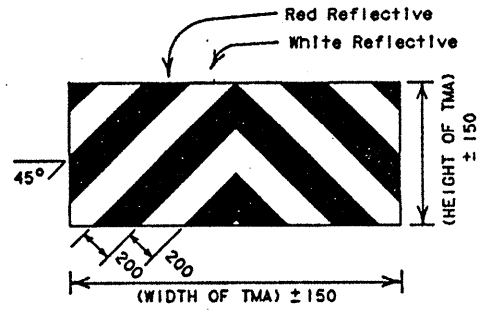
LETTERS = BLACK
 BORDER = BLACK
 BACKGROUND = ORANGE

- Legend:
- * Trail Vehicle
 - ** Shadow Vehicle
 - *** Work Vehicle
 - ▧ Truck mounted attenuator
 - ◻ Flashing Arrow Panels:
 - ◻ Right DIRECTIONAL
 - ◻ Left DIRECTIONAL
 - ◻ Double Arrow DIRECTIONAL
 - ◻ CAUTION mode

GENERAL NOTES:

1. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are optional based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
3. The use of yellow rotating beacons or strobe lights on vehicles are required unless otherwise stated elsewhere in the plans.
4. Unless otherwise stated in the plans, the use of truck mounted attenuators (TMA) on the SHADOW VEHICLE or the TRAIL VEHICLE is required.
5. Optional striping on the back panel of all truck mounted attenuators shall be 200 mm red and white reflective sheeting placed in an inverted 'V' design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION D-9-8300, TYPE C.
6. Flashing Arrow Panels shall be Type B or Type C. The panel operation shall be controlled from inside the vehicle.
7. Each vehicle shall have two-way radio communication capability.
8. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
9. Vehicle spacing between TRAIL VEHICLE and SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE.

TRUCK MOUNTED ATTENUATORS WILL BE REQUIRED ON ALL PROJECTS AWARDED AFTER JANUARY 1, 1995.



OPTIONAL STRIPING FOR TMA

All dimensions are in millimeters unless otherwise noted. The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

TRAFFIC CONTROL PLAN
 MOVING OPERATIONS
 CONVENTIONAL HIGHWAYS

TCP (3-1) -95 (M)

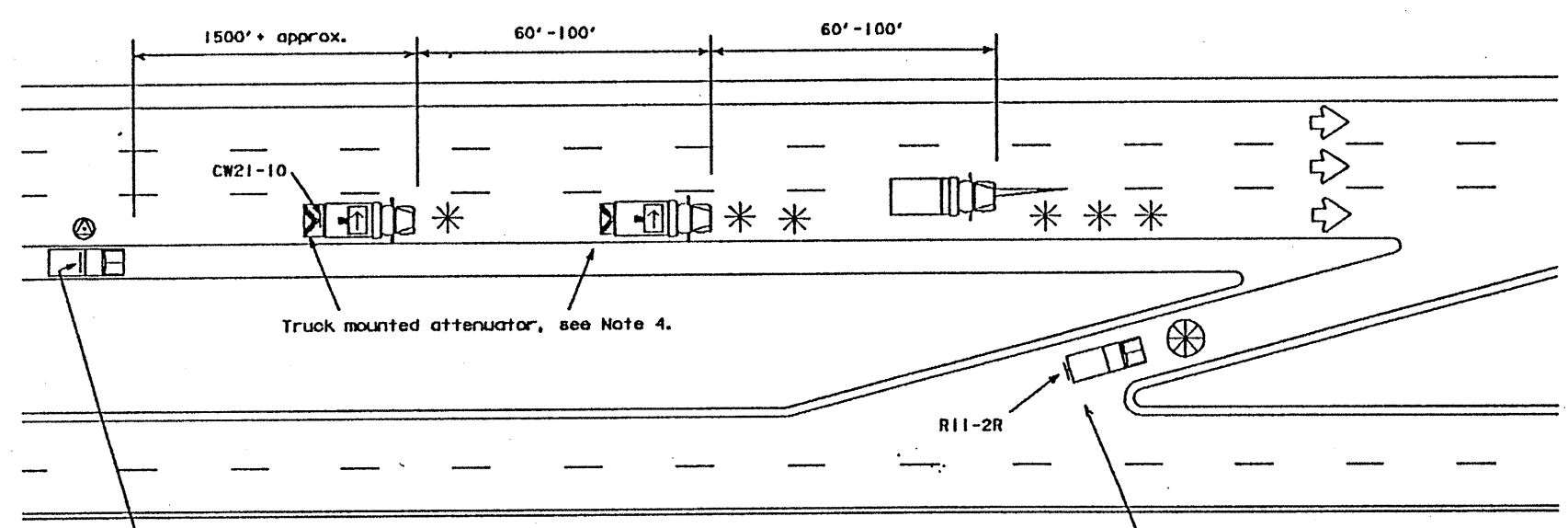
DATE: November 1985	DN - LR	CK -	DN - DN	CK -	REV. NO.
REVISIONS	DATE	BY	DESCRIPTION	NO.	DATE
9-87	8-95	21	6	NH 96 (77) M	134
6-88					
3-91					
2-94					

HIDALGO 0039 17 118 0583

NEW 5/28/96

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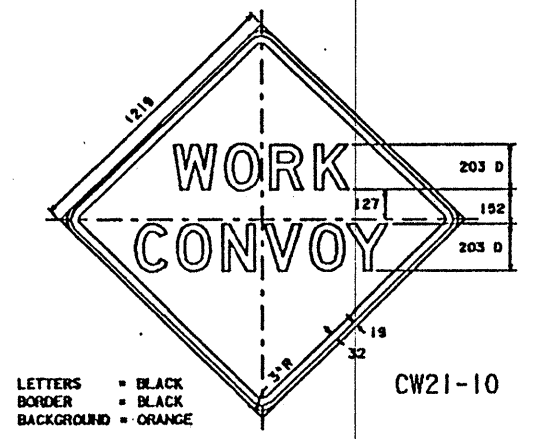
10/11/01
C/M/T
533 43 50 65 70 85 94 04 11 24 34 44 54 64 74 84 94
55 05 15 25 35 45 55 65 75 85 95 06 16 26 36



LANE
BLOCKED
1 2 3
X

FCW20-6 Sign mounted on a truck or trailer

Ramp Control Vehicle shall be used when required by the Engineer



LETTERS = BLACK
BORDER = BLACK
BACKGROUND = ORANGE

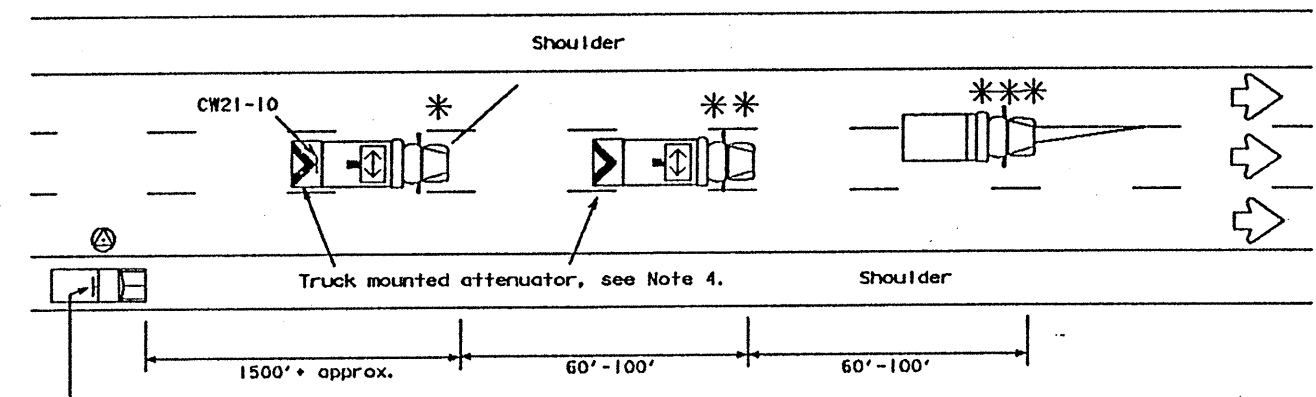
Legend:

- * Trail Vehicle
- ** Shadow Vehicle
- *** Work Vehicle
- [TMA symbol] Truck mounted attenuator
- [Flashing Arrow Panels symbol] Flashing Arrow Panels:
 - [Right Arrow] Right DIRECTIONAL
 - [Left Arrow] Left DIRECTIONAL
 - [Double Arrow] Double Arrow DIRECTIONAL
 - [CAUTION mode symbol] CAUTION mode

GENERAL NOTES:

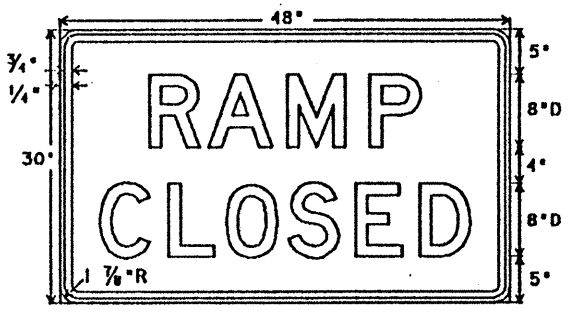
1. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are optional based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
3. The use of yellow rotating beacons or strobe lights on vehicles are required unless otherwise stated elsewhere in the plans.
4. Unless otherwise stated in the plans, the use of truck mounted attenuators (TMA) on the SHADOW VEHICLE or the TRAIL VEHICLE is required.
5. Optional striping on the back panel of all truck mounted attenuators shall be 200 mm red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION D-9-8300, TYPE C.
6. Flashing Arrow Panels shall be Type B or Type C. The panel operation shall be controlled from inside the vehicle.
7. Each vehicle shall have two-way radio communication capability.
8. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
9. Vehicle spacing between TRAIL VEHICLE and SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE.
10. The LANE BLOCKED sign (FCW20-6) shall be used on divided highways and may be mounted on a truck or trailer. For divided highways with two lanes in each direction, the LANE REDUCTION TRANSITION sign (FCW4-2, 48" x 48") may be substituted for the LANE BLOCKED sign (FCW20-6).

TRUCK MOUNTED ATTENUATORS WILL BE REQUIRED ON ALL PROJECTS AWARDED AFTER JANUARY 1, 1995.

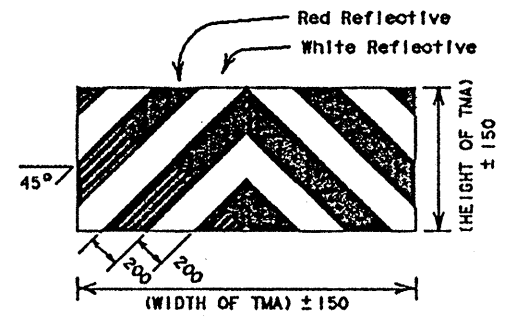


LANE
BLOCKED
1 2 3
X

FCW20-6 Sign mounted on a truck or trailer



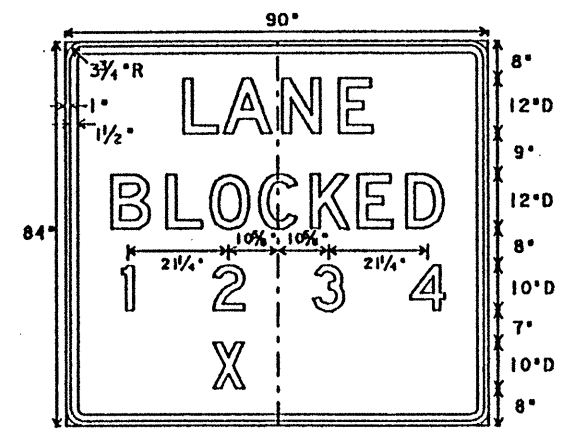
R11-2R
LETTERS = BLACK
BORDER = BLACK
BACKGROUND = WHITE



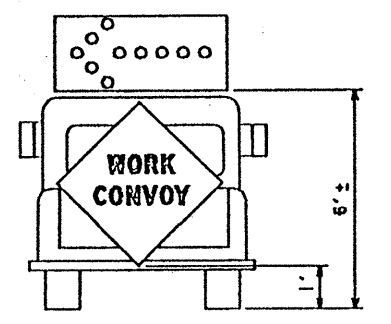
OPTIONAL STRIPING FOR TMA

All dimensions are in millimeters unless otherwise noted.

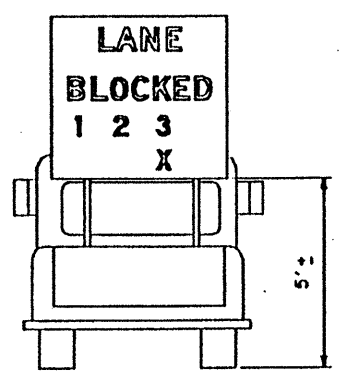
The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.



FCW20-6
LETTERS = BLACK
BORDER = BLACK
BACKGROUND = ORANGE



Typical Trail Vehicle (Left Arrow DIRECTIONAL Mode)



Typical Advance Warning Vehicle

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

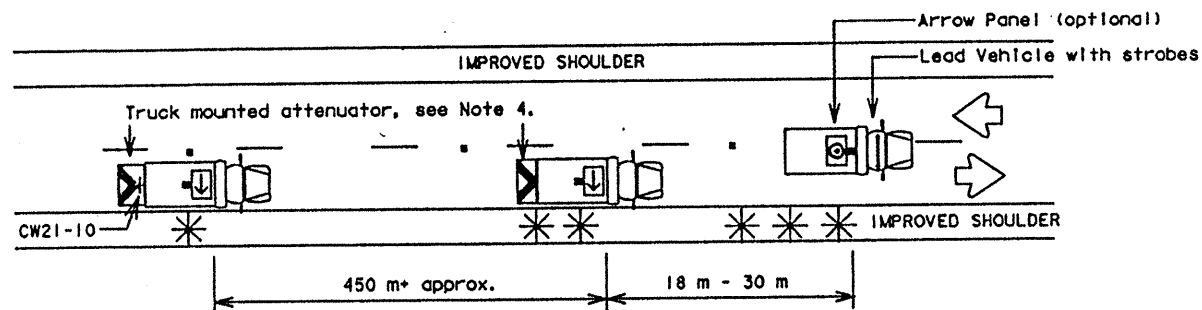
TRAFFIC CONTROL PLAN
MOVING OPERATIONS
DIVIDED HIGHWAYS
TCP (3-2) - 95 (M)

REV. NO.	DEC. 1985	REV. NO.	REV. NO.	REV. NO.	REV. NO.
9-87	10-95	21	6	NA	96 (79) M
6-88					132
3-91					
2-94					
		Hidalgo	039	17	118
					0583
					Metric 1.76

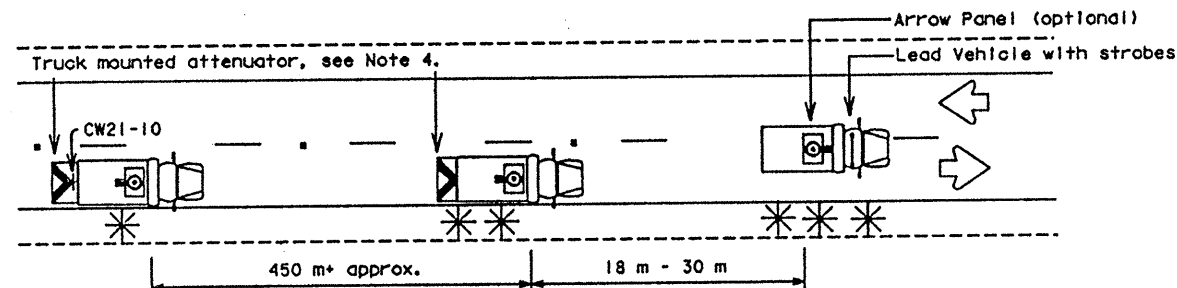
NEW 5/28/96

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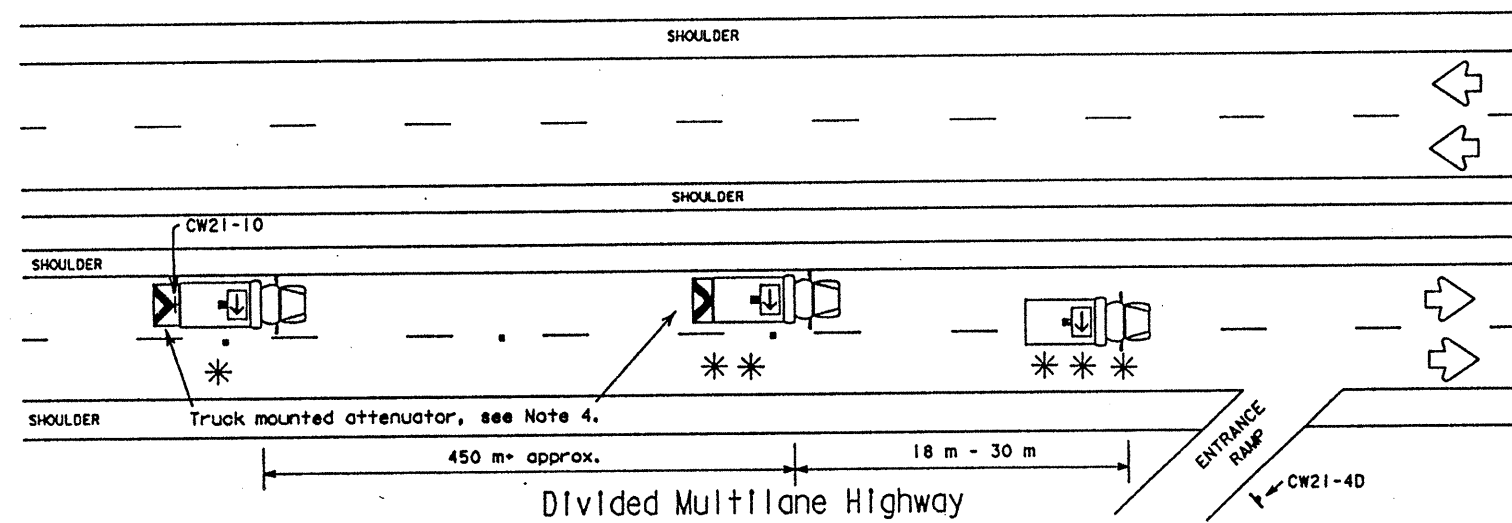
LEVELS DISPLAYED
 1 2 3 4 5 6
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 DATE: 05/28/96
 ACC: d58hplc/ubr/d580504
 FILE: 11



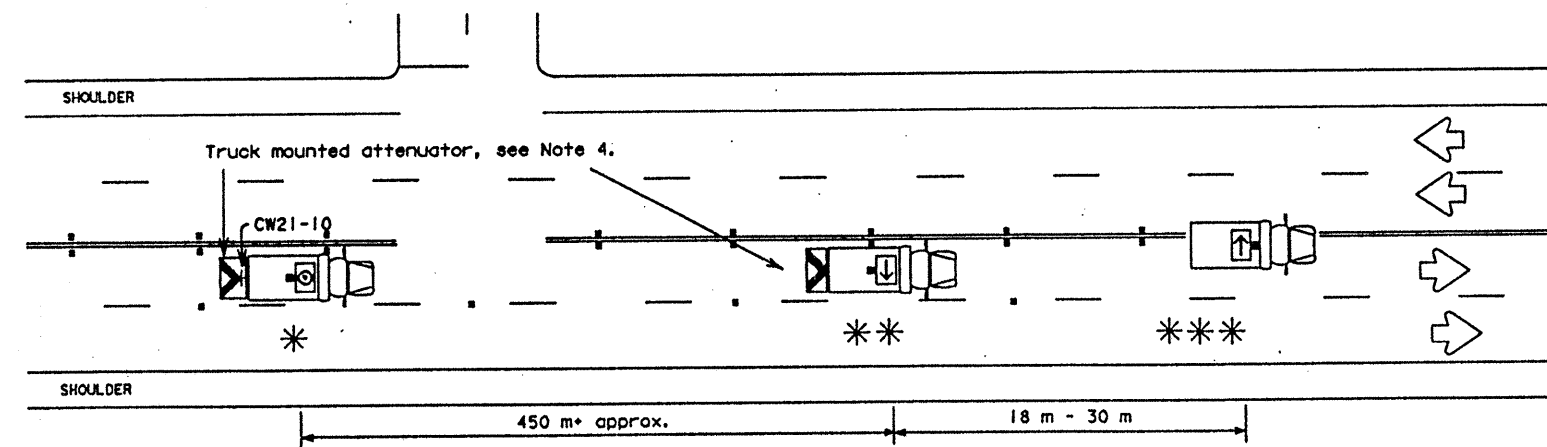
Two Lane Highway With Paved Shoulders (work on travel lane)



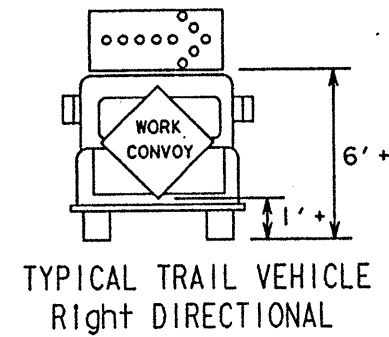
Two Lane Highway Without Paved Shoulders (work on travel lane)



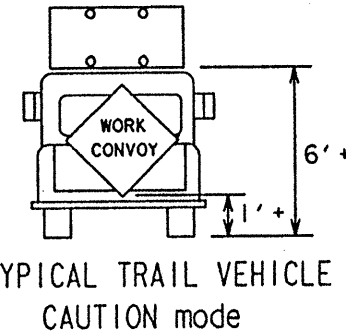
Divided Multilane Highway



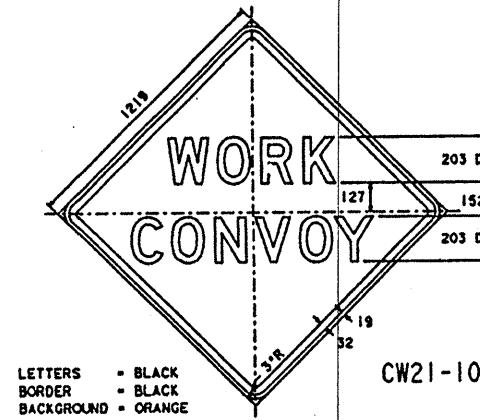
Undivided Multilane Highway



TYPICAL TRAIL VEHICLE
Right DIRECTIONAL



TYPICAL TRAIL VEHICLE
CAUTION mode



LETTERS = BLACK
 BORDER = BLACK
 BACKGROUND = ORANGE

CW21-10

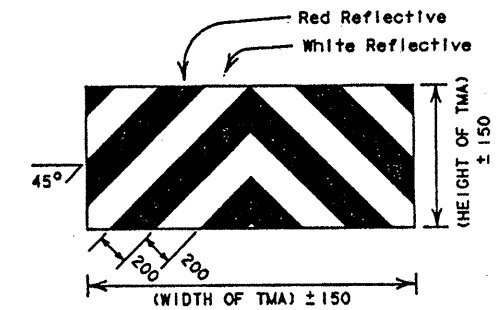
Legend:

- * Trail Vehicle
- ** Shadow Vehicle
- *** Work Vehicle
- ☐ Truck mounted attenuator
- ☐ Flashing Arrow Panels:
 - ☐ Right DIRECTIONAL
 - ☐ Left DIRECTIONAL
 - ☐ Double Arrow DIRECTIONAL
 - ☐ CAUTION mode

GENERAL NOTES:

1. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are optional based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
3. The use of yellow rotating beacons or strobe lights on vehicles are required unless otherwise stated elsewhere in the plans.
4. Unless otherwise stated in the plans, the use of truck mounted attenuators (TMA) on the SHADOW VEHICLE or the TRAIL VEHICLE is required.
5. Optional striping on the back panel of all truck mounted attenuators shall be 200 mm red and white reflective sheeting placed in an inverted 'V' design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION D-9-8300, TYPE C.
6. Flashing Arrow Panels shall be Type B or Type C. The panel operation shall be controlled from inside the vehicle.
7. Each vehicle shall have two-way radio communication capability.
8. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
9. Vehicle spacing between TRAIL VEHICLE and SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE.

TRUCK MOUNTED ATTENUATORS WILL BE REQUIRED ON ALL PROJECTS AWARDED AFTER JANUARY 1, 1995.



OPTIONAL STRIPING FOR TMA

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STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

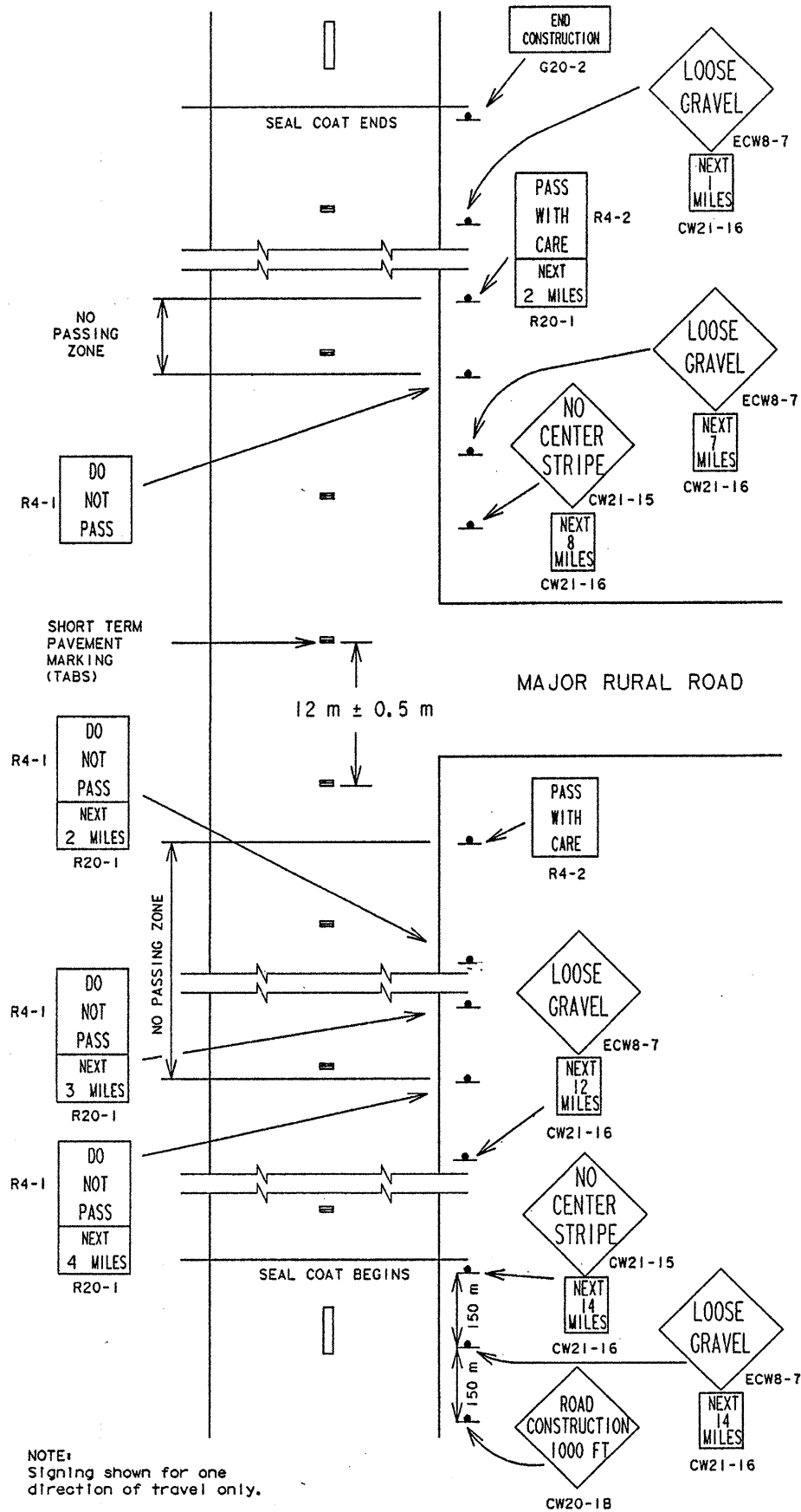
TRAFFIC CONTROL PLAN
 RAISED PAVEMENT
 MARKER INSTALLATION
 TCP (3-3) -95 (M)

DATE: 05/28/96	STATE DISTRICT: 21	COUNTY: HIDALGO	PROJECT: NIT 96 (791)M	SHEET: 133
REVISIONS:	DATE: 08/31/95	BY: 17/110	CHK: 1083	

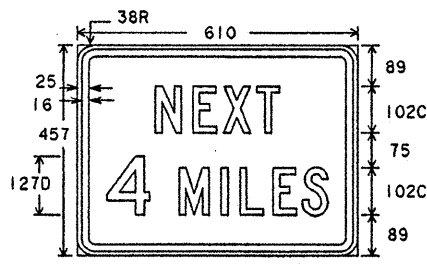
NEW 5/28/96

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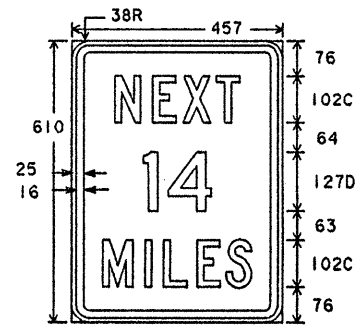
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
DATE: 11/19/91
DN: LR
CK: CW
DW: DN
CK: NT
ACC: d58hplc/usr/d580504
FILE: 4550518283645356759560161283



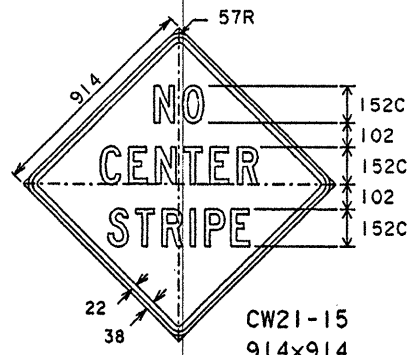
NOTE:
Signing shown for one direction of travel only.



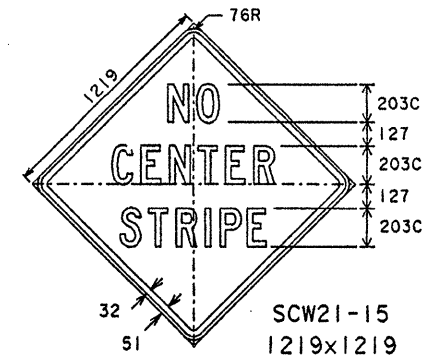
R20-1
610x457
Legend - Black
Border - Black
Background - White Refl.
FOR USE WITH REGULATORY SIGNS ONLY



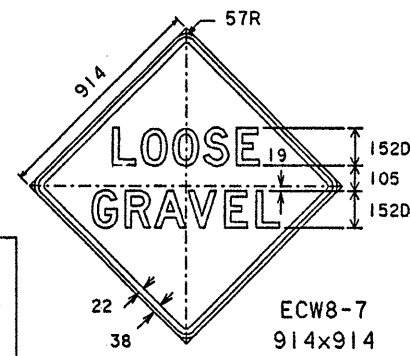
CW21-16
457x610
Legend - Black
Border - Black
Background - Orange Refl.
FOR USE WITH CONSTRUCTION WARNING SIGNS ONLY



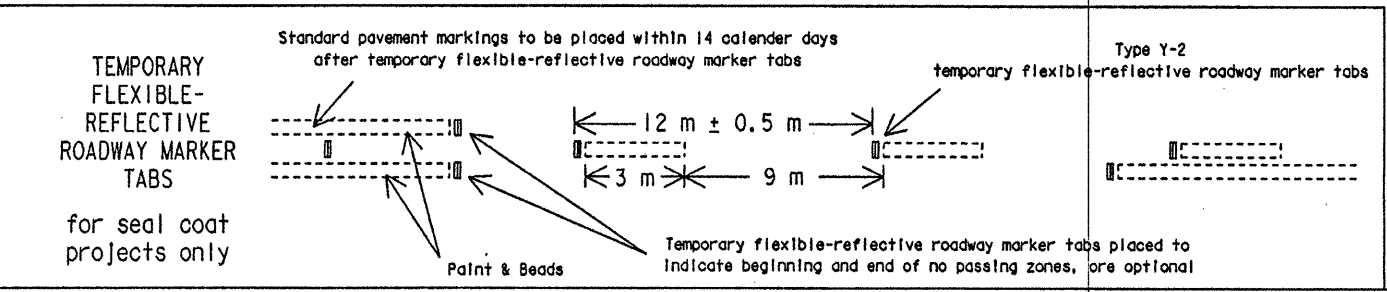
CW21-15
914x914
Legend - Black
Border - Black
Background - Orange Refl.



SCW21-15
1219x1219
Legend - Black
Border - Black
Background - Orange Refl.



ECW8-7
914x914
Legend - Black
Border - Black
Background - Orange Refl.



GENERAL NOTES
The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where the surface treatment operation has covered or obliterated existing pavement markings. These traffic control devices are to be used to supplement those required by BC Standards.

DO NOT PASS SIGN (R4-1) and NO-PASSING ZONES

Prior to the beginning of construction, all currently striped no-passing zones should be signed with the DO NOT PASS sign (R4-1) and PASS WITH CARE sign (R4-2) placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined and signed as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES sign (R20-1) may be used at the beginning of such zones. The DO NOT PASS and NEXT XX MILES signs should be repeated every 1.5 km to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of a no-passing zone may be signed with a PASS WITH CARE and NEXT XX MILES sign.

Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshields and lights. The DO NOT PASS and NEXT XX MILES sign should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the sealing operation has passed this location so as not to have the DO NOT PASS sign conflict with existing

pavement markings. Also, unless one days operation completely seals the entire length of such combined zones, care must be taken to place DO NOT PASS and PASS WITH CARE signs in order to sign the beginning and end of the no-passing zones in the area where the seal coat operation has stopped for the day.

R4-1 and R4-2 signs should be mounted on fixed supports as detailed on BC Standards, a minimum of 1.5 meters above the pavement edge. These signs are to remain in place until standard pavement markings are placed.

NO CENTER STRIPE SIGN (CW21-15)

At the time construction activity obliterates the existing centerline (low volume roads may not have an existing centerline), a NO CENTER STRIPE sign (CW21-15) should be erected at each end of the work area and just beyond major rural intersections and other location deemed necessary by the Engineer. Where possible, the signs erected at each end of the work area should be located in such a manner that drivers can read the sign and immediately see the change to no centerline. The NO CENTER STRIPE sign should be supplemented with the NEXT XX MILES sign (CW21-16) mounted below it.

The NO CENTER STRIPE sign may be erected on a temporary support a minimum of 0.9 meter above the pavement edge. These signs are to remain in place until standard pavement markings are placed.

*'LOOSE GRAVEL' SIGN (ECW8-7)

When construction begins, a LOOSE GRAVEL sign (ECW8-7) should be erected at each end of the work area and repeated at intervals of approximately 3 kilometers in rural areas and closer in urban areas. The LOOSE GRAVEL sign should be supplemented with the NEXT XX MILES sign (CW21-16) mounted below it.

The LOOSE GRAVEL sign should be mounted on temporary supports a minimum of 0.9 meter above the pavement

edge. They should remain in place until the loose gravel condition no longer exists.

PAVEMENT MARKINGS

Short term pavement markings for seal coat projects shall use Temporary Flexible-reflective Roadway Marker Tabs. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two (2) days before the seal coat is applied. After the seal coat is rolled and swept the cover over the reflective strip shall be removed. Tabs shall NOT be used to simulate edge lines.

All dimensions are in millimeters unless otherwise noted.

The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL DETAILS
for
SEAL COAT OPERATIONS
TCP(7-1)-92(M)

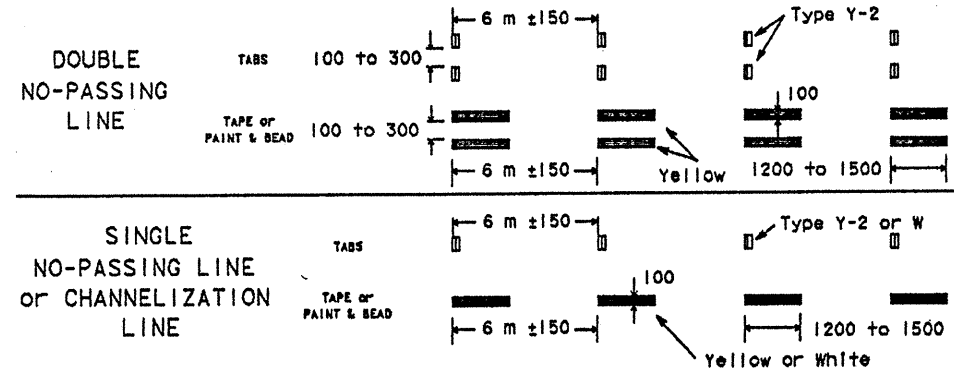
ORIG. DRAW. DATE:	MARCH 1991	DN - LR	CK -	DW - DN	CK -	REV. NO.:	
REVISIONS	21	STATE DIVISION	6	FEDERAL REGION	NH 96 (79) ARE	194	
		COUNTY	HIDALGO	CONTROL SECTION	00917	JOB	118
							4523

DISCLAIMER
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LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
 96 97 98 99 100
 DATE: 04/15/92
 CNA: CW
 DWT: DN
 CHK: MT
 FILE: 0580504
 USER: dnhp/c/usr/0580504

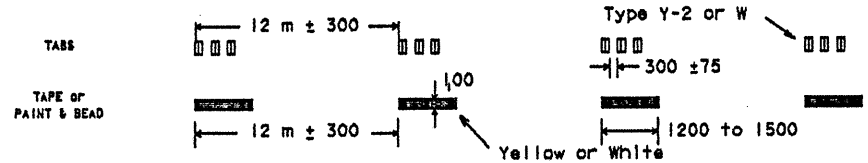
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS

SOLID LINES



BROKEN LINE

(FOR CENTER LINE OR LANE LINE.)



NOTES:

- Short term pavement markings may be paint and beads, prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans. Paint and beads shall not be used as removable short term pavement markings.
- Short term pavement markings shall NOT be used to simulate edge lines.
- Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 6 mm, unless otherwise noted.
- Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
- No segment of roadway open to traffic shall remain without standard pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until standard pavement markings are in place. When the Contractor is responsible for placement of standard pavement markings, no segment of roadway shall remain without standard pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Standard pavement markings shall be placed as soon as weather permits.
- For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the MUTCD and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Standard pavement markings should then be placed.
- For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).

TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS (TABS)

- Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body), Type Y (one amber reflective surface with yellow body), and Type W (one silver reflective surface with white body). Additional details may be found on BC(6).
- Tabs shall meet requirements of Department Material Specification D-9-8242.
- The body of Tabs shall consist of a base and vertical wall made of polyurethane, polyester elastomer or other material approved by the Materials and Tests Division.
- The reflective material shall be protected with an easily removable heat resistant transparent cover capable of withstanding and protecting reflective material from application of 205 degree Celsius asphalt. Stapling or clipping devices used to retain the protective cover shall not protrude through reflective material.
- 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.
 - Select five (5) or more tabs at random from each lot or shipment and submit to the Materials and Tests Division to determine specification compliance.
 - Select five (5) tabs and submit to the following test. Affix five (5) tabs at 600 millimeter intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with front and rear wheels at a speed of 35 to 40 miles per hour, four times in each direction. No more than one (1) out of five reflective surfaces shall be lost or displaced as a result of this test.
- When dry, tabs shall be visible for a minimum distance of 60 meters during normal daylight hours and when illuminated by automobile low-beam headlight at night, unless sight distance is restricted by roadway geometrics.
- No two consecutive tabs nor four tabs per 300 meters of line shall be missing or fail to meet the visual performance requirements of note 6.

REMOVABLE - PREFABRICATED PAVEMENT MARKINGS

- Prefabricated Pavement Markings shall be a material of manufacture and product code or designation shown on list of approved materials covered by Departmental Material Specification D-9-8241.

NON REMOVABLE - PREFABRICATED PAVEMENT MARKINGS (FOIL BACK)

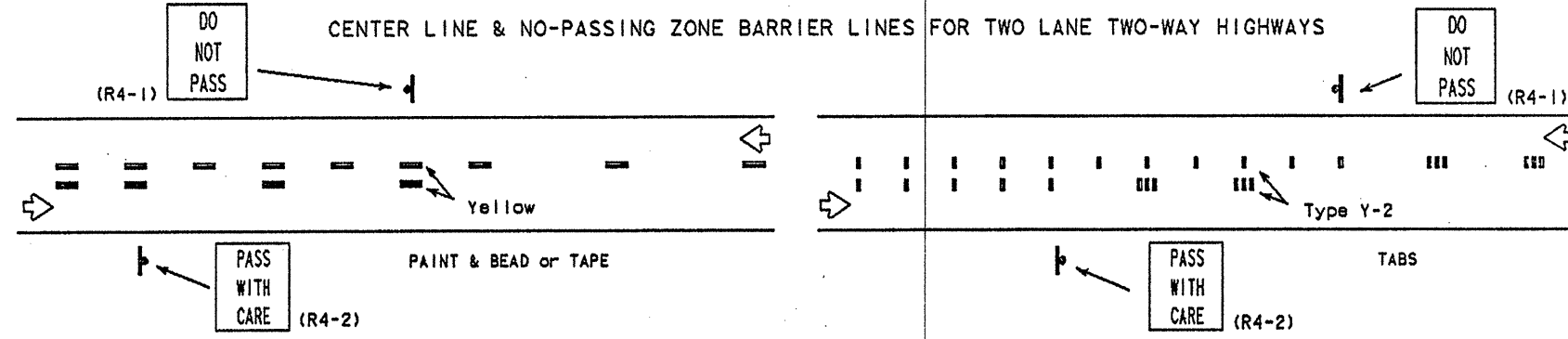
- Prefabricated Pavement Markings shall be a material of manufacture and product code or designation shown on list of approved material covered by Specification TxDOT-550-74-01.

RAISED PAVEMENT MARKERS

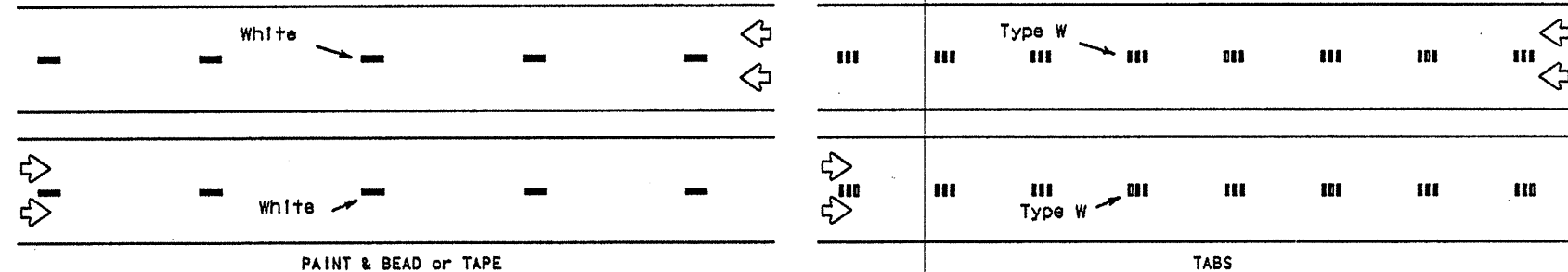
- Raised pavement markers used to supplement short term removable pavement markings shall meet the requirements of item "RAISED PAVEMENT MARKERS".

WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS

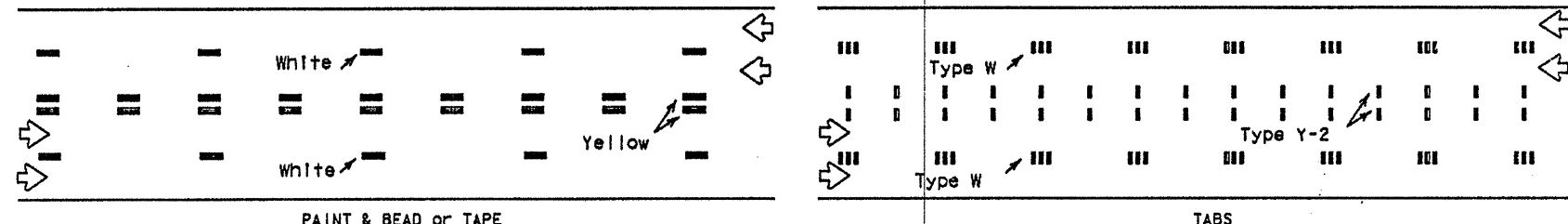
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



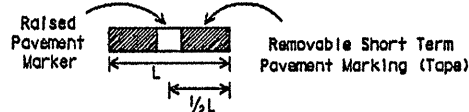
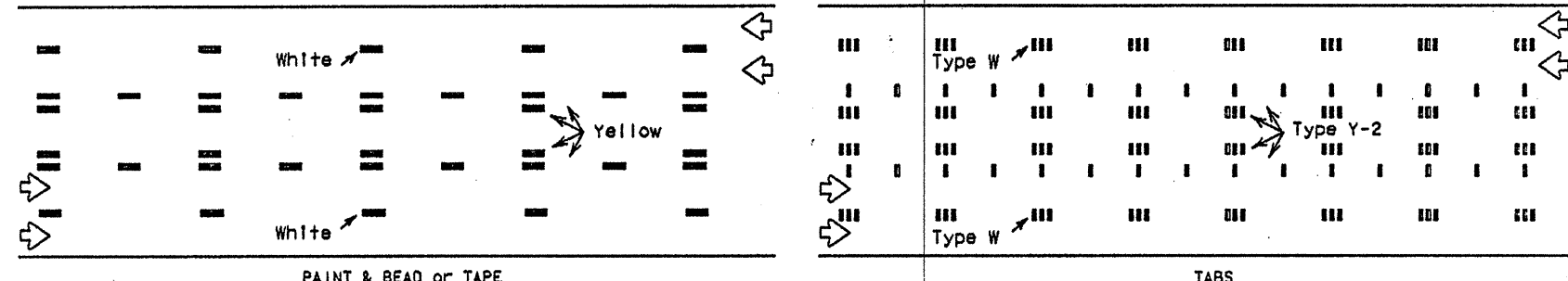
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

SPECIFICATION REFERENCE TABLE

MATERIALS AND TESTS DIVISION SPECIFICATIONS	
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	D-9-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	D-9-8242
PAVEMENT MARKERS (REFLECTORIZED)	D-9-4200

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

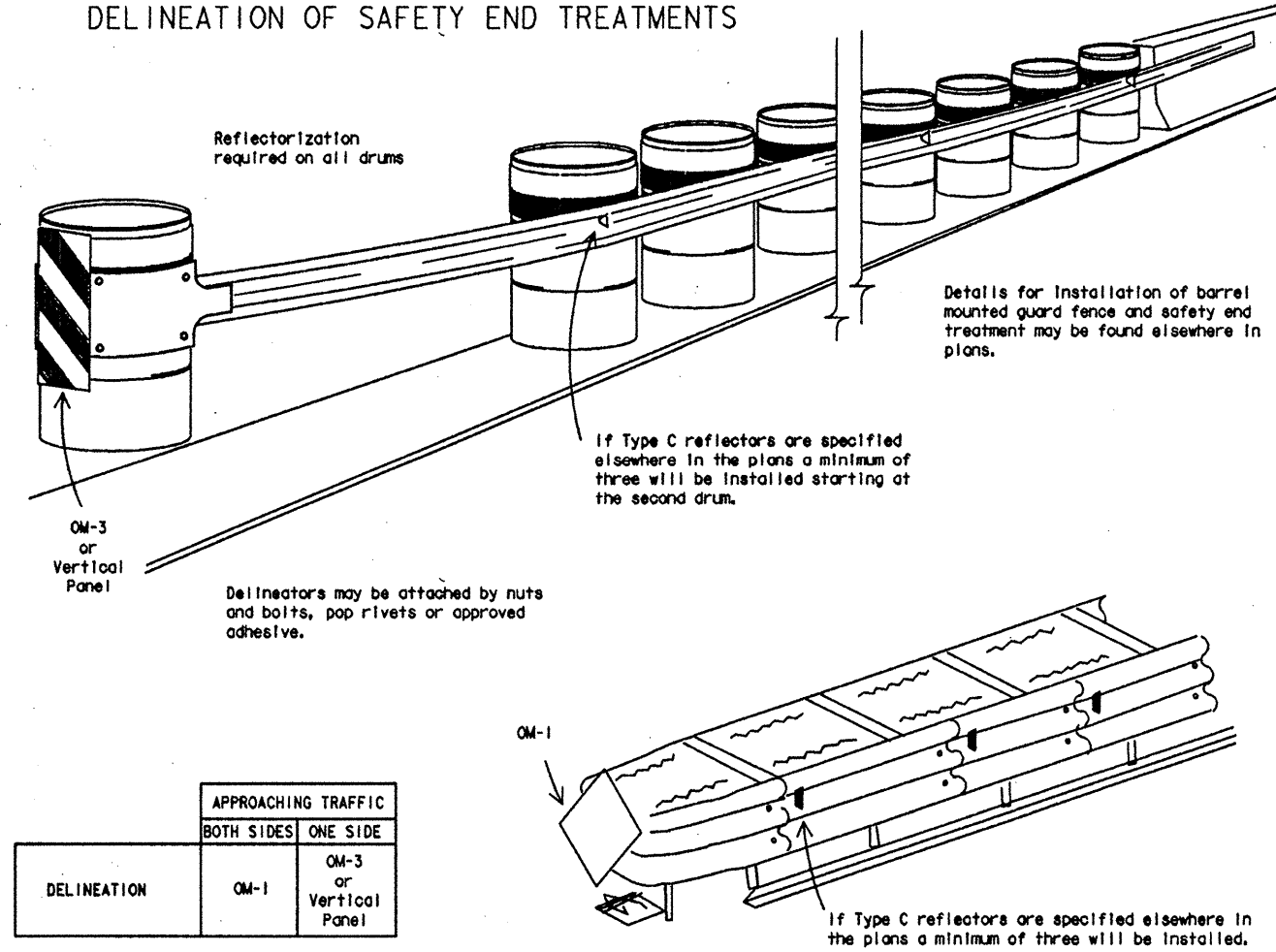
WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ (STPM) -95 (M)

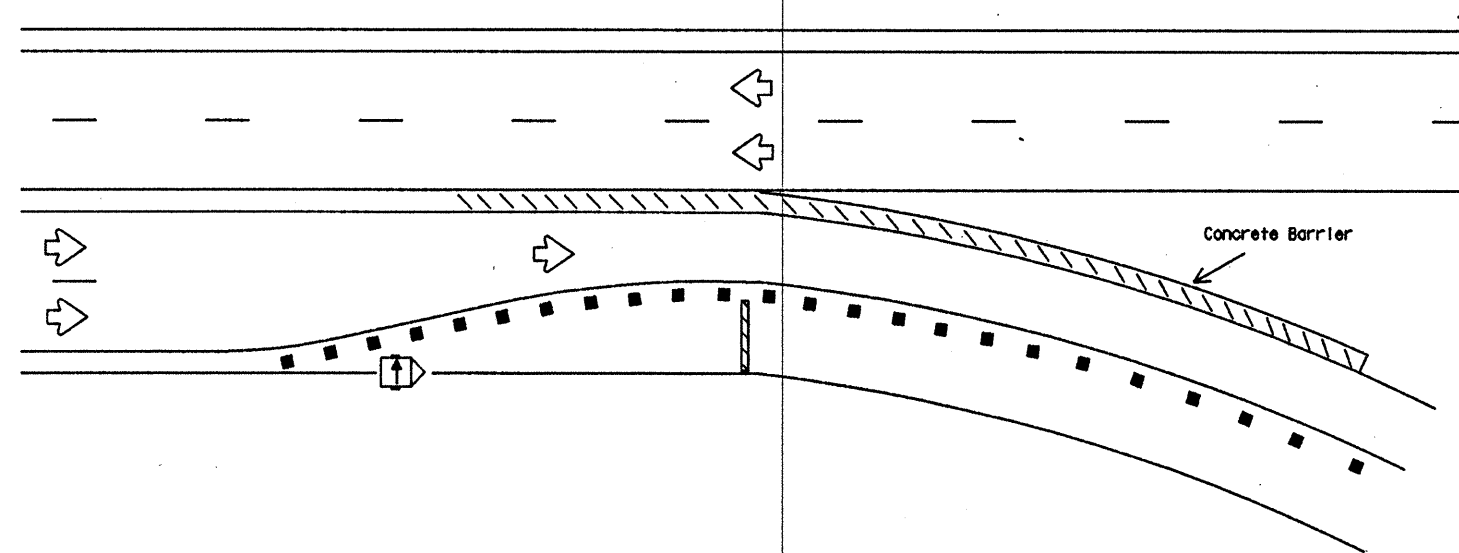
DATE SHOWN	APRIL 1992	BY	LR	CHK'D	DN	FILE	10-95
REVISIONS		DATE	BY	CHK'D	DN	FILE	
1	21	6				NH 96 (79) M	125
						110A/C66	00M17 118 4883

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DELINEATION OF SAFETY END TREATMENTS



BARRIER DELINEATION WITH SAFETY GLARE FENCE



NOTES:

- Length of Safety Glare Fence will be specified elsewhere in the plans.
- The cumulative nominal length of the modular units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one unit.
- Panel/blades will be designed such that reflective sheeting conforming with Departmental Specification D-9-8300, Type C, minimum size of 50 millimeters by 300 millimeters can be attached to the edge of the panel/blade. The sheeting shall be attached to one panel/blade per section of concrete barrier not to exceed a spacing of 9 meters. Barrier reflectors are not necessary when panel/blades are installed.

LEGEND

- Barricade
- Channelizing devices
- Trailer mounted flashing arrow panel
- Safety glare fence

Unless stated elsewhere in the plans, reflectorization of metal drums, delineation and reflectors shown on this standard shall be considered subsidiary to the various bid items.

PREQUALIFICATION PROCEDURES ARE OBTAINED FROM:
 TRAFFIC OPERATIONS DIVISION
 TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT)
 125 EAST 11th STREET
 AUSTIN, TX 78701-2483

SPECIFICATION REFERENCE TABLE

MATERIALS AND TESTS DIVISION SPECIFICATIONS	
EPOXY	D-9-6100
BITUMINOUS ADHESIVE	D-9-6130
ALUMINUM SIGN BLANKS	D-9-7110
FLAT SURFACE REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
DELINEATOR AND OBJECT MARKER	D-9-8600

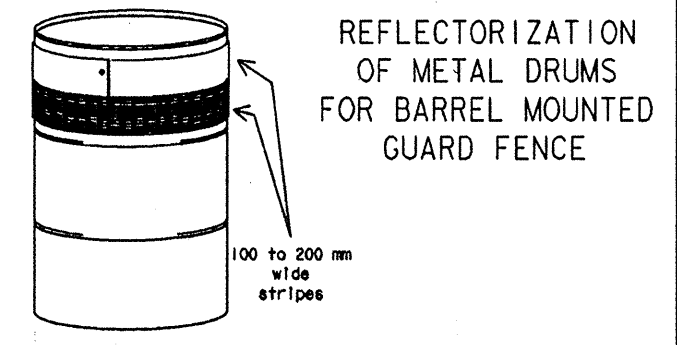
STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

WORK ZONE
 BARRIER DELINEATION

WZ (BD) -95 (M)

DATE: APRIL 1992	REVISED: 8-95	STATE PROJECT: 21	FEDERAL PROJECT: 6	FEDERAL AID PROJECT: NH 96 (791) M	SHEET: 136
		COUNTY: HIDALGO	CONTROL SECTION: 003917	JOB: 116	NO. DRAW: 18583

DATE: 11/11/92
 FILE: 4891515232
 USER: d58hp1c/usr/d580504

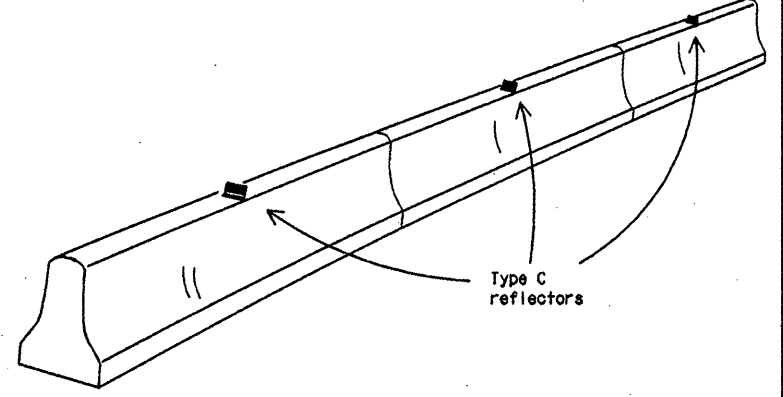


The following specification is intended to detail the reflectorization of metal drums used to support barrel mounted guard fence. Metal drums shall not be used as a standalone channelizing device or sign support.

Markings on drums shall be horizontal, circumferential, reflectorized orange and reflectorized white stripes, 100 to 200 millimeters wide. The first reflectorized stripe should start within four inches of the top of the drum. There shall be at least one orange and one white stripe on each drum. If there is a non-reflectorized space between the horizontal orange and white stripes, it shall be no more than 50 mm wide. Reflectorized material shall conform with Specification D-9-8300 Type C (High Specific Intensity).

All drums on project will be of the same color.
 Orange color metal drums shall be used in all barrel mounted guard fence installations on all contracts awarded after January 1, 1994.

CONCRETE TRAFFIC BARRIER (CTB)



Barrier reflectors will be installed only on barriers designated for reflectorization as required elsewhere in the plans.

Reflectors should be mounted one reflector per section of barrier, preferably in the center.

Maximum spacing of reflectors is 12 meters. Mount reflectors to barrier with construction adhesive or butyl rubber adhesive.

Color of barrier reflectors will conform to the Texas "Manual on Uniform Traffic Control Devices", (TMUTCD).

REFLECTORS FOR CONCRETE TRAFFIC BARRIER, BARREL MOUNTED GUARD FENCE, AND ATTENUATORS

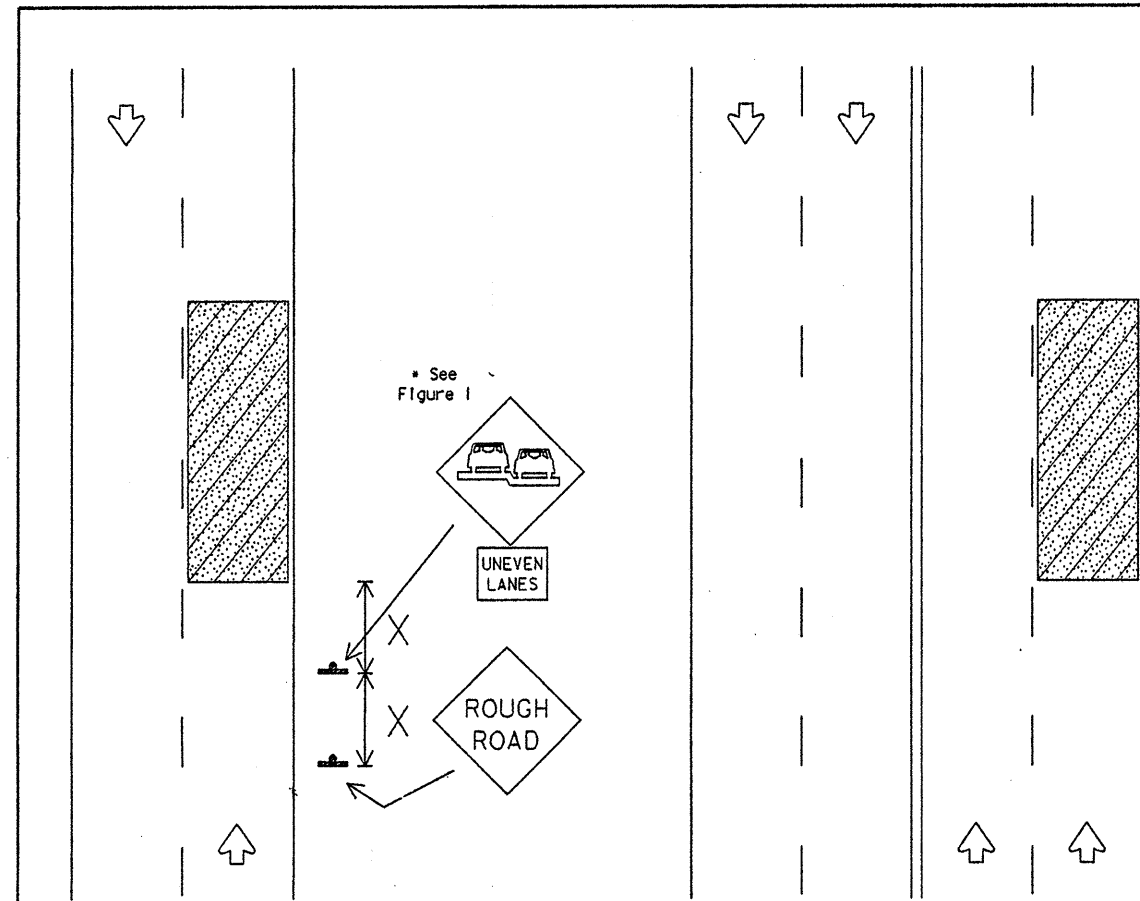
Type C reflectors may be installed using pop rivets, nuts and bolts, construction adhesive or butyl rubber adhesive.

Type C reflectors shall be prequalified and shall conform to the color and reflectivity requirements of Specification D-9-8600.

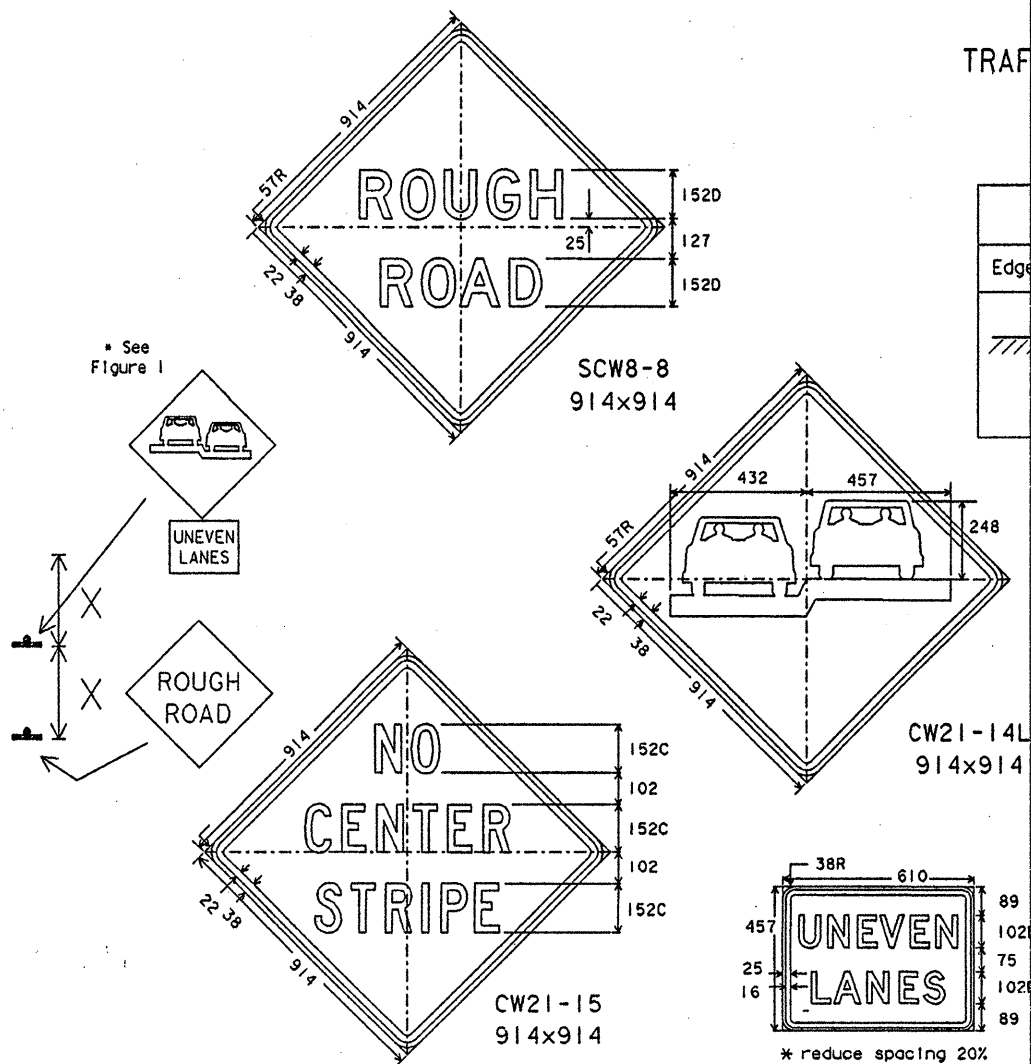
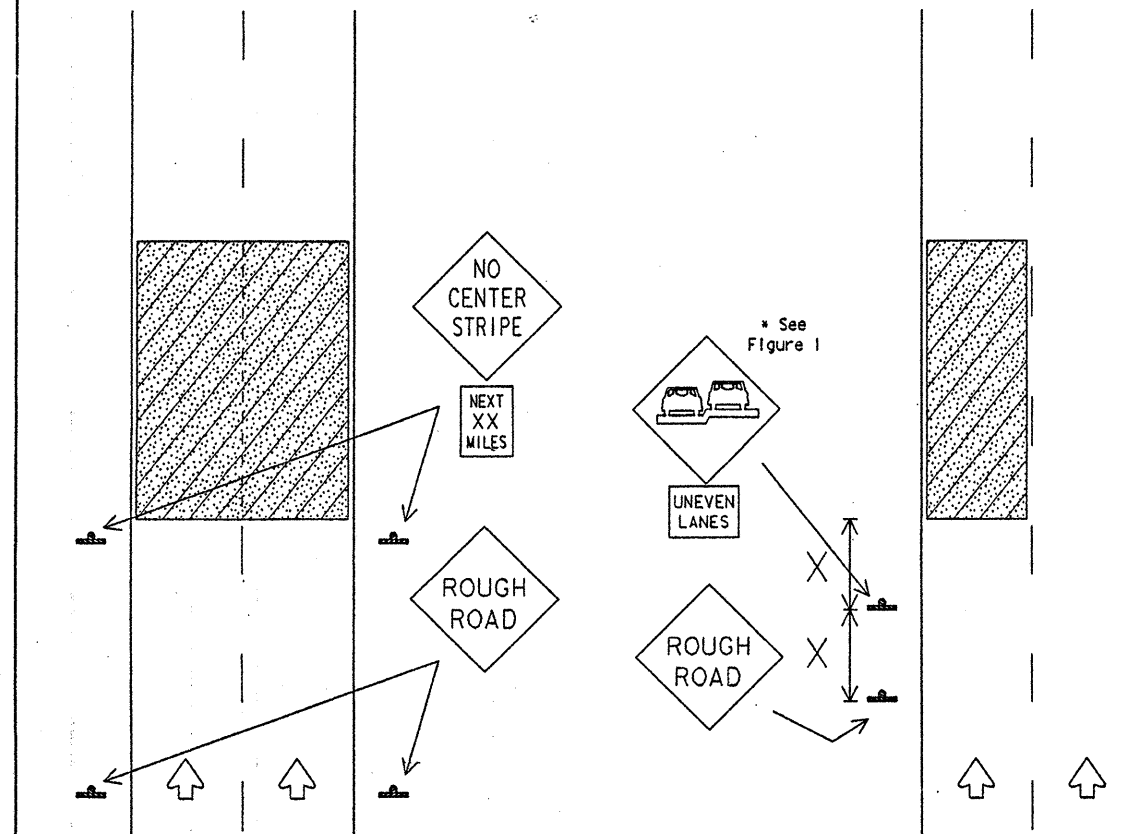
Color of Type C reflector will be the same as the nearest edge line, gore pavement marking or as directed by the Engineer.

DISCLAIMER
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LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
DATE: 8/10/95
DWG: 8-95
CHK: CW
APP: DN
FILE: 8hptc/usr/d580504



Signing shown for one direction.



GENERAL NOTES:
All signs detailed on this sheet shall have black border, legend and/or symbol on an orange reflective background.

X DISTANCE

Posted Speed or 85% Speed (MPH)	X Min. Distance (meters)
30 or less	25
35	40
40	50
45	75
50	100
55	150
65	225

TRAFFIC CONTROL DURING PLANING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

FIGURE 1

Edge Condition	Edge Height (D)	Warning Devices
	less than or equal to 25 mm	Signs: SCW8-8
	greater than 25 mm to 32 mm (maximum)	Signs: CW21-14, SCW8-8

SPECIFICATION REFERENCE TABLE
MATERIALS AND TESTS DIVISION SPECIFICATIONS

PLYWOOD SIGN BLANKS	D-9-7100
ALUMINUM SIGN BLANKS	D-9-7110
SIGN HARDWARE	D-9-7120
PREFABRICATED PAVEMENT MARKINGS-PERMANENT	D-9-8240
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	D-9-8241
REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)	D-9-8300
(FOR WHITE SERIES SIGNS ON THIS SHEET)	D-9-8300
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
(FOR ORANGE SERIES SIGNS ON THIS SHEET)	D-9-8300

- GENERAL NOTES:
- If spalling or holes occur, ROUGH ROAD signs should be placed in advance of the condition and may be repeated throughout the project.
 - UNEVEN LANES symbol sign (CW21-14) should be installed in advance of the condition and repeated every 1.6 kilometer. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES sign (CW21-16) or Advisory Speed sign (CW13-1). Mirror image of UNEVEN LANES symbol sign (CW21-14L) should be used when needed to show the proper elevations of the lanes.
 - NO CENTER STRIPE signs (CW21-15) should be installed if centerlines or lane lines are obscured or obliterated. The signs should remain in place until standard pavement markings are installed.
 - When planing operations are completed and final surface treatment will not be applied as part of this project, advance signs shall be left in place and become the property of the State. These signs shall be installed on driveable sign supports as illustrated on BC(M) Standards. Additional signs may be required as directed by the Engineer. Minimum mounting height of signs should be 1.5 meters minimum for rural areas and 2.1 meters minimum for urban areas. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to the Item "BARRICADES, SIGNS AND TRAFFIC HANDLING."
 - Pavement markings shall be replaced as planing operations proceed. Raised reflective pavement markers or prefabricated foil backed tape should be used.
 - Short term markings shall not be used to simulate edge lines.

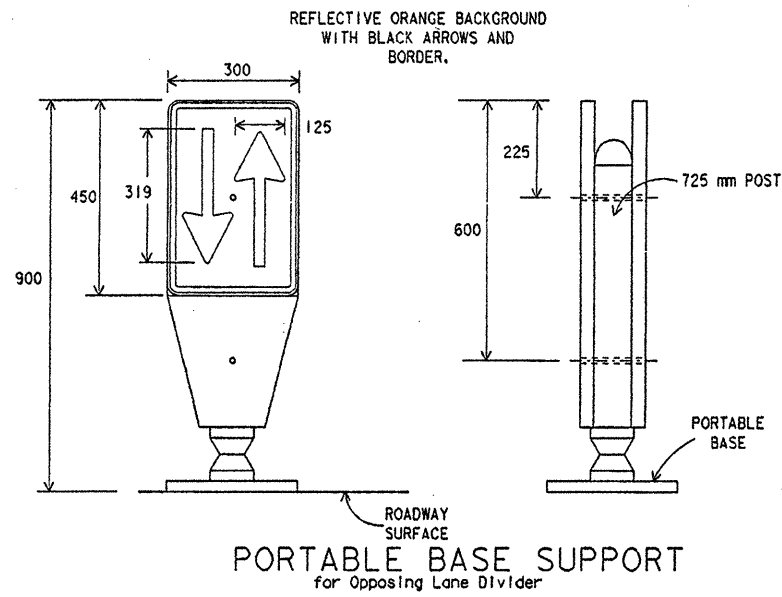
All dimensions are in millimeters unless otherwise noted. The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

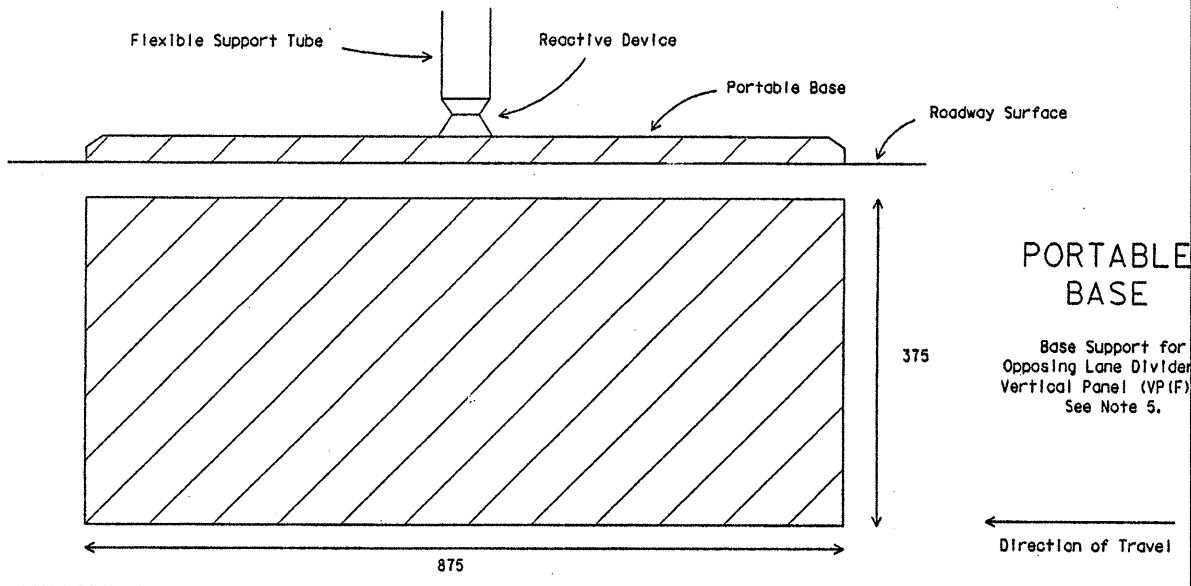
SIGNING FOR
UNEVEN LANES
WZ (UL) - 95 (M)

ORIG. DRAW. DATE: APRIL 1992	DWG. NO.: LR	CHK.:	APP.:	DES. NO.:	REV. NO.:
8-95	21	6	11/18/95	137	137
STATE DISTRICT		FEDERAL REGION		FEDERAL AID PROJECT	
HIDALGO		1118		1118	

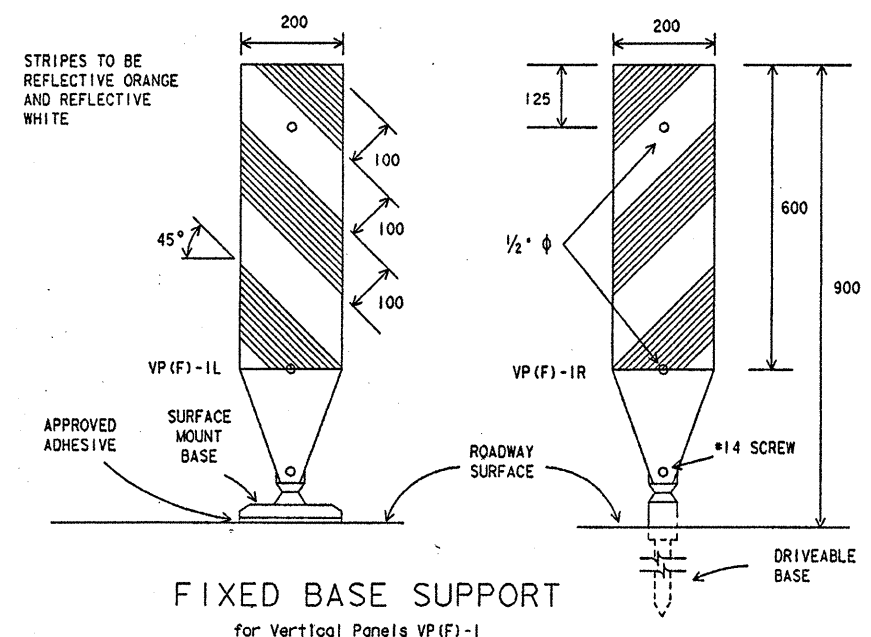
DISCLAIMER
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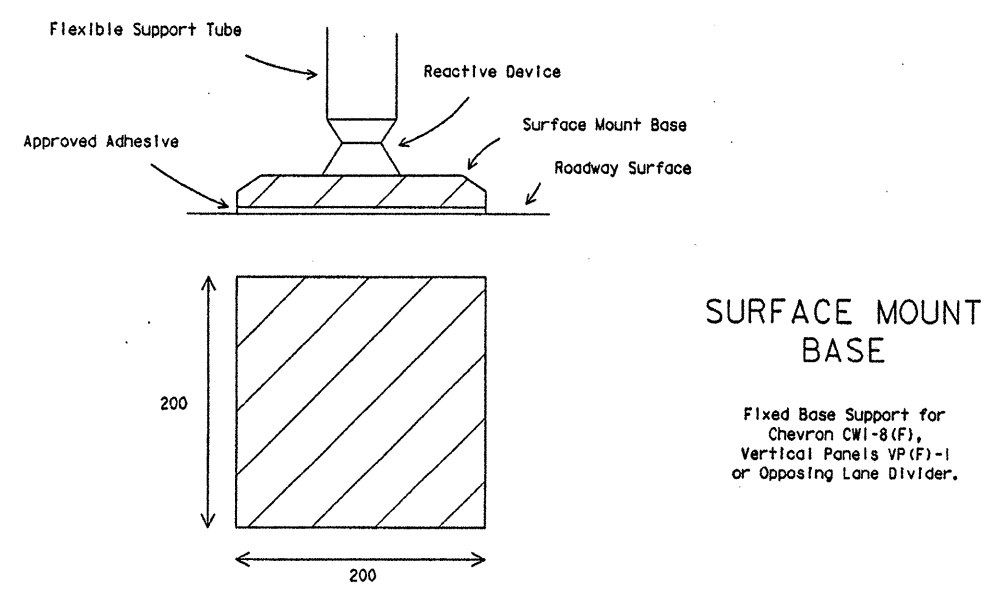
PORTABLE BASE SUPPORT
 for Opposing Lane Divider



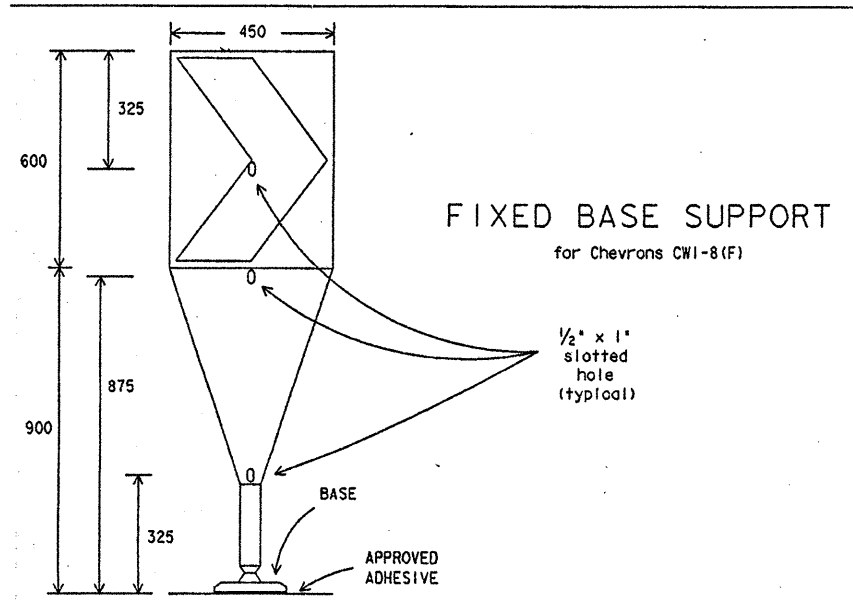
PORTABLE BASE



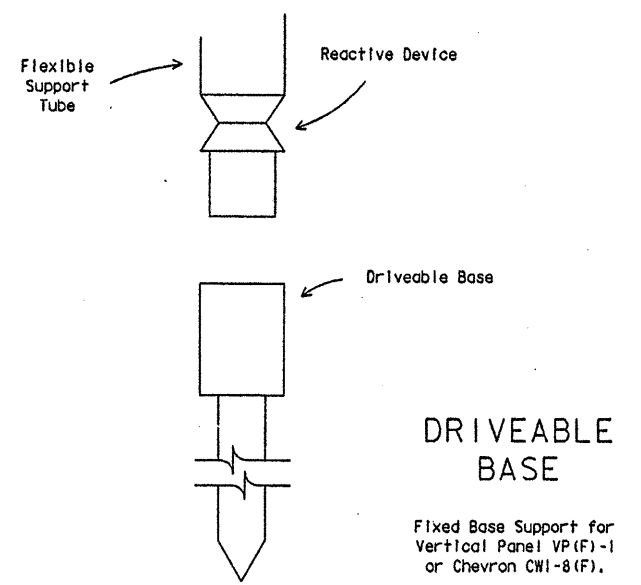
FIXED BASE SUPPORT
 for Vertical Panels VP(F)-1



SURFACE MOUNT BASE



FIXED BASE SUPPORT
 for Chevrons CWI-8(F)



DRIVEABLE BASE

GENERAL NOTES:

1. Channelizing devices on flexible supports shall be used at locations detailed elsewhere in the plans. These devices shall conform to the Texas MUTCD.
2. Channelizing devices on flexible supports may be used in work zone areas where channelizing devices are frequently impacted by errant vehicles. 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. Spacing and placement shall be uniform and in accordance with the Texas MUTCD.
3. The contractor shall maintain devices in a clean condition and replace damaged, non-reflective, faded, or broken devices and bases as necessary.
4. Devices shall be fabricated to withstand repeated impacts with minimal maintenance to devices and damage to vehicles. When devices are impacted, they should not adversely affect worker or vehicle safety.
5. Devices shall be erected on a fixed, portable, or driveable base as approved by the Engineer.
6. Portable bases shall be fabricated from a flexible material such as virgin and/or recycled rubber. Approximate weight of portable bases should be 16 kg.
7. Fixed bases may be surface mount or driveable type.
8. Pavement surfaces shall be prepared in a manner that will insure proper bonding of adhesives and surface mount bases to the pavement surfaces. Adhesives shall be prepared and applied as per manufacturer's recommendations.
9. Application and removal of 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. All application and removal procedures of fixed bases shall be approved by the Engineer.
10. These devices shall not be paid for directly but shall be considered subsidiary to the item "Barrieraes, Signs, and Traffic Handling."

PREQUALIFICATION PROCEDURES MAY BE OBTAINED BY WRITING:

TRAFFIC OPERATIONS DIVISION
 TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT)
 125 EAST 11th STREET
 AUSTIN, TX 78701-2483

SPECIFICATION REFERENCE TABLE
 MATERIALS AND TEST DIVISION SPECIFICATIONS

FLAT SURFACE REFLECTIVE SHEETING, TYPE C
 (HIGH SPECIFIC INTENSITY) D-9-8300

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

WORK ZONE
CHANNELIZING DEVICES ON
FLEXIBLE SUPPORTS
 WZ (CD) - 94 (M)

ORIG DRAW DATE:	Jan 1992	DN - LR	CK -	DN - DN	CK -	REG NO. 1
REVISIONS		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET	
9-94		21	6	NH 96(79)M	138	
		COUNTY	CONTROL SECTION	JOB	HIGHWAY	
		HIDA-60	009117119	US43		

DN - LR
 CK - CW
 DW - DN
 CK - MT

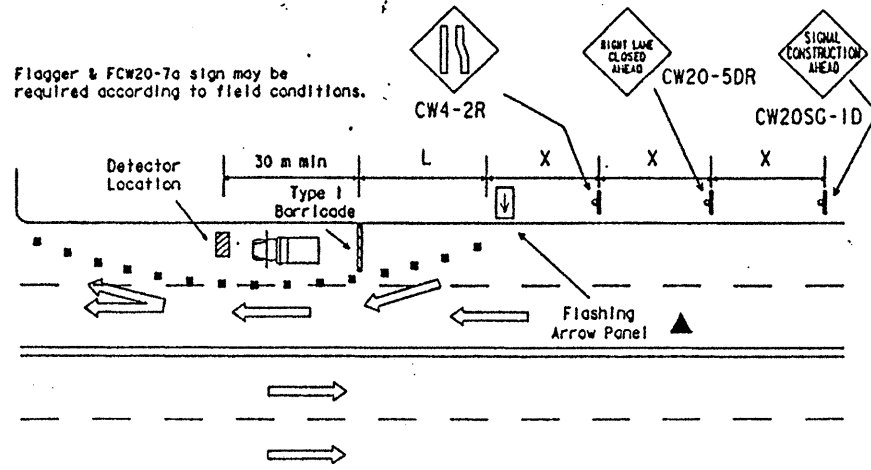
DATE: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

ACC: 58hplc/usr/d560504

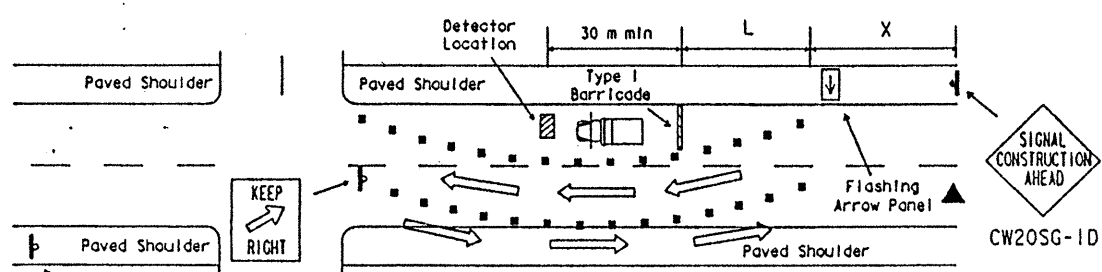
FILE:

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LEVELS DISHWAITED
 DATE: 11/21/13 14:15:16
 DN:LR CK:DW DW:DN CK:MT
 FILE: 058hplc/usr/0580504



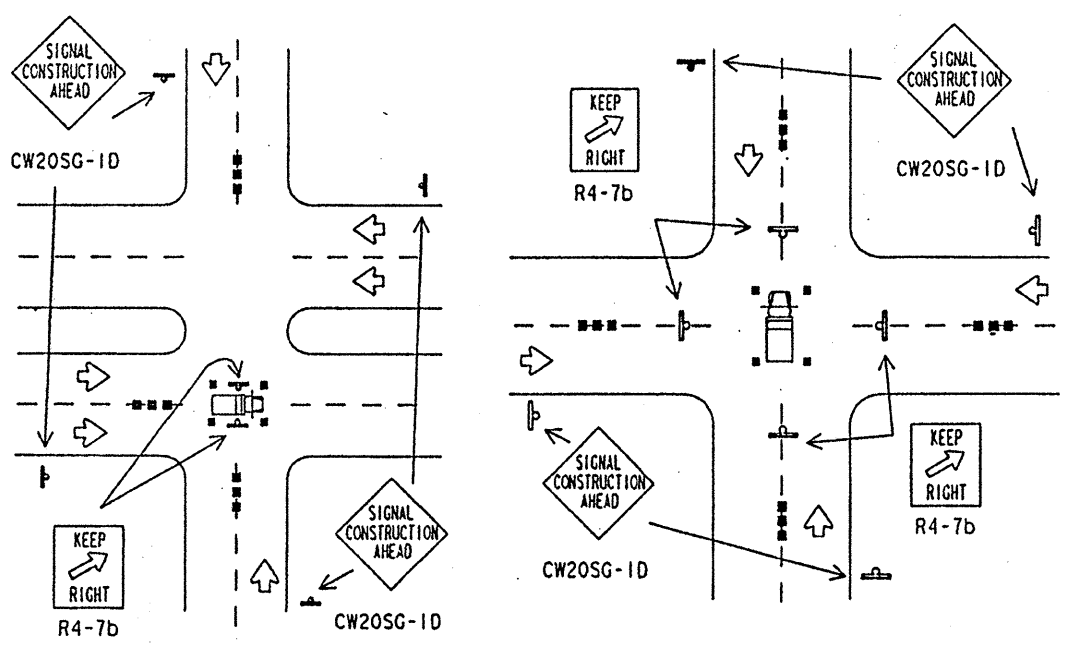
Daytime - Four Lane Roadway



Daytime - Two Lane Roadway

TYPICAL DETECTOR INSTALLATION

Nighttime - 1. Channelizing Devices shall be reflectorized.
 2. Barricades shall have Flashing Warning Lights.



TYPICAL HANGING SIGNAL INSTALLATIONS

Advance warning channelizing devices are optional.

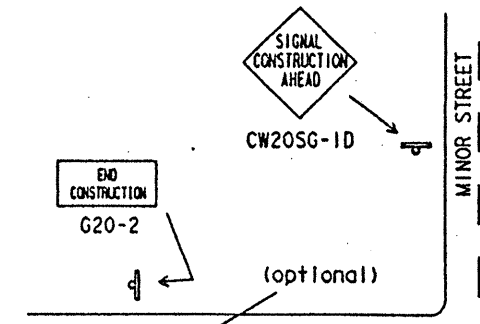
TYPICAL TRANSITION LENGTHS AND SUGGESTED MAXIMUM SPACING OF DEVICES

Posted Speed (MPH)	Formula	Minimum Desirable Taper Lengths (m)			Suggested Maximum Spacing of Devices (m)	
		3.0 m Offset	3.3 m Offset	3.6 m Offset	On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	45	50	55	9	15-20
35		65	70	75	10	20-25
40		80	90	100	12	25-30
45		135	150	165	13	25-30
50		150	165	180	15	30-35
55	$L = WS$	165	185	200	16	35-40
60		180	200	220	18	40-45
65		195	215	235	19	40-50

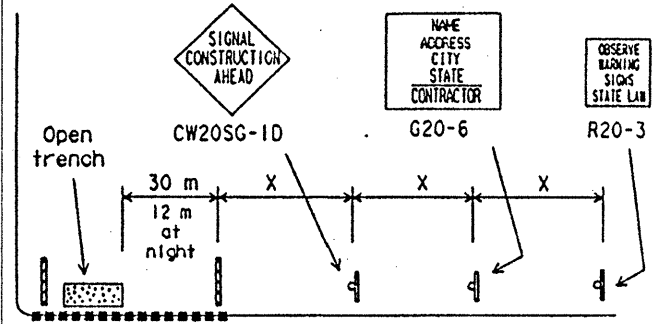
* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.
 ** Taper lengths have been rounded off.
 L - Length of Taper (m)
 W - Width of Offset (m)
 S - Posted Speed (MPH)

X DISTANCE

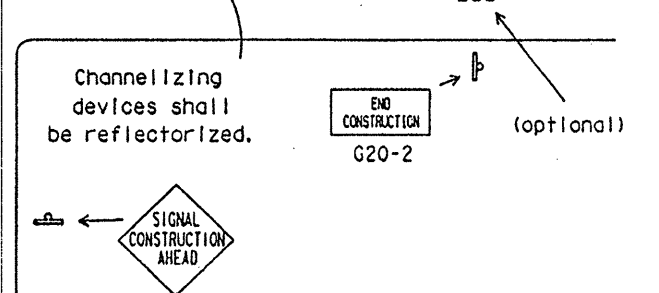
Posted Speed or 85% Speed (MPH)	X Min. Distance (feet)
30 or less	25
35	40
40	50
45	75
50	100
55	150
60	200
65	225



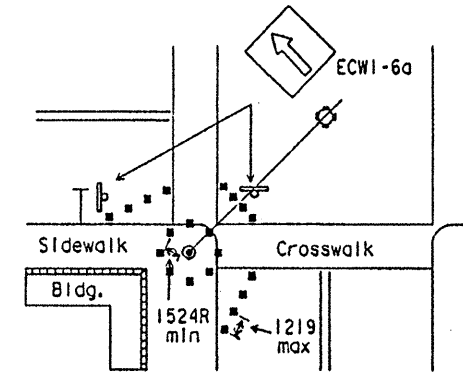
TYPICAL ADVANCE SIGNING



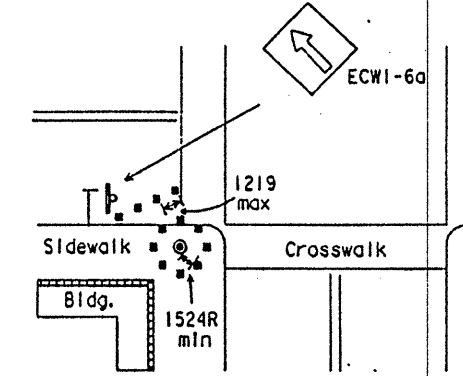
TYPICAL ADVANCE SIGNING



- Legend
- Heavy Work Vehicle
 - Type I Barricade
 - Channelizing Devices
 - Flashing Arrow Panel



TYPICAL RESTRICTED PEDESTRIAN MOVEMENTS



TYPICAL RESTRICTED PEDESTRIAN MOVEMENTS

Channelizing devices should not be placed closer than 1.5 meters radius (minimum) to signal poles. Parking may be eliminated by placing channelizing devices in spaces. If pedestrian walkways are blocked, refer to TMUTCD, Figure 6B-4.1.

TYPICAL RESTRICTED PEDESTRIAN MOVEMENTS

The arrow panel may be omitted when stated elsewhere in the plans.
 Typical channelizing device is the 711 mm cone. Plastic drums may be used if approved by the Engineer. Metal drums shall NOT be used as a channelizing device or sign support.
 For several closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections of the project limits. See details elsewhere in the plans for advance signing requirements.
 Advance signs and barricades shall be in place when signal construction operations are in progress. The contractor may remove advance signs and barricades when no construction operations are underway if permitted elsewhere in the plans. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
 All holes, trenches or other hazardous areas shall be adequately protected by barricades, lights or other protective devices. Trenches shall be covered or surrounded with orange plastic construction fence as directed by the Engineer.
 Flagger and CW20-7a sign may be required according to field conditions. Vehicles parked in roadway shall be equipped with two strobes. High level flags at corners of vehicle may also be used. Work operations that require work vehicle in traveled way 20 minutes or less may use cones, high level flags and strobes as advance warning devices. Cones should only be placed around vehicle. Flaggers may be used on high speed rural intersections.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

TRAFFIC SIGNAL INSTALLATION
 TYPICAL DETAILS

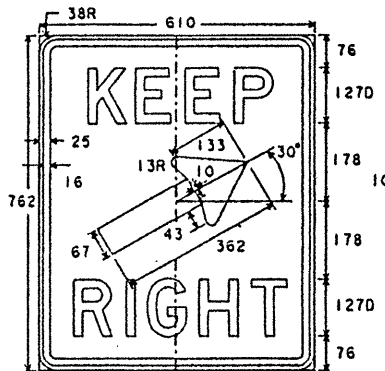
SHEET 1 OF 2 WZ(BTS-1)-94(M)

DATE	BY	CHK'D	APP'D	REV.	DESCRIPTION
11/11/92	DN:LR	CK:MT	DW:DN	01	ISSUED
2-94				02	REVISED
				03	REVISED
				04	REVISED
				05	REVISED
				06	REVISED
				07	REVISED
				08	REVISED
				09	REVISED
				10	REVISED
				11	REVISED
				12	REVISED
				13	REVISED
				14	REVISED
				15	REVISED
				16	REVISED
				17	REVISED
				18	REVISED
				19	REVISED
				20	REVISED

NEW 5/28/16

Metric 115A

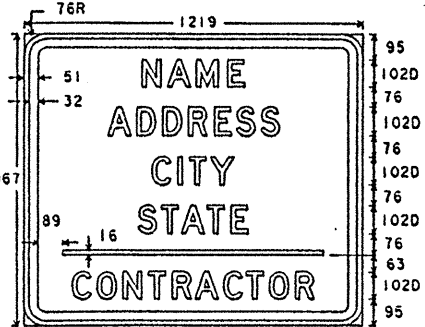
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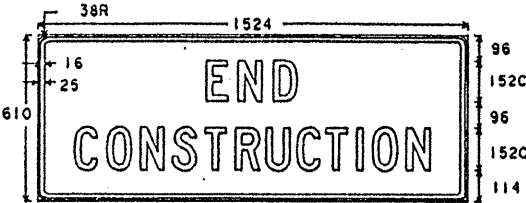
R4-7b Letters - Black Symbol - Black Border - Black Background - White Refl. 610 x 762



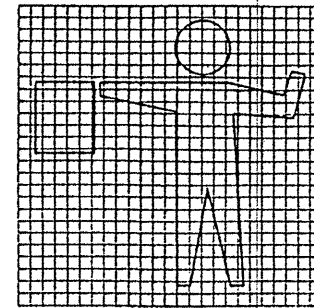
R20-3 Letters - Black Border - Black Background - White Refl. 1219 x 1067



G20-6 Letters - Black Border - Black Background - White Refl. 1219 min. Var. X 1067

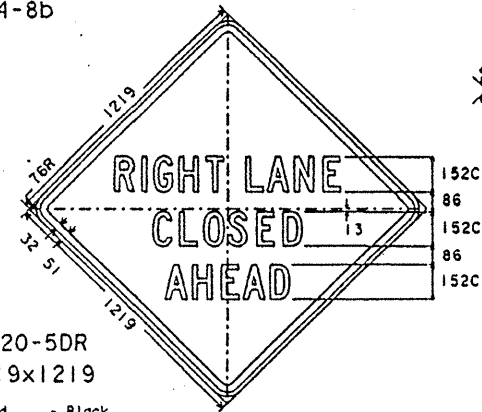


G20-2 Letters - Black Border - Black Background - Orange Refl. 1524 x 610



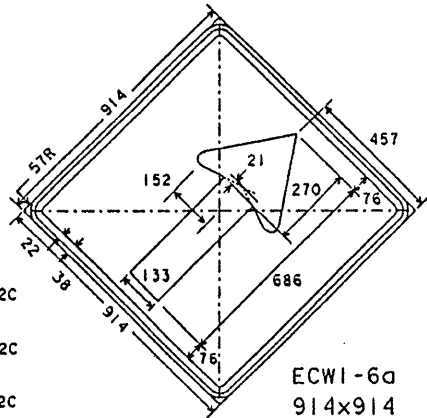
LEFT

R4-8b



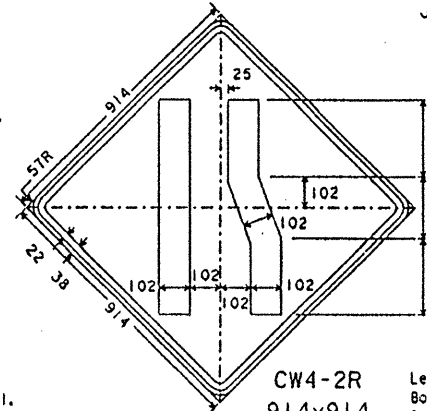
CW20-5DR 1219 x 1219

Legend - Black Border - Black Background - Orange Refl.



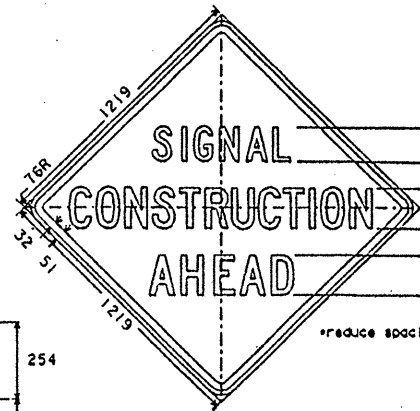
ECWI-6a 914 x 914

Legend - Black Border - Black Background - Orange Refl.



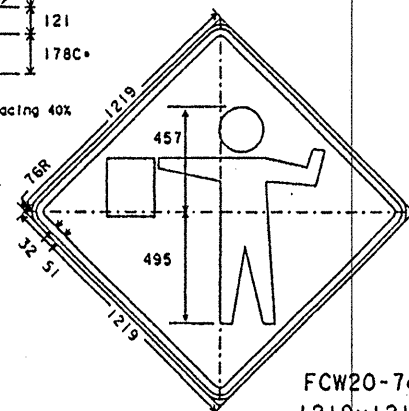
CW4-2R 914 x 914

Legend - Black Border - Black Background - Orange Refl.



CW20SG-1D 1219 x 1219

Letters - Black Border - Black Background - Orange Refl.

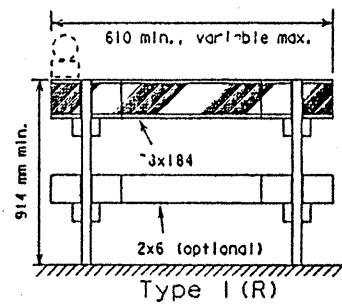


FCW20-7a 1219 x 1219

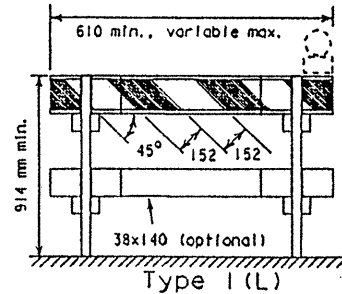
Legend - Black Border - Black Background - Orange Refl.

TYPICAL SIGNS USED IN TRAFFIC SIGNAL CONSTRUCTION AREAS

TYPE I BARRICADES



Type I (R)

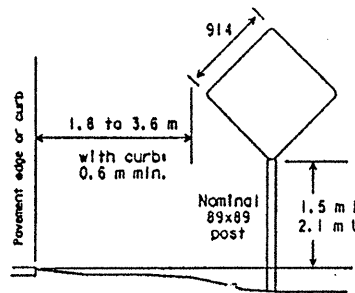


Type I (L)

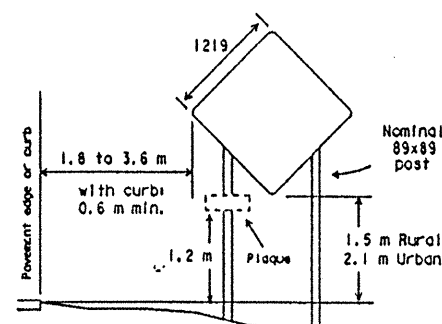
For Type I and II Barricades, both sides of the rolls shall have reflective orange and reflective white striping.

TYPICAL SIGN SUPPORTS

FIXED SUPPORTS



WOOD POST SIGN SUPPORT for 914 x 914 and smaller warning signs, and other signs having an area not exceeding 10 sq. ft.



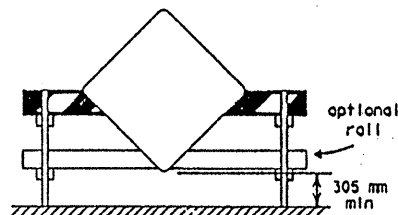
WOOD POST SIGN SUPPORT for 1219 x 1219 warning sign.

Signs erected on fixed supports should be at a minimum height of 1.5 m in rural areas and 2.1 m in urban areas and other rural locations where sight distance obstructions are present. Embedment depth for wood sign supports and post type barricades should be 0.9 m minimum, unless specified elsewhere in the plans. Driveable sign supports may be used and shall be installed in accordance with the manufacturers recommendations.

Approved driveable supports: 1.) Franklin Steel Company - E-Z-Erect 2.) Southwestern Pipe, Inc. - Poz-Loc

PORTABLE SUPPORTS

TYPE I BARRICADE SIGN SUPPORT Barricade Types I, II or III may be used.



Where a sign is to be mounted on a barricade, the barricade length should not be less than the horizontal dimension of the sign. Other types of portable or temporary sign supports may be used with approval of the Engineer.

TEMPORARY SUPPORTS

TYPE II BARRICADE SIGN SUPPORT

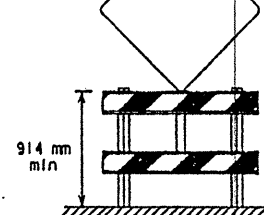


Table with 2 columns: MATERIALS AND TEST SPECIFICATIONS, and corresponding codes (e.g., 0-9-7100, 0-9-8300).

All dimensions are in millimeters unless otherwise noted. The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the '1980 Standard Highway Sign Designs for Texas' manual.

GENERAL: All traffic control devices shall conform with the Texas 'Manual on Uniform Traffic Control Devices for Streets and Highways' (TMUTCD), and shall be maintained as directed by the Engineer.

WARNING LIGHTS: When required by the Engineer the Contractor shall furnish a copy of the warning lights certification. The certification will be by the manufacturer, stating the lights meet the requirements of the latest ITE Purchase Specification for Flashing and Steady-Burn Warning Lights.

REFLECTIVE SHEETING: ReflectORIZED signs shall be constructed of retroreflective sheeting meeting the color and reflectivity requirements of Material Specification, D-9-8300. Day only is defined as a device that is used only during daylight hours.

Type A, B or C sheeting may be used for all, day only, applications. Type A sheeting should be used for all, white background, regulatory signs. Type C sheeting shall be used for all other applications.

The above applications of sheeting grades to different type signs will apply unless otherwise specified in the plans.

- TYPE A - Engineer Grade
TYPE B - Super Engineer Grade
TYPE C - High Specific Intensity

SUPPORTS AND MOUNTING HEIGHT

Regardless of the type of support used, regulatory signs should not be erected at heights less than 1.5 m in rural areas or 2.1 m in urban areas above the pavement surface. Sign heights may be lowered if approved by the Engineer in writing.

Wood sign post supports shall be painted white. Reflective sheeting is not required on back of barricades used as sign supports at locations other than project limits.

Signs may be erected on portable, temporary, or fixed supports, for use on construction projects to warn or guide traffic through and/or around the actual construction area.

PORTABLE - Signs erected on portable supports for use on construction projects normally mean signs which are used during the daytime to warn or guide traffic through and/or around the actual construction area, but at the end of the workday such signs are removed.

Portable supports shall be as shown on this sheet or as approved by the Engineer. The bottom of the sign shall be a minimum of 305 mm above the pavement surface. Signs required for nighttime usage should not normally be mounted on portable supports, except when approved by the Engineer.

TEMPORARY - Where a sign may be required for a few days duration and then is no longer needed, where a sign is moved from location to location every few days, where it is not practical or desirable to provide a fixed mounting, such signs may be erected on a temporary type of support. Temporary supports shall be as shown on this sheet or as approved by the Engineer. Signs erected on temporary supports should be mounted at a minimum height of 914 mm measured to the pavement surface.

FIXED - Signs erected on fixed supports for use on construction projects normally mean signs that are to remain in place for both daytime and nighttime usage to regulate, warn and guide traffic in advance of and within the limits of the project including the crossroad approaches. Signs erected on fixed supports should be at a minimum height of 1.5 meters in rural areas and 2.1 meters in urban areas and other rural locations where sight distance obstructions are present.

SIGN SUPPORT WEIGHTS

Where portable or temporary supports require the use of weights to keep a sign or barricade from turning over, the use of some type of sandbag is recommended. The use of pieces of concrete, rock, iron, steel or other solid objects will not be permitted.

REMOVING OR COVERING

When sign messages may be confusing or no longer apply, the signs shall be removed or completely covered. When signs are covered the material used shall be opaque, such as heavy mil black plastic. Burlap shall not be used to cover signs. Signs shall be removed upon completion of the work.

STANDARD PLANS TEXAS DEPARTMENT OF TRANSPORTATION Traffic Operations Division

TRAFFIC SIGNAL BARRICADES AND SIGNS

SHEET 2 OF 2 WZ (BTS-2) - 94 (M)

Table with project details: DATE (APR 11 1992), COUNTY (Hidalgo), SHEET (21 of 6), PROJECT (NH 96 (791) M), and other identifiers.

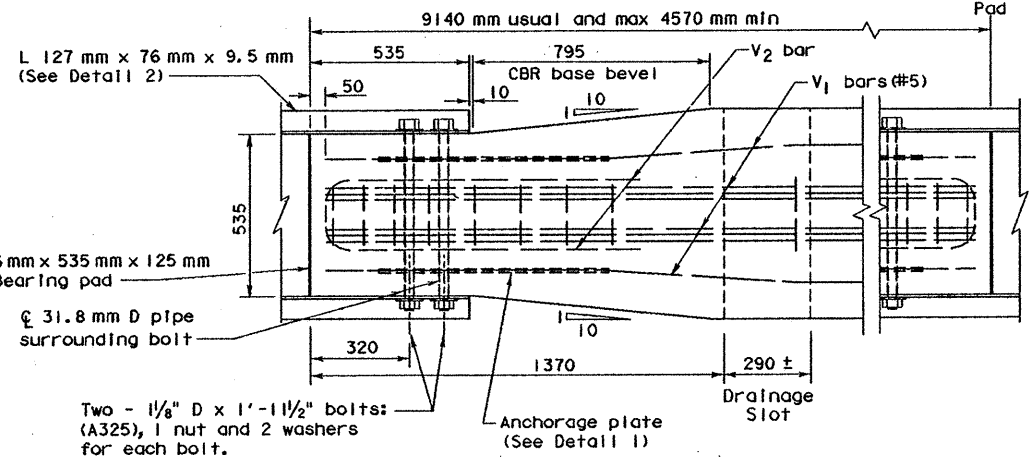
NEW 5/28/96

Vertical list of revision numbers and dates: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

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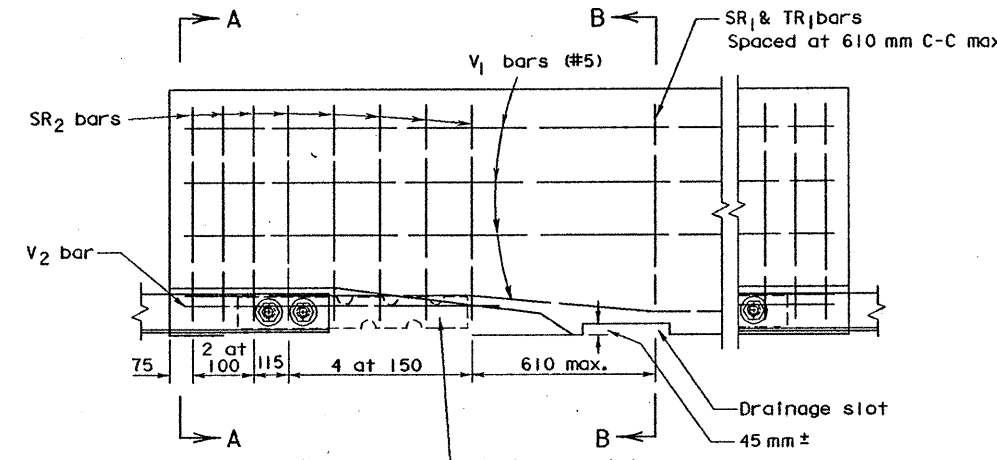
LEVELS DISPLAYED

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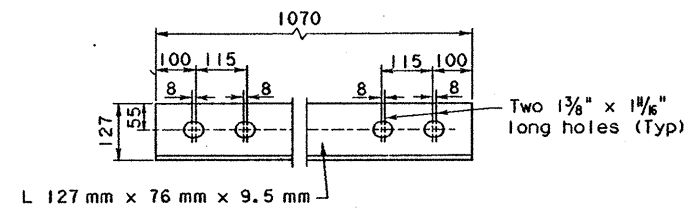


Note: Two - 1 1/8" D x 1'-1 1/2" bolts: (A325), 1 nut and 2 washers for each bolt.
Note: A321 threaded rods may be used.
Note: Approx. 25 mm space between adjoining barrier sections.

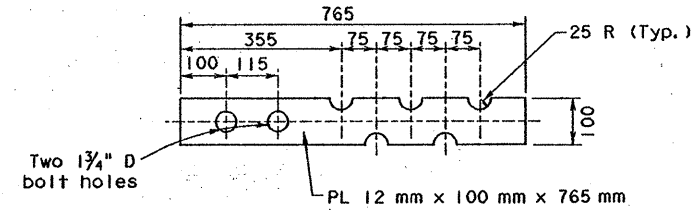
PLAN VIEW
(Typ both ends)



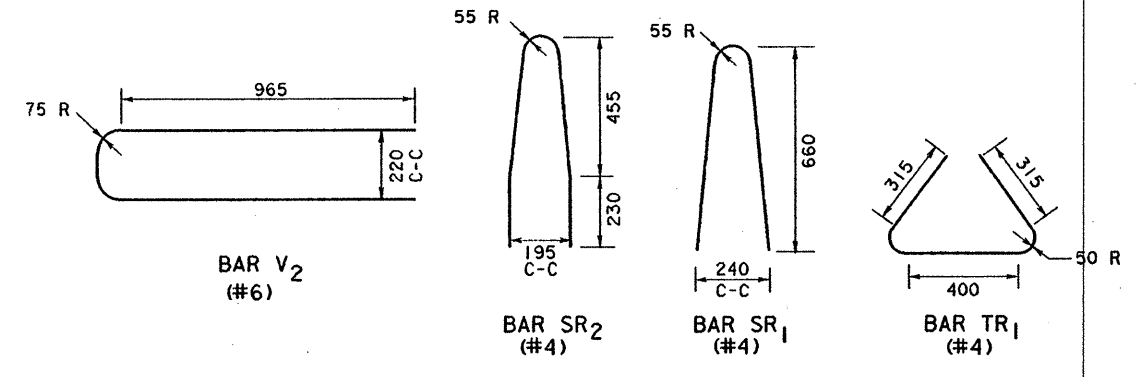
ELEVATION
(Typ both ends)



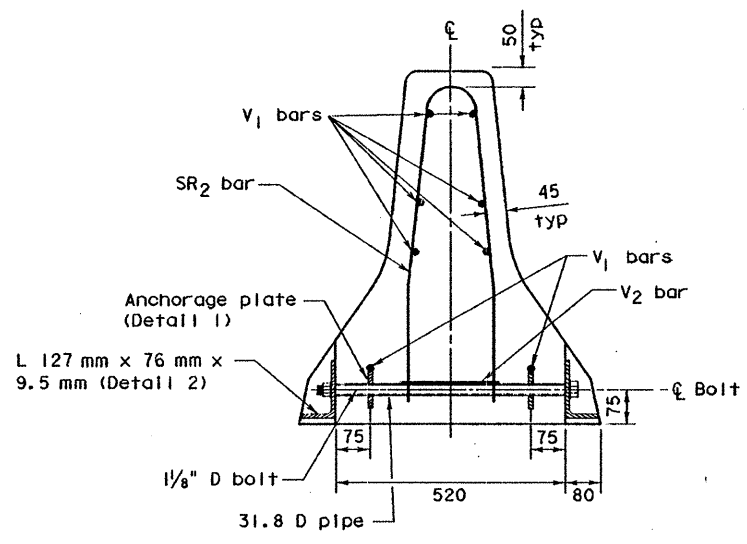
DETAIL 2



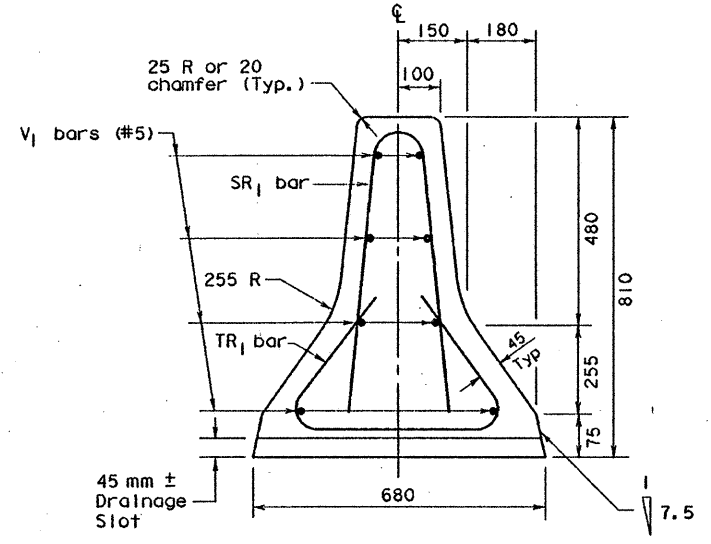
DETAIL 1



REINFORCING STEEL DETAILS



SECTION A-A



SECTION B-B
Symmetrical about centerline

* APPROXIMATE QUANTITIES FOR A 9140 mm SECTION

Concrete	m ³	2.4
Reinforcing steel	kg	170

Approx. weight per meter is 700 kg
*For Contractor's Information only

GENERAL NOTES

- 1. Angle sections and all steel plates shall conform to ASTM designation A36.
- 2. Bearing pads shall be made of an elastomeric material with a hardness of 60 durometer and are to be epoxied to each end of barrier unit after casting.
- 3. All concrete shall be class C or H, unless otherwise specified.
- 4. All longitudinal reinforcing steel shall be Grade 420; all vertical steel shall be Grade 300.
- 5. Each barrier shall be delivered with two splice L 127 mm x 76 mm x 9.5 mm sections and connecting hardware.
- 6. When barrier is to be placed in a curving alignment, the angle sections may be heated at the midpoint and pre-bent.
- 7. All L 127 mm x 76 mm x 9.5 mm angles shall be hot-dip galvanized in conformance to ASTM designation A123. Bolts, nuts and washers shall be hot-dip galvanized to conform to ASTM designation A153.
- 8. Chamfer end edges 20 mm.
- 9. Lifting devices or attachments to barrier sections shall be approved by the Engineer.
- 10. Reinforcing steel, bolts, nuts, washers, angle sections and anchorage plates shall be considered subsidiary to the bid item.
- 11. The barrier should be light in color and should be supplemented by delineation as detailed elsewhere in the plans.

Texas Department of Transportation
Design Division (Roadway)

**CONCRETE BARRIER RAIL
(PORTABLE AND PRECAST)**

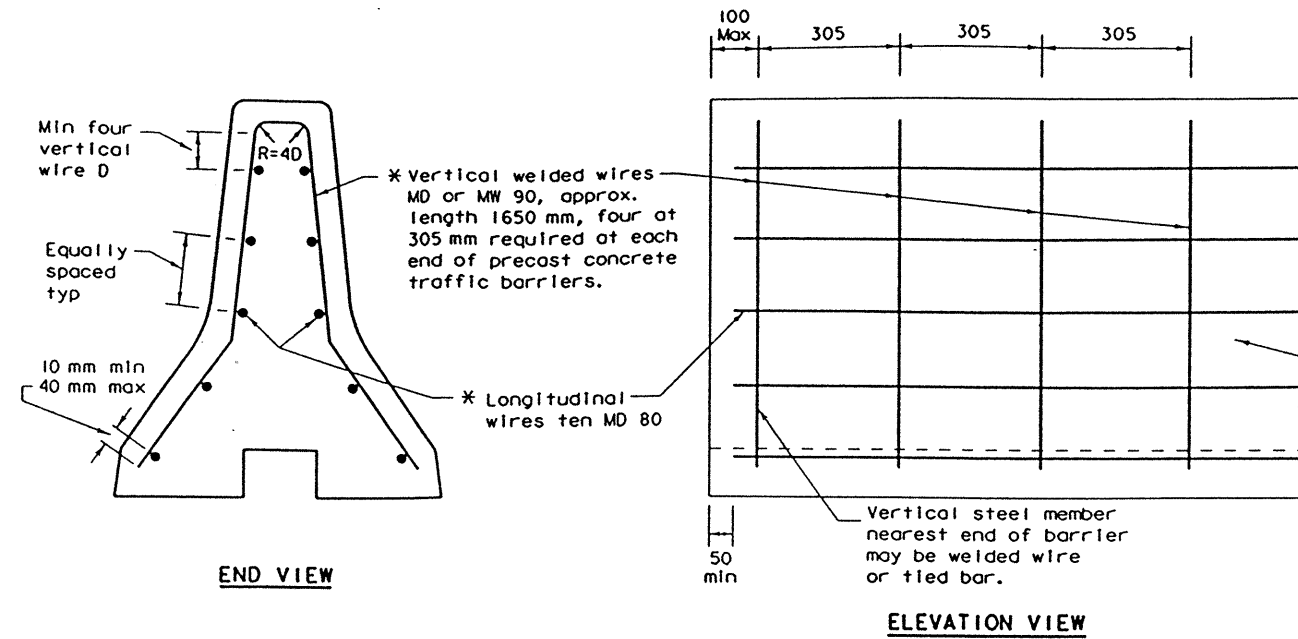
CBR (P&P) - 95 (M)

FILES	CBRPP95M.DGN	DN: TGM	CK: TGM	DW: BGD	CK:	NEO:	
ORIG DATE:	JUNE 1987	DIST	FED REG	FEDERAL AID PROJECT			SHEET
REVIEWS		21	6	NH 96 (M)	M	141	
		COUNTY	CONTROL	SECT	JOB	HIGHWAY	
		Hidalgo	0039	17	110	1583	

R = Radius
D = Diameter
All unit-less dimensions are millimeters

Configurations of welded wire fabric other than as shown in the WWF Detail will be permitted when the conditions tabulated below are satisfied.

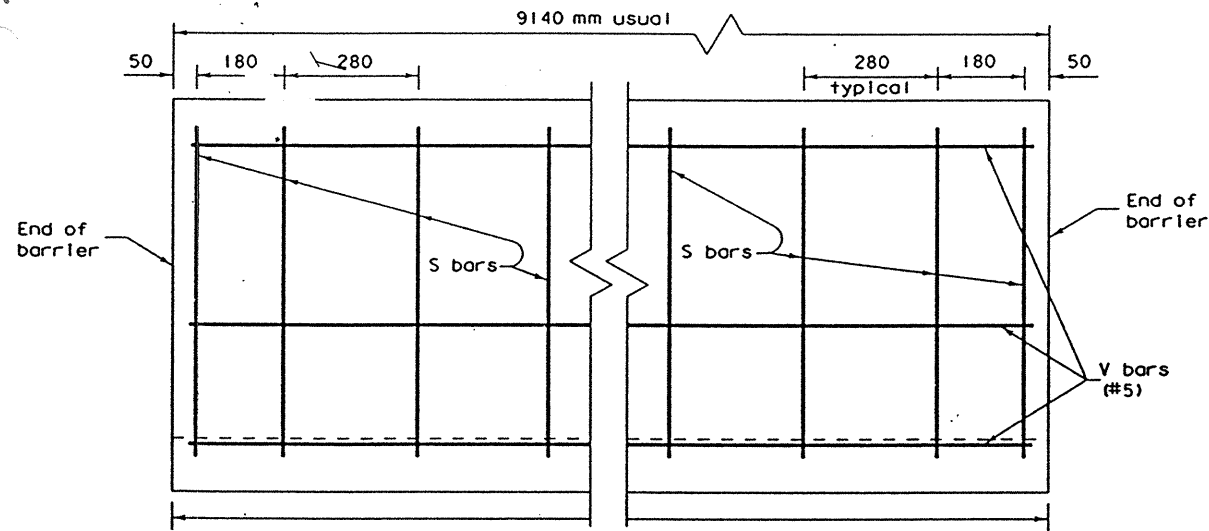
DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
1. Wire type	Deformed	Smooth or Deformed
2. Minimum (cumulative total) wire area	800 sq. mm	80 sq. mm per longitudinal 305 mm (req'd only in end 1015 mm of precast sections)
3. No. of wires Minimum Maximum	6 14	4 at 305 mm CC ea. precast end 12 at 102 mm CC ea. precast end
4. Bending radius	n/a	Minimum radius = two vertical wire diameters
5. Wire placement a. Top wire b. Bottom wire c. Other wires	Not less than 4 nor more than 5 vertical wire dia. from the upper bends in the vertical wires 100 mm (±10 mm) from bottom of barrier Uniformly and symmetrically spaced along faces of barrier	n/a n/a Minimum spacing 102 mm Maximum spacing 305 mm
6. Maximum wire size differential	The smaller wire shall have an area of 40% or more of the larger wire.	



Note: Detail shown is for MD80 longitudinal wires and MD or MW 90 vertical wires. Other size and spacing combinations meeting the tabulated conditions may be used.

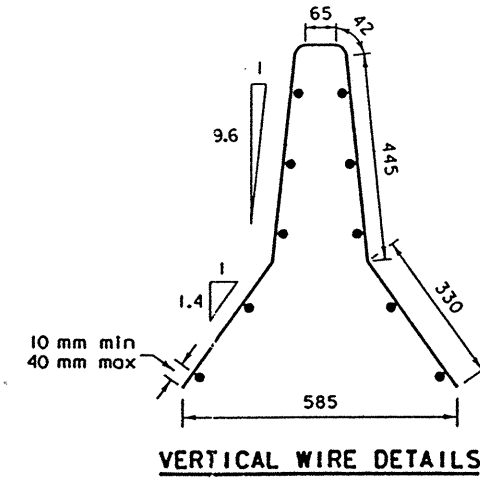
Sufficient welded wire or auxiliary tied bar shall be placed vertically at locations as necessary to provide for cage stability. Minimally, one additional vertical steel reinforcement shall be located at the midpoint (±25 mm) of the barrier.

DETAILS OF WELDED WIRE FABRIC OPTION



ELEVATION OF BARRIER

Additional vertical steel shall be provided as necessary to properly position steel and stabilize rebar cage.



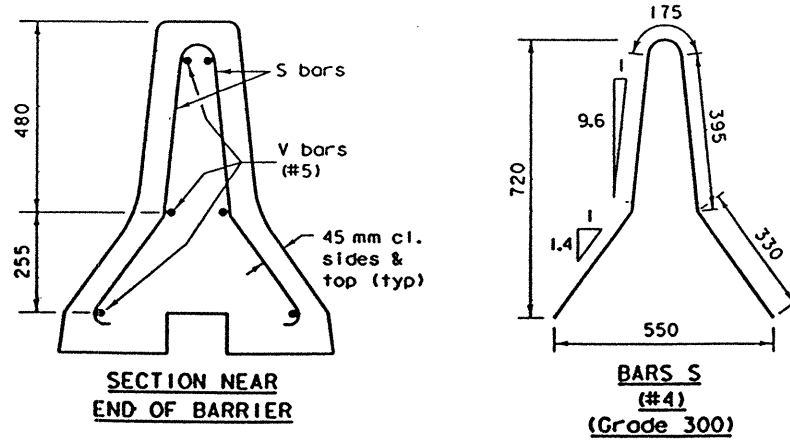
VERTICAL WIRE DETAILS

GENERAL NOTES

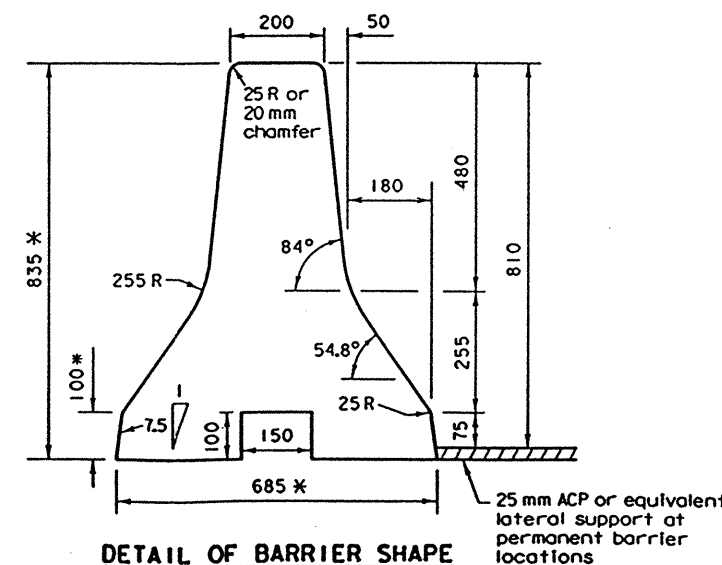
- Where used, rebar reinforcement shall conform to ASTM A-615 (Grade 300).
- Barrier length shall be 9140 mm ± unless otherwise specified in plans.
- All concrete, reinforcement, joint connection systems, grout, and etc. as shown are considered as part of the barrier for payment

# Approximate P.L.M. quantities		
Concrete	m ³	0.3
Rebar	kg	10
Welded wire fabric	kg	7

For Contractor's Information only
Weight of one 9140 mm unit = approximately 6500 kg



DETAILS OF REBAR OPTION



DETAIL OF BARRIER SHAPE

* When 25 mm ACP is not used for lateral support, these dimensions shall be adjusted accordingly.

R = Radius
D = Diameter

All unit-less dimensions are millimeters

Texas Department of Transportation
Design Division (Roadway)

PRECAST CONCRETE
TRAFFIC BARRIER
TYPE 2

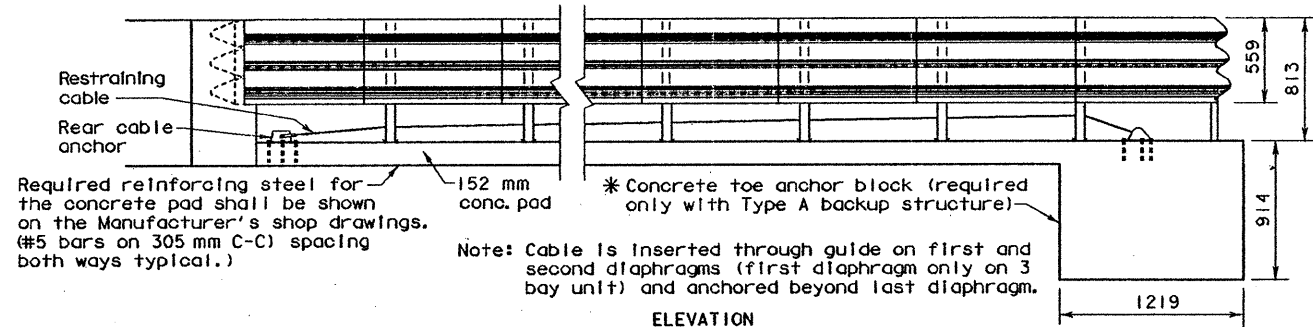
PCTB (2) - 95 (M)

FILE#	PCTB295M.DCN	DN#	GTH	CC#	GTH	DN#	RAR	CC#	TCM	MEG#
ORIG DATE#		DIST	FED REC	FEDERAL AID PROJECT #			SHEET		141	
REVISIONS		COUNTY	6	NH 96(79) M			JOB		1718	
		CONTROL SECT		HIDALGO			JOB		03/17/83	

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LEVELS DISPLAYED

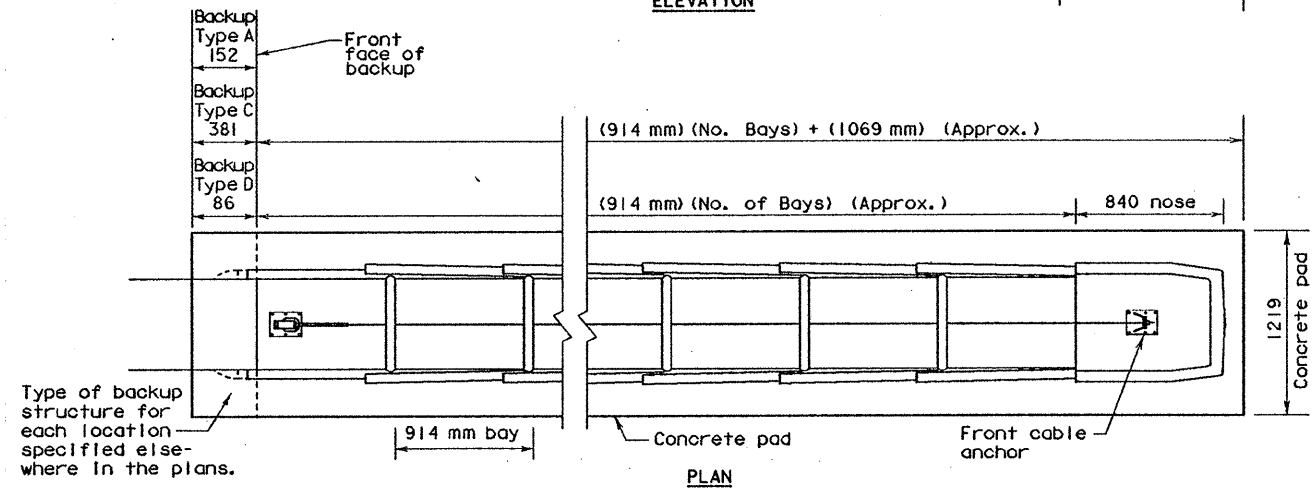


DESIGN SPEED (km/h)	NO. OF BAYS
60 OR LESS	3
70	4
80	5
90	6
100	8
110	10
120	12

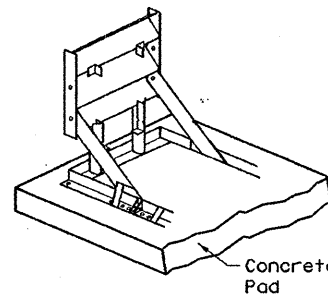
The specified number of bays is based upon 66's maximum deceleration force for impact at a specific design speed. Additional bays may be added if special considerations warrant and site conditions will accommodate additional length.

Permanent G.R.E.A.T. units are available in 610 mm, 762 mm, or 914 mm widths to 12 bays. Unit width, number of bays, and backup type shall be specified elsewhere in the plans.

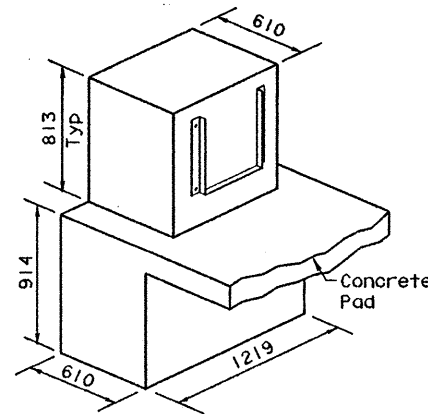
The Type CZ unit is available in 610 mm or 762 mm widths with 3 or 6 bays only.



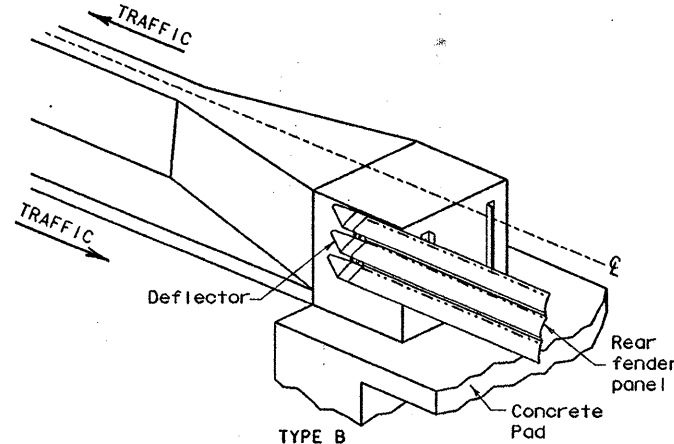
Type of backup structure for each location specified elsewhere in the plans.



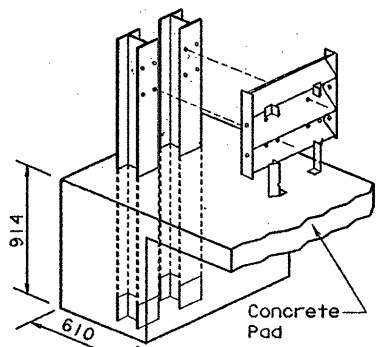
TYPE A
TENSION STRUT



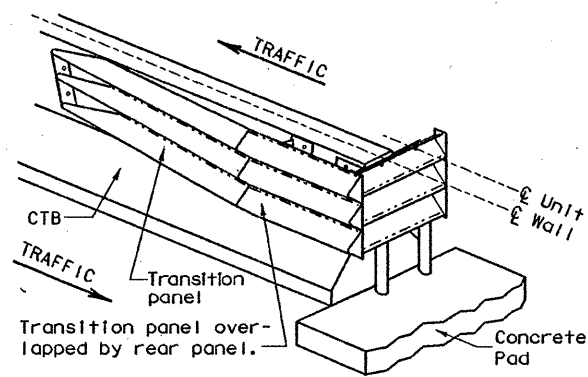
TYPE B
CONCRETE WALL BACKUP



TYPE B
BACKUP OPTION



TYPE C
WIDE FLANGE BACKUP



TYPE D
MEDIAN BARRIER BACKUP

Bi-directional with typical offset shown. Offset plus transition panel will be omitted for uni-directional application. Base width of barrier should be tapered to prevent potential snagging for uni-directional application as directed by the Engineer.

GENERAL NOTES

- Details of components for the GREAT and backups and reinforcing details will be shown on shop drawings furnished to the Engineer.
- Concrete shall be class "S" with a minimum compressive strength of 28 MPa.
- If the cross-slope varies more than 2% over the length of the system, the concrete pad will require levelling. Max. permissible cross-slope is 8%.
- The installation area should be free from all curbs, elevated objects, depressions, or any other features which may affect unit performance.
- The GREAT system shall be parallel with the barrier or ϕ of merging barriers.
- Unit width selected should be adequate to protect an errant vehicle travelling at 15 degrees to the roadway from the face or corner of the potential hazard.
- For all permanent steel backups, (Types A, C, and D) the distance between the face of backup and the barrier wall should not exceed 355 mm in any case.

R = Radius
D = Diameter

All unit-less dimensions are millimeters

BACKUP TYPES

* TYPE A TENSION STRUT: Consists of diagonal struts, connections, and accessories, as detailed by the Manufacturer, located at the rear of the GREAT unit. Typical application is for GREAT units attached to double-face guardrail. When used, a 1219 mm x 1219 mm x 914 mm concrete toe anchor block shall be provided beneath the front portion of the concrete pad, except where the GREAT unit is to be placed on continuously reinforced concrete pavement or bridge deck (178 mm minimum, 28 MPa) or non-reinforced concrete pavement (203 mm minimum, 28 MPa).

TYPE B CAST-IN-PLACE CONCRETE WALL BACKUP: If cast-in-place structures such as bridge parapets, columns, or special walls are used as backup structures, then intermediate walls shall be provided between the structures and the GREAT unit. Intermediate walls shall be equal in height and width to the GREAT unit and reinforced with a steel cage. A cast-in-place transition section from standard CTB or SSCB may be used in lieu of the Type D Backup (Type B Option). Special caution should be exercised in the design and detail of the transition to achieve an unobtrusive taper. Reinforcing steel should transition from the standard barrier section to the standard backup section. Details for the intermediate walls, cast-in-place transition sections from CTB or SSCB to concrete wall backup, or other modifications will be shown elsewhere in the plans. Concrete wall backups may be used on continuously reinforced concrete pavement or bridge deck (178 mm minimum, 28 MPa) or non-reinforced concrete pavement (203 mm minimum, 28 MPa). In those cases, all vertical steel will be doweled (127 mm minimum) into existing decks or located and placed prior to pouring proposed decks as approved by the Engineer.

TYPE C WIDE FLANGE BACKUP: Consists of two 1880 mm WF steel posts erected vertically at rear of GREAT unit. Details for the connections and accessories for the wide flange backup will be provided by the Manufacturer.

TYPE D MEDIAN BARRIER BACKUP: Typical application is for GREAT units 610 mm width attached to standard permanent CTB. The Designer must specify bi-directional applications to provide for placement of transition panels. These pieces are installed with a unit offset to eliminate snagging potential at barrier end of GREAT. Special connection details will be provided by the Manufacturer. The Designer should specify either CTB or SSCB median barrier application to allow the Manufacturer to supply the appropriate transition panel.

TYPE CZ CONSTRUCTION ZONE BACKUP: Consists of a steel base and tension strut backup as integral parts of the GREAT unit. Anchorage requirements are as follows:

FOUNDATION TYPE:	ANCHOR WITH:
Minimum 152 mm concrete	165 mm studs or 458 mm threaded rod and Mfr. epoxy
Minimum 76 mm asphalt over minimum 76 mm concrete	458 mm threaded rod and Mfr. epoxy
Minimum 152 mm asphalt over base	458 mm threaded rod and Mfr. epoxy
Minimum 76 mm asphalt over base	Anchor pins
Minimum 203 mm asphalt on non-base type surface	458 mm threaded rod and Mfr. epoxy

Details for a precast portable concrete pad are available from the Manufacturer. The pad, with proper anchor bolts, may be used as a substitute foundation as approved by the Engineer.

If the unit is anchored to asphalt, it should be relocated to fresh, undisturbed asphalt and re-anchored after each impact to ensure adequate future performance.

A zero clearance between the backup and barrier wall is recommended. In no case should this distance exceed 280 mm.

Texas Department of Transportation
Design Division (Roadway)

GUARD RAIL ENERGY ABSORBING TERMINAL

GREAT-95 (M)

FILE: GREAT95M.DGN	DN: GTH	CK: GTH	DW: BGD	CK: TGM	NEG:
ORIG DATE: MAY 1989	DIST	FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS		21	6	1/8 96 (9/1) M	142
		COUNTY	CONTROL SECT	JOB	HIGHWAY
		Hidalgo	0039	17	118 US83

DISCLAIMER
 The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DNR-LR
 CK-CW
 DW-DN
 CK-MT
 LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 DATE: 01/11/16
 ACC: d58hplc/ur/d580504
 FILE:

GENERAL NOTES

- MINOR OPERATION is defined as those activities that will require traffic control devices to warn of direct traffic during daytime conditions. At the end of each work day, all traffic control devices should be removed from the view of motorists and no unusual conditions of potential hazards should exist that require advance warning.
- MAJOR OPERATION is defined as those activities that may affect traffic during daytime and nighttime conditions. Work activities on high speed, high volume roadways may also be considered a major operation.
- Additional details may be provided in the plans concerning sign size, type of channelization devices, sequence of work details, and required measures needed to control traffic during changes in the sequence of work.
- All distance and spacing shown on the TCP Standards are approximate.
- All traffic control devices used during nighttime shall be reflectorized, illuminated from within or externally illuminated.
- Additional information for fabrication, erection and usage of the following traffic control devices is found in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and Barricade and Construction (BC) Standards:

BARRICADES	BC(2) and BC(3)
CONES	BC(3)
DELINEATION	WZ (BD)
DRUMS	BC(3)
PAVEMENT MARKINGS	BC(8) and BC(9)
SIGNS	WZ (STPM) or TCP(7-1) if applicable BC(4), BC(5), BC(6), BC(7)

SIGNS

- Selection of sign size should be based on Table I.
- Flashing warning lights, channelizing devices and/or flags may be required to call attention to the advance warning signs.
- The words UTILITY, SIGNAL, BRIDGE, LIGHTING, SIGN, STREET or RAMP may be substituted for ROAD in all signs where applicable.
- Advisory speed plaques, if used in conjunction with warning signs, speeds shall be determined in the field by the Engineer.
- Regulatory signs shall be mounted at 1.5 m minimum mounting height for rural areas and 2.1 m minimum mounting height for urban areas.
- Warning signs may be mounted on three types of supports at the minimum mounting heights as stated on BC(4):

Portable	(300 min.)
Temporary	(900 min.)
Fixed	(1.5 m rural, 2.1 m urban)

The illustrated sign spacing (X) and distance message (500 FT, 1000 FT, 1500 FT) are based on 55 mph 85th percentile speed with the X distance rounded to the nearest 5 m. The distance message (1500 FT, 1000 FT, and 500 FT) is rounded to the nearest 500 feet. For slower speeds or minor operations, the word, "AHEAD" may be used in lieu of the distance message.

CHANNELIZING DEVICES

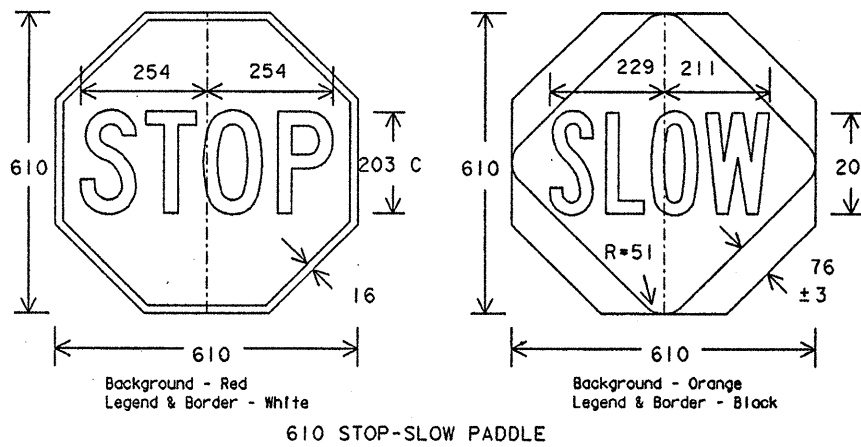
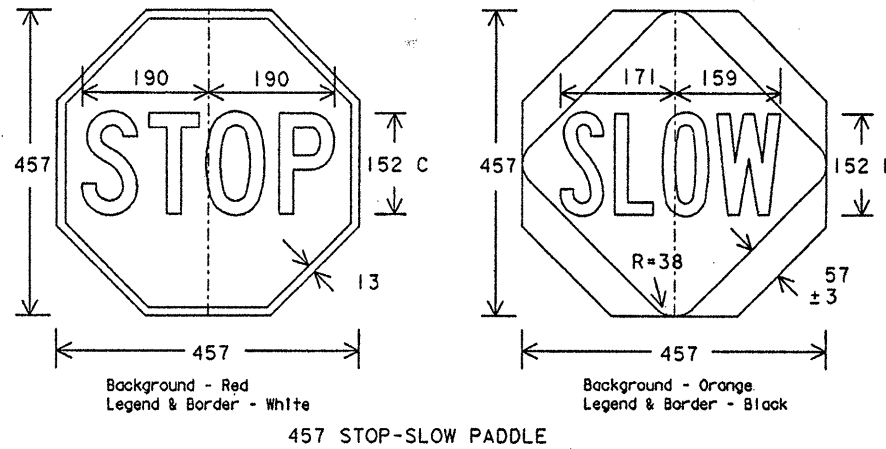
- The maximum spacing between channelizing devices in a taper should be as shown in Table I.
- When channelizing devices are used to direct traffic across existing lane line or edge lines the spacing between channelizing devices shall be reduced by as much as 50%.
- Channelizing device spacing should be reduced when placed on curves, hills or next to potential hazards. At least three channelizing devices should be in view at all times.
- Lane closure taper length is equal to "L". Shoulder closure taper length is equal to "1/2 L".
- Tapers downstream from the work area are optional and when used should be 15 m-30 m long.
- Tapers shall be 15 m minimum length when placed downstream of a flagger, YIELD sign or STOP sign.
- The selection of channelizing devices should be based on degree of hazard associated with the work area. The selection priority of channelizing devices, in the order of increasing hazard recognition are:

- portable mounted delineators
- 700 cones
- 900 or more tubular cones
- portable mounted vertical panels
- 900 cones
- Type I Barricade
- Type II Barricade
- plastic drums
- MBGF, fixed or barrel mounted
- concrete traffic barrier

- Flashing arrow panels used on two-way, two-lane roadways should flash in the caution mode.

FLAGGER CONTROL

- Flagger shall wear orange safety vests. Flaggers should wear safety hats to provide a professional image to the motorist and to protect the head from flying objects.
- STOP/SLOW paddles shall be used as the primary method to control traffic by flaggers. The STOP/SLOW paddle minimum size is 457x457. Paddles may be attached to a 1.5 m staff for easier handling. The larger size (610x610) should be attached to a 1.5 m staff.
- Flags are only used to control traffic for emergency situations and the STOP/SLOW paddles are not available.
- Flaggers may carry hand held air horns to alert workers of an emergency condition.
- For one lane two-way traffic control, one or more flaggers should be used where traffic density, road conditions or motorists' sight distance justify their use. If flaggers are used, the taper should be reduced to 15 m minimum. When flaggers are used to control traffic, the FLAGGER symbol sign (FCW20-7a) shall be used. When flaggers are used, the BE PREPARED TO STOP sign (FCW21-8) should be used. Proper spacing between signs should be maintained.
- When flaggers are used to draw attention to traffic control devices, the FLAGGER symbol sign should be used. Proper spacing should be maintained.
- When more than one flagger is used, a chief flagger should be assigned the responsibility of making decisions concerning traffic control.



WORKER SAFETY

- Workers exposed to traffic should wear orange safety vests.
- Work vehicles within 10 m of the traveled way should have strobe lights or rotating beacons in use.
- When work vehicles are used to shadow the work area, the vehicle should be parked 10 m or more from the work area, transmission in gear (or set in PARK), emergency brake set on, and front wheels turned away from work area.
- Inactive work vehicles, including workers' private vehicles, should be parked away from the work area and as close to the right-of-way line as possible.

Table I
TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

Roadway Classification	Posted Speed	Sign Spacing	Major Construction Or Major Maintenance Approach Warning Signs		Minor Construction Or Minor Maintenance Approach Warning Signs		Other Warning Signs
			Standard m	Minimum m	Standard m	Minimum m	
Conven.	30	25	1219x1219	914x914	762x762 or 914x914	610x610 or 762x762	762x762 or 914x914
	35	40					
	40	50					
	45	75					
	50	100					
Exp or Frwy	55	150 ²	Use Standard Size	Use Standard Size	1219x1219*	1219x1219*	1219x1219*
	65	225 ³					

▲ Minimum distance from work area to First Advance Warning sign and/or distance between each additional sign.

* Smaller sign sizes may be used where sign designs have not been included in the "Standard Highway Sign Design for Texas" publication.

General Notes:

- Special or larger size signs may be used as may be necessary.
- Distance between signs should be increased as required to have 450 m advance warning.
- Distance between signs should be increased as required to have 800 m or more advance warning.
- For use only on secondary roads or city streets where speeds are low.
- Only diamond shaped warning signs are indicated.
- See sign listing in TMUTCD, Appendix A for complete list of all available sign design sizes.
- Where two sizes are listed, see sign listing in TMUTCD, Appendix A for proper size.

All dimensions are in millimeters unless otherwise noted.

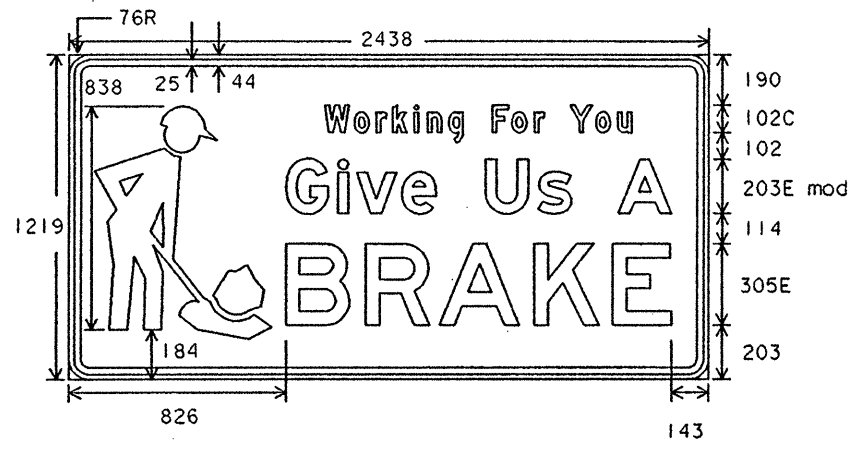
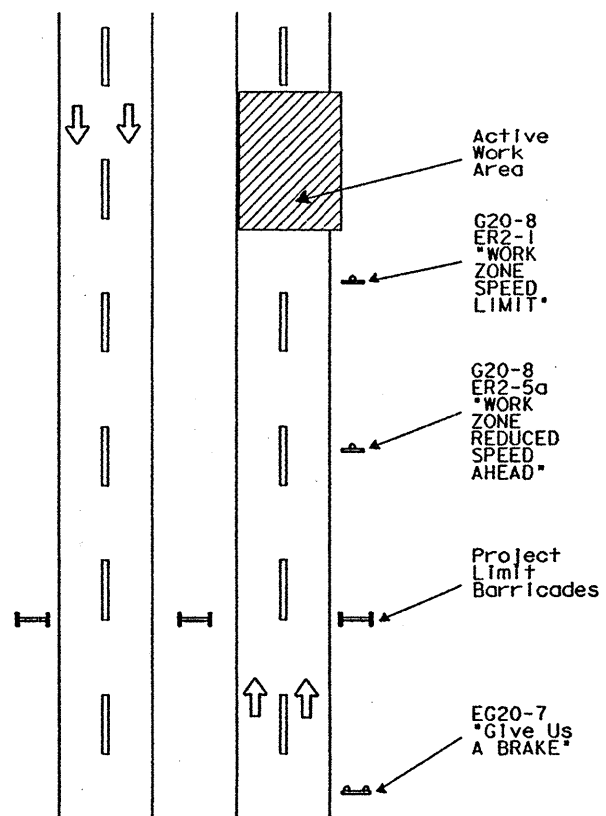
The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

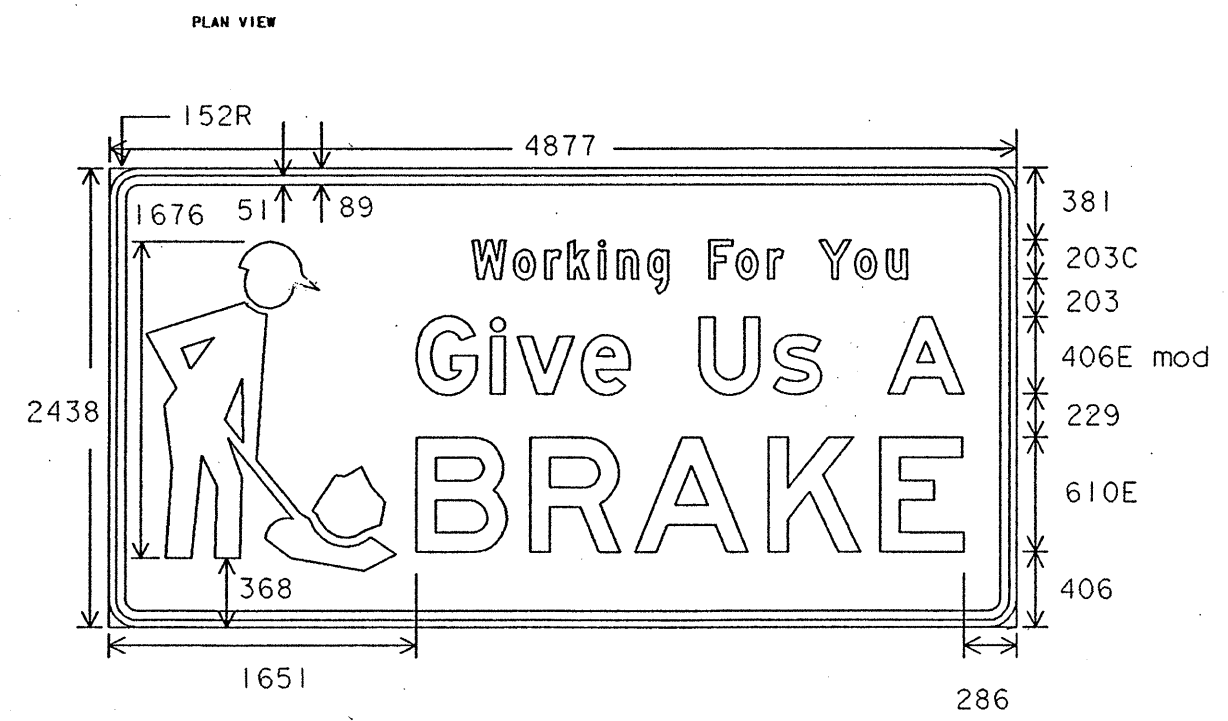
TCP (NOTES) - 95 (M)

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COUNTY		SECTION		JOB	
W-1042-C-6		2039117		1118	



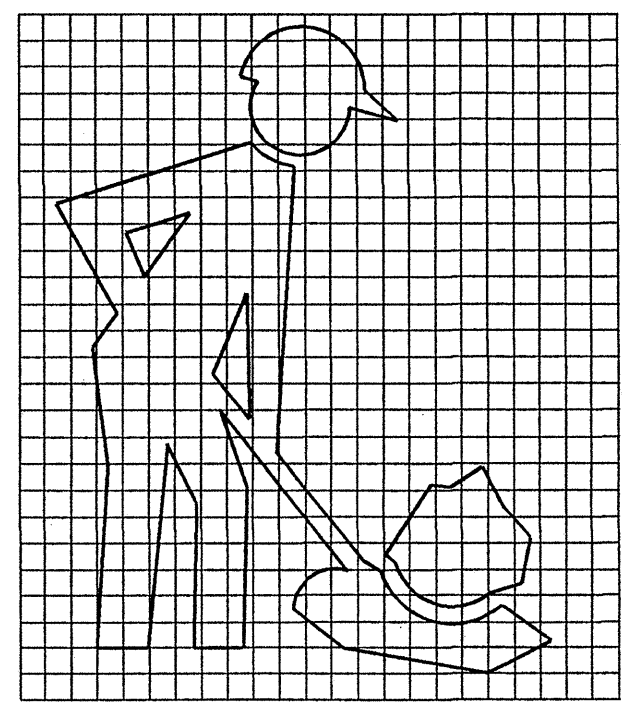
Letters - Black
 Symbol - Black
 Border - Black
 Background - Orange Refl.

G20-7



Letters - Black
 Symbol - Black
 Border - Black
 Background - Orange Refl.

EG20-7



SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN TEXT	SIGN DIMENSIONS (METERS)	REFLECTIVE SHEETING	PLY TY A (50 METERS)	GALVANIZED STRUCT STEEL		DRILLED SHAFT 610 mm (Lm)	
						Size	(Lm)		
Orange	EG20-7	Give Us A BRAKE	4.88 x 2.44	Type C	11.89	W8x18	4.88	5.18	3.65
Orange	G20-7	Give Us A BRAKE	2.44 x 1.22	Type C	2.97	S4x7.7	3.66	3.96	2.13*

* 305 mm Non-reinforced Concrete Footing (Lm)

SUMMARY OF SMALL SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN TEXT	SIGN DIMENSIONS	REFLECTIVE SHEETING	PLY TY A (50 METERS)
Orange	G20-8	WORK ZONE	914 x 610	Type C	0.56
White	ER2-1	SPEED LIMIT	914 x 1219	Type A	1.11
White	ER2-5a	REDUCED SPEED AHEAD	914 x 1219	Type A	1.11

SPECIFICATION REFERENCE TABLE
 MATERIALS AND TESTS DIVISION SPECIFICATIONS

PLYWOOD SIGN BLANKS	D-9-7100
ALUMINUM SIGN BLANKS	D-9-7110
FLAT SURFACE REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)	D-9-8300
FLAT SURFACE REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

GENERAL NOTES:

- See SMD(2-1) (M), (2-2) (M) and (2-3) (M) for additional sign support details.
- Sign locations shall be approved by the Engineer.
- For projects more than two miles in length, Give Us a BRAKE (G20-7) and WORK ZONE SPEED LIMIT (G20-8 AND ER2-1) signs should be repeated halfway through the project. Projects less than two miles generally do not require repeated Give Us a BRAKE signs.
- Signs are illustrated for one direction of travel.
- G20-7 and EG20-7 signs detailed on this sheet shall be paid for under the following bid items:

- Item 634 Plywood Signs Type A
- Item 647 Large Roadside Sign Supports
- Item 656 Foundations for Signs, Traffic Signals and Roadway Illumination Assemblies

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

WORK ZONE
 "GIVE US A BRAKE"
 SIGNS

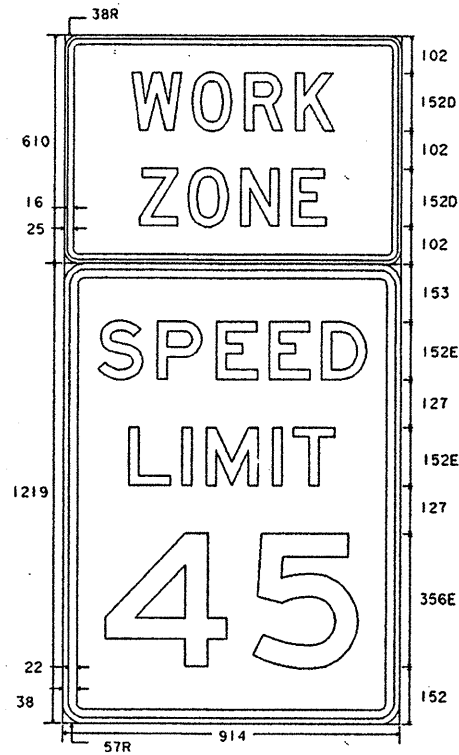
SHEET 1 OF 2 WZ(BRK-1)-95A(M)

DATE	BY	APP'D	REV	DESCRIPTION
12-95			21	REVISIONS

STATE	FEDERAL	FEDERAL #18 PROJECT	SHEET
21	6	NH 96(79)M	1428

COUNTY	SECTION	JOB	DATE
HIDALGO	0039	17	118 US 83

NEW 5/28/96

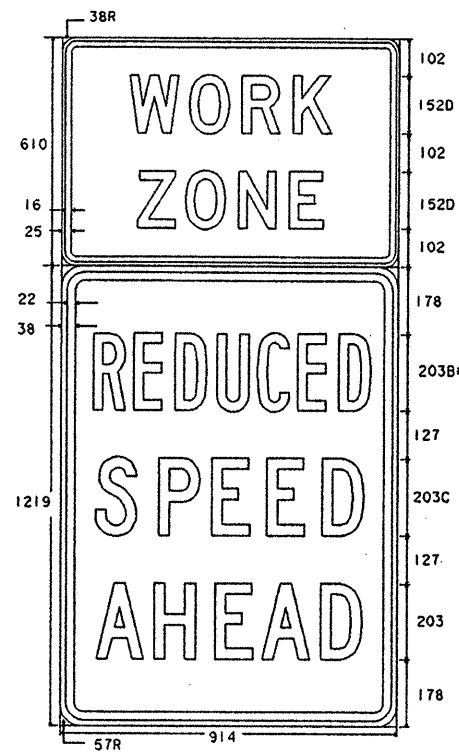


Letters - Black
Background - Orange Refl.

G20-8

Letters - Black
Background - White Refl.

ER2-1



Letters - Black
Background - Orange Refl.

G20-8

Letters - Black
Background - White Refl.

ER2-5a

* spacing reduced 40%

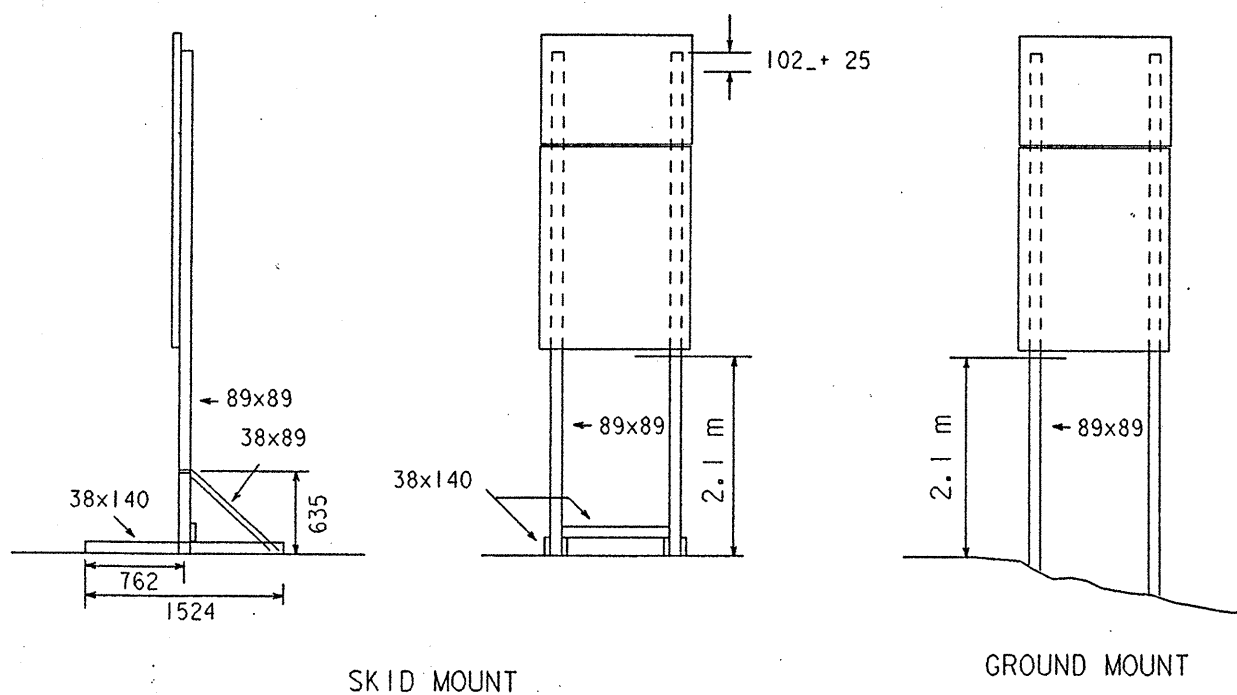
SUMMARY OF SMALL SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN TEXT	SIGN DIMENSIONS	REFLECTIVE SHEETING	PLY TY A (50 METERS)
Orange	G20-8	WORK ZONE	914 x 610	Type c	.56
White	ER2-1	SPEED LIMIT	914 x 1219	Type A	1.11
White	ER2-5a	REDUCED SPEED AHEAD	914 x 1219	Type A	1.11

SPECIFICATION REFERENCE TABLE
MATERIALS AND TESTS DIVISION SPECIFICATIONS

PLYWOOD SIGN BLANKS	D-9-7100
FLAT SURFACE REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)	D-9-8300
FLAT SURFACE REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

FIXED SUPPORTS REQUIRED FOR ER2-1 AND ER2-5a



GENERAL NOTES:

- See BC(4) (M) for additional sign support details.
- The WORK ZONE (G20-8) sign is to be installed in combination with a SPEED LIMIT (ER2-1) sign or REDUCED SPEED AHEAD (ER2-5a) sign.
- The WORK ZONE (G20-8) and SPEED LIMIT (ER2-1) signs shall be installed a minimum distance of 335 m from the active work zone.
- The WORK ZONE (G20-8) and REDUCED SPEED AHEAD (ER2-5a) signs shall be installed a minimum distance of 488 m from the WORK ZONE SPEED LIMIT signs.
- The WORK ZONE REDUCED SPEED AHEAD and WORK ZONE SPEED LIMIT signs should only be visible to motorists when workers are actually present in the work area.
- Speed limits shall be regulatory and approved by the Transportation Commission.
- G20-8, ER2-1 and ER2-5a signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."

All dimensions are in millimeters unless otherwise noted.

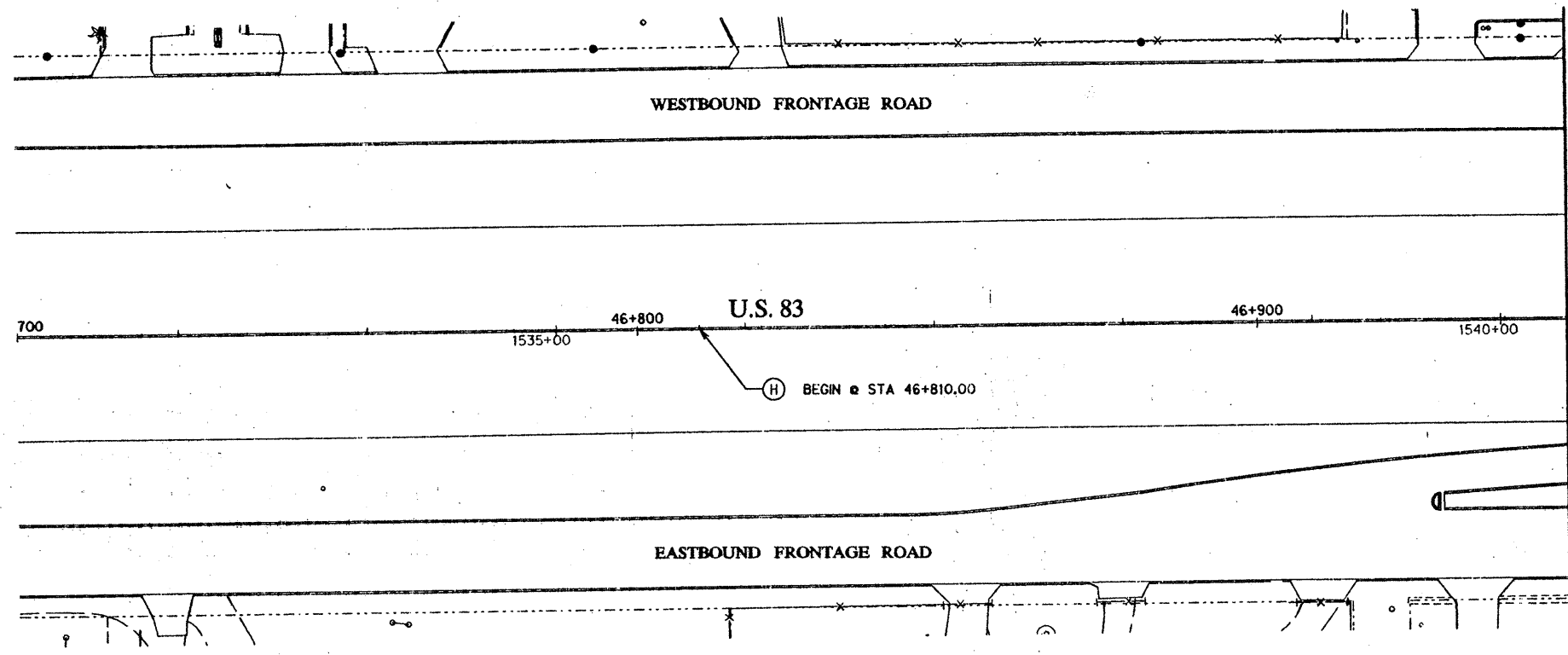
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

WORK ZONE
"GIVE US A BRAKE"
SIGNS

SHEET 2 OF 2 WZ (BRK-2) -95A (M)

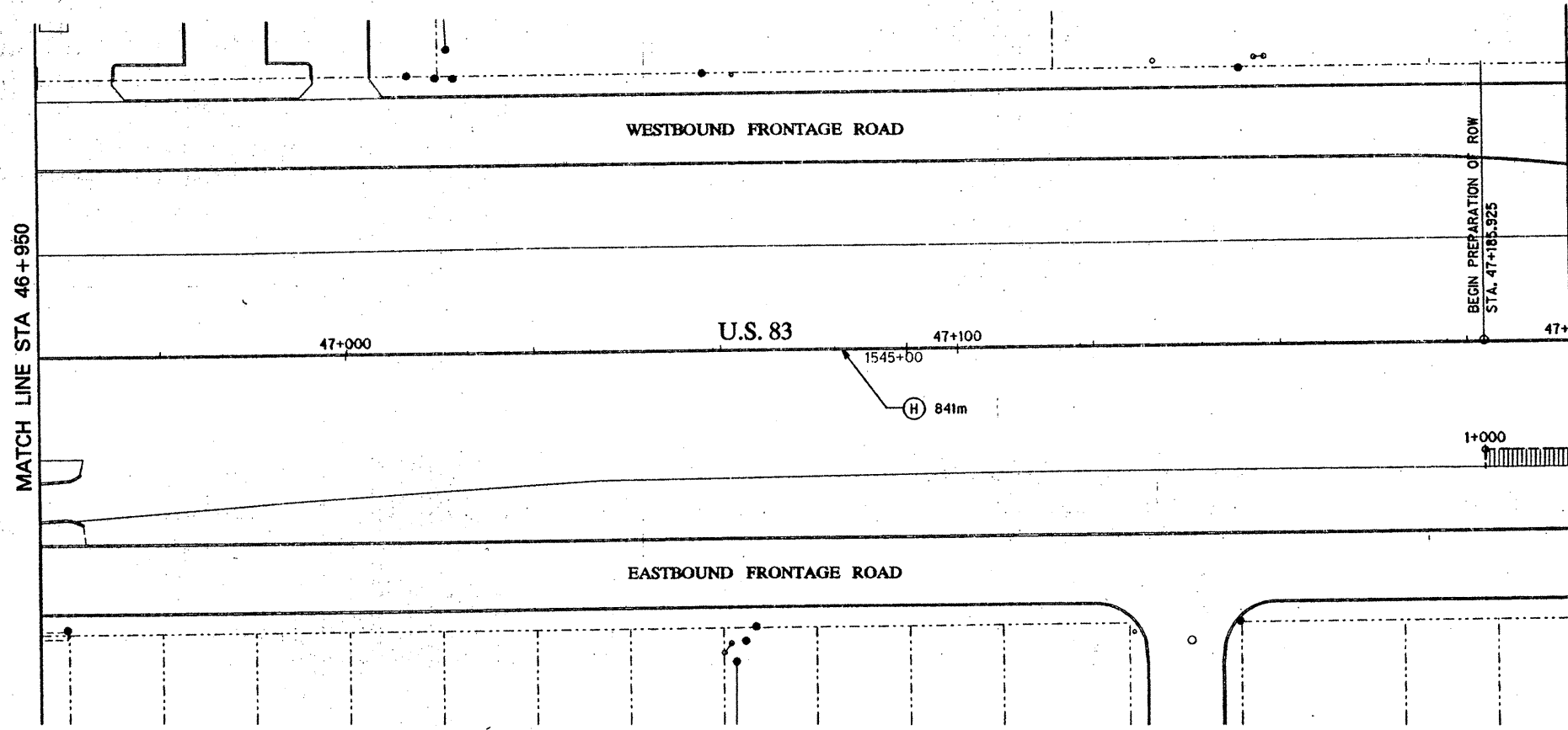
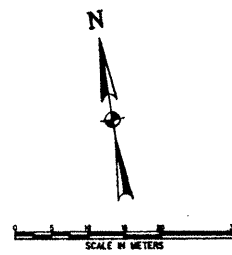
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12-95	21	6	NH 96 (791) M	142C		
COUNTY:	HIDALGO		SECTION:	17	JOB:	118
			HIGHWAY:	US 83		

NEW 5/28/96



REMOVAL LEGEND:

- 533 mm PAVEMENT (76 mm A.C.P. OVER 457 mm FLEX BASE)
- 584 mm PAVEMENT (REFER TO EXISTING TYPICAL SECTION ON REMOVAL ITEMS DETAILS)
- 432 mm PAVEMENT (REFER TO EXISTING TYPICAL SECTION ON REMOVAL ITEMS DETAILS)
- 241 mm PAVEMENT (38 mm A.C.P. OVER 203 mm FLEX BASE)
- 102 mm CONCRETE SIDEWALK REMOVAL
- 102 mm CONCRETE RIPRAP MEDIAN REMOVAL
- 102 mm CONCRETE RIPRAP REMOVAL
- 30 mm A.C.P. REMOVAL
- BRICK PAYER REMOVAL AND SALVAGE
- SAW CUT LINE
- TYPE A CONCRETE CURB REMOVAL
- TYPE B CONCRETE CURB REMOVAL
- TYPE C CONCRETE CURB REMOVAL
- TYPE D CONCRETE CURB REMOVAL
- TYPE A CONCRETE CURB & GUTTER REMOVAL
- TYPE B CONCRETE CURB & GUTTER REMOVAL
- METAL BEAM GUARD FENCE REMOVAL
- TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- CONCRETE DRAIN REMOVAL
- SINGLE GUARD RAIL TERMINAL REMOVAL
- PALM TREE TO BE RELOCATED (0 EA.)
- GUARD POST REMOVAL
- C.T.B. REMOVAL (PRE-CAST)
- TERMINAL-ANCHOR SECTION REMOVAL



GENERAL NOTES:

REMOVAL ITEMS

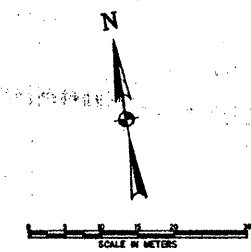
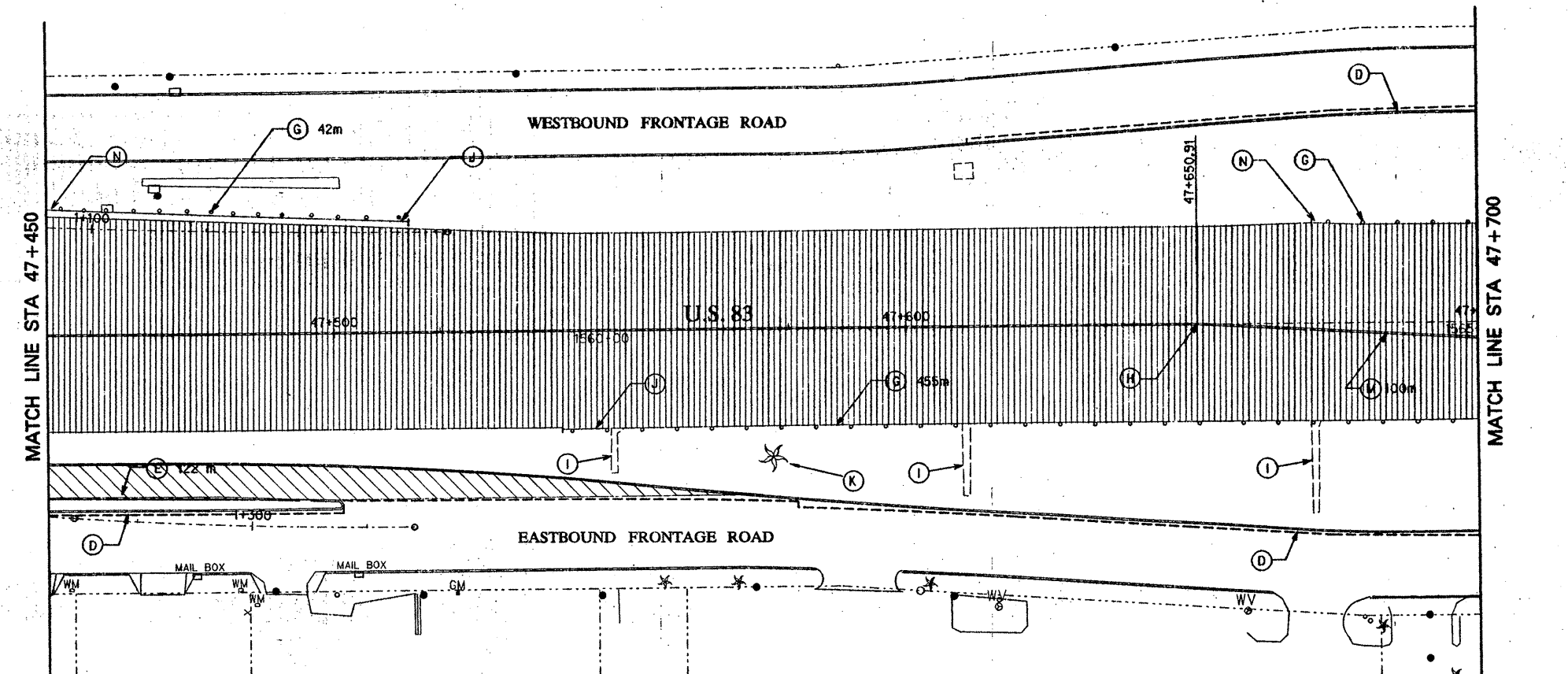
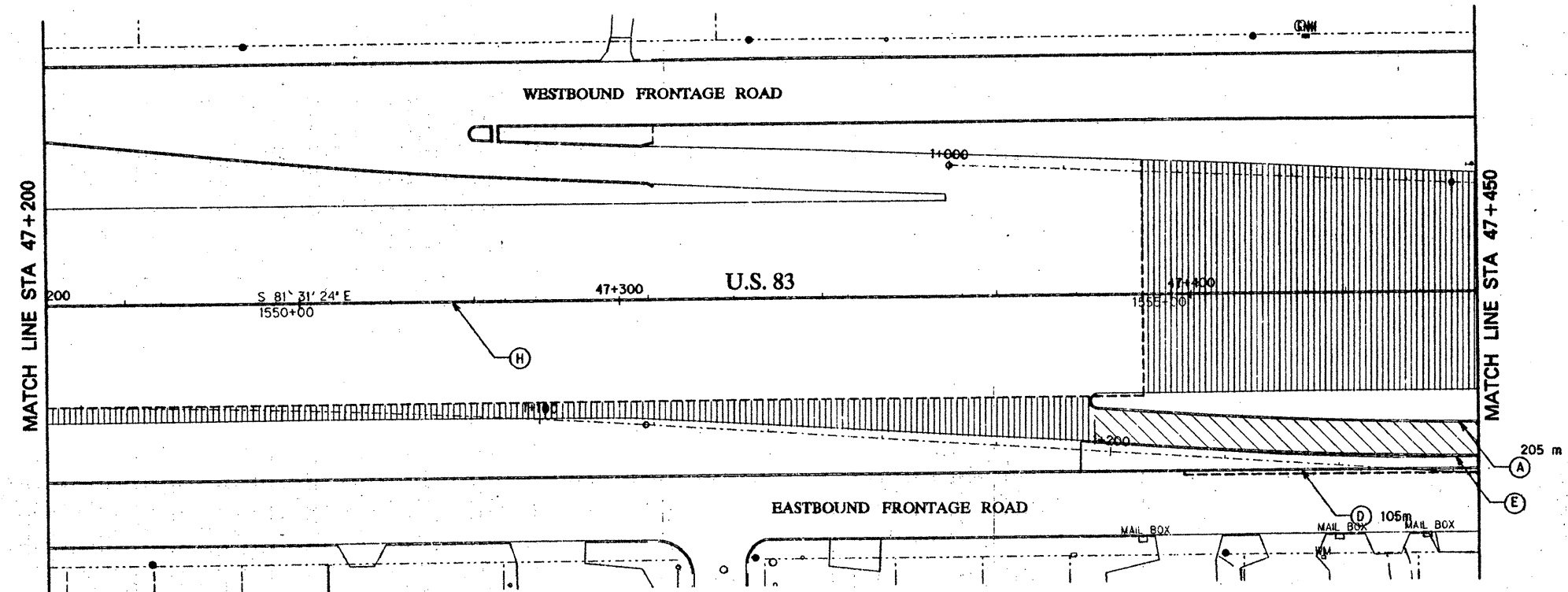
1. FOR REMOVAL & MODIFICATION OF BRIDGES SEE BRIDGE PLANS.
2. FOR REMOVAL & MODIFICATION OF DRAINAGE FACILITIES SEE DRAINAGE PLANS.
3. FOR REMOVAL & MODIFICATION OF SIGNAGE SEE SIGNING PLANS.
4. SALVAGE & STOCKPILE EXISTING BRICK PAVERS FOR LATER REUSE.
5. SALVAGE & REPLANT EXISTING PALM TREES WITHIN THE PROJECT LIMITS AT LOCATIONS DETERMINED BY THE ENGINEER.
6. REMOVAL OF OLEANDERS & OTHER PLANTS SHALL BE SUBSIDIARY TO R.O.W. PREPARATION.
7. EXISTING FACILITIES SHOWN ON THESE DRAWINGS ARE BASED ON INFORMATION AVAILABLE AT THE TIME THESE PLANS WERE DEVELOPED. EXISTING FACILITIES ARE SHOWN SCHEMATICALLY FOR CONTRACTOR'S GUIDANCE ONLY. ALL EXISTING FACILITIES MAY NOT BE SHOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND LOCATE ALL EXISTING FACILITIES WHICH REQUIRE RELOCATION, ADJUSTMENT OR REMOVAL. THE CONTRACTOR SHALL NOTIFY TxDOT OF ANY EXISTING FACILITIES CONFLICTING WITH THE PROPOSED CONSTRUCTION AND OBTAIN DIRECTION FOR THE PROPER DISPOSITION OF SAID CONFLICTING EXISTING FACILITIES FROM TxDOT AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY MEASURES TO PROTECT ALL EXISTING FACILITIES WHICH MAY BE ENCOUNTERED THAT DO NOT REQUIRE ULTIMATE REMOVAL. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR DAMAGES CAUSED BY HIS/HER CONSTRUCTION OPERATIONS TO EXISTING FACILITIES NOT REQUIRING ULTIMATE REMOVAL.



Gregory A. Jacobs 4-15-96
DATE

1
9

REMOVAL ITEMS							
STA 46+700 TO STA 47+200							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS							
REGION	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
8	CADD			TEXAS	47152	142	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	POST NO.	HIGHWAY NO.
APRIL 1996	620FSM01	1:800	21	HIDALGO	00 20	17	198 U.S. 83



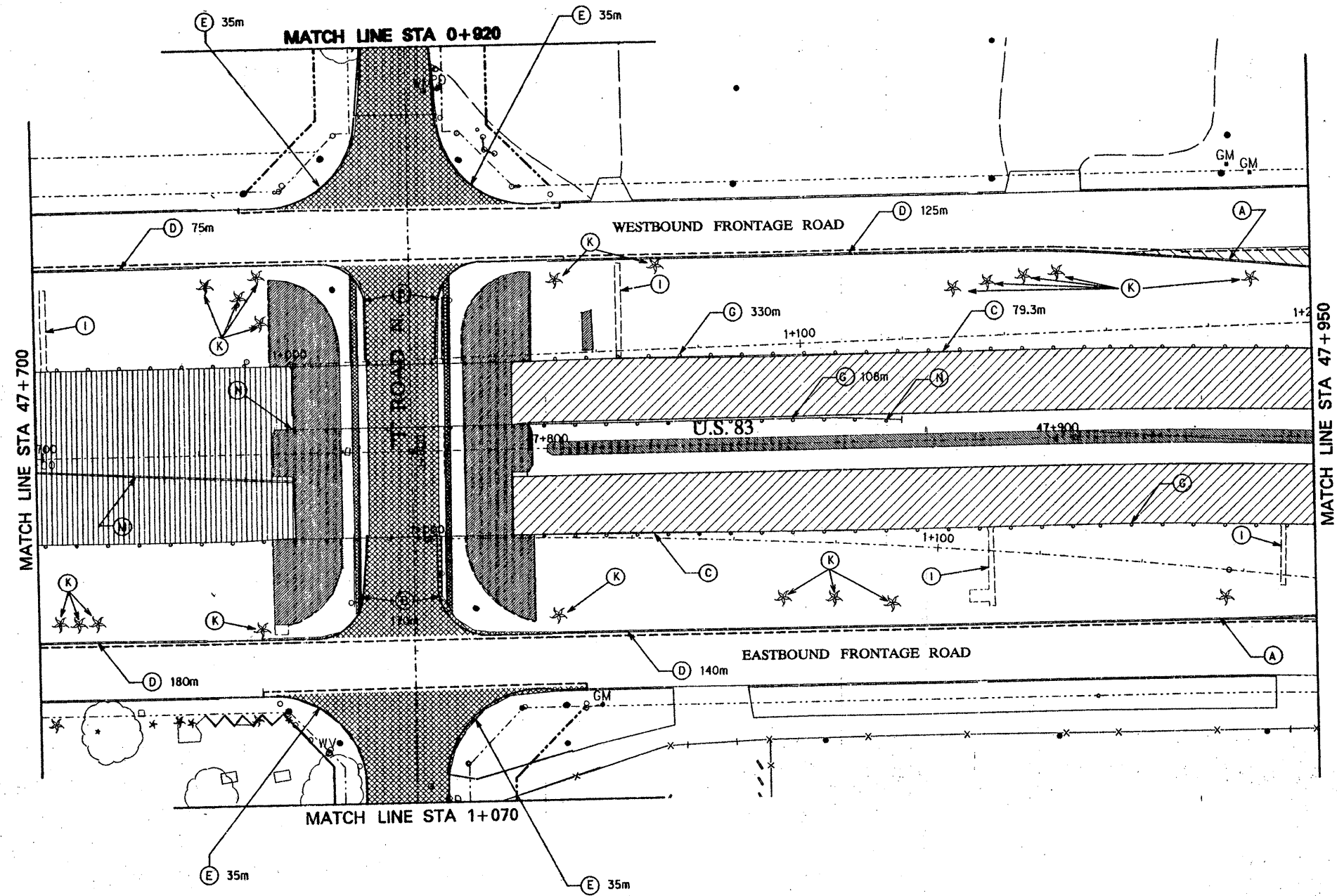
REMOVAL LEGEND:

- 533 mm PAVEMENT (76 mm A.C.P. OVER 457 mm FLEX BASE)
- 584 mm PAVEMENT (REFER TO EXISTING TYPICAL SECTION ON REMOVAL ITEMS DETAILS)
- 432 mm PAVEMENT (REFER TO EXISTING TYPICAL SECTION ON REMOVAL ITEMS DETAILS)
- 241 mm PAVEMENT (38 mm A.C.P. OVER 203 mm FLEX BASE)
- 102 mm CONCRETE SIDEWALK REMOVAL
- 102 mm CONCRETE RIPRAP MEDIAN REMOVAL
- 102 mm CONCRETE RIPRAP REMOVAL
- 30 mm A.C.P. REMOVAL
- BRICK PAVEMENT REMOVAL AND SALVAGE
- SAW CUT LINE
- TYPE A CONCRETE CURB REMOVAL
- TYPE B CONCRETE CURB REMOVAL
- TYPE C CONCRETE CURB REMOVAL
- TYPE D CONCRETE CURB REMOVAL
- TYPE A CONCRETE CURB & GUTTER REMOVAL
- TYPE B CONCRETE CURB & GUTTER REMOVAL
- METAL BEAM GUARD FENCE REMOVAL
- TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- CONCRETE DRAIN REMOVAL
- SINGLE GUARD RAIL TERMINAL REMOVAL
- PALM TREE TO BE RELOCATED (1 EA.)
- GUARD POST REMOVAL
- C.T.B. REMOVAL (PRE-CAST)
- TERMINAL-ANCHOR SECTION REMOVAL



Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

REMOVAL ITEMS									
STA 47+200 TO STA 47+700									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
BUSINESS ARCHITECTS ENGINEERS PLANNERS SURVEYORS									
DESIGN	DRAWN	NOTES	FUEL	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
DATE	FILE	SCALE	STATE	COUNTY	FEDERAL AID PROJECT NO.	NO.	NO.	NO.	NO.
APRIL 2002	KORPENTZ	1:800	TX	HIDALGO	020	17	88	U.S. 83	



REMOVAL LEGEND:

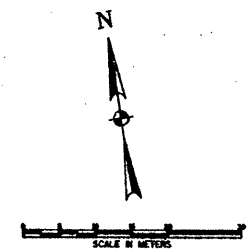
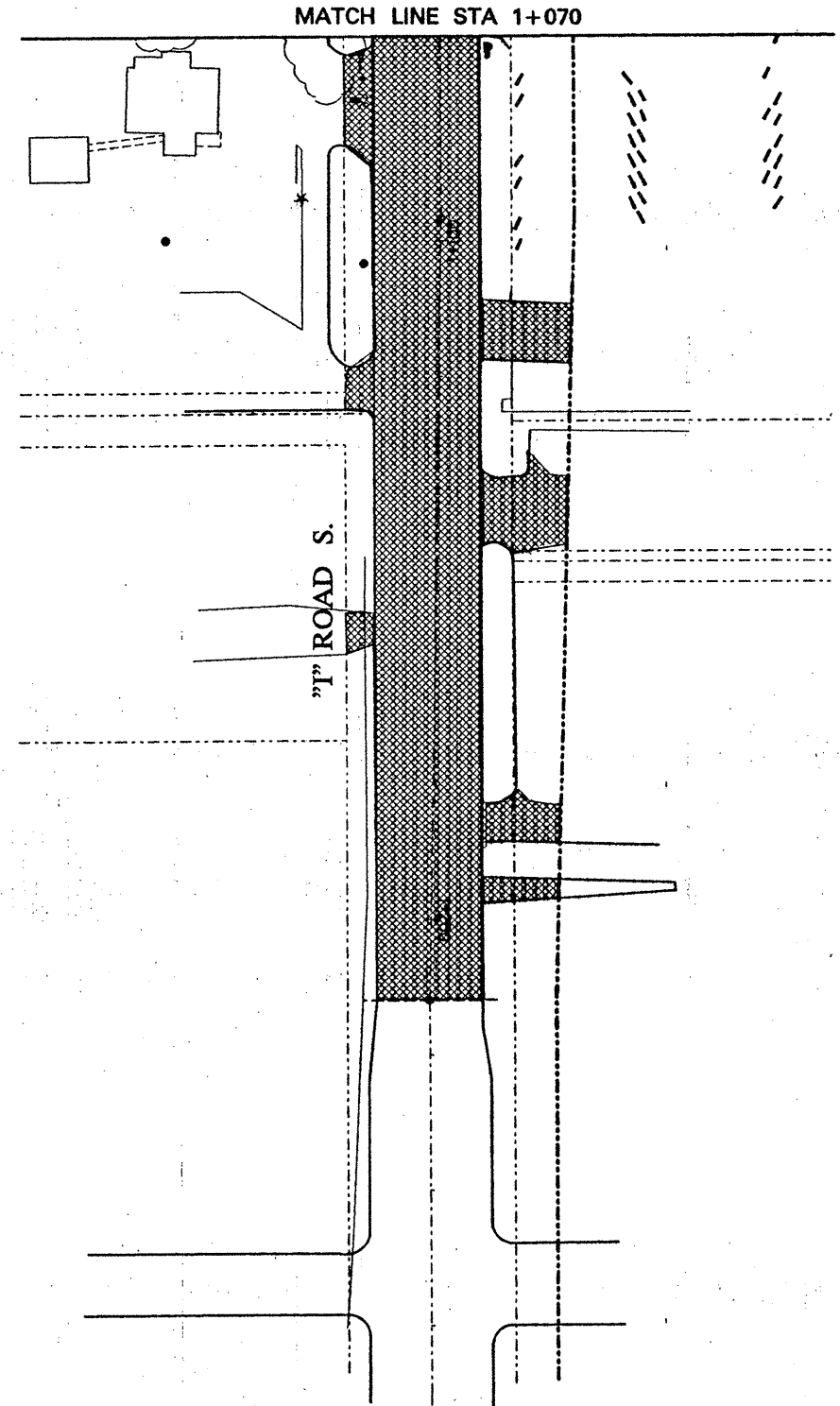
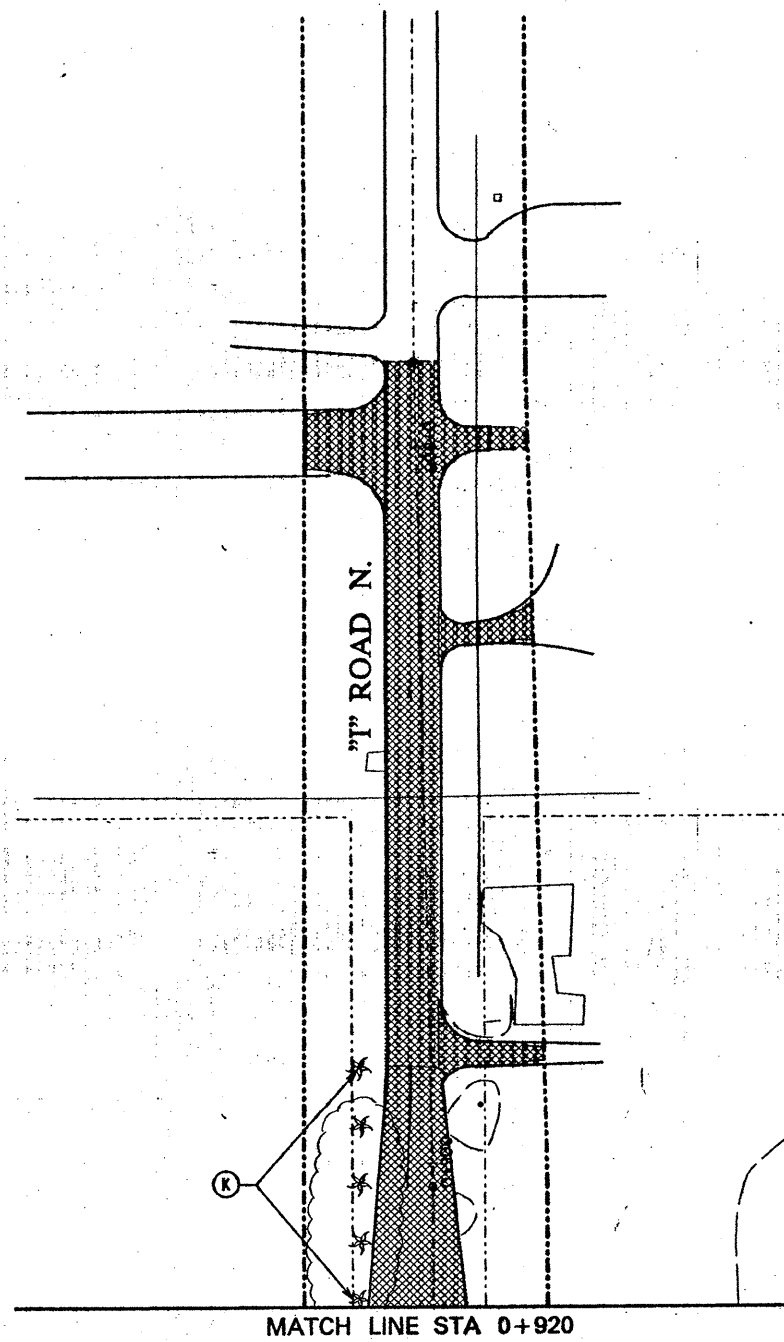
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- 102 mm CONCRETE SIDEWALK REMOVAL
- 102 mm CONCRETE RIPRAP MEDIAN REMOVAL
- 102 mm CONCRETE RIPRAP REMOVAL
- 30 mm A.C.P. REMOVAL
- BRICK PAVER REMOVAL AND SALVAGE
- SAW CUT LINE
- TYPE A CONCRETE CURB REMOVAL
- TYPE B CONCRETE CURB REMOVAL
- TYPE C CONCRETE CURB REMOVAL
- TYPE D CONCRETE CURB REMOVAL
- TYPE A CONCRETE CURB & GUTTER REMOVAL
- TYPE B CONCRETE CURB & GUTTER REMOVAL
- METAL BEAM GUARD FENCE REMOVAL
- TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- CONCRETE DRAIN REMOVAL
- SINGLE GUARD RAIL TERMINAL REMOVAL
- PALM TREE TO BE RELOCATED (19 EA.)
- GUARD POST REMOVAL
- C.T.B. REMOVAL (PRE-CAST)
- TERMINAL-ANCHOR SECTION REMOVAL



Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

REMOVAL ITEMS									
STA 47+700 TO STA 47+950									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates <small>ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS</small>									
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.		DATE	
			CA93	TEXAS	NH 56701WA	3	15	4-15-96	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CENTRAL SECTION NO.	POST MILE	ROWWAY NO.	U.S. 83	
APR 15 1996	620rem03	1:500	21	HIDALGO	29	17	19	U.S. 83	

3
9



- REMOVAL LEGEND:**
- 533 mm PAVEMENT (76 mm A.C.P. OVER 457 mm FLEX BASE)
 - 584 mm PAVEMENT (REFER TO EXISTING TYPICAL SECTION ON REMOVAL ITEMS DETAILS)
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 - 102 mm CONCRETE SIDEWALK REMOVAL
 - 102 mm CONCRETE RIPRAP MEDIAN REMOVAL
 - 102 mm CONCRETE RIPRAP REMOVAL
 - 30 mm A.C.P. REMOVAL
 - BRICK PAVER REMOVAL AND SALVAGE
 - SAW CUT LINE
 - (A) TYPE A CONCRETE CURB REMOVAL
 - (B) TYPE B CONCRETE CURB REMOVAL
 - (C) TYPE C CONCRETE CURB REMOVAL
 - (D) TYPE D CONCRETE CURB REMOVAL
 - (E) TYPE A CONCRETE CURB & GUTTER REMOVAL
 - (F) TYPE B CONCRETE CURB & GUTTER REMOVAL
 - (G) METAL BEAM GUARD FENCE REMOVAL
 - (H) TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
 - (I) CONCRETE DRAIN REMOVAL
 - (J) SINGLE GUARD RAIL TERMINAL REMOVAL
 - (K) PALM TREE TO BE RELOCATED (0 EA.)
 - (L) GUARD POST REMOVAL
 - (M) C.T.B. REMOVAL (PRE-CAST)
 - (N) TERMINAL-ANCHOR SECTION REMOVAL



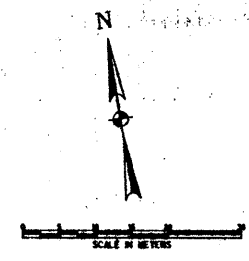
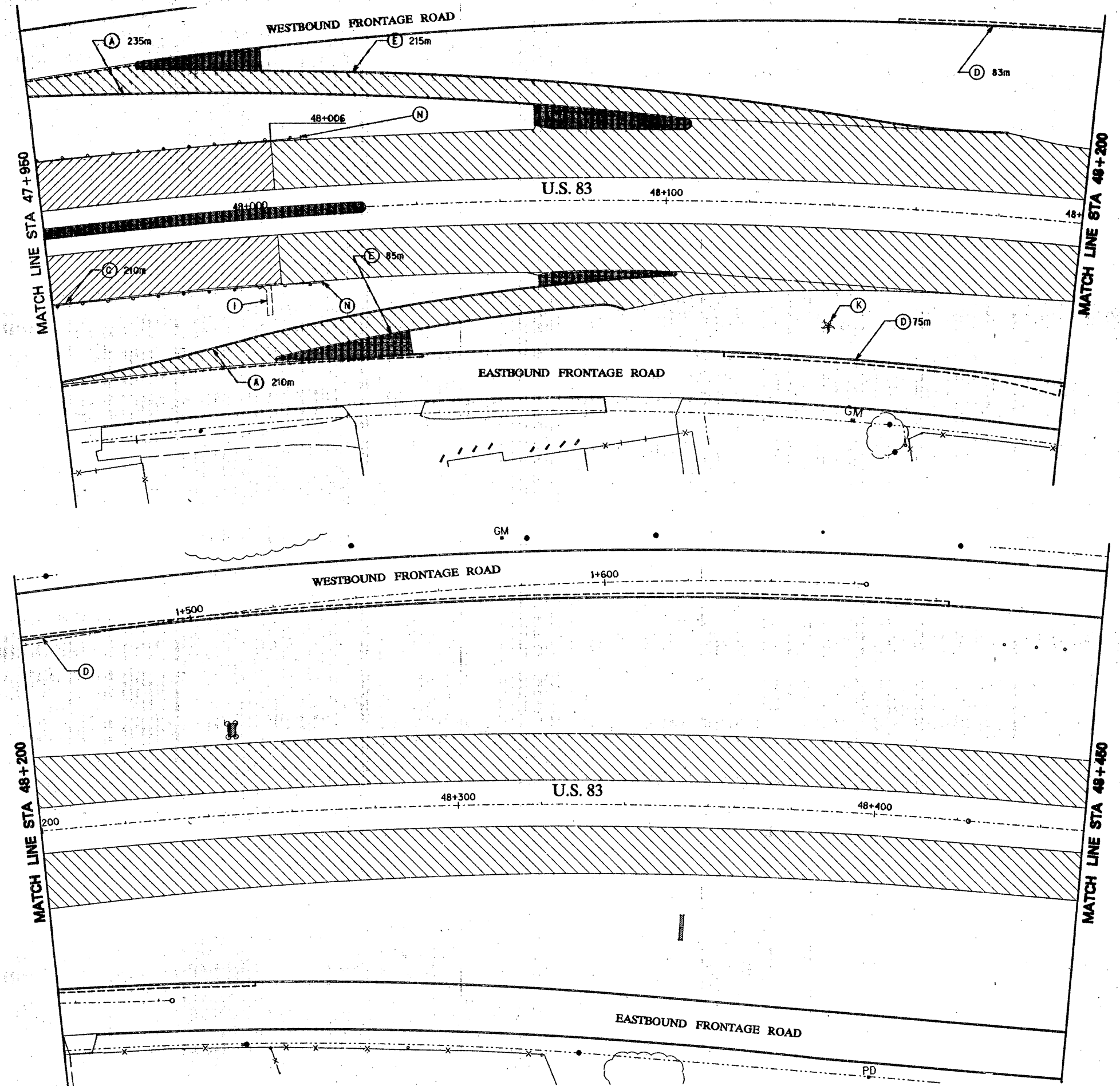
GREGORY A. JACOBS 4-15-96
GREGORY A. JACOBS DATE

REMOVAL ITEMS
STA 47+700 TO STA 47+950
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

4
9

DESIGN	DRAWN	NOTES	FED. HYS. (BY REC.)	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CAOB		9	TEXAS	ATP 910-211-AAA	148
DATE	FILE	SCALE	SHEET NO.	COUNTY	CONTROL SECTION	ROADWAY NO.
APRIL 1996	438984A	1:800	21	HIDALGO	0070	17 116 U.S. 83



REMOVAL LEGEND:

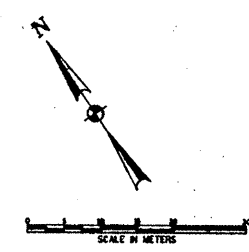
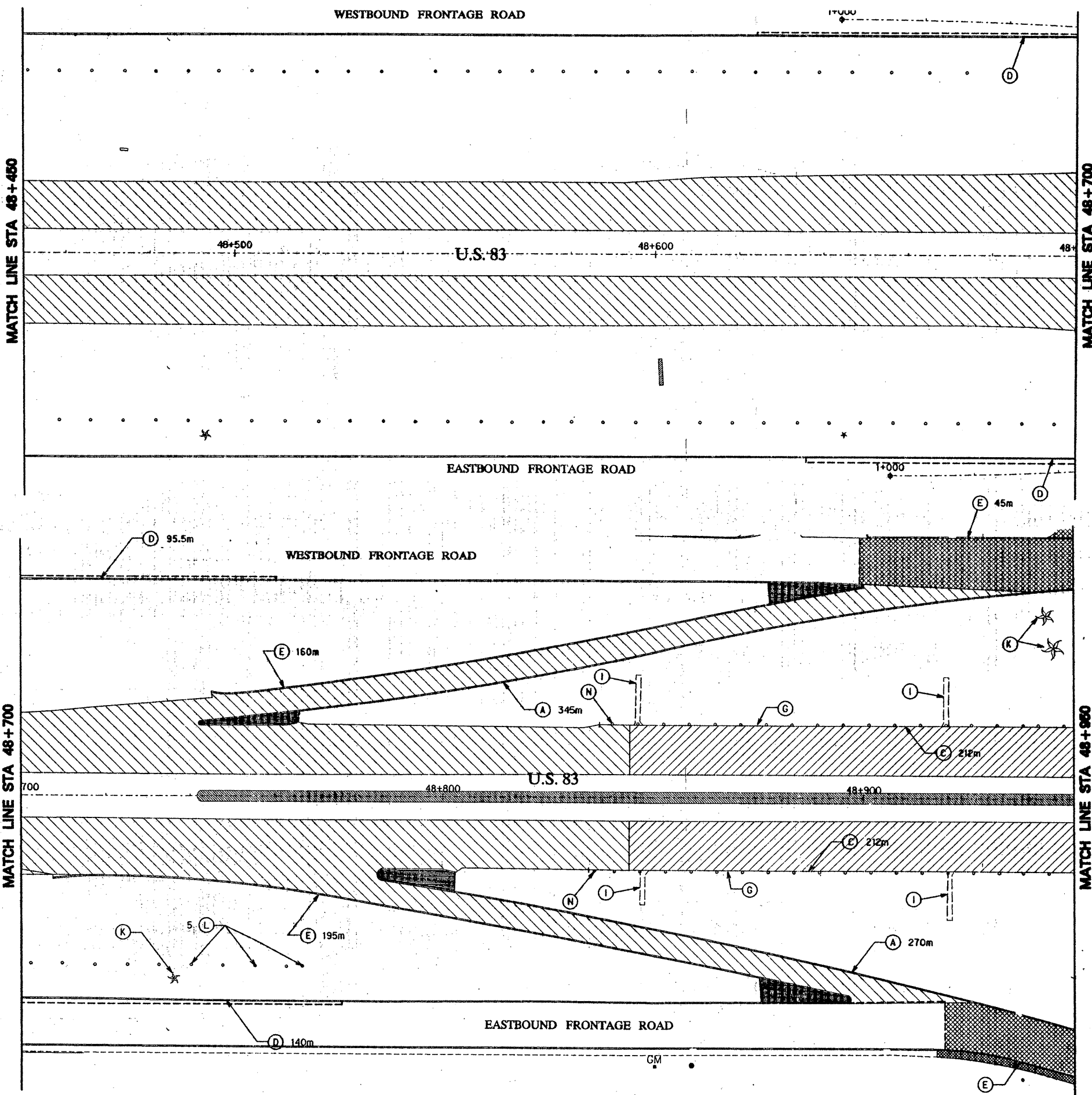
- 533 mm PAVEMENT (76 mm A.C.P. OVER 457 mm FLEX BASE)
- 584 mm PAVEMENT (REFER TO EXISTING TYPICAL SECTION ON REMOVAL ITEMS DETAILS)
- 432 mm PAVEMENT (REFER TO EXISTING TYPICAL SECTION ON REMOVAL ITEMS DETAILS)
- 241 mm PAVEMENT (38 mm A.C.P. OVER 203 mm FLEX BASE)
- 102 mm CONCRETE, SIDEWALK REMOVAL
- 102 mm CONCRETE, RIPRAP MEDIAN REMOVAL
- 102 mm CONCRETE, RIPRAP REMOVAL
- 30 mm A.C.P. REMOVAL
- BRICK PAVER REMOVAL AND SALVAGE
- SAW CUT LINE
- (A) TYPE A CONCRETE CURB REMOVAL
- (B) TYPE B CONCRETE CURB REMOVAL
- (C) TYPE C CONCRETE CURB REMOVAL
- (D) TYPE D CONCRETE CURB REMOVAL
- (E) TYPE A CONCRETE CURB & GUTTER REMOVAL
- (F) TYPE B CONCRETE CURB & GUTTER REMOVAL
- (G) METAL BEAM GUARD FENCE REMOVAL
- (H) TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- (I) CONCRETE DRAIN REMOVAL
- (L) SINGLE GUARD RAIL TERMINAL REMOVAL
- (K) PALM TREE TO BE RELOCATED (1 EA.)
- (J) GUARD POST REMOVAL
- (M) C.T.B. REMOVAL (PRE-CAST)
- (N) TERMINAL-ANCHOR SECTION REMOVAL



Gregory A. Jacobs 4-15-16
 GREGORY A. JACOBS DATE

REMOVAL ITEMS									
STA 47+950 TO STA 48+450									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
<small>ENGINEERING - ARCHITECTURE - SURVEYING - PLANNING - SURVEYING</small>									
DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
000	000	000	000	TEXAS	000 000 / 000 000	107			
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.	HIGHWAY NO.	
APRIL			TEXAS	HIDALGO					

5
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REMOVAL LEGEND:

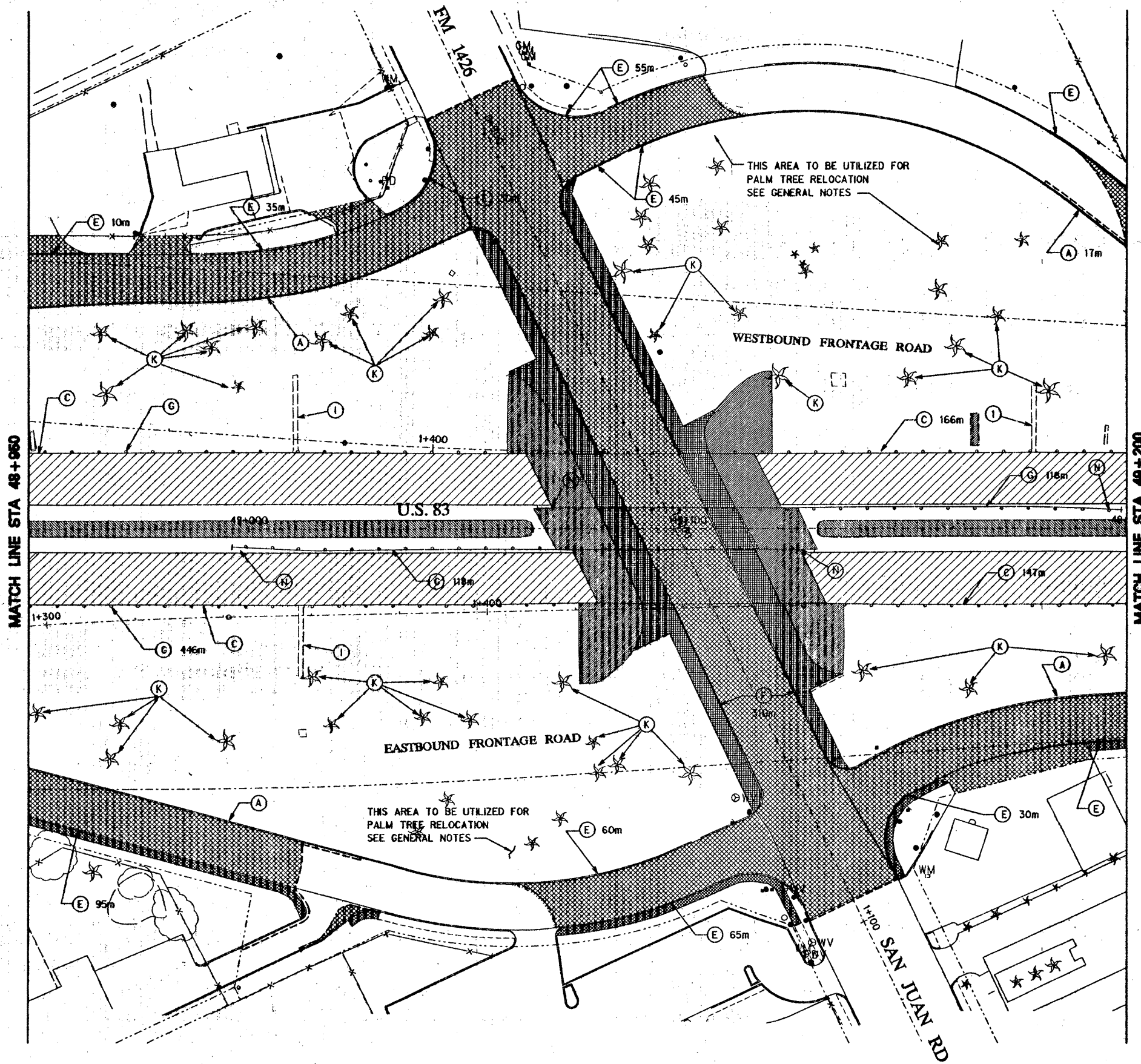
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- TYPE A CONCRETE CURB & GUTTER REMOVAL
- TYPE B CONCRETE CURB & GUTTER REMOVAL
- METAL BEAM GUARD FENCE REMOVAL
- TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- CONCRETE DRAIN REMOVAL
- SINGLE GUARD RAIL TERMINAL REMOVAL
- PALM TREE TO BE RELOCATED (3 EA.)
- GUARD POST REMOVAL
- C.T.B. REMOVAL (PRE-CAST)
- TERMINAL-ANCHOR SECTION REMOVAL



Gregory A. Jacobs 4-15-96
DATE

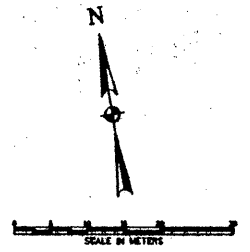
REMOVAL ITEMS									
STA 48+450 TO STA 48+950									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>									
DESIGN	DRAWN	NOTES	PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
CADD			6	TEXAS	NR 04/181A	108			
DATE	FILE	SCALE	STATE	COUNTY	SECTION	JOB NO.	ROADWAY NO.		
APRIL									

6
9



MATCH LINE STA 48+950

MATCH LINE STA 49+200



REMOVAL LEGEND:

- 533 mm PAVEMENT (76 mm A.C.P. OVER 457 mm FLEX BASE)
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- SAW CUT LINE
- TYPE A CONCRETE CURB REMOVAL
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- TYPE A CONCRETE CURB & GUTTER REMOVAL
- TYPE B CONCRETE CURB & GUTTER REMOVAL
- METAL BEAM GUARD FENCE REMOVAL
- TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- CONCRETE DRAIN REMOVAL
- SINGLE GUARD RAIL TERMINAL REMOVAL
- PALM TREE TO BE RELOCATED (35 EA.)
- GUARD POST REMOVAL
- C.T.B. REMOVAL (PRE-CAST)
- TERMINAL-ANCHOR SECTION REMOVAL



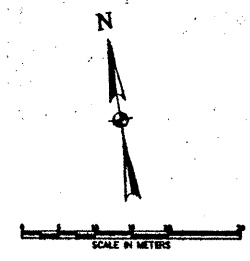
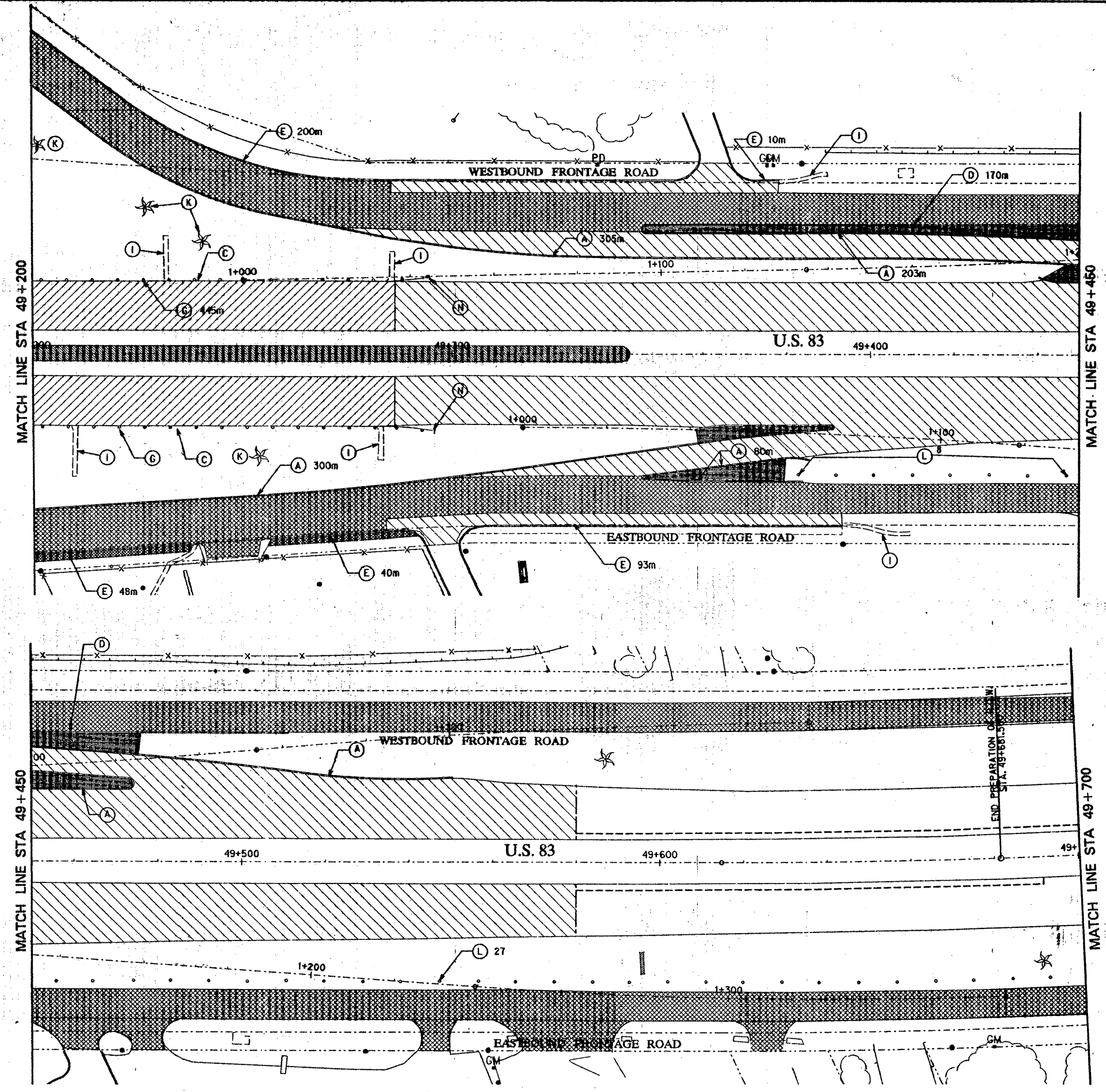
Gregory A. Jacobs
GREGORY A. JACOBS
DATE: 4-15-16

REMOVAL ITEMS
STA 48+950 TO STA 49+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS

7
9

DESIGN	DATE	NO.	REV.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DESIGN	04/15/16	1	0	TEXAS	ASB 247 (FIRM)	118
DATE	04/15/16	1	0	HIDALGO	DD 39	17
SCALE	1:200	24				U.S. 83



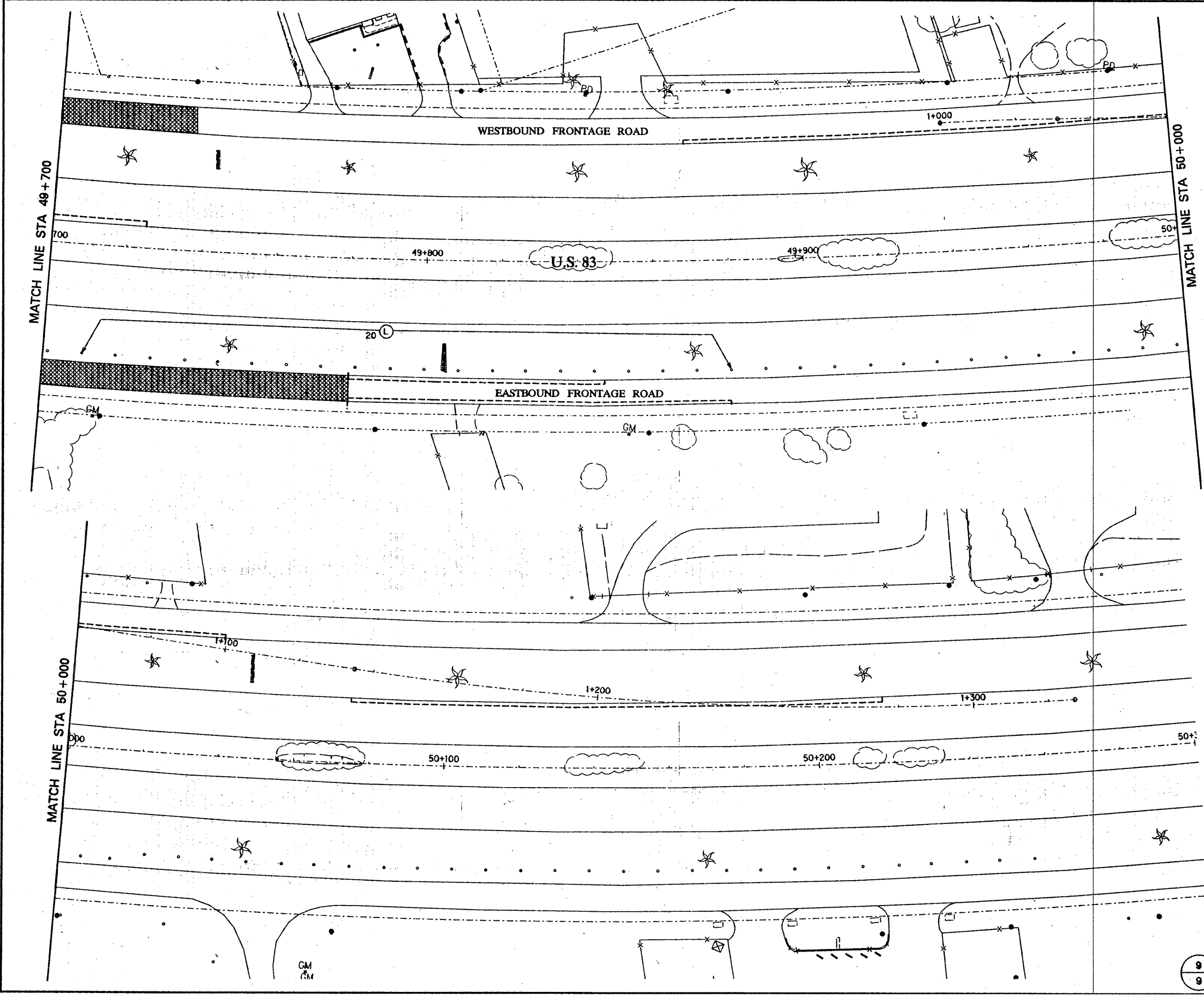
REMOVAL LEGEND:

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- BRICK PAVER REMOVAL AND SALVAGE
- SAW CUT LINE
- TYPE A CONCRETE CURB REMOVAL
- TYPE B CONCRETE CURB REMOVAL
- TYPE C CONCRETE CURB REMOVAL
- TYPE D CONCRETE CURB REMOVAL
- TYPE A CONCRETE CURB & GUTTER REMOVAL
- TYPE B CONCRETE CURB & GUTTER REMOVAL
- METAL BEAM GUARD FENCE REMOVAL
- TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- CONCRETE DRAIN REMOVAL
- SINGLE GUARD RAIL TERMINAL REMOVAL
- PALM TREE TO BE RELOCATED (5 EA.)
- GUARD POST REMOVAL
- C.T.B. REMOVAL (PRE-CAST)
- TERMINAL-ANCHOR SECTION REMOVAL



Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

REMOVAL ITEMS											
STA 49+200 TO STA 49+700											
U.S. 83 RECONSTRUCTION											
HIDALGO COUNTY, TEXAS											
TEXAS DEPARTMENT OF TRANSPORTATION											
Half Associates											
<small>ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS</small>											
CADSW	DATE	SCALE	STATE	PROJECT NO.	SHEET NO.	DATE	FILE	SCALE	STATE	PROJECT NO.	SHEET NO.
CAJ	4-15-96	1:800	TEXAS	47152	17	4-15-96	47152	1:800	TEXAS	47152	17
DATE	FILE	SCALE	STATE	PROJECT NO.	SHEET NO.	DATE	FILE	SCALE	STATE	PROJECT NO.	SHEET NO.
APR 15 1996	47152	1:800	TEXAS	47152	17	APR 15 1996	47152	1:800	TEXAS	47152	17



REMOVAL LEGEND:

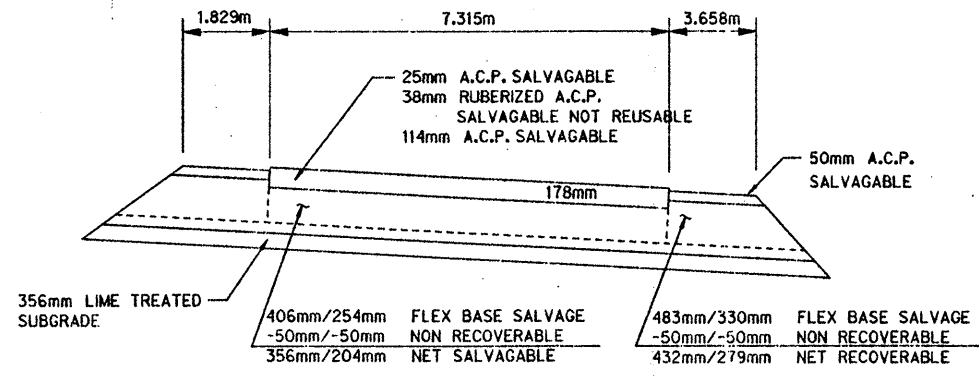
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- TYPE B CONCRETE CURB & GUTTER REMOVAL
- METAL BEAM GUARD FENCE REMOVAL
- TYPE 2 C.T.B. REMOVAL (CAST IN PLACE)
- CONCRETE DRAIN REMOVAL
- SINGLE GUARD RAIL TERMINAL REMOVAL
- PALM TREE TO BE RELOCATED (0 EA.)
- GUARD POST REMOVAL
- C.T.B. REMOVAL (PRE-CAST)
- TERMINAL-ANCHOR SECTION REMOVAL



Gregory A. Jacobs
 GREGORY A. JACOBS
 DATE 4-15-16

REMOVAL ITEMS									
STA 49+700 TO STA 50+300									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
CADD			TX	TEXAS	117 22 / 711 11	9			
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	JOB NO.	ROADWAY NO.		
APRIL 15	140000	1:800	TX	HIDALGO	00 20	17	10	U.S. 83	

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9



U.S. 83 EXPWY.
EXISTING TYPICAL SECTION
REMOVAL ITEM DETAILS



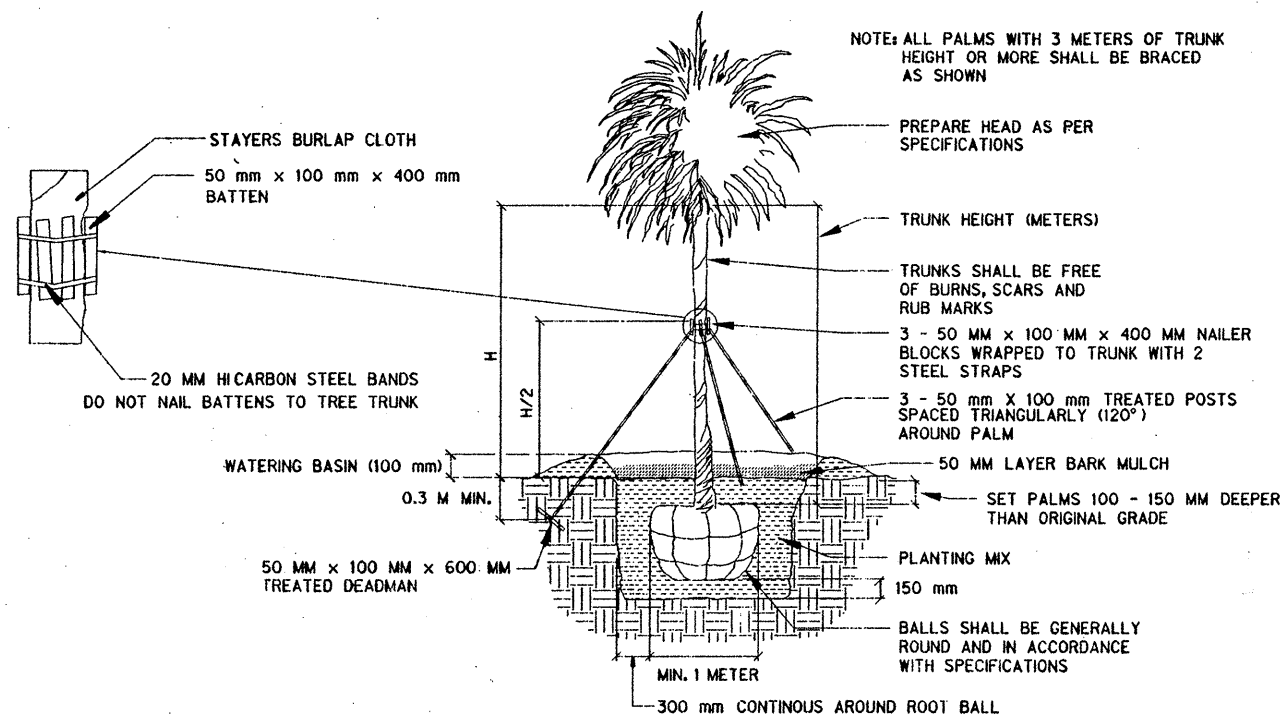
Gregory A. Jacobs 4-15-16
GREGORY A. JACOBS DATE

REMOVAL ITEMS DETAILS	
U.S. 83 RECONSTRUCTION	
HIDALGO COUNTY, TEXAS	
TEXAS DEPARTMENT OF TRANSPORTATION	

Half Associates
ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS

1
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DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		6	TEXAS	NR 216 (78)1A	122
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1999	82094842L	NONE	21	HIDALGO	10-17	128
						U.S. 83



PALM PLANTING AND BRACING

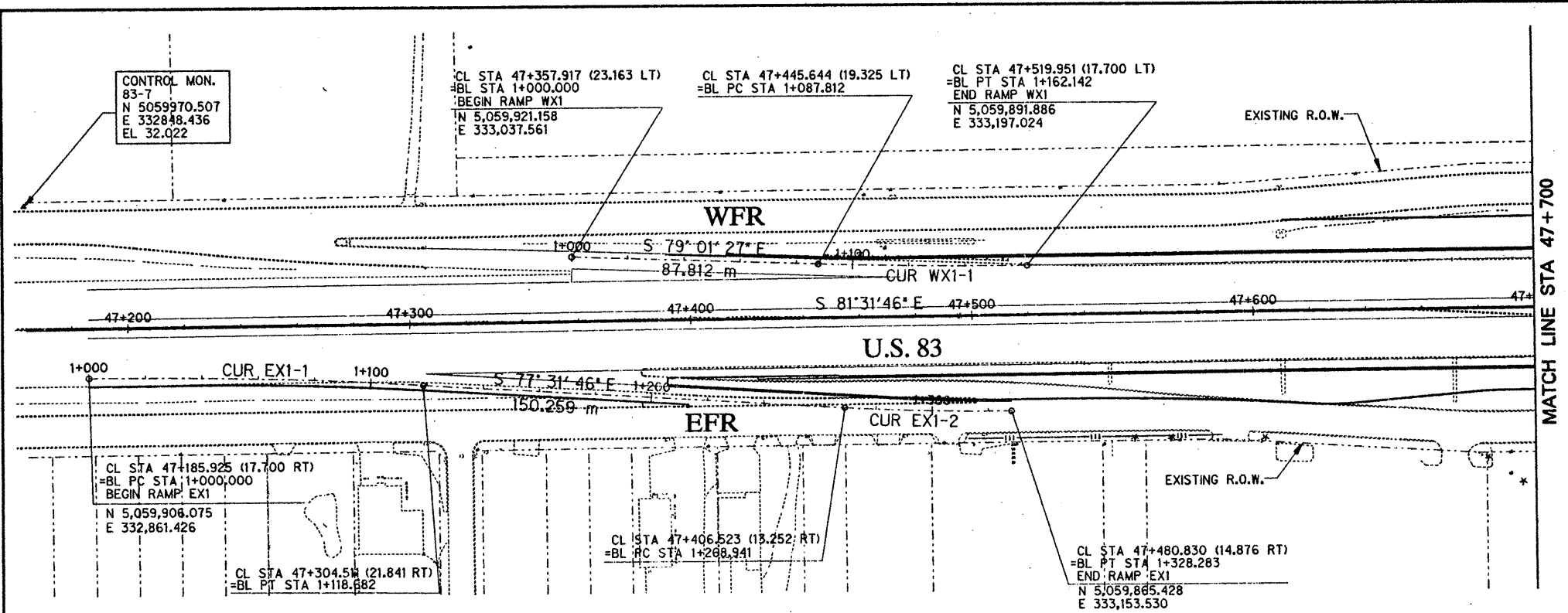
N.T.S.



Gregory A. Jacobs
 GREGORY A. JACOBS
 DATE 4-15-96

PALM PLANTING AND BRACING									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET			
	CADD		NO.	TX	174-30-7000	95			
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.	ROWWAY NO.	
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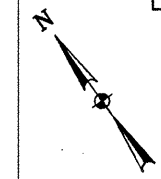
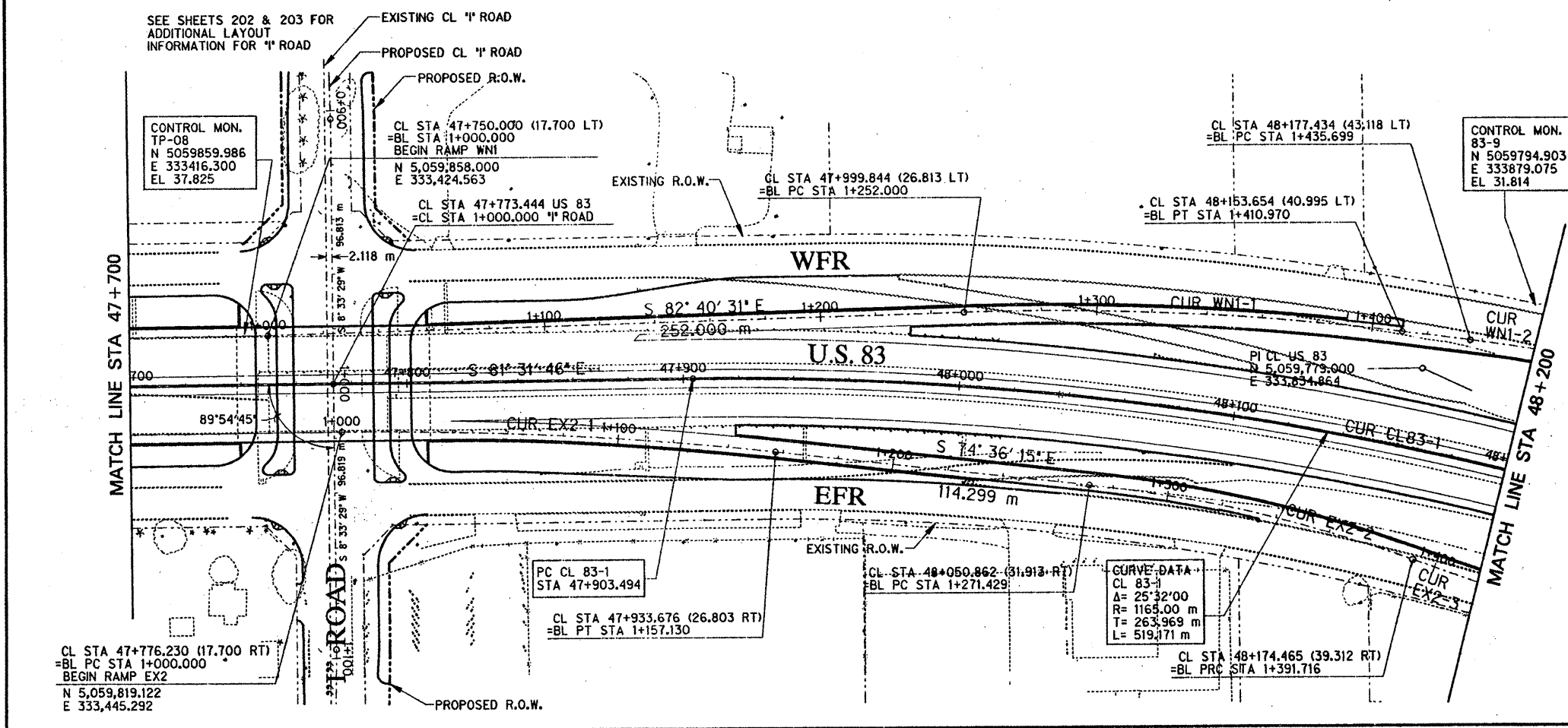
LEGEND:

- ▲ HORIZONTAL AND VERTICAL CONTROL ALIGNMENT
- CONTROL OF ACCESS

NOTE:

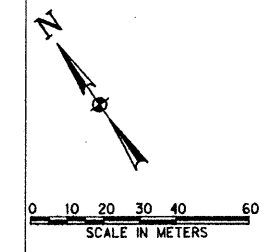
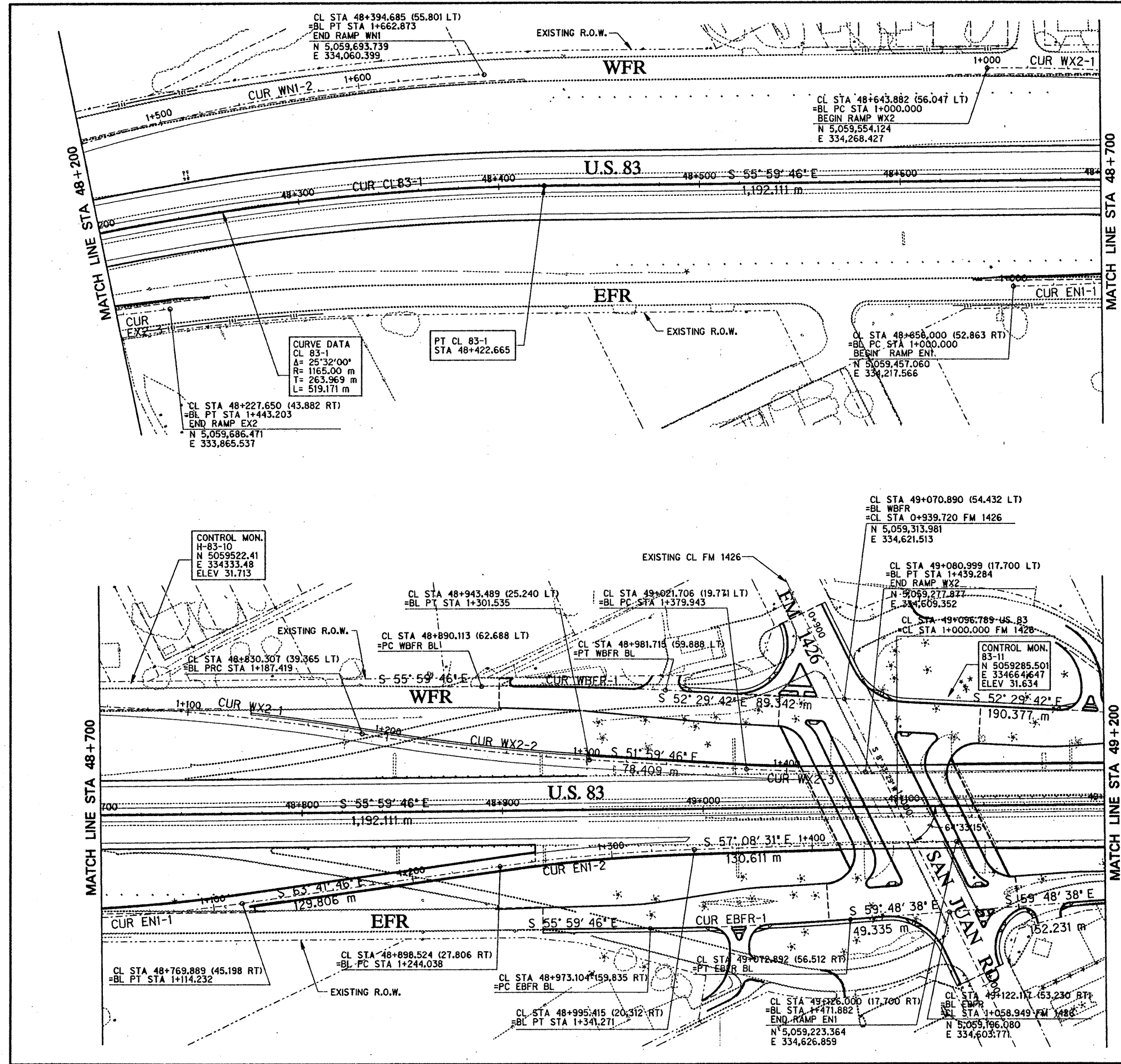
1. ALL COORDINATES ARE TEXAS DEPARTMENT OF TRANSPORTATION, HIDALGO COUNTY SURFACE COORDINATES.

HORIZONTAL CURVE DATA (meters)				
NAME	Δ	R	T	L
EX1-1	4° 00' 00" RT	1,700.000	59.365	118.682
EX1-2	4° 00' 00" LT	850.000	29.683	59.341
WX1-1	2° 30' 19" LT	1,700.000	37.171	74.331
WNI-1	9° 06' 30" RT	1,000.000	79.653	158.970
WNI-2	15° 18' 47" RT	850.000	114.268	227.174
EX2-1	6° 55' 31" RT	1,300.000	78.661	157.130
EX2-2	13° 47' 02" RT	500.000	60.435	120.287
EX2-3	1° 58' 00" LT	1,500.000	25.746	51.487



Michael W. King 4/15/96
 MICHAEL W. KING DATE

ALIGNMENT LAYOUT										
STA 47+200 TO STA 48+200										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET				
			83-1	TEXAS	146 (12) A	154				
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB	HIGHWAY			
APRIL 1996	820AL001	1:1000	21	HIDALGO	DP 20	17	19			U.S. 83



LEGEND:

- +— HORIZONTAL AND VERTICAL CONTROL ALIGNMENT
- ||— CONTROL OF ACCESS

NOTE:

1. ALL COORDINATES ARE TEXAS DEPARTMENT OF TRANSPORTATION, HIDALGO COUNTY SURFACE COORDINATES.

HORIZONTAL CURVE DATA (meters)

NAME	Δ	R	T	L
WNI-2	15° 18' 47" RT	850.000	114.268	227.174
EX2-3	1° 58' 00" LT	1,500.000	25.746	51.487
WX2-1	10° 13' 37" RT	1,050.000	93.959	187.419
WX2-2	6° 13' 37" LT	1,050.000	57.114	114.115
WX2-3	4° 00' 00" LT	850.000	29.683	59.341
WBFR-1	3° 30' 04" RT	1,500.000	45.844	91.659
ENI-1	7° 42' 00" LT	850.000	57.202	114.232
ENI-2	6° 33' 15" RT	850.000	48.670	97.233
EBFR-1	3° 48' 52" LT	1,500.000	49.949	99.862

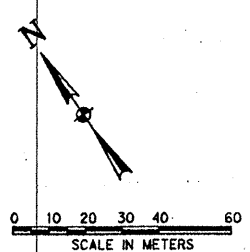
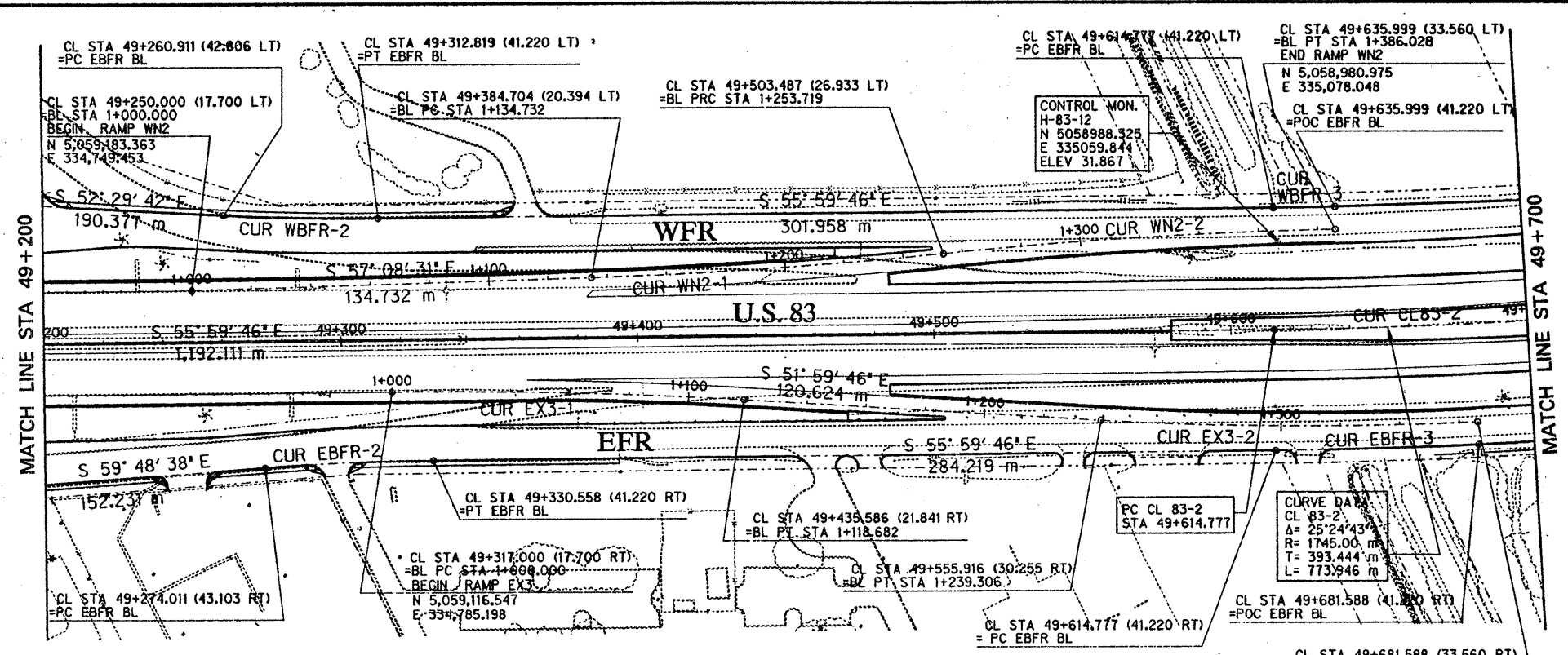


Michael W. King 4/15/96
MICHAEL W. KING DATE

**ALIGNMENT LAYOUT
STA 48+200 TO STA 49+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. AID PROJECT NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS		175
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APR 15 1996	ES2AL02	1:800	21	HIDALGO	203	17
						18
						U.S. 83



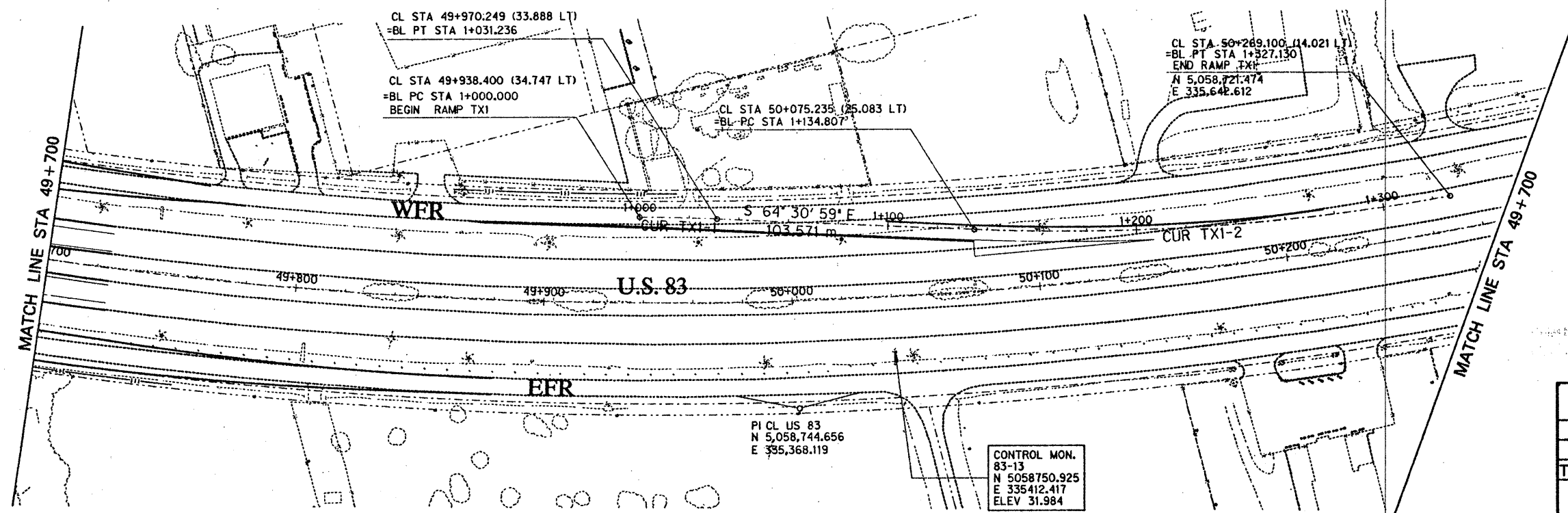
LEGEND:

- +— HORIZONTAL AND VERTICAL CONTROL ALIGNMENT
- |—|— CONTROL OF ACCESS

NOTE:

1. ALL COORDINATES ARE TEXAS DEPARTMENT OF TRANSPORTATION, HIDALGO COUNTY SURFACE COORDINATES.

HORIZONTAL CURVE DATA (meters)				
NAME	Δ	R	T	L
TX1-1	2° 06' 20" RT	850.000	15.620	31.236
TX1-2	12° 57' 50" LT	850.000	96.574	192.323
WBFR-2	3° 30' 04" LT	850.000'	25.978'	51.940'
WBFR-3	0° 41' 49" LT	1,703.780'	10.361'	20.721'
WN2-1	4° 00' 37" LT	1,700.000'	59.518'	118.987'
WN2-2	4° 27' 33" RT	1,700.000'	66.188'	132.309'
EBFR-2	3° 48' 52" RT	850.000'	28.305'	56.588'
EBFR-3	2° 11' 37" LT	1,786.220'	34.199'	68.390'



Michael W. King 4/15/96
MICHAEL W. KING DATE

ALIGNMENT LAYOUT
STA 49+200 TO STA 50+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION
Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			8	TEXAS	NA 76 (7) 1A	156
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	8204/83	1:500	21	HIDALGO	0036	17

3
6

Centerline US 83 description

Point 141 N 1,069,002.181 E 33,719,148 Sta 46+105.100
Course from 141 to PC CL83-1 S 81°31'46.00"E Dist 173,289

Curve CL83-1
P.L. Station = 48+167.963 N
Delta = 25°32'00.00"(RT)
Tangent = 263.968
Length = 519.176
Radius = 1,165.000
External = 29.531
Long Chord = 514.886
Mid. Ord. = 28.801
P.C. Station = 47+903.494 N 1,059,877.882 E 33,571,719
P.T. Station = 48+422.665 N 1,059,516.760 E 33,405,388
C.C. = N 5,059,065.934 E 33,340,163
Back = S 81°31'46.00"E
Ahead = S 56°59'46.00"E
Chord Bear = S 68°45'46.00"E

Course from PT CL83-1 to PC CL83-2 S 55°59'46.00"E Dist 1,192.814

Curve CL83-2
P.L. Station = 50+006.221 N
Delta = 25°24'43.00"(LT)
Tangent = 365,443
Length = 775.041
Radius = 1,745.000
External = 45.804
Long Chord = 767.649
Mid. Ord. = 41.732
P.C. Station = 49+117.777 N 1,060,351.801 E 33,611,954
P.T. Station = 50+343.125 N 1,059,682.875 E 33,671,145
C.C. = N 5,059,811.930 E 33,601,799
Back = S 55°59'46.00"E
Ahead = S 7°24'29.00"E
Chord Bear = S 8°42'31.00"E

SUPERELEVATION RATES
US 83 MAINLANES

WESTBOUND		EASTBOUND	
STATION	SLOPE	STATION	SLOPE
47+367.000	+2.00%	47+179.000	-2.00%
47+806.994	+2.00%	47+836.470	-2.00%
47+997.994	-4.14%	47+937.006	-4.14%
48+368.369	-4.14%	48+395.969	-4.14%
48+561.257	+2.00%	48+476.057	-2.00%
49+571.444	+2.00%	49+485.921	-2.00%
49+636.444	+3.16%	49+679.205	+3.16%
50+367.056	+3.16%	50+357.399	+3.16%
50+457.056	+2.00%	50+491.371	-2.00%
50+661.000	-2.00%	51+032.000	-2.00%

SUPERELEVATION RATES
US 83 FRONTAGE ROAD

WESTBOUND		EASTBOUND	
STATION	SLOPE	STATION	SLOPE
BEIN	+2.00%	BEIN	-2.00%
48+113.890	+2.00%	49+083.117	-2.00%
48+052.890	-0.50%	49+087.117	+0.50%
49+105.890	-0.50%	49+140.117	+0.50%
49+183.890	+2.00%	49+144.117	-2.00%
49+188.110	+2.00%	49+544.249	-2.00%
49+128.110	+2.56%	49+550.041	+2.46%
50+175.390	+2.56%	50+363.439	+2.46%

RECONSTRUCTION SHALL CONSIST OF 12,000 sq. yds. S&S VERTICAL CURVE AND 14,000 sq. yds. S&S VERTICAL CURVE

Baseline EX1 description

Curve EX1-1
P.L. Station = 1+059,955 N
Delta = 7°00'04.00"(RT)
Tangent = 59.366
Length = 118.524
Radius = 1,700.000
External = 1.0562
Long Chord = 118.524
Mid. Ord. = 0.856
P.C. Station = 1+000.000 N
P.T. Station = 1+118.524 N
C.C. = N 5,059,224.619 E 33,611,041
Back = S 81°31'46.00"E
Ahead = S 77°31'46.00"E
Chord Bear = S 79°31'46.00"E

Course from PT EX1-1 to PC EX1-2 S 77°31'46.00"E Dist 150.250

Curve EX1-2
P.L. Station = 1+298.524 N
Delta = 4°00'00.00"(LT)
Tangent = 29.627
Length = 59.254
Radius = 850.000
External = 0.519
Long Chord = 59.254
Mid. Ord. = 0.176
P.C. Station = 1+268.941 N
P.T. Station = 1+328.283 N
C.C. = N 5,059,852.067 E 33,624,825
Back = S 77°31'46.00"E
Ahead = S 81°31'46.00"E
Chord Bear = S 79°31'46.00"E

SUPERELEVATION RATES US 83 RAMP EX1

STATION	SLOPE	STATION	SLOPE
1+000.000	-2.0%		
1+133.600	-2.0%		
1+213.550	-3.8%		
1+328.283	-3.0%		

Baseline WX1 description

Point 145 N 5,059,921.157 E 33,037,561 Sta 1+000.000
Course from 145 to PC WX1-1 S 79°01'27.30"E Dist 87.817

Curve WX1-1
P.L. Station = 1+124.983 N
Delta = 2°58'58.70"(LT)
Tangent = 37.712
Length = 74.356
Radius = 1,700.000
External = 0.4063
Long Chord = 74.324
Mid. Ord. = 0.462
P.C. Station = 1+087.812 N
P.T. Station = 1+162.142 N
C.C. = N 5,061,571.342 E 33,447,436
Back = S 79°01'27.30"E
Ahead = S 81°31'46.00"E
Chord Bear = S 80°16'36.69"E

Baseline EX2 description

Curve EX2-1
P.L. Station = 1+079,661 N
Delta = 6°55'31.07"(RT)
Tangent = 76.668
Length = 151.100
Radius = 1,300.000
External = 2.3776
Long Chord = 151.034
Mid. Ord. = 2.3733
P.C. Station = 1+000.000 N
P.T. Station = 1+157.130 N
C.C. = N 5,059,538.303 E 33,521,090
Back = S 81°31'46.00"E
Ahead = S 74°36'14.93"E
Chord Bear = S 78°04'00.47"E

Course from PT EX2-1 to PC EX2-2 S 74°36'14.93"E Dist 114.298

Curve EX2-2
P.L. Station = 1+331.964 N
Delta = 13°47'01.80"(RT)
Tangent = 60.4351
Length = 120.267
Radius = 500.000
External = 3.6392
Long Chord = 120.267
Mid. Ord. = 3.629
P.C. Station = 1+271.429 N
P.T. Station = 1+339.716 N
C.C. = N 5,059,274.299 E 33,576,397
Back = S 74°36'14.93"E
Ahead = S 60°49'14.57"E
Chord Bear = S 67°42'44.07"E

Course from PT EX2-2 to PC EX2-3 S 60°49'14.57"E Dist 114.298

Curve EX2-3
P.L. Station = 1+417.462 N
Delta = 1°58'00.00"(LT)
Tangent = 25.749
Length = 51.497
Radius = 1,500.000
External = 0.2209
Long Chord = 51.464
Mid. Ord. = 0.2209
P.C. Station = 1+381.716 N
P.T. Station = 1+443.203 N
C.C. = N 5,059,710.796 E 33,610,162
Back = S 60°49'14.57"E
Ahead = S 62°47'13.13"E
Chord Bear = S 61°48'13.13"E

SUPERELEVATION RATES US 83 RAMP EX2

STATION	SLOPE	STATION	SLOPE
1+000.000	-2.0%		
1+066.281	-2.0%		
1+142.717	-4.33%		
1+182.717	-2.0%		
1+258.762	-2.0%		
1+294.762	-5.32%		
1+380.819	-5.32%		
1+415.043	-2.56%		
1+443.203	-2.56%		



David E. Blevins
DATE

ALIGNMENT LAYOUT
SUPERELEVATION RATES
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION
Haft Associates

NO.	DATE	BY	CHKD.	APP'D.	DESCRIPTION	SHEET NO.
1	7/20/96	DAVID E. BLEVINS			ALIGNMENT LAYOUT	157
2						
3						

Baseline WNI description

Point 156 N 5,059,858.0000 E 333,424.5626 Sta 1+000.000
 Course from 156 to PC WNI-1 S 82° 40' 31.00" E Dist 252.0000

Curve Data

Curve WNI-1
 P.I. Station = 1+331.653 N 5,059,815.7167 E 333,753.5092
 Delta = 9° 06' 30.00" (RT)
 Tangent = 79.6530
 Length = 158.9704
 Radius = 1,000.0000
 External = 3.1673
 Long Chord = 158.8031
 Mid. Ord. = 3.1573
 P.C. Station = 1+252.000 N 5,059,825.8719 E 333,674.5062
 P.T. Station = 1+410.970 N 5,059,793.1833 E 333,829.9085
 C.C. = N 5,058,834.0323 E 333,547.0136
 Back = S 82° 40' 31.00" E
 Ahead = S 73° 34' 01.00" E
 Chord Bear = S 78° 07' 16.00" E

Course from PT WNI-1 to PC WNI-2 S 73° 34' 01.00" E Dist 24.7284

Curve Data

Curve WNI-2
 P.I. Station = 1+549.967 N 5,059,753.8619 E 333,963.2271
 Delta = 15° 18' 47.09" (RT)
 Tangent = 114.2681
 Length = 227.1741
 Radius = 850.0000
 External = 7.6463
 Long Chord = 226.4986
 Mid. Ord. = 7.5781
 P.C. Station = 1+435.699 N 5,059,786.1877 E 333,853.6268
 P.T. Station = 1+662.873 N 5,059,693.7390 E 334,060.3992
 C.C. = N 5,058,970.9094 E 333,613.1661
 Back = S 73° 34' 01.00" E
 Ahead = S 58° 15' 13.91" E
 Chord Bear = S 65° 54' 37.45" E

SUPERELEVATION RATES US 83 RAMP WNI			
STATION	SLOPE	STATION	SLOPE
1+000.000	+2.00%		
1+059.020	+2.00%		
1+134.427	-0.729%		
1+263.667	-2.20%		
1+399.303	-2.20%		
1+434.303	2.357%		
1+491.905	2.157%		
1+662.873	2.543%		

Baseline ENI description

Curve ENI-1
 P.I. Station = 1+057.202 N 5,059,425.0703 E 334,264.9860
 Delta = 7° 42' 00.00" (LT)
 Tangent = 57.2020
 Length = 114.2318
 Radius = 850.0000
 External = 1.9226
 Long Chord = 114.1459
 Mid. Ord. = 1.9182
 P.C. Station = 1+000.000 N 5,059,457.0605 E 334,217.5656
 P.T. Station = 1+114.232 N 5,059,399.7222 E 334,316.2651
 C.C. = N 5,060,161.7101 E 334,692.9273
 Back = S 55° 59' 46.00" E
 Ahead = S 63° 41' 46.00" E
 Chord Bear = S 59° 50' 46.00" E

Course from PT ENI-1 to PC ENI-2 S 63° 41' 46.00" E Dist 129.8060

Curve Data

Curve ENI-2
 P.I. Station = 1+292.707 N 5,059,320.6340 E 334,476.2607
 Delta = 6° 33' 15.00" (RT)
 Tangent = 48.6696
 Length = 97.2330
 Radius = 850.0000
 External = 1.3922
 Long Chord = 97.1800
 Mid. Ord. = 1.3900
 P.C. Station = 1+244.038 N 5,059,342.2010 E 334,432.6306
 P.T. Station = 1+341.271 N 5,059,294.2278 E 334,517.1440
 C.C. = N 5,058,580.2131 E 334,055.9683
 Back = S 63° 41' 46.00" E
 Ahead = S 57° 08' 31.00" E
 Chord Bear = S 60° 25' 08.50" E

Course from PT ENI-2 to 166 S 57° 08' 31.00" E Dist 130.6109

Point 166 N 5,059,223.3636 E 334,626.8595 Sta 1+471.882

SUPERELEVATION RATES US 83 RAMP ENI			
STATION	SLOPE	STATION	SLOPE
1+000.000	-1.93%		
1+120.000	-2.25%		
1+261.750	-2.00%		
1+471.882	-2.00%		

Baseline WX2 description

Curve WX2-1
 P.I. Station = 1+093.959 N 5,059,501.5771 E 334,346.3190
 Delta = 10° 13' 37.12" (RT)
 Tangent = 93.9592
 Length = 187.4192
 Radius = 1,050.0000
 External = 4.1956
 Long Chord = 187.1705
 Mid. Ord. = 4.1789
 P.C. Station = 1+000.000 N 5,059,554.1237 E 334,268.4268
 P.T. Station = 1+187.419 N 5,059,436.0358 E 334,413.6440
 C.C. = N 5,058,683.6741 E 333,681.2152
 Back = S 55° 59' 46.00" E
 Ahead = S 45° 46' 08.88" E
 Chord Bear = S 50° 52' 57.44" E

Course from PT WX2-1 to PC WX2-2 S 51° 59' 46.00" E Dist 78.4087

Curve Data

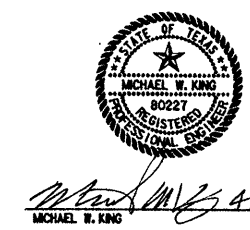
Curve WX2-2
 P.I. Station = 1+244.533 N 5,059,396.1959 E 334,454.5681
 Delta = 6° 13' 37.12" (LT)
 Tangent = 57.1139
 Length = 114.1153
 Radius = 1,050.0000
 External = 1.5522
 Long Chord = 114.0592
 Mid. Ord. = 1.5499
 P.C. Station = 1+187.419 N 5,059,436.0358 E 334,413.6440
 P.T. Station = 1+301.535 N 5,059,361.0300 E 334,499.5721
 C.C. = N 5,060,188.3974 E 335,146.0728
 Back = S 45° 46' 08.88" E
 Ahead = S 51° 59' 46.00" E
 Chord Bear = S 48° 52' 57.44" E

Course from PT WX2-2 to PC WX2-3 S 51° 59' 46.00" E Dist 78.4087

Curve Data

Curve WX2-3
 P.I. Station = 1+409.626 N 5,059,294.4766 E 334,584.7447
 Delta = 4° 00' 00.00" (LT)
 Tangent = 29.6827
 Length = 59.3412
 Radius = 850.0000
 External = 0.5181
 Long Chord = 59.3291
 Mid. Ord. = 0.5178
 P.C. Station = 1+379.943 N 5,059,312.7526 E 334,561.3557
 P.T. Station = 1+439.284 N 5,059,277.8766 E 334,609.3516
 C.C. = N 5,059,982.5263 E 335,084.7134
 Back = S 51° 59' 46.00" E
 Ahead = S 55° 59' 46.00" E
 Chord Bear = S 53° 59' 46.00" E

SUPERELEVATION RATES US 83 RAMP WX2			
STATION	SLOPE	STATION	SLOPE
1+000.000	1.88%		
1+116.045	2.15%		
1+151.045	-2.00%		
1+159.919	-2.00%		
1+204.919	2.00%		
1+439.284	2.00%		



Michael W. King 4/15/96
 DATE

5
 6

ALIGNMENT LAYOUT
 SUPERELEVATION RATES
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID	PROJECT NO.	SHEET NO.
	CADD			TEXAS			158
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
APRIL 1996		NONE	21	HIDALGO	0030	17	138

U.S. 83

Baseline EX3 description

Curve Data
 Curve EX3-1
 P.I. Station = 1+059.365 N 5,059,083.3469 E 334,834.4123
 Delta = 4° 00' 00.00" (RT)
 Tangent = 59.3653
 Length = 118.6824
 Radius = 1,700.0000
 External = 1.0362
 Long Chord = 118.6583
 Mid. Ord. = 1.0356
 P.C. Station = 1+000.000 N 5,059,116.5469 E 334,785.1985
 P.T. Station = 1+118.682 N 5,059,046.7948 E 334,881.1903
 C.C. = N 5,057,707.2476 E 333,834.4749
 Back = S 55° 59' 46.00" E
 Ahead = S 51° 59' 46.00" E
 Chord Bear = S 53° 59' 46.00" E

Course from PT EX3-1 to PC EX3-2 S 51° 59' 46.00" E Dist 120.6241

Curve Data
 Curve EX3-2
 P.I. Station = 1+302.877 N 5,058,933.3832 E 335,026.3303
 Delta = 6° 11' 37.34" (LT)
 Tangent = 63.5710
 Length = 127.0182
 Radius = 1,175.0000
 External = 1.7184
 Long Chord = 126.9563
 Mid. Ord. = 1.7159
 P.C. Station = 1+239.306 N 5,058,972.5248 E 334,976.2384
 P.T. Station = 1+366.325 N 5,058,899.8745 E 335,080.3529
 C.C. = N 5,059,898.3883 E 335,699.7034
 Back = S 51° 59' 46.00" E
 Ahead = S 58° 11' 23.34" E
 Chord Bear = S 55° 05' 34.67" E

SUPERELEVATION RATES US 83 RAMP EX3			
STATION	SLOPE	STATION	SLOPE
1+000.000	-2.00%		
1+186.749	-2.00%		
1+227.611	-2.00%		
1+334.171	-2.46%		
1+366.325	-2.46%		

Baseline WN2 description

Point 175 N 5,059,183.3633 E 334,749.4528 Sta 1+000.000
 Course from 175 to PC WN2-1 S 57° 08' 31.00" E Dist 134.7316

Curve Data
 Curve WN2-1
 P.I. Station = 1+194.249 N 5,059,077.9713 E 334,912.6258
 Delta = 4° 00' 36.99" (LT)
 Tangent = 59.5179
 Length = 118.9873
 Radius = 1,700.0000
 External = 1.0416
 Long Chord = 118.9630
 Mid. Ord. = 1.0409
 P.C. Station = 1+134.732 N 5,059,110.2634 E 334,862.6297
 P.T. Station = 1+253.719 N 5,059,049.2549 E 334,964.7578
 C.C. = N 5,060,538.2927 E 335,784.9811
 Back = S 57° 08' 31.00" E
 Ahead = S 61° 09' 07.99" E
 Chord Bear = S 59° 08' 49.50" E

Curve Data
 Curve WN2-2
 P.I. Station = 1+319.907 N 5,059,017.3202 E 335,022.7323
 Delta = 4° 27' 33.39" (RT)
 Tangent = 66.1881
 Length = 132.3094
 Radius = 1,700.0000
 External = 1.2880
 Long Chord = 132.2760
 Mid. Ord. = 1.2870
 P.C. Station = 1+253.719 N 5,059,049.2549 E 334,964.7578
 P.T. Station = 1+386.028 N 5,058,980.9746 E 335,078.0483
 C.C. = N 5,057,560.2170 E 334,144.5345
 Back = S 61° 09' 07.99" E
 Ahead = S 56° 41' 34.60" E
 Chord Bear = S 58° 55' 21.30" E

SUPERELEVATION RATES US 83 RAMP WN2			
STATION	SLOPE	STATION	SLOPE
1+000.000	2.00%		
1+235.165	2.00%		
1+338.530	2.00%		
1+386.028	2.56%		

Baseline TX1 description

Curve Data
 Curve TX1-1
 P.I. Station = 1+015.620 N 5,058,835.2415 E 335,353.5618
 Delta = 2° 06' 19.97" (RT)
 Tangent = 15.6200
 Length = 31.2364
 Radius = 850.0000
 External = 0.1435
 Long Chord = 31.2347
 Mid. Ord. = 0.1435
 P.C. Station = 1+000.000 N 5,058,841.4394 E 335,339.2242
 P.T. Station = 1+031.236 N 5,058,828.5209 E 335,367.6621
 C.C. = N 5,058,061.2183 E 335,001.9484
 Back = S 66° 37' 19.30" E
 Ahead = S 64° 30' 59.33" E
 Chord Bear = S 65° 34' 09.32" E

Course from PT TX1-1 to PC TX1-2 S 64° 30' 59.33" E Dist 103.5707

Curve Data
 Curve TX1-2
 P.I. Station = 1+231.381 N 5,058,742.4085 E 335,548.3343
 Delta = 12° 57' 49.87" (LT)
 Tangent = 96.5737
 Length = 192.3226
 Radius = 850.0000
 External = 5.4686
 Long Chord = 191.9126
 Mid. Ord. = 5.4336
 P.C. Station = 1+134.807 N 5,058,783.9595 E 335,461.1563
 P.T. Station = 1+327.130 N 5,058,721.4738 E 335,642.6116
 C.C. = N 5,059,551.2622 E 335,826.8701
 Back = S 64° 30' 59.33" E
 Ahead = S 77° 28' 49.20" E
 Chord Bear = S 70° 59' 54.27" E



Michael W. King
 MICHAEL W. KING DATE 1/16/96

ALIGNMENT LAYOUT									
SUPERELEVATION RATES									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
DATE	FILE	SCALE	DIST. NO.	COUNTY	NO.	SECTION NO.	JOB NO.	HIGHWAY NO.	
APRIL 1996	80ALGN		21	HIDALGO	0030	17	18	U.S. 83	

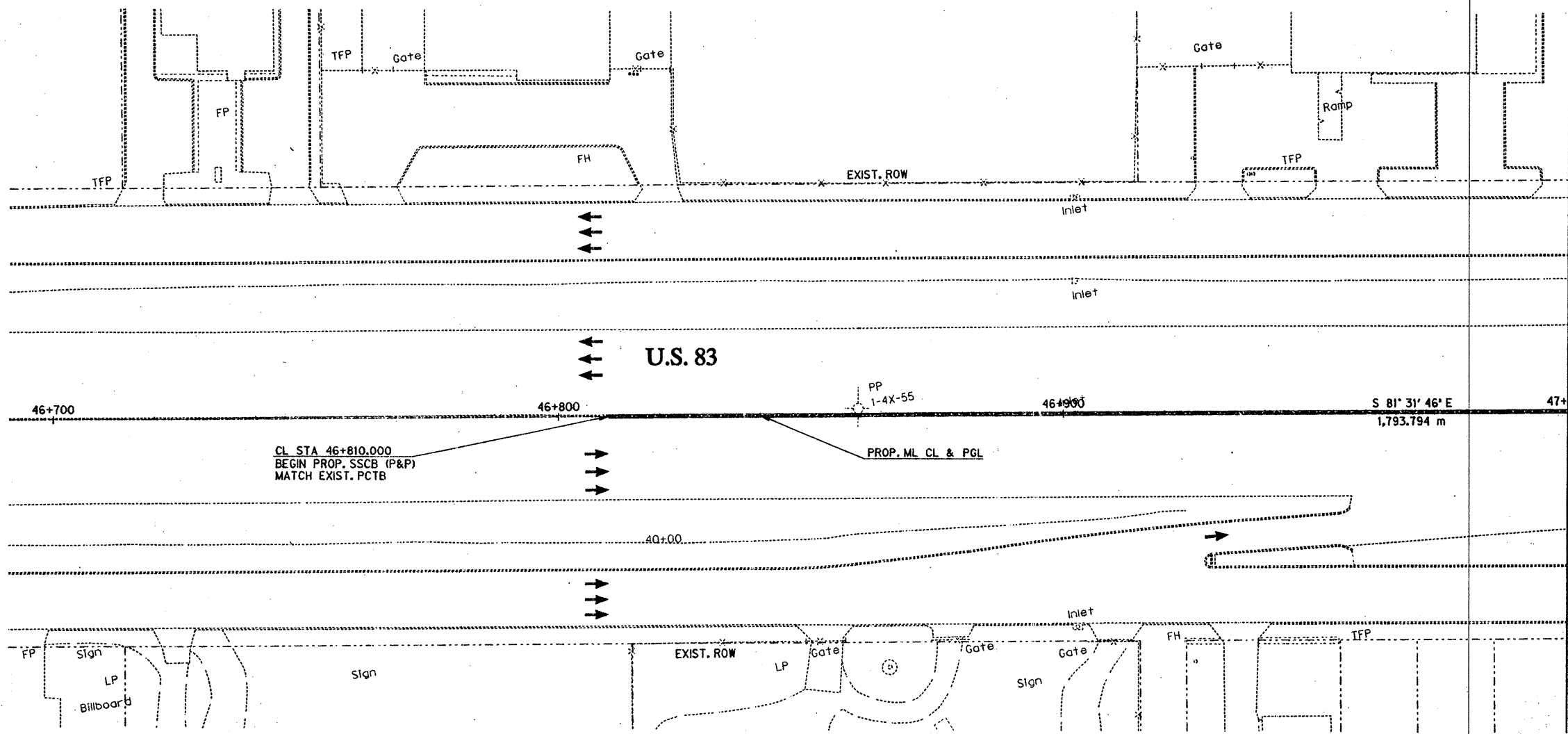


0 5 10 15 20 30
SCALE IN METERS

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP
- CL - CENTERLINE

MATCH LINE STA 47+000



CL STA 46+810.000
BEGIN PROP. SSCB (P&P)
MATCH EXIST. PCTB

PROP. ML CL & PGL

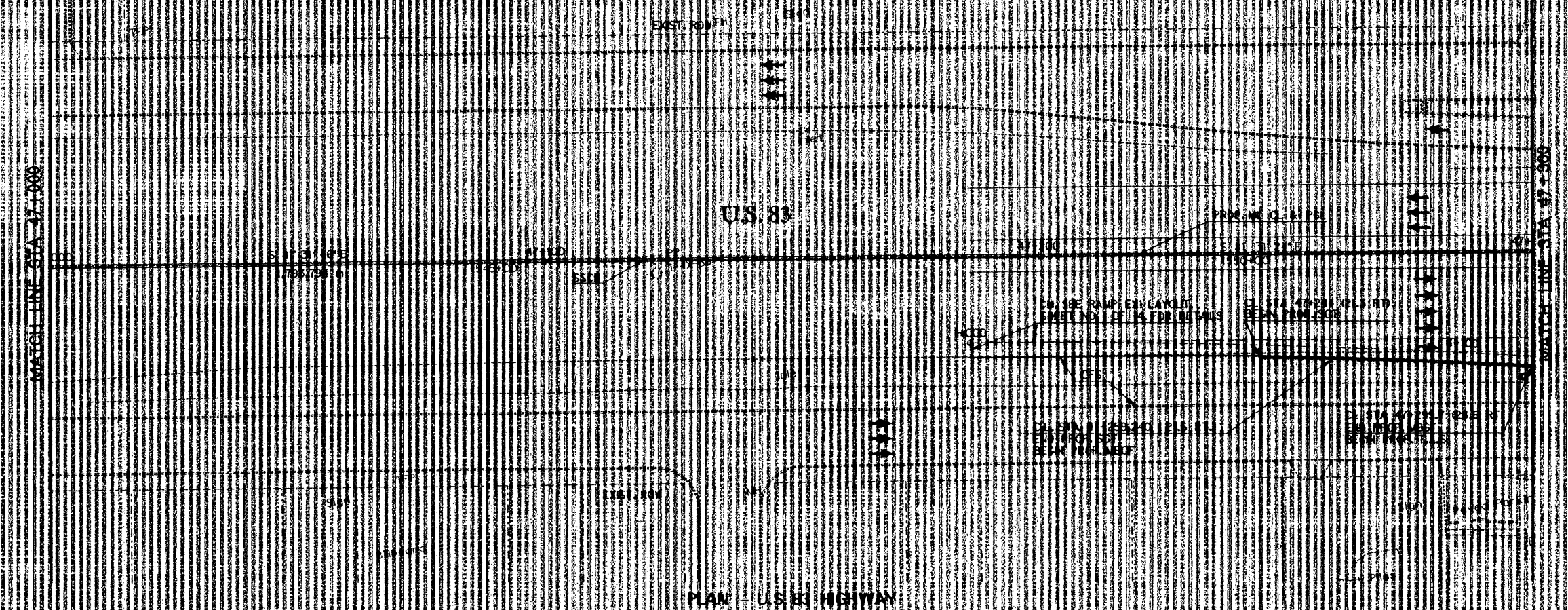
PLAN - U.S. 83 HIGHWAY



Michael W. King
MICHAEL W. KING
4/15/96
DATE

MAIN LANE - PAVING									
STA 46+700 TO STA 47+000									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
<small>ENGINEERS - ARCHITECTS - SCENARISTS - PLANNERS - SURVEYORS</small>									
DESIGN	DRAWN	NOTES	PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
DATE	FILE	SCALE	STATION	COUNTY	SECTION	NO.	NO.	NO.	NO.
APR 96	SEP96	1:500	41	HIDALGO	ED09	17	18	18	U.S. 83

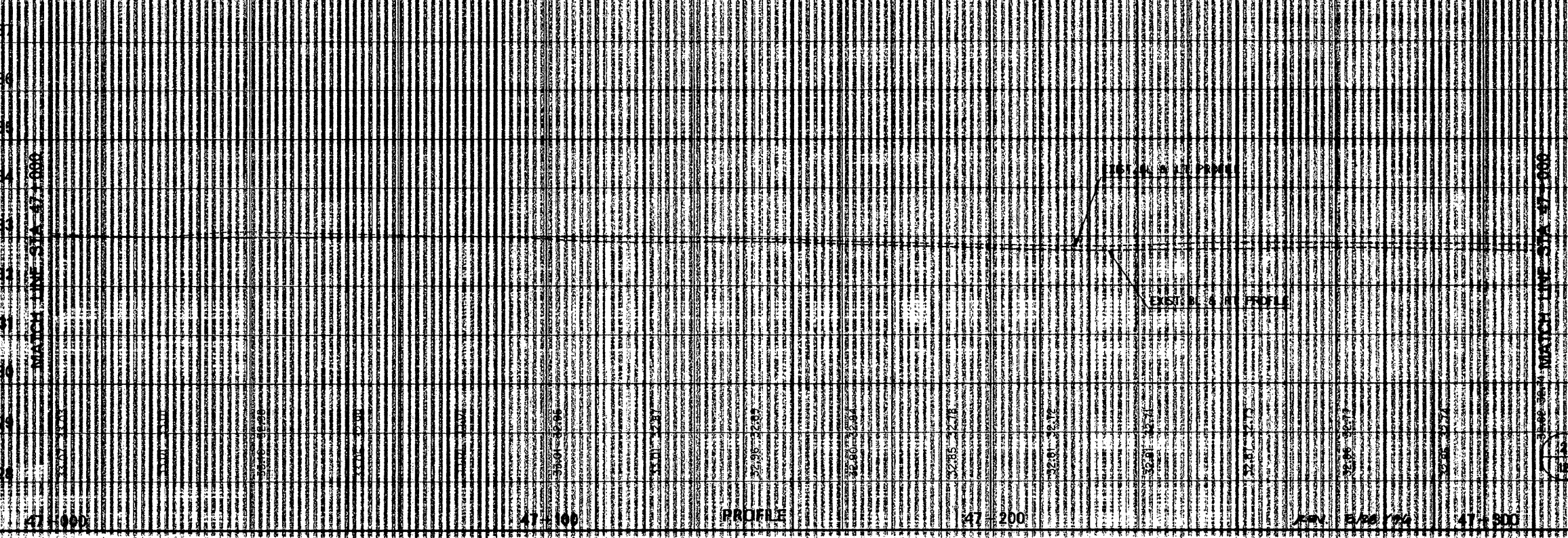
1
12



- LEGEND**
- MC MOUNTABLE CONE CURB
 - CC CONG. CURB & CLUTTER
 - APV ASPHALTIC CONCRETE PAVEMENT
 - FLXBL FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN TRAVEL LANE
 - SH SHOULDER
 - FRN EAST BOUND FRONTAGE ROAD
 - FRW WEST BOUND FRONTAGE ROAD
 - CLL CLUTTER MATCH LINE
 - REI RETAINING WALL
 - PRM EXISTING PAVEMENT
 - CONG CONCRETE MATCH LINE
 - REF REF RAMP
 - FOC FACE OF CURB
 - GRS GELBUNDEN FIBER MESH SCREEN
 - STI SINGLE SLOPE FULL TERMINAL
 - COAT COAT CLEAN ATTENUATION TERMINAL
 - WIS MECHANICALLY STABILIZED EARTH
 - DRD DRILLED SHAFT
 - WLN WYLLANE
 - SSO SINGLE SLOPE CONG. MATCH LINE
 - STO SINGLE SLOPE TRAFFIC TRAILING
 - PMG PAVEMENT MATCH LINE
 - SW SIDEWALK
 - WOR WHEEL CHAIR RAMP
 - CU CENTERLINE

PLAN - US 83 HIGHWAY

EXISTING AT PROFILE



PROFILE



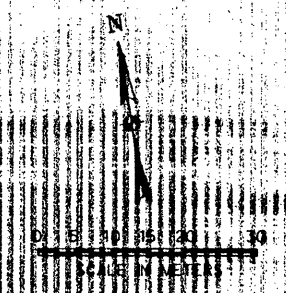
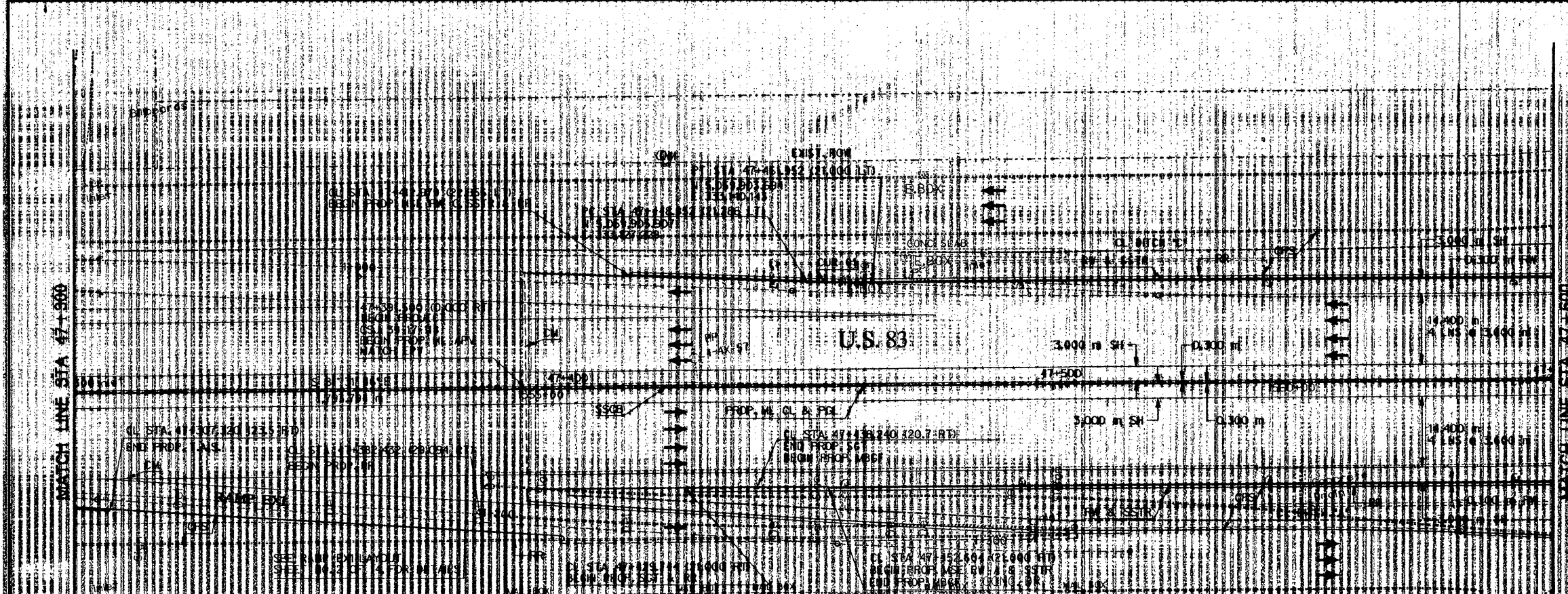
MAIN LANE - PAVING
 STA. 47+000 TO STA. 47+300

US 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

H&H ASSOCIATES
 10000 WEST 10TH AVENUE, SUITE 100
 DENVER, CO 80202

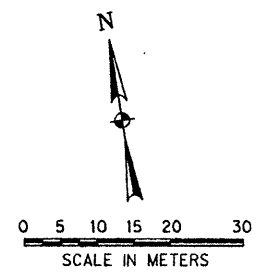
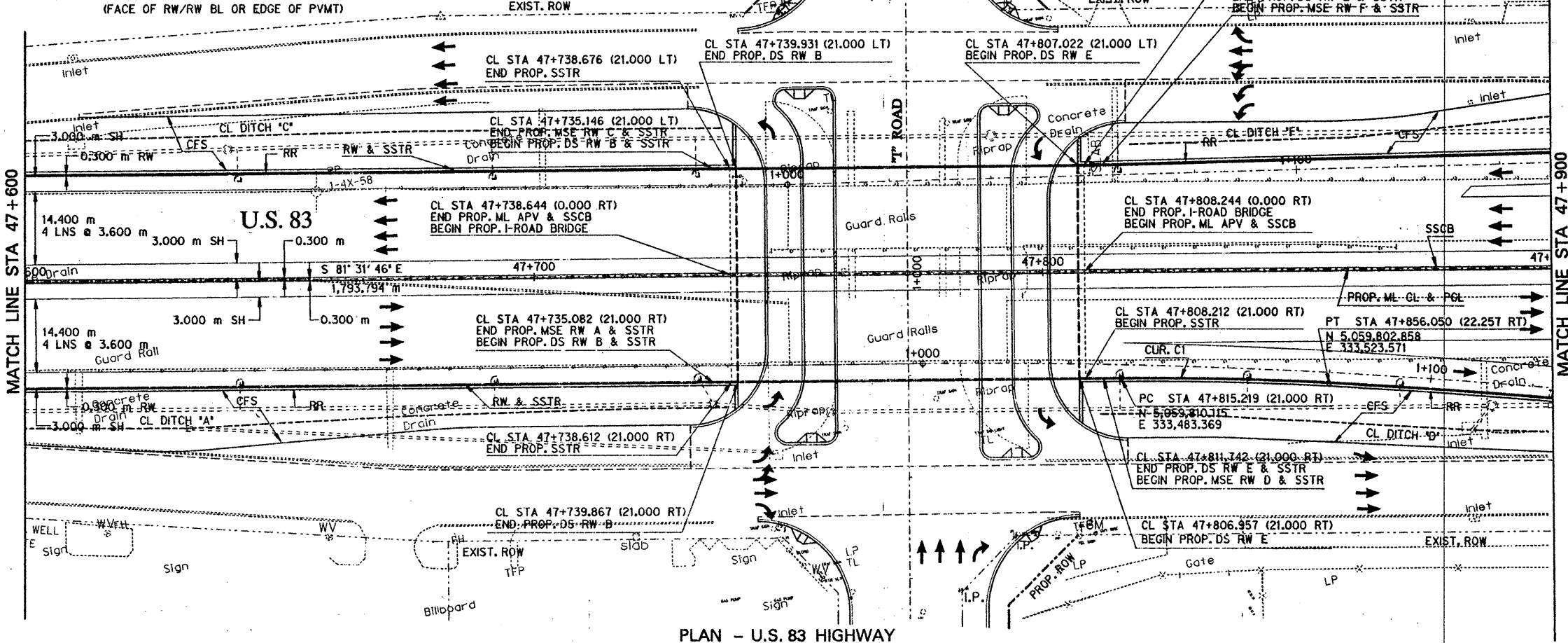
DATE: 10/15/04
 DRAWN BY: J. SMITH
 CHECKED BY: J. SMITH



LEGEND:

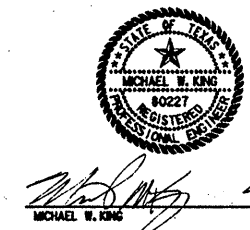
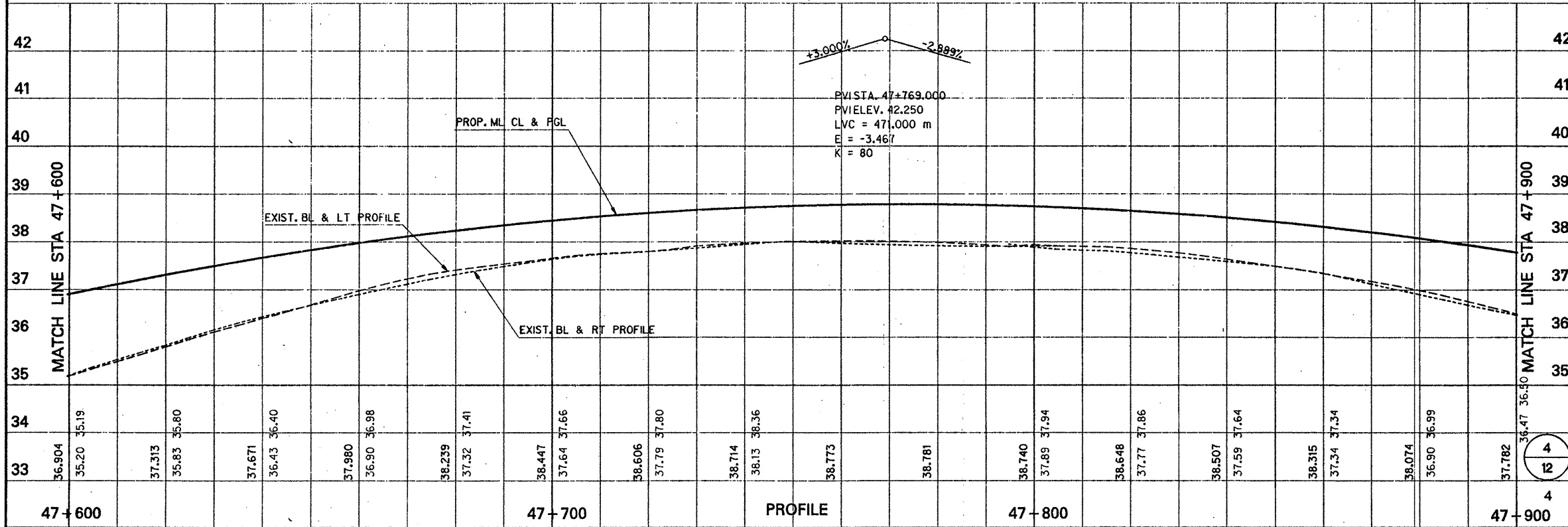
MC	MOUNTABLE CONC CURB
CC	CONC CURB & GUTTER
APY	ASPHALTC CONCRETE PAVEMENT, TYPICAL BASE AND LINE TREATED SUBGRADE
LN	TRAVEL LANE
SH	SHOULDER
EPR	EAST BOUND FRONTAGE ROAD
WFR	WEST BOUND FRONTAGE ROAD
CM	CUT IN MATCH LINE
RW	RETAINING WALL
EPY	EXISTING PAVEMENT
CA	CONTROL OF ACCESS
RR	RUE RAMP
FD	FACE OF CURB
DF	CELLULOSE FIBER MULCH SEEDING
SD	SINGLE GUARD RAIL TERMINAL
CCA	CRASH COLUMN ALTERNATING
MB	MACHINALLY STABILIZED EARTH
DS	DRILLED SHAFT
LA	MAIN LANE

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	3° 31' 33" RT	663.922	20.435	40.857



- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE

PLAN - U.S. 83 HIGHWAY

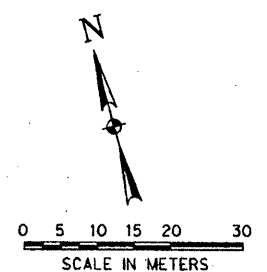
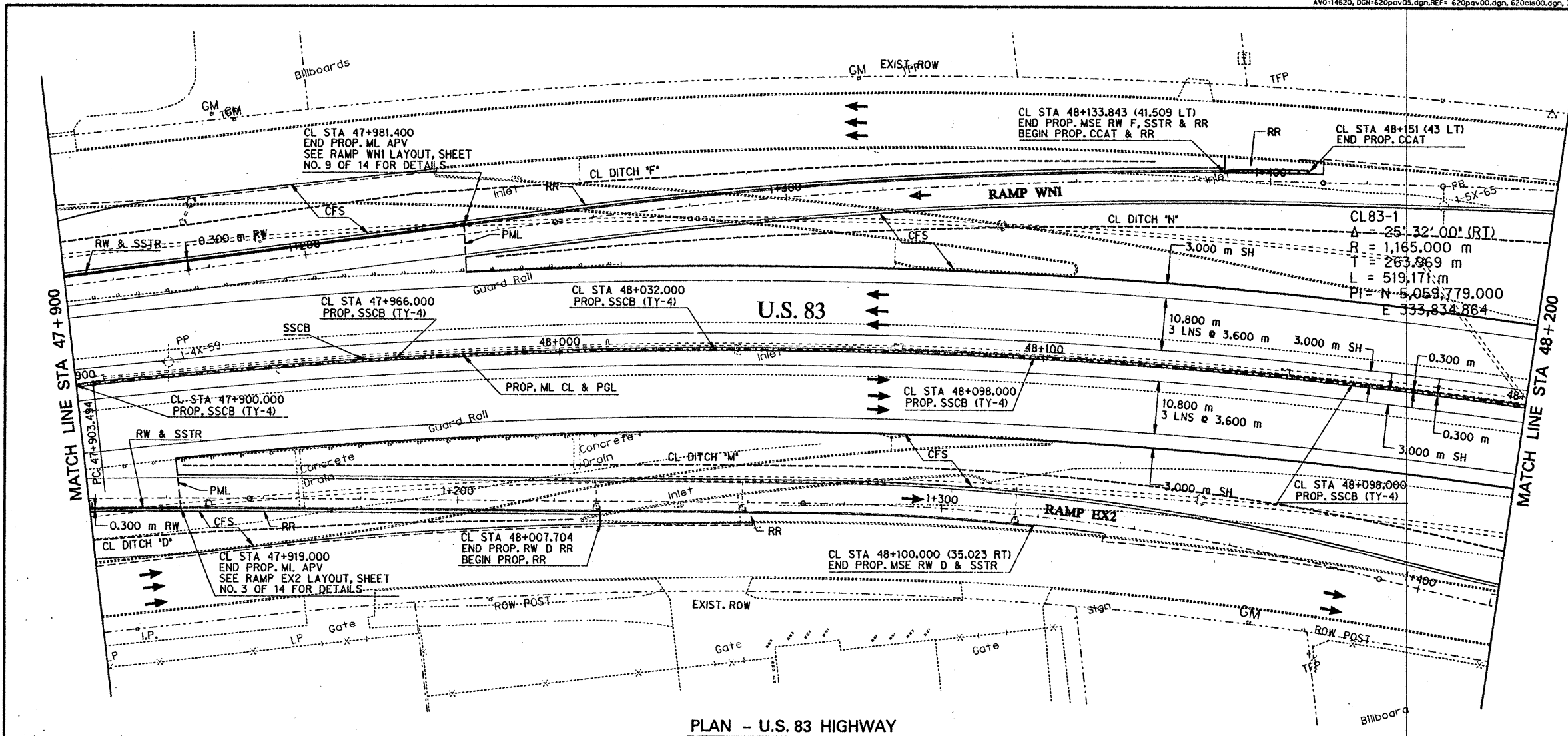


Michael W. King
MICHAEL W. KING
DATE: 7/15/16

MAIN LANE - PAVING
STA 47+600 TO STA 47+900
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

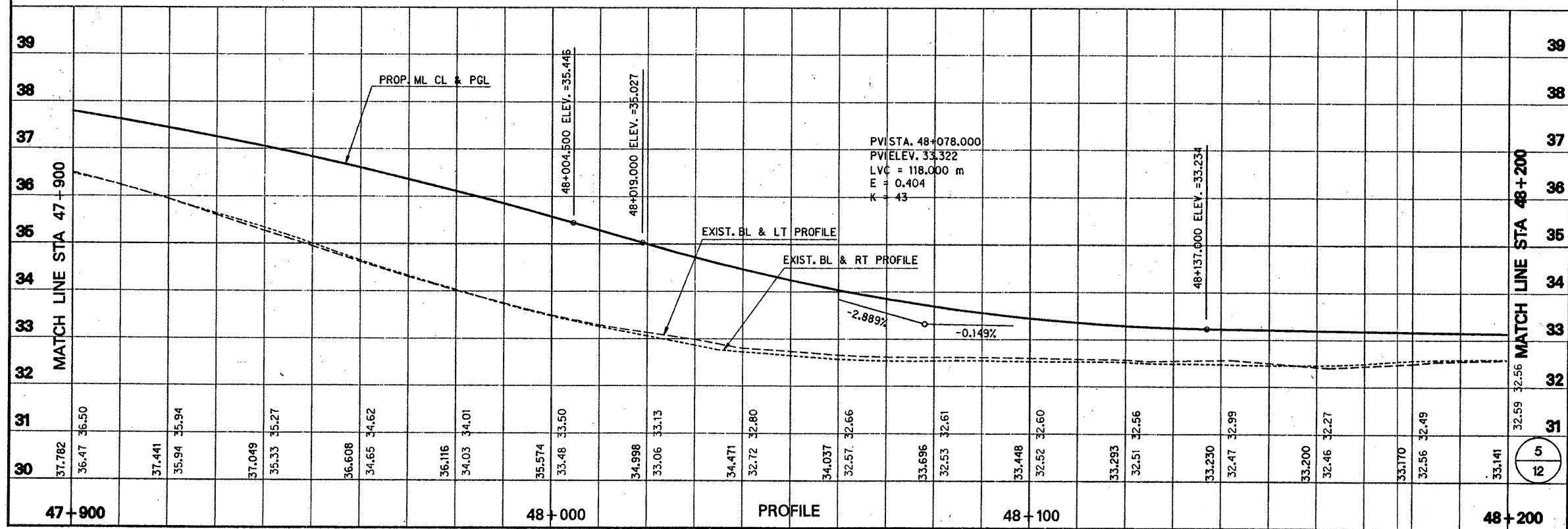
Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
			6	TEXAS	118 467 787 11A	183
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	HIGHWAY
APRIL 2016	820PAV04	1:800 HORIZ 1:80 VERT	21	HIDALGO	CD38	17 19 U.S. 83



- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - SW - SIDE WALK

PLAN - U.S. 83 HIGHWAY

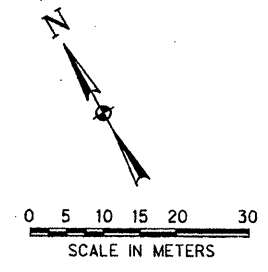
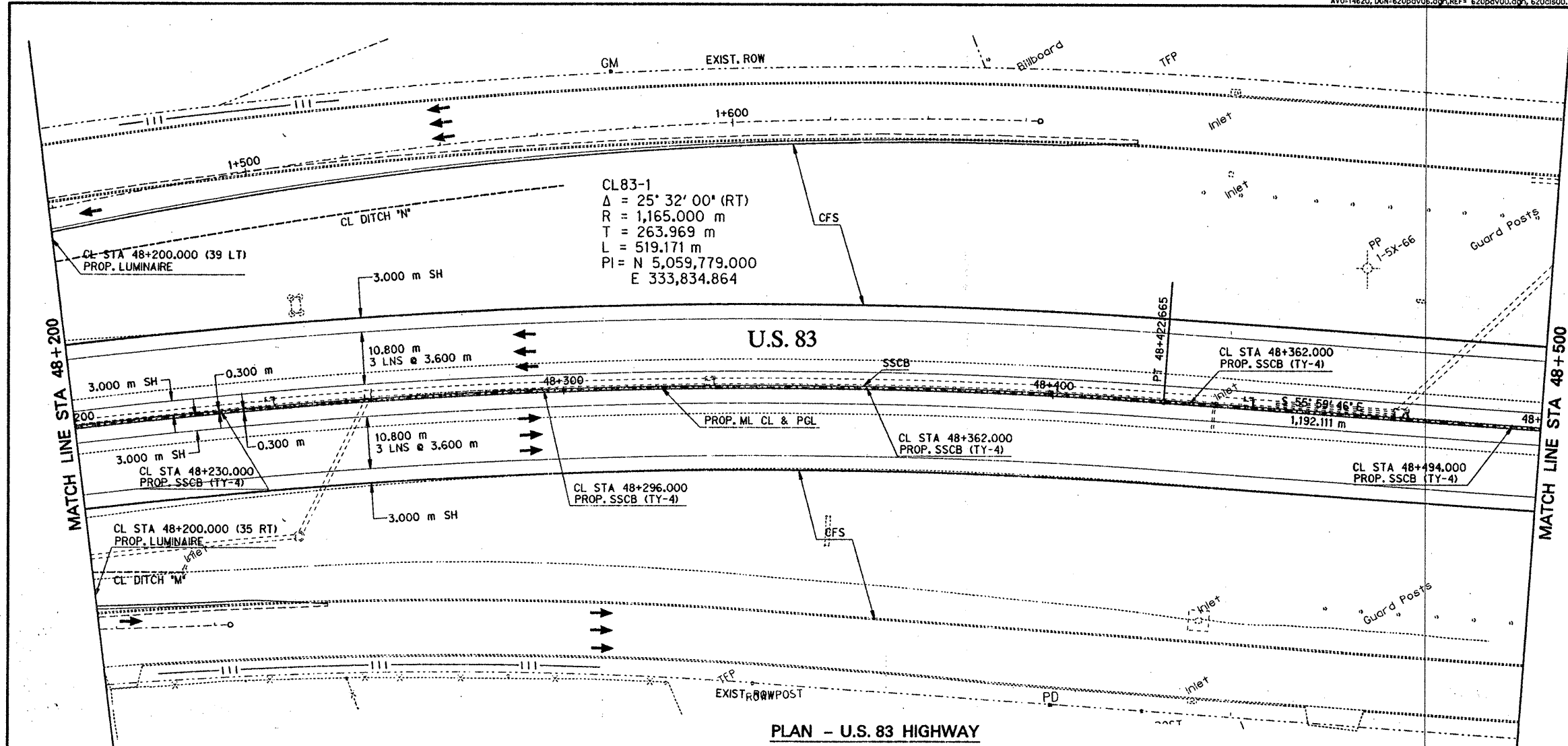


Michael W. King
MICHAEL W. KING
DATE 4/15/96

**MAIN LANE - PAVING
STA 47+900 TO STA 48+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION**

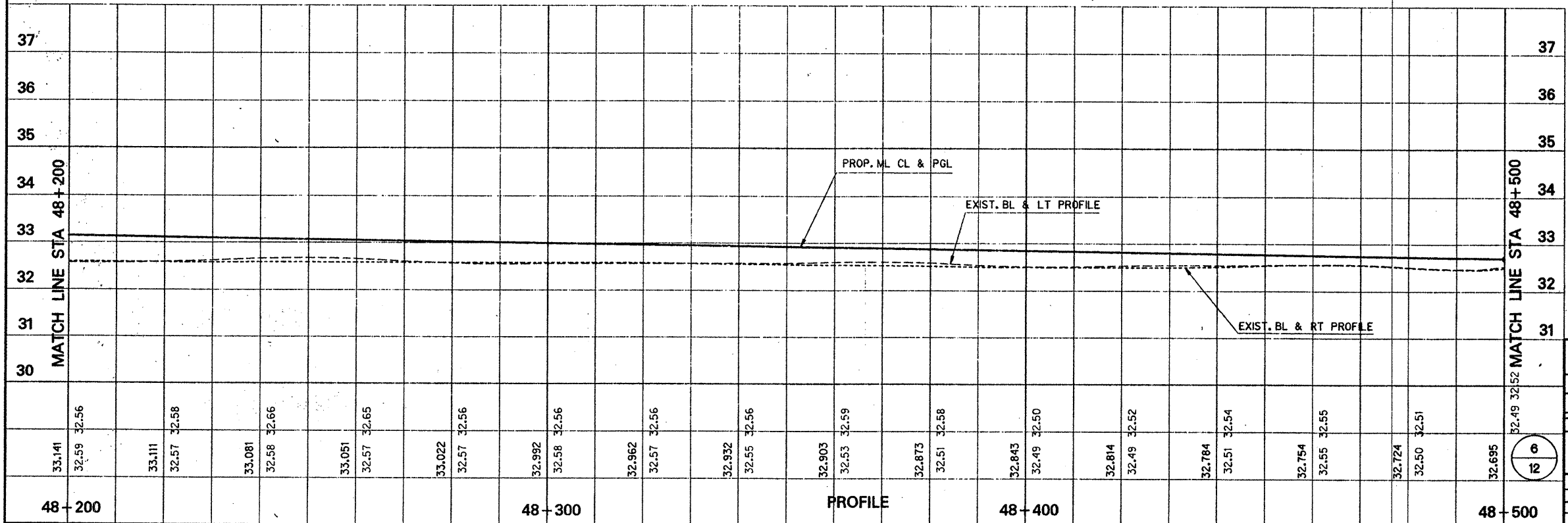
Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		8	TEXAS	NH 06/18/AA	54
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT SECTION	JOB NO.
APRIL 1996	620PAV06	1:500 HORIZ 1:50 VERT	TX	HIDALGO	000	17 TR



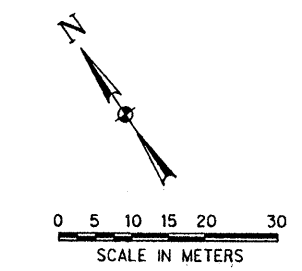
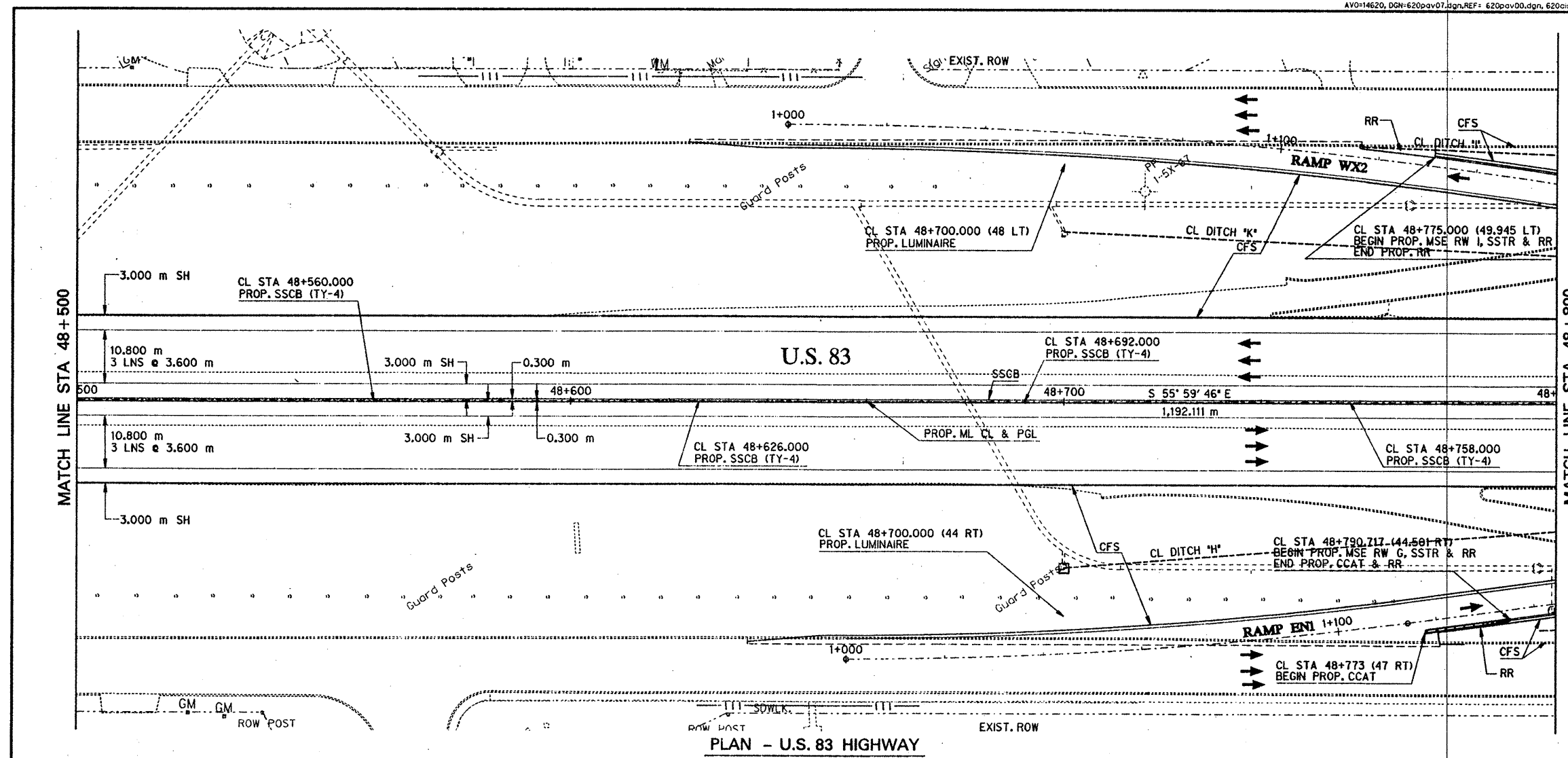
- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - - CONTROL OF ACCESS
 - RR - RIP RAP
 - FC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE

PLAN - U.S. 83 HIGHWAY



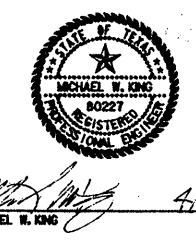
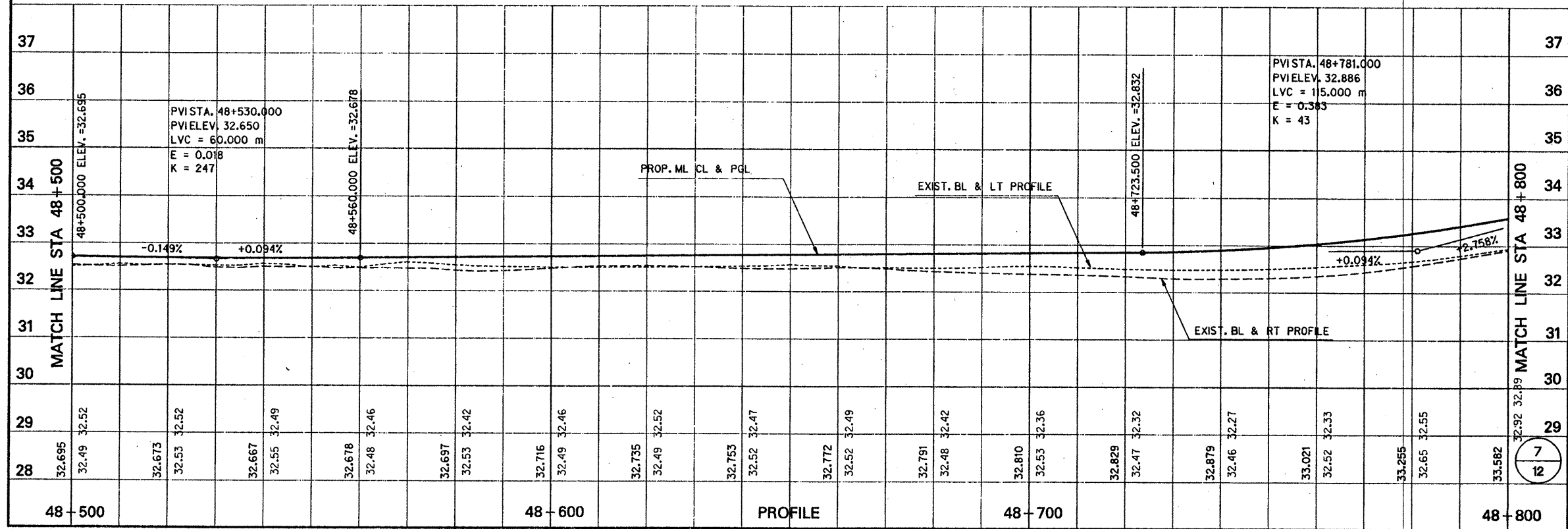
MAIN LANE - PAVING
 STA 48+200 TO STA 48+500
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	DATE	COUNTY	CONTRACT SECTION	HIGHWAY NO.
APRIL 1996	620PAV08	1/8" = 1'-0"	21	HIDALGO	00 21	17 18 U.S. 83



- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE

PLAN - U.S. 83 HIGHWAY

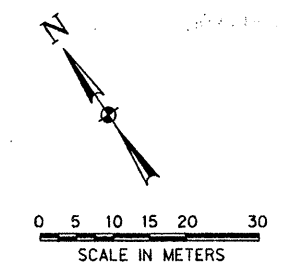


Michael W. King
MICHAEL W. KING
DATE 4/15/96

MAIN LANE - PAVING
STA 48+500 TO STA 48+800
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

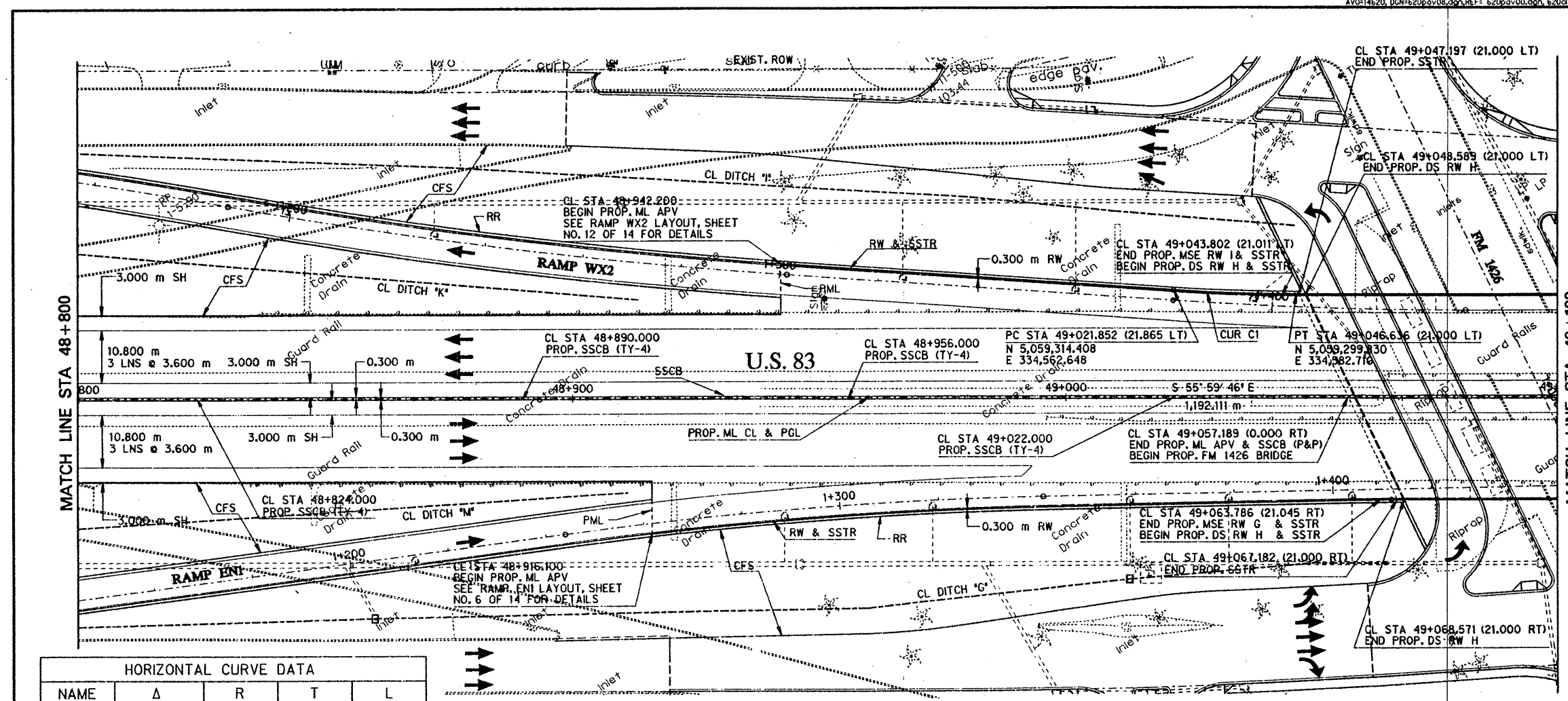
Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO. (REV. NO.)	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	ROUTE NO.
APRIL 1996	620PAV07	AS SHOWN	21	HIDALGO	020	17



LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP
- CL - CENTERLINE

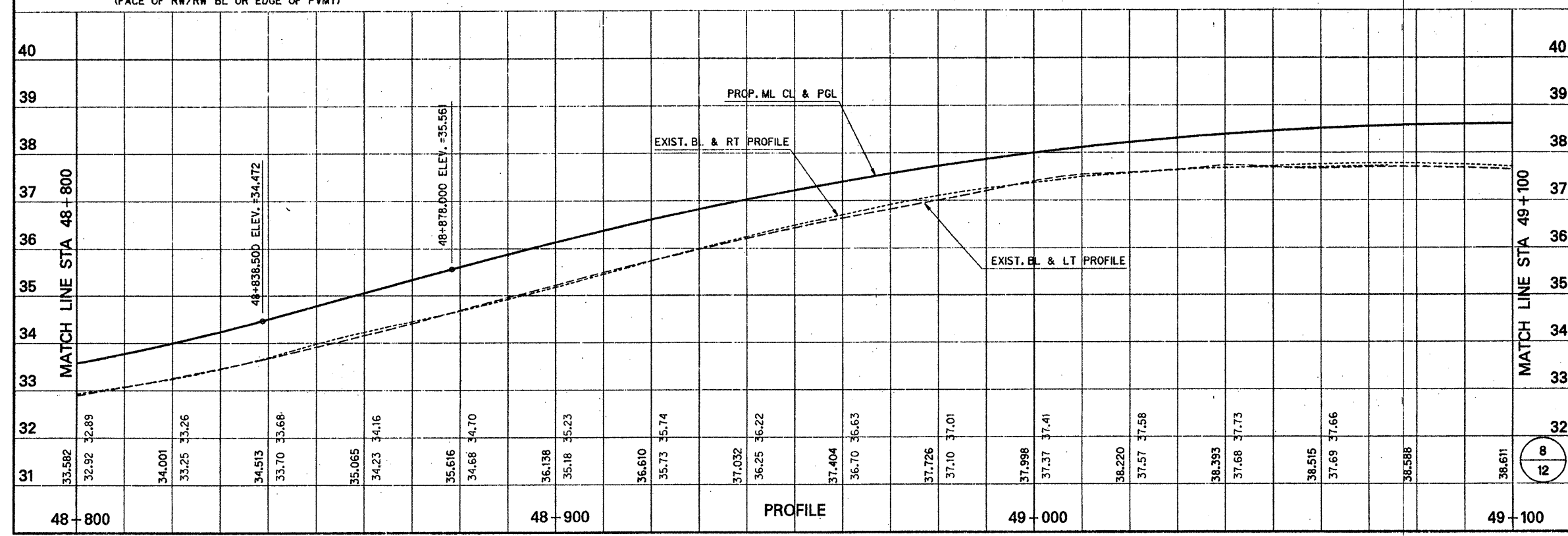


HORIZONTAL CURVE DATA

NAME	Δ	R	T	L
CI	4° 00' 00" LT	355.290	12.407	24.804

(FACE OF RW/RW BL OR EDGE OF PVMT)

PLAN - U.S. 83 HIGHWAY

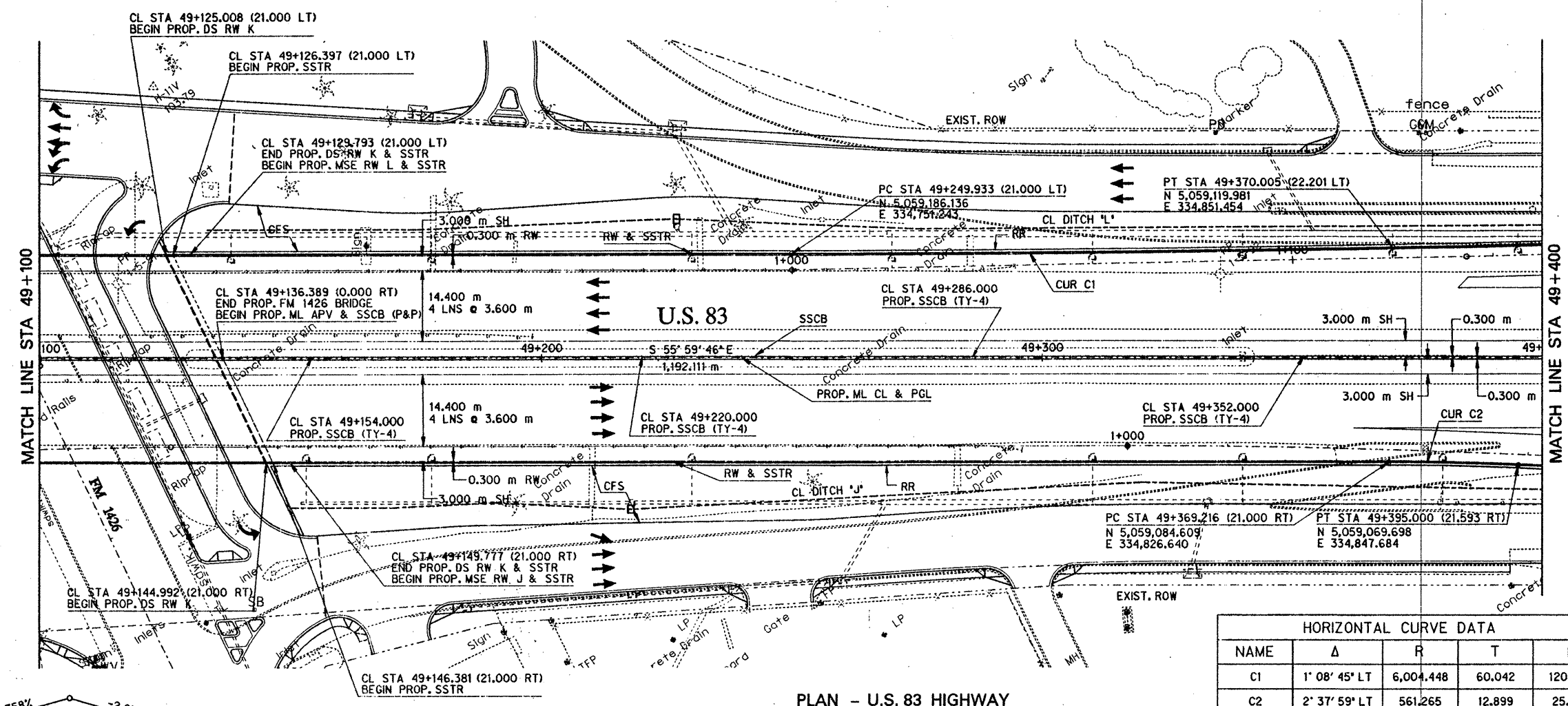
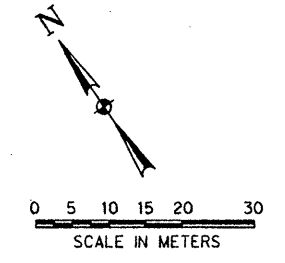


Michael W. King
MICHAEL W. KING
DATE: 11/5/16

MAIN LANE - PAVING
STA 48+800 TO STA 49+100
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			8	TEXAS	NR 47(101)A	167
DATE	FILE	SCALE	STATS.	COUNTY	CONTROL SECTION	JOB NO.
APRIL 2008	620PAV08	1:500 HORIZ 1:500 VERT	21	HIDALGO	20	17



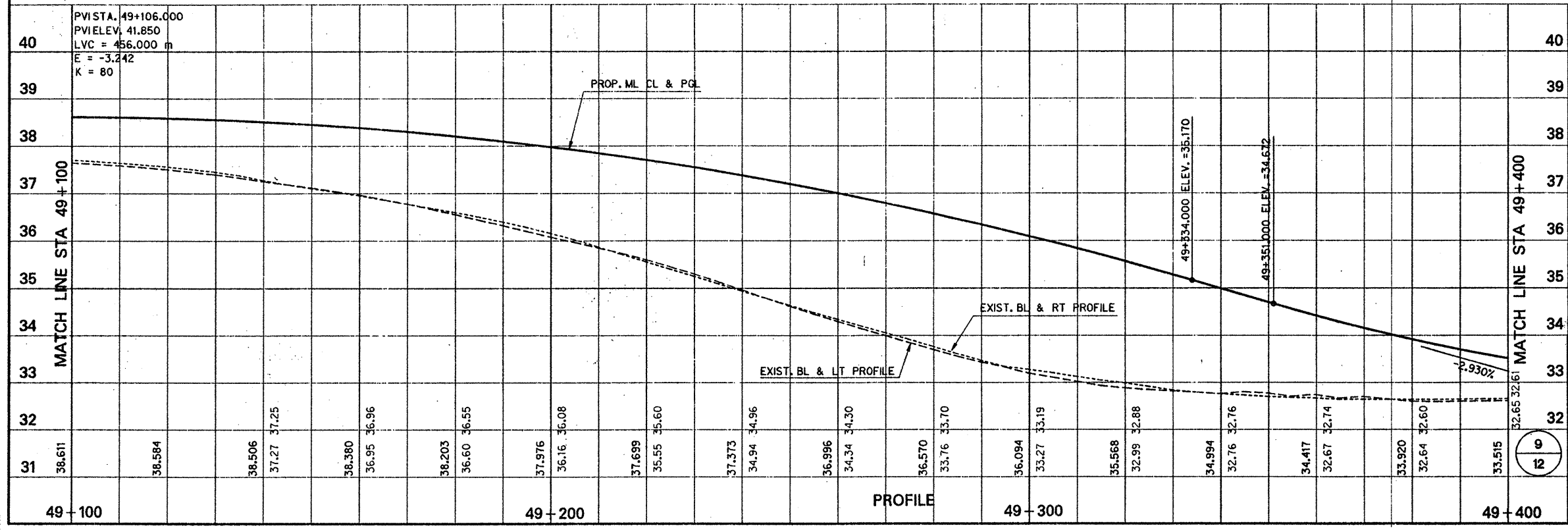
- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE

HORIZONTAL CURVE DATA

NAME	Δ	R	T	L
C1	1° 08' 45" LT	6,004.448	60.042	120.080
C2	2° 37' 59" LT	561.265	12.899	25.793

PLAN - U.S. 83 HIGHWAY

(FACE OF RW/RW BL OR EDGE OF PAVEMENTS)



Michael W. King
MICHAEL W. KING
DATE 4/15/96

MAIN LANE - PAVING
STA 49+100 TO STA 49+400
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD			TEXAS		128
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	620PAV09	1:500 HORIZ 1:50 VERT	21	HIDALGO	0000	17

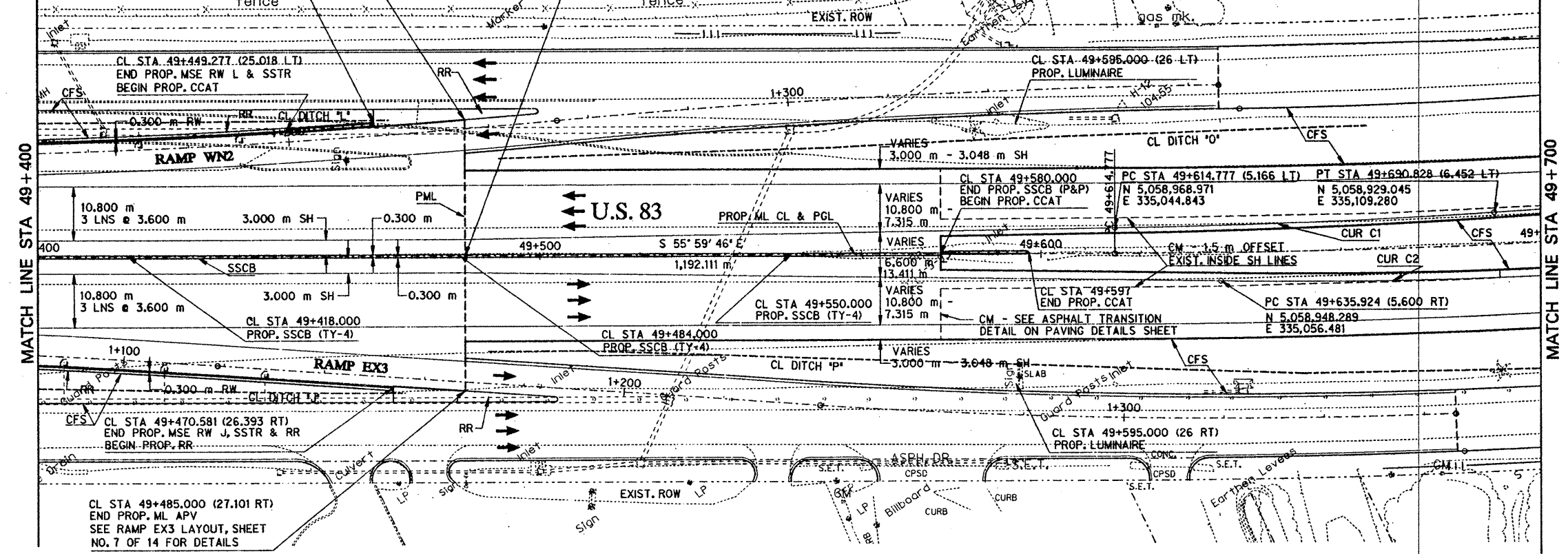
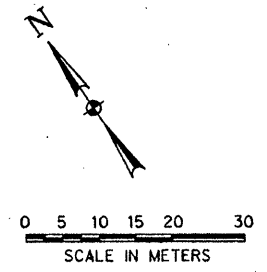
CL STA 49+485.000 (27.172 LT)
END PROP. ML APV
SEE RAMP WN2 LAYOUT, SHEET
NO. 14 OF 14 FOR DETAILS

CL STA 49+467 (26.7 LT)
END PROP. CCAT & RW L RR
BEGIN PROP. RR

CL STA 49+485.000 (0.000 RT)
END PROJECT
CSJ: 39-17-118
END PROP. ML APV
BEGIN PROP. TRANSITION
FROM APV TO EPV

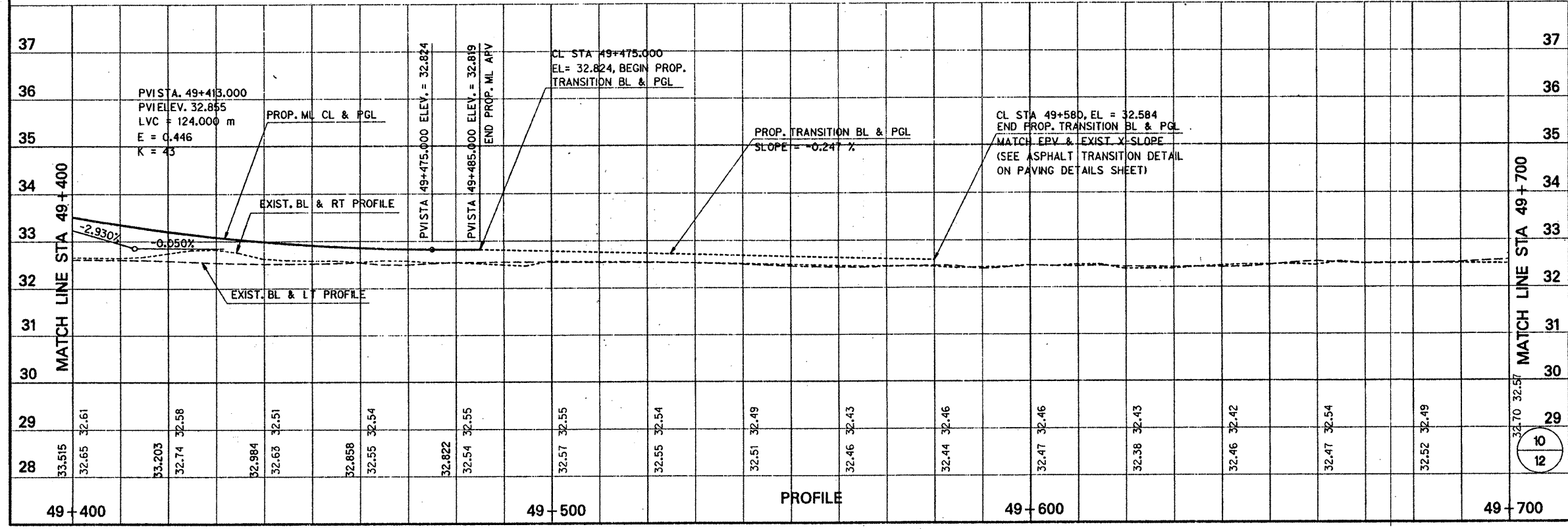
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	2° 47' 38" LT	1,554.737	37.913	75.811
C2	4° 26' 40" LT	1,153.291	44.752	89.458

(TRANSITION SHOULDER LINE)



PLAN - U.S. 83 HIGHWAY

- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE

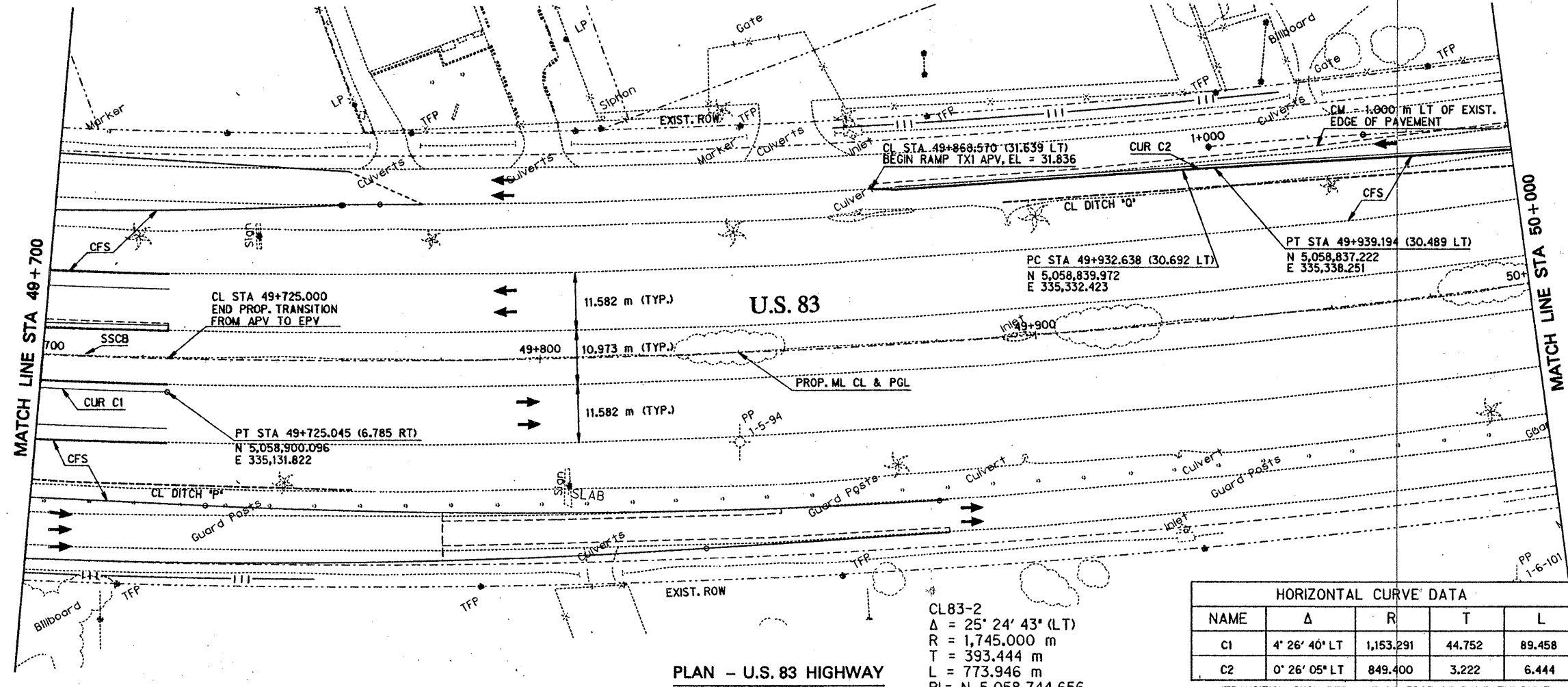
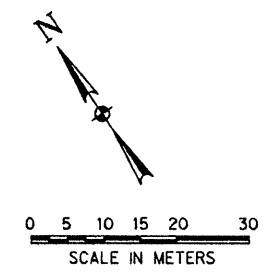


PROFILE



Michael W. King
MICHAEL W. KING
DATE: 4/15/96

MAIN LANE - PAVING		STA 49+400 TO STA 49+700	
U.S. 83 RECONSTRUCTION		HIDALGO COUNTY, TEXAS	
TEXAS DEPARTMENT OF TRANSPORTATION		Half Associates	
DESIGN	DRAWN	NOTES	REV. NO.
CADD		STATE	FEDERAL AID PROJECT NO.
DATE	FILE	SCALE	COUNTY
APR 1996	620PAV00	1:50 HORIZ 1:50 VERT	HIDALGO
			SECTION NO.
			JOB NO.
			118
			U.S. 83



PLAN - U.S. 83 HIGHWAY

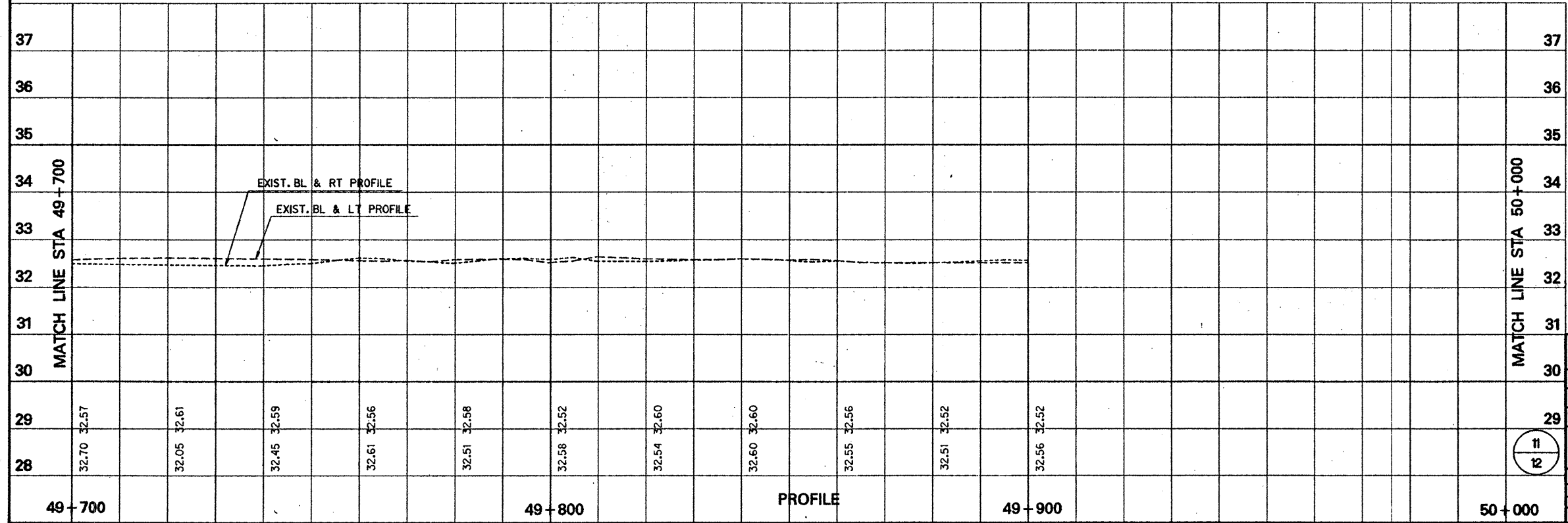
CL83-2
 $\Delta = 25^\circ 24' 43''$ (LT)
 $R = 1,745.000$ m
 $T = 393.444$ m
 $L = 773.946$ m
 $PI = N 5,058,744.656$
 $E 335,368.119$

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	4° 26' 40" LT	1,153.291	44.752	89.458
C2	0° 26' 05" LT	849.400	3.222	6.444

(TRANSITION SHOULDER LINE OR EDGE OF RAMP TXI PVMT)

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CAA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP
- CL - CENTERLINE



PROFILE

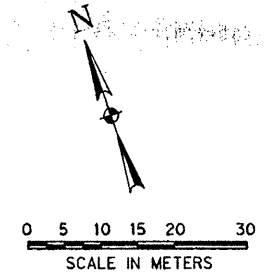


Michael W. King
 MICHAEL W. KING
 DATE 4/15/96

MAIN LANE - PAVING
 STA 49+700 TO STA 50+000
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

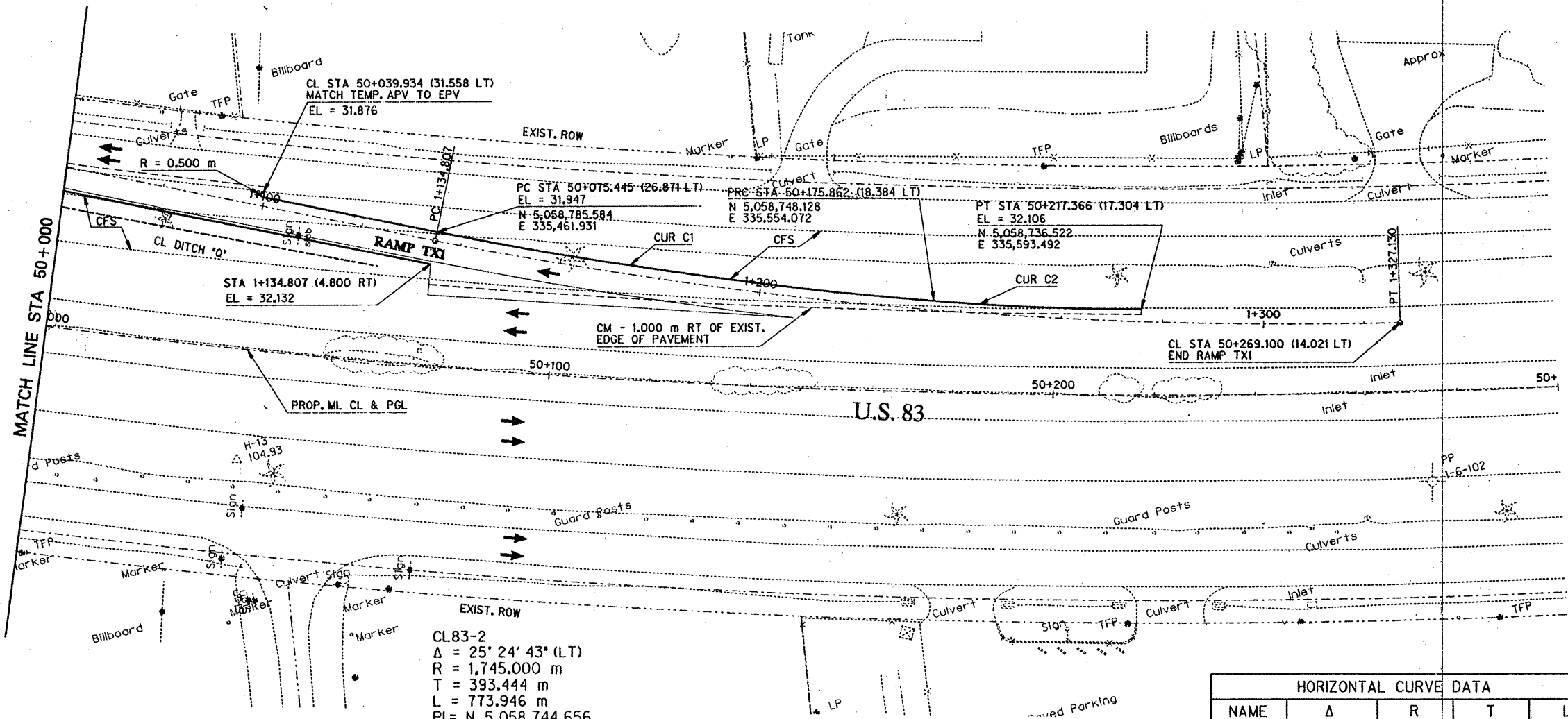
Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS	111-010-101	170
DATE	FILE	SCALE	STATE	COUNTY	SECTION NO.	JOB NO.
4/15/96	620PAV1	1/8" = 1'-0"	TX	HIDALGO	008	17



LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP
- CL - CENTERLINE



CL83-2
 Δ = 25° 24' 43" (LT)
 R = 1,745.000 m
 T = 393.444 m
 L = 773.946 m
 PI = N 5,058,744.656
 E 335,368.119

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	6° 43' 21" LT	848.200	49.817	99.520
C2	4° 42' 37" LT	500.000	20.564	41.104

(EDGE OF RAMP TXI PVMT)



Michael W. King
 MICHAEL W. KING
 DATE 4/15/96

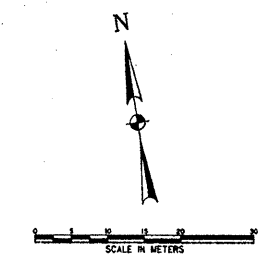
MAIN LANE - PAVING
STA 50+000 TO STA 50+300
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS		12
DATE	FILE	SCALE	STATE PROJ. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1996	60P/AVS	1"=80' HORIZ 1"=20' VERT	21	HIDALGO	20	17
						U.S. 83

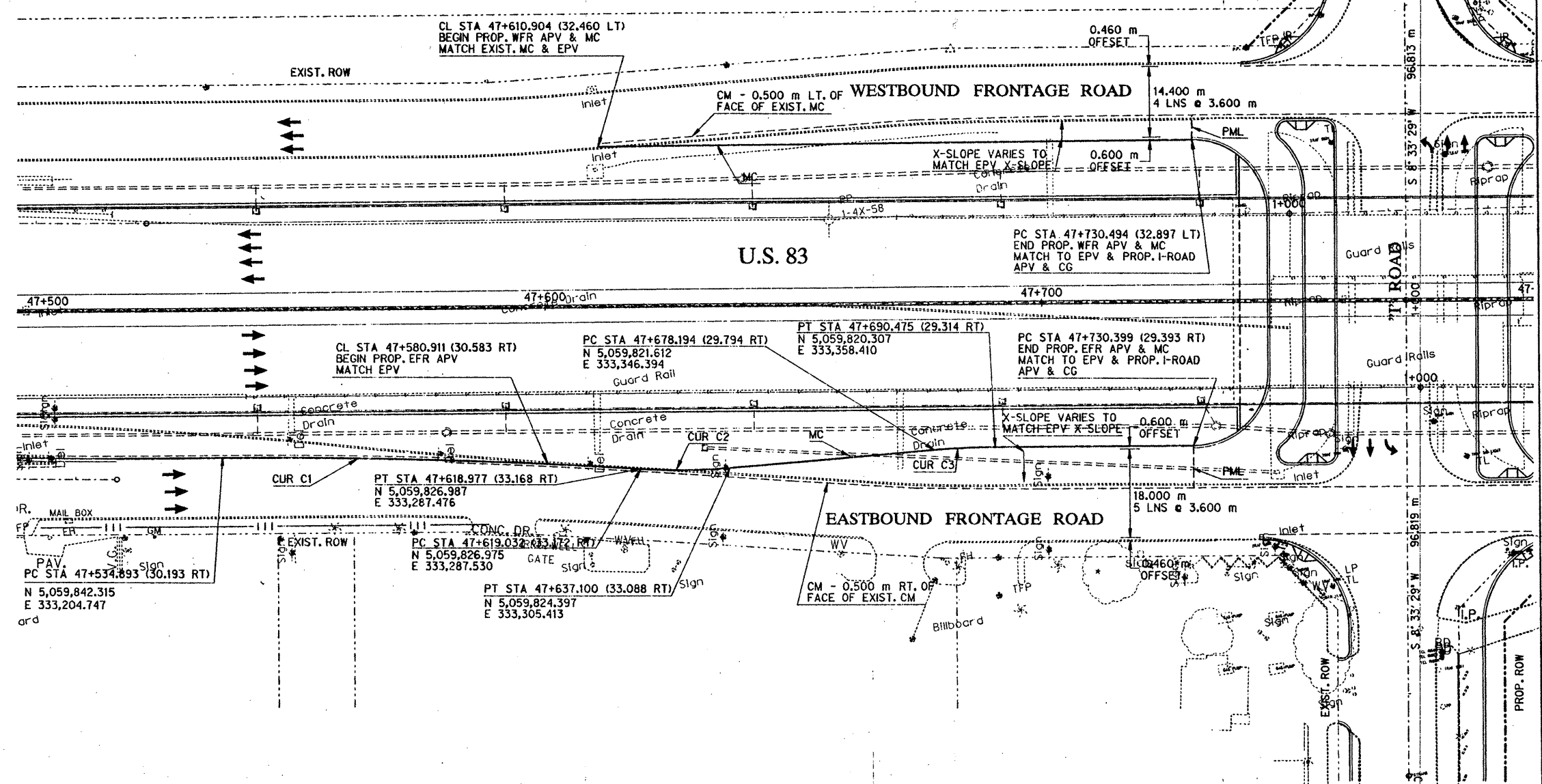
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	4° 03' 07" LT	1,190.000	42.095	84.154
C2	8° 38' 06" RT	120.000	9.060	18.085
C3	4° 41' 45" LT	150.000	6.150	12.294

(NOMINAL FACE OF CURB)



LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP



MATCH LINE STA. 47+800



Michael W. King
MICHAEL W. KING
DATE

E.B. & W.B. FRONTAGE ROADS - PAVING
STA 47+500 TO STA 47+800
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

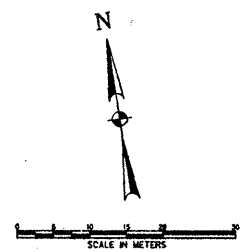
Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTED	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS	N/A	172
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT SECTION NO.	HIGHWAY NO.
4/16/96	606/PROJ	1:500 HORIZ 1:50 VERT	21	HIDALGO	0030	17

PLAN - EASTBOUND & WESTBOUND FRONTAGE ROADS

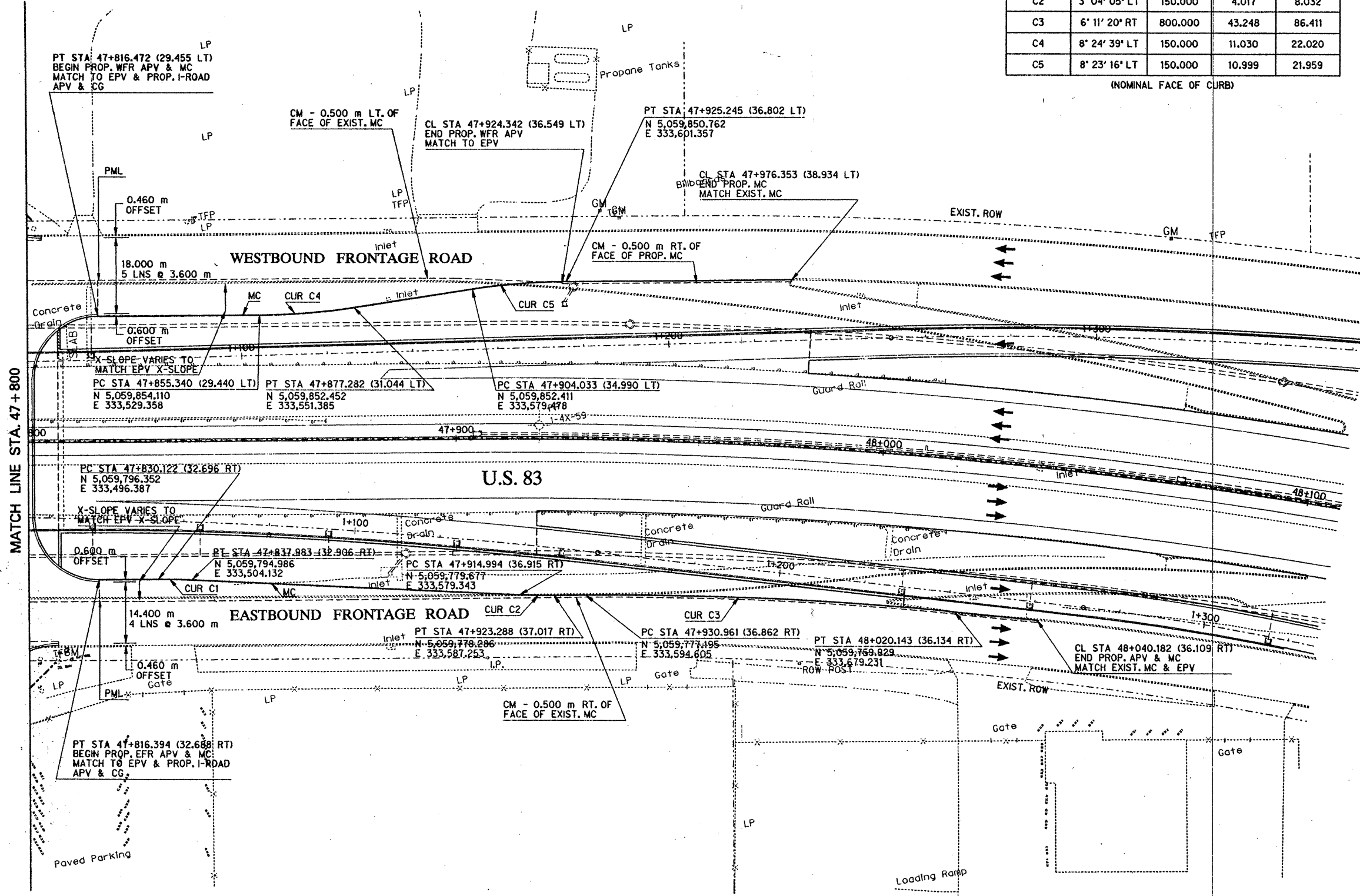
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	3° 00' 15" RT	150.000	3.933	7.865
C2	3° 04' 05" LT	150.000	4.017	8.032
C3	6° 11' 20" RT	800.000	43.248	86.411
C4	8° 24' 39" LT	150.000	11.030	22.020
C5	8° 23' 16" LT	150.000	10.999	21.959

(NOMINAL FACE OF CURB)



LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP



PLAN - EASTBOUND & WESTBOUND FRONTAGE ROADS

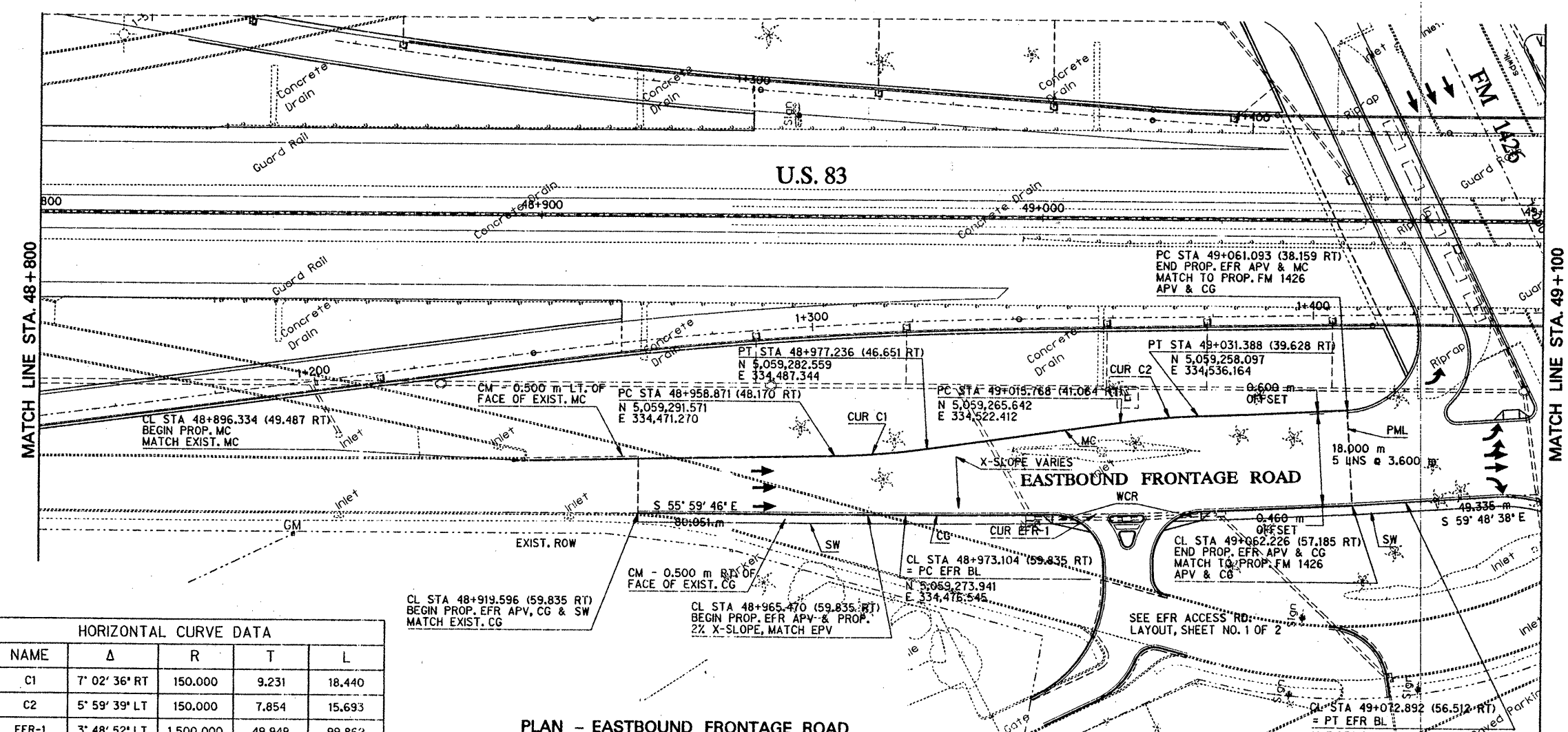
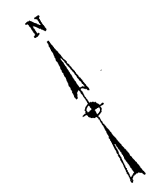


Michael W. King
DATE

E.B. & W.B. FRONTAGE ROADS - PAVING
STA 47+500 TO STA 48+800
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		2	TEXAS	111 467-201A	173
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APR 2000	006EPR02	1:500 HORIZ 1:80 VERT	21	HIDALGO	DO 36	17 118



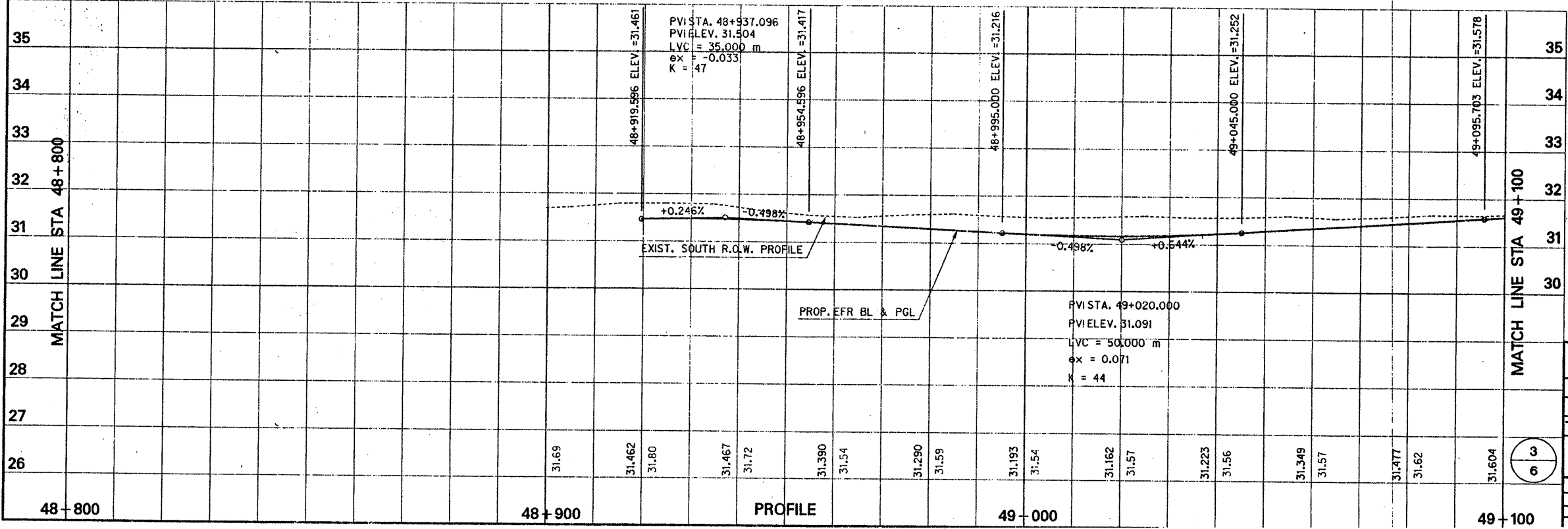
LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
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- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	7° 02' 36" RT	150.000	9.231	18.440
C2	5° 59' 39" LT	150.000	7.854	15.693
EFR-1	3° 48' 52" LT	1,500.000	49.949	99.862

(NOMINAL FOC OR EFR BL)

PLAN - EASTBOUND FRONTAGE ROAD

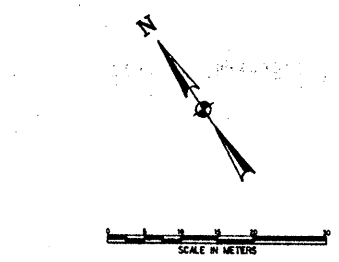
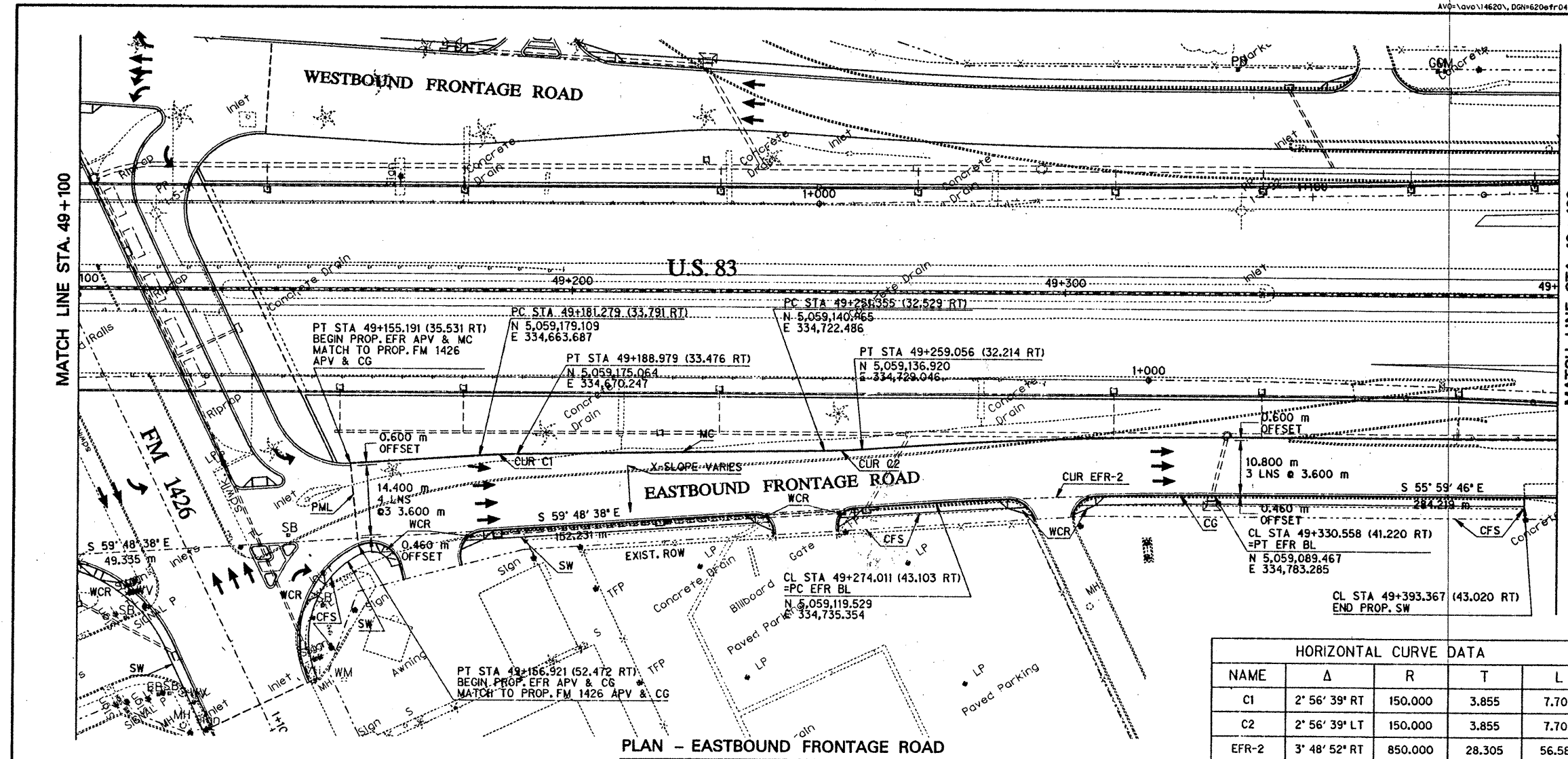


Michael W. King
MICHAEL W. KING
DATE: 4/15/96

EASTBOUND FRONTAGE ROAD - PAVING
STA 48+800 TO STA 49+100
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			TX	TEXAS	NH 94 (W) 28	17A
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
APRIL 8 1996	620EF03	1:500 HORIZ	TX	HIDALGO	00	17A

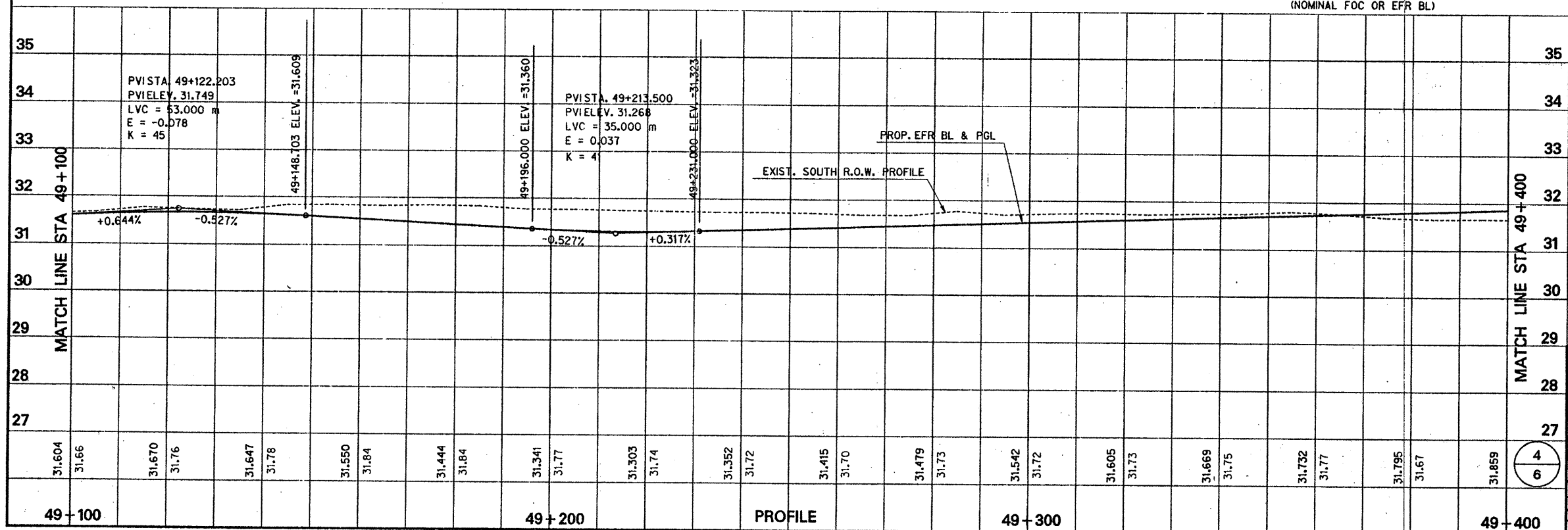


LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	2° 56' 39" RT	150.000	3.855	7.708
C2	2° 56' 39" LT	150.000	3.855	7.708
EFR-2	3° 48' 52" RT	850.000	28.305	56.588

(NOMINAL FOC OR EFR BL)

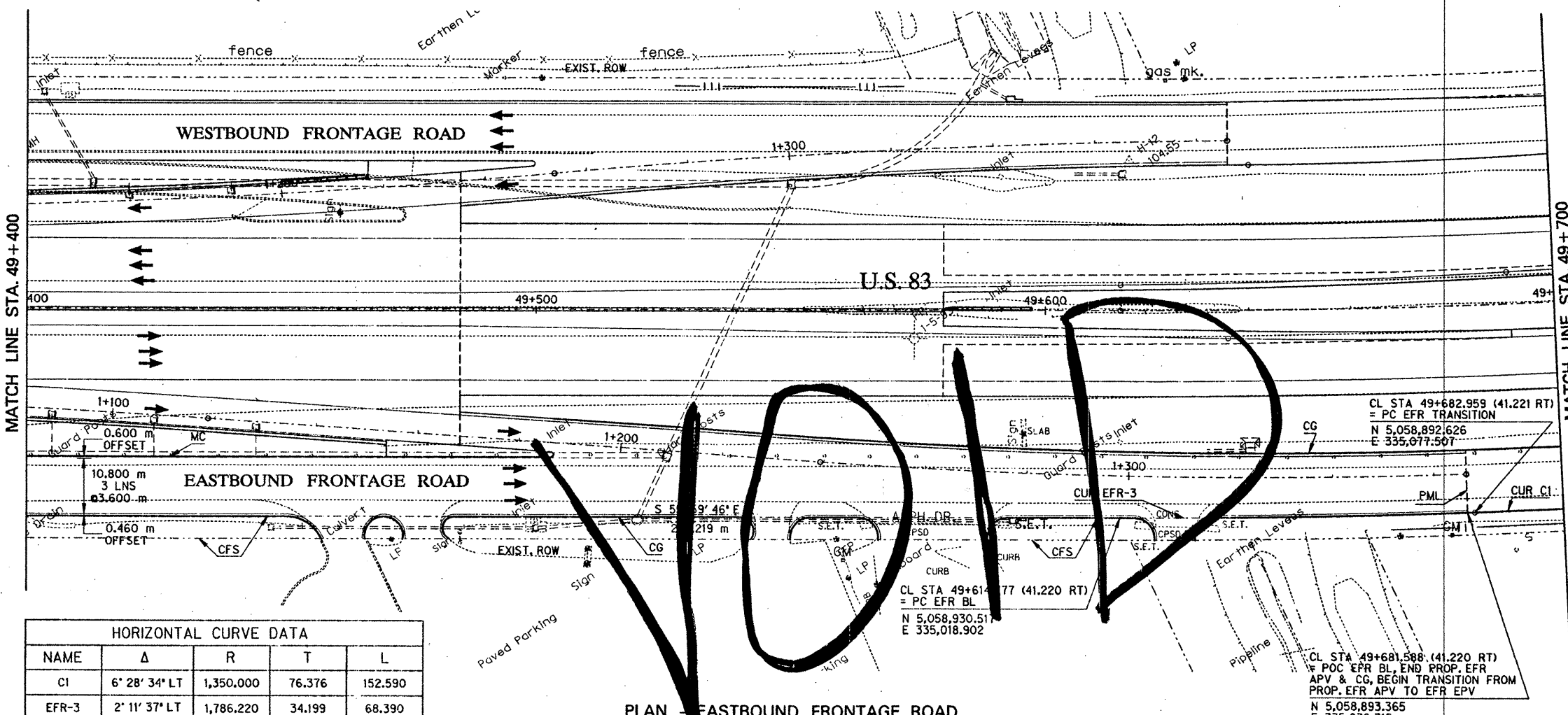
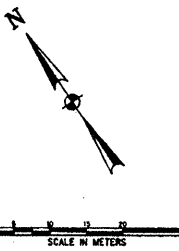


Michael W. King
MICHAEL W. KING
DATE: 4/15/96

EASTBOUND FRONTAGE ROAD - PAVING
STA 49+100 TO STA 49+400
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			8	TEXAS	NH 067800	175
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	ROADWAY
APRIL 1996	620EFR04	1:500 HORIZ 1:50 VERT.	21	HIDALGO	0030	17



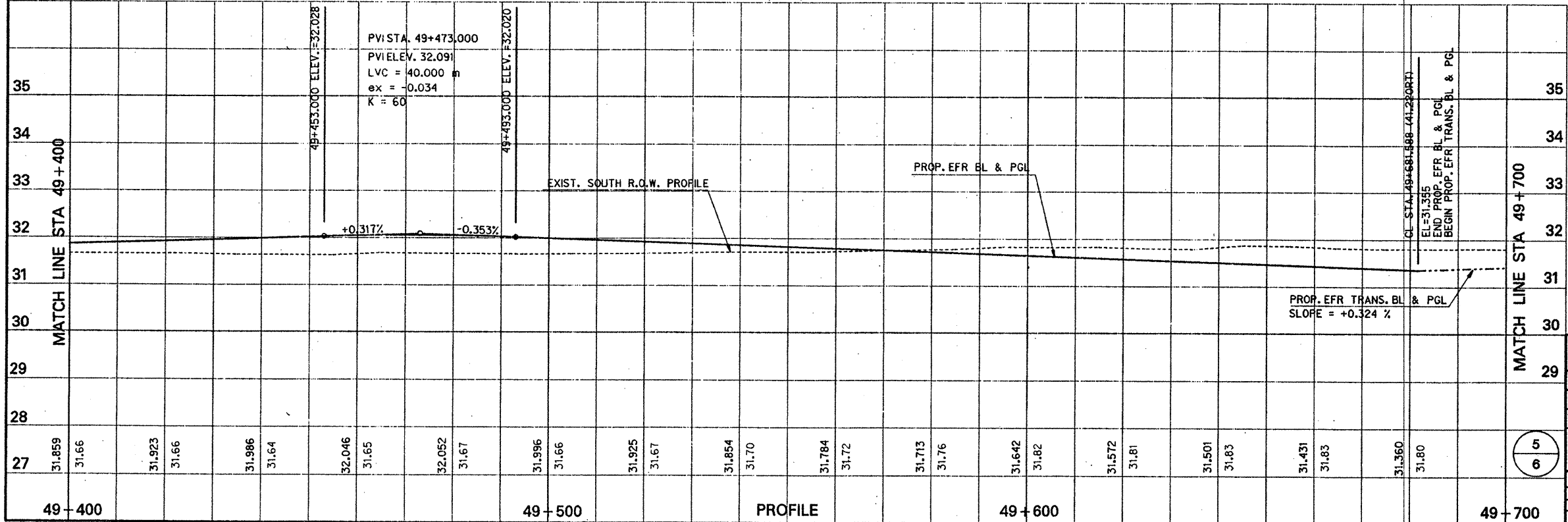
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
CI	6° 28' 34" LT	1,350.000	76.376	152.590
EFR-3	2° 11' 37" LT	1,786.220	34.199	68.390

(EFR BL OR EFR TRANSITION EDGE OF PVMT)

PLAN - EASTBOUND FRONTAGE ROAD

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP



MATCH LINE STA 49+700



Michael W. King 4/15/96
MICHAEL W. KING DATE

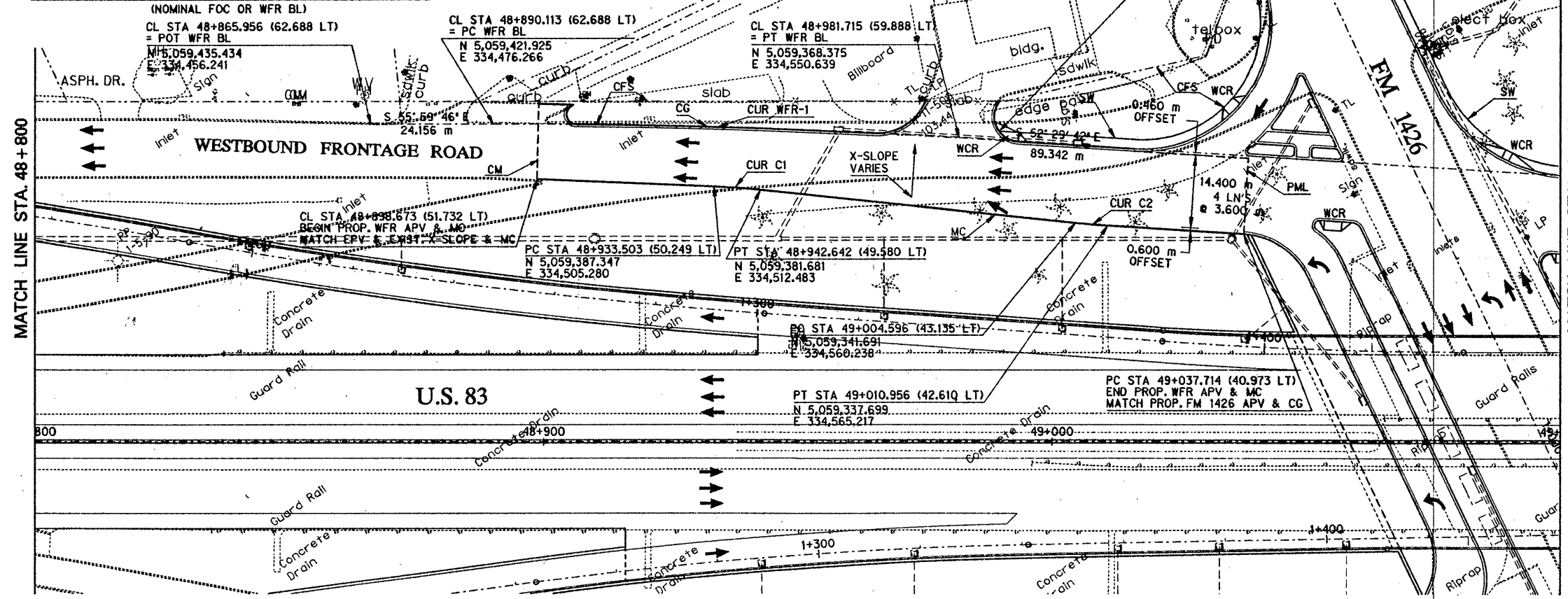
EASTBOUND FRONTAGE ROAD - PAVING
STA 49+400 TO STA 49+700
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		2	TEXAS	NE 02 (79) 1A	176
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
APR 92	620EFR06	1:50 HORIZ 1:50 VERT	21	HIDALGO	17	19

5
6

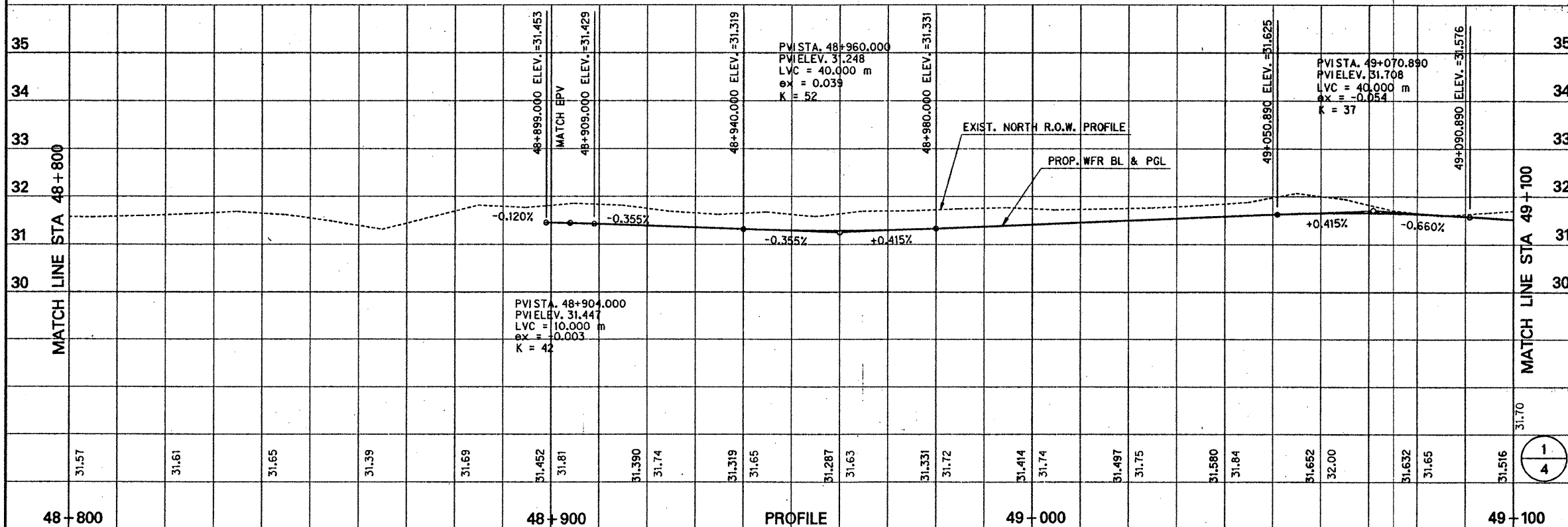
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	3° 30' 04" LT	150.000	4.584	9.166
C2	2° 26' 16" RT	150.000	3.192	6.382
WFR-1	3° 30' 04" RT	1,500.000	45.844	91.659



PLAN - WESTBOUND FRONTAGE ROAD

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFG - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP



PROFILE



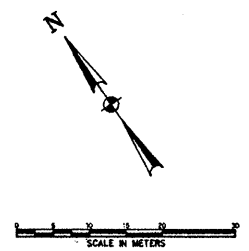
Michael W. King
MICHAEL W. KING
DATE 4/15/06

WESTBOUND FRONTAGE ROAD - PAVING
STA 48+800 TO STA 49+100
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

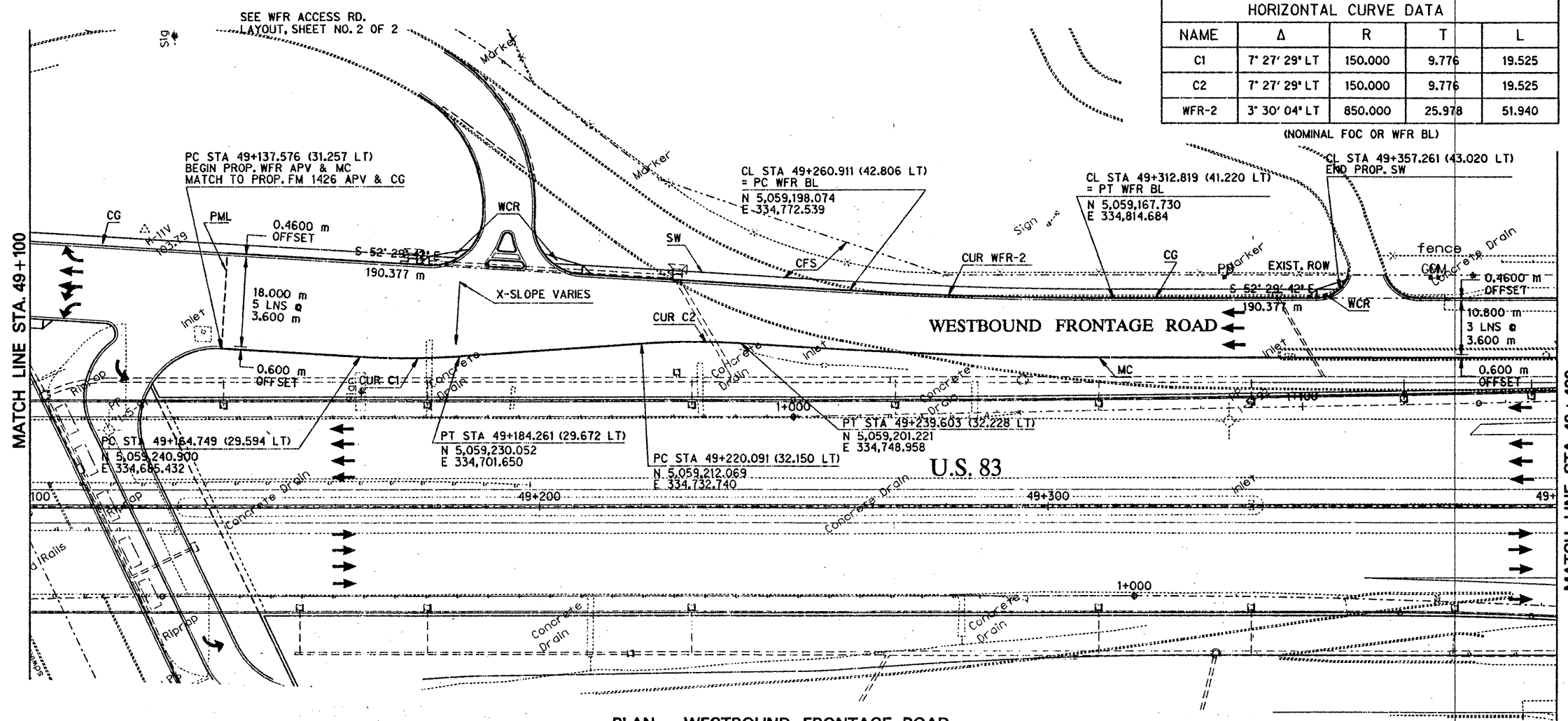


DESIGN	DRAWN	NOTES	FED. AID DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			8	TEXAS	DN 216790	7/78
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 2006	HWYFR01	1:500 HORIZ 1:50 VERT	TX	HIDALGO	0039	17

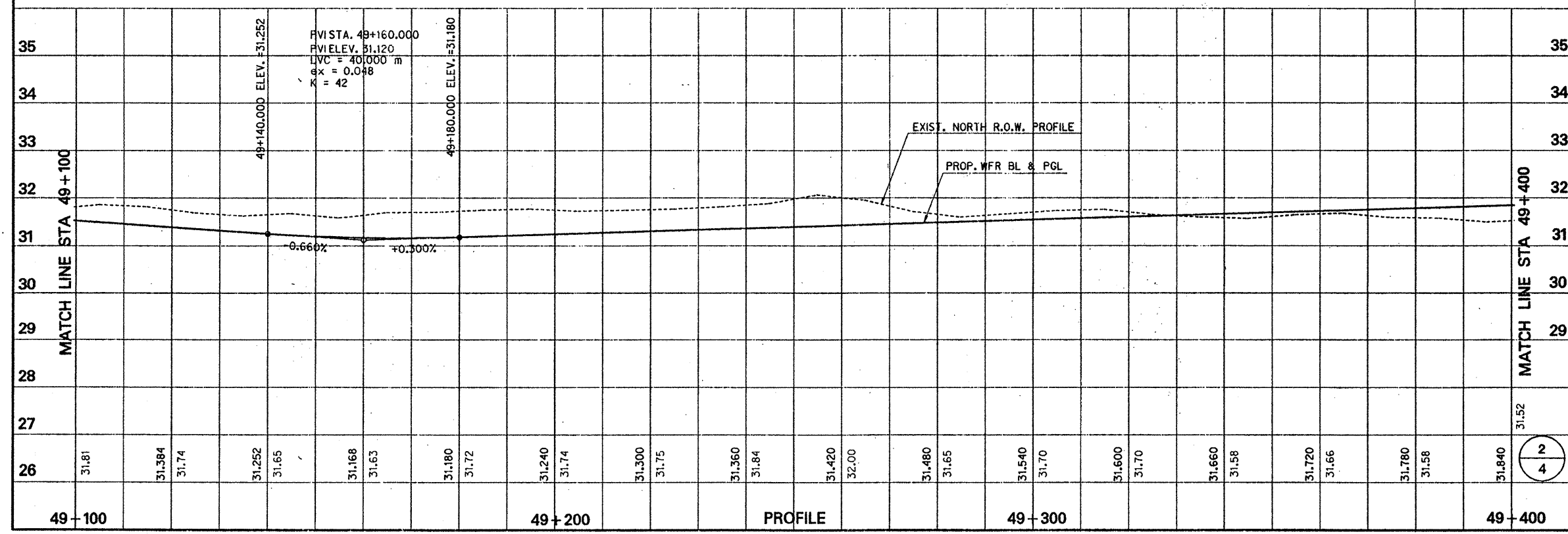
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	7° 27' 29" LT	150.000	9.776	19.525
C2	7° 27' 29" LT	150.000	9.776	19.525
WFR-2	3° 30' 04" LT	850.000	25.978	51.940



- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP



PLAN - WESTBOUND FRONTAGE ROAD

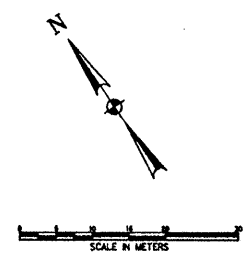
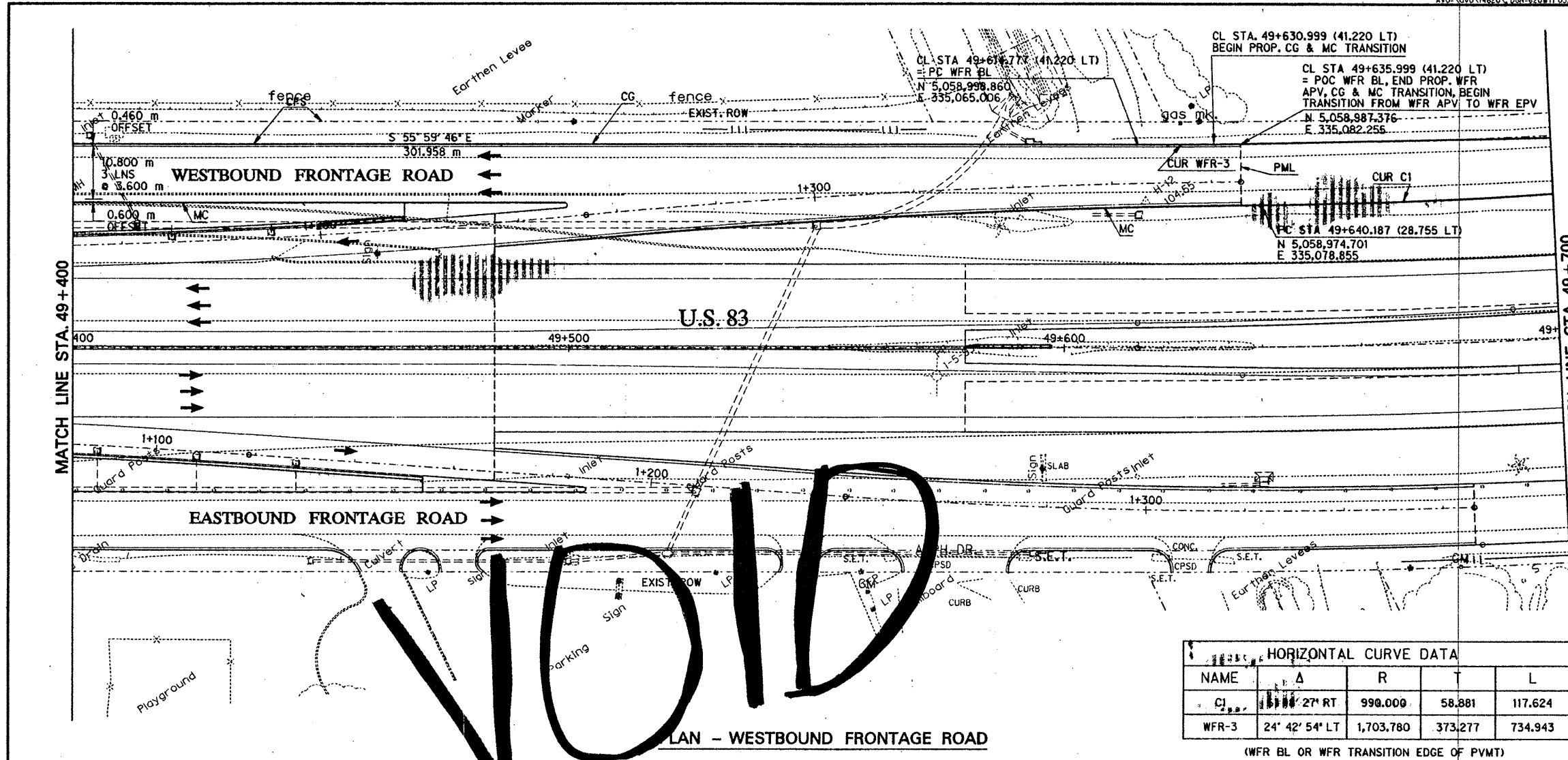


Michael W. King
MICHAEL W. KING
DATE 4/16/96

WESTBOUND FRONTAGE ROAD - PAVING
STA 49+100 TO STA 49+400
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Haff Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		1	TEXAS	179	179
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	620WFR02	1:80 HORIZ 1:80 VERT	21	HIDALGO	00	17

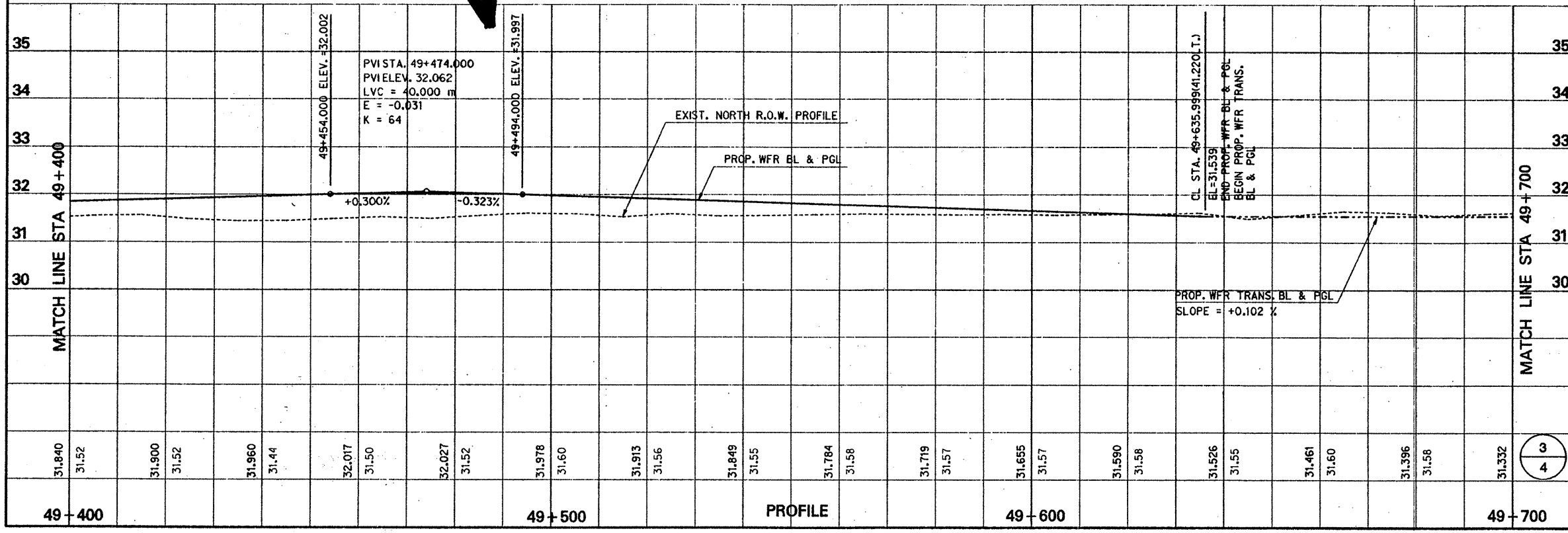


- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP

HORIZONTAL CURVE DATA

NAME	Δ	R	T	L
C1	27° RT	990.000	58.881	117.624
WFR-3	24° 42' 54" LT	1,703.780	373.277	734.943

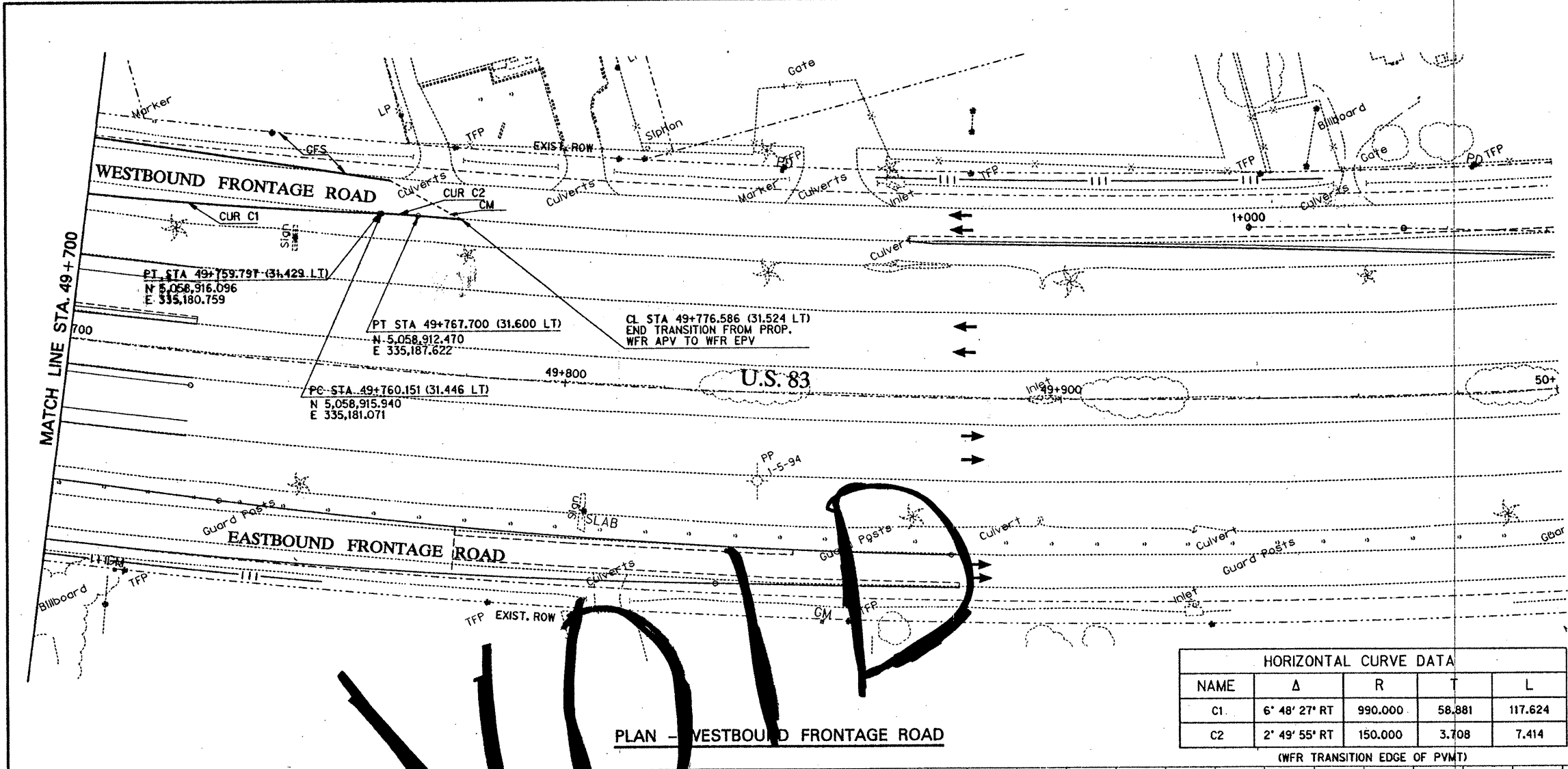
(WFR BL OR WFR TRANSITION EDGE OF PVMT)



WESTBOUND FRONTAGE ROAD - PAVING
STA 49+400 TO STA 49+700
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			TX	TX	117 017 101	180
DATE	FILE	SCALE	DIST. NO.	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	620WFR03	1:30 HORIZ 1:30 VERT	21	HIDALGO	30	17 18 U.S. 83

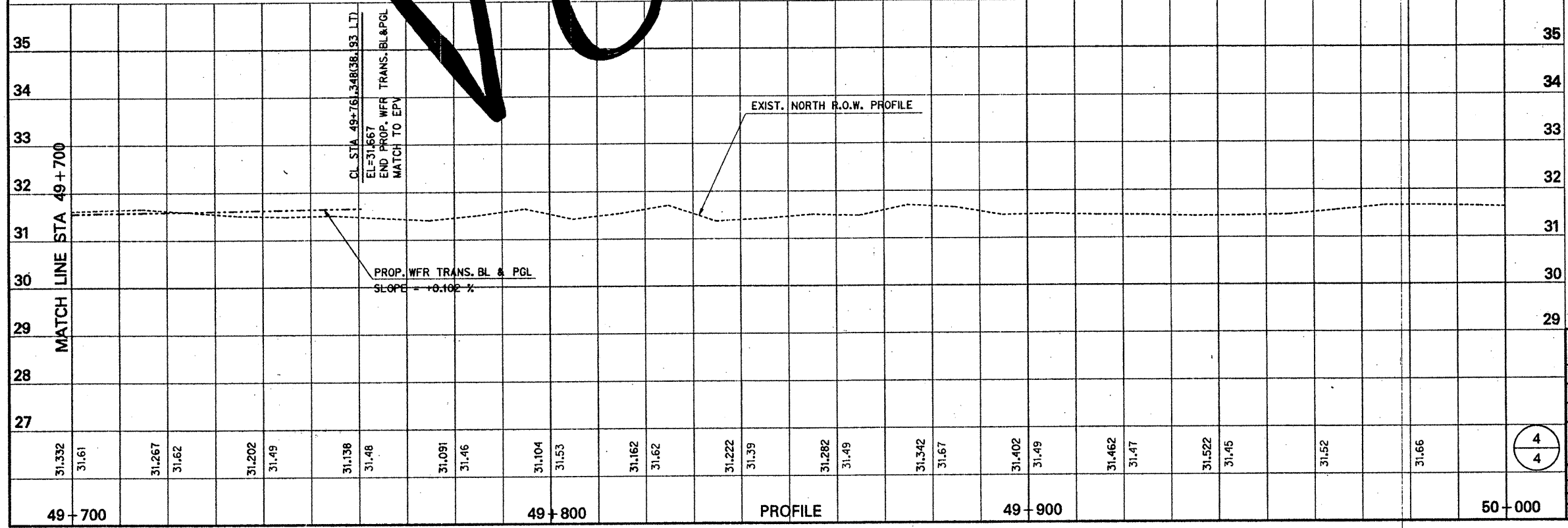


- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP

HORIZONTAL CURVE DATA

NAME	Δ	R	T	L
C1	6° 48' 27" RT	990.000	58.881	117.624
C2	2° 49' 55" RT	150.000	3.708	7.414

(WFR TRANSITION EDGE OF PVMT)



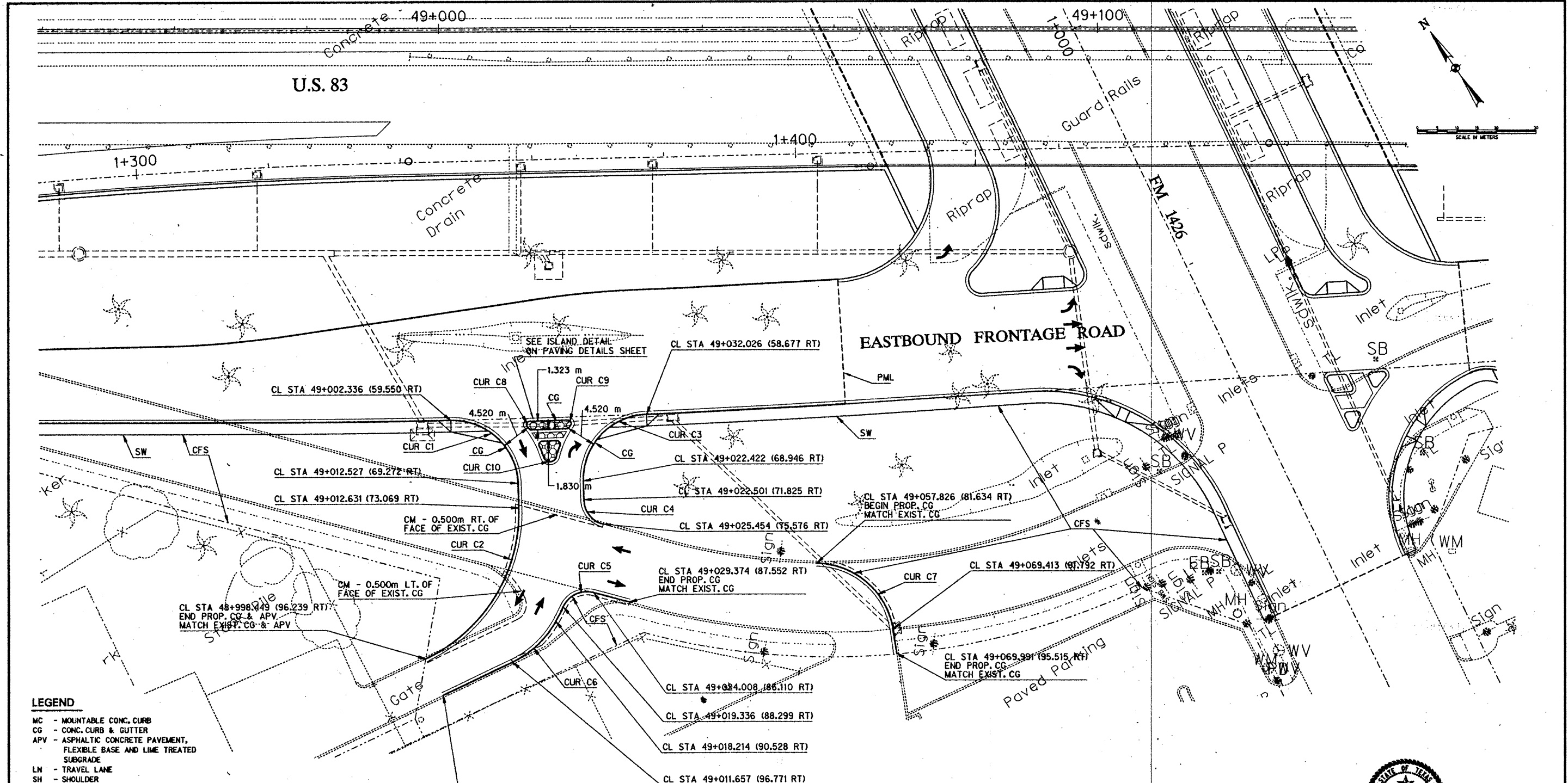
Michael W. King 4/15/96
MICHAEL W. KING DATE

WESTBOUND FRONTAGE ROADS - PAVING
STA 49+700 TO STA 50+000
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	620WFR04	1:800 HORIZ 1:80 VERT	21	HIDALGO	2031	17

4
4



LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- - CONTROL OF ACCESS
- RR - RIP RAP
- FC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP
- CL - CENTERLINE
- - BRICK PAVER

PLAN - EASTBOUND FRONTAGE ROAD

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	89° 31' 52" RT	10,000	9.919	15.626
C2	65° 49' 10" LT	25,000	16.179	28.719
C3	89° 19' 51" LT	10,000	9.884	15.591
C4	73° 16' 24" LT	4,000	2.975	5.115
C5	80° 19' 05" LT	4,000	3.375	5.607
C6	35° 07' 48" LT	15,000	4.748	9.197
C7	79° 53' 22" RT	12,000	10.049	16.732
C8	26° 46' 30" RT	0.500	0.998	1.106
C9	26° 46' 30" RT	0.500	0.998	1.106
C10	148° 51' 20" LT	1,000	3.588	2.598



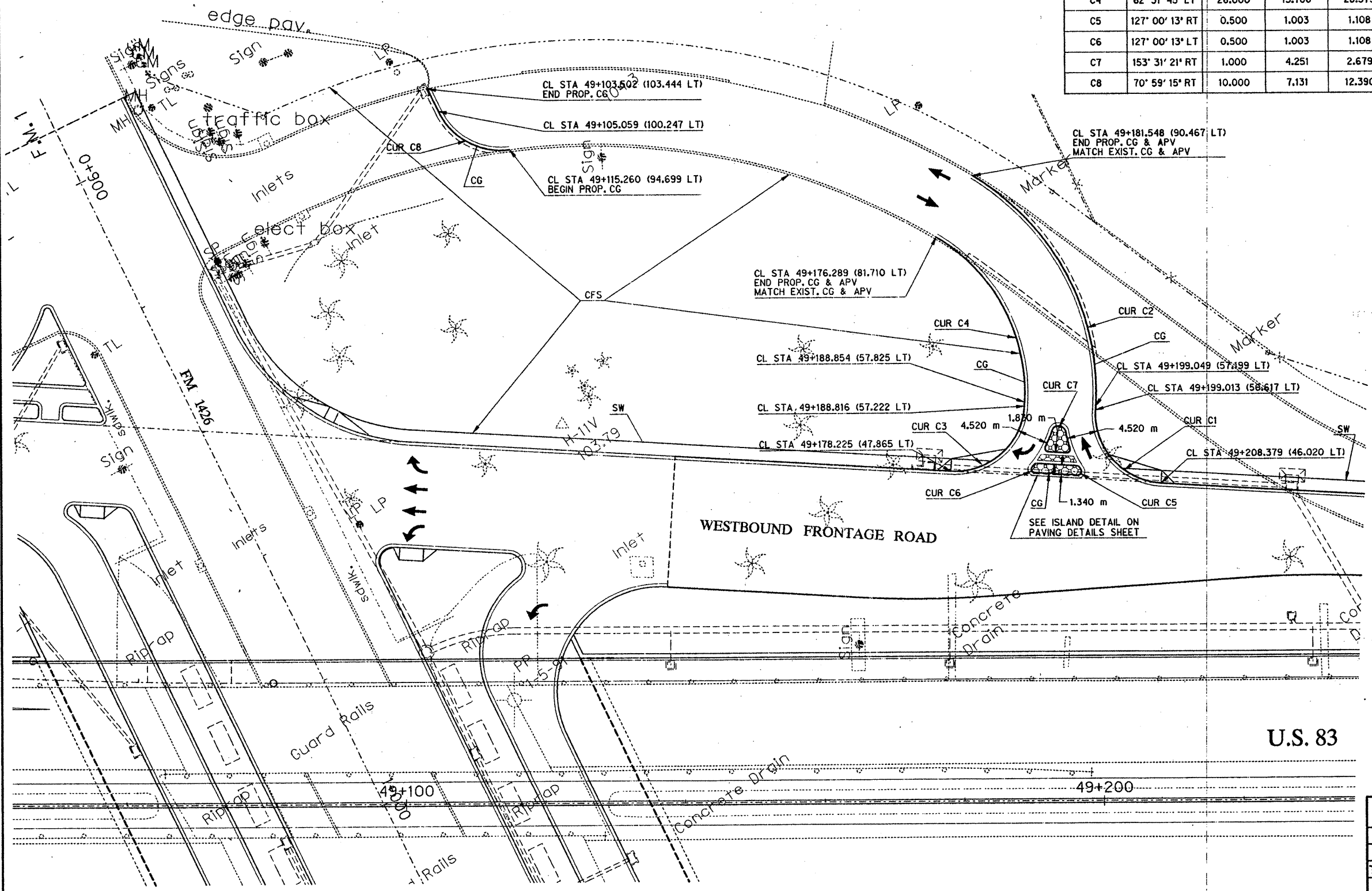
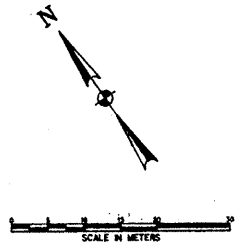
Michael W. King
DATE: 4/15/26

EASTBOUND FRONTAGE ROADS - PAVING
SOUTH ACCESS ROAD
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD			TEXAS		132
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	SECTION NO.	JOB NO.

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	90° 01' 37" LT	10.000	10.005	15.713
C2	62° 31' 45" LT	36.215	21.988	39.523
C3	89° 55' 08" RT	10.000	9.986	15.694
C4	62° 31' 45" LT	26.000	15.786	28.375
C5	127° 00' 13" RT	0.500	1.003	1.108
C6	127° 00' 13" LT	0.500	1.003	1.108
C7	153° 31' 21" RT	1.000	4.251	2.679
C8	70° 59' 15" RT	10.000	7.131	12.390



- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFG - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SNAPT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - BP - BRICK PAVER



Michael W. King
 MICHAEL W. KING
 DATE 4/16/96

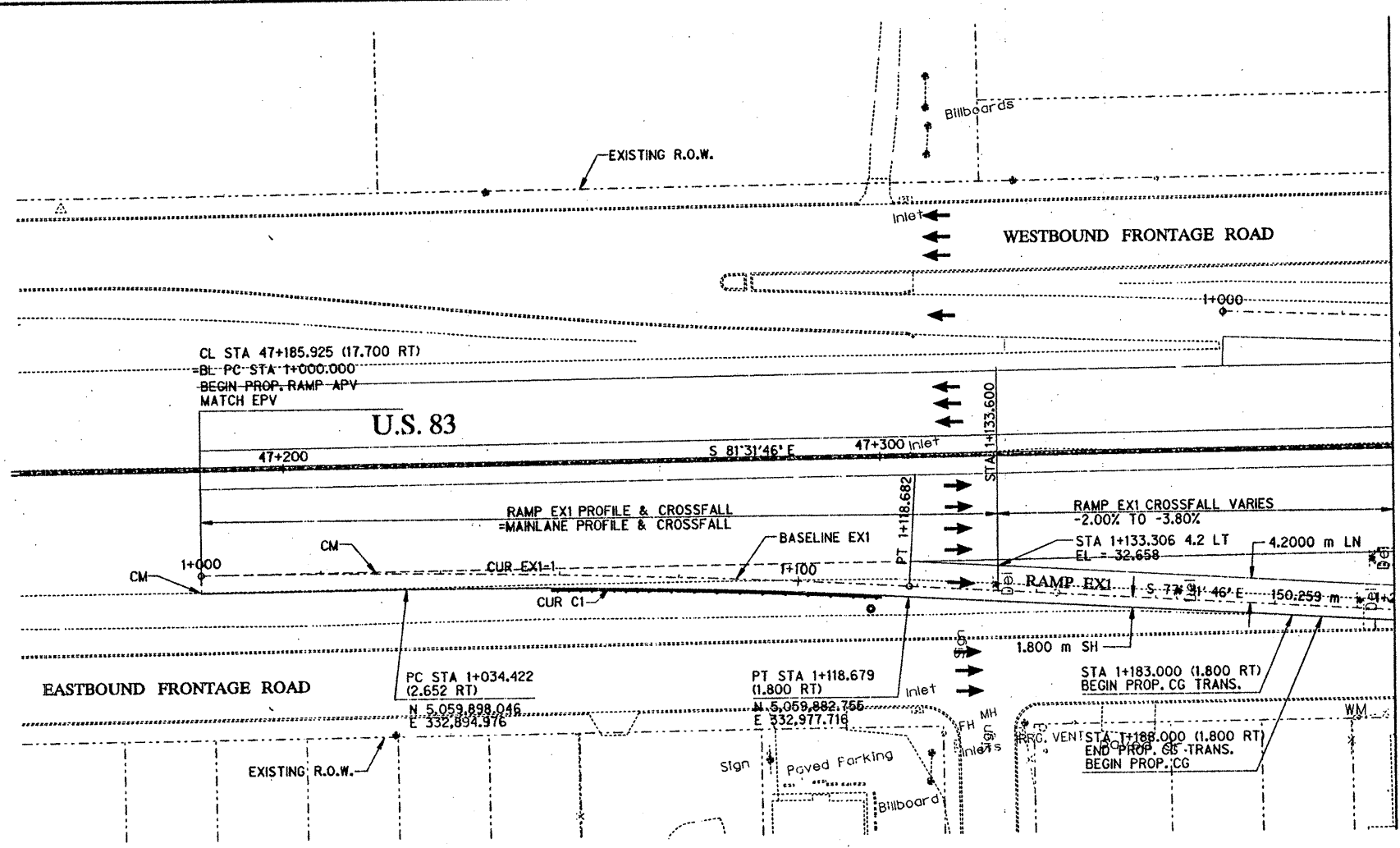
**WESTBOUND FRONTAGE ROAD - PAVING
 NORTH ACCESS ROAD
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO. & DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS	111 96 (7) DM	183
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB HIGHWAY NO.
APR 96	620WFR4A	1:200 HORIZ	21	HIDALGO	0009	17 70 U.S. 83

PLAN - EASTBOUND FRONTAGE ROAD

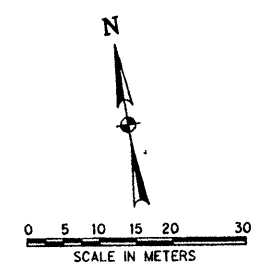
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2



PLAN - RAMP EX1

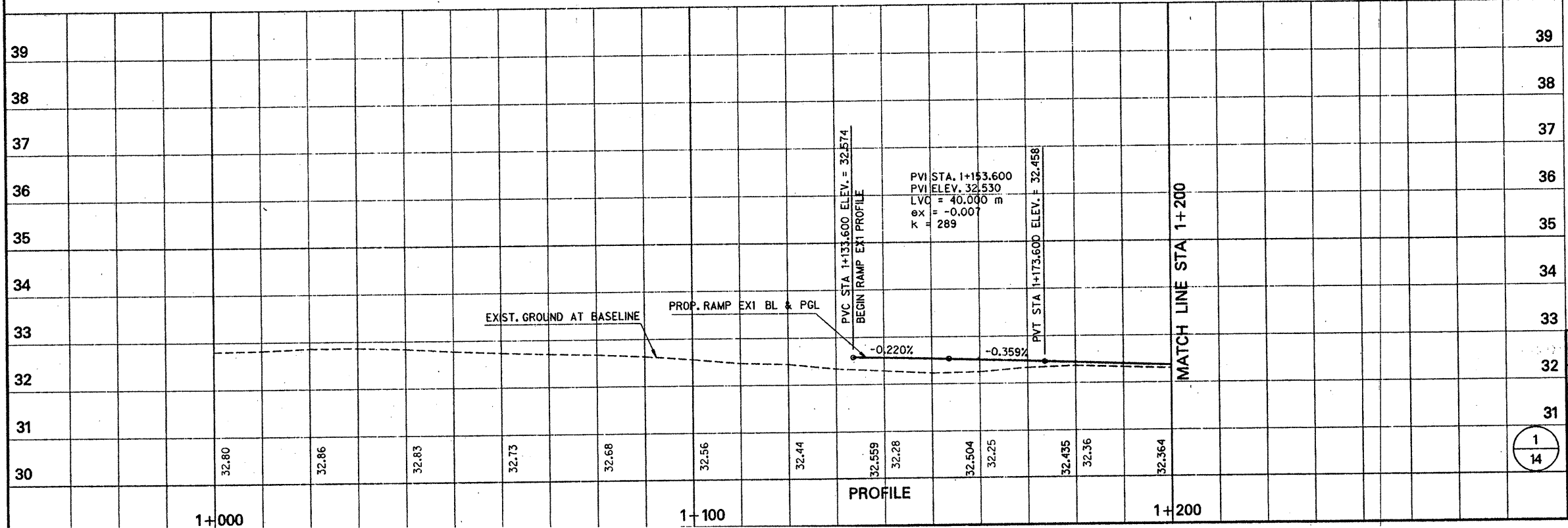
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
EX1-1	4° 00' 00" RT	1,700.000	59.365	118.682
C1	4° 00' 00" RT	1,205.489	42.097	84.159

(RAMP EX1 BL OR EDGE OF PVMT)



LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP

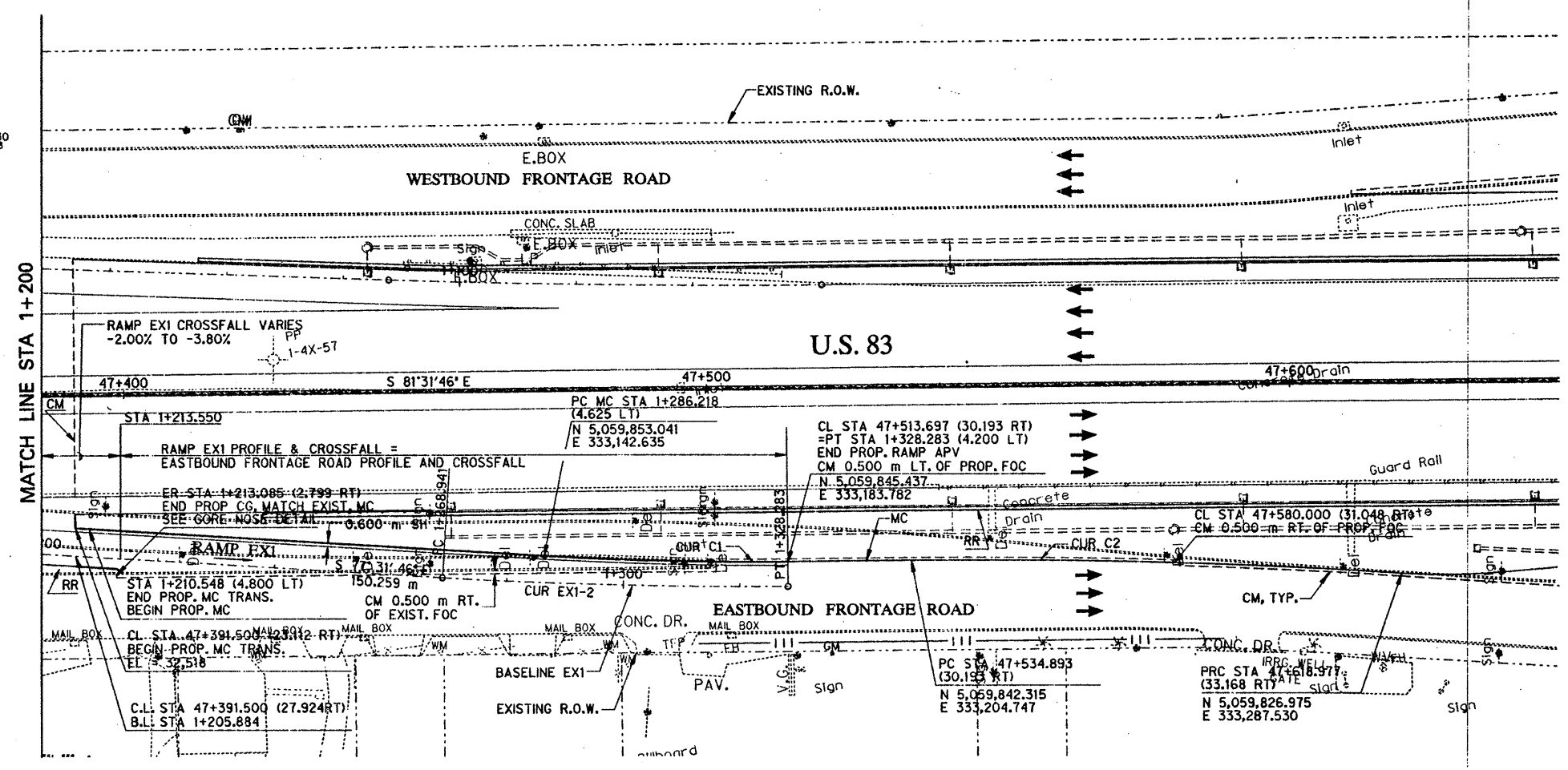
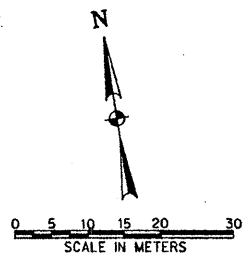


Michael V. King 9/15/96
 MICHAEL V. KING DATE

RAMP EX1 PLAN-PROFILE
 STA 1+000 TO STA 1+200
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION



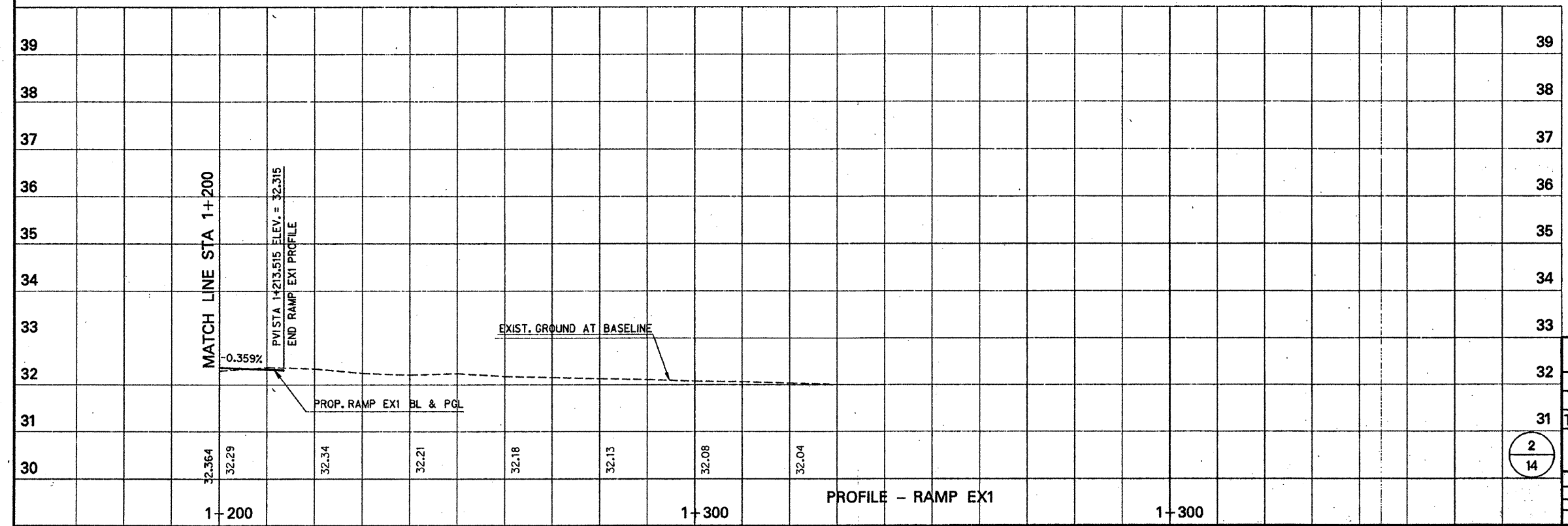
DESIGN	DRAWN	NOTES	NO. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		8	TEXAS	147(18)1A	14
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 96	80227-A	1:800 HORIZ 1:800 VERT	21	HIDALGO	0030	17 118



HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
EX1-2	4° 00' 00" LT	850.000	29.683	59.341
C1	4° 00' 00" LT	599.500	20.935	41.853
C2	4° 03' 07" RT	1,190.000	42.095	84.154
(RAMP EX1) BL OR NOMINAL FOC				

SEE SHEET 1 OF 6 FOR CONTINUATION OF EFR CONSTRUCTION DATA

- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP



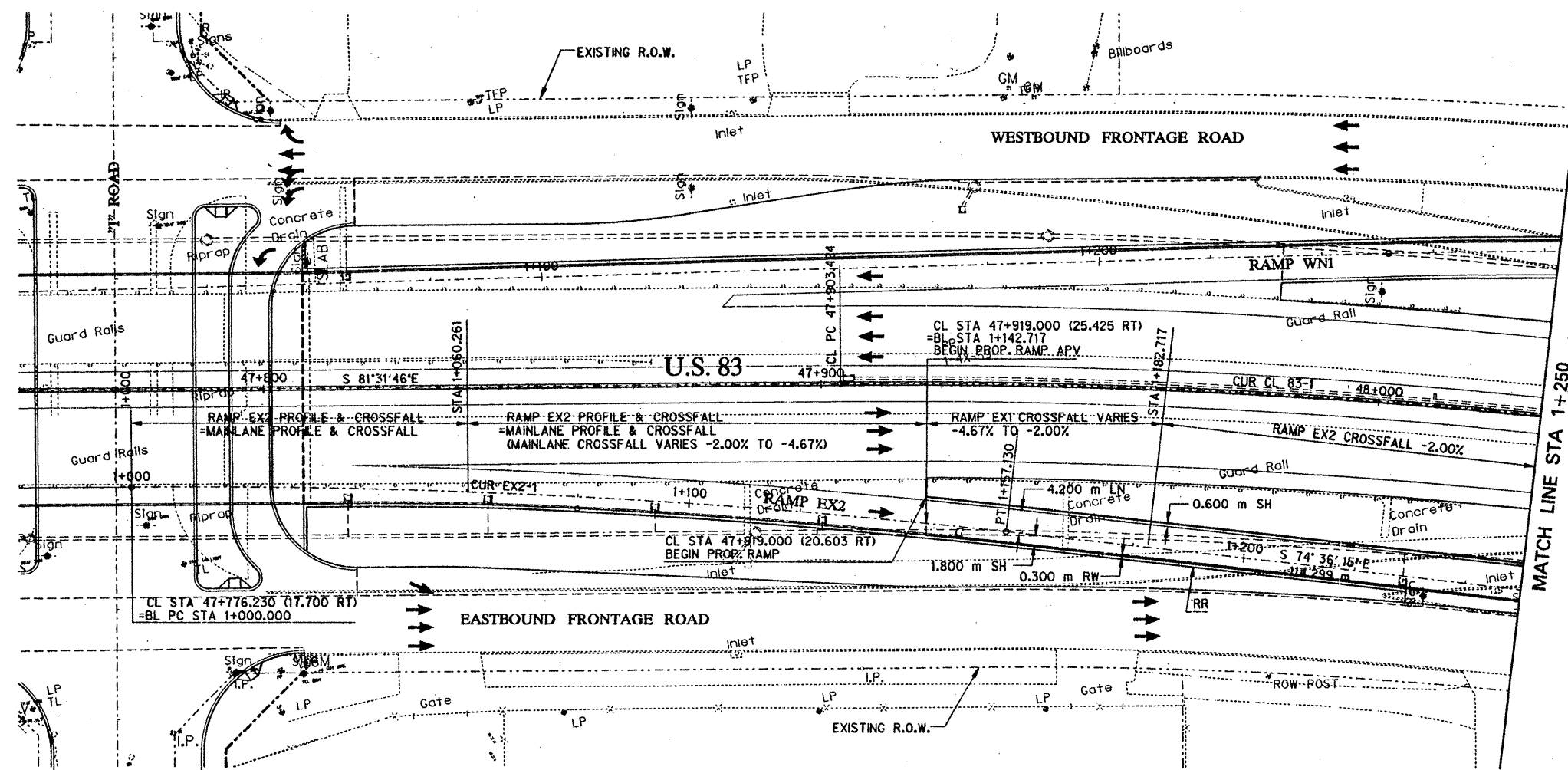
Michael W. King
MICHAEL W. KING
DATE: 4/15/96

RAMP EX1 PLAN-PROFILE
STA 1+200 TO STA 1+328
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	COUNTY	CONTRACT SECTION NO.	HIGHWAY NO.
APRIL 1996	620EX1-8	1:800 HORIZ 1:50 VERT	HIDALGO	0039	17 18

2
14



PLAN - RAMP EX2

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
EX2-1	6° 55' 31" RT	1,300.000	78.661	157.130
CL83-1	25° 32' 00" RT	1,165.000	263.969	519.171

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP



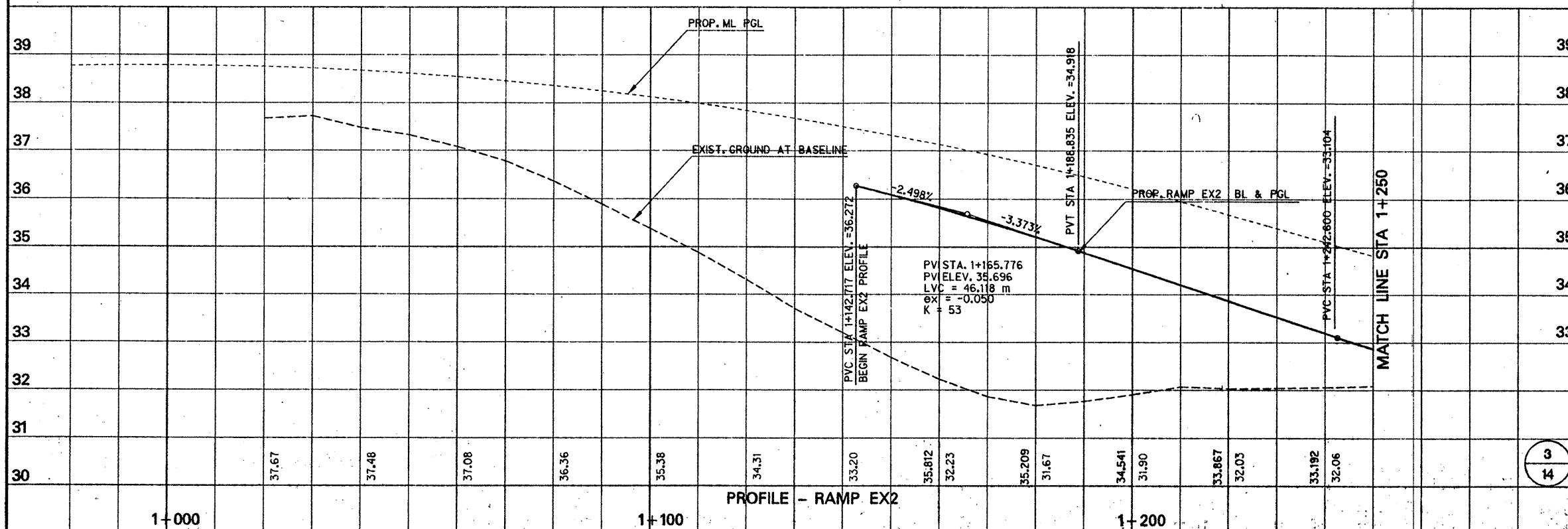
Michael F. King
MICHAEL F. KING
DATE: 4/16/96

RAMP EX2 PLAN-PROFILE
STA 1+000 TO STA 1+250
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

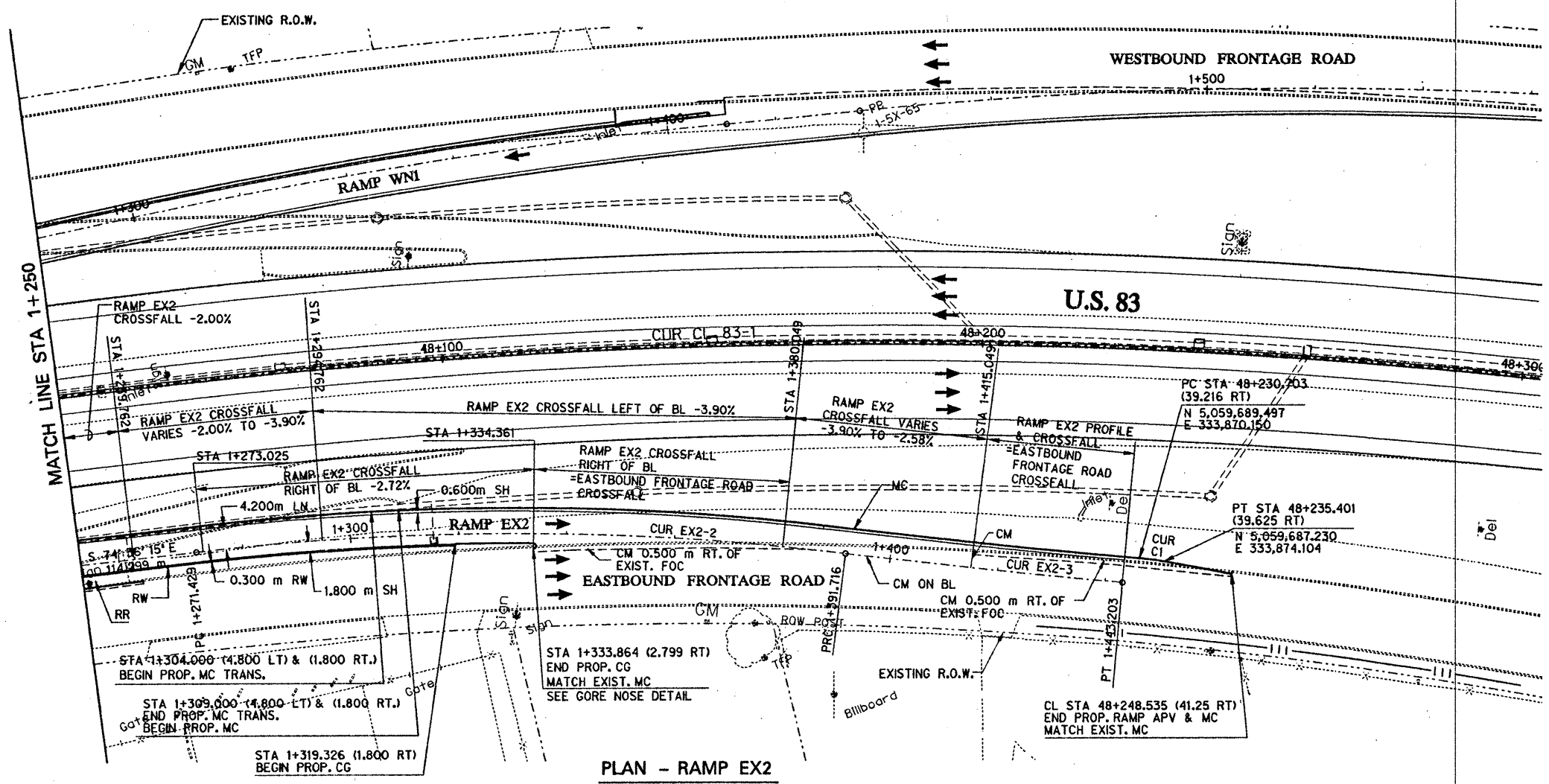
Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	STATE	FISCAL YEAR PROJECT NO.	SHEET NO.
	CADD		TEXAS		186
DATE	FILE	SCALE	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	82002-A	1" = 40'	HIDALGO	0030	17

3
14



PROFILE - RAMP EX2



N

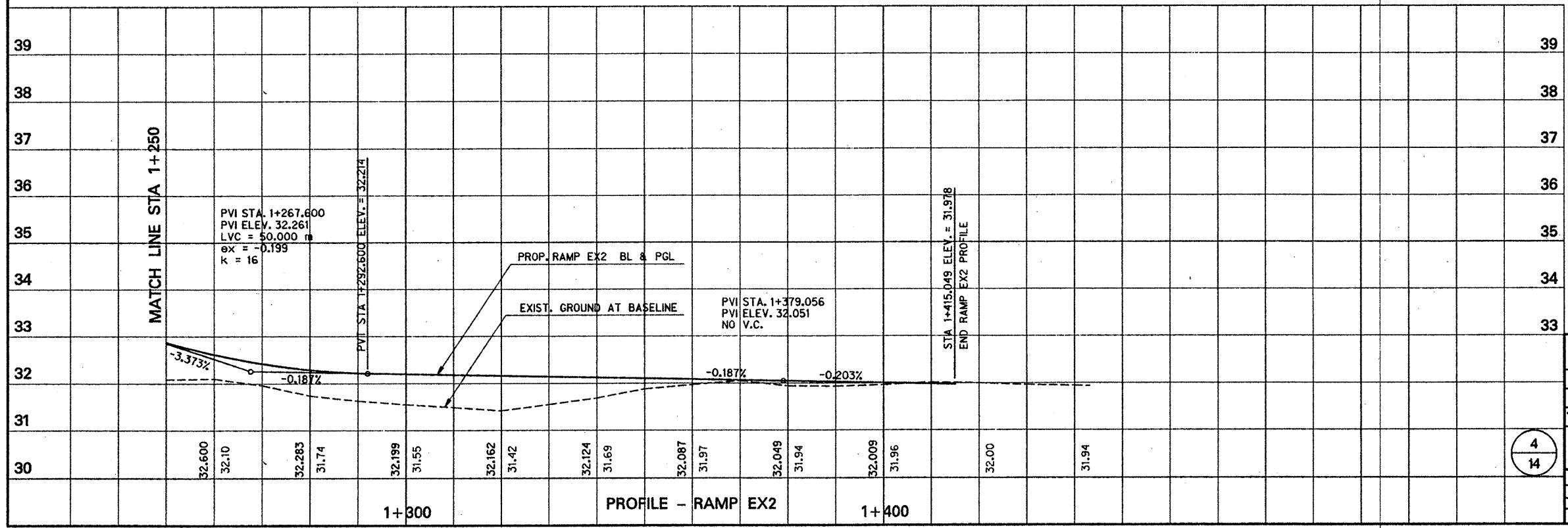
0 5 10 15 20 30
SCALE IN METERS

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
CL 83-1	25° 32' 00" RT	1,165.000	263.969	519.171
EX2-2	13° 47' 02" RT	500.000	60.435	120.287
EX2-3	1° 58' 00" LT	1,500.000	25.746	51.487
CI	5° 13' 28" RT	50.000	2.281	4.559

(RAMP EX2 BL OR NOMINAL FOC)

- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP

PLAN - RAMP EX2



PROFILE - RAMP EX2



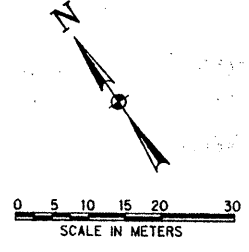
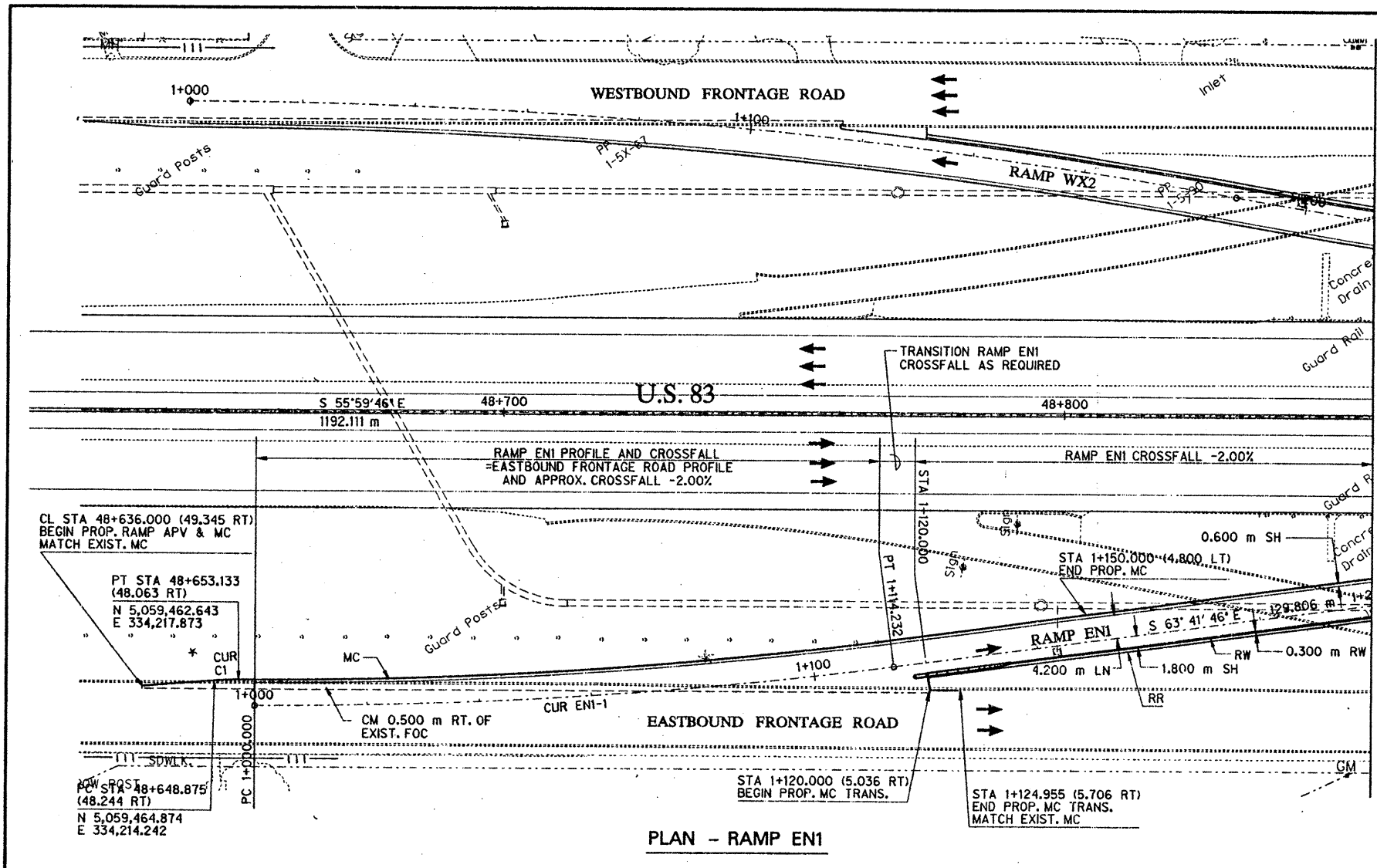
Michael W. King
MICHAEL W. KING
DATE 4/15/96

RAMP EX2 PLAN-PROFILE
STA 1+250 TO STA 1+443
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTED	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CAED			8	TEXAS	401711NA	187
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.
APRIL 1996	80202-B	1:500 HORIZ 1:50 VERT	21	HIDALGO	20 19	17 78

4
14



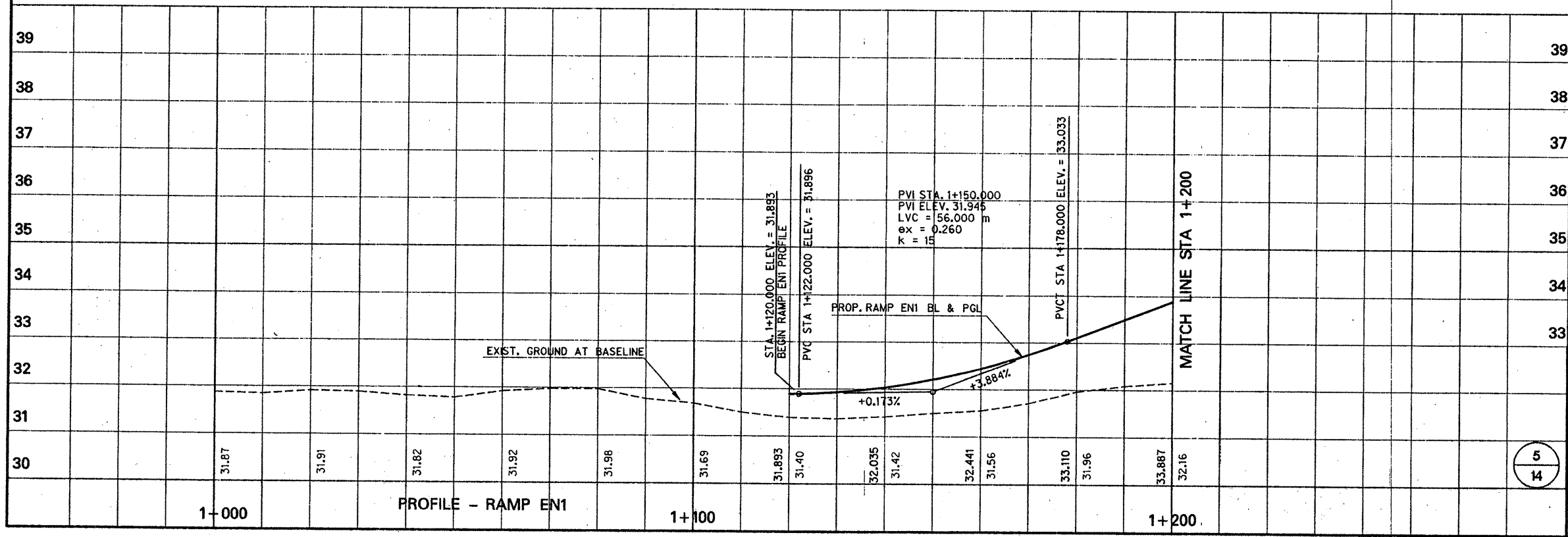
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
ENI-1	7° 42' 00" LT	850.000	57.202	114.232
C1	4° 53' 06" RT	50.000	2.133	4.263

(RAMP EN1 BL OR NOMINAL FOC)

- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB * & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - CPV - REINFORCED CONCRETE PAVEMENT AND SUBGRADE
 - EPV - EXISTING PAVEMENT



Michael B. King
MICHAEL B. KING
4/15/96
DATE

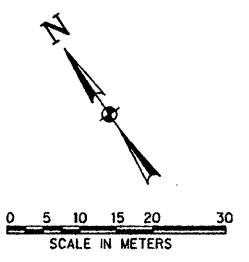
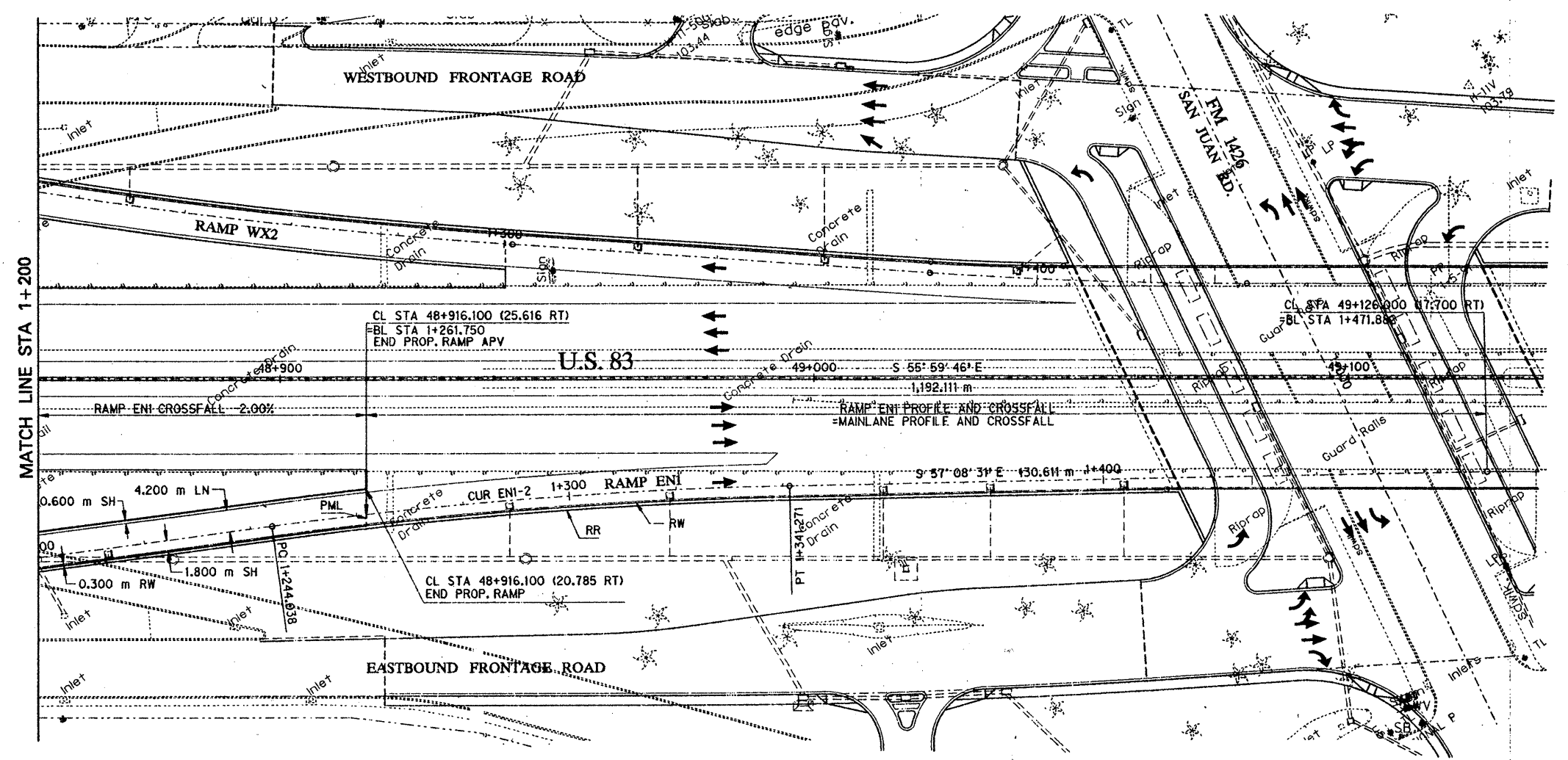


**RAMP EN1 PLAN-PROFILE
STA 1+000 TO STA 1+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL PROJ. NO.	SHEET NO.
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT SECTION NO.	JOB NO.
FEBRUARY 1996	820EN1-A	1:500 TRUCK 1:500 VERT.	21	HIDALGO	0028	17

5
14



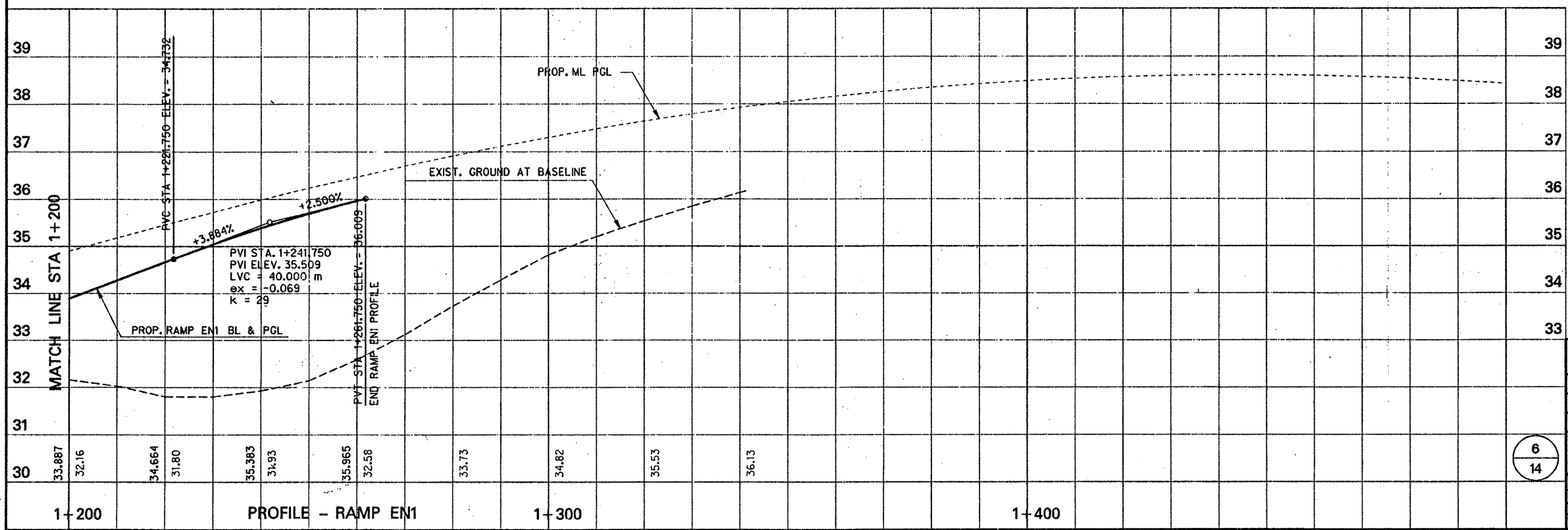
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
EN1-2	6° 33' 15" RT	850.000	48.670	97.233

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB * & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT,
FLEXIBLE BASE AND LIME TREATED
SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- CPV - REINFORC CONCRETE PAVEMENT
AND SUBGRADE
- EPV - EXISTING PAVEMENT



Michael W. King 4/16/96
MICHAEL W. KING DATE

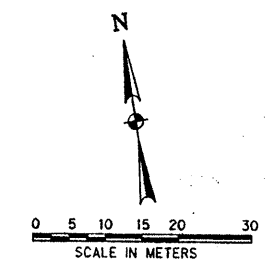


6
14

RAMP EN1 PLAN-PROFILE
STA 1+200 TO STA 1+472
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

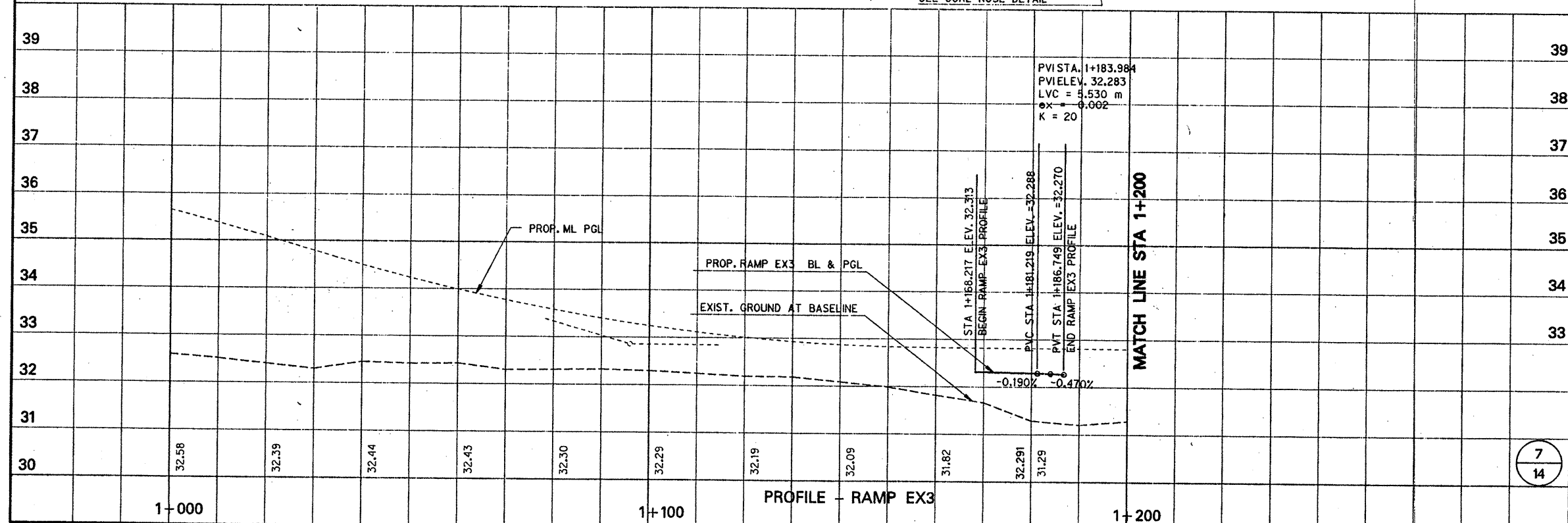
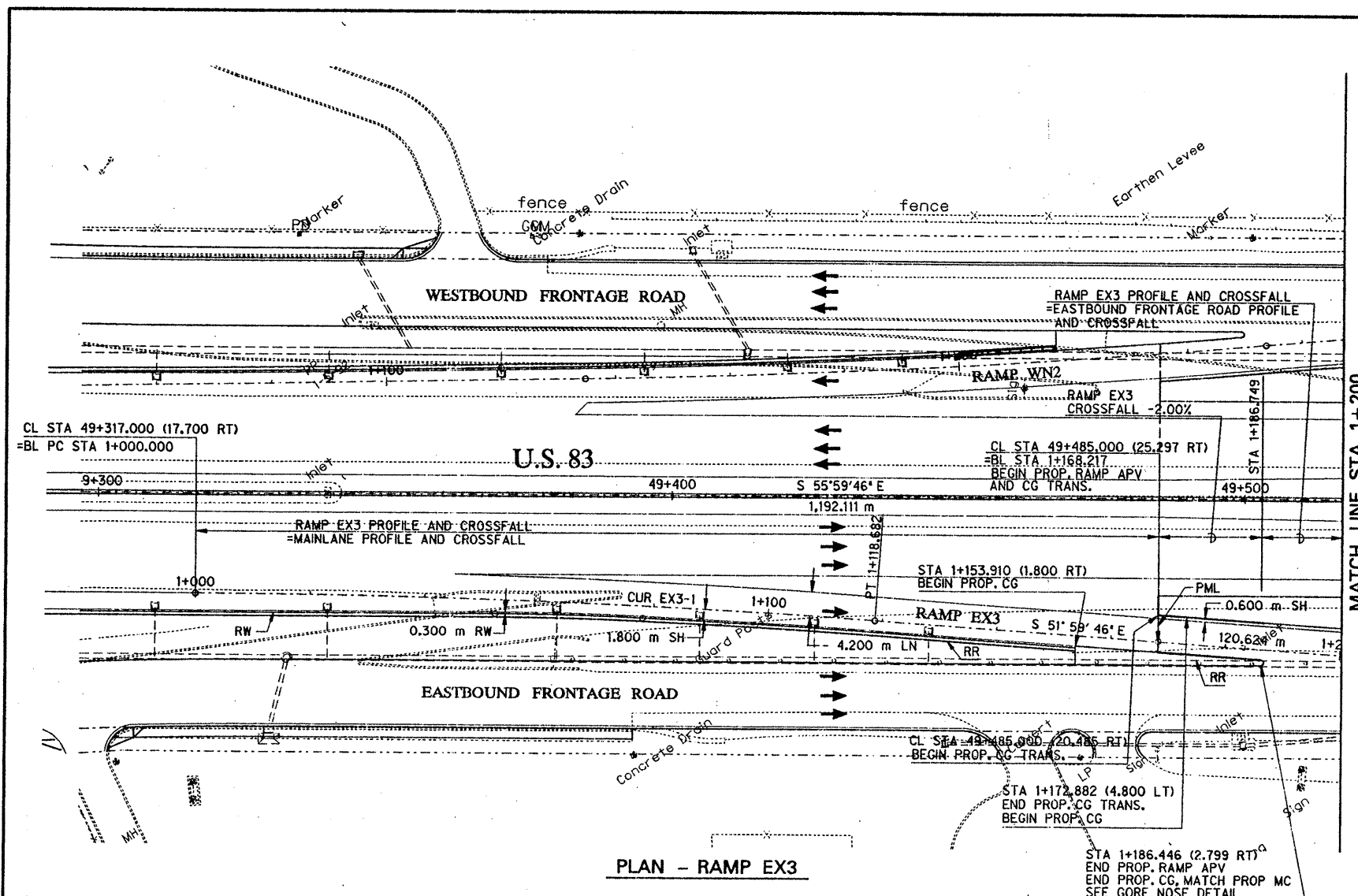
Half Associates
BUSINESS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			NO.	NO.	NO.	NO.
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
JANUARY 1996	822EN1-B	1:500 HORIZ 1:50 VERT	21	HIDALGO	00.38	17
						118
						U.S. 83



HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
EX3-1	4° 00' 00" RT	1,700.000	59.365	118.682

- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - +--+ - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP

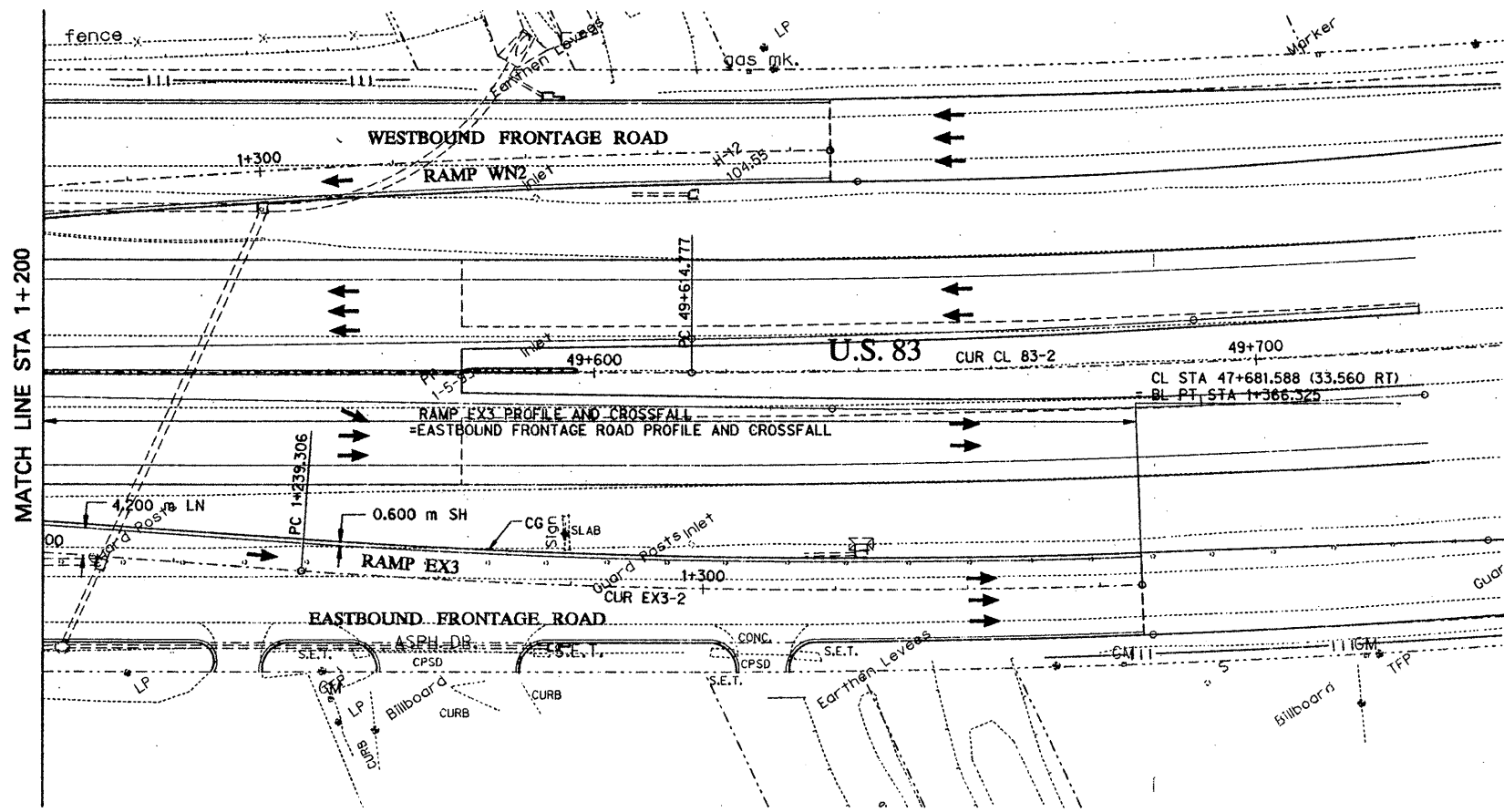


Michael W. King 4/16/96
MICHAEL W. KING DATE

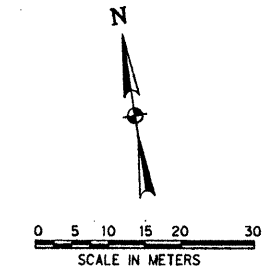
RAMP EX3 PLAN-PROFILE
STA 1+000 TO STA 1+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTED	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	ROWWAY NO.
APRIL 1996	620EX3-A	1:800 HORIZ 1:50 VERT	21	HIDALGO	0036	17



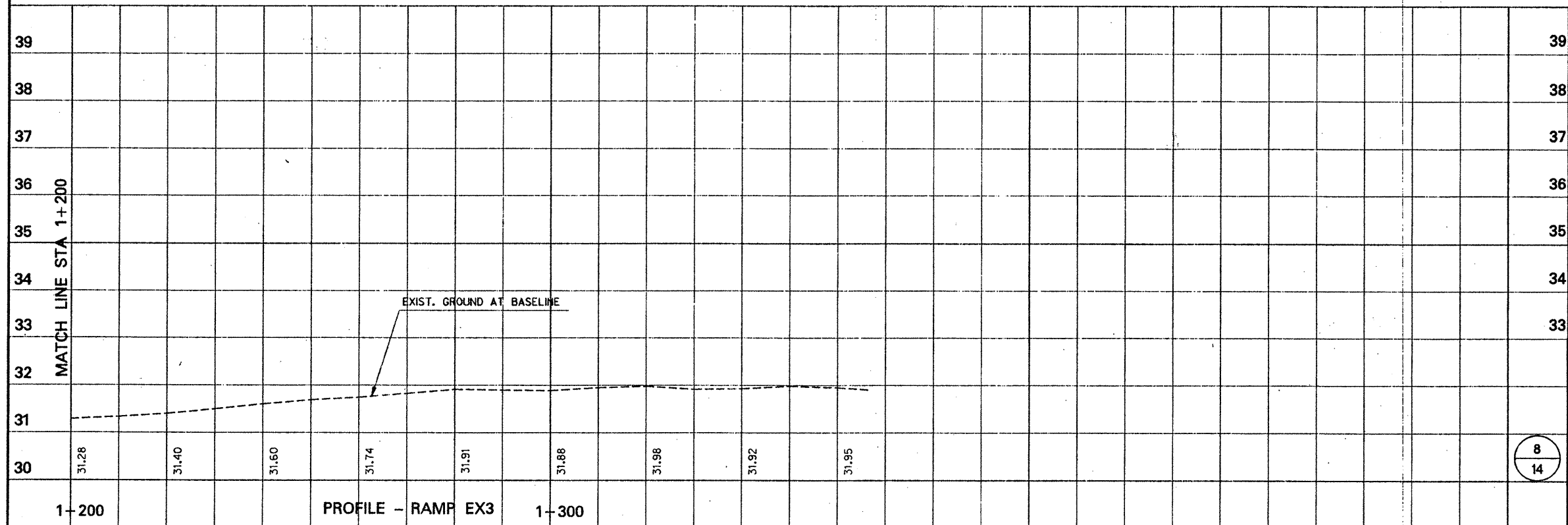
PLAN - RAMP EX3



HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
CL83-2	25° 24' 43" LT	1,745.000	393.444	773.946
EX3-2	6° 11' 37" LT	1,175.000	63.571	127.018

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RR - RETAINING WALL
- EPV - EXISTING PAVEMENT
- CA - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP



PROFILE - RAMP EX3



Signature of Michael W. King and date 4/16/00.

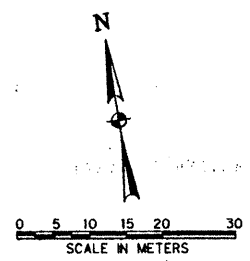
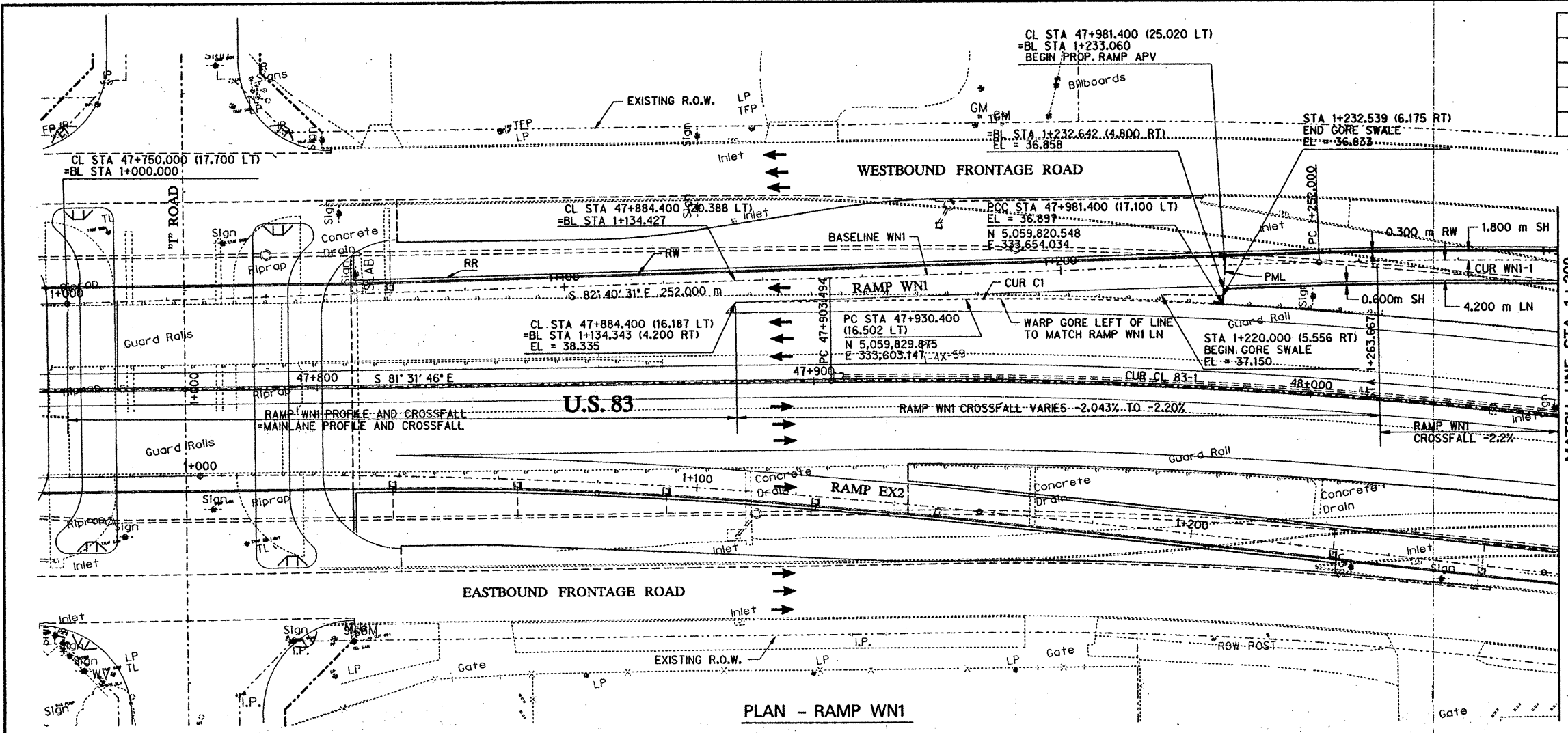
RAMP EX3 PLAN-PROFILE
 STA 1+200 TO STA 1+366
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Halff Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

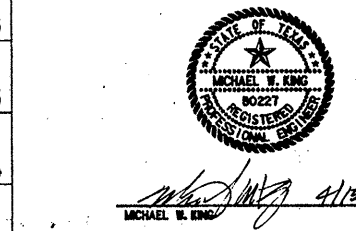
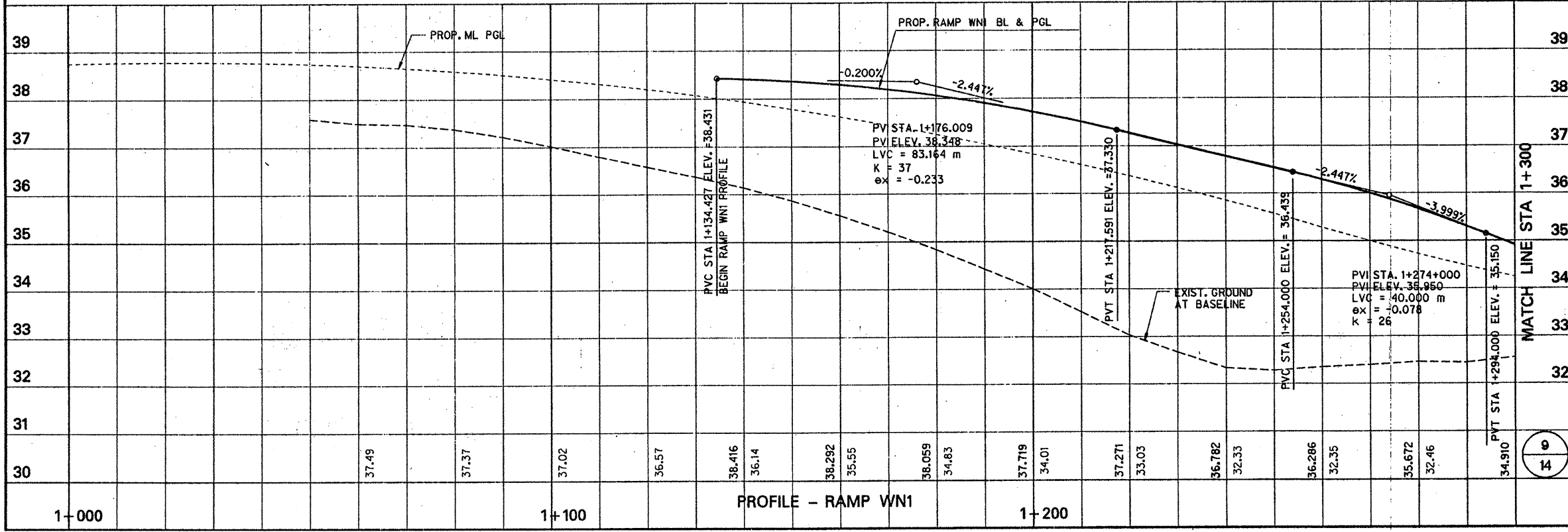
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			4	TEXAS	141	141
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
APR 16 2000	620X3-B	1:80	21	HIDALGO	0034	17

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
WNI-1	9° 06' 30" RT	1,000.000	79.653	158.970
CLB3-1	25° 32' 00" RT	1,165.000	263.969	519.171
CI	3° 49' 53" RT	773.784	25.882	51.745

(RAMP WNI BL/US 83 BL OR GORE WARP LINE)

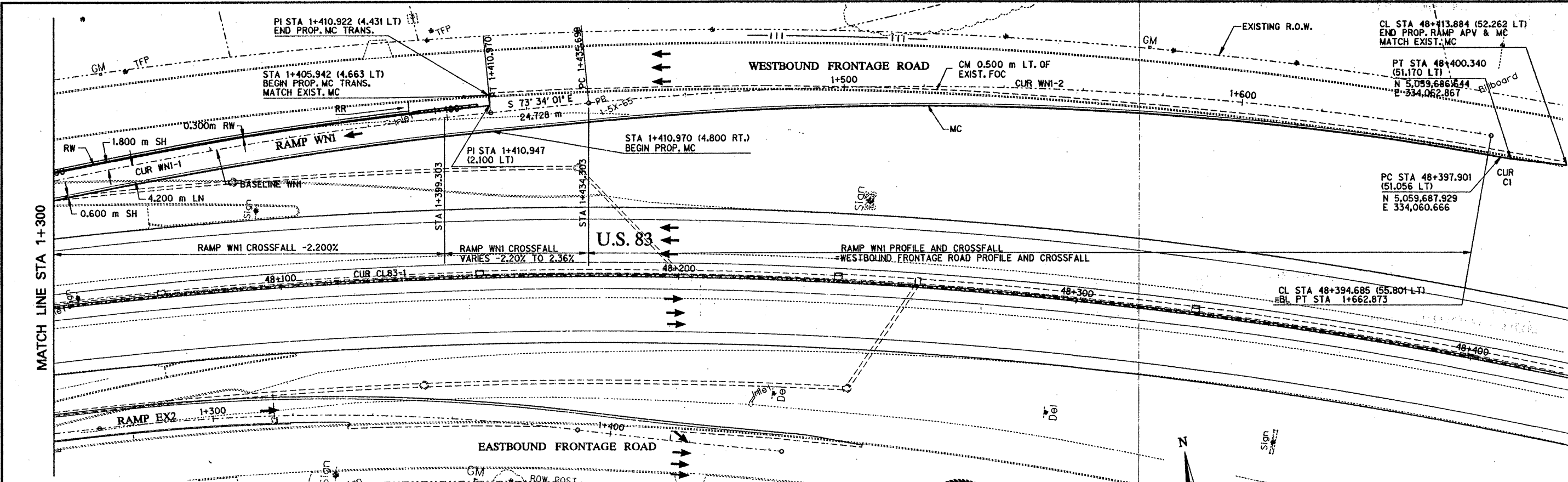


- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP



RAMP WNI PLAN-PROFILE
 STA 1+000 TO STA 1+300
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

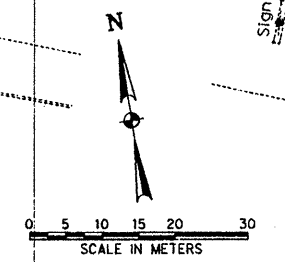
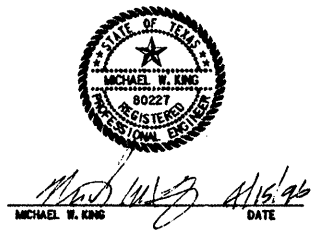
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DATE		FILE		SCALE		COUNTY		CONTROL SECTION		JOB NO.		HIGHWAY NO.	
APRIL 1992		620WNT-A		1:500 HORIZ 1:50 VERT		HIDALGO		009		17		U.S. 83	



HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
WNI-1	9° 06' 30" RT	1,000.000	79.653	158.970
WNI-2	15° 18' 47" RT	850.000	114.268	227.174
CL83-1	25° 32' 00" RT	1,165.000	263.969	519.171
CI	2° 55' 14" LT	50.000	1.275	2.549

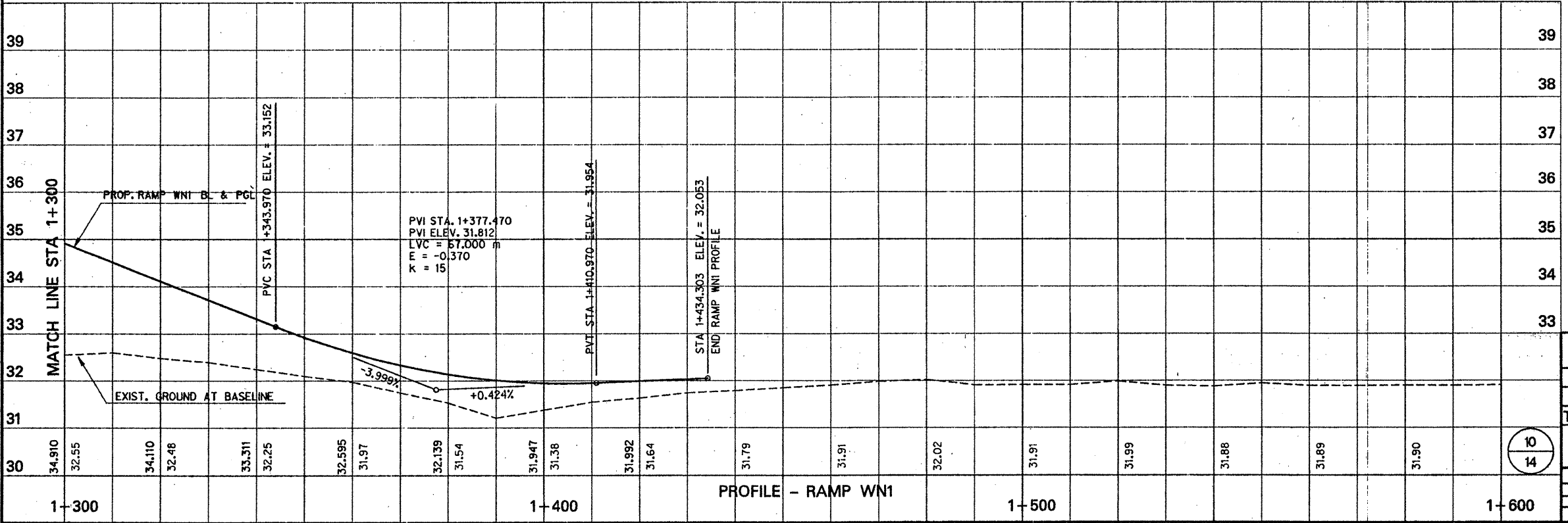
(RAMP WNI BL/US83 BL OR NOMINAL FOC)

PLAN - RAMP WN1



LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- |-|- CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP

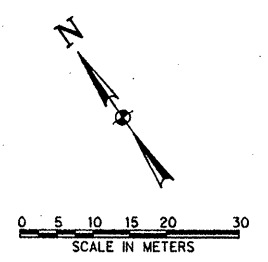
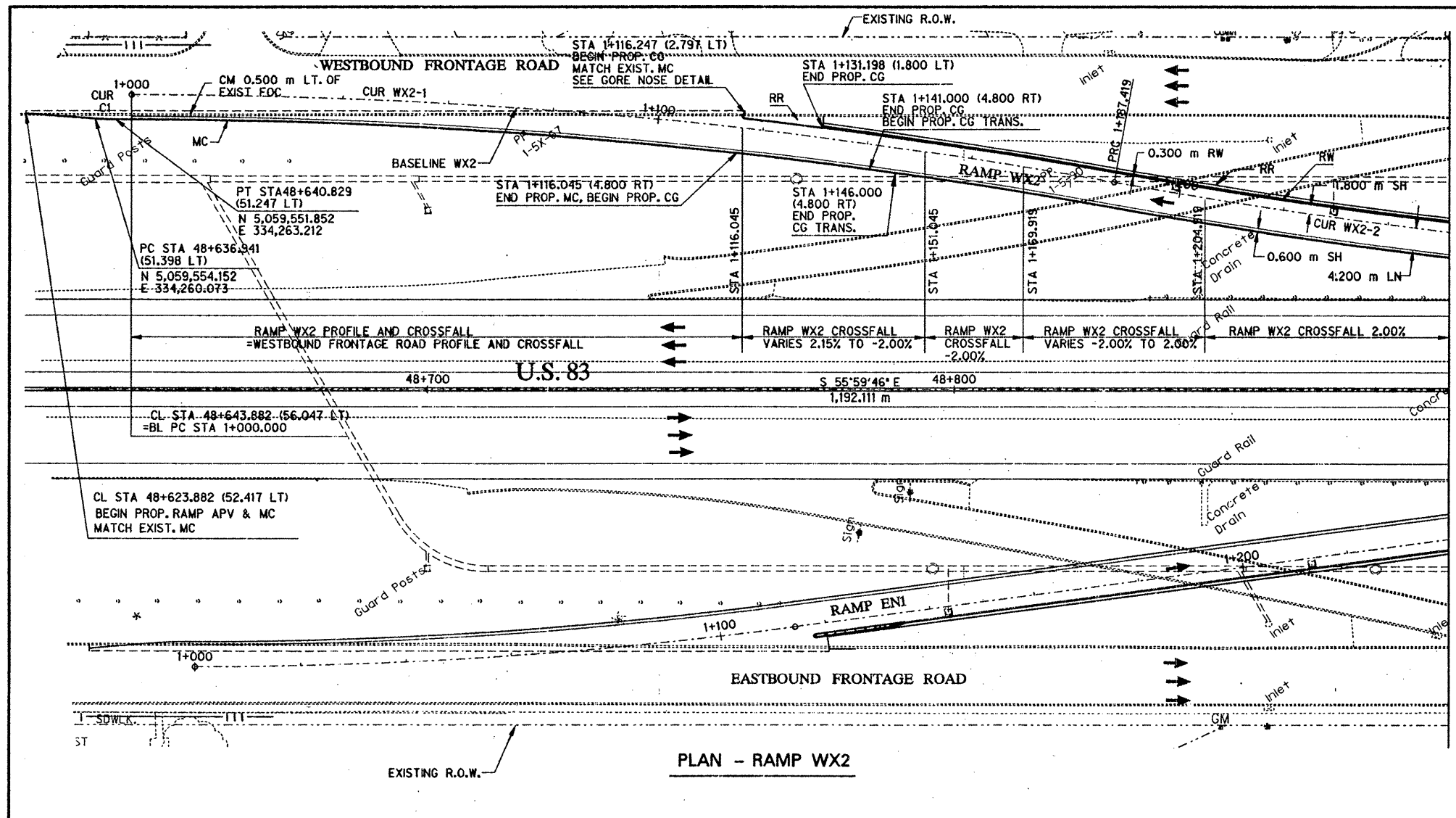


PROFILE - RAMP WN1

RAMP WN1 PLAN-PROFILE
 STA 1+300 TO STA 1+663
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD			TEXAS		14
DATE	FILE	SCALE	STATE	COUNTY	CONTROL REGION	JOB NO.
APRIL 2008	620WN1-B	1:800 HORIZ 1:800 VERT	TX	HIDALGO	30	17

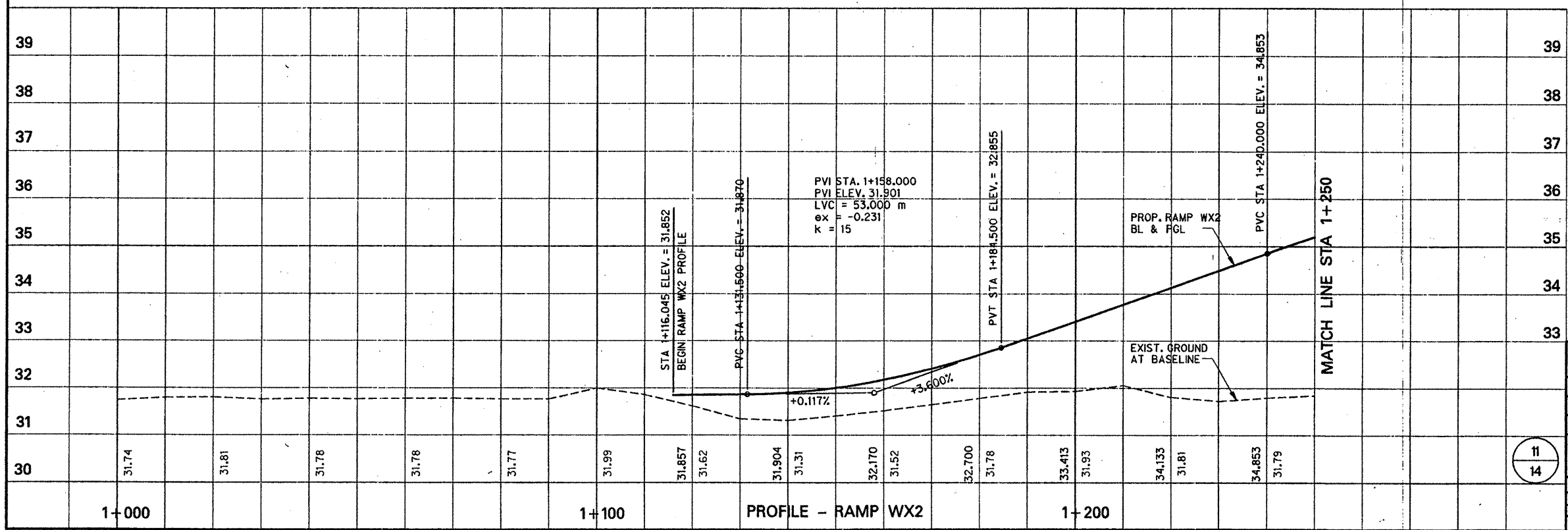


HORIZONTAL CURVE DATA

NAME	Δ	R	T	L
C1	4° 27' 36" RT	50,000	1,947	3,892
WX2-1	10° 13' 37" RT	1,050,000	93,959	187,419
WX2-2	6° 13' 37" LT	1,050,000	57,114	114,115

(RAMP WX2 BL OR NOMINAL FOC)

- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
 - EPV - EXISTING PAVEMENT
 - - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFG - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SNAPT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP

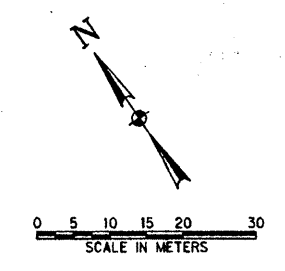
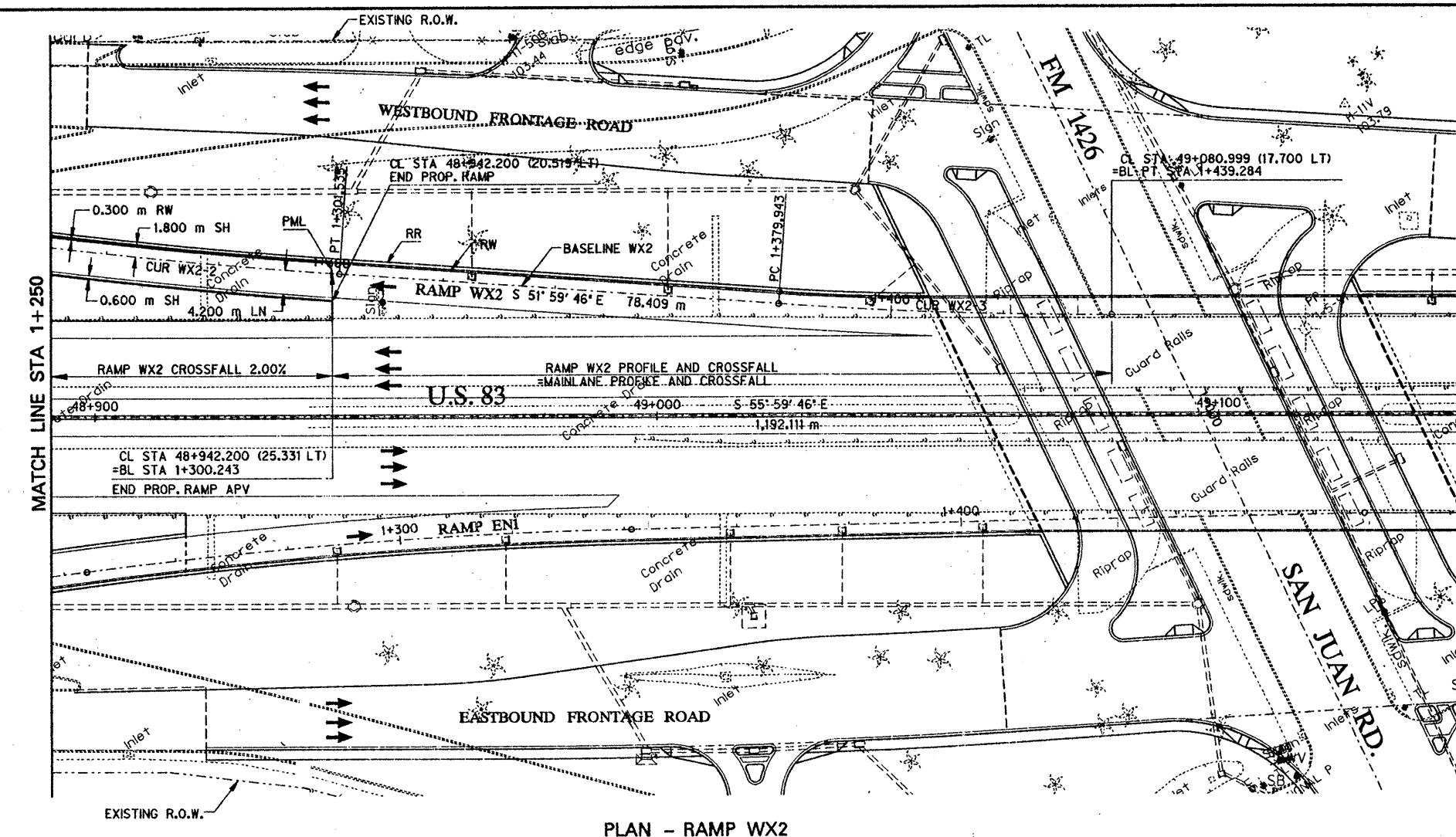


Michael W. King
 DATE 4/16/16

RAMP WX2 PLAN-PROFILE
 STA 1+000 TO STA 1+250
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
FEBRUARY 2016	820WX2-A	1:800 HORIZ 1:80 VERT	TX	HIDALGO	0030	17



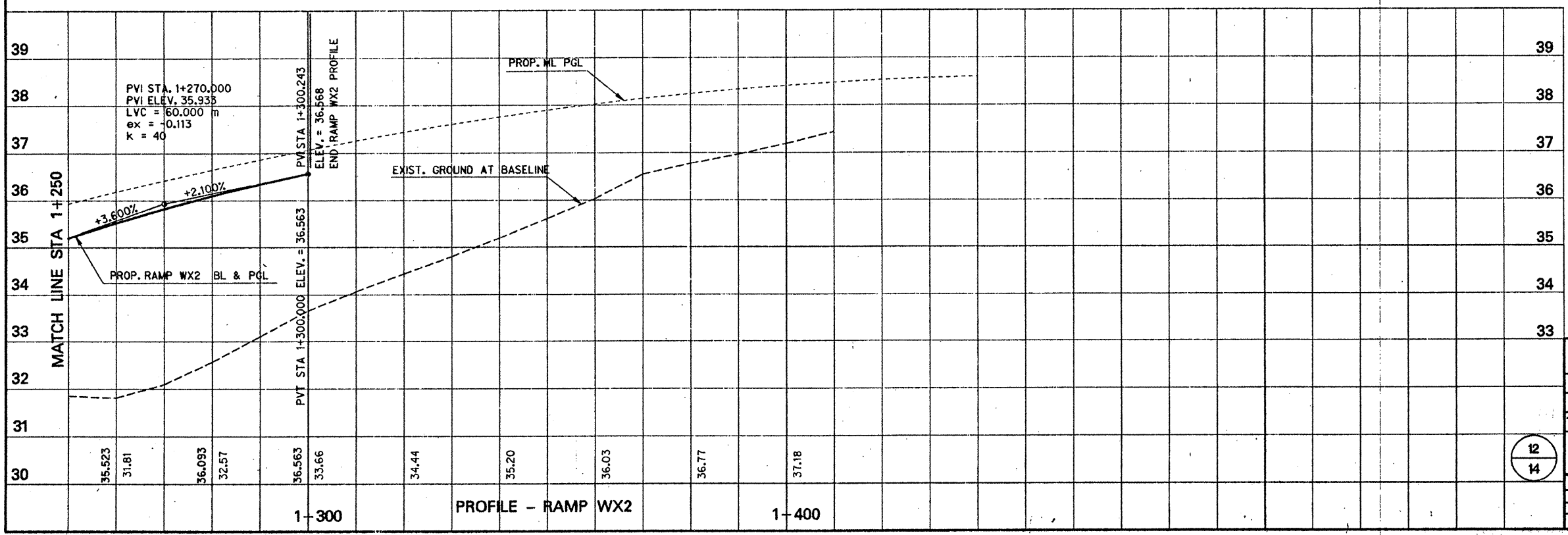
HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
WX2-2	6° 13' 37" LT	1,050.000	57.114	114.115
WX2-3	4° 00' 00" LT	850.000	29.683	59.341

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- - CONTROL OF ACCESS
- RR - RIP RAP
- FCG - FACE OF CURB
- CFG - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SNAPT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP



Michael R. King
MICHAEL R. KING DATE 4/15/26

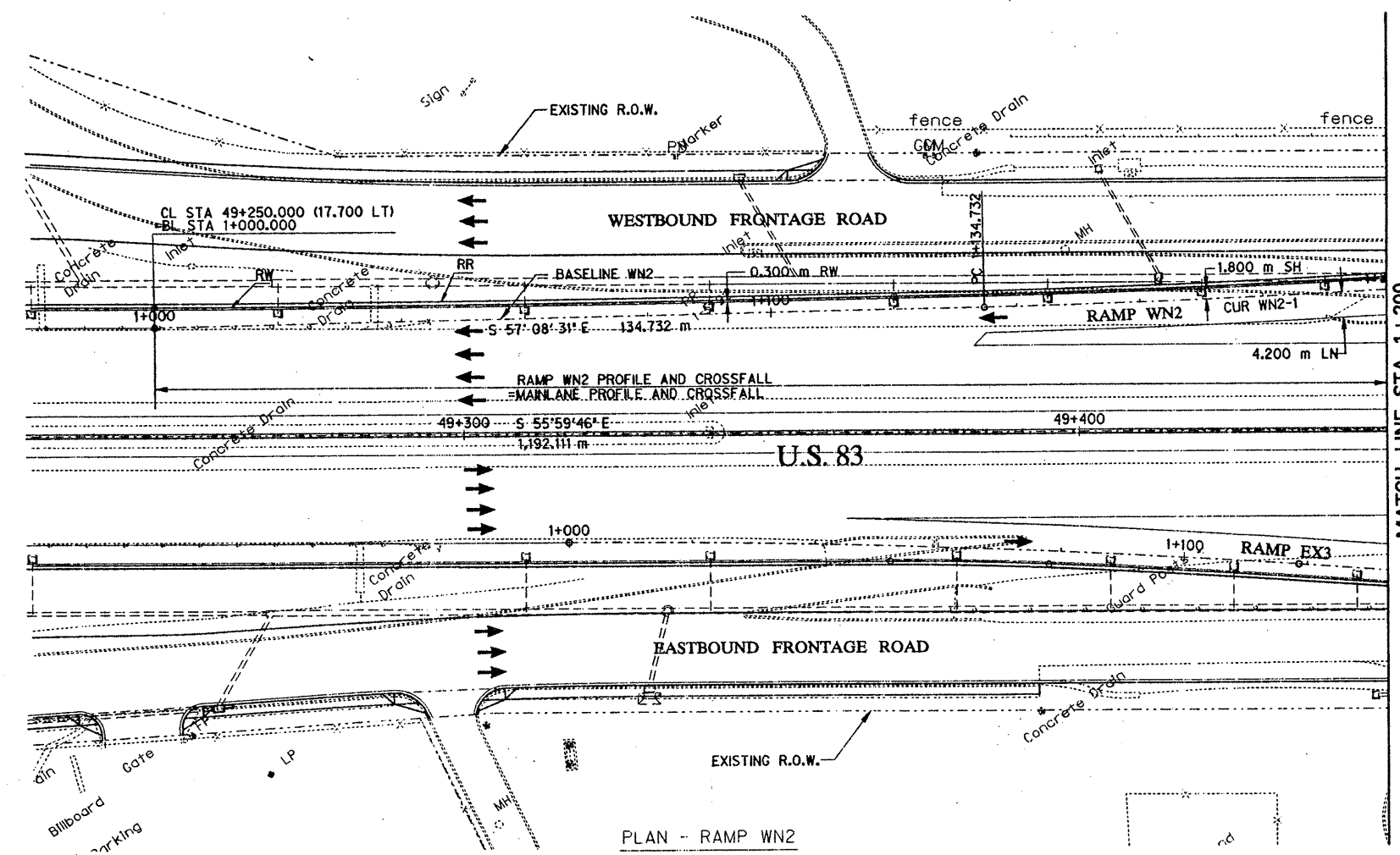


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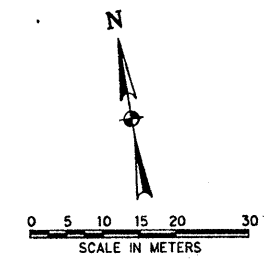
RAMP WX2 PLAN-PROFILE
STA 1+250 TO STA 1+439
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS		135
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT SECTION NO.	JOB NO.
			HIDALGO	HIDALGO	70	77



MATCH LINE STA 1+200



HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
WN2-1	4° 00' 37" LT	1,700.000	59.518	118.987

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- |-|- - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP

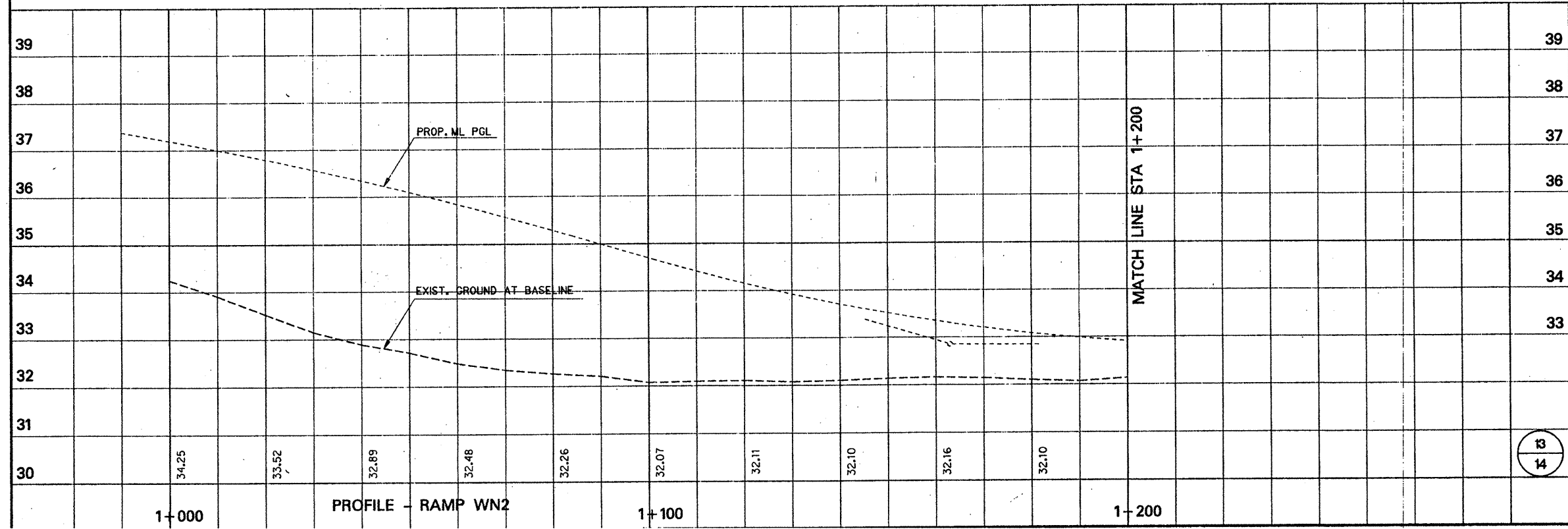


Michael W. King
MICHAEL W. KING DATE 4/16/96

RAMP WN2 PLAN-PROFILE
STA 1+000 TO STA 1+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

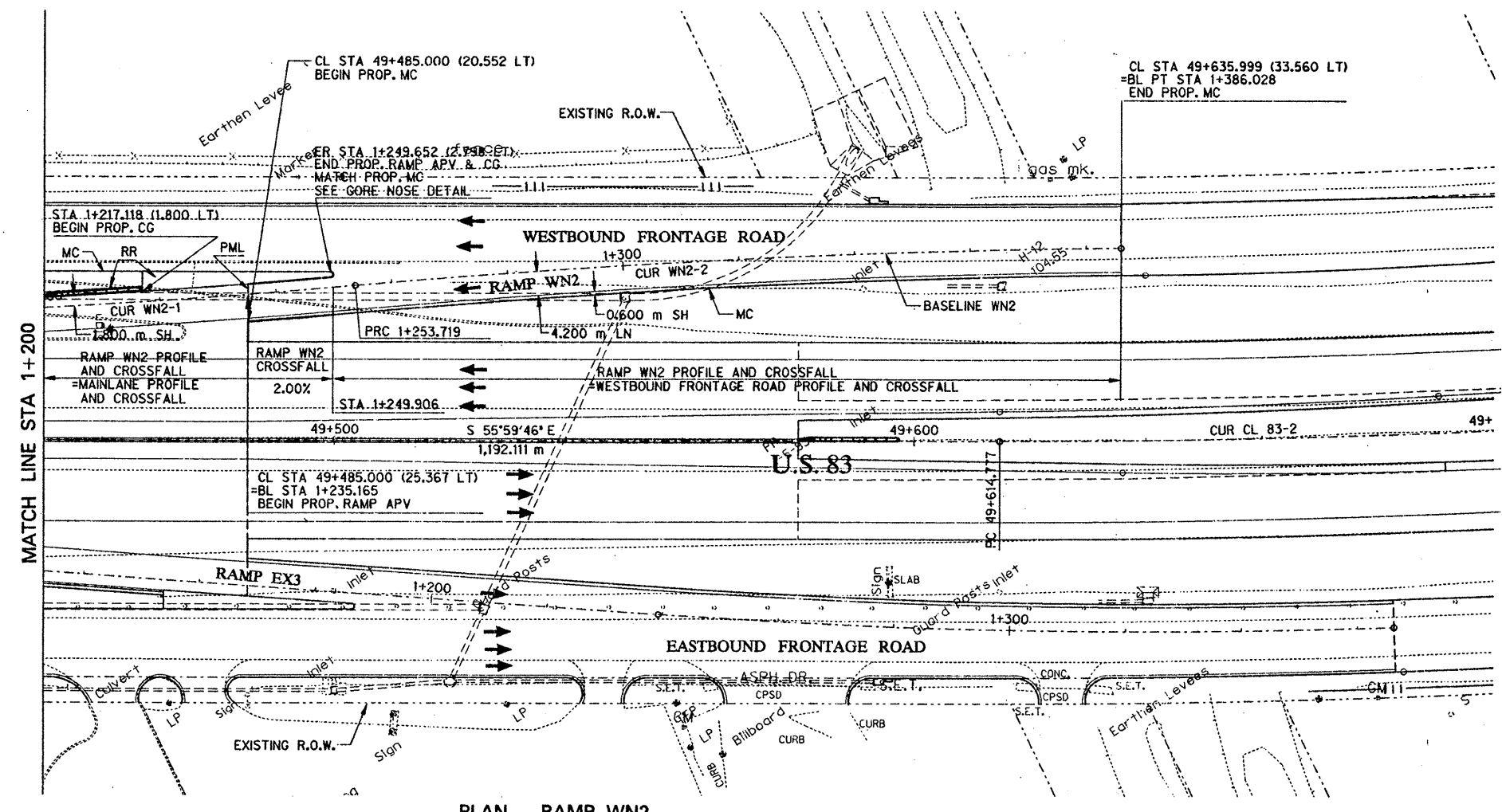
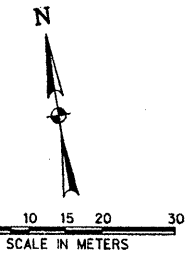
Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		9	TEXAS	96-1717M	146
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.
APRIL 1996	620WN2-A	1:500 HORIZ 1:50 VERT	21	HIDALGO	00	17



MATCH LINE STA 1+200

13
14

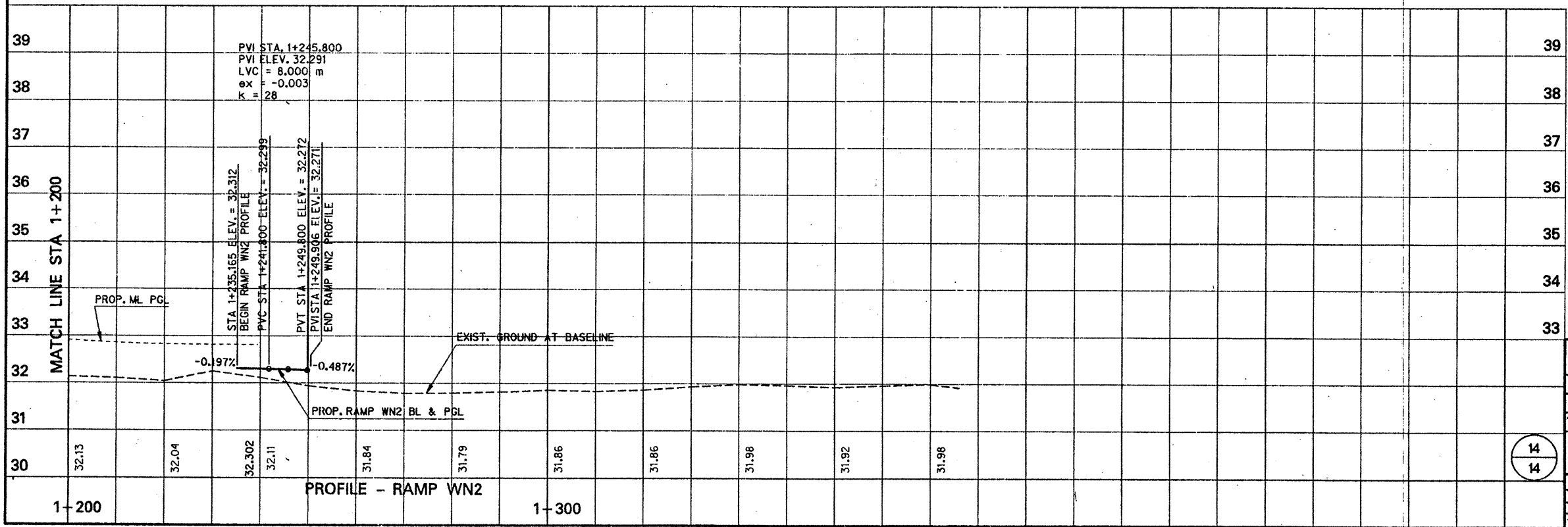


PLAN - RAMP WN2

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
CL83-2	25° 24' 43" LT	1,745.000	393.444	773.946
WN2-1	4° 00' 37" LT	1,700.000	59.518	118.987
WN2-2	4° 27' 33" RT	1,700.000	66.188	132.309

LEGEND

- MC - MOUNTABLE CONC. CURB
- CG * - CONC. CURB & GUTTER
- APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
- LN - TRAVEL LANE
- SH - SHOULDER
- EFR - EAST BOUND FRONTAGE ROAD
- WFR - WEST BOUND FRONTAGE ROAD
- CM - CUT & MATCH LINE
- RW - RETAINING WALL
- EPV - EXISTING PAVEMENT
- |-|- - CONTROL OF ACCESS
- RR - RIP RAP
- FOC - FACE OF CURB
- CFS - CELLULOSE FIBER MULCH SEEDING
- SGT - SINGLE GUARD RAIL TERMINAL
- CCAT - CRASH CUSHION ATTENUATING TERMINAL
- MSE - MECHANICALLY STABILIZED EARTH
- DS - DRILLED SHAFT
- ML - MAINLANE
- SSCB - SINGLE SLOPE CONC. BARRIER
- SSTR - SINGLE SLOPE TRAFFIC RAILING
- PML - PAVEMENT MATCH LINE
- SW - SIDEWALK
- WCR - WHEEL CHAIR RAMP

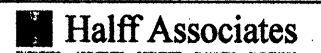


PROFILE - RAMP WN2

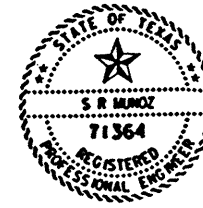
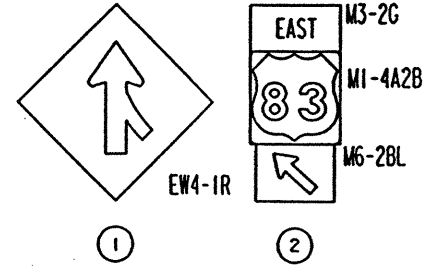


Michael W. King
DATE

RAMP WN2 PLAN-PROFILE
STA 1+200 TO STA 1+386
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

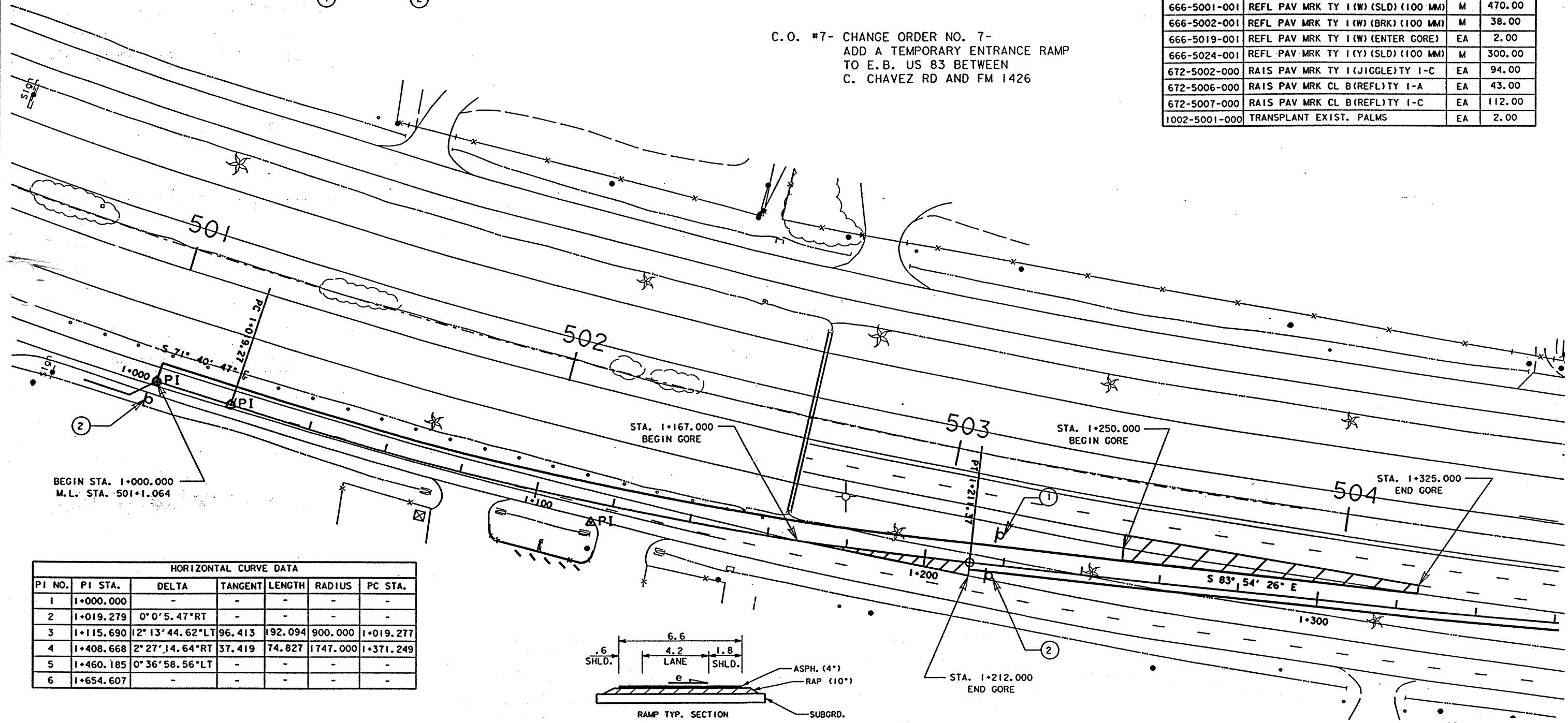


DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
APR 02	620WN2-B	1:00 HORIZ 1:50 VERT	21	HIDALGO	DD 39	17

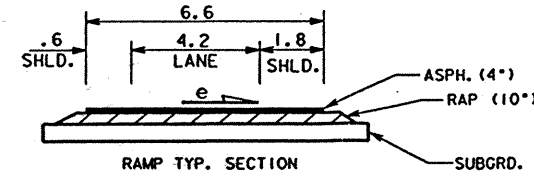


C.O. #7- CHANGE ORDER NO. 7-
ADD A TEMPORARY ENTRANCE RAMP
TO E.B. US 83 BETWEEN
C. CHAVEZ RD AND FM 1426

CHANGE ORDER NO. 7 QUANTITY SUMMARY			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
100-5001-000	EXCAVATION	M3	302.90
132-5009-000	EMBANK (DENS CONT) (TY C) (CL 3)	M3	342.90
9007-001-001	RAP (RDWY DEL)	-M3	367.76
3000-5001-000	HOT MIX ASPH (TY D)	MGR	507.28
644-5001-000	SMALL RDSG SIGN ASSEM(TY A)	EA	2.00
644-5011-000	SMALL RDSG SIGN ASSEM(TY F)	EA	1.00
666-5001-001	REFL PAV MRK TY 1(W) (SLD) (100 MM)	M	470.00
666-5002-001	REFL PAV MRK TY 1(W) (BRK) (100 MM)	M	38.00
666-5019-001	REFL PAV MRK TY 1(W) (ENTER GORE)	EA	2.00
666-5024-001	REFL PAV MRK TY 1(Y) (SLD) (100 MM)	M	300.00
672-5002-000	RAIS PAV MRK TY 1(JIGGLE)TY 1-C	EA	94.00
672-5006-000	RAIS PAV MRK CL B(REFL)TY 1-A	EA	43.00
672-5007-000	RAIS PAV MRK CL B(REFL)TY 1-C	EA	112.00
1002-5001-000	TRANSPLANT EXIST. PALMS	EA	2.00



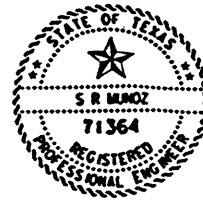
HORIZONTAL CURVE DATA						
PI NO.	PI STA.	DELTA	TANGENT	LENGTH	RADIUS	PC STA.
1	1+000.000	-	-	-	-	-
2	1+019.279	0° 0' 5.47" RT	-	-	-	-
3	1+115.690	12° 13' 44.62" LT	96.413	192.094	900.000	1+019.277
4	1+408.668	2° 27' 14.64" RT	37.419	74.827	1747.000	1+371.249
5	1+460.185	0° 36' 58.56" LT	-	-	-	-
6	1+654.607	-	-	-	-	-



SUPER ELEVATED SECTIONS
 FRONTAGE RD. STA. 1+00 TO STA. 1+200.00
 (2% SLOPE)
 STA. 1+200.00 TO STA. 1+280.00
 (TRANSITION FROM 2% TO -2%)
 STA. 1+280.00 TO STA. 1+654.60
 (TRANSITION AND MATCH M.L. X-SLOPE)

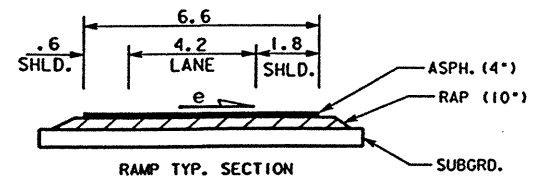
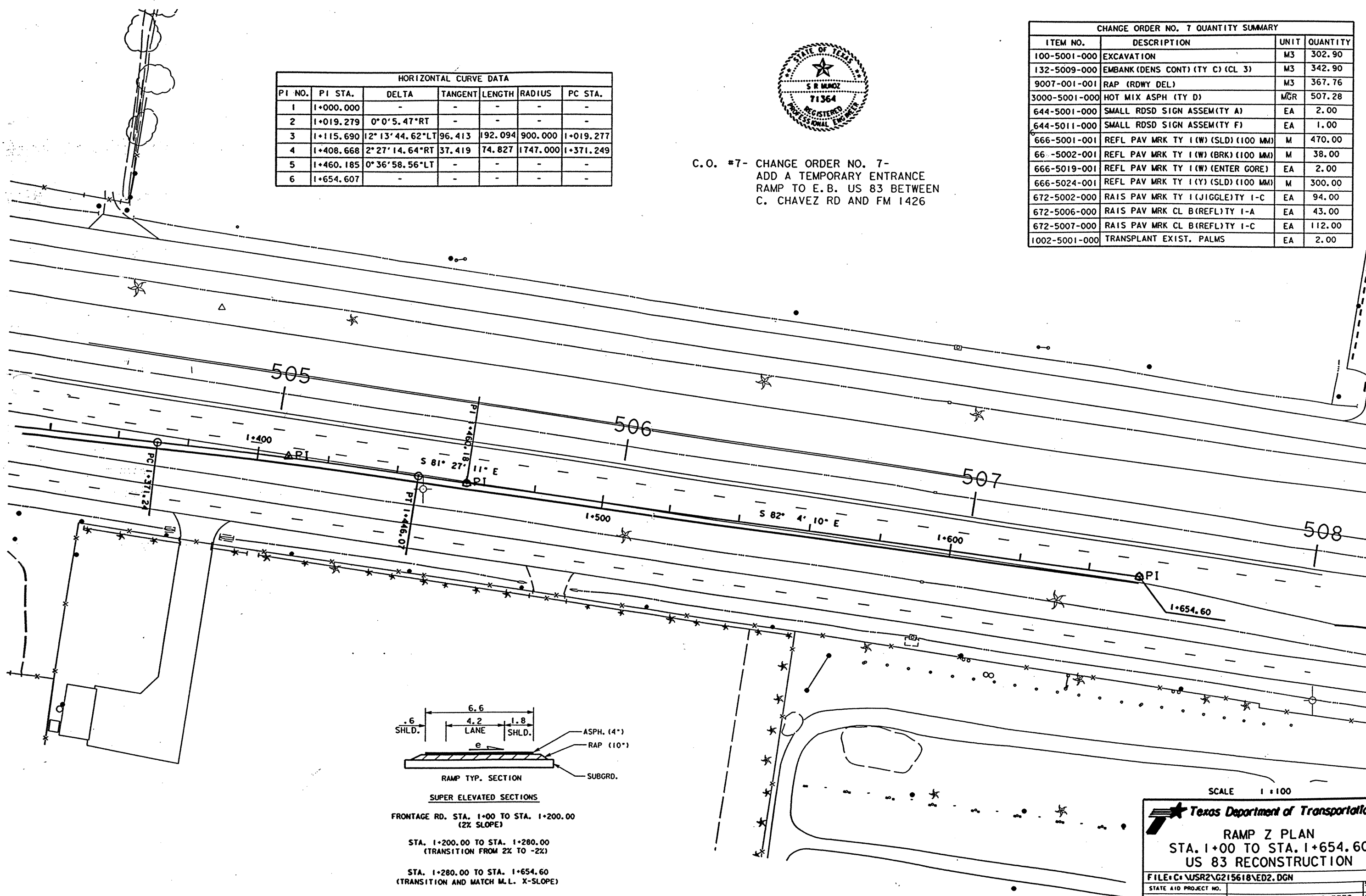
Texas Department of Transportation
RAMP Z PLAN
STA. 1+00 TO STA. 1+654.60
US 83 RECONSTRUCTION
 FILE: C:\USR2\G215618\EDI.DGN
 STATE AID PROJECT NO. NH 96 (791) M SHEET 1 OF 2 SHEETS 197A
 COUNTY: TARRANT COUNTY DIST. 0039-17-118 HIGHWAY NO. 4583

HORIZONTAL CURVE DATA						
PI NO.	PI STA.	DELTA	TANGENT	LENGTH	RADIUS	PC STA.
1	1+000.000	-	-	-	-	-
2	1+019.279	0° 0' 5.47" RT	-	-	-	-
3	1+115.690	12° 13' 44.62" LT	96.413	192.094	900.000	1+019.277
4	1+408.668	2° 27' 14.64" RT	37.419	74.827	1747.000	1+371.249
5	1+460.185	0° 36' 58.56" LT	-	-	-	-
6	1+654.607	-	-	-	-	-



C.O. #7- CHANGE ORDER NO. 7-
 ADD A TEMPORARY ENTRANCE
 RAMP TO E.B. US 83 BETWEEN
 C. CHAVEZ RD AND FM 1426

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644-5011-000	SMALL RSDS SIGN ASSEM(TY F)	EA	1.00
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66-5002-001	REFL PAV MRK TY I(W) (BRK) (100 MM)	M	38.00
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672-5007-000	RAIS PAV MRK CL B(REFL)TY I-C	EA	112.00
1002-5001-000	TRANSPLANT EXIST. PALMS	EA	2.00

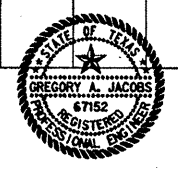
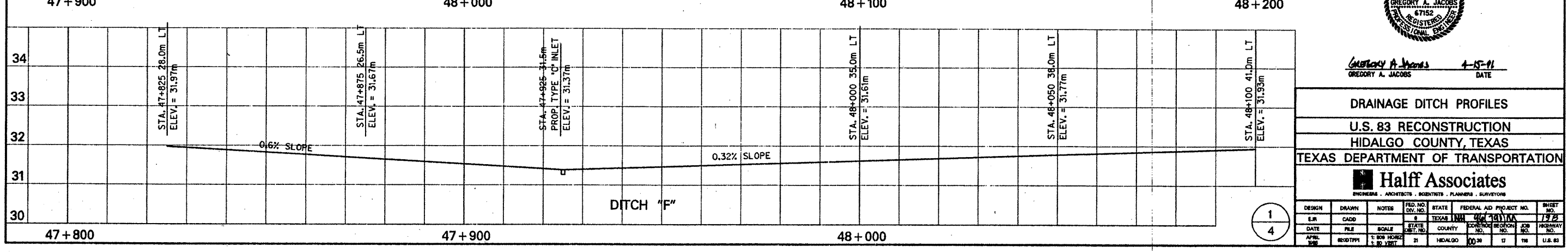
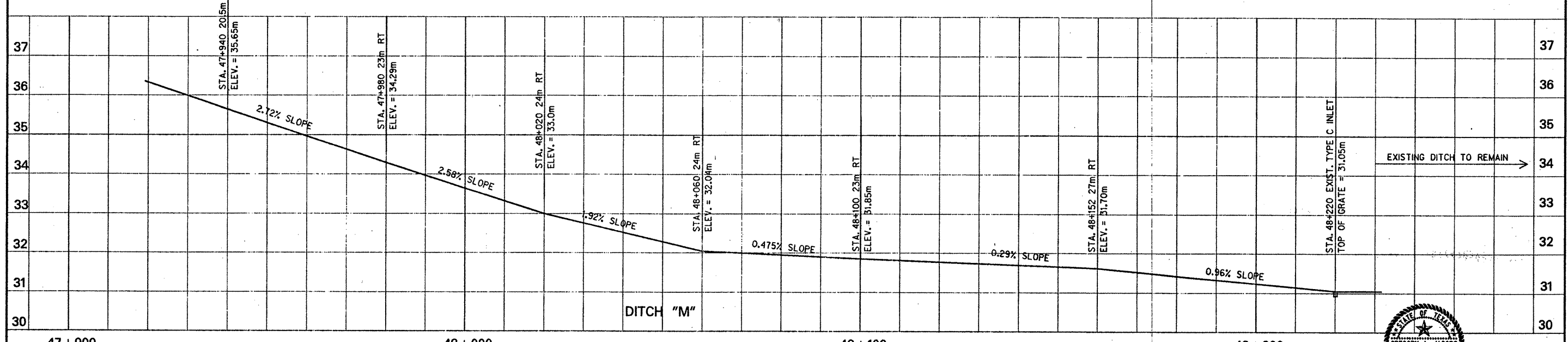
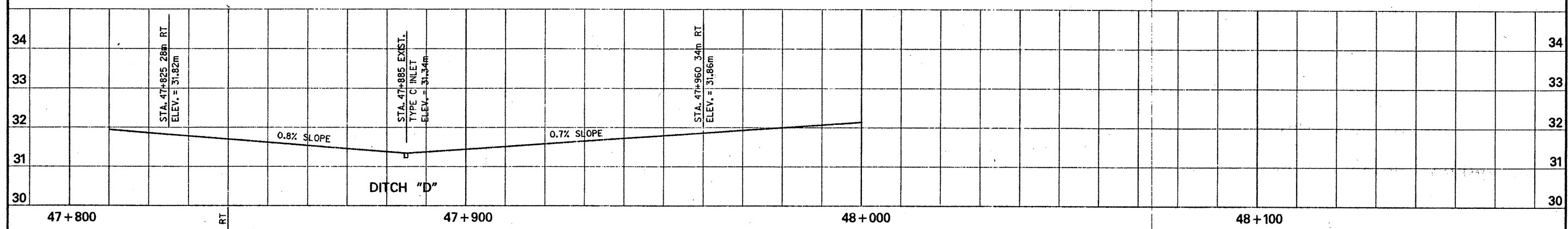
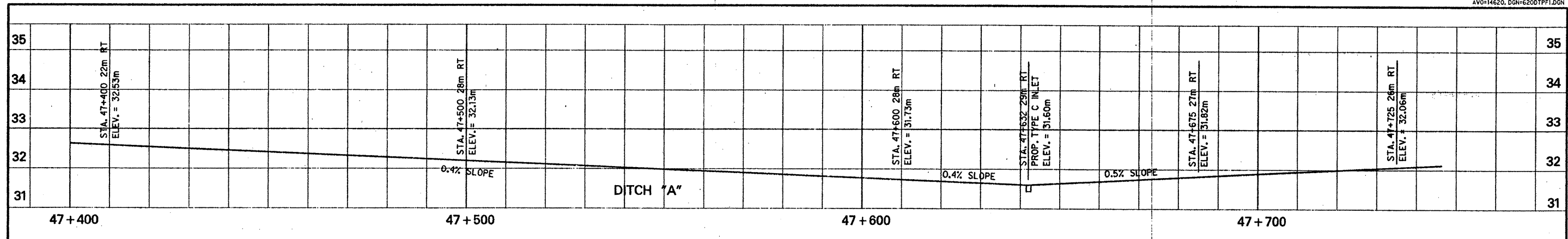


SUPER ELEVATED SECTIONS
 FRONTAGE RD. STA. 1+00 TO STA. 1+200.00 (2% SLOPE)
 STA. 1+200.00 TO STA. 1+280.00 (TRANSITION FROM 2% TO -2%)
 STA. 1+280.00 TO STA. 1+654.60 (TRANSITION AND MATCH M.L. X-SLOPE)

SCALE 1" = 100'

Texas Department of Transportation
 RAMP Z PLAN
 STA. 1+00 TO STA. 1+654.60
 US 83 RECONSTRUCTION

FILE: C:\USR2\G215618\ED2.DGN			
STATE AID PROJECT NO.	SHEET NO.		
NH 96 (791) M	SHEET 2 OF 2 SHEETS	197B	
COUNTY	CONTRACT	SECTION	JOB
6 TX	21 Hidalgo	009-17-118	US 83



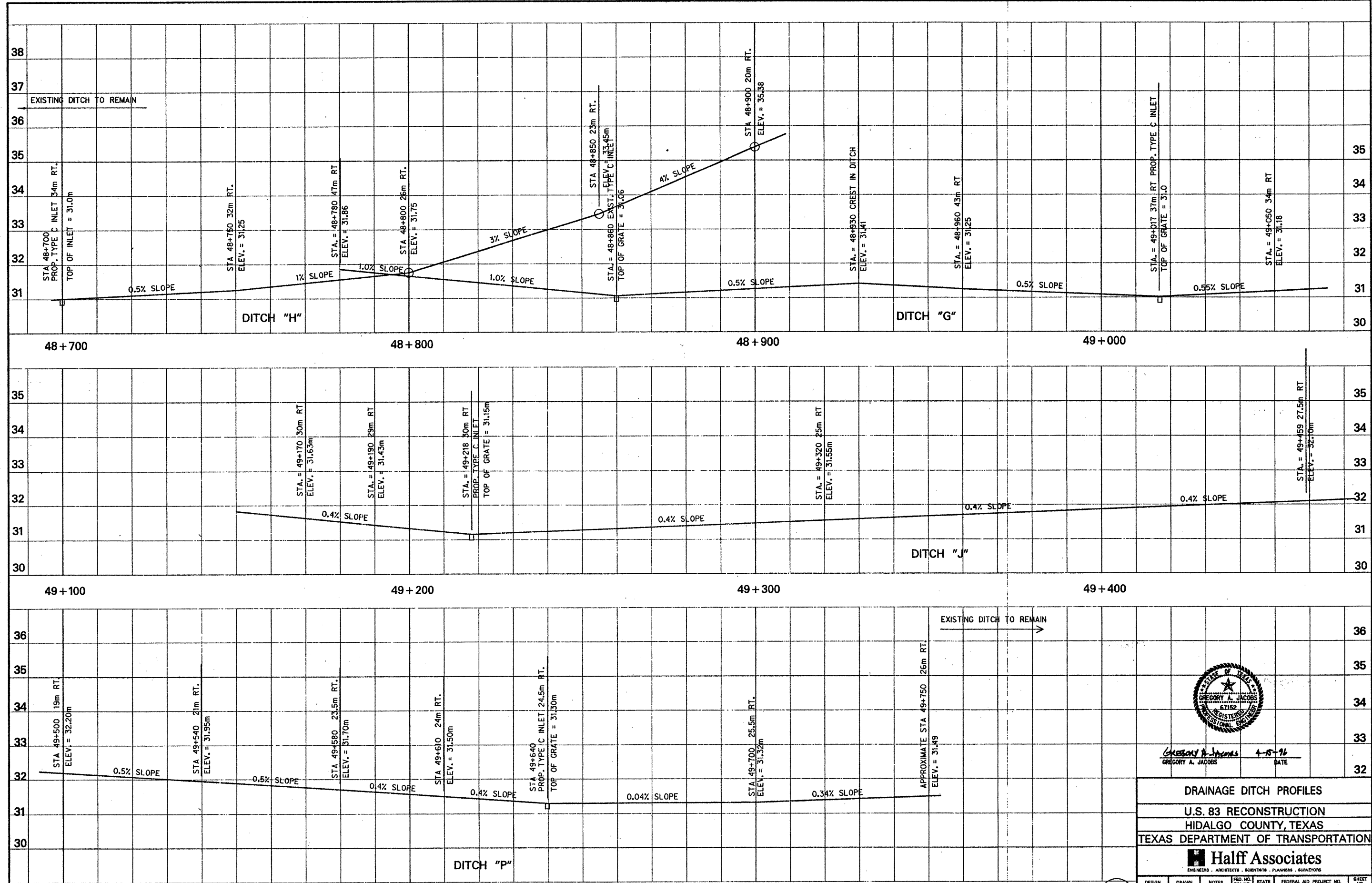
Gregory A. Jacobs 4-15-11
 GREGORY A. JACOBS DATE

DRAINAGE DITCH PROFILES
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FIG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DR	CAJD		6	TEXAS	44-1011A	192
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT REGION	JOB NO.
APRIL 1998	840277P1	1" = 800' HORIZ 1" = 80' VERT	21	HIDALGO	0029	17

1
4



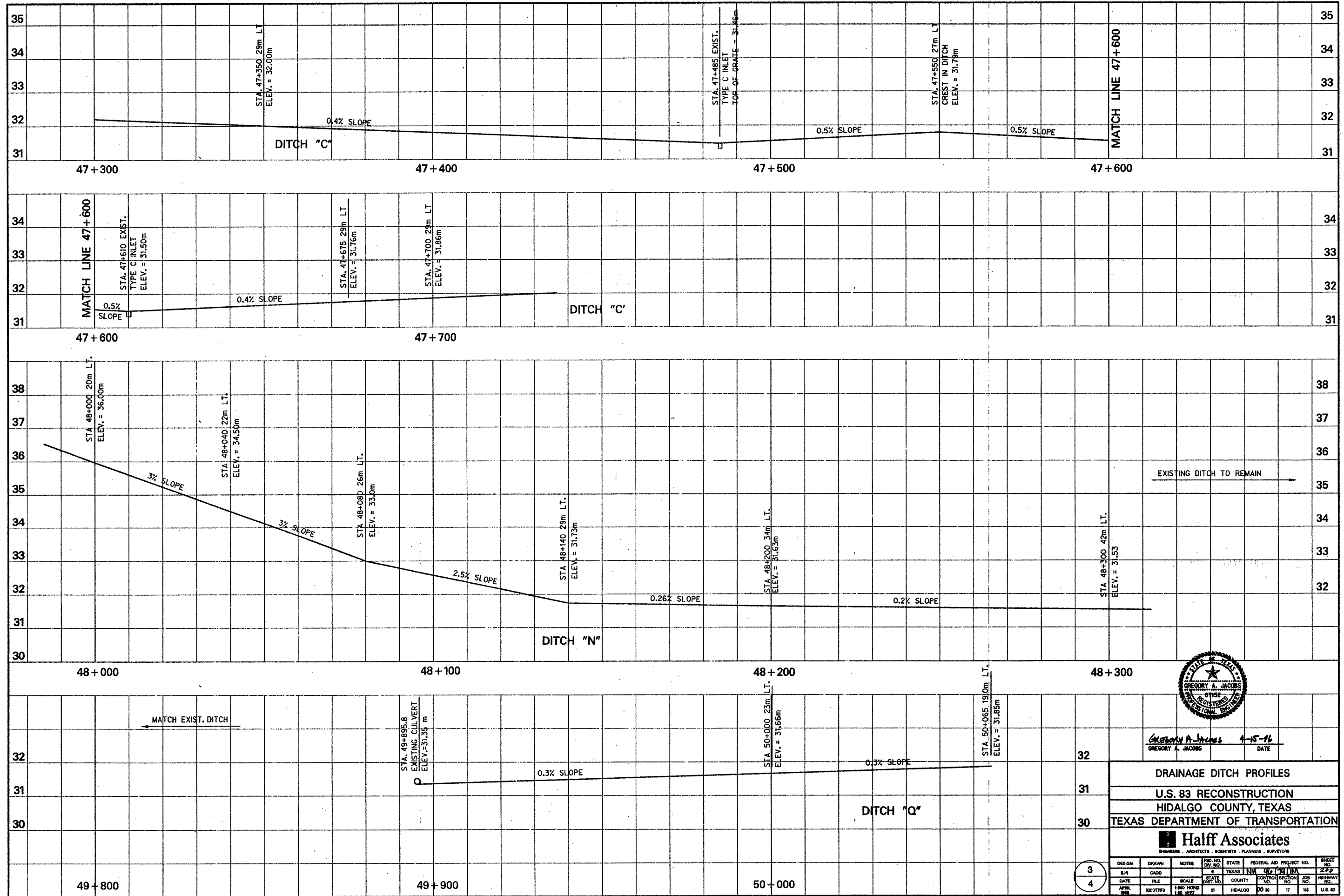
Gregory A. Jacobs 4-25-96
 GREGORY A. JACOBS DATE

DRAINAGE DITCH PROFILES
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
EJR	CADD		6	TEXAS	NH 00000000	777
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
APRIL 1996	620DTPF2	1:500 HORIZ 1:20 VERT	21	HIDALGO	0030	17

2
4



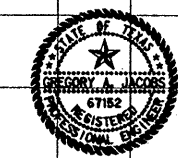
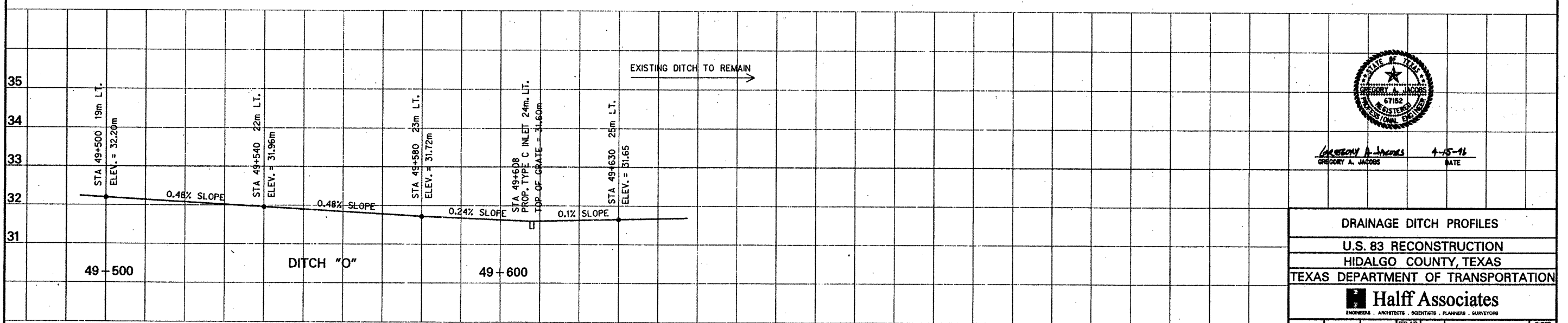
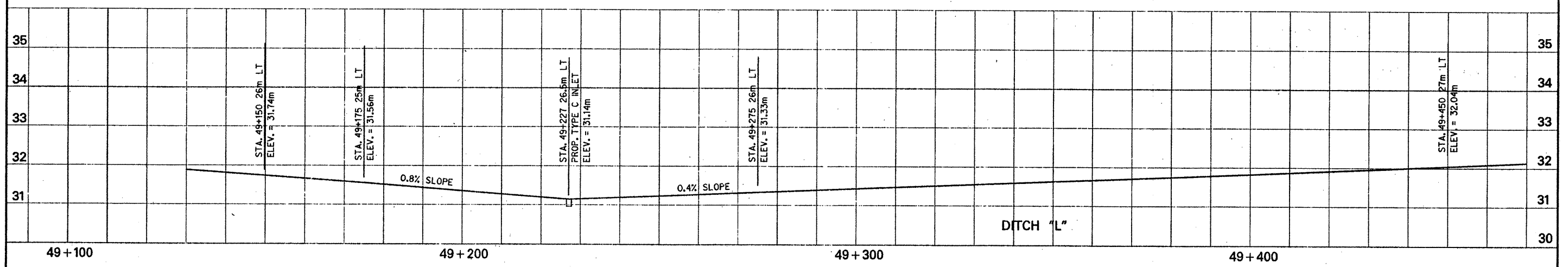
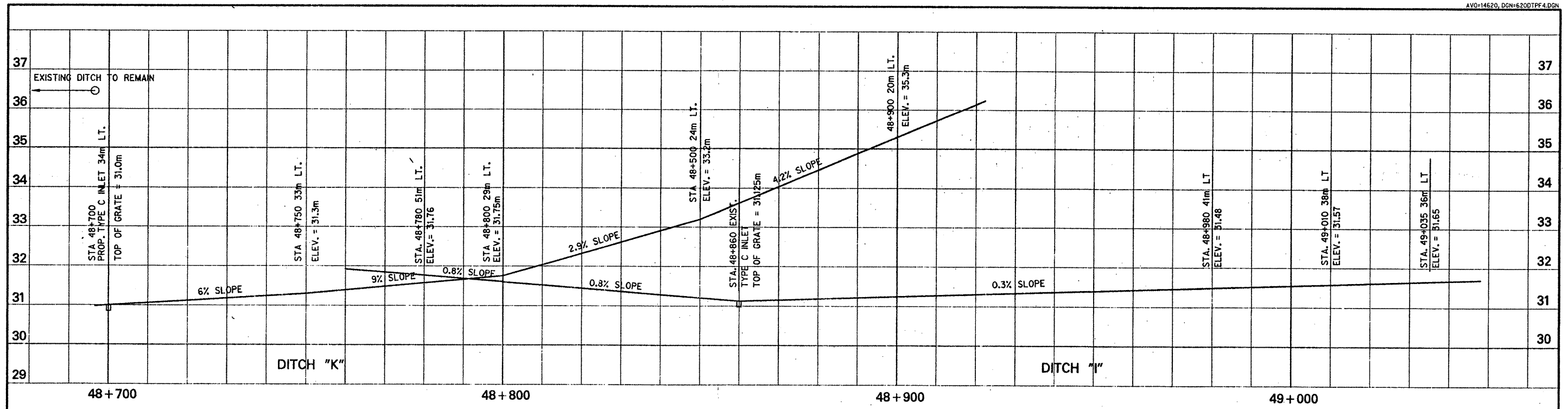
Gregory A. Jacobs 4-15-16
 GREGORY A. JACOBS DATE

DRAINAGE DITCH PROFILES
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID	PROJECT NO.	SHEET
ELR	CADD		6	TEXAS	00	222	222
DATE	FILE	SCALE	STATE	COUNTY	CONTROL	SECTION	JOB
APRIL 1999	82007792	1/8" = 1'-0"	TX	HIDALGO	00	17	118

3
4



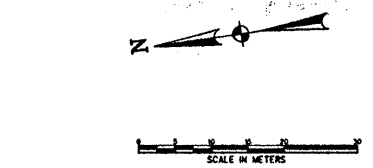
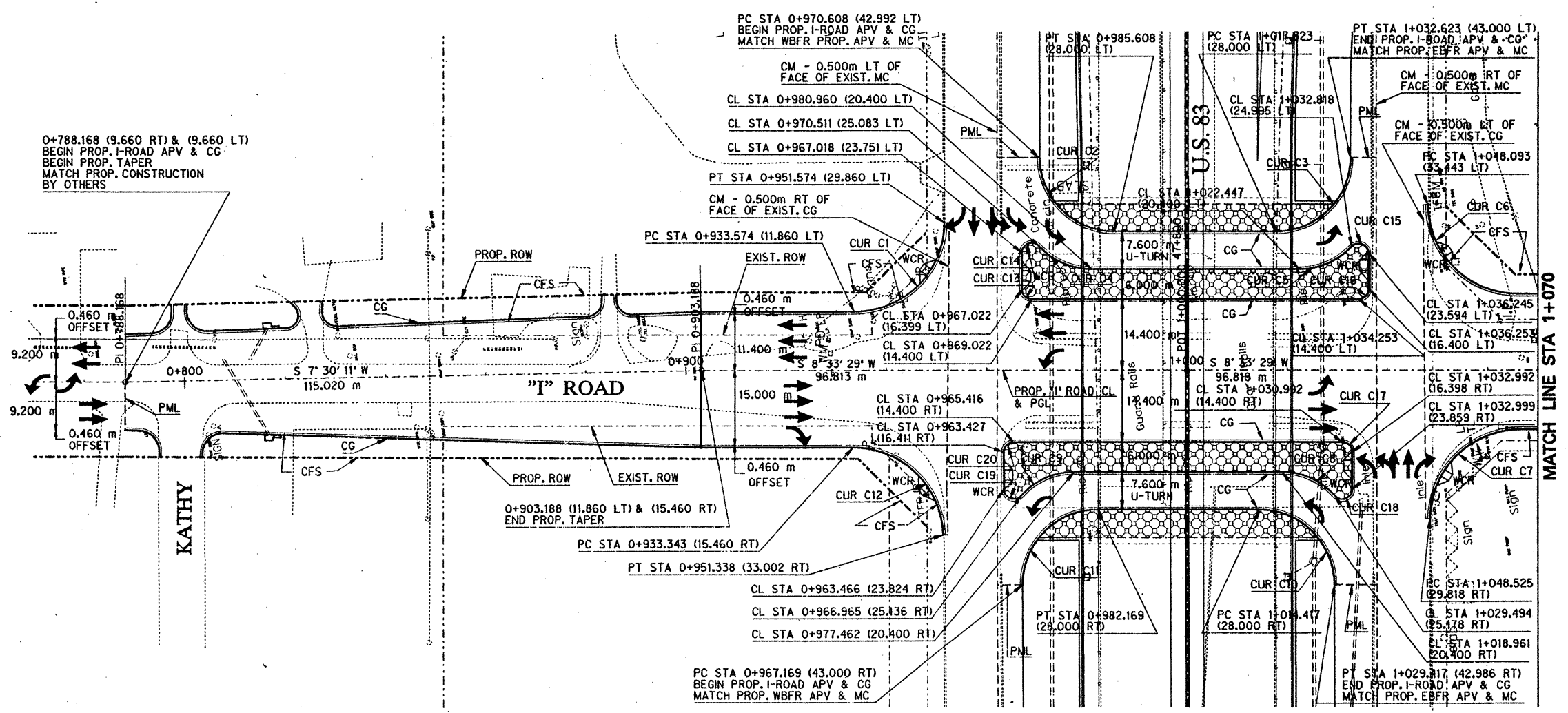
Gregory A. Jacobs
 GREGORY A. JACOBS
 4-15-96
 DATE

DRAINAGE DITCH PROFILES
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

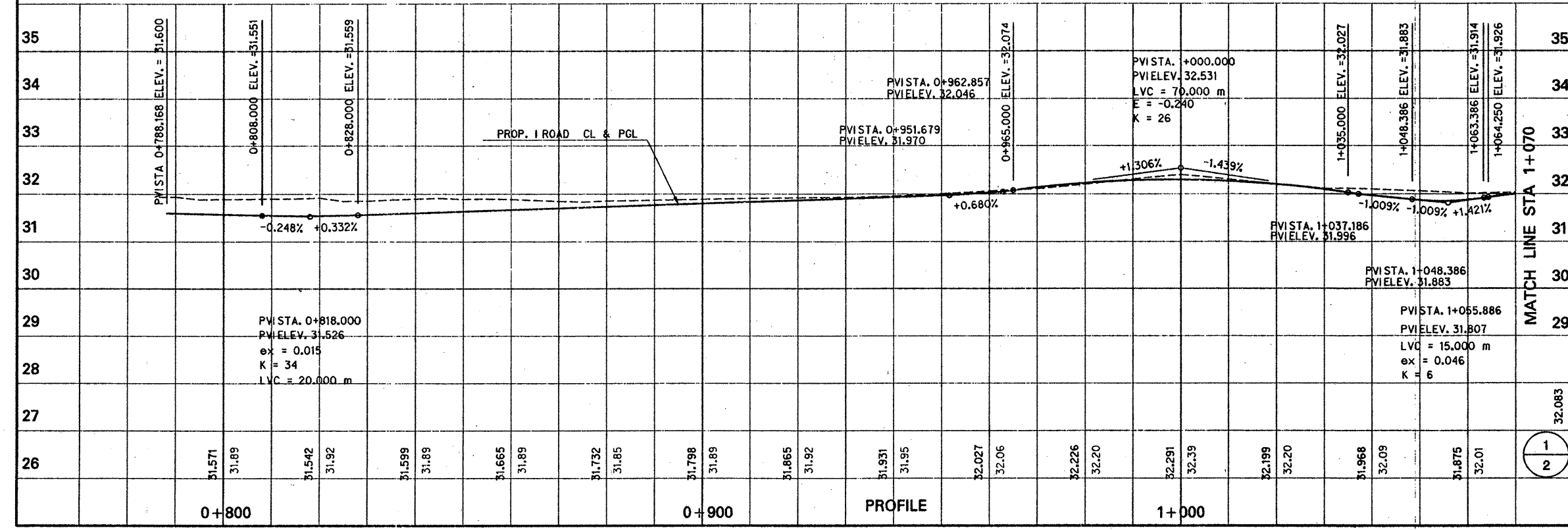
Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	CAH		6	TEXAS	IN 90-101-1A	2 of 2
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	SECTION NO.	HIGHWAY NO.
APRIL 1996	6201PF4	1:800 HORIZ 1:80 VERT	21	HIDALGO	20 24	17 118

4
4



- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
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 - RW - RETAINING WALL
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 - CA - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
 - CFS - CELLULOSE FIBER MULCH SEEDING
 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE
 - BRICK PAVER



Michael W. King
 4/15/96
 DATE

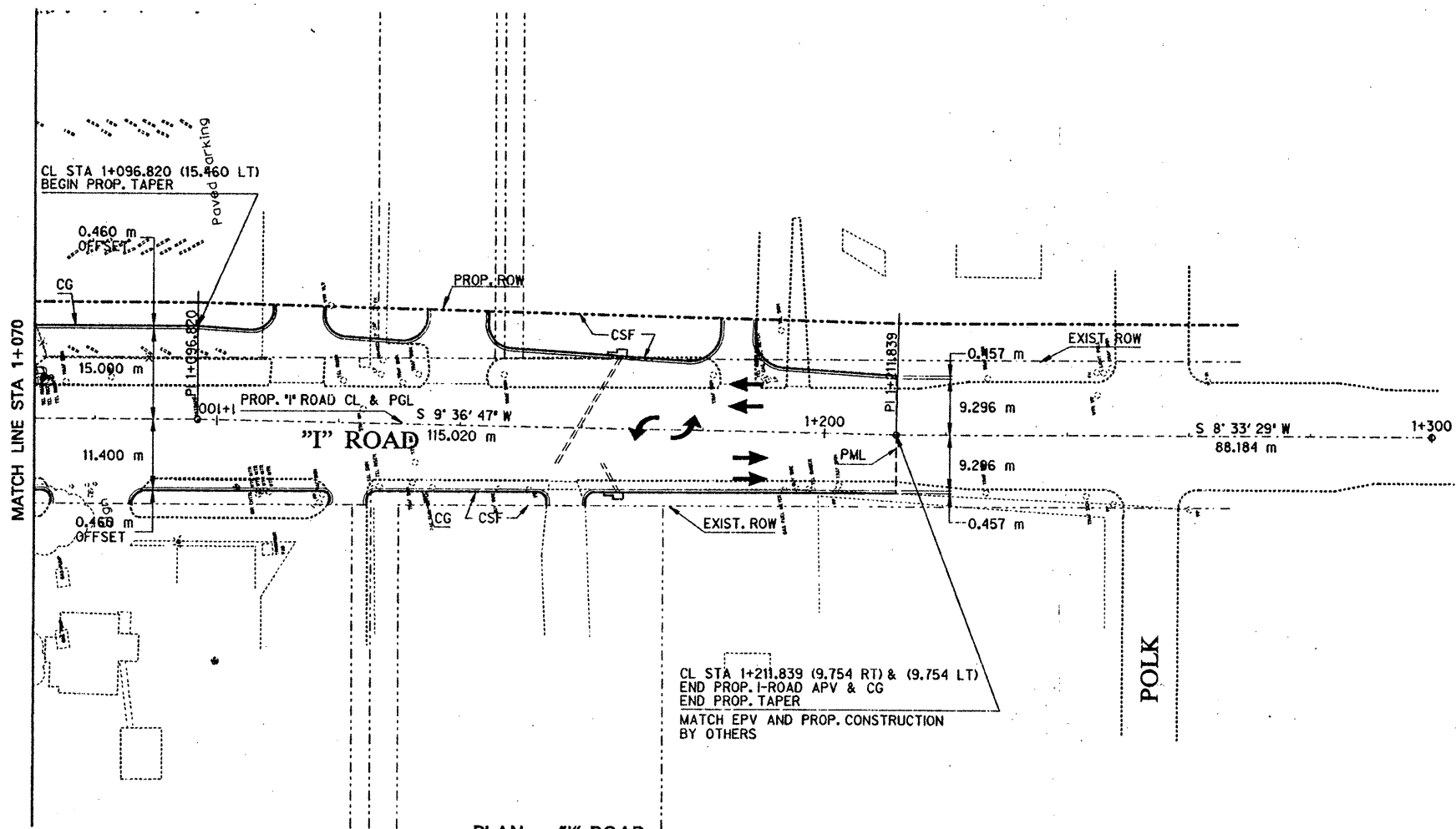
**"I" ROAD PLAN-PROFILE
CROSSROAD INTERSECTION
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS**

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

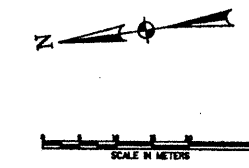
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD	SCALE	DATE	TX	TX	1061017M	222
DATE	FILE	SCALE	COUNTY	CONTROL SECTION	JOB NO.	ROWWAY NO.
APR 1996	620P0-1	1:500 HORIZ 1:50 VERT	HIDALGO	20 17	17	18

U.S. 83

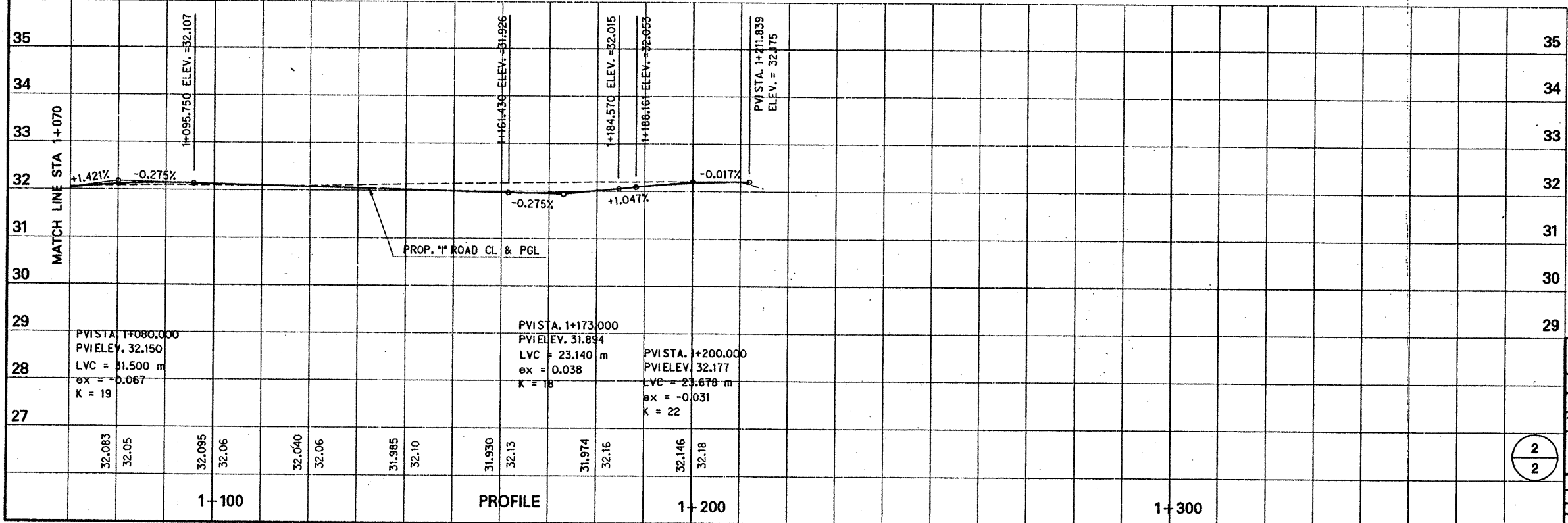


PLAN - "I" ROAD CROSSROAD INTERSECTION

HORIZONTAL CURVE DATA				
NAME	Δ	R	T	L
C1	90° 04' 20" LT	18.000	18.023	28.297
C2	89° 56' 08" RT	15.000	14.983	23.545
C3	90° 03' 25" LT	15.000	15.015	23.577
C4	48° 09' 00" RT	14.000	6.255	11.765
C5	47° 47' 39" LT	14.000	6.203	11.678
C6	89° 56' 47" LT	18.000	17.983	28.257
C7	89° 51' 54" LT	18.000	17.958	28.232
C8	48° 55' 59" RT	14.000	6.370	11.957
C9	48° 21' 17" LT	14.000	6.285	11.815
C10	90° 01' 31" RT	15.000	15.007	23.569
C11	90° 17' 49" LT	15.000	15.078	23.640
C12	88° 32' 28" LT	18.000	17.547	27.816
C13	89° 55' 23" RT	2.000	1.997	3.139
C14	138° 13' 38" LT	2.000	5.241	4.825
C15	137° 24' 09" RT	2.000	5.130	4.796
C16	90° 23' 29" RT	2.000	2.014	3.155
C17	89° 36' 31" RT	2.000	1.986	3.128
C18	139° 19' 29" LT	2.000	5.396	4.863
C19	138° 16' 40" RT	2.000	5.248	4.827
C20	90° 04' 37" RT	2.000	2.003	3.144



- LEGEND**
- MC - MOUNTABLE CONC. CURB
 - CG - CONC. CURB & GUTTER
 - APV - ASPHALTIC CONCRETE PAVEMENT, FLEXIBLE BASE AND LIME TREATED SUBGRADE
 - LN - TRAVEL LANE
 - SH - SHOULDER
 - EFR - EAST BOUND FRONTAGE ROAD
 - WFR - WEST BOUND FRONTAGE ROAD
 - CM - CUT & MATCH LINE
 - RW - RETAINING WALL
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 - - CONTROL OF ACCESS
 - RR - RIP RAP
 - FOC - FACE OF CURB
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 - SGT - SINGLE GUARD RAIL TERMINAL
 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
 - MSE - MECHANICALLY STABILIZED EARTH
 - DS - DRILLED SHAFT
 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE
 - ⊙ - BRICK PAVER

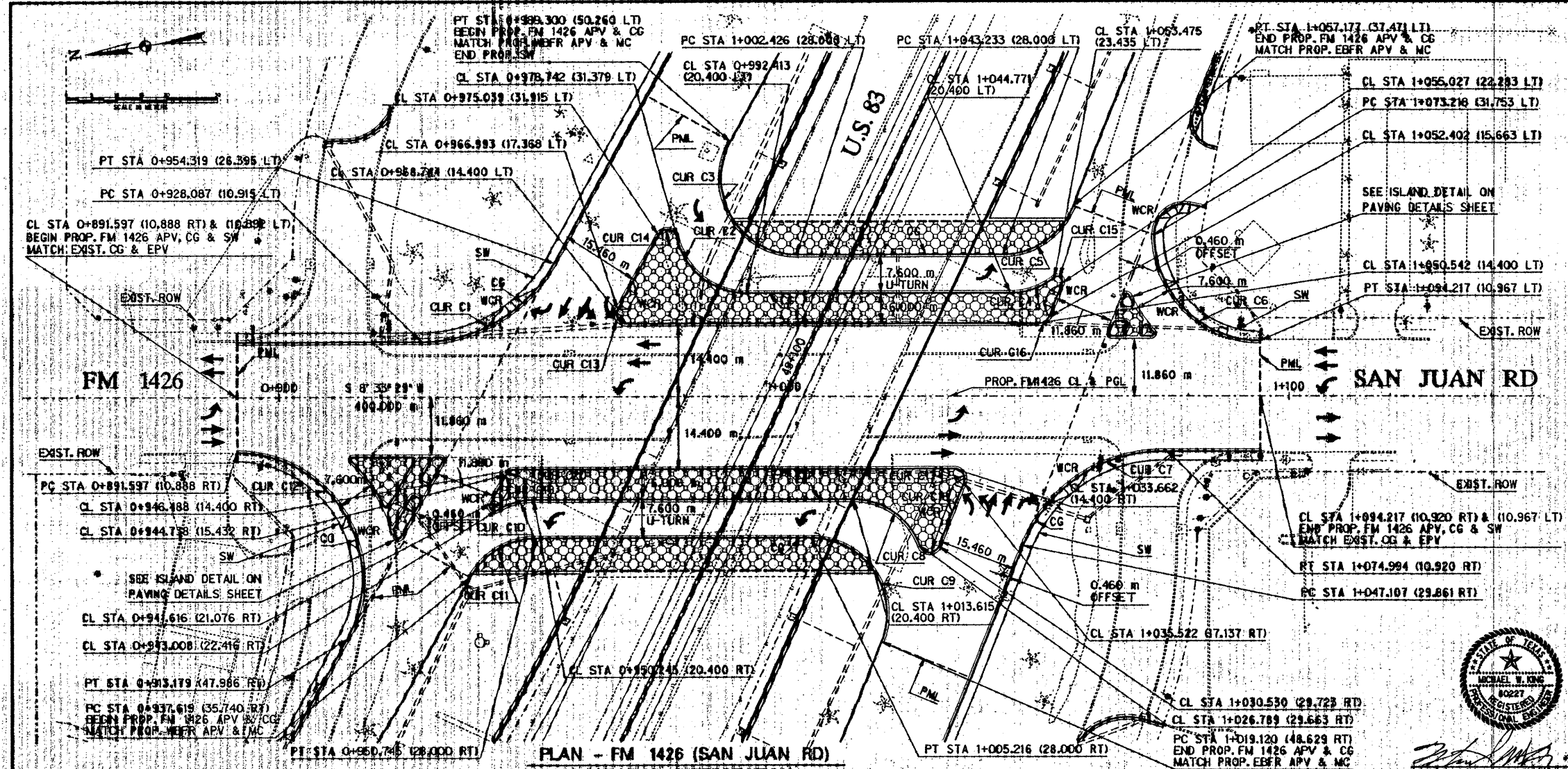


Michael W. King
4/16/96
DATE

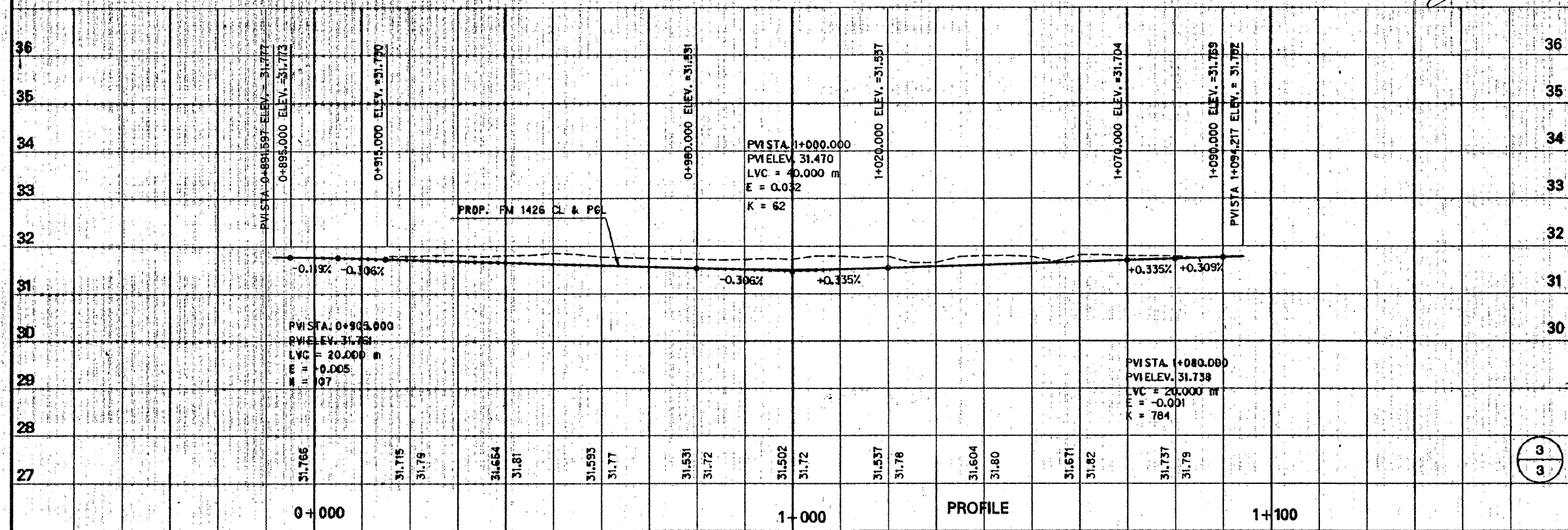
"I" ROAD PLAN-PROFILE
CROSSROAD INTERSECTION
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION



DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		NO.	TX		228
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
APR 96	820RD-2	1/8" = 1'-0"	TX	HIDALGO	DD 39	17 18



HORIZONTAL CURVE DATA				
NAME	A	R	T	L
C1	61° 00' 58" LT	30.000	17.677	31.948
C2	77° 32' 15" RT	14.000	11.244	18.946
C3	118° 56' 49" RT	15.000	25.438	31.140
C4	38° 26' 31" LT	14.000	4.881	9.393
C5	68° 22' 07" RT	15.000	10.188	17.899
C6	89° 24' 56" LT	21.000	20.787	32.773
C7	69° 09' 01" RT	30.000	20.676	36.207
C8	70° 13' 19" RT	14.000	9.843	17.158
C9	112° 02' 23" LT	15.000	22.255	29.332
C10	31° 07' 36" LT	14.000	3.899	7.606
C11	61° 03' 11" LT	15.000	8.845	15.984
C12	118° 16' 13" RT	25.000	41.830	51.605
C13	118° 56' 50" LT	2.000	3.392	4.152
C14	158° 35' 25" LT	2.000	5.292	4.838
C15	150° 04' 25" RT	1.000	3.742	2.619
C16	68° 22' 07" LT	2.000	1.358	2.387
C17	111° 37' 53" RT	2.000	2.945	3.897
C18	138° 35' 25" LT	2.000	5.292	4.838
C19	150° 04' 25" RT	1.000	3.742	2.619
C20	61° 03' 12" RT	2.000	1.179	2.131



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 - CCAT - CRASH CUSHION ATTENUATING TERMINAL
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 - ML - MAINLANE
 - SSCB - SINGLE SLOPE CONC. BARRIER
 - SSTR - SINGLE SLOPE TRAFFIC RAILING
 - PML - PAVEMENT MATCH LINE
 - SW - SIDEWALK
 - WCR - WHEEL CHAIR RAMP
 - CL - CENTERLINE
 - BP - BRICK PAVER

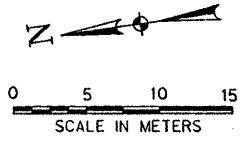


Michael W. King
DATE

FM 1426 PLAN-PROFILE
CROSSROAD INTERSECTION
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
DESIGNERS, ARCHITECTS, ENGINEERS, PLANNERS, SURVEYORS

DESIGN	DRAWN	CHECKED	SCALE	DATE	FEDERAL AID PROJECT NO.	SHEET NO.
					TEXAS 0177-1-1	22-C
DATE	FILE	SCALE	COUNTY	CONTROL SECTION	CONTRACT NO.	ROUTE NO.
APR 1998	620-1420	ASD PROFILE	HIDALGO	20 38	17	18 U.S. 83

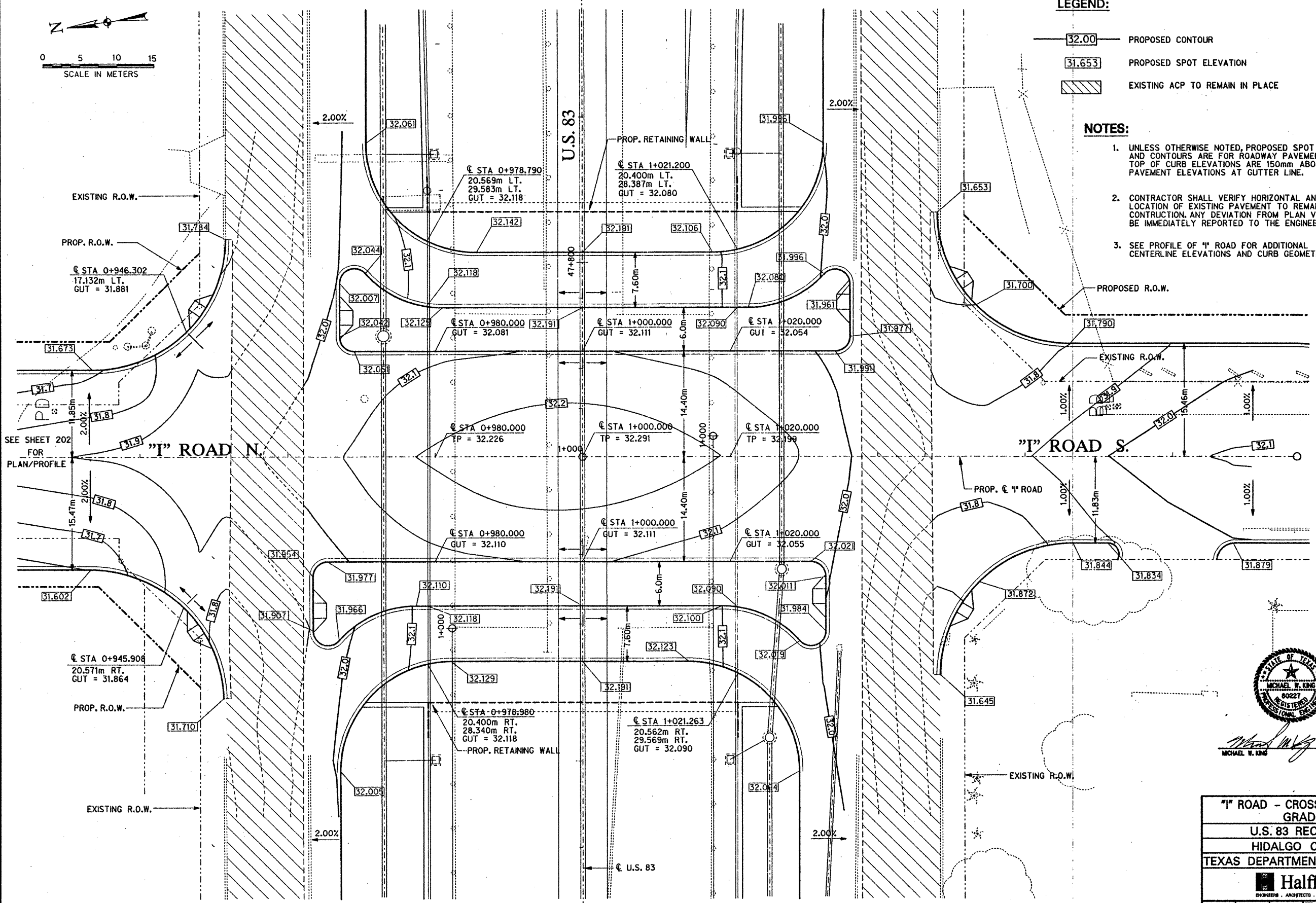


LEGEND:

- 32.00 PROPOSED CONTOUR
- 31.653 PROPOSED SPOT ELEVATION
- EXISTING ACP TO REMAIN IN PLACE

NOTES:

1. UNLESS OTHERWISE NOTED, PROPOSED SPOT ELEVATIONS AND CONTOURS ARE FOR ROADWAY PAVEMENT SURFACE. TOP OF CURB ELEVATIONS ARE 150mm ABOVE PAVEMENT ELEVATIONS AT GUTTER LINE.
2. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING PAVEMENT TO REMAIN PRIOR TO CONSTRUCTION. ANY DEVIATION FROM PLAN VALUES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
3. SEE PROFILE OF "I" ROAD FOR ADDITIONAL CENTERLINE ELEVATIONS AND CURB GEOMETRY.



TRANSITION CROSSFALL TO 2.00%
SEE SHEET 203 FOR PLAN/PROFILE



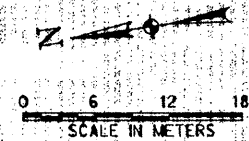
Michael W. King 4/16/96
MICHAEL W. KING DATE

"I" ROAD - CROSSROAD INTERSECTION
GRADING PLAN
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

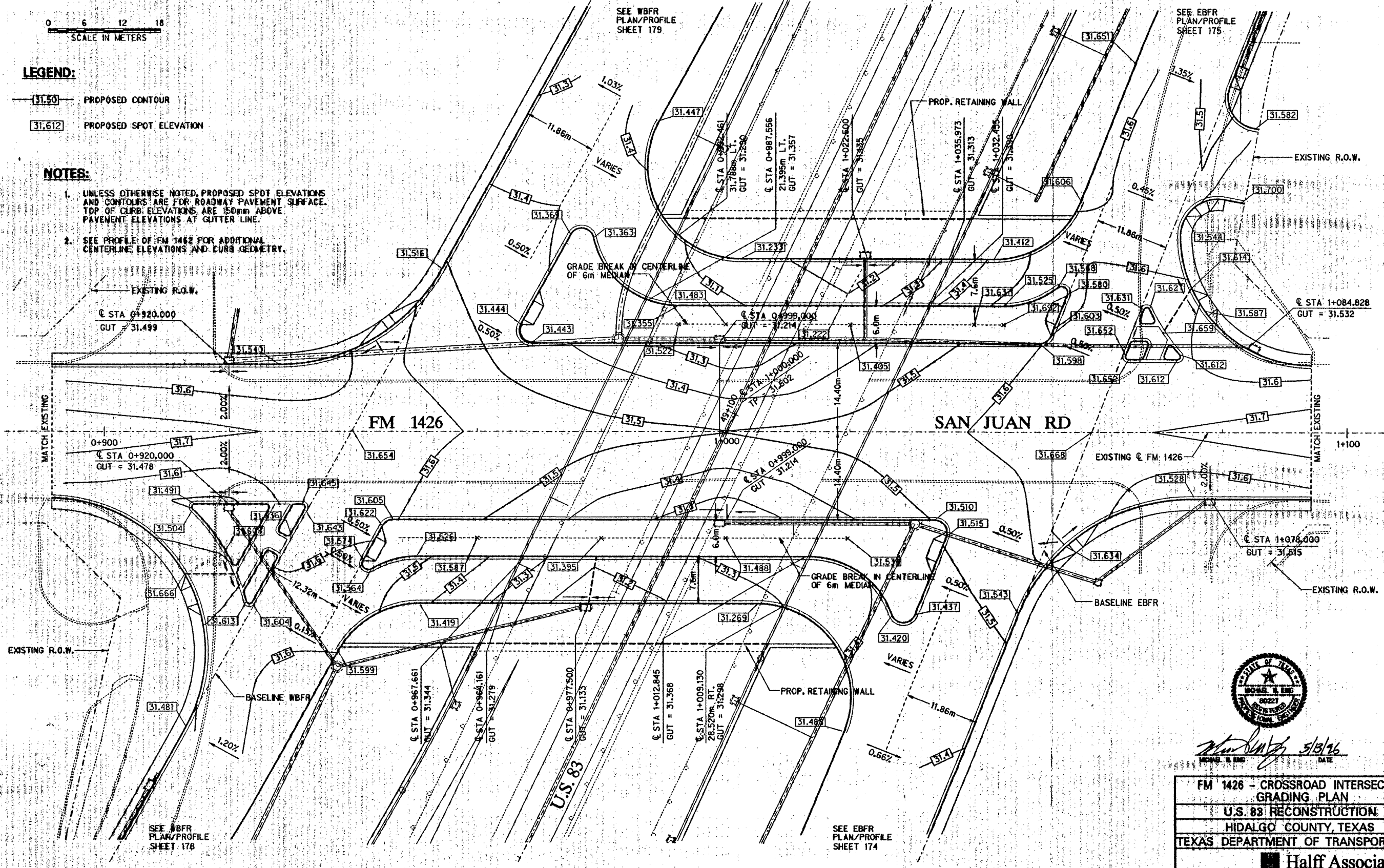
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APRIL 1996	6200RADI	1:250	21	HIDALGO	03	17
						18
						U.S. 83

1
2



LEGEND:
 [31.50] PROPOSED CONTOUR
 [31.612] PROPOSED SPOT ELEVATION

NOTES:
 1. UNLESS OTHERWISE NOTED, PROPOSED SPOT ELEVATIONS AND CONTOURS ARE FOR ROADWAY PAVEMENT SURFACE. TOP OF CURB ELEVATIONS ARE 150mm ABOVE PAVEMENT ELEVATIONS AT GUTTER LINE.
 2. SEE PROFILE OF FM 1462 FOR ADDITIONAL CENTERLINE ELEVATIONS AND CURB GEOMETRY.



Michael S. Ems 5/3/16
 MICHAEL S. EMS DATE

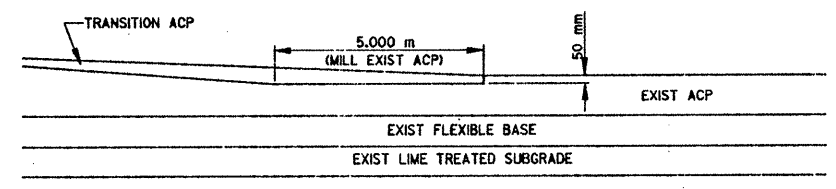
FM 1426 - CROSSROAD INTERSECTION
 GRADING PLAN
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

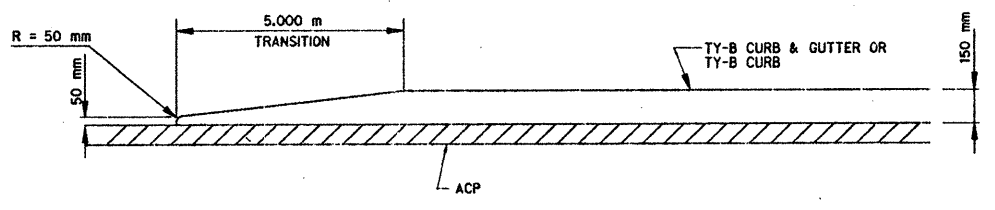
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DATE	FILE	SCALE	DATE	TX	TX 4011A	206
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						U.S. 83

REV. 5/28/16

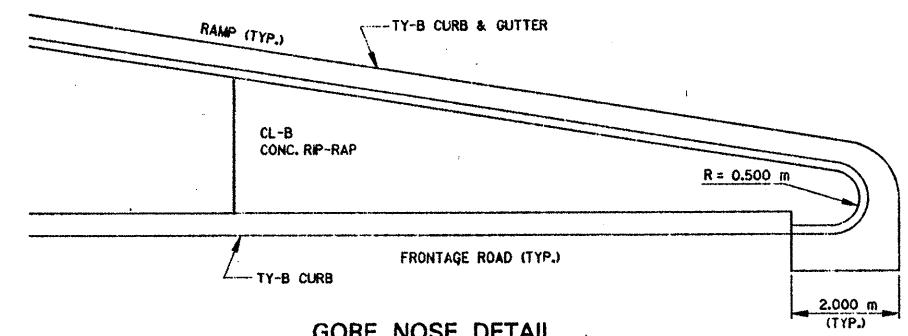
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2



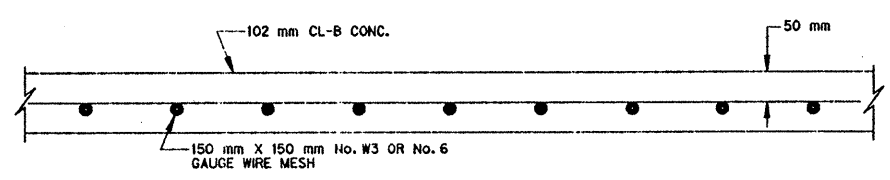
ASPHALT TIE-IN DETAIL
N.T.S.



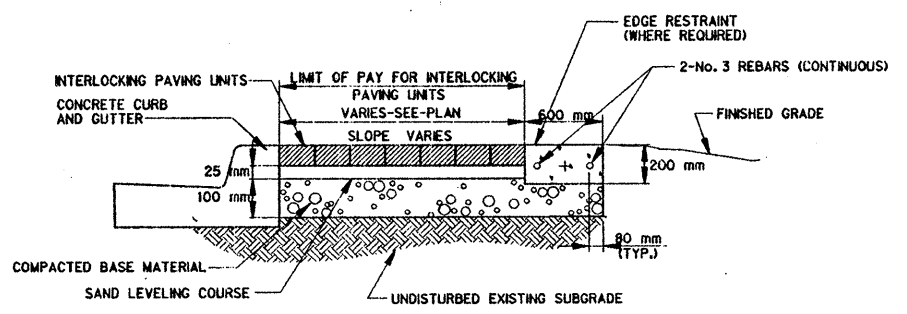
CURB TRANSITION DETAIL
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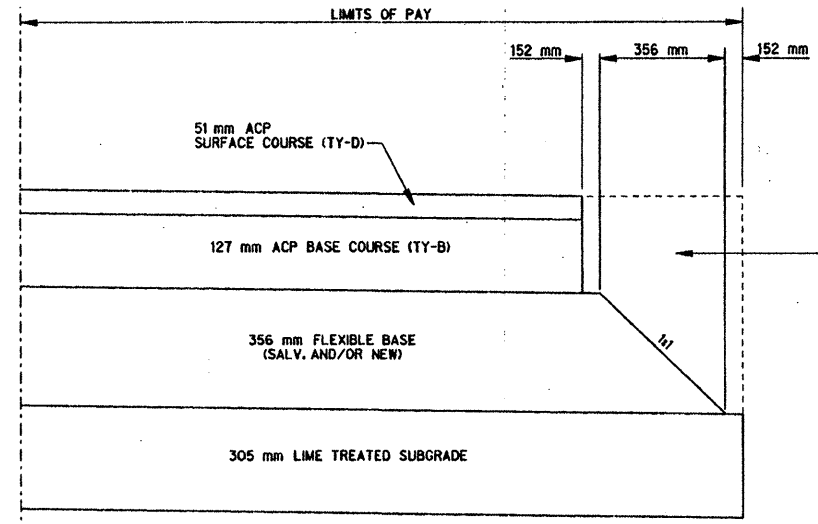
GORE NOSE DETAIL
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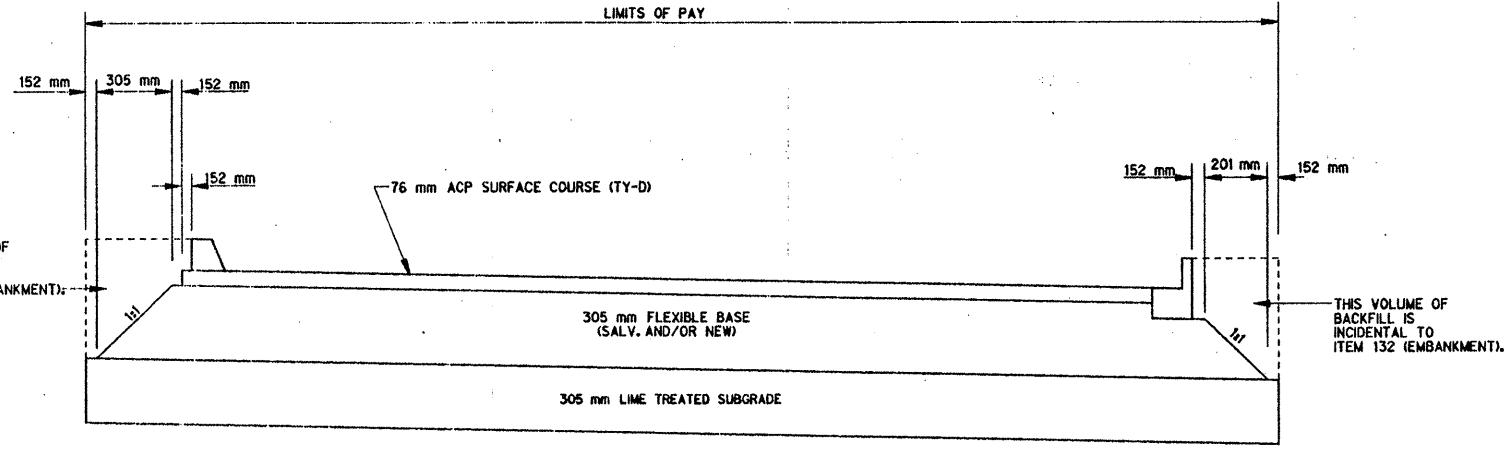
RIP-RAP DETAIL
N.T.S.



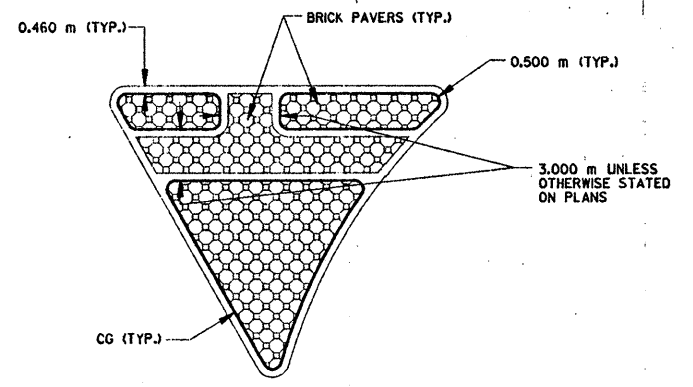
INTERLOCKING PAVING UNITS
N.T.S.



MAINLANE PAVEMENT DETAIL
N.T.S.



RAMPS, FRONTAGE ROADS & CROSS ROADS PAVEMENT DETAIL
N.T.S.



ISLAND DETAIL
N.T.S.

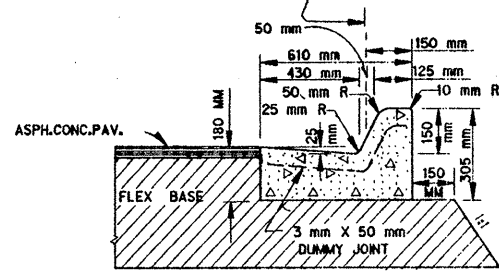


Michael W. King
MICHAEL W. KING DATE 4/15/06

U.S. 83 PAVING DETAILS									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
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APR 06	829PDTL1	AS NOTED	21	HIDALGO	0039	17	18	U.S. 83	

1
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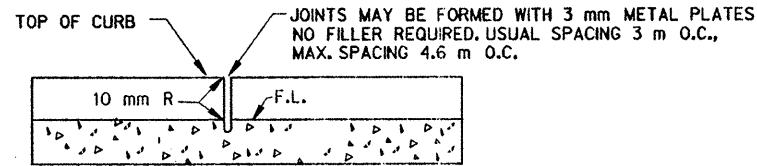
ALL HORIZONTAL DIMENSIONS AND RADII SHOWN ON PLANS, RELATING TO CURB & GUTTER, ARE TO A POINT 150 mm IN FROM BACK OF CURB.



CONC. CURB & GUTTER TY "A" (BARRIER)

NOTE: EXPANSION JOINTS

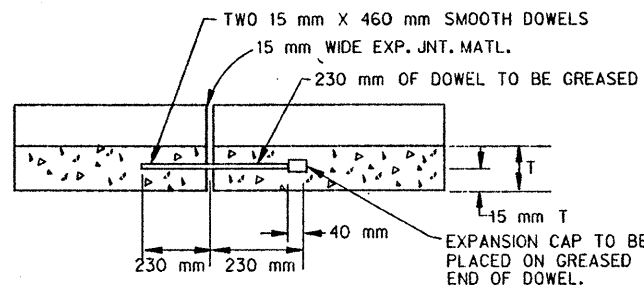
15 mm PREMOLDED EXPANSION JOINT MATERIAL SHALL BE INSTALLED WHERE CONC. CURB & GUTTER ABUTS CONC. CURB, OR WHERE CONC. CURB & GUTTER OR CONC. CURB ABUTS INLETS, BRIDGE WINGWALLS, BRIDGE ABUTMENTS AND/OR ANY OTHER LOCATIONS SPECIFIED BY THE ENGINEER. MAX. SPACING = 32 m



DETAIL DUMMY JOINT

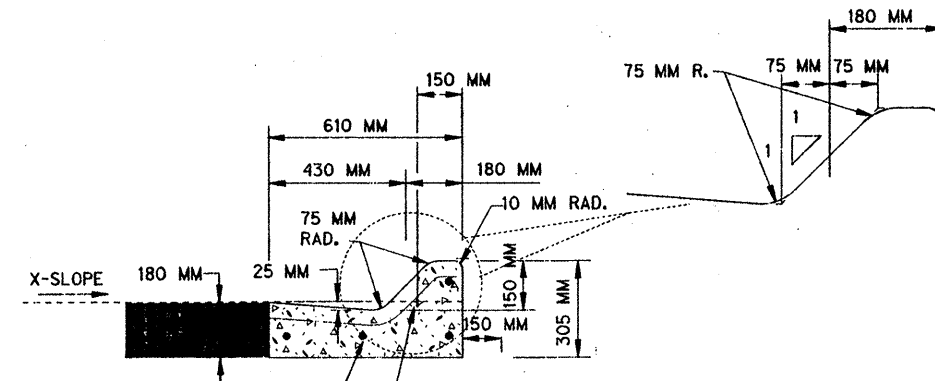
NOTE:

DUMMY JOINTS TO BE USED ON CURB & CUTTER, CONC. MEDIAN AND ALL TYPE OF VALLEY GUTTERS JOINTS TO BE LOCATED BY THE ENGINEER.



DETAIL EXPANSION JOINT

LONGITUDINAL SECTION THRU CURB AND/OR C&G. REINFORCING STEEL (WHEN USED) SHALL NOT CROSS EXPANSION JOINTS. STEEL SHALL BE TERMINATED 75 mm ± 25 mm FROM FACE OF THE JOINT.

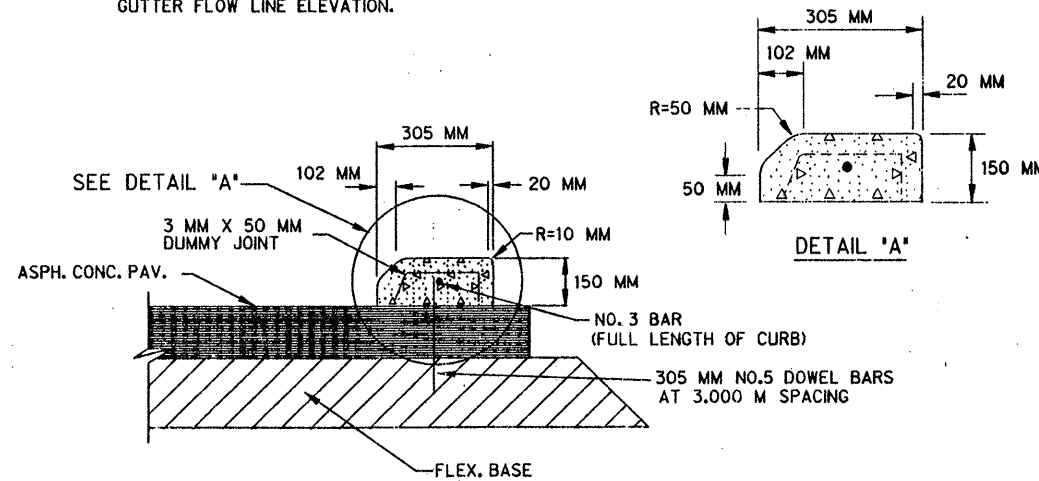


4-#3 BARS W/40 MM COVER (MIN) (FULL LENGTH OF CURB & GUTTER)

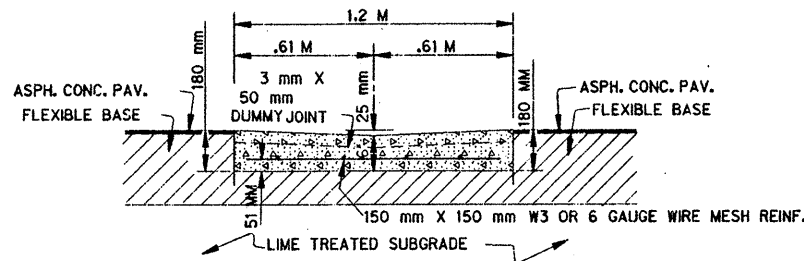
ALL HORIZONTAL DIMENSIONS AND RADII SHOWN ON PLANS, RELATING TO CURB AND GUTTER, ARE TO A POINT 150 mm IN FROM BACK OF CURB. FRONTAGE BASELINES LOCATED AT A POINT 150 mm IN FROM BACK OF CURB AND EXTENDING FROM THE CROSS SLOPE OF THE FRONTAGE ROADS.

CONC. CURB & GUTTER TY. "A" (MOUNTABLE)

NOTE: WHERE PROPOSED CURB & GUTTER IS TO BE CONNECTED TO EXIST. CURB & GUTTER IT SHOULD BE DONE AT THE EXIST. GUTTER FLOW LINE ELEVATION.

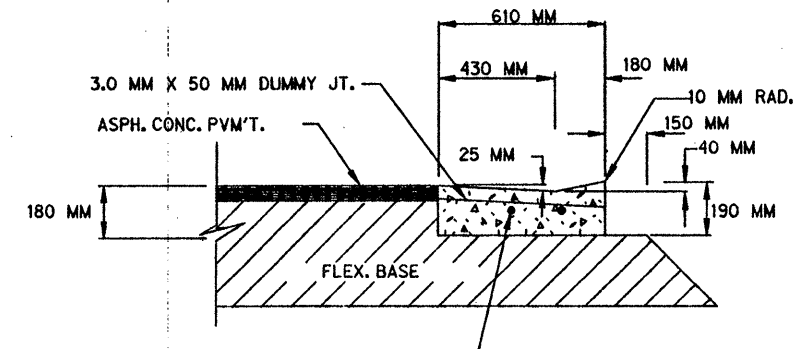


CONC. CURB TY "B" (MOUNTABLE)



1.2 m CONC. GUTTER (TY "A")

TO BE USED WHERE REQUIRED TO CARRY DRAINAGE WATER ACROSS SIDE STREETS



CONC. VALLEY GUTTER

NOTE:

CONCRETE GUTTER TO BE USED ONLY WHERE PERMITTED BY TEXAS DEPARTMENT OF TRANSPORTATION REGULATIONS FOR ACCESS DRIVEWAYS.

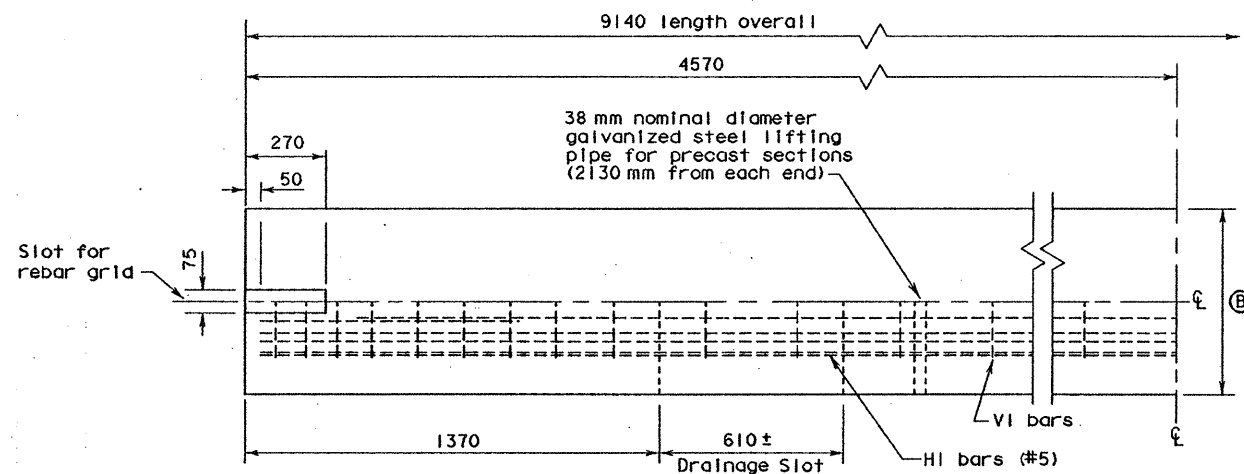
.60 MM VALLEY GUTTER SHALL BE PAID FOR AS CONC. CURB AND GUTTER. CONCRETE CURB & GUTTER & CONCRETE CURB SHALL BE MEASURED FOR PAYMENT ALONG FACE OF CURB AT FLOW LINE.



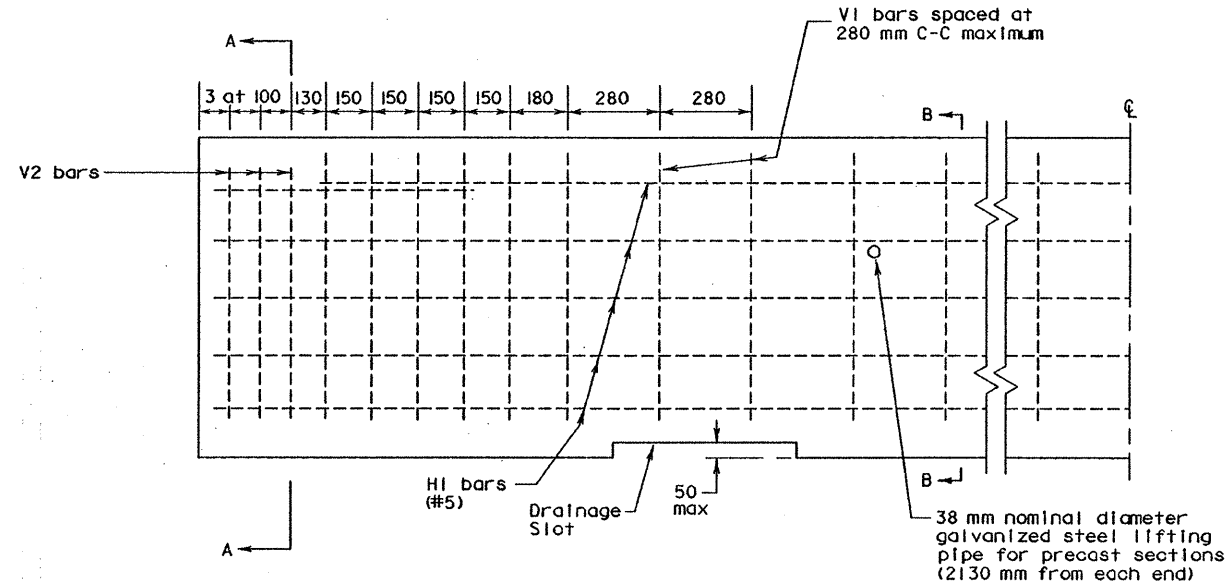
Michael W. King 4/15/96
DATE

CONC. CURB & GUTTER DETAILS (MOD)										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
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DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.	JOB NO.	HIGHWAY NO.		
APRIL 1996	820POTLE	AS NOTED	21	HIDALGO	00 24	17	118	U.S. 83		

Note: Approx. 25 mm space between adjoining barrier sections



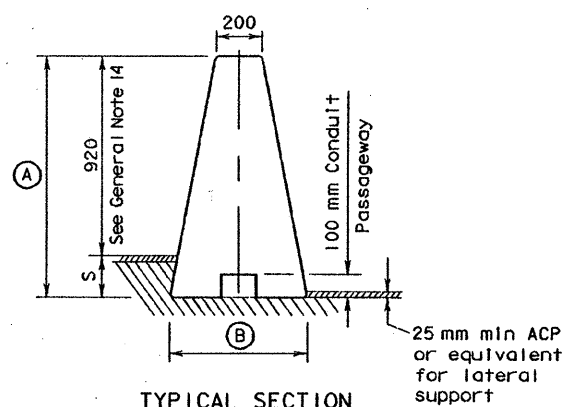
PLAN VIEW
(SYMMETRICAL ABOUT CENTER LINE)



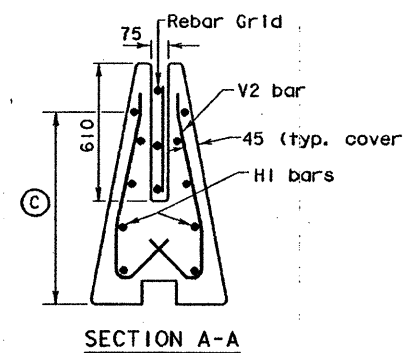
ELEVATION
(SYMMETRICAL ABOUT CENTER LINE)

GENERAL NOTES

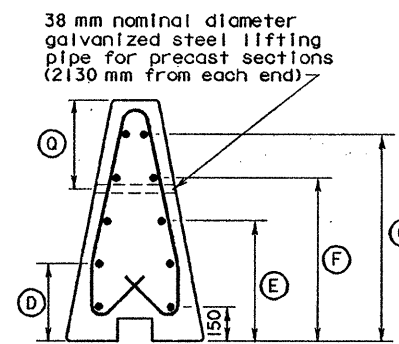
1. Barrier length shall be 9140 mm (± 25 mm) unless otherwise specified in the plans.
2. The usual temporary installation will require the placement of the rebar grid in the ungrouted slot. The usual permanent installation using precast barrier will connect the barrier segments with the rebar grid placed in the slot and grouted in place.
3. When installed in a permanent roadway location, the end connections of the precast barrier shall be grouted with a mixture of two parts sand and one part cement with enough water to make the mixture plastic. Grouting shall be done in a manner that will assure a smooth surface at the joint.
4. All concrete shall be class C or H, unless otherwise specified.
5. All reinforcing steel shall be Grade 420, unless otherwise specified.
6. Each precast barrier to be installed in a temporary location shall be delivered with a rebar grid.
7. Chamfer top and end edges 20 mm.
8. Unless otherwise shown in the plans, the Contractor has the option of placing either precast or cast-in-place permanent concrete barrier. Cast-in-place barrier may be slip formed. Additional reinforcement may be tack welded to the upper two-thirds of the reinforcing cage to provide bracing. Additional vertical bars shall be provided only to the extent necessary to position longitudinal steel within tolerances. Lifting pipe, rebar grid and slot shall be omitted for cast-in-place construction.
9. Bar splices for roadway barrier shall be a minimum of 24 times the nominal diameter of the bar.
10. Any method devised by the Contractor and approved by the Engineer that will assure the longitudinal roadway steel will be positioned ± 10 mm as dimensioned will be satisfactory.
11. Welded wire fabric may be used as an option to conventional reinforcement for precast or cast-in-place barrier. Welded wire fabric shall be made in accordance with ASTM A 497.
12. Conduit will be provided only when called for elsewhere in the plans. The position of the conduit or conduit passageway may be adjusted to facilitate construction, subject to approval of the Engineer.
13. Transitions to barrier height, as needed, shall be determined by the Engineer. Changes in barrier height should not normally exceed 50 mm per 9140 mm. Vertical steel shall be uniformly transitioned throughout the variation in barrier height as directed by the Engineer.
14. A 920 mm minimum height differential between top of barrier and top of ACP shall be required at placement in order to allow for up to 150 mm of future overlays while maintaining a 770 mm minimum future effective height of barrier. Total minimal barrier height for design is therefore dictated by allowance for future overlays plus existing stairstep dimension "S". Minimums typically rounded to 1070 mm, 1220 mm, or 1370 mm to facilitate precasting.



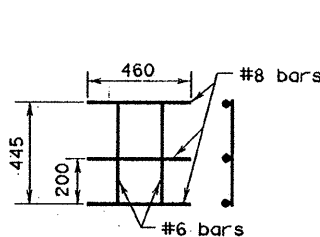
TYPICAL SECTION



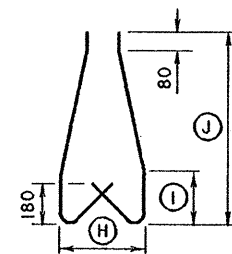
SECTION A-A



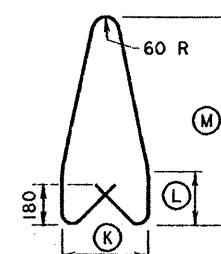
SECTION B-B



REBAR GRID



V2 BAR (#4)



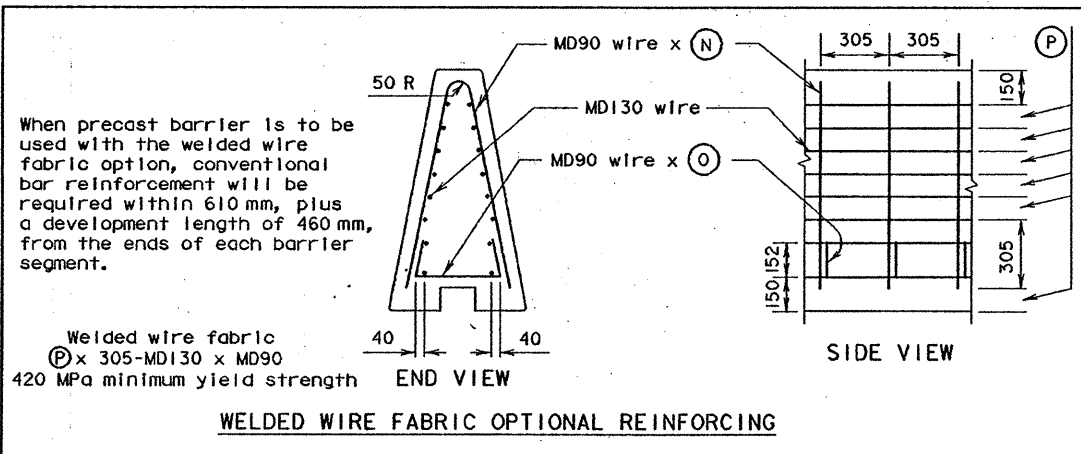
V1 BAR (#4)

REINFORCING DETAILS

R = Radius
D = Diameter
All unit-less dimensions are millimeters

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED	



WELDED WIRE FABRIC OPTIONAL REINFORCING

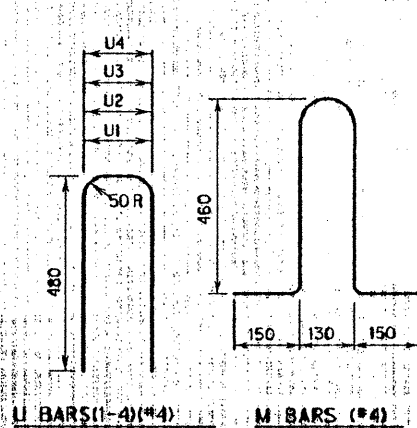
BARRIER HEIGHT	DIMENSIONS																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1070	608	850	345	535	720	920	380	235	845	380	235	920	1830	710	102	395	
1220	665	1000	385	610	835	1070	435	275	995	435	275	1070	2140	800	102	430	
1370	722	1150	425	685	950	1220	490	315	1145	490	315	1220	2440	890	152	380	

Texas Department of Transportation
Design Division (Roadway)

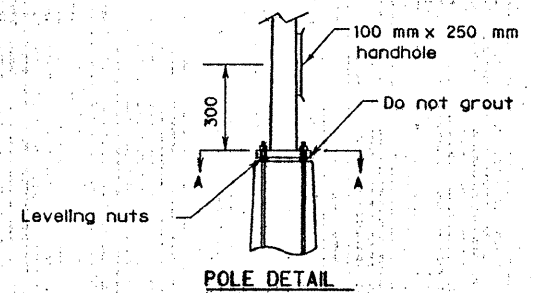
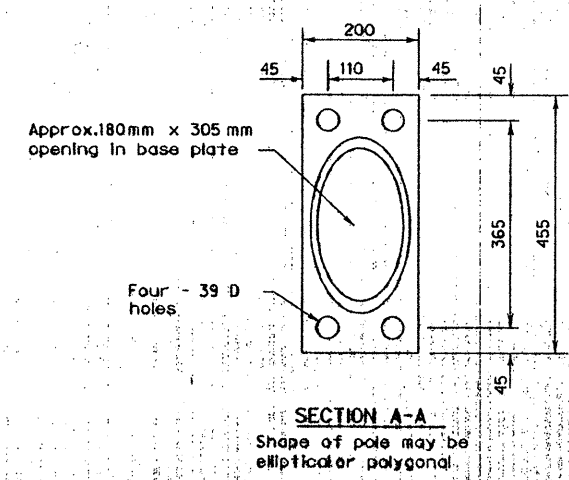
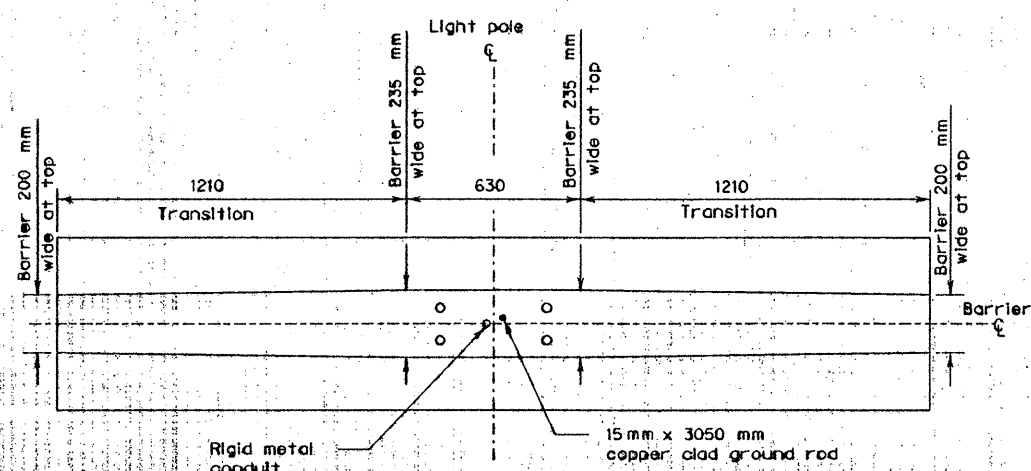
SINGLE SLOPE CONCRETE BARRIER TYPE 2

SSCB (2) - 95 (M)

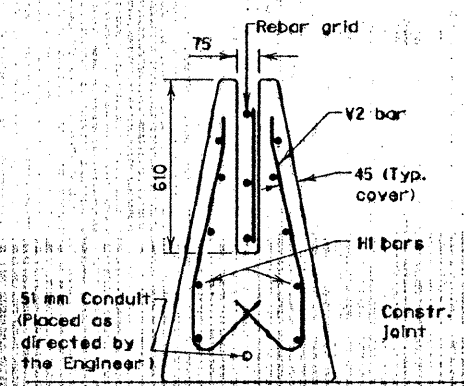
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ORIG DATE#		DIST	FED REG	FEDERAL AID PROJECT	SHEET						
		21	6	NA 96 (791)M	209						
REVISIONS											
	COUNTY	CONTROL	SECT	JOB	HIGHWAY						
	HIDALGO	0039	17	11B	US83						



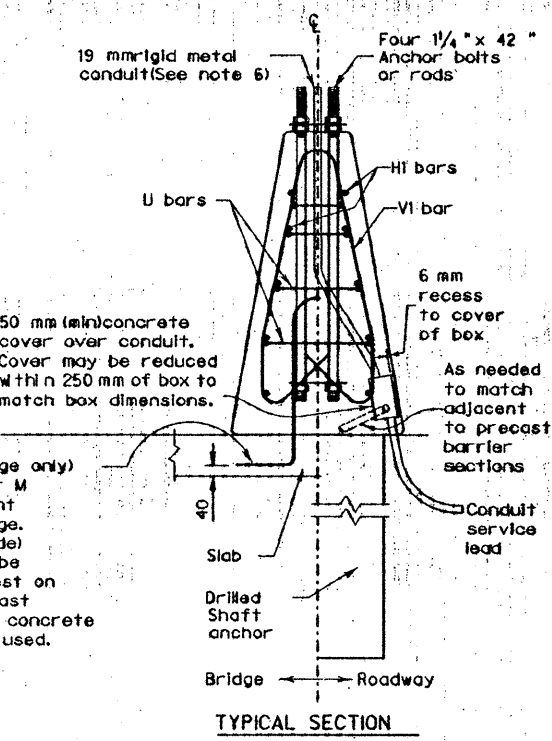
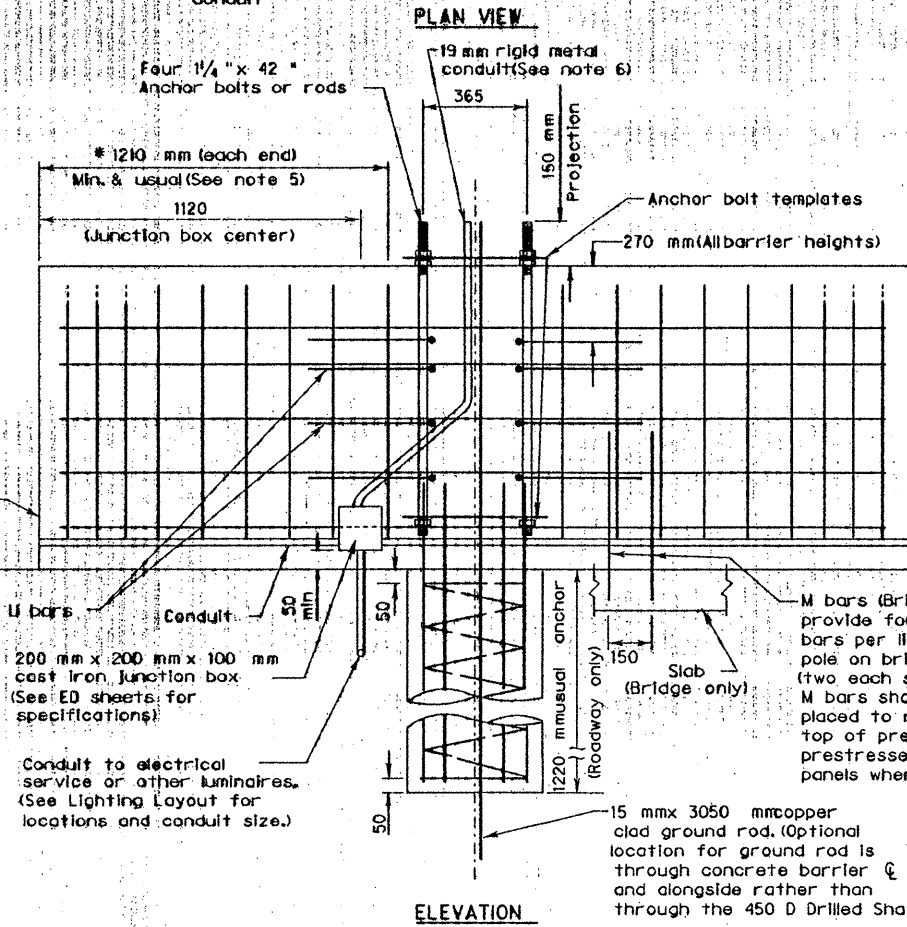
U BARS (1-4) (#4) M BARS (#4)
 * See SSCB(1) for reinforcement details and placement on bridge sections. See SSCB(2) for reinforcement details and placement on roadway sections.



Four 1/4" anchor bolts (ASTM A325 with the top threaded not less than 150 mm) or anchor rods (ASTM A321). The top end of the bolts or rods shall be galvanized not less than 200 mm and furnished with nuts (ASTM A563, Grade 5, galvanized heavy hex) and flat and lock washers. The lower end of the bolts or rods shall be furnished with nuts and a template. The nut shall be tack welded to the bolt or rod and the template. The length of the bolt or rod is specified in the table below.



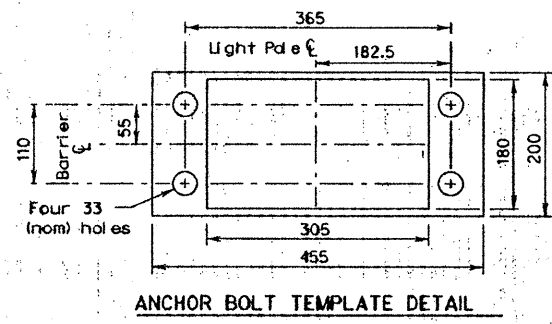
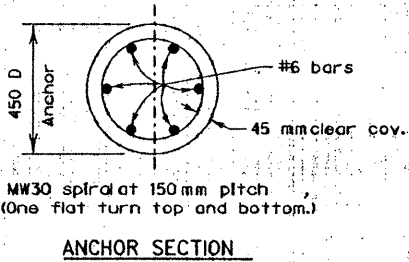
Each end of cast-in-place luminaire section shall be formed to mate with the precast concrete barrier and connected at each end to the precast sections as shown above. Rebar grid and slot will be omitted when this barrier is placed on bridge or adjacent to cast-in-place roadway barrier.



- GENERAL NOTES**
1. Poles on bridge barrier shall be grounded using a ground rod near the wing wall and grounding conductor to each pole. The 450 mm diameter anchor shall be omitted on bridge barrier. Anchorage on bridges shall be provided using four M bars as detailed hereon.
 2. Anchor bolts, ground rods, drilled shaft anchor plate templates, junction box and rigid metal conduit as shown shall not be paid for directly, but considered subsidiary to the various bid items.
 3. Use special pole designation Roadway Illumination Assemblies Example: (TY SP145-3-3)(0.4kw), where length of arm is 3 meters. (See RID Standard)
 4. All conduit bends shall be in accordance with the National Electric Code.
 5. 19 mm liquidtight flexible metal conduit may be used in lieu of 19 mm rigid metal conduit from the junction box to luminaire pole base, except that 150 mm of conduit before and all conduit after exiting the concrete shall be rigid metal liquidtight flexible metal conduit shall be approved for use as a grounding conductor. The total length of all liquidtight flexible metal conduit in any ground return path shall be a maximum of 1830 mm. The conduit shall be terminated in fittings listed for grounding. Branch circuits for barrier mounted poles shall be on 60 amp breakers maximum.
 6. Junction boxes shall be cast iron. See ED(1) standard for types.

Barrier height (mm)	Dimensions (mm)				
	U1	U2	U3	U4	Anchor Bolts
1070	160	190	275	355	1065
1220	160	210	305	415	1220
1370	160	225	340	470	1370

For other barrier requirements and reinforcement dimensions see SSCB(2)



6 mm plate top and 10 mm plate bottom. Bottom template may be field trimmed or drilled to accommodate drilled shaft reinforcement as directed by the Engineer.



Michael W. King 9/15/16
 DATE

R = Radius
 D = Diameter
 All unit-less dimensions are millimeters

SSCB495A.DGN

Texas Department of Transportation
 Design Division (Roadway)

**SINGLE SLOPE
 CONCRETE BARRIER
 TYPE 4
 CAST-IN-PLACE
 (BRIDGE AND RDWY WITH ILLUMINATION)**

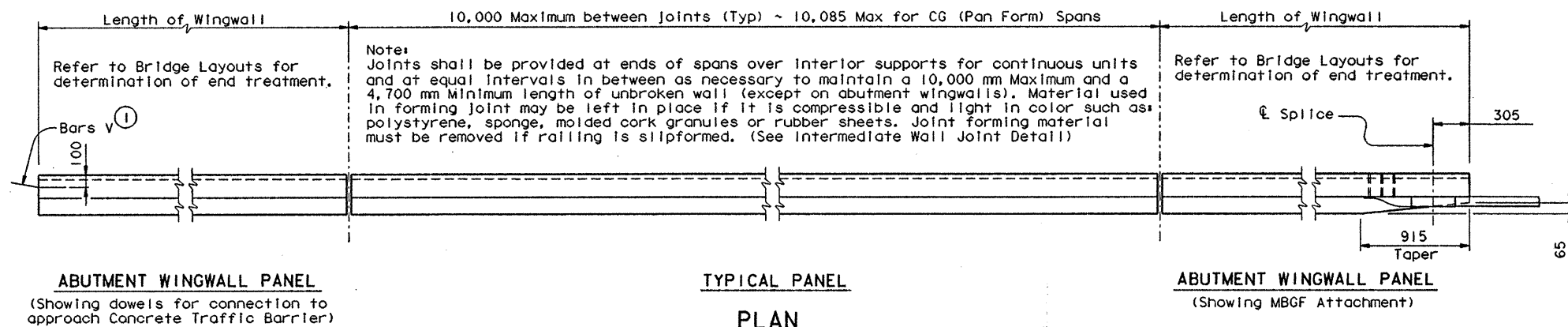
SSCB(4)-95(M) (MOD) (1)

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ORG DATE: JULY 1992	DIST:	REV: NEG	FEDERAL AID PROJECT:	SHEET:	2/0
REVISIONS:		6	MM 9/15/16		
		COUNTY:	CONTROL SECT:	JOB:	ROADWAY:
		Hwy 160	0039 11	118 45-93	

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LEVELS DISPLAYED

1	2	3
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GENERAL NOTES:

Designed according to current AASHTO Standard Specifications for Highway Bridges. Structurally evaluated to be equivalent or greater in strength to other safety-shape railings which have been crash tested to NCHRP Report 230 SL-2 criteria. Also equivalent to railings tested to 1989 AASHTO Guide Specification PL-2 criteria and Texas Transportation Institute research project No. 9429 CDK.

All parts of the railing including concrete parapet wall, reinforcing, terminal connector, bolts, nuts and washers are included in the price bid per linear meter of rail.

All steel components except reinforcing shall be galvanized unless otherwise shown in plans.

All concrete for railing wall shall be Class "C".

All reinforcing steel shall be grade 420.

Metal Beam Guard Fence or Concrete Traffic Barrier is usually attached to the abutment wingwall panel. See plan sheet for details and length for payment. The splice between the approach guard fence and the terminal connector shall be with the normal eight bolts. The dowel connection to the approach traffic barrier shall be grouted the same as other barrier joints.

Shop drawings will not be required for this rail.

This railing may be constructed with slip-forms when shown on the plans or approved by the Engineer, with equipment approved by the Engineer. Sensor control for both line and grade must be provided. When slip-forming is used, the concrete may be cured with membrane curing compound.

Additional reinforcing may be tack welded to the upper two thirds of the reinforcing cage to provide bracing when slip-forming is used. Additional anchorage devices may be added when welding is necessary in the lower one third of the cage. Do not weld to U or S bars in the lower one third of the cage.

The back of railing shall be vertical unless otherwise shown in the plans or approved by the Engineer.

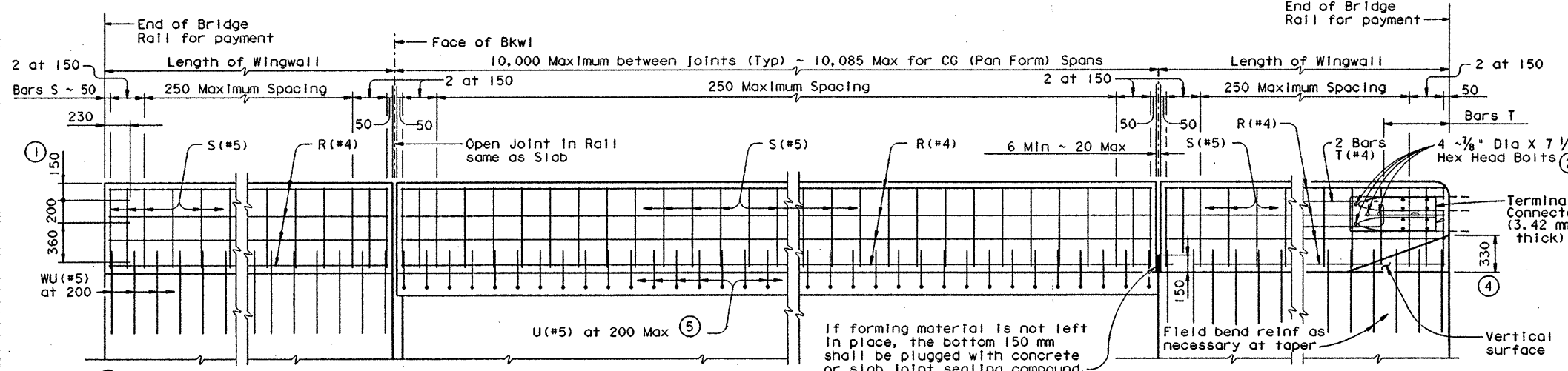
Welded wire fabric may be used as an option to conventional reinforcement and shall be made in accordance with ASTM A497 (Deformed Wire).

Welded Wire Fabric Detail shown is for MD55. longitudinal wires and MD54 vertical wires. Combinations of Reinforcing Steel and Welded Wire Fabric or configurations of Welded Wire Fabric other than shown will be permitted when the conditions in the table are satisfied and the dimension from end of section to first welded vertical wire does not exceed 76 mm.

Epoxy coat bars U and WU if slab bars are epoxy coated.

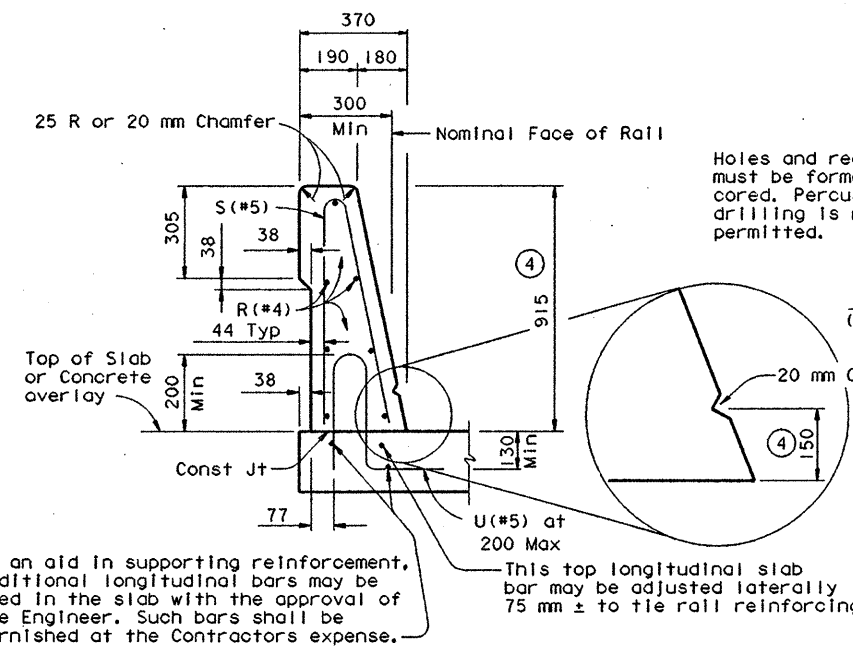
All dimensions are in millimeters unless otherwise shown.

Average weight of railing (with no overlay) is 560 kg/m.

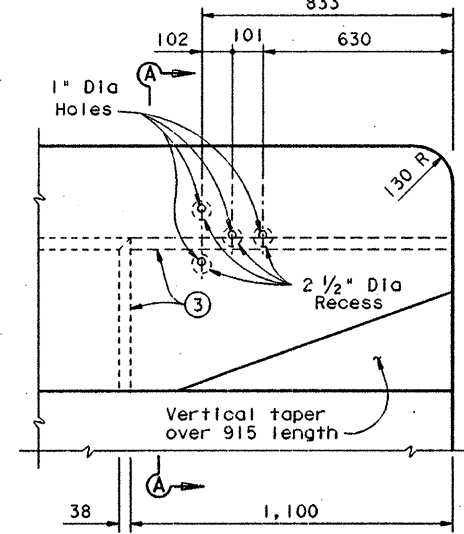
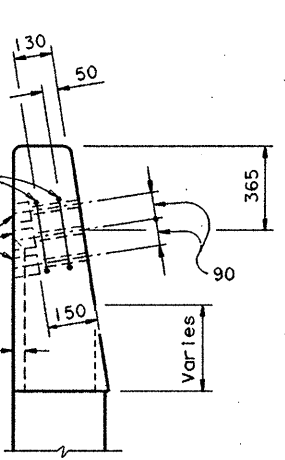


- ① Connection to be same as for approach CTB if dowels are not used.
- ② 1 3/4" Dia washer required under 3/8" Dia Bolt Heads and Nuts.
- ④ Increase 50 mm for Structure with 50 mm Max overlay
- ⑤ For ACP Overlay exceeding 75 mm, reduced bar spacing may be required.

ROADWAY ELEVATION OF RAIL



SECTION A-A



③ Back offset may optionally be continued to end of railing.

END TREATMENT AT MGBF

TYPICAL SECTION
(SHOWING CONVENTIONAL REINF)

Texas Department of Transportation
Design Division (Bridge)

SINGLE SLOPE TRAFFIC RAILING

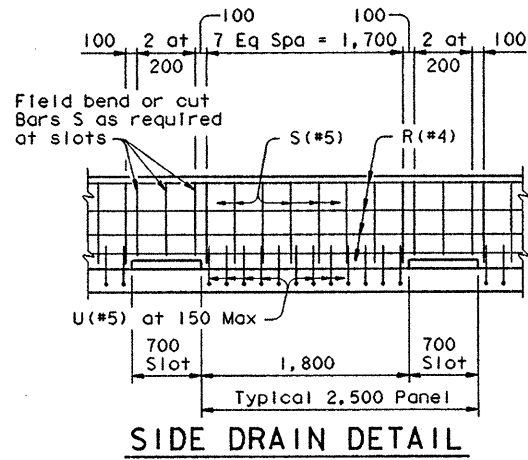
TYPE SSTR (M)

FILE: r1std037.dgn	DN: GHO	CK: THD	DN: TGG	CK: LDS	NEG: B566M
ORIG DATE: JULY 1995	DIST	FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS	21	6	NEW 96 (79)M	211	
COUNTY	HIPALGO	CONTROL SECT	0039	JOB	17 118
		HIGHWAY	US83		

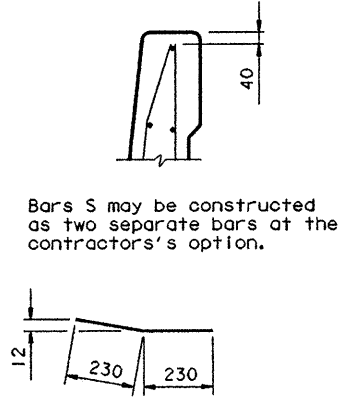
NEW 5/28/96

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ACC*
 (LV-1,2 for English 1,3 for Metric)
 LEVELS DISPLAYED
 1 3

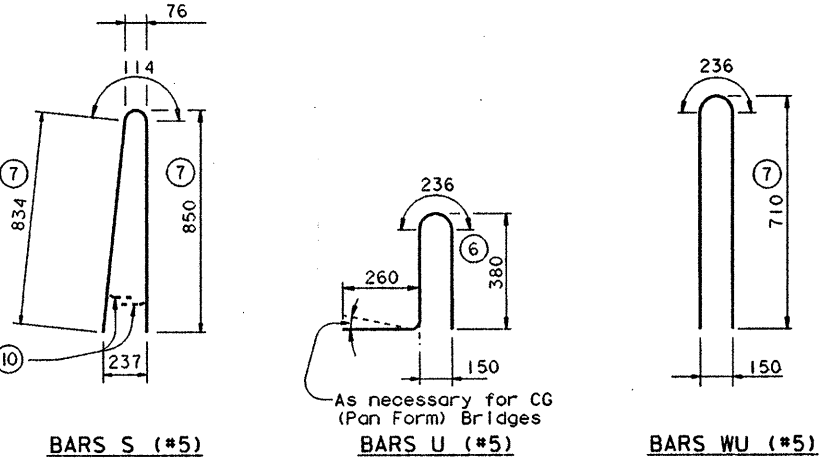


Local Deck or Side Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Modify Bars S as required. No drains should be placed over railroad tracks, lower roadways, or within 1,830 mm of the face of an adjacent bent cap.



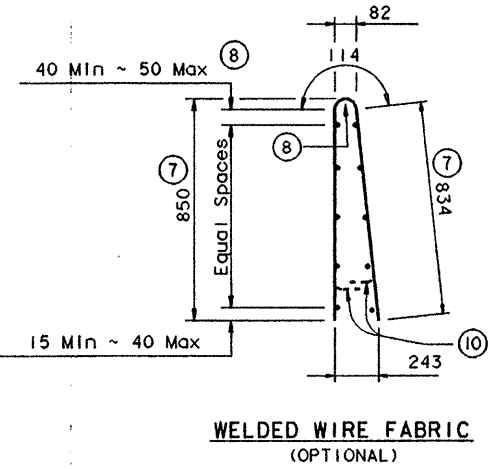
BARS V (#8)
 (3 at each connection)

BARS T (#4)
 (2 at each terminal)

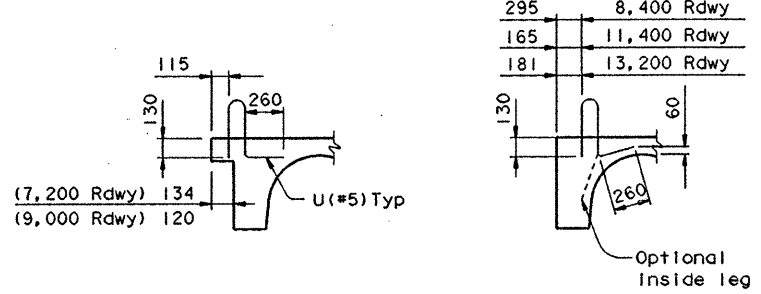


BARS S (#5) **BARS U (#5)** **BARS WU (#5)**

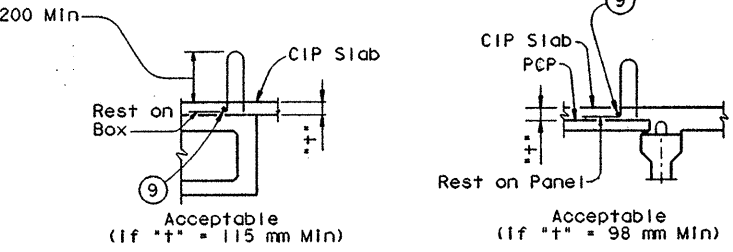
- ⑥ Increase to slab thickness plus 140 mm for slabs over 250 mm. Dimension given is permissible without increase for slabs 250 mm or less. Increase by nominal concrete overlay thickness if over 50 mm.
- ⑦ Dimension given is permissible for structures with up to 50 mm of overlay.
- ⑧ No longitudinal wires may be within upper bend.
- ⑨ Place additional No.4 longitudinal bar (included as part of railing reinforcement) when U bars are embedded less than 130 mm.
- ⑩ Bend or cut as required to clear drain slots.



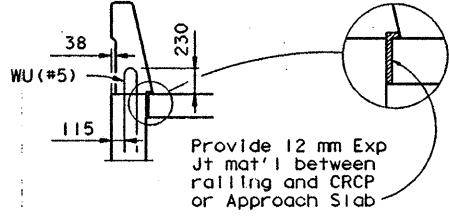
DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1,120 mm ²	640 mm ² /m
Minimum	No. of Wires 6	Spacing 102
Maximum	11	305
Maximum Wire Size Differential	The smaller wire shall have an area of 40% or more of the larger wire.	



CG (PAN FORM) BRIDGES

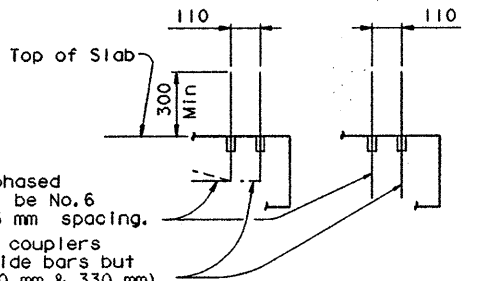


BOX BEAM **PRECAST PANELS**

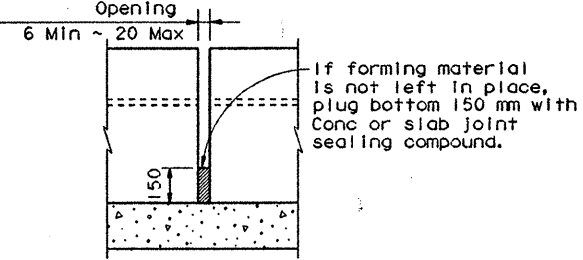


WINGWALLS AND CIP RETAINING WALLS

TYPICAL U AND WU BAR PLACEMENT



OPTIONAL BARS U(#6) OR WU(#6)



INTERMEDIATE WALL JOINT DETAIL

Threaded couplers may be used to provide phased installation of U and WU Bars. These shall be No.6 Bars at 200 mm spacing or No.5 Bars at 165 mm spacing. Outside optional bars with couplers must have same bend as inside bars but spacing may be doubled (400 mm & 330 mm).

If forming material is not left in place, plug bottom 150 mm with Conc or slab joint sealing compound.

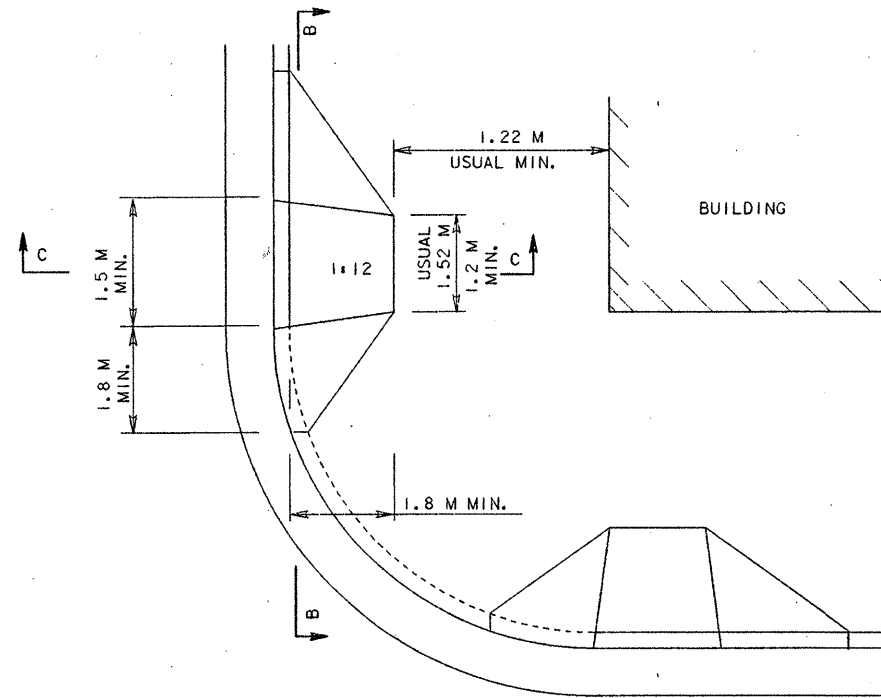
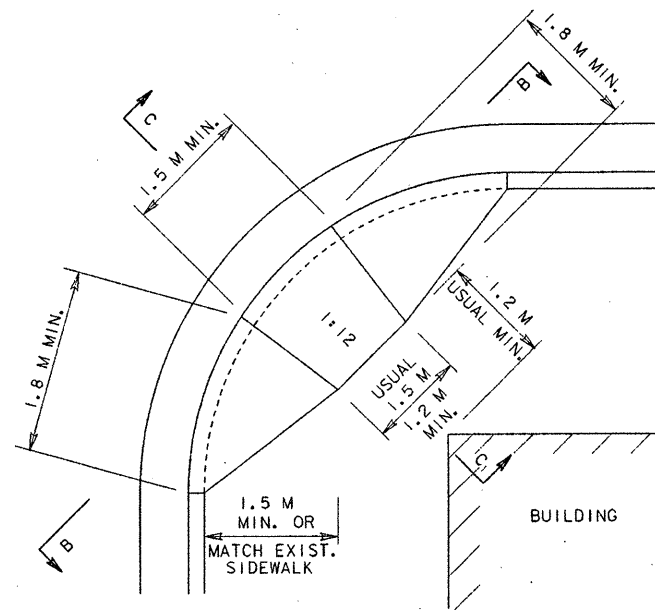
Texas Department of Transportation
 Design Division (Bridge)

SINGLE SLOPE TRAFFIC RAILING

TYPE SSTR (M)

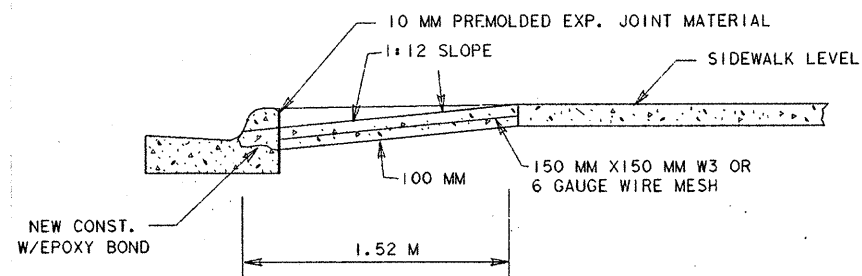
FILE# r1std037.dgn	DN# GHO	CK# THD	DW# TGG	CK# LDS	NEG# B566M
ORIG DATE# JULY 1995	DIST	FED REG	FEDERAL AID PROJECT #		SHEET
REVISIONS	21	6	NW96(79)M		212
	COUNTY	CONTROL SECT	JOB	HIGHWAY	
	Hidalgo	0039	17	118	US83

NEW 5/28/96

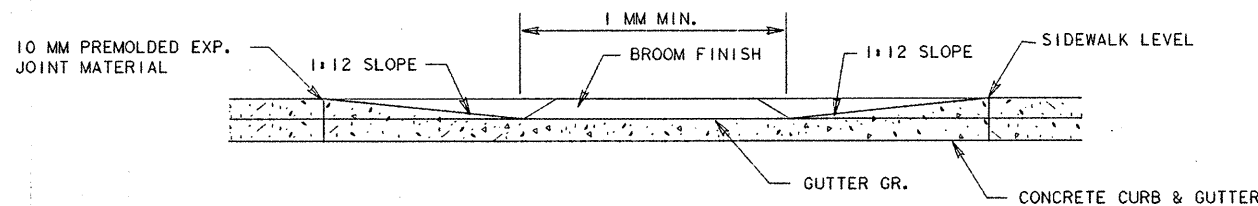


SIDEWALK RAMP DETAILS

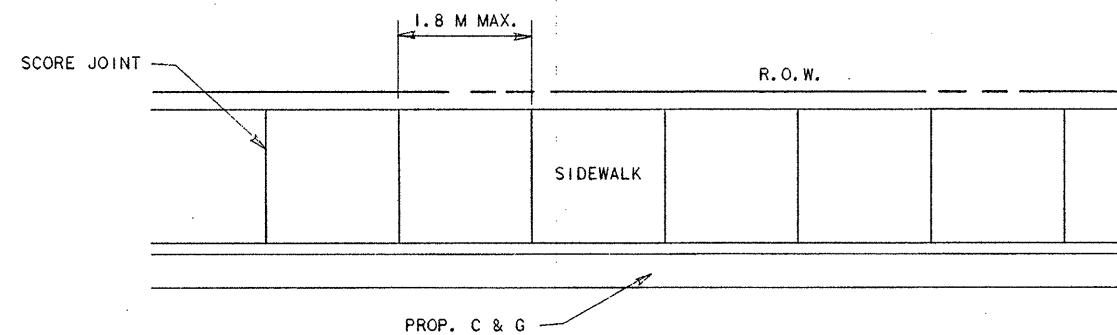
NOTES:
 MINIMUM 1.8 M WIDE SIDEWALK.
 SIDEWALK GRADIENT NOT TO EXCEED 20:1
 PROVIDE DROPPED CURBS AT INTERSECTIONS.
 DO NOT LOCATE DROPPED CURBS ON CURVES.
 ALL CONCRETE SHALL BE CLASS "A" CONC.
 SIDEWALK TO BE IN LINE WITH EXIST. SIDEWALK.



**SECTION C-C
SIDEWALK RAMP X-SECTION**

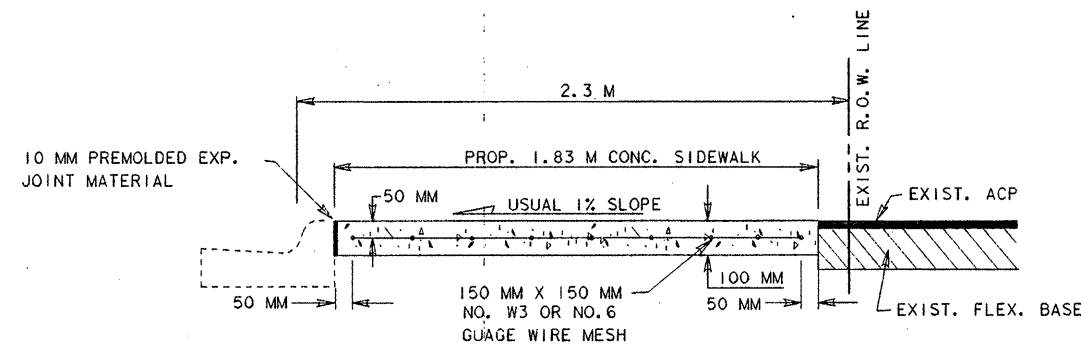


**SECTION B-B
SIDEWALK RAMP X-SECTION**



SCORE JOINTS 6 MM THICKNESS OF SIDEWALK
 EXPANSION JOINT EVERY 9.1 M
 JOINT IN CENTER OF SIDEWALK IF OVER 4.6 M WIDE.

PLAN VIEW



TYPICAL CONC. SIDEWALK

SIDEWALK & WHEEL CHAIR RAMP DETAILS

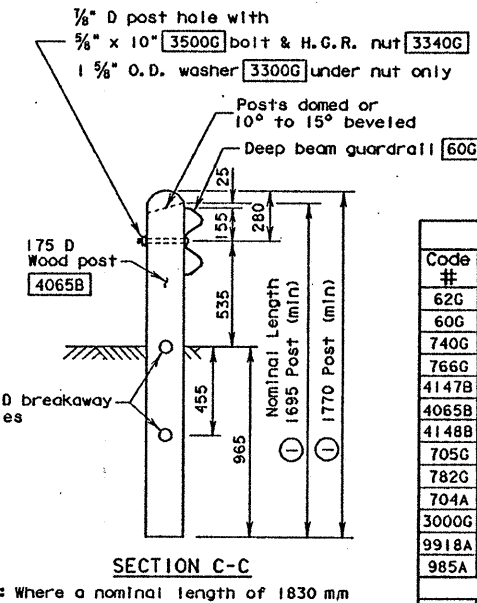
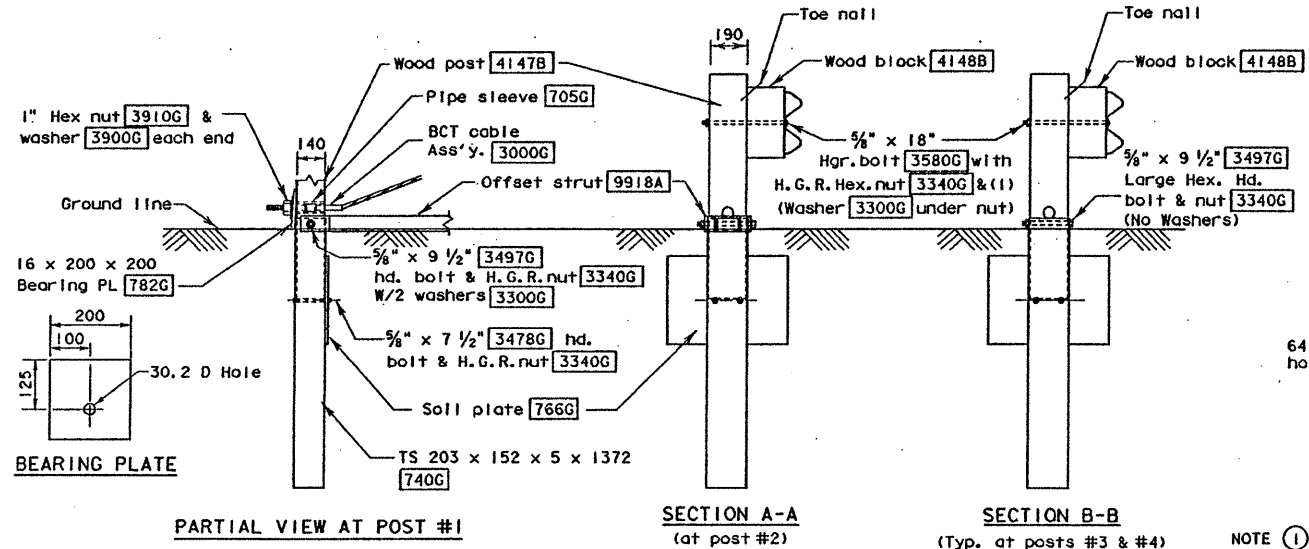
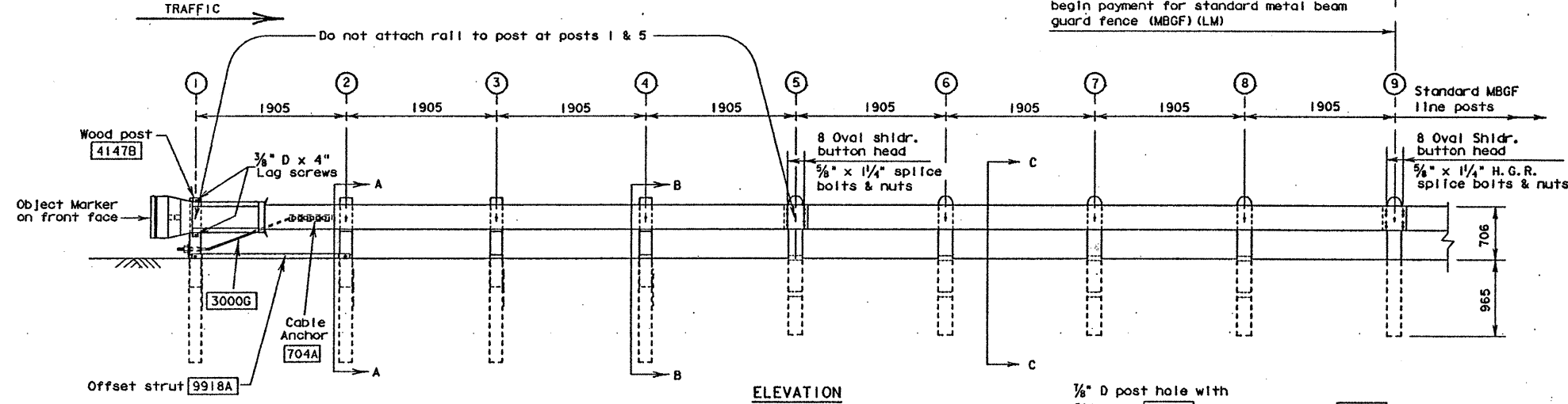
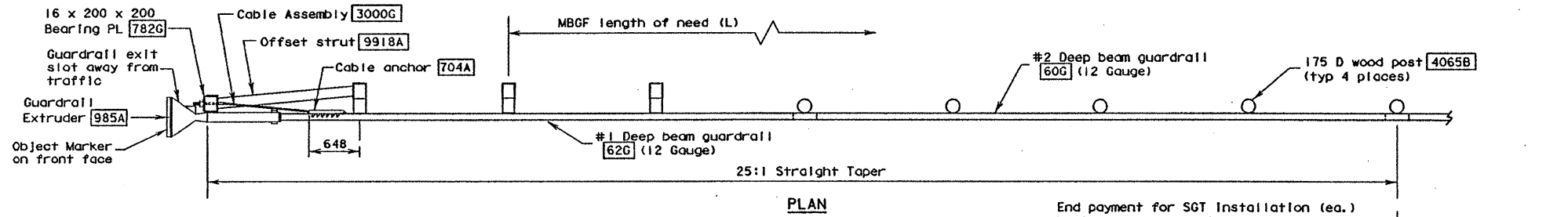
SHEET 1 OF 1 SHEETS

/USR2/G215613/83HALF/D21SIDWH.DGN

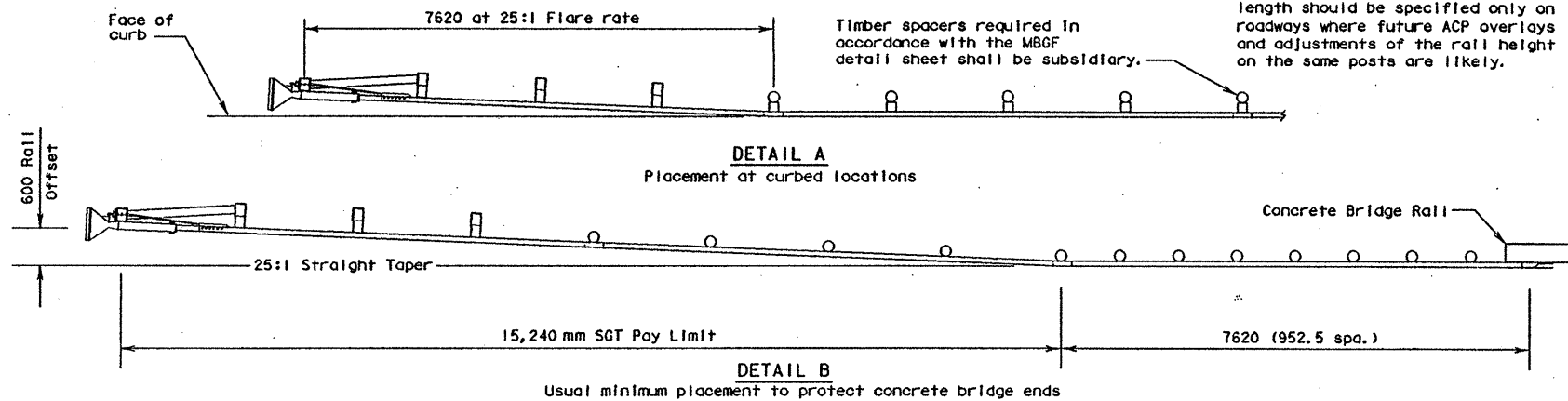
DISTRICT STANDARD (M)						
SEC. PROJ. DIST. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.			
6	TEXAS	NH96(701)M	213			
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.	
21	HIDALGO	39	17	118	US 83	

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LEVELS DISPLAYED



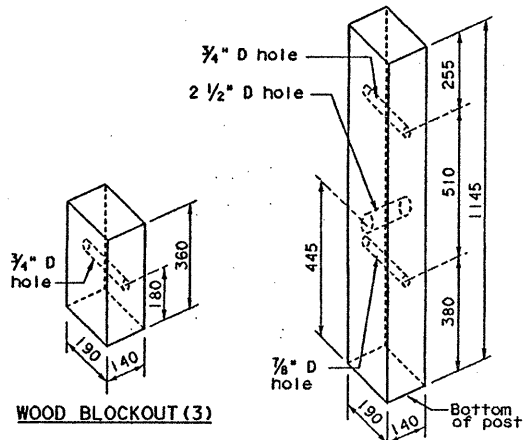
NOTE ①: Where a nominal length of 1830 mm is specified as acceptable elsewhere in the plans, the dimensions shall be increased by 135 mm. The additional length should be specified only on roadways where future ACP overlays and adjustments of the rail height on the same posts are likely.



GENERAL NOTES

1. Wood posts are required with the guardrail extruder terminal (GET).
2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
3. When the guardrail extruder terminal is specified as the end treatment for MGBF installation, the MGBF will be flared at a rate of 25:1 over the 15,240 mm GET system, to prevent the extruder head from encroaching on the shoulder. The flare may be decreased or eliminated for specific installations if directed by the Engineer. A 25:1 flare rate will be used at curb sections, beginning at post number five and ending at post number one.
4. The steel tubes shall not protrude more than 100 mm above ground (measured along a 1.5 m cord). Site grading may be necessary to meet this requirement.
5. The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
6. When rock excavation is encountered, a 305 mm diameter post hole, 510 mm deep may be used if approved by the Engineer. Granular material will be placed in the bottom of the hole approximately 65 mm deep to provide drainage. The steel tube sleeves will be field cut to 510 mm in length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
7. The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
8. The wood blockouts shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.
9. When block outs are required on round posts, the upper portion of the post shall be notched 20 mm to provide a flat surface for timber spacer. A tolerance of ±3 mm will be permitted on the notched of the post. Routing of the timber spacer may be used in lieu of notching the post. The depth of routing shall be 20 mm at the center of radius ±3 mm.
10. For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
11. An object marker shall be installed on the front of the extruder, on D & OM(VIA).
12. A special site evaluation should be considered prior to using the GET where there is less than 7620 mm between the extrusion side of the GET and any adjacent driving lane.

(G.E.T.) BILL OF MATERIAL		
Code #	QTY.	DESCRIPTION
62G	1	#1 Deep Beam Guardrail (12 Gauge)
60G	1	#2 Deep Beam Guardrail (12 Gauge)
740G	4	Steel Tube - 203 x 152 x 5 x 1372
766G	4	Soil Plate - 6 x 460 x 610
4147B	4	Wood Posts - 140 x 190 x 1145
4065B	4	Round Wood Posts - 175 D
4148B	3	Wood Block - 140 x 190 x 360
705G	1	Pipe Sleeve - 50 mm std. pipe x 140 mm
782G	1	Bearing Plate - 16 x 200 x 200
704A	1	Cable Anchor
3000G	1	Cable Assembly
9918A	1	Offset Strut
985A	1	Guardrail Extruder
HARDWARE		
3478G	8	5/8" x 7 1/2" Hex Hd. Bolt (Soil Plates)
3497G	4	5/8" x 9 1/2" Hex Hd. Bolt (Top of tubes)
3300G	11	1/2" Washer (2 ea. at Tubes 1 & 2 + 7 Posts)
3580G	3	5/8" x 18" H.G.R. Post Bolt (Posts 2, 3 & 4)
3500G	3	5/8" x 10" H.G.R. Post Bolt (Posts 6, 7 & 8)
3360G	16	5/8" x 1 1/4" H.G.R. Splice Bolt
3340G	34	5/8" H.G.R. Nut (SPL-16, Tubes-12, GR-6)
3264G	2	3/8" x 4" Lag Screw
3910G	2	1" Hex Nut (Anchor Cable)
3900G	2	1" Washer (Anchor Cable)
	1	Object Marker



Texas Department of Transportation
Design Division (Roadway)

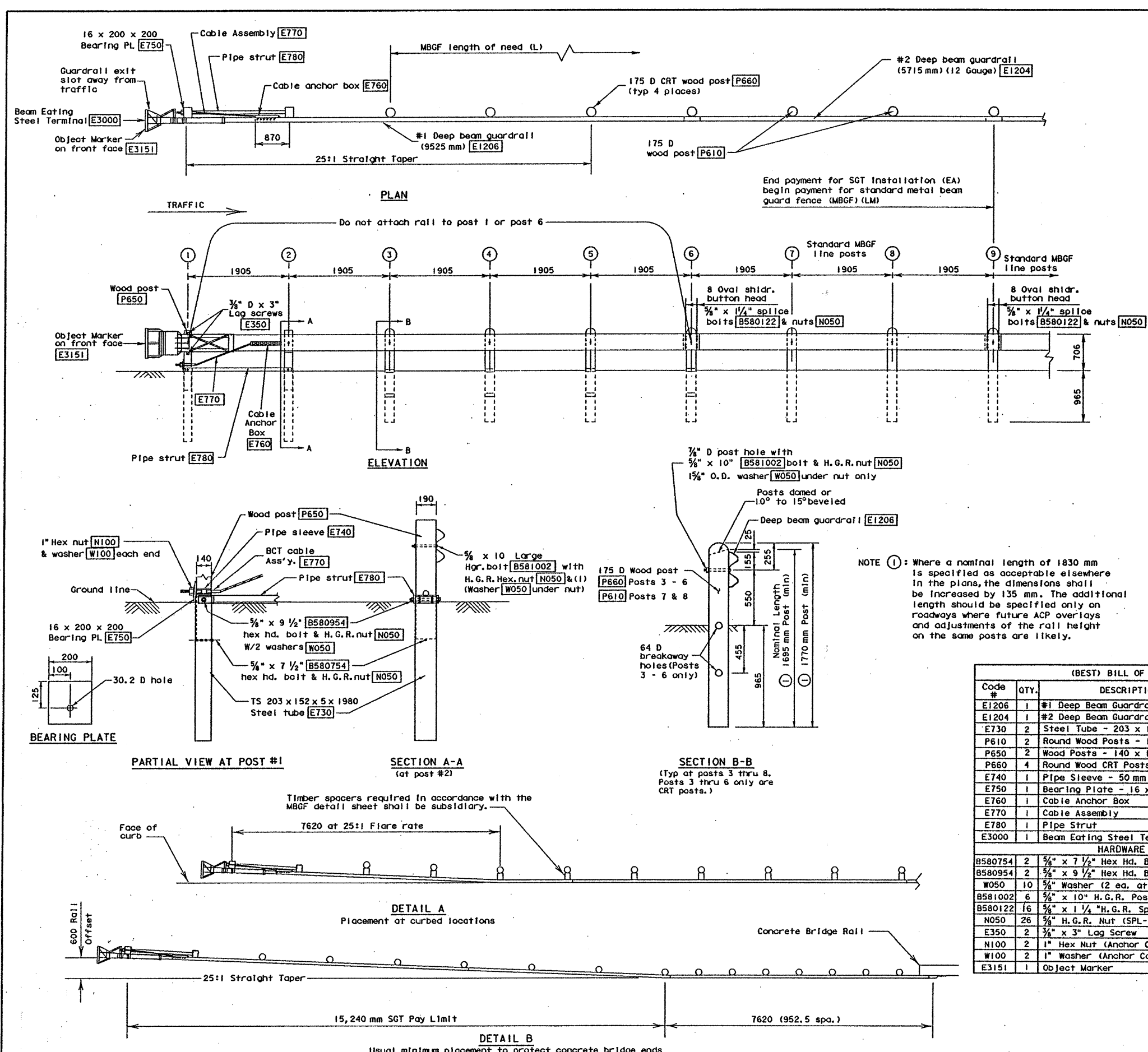
SINGLE GUARDRAIL TERMINAL
(Guardrail Extruder Terminal)

SGT (1) - 95 (M)

FILE:	SGT195M.DGN	DN:	GTH	CK:	GTH	DN:	BGD	CK:	MAM	NEG:	
ORIG DATE:	MAY 1991	DIST:	FED REG	FEDERAL AID PROJECT:		SHEET:					214
REVISIONS:		21	6	MM	96(79)M						
		COUNTY:	HIDALGO	CONTROL SECT:	0039	JOB:	17	118			US83

R = Radius
D = Diameter
All unit-less dimensions are millimeters

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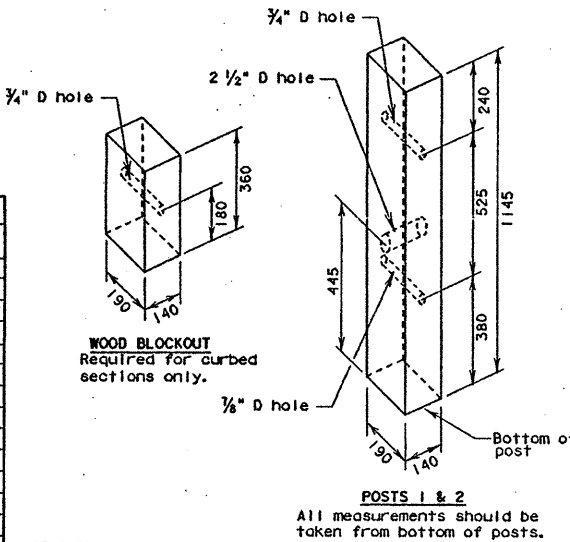
GENERAL NOTES

- Wood posts are required with the Beam Eating Steel Terminal (BEST).
- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- When the Beam Eating Steel Terminal is selected as the end treatment for MBGF installation, the MBGF will be flared at a rate of 25:1 over the first 15,240 mm of the system to prevent the BEST head from encroaching on the shoulder. The flare may be decreased or eliminated for specific installations if directed by the Engineer. A 25:1 flare rate will be used at curb sections, beginning at post number five and ending at post number one.
- The steel tubes shall not protrude more than 100 mm above ground (measured along a 1.5 meter cord). Site grading may be necessary to meet this requirement.
- The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
- When rock excavation is encountered, a 305 mm diameter post hole, 510 mm deep may be used if approved by the Engineer. Granular material will be placed in the bottom of the hole approximately 65 mm deep to provide drainage. The steel tube sleeves will be field cut to 510 mm in length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
- The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
- When block outs are required on round posts, the upper portion of the post shall be notched 20 mm to provide a flat surface for timber spacer. A tolerance of ±3 mm will be permitted on the notched portion of the post. Routing of the timber spacer may be used in lieu of notching the post. The depth of routing shall be 20 mm at the center of radius ±3 mm.
- For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
- An object marker shall be installed on the front of the BEST as detailed on D & OM (VIA).
- A special site evaluation should be considered, prior to using the BEST where there is less than 7620 mm between the extrusion side of the BEST and any adjacent driving lane.

NOTE ①: Where a nominal length of 1830 mm is specified as acceptable elsewhere in the plans, the dimensions shall be increased by 135 mm. The additional length should be specified only on roadways where future ACP overlays and adjustments of the rail height on the same posts are likely.

(BEST) BILL OF MATERIAL

Code #	QTY.	DESCRIPTION
E1206	1	#1 Deep Beam Guardrail (9525 mm) (12 Gauge)
E1204	1	#2 Deep Beam Guardrail (5715 mm) (12 Gauge)
E730	2	Steel Tube - 203 x 152 x 5 x 1980
P610	2	Round Wood Posts - 175 D
P650	2	Wood Posts - 140 x 190 x 1145
P660	4	Round Wood CRT Posts - 175 D
E740	1	Pipe Sleeve - 50 mm std. pipe x 140 mm
E750	1	Bearing Plate - 16 x 200 x 200
E760	1	Cable Anchor Box
E770	1	Cable Assembly
E780	1	Pipe Strut
E3000	1	Beam Eating Steel Terminal
HARDWARE		
B580754	2	3/8" x 7 1/2" Hex Hd. Bolt
B580954	2	5/8" x 9 1/2" Hex Hd. Bolt (Top of tubes)
W050	10	3/8" Washer (2 ea. at Tubes 1 & 2 + 6 Posts)
B581002	6	3/8" x 10" H.G.R. Post Bolt (Posts 2, 3, 4, 5, 7, & 8)
B580122	16	3/8" x 1 1/4" H.G.R. Splice Bolt
N050	26	5/8" H.G.R. Nut (SPL-16, Tubes-4, GR-6)
E350	2	3/8" x 3" Lag Screw
N100	2	1" Hex Nut (Anchor Cable)
W100	2	1" Washer (Anchor Cable)
E3151	1	Object Marker



Texas Department of Transportation
Design Division (Roadway)

**SINGLE GUARDRAIL TERMINAL
(Beam Eating Steel Terminal)**

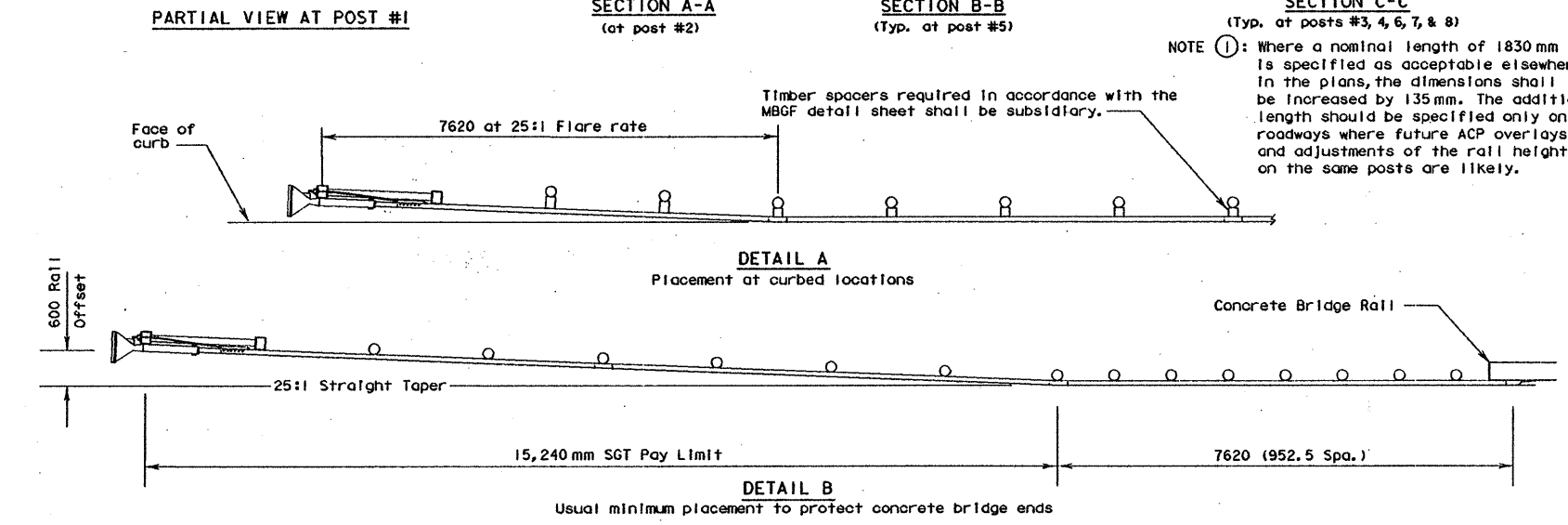
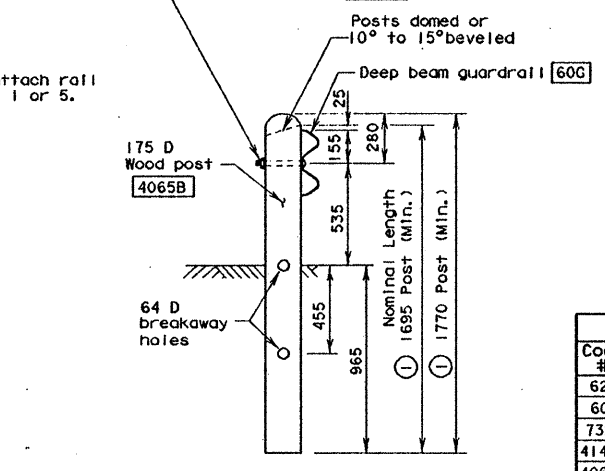
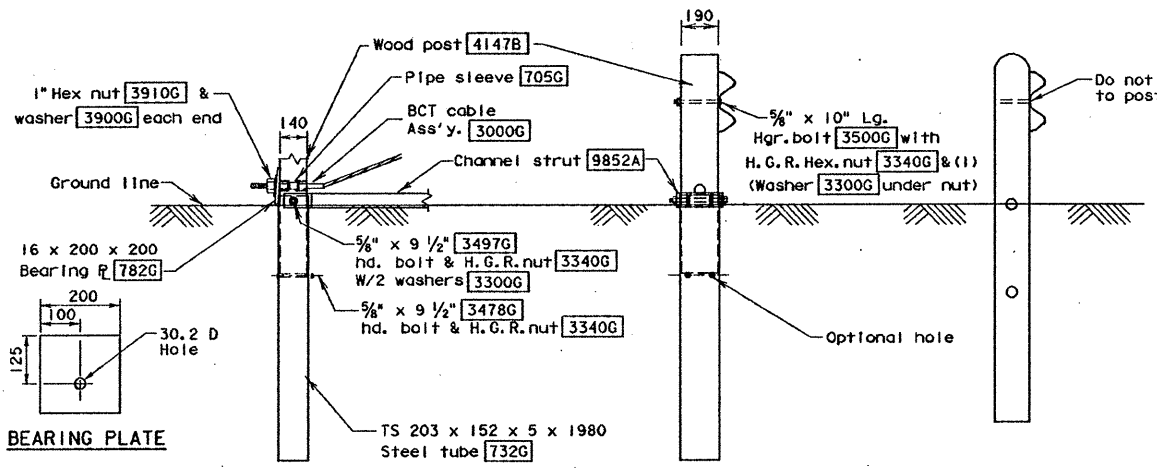
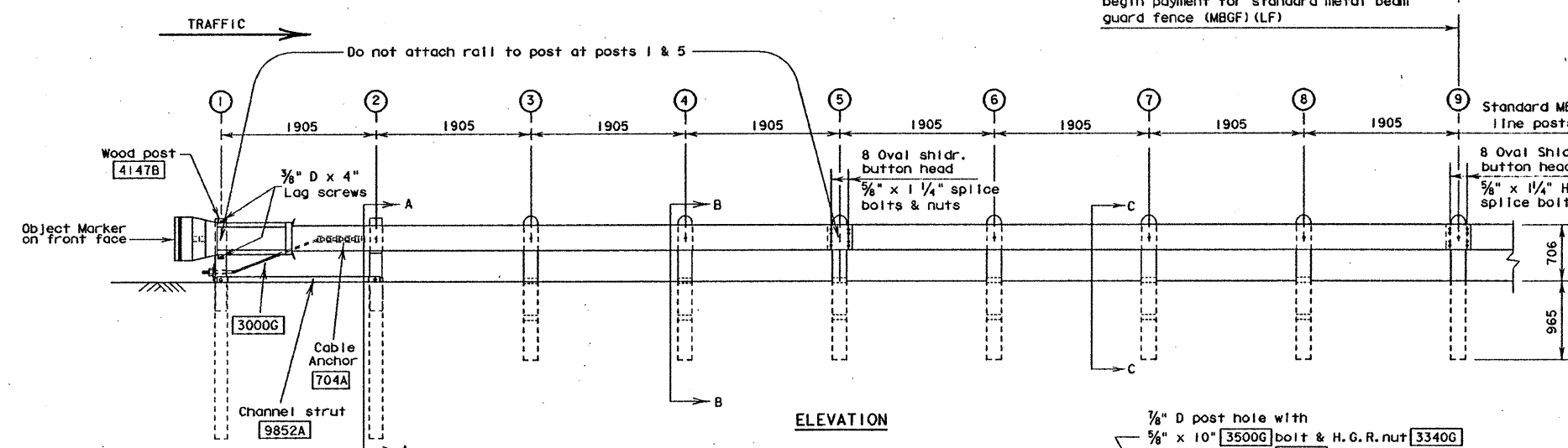
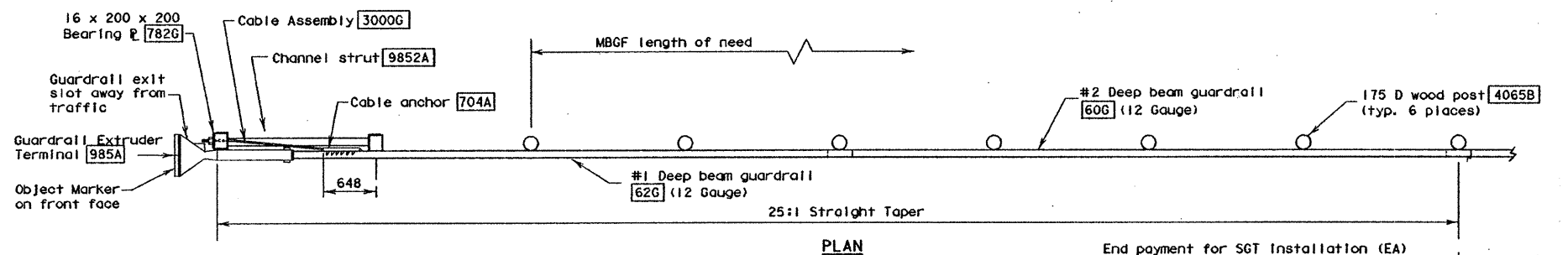
SGT (2) - 95 (M)

FILE#	SGT295M.DGN	CHK#	MAM	CRK#	MAM	DN#	BGD	CRK#	NEG#
ORIG DATE	MAY 1995	DIST	FED REG	FEDERAL AID PROJECT	21 6		NA 96 (791) M		SHEET
REVISONS		21	6	NA 96 (791) M				214A	
		COUNTY		CONTROL	SECT	JOB	HIGHWAY		
		Hidalgo		0039	17	118	0583		

R = Radius
D = Diameter
All unit-less dimensions are millimeters

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LEVELS DISPLAYED

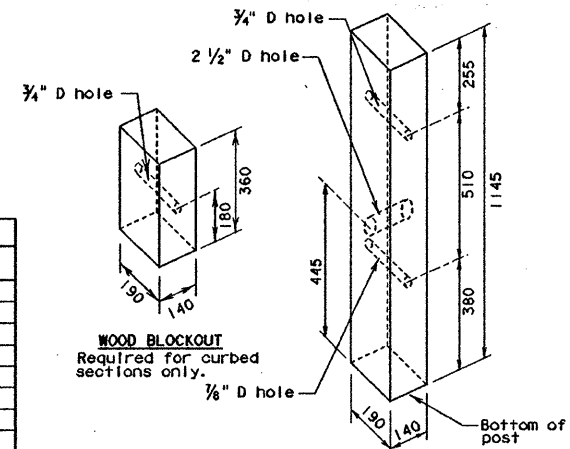


NOTE ①: Where a nominal length of 1830 mm is specified as acceptable elsewhere in the plans, the dimensions shall be increased by 135 mm. The additional length should be specified only on roadways where future ACP overlays and adjustments of the rail height on the same posts are likely.

GENERAL NOTES

1. Wood posts are required with the Modified Extruder Terminal (MET).
2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
3. When the Modified Extruder Terminal is specified as the end treatment for MGBF installation, the MGBF will be flared at a rate of 25:1 over the 15,240 mm MET system, to prevent the extruder head from encroaching on the shoulder. The flare may be decreased or eliminated for specific installations if directed by the Engineer. A 25:1 flare rate will be used at curb sections, beginning at post number five and ending at post number one.
4. The steel tubes shall not protrude more than 100 mm above ground (measured along a 1.5 m cord). Site grading may be necessary to meet this requirement.
5. The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
6. When rock excavation is encountered, a 305 mm diameter post hole, 510 mm deep may be used if approved by the Engineer. Granular material will be placed in the bottom of the hole approximately 65 mm deep to provide drainage. The steel tube sleeves will be field cut to 510 mm in length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
7. The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
8. When block outs are required on round posts, the upper portion of the post shall be notched 20 mm to provide a flat surface for timber spacer. A tolerance of ±3 mm will be permitted on the notched portion of the post. Routing of the timber spacer may be used in lieu of notching the post. The depth of routing shall be 20 mm at the center of radius ±3 mm.
9. For curb installations, the steel tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
10. An object marker shall be installed on the front of the extruder, as detailed on D & OM(VIA).
11. A special site evaluation should be considered, prior to using the MET where there is less than 7620 mm between the extrusion side of the MET and any adjacent driving lane.

(MET) BILL OF MATERIAL		
Code #	QTY.	DESCRIPTION
62G	1	#1 Deep Beam Guardrail (12 Gauge)
60G	1	#2 Deep Beam Guardrail (12 Gauge)
732G	2	Steel Tube - 203 x 152 x 5 x 1980
4147B	2	Wood Posts - 140 x 190 x 1145
4065B	6	Round Wood Posts - 175 D
705G	1	Pipe Sleeve - 50 mm std. pipe x 140 mm
782G	1	Bearing Plate - 16 x 200 x 200
704A	1	Cable Anchor
3000G	1	Cable Assembly
9852A	1	Channel Strut
985A	1	Guardrail Extruder Terminal
HARDWARE		
3497G	2	5/8" x 9 1/2" Hex Hd. Bolt (Top of tubes)
3300G	10	3/4" Washer (2 ea. at Tubes 1 & 2 + 7 Posts)
3478G	2	5/8" x 7 1/2" Hex Hd. Bolt
3500G	6	5/8" x 10" H.G.R. Post Bolt (Posts 2, 3, 4, 6, 7 & 8)
3360G	16	5/8" x 1 1/4" H.G.R. Splice Bolt
3340G	26	5/8" H.G.R. Nut (SPL-16, Tubes-4, GR-6)
4228G	2	3/8" x 4" Lag Screw
3910G	2	1" Hex Nut (Anchor Cable)
3900G	2	1" Washer (Anchor Cable)
	1	Object Marker



Texas Department of Transportation
Design Division (Roadway)

SINGLE GUARDRAIL TERMINAL
(Modified Extruder Terminal)

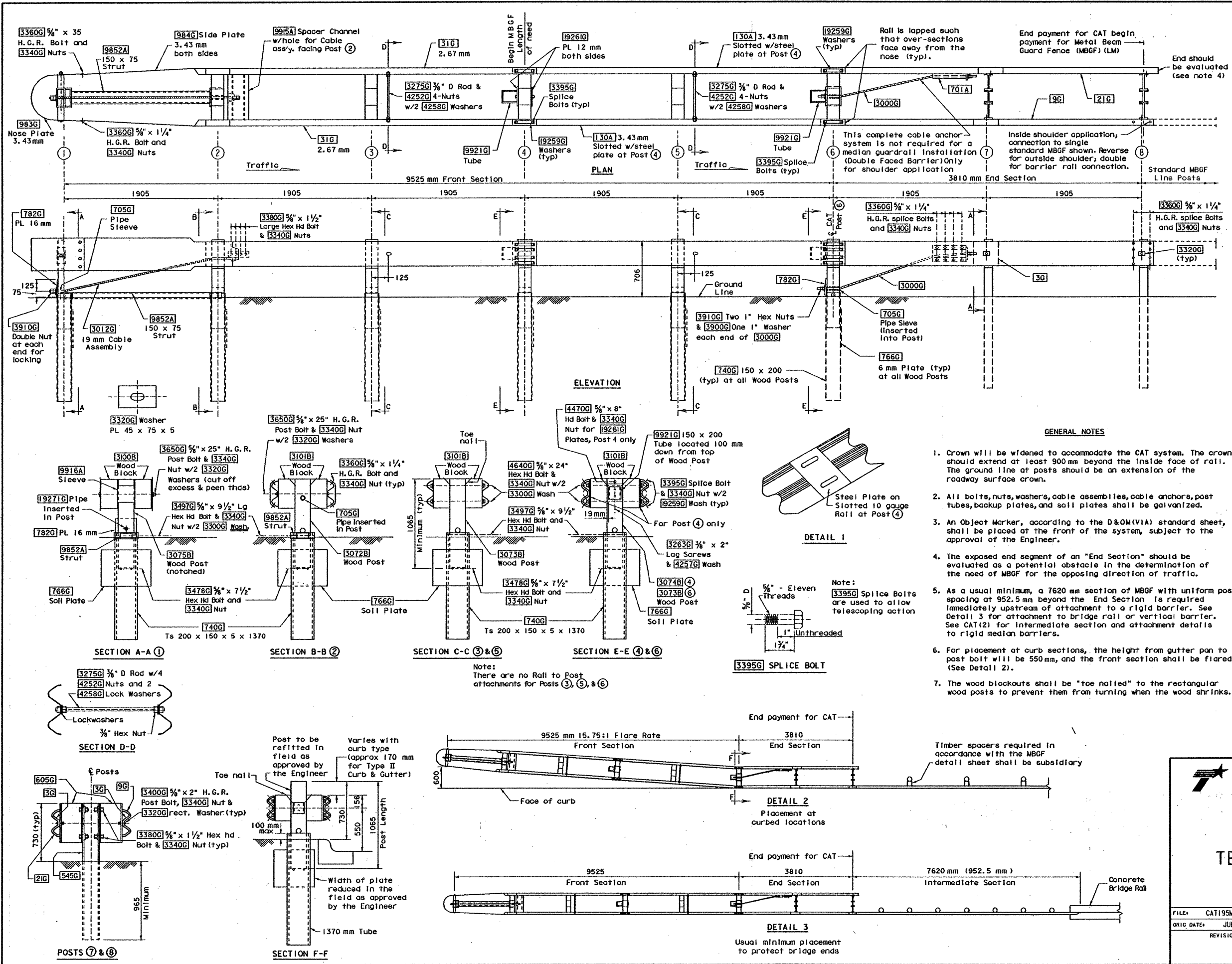
SGT (3) - 95 (M)

FILE#	SGT395M.DGN	DN#	MAM	CK#	MAM	DN#	BDC	CK#	NEG#
ORIG DATE#	JULY 1995	DIST	FED REG	FEDERAL AID PROJECT	•	SHEET			
REVISIONS		21	6	NH 96 (791) M		214B			
		COUNTY	CONTRACT	SECT	JOB	HIWAY			
		HIDALGO	0039	17	118	US83			

R = Radius
D = Diameter
All unit-less dimensions are millimeters

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LEVELS DISPLAYED



FRONT SECTION BILL OF MATERIAL

Mfr Code #	QTY	DESCRIPTION
983G	1	Nose Plate (3.43mm)
984G	2	Side Plate (3.43mm)
31G	2	Deep Beam x 2.67 x 4130
130A	2	Deep Beam x 3.43 x 4130
9852A	1	Channel Strut x 1980 mm
740G	6	Steel Foundation Tube
3075B	1	Wood Post 150 x 200 (Notched)
3075B	3	Wood Post 150 x 200
3074B	1	Wood Post 150 x 200
3100B	2	Wood Block 150 x 200
3101B	10	Wood Block 150 x 200
9916A	1	Sleeve
9915A	1	Spacer Channel
9921G	2	Steel Tube
766G	6	Soil Plate 6 x 460 x 610
19271G	1	Pipe Sleeve
705G	1	Pipe Sleeve
19261G	2	Post Plate
782G	1	Bearing Plate
3012G	1	Cable Assembly
3275G	2	1/2" Restraint Rod
19259G	32	Plate Washer

HARDWARE

3263G	4	1/4" x 2" Lg Lag Screw
4252G	8	3/8" Hex Nut
4258G	4	3/8" Lock Washer
4257G	4	3/8" Flat Washer
3320G	4	Rectangular Washer
3395G	32	3/8" x 1 1/4" H.H. Splice Bolt
3650G	2	3/8" x 25" Lg H.G.R. Bolt
4640G	8	3/8" x 24" Lg H.H. Bolt
4470G	1	3/8" x 8" Lg H.H. Bolt
3478G	12	3/8" x 7 1/2" Lg H.H. Bolt
3380G	8	3/8" x 1 1/2" Lg H.H. Bolt
3360G	16	3/8" x 1 1/4" Lg H.G.R. Bolt
3340G	85	3/8" H.G.R. Nut
3300G	8	3/8" Flat Washer
3497G	6	3/8" x 9 1/2" Lg H.H. Bolt
3910G	4	1" Hex Nut
3900G	2	1" Flat Washer

END SECTION BILL OF MATERIAL

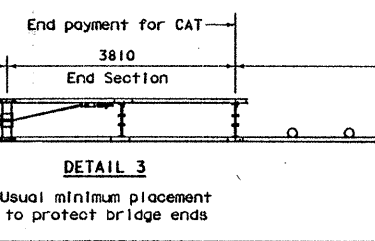
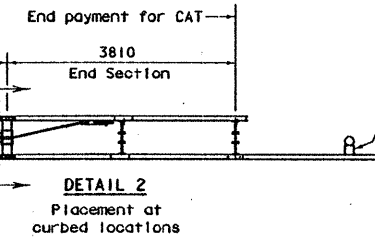
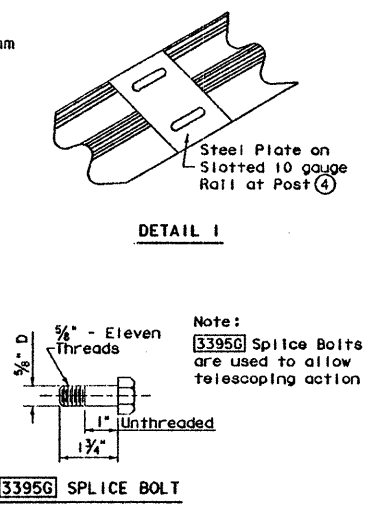
Mfr Code #	QTY	DESCRIPTION
545G	2	Post (W150 x 12.6)
605G	4	Block (W200 x 15)
21G	1	Deep Beam Guard Rail (2.67 mm)
9G	1	Deep Beam Guard Rail (2.67 mm)
701A	1	Bracket
782G	1	Bearing Plate
705G	1	Pipe Sleeve
3000G	1	Cable Assembly
3G	2	Deep Beam Backup Plate (2.67 mm)
3320G	4	Rectangular Washer

HARDWARE

3360G	24	3/8" x 1 1/4" H.G.R.
3400G	4	3/8" x 2" H.G.R. Post Bolt
3380G	8	3/8" x 1 1/2" Hex Hd Bolt
3340G	36	3/8" H.G.R. Nut
3300G	8	3/8" Washer
3910G	4	1" Hex Nut
3900G	2	1" Washer

R = Radius
D = Diameter
All unit-less dimensions are millimeters

- GENERAL NOTES**
- Crown will be widened to accommodate the CAT system. The crown should extend at least 900mm beyond the inside face of rail. The ground line at posts should be an extension of the roadway surface crown.
 - All bolts, nuts, washers, cable assemblies, cable anchors, post tubes, backup plates, and soil plates shall be galvanized.
 - An Object Marker, according to the D&OM(VIA) standard sheet, shall be placed at the front of the system, subject to the approval of the Engineer.
 - The exposed end segment of an "End Section" should be evaluated as a potential obstacle in the determination of the need of MBGF for the opposing direction of traffic.
 - As a usual minimum, a 7620 mm section of MBGF with uniform post spacing at 952.5 mm beyond the End Section is required immediately upstream of attachment to a rigid barrier. See Detail 3 for attachment to bridge rail or vertical barrier. See CAT(2) for intermediate section and attachment details to rigid median barriers.
 - For placement of curb sections, the height from gutter pan to post bolt will be 550mm, and the front section shall be flared (See Detail 2).
 - The wood blockouts shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.



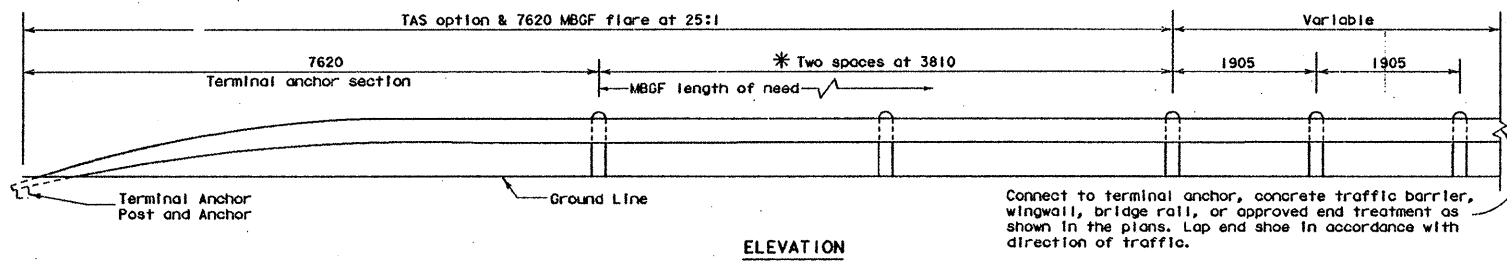
Texas Department of Transportation
Design Division (Roadway)

CRASH CUSHION ATTENUATING TERMINAL DETAILS

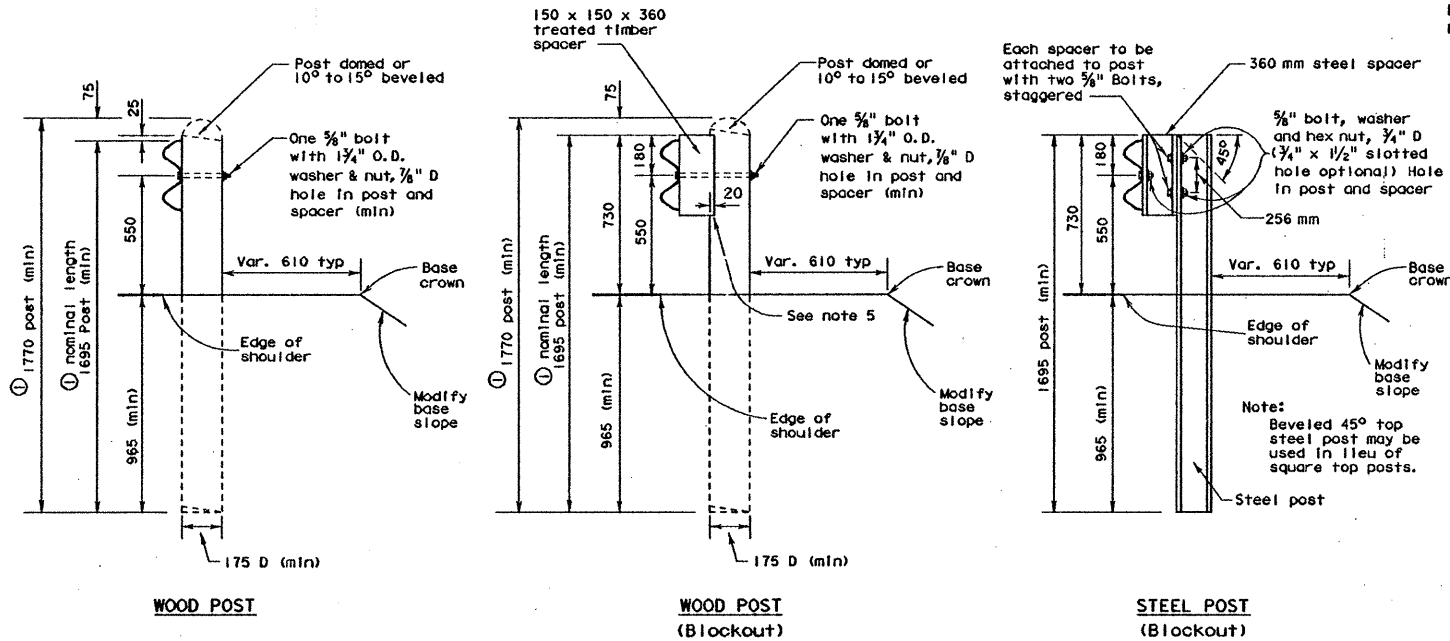
CAT (1) - 95 (M)

FILE: CAT195M.DGN	DN: TGM	CK: TGM	DR: RAR	CR:	NE:
ORIG DATE: JULY 1994	DIST: 21	FED REG:	FEDERAL AID PROJECT:	SHEET:	
REVISIONS:	1	6	NI 96 (79) M	215	
	COUNTY:	CONTR: 003A	SECT: 17	JOB: 118	HIGHWAY: 4583

* Post spacing of 1905 may be used on the downstream (from a traffic flow standpoint) end of MBGF placed on roadways with one-way traffic operations.

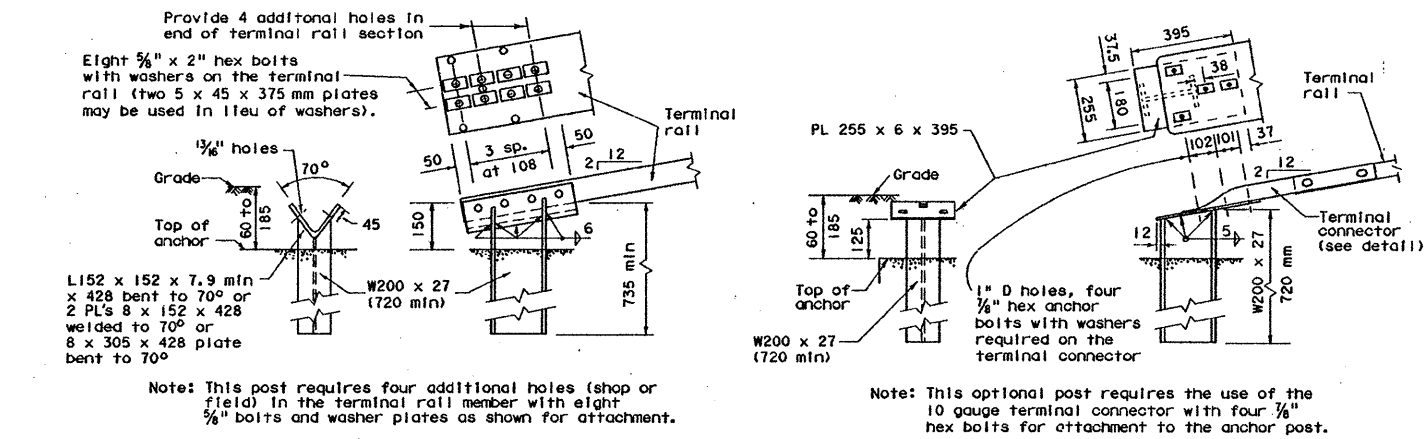


Note ①: Where a nominal length of 1830 is specified as acceptable elsewhere in the plans, these dimensions shall be increased by 135. The additional length should be specified only on roadways where future ACP overlays and adjustments of the rail height on the same posts are likely.



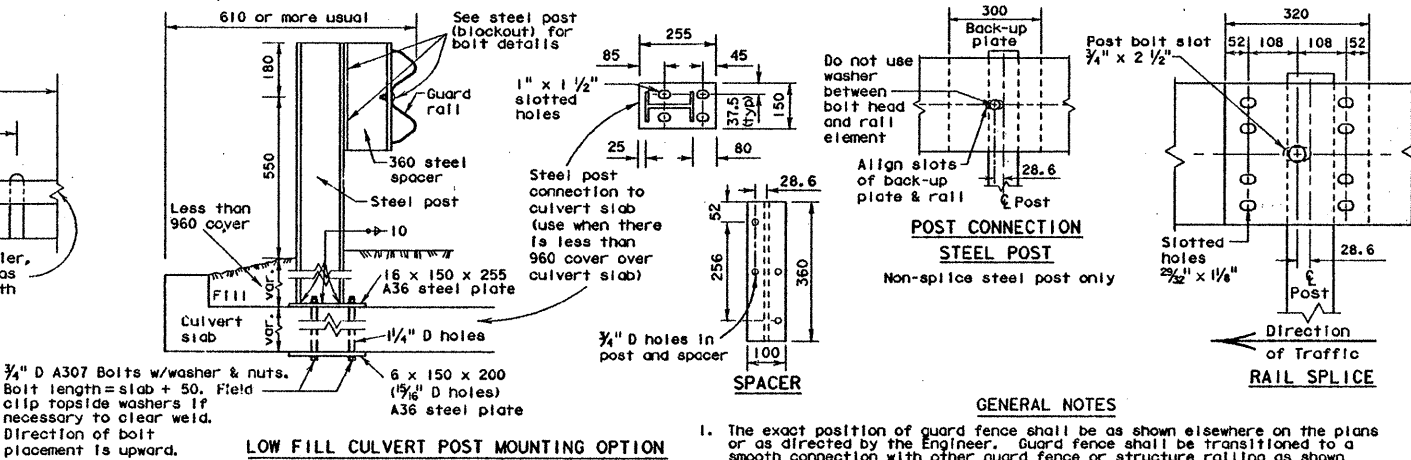
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED

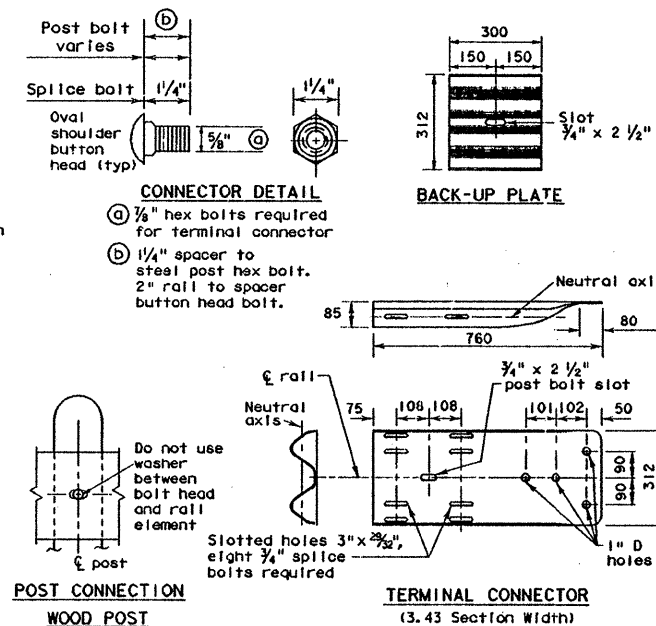


Notes: Either post may be used with either anchor. No construction joint is allowed in the concrete anchor. Terminal rail may be bolted to post and in twist position prior to placing concrete anchor. If concrete anchor is precast, the area should be compacted as directed by the Engineer, when placed in the field.

TERMINAL CONCRETE ANCHOR OPTIONS

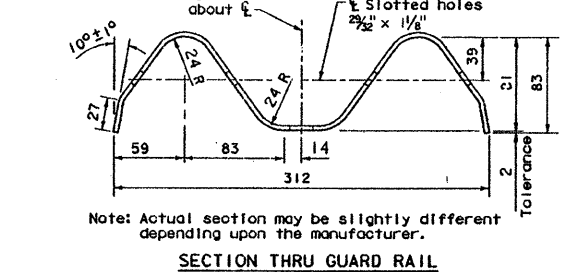


3/4" D A307 Bolts w/washer & nuts. Bolt length = slab + 50. Field clip topside washers if necessary to clear weld. Direction of bolt placement is upward.

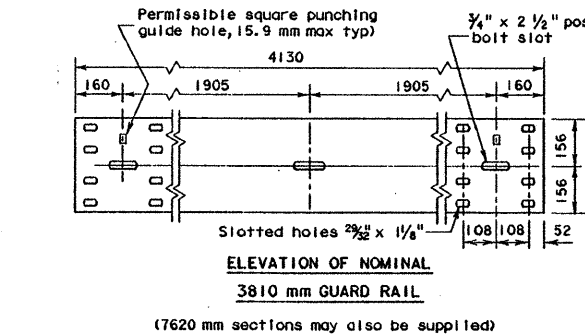


POST CONNECTION WOOD POST

TERMINAL CONNECTOR (3.43 Section Width)



SECTION THRU GUARD RAIL



ELEVATION OF NOMINAL 3810 mm GUARD RAIL (7620 mm sections may also be supplied)

- GENERAL NOTES
- The exact position of guard fence shall be as shown elsewhere on the plans or as directed by the Engineer. Guard fence shall be transitioned to a smooth connection with other guard fence or structure railing as shown elsewhere on plans.
 - Unless otherwise shown in the plans, guard fence placed in the vicinity of curbs shall be blocked out so that the face of curb is located directly below or behind the face of rail. Rail placed over curbs shall be installed so that the post bolt is located approximately 550 mm above the gutter pan or roadway surface.
 - Unless otherwise shown in the plans, MBOF shall be placed with the face of rail directly above the shoulder edge (or curbface) except the 7620 mm Terminal Anchor Section and adjacent 7620 mm of MBOF shall be flared at 25:1 (longitudinally) to provide a 600 mm offset between the rail and shoulder edge (or curbface). Flaring the 7620 mm terminal anchor and adjacent 7620 mm MBOF is optional for one-way traffic conditions on the downstream end of guard fence.
 - At the option of the Contractor, the rail elements for the guard fence may be furnished in either 3810 mm or 7620 mm nominal lengths with post bolt slots for connection to posts.
 - Timber posts may be beveled from 10 to 15 degrees on the top of both ends with high side of top of post placed toward the roadway or they may be domed. When blockout guard fence is specified elsewhere in the plans, a 150 mm x 150 mm x 360 mm treated timber spacer of yellow pine shall be used with wood posts. When "blockout" the upper portion of the post shall be notched 20 mm to provide flat surface for timber spacer. A tolerance of 13 mm will be permitted on the notched portion of the post. Routing the timber spacer may be used in lieu of notching the post. The depth of routing shall be 20 mm at the center of notching the post. The depth of routing shall be 20 mm at the center of notching the post. The depth of routing shall be 20 mm at the center of notching the post.
 - Steel posts shall be blocked out. Steel posts and spacers shall meet the requirements of ASTM A-36 (W150 x 13.5 or W150 x 12.6). Bolt holes shall be placed as indicated on Spacer detail.
 - Post spacing will be 1905 mm except that the first post will be 7620 mm from the terminal anchor post and the next two posts spaced at 3810 mm with a minimum of 3 posts adjacent to structures spaced at 952.5 mm and posts adjacent to type T6 bridge rail are spaced at 1905 mm. Post spacing adjacent to structures may vary as shown on bridge rail details or as directed by the Engineer.
 - The upper 250 mm (minimum) of the terminal anchor post and all steel fittings thereon shall be galvanized.
 - The terminal anchor post shall be set in Class "A" concrete (unless otherwise shown on plans) in accordance with item "Portland Cement Concrete". Concrete shall be subsidiary to the bid item requiring construction of the terminal rail section and anchorage system.
 - An anchor other than to a terminal anchor post shall consist of a connection similar to the rail splice or similar to the terminal connector.
 - Back-up plates shall be provided at intermediate (non-splice) steel posts. Back-up plates shall conform to the materials and galvanizing requirements specified for the rail element, and shall be of the same nominal thickness as the rail element used.
 - Washers used with the eight 5/8" splice bolts and nuts that are provided for terminal connectors and/or anchor posts shall be 3/4" x 3/4" x 3/8" rectangular washers (ASTM A 36) or as designated by the Engineer.
 - The 10 Gauge terminal connectors must be used with the optional terminal anchor post. Either anchor post may be used with either concrete anchor.
 - Welded steel posts and spacers shall meet the requirements of ASTM A-36. The flange width and thickness, web thickness, and depth of welded posts and spacers shall equal or exceed the dimensions of a standard rolled W150 x 13.5 or W150 x 12.6.
 - Special fabrication will be required at installations having a curvature of less than 45 meter radius.
 - Bolts shall be of sufficient length to extend through the full thickness of the nut and no more than 20 mm beyond it. (Button head bolts may be used instead of hex bolts when specified by the Engineer.) Fittings (bolts, nuts, and washers) shall be in accordance with item "Metal For Structures". Fittings shall be subsidiary to the bid item requiring construction of MBOF or Terminal Anchor Section.
 - Crown will be widened to accommodate guard fence.
 - Where solid rock is encountered or where shown on the plans, the diameter of the holes shall be approximately 305 mm, the backfilling shall be with a cohesionless material, and embedment depth shall be 460 mm or more as directed by the Engineer. Timber posts shall not be set in concrete.

Texas Department of Transportation Design Division (Roadway)

METAL BEAM GUARD FENCE MBGF-95A (M)

FILE#	MBGF95AM.DGN	DN#	GTH	CK#	GTH	DW#	RAR	CK#	TGM	NE#
ORIG DATE#		DIST	FED REG	FEDERAL AID PROJECT	SHEET					
REVISIONS		21	6	NA	96	(99)	11	217		
		COUNTY	CONTROL	SECT	JOB	HIGHWAY				
		HVALGO	0039	17	118	US 83				

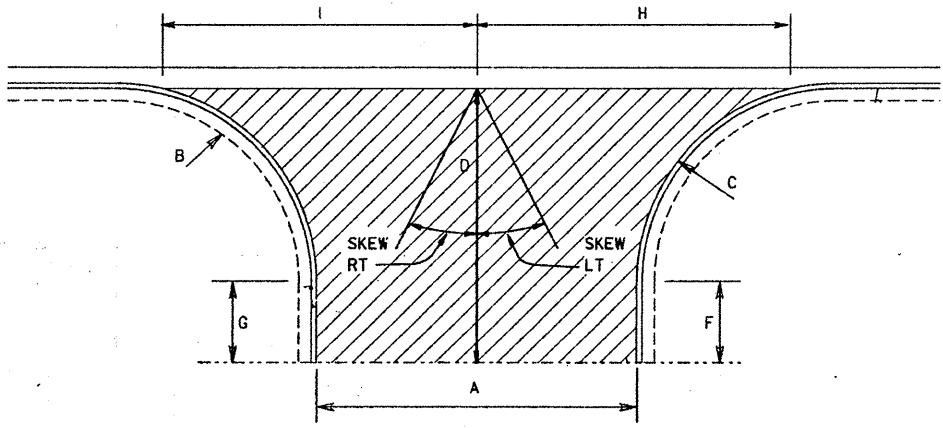
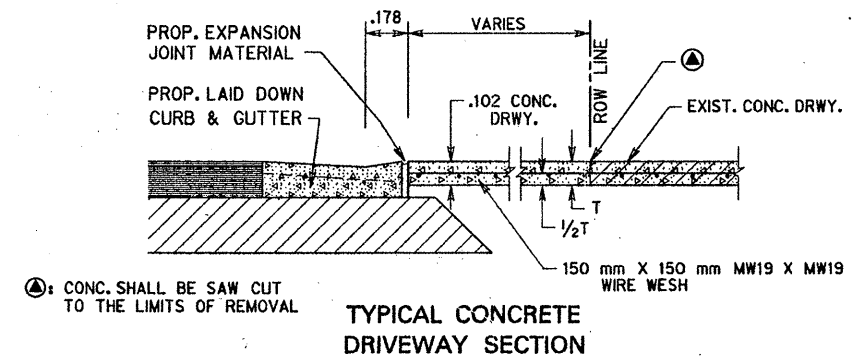
R = Radius
D = Diameter
All unit-less dimensions are millimeters

"I" ROAD

Sht	Centerline Station	Driveway Dimensions										TYPE				CURB AND CURB & GUTTER							
		A	B	C	D	E	F	G	H	I	SKEW angle [deg]	direction	AREA [sq m]	PRB-1 [sq m]	PB-1 [sq m]	PI [sq m]	PCC [sq m]	Ty A C&G [m]		Ty B MOUNT. CURB [m]			
		width [meters]	RT radius [meters]	LT radius [meters]	depth [meters]	extension [meters]	LT tangent [meters]	RT tangent [meters]	LT open [meters]	RT open [meters]								LT	RT	LT	RT	FRONT	
202	0+799.127	LT	3.044	4.000	4.000	5.850		1.792	1.522	5.536	5.537	0.6269	RT	24.064					7.892	7.714			
202	0+799.158	RT	8.647	4.000	4.000	5.106		0.789	1.331	8.326	8.326	0.3436	LT	51.113			24.064		7.072	7.507			
202	0+825.350	LT	6.507	3.000	2.500	5.167		1.451	1.838	5.029	5.029	8.5011	LT	29.500			29.500		7.166	6.55			
202	0+884.993	LT	2.851	3.000	3.000	4.229		1.447	1.180	4.464	4.464	0.6561	RT	16.233	16.233				5.966	5.892			
203	1+079.706	RT	13.366	1.500	2.500	2.288		0.342	0.799	8.491	8.491	10.7630	RT	32.179			32.179		3.718	3.157			16.982
203	1+112.979	LT	8.589	3.500	3.500	4.604		0.925	1.426	7.801	7.801	0.5686	LT	44.907			44.907		6.278	6.799			
203	1+121.782	RT	6.386	1.250	1.500	2.286		0.786	0.512	4.552	4.552	3.4344	RT	14.700			14.700		3.135	3.083			
203	1+139.034	LT	10.140	4.000	4.000	5.685		1.308	2.060	9.078	9.078	0.7031	LT	64.624			64.624		7.591	8.177			
203	1+157.655	RT	6.423	1.500	1.500	2.284	0.784			4.712	4.712						15.648		3.14	3.14			
203	1+185.174	LT	5.735	5.000	5.000	7.600		2.272	2.908	7.869	7.869	0.7765	LT	54.413			54.413		10.126	10.571			

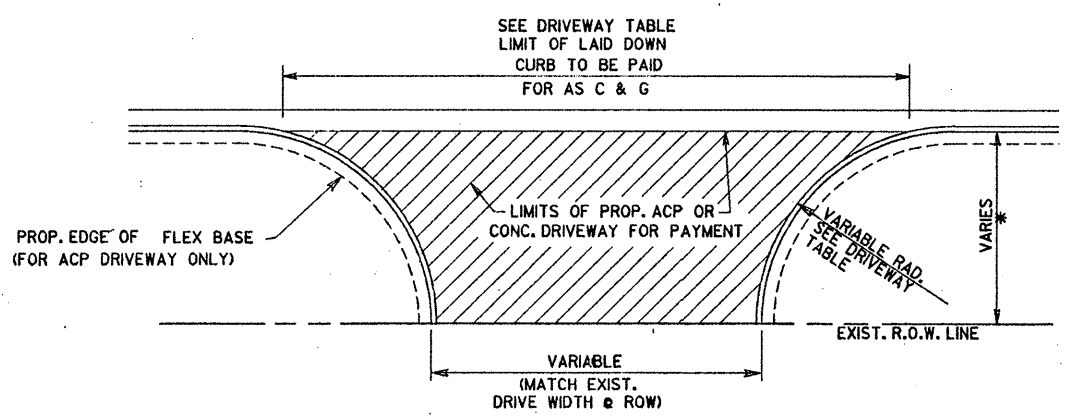
U.S. HWY 83

Sht	Centerline Station	Driveway Dimensions										TYPE				CURB AND CURB & GUTTER								
		A	B	C	D	E	F	G	H	I	SKEW angle [deg]	direction	AREA [sq m]	PRB-1 [sq m]	PB-1 [sq m]	PI [sq m]	PCC [sq m]	Ty A C&G* [m]		Ty B MOUNT. CURB [m]				
		width [meters]	RT radius [meters]	LT radius [meters]	depth [meters]	extension [meters]	LT tangent [meters]	RT tangent [meters]	LT open [meters]	RT open [meters]								LT	RT	LT	RT	FRONT		
167	48+903.568	LT												7.745			7.745							
167	48+979.241	LT	14.438	5.000	10.000	7.166		1.619	0.548	14.052	14.052	19.8927	RT	124.122			124.122		12.536	10.717				
168	49+171.143	RT	12.192	6.000	5.000	7.399		0.906	3.185	11.173	11.173	0.2942	LT	103.421					9.704	10.581			22.346	
168	49+247.435	RT	13.162	3.500	3.500	4.496		1.004	0.988	10.081	10.081			64.482					6.502	6.486			17.972	
168	49+297.442	RT	7.662	5.500	4.750	4.188			1.236	8.986	8.986	5.5325	LT	43.076			43.076		6.836	7.516				
168	49+362.858	LT	7.316	7.000	6.500	4.583		0.618	0.135	10.087	10.087	2.3427	LT	49.502			49.502		8.275	8.528				
169	49+460.554	RT	8.582	7.500	3.761	4.397			0.573	9.572	9.572	20.0028	LT	48.964			48.964		6.572	8.709				
169	49+477.018	RT	9.139	3.761	2.250	4.398		0.747		6.902	6.902	17.2292	LT	39.171			39.171		6.164	6.572				
169	49+547.044	RT	7.783	2.750	4.000	4.422		0.077		6.957	6.957	11.284	RT	37.237			37.237		6.630	6.117				
169	49+578.070	RT	21.466	4.000	4.000	4.424	0.424			14.733	14.733			101.873			101.873		6.707	6.707				
169	49+625.332	RT	8.022	4.000	4.000	4.474		0.523	0.423	7.993	7.993			42.819			42.819		6.764	6.706				



PRIVATE AND COMMERCIAL DRIVES WITH CURB & GUTTER

NOTES:
 1. FOR DRIVEWAYS THAT ARE PERPENDICULAR TO THE ROADWAY, THE DIMENSIONS 'F' AND 'G' ARE THE SAME AND ARE DEFINED AS THE DIMENSION 'E'.
 2. THE SKEW ANGLE IS DEFINED AS THE DIFFERENCE BETWEEN A LINE PERPENDICULAR TO THE OPENING AT THE CENTER OF THE OPENING AND A LINE FROM THE CENTER OF THE OPENING TO THE CENTER OF THE REAR OF THE DRIVEWAY.



PRIVATE AND COMMERCIAL DRIVES WITH CURB & GUTTER
 SEE PLAN SHEETS AND DRIVEWAY CALCULATION TABLE FOR LOCATIONS OF DRIVES

DRIVEWAY TYPES

TY PRB-1
 EXIST. PAVED CALICHE AND/OR GRAVEL DRIVEWAYS TO BE SCARIFIED AND RECONSTRUCTED WITH .076 NEW FLEX. BASE TO MATCH THE PROPOSED WIDENED SECTION. THEN PRIMED AND SURFACED WITH 556 kg/m² ACP (TY 'D')

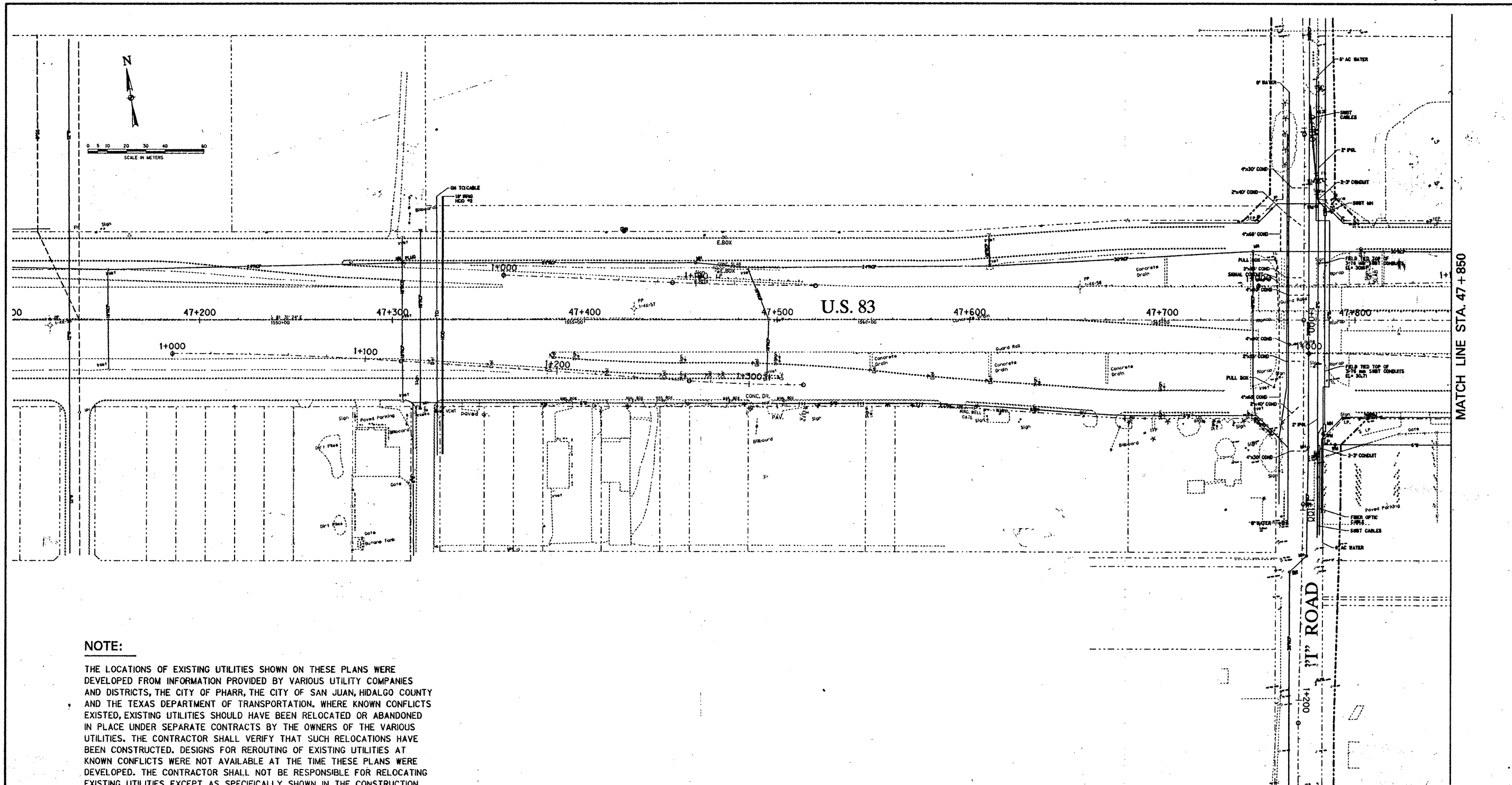
TY PB-1
 EXIST. UNPAVED PRIVATE OR COMMERCIAL DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH .102 FLEX. BASE, PRIMED AND SURFACED WITH 556 kg/m² ACP.

TY PI
 EXIST. PAVED DRIVEWAYS TO BE PAVED WITH 556 kg/m² ACP TY D.



Gregory A. Jacobs 4-15-16
 DATE

DRIVEWAY DETAILS (MOD)									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID	PROJECT NO.	SHEET NO.		
	CADD		8	TEXAS	NA	216-141	NA	218	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	ROWWAY NO.	U.S. 83
APRIL 1998	820P012	N.T.S.	21	HIDALGO	0036	17	18		



NOTE:

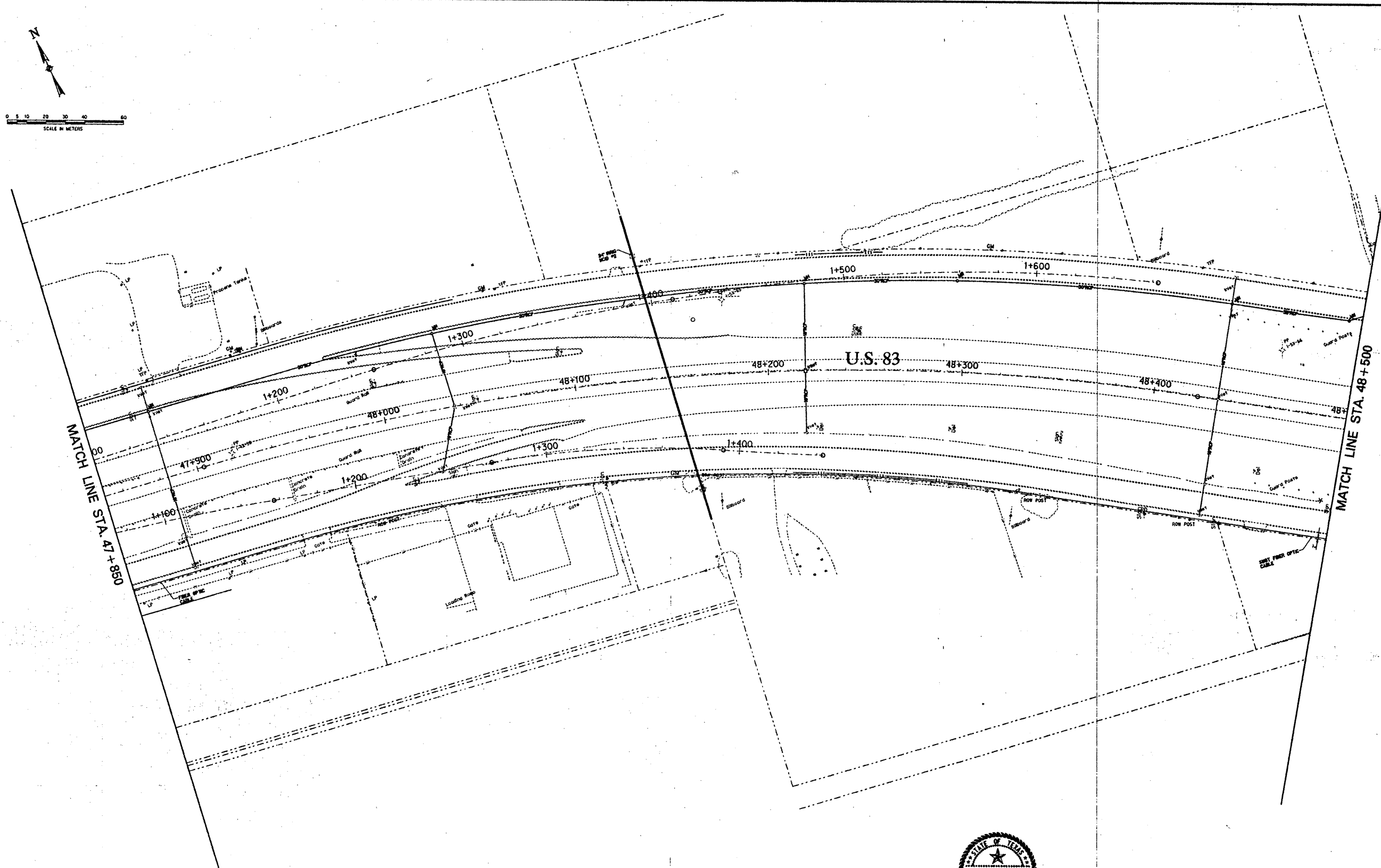
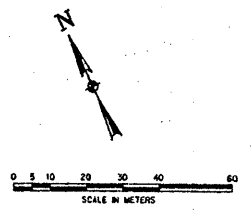
THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THESE PLANS WERE DEVELOPED FROM INFORMATION PROVIDED BY VARIOUS UTILITY COMPANIES AND DISTRICTS, THE CITY OF PHARR, THE CITY OF SAN JUAN, HIDALGO COUNTY AND THE TEXAS DEPARTMENT OF TRANSPORTATION. WHERE KNOWN CONFLICTS EXISTED, EXISTING UTILITIES SHOULD HAVE BEEN RELOCATED OR ABANDONED IN PLACE UNDER SEPARATE CONTRACTS BY THE OWNERS OF THE VARIOUS UTILITIES. THE CONTRACTOR SHALL VERIFY THAT SUCH RELOCATIONS HAVE BEEN CONSTRUCTED. DESIGNS FOR REROUTING OF EXISTING UTILITIES AT KNOWN CONFLICTS WERE NOT AVAILABLE AT THE TIME THESE PLANS WERE DEVELOPED. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR RELOCATING EXISTING UTILITIES EXCEPT AS SPECIFICALLY SHOWN IN THE CONSTRUCTION PLANS. UTILITIES ARE SHOWN SCHEMATICALLY FOR CONTRACTOR'S GUIDANCE ONLY. ONLY THOSE SPECIFIC LOCATIONS SO NOTED HAVE BEEN EXPOSED AND FIELD TIED. ALL UTILITIES MAY NOT BE SHOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND LOCATE ALL UTILITIES WHICH MAY BE AFFECTED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES TO DETERMINE PRECISE LOCATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTING THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL NOTIFY TxDOT OF ANY EXISTING FACILITIES CONFLICTING WITH THE PROPOSED CONSTRUCTION AND OBTAIN DIRECTION FOR THE PROPER DISPOSITION OF SAID CONFLICTING EXISTING FACILITIES FROM TxDOT AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY MEASURES TO PROTECT ALL EXISTING STRUCTURES, IMPROVEMENTS, AND UTILITIES WHICH MAY BE ENCOUNTERED. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES CAUSED BY HIS/HER CONSTRUCTION OPERATIONS.



Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

EXISTING UTILITY LAYOUT AS OF 3-96							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
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DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
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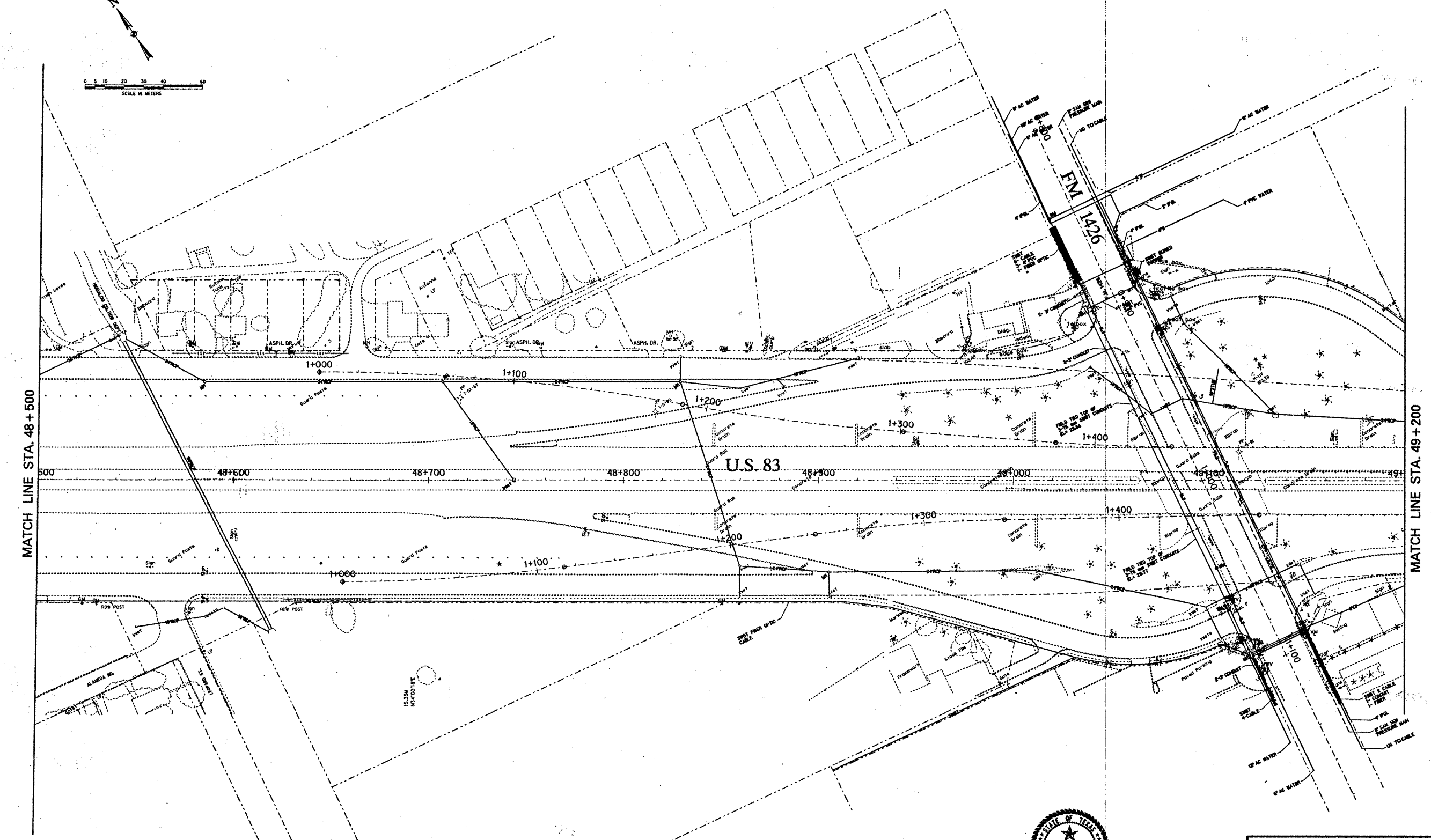
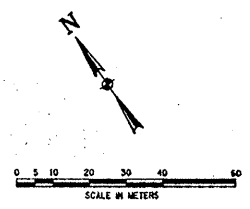
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Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

EXISTING UTILITY LAYOUT AS OF 3-96										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>										
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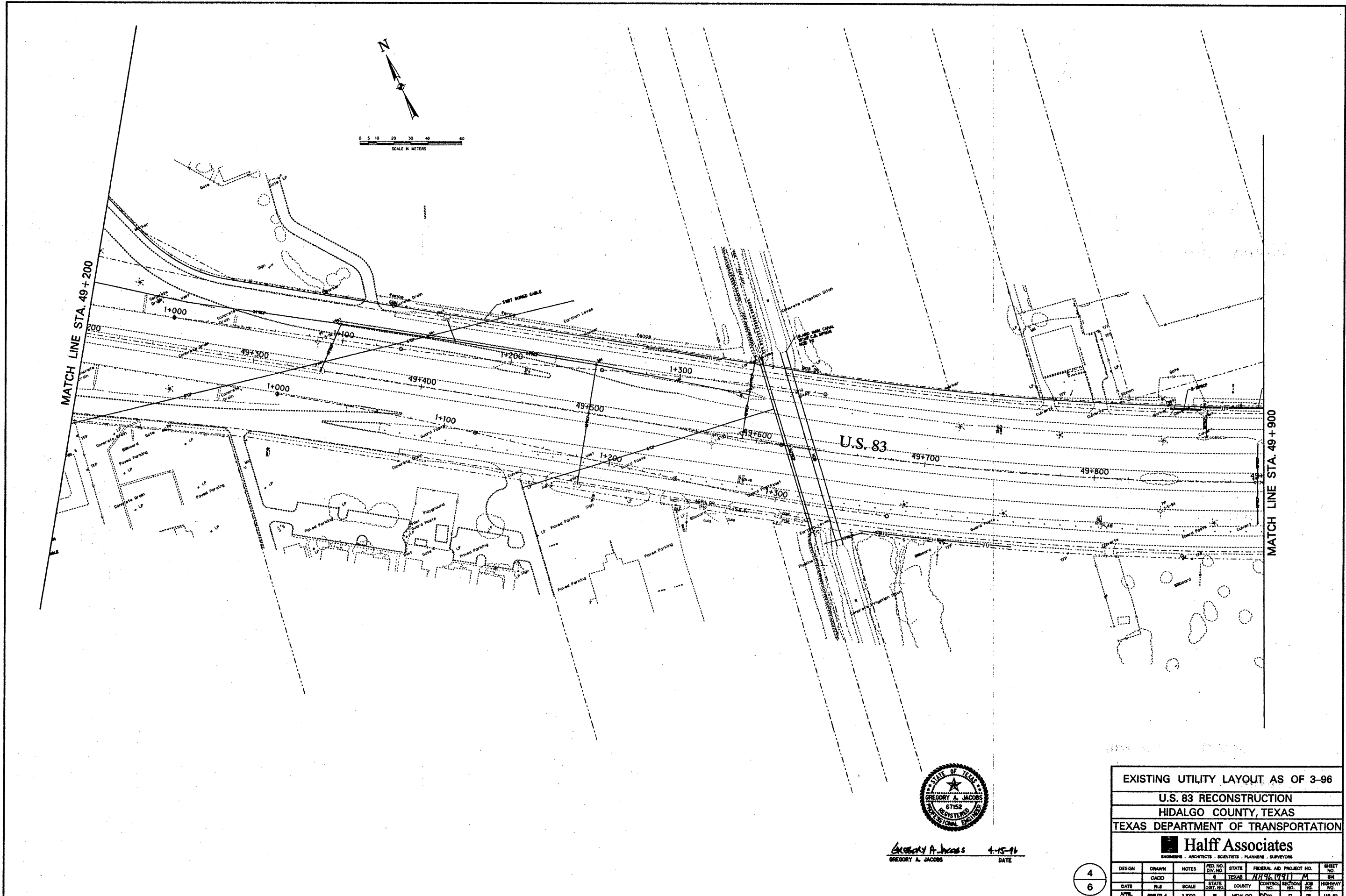
Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

EXISTING UTILITY LAYOUT AS OF 3-96
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

3
 6

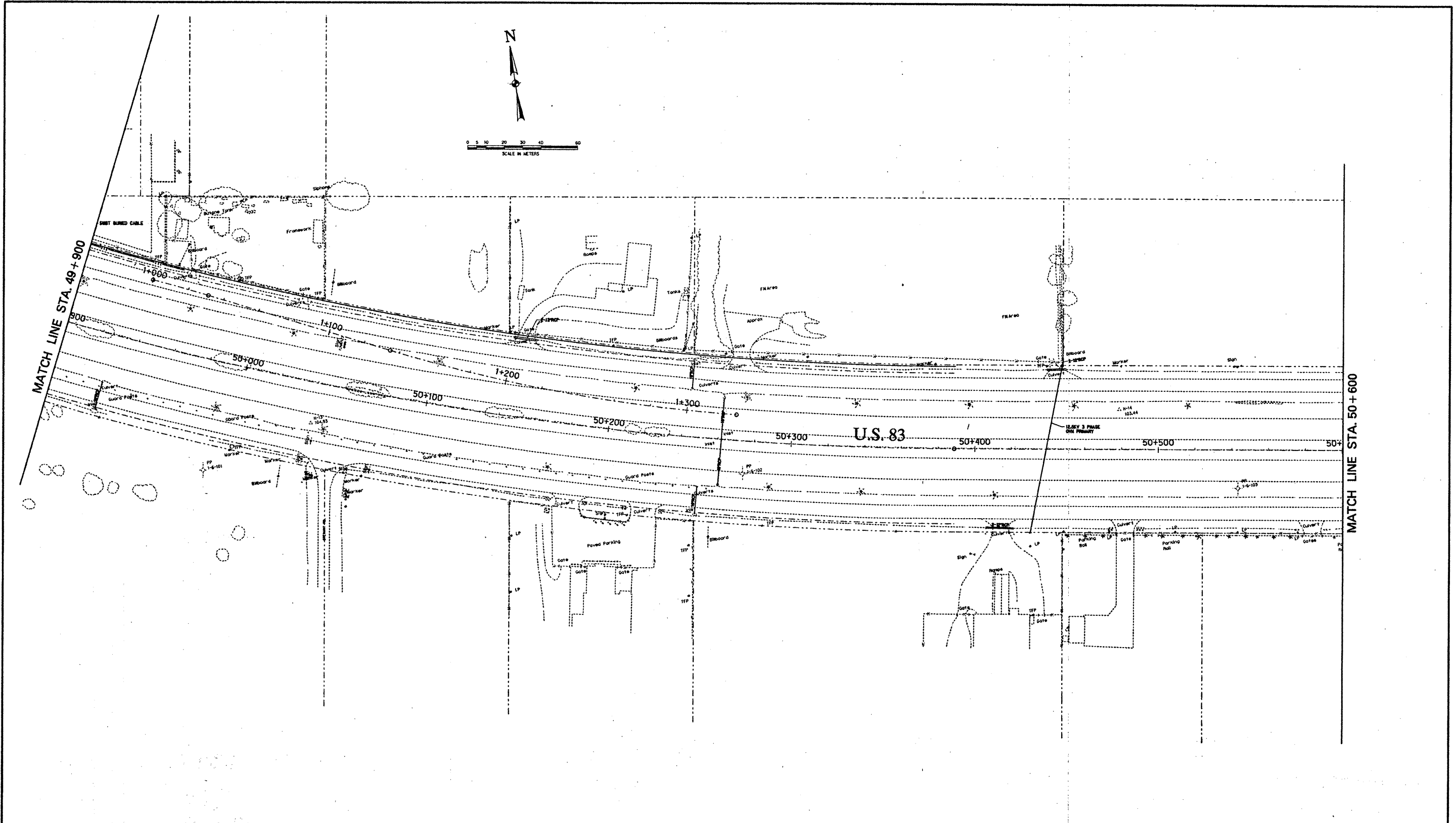
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CADD	DATE	SCALE	STATE	COUNTY	SECTION	JOB NO.	HIGHWAY NO.
DATE	FILE	SCALE	STATE	COUNTY	SECTION	JOB NO.	HIGHWAY NO.
DATE	FILE	SCALE	STATE	COUNTY	SECTION	JOB NO.	HIGHWAY NO.



Gregory A. Jacobs 4-15-16
 GREGORY A. JACOBS DATE

EXISTING UTILITY LAYOUT AS OF 3-96										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Halff Associates <small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET				
			201	TX	0000	4				
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT REGION	JOB				
4/15/16	608/UTL4	1:500	TX	HIDALGO	0000	17				US 83

4
6



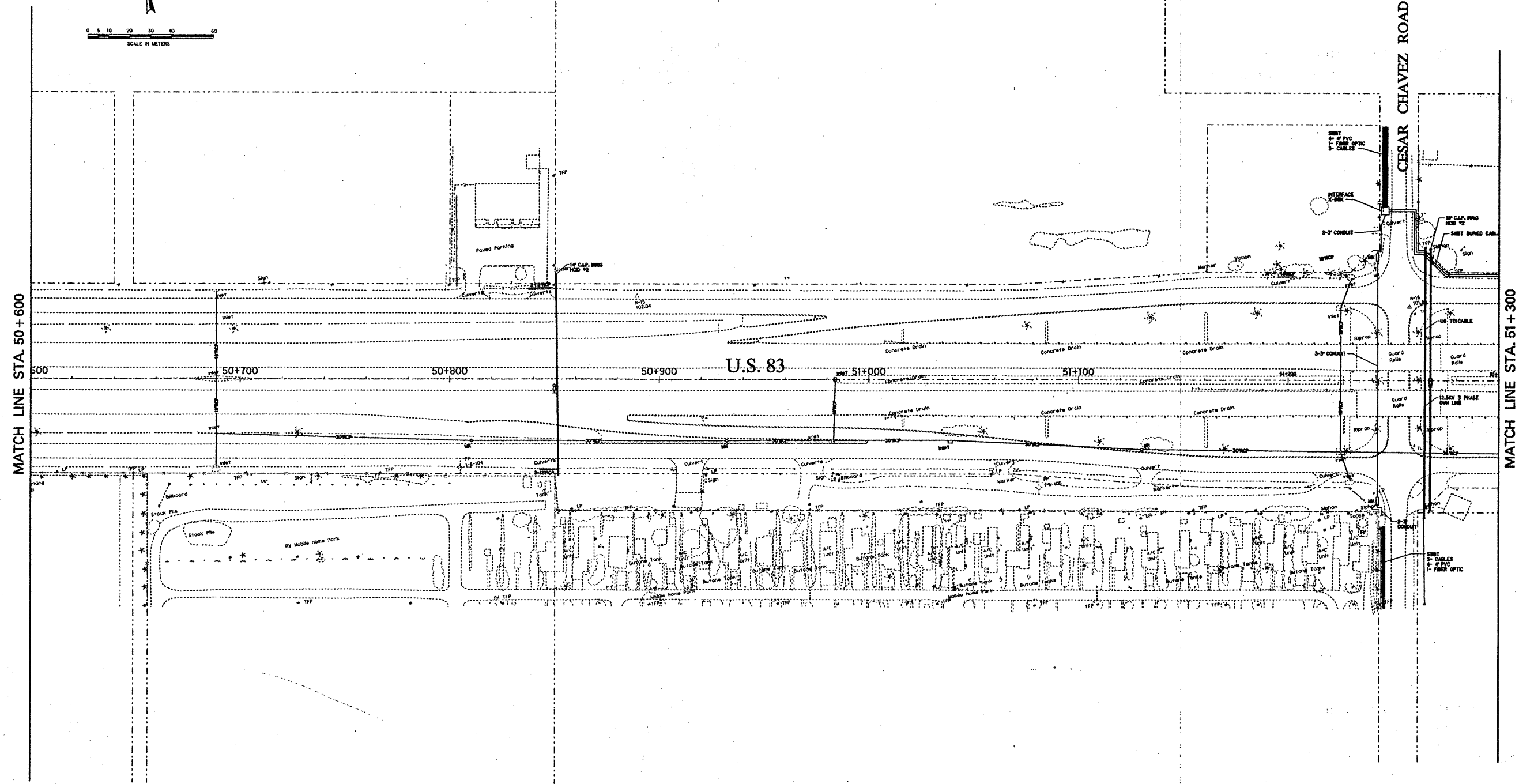
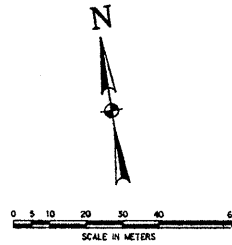
Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

EXISTING UTILITY LAYOUT AS OF 3-96
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - ROADSIDE DESIGNERS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
	CACD		6	TEXAS	11496 (791)	M 015	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
APR. 96	630UTL2	1/3200	21	HIDALGO	50 29	17	18
							U.S. 83

5
6



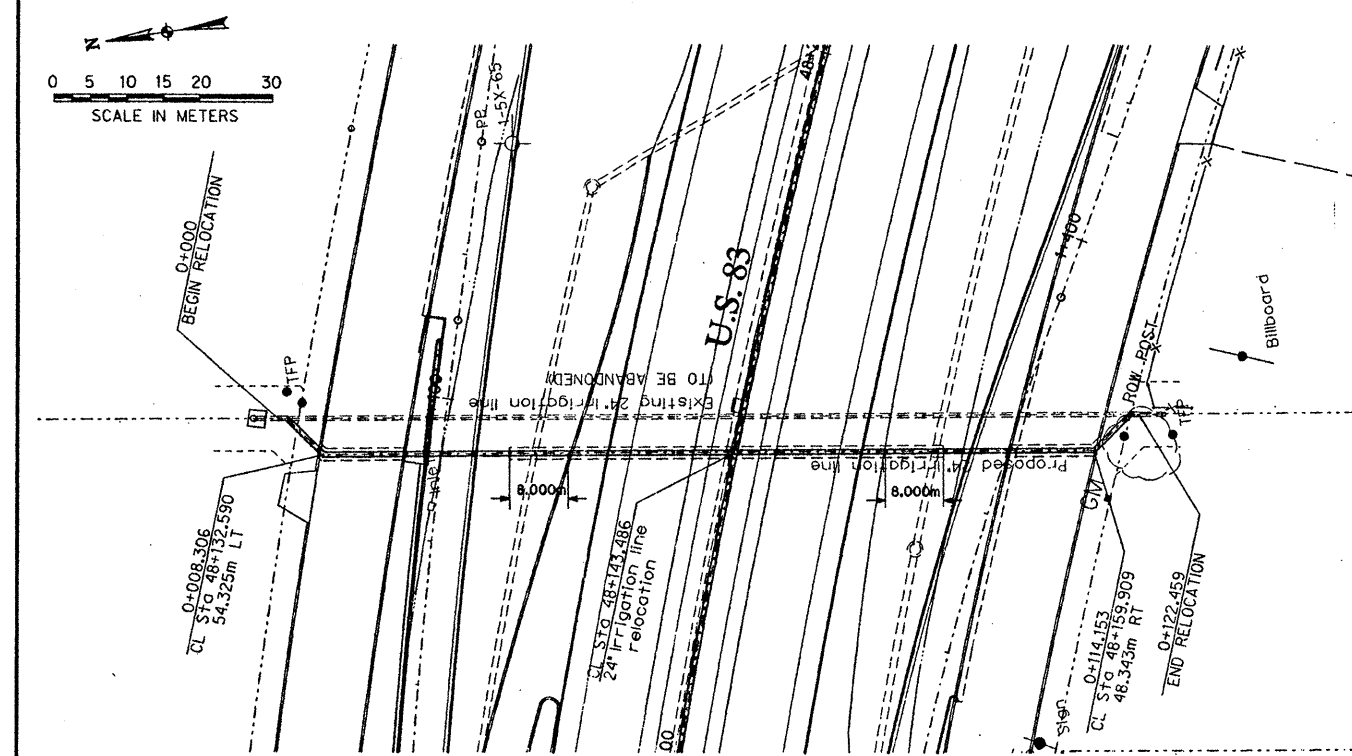
Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

EXISTING UTILITY LAYOUT AS OF 3-96
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

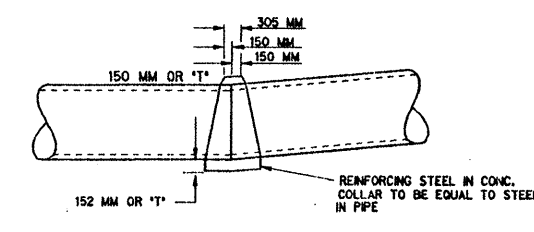
Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

6
 6

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CAJCO		6	TEXAS	11496 (741) M	36
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APR 96	882/TLB	1"=60'	21	HIDALGO	17	18



PLAN - IRRIGATION RELOCATION

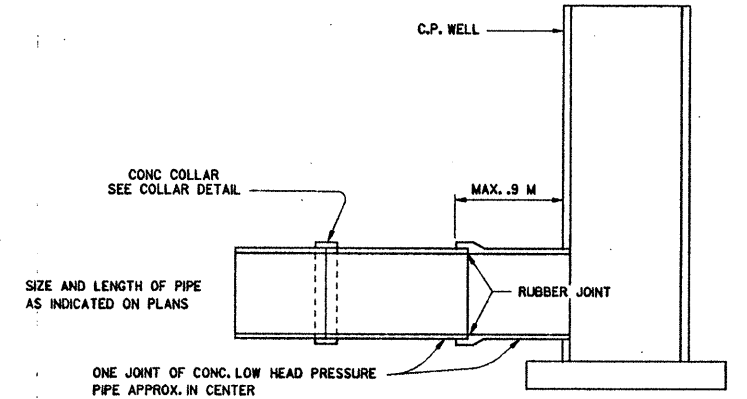


DETAIL FOR CONC. COLLARS ON PIPE SIPHONS

GENERAL NOTES

CONCRETE REQUIRED FOR PLUGS OR CAPS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED AS SUBSIDIARY TO THE VARIOUS BID ITEMS OF THIS CONTRACT.

THE PARTICULAR TYPE OR DESIGN OF THE EXISTING FACILITY TO BE EXTENDED OR RELOCATED SHALL BE DUPLICATED UNLESS DICTATED OTHERWISE BY THESE PLANS.

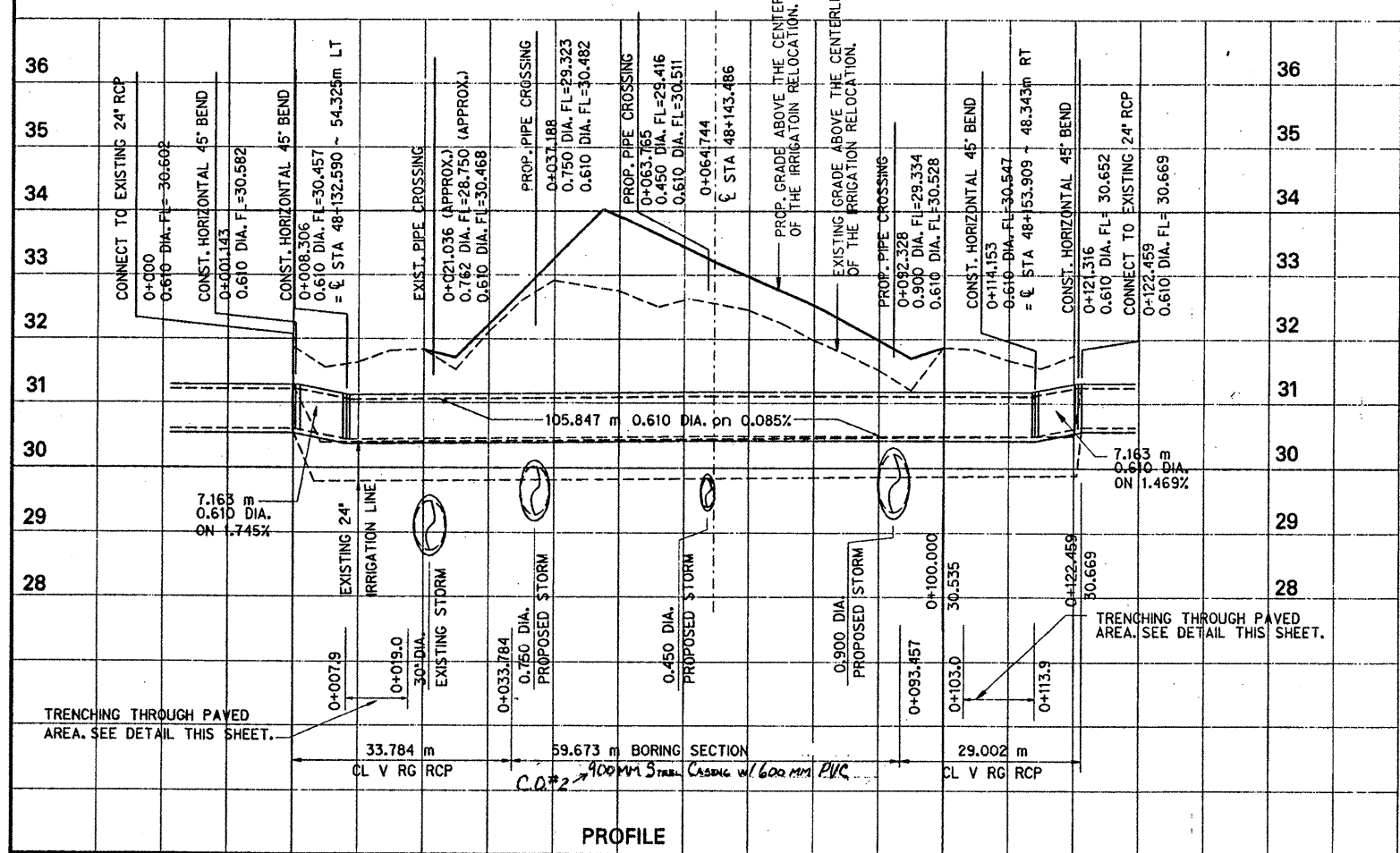


TYPICAL CONC. PIPE WELL DETAILS FOR CONNECTING CONC. LOW HEAD PRESSURE PIPE

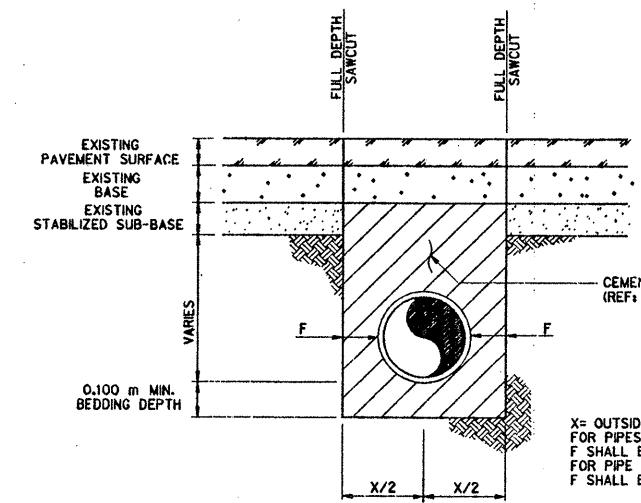
C.O. #2- CHANGE ORDER No. 2
JACK AND BORE 59.673m of 900mm
STEEL CASING AND 600MM PVC
PIPE.



S. R. Mumford
C.O. #2
12/17/96



PROFILE



FOR UTILITY LOCATION UNDER EXISTING PAVEMENT, THE CONTRACTOR SHALL SAWCUT AND REMOVE EXISTING PAVEMENT SURFACE, BASE, AND STABILIZED BASE AND THEN EXCAVATE THE PIPE TRENCH. AFTER THE CONDUIT IS CORRECTLY IN PLACE, THE CONTRACTOR SHALL BACKFILL THE TRENCH WITH CEMENT STABILIZED BACKFILL, ACCORDING TO ITEM 400.6, FROM THE BOTTOM OF THE TRENCH TO THE BOTTOM OF THE EXISTING BASE. THE CONTRACTOR SHALL REPLACE THE BASE AND SURFACE COURSES WITH MATERIAL EQUIVALENT IN QUANTITY TO AND COMPOSITION OF THE EXISTING MATERIAL UNLESS OTHERWISE DIRECTED BY ENGINEER.

OPEN CUT TRENCH THROUGH EXISTING PAVEMENT

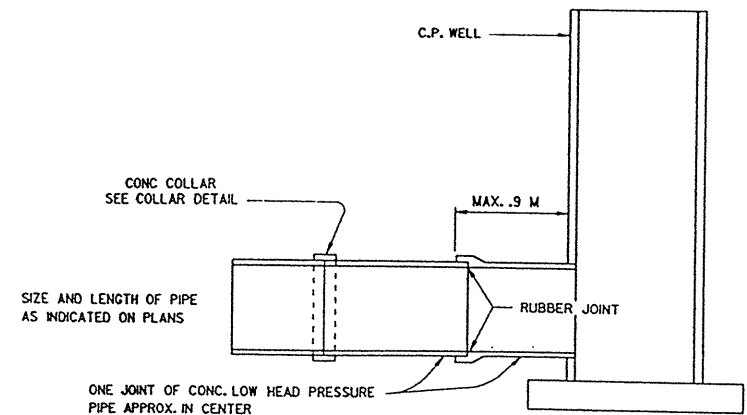
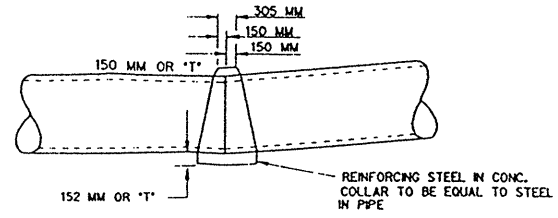
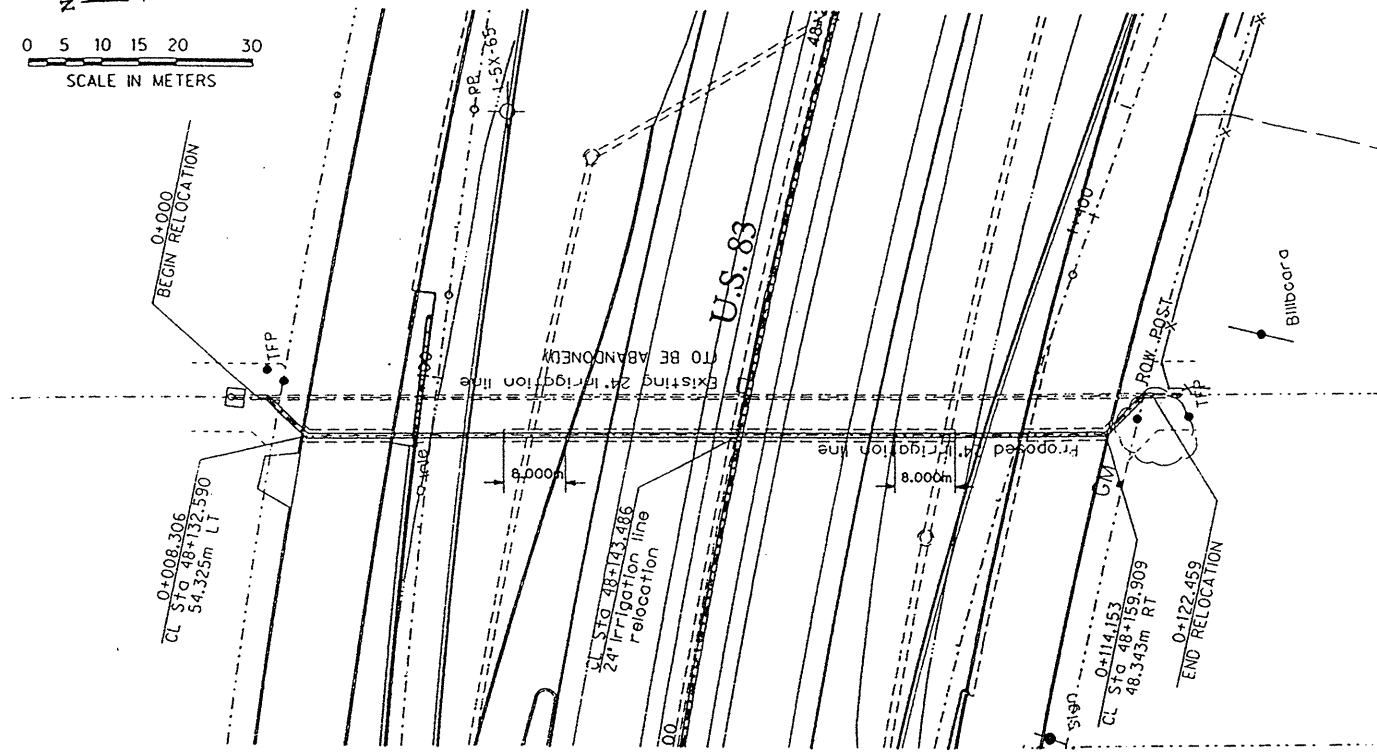
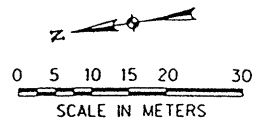
NOTES:

- FOR AREA WHERE THE PROPOSED PIPE PENETRATES THE SUB BASE AND/OR BASE MATERIAL OF ROADWAY, THE CONTRACTOR SHALL PROVIDE THE CEMENT STABILIZED BACKFILL TO HEIGHT SUFFICIENT TO PROVIDE A MINIMUM OF 100 mm THICKNESS OF CEMENT STABILIZED BACKFILL OVER THE TOP OF THE PIPE.
- THE CONTRACTOR SHALL PROVIDE PRECAST 45 DEGREE BENDS OF THE CLASS AND SIZE SPECIFIED FOR THE PIPE ON THE DRAWING.
- CONTRACTOR SHALL RELOCATE THE IRRIGATION LINE IN SUCH A MANNER AS TO MINIMIZE THE LOSS OF SERVICE TO THE HIDALGO COUNTY IRRIGATION DISTRICT NO. 2 (HICD #2). THE CONTRACTOR SHALL COORDINATE HIS EFFORTS WITH SONNY HINOJOSA OF HICD #2 (210-787-1422).
- WHEN CONNECTING THE RELOCATED LINE TO THE EXISTING IRRIGATION LINE, THE CONTRACTOR SHALL REMOVE 2.100 m PLUS ONE JOINT OF PIPE OF THE ABANDONED IRRIGATION LINE FROM EACH END OF THE RELOCATION. THE CONTRACTOR SHALL CONSTRUCT A CONCRETE CAP ON EACH END OF THE ABANDONED IRRIGATION LINE AFTER THE PIPE REMOVAL.
- THE STATIONS SHOWN FOR THE EXISTING PAVEMENT AND THE EXISTING IRRIGATION LINE ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THESE LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.



Gregory A. Jacobs
GREGORY A. JACOBS
4-15-96
DATE

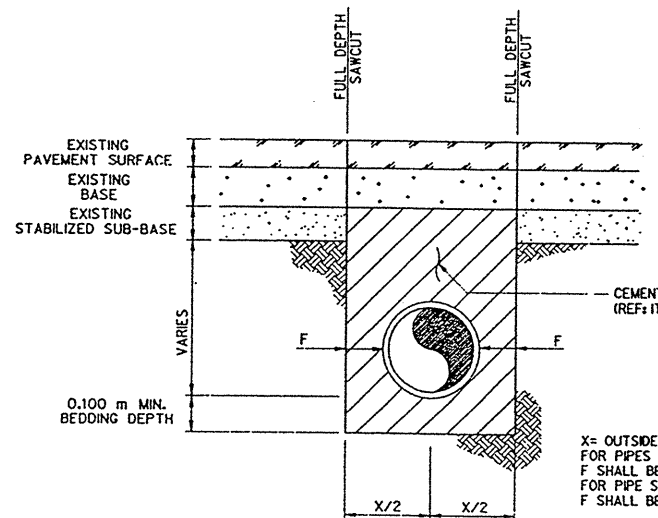
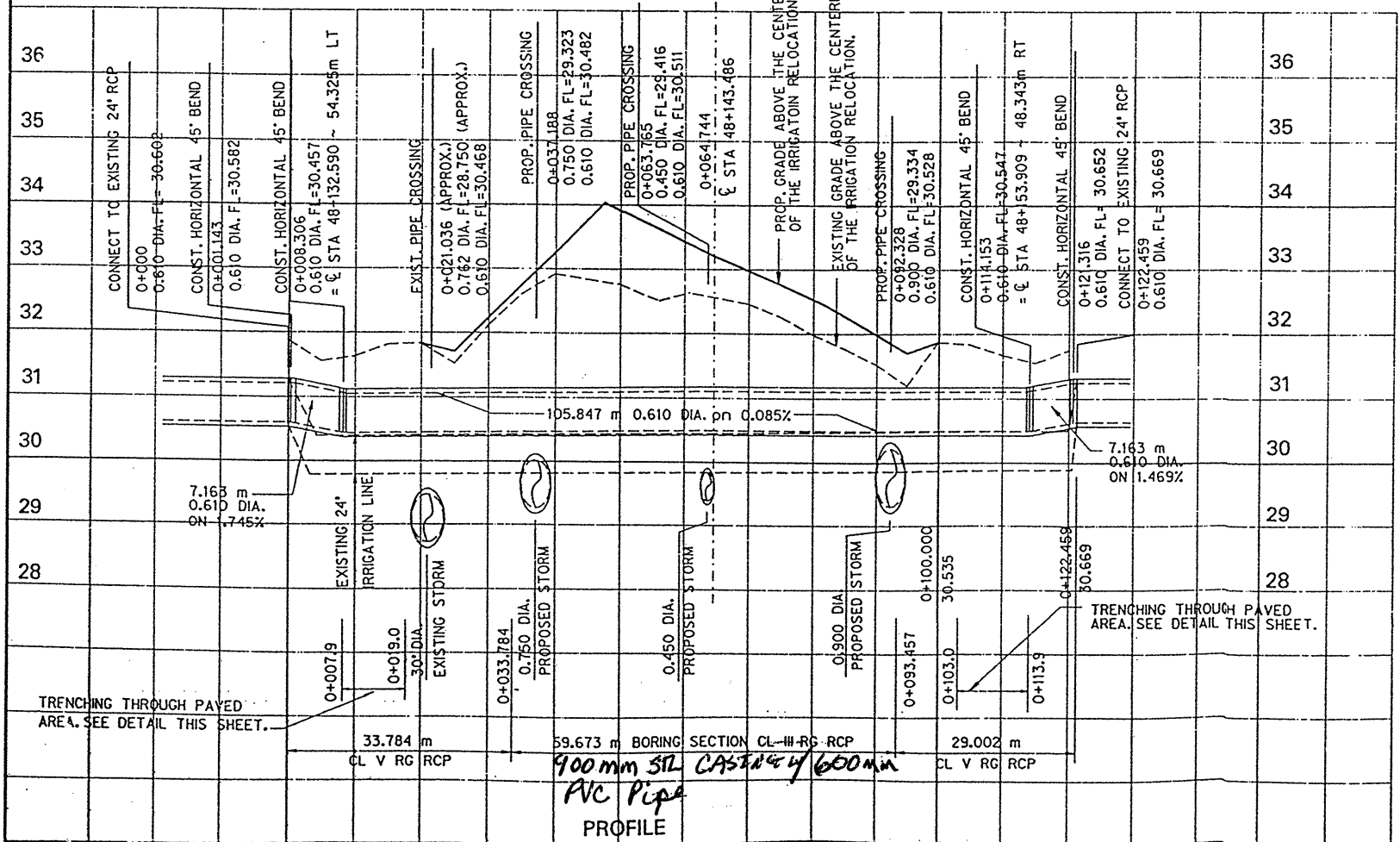
24" IRRIGATION LINE RELOCATION									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
	CADD		6	TEXAS	AH 96 (741) M	21			
DATE	FILE	SCALE	STATE DISTRICT	COUNTY	CONTROL SECTION NO.	JOB NO.	NO.	NO.	HIGHWAY NO.
APRIL 1996	620RHR	1:500 HORIZ 1:50 VERT	21	HIDALGO	8036	17	18		U.S. 83



GENERAL NOTES

CONCRETE REQUIRED FOR PLUGS OR CAPS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED AS SUBSIDIARY TO THE VARIOUS BID ITEMS OF THIS CONTRACT.

THE PARTICULAR TYPE OR DESIGN OF THE EXISTING FACILITY TO BE EXTENDED OR RELOCATED SHALL BE DUPLICATED UNLESS DICTATED OTHERWISE BY THESE PLANS.



FOR UTILITY LOCATION UNDER EXISTING PAVEMENT, THE CONTRACTOR SHALL SAWCUT AND REMOVE EXISTING PAVEMENT SURFACE, BASE, AND STABILIZED BASE AND THEN EXCAVATE THE PIPE TRENCH. AFTER THE CONDUIT IS CORRECTLY IN PLACE, THE CONTRACTOR SHALL BACKFILL THE TRENCH WITH CEMENT STABILIZED BACKFILL, ACCORDING TO ITEM 400.6, FROM THE BOTTOM OF THE TRENCH TO THE BOTTOM OF THE EXISTING BASE. THE CONTRACTOR SHALL REPLACE THE BASE AND SURFACE COURSES WITH MATERIAL EQUIVALENT IN QUANTITY TO AND COMPOSITION OF THE EXISTING MATERIAL UNLESS OTHERWISE DIRECTED BY ENGINEER.

NOTES:

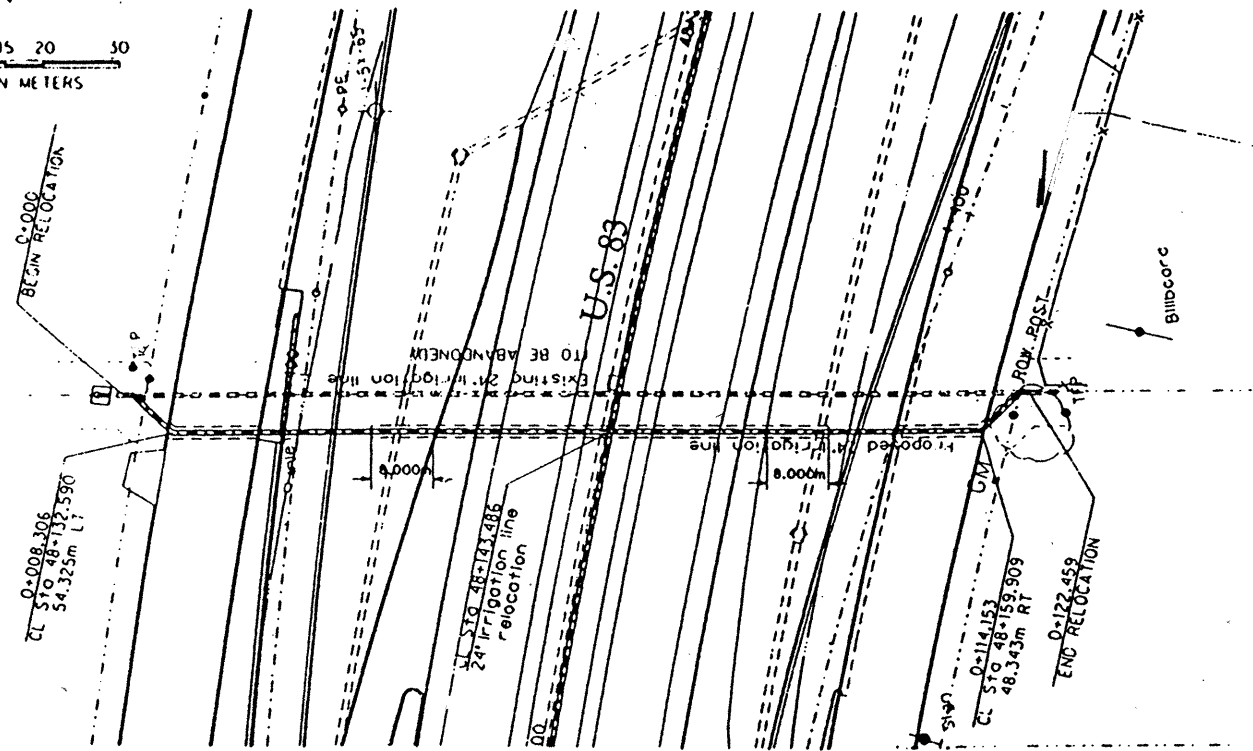
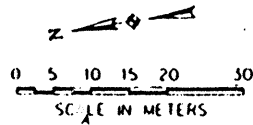
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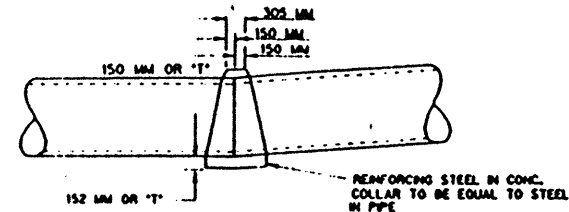
Gregory A. Jacobs 4-15-16
GREGORY A. JACOBS DATE

24" IRRIGATION LINE RELOCATION										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
	CADD		0101	TEXAS		3177				
DATE	FILE	SCALE	STATE	COUNTY	CONTROL	SECTION	JOB	HIGHWAY		
APRIL 2016	230704	1:800 HORIZ 1:80 VERT	21	HIDALGO	38	17	116	U.S. 83		

1/1



PLAN - IRRIGATION RELOCATION

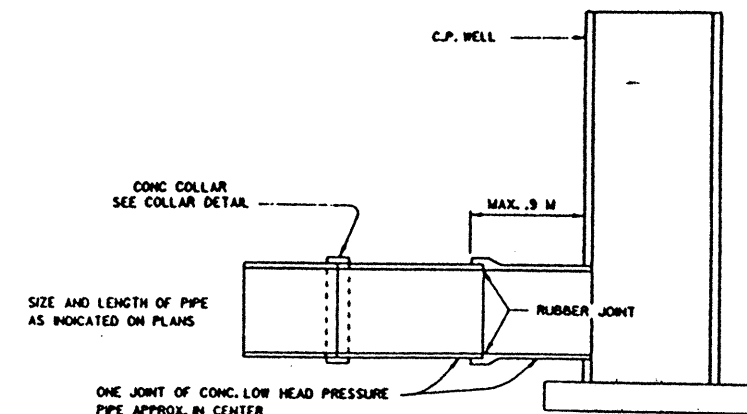


DETAIL FOR CONC. COLLARS ON PIPE SIPHONS

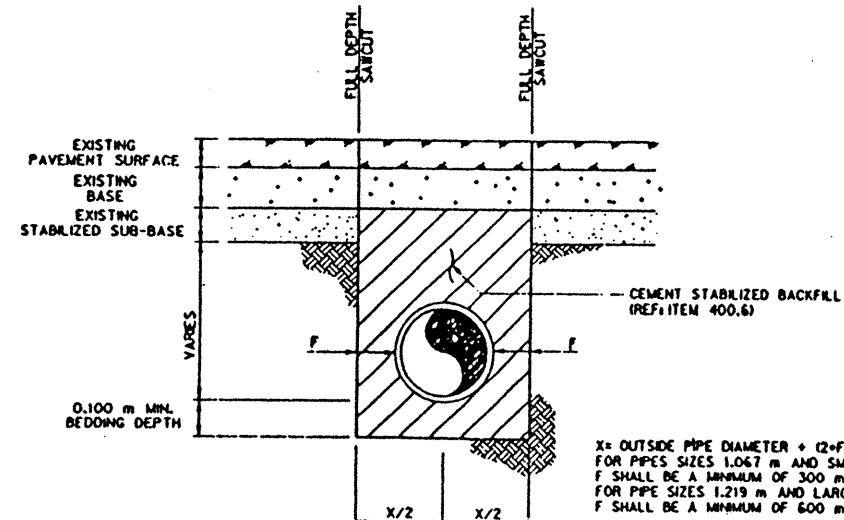
GENERAL NOTES

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TYPICAL CONC. PIPE WELL DETAILS FOR CONNECTING CONC. LOW HEAD PRESSURE PIPE

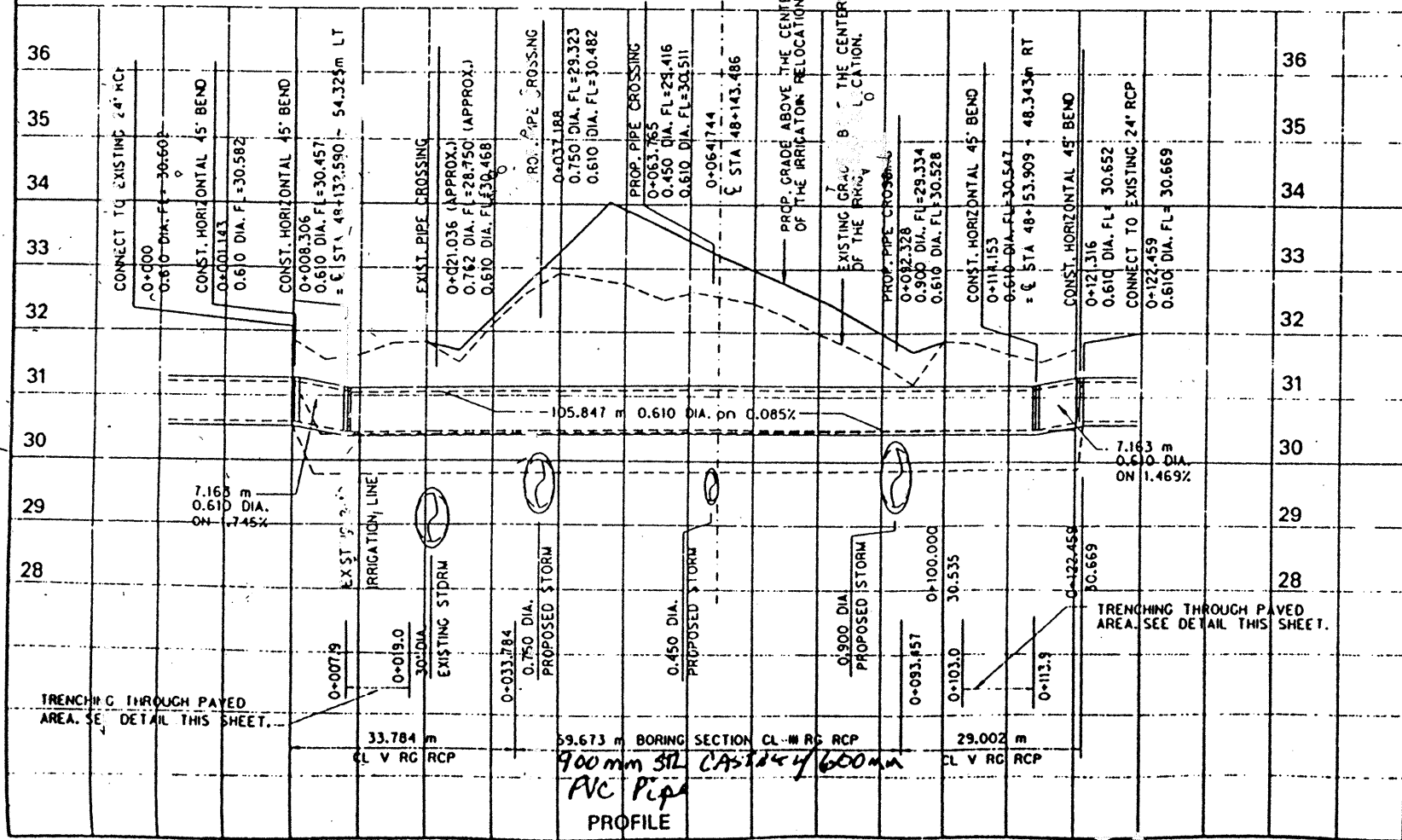


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PROFILE

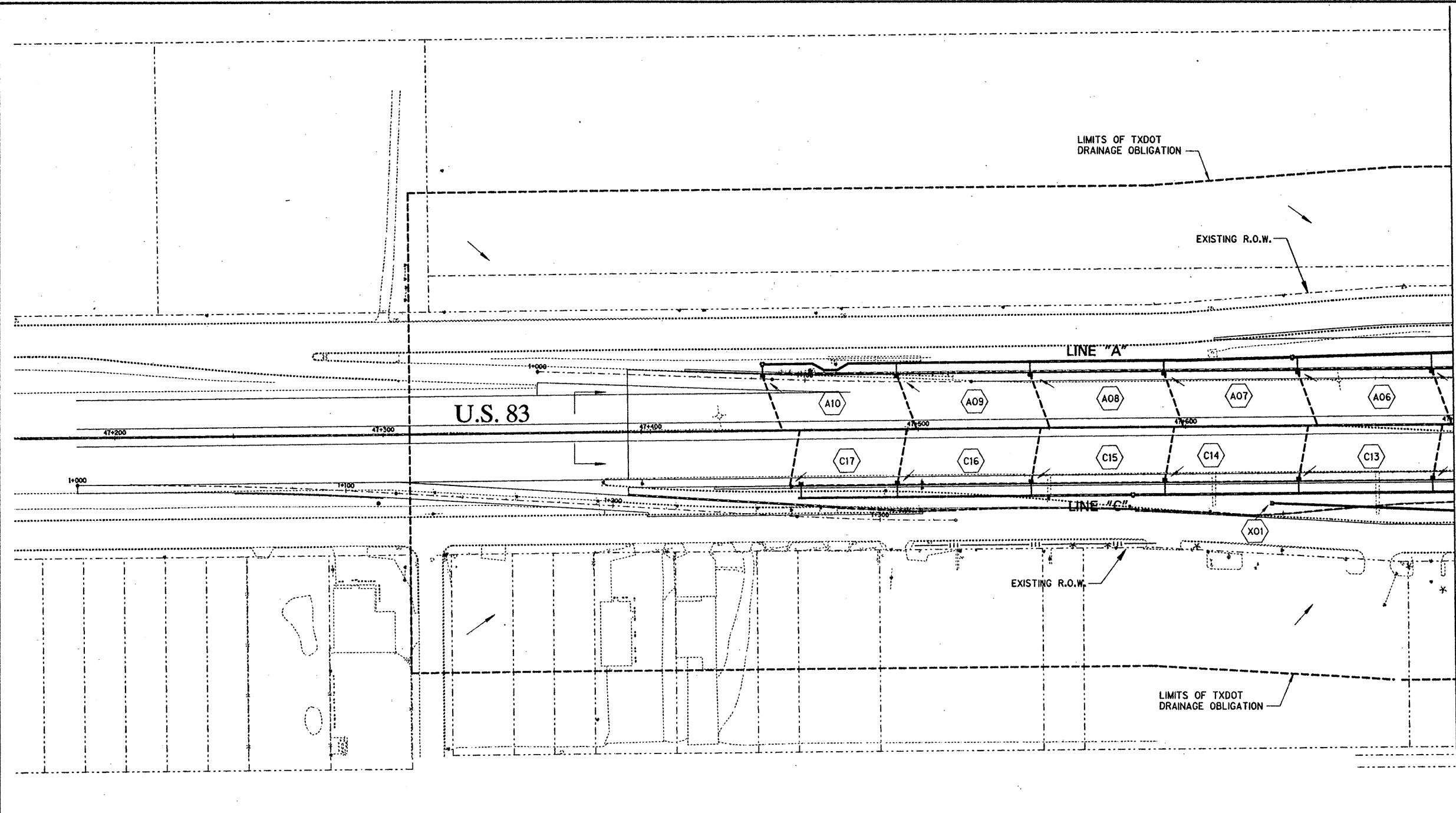
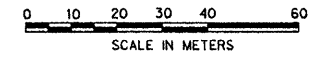


Gregory A. Jacobs 4-15-21
DATE

24" IRRIGATION LINE RELOCATION
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS ARCHITECTS INTERIORS PLANNERS SURVEYORS

DATE	SCALE	STATE	QUALITY	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
APRIL 2021	1:100	TX	REVISION	00	17	17



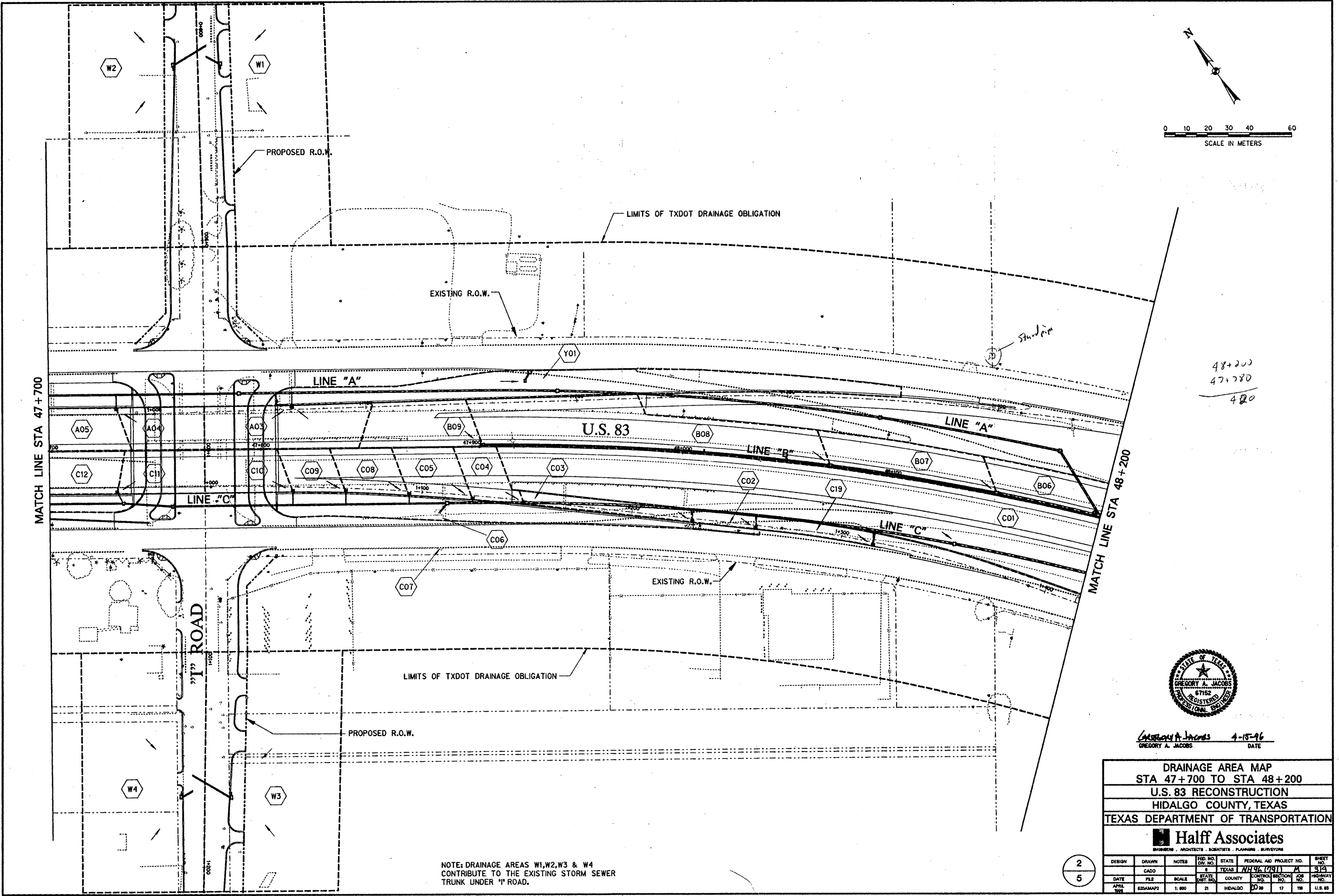
MATCH LINE STA 47+700



Gregory A. Jacobs
GREGORY A. JACOBS
4-15-96
DATE

DRAINAGE AREA MAP									
STA 47+200 TO STA 47+700									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Halff Associates									
<small>ENGINEERS · ARCHITECTS · SCIENTISTS · PLANNERS · SURVEYORS</small>									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SECTION NO.		JOB NO.	
CADD			4	TEXAS	NH96 (791)	M			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.	
APRIL 1996	620AMAP1	1:800	21	HIDALGO	0028	17	118	U.S. 83	

1
5



48+200
47+780

420



Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

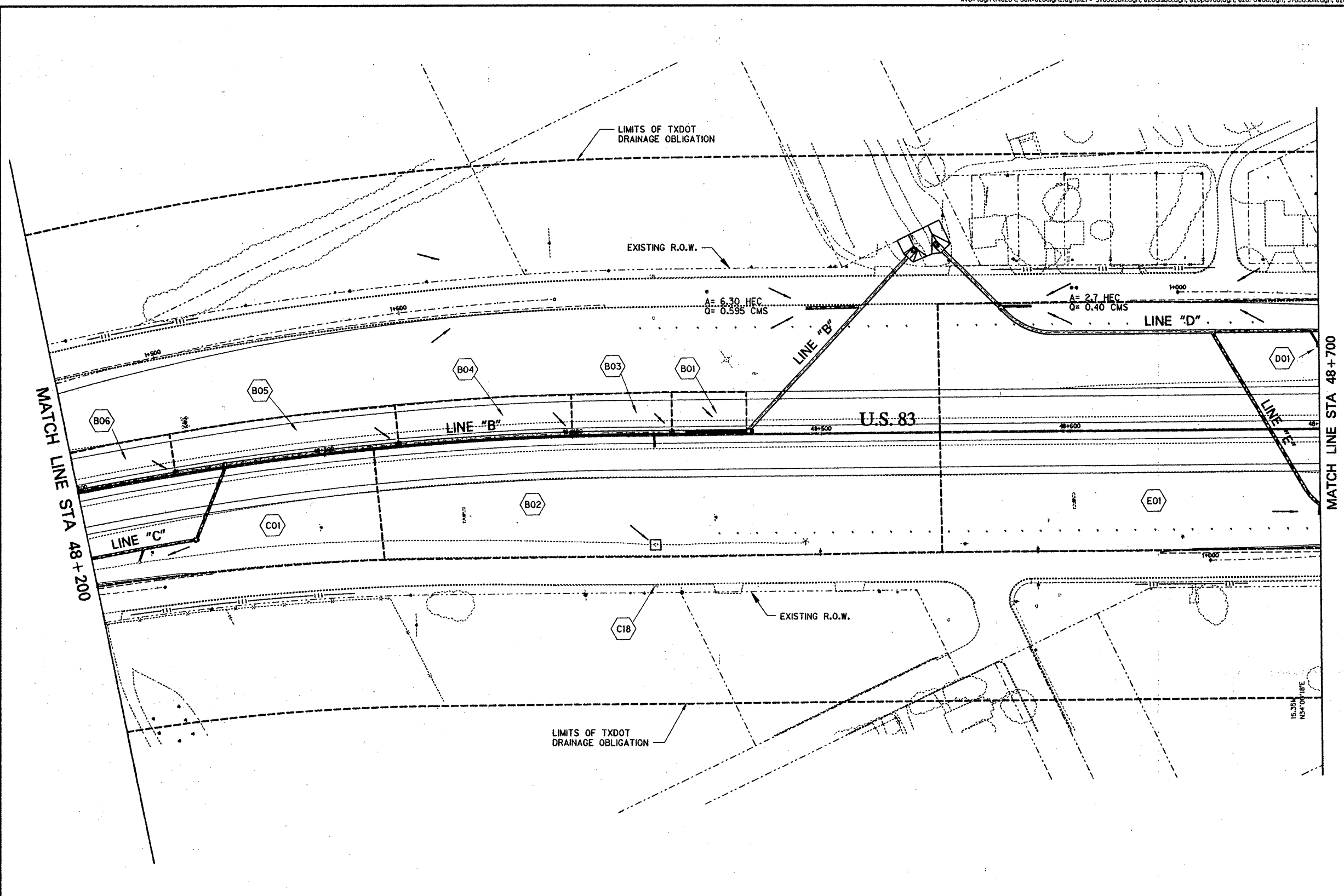
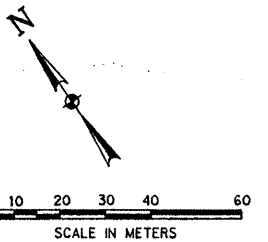
DRAINAGE AREA MAP
STA 47+700 TO STA 48+200
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD			TEXAS	711/01/01	314
DATE	FILE	SCALE	STATE	COUNTY	CONTROL REGION NO.	ROADWAY NO.
APRIL 1996	620AMAP2	1:800	21	HIDALGO	0030	17 118

NOTE: DRAINAGE AREAS W1, W2, W3 & W4
CONTRIBUTE TO THE EXISTING STORM SEWER
TRUNK UNDER "I" ROAD.

2
5

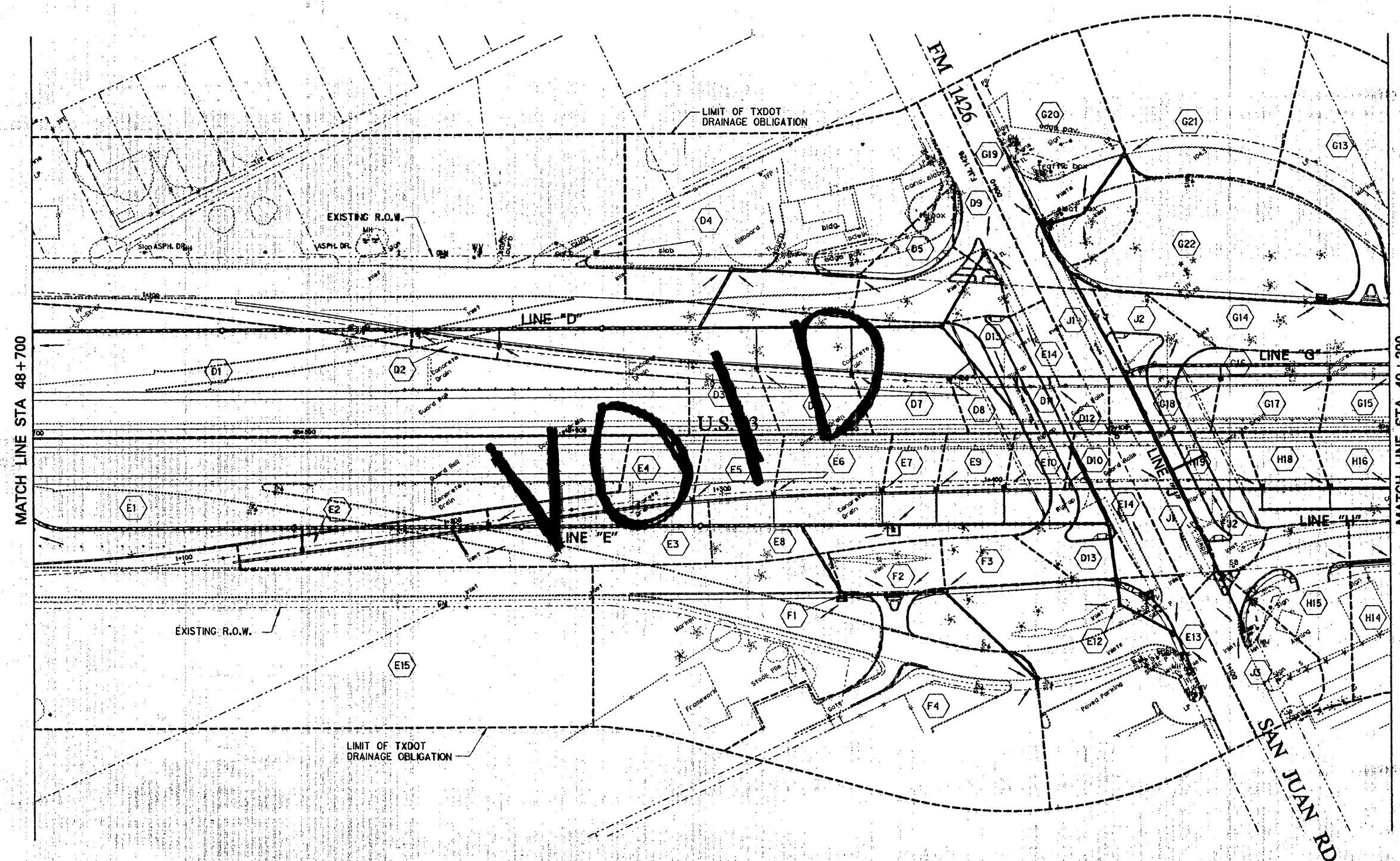


Gregory A. Jacobs 4-15-16
GREGORY A. JACOBS DATE

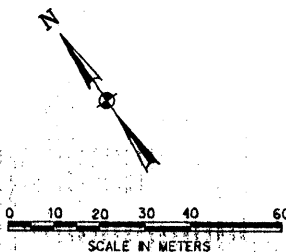
- Q BASED ON THE CAPACITY OF AN EXISTING 36" RCP ON A SLOPE OF 0.106%
- Q BASED ON THE CAPACITY OF AN EXISTING 24" RCP ON SLOPE OF 0.42%

DRAINAGE AREA MAP							
STA 48+200 TO STA 48+700							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	PRO. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
			67152	TEXAS	11456 (111)	522	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	SCHEMATIC SECTION NO.	JOB NO.	HAIRWAY NO.
APRIL 1996	820AMPS	1:800	21	HIDALGO	0028	17	118 U.S. 83

3
5



VOID



MATCH LINE STA 48+700

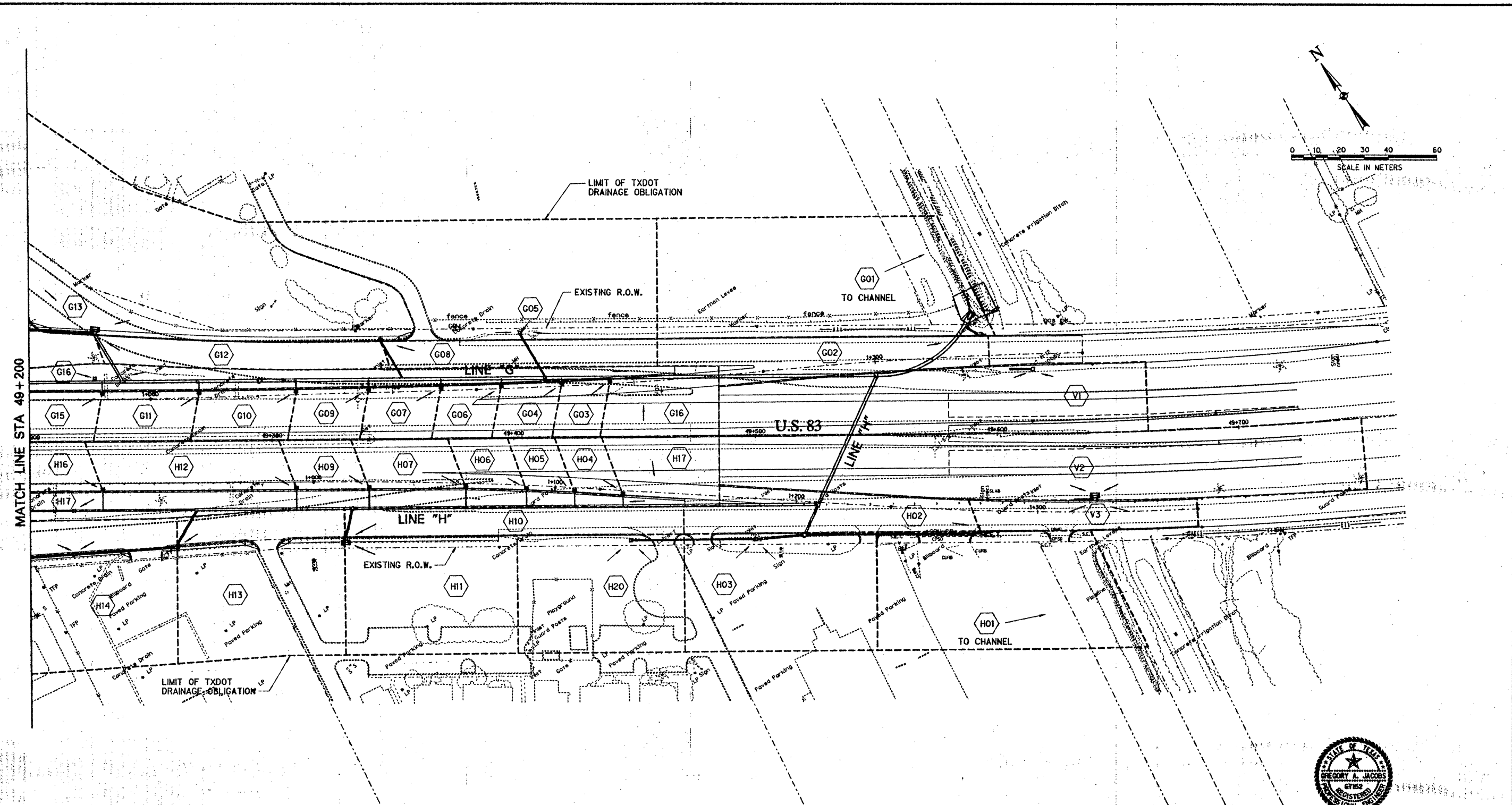
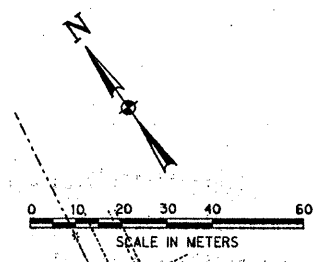
MATCH LINE STA 49+200



Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

DRAINAGE AREA MAP							
STA 48+700 TO STA 49+200							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
REGISTERED ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
	CADD			TEXAS	72367(91)	371	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT SECTION NO.	JOB NO.	HIGHWAY NO.
APRIL 1996	820AMAM	1:800	21	HIDALGO	20	17	118 U.S. 83

4
5



Gregoria Jacobs 4-15-96
 GREGORY A. JACOBS DATE

DRAINAGE AREA MAP
 STA 49+200 TO STA 49+800
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

5
 5

DESIGN	DRAWN	NOTES	FED. NO. (DIV. NO.)	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			2	TEXAS	NA 46 (791)	11
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	ROUTE HIGHWAY NO.
APRIL 1996	820ANAP1	1:8000	21	HIDALGO	0026	17 118

SUMMARY OF INLETS AND MANHOLES

I.D.	DEPTH OF STR. (M)	INLETS (COMPLETE)						FLOW (CMS)	PONDING WIDTH (M)	REQUIRED LENGTH (M)	ACTUAL LENGTH (M)	ACTUAL AREA (M ²)	INLET CAPACITY (CMS)	CARRY OVER (CMS)	TO INLET I.D.	INLET EXT. (EA)	MANHOLES (COMPLETE)			
		TY LI (EA)	SLOT DRAIN (M)	TY C (EA)	TY CC MOD I (EA)	TY CC MOD II (EA)	TY CC MOD III (EA)										TY A (EA)	TY A+1 (EA)	TY M MOD (EA)	TY M MOD I (EA)
ON-GRADE INLETS																				
B 1			24.4				0.027	2.405		24.384		0.027	0.000							
C 2		1					0.013	1.581		0.914		0.012	0.001	C 19						
B 3						1	0.040	3.526		1.520		0.036	0.003	B 1						
C 3		1					0.029	1.708		0.910		0.027	0.002	C 2						
A 4		1					0.041	2.712		0.914		0.034	0.008	A 5						
B 4						1	0.062	2.944		1.520		0.058	0.004	B 3						
C 4		1					0.035	1.834		0.914		0.031	0.003	C 3						
A 5		1					0.051	2.642		0.914		0.040	0.010	A 6						
B 5						1	0.013	1.303		1.520		0.013	0.000	B 4						
C 5		1					0.043	2.060		0.914		0.037	0.006	C 4						
A 6		1					0.065	2.656		0.914		0.051	0.015	A 7						
B 6						1	0.089	2.704		1.520		0.084	0.005	B 5						
A 7		1					0.070	2.573		0.914		0.054	0.016	A 8						
B 7						1	0.098	2.808		1.520		0.092	0.006	B 6						
A 8		1					0.071	2.474		0.914		0.056	0.015	A 9						
B 8						1	0.185	2.411		1.520		0.158	0.027	B 7						
C 8		1					0.040	2.146		0.914		0.034	0.006	C 5						
A 9		1					0.069	2.569		0.914		0.054	0.015	A 10						
B 9						1	0.056	2.272		1.520		0.048	0.007	B 8						
C 9		1					0.035	2.327		0.910		0.030	0.005	C 8						
A 10		1					0.070	2.991		0.914		0.053	0.018	A 11						
C 10		1					0.042	2.725		0.914		0.034	0.008	C 9						
C 11		1					0.044	2.775		0.914		0.035	0.008	C 12						
C 12		1					0.052	2.669		0.914		0.041	0.011	C 13						
C 13		1					0.064	2.640		0.914		0.050	0.014	C 14						
C 14		1					0.068	2.545		0.914		0.053	0.015	C 15						
C 15		1					0.068	2.443		0.914		0.054	0.014	C 16						
C 16		1					0.068	2.542		0.914		0.053	0.015	C 17						
C 17		1					0.057	2.670		0.914		0.045	0.012							
C 19		1					0.020	2.140		0.914		0.018	0.001							
Y 1				1			0.026				0.836	0.491								
X 1				1			0.103				0.836	0.491								
SAG INLETS																				
C 1							EXISTING TY C				0.410		0.836	0.491						
B 2							EXISTING TY C				0.268		0.836	0.491						
A 3							1		3.054		0.086		0.677	0.086						
C 6							EXISTING TY C				0.029		0.836	0.096						
WELLS																				
W 1	1.219		1					0.241	2.794	2.649	3.048				1					
W 2	1.219		1					0.248	2.921	2.722	3.048				1					
W 3	1.219		1					0.258	3.048	2.832	3.048				1					
W 4	1.219		1					0.233	2.604	2.558	3.048				1					
MANHOLES																				
M 1																		1		
M 2																		1		
M 3																		1		
M 4																		1		
M 5																		1		
M 6																			1	
M 7																			1	
M 8																			1	
M 9																			1	
M 10																			1	
M 11																			1	
M 12																			1	
M 13																			1	
M 14																			1	
M 30																			1	

DRAINAGE AREA SUMMARY

I.D.	TOTAL D.A. (HA.)	AREA BY % VALUE				COMBINED CA	TC (MIN)	SUPPLY Q (CMS)	INTENSITY (CM/HR)	TOTAL FLOW (CMS)
		PVMT 0.85	DEV. 0.60	GRASS 0.15						
B 1	0.052	0.052			0.044	10	0	22.18	0.027	
C 1	1.279	0.698		0.581	0.680	10.34	0	21.88	0.410	
B 2	1.112	0.389			0.439	10	0	22.18	0.268	
C 2	0.020	0.020		0.723	0.017	10	0	22.18	0.010	
A 3	0.166	0.166			0.141	10	0	22.18	0.086	
B 3	0.069	0.069			0.059	10	0	22.18	0.036	
C 3	0.049	0.049			0.042	10	0	22.18	0.025	
A 4	0.079	0.079			0.067	10	0	22.18	0.041	
B 4	0.119	0.119			0.101	10	0	22.18	0.062	
C 4	0.056	0.056			0.048	10	0	22.18	0.029	
A 5	0.083	0.083			0.071	10	0	22.18	0.043	
B 5	0.015	0.015			0.013	10	0	22.18	0.008	
C 5	0.071	0.071			0.060	10	0	22.18	0.037	
J 5	0.000				0.000	0	0.382	0.00	0.382	
A 6	0.106	0.106			0.090	10	0	22.18	0.055	
B 6	0.160	0.160			0.136	10	0	22.18	0.083	
C 6	0.221	0.220	0.201		0.047	10	0	22.18	0.029	
A 7	0.106	0.106			0.090	10	0	22.18	0.055	
B 7	0.137	0.137			0.116	10	0	22.18	0.071	
C 7	0.000				0.000	0	0.133	0.00	0.133	
A 8	0.106	0.106			0.090	10	0	22.18	0.055	
B 8	0.342	0.342			0.291	10	0	22.18	0.178	
C 8	0.066	0.066			0.056	10	0	22.18	0.034	
A 9	0.105	0.105			0.089	10	0	22.18	0.055	
B 9	0.107	0.107			0.091	10	0	22.18	0.056	
C 9	0.053	0.053			0.045	10	0	22.18	0.028	
A 10	0.106	0.106			0.090	10	0	22.18	0.055	
C 10	0.080	0.080			0.068	10	0	22.18	0.042	
C 11	0.084	0.084			0.071	10	0	22.18	0.044	
C 12	0.084	0.084			0.071	10	0	22.18	0.044	
C 13	0.103	0.103			0.088	10	0	22.18	0.053	
C 14	0.103	0.103			0.088	10	0	22.18	0.053	
C 15	0.103	0.103			0.088	10	0	22.18	0.053	
C 16	0.103	0.103			0.088	10	0	22.18	0.053	
C 17	0.082	0.082			0.070	10	0	22.18	0.043	
C 18	0.000				0.000	0	0.133	0.00	0.133	
C 19	0.037	0.037			0.031	10	0	22.18	0.019	
WELLS										
W 1	0.696	0.122	0.574		0.448	10	0	# 19.4	0.244	
W 2	0.707	0.144	0.563		0.460	10	0	# 19.4	0.248	
W 3	0.738	0.142	0.596		0.478	10	0	# 19.4	0.258	
W 4	0.668	0.124	0.544		0.432	10	0	# 19.4	0.233	

NOTES:

- INTENSITY BASED ON 10-YEAR FREQUENCY FOR HIDALGO COUNTY IN CONFORMANCE WITH TxDOT HYDRAULIC MANUAL
- INLET CAPACITY COMPUTATIONS MADE BY USE OF TxDOT WINSTORM HYDRAULIC MODEL

3. RUNOFF BASED ON THE RATIONAL METHOD USING THE FOLLOWING METRIC FORMULA:

$$(Q) m^3/s = (C)I (A) ha \left(\frac{10,000}{ha} m^2 \times \frac{0.01 m}{cm} \times \frac{hr}{3600s} \right)$$

$$(Q) = CIA (0.0278)$$

4. INTENSITY BASED ON 5-YEAR FREQUENCY FOR HIDAL

SUMMARY OF INLETS AND MANHOLES

I.D.	DEPTH OF STR. (M)	INLETS (COMPLETE)						FLOW (CMS)	PONDING WIDTH (M)	REQUIRED LENGTH (M)	ACTUAL LENGTH (M)	ACTUAL AREA (M ²)	INLET CAPACITY	CARRY OVER (CMS)	TO INLET I.D.	INLET EXT. (EA)	MANHOLES (COMPLETE)			
		TY L1 (EA)	TY A (EA)	TYPE A MOD (EA)	TY C (EA)	TY CC MOD I (EA)	TY CC MOD II (EA)										TY A (EA)	TY A+1 (EA)	TY M MOD (EA)	TY M MOD I (EA)
ON-GRADE INLETS																				
G 2			1				0.109	4.406	3.37	3.048		0.109	0.000							
H 2			1				0.101	4.205	3.241	3.048		0.101	0.000							
G 3		1					0.032	2.313		0.914		0.027	0.006	G 16						
G 4		1					0.037	2.254		0.914		0.030	0.007	G 3						
H 4		1					0.030	2.260		0.914		0.025	0.005	H 17						
H 5		1					0.031	2.107		0.914		0.026	0.005	H 4						
G 6		1					0.041	2.213		0.914		0.033	0.008	G 4						
H 6		1					0.042	2.224		0.914		0.034	0.008	H 5						
G 7		1					0.043	2.107		0.914		0.035	0.008	G 6						
H 7		1					0.061	2.413		0.914		0.047	0.015	H 6						
G 8				1			0.067	3.718	2.391	1.524		0.050	0.017	G 12						
G 9		1					0.047	2.135		0.914		0.038	0.009	G 7						
H 9		1					0.068	2.473		0.914		0.051	0.017	H 7						
G 10		1					0.060	2.369		0.914		0.046	0.014	G 9						
H 10			1				0.084	3.993	2.818	1.524		0.056	0.028	H 13						
G 11		1					0.063	2.514		0.914		0.047	0.016	G 10						
G 12				1			0.084	4.045	2.792	1.524		0.057	0.028	G 14						
H 12		1					0.106	2.934		0.914		0.071	0.034	H 9						
H 13			1				0.189	5.407	4.847	4.572		0.184	0.005	H 14	2					
G 15		1					0.069	2.734		0.914		0.050	0.019	G 11						
H 15			1				0.075	3.484	2.834	1.524		0.049	0.026	H 14						
H 16		1					0.066	2.687		0.914		0.048	0.018	H 12						
G 17		1					0.051	2.672		0.914		0.039	0.012	G 15						
G 18		1					0.042	2.822		0.914		0.033	0.009	G 17						
H 18		1					0.043	2.503		0.914		0.034	0.009	H 16						
H 19		1					0.059	3.201		0.914		0.043	0.016	H 18						
SAG INLETS																				
J 1			1				0.063	2.233		1.524		0.099								
J 2			1				0.032	1.722		1.524		0.061								
H 3					1		0.016				0.028	0.019								
J 3			1				0.069	2.306		1.524		0.099								
G 5					1		0.201				0.836	0.502								
H 11		OPEN BACK OF INLET H 10						0.124				0.221								
G 13		OPEN BACK OF INLET G 12						0.313				0.359								
G 14				1			0.229	4.541		3.048		0.252		1						
H 14			1				0.211	4.348		3.048		0.214		1						
G 16					1		0.077				0.836	0.180								
H 17					1		0.079				0.097	0.079								
G 19			1				0.055	2.116		1.524		0.061								
G 20					1		0.113				0.138	0.113								
H 20					1		0.119				0.836	0.180								
G 21			1				0.202	8.223		1.524		0.250								
G 22		OPEN BACK OF INLET G 14						0.033				0.221								
V 1					1		0.261				0.491									
V 2				1			0.050			1.524		0.100								
V 3		OPEN BACK OF INLET V 2						0.173				0.221								
MANHOLES																				
M 23																				
M 24																				
M 25																				
M 26																				
M 27																				
M 28																				
M 29																				

DRAINAGE AREA SUMMARY

I.D.	TOTAL D.A. (HA.)	AREA BY 'C' VALUE			COMBINED CA	TC (MIN)	SUPPLY Q (CMS)	INTENSITY (CM/HR)	TOTAL FLOW (CMS)
		PVMT 0.85	DEV. 0.60	GRASS 0.15					
J 1	0.121	0.121			0.103	10	0	22.18	0.063
G 2	0.210	0.210			0.179	10	0	22.18	0.109
H 2	0.194	0.194			0.165	10	0	22.18	0.101
J 2	0.061	0.061			0.052	10	0	22.18	0.032
G 3	0.049	0.049			0.042	10	0	22.18	0.025
H 3	0.072		0.036	0.036	0.027	10	0	22.18	0.016
J 3	0.154	0.081	0.073		0.113	10	0	22.18	0.069
G 4	0.057	0.057			0.048	10	0	22.18	0.029
H 4	0.049	0.049			0.042	10	0	22.18	0.025
G 5	0.623		0.583	0.040	0.356	12	0	20.53	0.201
H 5	0.045	0.045			0.038	10	0	22.18	0.023
G 6	0.065	0.065			0.055	10	0	22.18	0.034
H 6	0.053	0.053			0.045	10	0	22.18	0.027
G 7	0.065	0.065			0.055	10	0	22.18	0.034
H 7	0.085	0.085			0.072	10	0	22.18	0.044
G 8	0.129	0.129			0.110	10	0	22.18	0.067
G 9	0.065	0.065			0.055	10	0	22.18	0.034
H 9	0.065	0.065			0.055	10	0	22.18	0.034
G 10	0.085	0.085			0.072	10	0	22.18	0.044
H 10	0.162	0.162			0.138	10	0	22.18	0.084
G 11	0.085	0.085			0.072	10	0	22.18	0.044
H 11	0.356		0.332	0.024	0.203	10	0	22.18	0.124
G 12	0.129	0.129			0.110	10	0	22.18	0.067
H 12	0.170	0.170			0.145	10	0	22.18	0.088
G 13	0.106		0.890	0.125	0.553	12	0	20.53	0.313
H 13	0.421	0.085	0.312	0.024	0.263	10	0	22.18	0.161
G 14	0.388	0.388			0.330	10	0	22.18	0.202
H 14	0.473	0.085	0.364	0.024	0.294	10	0	22.18	0.18
G 15	0.109				0.000	10	0	22.18	0.057
H 15	0.178	0.065	0.113		0.123	10	0	22.18	0.075
G 16	0.393	0.121		0.271	0.144	16	0	17.95	0.071
H 16	0.109	0.109			0.093	10	0	22.18	0.057
G 17	0.081	0.081			0.069	10	0	22.18	0.042
H 17	0.437	0.121		0.316	0.150	16	0	17.95	0.074
G 18	0.081	0.081			0.069	10	0	22.18	0.042
H 18	0.053	0.053			0.045	10	0	22.18	0.027
G 19	0.105	0.105			0.089	10	0	22.18	0.055
H 19	0.113	0.113			0.096	10	0	22.18	0.059
G 20	0.672		0.186	0.125	0.185	10	0	22.18	0.113
H 20	0.348		0.316	0.032	0.194	10	0	22.18	0.119
G 21	0.409	0.344	0.065		0.331	10	0	22.18	0.202
G 22	0.360			0.360	0.054	10	0	22.18	0.033
V 1	0.730	0.453		0.227	0.427	10	0	22.18	0.261
V 2	0.097	0.097			0.083	10	0	22.18	0.050
V 3	0.460	0.303		0.157		10	0	22.18	0.173

NOTES:

1. INTENSITY BASED ON 10-YEAR FREQUENCY FOR HIDALGO COUNTY IN CONFORMANCE WITH TXDOT HYDRAULIC MANUAL
2. INLET CAPACITY COMPUTATIONS MADE BY USE OF TXDOT WINSTORM HYDRAULIC MODEL
3. RUNOFF BASED ON THE RATIONAL METHOD USING THE FOLLOWING METRIC FORMULA:

$$(Q) m^3/s = (C)(I) cm/hour (A) ha \left(\frac{10,000 m^2 \times 0.01 m \times hr}{ha \quad cm \quad 3600s} \right)$$

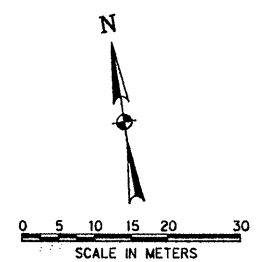
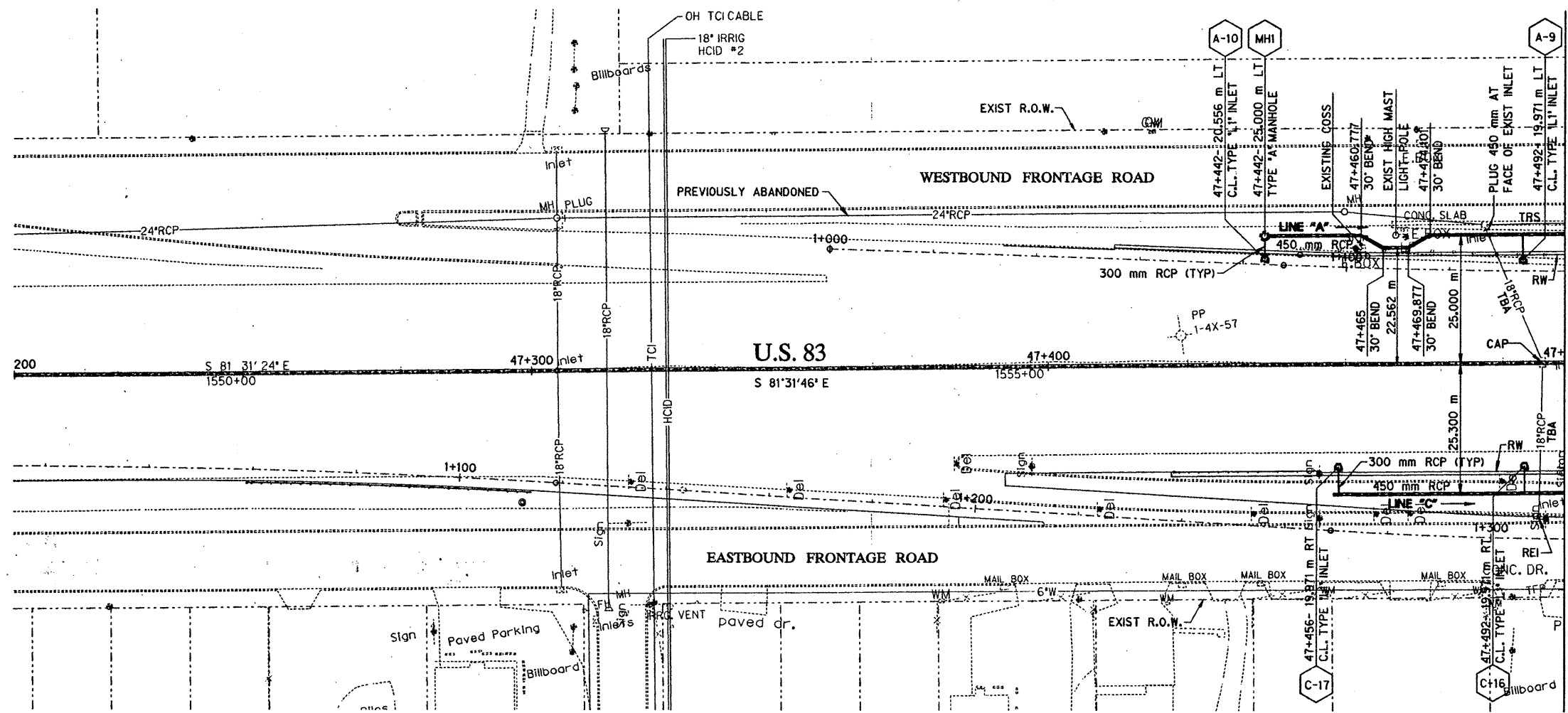
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Gregory A. Jacobs 4-15-96
DATE

HYDRAULIC DATA - SYSTEM GHJ									
US 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
			8	TEXAS	44(96)(781)	5			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.		
APRIL 1996	820078M	NONE	21	HIDALGO	17	17	17	U.S. 83	

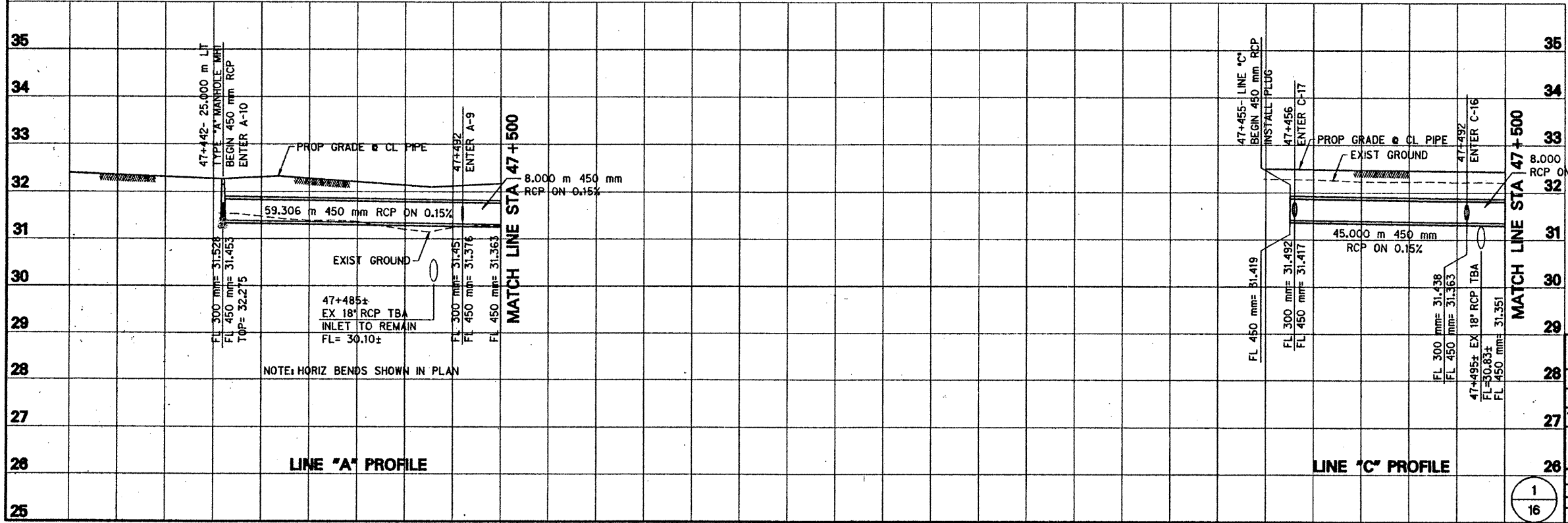
5
6



- NOTES:**
- SEE NOTE ON SHEET 1 OF EXISTING UTILITIES LAYOUT.
 - ALL EXISTING STORM SEWER SYSTEMS SHALL REMAIN IN SERVICE OR HAVE SOME MEANS OF CONVEYANCE TO THE OUTFALL UNTIL THE PROPOSED SYSTEM IS CONSTRUCTED AND FULLY OPERATIONAL.
 - ALL RCP BENDS AND PROPOSED RCP TO PROPOSED RCP TEES AND WYES SHALL BE PRECAST AND SUSIDIARY TO ITEM 464.
 - ALL RCP SHALL BE CLASS III UNLESS NOTED OTHERWISE IN PROFILE.

- LEGEND**
- CONDUITS:**
- RSS - REMOVE STORM SEWER
 - TRS - TO REMAIN IN SERVICE
 - TBA - TO BE ABANDONED
- INLETS/MANHOLES:**
- CAP - CAP EXISTING INLET
 - REI - REMOVE EXISTING INLET
 - RTG - RAISE TO PROPOSED GRADE
 - RW - RETAINING WALL

PLAN - STORM DRAINAGE SYSTEM



8.000 m 450 mm RCP ON 0.15%

45.000 m 450 mm RCP ON 0.15%

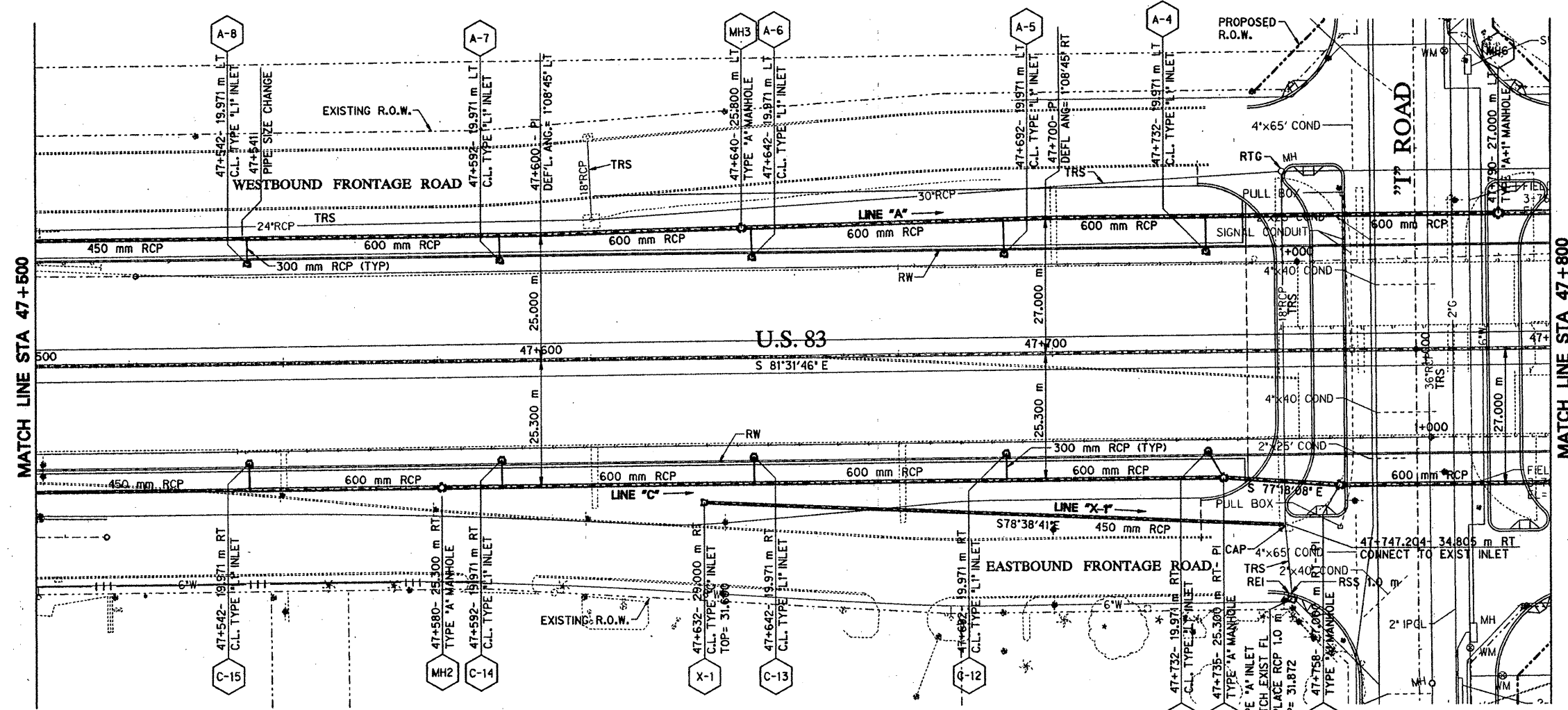
Professional Engineer Seal: GREGORY A. JACOBS, 67152, REGISTERED PROFESSIONAL ENGINEER, STATE OF TEXAS.

GREGORY A. JACOBS 4-15-96 DATE

DRAINAGE PLAN-PROFILE
 STA 47+200 TO 47+500
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
1	CAH		21	TEXAS	ATP 96 (19)	22
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1996	8200001	1:80	21	HIDALGO	20	17
						U.S. 83



PLAN - STORM DRAINAGE SYSTEM

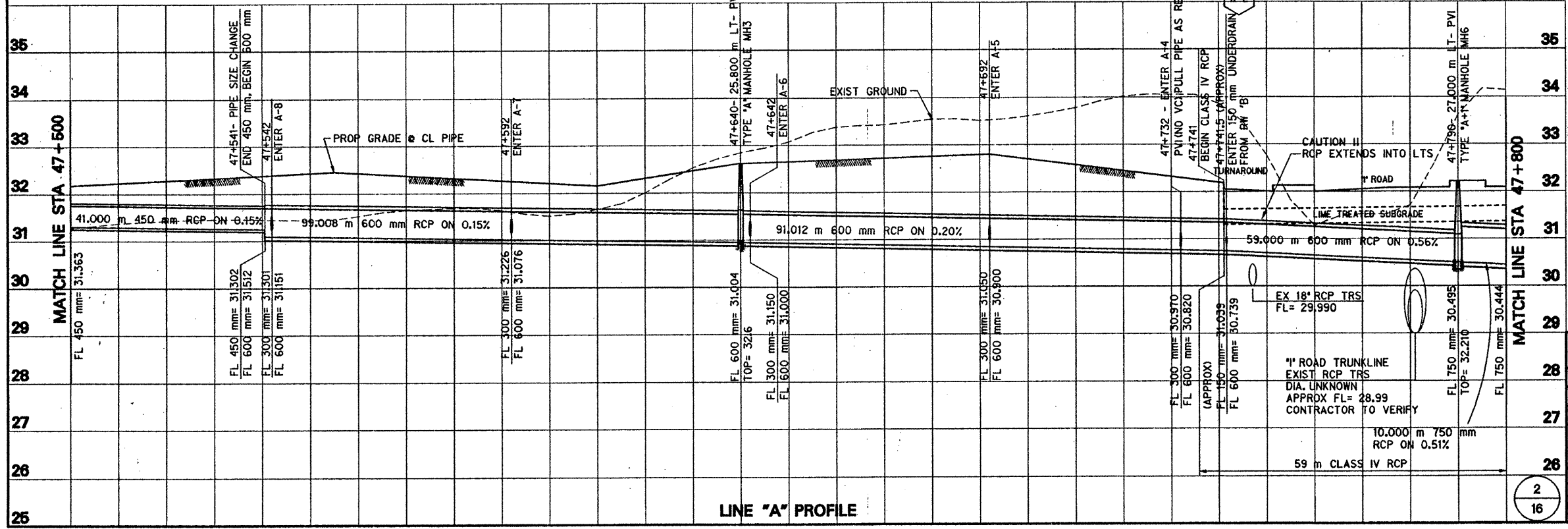
LEGEND

- CONDUITS:
 RSS - REMOVE STORM SEWER
 TRS - TO REMAIN IN SERVICE
 TBA - TO BE ABANDONED
- INLETS/MANHOLES:
 CAP - CAP EXISTING INLET
 REI - REMOVE EXISTING INLET
 RTG - RAISE TO PROPOSED GRADE
 RW - RETAINING WALL

NOTE:
 CONTRACTOR IS TO CONFIRM THAT CONFLICTS WITH EXISTING UTILITIES HAVE BEEN RESOLVED IN ADVANCE OF CONSTRUCTION. DAMAGE CAUSED BY OR TO EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.



Gregory A. Jacobs 4-15-16
 GREGORY A. JACOBS DATE

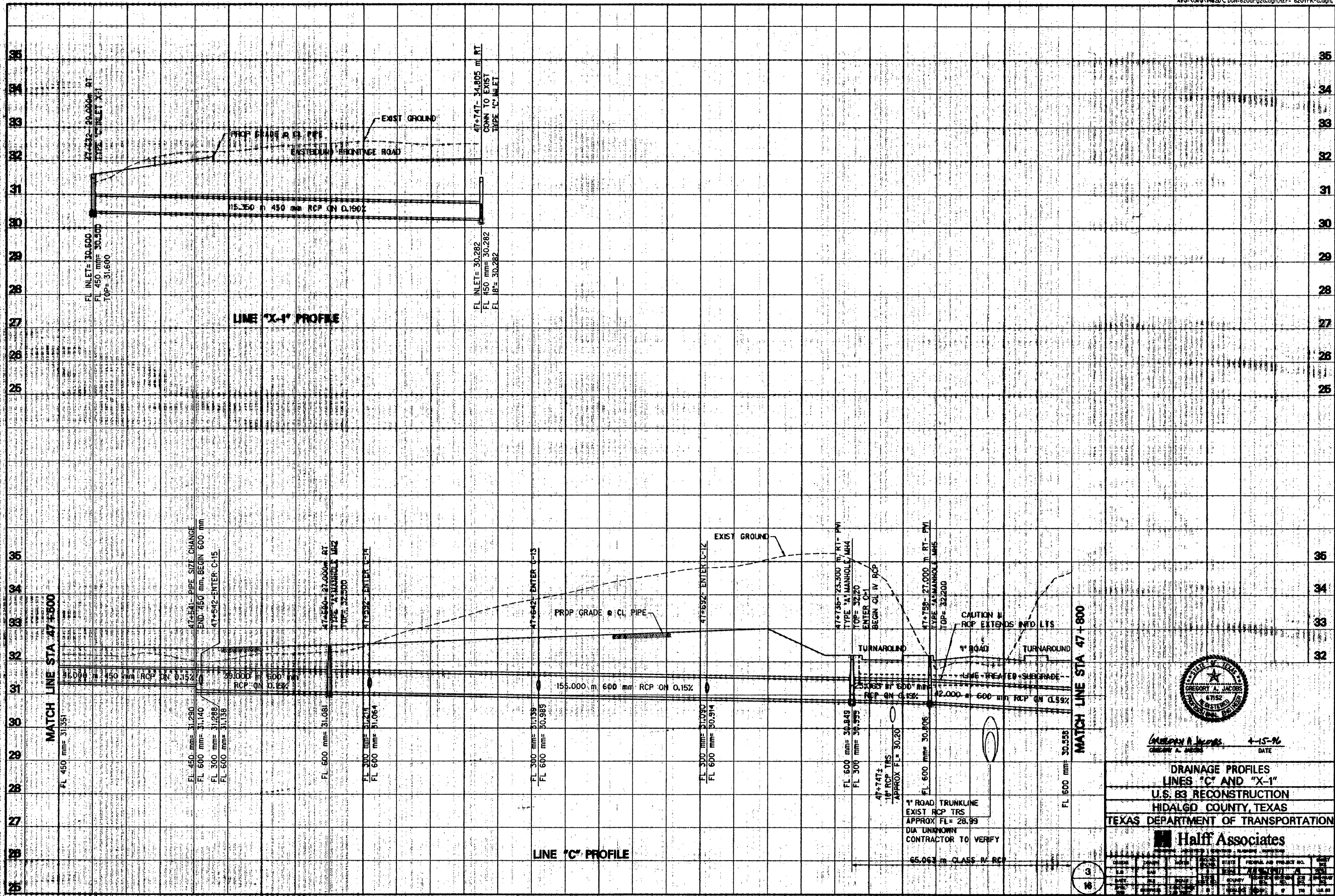


LINE "A" PROFILE

DRAINAGE PLAN-PROFILE
 STA 47+500 TO STA 47+800
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - ROENTGENISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
FILE	CAN		NO.	TEXAS	7196(791)	14
DATE	FILE	SCALE	DATE	COUNTY	SECTION NO.	JOB NO.
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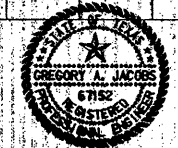


LINE "X-1" PROFILE

LINE "C" PROFILE

MATCH LINE STA 47+500

MATCH LINE STA 47+800

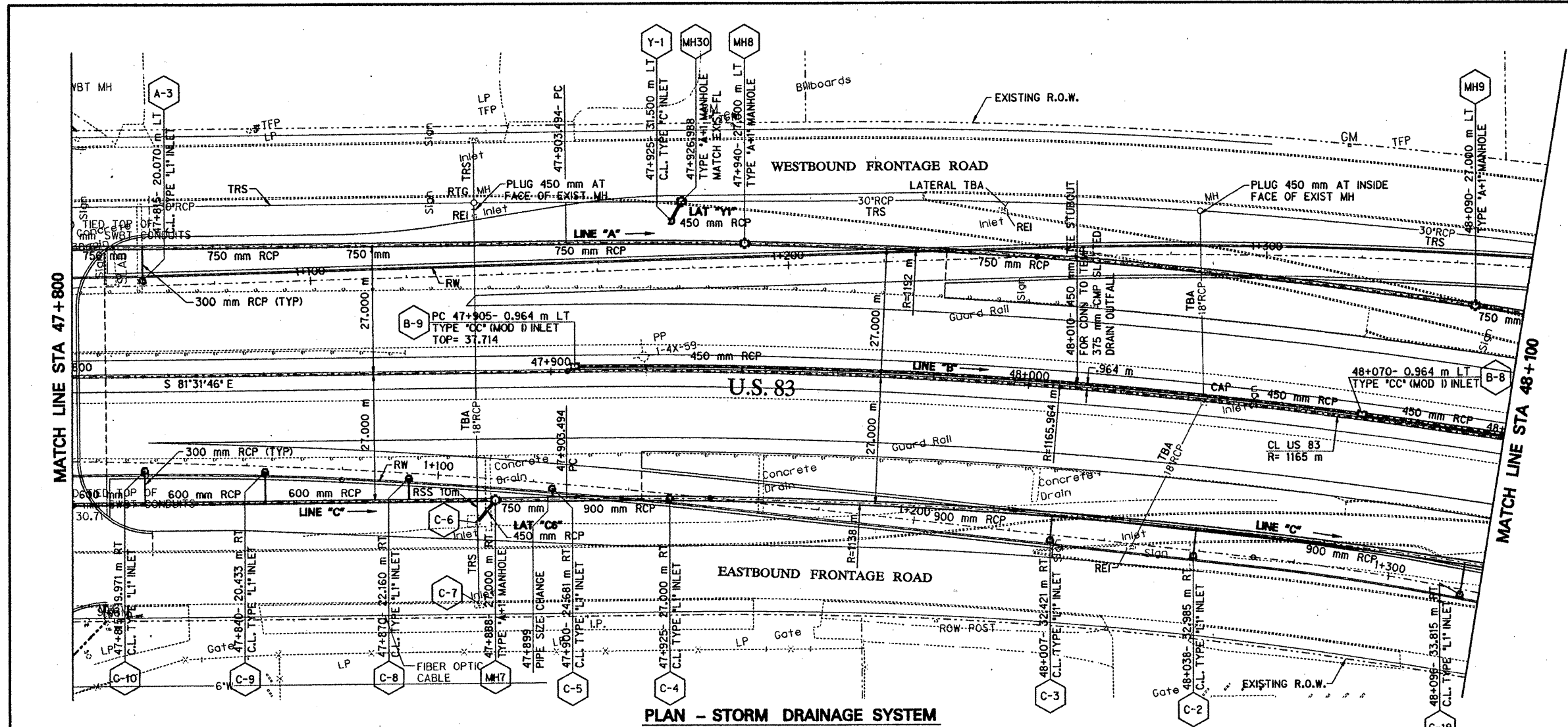
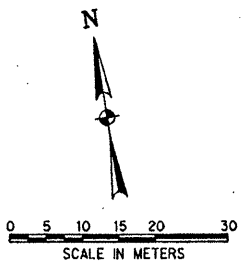


Gregory A. Jacobs 4-15-96
DATE

DRAINAGE PROFILES
 LINES "C" AND "X-1"
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates

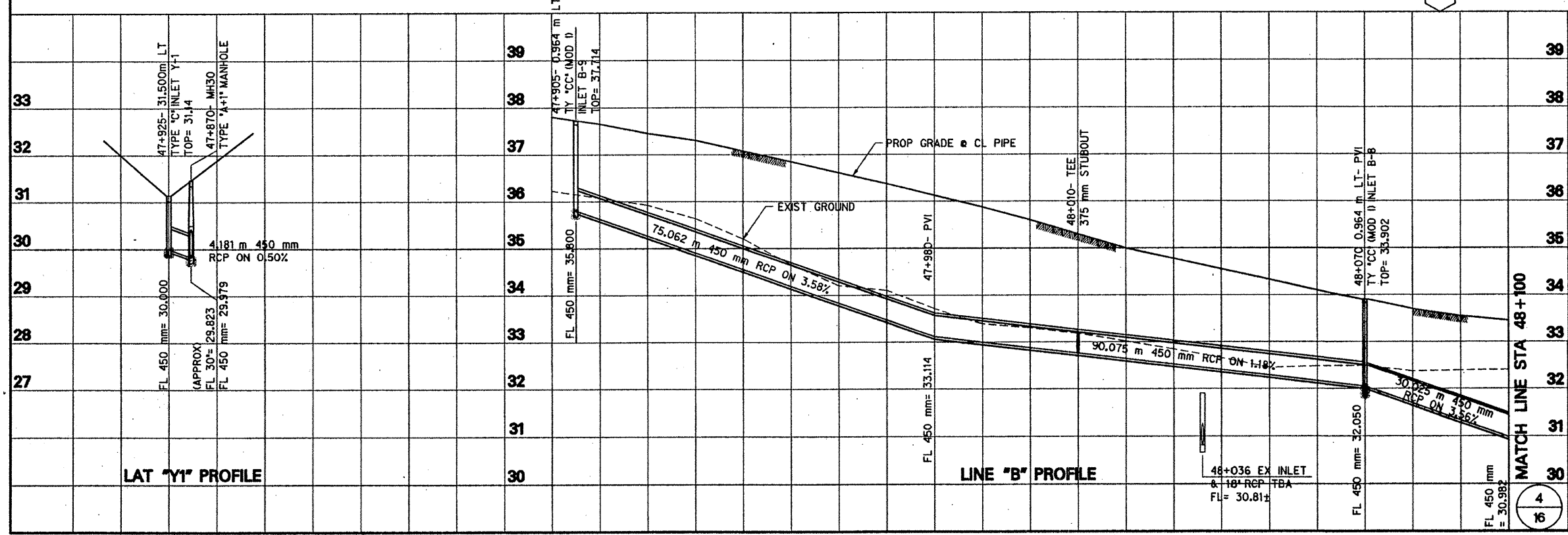
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BY		
CHECKED		
APPROVED		
STATE	TEXAS	
FEDERAL AID PROJECT NO.		
COUNTY	HIDALGO	
DISTRICT		
SECTION		
DATE		
SCALE		
PROJECT NO.		
DATE		



PLAN - STORM DRAINAGE SYSTEM

LEGEND

- CONDUITS:
 RSS - REMOVE STORM SEWER
 TRS - TO REMAIN IN SERVICE
 TBA - TO BE ABANDONED
- INLETS/MANHOLE:
 CAP - CAP EXISTING INLET
 REI - REMOVE EXISTING INLET
 RTG - RAISE TO PROPOSED GRADE
 RW - RETAINING WALL

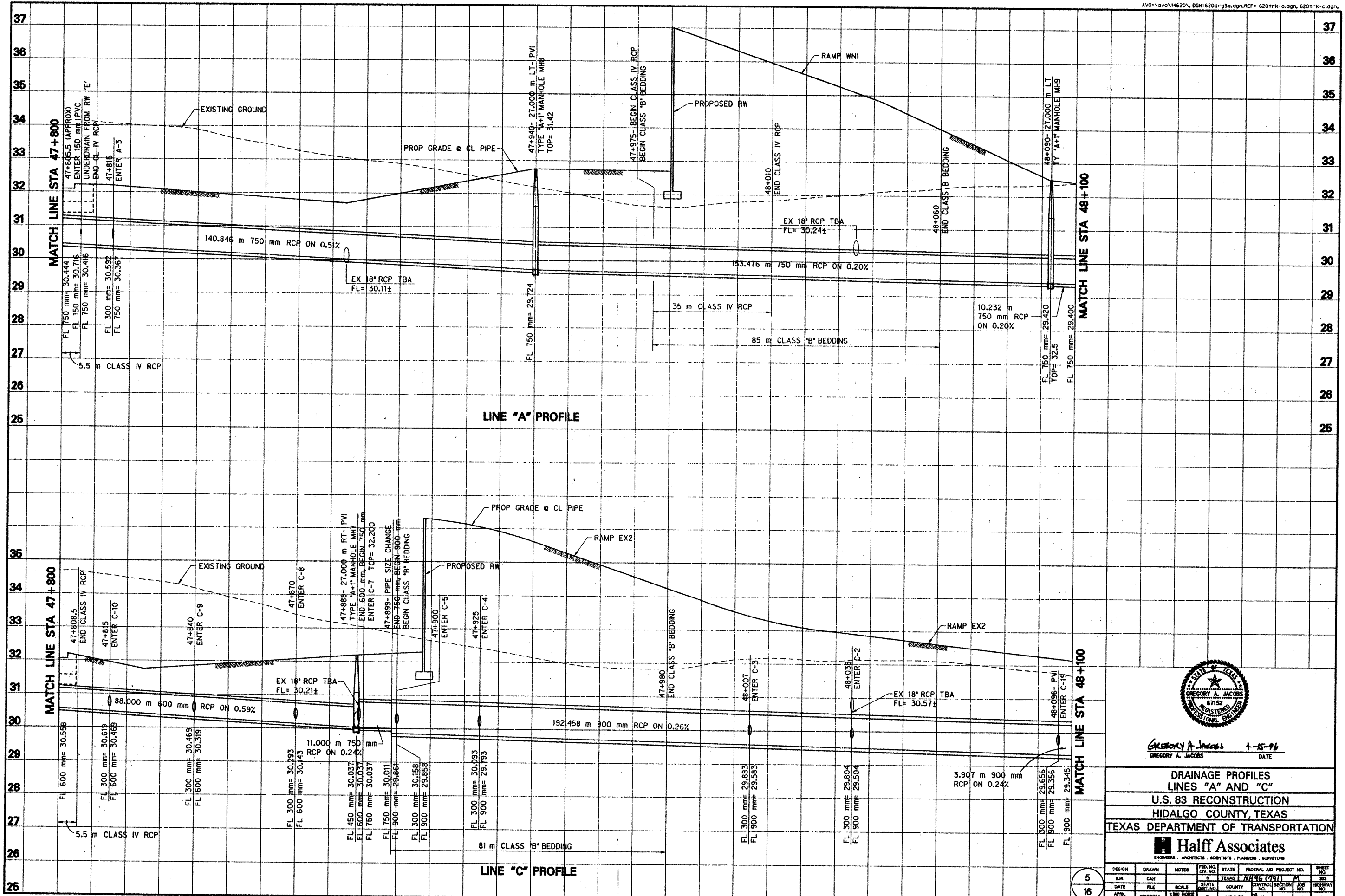


Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

DRAINAGE PLAN-PROFILE
 STA 47+800 TO STA 48+100
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
APRIL 1996	CAH	SCALE	1	TEXAS	4796(04)	4



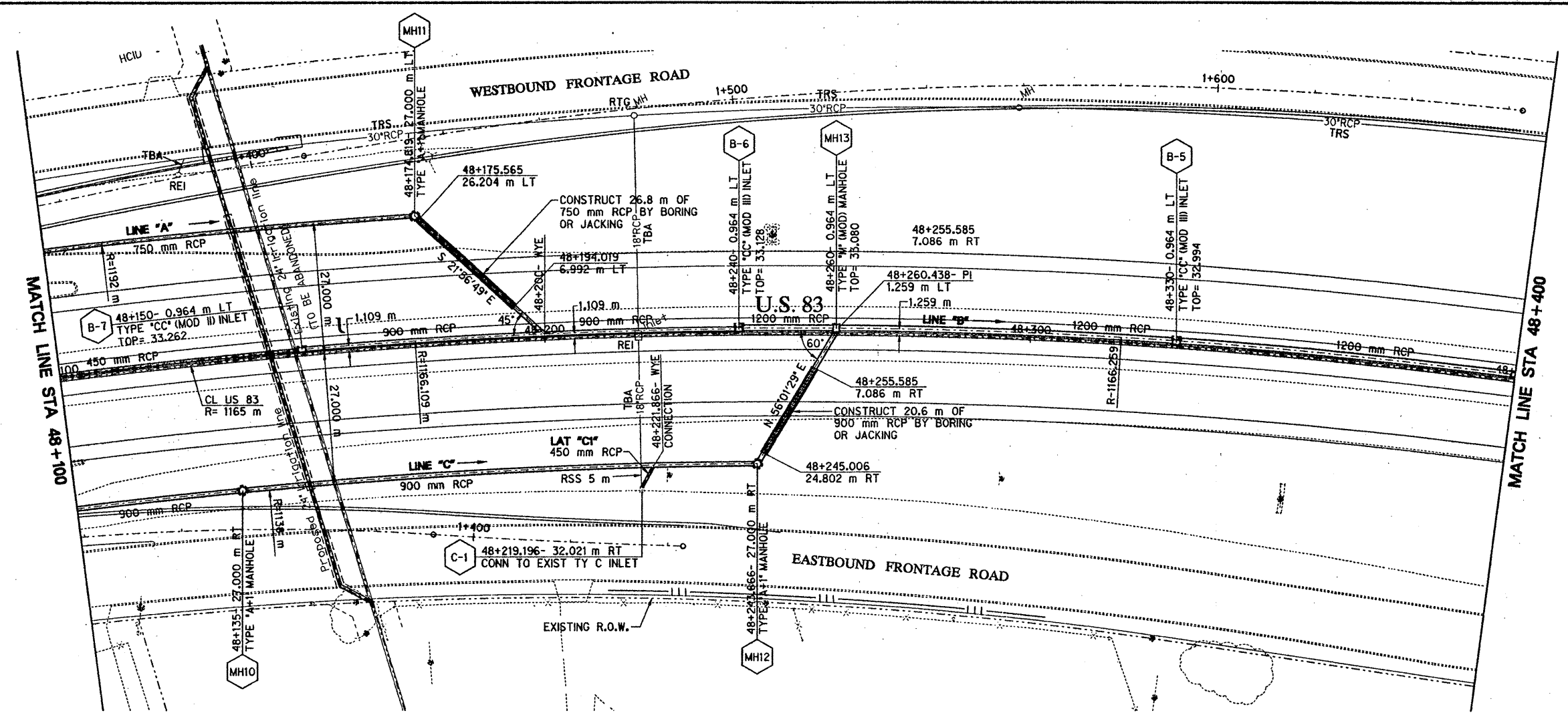
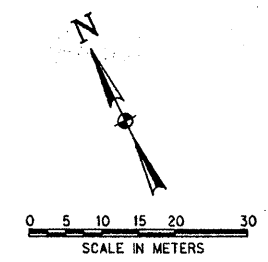
GREGORY A. JACOBS 4-15-96
GREGORY A. JACOBS DATE

DRAINAGE PROFILES
LINE "A" AND "C"
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
ELR	CAH		0	TEXAS	7H 96 (791)	883
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.
APRIL 1996	620D028A	1:800 HORIZ 1"=80'	21	HIDALGO	30	17

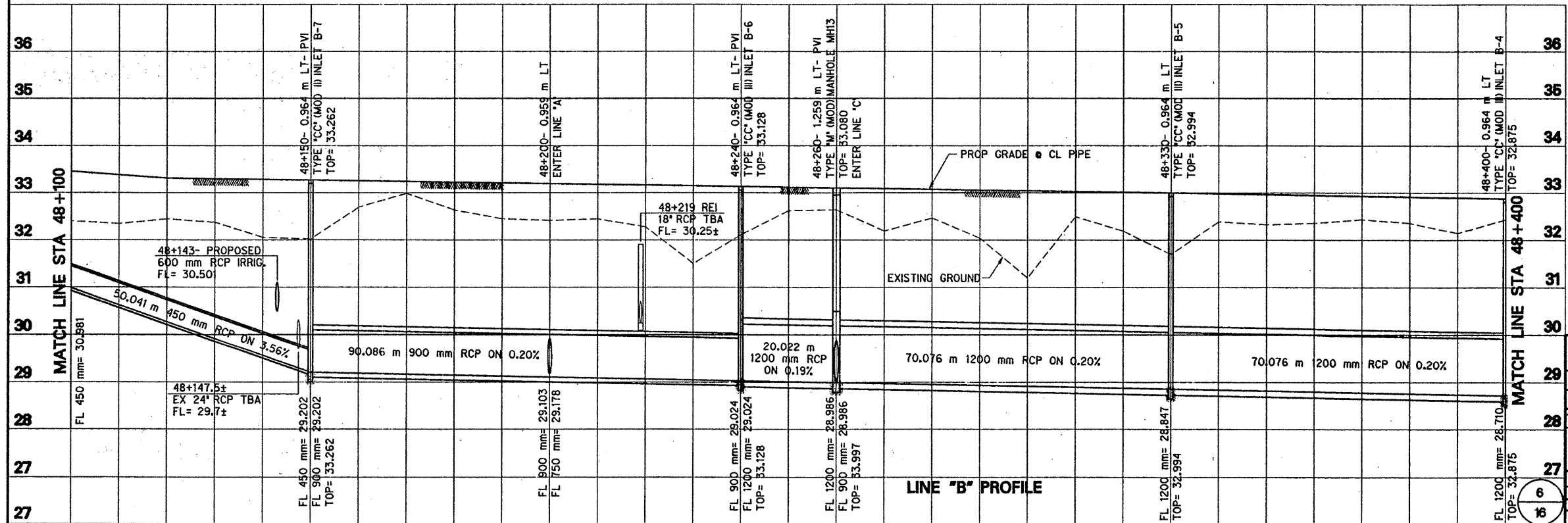
5
16



PLAN - STORM DRAINAGE SYSTEM

LEGEND

- CONDUITS:
 RSS - REMOVE STORM SEWER
 TRS - TO REMAIN IN SERVICE
 TBA - TO BE ABANDONED
- INLETS/MANHOLE:
 CAP - CAP EXISTING INLET
 REI - REMOVE EXISTING INLET
 RTG - RAISE TO PROPOSED GRADE
 RW - RETAINING WALL



LINE "B" PROFILE

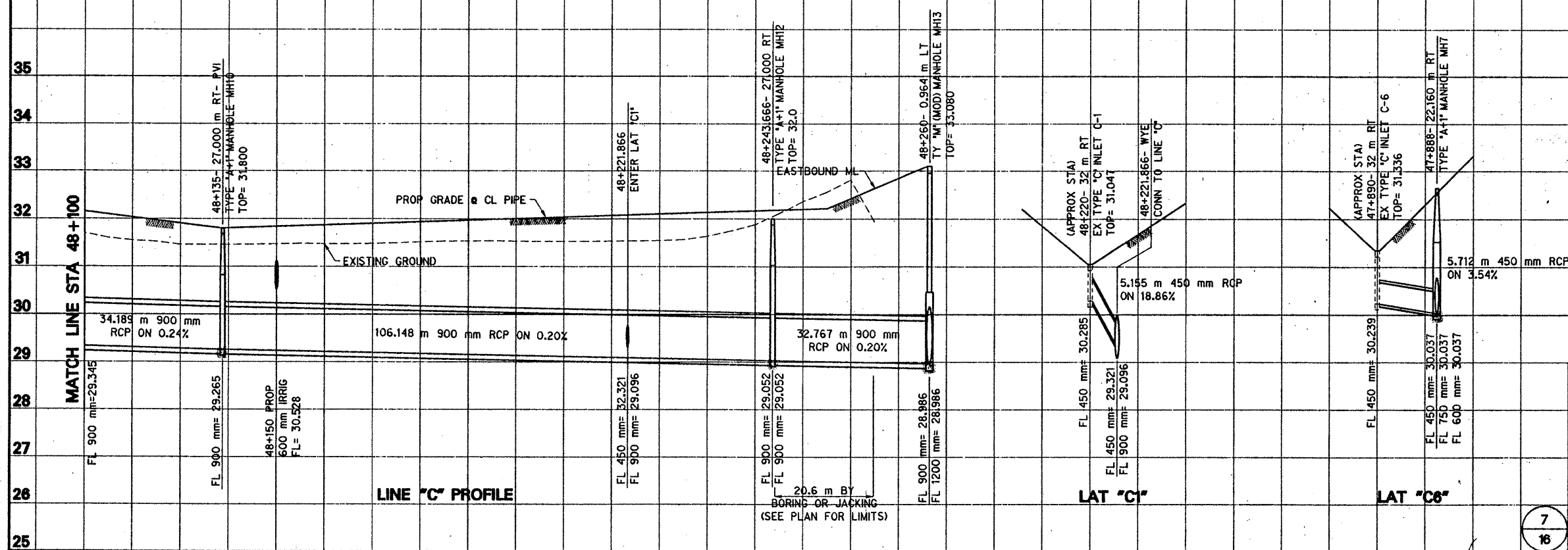
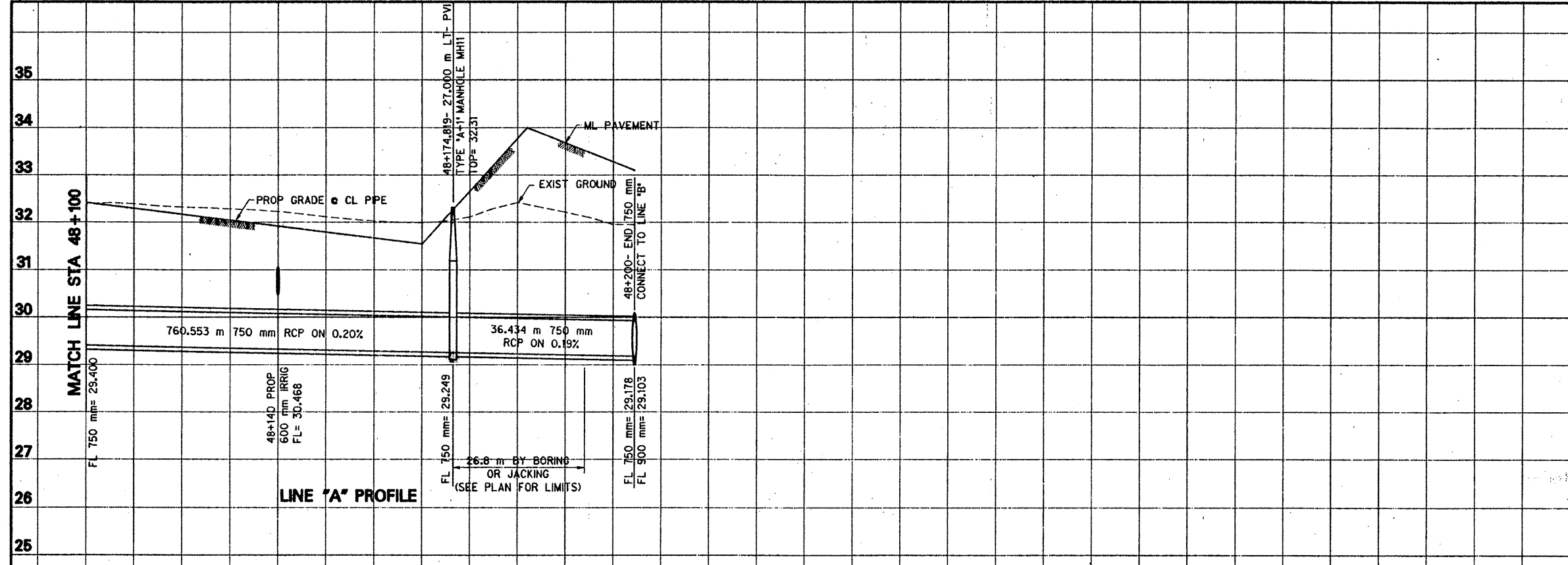



Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

DRAINAGE PLAN-PROFILE
 STA 48+100 TO STA 48+400
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	CAH			TEXAS	AH 176 (741)	55-4
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CENTRAL SECTION	ROADWAY
APRIL 1996	6300004	1:500 HORIZ 1:50 VERT	21	HIDALGO	0020	17

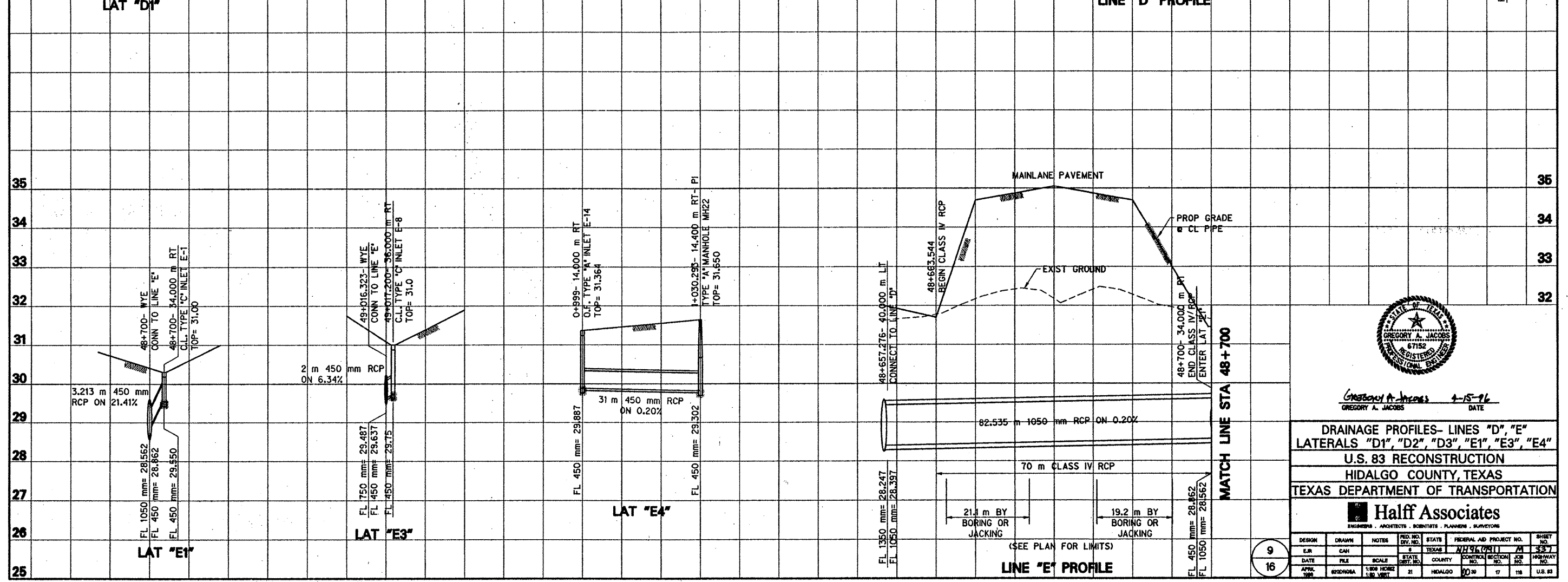
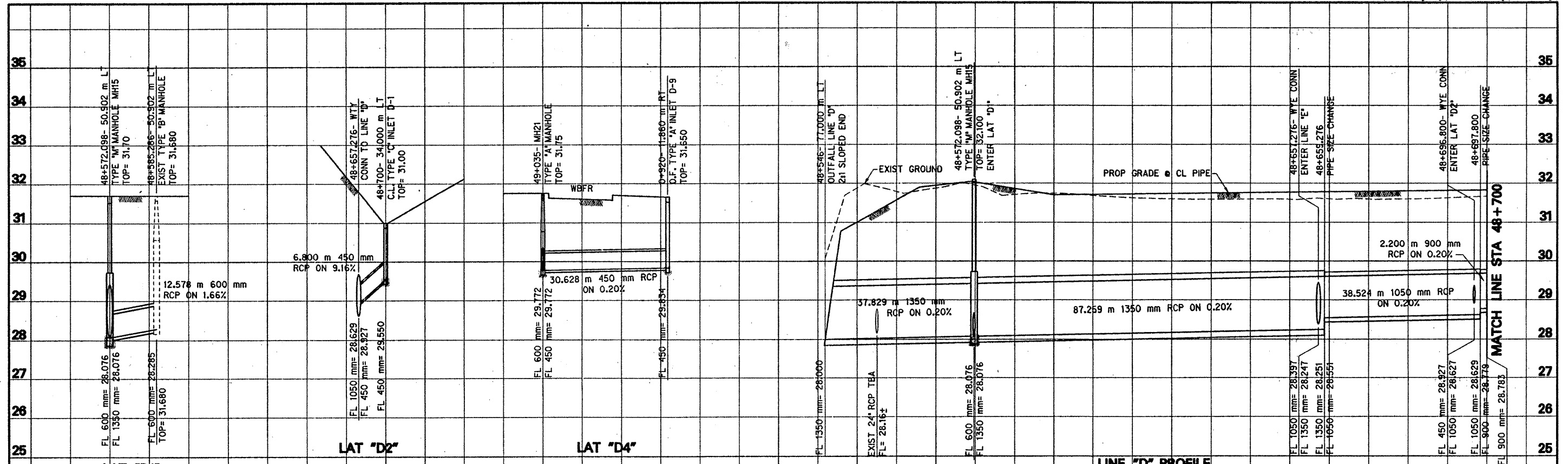



GREGORY A. JACOBS 4-15-96
GREGORY A. JACOBS DATE

DRAINAGE PROFILES
LINE "A", "C" LATERALS "C1", "C6"
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION


Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
BLR	CAH		8	TEXAS	7136(791)	28
DATE	FILE	SCALE	SHEET NO.	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	620DROA4	AS SHOWN	21	HIDALGO	00	17

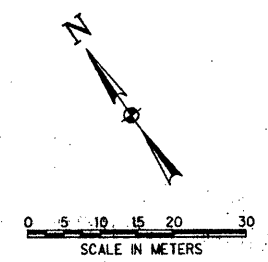
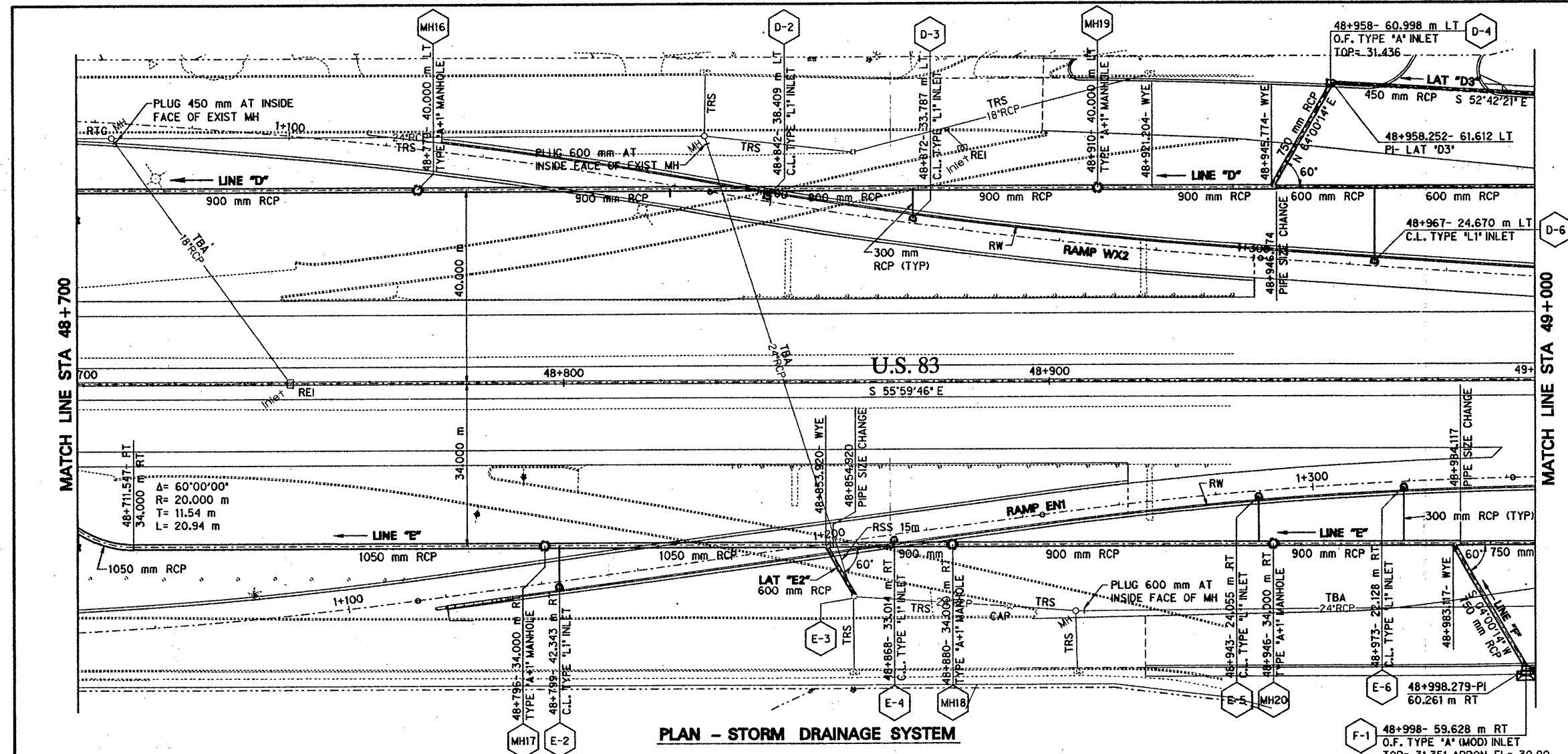


Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

DRAINAGE PROFILES- LINES "D", "E"
 LATERALS "D1", "D2", "D3", "E1", "E3", "E4"
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

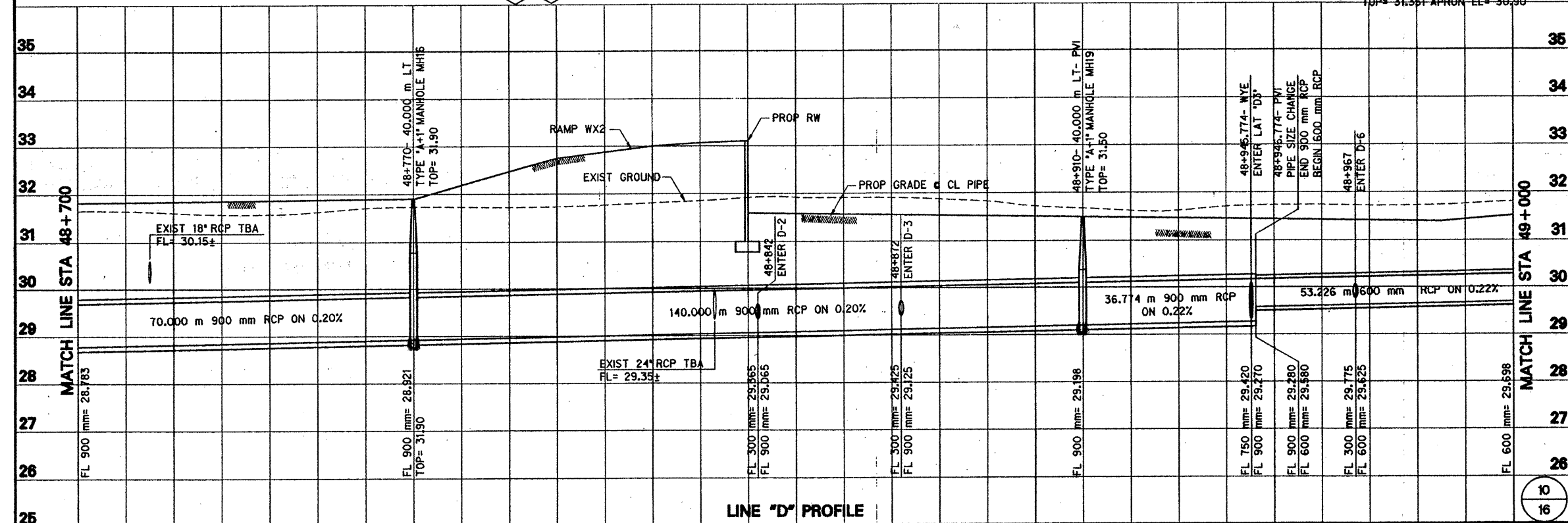
Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
EJR	CAH			TEXAS	NH36031	33
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	620DRO8A	1:800 HORIZ 1:800 VERT	21	HIDALGO	0030	17



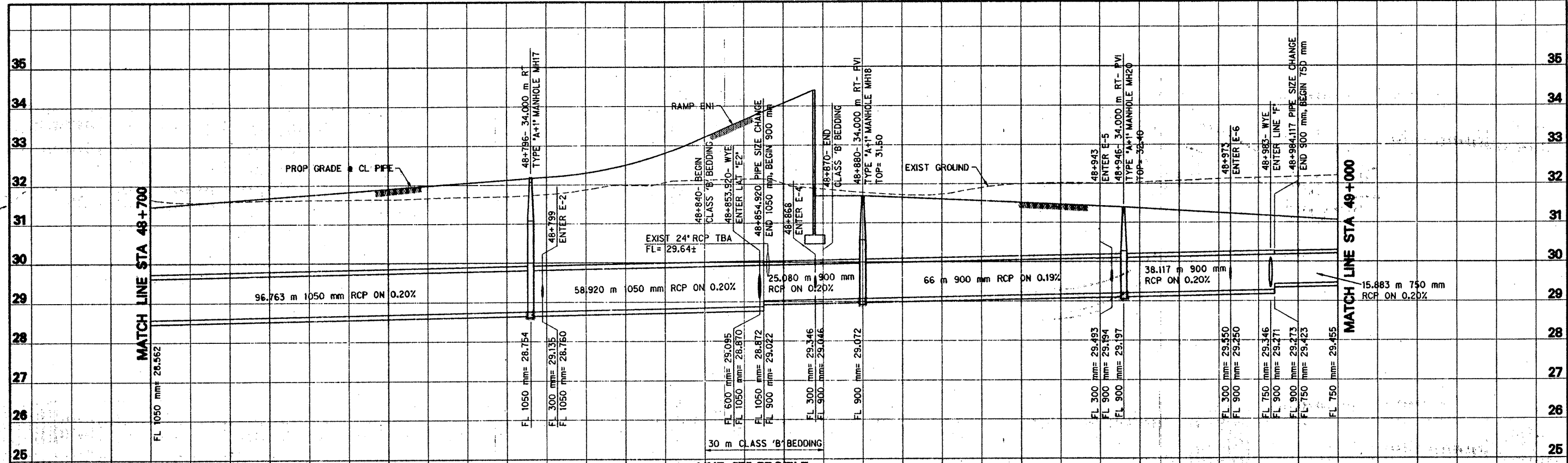
LEGEND

- CONDUITS:**
 RSS - REMOVE STORM SEWER
 TRS - TO REMAIN IN SERVICE
 TBA - TO BE ABANDONED
- INLETS/MANHOLES:**
 CAP - CAP EXISTING INLET
 REI - REMOVE EXISTING INLET
 RTG - RAISE TO PROPOSED GRADE
 RW - RETAINING WALL

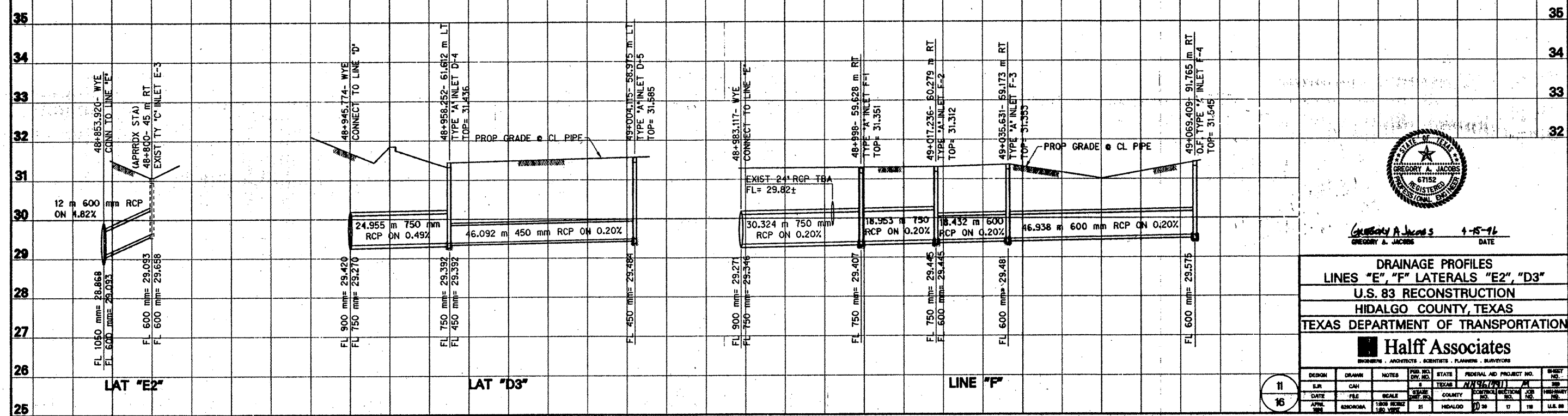


Gregory A. Jacobs 4-15-16
 GREGORY A. JACOBS DATE

DRAINAGE PLAN-PROFILE										
STA 48+700 TO STA 49+000										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
SURVEYORS · ARCHITECTS · SCIENTISTS · PLANNERS · SURVEYORS										
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET				
E.A.	CAH			TEXAS	ALH360(1)	10				
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CENTRAL DIVISION	JOB NO.	CONTRACT NO.	NO.	NO.	HIGHWAY NO.
4/15/16	620drg06	1:100	28	HIDALGO	20	17	18	19	20	U.S. 83



LINE 'E' PROFILE



LINE 'F'



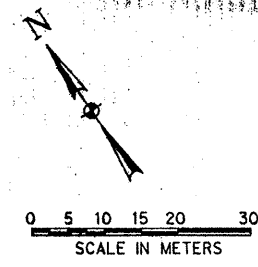
Gregory A. Jacobs
GREGORY & JACOBS
DATE 4-15-96

DRAINAGE PROFILES
LINES "E", "F" LATERALS "E2", "D3"
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. RD. DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
APRIL 1996	CAH	SCALE 1"=20'	2	TEXAS	7196/7191	11
DATE	FILE	SCALE	SHEET NO.	COUNTY	FEDERAL DISTRICT NO.	SECTION NO.
APRIL 1996	820000A	1"=20'	21	HIDALGO	0	17

11
16



LEGEND

- CONDUITS:**
 RSS - REMOVE STORM SEWER
 TRS - TO REMAIN IN SERVICE
 TBA - TO BE ABANDONED
- INLETS/MANHOLES:**
 CAP - CAP EXISTING INLET
 REI - REMOVE EXISTING INLET
 RTG - RAISE TO PROPOSED GRADE
 RW - RETAINING WALL
 SWALES
- GTD - GRADE TO DRAIN**
 (MIN. 0.3% SLOPE)

NOTE:

CONTRACTOR IS TO CONFIRM THAT CONFLICTS WITH EXISTING UTILITIES HAVE BEEN RESOLVED IN ADVANCE OF CONSTRUCTION. DAMAGES CAUSED BY OR TO EXISTING UTILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.



Gregory A. Jacobs 5-13-96
 GREGORY A. JACOBS DATE

DRAINAGE PLAN
 STA 49+000 TO STA 48+300
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

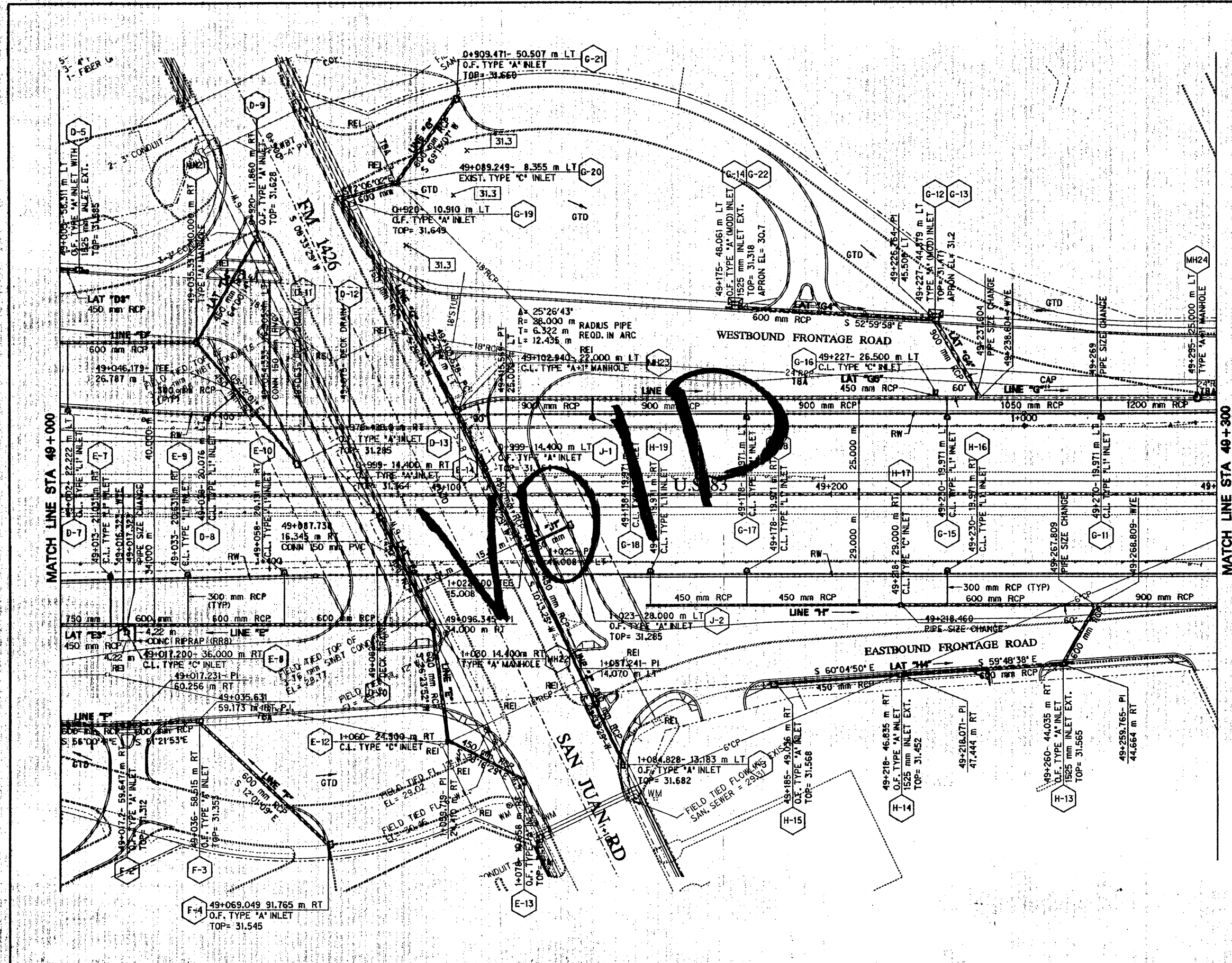
Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

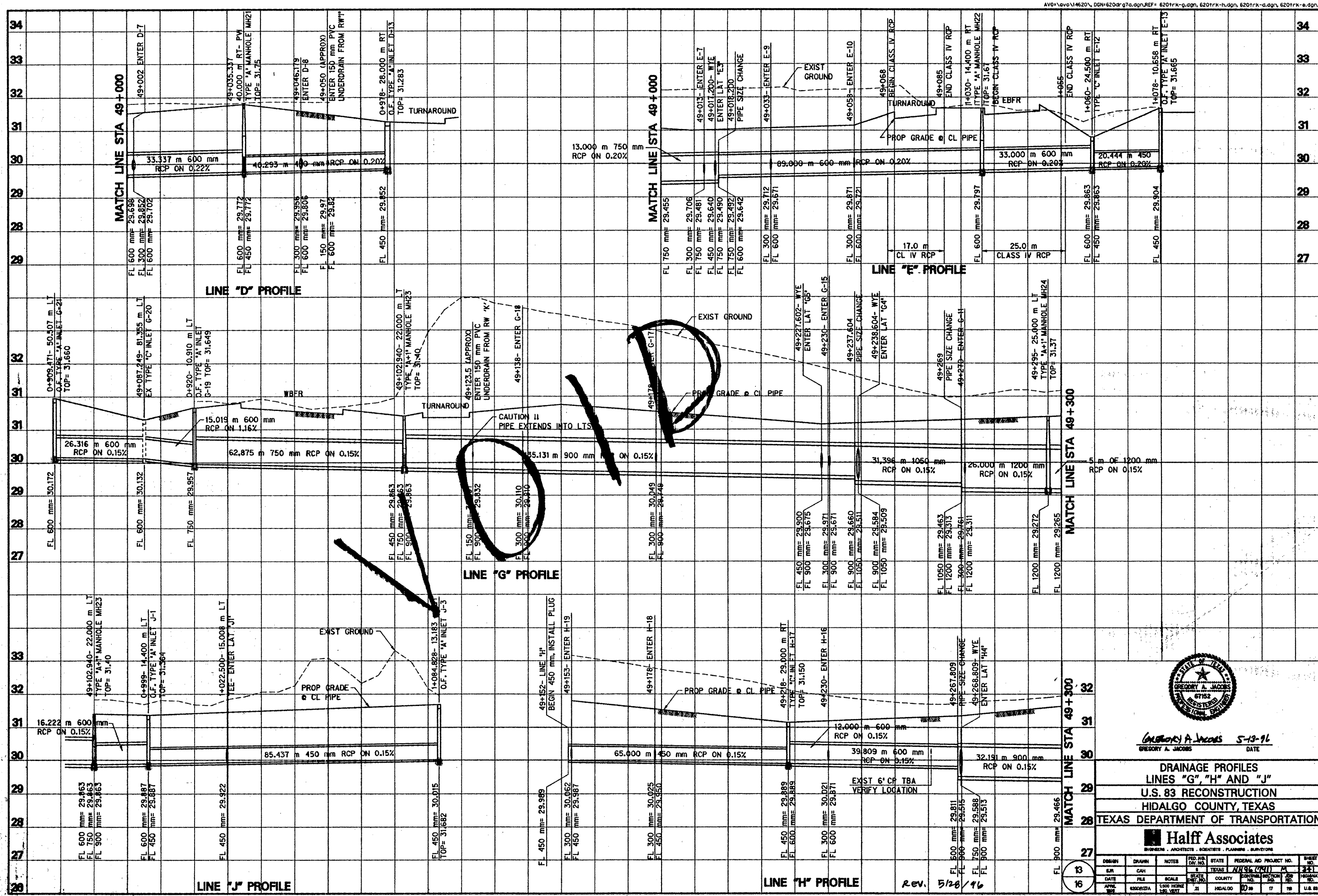
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
ELR	CAH		4	TEXAS	NH96/0111	340
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APR 96	880907	1/8" = 1'-0"	21	HIDALGO	00 39	17-11
APPV	CHKD	ISSUED	DATE	BY	BY	BY

12
16

REV. 5/28/96

PLAN - STORM DRAINAGE SYSTEM





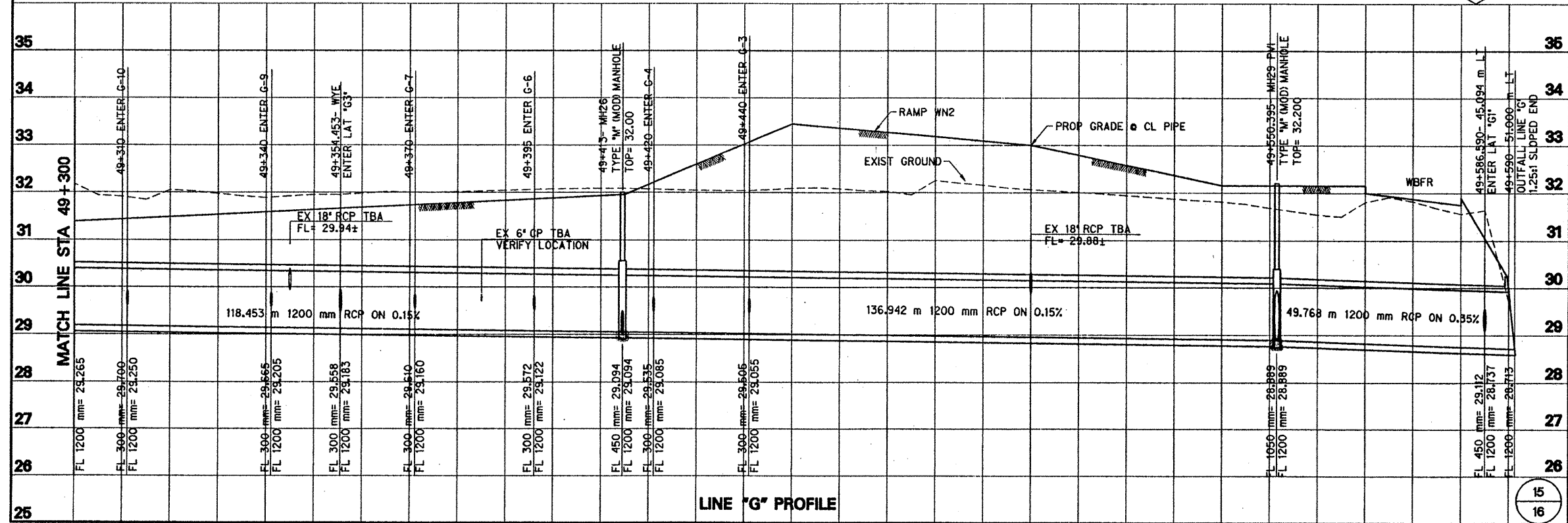
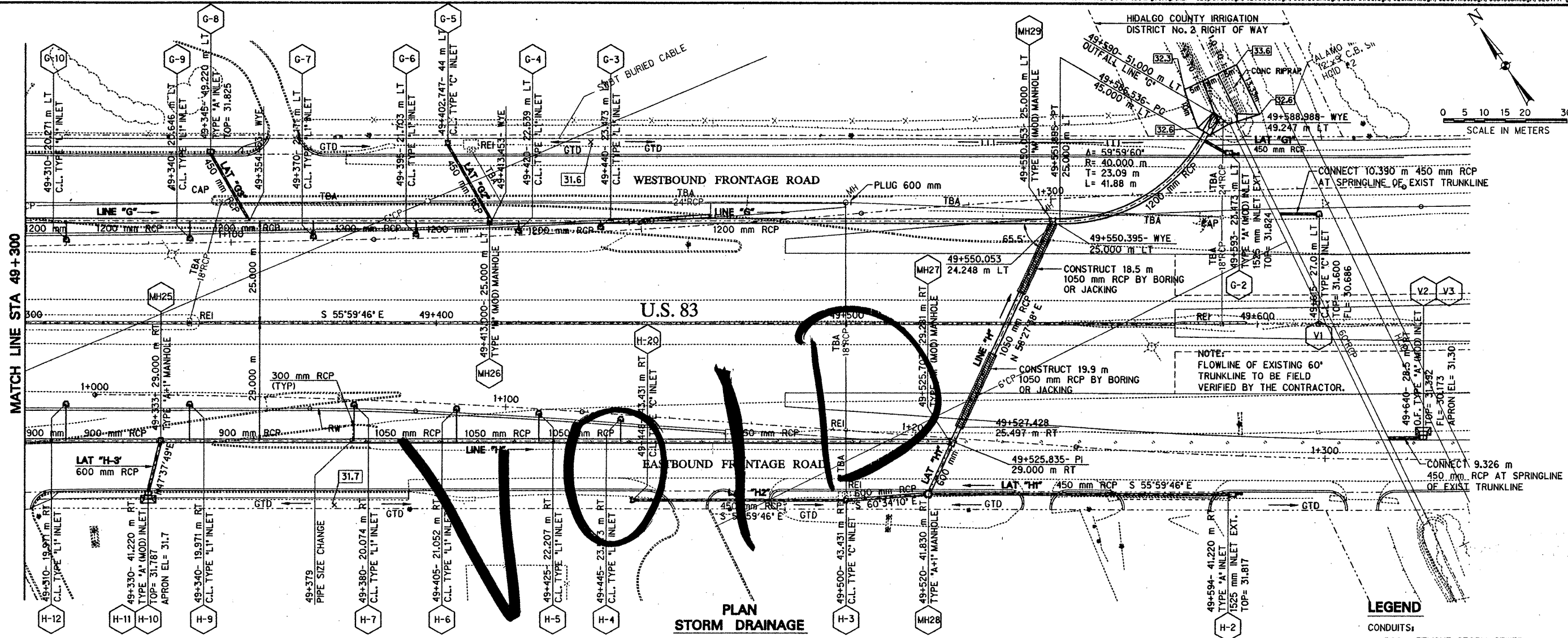
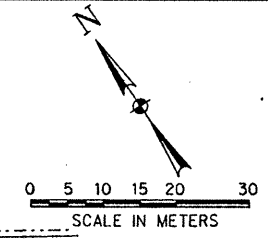
Gregory A. Jacobs 5-13-96
 GREGORY A. JACOBS DATE

DRAINAGE PROFILES
 LINES "G", "H" AND "J"
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. RD. DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
13	CAH		8	TEXAS	2/196 (7/91)	31
DATE	FILE	SCALE	SECTION	COUNTY	SECTION	SECTION
APR 96	8200027A	1:500 HORIZ 1:500 VERT	21	HIDALGO	00	17

Rev. 5/28/96



LEGEND

- CONDUITS:
 RSS - REMOVE STORM SEWER
 TRS - TO REMAIN IN SERVICE
 TBA - TO BE ABANDONED
- INLETS/MANHOLES:
 CAP - CAP EXISTING INLET
 REI - REMOVE EXISTING INLET
 RTG - RAISE TO PROPOSED GRADE
 RW - RETAINING WALL
- SWALES
 GTD - GRADE TO DRAIN (MIN. 0.3% SLOPE)

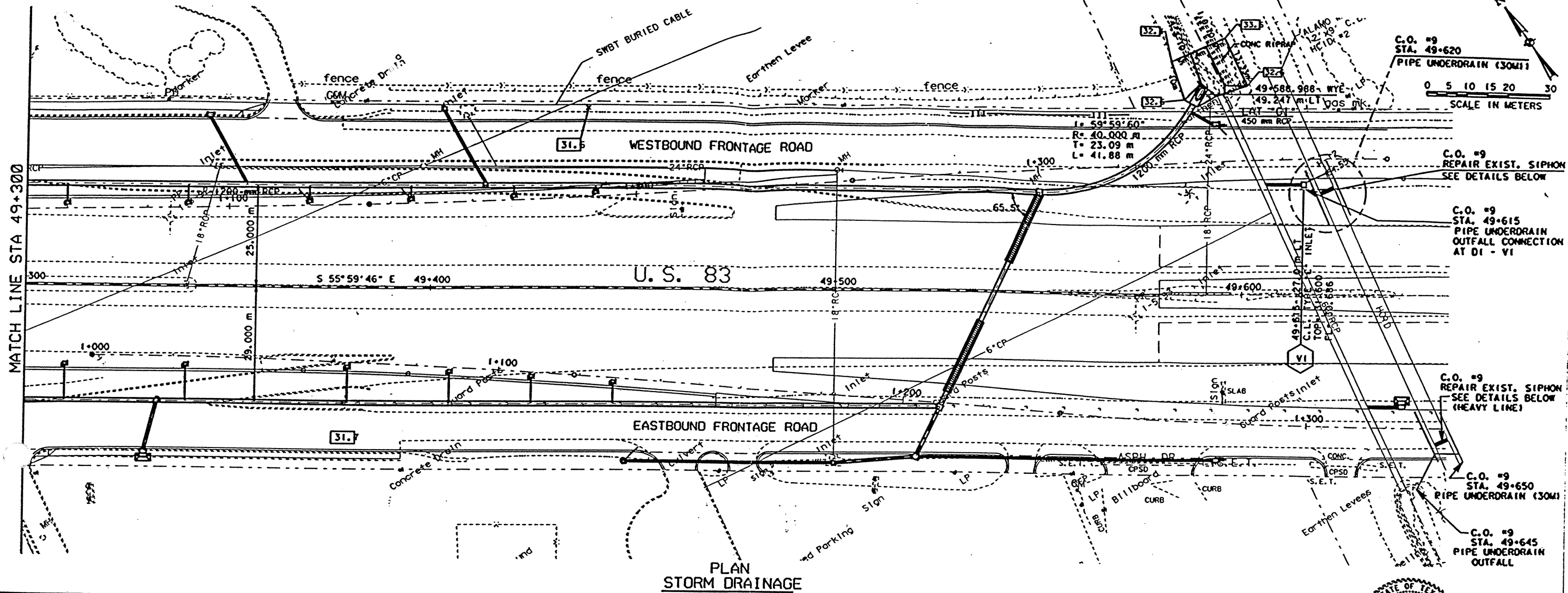


Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

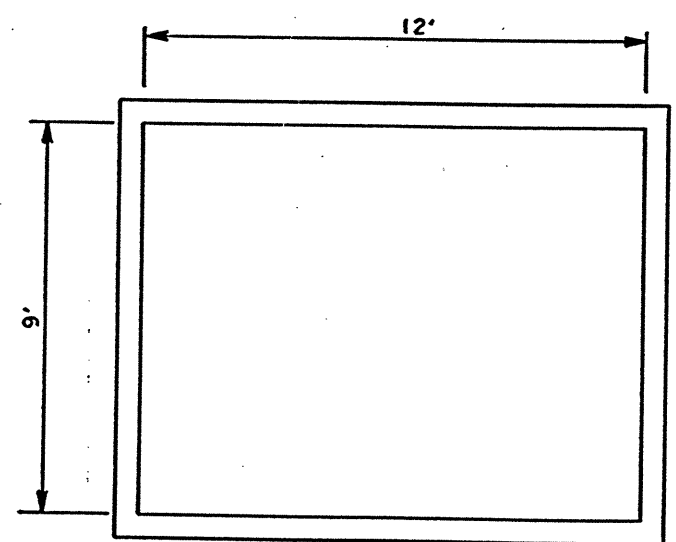
DRAINAGE PLAN-PROFILE
 STA 49+300 TO STA 49+600
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

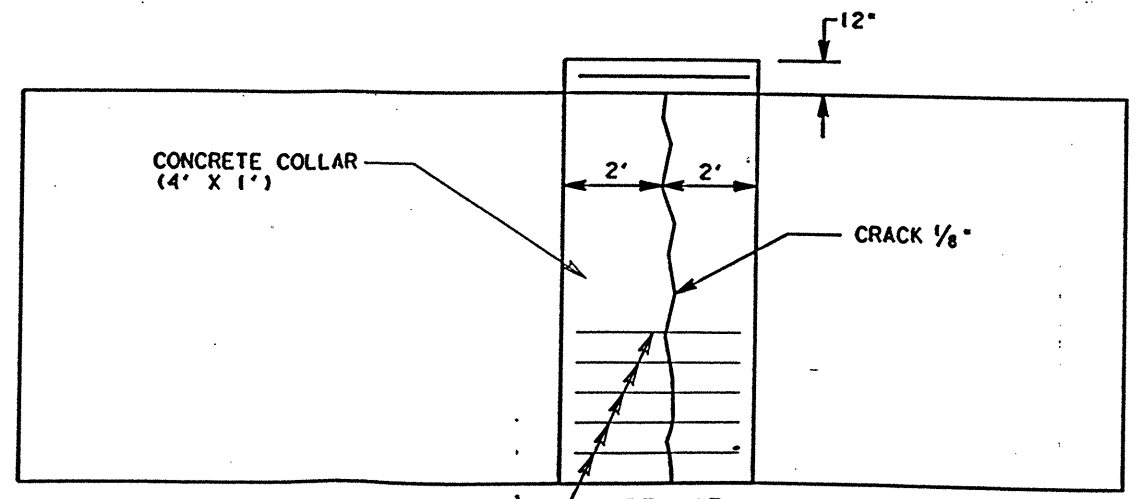
DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	DATE	STATE	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	6200P008	1:500 HORIZ 1:50 VERT	21	HIDALGO	0030	17



PLAN STORM DRAINAGE



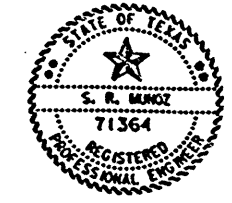
Ex. 12' x 9' CONCRETE BOX SIPHON



SIDE VIEW

4 REBAR @ 12" CENTER (TYP.) (SIDES & TOP)

C.O. #9 - CHANGE ORDER NO. 9
REPAIR A LEAKING SIPHON



S. R. MUNOZ
C. O. #9



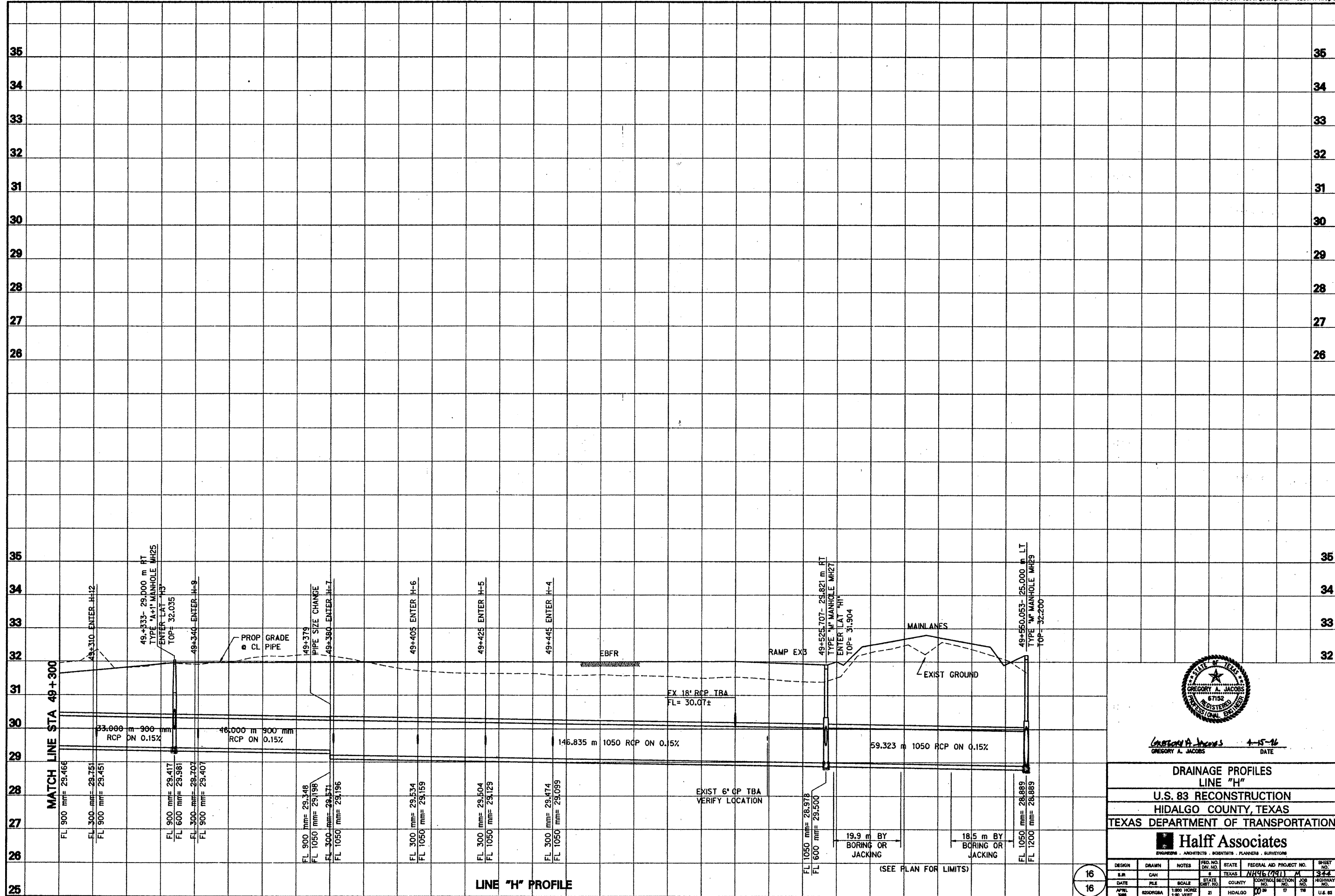
GREGORY A. JACOBS DATE

SIPHON LEAK REPAIR
STA 49+300 TO STA 49+600
U. S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS ARCHITECTS SURVEYORS PLANNERS ENVIRONMENTALISTS

DESIGN	DATE	BY	CHKD	APP'D	SCALE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
DESIGN	04/09	SM	SM	SM	AS SHOWN	100	16	100
FILE								
DATE								
SCALE								
PROJECT								
COUNTY								
CITY								
STATE								

15
16



LINE "H" PROFILE

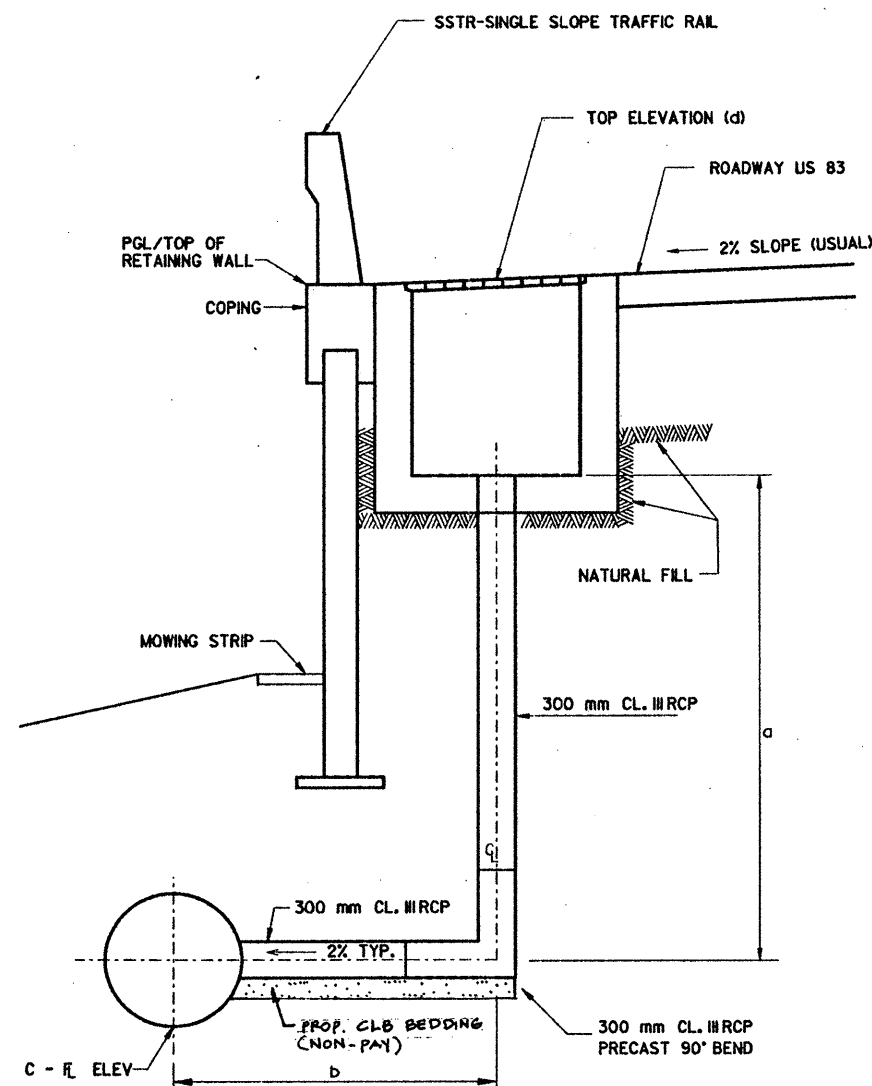


Gregory A. Jacobs
 GREGORY A. JACOBS
 DATE 4-15-16

DRAINAGE PROFILES
 LINE "H"
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION



DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
EJR	CAH		#	TEXAS	NA467091	344
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 2009	620DRG6A	1:800 HORIZ 1:80 VERT	21	HIDALGO	0030	17

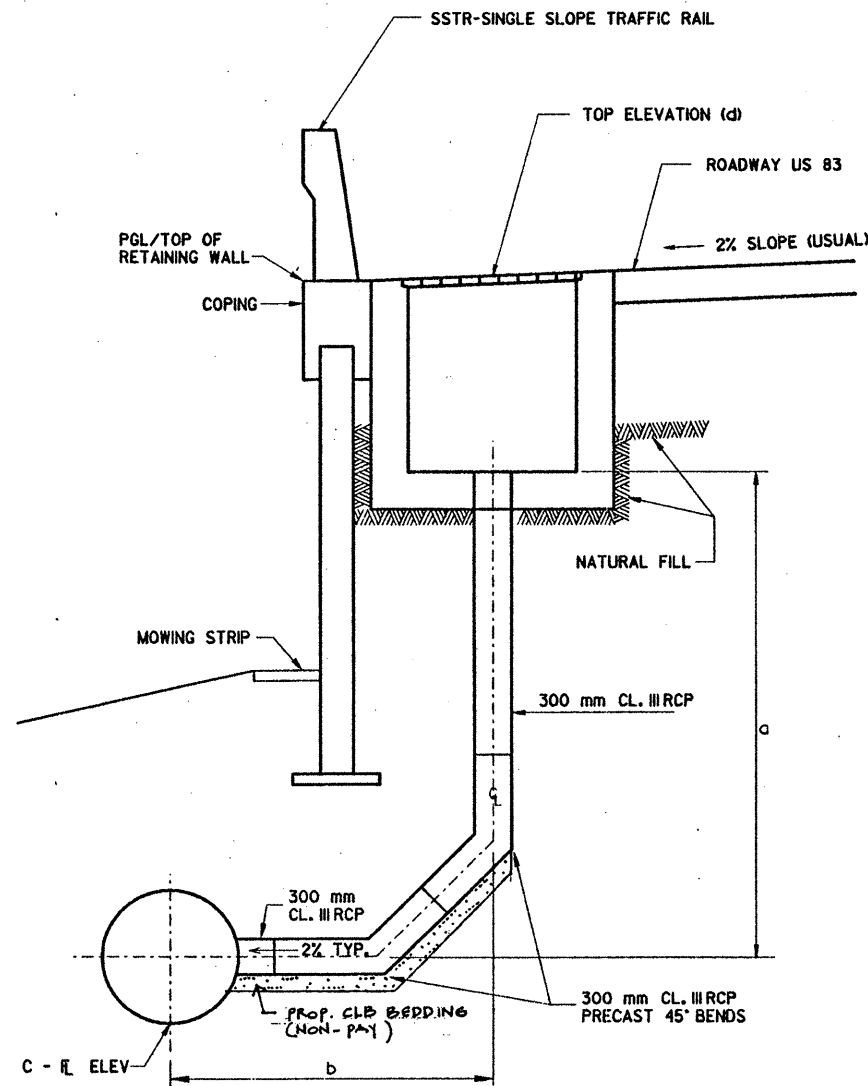


TYPE L-1 INLET OUTFALL DETAIL 2

N.T.S.

NOTES:

REFER TO TRAFFIC RAIL FOUNDATION STANDARD DETAILS.



TYPE L-1 INLET OUTFALL DETAIL 1

N.T.S.

TABLE OF DIMENSIONS FOR TYPE L-1 INLET OUTFALL

INLET No.	STA	a	b	c	d	
A-10	47+442	0.551	4.446	31.453	32.818	outfall detail 2
C-17	47+452	0.702	5.329	31.417	32.951	outfall detail 2
A-9	47+492	1.462	5.051	31.376	33.664	outfall detail 2
C-16	47+492	1.469	5.329	31.363	33.664	outfall detail 1
A-8	47+542	2.985	5.029	31.151	35.037	outfall detail 1
C-15	47+542	2.992	5.329	31.138	35.037	outfall detail 1
A-7	47+592	4.351	5.029	31.076	36.328	outfall detail 1
C-14	47+592	4.357	5.329	31.064	36.328	outfall detail 1
A-6	47+642	5.388	5.868	31.000	37.305	outfall detail 1
C-13	47+642	5.409	5.329	30.989	37.305	outfall detail 1
A-5	47+692	6.134	6.868	30.900	37.971	outfall detail 1
C-12	47+692	6.150	5.329	30.914	37.971	outfall detail 1
A-4	47+732	6.525	6.654	30.820	38.278	outfall detail 1
C-11	47+732	6.357	6.115	30.999	38.278	outfall detail 1
A-3	47+815	6.900	6.555	30.367	38.273	outfall detail 1
C-10	47+815	6.867	7.029	30.469	38.277	outfall detail 1
C-9	47+840	6.847	6.567	30.319	38.097	outfall detail 1
C-8	47+870	6.566	4.840	30.143	37.606	outfall detail 1
C-5	47+900	5.923	2.324	29.858	36.777	outfall detail 1
C-4	47+925	5.333	0.000	29.793	36.076	outfall directly to trunk
C-3	48+007	2.909	5.421	29.583	33.550	outfall detail 1
C-2	48+038	2.045	5.985	29.504	32.619	outfall detail 1
C-19	48+096	1.684	7.000	29.356	32.130	outfall detail 1
E-2	48+799	2.114	8.343	28.760	32.066	outfall detail 1
D-2	48+842	3.322	1.538	29.065	33.368	outfall detail 2
E-4	48+868	4.360	0.986	29.046	34.376	outfall detail 2
D-3	48+872	4.256	6.213	29.125	34.455	outfall detail 1
E-5	48+943	6.417	9.945	29.194	36.610	outfall detail 1
D-6	48+967	6.147	15.330	29.625	37.029	outfall detail 1
E-6	48+973	6.739	11.872	29.250	37.176	outfall detail 1
D-7	49+002	6.721	17.780	29.702	37.579	outfall detail 1
E-7	49+013	7.112	12.969	29.481	37.727	outfall detail 1
E-9	49+033	7.187	13.369	29.671	37.925	outfall detail 1
D-8	49+038	7.233	10.580	29.806	37.976	outfall detail 1
E-10	49+058	7.304	13.869	29.721	38.102	outfall detail 1
G-18	49+138	7.256	5.029	29.810	38.117	outfall detail 1
H-19	49+153	7.138	9.029	29.987	38.031	outfall detail 1
G-17	49+178	7.024	5.029	29.749	37.824	outfall detail 1
H-18	49+178	6.968	9.029	29.950	37.824	outfall detail 1
C-15	49+230	6.421	5.029	29.671	37.143	outfall detail 1
H-16	49+230	6.291	9.029	29.871	37.143	outfall detail 1
G-11	49+270	5.879	4.995	29.311	36.390	outfall detail 1
G-10	49+310	4.987	4.729	29.250	35.432	outfall detail 1
H-12	49+310	4.856	9.029	29.451	35.438	outfall detail 1
G-9	49+340	4.189	4.354	29.205	34.581	outfall detail 1
H-9	49+340	4.057	9.029	29.407	34.595	outfall detail 1
G-7	49+370	3.397	3.829	29.160	33.734	outfall detail 1
H-7	49+380	3.119	8.926	29.196	33.519	outfall detail 1
G-6	49+395	2.885	3.297	29.122	33.173	outfall detail 1
H-6	49+405	2.664	7.948	29.159	33.007	outfall detail 1
G-4	49+420	2.518	2.461	29.085	32.752	outfall detail 2
H-5	49+425	2.405	6.793	29.129	32.695	outfall detail 1
G-3	49+440	2.329	1.527	29.055	32.515	outfall detail 2
H-4	49+445	2.240	5.427	29.099	32.473	outfall detail 1



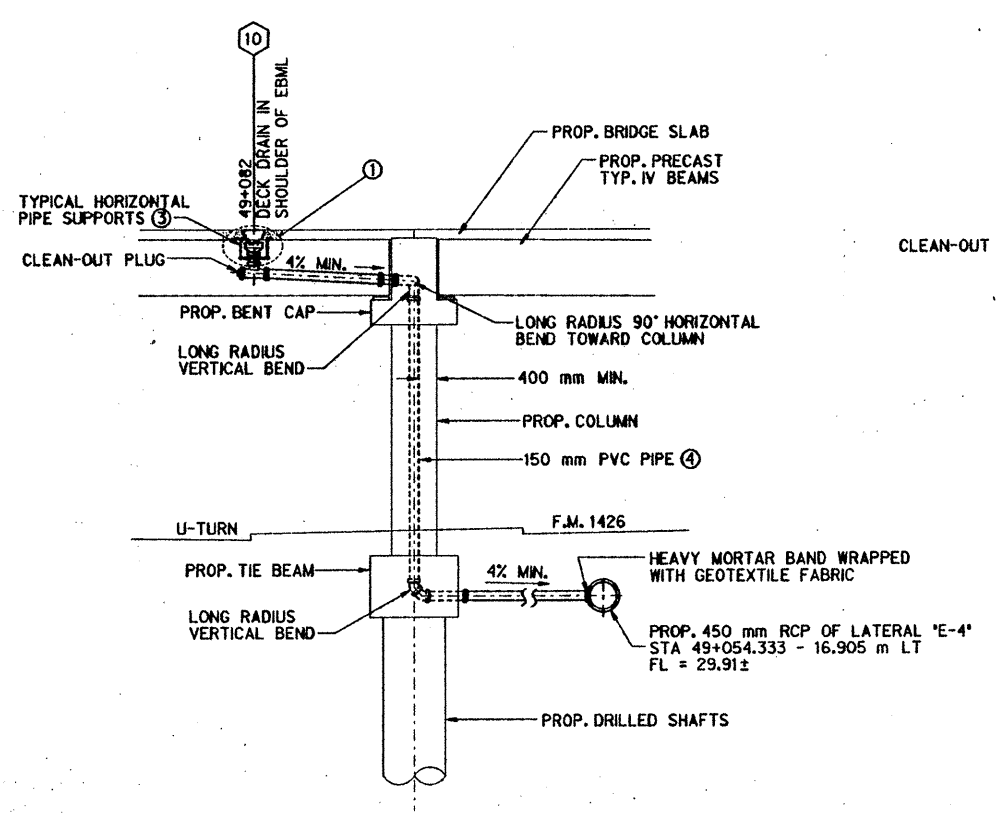
Gregory A. Jacobs 4-15-96
DATE

TYPE "L-1" INLET OUTFALL DETAILS

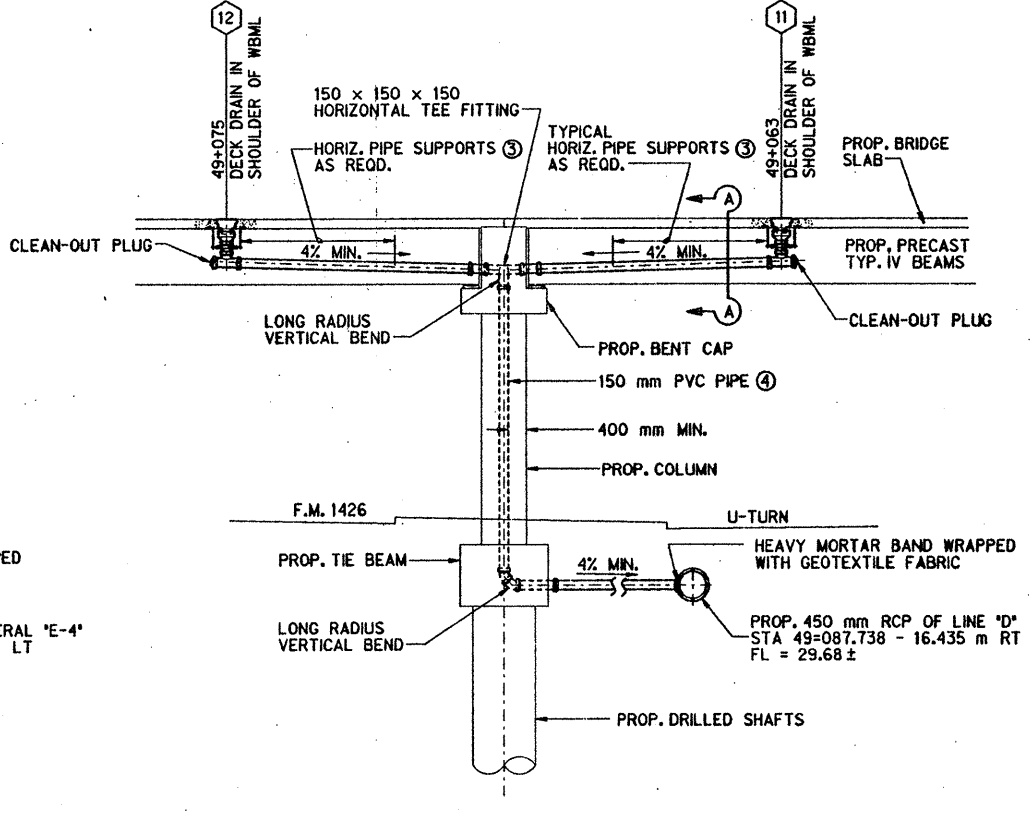
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

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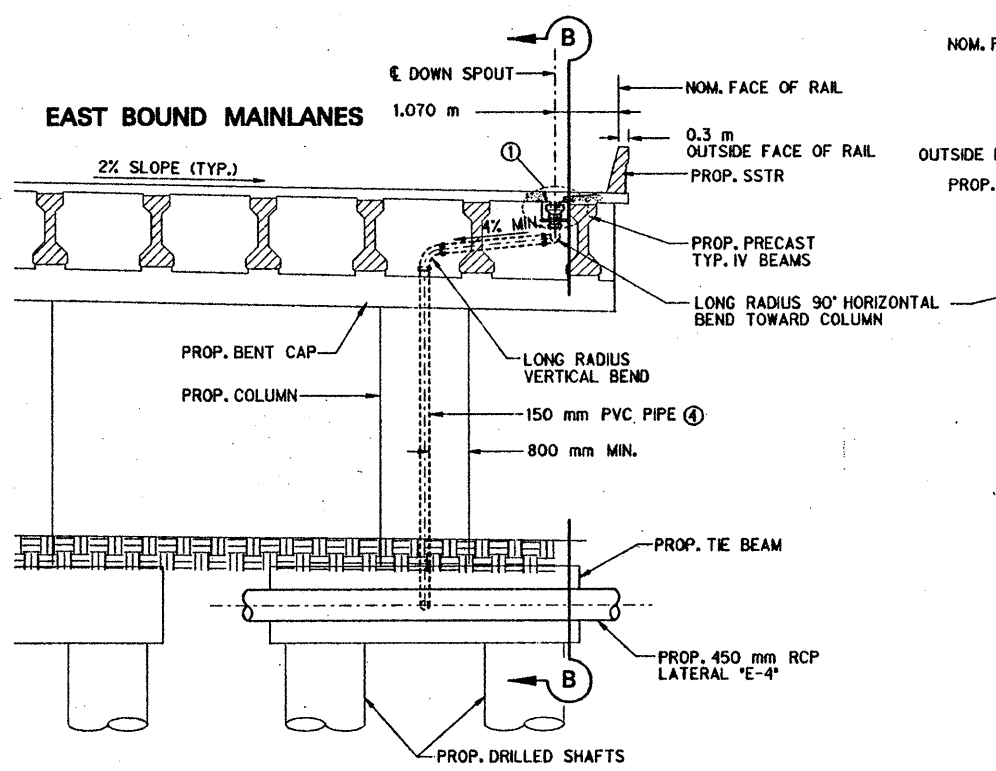
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		1	TEXAS	ATV/07/011-A	3-22
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	FED. REGION NO.	ROUTE NO.
APRIL 1996	620800L1	AS NOTED	21	HIDALGO	0020	17 118 U.S. 83



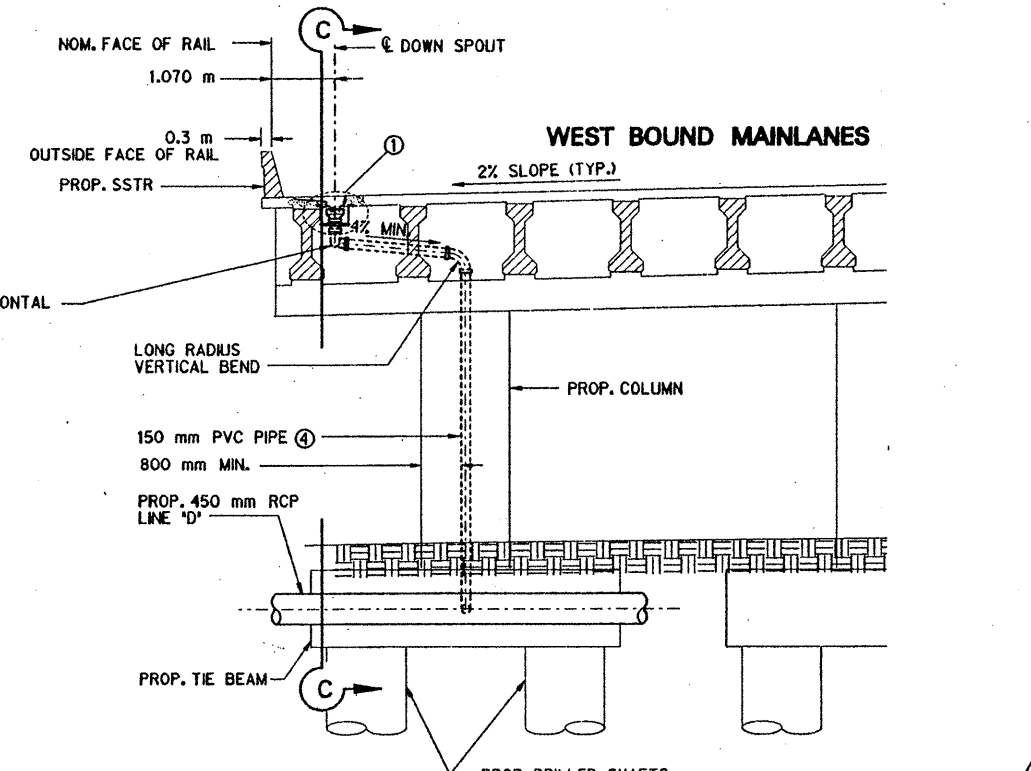
LONGITUDINAL DECK SECTION B-B
N.T.S.



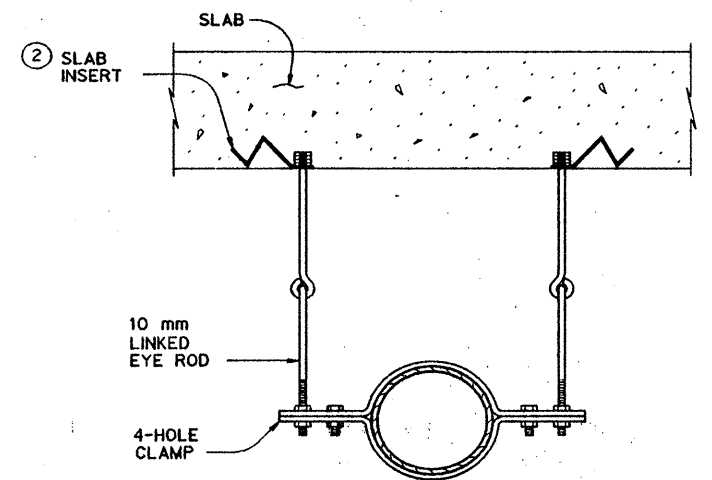
LONGITUDINAL DECK SECTION C-C
N.T.S.



TRANSVERSE DECK SECTION AT FM 1426
N.T.S.



TRANSVERSE DECK SECTION AT FM 1426
N.T.S.



SECTION A-A
(HORIZONTAL PIPE SUPPORT)
N.T.S.

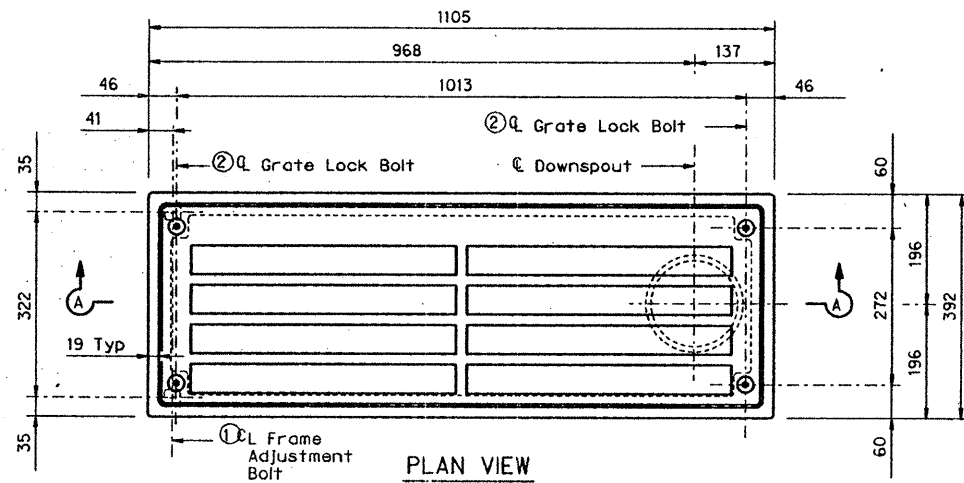
GENERAL NOTES:

- 1 PVC Pipe shall conform to Item 481, 'PVC Pipe for Bridge Drains'.
- 2 All metal connection devices and fittings installed with Item 'PVC Pipe', including Horizontal Pipe Supports, shall be galvanized after fabrication. Supports shall be manufactured so as to accommodate anticipated longitudinal movements of the pipe and bridge slab. All attachment devices shall be considered subsidiary to the Bid Item 'PVC Pipe'.
- 3 See BRIDGE LAYOUT (or STORM SEWER LAYOUT) for types and locations of drains.
- 4 Deviations from Bridge Drain Details contained herein will not be permitted without prior approval by the Engineer.
- 5 The contractor shall submit complete shop drawings, prior to fabrication, of all piping, pipe supports, pipe expansion joints, and pipe connections, for approval by the Texas Department of Transportation.
- 6 All dimensions in mm (millimeters) unless otherwise specified.
- 7 Prior to concrete placement, the pipe shall be adequately blocked, braced, or supported as required to prevent displacement during pouring operations and to maintain the proper pipe gradients (4% min.)
- 8 See Standard Sheet BD-A for details of the inlet to Piping hook-up.
- 9 If Prestressed Concrete Panels are permitted, the Slab Inserts shall be placed above the panels.
- 10 Maximum spacing of Pipe Supports shall be 3,000 mm. A Pipe Support shall be installed within 1,200 mm of a change in pipe direction.
- 11 PVC Pipe shall be placed for least conflict with bent, column and tie beam reinforcing.

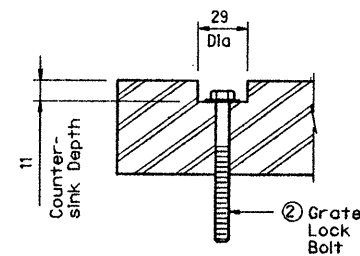


Gregory A. Jacobs 4-15-96
DATE

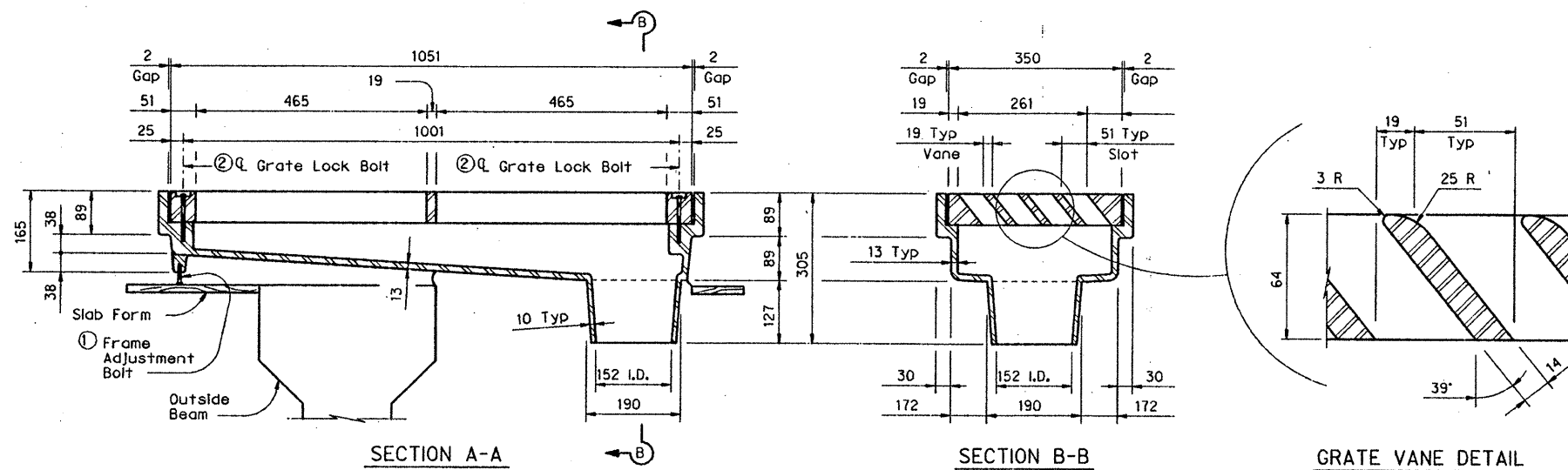
BRIDGE DRAIN DETAILS (DECK DRAIN PIPING)										
U.S. 83 RECONSTRUCTION										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates ENGINEERS - ARCHITECTS - ROADMEN - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
CADD			8	TEXAS	NH96(091)	M	2-27			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	ROADWAY			
APR 96	80096LA	AS NOTED	21	HIDALGO	020	17	78	U.S. 83		



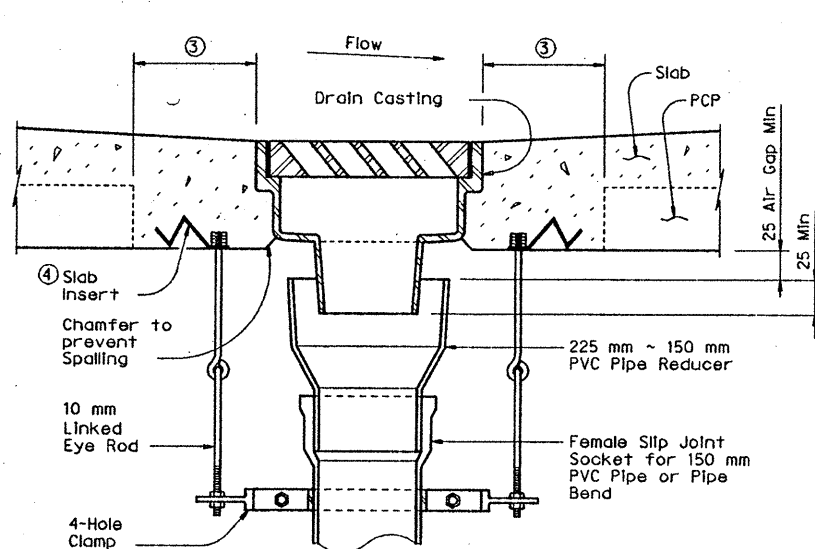
PLAN VIEW



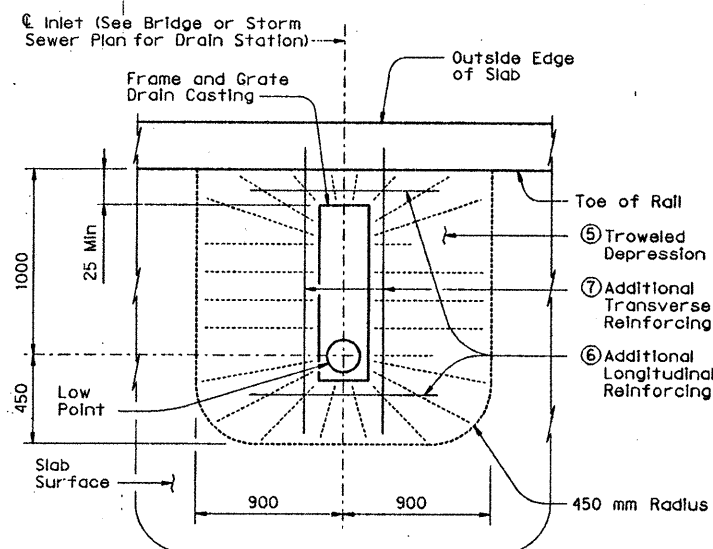
COUNTERSINK DETAIL



FRAME (SCUPPER) AND GRATE CASTING DETAILS



HOOK-UP TO INLET



DRAIN PLAN

GENERAL NOTES:

"Frame and Grate" casting shall be of Carbon-Steel and shall conform to Item 471, "Frames, Grates, Rings, and Covers". All drafts shall be 3° and all fillets shall be 6 mm radius unless otherwise shown.

After fabrication, steel castings shall be checked for fit and uniform bearing between contact surfaces of grate and frame, and irregularities corrected.

The Deck Drain casting shall be adequately braced and supported such that after Slab placement is complete, the drain's position and grade are correct. Slab form shall be adequately braced to support the dead weight of the casting.

When placing concrete, care shall be taken to prevent honeycomb or air pockets around or beneath the casting. Slab reinforcing bars shall be deflected to clear casting by 25 mm. Where bending is not possible, reinforcing bars may be stopped or cut to clear casting. Place additional reinforcing as detailed. Such additional reinforcing shall be subsidiary to the Bid Item "Reinforced Concrete Slab".

All metal connection devices and fittings installed with item "Frame and Grate", including the Hook-up to the Inlet, shall be galvanized after fabrication. Supports shall be manufactured so as to accommodate anticipated longitudinal movements of the pipe and bridge slab. All attachment devices shall be considered subsidiary to the Bid Item "Frame and Grate".

See BRIDGE LAYOUT (or STORM SEWER PLAN) for types and locations of drains.

See Bridge Drain Details (Deck Drain Piping) sheet for details of Bridge Drain Piping.

Deviations from Bridge Drain Details contained herein will not be permitted without prior approval by the Engineer.

The contractor shall submit complete shop drawings, prior to fabrication, of all piping, pipe supports, pipe expansion joints, and pipe connections, for approval by the Texas Department of Transportation.

All dimensions in mm (millimeters) unless otherwise specified.

- ① M16 x 65 Cap Screw ~ Drill and tap 45 mm min depth into cast frame for vertical adjustment
- ② M10 x 90 mm Galvanized Hex Bolt ~ Drill and tap 50 mm min depth into frame
- ③ Prestressed Concrete Panels (PCP), if permitted, shall be placed 75 mm minimum from casting. This lower portion of cast-in-place slab shall be reinforced as directed by the Engineer.
- ④ With approval of the Engineer, may be bolted through PCP's. Connection or Insert chosen must be approved by the Engineer before installation.
- ⑤ Maximum depth of troweled depression shall be 20 mm.
- ⑥ Provide 2 additional #6 x 1200 mm Bars, to be placed as shown in the top mat of slab reinforcing.
- ⑦ Provide 2 additional #6 x 2100 mm Bars, to be placed as shown in the top mat of slab reinforcing below the additional longitudinal bars.

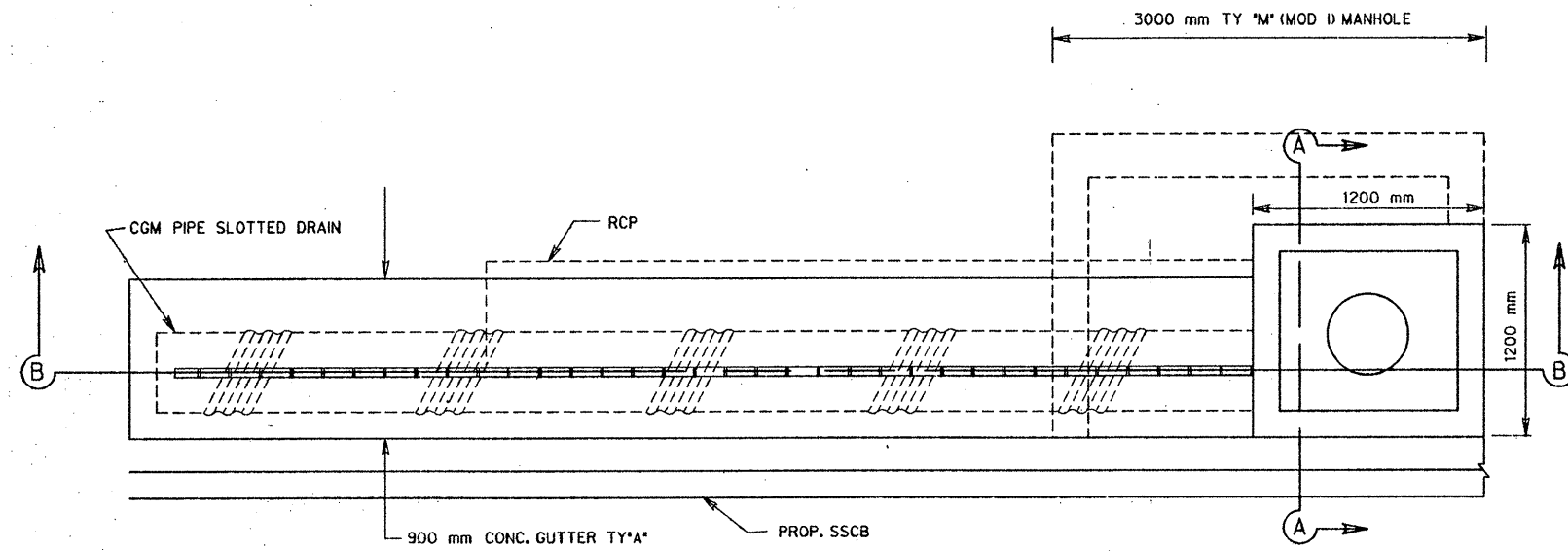


Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

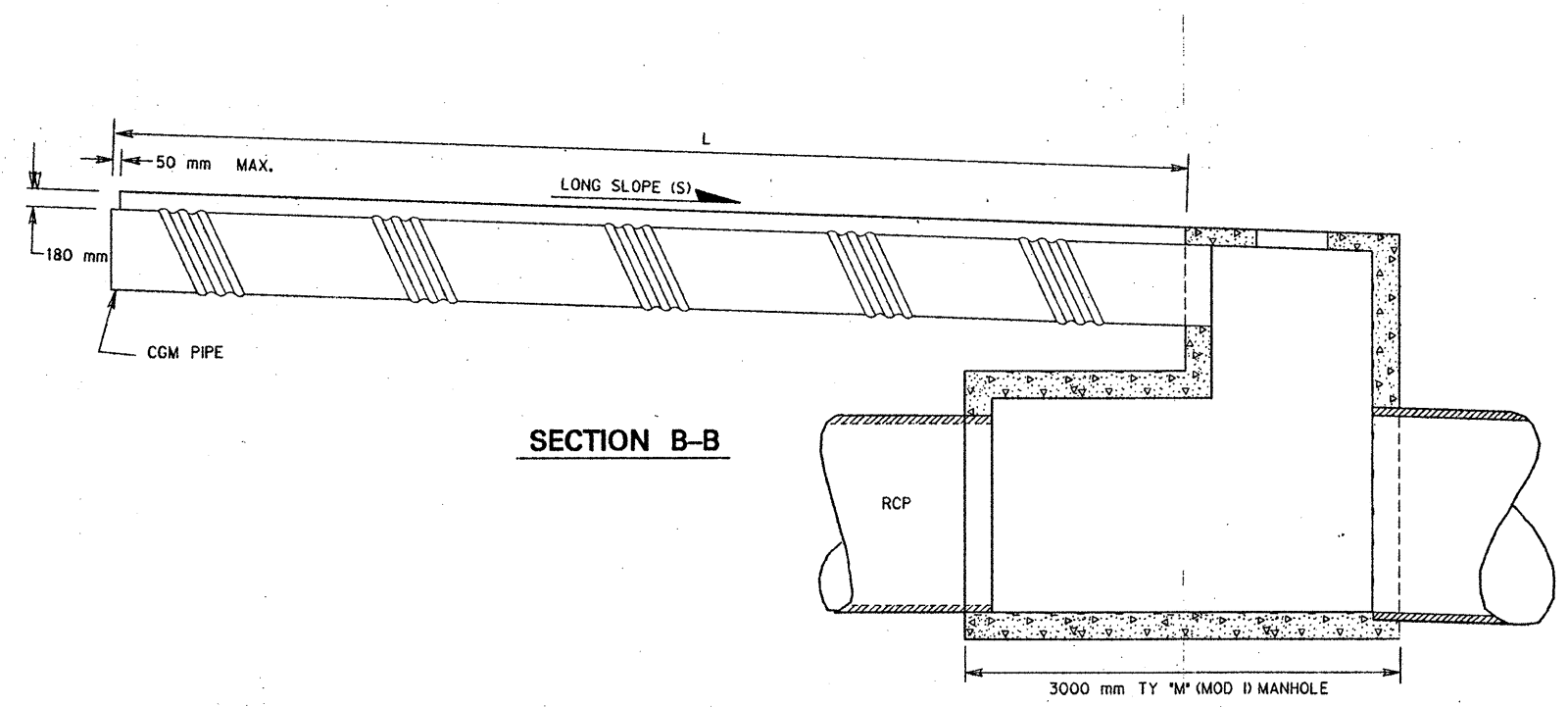
BRIDGE DRAIN DETAILS
(FRAME & GRATE TYPE A)
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

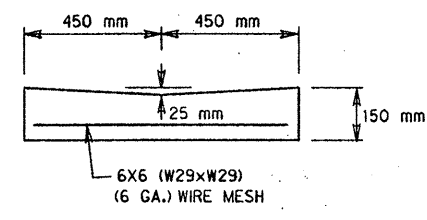
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EAJ	CAH		6	TEXAS	NH 96 (791) A	2-28
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	82809016	AS NOTED	21	HIDALGO	00 38	17 38



PLAN

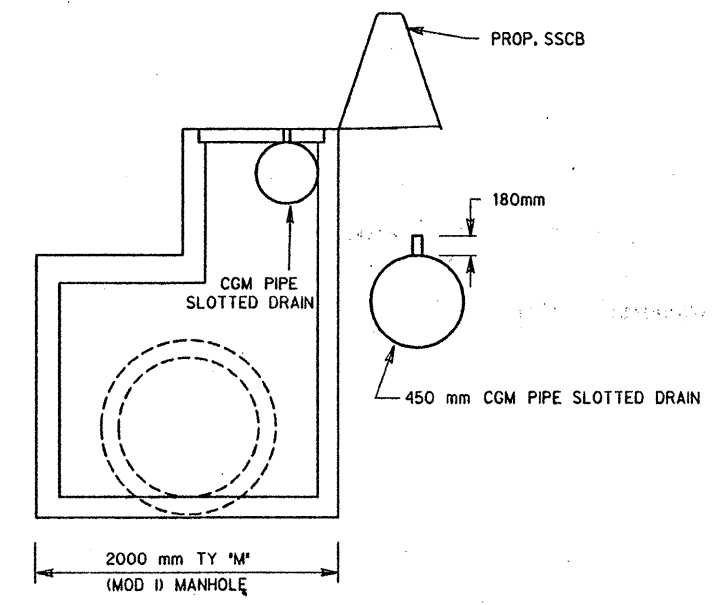


SECTION B-B



TY "A" GUTTER

NOTE:
SUBSIDIARY TO SLOTTED DRAIN



SECTION A-A



Gregory A. Jacobs
GREGORY A. JACOBS
4-15-96
DATE

1
1

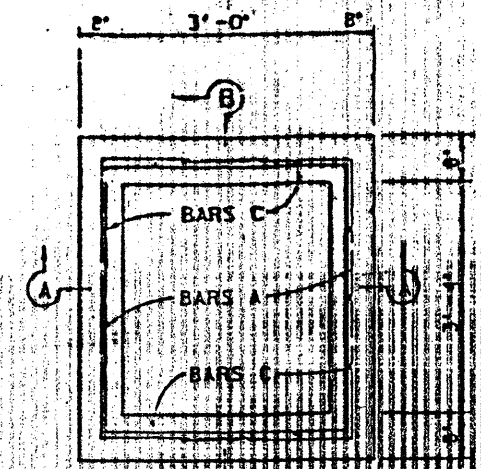
SLOTTED DRAIN INLET CONNECTION TO MANHOLE DETAIL									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
			6	TEXAS	1716(281)	1			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	SECTION NO.	FOR	NO.	ROADWAY	NO.
			21	HIDALGO	0029	17	18	U.S. 83	

'L-1' TABLE OF QUANTITIES
0' = 3'-0"

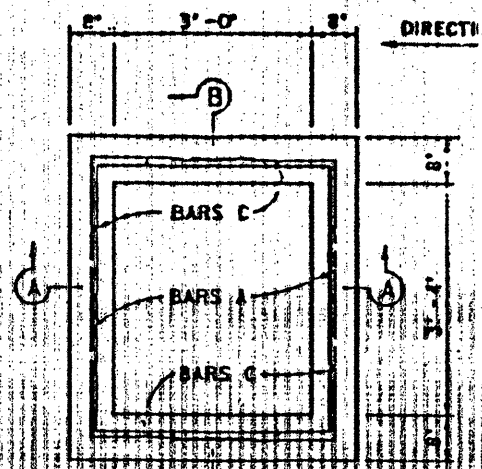
BARS A 12"	BARS B-1 12"	BARS B-2 12"	BARS C 12"	STEPS 12" x 10"
NO. LGTH	NO. LGTH	NO. LGTH	NO. LGTH	NO. LGTH
101 8'-10"	3 1'-6"	3 1'-6"	3 2'-10"	3 2'-10"
TOTAL STEEL				97.00 LBS.
TOTAL CONCRETE				1.48 C.Y.
ADD. STEEL P.L.F.				24.07 LBS.
ADD. CONC. P.L.F.				0.375 C.Y.

'L-2' TABLE OF QUANTITIES
0' = 1'-6"

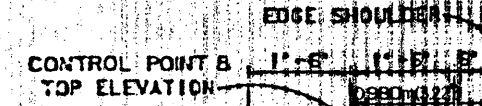
BARS A 12"	BARS C 12"	STEPS 12" x 10"
NO. LGTH	NO. LGTH	NO. LGTH
6 1'-10"	12 1'-3 1/2"	1 1'-10"
TOTAL STEEL		50.00 LBS.
TOTAL CONCRETE		0.53 C.Y.
ADD. STEEL P.L.F.		24.41 LBS.
ADD. CONC. P.L.F.		0.375 C.Y.



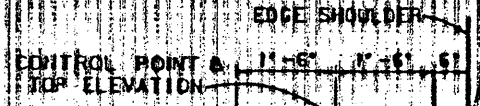
PLAN



PLAN



SECTION A-A



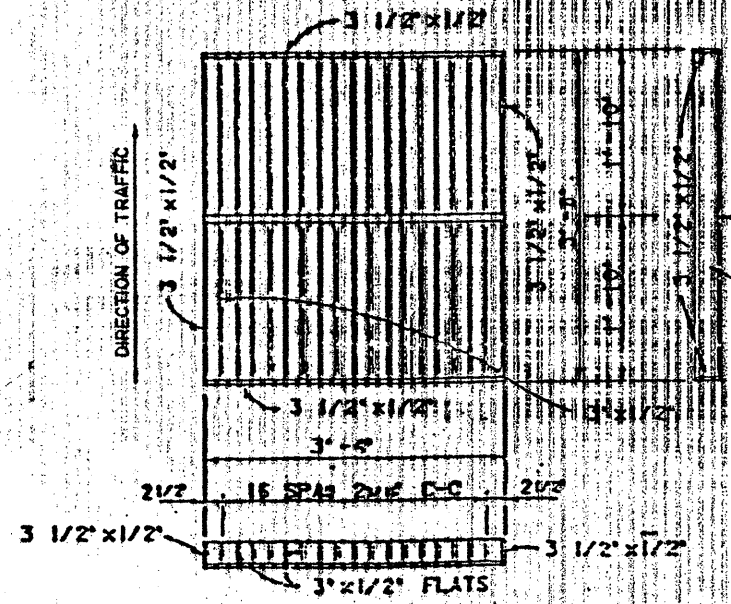
SECTION A-A

PROP. 300 mm (12") RC PIPE

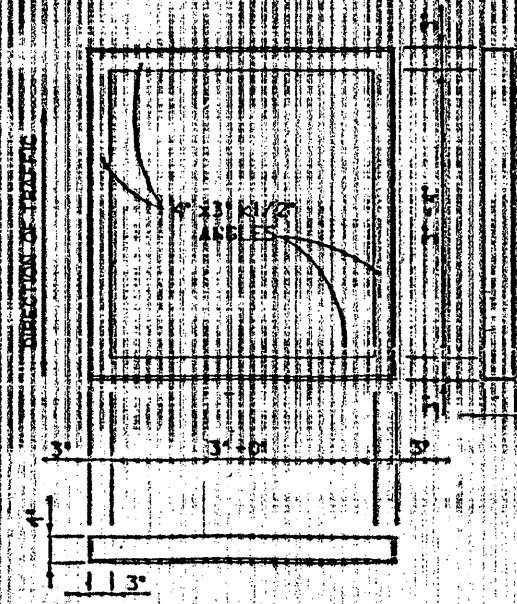
SLOPE BOTTOM OF INLET DOWN TO PVC PIPE @ CENTER IN ORDER TO PROVIDE SMOOTH DRAINAGE

STEPS 12" D.C. (STAGGERED)

CUT AND BEND UP STEEL OF LOWER STRUCTURE AS SHOWN



GRATE DETAIL



FRAME DETAIL

GENERAL NOTES

- ALL CONCRETE SHALL BE CLASS "A".
- ALL REINFORCING STEEL SHALL BE MANDER FOUR (4) BARS. DIMENSIONS RELATING TO STEEL ARE TO CENTERS OF BARS. FIELD CUT AND BEND BARS AS REQUIRED TO ACCOMMODATE TIES TO LOWER STRUCTURE AND TO CLEAR PIPES.
- LOCATION GIVEN IN PLANS IS TO CENTROID OF TOP STRUCTURE OR END OF TOP STRUCTURE TO CENTROID OF BOTTOM STRUCTURE. BOTTOM STRUCTURE MAY BE POSITIONED AS REQUIRED TO ALIGN WITH TOP STRUCTURE, STORM DRAIN PIPES AND OTHER ADJACENT STRUCTURES.
- REMOVE CONCRETE QUANTITIES IN TABLE FROM AREA OF EACH PIPE IN STRUCTURE.
- GRATE AND FRAME SHALL CONFORM TO ITEM 47L.

CONC. REDUCTION ONE PIPE

PIPE DIA.	C.Y. CONC.
18"	0.07
21"	0.10
24"	0.12
27"	0.15
30"	0.18
33"	0.22
36"	0.26

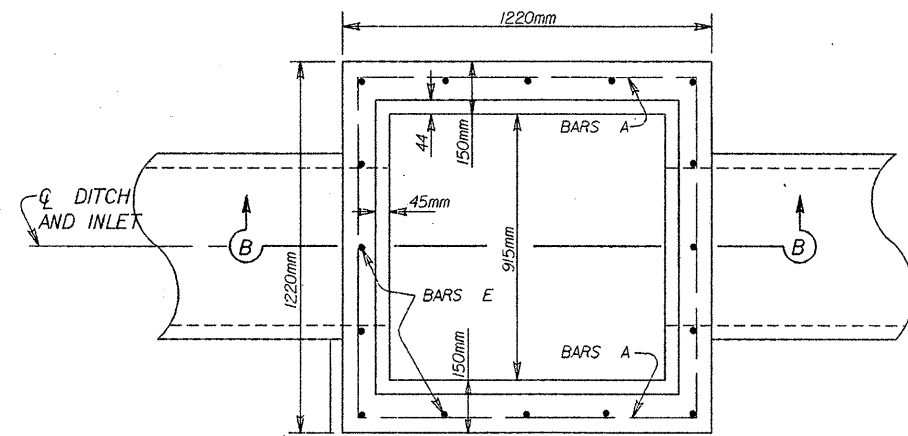
REVISED - JUN 1982
REVISED - SEPT 1983

ORIGINAL DRAWING OCT. 1980

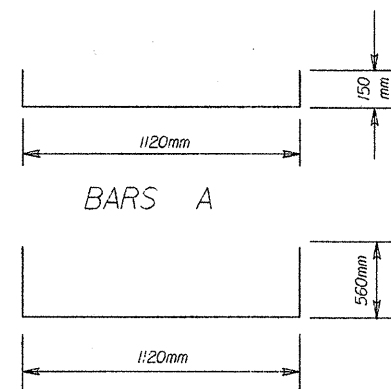
TYPES 'L 1' AND 'L 2' GRATED INLETS

MI-6 (MOD)

NO.	DATE	BY	CHKD.	APP'D.	REVISION
1					
2					
3					
4					
5					



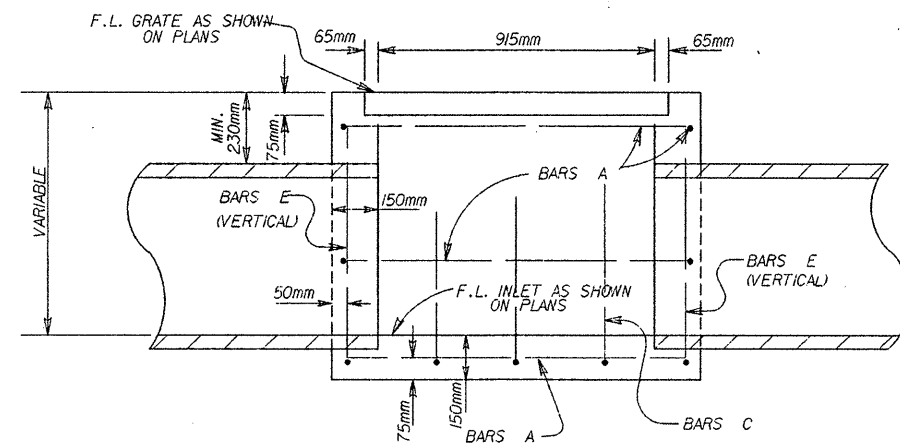
TOP VIEW



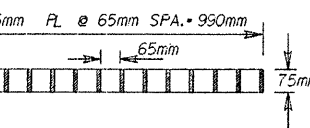
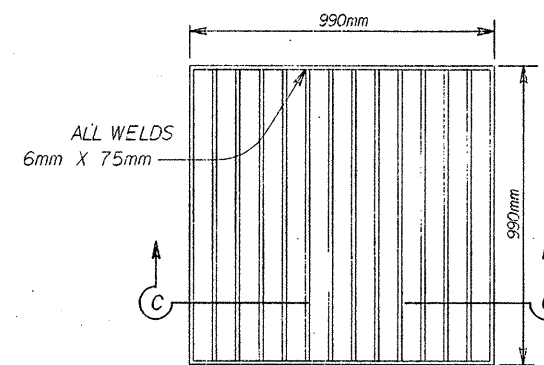
BARS C
(BOTTOM BARS)

REINFORCING STEEL DETAILS

NOTE: All Steel to be No. 4 Bars on 305mm Spacing in both directions. Except in Top Slab of Manhole

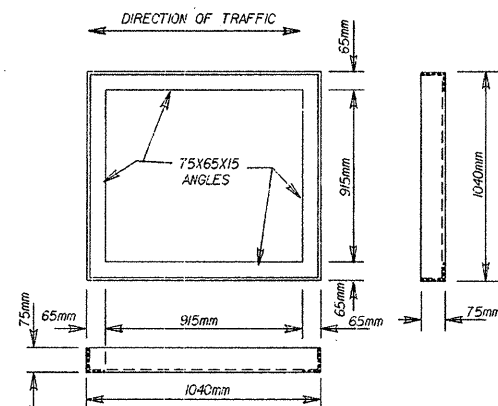


SECTION B-B
INLET TY "C"



SECTION C-C

WELDED STEEL INLET GRATE

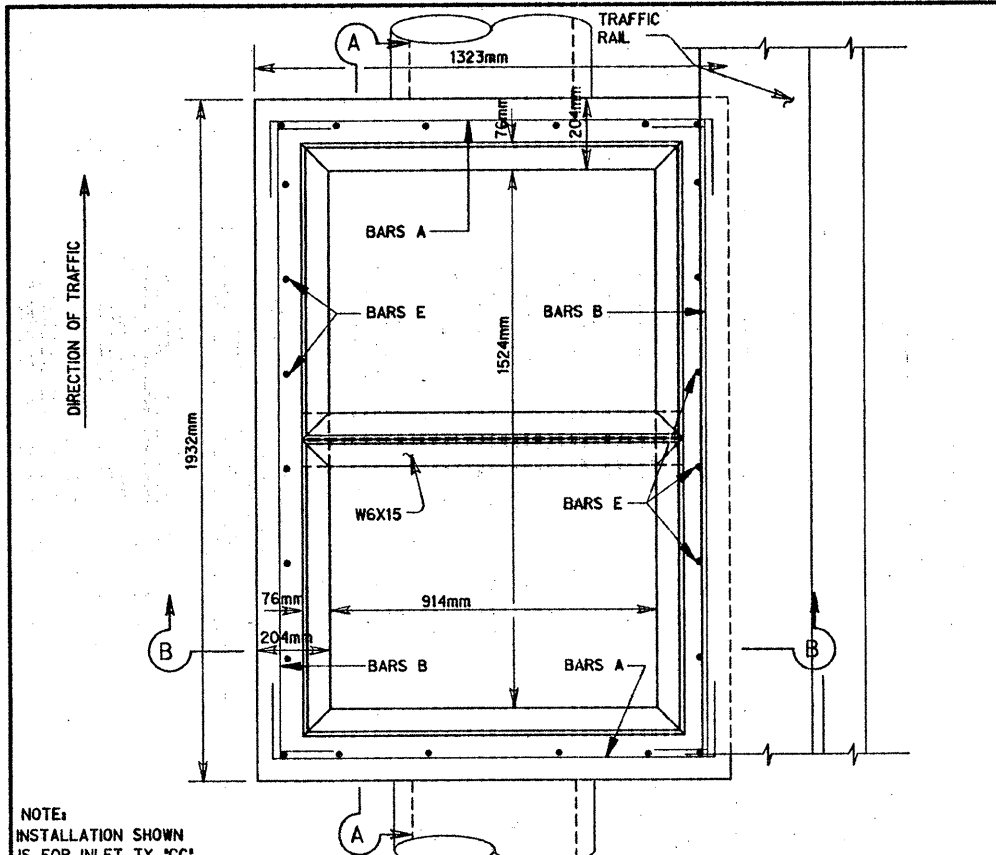


FRAME DETAIL

TY "C" INLET (COMPLETE)
INCLUDES FRAME & GRATE (NON-PAY)
DETAILS

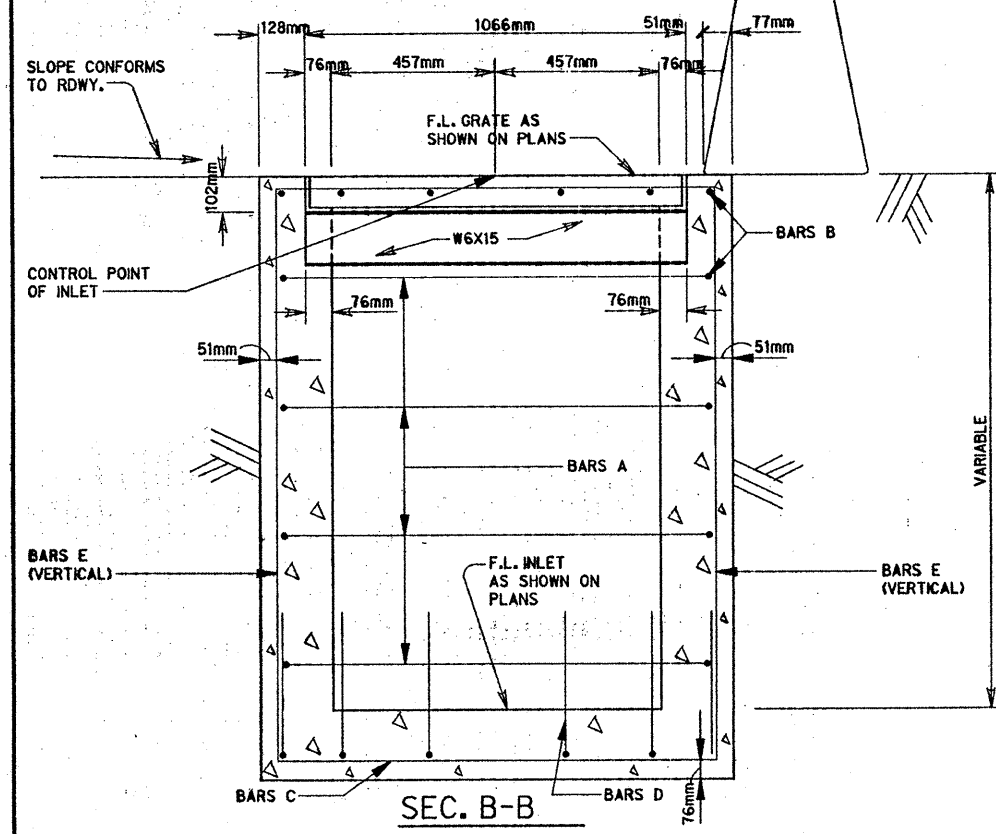
NOTE: STEPS WILL BE REQUIRED ON ALL MANHOLE & INLETS AS PER TYPICAL STEP DETAIL.

DISTRICT STANDARD (M)				
FED. ROAD DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	
6	TEXAS	NH96 (791) M	351	
STATE DIST. NO.	COUNTY	CONTRACT NO.	JOB NO.	HEIGHT NO.
21	HIDALGO	39	17	118

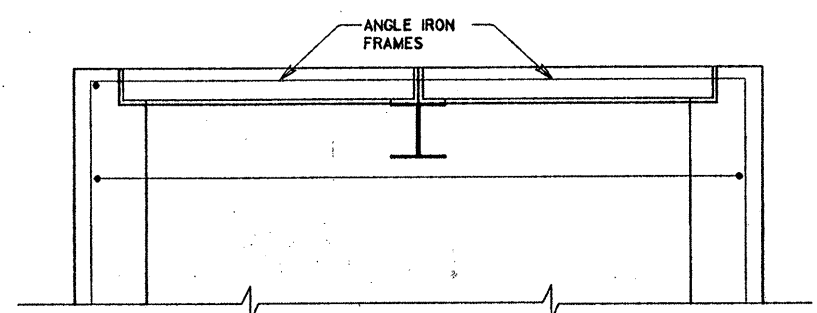


NOTE:
INSTALLATION SHOWN
IS FOR INLET TY 'CC'
MOD. II & III.

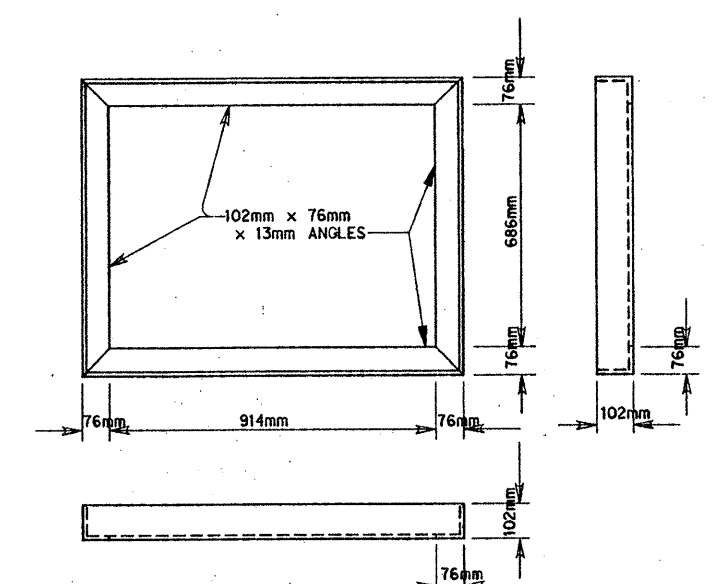
PLAN
INLET TY 'CC' MOD. I



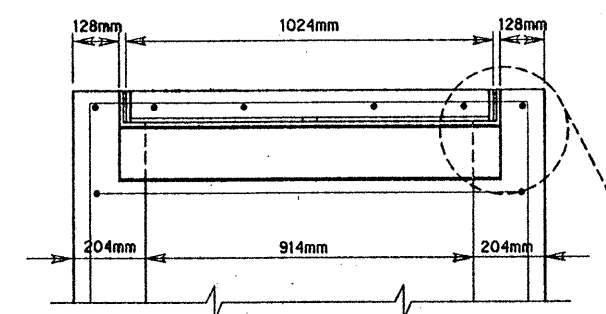
SEC. B-B



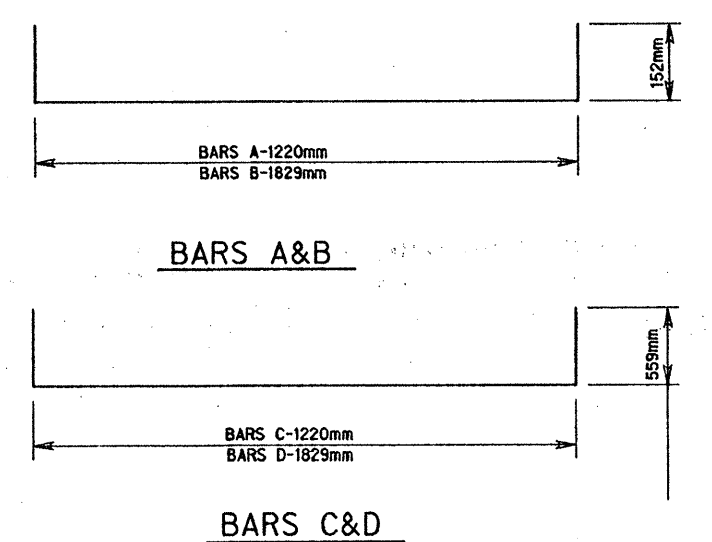
SEC. A-A



FRAME DETAIL
WELDED ANGLE IRON FRAME
(TWO FRAMES PER INLET)

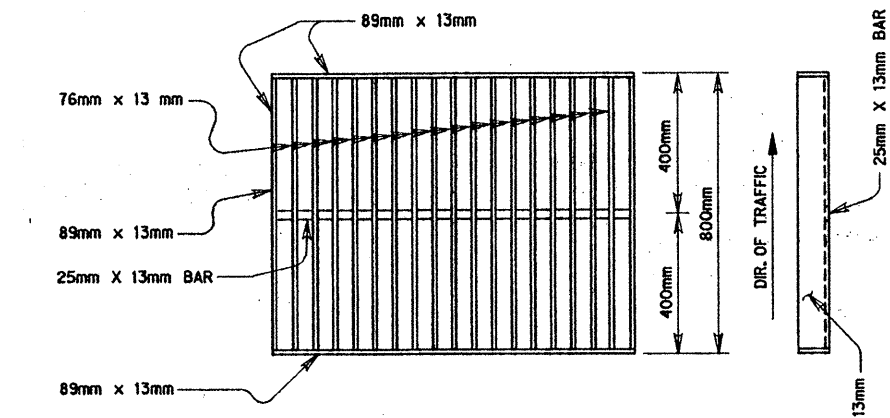


SEC. B-B
(DETAIL W/GRATE)



BARS A&B

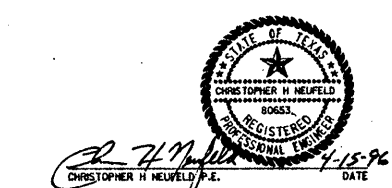
BARS C&D



GRATE TY 'CC' MOD. I, II, & III

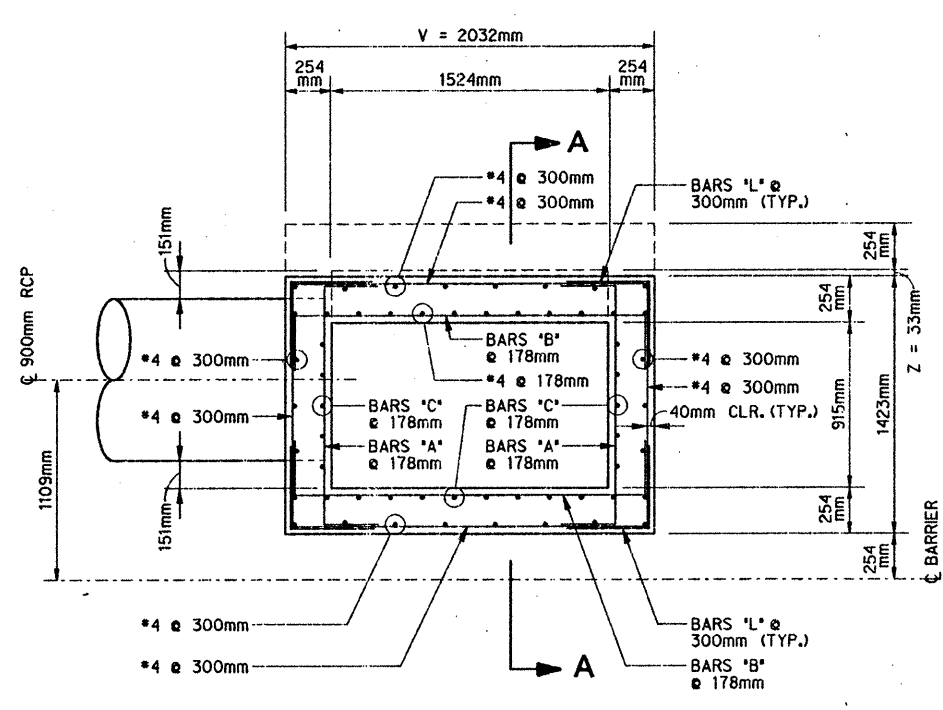
WELDED STEEL INLET GRATE
(TWO GRATES PER INLET)

NOTE: ALL STEEL REINFORCING TO BE NO. 4 BARS ON 300mm SPACING
IN BOTH DIRECTIONS. ALL STEEL TO BE GRADE 420.

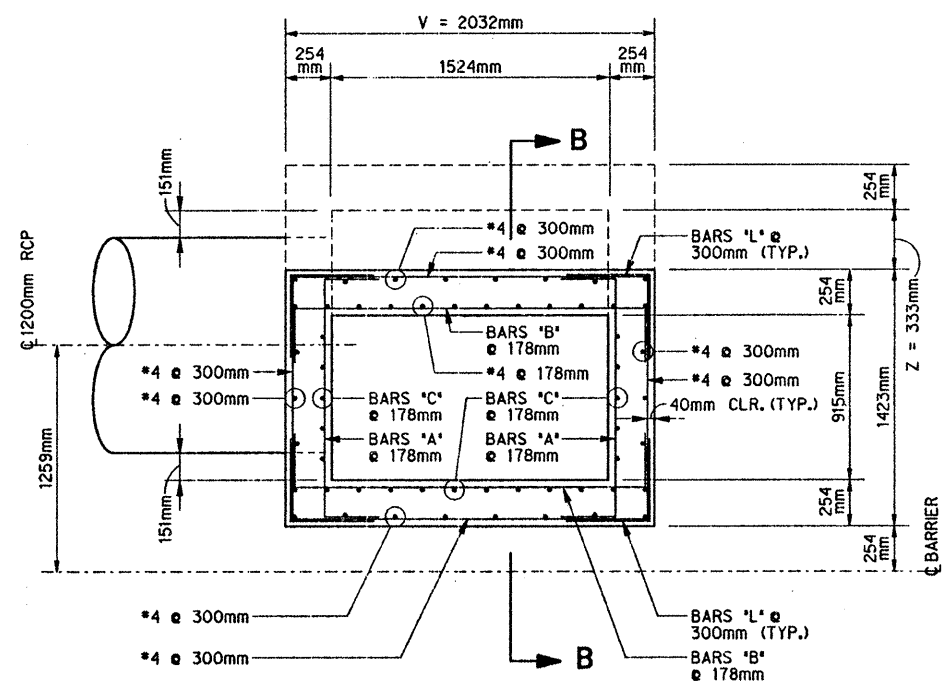


1
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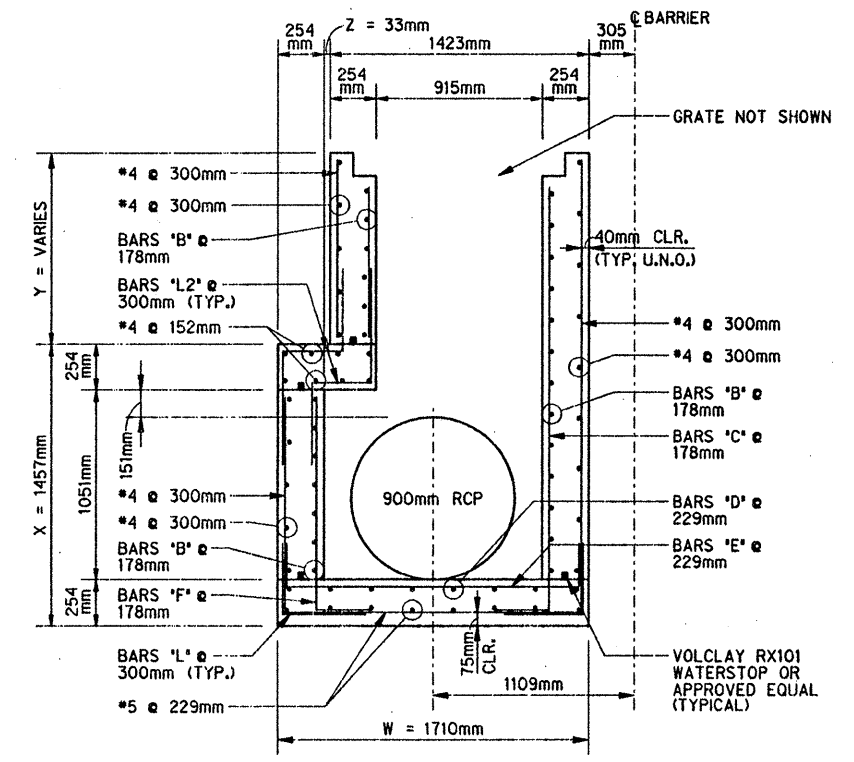
TYPE "CC" MOD I INLET DISTRICT STANDARD (MOD)									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET			
			NO.			NO.			
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT SECTION	JOB			
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4/15/96	82091MOD	N.T.S.	21	HIDALGO	ED 38	17	18	19	U.S. 83



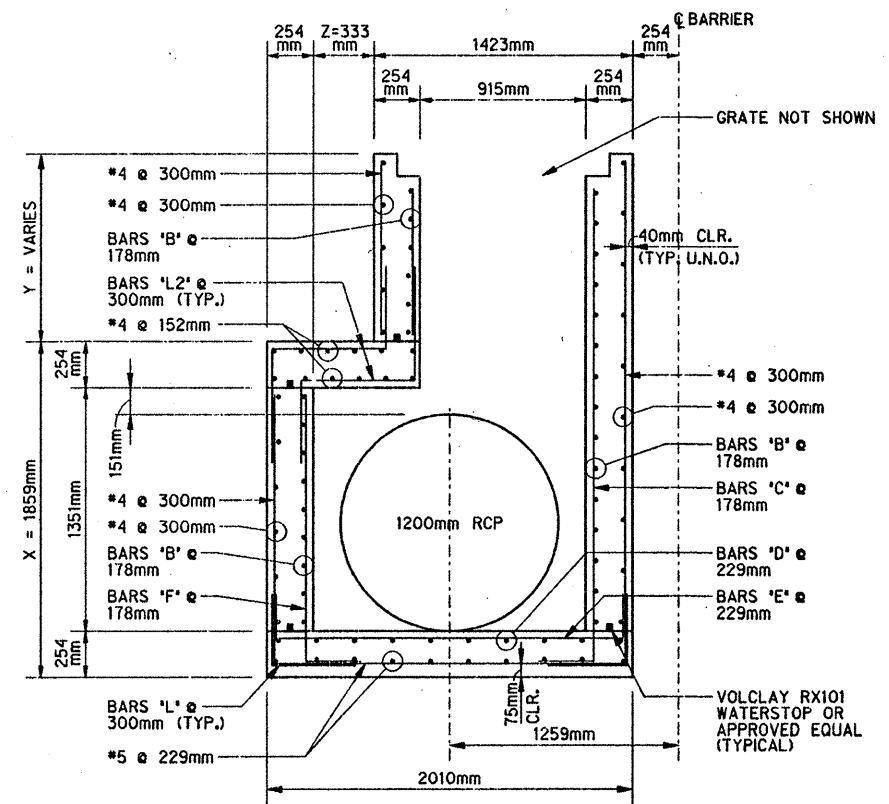
DETAIL - TYPE CC MOD II (900mm)
INLET (1 REQ'D)



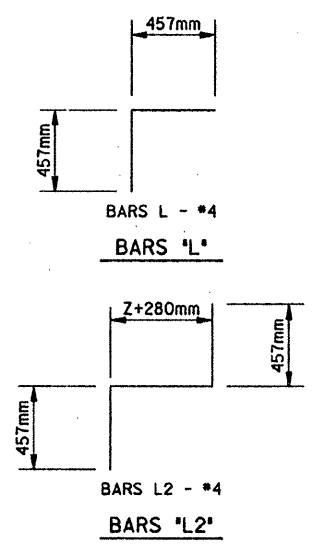
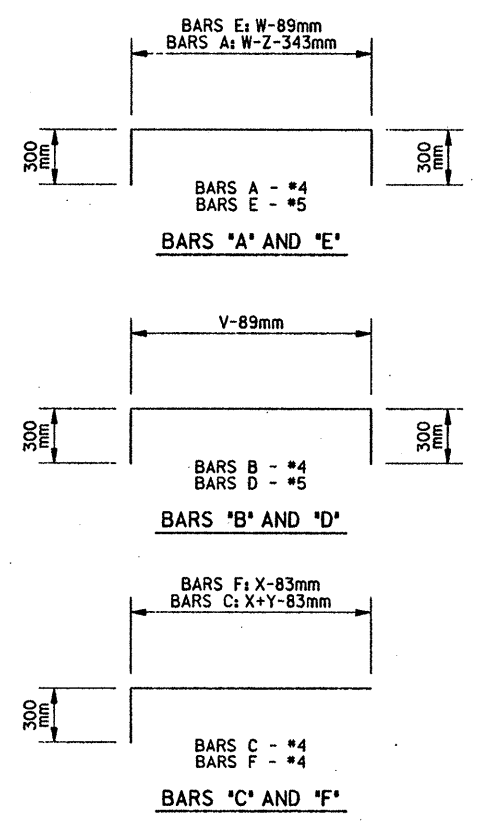
DETAIL - TYPE CC MOD III (1200mm)
INLET (4 REQ'D)



SECTION AA
TYPE CC MOD II (900mm)
INLET



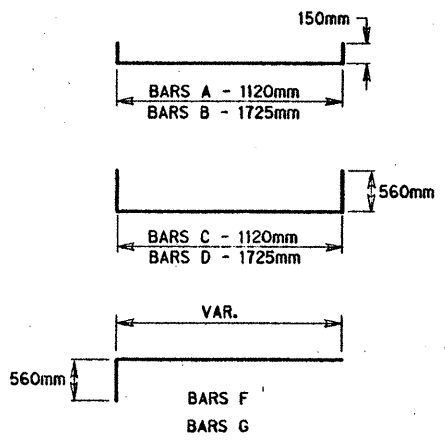
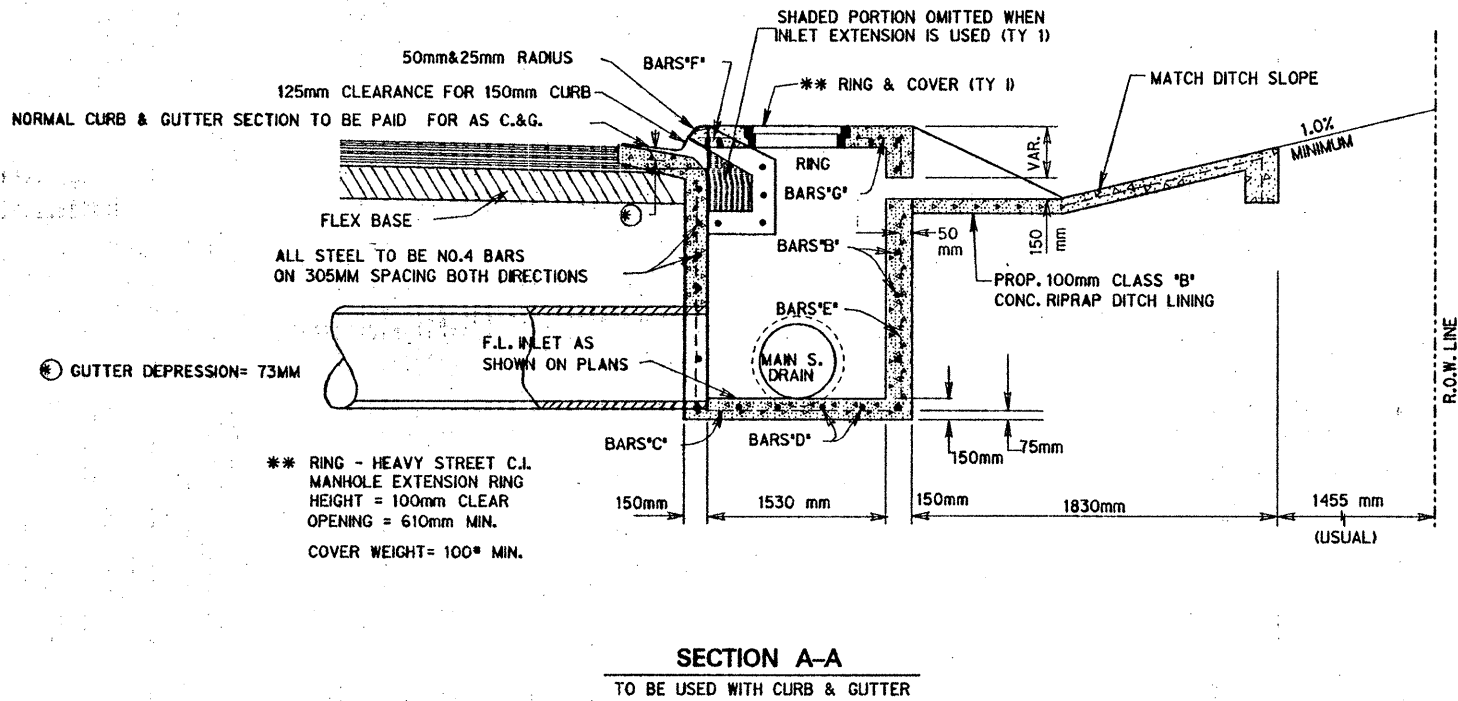
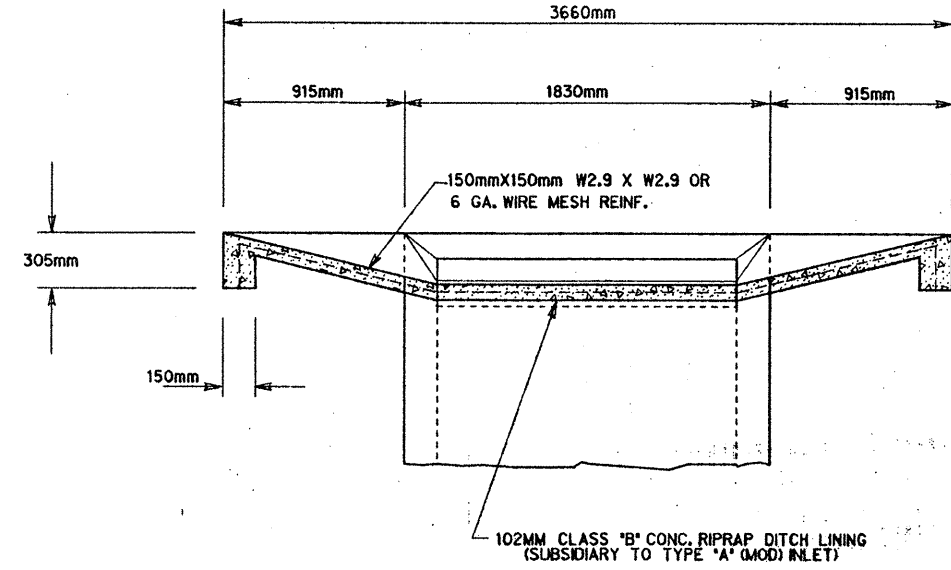
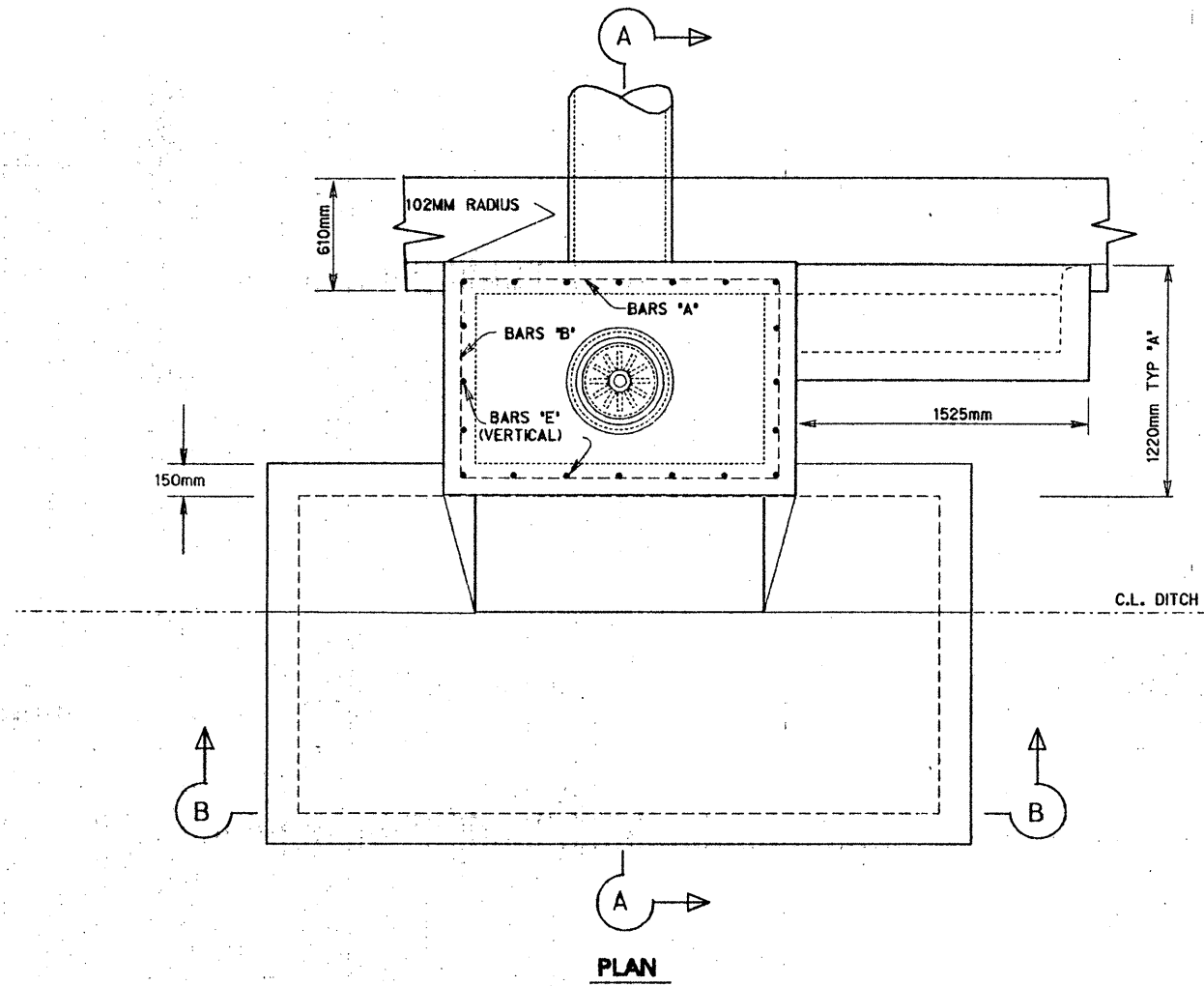
SECTION BB
TYPE CC MOD III (1200mm)
INLET



NOTE:
1. ALL CONCRETE SHALL BE CLASS 'A' U.N.O.
2. REFER TYPE 'CC' (MOD II) INLET SHEET FOR GRATE AND GRATE FRAME DETAILS.



TYPE "CC" (MOD II & III) INLET									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
DESIGNERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
	CADD		6	TEXAS	NA46(741) A	553			
DATE	FILE	SCALE	DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.	HIGHWAY NO.		
APRIL 1999	8200RDL3	N.T.S.	21	HIDALGO	DD 28	17	118	U.S. 83	



INLET TYPES	PIPE SIZE ALLOW (DIA)
A	455mm - 900mm



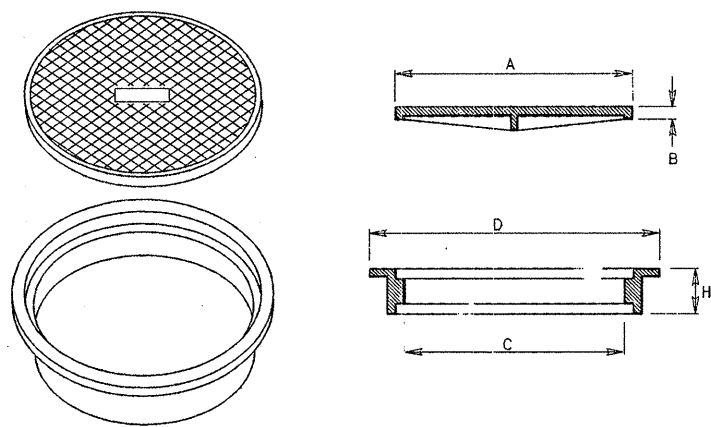
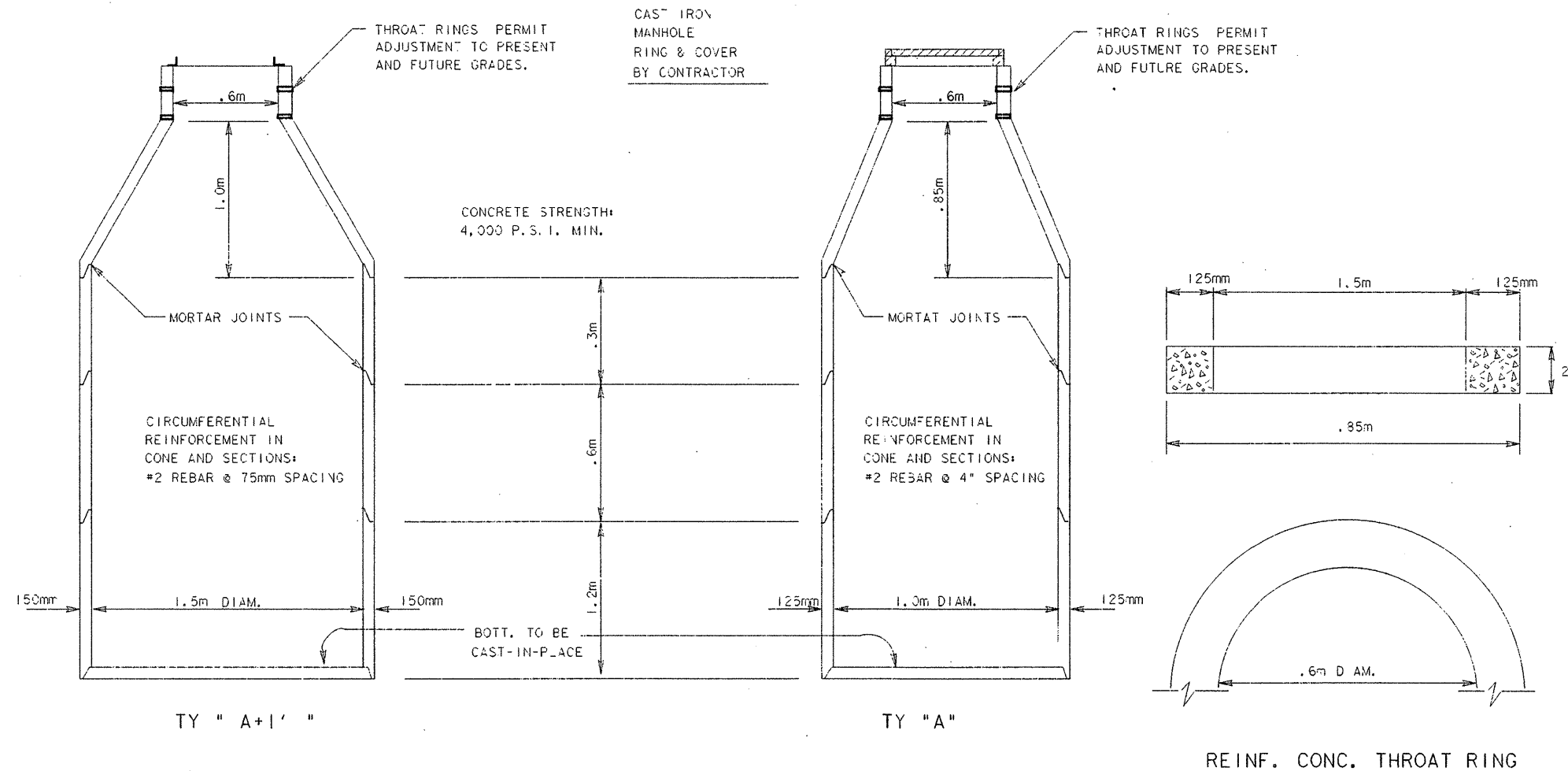
Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

INLET TYPE "A" (MOD)
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
EJR	CAOD		6	TEXAS	NH 96 (791)	388
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	620NLT7	N.T.R.	21	HIDALGO	10 30	17 118

U.S. 83



LID			RING		
"A"	"B"	WEIGHT	"C"	"D"	"H"
.65m	25mm	79kg (min.)	.6m	.8m	125mm

RING & COVER
 DETAILS (FOR MANHOLE TY "M" MOD.)
 TYPE II (NON-PAY)

NOTES: RINGS AND COVERS OF SLIGHTLY DIFFERENT DIMENSIONS BUT APPROXIMATELY THE SAME WEIGHT MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.

NOTE: FOR MANHOLES LOCATED WITHIN PAVED PORTIONS OF THE ROADWAY, THE COVER SHALL BE OF A TYPE THAT CAN BE BOLTED TO THE RING.

N. T. S. PHARR DISTRICT (M)

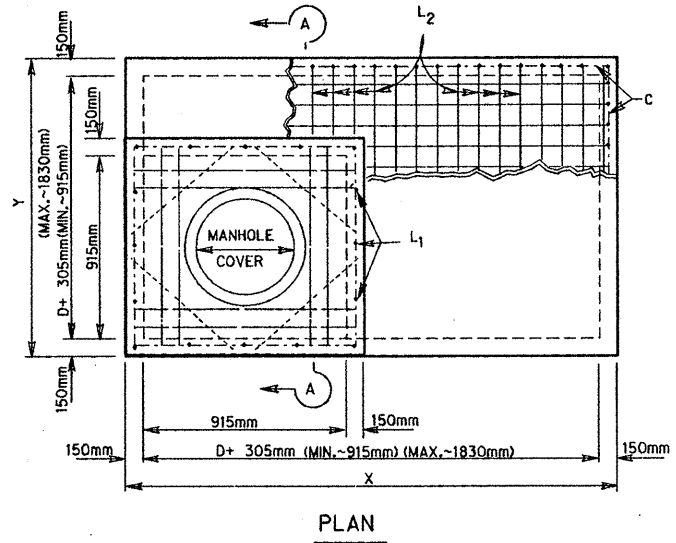
TEXAS DEPARTMENT OF TRANSPORTATION

TYPE "A" & TYPE "A + 1" MANHOLE (COMPLETE)

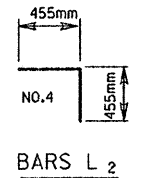
/USR2/G215613/83HALF/D21MH3.DGN

FED. RD. DIST. NO.	PROJECT NO.	FILE NO.	SHEET NO.
6	NH96 (191) M		356
STATE	COUNTY	CONT.	SECT.
TEXAS	HIDALGO	00 39	17 118
HIGHWAY NO.		US 83	

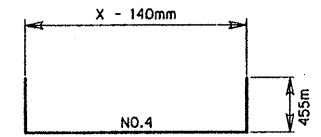
NOTE: RISER, EITHER CAST-IN-PLACE OR CONCRETE PIPE, MAY BE LOCATED IN ANY CORNER.



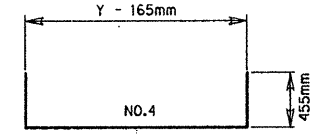
PLAN



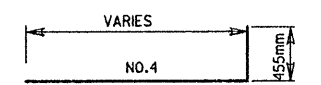
BARS L₁
BARS L₂



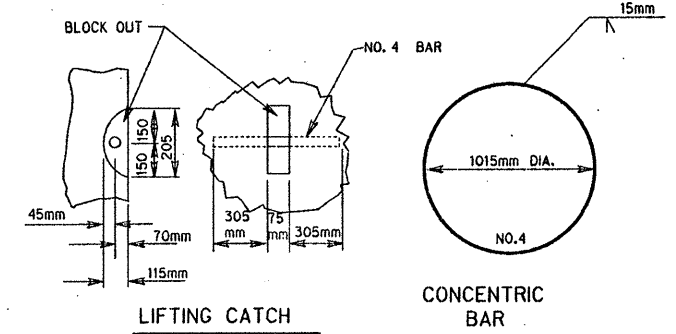
BARS B



BARS C

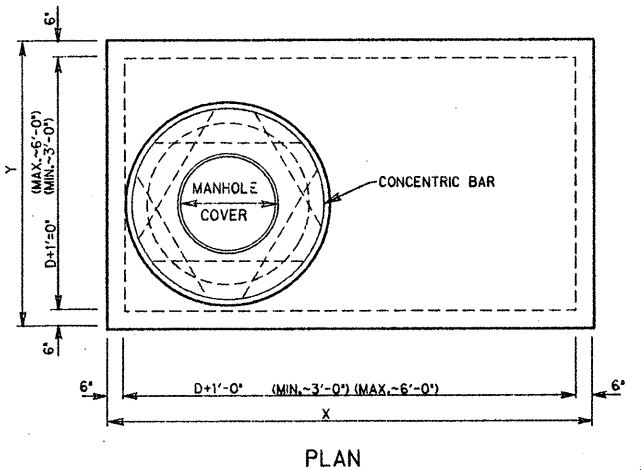


BARS O

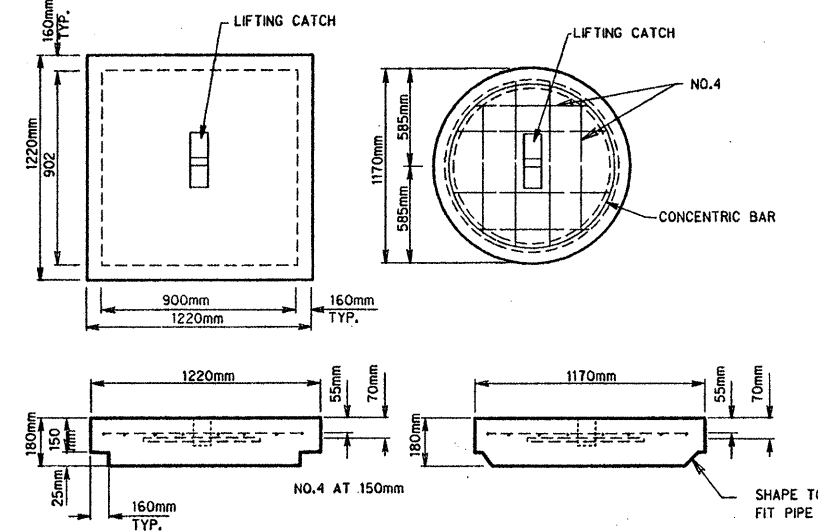


LIFTING CATCH

CONCENTRIC BAR



PLAN



ELEVATION

CAST-IN-PLACE RISER COVER

ELEVATION

CONCRETE PIPE RISER COVER

OPTIONAL PRECAST CONCRETE LIFT-OFF COVERS

GENERAL NOTES

UNLESS OTHERWISE SHOWN IF THE PLANS, PAYMENT WILL BE MADE FOR EACH MANHOLE OF THE TYPE M.
EXPOSED EDGES SHALL BE CHAMFERED 19mm.
ALTERNATE DESIGN DRAWINGS BEARING THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER WILL BE ACCEPTABLE FOR PRECAST CONSTRUCTION OF MANHOLES

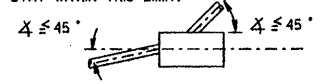
SHOP DRAWINGS WILL NOT BE REQUIRED.

THE CONTRACTOR MAY WITH THE APPROVAL OF THE ENGINEER FURNISH MANHOLES OF EQUIVALENT STRUCTURAL DESIGN.

IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, BLOCK-OUTS, PIPES, ANCHOR BOLTS OR OTHER REINFORCING STEEL, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.

THE RISER MAY BE CONSTRUCTED OF REINFORCED CONCRETE AS SHOWN OR OF REINFORCED CONCRETE PIPE, CLASS III, IN ACCORDANCE WITH ASTM DESIGNATION C-76. IF PIPES USED, JOINTS SHALL CONFORM TO THE ITEM 'REINFORCED CONCRETE PIPE CULVERTS'. PRECAST CONCRETE LIFT OFF COVER MAY BE SUBSTITUTED FOR 'RING AND COVER'.

CONNECTING PIPES SHOULD WITHIN 45° OF NORMAL TO INLET GRATE IF NECESSARY. PIPE ELBOW OR CURBED APPROACH ALIGNMENT SHOULD BE USED TO STAY WITHIN THIS LIMIT.

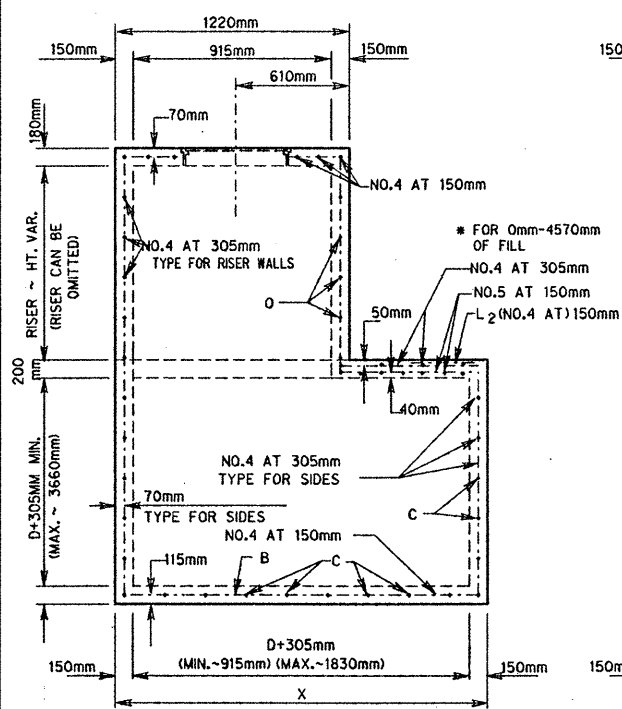


PIPES MAY ENTER ALL WALLS. THE MAXIMUM DIAMETER OF PIPE THAT CAN BE ACCOMMODATED IS 1524mm. MORE THAN ONE PIPE MAY ENTER A SIDE SUBJECT TO THE MAXIMUM BOX DIMENSIONS SHOWN. THE CLEAR DISTANCE BETWEEN ADJACEMENT PIPES SHOULD BE 229mm MINIMUM.



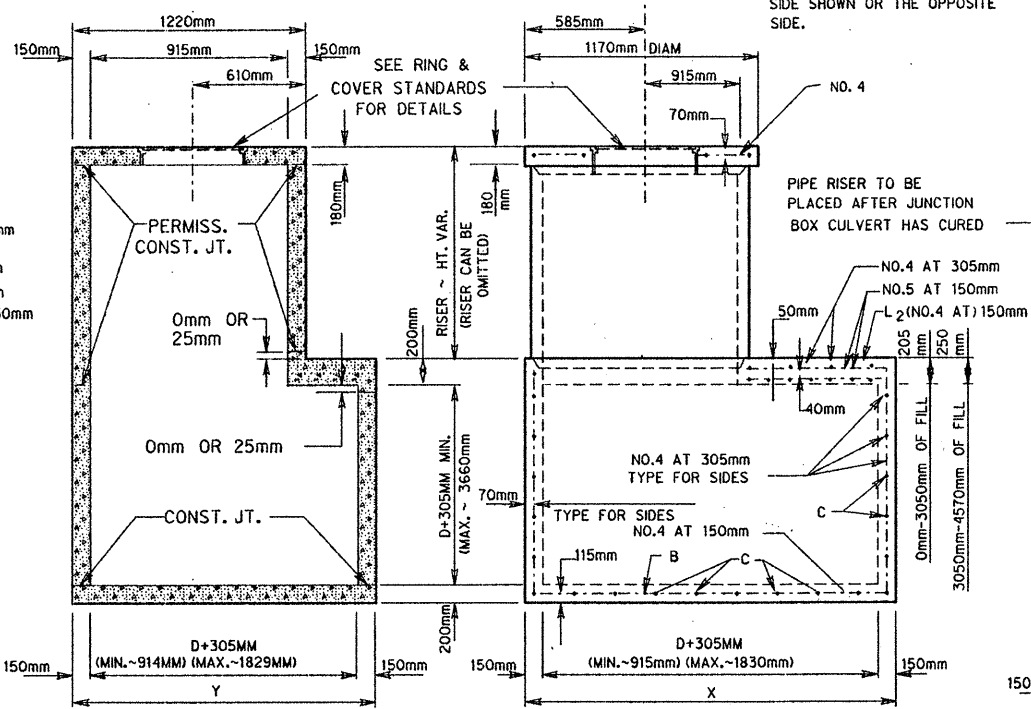
GREGORY A. JACOBS 4-15-96
DATE

D = MAXIMUM INSIDE DIAMETER OF ANY PIPE ENTERING THE SIDE SHOWN OR THE OPPOSITE SIDE.



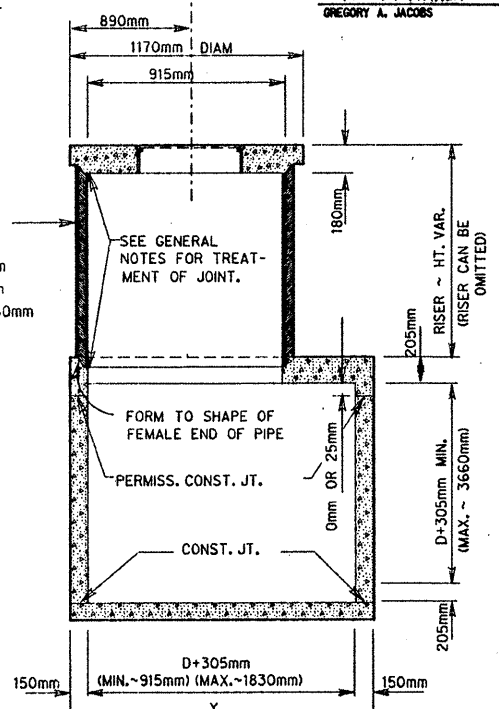
ELEVATION

MANHOLE WITH CAST-IN-PLACE RISER



SECTION A-A

OPTIONAL MANHOLE WITH PIPE RISER



SECTION B-B

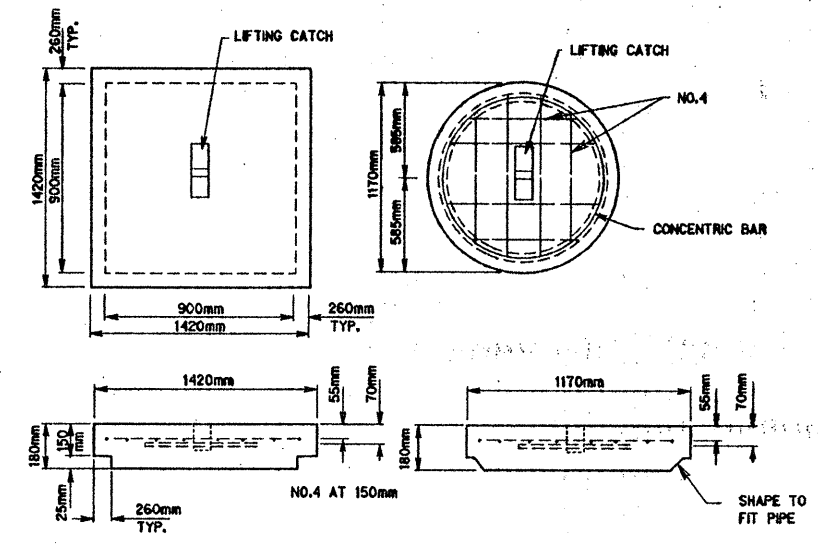
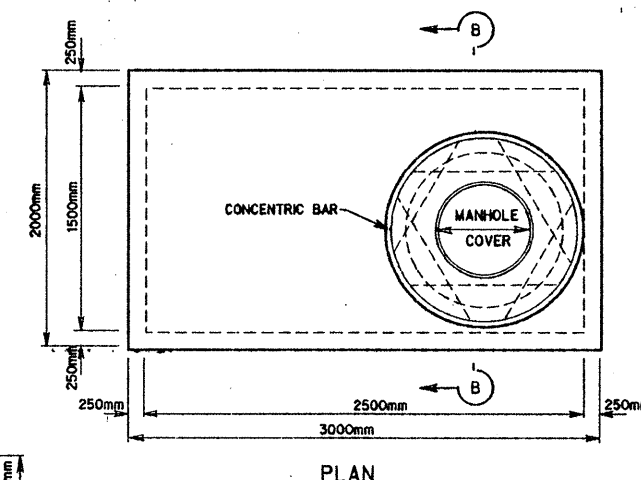
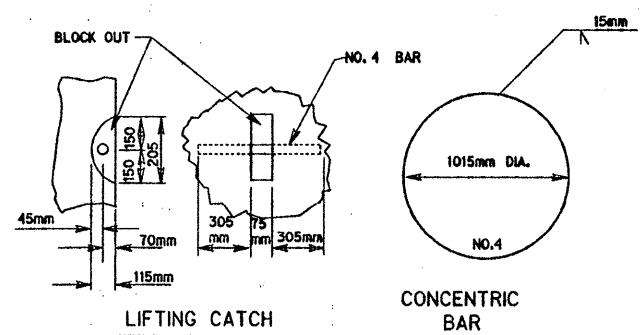
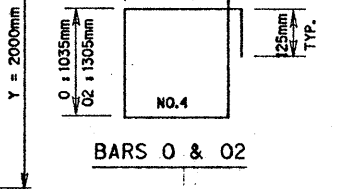
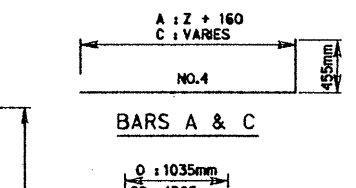
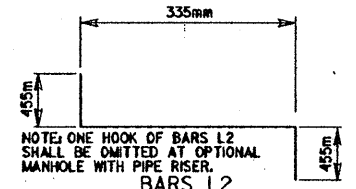
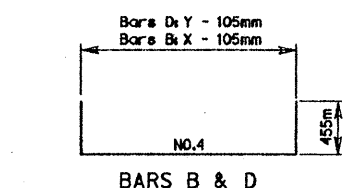
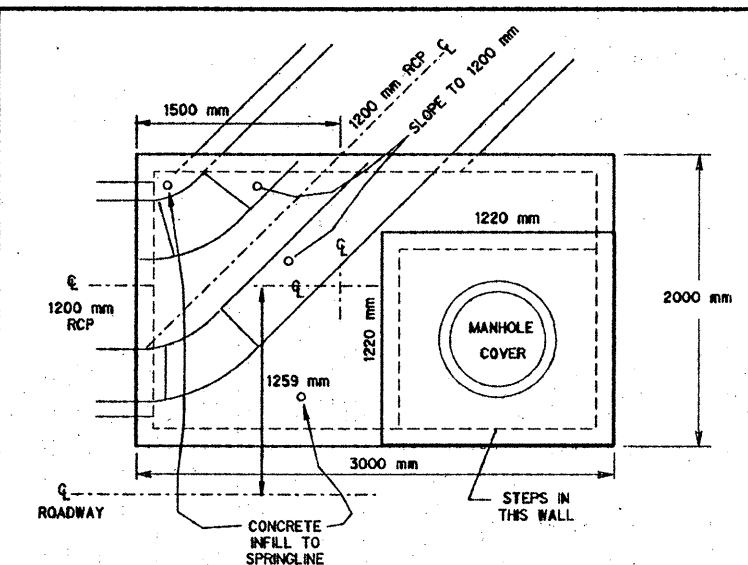
TEXAS DEPARTMENT OF TRANSPORTATION
MANHOLE TYPE M (MOD)
DETAILS
(JUNCTION BOX WITH ACCESS)

DISTRICT STANDARD (M) (MOD)

PROJ. NO.	FILE NO.	SHEET NO.
6	4496 (191) M	357
STATE	COUNTY	CONT.
TEXAS	HIDALGO	39
SECT.	JOB	HIGHWAY NO.
17	118	US 83

N.T.S.
620DMH2

620DMH2.DGN



ELEVATION
CAST-IN-PLACE RISER COVER
ELEVATION
CONCRETE PIPE RISER COVER
OPTIONAL PRECAST CONCRETE LIFT-OFF COVERS

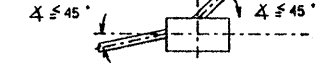
GENERAL NOTES
UNLESS OTHERWISE SHOWN IN THE PLANS, PAYMENT WILL BE MADE FOR EACH MANHOLE OF THE TYPE M.
EXPOSED EDGES SHALL BE CHAMFERED 19mm.
ALTERNATE DESIGN DRAWINGS BEARING THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER WILL BE ACCEPTABLE FOR PRECAST CONSTRUCTION OF MANHOLES.

SHOP DRAWINGS WILL NOT BE REQUIRED.
THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, FURNISH MANHOLES OF EQUIVALENT STRUCTURAL DESIGN.

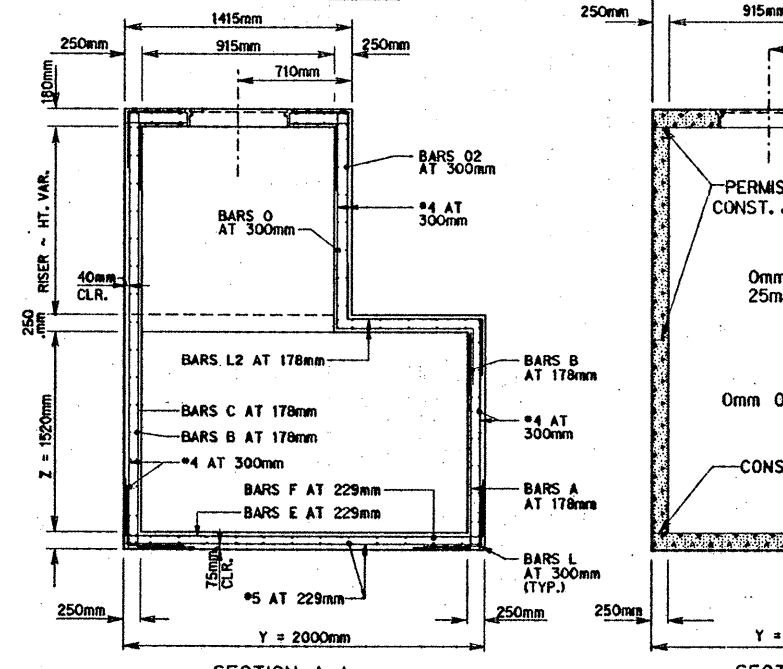
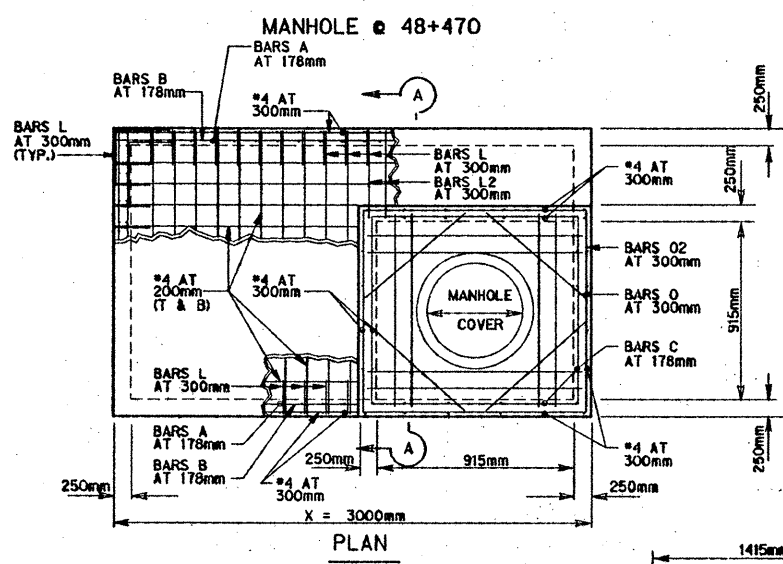
IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, BLOCK-OUTS, PIPES, ANCHOR BOLTS OR OTHER REINFORCING STEEL, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.

THE RISER MAY BE CONSTRUCTED OF REINFORCED CONCRETE AS SHOWN OR OF REINFORCED CONCRETE PIPE, CLASS III, IN ACCORDANCE WITH ASTM DESIGNATION C-76. IF PIPE IS USED, JOINTS SHALL CONFORM TO THE ITEM 'REINFORCED CONCRETE PIPE CULVERTS'. PRECAST CONCRETE LIFT OFF COVER MAY BE SUBSTITUTED FOR 'RING AND COVER'.

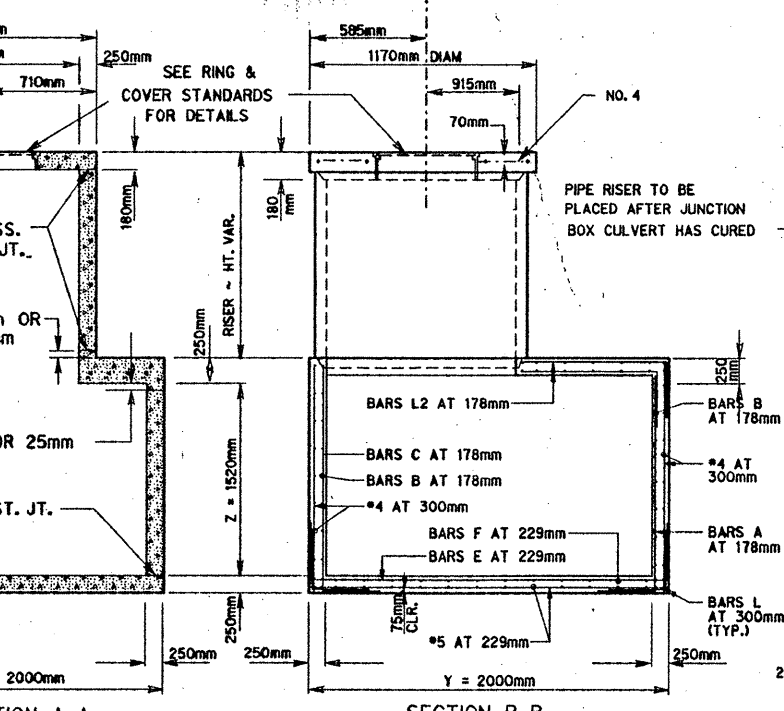
CONNECTING PIPES SHOULD WITHIN 45° OF NORMAL TO INLET GRATE. IF NECESSARY, PIPE ELBOW OR CURBED APPROACH ALIGNMENT SHOULD BE USED TO STAY WITHIN THIS LIMIT.



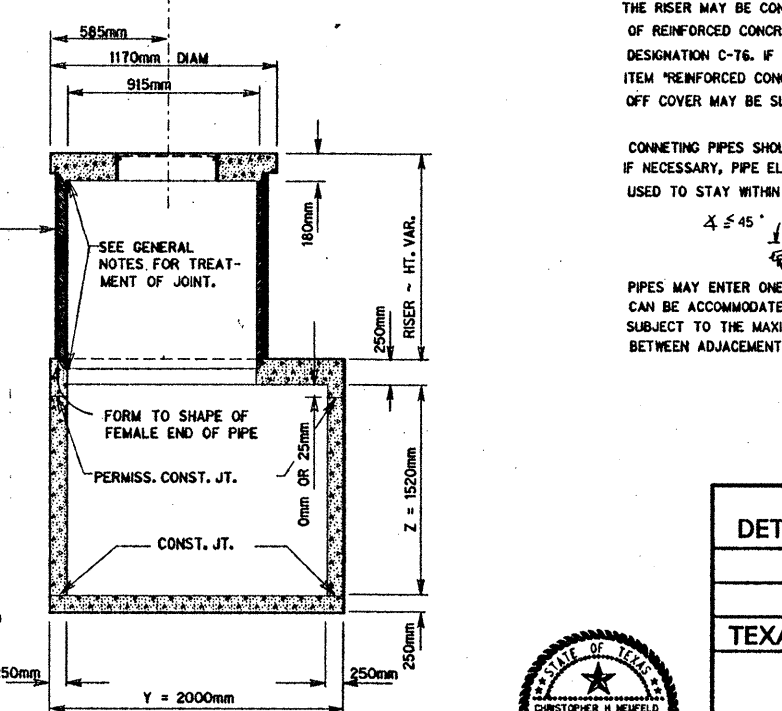
PIPES MAY ENTER ONE OR ALL WALLS. THE MAXIMUM LENGTH OF PIPE THAT CAN BE ACCOMMODATED IS 1524mm. MORE THAN ONE PIPE MAY ENTER A SIDE SUBJECT TO THE MAXIMUM BOX DIMENSIONS SHOWN. THE CLEAR DISTANCE BETWEEN ADJACEMENT PIPES SHOULD BE 229mm MINIMUM.



SECTION A-A
MANHOLE WITH CAST-IN-PLACE RISER



SECTION A-A
OPTIONAL MANHOLE WITH PIPE RISER



SECTION B-B
OPTIONAL MANHOLE WITH PIPE RISER

MANHOLE TYPE M (MODIFIED I)
DETAILS (JUNCTION BOX WITH ACCESS)
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

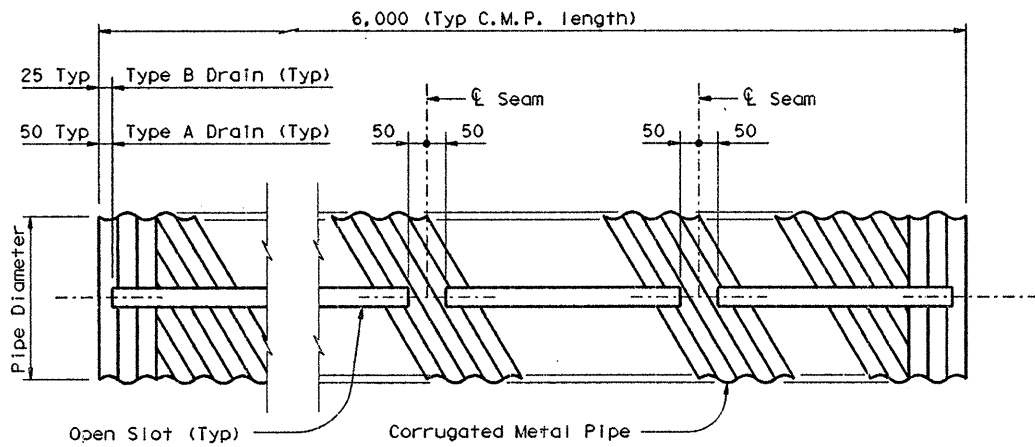
Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS



DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		6	TEXAS	HH96(09) M	358
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APR 1998	8004LHM	N.T.S.	21	HIDALGO	00 39	17

DISCLAIMER: The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT is not responsible for any damages, results or consequences resulting from its use.

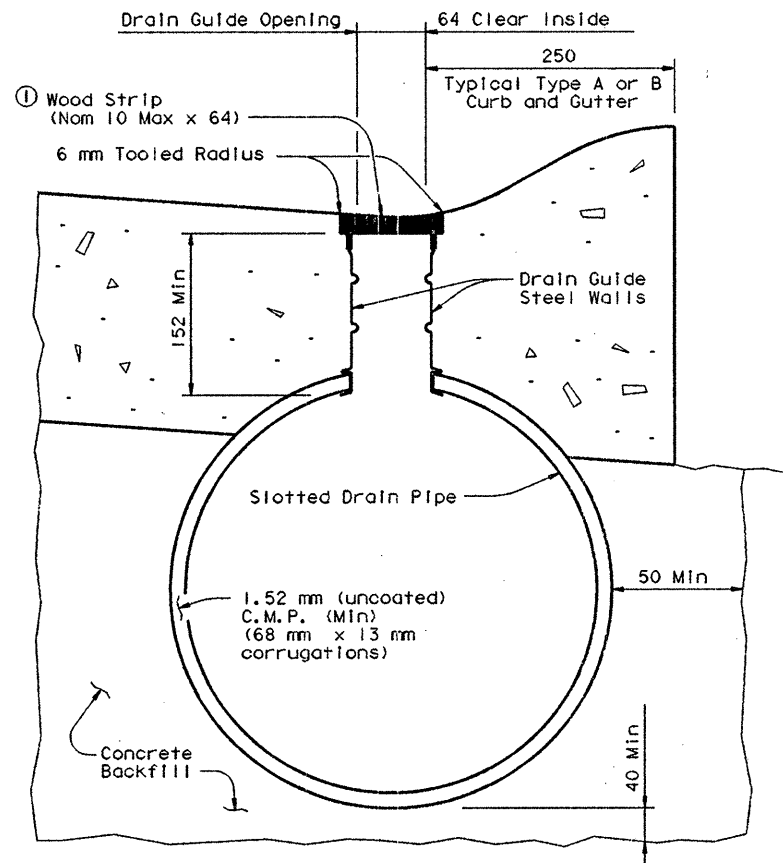
LEVELS DISPLAYED
ACC: []
(LV=1.2 English & 1.3 Metric)



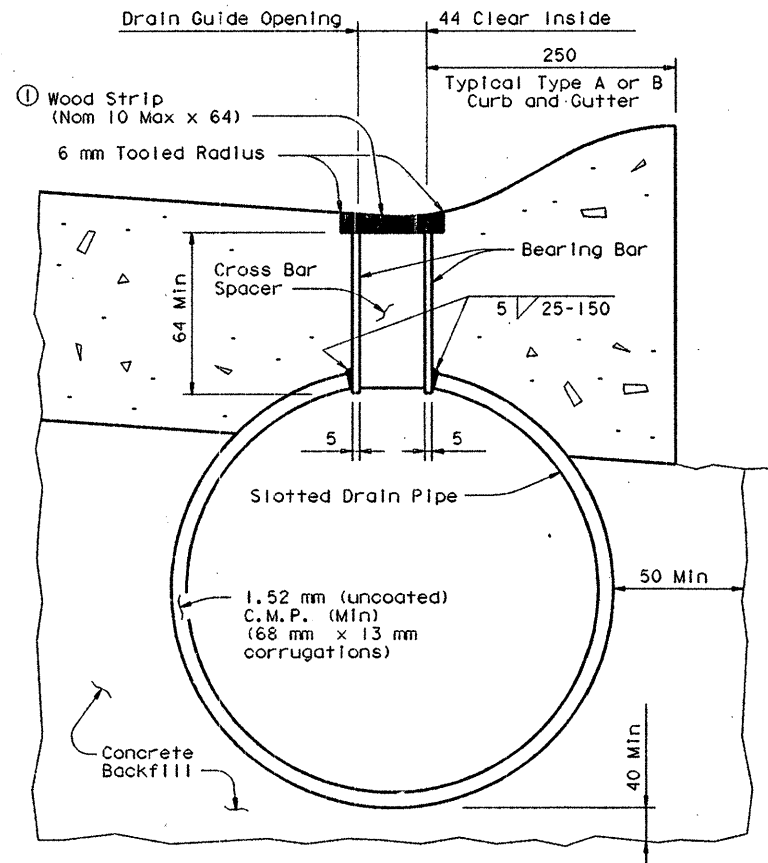
SLOTTED CORRUGATED METAL PIPE (C.M.P.) DETAIL

GENERAL NOTES:

Slot assemblies shall conform to the provisions of Item 474, "Slotted Drains".
 All welding shall be in accordance with Item 448, "Structural Welding".
 The Corrugated Galvanized Pipe shall be in accordance with Item 460, Corrugated Metal Pipe.
 Trenches for slotted drains and outfall pipe shall be backfilled with 38 mm minimum (or as shown otherwise) low strength concrete (minimum 2.6 sacks of cement per cubic meter) as directed by the Engineer.
 Outfall Connection slip joint shall be backed with a suitable compressible material to retain grout in place during curing.
 Slotted Drain shall be furnished in 6,000 mm lengths wherever practical to minimize the number of joints required.
 The Contractor may furnish either of the designs as shown.
 All dimensions are in mm (millimeters) unless otherwise specified.



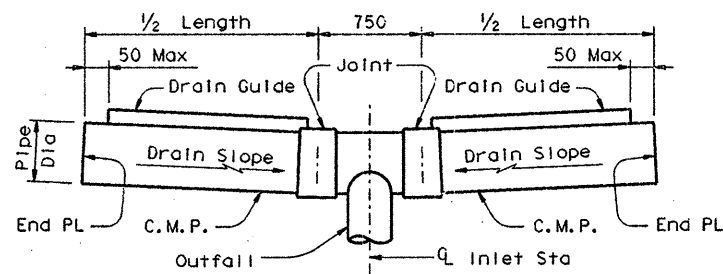
TYPE B SLOTTED DRAIN



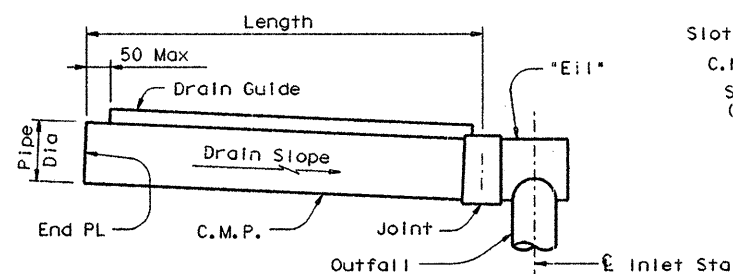
TYPE A SLOTTED DRAIN

① Wood strip may be omitted if suitable protection is provided during curb placement.

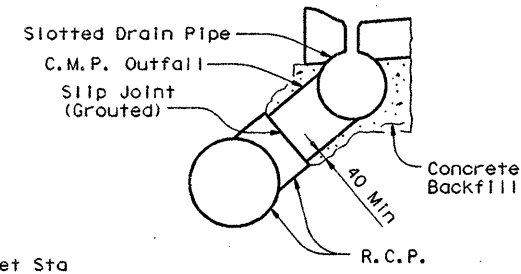
TYPICAL SECTIONS



TYPICAL TYPE "T" DRAIN INSTALLATION



TYPICAL TYPE "L" DRAIN INSTALLATION



BACKFILL DETAIL



Mark A. Steves
4-26-96

SHEET 1 OF 2

Texas Department of Transportation
Design Division (Bridge)

**ROADWAY DRAIN DETAILS
(SLOTTED DRAIN)**

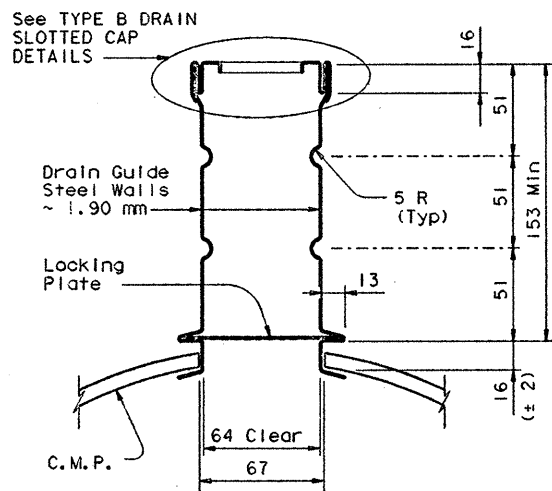
SD (M)(MOD)

FILE: sdst001.dgn	DN: MAS	CK: JRP	MA: MAS	ST: B276M
ORIG DATE: December 1995	DIST: 6	FED REG: NH96 (791)M	SHEET: 359	
REVISIONS:	21	6		
COUNTY: HIDALGO	CONTROL: 039	SECT: 17	JOB: 118	HIGHWAY: 83

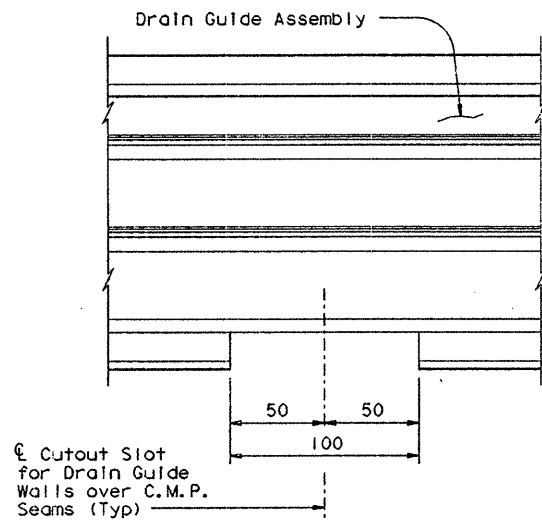
REVISOR 5-28-96

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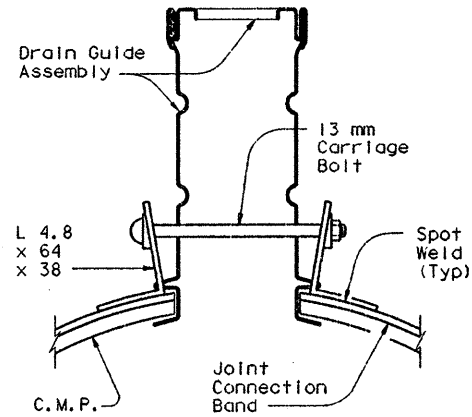
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LEVELS DISPLAYED	
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2	
3	



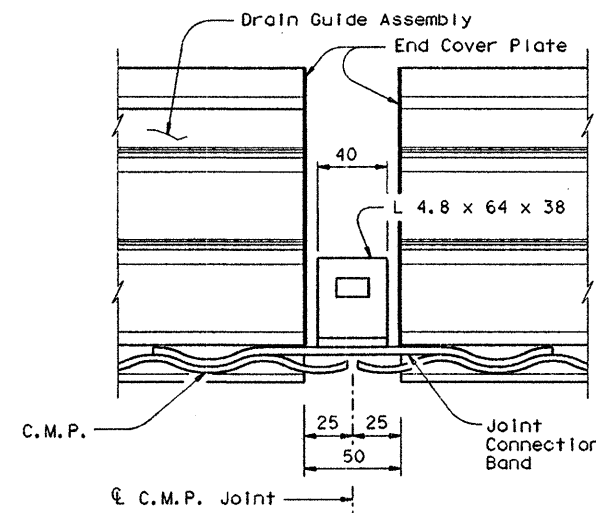
TYPE B DRAIN GUIDE DETAIL TRANSVERSE SECTION



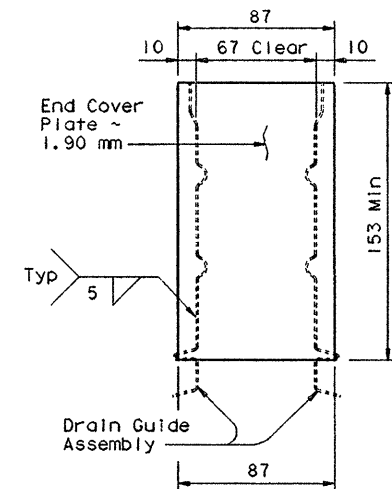
TYPE B DRAIN CUT OUT AT PIPE SEAM LONGITUDINAL SECTION



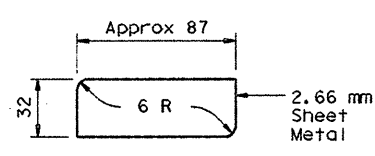
TYPE B DRAIN PIPE JOINT CONNECTION TRANSVERSE SECTION



TYPE B DRAIN PIPE JOINT CONNECTION LONGITUDINAL SECTION

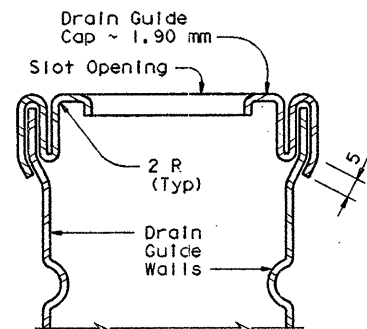


TYPE B DRAIN GUIDE END COVER PLATE TRANSVERSE SECTION

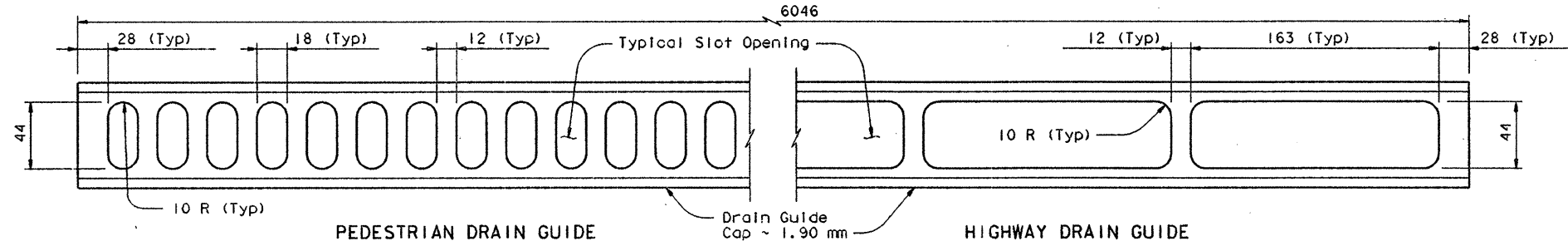


Plates to be installed at each end of Drain Guide, at each centerline location of seams on pipe, and at mid-point of each open slot.

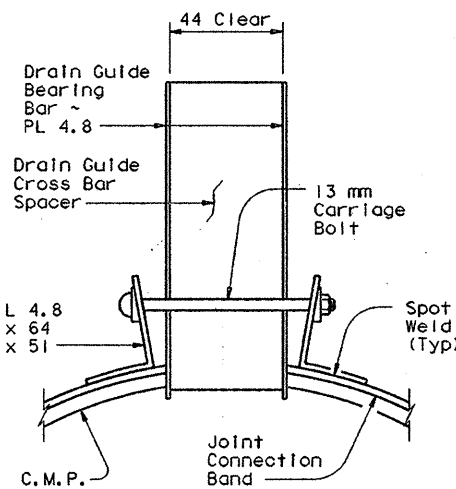
TYPE B DRAIN LOCKING PLATE DETAILS



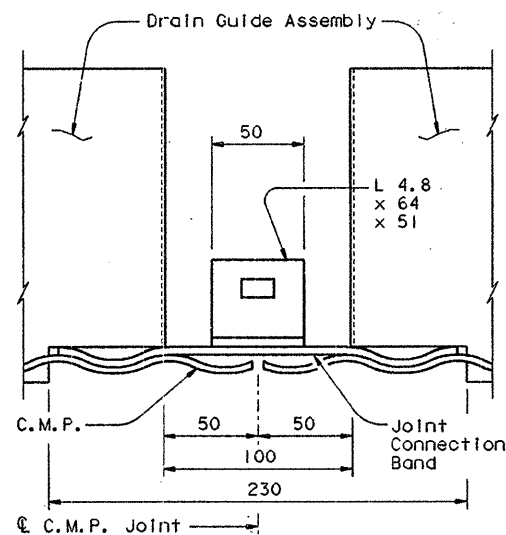
TYPE B DRAIN SLOTTED CAP DETAILS



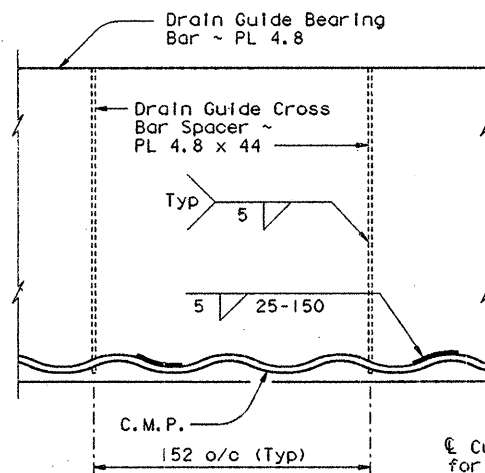
TYPE B DRAIN SLOTTED CAP PLAN



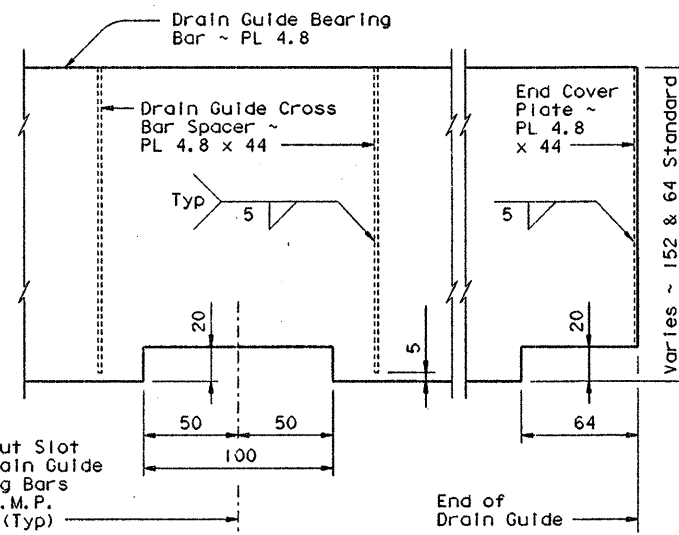
TYPE A DRAIN PIPE JOINT CONNECTION TRANSVERSE SECTION



TYPE A DRAIN PIPE JOINT CONNECTION LONGITUDINAL SECTION



TYPE A DRAIN WELDING DETAILS LONGITUDINAL SECTION



TYPE A DRAIN CUT OUTS AT PIPE SEAM AND AT DRAIN END LONGITUDINAL SECTION



Mark A. Steves
4-26-96

SHEET 2 OF 2

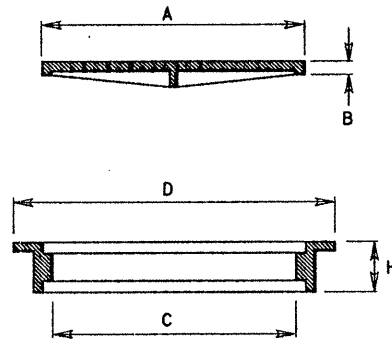
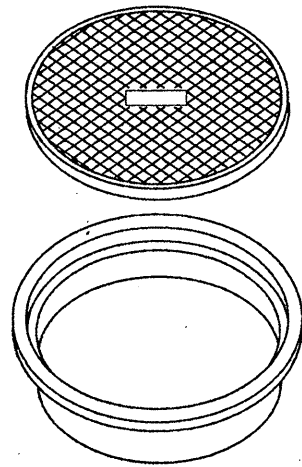
Texas Department of Transportation
Design Division (Bridge)

**ROADWAY DRAIN DETAILS
(SLOTTED DRAIN)**

SD (M)(MOD)

FILE#	sdstd001.dgn	DN#	MAS	CK#	JRP	CK#	MAS	STW#	B276M
ORIG DATE	December 1995	DIST	FED REG	FEDERAL AID PROJECT		SHEET			
REVISIONS	21	6	NH 96 (791)M	360					
	COUNTY	CONTROL	SECT	JOB	FLIGHT				
	HIDALGO	039	17	118	83				

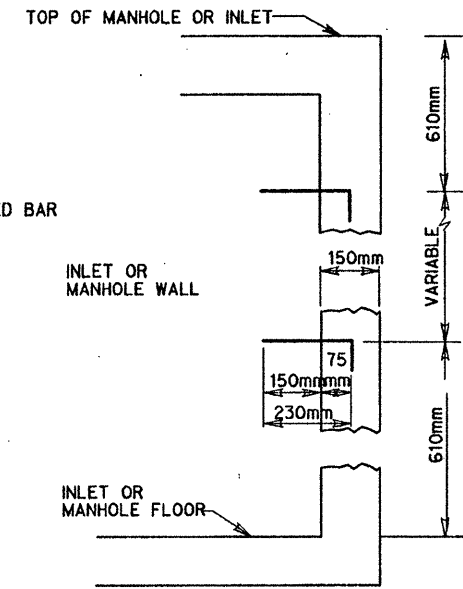
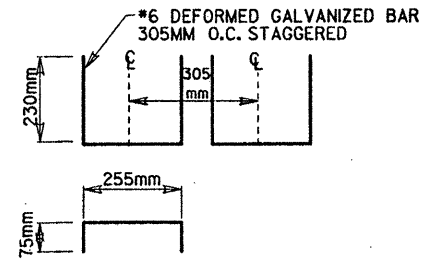
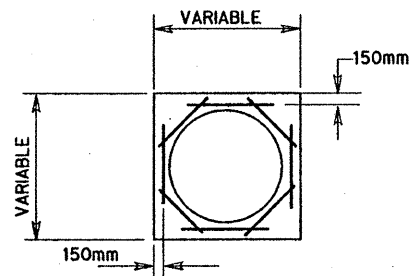
REV. 5/28/96



LID			RING		
A	*B*	WEIGHT	*C*	*D*	*H*
650mm	25mm	79kg (min.)	610mm	815mm	125mm

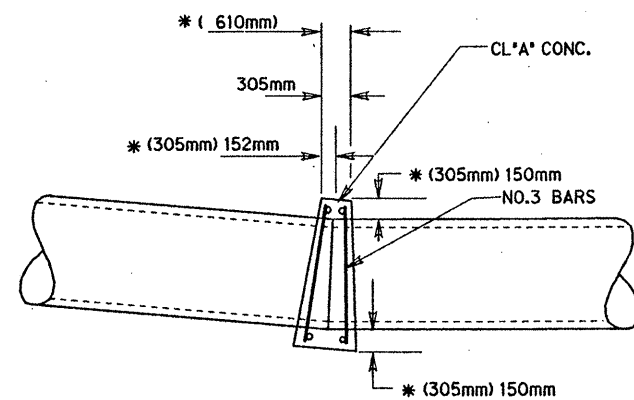
**RING & COVER
DETAILS (FOR MANHOLE TY "M" MOD. & MOD. I)
TYPE II (NON-PAY)**

NOTES: RINGS AND COVERS OF SLIGHTLY DIFFERENT DIMENSIONS BUT APPROXIMATELY THE SAME WEIGHT MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



STEPS DETAIL

- NOTE:
- STEPS WILL BE REQUIRED IN ALL MANHOLES & INLETS OVER 1.25 m IN DEPTH.
 - GALVANIZATION OF BARS WILL BE IN ACCORDANCE WITH ITEM 442.
 - PRE-MANUFACTURED STEPS MAY BE ALLOWED WITH THE APPROVAL OF THE ENGINEER.
 - IF THE CONTRACTOR INTENDS TO USE STEPS OTHER THAN #6 DEFORMED GALVANIZED BARS, APPROVAL WILL BE REQUIRED BEFORE ANY INLETS OR MANHOLES ARE CAST.
 - STEPS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO THE MANHOLE AND INLET ITEMS.
 - RING & COVER AND GRATES OPENINGS SHALL BE OFFSET TOWARD AND WITHIN 150mm FROM THE WALL WHERE THE STEPS ARE TO BE PLACED.
 - STEPS WILL BE @ 455mm INTERVALS.



**DETAIL FOR CONC. COLLARS
ON STORM DRAINS AND
IRRIGATION PIPELINES**

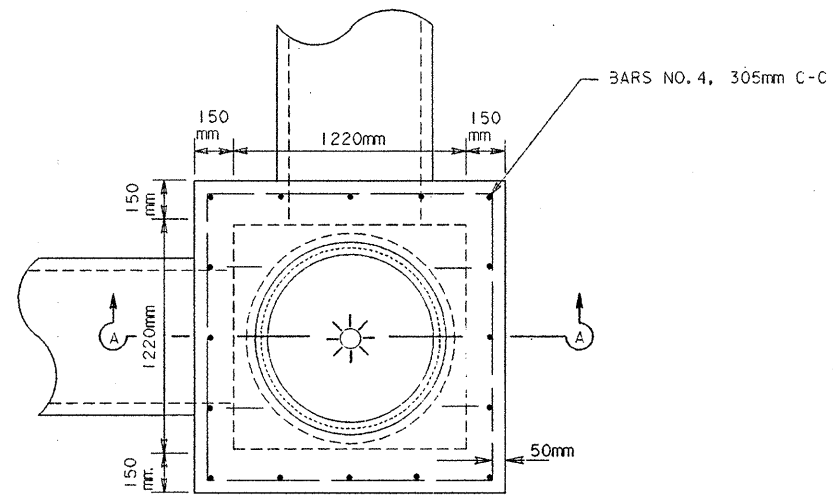
NOTE: PROP. CONC. COLLARS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO BIDS ITEM INVOLVED

* FOR 1065mm AND LARGER PIPE



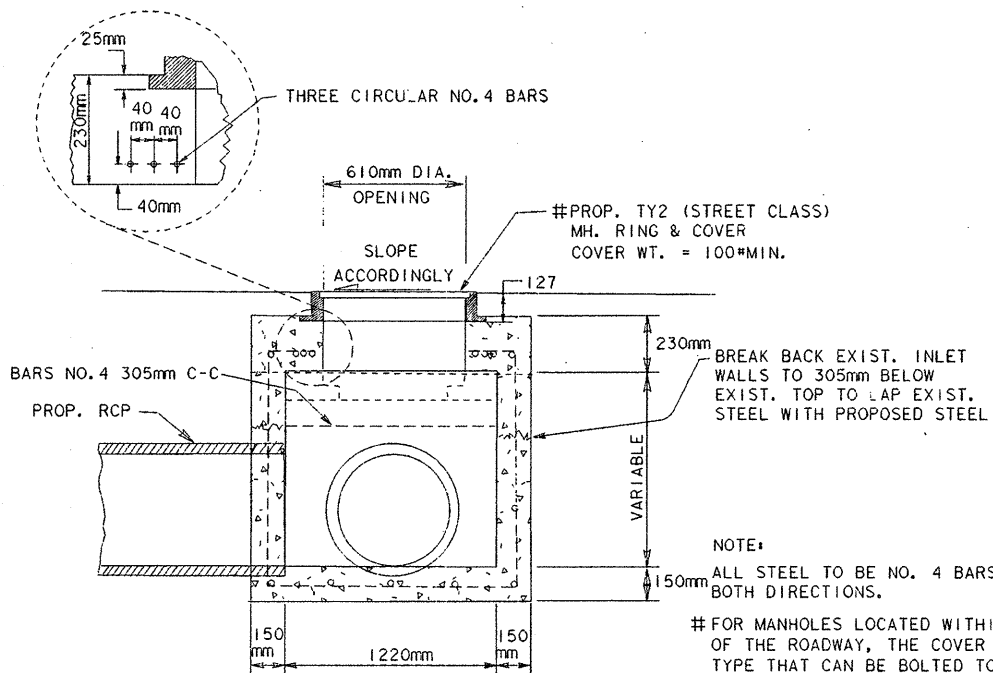
Gregory A. Jacobs 4-15-76
GREGORY A. JACOBS DATE

DISTRICT STANDARD MOD (M)							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
	CADD		#	TEXAS	7136(791)	261	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY
APRIL 1976	620NLS	NONE	21	HIDALGO	0030	17	118 U.S. 83



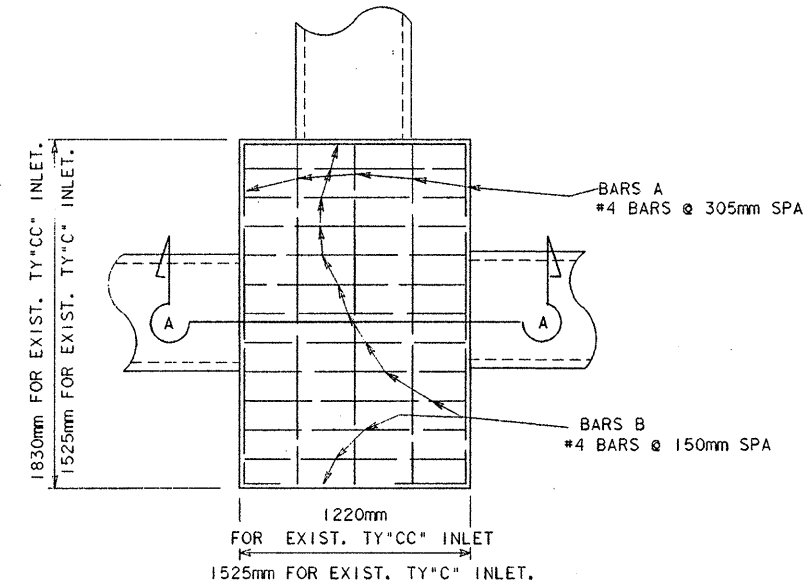
PLAN VIEW

(TO BE PAID UNDER ITEM 479 "ADJUST INLET (JCT BOX)")

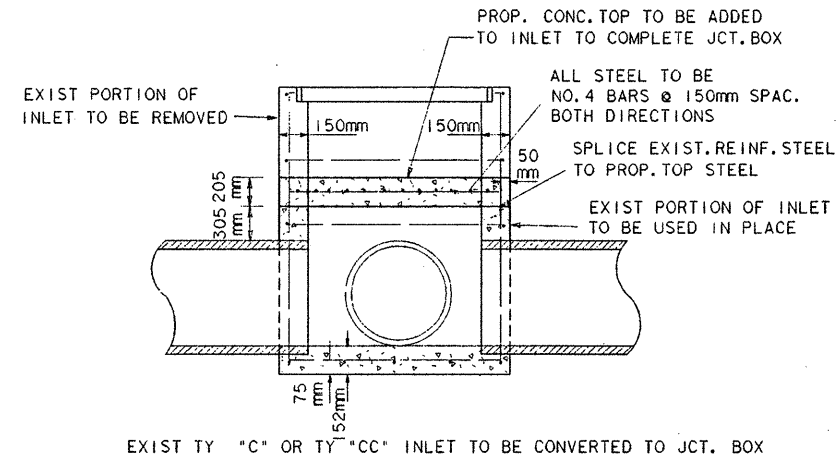


SECTION A-A
ADJUST INLET (JUNCT. BOX)

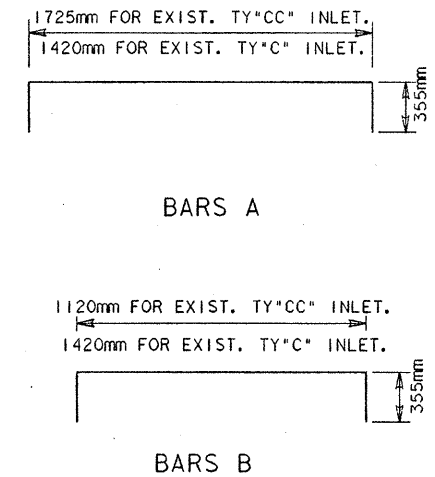
NOTE:
ALL STEEL TO BE NO. 4 BARS, 305MM C-C IN BOTH DIRECTIONS.
FOR MANHOLES LOCATED WITHIN PAVED PORTIONS OF THE ROADWAY, THE COVER SHALL BE OF A TYPE THAT CAN BE BOLTED TO THE RING.



PLAN



SECTION A-A
ADJ. INLET (CAP)



BARS A

BARS B

DISTRICT STANDARD (M)

 TEXAS DEPARTMENT OF TRANSPORTATION

INLET AND MANHOLE
CAPPING DETAIL

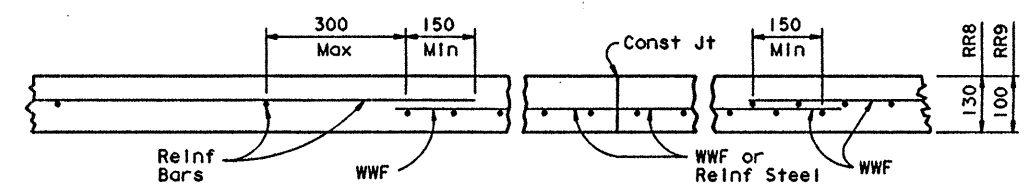
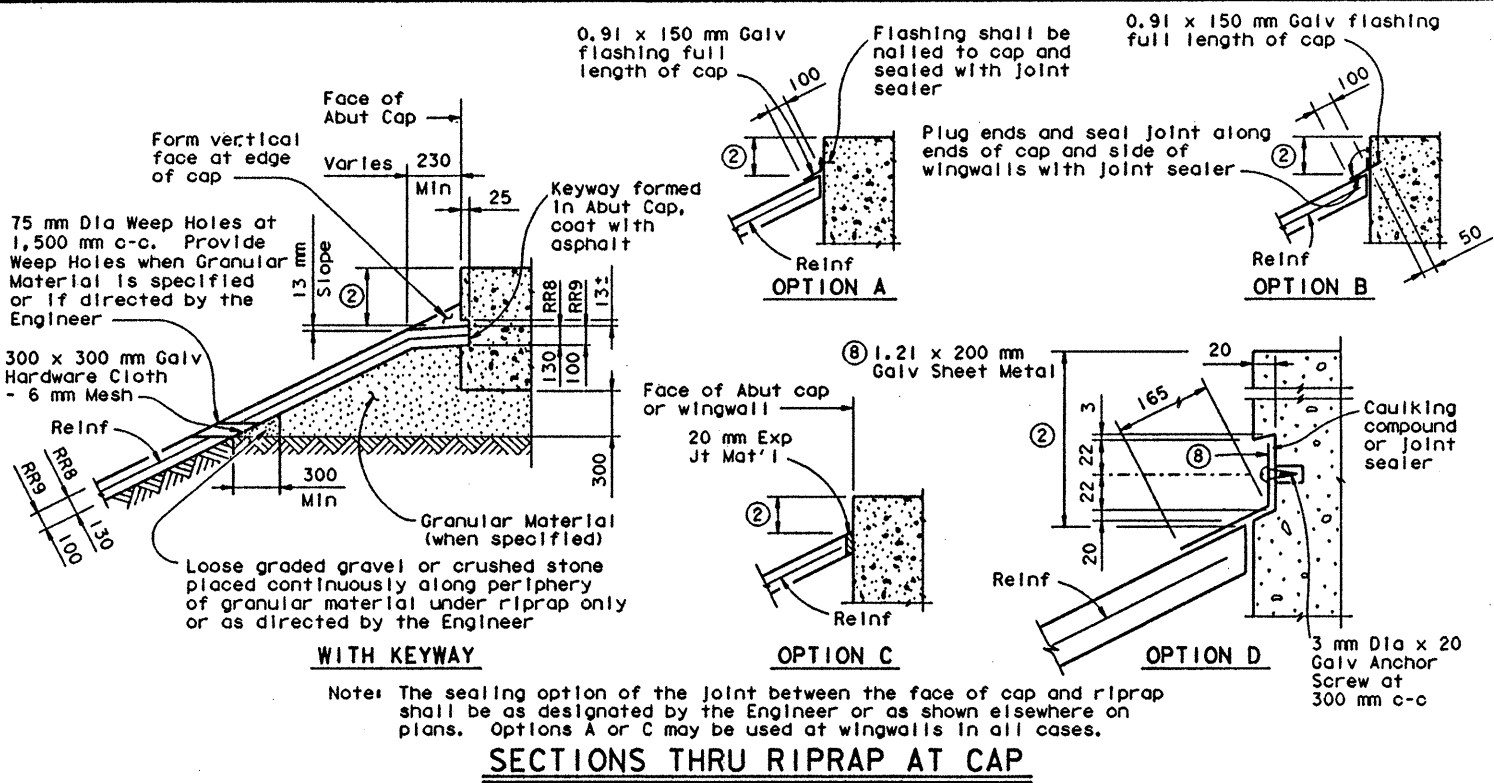
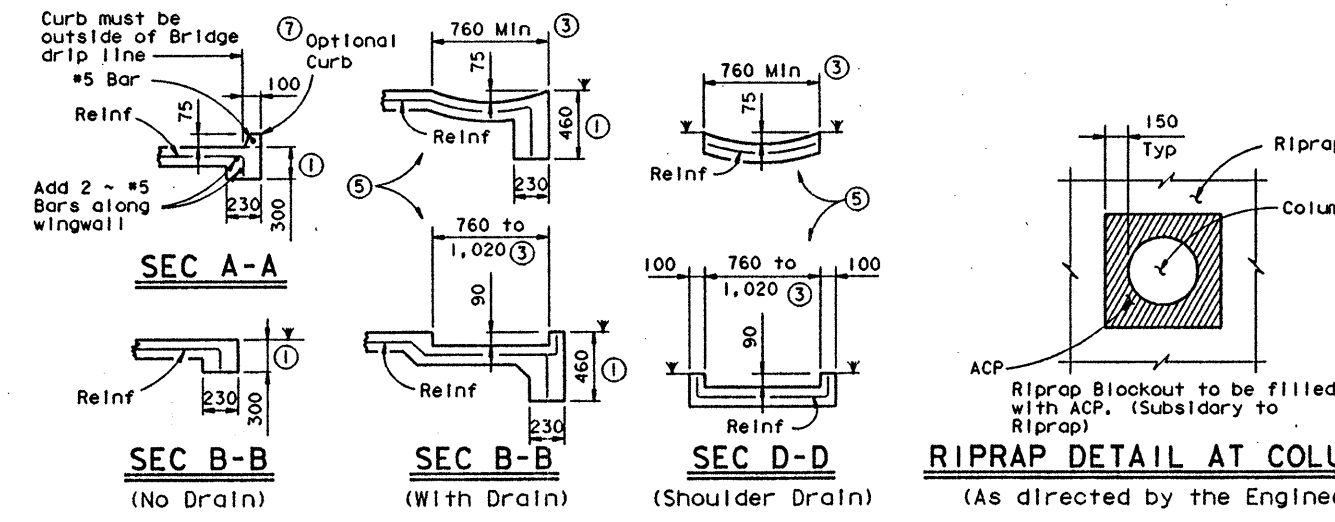
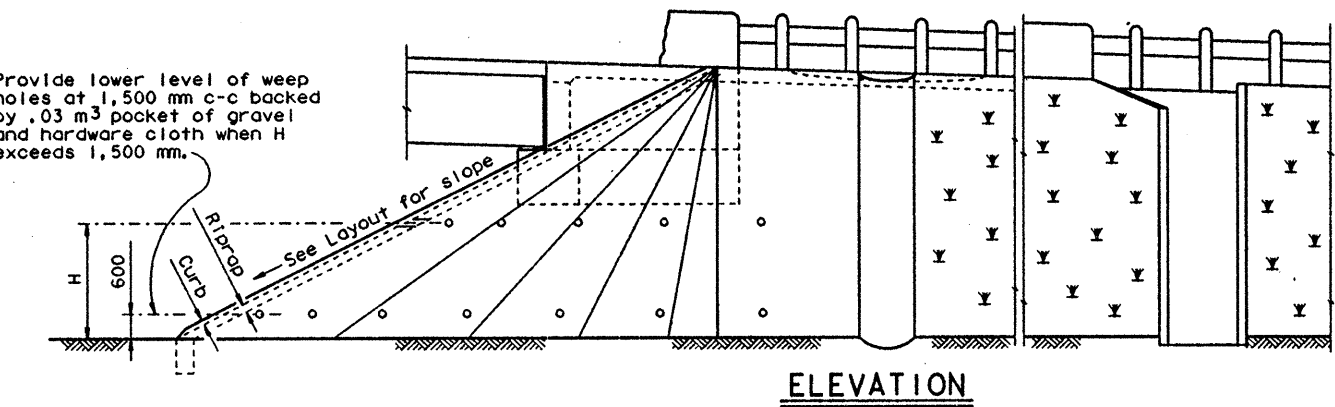
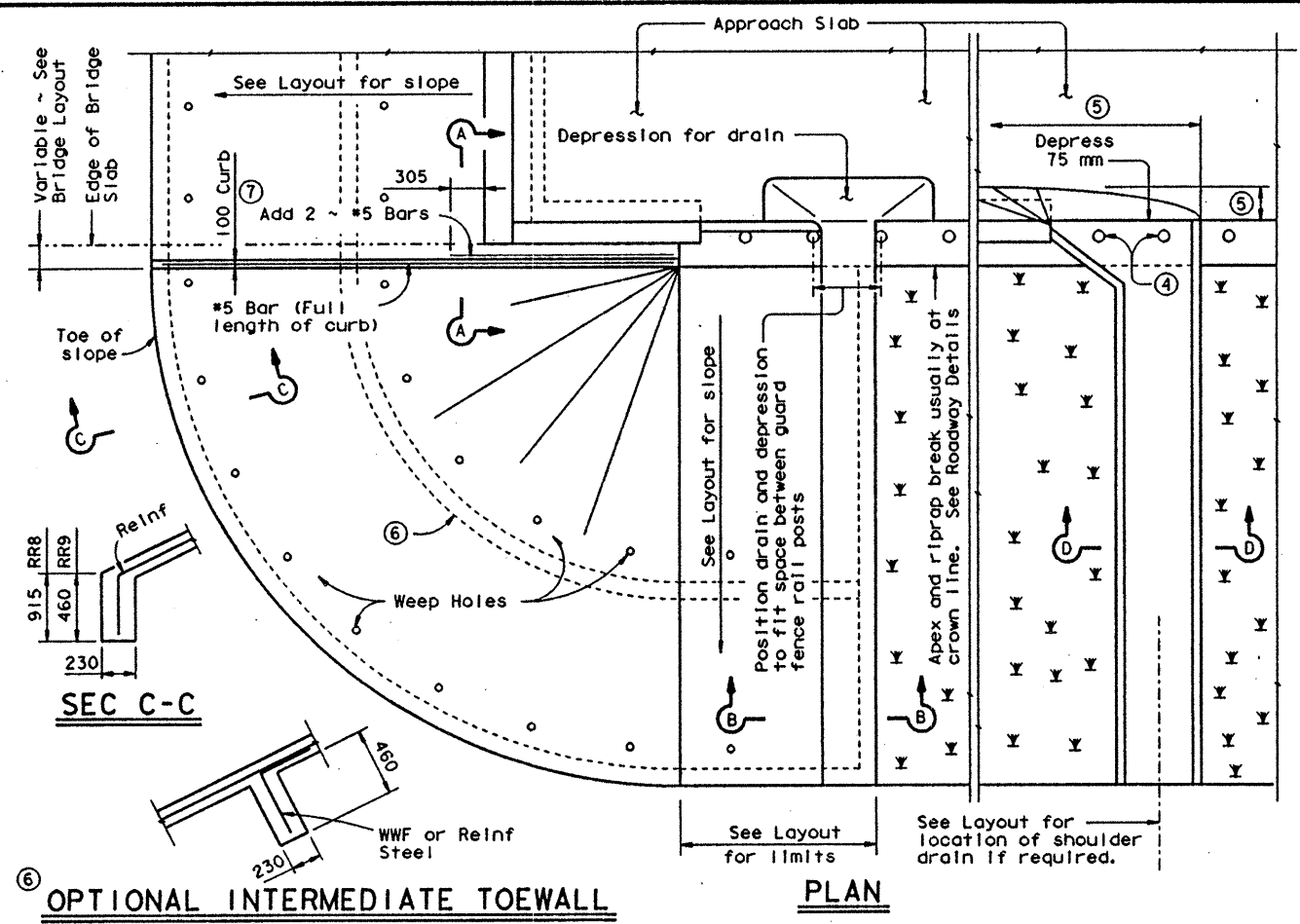
SHEET OF SHEETS

/USR2/G215613/83HALF/D21MHI.DGN

FED. RD. DIV. NO.	FILE NO.	PROJECT NO.	SHEET NO.
6	NH 96 (191) M		362
STATE	COUNTY	CCN.	SECT. JOB HIGHWAY NO.
TEXAS	HIDALGO	00 39	17 118 US 83

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED	ACCP
1	
2	
3	



Note: Reinforcing bars shall be #3 at 450 mm spac c-c. Welded wire fabric shall be 152 x 152 - MW19 x MW19. Combinations of WWF and reinforcing bars may be used if both are permitted. Lap splices shall be a minimum of 150 mm, measured from the transverse wire of WWF, and the ends of reinforcing bars.

DETAILS OF WWF, REINF AND CONST JOINT

- Wall extension may be reduced or modified if approved by the Engineer. Wall extension shall be increased to 460 mm whenever the optional intermediate toewall is called for in the plans.
- Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 230 mm Min for stringer type bridges and 460 mm for slab type bridges.
- Wider or other drain configurations shall be used if shown elsewhere in plans or if directed by the Engineer.
- A 300 mm Dia void should be provided in the riprap at the guard fence location. Backfill with 100 mm of ACP if directed by the Engineer.
- Limits and configuration of drains and depressions shall be as shown elsewhere in plans or as directed by the Engineer.
- The optional intermediate toe wall shall be constructed when designated elsewhere in the plans or included in the specifications.
- When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 100 mm curb.

GENERAL NOTES

Concrete shall be Class B unless noted elsewhere in plans.
Reinforcing other than that shown may be used by substituting reinforcement of equal or greater unit cross-sectional area. The Maximum reinforcement spacing shall be 450 mm.
Construction joints or grooved joints extending the full slant slope height shall be at intervals of approximately 6,000 mm unless otherwise directed by the Engineer.
Porous Concrete Filter Blanket and Gravel Backfill shall be placed if shown elsewhere in the plans or if directed by the Engineer.
Hardware cloth, loose graded stone behind weep holes, flashing, or other sealing material shall not be paid for directly but shall be subsidiary to the bid item, Riprap.
Unless specified elsewhere in the plans to be only reinforcing bars, the riprap reinforcing may be composed of reinforcing bars, welded wire fabric, or any suitable combination of both types.
See Layout for limits of riprap.
RR8 is to be used on stream crossings.
RR9 is to be used on other embankments.
All dimensions are in millimeters unless otherwise shown.

FOR CONTRACTOR'S INFORMATION ONLY:
130 mm of RR8 = .130 m³/m²
100 mm of RR9 = .100 m³/m²
#3 Reinf at 450 mm c-c = 2.49 kg/m²
152 x 152 - MW19 x MW19 = 2.05 kg/m²

Texas Department of Transportation
Design Division (Bridges)

CONCRETE RIPRAP FOR EMBANKMENT SLOPES UNDER BRIDGE ENDS (TYPES RR8 & RR9)

CRR (M)

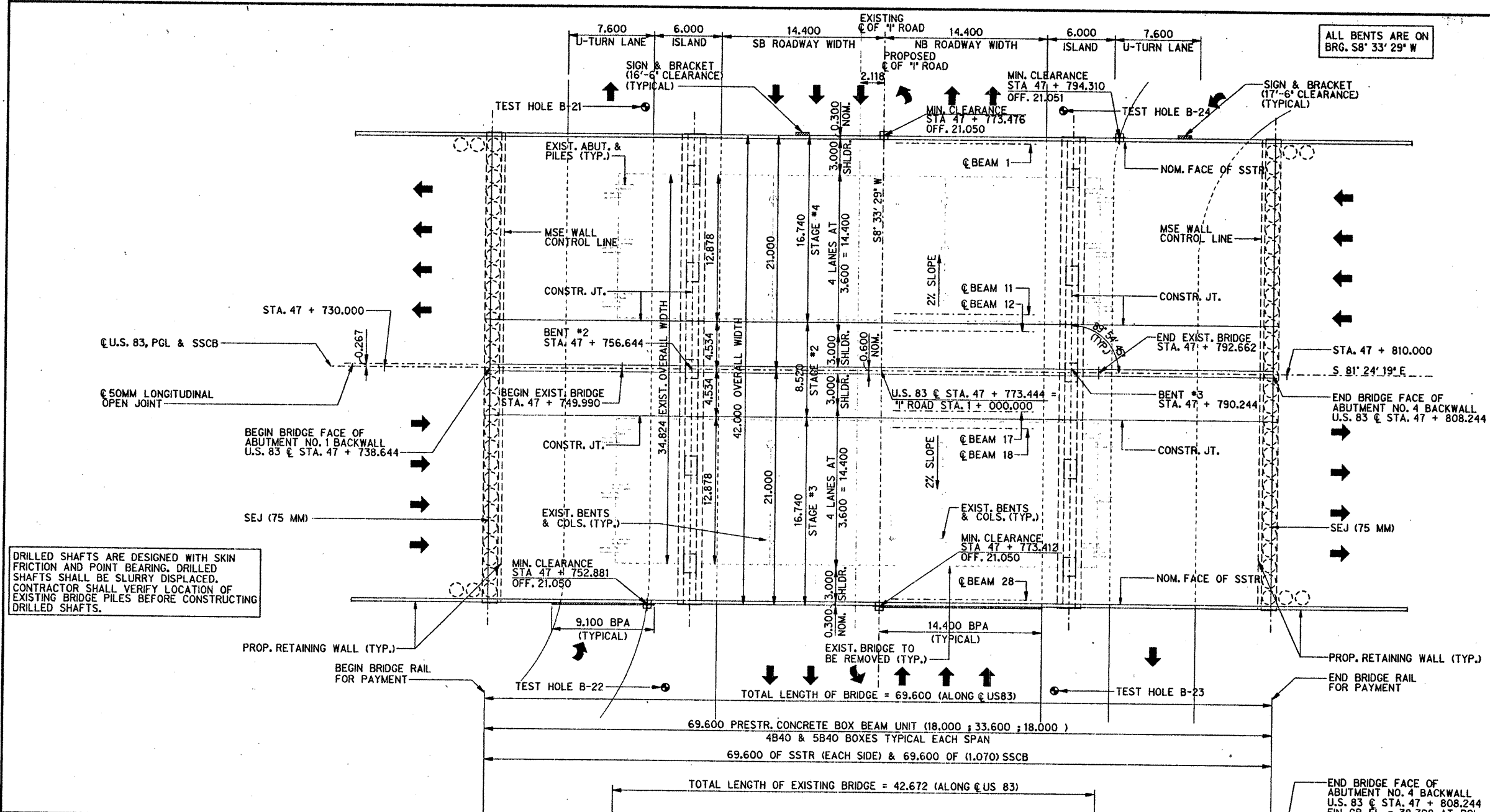
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ORIG DATE:	JULY 1995	DIST:	FED REG	FEDERAL AID PROJECT:							
REVISIONS:											
	21	6	NH 96 (791) M								303
			COUNTY	CONTROL	SECT	JOB	HIGHWAY				
			HIDALGO	0039	17	1181	83				



Christopher H. Neufeld P.E.
DATE: 4-15-96

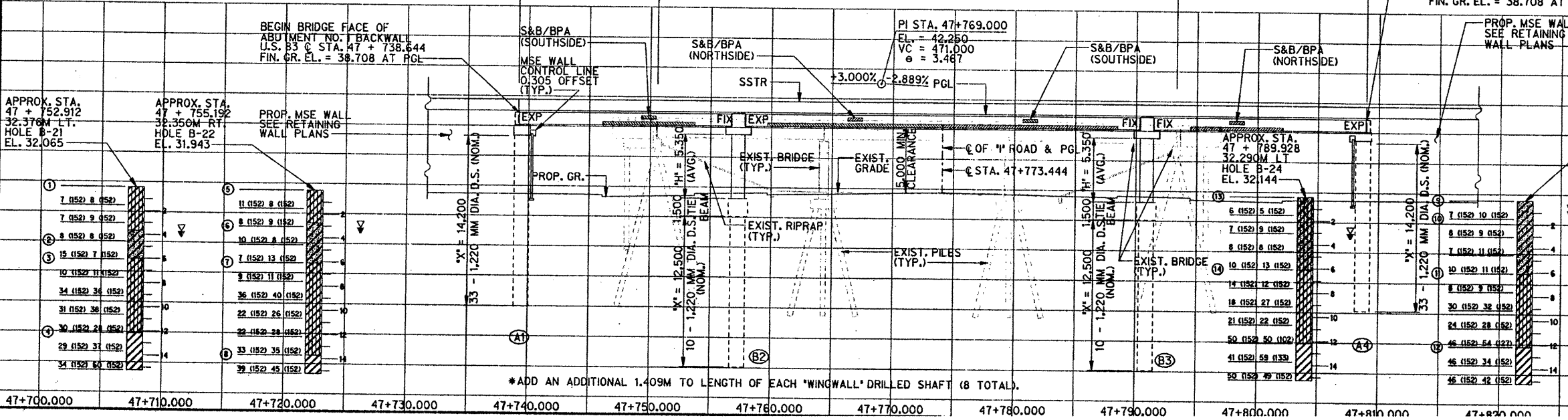
- TEST BORE HOLE LEGEND**
- ① CLAY, SILTY, SLIGHTLY MOIST, SOFT
 - ② CLAY, SANDY, SATURATED, TAN, SOFT, BROWN STAINS
 - ③ CLAY, SILTY, SLIGHTLY MOIST, SOME CALICHE
 - ④ CLAY, DARK, TAN, VERY STIFF, SLIGHTLY MOIST
 - ⑤ CLAY, SANDY, SILTY, TAN, TRACES OF CALICHE
 - ⑥ CLAY, SANDY, SATURATED
 - ⑦ CLAY, SILTY, SM. GYPSUM SEAMS W/ SM. TRACES GREY CLAY
 - ⑧ CLAY, DARK, HEAVY BROWN STAINS
 - ⑨ CLAY, SILTY, DARK, SOME SMALL GRAVEL
 - ⑩ CLAY, SANDY, WET, SATURATED, TAN SOFT W/ SOME CALICHE
 - ⑪ CLAY, SILTY, BLACK STAINS, SM. TR. OF IRON, W/ TR. OF GREY CLAY
 - ⑫ CLAY, TAN, SLIGHTLY MOIST, PLASTIC
 - ⑬ CLAY, SILTY, SANDY TAN, TRACES OF CALICHE
 - ⑭ CLAY, SILTY, SLIGHTLY MOIST, BLK. STAINS W/ TR. OF GREY CLAY, IRON TRACES, SLIGHT TRACES OF GYPSUM

REFER TO ROADWAY ILLUMINATION PLANS AND BRIDGE UNDER LIGHTING PLANS FOR BRIDGE LIGHTING REQUIREMENTS.



DRILLED SHAFTS ARE DESIGNED WITH SKIN FRICTION AND POINT BEARING. DRILLED SHAFTS SHALL BE SLURRY DISPLACED. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING BRIDGE PILES BEFORE CONSTRUCTING DRILLED SHAFTS.

EXIST. STR. NOS. = 0039 - 17 - 110 (WB)
0039 - 17 - 111 (EB)
PERM. STR. NOS. = 0039 - 17 - 262 (WB)
0039 - 17 - 263 (EB)
NOTE: ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE



45.000	
42.500	
40.000	
37.500	
35.000	
32.500	
30.000	MS 18 LOADING

BRIDGE LAYOUT
U.S. 83 / "I" ROAD OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

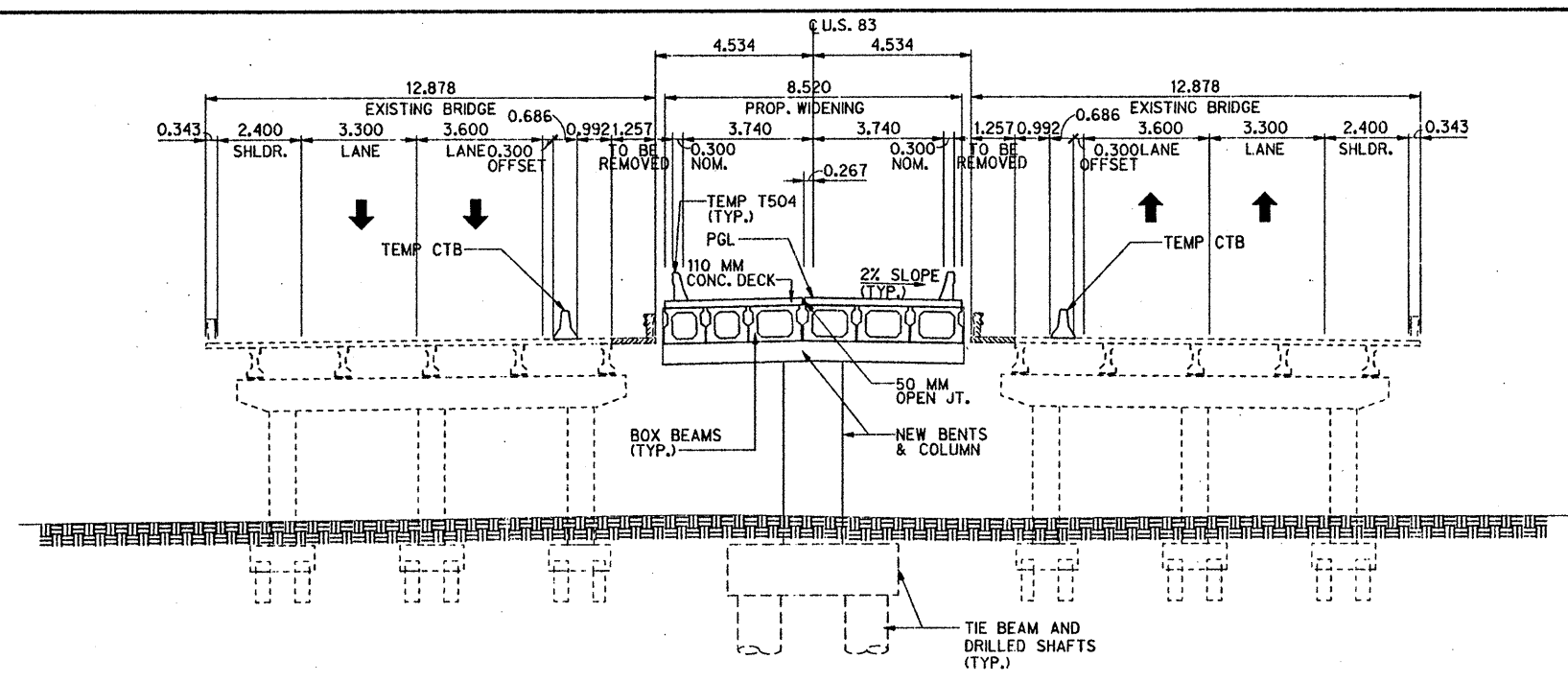
Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CLB	TRM	SEE PLAN	8	TEXAS	NH 96 (791) W	324
DATE	FILE	SCALE	DATE	COUNTY	CONTROL REGION	HIGHWAY NO.
APR 96						

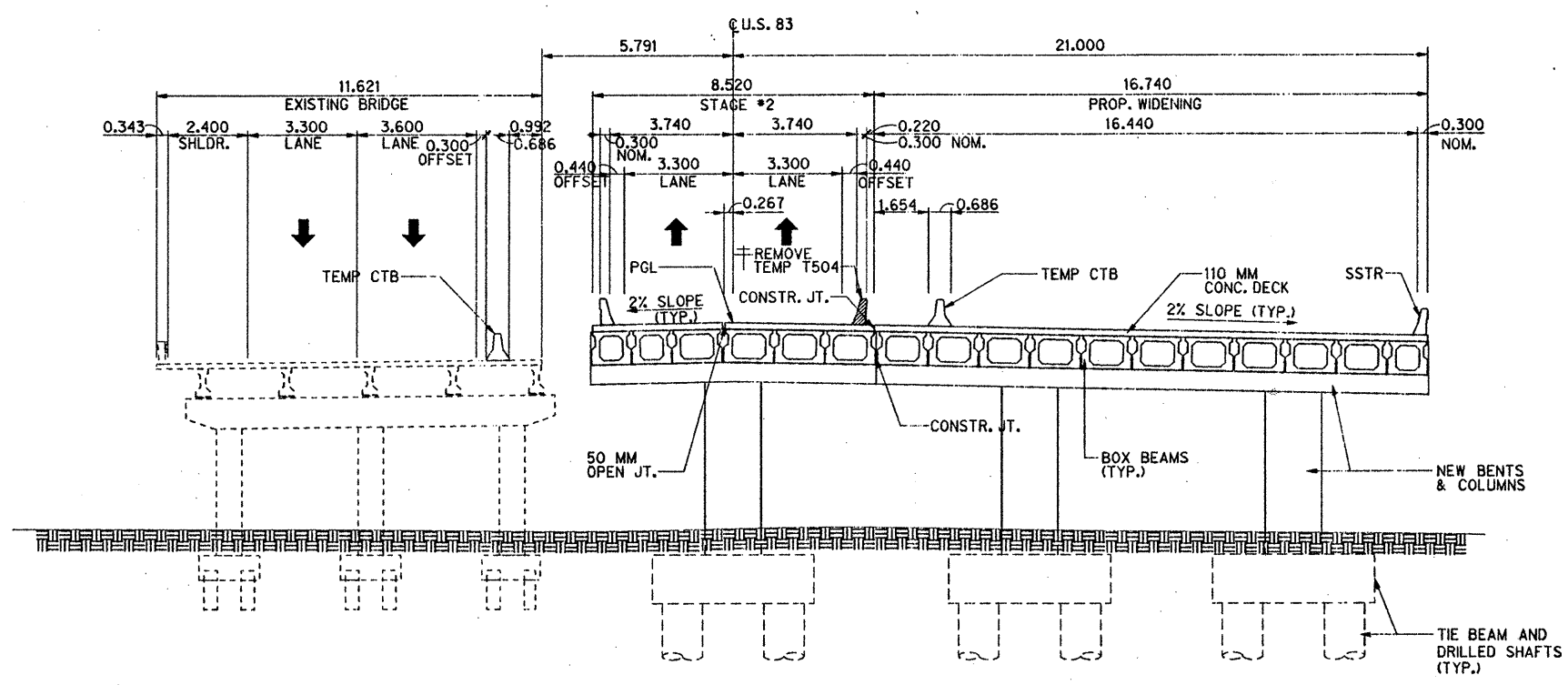
*ADD AN ADDITIONAL 1.409M TO LENGTH OF EACH 'WINGWALL' DRILLED SHAFT (8 TOTAL).



Christopher H. Neufeld, P.E.
DATE: 4-15-96



01 TYPICAL SECTION STAGE 2



02 TYPICAL SECTION STAGE 3

† CONTRACTOR SHALL REMOVE TEMPORARY T504 AT THE END OF STAGE #3.

NOTE: ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.

MS 18 LOADING

TYPICAL SECTIONS 1 OF 3

U.S. 83 / "I" ROAD OVERPASS

HIDALGO COUNTY, TEXAS

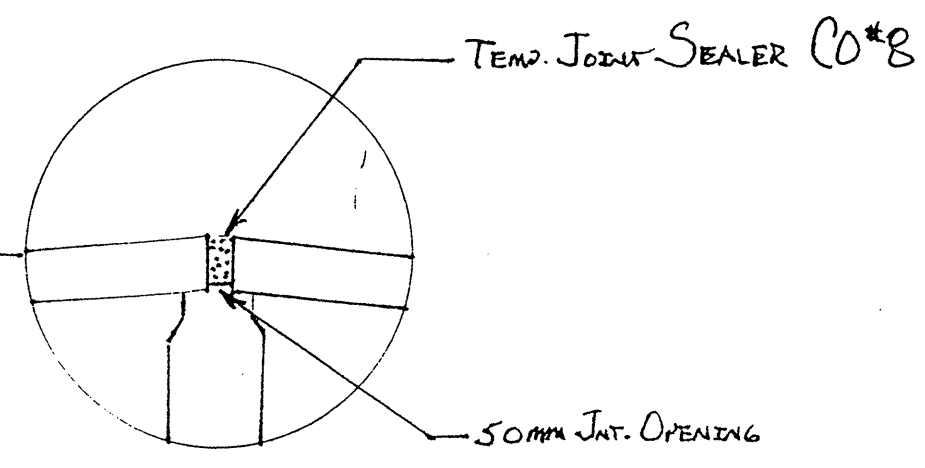
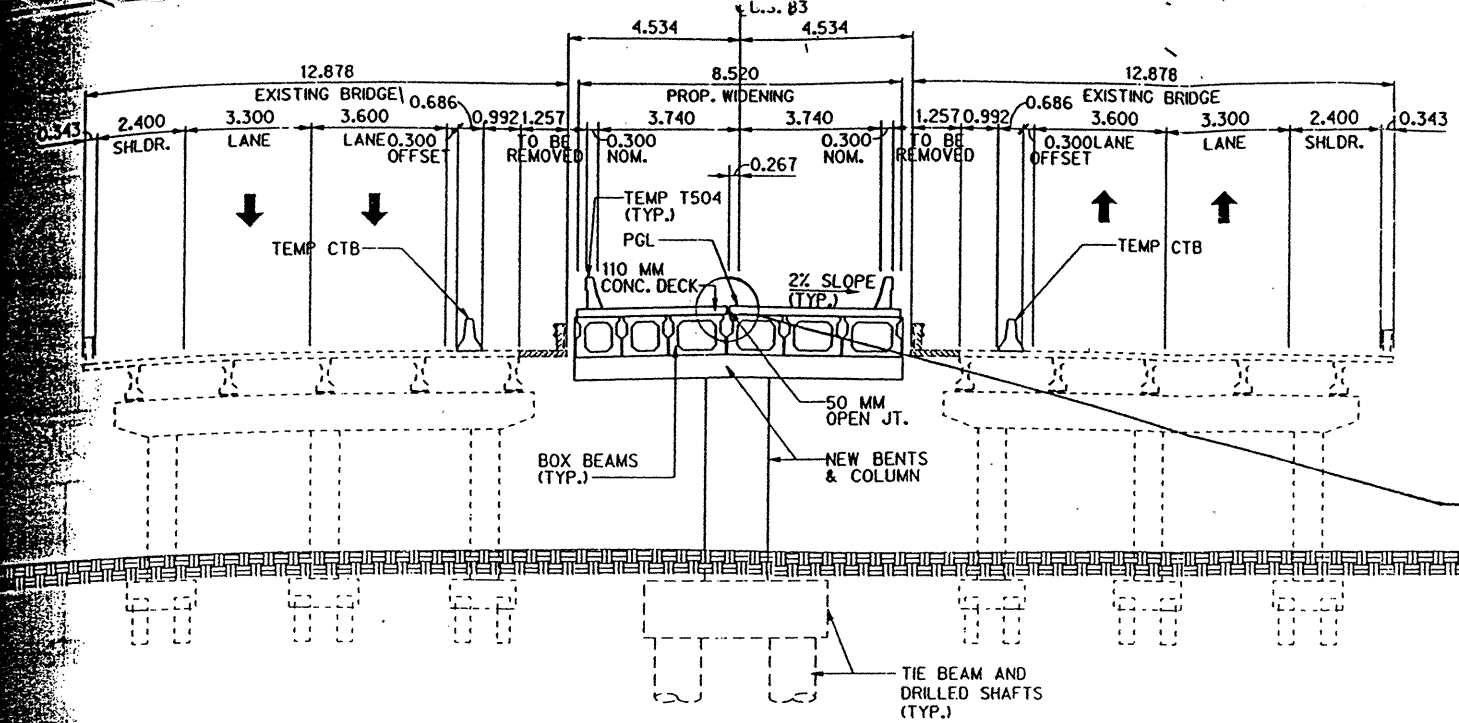
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

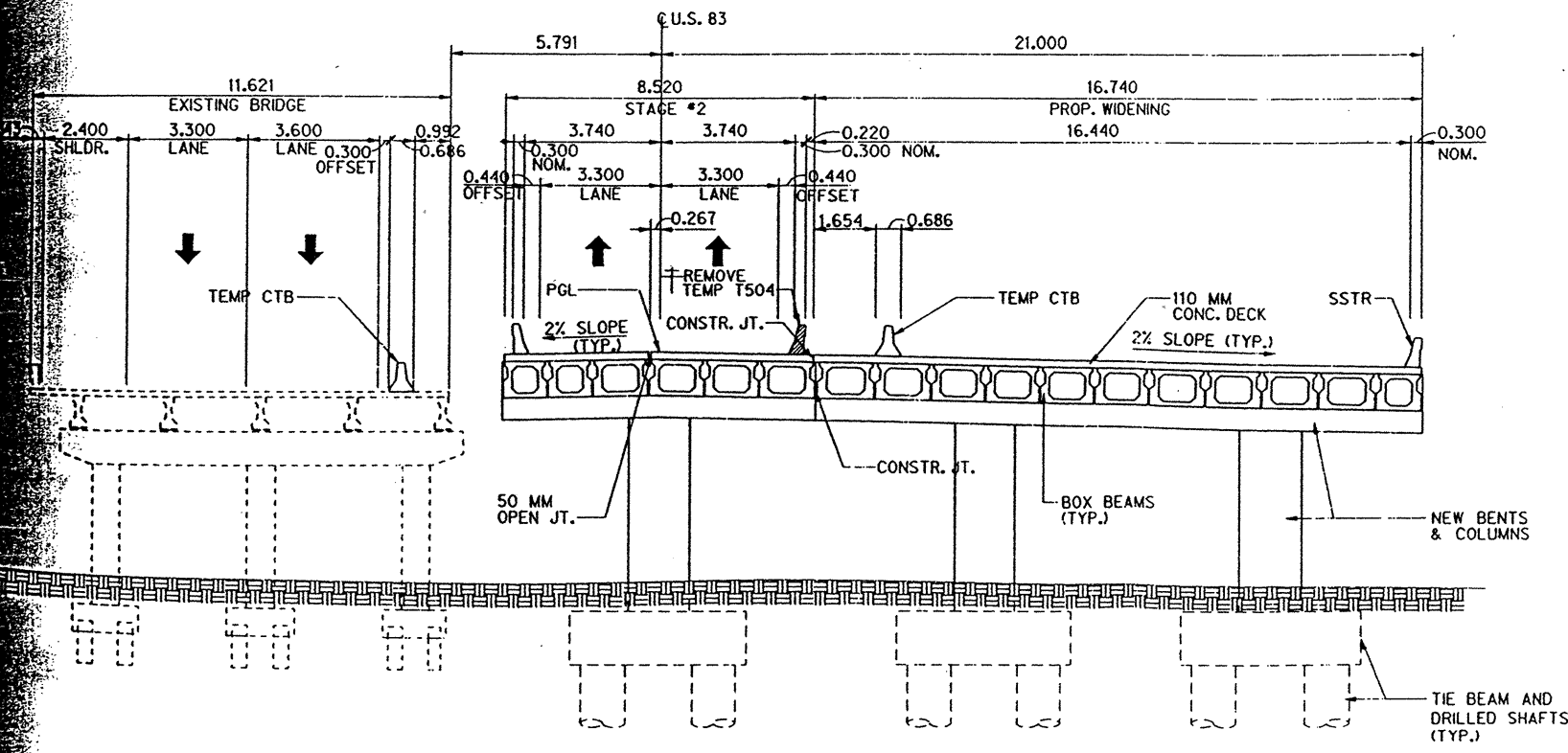
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C.L.B.	T.P.H.	SEE PLAN	6	TEXAS	W.H. 94 (731) 1	265
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	1452008.DWG	1:50	21	HIDALGO	0030	17 18



Christopher H. Neufeld, P.E.
DATE 4-15-86



TYPICAL SECTION STAGE 2



TYPICAL SECTION STAGE 3

CONTRACTOR SHALL REMOVE TEMPORARY T504 AT THE END OF STAGE #3.

CO#8 - CHANGE ORDER No. 8
INSERT A FIRM JOINT SEALER TO CLOSE A LONGITUDINAL EXPANSION OPENING DURING PHASING.

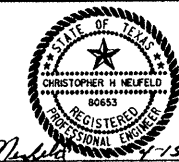
NOTE: ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.

MS 18 LOADING

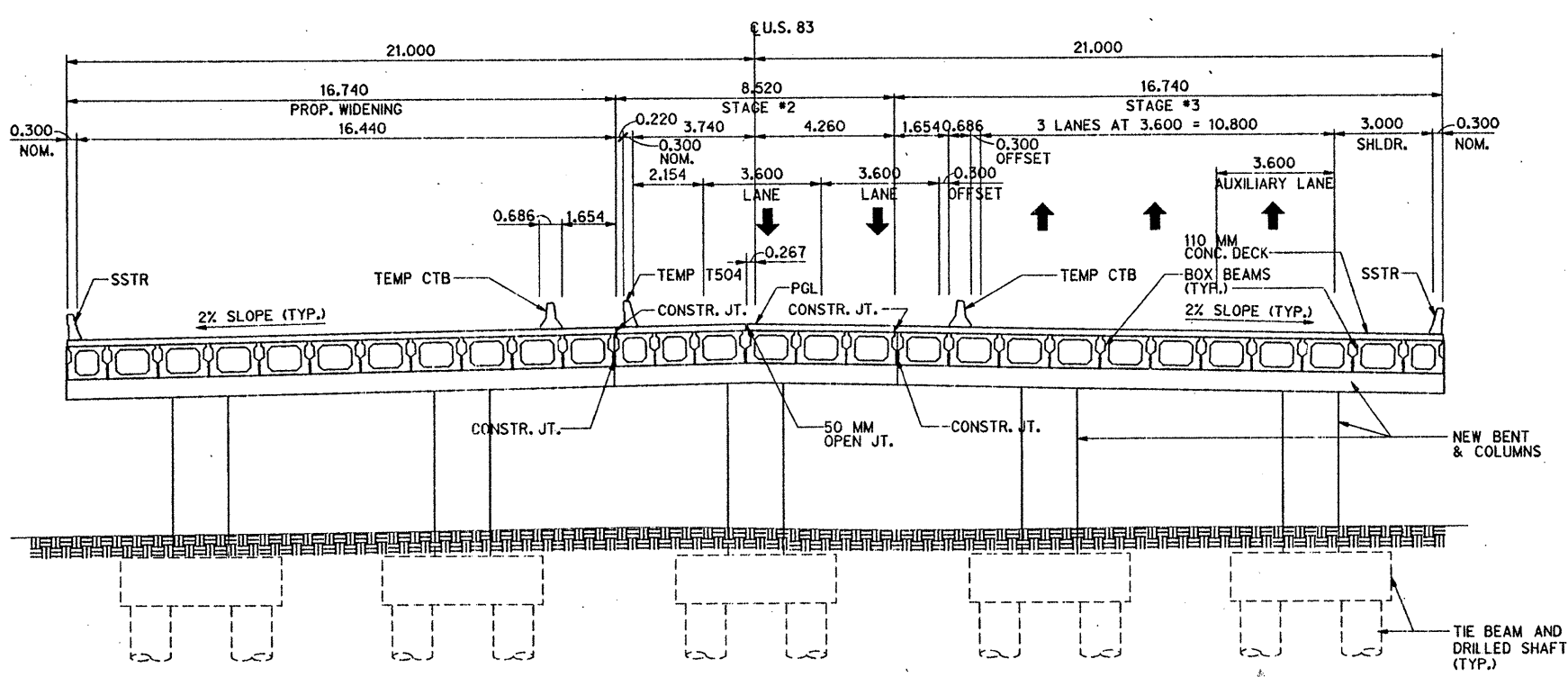
TYPICAL SECTIONS 1 OF 3										
U.S. 83 / "I" ROAD OVERPASS										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	DATE	SCALE	STATE	COUNTY	CONTRACT NO.
CLB	TRM	SEE PLAN	8	TEXAS	NH 96 (179) M	4-15-86	1:100	TX	HIDALGO	89 17 88
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT NO.	DATE	SCALE	STATE	COUNTY	CONTRACT NO.
4/15/86	MS18000	1:100	TX	HIDALGO	89 17 88	4-15-86	1:100	TX	HIDALGO	89 17 88

365A

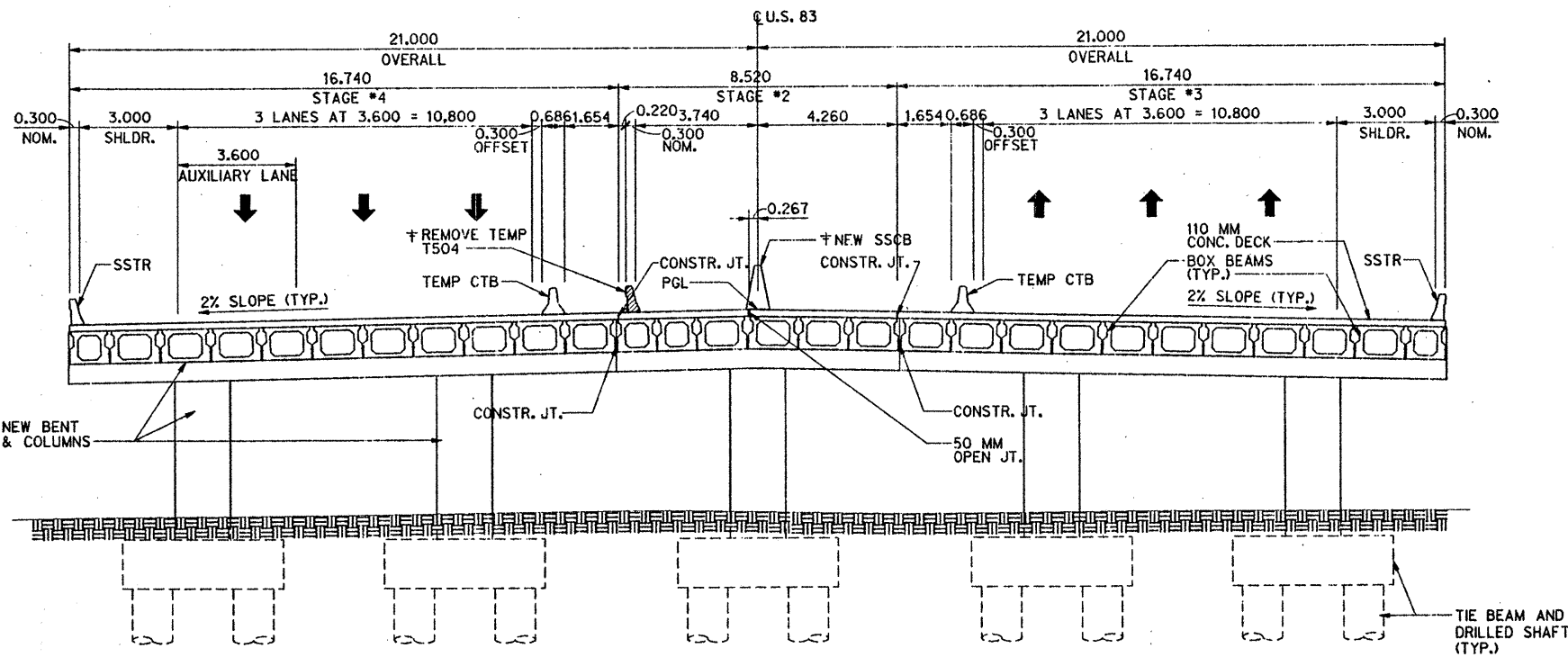
NH 96 (179) M



CHRISTOPHER H. NEUFELD, P.E. DATE 7-15-16



01 TYPICAL SECTION STAGE 4



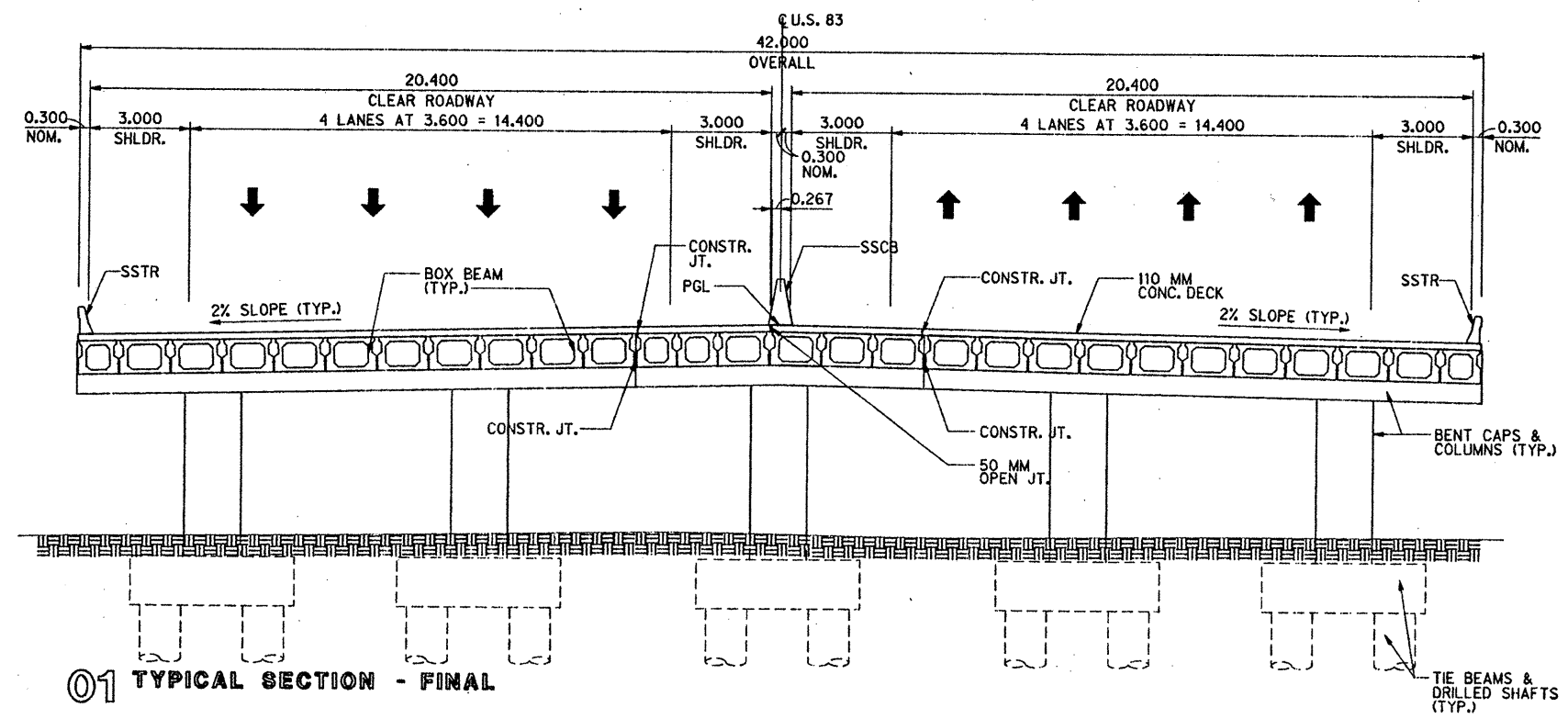
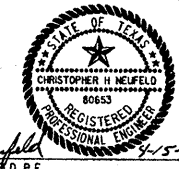
02 TYPICAL SECTION STAGE 5

† CONTRACTOR SHALL REMOVE TEMPORARY T504 BEFORE CONSTRUCTING SSCB.

NOTE: ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.

MS 18 LOADING

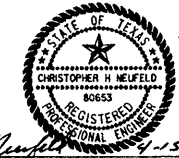
TYPICAL SECTIONS 2 OF 3										
U.S. 83 / "I" ROAD OVERPASS										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
CLB	TRH	BEE PLAN	8	TEXAS	H.H. 96 (791) M	246				
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.				
APRIL 2001	H40027200N	1"=50'	21	HIDALGO	230	17				U.S. 83



NOTE: ALL DIMENSIONS IN METERS
UNLESS NOTED OTHERWISE.

MS 18 LOADING

TYPICAL SECTIONS 3 OF 3							
U.S. 83 / "I" ROAD OVERPASS							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates <small>ENGINEERS · ARCHITECTS · SCIENTISTS · PLANNERS · SURVEYORS</small>							
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
CLB	TRH	SEE PLAN	8	TEXAS	N.H. 94 (797) M	367	
			STATE	TEXAS	SECTION	COUNTY	FILE



CHRISTOPHER H. NEUFELD, P.E. DATE 4-15-96

SUMMARY OF ESTIMATED QUANTITIES FOR "I" ROAD OVERPASS

DESCRIPTION	SLURRY DISPLACED DRILLED SHAFTS		CLASS "C" CONCRETE		CLASS "S" CONCRETE		PRESTRESSED CONCRETE BOX BEAMS		SEALED EXP. JOINT	RAILING		CONC. SURF. TREAT	BRIDGE PROTECTIVE ASSEMBLY	REMOVING OLD STRUCTURES (LARGE)			
	ABUT	BENT	ABUT	BENT	SLAB	SHEAR KEY	4B40	5B40	75 MM	SSTR	SSCB (1070)						
	1220 MM Ø L.M.	1220 MM Ø L.M.	C.M.	C.M.	C.M.	C.M.	~ L.M.	~ L.M.	L.M.	L.M.	L.M.	S.M.	EA.	EA.			
STAGE #2																	
2 ~ ABUTMENTS	198.8		23.6														
2 ~ BENTS		50.0		93.0													
2 ~ 18.000 M PRESTR. CONC. BM. SPANS					40.10	11.9	69.30	138.60	17.04			310.3					
1 ~ 33.600 M PRESTR. CONC. BM. SPANS					37.40	11.2	64.70	129.40				289.7					
STAGE #2 TOTAL	198.8	50.0	23.6	93.0	77.50	23.1	134.00	268.00	17.04			600.0					
STAGE #3																	
2 ~ ABUTMENTS	374.8		46.0														
2 ~ BENTS		100.0		181.2													
2 ~ 18.000 M PRESTR. CONC. BM. SPANS					75.60	32.7	34.65	346.50	33.38	36.00		599.0	1				
1 ~ 33.600 M PRESTR. CONC. BM. SPANS					70.50	30.6	32.35	323.50		33.60		559.1	1				
STAGE #3 TOTAL	374.8	100.0	46.0	181.2	146.10	63.3	67.00	670.00	33.38	69.60		1158.1	2				
STAGE #4																	
2 ~ ABUTMENTS	374.8		46.0														
2 ~ BENTS		100.0		181.2													
2 ~ 18.000 M PRESTR. CONC. BM. SPANS					75.60	32.7	34.65	346.50	33.38	36.00		599.0	1				
1 ~ 33.600 M PRESTR. CONC. BM. SPANS					70.50	30.6	32.35	323.50		33.60		559.1	1				
STAGE #4 TOTAL	374.8	100.0	46.0	181.2	146.10	63.3	67.00	670.00	33.38	69.60		1158.1	2				
STAGE #5																	
2 ~ 18.000 M PRESTR. CONC. BM. SPANS												36.00					
1 ~ 33.600 M PRESTR. CONC. BM. SPANS												33.60					
STAGE #5 TOTAL												69.6					
TOTAL	948.4	250.0	115.6	455.4	369.7	149.7	268.00	1608.00	83.8	139.2		69.6	4			2	

~ BEAM LENGTHS SHOWN ARE ACTUAL BOTTOM FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR SLOPE.

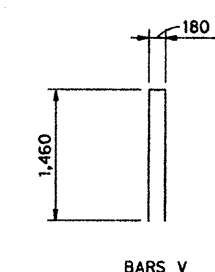
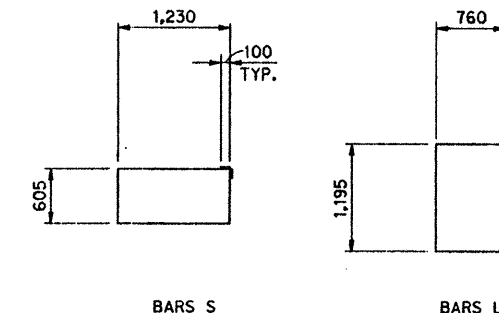
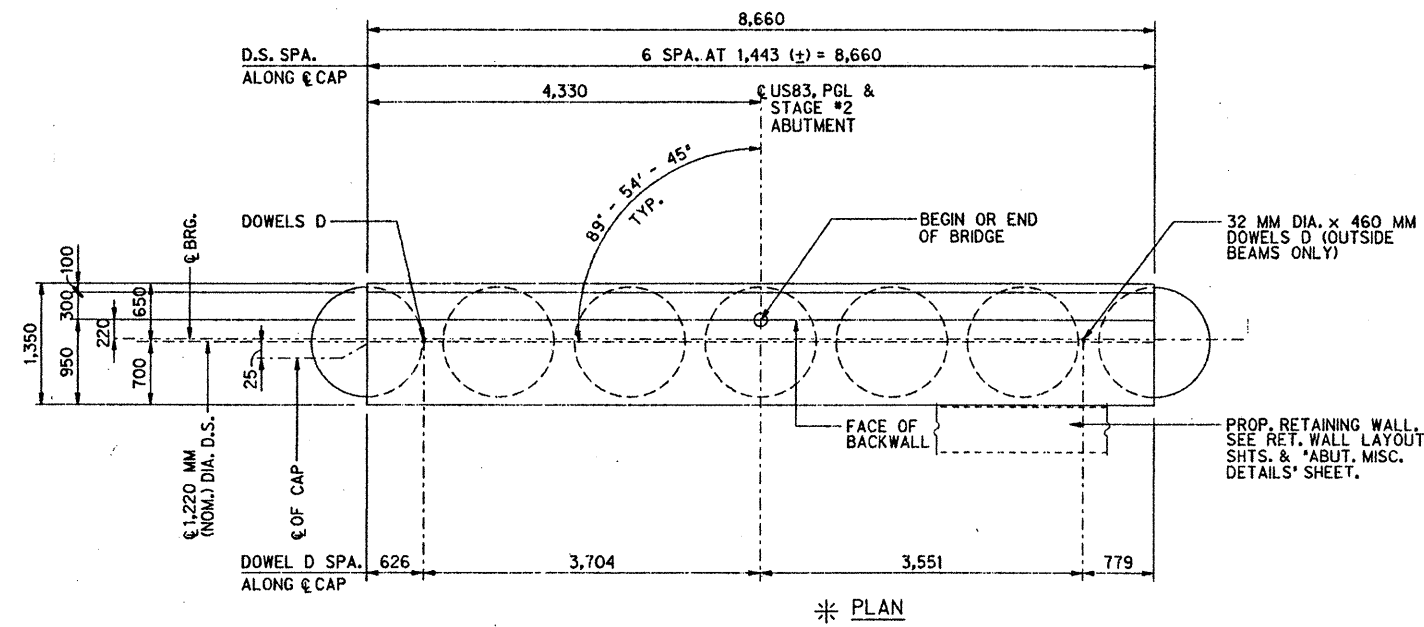
AT BOTTOM EDGE OF OUTSIDE BOX BEAMS		ABUT NO 1 (FWD)	BENT NO 2 (BK) (FWD)		BENT NO 3 (BK) (FWD)		ABUT NO 4 (BK)
STAGE #3	BEAM 1	37.1104	37.1657	37.1500	37.1498	37.1655	37.1100
	BEAM 11	37.4420	37.4974	37.4837	37.4836	37.4973	37.4418
	BEAM 12	37.4451	37.5004	37.4848	37.4847	37.5003	37.4449
STAGE #2	Ø OF STR.	37.5312	37.5866	37.5709	37.5709	37.5865	37.5311
	BEAM 17	37.4430	37.4984	37.4848	37.4847	37.4983	37.4429
STAGE #4	BEAM 18	37.4419	37.4974	37.4837	37.4836	37.4973	37.4419
	BEAM 28	37.1101	37.1657	37.1500	37.1499	37.1656	37.1102

DESCRIPTION	UNIT	AMOUNT
BRIDGE DECK	SM	550.0
TYPE B BEAMS	LM	213.0
BENT / ABUT	LM	52.0
COLUMNS (760MM Ø)	LM	31.0
PILING (400MM Ø)	LM	73.0
BRIDGE RAILING	LM	86.0
FOOTINGS	EA	6

* FOR CONTRACTORS INFORMATION ONLY. ITEMS SHALL BE SUBSIDIARY TO BID ITEM FOR REMOVING OLD STRUCTURES (LARGE).

MS 18 LOADING

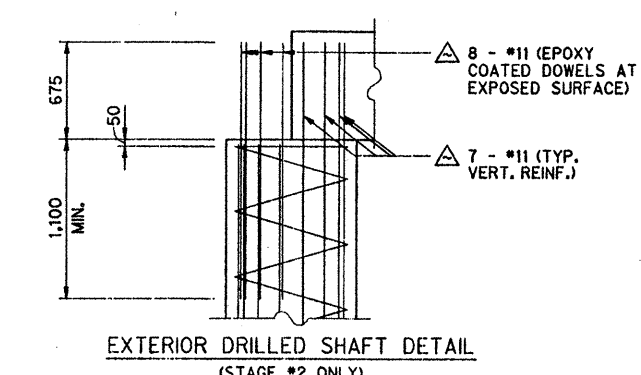
ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS									
U.S. 83 / "I" ROAD OVERPASS									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates <small>ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS</small>									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.		DATE	
CL.	TUH	EE PLAN	8	TEXAS	NH 917 791 M	369		4-15-96	
DATE	FILE	SCALE	DIST. NO.	COUNTY	SECTION NO.	JOB NO.	CONTRACT NO.	SECTION NO.	HIGHWAY NO.
APR	MS1802SD	NO SCALE	2	HIDALGO	0030	17	38		U.S. 83



STATE OF TEXAS
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER H. NEUFELD, P.E.
4-5-96
DATE

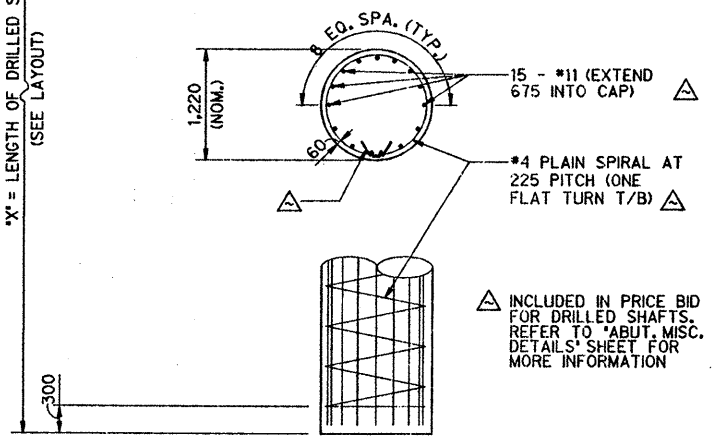
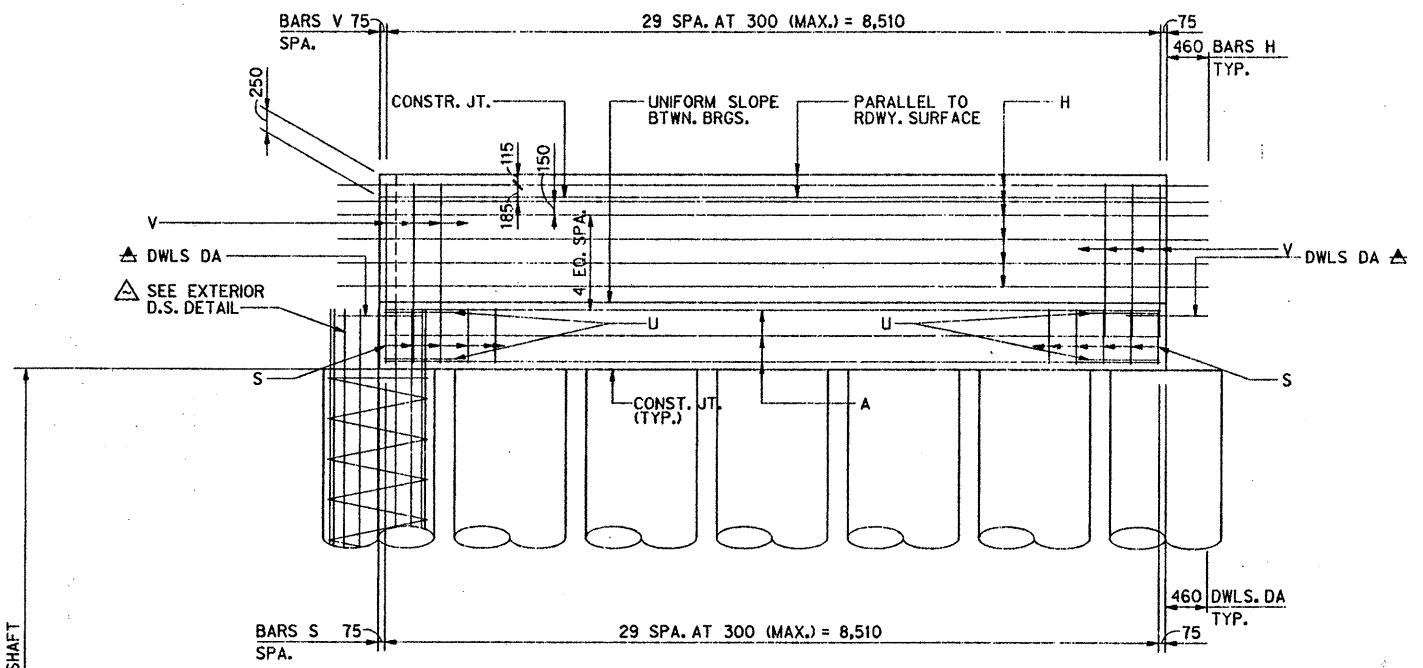
GENERAL NOTES:
DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THEREON.
ALL CONCRETE SHALL BE CLASS 'C'.
ALL REINFORCING STEEL SHALL BE GRADE 420.
CALCULATED FOUNDATION LOAD = 410 KN/DR SHAFT
CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE
REFER TO 'ABUTMENT MISC. DETAILS' SHEET FOR DETAILS NOT SHOWN.

- ▲ DOWELS DA SHALL BE PLACED ON A 2:12 SLOPE. CONTRACTOR SHALL CAST DOWELS DA IN PLACE.
- * ABUTMENT #4 - LOOKING UPSTATION
ABUTMENT #1 - LOOKING BACKSTATION



ESTIMATED QUANTITIES FOR ONE ABUTMENT				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	13	#8	8,560	442
D	2	32 DIA.	460	6
DA	4	#9	920	19
H	12	#5	◇9,580	178
S	30	#4	3,870	115
U	4	#6	2,715	24
V	30	#5	3,100	144
REINFORCED STEEL			◇	kg. 928
CL. C CONC. (ABUT.)			m ³	11.8

◇ INCLUDES 2 - 460 MIN. LAPS INTO STAGE #3 OR #4.
◇ FOR CONTRACTORS INFORMATION ONLY



* ELEVATION

ALL DIMENSIONS IN MILLIMETERS.
MS 18 LOADING

**ABUTMENT NO.1
STAGE #2 OR
ABUTMENT NO.4 STAGE #2**

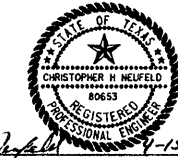
U.S. 83 / "I" ROAD OVERPASS

HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRFL	EE PLAN	8	TEXA	NH 96 (791) M	3/24
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1996	MS020828DGN	1:40	21	HIDALGO	0039	17 38 U. 83



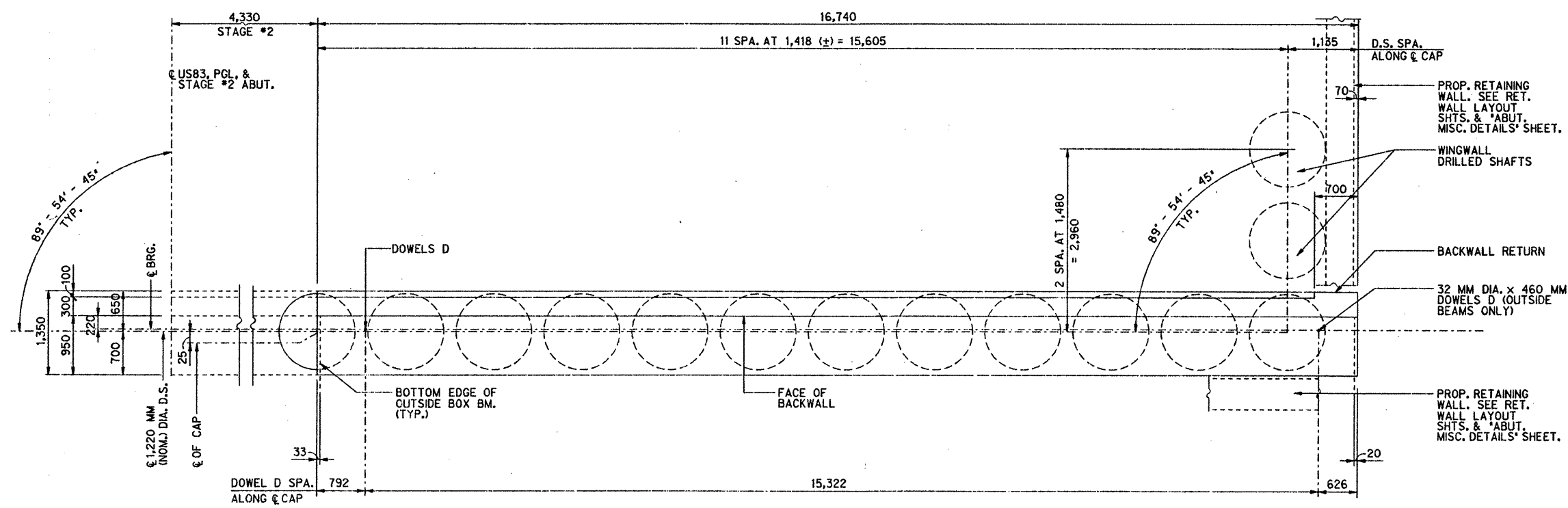
CHRISTOPHER H. NEFF P.E. DATE 4-15-96

GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE GRADE 420.
 CALCULATED FOUNDATION LOAD = 410 KN/DR SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 REFER TO 'ABUTMENT MISC. DETAILS' SHEET FOR DETAILS NOT SHOWN.

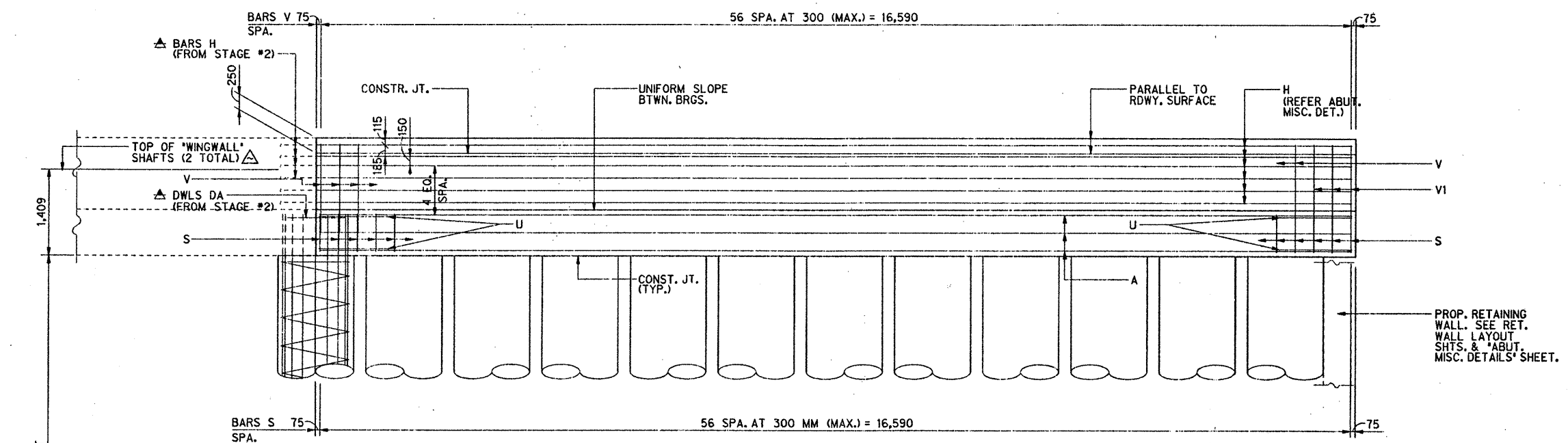
▲ BARS H AND DA SHALL BE CLEANED PRIOR TO CASTING NEXT STAGE.
 ✱ ABUTMENT #4 - LOOKING UPSTATION
 ABUTMENT #1 - LOOKING BACKSTATION

ESTIMATED QUANTITIES FOR ONE ABUTMENT				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	13	#8	16,640	860
D	2	32 DIA.	460	6
H	6	#5	16,640	155
H1	6	#5	600	6
H2	6	#5	15,990	150
S	57	#4	3,870	219
U	4	#6	2,715	24
V	54	#5	3,100	260
V1	3	#5	3,200	15
REINFORCED STEEL			⊕ kg.	1,695
CL. C CONC. (ABUT.)			m ³	23.0

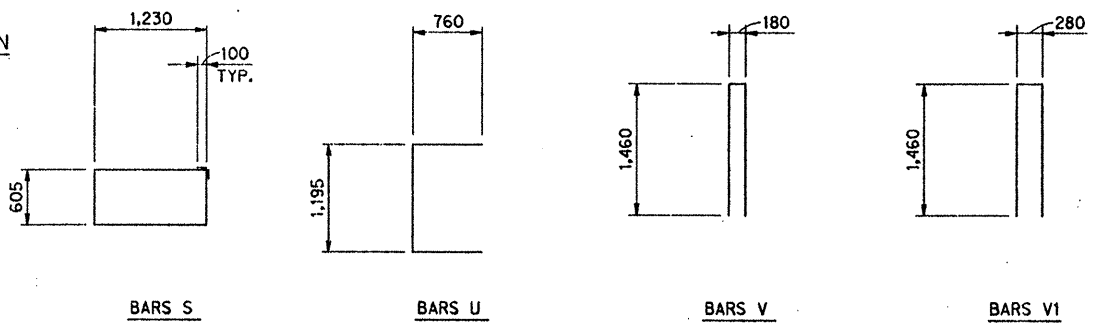
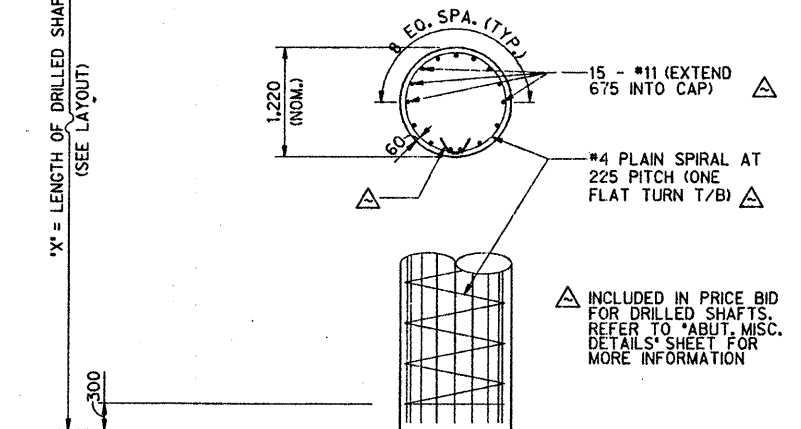
⊕ FOR CONTRACTORS INFORMATION ONLY



✱ PLAN



✱ ELEVATION



ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

**ABUTMENT NO.1
 STAGE #4 OR
 ABUTMENT NO.4 STAGE #3**
 U.S. 83 / "I" ROAD OVERPASS
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRM	EE PLAN	8	TEXAS	NH 46 (791) M	370
DATE	FILE	SCALE	STATE	COUNTY	SECTION NO.	JOB NO.
APR 15 1996	4652027/DGM	1:40	21	HIDALGO	20	17



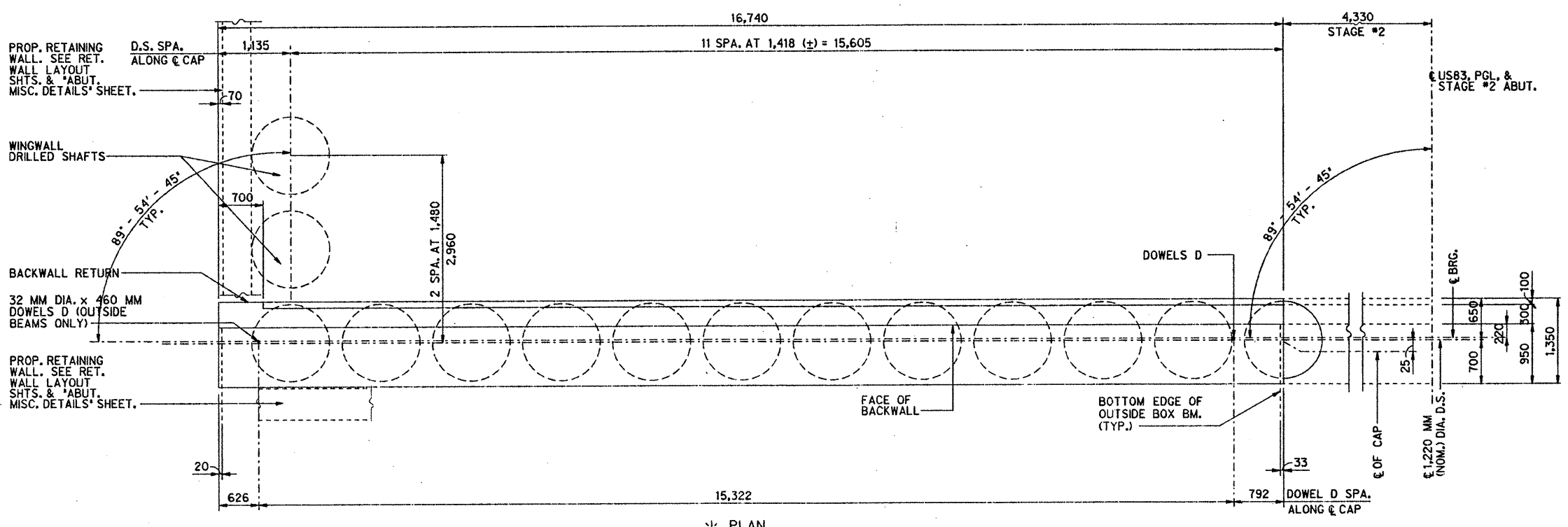
CHRISTOPHER H. NEUFELD P.E. DATE 7-15-96

GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE GRADE 420.
 CALCULATED FOUNDATION LOAD = 410 KN/DR SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 REFER TO 'ABUTMENT MISC. DETAILS' SHEET FOR DETAILS NOT SHOWN.

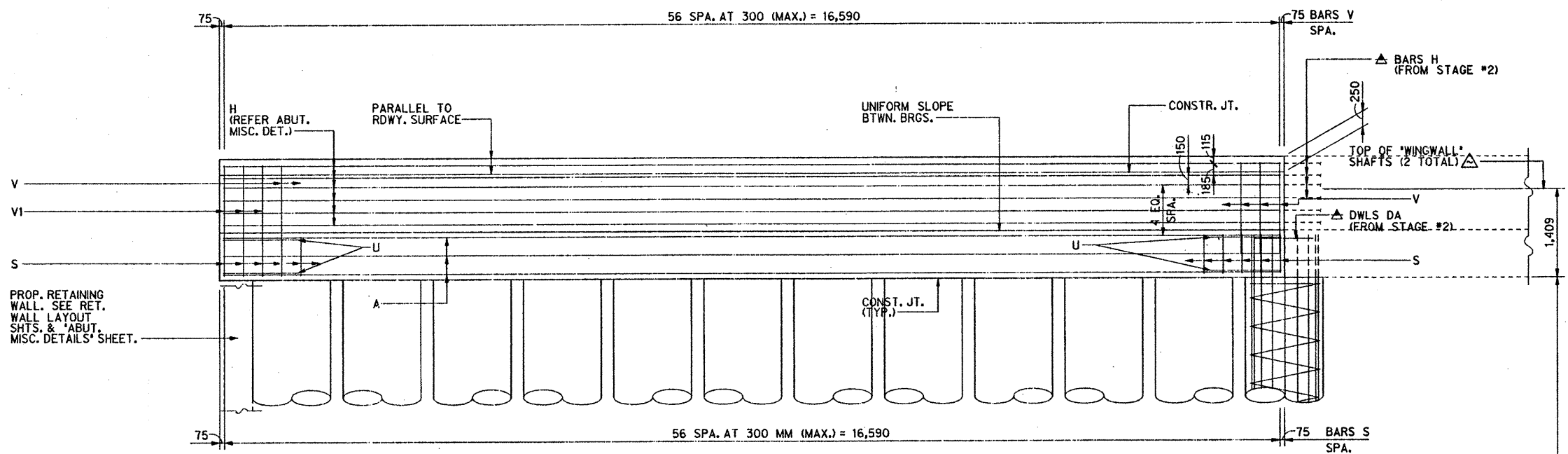
- ▲ BARS H AND DA SHALL BE CLEANED PRIOR TO CASTING NEXT STAGE.
- * ABUTMENT #4 - LOOKING UPSTATION
- * ABUTMENT #1 - LOOKING BACKSTATION

ESTIMATED QUANTITIES FOR ONE ABUTMENT				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	13	#8	16,640	860
D	2	32 DIA.	460	6
H	6	#5	16,640	155
H1	6	#5	600	6
H2	6	#5	15,990	150
S	57	#4	3,870	219
U	4	#6	2,715	24
V	54	#5	3,100	260
V1	3	#5	3,200	15
REINFORCED STEEL			⊕ kg.	1,695
CL. C CONC. (ABUT.)			m ³	23.0

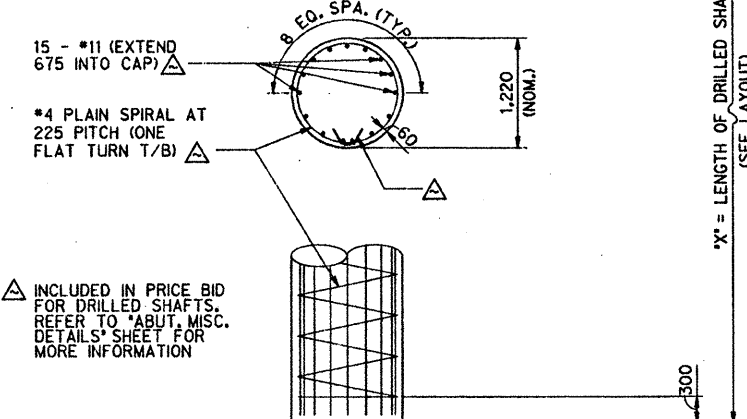
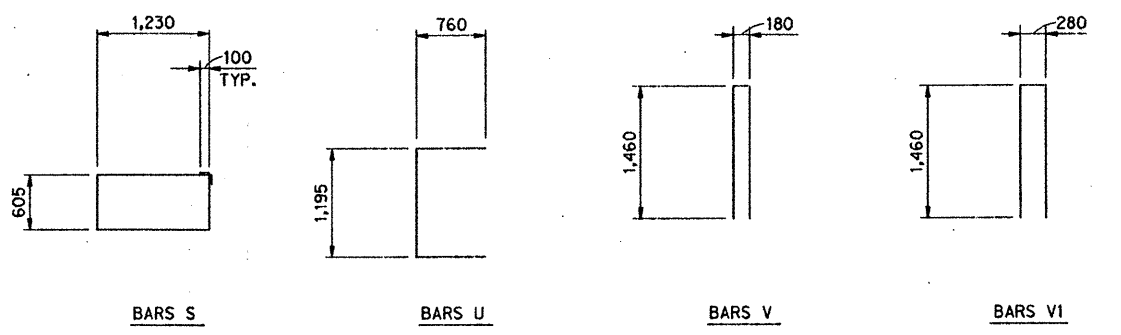
⊕ FOR CONTRACTORS INFORMATION ONLY



* PLAN



* ELEVATION



▲ INCLUDED IN PRICE BID FOR DRILLED SHAFTS. REFER TO 'ABUT. MISC. DETAILS' SHEET FOR MORE INFORMATION

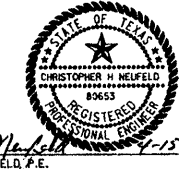
ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

**ABUTMENT NO.1
 STAGE #3 OR
 ABUTMENT NO.4 STAGE #4
 U.S. 83 / 71st ROAD OVERPASS
 HIDALGO COUNTY, TEXAS**

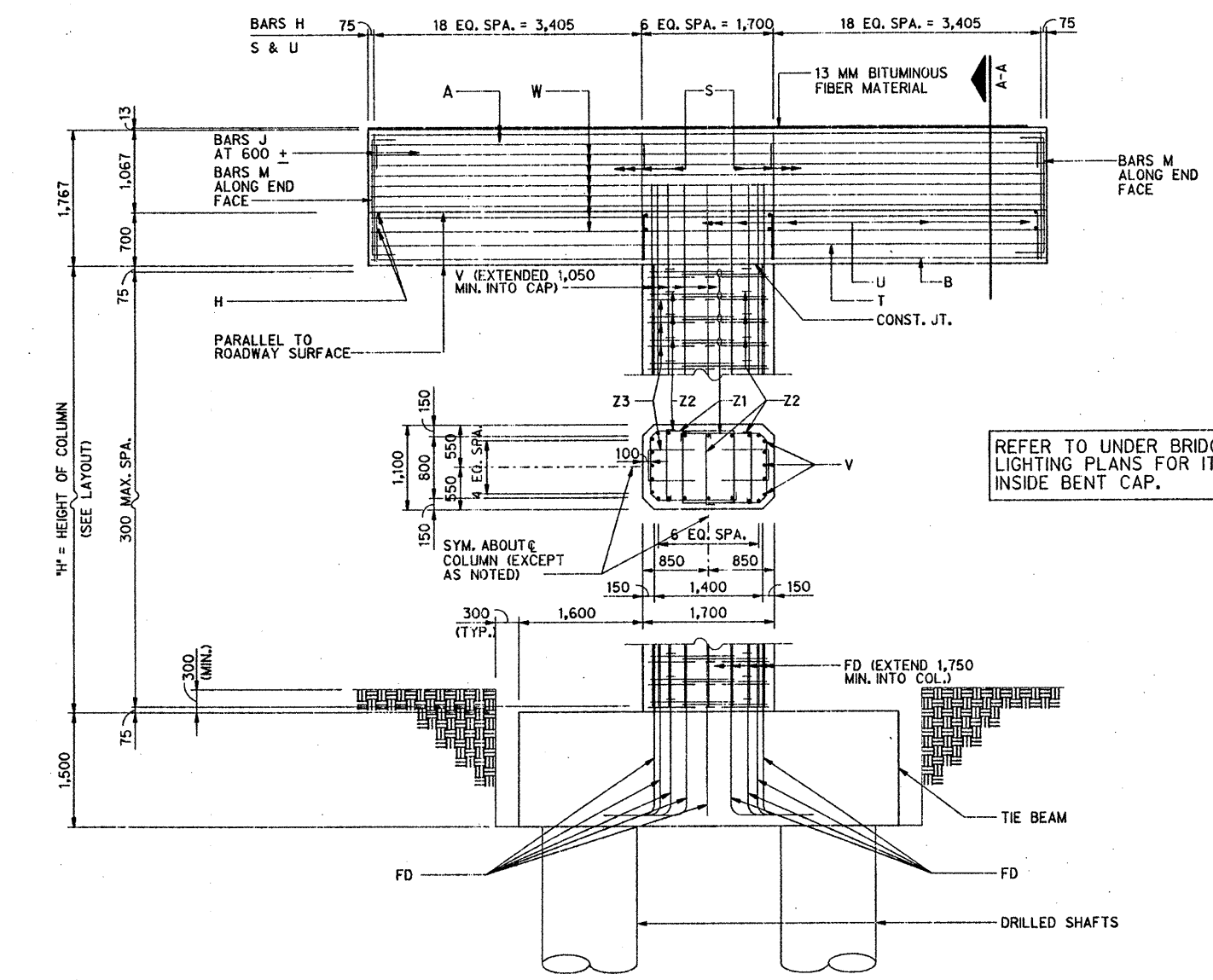
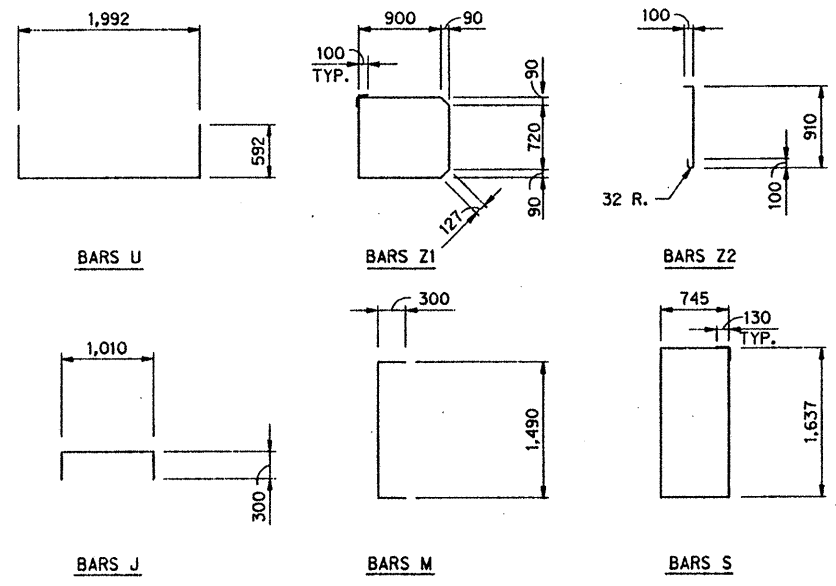
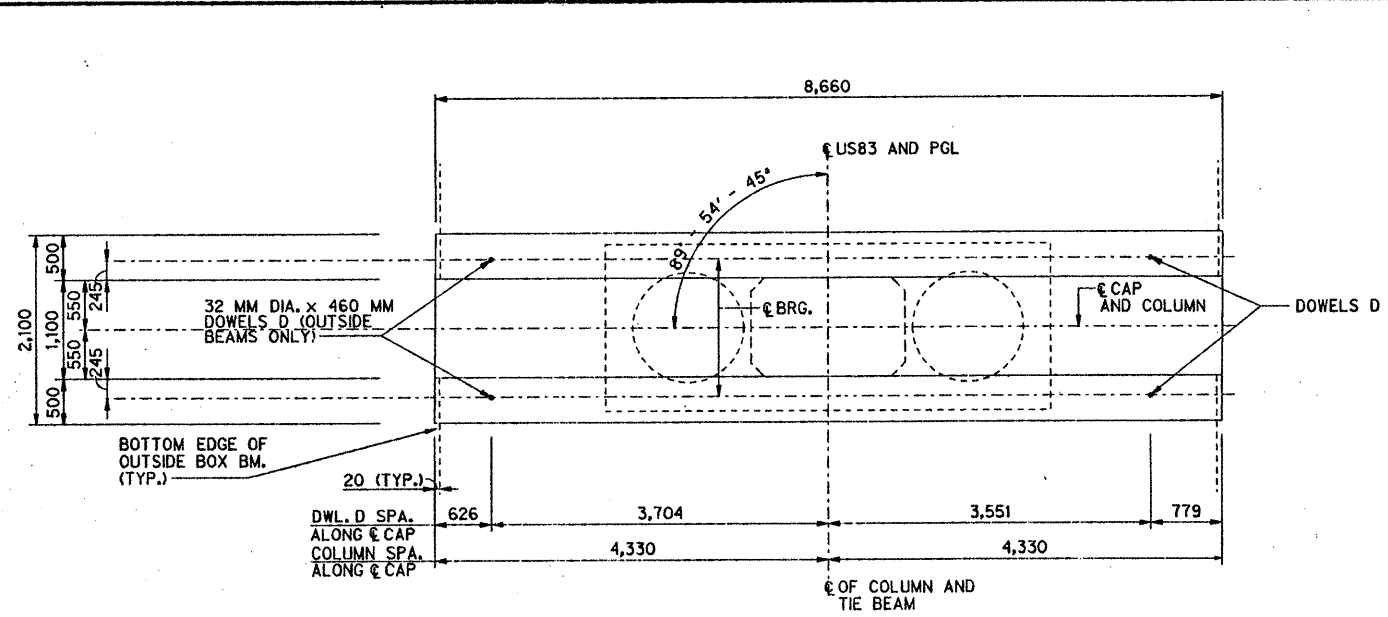
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - DESIGNERS - PLANNERS - SURVEYORS

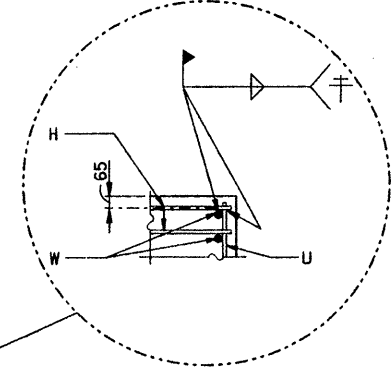
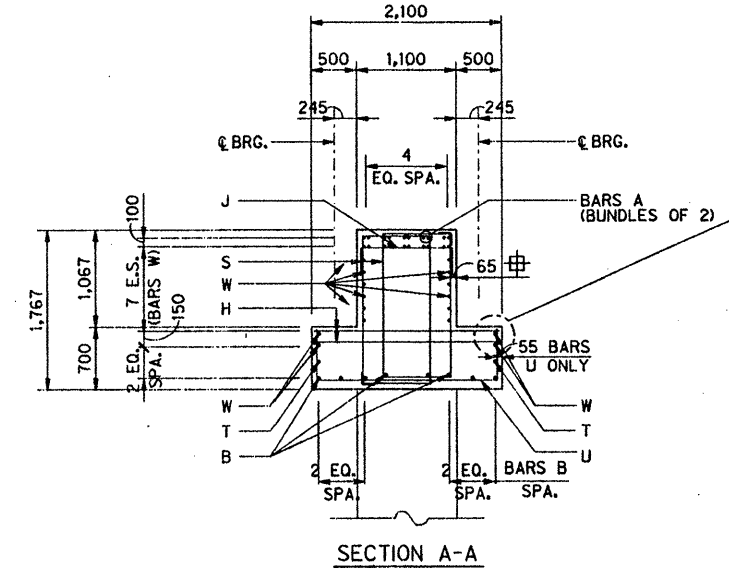
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRK	BE PLAN	#	TEXA	NH 96 (791) M	371
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APR. 96	MS2020620M	1:40	22	HIDALGO	0039	17



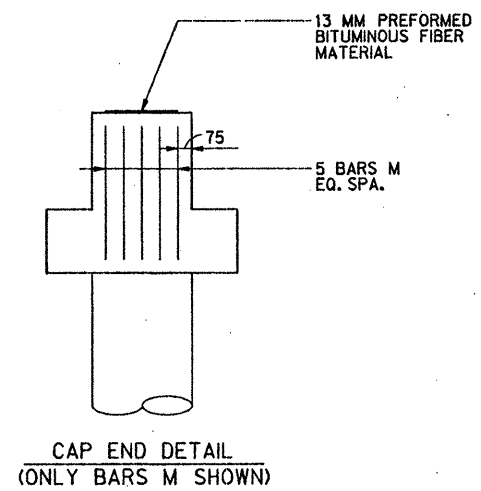
GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE GRADE 420.
 CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 SEE 'FORM LINER DETAILS' SHEET FOR AESTHETIC TREATMENT OF COLUMN.



REFER TO UNDER BRIDGE LIGHTING PLANS FOR ITEMS INSIDE BENT CAP.



† WELD BOTH SIDES OF BARS W AND U TO TOP BAR H AS SHOWN
 ⊕ TYPICAL EXCEPT AS NOTED



ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

INTERIOR BENT NOS. 2 & 3									
STAGE #2 (1 of 2)									
U.S. 83 / "1" ROAD OVERPASS									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID	PROJECT NO.	SHEET NO.		
CL.	TAH	EE PLAN	NO.	TEXA	NM 54	(791) M	375		
DATE	FILE	SCALE	STATE	COUNTY	CONTROL	SECTION	JOB	NO.	NO.
APRIL 1996	442080DDQ4	1:40	21	HIDALGO	03	07	00	U.	83



Christopher H. Neufeld P.E. DATE

VARIABLE QUANTITIES
(FOR COLUMN)

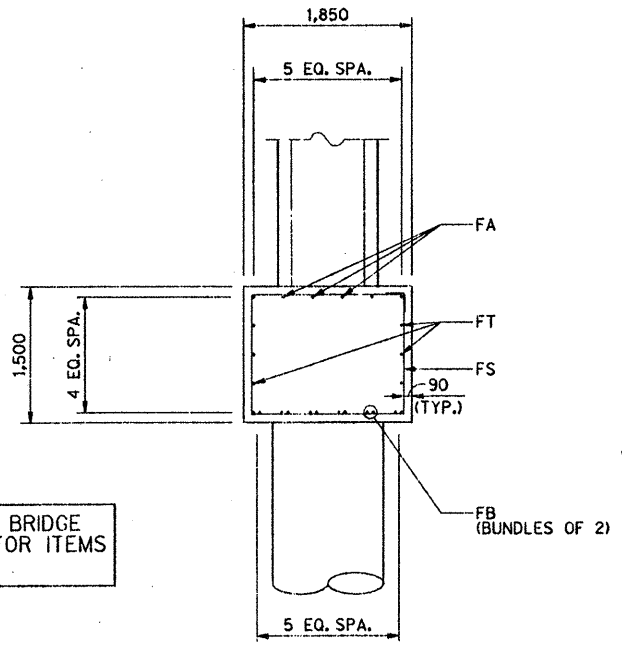
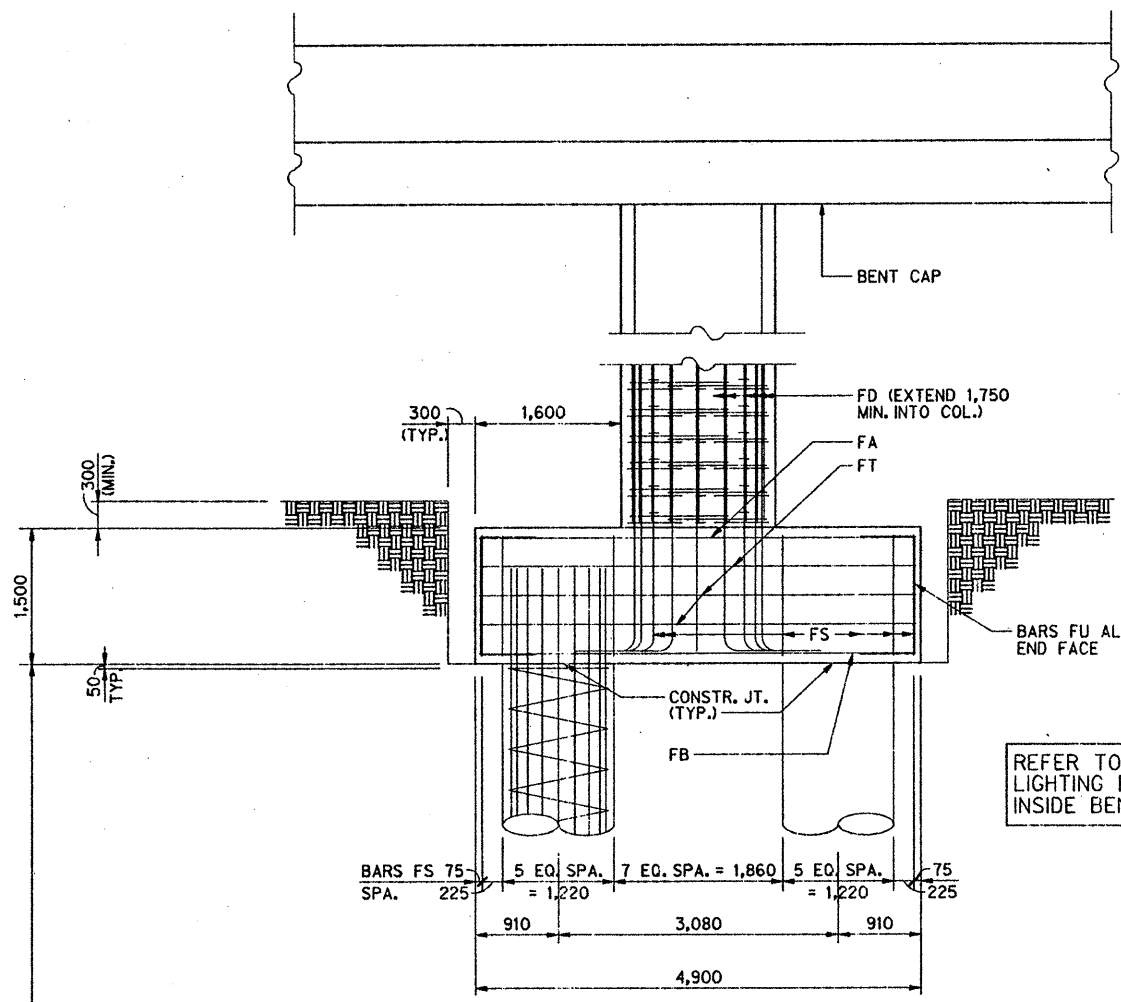
"H"	BARS 'Z1' NO. 4 x 3,874		BARS 'Z2' NO. 4 x 1,110		BARS 'Z3' NO. 4 x 1,600		24 - BARS 'V' NO. 9		REINF. STEEL	CL. C CONC. (BENT)
MM	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	LENGTH	WEIGHT	kg	m ³
4,750	34	131	51	56	34	54	5,750	698	939	8.7
5,000	36	139	54	60	36	57	6,000	729	985	9.1
5,250	36	139	54	60	36	57	6,250	759	1,015	9.6
5,500	38	146	57	63	38	60	6,500	789	1,058	10.0
5,750	40	154	60	66	40	64	6,750	820	1,104	10.5
6,000	42	162	63	70	42	67	7,000	850	1,149	11.0

ESTIMATED QUANTITIES
(FOR CAP AND TIE BEAM ONLY)

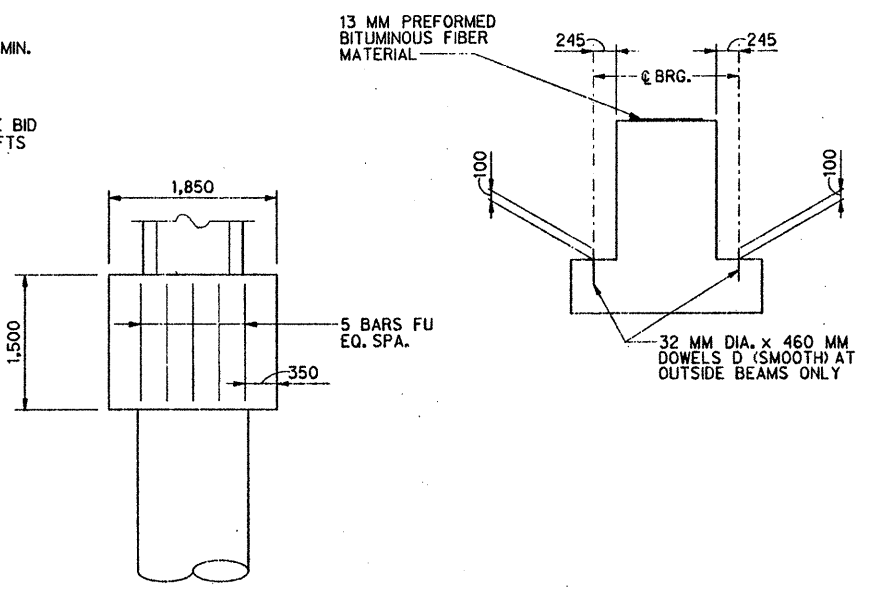
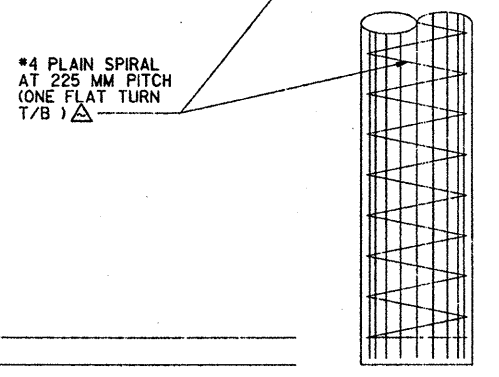
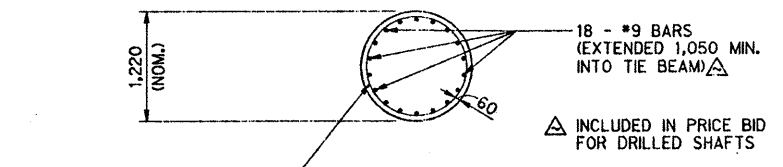
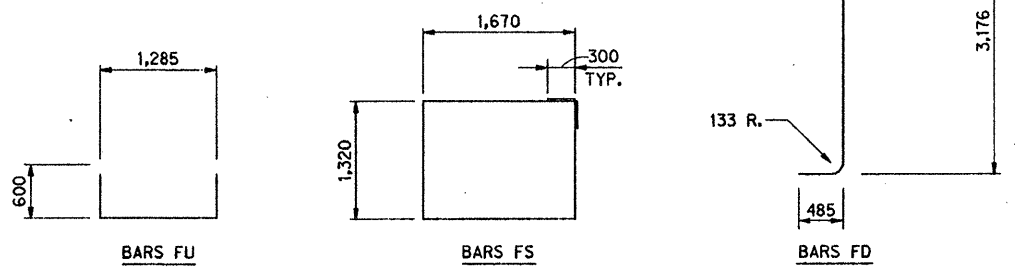
BAR	NO.	SIZE	LENGTH	WEIGHT
A	20	#10	8,560	1,096
B	8	#10	8,560	439
D	4	32 DIA.	460	12
FA	6	#8	4,800	114
FB	12	#11	4,800	455
FD	24	#9	3,661	445
FS	18	#6	6,580	265
FT	6	#5	4,800	45
FU	10	#5	2,485	39
H	86	#6	2,000	384
J	15	#6	1,610	54
M	10	#6	2,090	47
S	86	#5	5,024	671
T	2	#6	8,560	38
U	43	#6	3,176	305
W	16	#7	8,560	417
REINFORCED STEEL			kg	4,826
CL. C CONC. (BENT)			m ³	36.5

⊕ FOR CONTRACTORS INFORMATION ONLY

GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE GRADE 420.
 CALCULATED FOUNDATION LOAD = 2590 KN/DR. SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 SEE 'FORM LINER DETAILS' SHEET FOR AESTHETIC TREATMENT OF COLUMN.



REFER TO UNDER BRIDGE LIGHTING PLANS FOR ITEMS INSIDE BENT CAP.



TIE BEAM END DETAIL (ONLY BARS FU SHOWN)

ALL DIMENSIONS IN MILLIMETERS.
MS 18 LOADING

**INTERIOR BENT
NOS. 2 & 3
STAGE #2 (2 of 2)**

U.S. 83 / 71st ROAD OVERPASS
HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

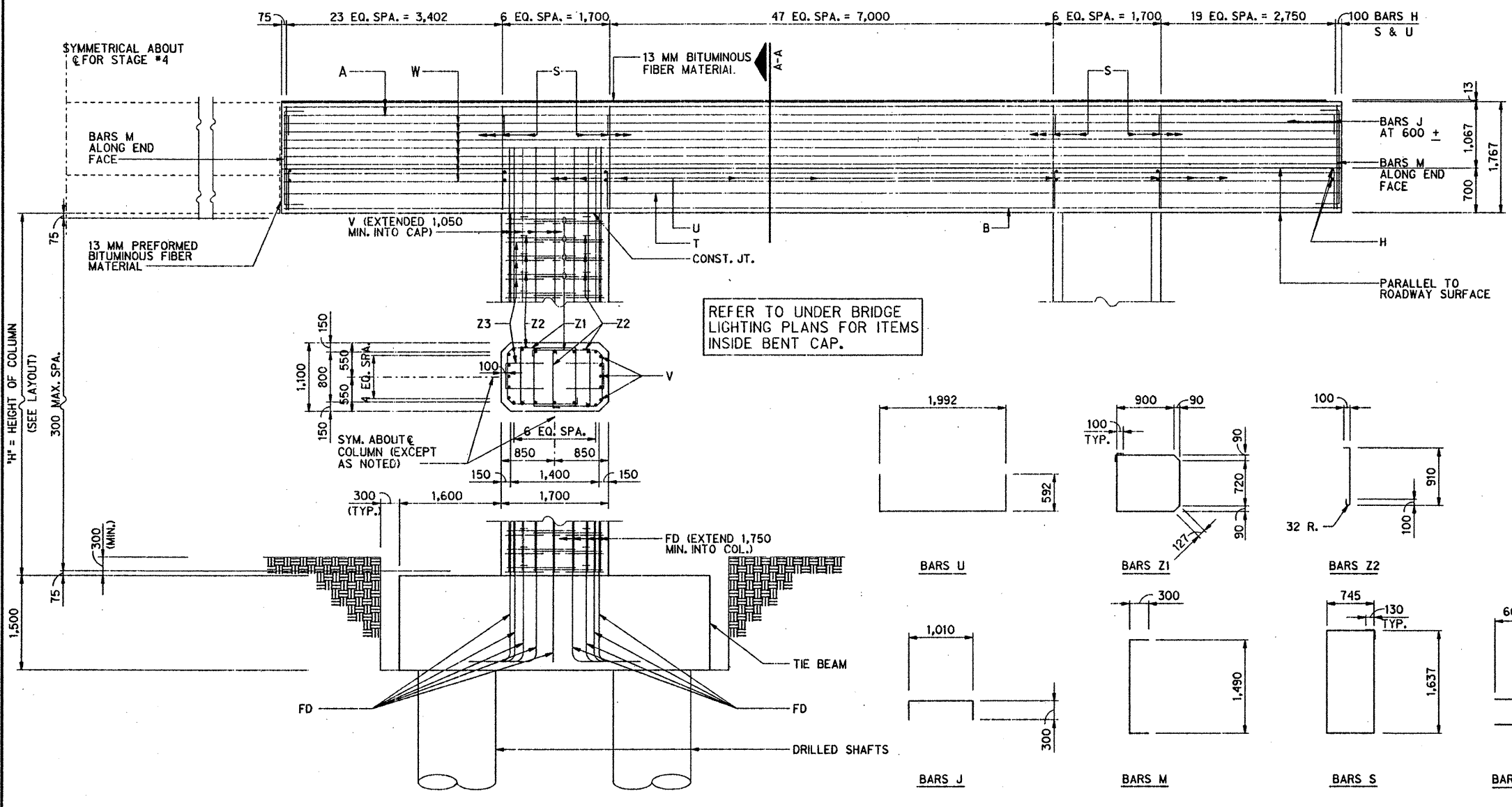
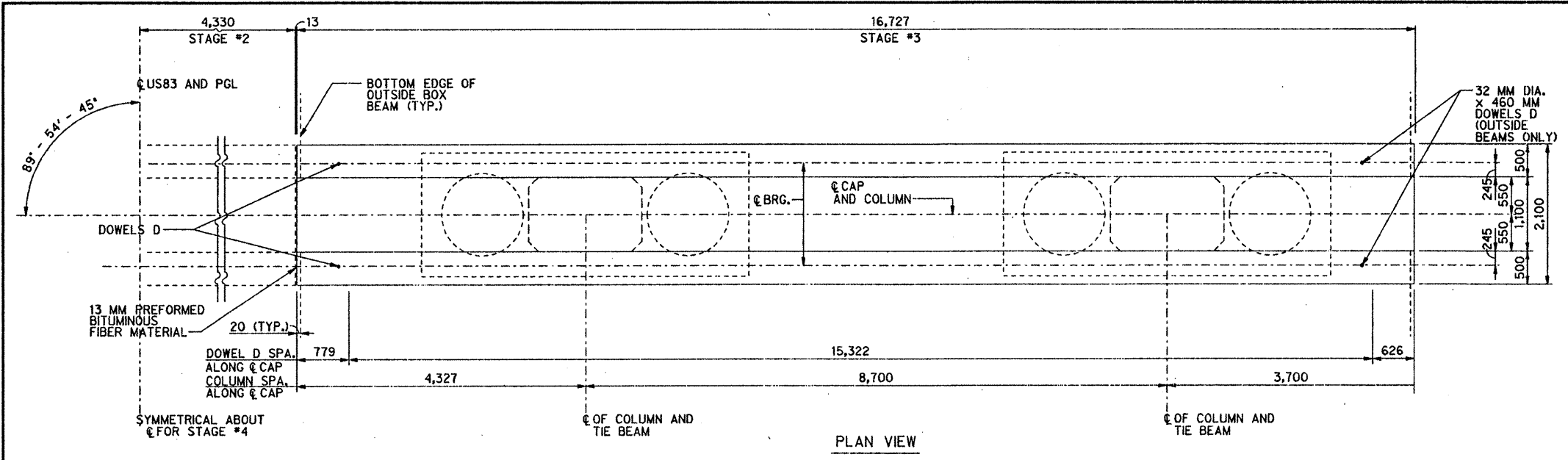
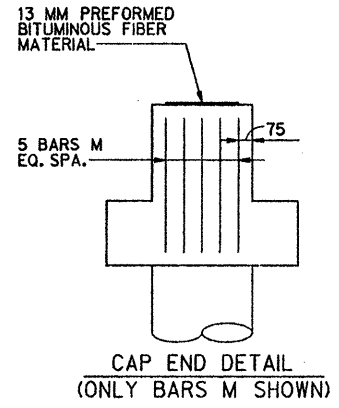
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRH	EE PLAN	6	TEXA	NH 96 (791) M	374
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APRIL 1993	HMSB00000N	1:40	25	HIDALGO	0030	17

X = LENGTH OF DRILLED SHAFT (SEE LAYOUT)

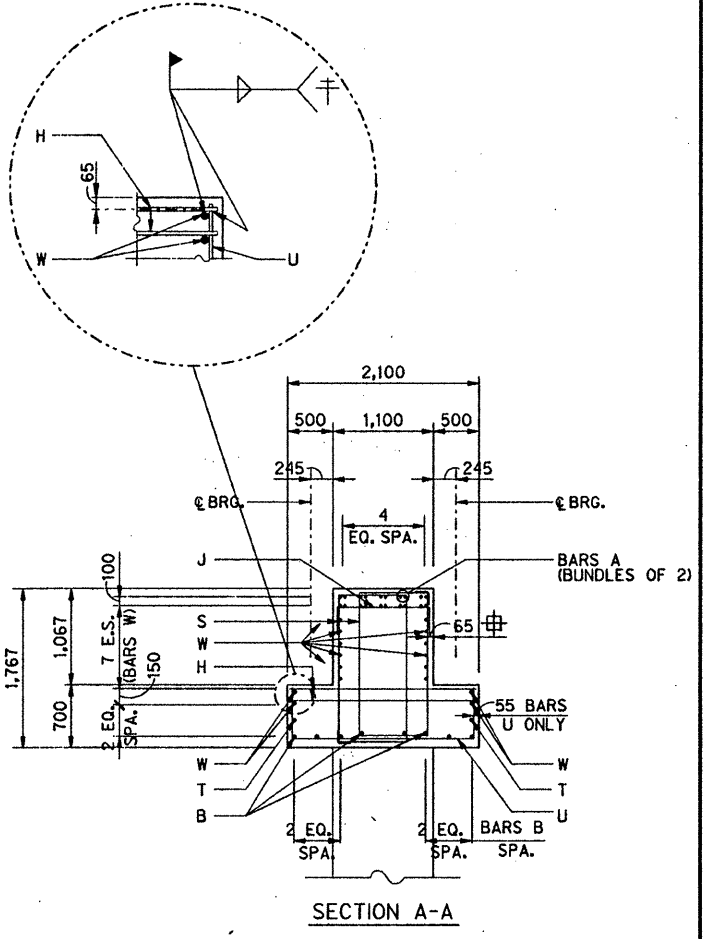


CHRISTOPHER H. NEUFELD P.E.
DATE 4-15-96

- GENERAL NOTES:**
- DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 - ALL CONCRETE SHALL BE CLASS 'C'.
 - ALL REINFORCING STEEL SHALL BE GRADE 420.
 - CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 - SEE 'FORM LINER DETAILS' SHEET FOR AESTHETIC TREATMENT OF COLUMNS AND CAP.
 - † WELD BOTH SIDES OF BARS W AND U TO TOP BAR H AS SHOWN
 - ⊕ TYPICAL EXCEPT AS NOTED



REFER TO UNDER BRIDGE LIGHTING PLANS FOR ITEMS INSIDE BENT CAP.



ALL DIMENSIONS IN MILLIMETERS.
MS 18 LOADING

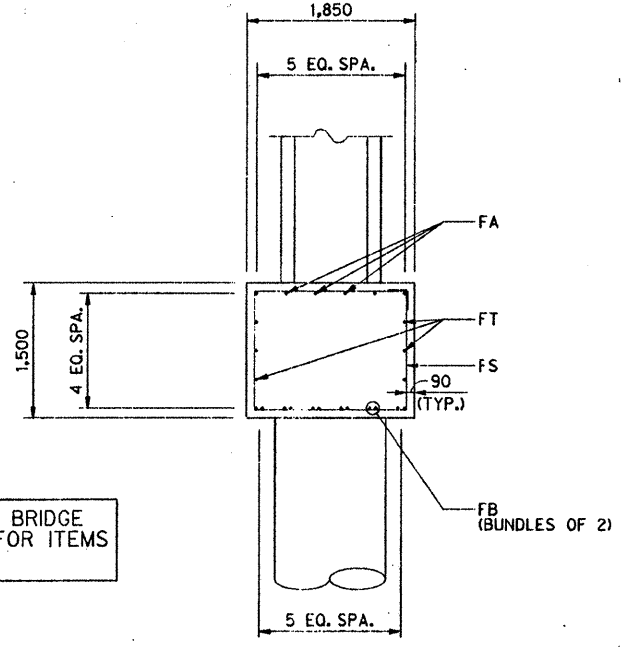
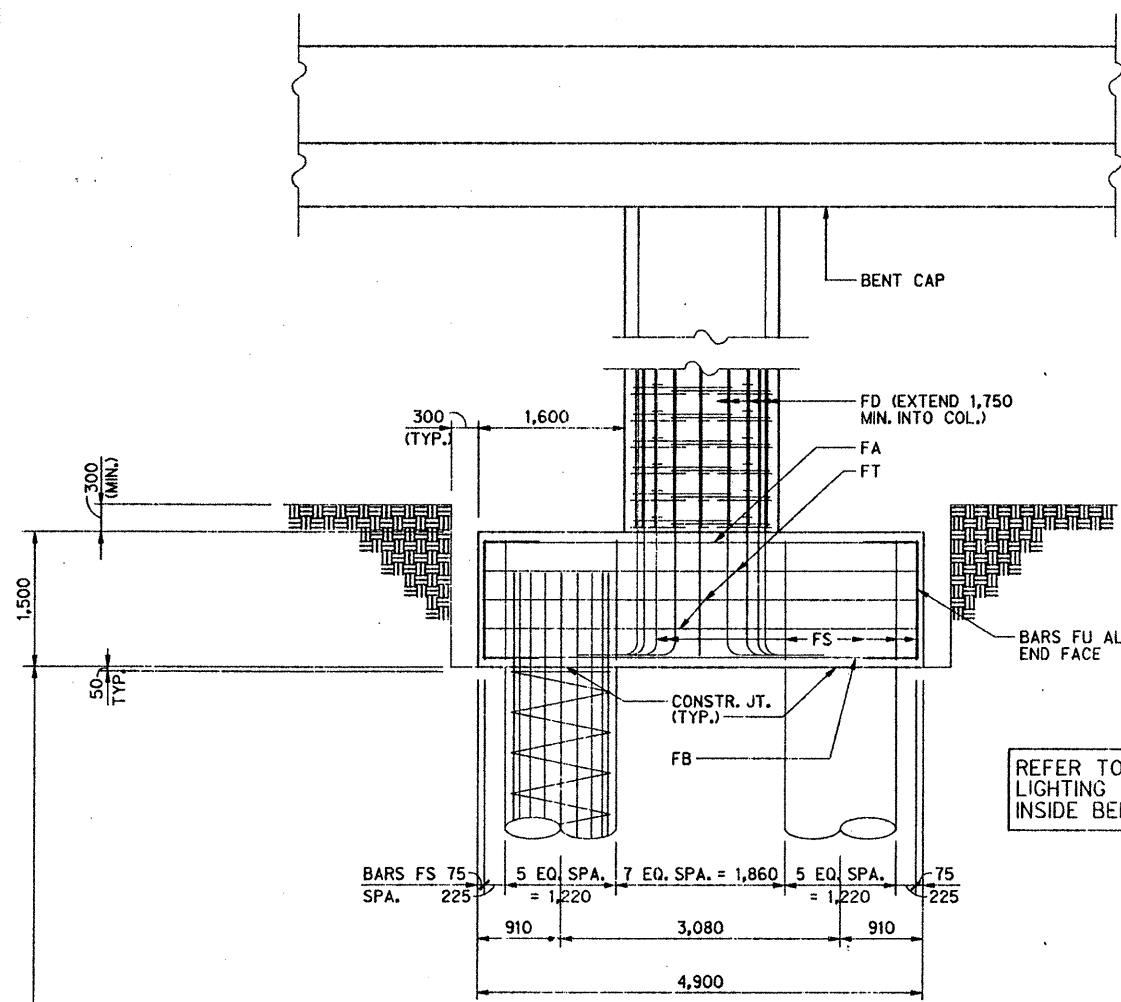
INTERIOR BENT NOS. 2 & 3 STAGE #3 OR 4 (1 of 2)									
U.S. 83 / "I" ROAD OVERPASS									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
CL.	TRH	EE PLAN	8	TEXAS	N.H. 96 (781) M	373			
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	FORM/PLAN NO.		
APR 96	MS2002.DGN	1:40	21	HIDALGO	00 30	17	18	U. 83	

VARIABLE QUANTITIES* (FOR COLUMNS)										
"H"	BARS "Z1" NO. 4 x 3,874		BARS "Z2" NO. 4 x 1,110		BARS "Z3" NO. 4 x 1,600		48 - BARS "V" NO. 9		REINF. STEEL	CL. C CONC. (BENT)
MM	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	LENGTH	WEIGHT	⊕ kg.	m ³
4,250	60	231	90	99	60	95	5,250	1,275	1,700	15.6
4,500	64	246	96	106	64	102	5,500	1,336	1,790	16.4
4,750	68	262	102	113	68	108	5,750	1,397	1,880	17.4
5,000	72	277	108	119	72	115	6,000	1,457	1,968	18.2
5,250	76	293	114	126	76	121	6,250	1,518	2,029	19.2
5,500	80	308	120	132	80	127	6,500	1,579	2,119	20.0
5,750	84	324	126	138	84	133	6,750	1,639	2,206	21.0

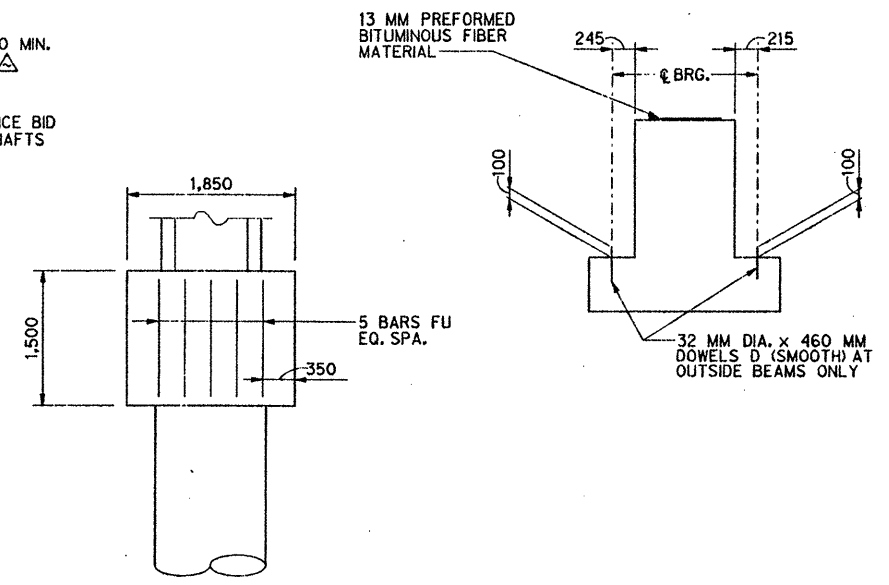
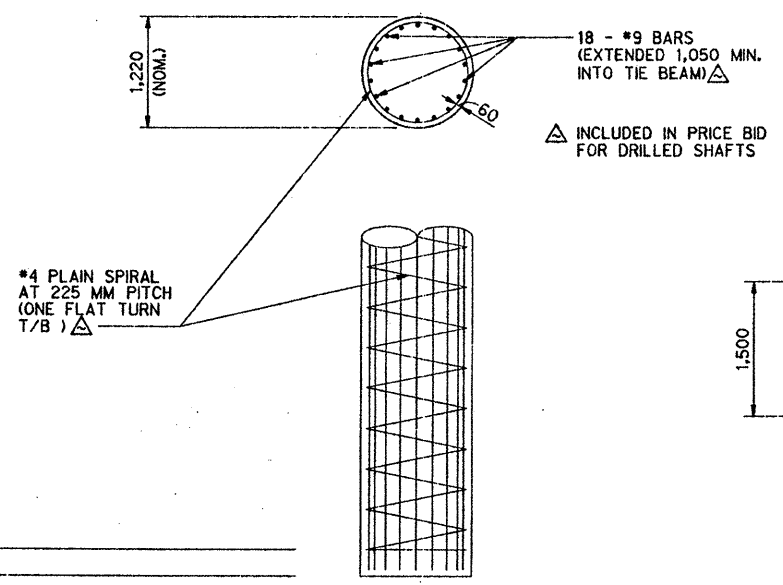
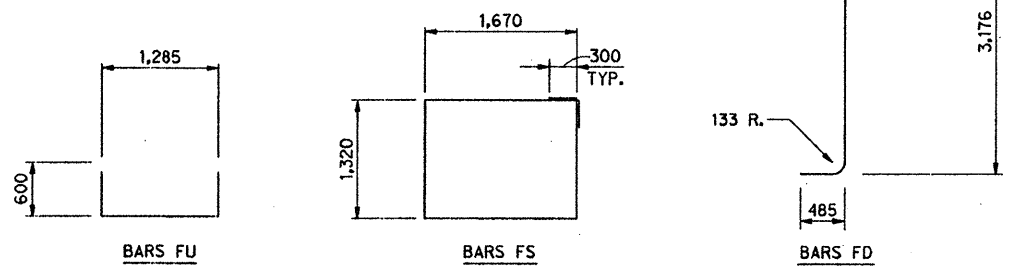
ESTIMATED QUANTITIES FOR ONE BENT* (FOR CAP AND TIE BEAMS ONLY)				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	20	#10	16,614	2,128
B	8	#10	16,614	851
D	4	32 DIA.	460	12
FA	12	#8	4,800	229
FB	24	#11	4,800	911
FD	48	#9	3,661	889
FS	36	#6	6,580	529
FT	12	#5	4,800	90
FU	20	#5	2,485	77
H	204	#6	2,000	912
J	30	#6	1,610	108
M	10	#6	2,090	47
S	204	#5	5,024	1,591
T	2	#6	16,614	74
U	102	#6	3,176	725
W	16	#7	16,614	809
REINFORCED STEEL			⊕ kg.	9,982
CL. C CONC. (BENT)			m ³	71.4

STATE OF TEXAS
 REGISTERED PROFESSIONAL ENGINEER
 CHRISTOPHER H. NEUFELD, P.E.
 4-152X
 DATE

GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO
 A.A.S.H.T.O. 1992 STANDARD AND
 INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE
 GRADE 420.
 CALCULATED FOUNDATION LOAD =
 2590 KN/DR. SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM
 UNLESS NOTED OTHERWISE.
 SEE 'FORM LINER DETAILS' SHEET FOR
 AESTHETIC TREATMENT OF COLUMNS
 AND CAP.



REFER TO UNDER BRIDGE LIGHTING PLANS FOR ITEMS INSIDE BENT CAP.



TIE BEAM END DETAIL
 (ONLY BARS FU SHOWN)

* QUANTITIES SHOWN ARE FOR ONE BENT IN STAGE #2.
 UTILIZE THE SAME TABLES FOR STAGE #3.
 ⊕ FOR CONTRACTORS INFORMATION ONLY

ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

**INTERIOR BENT
 NOS. 2 & 3
 STAGE #3 OR 4 (2 of 2)**

U.S. 83 / "I" ROAD OVERPASS
 HIDALGO COUNTY, TEXAS

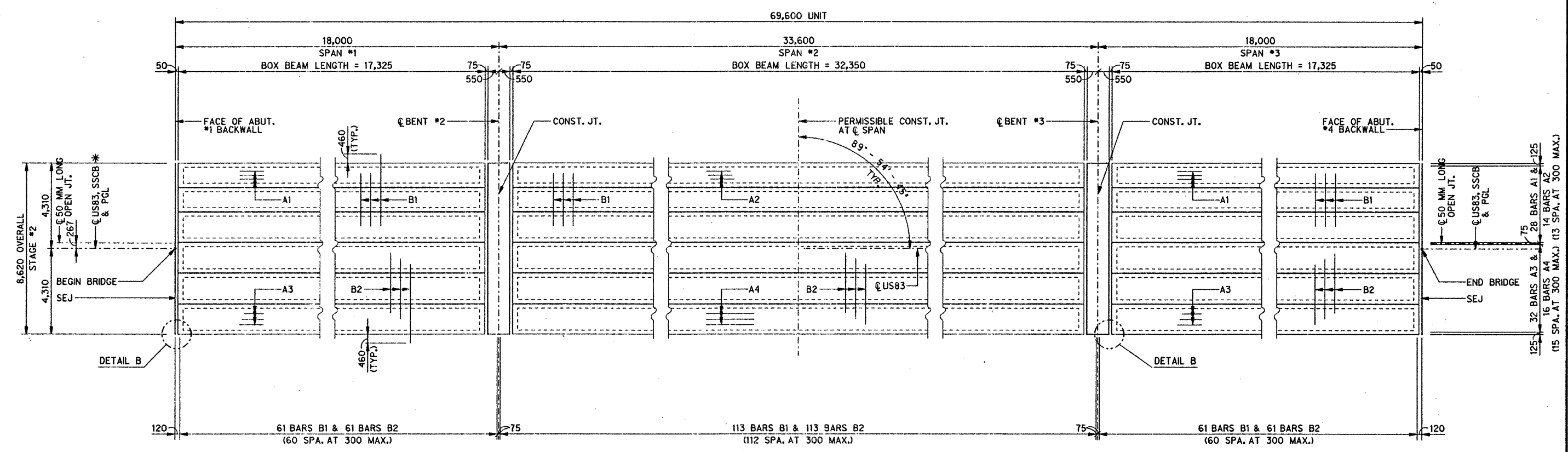
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

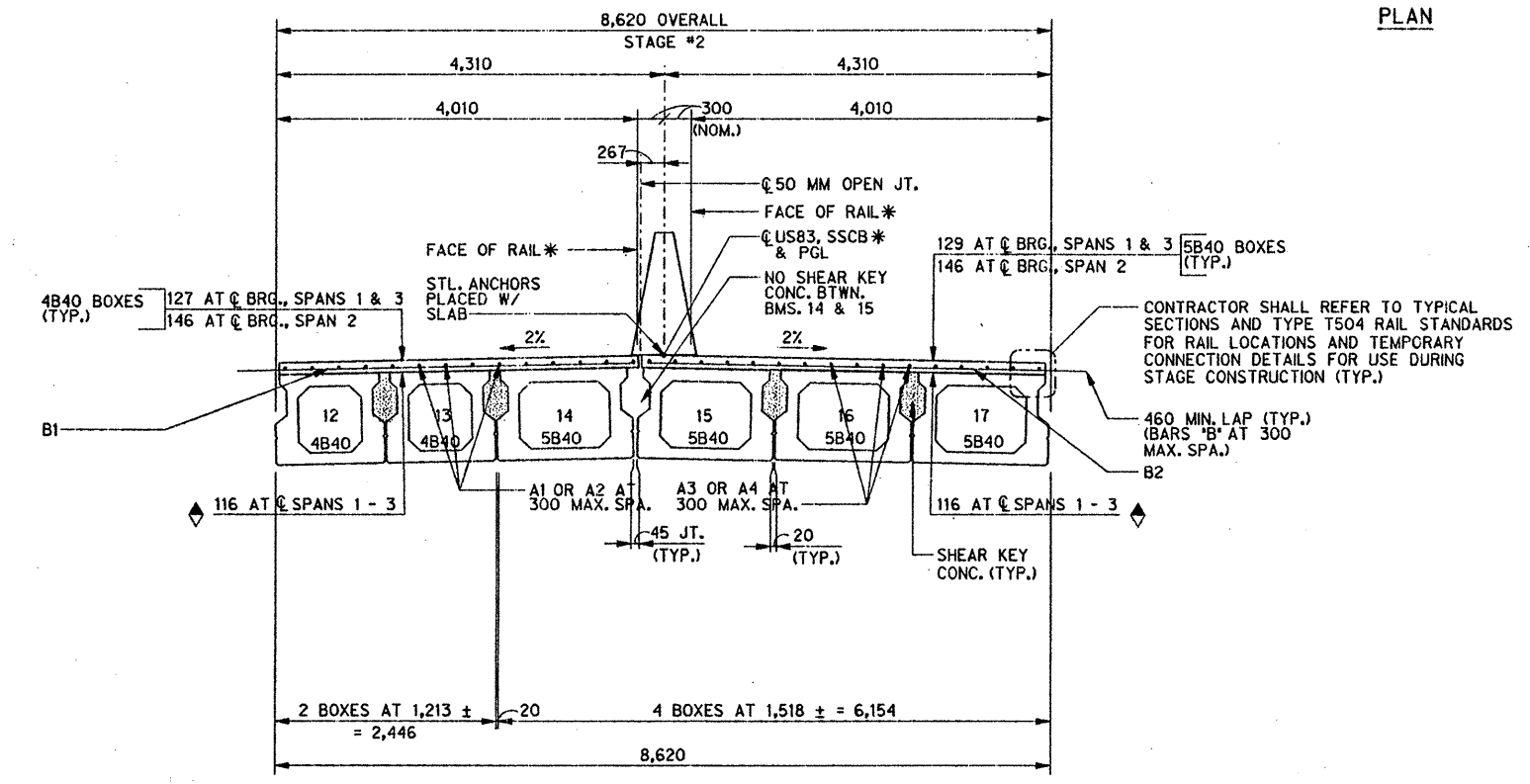
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRH	EE PLAN	6	TEXA	N H 96 (791) M	376
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION JOB	HIGHWAY NO.
APRIL 2001	MS00030303	1:40	21	HIDALGO	0 50 17 18	U. 83



Christopher H. Neufeld, P.E.
DATE 4-15-96



PLAN



TYPICAL SECTION

THEORETICAL DIMENSION

ESTIMATED QUANTITIES				
BAR	NO.	SIZE	LENGTH	WEIGHT
A1	28	#5	17,870	777
A2	14	#5	① 33,955	738
A3	32	#5	17,870	888
A4	16	#5	① 33,955	843
B1	235	#5	4,438	1,619
B2	235	#5	4,972	1,814
G	24	#4	965	23
H1	24	#5	4,438	165
H2	24	#5	4,972	185
S1	168	#4	880	147
REINFORCED STEEL			⊕ Kg.	7,199
CLASS 'S' CONC. (SLAB)			m ³	77.5
CLASS 'S' CONC. (SHEAR KEY)			m ³	23.1
PRESTR. CONC. BOX BEAM (4B40)			m.	134.00
PRESTR. CONC. BOX BEAM (5B40)			m.	268.00
CONC. SURF. TREAT.			m ²	600.00
BAT EXCLUDER JOINT SEAL			m.	335.00

⊕ FOR CONTRACTORS INFORMATION ONLY
REFER TO PRESTRESSED CONCRETE BOX BEAM DETAILS SHEET FOR DETAILS NOT SHOWN AND FOR DEAD LOAD DEFLECTION DIAGRAM.

① INCLUDES 1 - 435 MIN. LAP
* SSCB IS TO BE CONSTRUCTED IN STAGE #5.

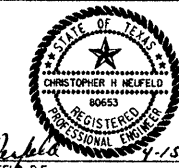
ALL DIMENSIONS IN MM
MS 18 LOADING

DECK DETAILS
UNIT #1 (SPANS 1-3)
STAGE #2

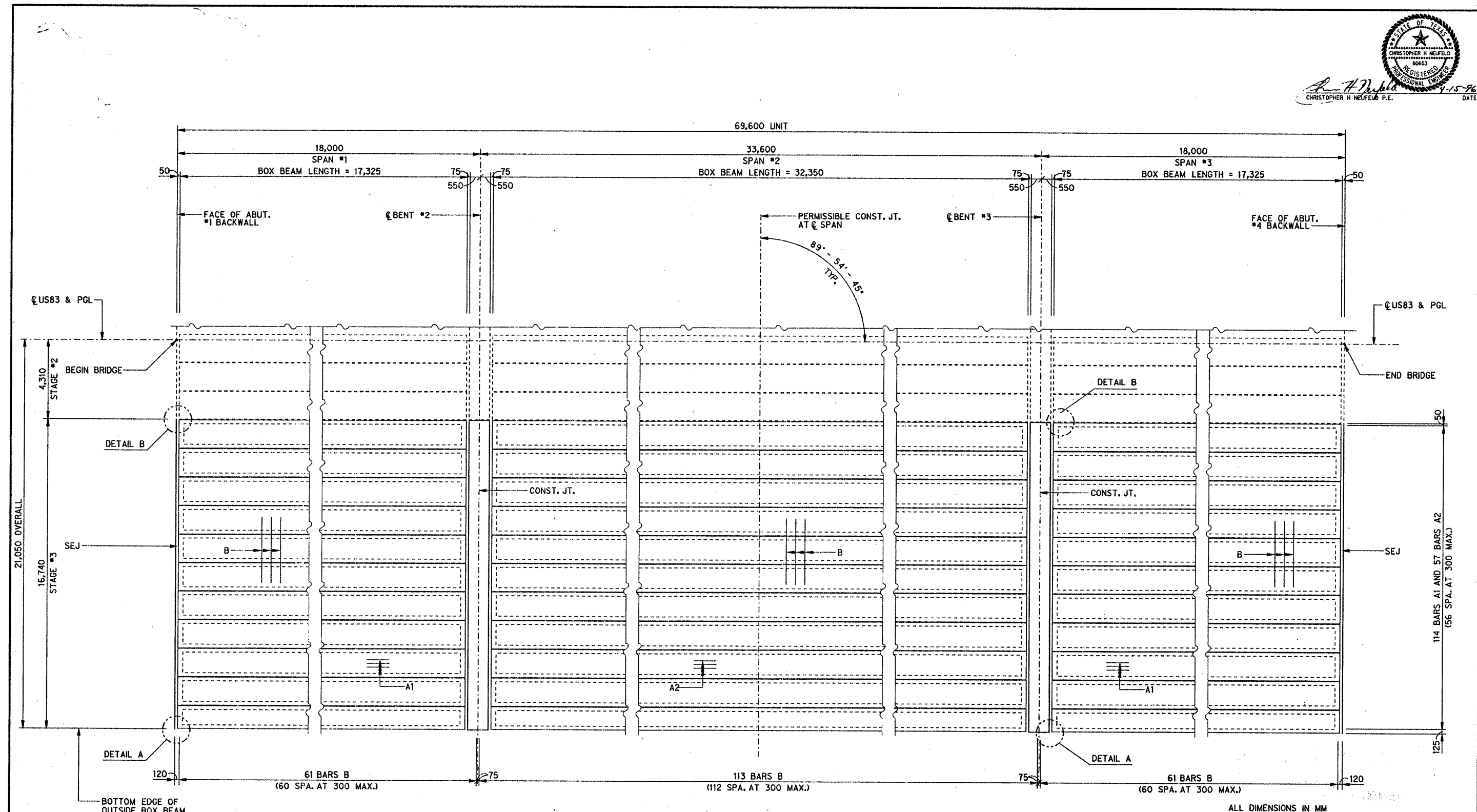
U.S. 83 / "I" ROAD OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL	TAL	EE PLAN	6	TEXAS	N.H. 9 (791) M	377
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	HIGHWAY NO.
APR 15 1996	HIDALGO	NO SCALE	21	HIDALGO	30	17



Christopher H. Neufeld
 CHRISTOPHER H. NEUFELD P.E. DATE 4-15-96



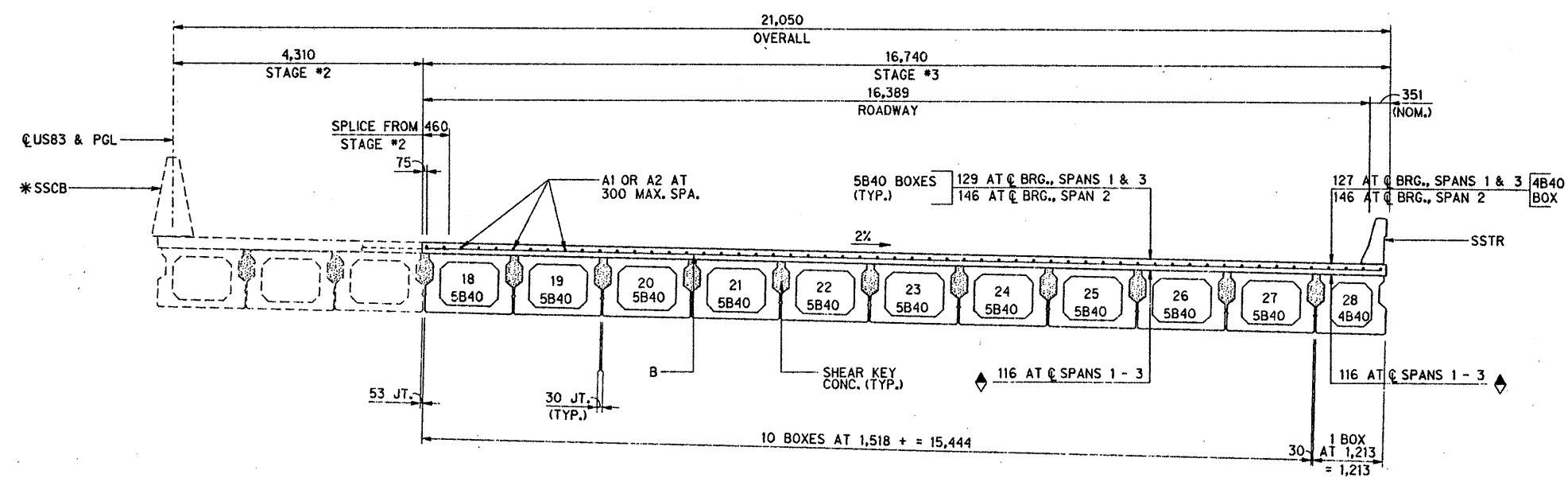
PLAN

ALL DIMENSIONS IN MM
 MS 18 LOADING

DECK DETAILS									
UNIT #1 (SPANS 1-3)									
STAGE #3 (1 OF 2)									
U.S. 83 / "I" ROAD OVERPASS									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>									
DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
CL	TRH	SE PLAN	6	TEXA	NH 96 (791) M	578			
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.	HIGHWAY NO.		
APR	MS0308100N	NO SCALE	21	HIDALGO	h/20	17	18	U.S.	



Christopher H. Neufeld
 CHRISTOPHER H. NEUFELD P.E.
 4-15-76 DATE



TYPICAL SECTION

◆ THEORETICAL DIMENSION

ESTIMATED QUANTITIES				
BAR	NO.	SIZE	LENGTH	WEIGHT
A1	114	#5	17,870	3,162
A2	57	#5	① 33,955	3,004
B	235	#5	16,610	6,059
G	66	#4	965	63
H	24	#5	16,610	619
S1	336	#4	880	294
REINFORCED STEEL			⊕ Kg.	13,201
CLASS 'S' CONC. (SLAB)			m ³	146.1
CLASS 'S' CONC. (SHEAR KEY)			m ³	63.3
PRESTR. CONC. BOX BEAM (4B40)			m.	67.00
PRESTR. CONC. BOX BEAM (5B40)			m.	670.00
CONC. SURF. TREAT.			m ²	1,158.1
BAT EXCLUDER JOINT SEAL			m.	737.00

⊕ FOR CONTRACTORS INFORMATION ONLY
 REFER TO PRESTRESSED CONCRETE BOX BEAM DETAILS SHEET FOR DETAILS NOT SHOWN AND FOR DEAD LOAD DEFLECTION DIAGRAM.

① INCLUDES 1 - 435 MIN. LAP.

* SSCB IS TO BE CONSTRUCTED IN STAGE #5.

NOTE: ALL DIMENSIONS IN MM
 MS 18 LOADING

DECK DETAILS
UNIT #1 (SPANS 1-3)
STAGE #3 (2 OF 2)

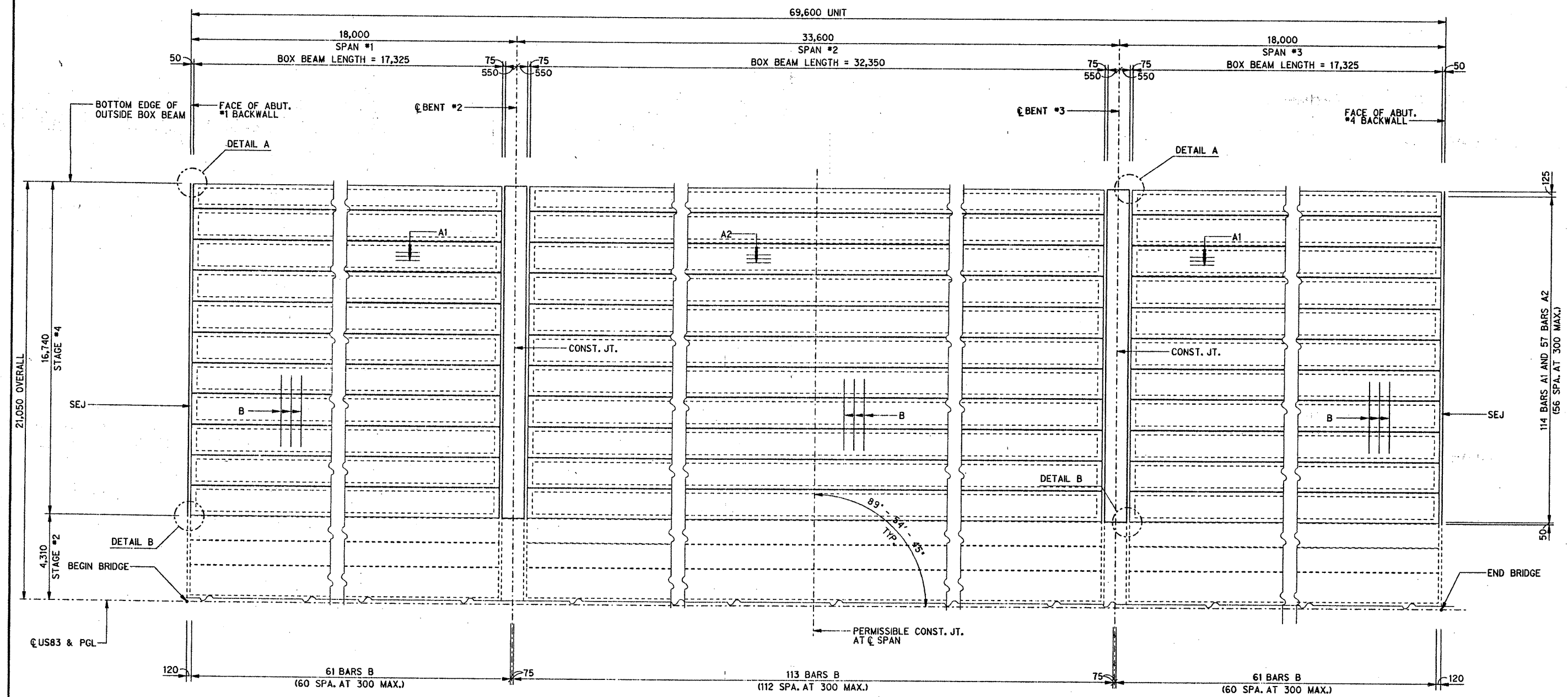
U.S. 83 / "1" ROAD OVERPASS
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS · ARCHITECTS · SCIENTISTS · PLANNERS · SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRM	EE PLAN	8	TEMA	1118 (791) M	3721
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	ROWWAY NO.
APR 76	MS0287/DON	1:100	21	HIDALGO	30	17



CHRISTOPHER H. NEUFELD, P.E. 4-15-96 DATE



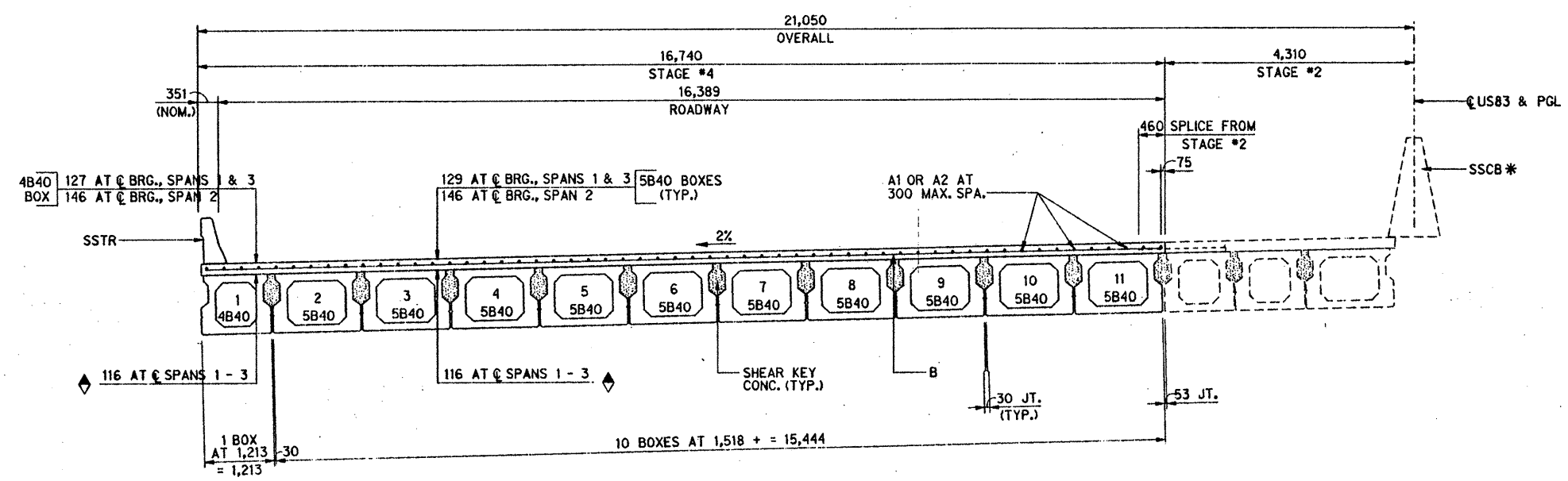
PLAN

ALL DIMENSIONS IN MM
MS 18 LOADING

DECK DETAILS									
UNIT #1 (SPANS 1-3)									
STAGE #4 (1 OF 2)									
U.S. 83 / "I" ROAD OVERPASS									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates <small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
C.L.	T.M.H.	E.E. PLAN	1	TEXAS	114 (791) M	220			
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.		
APR. 96	440003SDON	NO SCALE	21	HIDALGO	0 50	17	18 U. 83		



Christopher H. Nelfeld
 CHRISTOPHER H. NELFELD, P.E.
 4-15-96
 DATE



TYPICAL SECTION
 THEORETICAL DIMENSION

ESTIMATED QUANTITIES				
BAR	NO.	SIZE	LENGTH	WEIGHT
A1	114	#5	17,870	3,162
A2	57	#5	① 33,955	3,004
B	235	#5	16,610	6,059
G	66	#4	965	63
H	24	#5	16,610	619
S1	336	#4	880	294
REINFORCED STEEL			⊕ kg.	13,201
CLASS 'S' CONC. (SLAB)			m ³	146.1
CLASS 'S' CONC. (SHEAR KEY)			m ³	63.3
PRESTR. CONC. BOX BEAM (4B40)			m.	67.00
PRESTR. CONC. BOX BEAM (5B40)			m.	670.00
CONC. SURF. TREAT.			m ²	1,158.1
BAT EXCLUDER JOINT SEAL			m.	737.00

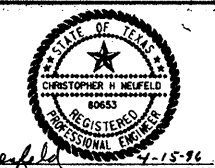
⊕ FOR CONTRACTORS INFORMATION ONLY
 REFER TO PRESTRESSED CONCRETE BOX BEAM DETAILS SHEET FOR DETAILS NOT SHOWN AND FOR DEAD LOAD DEFLECTION DIAGRAM.

① INCLUDES 1 - 435 MIN. LAP.

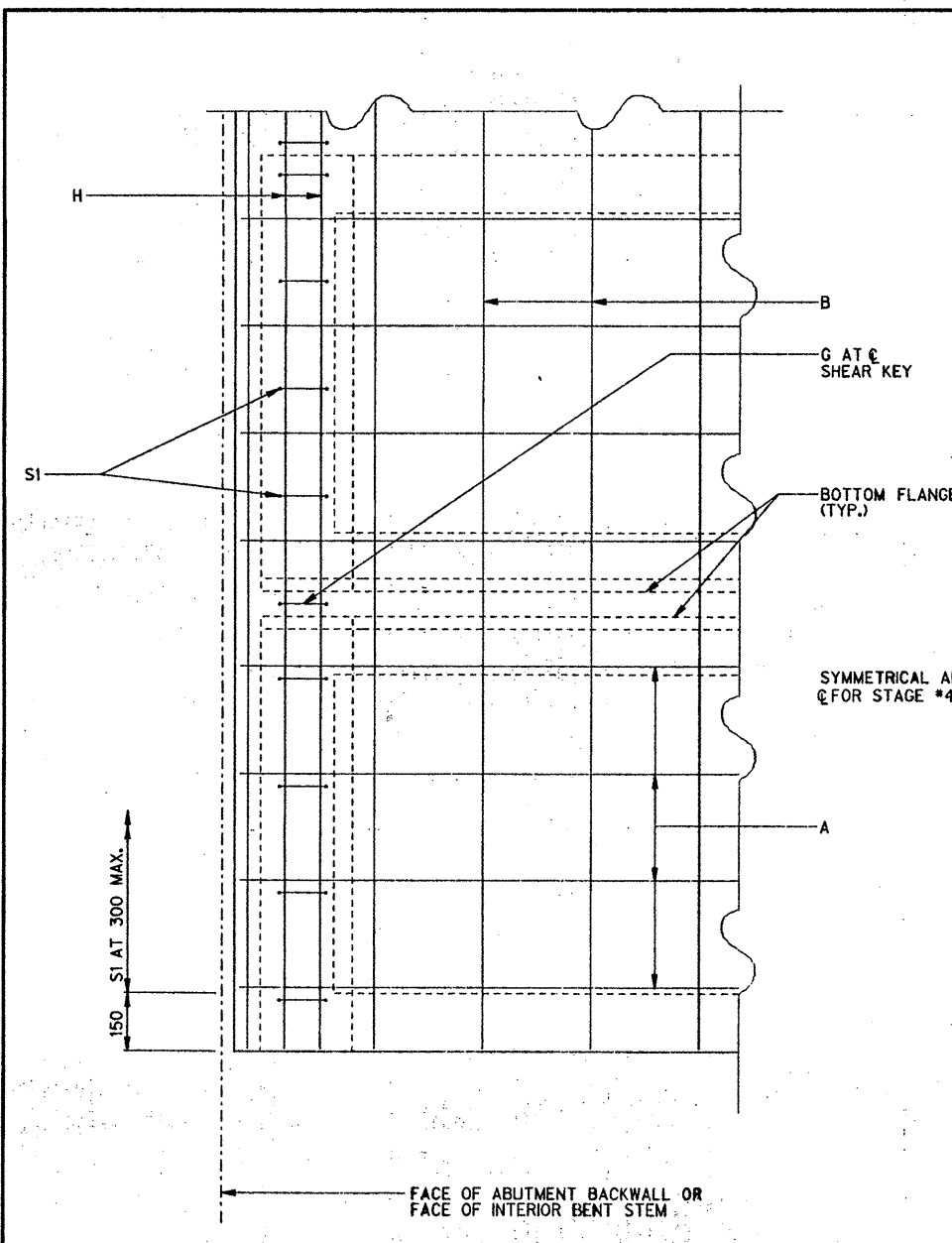
* SSCB IS TO BE CONSTRUCTED IN STAGE #5.

NOTE: ALL DIMENSIONS IN MM
 MS 18 LOADING

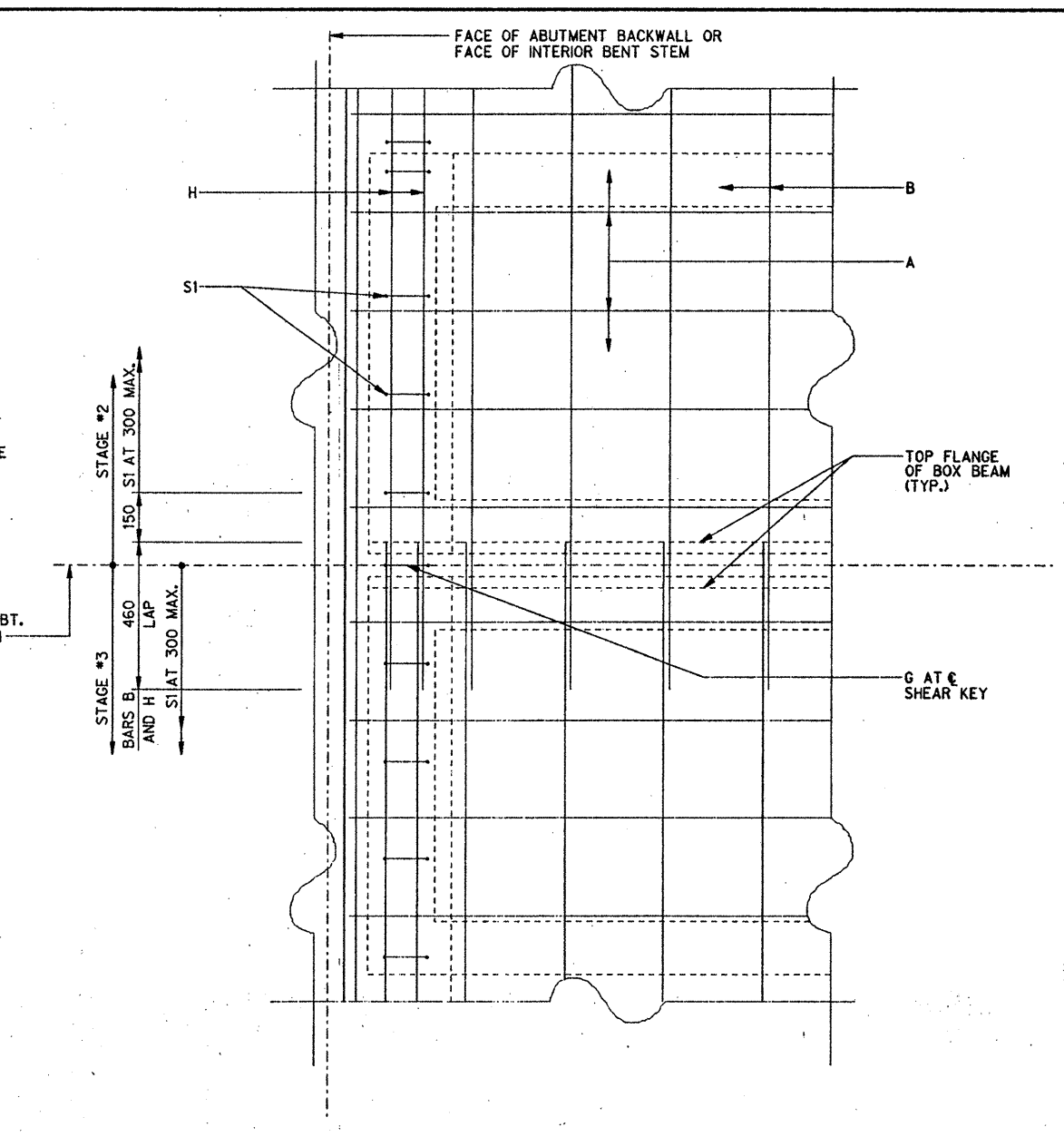
DECK DETAILS							
UNIT #1 (SPANS 1-3)							
STAGE #4 (2 OF 2)							
U.S. 83 / "I" ROAD OVERPASS							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>							
DESIGN	DRAWN	NOTED	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
C.L.	TRH	BE PLAN	#	TEXA	N.H. 94 (791) M	387	
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB	HIGHWAY
APRIL 1996	MS0038L00M	1" = 30'	21	HIDALGO	0030	17	U. 83



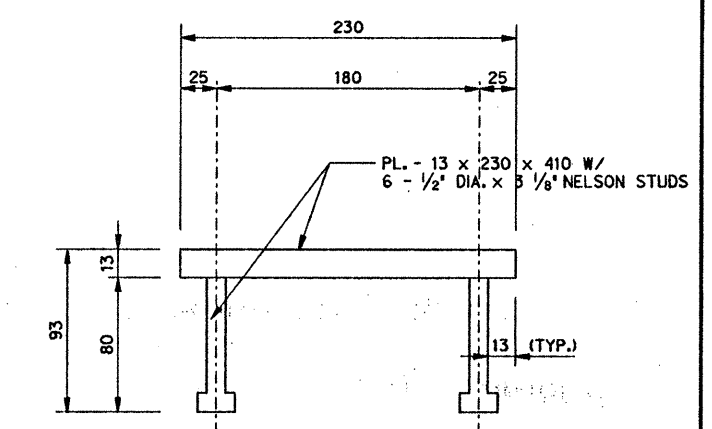
CHRISTOPHER H. NELFELD, P.E.
DATE 4-15-96



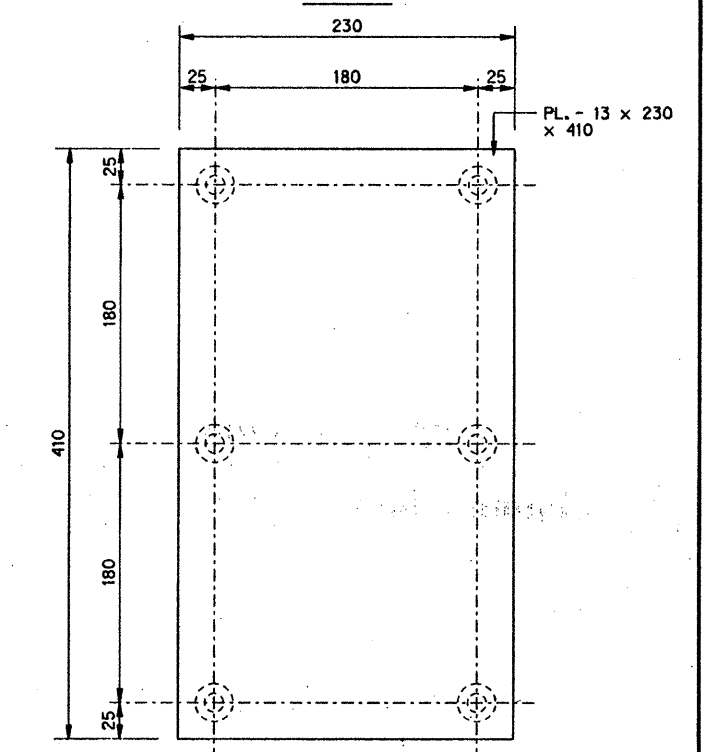
DETAIL 'A'



DETAIL 'B'



SECTION



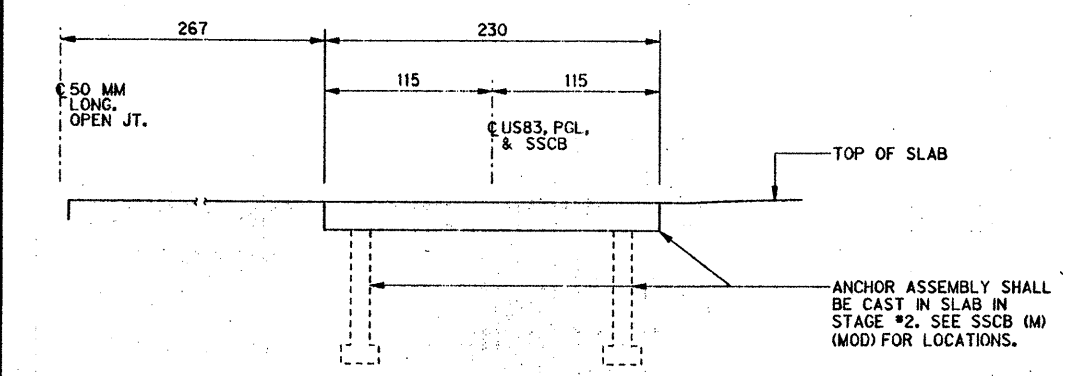
PLAN

ANCHOR DETAIL
PAYMENT IS SUBSIDIARY TO ITEM PERTAINING TO SSCB (M) (MOD.)
ALL DIMENSIONS IN MM (U.N.O.)
MS 18 LOADING

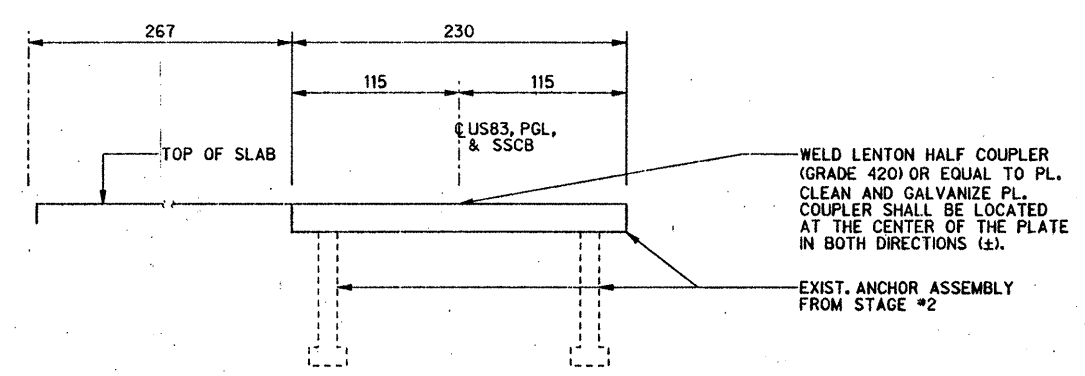
PRESTRESSED CONCRETE BOX BEAM DETAILS (1 OF 3)
U.S. 83 / "I" ROAD OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL	TRH	BE PLAN	8	TEXAS	W 83 (781) M	232 J
DATE	FILE	SCALE	STATE NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1996	MSR08080300	NO SCALE	21	HIDALGO	00	07



STAGE #2 ANCHOR
PAYMENT IS SUBSIDIARY TO ITEM PERTAINING TO SSCB (M) (MOD.)

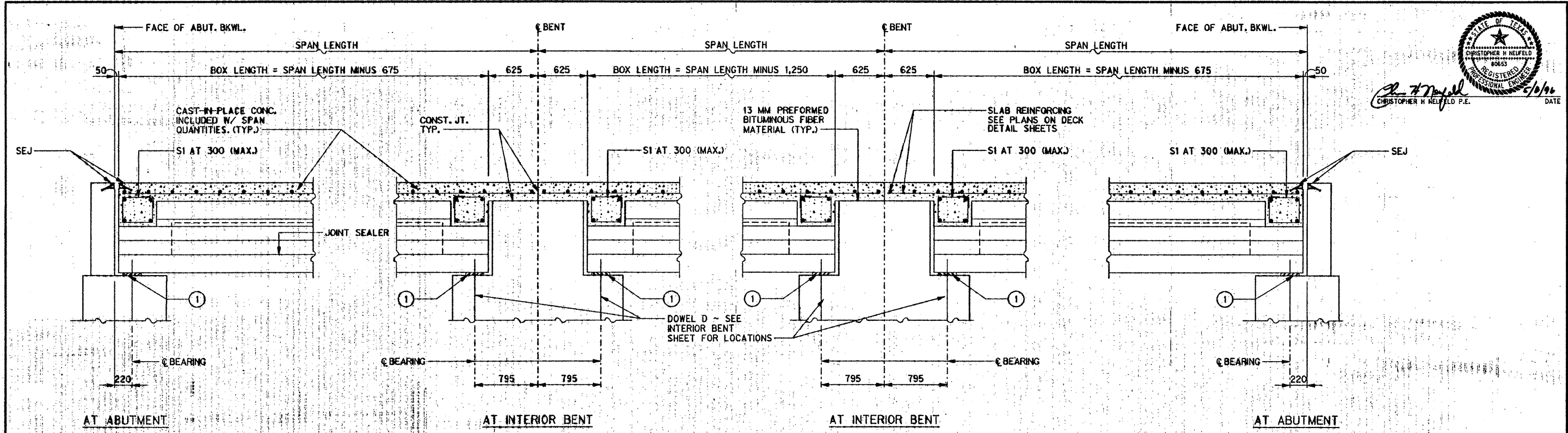


STAGE #5 ANCHOR
PAYMENT IS SUBSIDIARY TO ITEM PERTAINING TO SSCB (M) (MOD.)

WELD LENTON HALF COUPLER (GRADE 420) OR EQUAL TO PL. CLEAN AND GALVANIZE PL. COUPLER SHALL BE LOCATED AT THE CENTER OF THE PLATE IN BOTH DIRECTIONS (±).
EXIST. ANCHOR ASSEMBLY FROM STAGE #2

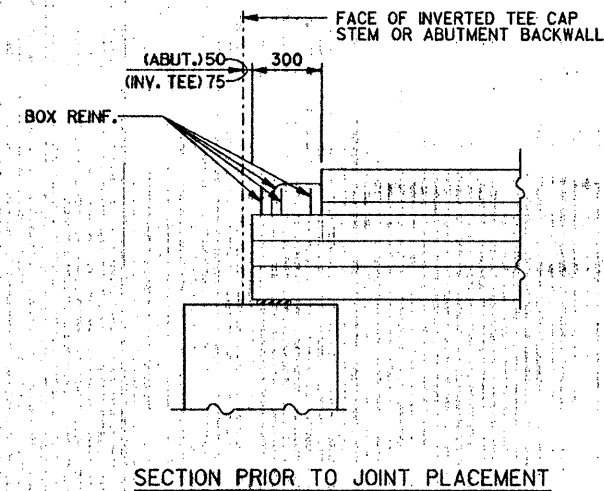
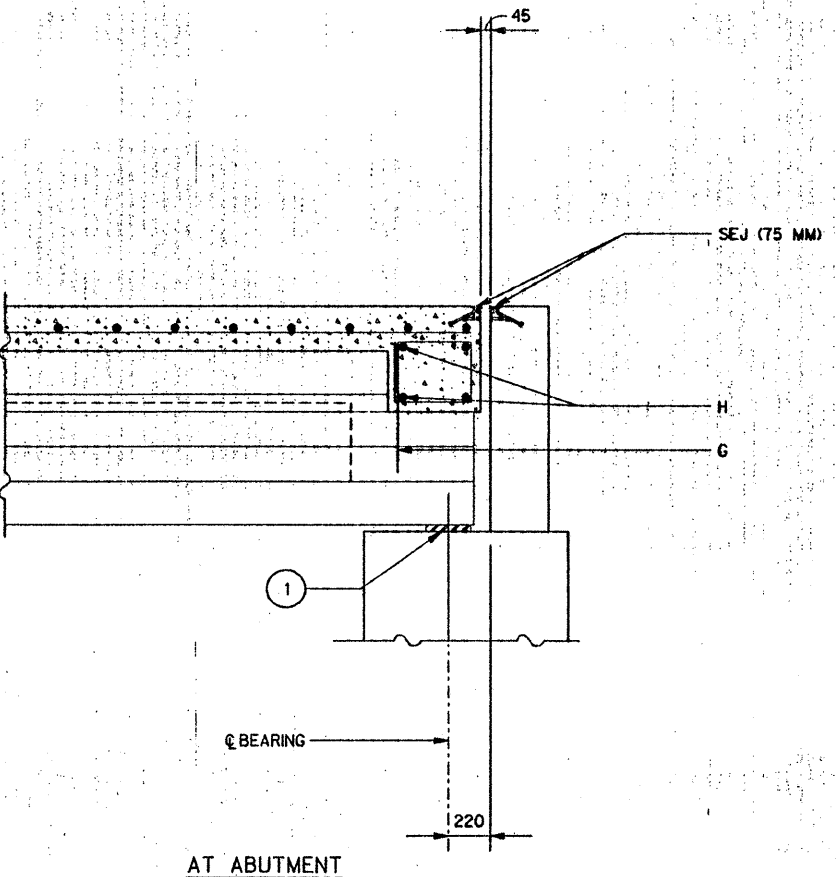
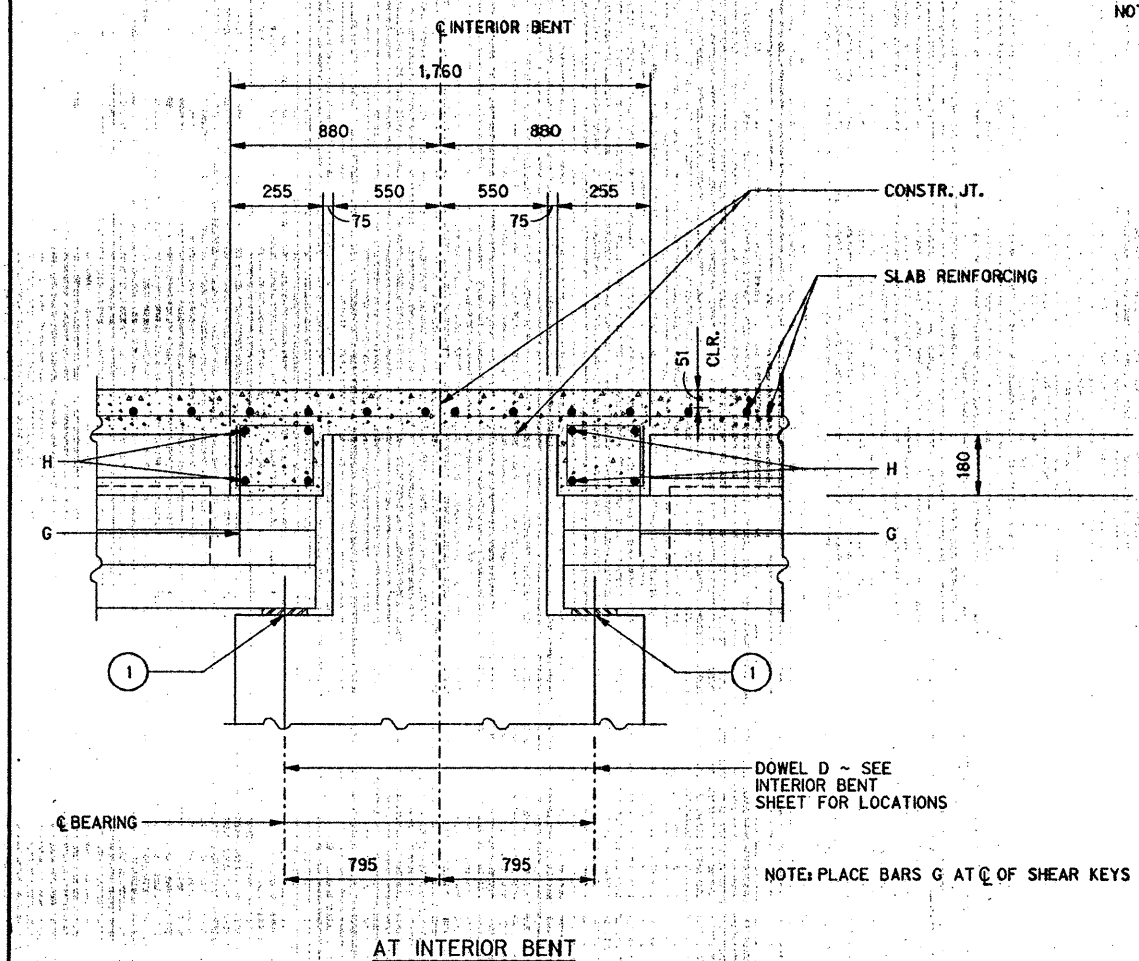


Christopher H. Neufeld P.E. DATE



BOX BEAM ELEVATION AT C BOXES
SEE PAGE 3 OF 3 FOR PAD DETAILS
NOTE: ALL STRANDS SHALL BE CUT FLUSH WITH BEAM END AND GROUTED OVER.

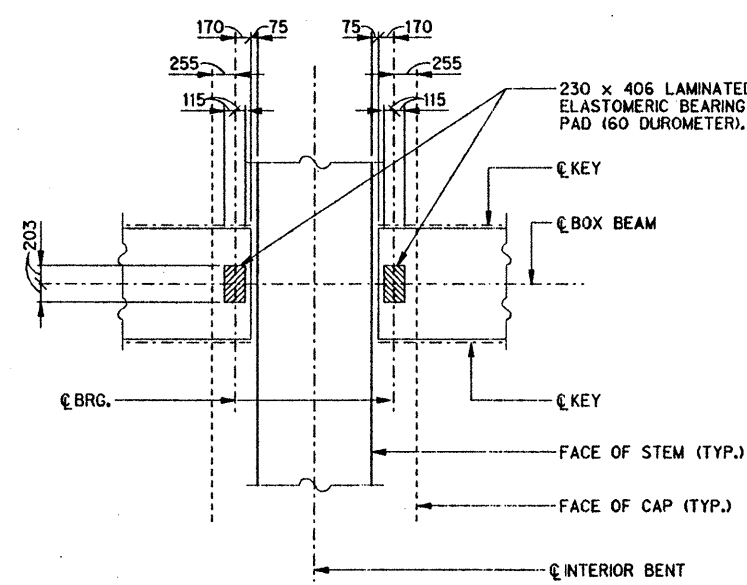
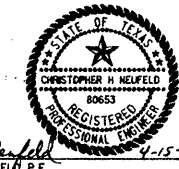
NOTE: FOR NOTES AND DETAILS OF ARMOR JOINT NOT SHOWN, SEE SEJ-S(M) SHEET.



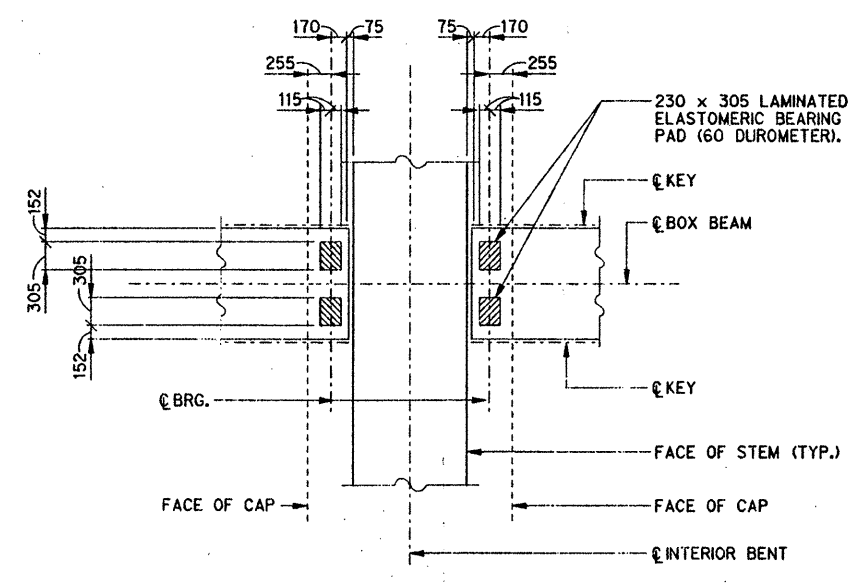
ALL DIMENSIONS IN MM MS 18 LOADING

Table with project information: PRESTRESSED CONCRETE BOX BEAM DETAILS (2 OF 3), U.S. 83 / 171 ROAD OVERPASS, HIDALGO COUNTY, TEXAS, TEXAS DEPARTMENT OF TRANSPORTATION, Half Associates.

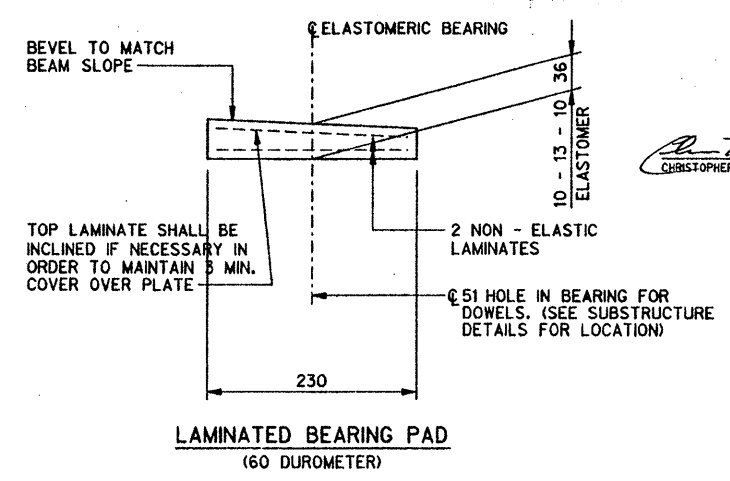
REV: 5/28/96



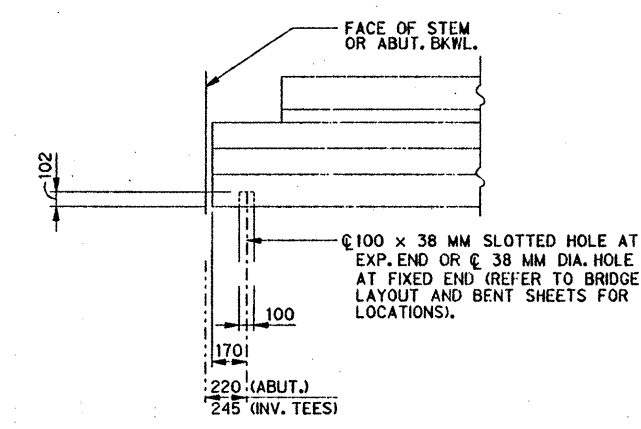
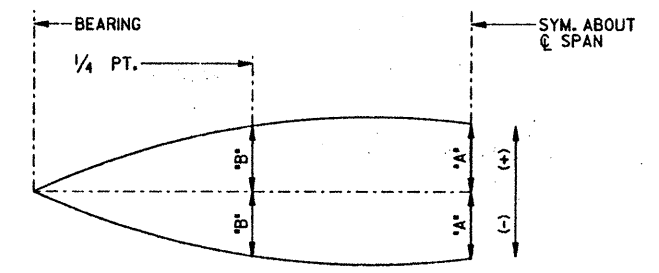
JOINT (1)
FIXED OR EXPANSION JOINTS



JOINT (2)
FIXED OR EXPANSION JOINTS

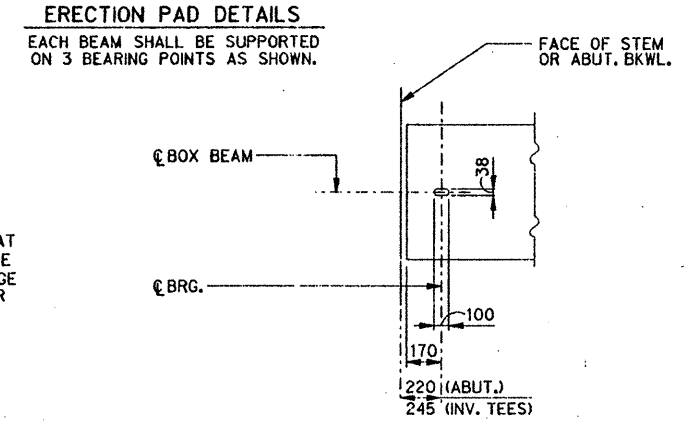


LAMINATED BEARING PAD
(60 DUROMETER)



NOTE: ANCHORAGE HOLES MAY BE TAPERED (121 x 41) AT BASE. IF HOLES ARE FORMED WITH SHEET METAL, FORMS MAYBE LEFT IN PLACE.

ELEVATION



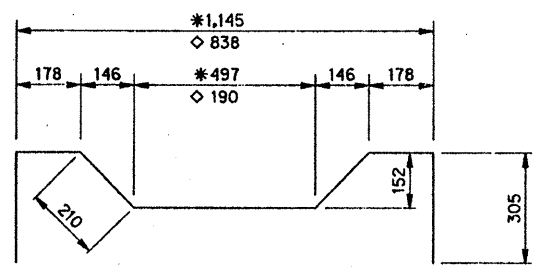
ERECTION PAD DETAILS
EACH BEAM SHALL BE SUPPORTED ON 3 BEARING POINTS AS SHOWN.

PLAN

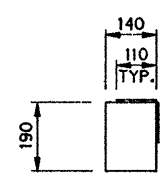
BOX END DETAILS

CAMBER AND DEAD LOAD DEFLECTIONS (MM)							
LOCATION	SPAN	BOX BEAMS	POINT	CAMBER	DEAD LOAD		
					SLAB	KEY	RAIL
STAGES 2-4	1 & 3	1, 12, 13 & 28	*A*	13.7	1.5	1.4	1.0
			B	9.8	1.0	1.0	0.7
	1 & 3	2-11 & 14-27	*A*	15.5	1.5	1.2	0.6
			B	11.0	1.1	0.8	0.8
STAGES 2-4	2	1, 12, 13 & 28	*A*	59.7	15.2	14.4	10.4
			B	42.5	10.8	10.3	7.4
	2	2-11 & 14-27	*A*	58.5	16.3	12.2	8.9
			B	41.7	11.6	8.7	6.3

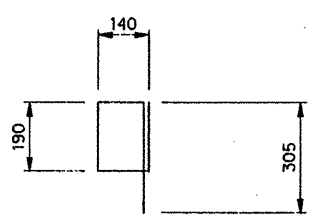
† DEFLECTIONS SHOWN ARE FOR RAIL/BARRIER CONDITIONS DURING STAGE CONSTRUCTION AND ARE ROUGHLY EQUIVALENT TO FINAL RAIL/BARRIER CONDITIONS INCLUDING OVERLAY.



BARS Z
(*4)
* FOR 1,500 MM BOX
◇ FOR 1,200 MM BOX



BARS S1
(*4)



BARS G
(*4)

ALL DIMENSIONS IN MM
MS 18 LOADING

PRESTRESSED CONCRETE BOX BEAM DETAILS (3 OF 3)

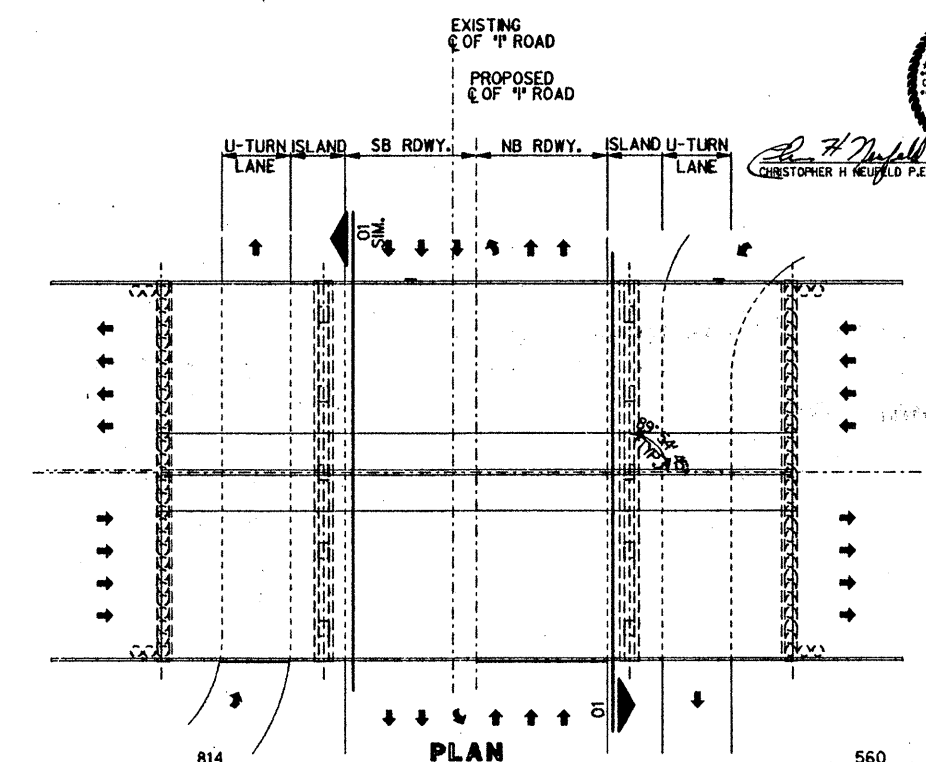
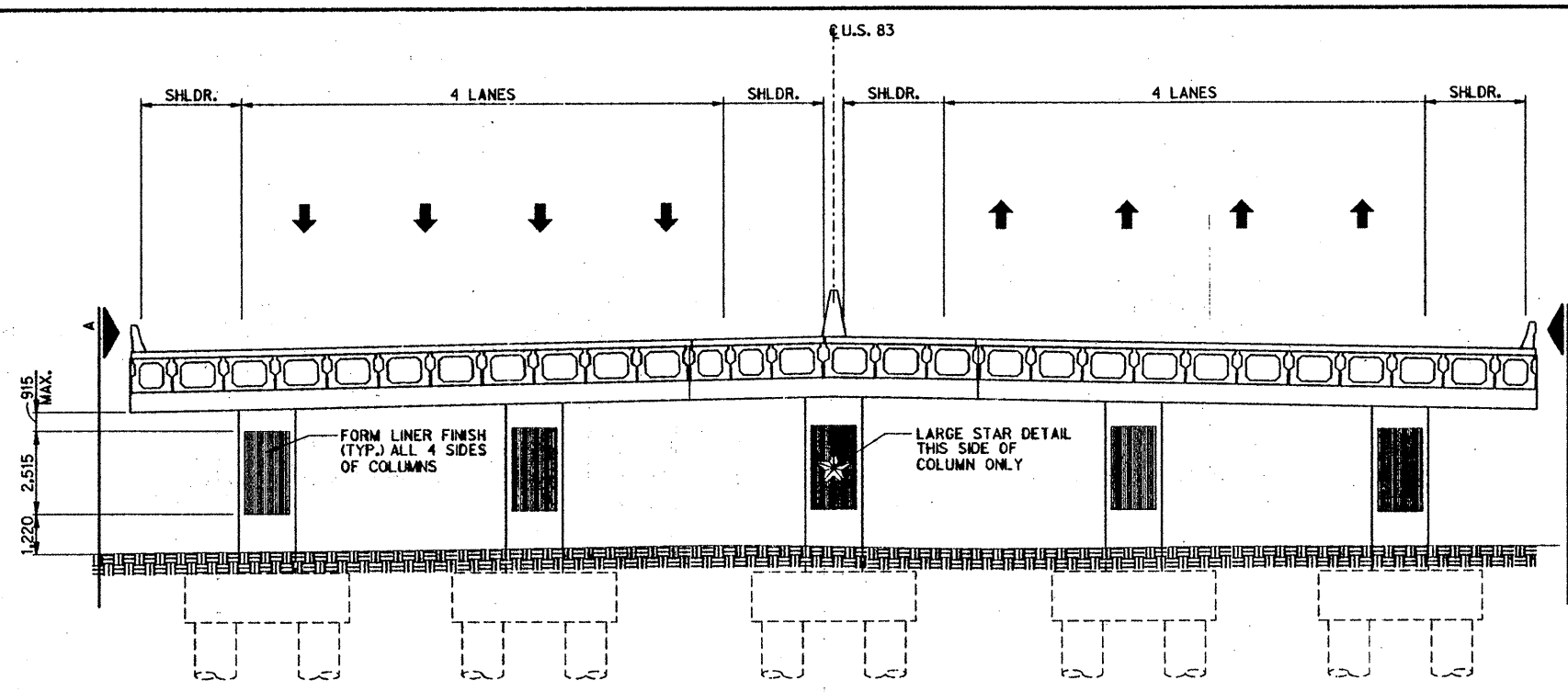
U.S. 83 / "I" ROAD OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRM	BE PLAN	3	TEXAS	115 461 (91) 11	382A
DATE	FILE	SCALE	STATE NO.	COUNTY	FED. SECTION NO.	JOB HIGHWAY NO.
APRIL 1996	HIDALGO	NO SCALE	21	HIDALGO	0030	7 88 U.S.

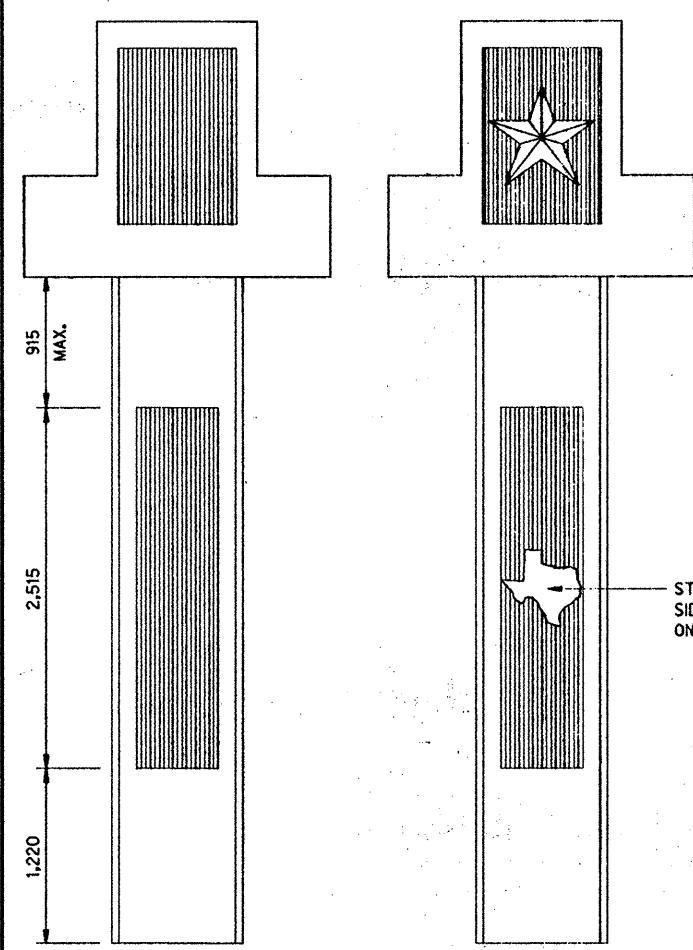


CHRISTOPHER H. REIFELD P.E.
DATE 4-15-96



01 TYPICAL SECTION - FINAL

PLAN



A

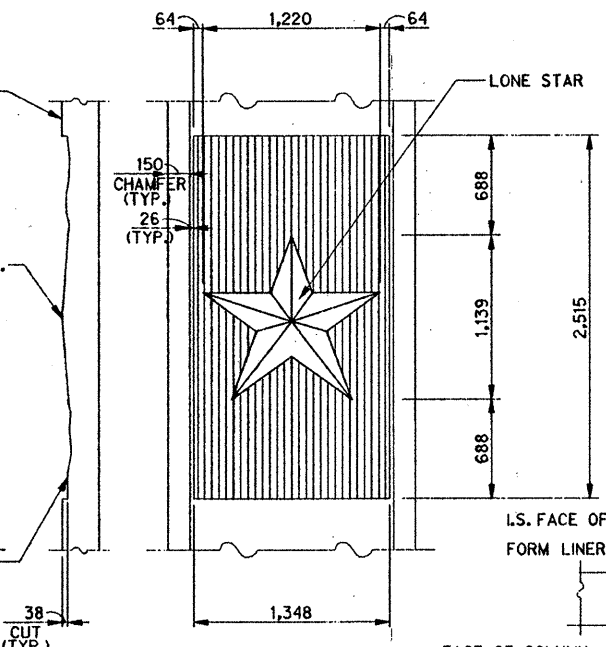
B

SMOOTH EVEN SURFACE OF COLUMN SEE CONC. FINISH IN GEN. NOTES.

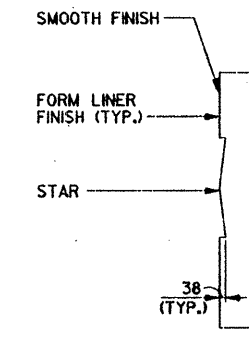
TIP OF STAR SHALL BE FLUSH TO FINISHED FACE OF COLUMN. (TYP.) CLASS "B" FINISH TYPE 1.

O.S. FACE OF COLUMN W/ FORM LINER FINISH TO BE SAND BLASTED TO ACHIEVE AN OVERALL CONSISTENT FINISH.

STATE MAP THIS SIDE OF COLUMN ONLY.

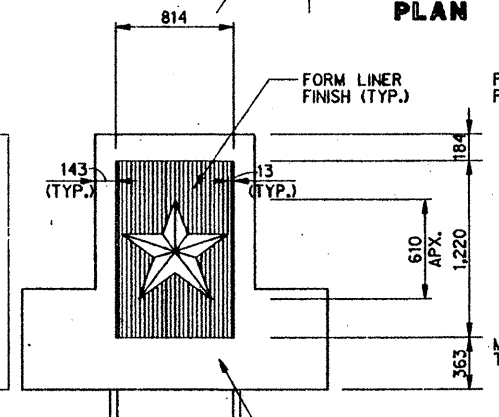


FORM LINER W/ LARGE STAR DETAIL AT FACE OF COLUMN. (LONE STAR)

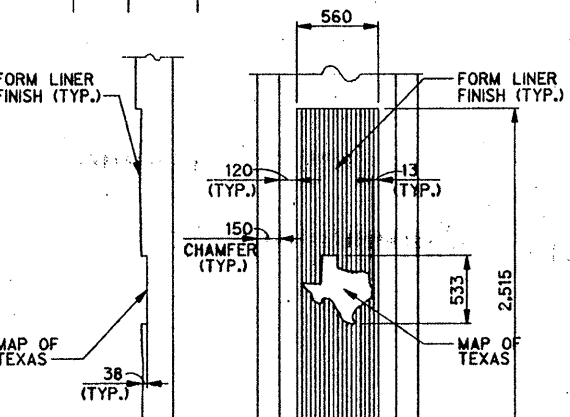


SECTION 'B - B'

CAP DETAIL (LONE STAR)



FORM LINER DETAIL



SIDE OF COLUMN DETAIL (MAP)

NOTE:
TEXTURED CONCRETE SURFACE TREATMENT SHALL BE FORMED USING L.M. SCOFIELD ARCHITECTURAL FORM LINERS OR APPROVED EQUAL TO MATCH EXISTING FRACTURED RB FINISH ON THE US281 / US83 INTERCHANGE. L.M. SCOFIELD COMPANY 820 E. 29 ST. HOUSTON TX. ZIP - 77009. ALL FORM LINERS SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.

A SAMPLE PANEL SHALL BE SUBMITTED OF ALL FINISHES FOR APPROVAL TO THE ENGINEER PRIOR TO USE.
SAMPLE PANELS SHALL BE SIZED AS APPROVED BY THE ENGINEER.
SAMPLES SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO THE VARIOUS BID ITEMS.

STAR AND MAP SHALL BE A SMOOTH FINISH (TYP.) SEE GEN. NOTES. COLOR OF STAR AND MAP SHALL BE 'CORAL RED' AS MANUFACTURED BY L.M. SCOFIELD CO. OR APPROVED EQUAL.

COLOR OF RIBBED AREA SHALL BE MESA BIEGE AS MANUFACTURED BY L.M. SCOFIELD CO. OR APPROVED EQUAL. THE CONTRACTOR SHALL VERIFY THAT THE COLORS SPECIFIED MATCH THE EXISTING COLORS ON THE U.S. 281/U.S.83 INTERCHANGE PRIOR TO FINISHING. FINAL COLOR SELECTIONS SHALL BE APPROVED BY TXDOT PRIOR TO FINISHING.

THE EXACT LOCATION OF EACH EMBLEM SHALL BE APPROVED BY THE ENGINEER.
PAYMENT FOR FORM LINER TREATMENT AND PAINT SHALL BE SUBSIDIARY TO THE ITEM CLASS C CONCRETE (BENT).

ADJUST STEEL AS NECESSARY TO MAINTAIN '50 MM' CLEAR COVER ON ALL SURFACE AREAS THAT ARE TO RECEIVE FORM LINER TREATMENT.

MS 18 LOADING									
FORM LINER DETAILS									
U.S. 83 / "I" ROAD OVERPASS									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
CLB	TJH	SEE PLAN	8	TEXAS	N H 4 (79) M	385			
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.	NO.	NO.	NO.
APR 1996	MS18-1200	1:200	TX	HIDALGO	DDP	17	18	18	ULR 83

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

STRUCTURE	SPAN	BEAM NO.	BEAM TYPE	DESIGNED BEAMS (STRAIGHT STRANDS)										OPTIONAL DESIGN																			
				PRESTRESSING STRANDS						TOT NO. DEB	DIST FROM BOTTOM	DEBONDED STRAND PATTERN PER ROW										CONCRETE											
				NON-STD STRAND PATTERN	TOT NO.	SIZE (mm)	STRENGTH (MPa)	'e' (mm)	'e' END (mm)			NO. OF STRANDS	NUMBER OF STRANDS DEBONDED TO (m from end)										MINIMUM RELEASE STRENGTH (MPa)	MINIMUM 28 DAY COMP STRENGTH (MPa)	DESIGN LOAD COMP STRESS (TOP CL) (MPa)	DESIGN LOAD TENSILE STRESS (BOTT CL) (MPa)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (kN-m)	LIVE LOAD DISTRIB FACTOR					
U.S. 83/1" ROAD OVERPASS	1, 3	2 - 11 14 - 27	5B40	-	20	13	1860	417.5	417.6	0	55	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27.579	34.473	8.039	-9.059	3244.5	.744
	1, 3	1, 12 13 & 28	4B40	-	16	13	1860	411.5	411.5	0	55	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27.579	34.473	8.474	-9.191	2707.6	.595	
	2	2 - 11 14 - 27	5B40	-	52	13	1860	367.3	351.5	14	55	28	14	4	2	2	2	4	0	0	0	0	0	0	0	0	28.689	46.615	22.994	-22.939	7275.3	.509	
	2	1, 12 13 & 28	4B40	-	48	13	1860	348.2	325.6	14	55	22	14	4	4	2	2	2	0	0	0	0	0	0	0	0	29.950	49.531	24.752	-23.800	6232.7	.407	

NON-STANDARD STRAND PATTERNS	
PATTERN	STRAND ARRANGEMENT AT E OF BEAM

GENERAL NOTES:

Designed in accordance with current AASHTO Standard and Interim Specifications.

All concrete shall be Class H. All reinforcing bars shall be Grade 420.

When shown on this sheet, the Fabricator has the option of furnishing either the designed straight strand beam or an approved optional beam design. All optional design submittals and shop drawings shall be signed, sealed and dated by a registered Professional Engineer.

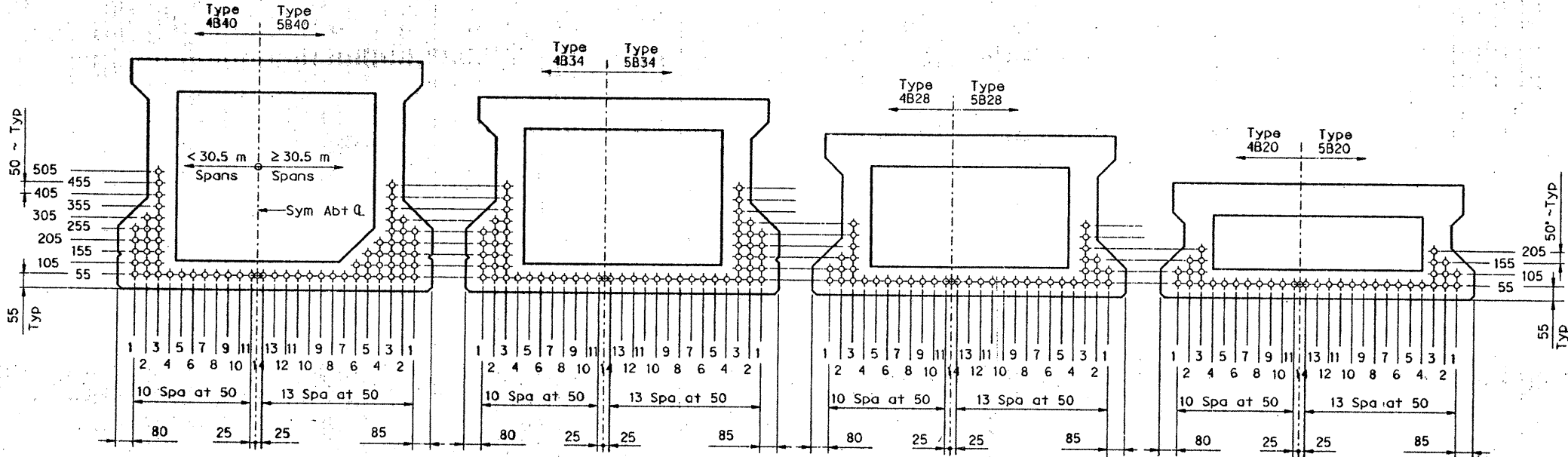
Prestress losses for the designed beams have been calculated for a relative humidity of 75% percent. Optional designs shall likewise conform.

Strands for the designed beam shall be located as low as possible on the 50 mm grid system unless a Non-Standard Strand Pattern is indicated. Fill row '55', then row '105', then row '155', etc., beginning each row in the '1' position and, distributing as uniformly as practical, working inward until the required number of strands is reached. All strands, including those in the web, shall be adequately tied to reinforcing steel, bar supports, or other devices to prevent displacement during concrete placement.

Strands in the position '1' shall not be debonded. Debonded strands shall be distributed equally about the vertical centerline. Debonded lengths shall decrease working inward, with debonding staggered in each row.

Strands shall be encased in plastic tubing along entire debonded length, and ends of tubing shall be sealed with waterproof tape. Split plastic tubing may be used provided the seam of the tubing is sufficiently sealed with waterproof tape to prohibit grout infiltration. Wrapping of strands with tape to provide debonding will not be permitted.

Strands for the designed beam shall be 13 mm 1,860 MPa low relaxation strands pretensioned to 138 kN each.



TxDot 40' BOXES TxDot 34' BOXES TxDot 28' BOXES TxDot 20' BOXES

MS18 LOADING

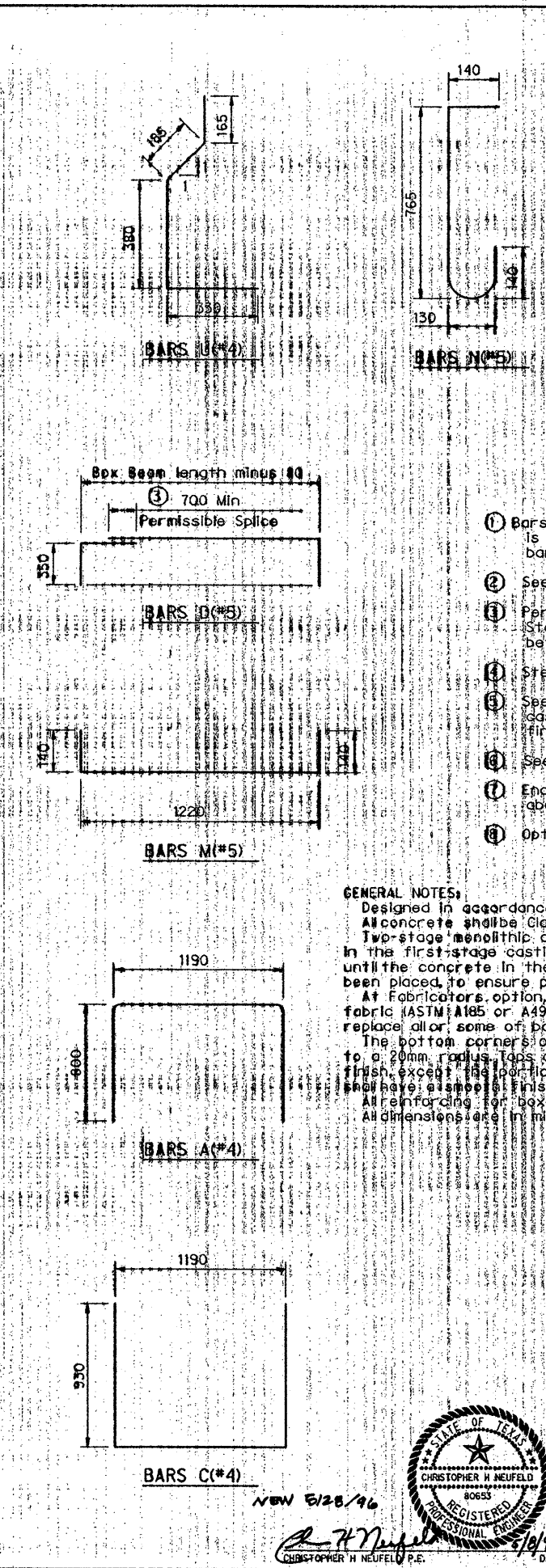
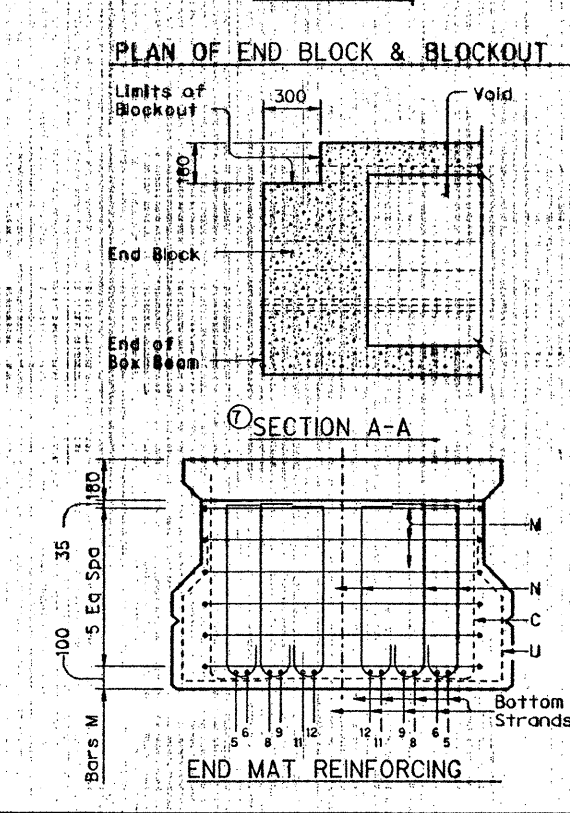
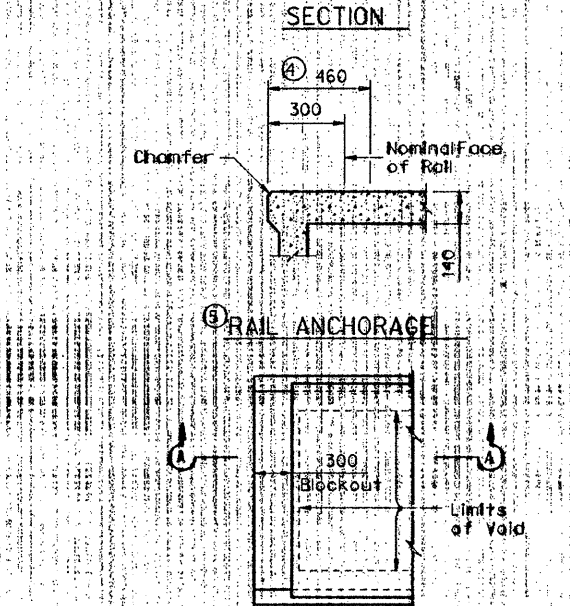
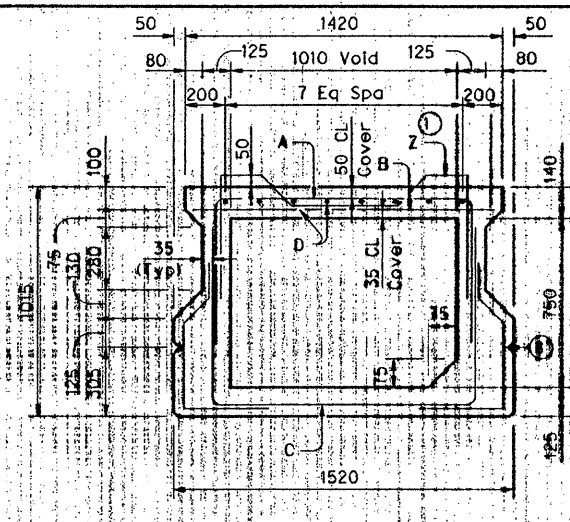
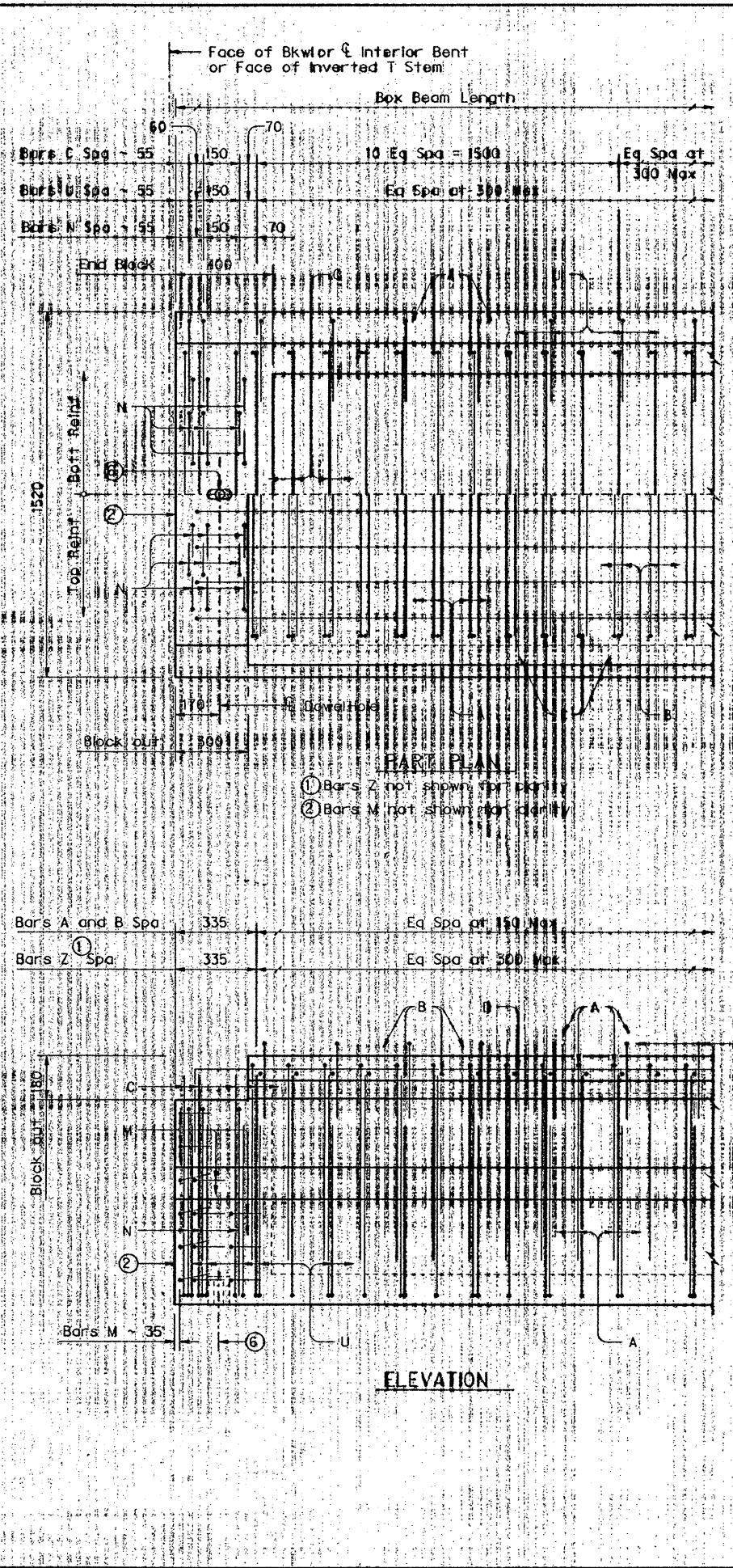
Texas Department of Transportation
 DESIGN DIVISION (BRIDGE)

**PRESTRESSED
 CONCRETE BOX BEAMS
 (NON-STANDARD SPANS)
 US 83/ 1" ROAD OVERPASS
 BBNS(M)**

FILE#	DN#	CK#	DN#	CK#	STD#
ORIG DATE:	DIST	FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS	COUNTY	CONTROL	SECT	JOB	
Original prepared March 1996	Hidalgo				

DATE: 7-15-96

CHRISTOPHER H. NEUFELD P.E.



BEAM PROPERTIES		
Beam Type		5B40
Area	10 ² mm ²	6773.300
Y Top	mm	536.7
Y Bottom	mm	478.3
Mass	10 ³ mm ³	89853.100
Mass	kg	1627.350

* Assumes 2403 kg/m³ mass density of concrete. This does not include mass of End Blocks or endanchors.

- ① Bars Z are only used when reinforced concrete slab is placed on box. See BOX BEAM Details for bar details.
- ② See END MAT REINFORCING Details.
- ③ Permissible splices to be in middle third of span. Stagger splices in adjacent bars, minimum 1220mm between splices.
- ④ Steel travel finish in length of box.
- ⑤ See RAILING Details for anchorage devices to be cast in exterior box beams. Only steel travel finish is parapet type railing is used.
- ⑥ See BOX BEAM Details for dowel hole details.
- ⑦ Ends of all boxes shall have blockouts as shown above. Extend mild reinforcing into blockout region.
- ⑧ Optional 20mm chamfer.

GENERAL NOTES:
 Designed in accordance with current AASHTO Specifications.
 All concrete shall be Class H.
 Two-stage monolithic casting shall be required. The concrete in the first stage casting (the bottom slab) must remain plastic until the concrete in the second stage casting (the webs) has been placed to ensure proper consolidation through vibration.
 At fabricator's option, alternate designs utilizing welded wire fabric (ASTM A185 or A497 of equivalent cross-sectional area to replace all or some of bars A, B, C and D will be permitted.
 The bottom corners of all beams shall be chamfered 20mm or rounded to a 20mm radius. Tops of all boxes shall have a rough wood floor finish, except the portion under the railing posts on exterior boxes shall have a smooth finish.
 All reinforcing for boxes shall be grade 420.
 All dimensions are in millimeters unless otherwise shown.

MSR LOADING

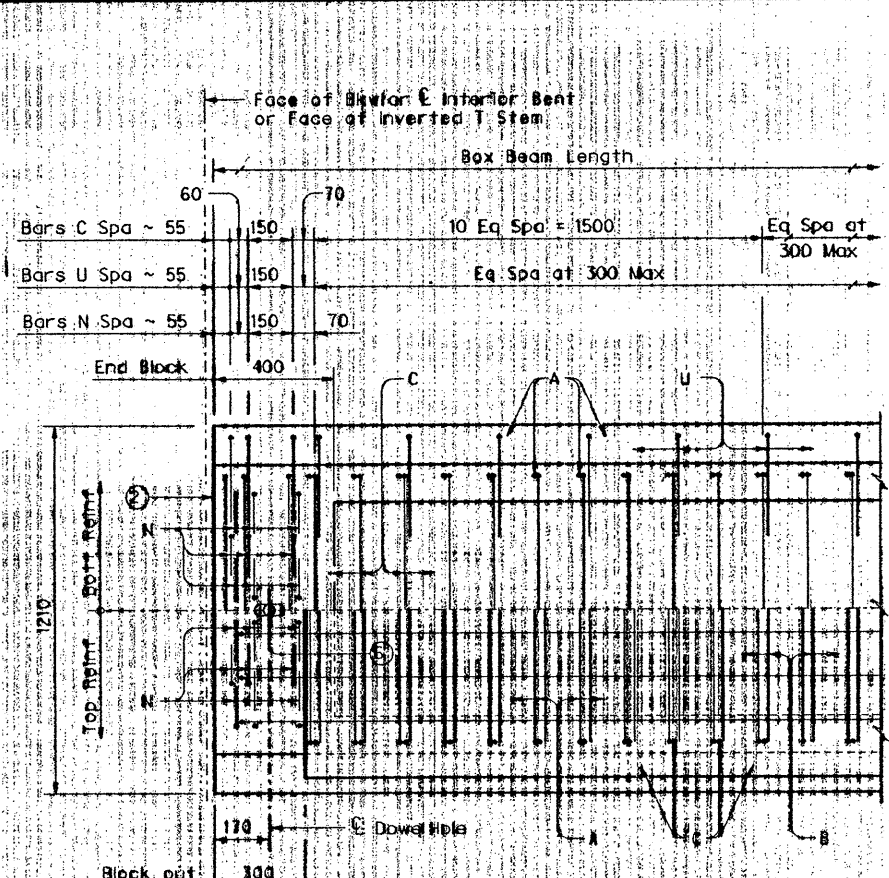
TEXAS DEPARTMENT OF TRANSPORTATION
 DESIGN DIVISION (BRIDGE)

**PRESTRESSED CONCRETE
 BOX BEAM
 BB40-1520**

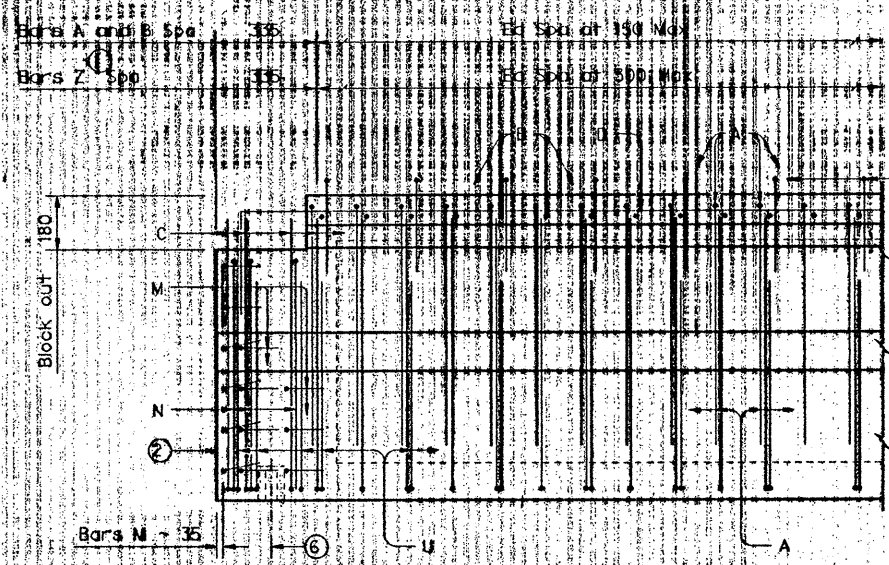
US 83/1" ROAD OVERPASS

FILE: _____ DIST: _____ COUNTY: _____ FEDERAL AID PROJECT: _____ SHEET: _____
 APRIL 1996 DIST: _____ COUNTY: _____ FEDERAL AID PROJECT: _____ SHEET: _____
 CONTROL SECT: _____ JOB: _____ HIGHWAY: _____
 HLDALGO: 0039 17 116 US 183

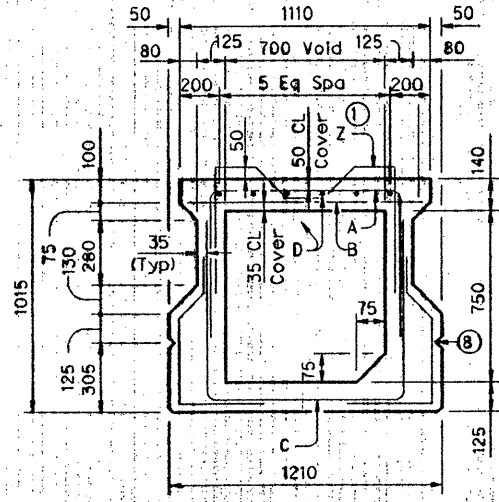
NEW 6/26/96
 Christopher H. Neufeld
 REGISTERED PROFESSIONAL ENGINEER
 80653
 DATE: 6/26/96



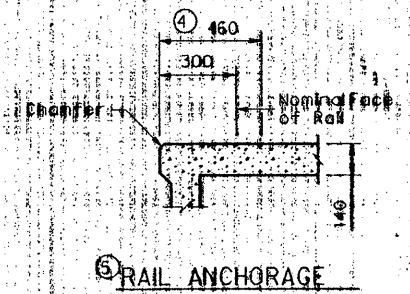
PART PLAN
 ① Bars Z not shown for clarity
 ② Bars M not shown for clarity



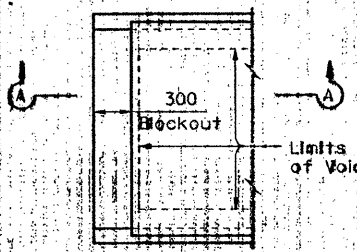
ELEVATION



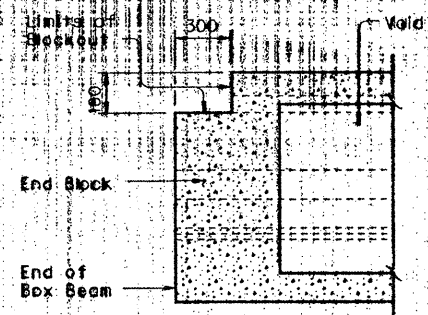
SECTION



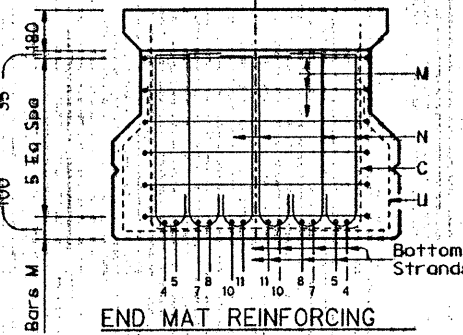
RAIL ANCHORAGE



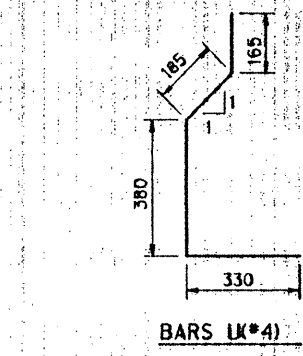
PLAN OF END BLOCK & BLOCKOUT



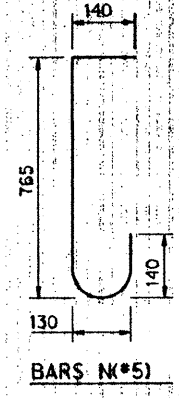
SECTION A-A



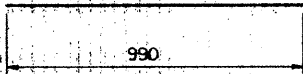
END MAT REINFORCING



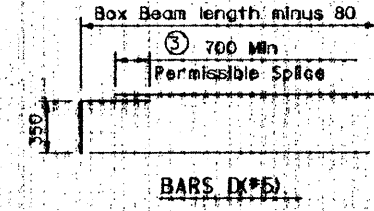
BARS L(*4)



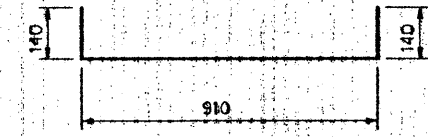
BARS N(*5)



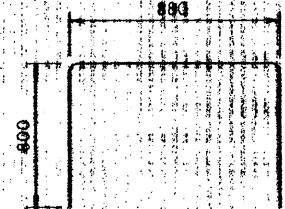
BARS B(*4)



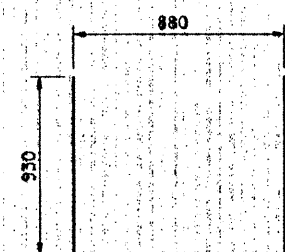
BARS D(*5)



BARS M(*5)



BARS A(*4)



BARS C(*4)

BEAM PROPERTIES			
Beam Type			4B40
Area	10 ⁴ mm ²		5951.800
Y Top	mm		543.7
Y Bott	mm		471.3
I	10 ⁸ mm ⁴		73550.330
Mass #	kg/m		1429.880

* Assumes 2403 kg/m³ mass density of concrete. This mass does not include mass of End Blocks or chamfers.

- ① Bars Z are only used when reinforced concrete slab is placed on box. See BOX BEAM Details for bar details.
- ② See END MAT REINFORCING Details.
- ③ Permissible splices to be in middle third of span. Stagger splices in adjacent bars, minimum 1220mm between splices.
- ④ Steel trowel finish full length of box.
- ⑤ See RAILING Details for anchorage devices to be cast in exterior box beams. Omit steel trowel finish if parapet type railings used.
- ⑥ See BOX BEAM Details for dowel hole details.
- ⑦ Ends of all boxes shall have blockouts as shown above. Extend mild reinforcing into blockout region.
- ⑧ Optional 20mm chamfer.

GENERAL NOTES:
 Designed in accordance with current AASHTO Specifications.
 All concrete shall be Class H.
 Two-stage monolithic casting shall be required. The concrete in the first stage casting (the bottom slab) must remain plastic until the concrete in the second stage casting (the webs) has been placed, to ensure proper consolidation through vibration.
 All fabricators option alternate designs utilizing welded wire fabric (ASTM A185 or A191) of equivalent cross sectional area to replace all or some of bars A, B, C and D will be permitted.
 The bottom corners of all boxes shall be chamfered 20mm or rounded to a 20mm radius. Tops of all boxes shall have a rough wood float finish, except the portion under the railing posts on exterior boxes shall have a smooth finish.
 All reinforcing for boxes shall be grade 420.
 All dimensions are in millimeters unless otherwise shown.

MS18 LOADING

TEXAS DEPARTMENT OF TRANSPORTATION
 DESIGN DIVISION (BRIDGE)

**PRESTRESSED CONCRETE
 BOX BEAM
 BB40-1220**

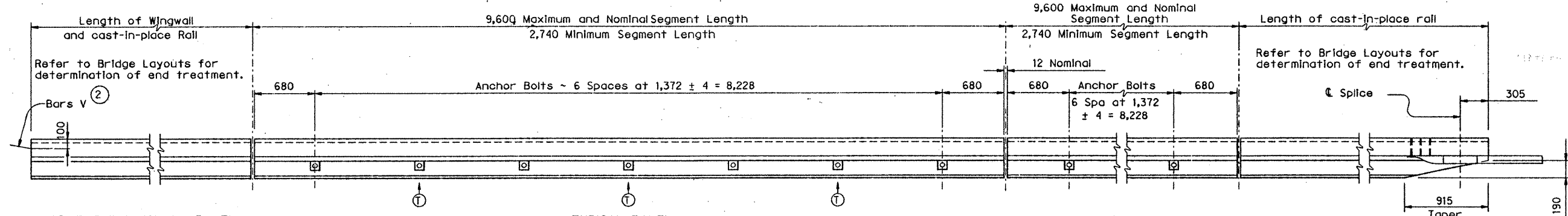
US 83/11th ROAD OVERPASS



DESIGNED BY	CHKD BY	DATE	NOV 20/96
APRIL 1996	APRIL 1996	APRIL 1996	APRIL 1996
21	6	388	
HDALGO	0039	17 116	US 183

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

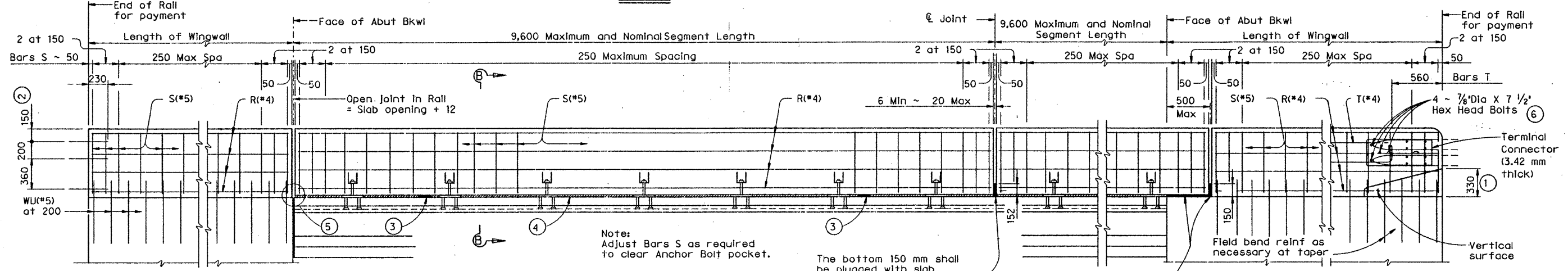


ABUTMENT WINGWALL PANEL
 (Showing dowels for connection to approach Concrete Traffic Barrier)

TYPICAL PANEL
 PLAN

For temporary installations, three bolts are required at locations ①. Two if segment length is 6,800 mm or less.

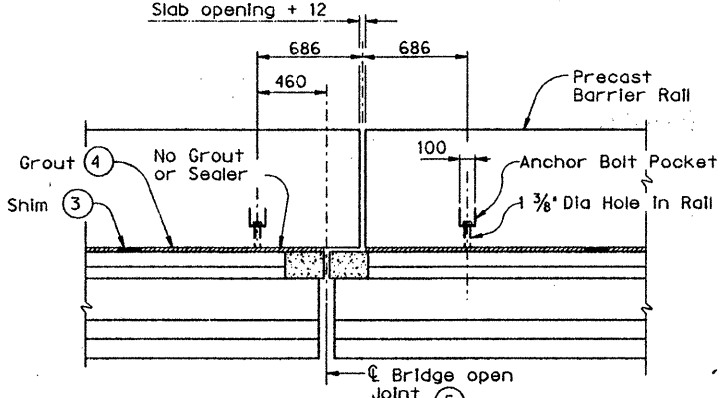
ABUTMENT WINGWALL PANEL
 (Showing MBGF Attachment)



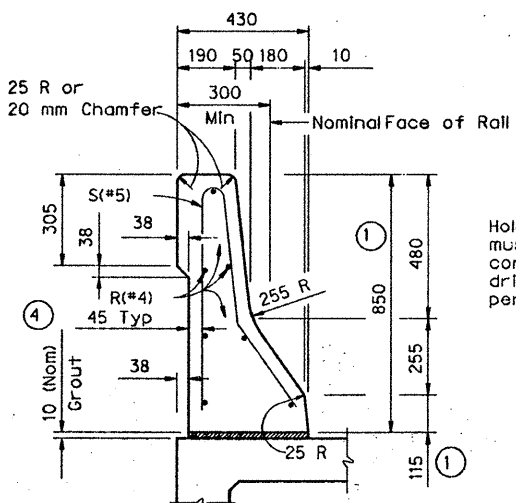
ROADWAY ELEVATION OF RAIL

- ① Dimension given for 40 mm to 65 mm ACP overlay. Increase for thicker overlays.
- ② Connection to be same as for approach CTB if dowels are not used.
- ③ Permanent shims may be steel or wood 6 mm to 20 mm in height not exceeding 380 mm in length and covered by grout.
- ④ Grout to be placed by pressure methods all from one side of rail.
- ⑤ Special details will be required to allow this rail to be used with sealed expansion joints. Cast-in-place segments of T501 of 3,000 mm min length on both sides of the sealed expansion joint are recommended. See Layouts for limits of T501 cast-in-place.
- ⑥ 1 3/4 Dia washer required under 7/8 Dia Bolt Head and Washer.
- ⑦ Back offset may be continued to end of railing.

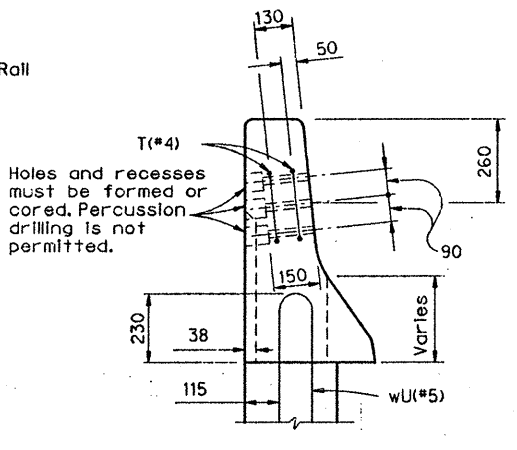
The bottom 150 mm shall be plugged with slab joint sealing compound.
 The bottom 150 mm and ungrouted length shall be plugged with slab joint sealing compound if there is no open slab joint or armor joint.



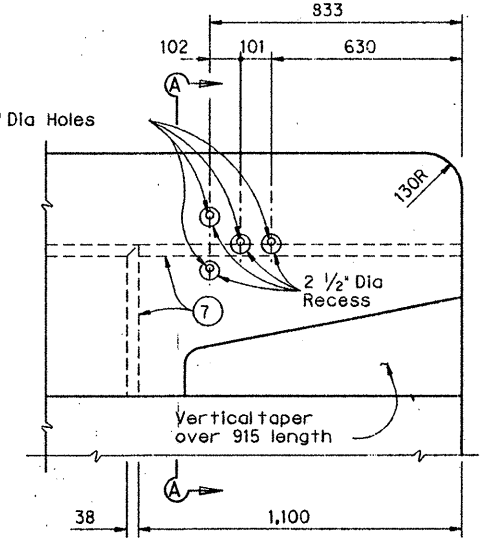
TYPICAL DETAIL AT OPEN SLAB JOINTS



TYPICAL SECTION
 (SHOWING CONVENTIONAL REINF)

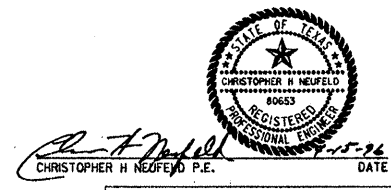


SECTION A-A



END TREATMENT AT MBGF

- A. THIS RAIL SHALL BE USED IN STAGE CONSTRUCTION ONLY. IGNORE ABUTMENT WINGWALL DETAILS SHOWN.
- B. CONTRACTOR SHALL PROVIDE SLOTS IN RAIL AS NEEDED FOR DRAINAGE PURPOSES. NO SLOTS ARE PERMITTED ABOVE 1' ROAD TRAVEL LANES HOWEVER.



MODIFICATION CLS - 3/11/96
 1. Added note A.
 2. Added note B.

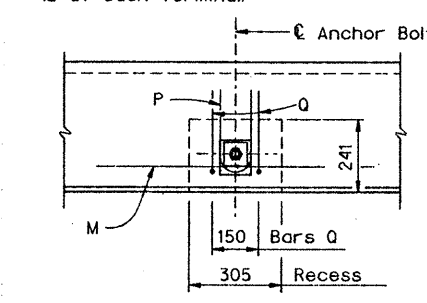
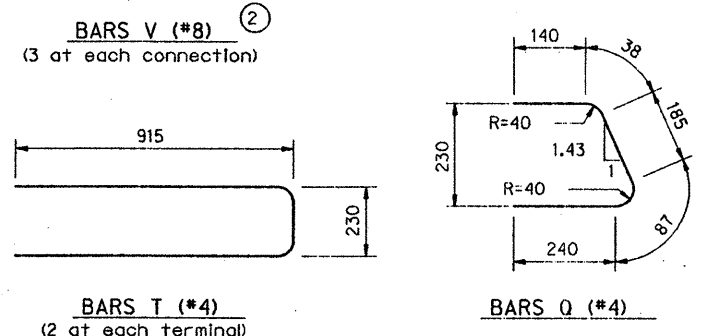
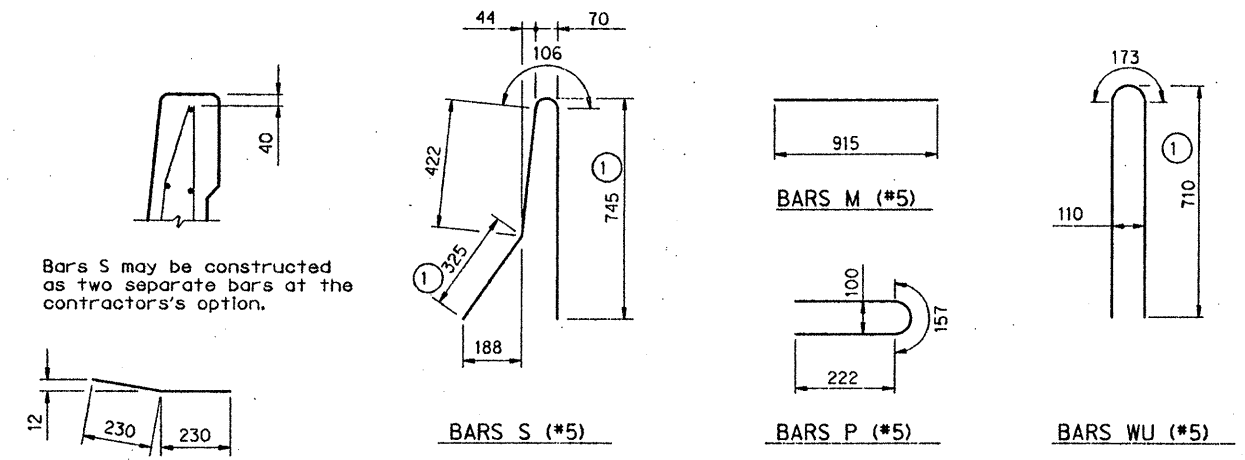
Texas Department of Transportation
 DESIGN DIVISION (BRIDGE)

PRECAST TRAFFIC RAIL
 (FOR PRESTR BOXES)
 U.S. 83/" ROAD OVERPASS
 TYPE T504(M) (MOD)

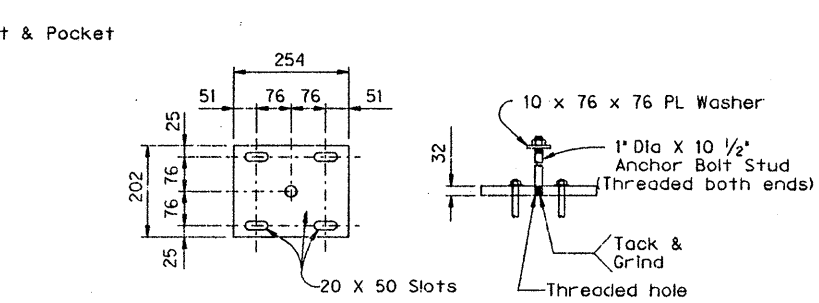
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ORIG DATE: JULY 1995	DIST	FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS		21	6	NH96(791)	M 389
		COUNTY	CONTROL SECT	JOB	HIGHWAY
		HIDALGO	0039	17	118 4593

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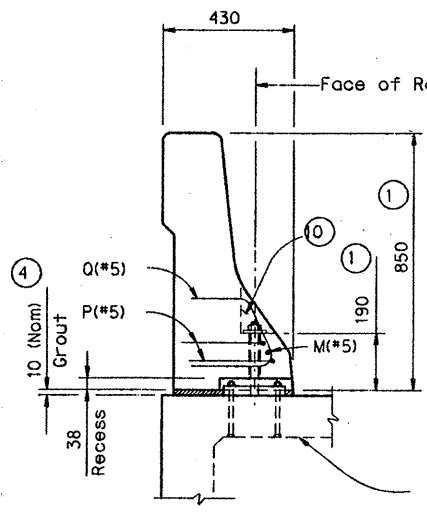
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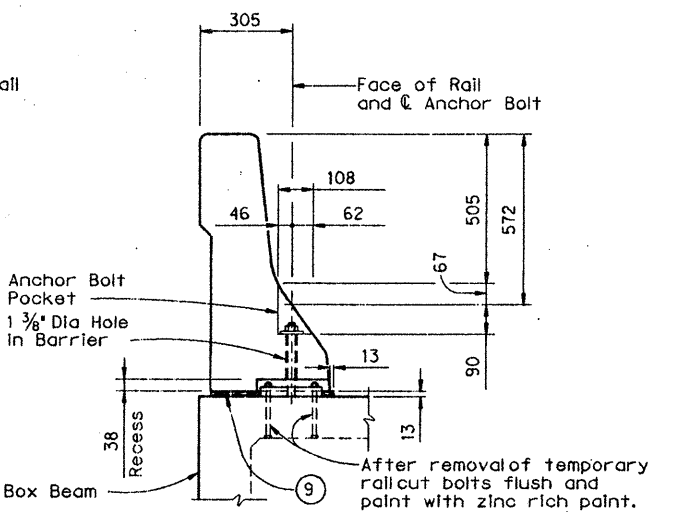
PLAN VIEW
(Showing Anchor Bolt Pocket with reinforcing)



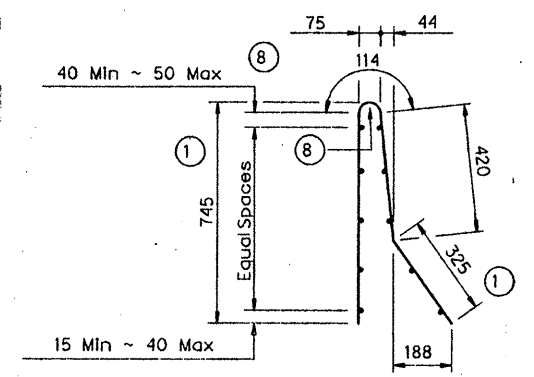
ANCHOR BOLT AND STUD



SECTION B-B
(Permanent installation, showing additional reinf of 2 Bars Q, 1 Bar M, and 2 Bars P at each Pocket.)



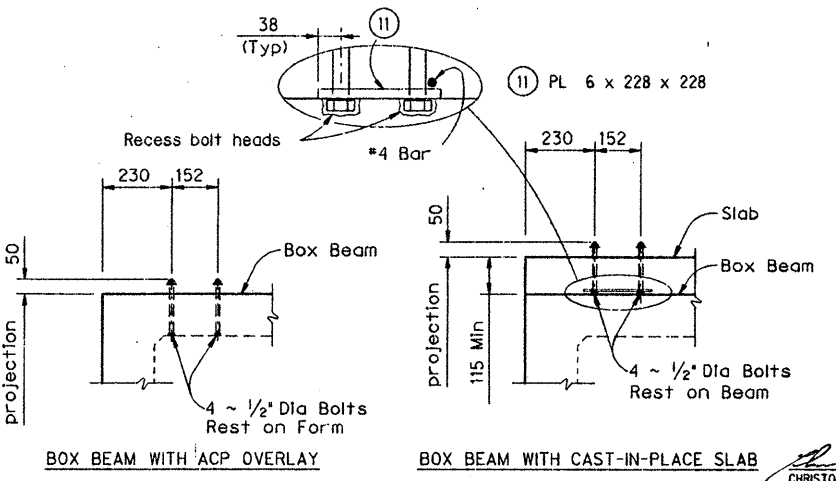
SECTION B-B
(Temporary Installation)



WELDED WIRE FABRIC (OPTIONAL)

- ① Dimension given for 40 mm to 65 mm overlay. Increase for thicker overlays.
- ② Connection to be same as for approach CTB if dowels are not used.
- ④ Grout to be placed by pressure methods all from one side of rail.
- ⑧ No longitudinal wires may be within upper bend.
- ⑨ When used for temporary construction railings, wood shims approx 20 mm to 40 mm thick and 90 mm to 140 mm wide should be placed approx 1,830 mm from ends of segment.
- ⑩ Anchor Bolt pocket shall be grouted after installation (Permanent installation only). If rails not to be painted, areas around pockets shall be masked before grouting to prevent grout from smearing onto rail face.

- ⑫ For CIP slabs under 150 mm add PL (11) (tack weld to bolt heads) and an additional longitudinal #4 bar as shown (Included as part of rail for payment). Slabs under 115 mm must have bolts cast 130 mm into Box Bm.



ANCHOR BOLT PLACEMENT

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1,120 mm ²	640 mm ² /m
Minimum	No. of Wires	Spacing
Maximum	6	102
Maximum Wire Size Differential	11	305
	The smaller wire shall have an area of 40% or more of the larger wire.	

GENERAL NOTES:

This railing has been structurally evaluated to be equivalent or greater in strength to other safety shape railings which have been crash tested to NCHRP Report 230 SL-2 criteria. Also equivalent to railings tested to 1989 AASHTO Guide Specifications PL-2 criteria. Temporary installation is designed for max impact at 80 km/h and 15 degrees.

All parts of the railing including concrete parapet wall, reinforcing, terminal connector, bolts, nuts and washers are included in the price bid per linear meter of rail.

All steel components except reinforcing and shims shall be galvanized unless otherwise shown on plans. All concrete for railing wall shall be Class 'C'. All reinforcing steel shall be Grade 420.

Metal Beam Guard Fence or Concrete Traffic Barrier is usually attached to the abutment wingwall panel. See plan sheet for details and length for payment. The splice between the approach guard fence and the terminal connector shall be with the normal right bolts. The dowel connection to the approach traffic barrier shall be grouted the same as other barrier joints.

Shop drawings will not be required for this rail, but erection drawings shall be submitted to the Resident Engineer showing segment lengths and anchor bolt spacing.

Welded wire fabric may be used as an option to conventional reinforcement and shall be made in accordance with ASTM A497 (Deformed Wire). Welded wire fabric detail shown is for MD55 longitudinal wires and MD54 vertical wires. Combinations of reinforcing steel and welded wire fabric or configurations of welded wire fabric shown will be permitted when the conditions in the table are satisfied and the dimension from the end of section to first welded vertical bar does not exceed the dimension from end of section to first welded vertical bar does not exceed 75 mm.

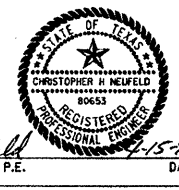
Anchor Bolts are to be A325, A321 or A193 B7 with one hex nut and one hardened steel washer. Nuts shall conform to A563 requirements. The untapped blanks shall be galvanized prior to cutting the threads. Threads for bolts and nuts shall have Class 2A and 2B fit tolerance in accordance with ANSI B1.1. Anchor Plate and Stud may be assembled prior to galvanizing.

All dimensions are in millimeters unless otherwise shown. Average weight of railing with grout and no overlay is 537 kg/m.

- A. THIS RAIL SHALL BE USED IN STAGE CONSTRUCTION ONLY. IGNORE ABUTMENT WINGWALL DETAILS SHOWN.
- B. CONTRACTOR SHALL PROVIDE SLOTS IN RAIL AS NEEDED FOR DRAINAGE PURPOSES. NO SLOTS ARE PERMITTED ABOVE 'I' ROAD TRAVEL LANES HOWEVER.

Texas Department of Transportation
DESIGN DIVISION (BRIDGE)

PRECAST TRAFFIC RAIL (FOR PRESTR BOXES)
U.S. 83/" ROAD OVERPASS
TYPE T504(M) (MOD)

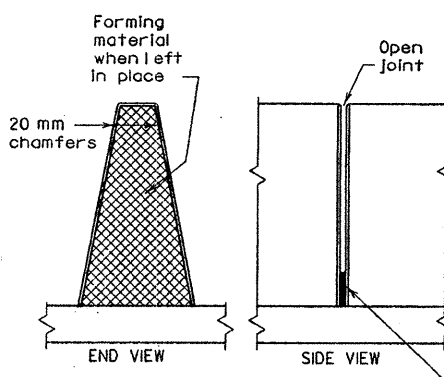
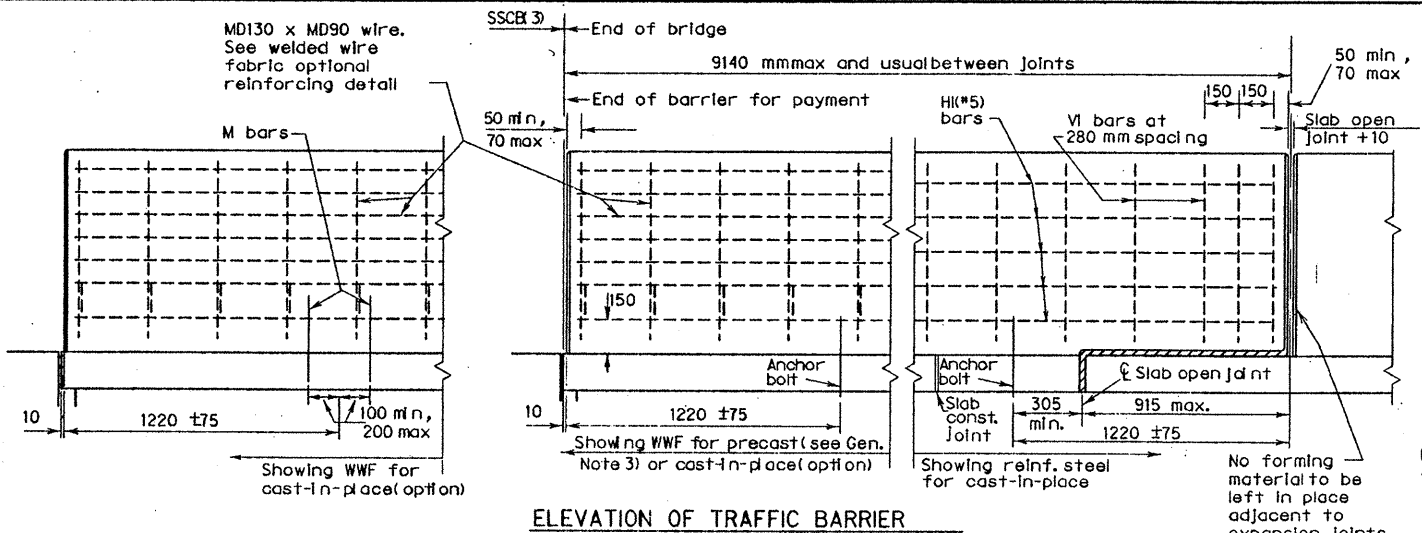


MODIFICATION CLS - 3/11/96
1. Added note A.
2. Added note B.

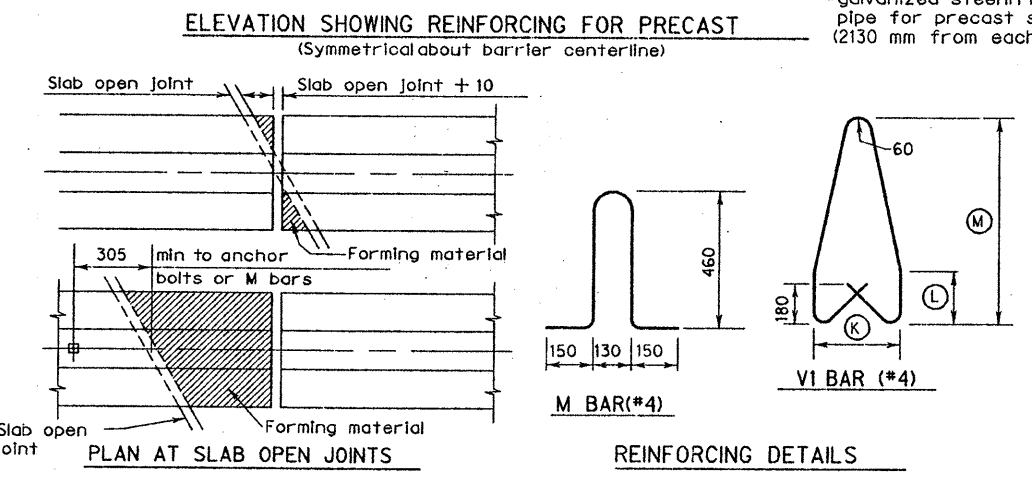
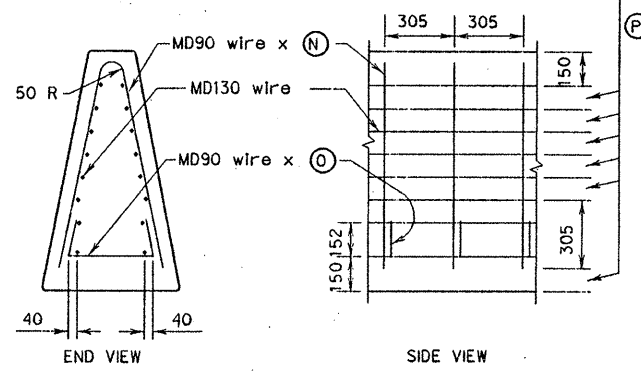
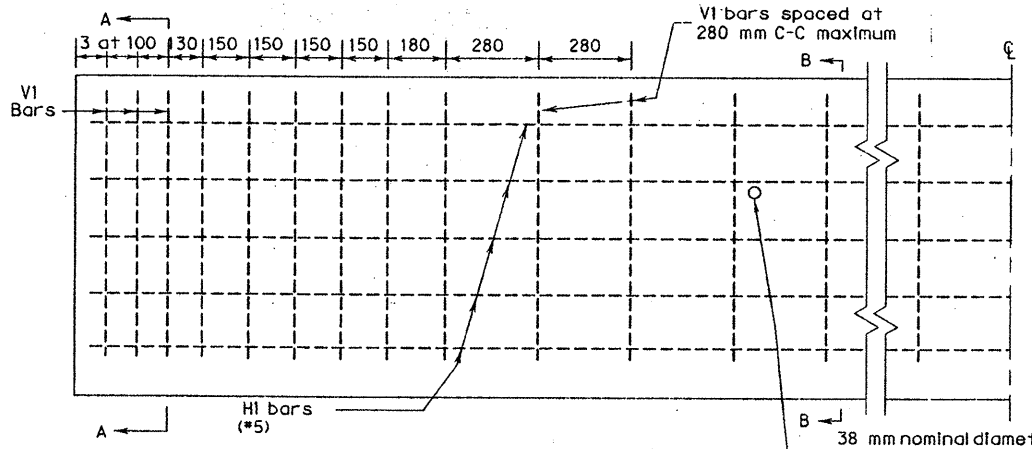
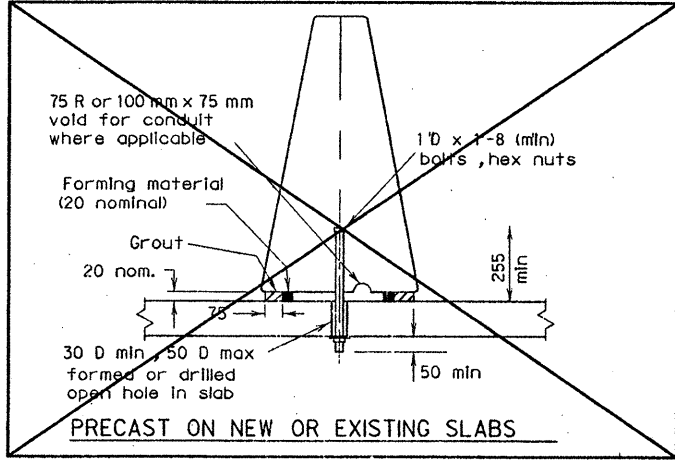
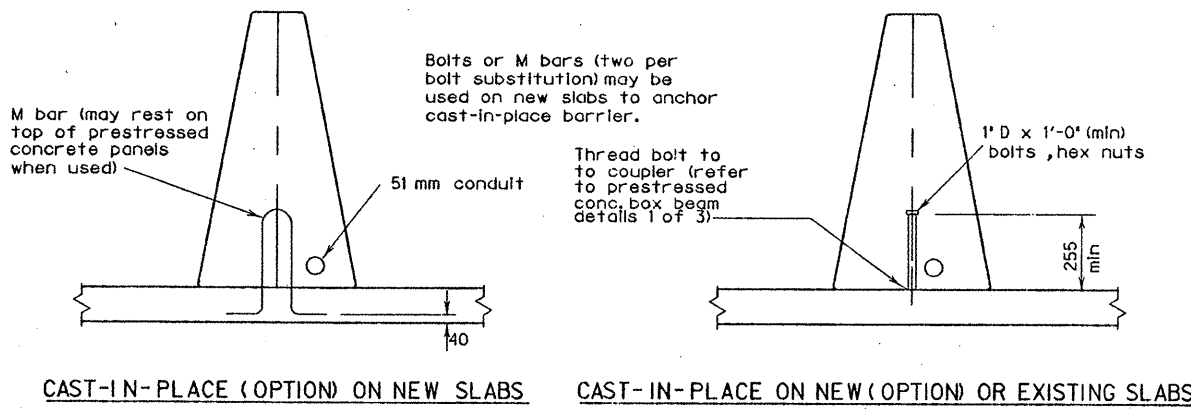
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ORIG DATE: JULY 1995	DIST	FED REG	FEDERAL AID PROJECT		SHEET
REVISIONS			21	6	NH96 (191) M 390
COUNTY		CONTROL SECT	JOB		HIGHWAY
Hidalgo		2039	17	118	US83

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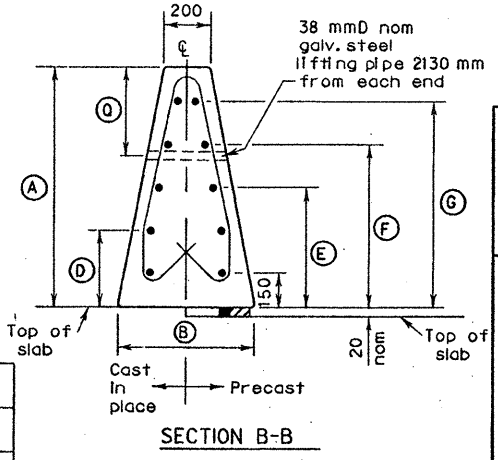
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 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63



- ### GENERAL NOTES
- All concrete, reinforcement, anchor bolts, blocking, grout, etc., as shown are considered as part of the barrier for payment.
 - Concrete for barrier shall be class C or H. All reinforcing steel shall be Grade 420, unless otherwise specified.
 - Welded wire fabric (WWF) made in accordance with ASTM A497 may be used as an option to the conventional reinforcement for precast or cast-in-place barrier with the exception that only conventional reinforcement may be used for light pole sections. These sections shall be cast-in-place with length, shape, anchorage, and reinforcement as detailed on sheet SSCB (4). When precast barrier is to be used with the welded wire fabric option, conventional bar reinforcement will be required within 610 mm plus a development length of 460 mm from the ends of each barrier segment.
 - Cast-in-place barrier may be slipped formed. Additional reinforcement may be tack welded to the upper two-thirds of the reinforcing cage to provide bracing. Do not weld to M bars or anchor bolts.
 - Grout for precast barriers shall consist of two parts sand and one part cement. Latex adhesive may be added to the grout if directed by the Engineer. Wood or other material approved by the Engineer shall be used for blocking. Enough firm blocking must be used to properly align and grade the barrier sections. At other locations, any suitable material may be used to retain the grout.
 - Joints shall be located near ends of spans, at ends of light pole sections and at intervals in between as necessary to maintain 9140 mm maximum and 4570 mm minimum section lengths. When barrier is cast-in-place a joint shall be placed at interior supports of continuous units. Joint openings shall be 10 mm minimum and 25 mm maximum or 10 mm wider than adjacent open slab joints. Material used in forming joints (not adjacent to slab expansion joints) may be left in place if it is compressible and light in color. Where portions of barriers project over adjacent spans, similar materials may also be used to provide 20 mm nominal clearance.
 - Anchor bolts and associated nuts, washers, and plates for the barrier to slab attachment shall be galvanized. Bolts shall conform to ASTM A36. Threaded rods (0.906 inch min diameter with rolled threads) may be used in lieu of bolts. Threads for bolts shall have a Class 2A tolerance and nuts shall have a Class 2B tolerance in accordance with ANSIB1.
 - The centerline axis of the barrier shall be vertical except where the slab is super-elevated in which case it shall be normal to the cross slope unless otherwise shown in the plans or directed by the Engineer.
 - The maximum offset from the center of the barrier to the true circular centerline shall be 25 mm for precast segments installed on horizontal curves. If this would require segment lengths of less than 4570 mm, then the barrier shall be cast-in-place to the correct radius.
 - Shop drawings are not required for this barrier.
 - Anchorage systems equal to or stronger than those shown may be used provided the details of such systems are submitted to and approved by the Engineer prior to placement.
 - This barrier must be precast for the U.S. 83/FM 1426 Overpass due to future construction requirements.
 - All conduit shall be considered as part of the barrier for payment.



BARRIER HEIGHT	DIMENSIONS												
	(A)	(B)	(D)	(E)	(F)	(G)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)
* 1070	608	345	535	720	920	380	235	920	1830	710	102	395	
1220	665	385	610	835	1070	435	275	1070	2140	800	102	430	
1370	722	425	685	950	1220	490	315	1220	2440	890	152	380	



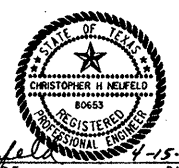
U.S. 83/FM ROAD OVERPASS

- MODIFICATIONS CLS - 3/11/96
- REMOVED PRECAST RAIL OPTION.
 - ADDED NOTE #12.
 - PLACED * BY BARRIER HEIGHT.
 - MODIFIED CIP ON EXISTING DETAIL.
 - 51 MM DIA. CONDUIT REQUIRED. ADDED NOTE #13.

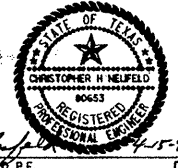
Texas Department of Transportation
DESIGN DIVISION (ROADWAY)

SINGLE SLOPE CONCRETE BARRIER TYPE 1 (BRIDGE) SSCB(1)-95(M) (MOD) (1)

FILE#	SSCB195M.DGN	DR#	GTH	CHK#	GTH	DR#	BGD	CHK#	TGM	NEG#
ORG DATE	JULY 1992	DIST	FED REG	FEDERAL AID PROJECT						
REVISIONS	21	6	NH96(791)	M	391					
COUNTY	HIDALGO	CONTROL	SECT	JOB	HIGHWAY					
		239	17	118	4593					



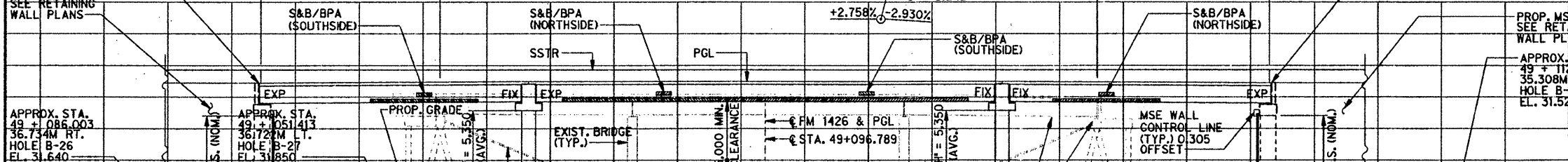
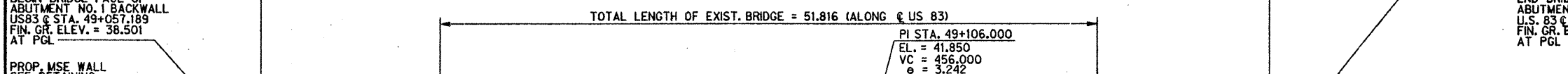
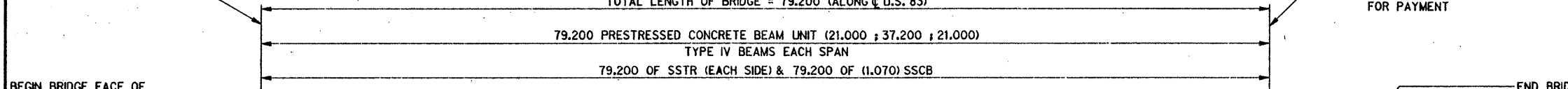
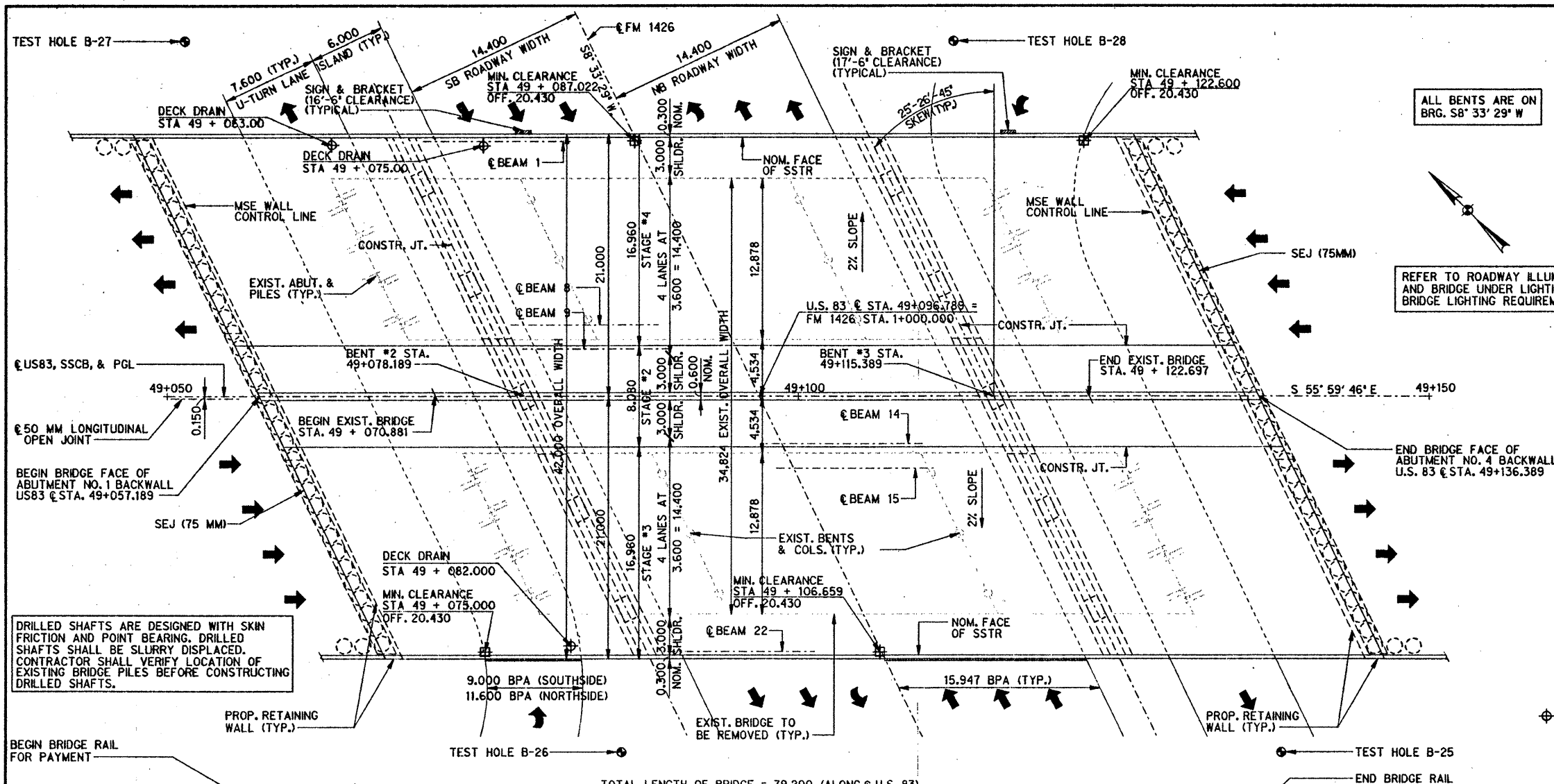
CHRISTOPHER H. NEUFELO, P.E. DATE 4-15-96



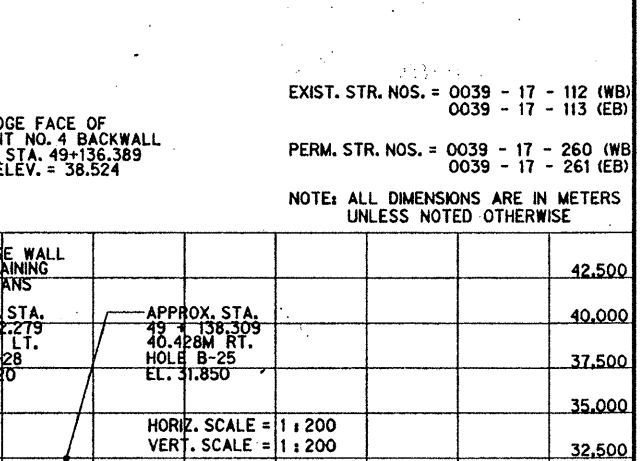
CHRISTOPHER H. NEUFELD P.E. DATE

TEST BORE HOLE LEGEND

- 1 CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- 2 CLAY, SILTY, TAN
- 3 CLAY, SANDY, TAN, SATURATED
- 4 CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- 5 CLAY, TAN, PLASTIC
- 6 SAND, FINE, TAN
- 7 CLAY, SILTY, SANDY, TAN
- 8 SAND, FINE, SATURATED TAN
- 9 CLAY, SANDY, TAN, MOIST
- 10 CLAY, SILTY, TAN
- 11 SAND, TAN, FINE, POORLY GRADED
- 12 CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- 13 SAND, FINE, POORLY GRADED, WET, SATURATED
- 14 CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN
- 15 CLAY, SILTY, DARK
- 16 CLAY, SILTY, SLIGHTLY MOIST, TAN
- 17 CLAY, SANDY, WET, SATURATED, HOT WATER TABLE AT 10.0'
- 18 SAND, SATURATED, TAN, FINE-MED, WELL SORTED
- 19 CLAY, SLIGHTLY MOIST, PLASTIC, TAN



STATION	TEST BORE HOLE	SOIL TYPE	DEPTH (M)	REMARKS
49+050.000	B-27	1	4	(152) 4 (152)
49+050.000	B-27	2	5	(152) 4 (152)
49+050.000	B-27	3	12	(152) 14 (152)
49+050.000	B-27	4	9	(152) 13 (152)
49+050.000	B-27	5	14	(152) 15 (152)
49+050.000	B-27	6	7	(152) 17 (152)
49+050.000	B-27	7	30	(152) 46 (152)
49+050.000	B-27	8	23	(152) 30 (152)
49+050.000	B-27	9	24	(152) 28 (152)
49+050.000	B-27	10	50	(146) 90 (146)
49+060.000	B-26	11	4	(152) 6 (152)
49+060.000	B-26	12	17	(152) 16 (152)
49+060.000	B-26	13	20	(152) 20 (152)
49+060.000	B-26	14	18	(152) 18 (152)
49+060.000	B-26	15	20	(152) 20 (152)
49+060.000	B-26	16	50	(146) 90 (146)
49+060.000	B-26	17	12	(152) 28 (152)
49+060.000	B-26	18	26	(152) 35 (152)
49+060.000	B-26	19	25	(152) 34 (152)
49+060.000	B-26	20	50	(130) 90 (130)
49+070.000	B-26	21	4	(152) 6 (152)
49+070.000	B-26	22	2	(152) 4 (152)
49+070.000	B-26	23	14	(152) 14 (152)
49+070.000	B-26	24	7	(152) 11 (152)
49+070.000	B-26	25	16	(152) 18 (152)
49+070.000	B-26	26	18	(152) 17 (152)
49+070.000	B-26	27	29	(152) 28 (152)
49+070.000	B-26	28	18	(152) 17 (152)
49+070.000	B-26	29	29	(152) 28 (152)
49+070.000	B-26	30	27	(152) 21 (152)
49+070.000	B-26	31	26	(152) 15 (152)
49+070.000	B-26	32	80	(82) 50 (114)



STATION	TEST BORE HOLE	SOIL TYPE	DEPTH (M)	REMARKS
49+100.000	B-28	1	4	(152) 6 (152)
49+100.000	B-28	2	2	(152) 4 (152)
49+100.000	B-28	3	14	(152) 14 (152)
49+100.000	B-28	4	7	(152) 11 (152)
49+100.000	B-28	5	16	(152) 18 (152)
49+100.000	B-28	6	18	(152) 17 (152)
49+100.000	B-28	7	29	(152) 28 (152)
49+100.000	B-28	8	18	(152) 17 (152)
49+100.000	B-28	9	29	(152) 28 (152)
49+100.000	B-28	10	27	(152) 21 (152)
49+100.000	B-28	11	26	(152) 15 (152)
49+100.000	B-28	12	80	(82) 50 (114)

MS 18 LOADING

BRIDGE LAYOUT

U.S. 83 / F.M. 1426 OVERPASS

HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates

ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DATE	SCALE	COUNTY	SECTION	JOB NO.	DATE
CLB	FILE	SCALE	HIDALGO	09	17	08

BRIDGE NO. 3572

STATE HIGHWAY NO. 83

DRILLED SHAFTS ARE DESIGNED WITH SKIN FRICTION AND POINT BEARING. DRILLED SHAFTS SHALL BE SLURRY DISPLACED. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING BRIDGE PILES BEFORE CONSTRUCTING DRILLED SHAFTS.

ALL BENTS ARE ON BRG. S8° 33' 29" W

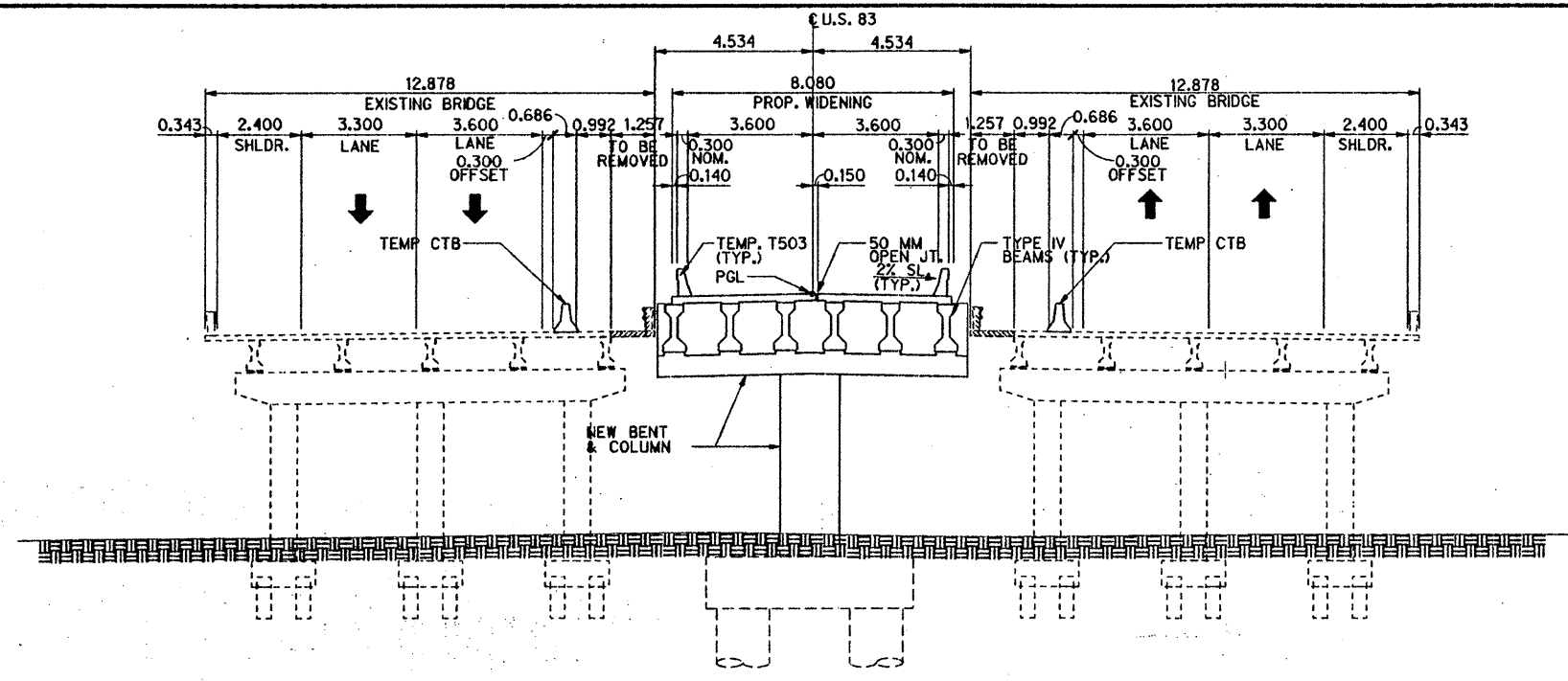
REFER TO ROADWAY ILLUMINATION PLANS AND BRIDGE UNDER LIGHTING PLANS FOR BRIDGE LIGHTING REQUIREMENTS.

FOR DRAIN DETAILS SEE BRIDGE DRAIN DETAILS SHEET.

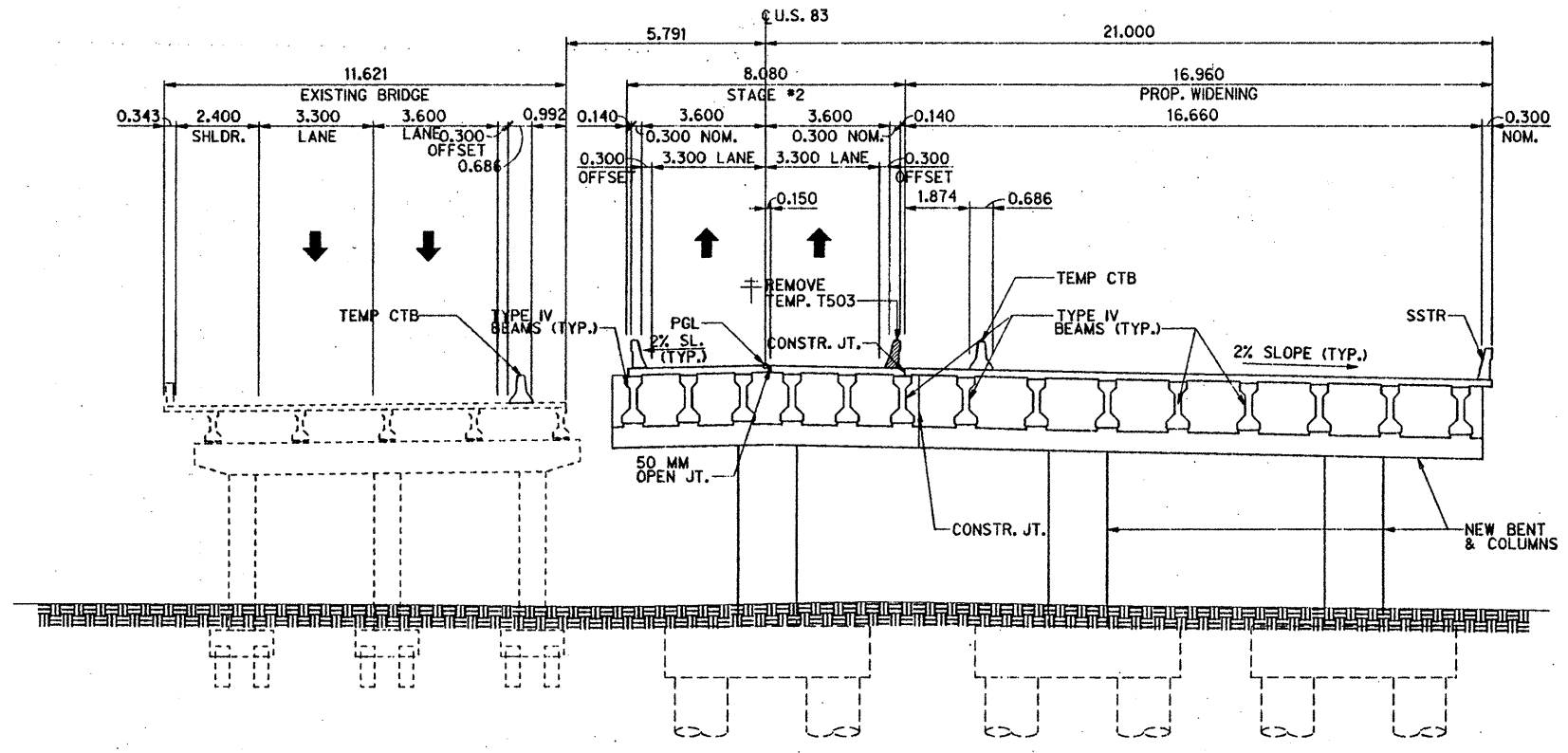
* ADD AN ADDITIONAL 1.925M TO LENGTH OF EACH "WINGWALL" DRILLED SHAFT (8 TOTAL).



CHRISTOPHER H. NEUFELD P.E. DATE



01 TYPICAL SECTION STAGE 2



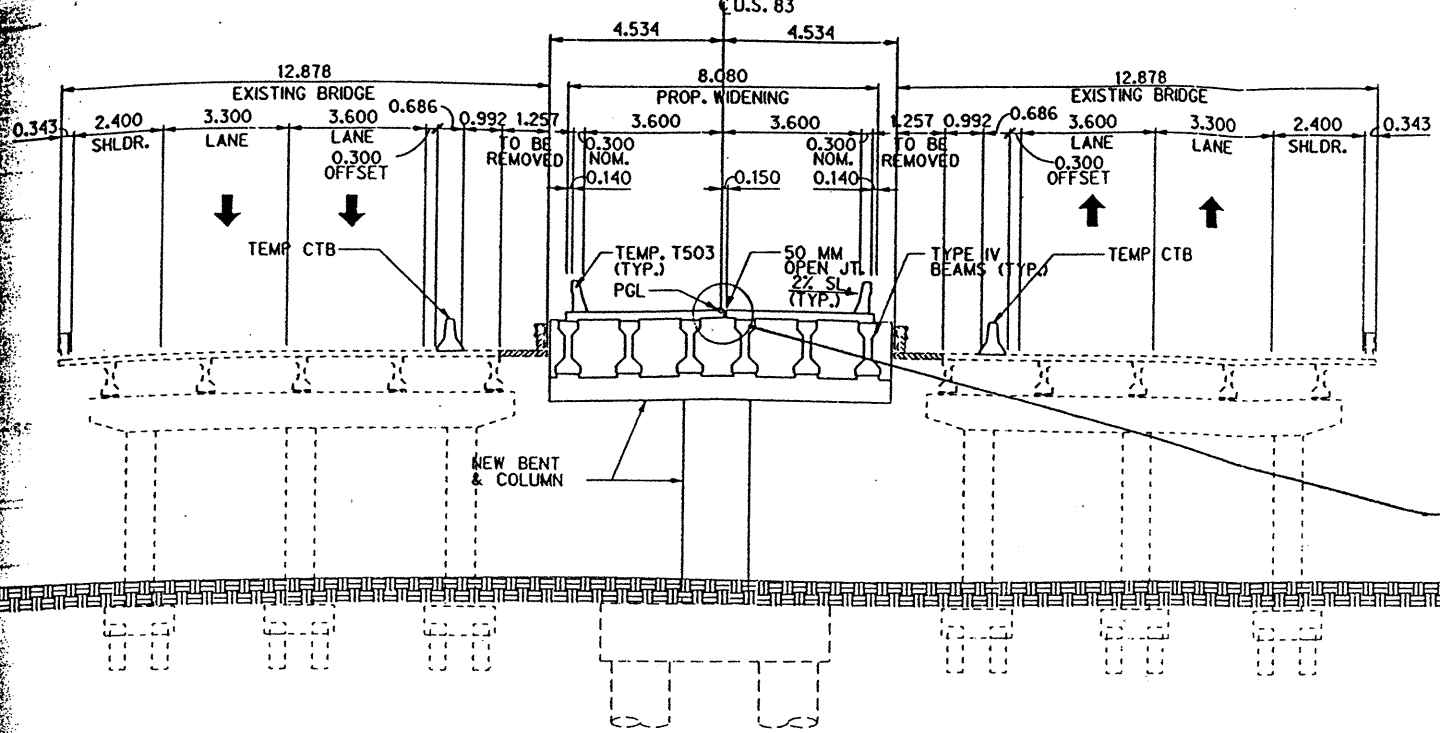
02 TYPICAL SECTION STAGE 3

† CONTRACTOR SHALL REMOVE TEMPORARY T503 AT THE END OF STAGE #3.

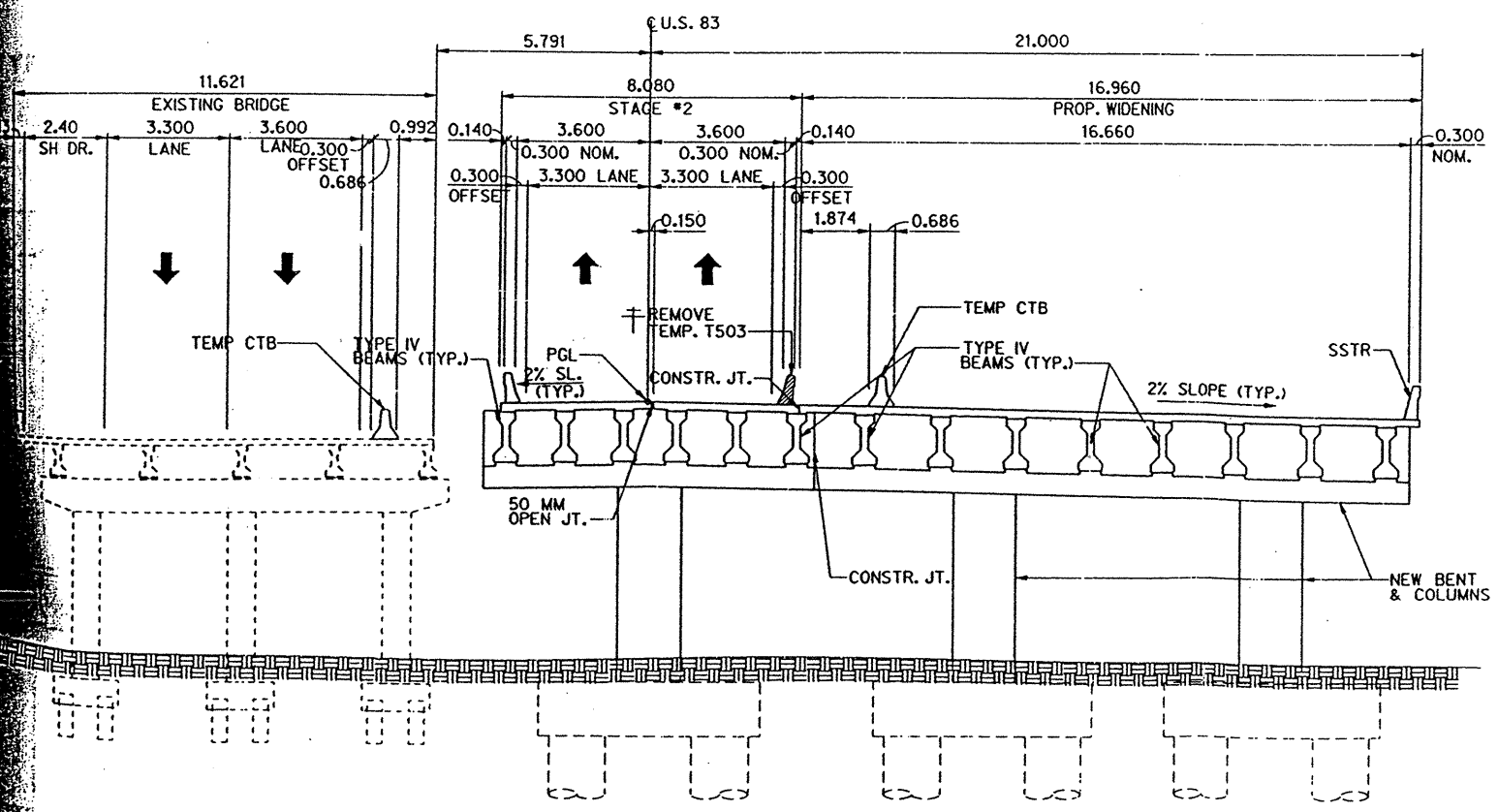
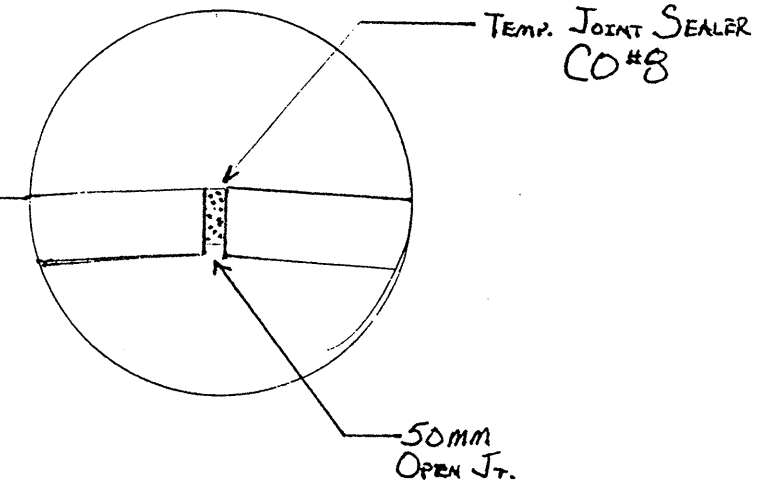
NOTE: ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.

MS 18 LOADING

TYPICAL SECTIONS 1 OF 3										
U.S. 83 / F.M. 1426 OVERPASS										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates										
<small>ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS</small>										
DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.				
CLB	TAL	ONE PLAN	6	TEXAS	H 1426 (79) M	3-3				
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	ROADWAY NO.			
APR 96	MS08200R	1:50	25	HIDALGO	0 20	17	18			US 83



TYPICAL SECTION STAGE 2



TYPICAL SECTION STAGE 3

CONTRACTOR SHALL REMOVE TEMPORARY T503 AT THE END OF STAGE #3.

CO#8-CHANGE ORDER No. 8
 INSERT A FIRM JOINT SEALER
 TO CLOSE A LONG. EXPANSION
 OPENING DURING PHASING.

NOTE: ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.

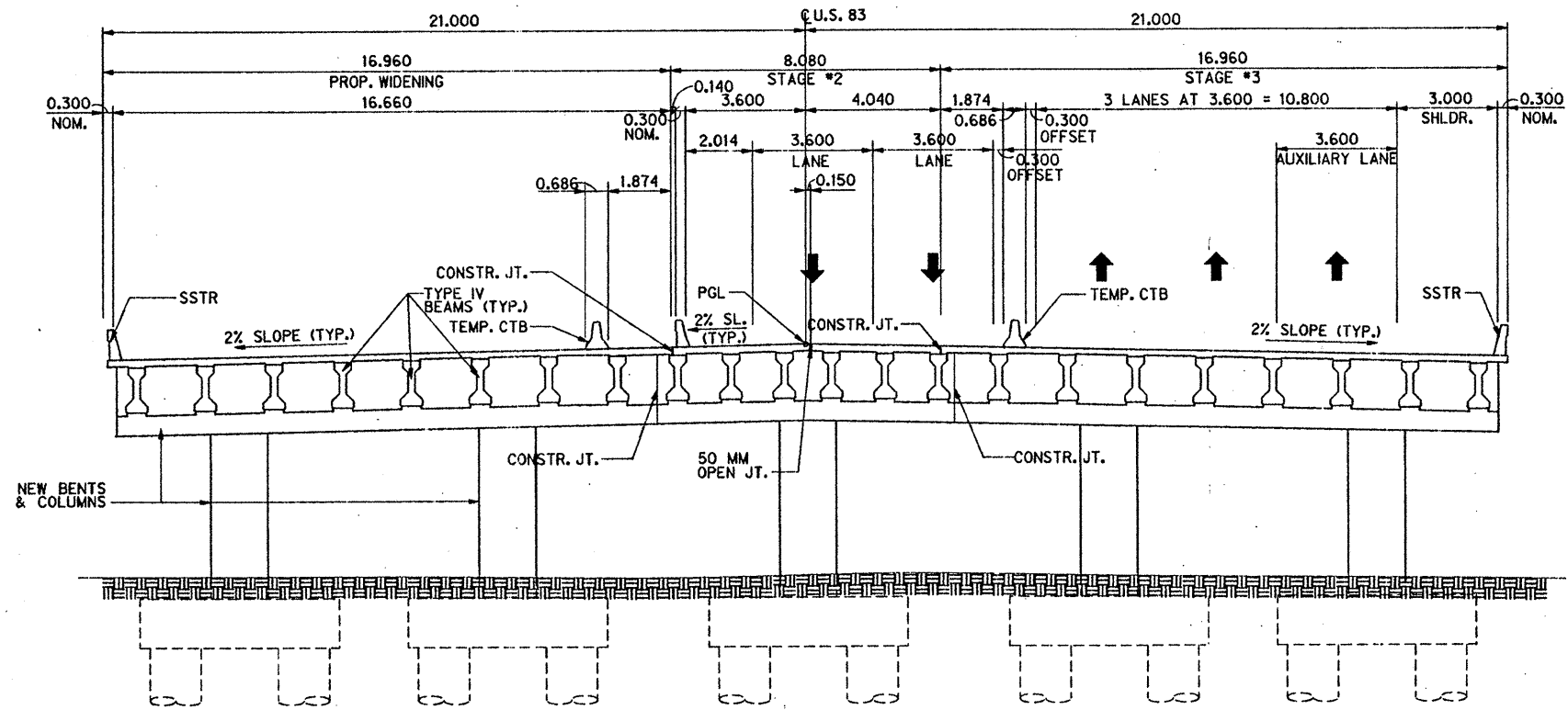
MS 18 LOADING

TYPICAL SECTIONS 1 OF 3									
U.S. 83 / F.M. 1426 OVERPASS									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET			
CLB	TAM	SEE PLAN	8	TEXAS	N.H.	27			
DATE	FILE	SCALE	STATE	COUNTY	CONTRACT	SECTION	JOB	NO.	NO.
APR. 96	H802200N	1:50	TX	HIDALGO	88	7	88	7	88

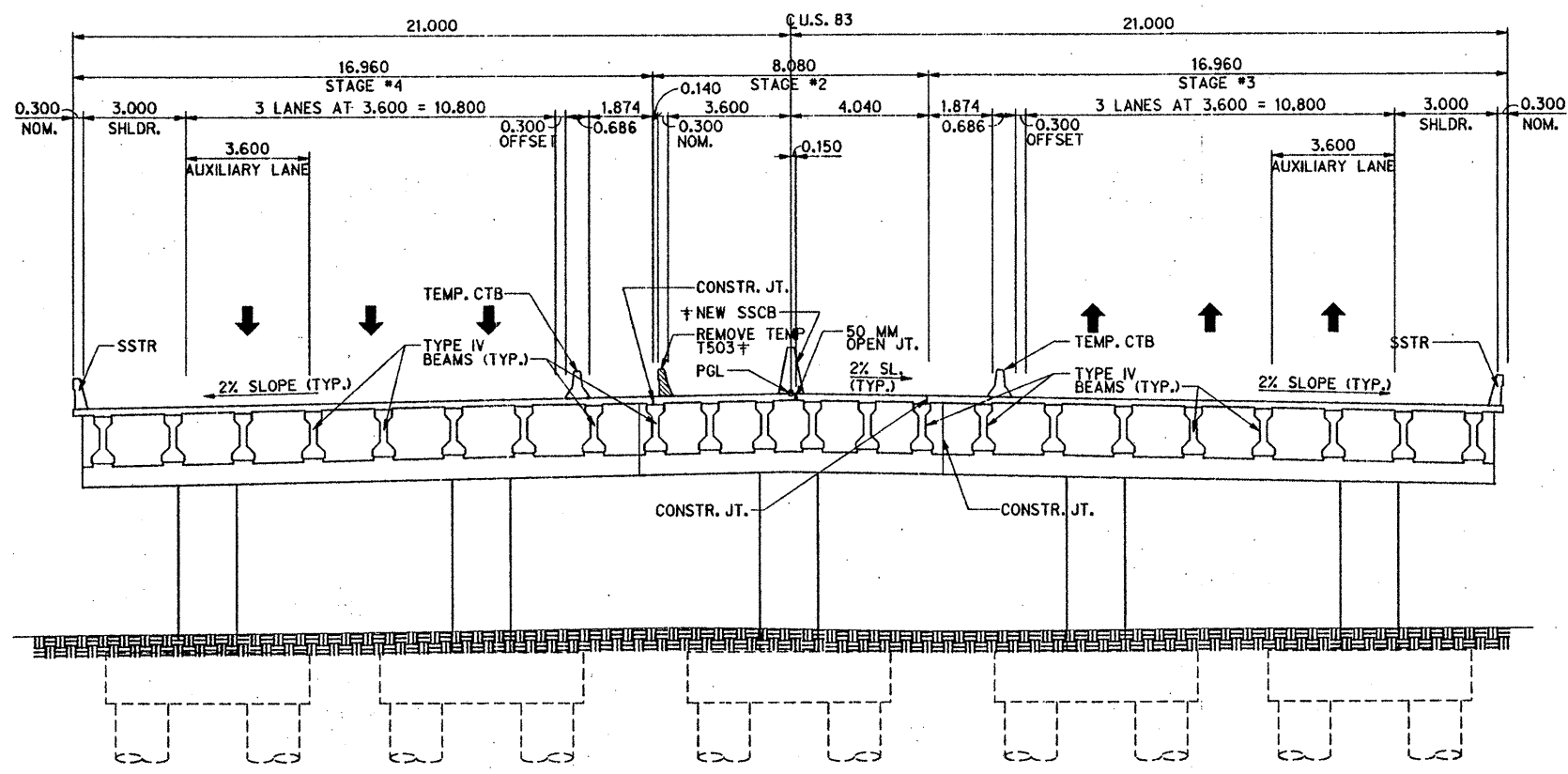
33A



CHRISTOPHER H. NEUFELD, P.E.
DATE



01 TYPICAL SECTION STAGE 4



02 TYPICAL SECTION STAGE 5
† CONTRACTOR SHALL REMOVE TEMPORARY T503 BEFORE CONSTRUCTING SSCB.

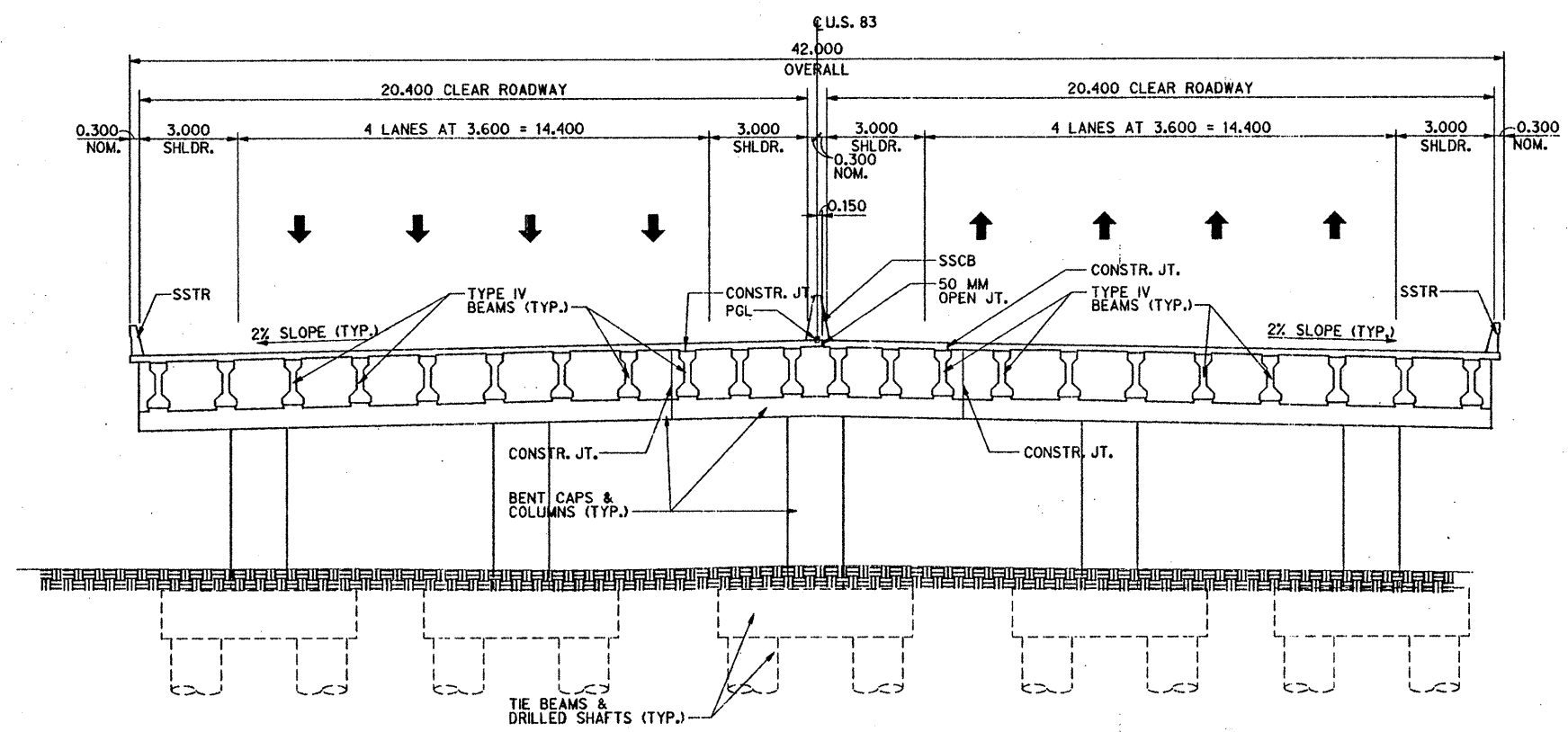
NOTE: ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.

MS 18 LOADING

TYPICAL SECTIONS 2 OF 3										
U.S. 83 / F.M. 1426 OVERPASS										
HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	DATE	SCALE	COUNTY	SECTION
CLB	TRH	SEE PLAN	8	TEXAS	H.N. 36 (79) 11	24	4/11/00	1:50	HIDALGO	0 28 17 28
DATE	FILE	SCALE	STATE	COUNTY	SECTION	SHEET	DATE	SCALE	COUNTY	SECTION
4/11/00	HIDALGO	1:50	28	HIDALGO	0 28	17	28	1:50	HIDALGO	0 28 17 28



CHRISTOPHER H. NEUFELD P.E. DATE



01 TYPICAL SECTION - FINAL

NOTE: ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.

MS 18 LOADING

TYPICAL SECTIONS 3 OF 3
U.S. 83 / F.M. 1426 OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTED	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CLB	TRJL	SEE PLAN	6	TEXAS	H.M. 34 (751) M	3/92
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APR 88	W400-8400N	1:50	28	HIDALGO	0 28	17 88



CHRISTOPHER H. NEUFELD, P.E. 4-15-96 DATE

SUMMARY OF ESTIMATED QUANTITIES FOR FM 1426 OVERPASS

ITEM DESCRIPTION	SLURRY DISPLACED DRILLED SHAFTS		CLASS "C" CONCRETE		REINF. CONC. SLAB S.M.	PRESTR. CONC. BEAMS TY. IV ~ L.M.	SEALED EXP. JOINT 75 MM L.M.	RAILING			CONC. SURF. TREAT. S.M.	BRIDGE PROTECTIVE ASSEMBLY EA.	REMOVING OLD STRUCTURES (LARGE) EA.						
	1220 MM Ø	1525 MM Ø	ABUT	BENT				SSCB (TY 1) (MOD)X2 (1070)	SSCB (TY 4) (MOD)X2 (1070)	SSTR									
	L.M.	L.M.	C.M.	C.M.				L.M.	L.M.	L.M.									
STAGE #2																			
2 ~ ABUTMENTS	255.6		34.2																
2 ~ BENTS		48.0		120															
2 ~ 21.000 M PRESTR. CONC. BM. SPANS					339.40	243.031	17.9				339.40								
1 ~ 37.200 M PRESTR. CONC. BM. SPANS					300.60	214.894					300.60								
STAGE #2 TOTAL	255.6	48.0	34.2	120	640.00	457.926	17.9				640.00								
STAGE #3																			
2 ~ ABUTMENTS	405.3		52.2																
2 ~ BENTS		96.0		222.4															
2 ~ 21.000 M PRESTR. CONC. BM. SPANS					712.32	324.042	37.56	42.00			696.00	1							
1 ~ 37.200 M PRESTR. CONC. BM. SPANS					630.91	286.526		37.20			616.40	1							
STAGE #3 TOTAL	405.3	96.0	52.2	222.4	1343.23	610.568	37.56	79.20			1312.40	2							
STAGE #4																			
2 ~ ABUTMENTS	405.3		52.2																
2 ~ BENTS		96.0		222.4															
2 ~ 21.000 M PRESTR. CONC. BM. SPANS					712.32	324.042	37.56	42.00			696.00	1							
1 ~ 37.200 M PRESTR. CONC. BM. SPANS					630.91	286.526		34.15			616.40	1							
STAGE #4 TOTAL	405.3	96.0	52.2	222.4	1343.23	610.568	37.56	79.20			1312.40	2							
STAGE #5																			
2 ~ 21.000 M PRESTR. CONC. BM. SPANS									42.00										
1 ~ 37.200 M PRESTR. CONC. BM. SPANS									34.15	3.05									
STAGE #5 TOTAL									76.15	3.05									
TOTAL	1066.2	240.0	138.6	564.8	3326.46	1679.061	93.02	158.4	76.15	3.05	3264.80	4		2					

~ BEAM LENGTHS SHOWN ARE ACTUAL BOTTOM FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR SLOPE.

	ABUT NO 1 (FWD)	BENT NO 2 (BK)	BENT NO 3 (FWD)	BENT NO 3 (BK)	ABUT NO 4 (BK)
BEAM 1	36.3890	36.4915	36.4476	36.5002	36.5492
BEAM 2	36.4362	36.5362	36.4921	36.5404	36.5892
BEAM 3	36.4833	36.5809	36.5366	36.5805	36.6291
BEAM 4	36.5302	36.6254	36.5809	36.6205	36.6689
BEAM 5	36.5770	36.6698	36.6251	36.6604	36.7086
BEAM 6	36.6237	36.7141	36.6691	36.7001	36.7481
BEAM 7	36.6703	36.7582	36.7131	36.7398	36.7876
BEAM 8	36.7209	36.8064	36.7585	36.7809	36.8309
BEAM 9	36.7618	36.8451	36.8063	36.8248	36.8654
BEAM 10	36.7977	36.8791	36.8457	36.8608	36.8957
BEAM 11	36.8375	36.9171	36.8827	36.8945	36.9300
BEAM 12	36.8410	36.9189	36.8844	36.8932	36.9285
BEAM 13	36.8089	36.8849	36.8512	36.8566	36.8909
BEAM 14	36.7811	36.8552	36.8156	36.8177	36.8575
BEAM 15	36.7493	36.8212	36.7722	36.7704	36.8192
BEAM 16	36.7089	36.7784	36.7316	36.7255	36.7717
BEAM 17	36.6725	36.7395	36.6926	36.6821	36.7281
BEAM 18	36.6359	36.7006	36.6534	36.6386	36.6844
BEAM 19	36.5992	36.6615	36.6141	36.5950	36.6405
BEAM 20	36.5624	36.6223	36.5746	36.5513	36.5966
BEAM 21	36.5255	36.5829	36.5351	36.5074	36.5525
BEAM 22	36.4885	36.5435	36.4954	36.4634	36.5083

DESCRIPTION	UNIT	AMOUNT
BRIDGE DECK	SM	667.0
TYPE B BEAMS	LM	259.0
BENT / ABUT	LM	207.0
COLUMNS (760MM Ø)	LM	31.0
PILING (400MM Ø)	LM	73.0
BRIDGE RAILING	LM	104.0
FOOTINGS	EA	6

* FOR CONTRACTORS INFORMATION ONLY. ITEMS SHALL BE SUBSIDIARY TO BID ITEM FOR REMOVING OLD STRUCTURES (LARGE).

MS 18 LOADING

ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS

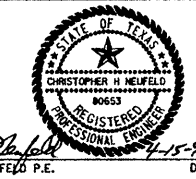
U.S. 83 / F.M. 1426 OVERPASS
HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

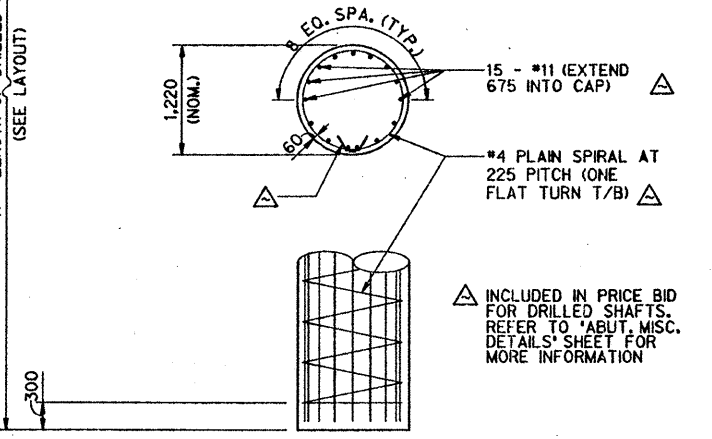
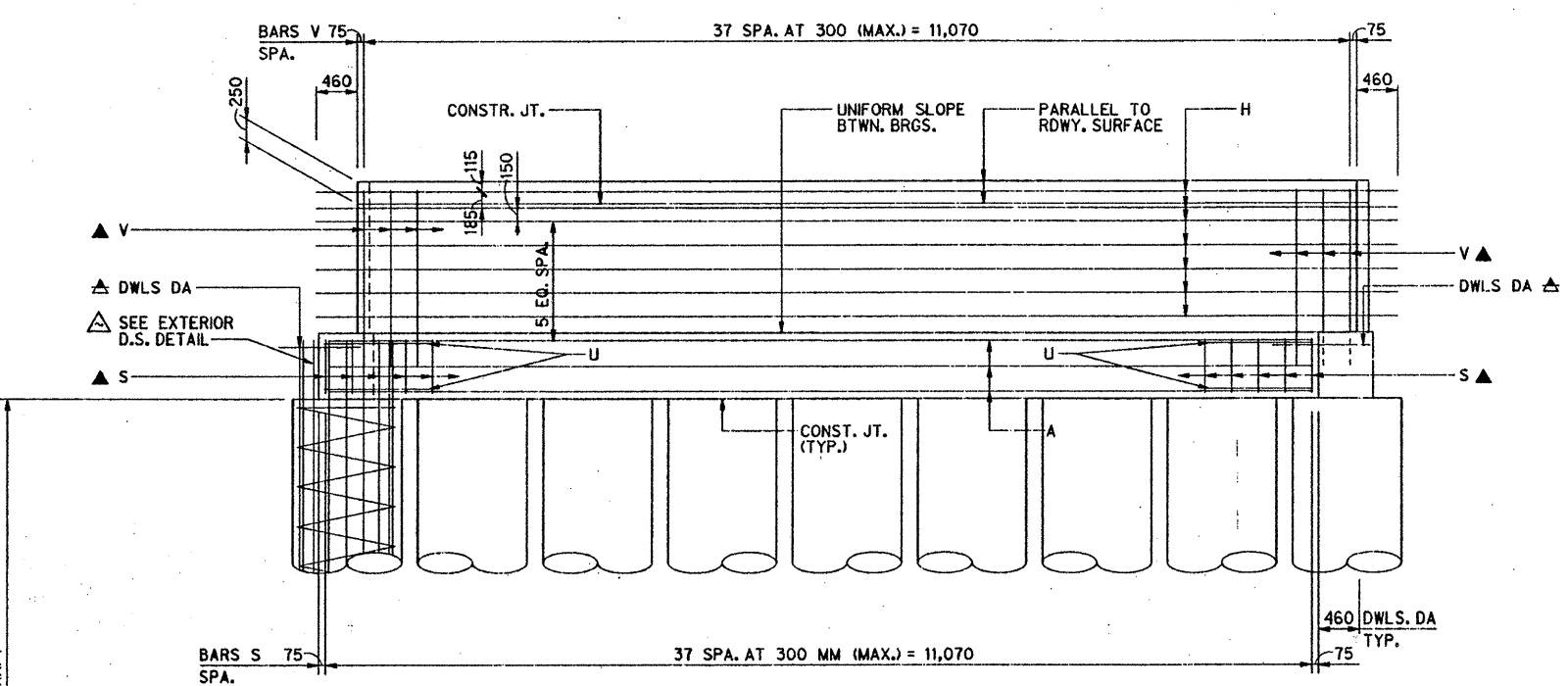
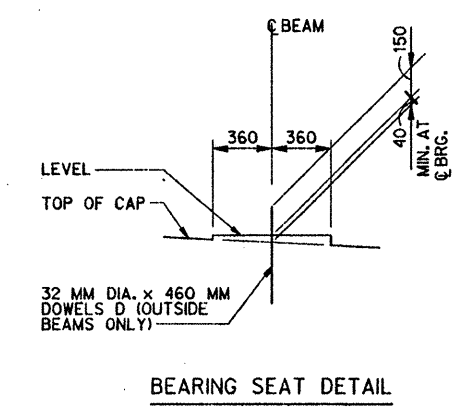
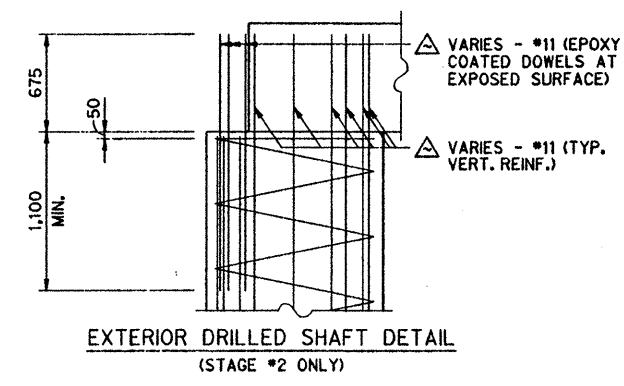
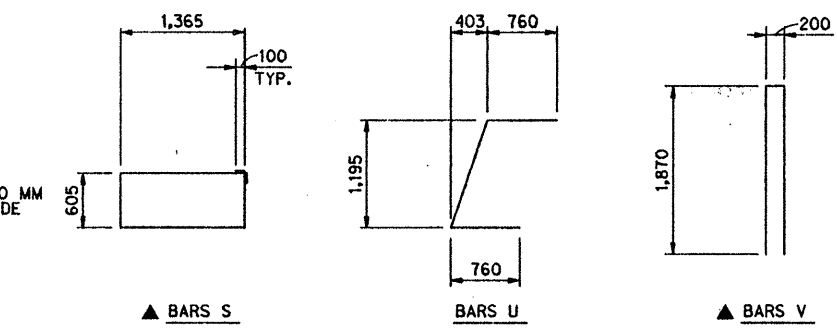
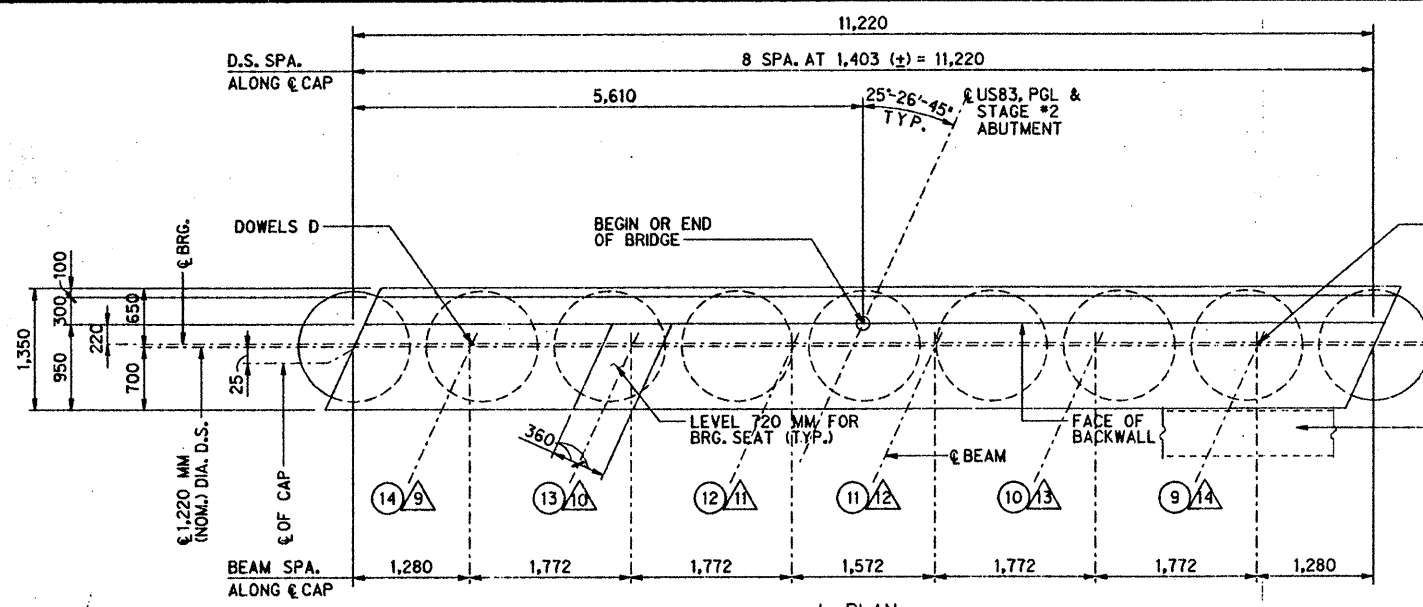
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TAKH	BE PLAN	8	TEXA	NH 96 (791) M	396
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.
APR 96	MS200802CH	NO SCALE	21	HIDALGO	20	17

U.S. 83



CHRISTOPHER H. NEUFELD P.E. DATE 4-15-96

- GENERAL NOTES:**
- DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 - ALL CONCRETE SHALL BE CLASS "C".
 - ALL REINFORCING STEEL SHALL BE GRADE 420.
 - CALCULATED FOUNDATION LOAD = 605 KN/DR SHAFT
 - CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE
 - REFER TO 'ABUTMENT MISC. DETAILS' SHEET FOR DETAILS NOT SHOWN.
 - ▲ DOWELS DA SHALL BE PLACED ON A 2:12 SLOPE. CONTRACTOR SHALL CAST DOWELS DA IN PLACE.
 - ▲ PLACE BARS S AND V IN DIRECTION OF SKEW.
 - * ABUTMENT #4 - LOOKING UPSTATION
 - * ABUTMENT #1 - LOOKING BACKSTATION



ESTIMATED QUANTITIES FOR ONE ABUTMENT

BAR	NO.	SIZE	LENGTH	WEIGHT	
A	13	#8	11,120	574	
D	2	32 DIA.	460	6	
DA	4	#9	920	19	
H	14	#5	◇12,140	264	
S	38	#4	4,140	156	
U	4	#6	2,781	25	
V	38	#5	3,940	232	
REINFORCED STEEL				⊕ kg.	1,276
CL. C CONC. (ABUT.)				m ³	17.1

⊕ FOR CONTRACTORS INFORMATION ONLY
 ◇ INCLUDES 2 - 460 MIN. LAPS INTO STAGE #3 OR #4.

ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

**ABUTMENT NO.1
 STAGE #2 OR
 ABUTMENT NO. 4 STAGE #2**

U.S. 83 / FM 1426 OVERPASS
 HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRH	EE PLAN	8	TEXAS	M.H. 96 (79) M	397
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1996	HIDALGO/EDD	1:40	21	HIDALGO	036	17



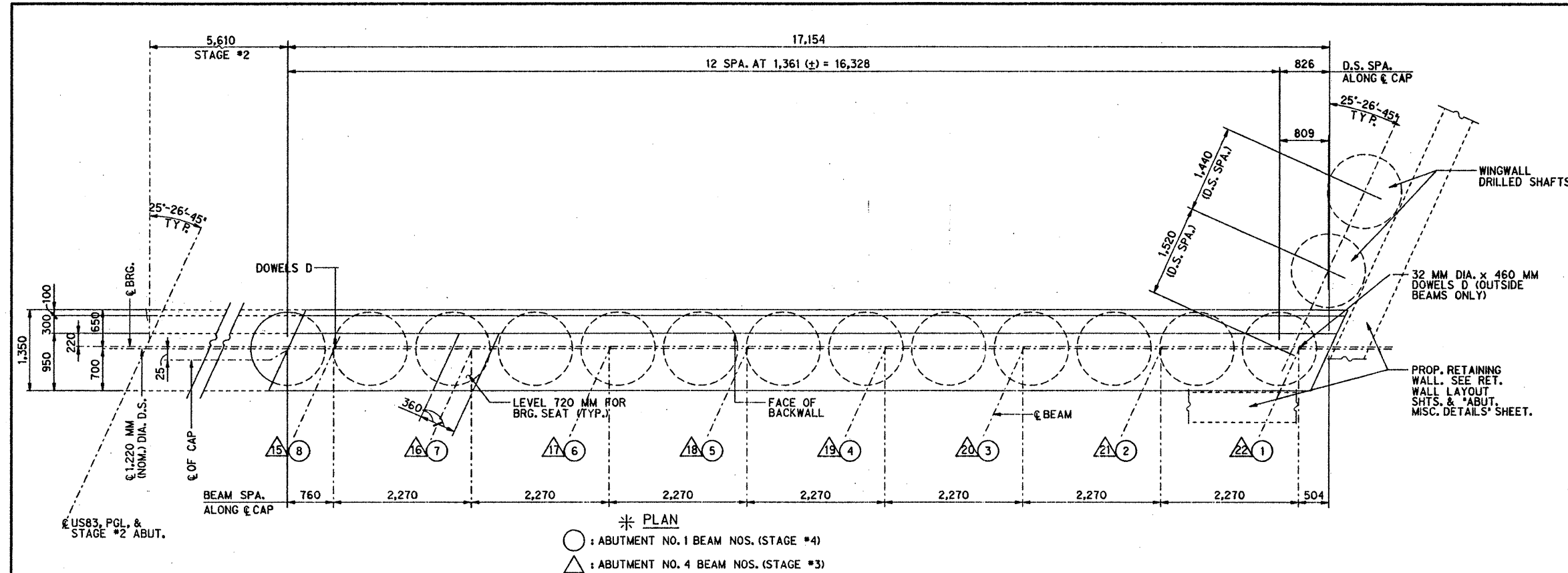
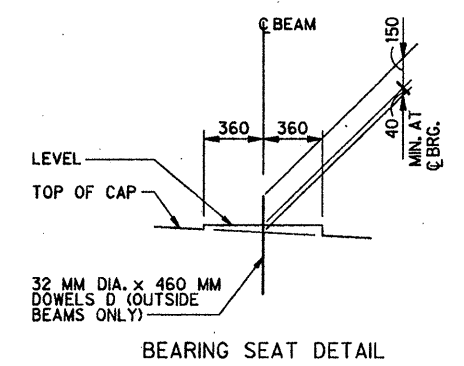
CHRISTOPHER H. NEUFELD P.E. DATE

GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE GRADE 420.
 CALCULATED FOUNDATION LOAD = 605 KN/DR SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 REFER TO 'ABUTMENT MISC. DETAILS' SHEET FOR DETAILS NOT SHOWN.

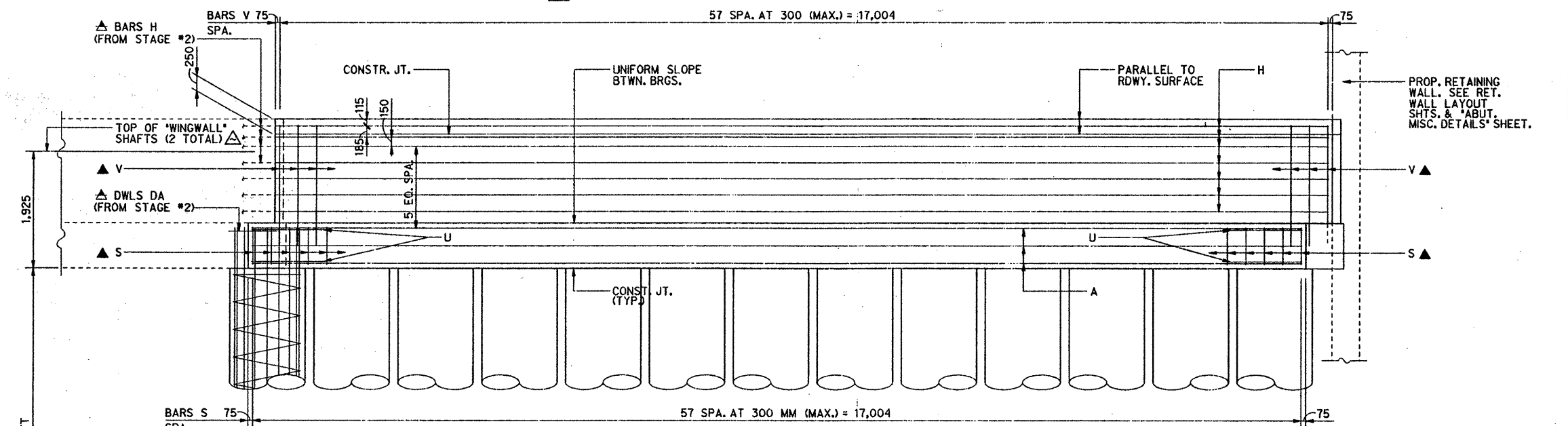
- ▲ BARS H AND DA SHALL BE CLEANED PRIOR TO CASTING NEXT STAGE.
- ▲ PLACE BARS S AND V IN DIRECTION OF SKEW.
- * ABUTMENT #4 - LOOKING UPSTATION
- * ABUTMENT #1 - LOOKING BACKSTATION

ESTIMATED QUANTITIES FOR ONE ABUTMENT				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	13	#8	17,054	881
D	2	32 DIA.	460	6
H	14	#5	17,054	371
S	58	#4	4,140	239
U	4	#6	2,781	25
V	58	#5	3,940	355
REINFORCED STEEL			kg.	1,877
CL. C CONC. (ABUT.)			m ³	26.1

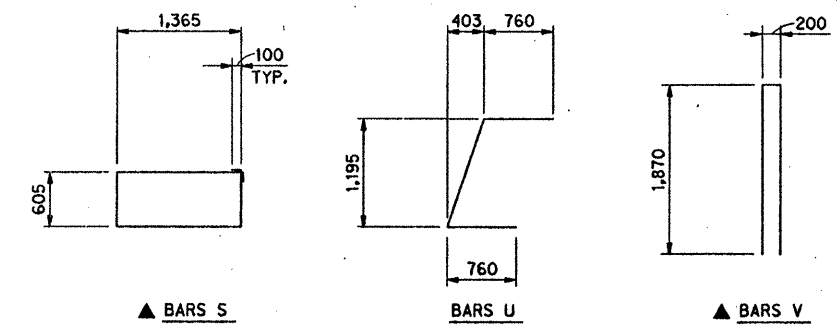
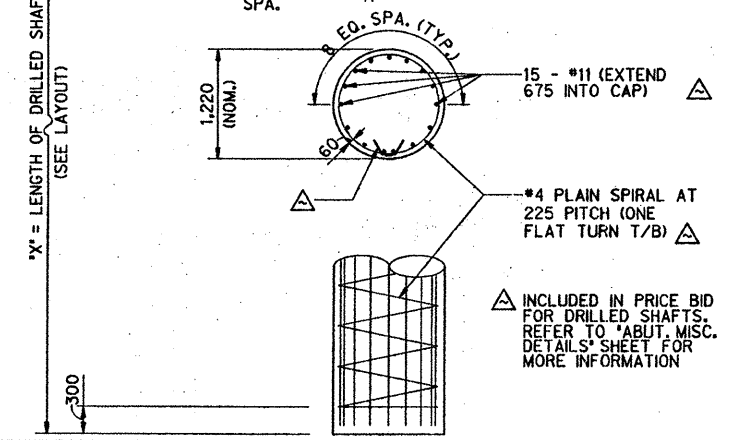
⊕ FOR CONTRACTORS INFORMATION ONLY



* PLAN
 ○ : ABUTMENT NO. 1 BEAM NOS. (STAGE #4)
 ▲ : ABUTMENT NO. 4 BEAM NOS. (STAGE #3)



* ELEVATION



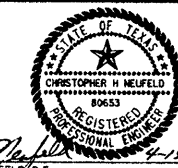
ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

**ABUTMENT NO.1
 STAGE #4 OR
 ABUTMENT NO. 4 STAGE #3**

U.S. 83 / FM 1426 OVERPASS
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL	TJM	SEE PLAN	6	TEXAS	N.H. 94 (797) W	398
DATE	FILE	SCALE	DATE	COUNTY	SECTION	JOB NO.
APR 1988	HRR03AD00W	1:40	21	HIDALGO	0030	17 18 U. 83



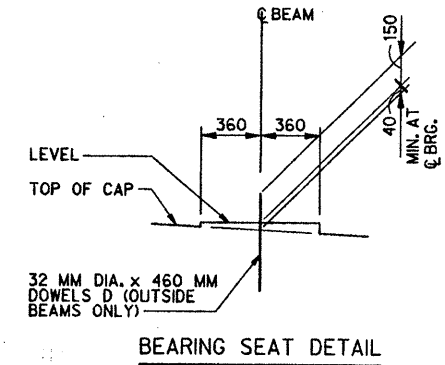
CHRISTOPHER H. NEUFELD, P.E.
DATE: 4-15-84

GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO
 A.A.S.H.T.O. 1992 STANDARD AND
 INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE
 GRADE 420.
 CALCULATED FOUNDATION LOAD =
 605 KN/DR SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM
 UNLESS NOTED OTHERWISE
 REFER TO 'ABUTMENT MISC. DETAILS'
 SHEET FOR DETAILS NOT SHOWN.

- ▲ BARS H AND DA SHALL BE CLEANED PRIOR TO CASTING NEXT STAGE.
- ▲ PLACE BARS S AND V IN DIRECTION OF SKEW.
- * ABUTMENT #4 - LOOKING UPSTATION
 ABUTMENT #1 - LOOKING BACKSTATION

ESTIMATED QUANTITIES FOR ONE ABUTMENT				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	13	#8	17,054	881
D	2	32 DIA.	460	6
H	14	#5	17,054	371
S	58	#4	4,140	239
U	4	#6	2,781	25
V	58	#5	3,940	355
REINFORCED STEEL			Φ kg.	1,877
CL. C CONC. (ABUT.)			m ³	26.1

Φ FOR CONTRACTORS INFORMATION ONLY



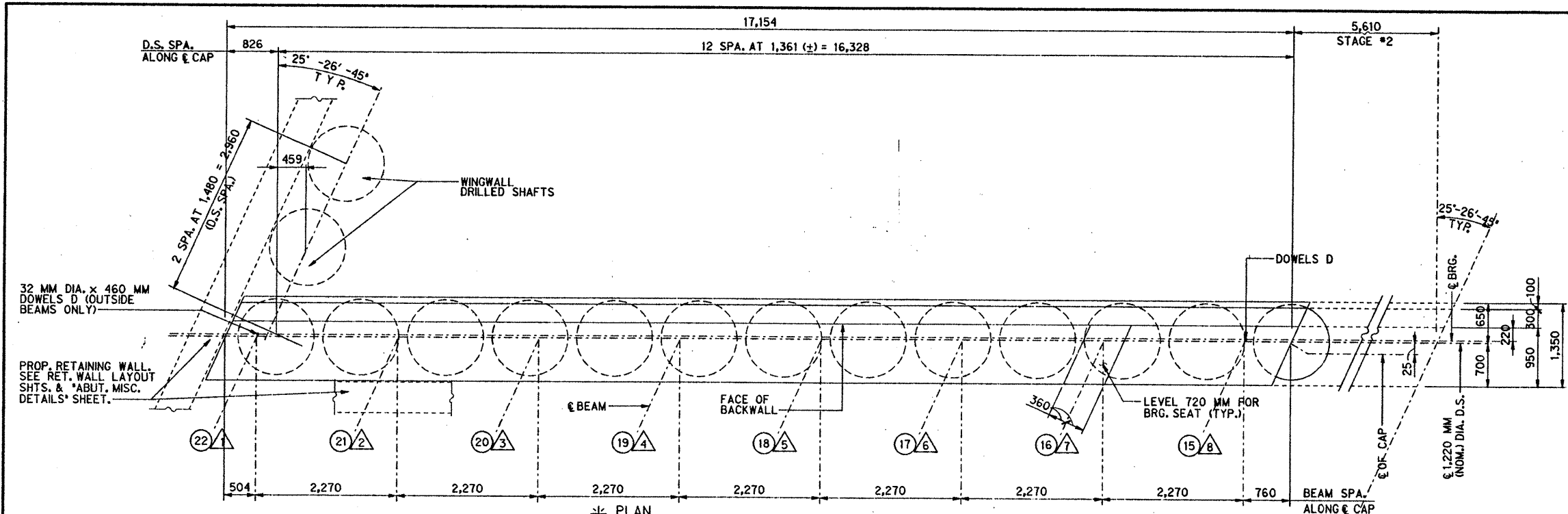
ALL DIMENSIONS IN MILLIMETERS.
MS 18 LOADING

**ABUTMENT NO.1
STAGE #3 OR
ABUTMENT NO.4 STAGE #4**

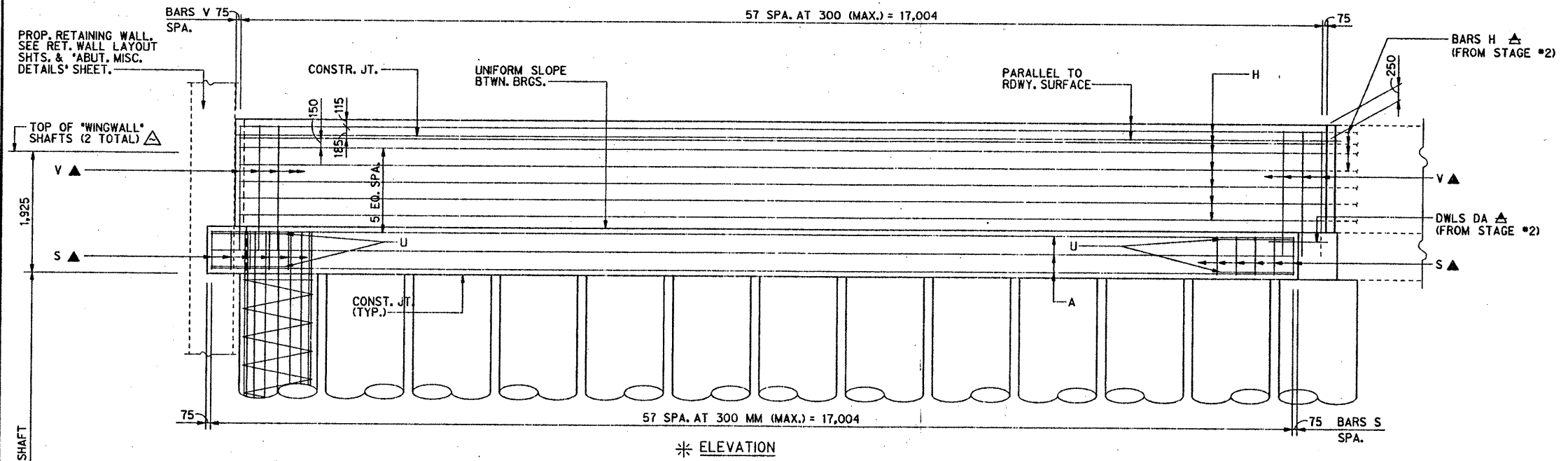
U.S. 83 / FM 1426 OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - ROBOTISTS - PLANNERS - SURVEYORS

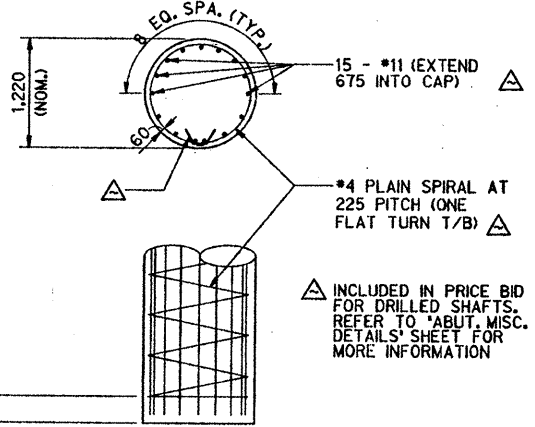
DESIGN	CL.	DATE	FILE	SCALE	STATE	COUNTY	CONTROL NO.	SECTION NO.	SHEET NO.
TRH	TRH	11-83	TRH	1:20	TEXAS	HIDALGO	96 (791) U	399	399



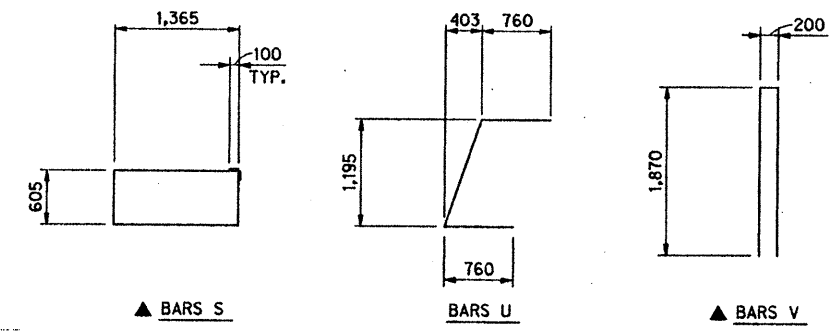
* PLAN
 ○ : ABUTMENT NO.1 BEAM NOS. (STAGE #3)
 ▲ : ABUTMENT NO.4 BEAM NOS. (STAGE #4)



* ELEVATION



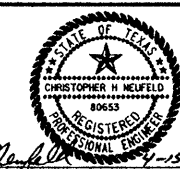
▲ INCLUDED IN PRICE BID FOR DRILLED SHAFTS. REFER TO 'ABUTMENT MISC. DETAILS' SHEET FOR MORE INFORMATION



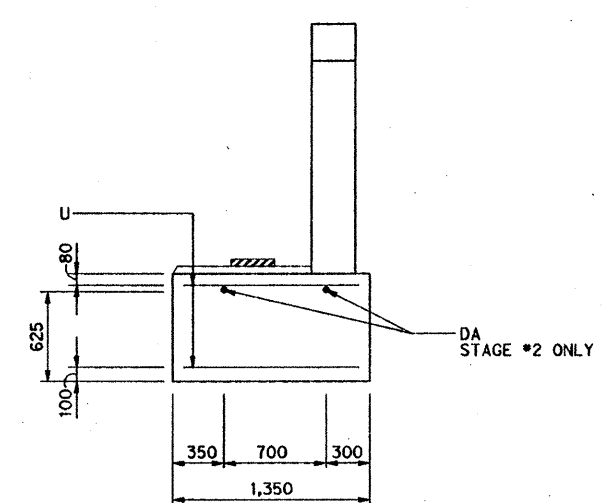
PROP. RETAINING WALL. SEE RET. WALL LAYOUT SHTS. & 'ABUT. MISC. DETAILS' SHEET.

TOP OF 'WINGWALL' SHAFTS (2 TOTAL) ▲

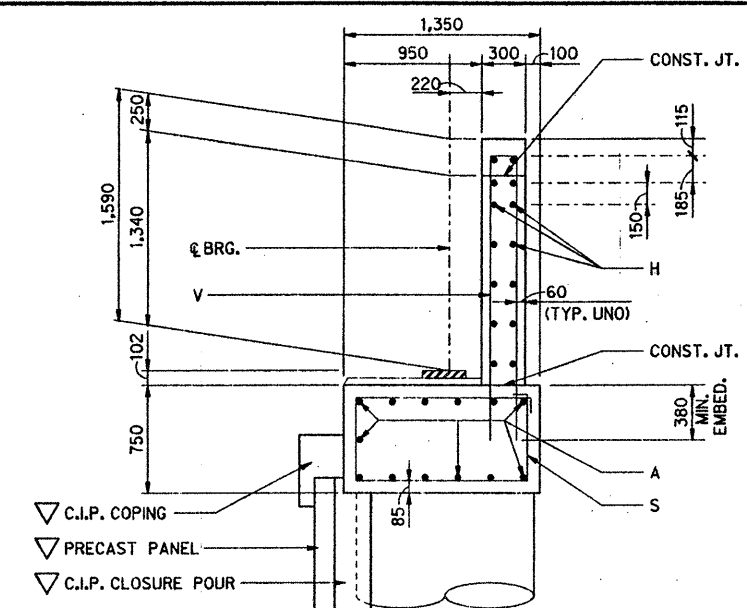
X = LENGTH OF DRILLED SHAFT (SEE LAYOUT)



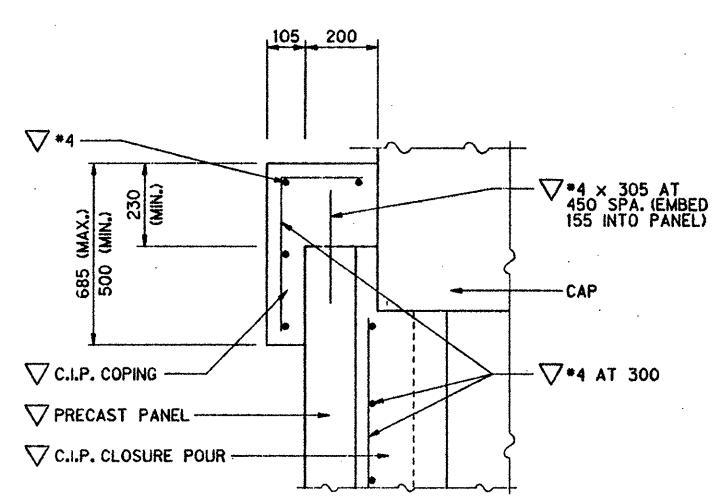
CHRISTOPHER H. NELFELD, P.E.
DATE



CAP END DETAIL
(ONLY BARS DA AND U SHOWN)

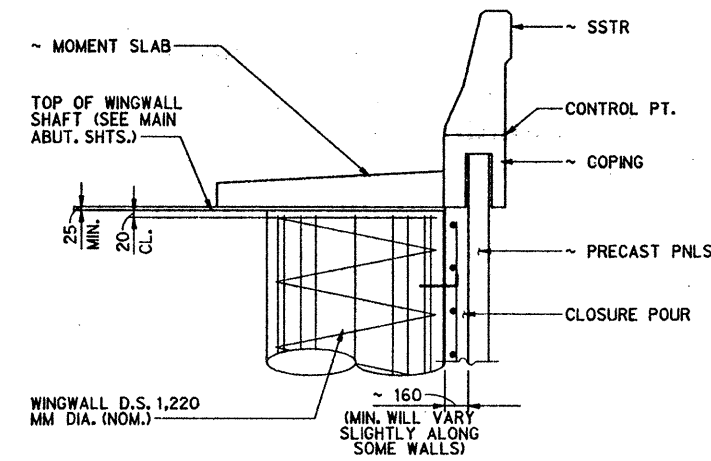


TYPICAL SECTION



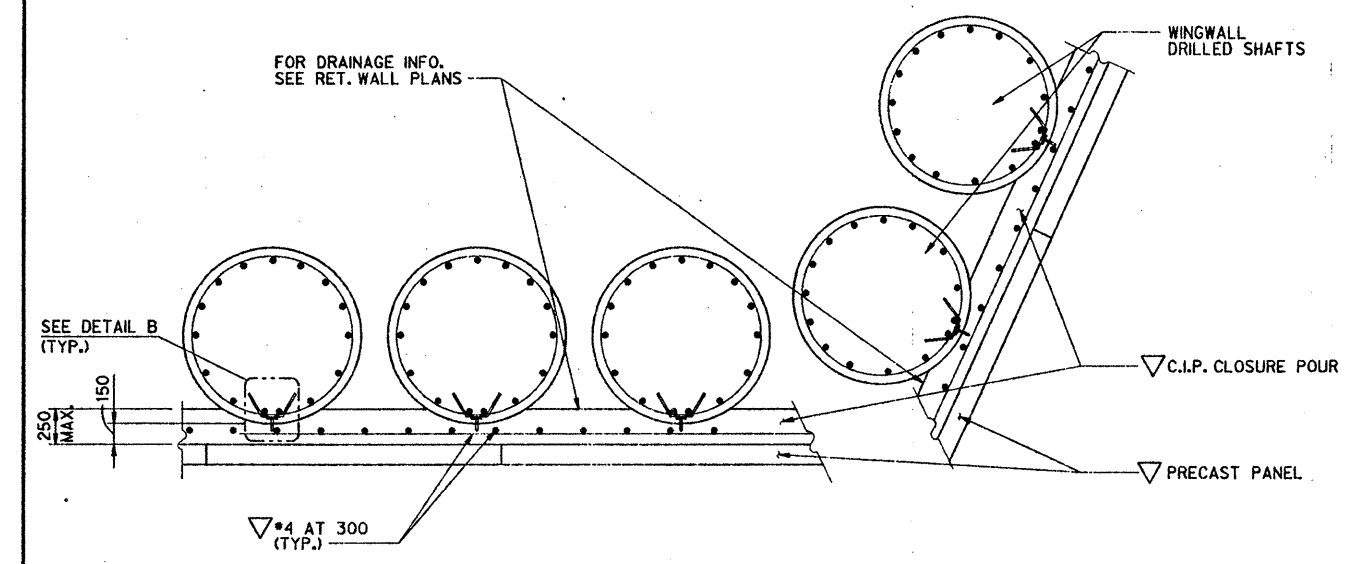
***COPING DETAIL**

* ONLY USE WHEN ADJACENT TO ABUTMENT.
OTHERWISE REFER TO RETAINING WALL
PLANS FOR TYPICAL COPING DETAILS.



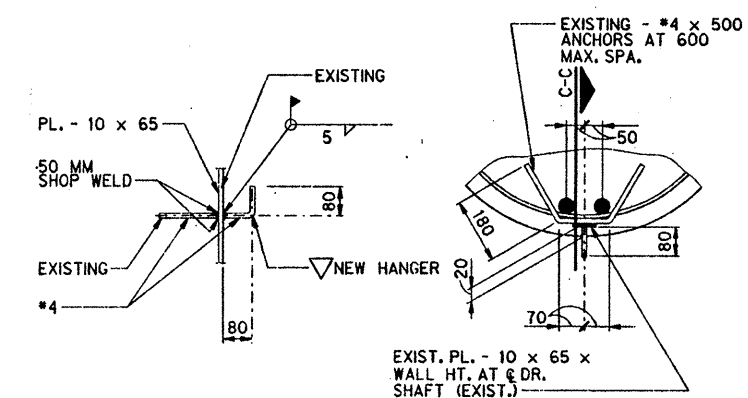
WINGWALL SHAFT DETAIL

~ REFER RETAINING WALL PLANS
NOTE: BOTTOM OF WINGWALL SHAFTS
SHALL BE SET TO SAME ELEVATION
AS THE ABUTMENT SHAFTS.



SECTION A-A

NOTE: CLOSURE POUR SHALL
BE LIMITED TO A MAXIMUM OF
ONE METER LIFTS.



SECTION C-C

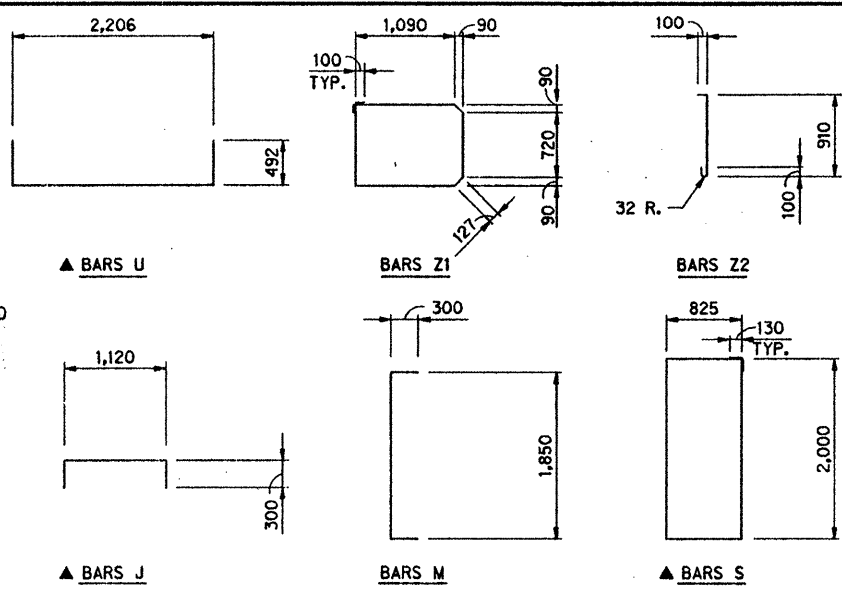
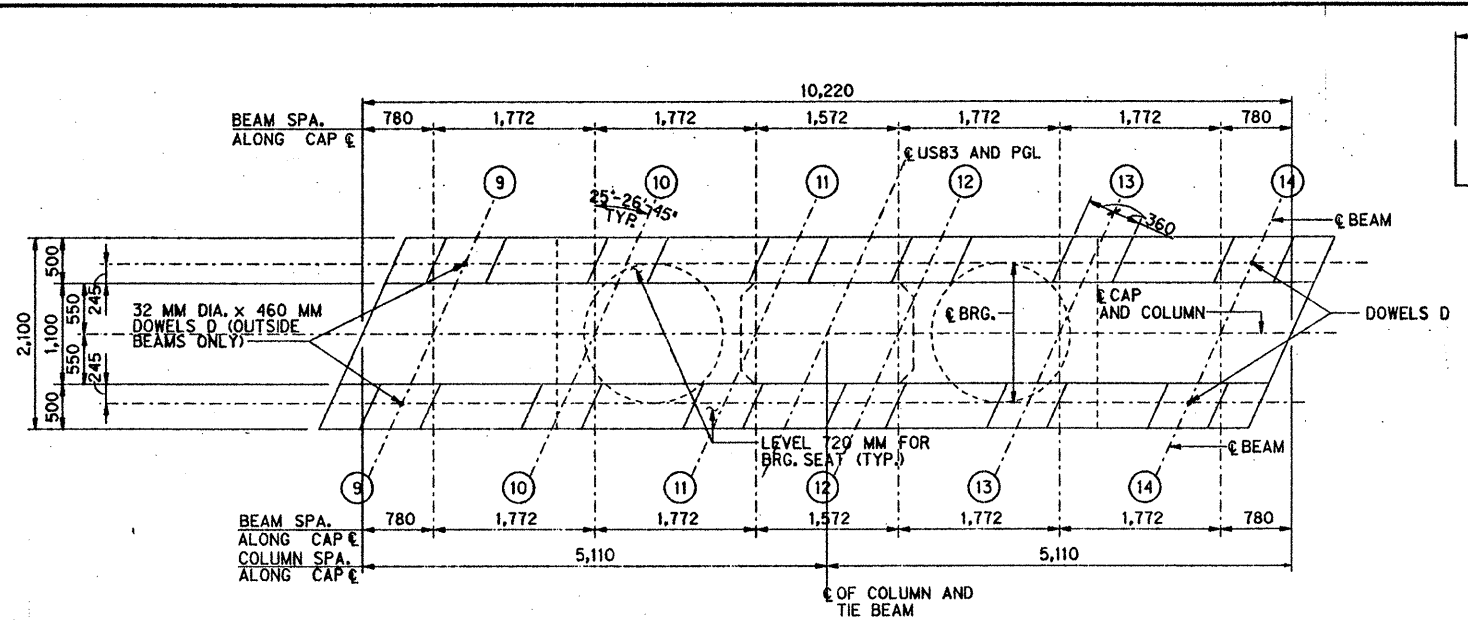
DETAIL B

NOTE: 'EXISTING' ANCHORS AND PLATE ARE CAST WITH THE PIERS.
'NEW' HANGERS ARE ADDED PRIOR TO SETTING PRECAST PANELS.

NOTE: CONTRACTOR MAY PROVIDE FOR AN ALTERNATE 'RETAINING WALL FACIA' PANEL CONNECTION SCHEME.
CONTRACTOR MUST HAVE THE ALTERNATE CONNECTION SCHEME SEALED BY A REGISTERED PROFESSIONAL
STRUCTURAL ENGINEER REGISTERED IN THE STATE OF TEXAS. THE ALTERNATE CONNECTION SCHEME SHALL
BE SUBMITTED TO THE ENGINEER AND TxDOT FOR APPROVAL PRIOR TO ORDERING ANY MATERIALS.

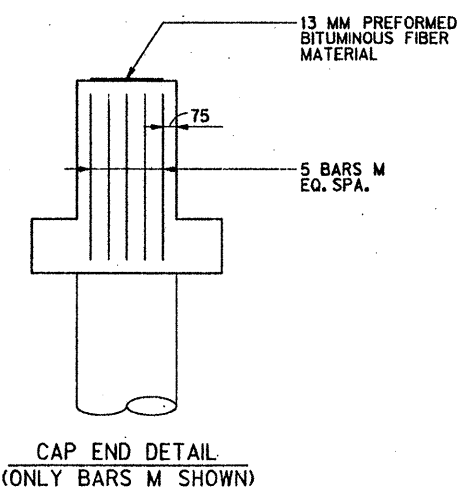
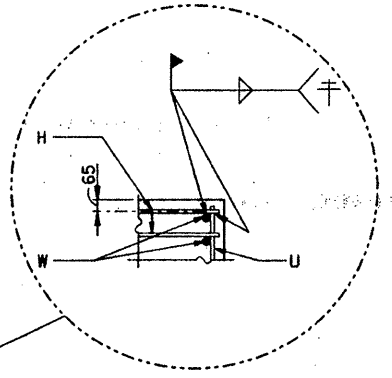
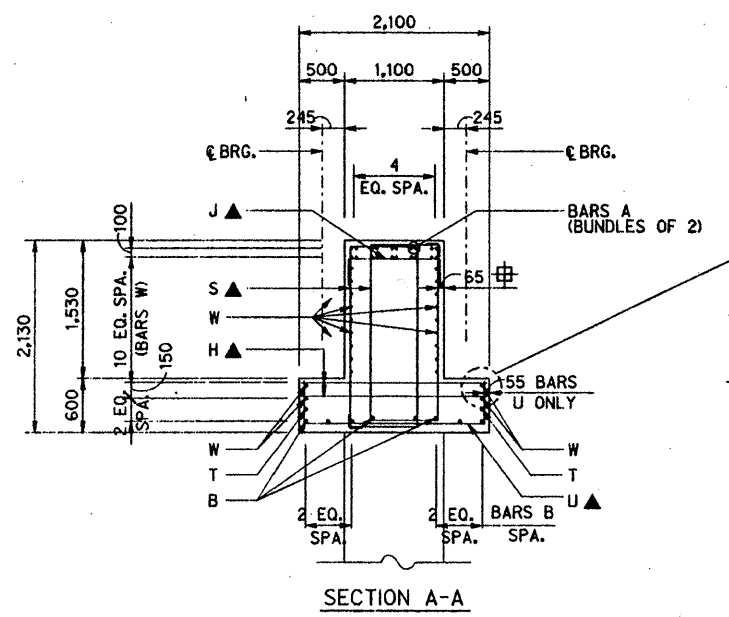
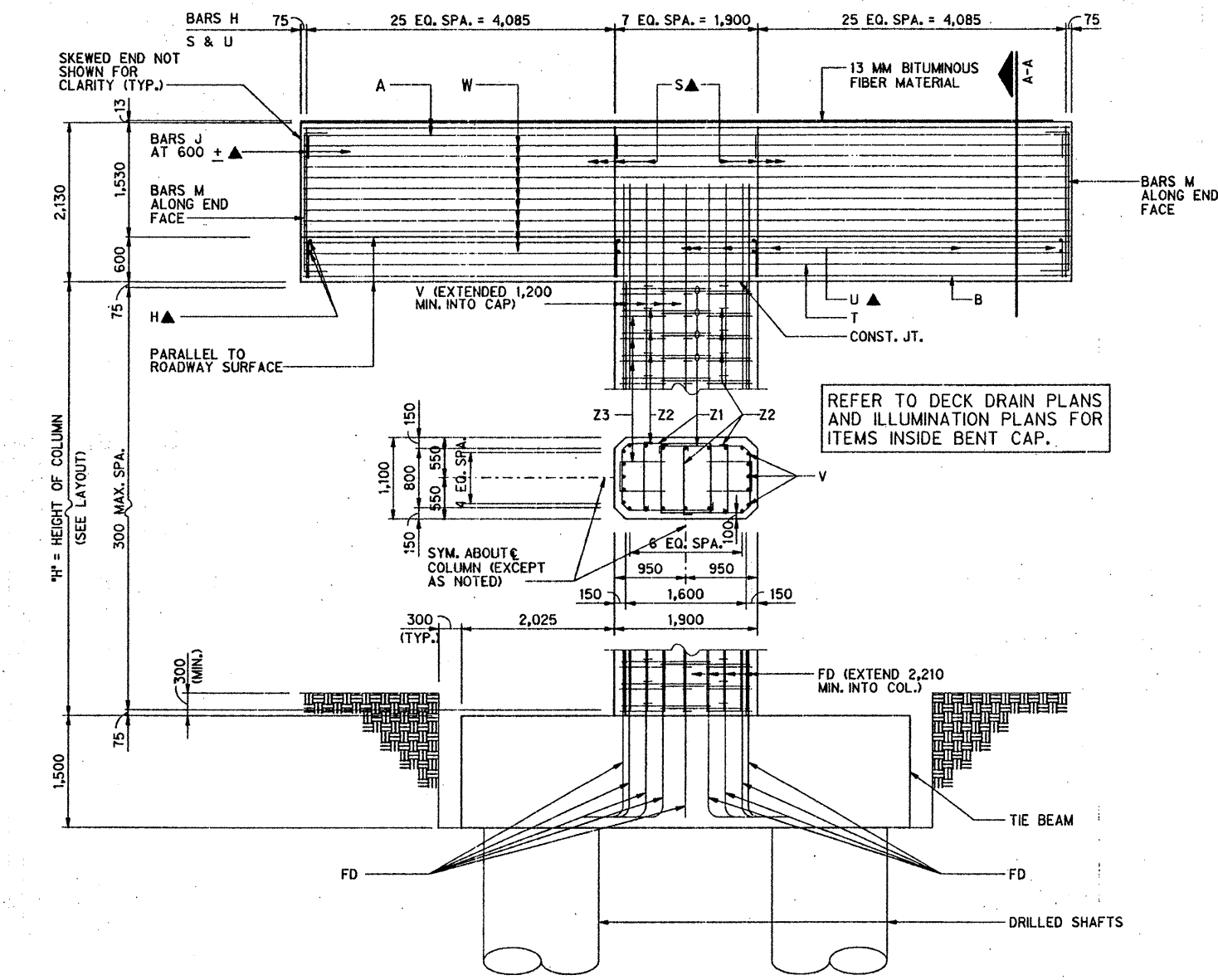
ALL DIMENSIONS IN MILLIMETERS.
MS 18 LOADING

ABUTMENT MISCELLANEOUS DETAILS										
U.S. 83 / FM 1426 OVERPASS HIDALGO COUNTY, TEXAS										
TEXAS DEPARTMENT OF TRANSPORTATION										
Half Associates <small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>										
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET				
CL	TRAH	SEE PLAN	8	TEXAS	H.H. 96 (791) M	420				
DATE	FILE	SCALE	STATE	COUNTY	EDITION/SECTION	NO.	NO.	JOB	NO.	HIGHWAY
APR	MSR308B303	1:25	21	HIDALGO	10	7	10	U	63	



STATE OF TEXAS
 REGISTERED PROFESSIONAL ENGINEER
 CHRISTOPHER H. NEUFELD, P.E.
 80653
 4-15-96 DATE

GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE GRADE 420.
 CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 SEE "FORM LINER DETAILS" SHEET FOR AESTHETIC TREATMENT OF COLUMN.



ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

**INTERIOR BENT
 NOS. 2 & 3
 STAGE #2 (1 of 2)**

**U.S. 83 / FM 1426 OVERPASS
 HIDALGO COUNTY, TEXAS**

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

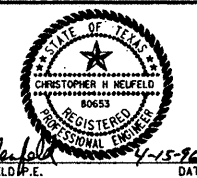
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CL.	TAK	SEE PLAN	8	TEXAS	111-41(201) M	407
DATE	FILE	SCALE	DATE	COUNTY	SECTION NO.	HIGHWAY NO.
APRIL 96	146208B.DON	1:40	21	HIDALGO	0099	17 18 U. 83

VARIABLE QUANTITIES
(FOR COLUMN)

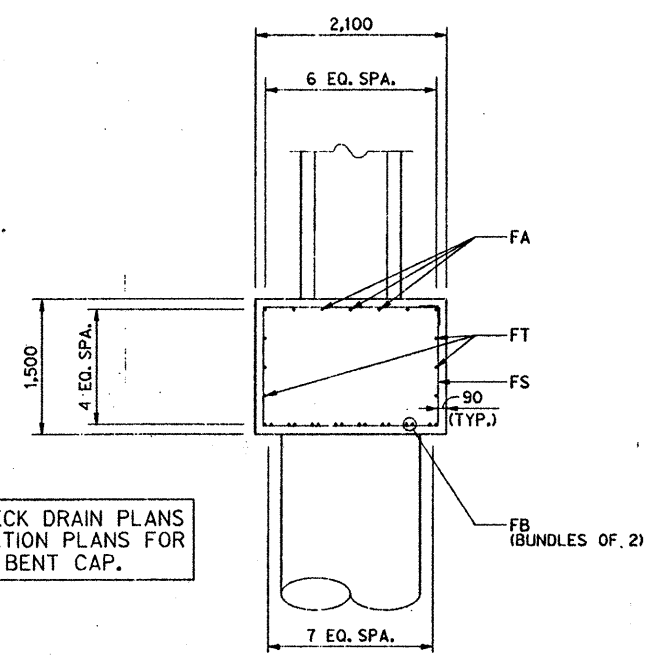
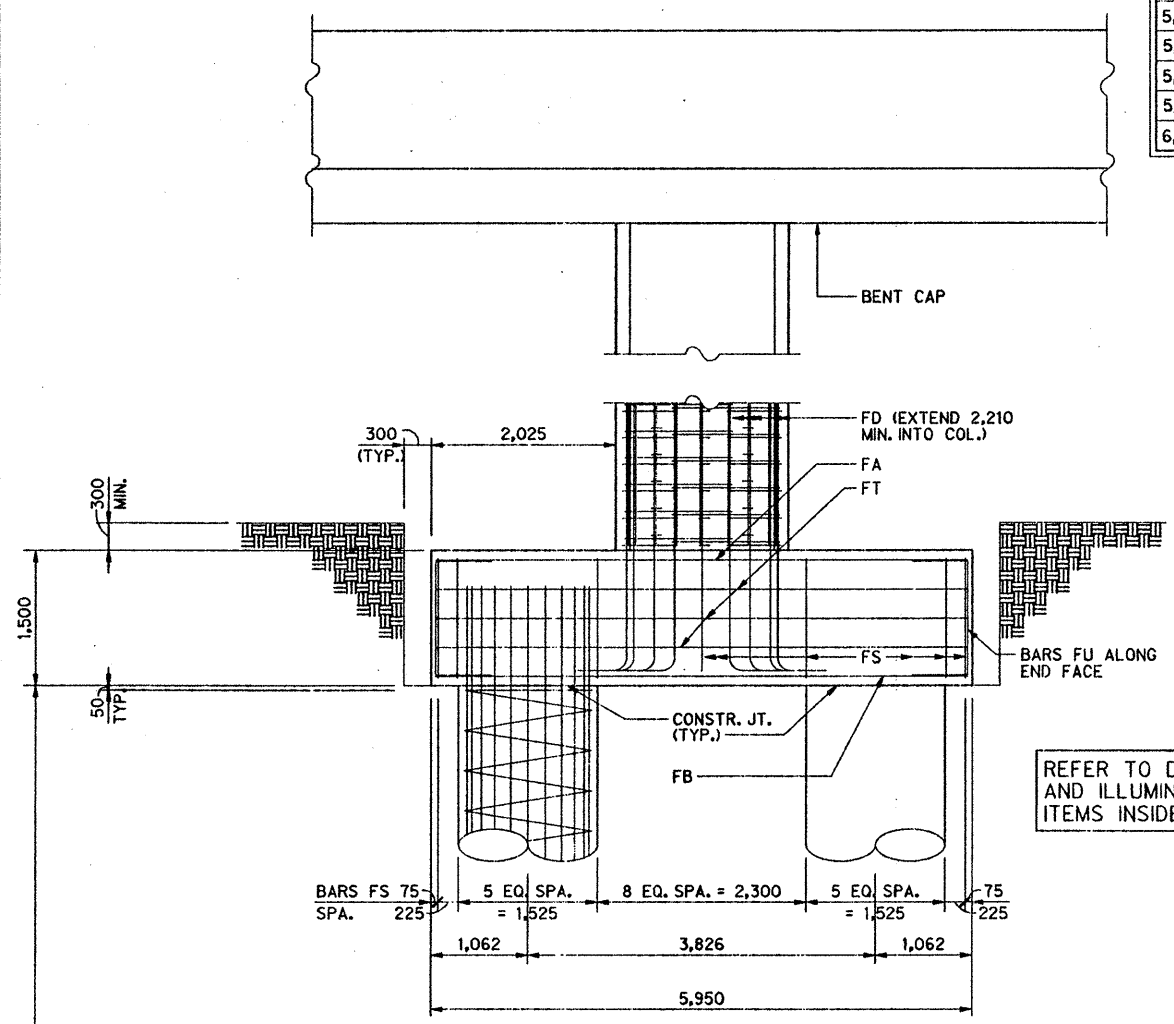
"H"	BARS 'Z1' NO. 4 x 4,254	BARS 'Z2' NO. 4 x 1,110	BARS 'Z3' NO. 4 x 1,600	24 - BARS 'V' NO. 10	REINF. STEEL	CL. C CONC. (BENT)				
MM	NO.	WEIGHT	NO.	WEIGHT	LENGTH	WEIGHT				
4,750	34	144	51	56	34	54	6,000	922	1,176	9.7
5,000	36	152	54	60	36	57	6,250	961	1,230	10.2
5,250	36	152	54	60	36	57	6,500	999	1,268	10.7
5,500	38	161	57	63	38	60	6,750	1,037	1,321	11.2
5,750	40	169	60	66	40	64	7,000	1,076	1,375	11.8
6,000	42	178	63	70	42	67	7,250	1,114	1,429	12.3

ESTIMATED QUANTITIES
FOR ONE BENT
(FOR CAP AND TIE BEAMS ONLY)

BAR	NO.	SIZE	LENGTH	WEIGHT
A	20	#11	10,120	1,600
B	8	#10	10,120	518
D	4	32 DIA.	460	12
FA	7	#8	5,850	163
FB	16	#11	5,850	740
FD	24	#10	4,181	643
FS	21	#6	7,080	333
FT	6	#5	5,850	55
FU	12	#5	2,485	46
H	116	#6	2,228	578
J	18	#6	1,720	69
M	10	#6	2,450	55
S	116	#5	5,910	1,064
T	2	#6	10,120	45
U	58	#6	3,190	414
W	22	#7	10,120	677
REINFORCED STEEL				⊕ Kg. 7,012
CL. C CONC. (BENT)				m ³ 48.8

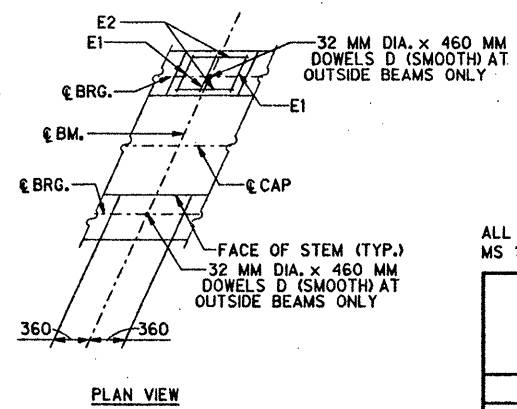
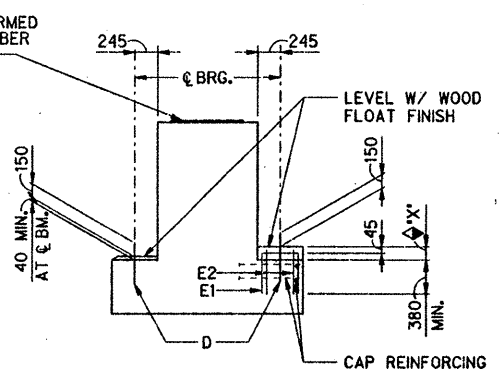
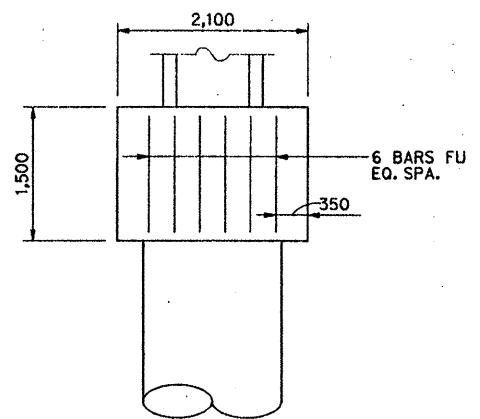
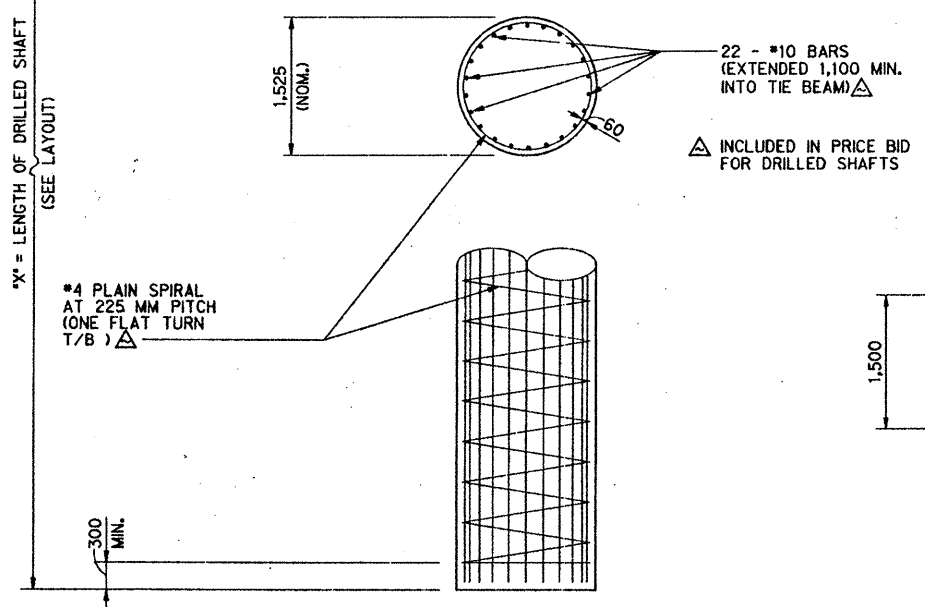
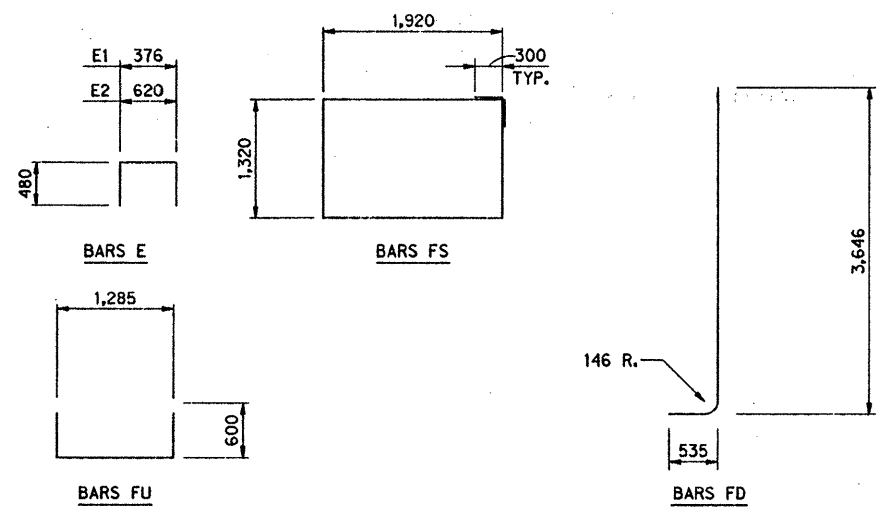


GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE GRADE 420.
 CALCULATED FOUNDATION LOAD = 3,350 KN/DR. SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 SEE 'FORM LINER DETAILS' SHEET FOR AESTHETIC TREATMENT OF COLUMN.



REFER TO DECK DRAIN PLANS AND ILLUMINATION PLANS FOR ITEMS INSIDE BENT CAP.

⊕ FOR CONTRACTORS INFORMATION ONLY



◆ REINFORCED PEDESTALS WILL BE REQUIRED WHERE 'X' IS GREATER THAN 60 AND SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM CLASS C CONCRETE (BENT). COMPARE BEARING SEAT ELEVATIONS TO DETERMINE VALUE OF 'X'.

ALL DIMENSIONS IN MILLIMETERS.
MS 18 LOADING

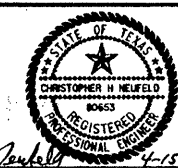
INTERIOR BENT
NOS. 2 & 3
STAGE #2 (2 of 2)

U.S. 83 / FM 1426 OVERPASS
 HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

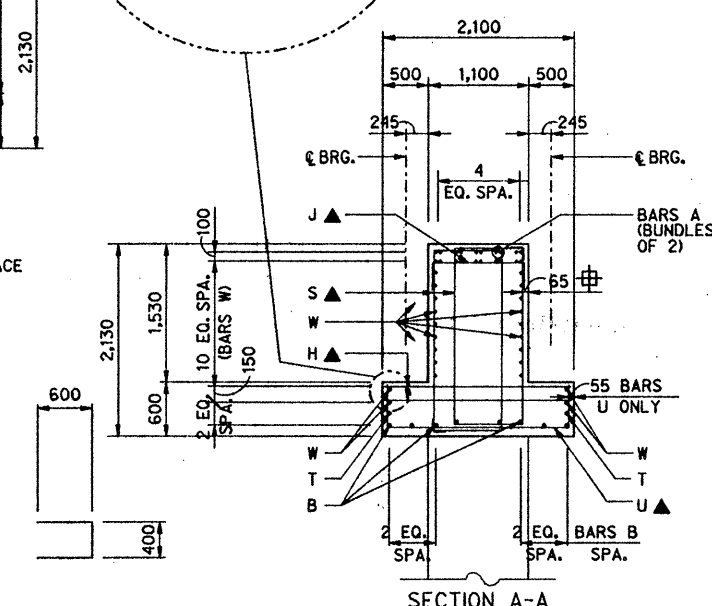
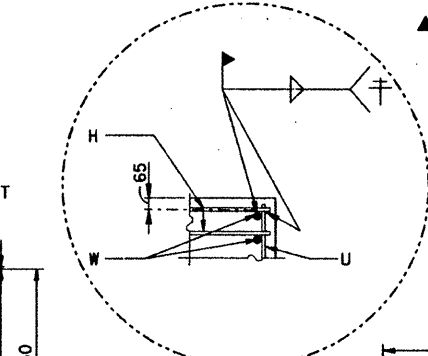
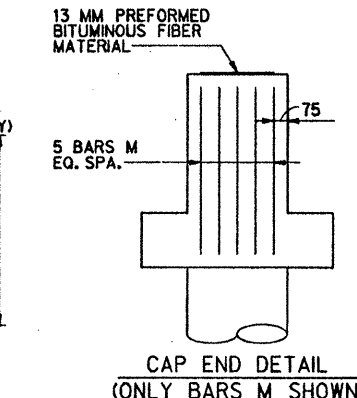
Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL	TRH	SEE PLAN	8	TEXA	M H 96 (791) M	402
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1998	MS00000000	1:40	2	HIDALGO	1030	17 88



CHRISTOPHER H. NEUFELD, P.E.
DATE: 4-15-92

- GENERAL NOTES:**
- DESIGNED IN ACCORDANCE TO A.A.S.H.T.O. 1992 STANDARD AND INTERIM SPECIFICATIONS THERETO.
 - ALL CONCRETE SHALL BE CLASS 'C'.
 - ALL REINFORCING STEEL SHALL BE GRADE 420.
 - CHAMFER ALL EXPOSED EDGES 20 MM UNLESS NOTED OTHERWISE.
 - SEE "FORM LINER DETAILS" SHEET FOR AESTHETIC TREATMENT OF COLUMNS AND CAP.
 - † WELD BOTH SIDES OF BARS W AND U TO TOP BAR H AS SHOWN
 - ⊕ TYPICAL EXCEPT AS NOTED
 - ▲ PLACE BARS H, J, S, AND U IN DIRECTION OF SKEW



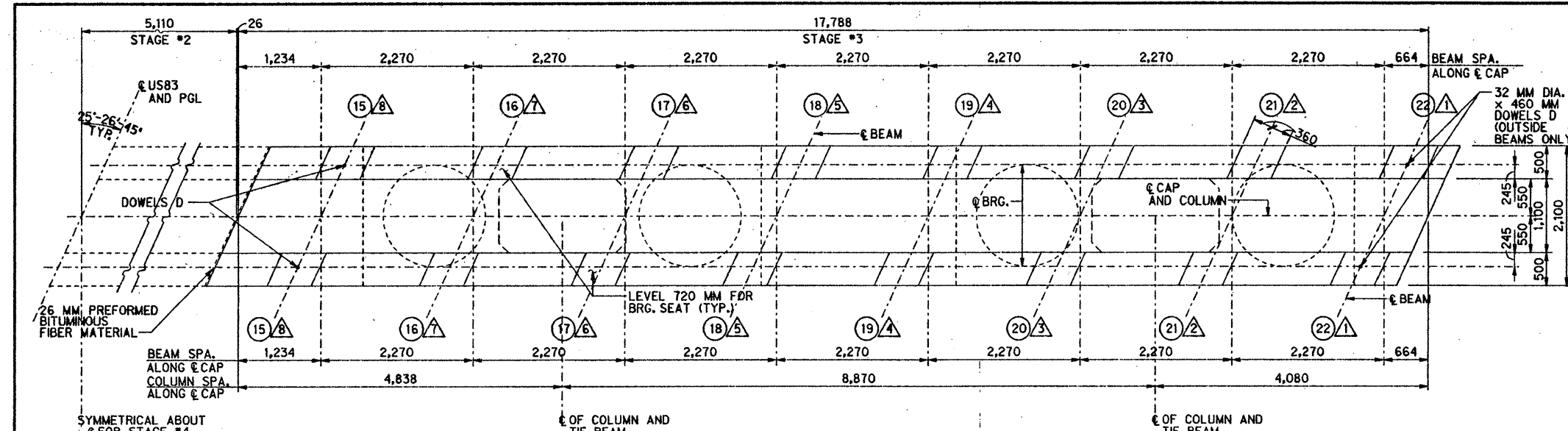
ALL DIMENSIONS IN MILLIMETERS.
MS 18 LOADING

**INTERIOR BENT
NOS. 2 & 3
STAGE #3 OR 4 (1 of 2)**

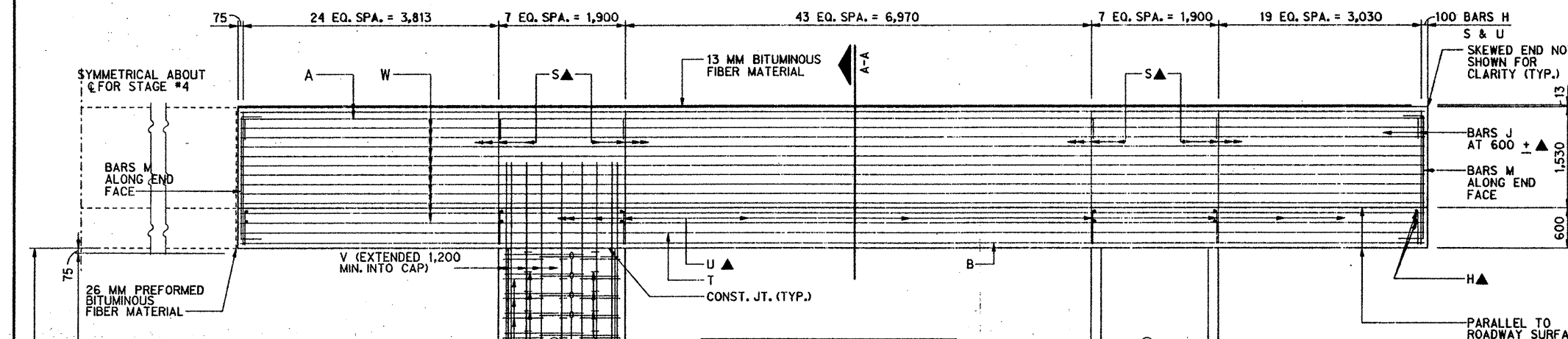
U.S. 83 / FM 1426 OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

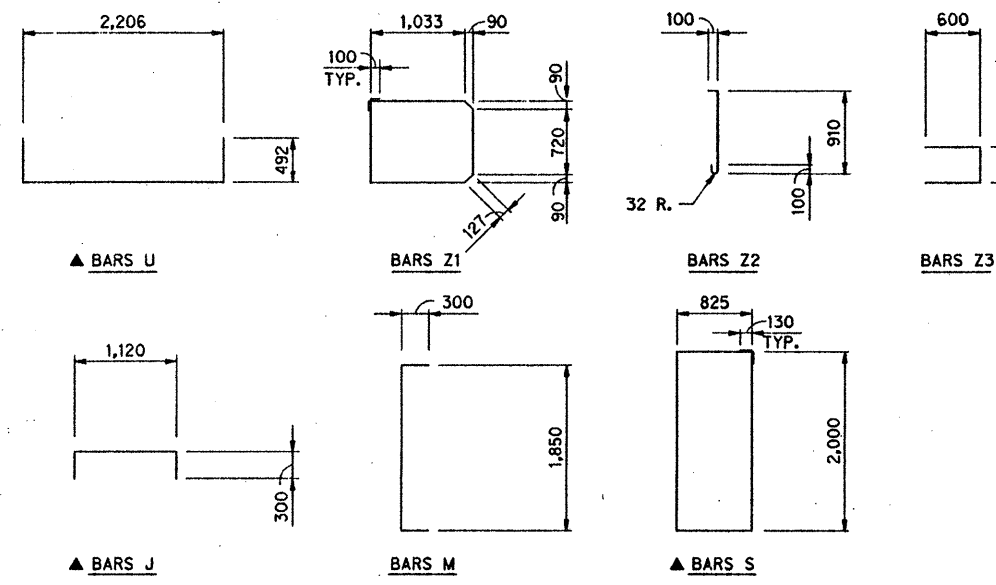
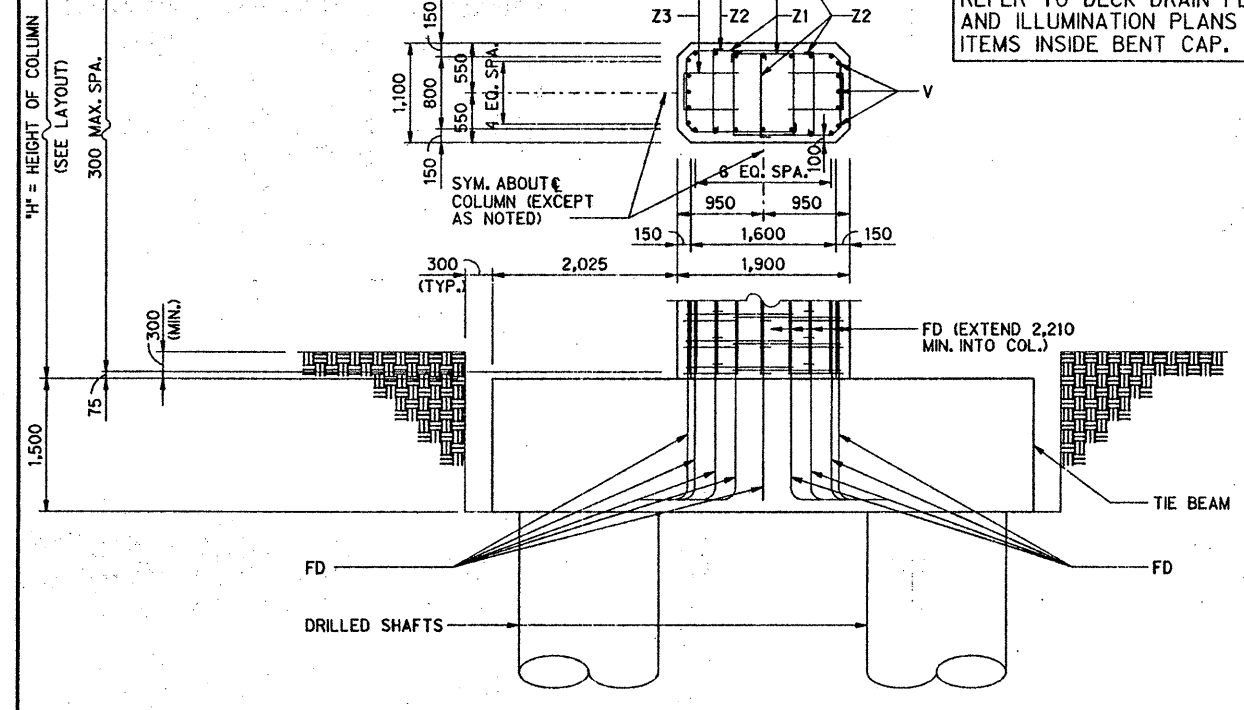
DESIGN	DRAWN	NOTES	PED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRM	SEE PLAN	8	TEXAS	N.H. 91 (791) M	4-23
DATE	FILE	SCALE	DATE	COUNTY	CONTROL NO.	SECTION NO.
APR 1992	HDRBROOK	1:40	21	HIDALGO	DD 30	7
						U. 83



PLAN VIEW
 ○ : BEAM NOS. (STAGE #3)
 ▲ : BEAM NOS. (STAGE #4)



REFER TO DECK DRAIN PLANS AND ILLUMINATION PLANS FOR ITEMS INSIDE BENT CAP.

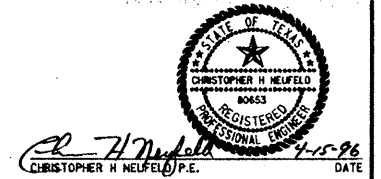


VARIABLE QUANTITIES*
(FOR COLUMNS)

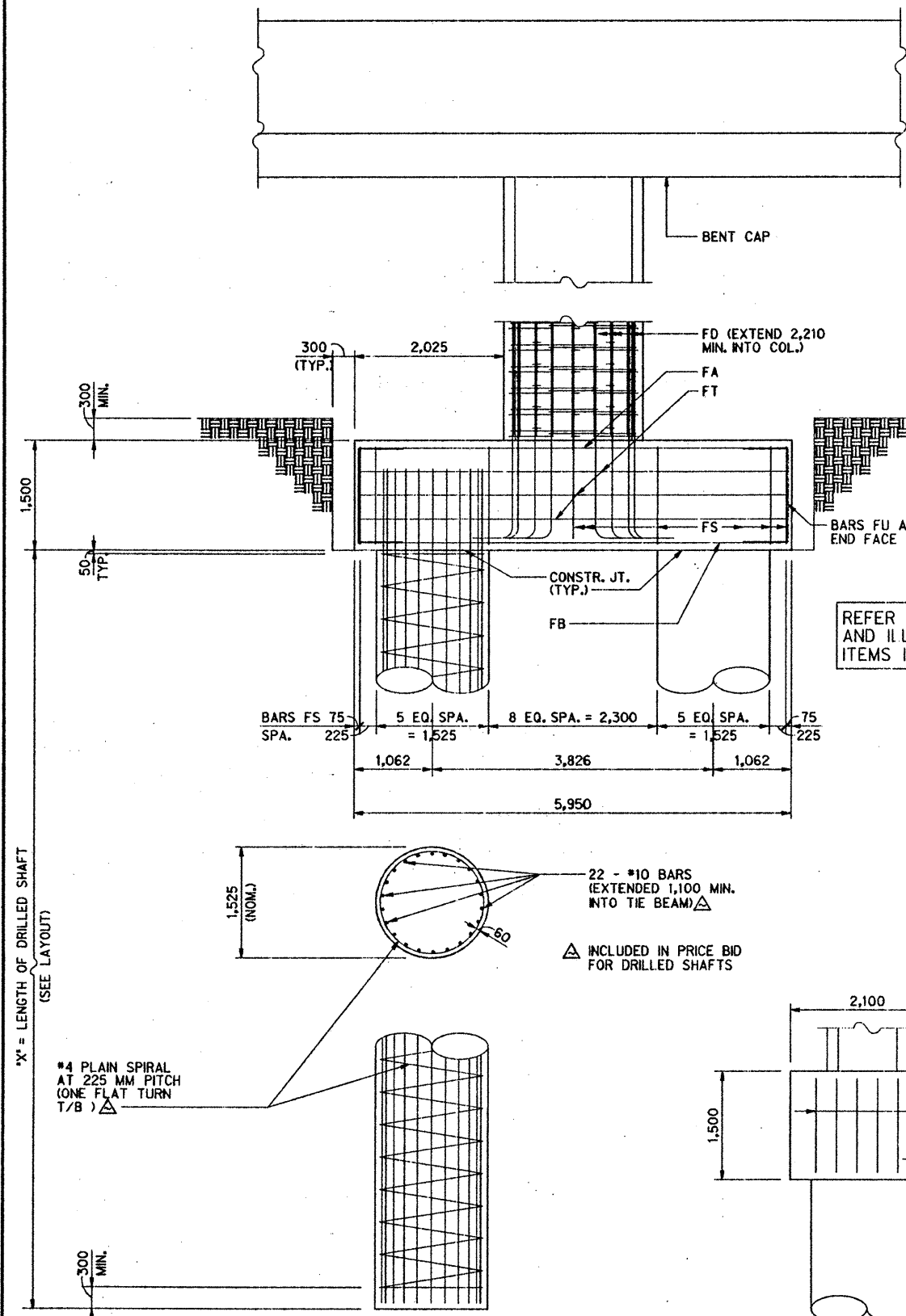
"H"	BARS 'Z1' NO. 4 x 4,254		BARS 'Z2' NO. 4 x 1,110		BARS 'Z3' NO. 4 x 1,600		48 - BARS 'V' NO. 10		REINF. STEEL	CL. C CONC. (BENT)
MM	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	LENGTH	WEIGHT	⊕ kg.	m ³
4,250	60	254	90	99	60	95	5,500	1,691	2,139	17.4
4,500	64	270	96	106	64	102	5,750	1,767	2,245	18.6
4,750	68	288	102	113	68	108	6,000	1,844	2,353	19.4
5,000	72	304	108	119	72	115	6,250	1,922	2,460	20.4
5,250	72	304	108	119	72	115	6,500	1,998	2,536	21.4
5,500	76	321	114	126	76	121	6,750	2,075	2,643	22.6
5,750	80	338	120	132	80	127	7,000	2,152	2,749	23.6

ESTIMATED QUANTITIES
(FOR ONE BENT *
FOR CAP AND TIE BEAMS ONLY)

BAR	NO.	SIZE	LENGTH	WEIGHT	
A	20	#10	17,688	2,265	
B	8	#10	17,688	906	
D	4	32 DIA.	460	12	
FA	14	#8	5,850	325	
FB	32	#11	5,850	1,480	
FD	48	#10	4,181	1,285	
FS	42	#6	7,080	666	
FT	12	#5	5,850	109	
FU	24	#5	2,485	93	
H	202	#6	2,228	1,006	
J	31	#6	1,720	119	
M	10	#6	2,450	55	
S	202	#5	5,910	1,853	
T	2	#6	17,688	79	
U	101	#6	3,190	720	
W	22	#7	17,688	1,184	
REINFORCED STEEL				⊕ kg.	12,157
CL. C CONC. (BENT)				m ³	89.8

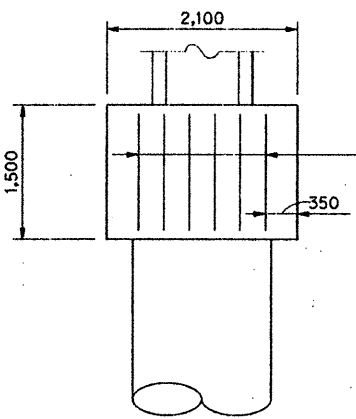


GENERAL NOTES:
 DESIGNED IN ACCORDANCE TO
 A.A.S.H.T.O. 1992 STANDARD AND
 INTERIM SPECIFICATIONS THERETO.
 ALL CONCRETE SHALL BE CLASS 'C'.
 ALL REINFORCING STEEL SHALL BE
 GRADE 420.
 CALCULATED FOUNDATION LOAD =
 3,350 KN/DR. SHAFT
 CHAMFER ALL EXPOSED EDGES 20 MM
 UNLESS NOTED OTHERWISE.
 SEE 'FORM LINER DETAILS' SHEET FOR
 AESTHETIC TREATMENT OF COLUMNS
 AND CAP.



REFER TO DECK DRAIN PLANS
 AND ILLUMINATION PLANS FOR
 ITEMS INSIDE BENT CAP.

* QUANTITIES SHOWN ARE FOR ONE BENT IN STAGE #3.
 UTILIZE THE SAME TABLES FOR STAGE #4.
 ⊕ FOR CONTRACTORS INFORMATION ONLY



TIE BEAM END DETAIL
 (ONLY BARS FU SHOWN)

REINFORCED PEDESTALS WILL BE REQUIRED WHERE 'X' IS GREATER THAN 60 AND SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM CLASS C CONCRETE (BENT). COMPARE BEARING SEAT ELEVATIONS TO DETERMINE VALUE OF 'X'.

ALL DIMENSIONS IN MILLIMETERS.
 MS 18 LOADING

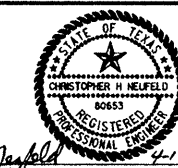
**INTERIOR BENT
 NOS. 2 & 3
 STAGE #3 OR 4 (2 of 2)**

U.S. 83 / FM 1426 OVERPASS
 HIDALGO COUNTY, TEXAS

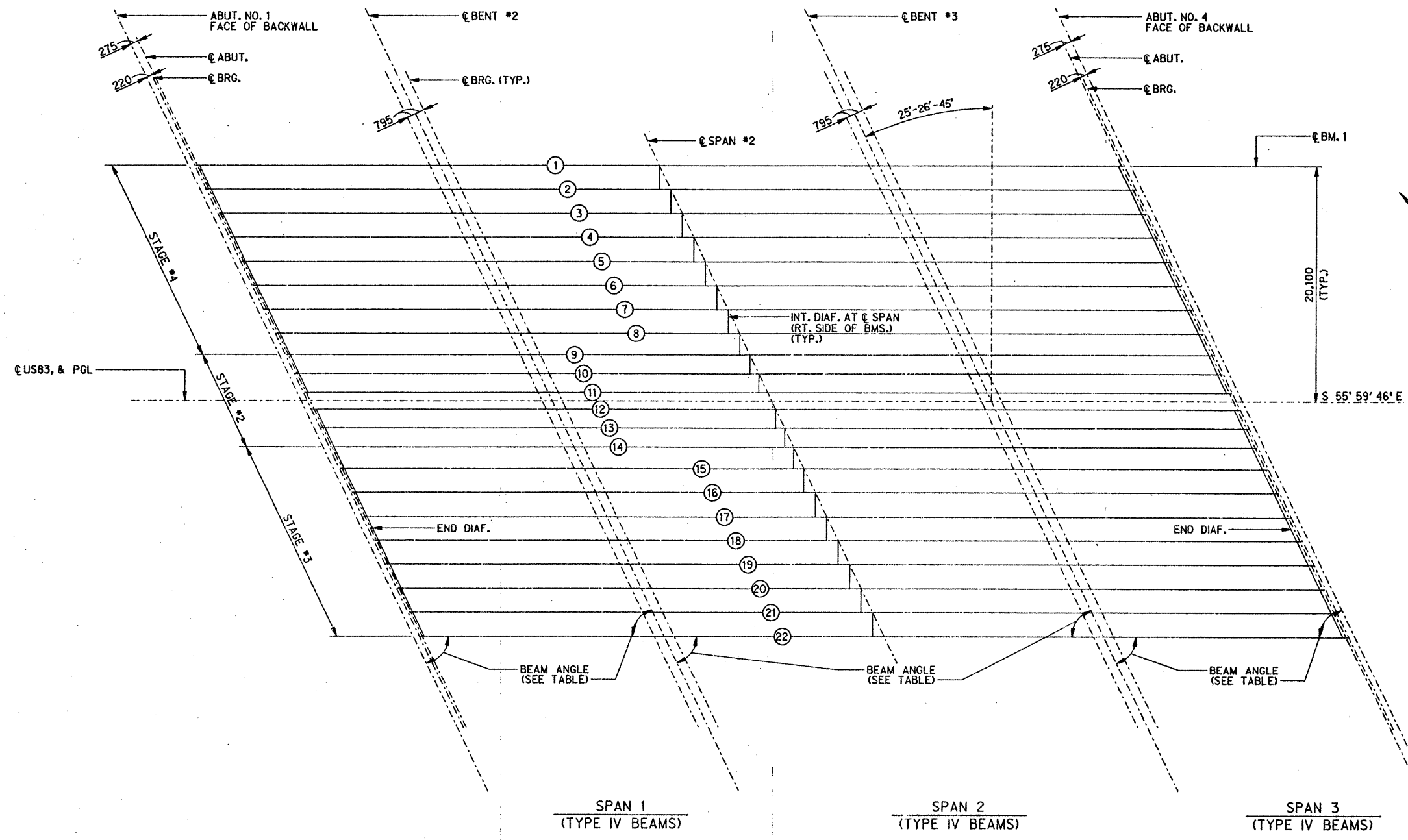
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - EROSION CONTROL - PLANNING - SURVEYORS

DESIGN	DATE	BY	SCALE	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TYP.	BE PLAN	8	TEXAS	H 96 (781) M	404
DATE	FILE	COUNTY	SECTION	JOB	NO.	NO.
APRIL 1996	HIDALGO	1-40	21	HIDALGO	1039	17



Christopher H. Neufeld P.E. 4-15-96 DATE



BEAM AND DIAFRAM LAYOUT
ALL BENTS ARE ON BRG. S8° 33' 29" W

NOTE: THERE ARE NO DIAFRAMS BETWEEN BEAMS 11 & 12. (TYP.)
MS 18 LOADING

BEAM AND DIAFRAM LAYOUT UNIT #1 (SPANS 1 - 3) (1 OF 2)									
U.S. 83 / F.M. 1426 OVERPASS HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET			
CL.	TRM	BE PLAN	8	TEXA	NH 96 (791) M	4-05			
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB	HIGHWAY		
APRIL 1996	MS18/201	1:200	TX	HIDALGO	0039	17	U.S. 83		



BEAM REPORTS			
BEAM REPORT SPAN 1			
BEAM NO.	HORIZONTAL DISTANCE		TRUE DIST.
	C-C BENT	C-C BRG	BOT. BM. FLG.
BEAM 1	20,861.6	19,876.0	20,252.74
BEAM 2	20,861.6	19,876.0	20,252.73
BEAM 3	20,861.6	19,876.0	20,252.72
BEAM 4	20,861.6	19,876.0	20,252.71
BEAM 5	20,861.6	19,876.0	20,252.70
BEAM 6	20,861.6	19,876.0	20,252.69
BEAM 7	20,861.6	19,876.0	20,252.68
BEAM 8	20,861.6	19,876.0	20,252.67
BEAM 9	20,861.6	19,876.0	20,252.66
BEAM 10	20,861.6	19,876.0	20,252.65
BEAM 11	20,861.6	19,876.0	20,252.64
BEAM 12	20,861.6	19,876.0	20,252.63
BEAM 13	20,861.6	19,876.0	20,252.63
BEAM 14	20,861.6	19,876.0	20,252.62
BEAM 15	20,861.6	19,876.0	20,252.61
BEAM 16	20,861.6	19,876.0	20,252.60
BEAM 17	20,861.6	19,876.0	20,252.60
BEAM 18	20,861.6	19,876.0	20,252.59
BEAM 19	20,861.6	19,876.0	20,252.58
BEAM 20	20,861.6	19,876.0	20,252.57
BEAM 21	20,861.6	19,876.0	20,252.57
BEAM 22	20,861.6	19,876.0	20,252.56

BEAM REPORTS			
BEAM REPORT SPAN 2			
BEAM NO.	HORIZONTAL DISTANCE		TRUE DIST.
	C-C BENT	C-C BRG	BOT. BM. FLG.
BEAM 1	37,200.0	35,439.2	35,815.75
BEAM 2	37,200.0	35,439.2	35,815.75
BEAM 3	37,200.0	35,439.2	35,815.74
BEAM 4	37,200.0	35,439.2	35,815.73
BEAM 5	37,200.0	35,439.2	35,815.73
BEAM 6	37,200.0	35,439.2	35,815.73
BEAM 7	37,200.0	35,439.2	35,815.72
BEAM 8	37,200.0	35,439.2	35,815.72
BEAM 9	37,200.0	35,439.2	35,815.72
BEAM 10	37,200.0	35,439.2	35,815.72
BEAM 11	37,200.0	35,439.2	35,815.71
BEAM 12	37,200.0	35,439.2	35,815.71
BEAM 13	37,200.0	35,439.2	35,815.71
BEAM 14	37,200.0	35,439.2	35,815.71
BEAM 15	37,200.0	35,439.2	35,815.71
BEAM 16	37,200.0	35,439.2	35,815.71
BEAM 17	37,200.0	35,439.2	35,815.71
BEAM 18	37,200.0	35,439.2	35,815.72
BEAM 19	37,200.0	35,439.2	35,815.72
BEAM 20	37,200.0	35,439.2	35,815.72
BEAM 21	37,200.0	35,439.2	35,815.72
BEAM 22	37,200.0	35,439.2	35,815.73

BEAM REPORTS			
BEAM REPORT SPAN 3			
BEAM NO.	HORIZONTAL DISTANCE		TRUE DIST.
	C-C BENT	C-C BRG	BOT. BM. FLG.
BEAM 1	20,861.6	19,876.0	20,252.53
BEAM 2	20,861.6	19,876.0	20,252.54
BEAM 3	20,861.6	19,876.0	20,252.54
BEAM 4	20,861.6	19,876.0	20,252.55
BEAM 5	20,861.6	19,876.0	20,252.55
BEAM 6	20,861.6	19,876.0	20,252.56
BEAM 7	20,861.6	19,876.0	20,252.57
BEAM 8	20,861.6	19,876.0	20,252.58
BEAM 9	20,861.6	19,876.0	20,252.58
BEAM 10	20,861.6	19,876.0	20,252.59
BEAM 11	20,861.6	19,876.0	20,252.59
BEAM 12	20,861.6	19,876.0	20,252.60
BEAM 13	20,861.6	19,876.0	20,252.61
BEAM 14	20,861.6	19,876.0	20,252.61
BEAM 15	20,861.6	19,876.0	20,252.62
BEAM 16	20,861.6	19,876.0	20,252.63
BEAM 17	20,861.6	19,876.0	20,252.64
BEAM 18	20,861.6	19,876.0	20,252.65
BEAM 19	20,861.6	19,876.0	20,252.66
BEAM 20	20,861.6	19,876.0	20,252.67
BEAM 21	20,861.6	19,876.0	20,252.68
BEAM 22	20,861.6	19,876.0	20,252.69

BENT REPORT SPAN 1				
ABUT NO. 1 (AHD), BENT NO. 2 (BK)				
BEAM NO.	BEAM SPA. (C.L. BENT)	BEAM ANGLE		
		D	M	S
BEAM 1	0.0	64°	33'	15"
BEAM 2	2,050.0	64°	33'	15"
BEAM 3	2,050.0	64°	33'	15"
BEAM 4	2,050.0	64°	33'	15"
BEAM 5	2,050.0	64°	33'	15"
BEAM 6	2,050.0	64°	33'	15"
BEAM 7	2,050.0	64°	33'	15"
BEAM 8	2,050.0	64°	33'	15"
BEAM 9	1,840.0	64°	33'	15"
BEAM 10	1,600.0	64°	33'	15"
BEAM 11	1,600.0	64°	33'	15"
BEAM 12	1,420.0	64°	33'	15"
BEAM 13	1,600.0	64°	33'	15"
BEAM 14	1,600.0	64°	33'	15"
BEAM 15	1,840.0	64°	33'	15"
BEAM 16	2,050.0	64°	33'	15"
BEAM 17	2,050.0	64°	33'	15"
BEAM 18	2,050.0	64°	33'	15"
BEAM 19	2,050.0	64°	33'	15"
BEAM 20	2,050.0	64°	33'	15"
BEAM 21	2,050.0	64°	33'	15"
BEAM 22	2,050.0	64°	33'	15"
TOTAL	40,200.0			

BENT REPORT SPAN 2				
BENT NO. 2 (AHD), BENT NO. 3 (BK)				
BEAM NO.	BEAM SPA. (C.L. BENT)	BEAM ANGLE		
		D	M	S
BEAM 1	0.0	64°	33'	15"
BEAM 2	2,050.0	64°	33'	15"
BEAM 3	2,050.0	64°	33'	15"
BEAM 4	2,050.0	64°	33'	15"
BEAM 5	2,050.0	64°	33'	15"
BEAM 6	2,050.0	64°	33'	15"
BEAM 7	2,050.0	64°	33'	15"
BEAM 8	2,050.0	64°	33'	15"
BEAM 9	1,840.0	64°	33'	15"
BEAM 10	1,600.0	64°	33'	15"
BEAM 11	1,600.0	64°	33'	15"
BEAM 12	1,420.0	64°	33'	15"
BEAM 13	1,600.0	64°	33'	15"
BEAM 14	1,600.0	64°	33'	15"
BEAM 15	1,840.0	64°	33'	15"
BEAM 16	2,050.0	64°	33'	15"
BEAM 17	2,050.0	64°	33'	15"
BEAM 18	2,050.0	64°	33'	15"
BEAM 19	2,050.0	64°	33'	15"
BEAM 20	2,050.0	64°	33'	15"
BEAM 21	2,050.0	64°	33'	15"
BEAM 22	2,050.0	64°	33'	15"
TOTAL	40,200.0			

DIAFRAM REPORT					
SPAN 2					
BEAM NO.	SIDE	DISTANCE TO		DISTANCE TO	
		DIAF.	BEAM END	DIAF.	BEAM END
BEAM 1	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 2	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 3	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 4	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 5	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 6	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 7	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 8	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 9	LEFT	17,724.5	17,724.5	19,475.5	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 10	LEFT	17,838.7	17,838.7	19,361.3	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 11	LEFT	17,838.7	17,838.7	19,361.3	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0

DIAFRAM REPORT					
SPAN 2 CONT'D					
BEAM NO.	SIDE	DISTANCE TO		DISTANCE TO	
		DIAF.	BEAM END	DIAF.	BEAM END
BEAM 12	LEFT	---	---	---	---
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 13	LEFT	17,838.7	17,838.7	19,361.3	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 14	LEFT	17,838.7	17,838.7	19,361.3	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 15	LEFT	17,724.5	17,724.5	19,475.5	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 16	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 17	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 18	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 19	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 20	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 21	LEFT	17,624.6	17,624.6	19,575.4	37,200.0
	RIGHT	18,600.0	18,600.0	18,600.0	37,200.0
BEAM 22	LEFT	17,624.6	17,624.6	19,575.4	37,200.0

BENT REPORT SPAN 3				
BENT NO. 3 (AHD), ABUT NO. 4 (BK)				
BEAM NO.	BEAM SPA. (C.L. BENT)	BEAM ANGLE		
		D	M	S
BEAM 1	0.0	64°	33'	15"
BEAM 2	2,050.0	64°	33'	15"
BEAM 3	2,050.0	64°	33'	15"
BEAM 4	2,050.0	64°	33'	15"
BEAM 5	2,050.0	64°	33'	15"
BEAM 6	2,050.0	64°	33'	15"
BEAM 7	2,050.0	64°	33'	15"
BEAM 8	2,050.0	64°	33'	15"
BEAM 9	1,840.0	64°	33'	15"
BEAM 10	1,600.0	64°	33'	15"
BEAM 11	1,600.0	64°	33'	15"
BEAM 12	1,420.0	64°	33'	15"
BEAM 13	1,600.0	64°	33'	15"
BEAM 14	1,600.0	64°	33'	15"
BEAM 15	1,840.0	64°	33'	15"
BEAM 16	2,050.0	64°	33'	15"
BEAM 17	2,050.0	64°	33'	15"
BEAM 18	2,050.0	64°	33'	15"
BEAM 19	2,050.0	64°	33'	15"
BEAM 20	2,050.0	64°	33'	15"
BEAM 21	2,050.0	64°	33'	15"
BEAM 22	2,050.0	64°	33'	15"
TOTAL	40,200.0			

NOTE: REFER TO SHEET 1 OF 2 FOR BEAM/DIAFRAM LAYOUT AND FOR BEAM 1 OFFSET.
ALL DIMENSIONS IN MM
MS 18 LOADING

BEAM AND DIAFRAM SCHEDULE
UNIT #1 (SPANS 1 - 3) (2 OF 2)

U.S. 83 / F.M. 1426 OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

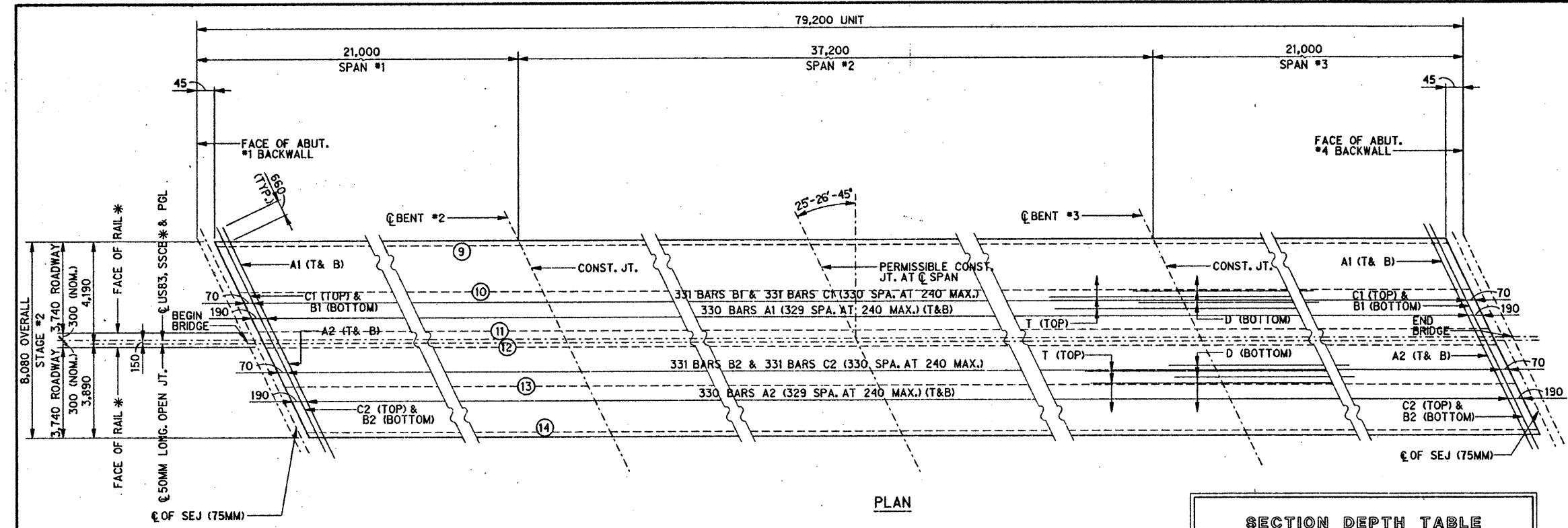
Half Associates
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TJH	EE PLAN	8	TEXAS	NH 94 (174) M	406
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	SECTION NO.	JOB NO.
APR 96	MARSHBORDON	NO SCALE	21	HIDALGO	0030	17

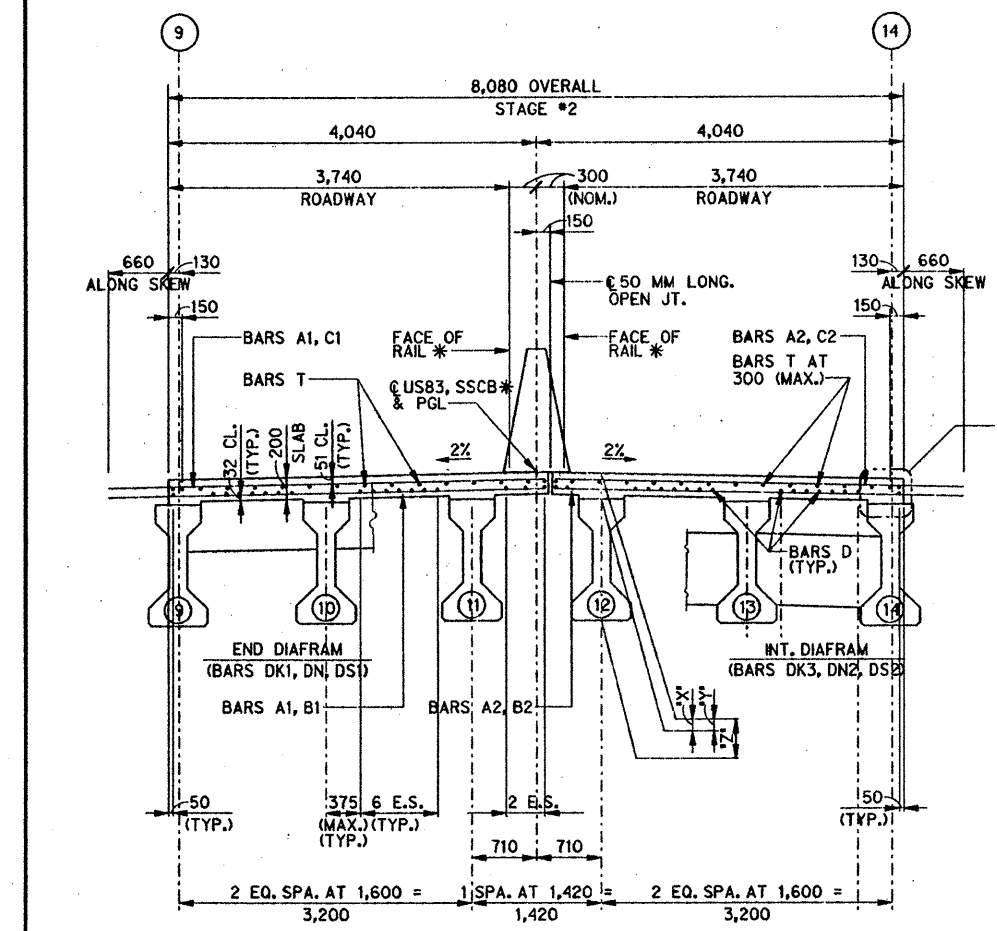
U. 83



Christopher H. Helfeld, P.E.
DATE: 4-15-96



PLAN

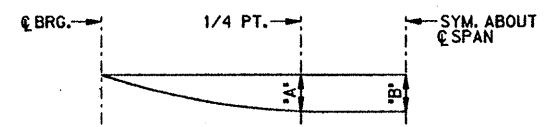


TRANSVERSE SECTION

CONTRACTOR SHALL REFER TO TYPICAL SECTIONS AND TYPE T503 RAIL STANDARDS FOR RAIL LOCATIONS AND TEMPORARY CONNECTION DETAILS FOR USE DURING STAGE CONSTRUCTION (TYP.)

SPAN	BEAM	* 'X' AT € SPAN	'Y' AT € BRG.	'Z' AT € BRG.
1 & 3	9, 10, 13 & 14	206	216	1,588
1 & 3	11 & 12	206	212	1,584
2	9 & 14	206	259	1,631
2	10 & 13	206	254	1,626
2	11 & 12	206	251	1,623

* THEORETICAL VALUE FOR CONTRACTORS INFORMATION ONLY.



SPAN	BEAM	'A'	'B'
1 & 3	9 & 14	4.7	6.6
1 & 3	10 & 13	4.6	6.4
1 & 3	11 & 12	4.4	6.2
2	9 & 14	38.1	53.6
2	10 & 13	36.8	51.7
2	11 & 12	35.3	49.6

DEAD LOAD DEFLECTION DIAGRAM
NOTE: DEFLECTIONS SHOWN ARE DUE TO CAST-IN-PLACE CONCRETE ONLY ($E = 3.447 \times 10^4 \text{ kPa}$)

BAR	NO.	SIZE	LENGTH	WEIGHT	
A1	660	*5	5,232	5,360	
A2	660	*5	4,900	5,020	
B1	331	*4	5,232	1,722	
B2	331	*4	4,900	1,612	
C1	331	*5	5,232	2,688	
C2	331	*5	4,900	2,518	
D	37	*5	① 81,295	4,669	
DK1	32	*5	930	46	
DK3	24	*5	840	31	
DN	4	*8	3,882	62	
DN2	4	*8	1,906	30	
DS1	32	*4	1,626	52	
DS2	16	*4	1,830	29	
T	29	*4	② 80,920	2,333	
REINFORCED STEEL				⊕ kPa	26,172
PRESTR. CONC. BM. ~ TY. IV				▲ m	457,926

SPAN	REINF. CONC. SLAB ~ m ²	CL. *S* CONC. ~ m ³	
		⊕ DIAF.	⊕ SLAB
1	169.680	0.826	34.603
2	300.640	1.486	63.615
3	169.680	0.826	34.603
TOTAL	640.000	⊕	135.959

⊕ FOR CONTRACTORS INFORMATION ONLY
 ① INCLUDES 5 ~ 435 MIN. LAP
 ② INCLUDES 5 ~ 360 MIN. LAP
 * SSCB IS TO BE CONSTRUCTED IN STAGE #5.
 ▲ LENGTH SHOWN IS BOTTOM FLANGE LENGTH WITH ADJUSTMENTS MADE FOR BEAM SLOPE.

GENERAL NOTES

- DESIGNED ACCORDING TO A.A.S.H.T.O. 1992 STANDARD SPECIFICATIONS.
- DESIGN $f_c = 11,030 \text{ kPa}$.
- SEE IBDO(M) (MOD) AND IBMS(M) (MOD) SHEETS FOR DETAILS NOT SHOWN.

ALL DIMENSIONS IN MM
MS 18 LOADING

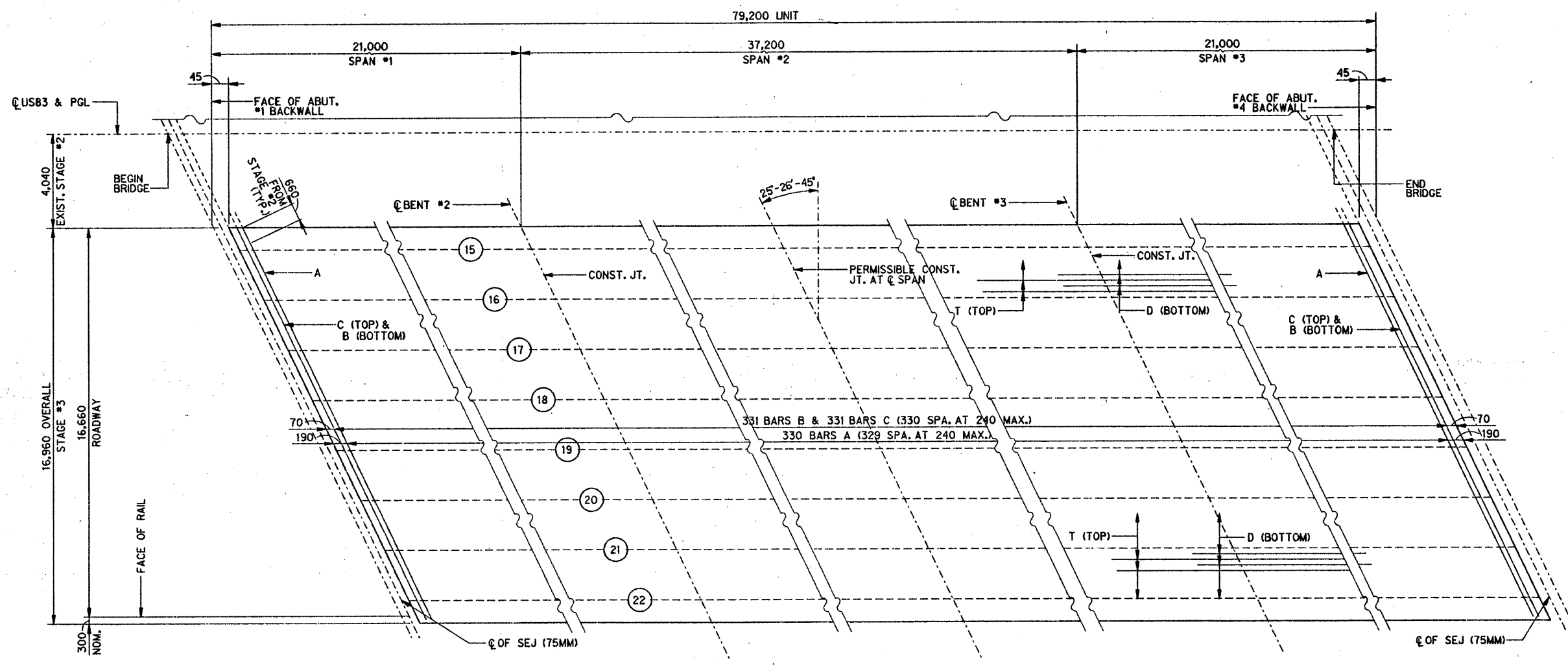
DECK DETAILS
UNIT #1 (SPANS 1-3)
STAGE #2
 U.S. 83 / F.M. 1426 OVERPASS
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION



DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRM	EE PLAN	6	TEXAS	81136 (791) M	407
DATE	FILE	SCALE	COUNTY	SECTION	JOB NO.	ROWWAY NO.
APRIL 1996	1426/0300	NO SCALE	HIDALGO	0308	17	11-83



Christopher H. Neufeld
 REGISTERED ENGINEER
 DATE 4-15-96

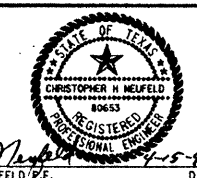


PLAN

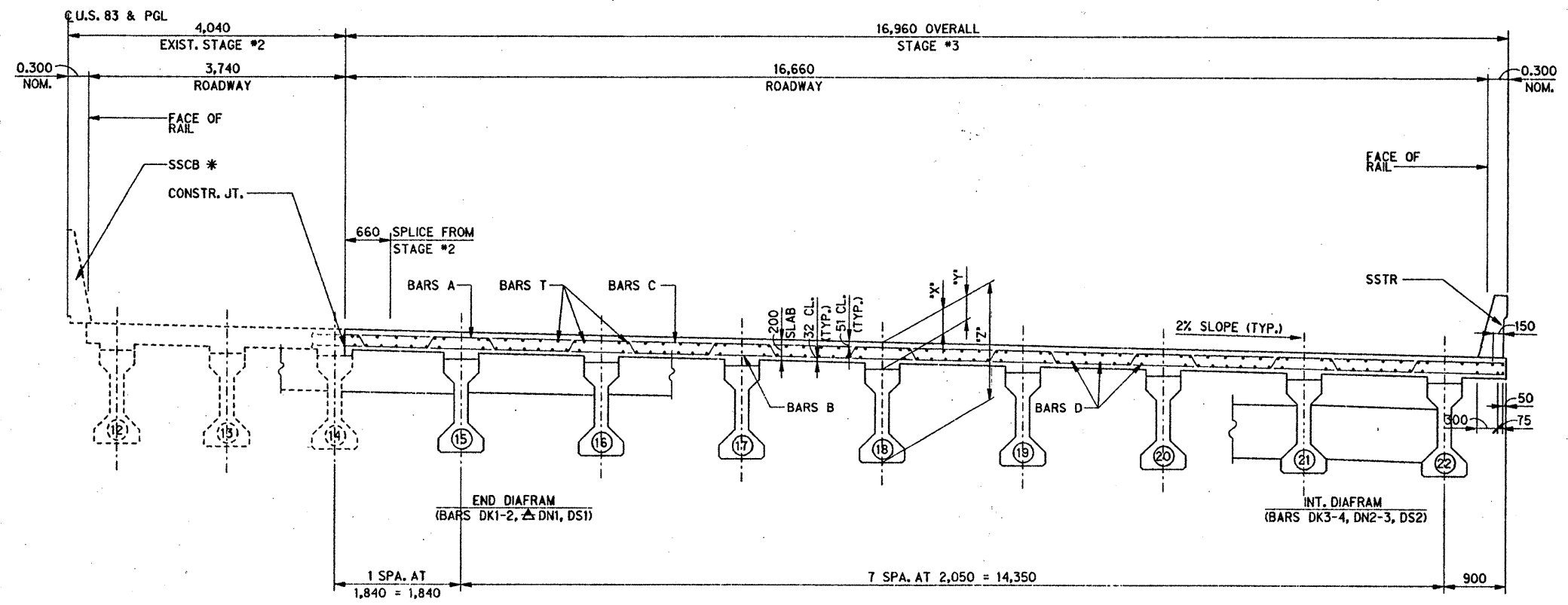
REFER TO DECK DRAIN PLANS FOR DRAINS TO BE INSTALLED IN STAGE #3.

ALL DIMENSIONS IN MM
 MS 18 LOADING

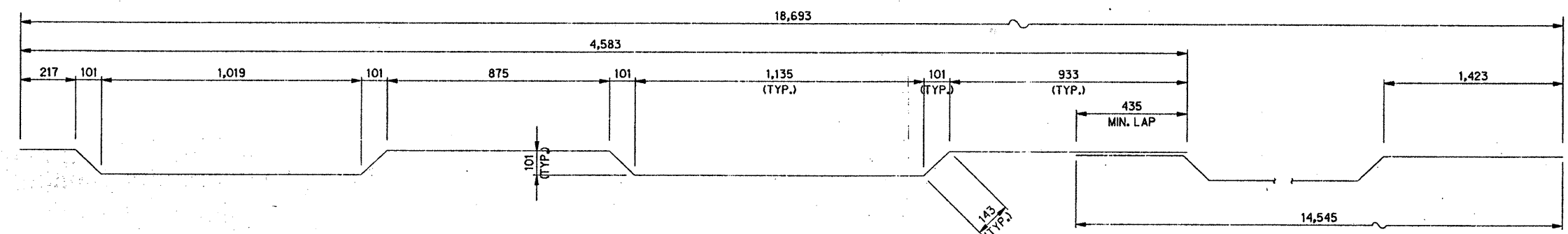
DECK DETAILS							
UNIT #1 (SPANS 1-3)							
STAGE #3 (1 OF 2)							
U.S. 83 / F.M. 1426 OVERPASS							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
<small>ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS</small>							
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
CL	TAM	EE PLAN	2	TEXA	N.H. 94 (791) 11	407	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
APR 96	MS0821020	NO SCALE	21	HIDALGO	0630	07	18 U. 83



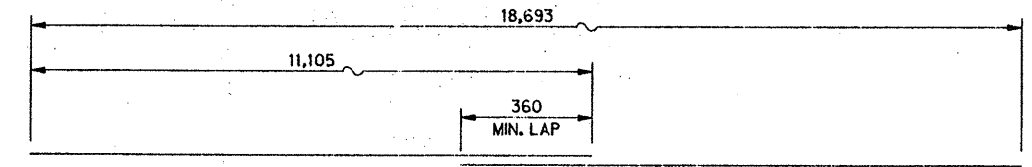
Christopher H. Neufeld, P.E.
DATE



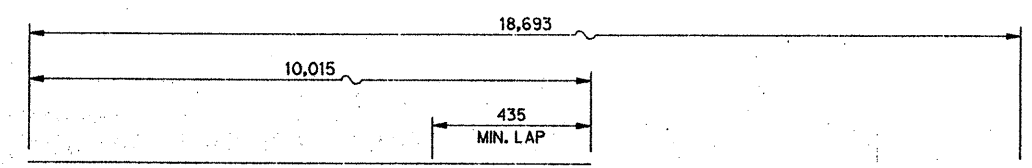
TRANSVERSE SECTION



BARS A



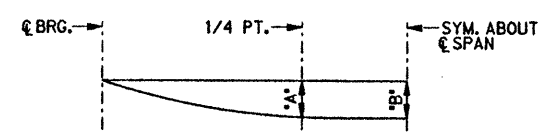
BARS B



BARS C

SECTION DEPTH TABLE				
SPAN	BEAM	* 'X' AT CL. SPAN	* 'Y' AT CL. BRG.	* 'Z' AT CL. BRG.
1 & 3	1 - 7 16 - 22	206	219	1,591
1 & 3	8 & 15	206	215	1,587
2	1 - 7 16 - 22	206	270	1,642
2	8 & 15	206	268	1,640

* THEORETICAL VALUE FOR CONTRACTORS INFORMATION ONLY.



SPAN	BEAM	'A'	'B'
1 & 3	1 - 7 16 - 22	5.4	7.5
1 & 3	8 & 15	5.2	7.3
2	1 - 7 16 - 22	41.5	58.3
2	8 & 15	39.9	56.0

DEAD LOAD DEFLECTION DIAGRAM
NOTE: DEFLECTIONS SHOWN ARE DUE TO CAST-IN-PLACE CONCRETE ONLY (E = 3.447 x 10⁷ kPa)

ESTIMATED QUANTITIES

BAR	NO.	SIZE	LENGTH	WEIGHT
A	330	#5	19,800	10,142
B	331	#4	19,053	6,269
C	331	#5	19,128	9,828
D	66	#5	① 81,295	8,328
DK1	56	#5	1,510	131
DK2	8	#5	1,278	16
DK3	42	#5	1,290	84
DK4	6	#5	1,080	10
DN1	2	#8	17,935	143
DN2	7	#8	2,356	66
DN3	1	#8	2,146	9
DS1	96	#4	1,626	155
DS2	48	#4	1,830	87
T	67	#4	② 80,920	5,390
REINFORCED STEEL			⊕ kg.	40,658
PRESTR. CONC. BM. ~ TY. IV			▲ m.	610,568

SPAN	REINF. CONC. SLAB ~ m ²	CL. 'S' CONC. ~ m ³	
		⊕ DIAF.	⊕ SLAB
1	356.160	2.850	72.213
2	630.912	3.842	131.812
3	356.160	2.850	72.313
TOTAL	1,343.232	⊕ 285.780	

- ⊕ FOR CONTRACTORS INFORMATION ONLY
- ① INCLUDES 5 ~ 435 MIN. LAP
- ② INCLUDES 5 ~ 360 MIN. LAP
- ▲ LENGTH SHOWN IS BOTTOM FLANGE LENGTH WITH ADJUSTMENTS MADE FOR BEAM SLOPE.
- ▲ BARS DNI ARE TO BE BUTT WELDED TO EXIST. DIAFRAM BARS. SEE IBDO(M) (MOD) FOR DETAILS.
- * SSCB IS TO BE CONSTRUCTED IN STAGE #5.

GENERAL NOTES

- DESIGNED ACCORDING TO A.A.S.H.T.O. 1992 STANDARD SPECIFICATIONS.
- DESIGN f_c = 11,030 kPa.
- SEE IBDO(M) (MOD) AND IBMS(M) (MOD) SHEETS FOR DETAILS NOT SHOWN.
- FOR DRAIN LOCATIONS SEE BRIDGE LAYOUT. FOR DRAIN DETAILS SEE BRIDGE DRAIN DETAILS SHEET.

ALL DIMENSIONS IN MM
MS 18 LOADING

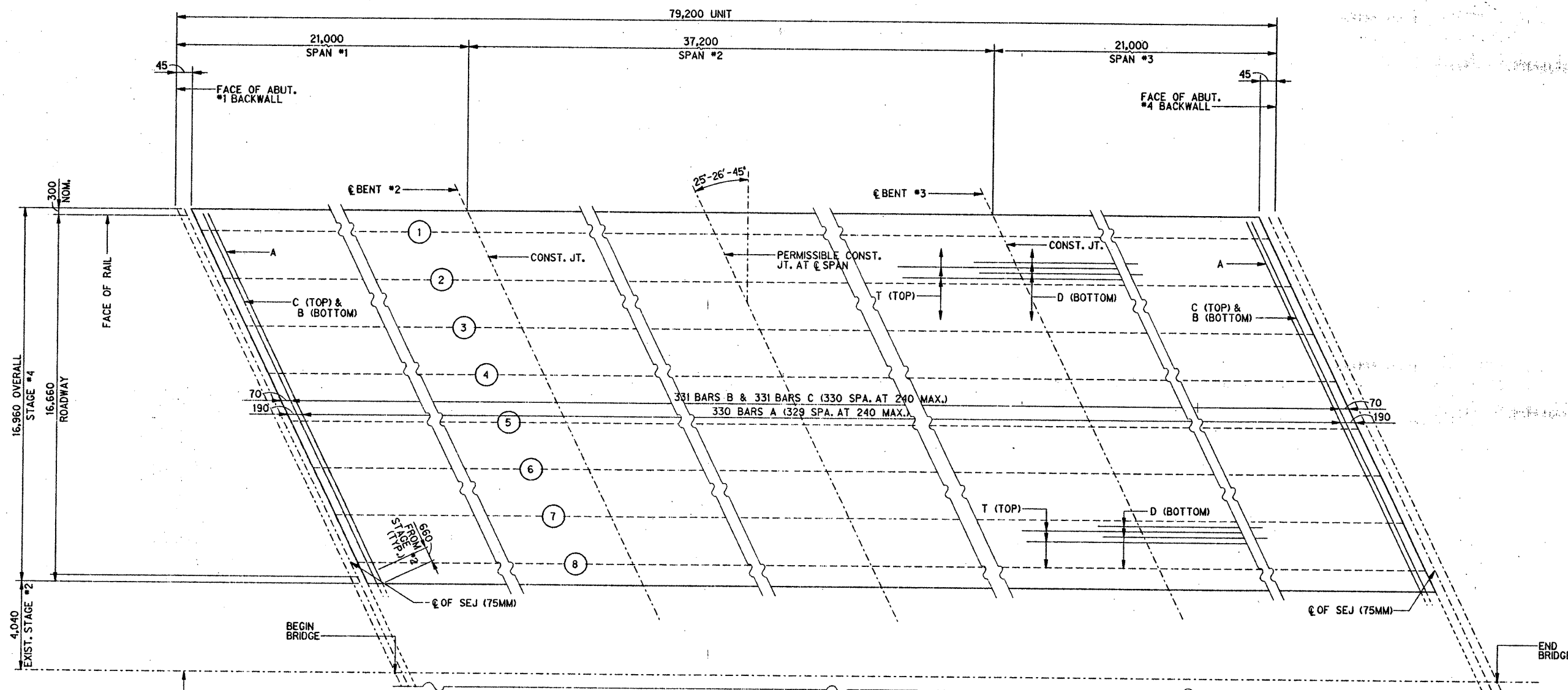
DECK DETAILS
UNIT #1 (SPANS 1-3)
STAGE #3 (2 OF 2)
U.S. 83 / F.M. 1426 OVERPASS
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DATE	NO.	STATE	FED. AID PROJECT NO.	FILE NO.
CL.	TRM	EE PLAN	TEXAS	N.H. 91 (FBI) U.S. 83	424
DATE	FILE	SCALE	COUNTY	CONTROL DIST. NO.	SECTION NO.
APR	MODIFIED	NO SCALE	HIDALGO	2036	18



Christopher H. Neufeld
 CHRISTOPHER H. NEUFELD, P.E. 4-15-92
 DATE



PLAN

REFER TO DECK DRAIN PLANS FOR DRAINS
 TO BE INSTALLED IN STAGE #4.

ALL DIMENSIONS IN MM
 MS 18 LOADING

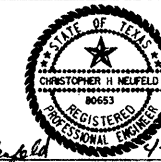
DECK DETAILS
UNIT #1 (SPANS 1-3)
STAGE #4 (1 OF 2)

U.S. 83 / F.M. 1426 OVERPASS
 HIDALGO COUNTY, TEXAS

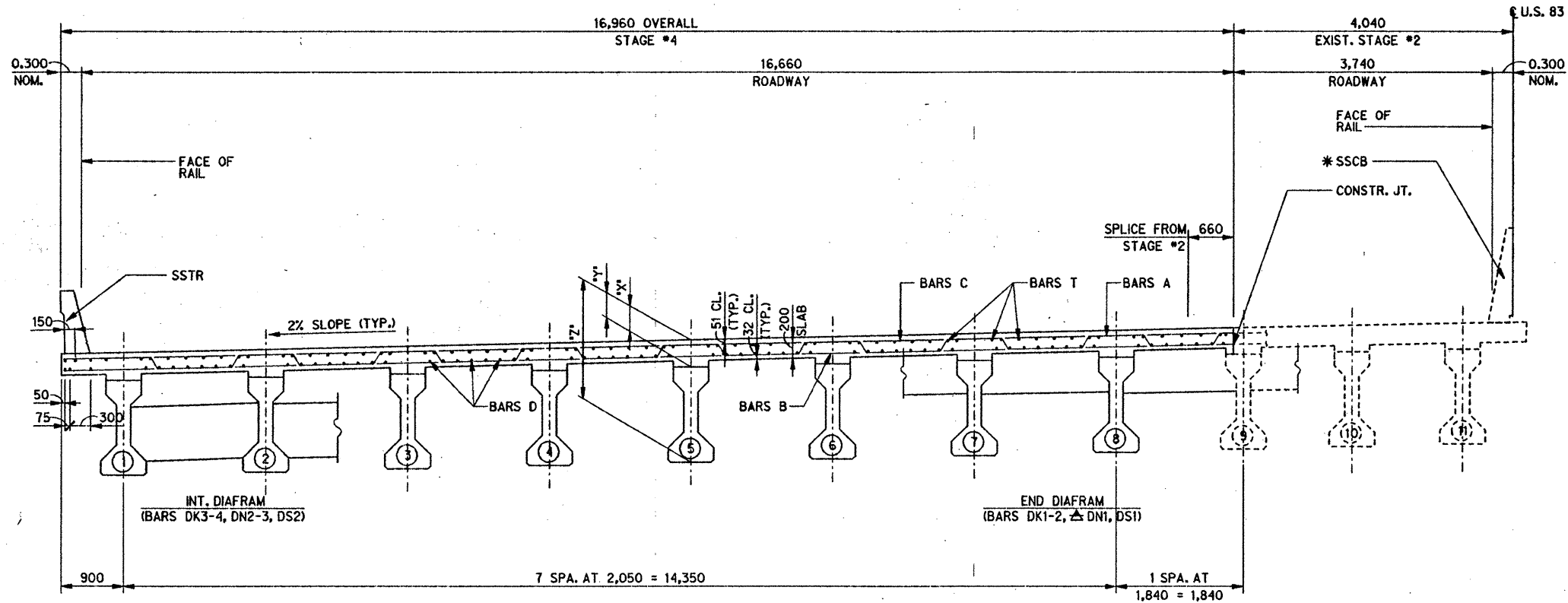
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

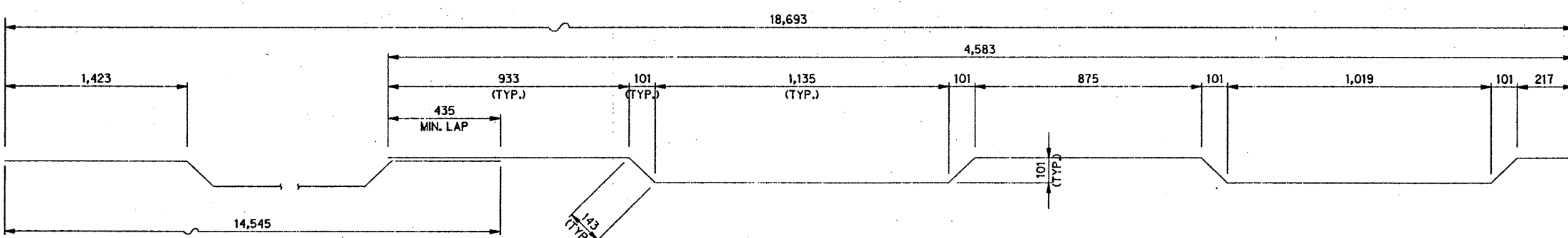
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL	TJH	DE PLAN	4	TEXA	NH96 (791) M	4/2
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
APR 1992	MS00000000	NO SCALE	21	HIDALGO	2038	17



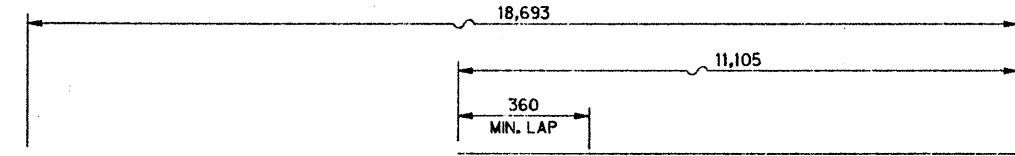
CHRISTOPHER H. NEUFELD P.E. DATE



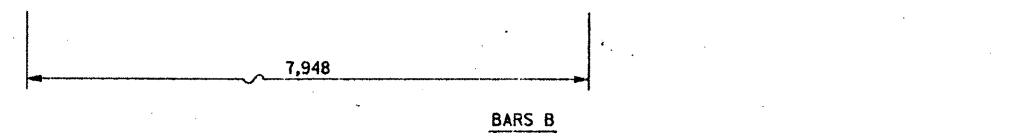
TRANSVERSE SECTION



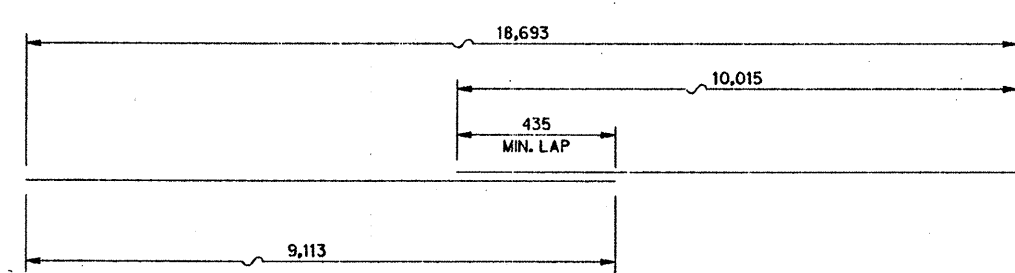
BARS A



BARS B

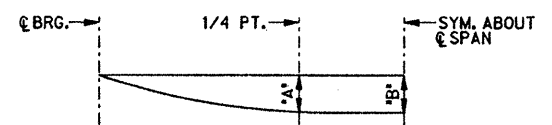


BARS C



SECTION DEPTH TABLE				
SPAN	BEAM	'X' AT @ SPAN	'Y' AT @ BRG.	'Z' AT @ BRG.
1 & 3	1 - 7 16 - 22	206	219	1,591
1 & 3	8 & 15	206	215	1,587
2	1 - 7 16 - 22	206	270	1,642
2	8 & 15	206	268	1,640

* THEORETICAL VALUE FOR CONTRACTORS INFORMATION ONLY.



SPAN	BEAM	'A'	'B'
1 & 3	1 - 7 16 - 22	5.4	7.5
1 & 3	8 & 15	5.2	7.3
2	1 - 7 16 - 22	41.5	58.3
2	8 & 15	39.9	56.0

DEAD LOAD DEFLECTION DIAGRAM
NOTE: DEFLECTIONS SHOWN ARE DUE TO CAST-IN-PLACE CONCRETE ONLY (E = 3.447 x 10⁷ kPa)

ESTIMATED QUANTITIES

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PRESTR. CONC. BM. ~ TY. IV				▲ m.	610,568

SPAN	REINF. CONC. SLAB ~ m ²	CL. *S* CONC. ~ m ³	
		⊕ DIAF.	⊕ SLAB
1	356.160	2.850	72.213
2	630.912	3.842	131.812
3	356.160	2.850	72.313
TOTAL	1,343.232	⊕ 285.780	

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- ② INCLUDES 5 ~ 360 MIN. LAP
- ▲ LENGTH SHOWN IS BOTTOM FLANGE LENGTH WITH ADJUSTMENTS MADE FOR BEAM SLOPE.
- △ BARS DN1 ARE TO BE BUTT WELDED TO EXIST. DIAFRAM BARS. SEE IBD0(M) (MOD) FOR DETAILS.
- * SSCB IS TO BE CONSTRUCTED IN STAGE #5.

GENERAL NOTES

- DESIGNED ACCORDING TO A.A.S.H.T.O. 1992 STANDARD SPECIFICATIONS.
- DESIGN $f_c = 11,030$ kPa.
- SEE IBD0(M) (MOD) AND IBMS(M) (MOD) SHEETS FOR DETAILS NOT SHOWN.
- FOR DRAIN LOCATIONS SEE BRIDGE LAYOUT. FOR DRAIN DETAILS SEE BRIDGE DRAIN DETAILS SHEET.

ALL DIMENSIONS IN MM
MS 18 LOADING

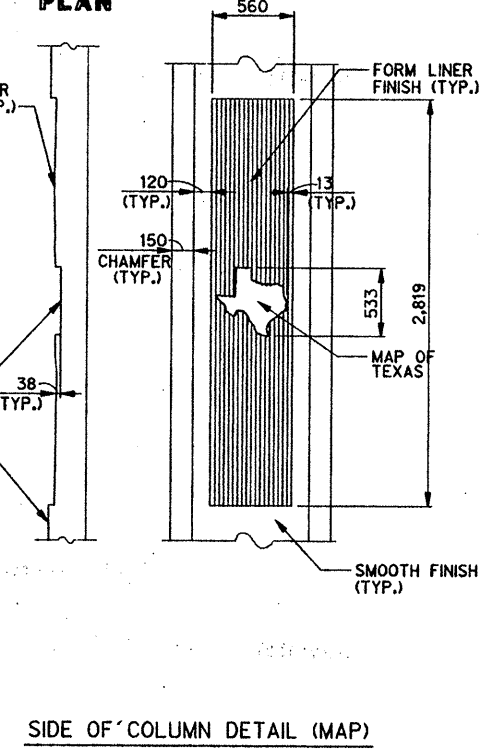
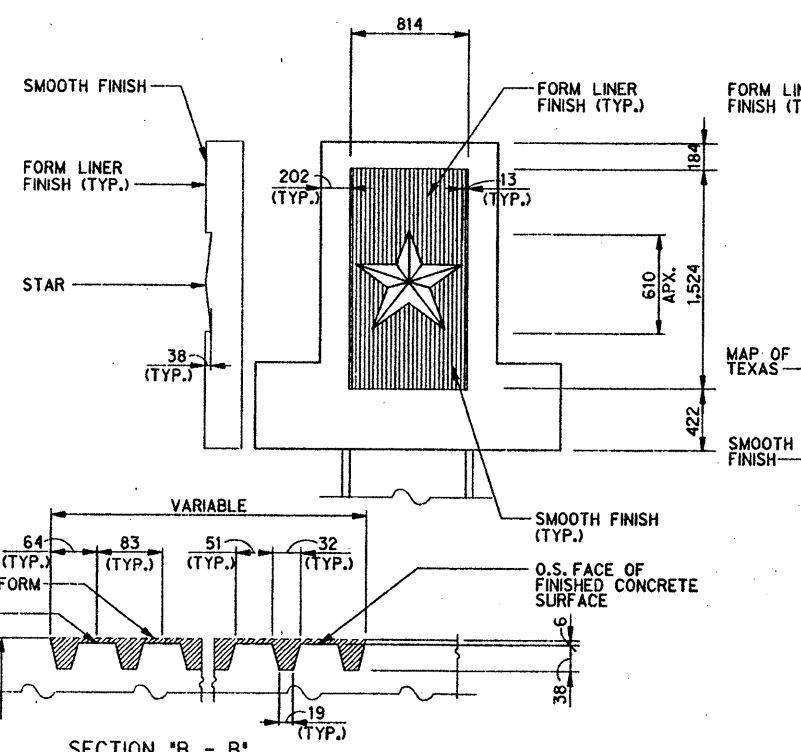
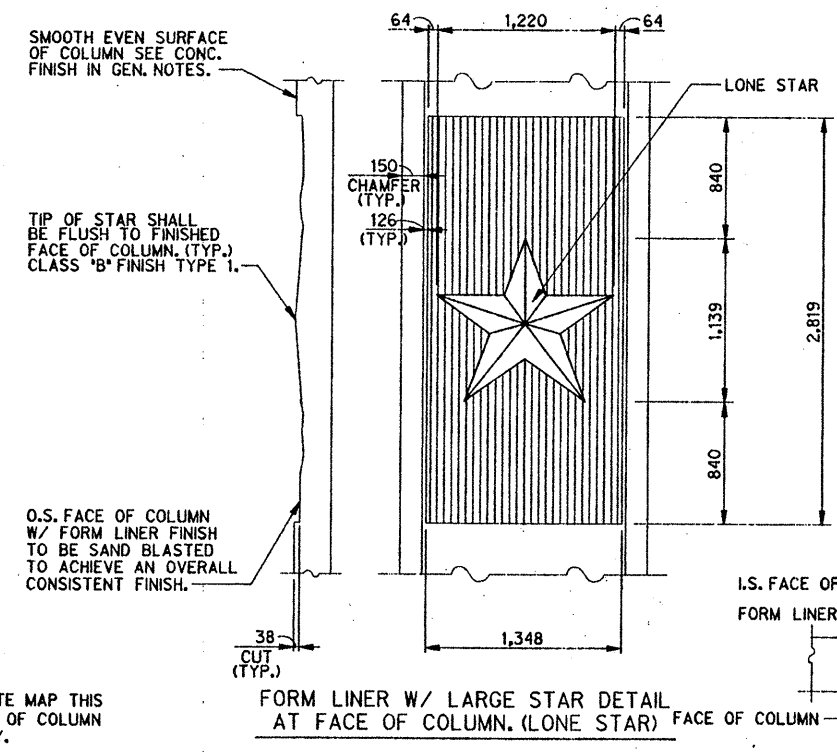
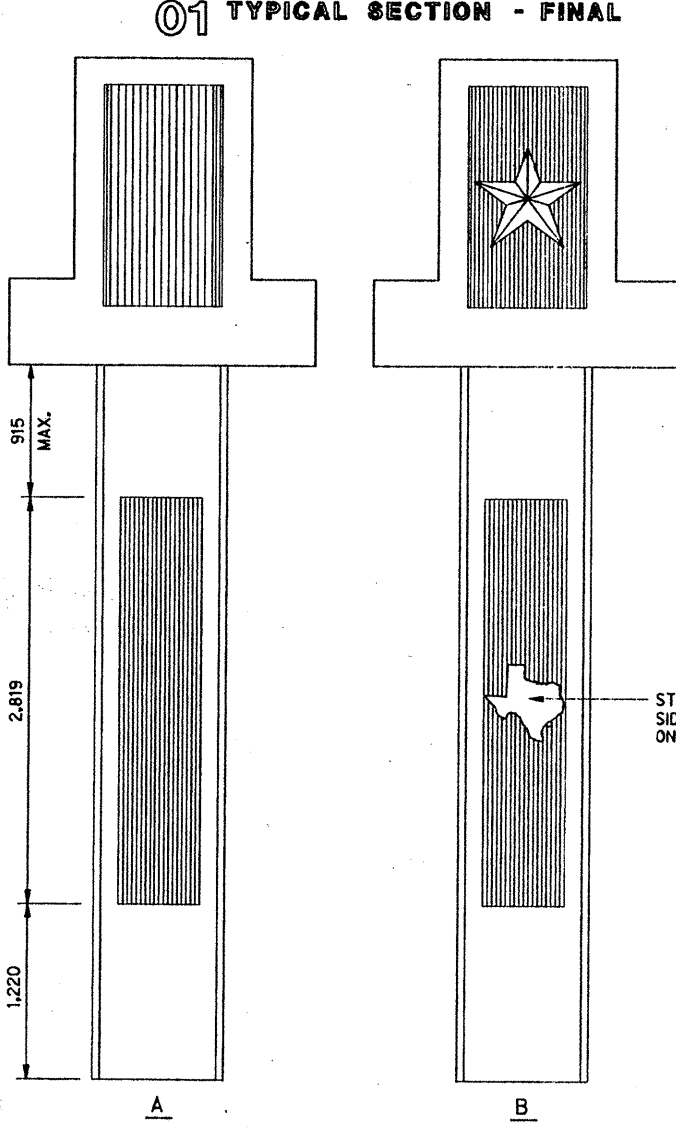
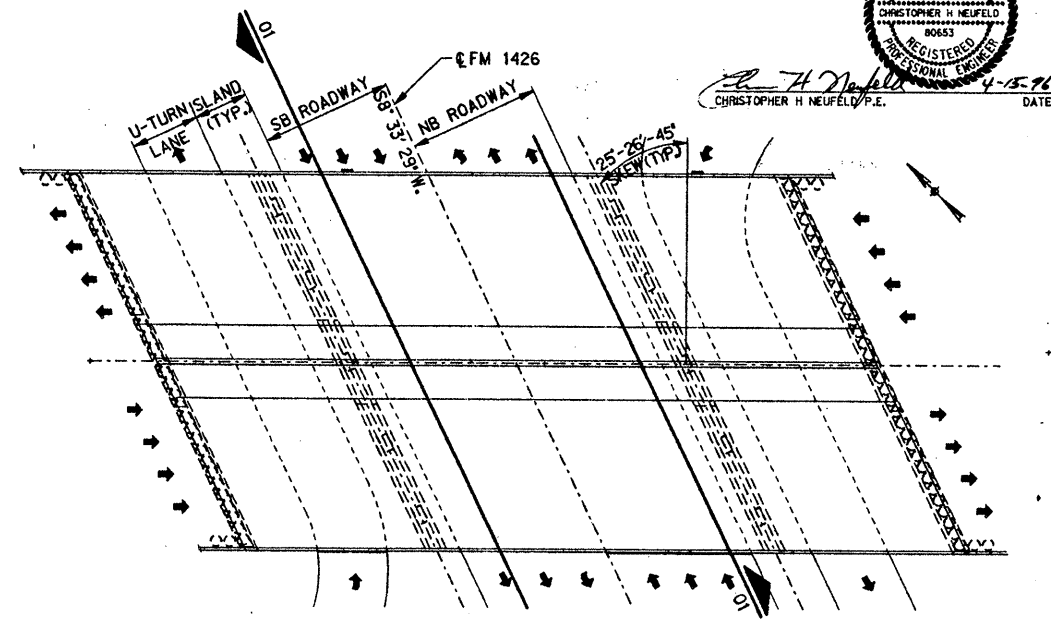
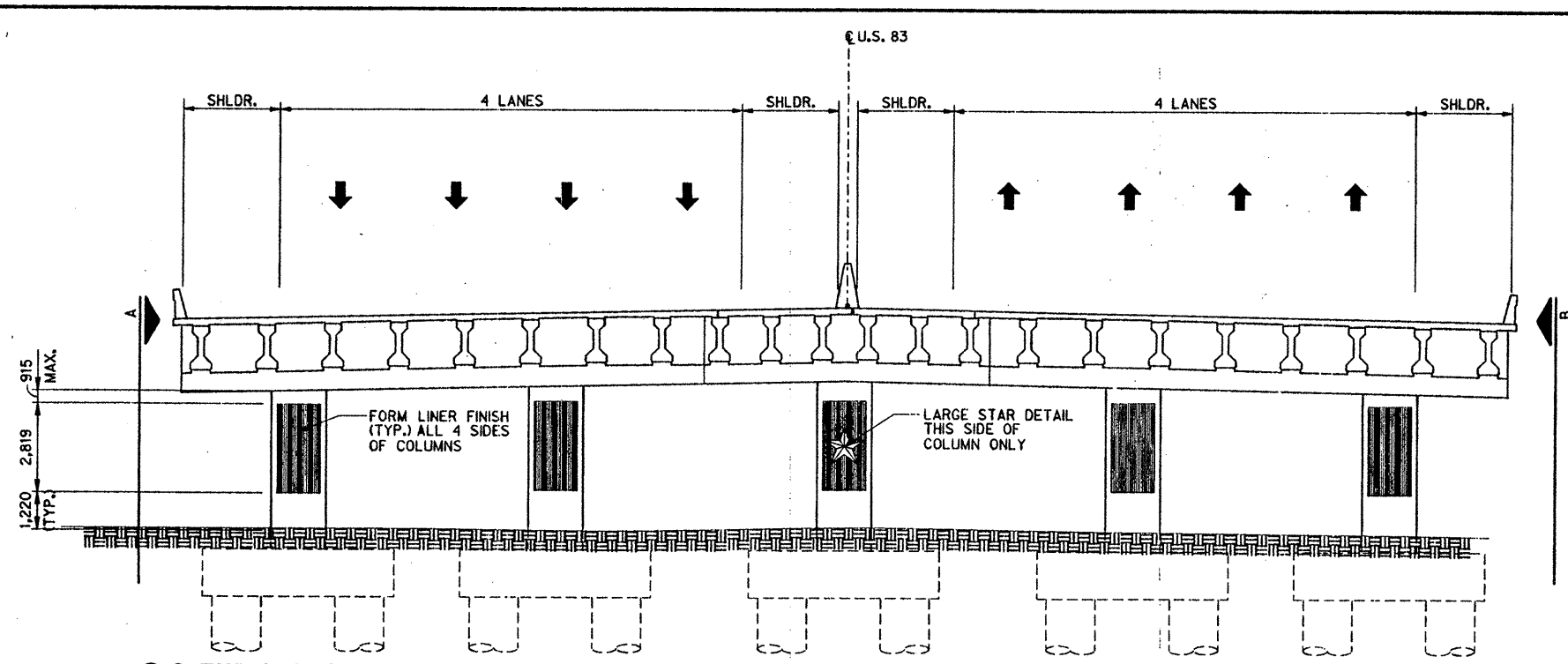
DECK DETAILS
UNIT #1 (SPANS 1-3)
STAGE #4 (2 OF 2)

U.S. 83 / F.M. 1426 OVERPASS
HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CL.	TRM	EE PLAN	8	TEXAS	N.H. 96 (791) M	4/1
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB INVENTORY NO.
APR. 96	1426/83/20	NO SCALE	21	HIDALGO	2030	17



NOTE:
 TEXTURED CONCRETE SURFACE TREATMENT SHALL BE FORMED USING L.M. SCOFIELD ARCHITECTURAL FORM LINERS OR APPROVED EQUAL TO MATCH EXISTING FRACTURED RIB FINISH ON THE US281 / US83 INTERCHANGE. L.M. SCOFIELD COMPANY 820 E. 29 ST. HOUSTON TX. ZIP - 77009. ALL FORM LINERS SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
 A SAMPLE PANEL SHALL BE SUBMITTED OF ALL FINISHES FOR APPROVAL TO THE ENGINEER PRIOR TO USE.
 SAMPLE PANELS SHALL BE SIZED AS APPROVED BY THE ENGINEER.
 SAMPLES SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO THE VARIOUS BID ITEMS.
 STAR AND MAP SHALL BE A SMOOTH FINISH (TYP.) SEE GEN. NOTES. COLOR OF STAR AND MAP SHALL BE 'CORAL RED' AS MANUFACTURED BY L.M. SCOFIELD CO. OR APPROVED EQUAL.

COLOR OF RIBBED AREA SHALL BE MESA BIEGE AS MANUFACTURED BY L.M. SCOFIELD CO. OR APPROVED EQUAL. THE CONTRACTOR SHALL VERIFY THAT THE COLORS SPECIFIED MATCH THE EXISTING COLORS ON THE U.S. 281/US.83 INTERCHANGE PRIOR TO FINISHING. FINAL COLOR SELECTIONS SHALL BE APPROVED BY TXDOT PRIOR TO FINISHING.
 THE EXACT LOCATION OF EACH EMBLEM SHALL BE APPROVED BY THE ENGINEER.
 PAYMENT FOR FORM LINER TREATMENT AND PAINT SHALL BE SUBSIDIARY TO THE ITEM CLASS C CONCRETE (BENT).
 ADJUST STEEL AS NECESSARY TO MAINTAIN '50 MM' CLEAR COVER ON ALL SURFACE AREAS THAT ARE TO RECEIVE FORM LINER TREATMENT.

MS 18 LOADING

FORM LINER DETAILS

U.S. 83 / F.M. 1426 OVERPASS
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

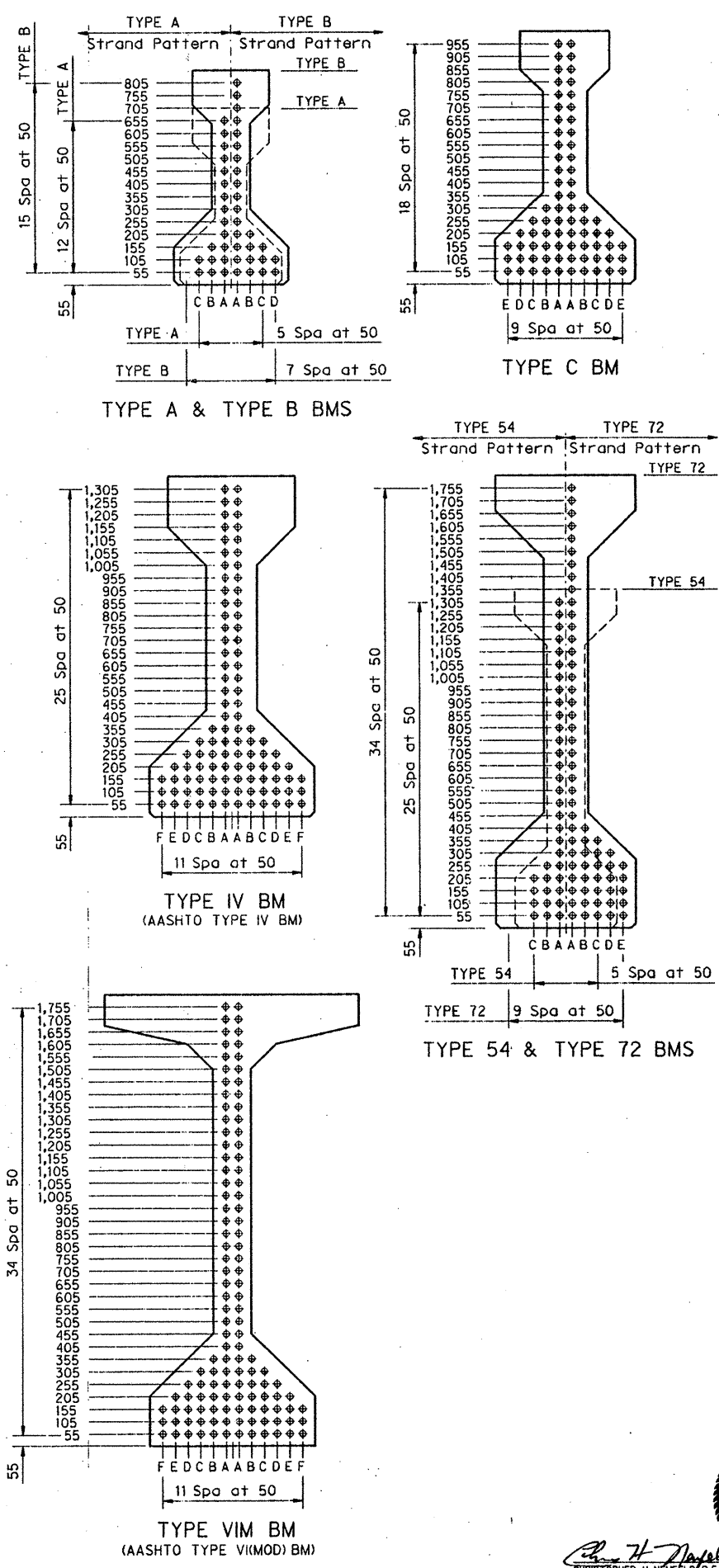
Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CLB	TRM	SEE PLAN	9	TEXAS	H 1426 (791) W	472
DATE	FILE	SCALE	SHEET	COUNTY	CONTROL SECTION	JOB
APPR. MSB	MSB/ALC/CO	1:500	21	HIDALGO	D 30	17
						U.S. 83

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LEVELS DISPLAYED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ACC:	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70

STRUCTURE	DESIGNED BEAMS (DEPRESSED STRANDS)											OPTIONAL DESIGN				
	SPAN NO.	BEAM NO.	BEAM TYPE	NON-STD STRAND PATTERN	PRESTRESSING STRANDS					CONCRETE		DESIGN LOAD COMP STRESS (TOP ϕ)	DESIGN LOAD TENSILE STRESS (BOTTOM ϕ)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (KN-m)		
					TOTAL					NO.	TO (mm)				RELEASE STRENGTH f'_{ci} (MPa)	MINIMUM 28 DAY COMP STRENGTH f'_c (MPa)
					NO.	SIZE (mm)	STRENGTH f'_s (MPa)	e^* \bar{c} (mm)	e^* END (mm)							
U.S. 83/FM 1426 OVERPASS	1 & 3	1 - 7 6 - 22	IV	-	16	13	1860	565.2	374.7	4	855.0	27.579	34.473	9.728	-11.121	3842.4
	1 & 3	8 - 10 13 - 15	IV	-	14	13	1860	570.5	382.0	4	755.0	27.579	34.473	9.563	-10.825	3702.7
	1 & 3	11 - 12	IV	-	12	13	1860	577.8	408.4	2	1055.0	27.579	34.473	8.880	-9.604	3137.4
	2	1 - 7 6 - 22	IV	-	54	13	1860	483.9	280.7	12	1205.0	41.368	53.778	29.082	-30.536	9517.8
	2	8, 15	IV	-	52	13	1860	490.0	304.3	10	1205.0	41.368	53.778	28.558	-29.778	9207.4
	2	9, 14	IV	-	48	13	1860	499.6	298.5	10	1205.0	37.921	49.986	27.330	-28.144	8556.6
	2	10, 13	IV	-	46	13	1860	502.7	292.9	10	1205.0	36.197	48.263	26.689	-27.275	8208.1
	2	11 - 12	IV	-	44	13	1860	508.5	314.7	8	1255.0	36.197	48.263	26.241	-26.627	7946.4



NON-STANDARD STRAND PATTERNS	
PATTERN	STRAND ARRANGEMENT AT \bar{c} OF BEAM

GENERAL NOTES:

Designed in accordance with current AASHTO Standard Specifications.

All concrete shall be Class H. All reinforcing bars shall be Grade 420.

When shown on this sheet, the fabricator has the option of furnishing either the designed depressed strand beam or an approved optional design. All optional design submittals and shop drawings shall be signed, sealed and dated by a registered Professional Engineer.

Optional designs for beams 36,000 mm or longer shall have a calculated residual camber equal to or greater than that of the designed beam.

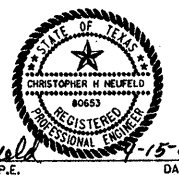
Prestress losses for the designed beams have been calculated for a relative humidity of 75 percent. Optional designs shall likewise conform.

Certain beams with depressed strands are subject to cracking in the end of the beam. When such cracks occur, all subsequent beams of the same type and strand pattern shall have strands debonded in the following manner:

- Alternate rows of depressed strands shall be debonded for 600 mm from each end of the beam.
- One half of the straight strands, as nearly as possible, shall be debonded for 1,200 mm from each end of the beam.
- The debonding pattern shall be symmetrical about the vertical axis of the beam for both depressed and straight strands.
- Strands shall be debonded so that the centers of gravity of the depressed strands and the straight strands will remain within 25 mm of their original location.
- Strands shall be encased in plastic tubing along entire debonded length, and ends of tubing shall be sealed with waterproof tape. Split plastic tubing may be used provided the seam of the tubing is sufficiently sealed with waterproof tape to prohibit grout infiltration. Wrapping of strands with tape to provide debonding will not be permitted.
- Revised shop drawings will not be required.

For depressed strand designed beams, strands shall be located as low as possible on the 50 mm grid system unless a Non-Standard Strand Pattern is indicated. Fill row '55', then row '105', then row '155', 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 50 mm spacing so that, at the beam ends, the upper two strands are in the position shown in the table.

Strands for the designed beam shall be 13 mm 1860 MPa low relaxation strands pretensioned to 138 KN each.



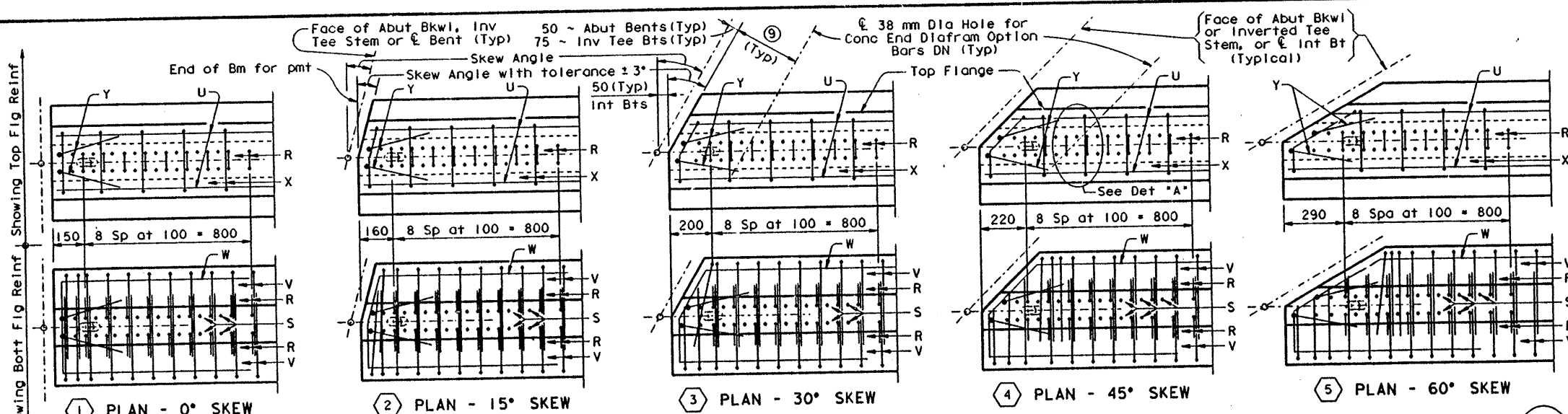
Texas Department of Transportation
DESIGN DIVISION (BRIDGE)

PRESTRESSED CONCRETE I-BEAMS
(NON-STANDARD SPANS)
U.S. 83/FM 1426 OVERPASS
IBNS(M)

FILE: lbstd005.dgn	DN:	CK:	DW: JTR	CK:	NEG: B21M
ORIG DATE:	DIST	FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS	21	6	NH96 (791) M	413	
Original prepared 8-95	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	Hidalgo	0039	117	118	15533

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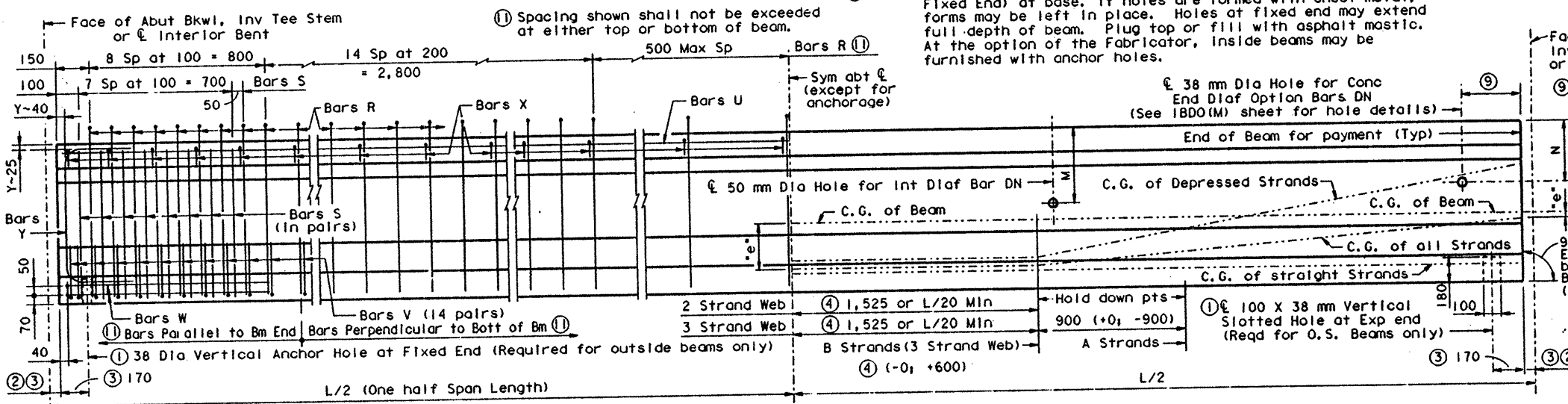
LEVELS DISPLAYED
ACC: (L/W=1.3 for Metric)



10 DETAILS OF SKEWED BEAM ENDS

Reinforcing patterns shown above are to be used as guides in determining the reinforcement for the actual beam type (Type C shown) and the skew angle used. In general, the distance between consecutive Bars R and/or S shall be 50 mm. This spacing may be varied in order to avoid Dowel Holes or Conc End Diaphragm Option holes (See Detail "A"). However, a minimum cross sectional area equivalent to that of Bars R & S in square beam end shall be provided.

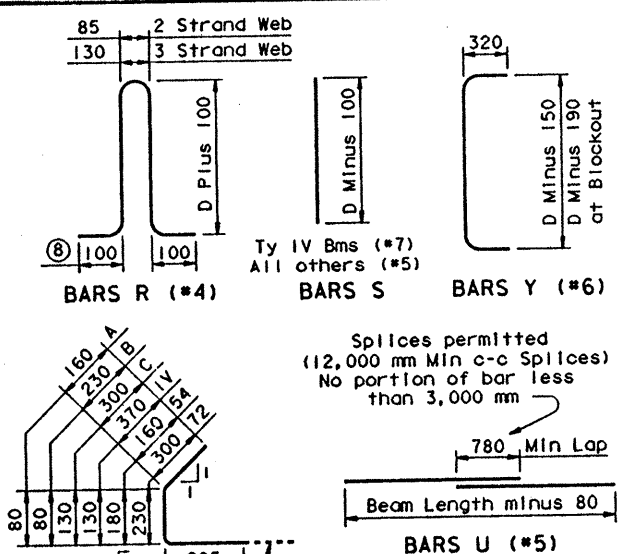
Note: It is permissible for bars or strands to come in contact with materials used in forming anchor and diaphragm holes.
 Note: See span details for location of interior diaphragms, if any. For skewed spans, location of diaphragms may vary from beam to beam.
 Note: Anchorage holes may be tapered (120 x 40 mm Exp End) (40 mm Dia Fixed End) at base. If holes are formed with sheet metal, forms may be left in place. Holes at fixed end may extend full depth of beam. Plug top or fill with asphalt mastic. At the option of the Fabricator, inside beams may be furnished with anchor holes.



11 ELEVATION OF BEAM

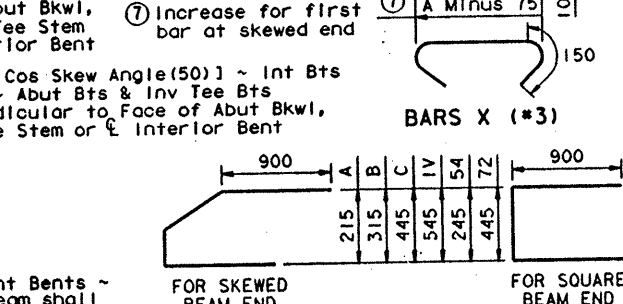
① Spacing shown shall not be exceeded at either top or bottom of beam.
 ② Bars Parallel to Bm End Bars Perpendicular to Bm End
 ③ 38 Dia Vertical Anchor Hole at Fixed End (Required for outside beams only)
 ④ 1,525 or L/20 Min
 ⑤ 100 X 38 mm Vertical Slotted Hole at Exp end (Reqd for O.S. Beams only)
 ⑥ (-0; +600)
 ⑦ Increase for first bar at skewed end
 ⑧ [370 - Cos Skew Angle(50)] ~ Int Bts [320] ~ Abut Bts & Inv Tee Bts Perpendicular to Face of Abut Bkwl, Inv Tee Stem or Interior Bent
 ⑨ 90° At Int Bents ~ End of beam shall be vertical at Abut Bkwl & Inv Tee (1" Tolerance)

GENERAL NOTES:
 Designed in accordance with current AASHTO Specifications. All concrete shall be Class H. Bottom corners of all beam flanges and outside corners of exterior beam ends shall be chamfered 20 mm or rounded to a 40 mm radius. Diaphragm holes in ends of beam only for use with concrete end diaphragm option. The use of diaphragm holes for lifting purposes will not be permitted. All reinforcing bars for beams shall be Grade 420. All dimensions are in millimeters unless otherwise shown. An equal area of welded wire fabric may be substituted for Bars R, V, S or X if approved by the Engineer.

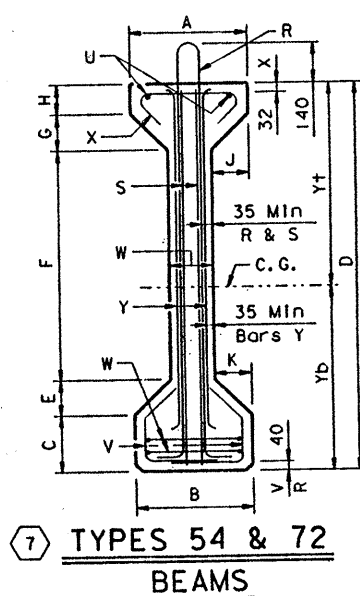


A	295
B	345
C	395
IV	445
54	295
72	395

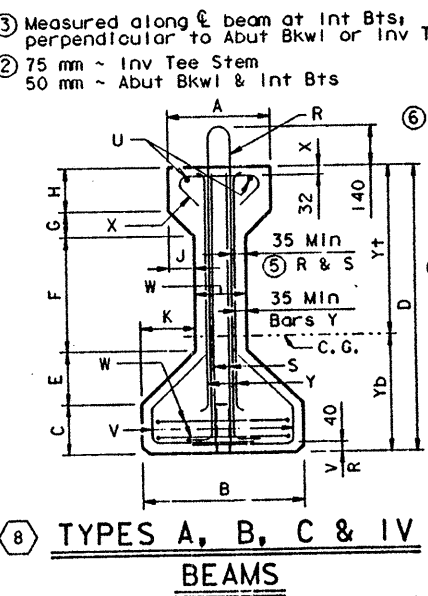
Splices permitted (12,000 mm Min c-c Splices) No portion of bar less than 3,000 mm
 780 Min Lap
 Beam Length minus 80
 At the fabricator's option, bottom leg may be extended to tie to outside strand, in lieu of tying to inside strand.



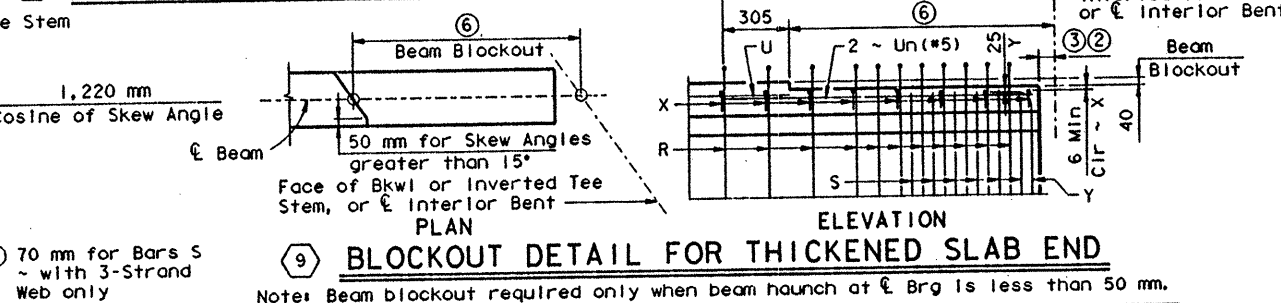
13 BARS W (#5)



7 TYPES 54 & 72 BEAMS



8 TYPES A, B, C & IV BEAMS



9 BLOCKOUT DETAIL FOR THICKENED SLAB END

Note: Beam blockout required only when beam haunch at E Brg is less than 50 mm.

BEAM TYPE	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	J (mm)	K (mm)	M (mm)	N (mm)	W (mm)	Yt (mm)	Yb (mm)	AREA (10 ² mm ²)	I (10 ⁶ mm ⁴)	# WT (kg/m)
A	300	410	125	710	130	280	75	100	75	130	330	380	150	392.8	317.2	1,761	9,309	424
B	300	460	150	865	150	355	70	140	65	145	430	380	170	486.3	378.7	2,347	18,014	564
C	360	560	180	1,015	190	405	90	150	90	190	535	380	180	580.7	434.3	3,219	34,532	774
IV	510	660	200	1,370	230	585	155	200	155	230	840	455	200	741.4	628.6	5,045	107,801	1,213
54	410	410	205	1,370	125	815	125	100	130	130	890	380	150	724.6	645.4	3,169	68,185	762
72	560	560	280	1,830	190	1,030	190	140	190	190	1,195	380	180	972.2	857.8	5,608	222,662	1,348

Note: Tolerance for Dimensions M & N = (+10 mm; -25 mm) (Same tolerance to be applied to all holes for a given Diaphragm Bar DN).
 * Assumes 2,403 kg/m³ unit weight of concrete

HS18 LOADING

Texas Department of Transportation
 Design Division (Bridge)

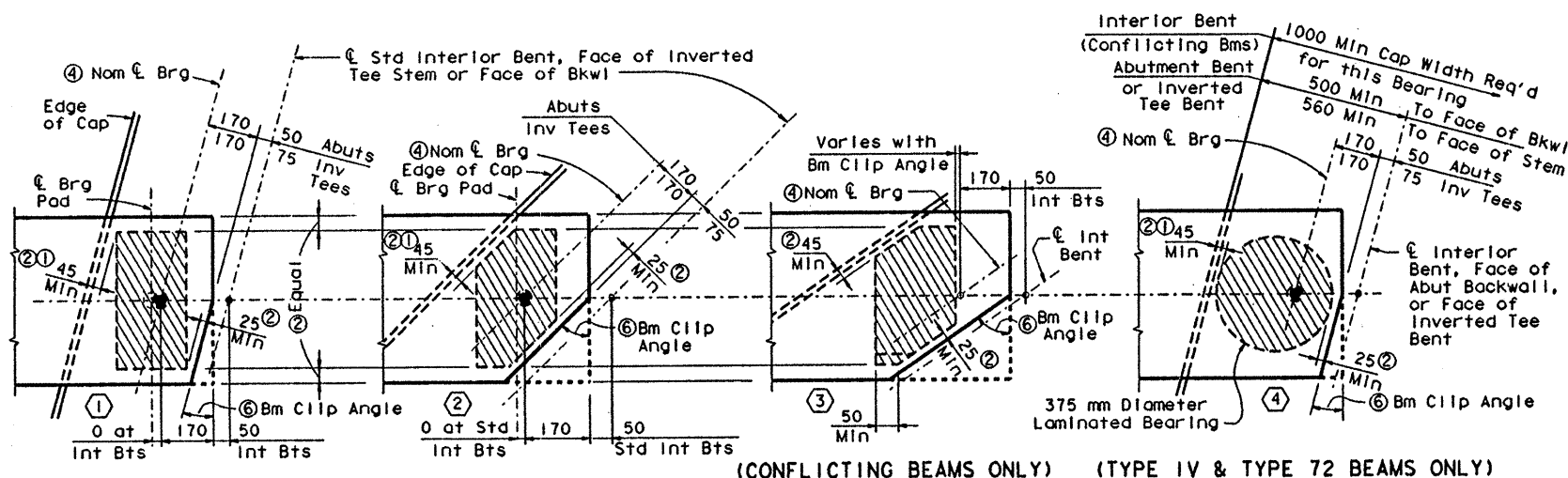
PRESTRESSED
 CONCRETE I-BEAM
 DETAILS

IBA (M)

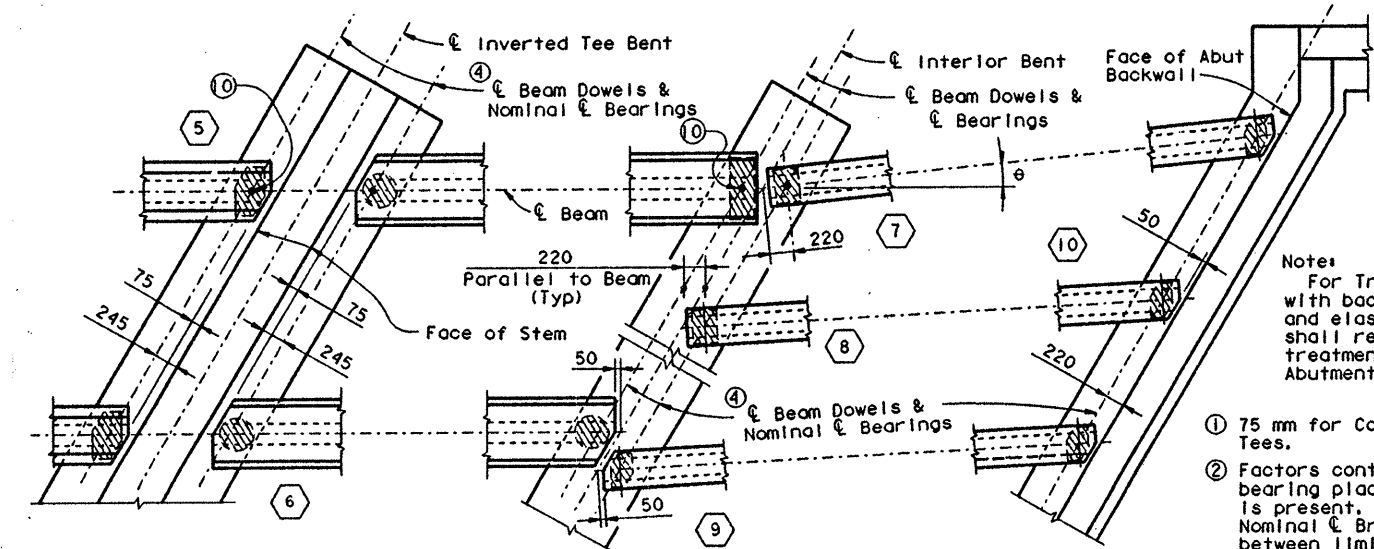
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REVISIONS:		21	6	NH 96 (79) M					
		COUNTY:	CONTROL	SECT:	JOB	HIGHWAY			
		HIDALGO	39	17	118	B3			

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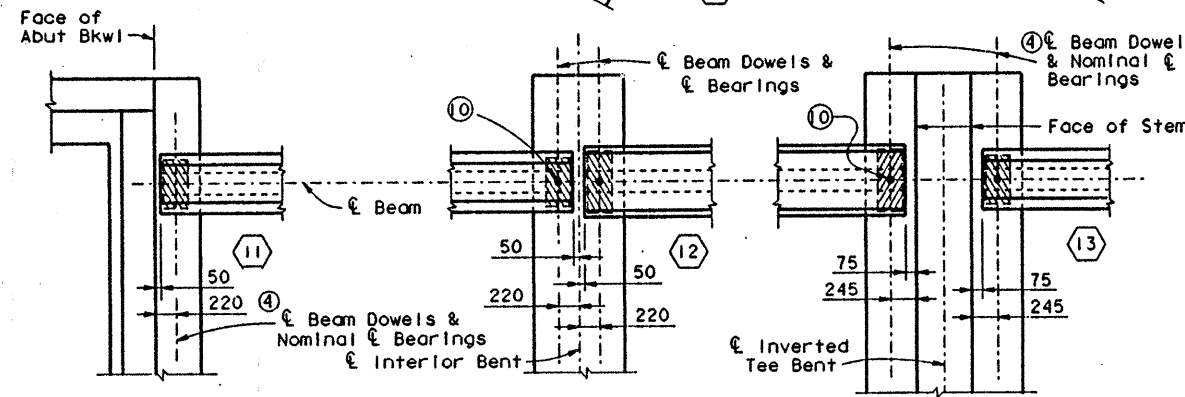
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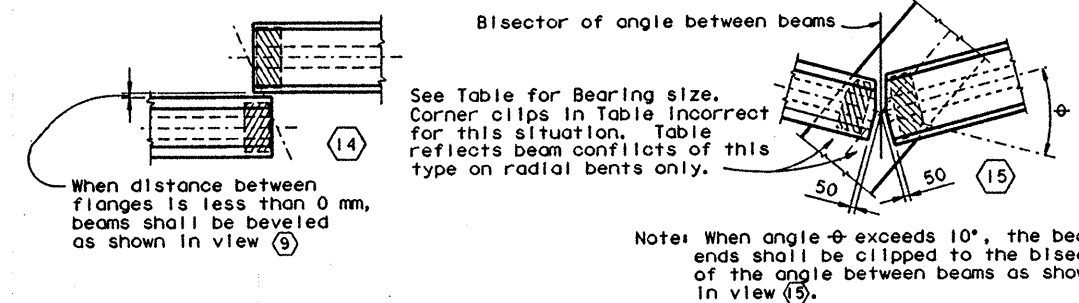
ELASTOMERIC BEARING PLACEMENT DIAGRAMS (CONFLICTING BEAMS ONLY) (TYPE IV & TYPE 72 BEAMS ONLY)



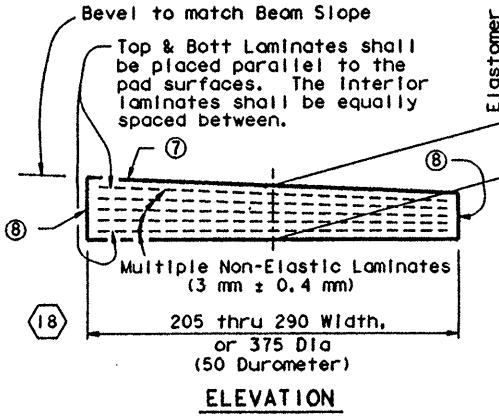
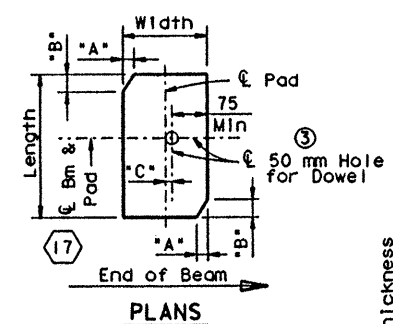
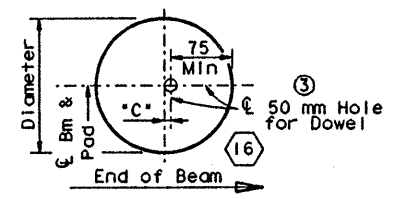
Notes:
For Transition Bents with backwall, beams and elastomeric bearings shall receive the same treatment as shown for Abutment Bents



- ① 75 mm for Corbels of Inverted Tees.
- ② Factors controlling laminated bearing placement if no dowel is present. Place ϵ Pad as near Nominal ϵ Brg as possible between limits shown.
- ③ Provide 50 mm Dia Hole (always on beam end side of centerline pad) only at locations required. See substructure details for location.
- ④ For purposes of computing Bearing Seat Elevations, nominal centerline of bearing shall be defined as shown. The actual center of bearing pad may vary from this line, according to the "C" value shown in Table. If table shows no "C" value, See ②.
- ⑤ Interpolate "C" values for angles not shown between 30° & 40°, 40° & 50°, 50° & 60°.
- ⑥ Compliment of Beam Angle except at some conflicting beams. See ⑤.
- ⑦ Locate "BRG TYPE" identification here
- ⑧ Locate Permanent Mark here
- ⑨ To be completed by the Contractor for use by the Bearing Fabricator.
- ⑩ Provide Beam Dowels for outside beams only when shown Exp (E) or Fix (F) on Layout. (Beams adjacent to a longitudinal joint at the median are considered as outside beams).



BEAM END DETAILS



FABRICATION DETAILS

GENERAL NOTES:
Beams shall be seated on elastomeric bearings of the dimensions shown. Constant thickness bearings may be used for moderate beam slopes if the variation is within the allowable dimensional tolerances given in the specifications.
Shop drawings will be required for all pads not shown or modified in the table.
Cost of furnishing and installing elastomeric bearings shall be included in unit price bid for "Prestressed Concrete Beams".
All dimensions are in millimeters unless otherwise shown.

Note: The use of Polyisoprene (natural rubber), for the manufacture of bearing pads, shall not be permitted.

ELASTOMERIC BEARING FABRICATION DATA TABLE

Loc.	Beam Type	Brg Type	Est Brg Quant	Bm End Clip Angle Range	Pad Size Wath x Lqth	"A"	"B"	"C"
AT ABUTMENTS, INVERTED TEES & TRANSITION BENTS WITH BACKWALLS	A	A-1		0° thru 15°	205 x 355	—	—	10
	A	A-2		15° thru 45°	205 x 355	65	65	10
	A	A-3		45° thru 60°	205 x 355	110	65	10
	B	B-1		0° thru 15°	205 x 405	—	—	10
	B	B-2		15° thru 45°	205 x 405	90	90	10
	B	B-3		45° thru 60°	230 x 405	165	105	10
	C	C-1		0° thru 8°	230 x 480	—	—	10
	C	C-2		8° thru 20°	230 x 480	45	115	10
	C	C-3		20° thru 45°	260 x 480	155	155	10
	C	C-4		45° thru 60°	290 x 480	260	170	10
	54	54-1		0° thru 13°	230 x 355	—	—	10
	54	54-2		13° thru 25°	230 x 355	35	70	10
54	54-3		25° thru 45°	230 x 355	80	80	10	
54	54-4		45° thru 60°	230 x 355	125	80	10	
IV	IV-1		0° thru 15°	230 x 560	—	—	40	
IV	IV-2		15° thru 29°	230 x 560	80	130	40	
IV & 72	IV-3		⑤ 30°	375 Dia	—	—	51	
IV & 72	IV-4		⑤ 40°	375 Dia	—	—	59	
IV & 72	IV-5		⑤ 50°	375 Dia	—	—	70	
IV & 72	IV-6		⑤ 60°	375 Dia	—	—	90	
72	72-1			0° thru 15°	230 x 505	—	—	40
72	72-2			15° thru 30°	230 x 505	55	95	40
AT INTERIOR BENTS	A	A-4		ALL	205 x 355	—	—	0
	B	B-4		ALL	205 x 405	—	—	0
	C	C-5		0° thru 15°	230 x 480	—	—	0
	C	C-6		15° thru 55°	230 x 480	40	60	0
	C	C-7		55° thru 60°	230 x 480	—	—	0
	54	54-5		ALL	230 x 355	—	—	0
	IV	IV-9		ALL	230 x 560	—	—	0
	72	72-3		ALL	230 x 505	—	—	0
	A	A-5		0° thru 18°	205 x 355	—	—	17
	A	A-6		18° thru 45°	205 x 355	55	55	—
	A	A-7		45° thru 60°	205 x 355	75	55	—
	B	B-5		0° thru 15°	205 x 405	—	—	15
B	B-6		15° thru 45°	205 x 405	80	80	—	
B	B-7		45° thru 60°	205 x 405	120	80	—	
C	C-8		0° thru 9°	230 x 480	—	—	10	
C	C-9		9° thru 25°	230 x 480	60	130	30	
C	C-10		25° thru 45°	260 x 480	145	160	—	
C	C-11		45° thru 60°	290 x 480	230	160	—	
54	54-6		0° thru 13°	230 x 355	—	—	13	
54	54-7		13° thru 45°	230 x 355	70	70	—	
54	54-8		45° thru 60°	230 x 355	95	70	—	
IV	IV-10		0° thru 13°	230 x 560	—	—	40	
IV	IV-11		13° thru 30°	230 x 560	60	100	—	
IV & 72	IV-12		30° thru 60°	375 Dia	—	—	—	
72	72-4		0° thru 15°	230 x 505	—	—	40	
72	72-5		15° thru 30°	230 x 505	40	70	—	

Table based on 1,000 mm cap width for Type 72 and IV Beams; 850 mm cap width for all other type beams.
Table based on 560 mm inverted Tee corbel width for Type 72 and IV Beams; 500 mm corbel width for all other type beams.

MS18 LOADING



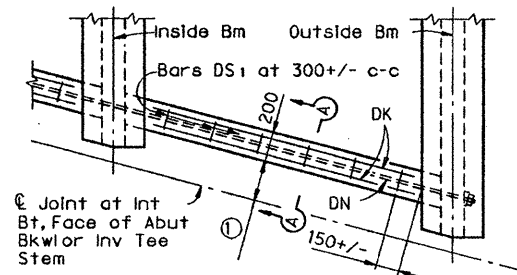
ELASTOMERIC BEARING AND BEAM END DETAILS (FOR PRESTR CONC I-BEAMS)

IBB (M)

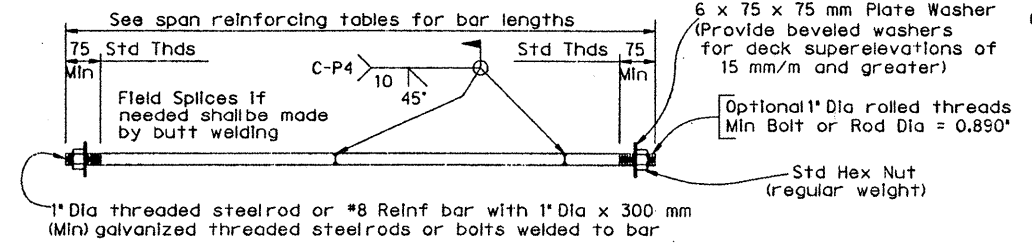
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REVISIONS	21	6	NH96 (791) M		
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	HIDALGO	039	17	110	83

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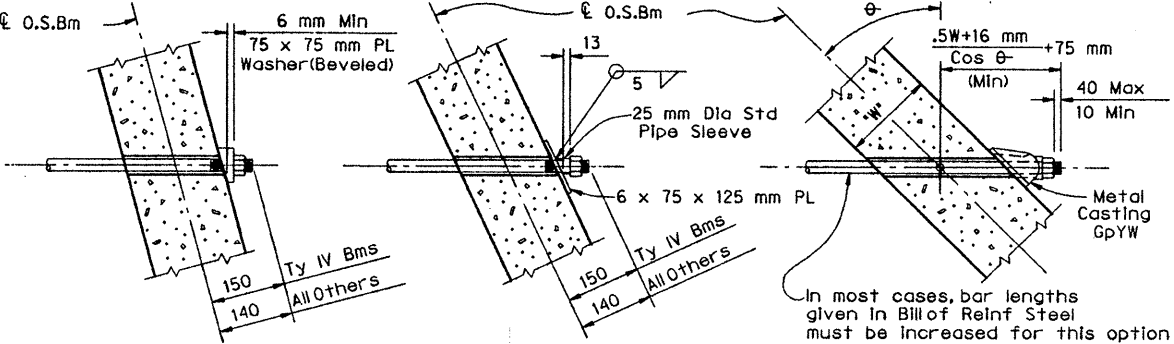
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 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70
 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90
 91 92 93 94 95 96 97 98 99 100



PLAN OF END DIAFRAMS
 ① 295 ~ Inv Tee Bts
 270 ~ Abut Bts & Int Bts



BARS DN (FOR NORMAL DIAFRAMS)

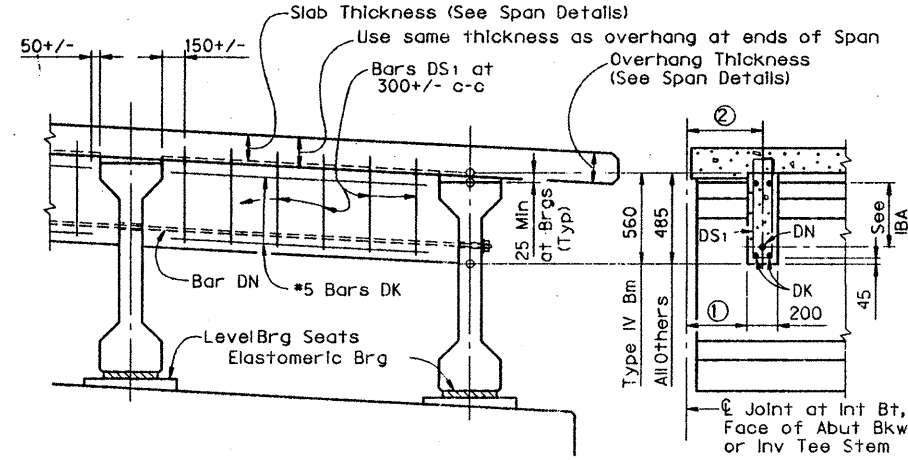


BARS DN (SKEWS THRU 15) °

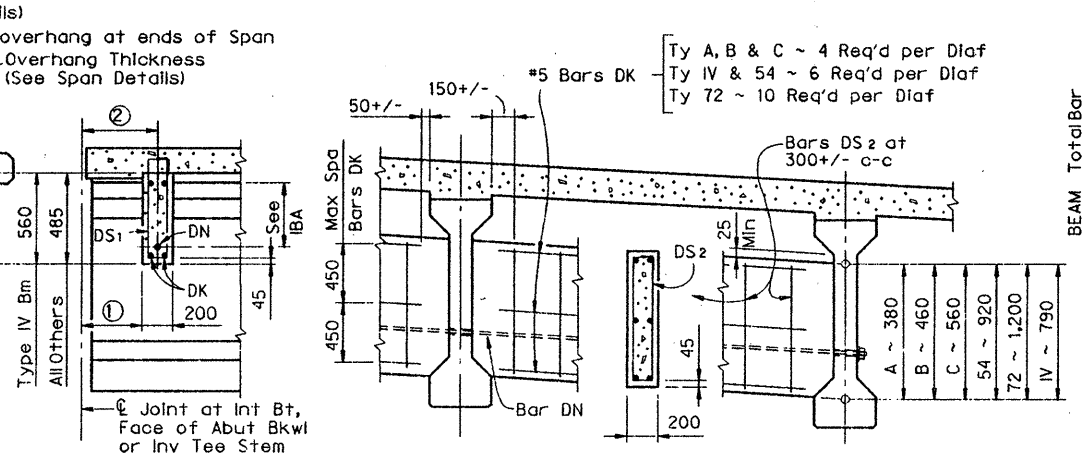
BARS DN (SKEWS OVER 15) °

BARS DN WITH OPTIONAL CASTING FOR ALL SKEWS

Note: Details of metalcasting GpYW are available upon request from the Texas Department of Transportation. No additional payment will be made for castings or extra bar length furnished under this option. Castings are to be considered subsidiary to reinforcing steel.



ELEVATION - END DIAFRAMS

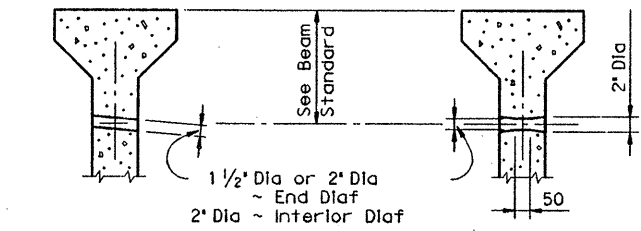


SECTION A-A

ELEVATION - INTERIOR DIAFRAMS

BEAM TYPE	Total Bar Length	DS1	DS2
IV	1,820	600	290
Others	1,470	525	370
A	1,000		470
B	1,160		830
C	1,360		1,110
54	2,080		700
72	2,640		
IV	1,820		

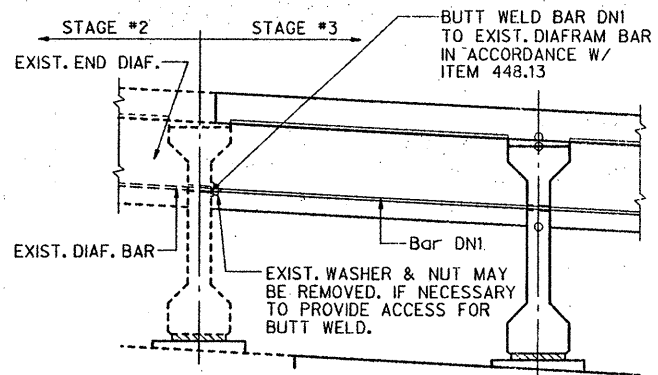
#4 BARS DS 1 & DS 2



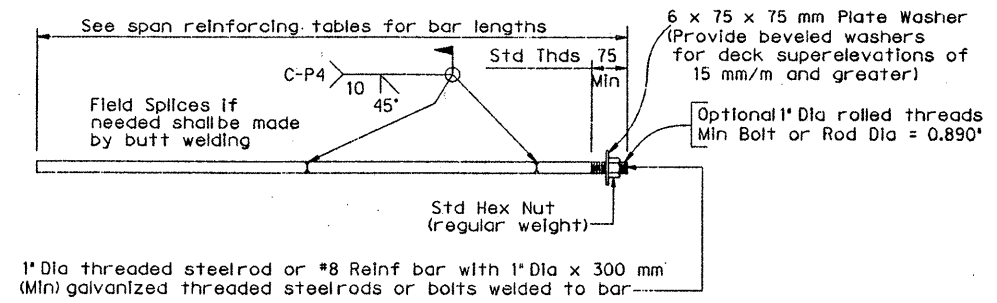
DIAFRAM HOLE LOCATIONS

CONCRETE DIAFRAM OPTION

CONCRETE DIAFRAM NOTES:
 All Cast-in-place concrete shall be Class S unless otherwise shown on span details.
 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 2,070 kPa, and the nuts of bars DN have subsequently been firmly tightened.

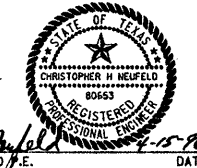


A END DIAFRAM STAGING (STAGE #4 SIMILAR)



END DIAFRAM BARS DN1 (FOR STAGE 3 & 4) REFER TO DETAIL FOR SKEWS OVER 15°

GENERAL NOTES:
 Designed in accordance with current Specifications. End Diafram options hereon may be used in lieu of the Thickened Slab Ends shown on the IBTS(M) Sheet or Span Details.
 Number and location of Interior Diaframs shall be shown elsewhere in the plans.
 Contractor shall notify prestressed beam fabricator as to which diafram option he intends to use. Option selected shall be incorporated in shop drawings.
 Payment for any diafram option used shall be included in the price bid for Reinforced Concrete Slab.
 All reinforcing shall be Grade 420.
 All dimensions are in millimeters unless otherwise shown.



CHRISTOPHER H. NEUFELD, P.E. DATE 3/11/96

- MODIFICATIONS
 1. REMOVED STEEL DIAFRAM OPTION.
 2. ADDED DETAIL A.
 3. ADDED BAR DN1 (NO THREADS ON ONE END.)

MS18 LOADING

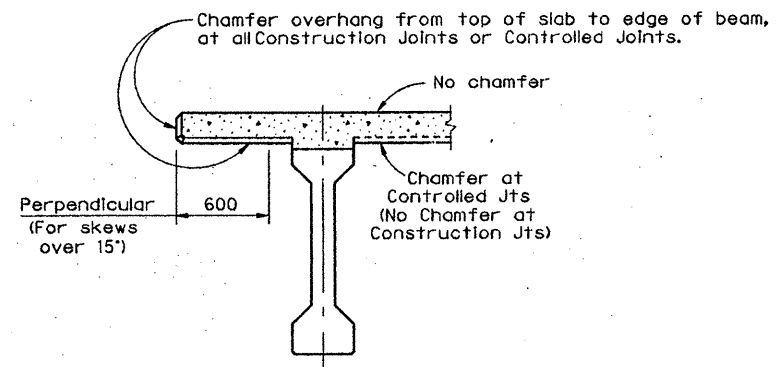
Texas Department of Transportation
 DESIGN DIVISION (BRIDGE)

DIAFRAM OPTIONS
 FOR
 PRESTRESSED I- BEAMS
 U.S. 83/FM 1426 OVERPASS
 I BDO(M) (MOD)

FILE#	IBSTD003.dgn	DN	THD	CR	THD	DN	DRG	CR	LDS	MEG	B205M
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COUNTY	Hidalgo	CONTROL	SECT	JOB	HIGHWAY						
		0039	17	118	US 83						

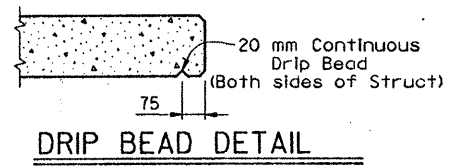
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LEVELS DISPLAYED
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 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

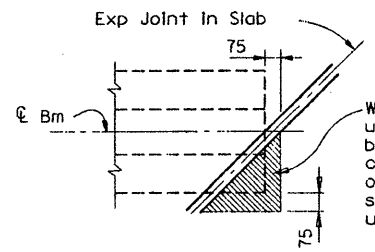


CHAMFER LIMITS DETAIL

Note: See Span details for type of Joint and Joint locations.

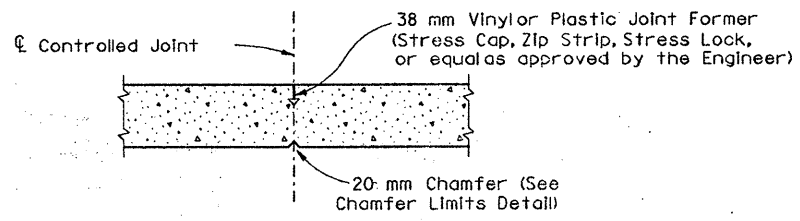


DRIP BEAD DETAIL



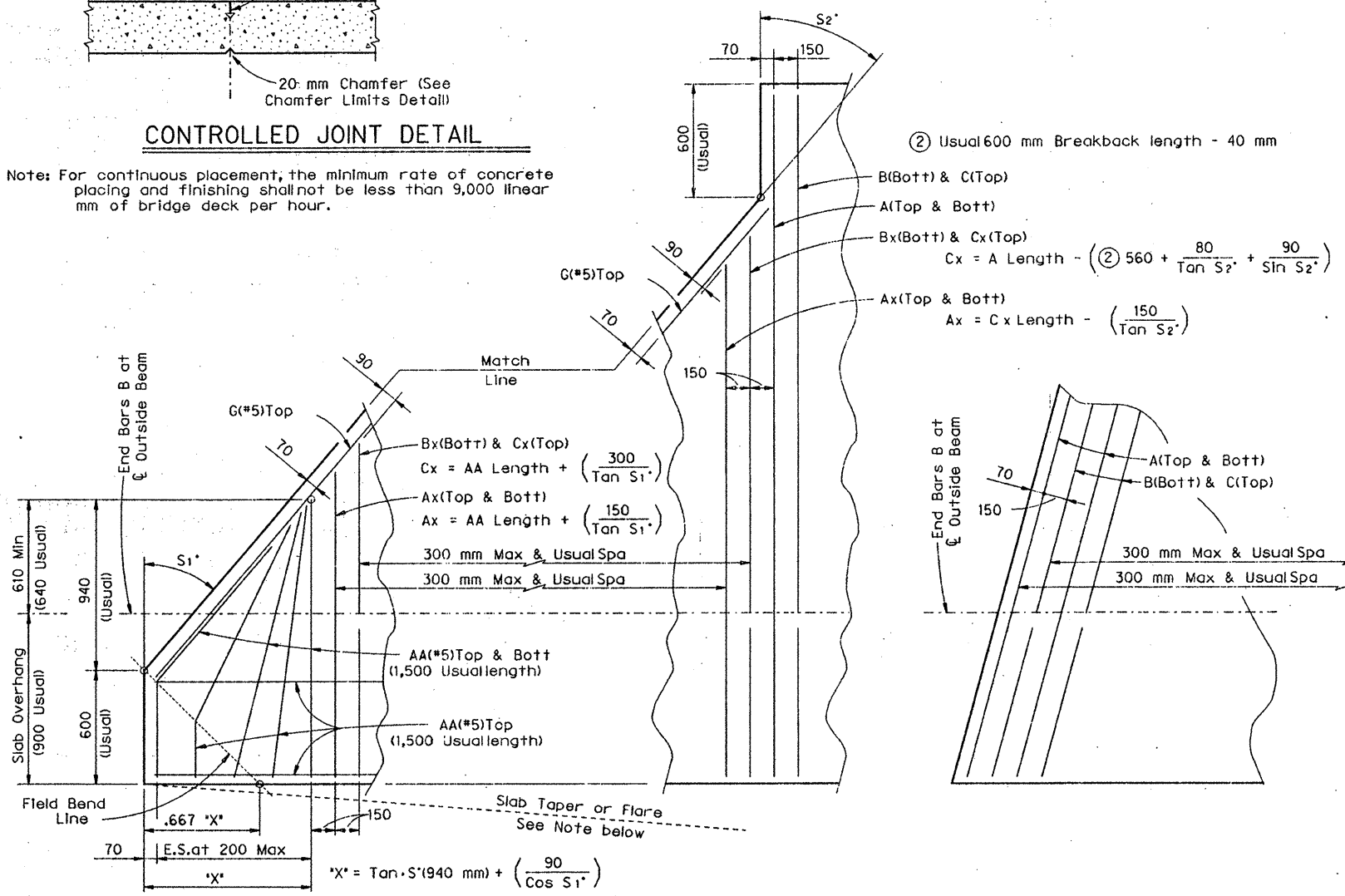
TREATMENT AT BEAM END FOR SKEWED SPANS

Where corners of Beam Flanges project under slab of adjacent span, care shall be taken to provide a minimum of 13 mm clearance between top of beam and bottom of adjacent slab. Polystyrene or other suitable compressible material may be used as a filler.



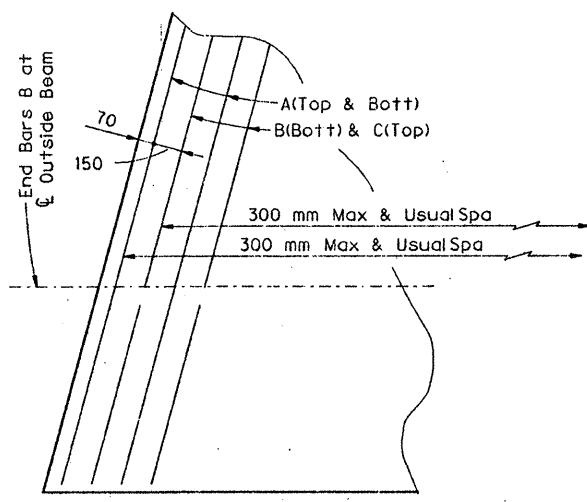
CONTROLLED JOINT DETAIL

Note: For continuous placement, the minimum rate of concrete placing and finishing shall not be less than 9,000 linear mm of bridge deck per hour.



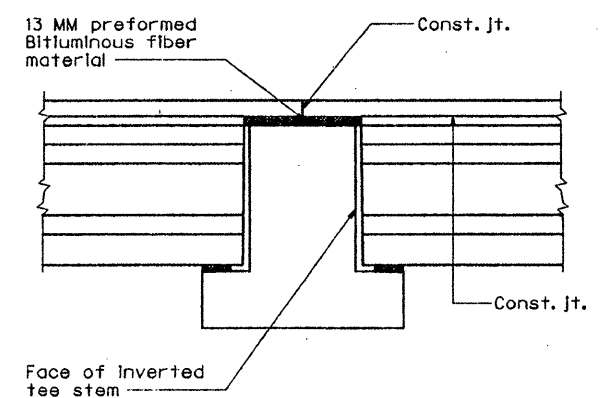
PARTIAL PLAN OF SLAB END WITH BREAKBACK

(For use with Concrete End Diaphragm Option - See IBDO(M) Standard)
 Note: Bar length formulas shown for constant width slabs. Adjustment shall be made for slab taper or flare.

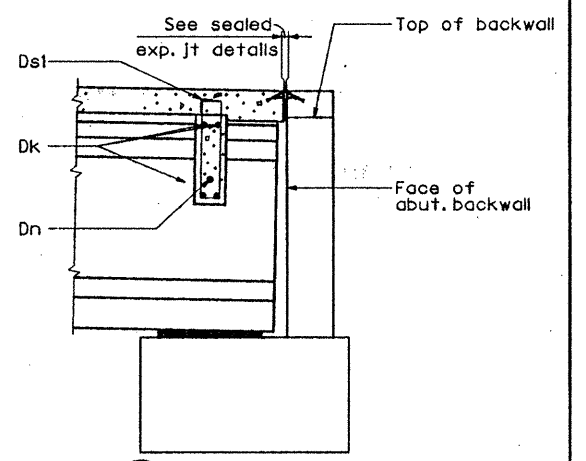


PARTIAL PLAN OF SLAB END WITHOUT BREAKBACK

(For use with Concrete End Diaphragm Option - See IBDO(M) Standard)



(A) SECTION THRU INT. BENT (with const. jt.)



(B) SECTION THRU STRUCTURE AT ABUTMENT (with sealed exp. jt.)

GENERAL NOTES:
 Designed in accordance with current AASHTO Specifications.
 All cast-in-place concrete shall be Class S unless otherwise shown on span details.
 All reinforcing steel shall be Grade 420. See Deck Detail sheet for epoxy coating requirements and lap lengths, if required.
 All dimensions are in millimeters unless otherwise shown.



CHRISTOPHER H. NEUFELD P.E. DATE 4-15-96

MODIFICATIONS
 1. REMOVED DRAIN DETAILS.
 2. ADDED DETAILS A & B.

MS18 LOADING

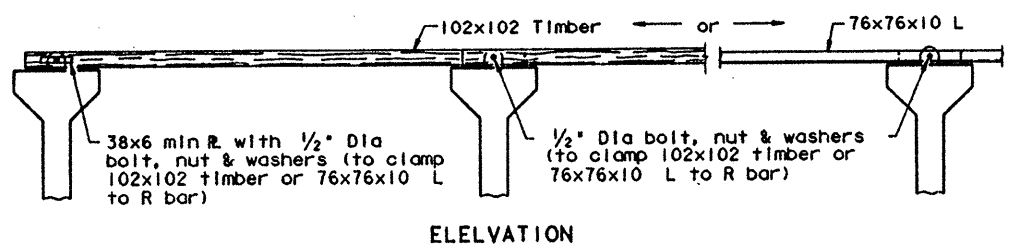
Texas Department of Transportation
 DESIGN DIVISION (BRIDGE)

MISCELLANEOUS
 SLAB DETAILS
 FOR PRESTRESSED I-BEAMS
 U.S. 83/FM 1426 OVERPASS
 IBMS(M) (MOD)

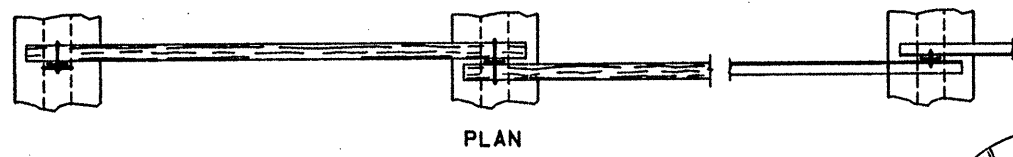
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REVISIONS	21	6	NH96 (191) M	417	
	COUNTY	CONTROL	SECT	JOB	HWY
	Hidalgo	0039	17	118	US 89

Weld #5 bar to R bar
Place #5 bar in plane of bottom slab reinforcement for conventional or PMD Forming. #5 bars to rest on Panels and bent down to beam reinforcement when Prestressed Panels are used.

PERMANENT TOP BRACING ⑤

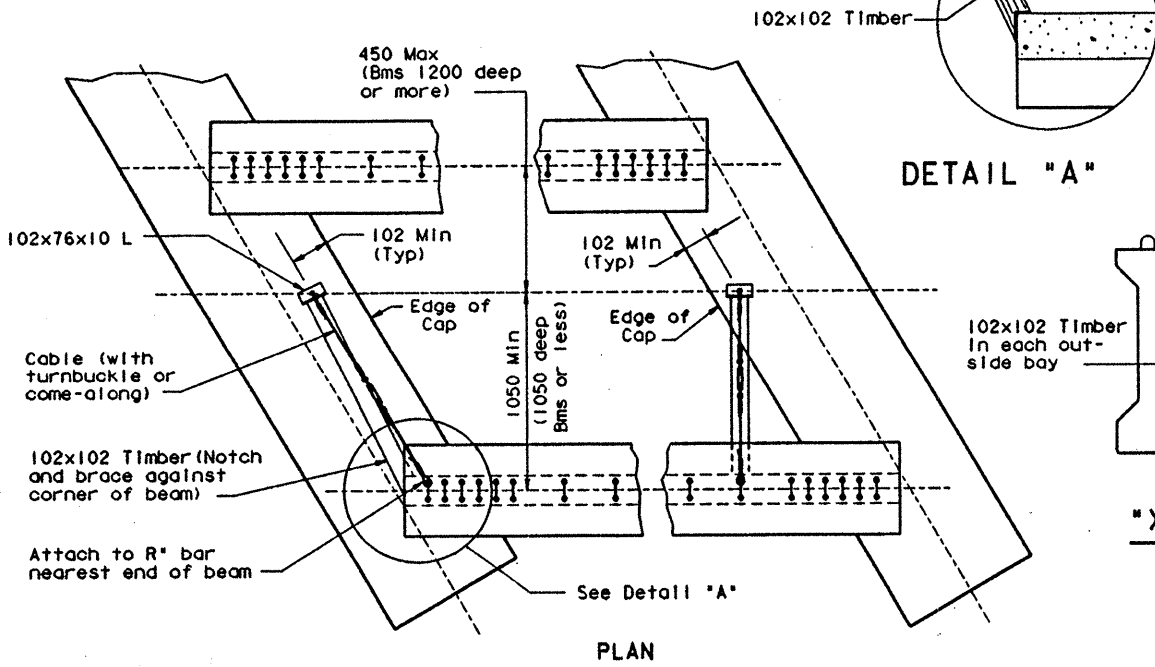


ELEVATION

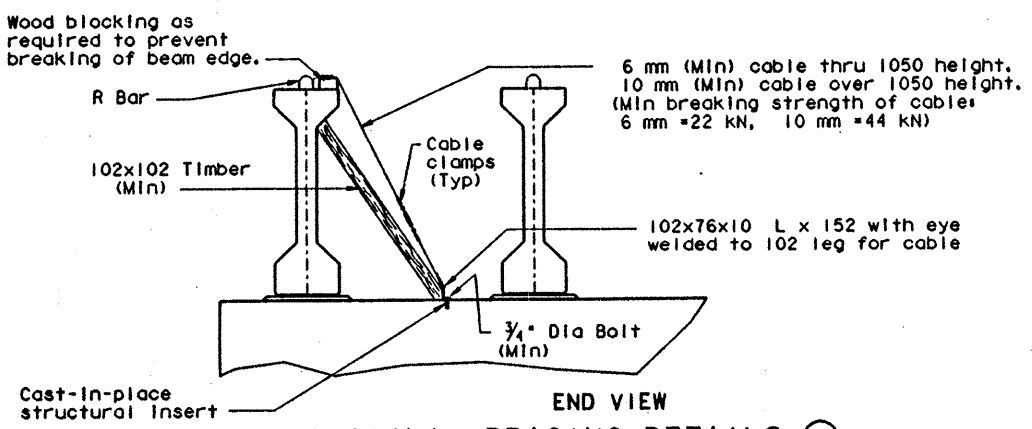


PLAN

TEMPORARY TOP BRACING ④



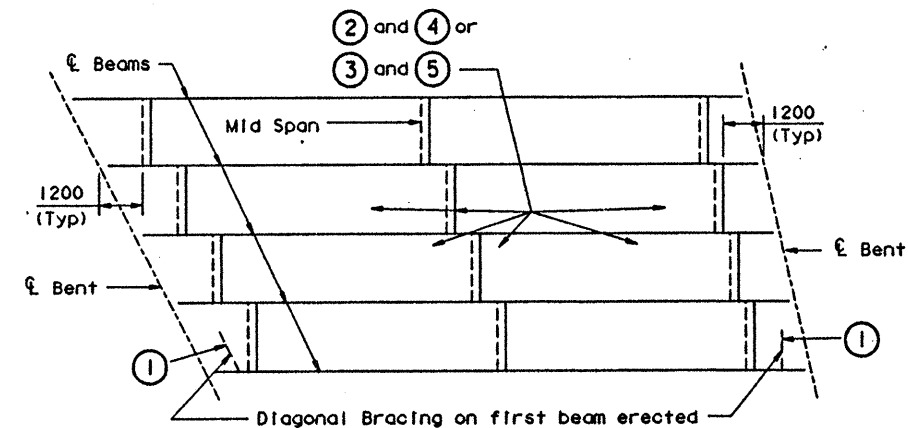
PLAN



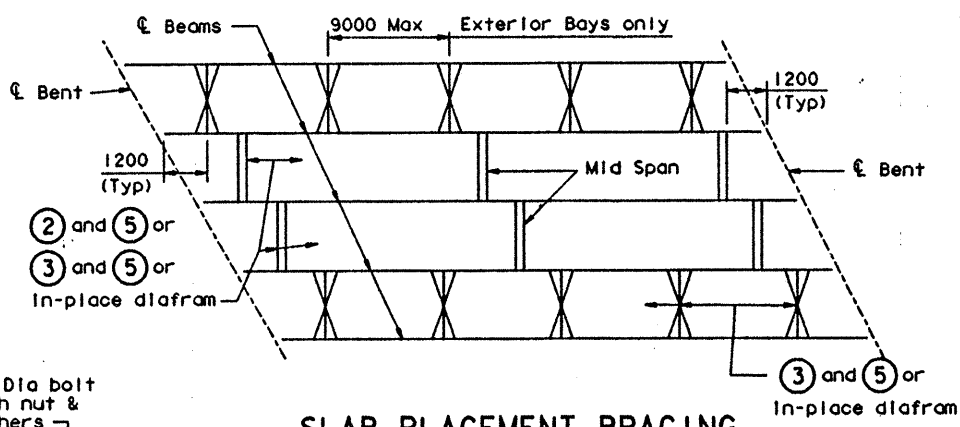
END VIEW

DIAGONAL BRACING DETAILS ①

(To be used on both ends of the first beam erected in the span.)

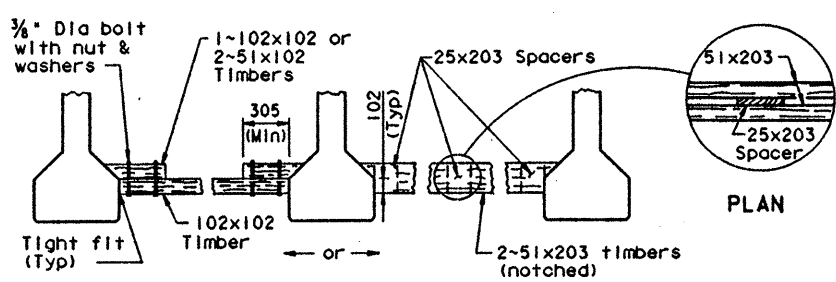


ERECTION BRACING (NORMAL SPANS AND ALL SKEWS)



SLAB PLACEMENT BRACING (NORMAL SPANS AND ALL SKEWS)

- ⊘ Indicates Diagonal Bracing ①
- ⊘ Indicates Bottom Bracing ② with Temporary Top Bracing ④ or "X" Bracing ③ with Permanent Top Bracing ⑤.
- ⊘ Indicates Permanent Top Bracing ⑤
- ⊘ Indicates Bottom Bracing ② or "X" Bracing ③, either one with Permanent Top Bracing ⑤ or an In-place diaphragm only.
- ⊘ Indicates "X" Bracing ③ & Permanent Top Bracing ⑤ or an In-place diaphragm only.



ELEVATION

BOTTOM FLANGE BRACING DETAILS ②

GENERAL NOTES:

ERECTION BRACING:

Erection bracing details are considered minimum for fulfilling the requirements of Specification Item 425 for bracing Types A, B, C, III, IV, and V prestressed concrete beams erected in the span over a traveled way or railroad, and in those spans generally parallel to a traveled way or railroad and within a distance equal to the difference in elevation between the top of cap upon which the beams are being erected and the traveled way, or 9000, whichever is greater.

Required erection bracing shall be placed immediately after erection of each beam and remain in place until diaphragm bars DN are tightened or additional bracing as required for slab placement is in place.

SLAB PLACEMENT BRACING:

The details for slab placement bracing are considered minimum for fulfilling the requirements of Specification Item 420.

Required slab placement bracing shall remain in place until slab concrete has attained a flexural strength of 500 psi.

GENERAL:

Bracing details for closely spaced beams (as on ramps or railroad structures) are not included herein. The Contractor shall submit his proposed bracing details for such conditions to the Engineer for approval prior to erection.

Systems equal to or better than those shown may be used provided details of such systems are submitted to and approved by the Engineer prior to erection.

Use of these systems and/or details does not relieve the Contractor of the responsibility for the adequacy of the bracing and the safety of the structure.

Removal of bracing for short periods of time to align beams is permissible.

Bottom flange bracing at beam ends may be omitted when all beams are fixed with dowel bars or when erection is on steel caps or floor beams containing bearing seats which restrict lateral movement.

All turn-buckles, come-alongs and other connections shall be capable of developing the full strength of the cable shown hereon.

All dimensions are in millimeters unless otherwise shown.

Texas Department of Transportation
Design Division (Bridge)

**MINIMUM ERECTION AND BRACING REQUIREMENTS
PRESTRESSED CONCRETE BEAM
TYPES A, B, C, III, IV & V**

MEBR (C) - I (M)

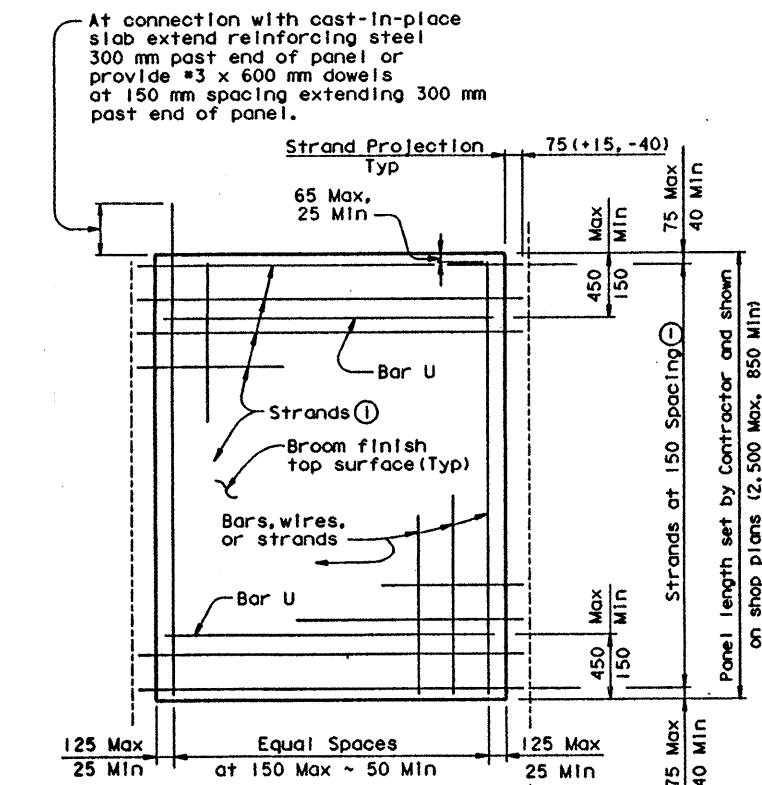
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REVISIONS	21	6	NH96 (791)M	418	
	COUNTY	CONTROL SECT	JOB	HIGHWAY	
	HIDALGO	0039	17118	83	

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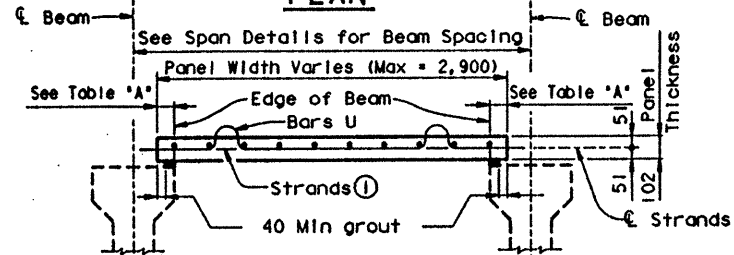
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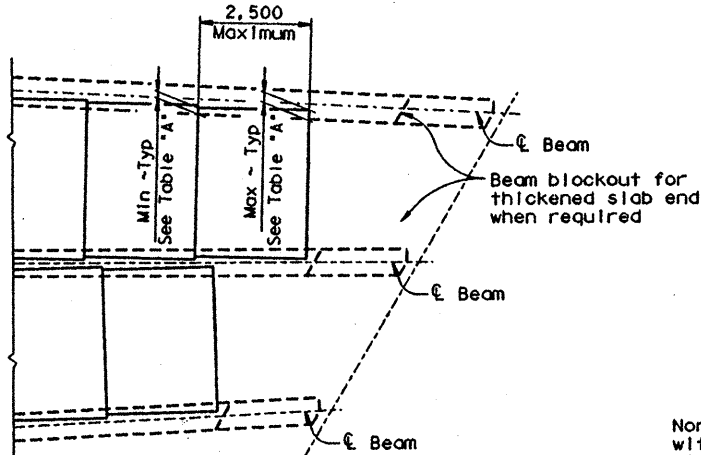


PLAN



TYPICAL SECTION

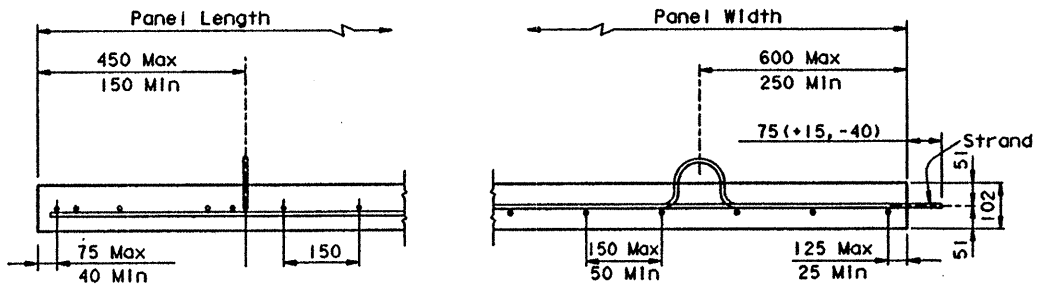
Reinforcing steel #4 (Gr 420) at 150 mm spacing may be substituted for strands in panels 1,500 mm in width or less and shall be required in panels 1,050 mm in width or less. Spacing may be increased to 152 mm to accommodate existing forms.



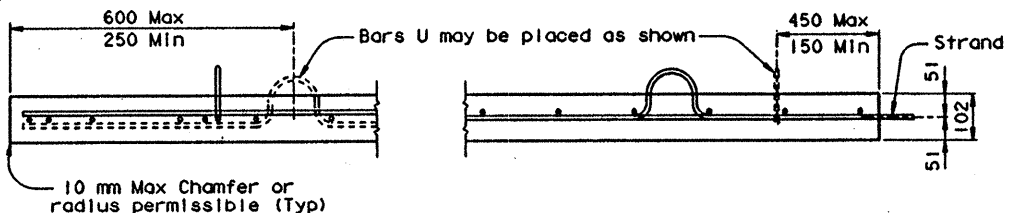
FLARED BEAM SPANS

PART PLAN

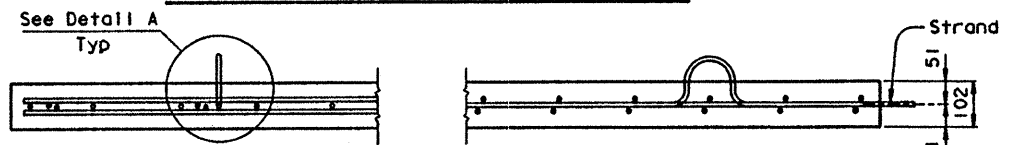
(Showing thickened slab end condition)



REINFORCING BELOW STRANDS

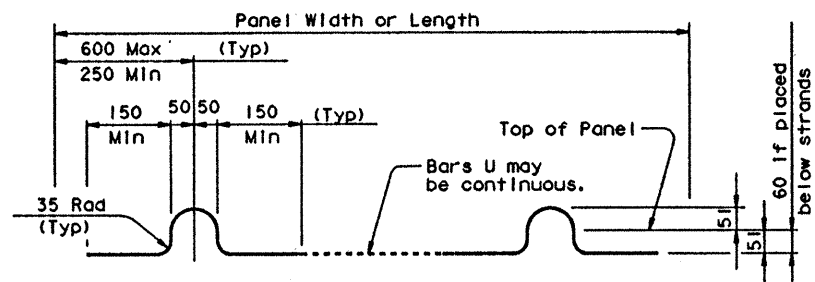


REINFORCING ABOVE STRANDS



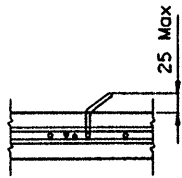
REINFORCING ABOVE & BELOW STRANDS

Reinforcing steel may be deformed reinforcing bars, welded wire fabric or welded deformed bar mats. Minimum area of reinforcing perpendicular to strands shall be 473 mm²/m. Prestressing strands may also be used, spaced at 150 mm for 13 mm strands and 110 mm for 9 mm strands. Individual bars or wires shall be no larger than #3. Reinforcing parallel to strands shall be as required to ensure proper handling of the fabric or bar mat. A reasonable amount of form oil will be permitted on welded fabric or bar mats.



BARS U (#3)

Note: Four loops required per panel.



For Panels used with Epoxy Coated slab reinforcing, the loops of Bars U shall be field bent as shown. Bars U may be field bent to clear slab reinforcing.

DETAIL A

TABLE "A"			
Beam Type	Normal (mm)	Min (mm)	Max (mm)
A	75	65	90
B	75	65	90
C	90	65	100
54	100	75	125
IV	140	90	180
72	140	90	200

Normal dimensions shall be used on spans with parallel beams. Maximum and Minimum dimensions shall apply only to spans with flared beams.

PRESTRESSED PANEL DETAILS

GENERAL NOTES:

Designed for MS18 Loading in accordance with AASHTO 1992 Standard and Interim Specifications. See Span Details for possible restrictions on the use of Prestressed Concrete Panels.

All concrete for panels to be Class H. Release strength f'ci = 28 MPa. Minimum 28 day strength f'c = 35 MPa.

Prestressing strands to be 9 mm - Grade 1860 with an initial tension of 71.62 kN per strand. Larger strands may be used with the same spacing and initial tension.

Suitable holes or anchorage devices for lifting panels may be cast in the panels provided they are shown on the shop plans and approved by the Engineer.

Erected panels shall bear uniformly on bedding strips of fiberboard or expanded polystyrene placed along the outer edge of each beam. A 10 mm gap shall be left at 1,200 mm ± intervals to permit escape of trapped air in the cast-in-place concrete. If additional blocking is needed, special grading details for supporting the panels and extra reinforcing between beam and slab will be required. The cost of this additional blocking will be considered subsidiary to deck construction.

Care must be taken to ensure proper cleaning of construction debris and consolidation of concrete mortar under the edges of the panels. It is also important that the bedding strips be placed at the edges of beams so that adequate space is provided for the mortar to flow a minimum of 40 mm under the panels as the slab concrete is placed. Roadway cross-slope reduces the opening required for proper entry of the mortar. Bedding strips varying in thickness across the beam are therefore required. To allow the proper amount of mortar to flow under the panel, the minimum opening shall be 10 mm.

All reinforcing steel in the cast-in-place slab shall be Grade 420. See Table on Sheet 2 of 3 for size and spacing of reinforcement. Orientation of reinforcement (normal or skewed) shall match that shown on the Span Details.

If the top and/or bottom layer of reinforcing steel is shown on the Span Details to be epoxy coated, then the OT, OC, OA, & OM and/or OD, OB, & OE bars shall be epoxy coated.

- Bar laps, where required, shall be as follows:
 - Uncoated - #4 = 440 mm
 - #5 = 560 mm
 - Epoxy Coated - #4 = 660 mm
 - #5 = 820 mm

Contractor Note: Details as shown on the PCP Standard sheet are to be used in conjunction with the Span Details and applicable Standard sheets.

All dimensions are in millimeters unless otherwise shown.

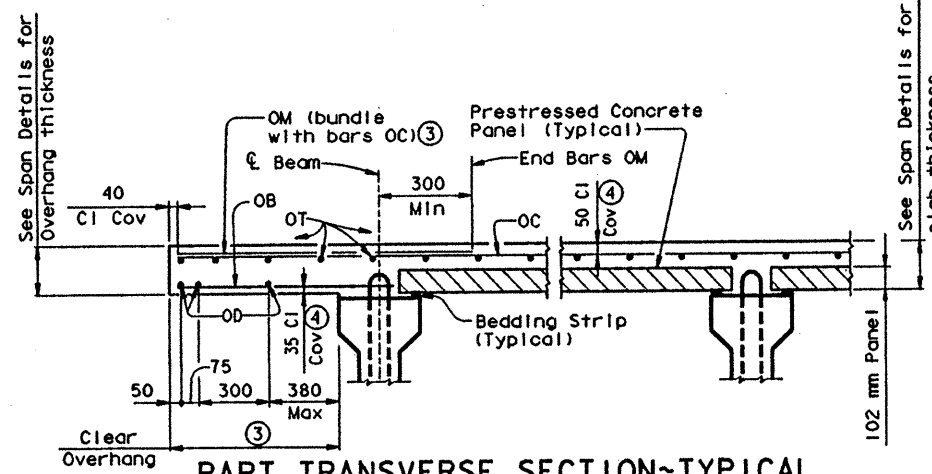
Texas Department of Transportation Design Division (Bridge)

PRESTRESSED CONCRETE PANELS
OPTIONAL DECK DETAILS FOR
PRESTRESSED CONC BEAM SPANS
PCP (C) (M)

FILE: pcpstd01.dgn	DW: DOT	CR: DMM	DW: RNP	CR: DMM	STD: B489M
ORIG DATE: JANUARY 1996	DIST: 21	FED: 6	FEDERAL AID PROJECT: NH96(791)M	STATION: 419	SECTION: 118 83
REVISIONS					
			COUNTY: HIDALGO	CONTROL: 039	SECT: 17

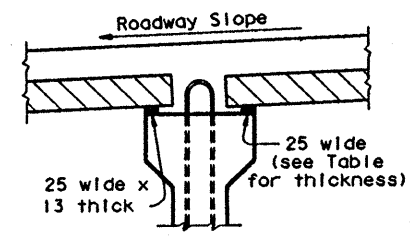
DISCLAIMER: The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the consequences of the use of this standard or for incorrect results or damages resulting from its use.

ACC: LEVELS DISPLAYED: 1 13



PART TRANSVERSE SECTION-TYPICAL

- ② The actual thickness constructed may exceed the slab thickness shown on Span Details but, at mid-span of beams the extra thickness shall be no more than 50 mm. Bearing Seat Elevations or finished grade may be adjusted.
- ③ Bars OM required when slab clear overhang exceeds the following:
190 mm slab ~ 1,030 mm, 195 mm slab ~ 1,060 mm
200 mm slab ~ 1,100 mm
- ④ Clear cover shall be as indicated unless otherwise shown on Span Details. Bars OT may rest on top of prestressed concrete panels if necessary to maintain clear cover.



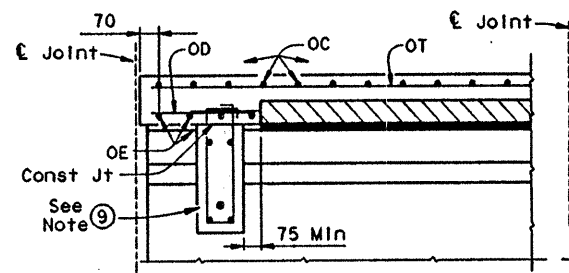
NORMAL GRADING DETAIL

Minimum bedding strip dimensions shall be as shown above. To reduce the quantity of cast-in-place concrete, thickness shown may be increased by 6 mm increments to a maximum of 40 mm. Strips may be comprised of one layer or two, except that no layer shall be less than 13 mm thick. All layers of bedding strips shall be bonded to the beam and to each other with an approved adhesive. The same thickness strip shall be used under any one panel edge and the maximum change in thickness between adjacent panels shall be 6 mm. Panels may be supported by an alternate method, using a commercial product, if approved by the Engineer of Bridge Design, Design Division.

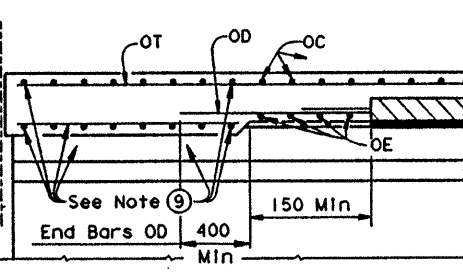
BEAM	BEDDING STRIP THICKNESS (mm)			
	MAXIMUM ROADWAY SLOPE			
	80 mm / m	60 mm / m	40 mm / m	20 mm / m
A, B, C	25	19	19	19
5, 4	25	25	19	19
IV, 7, 2	32	25	25	19

TABLE OF REINFORCING STEEL		
BAR	SIZE	MAX SPA (mm)
OA	#5	~
OB	#4	450
OC	#5	150
OD	#5	225
OE	#5	150
OM	#4	~
OT	#4	225

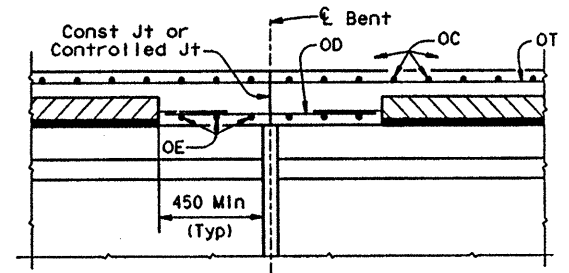
Max Spa as listed unless otherwise shown.



SECTION AT END DIAFRAM

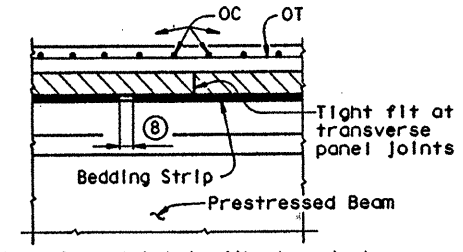


SECTION AT THICKENED SLAB ENDS



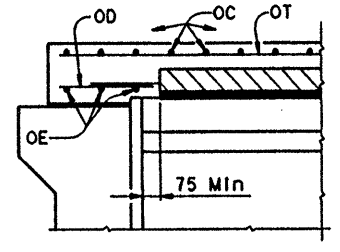
SECTION AT CONVENTIONAL INTERIOR BENT w/o DIAFRAM

⑨ For size and spacing of reinforcing steel, see appropriate details elsewhere in plans.

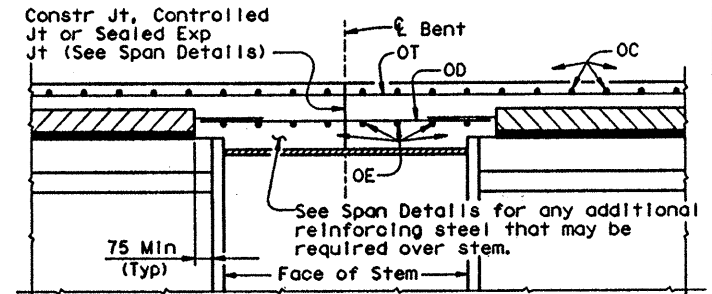


SECTION AT TRANSVERSE PANEL JOINTS

⑧ 10 mm Open Joint in fiberboard at 1,200 mm c/c ±. Place 150 mm long piece of fiberboard behind opening if necessary to reduce grout leakage.

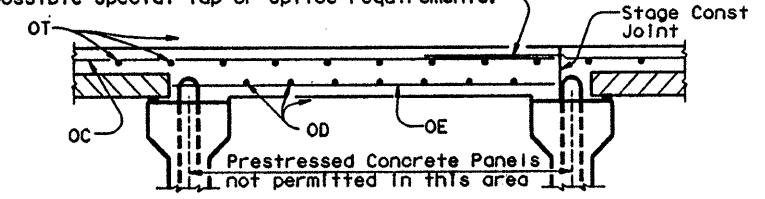


SECTION AT ABUTMENT WITH SLAB OVER BACKWALL



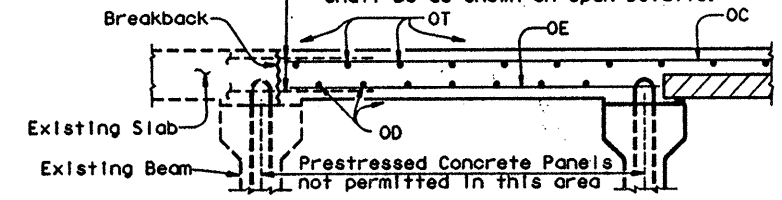
SECTION AT INVERTED TEE INTERIOR BENT

560 Min lap (820 Min lap for epoxy coated reinforcing steel). See Span Details for possible special lap or splice requirements.



STAGE CONSTRUCTION

Minimum extension of existing reinforcing steel and lap with new reinforcing steel shall be as shown on Span Details.

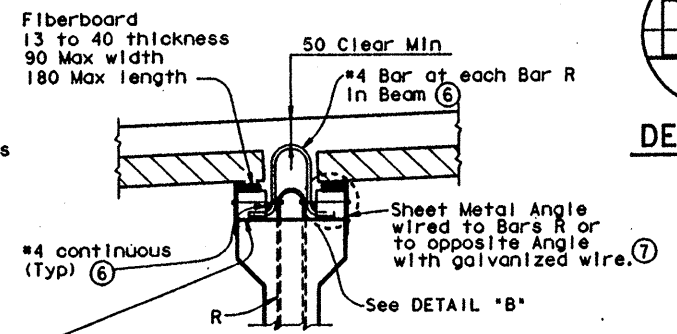
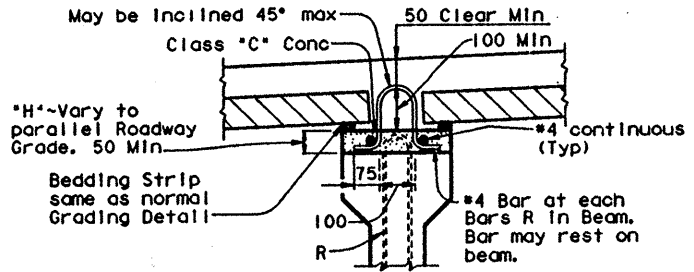


BRIDGE WIDENINGS

PART TRANSVERSE SECTIONS

Examples of potential situations where prestressed concrete panels may not be permitted. Refer to Span Details for limitations on their use.

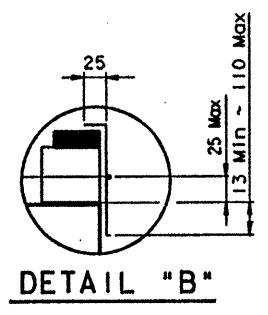
SHEET 2 OF 3



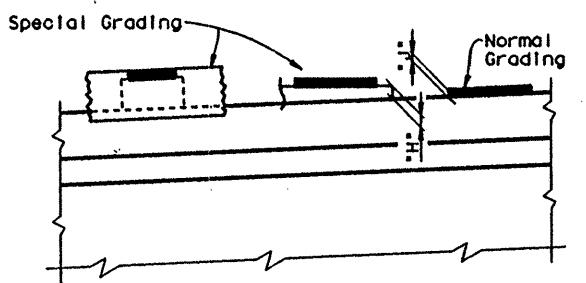
Place concrete blocks ⑤ at 1/4 pts of panel edges (50 mm ± along beam). For panels 1,200 mm long and less the blocks may be at panel corners and common to two panels. Blocks not to be used with Types A and B beams. Expanded polystyrene shall not be used for panel bedding with concrete blocks.

SPECIAL GRADING DETAILS

For use where the distance between top of beam and finished grade can not be achieved within tolerances on cast-in-place slab thickness and thickness of bedding strips. Panels may be supported by an alternate method, using a commercial product, if approved by the Engineer of Bridge Design, Design Division.



DETAIL "B"



At grading method changes along the beam, the special grading "H" dimension may be reduced to 45 mm and the normal grading "J" dimension may be increased to 50 mm. Some cross-slope conditions may require further H and J adjustments as directed by the Engineer.

Texas Department of Transportation Design Division (Bridge)

PRESTRESSED CONCRETE PANELS
OPTIONAL DECK DETAILS FOR PRESTRESSED CONC BEAM SPANS
PCP (C) (M)

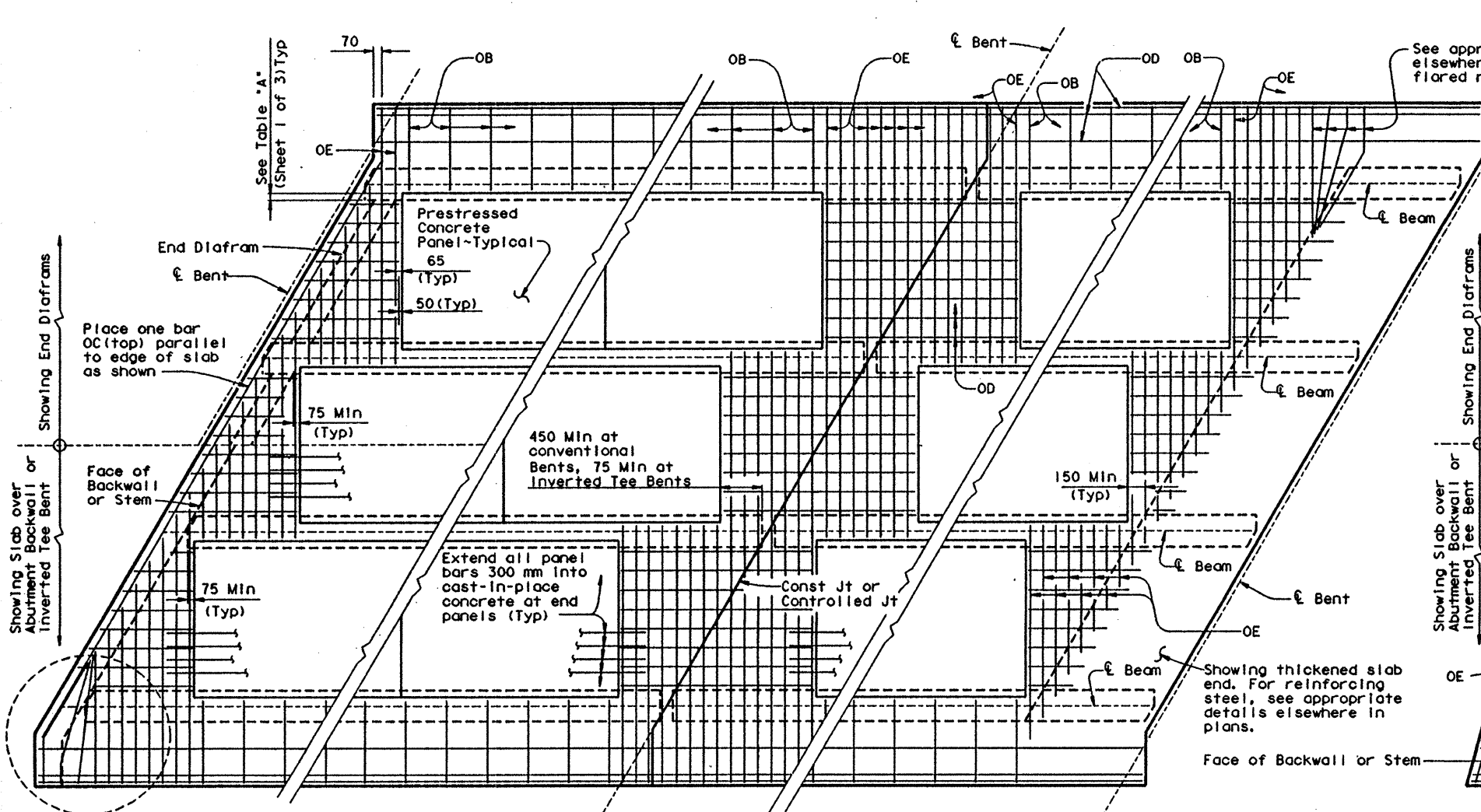
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DATE: JANUARY 1996	REV: 6	CONTROL SECT: 0039	JOB: 17118
DATE: JANUARY 1996	REV: 6	CONTROL SECT: 0039	JOB: 17118
DATE: JANUARY 1996	REV: 6	CONTROL SECT: 0039	JOB: 17118

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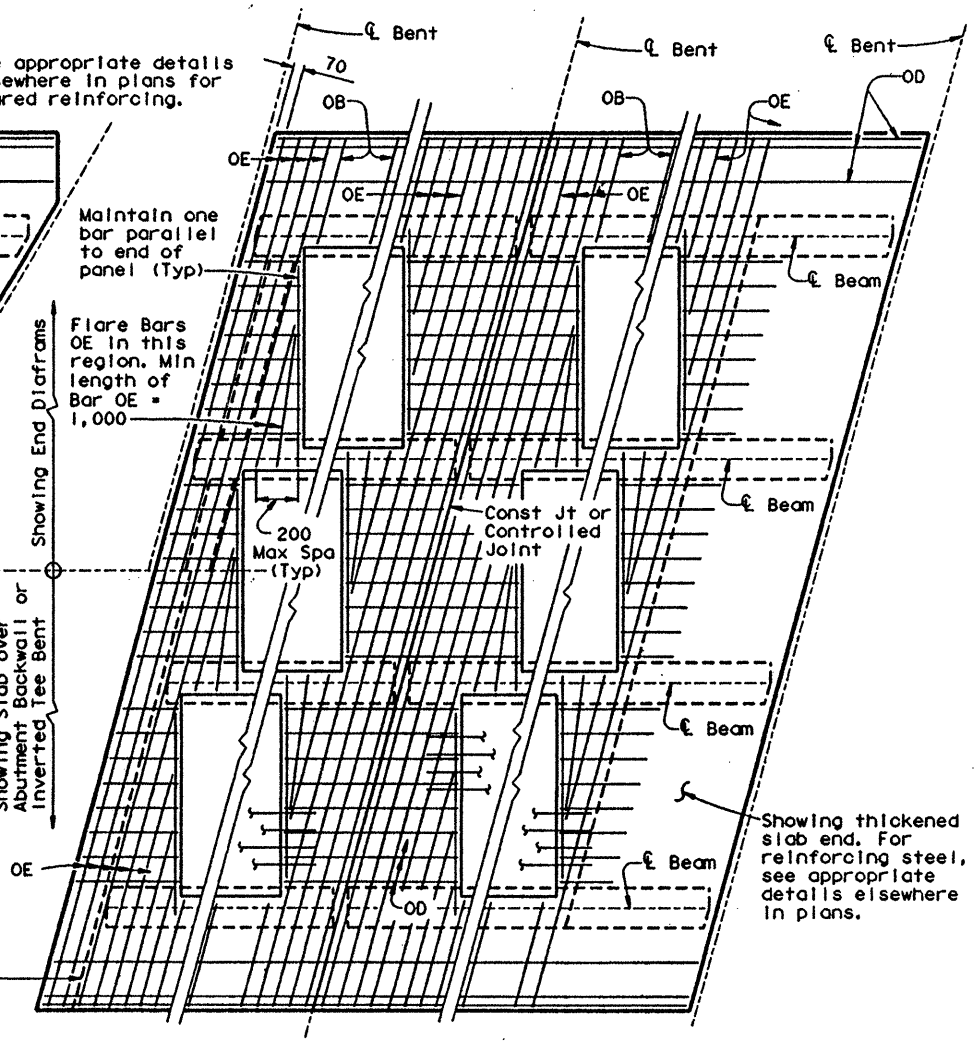
LEVELS DISPLAYED

1	3
---	---

ACC: (1/4-1.2 for English, 1.3 for Metric)



PLAN~SLABS WITH NORMAL REINFORCEMENT
 (Showing bottom reinforcing steel. For top reinforcement see Transverse Sections on Sheet 2 of 3 and Detail "A".)

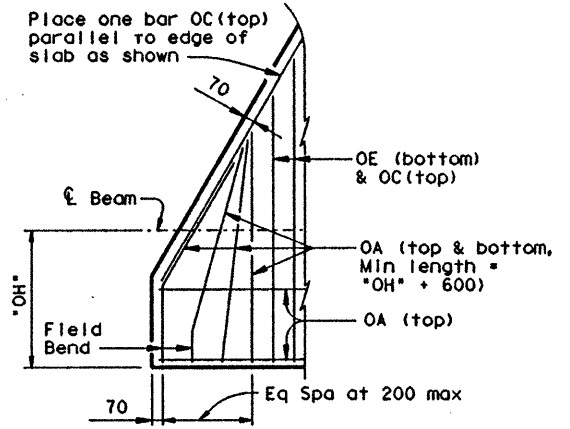


PLAN~SLABS WITH SKEWED REINFORCEMENT
 (Showing bottom reinforcing steel. For top reinforcement see Transverse Sections on Sheet 2 of 3.)

APPROXIMATE QUANTITIES FOR ONE SQUARE METER OF CIP SLAB OVER PCP (For Contractor's information only)

Slab Thickness (mm)	Reinf Steel (kg)	Class S Concrete (m ³)
190	14.55	0.088
195	14.55	0.093
200	14.55	0.098
210	14.55	0.108

Quantities shown do not include an allowance for slab overhangs, thickened ends or diaphragms, or the portion between panels over the beams.



DETAIL "C"
 Showing top and bottom reinforcing. Bars OD and OT omitted for clarity.

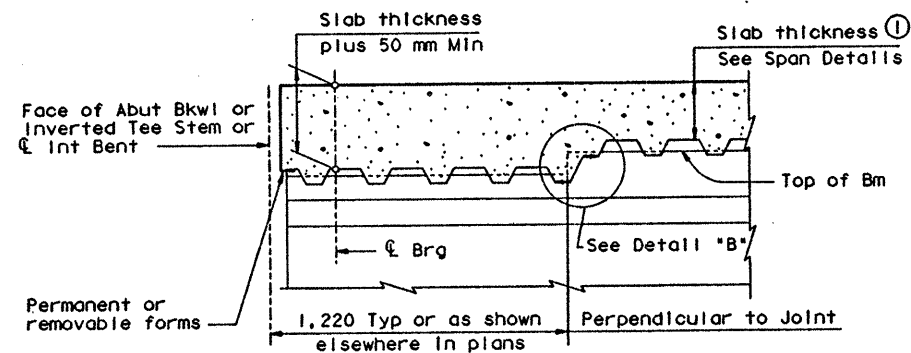
Texas Department of Transportation
 Design Division (Bridge)

PRESTRESSED CONCRETE PANELS
 OPTIONAL DECK DETAILS FOR
 PRESTRESSED CONC BEAM SPANS
 PCP (C) (M)

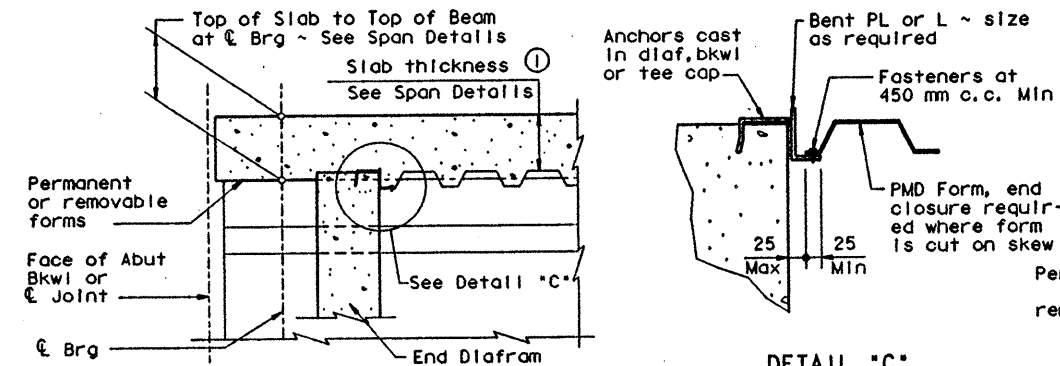
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ACC: _____
 LEVELS DISPLAYED: _____
 (LV=1,2 for English 1,3 for Metric)



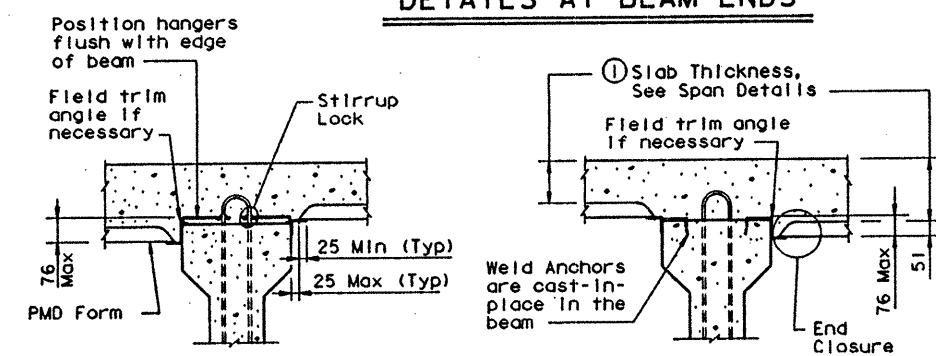
THICKENED SLAB END AT ABUTMENT OR INTERIOR BENT



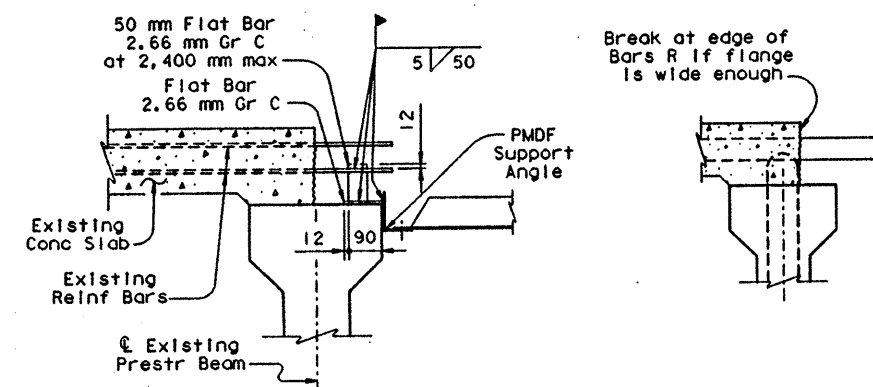
SLAB END WITH CONC END DIAF OPTION AT ABUTMENT OR INTERIOR BENT

① Slab thickness minus 16 mm if corrugations match reinforcing bars

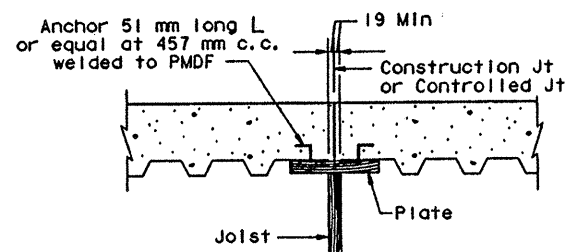
DETAILS AT BEAM ENDS



TYPICAL TRANSVERSE SECTIONS



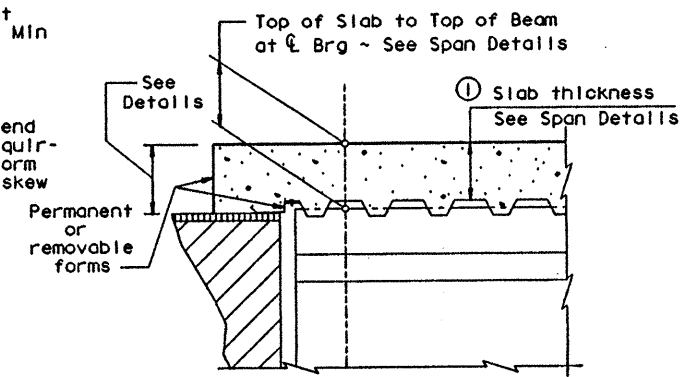
SECTION THRU BREAKBACK FOR WIDENING



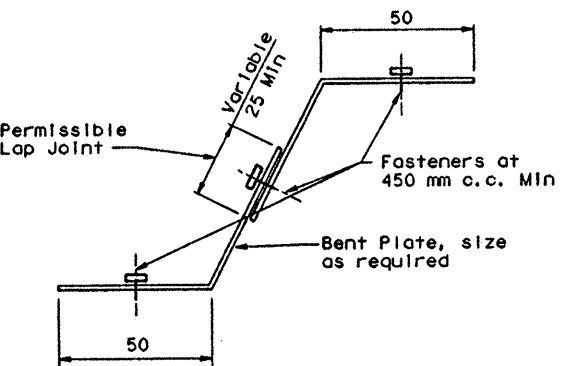
SECTION THRU CONSTRUCTION JOINT

Note: In spans where PMDF forms are used, timber forms shall be used at construction joints.

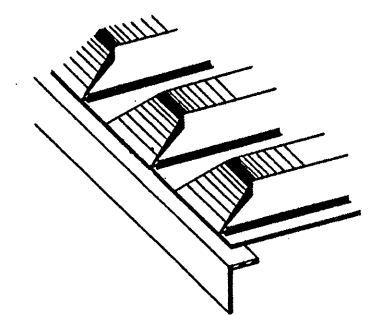
Adequate provision shall be made to support edge of metal form and to provide anchorage of metal form to slab concrete where joined to wood forms.



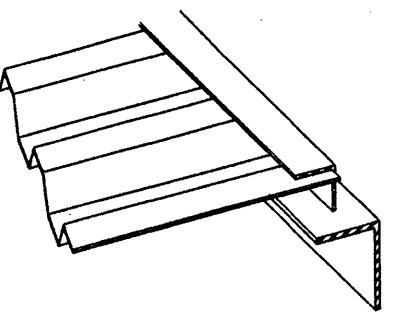
SECTION THRU SLAB OVER ABUTMENT BACKWALL OR INVERTED TEE STEM



DETAIL "B"



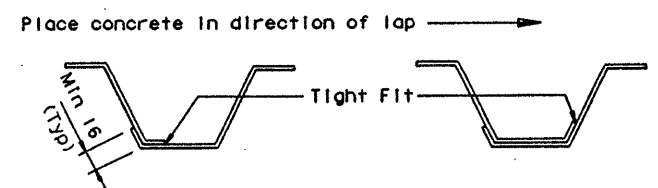
PRECLOSED



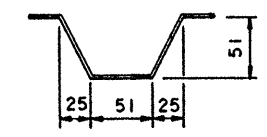
ANGLE HEADER

NOTE: This type is to be used for skewed ends only.

TYPES OF END CLOSURES



SIDE LAP DETAILS

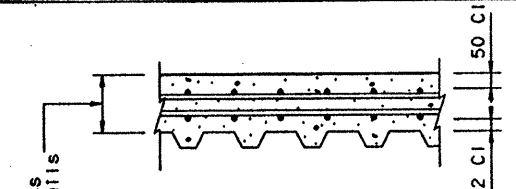


TYPICAL CORRUGATION

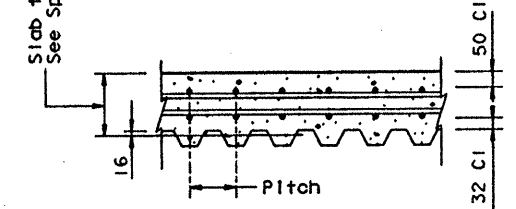
APPROXIMATE QUANTITIES FOR ONE SQUARE METER OF SLAB (for Contractors Information only)

Slab Thickness mm	Reinf Steel kg/m ²	Class S Concrete m ³ /m ²
185	32.52	.2109
190	32.52	.2146
195	32.52	.2202
200	32.52	.2258
210	32.52	.2345

These approximate quantities are for a typical square meter of cast-in-place slab over the average PMDF with corrugations not matching bars. The quantities do not include an allowance for slab overhangs, thickened slab ends, or possible haunch over beams.



CORRUGATIONS NOT MATCHING BARS



CORRUGATIONS MATCHING BARS

The Contractor has the option of furnishing either system, if practical.

TYPICAL LONGITUDINAL SLAB SECTIONS

GENERAL NOTES:

Permanent Metal Deck Forms (PMDF) shall be designed for the dead load of form, reinforcement and concrete plus 244 kilograms per square meter for construction loads. The following allowable stresses shall be used in the design:

ASTM A446, Grade	Yield (MPa)	Allowable Stress (MPa)
A	227.5	164.8
B	255.1	184.8
C	275.8	199.9
D	344.7	248.2
E	551.6	248.2
Weld Metal		85.5

Maximum deflection under the weight of forms, reinforcement and concrete, or a minimum of 586 kilograms per square meter shall not exceed 1/180 of the form span or 13 mm, whichever is less. The design span for forms shall be clear distance between beam flanges measured parallel to the form flutes minus 51 mm. The minimum thickness of the forms shall be 0.76 mm and that of the support angles shall be 1.90 mm. All forms shall be securely fastened to supports. All dimensions are in millimeters unless otherwise shown.

This Standard shall be used as a guide in the preparation of shop detail drawings.

Texas Department of Transportation
Design Division (Bridges)

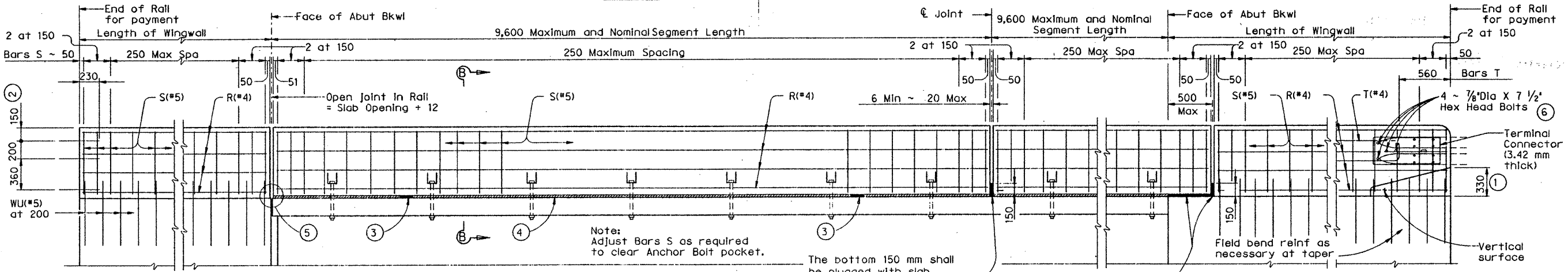
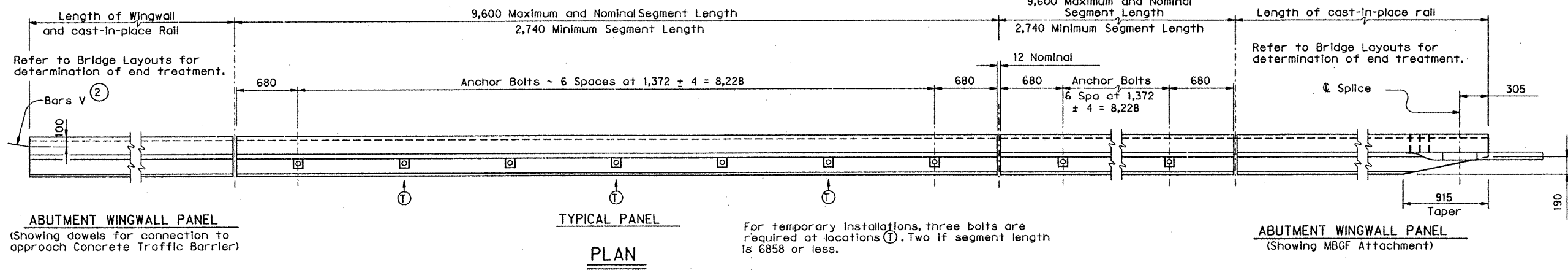
PERMANENT METAL DECK FORMS (CONCRETE)

PMDF (C) (M)

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ORIG DATE: JULY 1995	DIST	FED NEG	FEDERAL AID PROJECT	SHEET	
REVISIONS	21	6	NH 96 (791) M	421	
	COUNTY	CONTROL SECT	JOB	HIGHWAY	
	HIDALGO	0039	17118	83	

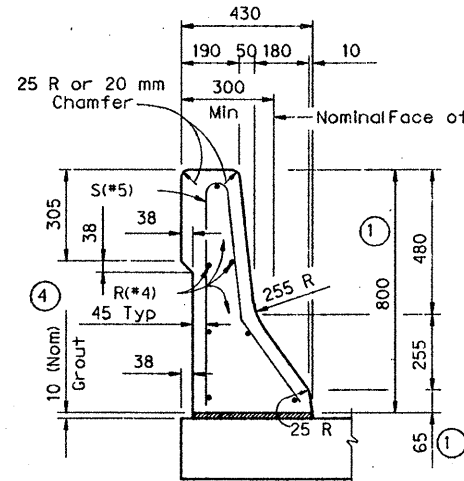
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LEVELS DISPLAYED
 1 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ACC
 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

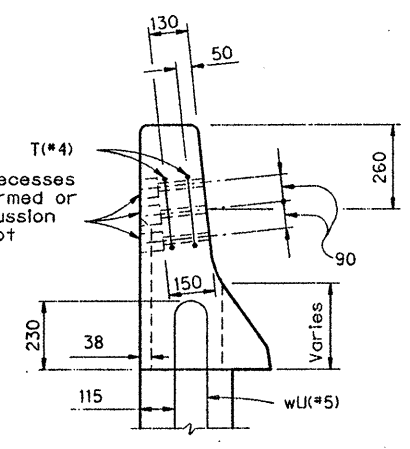


- (1) Increase 50 mm for structures with 50 mm Max overlay.
- (2) Connection to be same as for approach CTB if dowels are not used.
- (3) Permanent shims may be steel or wood 6 mm to 20 mm in height not exceeding 380 mm in length and covered by grout.
- (4) Grout to be placed by pressure methods all from one side of rail.
- (5) Special details will be required to allow this rail to be used with sealed expansion joints. Cast-in-place segments of T501 of 3,000 mm min length on both sides of the sealed expansion joint are recommended. See Layouts for limits of T501 cast-in-place.
- (6) 1 3/4" Dia washer required under 3/8" Dia Bolt Head and Washer.
- (7) Back offset may be continued to end of railing.

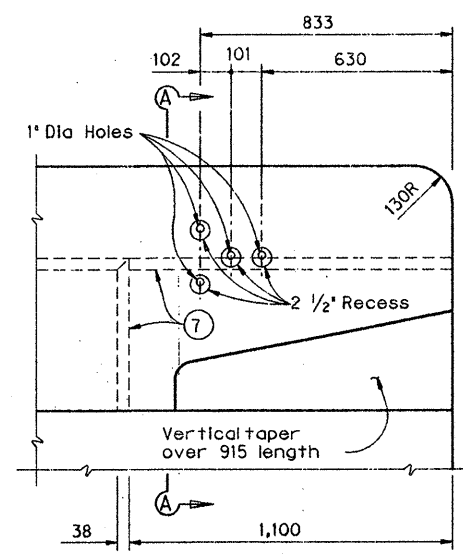
ROADWAY ELEVATION OF RAIL



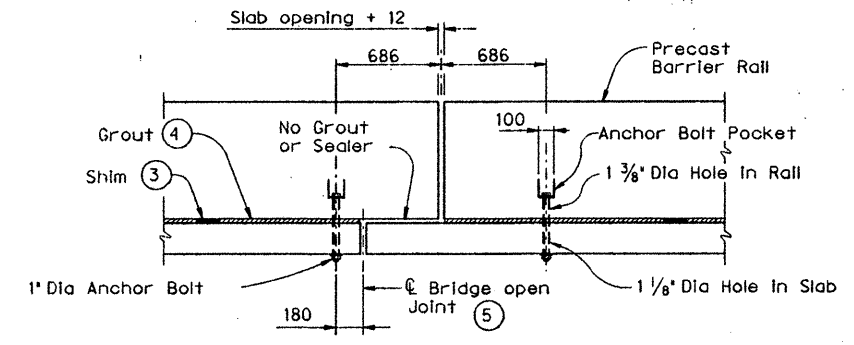
TYPICAL SECTION
(SHOWING CONVENTIONAL REINF)



SECTION A-A

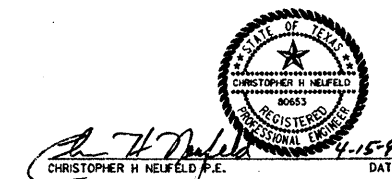


END TREATMENT AT MBGF



TYPICAL DETAIL AT OPEN SLAB JOINTS

- A. THIS RAIL SHALL BE USED IN STAGE CONSTRUCTION ONLY. IGNORE ABUTMENT WINGWALL DETAILS SHOWN.
- B. CONTRACTOR SHALL PROVIDE SLOTS IN RAIL AS NEEDED FOR DRAINAGE PURPOSES. NO SLOTS ARE PERMITTED ABOVE FM 1426 TRAVEL LANES HOWEVER.



MODIFICATION CLS - 3/11/96
 1. Added note A.
 2. Added note B.

SHEET 1 OF 2

Texas Department of Transportation
 DESIGN DIVISION (BRIDGE)

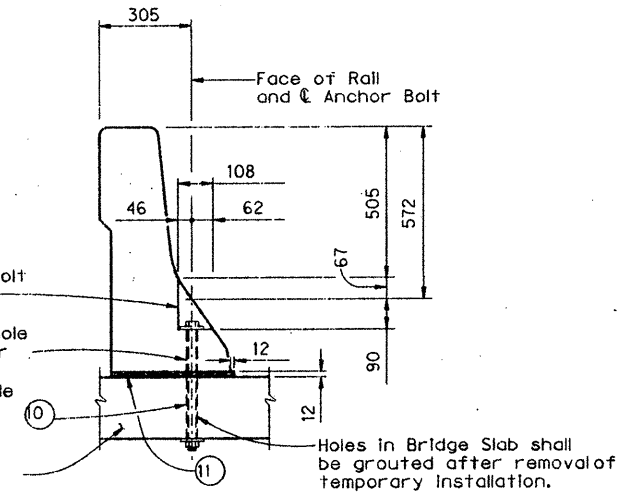
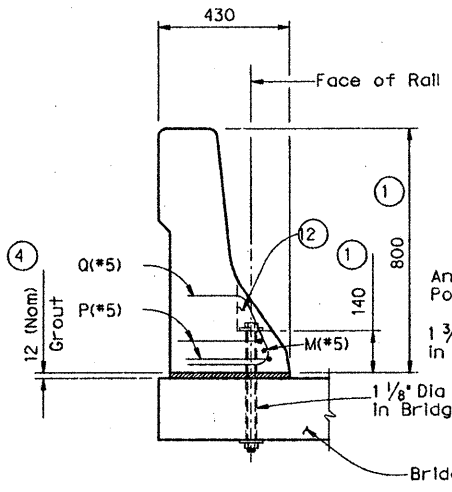
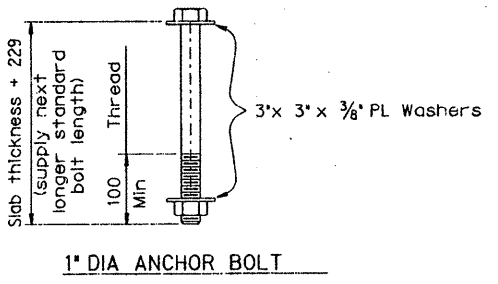
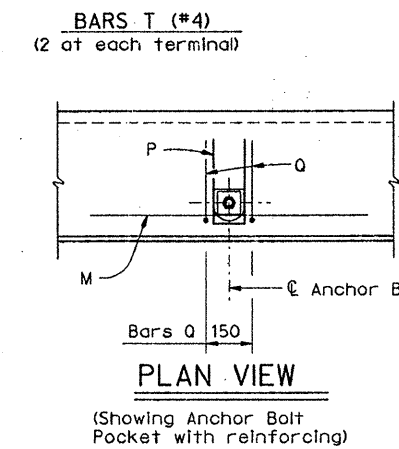
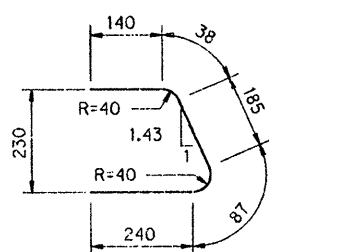
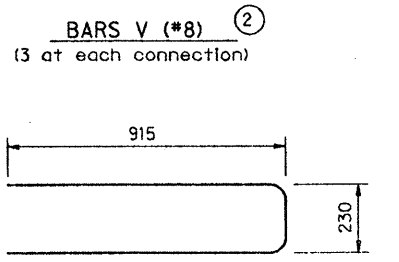
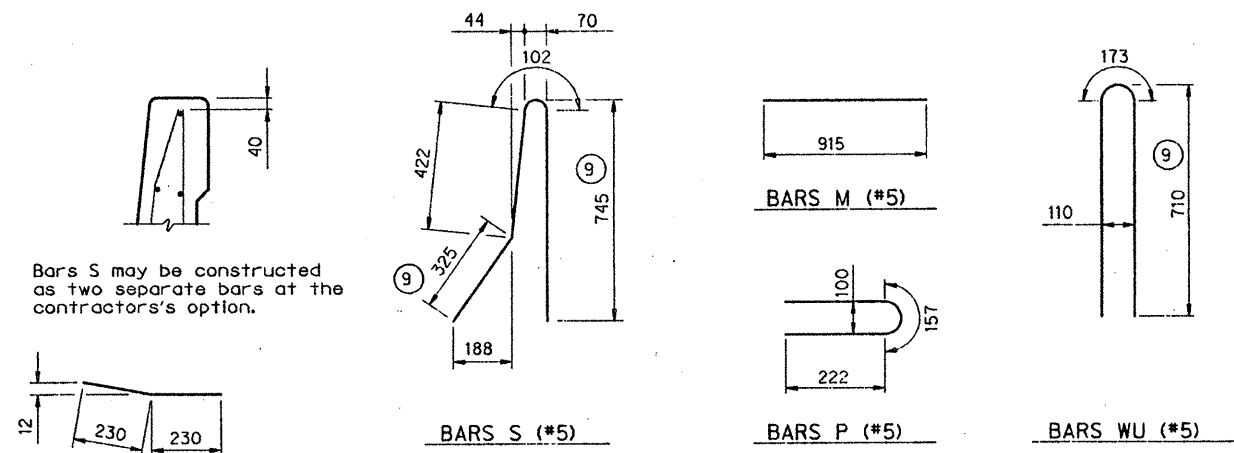
PRECAST TRAFFIC RAIL
U.S. 83/FM 1426 OVERPASS

TYPE T503(M) (MOD)

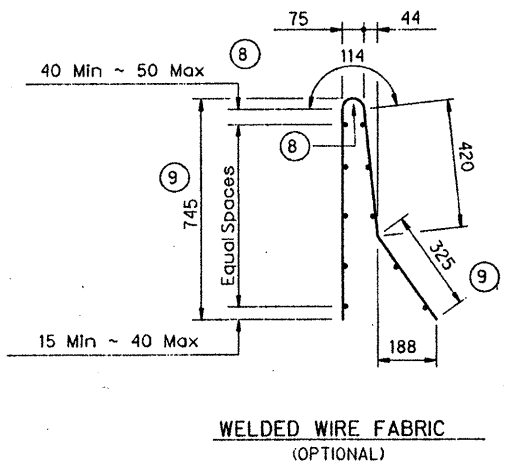
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ORIG DATE: JULY 1995	DIST	FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS		21	6	NH96(191) M	422
		COUNTY	CONTROL	SECT	JOB
		Hidalgo	003A	17	118 US83

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LEVELS DISPLAYED:
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- ① Increase 50 mm for structures with 50 mm Max overlay.
- ② Connection to be same as for approach CTB if dowels are not used.
- ④ Grout to be placed by pressure methods all from one side of rail.
- ⑧ No longitudinal wires may be within upper bend.
- ⑨ Dimension given is permissible for structures with up to 50 mm of overlay.
- ⑩ Holes in bridge deck may be formed or drilled. If drilled, rotary or coring equipment must be used. Percussion or impact drilling shall not be used. Spalls in the bottom of the slab exceeding 12 mm from edge of hole shall be patched.
- ⑪ When used for temporary construction railings, wood shims approx 20 mm to 40 mm thick and 90 mm to 140 mm wide should be placed approx 1,830 mm from ends of segment.
- ⑫ Anchor Bolt pocket shall be grouted after installation (Permanent installation only). If rails not to be painted, areas around pockets shall be masked before grouting to prevent grout from smearing onto rail face.



DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1,120 mm ²	640 mm ² /m
Minimum	No. of Wires	Spacing
Maximum	6	102
Maximum Wire Size Differential	11	305
	The smaller wire shall have an area of 40% or more of the larger wire.	

GENERAL NOTES:

This rail has been structurally evaluated to be equivalent or greater in strength to other safety shape railings which have been crash tested to NCHRP Report 230 SL-2 criteria. Also equivalent to railings tested to 1989 AASHTO Guide Specifications PL-2 criteria. Temporary installation is designed for max impact at 80 km/h and 15 degrees.

All parts of the railing including concrete parapet wall, reinforcing, terminal connector, bolts, nuts and washers are included in the price bid per linear meter of rail.

All steel components except reinforcing and shims shall be galvanized unless otherwise shown on plans. All concrete for railing wall shall be Class 'C'. All reinforcing steel shall be Grade 420.

Metal Beam Guard Fence or Concrete Traffic Barrier is usually attached to the abutment wing wall panel. See plan sheet for details and length for payment. The splice between the approach guard fence and the terminal connector shall be with the normal eight bolts. The dowel connection to the approach traffic barrier shall be grouted the same as other barrier joints. Shop drawings will not be required for this rail, but erection drawings shall be submitted to the Resident Engineer showing segment lengths and anchor bolt spacing.

Welded wire fabric may be used as an option to conventional reinforcement and shall be made in accordance with ASTM A497 (Deformed Wire).

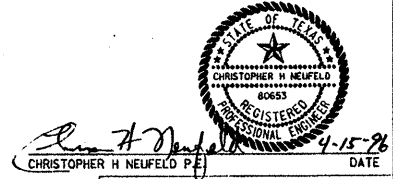
Welded wire fabric detail shown is for MD55 longitudinal wires and MD54 vertical wires. Combinations of reinforcing steel and welded wire fabric or configurations of welded wire fabric shown will be permitted when the conditions in the table are satisfied and the dimension from the end of section to first welded vertical bar does not exceed the dimension from end of section to first welded vertical bar does not exceed three inches.

Anchor Bolts are to be A325, A321 or A193 B7 with one hex nut and two hardened steel washers. Nuts shall conform to A563 requirements. The untapped blanks shall be galvanized prior to cutting the threads. Threads for bolts and nuts shall have Class 2A and 2B fit tolerance in accordance with ANSI B1.1.

All dimensions are in millimeters unless otherwise shown. Average weight of railing with grout and no overlay is 485 kg/m.

- A. THIS RAIL SHALL BE USED IN STAGE CONSTRUCTION ONLY. IGNORE ABUTMENT WINGWALL DETAILS SHOWN.
- B. CONTRACTOR SHALL PROVIDE SLOTS IN RAIL AS NEEDED FOR DRAINAGE PURPOSES. NO SLOTS ARE PERMITTED ABOVE FM 1426 TRAVEL LANES HOWEVER.

SHEET 2 OF 2



MODIFICATION CLS - 3/11/96
 1. Added note A.
 2. Added note B.

Texas Department of Transportation
 DESIGN DIVISION (BRIDGE)

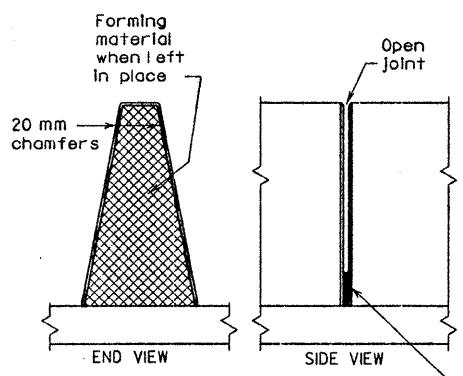
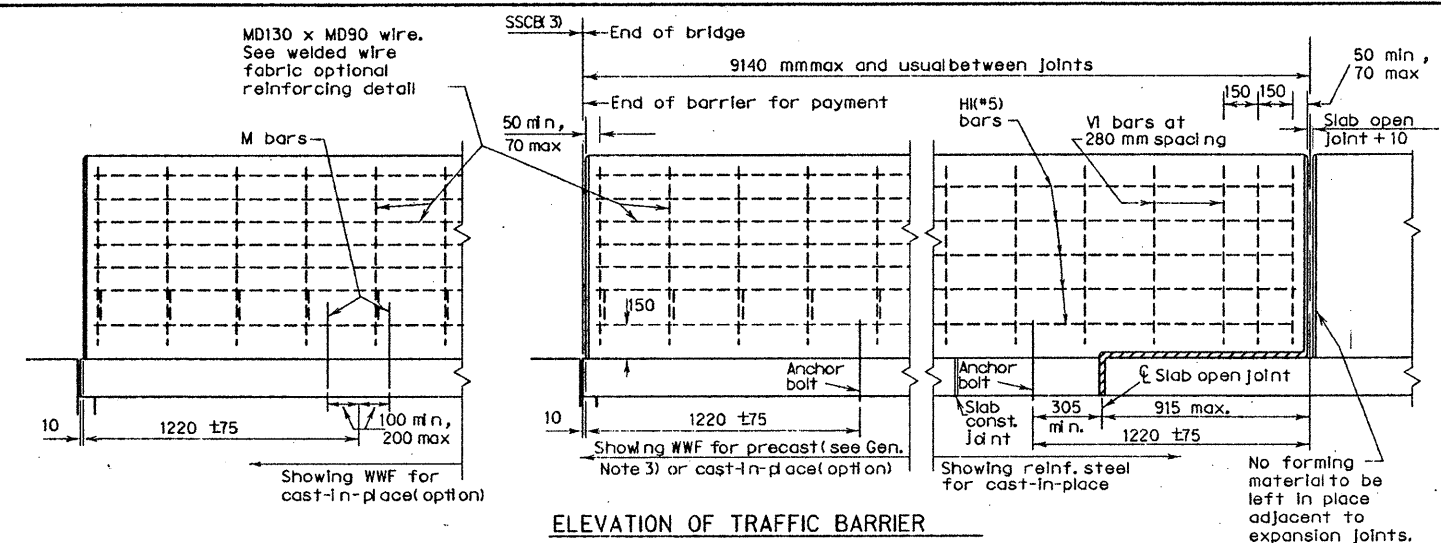
PRECAST TRAFFIC RAIL
 U.S. 83/FM 1426 OVERPASS

TYPE T503(M) (MOD)

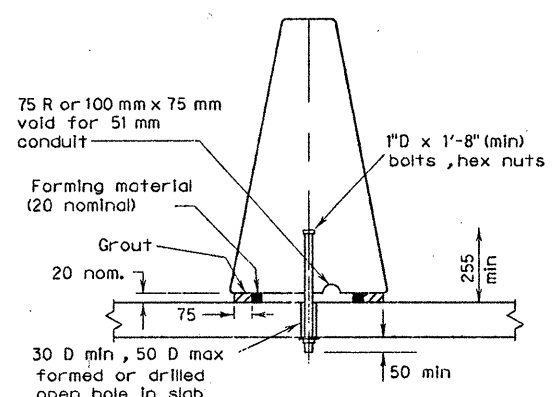
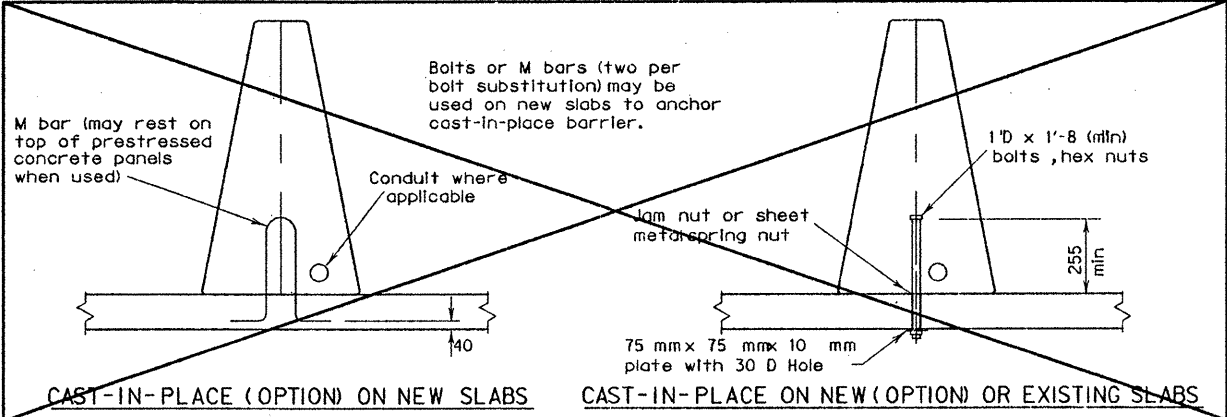
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REVISIONS:											
	21	6				NH96(791) M					423
						COUNTY:	CONTROL:	SECT:	JOB:	HIGHWAY:	
						110A1 62	003A	17	11A	US83	

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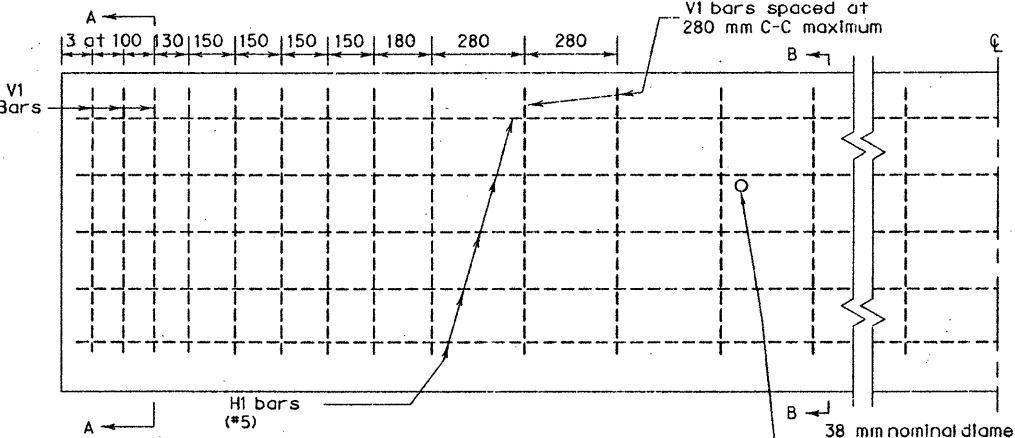
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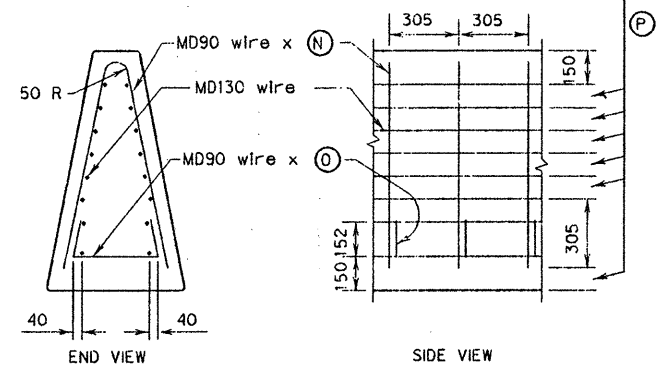
If forming materials not left in place and barrier is on low side of roadway, the bottom 150 mm shall be plugged with concrete or joint sealing compound.



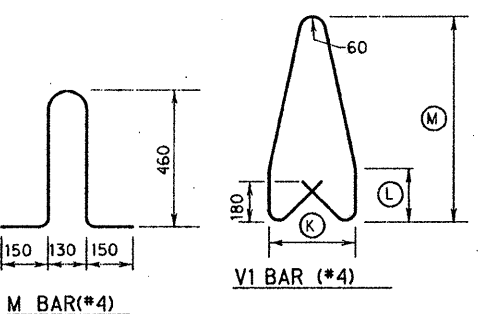
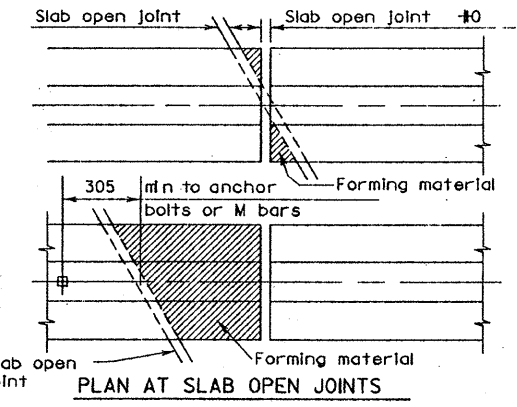
PRECAST ON NEW OR EXISTING SLABS



ELEVATION SHOWING REINFORCING FOR PRECAST (Symmetrical about barrier centerline)

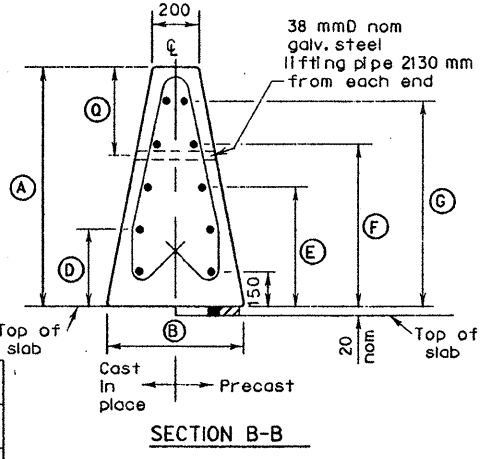


WELDED WIRE FABRIC OPTIONAL REINFORCING (Precast (see general note 3) or cast in place)



REINFORCING DETAILS

BARRIER HEIGHT	DIMENSIONS												
	A	B	D	E	F	G	K	L	M	N	O	P	Q
* 1070	608	345	535	720	920	380	235	920	1830	710	102	395	
1220	665	385	610	835	1070	435	275	1070	2140	800	102	430	
1370	722	425	685	950	1220	490	315	1220	2440	890	152	380	



SECTION B-B



GENERAL NOTES

- All concrete, reinforcement, anchor bolts, blocking, grout, etc., as shown are considered as part of the barrier for payment.
- Concrete for barrier shall be class C or H. All reinforcing steel shall be Grade 420, unless otherwise specified.
- Welded wire fabric (WWF) made in accordance with ASTM A497 may be used as an option to the conventional reinforcement for precast or cast-in-place barrier with the exception that only conventional reinforcement may be used for light pole sections. These sections shall be cast-in-place with length, shape, anchorage, and reinforcement as detailed on sheet SSCB (4). When precast barrier is to be used with the welded wire fabric option, conventional bar reinforcement will be required within 610 mm plus a development length of 460 mm from the ends of each barrier segment.
- Cast-in-place barrier may be slipped formed. Additional reinforcement may be tack welded to the upper two-thirds of the reinforcing cage to provide bracing. Do not weld to M bars or anchor bolts.
- Grout for precast barriers shall consist of two parts sand and one part cement. Latex adhesive may be added to the grout if directed by the Engineer. Wood or other material approved by the Engineer shall be used for blocking. Enough firm blocking must be used to properly align and grade the barrier sections. At other locations, any suitable material may be used to retain the grout.
- Joints shall be located near ends of spans, at ends of light pole sections and at intervals in between as necessary to maintain 9140 mm maximum and 4570 mm minimum section lengths. When barrier is cast-in-place a joint shall be placed at interior supports of continuous units. Joint openings shall be 10 mm minimum and 25 mm maximum or 10 mm wider than adjacent open slab joints. Material used in forming joints (not adjacent to slab expansion joints) may be left in place if it is compressible and light in color. Where portions of barriers project over adjacent spans, similar materials may also be used to provide 20 mm nominal clearance.
- Anchor bolts and associated nuts, washers, and plates for the barrier to slab attachment shall be galvanized. Bolts shall conform to ASTM A36. Threaded rods (0.906 inch min diameter with rolled threads) may be used in lieu of bolts. Threads for bolts shall have a Class 2A tolerance and nuts shall have a Class 2B tolerance in accordance with ANSI B1.1.
- The centerline axis of the barrier shall be vertical except where the slab is superelevated in which case it shall be normal to the cross slope unless otherwise shown in the plans or directed by the Engineer.
- The maximum offset from the center of the barrier to the true circular centerline shall be 25 mm for precast segments installed on horizontal curves. If this would require segment lengths of less than 4570 mm, then the barrier shall be cast-in-place to the correct radius.
- Shop drawings are not required for this barrier.
- Anchorage systems equal to or stronger than those shown may be used provided the details of such systems are submitted to and approved by the Engineer prior to placement.
- This barrier must be precast for the U.S. 83/FM 1426 Overpass due to future construction requirements.
- All conduit shall be considered as part of the barrier for payment.

R = Radius
 D = Diameter
 All unit-less dimensions are millimeters

U.S. 83/FM 1426 OVERPASS

- MODIFICATIONS CLS - 3/11/96
- REMOVED CAST IN PLACE RAIL OPTION.
 - ADDED NOTE #12.
 - PLACED * BY BARRIER HEIGHT.
 - 51 MM DIA. CONDUIT REQUIRED. ADDED NOTE #13.

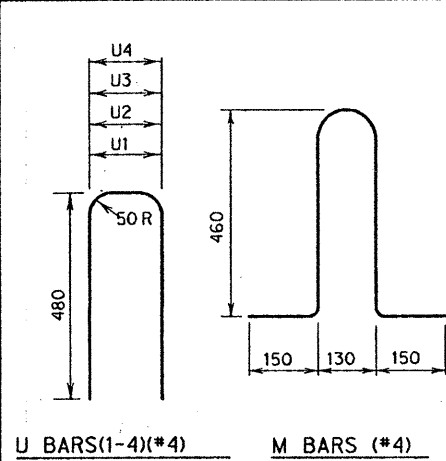
Texas Department of Transportation
 DESIGN DIVISION (ROADWAY)

SINGLE SLOPE
 CONCRETE BARRIER
 TYPE 1
 (BRIDGE)
 SSCB(1)-95(M) (MOD) (2)

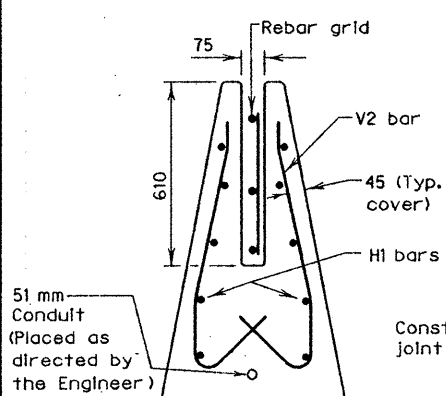
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REVISIONS		2.1	6	NH 96 (191)	M						424
		COUNTY	CONTROL SECT	JOB	NOHWAY						
		H10AL60	003A	17	118	US83					

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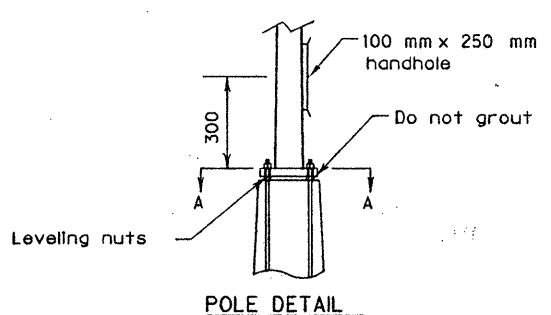
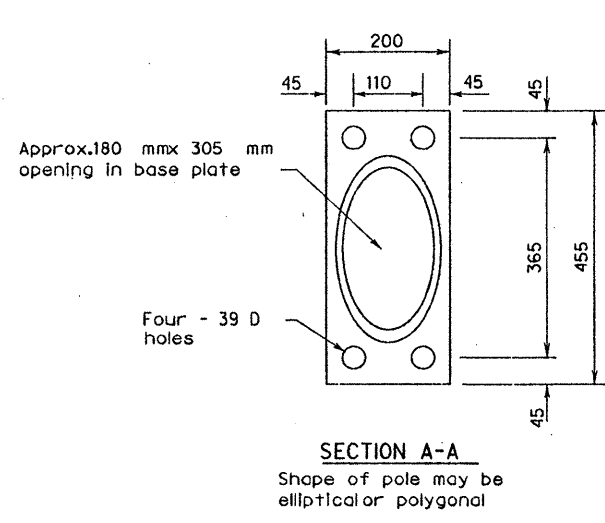
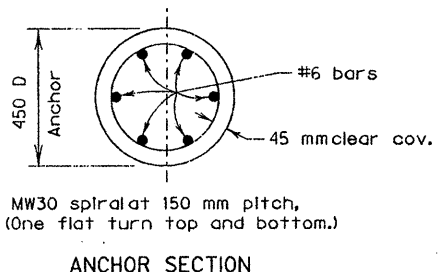
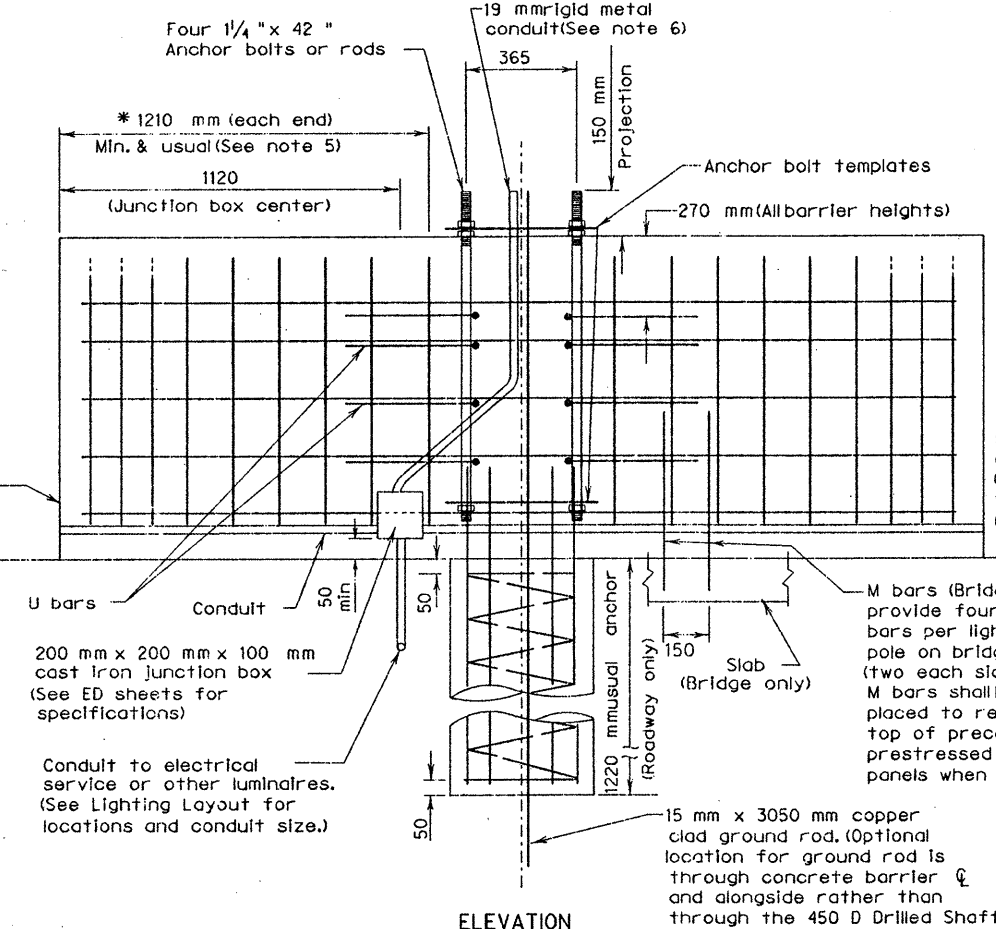
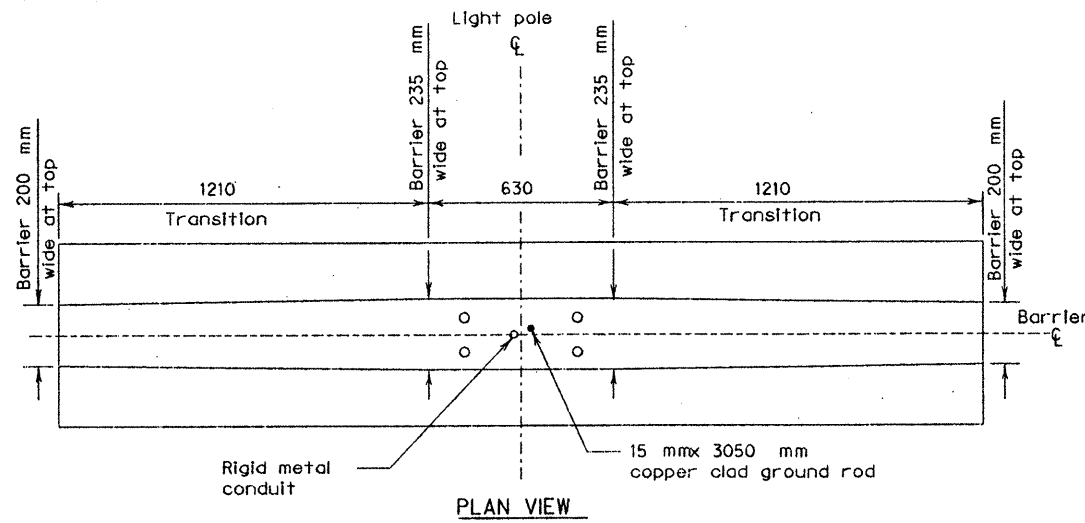
* See SSCB(1) for reinforcement details and placement on bridge sections. See SSCB(2) for reinforcement details and placement on roadway sections.



Each end of cast-in-place luminaire section shall be formed to mate with the precast concrete barrier and connected at each end to the precast sections as shown above. Rebar grid and slot will be omitted when this barrier is placed on bridge or adjacent to cast-in-place roadway barrier.

Barrier height (mm)	Dimensions (mm)				
	U1	U2	U3	U4	Anchor Bolts
* 1070	160	190	275	355	1065
1220	160	210	305	415	1220
1370	160	225	340	470	1370

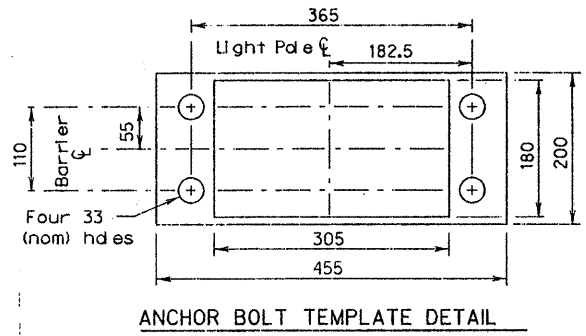
For other barrier requirements and reinforcement dimensions see SSCB(2)



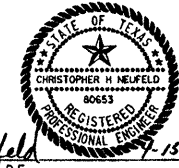
Four 1/4" anchor bolts (ASTM A325 with the top threaded not less than 150 mm) or anchor rods (ASTM A321). The top end of the bolts or rods shall be galvanized not less than 200 mm and furnished with nuts (ASTM A563, Grade D, galvanized, heavy hex) and flat and lock washers. The lower end of the bolts or rods shall be furnished with nuts and a template. The nut shall be tack welded to the bolt or rod and the template. The length of the bolt or rod is specified in the table below.

GENERAL NOTES

- Poles on bridge barrier shall be grounded using a ground rod near the wing wall and grounding conductor to each pole. The 450 mm diameter anchor shall be omitted on bridge barrier. Anchorage on bridges shall be provided using four M bars as detailed hereon.
 - Anchor bolts, ground rods, drilled shaft, anchor, plate, templates, junction box and rigid metal conduit as shown shall not be paid for directly but considered subsidiary to the various bid items.
 - Use special pole designation Roadway Illumination Assemblies Example: (TY SP14S-3-3)(0.4kw), where length of arm is 3 meters. (See RID Standard)
 - All conduit bends shall be in accordance with the National Electric Code.
 - 19 mm liquidtight flexible metal conduit may be used in lieu of 19 mm rigid metal conduit from the junction box to luminaire pole base, except that 150 mm of conduit before and all conduit after exiting the concrete shall be rigid metal. Liquidtight flexible metal conduit shall be approved for use as a grounding conductor. The total length of all liquidtight flexible metal conduit in any ground return path shall be a maximum of 1830 mm. The conduit shall be terminated in fittings listed for grounding. Branch circuits for barrier mounted poles shall be on 60 amp breakers maximum.
 - Junction boxes shall be cast iron. See ED(1) standard for types.
- R = Radius
D = Diameter
All unit-less dimensions are millimeters



6 mm plate top and 10 mm plate bottom. Bottom template may be field trimmed or drilled to accommodate drilled shaft reinforcement as directed by the Engineer.



U.S. 83/FM 1426 OVERPASS

MODIFICATIONS: CLS - 3/11/96

1. PLACED * BY BARRIER HEIGHT.
2. 21 mm CONDUIT REQUIRED.

Texas Department of Transportation
DESIGN DIVISION (ROADWAY)

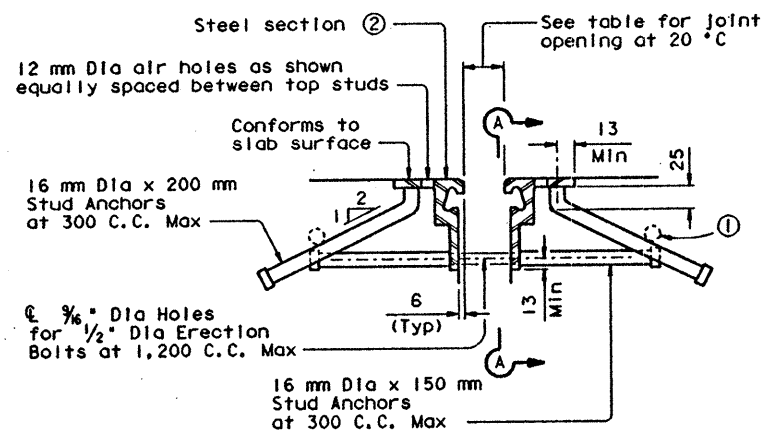
**SINGLE SLOPE
CONCRETE BARRIER
TYPE 4
CAST-IN-PLACE
(BRIDGE AND RDWY WITH ILLUMINATION)**

SSCB(4)-95(M) (MOD) (2)

FILES: SSCB495M.DGN	DWG: GTH	CHK: GTH	DWG: BGD	CHK: TGM	HEG:
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REVISIONS:	COUNTY: HIGHLAND	CONTROL: 0089	SECT: 17	JOB: 110	HWY: US83

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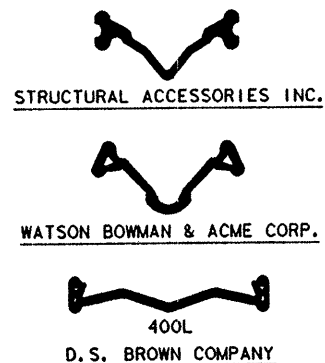
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SECTION THRU SEALED EXPANSION JOINT

NOTES:

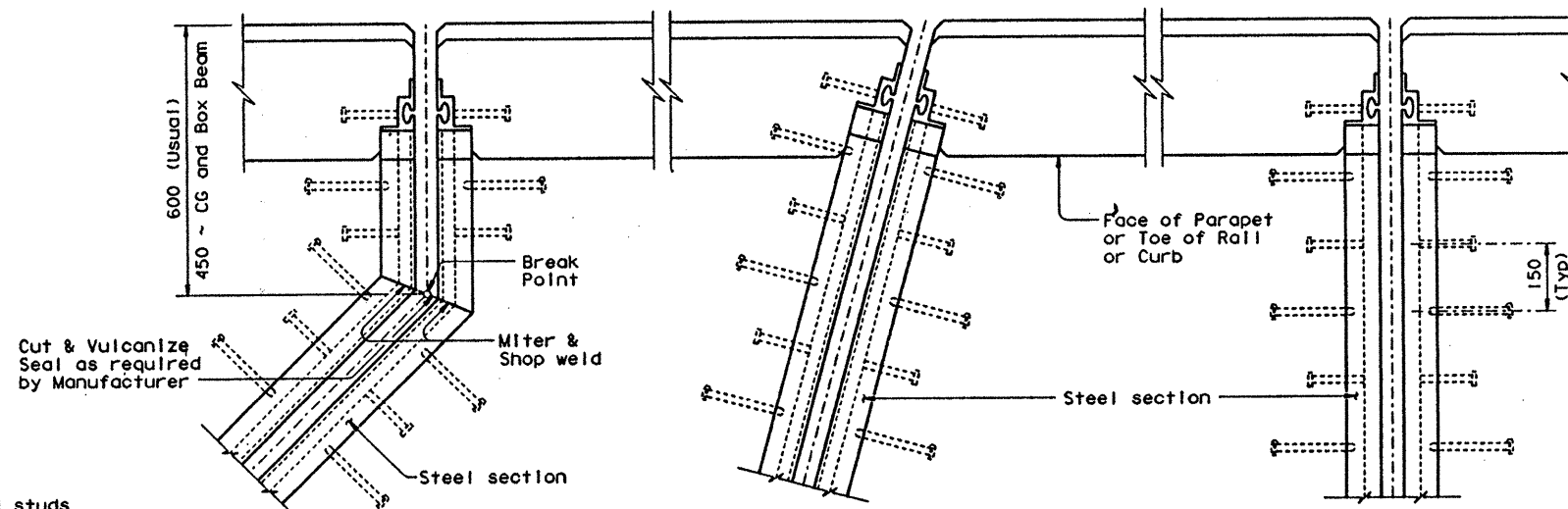
Steel sections shall be shipped in convenient lengths of 7,300 mm Max and 3,000 mm Min unless otherwise necessary for stage construction or widenings. One shop splice will be permitted in each shipping length provided no piece is less than 600 mm in length and sufficient studs are added to limit the stud to shop or field splice distance to 50 mm Min and 100 mm Max. Shop and field splices shall be made by butt welding with areas in contact with preformed joint sealer to be ground smooth. Corresponding sections shall be match marked and bolted together for shipment. All steel parts are not to be painted or primed unless designated elsewhere on the plans.



NEOPRENE SEALS

- ① Transverse bars in conflict with SEJ studs in either the bridge slab or approach slab shall be moved to rest on studs as shown.
- ② Shape of steel section shown is typical. Variations depending on manufacturer are permissible.
- ③ Remove all burrs which will be in contact with seal prior to making splice.

MANUFACTURER	STEEL SECTION ②	NEOPRENE STRIP SEAL	
		100 mm JOINT	Joint Opening
Watson Bowman & Acme Corp.	Type MI	SE400	45
Structural Accessories Inc.	Type KK	50SS	45
D.S. Brown	Type SSCM	400L	45



SKEWS WITH SLAB BREAK

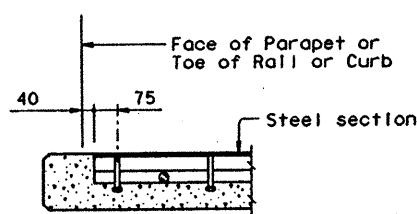
SKEWS WITHOUT SLAB BREAK

NORMAL

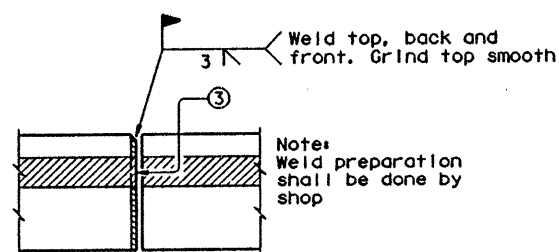
PLANS OF END CONDITIONS

GENERAL NOTES:

Sealed Exp Jts shall be provided in the size and at locations shown on plans. Minimum slab thickness required for the use of SEJ-S(M) is 165 mm. Shop fabrication will be required at all intersections of cross slope and at break points. At splices, a continuous ground smooth weld shall be provided except on all surfaces in locking contact with seal which shall have no burrs. Corresponding sections of Sealed Exp Jts shall be temporarily shop assembled, checked for fit, and match marked for shipment. Erection holes shall be punched so as to line up when Sealed Exp Jts are in their final position. Stud anchors shall be electric arc welded with complete fusion. The neoprene seal shall be continuous and included in the price bid for Sealed Exp Jt. The Contractor shall arrange for securing the Sealed Exp Jt in position, and placing to the proper grade and alignment by welding braces to adjacent reinf steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Cost of temporary bracing is to be included in the price bid for Sealed Exp Jt. After bracing and welding the steel section, the erection bolts and spacers shall be removed and erection holes sealed before placing slab concrete. All dimensions are in millimeters unless otherwise shown.

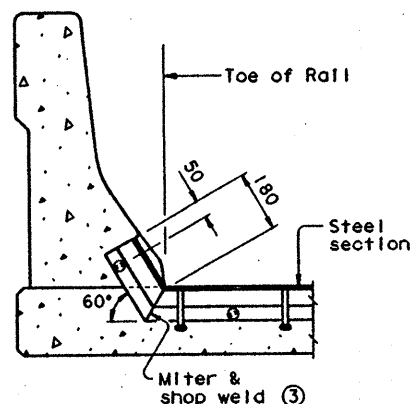


SECTION THRU SLAB (HIGH SIDE)

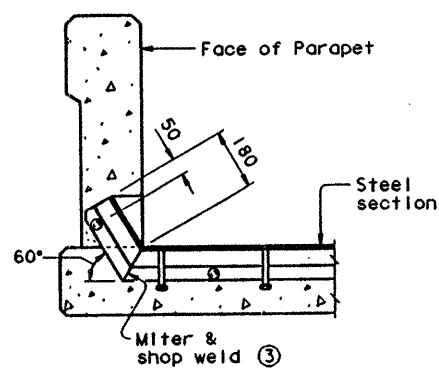


VIEW A-A (AT STEEL SECTION SPLICE)

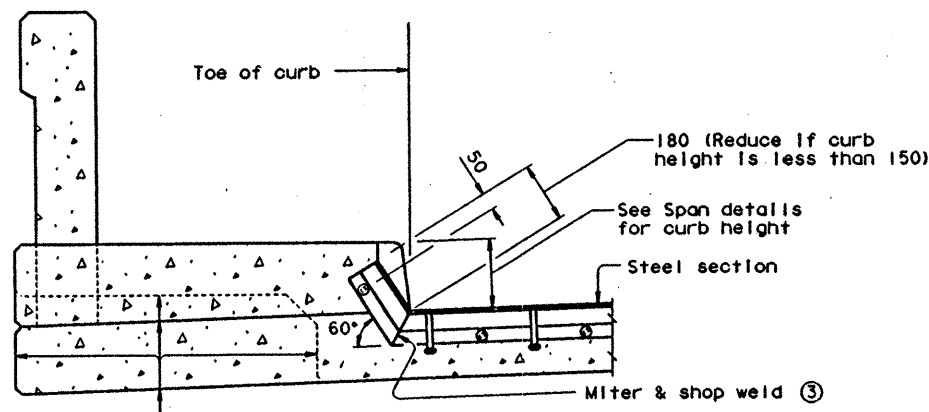
BEVEL AT STEEL SECTION SPLICE



SECTION THRU BARRIER RAIL (LOW SIDE)



SECTION THRU OTHER PARAPET RAILS (LOW SIDE)

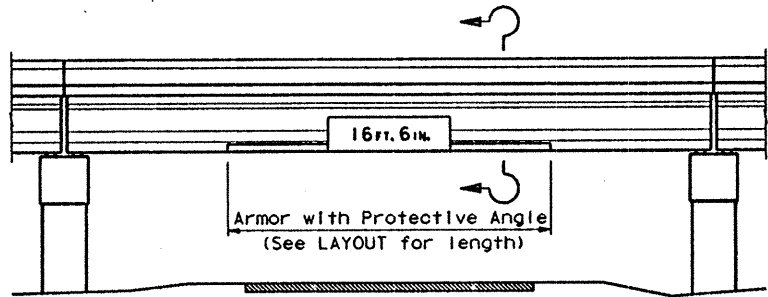


SECTION THRU SIDEWALK (LOW SIDE)

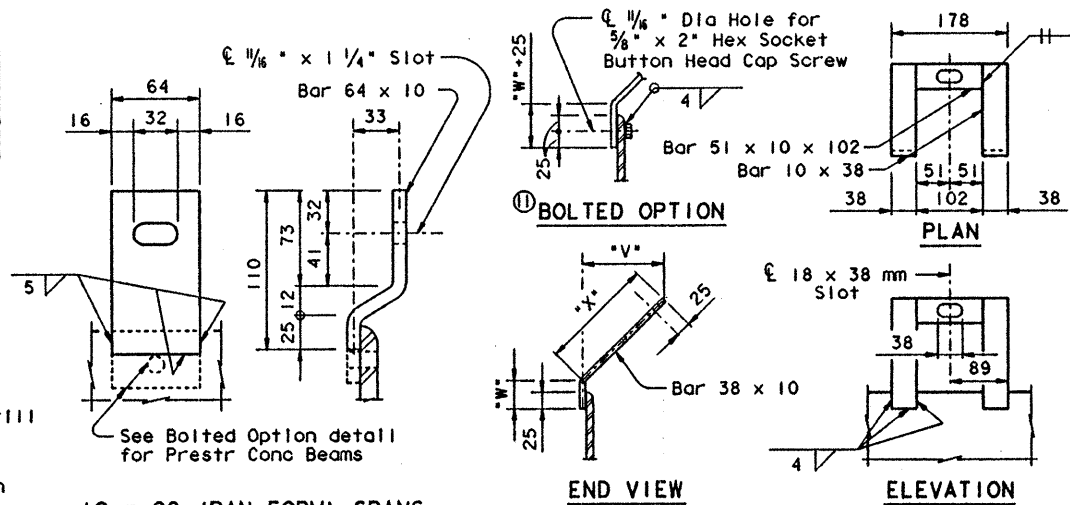
Texas Department of Transportation
 Design Division (Bridge)

SEALED EXPANSION JOINT DETAILS
WITHOUT OVERLAY
SEJ-S (M)

FILE: sejetd04.dgn	DATE: THD	CR: JCV	DR: JTR	CR: LDS	MR: B269M
ORIG DATE: JULY 1995	DIST: 21	FED REG: 6	FEDERAL AID PROJECT: NH96(79)M		SHEET: 426
REVISIONS					
COUNTY: HIDALGO		CONTROL: 0039	SECT: 17	JOB: 11B	HIGHWAY: 83



TYPICAL BRIDGE ELEVATION

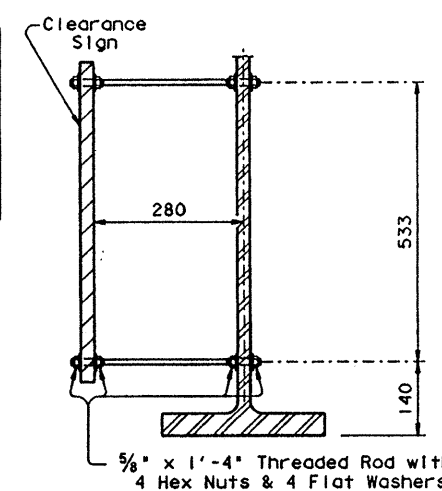


12 m CG (PAN FORM) SPANS & PCI TYPE BOX BEAMS

PRESTRESSED CONCRETE I-BEAMS

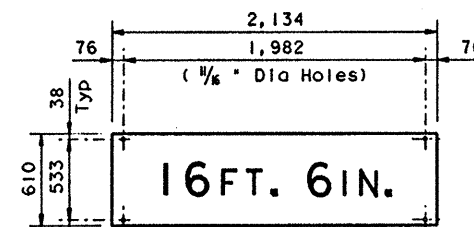
BEAM	*V*	① *W*	*X*	*Y*	*Z*
TYPE A	113	33	160	65	92
TYPE B	140	60	198	57	81
TYPE C	184	34	261	57	81
TYPE 54	121	60	171	57	81
TYPE 72	185	136	261	57	81
TYPE IV	122	60	172	158	223

① Add 25 mm to *W* dimension when "BOLTED OPTION" is used. Notch Redwood Plank to accommodate bolt and nut.



CLEARANCE SIGN MOUNTING BOLTS

STEEL GIRDER & I-BEAM UNITS

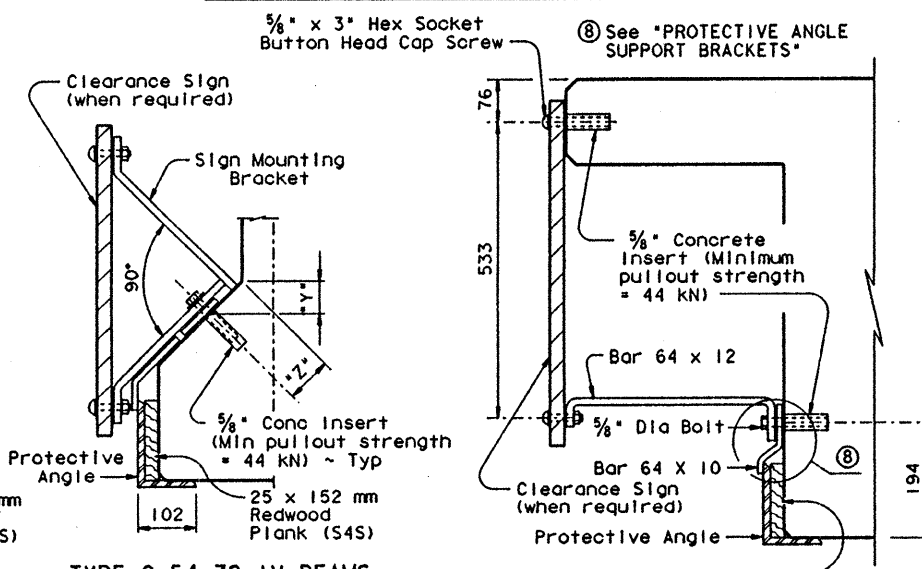


ELEVATION OF CLEARANCE SIGN

GENERAL NOTES:

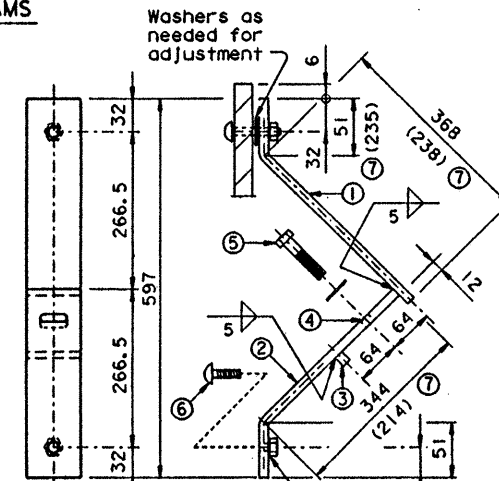
Designed according to current AASHTO Standard Specifications.
 Protective Angles and Support Brackets shall be Structural Steel conforming to ASTM designation A36, A441, A572 or A588 and may be shipped in convenient lengths (3,350 mm Min).
 Redwood Planks shall be beveled to clear inside radius of Protective Angle and shall be full length of angle. Joints in plank shall not coincide with joints in angle.
 Either clearance signs, protective angles or both together may be installed using these details. For clearance signs these details are appropriate for skew angles up to 30°. For protective angles these details are appropriate for any skew.
 Plans may require the complete assembly, consisting of protective angle and mounting brackets, sign and sign mounting brackets, or may require only portions of this assembly, all as noted on the structure Layout sheet.
 All dimensions are in millimeters unless otherwise shown.
 For clearance sign details in excess of 30°, include BPA-2(M).

PROTECTIVE ANGLE SUPPORT BRACKETS



12 m CG (PAN FORM) SPANS (SHOWN WITH SIGN)

PRESTRESSED CONCRETE I-BEAMS (SHOWN WITH SIGN)



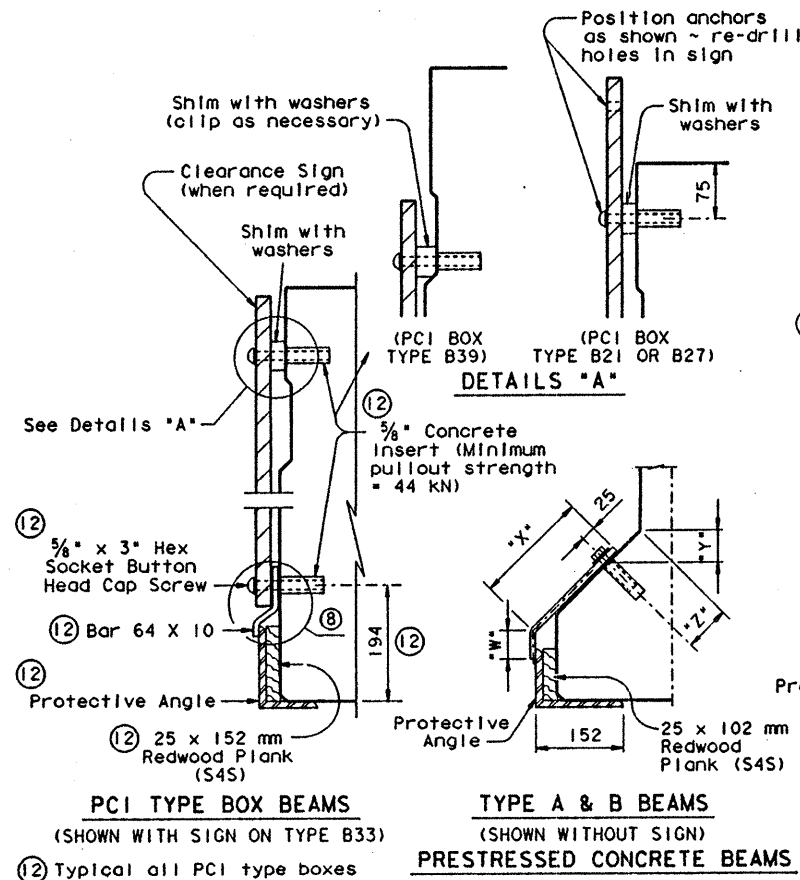
- ① Bar 64 X 12 x 419
- ② Bar 64 X 12 x 395
- ③ Bar 12 x 12 x 64
- ④ 1/8" x 1 1/4" Slot
- ⑤ 3/8" x 3" Bolt with Flat Washer
- ⑥ 3/8" x 2" Hex Socket Button Head Cap Screw
- ⑦ For Type A Beams only.

CLEARANCE SIGN MOUNTING BRACKET (2 REQUIRED PER SIGN)

OVERHANG	134	120
U	112	98

NOTE: If no overhang is present, omit Bracket, space with washers as necessary, re-position upper anchors and/or holes in sign.

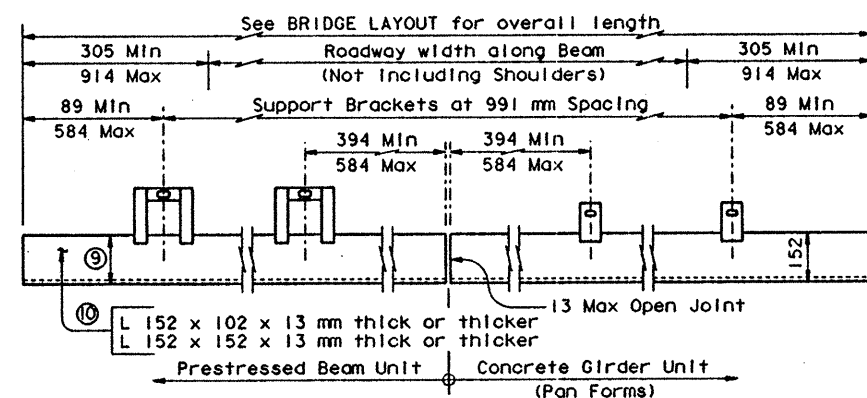
CLEARANCE SIGN MOUNTING BRACKET (2 REQUIRED PER SIGN)



PCI TYPE BOX BEAMS (SHOWN WITH SIGN ON TYPE B33)

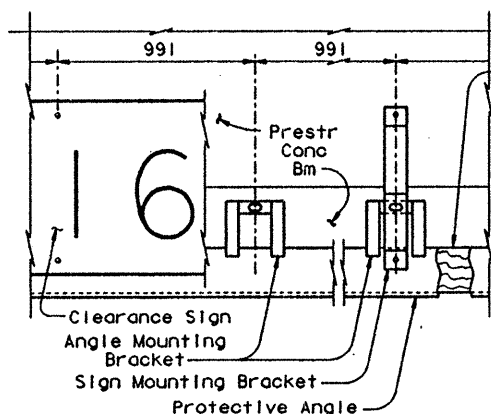
TYPE A & B BEAMS (SHOWN WITHOUT SIGN) PRESTRESSED CONCRETE BEAMS

SECTIONS THRU BRIDGE ELEVATION



ELEVATION OF PROTECTIVE ANGLE

- ⑨ See Prestressed Concrete Beam Sections.
- ⑩ *V*, *W* & *X* Dimensions may need adjusting for thicker Protective Angles.



TYPICAL INSTALLATION OF CLEARANCE SIGN AND PROTECTIVE ANGLE

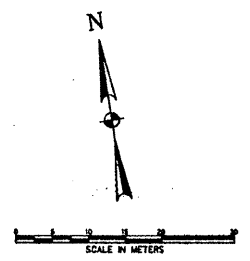
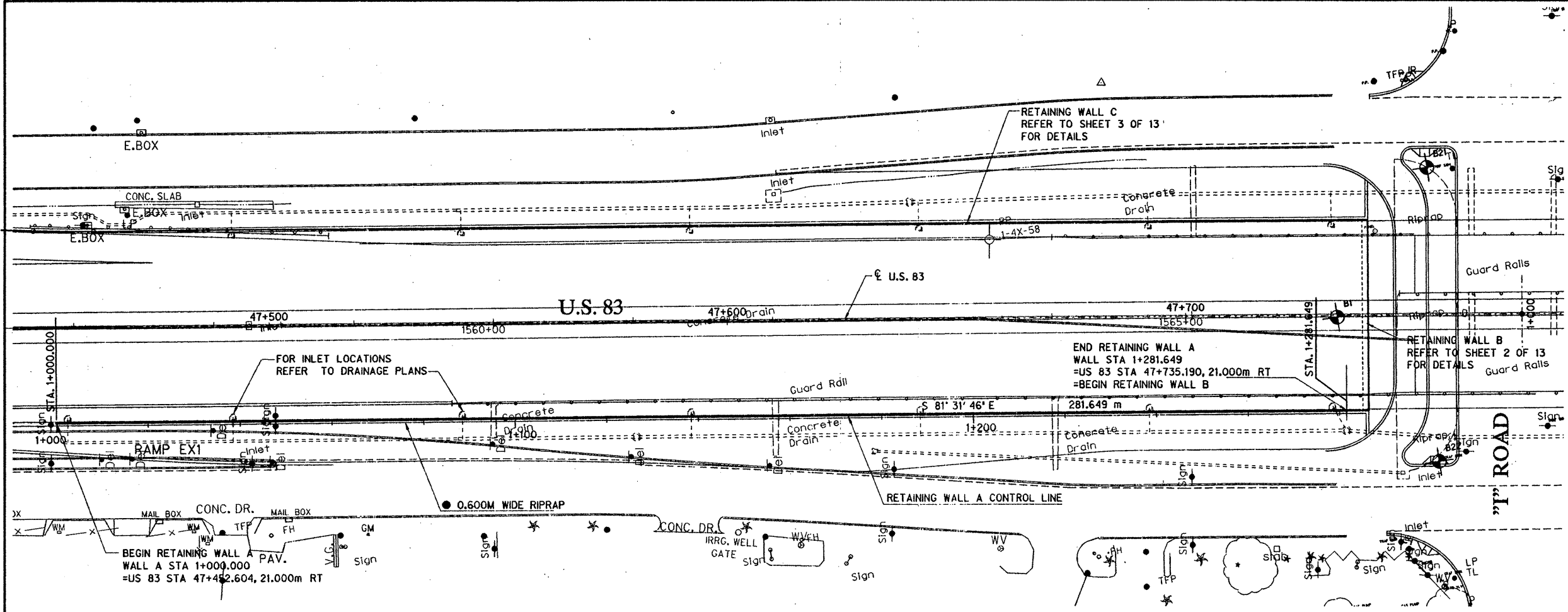
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED	ACC
1	3

Texas Department of Transportation
 Design Division (Bridge)

BRIDGE PROTECTIVE ASSEMBLY
WITH SIGN MOUNT BRACKET FOR SKEWS THRU 30°
BPA-1 (M)

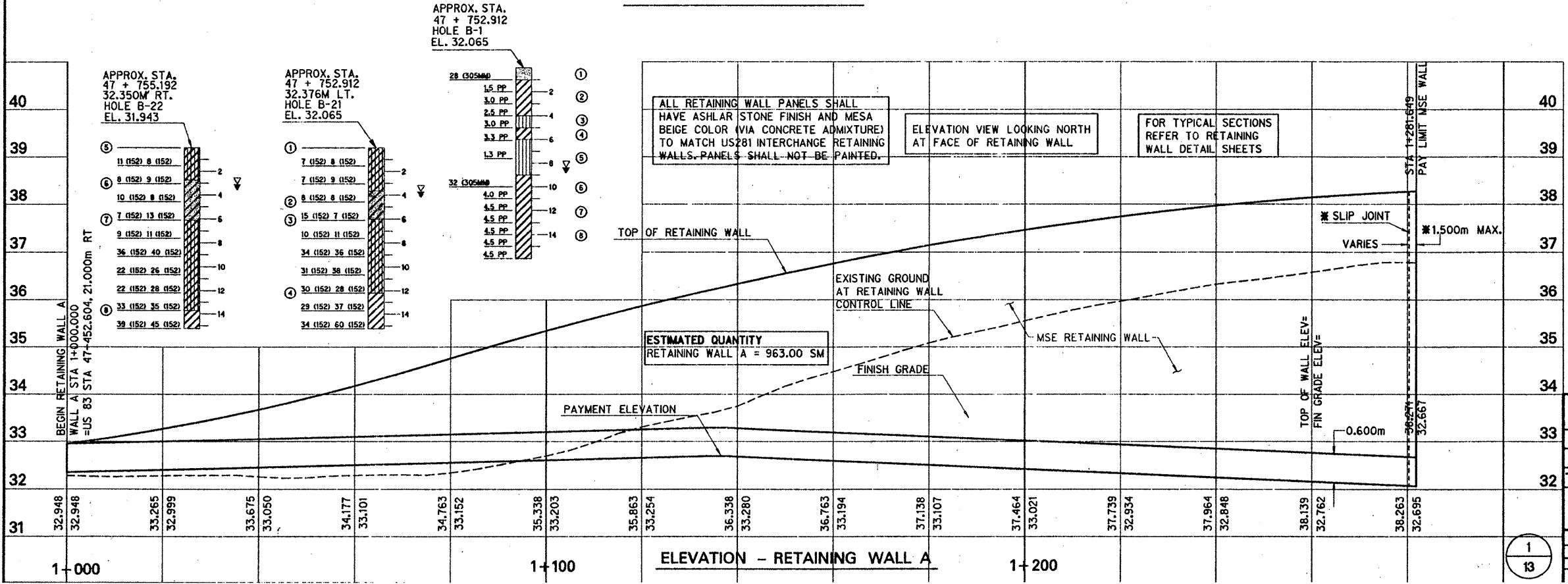
FILE: bpa01.dgn	DW: THD	CHK: THD	DWG: DRG	CHK: LDS	NEG: B113AM
ORIG DATE: AUGUST 1995	DIST	FED REG	FEDERAL AID PROJECT		
REVISIONS	21	6	NH 96 (791) M	427	
	COUNTY	CONTROL SECT	JOB	HIGHWAY	
	HIDALGO	0039	17	118	83



TEST BORE HOLE LEGEND:

- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- ② CLAY, SILTY, TAN
- ③ CLAY, SANDY, TAN, SATURATED
- ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- ⑤ CLAY, TAN, PLASTIC
- ⑥ SAND, FINE, TAN
- ⑦ CLAY, SILTY, SANDY, TAN
- ⑧ SAND, FINE, SATURATED TAN
- ⑨ CLAY, SANDY, TAN, MOIST
- ⑩ CLAY, SILTY, TAN
- ⑪ SAND, TAN, FINE, POORLY GRADED
- ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
- ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN

PLAN - RETAINING WALL A



Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

RETAINING WALL LAYOUT AND ELEVATION
RETAINING WALL A
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS ARCHITECTS SCIENTISTS PLANNERS SURVEYORS

DESIGN	DRAWN	NOTES	PRO. NO. / DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD				TEXAS	NR 45 (711) M	299
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT SECTION	JOB NO.
APRIL 1996	RD00W-A	1:50	21	HIDALGO	1000	17 18



SCALE IN METERS

TEST BORE HOLE LEGEND:

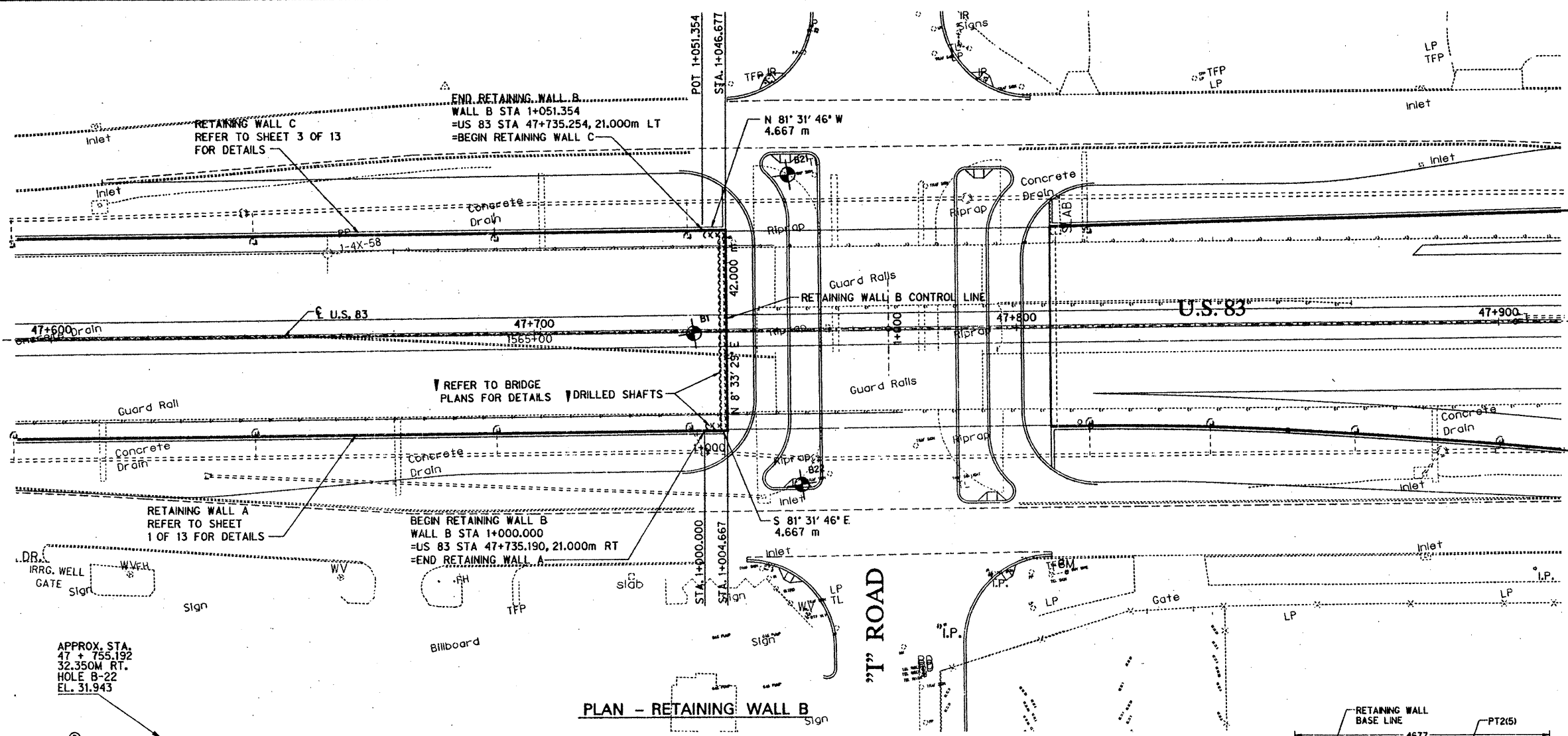
- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- ② CLAY, SILTY, TAN
- ③ CLAY, SANDY, TAN, SATURATED
- ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- ⑤ CLAY, TAN, PLASTIC
- ⑥ SAND, FINE, TAN
- ⑦ CLAY, SILTY, SANDY, TAN
- ⑧ SAND, FINE, SATURATED TAN
- ⑨ CLAY, SANDY, TAN, MOIST
- ⑩ CLAY, SILTY, TAN
- ⑪ SAND, TAN, FINE, POORLY GRADED
- ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
- ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN

NOTE:

CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING HOW THE FACIA PANELS WILL BE ATTACHED TO THE DRILLED SHAFTS. ABOVE SHOP DRAWINGS SHALL BE APPROVED BY THE CONTRACTOR'S REGISTERED P.E. PRIOR TO CONSTRUCTION.

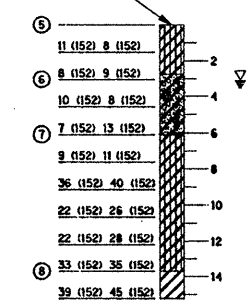


Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE



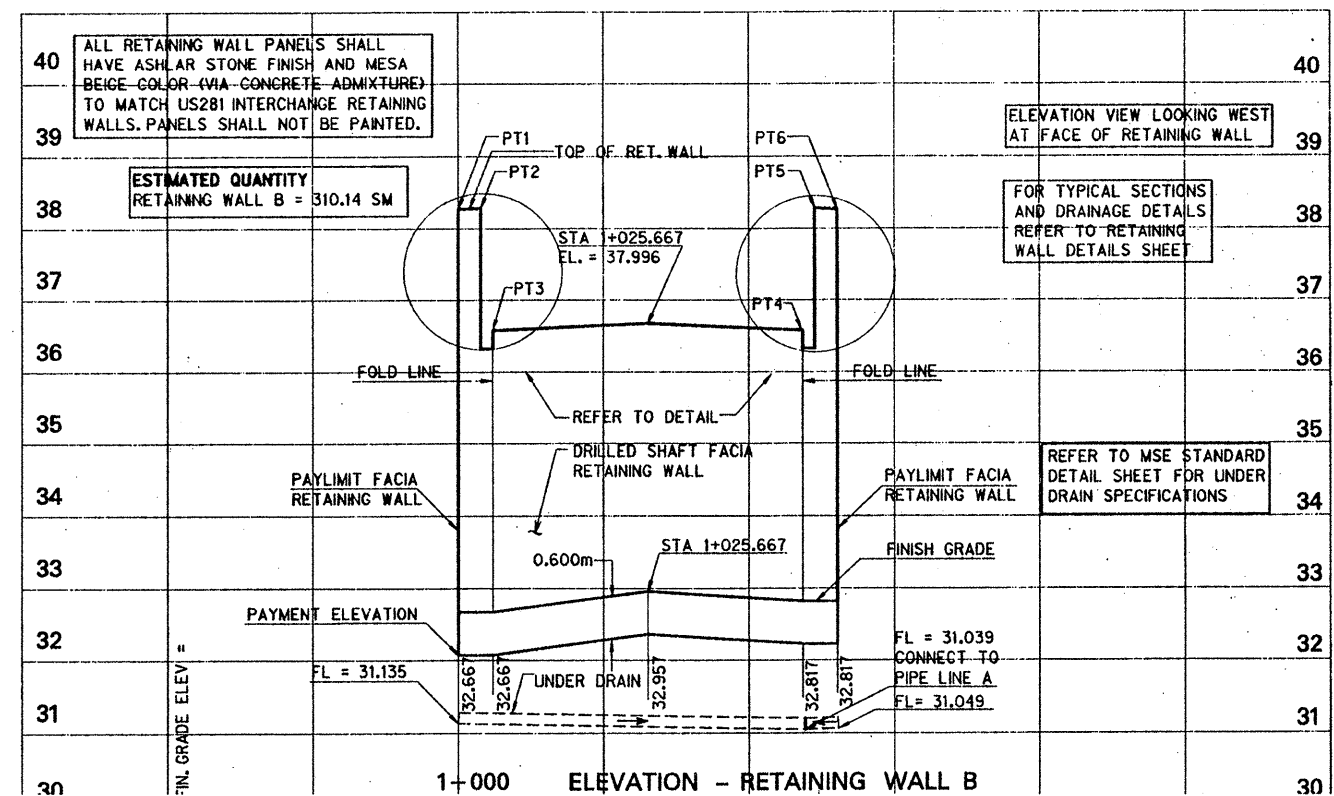
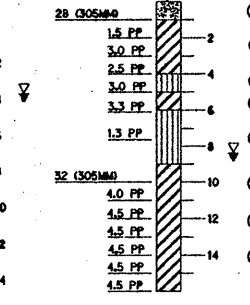
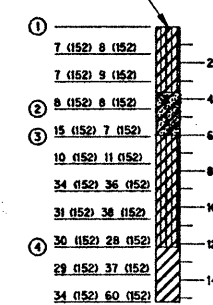
PLAN - RETAINING WALL B

APPROX. STA. 47 + 755.192
 32.350M RT.
 HOLE B-22
 EL. 31.943

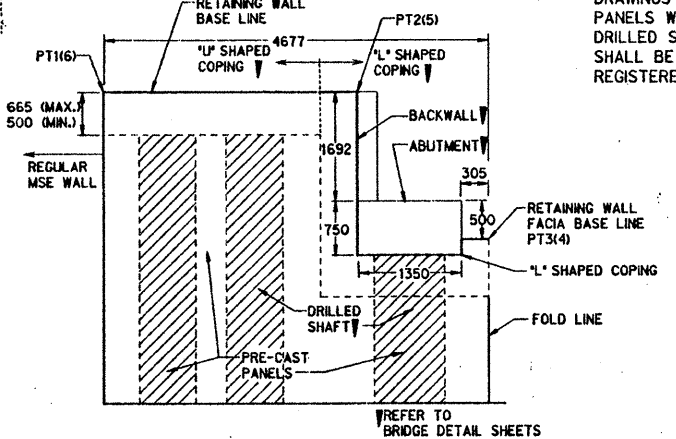


APPROX. STA. 47 + 752.912
 32.376M LT.
 HOLE B-21
 EL. 32.065

APPROX. STA. 47 + 752.912
 32.065M RT.
 HOLE B-1
 EL. 32.065



1+000 ELEVATION - RETAINING WALL B



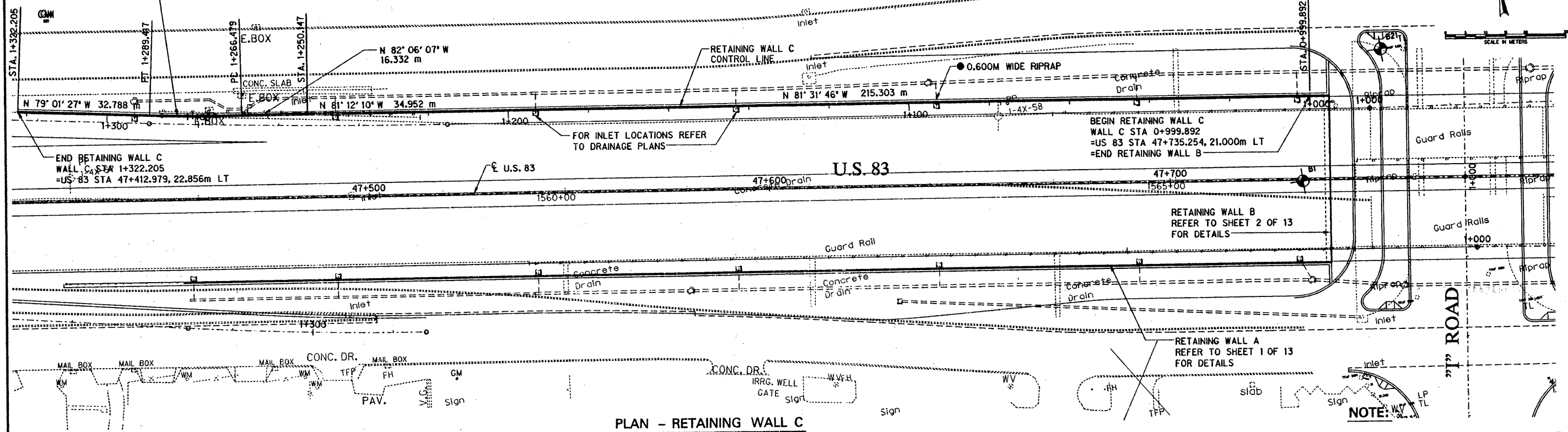
POINT	STA.	TOP OF WALL ELEV.
PT1	1+000.000	38.271
PT2	1+003.022	38.288
PT3	1+004.667	37.576
PT4	1+046.667	37.576
PT5	1+049.699	38.288
PT6	1+051.354	38.271

**RETAINING WALL LAYOUT AND ELEVATION
 RETAINING WALL B
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			6	TEXAS	HH96(791) M	2-25
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	HIGHWAY NO.
APRIL	80001A	1:500 HORIZ	TX	HIDALGO	RD 25	17

RW-C-1
 $\Delta = 3^\circ 04' 40''$ (RT)
 $R = 427.006$ m
 $T = 11.472$ m
 $L = 22.938$ m
 $PI = N 5,059,904.316$
 $E 333,135.428$



CONTRACTOR SHALL PROVIDE A SLIP JOINT BETWEEN THE REGULAR MSE WALL AND THE RETAINING WALL FACIA. THE SLIP JOINT SHALL BE LOCATED WITHIN A 1.500M RANGE OF THE PAY LIMIT (AS SHOWN ON PLANS), SO AS TO PROVIDE FOR TYPICAL WIDTH PANELS NEAR THE SLIP JOINT

FOR RIPRAP DETAILS REFER TO RETAINING WALL TYPICAL SECTION AND DETAILS SHEET

- TEST BORE HOLE LEGEND:**
- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
 - ② CLAY, SILTY, TAN
 - ③ CLAY, SANDY, TAN, SATURATED CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS

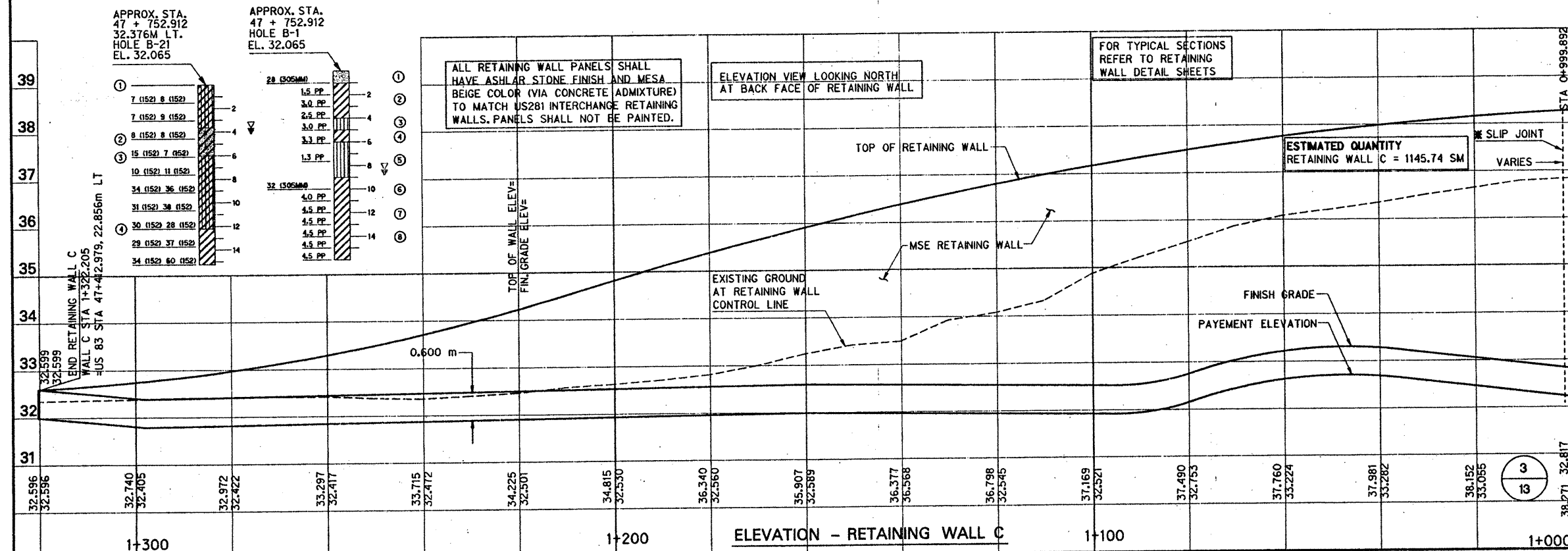


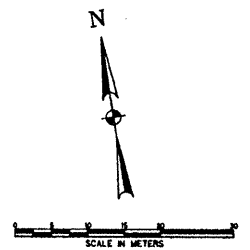
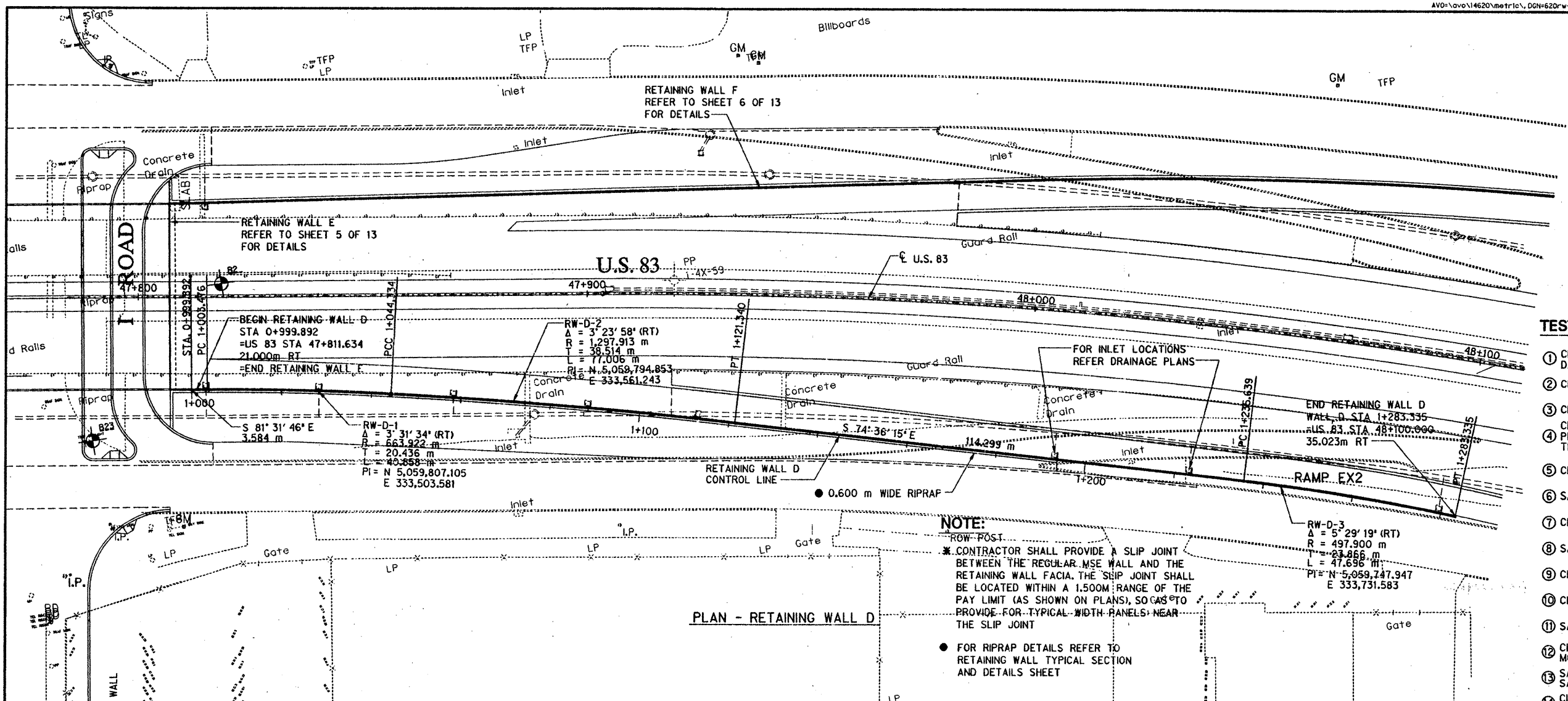
Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

RETAINING WALL LAYOUT AND ELEVATION
 RETAINING WALL C
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS ARCHITECTS SCIENTISTS PLANNERS SURVEYORS

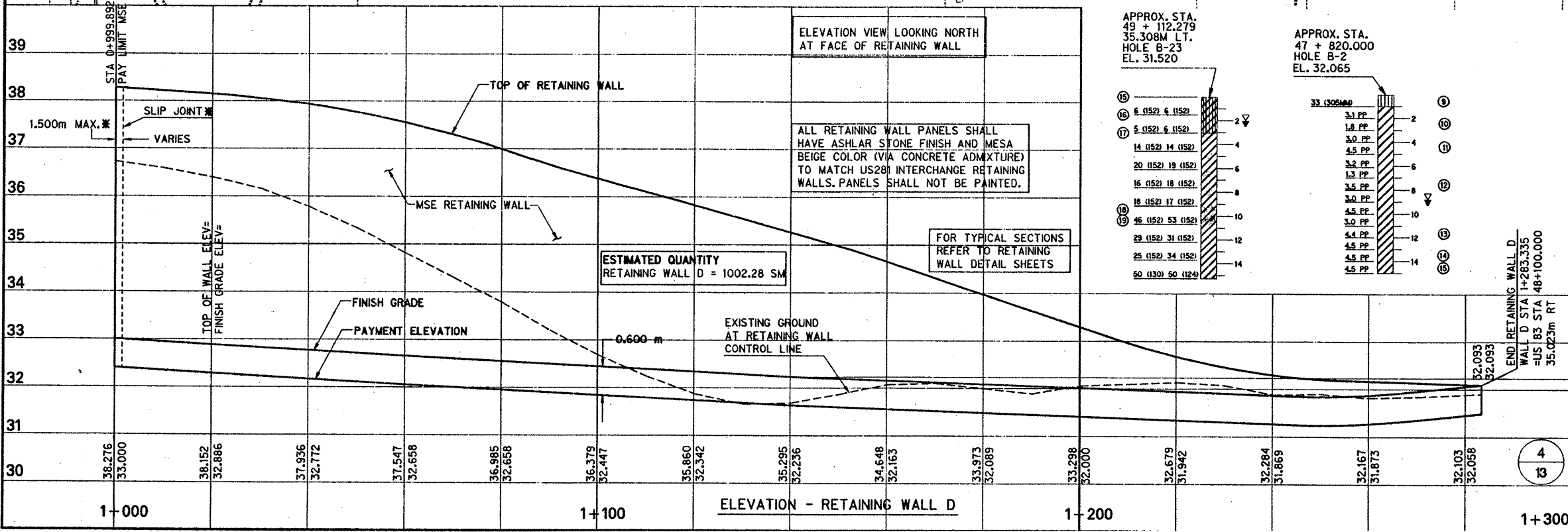
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
			21	TX	4-15-96	4-32
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	ROUTE NO.
APRIL 1996	620RW-C	1:300 HORIZ 1:60 VERT	21	HIDALGO	30	17





TEST BORE HOLE LEGEND:

- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- ② CLAY, SILTY, TAN
- ③ CLAY, SANDY, TAN, SATURATED
- ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- ⑤ CLAY, TAN, PLASTIC
- ⑥ SAND, FINE, TAN
- ⑦ CLAY, SILTY, SANDY, TAN
- ⑧ SAND, FINE, SATURATED TAN
- ⑨ CLAY, SANDY, TAN, MOIST
- ⑩ CLAY, SILTY, TAN
- ⑪ SAND, TAN, FINE, POORLY GRADED
- ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
- ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN
- ⑮ CLAY, SILTY, DARK

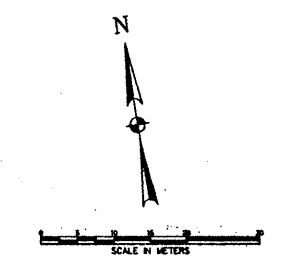
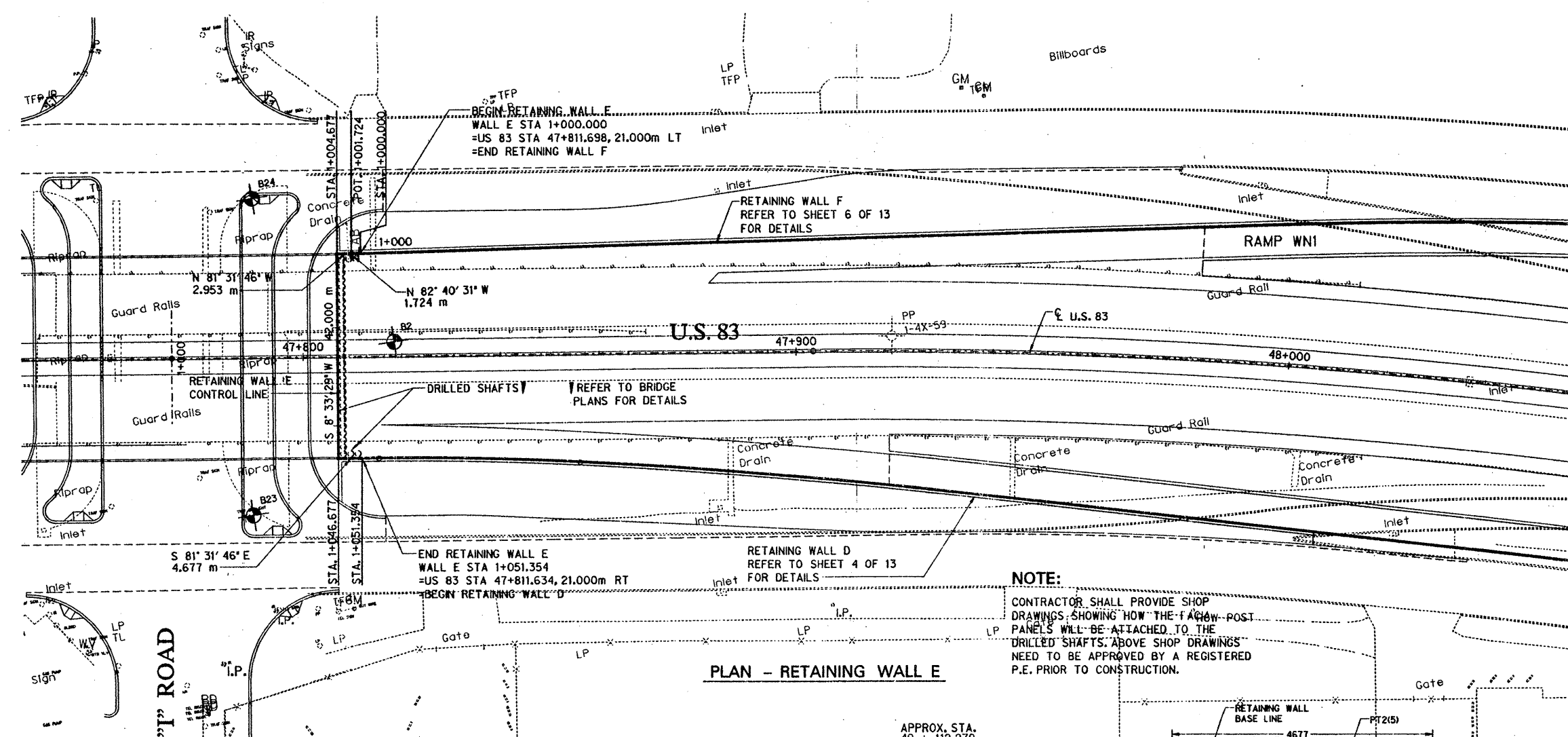


GREGORY A. JACOBS 4-15-96
GREGORY A. JACOBS DATE

**RETAINING WALL LAYOUT AND ELEVATION
RETAINING WALL D
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNING, SURVEYORS

DESIGN	DRAWN	NOTES	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			TEXAS	AT-16 (911)	431
DATE	FILE	SCALE	COUNTY	CONTROL SECTION	JOB NO.
APR. 96	630PW-D	1:500 HORIZ	HIDALGO	20	17 19



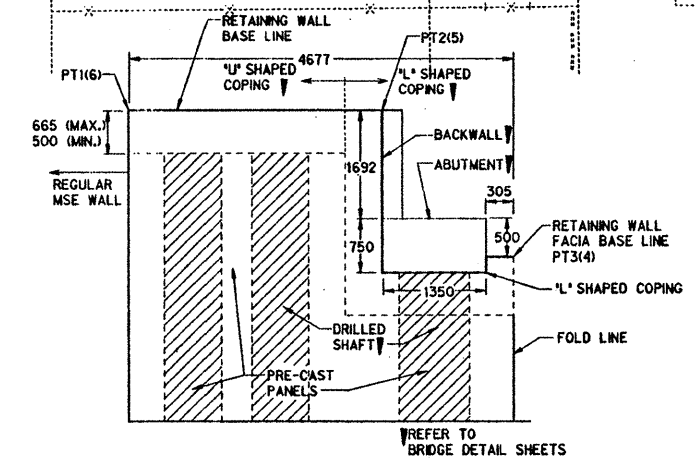
TEST BORE HOLE LEGEND:

- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- ② CLAY, SILTY, TAN
- ③ CLAY, SANDY, TAN, SATURATED
- ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- ⑤ CLAY, TAN, PLASTIC
- ⑥ SAND, FINE, TAN
- ⑦ CLAY, SILTY, SANDY, TAN
- ⑧ SAND, FINE, SATURATED TAN
- ⑨ CLAY, SANDY, TAN, MOIST
- ⑩ CLAY, SILTY, TAN
- ⑪ SAND, TAN, FINE, POORLY GRADED
- ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
- ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN
- ⑮ CLAY, SILTY, DARK
- ⑯ CLAY, SILTY, SLIGHTLY MOIST, TAN
- ⑰ CLAY, SANDY, WET, SATURATED, HOT WATER TABLE AT 10.0'
- ⑱ SAND, SATURATED, TAN, FINE-MED, WELL SORTED
- ⑲ CLAY, SLIGHTLY MOIST, PLASTIC, TAN

NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING HOW THE FACIA-POST PANELS WILL BE ATTACHED TO THE DRILLED SHAFTS ABOVE SHOP DRAWINGS NEED TO BE APPROVED BY A REGISTERED P.E. PRIOR TO CONSTRUCTION.

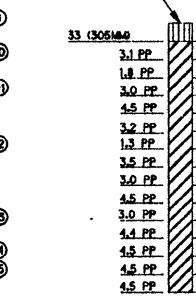
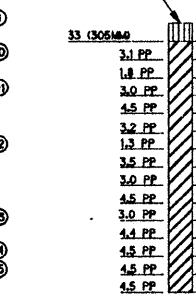
PLAN - RETAINING WALL E

APPROX. STA. 49 + 112.279
35.308M L.T.
HOLE B-23
EL. 31.520



**DETAIL AT 'I' ROAD OVERPASS
N.T.S.**

APPROX. STA. 47 + 820.000
HOLE B-2
EL. 32.065



POINT	STA.	TOP OF WALL ELEV.
PT1	1+000.000	38.275
PT2	1+003.022	38.291
PT3	1+004.677	37.579
PT4	1+046.677	37.579
PT5	1+049.699	38.291
PT6	1+051.354	38.272

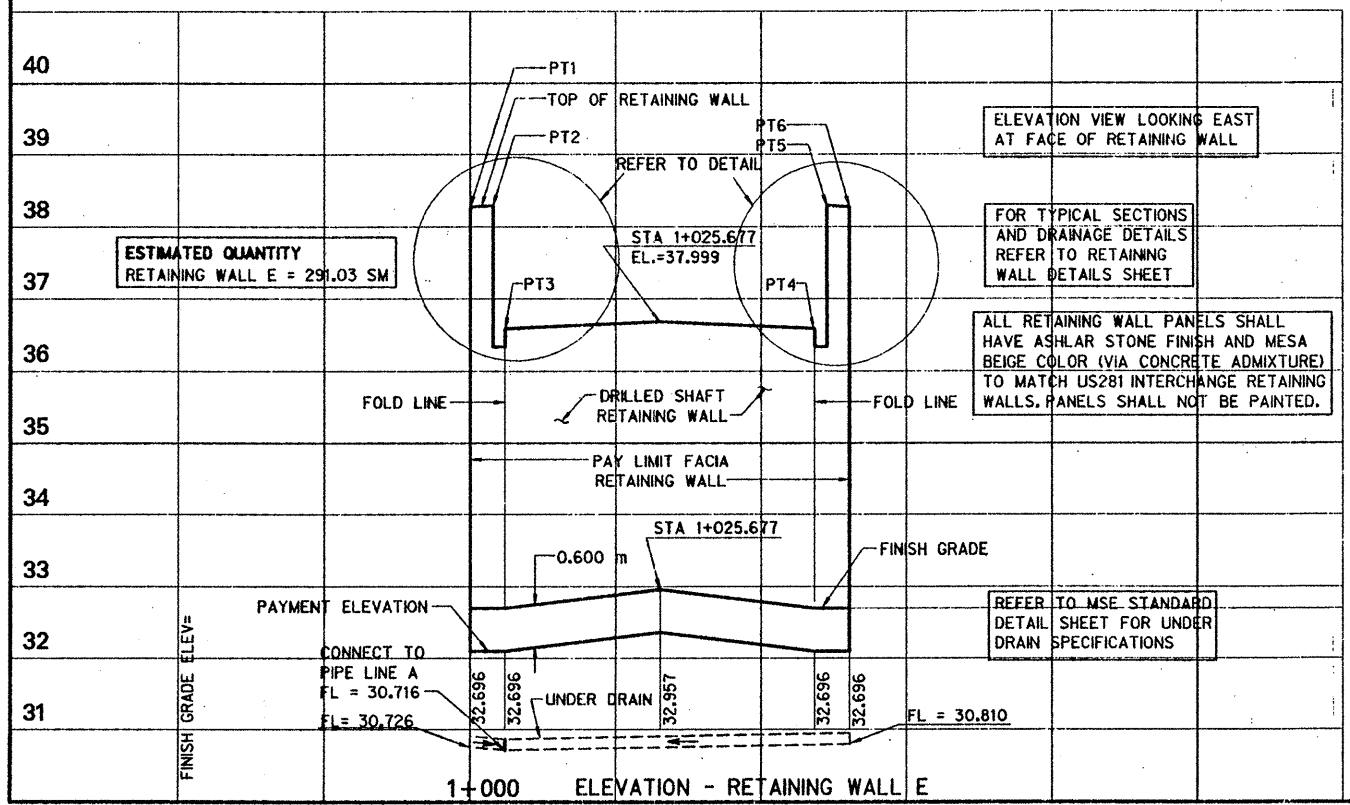


Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

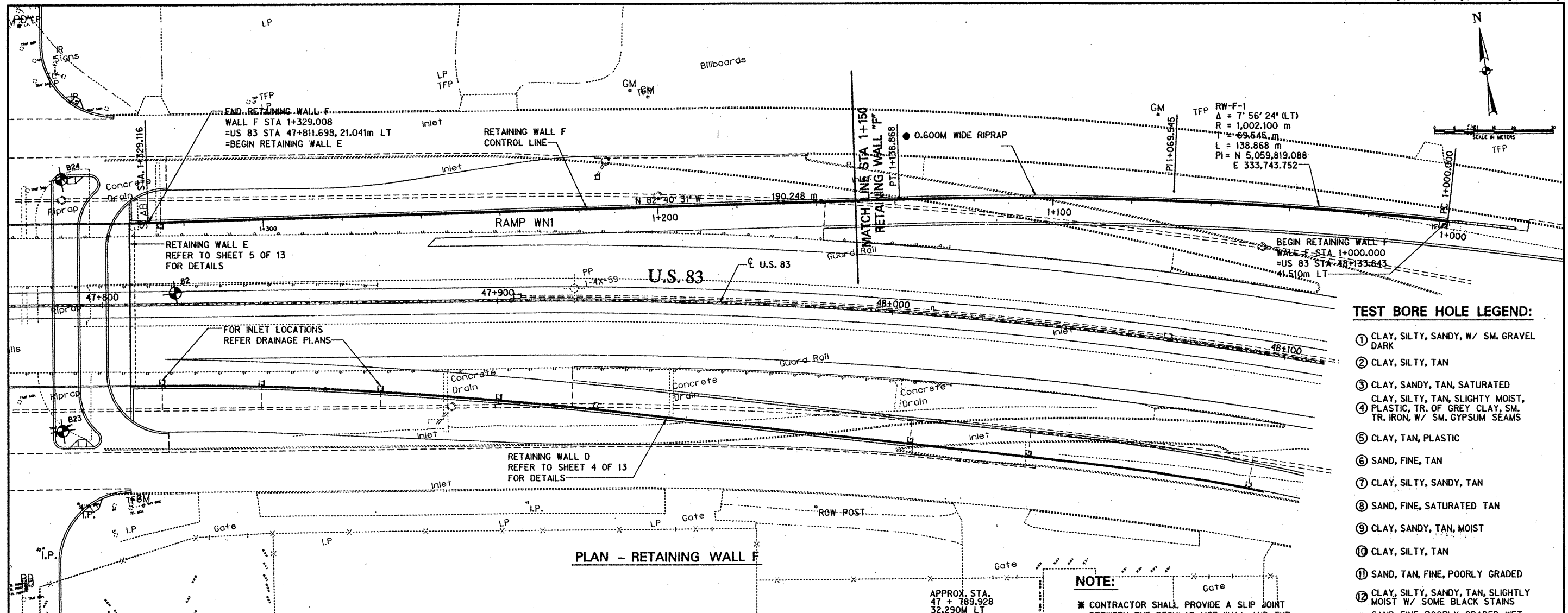
**RETAINING WALL LAYOUT AND ELEVATION
RETAINING WALL E
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	LEAVE DIST. NO.	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
APRIL 1996	620RV-E	1:800 HORIZ 1:50 VERT	21	HIDALGO	0020	17 18



1+000 ELEVATION - RETAINING WALL E



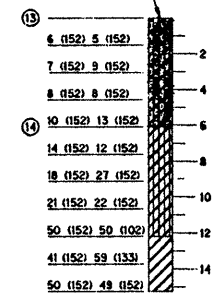
TEST BORE HOLE LEGEND:

- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- ② CLAY, SILTY, TAN
- ③ CLAY, SANDY, TAN, SATURATED
- ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- ⑤ CLAY, TAN, PLASTIC
- ⑥ SAND, FINE, TAN
- ⑦ CLAY, SILTY, SANDY, TAN
- ⑧ SAND, FINE, SATURATED TAN
- ⑨ CLAY, SANDY, TAN, MOIST
- ⑩ CLAY, SILTY, TAN
- ⑪ SAND, TAN, FINE, POORLY GRADED
- ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
- ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN
- ⑮ CLAY, SILTY, DARK
- ⑯ CLAY, SILTY, SLIGHTLY MOIST, TAN
- ⑰ CLAY, SANDY, WET, SATURATED, HOT WATER TABLE AT 10.0'
- ⑱ SAND, SATURATED, TAN, FINE-MED, WELL SORTED
- ⑲ CLAY, SLIGHTLY MOIST, PLASTIC, TAN

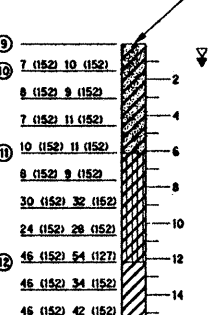
NOTE:
 * CONTRACTOR SHALL PROVIDE A SLIP JOINT BETWEEN THE REGULAR MSE WALL AND THE RETAINING WALL FACIA. THE SLIP JOINT SHALL BE LOCATED WITHIN A 1.500M RANGE OF THE PAY LIMIT (AS SHOWN ON PLANS), SO AS TO PROVIDE FOR TYPICAL WIDTH PANELS NEAR THE SLIP JOINT
 ● FOR RIPRAP DETAILS REFER TO RETAINING WALL TYPICAL SECTION AND DETAILS SHEET

STATION	TOP OF WALL ELEV. FINISH GRADE ELEV.	TOP OF WALL ELEV. PAYMENT ELEV.	ELEVATION - RETAINING WALL F
40	38.275	32.696	<p>ALL RETAINING WALL PANELS SHALL HAVE ASHLAR STONE FINISH AND MESA BEIGE COLOR (VIA CONCRETE ADMIXTURE) TO MATCH US28 INTERCHANGE RETAINING WALLS. PANELS SHALL NOT BE PAINTED.</p> <p>FOR TYPICAL SECTIONS REFER TO RETAINING WALL DETAIL SHEETS</p> <p>ELEVATION VIEW LOOKING NORTH AT BACK FACE OF RETAINING WALL</p> <p>ESTIMATED QUANTITY RETAINING WALL F = 1435.84 SM</p>
39	38.286	32.694	
38	38.362	32.691	
37	38.459	32.687	
36	38.475	32.683	
35	38.374	32.680	
34	38.166	32.676	
33	37.851	32.673	
32	37.427	32.678	
31	36.936	32.705	
30			

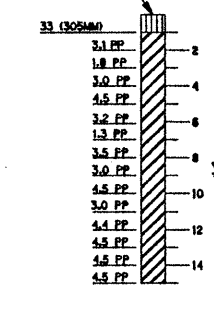
APPROX. STA. 47 + 789.928
 32.290M LT
 HOLE B-24
 EL. 32.144



APPROX. STA. 47 + 789.694
 32.231M RT.
 HOLE B-23
 EL. 32.000



APPROX. STA. 47 + 820.000
 HOLE B-2
 EL. 32.065

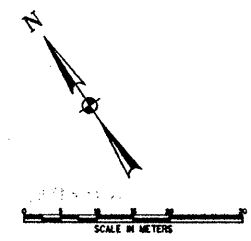
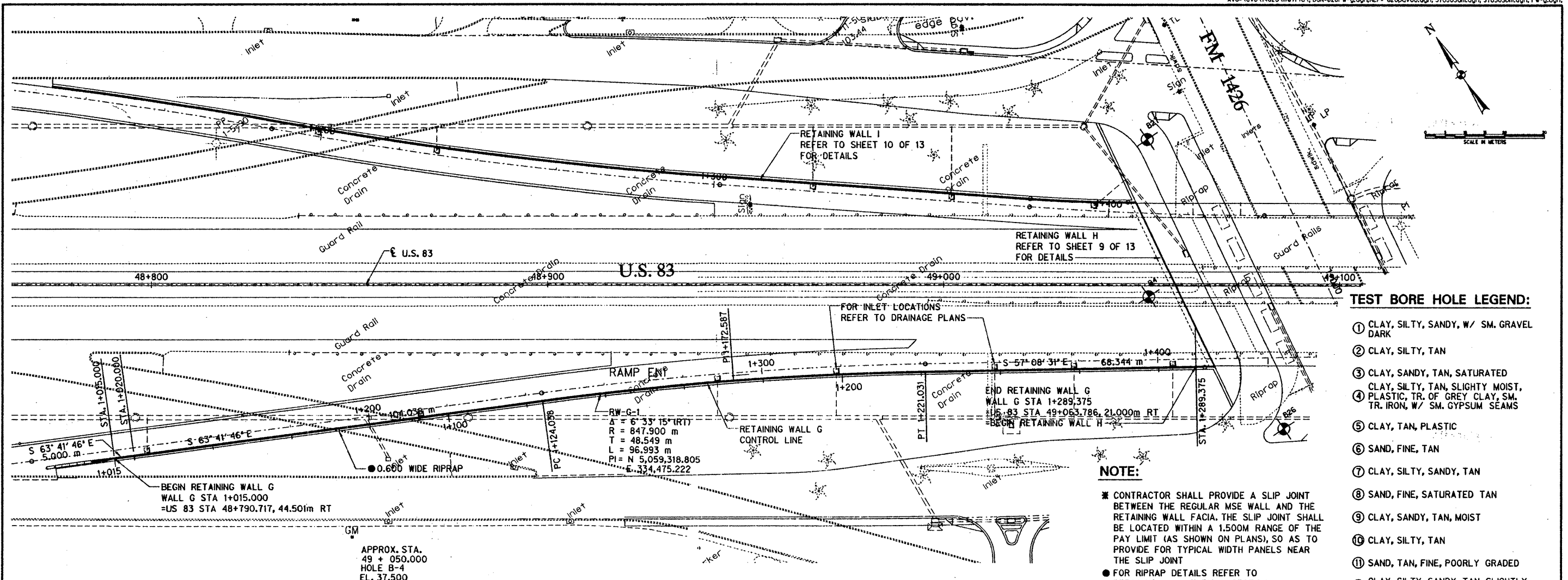


Gregory A. Jacobs
 GREGORY A. JACOBS
 67152
 PROFESSIONAL ENGINEER
 DATE 4-15-96

**RETAINING WALL LAYOUT AND ELEVATION
 RETAINING WALL F (1 OF 2)
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION**

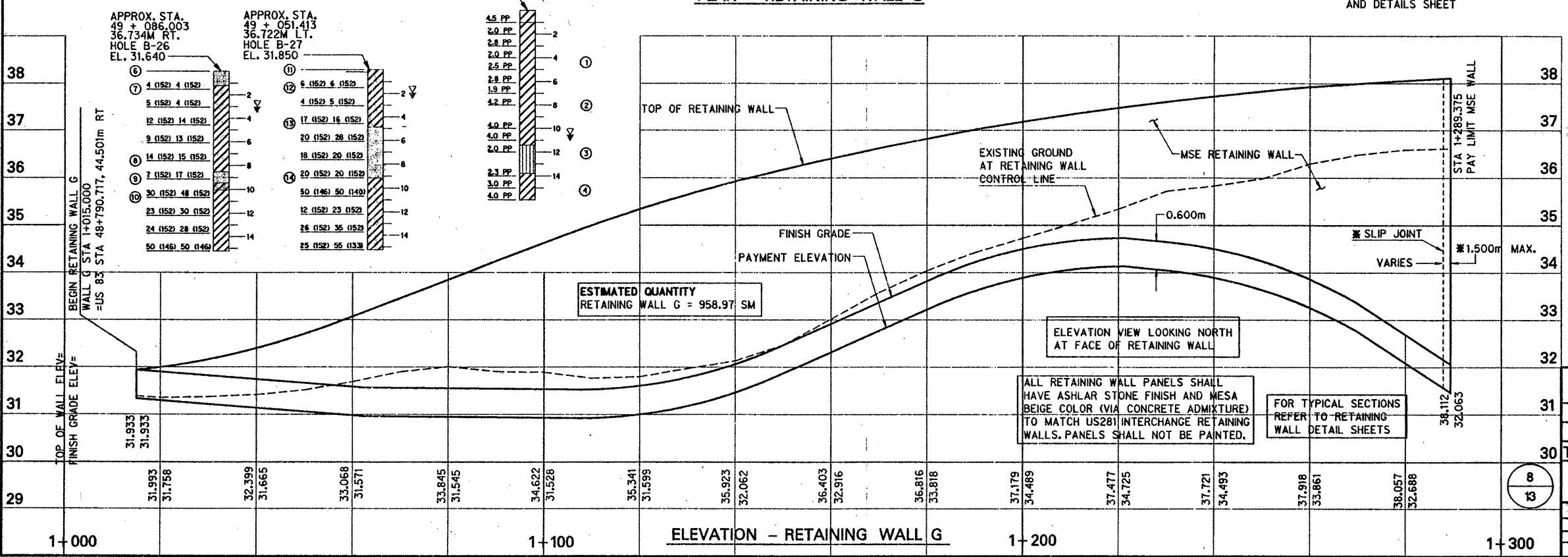
Half Associates
 ENGINEERS - ARCHITECTS - SURVEYORS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS	W-116 (911)	4-35
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	JOB NO.
APR 96	820W-F	1:100	21	HIDALGO	20	17
						U.S. 83



TEST BORE HOLE LEGEND:

- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- ② CLAY, SILTY, TAN
- ③ CLAY, SANDY, TAN, SATURATED
- ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- ⑤ CLAY, TAN, PLASTIC
- ⑥ SAND, FINE, TAN
- ⑦ CLAY, SILTY, SANDY, TAN
- ⑧ SAND, FINE, SATURATED TAN
- ⑨ CLAY, SANDY, TAN, MOIST
- ⑩ CLAY, SILTY, TAN
- ⑪ SAND, TAN, FINE, POORLY GRADED
- ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
- ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN
- ⑮ CLAY, SILTY, DARK
- ⑯ CLAY, SILTY, SLIGHTLY MOIST, TAN
- ⑰ CLAY, SANDY, WET, SATURATED, HOT WATER TABLE AT 10.0'
- ⑱ SAND, SATURATED, TAN, FINE-MED, WELL SORTED
- ⑲ CLAY, SLIGHTLY MOIST, PLASTIC, TAN

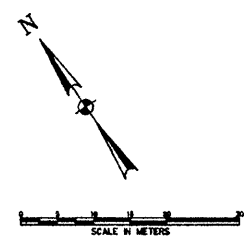
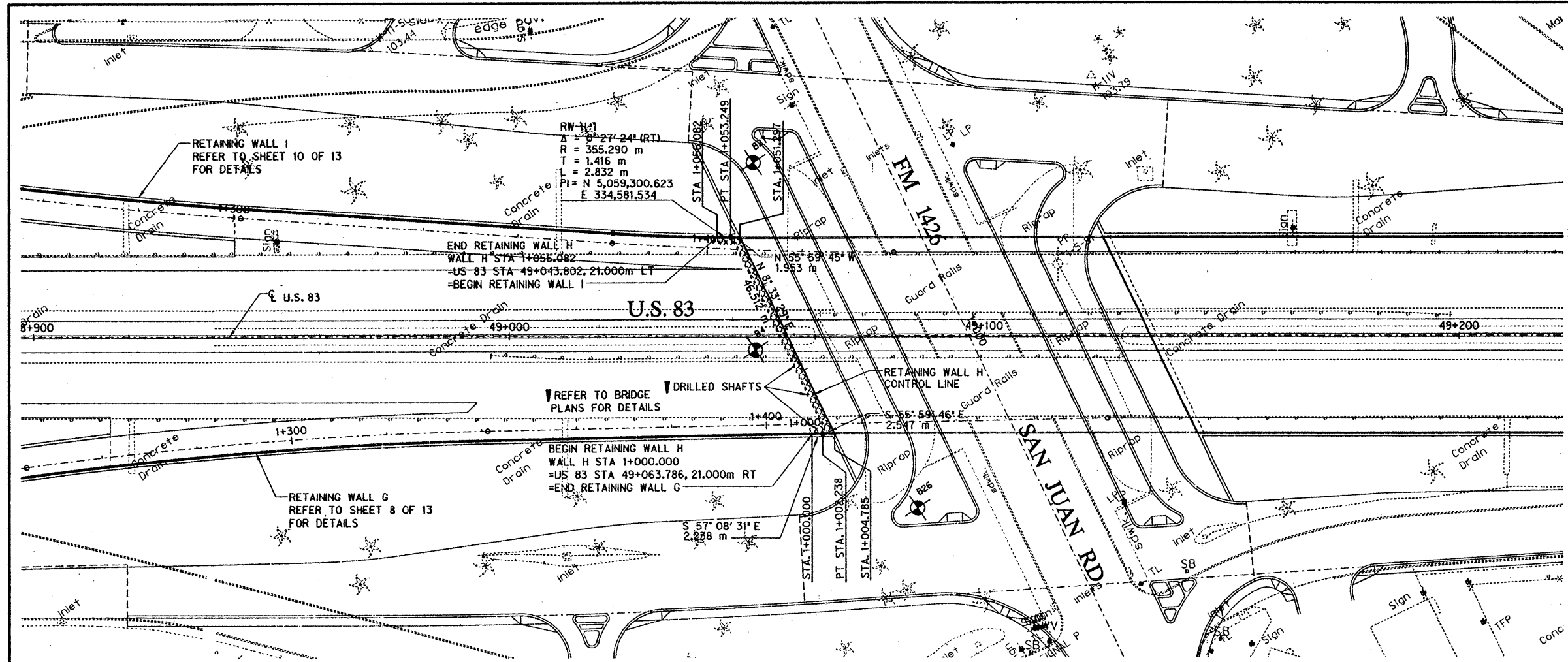


Gregory A. Jacobs 4-15-16
GREGORY A. JACOBS DATE

**RETAINING WALL LAYOUT AND ELEVATION
RETAINING WALL G
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION**

Half Associates
ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DEBON	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		8	TEXAS	MR46(191) M	435
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
APRIL 2005	620RW-G	1:800 HORIZ 1:80 VERT	TX	HIDALGO	0039	17



TEST BORE HOLE LEGEND:

- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
- ② CLAY, SILTY, TAN
- ③ CLAY, SANDY, TAN, SATURATED
- ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
- ⑤ CLAY, TAN, PLASTIC
- ⑥ SAND, FINE, TAN
- ⑦ CLAY, SILTY, SANDY, TAN
- ⑧ SAND, FINE, SATURATED TAN
- ⑨ CLAY, SANDY, TAN, MOIST
- ⑩ CLAY, SILTY, TAN
- ⑪ SAND, TAN, FINE, POORLY GRADED
- ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
- ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
- ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN

NOTE:

CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING HOW THE FACIA PANELS WILL BE ATTACHED TO THE DRILLED SHAFTS. ABOVE SHOP DRAWINGS NEED TO BE APPROVED BY A REGISTERED P.E. PRIOR TO CONSTRUCTION.

■ THESE DIMENSIONS ARE ADJUSTED FOR SKEW AT FM1426 OVERPASS. FOR ACTUAL DIMENSIONS REFER TO BRIDGE PLANS.

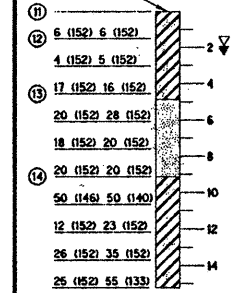
▼ REFER TO BRIDGE DETAIL SHEETS



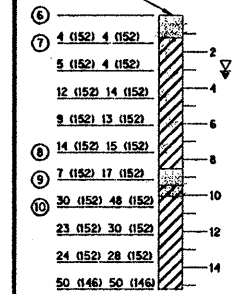
Gregory A. Jacobs 4-15-16
DATE

PLAN - RETAINING WALL H

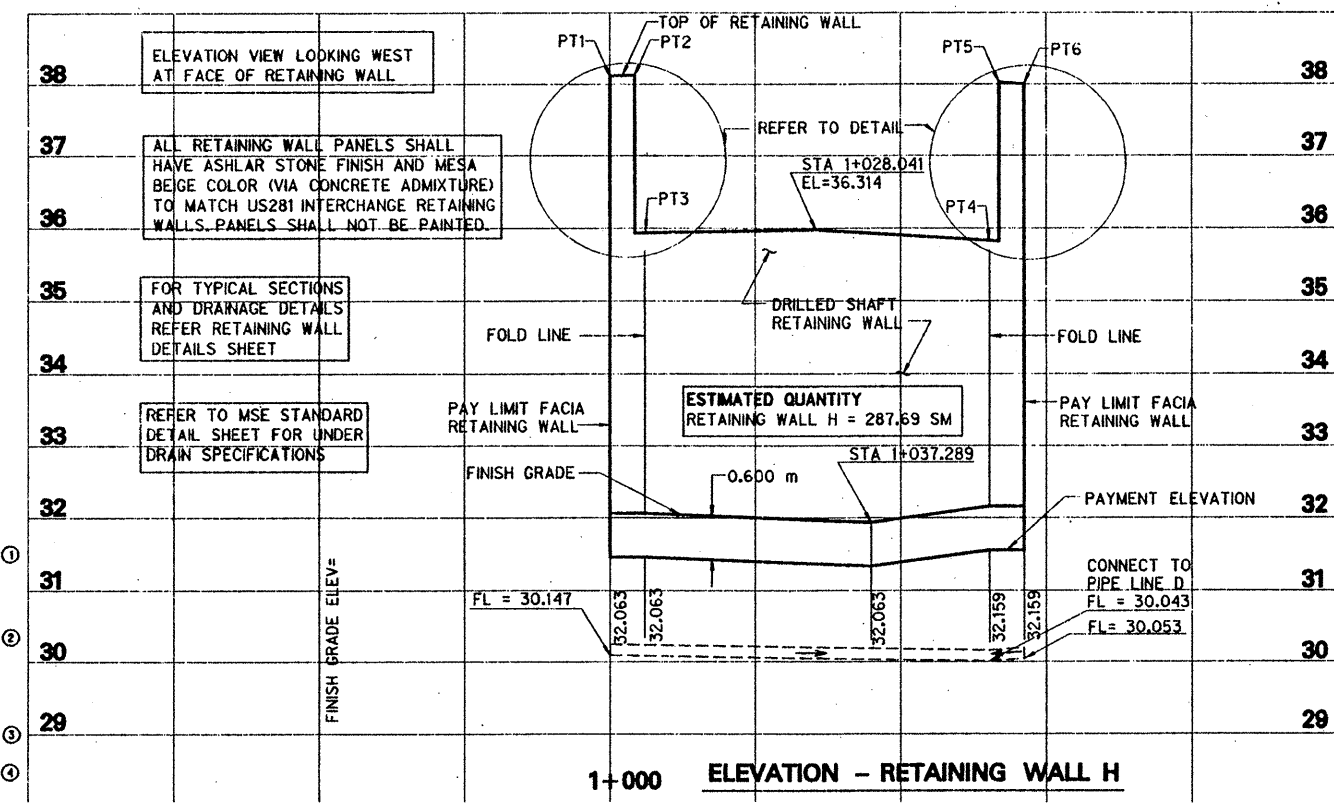
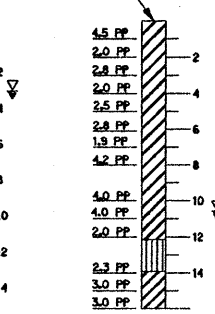
APPROX. STA. 49 + 051.413
36.722M LT.
HOLE B-27
EL. 31.850



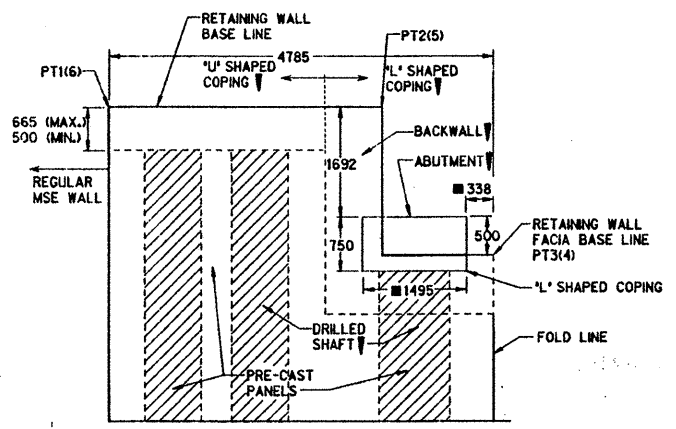
APPROX. STA. 49 + 086.003
36.734M RT.
HOLE B-26
EL. 31.640



APPROX. STA. 49 + 050.000
HOLE B-4
EL. 37.500



1+000 ELEVATION - RETAINING WALL H



DETAIL AT FM1426 OVERPASS N.T.S.

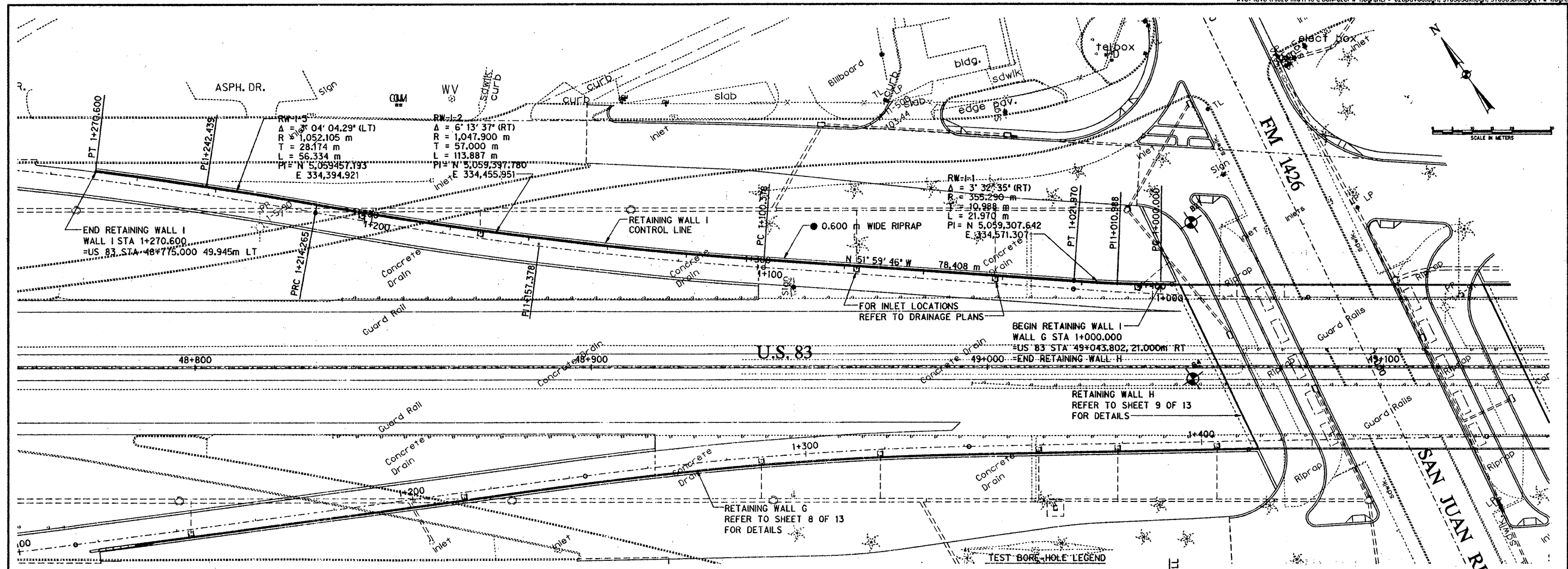
POINT	STA.	TOP OF WALL ELEV.
PT1	1+000.000	38.113
PT2	1+003.340	38.127
PT3	1+004.785	35.935
PT4	1+051.297	35.831
PT5	1+052.742	38.023
PT6	1+056.082	38.000

9
13

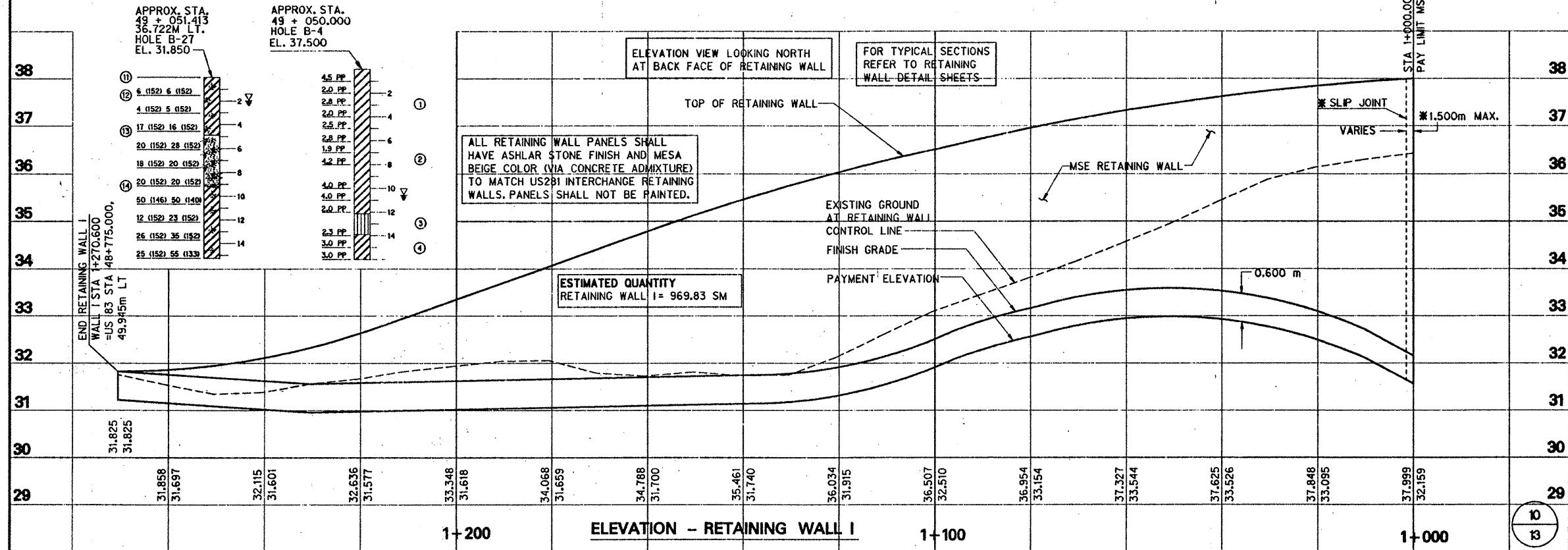
RETAINING WALL LAYOUT AND ELEVATION RETAINING WALL H
U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS	7116 (741) M	2-26
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	ROADWAY NO.
JANUARY 2016	620RW-H	ENGR. HORSE 1/8" = 1'-0"	21	HIDALGO	00	17 118 U.S. 83



PLAN - RETAINING WALL I



ELEVATION - RETAINING WALL I

NOTE:
 * CONTRACTOR SHALL PROVIDE A SLIP JOINT BETWEEN THE REGULAR MSE WALL AND THE RETAINING WALL FACIA. THE SLIP JOINT SHALL BE LOCATED WITHIN A 1.500m RANGE OF THE PAY LIMIT (AS SHOWN ON PLANS), SO AS TO PROVIDE FOR TYPICAL WIDTH PANELS NEAR THE SLIP JOINT
 ● FOR RIPRAP DETAILS REFER TO RETAINING WALL TYPICAL SECTION AND DETAILS SHEET

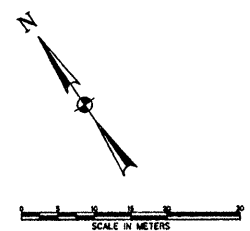
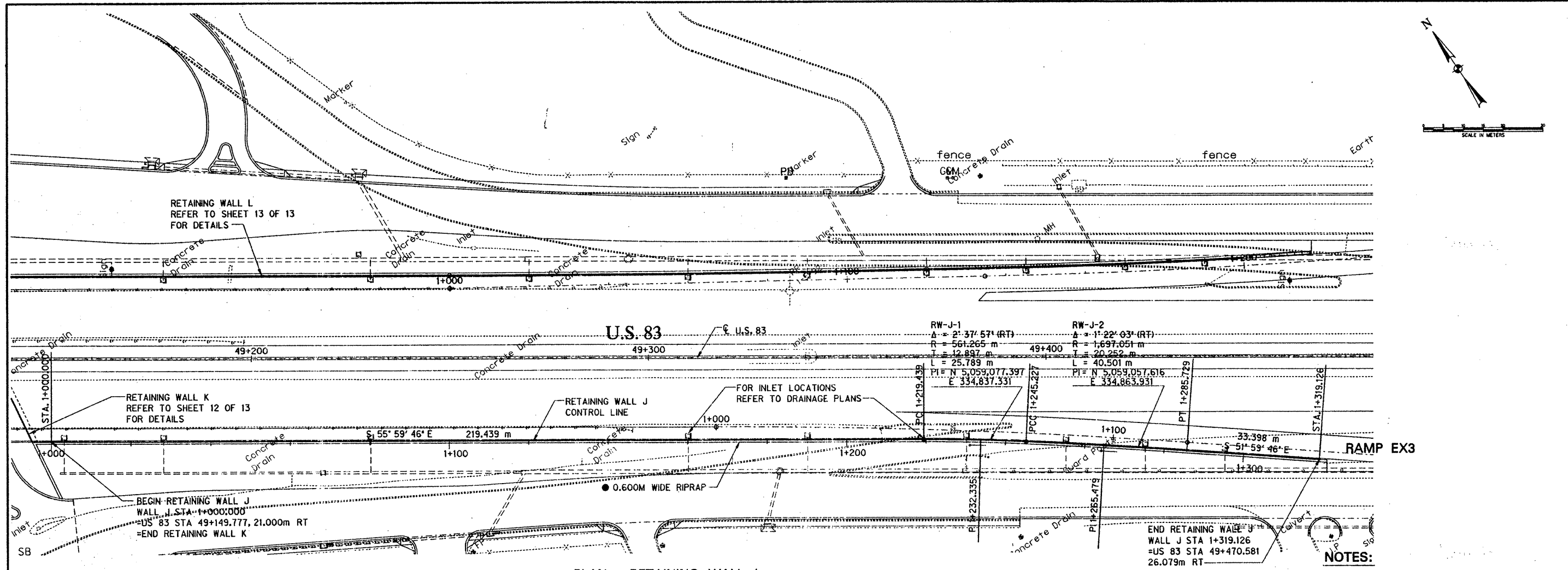


Gregory A. Jacobs
 GREGORY A. JACOBS
 DATE: 4-15-16

RETAINING WALL LAYOUT AND ELEVATION
 RETAINING WALL I
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CAED			1	TEXAS	NA 96 (741) M	437
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 2009	809W-1	1:500 HORIZ 1:50 VERT	TX	HIDALGO	00 30	17



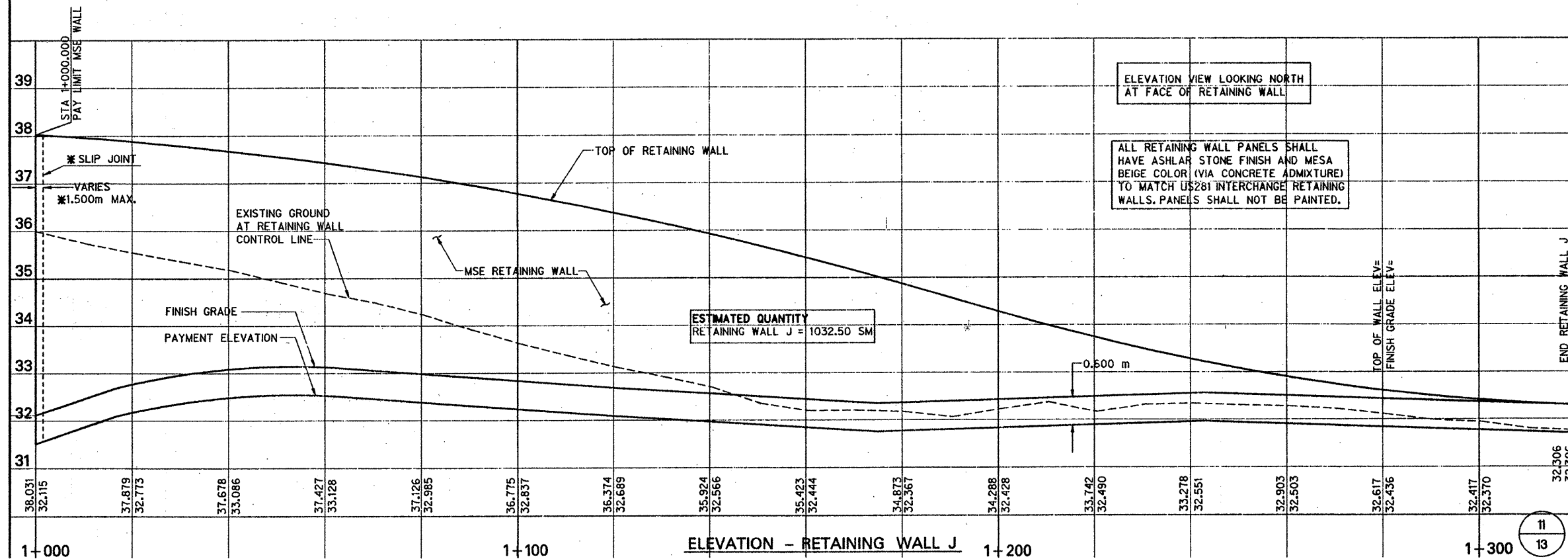
- NOTES:**
- * CONTRACTOR SHALL PROVIDE A SLIP JOINT BETWEEN THE REGULAR MSE WALL AND THE RETAINING WALL FACIA. THE SLIP JOINT SHALL BE LOCATED WITHIN A 1.500M RANGE OF THE PAY LIMIT (AS SHOWN ON PLANS), SO AS TO PROVIDE FOR TYPICAL WIDTH PANELS NEAR THE SLIP JOINT
 - * FOR BORE HOLE LOCATIONS AND LOG REFER TO SHEET 12 OF 13
 - FOR RIPRAP DETAILS REFER TO RETAINING WALL TYPICAL SECTION AND DETAILS SHEET

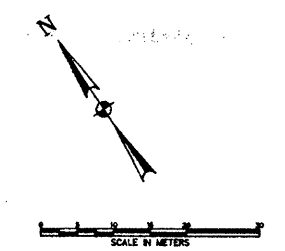
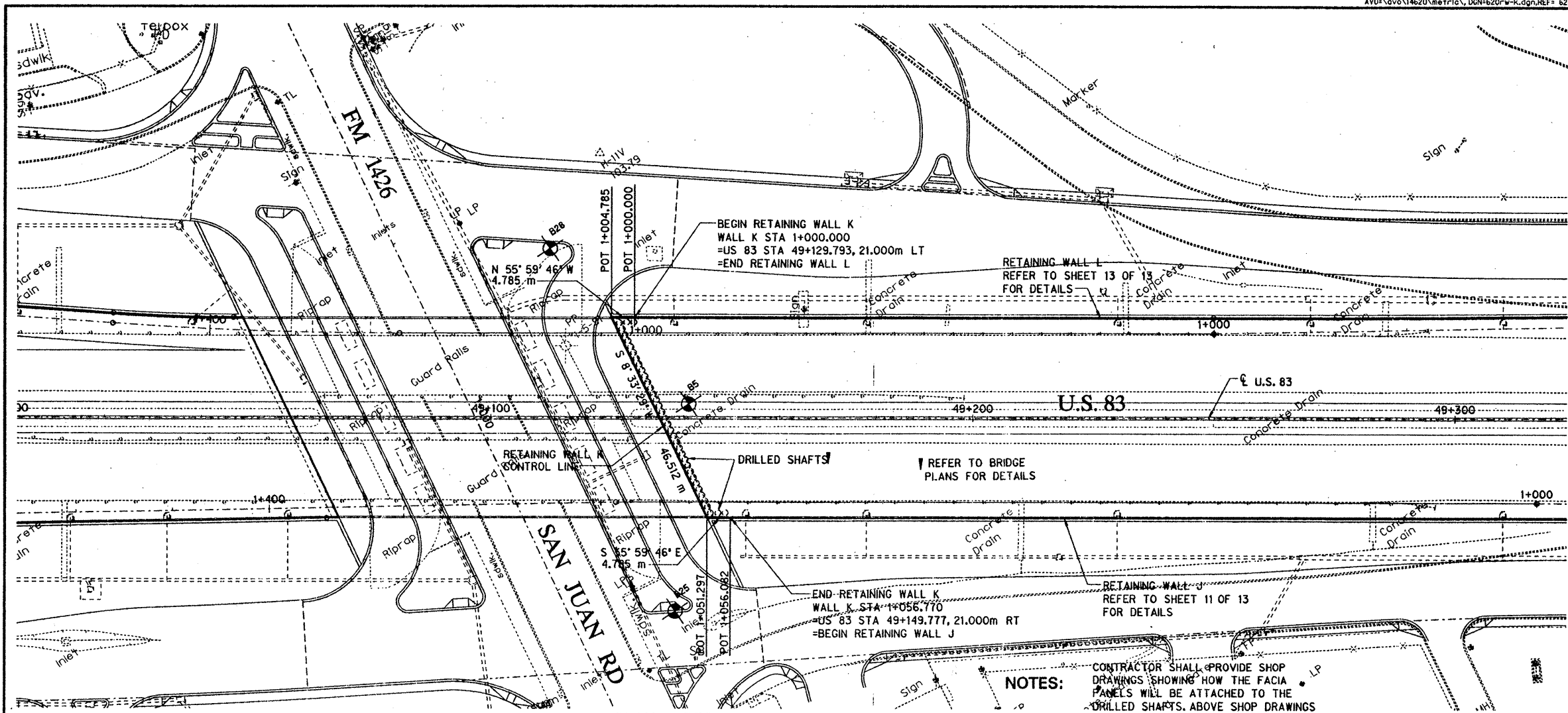


Gregory A. Jacobs 4-15-26
Gregory A. Jacobs DATE

RETAINING WALL LAYOUT AND ELEVATION
RETAINING WALL J
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

DESIGN	DRAWN	NOTES	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			TEXAS	7296(7411) A	4-98
DATE	FILE	SCALE	COUNTY	CONTROL SECTION	JOB NO.
APRIL	620RW-J	1:800 HORIZ	HIDALGO	60 30	17 18



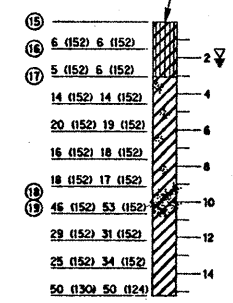


- TEST BORE HOLE LEGEND**
- ① CLAY, SILTY, SANDY, W/ SM. GRAVEL DARK
 - ② CLAY, SILTY, TAN
 - ③ CLAY, SANDY, TAN, SATURATED
 - ④ CLAY, SILTY, TAN, SLIGHTLY MOIST, PLASTIC, TR. OF GREY CLAY, SM. TR. IRON, W/ SM. GYPSUM SEAMS
 - ⑤ CLAY, TAN, PLASTIC
 - ⑥ SAND, FINE, TAN
 - ⑦ CLAY, SILTY, SANDY, TAN
 - ⑧ SAND, FINE, SATURATED TAN
 - ⑨ CLAY, SANDY, TAN, MOIST
 - ⑩ CLAY, SILTY, TAN
 - ⑪ SAND, TAN, FINE, POORLY GRADED
 - ⑫ CLAY, SILTY, SANDY, TAN, SLIGHTLY MOIST W/ SOME BLACK STAINS
 - ⑬ SAND, FINE, POORLY GRADED, WET, SATURATED
 - ⑭ CLAY, SILTY, SANDY W/ SM. GYPSUM SEAMS, TRACE OF GREY CLAY, TAN
 - ⑮ CLAY, SILTY, DARK
 - ⑯ CLAY, SILTY, SLIGHTLY MOIST, TAN
 - ⑰ CLAY, SANDY, WET, SATURATED, HOT WATER TABLE AT 10.0'
 - ⑱ SAND, SATURATED, TAN, FINE-MED, WELL SORTED
 - ⑳ CLAY, SLIGHTLY MOIST, PLASTIC, TAN

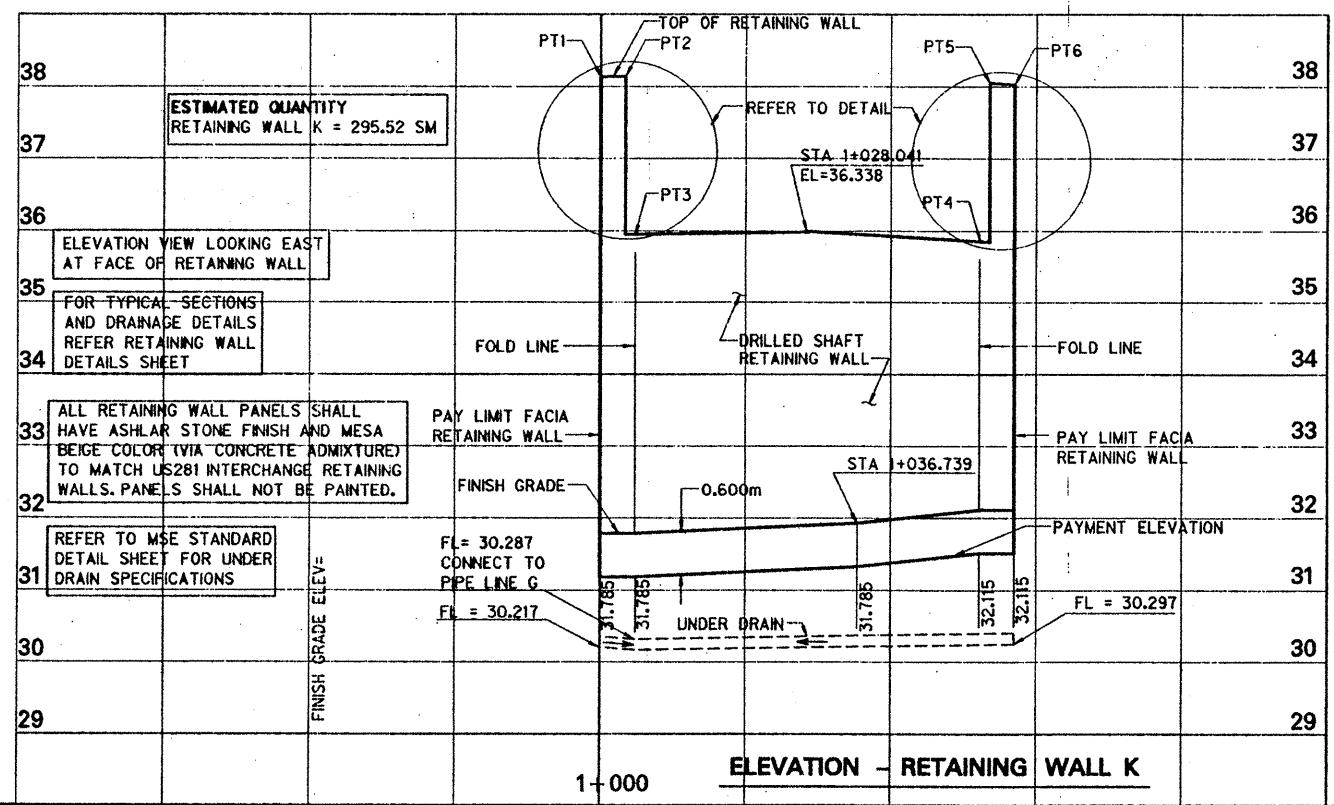
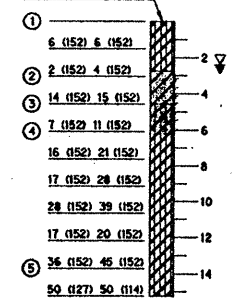
PLAN - RETAINING WALL K

NOTES:
 CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING HOW THE FACIA PANELS WILL BE ATTACHED TO THE DRILLED SHAFTS. ABOVE SHOP DRAWINGS NEED TO BE APPROVED BY A REGISTERED P.E. PRIOR TO CONSTRUCTION.
 THESE DIMENSIONS ARE ADJUSTED FOR SKEW AT FM1426 OVERPASS. FOR ACTUAL DIMENSIONS REFER TO BRIDGE PLANS.
 REFER TO BRIDGE DETAIL SHEETS

APPROX. STA. 49 + 112.279
 35.308M LT.
 HOLE B-28
 EL. 31.520

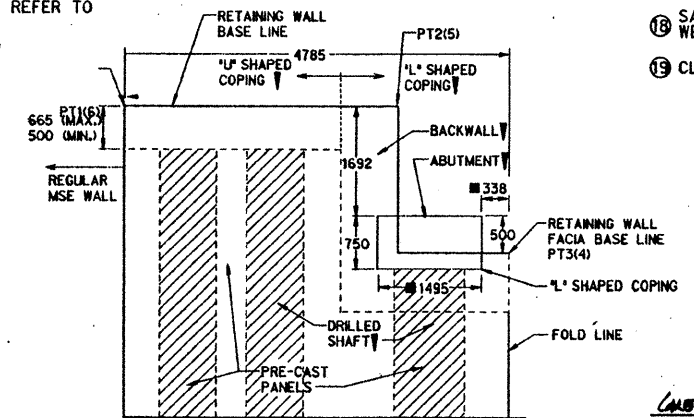


APPROX. STA. 49 + 138.309
 40.428M RT.
 HOLE B-25
 EL. 31.850



ELEVATION - RETAINING WALL K

1-000



DETAIL AT FM1426 OVERPASS N.T.S.

POINT	STA.	TOP OF WALL ELEV.
PT1	1+000.000	38.132
PT2	1+003.340	38.144
PT3	1+004.785	35.952
PT4	1+051.297	35.859
PT5	1+052.742	38.051
PT6	1+056.082	38.031



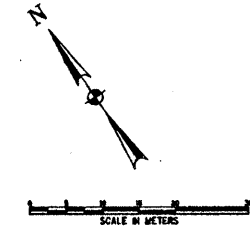
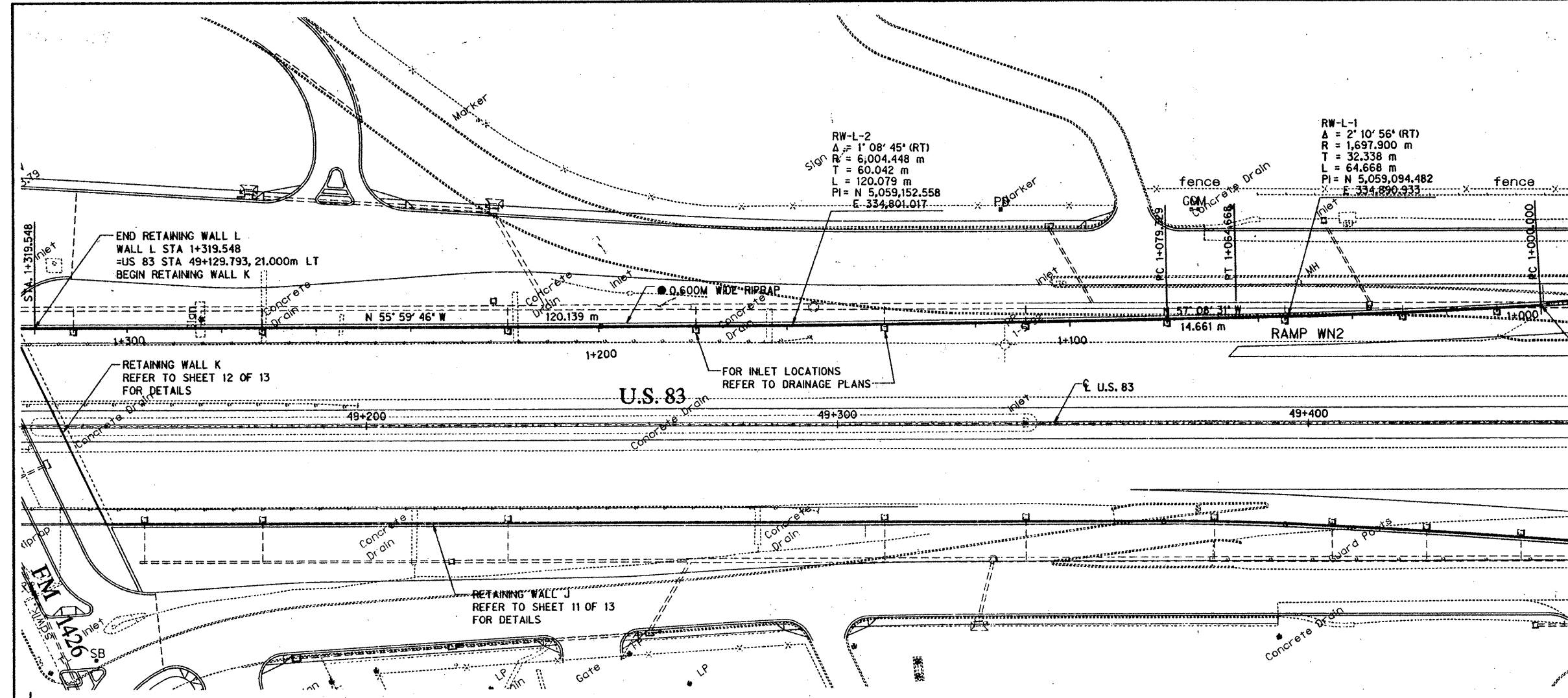
Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

RETAINING WALL LAYOUT AND ELEVATION RETAINING WALL K
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

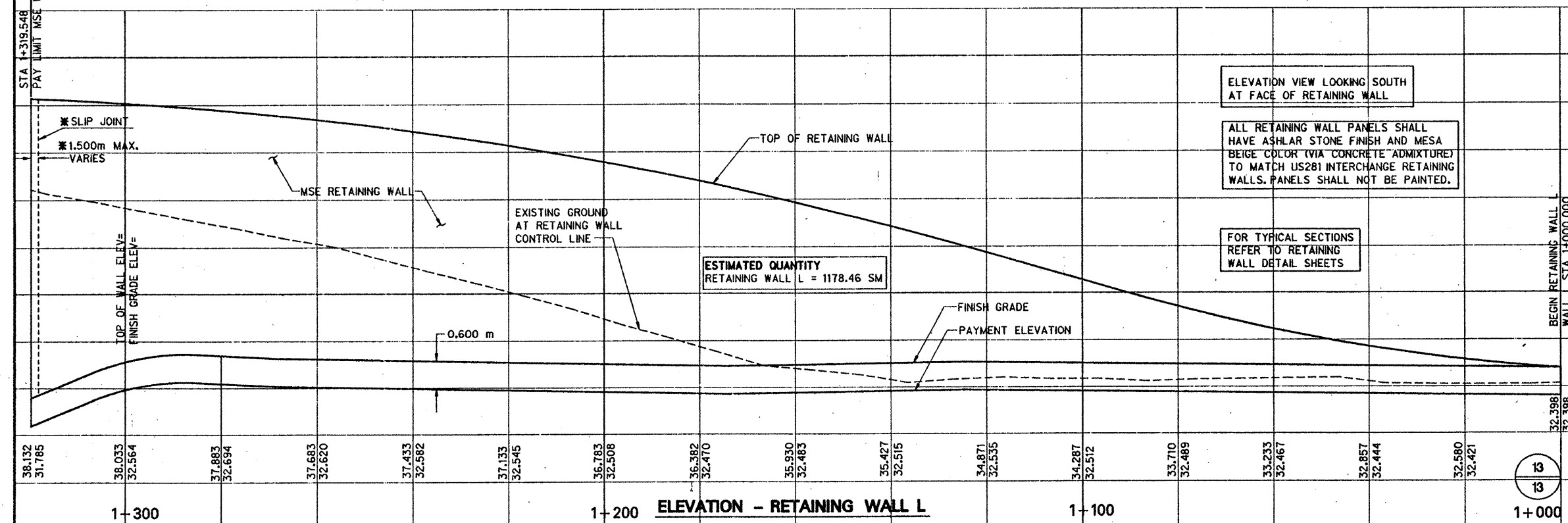
Half Associates
 ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS

DESIGN	DRAWN	NOTES	PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CADD			4	TEXAS	4496(041)	4-29
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
APRIL 1996	620R-W-K	1/8" = 1'-0"	21	HIDALGO	11	17

12
13



PLAN - RETAINING WALL L



ELEVATION - RETAINING WALL L

- NOTES:**
- * CONTRACTOR SHALL PROVIDE A SLIP JOINT BETWEEN THE REGULAR MSE WALL AND THE RETAINING WALL FACIA. THE SLIP JOINT SHALL BE LOCATED WITHIN A 1.500M RANGE OF THE PAY LIMIT (AS SHOWN ON PLANS), SO AS TO PROVIDE FOR TYPICAL WIDTH PANELS NEAR THE SLIP JOINT
 - * FOR BORE HOLE LOCATIONS AND LOG, REFER TO SHEET 12 OF 13
 - FOR RIPRAP DETAILS REFER TO RETAINING WALL TYPICAL SECTION AND DETAILS SHEET



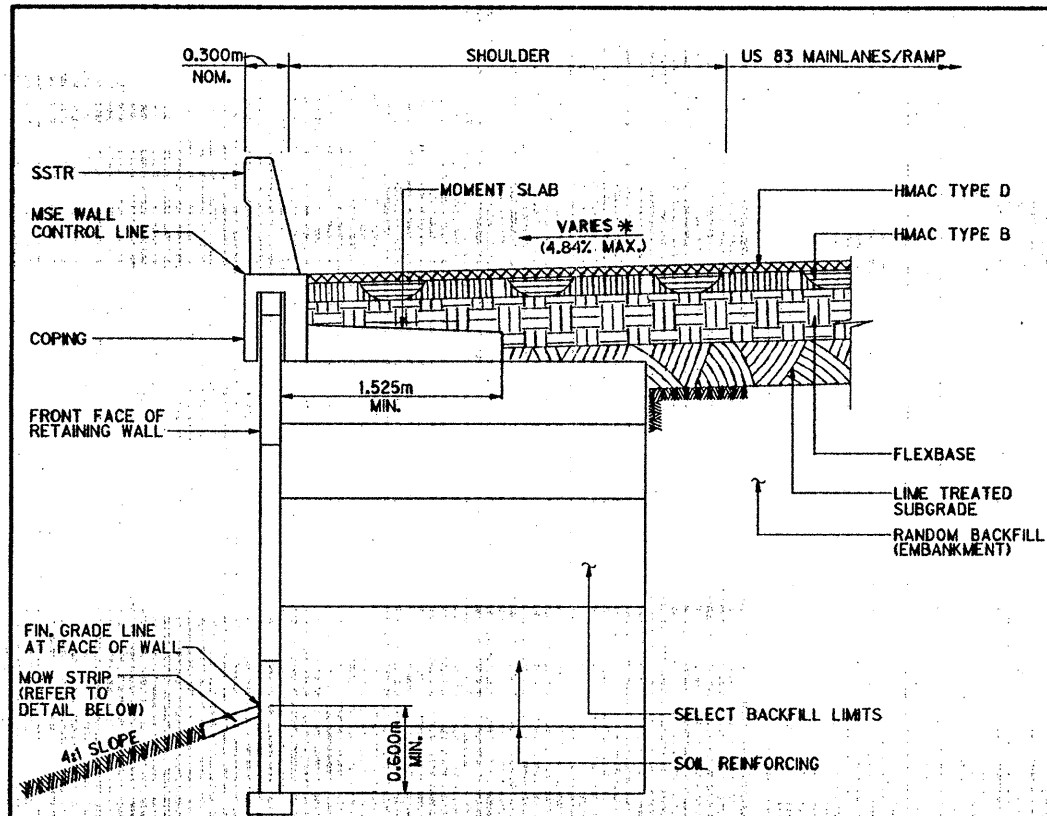
Gregory A. Jacobs 4-15-16
 GREGORY A. JACOBS DATE

RETAINING WALL LAYOUT AND ELEVATION
 RETAINING WALL L
 U.S. 83 RECONSTRUCTION
 HIDALGO COUNTY, TEXAS
 TEXAS DEPARTMENT OF TRANSPORTATION

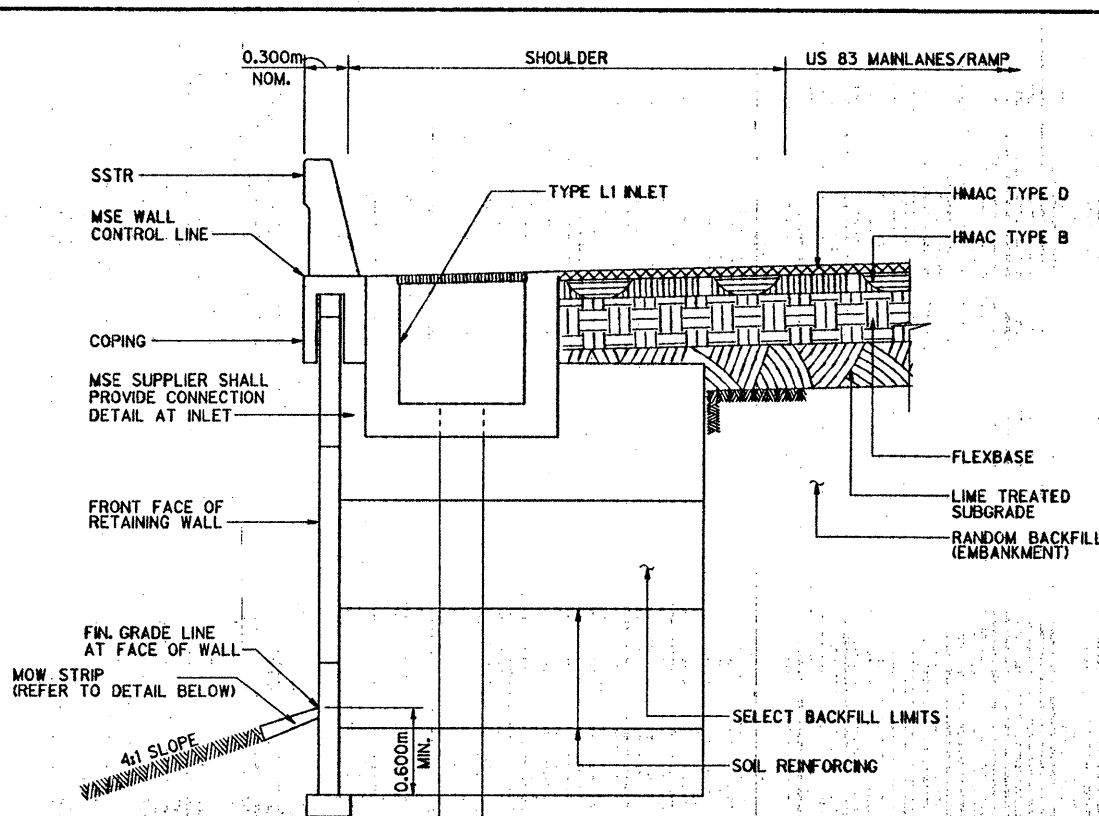
Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	PED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
CADD				TEXAS	1189(491) M	420	
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION NO.	JOB NO.	
APR 18 2016	620PW-L	1:50 HORIZ 1:50 VERT	21	HIDALGO	20	17	18

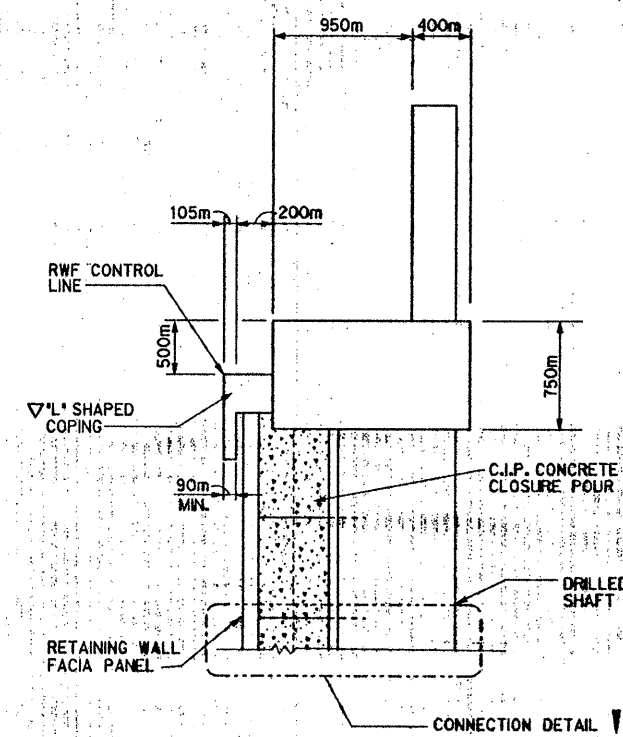
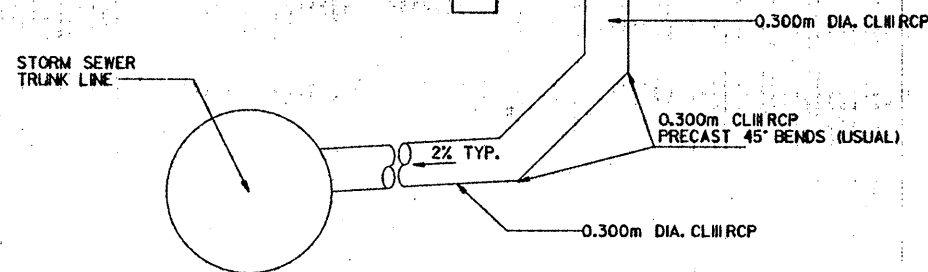
13
 13
 1+000



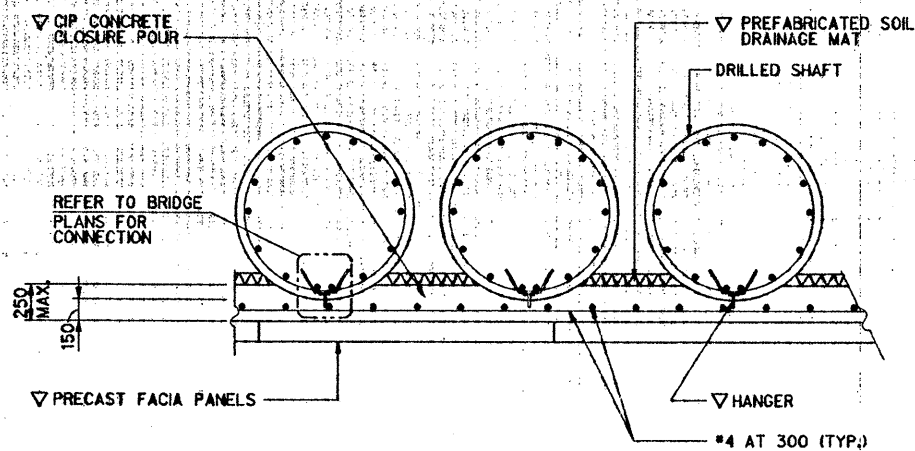
MSE WALL TYPICAL SECTION
*SEE SUPERELEVATION TABLES



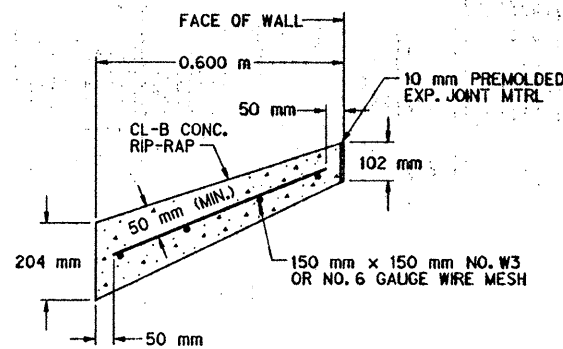
MSE WALL TYPICAL SECTION AT INLETS
(REFER TO DRAINAGE PLANS FOR INLET TYPES AND LOCATIONS)



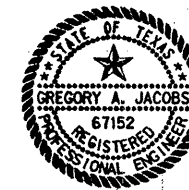
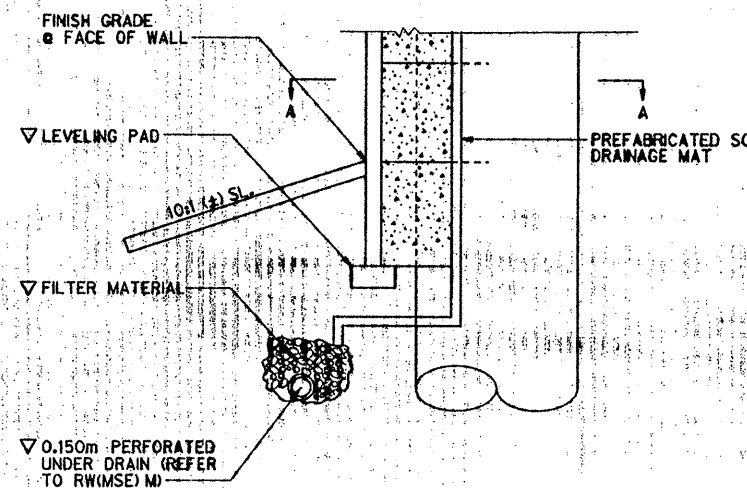
RETAINING WALL FACIA TYPICAL SECTION
REFER TO BRIDGE PLANS FOR CONNECTION DETAILS



SECTION A-A
INCLUDED IN PRICE BID FOR ITEM "RETAINING WALL FACIA".

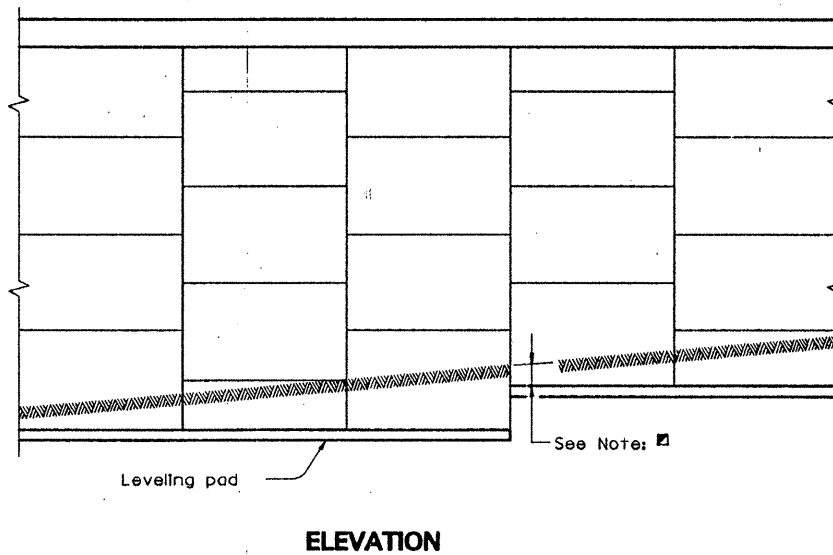
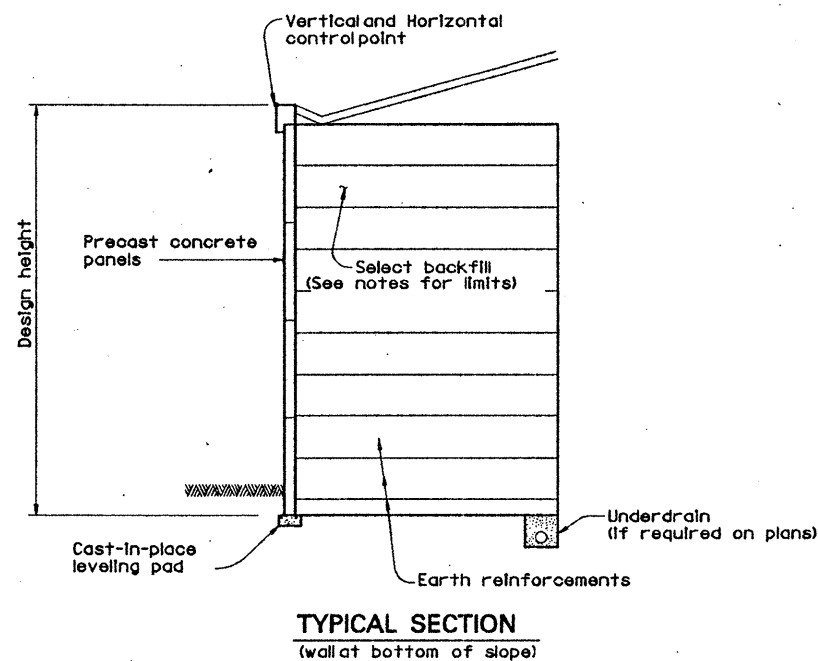


MOW STRIP DETAIL

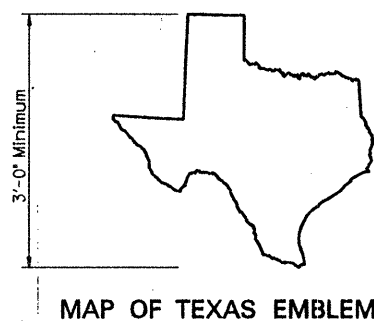
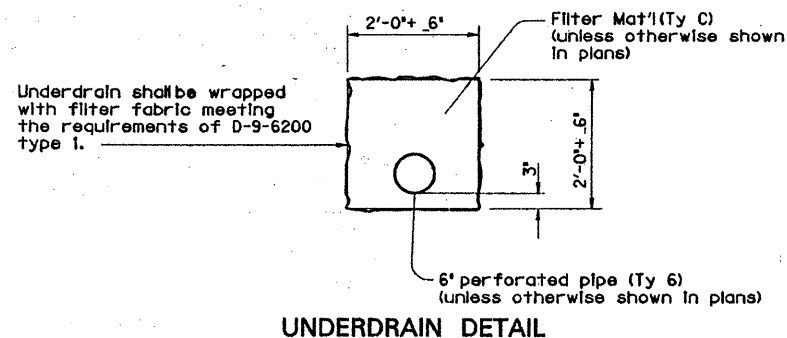
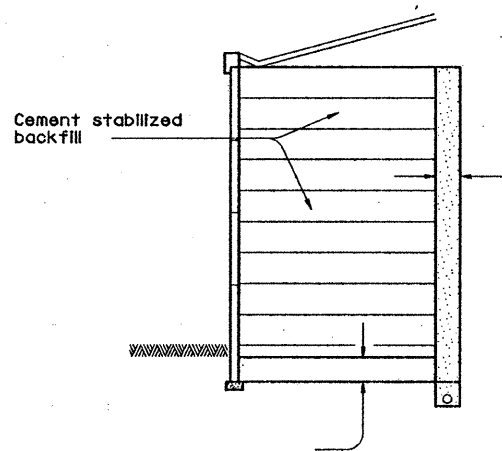


GREGORY A. JACOBS
DATE 4-15-16

RETAINING WALL - TYPICAL SECTIONS AND DETAILS									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates									
ENGINEERS - ARCHITECTS - ROYALTY - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	DATE	SCALE	CONTRACT NO.
CLB	TRM	SEE PLAN	8	TEXAS	4736 (791)	4	4-15-16	NO SCALE	21
FILE	SCALE	DATE	NO.	COUNTY	CONTROL SECTION	JOB NO.	DATE	SCALE	CONTRACT NO.
APRIL 2016	NO SCALE	21	HIDALGO	DP 20	17	18	U.S. 83		



[] NOTE: Unless noted elsewhere in the plans, 1' minimum cover shall be provided from the top of leveling pad to finish grade.



Map of Texas emblem shall be formed into a wall panel next to each bridge abutment. The exact location of each emblem shall be approved by the Engineer. The cost of forming the emblems will not be paid for directly, but shall be incidental to the item 'Retaining Wall'.

The map of Texas shall be inset a minimum of 3/4" into the face of the panel, and shall receive a smooth finish. The inset area shall be finished in a contrasting color as approved by the Engineer.

GENERAL NOTES:

Section and elevation shown is for informational purposes only. Specific geometry is to be determined based on wall layouts and other plan information.

The select backfill specified for use within the mechanically stabilized earth volume shall extend horizontally from the back of the panels to the end of the earth reinforcements. The select backfill shall extend vertically from the top of the leveling pad or 4' below the lowest earth reinforcement, whichever is lower to the top of panels.

The uppermost earth reinforcements shall be no more than 3.5' below the top of wall.

The lowest level of earth reinforcements shall be no more than 2.0' above the top of leveling pad.

Minimum wire size for earth reinforcements shall be #7.0. If different longitudinal and cross wires are used in an earth reinforcement mesh, the smaller wire shall have at least 50% of the cross sectional area of the larger wire.

Standard precast concrete panels shall have a maximum height of 6.0' and a maximum surface area of 50 sq ft. Minimum panel thickness shall be 5". Panels shall be arranged to provide offset horizontal joints.

An open joint shall be provided around the perimeter of the concrete panels. The nominal joint opening shall be between 1/4" and 3/8". The joint configuration shall be such that the filter fabric or pad materials are not exposed at the wall face.

DESIGN PARAMETERS:

Design of retaining walls shall be based on the following design parameters:

Foundation Material (Existing Soils)	Unit Weight = 125 pcf γ = 26' c = 0 psf
Random Backfill (Embankment)	Unit Weight = 125 pcf γ = 26' c = 0 psf
Select Backfill	Unit Weight = 125 pcf γ = 34' c = 0 psf
Cement Stabilized (Select Backfill)	Unit Weight = 125 pcf γ = 45' c = 0 psf

Stress in steel and concrete shall be in accordance with AASHTO 1992 and current Interim Specifications.

The minimum length of earth reinforcements shall be 8'.

STABILITY CRITERIA:

Factor of safety in sliding along the base of the structure shall be greater than or equal to 1.5

Factor of safety in overturning shall be greater than or equal to 2.0.

The base pressure resultant shall fall within the middle third of the retaining wall.

The factor of safety against pullout of the earth reinforcements shall be greater than or equal to 1.5 at each level. Pullout resistance shall be determined from test data evaluated at 1/4 inch strain.

CORROSION CRITERIA:

The earth reinforcement elements shall be designed to have a corrosion resistance - durability to ensure a minimum design life of 75 years. Maximum loss per side due to corrosion shall be computed by assuming a uniform loss model based on the following

Zinc corrosion rate (First 2 years)	-	15	μm/yr.
Zinc corrosion rate (Subsequent years)	-	4	μm/yr.
Carbon steel corrosion rate	-	12	μm/yr.

All stress and pullout calculations shall be done on the calculated earth reinforcement section remaining after 75 years.

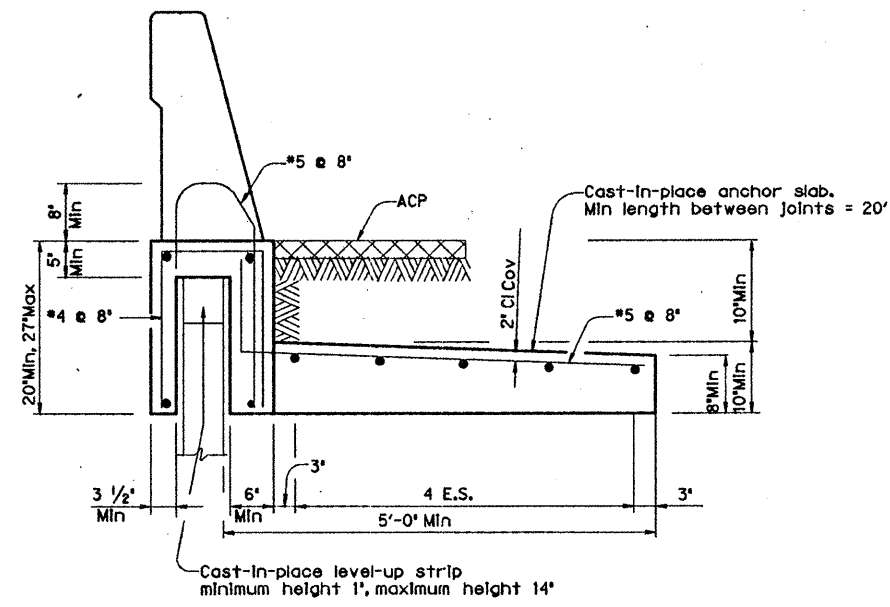
All retaining wall panels shall be mesa beige colored, and ashlar stone finish.



GREGORY A. JACOBS 4-15-96 DATE

1

RW(MSE) (MOD)									
MECHANICALLY STABILIZED EARTH RETAINING WALL									
U.S. 83 RECONSTRUCTION									
HIDALGO COUNTY, TEXAS									
TEXAS DEPARTMENT OF TRANSPORTATION									
Half Associates ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS									
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.			
	CADD		8	TEXAS	1/22/96 (1991)	74	432		
DATE	FILE	SCALE	SHEET NO.	COUNTY	CONTROL SECTION NO.	FOR	PROWAVY		
APRIL 1996	RWETD00	NONE	21	HIDALGO	0038	17	18	U.S. 83	



Cast-in-place level-up strip
minimum height 1', maximum height 14'

"WIDE BASED" RAILING
T501, T502, C501, C502, SSTR
ADJACENT TO ACP
(SHOWING TYPE SSTR)

GENERAL NOTES:

Details on this sheet are to be used in development of specific details for mounting traffic railing on mechanically stabilized earth (MSE) walls.

The specific details proposed shall have strengths equivalent to those shown on this sheet. Areas of particular importance are the connection of the coping to the railing, the strength of the vertical coping leg connecting the railing to the anchor slab, and the connection of the coping to the anchor slab or concrete pavement.

Shop drawings for the traffic railing foundations shall be submitted to the Engineer in accordance with the Item 'Retaining Wall'. The shop drawings shall include bar bending details.

Precasting of the coping or coping and railing will be allowed. The anchor slab, when required, shall be cast-in-place.

The Contractor's attention is directed to the fact that various configurations of precast coping/railing combinations are covered by patent. The contractor shall provide for use of these systems in accordance with Article 7.3.

Concrete shall be class 'C'.
All reinforcing steel shall be grade 60.
Longitudinal bars shall be #4.
Coping and anchor slabs shall be considered subsidiary to the Item 'Retaining Wall'. The traffic railing will be paid for by the linear foot for the appropriate railing type.

CAST-IN-PLACE COPINGS:

Casting of the coping directly against the precast panel sides will not be permitted, as this may result in panel cracking. The contractor shall use 1/4" (min) compressible material on both sides of the panel to isolate the coping from the precast panel.

When cast-in-place coping is anchored to reinforced concrete pavement, a smooth level-up strip shall be provided on the top of the precast panels. The purpose of the level-up is to allow the pavement and coping to move longitudinally relative to the wall without causing damage.

Railing and coping joints shall be provided at 33' maximum spacing. Railing and coping joints shall be placed to coincide with precast panel joints.

PRECAST COPINGS:

A smooth level-up strip shall be provided on top of the precast panels prior to installation of the coping. Shims may be used on top of the level-up strip to facilitate alignment.

The joints between precast coping segments shall be sealed in accordance with the Item 'Concrete Pavement', joint sealing material, class 5. The joint shall be sealed 3" below and 6" above the adjoining pavement surface, or as directed by the Engineer. The purpose of the joint sealing is to contain surface drainage and prevent infiltration into the retaining wall backfill.

Precast coping shall be provided in 10' minimum lengths.

JOINED CONCRETE PAVEMENT:

When coping is adjacent to and anchored into jointed concrete pavement, the coping joints shall coincide with the pavement joints.



Gregory A. Jacobs 4-15-96
GREGORY A. JACOBS DATE

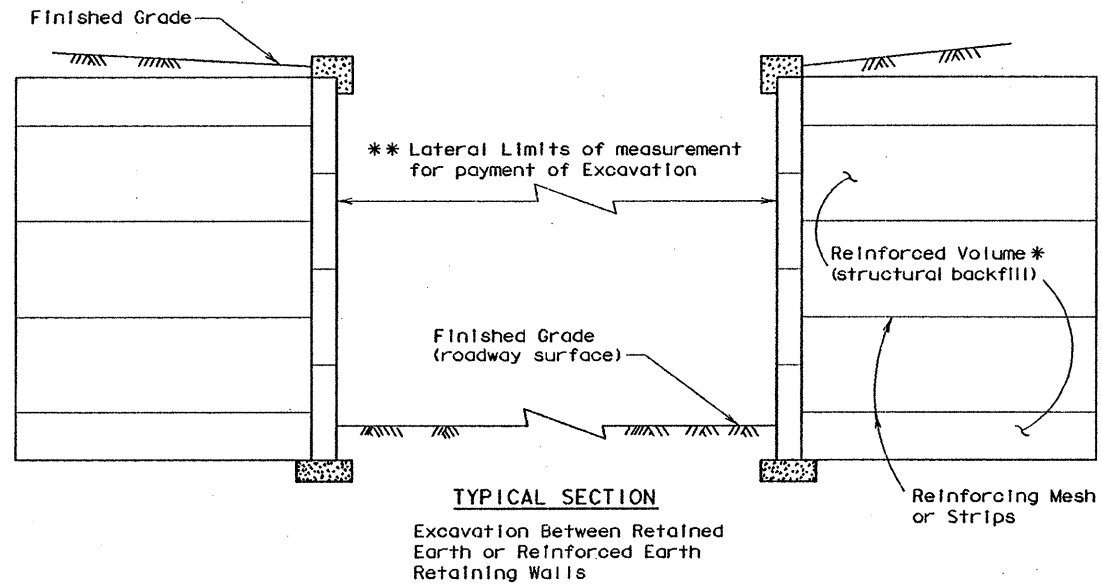
RW(TRF) (MOD)

TRAFFIC RAILING RETAINING WALL FOUNDATION							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates ENGINEERS, ARCHITECTS, SCIENTISTS, PLANNERS, SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
	CADD		8	TEXAS	7496(797)	4-43	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
APRIL 96	RWTRF25A	NONE	21	HIDALGO	00 29	17	118 U.S. 83

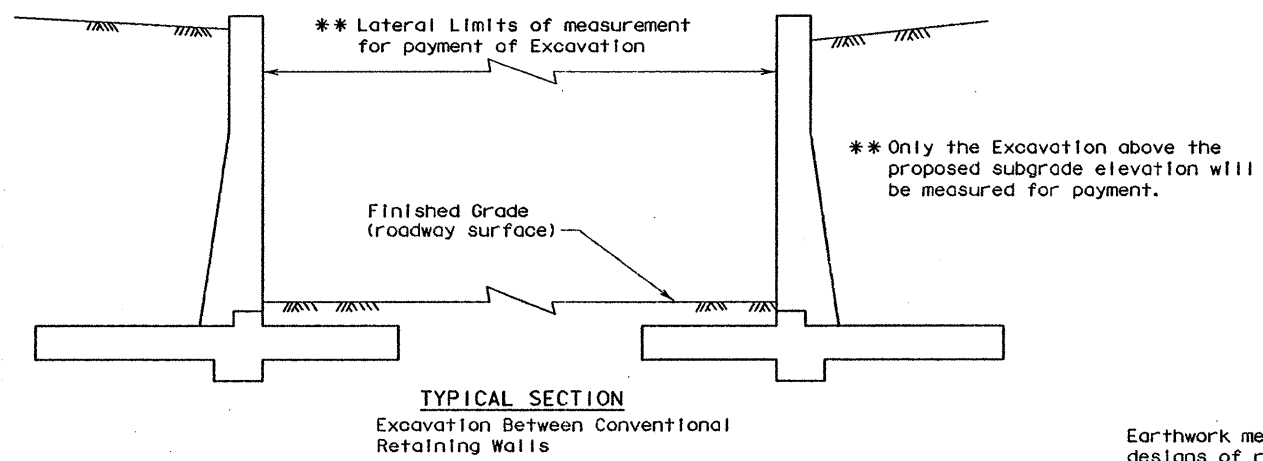
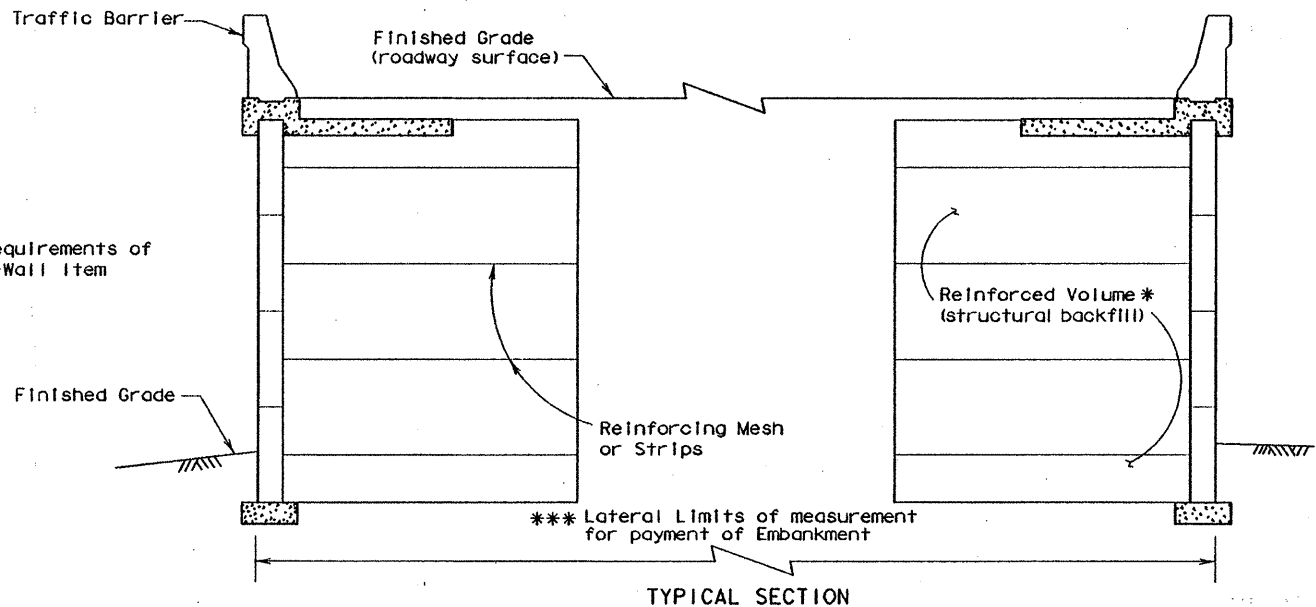
1
1

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". The user of this standard is assumed to be responsible for any errors or omissions. The user assumes all responsibility for any damages resulting from its use.

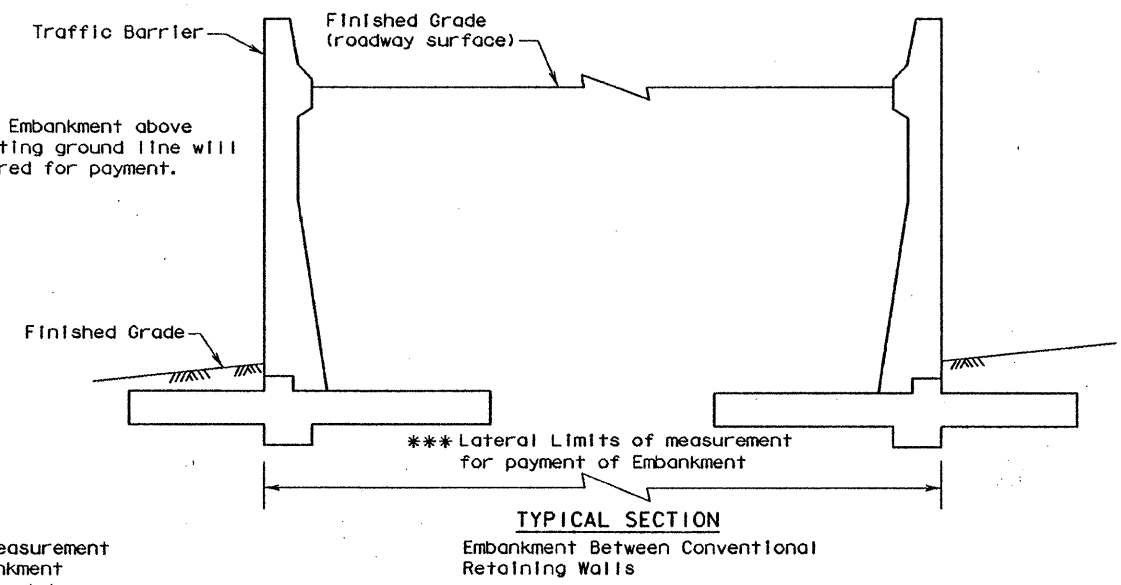
LEVELS DISPLAYED	
1	



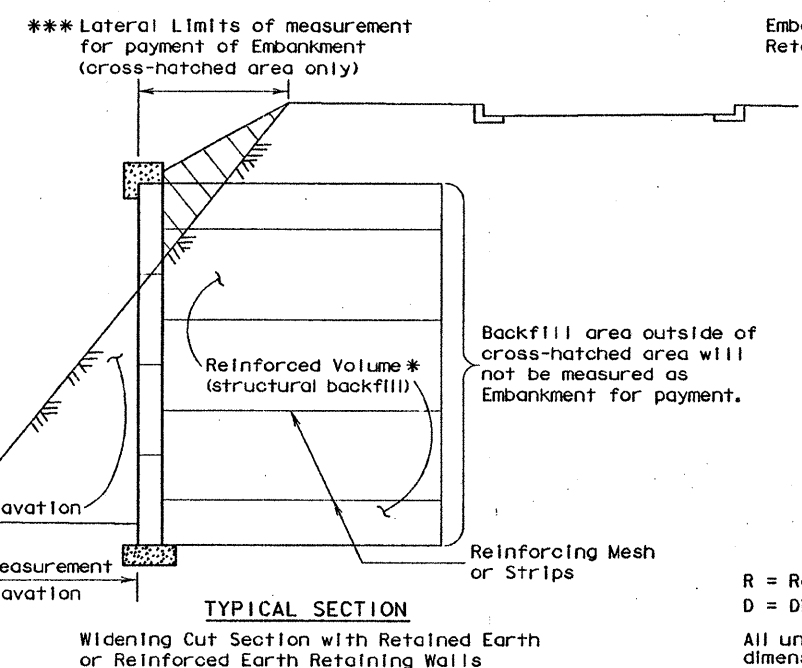
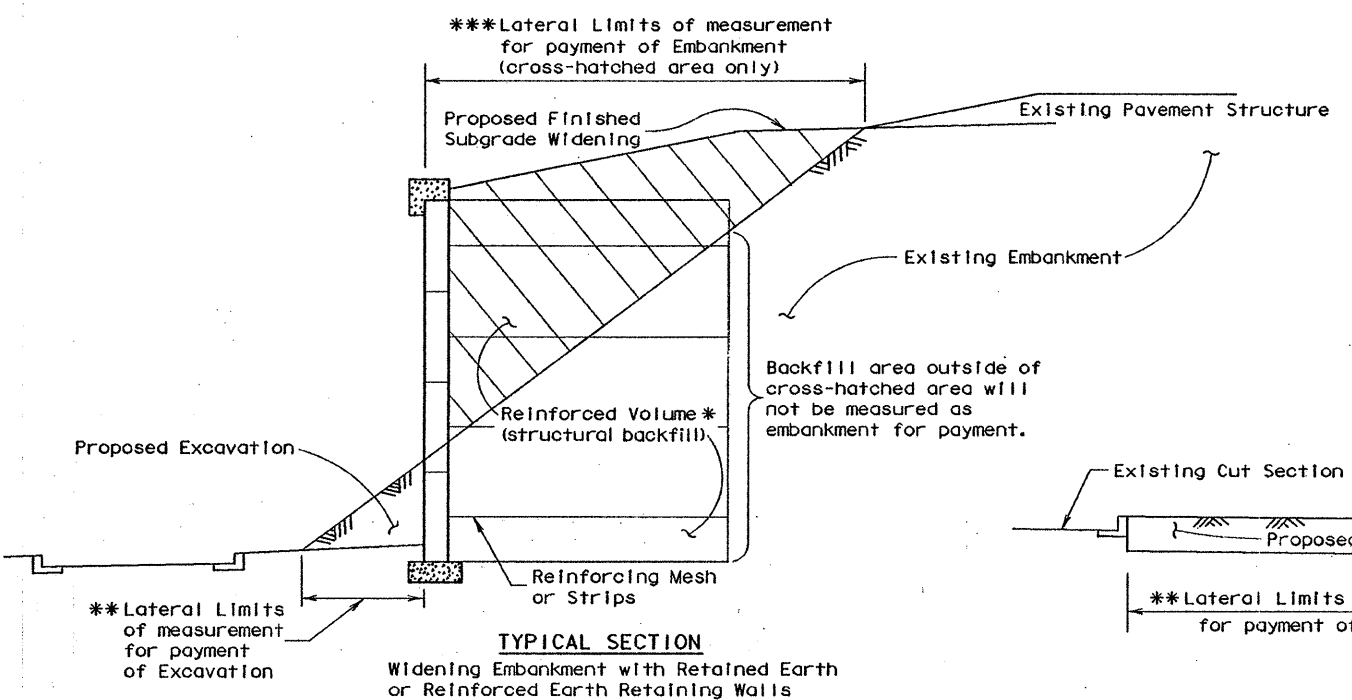
* Meeting requirements of Retaining-Wall Item



*** Only the Embankment above the existing ground line will be measured for payment.



Earthwork measurement with other designs of retaining walls will be made to the outside finished face in the same manner.



R = Radius
D = Diameter

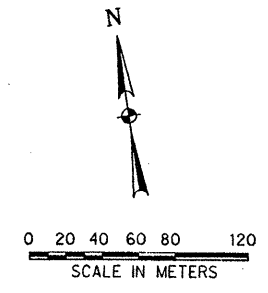
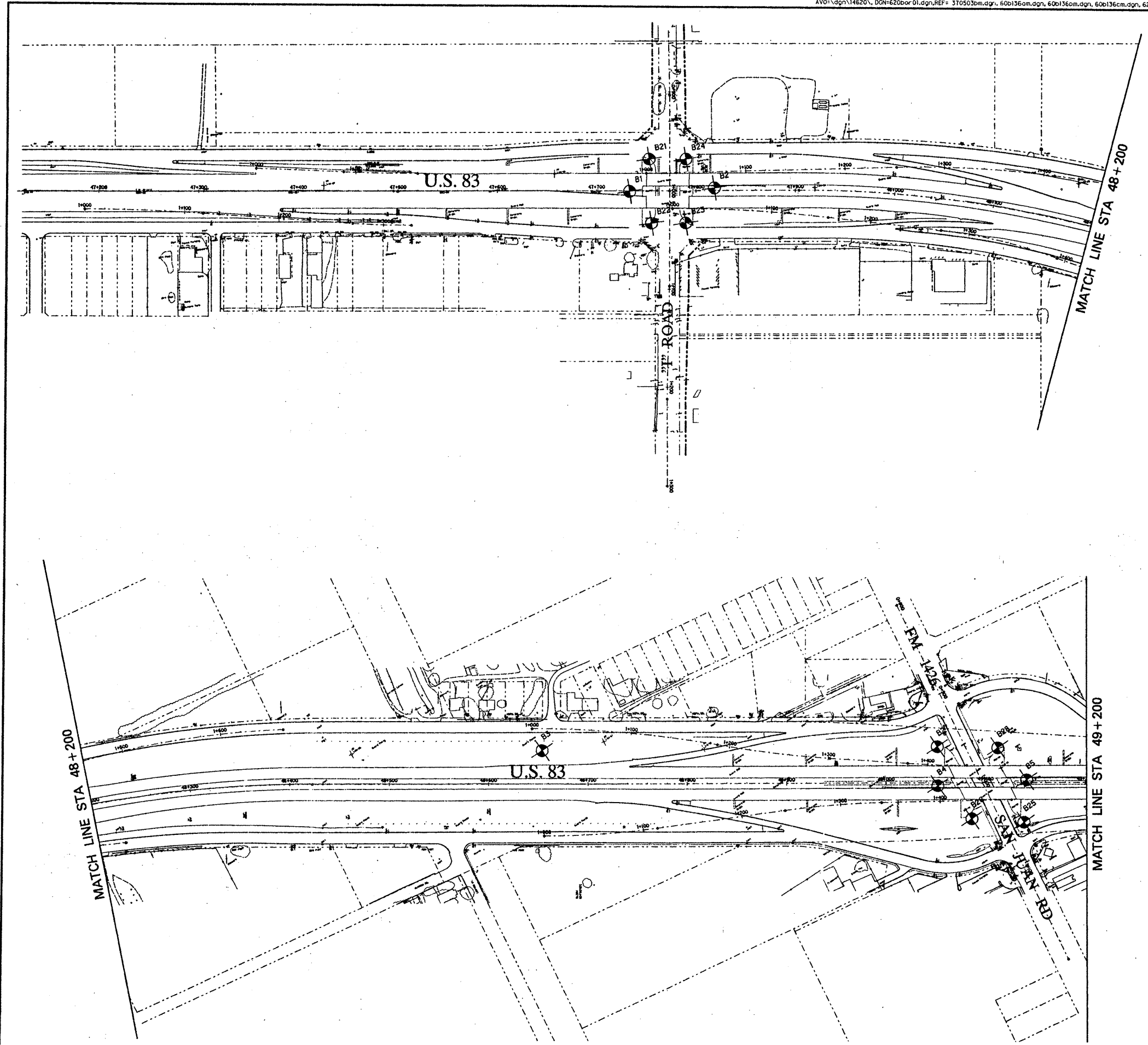
All unit-less dimensions are millimeters

Texas Department of Transportation
Design Division (Roadway)

EARTHWORK MEASUREMENT AT RETAINING WALLS

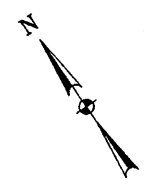
EMRW-95 (M)

FILE#	EMRW95M.DGN	DN#	HEJ	CK#	HEJ	DN#	BCD	CK#	NEG#
ORIG DATE:	JULY 1988	DIST	FED	REG	FEDERAL AID PROJECT		SHEET		
REVISIONS		21	6	NH96(791)		M	444		
		COUNTY	CONTROL	SECT	JOB	HIGHWAY			
		HIPALGO	0039	17	118	US83			



SOIL BORING INFORMATION			
BORING	NORTHING	EASTING	ELEVATION
B1	5059842.52	333405.18	38.06
B2	5059833.22	333490.09	37.79
B3	5059530.19	334264.31	31.59
B4	5059276.95	334573.63	37.55
B5	5059232.01	334650.86	37.12
B21	5059872.1	333429.6	32.07
B22	5059807.7	333422.3	31.94
B23	5059802.8	333456.5	32.00
B24	5059866.5	333466.2	32.14
B25	5059197.6	334624.4	31.85
B26	5059230.0	334583.1	31.64
B27	5059310.2	334595.5	31.85
B28	5059275.0	334645.1	31.52

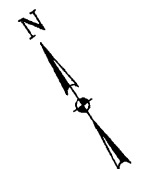
• APPROXIMATE



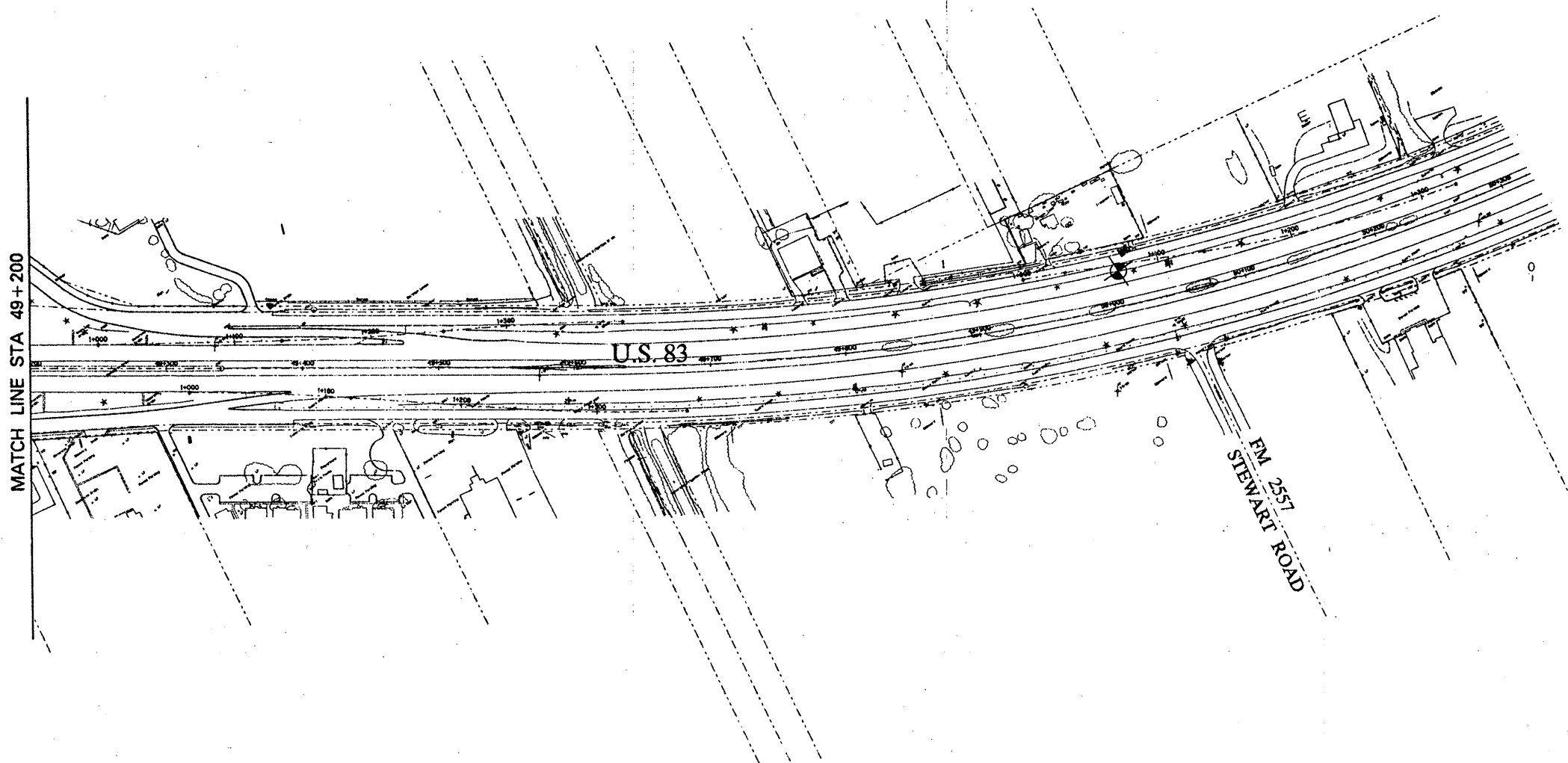
Gregory A. Jacobs 4-15-96
 GREGORY A. JACOBS DATE

SOIL BORING LAYOUT							
STA 47+200 TO STA 49+200							
U.S. 83 RECONSTRUCTION							
HIDALGO COUNTY, TEXAS							
TEXAS DEPARTMENT OF TRANSPORTATION							
Half Associates							
ENGINEERS - ARCHITECTS - ROBERTISTS - PLANNERS - SURVEYORS							
DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	
CADD			8	TEXAS	4496(791) A	448	
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.	HIGHWAY NO.
APR. 1996	620BOR01	1:3000	21	HIDALGO	RD	17	118

1
5



0 20 40 60 80 120
SCALE IN METERS



SOIL BORING INFORMATION			
BORING	NORTHING	EASTING	ELEVATION
B6	5058807.41	335400.97	31.35



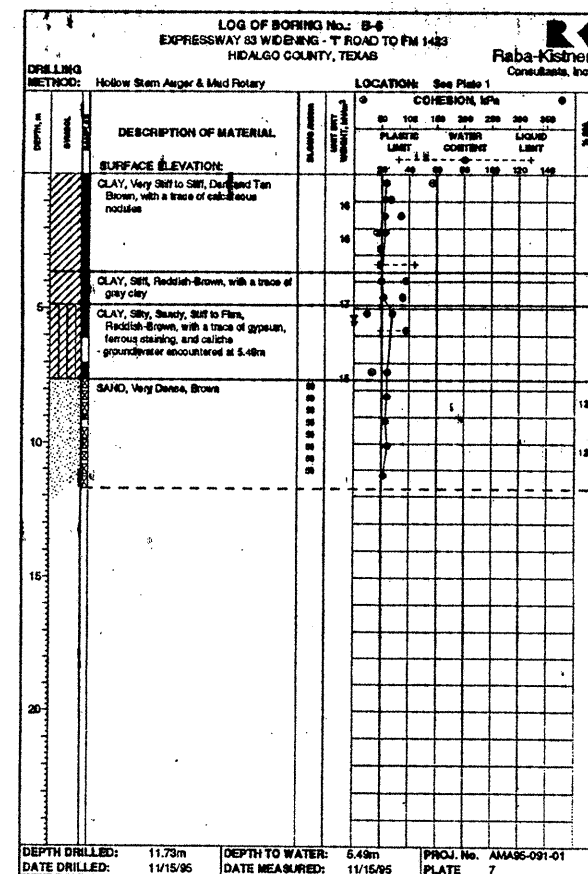
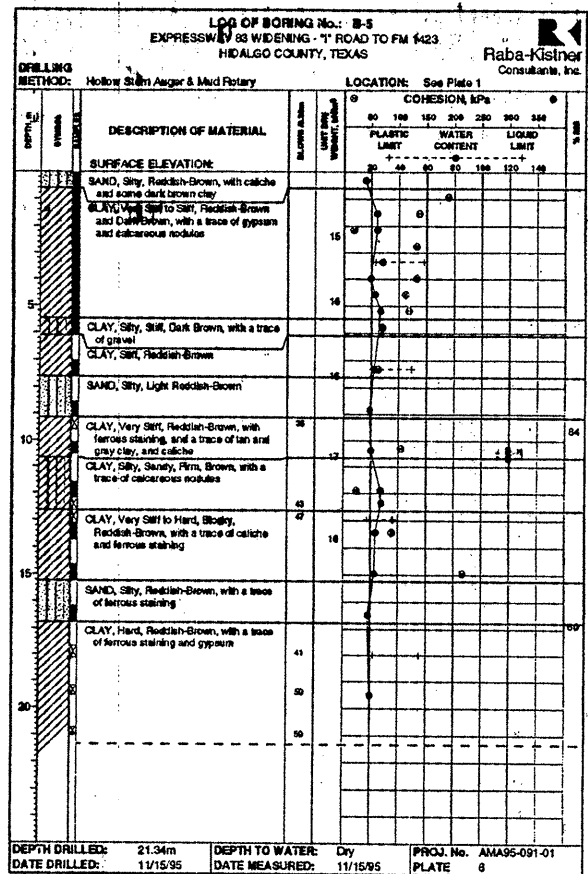
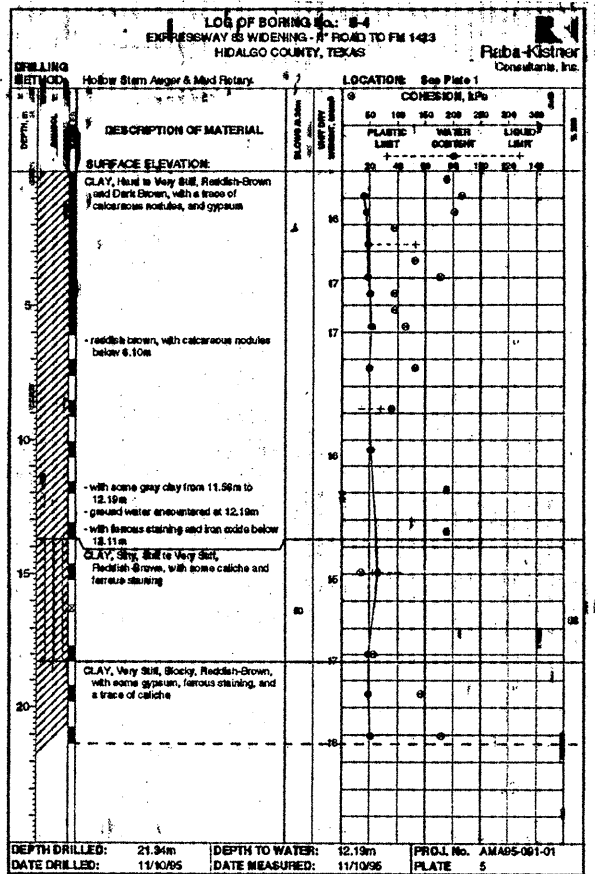
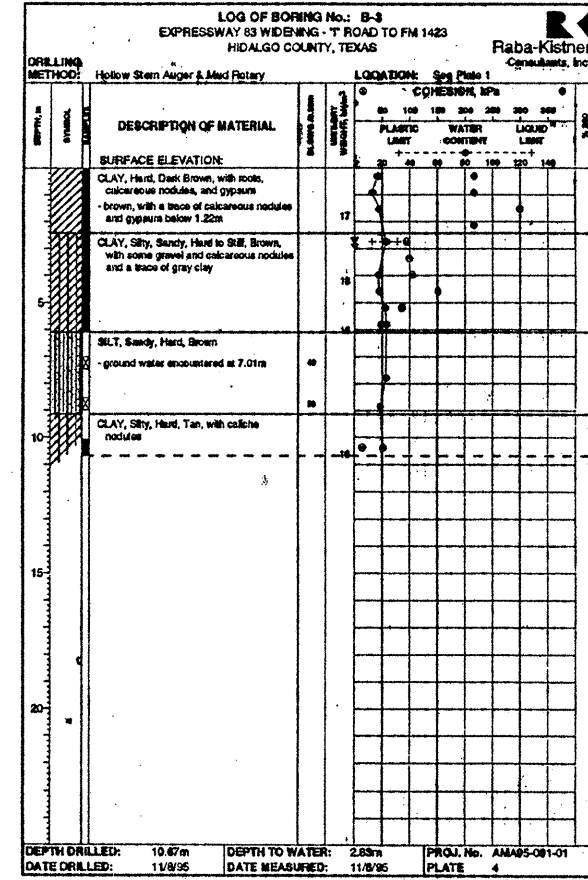
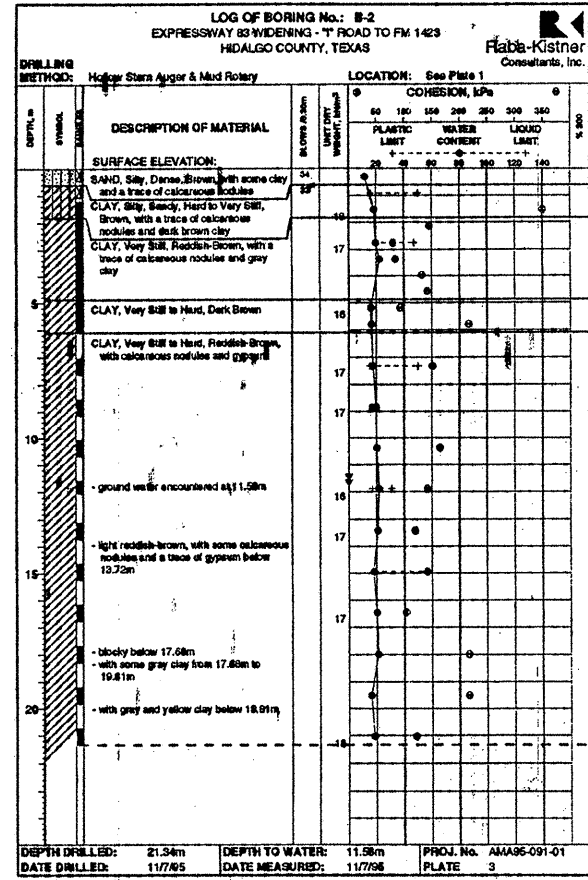
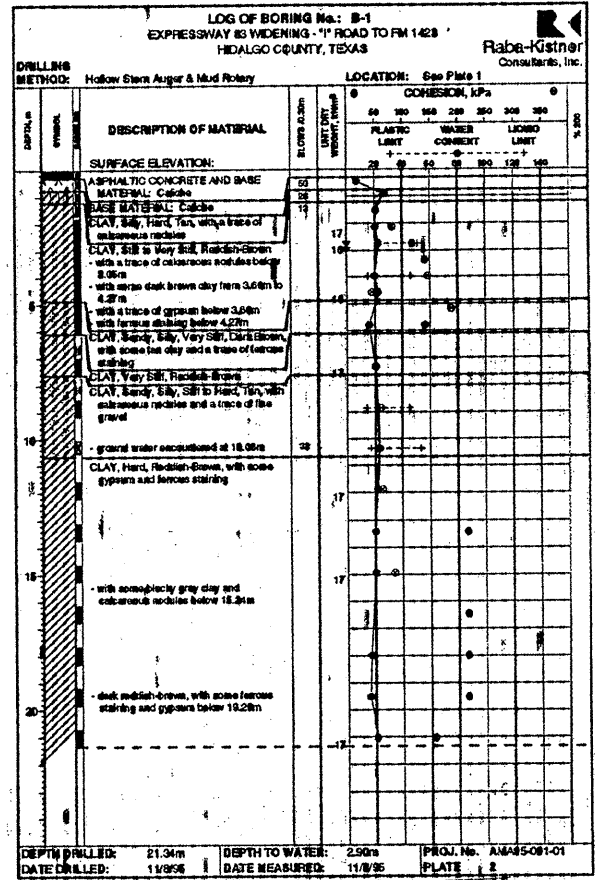
Gregory A. Jacobs
GREGORY A. JACOBS
4-15-76
DATE

SOIL BORING LAYOUT
STA 49+200 TO STA 50+300
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION



DESIGN	DRAWN	NOTES	FED. NO. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTRACT SECTION NO.	JOB NO. HIGHWAY NO.

2
5



- NOTES:
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 3. REPRODUCTION OF THE INFORMATION SHOWN HEREIN WAS AUTHORIZED BY RABA - KISTNER CONSULTANTS, INC.

SOIL BORING LOGS
U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	CADD		6	TEXAS	NA96(791) M	437
DATE	FILE	SCALE	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
APRIL 1995	620BOR06	NONE	21	HIDALGO	08	17

U.S. 83

KEY TO TERMS AND SYMBOLS

MATERIAL TYPES

SOIL TERMS	ROCK TERMS	OTHER
CLAYSTONE	SHALE	APPROX.
CLAY	SLATE	BASE
CLAYEY	SLANDELE	CONCRETE/CAST
GRAVEL	CONGLOMERATE	PAV.
GRAVELLY	SANDSTONE	ROCK

WELL CONSTRUCTION AND FLOORING MATERIALS

STEEL PIPE	WOOD PIPE	CAST IRON PIPE	CONCRETE PIPE	BRICK
ASBESTOS	GLASS	PLASTER	PAINT	STUCCO

SAMPLE TYPES

GRAVEL	SAND	CLAY	ROCK
SLURRY	SOIL	WATER	OTHER

STRENGTH TEST RESULTS

<input type="checkbox"/>	PERCENTAGE
<input type="checkbox"/>	TESTING
<input type="checkbox"/>	MEASURING EQUIPMENT
<input type="checkbox"/>	TESTING PROCEDURE
<input type="checkbox"/>	TESTING CONDITIONS

PROJECT NO. AMAS-091-01
PLATE 22

KEY TO TERMS & SYMBOLS (CONT'D)

TERMINOLOGY

Terms used in this report are those set with regard to their acceptability or conditions with general acceptance with the discussion presented in ARS 48 of SOIL MECHANICS IN ENGINEERING PRACTICE, Terzaghi and Peck, John Wiley & Sons, Inc. 1947, using the most up-to-date information available from the best available laboratory investigations. Terms used for describing soils according to their texture or grain size distribution are in accordance with the UNIFIED SOIL CLASSIFICATION SYSTEM, as described in American Society for Testing and Materials D-2957-66 and D-2958-64, Volume 04.09, Soil and Rock, Division 04, Geotechnical, 1980.

RELATIVE DENSITY

Relative Density	Consistency	Plasticity
0-4	Very Loose	0-4
4-7	Loose	5-10
7-10	Medium Dense	10-20
10-15	Dense	20-40
15-20	Very Dense	40-100
>20	Extremely Dense	>100

ABBREVIATIONS

B = Berwick	Con. Con. Cof = Contemporary Alluvium	Kel = Eagle Ford Shale
T = Toluca	Col = Low Terrace Deposits	Nde = Buda Limestone
E = Oryzopsis	Dep = Depositional Formation	KZ = Del Rio Clay
T = Tuffaceous	Fl = Fluvial Formation	GP = Georgetown Formation
TR = Tuffaceous	Q = Quaternary Formation	Par = Pecos Formation
TR = Tuffaceous	Q = Quaternary Formation	Kal = Kalmiaku Formation
TR = Tuffaceous	Q = Quaternary Formation	E = Estancia Formation
TR = Tuffaceous	Q = Quaternary Formation	W = Walnut Formation
TR = Tuffaceous	Q = Quaternary Formation	G = Glen Rose Formation
TR = Tuffaceous	Q = Quaternary Formation	L = Lower Glen Rose Formation
TR = Tuffaceous	Q = Quaternary Formation	U = Upper Glen Rose Formation
TR = Tuffaceous	Q = Quaternary Formation	H = Hensel Sand
TR = Tuffaceous	Q = Quaternary Formation	S = San Angelo Formation

PROJECT NO. AMAS-091-01
PLATE 22 (CONT'D)

DRILLING LOG

County: Hidalgo Structure: Division: 21
Highway No. I-37 & Hwy 83 Hole No. B-21 Date: 2-28-95
Control: AMAS-091-00 Station: 11+27.5
Loc. from Centerline: 11+27.5
Elev. Water Elev.: 114.4'

DEPTH (FT)	TEST NO. OF BLOW		DESCRIPTION OF MATERIAL	METHOD OF CORING
	1st 4"	2nd 4"		
7	10		Clay, silty, dark, some small gravel	
8	9		Clay, sandy, wet, saturated, tan soft with some caliche	
7	11			
10	11			
8	9		Clay, silty, black stains, with small traces of iron, with small traces of grey clay	
30	32			
24	28			
46	54 (5")			
46	34		Clay, tan, slightly moist, plastic	
46	42			

REMARKS: Depth at B-2 measured at 51.0' depth.

Driller: Vernon Jordan Logger: Steve Morris Title: Tech.

DRILLING LOG

County: Hidalgo Structure: Division: 21
Highway No. I-37 & Hwy 83 Hole No. B-22 Date: 3-28-95
Control: AMAS-091-00 Station: 11+27.5
Loc. from Centerline: 11+27.5
Elev. Water Elev.: 108.8'

DEPTH (FT)	TEST NO. OF BLOW		DESCRIPTION OF MATERIAL	METHOD OF CORING
	1st 4"	2nd 4"		
11	8		Clay, sandy, silty, tan, traces of caliche	
8	9			
10	8		Clay, sandy, saturated	
7	13			
9	11		Clay, silty, with small gypsum seams with small traces of grey clay	
36	40			
22	26			
22	28			
33	35			
39	45		Clay, dark, heavy brown stains	

REMARKS: Note: Location of B-2 from centerline is from traverse 104.

Driller: Vernon Jordan Logger: Steve Morris Title: Tech.

DRILLING LOG

County: Hidalgo Structure: Division: 21
Highway No. I-37 & Hwy 83 Hole No. B-23 Date: 2-27-95
Control: AMAS-091-00 Station: 11+28.0
Loc. from Centerline: 11+28.0
Elev. Water Elev.: 120.0'

DEPTH (FT)	TEST NO. OF BLOW		DESCRIPTION OF MATERIAL	METHOD OF CORING
	1st 4"	2nd 4"		
7	8		Clay, silty, slightly moist, soft	
7	9			
8	8		Clay, sandy, saturated, tan, soft, brown stains	
15	7			
10	11		Clay, silty, slightly moist, some caliche	
34	36			
31	38			
30	28			
29	37		Clay, dark, tan, very stiff, slightly moist	
34	60			

REMARKS: Water table at 121'

Driller: Vernon Jordan Logger: Steve Morris Title: Tech.

DRILLING LOG

County: Hidalgo Structure: Division: 21
Highway No. I-37 & Hwy 83 Hole No. B-24 Date: 3-01-95
Control: AMAS-091-00 Station: 11+28.0
Loc. from Centerline: 11+28.0
Elev. Water Elev.: 9.8'

DEPTH (FT)	TEST NO. OF BLOW		DESCRIPTION OF MATERIAL	METHOD OF CORING
	1st 4"	2nd 4"		
6	5		Clay, silty, sandy tan, traces of caliche	
7	9			
8	8			
10	13			
14	12		Clay, silty, slightly moist, with black stains with traces of grey clay, iron traces, slight traces of gypsum	
18	27			
21	22			
50	50 (4")			
48	59 (5 1/4)			
50	48			

REMARKS:

Driller: Vernon Jordan Logger: Steve Morris Title: Tech.

- NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS/HER INTERPRETATION OF THE DATA CONTAINED IN THE BORING LOGS SHOWN.
 2. FURTHER INFORMATION IS CONTAINED IN RABA-KISTNER CONSULTANTS, INC. REPORT NO. AMAS-091-01.
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SOIL BORING LOGS

U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
ENGINEERS ARCHITECTS SCIENTISTS PLANNERS SURVEYORS

DESIGN	DRAWN	NOTES	FED. PROJ. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
				TEXAS	AT-96 (791)	4-48
DATE	FILE	SCALE	COUNTY	CORRELATION NO.	JOB NO.	HIGHWAY NO.
APRIL 1995	820BOR03	NONE	HIDALGO	8039	17	17

U.S. 83

DRILLING LOG

County: Hidalgo Structure: District No: 21
 Highway No: San Juan Hwy 83 State No: B-25 Date: 1-16-95
 Control: AM95-01-00 Station: 5.5 Grid Elev: 9.7
 IPR: San Juan Loc. from Centerline: Rt. 12.00 Grid Water Elev: 7.6

DEPTH (FEET)	LOG	NO. OF BLOWS	DESCRIPTION OF MATERIAL	METHOD OF CORING
0-6	6	6	Clay, silty, sandy, with some small gravel dark	
6-10	2	4	Clay, silty, tan	
10-14	14	15	Clay, sandy, tan, saturated	
14-21	7	11	Clay, silty, tan, slightly moist, plastic with traces of grey clay, with small traces of iron, with small gypsum seams	
21-28	16	21		
28-39	17	28		
39-45	17	20		
45-50	30	45		
50-50	50	50	Clay, tan, plastic	
50-50	(5")	(4.5")		

DRILLER: Vernon Jordan LOGGER: Steve Morris TITLE: Tech

DRILLING LOG

County: Hidalgo Structure: District No: 21
 Highway No: 82 A San Juan Rd State No: B-28 Date: 1-16-95
 Control: AM95-01-00 Station: Grid Elev: 9.7
 IPR: San Juan Loc. from Centerline: Rt. 11.99 Grid Water Elev: 9.7

DEPTH (FEET)	LOG	NO. OF BLOWS	DESCRIPTION OF MATERIAL	METHOD OF CORING
0-4	4	4	Sand, fine, tan	
4-5	5	4	Clay, silty, sandy, tan	
5-9	12	14		
9-13	9	13		
13-14	14	15		
14-17	7	17	Sand, fine, saturated tan	
17-30	30	48	Clay, sandy, tan, moist	
30-33	23	30	Clay, silty, tan	
33-24	24	28		
24-50	50	50		
50-50	(5 3/4)	(5 3/4)		

DRILLER: Vernon Jordan LOGGER: Steve Morris TITLE: Tech

DRILLING LOG

County: Hidalgo Structure: District No: 21
 Highway No: San Juan Rd & Hwy 83 State No: B-27 Date: 7-7-95
 Control: AM95-01-00 Station: Grid Elev: 16.2
 IPR: San Juan Loc. from Centerline: Rt. 14.08 Grid Water Elev: 16.2

DEPTH (FEET)	LOG	NO. OF BLOWS	DESCRIPTION OF MATERIAL	METHOD OF CORING
0-6	6	6	SAND, Tan, fine, poorly graded (soft)	
6-4	4	5	CLAY, Silty, sandy, tan, slightly moist w/ some black stains	
4-17	17	16		
17-20	20	28	SAND, fine, poorly graded, wet, saturated	
20-18	18	20		
18-20	20	20		
20-50	50	50	CLAY, silty, sandy w/ small gypsum seams, w/ traces of grey clay, tan.	
50-12	12	23		
12-26	26	35		
26-25	25	55 (3 1/2)		

DRILLER: Vernon Jordan LOGGER: Steve Morris TITLE: Tech

DRILLING LOG

County: Hidalgo Structure: District No: 21
 Highway No: San Juan & Hwy 83 State No: B-28 Date: 5-7-95
 Control: AM95-01-00 Station: Grid Elev: 6.5
 IPR: San Juan Loc. from Centerline: Rt. 12.00 Grid Water Elev: 6.5

DEPTH (FEET)	LOG	NO. OF BLOWS	DESCRIPTION OF MATERIAL	METHOD OF CORING
0-6	6	6	CLAY, silty, dark	
6-5	5	6	CLAY, silty, slightly moist, tan	
5-14	14	14	CLAY, sandy, wet, saturated	
14-20	20	19	H ₂ O water table @ 10.0'	
20-16	16	18		
16-18	18	17		
18-46	46	53	SAND, saturated, tan fine-med, well sorted	
46-27	27	31	CLAY, slightly moist, plastic, tan.	
27-25	25	34		
25-50	50	50		
50-50	(5 1/2)	(5 1/2)		

DRILLER: Vernon Jordan LOGGER: Alvaro Encabo TITLE: Eng. Tech

- NOTES:
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SOIL BORING LOGS

U.S. 83 RECONSTRUCTION
HIDALGO COUNTY, TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

Half Associates
 ENGINEERS - ARCHITECTS - SCIENTISTS - PLANNERS - SURVEYORS

DESIGN	DRAWN	NOTES	FED. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CAED			8	TEXAS	NH95(791)	449
DATE	FILE	SCALE	STATE	COUNTY	CONTROL SECTION	JOB NO.
APRIL 30	620806	NONE	21	HIDALGO	00	17

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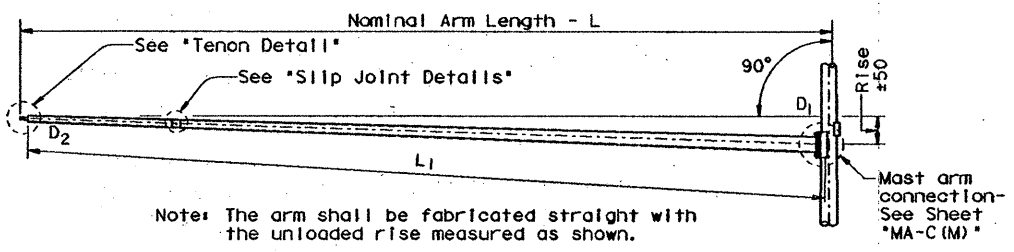
ACC: d48hplq/usr/d482517
Lvl 1,2 for English 1,3 for Metric
LEVEL DISPLAYED

Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D _B	D ₁₉	D ₂₄	D ₃₀	① thk	D _B	D ₁₉	D ₂₄	D ₃₀	① thk	
6,100	292	224	206	185	6.07	318	241	221	198	6.07	750-A
7,300	292	224	206	185	6.07	330	254	234	211	6.07	750-A
8,500	305	236	218	198	6.07	343	267	246	224	6.07	900-A
9,800	330	262	244	224	6.07	356	279	259	236	6.07	900-A
11,000	343	274	257	236	6.07	381	305	284	262	6.07	900-A
12,200	356	287	269	249	6.07	406	330	310	287	6.07	900-B
13,400	368	300	282	262	6.07	419	343	323	300	6.07	900-B

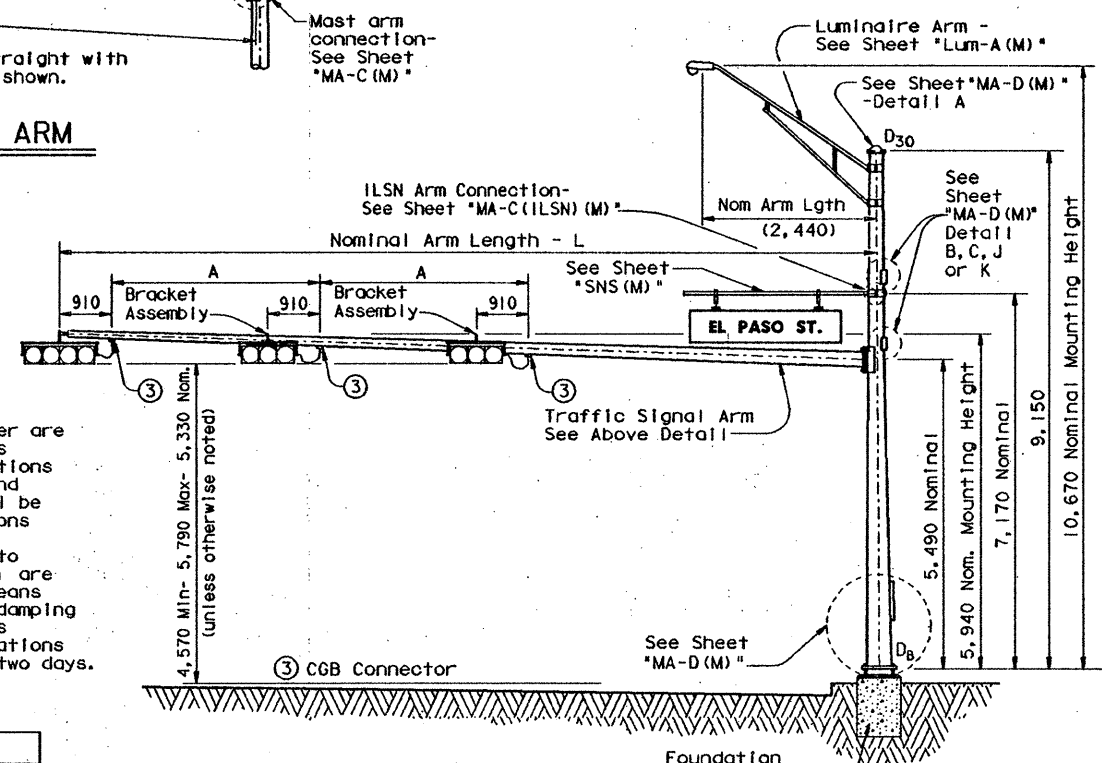
Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L ₁	D ₁	D ₂	① thk	Rise	L ₁	D ₁	② D ₂	① thk	Rise
6,100	5,822	205	135	4.55	508	5,822	205	89	4.55	483
7,300	7,041	230	147	4.55	533	7,041	230	89	4.55	508
8,500	8,260	245	145	4.55	559	8,260	255	89	4.55	533
9,800	9,449	245	132	6.07	584	9,449	245	89	6.07	559
11,000	10,668	255	130	6.07	610	10,668	255	89	6.07	584
12,200	11,887	270	130	6.07	686	11,887	280	89	6.07	635
13,400	13,106	280	130	6.07	813	13,106	295	102	6.07	686

D_B = Pole Base O.D.
D₁₉ = Pole Top O.D.
D₂₄ = Pole Top O.D. with ILSN w/out Luminaire
D₃₀ = Pole Top O.D. with Luminaire
D₁ = Arm Base O.D.
D₂ = Arm End O.D.
L₁ = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.
② D₂ may be increased by up to 25 mm for polygonal arms.



TRAFFIC SIGNAL ARM
(Fixed Mount)



STRUCTURE ASSEMBLY

VIBRATION WARNING
Mast Arms of approximately 12,200 mm or longer are subject to possible harmonic vertical vibrations in light wind conditions due to unusual combinations of signal numbers, weights or positions, arm-wind orientation, and arm-pole stiffness. Arms shall be visually inspected in 8 to 32 kmph wind conditions after signal head installation and, if vertical movements with a total excursion (max positive to max negative) of more than approximately 200 mm are observed at arm tip, damping devices or other means shall be fitted to the arms. The necessary damping device(s) or other remedial measures shall be as recommended by the fabricator. Excessive vibrations shall not be allowed to continue for more than two days.

Arm Length	7,300	8,500	9,800	11,000	12,200	13,400
Arm Type II	3,050	3,350	3,660	3,960		
Arm Type III			3,050	3,350	3,660	3,660

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	9,150 mm Poles With Luminaire		7,320 mm Poles With ILSN		5,800 mm Poles With No Luminaire and No ILSN	
	Above hardware plus One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
mm	Designation	Quantity	Designation	Quantity	Designation	Quantity
6,100	6,100L-160		6,100 S-160		6,100-160	
7,300	7,300L-160		7,300 S-160		7,300-160	
8,500	8,500L-160		8,500 S-160		8,500-160	
9,800	9,800L-160		9,800 S-160		9,800-160	
11,000	11,000L-160		11,000 S-160		11,000-160	
12,200	12,200L-160		12,200 S-160		12,200-160	
13,400	13,400L-160		13,400 S-160		13,400-160	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
mm	Designation	Quantity	Designation	Quantity	Designation	Quantity
6,100	6,100I-160					
7,300	7,300I-160		7,300II-160			
8,500	8,500I-160		8,500II-160			
9,800			9,800II-160		9,800III-160	
11,000			11,000II-160		11,000III-160	
12,200					12,200III-160	
13,400					13,400III-160	

Luminaire Arms (1 per 9,150 mm pole)

Nominal Arm Length	Quantity
2,440 mm Arm	

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
2,140 mm Arm	
2,750 mm Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 1/2"	3'-4"	
1 3/4"	3'-10"	
2"	4'-3"	

Each anchor bolt assembly consists of the following: Top and bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, 4 lock washers and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD(M)".
Templates may be removed for shipment.

④ Supply Option "A" unless otherwise noted

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
SINGLE MAST ARM ASSEMBLY
(160 KMPH WIND ZONE)
SMA-160(1)-95(M)

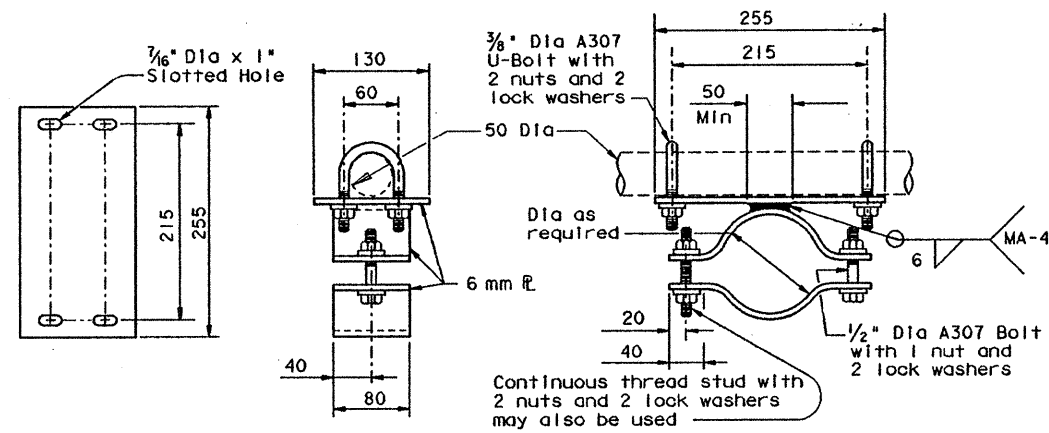
FILE: SMA-100.DGN	DN: MS	CK: JSY	DN: MMF	CK: JSY
ORIG DATE: AUGUST, 1995	DIST: FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS		01	6	NH 96/791DM
		COUNTY	CONTROL SECT	JOB HIGHWAY
		HIDALGO	039	17 118 US85

Note: All dimensions are in millimeters (mm) except as shown.

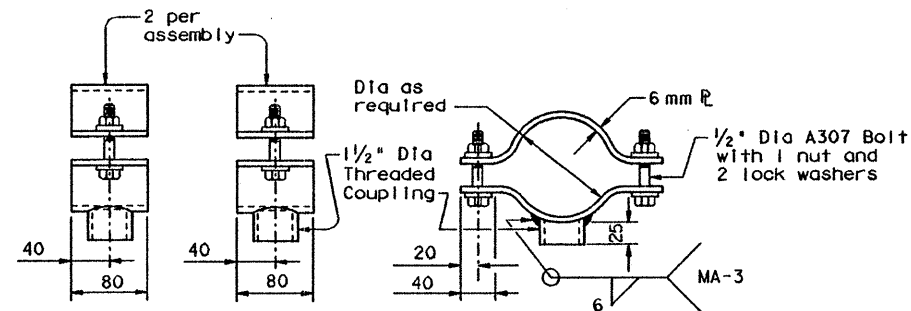
NEW 2/28/96

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ACC: d48hplq/usr/d482517
 Lvl: 2 for English 1, 3 for Metric
 LEVELS DISPLAYED: 3



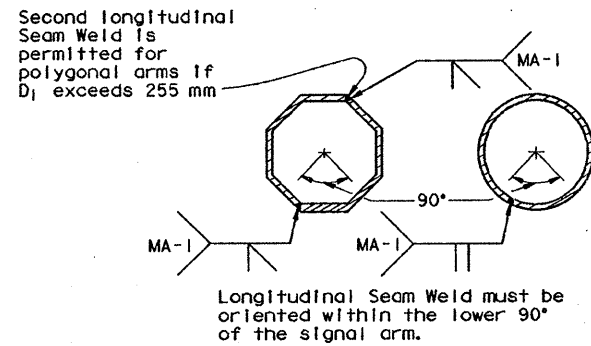
BRACKET ASSEMBLY DETAILS OPTION A



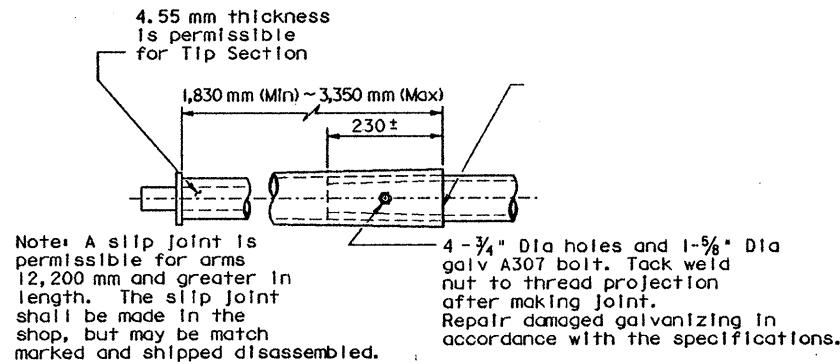
BRACKET ASSEMBLY DETAILS OPTION B

BRACKET ASSEMBLY OPTION C

Stainless steel bands and cast bracket as in "Astro-Brac" with 1/2" Dia Threaded Coupling.



ARM WELD DETAIL



SLIP JOINT DETAIL

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 160 kmph plus a 1.3 gust factor.

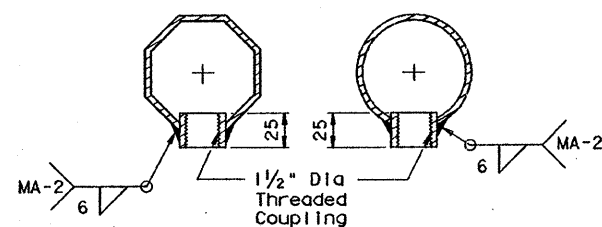
Poles are designed to support one 2,440mm luminaire arm, one 2,750mm internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 335 N vertical dead load plus the horizontal wind load on an effective projected area of 0.14 sq meter. The specified internally lighted street name sign load applied 1,400mm from the centerline of the pole equals 378 N vertical dead load plus horizontal wind load on an effective projected area of 1.07 sq meter. The specified signal load applied at the end of the traffic signal arm equals 800 N vertical dead load plus the horizontal wind load on an effective projected area of 3.0 sq meter (actual area times drag coefficient).

See Standard Sheet "MA-D(M)" for pole details, "MA-C(M)" for traffic signal arm connection details, "MA-C (ILSN) (M)" for internally lighted street name sign arm connection details, "LUM-A(M)" for luminaire arm and connection details, "SNS(M)" for internally lighted street name sign details, and "TS-FD(M)" for anchor bolt and foundation details. See "MA-C(M)" for material specifications.

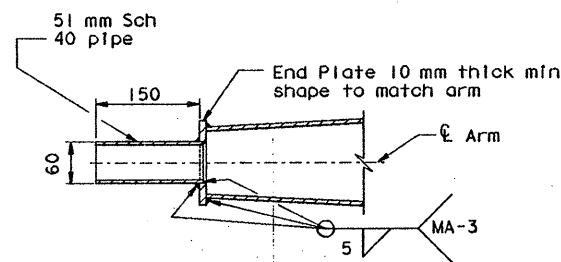
Fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the fabricator must obtain prior to fabrication. Miscellaneous welds which do not call for preapproved weld procedures are nevertheless subject to rejection for poor workmanship. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and the Specifications.

Unless otherwise noted, all parts shall be galvanized in accordance with the Specifications.

Special design require submission of shop drawings in accordance with the Item "Steel Structures".



COUPLING DETAILS



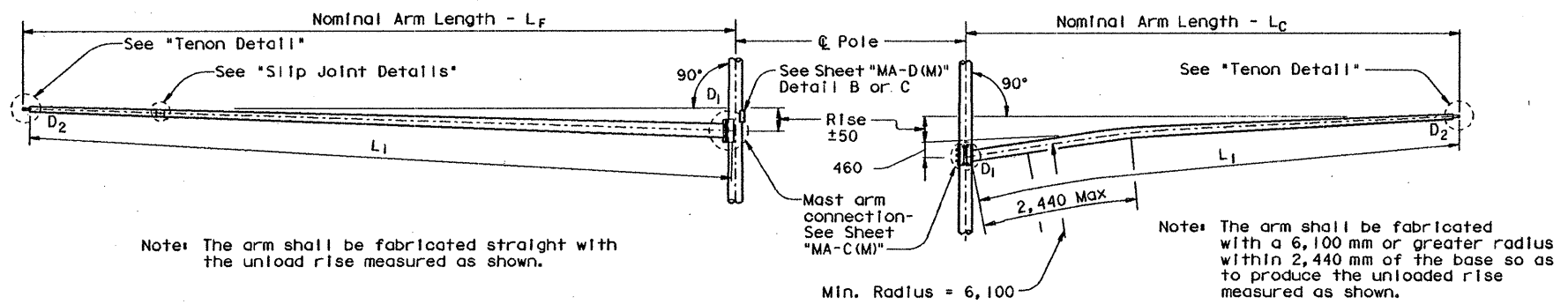
TENON DETAIL

Texas Department of Transportation
 Traffic Operations Division
**TRAFFIC SIGNAL
 SUPPORT STRUCTURES**
 SINGLE MAST ARM ASSEMBLY
 (160 KMPH WIND ZONE)
 SMA-160(2)-95(M)

FILE#	SMA-100.DGN	DW#	NS	CR#	JSY	DW#	MMF	CR#	JSY
ORIG DATE:	AUGUST, 1995	DIST	FED REG	FEDERAL AID PROJECT		SHEET		451	
REVISIONS		21	6	NH 96(791)M		JOB		HIGHWAY	
		COUNTY		CONTROL SECT		JOB		HIGHWAY	
		HIDALGO		039 17		118		US83	

REV 5/28/96

Note: All dimensions are in millimeters (mm) except as shown.



FIXED MOUNT TRAFFIC SIGNAL ARM

CLAMP-ON TRAFFIC SIGNAL ARM

VIBRATION WARNING:

Mast Arms of approximately 12,200 mm or longer are subject to possible harmonic vertical vibrations in light wind conditions due to unusual combinations of signal numbers, weights or positions, arm-wind orientation, and arm-pole stiffness. Arms shall be visually inspected in 8 to 32 kmph wind conditions after signal head installation and, if vertical movements with a total excursion (max positive to max negative) of more than approximately 200 mm are observed at arm tip, damping devices or other means shall be fitted to the arm(s). The necessary damping device(s) or other remedial measures shall be as recommended by the fabricator. Excessive vibrations shall not be allowed to continue for more than two days.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 160 kmph plus a 1.3 gust factor. Designs are based on an arm included angle of 90 degrees or more. Angles of less than approximately 75 degrees will require a special design.

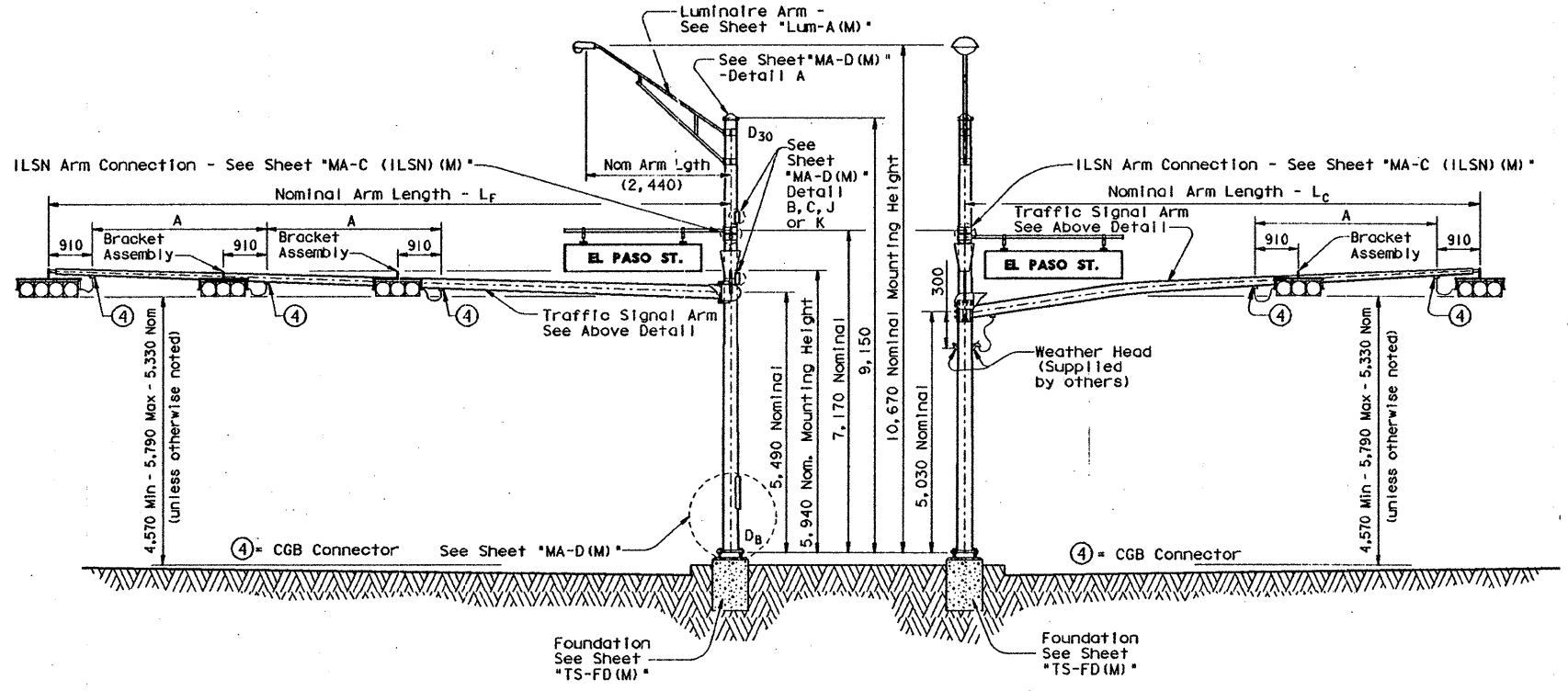
Poles are designed to support one 2,440 mm luminaire arm, two 2,750 mm internally lighted street name signs and two traffic signal arms with length combinations as tabulated. The specified luminaire load applied at the end of luminaire arm equals 335 N vertical dead load plus the horizontal wind load on an effective projected area of 0.14 sq meter. The specified internally lighted street name sign applied 1,400 mm from the centerline of the pole equals 378 N vertical dead load plus the horizontal wind load on an effective projected area of 1.07 sq meter. The specified signal load applied at the end of the traffic signal arm equals 800 N vertical dead load plus the horizontal wind load on an effective projected area of 3.0 sq meter (actual area times drag coefficient).

See Standard Sheet "MA-D(M)" for pole details, "MA-C(M)" for traffic signal arm connection details, "MA-C(ILSN)(M)" for internally lighted street name sign arm connection details, "LUM-A(M)" for luminaire arm and connection details, "SNS(M)" for internally lighted street name sign details, and "TS-FD(M)" for anchor bolt and foundation details. See "MA-C(M)" for material specifications.

Fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the fabricator must obtain prior to fabrication. Miscellaneous welds which do not call for preapproved weld procedures are nevertheless subject to rejection for poor workmanship. Material, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and the Specifications.

Unless otherwise noted, all parts shall be galvanized in accordance with the Specifications.

Special designs require submission of shop drawings in accordance with the item "Steel Structures".



ELEVATION
(Showing fixed mount arm)

STRUCTURE ASSEMBLY

ELEVATION
(Showing clamp mount arm)

TABLE OF DIMENSIONS "A"

Arm Length	7,300	8,500	9,800	11,000	12,200	13,400
Arm Type II	3,050	3,350	3,660	3,960		
Arm Type III			3,050	3,350	3,660	3,660

NEW 5/28/96

Note: All dimensions are in millimeters (mm) except as shown.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
DUAL MAST ARM ASSEMBLY
(160 KMPH WIND ZONE)
DMA-160 (I)-95 (M)

FILE#	DMA-100.DGN	DN#	MS	CK#	JSY	DR#	MMF	CK#	JSY
ORIG DATE#	MAY 1996	DIST	FED REG	FEDERAL AID PROJECT			SHEET		
REVISIONS		21	6	NH 96(79)DM			452		
		COUNTY	CONTROL	SECT	JOB	HIGHWAY			
		HIDALGO	039	17	118	US83			

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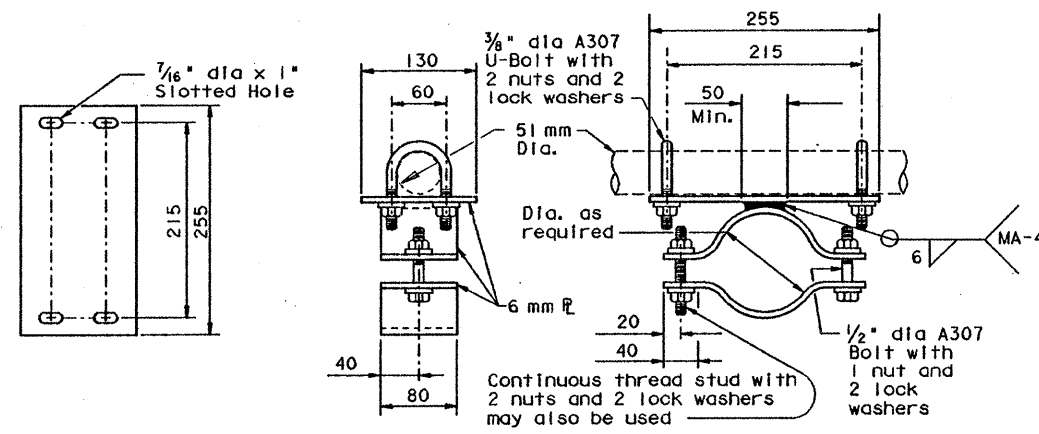
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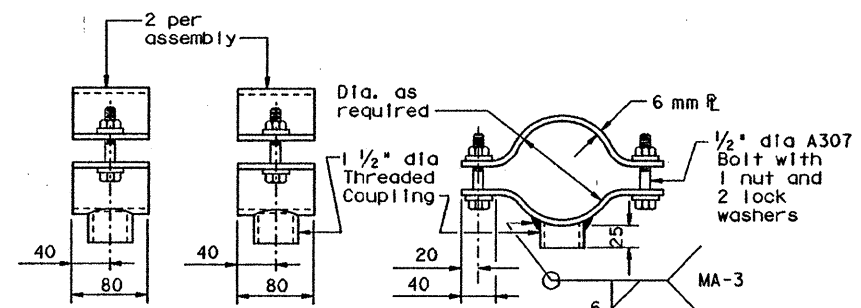
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ACC: d48hplqr /usr/d482517
LV-1.2 for English 1,3 for Metric
LEVELS DISPLAYED

1	3
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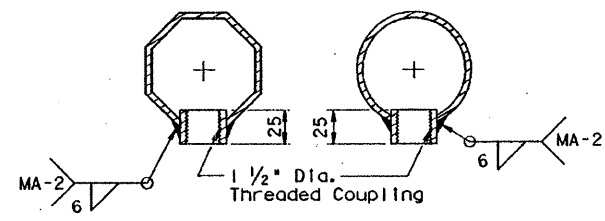
BRACKET ASSEMBLY DETAILS OPTION A



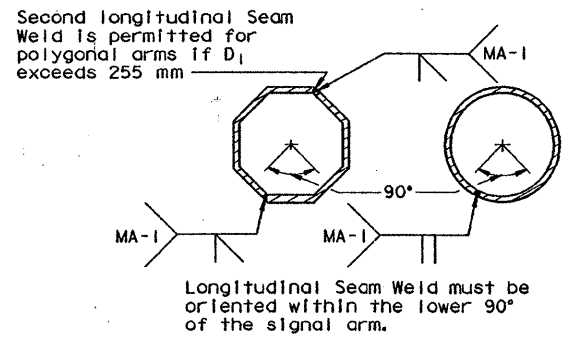
BRACKET ASSEMBLY DETAILS OPTION B

Stainless steel bands and cast bracket as in "Astro-Brac" with 1/2" dia Threaded Coupling.

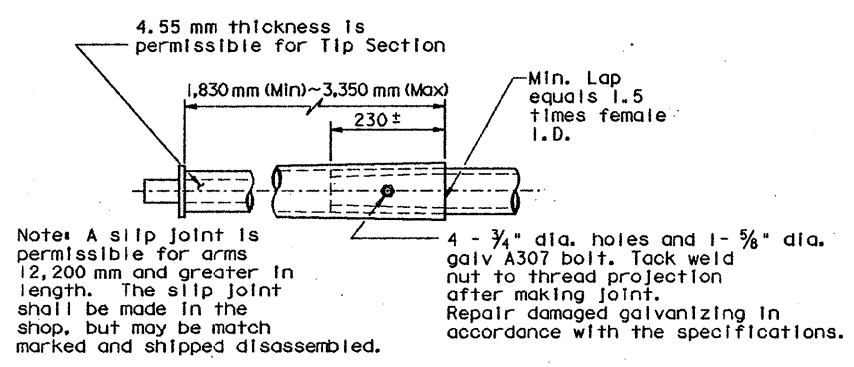
BRACKET ASSEMBLY DETAILS OPTION C



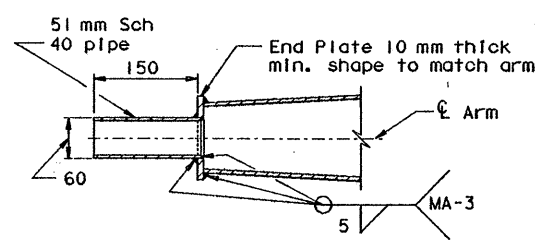
COUPLING DETAILS



ARM WELD DETAIL



SLIP JOINT DETAIL



TENON DETAIL

NEW 5/28/96

Note: All dimensions are in millimeters (mm) except as shown.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
DUAL MAST ARM ASSEMBLY
(160 KMPH WIND ZONE)
DMA-160 (2)-95 (M)

FILE#	DMA-100.DGN	DN#	MS	CK#	JSY	DW#	MMF	CK#	JSY
ORIG DATE#	MAY 1996	DIST	FED REG	FEDERAL AID PROJECT			SHEET		
REVISIONS	21	6	NH 96(79)DM			453			
	COUNTY	CONTROL	SECT	JOB	HIGHWAY				
	Hidalgo	039	17	118	US83				

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	9,150 mm Poles with Luminaire		7,320 mm Poles with ILSN		5,800 mm Poles with no Luminaire and no ILSN	
	LF	Lc	Designation	Quantity	Designation	Quantity
6,100	6,100	61006100L-160		61006100S-160		61006100-160
7,300	6,100	73006100L-160		73006100S-160		73006100-160
	7,300	73007300L-160		73007300S-160		73007300-160
8,500	6,100	85006100L-160		85006100S-160		85006100-160
	7,300	85007300L-160		85007300S-160		85007300-160
	8,500	85008500L-160		85008500S-160		85008500-160
9,800	6,100	98006100L-160		98006100S-160		98006100-160
	7,300	98007300L-160		98007300S-160		98007300-160
	8,500	98008500L-160		98008500S-160		98008500-160
	9,800	98009800L-160		98009800S-160		98009800-160
11,000	6,100	110006100L-160		110006100S-160		110006100-160
	7,300	110007300L-160		110007300S-160		110007300-160
	8,500	110008500L-160		110008500S-160		110008500-160
	9,800	110009800L-160		110009800S-160		110009800-160
12,200	6,100	122006100L-160		122006100S-160		122006100-160
	7,300	122007300L-160		122007300S-160		122007300-160
	8,500	122008500L-160		122008500S-160		122008500-160
	9,800	122009800L-160		122009800S-160		122009800-160
13,400	6,100	134006100L-160		134006100S-160		134006100-160
	7,300	134007300L-160		134007300S-160		134007300-160
	8,500	134008500L-160		134008500S-160		134008500-160
	9,800	134009800L-160		134009800S-160		134009800-160

Traffic Signal Arms (Fixed Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	Designation	Quantity	Designation	Quantity	Designation	Quantity
6,100	6,100I-160					
7,300	7,300I-160		7,300II-160			
8,500	8,500I-160		8,500II-160			
9,800			9,800II-160		9,800III-160	
11,000			11,000II-160		11,000III-160	
12,200					12,200III-160	
13,400					13,400III-160	

Traffic Signal Arms (Clamp-On Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	Designation	Quantity	Designation	Quantity	Designation	Quantity
6,100	6,100I-160					
7,300	7,300I-160		7,300II-160			
8,500	8,500I-160		8,500II-160			
9,800			9,800II-160		9,800III-160	
11,000			11,000II-160		11,000III-160	

Luminaire Arms (1 per 9,150 mm pole)

Nominal Arm Length	Quantity
2,440 mm Arm	

ILSN Arm (1 or 2 per pole) ship with clamps, bolts and washers

Nominal Arm Length	Quantity
2,140 mm Arm	
2,750 mm Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 3/4"	3'-10"	
2"	4'-3"	
2 1/4"	4'-9"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, 4 lock washers and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD(M)".

Templates may be removed for shipment.

① Supply Option "A" unless otherwise noted

ARMS	ROUND POLES						POLYGONAL POLES					Foundation Type	
	LF	Lc	D _B	D ₁₉	D ₂₄	D ₃₀	②thk	D _B	D ₁₉	D ₂₄	D ₃₀		②thk
6,100	6,100		305	236	218	198	6.07	343	267	246	224	6.07	900-A
7,300	6,100		318	249	231	211	6.07	343	267	246	224	6.07	900-A
	7,300		318	249	231	211	6.07	356	279	259	236	6.07	900-A
8,500	6,100		330	262	244	224	6.07	368	292	272	249	6.07	900-A
	7,300		330	262	244	224	6.07	381	305	284	262	6.07	900-A
	8,500		345	274	257	236	6.07	381	305	284	262	6.07	900-A
9,800	6,100		345	274	257	236	6.07	381	305	284	262	6.07	900-A
	7,300		345	274	257	236	6.07	381	305	284	262	6.07	900-A
	9,800		356	287	269	249	6.07	394	318	297	274	6.07	900-B
11,000	6,100		356	287	269	249	6.07	394	318	297	274	6.07	900-B
	7,300		356	287	269	249	6.07	406	330	310	287	6.07	900-B
	11,000		368	300	282	262	6.07	406	330	310	287	6.07	900-B
12,200	6,100		368	300	282	262	6.07	406	330	310	287	6.07	900-B
	7,300		381	312	295	274	6.07	419	343	323	300	6.07	900-B
	8,500		381	312	295	274	6.07	432	356	335	312	6.07	1,050-A
	9,800		381	312	295	274	6.07	432	356	335	312	6.07	1,050-A
13,400	6,100		394	325	307	287	6.07	445	368	348	325	6.07	1,050-A
	7,300		394	325	307	287	6.07	445	368	348	325	6.07	1,050-A
	8,500		406	338	320	300	6.07	457	381	361	338	6.07	1,050-A
	9,800		406	338	320	300	6.07	457	381	361	338	6.07	1,050-A
	11,000		406	338	320	300	6.07	457	381	361	338	6.07	1,050-A

Arm L _F or L _C	ROUND ARMS					POLYGONAL ARMS				
	L ₁	D ₁	D ₂	② thk	Rise	L ₁	D ₁	③ D ₂	② thk	Rise
6,100	5,822	205	135	4.55	508	5,822	205	89	4.55	483
7,300	7,041	230	147	4.55	533	7,041	230	89	4.55	508
8,500	8,260	245	145	4.55	559	8,260	255	89	4.55	533
9,800	9,449	245	132	6.07	584	9,449	245	89	6.07	559
11,000	10,668	255	130	6.07	610	10,668	255	89	6.07	584
12,200	11,887	270	130	6.07	686	11,887	280	89	6.07	635
13,400	13,106	280	130	6.07	813	13,106	295	102	6.07	686

D_B = Pole Base O.D.
 D₁₉ = Pole Top O.D. with no Luminaire and no ILSN
 D₂₄ = Pole Top O.D. with ILSN w/out Luminaire
 D₃₀ = Pole Top O.D. with Luminaire

D₁ = Arm Base O.D.
 D₂ = Arm End O.D.
 L₁ = Shaft Length
 L_F = Fixed Arm Length
 L_C = Clamp-on Arm Length (11,000 mm max)

② Thickness shown are minimums, thicker materials may be used.

③ D₂ may be increased by up to 25 mm for polygonal arms.

Texas Department of Transportation
 Traffic Operations Division
TRAFFIC SIGNAL SUPPORT STRUCTURES
DUAL MAST ARM ASSEMBLY
 (160 KMPH WIND ZONE)
DMA-160 (3)-95 (M)

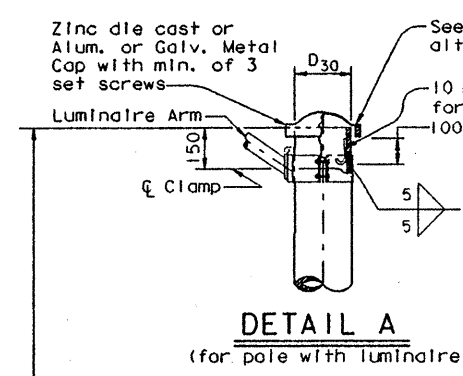
FILE#	DMA-100.DGN	DN#	MS	CR#	JSY	DW#	MMF	CR#	JSY
ORIG DATE#	MAY 1996	DIST	FED REG	FEDERAL AID PROJECT		SHEET			
REVISIONS	21	6	NH 96(79)M		454				
	HIDALGO	0039	17	118	US83				

NEW 5/28/96

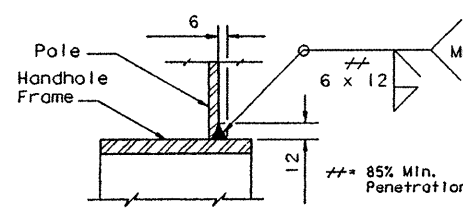
Note: All dimensions are in millimeters (mm) except as shown.

DISCLAIMER: The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

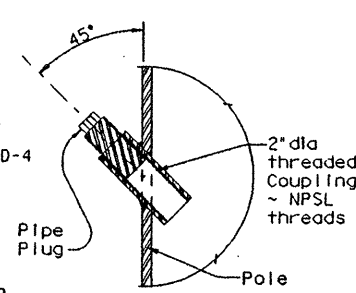
LEVELS DISPLAYED
 ACC: d48nplq /usr/d482517
 LV: 1.2 for English 1.3 for Metric



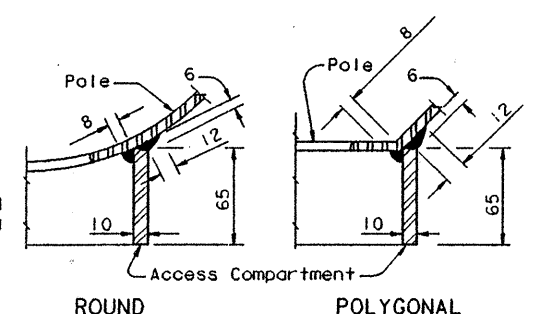
DETAIL A
(for pole with luminaire)



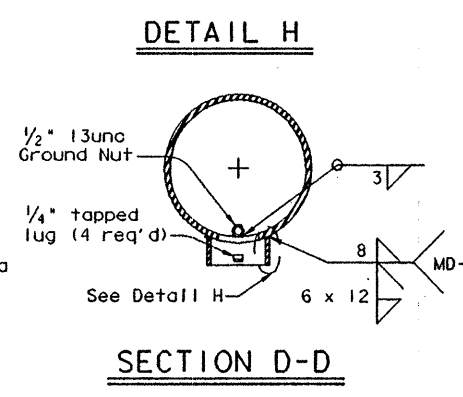
DETAIL E



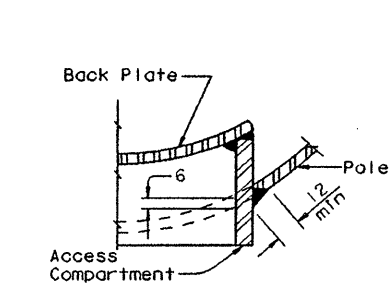
COUPLING DETAIL



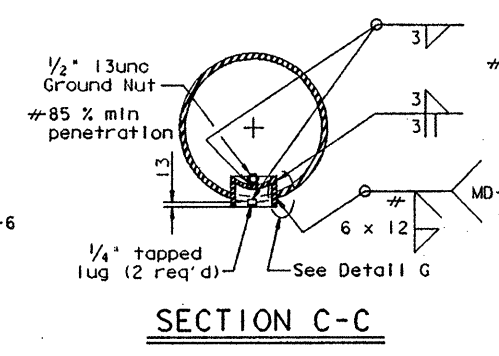
ROUND POLYGONAL



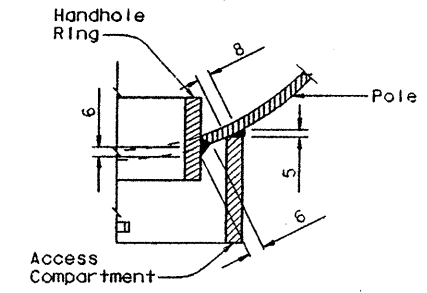
SECTION D-D



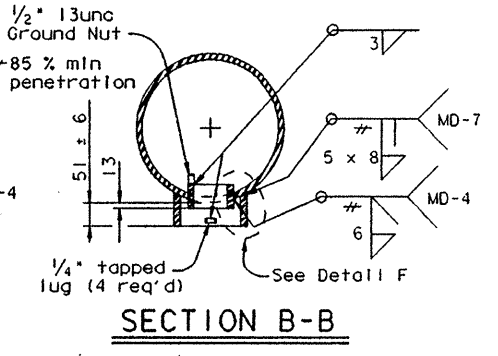
DETAIL G



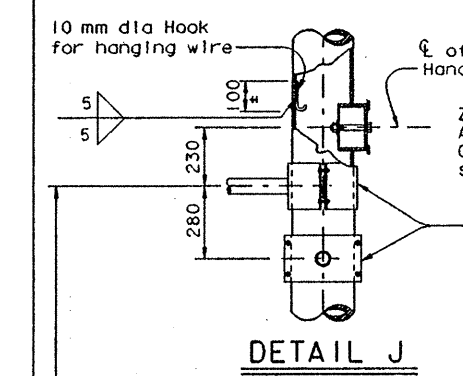
SECTION C-C



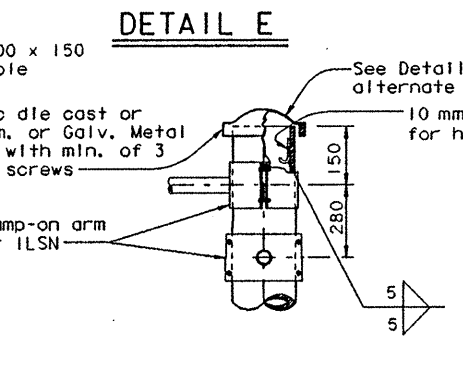
DETAIL F



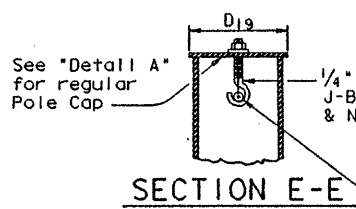
SECTION B-B



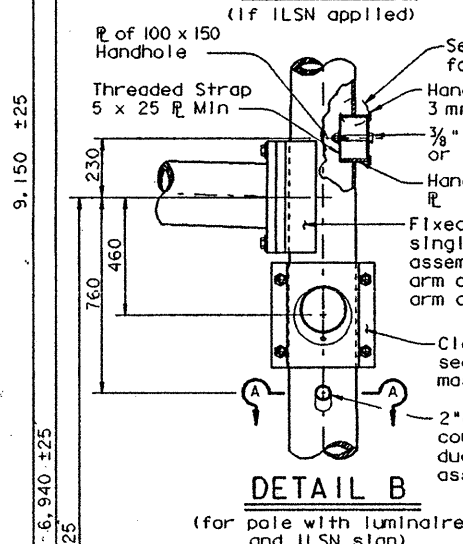
DETAIL J
(if ILSN applied)



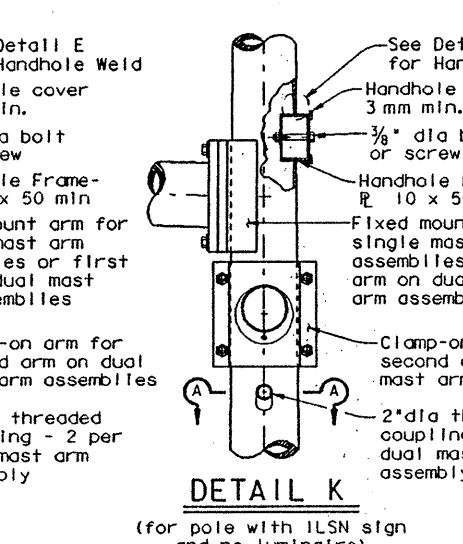
DETAIL K



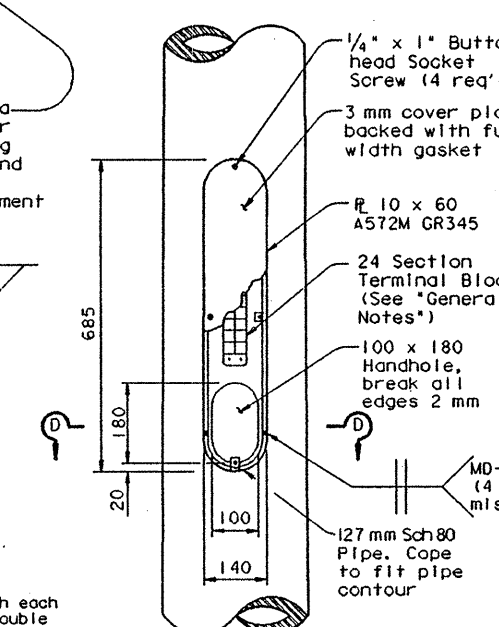
SECTION E-E



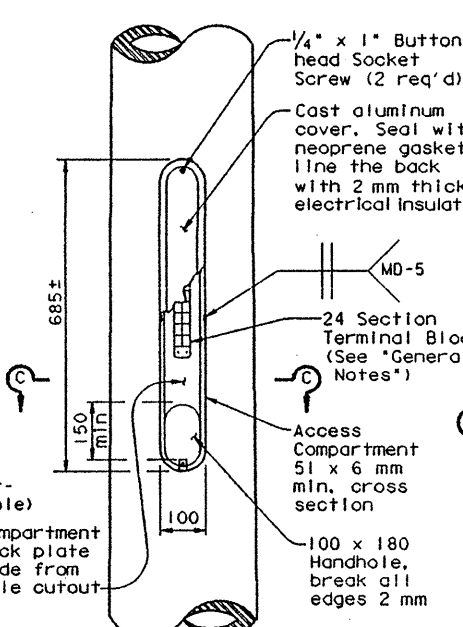
DETAIL B
(for pole with luminaire and ILSN sign)



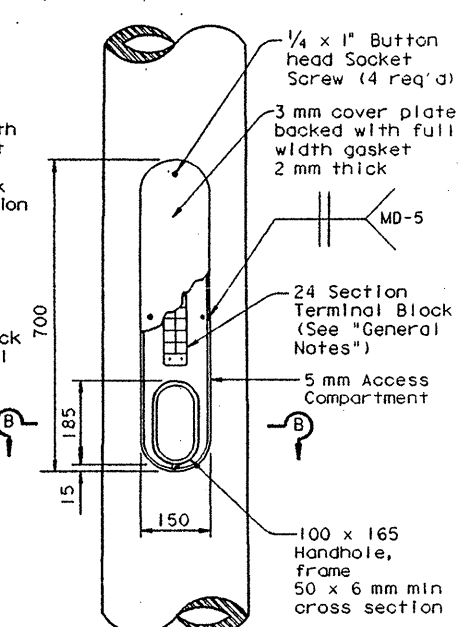
DETAIL C
(for pole with no ILSN sign and no luminaire)



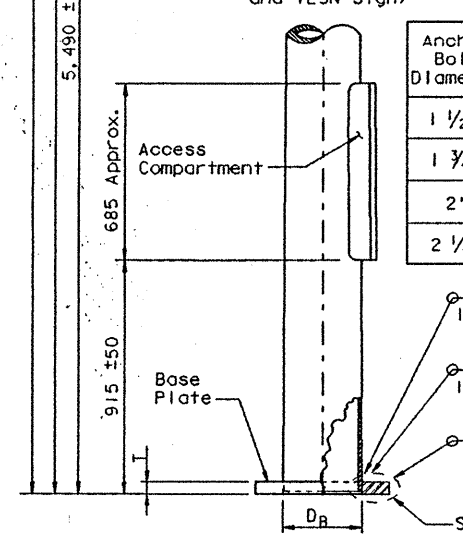
DETAIL 1



DETAIL 2



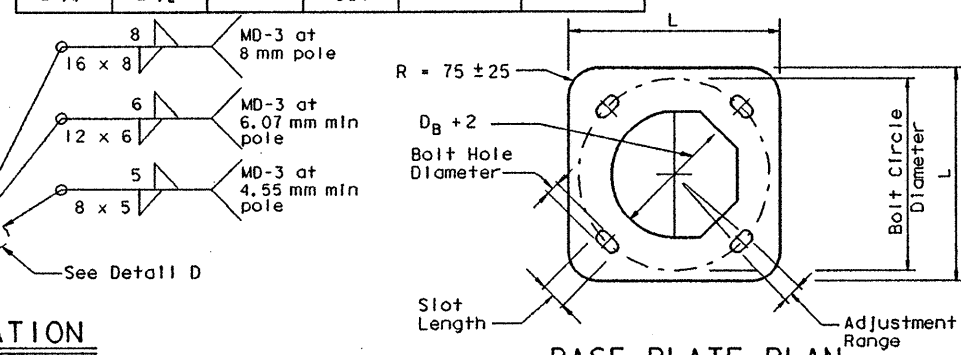
DETAIL 3



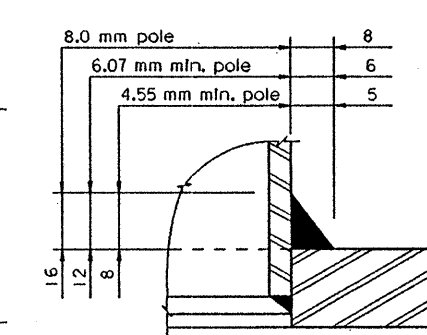
POLE ELEVATION

Anchor Bolt Diameter	Bolt Hole Diameter	Slot Length	Bolt Circle Diameter	Base R. Dim. L x T	Adjust. Range
1 1/2"	1 3/4"	3 1/2"	432	460 x 40	13.4"
1 3/4"	2"	4"	483	510 x 45	13.5"
2"	2 1/4"	4 1/2"	533	560 x 50	13.6"
2 1/4"	2 1/2"	5"	584	610 x 55	13.7"

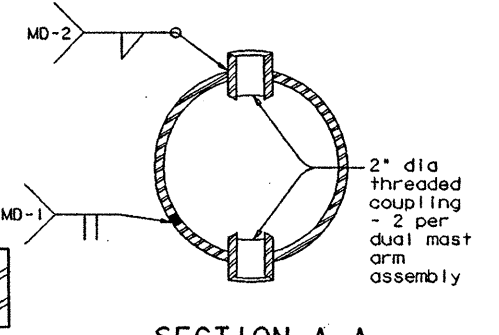
GENERAL NOTES:
The Fabricator shall furnish each pole with a twelve position, double posted, molded phenolic Terminal Block with insulating strip as necessary. The Terminal Block shall be provided with size 8-32 nickel plated screws and shall be T.R.W. Cinch No. 12-142 or equal.



BASE PLATE PLAN



DETAIL D



SECTION A-A

All dimensions are in millimeters unless otherwise noted.

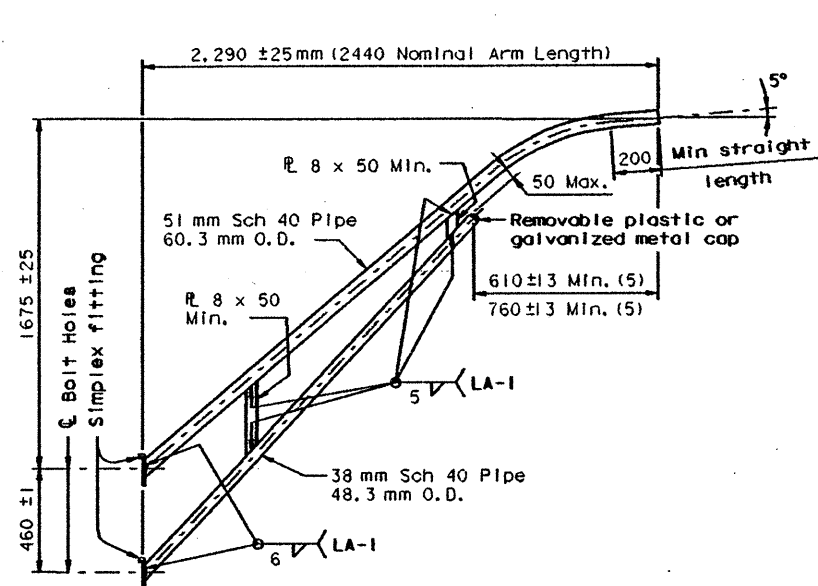
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
MAST ARM POLE DETAILS

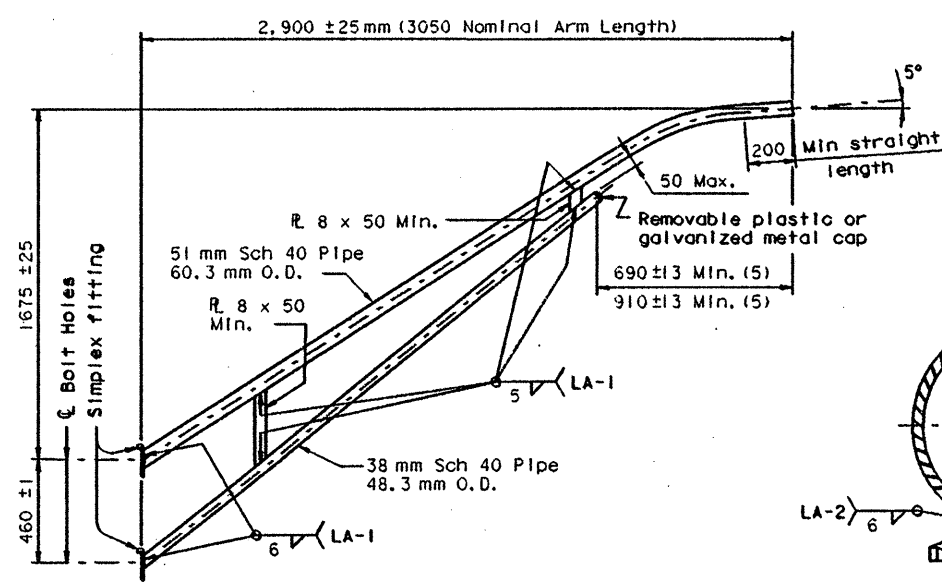
MA-D-96 (M)

DATE	3-96	BY	21	CHKD	21	DATE	3-96
REVISED		BY		CHKD		DATE	

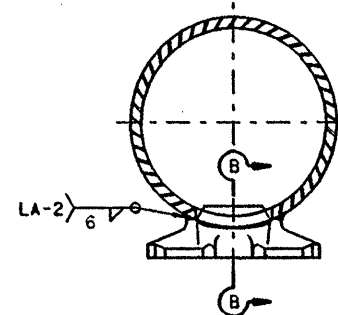
HIDALGO



2.50 METER LUMINAIRE ARM



3.00 METER LUMINAIRE ARM



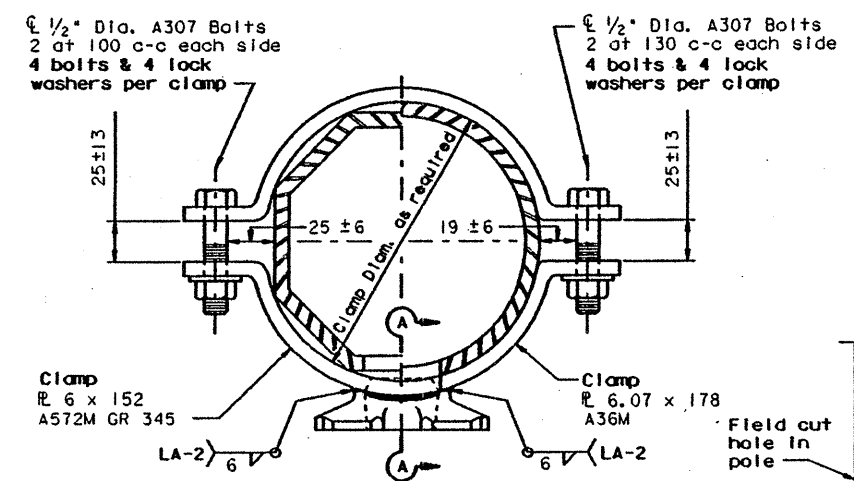
DIRECT ATTACHMENT
DETAIL

MATERIALS	
Pole or Arm Simplex	ASTM A27M GR 450-240 or A148M GR 550-345 or A576 GR 1021 (4) or A36M (Arm only)
Arm Pipes	ASTM A53 GR A or B or A501 or A595 (2)
Arm Plates (3)	ASTM A36M or A572M GR 345 (1) or A595 GR A
Misc.	ASTM designations as noted

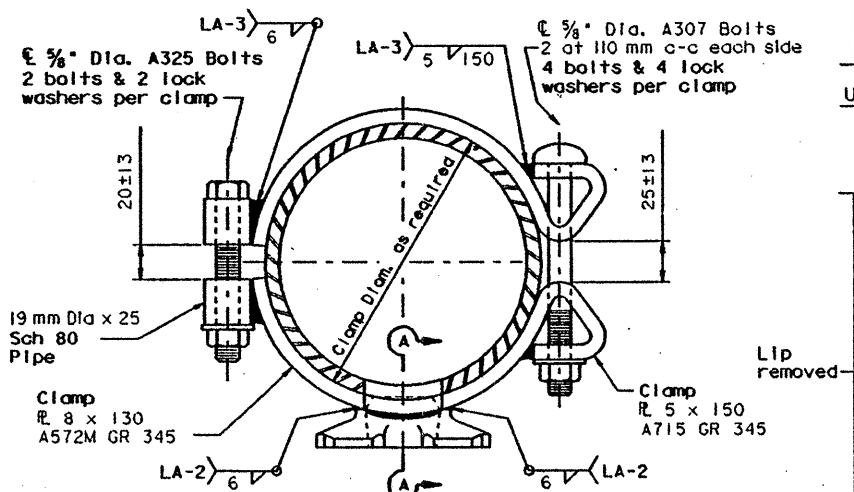
- (1) ASTM A36MOD345 steel may be used in lieu of A572M GR 345.
- (2) If A595 GR A material is used, arm need not be cold worked to A595 requirements, but material must have 275 MPa minimum yield prior to fabrication.
- (3) Either of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.
- (4) A576 must be suitable for forging and also meet minimum tensile strength of 450 MPa, minimum yield of 240 MPa, and elongation in 50 millimeters of 22 percent.
- (5) Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.

GENERAL NOTES:

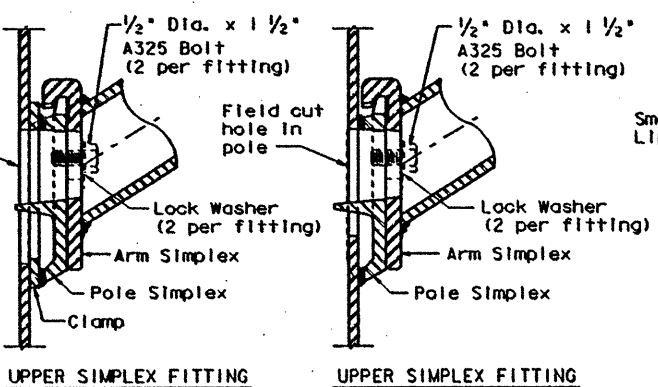
Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto. Design Wind Speed equals 145 kmph plus a 1.3 gust factor. Arms are designed to support a 334 N luminaire having an effective projected area (actual area times drag coefficient) of 0.14 sq meter. Materials and fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice. Unless otherwise noted, all parts shall be galvanized after fabrication in accordance with the Specifications. Special designs require submission of shop drawings in accordance with the Item "Steel Structures". Each pole simplex fitting shall be supplied with 2 A325 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans. When clamp attachment is specified, the Fabricator shall ship the clamp assembly securely attached to the pole at the location shown on the plans. If clamp assemblies are ordered without poles, the Fabricator shall ship one upper and one lower clamp assembly together in a single package, including all nuts and washers required for the clamps and simplex fittings.



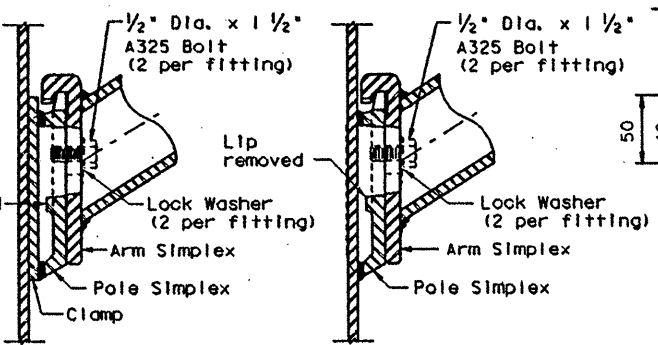
CLAMP ATTACHMENT
DETAIL NO. 1
(HALF SECTION)



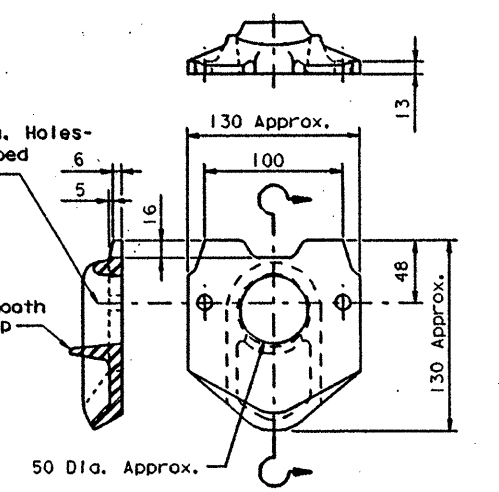
CLAMP ATTACHMENT
DETAIL NO. 3
(HALF SECTION)



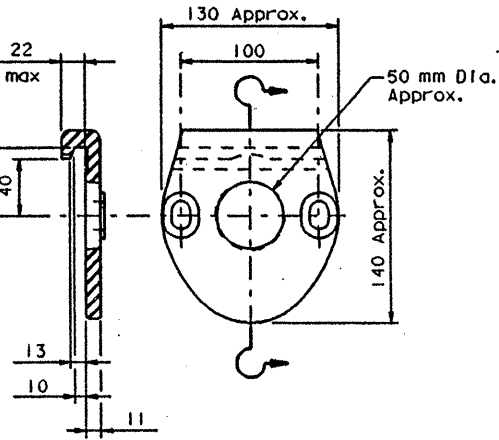
UPPER SIMPLEX FITTING



LOWER SIMPLEX FITTING



POLE SIMPLEX DETAIL



ARM SIMPLEX DETAIL

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

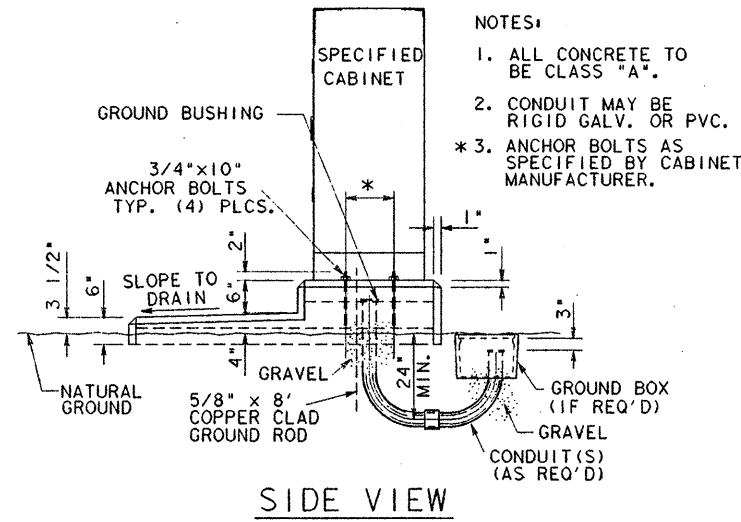
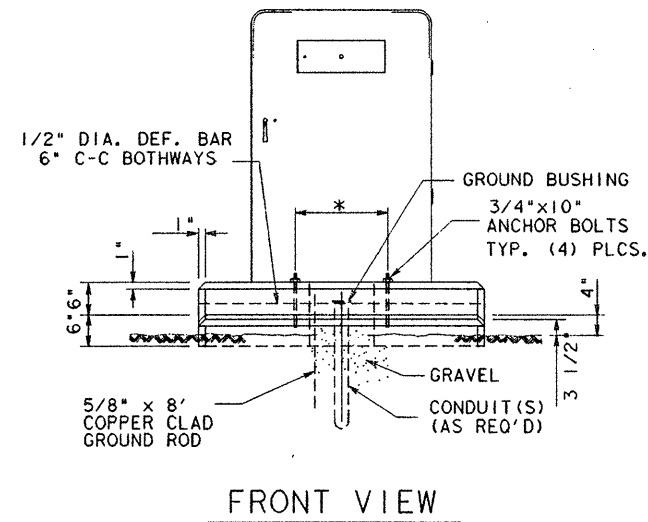
STANDARD ASSEMBLY
DRAWINGS FOR LUMINAIRE
SUPPORT STRUCTURES
ARM DETAILS

LUM-A-96 (M)

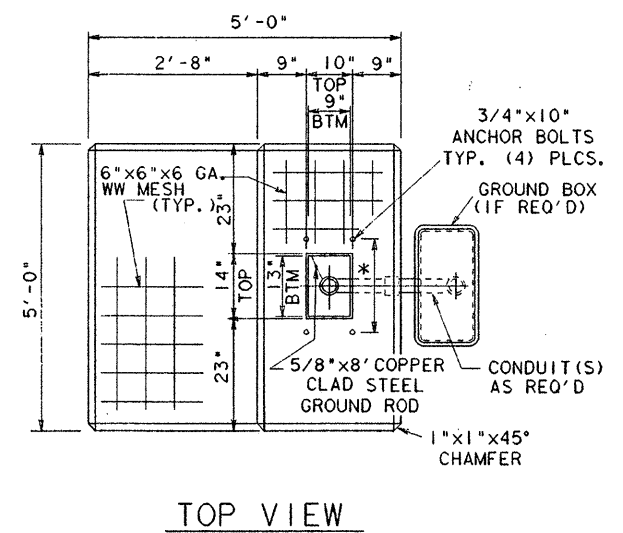
DATE: March 1996	BY: LEH	CHK: JSK	APP: LTT	DES: TEB	REV: M
REVISION:	DATE:	BY:	CHK:	APP:	REV:
21	6				458
COUNT: HIDALGO			JOB: 2039 17 118 45 83		

RECOMMENDED NO. OF COILS (TURNS) FOR RECTANGULAR TYPE LOOPS	
100	1 1 1 1 1 1 1 1
75	1 1 1 1 1 1 1 1
50	2 2 2 2 2 2 2 2
45	2 2 2 2 2 2 2 2
40	2 2 2 2 2 2 2 2
35	2 2 2 2 2 2 2 2
30	2 2 2 2 2 2 2 2
25	2 2 2 2 2 2 2 2
20	2 2 2 2 2 2 2 2
15	2 2 2 2 2 2 2 2
10	3 3 2 2 2 2 2 2
8	3 3 3 2 2 2 2 2
6	3 3 3 3 2 2 2 2
4	4 3 3 3 3 2 2 2
	6 8 10 12 14 16 18 20

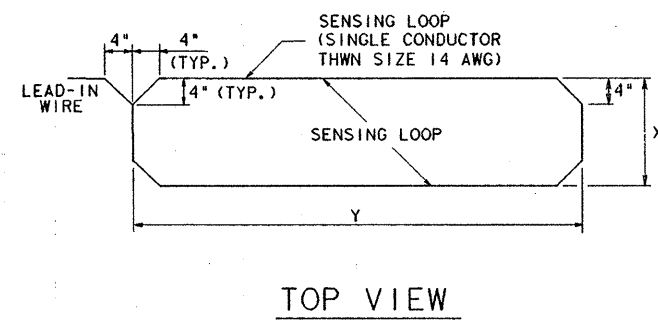
TABLE 1



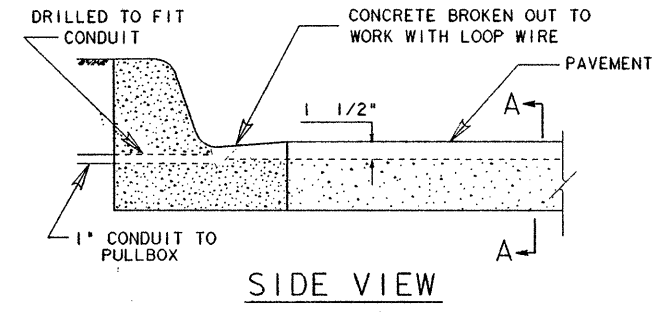
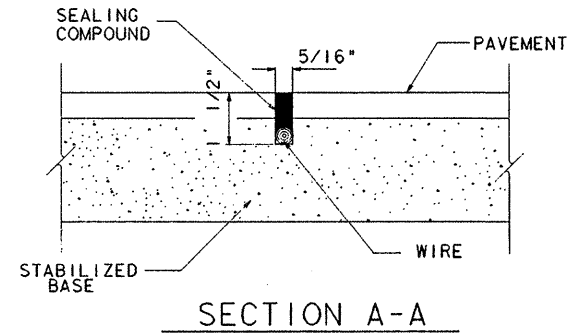
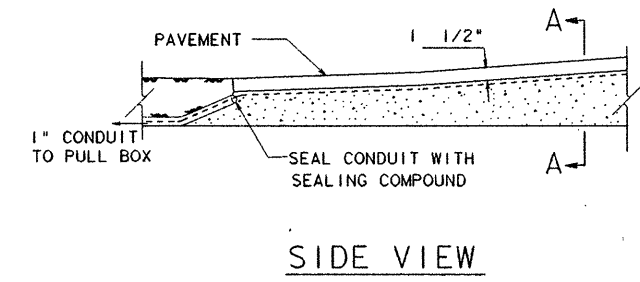
- NOTES:
1. ALL CONCRETE TO BE CLASS "A".
 2. CONDUIT MAY BE RIGID GALV. OR PVC.
 - * 3. ANCHOR BOLTS AS SPECIFIED BY CABINET MANUFACTURER.



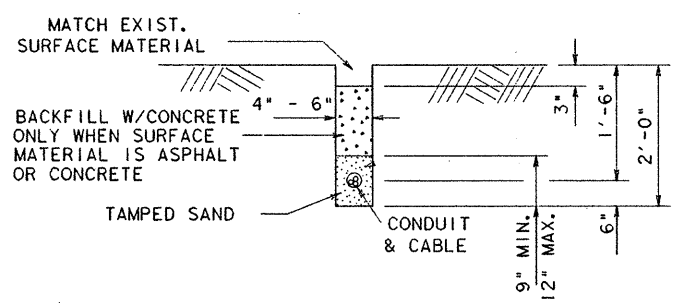
DETAIL OF BASE MOUNT CABINET FOUNDATION



TYPICAL LOOP LAYOUT



- NOTES:
1. THE PAVEMENT CUT IS TO BE MADE WITH A CONCRETE SAW TO NEAT LINES AND LOOSE MATERIAL SHALL BE REMOVED. THE CUT SHALL BE CLEAN AND DRY WHEN THE WIRE AND SEALANT IS PLACED.
 2. THE WIRE FROM THE LOOP TO THE PULL BOX SHALL BE TWISTED A MINIMUM OF FIVE TURNS PER FOOT. NO SPLICES SHALL BE PERMITTED IN THE LOOP OR IN THE RUN TO THE PULL BOX.
 3. THE HOME RUN CABLE FROM THE PULL BOX TO THE CONTROLLER SHALL BE BELDEN 8720 SHIELDED CABLE OR ITS EQUIVALENT AND SHALL BE SOLDERED TO THE LOOP WIRE. THE SOLDER JOINTS SHALL BE SEALED WITH SCOTCHCAST OR OTHER METHOD ACCEPTABLE TO THE ENGINEER. THE SHIELD SHALL BE GROUNDED ONLY AT THE CONTROLLER END.
 4. ALL WIRE PLACED IN THE SAW CUT SHALL BE SEALED BY FULLY ENCAPSULATING IT IN A SEALANT ACCEPTABLE TO THE ENGINEER.
 5. THE LOOP LOCATION CONFIGURATION AND NUMBER OF TURNS SHALL BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.



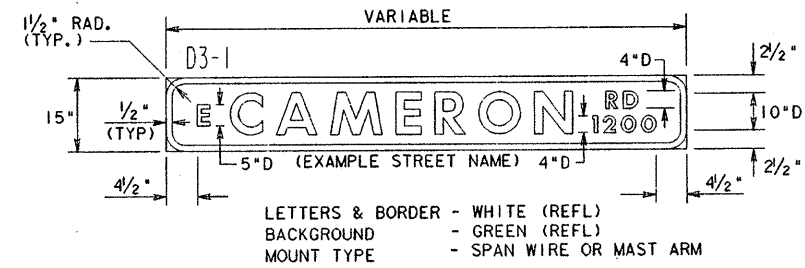
- NOTE:
- ALL TRENCHES ARE TO BE MADE ONLY PARALLEL TO THE STREET. ALL CONDUIT RUNS CROSSING THE STREET SHALL BE PUSHED AND NO CUTS MADE IN THE SURFACE.

DETAIL - TRENCH LAY CONDUIT

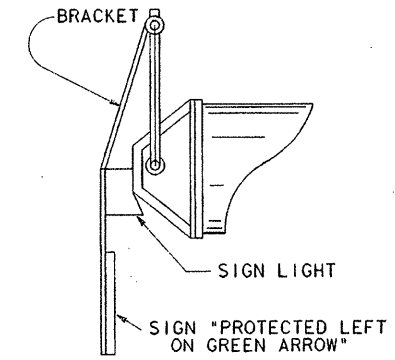
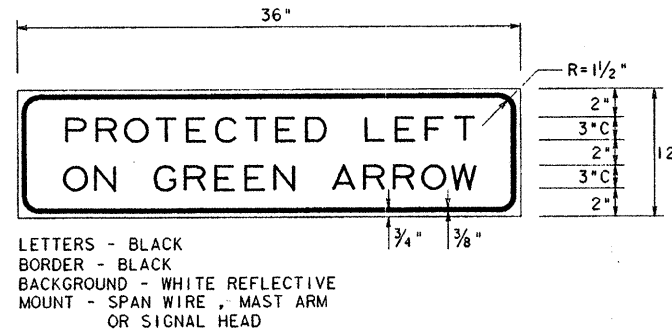
TEXAS DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL
CONSTRUCTION DETAILS
CONTROLLER FOUNDATION &
LOOP DETECTOR INSTALLATION

DISTRICT STANDARD				SHEET 1 OF 3			
DN: RDG	DRAWING	DATE	ISS. BY:	STATE	PROJECT NO.	SECT	NO.
CK DN:	ORIGINAL	APR 1996	6	TEXAS	NH 96(791)M	459	
DW: AM	STATE DIST. NO.	COUNTY	CONTR. NO.	SECTION NO.	JOB NO.	HIGHWAY NO.	
CK DW: RDG	PHR	HIDALGO	0039	17	118	US83	

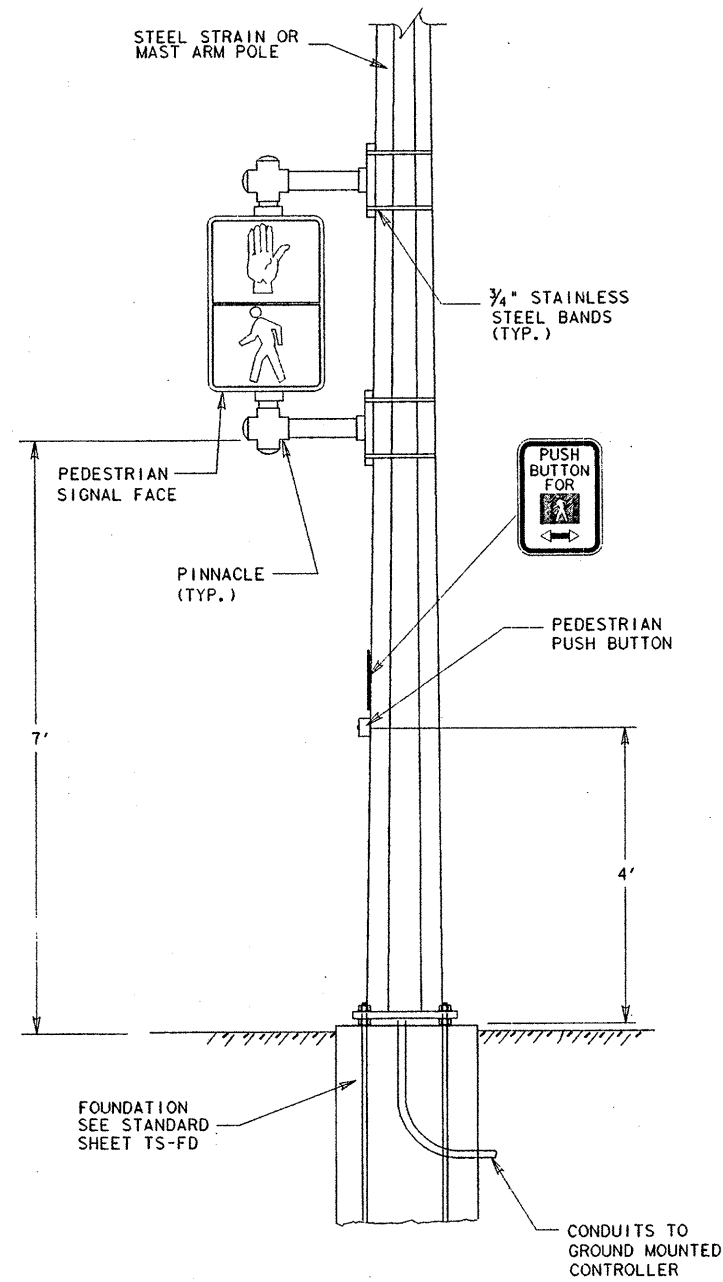
/C:/beto/tsdia.dgn



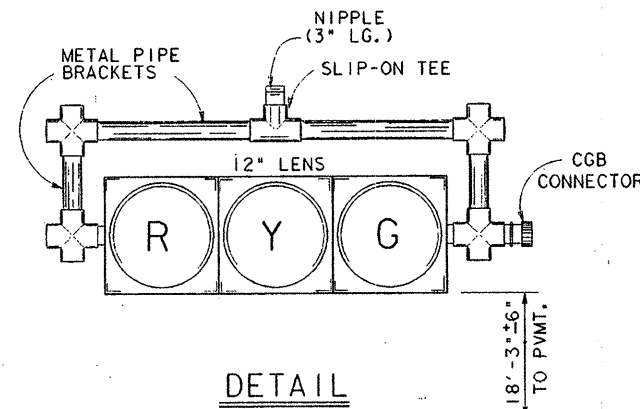
STREET NAME SIGN



DETAIL-SIGN LIGHT

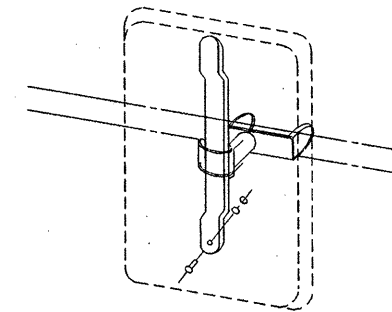


DETAIL-PEDESTRIAN SIGNALS



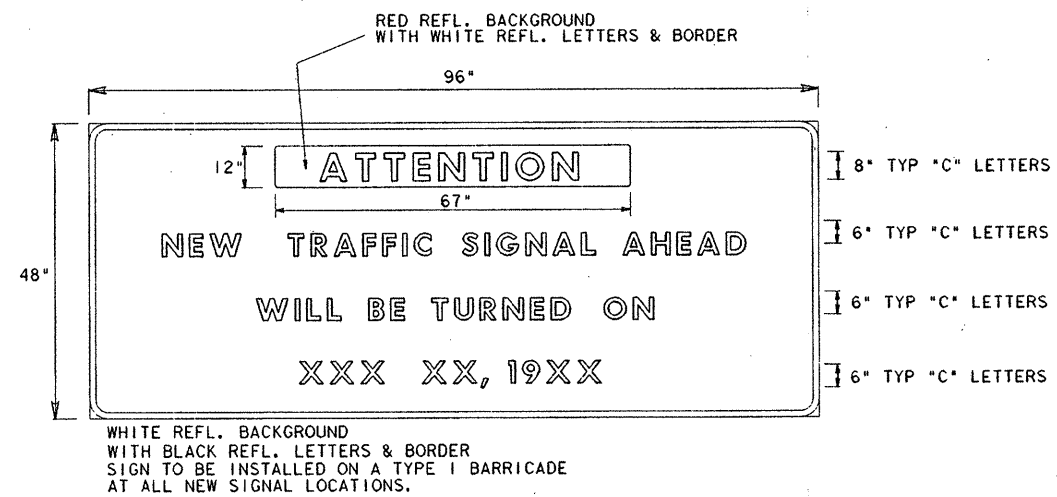
DETAIL

1 WAY-3 SEC. HORIZONTAL SIGNAL HEAD
 ALL SIGNALS TO BE POLYCARBONATE

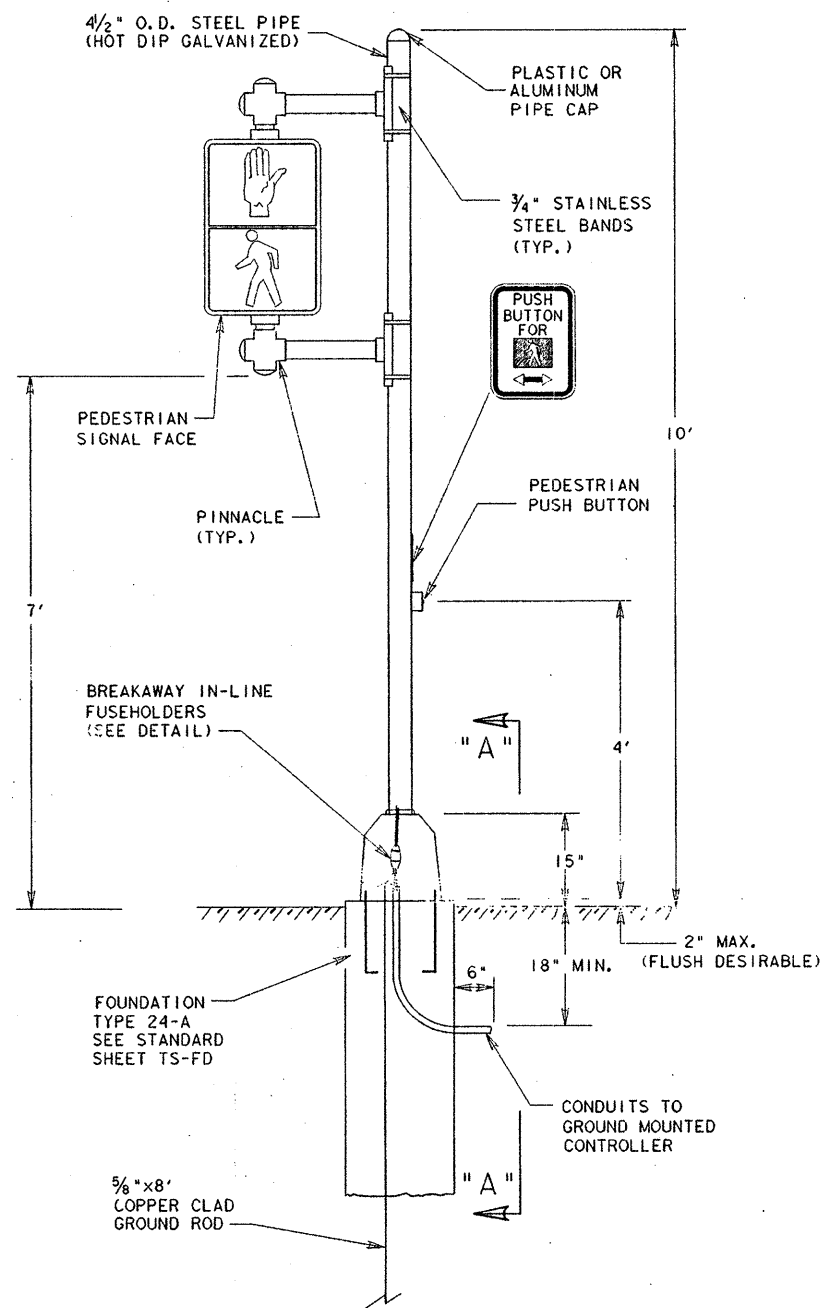


SIGN BRACKET

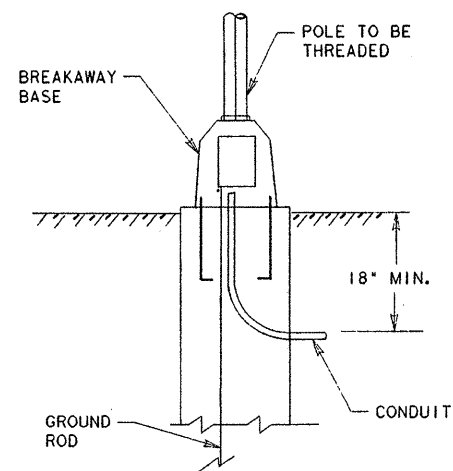
NOTE: THESE BRACKETS, USED IN PAIRS FOR LONGER SIGN, OR IN SINGLE UNITS FOR SMALLER SIGNS.



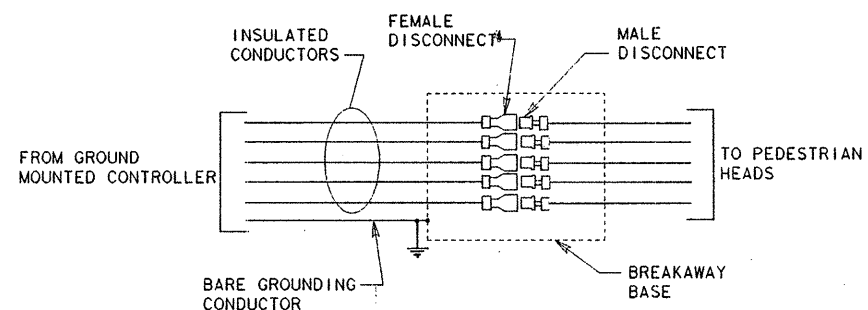
TEXAS DEPARTMENT OF TRANSPORTATION TRAFFIC SIGNAL CONSTRUCTION DETAILS MISCELLANEOUS DETAILS									
DISTRICT STANDARD									
SHEET 2 OF 3									
DW	RDG	DRAWING	DATE	REV. DTS.	STATE	PROJECT NO.	SHEET NO.		
CK	DW	ORIGINAL	APR 1996	6	TEXAS	NH 96 (791) M	460		
DW	AM				STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.
CK	DW	RDG			PHR	HIDALGO	0039	17	118 US83



PEDESTAL POLE DETAIL



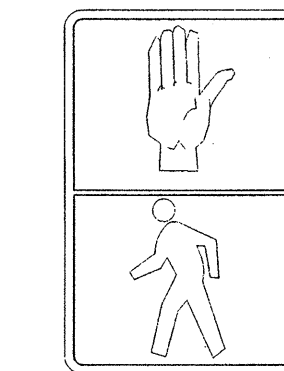
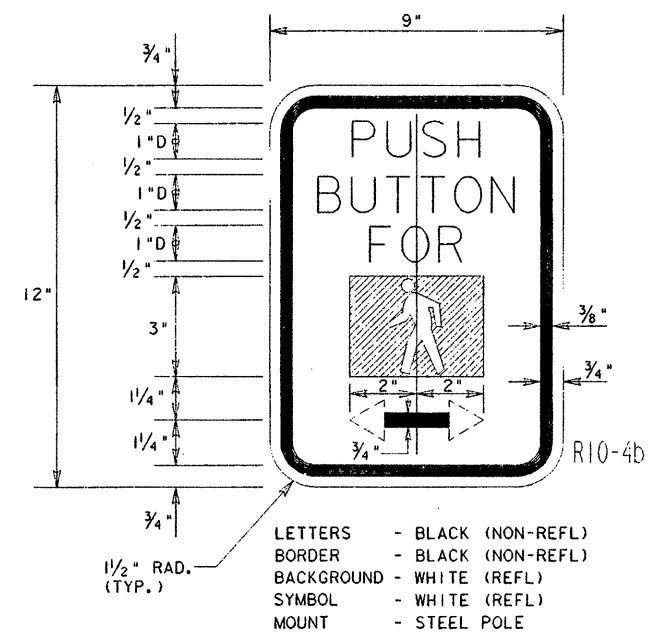
SECTION "A A"



BREAKAWAY IN-LINE FUSEHOLDERS

NOTES:

- BREAKAWAY ELECTRICAL QUICK-DISCONNECTS SHALL BE WATERTIGHT BUSSMANN HEB SERIES, HOMAC FLOODSEAL SERIES, GOULD GEB SERIES OR EQUAL.
- DRILL POLE FOR WIRE ENTRY. USE BUSHING OR RUBBER GROMMET TO PROTECT CONDUCTORS.
- POLE SHAFT SHALL BE STEEL PIPE, ASTM A-53 GRADE A OR B, OR SCHEDULE 40 UL APPROVED RIGID STEEL ELECTRICAL CONDUIT. SHAFT MATERIAL SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUT IN ACCORDANCE WITH ASTM A-123.



12" PEDESTRIAN SIGNAL HEAD

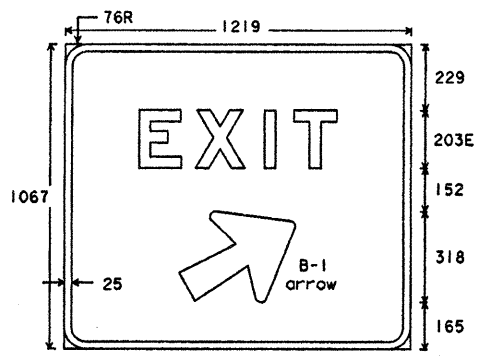
TEXAS DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL CONSTRUCTION DETAILS
PEDESTAL POLES W/ PEDESTRIAN SIGNAL HEADS

DISTRICT STANDARD SHEET 3 OF 3

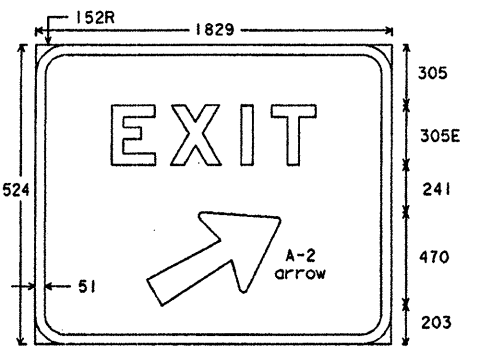
DN: RDG	DRAWING: ORIGINAL	DATE: APR 1996	F.S. DIST. NO.: 6	STATE: TEXAS	PROJECT NO.: NH 96(791) M	SHEET NO.: 461
CK DN: AM	DW: AM	RDG	STATE DIST. NO.: PHR	COUNTY: HIDALGO	CONTROL NO.: 0039	SECTION NO.: 17
					JOB NO.: 118	HIGHWAY NO.: US83

DISCLAIMER
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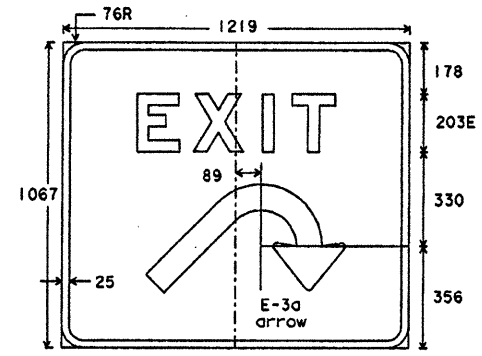
LEVELS DISPLAYED
1 2 3 4 5 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
DATE: 05/11/19 10:11:21 AM
ACC: d58hpl/c/ust/c580504
FILE:



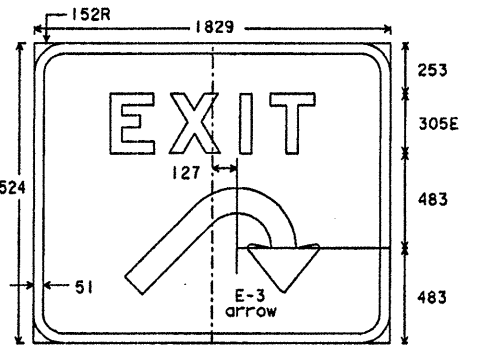
E5-1a
1219x1067



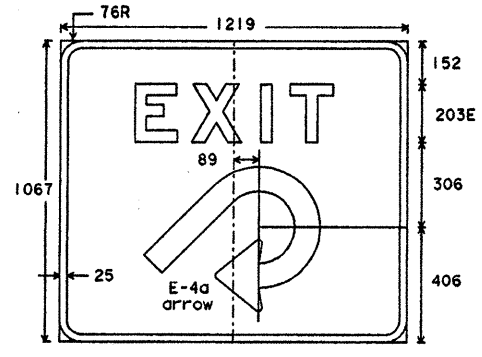
E5-1
1829x1524



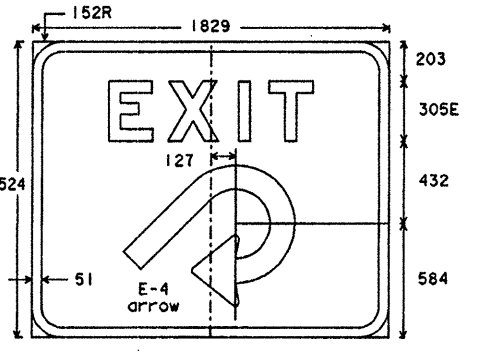
E5-3a
1219x1067



E5-3
1829x1524



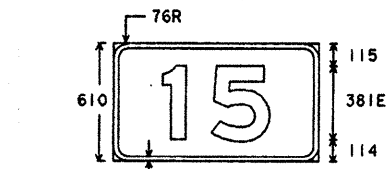
E5-4a
1219x1067



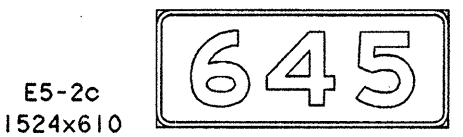
E5-4
1829x1524

EXIT GORE SIGNS

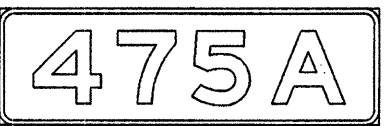
Legend - White Reflective
Border - White Reflective
Background - Green Reflective



E5-2b
1067x610



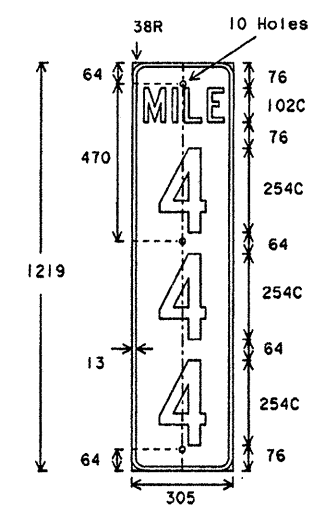
E5-2c
1524x610



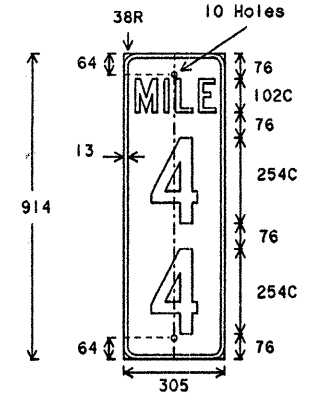
E5-2d
1981x610

EXIT SIGN NUMBER PANELS

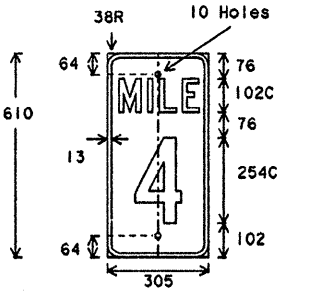
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Border - White Reflective
Background - Green Reflective



D10-6
305x1219



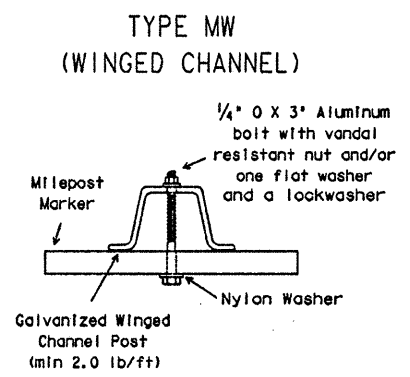
D10-5
305x914



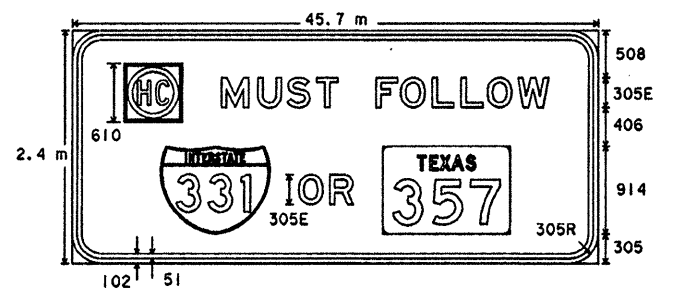
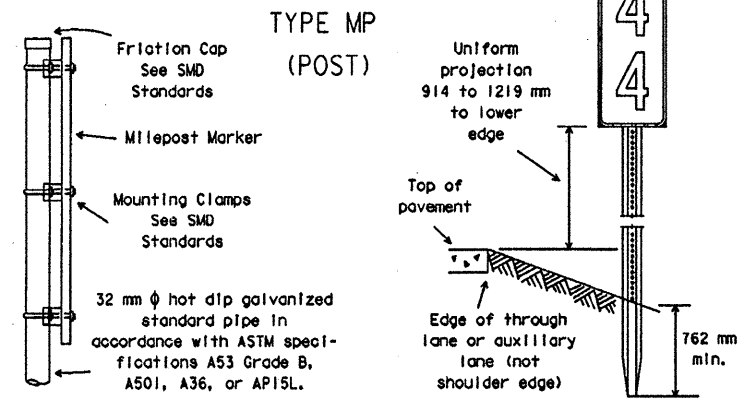
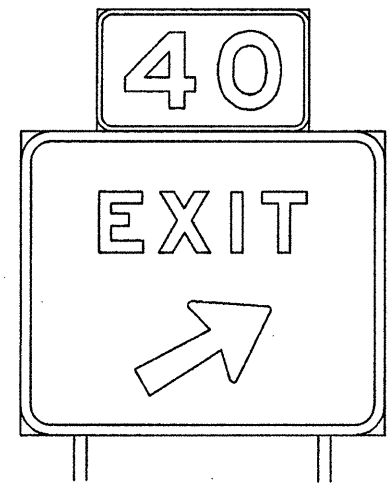
D10-4
305x610

MILEPOST MARKER

Legend - White Reflective
Border - White Reflective
Background - Green Reflective



EXIT GORE SIGN TYPICAL ASSEMBLY



R14-6
45.7x2.4 m (min.)

Legend - Black
Border - Black
Background - White Reflective
Shields - See R, IE and IM Standards for details

SPECIFICATION REFERENCE TABLE
MATERIALS AND TESTS DIVISION SPECIFICATIONS

PLYWOOD SIGN BLANKS	D-9-7100
ALUMINUM SIGN BLANKS	D-9-7110
REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)	D-9-8300
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

COLOR	USAGE	REFLECTIVE SHEETING OR OTHER MATERIAL
BLUE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
BROWN	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
GREEN	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
ORANGE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
WHITE	BACKGROUND	TYPE A (ENGINEER GRADE)
YELLOW	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE DECAL SHEETING
WHITE	LEGEND & BORDERS	TYPE C (HIGH SPECIFIC INTENSITY)

GENERAL NOTES:

The alphabets and lateral spacing between letters and numerals shall conform with the Texas "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition, and any approved changes thereto. Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications.

Legend (except for sign R14-6), shall be applied by reverse screening process with transparent colored ink, cut-out white reflective sheeting applied to colored background or combination thereof. Background shall be reflective sheeting (Type C).

Sign blanks for roadside mounted guide signs shall be 16 mm thick plywood (Type A), unless otherwise noted elsewhere in the plans. Dimensions shown for borders and corner radii are nominal. Borders may vary in width as much as 13 mm. Corner radii above 76 mm may vary in radius plus or minus 25 mm. Borders and corner radii must be of matching widths. The sign area outside the corner radii need not be trimmed or rounded. Panels attached above or below a parent sign shall be made of the same material as the parent sign. D10 Milepost Markers shall be one piece 2.0 mm thick sheet aluminum alloy (Type A).

Mounting details for roadside mounted guide signs are shown on Standard Plan Sheets SMD series, mounting details for over head signs shall be as detailed elsewhere in the plans or the supplier's choice subject to approval by the Engineer.

Individual panel sizes may be adjusted during plan preparation to fit actual panel sign sizes where necessary. Panel sizes to be furnished should be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. See Standard Plan Sheet IM series for arrow details.

R14-6 HAZARDOUS CARGO ROUTING SIGN

Legend of parent sign shall be black cut-out vinyl non-reflective decal sheeting. Background shall be white reflective sheeting (Type A). Shield details are shown on Standard Plan Sheets R and IM series.

Parent sign blank shall be 16 mm thick plywood (Type A). Shields shall be one piece 1.6 mm thick sheet aluminum alloy (Type A).

Attachment of shields to parent sign is as detailed on Standard Plan Sheet IM(2).

All dimensions are in millimeters unless otherwise noted.

The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

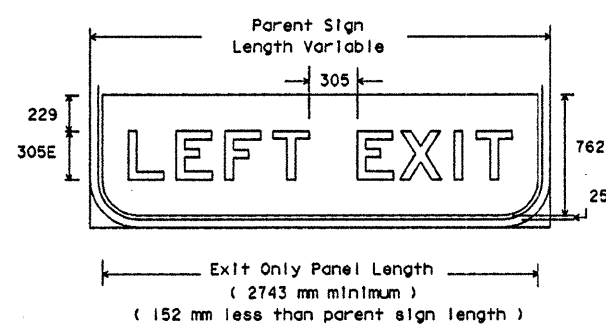
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

EXIT GORE AND MILEPOST SIGNS

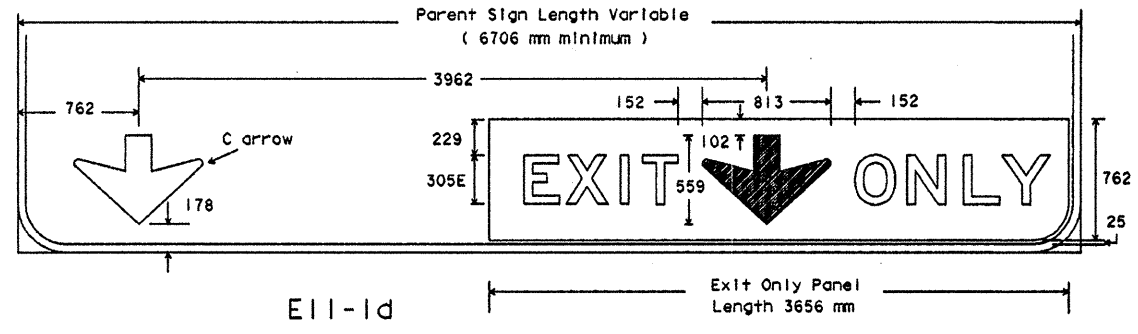
IE (1) - 95 (M)

ORIG DRAW DATE:	JULY 1990	DR - LR	CU -	DR - DN	CU -	REV. NO. -
REVISIONS	DATE	BY	REASON	APPROVED	FILE	
9-93						
8-95						
STATE PROJECT		FEDERAL PROJECT		SHEET		
6		NH96 (791) M		462		
COUNTY		JOB		HIGHWAY		
HIDALGO		003917		118 US83		

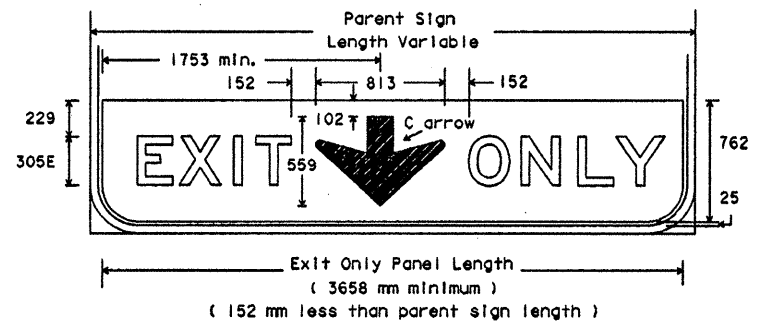
DISCLAIMER
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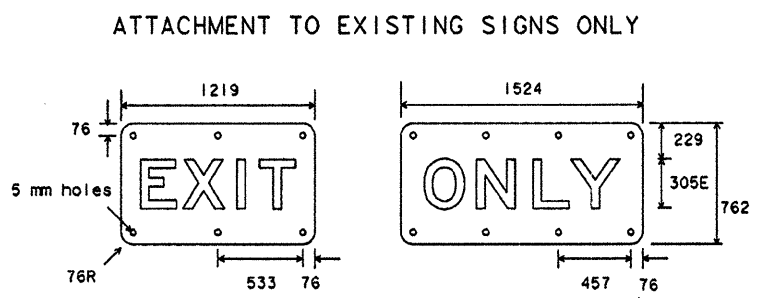
E11-2a



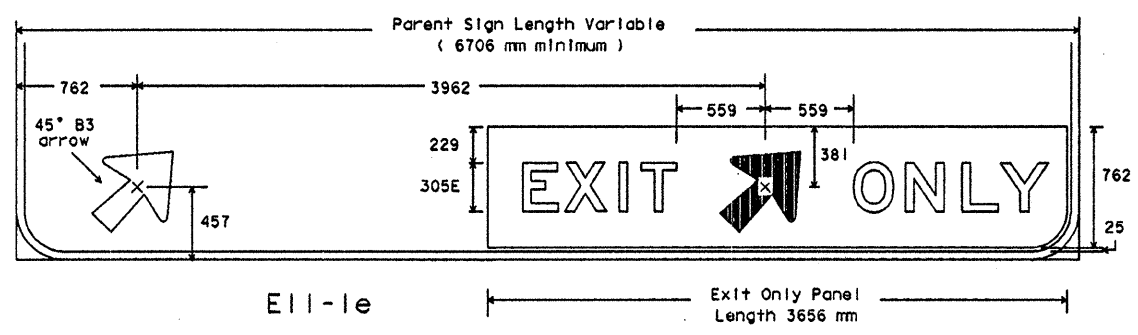
E11-1d



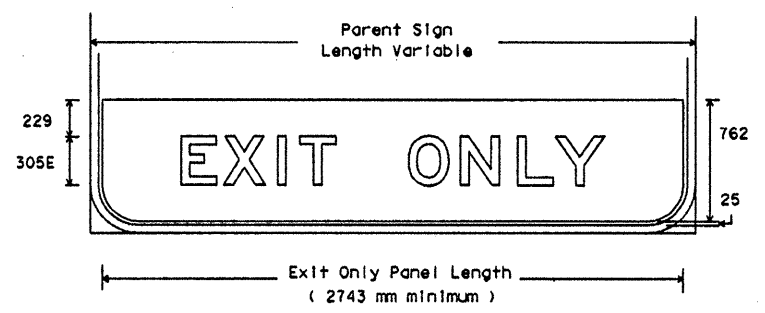
E11-1



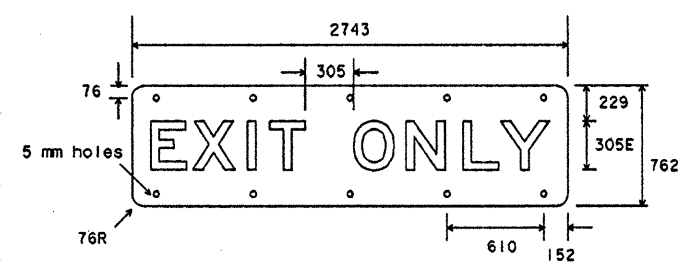
E11-1b



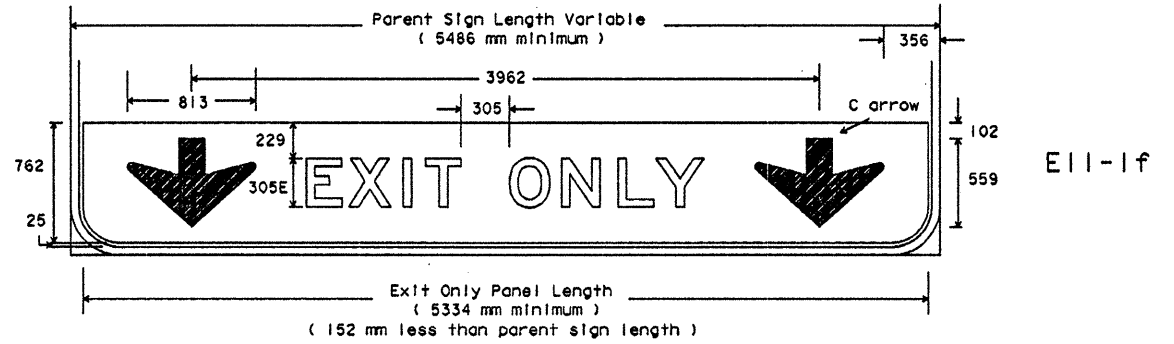
E11-1e



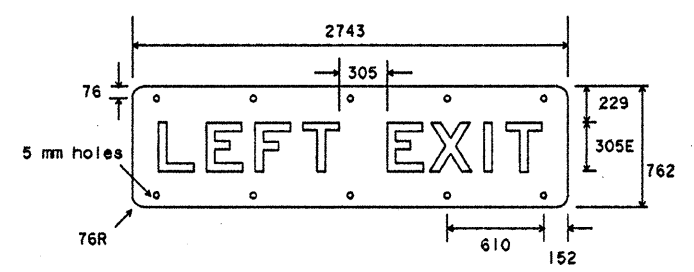
E11-1a



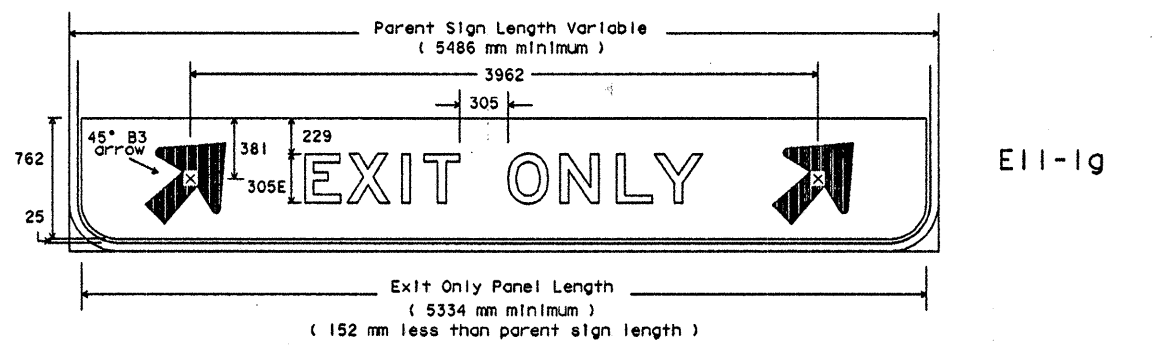
E11-1c



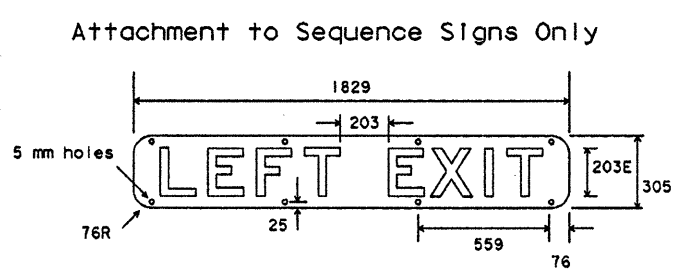
E11-1f



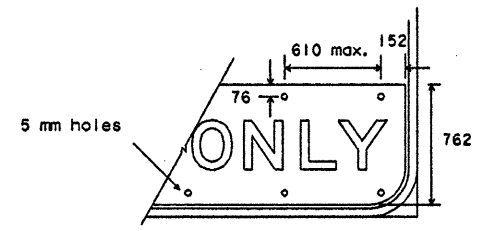
E11-2c



E11-1g



E11-2d



SPECIFICATION REFERENCE TABLE	
MATERIALS AND TESTS DIVISION SPECIFICATIONS	
ALUMINUM SIGN BLANKS	D-9-7110
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

GENERAL NOTES:
 The alphabets and lateral spacing between letters and numerals shall conform with the Texas 'Manual on Uniform Traffic Control Devices for Streets and Highways', latest edition, and any approved changes thereto. Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications.
 Legend shall be black and applied by screening process, cut-out vinyl non-reflective decal sheeting or combination thereof. Background shall be yellow reflective sheeting (Type C).
 Panels shall be one piece 0.063 inch thick sheet aluminum alloy (Type A).
 Mounting details and arrow dimension are shown on Standard Plan Sheets 1M(2).

All dimensions are in millimeters unless otherwise noted.
 The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the '1980 Standard Highway Sign Designs for Texas' manual.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

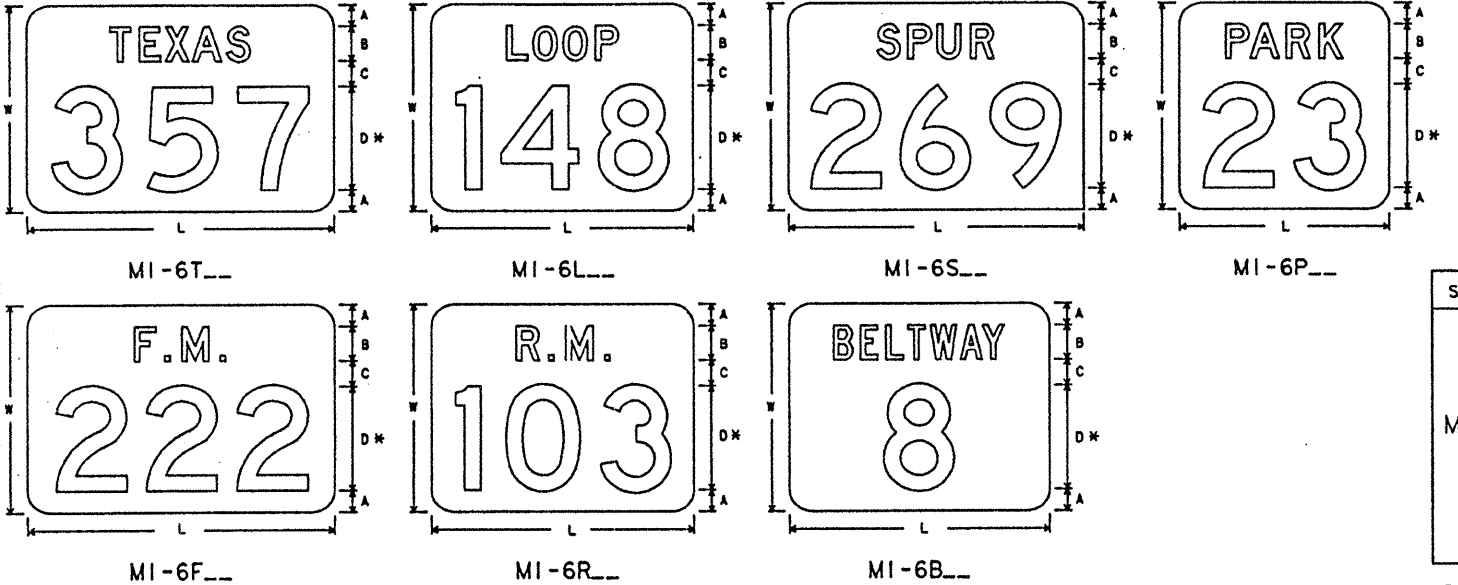
EXIT ONLY AND LEFT EXIT PANELS

IE (4) - 95 (M)

DATE	7-90	STATE	TX	FEDERAL AID PROJECT	463
1-71	9-83	DISTRICT	6	NH96(791) M	
5-83	8-95	COUNTY	HIDALGO	003917 V18	US83

DN: LR	DATE:
CK: CW	1 2 3 4 5 6
DW: DN	7 8 9 10 11 12 13 14 15 16
CK: MT	17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
	LEVELS DISPLAYED
	ACC: d58hp1c:usr/d580504
	FILE:

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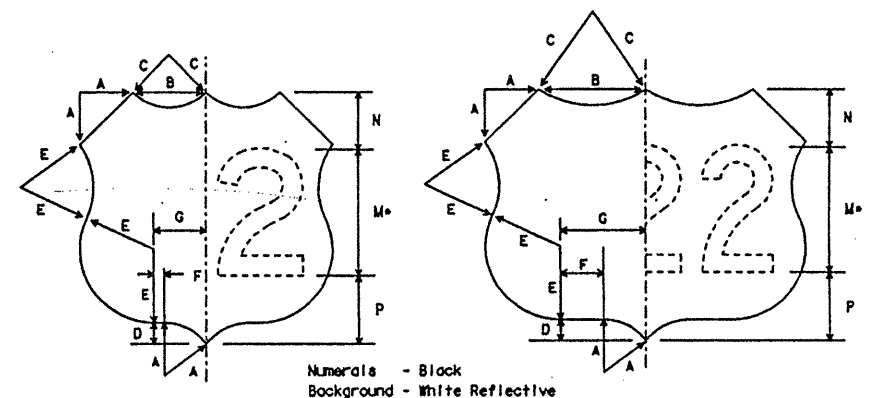
MI-6 STATE ROUTE MARKERS FOR GUIDE SIGN USE

Letters - Black
Numerals - Black
Background - White Reflective

* IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITHIN THE SPACE AVAILABLE. FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCED TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.

SIGN TYPES	NO. OF DIGITS	W	A	B	C	D
MI-6 T L S P F R B	4A 4	610	64	102	76	305
	3A 3					
	2A 2					
	1A 1					
	4B 4	914	102	152	102	457
	3B 3					
	2B 2					
	1B 1					
	4C 4	1219	127	203	152	610
	3C 3					
2C 2						
1C 1						

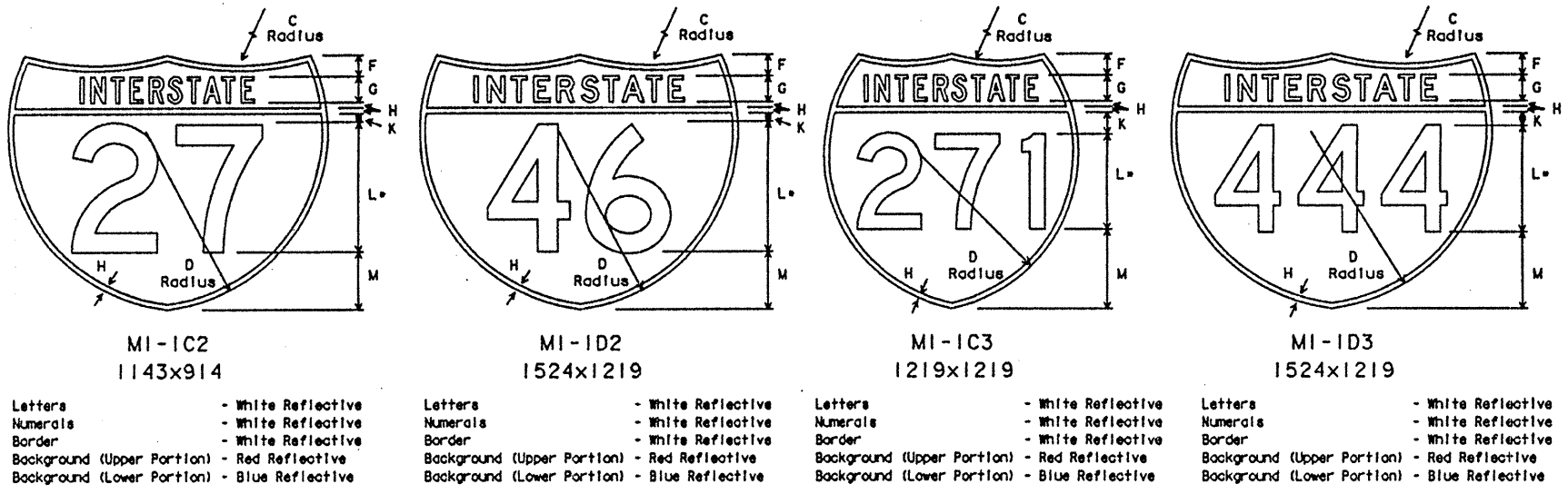
RADIUS FOR CORNERS IS 76 MILLIMETERS TYPICAL
L: VARIABLE WITH THE NUMBER OF DIGITS,
HOWEVER, TOTAL MARKER LENGTH SHALL BE
ADJUSTED TO NEAREST 25 MILLIMETER MULTIPLE.



SIZE	A	B	C	D	E	F	G	M*	N	P	AREA		
MI-4D2 305 NUMERALS 2 DIGIT	610	610	127	178	127	51	178	25	127	305D	140	165	0.3
MI-4D3 305 NUMERALS 3 DIGIT	762	762	127	254	229	51	178	102	203	305D	140	165	0.38
MI-4E2 457 NUMERALS 2 DIGIT	914	914	191	267	191	76	267	38	191	457D	210	248	0.66
MI-4E3 457 NUMERALS 3 DIGIT	1143	914	191	381	343	76	267	152	305	457D	210	248	0.85
MI-4F2 610 NUMERALS 2 DIGIT	1219	1219	254	356	254	102	356	51	254	610D	279	330	1.18
MI-4F3 610 NUMERALS 3 DIGIT	1524	1219	254	508	457	102	356	203	406	610D	279	330	1.5

NOTES:
1. DIMENSIONS FOR THE U.S. ROUTE MARKER OUTLINES ARE SCALE DIMENSIONS AND MAY BE ADJUSTED SLIGHTLY WHERE NECESSARY FOR CLOSURE OF THE OUTLINES.
2. * IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITHIN THE SPACE AVAILABLE. FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCE TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.

U.S. ROUTE MARKERS FOR GUIDE SIGN USE



Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background (Upper Portion) - Red Reflective
Background (Lower Portion) - Blue Reflective

SPECIFICATION REFERENCE TABLE
MATERIALS AND TESTS DIVISION SPECIFICATIONS

ALUMINUM SIGN BLANKS	D-9-7110
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

GENERAL NOTES:
The Alphabets and lateral spacing between letters and numerals shall conform with the Texas "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition, and any approved changes thereto. Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications.
Legend for State route markers shall be black and applied by screening process, cut-out vinyl non-reflective decal sheeting or combination thereof. Legend for U.S. route markers shall be applied by reverse screening process, cut-out black vinyl non-reflective decal sheeting or combination thereof. Legend for Interstate route markers shall be applied by reverse screening process with transparent colored ink, cut-out white reflective sheeting applied to colored background or combination thereof. Background shall be reflective sheeting (Type C).
Sign blanks shall be one piece 1.6 mm thick sheet aluminum alloy (Type A), unless otherwise noted elsewhere in the plans.
Route Markers shall be attached to guide signs as detailed on Standard Plan Sheet IM(2) (M).

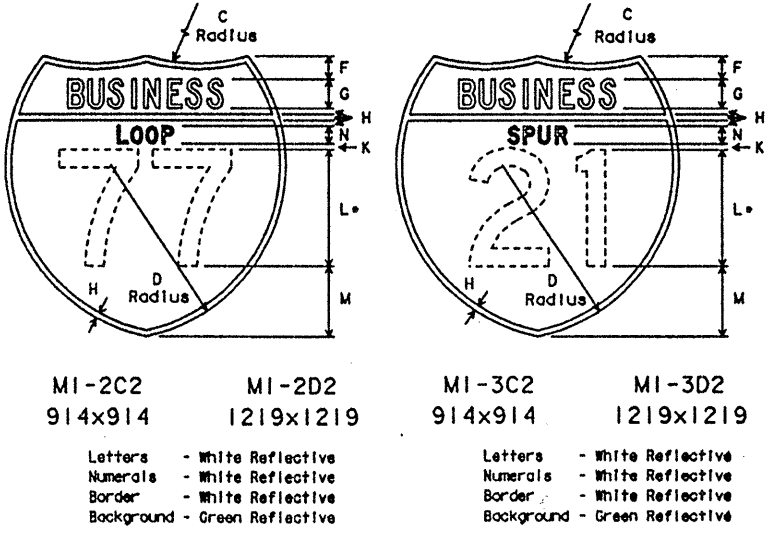
STATE	MARKER	NO. OF DIGITS	SIZE	C	D	F	G	H	K	L*	M	N	AREA
INTERSTATE	MI-1C2	457 NUMERALS 2 DIGIT	1143x914	914	648	76	95C	19	38	457D	210	-	0.87
	MI-1D2	610 NUMERALS 2 DIGIT	1524x1219	1219	864	102	127D	25	51	610D	279	-	1.56
	MI-1C3-S	381 NUMERALS 3 DIGIT	1143x914	914	648	76	95C	19	95	381D	229	-	0.87
	MI-1C3	457 NUMERALS 3 DIGIT	1219x1219	762	762	102	127C	25	102	457D	381	-	1.18
	MI-1D3	508 NUMERALS 3 DIGIT	1524x1219	1219	864	102	127D	25	64	508D	368	-	1.56
BUSINESS SPUR LOOP	MI-2C2	381 NUMERALS 2 DIGIT	914x914	572	572	76	95C	19	19	381D	229	57D	0.67
	MI-2D2	508 NUMERALS 2 DIGIT	1219x1219	762	762	102	127C	25	25	508D	305	76D	1.18
	MI-3C2	381 NUMERALS 2 DIGIT	914x914	572	572	76	95C	19	19	381D	229	57D	0.67
	MI-3D2	508 NUMERALS 2 DIGIT	1219x1219	762	762	102	127C	25	25	508D	305	76D	1.18

ALL LENGTHS SHOWN ARE IN MILLIMETERS, ALL AREAS ARE IN SQUARE METERS.

△ MI-1C3-S IS FOR USE ON SEQUENCE SIGNS ONLY.

* IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITHIN THE SPACE AVAILABLE. FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCED TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.

INTERSTATE ROUTE MARKERS FOR GUIDE SIGN USE



Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background - Green Reflective

All dimensions are in millimeters unless otherwise noted.
The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

INTERSTATE, U.S. & STATE
ROUTE MARKERS
FOR ATTACHMENT TO GUIDE SIGNS

IM(1)-95(M)

DATE	BY	REVISION	APPROVED	DATE
1-85	7-90	8-95		
7-90	9-93	12-94		

NEW 8/28/96

STATE	FEDERAL AID PROJECT	SECTION	DATE
21	6	NH96 (791) M	464
COUNTY		CONTROL SECTION	JOB
Hidalgo		2039	17 118 US 88

Metric

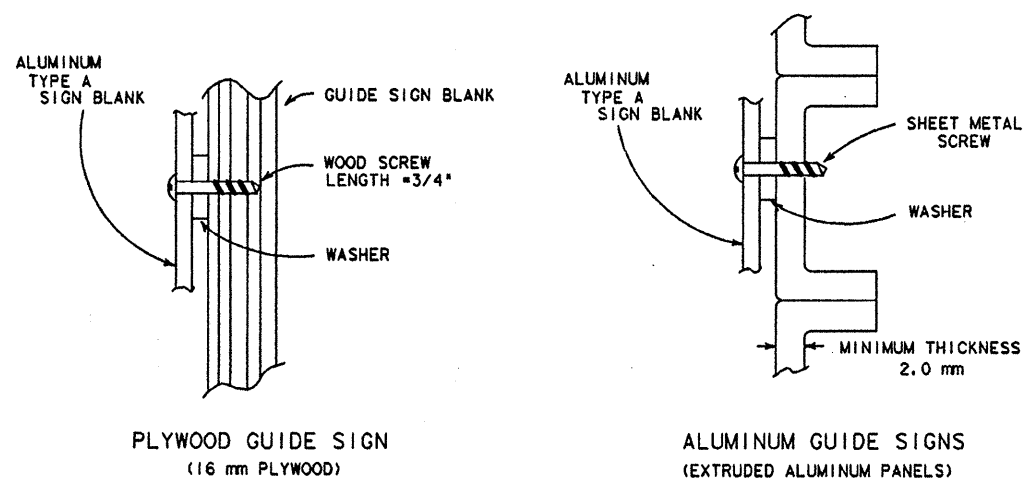
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DISCLAIMER
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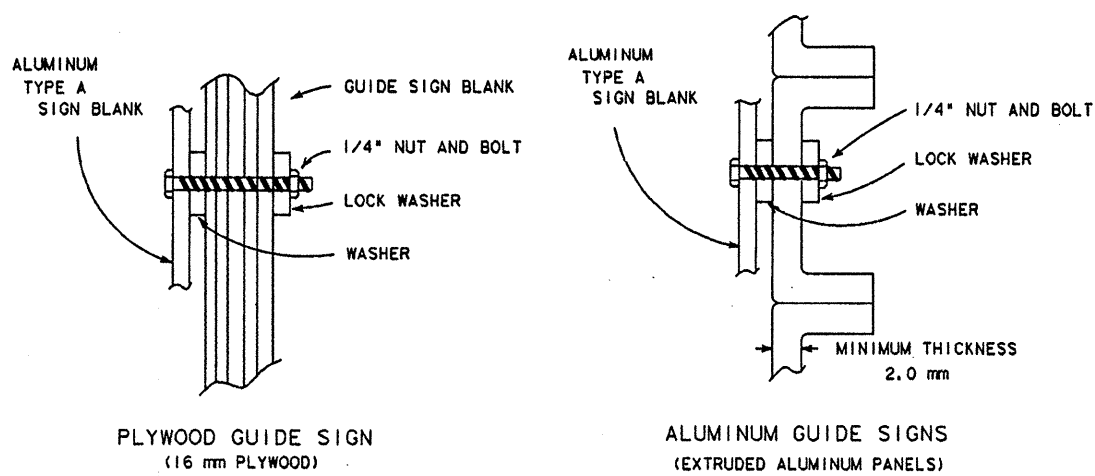
LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 DATE: 07/18/90
 DRAWN BY: J. L. R. / 1011123141516
 CHECKED BY: C. K. W. / 17181920212223242526272829303132
 PROJECT: 458hpl/c/usr/4580504
 ACC: 458hpl/c/usr/4580504
 FILE: 458051526354555657585960616263

TYPICAL ATTACHMENT OF ROUTE MARKERS AND "EXIT ONLY" PANELS TO GUIDE SIGNS

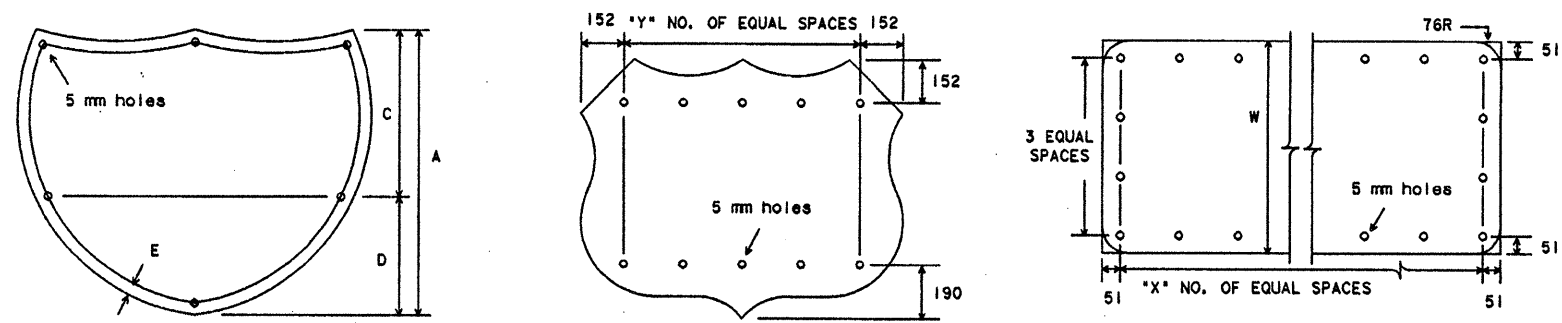
SCREW ATTACHMENT



NUT/BOLT ATTACHMENT



SIGN BLANK PUNCHING DETAILS FOR ROUTE MARKERS WHEN ATTACHED TO GUIDE SIGN



INTERSTATE ROUTE MARKERS

A	C	D	E
914	533	381	38
1219	711	508	44

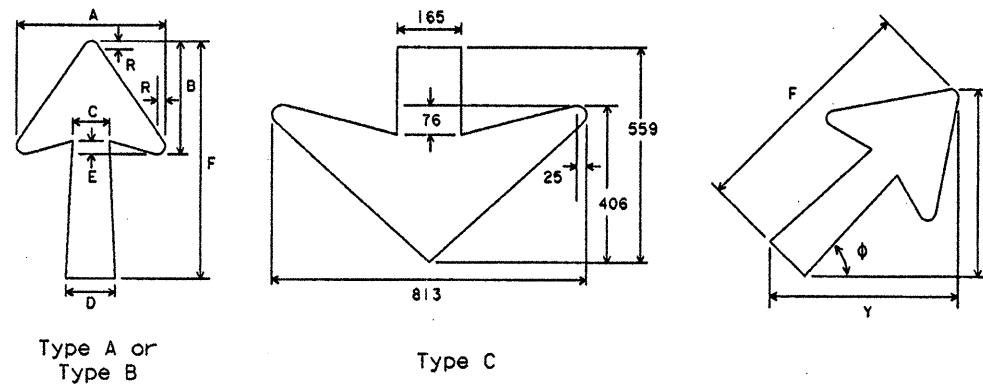
U.S. ROUTE MARKERS

Sign Type	"Y"
MI-4D2	2
MI-4D3	3
MI-4E2	3
MI-4E3	4
MI-4F2	4
MI-4F3	5

STATE ROUTE MARKERS

No. of Digits	W	X
4	610	4
4	914	5
4	1219	6
3	610	3
3	914	4
3	1219	5

ARROW DIMENSION DETAILS



ARROW DIMENSIONS IN INCHES

CODE	LETTER SIZE	A	B	C	D	E	F	R	ϕ					
									$\phi = 30^\circ$		$\phi = 45^\circ$		$\phi = 60^\circ$	
									X	Y	X	Y	X	Y
A-1	203 Caps	384	294	95	127	33	616	21	397	565	486	486	568	397
A-2	339 U.C., 254-305 Caps	464	356	114	152	38	743	19	470	686	584	584	686	483
A-3	406 U.C.	565	432	137	181	44	905	25	575	832	711	711	832	578
B-1	8-10" Caps	362	249	86	114	33	438	19	318	413	356	356	410	318
B-2	339 U.C., 305 Caps	444	298	111	143	38	522	22	394	486	422	422	483	394
B-3	406 U.C.	556	362	127	171	44	635	25	486	597	517	517	597	489

WHERE AN ARROW IS REQUIRED ON A GUIDE SIGN WHICH HAS A HEIGHT OF 610 mm AND WHICH IS USUALLY ERECTED ON RAMP AND CROSSROADS AT INTERCHANGES, THE ARROW SHALL BE TYPE B-1.

* RECOMMENDED DIMENSIONS: TAPER SHOULD BE HELD CONSTANT FOR LONGER OR SHORTER SHAFT LENGTHS.

SPECIFICATION REFERENCE TABLE
 MATERIALS AND TEST SPECIFICATIONS (D-9)

ALUMINUM SIGN BLANKS	D-9-7110
SIGN HARDWARE	D-9-7120
FLAT SURFACE REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300

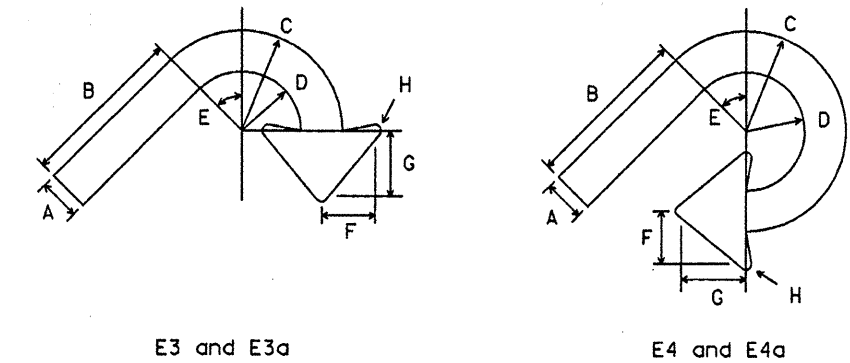
GENERAL NOTES:

Route markers attached to guide signs shall be one piece sheet aluminum alloy conforming with Department Specification "Aluminum Signs (Type A)." Sketches shown are examples only.

Screws and washers shall be used unless otherwise noted in the plans. Screws or bolts, nuts and washers shall be stainless steel or aluminum.

Screws for plywood signs shall not protrude through the back of the sign. All holes required in the punching detail of blank, shall have screws or nuts and bolts.

Arrows shall be cut-out reflective sheeting (Type C) applied directly to sign background, or reflective sheeting (Type C) applied to one piece 1.6 mm thick sheet aluminum alloy conforming with Department Specification "Aluminum Signs (Type A)." Attachment to of arrows applied to sheet aluminum alloy shall be as illustrated for sign blanks.



CODE	USED ON SIGN NO.	A	B	C	D	E	F	G	H
E-3 & E-4	E5-3 and E5-4	127	508	305	178	450	165	203	19
E-3a & E-4a	E5-3a and E5-4a	89	356	216	127	450	114	140	13

All dimensions are in millimeters unless otherwise noted.

The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

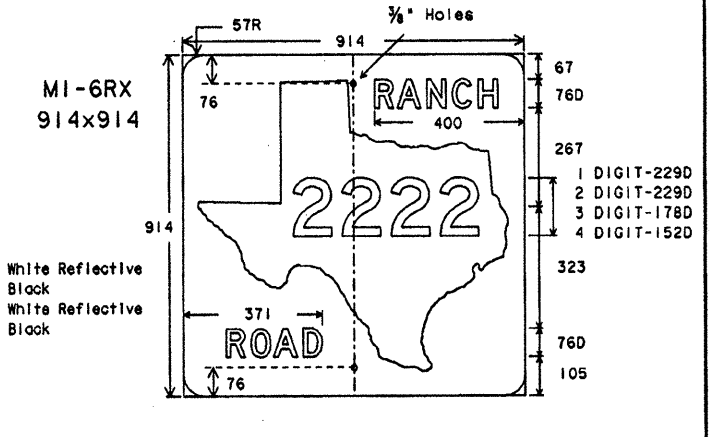
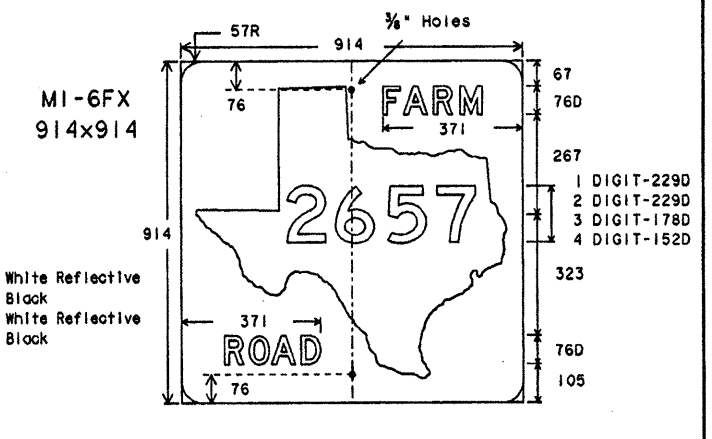
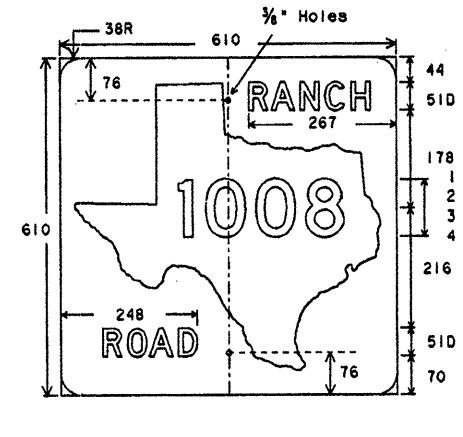
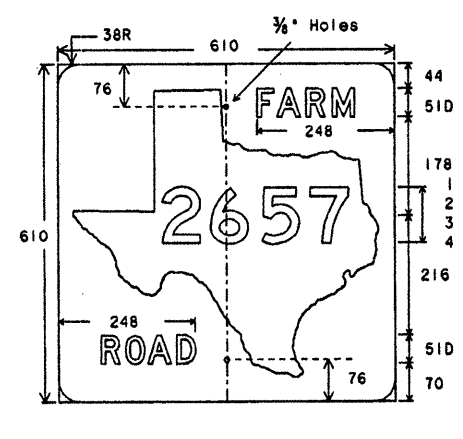
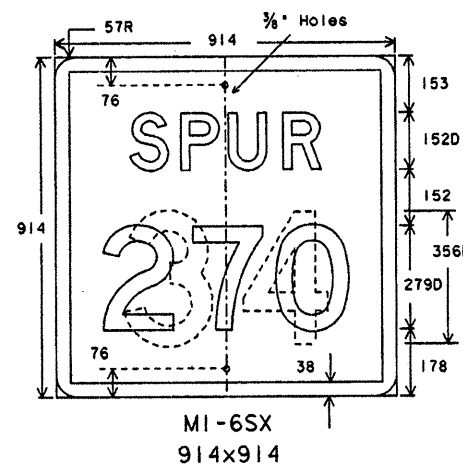
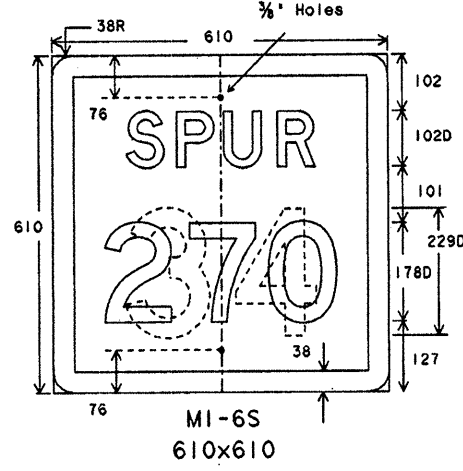
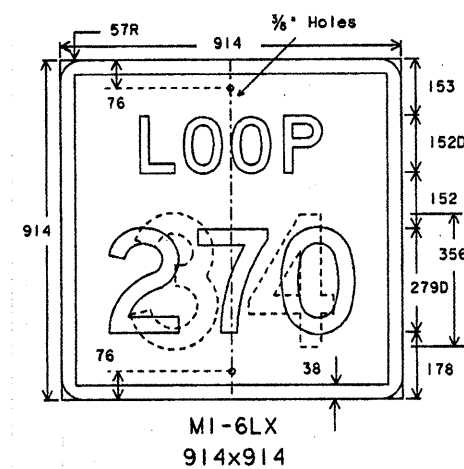
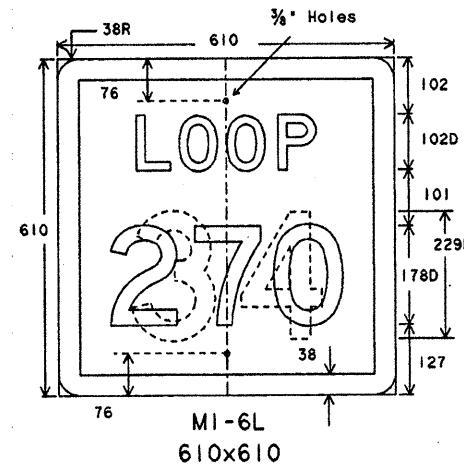
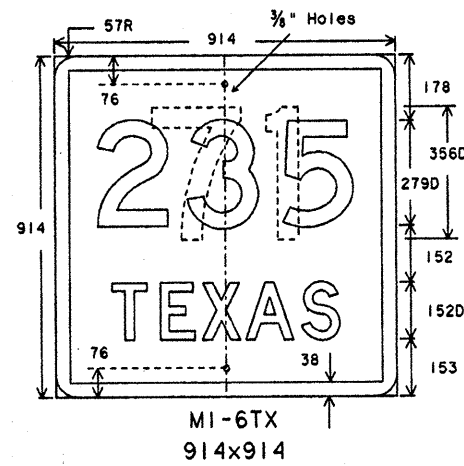
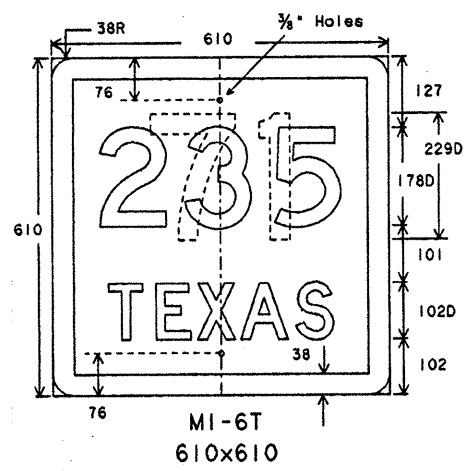
ARROW AND ROUTE MARKER ATTACHMENT DETAILS FOR GUIDE SIGNS

1M(2)-93(M)

DATE: July 1990	DR: L.R.	BY: J.L.R.	CHK: J.L.R.	REV: 1	SHEET NO: 465
9-93	21	6	NH96(791)	M	465
COUNTY: HICAGO		SECTION: 0639		JOB: 17118	
				DESIGNER: LRS	

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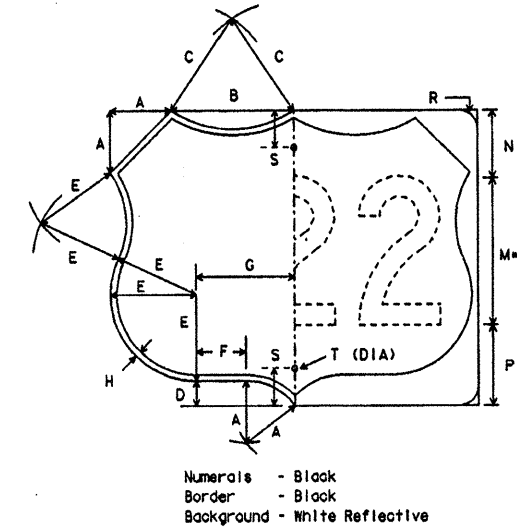
LEVELS DISPLAYED
 1 3 4 5 6 7 8 9 10 11 12 13 14 15
 DATE: 07/15/72
 CK: CW
 DW: DN
 DESIGNED BY: [unreadable]
 DRAWN BY: [unreadable]
 CHECKED BY: [unreadable]
 FILE: [unreadable]



		SIZE	A	B	C	D
MI-4A2	305 NUMERALS 2 DIGIT	610x610	127	178	127	51
MI-4A3	305 NUMERALS 3 DIGIT	762x610	127	254	229	51
MI-4B2	457 NUMERALS 2 DIGIT	914x914	190	267	190	76
MI-4B3	457 NUMERALS 3 DIGIT	1142x914	190	381	343	76

E	F	G	H	M*	N	P
178	25	127	13	305D	140	165
178	102	203	13	305D	140	165
267	38	190	19	457D	209	248
267	152	304	19	457D	209	248

R	S	T	AREA
38	76	10	29543
38	76	10	37625
57	76	10	66425
57	76	10	84634



SPECIFICATION REFERENCE TABLE

MATERIALS AND TESTS DIVISION SPECIFICATION	
ALUMINUM SIGN BLANKS	D-9-7110
FLAT SURFACE REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

GENERAL NOTES:
 Route Markers are to be used as confirming and reassurance route markers and as component parts of a Junction, Route Turn, Directional, or Trailblazer assembly. The alphabets and lateral spacing between letters and numerals shall conform with the Texas "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition, and any approved changes thereto. Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications. Legend (except where noted), shall be black and applied by screening process, cut-out vinyl non-reflective decal sheeting or combination thereof. Legend on MI-6F, MI-6FX, MI-6R, MI-6RX and U.S. route markers shall be applied by reverse screening process, cut-out black vinyl non-reflective decal sheeting or combination thereof. Background shall be white reflective sheeting (Type A). A print of the Texas state outline may be obtained from the Department to be used in making a stencil. Sign blanks shall be one piece sheet aluminum alloy (Type A). 610x610 mm blanks shall be 2.0 mm thick, 914x914 mm and larger blanks shall be 2.5 mm thick, unless otherwise noted elsewhere in the plans.

All dimensions are in millimeters unless otherwise noted.
 The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

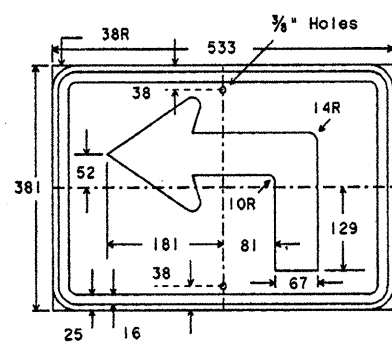
STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

U. S. & STATE
 ROUTE MARKERS
 FOR INDEPENDENT MOUNTING

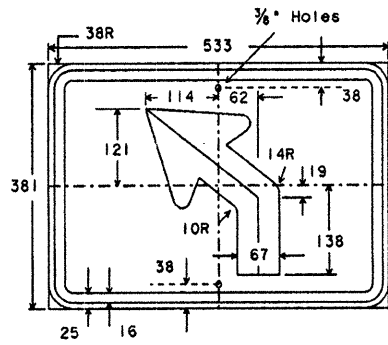
M(1)-95(M)

DATE: JULY 1972	REV. NO. 8-95	STATE DISTRICT: 21	FEDERAL AID PROJECT: NH96(991) M	SHEET: 466
DESIGNED BY: [unreadable]	DRAWN BY: [unreadable]	CHECKED BY: [unreadable]	CONTROL SECTION: [unreadable]	JOB: [unreadable]
COUNTY: HIDALGO		HIGHWAY: 118 US83		

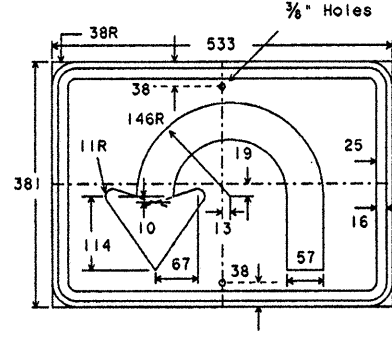
DISCLAIMER
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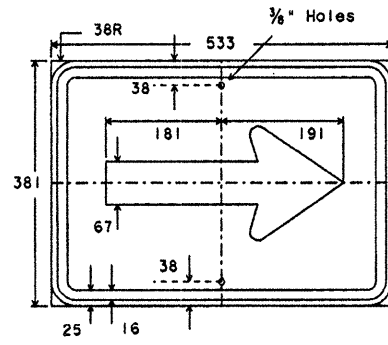
M5-1L
 M5-1R
 533x381



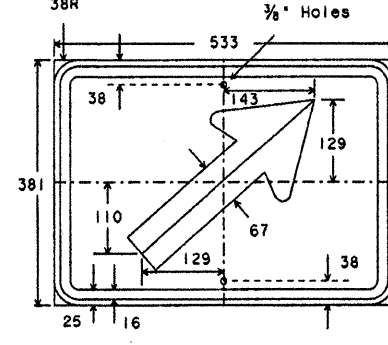
M5-2L
 M5-2R
 533x381



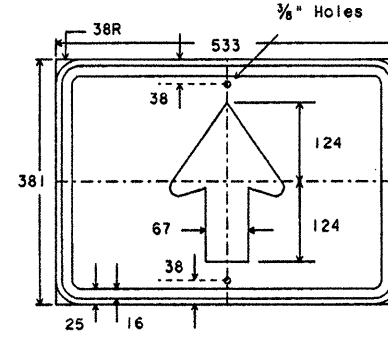
M5-3L
 533x381



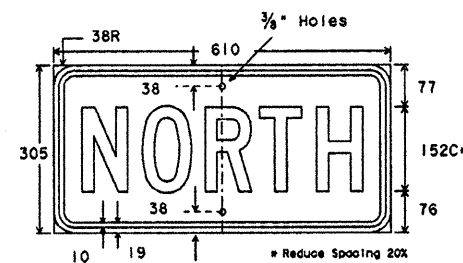
M6-1
 533x381



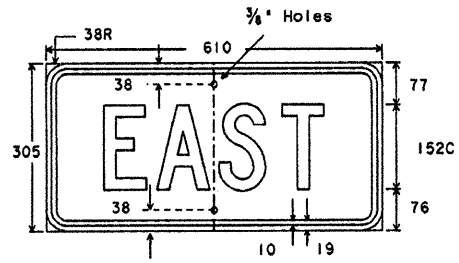
M6-2L
 M6-2R
 533x381



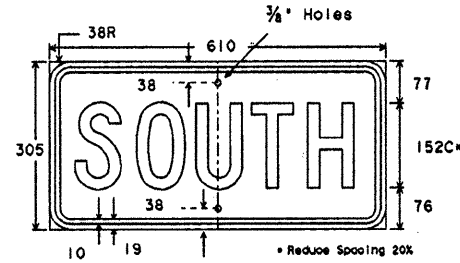
M6-3
 533x381



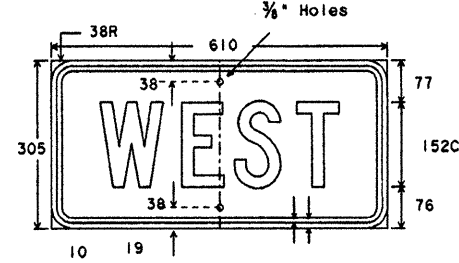
M3-1
 610x305



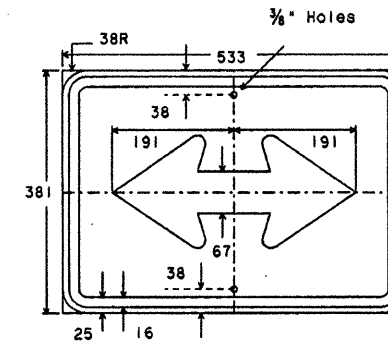
M3-2
 610x305



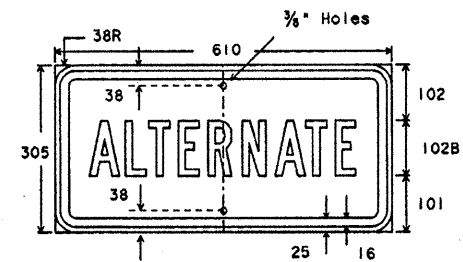
M3-3
 610x305



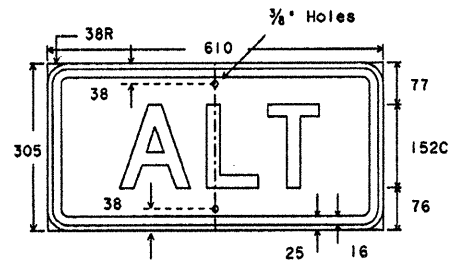
M3-4
 610x305



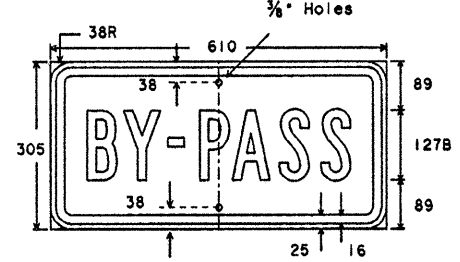
M6-4
 533x381



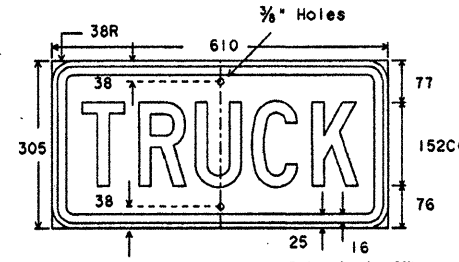
M4-1
 610x305



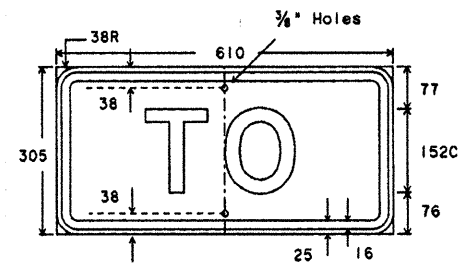
M4-1a
 610x305



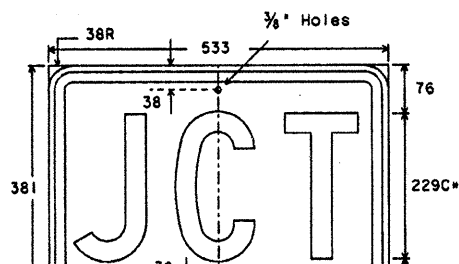
M4-2
 610x305



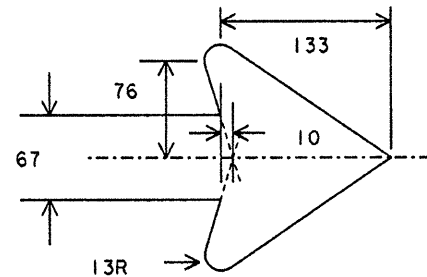
M4-4
 610x305



M4-5
 610x305



M2-1
 533x381



SPECIFICATION REFERENCE TABLE
 MATERIALS AND TESTS DIVISION SPECIFICATIONS

ALUMINUM SIGN BLANKS	D-9-7110
REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

GENERAL NOTES:
 The alphabets and lateral spacing between letters and numerals shall conform with the Texas "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition, and any approved changes thereto. Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications.
 Legend (except where noted), shall be black and applied by screening process, cut-out vinyl non-reflective decal sheeting or combination thereof. Background shall be white reflective sheeting (Type A).
 Sign blanks shall be one piece 2.0 mm thick sheet aluminum alloy (Type A), unless otherwise noted elsewhere in the plans.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

ROUTE MARKER AUXILIARIES

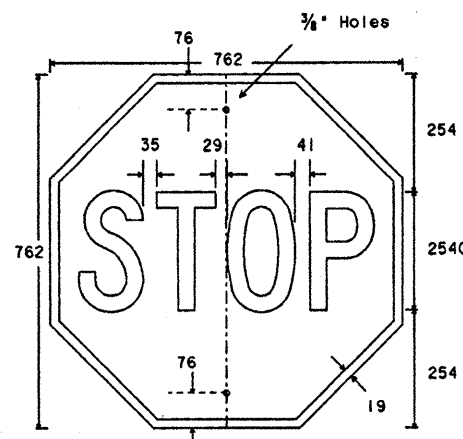
M(3) - 95 (M)

DATE: JULY 1990	DR: L-R	CR:	DN: DN	CA:	REG NO.:
8-95	21	6	NH96(791) M		407
COUNTY		CONTROL SECTION	JOB	HIGHWAY	
HIDA 1A0		0289.17	V18	US83	

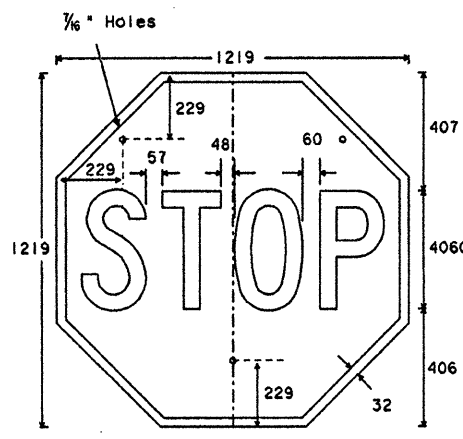
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LEVELS DISPLAYED	DATE
1 1 3 4 5 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	05/15/90

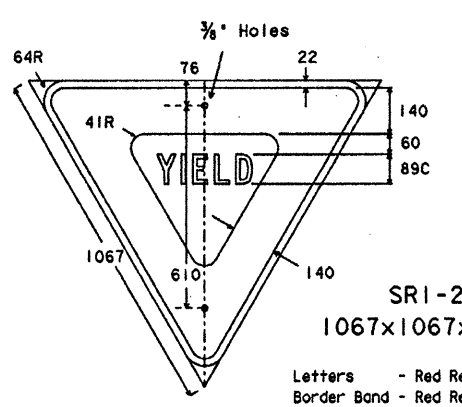
DISCLAIMER
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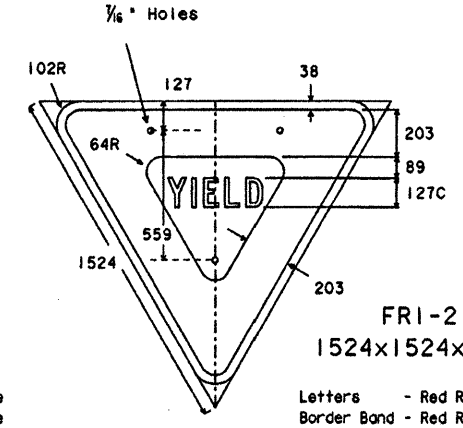
RI-1
 762x762
 Letters - White Reflective
 Border - White Reflective
 Background - Red Reflective



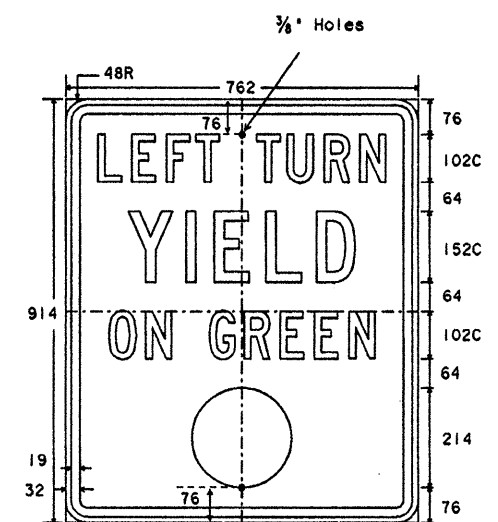
SRI-1
 1219x1219
 Letters - White Reflective
 Border - White Reflective
 Background - Red Reflective



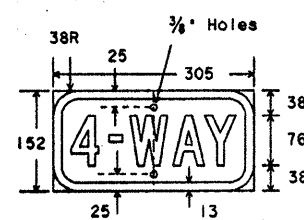
SRI-2
 1067x1067x1067
 Letters - Red Reflective
 Border Band - Red Reflective
 Background - White Reflective



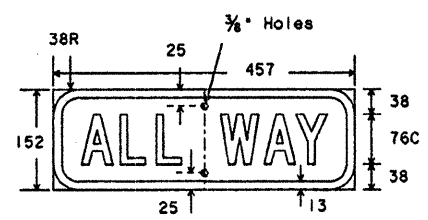
FRI-2
 1524x1524x1524
 Letters - Red Reflective
 Border Band - Red Reflective
 Background - White Reflective



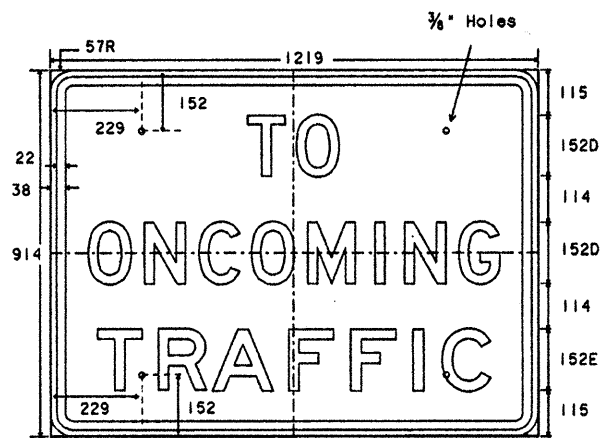
R10-12
 762x914
 Letters - Black
 Border - Black
 Circle - Green Refl.
 Background - White Refl.



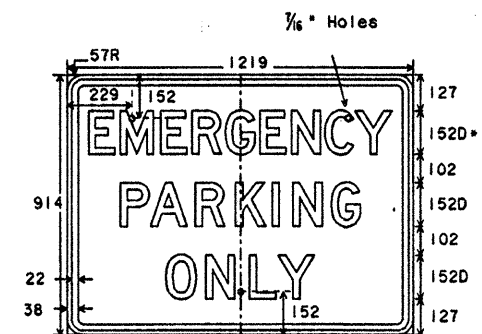
R1-3
 305x152
 Letters - White Reflective
 Border - White Reflective
 Background - Red Reflective



R1-4
 457x152
 Letters - White Reflective
 Border - White Reflective
 Background - Red Reflective



SRI-2b
 1219x914
 Legend - Black
 Background - White Refl.

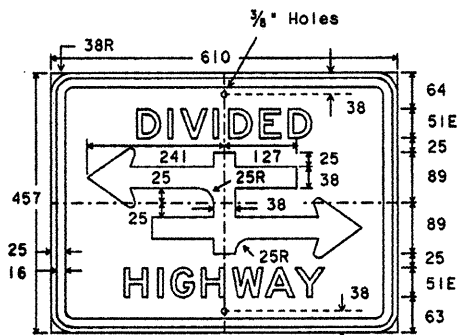


FR8-4
 1219x914
 Legend - Black
 Background - White Refl.
 * reduce spacing 50%

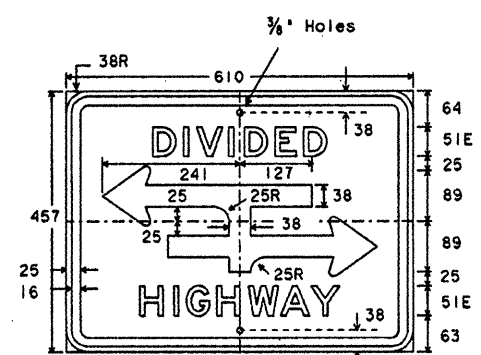
SPECIFICATION REFERENCE TABLE		
MATERIALS AND TESTS DIVISION SPECIFICATIONS		
PLYWOOD SIGN BLANKS		D-9-7100
REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)		D-9-8300
(FOR BLACK AND WHITE SIGNS ON THIS SHEET)		
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)		D9--8300
(FOR RED SERIES SIGNS ON THIS SHEET)		
VINYL NON-REFLECTIVE DECAL SHEETING		D-9-8320

GENERAL NOTES:
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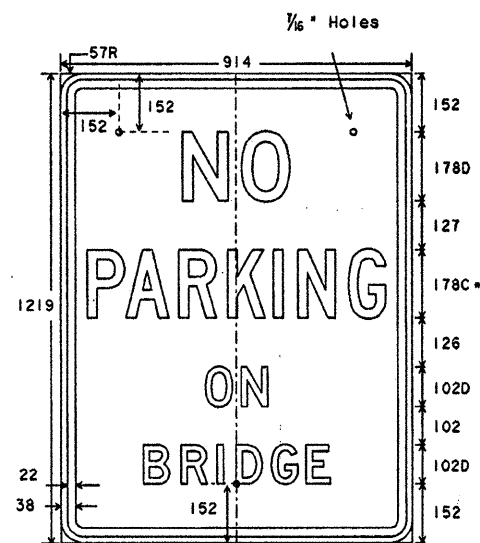
All dimensions are in millimeters unless otherwise noted.
 The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.



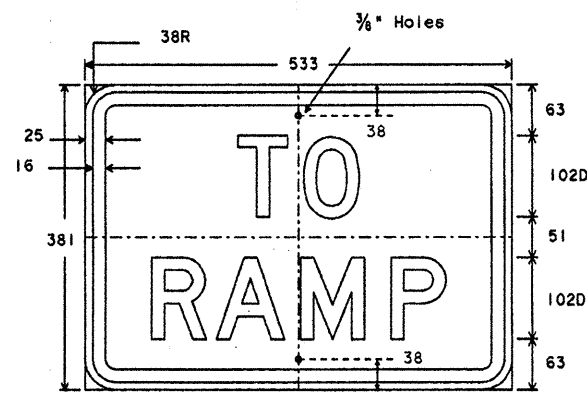
R6-3
 610x457
 Legend - Black
 Background - White Refl.



R6-3a
 610x457
 Legend - Black
 Background - White Refl.



ER8-1T
 914x1219
 Letters - Red Reflective
 Border - Red Reflective
 Background - White Reflective
 * reduce spacing 50%



R1-2a
 533x381
 Legend - Black
 Background - White Refl.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

REGULATORY SIGNS

R(1) - 95 (M)

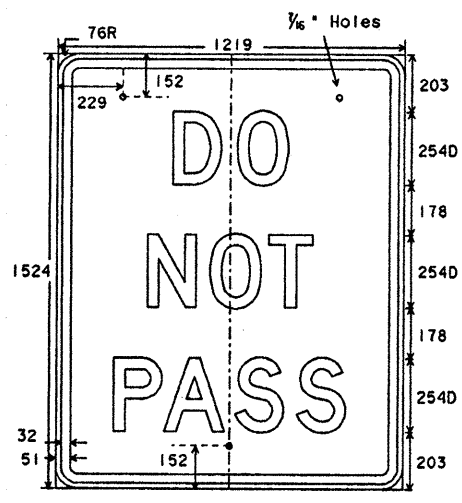
LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

DATE	BY	CHK'D	APP'D	REV. NO.
FEB. 1976	DR-LR	DR-DN		
1-85				
7-90				
8-95				

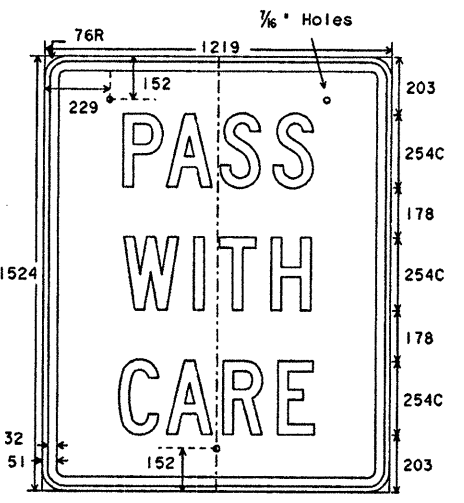
STATE	FEDERAL	FEDERAL AID PROJECT	SHEET
21	6	NH96 (791) M	46B
COUNTY		CONTROL SECTION	ALIGNED
Hidalgo		003917	V/B (583)

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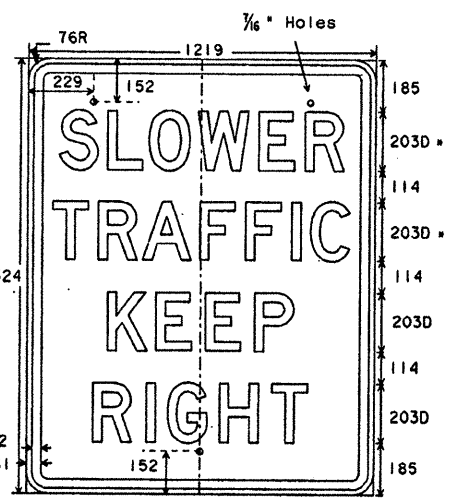
LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 DATE: _____
 CK: LR _____
 CK: CW _____
 DW: DN _____
 CK: MT _____
 ACC: 0588p1c/usr/d580504
 FILE: _____



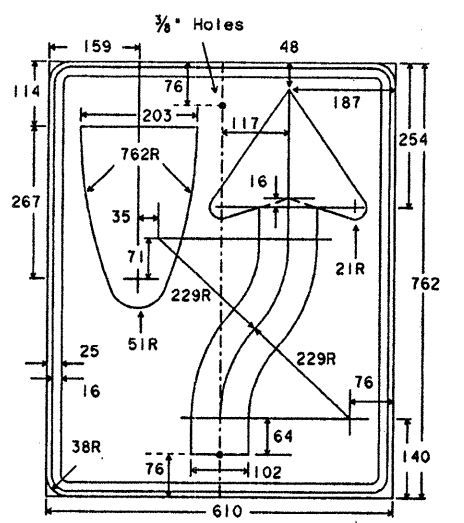
FR4-1
 1219x1524



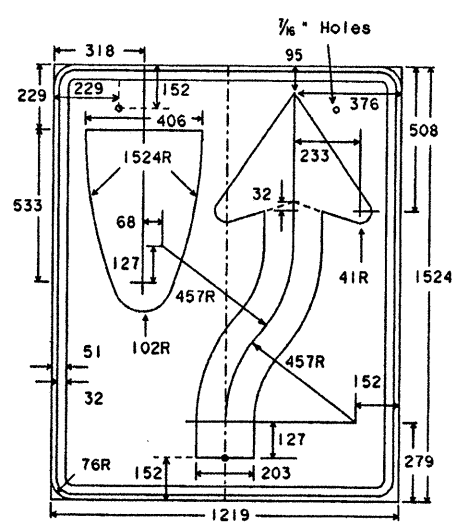
FR4-2
 1219x1524



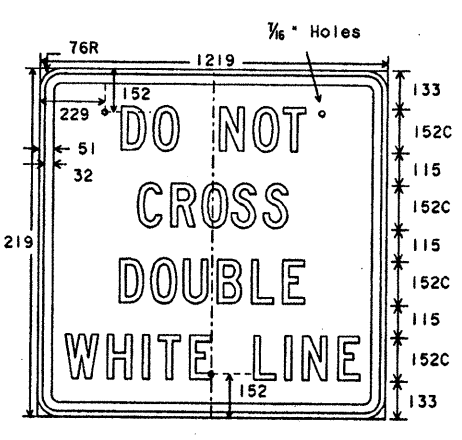
FR4-3
 1219x1524
 * reduce spacing 25%



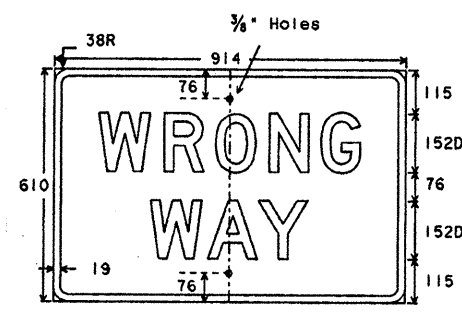
R4-7
 610x762



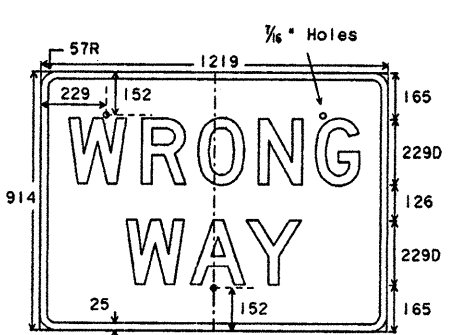
FR4-7
 1219x1524



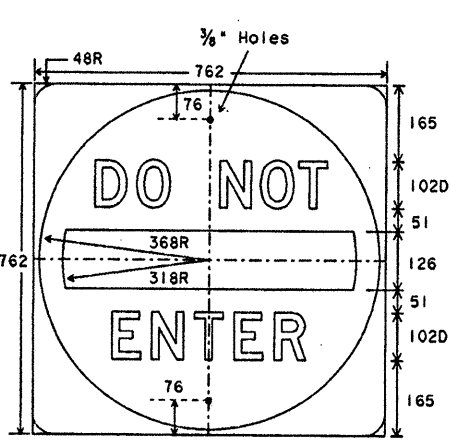
FR4-3B
 1219x1219



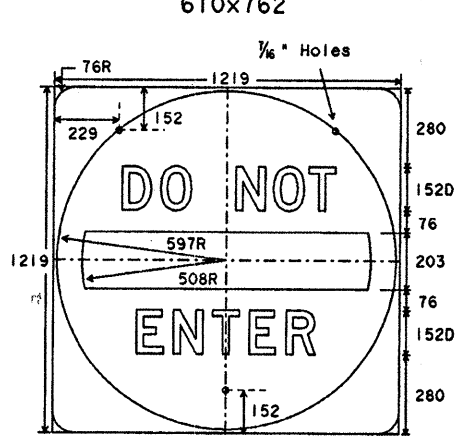
R5-1a
 914x610
 Letters - White Reflective
 Border - White Reflective
 Background - Red Reflective



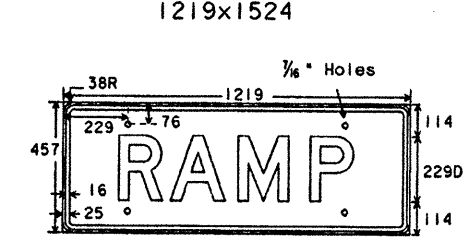
SR5-1a
 1219x914
 Letters - White Reflective
 Border - White Reflective
 Background - Red Reflective



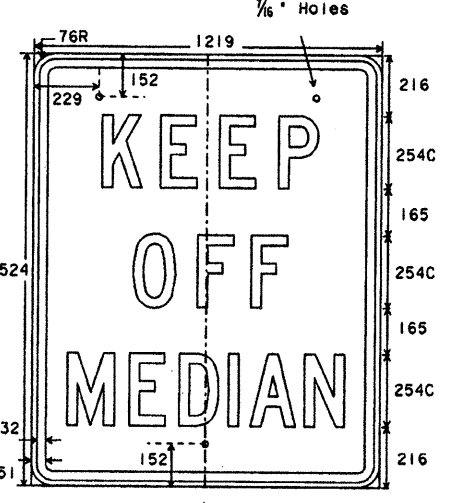
R5-1
 762x762
 Letters - White Reflective
 Bar - White Reflective
 Background - Red Reflective



SR5-1
 1219x1219
 Letters - White Reflective
 Bar - White Reflective
 Background - Red Reflective



R5-1T
 1219x457
 Letters - Red Reflective
 Border - Red Reflective
 Background - White Reflective



FR11-1
 1219x1524

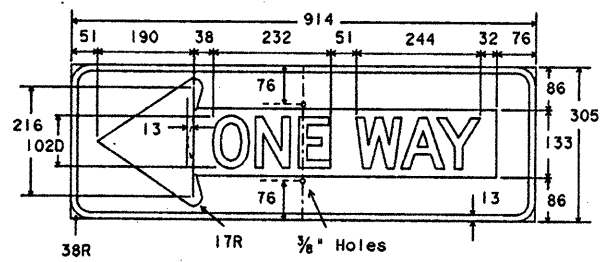
SPECIFICATION REFERENCE TABLE

MATERIALS AND TESTS DIVISION SPECIFICATIONS	
PLYWOOD SIGN BLANKS	D-9-7100
REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE) (FOR BLACK AND WHITE SIGNS ON THIS SHEET)	D-9-8300
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY) (FOR RED SERIES SIGNS ON THIS SHEET)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

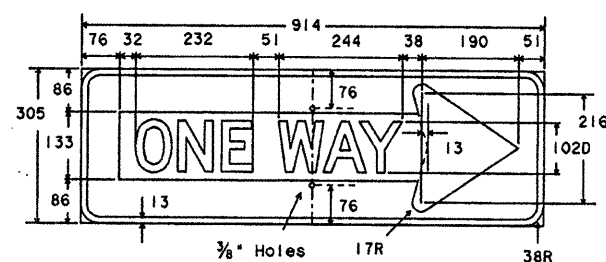
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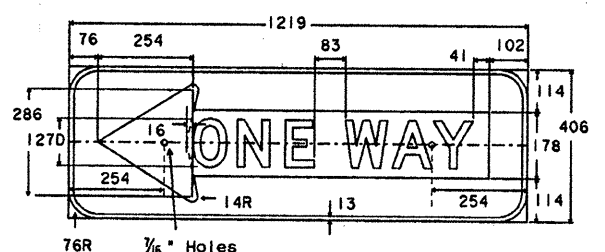
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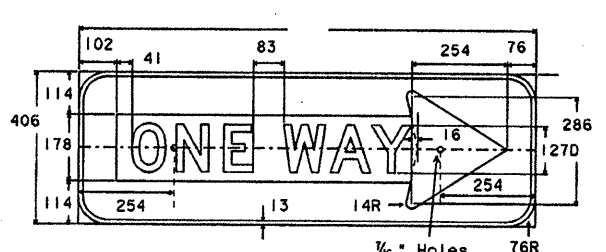
R6-1L
 914x305
 Letters - Black
 Symbol - White Reflective
 Border - White Reflective
 Background - Black



R6-1R
 914x305
 Letters - Black
 Symbol - White Reflective
 Border - White Reflective
 Background - Black



FR6-1L
 1219x406
 Letters - Black
 Symbol - White Reflective
 Border - White Reflective
 Background - Black



FR6-1R
 1219x406
 Letters - Black
 Symbol - White Reflective
 Border - White Reflective
 Background - Black

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

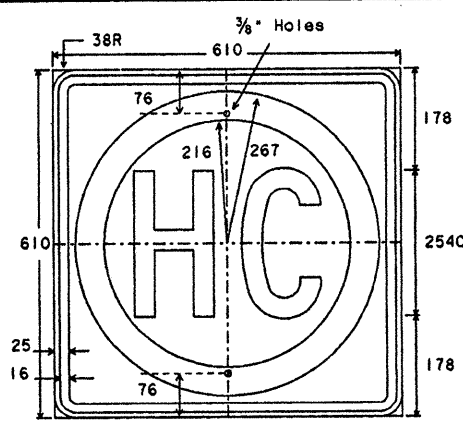
REGULATORY SIGNS

R(2) - 95 (M)

DATE	BY	REVISIONS	DATE	BY	REVISIONS
February 1976	DN-LR				
7-90		21	6	NH96(991) M	469
8-95					

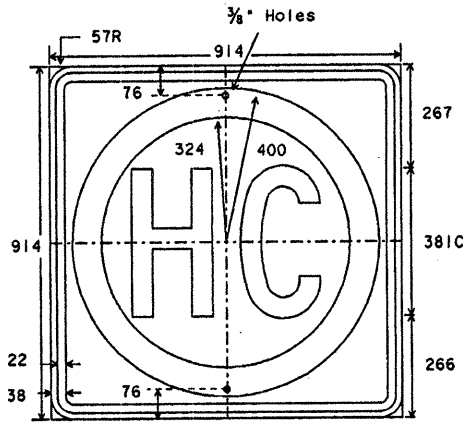
COUNTY: HIDALGO CONTROL SECTION: 118 HIGHWAY: 1152R3

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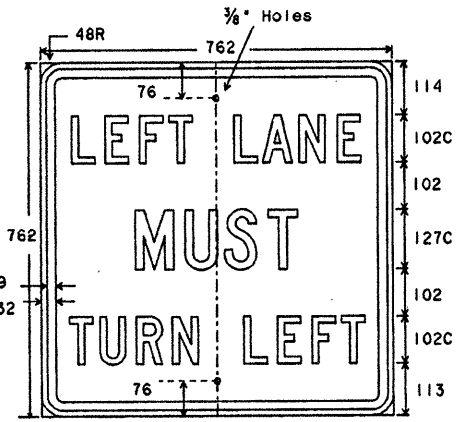
R14-2
610x610

Letters - Black
 Border - Black
 Ring - Green Reflective
 Background - White Reflective

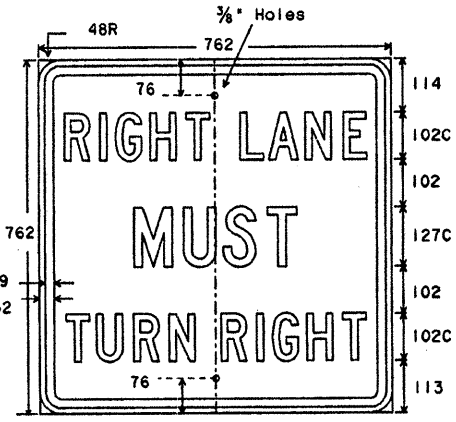


ER14-2
914x914

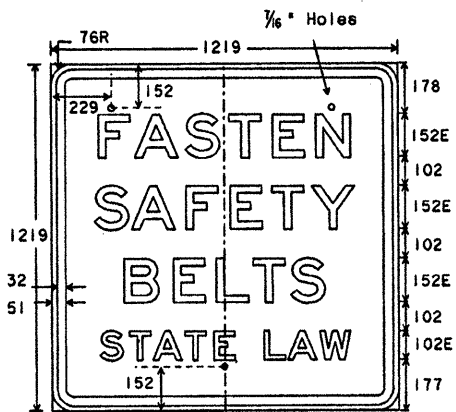
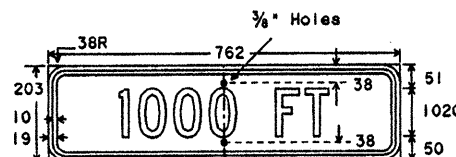
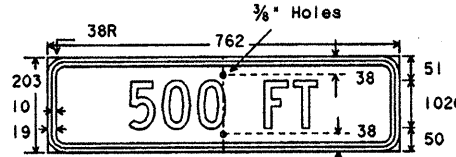
Letters - Black
 Border - Black
 Ring - Green Reflective
 Background - White Reflective



R3-7L
762x762

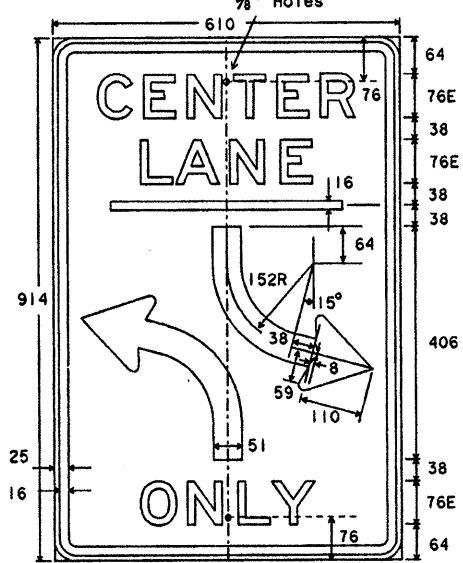


R3-7R
762x762

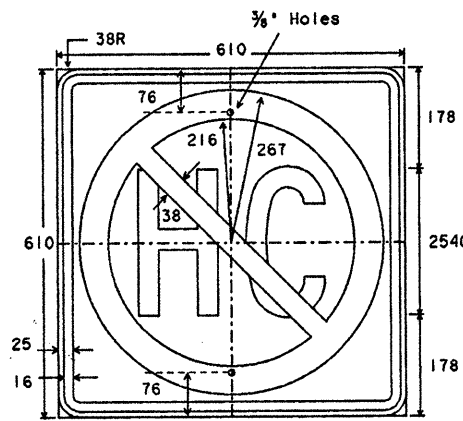


FR19-8
1219x1219

Letters - Black
 Arrow - Black
 Border - Black
 Circle & Diagonal - Red Reflective
 Background - White Reflective

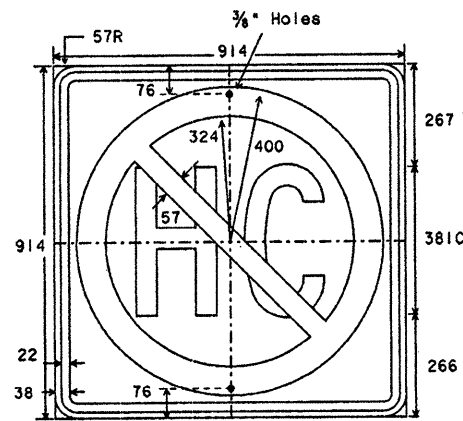


R3-9b
610x914



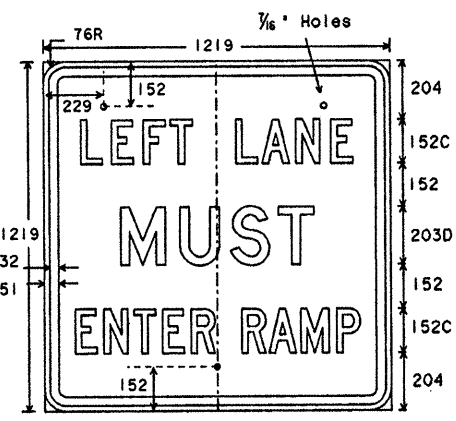
R14-3
610x610

Letters - Black
 Border - Black
 Ring/Slash - Red Reflective
 Background - White Reflective

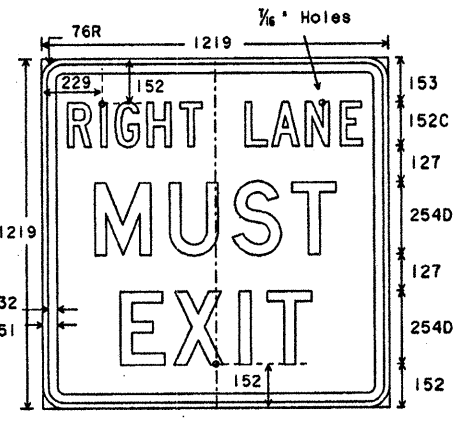


ER14-3
914x914

Letters - Black
 Border - Black
 Ring/Slash - Red Reflective
 Background - White Reflective



R3-20
1219x1219

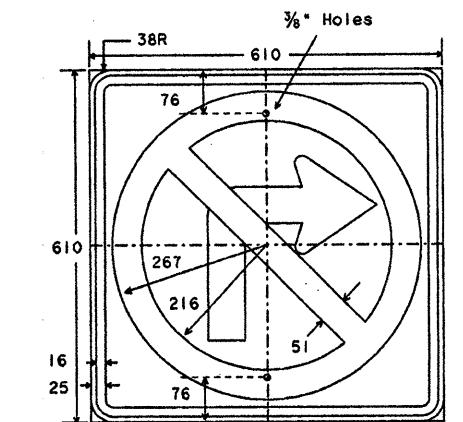
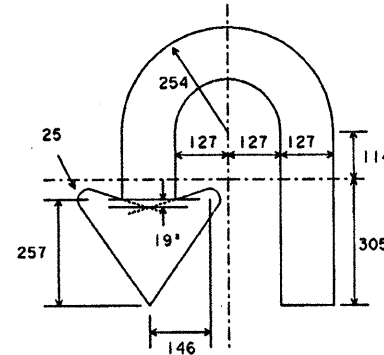


R3-21R
1219x1219

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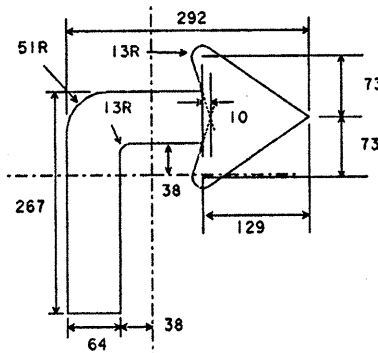
SPECIFICATION REFERENCE TABLE	
MATERIALS AND TESTS DIVISION SPECIFICATIONS	
PLYWOOD SIGN BLANKS	D-9-7100
REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE)	D-9-8300
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

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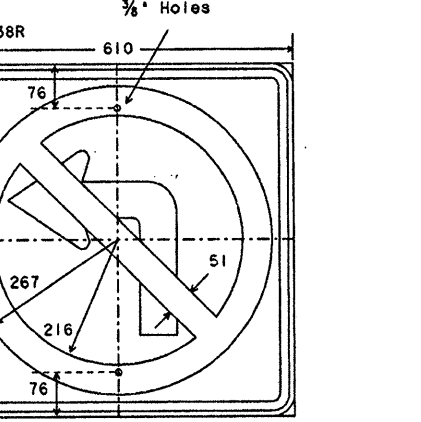


R3-1
610x610

Letters - Black
 Arrow - Black
 Border - Black
 Circle & Diagonal - Red Reflective
 Background - White Reflective



R3-2
610x610



Letters - Black
 Arrow - Black
 Border - Black
 Circle & Diagonal - Red Reflective
 Background - White Reflective

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

REGULATORY SIGNS

R(3) - 95 (M)

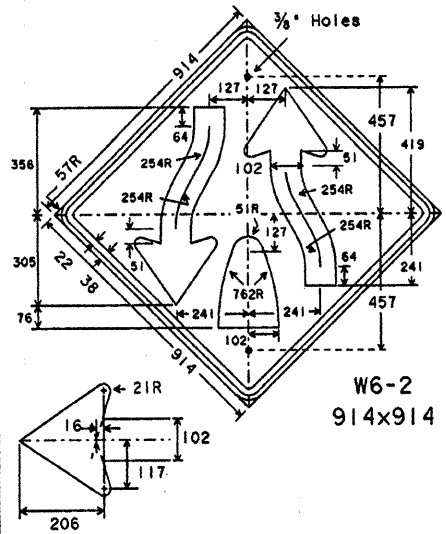
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REVISIONS	8-95	STATE DISTRICT	21	FEDERAL AID PROJECT	NH96 (791) M	SHEET	470
		COUNTY	HIDALGO	CONTROL SECTION	0039 17	JOB	118
		HIGHWAY					US83

LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

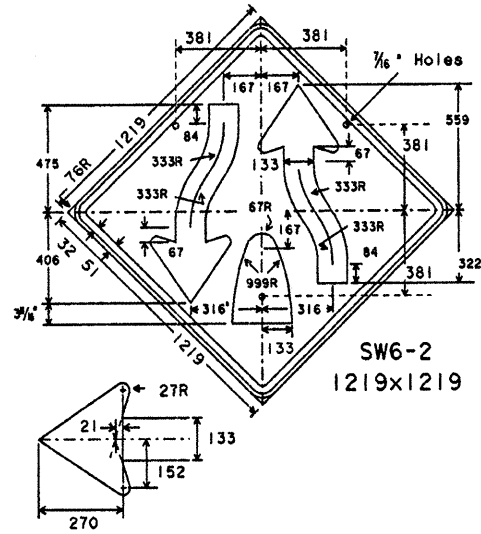
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DN: LR
 CK: CW
 DW: DN
 CK: MT

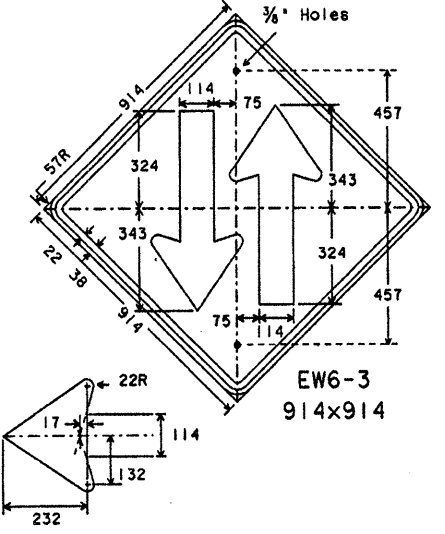
DATE: 05/08/04
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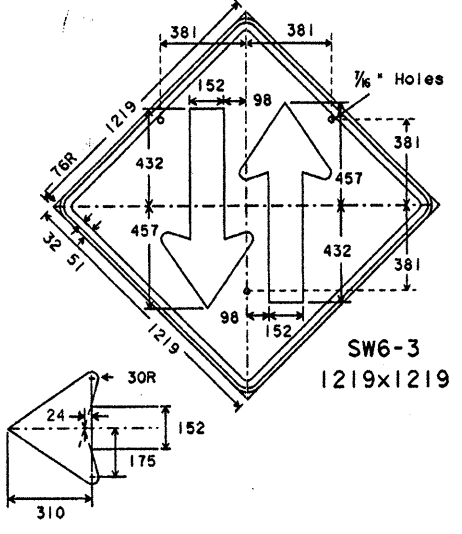
W6-2
914x914



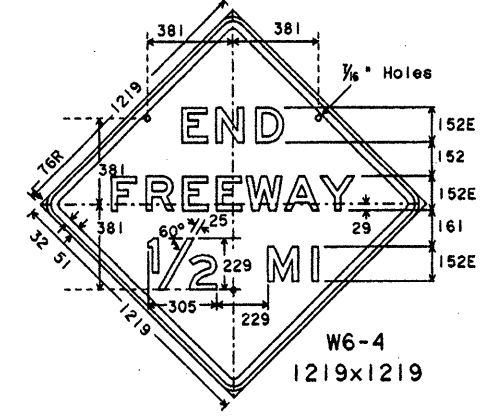
SW6-2
1219x1219



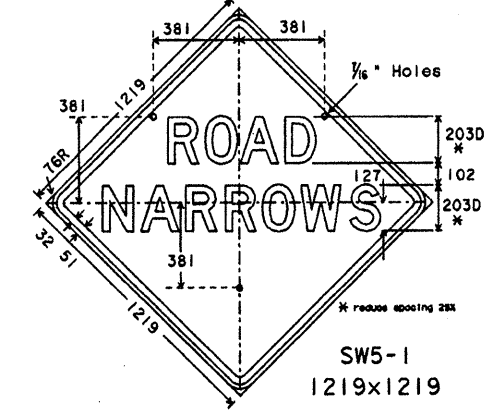
EW6-3
914x914



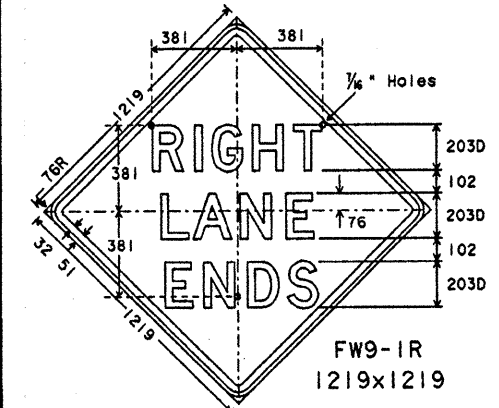
SW6-3
1219x1219



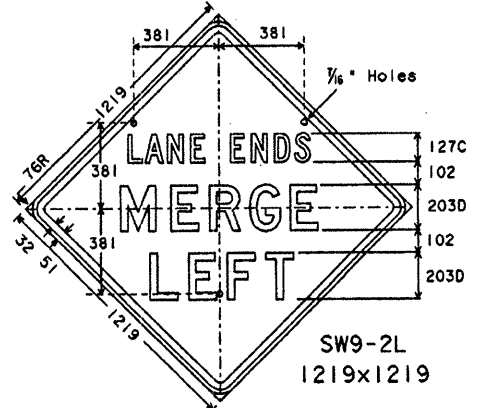
W6-4
1219x1219



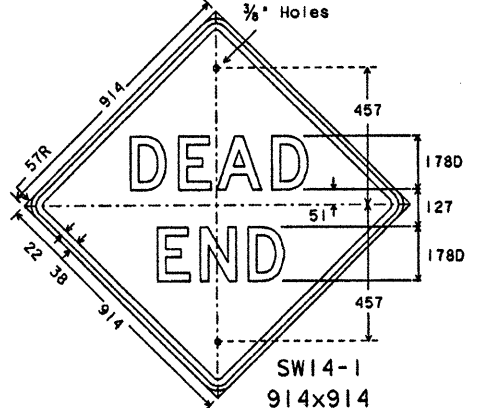
SW5-1
1219x1219



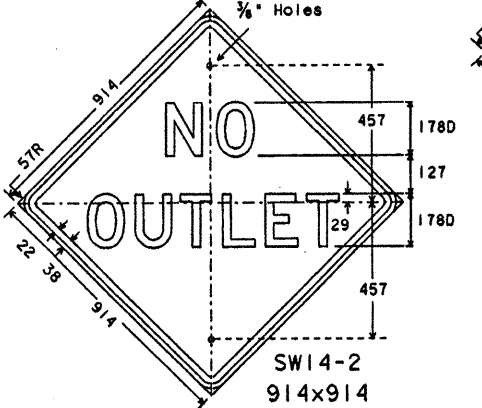
FW9-1R
1219x1219



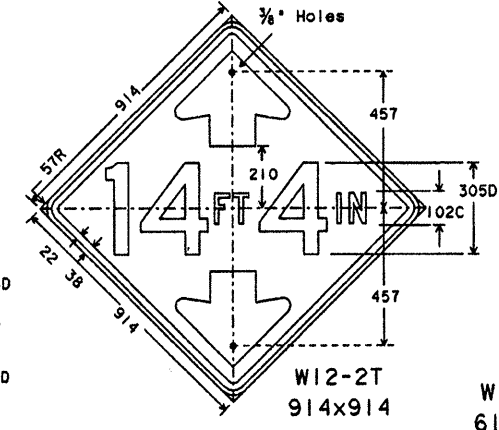
SW9-2L
1219x1219



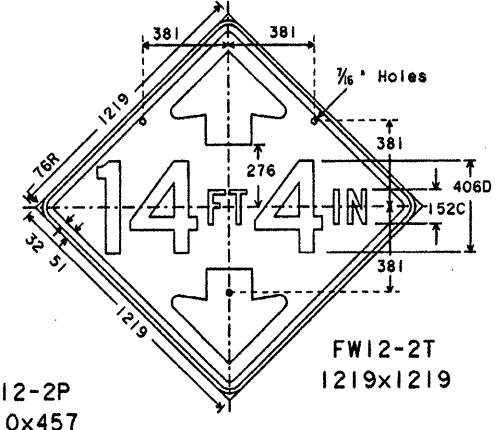
SW14-1
914x914



SW14-2
914x914



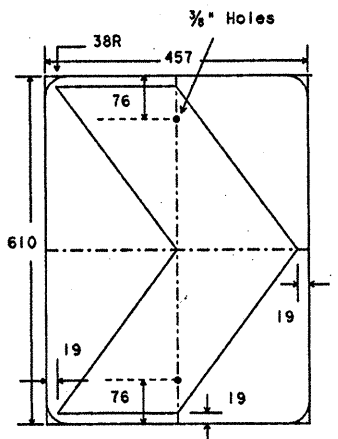
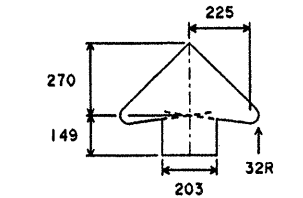
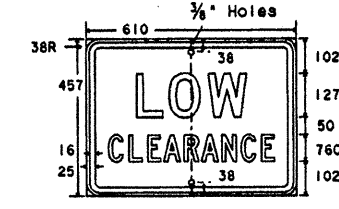
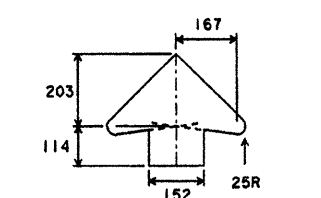
W12-2T
914x914



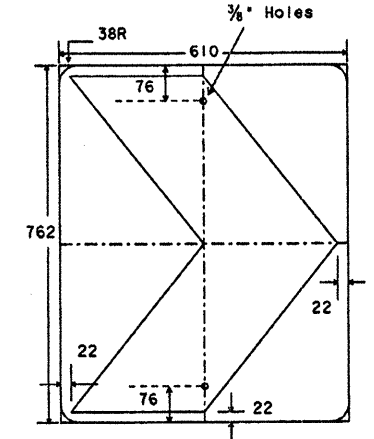
W12-2P
610x457

LEFT 203D

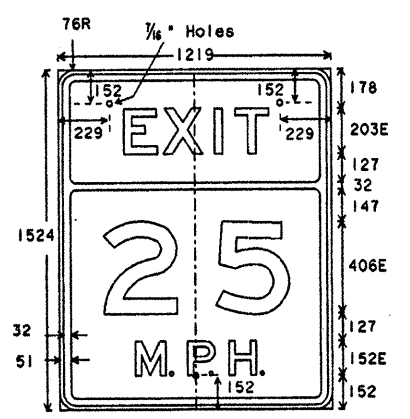
RIGHT 203D



W1-8
457x610



EW1-8
762x914

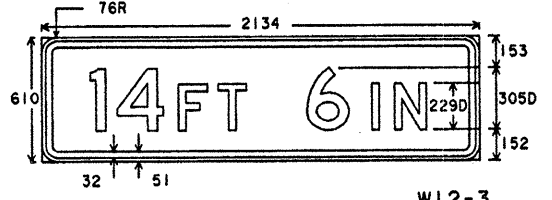


W13-2
1219x1524

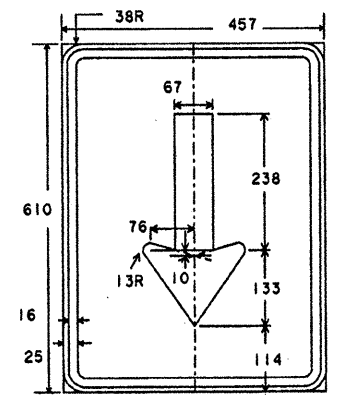
RAMP 203E

W13-3
1219x1524

(Same as W13-2 except "EXIT replaced with "RAMP")



W12-3
2134x610



W12-3P
457x610

SPECIFICATION REFERENCE TABLE
 MATERIALS AND TESTS DIVISION SPECIFICATIONS

PLYWOOD SIGN BLANKS	D-9-7100
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING	D-9-8320

GENERAL NOTES:

The alphabets and lateral spacing between letters and numerals shall conform with the Texas "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition, and any approved changes thereto. Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications. Legend (except where noted), shall be black and applied by screening process, cut-out vinyl non-reflective decal sheeting or combination thereof. Background shall be yellow reflective sheeting (Type C). Sign blanks shall be one piece 16 mm thick plywood (Type A), unless otherwise noted elsewhere in the plans.

All dimensions are in millimeters unless otherwise noted.
 The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

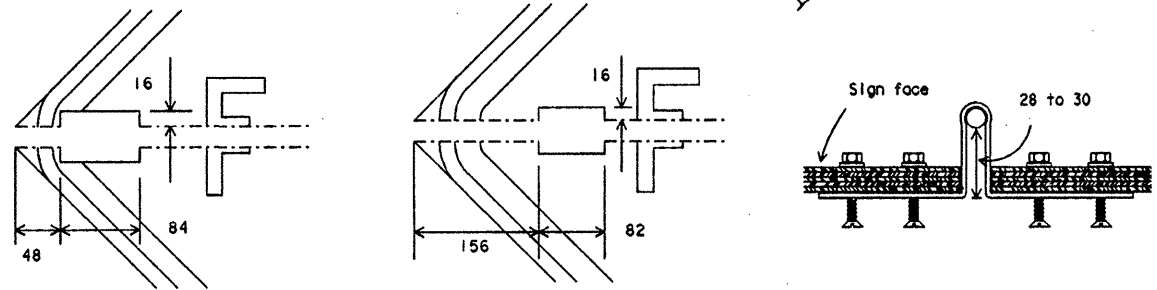
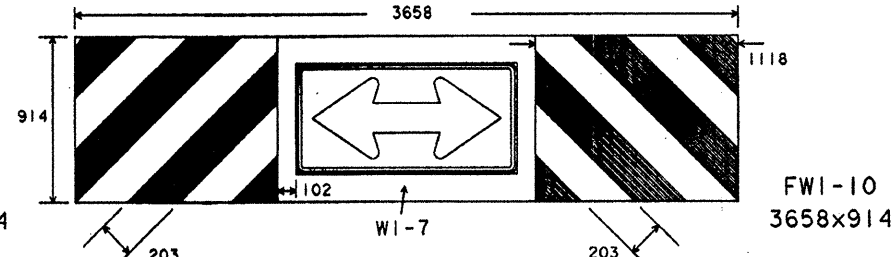
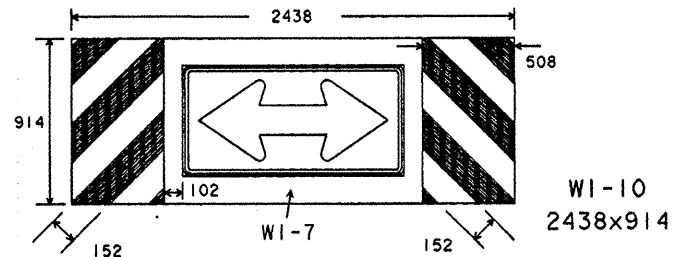
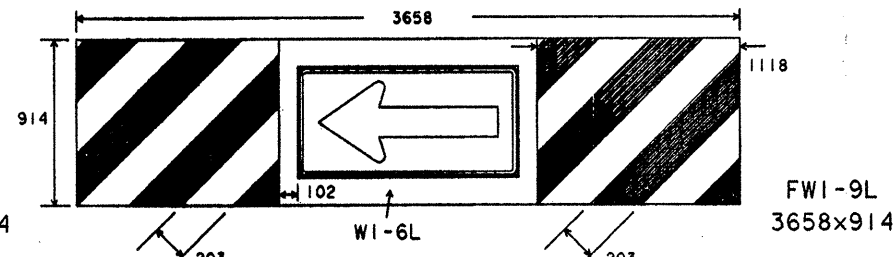
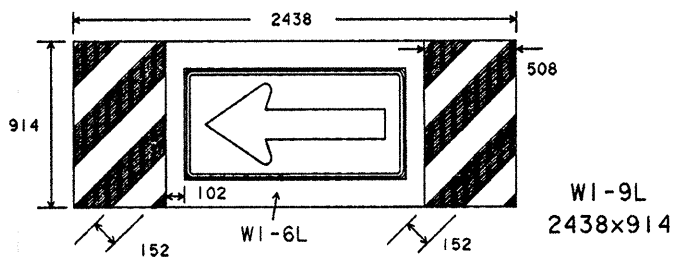
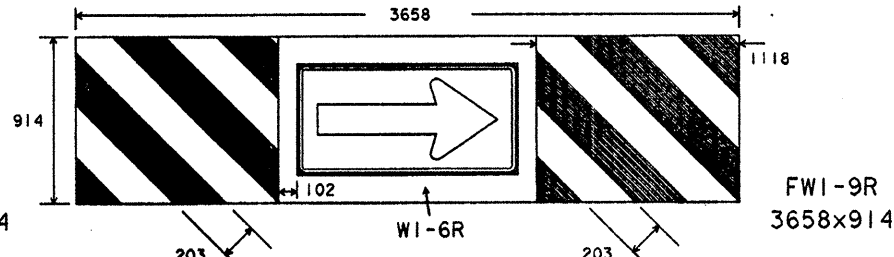
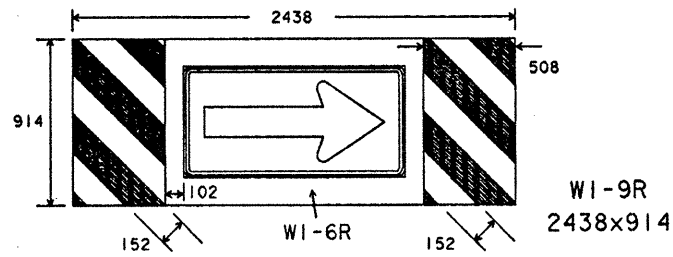
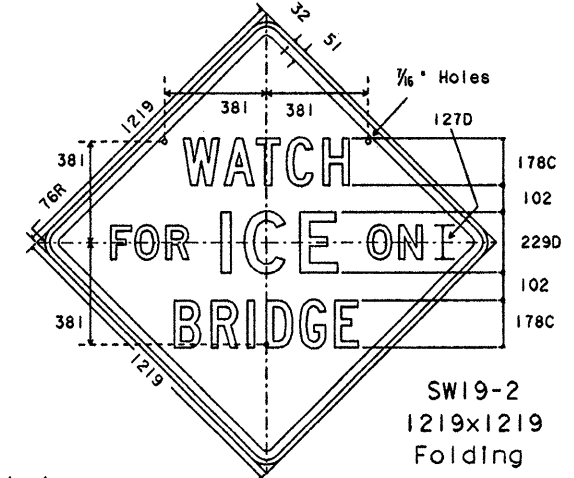
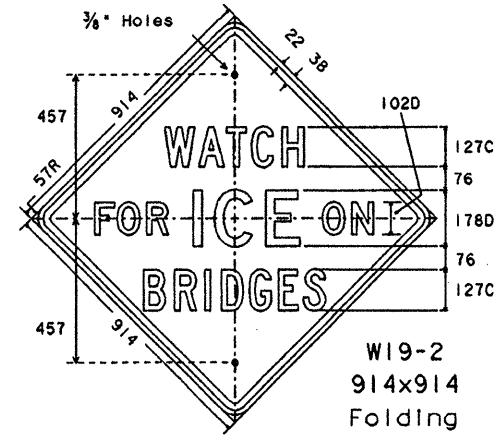
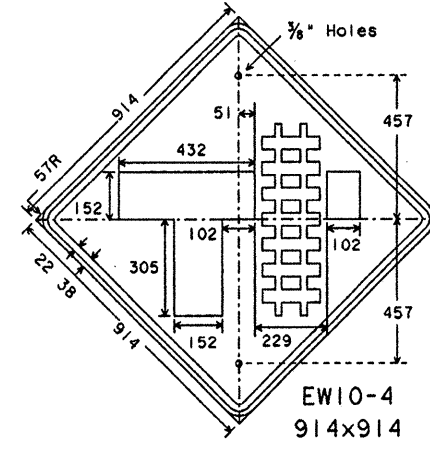
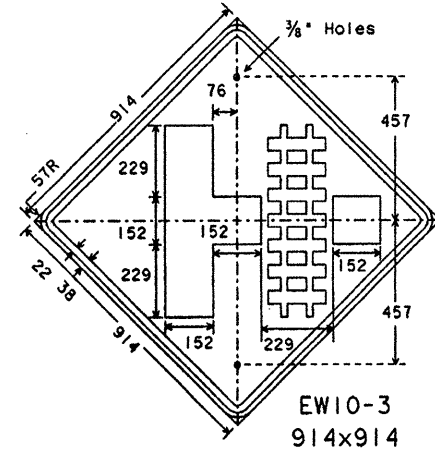
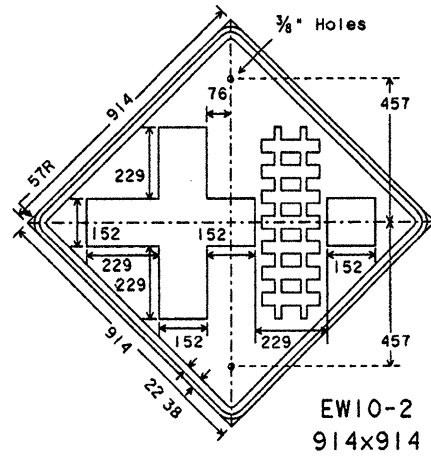
STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

WARNING SIGNS

W(2)-95(M)

ORIG. DATE: January 1981	DN: LR	CK: CW	DW: DN	CK: MT	REV. NO.:
REVISIONS:	STATE DISTRICT:	FEDERAL PROJECT:	SHEET		
	21	NH96(791) M	473		
	COUNTY:	CONTROL SECTION:	JOB:	HIGHWAY:	
	HIDALGO	03917	110	US83	

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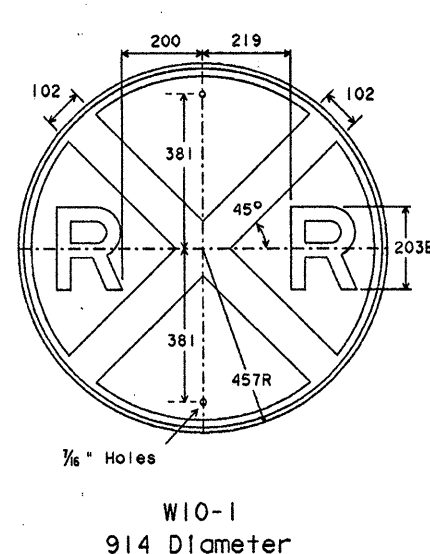
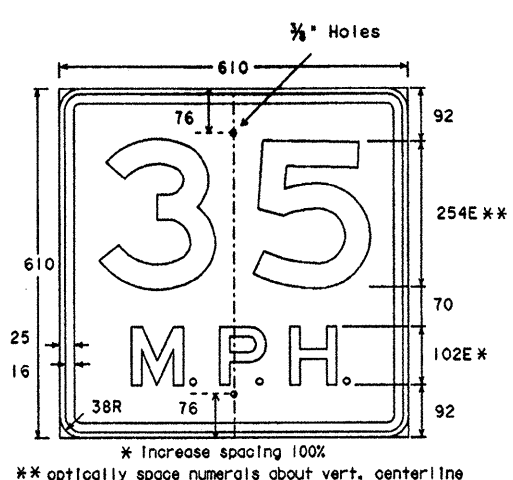
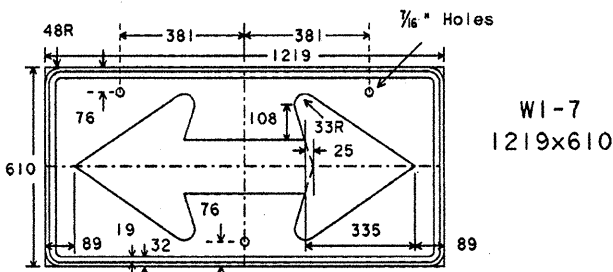
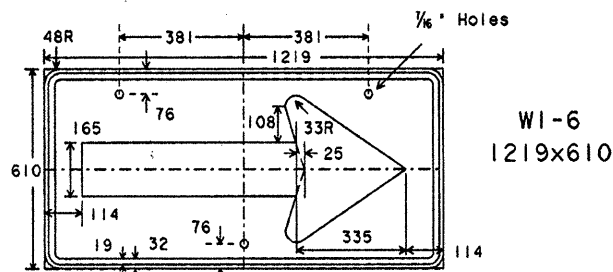
Aluminum folding signs shall use 76 mm flat hinges, three per sign. The hinge slot on each half of sign is 16 mm deep by 84 mm wide. The sign halves are separated by 2 mm when hinges are installed to the back of the sign with four 5 mm pop rivets. Location of hinges on the sign are as shown on above detail.

Plywood folding signs shall use 152 mm strap hinges, three per sign. The hinge slot on each half of sign is 16 mm deep by 82 mm wide. The hinges are bent with tapered side of holes on the external side, and attached to the back of sign with pivot extending through to front of sign. Attachment of each hinge will be with four each of 10x24x1 flat head screws with a tapered head shank, 5/16" x 3/16" flat washers and 3/16" bolt x 7/16" wrench hex nuts. Hinge bending and location on sign are as shown on above details.

SPECIFICATION REFERENCE TABLE		
MATERIALS AND TESTS DIVISION SPECIFICATIONS		
PLYWOOD SIGN BLANKS		D-9-7100
ALUMINUM SIGN BLANKS		D-9-7110
Square Ft.	Min. Thickness	
Less than 7.5	0.080	
7.5 to 15	0.100	
Greater than 15	0.125	
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)		D-9-8300
VINYL NON-REFLECTIVE DECAL SHEETING		D-9-8320

GENERAL NOTES:
The alphabets and lateral spacing between letters and numerals shall conform with the Texas 'Manual on Uniform Traffic Control Devices for Streets and Highways', latest edition, and any approved changes thereto. Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications. Legend (except where noted), shall be black and applied by screening process, cut-out vinyl non-reflective decal sheeting or combination thereof. Background shall be yellow reflective sheeting (Type C). Sign blanks shall be fabricated as specified in the plans of one piece 5/8 inch thick plywood (Type A) or one piece aluminum alloy (Type A) of the approved thickness. Large arrow signs W1-9, W1-10, FW1-9 and FW1-10 shall be composed of a standard W1-6 or W1-7 sign attached directly to the background material.

All dimensions are in millimeters unless otherwise noted. The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the '1980 Standard Highway Sign Designs for Texas' manual.



STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

WARNING SIGNS

W(3)-95(M)

DATE: JULY 1990	DN: LR	CR: -	DN: DN	CR: -	REV: 1
REVISIONS	STATE DISTRICT	FEDERAL PROJECT	CONTROL SECTION	JOB	SHEET
8-90	21	NH96(791) M			474
8-95	6				
	COUNTY	CONTROL SECTION	JOB	REVISION	
	HIOALGO				

DN: LR
CR: -
DN: DN
CR: -
FILE: -

DATE: -

ACC: d58mp1c/usr/d580504

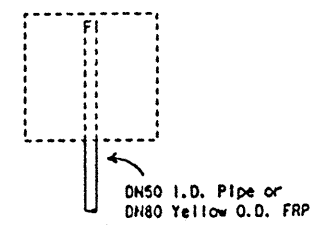
FILE: -

LEVELS DISPLAYED

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

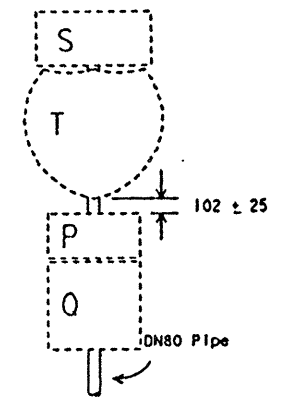
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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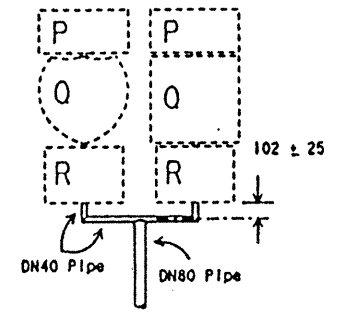
Type A

THIS TYPE PIPE MOUNT OR YELLOW FIBERGLASS REINFORCED PLASTIC (FRP) SUPPORT MAY BE USED FOR ANY SIGN OR COMBINATION OF SIGNS WITH THE SIGN AREAS INDICATED BELOW, EXCEPT FR6-1 AND W1-6 SIGNS (SEE TYPE D-1). MAX. OF 0.93 sq. m. FOR DN50 PIPE MOUNT MAX. OF 1.5 sq. m. FOR DN80 FRP MOUNT THE AREA OF THE REGULATORY OR WARNING SIGN SUPPLEMENTARY PLAQUES SHALL NOT BE USED IN DETERMINING THE ABOVE SIGN AREA.



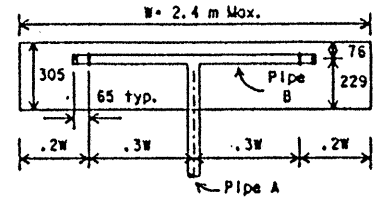
Type A-1

THIS TYPE PIPE MOUNT TO BE USED FOR A 914 OR 1143 mm INTERSTATE ROUTE MARKER WITH A 610 OR 762 mm ROUTE MARKER ON MAIN LANES OR AS A SPECIFIED OPTIONAL SUBSTITUTE FOR TYPE B.

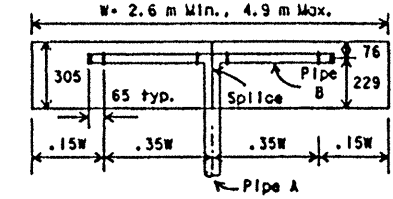


Type B

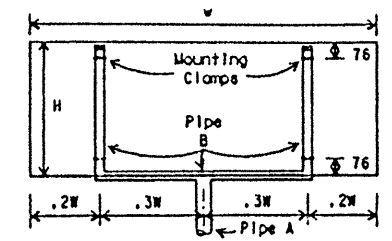
THIS TYPE PIPE MOUNT TO BE USED WITH 2 ROUTE MARKER ASSEMBLIES.



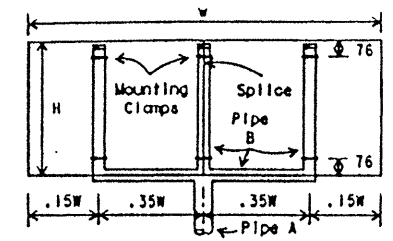
Type D-1 A=DN50 B=DN40



Type D-3 A=DN65 B=DN40



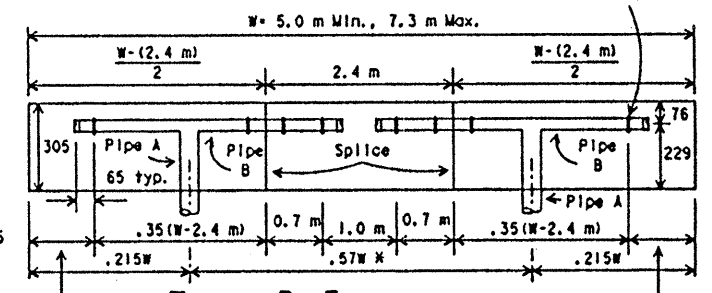
Type D-2 A=DN65 B=DN40



Type D-4 A=DN80 B=DN50

NOTE: (FOR TYPE D-1)

- FOR "ONE WAY" SIGNS (FR6-1, 1219x406), MOUNTING CLAMPS ARE SPACED 711 mm APART. THE TOP OF SIGN IS 203 mm ABOVE CENTERLINE OF PIPE B.
- FOR "LARGE ARROW" SIGN (W1-6, 1219x610), MOUNTING CLAMPS ARE SPACED 762 mm APART.

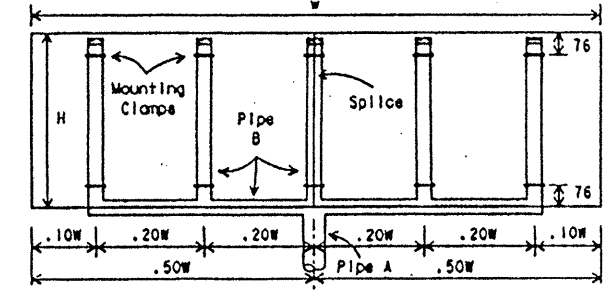


Type D-5 A=DN65 B=DN40

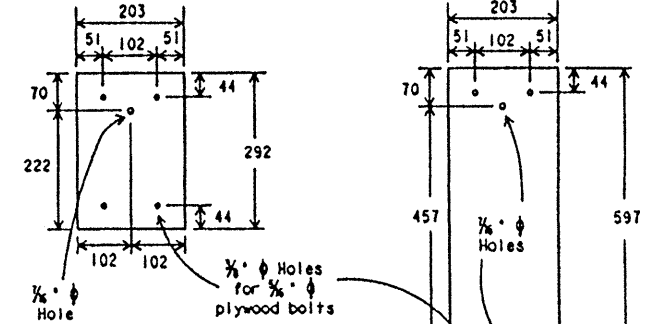
NOTES: (FOR TYPES D-1 THROUGH D-6)

- SPLICE PLATES REQUIRED AT SPLICE POINTS.
- THE SIGN BLANKS SHALL BE 16 mm THICK PLYWOOD CONFORMING WITH DEPARTMENTAL MATERIAL SPECIFICATION D-9-7100, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

MOUNT TYPE	H	Min	Max
D-2	610 mm	n/a	2.4 m
	762 mm	n/a	2.0 m
	914 mm	n/a	1.7 m
D-4	610 mm	2.6 m	3.8 m
	762 mm	2.4 m	3.2 m
	914 mm	1.8 m	2.4 m
D-6	610 mm	4.0 m	4.1 m
	762 mm	3.0 m	3.4 m
	914 mm	2.6 m	2.7 m



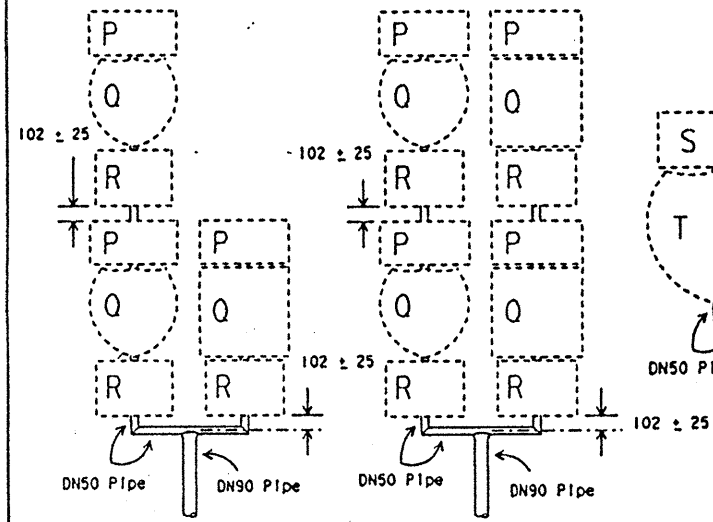
Type D-6 A=DN80 B=DN50



Splice Plates

SPLICE PLATES SHALL BE 3 mm STEEL PLATE (ASTM A36M) OR 3 mm ALUMINUM PLATE (ASTM B209 ALLOY 6061-T6 OR 5052-H38). STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

- 1 INCLUDES PARENT SIGNS OF THIS SIZE WHICH HAVE SUPPLEMENTARY PLAQUE. EXAMPLE: WHEN "DO NOT ENTER" SIGN (SR5-1, 1219x1219) IS MOUNTED IN COMBINATION WITH THE "RAMP" PLAQUE (R5-1T, 1219x457), THE "DO NOT ENTER" IS MOUNTED AS A 1219x1219 REGULATORY SIGN AND THE "RAMP" IS MOUNTED AS A PLAQUE.
- 2 SPEED LIMIT SIGNS FR2-2, FR2-3 AND FR2-4 ARE MOUNTED ONLY IN COMBINATION WITH "SPEED LIMIT" FR2-1 ON TYPE G MOUNT. "TRUCK SPEED LIMIT" SIGN (FR2-2A, 1219x1829) IS TO BE MOUNTED INDEPENDENTLY ON TYPE G MOUNT. SEE STANDARD SMO (TY G) FOR DETAILS. WHEN "WRONG WAY" SIGN (SR5-1A, 1219x914) IS MOUNTED IN COMBINATION WITH "DO NOT ENTER" SIGN (SR5-1, 1219x1219), TYPE G MOUNT IS USED.
- 3 SCHOOL ADVANCE (SS1-1, 1219x1219) AND SCHOOL CROSSING (SS2-1, 1219x1219) SYMBOL SIGNS SHALL BE MOUNTED ON A TYPE F MOUNT.



Type C

THIS TYPE PIPE MOUNT TO BE USED:
 1. WHEN 3 OR 4 ROUTE MARKERS ARE REQUIRED, OR
 2. FOR A 914 OR 1143 mm INTERSTATE ROUTE MARKER WITH TWO OR THREE 610 AND/OR 762 mm ROUTE MARKERS.

- P = 610x305 Cardinal Direction Marker
- O₁ = 610x610 Interstate, US or State Route Marker
- O₂ = 762x610 Interstate or US Route Marker
- R = 533x381 Direction Arrow
- S = 762x381 Cardinal Direction Marker
- T₁ = 914x914 (2) digit Interstate Route Marker
- T₂ = 1143x914 (3) digit Interstate Route Marker

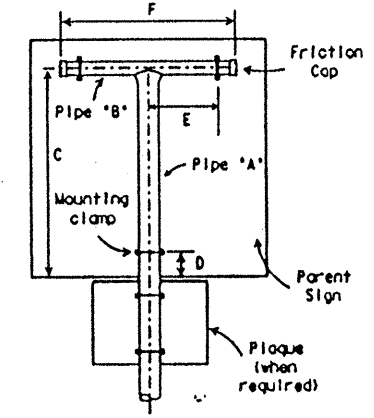
Marker Combinations	"L"
2P+2O+2R+7"	2.77 m
P+2O+2R+7"	2.46 m
2O+2P+7"	2.00 m
O+R+3"	1.06 m
S+T+3"	1.37 m
P+O+R+3"	1.37 m
P+O+S+T+7"	2.38 m

See table at right for values of "L"

DIMENSION "S"

DIMENSION "S" EQUALS THE DISTANCE FROM THE CENTERLINE OF UPRIGHT TO THE CENTERLINE OF CLEARANCE BETWEEN SIGN GROUP.

- "S" = 419 mm for O₁
- "S" = 495 mm for O₂
- "S" = 572 mm for T₁
- "S" = 686 mm for T₂



Type F Mount

GENERAL NOTES FOR SIGN SUPPORT TYPES A, B, C, D AND F

- TYPE A SUPPORT SHALL BE PIPE OR YELLOW FRP. FRP MOUNTS SHALL MEET DEPARTMENT SPECIFICATION D-9-4410.
- PIPE COLLAR COUPLING SHALL BE USED FOR ALL SIGNS SUPPORTED ON DN50 AND DN65 PIPE POSTS.
- TRIANGULAR SLIP BASE SHALL BE USED FOR SIGNS SUPPORTED ON DN80 AND DN90 PIPE POSTS.
- MOUNTING CLAMP, VERTICAL CLEARANCE AND LATERAL CLEARANCE DETAILS ARE SHOWN ON STANDARD SMD(1-2) (M).
- WELDED PIPE MOUNT, FRICTION CAP, PIPE COLLAR COUPLING, TRIANGULAR SLIP BASE AND FOUNDATION DETAILS ARE SHOWN ON STANDARD SMD(1-3) (M) AND SMD(1-4) (M).

Type F Mount Dimensions

Type of Sign	Pipe "A"	Pipe "B"	C	D	E	F	
Regulatory Signs	SR1-1	DN80	DN50	991	229	381	889
	FR1-2	DN80	DN50	1092	533	279	686
	914x1219	DN80	DN50	1067	152	305	737
	1219x914	DN80	DN50	762	152	381	889
	1219x1219	DN80	DN50	1067	152	381	889
Warning Signs	1219x1219	DN80	DN50	1213	451	381	889
	1219x1524	DN80	DN50	1372	152	381	889
School Signs	SS1-1	DN80	DN50	762	152	305	762
	SS2-1	DN80	DN50	762	152	305	762

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

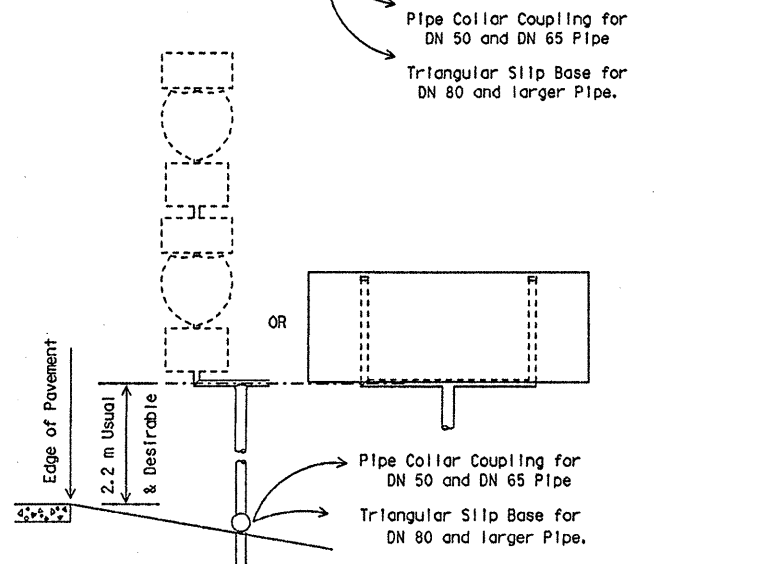
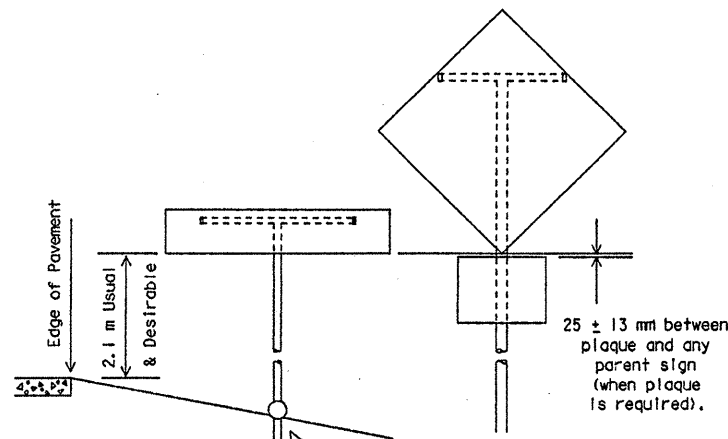
SIGN MOUNTING DETAILS-
 SMALL ROADSIDE SIGNS
 SMD(1-1)-95(M)

DATE	BY	CHK'D	APP'D	REV.	DATE
21	6				

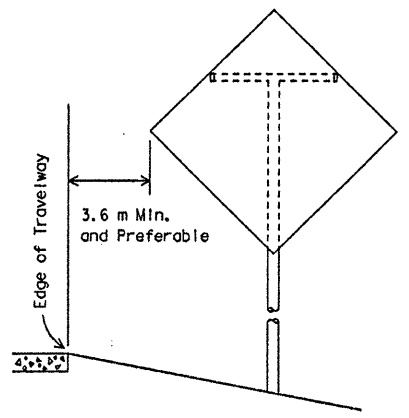
NEW 8/28/96

All dimensions are in millimeters unless otherwise noted.

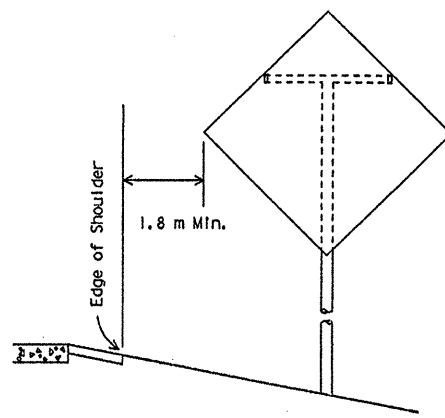
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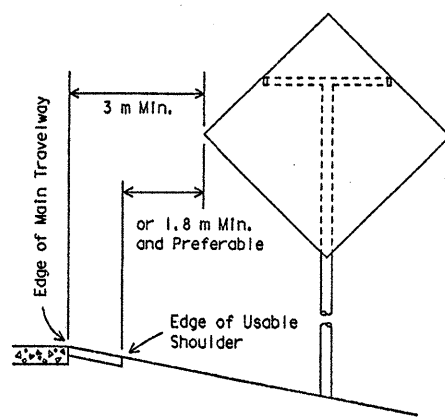
VERTICAL CLEARANCE OF SMALL SIGNS
ALL TYPES OF ROADWAYS



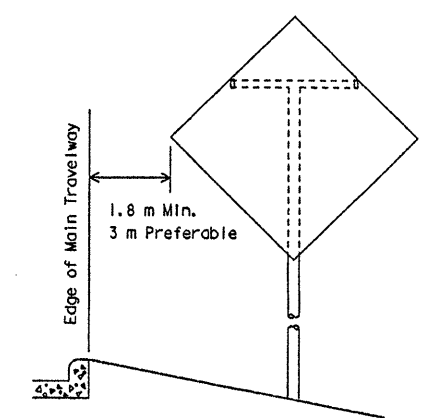
Rural Conventional Highway
without shoulder.



Rural Conventional Highway
with shoulder.

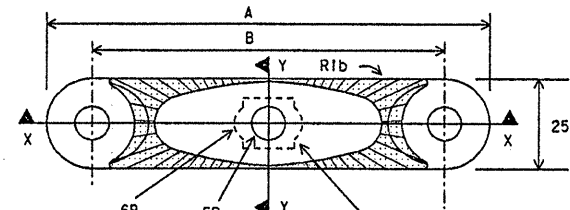


Expressways or Freeways
without curb or with mountable curb.

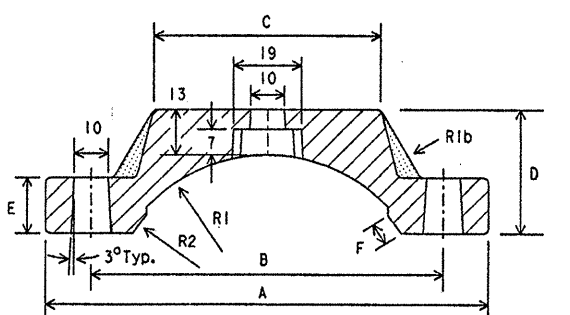


Expressways or Freeways
with unmountable curb.

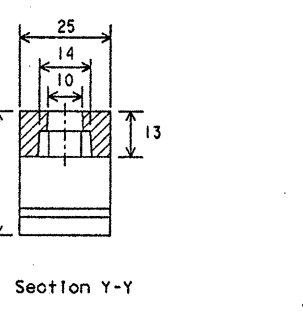
LATERAL CLEARANCE OF SMALL SIGNS
TO THE RIGHT OR LEFT SIDE OF ROADWAY



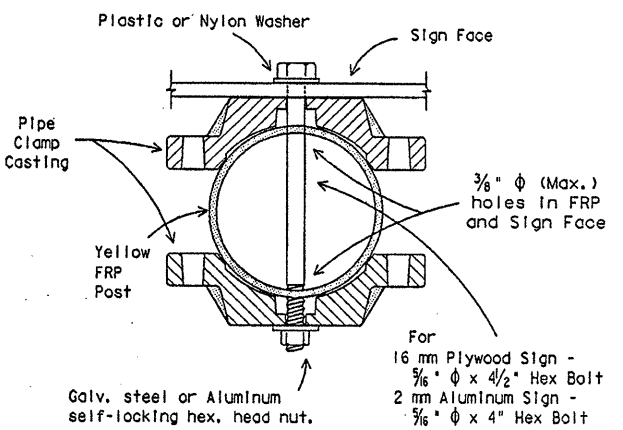
Slot to hold head of 5/16" sq. head bolt. The bolt shall be 1' long for metal signs and 1 3/4' long for plywood signs, with full threads, a medium washer, and galv. steel or aluminum self-locking hex head nut. The bolt head must not turn in slot.



Section X-X
Section Y-Y



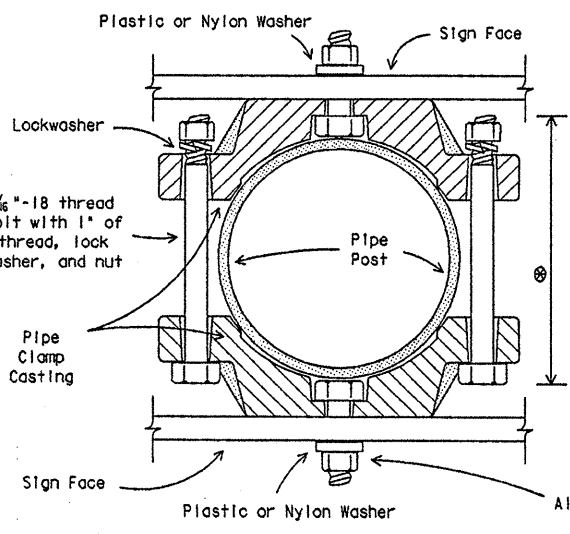
U-Bolt



NOTE: Type A support shall be pipe or Yellow FRP. FRP mounts shall meet Departmental Material Specification D-9-4410.

Typical Detail
Yellow Fiberglass Reinforced Plastic (FRP) Mounting

- GENERAL NOTES:
- All clearances apply to both rural and urban locations, except as noted.
 - Where physical features of the roadway will permit, maximum lateral clearances are desirable. For frontage roads, ramps and other connecting roadways, lesser clearances may be used, but generally no less than 1.8 meters is recommended between the edge of the travelway and the edge of the sign. At intersections, signs should be positioned in the optimum location for viewing by traffic.
 - Where necessary, the minimum allowable clearance of .6 meter may be used in urban locations on conventional highways.
 - Where a sign is to be located behind guardrail, the allowable minimum clearance may be used, measured from the face of the guardrail to the near edge of the sign.
 - Lateral clearances of signs mounted on left side of roadway are the same as shown above where space will permit.



Typical Detail
Back to Back Mounting of Signs

Approx. Bolt Length ~ Pipe Size

2 1/8"	DN32
2 1/2"	DN40
2 3/4"	DN50
2 7/8"	DN65
3 1/8"	DN80

Bolt Length to be adjusted to fit field conditions.

Pipe clamp casting shall be ASTM B26 or B108 aluminum alloy A444, 0-T4 or 356, 0-F.

All sign mounting clamp parts not made from aluminum shall be galvanized steel in conformance with ASTM A153 Class A or stainless steel.

All dimensions have been rounded. The metric dimensions indicated should be considered equivalent to the English dimensioned clamp.

Dimensions for Mounting Clamp

Standard Pipe Size	A	B	C	D	E	F	G	K	L	R1	R2
DN32	78	53	19	24	11	5	16	54	21	23	21
DN40	83	58	25	27	11	5	16	62	25	25	24
DN50	95	70	38	29	13	5	25	68	31	32	30
DN65	108	82	51	32	13	6	25	81	37	38	36
DN80	124	98	64	35	16	6	25	97	45	46	44

All dimensions shown in chart are in millimeters.

MOUNTING CLAMP DETAILS

All dimensions on this sheet are in millimeters unless otherwise noted.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

SIGN MOUNTING DETAILS-
SMALL ROADSIDE SIGNS
SMD(1-2)-95(M)

DATE: AUGUST 1995

DESIGN	21	6	M496(791)	M	476
COUNTY	Hidalgo	SECTION	2039	JOB	1118
DATE	08/28/96	BY		APP	

DN: LR
CK: CW
DW: DN
CK: MT

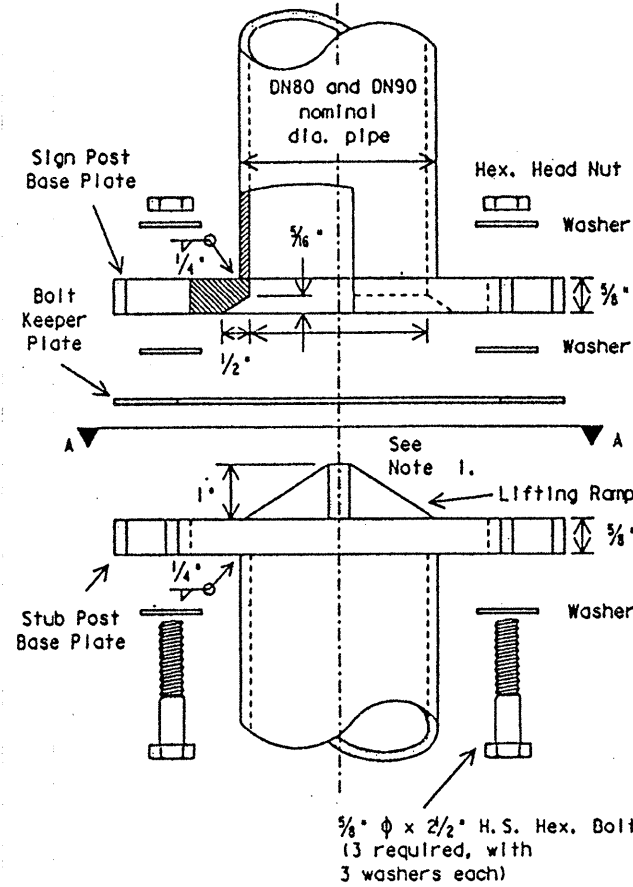
DATE: 08/28/96

ACC: d58np1c/usr/d580504

FILE: 08/28/96 10:11:11

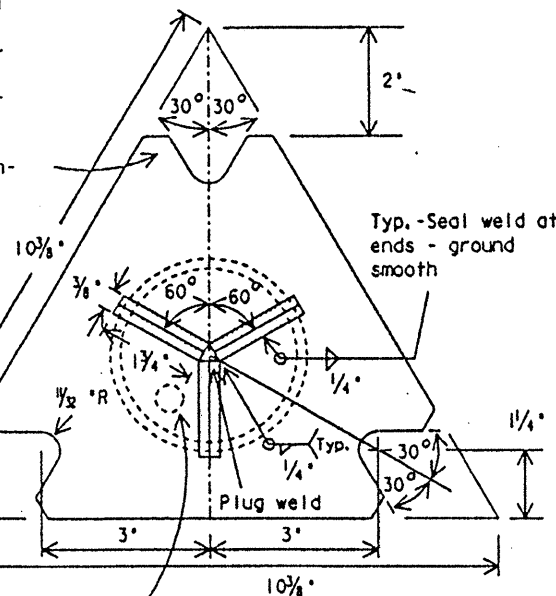
DISCLAIMER
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

TRIANGULAR SLIP BASE DETAILS



SIGN POST & STUB POST ELEVATION

The bevel end shall be tangent to the bolt hole. Any misalignment shall be corrected by grinding. Face of bevel shall be finished to a minimum smoothness of $f=500$.



VIEW A-A

Provide 1/2" dia. (max.) hole in the Stub Post Base Plate within the inside radius of the stub post for galvanized drainage.

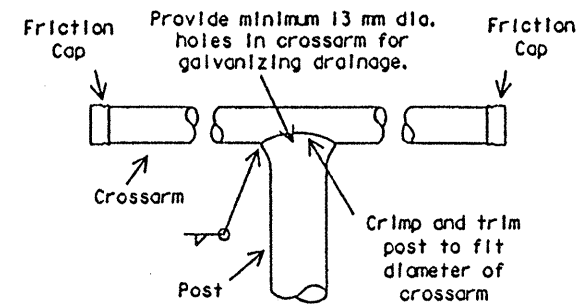
TRIANGULAR SLIP BASE NOTES:

1. The lifting device may consist of welded ramps or a conical shape formed into the center of the Stub Post Base Plate.
2. The Sign Post Base Plate of the Triangular Slip Base shall have the same exterior dimensions as the bottom plate. The lifting device shall be a part of the Stub Post Base Plate only. A hole equal to the inside diameter of the Sign Post shall be cut through the center of the Sign Post Base Plate with the hole edge beveled as detailed.
3. The Base Plates and lifting device shall conform with the requirements of ASTM A36 or A572 Grade 50.
4. All structural steel shall be galvanized in accordance with ASTM A123. The entire support shall be galvanized from the top down to a minimum depth of 152 mm into the foundation. All nuts, bolts and washers shall be galvanized in accordance with ASTM Designation: B695 Class 50 or A153 Class C or D.
5. All high strength bolts shall conform to ASTM A325 (ASTM A449 may be substituted for ASTM A325 provided proper bolt head, nut and/or washer clearances are maintained). All high strength nuts shall be of such capacity as to develop the bolt strength.

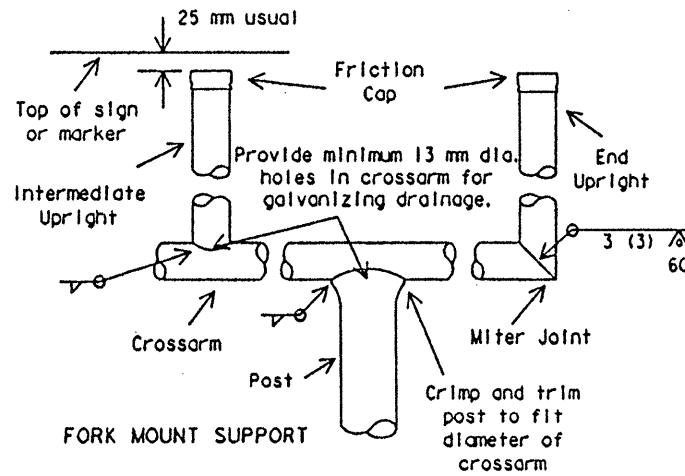
BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

- 1 Assemble Sign Post, Bolt Keeper Plate and Stub Post with bolts and three flat washers per bolt as shown.
- 2 Shim as required to plumb post.
- 3 Tighten all bolts the maximum possible with a 12 to 15 inch wrench to clean bolt threads and to bed washers and shims.
- 4 Loosen each bolt in sequence and retighten bolts in a systematic order to the prescribed torque of 440 to 450 inch pounds or 36 to 38 foot pounds. DO NOT OVERTIGHTEN.
- 5 To prevent nut loosening, burr threads of bolt at junction with nut using a center punch.

WELDED PIPE MOUNT DETAILS



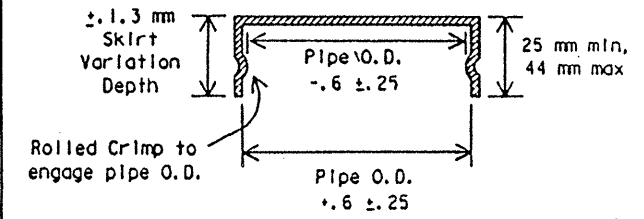
TEE MOUNT SUPPORT



FORK MOUNT SUPPORT

The contractor at his option may furnish standard weight pipe conforming to ASTM Specification A53 Grade B, A501 or any other standard weight steel pipe. Pipe may be of either electric resistance welded or seamless type, with a minimum yield strength of 241,325 kPa and a minimum elongation of 15 percent in 51 mm. Pipe shall have outside diameters and wall thicknesses which are equivalent to or better than those specified hereon.
All pipes to be welded shall be of weldable quality.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 0.61 mm (24 gauge) for cap sizes. The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.
Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

Support and design shall conform with AASHTO Standard Specifications for structural supports of Highway signs, luminaires and traffic signals with a design wind speed of 60 mph.
Steel pipe shall be galvanized in accordance to ASTM Designation A123.

All dimensions are in millimeters unless otherwise noted.

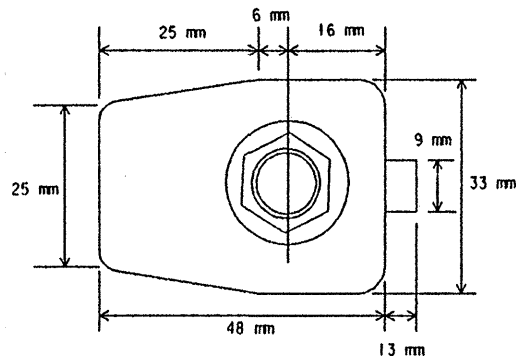
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

SIGN MOUNTING DETAILS- SMALL ROADSIDE SIGNS

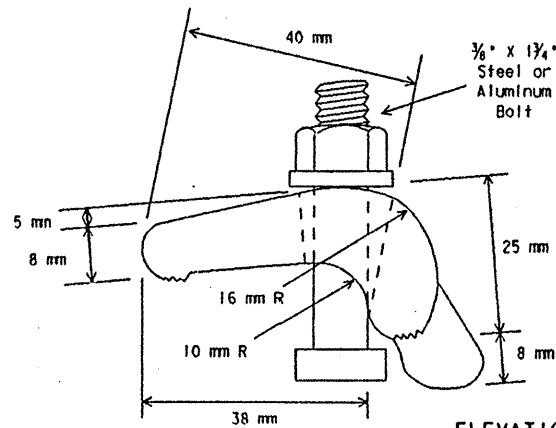
SMD(1-3)-95(M)

DATE: August 1995	REV: LR	BY: DM	CHK: DM	APP: DM
21	6	NH96(79)	M	477
Hidalgo	0039	17	118	109 83

NEW 5/28/96



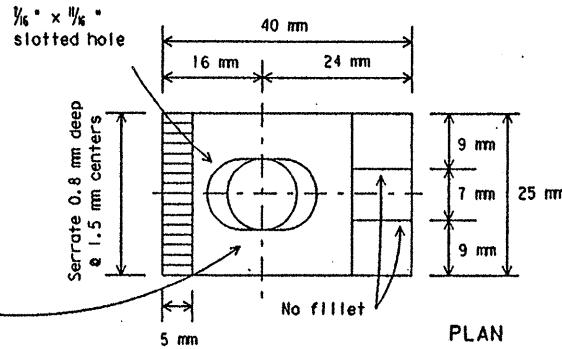
PLAN



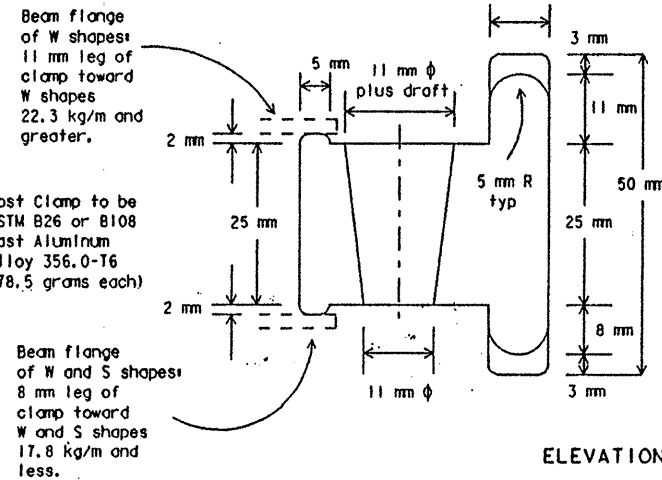
ELEVATION

ALTERNATE POST CLAMP DETAIL

NOTE: centerline of hole for 3/8" diameter squarehead bolt x 2 1/4" long with a flat washer and self-locking nut, or lock washer and hex. nut. Bolt head dimensions shall be in accordance with ANSI B 18.2.1 as referred to in the AISC Manual of steel construction. Bolt assembly shall be galvanized.



PLAN

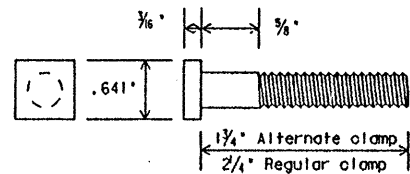


ELEVATION

Beam flange of W shapes: 11 mm leg of clamp toward W shapes 22.3 kg/m and greater.

Beam flange of W and S shapes: 8 mm leg of clamp toward W and S shapes 17.8 kg/m and less.

POST CLAMP DETAIL

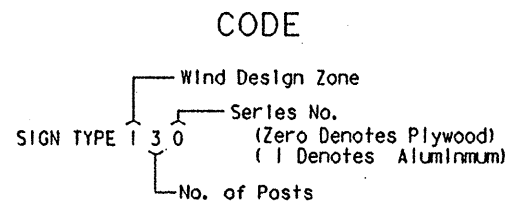


POST CLAMP BOLT DETAIL

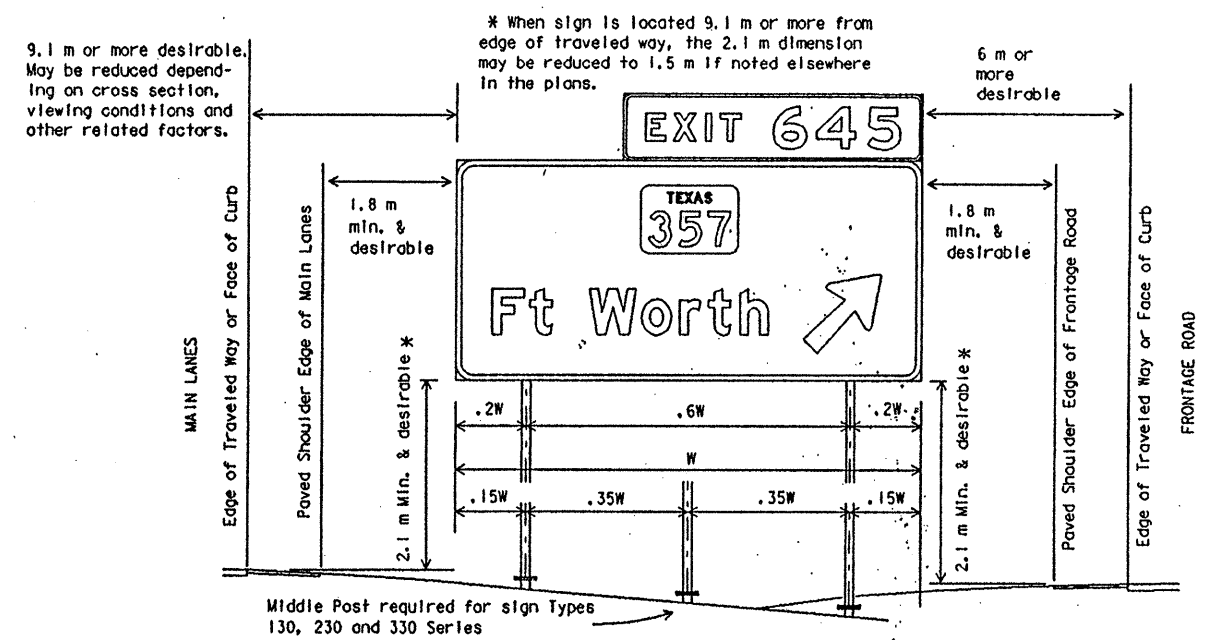
WIND BEAM TABLES

For sign widths not listed, select next larger sign width from tables for maximum wind beam spacing.

Example: Sign Code = 120, Sign Width = 4.4 m → select 4.6 m Sign Width
Max. Wind Beam Spacing = 914 mm



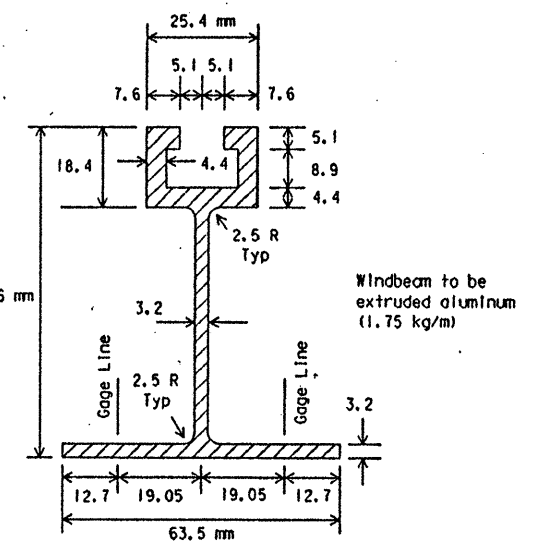
Zone	Sign Width (W) (meters)	Two Posts								Three Posts													
		Zone 1 (Types 100)				Zone 2 (Types 200)				Zone 3 (Types 300)				Zone 1 (Types 100)				Zone 2 (Types 200)				Zone 3 (Types 300)	
Zone 1 (Types 100)	1.2 thru 3.6	4.0	4.3	4.6	4.9	5.2	5.5	5.8	6.1	6.4	6.7	7.0	7.3	7.6	7.9	8.2	8.5						
Zone 2 (Types 200)	1.2 thru 4.9	5.2	5.5	5.8 thru 7.3	7.6	7.9	8.2	8.5	1.2 thru 4.9	5.2	5.5	5.8 thru 7.3	7.6	7.9	8.2	8.5							
Zone 3 (Types 300)	1.2 thru 5.5	5.8 thru 8.5							1.2 thru 5.5	5.8 thru 8.5													
Max. Wind Beam Spacing	1219 mm	1118	1016	914	813	711	610	1219	1143	1067	991	914	838	762	686	610	1219 mm						



TYPICAL SIGN INSTALLATION AND LOCATION

LATERAL CLEARANCE NOTES:
Lateral clearances of signs mounted on median side of main lanes are the same as shown above where space will permit.
Where a sign is to be located behind guardrail, an allowable minimum clearance of 0.6 meter may be used, measured from the face of the guardrail to the near edge of sign.

POST SPACING NOTES:
Post spacing on a two post sign may vary a maximum of plus or minus 10% of total sign width to fit field conditions.
Post spacing on a three post sign may vary a maximum of plus 5% of total sign width to fit field conditions.



WINDBEAM CROSS SECTION

SPECIFICATION REFERENCE TABLE		DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN HARDWARE		D-9-7120	

- GENERAL NOTES:**
- Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
 - Materials and fabrication shall conform to the requirements of the Department material specifications.
 - Structural steel shall conform to the item, "METAL FOR STRUCTURES."
 - Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface treated with zinc-based solder or zinc-rich paint in accordance with ASTM A780. (Cut surface will not be treated until plate is installed and all bolts fully tightened.)
 - Exit number panel shall be mounted to the right hand side of the parent sign for right exits and to the left for left hand exits. The number panel shall be mounted with two uprights so its right edge is even with the right edge of the parent sign or vice-versa for left hand exits.

All metric dimensions have been rounded and should be considered equivalent to English hardware and specifications. All dimensions are in millimeters unless otherwise noted.

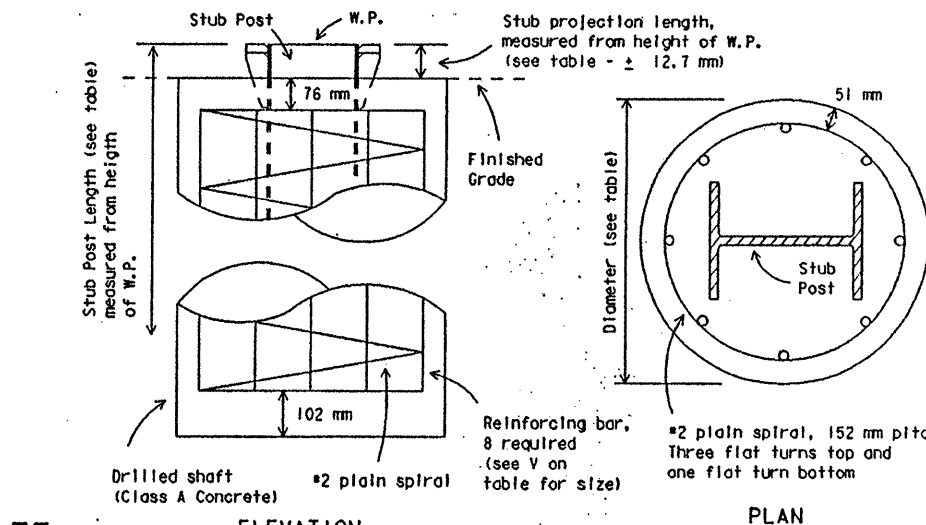
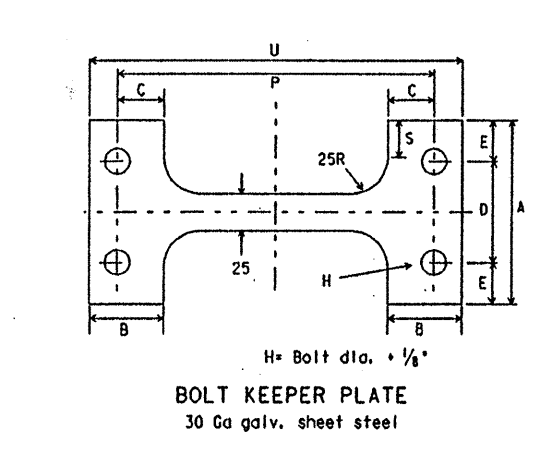
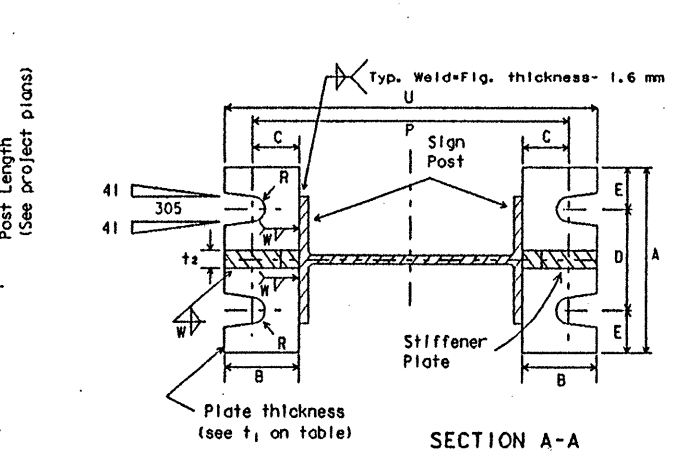
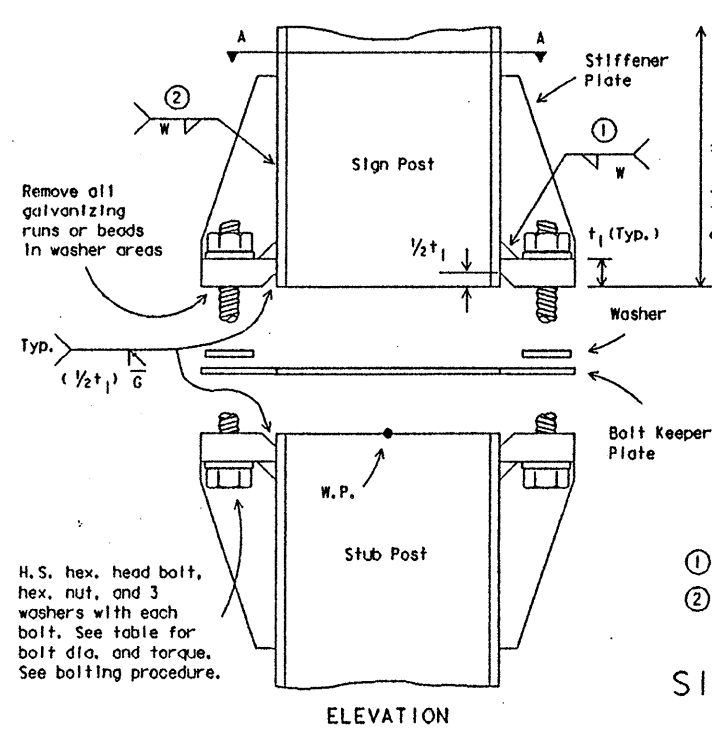
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

**SIGN MOUNTING DETAILS-
LARGE ROADSIDE SIGNS
STRUCTURE**

SMD (2-1)-95A (M)

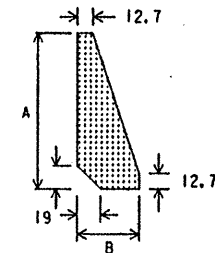
DATE: AUGUST 1995	BY: LR	CHK: DN	APP: DN	REV: 1	SHEET: 479
PROJECT: NH96 (991) M	COUNTY: HIDALGO	SECTION: 0034	JOB: 17	DATE: 11.8	BY: 0283

NEW 5/28/96

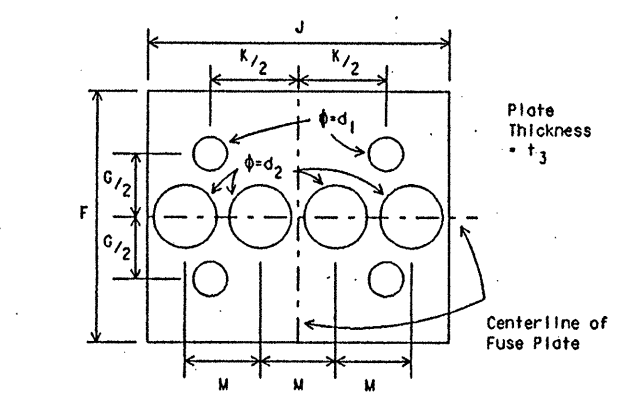
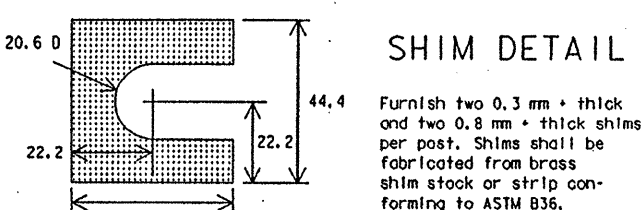


① Back up weld to be made before installing stiffener plate
 ② Weld W may be continued across clips to seal joint

SIGN POST AND STUB POST
 (For W Shapes)



STIFFENER PLATE DETAIL
 Steel Plate (thickness = t2)
 (See table for dimensions)



PERFORATED FUSE PLATE DETAIL
 Use H.S. hex head bolts, hex head nut and bevel or flat washer (where req'd) under nut. All holes shall be drilled. All plate cuts shall preferably be saw cuts. However, flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be permitted. Steel fuse plates shall conform to the requirements of ASTM A36, ASTM A572 Grade 50 or ASTM A588 may be substituted for A36 at the option of the fabricator. Mill test reports shall be submitted for Fuse Plates. Steel used shall have an ultimate tensile strength not to exceed 550 MPa.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

**SIGN MOUNTING DETAILS-
 LARGE ROADSIDE SIGNS
 FOUNDATION & STUB**

SMD (2-2) - 95A (M)

ORIG. DRAW. DATE: AUGUST 1995
 REVISIONS: 1-96

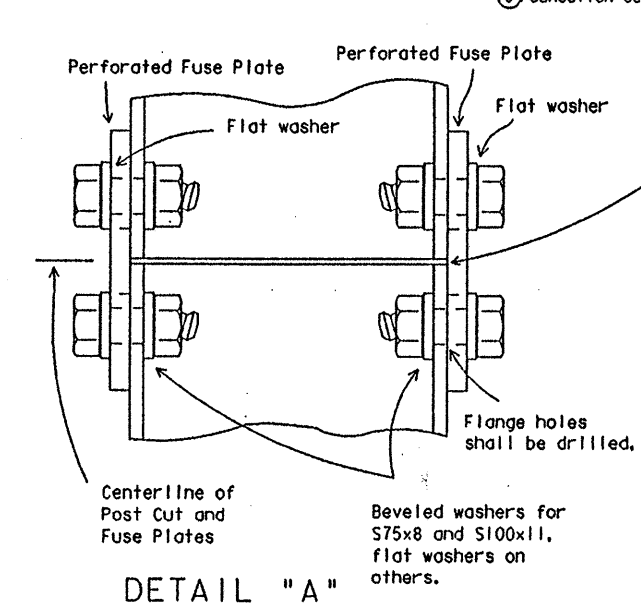
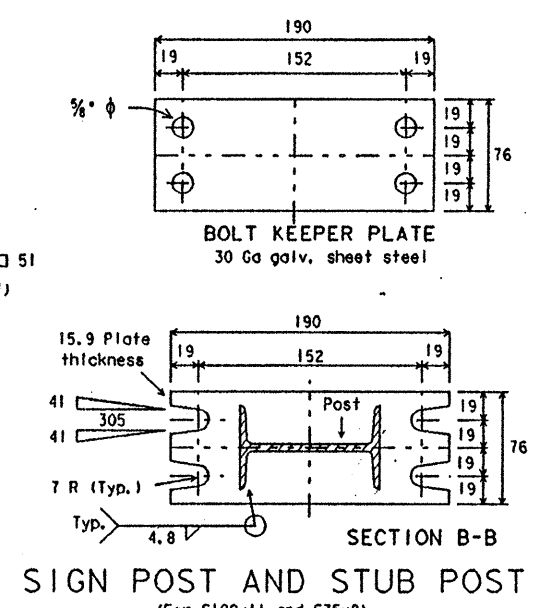
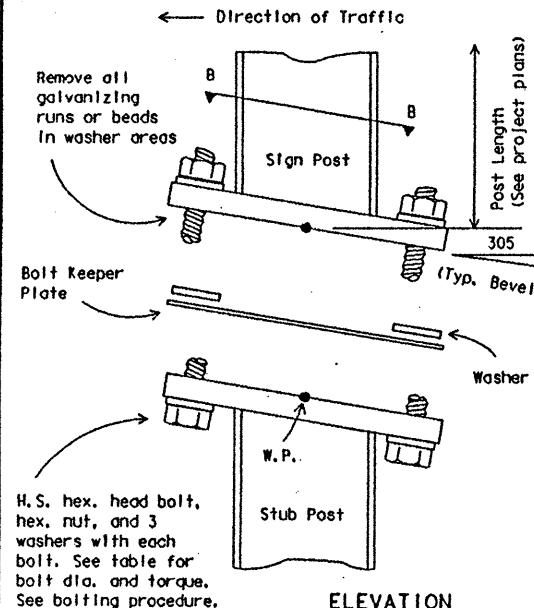
NO.	LR	CU	DN	REV. NO.	SHEET
21	6	NH96 (791)	M	480	
COUNTY	SECTION	JOB	REVISION		
Hidalgo	2039	17 118	09 83		

NEW 5/28/96

- BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:**
1. Assemble sign post, BOLT KEEPER PLATE and stub post with bolts and three flat washers per bolt as shown.
 2. Shim as required to plumb post.
 3. Tighten all bolts the maximum possible with a 12 to 15 inch wrench to clean bolt threads and to bed washers and shims.
 4. Loosen each bolt in sequence and retighten bolts in a systematic order to the prescribed torque. Do not over-tighten.
 5. To prevent nut loosening, burr threads of bolt at junction with nut using a center punch.

Dimensions mm x kg/m Post Size	Base Connection Data Table										Perforated Fuse Plate Data Table										Bolt Keeper Data			Foundation Data					
	Bolt Size & Torque	A	B	C	D	E	t ₁	t ₂	W	R	F	G	J	K	M	d ₁	d ₂	t ₃	Bolt Dia.	Wt. (ea.) (grams)	Bolt length	P	S	U	Stub length	Stub projection	Dr. Shaft diameter	Bar V Size	
W150x14	3/8" φ x 2 3/4"										108	51	102	57	25	3/16"	3/4"	6.4	1/2"	458	1 1/2"	213		251	610	76		#5	
W150x18	440-450 Inch pounds 36-38 foot pounds	126	51	32	70	28	19	12.7	6	8.7	127	64	152	89	38	11/16"	1 1/4"	9.5	3/8"	1138	2 1/4"	216	25	254	610	76		#5	
W150x22											127	64	133	70	32	11/16"	1 1/16"	9.5	3/8"	1025	2 1/4"	270		308	762	76		#6	
W200x27											140	64	133	70	32	13/16"	1"	12.7	3/4"	1520	2 1/4"	279		323	914	64		#8	
W200x31	3/4" φ x 3 1/2"										152	76	146	70	35	13/16"	1 1/8"	12.7	3/4"	1828	2 1/4"	327	38	371	914	64		#9	
W250x33	740-750 Inch pounds 62-63 foot pounds	153	57	35	89	32	25.4	19	8	10.3	152	76	165	89	41	13/16"	1 1/8"	12.7	3/4"	2028	2 1/4"	333		377	914	64		#10	
W250x39											152	76	165	89	41	13/16"	1 1/8"	12.7	3/4"	2028	2 1/4"	381		425	914	64		#11	
W310x39																													
S75x8	1/2" φ x 2 1/2"	See Detail Below										95	38	67	38	16	3/8"	3/8"	6.4	1/2"	272	1 1/2"	See Detail Below			1003	89	305	Non-reinforced ③
S100x11	440-450 Inch pounds 36-38 foot pounds	See Detail Below																											

③ Foundation design shall be Type G Mount, see SMD (TY G) (M).



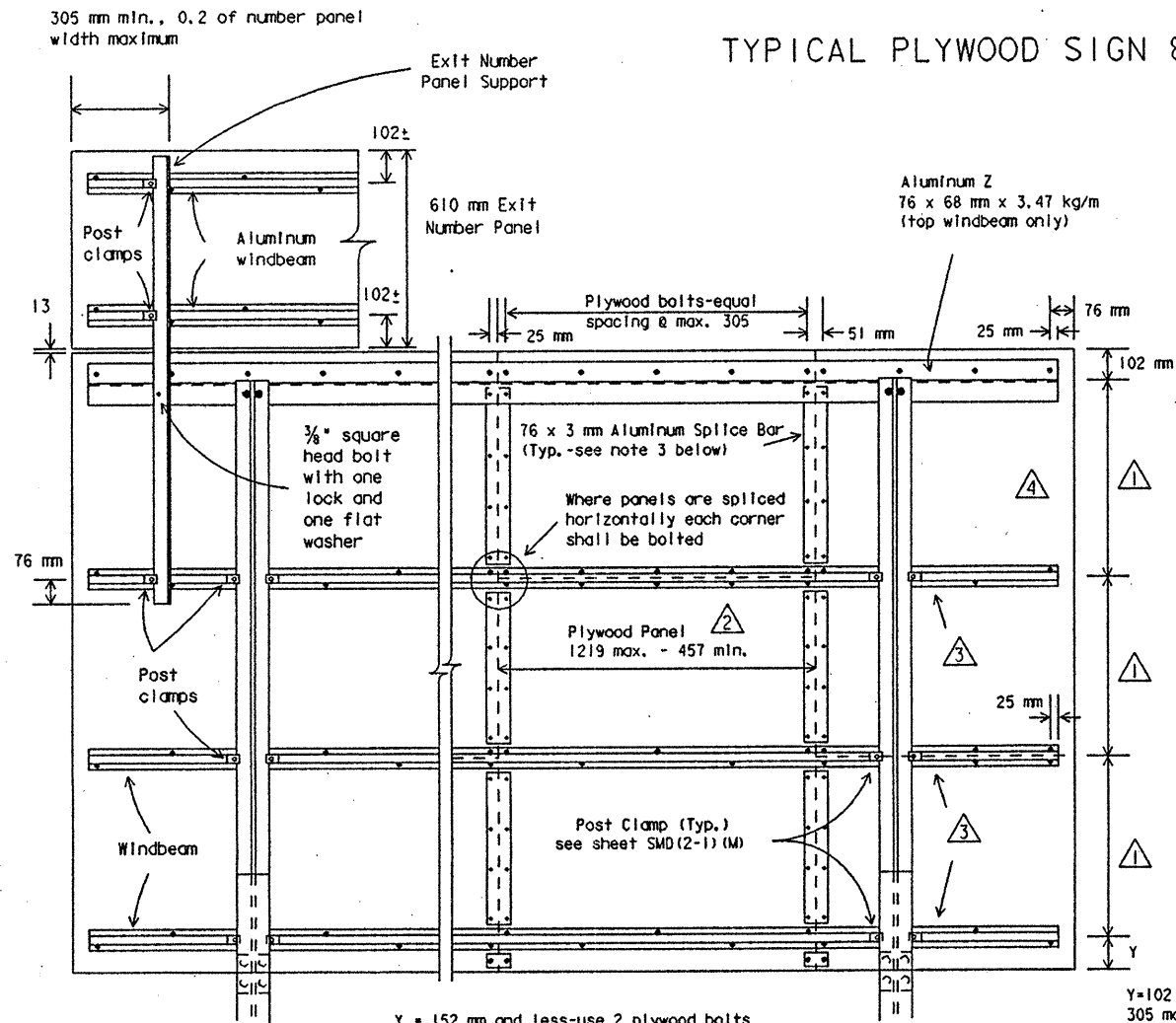
Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface treated with zinc-based solder or zinc-rich paint in accordance with ASTM A780. (Cut surface will not be treated until plate is installed and all bolts fully tightened.)

All metric dimensions have been rounded and should be considered equivalent to English hardware and specifications. All dimensions are in millimeters unless otherwise noted.

SIGN POST AND STUB POST
 (For S100x11 and S75x8)

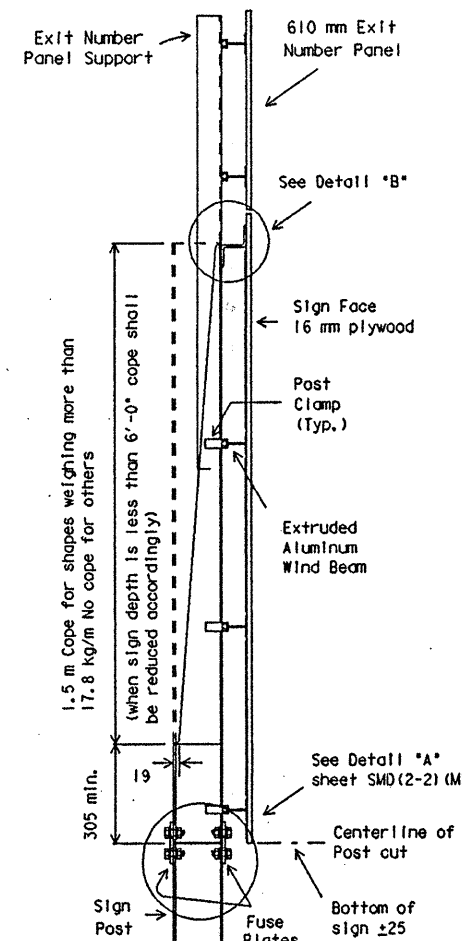
DETAIL "A"

TYPICAL PLYWOOD SIGN & EXIT PANEL ASSEMBLY DETAILS

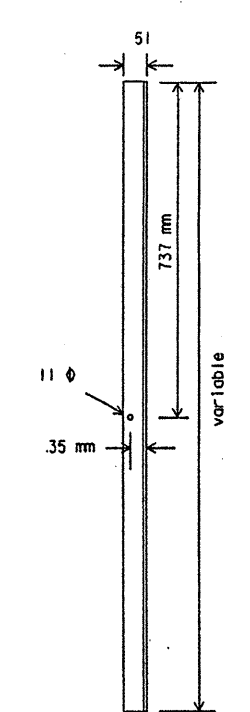


Y = 152 mm and less-use 2 plywood bolts on splice bar
 Y = over 152 mm-use 2 plywood bolts at bottom of splice bar and 2 No. 10 5/8" woodscrews at top of bar

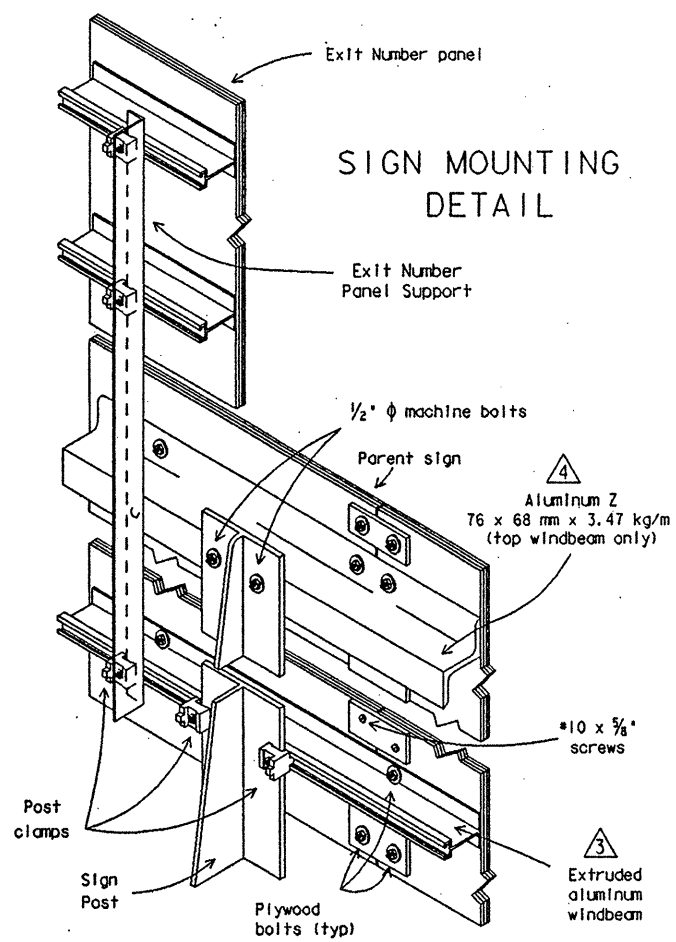
REAR VIEW



SIDE VIEW



EXIT NUMBER PANEL SUPPORT

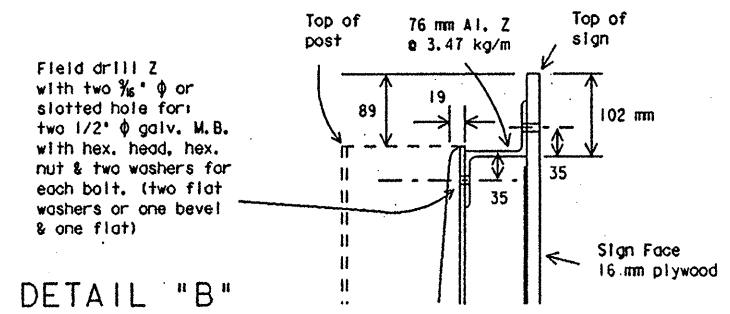


- NOTES:
- Exit number panel shall be mounted to the right hand side of the parent sign for right exits and to the left for left hand exits. The number panel shall be mounted with two uprights so its right edge is even with the right edge of the parent sign or vice-versa for left hand exits.
 - Exit number panel support shall be symmetrical about number panel centerline.
 - Exit number panel support shall be of ASTM A36 structural steel galvanized after fabrication, or ASTM B221 aluminum alloy 6061-T6.
 - All bolts, nuts and washers shall be galvanized per ASTM Designation B695 Class 50, or A153 Class C or D.
 - When splice bars are required to fabricate the number panel, the splice bar detail as shown for the parent sign is to be used. Splice bars on number panel need not align with those on parent sign.
 - Posts, parent sign panels and exit number panels shall comply with notes on sheets SMD(2-1)(M) and SMD(2-2)(M).
 - Signs (such as exit number panels) attached above a parent sign shall be made of the same type material as the parent sign.
 - Exit number panel support and other connection hardware required to fasten exit number panel to parent sign shall be subsidiary to the sign blank.

- NOTES:
- A tolerance of plus or minus 6 mm will be permitted in the plan dimensions for fabrication of each single increment sign panel when necessary for squaring. A tolerance of plus or minus 6 mm will be permitted for each increment of a multi-increment sign panel where necessary to secure square, tight-fitting joints.
 - Plywood bolts shall be 3/8" x 1 1/2" elevator type steel with flat or slightly hemispherical head and 3/4" minimum thread length. The head shall have a minimum diameter of 1 1/16" and a minimum of two fins on the underside. Each bolt shall be provided with one 5/16" steel hex nut, one 5/16" steel flat washer, and one 5/16" steel lock washer. Bolts, nuts and washers shall be galvanized in accordance with ASTM Designation B695, Class 50, or A153 Class C or D.
 - Splice bars shall be secured with 5/8" long x #10 round head, stainless steel wood screws spaced at 152 mm maximum along double row spacing with the exception at extreme ends of splice bars, along outside edge of sign, where plywood bolts shall be used as shown. A maximum of one horizontal joint per vertical section will be permitted using a 3 mm gap between panels.
 - Splices shall be kept to a minimum. Panels 1.2 x 2.4 m or larger shall be used to the maximum extent possible in the fabrication of any sign. Signs or sign sections which cannot be fabricated from at least a 1.2 x 2.4 m panel shall be of one piece construction.

- ⚠ Approximately equal spacing, fabricator may vary spacing for least interference with message and to utilize wind beam for horizontal splice. Wind beam spacing will not exceed the maximum shown in table on sheet SMD(2-1)(M). Staggered arrangement of horizontal splices as shown is preferred. However, a single horizontal joint across the sign face is permissible.
- ⚠ For signs 1.2 m or less in height the plywood panel may exceed 1.2 m in width.
- ⚠ Extruded aluminum wind beams shall be continuous with no splices. (see sheet SMD(2-1)(M)).
- ⚠ Aluminum Z will be provided unless stated otherwise in the plans. If noted elsewhere in the plans, 1.75 kg/m extruded aluminum windbeam may be used.

All metric dimensions have been rounded and should be considered equivalent to English hardware and specifications. All dimensions are in millimeters unless otherwise noted.



DETAIL "A"

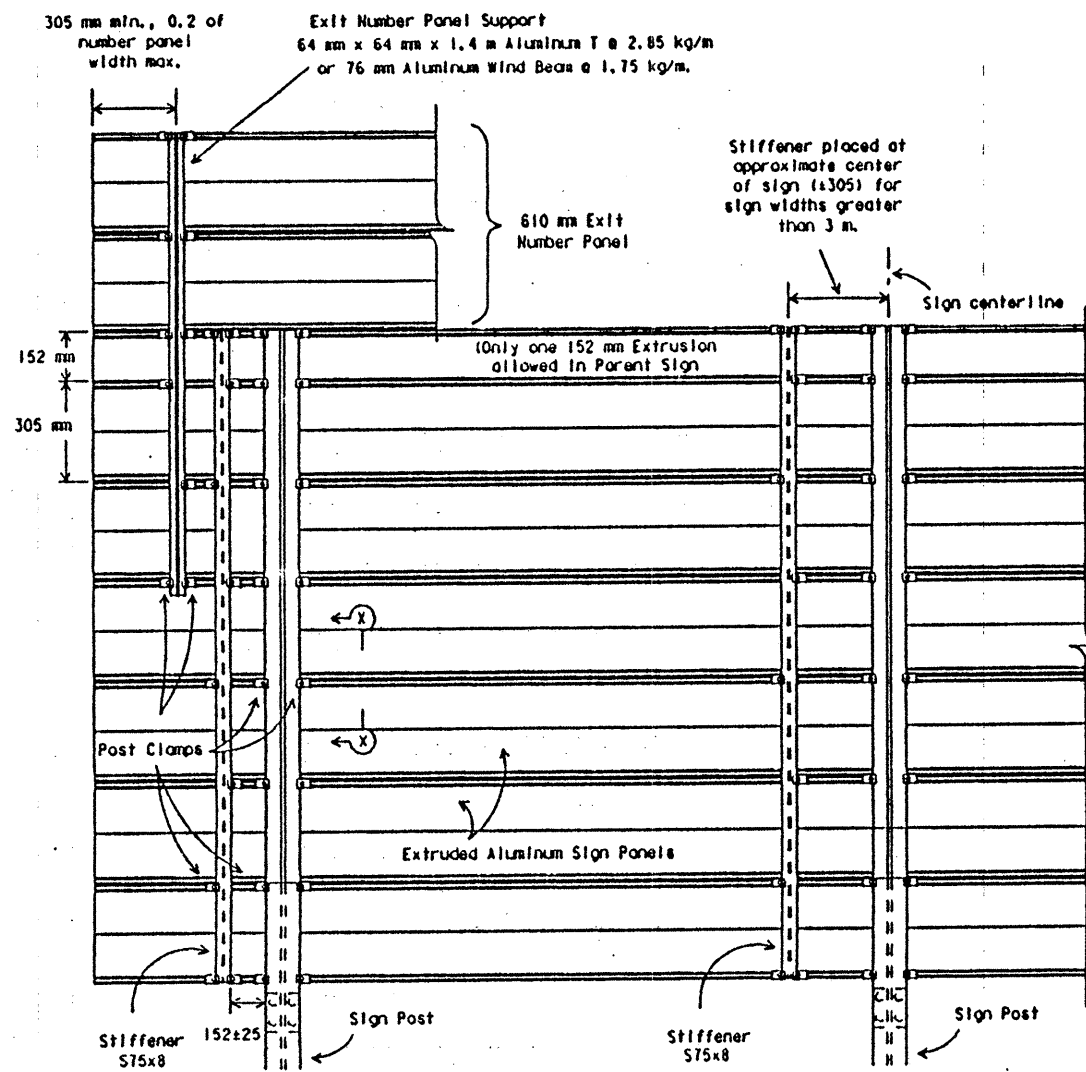
STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

SIGN MOUNTING DETAILS-
 LARGE ROADSIDE SIGNS,
 PLYWOOD

SMD(2-3)-95A(M)

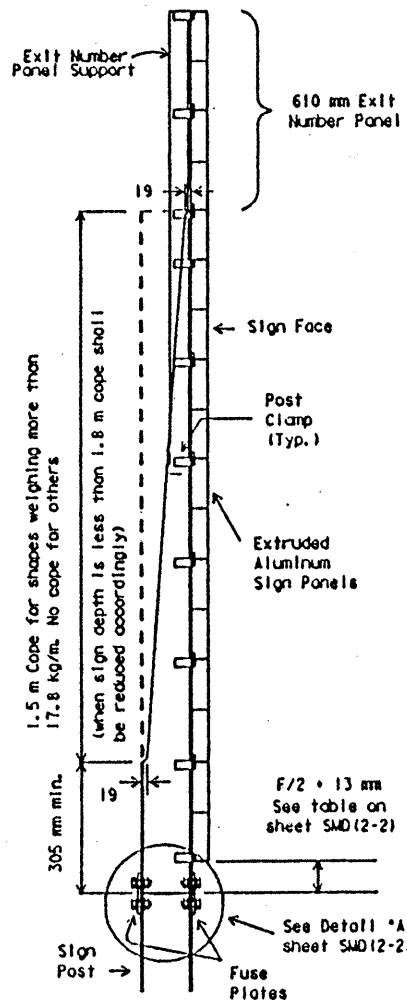
DATE: AUGUST 1995	REVISOR	STATE DISTRICT	FEDERAL PROJECT	SHEET
1-96		21	6	48C
		CELESTY	1711A	
		HIDALGO	039	17 118

NEW 5/28/96

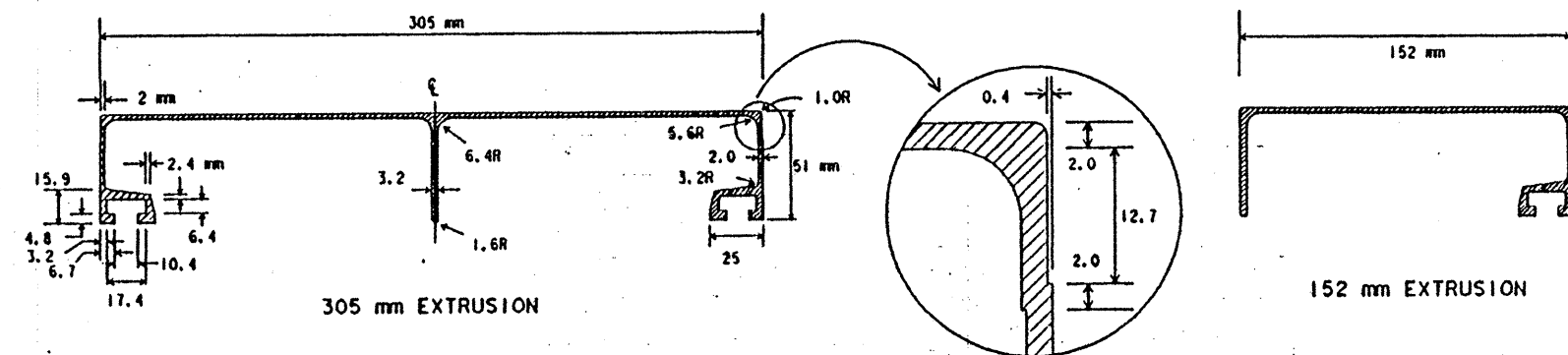


REAR VIEW

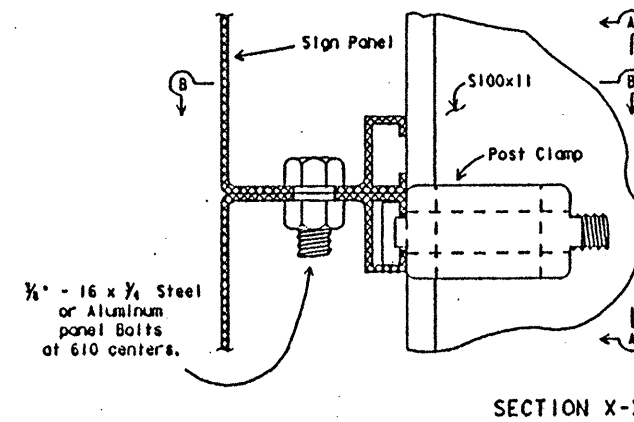
PARENT SIGN & EXIT PANEL MOUNTING DETAILS



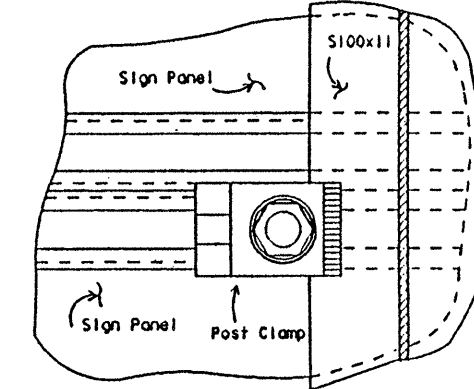
SIDE VIEW



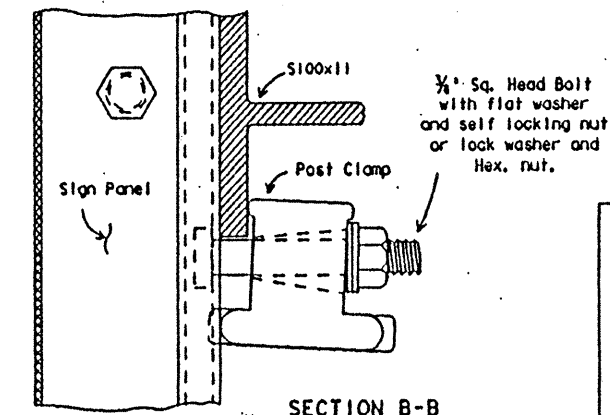
ALUMINUM SIGN PANEL EXTRUSION DETAILS



SECTION X-X



SECTION A-A



SECTION B-B

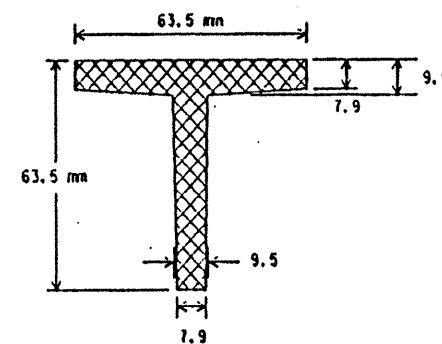
PANEL CONNECTION DETAILS

SPECIFICATION REFERENCE TABLE MATERIALS AND TESTS DIVISION SPECIFICATIONS	
ALUMINUM SIGN BLANKS	D-9-7110
SIGN HARDWARE	D-9-7120

GENERAL NOTES:

- Exit number panel shall be mounted to the right hand side of the parent sign for right exits and to the left for left hand exits. The number panel shall be mounted with two uprights so its right edge is even with the right edge of the parent sign or vice-versa for left hand exits.
- Exit number panel support shall be symmetrical about number panel centerline.
- Exit number panel support shall be ASTM A36 structural steel galvanized after fabrication, or ASTM B221 aluminum alloy 6061-T6.
- All bolts, nuts and washers shall be galvanized per ASTM Designation B695 Class 50, or A153 Class C or D.
- When splice bars are required to fabricate the number panel, the splice bar detail as shown for the parent sign on sheet SMD(2-1) is to be used. Splice bars on number panel need not align with those on parent sign.
- Posts, parent sign panels and exit number panels shall comply with notes on sheets SMD(2-1) and SMD(2-2).
- Signs (such as exit number panels) attached above a parent sign shall be made of the same type material as the parent sign.
- Exit number panel support and other connection hardware required to fasten exit number panel to parent sign shall be subsidiary to the sign blank.

All metric dimensions have been rounded and should be considered equivalent to English hardware and specifications. All dimensions are in millimeters unless otherwise noted.



ALUMINUM T SECTION

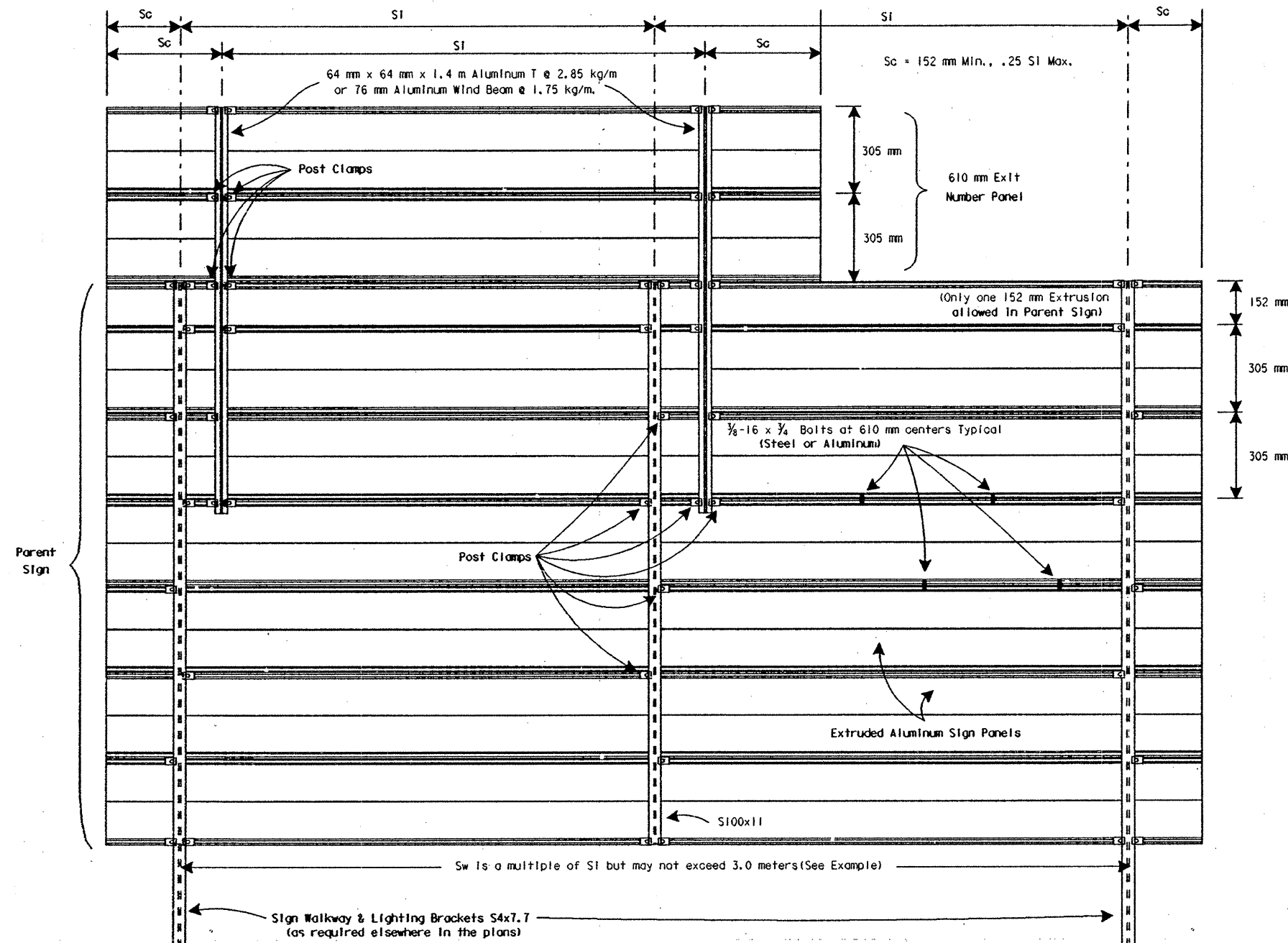
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

SIGN MOUNTING DETAILS-
LARGE ROADSIDE SIGNS,
EXTRUDED ALUMINUM

SMD(2-4)-95A(M)

DATE	BY	CHKD	APP'D	REV.	NO.
1-96	21	6	NH96(791)	M	482

NEW 5/28/96



REAR VIEW

EXAMPLES (FOR DETERMINING SI and Sw) (meters)

NO.	ZONE	*d*	EXIT PANEL	WALKWAY	SI	Sw	COMMENT
1	1	4.6	YES	YES	1.4	2.7	Sw=2x(SI)
2	2	4.3	YES	NO	2.3	2.3	Sw = SI
3	1	4.6	NO	NO	2.6	2.6	Sw = SI
4	3	4.3	NO	YES	3.0	3.0	Sw = SI

Values shown for SI are maximum values. SI may be varied for different sign lengths and Truss mounting conditions. Sw should not exceed two times SI(Max.) or 3.0 meters.

d	MAXIMUM SIGN SUPPORT SPACING "SI" (METERS)															
	EXTRUDED ALUMINUM SIGN PANELS															
	WITH EXIT NUMBER PANELS								WITHOUT EXIT NUMBER PANELS							
	WITH WALKWAYS				WITHOUT WALKWAYS				WITH WALKWAYS				WITHOUT WALKWAYS			
Deepest Sign In Group (meters)	WIND ZONE				WIND ZONE				WIND ZONE				WIND ZONE			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
4.6	1.4	2.1	2.4	3.0	1.5	2.1	2.4	3.0	2.1	2.4	2.7	3.0	2.6	3.0	3.0	3.0
4.3	1.8	2.3	2.9	3.0	1.8	2.3	2.9	3.0	2.4	2.7	3.0	3.0	3.0	3.0	3.0	3.0
4.0	2.3	2.7	3.0	3.0	2.3	2.7	3.0	3.0	2.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3.6	2.6	3.0	3.0	3.0	2.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3.4 or less	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

All metric dimensions have been rounded and should be considered equivalent to English hardware and specifications. All dimensions are in millimeters unless otherwise noted.

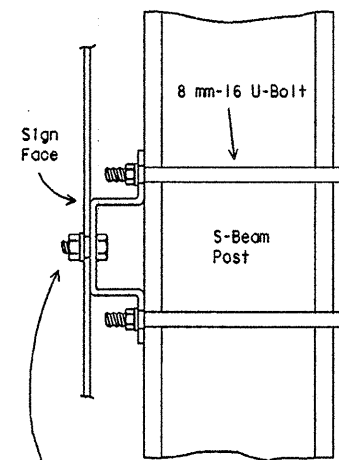
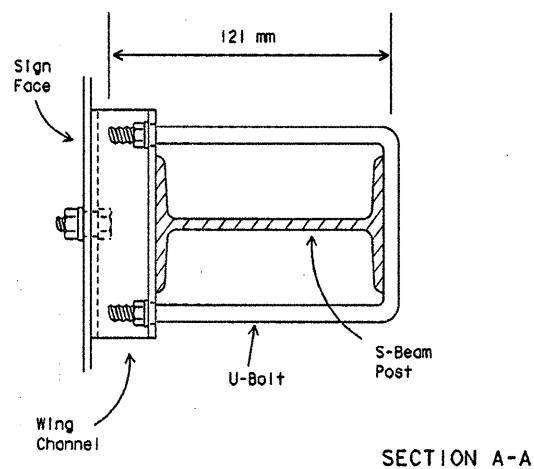
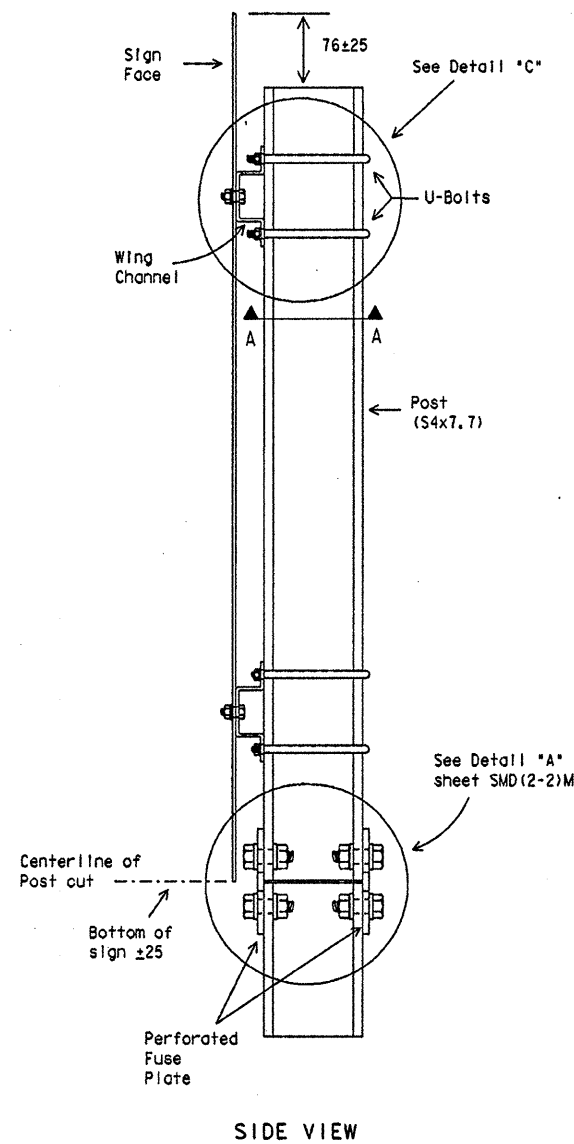
STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division
 SIGN MOUNTING DETAILS-
 OVERHEAD SIGNS
 EXTRUDED ALUMINUM
 SMD (2-5) -95A (M)

DATE DRAWN: December 1995	BY: LR	CHK: DN	REV: ML
1-96	21	6	483
PROJECT: NH96(791) M	COUNTY: HARRIS	SECTION: 17	JOB: 118
SHEET: 483			

NEW 5/28/96

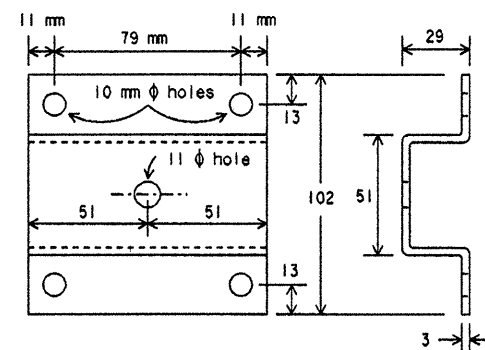
DISCLAIMER
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WING CHANNEL CLAMP DETAIL FOR TYPE G MOUNT



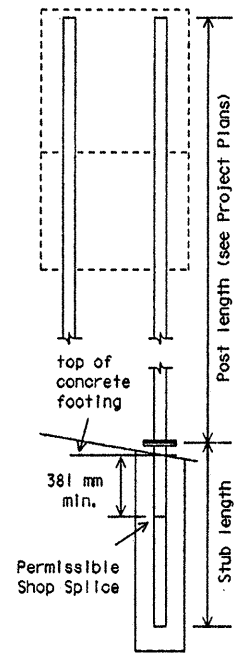
Galvanized steel or aluminum self-locking hex. head nut, 3/8" - 16 x 3/4" hex. head bolt for sheet metal, 3/8" - 16 x 1 1/4" hex. head bolt for plywood, 3/8" galvanized medium washer.

DETAIL "C"

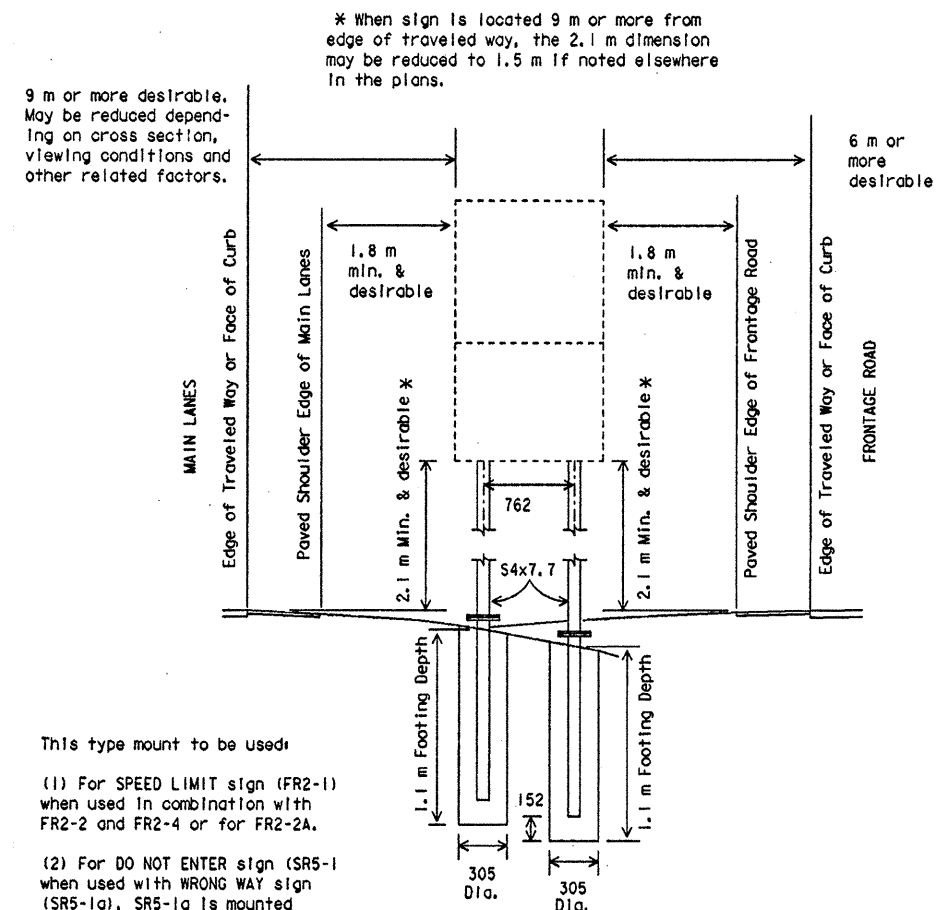


WING CHANNEL

Wing channel, 102 mm width x 28 mm depth x 3 mm thickness, shall be aluminum (ASTM B221 6061-T6 or B308 6061-T6), galvanized steel (ASTM A36) or stainless steel (ASTM A167 type 304, No. 2B finish).



The weight of one S4x7.7 post is equal to 50.9 kg plus 11.5 kg/m x (post length in meters minus 3 m). The weight of 50.9 kg includes 3 m of post length, post foundation stub, related connection plates, friction fuse plate, and all high strength bolts, nuts and washers.



This type mount to be used:

- (1) For SPEED LIMIT sign (FR2-1) when used in combination with FR2-2 and FR2-4 or for FR2-2A.
- (2) For DO NOT ENTER sign (SR5-1) when used with WRONG WAY sign (SR5-1a). SR5-1a is mounted above SR5-1.

SPECIFICATION REFERENCE TABLE	
MATERIALS AND TESTS DIVISION SPECIFICATIONS	D-9-7120
SIGN HARDWARE	

GENERAL NOTES:

- Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
- Materials and fabrication shall conform to the requirements of the Department material specifications.
- Structural steel shall conform to the item, "METAL FOR STRUCTURES."
- Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface treated with zinc-based solder or zinc-rich paint in accordance with ASTM A780. (Cut surface will not be treated until plate is installed and all bolts fully tightened.)

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

SIGN MOUNTING DETAILS, TYPE G SUPPORT

SMD (TY G) -95 (M)

ORIG. DATE	DATE	BY	CHK'D	APP'D	REV. NO.	SHEET
August 1995		DN-LR	CK-CW	DN-DN	1	1 of 1
REVISIONS		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		
2.1	6	NH96 (791)	M	404		
COUNTY		CONTROL SECTION	JOB	HIGHWAY		
Hidalgo		0291	17 118	0683		

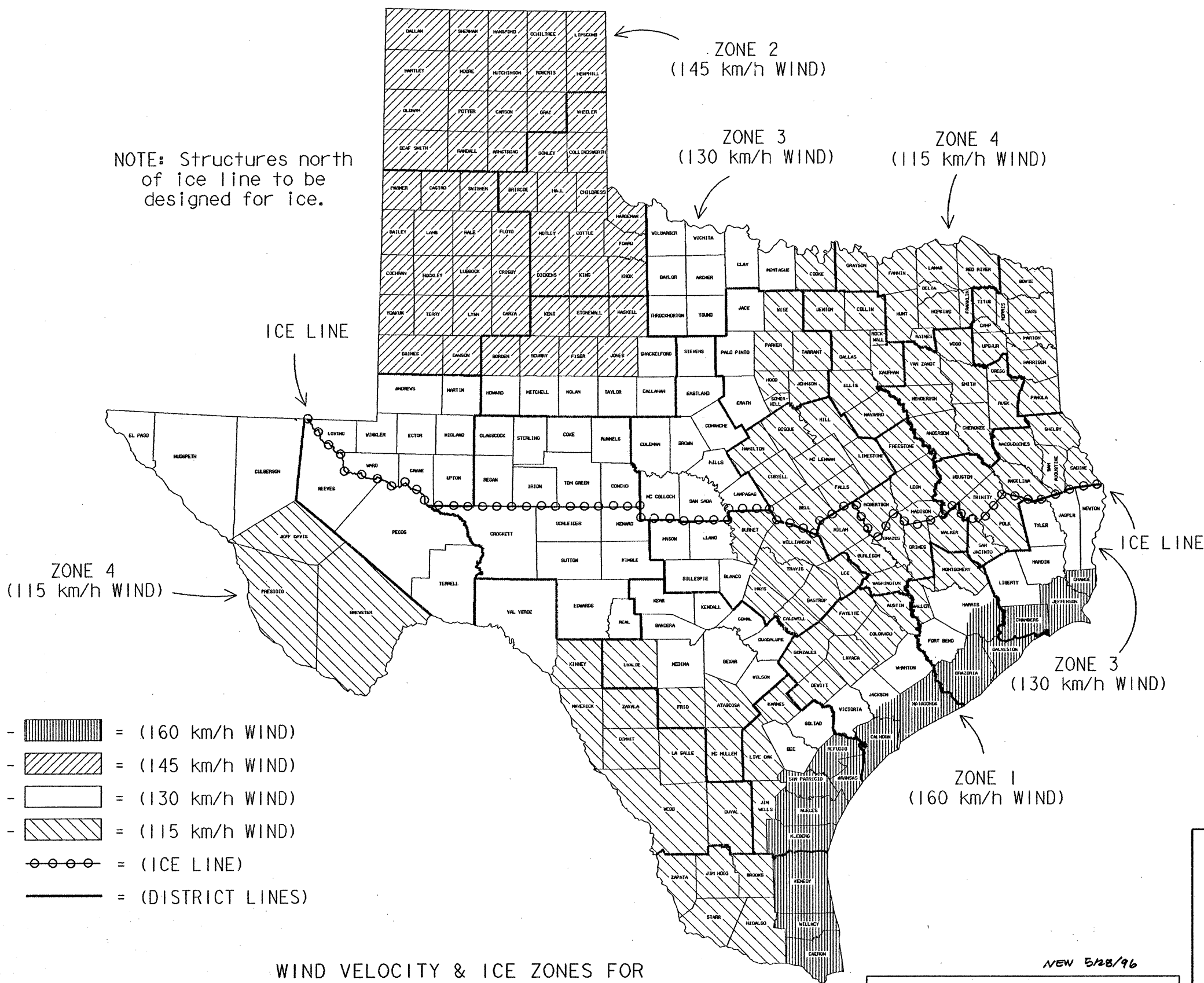
LEVELS DISPLAYED	DATE
1	1/2
2	3/4
3	5/6
4	7/8
5	9/10
6	11/12
7	13/14
8	15/16
9	17/18
10	19/20
11	21/22
12	23/24
13	25/26
14	27/28
15	29/30
16	31/32
17	33/34
18	35/36
19	37/38
20	39/40
21	41/42
22	43/44
23	45/46
24	47/48
25	49/50
26	51/52
27	53/54
28	55/56
29	57/58
30	59/60
31	61/62
32	63/64
33	65/66
34	67/68
35	69/70
36	71/72
37	73/74
38	75/76
39	77/78
40	79/80
41	81/82
42	83/84
43	85/86
44	87/88
45	89/90
46	91/92
47	93/94
48	95/96
49	97/98
50	99/100

NEW 5/28/96

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LEVELS DISPLAYED
 11 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 DATE: 04/15/96
 ACC: d58hplc/ust/c580504
 FILE: 4580504.dwg

NOTE: Structures north of ice line to be designed for ice.



- LEGEND
- ZONE 1 - [diagonal lines] = (160 km/h WIND)
 - ZONE 2 - [diagonal lines] = (145 km/h WIND)
 - ZONE 3 - [white box] = (130 km/h WIND)
 - ZONE 4 - [diagonal lines] = (115 km/h WIND)
 - = (ICE LINE)
 - = (DISTRICT LINES)

WIND VELOCITY & ICE ZONES FOR OVERHEAD SIGN SUPPORTS
 Based on 50 Year Mean Recurrence Interval of Fastest Mile Wind Velocity at 10 meters height.

THIS SHEET TO BE INCLUDED IN ALL P.S.&E.'s WITH OVERHEAD SIGN SUPPORTS

FOR HARRIS CO. ONLY
 Zone line is just North of US 90, around on the North, West and South sides of IH 610 and down the West side of SH 288.

FOR JACKSON CO. ONLY
 Zone line is just North of SH 616.

STANDARD PLANS			
TEXAS DEPARTMENT OF TRANSPORTATION			
Traffic Operations Division			
WIND VELOCITY AND ICE ZONES			
WV & IZ-96 (M)			
DATE: APRIL 1996	DR: DN	CD: MT	RES NO: 1
REVISIONS	STATE DISTRICT	FEDERAL AID PROJECT	SHEET
	21	NH 96(79)DM	487
	COUNTY	CONTROL SECTION	JOB
	HIDALGO	0039	17/18
			US83

ZONE I 160 km/h WIND

TOWER HEIGHT (m)	3.0 m SPAN															4.6 m SPAN															6.1 m SPAN															7.6 m SPAN															TOWER HEIGHT (m)
	TOWER PIPE			ANCHOR BOLTS			BASE PLATE			TRUSS			DESIGN LOADS			TOWER PIPE			ANCHOR BOLTS			BASE PLATE			TRUSS			DESIGN LOADS			TOWER PIPE			ANCHOR BOLTS			BASE PLATE			TRUSS			DESIGN LOADS																		
	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)																	
4.3	406	6.4	2.7	1 1/4	8	521	610 x 32	5.1	25.0	34	105	406	8.7	4.6	1 1/2	8	533	635 x 45	12.7	37.5	80	160	508	7.9	4.5	1 3/4	8	645	755 x 45	15.2	51.3	146	221	610	7.9	4.2	1 3/4	8	746	855 x 38	20.3	64.1	228	279	4.3																
4.6			3.1						25.1		112		8.7	5.2						37.6		171		7.9	5.2						15.2	51.4		236		7.9	4.8				855 x 38		64.2		298	4.6															
4.9			3.6						25.2		120		8.7	6.0						37.7		183		7.9	5.9						17.8	51.6		252		7.9	5.5				855 x 40		64.4		317	4.9															
5.2			4.0				610 x 32		25.3		128		8.7	6.7						37.9		194		8.7	6.1							51.7		267		8.7	5.6				855 x 40		64.6		336	5.2															
5.5			4.5				610 x 35		25.4		135		9.5	7.0						38.0		206		8.7	6.8							51.9		283		8.7	6.3				855 x 40	20.3	64.8		356	5.5															
5.8			5.0				610 x 35		25.5		143		9.5	7.8	1 1/2	533	635 x 45			38.1		217		8.7	7.6				755 x 45			52.0		298		8.7	7.0	1 3/4	746	855 x 45	22.9	64.9		375	5.8																
6.1			5.6	1 1/4		521	610 x 38		25.7		151		11	7.6	1 3/4	546	660 x 50			38.2		229		9.5	7.8				755 x 50			52.1		314		8.7	7.8	2	756	875 x 45		65.1		395	6.1																
6.4	6.4	6.1	1 3/8			527	620 x 38		25.8		159		11	8.3						38.3		240		9.5	8.6						52.3		330		9.5	7.9				875 x 50		65.3		414	6.4																
6.7	7.1	6.0					620 x 38		25.9		167		12	8.4						38.4		252		11	8.2						52.4		346		9.5	8.7						65.5		434	6.7																
7.0	7.1	6.6					620 x 40		26.0		174		12	9.2						38.6		264		11	8.9	1 3/4	645	755 x 50	17.8		52.6		362		9.5	9.5						65.7		454	7.0																
7.3	7.1	7.2					620 x 40		26.1		182		12	10.0				660 x 50			38.7		275		11	9.7	2	654	775 x 50	20.3		52.8		378		11	9.0				22.9	65.8		474	7.3																
7.6	7.9	7.1	1 3/8			527	620 x 40		26.2		190		12	10.9				660 x 55			38.8		287		12	9.7			775 x 55			52.9		394		11	9.7				25.4	66.0		493	7.6																
7.9	7.9	7.7	1 1/2			533	635 x 45		26.4		198		13	11.0				660 x 55			38.9		299		12	10.5			775 x 55			53.0		410		11	10.5				875 x 50		66.2		513	7.9															
8.2	7.9	8.3					635 x 45		26.5		206		13	11.8				660 x 55			39.0		311		12	11.3			775 x 55			53.2		426		11	11.4				875 x 55		66.4		534	8.2															
8.5	8.7	8.1					635 x 45		26.6		215		14	11.9	1 3/4	546	660 x 60			39.1		323		12	12.2			775 x 60			53.3		442		12	11.3	2	756	875 x 55		66.5		554	8.5																	
8.8	8.7	8.7					635 x 50		26.7		223		14	12.7	2	559	685 x 60			39.3		335		13	12.1						53.5		458		12	12.1	2 1/4	762	890 x 60		66.7		574	8.8																	
9.1	8.7	9.3	1 1/2			533	635 x 50		26.8		231		17	11.5						39.4		347		13	13.0						53.6		474		12	12.9					66.9		594	9.1																	
9.4	9.5	9.2	1 3/4			546	660 x 50		27.0		239		17	12.3						39.5		359		14	13.0						53.8		491		12	13.8				25.4	67.1		614	9.4																	
9.8	406	9.5	9.8	1 3/4	8	546	660 x 50	5.1	27.1	34	247	406	17	13.1	2	8	559	685 x 60	12.7	39.6	80	371	508	14	13.8	2	8	654	775 x 60	20.3	53.9	146	507	610	12	14.7	2 1/4	8	762	890 x 60	27.9	67.3	228	635	9.8																

ZONE I 160 km/h WIND

TOWER HEIGHT (m)	9.1 m SPAN															10.7 m SPAN															12.2 m SPAN															TOWER HEIGHT (m)
	TOWER PIPE			ANCHOR BOLTS			BASE PLATE			TRUSS			DESIGN LOADS			TOWER PIPE			ANCHOR BOLTS			BASE PLATE			TRUSS			DESIGN LOADS			TOWER PIPE			ANCHOR BOLTS			BASE PLATE			TRUSS			DESIGN LOADS			
	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (kN)	TORSION T (kN-m)	MOMENT M (kN-m)		
4.3	610	9.5	5.1	2	8	756	875 x 45	27.9	76.3	329	338	762	7.9	4.5	2	8	908	1,030 x 40	33.0	89.5	448	403	762	9.5	5.2	2 1/4	8	914	1,040 x 50	45.7	101.8	586	471	4.3												
4.6			6.0				875 x 45	30.5	76.5		360		7.9	5.2				1,030 x 40	35.6	89.7		428		11	5.3						45.7	102.0		499	4.6											
4.9			6.0				875 x 50		76.7		383		7.9	5.9				1,030 x 40		89.9		455		11	6.0					45.7	102.3		529	4.9												
5.2			6.7						76.9		406		8.7	6.1				1,030 x 45		90.1		481		11	6.8					48.3	102.5		558	5.2												
5.5			7.0					30.5	77.0		429		8.7	6.8					35.6	90.3		507		11	7.6				50.8	102.7		587	5.5													
5.8			7.8					33.0	77.2		451		8.7	7.6					38.1	90.6		534		12	7.8				50.8	102.9		617	5.8													
6.1			8.4					33.0	77.4		475		8.7	8.4	2	908	1,030 x 45			38.1	90.8		561		12	8.6			50.8	103.2		647	6.1													
6.4			9.5	2		756	875 x 50	33.0	77.6		498		9.5	8.5	2 1/4	914	1,040 x 50			38.1	91.0		588		12	9.5			53.3	103.4		678	6.4													
6.7			10.4	2 1/4		762	890 x 55	35.6	77.8		521		9.5	9.4					40.6	91.2		615		12	10.4			1,040 x 50	55.9	103.6		708	6.7													
7.0			11.3				890 x 55		77.9		544		9.5	10.2					40.6	91.5		642		12	13.4	2 1/4	914	1,040 x 55	55.9	103.8		739	7.0													
7.3			11.5				890 x 55		78.1		568		9.5	11.2					43.2	91.7		669		12	12.4	2 1/2	927	1,065 x 55	55.9	104.0		769	7.3													
7.6			11.6				890 x 60		78.3		591		11	10.6						91.9		697		12	13.4			1,065 x 60	58.4	104.3		800	7.6													
7.9			12.6					35.6	78.5		615		11	11.4						92.1		724		13	13.4					104.5		831	7.9													
8.2			13.5					38.1	78.6		639		11	12.2				1,040 x 50		92.3		752		13	14.5				104.7		862	8.2														
8.5			14.6					38.1	78.8		662		12	12.1				1,040 x 55		92.5		780		13	15.6				104.9		893	8.5														
8.8			14.7					38.1	79.0		686		12	13.0				1,040 x 60	43.2	92.7		807		14	15.9			58.4	105.2		925	8.8														
9.1			15.7	2 1/4		762	890 x 60	40.6	79.2		710		12	14.0	2 1/4	914	1,040 x 60			45.7	93.0		835		14	17.0			61.0	105.4		956	9.1													
9.4			15.8	2 1/2		775	915 x 70	40.6	79.4		734		12	14.9	2 1/2	927	1,065 x 60			45.7	93.2		863		15	16.7			61.0	105.6		988	9.4													
9.8	610	16	16.9	2 1/2	8	775	915 x 70	40.6	79.5	329	758	762	12	15.9	2 1/2	8	927	1,065 x 60	45.7	93.4	448	891	762	15	16.7	2 1/2	8	927	1,065 x 70	61.0	105.8	586	1,019	9.8												

GENERAL NOTES:

Steel for tower pipe shall conform to ASTM A53 Grade B or to ASTM A501. Tower pipe wall thickness shown is the minimum allowable. Fabricator may use the wall thickness shown or pipe of the same diameter with greater wall thickness.

All structural steel, including that indicated as HYC, shall be ASTM A36M GR 250 except that indicated as HS shall be ASTM A572M GR 345 or ASTM A588M GR345.

All connection bolts shall conform to ASTM A325 or ASTM A449. All structural steel, connection bolts, nuts and washers shall be galvanized in accordance with the Specifications.

Compensate for truss deflection at free end by offsetting upper and lower bolt holes at truss-to-tower connection.

For truss details see standard drawing COSSD (M).

For base and foundation details see standard drawing COSSF (M).

For cantilever truss lengths falling between those shown use sizes called for in the next longer span.

Towers for cantilever sign supports are designed for the equivalent area of a 3.05 meter deep sign panel over 100% of the span length. Design includes 144 newtons per meter squared for sign panel and 292 newtons per meter for lights and 730 newtons per meter for walkways all placed as specified for the design sign panel.

Details called for hereon are applicable for Design Wind Heights up to 9.1 meters inclusive. All dimensions are in millimeters (mm) unless otherwise shown.

TR

ZONE I 160 km/h WIND

TOWER HEIGHT (m)	3.0 m SPAN										4.6 m SPAN										6.1 m SPAN										7.6 m SPAN										TOWER HEIGHT (m)				
	TOWER PIPE		ANCHOR BOLTS			BASE PLATE		TRUSS			DESIGN LOADS				TOWER PIPE		ANCHOR BOLTS			BASE PLATE		TRUSS			DESIGN LOADS				TOWER PIPE		ANCHOR BOLTS			BASE PLATE		TRUSS			DESIGN LOADS						
	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (KN)	TORSION T (KN-m)	MOMENT M (KN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (KN)	TORSION T (KN-m)	MOMENT M (KN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (KN)	TORSION T (KN-m)	MOMENT M (KN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE		DEFL DELTA V	SHEAR V (KN)	TORSION T (KN-m)	MOMENT M (KN-m)
7.6	406	9.5	6.1	1 1/2	8	533	635 x 45	5.1	28.7	38	208	406	14	9.5	1 3/4	8	546	660 x 60	12.7	41.4	85	306	508	12	9.7	2	8	654	775 x 55	20.3	54.9	151	407	610	12	9.0	2	8	756	875 x 55	22.9	68.4	236	510	7.6
7.9		9.5	6.4				635 x 45		28.9		217		14	10.2	1 3/4		546	660 x 60		41.5		318		12	10.5				775 x 55		55.0		424		12	9.7	2	8	756	875 x 55		68.5		530	7.9
8.2		11	6.2				635 x 45		29.0		226		14	11.0	1 3/4		546	660 x 60		41.6		331		12	11.3				775 x 60		55.2		441		13	9.7	2	8	756	875 x 60		68.8		551	8.2
8.5		12	6.2				635 x 50		29.1		235		17	10.0	2		559	685 x 60		41.8		344		13	11.3						55.3		457		13	10.4	2 1/4	762	890 x 60		68.9		572	8.5	
8.8		12	6.6	1 1/2		533	635 x 50		29.3		244		17	10.7				685 x 60		41.9		356		13	12.1						55.5		474		13	11.2					69.1		593	8.8	
9.1		12	6.8	1 3/4		546	660 x 50		29.4		253		18	10.9				685 x 70		42.0		369		14	12.2						55.7		491		13	12.0					69.3		614	9.1	
9.4		12	7.3				660 x 50		29.5		262		18	11.7						42.2		382		15	12.2	2	654	775 x 60		55.8		508		14	11.9				22.9	69.5		635	9.4		
9.8		12	7.8				660 x 50		29.7		271		18	12.5						42.3		395		15	13.0	2 1/4	660	790 x 60		56.0		525		14	12.7				25.4	69.7		656	9.8		
10.1		13	8.0				660 x 55		29.8		280		18	13.2						42.4		408		15	13.8				790 x 60		56.2		542		14	13.5				27.9	69.9		677	10.1	
10.4		13	8.2				660 x 55		29.9		289		20	12.8	2	559	685 x 70		42.5		421		16	13.8				790 x 60		56.3		559		14	14.4	2 1/4	762	890 x 60		70.1		699	10.4		
10.7		13	8.7				660 x 55		30.0		298		13.6	2 1/4	572	710 x 70		42.7		434		434		16	14.6				790 x 70		56.5		576		14	15.2	2 1/2	775	915 x 60		70.3		720	10.7	
11.0		14	8.6				660 x 55		30.2		307		14.4							42.8		447		16	15.5					56.7		594		15	15.1				915 x 70		70.5		741	11.0	
11.3		14	9.1				660 x 60		30.3		316		15.2							42.9		460		16	16.3					56.8		611		15	16.0				25.4	70.7		763	11.3		
11.6		14	9.6						30.4		326		20	16.0						42.9		471		16	17.3					57.0		628		15	16.8				27.9	70.9		784	11.6		
11.9		17	8.8						30.6		335		22	15.6						43.2		486		17	17.2					57.1		645		16	16.7					71.1		806	11.9		
12.2		17	9.0	1 3/4		546	660 x 60		30.7		344		22	16.4				710 x 70		43.3		499		17	18.1	2 1/4	660	790 x 70		57.3		663		16	17.6					71.3		827	12.2		
12.8		17	10.0	2		559	685 x 60		31.0		363		22	18.1				710 x 80		43.6		525		19	18.1	2 1/2	673	800 x 70		57.6		698		16	19.4					71.7		871	12.8		
13.4		18	10.4	2		559	685 x 60		31.2		382		27	16.8				710 x 80		43.8		552		20	19.0	2 1/2	673	800 x 80		58.0		733		17	20.1					72.1		915	13.4		
13.7	406	18	10.9	2	8	559	685 x 60	5.1	31.4	38	391	406	31	15.7	2 1/4	8	572	710 x 80	12.7	43.9	85	565	508	20	19.8	2 1/2	8	673	800 x 80	20.3	58.1	151	751	610	18	20.0	2 1/2	8	775	915 x 70	27.9	72.2	236	936	13.7

ZONE I 160 km/h WIND

TOWER HEIGHT (m)	9.1 m SPAN										10.7 m SPAN										12.2 m SPAN										TOWER HEIGHT (m)												
	TOWER PIPE		ANCHOR BOLTS			BASE PLATE		TRUSS			DESIGN LOADS				TOWER PIPE		ANCHOR BOLTS			BASE PLATE		TRUSS			DESIGN LOADS				TOWER PIPE			ANCHOR BOLTS			BASE PLATE		TRUSS			DESIGN LOADS			
	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (KN)	TORSION T (KN-m)	MOMENT M (KN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (KN)	TORSION T (KN-m)	MOMENT M (KN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V		SHEAR V (KN)	TORSION T (KN-m)	MOMENT M (KN-m)	O.D.	WALL THICK	DEFL DELTA H	SIZE DIA (in)	NO.	BOLT CIR DIA	SIZE	DEFL DELTA V	SHEAR V (KN)
7.6	610	14	11.6	2 1/4	8	762	890 x 60	35.6	81.0	340	610	762	11	10.6	2 1/4	8	914	1,040 x 50	40.6	94.9	462	717	762	13	12.5	2 1/2	8	927	1,065 x 60	53.3	107.6	604	823	7.6									
7.9		14	12.6						81.2		634		11	11.4				1,040 x 50		95.2		746		13	13.5				55.9	107.8		855		7.9									
8.2		15	12.7						81.4		659		12	11.3				1,040 x 55		95.4		774		13	14.6				58.4	108.0		887		8.2									
8.5		15	13.7					35.6	81.6		683		12	12.2				1,040 x 55		95.6		803		14	14.6				108.3		919		8.5										
8.8		15	14.7	2 1/4		762	890 x 60	38.1	81.8		708		12	13.0	2 1/4		914	1,040 x 55		95.9		832		14	15.6			1,065 x 60		108.5		952		8.8									
9.1		16	14.8	2 1/2		775	915 x 70	38.1	82.0		733		12	14.0	2 1/2		927	1,065 x 60		96.1		861		14	16.7			1,065 x 70		108.8		984		9.1									
9.4		16	15.8					38.1	82.2		758		12	14.9						96.4		890		15	16.8	2 1/2	927	1,065 x 70		109.0		1,017		9.4									
9.8		16	16.9					40.6	82.3		782		12	15.9						96.6		919		15	17.9	2 3/4	940	1,090 x 70		109.2		1,049		9.8									
10.1		16	17.9						82.6		807		12	16.9						96.9		948		15	19.0				109.5		1,082		10.1										
10.4		16	19.0						82.7		832		13	16.6				1,065 x 60		97.1		977		16	19.0				109.7		1,115		10.4										
10.7		17	19.1						82.9		858		13	17.6				1,065 x 70		97.4		1,007		16	20.1			61.0	110.0		1,148		10.7										
11.0		17	20.2						83.1		883		13	18.6				1,065 x 70		97.6		1,036		16	21.3			63.5	110.2		1,181		11.0										
11.3		18	20.2						83.3		908		14	18.4	2 1/2		927	1,065 x 70		97.9		1,066		16	22.5				110.4		1,214		11.3										
11.6		18	21.3				915 x 70		83.5		933		14	19.4	2 3/4		940	1,090 x 70		98.1		1,095		16	23.7				110.7		1,248		11.6										
11.9		19	21.4	2 1/2		775	915 x 80		83.7		959		15	19.1						98.3		1,125		17	23.6			1,090 x 70		110.9		1,281		11.9									
12.2		19	22.5	2 3/4		800	965 x 80		83.9		984		15	20.1						98.6		1,155		17	24.8	2 3/4	940	1,090 x 80		111.2		1,315		12.2									
12.8		20	23.7						84.3		1,035		16	20.9						99.1		1,215		18	28.4	3	953	1,120 x 80		111.7		1,382		12.8									
13.4		24	22.1						84.7		1,086		16	22.8						99.6		1,275		19	27.1	3	953	1,120 x 80		112.2		1,450		13.4									
13.7	610	24	23.1	2 3/4	8	800	965 x 80	40.6	84.9	340	1,112	762	16	23.9	2 1/4	8	940	1,090 x 70	48.3	99.8	462	1,305	762	19	28.3	3	8	953	1,120 x 80	66.0	112.4	604	1,484	13.7									

GENERAL NOTES:

Steel for tower pipe shall conform to ASTM A53 Grade B or to ASTM A501. Tower pipe wall thickness shown is the minimum allowable. Fabricator may use the wall thickness shown or pipe of the same diameter with greater wall thickness.

All structural steel, including that indicated as HYC, shall be ASTM A36M GR 250 except that indicated as HS shall be ASTM A572M GR 345 or ASTM A588M GR345.

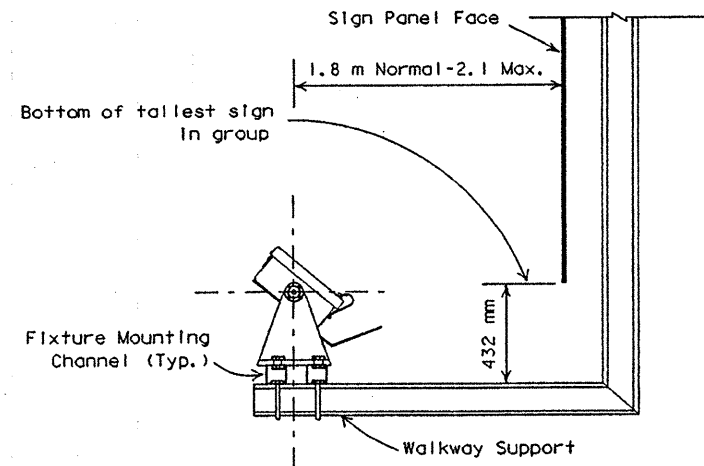
All connection bolts shall conform to ASTM A325 or ASTM A449. All structural steel, connection bolts, nuts and washers shall be galvanized in accordance with the Specifications.

Compensate for truss deflection at free end by offsetting upper and lower bolt holes at truss-to-tower connection.

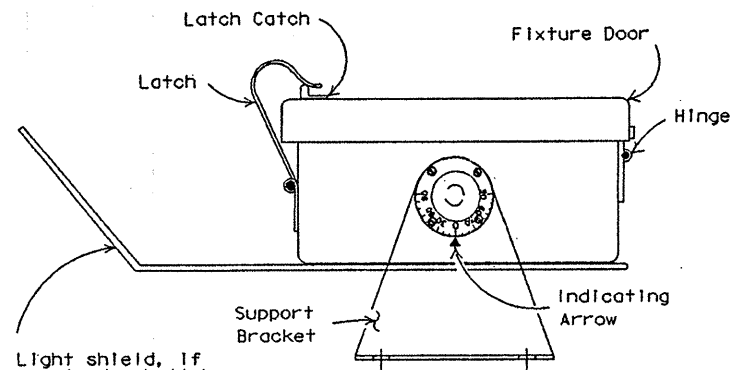
For truss details see standard drawing COSSD(M). For base and foundation details see standard drawing COSSF(M).

For cantilever truss lengths falling between those shown use sizes called for in the next longer span.

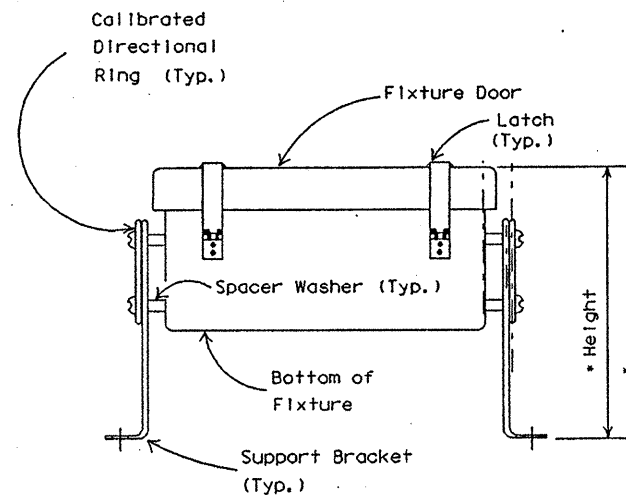
Towers for cantilever



MOUNTING DETAILS



END ELEVATION



FRONT ELEVATION

Sign Width	END OF SIGN PANEL Light Fixtures			
	ES	SL	SL	ES
2743	610	1523	610	
2896	686	1524	686	
3048	686	1676	686	
3200	762	1676	762	
3353	838	1677	838	
3505	838	1829	838	
3658	914	1830	914	
3810	991	1828	991	
3962	914	2134	914	
4115	991	2133	991	
4267	991	2285	991	
4420	1067	2286	1067	
4572	1143	2286	1143	
4724	1219	2286	1219	

Sign Width	Light Fixtures			
	ES	SL	SL	ES
4877	762	1676	1677	762
5029	838	1676	1677	838
5182	762	1829	1829	762
5334	838	1829	1829	838
5486	914	1829	1829	914
5639	991	1828	1829	991
5791	1067	1828	1829	1067
5944	1143	1829	1829	1143
6096	762	2286	2286	762
6248	838	2286	2286	838
6400	914	2286	2286	914
6553	991	2285	2286	991
6706	1067	2286	2286	1067
6858	1143	2286	2286	1143
7010	1219	2286	2286	1219

Sign Width	Light Fixtures			
	ES	SL	SL	ES
7163	838	1829	1829	838
7315	914	1829	1829	914
7468	991	1828	1830	991
7620	1067	1828	1830	1067
7772	1143	1828	1830	1143
7925	1219	1829	1829	1219
8077	1067	1981	1981	1067
8230	1143	1981	1982	1143
8382	1219	1981	1982	1219
8534	1067	2133	2134	1067
8687	914	2286	2287	914
8839	991	2285	2287	991
8992	1067	2286	2286	1067

SPACING FOR 100W MERCURY VAPOR LIGHT FIXTURES PER SIGN PANEL

NOTES

I. FIXTURES

A. Fixtures shall be constructed of aluminum, galvanized steel or other approved weather-resistant materials and so constructed as to form a weather-tight unit of sufficient strength to withstand normal installation and maintenance operations. The fixture shall not exceed 0.186 square meters in effective projected area nor exceed 15.88 kg in gross weight, including ballast.

B. The fixture shall have aiming provisions that are continuously variable through all aiming angles for 15 degrees either side of the optimum aiming angle. Aiming shall be marked in 5-degree increments. Provisions shall be incorporated to positively lock the fixture in the desired position. Mounting provisions shall rigidly support the fixture and be compatible with mounting requirements shown on the plans. When aimed at any of the required angles, the overall height of the fixture above a plane passing through and parallel to the mounting base shall not exceed 279 mm.

C. The optic assembly shall be fitted with resilient gaskets to maintain a positive seal against weather and other contaminants. The lens of the optic assembly shall be tempered glass. Removable covers and lens for fixture and ballast shall be so designed to be opened for routine maintenance without the use of tools. A keeper shall be provided to prevent unintentional separation of lens assemblies or covers from the fixture housing. The metal socket shall incorporate a means to positively resist lamp removal and shall include a porcelain base that completely encases the metal shell. The socket shall be UL-approved.

D. When shown on the plans or required by the Engineer, light shields shall be installed on fixtures to prevent glare to the motorists. All fixtures that are to be installed on bridge-mounted signs shall be equipped with vandal guards approved by the Engineer. Guards and/or light shields will not be paid for directly but will be considered incidental to the item "Highway Sign Lighting Fixtures".

E. The lighting fixture shown is an example only and is not intended to specify a certain manufacturer's product. Other comparable designs which meet the requirements of the specifications and approved by the Engineer, will be accepted.

II. BALLASTS

A. The fixture may be internally or externally ballasted with a regulated output-type ballast (CW) designed to operate mercury vapor lamps. External ballast shall be in weatherproof encasement.

B. During fluctuation of the primary voltage to the ballast of up to 13 percent of rated voltage, the input wattage to the ballast shall not vary more than 8 percent, nor exceed 150 percent of the lamp's rated wattage. At rated voltage, the power factor shall be not less than 90 percent. Each ballast shall permanently and clearly indicate the following: ballast type, lamp type, catalog number, voltage rating and wiring diagram. When stick-on or glue-on label is used, permanency will be considered satisfactory when no more than 25 percent of the label can be removed in one piece. Ballast shall be individually fused with easily accessible in-line 10 amp time-delay fuses.

III. LAMPS

A. Lamps shall be 100 watt phosphor-coated mercury vapor with a rated average life of not less than 24,000 hours.

IV. PHOTOMETRIC REQUIREMENTS

A. The 100 watt fixture, when mounted vertically 1.8 meters (to midpoint of mounting channels) above and horizontally 457 mm below, the midpoint of either short side of a horizontal rectangular area measuring 2.4 meters by 3.0 meters, with the fixture facing the center of the opposite short side, and when aimed at the optimum angle, shall provide measured intensities of not less than 30 nor greater than 500 lux on any point within the rectangular area. Measured intensities on the surface of the rectangular area shall change at a rate not to exceed 26 lux in any 305 mm interval.

B. Optimum angle is that angle which produces equal measured lux on all four corners of the rectangular area. The supplier shall state the optimum angle or the indicator mark shall be centered on 0 at the optimum angle.

V. TESTING

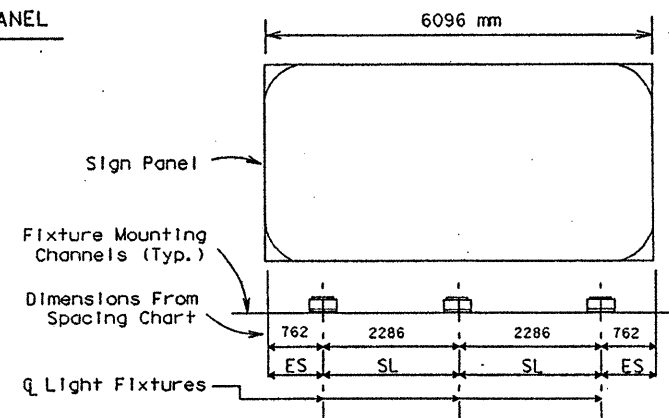
A. Sampling and testing will be in accordance with TxDOT's Division of Materials and Tests Manual of Testing Procedures. The fixture will be tested using a lamp furnished for the same project.

B. The Department will bear the cost of testing all materials meeting the requirements of this drawing and the specifications. The Contractor will bear the cost of testing all materials failing to meet the above requirements. Costs for testing failed materials will be deducted from amounts due the Contractor on monthly and final estimates.

VI. CONDUIT AND CONDUCTORS

A. Conduit and fittings furnished and installed under this item shall be in accordance with the item "Conduit", except for measurement and payment.

B. Conductors furnished and installed under this item shall be in accordance with the item "Electrical Conductors", except for measurement and payment.



EXAMPLE OF TYPICAL FIXTURE PLACEMENT

(FOR 6096 mm SIGN PANEL WIDTH)

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

MERCURY VAPOR
SIGN LIGHTING FIXTURE

SL (MV) - 93A (M)

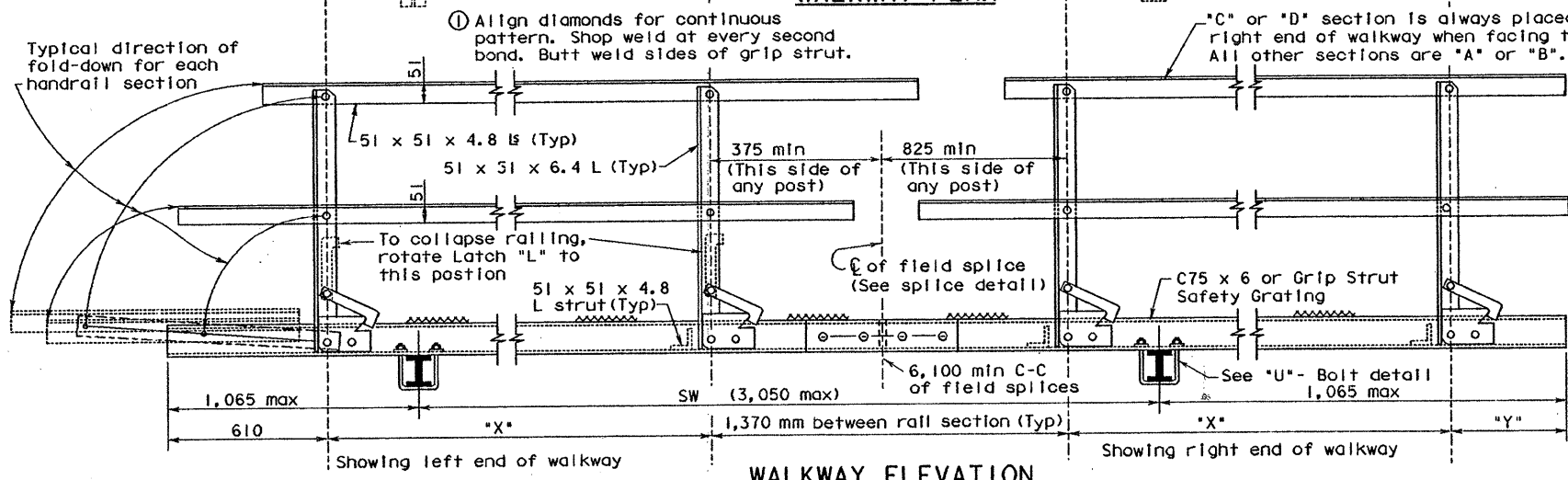
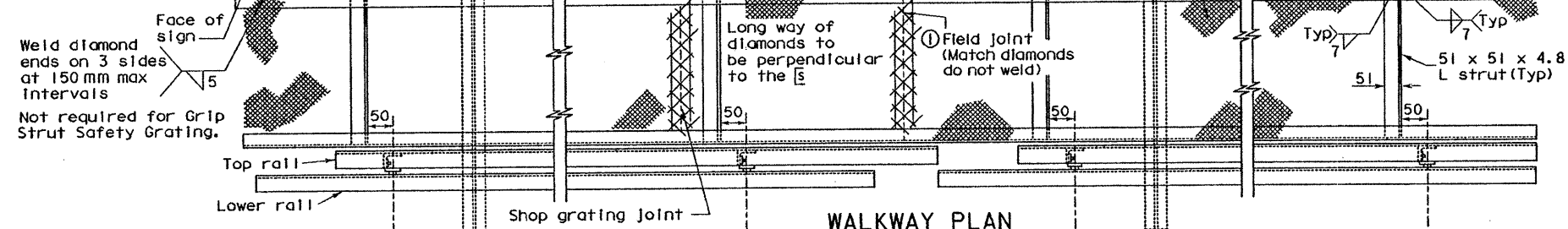
DATE	BY	CHKD	APP'D	REV	NO.
5-93					
10-93					
1-96					
5-28-96					

STATE	FEDERAL	FEDERAL AID PROJECT	SHEET
21	6	NH96 (M1) M	496
COUNTY	CENTRAL SECTION	JOB	ALIGNMENT
Hidalgo	2024	17	118 06 83

Note: Diamond remnants on cut grating edge of walkway end shall be trimmed flush, or sharp edges removed by grinding.

Steel expanded metal grating. Weight = 203 newtons per sq. meter (approx); U.S. Gypsum Grate-X or Steelcrete Walkway Mesh or U.S. Gypsum Grip Strut Safety Grating or approved equal.

Weld diamond ends on 3 sides at 150 mm max intervals
Not required for Grip Strut Safety Grating.



3,050 mm maximum spacing for Walkway, Lights and Sign Support Bracket spacing, see sheets SL (MV) (M), and SMD (2-5) (M) for other limitations to spacing.

Note: Eliminate C75 x 6 when Grip Strut Safety Grating is used. All other details and materials apply unless otherwise noted.

GENERAL NOTES

Design conforms to 1975 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and Interim revisions thereto.

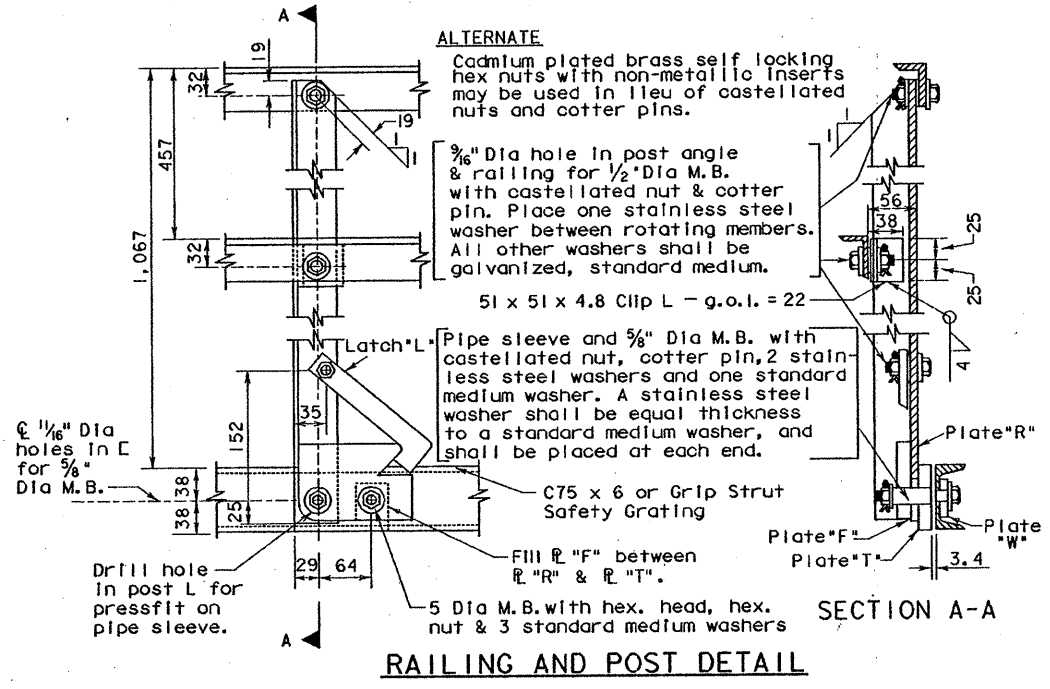
Structural steel shall conform with ASTM Specification A36M. Bolts shall have hexagon heads and nuts and conform with ASTM Specification A307. Stainless steel pipe bushings shall conform with ASTM Specification A167 Type 304. Stainless steel washers shall conform with ASTM Specification A167 Type 302. All parts, except stainless steel shall be galvanized after fabrication.

The stainless steel bushings shall be pressed in the rail posts after posts are galvanized.

The walkway and railing shall be shop assembled to check fabrication.

All dimensions are in millimeters (mm) unless shown otherwise.

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After erection, adjust all castellated nuts to remove only excess play in rotation parts then lock in position with cotter pins. Adjust nut on latch "L" for free latch operation.

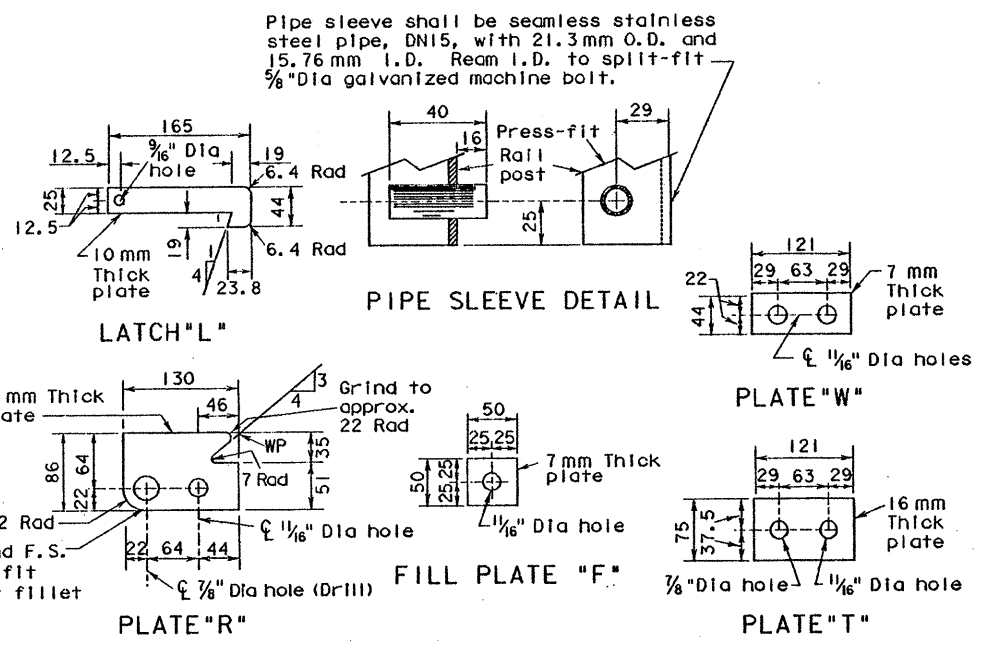


PLATE AND MISCELLANEOUS DETAILS

Texas Department of Transportation
Traffic Operations Division

SIGN WALKWAY
AND HANDRAIL

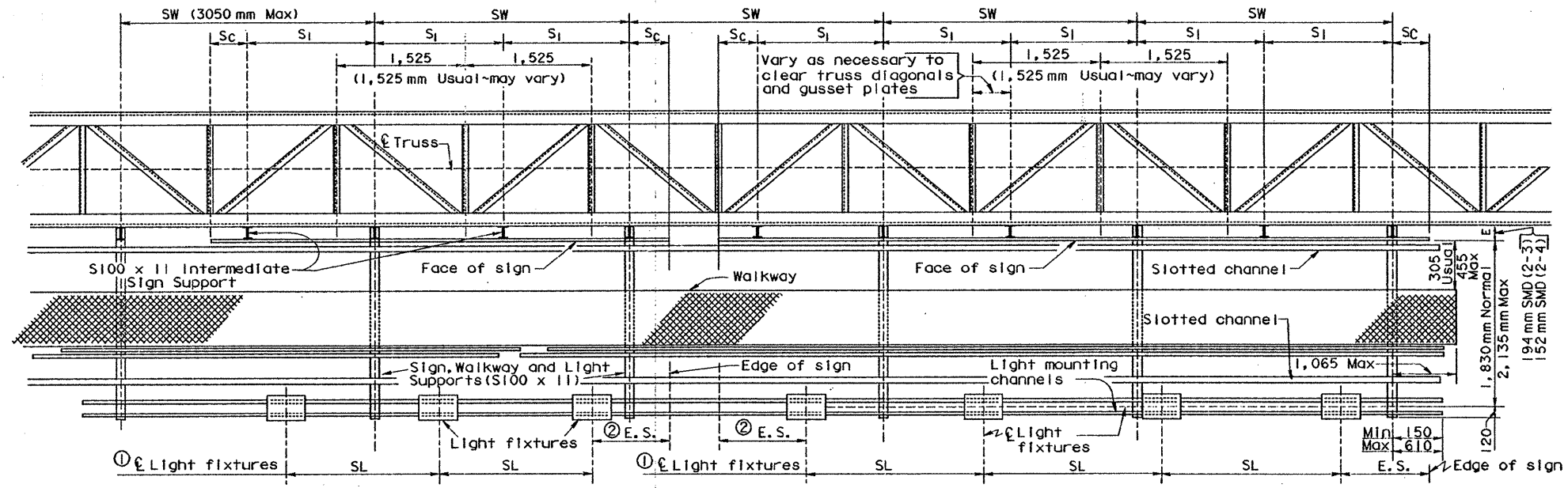
SWW (1) (M)

FILE#	SWWstd83.dgn	DN#	CWC	CK#	LEH	DW#	BGD	CK#	TEB	STD#	83
ORIG DATE	APRIL 1996	DIST	FED REG	FEDERAL AID PROJECT							SHEET
REVISIONS		21	6	NH	960791DM						497
		COUNTY	CONTROL	SECT	JOB	HIGHWAY					
		HIDALGO	0039	17	118	4593					

NEW 5/28/96

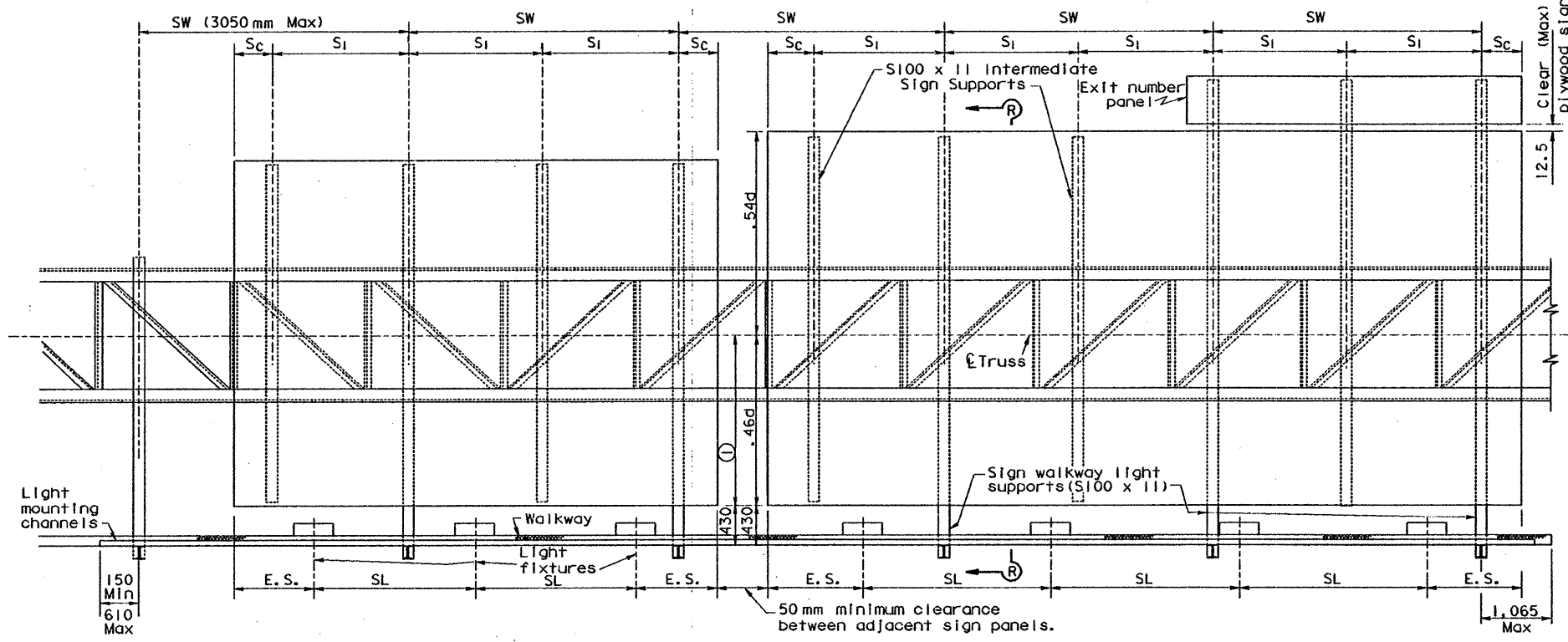
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED	
1	



Sc=150mm Min and .25 Si Max
 ① See lighting details for spacing, SL
 ② See SL (MV) (M)

PART PLAN
 (Showing Truss, Signs, Walkways and Lights)

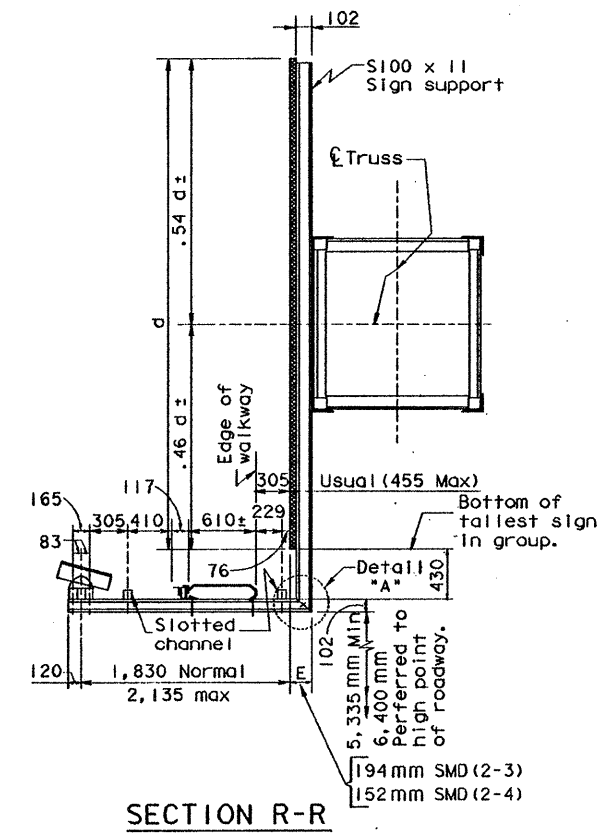


PART ELEVATION

① Where signs of different depths are used, the bottom edge of all signs may be placed in line. Where this done, all signs should be so positioned that the bottom edges are approximately 0.46 of the depth of the deepest sign below the \bar{c} of the truss. When are spaced thus, S_1 is determined by the deepest sign.

See sheet SL (MV-1) (M) for lighting details & spa. S.L. & E.S.
 See sheet SWW(1) (M) for walkway details.
 See sheet SMD (2-5) (M) for sign details & max. spa. for S_1 .
 Sc = 150 mm min, .25 S_1 max.

Note: Exit panel may be supported by sign support brackets as shown hereon, or may be supported as shown on sheet SMD(2-5) (M). Regardless of method used spacing of supports shall not exceed S_1 .



SECTION R-R

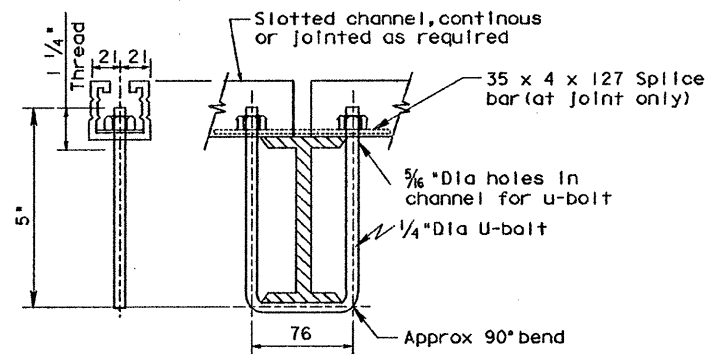
Texas Department of Transportation
 Traffic Operations Division

**SUPPORT BRACKETS
 FOR
 SIGNS, WALKWAY & LIGHTS**

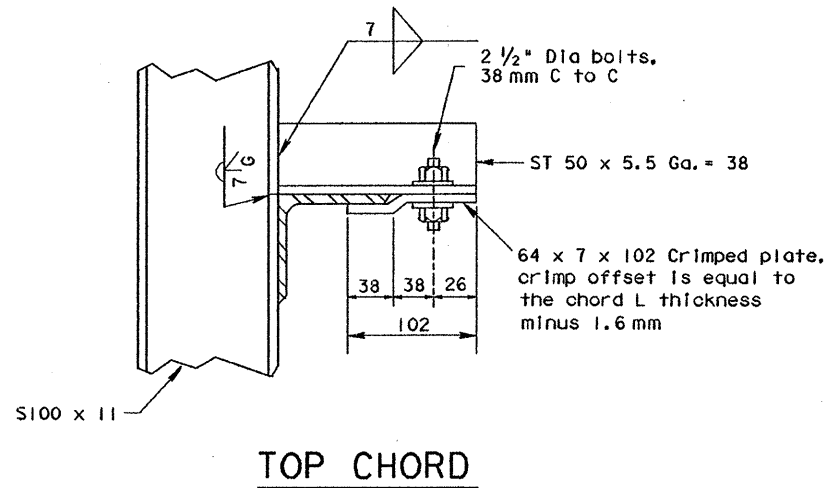
SB (SWL-1) (M)

FILE: sbst084.dgn	DN: CWC	CK: LEH	DN: BGD	CK: TEB	STD: 84
ORIG DATE: APRIL 1996	DIST: FED REG	FEDERAL AID PROJECT		SHEET	
REVISIONS		21	6	NH 96(79)DM 498	
		COUNTY	CONTROL SECT	JOB	HIGHWAY
		HIDALGO	0039	17	118 US83

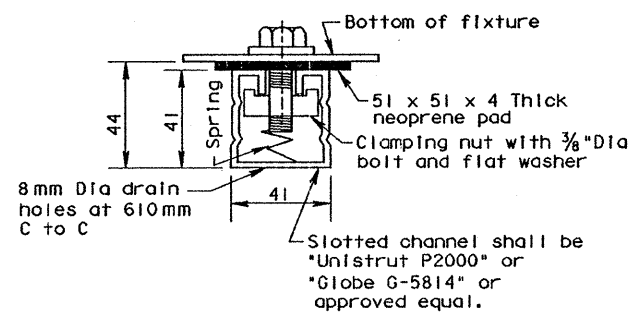
NEW 5/23/96



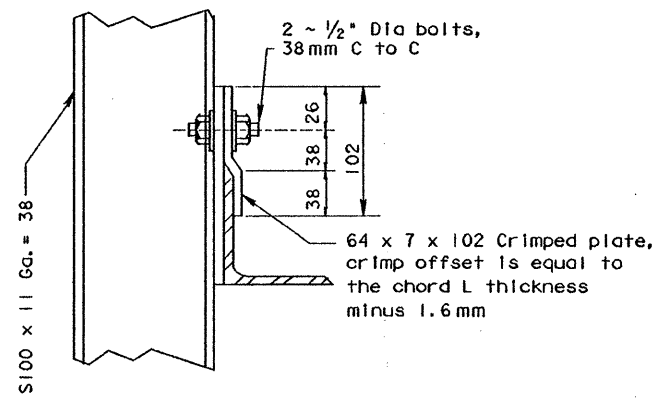
SECTION A-A



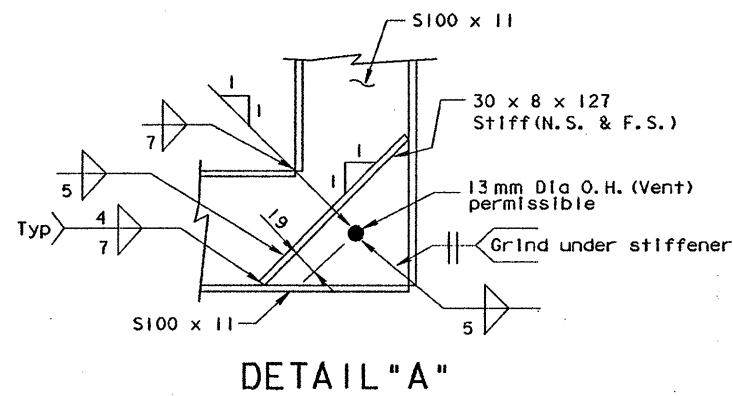
TOP CHORD



TYPICAL SLOTTED CHANNEL CONNECTED TO LIGHTING FIXTURE



BOTTOM CHORD SUPPORT TO TRUSS CONNECTION



DETAIL "A"

GENERAL NOTES:

Design conforms to 1975 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and Interim revisions thereto.

Materials, fabrication, construction and erection shall conform with the requirements of specifications for Interstate Signing and Delineation projects and Texas Department of Transportation standard specifications for Construction of Highways, Streets and Bridges. Structural steel shall conform with ASTM specification A36M unless noted otherwise.

Bolts shall have hexagon heads and nuts and conform with ASTM specification A307.

All parts shall be galvanized after fabrication.

All dimensions are in millimeters (mm) unless shown otherwise.

SHEET 2 of 2

Texas Department of Transportation
Traffic Operations Division

SUPPORT BRACKETS FOR SIGNS, WALKWAY & LIGHTS

SB(SWL-1)(M)

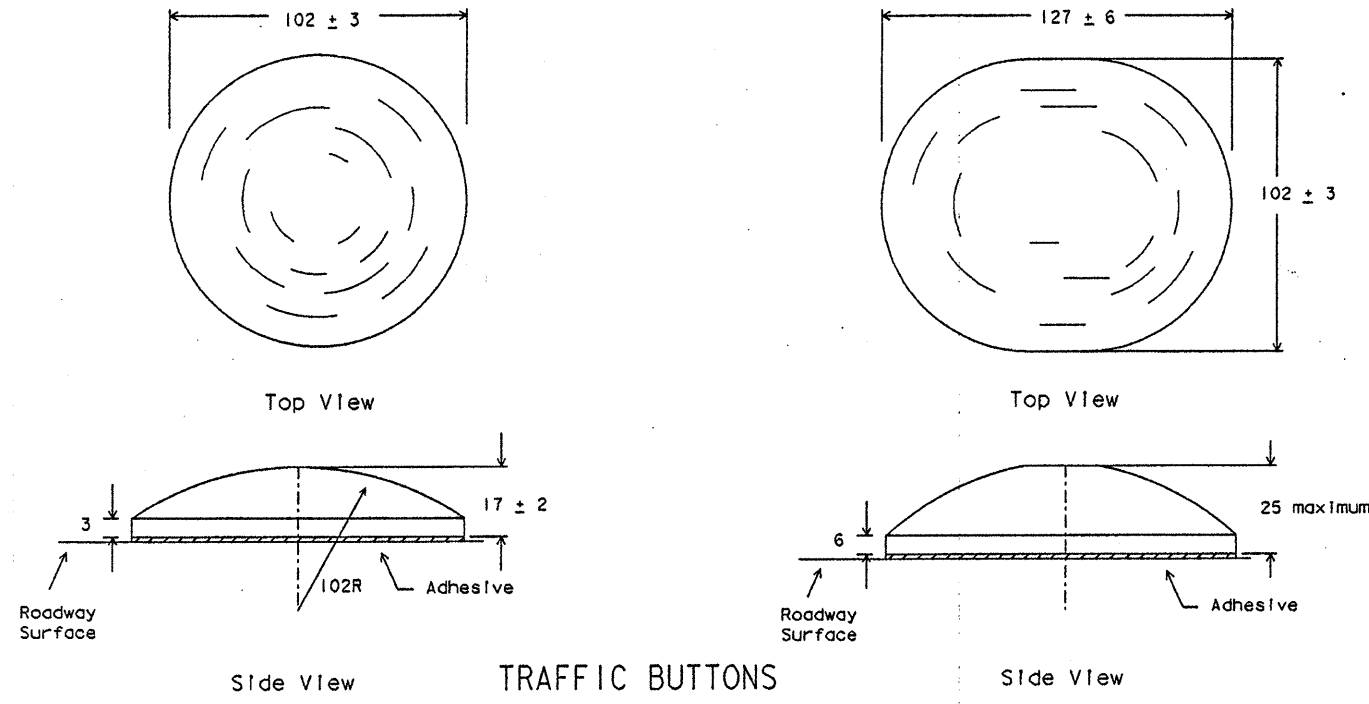
FILE: sbst084.dgn	DN: CWC	CK: LEH	DR: BGD	CR: TEB	STD: 84
ORIG DATE: APRIL 1996	DIST	FED REG	FEDERAL AID PROJECT	SHEET	
REVISIONS	21	6	NH 96(79)DM	498A	
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	HIDALGO	0039	17	118L683	

NEW 5/28/96

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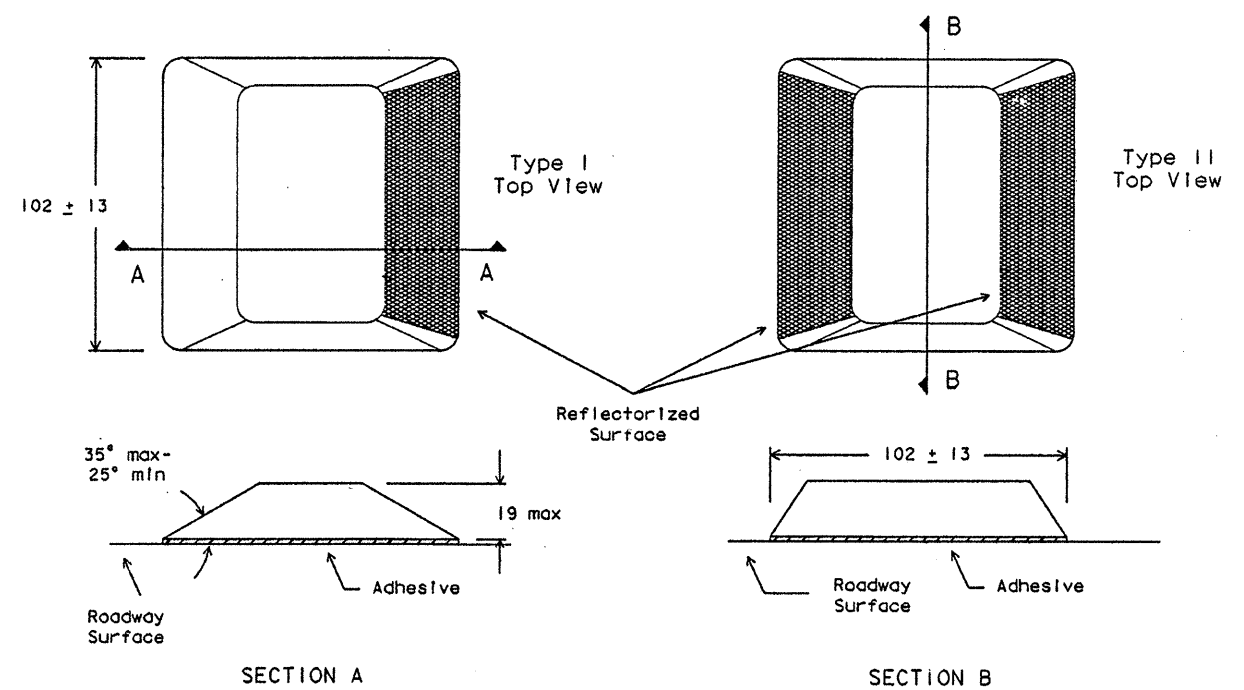
LEVELS DISPLAYED	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

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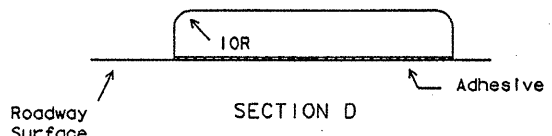
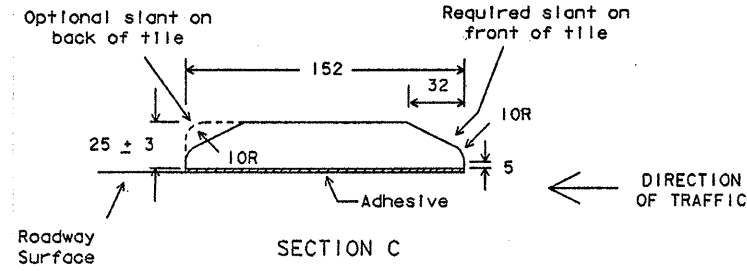
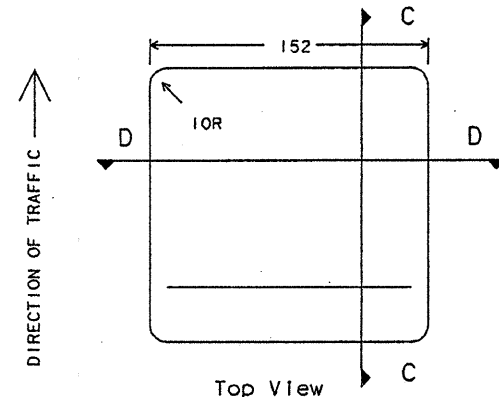


**TRAFFIC BUTTONS
 (NON-REFLECTORIZED)**

NOTE: Minimum area of markers shall be not less than 8064 square mm.
 Either shape may be used but the same shape shall be used through out the project.

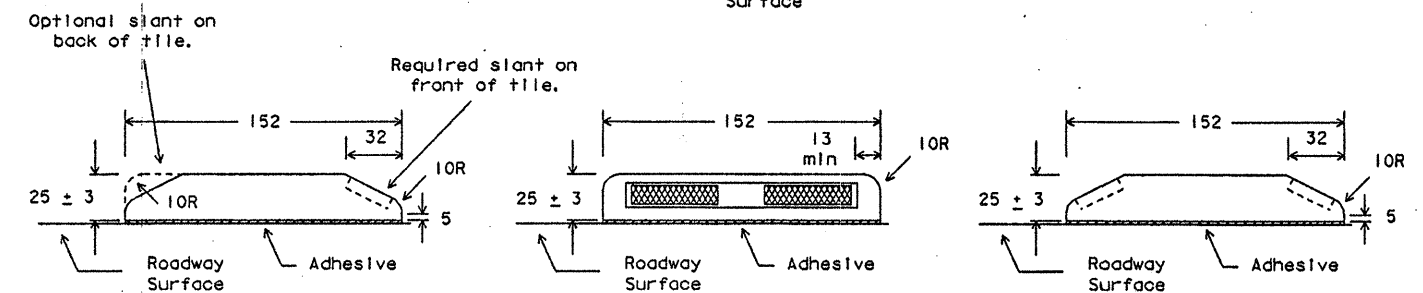
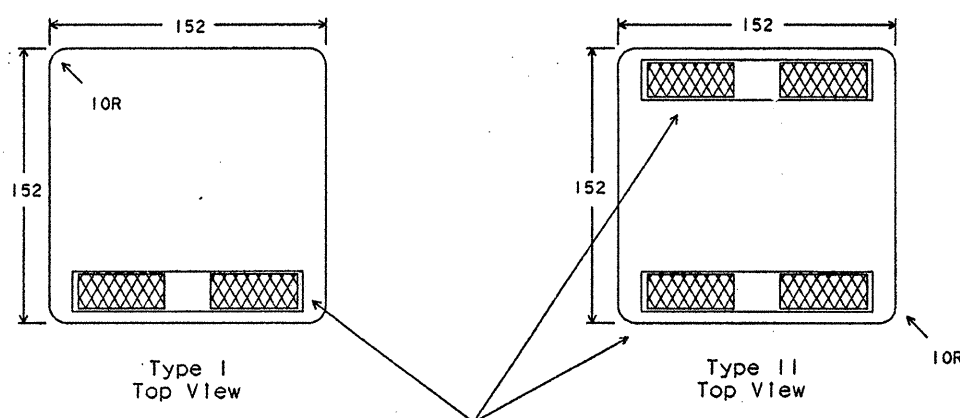


**RAISED PAVEMENT MARKERS
 (REFLECTORIZED)**



**JIGGLE BAR TILES
 (NON-REFLECTORIZED)**

Jiggle Bars consist of a number of Jiggle Bar Tiles placed in a linear configuration.



**JIGGLE BAR TILES
 (REFLECTORIZED)**

SPECIFICATION REFERENCE TABLE	
MATERIALS AND TEST SPECIFICATIONS (D-9)	
JIGGLE BAR TILE	D-9-4100
PAVEMENT MARKERS (REFLECTORIZED)	D-9-4200
TRAFFIC BUTTONS	D-9-4300
BITUMINOUS ADHESIVE	D-9-6130

GENERAL NOTES:

RAISED PAVEMENT MARKERS (RPMs) MAY CONSIST OF TRAFFIC BUTTONS, PAVEMENT MARKERS AND/OR JIGGLE BAR TILES. PAVEMENT SURFACE SHALL BE PREPARED AND CLEANED SUBJECT TO APPROVAL OF THE ENGINEER BEFORE ADHESIVE AND RPMs ARE PLACED.

JIGGLE BARS SHALL BE ORIENTED PERPENDICULAR TO ROADWAY. JIGGLE BARS SHALL ALSO BE PLACED AT SUCH OTHER LOCATIONS AS SHOWN IN PLANS OR AS DIRECTED BY THE ENGINEER.

MARKERS, BUTTONS AND JIGGLE BAR TILES SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY AND NOT INTENDED TO SPECIFY ANY PARTICULAR PRODUCT. ALL PAVEMENT MARKERS PROVIDED SHALL BE OF THE SAME MANUFACTURER.

All dimensions are ±3 mm unless otherwise noted.

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

**RAISED PAVEMENT MARKERS
 REFLECTIVE PAVEMENT MARKERS,
 TRAFFIC BUTTONS &
 JIGGLE BAR TILE**

RPM(1)-92(M)

REV.	DATE	BY	CHKD.	APP'D.	NO.
2-82	10-86				
7-85	12-90				
11-85	4-92				
7-86					

STATE	FEDERAL AID PROJECT	SHEET
21	NH96(791) M	499
COUNTY	CONTROL SECTION	JOB
Hidalgo	20391 17	118 US 83

LEVELS: 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

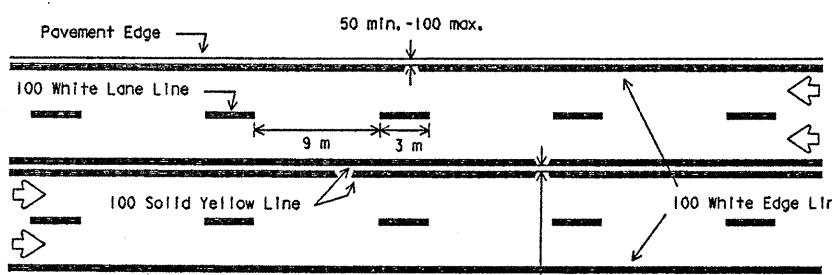
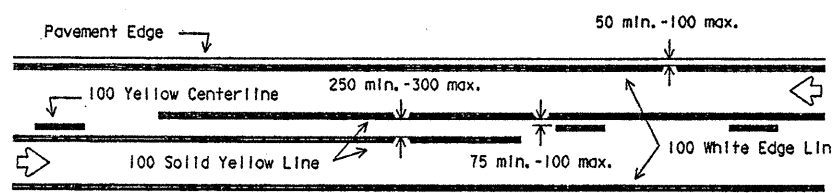
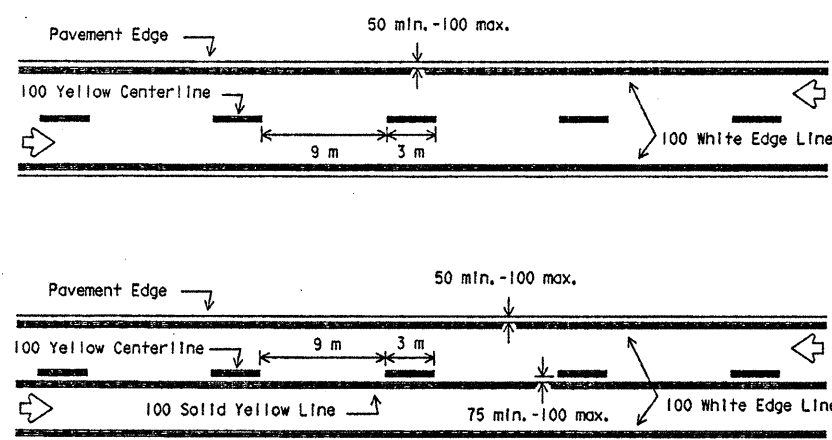
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DN:LR
 CK: CW
 DW: DN
 CK: MT

DATE: 11/21/16
 ACC: dc
 FILE: ip/c/Usr/0580504

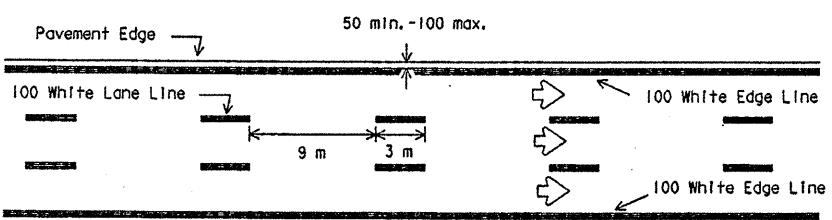
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

TWO LANE TWO-WAY ROADWAY

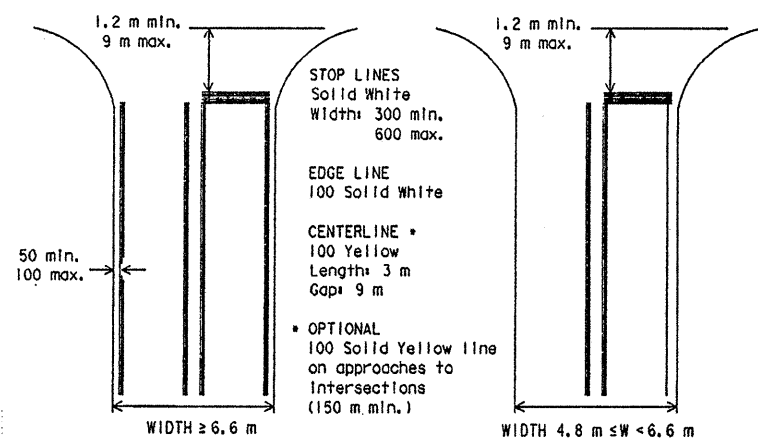


CENTERLINE AND LANE LINES
 FOUR LANE TWO-WAY ROADWAY

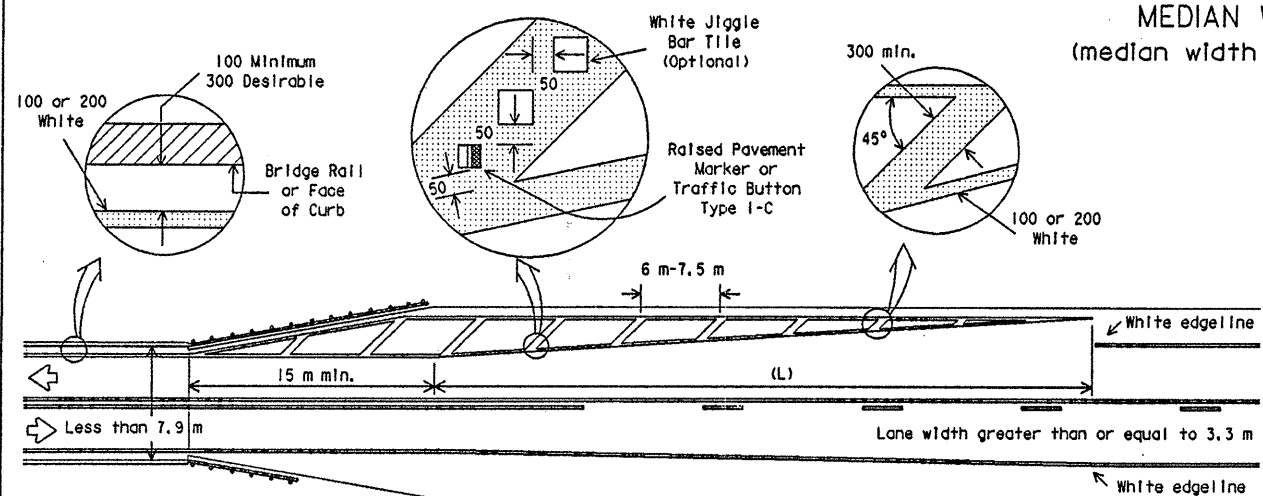
75 min. - 100 usual
 300 max. (for pavement widths greater than 14.4 m only)



EDGE LINE AND LANE LINES
 ONE-WAY ROADWAY



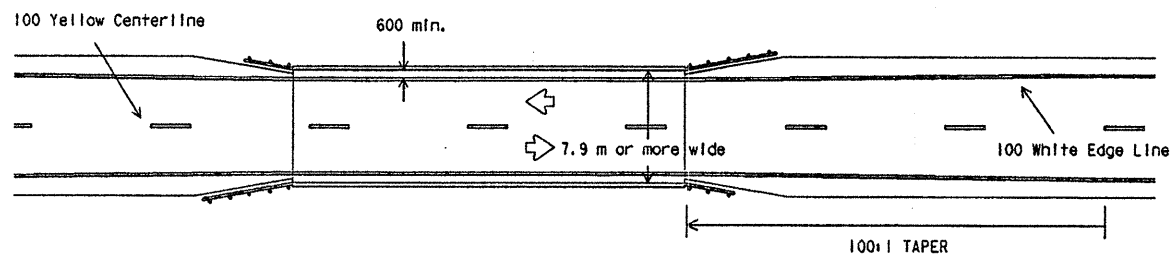
GUIDE FOR PLACEMENT OF STOP LINES,
 EDGE LINE & CENTERLINE



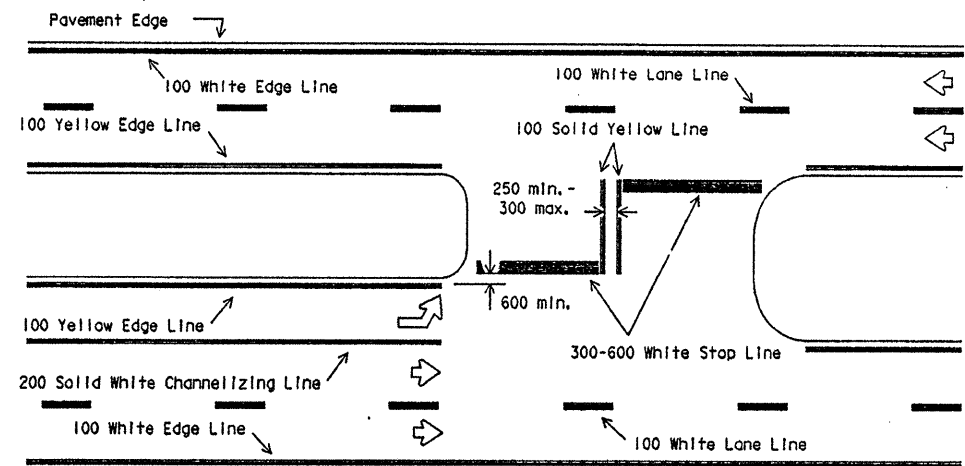
NOTES:

1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 150 m long.
2. 300 mm crosshatching is optional. See plan quantities.
3. For taper length (L) see Table 1.

NARROW BRIDGES (less than 7.9 m)
 TWO LANE TWO-WAY ROADWAY



BRIDGES (7.9 m or greater in width)
 TWO LANE TWO-WAY ROADWAY



FOUR LANE DIVIDED ROADWAY INTERSECTIONS
 MEDIAN WIDTH GREATER THAN 9.14 METERS
 (median width measured between crossover stop lines)

TABLE 1
 TYPICAL TRANSITION LENGTHS
 (METERS)

Posted Speed *	Formula	Minimum Desirable Taper Lengths **		
		3.0 m Offset	3.3 m Offset	3.6 m Offset
30	$L = \frac{WS^2}{60}$	45	50	55
35		65	70	75
40		80	90	100
45	L=WS	135	150	165
50		150	165	180
55		165	185	200
60		180	200	220
65		195	215	235

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed (mi./hr. (MPH))
 ** Taper lengths have been rounded.

All dimensions are in millimeters unless otherwise noted.

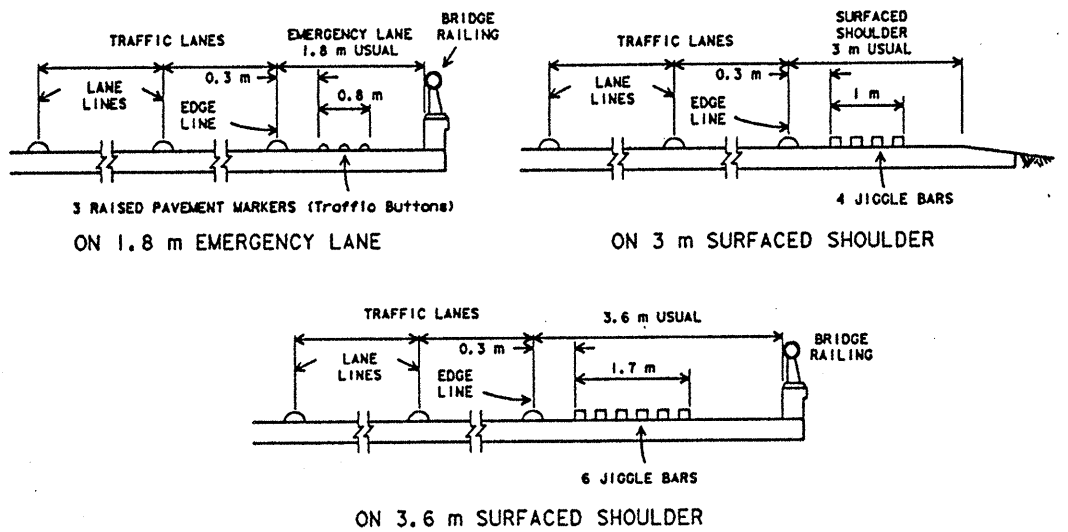
STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

TYPICAL STANDARD
 PAVEMENT MARKINGS

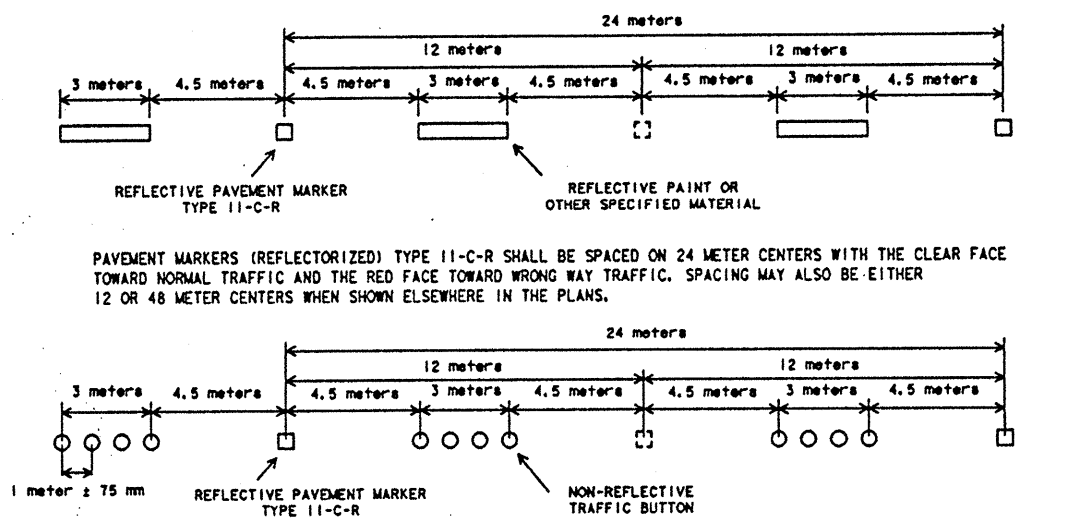
PM(1)-95A(M)

ORIG DRAW DATE: NOV. 1978	DN: LR	CK:	DW: DN	CK:	REV NO.:
REVISIONS	STATE DIVISION	FEDERAL AID PROJECT	COUNTY	CONTROL SECTION	JOB
2-82 7-92	21	6	NH96(791) M	500	
11-85 8-95					
7-86 12-95					
4-92 1-96					
Hidalgo 00391 17 118 MS 83					

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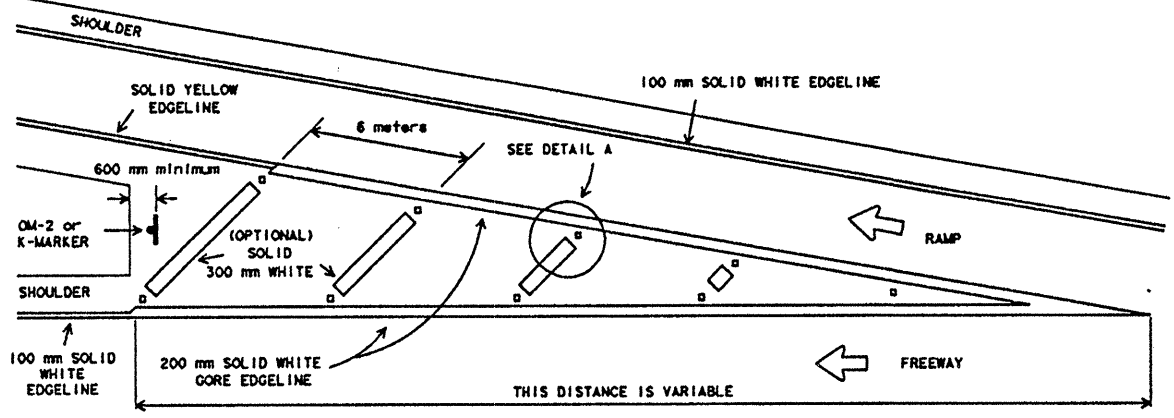
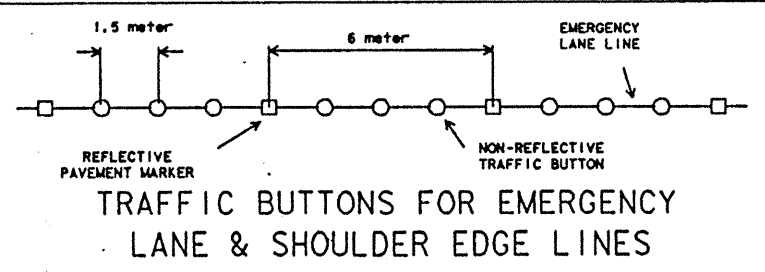


TYPICAL SECTIONS SHOWING JIGGLE BAR LOCATIONS
 (RAISED PAVEMENT MARKING EDGE LINES NORMALLY USED ONLY WITH EMERGENCY LANES)
 LANE LINES AND EDGE LINES MAY CONSIST OF VARIOUS MATERIALS AS CALLED FOR ELSEWHERE IN THE PLANS.
 IF BICYCLES ARE PROHIBITED, JIGGLE BARS MAY EXTEND FULL WIDTH OF SHOULDERS.



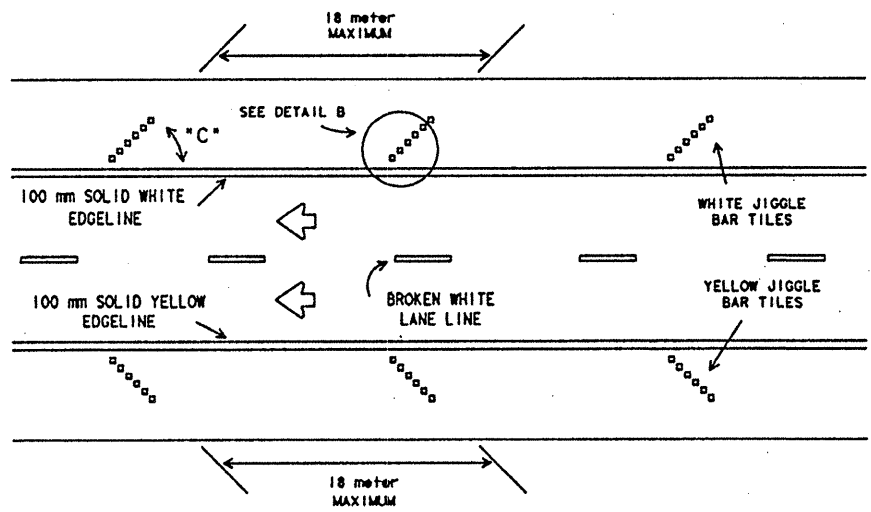
PAVEMENT MARKERS (REFLECTORIZED) TYPE 11-C-R SHALL BE SPACED ON 24 METER CENTERS WITH THE CLEAR FACE TOWARD NORMAL TRAFFIC AND THE RED FACE TOWARD WRONG WAY TRAFFIC. SPACING MAY ALSO BE EITHER 12 OR 48 METER CENTERS WHEN SHOWN ELSEWHERE IN THE PLANS.
 BUTTONS FOR LANE LINES MAY BE PLACED AT 1.5 METER SPACING IF SPECIFIED ELSEWHERE IN PLANS OR AS DIRECTED BY THE ENGINEER.

TRAFFIC LANE LINES
 PAVEMENT MARKING DETAILS



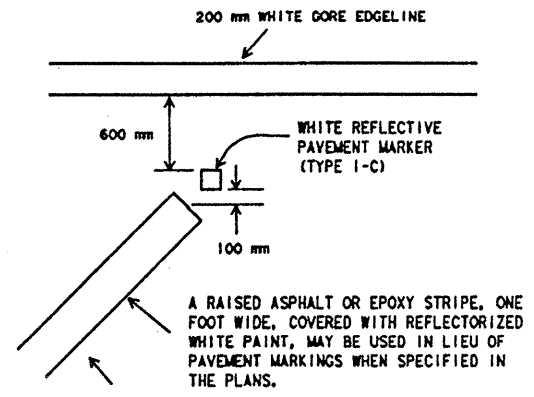
THE SHAPE OF THE GORE MARKING WILL VARY DEPENDING ON THE RAMP DESIGN AND WILL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. OM-2 OR SURFACE MOUNT OBJECT MARKER MOUNTING HEIGHT IS 450 mm. SURFACE MOUNT MARKER MAY BE CARSONITE, "K-MARKER", SAFE-HIT OR EQUAL.

TYPICAL EXIT RAMP GORE MARKING

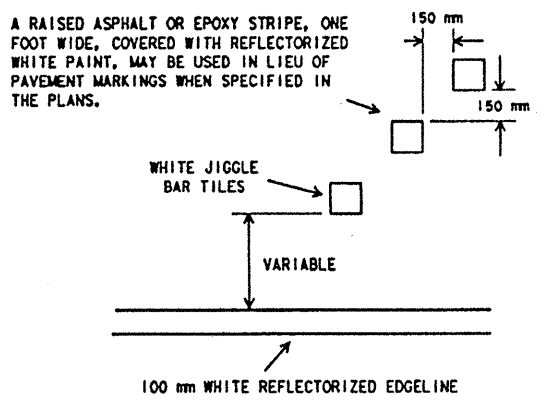


FOR TANGENT ROADWAYS, 'C' ANGLE OF JIGGLE BAR TILE TO EDGE LINE IS USUALLY 45°. FOR EMERGENCY LANES, STRUCTURES AND RAMP, 'C' IS USUALLY 90°. 'C' MAY BE SPECIFIED ELSEWHERE IN THE PLANS.

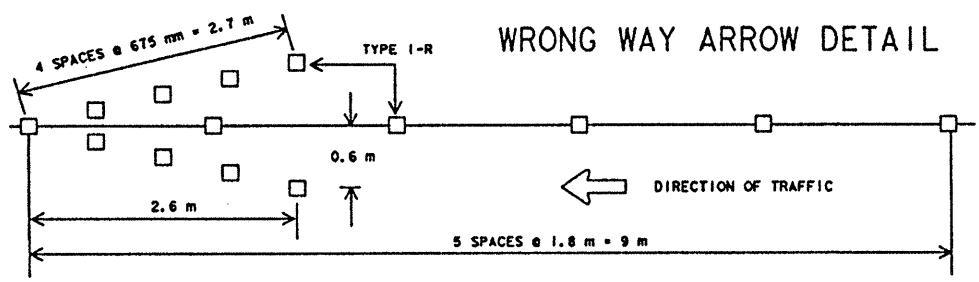
TYPICAL JIGGLE BAR TILE PLACEMENT



DETAIL A



DETAIL B



ALL RAISED MARKERS IN THE WRONG WAY ARROW SHALL BE TYPE 1-R REFLECTORIZED PAVEMENT MARKERS WITH THE REFLECTORIZED SURFACE FACING THE WRONG WAY TRAFFIC. TYPE 11-C-R SHALL NOT BE USED.
 REFLECTORIZED WRONG WAY ARROWS, NOT TO EXCEED TWO, SHOULD BE PLACED ON ALL EXIT RAMP WITHIN THE LIMITS OF THE PROJECT. LOCATION OF THE ARROWS SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

TYPICAL STANDARD
 FREEWAY PAVEMENT MARKINGS
 WITH RAISED
 PAVEMENT MARKERS
 FPM(1)-95(M)

DATE	REVISED	BY	CHK'D	APP'D	NO.
May 1974					
7-86	12-90	4-92	10-95		
STATE	FEDERAL AID PROJECT				
21	6 NH 96 (70)A				502
COUNTY	CENTRAL SECTION	JOB	NO.		
Hidalgo	0039	17/18	0503		
					Metric 23A

NEW 5/28/96

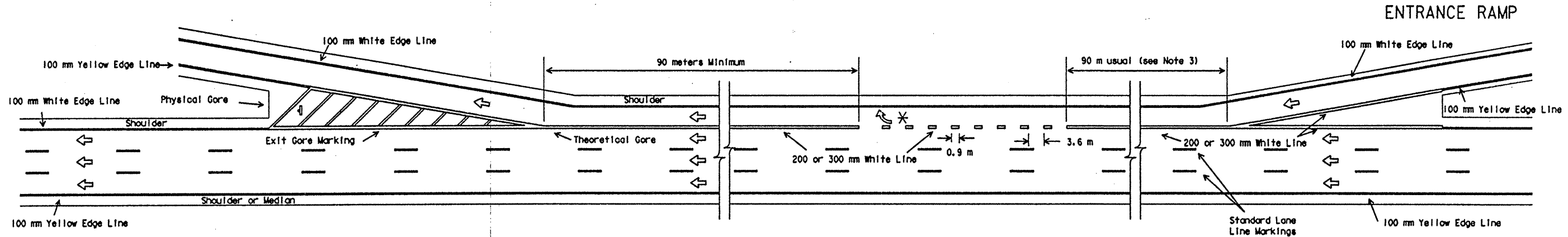
DIVISION
 CK-CW
 DW-DN
 CK-MT

LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

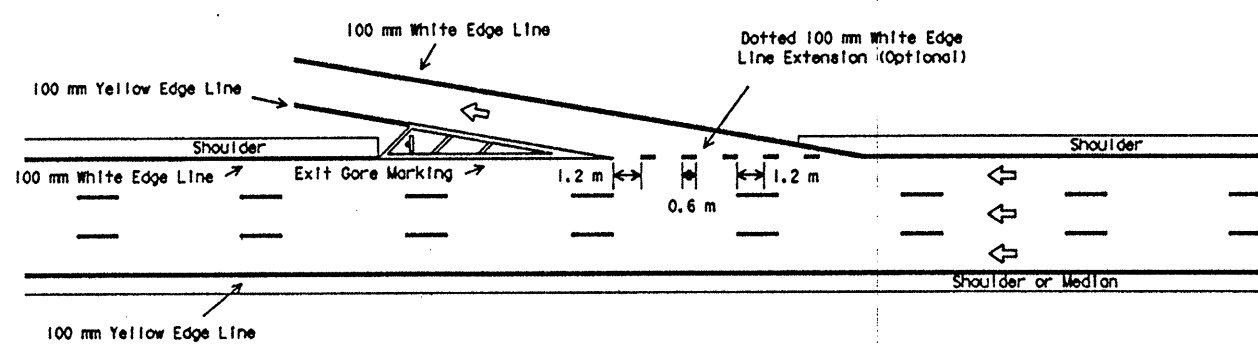
DATE
 d58hpic/usr/d580504
 FILE

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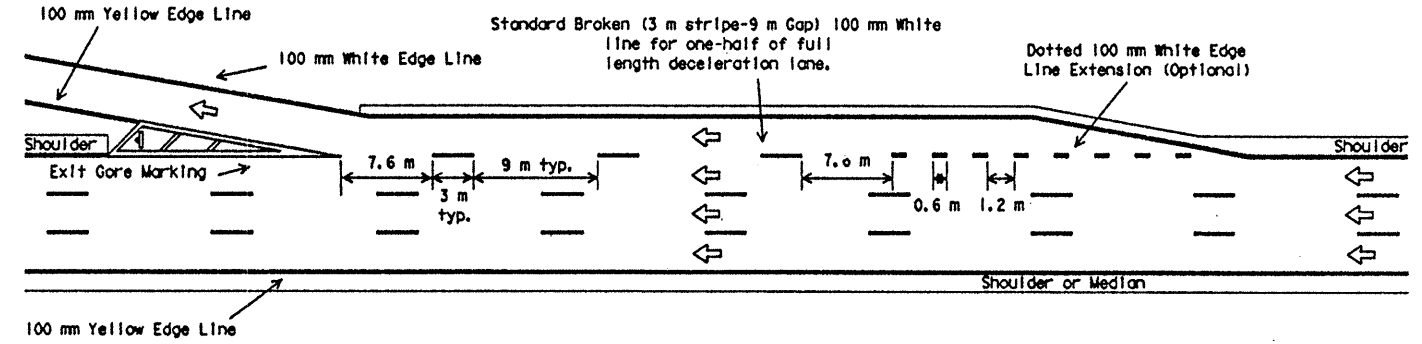
LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 DAT: ACC: d58hplc/uer/0580504 FILE:



SINGLE LANE EXIT WITH AUXILIARY LANE
 (See Note 5)



TAPERED DECELERATION LANE



PARALLEL DECELERATION LANE

- LEGEND
- - OM-2HR, OM-2HP or surface mount object marker (K-Marker) installed 0.6 to 3 meters from Physical Gore. Mounting height is approximately 450 mm. K-Marker may be Caronite, Safe-Hit or equal.
 - ← - Denotes direction of traffic.
 - ↔ - Pavement marking arrows (white).
 - * - Optional

- NOTES:
1. Pavement markings shall be white except as otherwise noted.
 2. Pavement marking arrows to be located as specified elsewhere in the plans.
 3. Length of 200-300 mm white line may vary depending on location.
 4. Lane drop markings are to be used to separate lanes that are required to go in different directions.
 5. A lane drop (EXIT ONLY) condition is typically when the nearest entrance ramp is greater than 600 meters upstream of the exit ramp, measured from theoretical gore of entrance ramp to theoretical gore of exit ramp.

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

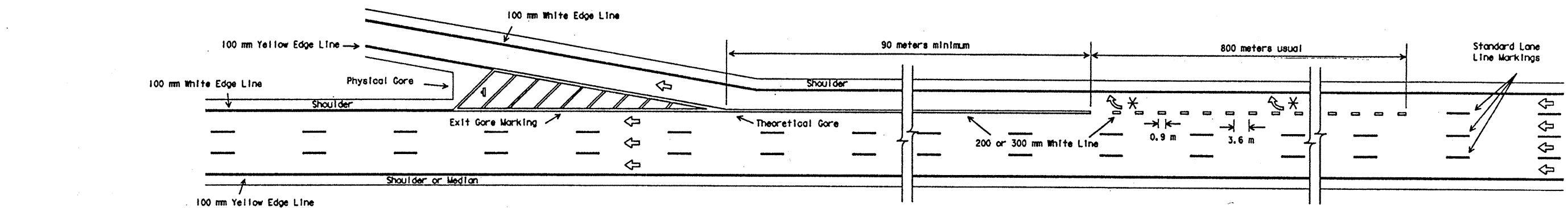
TYPICAL STANDARD
 FREEWAY PAVEMENT MARKINGS
 ENTRANCE AND EXIT RAMP
 FPM(2) -95 (M)

DATE: February 1977	REVISED: 5-77, 8-95	STATE: 27	FEDERAL AID PROJECT: 6	COUNTY: HIDALGO	CONTROL SECTION: 17	JOB: 110	HIGHWAY: 583
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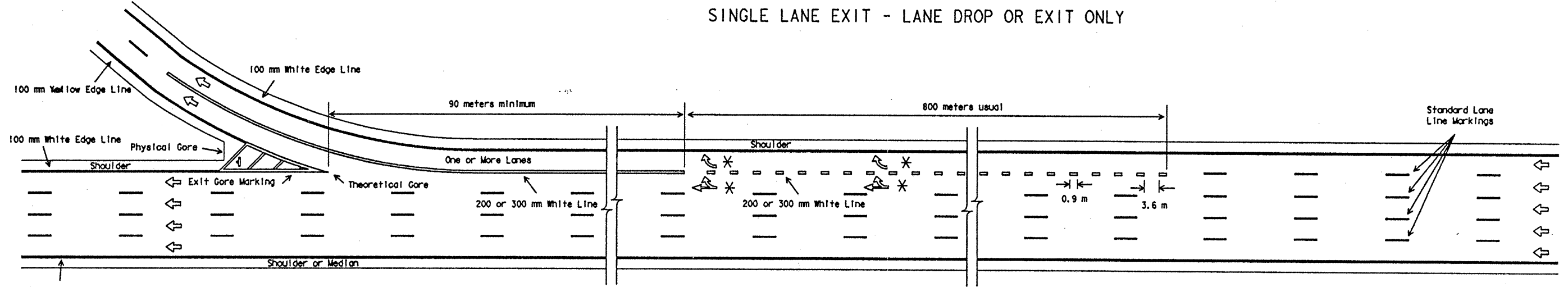
NEW 5/28/96
 Metric 235

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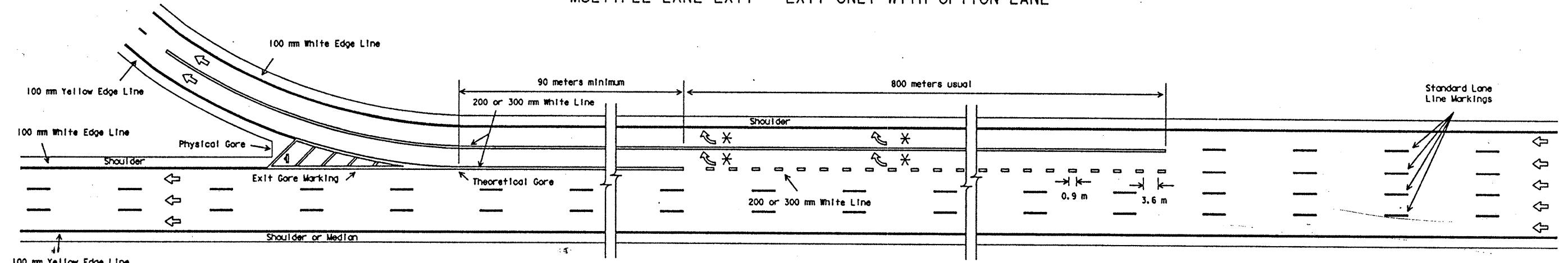
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 DWG. NO. 504
 CHK. BY: [blank]
 DESIGNED BY: [blank]
 DRAWN BY: [blank]
 PROJECT NO. 960791M
 COUNTY: HIDALGO
 CONTROL SECTION: 8039
 JOB: 110
 HIGHWAY: 1583



SINGLE LANE EXIT - LANE DROP OR EXIT ONLY



MULTIPLE LANE EXIT - EXIT ONLY WITH OPTION LANE



MULTIPLE LANE EXIT ONLY

- LEGEND
- ◻ - OM-2HR, OM-2HP or surface mount object marker (K-Marker) Installed 0.6 to 3 meters from Physical Gore. Mounting height is approximately 450 mm. K-Marker may be Carsonite, Safe-Hit or equal.
 - ← - Denotes direction of traffic.
 - ↔ - Pavement marking arrows (white).
 - * - Optional

- NOTES
1. Pavement markings shall be white except as otherwise noted.
 2. Pavement marking arrows to be located as specified elsewhere in the plans.
 3. Length of 200-300 mm white line may vary depending on location.
 4. Lane drop markings are to be used to separate lanes that are required to go in different directions.
 5. A lane drop (EXIT ONLY) condition is typically when the nearest entrance ramp is greater than 2000 feet upstream of the exit ramp, measured from theoretical gore of entrance ramp to theoretical gore of exit ramp.

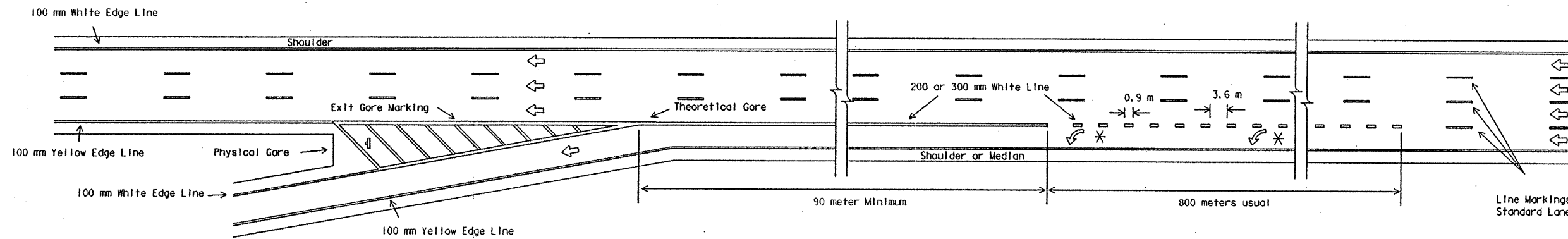
All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

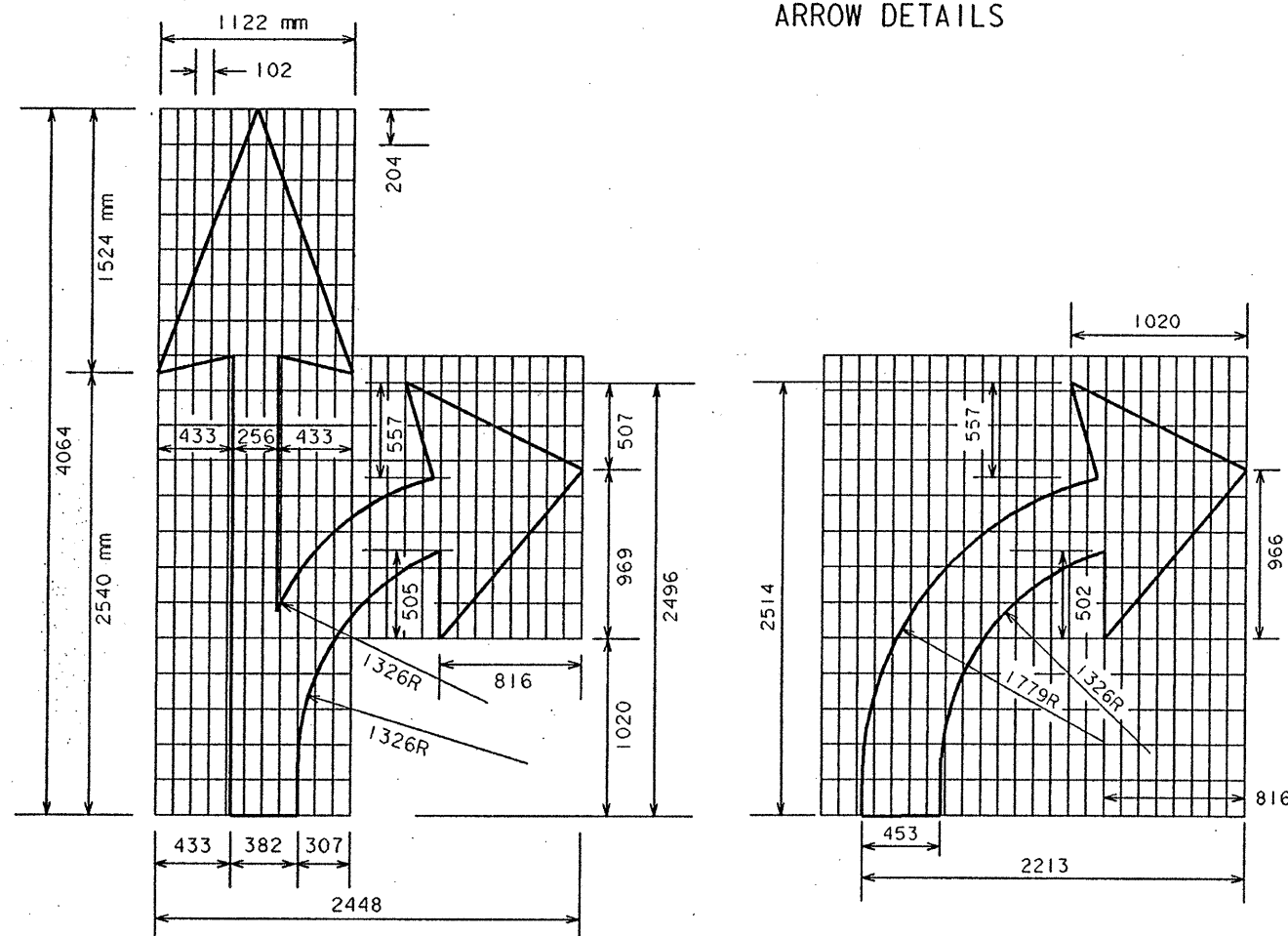
TYPICAL STANDARD
 FREEWAY PAVEMENT MARKINGS
 LANE DROP (EXIT ONLY) EXIT RAMP
 FPM(3)-92(M)

DATE: April 1992	DRW: LR	CHK: [blank]	DES: DN	APP: [blank]	REV: [blank]
21	6	960791M	504		
HIDALGO	8039	110	1583		

NEW 5/28/96

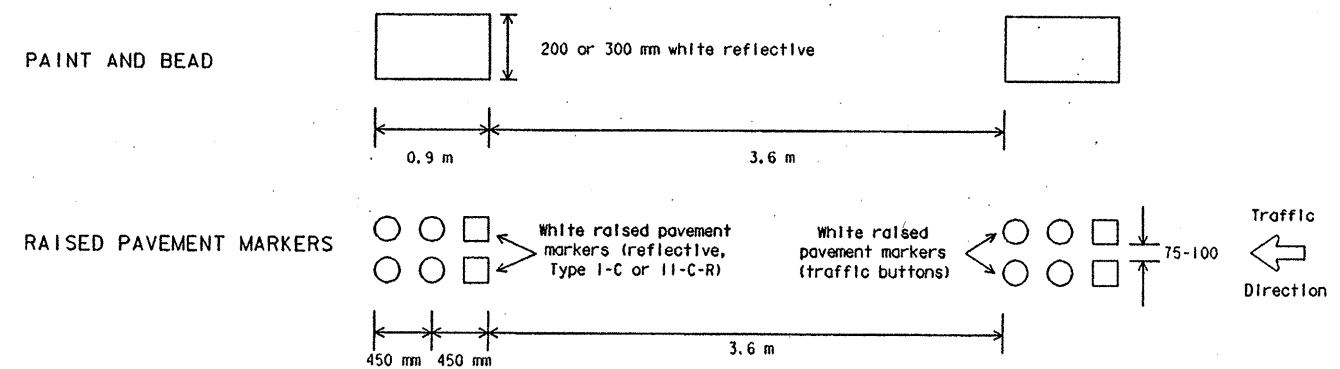


SINGLE LANE EXIT - LANE DROP OR EXIT ONLY (LEFTHAND)



ARROW DETAILS

LANE DROP PAVEMENT MARKING DETAILS



LEGEND

- ☐ - OM-2HR, OM-2HP or surface mount object marker (K-Marker) installed 0.6 to 3 meter from Physical Gore. Mounting height is approximately 450 mm. K-Marker may be Carsonite, Safe-Hit or equal.
- ↔ - Denotes direction of traffic.
- ↔ - Pavement marking arrows (white).
- * - Optional

NOTES:

1. Pavement markings shall be white except as otherwise noted.
2. Pavement marking arrows to be located as specified elsewhere in the plans.
3. Length of 200-300 mm white line may vary depending on location.
4. Lane drop markings are to be used to separate lanes that are required to go in different directions.
5. A lane drop (EXIT ONLY) condition is typically when the nearest entrance ramp is greater than 600 meters upstream of the exit ramp, measured from theoretical gore of entrance ramp to theoretical gore of exit ramp.

All dimensions are in millimeters unless otherwise noted.

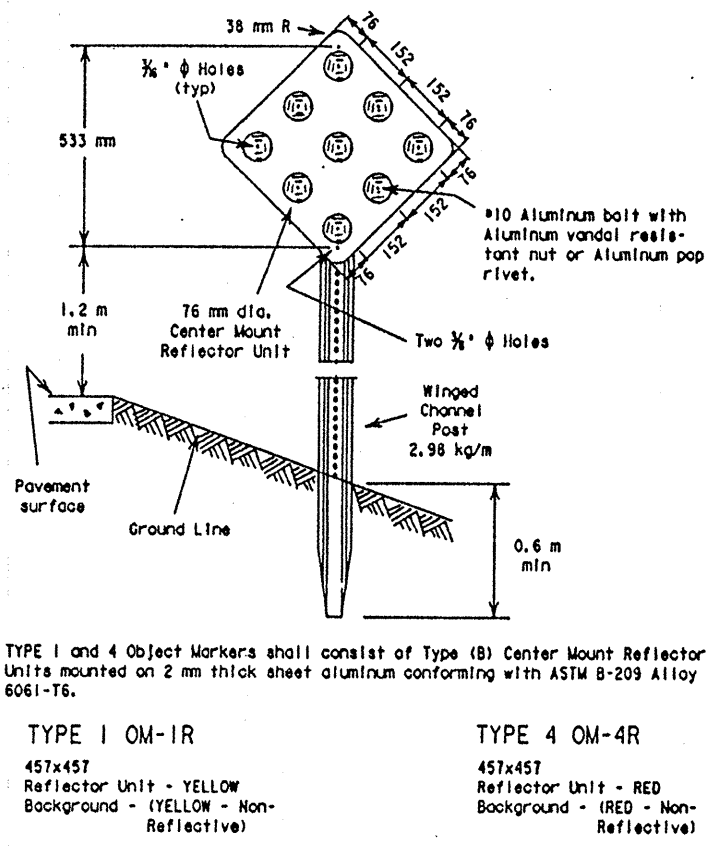
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TYPICAL STANDARD
FREEWAY PAVEMENT MARKINGS
LANE DROP (EXIT ONLY) DETAILS
FPM(4) - 92 (M)

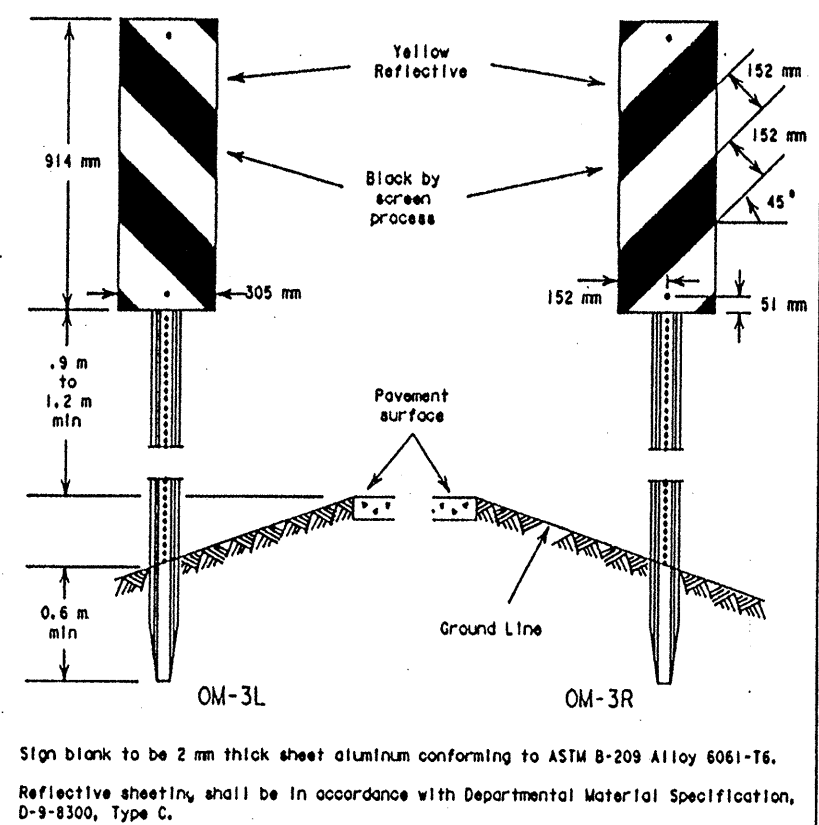
DATE DRAWN	APR 11 1992	DR - LR	CR -	DM - DN	CS -	REG. NO. 1
REVISIONS						
COUNTY	HIDALGO	FEDERAL AID PROJECT	NH96(791) M	SHEET	505	
SECTION	17	JOB	118	DATE	03/91	

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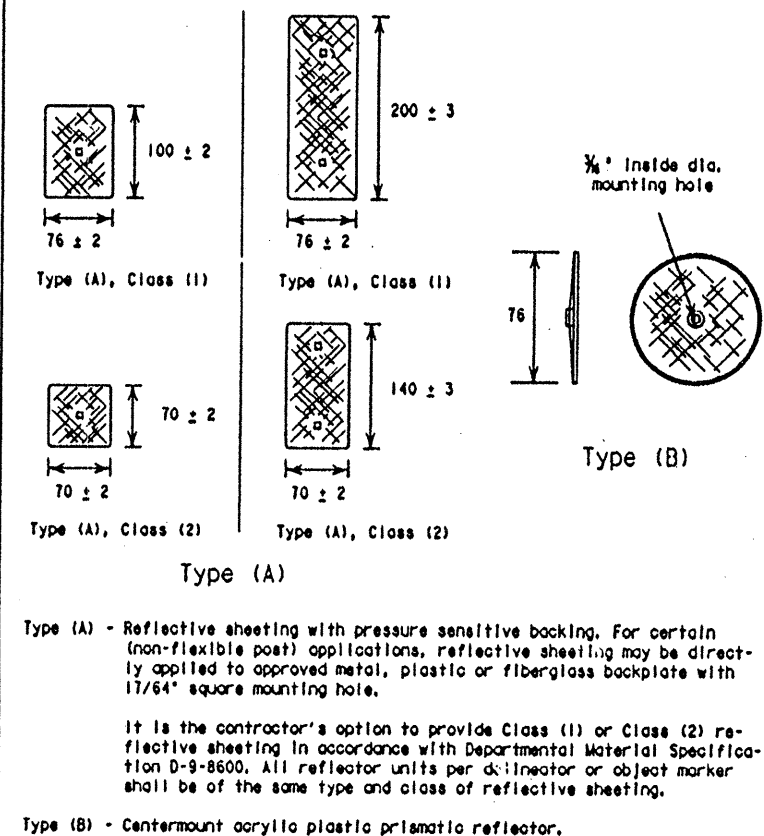
OBJECT MARKER TYPES 1 and 4



OBJECT MARKER TYPE 3



TYPICAL REFLECTOR UNITS



SPECIFICATION REFERENCE TABLE

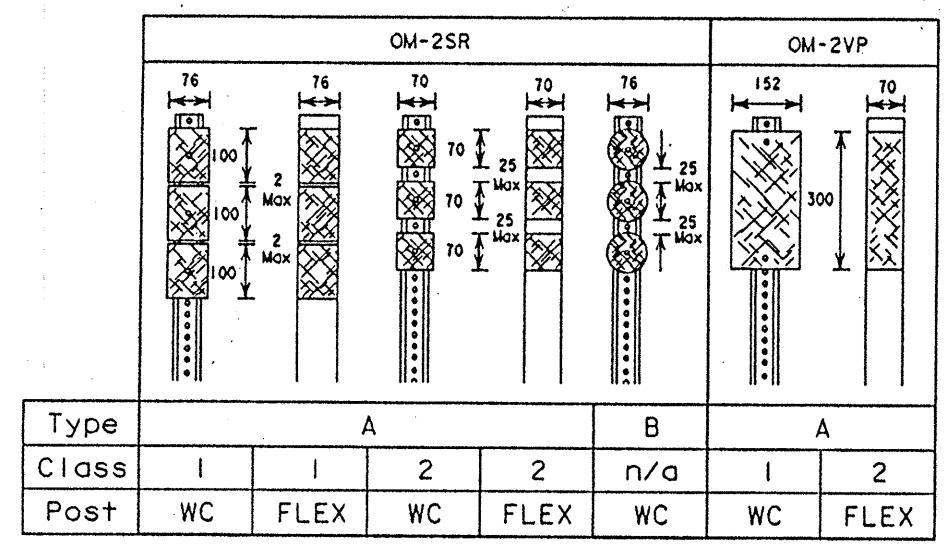
MATERIALS AND TESTS DIVISION SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (DRIVEABLE & SURFACE MOUNT TYPES)	D-9-4400
FLAT SURFACE REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
NON-REFLECTIVE BACKGROUND COATING	D-9-8500
DELINEATOR AND OBJECT MARKER	D-9-8600

- GENERAL NOTES:**
- 1) Delineators shall be uniformly placed not less than 0.6 m nor more than 2.4 m from the edge of shoulder or the face of unmountable curb. They may be placed in line with guardrail where guardrail is used.
 - 2) Object markers shall be located at points designated on the plan.
When used for marking objects in the roadway or 2.4 m or less from the shoulder or curb, the mounting height to the bottom of the object marker should normally be 1.2 m above the surface of the nearest traffic lane. When used to mark objects more than 2.4 m from the shoulder or curb, the mounting height to the bottom of the object marker may be 1.2 m above the ground line.
When object markers or markings are applied to a hazardous object which by its nature required a lower or higher mounting, the vertical mounting height may vary according to need.
 - 3) Hardware shall be galvanized steel, stainless steel, or aluminum, except as noted.
 - 4) Posts for supporting delineators and Type 2 object markers shall be 1.67 kg/m winged channel.
 - 5) Type 1, 3 and 4 object marker posts shall be 2.98 kg/m winged channel.
 - 6) Delineator and object markers shall be in accordance with Department Material Specification D-9-8600.

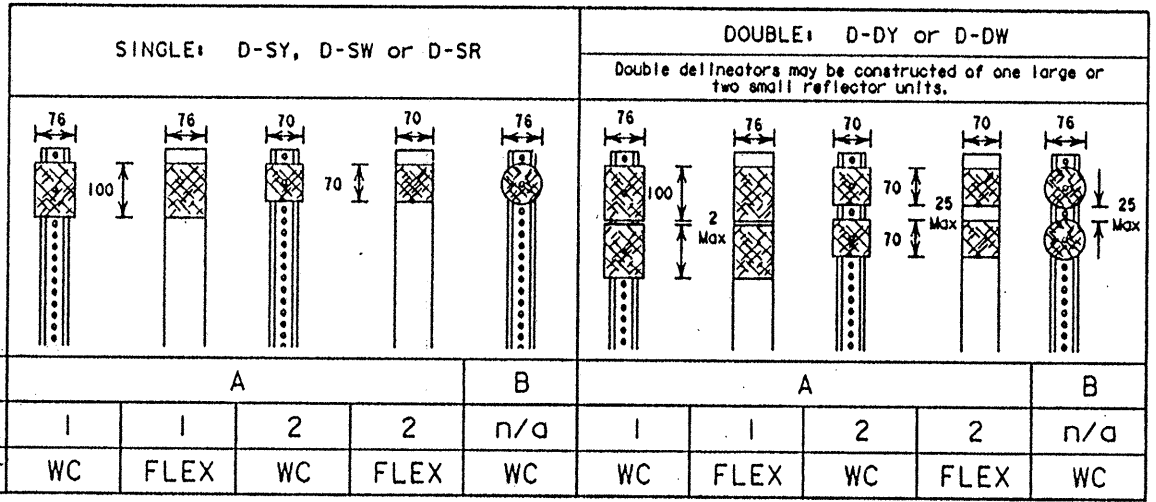
All dimensions are in millimeters unless otherwise noted.

OBJECT MARKERS TYPE 2

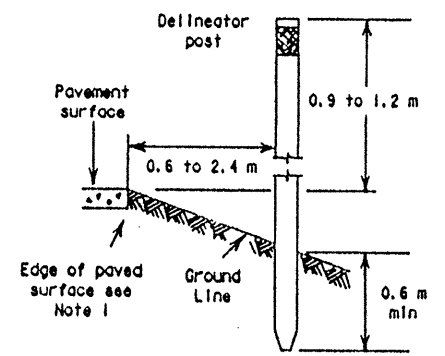
YELLOW (R-reflector unit, P-panel)



ALL REFLECTOR UNITS ARE YELLOW
 WC-wing channel post (1.67 kg/m)
 FLEX-flexible post (driveable and semi-driveable)



Length of post may vary to meet field conditions.
 REFLECTOR UNITS: W-white, Y-yellow, R-red
 WC-wing channel post (1.67 kg/m)
 FLEX-flexible post (driveable and semi-driveable)



TYPICAL INSTALLATION

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

DELINEATORS & OBJECT MARKERS
 (1 of 2) D & OM(1)-95(M)

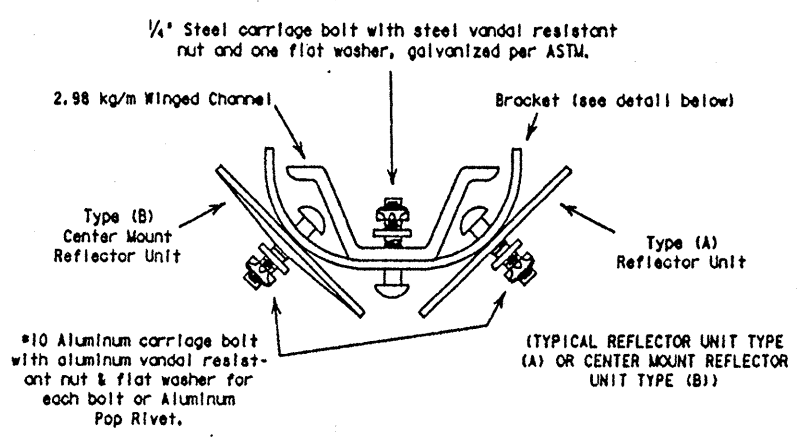
DATE	JAN, 1981	BY	LR	CHKD	DN	REV	NO.
REVISIONS		DATE	BY	CHKD	NO.		
1-82							
4-92							
8-95							
COUNTY		SECTION		JOB		MILEPOST	
HIDALGO		0039		17		118	

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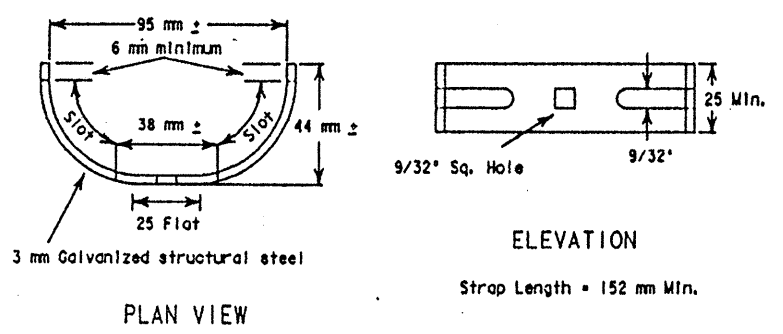
PLAN VIEW OF BIDIRECTIONAL MOUNTING

For Single Delineators Only

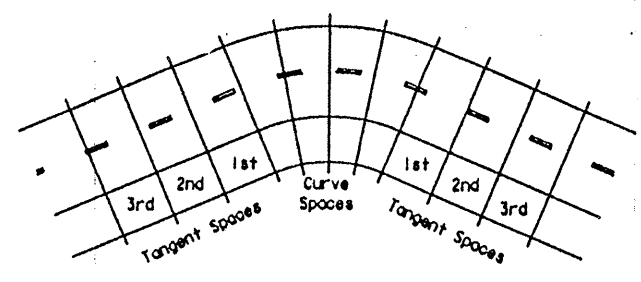
Post oriented as directed by Engineer



BIDIRECTIONAL BRACKET



DELINEATORS FOR CURVES OR TANGENT SECTIONS

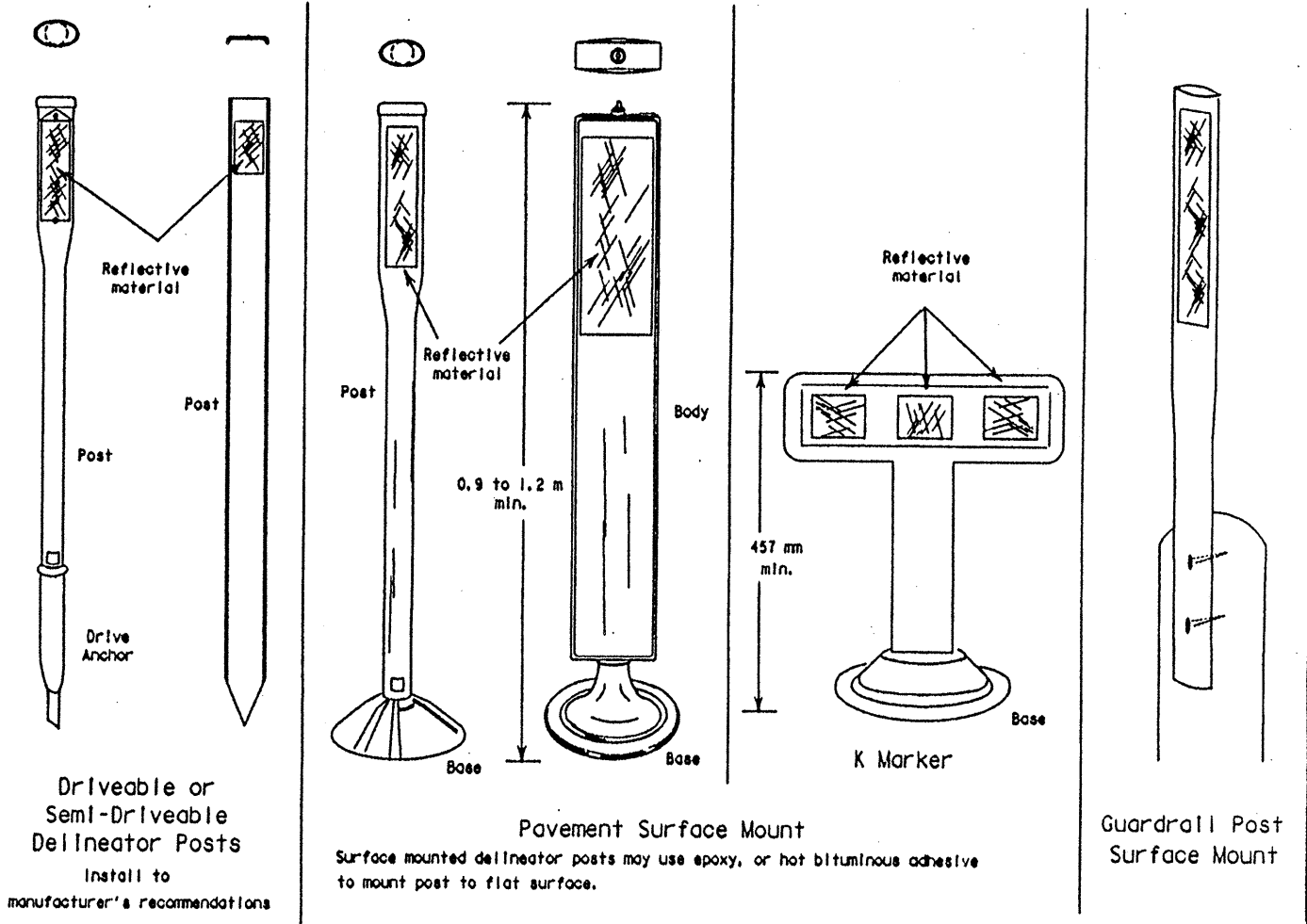


The delineator spacing, S, on the curve is found from the formula $S = 1.64\sqrt{R \cdot S}$, where R is the radius of the curve in meters. The first spaces immediately in advance of and beyond the curve are 2.0xS, the second spaces are 3.0xS, and the third spaces are 6.0xS but not to exceed 90 m. Distance for spaces rounded to nearest 1.0 m.

Spacing for Highway Delineators on Horizontal Curve

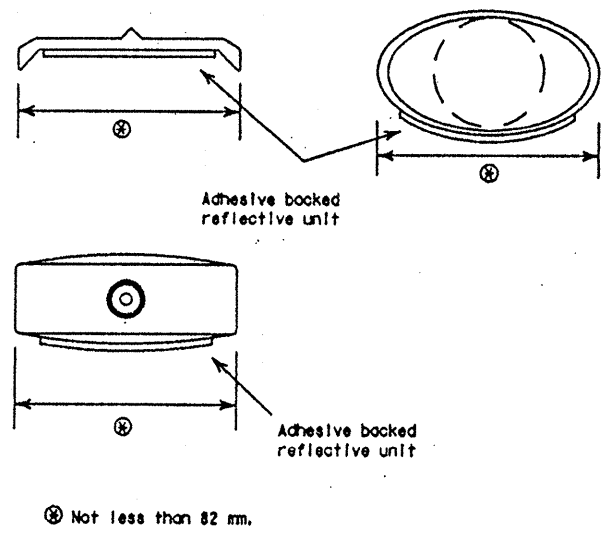
Degree of Curve	Radius in Curve Meters	Spacing on Curve Meters	Spacing in Advance of and Beyond Curve		
			First Space Meters	Second Space Meters	Third Space Meters
1	1746	68	90		
2	873	48		90	
3	582	39	79		
4	437	34	68		
5	349	30	61		
6	291	28	56	84	
7	249	26	52	78	
8	218	24	48	72	
9	194	23	46	69	
10	174	21	42	63	
11	159	20	40	60	
12	145	19	38	57	

FLEXIBLE POSTS



PLAN VIEW OF MONODIRECTIONAL MOUNTINGS

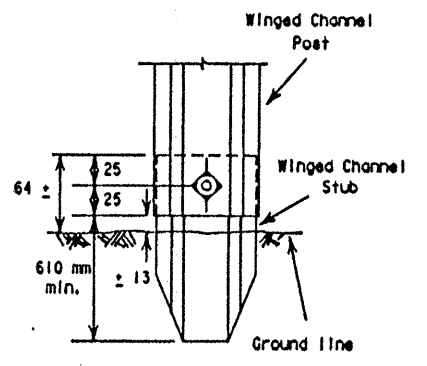
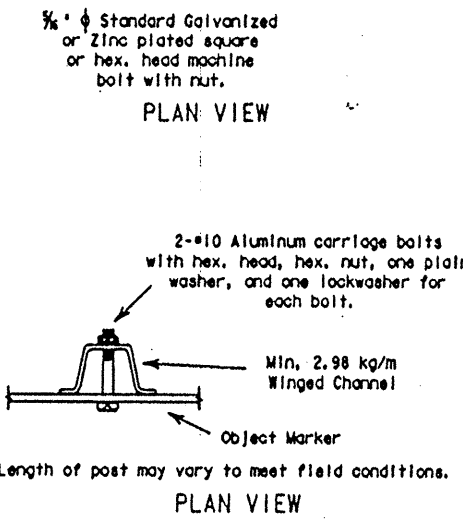
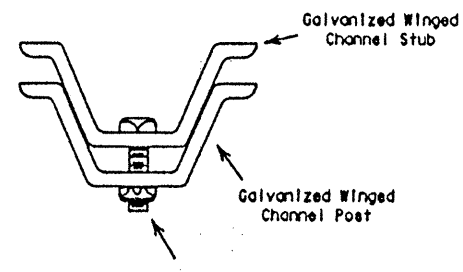
For Single and Double Delineators and Object Marker types OM-2YP(a) & OM-2SR



Various Cross Sections may be furnished if projected width of reflective unit appears to be 76 ± 10 mm.

BREAK AWAY CHANNEL POST

For Object Marker Types 1, 3 and 4 (where specified in the plans)



All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

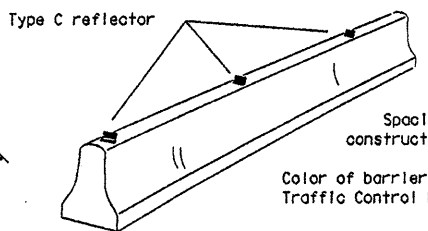
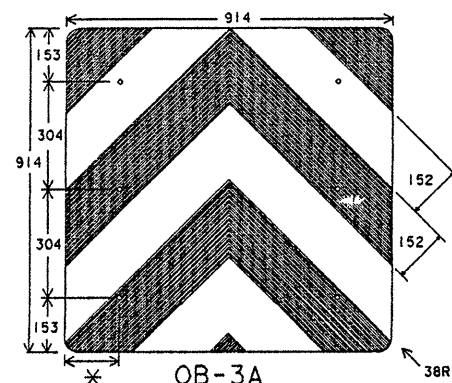
DELINEATORS &
 OBJECT MARKERS

(2 of 2) D & OM(2) - 95 (M)

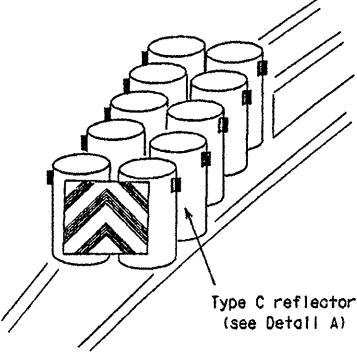
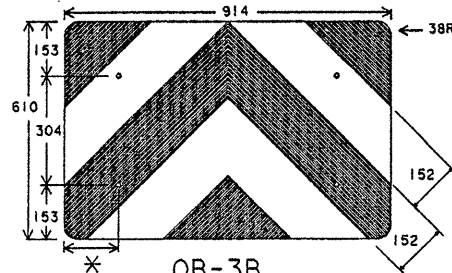
DATE	REVISED	BY	CHK'D	APP'D	REV. NO.
JAN. 1981					
2-82					
4-92					
8-95					

PROJECT	SECTION	SHEET
NH96(791)	M	507

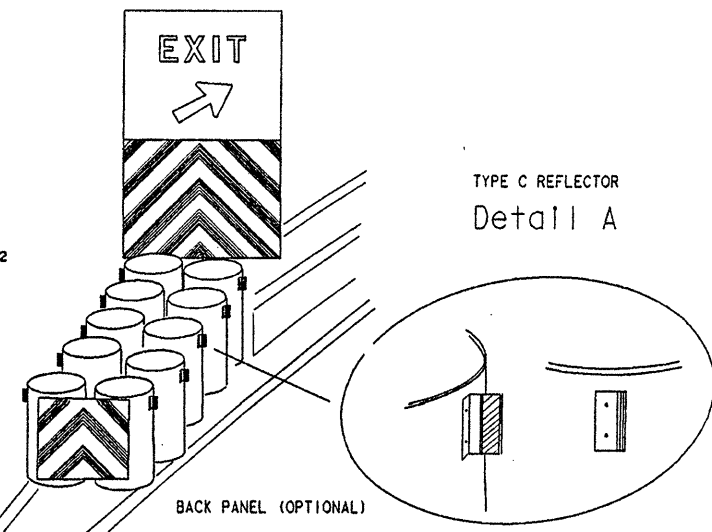
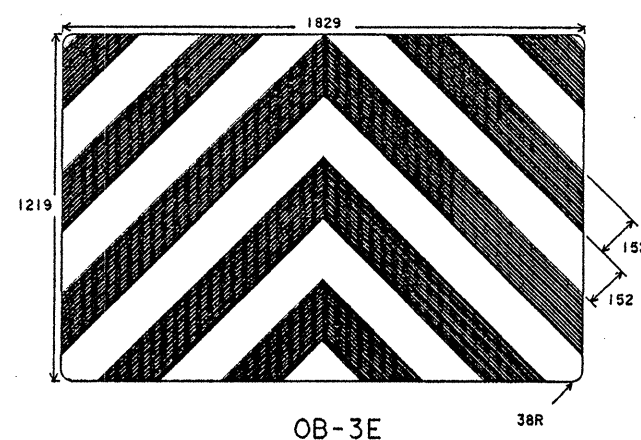
DW:DN
 CK:MT
 ACC: d:\public\usr\ab80504
 FILE:



Barrier Reflectors will be installed only on barriers designated for reflectorization as required elsewhere in the plans.
 Spacing of reflectors is 12 meters. Mount reflectors to barrier by construction adhesive or butyl rubber adhesive.
 Color of barrier reflectors will conform to the Texas 'Manual on Uniform Traffic Control Devices', (TMUTCD).

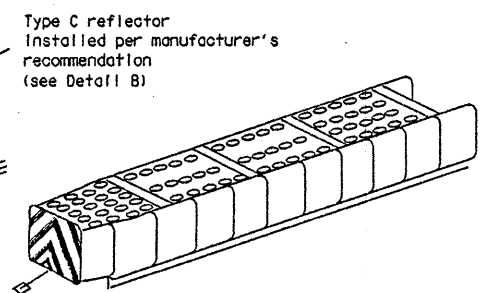
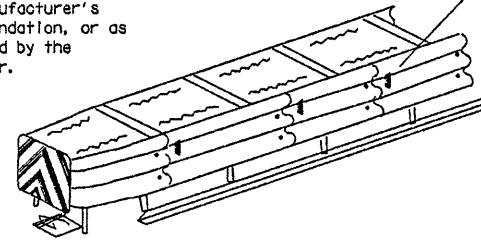


Object Marker blank to be 16 mm Plywood (Type A) in accordance with Item "PLYWOOD SIGNS (TYPE A)" or 2.0 mm thick Aluminum as per Specification D-9-7110.
 Mounting should be flush with top of VIA.
 Minimum size 914x610 mm.

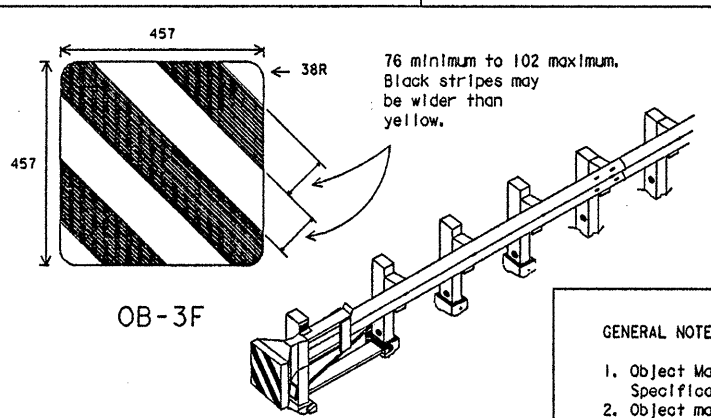


TYPE C REFLECTOR Detail A

* adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer.



Type C reflector Installed per manufacturer's recommendation (see Detail B)



OB-3F
 TYPICAL GUARDRAIL END TREATMENT

76 minimum to 102 maximum. Black stripes may be wider than yellow.

GENERAL NOTES:

1. Back Panel (OB-3E) shall be made of 16 mm plywood (Type A) panels unless otherwise noted in the plans.
2. Back panel will be mounted independent of the attenuator. The minimum mounting height is flush with the top of the attenuator.
3. Alternating flashing yellow lights may be added. Lights should be mounted minimum 1.8 m above pavement.
4. Attenuator may have additional yellow reflective and black striping, and/or reflectors placed on sides. CHEVRONS (W1-8) may be erected to delineate roadway curvature beyond the attenuator. These additional devices will be installed if required elsewhere in the plans.
5. Mount Back Panel per details on SMD Standards, or as detailed elsewhere in the plans.

GENERAL NOTES: OBJECT MARKERS

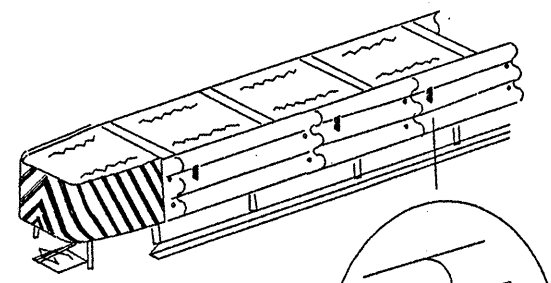
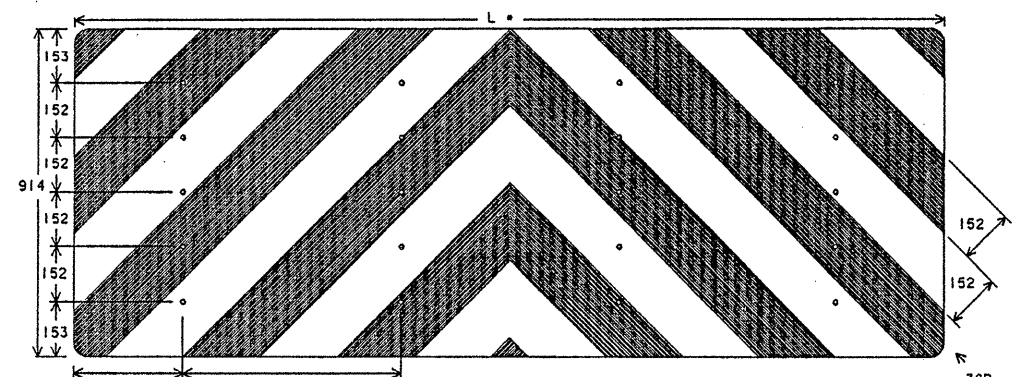
1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification D-9-8300, Type C. Background shall be yellow reflective and Chevron shall be black.
2. Object markers OB-3C, OB-3D and OB-3F may be fabricated from reflective sheeting applied to:
 - (a) galvanized sheet metal gage 0.7 to 0.8 mm per ASTM A366.025 nominal, aluminum sheet of 6061-T6 or 5052-H38 alloy approximately 1.6 mm thickness,
 - (b) low or medium density polyethylene approximately 2.0 mm thickness, or
 - (c) other material as specified in the plans or approved by the Engineer.
3. OB-3F is intended for use only with guardrail and treatments (i.e. GET, CAT, BEST, BRAKEMASTER, SENTRE, etc.). OM-BF may be fabricated from adhesive backed reflective sheeting applied directly to guardrail end treatment, or applied directly to an "end cap" as per the manufacturer's recommendation. Direct applied sheeting shall provide a smooth surface and have no wrinkles, air bubbles, cuts or tears.
4. Size may be reduced to fit smaller devices, however, the minimum size shall be:
 - (a) 610x610 mm for attenuators, and
 - (b) 457x457 mm for guardrail end treatments.
5. Pop rivets, screws, or nuts and bolts may be used to attach object markers and reflectors. Holes, slots or other openings may be cut or drilled through object markers to allow cable or other attachments.
6. When traffic passes only on one side of attenuator, only the OM-3 marker should be installed. OM-3 should be installed per the requirements of D & OM Standards with a minimum mounting height of 450 mm.

TYPE C REFLECTORS

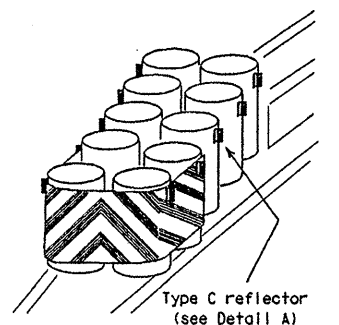
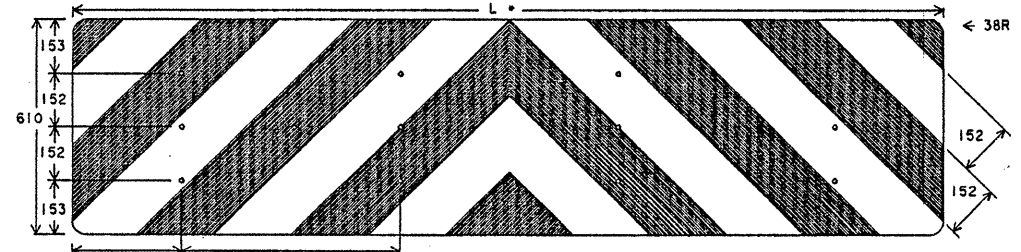
1. Type C reflectors shall consist of a reflector unit attached to a bracket to facilitate delineator mounting on attenuators, guardrails and concrete traffic barriers.
2. Type C reflectors may also be used to delineate side of attenuator, guardrail and concrete traffic barrier.

TRAFFIC FLOW	BOTH SIDES						ONE SIDE
	OB-3A	OB-3B	OB-3C	OB-3D	L	OM-1	
GREAT	NR	✓	NR	✓	2438	✓	OM-3
Steel Drum	✓	✓	✓	✓	2896	✓	
Hydraulic	✓	✓	NR	NR	NR	✓	
Hex Foam	✓	✓	NR	NR	NR	✓	
Low Maintenance	NR	✓	NR	✓	2438	✓	
Sand Filled Plastic Modules	NR	NR	NR	NR	NR	✓	
Sand Tire	NR	NR	NR	NR	NR	✓	

NR - Not Recommended



TYPE C REFLECTOR Detail B



Type C reflector (see Detail A)

* spacing adjusted to attach through centerline of drum, per attenuator manufacturer's recommendation, or as directed by the Engineer.

Mounting should be flush with top of attenuator. Minimum size 2438x610 mm.

All dimensions are in millimeters unless otherwise noted.

DATE: 11/11/95
 DWG. NO: 4580504
 FILE: 4580504.dwg
 DWG. DATE: 11/11/95
 DWG. BY: JLR
 DWG. CHECK: JLR
 DWG. DATE: 11/11/95
 DWG. BY: JLR
 DWG. CHECK: JLR

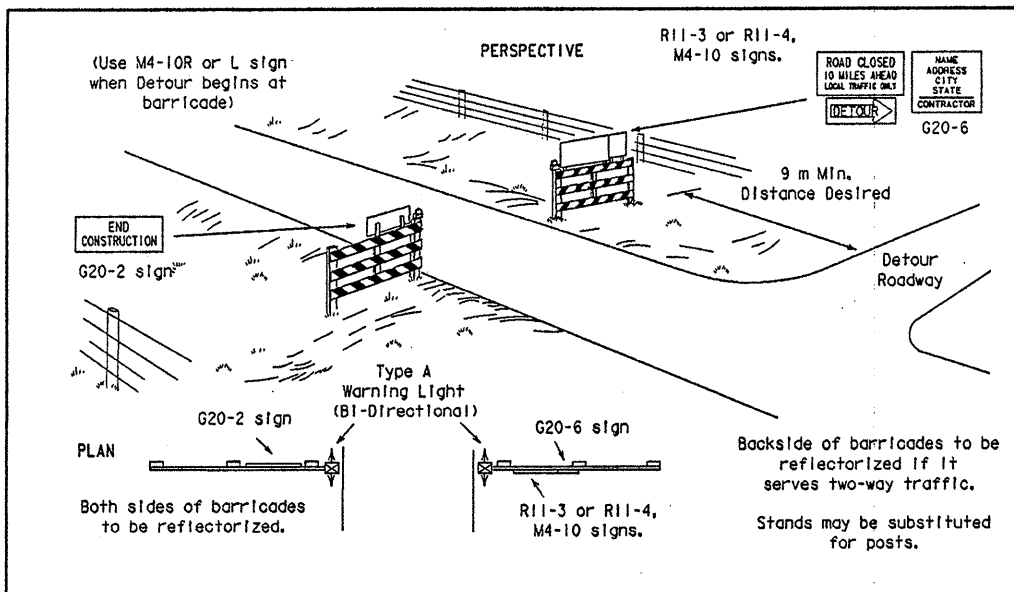
STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

DELINEATORS &
 OBJECT MARKERS
 FOR VEHICLE IMPACT ATTENUATORS

D & OM(VIA) -95(M)

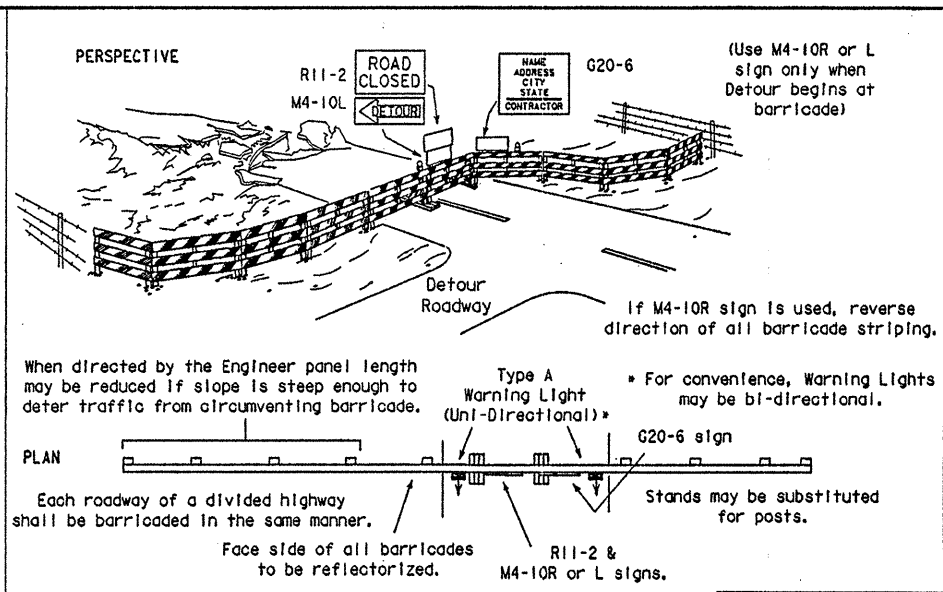
DATE: DEC. 1989	REVISED: 4-90, 4-92, 8-95	BY: JLR	CHECK: JLR	DATE: 11/11/95	FILE: 4580504
REVISIONS		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
		21	6	NA 96(791) M	511
		COUNTY		CONTROL SECTION	JOB
		HIDALGO		0039 117	118 45 83

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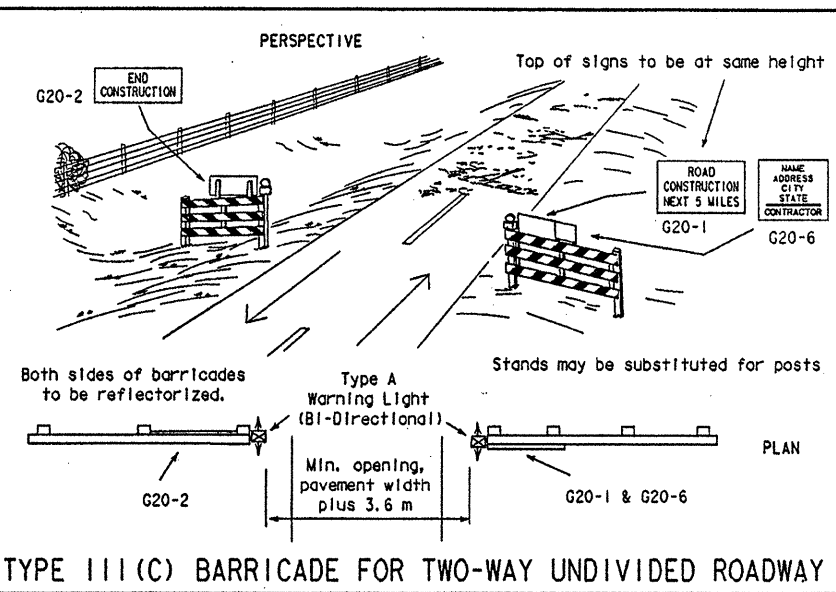
TYPE III(A) BARRICADE

- 1). The plan shown above is to be used when local traffic is permitted inside project or permitted to use the road beyond the intersection with the detour roadway. Other signs and barricades (Type I, II or III) may be required inside the project limits based upon the contractor's sequence of work and other conditions.
- 2). Where conditions will permit, minimum length of barricade on each side of roadway should be 3.6 meters.
- 3). First barricade panel on each side of roadway should be approximately level.
- 4). Advance signing, including construction warning signs, and detour signing shall be as specified elsewhere in the plans.

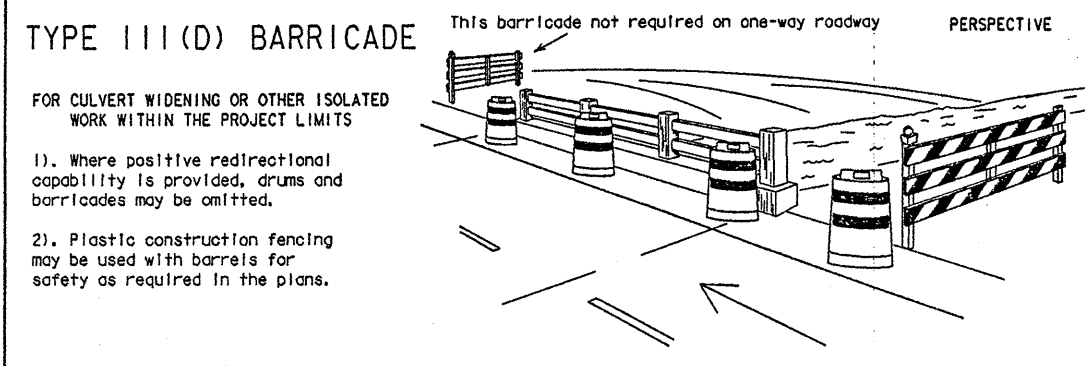


TYPE III(B) BARRICADE

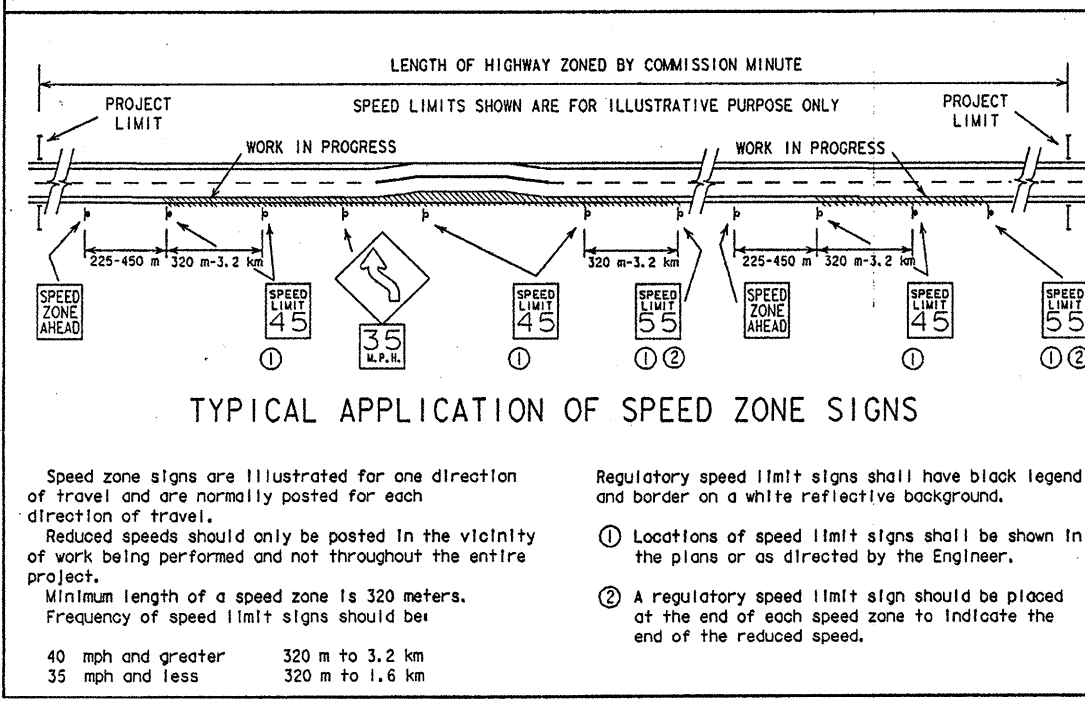
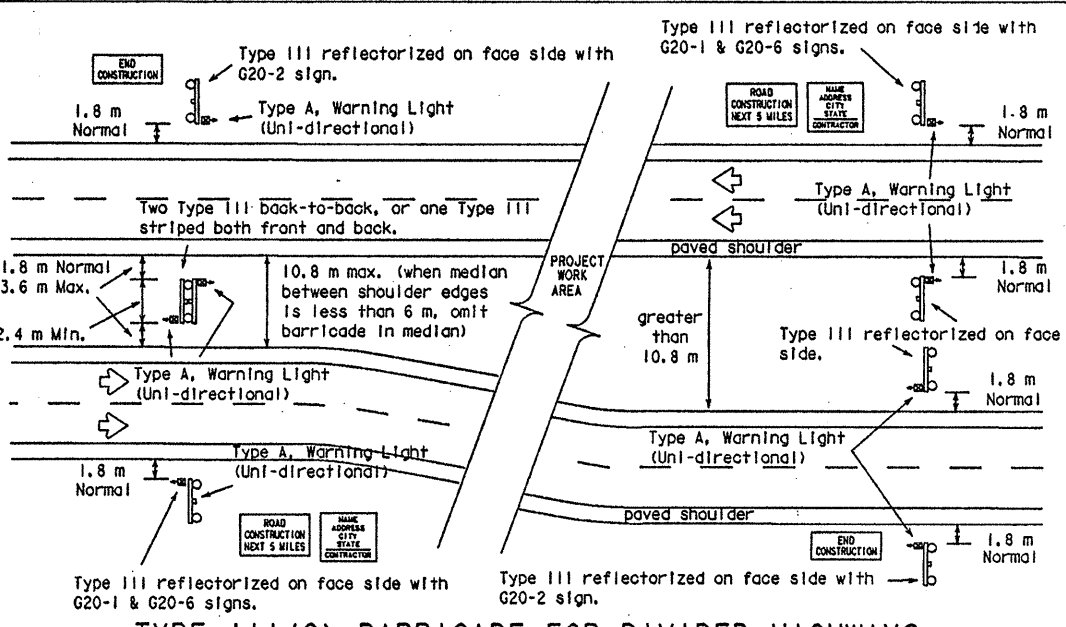
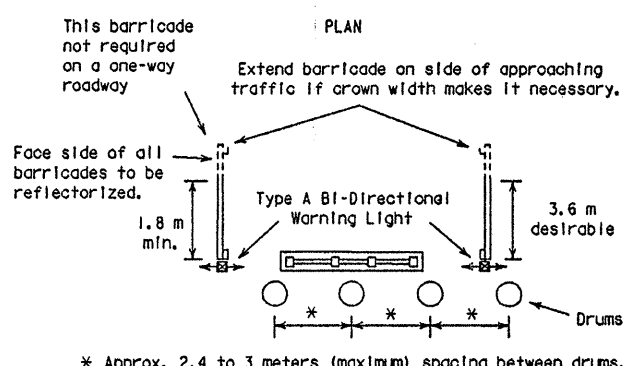
- 1). The plan shown above is to be used when local traffic is not permitted inside the project. Contractor may locate his access gate anywhere in barricade except at center of roadway, where R11-2 and M4-10 signs should be mounted on fixed barricade section.
- 2). Advance signing, including construction warning signs, and detour signing shall be as specified elsewhere in the plans.



TYPE III(C) BARRICADE FOR TWO-WAY UNDIVIDED ROADWAY



- 1). Where positive redirection capability is provided, drums and barricades may be omitted.
- 2). Plastic construction fencing may be used with barrels for safety as required in the plans.



GENERAL NOTES FOR TYPES I, II & III BARRICADES

Type I or II Barricades (see BC(3)(M)) are for temporary use to control traffic within the limits of a project whenever it is necessary to confine traffic to a specific area because of a particular construction operation. Type I Barricades should normally be used on conventional roads or urban streets and arterials. Type II Barricades have more reflective area, and are intended for use on expressways, freeways or other high speed roadways.

Type III(A) Barricades and accompanying signs are to be used at each end of construction projects closed to all but local traffic.

Type III(B) Barricades and accompanying signs are to be used at each end of construction projects closed to all traffic.

Type III(C) Barricades and accompanying signs are to be used at each end of construction project where traffic is maintained through the project. Type III(C) Barricades may also be used where traffic from other highways, county roads or city streets is permitted to enter the project area. Typical signing for Type III(C) Barricades are shown on Sheet BC(1)(M).

Type III(D) Barricades are to be used on culvert widening projects where traffic is routed over the structure. They shall be erected so as to provide the maximum roadway width for traffic and to allow sufficient space for construction operations behind the barricades.

For dimensions of barricade panels see Sheet BC(3)(M). Warning Lights placed on Type III(A), (B) or (C) barricades should be mounted to the top, left side of the rail facing traffic. Barricades used at each end of the project shall be supplemented with warning lights as detailed on this sheet.

Warning Lights placed on Type III(A), (B), (C) or (D) barricades should be mounted at a minimum mounting height of 1.5 meters and may be attached to the barricade.

Warning lights on barricades will be installed by the Contractor as determined in the plans, or as directed by the Engineer.

Warning lights will be maintained as directed by the Engineer.

- 1). The plans shown above are to be used when all traffic is maintained through the project. The signs shown apply to the first and last barricades of a project. Other signs and barricades (Types I, II or III) may be required inside the project limits based upon the contractor's sequence of work and other conditions.
- 2). Where conditions will permit, minimum and usual length of barricade on each side of roadway should be 3.6 meters except as noted.
- 3). Barricade panel on each side of roadway should be approximately level.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

BARRICADES
 SPEED ZONING

BC (2) - 94 (M)

DATE	APRIL 1988	BY	CH	REVISED BY	CH	REVISED BY	REV. NO.
6-88		7-89		4-92		2-94	
STATE DISTRICT	21	FEDERAL AID PROJECT	NH96(791) M	COUNTY	Hidalgo	CONTRACT SECTION	0039 17 118
							45-83

DN: LR
 CK: CW
 DW: DN
 CK: MT

LEVELS DISPLAYED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

DATE: _____

ACC: d51 p10/usr/d580504

FILE:

WORK ZONE SIGNS

GENERAL
Standard signs shall be used as required by the BC Standard sheets, the plans, or as directed by the Engineer to regulate, warn, and guide traffic. All sign usage and erection shall be in strict accordance with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD). The Contractor shall maintain each sign as directed by the Engineer.

The Contractor may use either the sign designs shown on the BC Standard Sheets, or those sign designs shown in the "Standard Highway Sign Designs for Texas" (SHSD). All work zone signs provided for in the TMUTCD but not detailed in the plans may be used when directed by the Engineer.

SIZE OF SIGNS
On secondary roads or city streets where speeds are low, smaller size construction warning signs may be used with the written approval of the Engineer and if the sign size is in accordance with the "Typical Construction Warning Sign Size and Spacing Chart" shown on page 68-2.2 of the TMUTCD.

MATERIALS
Construction signs shall be made from wood, metal, plastic or other approved materials. The designation of metal, fiberglass, plastic and wood as primary materials for signs shall not be interpreted to exclude other suitable rigid materials.

SIGN BLANK THICKNESS
Wood for signs shall be minimum 13 millimeters, medium density, outdoor grade plywood. Aluminum sign blanks shall have a minimum thickness of 2 millimeters, for sign areas up to 1.5 square meters. Sign areas greater than 1.5 square meters should use a minimum thickness of 2.5 mm.

SPLICES
All wood signs fabricated from 2 or more pieces shall have one or more plywood cleats, 13 millimeters thick by 150 millimeters wide, fastened to the back of the sign and extending fully across the sign.

REFLECTIVE SHEETING
Reflectorized signs shall be constructed of retroreflective sheeting meeting the color and reflectivity requirements of Department Material Specification, D-9-8300. Day only is defined as a device that is used only during daylight hours.

Type A, B or C sheeting may be used for all, day only, applications. Type A sheeting should be used for all, white background, regulatory signs. Type C sheeting shall be used for all other applications. The above applications of sheeting grades to different type signs will apply unless otherwise specified in the plans.
TYPE A = Engineer Grade
TYPE B = Super Engineer Grade
TYPE C = High Specific Intensity

SIGN LETTERS
All sign lettering shall be clear, open rounded type capital letters as approved by and as published by the Federal Highway Administration. Signs and lettering shall be of first class workmanship equivalent to that of the Department standard signs.

SUPPORTS AND MOUNTING HEIGHT
Regardless of the type of support used, regulatory signs should not be erected at heights less than 1.5 meters in rural areas or 2.1 meters in urban areas above the pavement surface. Sign heights may be lowered if approved by the Engineer in writing.
Wood sign post supports shall be painted white.
Reflective sheeting is not required on back of barricades used as sign supports at locations other than project limits.
Signs may be erected on portable, temporary, or fixed supports, for use on construction projects to warn or guide traffic through and/or around the actual construction area.

PORTABLE - Signs erected on portable supports for use on construction projects normally mean signs which are used during the daytime to warn or guide traffic through and/or around the actual construction area, but at the end of the workday such signs are removed.
Portable supports shall be as shown on this sheet or as approved by the Engineer. The bottom of the sign shall be a minimum of 0.3 meters above the pavement surface. Signs required for nighttime usage should not normally be mounted on portable supports, except when approved by the Engineer.

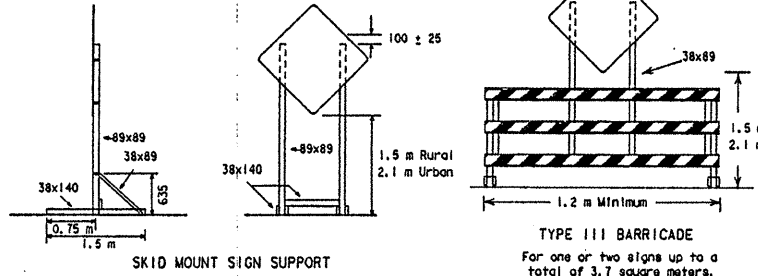
TEMPORARY - Where a sign may be required for a few days duration and then is no longer needed, where a sign is moved from location to location every few days, where it is not practical or desirable to provide a fixed mounting, such signs may be erected on a temporary type of support. Temporary supports shall be as shown on this sheet or as approved by the Engineer. Signs erected on temporary supports should be mounted at a minimum height of 0.9 meters measured to the pavement surface.
FIXED - Signs erected on fixed supports for use on construction projects normally mean signs that are to remain in place for both daytime and nighttime usage to regulate, warn and guide traffic in advance of and within the limits of the project including the cross-road approaches. Signs erected on fixed supports should be at a minimum height of 1.5 meters in rural areas and 2.1 meters in urban areas and other rural locations where sight distance obstructions are present.

SIGN SUPPORT WEIGHTS
Where portable or temporary supports require the use of weights to keep a sign or barricade from turning over, the use of some type of sandbag is recommended. The use of pieces of concrete, rock, iron, steel or other solid objects will not be permitted.

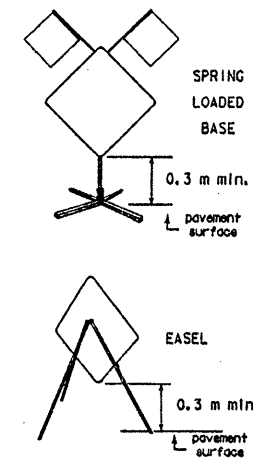
REMOVING OR COVERING
When sign messages may be confusing or no longer apply, the signs shall be removed or completely covered. When signs are covered the material used shall be opaque, such as heavy mil black plastic. Burlap shall not be used to cover signs. Signs shall be removed upon completion of the work.

TYPICAL SIGN SUPPORTS

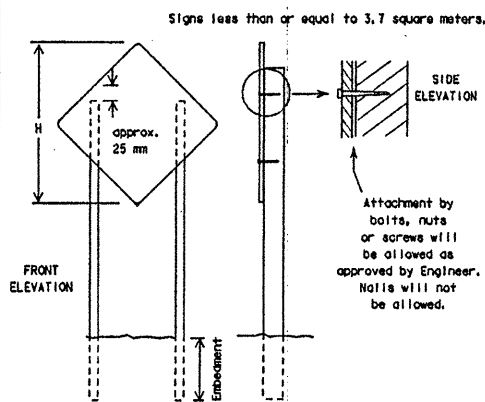
FIXED SUPPORTS



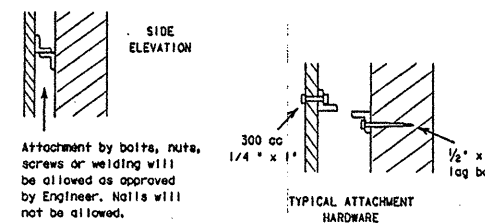
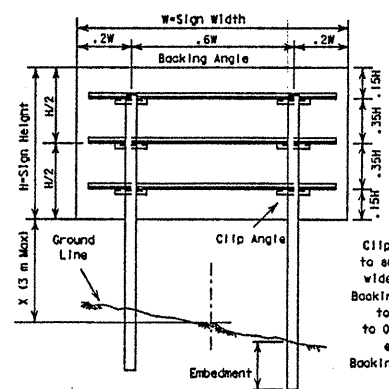
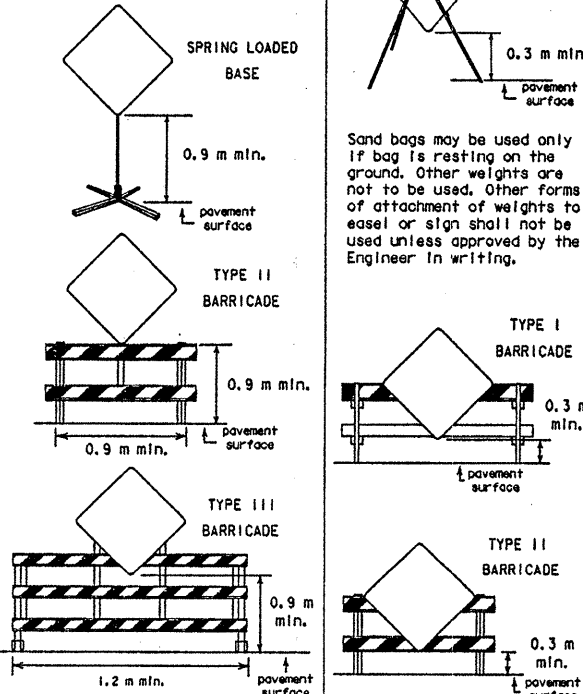
PORTABLE SUPPORTS



ATTACHMENT DETAILS

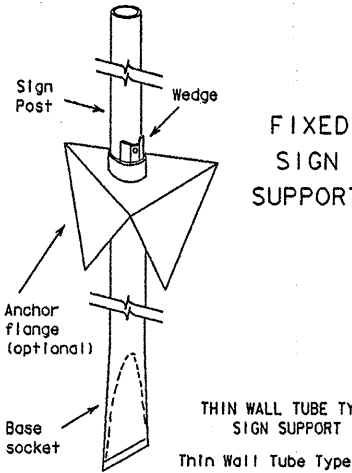
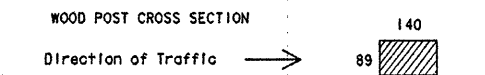


TEMPORARY SUPPORTS



POST SELECTION AND EMBEDMENT

Sign Area (Square meters)	Post size (millimeters)	Embedment depth should be (0.9 meter minimum unless specified elsewhere in the plans)
Up to 0.9	1 - 89x89	
0.9 to 1.9	1 - 89x140 or 2 - 89x89	
Greater than 1.9	3 - 89x89 or 2 - 89x140	



METRIC LUMBER CONVERSIONS

1x8	19x184
1x12	19x286
2x4	38x89
2x6	38x140
2x8	38x184
4x4	89x89
4x6	89x140

NOTES:
Installation requirements will be as recommended by manufacturer.

USAGE OF CWI-6, ECWI-6a AND CWI-8 SIGNS

CWI-8

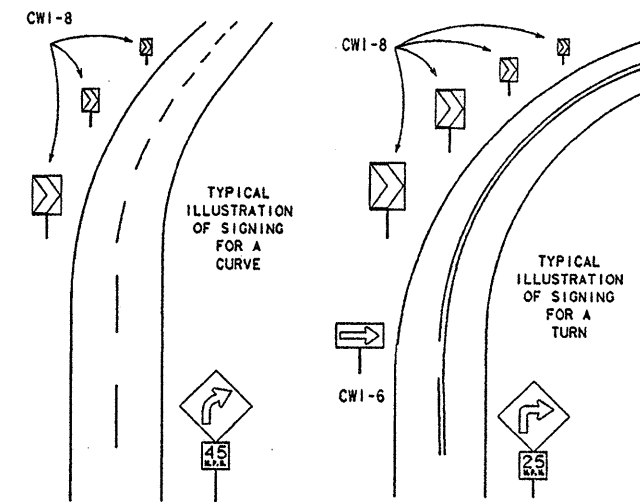
The CHEVRON sign (CWI-8) may be used to replace roadside delineation on curves or used in transitions or tapers.

ECWI-6a

An UPWARD SLOPING ARROW sign (ECWI-6a) is intended to be used to indicate the beginning of a curve or transition. It should be preceded with an appropriate curve sign when needed, and should not be used throughout the curve or transition. Advisory speed plaque is optional.

CWI-6

A LARGE ARROW sign (CWI-6) is intended to be used to give notice of a sharp change in alignment (turn) in the direction of travel. It should be preceded with an appropriate advance construction warning turn sign.

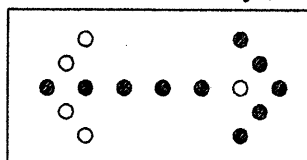


NOTES:

- CWI-6, ECWI-6a & CWI-8 Signs may be mounted on temporary supports.
- CHEVRON alignment signs, when used, are erected on the outside of a curve, sharp turn or on the far side of an intersection. In line with and at right angles to approaching traffic. Spacing of the signs should be such that three are visible throughout the change in horizontal alignment. See DELINEATOR SPACING on BC(3)(M).
- For two-way traffic, use same arrangement of signs on outside of curve for each direction of travel.
- Appropriate advance warning CURVE or TURN sign with Advisory Speed plaque should be used when needed.

TYPICAL FLASHING ARROW PANEL

For traffic to move right.



REQUIREMENTS

TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	.75 m x 1.5 m	13	1.2 kilometers
C	1.2 m x 2.4 m	15	1.6 kilometers

ATTENTION: All arrow panels shall be equipped with automatic dimming devices.

- The Advance Warning Flashing Arrow Panel should be used for all lane closures (multilane roadway), or slow moving maintenance or construction activities on the traveled way. Arrow panels should not be used on two-lane roadways, detours, diversions or work on shoulders unless the CAUTION mode is used.
- Necessary signs, barricades or other traffic control devices should be used in conjunction with the Advance Warning Arrow Panel.
- The Arrow panel should have the capability of the following mode selections: LEFT ARROW, RIGHT ARROW, LEFT and RIGHT ARROW and CAUTION. The CAUTION mode consists of four corner lamps flashing simultaneously.
- The Arrow panel shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 times per minute nor more than 40 flashes per minute. The Advance Warning Flashing Arrow Panel shall be mounted on a vehicle, trailer or other suitable support.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and 25 percent for the sequential chevron.
- The TxDOT standard is the flashing arrow, however the sequential chevron may be used. The sequential arrow should NOT be used.

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

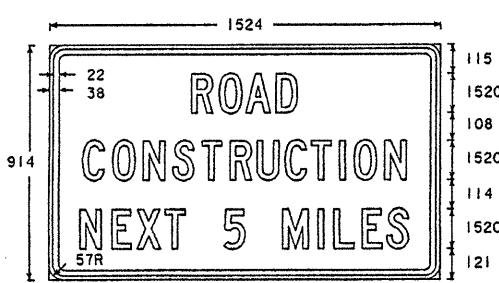
BARRICADE AND CONSTRUCTION STANDARDS

SIGN FABRICATION DETAILS
TYPICAL SIGN SUPPORTS
FLASHING ARROW PANELS
BC(4)-94(M)

DATE	REVISED	BY	DATE	REVISIONS
6-88				
7-89				
4-92				
2-94				

DISCLAIMER: This standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DWN-LR
 CK: CW
 DW: DN
 CK: MT
 DATE: 11/18/91
 LEVELS DISPLAYED: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

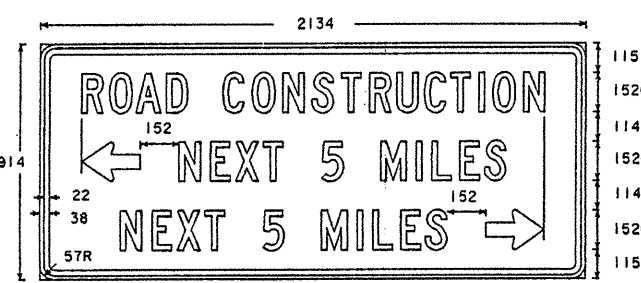


G20-1
1524x914
Letters - Black
Numerals - Black
Border - Black
Background - Orange Refl.

Alternate 1st line legend
SIGNI 152C G20-1S

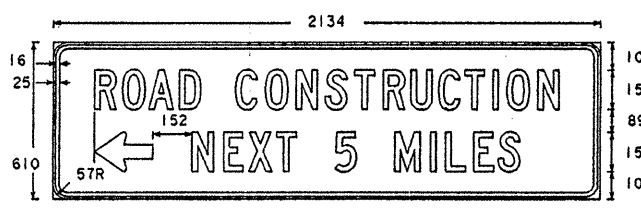
BRIDGE I 152C G20-1B

LIGHTING I 152C
G20-1L

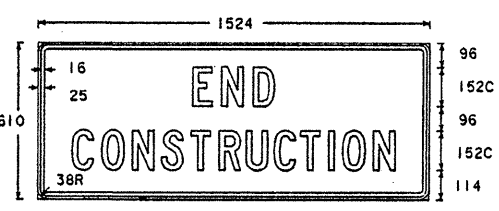
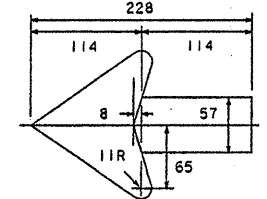


G20-1a
2134x914
Letters - Black
Numerals - Black
Border - Black
Background - Orange Refl.
Arrow - Black

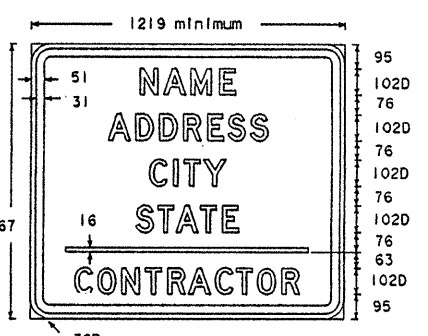
NOTE:
G20-1 Series signs shall show distances rounded to nearest whole mile. Fractions and decimal miles will not be used.



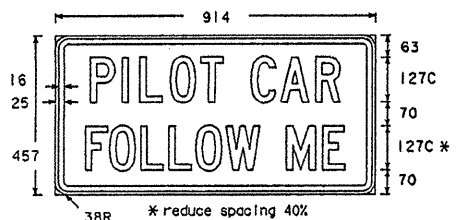
G20-1bL or G20-1bR
2134x610
Letters - Black
Numerals - Black
Border - Black
Background - Orange Refl.
Arrow - Black



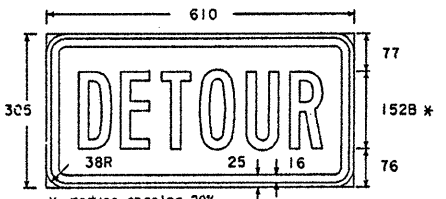
G20-2
1524x610
Letters - Black
Border - Black
Background - Orange Refl.



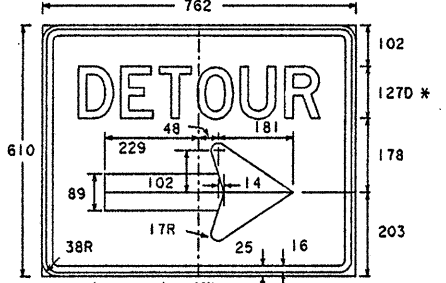
G20-6
Variable x1067
Letters - Black
Border - Black
Background - White Refl.



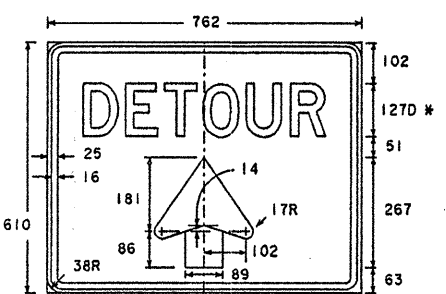
G20-4
914x457
Letters - Black
Border - Black
Background - Orange (Refl. Optional)



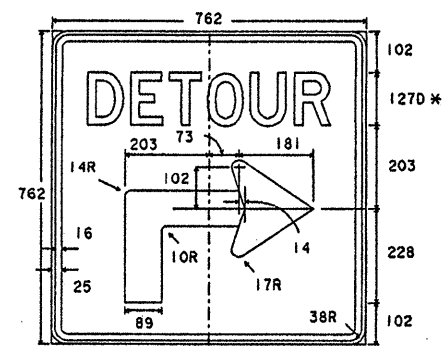
M4-8
610x305
Letters - Black
Border - Black
Background - Orange Refl.



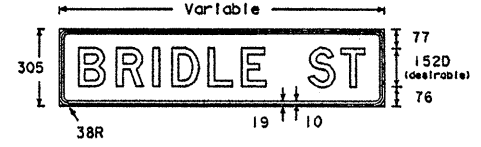
M4-9R
M4-9L
762x610
Letters - Black
Symbol - Black
Border - Black
Background - Orange Refl.



M4-9S
762x610
Letters - Black
Symbol - Black
Border - Black
Background - Orange Refl.

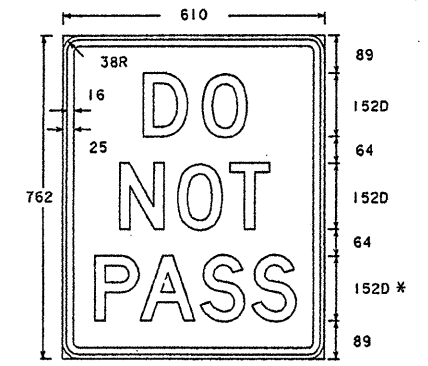


M4-9AR
M4-9AL
762x762
Letters - Black
Symbol - Black
Border - Black
Background - Orange Refl.

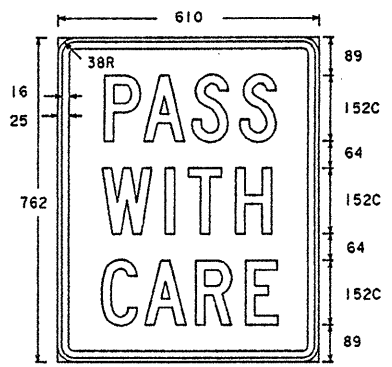


M4-9N
Letters - Black
Border - Black
Background - Orange Refl.

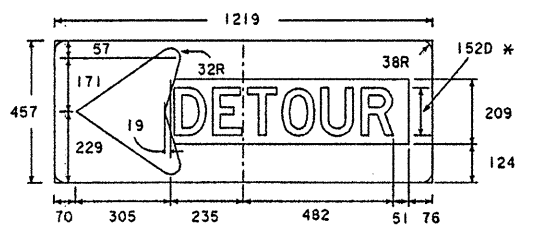
The M4-9R, L or S sign is to be used to detour local streets or roads that are not a State or Federal numbered highway, however, it should not be used in lieu of the M4-10 sign at the beginning of the detour or to detour State or Federal numbered routes. Also, when the M4-9R, L or S sign is used, a sign (M4-9N) with the name of the street being detoured may be mounted above it.



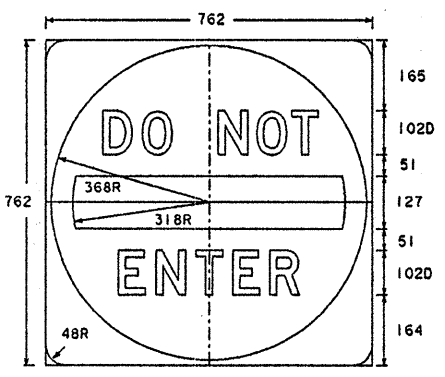
R4-1
610x762
Letters - Black
Border - Black
Background - White Refl.



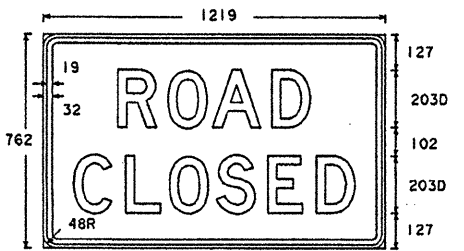
R4-2
610x762
Letters - Black
Border - Black
Background - White Refl.



M4-10R
M4-10L
1219x457
Letters - Black
Arrow - Orange Refl.
Background - Black

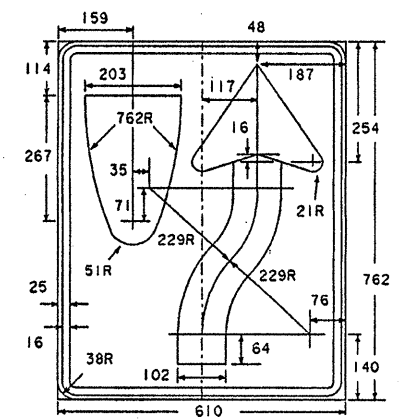


R5-1
762x762
Letters - White Refl.
Bar - White Refl.
Border - White Refl.
Background - Red Refl.

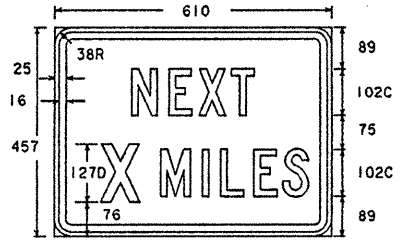


R11-2
1219x762
Letters - Black
Border - Black
Background - White Refl.

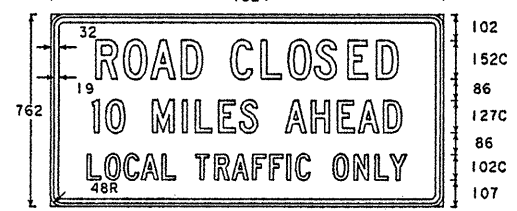
Alternate 1st line legend
STREET I 203D R11-2S
RAMPI 203D R11-2R
BRIDGE I 203D R11-2B



R4-7
610x762
Symbol - Black
Border - Black
Background - White Refl.

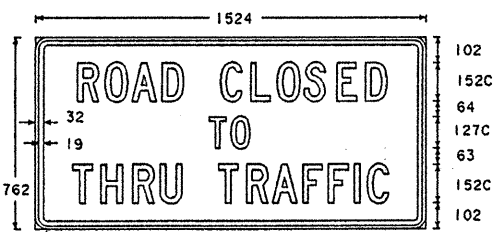


R20-1
610x457
Letters - Black
Border - Black
Background - White Refl.

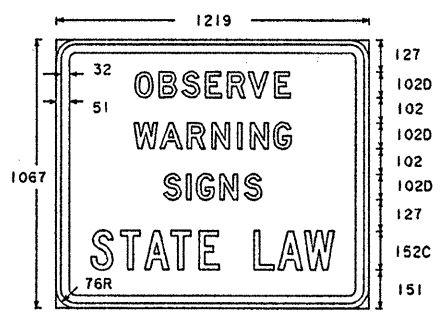


R11-3a
1524x762
Letters - Black
Numerals - Black
Border - Black
Background - White Refl.

Alternate 1st line legend
BRIDGE OUT I 152.4C R11-3b



R11-4
1524x762
Letters - Black
Border - Black
Background - White Refl.



R20-3
1219x1067
Letters - Black
Border - Black
Background - White Refl.

All dimensions are in millimeters unless otherwise noted.
The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

REGULATORY AND GUIDE SIGNS BC (5) - 94 (M)

DATE: APRIL 1988	DWG: 21	CHK: 6	DN: DN	CK: CW	REC: M
7-89	4-92	2-94	21	6	NH96 (791) M 516
COUNTY: HIDALGO			SECTION: 0039 17 118 45 83		

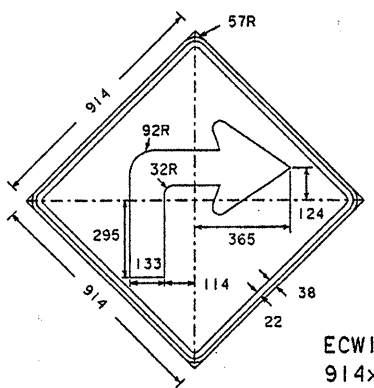
DATE: _____
ACC: ds/101c/usr/d580504
FILE: _____
LEVELS DISPLAYED: _____

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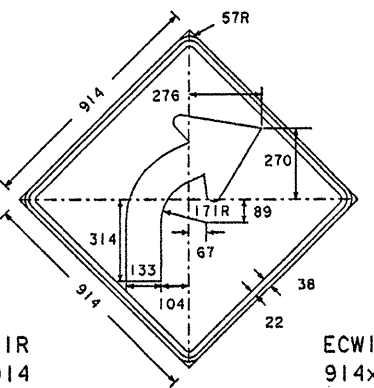
UNLR
 CK: CW
 DW: DN
 CK: MT

DATE: 10/11/11
 ACC: dB
 FILE: 10/11/11

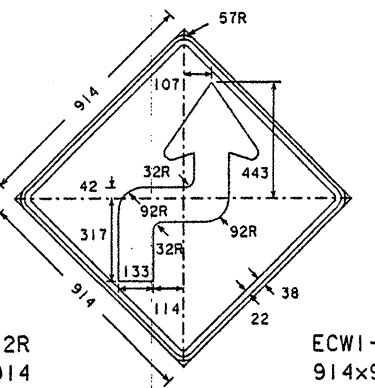
LEVELS: UNLATER
 1 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



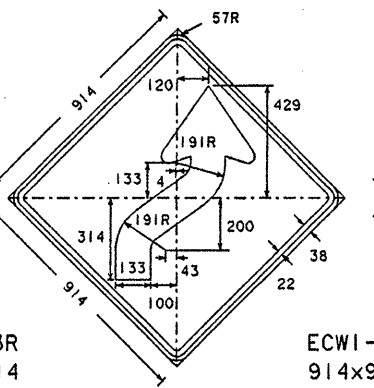
ECWI-1R
914x914



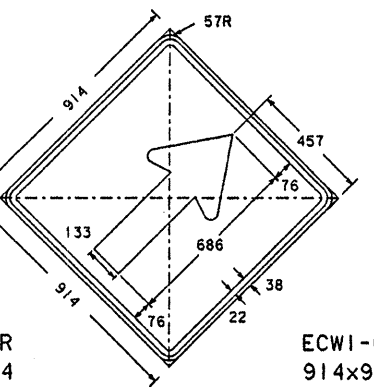
ECWI-2R
914x914



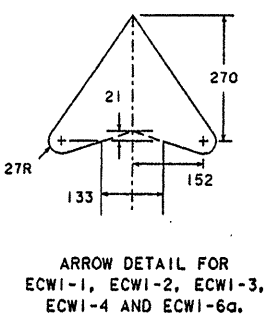
ECWI-3R
914x914



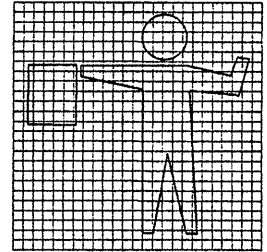
ECWI-4R
914x914



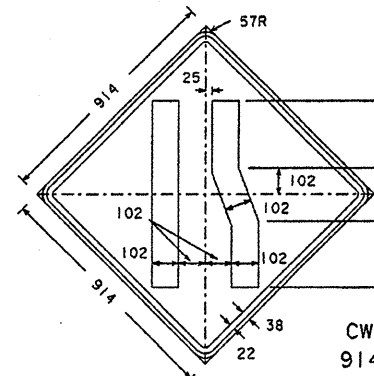
ECWI-6a
914x914



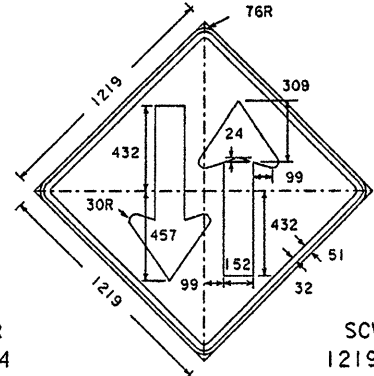
ARROW DETAIL FOR
 ECWI-1, ECWI-2, ECWI-3,
 ECWI-4 AND ECWI-6a.



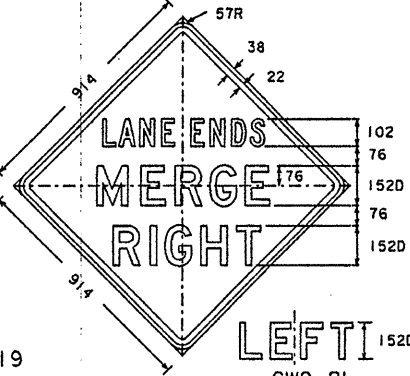
GENERAL NOTES:
 All signs detailed on this sheet shall have Black border, legend and/or symbol on an Orange reflective background.



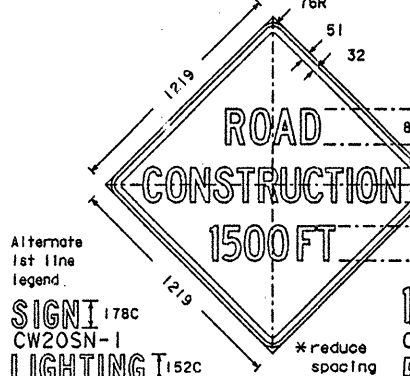
CW4-2R
914x914



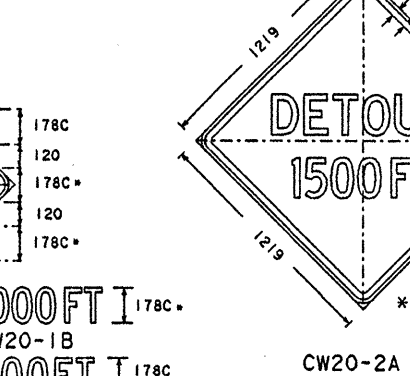
SCW6-3
1219x1219



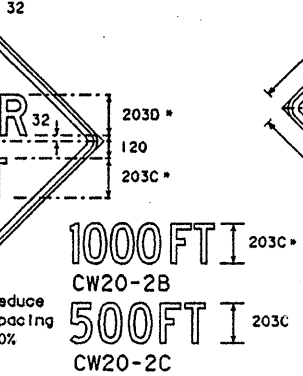
CW9-2R
914x914



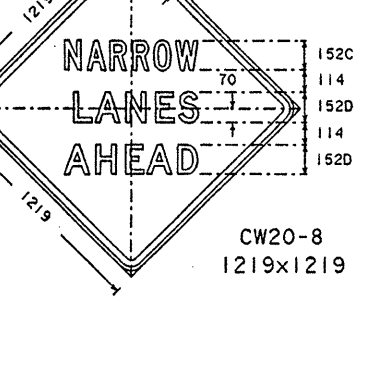
CW20-1A
1219x1219



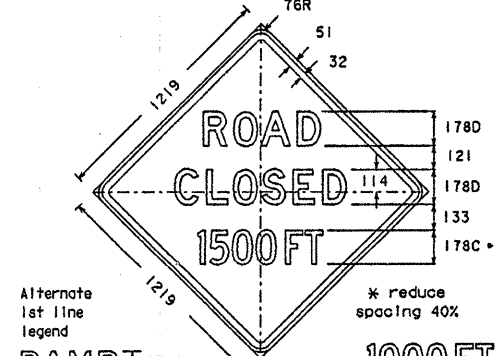
CW20-2A
1219x1219



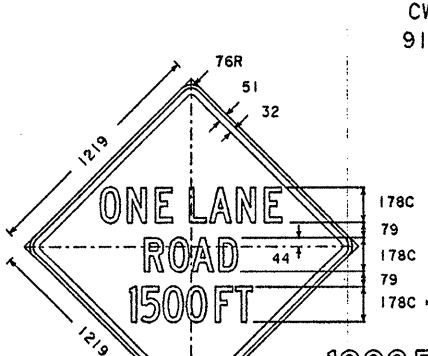
CW20-2B
1219x1219



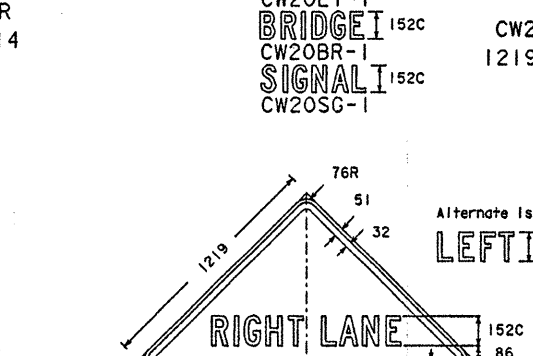
CW20-8
1219x1219



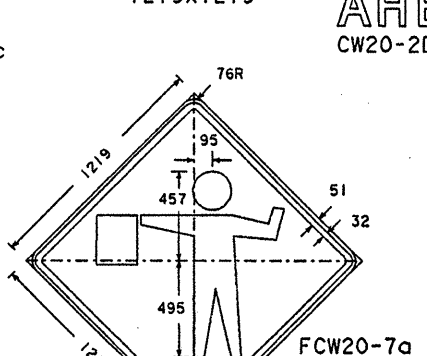
CW20-3A
1219x1219



CW20-4A
1219x1219



CW20-5A
1219x1219



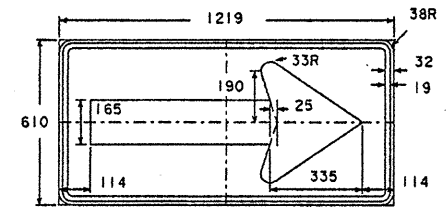
FCW20-7a
1219x1219

RAMPI
 CW20RP-3
 FRWYI
 CW20FY-3
 STREETI
 CW20ST-3

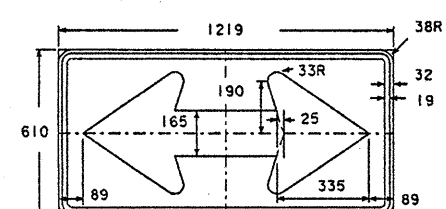
1000FT I
 CW20-3B
 500FT I
 CW20-3C
 AHEAD I
 CW20-3D

1000FT I
 CW20-4B
 500FT I
 CW20-4C
 AHEAD I
 CW20-4D

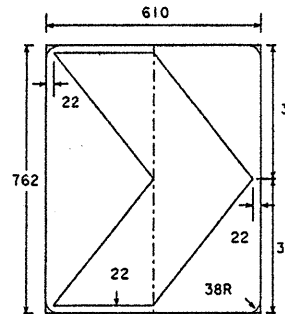
1000FT I
 CW20-5B
 500FT I
 CW20-5C
 AHEAD I
 CW20-5D



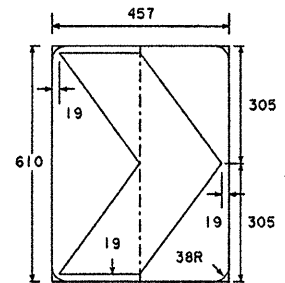
CWI-6
1219x610



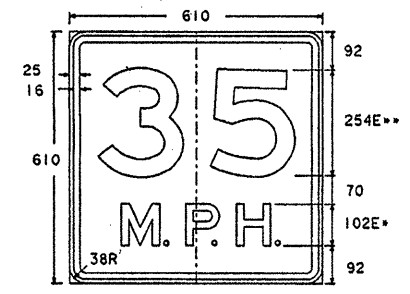
CWI-7
1219x610



SCWI-8
610x762



CWI-8
457x610



SCW13-1
610x610

* Increase spacing 100%
 ** optically space numerals about vert. centerline

Speed value to be determined at the site by the Engineer.

All dimensions are in millimeters unless otherwise noted.
 The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the '1980 Standard Highway Sign Designs for Texas' manual.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

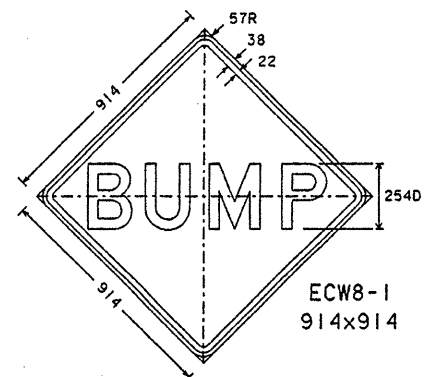
BARRICADE AND CONSTRUCTION STANDARDS

CONSTRUCTION WARNING SIGNS BC (6) - 94 (M)

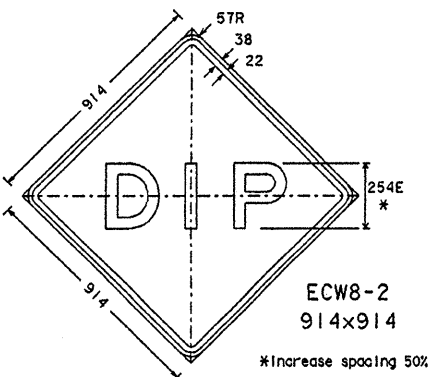
DATE: APRIL 1988	DR: DW	CR: CW	NS: M
REVISIONS:	STATE DISTRICT:	FEDERAL AID PROJECT:	SHEET:
7-89	21	NH 94 (91) M	519
4-92	6		
2-94			
	COUNTY:	CONTROL SECTION:	JOB:
	Hidalgo	0089 12 118	11583

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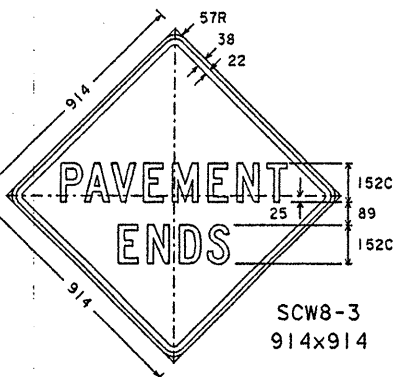
LEVELS DISPLAYED
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 DATE: _____
 ACC: d5w4b1c/usr/d580504
 FILE: _____



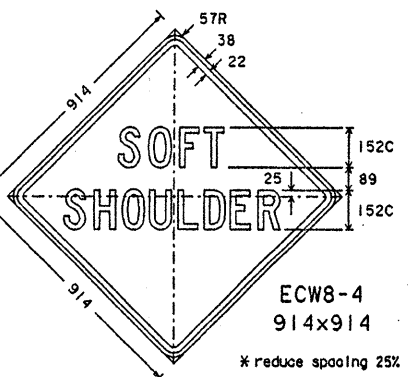
ECW8-1
914x914



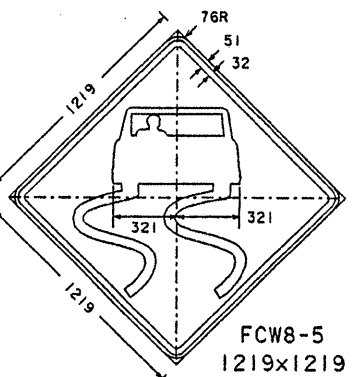
ECW8-2
914x914
*increase spacing 50%



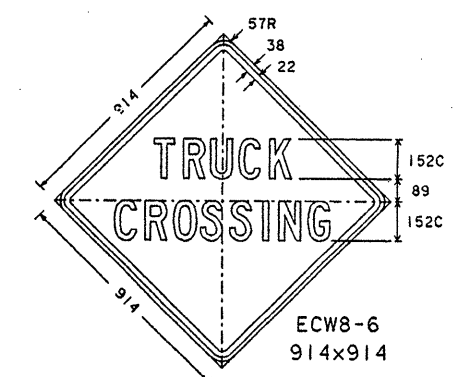
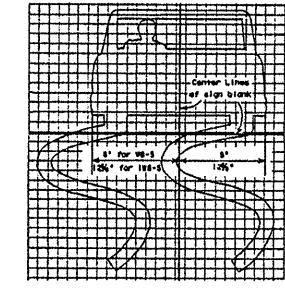
SCW8-3
914x914



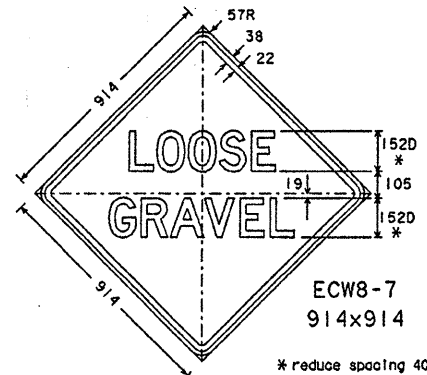
ECW8-4
914x914
*reduce spacing 25%



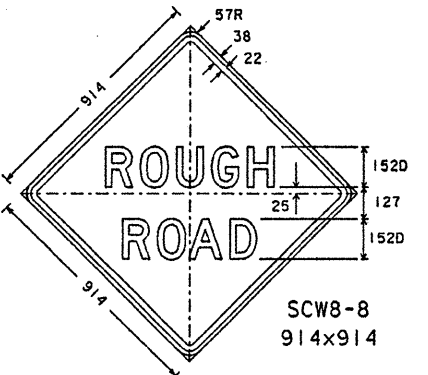
FCW8-5
1219x1219



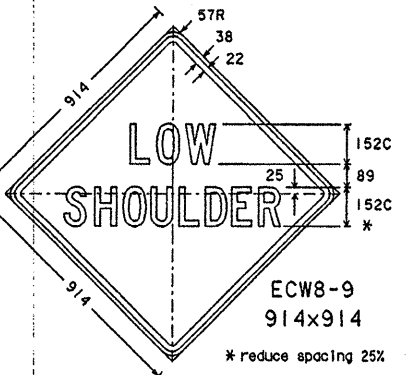
ECW8-6
914x914



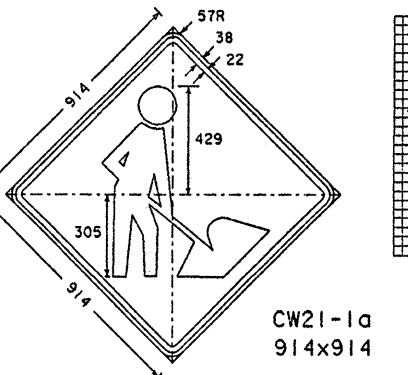
ECW8-7
914x914
*reduce spacing 40%



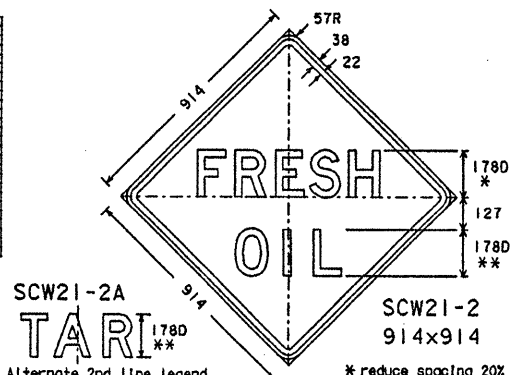
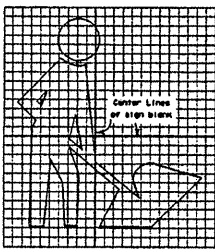
SCW8-8
914x914



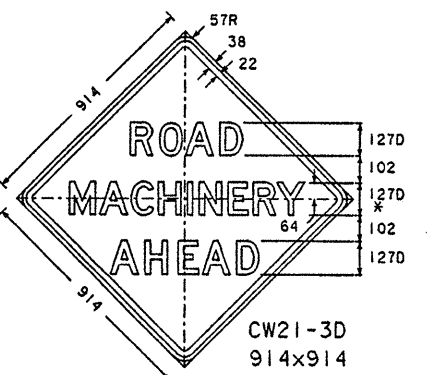
ECW8-9
914x914
*reduce spacing 25%



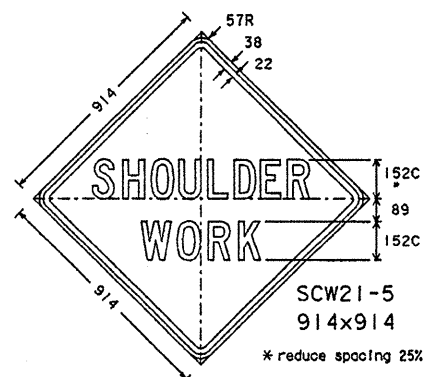
CW21-1a
914x914



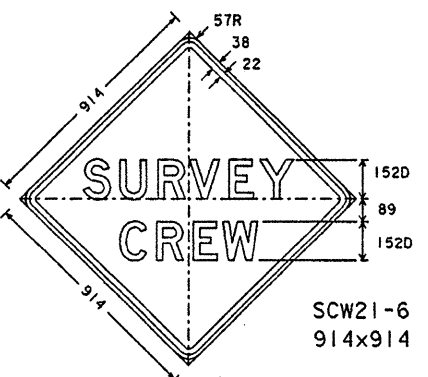
SCW21-2A
TARI
Alternate 2nd line legend
*reduce spacing 20%
**increase spacing 50%



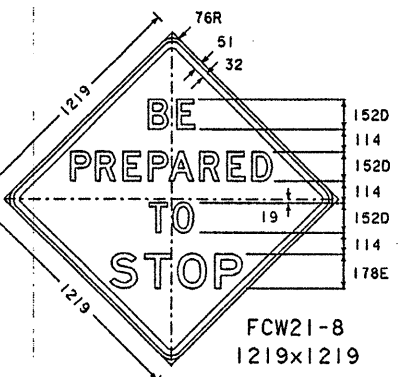
CW21-3D
914x914
*reduce spacing 40%



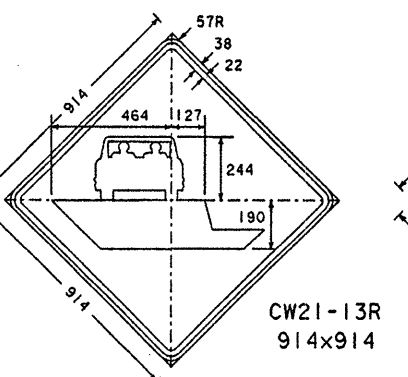
SCW21-5
914x914
*reduce spacing 25%



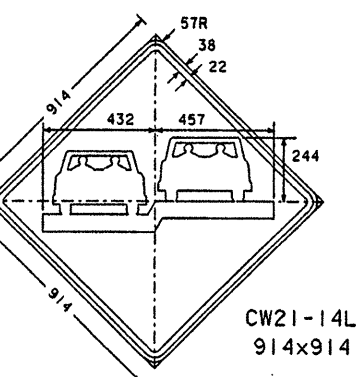
SCW21-6
914x914



FCW21-8
1219x1219

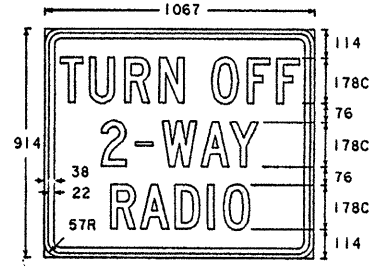


CW21-13R
914x914



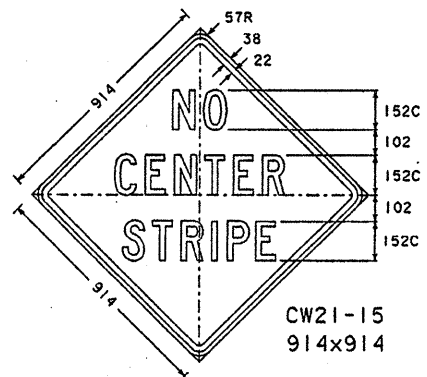
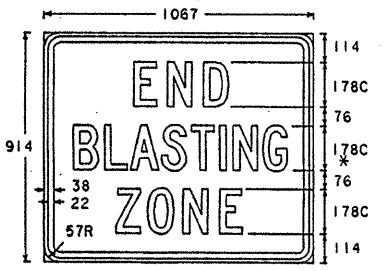
CW21-14L
914x914

CW22-2
1067x914

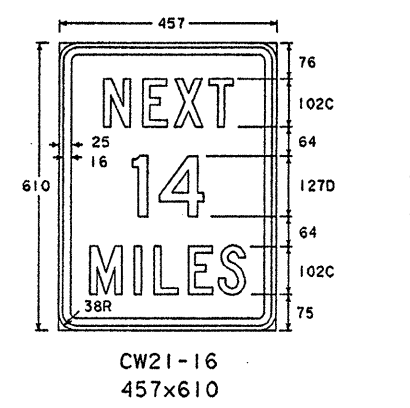


* reduce spacing 40%

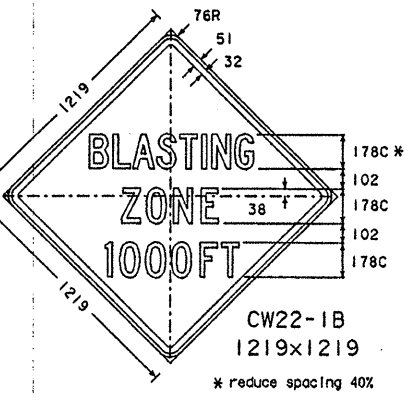
CW22-3
1067x914



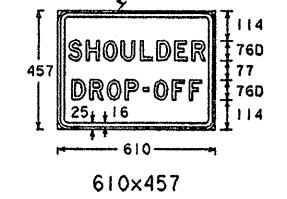
CW21-15
914x914



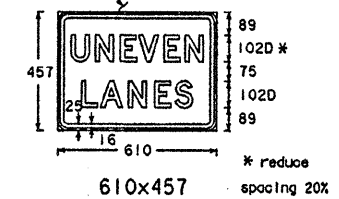
CW21-16
457x610



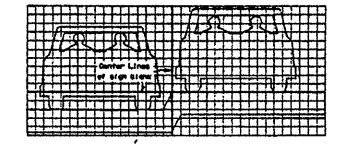
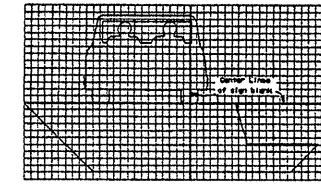
CW22-1B
1219x1219
* reduce spacing 40%



610x457



610x457
* reduce spacing 20%



GENERAL NOTES:
 All signs detailed on this sheet shall have Black border, legend and/or symbol on an Orange reflective background.

The CW21-13 and CW21-14 Signs may be mirrored to show the proper elevations of the lanes or shoulder drop off direction.
 All dimensions are in millimeters unless otherwise noted.

The metric dimensions shown on this sheet have been rounded, and should be considered equivalent to the English dimensions in the "1980 Standard Highway Sign Designs for Texas" manual.

STANDARD PLANS
 TEXAS DEPARTMENT OF TRANSPORTATION
 Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

CONSTRUCTION WARNING SIGNS BC (7) - 94 (M)

ORIG DRAW DATE:	APRIL 1988	DN:	CS:	DN - DN	CS - CW	REC NO.:
REVISIONS:		STATE DISTRICT:	FEDERAL SECTION:	FEDERAL AID PROJECT:		SHEET:
7-89		21	6	NH 96(791) M		518
4-92						
2-94						
		COUNTY:	CONTROL SECTION:	JOB:	HS DRAW:	
		WINDYB	1020	118	11C 02	

WORK ZONE PAVEMENT MARKINGS

GENERAL

The Contractor shall be responsible for maintaining work zone and existing pavement markings on all roadways open to traffic within the project limits unless otherwise stated in the plans. Color, patterns, and dimensions shall be in conformance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Additional supplemental pavement marking details may be found in the plans or specifications.

Work zone pavement markings shall consist of guidemarks, short term markings and/or standard pavement markings. Unless otherwise shown in the plans, materials used for work zone pavement markings shall be paint and beads, raised pavement markers, prefabricated pavement marking material, temporary flexible-reflective roadway marker tabs or other materials approved by the Engineer. Paint and beads shall not be used for removable markings.

All roadways to be opened to traffic shall be marked with short term markings or standard markings as shown in the plans, at the end of each day's operation. Unless otherwise shown in the plans or approved in writing by the Engineer, all concrete surfaces shall have standard markings in place prior to opening to traffic.

Standard pavement markings shall be installed in accordance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD) and as shown on the plans. 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 WZ (STPM).

All asphaltic surfaces which are to be opened to traffic shall be marked with guidemarks immediately following placement and final rolling of any course. Guidemarks shall consist of a single temporary flexible-reflective roadway marker tab or a single temporary construction raised pavement marker at 12 meter spacing.

Guidemarks shall be placed in proper alignment with the final location of future pavement markings. Any guidemarks not in alignment with pavement markings shall be removed by the Contractor at the Contractor's expense. Guidemarks shall not be used to simulate edgelines.

When inclement weather prohibits the application of short term markings or standard markings as called for on the plans, upon approval of the Engineer, guidemarks may be considered as temporary short term markings for asphaltic surfaces. The placement of pavement markings as shown on the plans may be delayed until such time that weather permits application of pavement markings.

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 shall be erected to mark the beginning of the sections where passing is permitted.

RAISED PAVEMENT MARKERS

Raised pavement markers are to be placed according to the patterns on BC(9) (M). Raised pavement markers used as standard pavement markings or to supplement removable markings shall meet the requirements of Item "RAISED PAVEMENT MARKERS".

Unless otherwise shown on the plans, raised pavement markers will not be allowed for words, symbols, and shapes, diagonal or transverse lines.

PREFABRICATED PAVEMENT MARKINGS

Removable prefabricated pavement markings shall be a material of manufacture and product code or designation shown on the list of approved materials covered by the Departmental Material Specification D-9-8241.

Non-removable prefabricated pavement markings (foil back) shall be a material of manufacture and product code or designation shown on the list of approved materials covered by the Specification TxDOT 550-74-01.

The lists of approved prefabricated work zone pavement marking material may be obtained from the General Services Division.

MAINTENANCE

The Contractor will be responsible for maintaining work zone pavement markings within the project limits. Work Zone Pavement Markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections. The markings should provide a visible reference for a minimum distance of 90 meters during normal daylight hours and 48 meters when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics. Markings failing to meet this criteria shall be replaced as required by the Engineer.

REMOVAL OF PAVEMENT MARKINGS

Removal of pavement markings includes centerline, channelizing lines, lane lines, edge lines, words, arrows, symbols and raised pavement markers.

Pavement markings that are no longer applicable and which may create confusion or direct a motorist toward or into the closed portion of the roadway, shall be removed or obliterated before the roadway is open to traffic. The above shall not apply to detours of a short duration of a few hours, where flagmen and/or sufficient channelizing devices are used in lieu of markings to outline the detour route and the detour is not to be maintained during nighttime.

Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernible marking, by any method that does not materially damage the surface or texture of the pavement. The removal of pavement markings may require resurfacing or seal coating portions of the roadway, normally full lane widths. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used. Blast cleaning may be used but will not be required unless specifically shown in the plans. Over-painting of the markings SHALL NOT BE permitted. Removal of raised pavement markers shall be as directed by the Engineer.

Removal of existing pavement markings and markers will be paid for directly in accordance with the Item "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS" unless otherwise stated elsewhere in the plans.

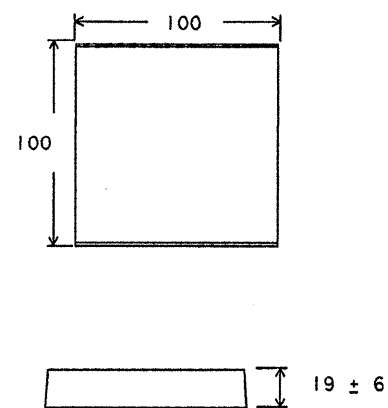
SPECIFICATION REFERENCE TABLE

MATERIALS AND TEST SPECIFICATIONS	
JIGGLE BAR TILE	D-9-4100
PAVEMENT MARKERS (REFLECTORIZED)	D-9-4200
TRAFFIC BUTTONS	D-9-4300
EPOXY	D-9-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	D-9-6130
PREFABRICATED PAVEMENT MARKINGS - REMOVABLE	D-9-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	D-9-8242

PREQUALIFICATION PROCEDURES MAY BE OBTAINED BY WRITING:

GENERAL SERVICES DIVISION
TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT)
125 EAST 11th STREET
AUSTIN, TX 78701-2483

Temporary Construction Raised Pavement Markers used as Guidemarks:



The above temporary construction raised pavement marker is shown for illustration purposes only and not intended to specify any particular product.

Temporary construction raised pavement markers used as guidemarks shall be of design and manufacture approved by the Engineer. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.

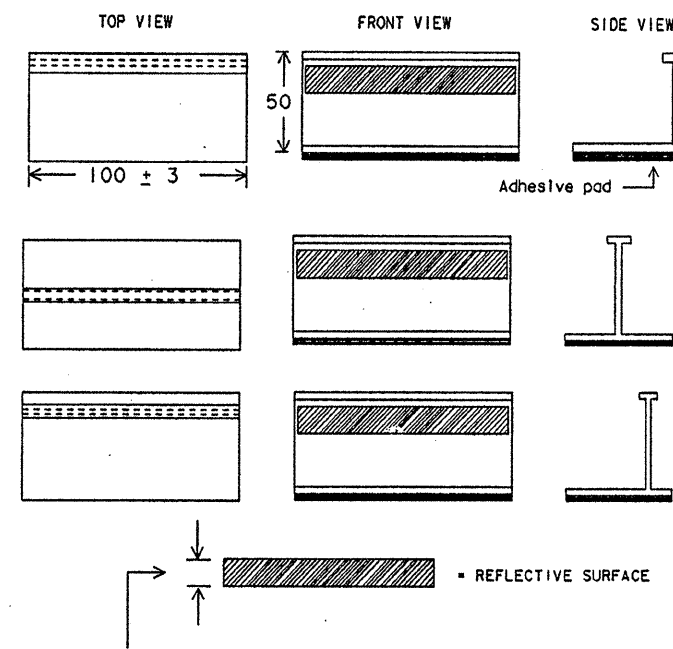
Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad.

Guidemarks shall be designated as:

- YELLOW - (two amber reflective surfaces with yellow body).
- WHITE - (one silver reflective surface with white body).

Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 6 millimeters, unless otherwise noted.

Temporary Flexible-Reflective Roadway Marker Tabs



Height of sheeting will be determined by notes under MAINTENANCE. (Usually more than 5 millimeters and less than 25 millimeters.)

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

Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of Departmental Material Specification D-9-8242.

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.

- Select five (5) or more tabs at random from each lot or shipment and submit to the Materials and Tests Division to determine specification compliance.
- Select five (5) tabs and submit to the following test. Affix five (5) tabs at 0.6 meter intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with front and rear wheels at a speed of 35 to 40 miles per hour, four times in each direction. No more than one (1) out of five reflective surfaces shall be lost or displaced as a result of this test.

All dimensions are in millimeters unless otherwise noted.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

PAVEMENT MARKINGS BC(8) - 94 (M)

DATE	BY	REVISIONS	DATE	BY	REVISIONS
APRIL 1992	DN				
2-94					

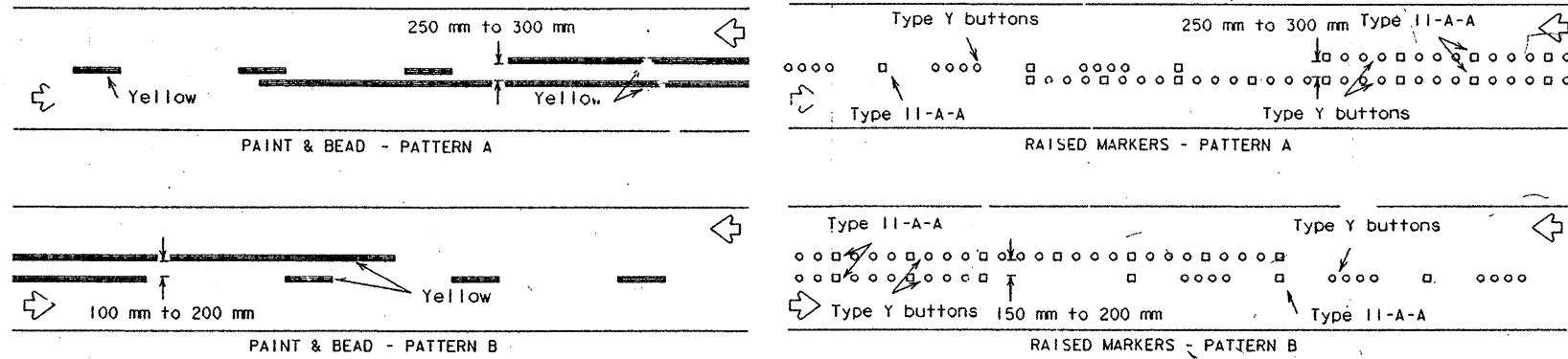
STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
21	6	NH 94(790) M	519
COUNTY	CONTROL SECTION	JOB	DATE
Hidalgo	17	1118	11/83

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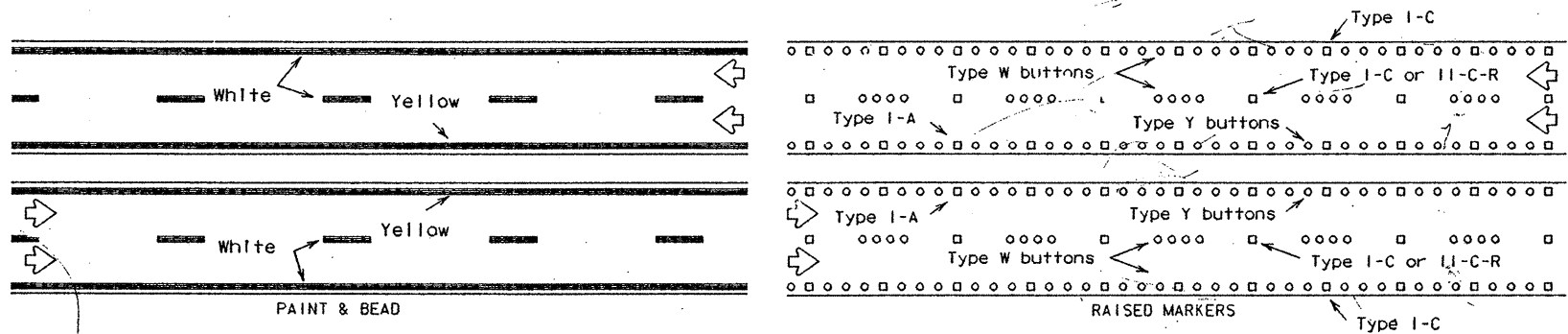
CK: CW
DW: DN
CK: MT
17181920212223242526272829303132
33343536373839404142434445464748
495051525354555657585960616263
ACC: dsn
FILE:

PAVEMENT MARKING PATTERNS

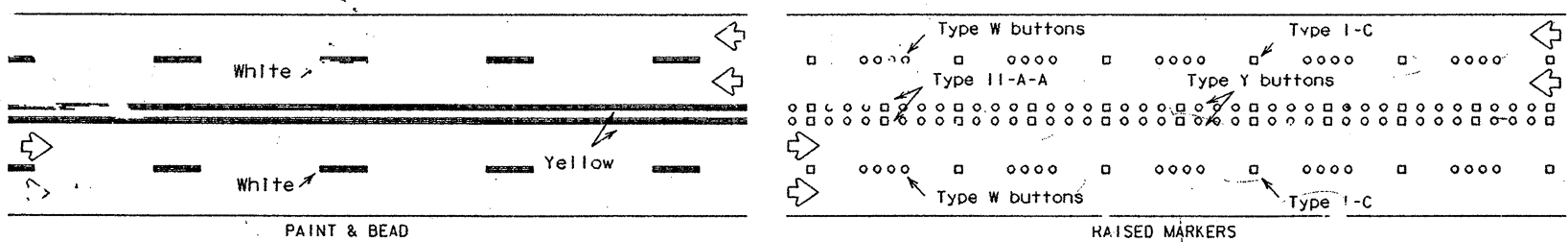
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



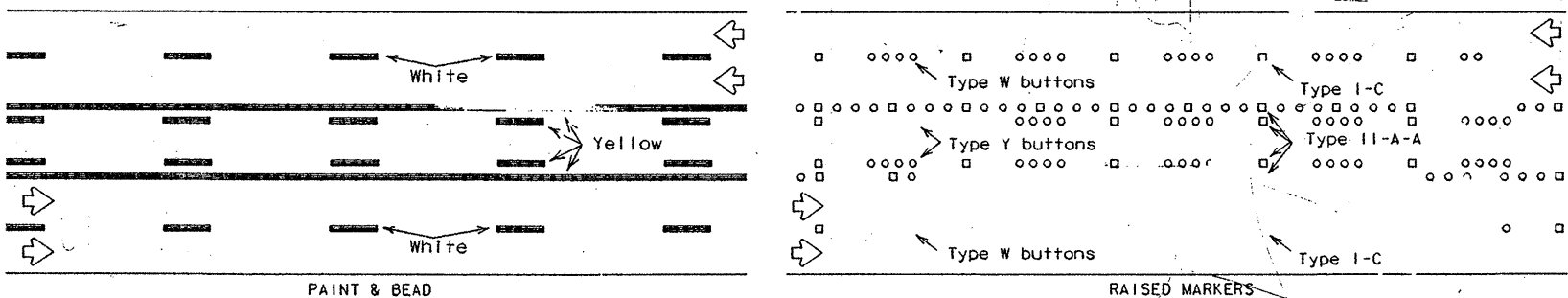
EDGE & LANE LINES FOR DIVIDED HIGHWAY



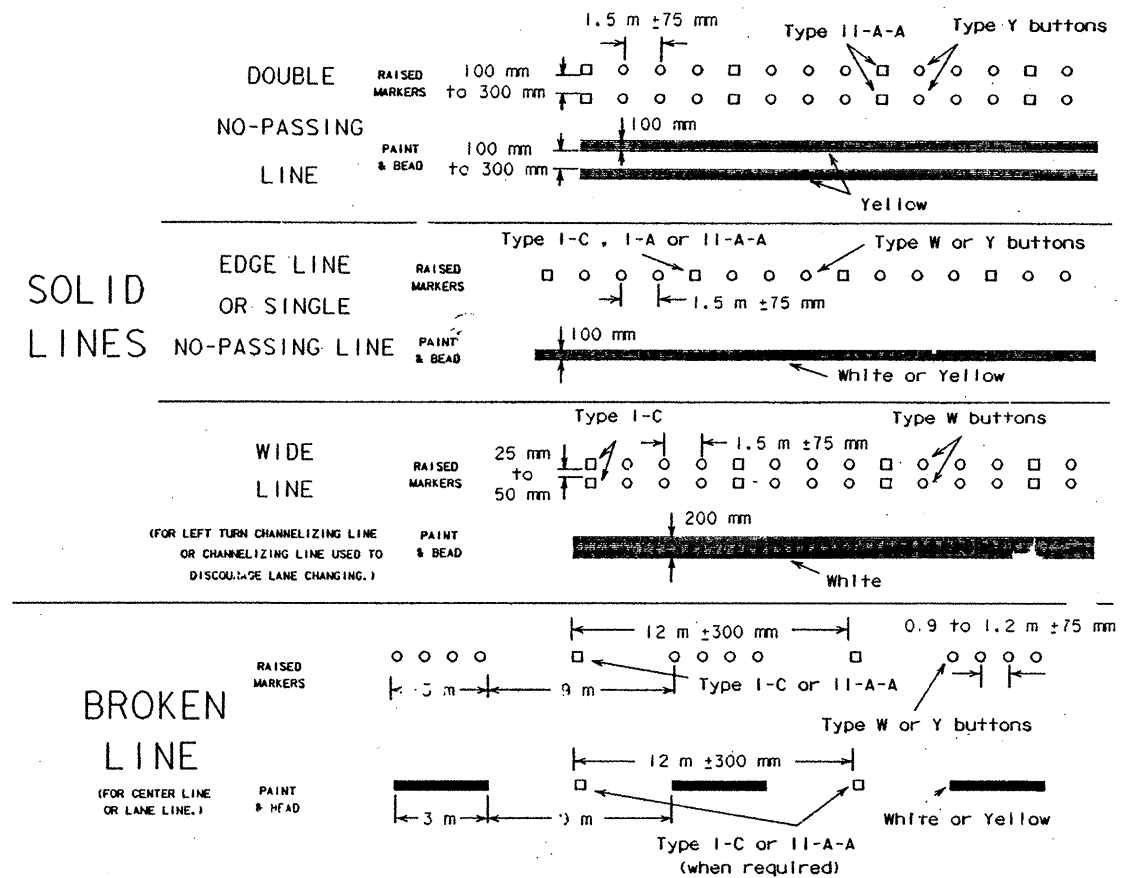
LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE

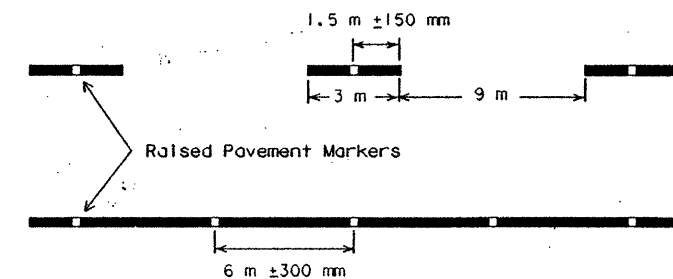


STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



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 in broken lines and at approximately 1/2 the spacing for solid lines. This allows an easier removal of raised markers and tape.



NOTES:
 Pattern A is the Department Standard, however Pattern B may be used if approved by the Engineer.
 Prefabricated markings may be substituted for paint and beads.

Raised pavement markers used as standard pavement markings shall meet the requirements of Items "RAISED PAVEMENT MARKERS" and "EPOXY."

		STANDARD PLANS TEXAS DEPARTMENT OF TRANSPORTATION Traffic Operations Division	
BARRICADE AND CONSTRUCTION STANDARDS		PAVEMENT MARKINGS BC (9) - 95 (M)	
DATE: APRIL 1992	REVISED: 2-94	STATE: 21	FEDERAL: 6
COUNTY: HIDALGO	SECTION: 1039	PROJECT: NH 96 (99)	SHEET: M 530
DATE: 10/31/17	BY: 118	APP: 118	REV: 118