CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		1

INDEX OF SHEETS

SEE SHEET No. 2 FOR INDEX

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE PROJECT NUMBER

C255-8-108

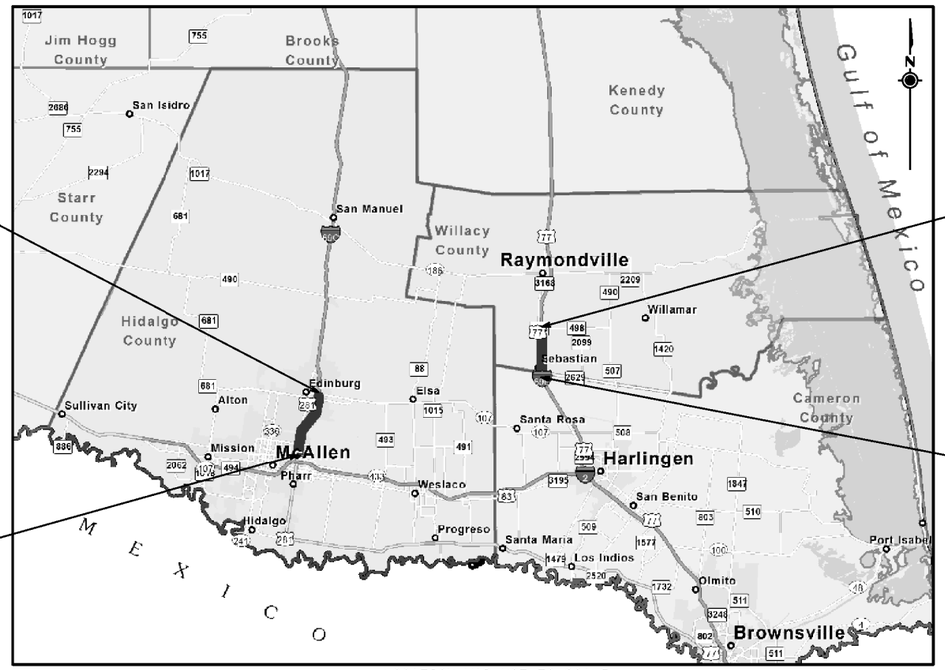
CSJ 0255-08-108, Etc.

NET LENGTH OF PROJECT = 44,421 FEET = 8.413 MILES

HIDALGO COUNTY, Etc.
IH-69C, Etc.

LIMITS: VARIOUS LOCATIONS - SEE LOCATION MAPS FOR LIMITS

FOR THE CONSTRUCTION OF PREVENTATIVE MAINTENACE OF EXISTING MAINLANES CONSISTING OF MILLING, STONE MATRIX ASPHALTIC CONTRETE OVERLAY, PAVEMENT MARKINGS, RUMBLE STRIPS, AND REPLACEMENT OF EXISTING METAL BEAM GUARD FENCE WITH MOW-STRIPS.



END PROJECT
CSJ: 0255-08-108
STA. 415+52.00
REF MRKR: 5+0.073
MILE PT: 6.100
DFO: 5.100

BEGIN PROJECT
CSJ: 0255-08-108
STA: 171+41.00
REF MRKR: 1+0.818
MILE PT: 2.847
DFO: 1.847

END PROJECT
CSJ: 0327-10-065
STA. 300+14.00
REF MRKR: 42+0.889
MILE PT: 42.958
DFO: 19.947

BEGIN PROJECT
CSJ: 0327-10-065
STA. 100+04.00
REF MRKR: 39+0.336
MILE PT: 16.392
DFO: 39.399

LOCATION MAP NOT TO SCALE

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

FINAL PLANS

DATE OF LETTING: _____

DATE WORK BEGAN: _____

DATE WORK COMPLETED AND ACCEPTED: _____

FINAL CONTRACT COST: $_____

CONTRACTOR: _____

LIST OF CHANGE ORDERS & SUPPLEMENTAL AGREEMENTS:

THIS IS TO CERTIFY THAT ALL CONSTRUCTION SUBSTANTIAL WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS SPECIFICATIONS AND CONTRACT. ALL PROPOSED CONSTRUCTION WAS COMPLETED UNLESS OTHERWISE NOTED.

_____ P.E. _____

RENE GARZA, P.E. PHARR AREA OFFICE — DATE

TDLR INSPECTION NOT REQUIRED

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

RECOMMENDED FOR LETTING: DATE: 2/1/2022

DocuSigned by: Pedro R. Alvarez EABA335C2DAA48C...

DISTRICT ENGINEER

SUBMITTED FOR LETTING: DATE: 2/1/2022

DocuSigned by: Romualdo Mena Jr 8D385A956F70446...

DISTRICT CENTRAL DESIGN SUPERVISOR

FILE: c:\txdot\pwronline\txdot5\pwonlinemezekiel.gonzalez\d0335086\108*TITLE.dgn
DATE: 2/1/2022 9:24:28 AM

INDEX OF SHEETS

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

1/26/2022

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

Pharr District Central Design

Texas Department of Transportation

IH-69C, Etc.
INDEX OF SHEETS

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		2

DATE: 1/26/2022 10:57:35 AM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335086\108_INDEX.dgn

LOCATION No.	HIGHWAY	CSJ	LIMITS	LENGTH IN FEET	LENGTH IN MILES
①	IH-69C (US 281)	0255-08-108	FROM FM 3461 (NOLANA LOOP) TO SPRAGUE ST.	24,411	4.623
②	IH-69E (US 77)	0327-10-065	FROM FM 1018 TO SP 112	20,010	3.790

NOT TO SCALE

Pharr District Central Design

Texas Department of Transportation

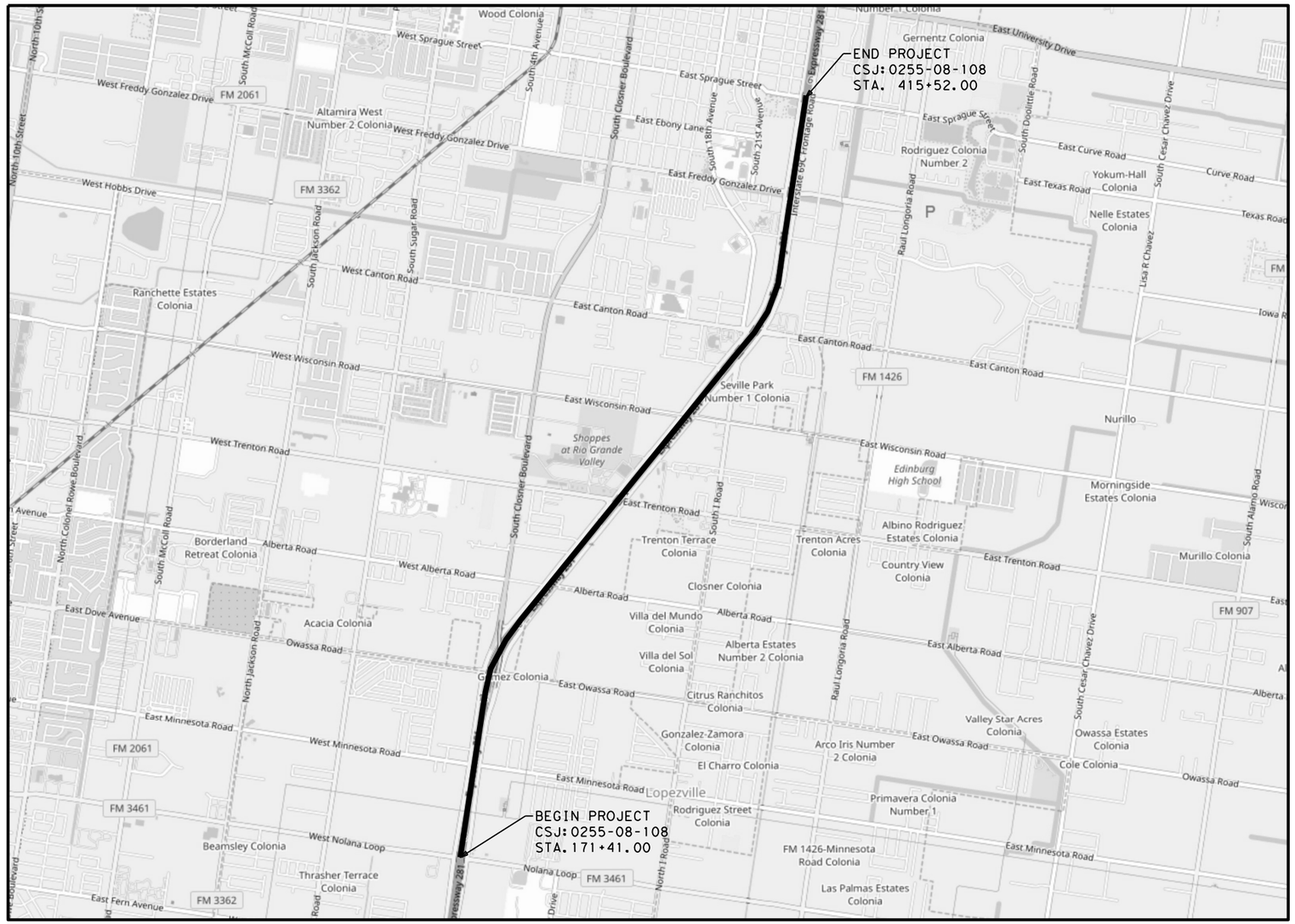
IH-69C, Etc.
PHARR DISTRICT
LOCATION MAP

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.

DIST	COUNTY	SHEET NO.
PHR	HIDALGO, etc.	3

DATE: 7/8/2021 5:06:24 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335086\108_LOCMAPS.dgn



LOCATION (1)

HIGHWAY: IH-69C
CSJ: 0255-08-108

PROJECT LIMITS: FROM: FM 3461 (NOLANA LOOP)
TO: SPRAGUE ST.
LENGTH (FT): 24411
BEGIN RM: 1+0.818
END RM: 5+0.073

ADT= 80,125

HIDALGO COUNTY

NOTE: SEE PLAN SHEETS FOR LOCATION DETAILS:

BASIS OF ESTIMATE:	15	-	16
TYPICAL SECTIONS:	22	-	28
ROADWAY PLAN:	29	-	39
PAVEMENT MARKINGS:	40	-	50

NOT TO SCALE

Pharr District Central Design

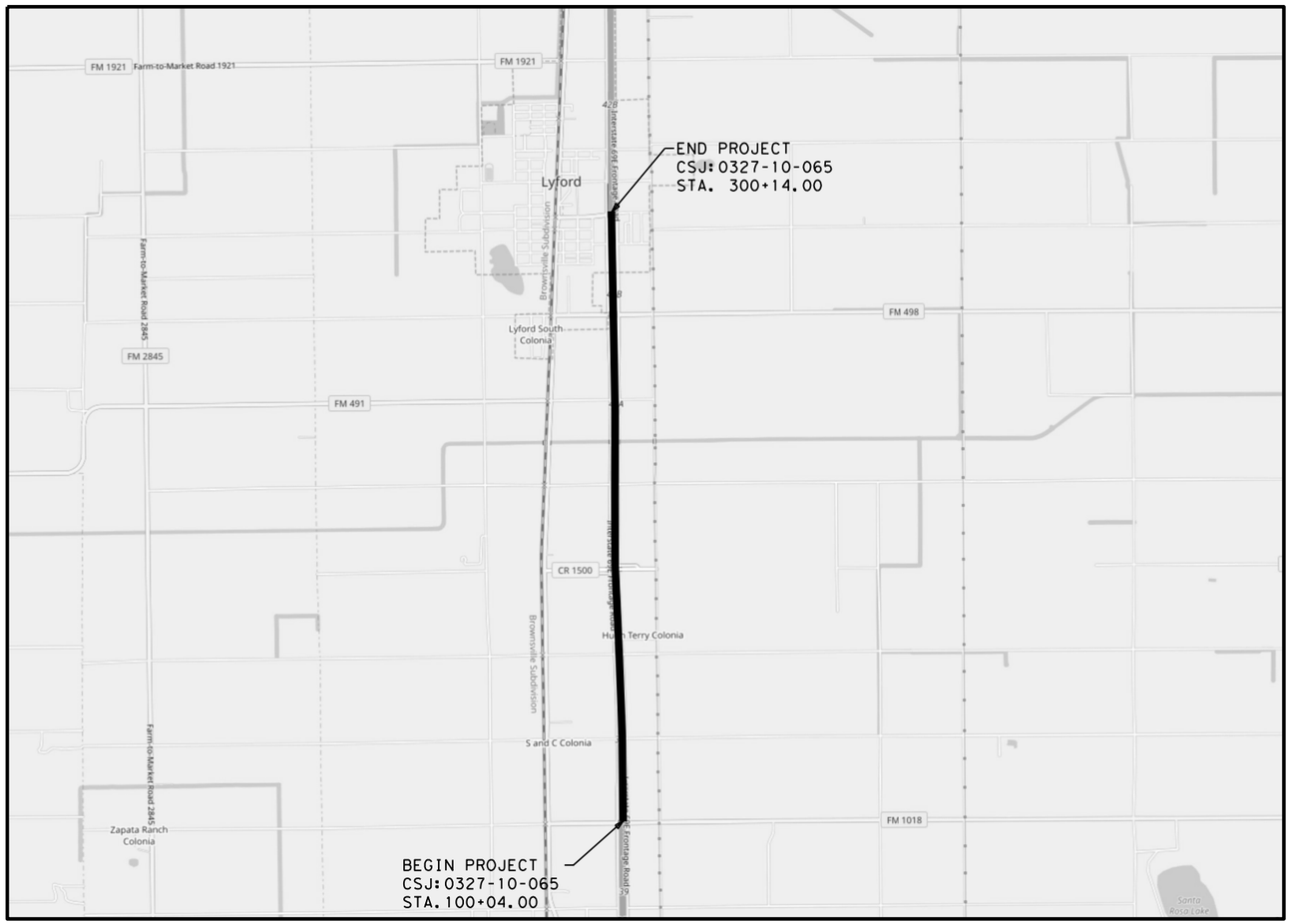
Texas Department of Transportation

IH-69C, Etc.
LOCATION MAPS

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		4

DATE: 7/9/2021 8:02:04 AM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335086\108_LOCMAPS.dgn



N

LOCATION (2)

HIGHWAY: IH-69E
CSJ: 0327-10-065

PROJECT LIMITS: FROM: FM 1018
TO: SP 112
LENGTH (FT): 20,010
BEGIN RM: 39+0.336
END RM: 42+0.889

ADT= 18,183

WILLACY COUNTY

NOTE: SEE PLAN SHEETS FOR LOCATION DETAILS:

BASIS OF ESTIMATE:	17	-	18
TYPICAL SECTIONS:	51	-	52
ROADWAY PLAN:	53	-	61
PAVEMENT MARKINGS:	62	-	70

NOT TO SCALE

Pharr District Central Design

Texas Department of Transportation

IH-69C, Etc.
LOCATION MAPS

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		5

DATE: 7/9/2021 8:04:57 AM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335086\108_LOCMAPS.dgn

2014 SPECS GENERAL NOTES:

****

General Requirements and Covenants to ITEMS 1 thru 9

For all pits or quarries, comply with the "Texas Aggregate Quarry and Pit Safety Act."

Provide on a weekly basis a list of equipment, including idle equipment, utilized on the project that week.

The 1-800 call services for utility locations do not include TxDOT facilities. Contact the Pharr District Signal Section (956-702-6225) for coordination regarding TxDOT underground lines.

ITEM 2: Instruction to Bidders

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

For Location #1:
Rene Garza, P.E., Pharr Area Engineer; Rene.Garza@txdot.gov
Jesus Noriega, P.E., Assist. Area Engineer; Jesus.Noriega@txdot.gov

For Location #2:
Andres Espinoza, P.E., Area Engineer; Andres.Espinoza@txdot.gov
Hector E. Siller, P.E., Assist. Area Engineer Hector.Siller@txdot.gov

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

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address:

https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

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

ITEM 5: Control of the Work

The responsibility for the construction surveying on this contract will be in accordance with Article 5.9.3., "Method C."

Project Number: C255-8-108
County: Hidalgo, Etc.
Highway: IH-69C, Etc.

ITEM 7: Legal Relations and Responsibilities

No significant traffic generator events identified.

Roadway or Lane closures during the following key dates and/or special events are prohibited:
- National Holidays
- The day before a National Holiday
- During emergency events such as natural disasters or as directed by the engineer

ITEM 8: Prosecution and Progress

Working days will be computed and charged in accordance with Article 8.3.1.4. Standard Workweek.

Prepare progress schedules as a Bar Chart.

Construction for the following locations shall be done at night in accordance with Article 8.3.3.2.1.:
- Location 1: IH-69C (US 281)
- Location 2: IH-69E (US 77)

ITEM 134: Backfilling Pavement Edges

Areas to be backfilled shall extend approximately 3-ft out from the edges of the proposed overlay. Final slopes shall be uniform and smooth. The 100-foot station payment includes backfilling of both sides.

Backfill TY "A" shall not contain particles more than two inches in size and shall have a minimum PI of 10 and a maximum PI of 20.

Any additional backfill material necessary due to pre-existing edge conditions or to replace existing fill removed during blading operations will not be paid for directly. It will be considered subsidiary to this bid item.

ITEM 160: Topsoil

Use topsoil as needed and directed by the project engineer for select problem areas. Unless otherwise approved by the project engineer, use topsoil from approved sources outside the right of way as per standard specifications. Existing topsoil is to be salvaged and retained for re-use on the project as topsoil.

ITEM 164: Seeding for Erosion Control

During drill seeding operations, application methods shall be in accordance with the method shown in the Standard Specification Book.

SS-1 Tacking Agent shall be a ratio of 2:1, two (Emulsion) to one (water) and applied at a rate of 0.05 gallons per square yard. The SS-1 Tacking Agent required for Drill Seed operations, will not be paid for directly, but will be subsidiary to Item 164 "Drill Seeding." Watering shall not be used with the Drill Seed Method. A biodegradable tacking agent may be used in lieu of the SS-1 tacking agent in accordance with the manufacturer's recommendations when approved by the engineer.

Cool Season or Warm Season Grasses shall be included as part of Item 164 (See Table 3 and/or Table 4 in the Standard Specification Manual for dates and seed type).

Seed mixture shall be as specified under Item 164.

ITEM 166: Fertilizer

Fertilizer rate is based on a rate of 100 Lbs. of Nitrogen per acre. The Nitrogen-Phosphorous-Potassium (NPK) ratio shall include a minimum of 5 percent phosphorous and 5 percent Potassium. Fertilizer shall be homogenized.

ITEM 300: Asphalts, Oils, and Emulsions

Temporary ramps/detours and driveways may use Performance Grade Binder 64-22.

ITEM 301: Asphalt Antistripping Agents

Hydrated Lime shall be added as an Antistripping additive between the rates of 1 % minimum and 2.0% maximum by weight for Items 292, 341, 344, and 346. If the Hamburg Wheel Test cannot be met within these limits, Liquid Antistripping agents as approved by the Engineer may be used in conjunction with lime for Items 341, 344, and 346.

ITEM 354: Planing and Texturing Pavement

Contractor is to place seal coat or ACP layer(s) as indicated on plans within 14-calendar days of planing/milling operation unless otherwise directed by the engineer.

All planing/milling operation drop offs greater than 1-inch need to have a 3:1 slope taper unless otherwise directed by the engineer. The cost of the 3:1 slope taper is subsidiary to Item 354.

For full width planing/milling locations, contractor is to place seal coat or ACP layer(s) as indicated on the plans within 2-calendar days of the planing/milling operation unless otherwise directed by the engineer. Contractor will not be allowed to move onto the next planing/milling location or seal coat/ACP overlay location until the exposed area is covered as per above. Contractor cannot get paid for the planing/milling operation until exposed area is covered as per above.

All planing/milling material; RAP (recycled asphalt pavement) from this project will remain the property of the State unless otherwise noted in the plans and/or as directed by the Engineer.

For Location #1:
All planing/milling material generated from the project shall be property of the contractor.

For Location #2:
Stockpile **3280 CY** of material generated from the project at designated site located at **the Intersection of FM 1425 and FM 490 in Willacy County**.

ITEM 432: Riprap

Provide Class "A" concrete minimum for riprap aprons placed around all box culvert and pipe safety end treatments. Provide ¼-inch thick dummy joints at least every 15-ft for riprap aprons placed around box and pipe culverts.

Do not use fiber reinforced concrete RIPRAP on side slopes equal to or steeper than 6:1 unless approved by the engineer.

ITEM 502: Barricades, Signs, and Traffic Handling

A pilot car and radio equipped flaggers shall be required for all undivided roadway locations as directed by the Engineer. The pilot car with necessary flaggers and/or radio equipped flaggers and all signs, equipment, labor and incidentals required for this method of traffic control will not be paid for directly, but shall be considered subsidiary to Item 502.

Replace/relocate all regulatory signs removed due to construction operations with the same sign on fixed support(s) immediately upon its removal. First obtain project Engineer approval before removing any regulatory roadway sign. Required flaggers are to be available to direct traffic during sign intermediate down time.

Relocate any Directional Sign Assemblies removed during construction operations immediately upon their removal.

These signs shall be relocated to a location in accordance with the Latest Version of the "Texas Manual on Uniform Traffic Control Devices". In no case will a sign be removed without a replacement sign and support(s) being readily available and a location established. Removal and

relocation of these signs required for traffic control will not be paid for directly, but shall be considered subsidiary to Item 502.

From the beginning to the end of the project, all traffic control devices need to be in acceptable condition as per the Texas Quality Guidelines for Work Zone Traffic Control Devices.

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The "Safety Contingency" is not intended to be used in lieu of bid items established by the contract.

ITEM 504: Field Office and Laboratory

For this project a field office will not be required at the project site.

The Contractor will furnish a Type D Structure (Asphalt Mix Laboratory) modified by the following.

Laboratory room: The other room of this building will be used as a laboratory and will include access to a bathroom facility from the interior. The laboratory and bathroom facility will have the walls, ceiling and floor insulated such that the air temperature can be maintained at 76 degrees Fahrenheit at all times.

Furnish for the Department's use in the asphalt laboratory one (1) desktop computer.

ITEM 506: Temporary Erosion, Sedimentation, and Environmental Controls

Due to the nature of this project, it is unlikely a significant amount of soil will be disturbed. However, if erosion control logs are needed; it shall be placed as directed by the Engineer.

The Contractor shall install the required Best Management Practice (BMP) elements accordingly at the required locations as per the appropriate phasing of the project or as needed or as directed by the Engineer. The Contractor is instructed to follow the SW3P Layouts for the typical BMP for each location.

The Contractor Force Account "Erosion Control Maintenance" that has been established for this project is intended to be utilized for work zone Best Management Practice (BMP) maintenance, to improve the effectiveness of the Environmental Controls that may need maintenance attention and/or require replacement while the project is still under the construction stage. These procedures will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent BMP management reviews on the project. The "Erosion Control Maintenance" is not intended to be used in lieu of bid items established by the contract.

Project Number: C255-8-108
County: Hidalgo, Etc.
Highway: IH-69C, Etc.

ITEM 540: Metal Beam Guard Fence

The optional terminal anchor post with the terminal connector will be required as shown on the Metal Beam Guard Fence Standard.

Galvanize the rail elements supplied for this project using a Type II Zinc Coating.

ITEM 542: Removing Metal Beam Guard Fence

Dispose all metal beam guard fence materials unless shown otherwise in the plans.

ITEM 544: Guardrail End Treatments

Label "end treatment type" on backside of unit at time of installation.

ITEM 585: Ride Quality for Pavement Surfaces

Use Surface Test Type "B" for service roads and ramps.

Quality control results shall be submitted to TxDOT the next working day after each day's paving.

Pavement areas with public turnout intersections that carry major traffic volumes will not be subjected to inertial profiler testing. These areas shall be evaluated using the 10-ft. straightedge.

Diamond grinding shall be used to remove localized roughness.

Use Surface Test Type B pay adjustment schedule 3 to evaluate ride quality of the travel lanes in accordance with Item 585, "Ride Quality for Pavement Surfaces." This includes ramps and service road travel lanes.

ITEM 658, Delineator and Object Marker Assemblies

Delineator assemblies shall be installed 8 feet from the edge of the shoulder unless restricted by some obstruction, in which case, the delineator assembly shall be placed between 2 and 8 feet from the edge of the shoulder.

Bi-directional object markers shall be in accordance with the D&OM standard sheets. The contractor is directed to the standards when instructed where and how to install the object markers.

ITEMS 662 and 666: Work Zone Pavement Markings and Retroreflectorized Pavement Markings

All permanent pavement markings and work zone pavement markings for this project under these Items shall be 0.100 inches (100 mil) thick thermoplastic.

Any permanent pavement markings or non-removal work zone pavement markings lacking reflectivity in accordance with the requirements of Tex 828-B, or that fail to meet minimum retro reflectivity requirements for longitudinal pavement markings when required, will be addressed per the requirements of the specification. The roadway will be re-striped at no additional compensation.

Pavement surface preparation for markings and markers will not be paid for directly, but shall be considered subsidiary to Item 666.

Prior to any striping operations, an on-site coordination meeting between all the parties involved will be required to review striping details and requirements to ensure quality work.

The beads used on this project shall meet the requirements of Departmental Materials Specification DMS-8290, Glass Traffic Beads Texas Type II & III. Use a 50% Type II/ 50% Type III mix utilizing a double drop system with Type Ill beads dropped first.
For expressway projects, provide channelizing devices at the ramp connections when temporary pavement marking tabs are placed. These channelizing devices will be subsidiary to Item 502.

ITEM 677: Eliminating Existing Pavement Markings and Markers

Asphalt and aggregate types and grades shall be as approved in writing when a surface treatment is used to eliminate existing pavement markings.

ITEM 3080 – Stone-Matrix Asphalt

The contractor shall exercise diligence in the application of "Bonding Course" by the use of flagging and rolling procedures to keep from spraying or splattering the traveling public with asphaltic material.

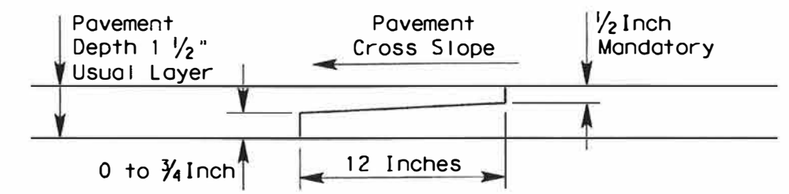
Blading (not to exceed more than 3-ft from the pavement edge) may also be necessary to clean dirt and grass from pavement edges and turnout areas as work under this bid Item. The cost of this blading will not be paid for directly, but shall be considered subsidiary to this bid Item.

Level-up will be placed before the surface course. An asphaltic concrete spreading and finishing machine and/or motor graders; when approved by the Engineer may be used to place the ACP level-up.

Aggregates used on shoulders and ramps are required to meet SAC requirements.

Project Number: C255-8-108
County: Hidalgo, Etc.
Highway: IH-69C, Etc.

All unconfined longitudinal joints shall be constructed with a joint maker providing a maximum ½-inch vertical edge and a minimum 6:1 edge taper or as approved by the Engineer. The Engineer may waive this requirement when no impacts to the traveling public are foreseen.



NOTCHED WEDGE JOINT

The engineer may allow for variances to the dimensions shown.

Public and private driveways need to have a smooth vertical transition between the edge of pavement and the existing driveways. The contractor is to add a vertical taper if needed which will be subsidiary to Item 3080.

The use of RAP and RAS (recycled asphalt shingles) will not be allowed as part of the mix design for the final riding surface.

Use a release agent from the Department's MPL to clean and to coat the inside of truck beds for hauling equipment. Hauling equipment shall be cleaned prior to hauling material to job site. Submit a copy of the bill of lading to the Engineer as part of the QCP. Ensure the pavement is free from any spillage of hydraulic oil or diesel from construction equipment. The Department may reject trucks that contain any foreign material and suspend production if the pavement is contaminated by any pollutants mentioned above.

SAC B aggregate must have material properties that require 10 or less on the magnesium sulfate soundness test and 20 or less on the Micro-Deval test.

ITEM 3084 – Bonding Course

The minimum application rates are listed in Table BC.

The target shear bond strengths are listed in Table BCS. The informational test cores shall be taken once a shift for first 5 lots of placement or a change to placement method of bonding course, bonding material, or hot mix material. The remaining informational test cores shall be taken once every 3 lots for surface mix. Informational tests are not required for non-surface mix beyond the first 5 lots unless there is a change to placement method of bonding course, bonding material, or hot mix material. Results from these informational tests will not be used for specification compliance.

Table BC

Material	Minimum Application Rate (gal. per square yard)
TRAIL – Emulsified Asphalt	0.06
TRAIL – Hot Asphalt	0.12
Spray Applied Underseal Membrane	0.10

Table BCS (For Informational Tests)

Material	Target Shear Bond Strength (Tex-249-F psi)
SMA – Stone-Matrix Asphalt	60.0
All Other Materials	40.0

ITEM 6185: Truck Mounted Attenuator/Trailer Attenuator

In addition to the shadow vehicles with truck mounted attenuator (TMA) that are specified as being required on the traffic control plan for the project, provide 2 additional shadow vehicle(s) with TMA as per TCP (2-6) -18 as detailed on General Notes 6 & 7 of this standard sheet;
or as per TCP (5-1) -18 as detailed on General Note 1 of this standard sheet.

Therefore, 3 total shadow vehicles with TMA will be required on this project for the type of work as shown on the plans. The contractor will be responsible for determining if one or more of his construction operations will be ongoing at the same time and thus determine the total number of TMAs needed for the project.

BASIS OF ESTIMATE LOCATION 1

CONTROL: 0255-08-108, ETC.
PROJECT:

COUNTY: HIDALGO
HIGHWAY: IH-69C

TYPE: 1 ½" MILLING AND OVERLAY

LIMITS: FROM: FM 3461 (NOLANA RD.)
TO: SPRAGUE ST.

STATION LIMITS: 171+41 TO 415+52 = 24,411 Ft. 4.623 Mi.

EXCEPTIONS: BRIDGE SECTIONS EXCLUDED FROM OVERLAY (OMIT)
EQUATIONS: NONE

	STA	TO	STA	WIDTH (FT)	LENGTH (FT)	AREA (SY)
IH-69C SOUTHBOUND						
(OMIT)	171+41		174+28	69' NOLANA LOOP OVERPASS	287	-
	174+28		178+34	69' ROADWAY	406	3113
	178+34		182+67	69' ROADWAY	433	3320
	182+67		188+58	ROADWAY TRANSITION (69' - 94')	591	5352
	188+58		202+73	57' ROADWAY	1,415	8962
	202+73		213+80	57' ROADWAY	1,107	7011
	213+80		221+14	ROADWAY TRANSITION (94' - 69')	734	6647
	221+14		224+51	69' ROADWAY	337	2584
(OMIT)	224+51		226+86	69' OWASSA RD OVERPASS	235	-
	226+86		238+58	69' ROADWAY	1,172	8985
	238+58		245+95	ROADWAY TRANSITION (69' - 94')	737	6674
	245+95		270+46	69' ROADWAY	2,451	18791
	270+46		275+33	ROADWAY TRANSITION (94' - 69')	487	4410
	275+33		284+69	69' ROADWAY	936	7176
(OMIT)	284+69		287+37	69' TRENTON RD OVERPASS	268	-
	287+37		294+32	69' ROADWAY	695	5328
	294+32		301+94	ROADWAY TRANSITION (69' - 94')	762	6900
	301+94		325+28	57' ROADWAY	2,334	14782
	325+28		328+62	ROADWAY TRANSITION (94' - 69')	334	3025
	328+62		338+40	69' ROADWAY	978	7498
(OMIT)	338+40		340+58	69' S. VETERANS BLVD. OVERPASS	218	-
	340+58		342+20	69' ROADWAY	162	1242
	342+20		345+70	ROADWAY TRANSITION (69' - 79')	350	2878
(OMIT)	345+70		348+25	79' CANTON RD. OVERPASS	255	-
	348+25		354+91	ROADWAY TRANSITION (79' - 91')	666	6327
	354+91		377+93	59' ROADWAY	2,302	15091
	377+93		382+83	ROADWAY TRANSITION (94' - 69')	490	4437
	382+83		386+06	69' ROADWAY	323	2476
(OMIT)	386+06		388+82	69' FREDDY GONZALEZ RD. OVERPASS	276	-
	388+82		402+32	69' ROADWAY	1,350	10350
	402+32		406+13	ROADWAY TRANSITION (104' - 81')	381	3916
	406+13		407+94	81' ROADWAY	181	1629
	407+94		411+00	ROADWAY TRANSITION (81' - 73')	306	2618
	411+00		412+96	73' ROADWAY	196	1590
(OMIT)	412+96		415+73	73' SPRAGUE ST. OVERPASS	277	-
IH-69C SOUTHBOUND RAMPS						
	188+57		191+64	26' ROADWAY	307	887
	211+06		213+80	26' ROADWAY	274	792
	245+95		250+11	ROADWAY TRANSITION (28' -26')	416	1248
	267+32		270+46	26' ROADWAY	314	907
	301+94		304+99	26' ROADWAY	305	881
	320+62		325+28	ROADWAY TRANSITION (28' -26')	466	1398
	354+91		359+93	ROADWAY TRANSITION (28' -26')	502	1506
	374+55		377+93	ROADWAY TRANSITION (28' -26')	338	1014
	398+93		402+32	ROADWAY TRANSITION (28' -26')	339	1017
IH-69C NORTHBOUND						
(OMIT)	171+41		174+28	69' NOLANA LOOP OVERPASS	287	-
	174+28		175+84	69' ROADWAY	156	1,196
	175+84		178+34	ROADWAY TRANSITION (69' - 79')	250	2,056
	178+34		180+27	79' ROADWAY	193	1,694
	180+27		185+13	ROADWAY TRANSITION (79' - 107')	486	5,022
	185+13		194+33	69' ROADWAY	920	7,053
	194+33		202+73	ROADWAY TRANSITION (69' - 57')	840	5,880
	202+73		210+75	57' ROADWAY	802	5,079
	210+75		217+35	ROADWAY TRANSITION (94' - 69')	660	5,977
	217+35		224+51	69' ROADWAY	716	5,489
(OMIT)	224+51		226+86	69' OWASSA RD. OVERPASS	235	-
	226+86		241+33	69' ROADWAY	1,447	11,094
	241+33		246+29	ROADWAY TRANSITION (69' - 94')	496	4,492
IH-69C NORTHBOUND CONT'D						
	246+29		269+66	57' ROADWAY	2,337	14,801
	269+66		277+25	ROADWAY TRANSITION (94' - 69')	759	6,873
	277+25		284+69	69' ROADWAY	744	5,704
(OMIT)	284+69		287+37	69' TRENTON RD. OVERPASS	268	-
	287+37		292+89	69' ROADWAY	552	4,232
	292+89		297+76	ROADWAY TRANSITION (69' - 94')	487	4,410
	297+76		327+31	59' ROADWAY	2,955	19,372
	327+31		334+56	ROADWAY TRANSITION (94' - 69')	725	6,565
	334+56		338+40	69' ROADWAY	384	2,944
(OMIT)	338+40		340+58	69' S. VETERANS BLVD. OVERPASS	218	-
	340+58		345+70	69' ROADWAY	512	3,925
(OMIT)	345+70		348+25	69' CANTON RD. OVERPASS	255	-
	348+25		351+26	69' ROADWAY	301	2,308
	351+26		355+57	ROADWAY TRANSITION (69' - 89')	431	3,783
	355+57		376+17	57' ROADWAY	2,060	13,047
	376+17		384+84	ROADWAY TRANSITION (94' - 69')	867	7,851
	384+84		386+06	69' ROADWAY	122	935
(OMIT)	386+06		388+82	69' FREDDY GONZALEZ RD. OVERPASS	276	-
	388+82		396+81	69' ROADWAY	799	6,126
	396+81		405+31	ROADWAY TRANSITION (107' - 69')	850	8,311
	405+31		407+93	69' ROADWAY	262	2,009
	407+93		412+96	69' ROADWAY	503	3,856
(OMIT)	412+96		415+73	69' SPRAGUE ST. OVERPASS	277	-
IH-69C NORTHBOUND RAMPS						
	185+13		187+80	26' ROADWAY	267	771
	207+56		210+75	26' ROADWAY	319	922
	246+29		248+88	24' ROADWAY	259	691
	266+48		269+66	26' ROADWAY	318	919
	297+76		300+86	24' ROADWAY	310	827
	322+18		327+26	24' ROADWAY	508	1355
	355+56		360+72	25' ROADWAY	516	1433
	373+78		376+17	ROADWAY TRANSITION (22' - 20')	239	558
	395+72		396+81	ROADWAY TRANSITION (22' - 26')	109	291
				TOTAL =	54,970	362,613

DATE: 7/8/2021 5:06:43 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335068\108_ESTIMATE.dgn

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc.
BASIS OF ESTIMATE
LOCATION 1

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		7

BASIS OF ESTIMATE LOCATION I CONT'D
ESTIMATED QUANTITIES

	ITEM	DESC. CODE	SPEC NO.	DESCRIPTION	AMOUNT	UNITS
	0104	6054		REMOVING CONC (MOW STRIP)	4760	LF
	0134	6001		BACKFILL (TY A)	451	STA
	0160	6005		FURNISHING AND PLACING TOPSOIL	50	CY
	0164	6037		DRILL SEEDING (PERM)(URBAN)(SANDY)	15033	SY
*	0166	6001		FERTILIZER	3	AC
	0168	6001		VEGETATIVE WATERING	1000	MG
	0354	6041		PLANE ASPH CONC PAV (1.5")	362613	SY
	0354	6127		PLANE ASPH CONC PAV (1.5" TO 4")	100	SY
	0356	6021		PAV JT UNDERSEAL (24")	2030	LF
	0432	6045		RIPRAP (MOWSTRIP)(4 IN)	204	CY
	0438	6004		CLEANING AND SEALING EXIST JOINTS (CL7)	2030	LF
	0500	6001		MOBILIZATION	1	LS
	0502	6001	008	BARRICADES, SIGNS, & TRAFFIC HANDLING	13	MO
▲	0506	6041	005	BIODEG EROSN CONT LOGS (INSTL)(12")	3600	LF
▲	0506	6043	005	BIODEG EROSN CONT LOGS (REMOVE)	3600	LF
	0540	6001	001	MTL W-BEAM GD FEN (TIM POST)	7875	LF
	0540	6006	001	MTL BEAM GD FEN TRANS (THRIE-BEAM)	10	EA
	0540	6016	001	DOWNSTREAM ANCHOR TERMINAL SECTION	7	EA
	0542	6001		REMOVE METAL BEAM GUARD FENCE	7875	LF
	0542	6003		REMOVE DOWNSTREAM ANCHOR TERMINAL	7	EA
	0542	6004		RM MTL BM GD FEN TRANS (THRIE-BEAM)	10	EA
	0544	6001		GUARDRAIL END TREATMENT (INSTALL)	8	EA
	0544	6003		GUARDRAIL END TREATMENT (REMOVE)	8	EA
	0658	6103		INSTL OM ASSM (OM-3L)(FLX)GND	2	EA
	0658	6106		INSTL OM ASSM (OM-3R)(FLX)GND	6	EA
	0658	6060		REMOVE DELIN & OBJECT MARKER ASSMS	100	EA
	0658	6061		INSTL DEL ASSM (D-SW) SZ 1 (BRF)GF2	94	EA
	0662	6109		WZ ZN PAV MRK SHT TERM (TAB) TY W	16193	EA
	0666	6036	007	REFL PAV MRK TY I (W)8" (SLD)(100MIL)	14475	LF
	0666	6167	007	REFL PAV MRK TY II (W)4" (BRK)(100MIL)	26285	LF
	0666	6306	007	REFL PAV MRK TY I (W) 6" (BRK)(100MIL)	26285	LF
	0666	6309	007	REFL PAV MRK TY I (W) 6" (SLD)(100MIL)	61895	LF
	0666	6321	007	REFL PAV MRK TY I (Y) 6" (SLD)(100MIL)	54984	LF
	0666	6039	007	REFL PAV MRK TY I (W) 12" (LNDP)(100MIL)	3684	LF
	0666	6042	007	REFL PAV MRK TY I (W) 12" (SLD)(100MIL)	7537	LF
	0668	6010		PREFAB PAV MRK 6" BRK CNST	1733	LF
	0668	6077		PREFAB PAV MRK TY C (W) (ARROW)	8	EA
	0668	6085		PREFAB PAV MRK TY C (W) (WORD)	8	EA
	0668	6087		PREFAB PAV MRK TY C (W) (EXIT GORE)	9	EA
	0672	6008		REFL PAV MRKR TY I-R	126	EA
	0672	6010		REFL PAV MRKR TY-II C-R	2984	EA
	0677	6001		ELIM EXT PAV MRK & MRKS (4")	9750	LF
	0677	6003		ELIM EXT PAV MRK & MRKS (8")	244	LF
	0677	6005		ELIM EXT PAV MRK & MRKS (12")	492	LF
	0677	6008		ELIM EXT PAV MRK & MRKS (ARROW)	1	EA
	0677	6012		ELIM EXT PAV MRK & MRKS (WORD)	1	EA
	0678	6002		PAV SURF PREP FOR MRK (6")	9750	LF
	0678	6004		PAV SURF PREP FOR MRK (8")	244	LF
	0678	6006		PAV SURF PREP FOR MRK (12")	492	EA
⊛	3080	6013		STONE-MTRX-ASPH SMA-F SAC-A PG76-22	31003	TON
⊛	3084	6001		BONDING COURSE	25383	GAL
	6001	6002		PORTABLE CHANGEABLE MESSAGE SIGN	2	EA
	6185	6002	002	TMA (STATIONARY)	250	DAY
	6185	6005	002	TMA (MOBILE OPERATIONS)	250	DAY
				CONTRACTOR FORCE ACCOUNT: EROSION CONTROL MAINTENANCE	1	LS
				CONTRACTOR FORCE ACCOUNT: SAFETY CONTINGENCY	1	LS

⊛ FOR CONTRACTORS INFORMATION ONLY:
EST. WT. OF NEW ASPHALTIC MATERIAL: 1" = 114 LBS/SY
BONDING COURSE (TACK COAT) RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY, CAN BE MODIFIED BY ENGINEER AS PER PERTINENT BID ITEMS (341,344,346, AND 3076)

* FOR CONTRACTORS INFORMATION ONLY, NON-PAY ITEM

▲ BIODEGRADABLE EROSION CONTROL LOGS SHALL BE INSTALLED AT ALL INLETS WITHIN AND ADJACENT TO THE LIMITS OF THE PROPOSED OVERLAY OPERATION.

DATE: 1/31/2022 4:32:53 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335068\108_ESTIMATE.dgn

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc.
BASIS OF ESTIMATE
LOCATION 1

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		8

BASIS OF ESTIMATE LOCATION 2

CONTROL: 0255-08-108, ETC.
PROJECT:

COUNTY: WILLACY
HIGHWAY: IH-69E

TYPE: 1 ½" MILLING AND OVERLAY

LIMITS: FROM: FM 1018
TO: SP 112

STATION LIMITS: 100+04 TO 317+02 = 21,698 Ft. 4.109 Mi.

EXCEPTIONS: BRIDGE SECTIONS EXCLUDED FROM OVERLAY (OMIT)
EQUATIONS: NONE

	STA	TO STA	WIDTH (FT)	LENGTH (FT)	AREA (SY)
IH-69E SOUTHBOUND					
(OMIT)	100+04	102+04	38' FM 1018 OVERPASS	200	–
	102+04	124+54	38' ROADWAY	2,250	9,500
	124+54	128+74	VARIES: 66' TO 38' ROADWAY	420	2,473
	128+74	219+18	38' ROADWAY	9,044	38,186
(OMIT)	219+18	220+58	38' IRRIGATION CANAL BRIDGE	140	–
	220+58	223+26	38' ROADWAY	268	1,132
	223+26	233+42	VARIES: 38' TO 57' ROADWAY	1,016	5,362
	233+42	235+27	62' ROADWAY	185	1,274
	235+27	258+52	38' ROADWAY	2,325	9,817
(OMIT)	258+52	260+52	38' FM 498 OVERPASS	200	–
	260+52	263+11	38' ROADWAY	259	1,094
	263+11	272+52	65' ROADWAY	941	5,385
	272+52	274+15	38' ROADWAY	163	1,177
	274+15	289+64	38' ROADWAY	1,549	6,540
(OMIT)	289+64	300+13	38' SP 112 OVERPASS	1,049	–
IH-69E SOUTHBOUND RAMPS					
	274+15	280+60	22' ENTRANCE RAMP	645	1,577
IH-69E NORTHBOUND					
(OMIT)	100+04.	102+04	38' FM 1018 OVERPASS	200	–
	102+04.	122+14	38' ROADWAY	2,010	8,487
	122+14.	125+76	VARIES: 50' TO 52' ROADWAY	362	2,051
	125+76.	132+61	VARIES: 52' TO 38' ROADWAY	685	3,425
	132+61.	219+18	38' ROADWAY	8,657	36,552
(OMIT)	219+18.	220+58	38' IRRIGATION CANAL BRIDGE	140	–
	220+58.	228+17	38' ROADWAY	759	3,205
	228+17.	231+48	VARIES: 38' TO 55' ROADWAY	331	1,710
	231+48.	234+21	66' ROADWAY	273	2,002
	234+21.	258+52	38' ROADWAY	2,431	10,264
(OMIT)	258+52.	260+52	38' FM 498 OVERPASS	200	–
	260+52.	265+55	38' ROADWAY	503	2,124
	265+55.	270+51	VARIES: 38' TO 64' ROADWAY	496	2,811
	270+51.	271+36	64' ROADWAY	85	604
	271+36.	289+69	38' ROADWAY	1,833	7,739
(OMIT)	289+69.	300+13	38' SP 112 OVERPASS	1,044	–
	300+13.	317+02	38' ROADWAY	1,689	7,131
IH-69E NORTHBOUND RAMPS					
	271+64	278+59	22' EXIT RAMP	695	1,699
			TOTAL =	**43,047**	**173,321**

DATE: 7/8/2021 5:06:44 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335068\108_ESTIMATE.dgn

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc.
BASIS OF ESTIMATE
LOCATION 2

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		9

BASIS OF ESTIMATE LOCATION 2 CONT'D
ESTIMATED QUANTITIES

	ITEM	DESC. CODE	SPEC NO.	DESCRIPTION	AMOUNT	UNITS
	0104	6054		REMOVING CONCRETE (MOW STRIP)	2754	LF
	0134	6001		BACKFILL (TY A)	403	STA
	0160	6005		FURNISHING AND PLACING TOPSOIL	50	CY
	0164	6033		DRILL SEEDING (PERM) (RURAL) (SANDY)	13433	SY
*	0166	6001		FERTILIZER	3	AC
	0168	6001		VEGETATIVE WATERING	1000	MG
	0354	6041		PLANE ASPH CONC PAV (1.5")	173321	SY
	0354	6127		PLANE ASPH CONC PAV (1.5" TO 4")	100	SY
	0356	6021		PAV JT UNDERSEAL (24")	494	LF
	0432	6045		RIPRAP (MOW STRIP)(4")	145	CY
	0438	6004		CLEANING AND SEALING EXIST JOINTS (CL7)	494	LF
▲	0506	6041	005	BIODEG EROSN CONT LOGS (INSTL)(12")	1920	LF
▲	0506	6043	005	BIODEG EROSN CONT LOGS (REMOVE)	1920	LF
	0533	6003		RUMBLE STRIPS (SHOULDER) ASPHALT	69721	LF
	0540	6001	001	MTL W-BEAM GD FEN (TIM POST)	4565	LF
	0540	6006	001	MTL BEAM GD FEN TRANS (THRIE-BEAM)	9	EA
	0540	6016	001	DOWNSTREAM ANCHOR TERMINAL SECTION	8	EA
	0542	6001		REMOVE METAL BEAM GUARD FENCE	4565	LF
	0542	6003		REMOVE DOWNSTREAM ANCHOR TERMINAL	8	EA
	0542	6004		RM MTL BM GD FEN TRANS (THRIE-BEAM)	9	EA
	0544	6001		GUARDRAIL END TREATMENT (INSTALL)	9	EA
	0544	6003		GUARDRAIL END TREATMENT (REMOVE)	9	EA
	0658	6103		INSTL OM ASSM (OM-3L)(FLX)GND	4	EA
	0658	6106		INSTL OM ASSM (OM-3R)(FLX)GND	4	EA
	0658	6060		REMOVE DELIN & OBJECT MARKER ASSMS	60	EA
	0658	6061		INSTL DEL ASSM (D-SW) SZ 1 (BRF)GF2	27	EA
	0658	6064		INSTL DEL ASSM (D-SY) SZ 1 (BRF)GF2	27	EA
	0662	6109		WZ ZN PAV MRK SHT TERM (TAB) TY W	3737	EA
	0666	6036	007	REFL PAV MRK TY I (W)8" (SLD)(100MIL)	6022	LF
	0666	6042	007	REFL PAV MRK TY I (W)12" (SLD)(100MIL)	782	LF
	0666	6167	007	REFL PAV MRK TY II (W)4" (BRK)(100MIL)	25666	LF
	0666	6306	007	REFL PAV MRK TY I (W) 6" (BRK)(100MIL)	10446	LF
	0666	6309	007	REFL PAV MRK TY I (W) 6" (SLD)(100MIL)	42426	LF
	0666	6321	007	REFL PAV MRK TY I (Y) 6" (SLD)(100MIL)	43076	LF
	0668	6010		PREFAB PAV MRK 6" BRK CNST	790	LF
	0668	6087		PREFAB PAV MRK TY C (W) (EXIT GORE)	3	EA
	0672	6008		REFL PAV MRKR TY I-R	43	EA
	0672	6010		REFL PAV MRKR TY-II C-R	1126	EA
	0677	6001		ELIM EXT PAV MRK & MRKS (4")	7110	LF
	0678	6002		PAV SURF PREP FOR MRK (6")	7110	LF
⊛	3080	6013		STONE-MTRX-ASPH SMA-F SAC-A PG76-22	14819	TON
⊛	3084	6001		BONDING COURSE	12132	GAL
	6001	6002		PORTABLE CHANGEABLE MESSAGE SIGN	2	EA
	6185	6002	002	TMA (STATIONARY)	132	DAY
	6185	6005	002	TMA (MOBILE OPERATIONS)	132	DAY

⊛ FOR CONTRACTORS INFORMATION ONLY:
EST. WT. OF NEW ASPHALTIC MATERIAL: 1" = 114 LBS/SY
BONDING COURSE (TACK COAT) RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY, CAN BE MODIFIED BY ENGINEER AS PER PERTINENT BID ITEMS (341,344,346, AND 3076)

* FOR CONTRACTORS INFORMATION ONLY, NON-PAY ITEM

▲ BIODEGRADABLE EROSION CONTROL LOGS SHALL BE INSTALLED AT ALL INLETS WITHIN AND ADJACENT TO THE LIMITS OF THE PROPOSED OVERLAY OPERATION.

DATE: 2/1/2022 10:13:53 AM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335068\108_ESTIMATE.dgn

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc.
BASIS OF ESTIMATE
LOCATION 2

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		10

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0255-08-108 **DISTRICT** Pharr **COUNTY** Hidalgo, Willacy
HIGHWAY IH 69C, IH 69E

			CONTROL SECTION JOB		**0255-08-108**		**0327-10-065**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00126701**		**A00128030**			
			COUNTY		**Hidalgo**		**Willacy**			
			HIGHWAY		**IH 69C**		**IH 69E**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	104-6054	REMOVING CONCRETE(MOW STRIP)		LF	4,760.000		2,754.000		7,514.000	
	134-6001	BACKFILL (TY A)		STA	451.000		403.000		854.000	
	160-6005	FURNISHING AND PLACING TOPSOIL		CY	50.000		50.000		100.000	
	164-6033	DRILL SEEDING (PERM) (RURAL) (SANDY)		SY			13,433.000		13,433.000	
	164-6037	DRILL SEEDING (PERM) (URBAN) (SANDY)		SY	15,033.000				15,033.000	
	168-6001	VEGETATIVE WATERING		MG	1,000.000		1,000.000		2,000.000	
	354-6041	PLANE ASPH CONC PAV (1.5")		SY	362,613.000		173,321.000		535,934.000	
	354-6127	PLANE ASPH CONC PAV (1.5" TO 4")		SY	100.000		100.000		200.000	
	356-6021	PAV JT UNDERSEAL (24")		LF	2,030.000		494.000		2,524.000	
	432-6045	RIPRAP (MOW STRIP)(4 IN)		CY	204.000		145.000		349.000	
	438-6004	CLEANING AND SEALING EXIST JOINTS(CL7)		LF	2,030.000		494.000		2,524.000	
	500-6001	MOBILIZATION		LS	1.000				1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING		MO	13.000				13.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")		LF	3,600.000		1,920.000		5,520.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)		LF	3,600.000		1,920.000		5,520.000	
	533-6003	RUMBLE STRIPS (SHOULDER) ASPHALT		LF			69,721.000		69,721.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)		LF	7,875.000		4,565.000		12,440.000	
	540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)		EA	10.000		9.000		19.000	
	540-6016	DOWNSTREAM ANCHOR TERMINAL SECTION		EA	7.000		8.000		15.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE		LF	7,875.000		4,565.000		12,440.000	
	542-6003	REMOVE DOWNSTREAM ANCHOR TERMINAL		EA	7.000		8.000		15.000	
	542-6004	RM MTL BM GD FENCE TRANS (THRIE-BEAM)		EA	10.000		9.000		19.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)		EA	8.000		9.000		17.000	
	544-6003	GUARDRAIL END TREATMENT (REMOVE)		EA	8.000		9.000		17.000	
	658-6060	REMOVE DELIN & OBJECT MARKER ASSMS		EA	100.000		60.000		160.000	
	658-6061	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2		EA	94.000		27.000		121.000	
	658-6064	INSTL DEL ASSM (D-SY)SZ 1(BRF)GF2		EA			27.000		27.000	
	658-6103	INSTL OM ASSM (OM-3L)(WFLX)GND)GND		EA	2.000		4.000		6.000	
	658-6106	INSTL OM ASSM (OM-3R)(WFLX)GND)GND		EA	6.000		4.000		10.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W		EA	16,193.000		3,737.000		19,930.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)		LF	14,475.000		6,022.000		20,497.000	
	666-6039	REFL PAV MRK TY I (W)12"(LNDP)(100MIL)		LF	3,684.000				3,684.000	
	666-6042	REFL PAV MRK TY I (W)12"(SLD)(100MIL)		LF	7,537.000		782.000		8,319.000	
	666-6167	REFL PAV MRK TY II (W) 4" (BRK)		LF	26,285.000		25,666.000		51,951.000	
	666-6306	RE PM W/RET REQ TY I (W)6"(BRK)(100MIL)		LF	26,285.000		10,446.000		36,731.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)		LF	61,895.000		42,426.000		104,321.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)		LF	54,984.000		43,076.000		98,060.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0255-08-108 **DISTRICT** Pharr **COUNTY** Hidalgo, Willacy
HIGHWAY IH 69C, IH 69E

			CONTROL SECTION JOB	**0255-08-108**		**0327-10-065**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00126701**		**A00128030**			
			COUNTY	**Hidalgo**		**Willacy**			
			HIGHWAY	**IH 69C**		**IH 69E**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL		
	668-6010	PREFAB PAV MRK TY B (W)(6")(BRK)CNTST	LF	1,733.000		790.000		2,523.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	8.000				8.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	8.000				8.000	
	668-6087	PREFAB PAV MRK TY C (W) (EXIT GORE)	EA	9.000		3.000		12.000	
	672-6008	REFL PAV MRKR TY I-R	EA	126.000		43.000		169.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	2,984.000		1,126.000		4,110.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	9,750.000		7,110.000		16,860.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	244.000				244.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	492.000				492.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	1.000				1.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	1.000				1.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF	9,750.000		7,110.000		16,860.000	
	678-6004	PAV SURF PREP FOR MRK (8")	LF	244.000				244.000	
	678-6006	PAV SURF PREP FOR MRK (12")	LF	492.000				492.000	
	3080-6013	STONE-MTRX-ASPH SMA-F SAC-A PG76-22	TON	31,003.000		14,819.000		45,822.000	
	3084-6001	BONDING COURSE	GAL	25,383.000		12,132.000		37,515.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000		2.000		4.000	
	6185-6002	TMA (STATIONARY)	DAY	250.000		132.000		382.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	250.000		132.000		382.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000				1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000				1.000	

GENERAL NOTES:

1. USE A POWER-BROOM WHEN CLEANING THE ROADWAY AS NEEDED.

2. REMOVE & DISPOSE ALL MATERIAL NOT DEEMED SALVAGEABLE BY THE ENGINEER, UNLESS OTHERWISE SHOWN ON THE PLANS.

3. ON EXISTING PAVEMENT THAT WILL REMAIN IN PLACE, SAND BLAST OR SURFACE TREAT IN ORDER TO REMOVE EXISTING STRIPING.

4. DO NOT BLOCK DRAINAGE WHEN HANDLING & STOCKPILING EXCAVATED MATERIAL.

5. MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTIONS THROUGH ALL PHASES OF CONSTRUCTION USING ALL-WEATHER MATERIAL.

6. MAINTAIN POSITIVE DRAINAGE DURING ALL PHASES OF CONSTRUCTION.

6. CONSTRUCT 100:1 VERTICAL TRANSITIONS BETWEEN WORK SECTIONS BEFORE OPENING TO TRAFFIC. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

TRAFFIC CONTROL DEVICES:

1. AT THE COMMENCEMENT OF THE PROJECT, ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCEPTABLE CONDITION, AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AS PER GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES AND FEATURES.

2. NOTIFY THE AREA ENGINEER (AE) IN WRITING (EMAIL IS ACCEPTABLE) ONCE ALL TRAFFIC CONTROL DEVICES HAVE BEEN INSTALLED ON JOBSITE AS SPECIFIED IN THE PLANS SO THAT THE DEPARTMENT'S RESPONSIBLE PERSON ACCOMPANIED BY THE CONTRACTOR'S RESPONSIBLE PERSON CAN CONDUCT A NIGHT INSPECTION ON THE SAID TRAFFIC CONTROL DEVICES. COMMENCEMENT OF WORK WILL NOT BE AUTHORIZED NOR ALLOWED UNTIL THE AE NOTIFIES THE CONTRACTOR IN WRITING (EMAIL IS ACCEPTABLE) TO PROCEED WITH WORK.

3. CONTRACTOR SHALL HAVE A SUFFICIENT AMOUNT OF TRAFFIC CONTROL DEVICES IN ACCEPTABLE CONDITION TO REPLACE ANY DAMAGED TRAFFIC CONTROL DEVICE WITHIN 24 HOURS OF NOTIFICATION.

4. PROVIDE ADDITIONAL SIGNS AND BARRICADES AS NECESSARY TO ADDRESS FIELD CONSTRUCTIBILITY & VISIBILITY. THESE ADDITIONAL SIGNS WILL BE CONSIDERED SUBSIDIARY TO ITEM 502.

5. COORDINATE THE TRAFFIC CONTROL PLAN AND THE VARIOUS SEQUENCES OF CONSTRUCTION WITH ADJACENT CONSTRUCTION PROJECTS IF APPLICABLE, TO ENSURE THE UNINTERRUPTED AND SAFE FLOW OF TRAFFIC.

7. NOTIFY THE ENGINEER IN WRITING WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. NOTIFICATIONS MUST BE GIVEN A MINIMUM OF THREE WORKING DAYS PRIOR TO THE CHANGE.

8. ALL WORK ZONE PAVEMENT MARKINGS FOR THIS PROJECT SHALL BE 0.100 INCHES (100ML) THICK THERMOPLASTIC.

UNEVEN LANES:

1. FOR UNEVEN LANES REFER TO STANDARD WZ(UL)-13 FOR GUIDELINES.

PROJECT SPECIFIC NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE PROPER CITY, COUNTY, E.M.S., FIRE DEPARTMENT, POLICE DEPARTMENT, TEXAS DEPARTMENT OF PUBLIC SAFETY, AND TXDOT OFFICIALS WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. THE NOTIFICATION MUST BE MADE THREE DAYS PRIOR TO CHANGES.

2. THE CONTRACTOR SHALL PROTECT THE PAVEMENT FROM ALL DAMAGE AS DIRECTED BY THE ENGINEER WHEN MOVING ANY EQUIPMENT NOT LICENSED FOR OPERATION ON PUBLIC HIGHWAYS, ON OR ACROSS ANY PAVEMENT. THE CONTRACTOR SHALL KEEP TRAVELED SURFACES USED IN HAULING OPERATIONS CLEAR AND FREE OF DIRT AND OTHER DEBRIS.

3. CONTRACTOR SHALL COORDINATE THE WORK WITH ADJACENT CONSTRUCTION PROJECTS IF APPLICABLE TO ENSURE THE UNINTERUPPTED AND SAFE FLOW OF TRAFFIC.

4. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED WHEN THE PROJECT IS COMPLETE & ACCEPTED BY THE ENGINEER. WHEN WORK IS SUSPENDED FOR SHORT TIME PERIOD, ADVANCED WARNING SIGNS THAT ARE NO LONGER APPROPRIATE SHALL BE REMOVED FROM THE PROJECT AREA.

PROJECT SPECIFIC NOTES CONT'D:

5. SHORT TERM FLEXIBLE ROADWAY TABS SHALL BE UTILIZED TO DELINEATE LANES FOR A MAXIMUM OF 14 DAYS. PERMANENT STRIPING SHALL BE THEN PLACED AND SHALL BE DONE IN ACCORDANCE TO THE PAVEMENT MARKING LAYOUTS AND ALL APPLICABLE STANDARDS. THE CONTRACTOR SHALL BE AWARE, DEPENDING ON THE SEQUENCE OF WORK, THE STRIPING CREW MAY HAVE SEVERAL MOVE-INS. ALL SHORT TERM FLEXIBLE ROADWAY TABS SHALL BE REPLACED AS NEEDED WITHIN THAT 14 DAY PERIOD AT THE CONTRACTOR'S EXPENSE.

6. PROVIDE SUFFICIENT TRAFFIC CONTROL DEVICES WHEN MOVING EQUIPMENT IN AND AROUND THE ROADWAY.

7. CONSTRUCTION REQUIRING TEMPORARY LANE CLOSURES OF MAIN-LANES RESULTING IN LESS THAN TWO LANES OPEN TO TRAFFIC, SHALL BE DONE DURING NIGHT-TIME HOURS ONLY FOR BOTH LOCATIONS.

   FOR THE PURPOSES OF THESE GENERAL NOTES, THE FOLLOWING DEFINITIONS SHALL APPLY:

   NIGHT-TIME HOURS

   MON.-FRI. 7:00 P.M. TO 6:00 A.M.

GENERAL SEQUENCE OF CONSTRUCTION FOR OVERLAY OPERATIONS:

1. PRIOR TO COMMENCING ANY CONSTRUCTION, ADVANCED WARNING SIGNS SHALL BE ERECTED AND PLACED IN ACCORDANCE TO BC STANDARDS.

2. INSTALL EROSION CONTROL DEVICES IN ACCORDANCE WITH THE APPLICABLE STANDARDS. SEE BASIS OF ESTIMATE FOR QUANTITY OF 12" EROSION CONTROL LOGS FOR EACH LOCATION.

4. PERFORM MILLING OF THE MAINLANES & RAMPS AS SHOWN ON THE ROADWAY LAYOUTS. APPLY TY (II) WATER-BASED STRIPING AT THE END OF THE WORK DAY DURING MILLING OPERATIONS.

5. CONTRACTOR TO PLACE 1½" STONE MATRIX ASPHALT OVERLAY ON THE MAINLANES AND RAMPS. PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON THE STRIPING LANES AS SHOWN ON THE PAVEMENT MARKING LAYOUTS. TEMPORARY WORKZONE TABS SHALL BE IN PLACE AT THE END OF THE WORK DAY DURING FOR OVERLAY OPERATIONS.

6. REMOVE AND REPLACE EXISTING METAL BEAM GUARD FENCE AND MOW-STRIPS AS SHOWN IN THE ROADWAY LAYOUTS. THIS INCLUDES INSTALLATION AND REMOVAL OF OBJECT MARKERS & DELINEATORS IN ACCORDANCE TO D&OM STANDARDS.

7. PLACE FINAL MAINLANE STRIPING IN ACCORDANCE TO THE PAVEMENT MARKING LAYOUTS AND PAVEMENT MARKING STANDARDS.

8. REFER TO BRIDGE FABRIC JOINT UNDERSEAL DETAIL FOR CLEANING AND SEAL JOINT LOCATIONS.

9. PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY WORKZONE TABS, BARRICADES & SIGNS, LOOSE AGGREGATE FROM THE ROADWAY, AND ALL EROSION CONTROL DEVICES. ALL ADVANCED WARNING SIGNS SHALL BE REMOVED FROM THE PROJECT.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc.
GENERAL SEQUENCE OF CONSTRUCTION

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		13

DATE: 7/8/2021 5:07:01 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335090\108_SUGGESTSOC.dgn

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

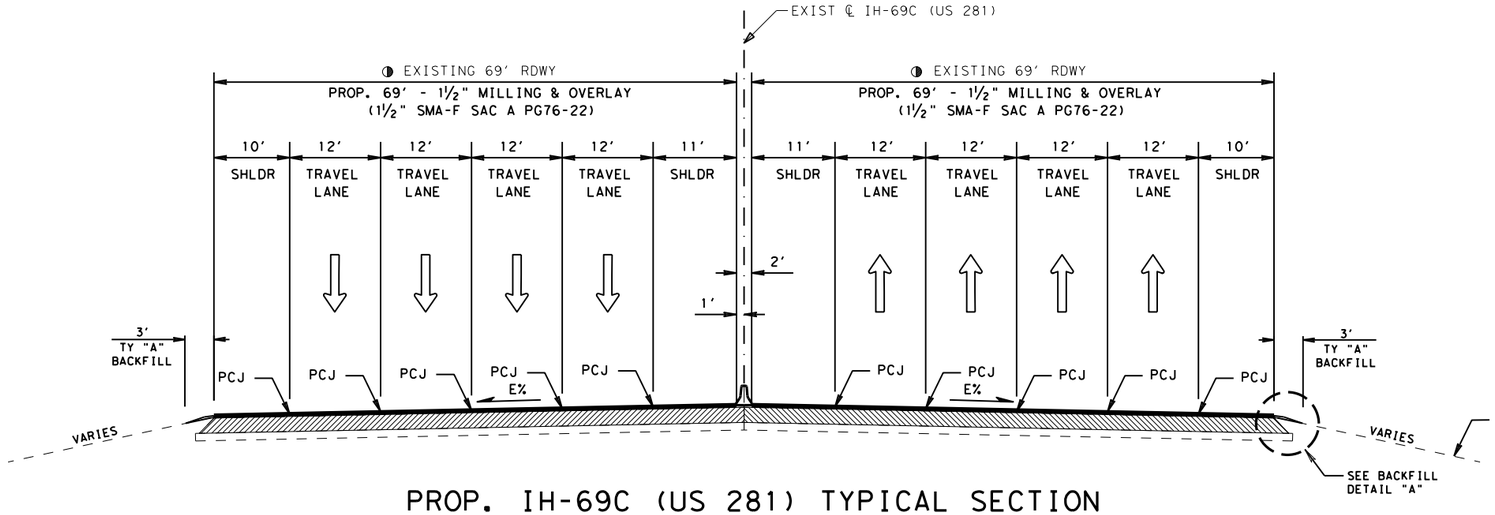
SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

△ SEE VALLEY GUTTER DETAIL FOR LIMITS OF VALLEY GUTTER (EXCLUDED FROM OVERLAY)



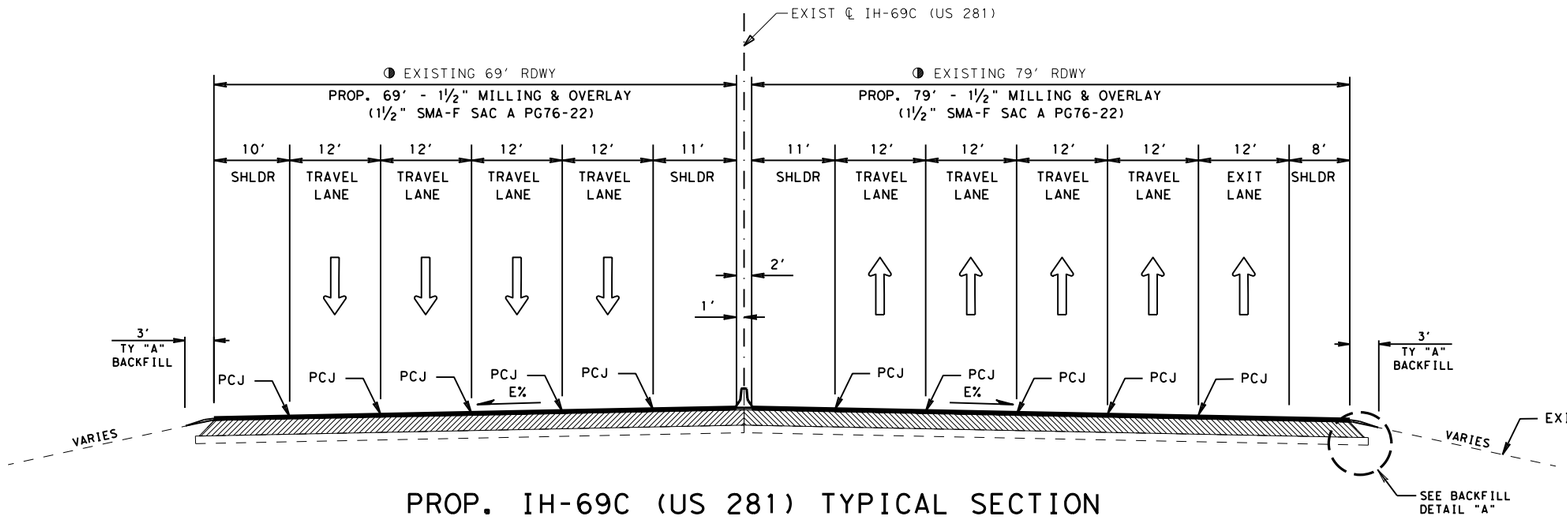
PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 171+41.00 TO STA. 174+28.00 (NOLANA OVERPASS BRIDGE EXCEMPTON)
STA. 174+28.00 TO STA. 178+34.00 (69' ROADWAY)

NORTHBOUND MAINLANES

STA. 171+41.00 TO STA. 174+28.00 (NOLANA OVERPASS BRIDGE EXCEMPTION)
STA. 174+28.00 TO STA. 175+84.00 (69' ROADWAY)
STA. 175+84.00 TO STA. 178+34.00 (69' TO 79' ROADWAY TRANSITION)



PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 178+34.00 TO STA. 182+67.00 (69' ROADWAY)
STA. 182+67.00 TO STA. 188+58.00 (69' TO 94' ROADWAY TRANSITION)

NORTHBOUND MAINLANES

STA. 178+34.00 TO STA. 180+27.00 (79' ROADWAY)
STA. 180+27.00 TO STA. 185+13.00 (79' TO 107' ROADWAY TRANSITION)

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 1

SHEET 1 OF 7

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		14

DATE: 7/8/2021 5:07:19 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\108_TYPICAL SECTIONS.dgn

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

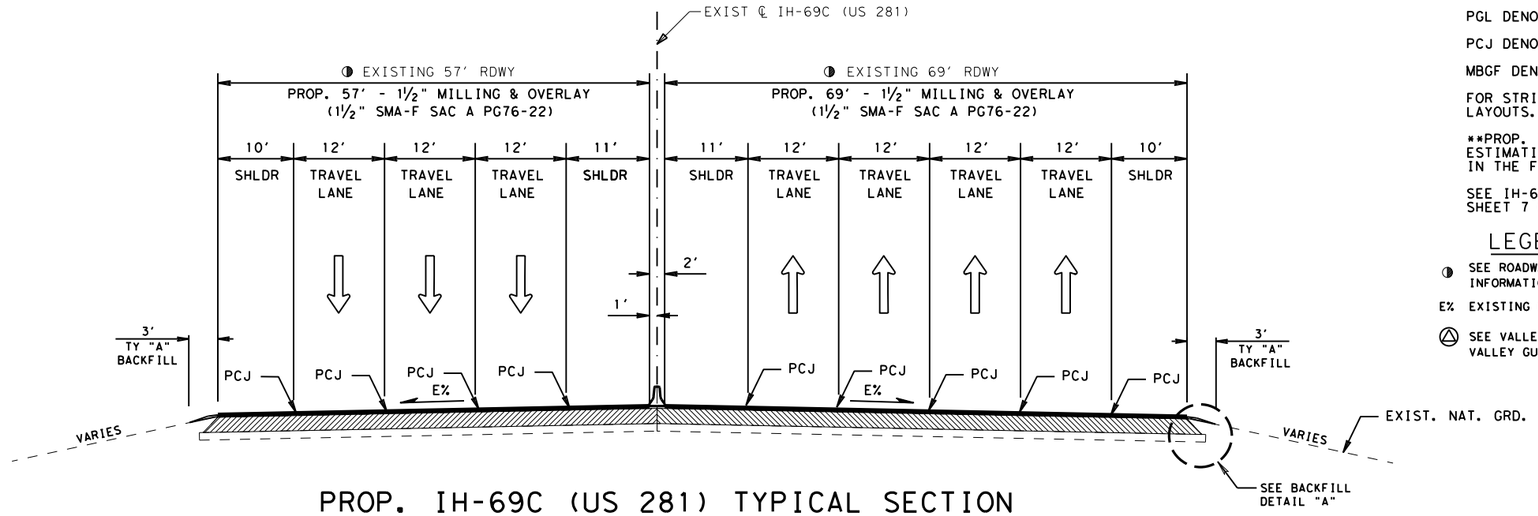
SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

△ SEE VALLEY GUTTER DETAIL FOR LIMITS OF VALLEY GUTTER (EXCLUDED FROM OVERLAY)



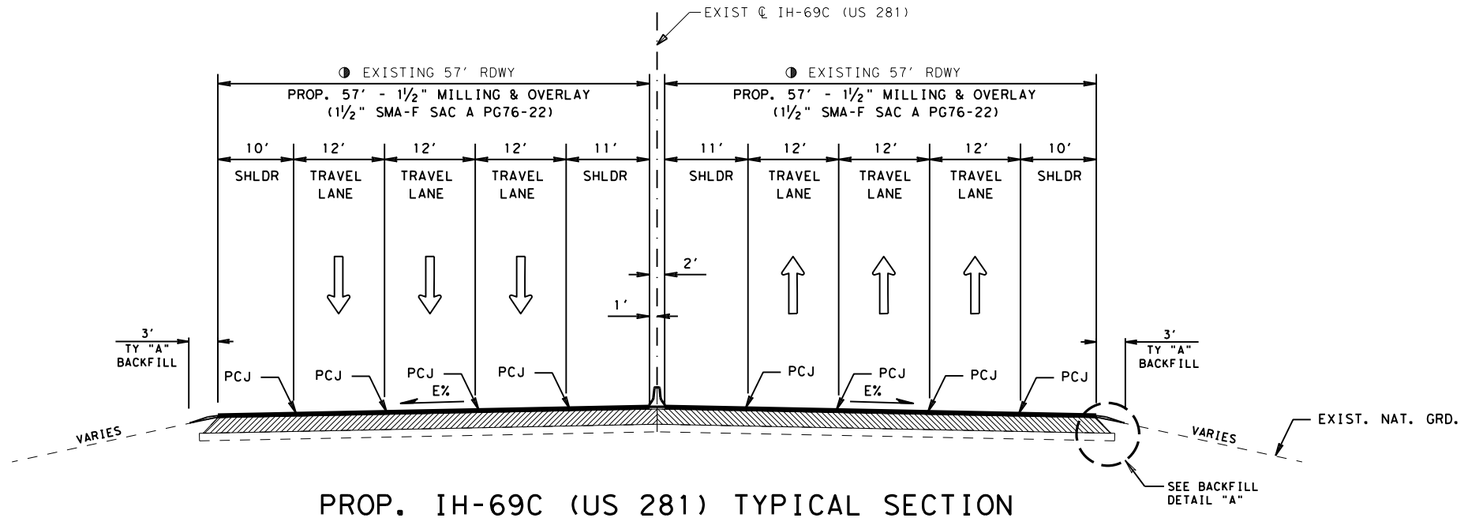
PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 188+58.00 TO STA. 202+73.00 (57' ROADWAY)

NORTHBOUND MAINLANES

STA. 185+13.00 TO STA. 194+33.00 (69' ROADWAY)



PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 202+73.00 TO STA. 213+80.00 (57' ROADWAY)

NORTHBOUND MAINLANES

STA. 194+33.00 TO STA. 202+73.00 (69' TO 57' ROADWAY TRANSITION)
STA. 202+73.00 TO STA. 210+75.00 (57' ROADWAY)

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 1

SHEET 2 OF 7

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		15

DATE: 7/8/2021 5:07:21 PM
FILE: c:\txdot\pw_online\txdot5\pwonline.ezekiel.gonzalez\d0351320\108_TYPICAL SECTIONS.dgn

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

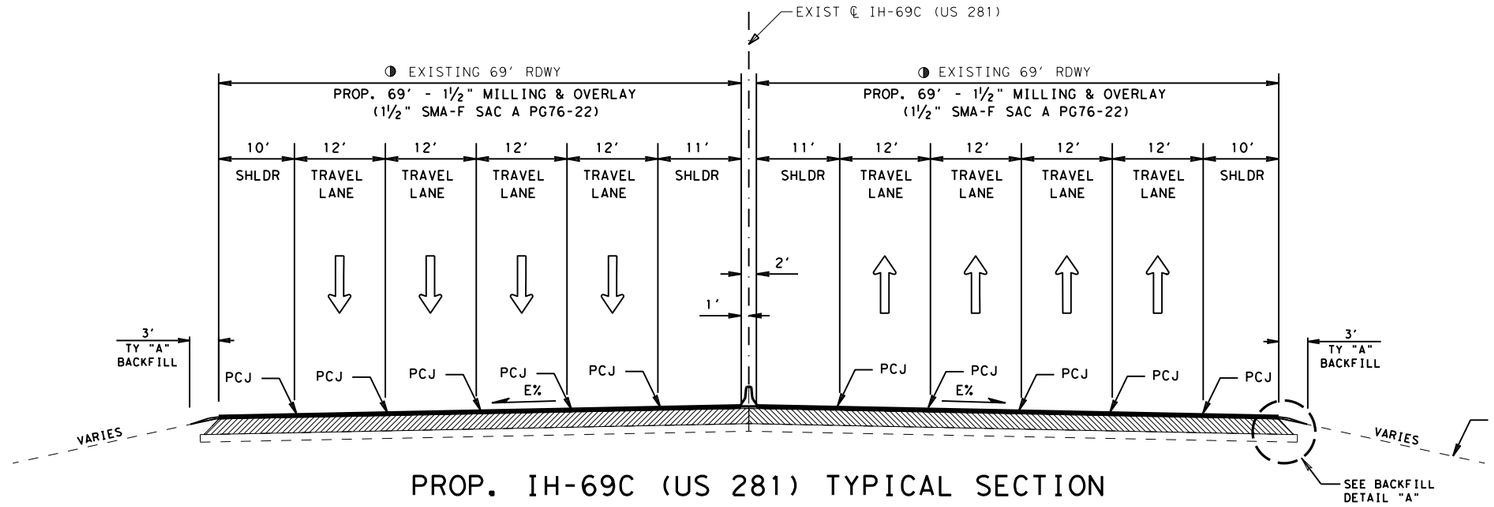
SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

△ SEE VALLEY GUTTER DETAIL FOR LIMITS OF VALLEY GUTTER (EXCLUDED FROM OVERLAY)



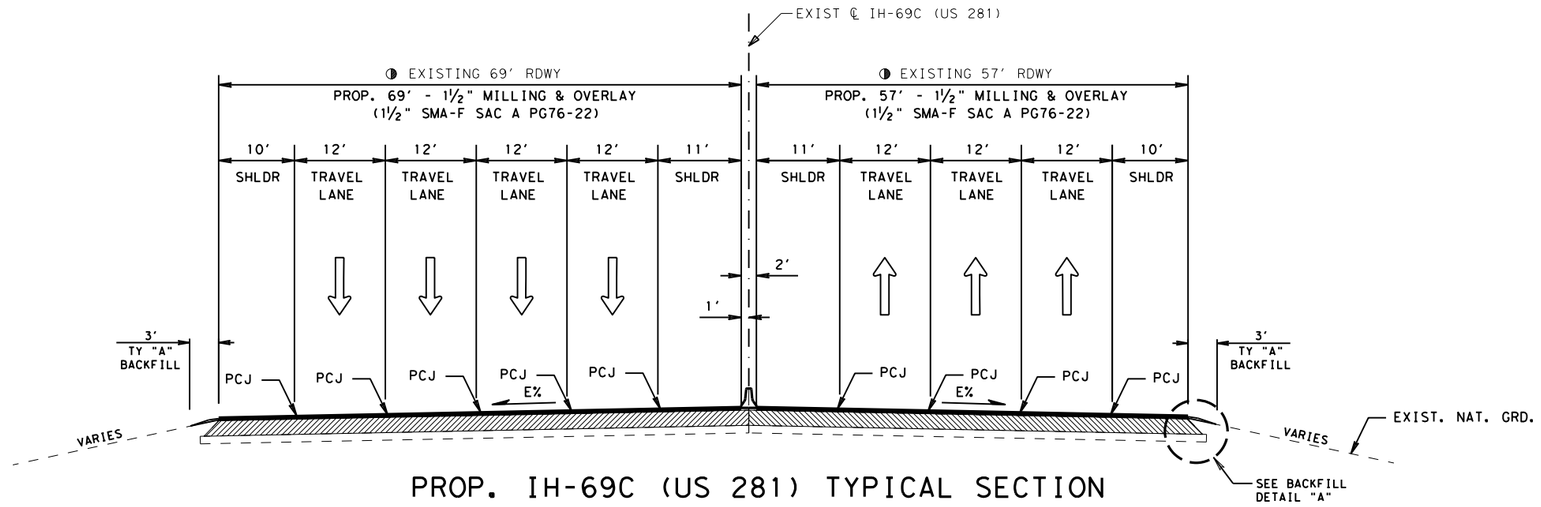
PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 213+80.00 TO STA. 221+14.00 (94' TO 69' ROADWAY TRANSITION)
STA. 221+14.00 TO STA. 224+51.00 (69' ROADWAY)
STA. 224+51.00 TO STA. 226+86.00 (OWASSA OVERPASS BRIDGE EXCEMPTION)
STA. 226+86.00 TO STA. 238+58.00 (69' ROADWAY)
STA. 238+58.00 TO STA. 245+95.00 (69' TO 94' ROADWAY TRANSITION)

NORTHBOUND MAINLANES

STA. 210+75.00 TO STA. 217+35.00 (94' TO 69' ROADWAY TRANSITION)
STA. 217+35.00 TO STA. 224+51.00 (69' ROADWAY)
STA. 224+51.00 TO STA. 226+85.00 (OWASSA OVERPASS BRIDGE EXCEMPTION)
STA. 226+85.00 TO STA. 241+33.00 (69' ROADWAY)
STA. 241+33.00 TO STA. 246+29.00 (69' TO 94' ROADWAY TRANSITION)



PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 245+95.00 TO STA. 270+46.00 (69' ROADWAY)

NORTHBOUND MAINLANES

STA. 246+29.00 TO STA. 269+66.00 (57' ROADWAY)

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 1

SHEET 3 OF 7

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		16

DATE: 7/8/2021 5:07:19 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\108_TYPICAL SECTIONS.dgn

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

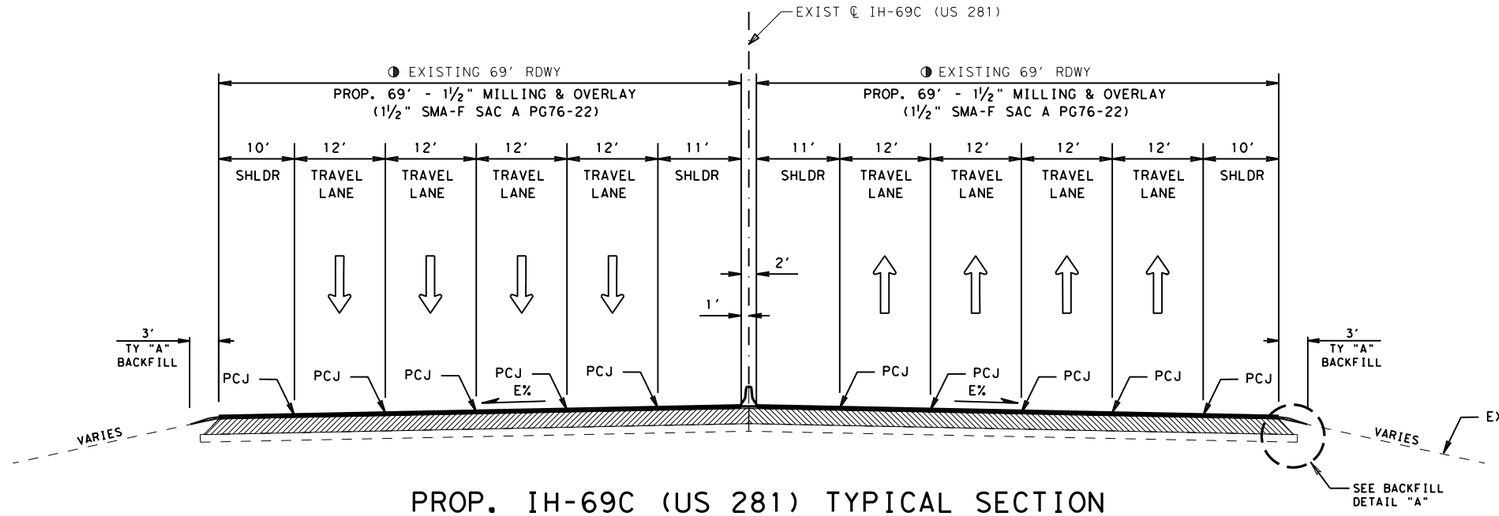
SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

△ SEE VALLEY GUTTER DETAIL FOR LIMITS OF VALLEY GUTTER (EXCLUDED FROM OVERLAY)



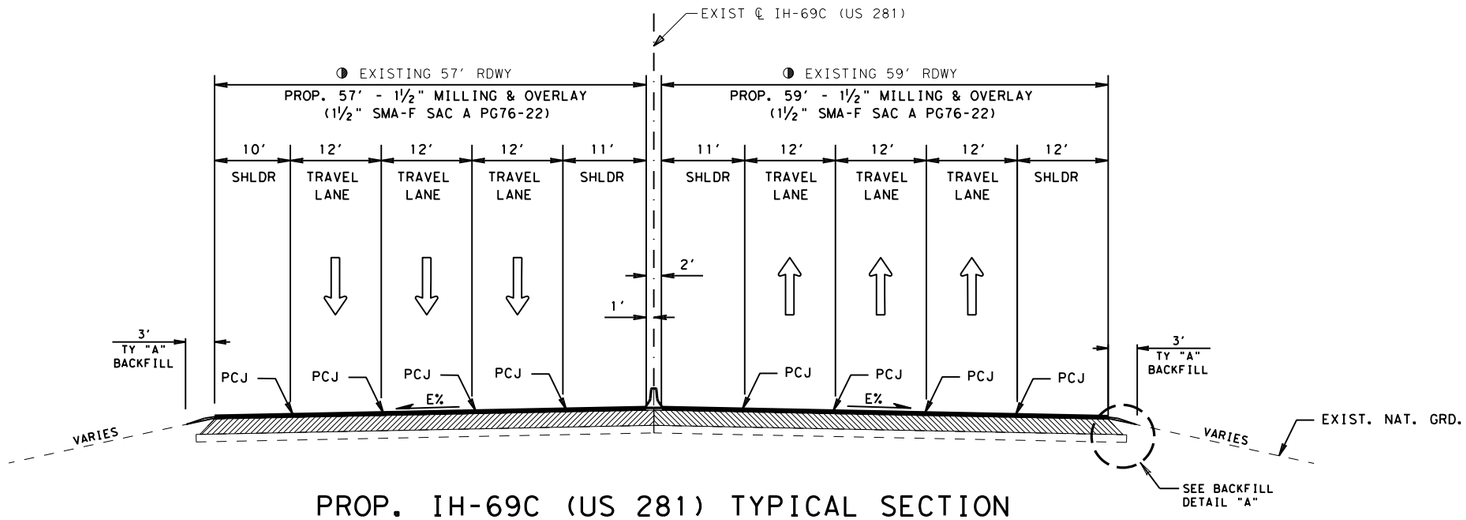
PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 270+46.00 TO STA. 275+33.00 (94' TO 69' ROADWAY TRANSITION)
STA. 275+33.00 TO STA. 284+69.00 (69' ROADWAY)
STA. 284+69.00 TO STA. 287+37.00 (TRENTON OVERPASS BRIDGE EXCEMPTION)
STA. 287+37.00 TO STA. 294+32.00 (69' ROADWAY)
STA. 294+32.00 TO STA. 301+94.00 (69' TO 94' ROADWAY TRANSITION)

NORTHBOUND MAINLANES

STA. 269+66.00 TO STA. 277+25.00 (94' TO 69' ROADWAY TRANSITION)
STA. 277+25.00 TO STA. 284+69.00 (69' ROADWAY)
STA. 284+69.00 TO STA. 287+37.00 (TRENTON OVERPASS BRIDGE EXCEMPTION)
STA. 287+37.00 TO STA. 292+89.00 (69' ROADWAY)
STA. 292+89.00 TO STA. 297+76.00 (69' TO 94' ROADWAY TRANSITION)



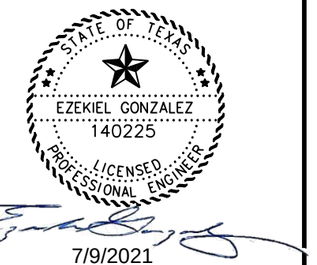
PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 301+94.00 TO STA. 325+28.00 (57' ROADWAY)

NORTHBOUND MAINLANES

STA. 297+76.00 TO STA. 327+31.00 (59' ROADWAY)



7/9/2021

NOT TO SCALE

Pharr District Central Design

Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 1

SHEET 4 OF 7

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		17

DATE: 7/9/2021 2:28:26 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\108_TYPICAL SECTIONS.dgn

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

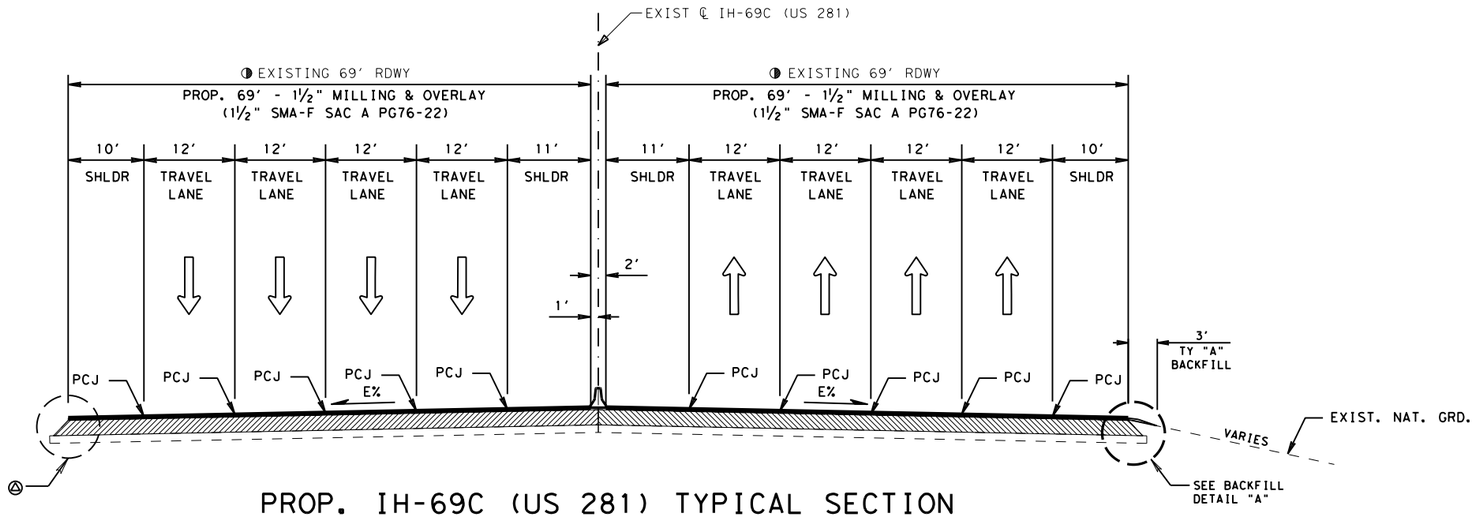
SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

△ SEE VALLEY GUTTER DETAIL FOR LIMITS OF VALLEY GUTTER (EXCLUDED FROM OVERLAY)



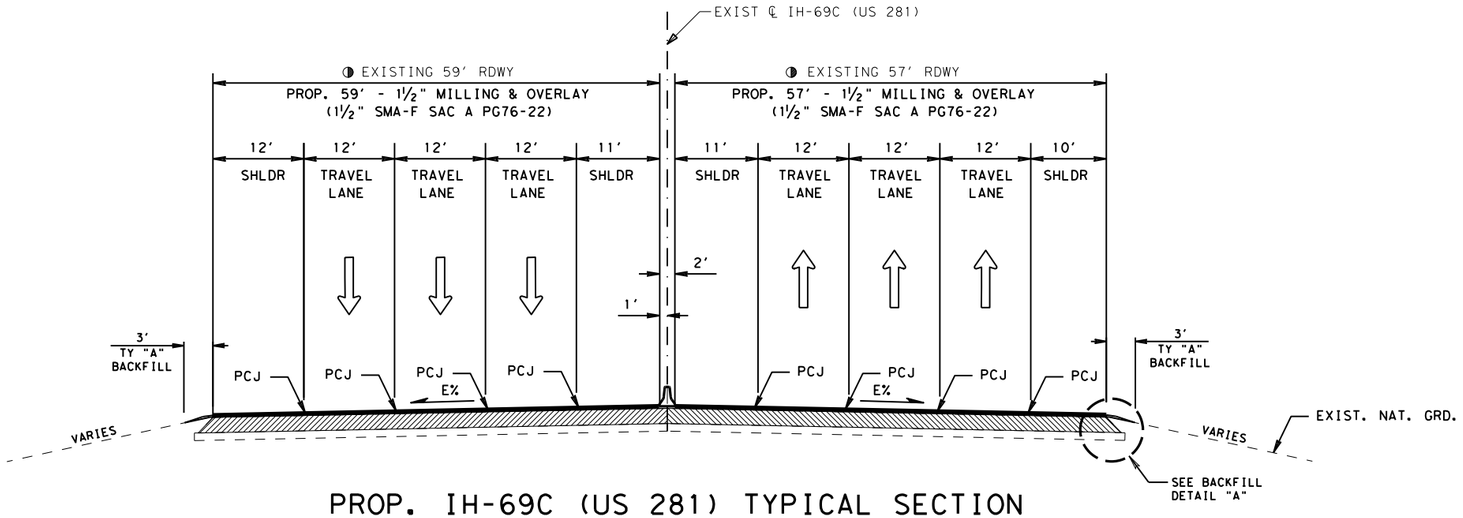
PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 325+28.00 TO STA. 328+62.00 (94' TO 69' ROADWAY TRANSITION)
STA. 328+62.00 TO STA. 338+40.00 (69' ROADWAY)
STA. 338+40.00 TO STA. 340+58.00 (VETERANS OVERPASS BRIDGE EXCEPTION)
STA. 340+58.00 TO STA. 342+20.00 (69' ROADWAY)
STA. 342+20.00 TO STA. 345+70.00 (69' TO 79' ROADWAY TRANSITION)
STA. 345+70.00 TO STA. 348+25.00 (CANTON RD OVERPASS BRIDGE EXCEPTION)
STA. 348+25.00 TO STA. 354+91.00 (79' TO 91' ROADWAY TRANSITION)

NORTHBOUND MAINLANES

STA. 327+31.00 TO STA. 334+56.00 (94' TO 69' ROADWAY TRANSITION)
STA. 334+56.00 TO STA. 338+40.00 (69' ROADWAY)
STA. 338+40.00 TO STA. 340+58.00 (VETERANS OVERPASS BRIDGE EXCEPTION)
STA. 340+58.00 TO STA. 345+70.00 (69' ROADWAY)
STA. 345+70.00 TO STA. 348+25.00 (CANTON RD. OVERPASS BRIDGE EXCEPTION)
STA. 348+25.00 TO STA. 351+26.00 (69' ROADWAY)
STA. 351+26.00 TO STA. 355+57.00 (69' TO 89' ROADWAY TRANSITION)



PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 354+91.00 TO STA. 377+93.00 (59' ROADWAY)

NORTHBOUND MAINLANES

STA. 355+57.00 TO STA. 376+17.00 (57' ROADWAY)

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

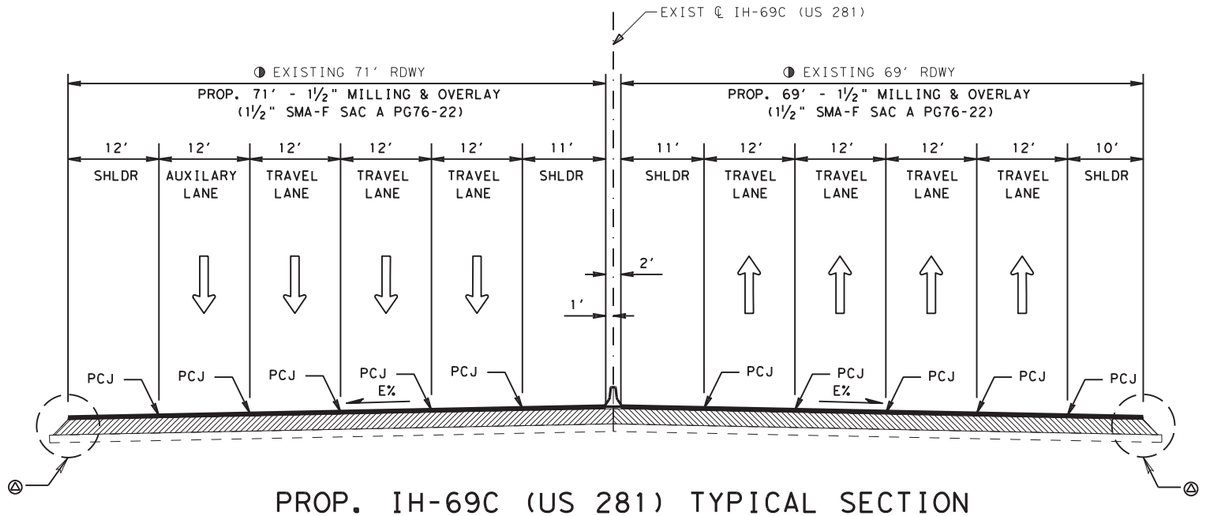
Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 1

SHEET 5 OF 7

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		18

DATE: 7/8/2021 5:07:20 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\108_TYPICAL SECTIONS.dgn



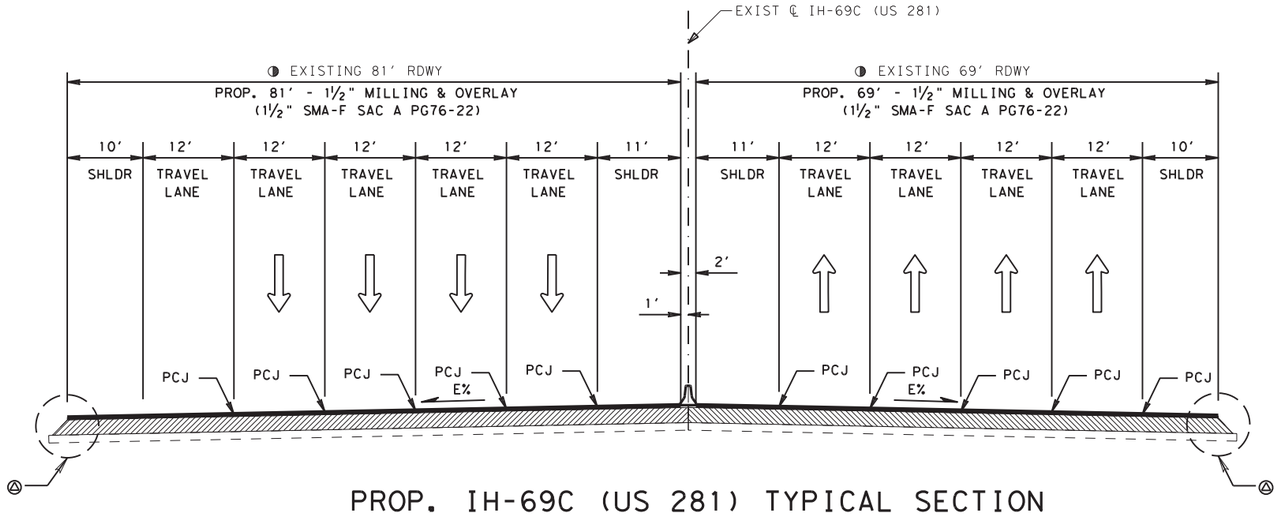
PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 377+93.00 TO STA. 382+83.00 (94' TO 69' ROADWAY TRANSITION)
STA. 382+83.00 TO STA. 386+06.00 (69' ROADWAY)
STA. 386+06.00 TO STA. 388+82.00 (FREDDY GONZALEZ OVERPASS BRIDGE EXCEMPTION)
STA. 388+82.00 TO STA. 402+32.00 (69' ROADWAY)

NORTHBOUND MAINLANES

STA. 376+17.00 TO STA. 384+84.00 (94' TO 69' ROADWAY TRANSITION)
STA. 384+84.00 TO STA. 386+06.00 (69' ROADWAY)
STA. 386+06.00 TO STA. 388+82.00 (FREDDY GONZALEZ OVERPASS BRIDGE EXCEMPTION)
STA. 388+82.00 TO STA. 396+81.00 (69' ROADWAY)



PROP. IH-69C (US 281) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 402+32.00 TO STA. 406+13.00 (104' TO 81' ROADWAY TRANSITION)
STA. 406+13.00 TO STA. 407+94.00 (81' ROADWAY)

NORTHBOUND MAINLANES

STA. 396+81.00 TO STA. 405+31.00 (107' TO 69' ROADWAY TRANSITION)
STA. 405+31.00 TO STA. 407+93.00 (69' ROADWAY)

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

△ SEE VALLEY GUTTER DETAIL FOR LIMITS OF VALLEY GUTTER (EXCLUDED FROM OVERLAY)

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

2/22/2022

NOT TO SCALE

Pharr District Central Design

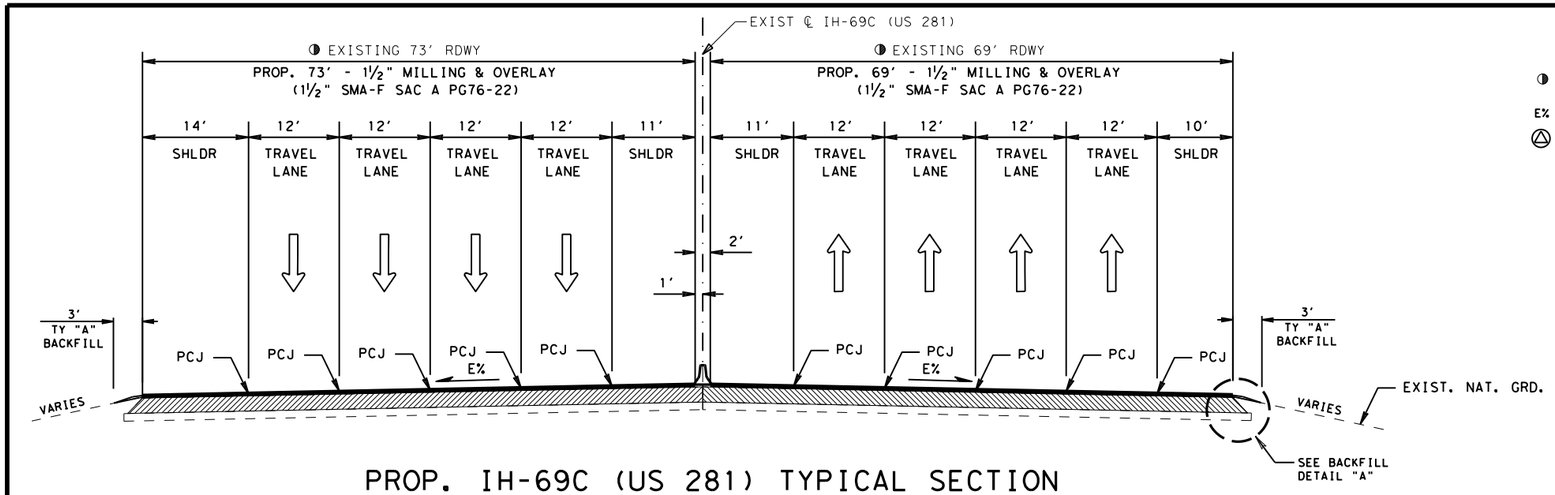
Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 1

SHEET 6 OF 7

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		19

DATE: 2/22/2022 1:49:29 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\108_TYPICAL SECTIONS.dgn



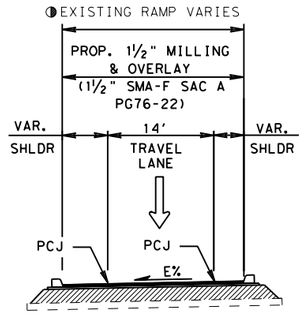
PROP. IH-69C (US 281) TYPICAL SECTION

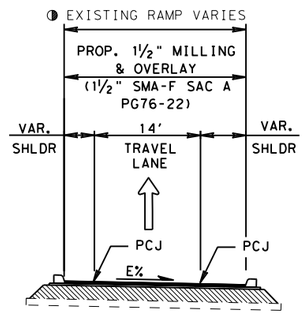
SOUTHBOUND MAINLANES

STA. 407+94.00 TO STA. 411+00.00 (81' TO 73' ROADWAY TRANSITION)
STA. 411+00.00 TO STA. 412+96.00 (73' ROADWAY)
STA. 412+96.00 TO STA. 415+73.00 (SPRAGUE OVERPASS BRIDGE EXCEMPTION)

NORTHBOUND MAINLANES

STA. 407+93.00 TO STA. 412+96.00 (69' ROADWAY)
STA. 412+96.00 TO STA. 415+73.00 (SPRAGUE OVERPASS BRIDGE EXCEMPTION)





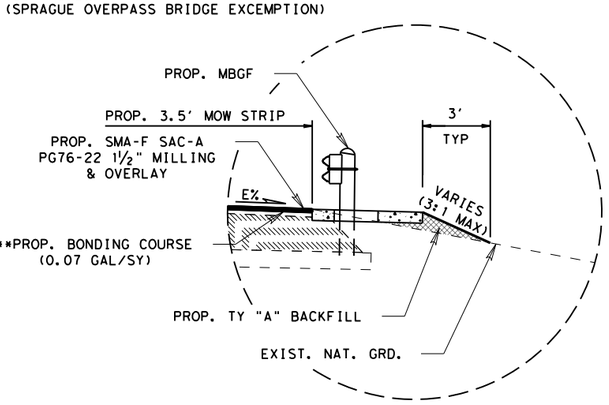
PROP. IH-69C (US 281) RAMPS TYPICAL SECTION

SOUTHBOUND RAMPS

STA. 188+58.00 TO STA. 191+64.00 (26' RAMP)
STA. 211+06.00 TO STA. 213+80.00 (26' RAMP)
STA. 245+95.00 TO STA. 250+11.00 (28' TO 26' RAMP)
STA. 267+32.00 TO STA. 270+46.00 (26' RAMP)
STA. 301+94.00 TO STA. 304+99.00 (26' RAMP)
STA. 320+62.00 TO STA. 325+28.00 (28' TO 26' RAMP)
STA. 354+91.00 TO STA. 359+93.00 (28' TO 26' RAMP)
STA. 374+55.00 TO STA. 377+93.00 (28' TO 26' RAMP)
STA. 398+93.00 TO STA. 402.32.00 (28' TO 26' RAMP)

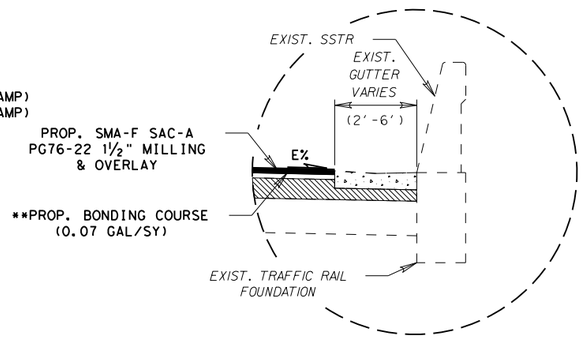
NORTHBOUND RAMPS

STA. 185+13.00 TO STA. 187+80.00 (26' RAMP)
STA. 207+56.00 TO STA. 210+75.00 (26' RAMP)
STA. 246+29.00 TO STA. 248+88.00 (24' RAMP)
STA. 266+48.00 TO STA. 269+66.00 (26' RAMP)
STA. 297+76.00 TO STA. 300+86.00 (24' RAMP)
STA. 322+18.00 TO STA. 327+26.00 (24' RAMP)
STA. 355+56.00 TO STA. 360+72.00 (25' RAMP)
STA. 373+78.00 TO STA. 376+17.00 (22' TO 20' RAMP)
STA. 395+72.00 TO STA. 396+81.00 (22' TO 26' RAMP)



MBGF & MOWSTRIP DETAIL

N.T.S.
SEE ROADWAY PLAN SHEETS FOR MBGF & MOWSTRIP LOCATIONS
REFER TO STANDARD GF(31)MS-19 FOR ADDITIONAL INFORMATION.



⏢ VALLEY GUTTER DETAIL

N.T.S.

SOUTHBOUND MAINLANES

STA. 347+89.00 TO STA. 354+91.00 (4' VALLEY GUTTER)
STA. 377+93.00 TO STA. 386+06.00 (5' VALLEY GUTTER)
STA. 388+82.00 TO STA. 396+67.00 (5' VALLEY GUTTER)
STA. 403+83.00 TO STA. 412+96.00 (5' VALLEY GUTTER)

NORTHBOUND MAINLANES

STA. 376+18.00 TO STA. 386+06.00 (5' VALLEY GUTTER)
STA. 388+82.00 TO STA. 396+81.00 (5' VALLEY GUTTER)
STA. 403+01.00 TO STA. 412+96.00 (3' VALLEY GUTTER)

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

⏢ SEE VALLEY GUTTER DETAIL FOR LIMITS OF EXISTING VALLEY GUTTER (EXCLUDED FROM OVERLAY)

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

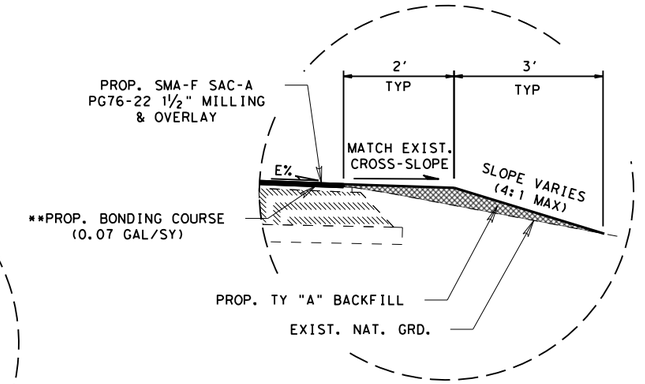
PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.



BACKFILL DETAIL "A"

N.T.S.
* MATCH EXISTING CROSS-SLOPE

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

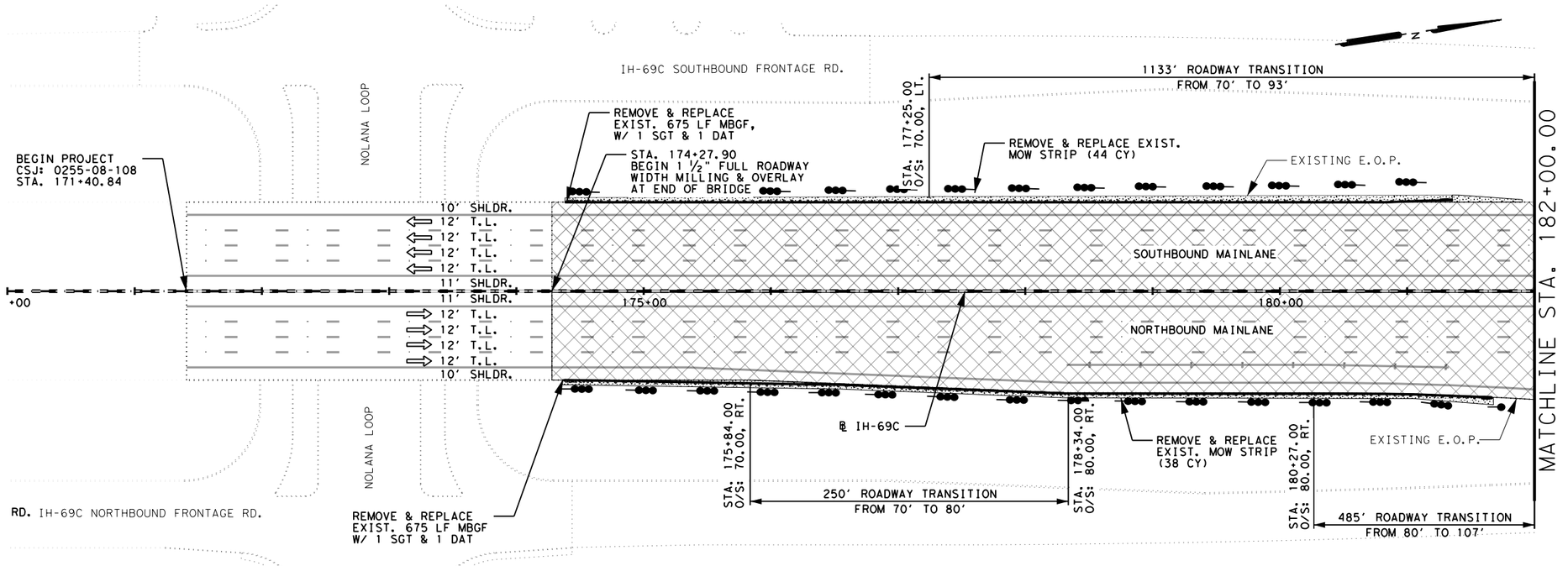
Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 1

SHEET 7 OF 7

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		20

DATE: 7/8/2021 5:07:22 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\108_TYPICAL SECTIONS.dgn

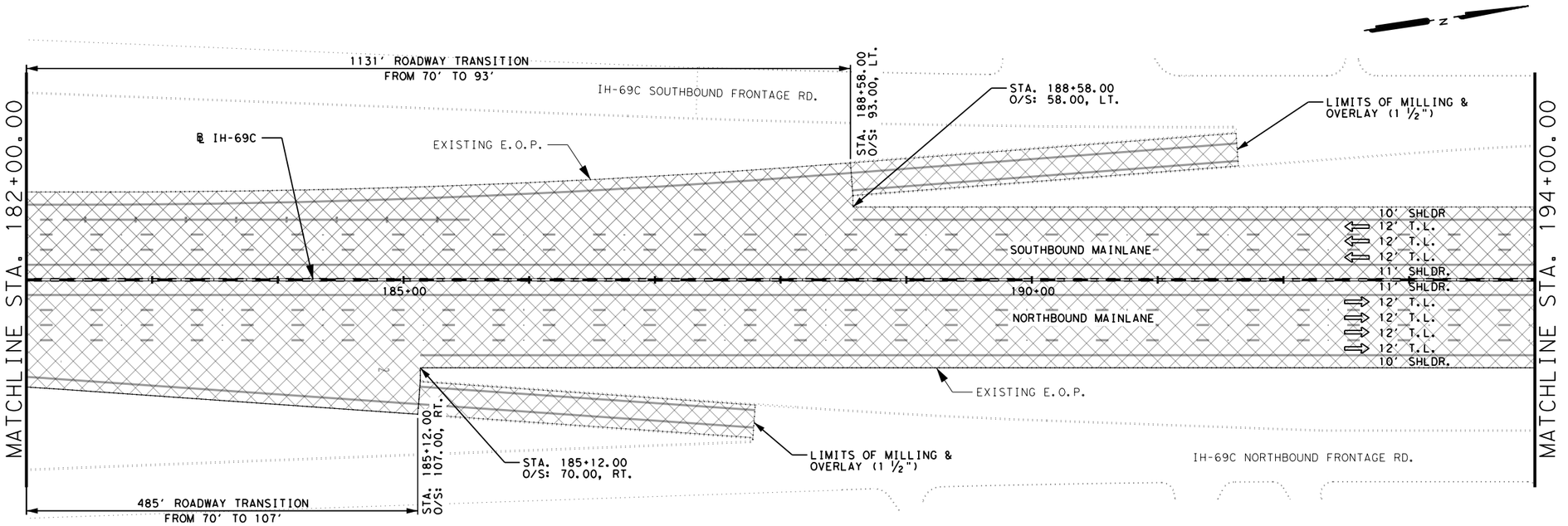


LEGEND

- PROP. 1½" MILLING & OVERLAY
- ⇦ TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 174+28 TO STA 194+00 = TOTAL: 34,690 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

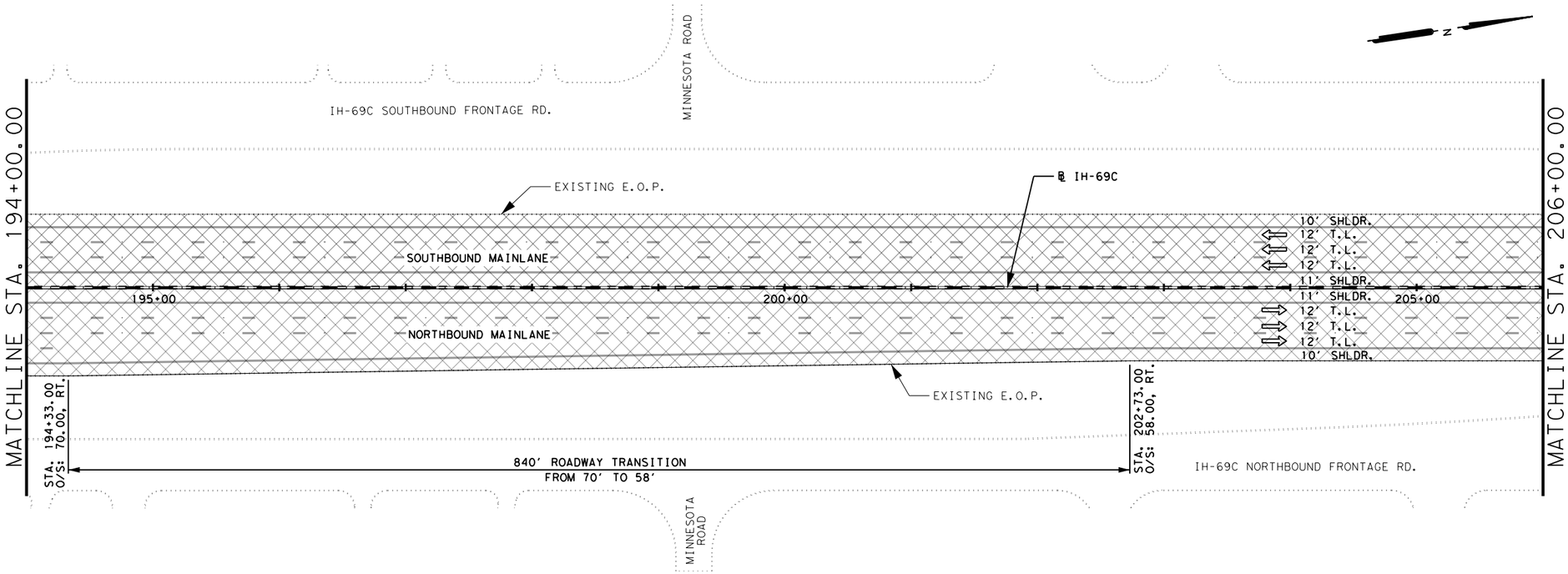
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 1 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		21

DATE: 7/8/2021 5:07:30 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL01.dgn

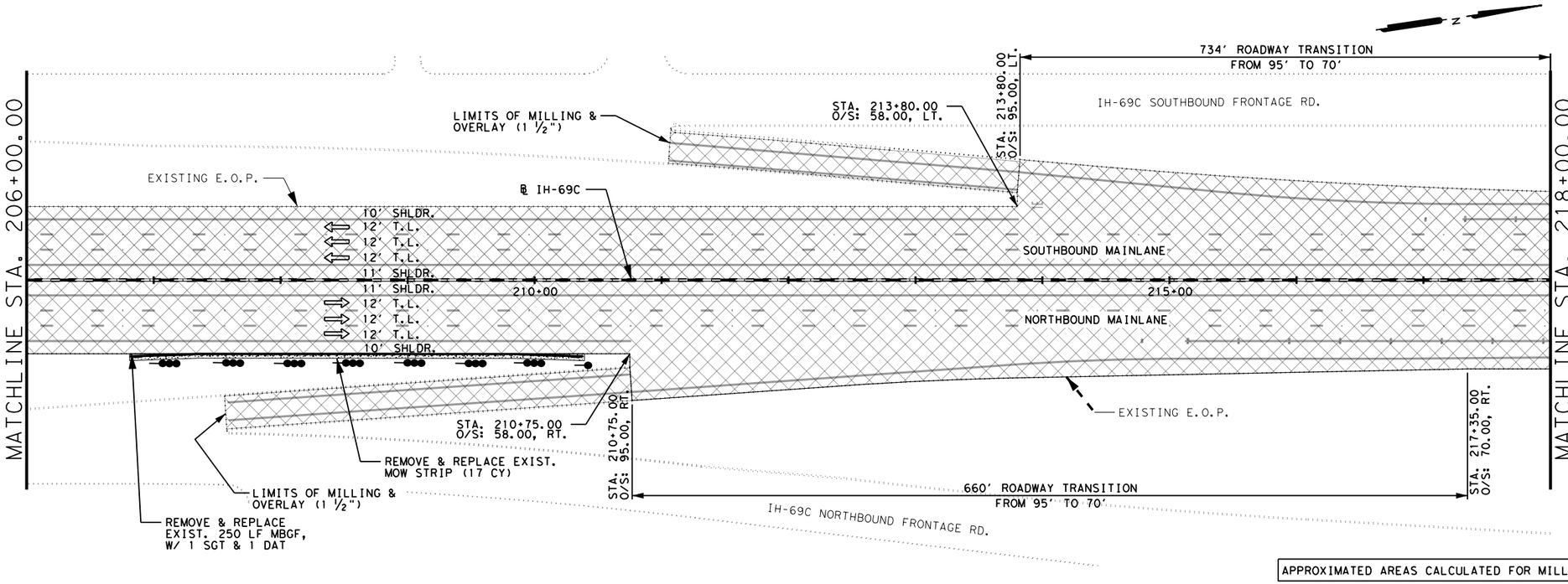


LEGEND

- PROP. 1½" MILLING & OVERLAY
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 174+28 TO STA 194+00 = TOTAL: 36,360 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

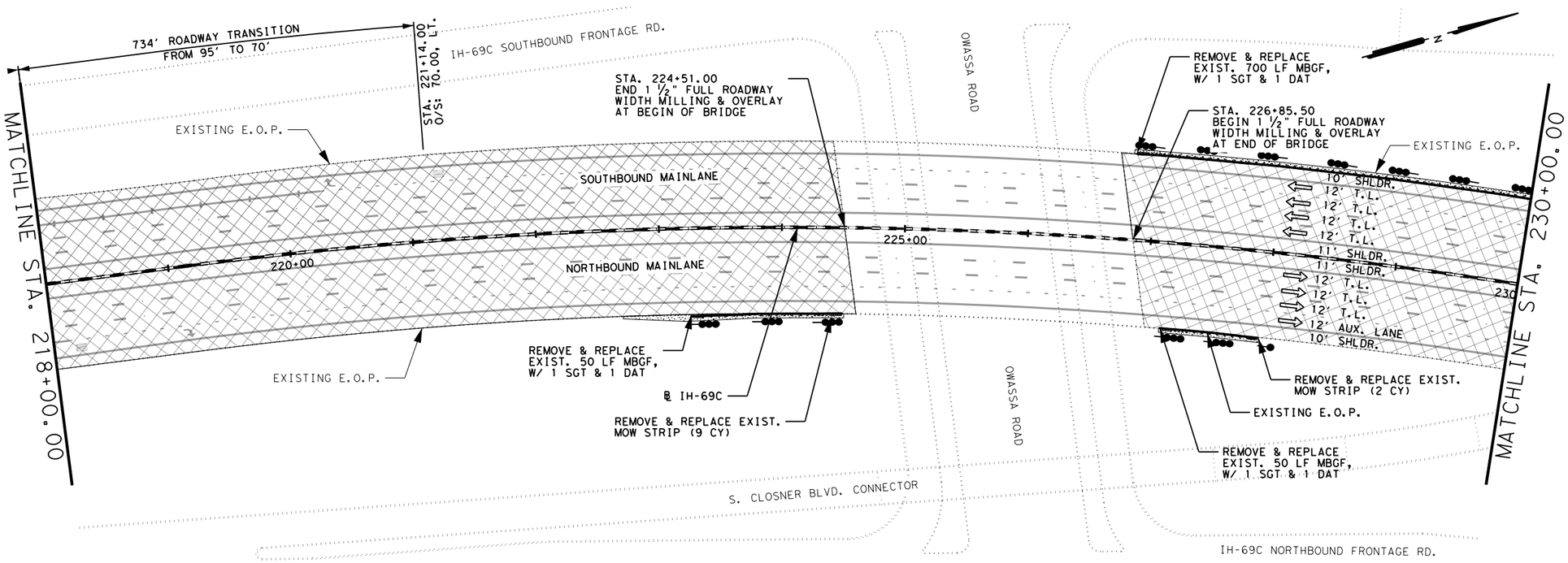
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 2 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		22

DATE: 7/8/2021 5:07:37 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL02.dgn

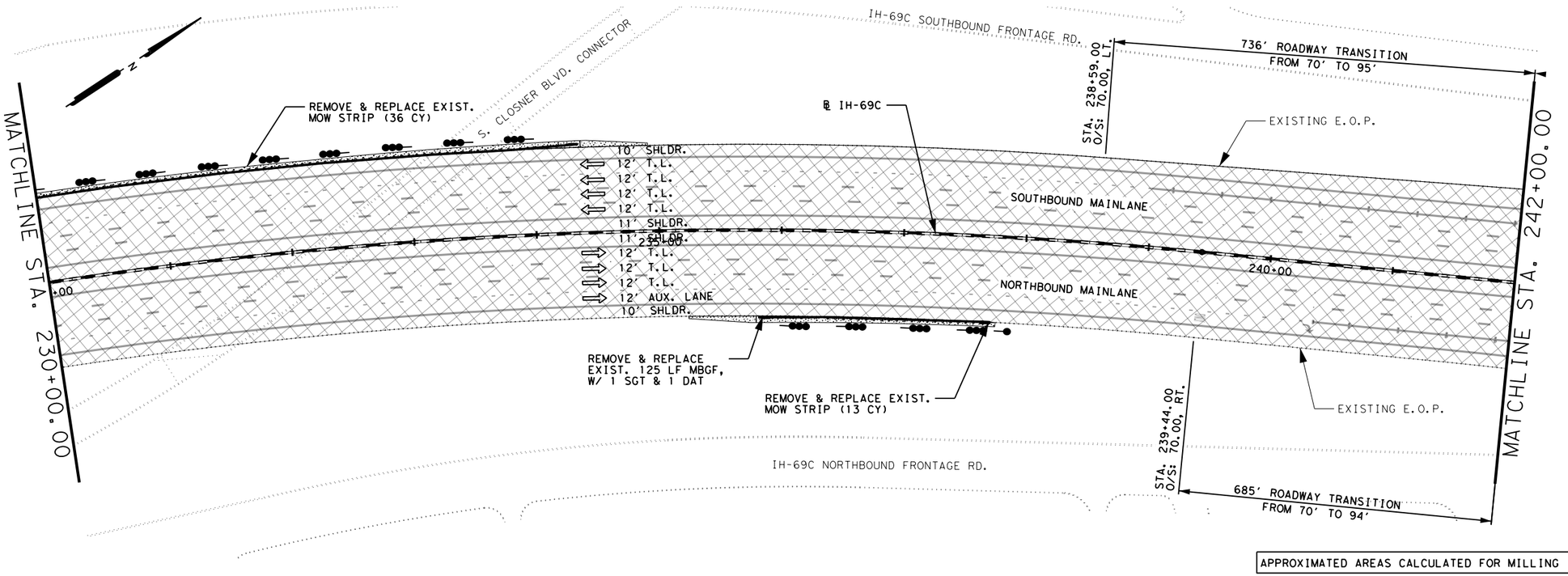


LEGEND

- PROP. 1½" MILLING & OVERLAY
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 218+00 TO STA 242+00 = TOTAL: 33,202 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

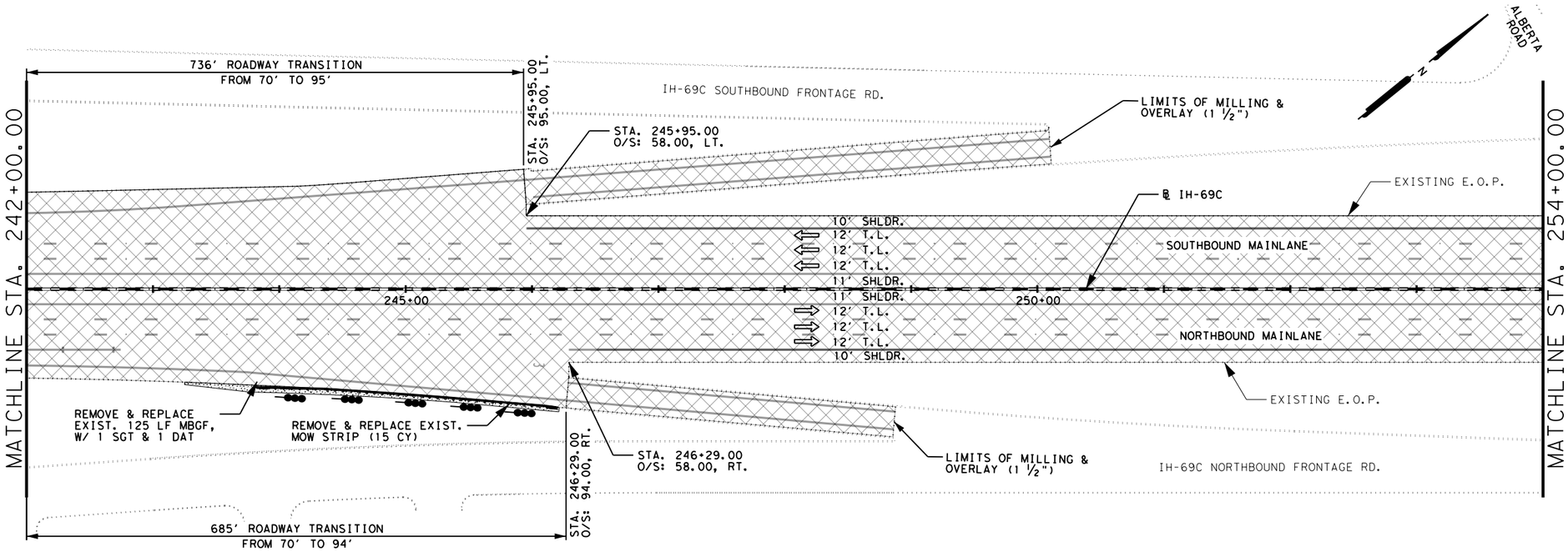
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 3 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		23

DATE: 7/8/2021 5:07:45 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL03.dgn

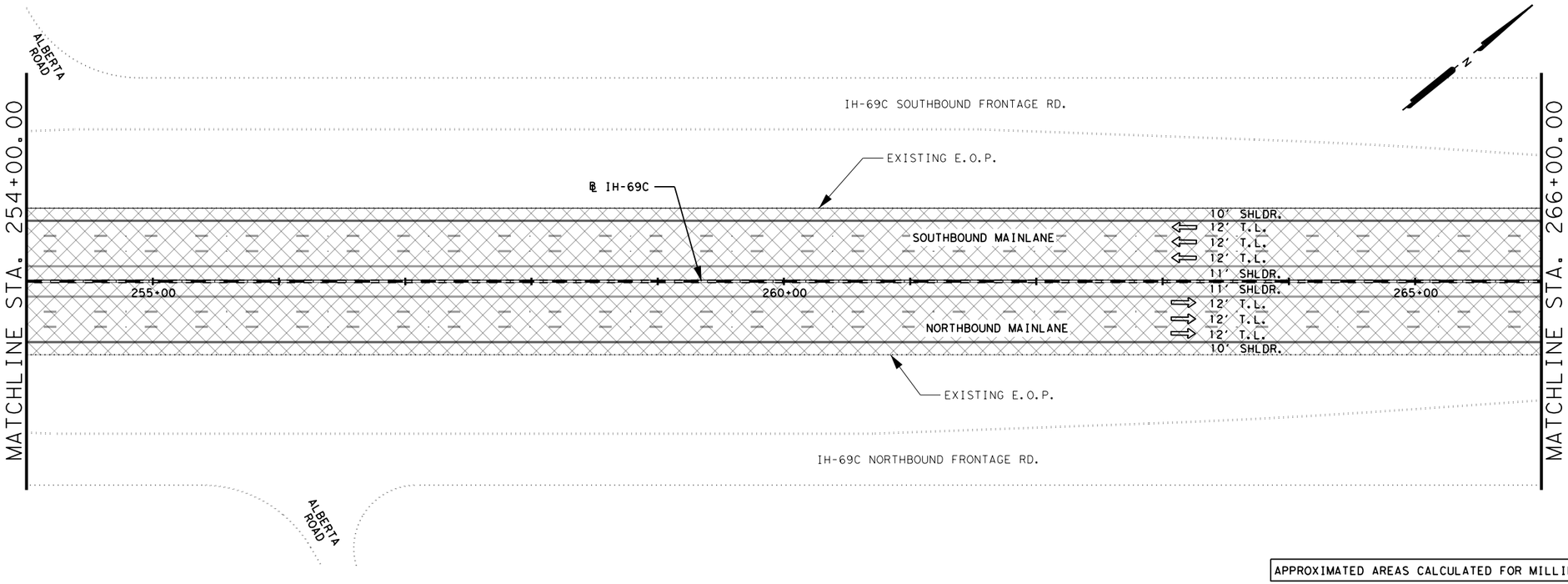


LEGEND

- PROP. 1½" MILLING & OVERLAY
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 242+00 TO STA 266+00 = TOTAL: 34,250 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

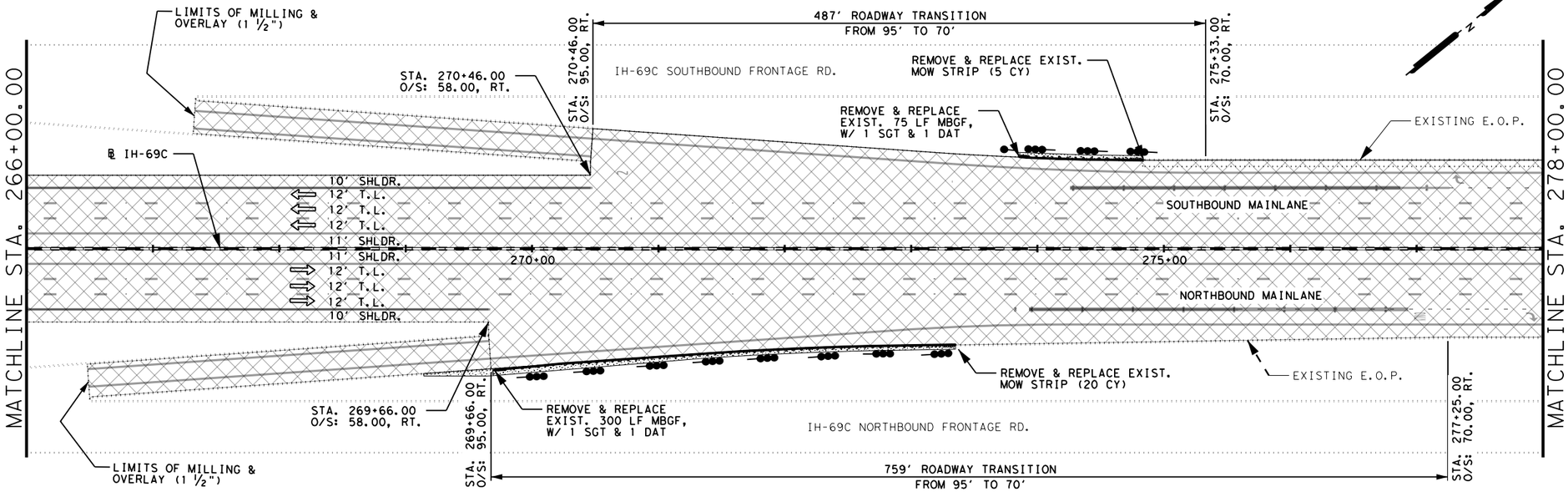
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 4 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		24

DATE: 7/8/2021 5:07:53 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL04.dgn

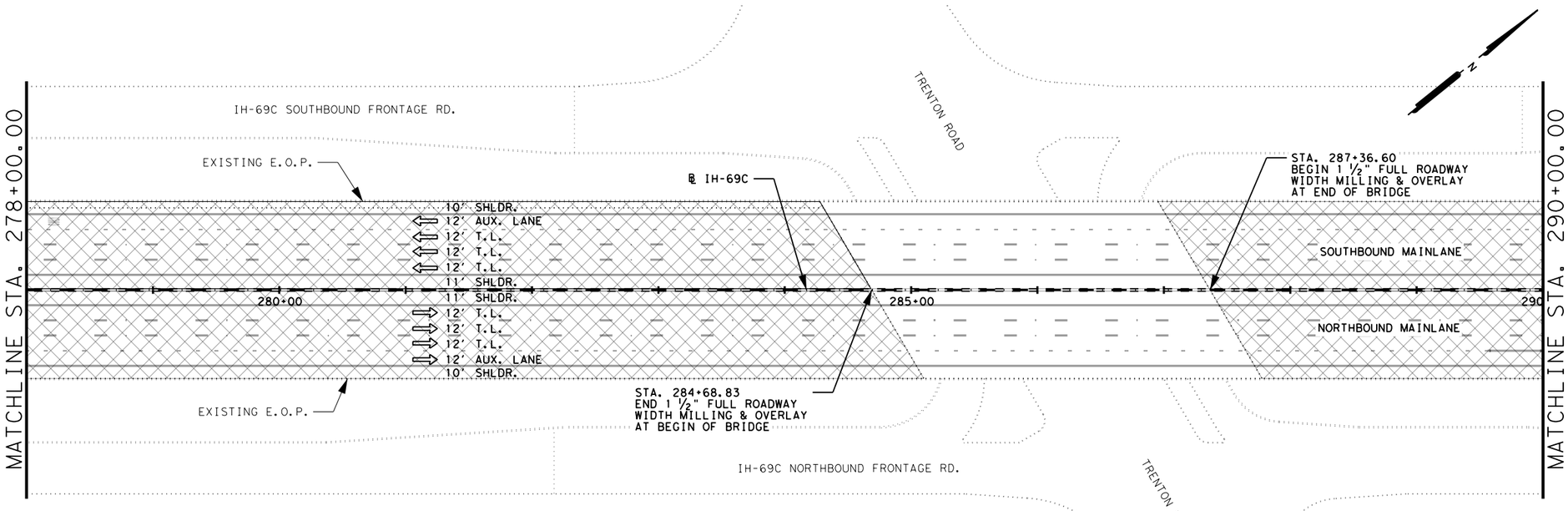


LEGEND

- PROP. 1½" MILLING & OVERLAY
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 266+00 TO STA 290+00 = TOTAL: 34,630 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

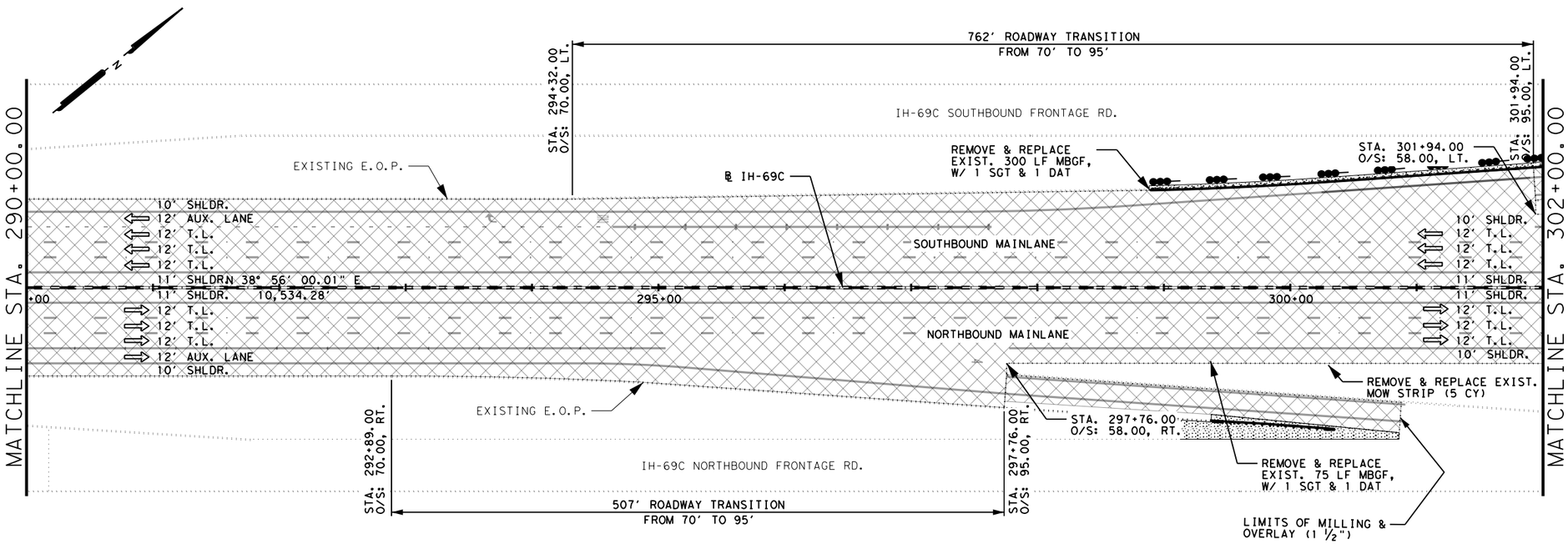
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 5 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		25

DATE: 7/8/2021 5:08:01 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL05.dgn

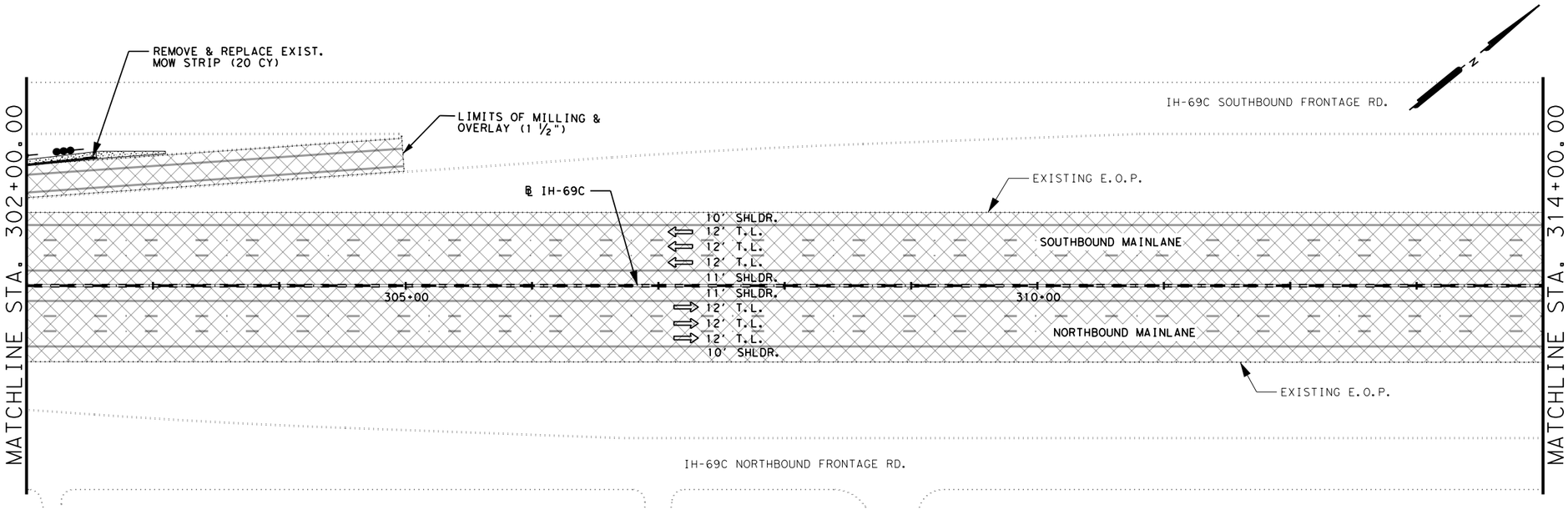


LEGEND

- PROP. 1½" MILLING & OVERLAY
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 290+00 TO STA 314+00 = TOTAL: 34,215 SY

EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

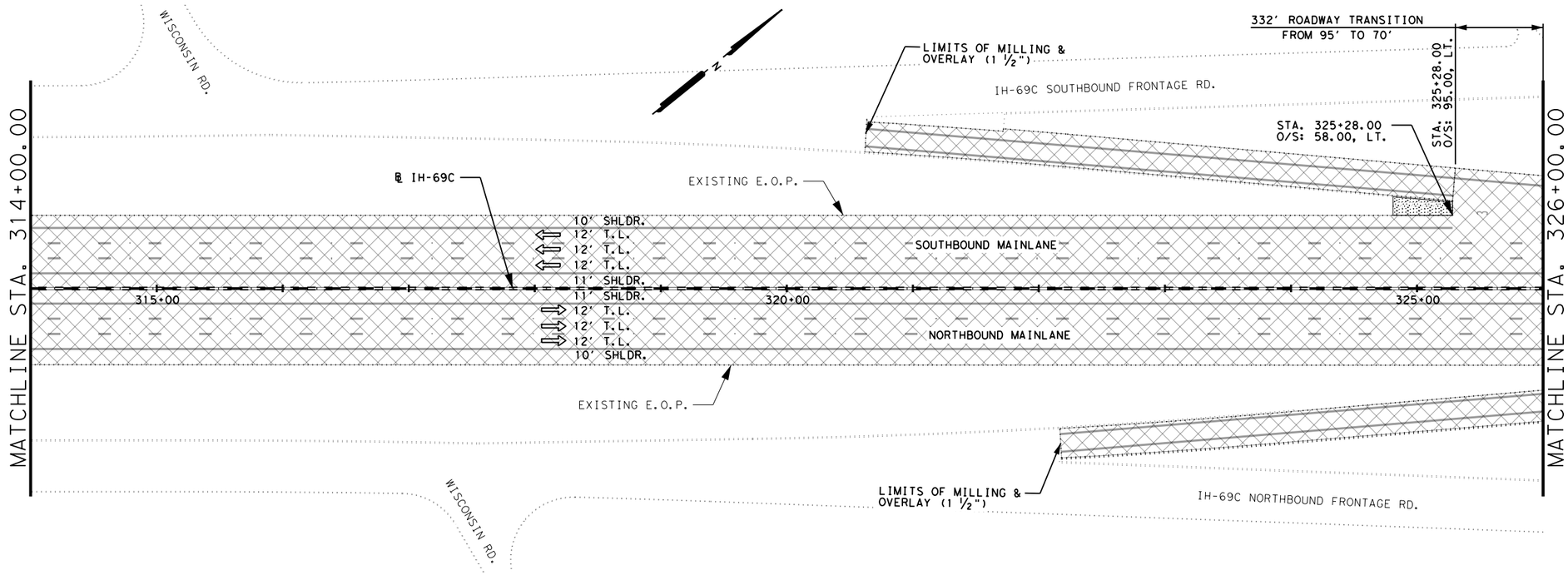
Texas Department of Transportation ©2019

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 6 OF 11

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		26

DATE: 7/8/2021 5:08:09 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL06.dgn

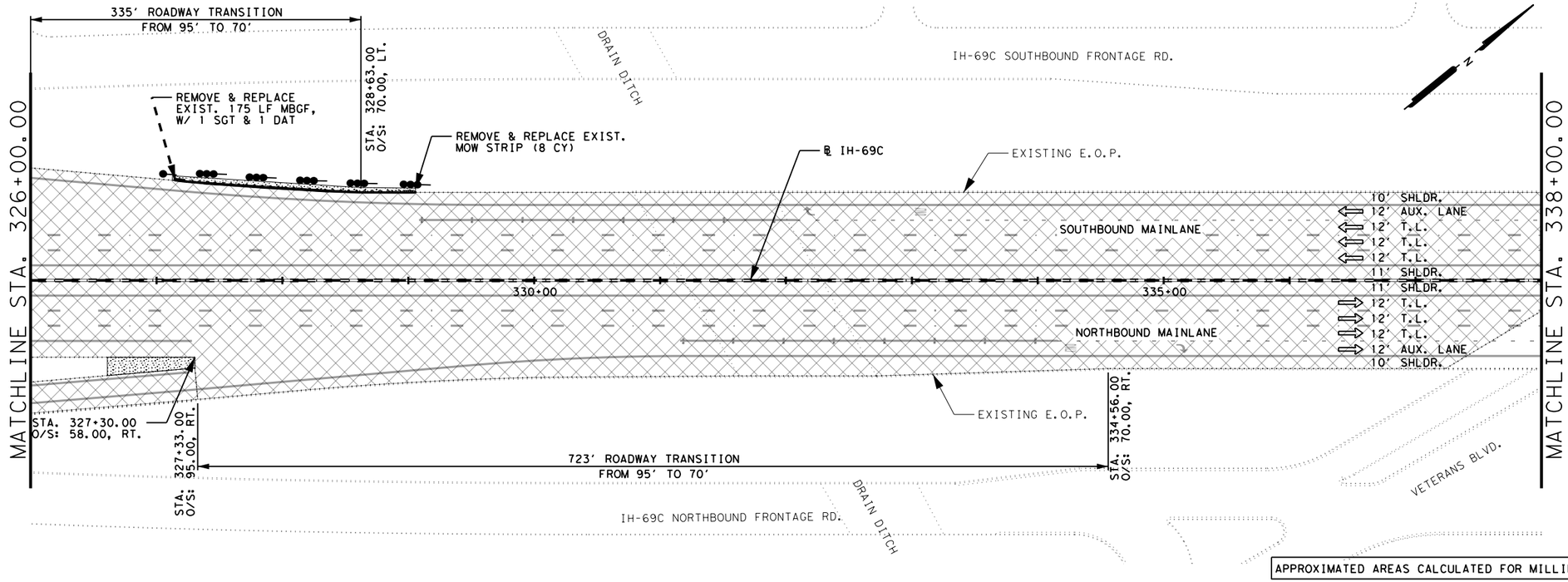


LEGEND

- PROP. 1½" MILLING & OVERLAY
- ⇦ TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 326+00 TO STA 338+00 = TOTAL: 37,089 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

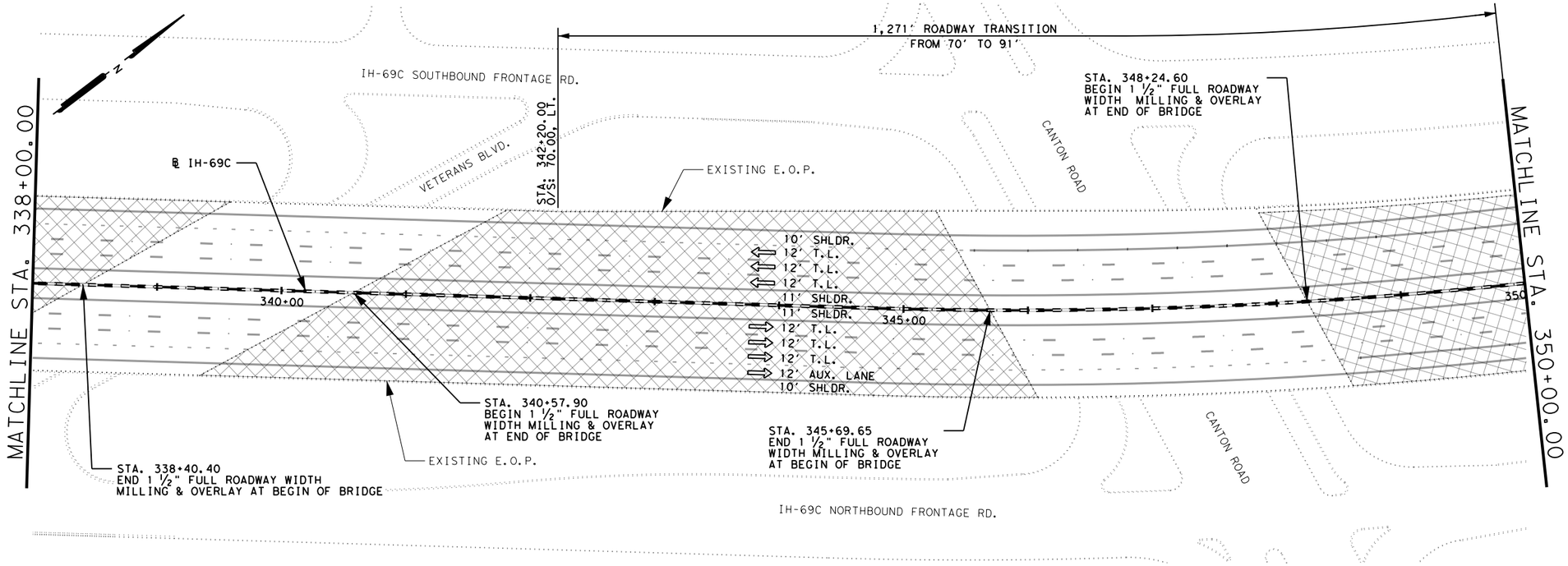
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 7 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		27

DATE: 7/8/2021 5:08:16 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL07.dgn

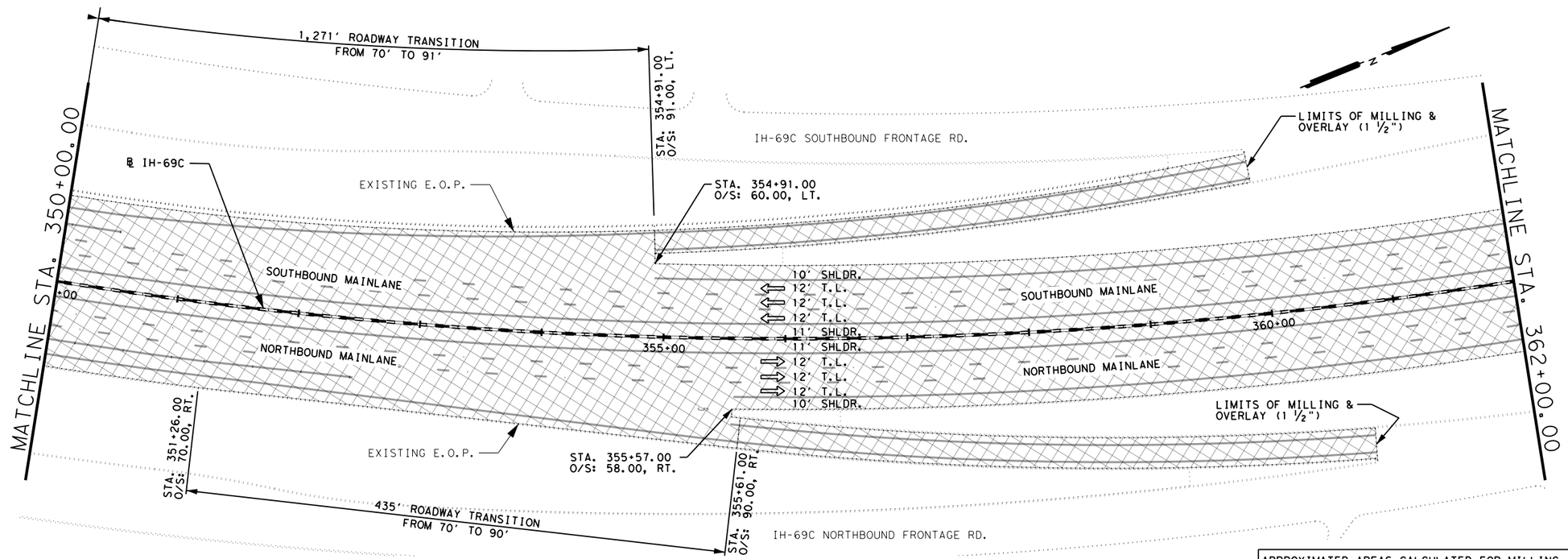


LEGEND

- PROP. 1½" MILLING & OVERLAY
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 338+00 TO STA 362+00 = TOTAL: 44.218 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

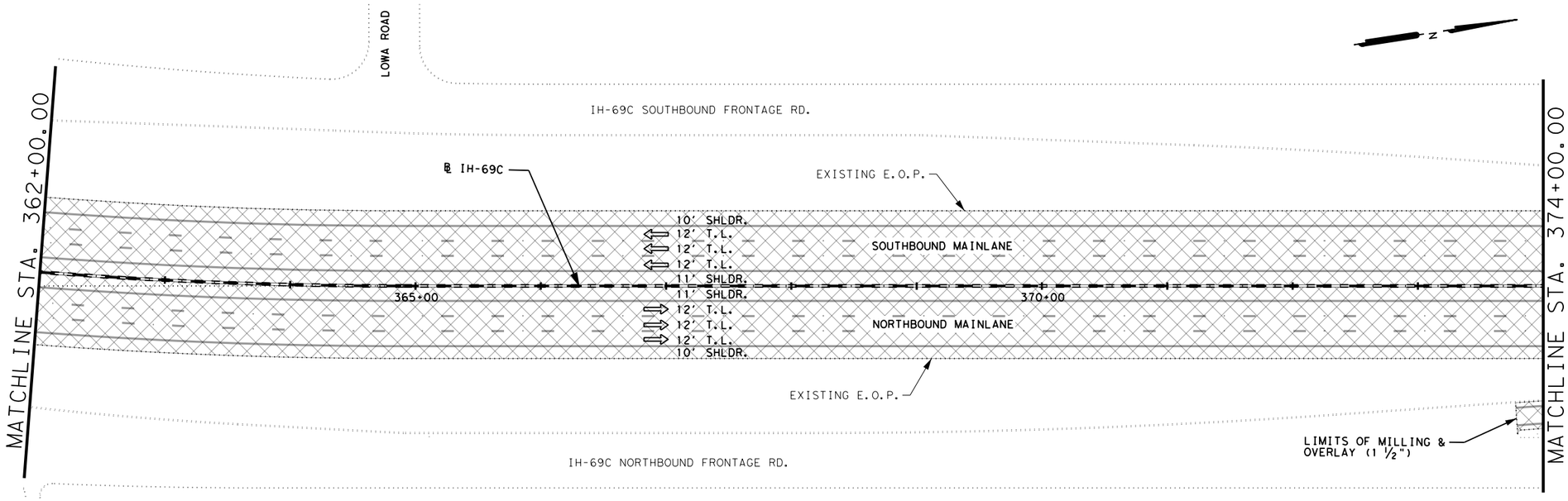
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 8 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		28

DATE: 7/8/2021 5:08:24 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL08.dgn

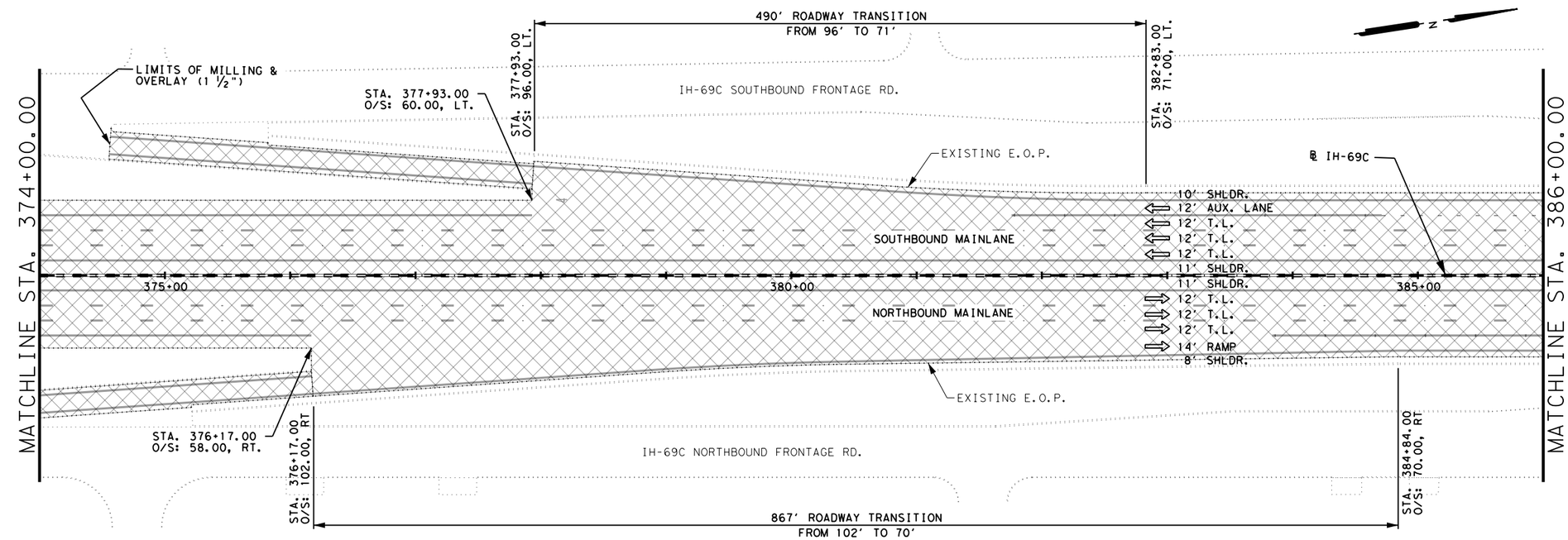


LEGEND

- PROP. 1½" MILLING & OVERLAY
- ⇦ TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 362+00 TO STA 386+00 = TOTAL: 36,930 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

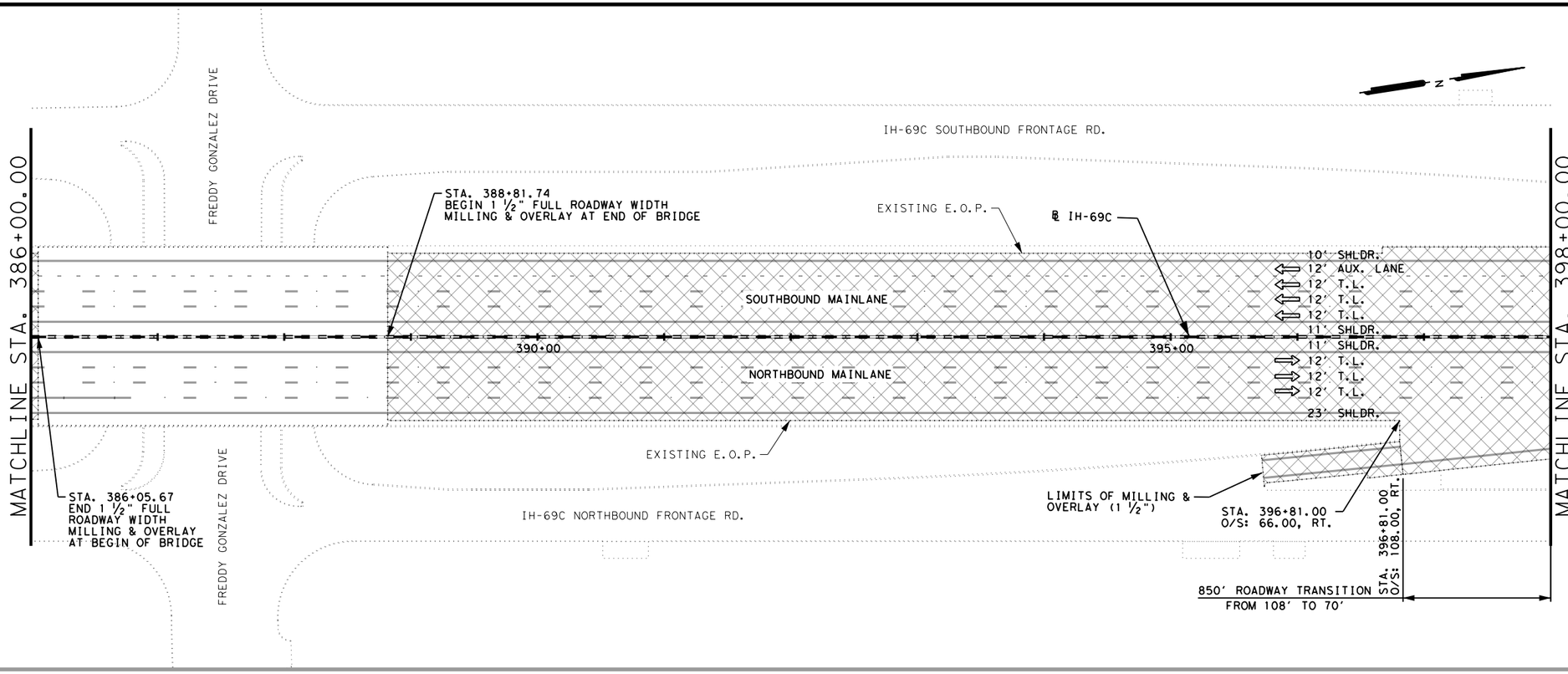
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 9 OF 11

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		29

DATE: 7/8/2021 5:08:31 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL09.dgn

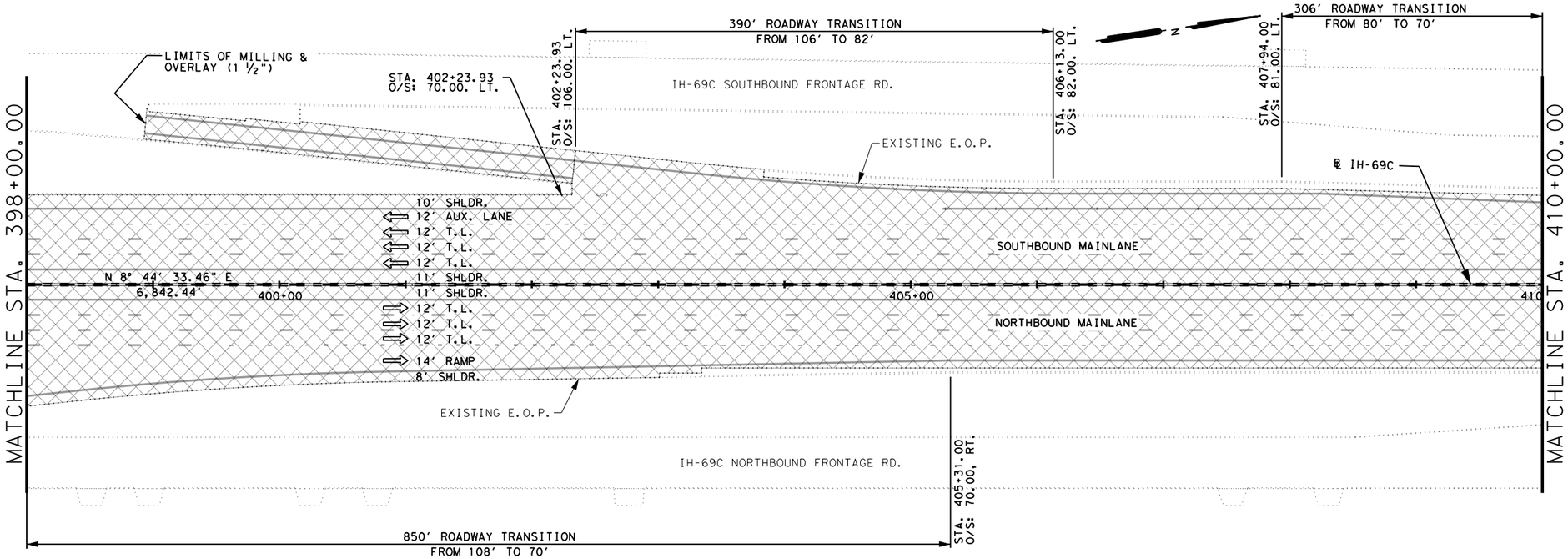


LEGEND

- PROP. 1½" MILLING & OVERLAY
- ⇦ TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 386+00 TO STA 410+00 = TOTAL: 36,144 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

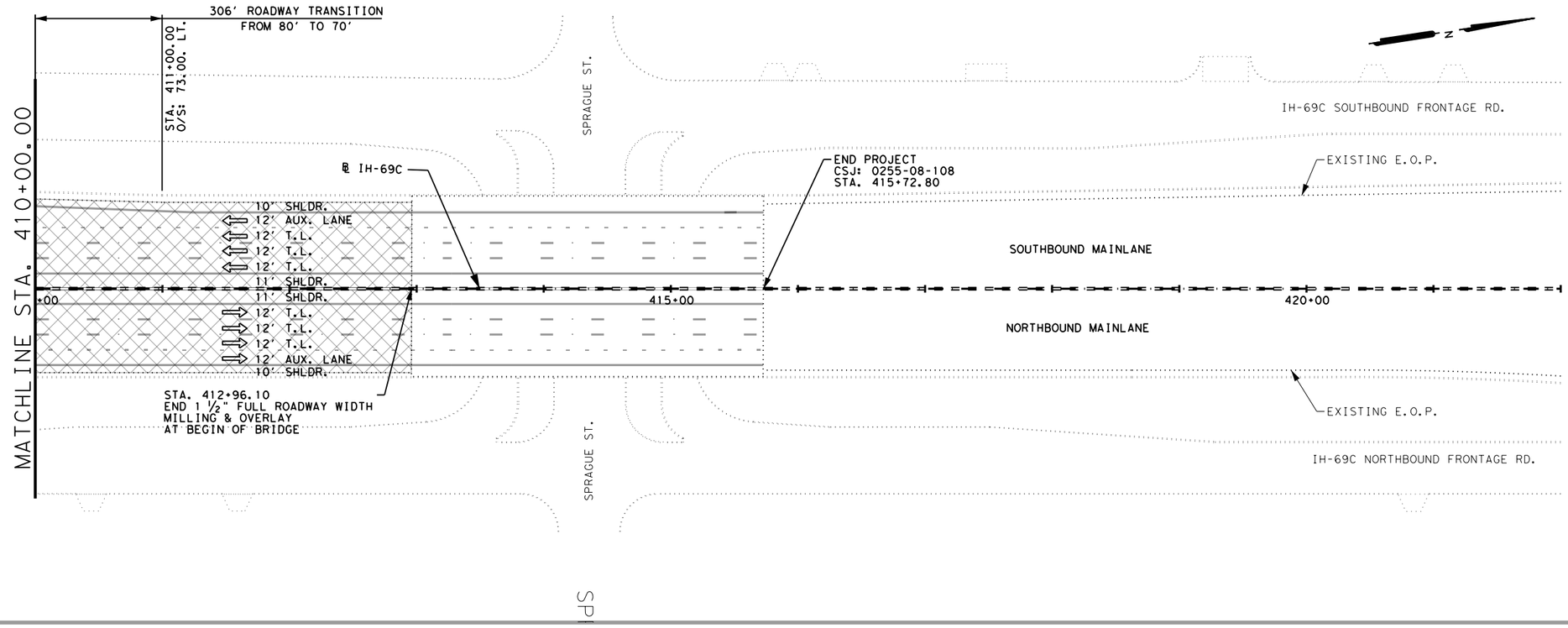
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 10 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		30

DATE: 7/8/2021 5:08:38 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d035320\MILL10.dgn



LEGEND

- PROP. 1½" MILLING & OVERLAY
- ⇦ TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69C ALIGNMENT.
4. REFER TO D&OM STANDARDS FOR DELINEATOR AND OBJECT MARKER SPACING.

APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA 410+00 TO STA 412+96.10 = TOTAL: 4,569 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

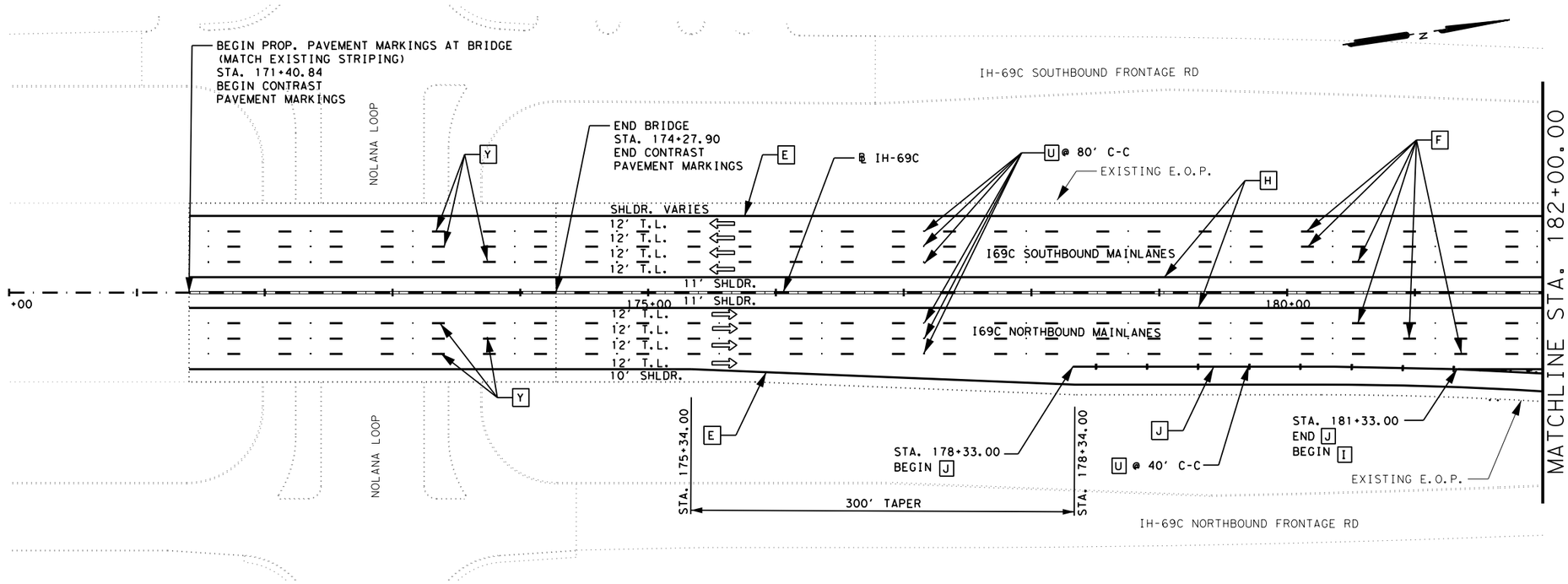
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 1

SHEET 11 OF 11

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		31

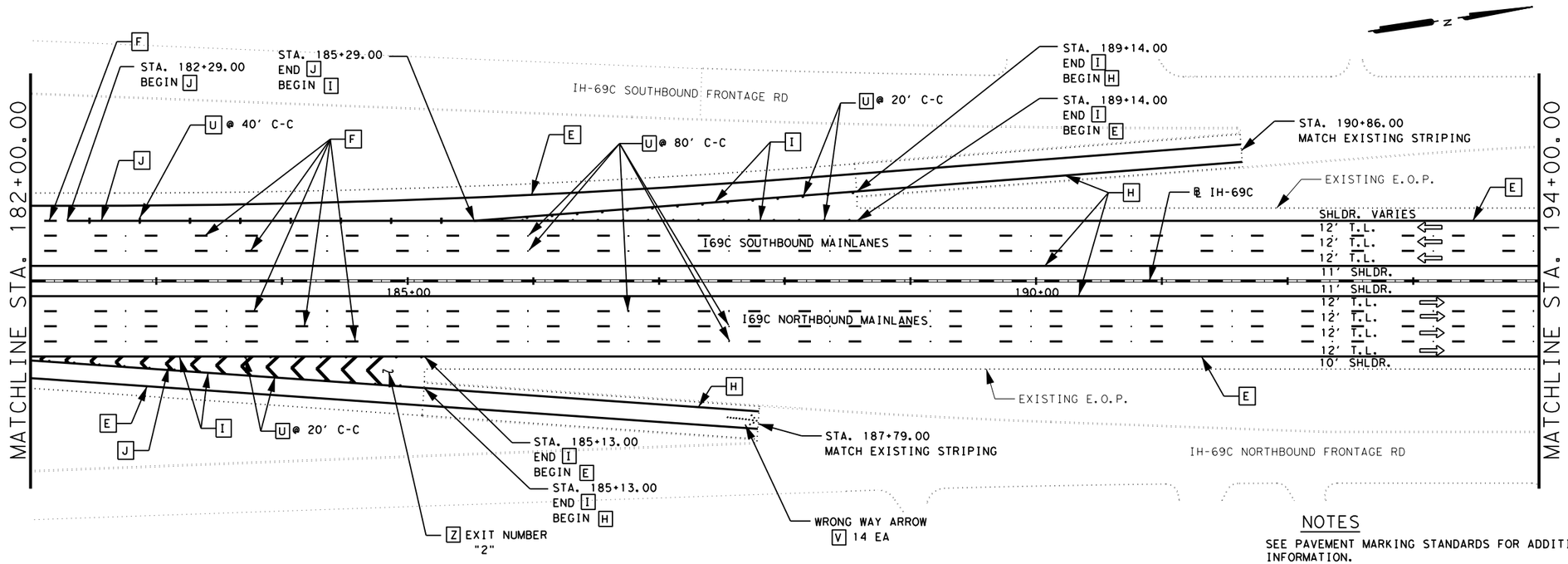
DATE: 7/8/2021 5:08:46 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351320\MILL11.dgn



LEGEND

- A 4" SOLID WHITE LINE (TYP.)
- B 4" BROKEN WHITE LINE (TYP.)
- C 4" BROKEN YELLOW LINE (TYP.)
- D 4" SOLID YELLOW LINE (TYP.)
- E 6" SOLID WHITE LINE (TYP.)
- F 6" BROKEN WHITE LINE (TYP.)
- G 6" BROKEN YELLOW LINE (TYP.)
- H 6" SOLID YELLOW LINE (TYP.)
- I 8" SOLID WHITE LINE (TYP.)
- J 12" SOLID WHITE LINE (TYP.)
- K 12" DOTTED WHITE (TYP.)
- L 12" SOLID YELLOW LINE (TYP.)
- M 24" SOLID WHITE (TYP.)
- N 8" SOLID YELLOW LINE (TYP.)
- O DOUBLE DIRECTIONAL ARROW (TYP.)
- P SINGLE DIRECTIONAL ARROW (TYP.)
- Q U-TURN ARROW (TYP.)
- R WORD (TYP.)
- S RUMBLE STRIP *
- T TYPE II A-A (TYP.)
- U TYPE II-C-R (TYP.)
- V TYPE I-R (TYP.)
- W TYPE I-C (TYP.)
- X 4" CONTRAST PAVEMENT MARKINGS (TYP.)
- Y 6" CONTRAST PAVEMENT MARKINGS (TYP.)
- Z PREFAB PAV MRK TYC (W)(NUMBER)
- ⇦ TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT



NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

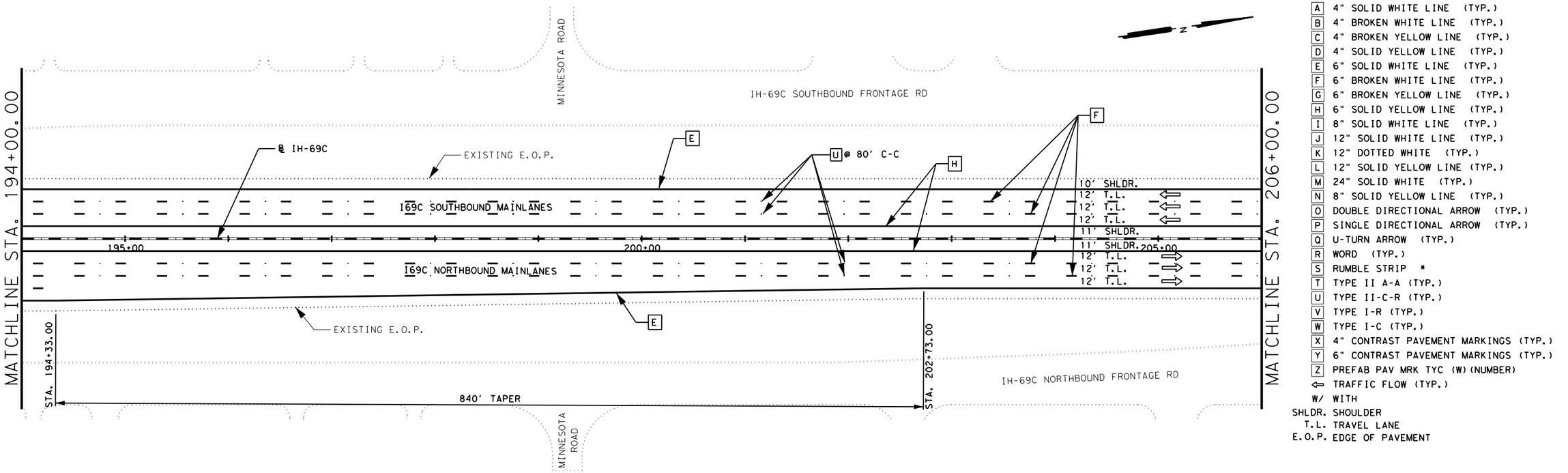
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 1 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		32

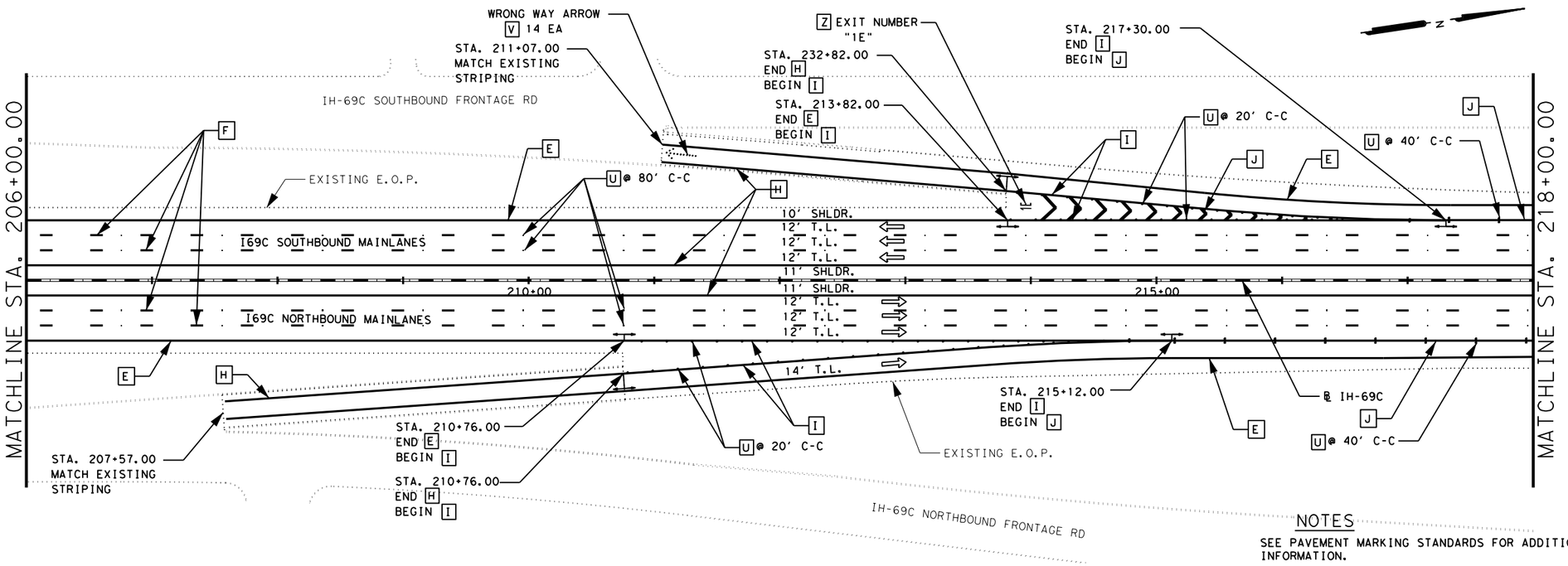
DATE: 7/8/2021 5:09:05 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PMI.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT



NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

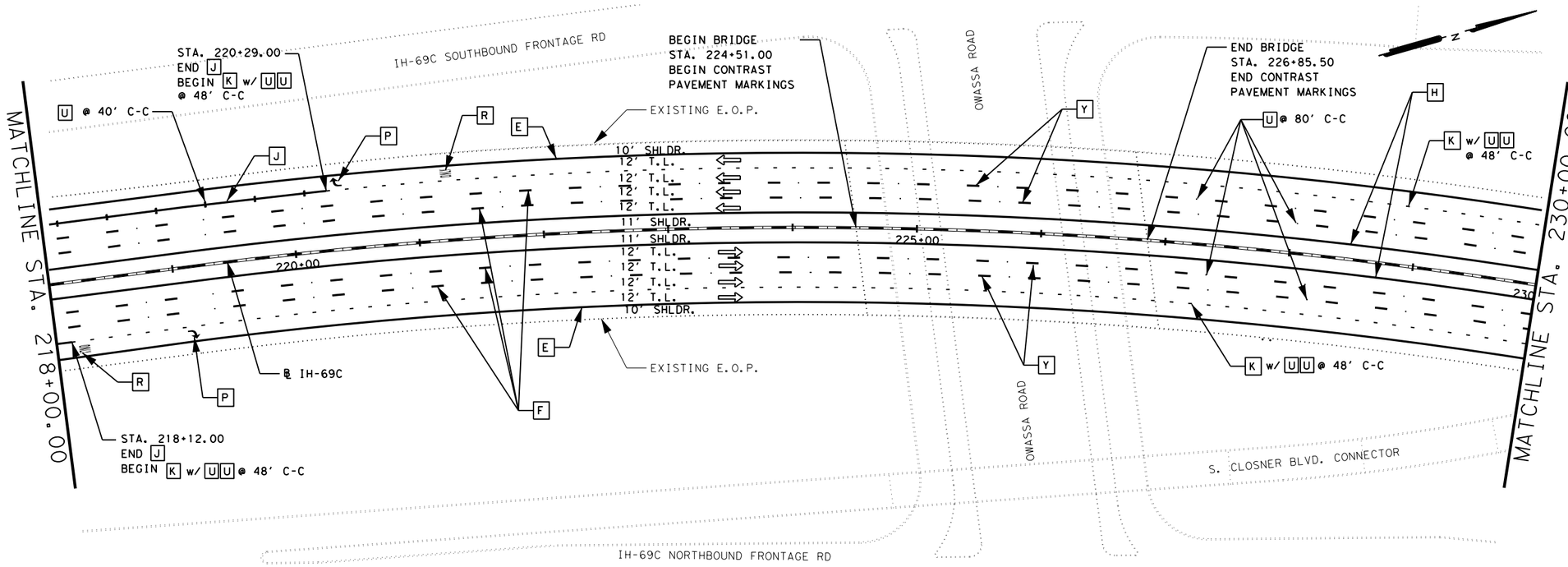
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 2 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		33

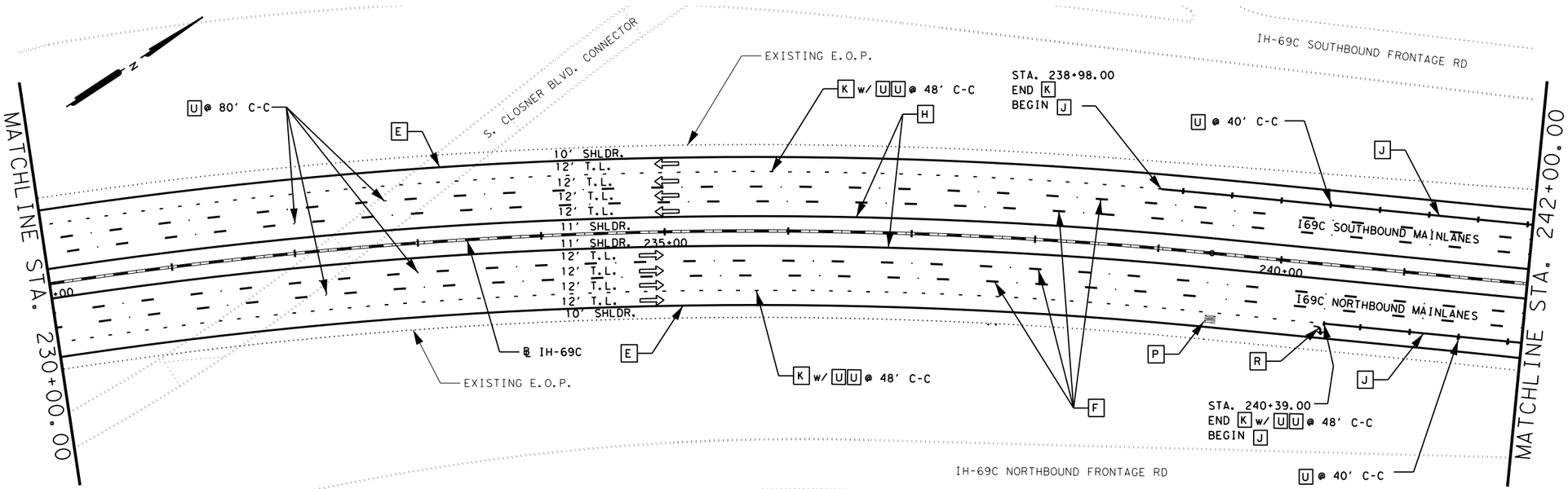
DATE: 7/8/2021 5:09:12 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM2.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT



NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

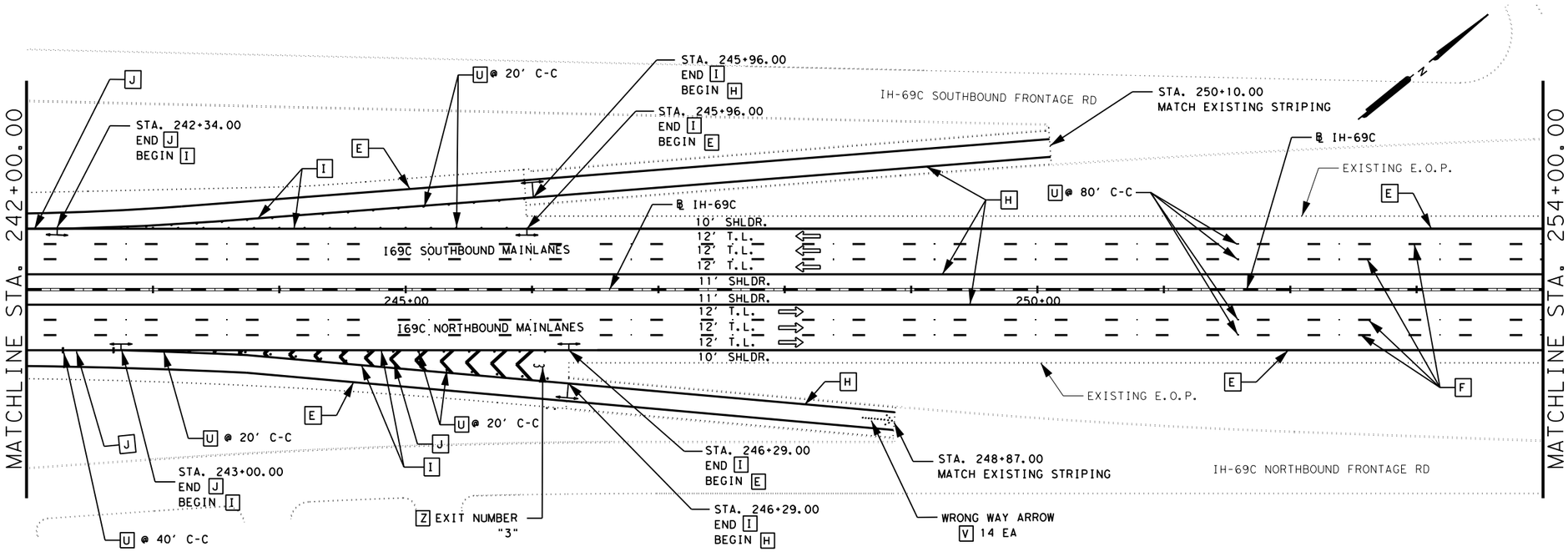
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 3 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		34

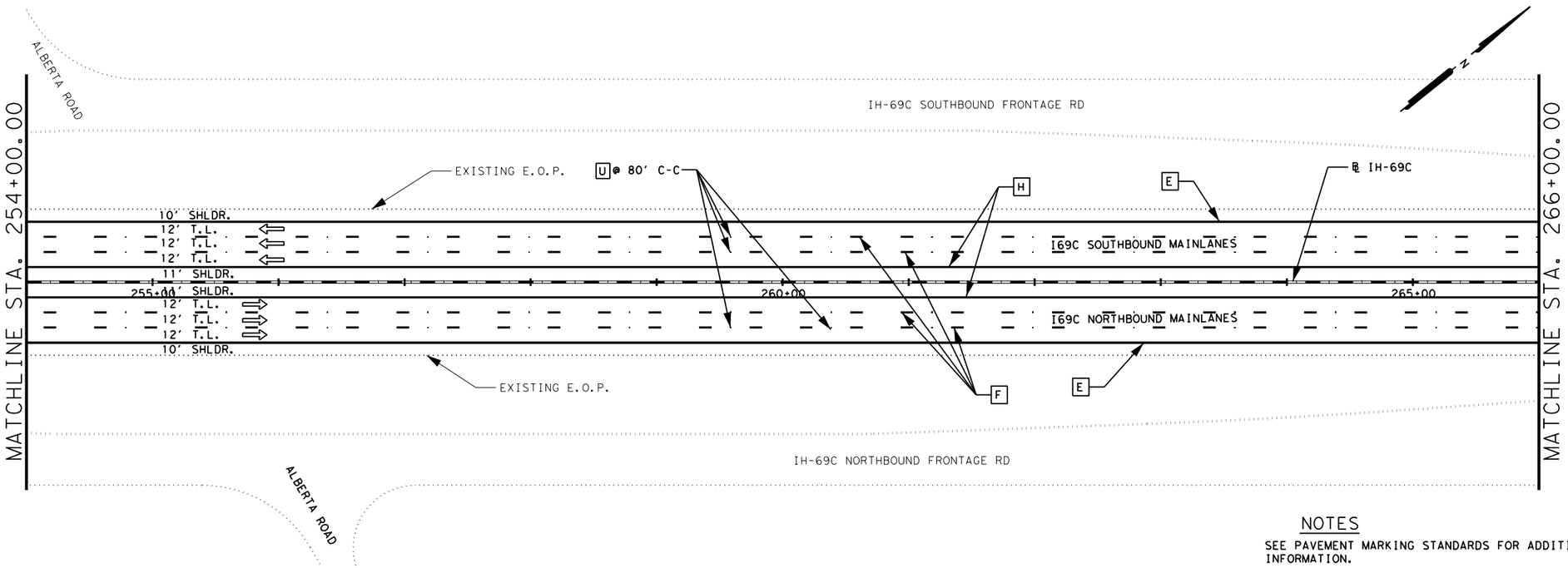
DATE: 7/8/2021 5:09:21 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM3.dgn



LEGEND

- A 4" SOLID WHITE LINE (TYP.)
- B 4" BROKEN WHITE LINE (TYP.)
- C 4" BROKEN YELLOW LINE (TYP.)
- D 4" SOLID YELLOW LINE (TYP.)
- E 6" SOLID WHITE LINE (TYP.)
- F 6" BROKEN WHITE LINE (TYP.)
- G 6" BROKEN YELLOW LINE (TYP.)
- H 6" SOLID YELLOW LINE (TYP.)
- I 8" SOLID WHITE LINE (TYP.)
- J 12" SOLID WHITE LINE (TYP.)
- K 12" DOTTED WHITE (TYP.)
- L 12" SOLID YELLOW LINE (TYP.)
- M 24" SOLID WHITE (TYP.)
- N 8" SOLID YELLOW LINE (TYP.)
- O DOUBLE DIRECTIONAL ARROW (TYP.)
- P SINGLE DIRECTIONAL ARROW (TYP.)
- Q U-TURN ARROW (TYP.)
- R WORD (TYP.)
- S RUMBLE STRIP *
- T TYPE II A-A (TYP.)
- U TYPE II-C-R (TYP.)
- V TYPE I-R (TYP.)
- W TYPE I-C (TYP.)
- X 4" CONTRAST PAVEMENT MARKINGS (TYP.)
- Y 6" CONTRAST PAVEMENT MARKINGS (TYP.)
- Z PREFAB PAV MRK TYC (W)(NUMBER)
- ⇦ TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT



NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

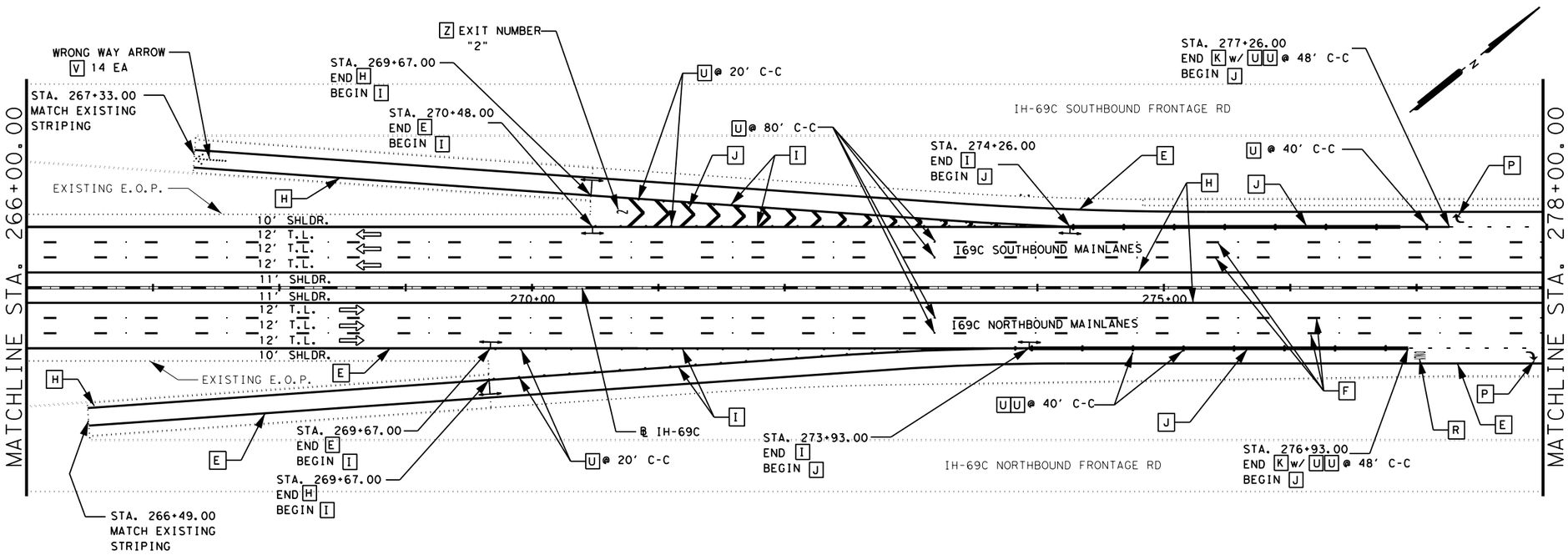
©2019 Texas Department of Transportation

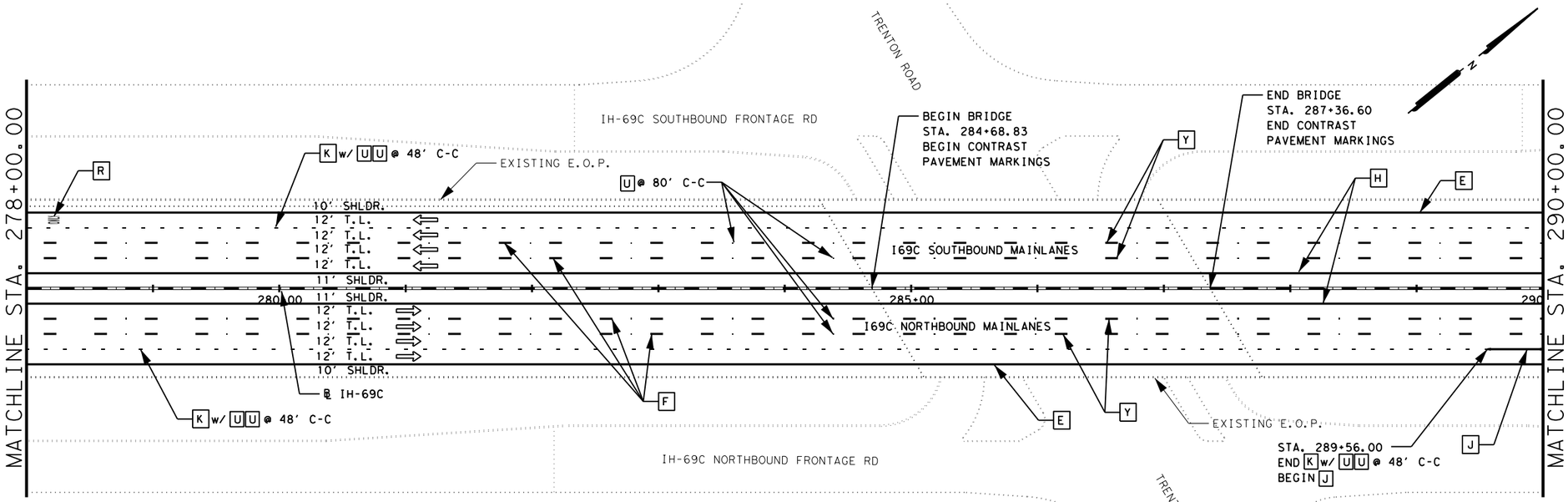
IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 4 OF 11

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		35

DATE: 7/8/2021 5:09:28 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM4.dgn





LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT

NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

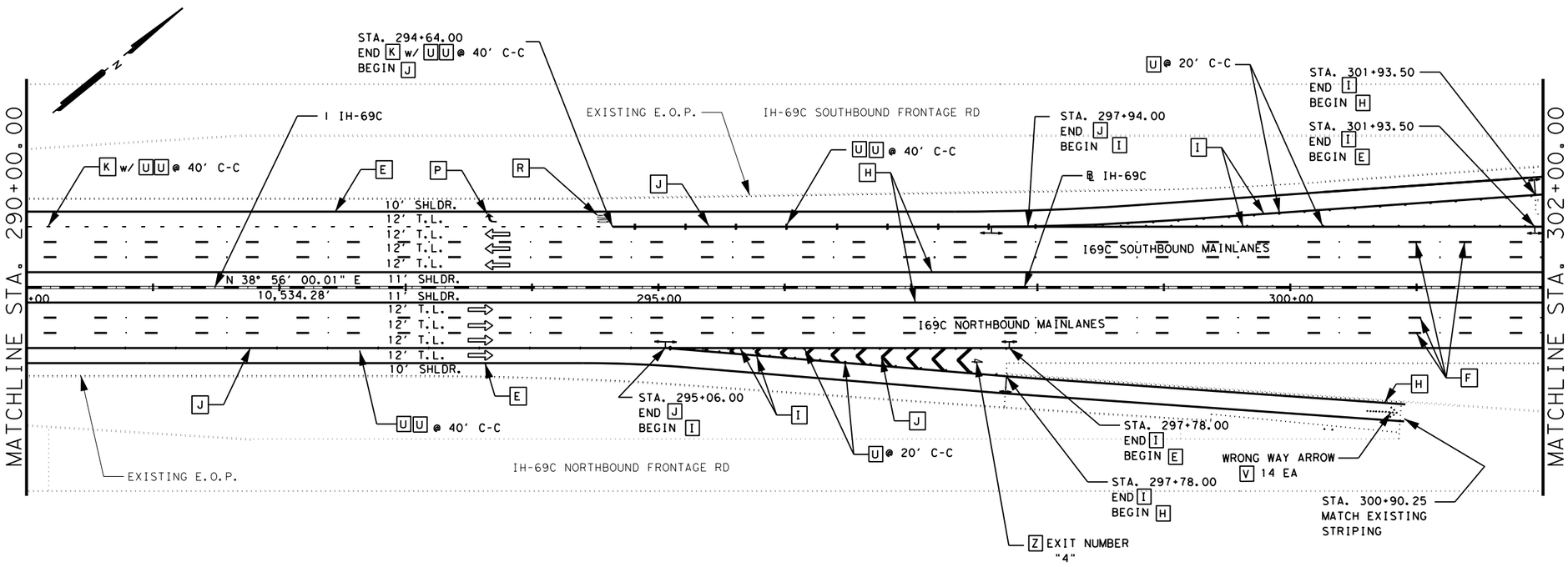
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 5 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		36

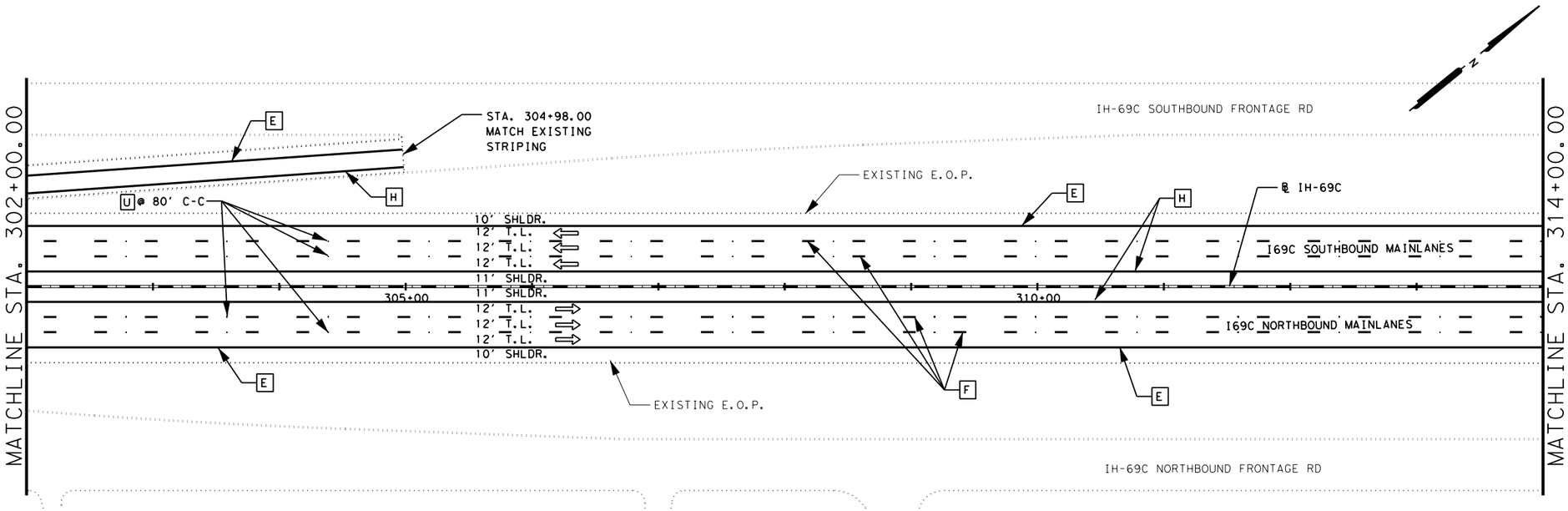
DATE: 7/8/2021 5:09:35 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM5.dgn



LEGEND

- A 4" SOLID WHITE LINE (TYP.)
- B 4" BROKEN WHITE LINE (TYP.)
- C 4" BROKEN YELLOW LINE (TYP.)
- D 4" SOLID YELLOW LINE (TYP.)
- E 6" SOLID WHITE LINE (TYP.)
- F 6" BROKEN WHITE LINE (TYP.)
- G 6" BROKEN YELLOW LINE (TYP.)
- H 6" SOLID YELLOW LINE (TYP.)
- I 8" SOLID WHITE LINE (TYP.)
- J 12" SOLID WHITE LINE (TYP.)
- K 12" DOTTED WHITE (TYP.)
- L 12" SOLID YELLOW LINE (TYP.)
- M 24" SOLID WHITE (TYP.)
- N 8" SOLID YELLOW LINE (TYP.)
- O DOUBLE DIRECTIONAL ARROW (TYP.)
- P SINGLE DIRECTIONAL ARROW (TYP.)
- Q U-TURN ARROW (TYP.)
- R WORD (TYP.)
- S RUMBLE STRIP *
- T TYPE II A-A (TYP.)
- U TYPE II-C-R (TYP.)
- V TYPE I-R (TYP.)
- W TYPE I-C (TYP.)
- X 4" CONTRAST PAVEMENT MARKINGS (TYP.)
- Y 6" CONTRAST PAVEMENT MARKINGS (TYP.)
- Z PREFAB PAV MRK TYC (W)(NUMBER)
- ⇦ TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT



NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

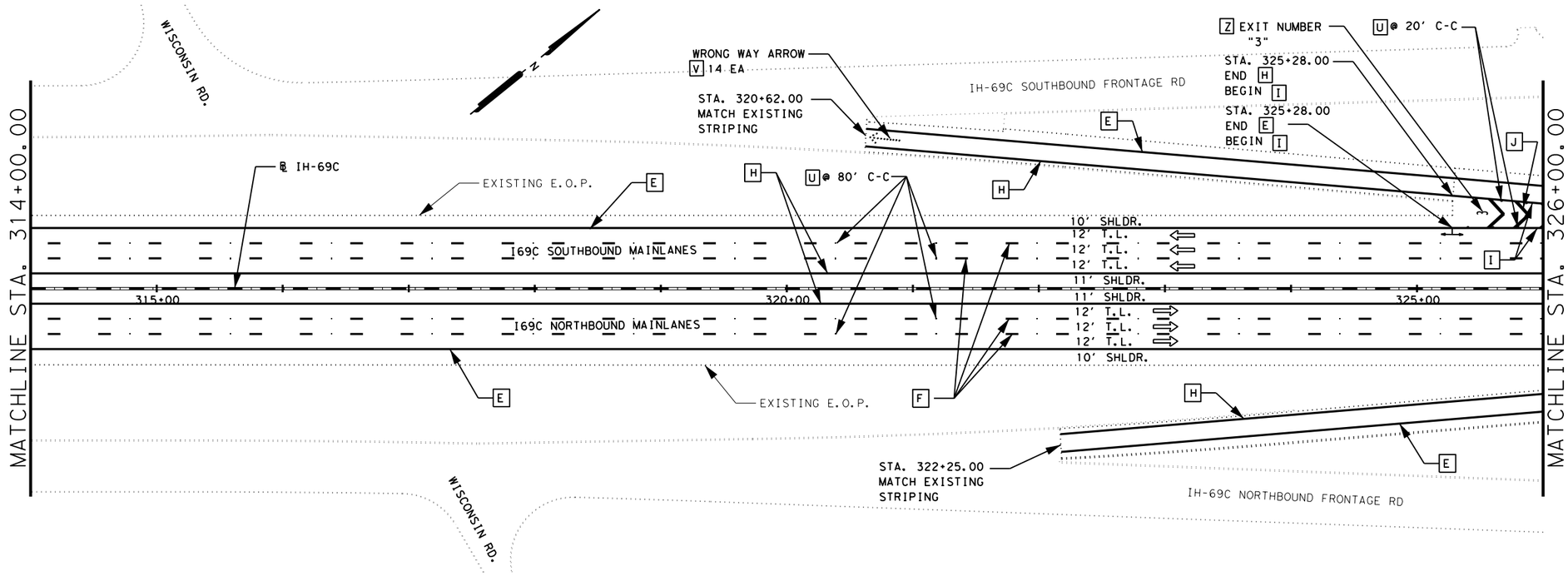
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 6 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		37

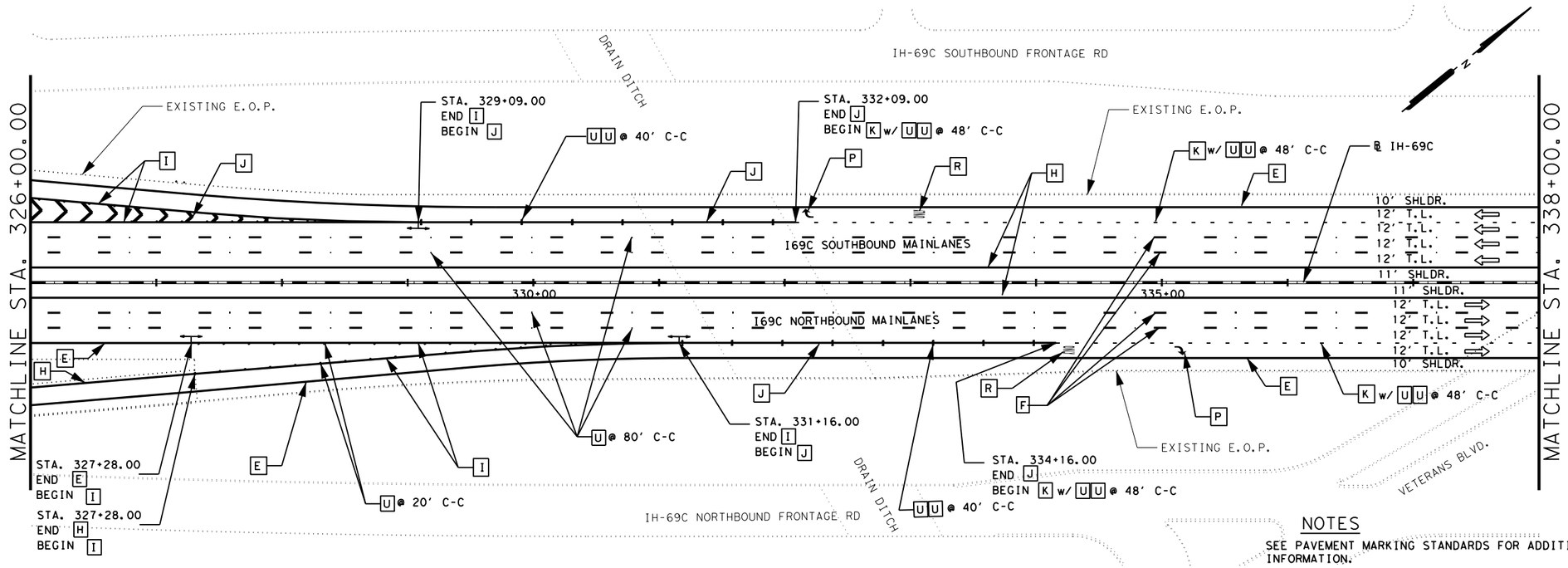
DATE: 7/8/2021 5:09:43 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM6.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT



NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

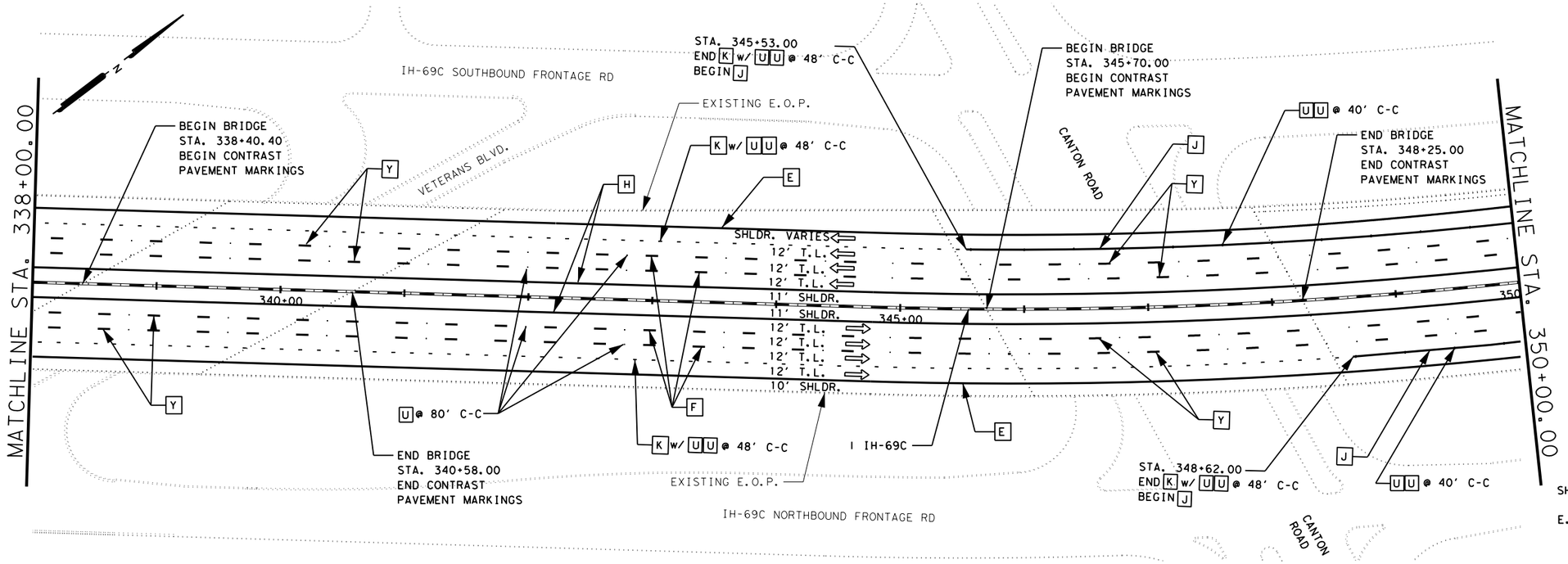
©2019 Texas Department of Transportation

IH-69C, Etc. PAVEMENT MARKING LAYOUTS LOCATION 1

SHEET 7 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		38

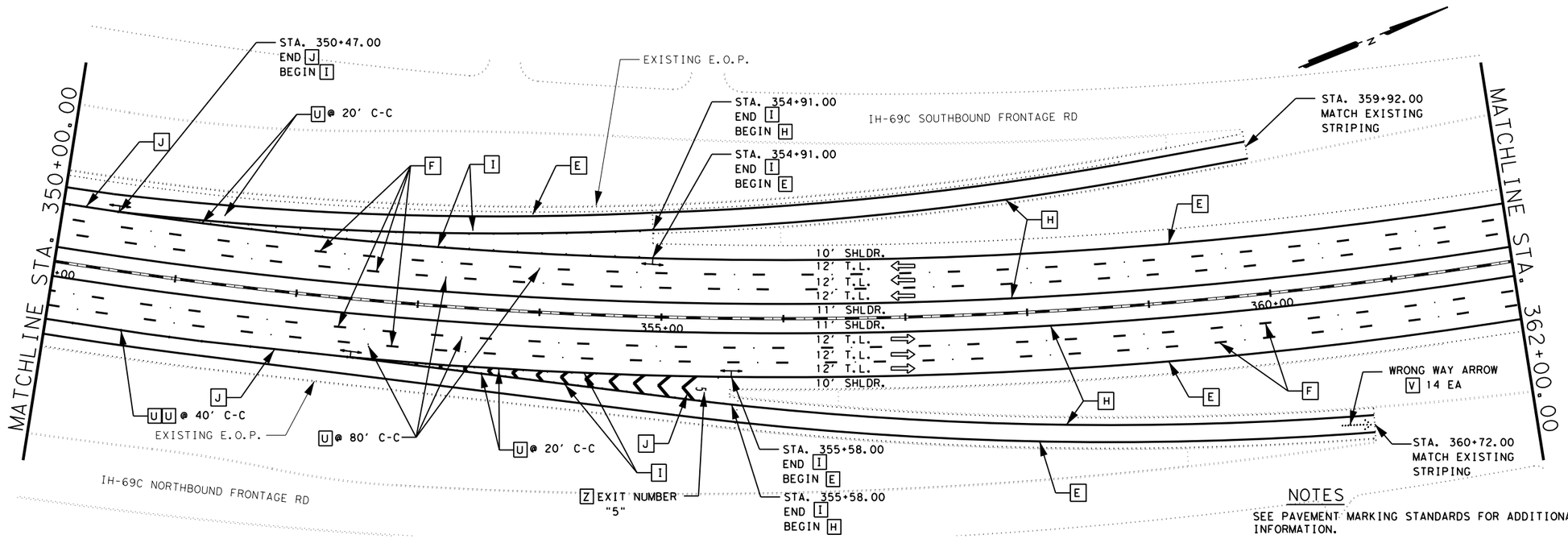
DATE: 7/8/2021 5:09:50 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM7.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT



NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED
PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

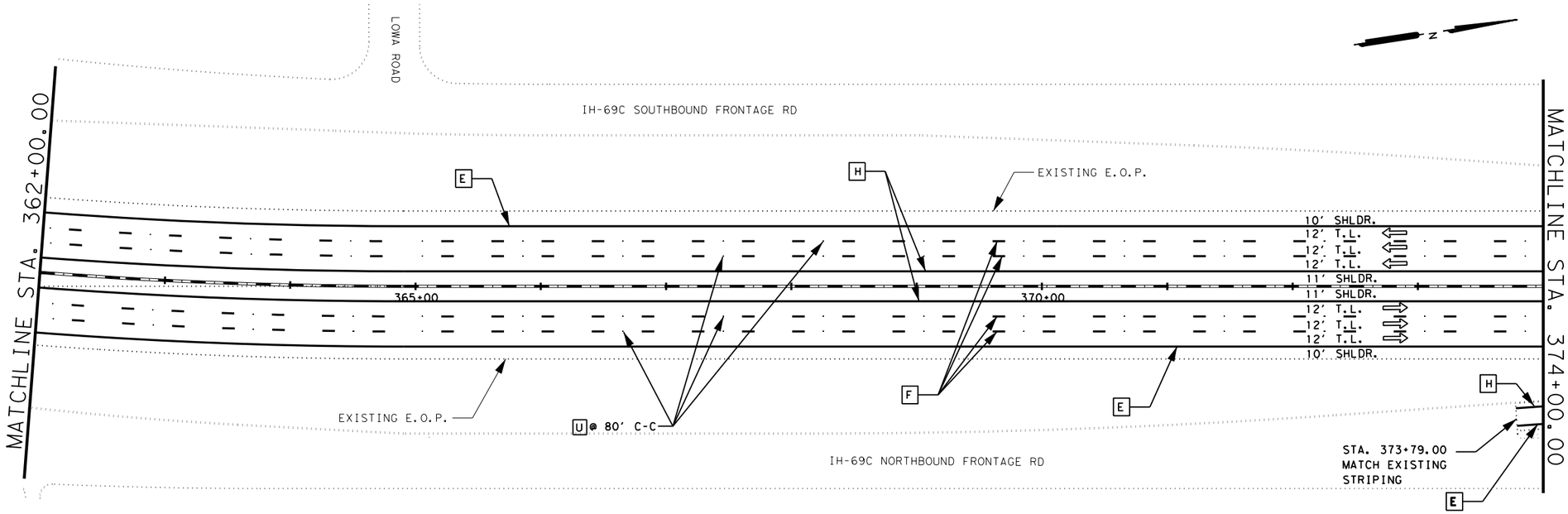
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 8 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		39

DATE: 7/8/2021 5:09:57 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM8.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT

NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

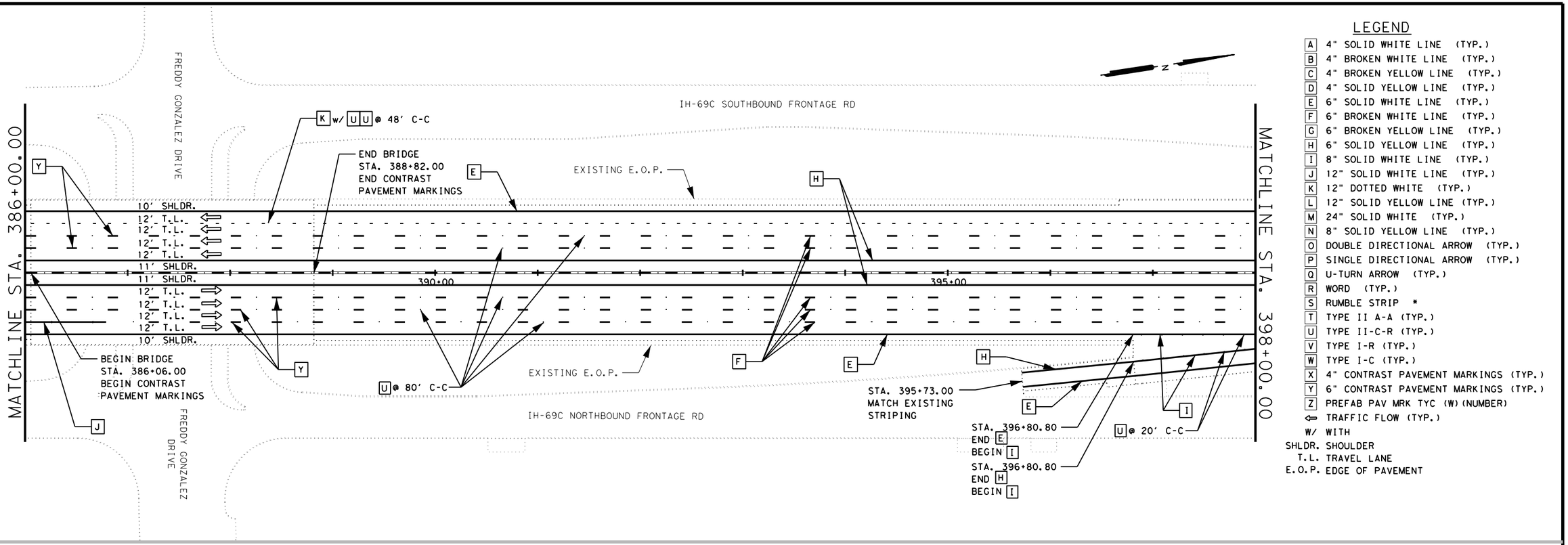
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 9 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		40

DATE: 7/8/2021 5:10:04 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM9.dgn



LEGEND

- A 4" SOLID WHITE LINE (TYP.)
- B 4" BROKEN WHITE LINE (TYP.)
- C 4" BROKEN YELLOW LINE (TYP.)
- D 4" SOLID YELLOW LINE (TYP.)
- E 6" SOLID WHITE LINE (TYP.)
- F 6" BROKEN WHITE LINE (TYP.)
- G 6" BROKEN YELLOW LINE (TYP.)
- H 6" SOLID YELLOW LINE (TYP.)
- I 8" SOLID WHITE LINE (TYP.)
- J 12" SOLID WHITE LINE (TYP.)
- K 12" DOTTED WHITE (TYP.)
- L 12" SOLID YELLOW LINE (TYP.)
- M 24" SOLID WHITE (TYP.)
- N 8" SOLID YELLOW LINE (TYP.)
- O DOUBLE DIRECTIONAL ARROW (TYP.)
- P SINGLE DIRECTIONAL ARROW (TYP.)
- Q U-TURN ARROW (TYP.)
- R WORD (TYP.)
- S RUMBLE STRIP *
- T TYPE II A-A (TYP.)
- U TYPE II-C-R (TYP.)
- V TYPE I-R (TYP.)
- W TYPE I-C (TYP.)
- X 4" CONTRAST PAVEMENT MARKINGS (TYP.)
- Y 6" CONTRAST PAVEMENT MARKINGS (TYP.)
- Z PREFAB PAV MRK TYC (W)(NUMBER)
- ⇦ TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT

NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

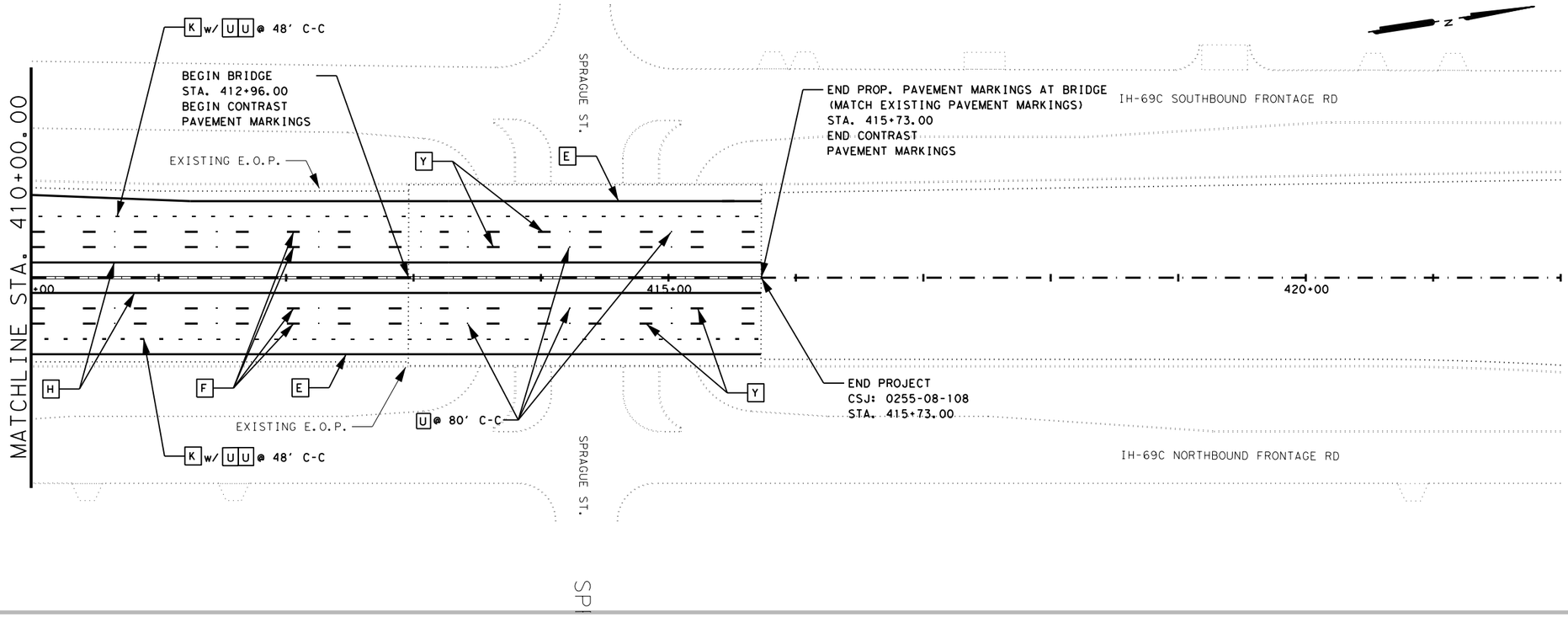
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 10 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		41

DATE: 7/8/2021 5:10:11 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM10.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW (TYP.)

W/ WITH
SHLDR. SHOULDER
T.L. TRAVEL LANE
E.O.P. EDGE OF PAVEMENT

NOTES

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

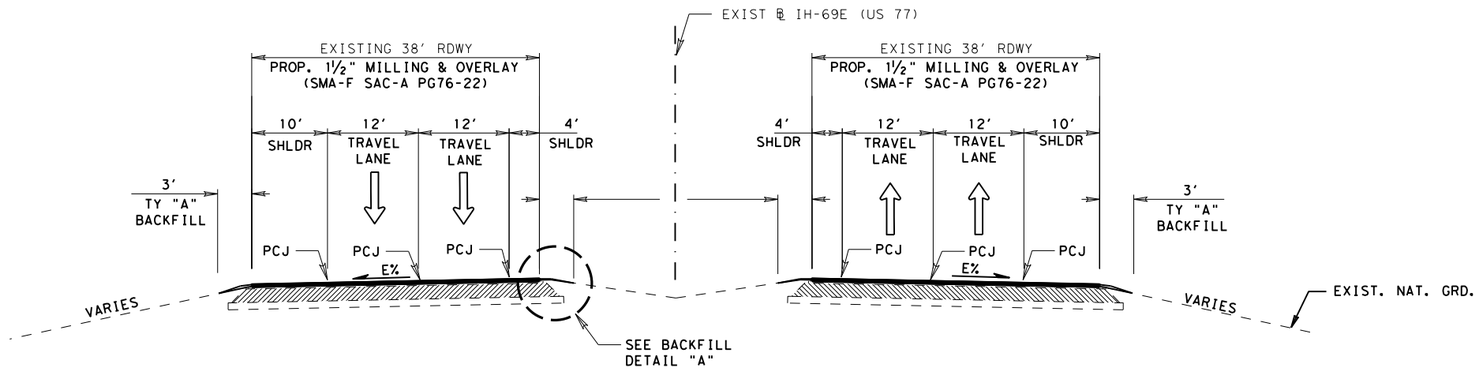
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 1

SHEET 11 OF 11

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		42

DATE: 7/8/2021 5:10:18 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351324\PM11.dgn



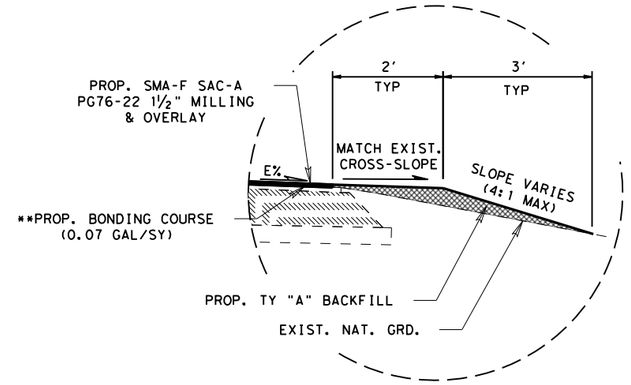
PROP. IH-69E MAINLANES (US 77) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 100+04	TO STA. 102+04	(FM 1018 OVERPASS - EXCLUDED FROM OVERLAY)
STA. 102+04	TO STA. 124+54	(38' ROADWAY)
STA. 128+74	TO STA. 219+18	(38' ROADWAY)
STA. 219+18	TO STA. 220+58	(IRRIGATION CANAL BRIDGE - EXCLUDED FROM OVERLAY)
STA. 220+58	TO STA. 223+26	(38' ROADWAY)
STA. 235+27	TO STA. 258+52	(38' ROADWAY)
STA. 258+52	TO STA. 260+52	(FM 498 OVERPASS - EXCLUDED FROM OVERLAY)
STA. 260+52	TO STA. 263+11	(38' ROADWAY)
STA. 274+15	TO STA. 289+64	(38' ROADWAY)
STA. 289+64	TO STA. 300+13	(SP 112 OVERPASS - EXCLUDED FROM OVERLAY)

NORTHBOUND MAINLANES

STA. 100+04	TO STA. 102+04	(FM 1018 OVERPASS - EXCLUDED FROM OVERLAY)
STA. 102+04	TO STA. 122+14	(38' ROADWAY)
STA. 132+61	TO STA. 219+18	(38' ROADWAY)
STA. 219+18	TO STA. 220+58	(IRRIGATION CANAL BRIDGE - CANAL)
STA. 220+58	TO STA. 228+17	(38' ROADWAY)
STA. 234+21	TO STA. 258+52	(38' ROADWAY)
STA. 258+52	TO STA. 260+52	(FM 498 OVERPASS - EXCLUDED FROM OVERLAY)
STA. 260+52	TO STA. 265+55	(38' ROADWAY)
STA. 271+36	TO STA. 289+69	(38' ROADWAY)
STA. 289+69	TO STA. 300+13	(SP 112 OVERPASS - EXCLUDED FROM OVERLAY)
STA. 300+13	TO STA. 317+02	(38' ROADWAY)



BACKFILL DETAIL "A"

N.T.S.
* MATCH EXISTING CROSS-SLOPE

PROP. IH-69E MAINLANES (US 77) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 124+54	TO STA. 128+74	(ROADWAY TRANSITIONS FROM: 66' TO 38' WIDTH)
STA. 223+26	TO STA. 233+42	(ROADWAY TRANSITIONS FROM: 38' TO 57' WIDTH)
STA. 263+11	TO STA. 272+52	(ROADWAY TRANSITIONS FROM: 38' TO 65' WIDTH)
STA. 272+52	TO STA. 274+15	(65' ROADWAY WIDTH)

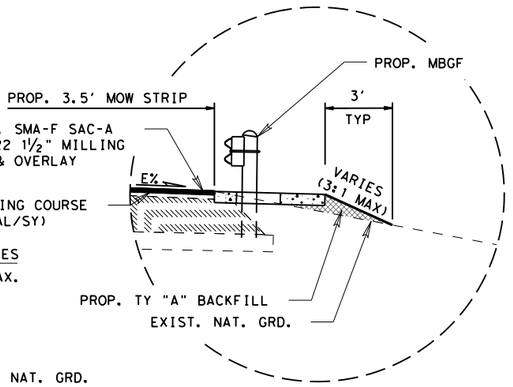
NORTHBOUND MAINLANES

STA. 125+76	TO STA. 132+61	(ROADWAY TRANSITIONS FROM: 52' TO 38' WIDTH)
STA. 228+17	TO STA. 231+48	(ROADWAY TRANSITIONS FROM: 38' TO 55' WIDTH)
STA. 265+55	TO STA. 270+51	(ROADWAY TRANSITIONS FROM: 38' TO 64' WIDTH)
STA. 270+51	TO STA. 271+36	(64' ROADWAY WIDTH)

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE



MBGF & MOWSTRIP DETAIL

N.T.S.
SEE ROADWAY PLAN SHEETS FOR MBGF & MOWSTRIP LOCATIONS
REFER TO STANDARD GF(31)MS-19 FOR ADDITIONAL INFORMATION.

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 2

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		43

DATE: 7/8/2021 5:10:36 PM
FILE: c:\txdot\pw_online\txdot5\pwonline.ezekiel.gonzalez\d0351321\065_TYPICALS.dgn

LEGEND:

◑ SEE ROADWAY LAYOUTS FOR ADDITIONAL INFORMATION

E% EXISTING CROSS-SLOPE

NOTES:

WHERE POSSIBLE, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN IN THE PAVEMENT MARKING LAYOUTS.

A STATION IS EQUIVALENT TO 100 FT.

114 LBS/SY OF ASPHALT IS EQUIVALENT TO APPROX. 1 IN DEPTH.

PGL DENOTES PROFILE GRADE LINE.

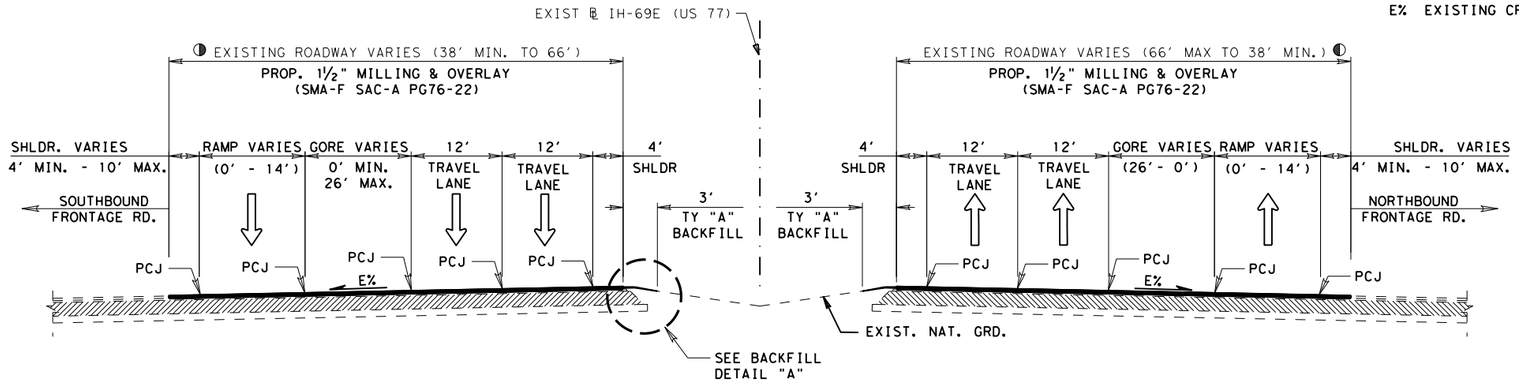
PCJ DENOTES PERMISSIBLE CONSTRUCTION JOINT.

MBGF DENOTES METAL BEAM GUARD FENCE

FOR STRIPING CONFIGURATION SEE PAVEMENT MARKING LAYOUTS.

**PROP. BONDING COURSE RATE 0.07 GAL/SY IS FOR ESTIMATING PURPOSES ONLY. RATE TO BE ADJUSTED IN THE FIELD AS PER SPEC AND ENGINEER.

SEE IH-69C,Etc. TYPICAL SECTIONS LOCATION 1 SHEET 7 OF 7 FOR ADDITIONAL DETAILS.



PROP. IH-69E MAINLANES (US 77) TYPICAL SECTION

SOUTHBOUND MAINLANES

STA. 124+00 TO STA. 128+74 (ROADWAY TRANSITIONS FROM: 68' TO 38' WIDTH)
STA. 233+42 TO STA. 235+27 (62' ROADWAY WIDTH)

NORTHBOUND MAINLANES

STA. 122+14 TO STA. 125+76 (ROADWAY TRANSITIONS FROM: 50' TO 52' WIDTH)
STA. 231+48 TO STA. 234+21 (66' ROADWAY WIDTH)

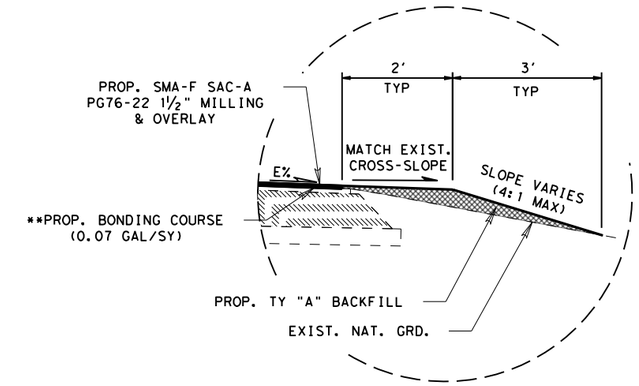
PROP. IH-69E (US 77) RAMPS TYPICAL SECTION

SOUTHBOUND RAMPS

STA. 274+15 TO STA. 280+60 (22' WIDTH ENTRANCE RAMP)

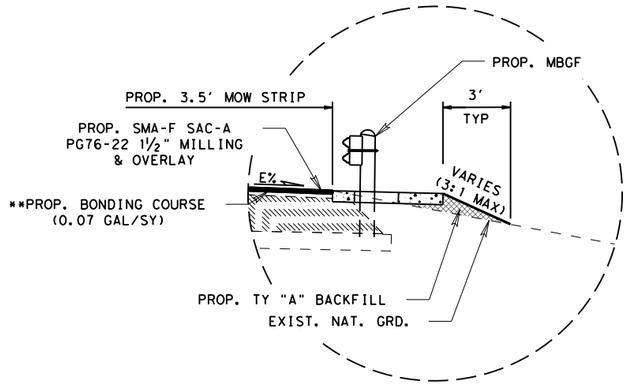
NORTHBOUND RAMPS

STA. 271+64 TO STA. 278+59 (22' WIDTH EXIT RAMP)



BACKFILL DETAIL "A"

N. T. S.
* MATCH EXISTING CROSS-SLOPE



MBGF & MOWSTRIP DETAIL

N. T. S.
SEE ROADWAY PLAN SHEETS FOR MBGF & MOWSTRIP LOCATIONS
REFER TO STANDARD GF(31)MS-19 FOR ADDITIONAL INFORMATION.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

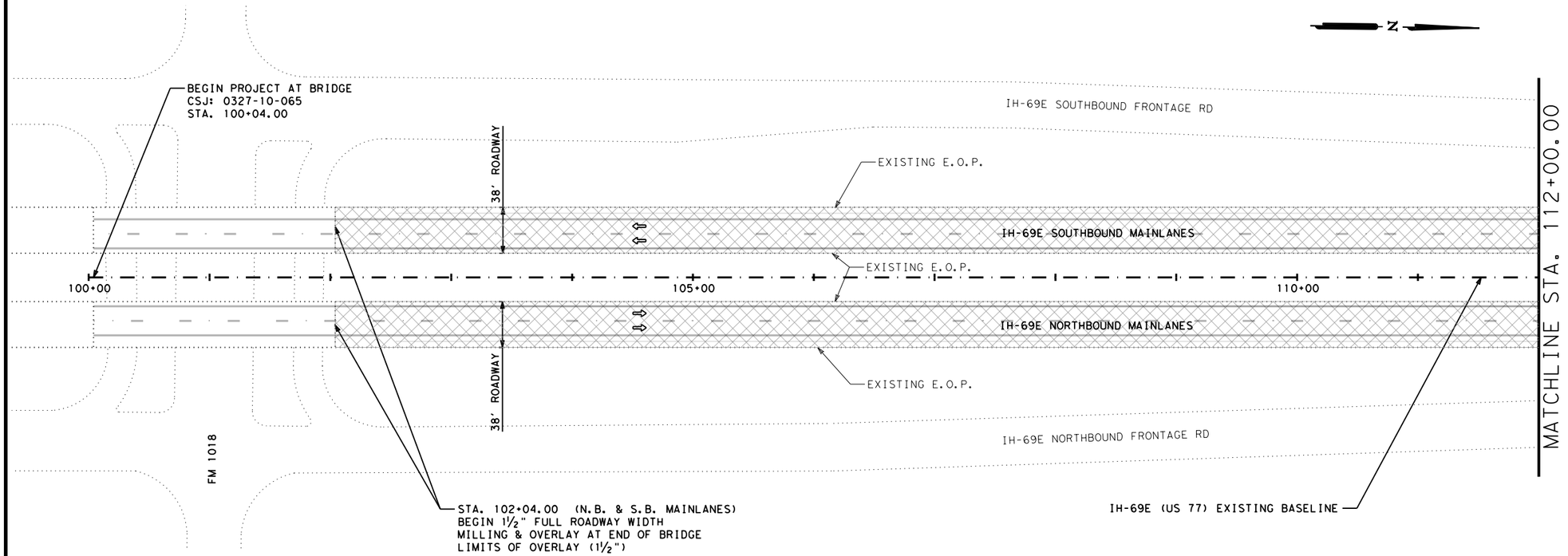
Texas Department of Transportation

IH-69C, Etc. TYPICAL SECTIONS LOCATION 2

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		44

DATE: 7/8/2021 5:10:36 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351321\065_TYPICALS.dgn

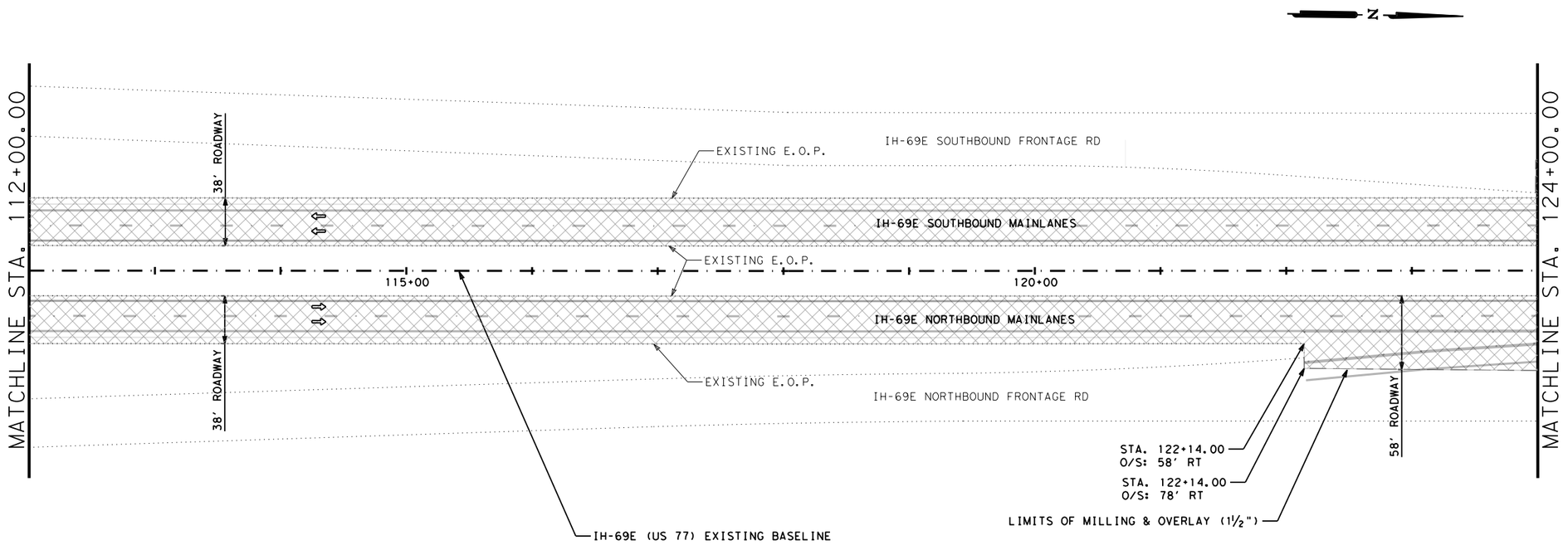


LEGEND

- PROP. 1½" MILLING & OVERLAY
- E.O.P. EDGE OF PAVEMENT
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 102+04 TO STA. 124+00 = 18970 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

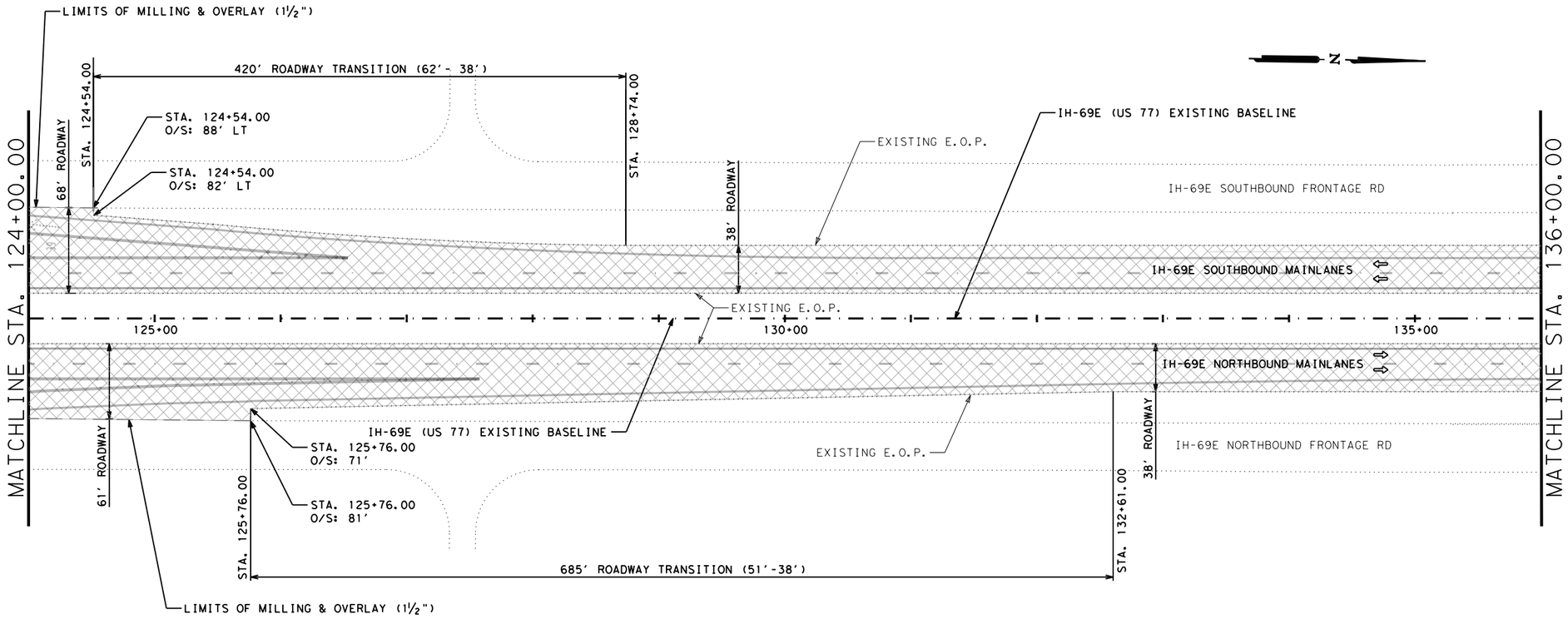
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 2

SHEET 1 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		45

DATE: 7/8/2021 5:10:52 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_01.dgn

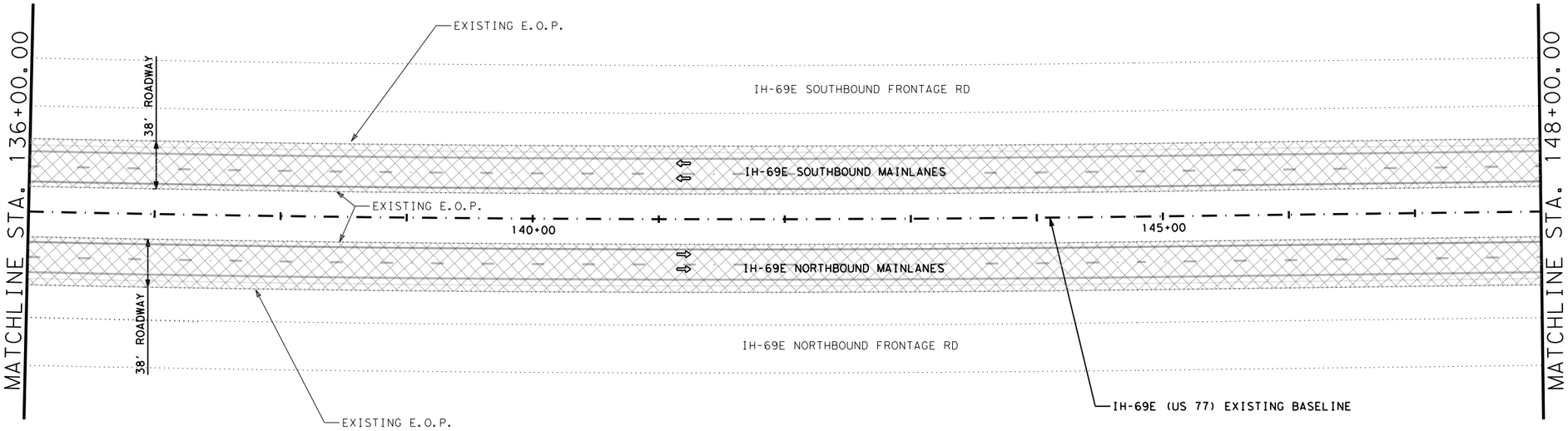


LEGEND

- PROP. 1½" MILLING & OVERLAY
- E.O.P. EDGE OF PAVEMENT
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 124+00 TO STA. 148+00 = 21788 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET): 0 50 100

Pharr District Central Design

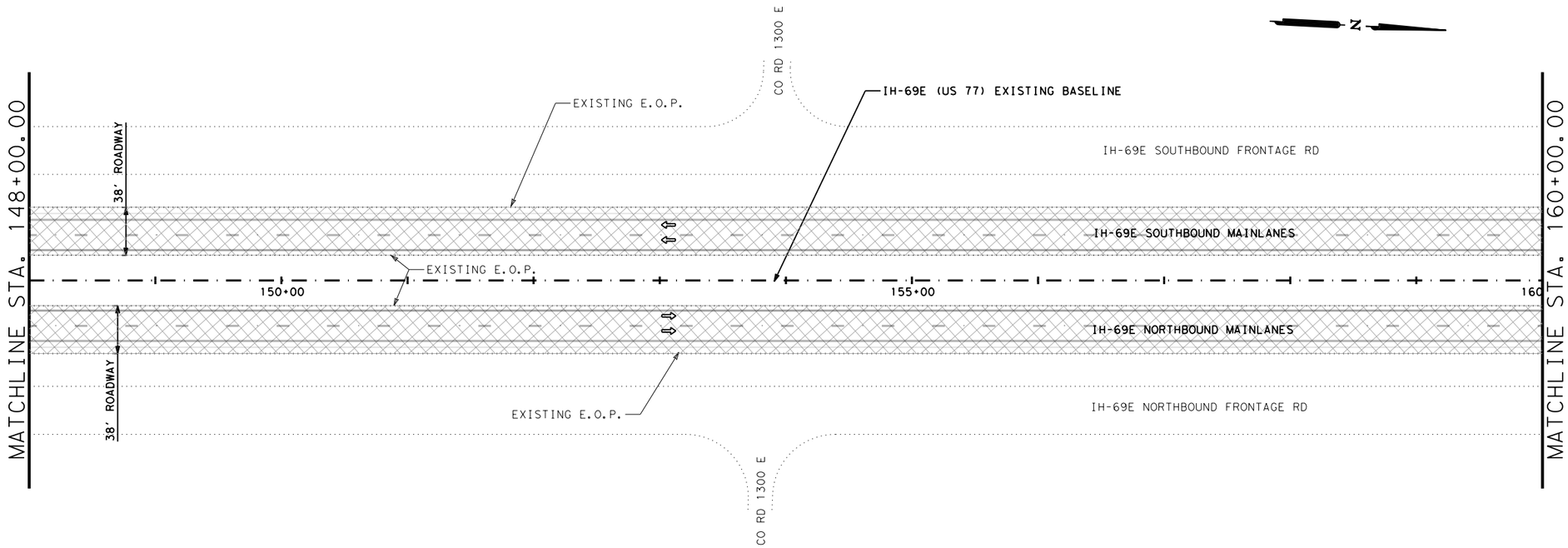
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 2

SHEET 2 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		46

DATE: 7/8/2021 5:10:58 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_02.dgn

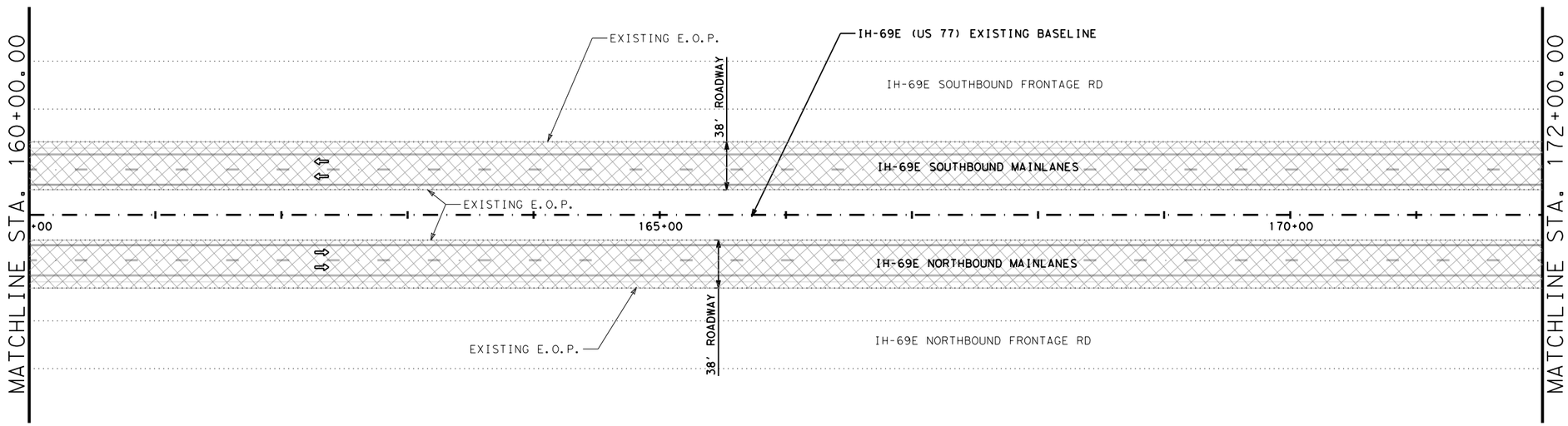


LEGEND

- PROP. 1½" MILLING & OVERLAY
- E.O.P. EDGE OF PAVEMENT
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 148+00 TO STA. 172+00 = 20267 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

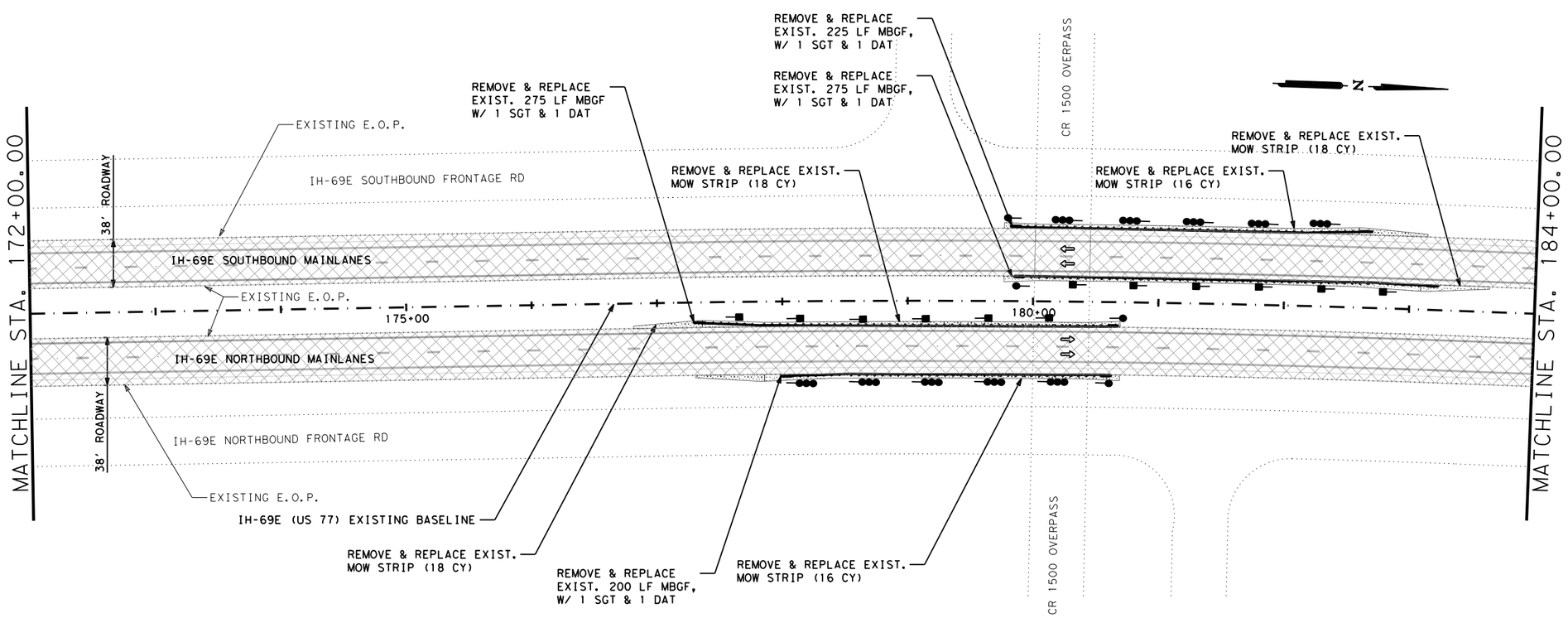
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 2

SHEET 3 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		47

DATE: 7/8/2021 5:11:03 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_03.dgn

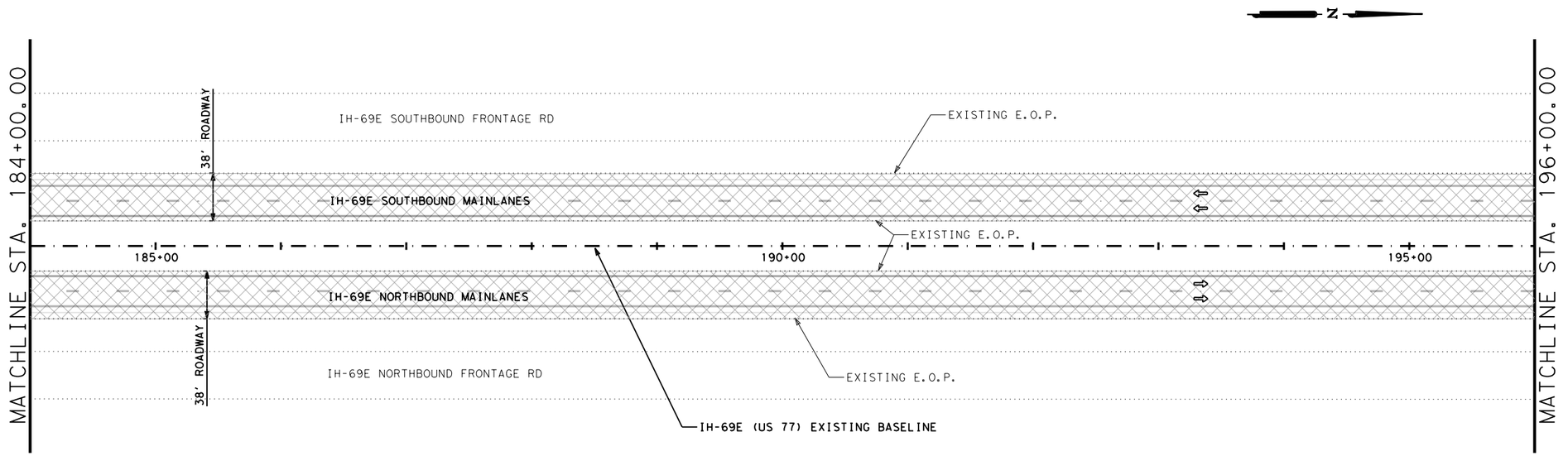


LEGEND

- PROP. 1½" MILLING & OVERLAY
- E.O.P. EDGE OF PAVEMENT
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 172+00 TO STA. 196+00 = 20267 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

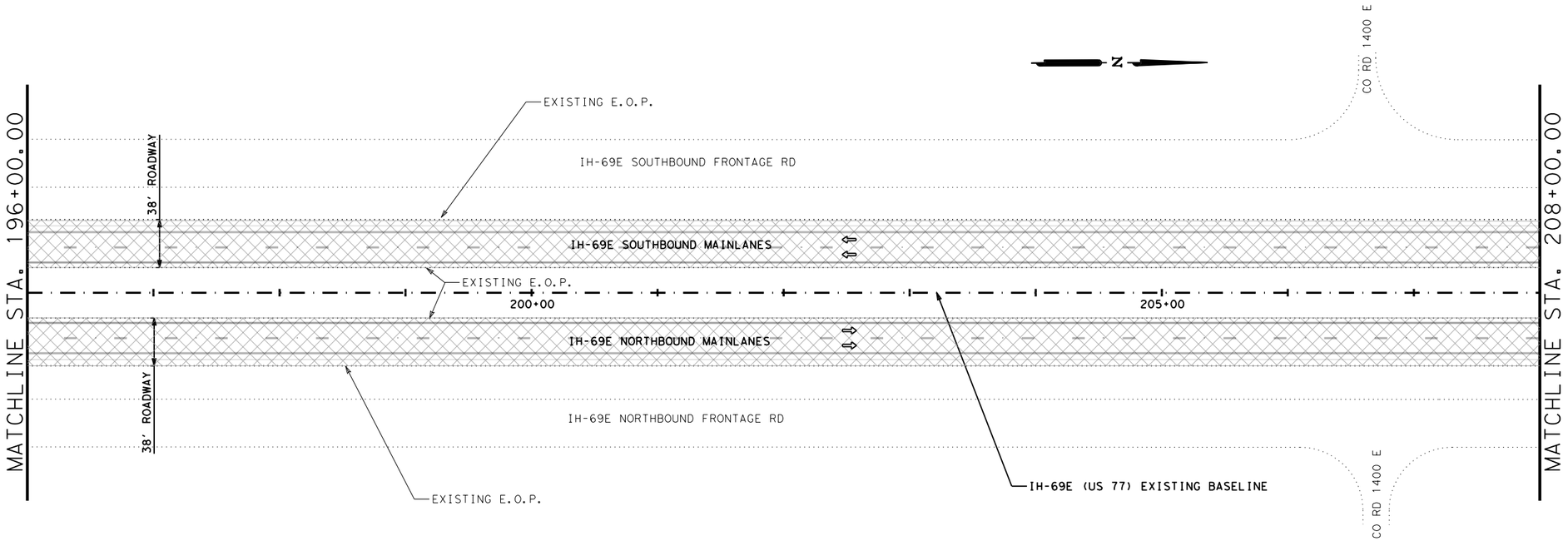
©2019 Texas Department of Transportation

IH-69C, Etc. ROADWAY PLAN LOCATION 2

SHEET 4 OF 9

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		48

DATE: 7/8/2021 5:11:09 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_04.dgn

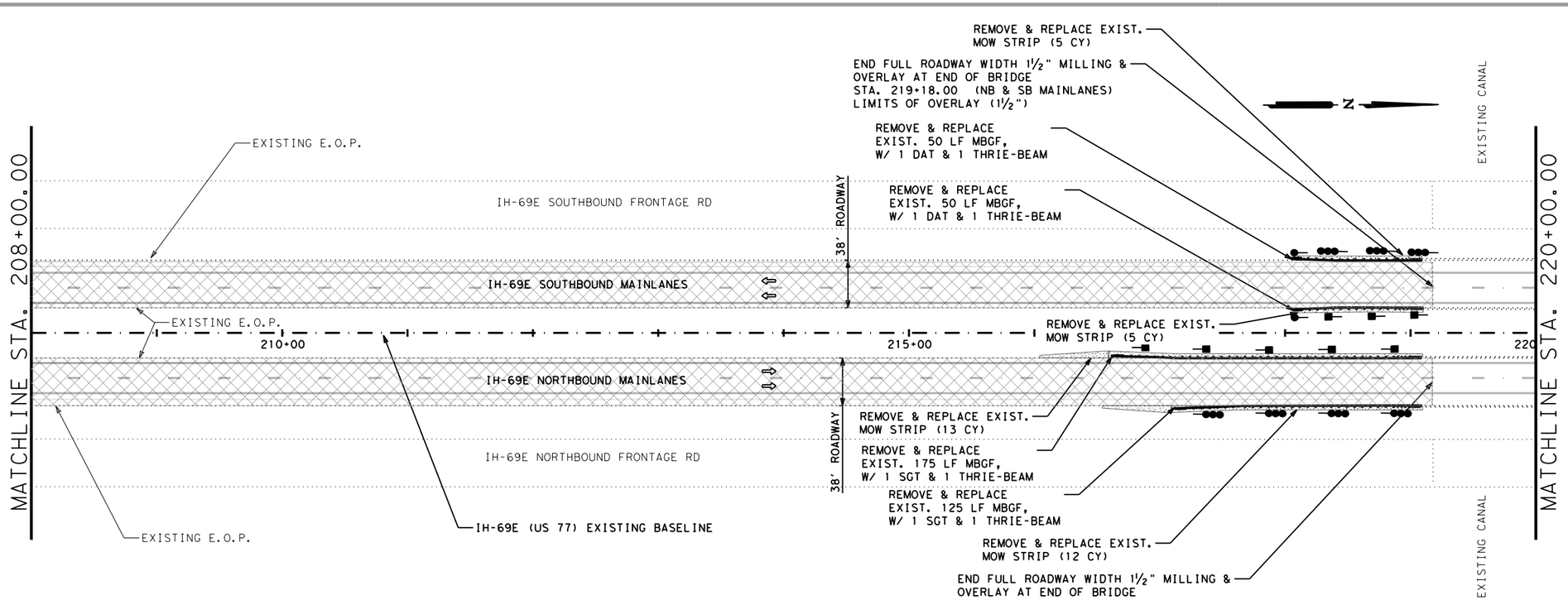


LEGEND

- PROP. 1½" MILLING & OVERLAY
- E.O.P. EDGE OF PAVEMENT
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 196+00 TO STA. 219+18 = 19574 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

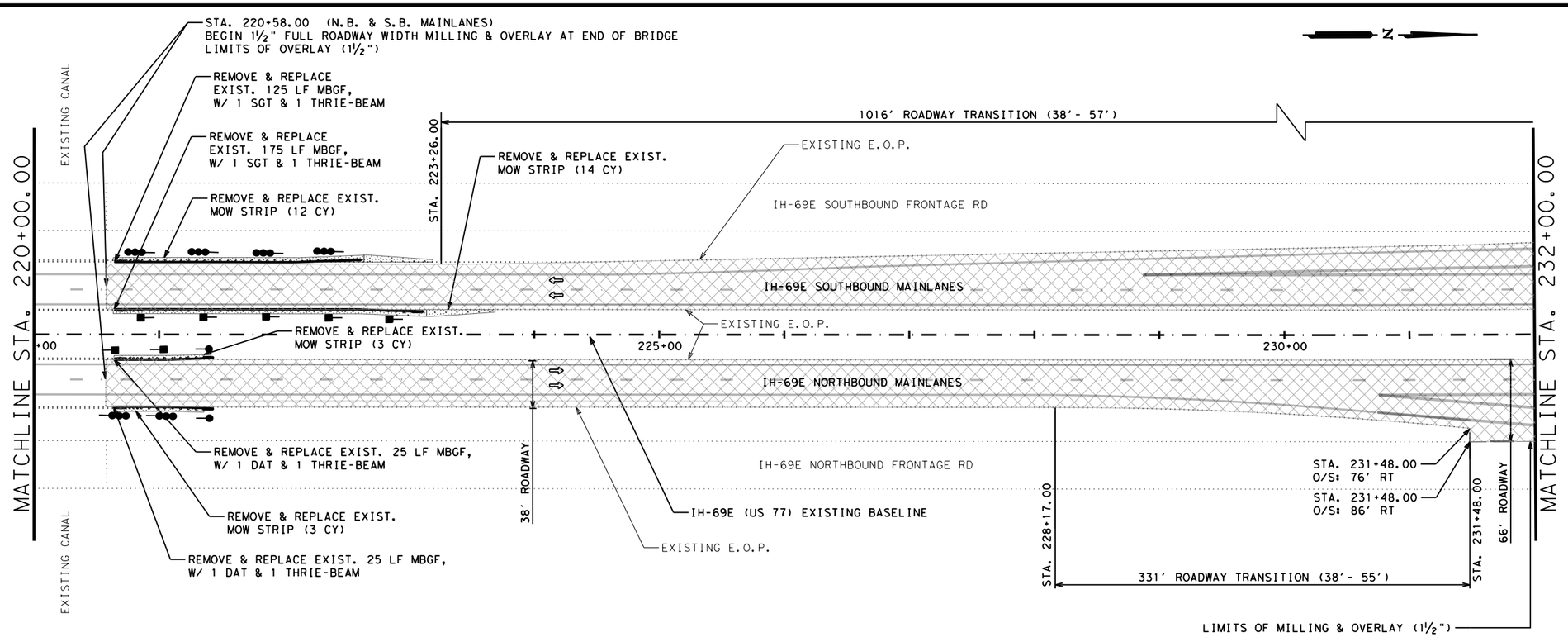
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 2

SHEET 5 OF 9

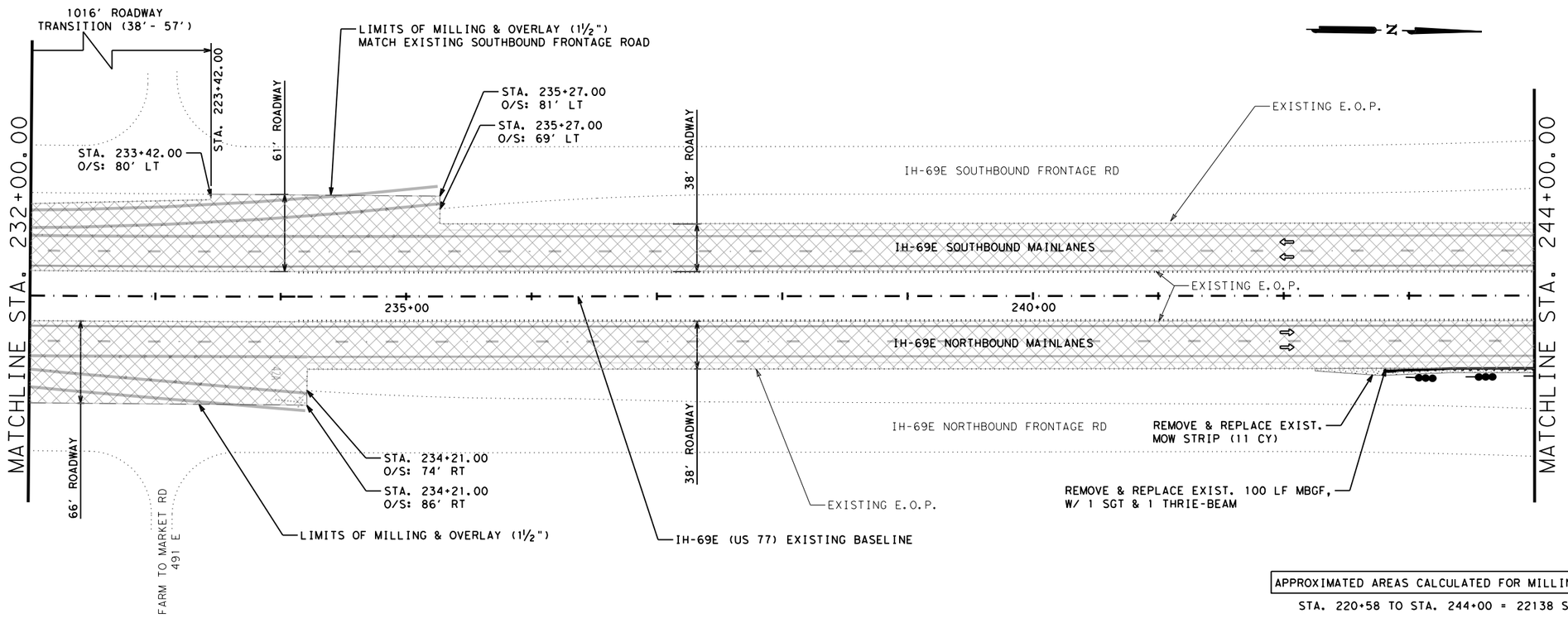
© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		49

DATE: 7/8/2021 5:11:15 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_05.dgn



NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 220+58 TO STA. 244+00 = 22138 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET): 0 50 100

Pharr District Central Design

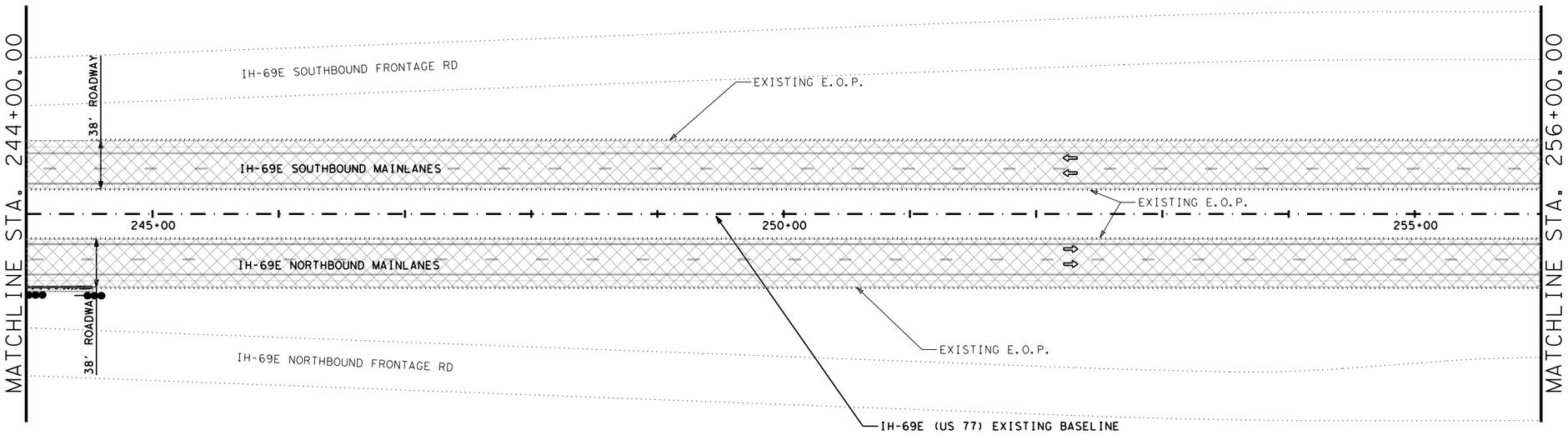
©2019 Texas Department of Transportation

IH-69C, Etc. ROADWAY PLAN LOCATION 2

SHEET 6 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		50

DATE: 7/8/2021 5:11:21 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_06.dgn

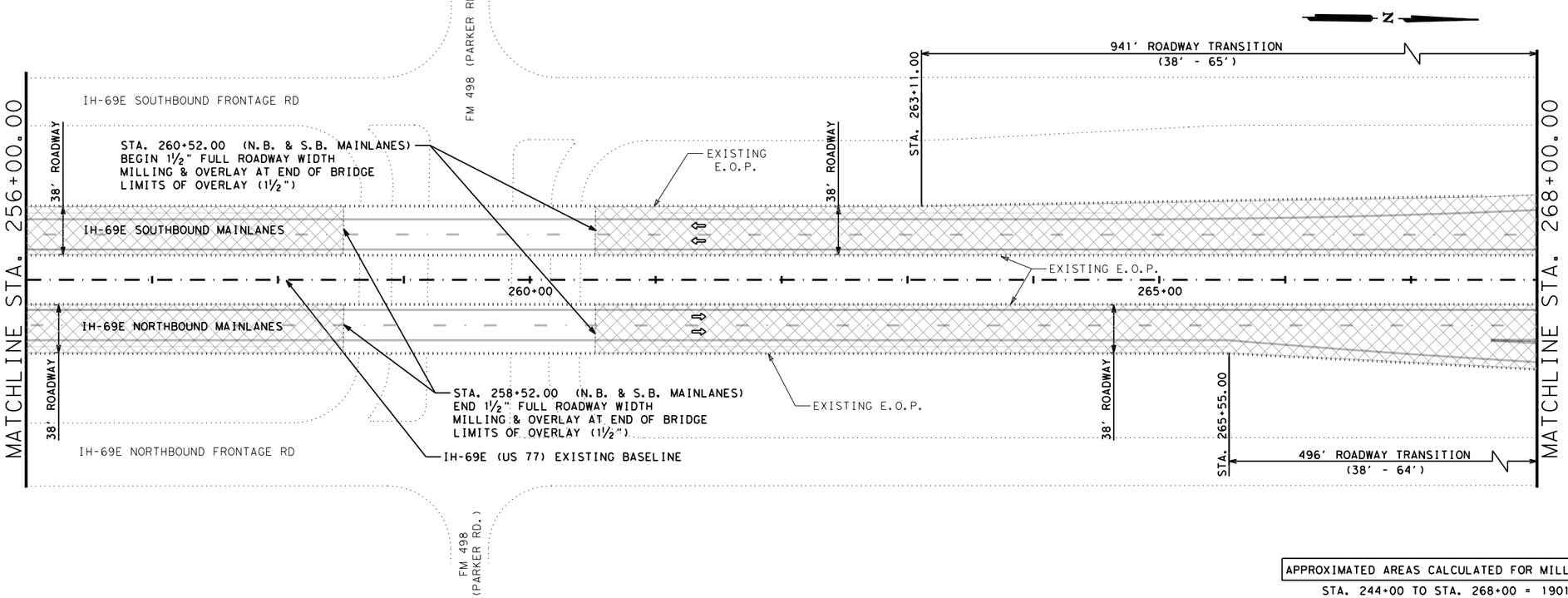


LEGEND

- PROP. 1½" MILLING & OVERLAY
- E.O.P. EDGE OF PAVEMENT
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 244+00 TO STA. 268+00 = 19010 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):

0 50 100

Pharr District Central Design

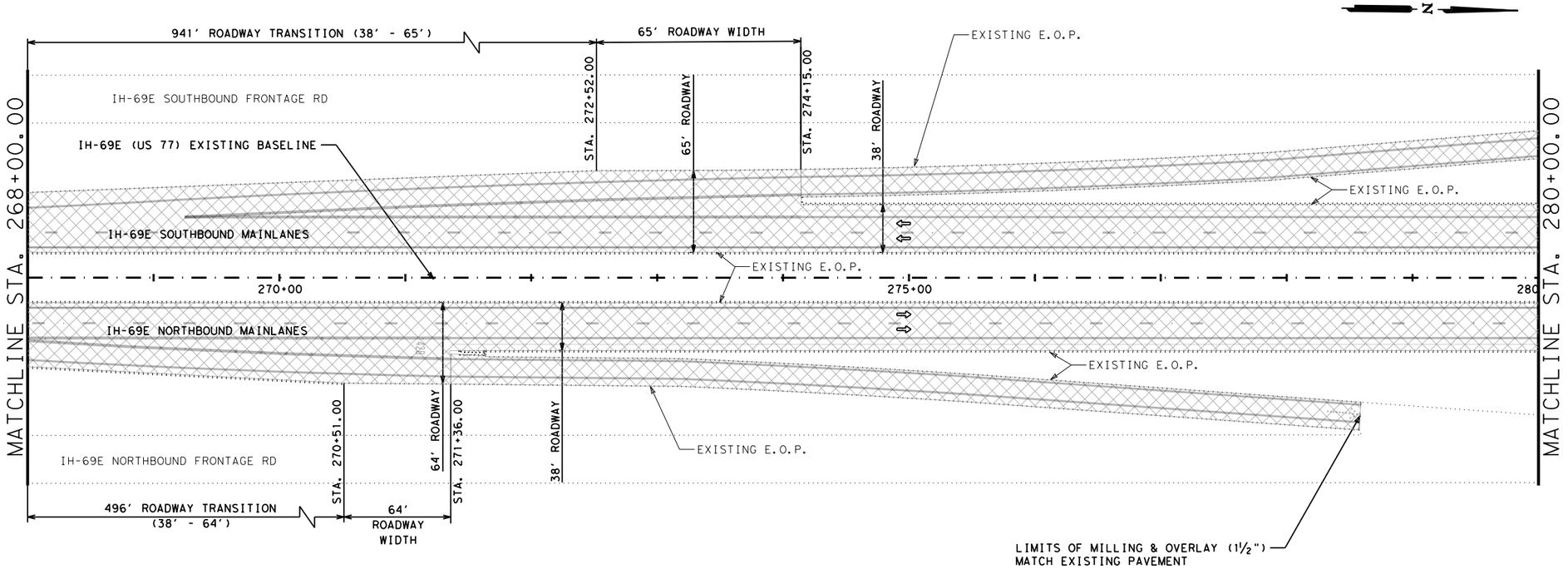
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 2

SHEET 7 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		51

DATE: 7/8/2021 5:11:27 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_07.dgn

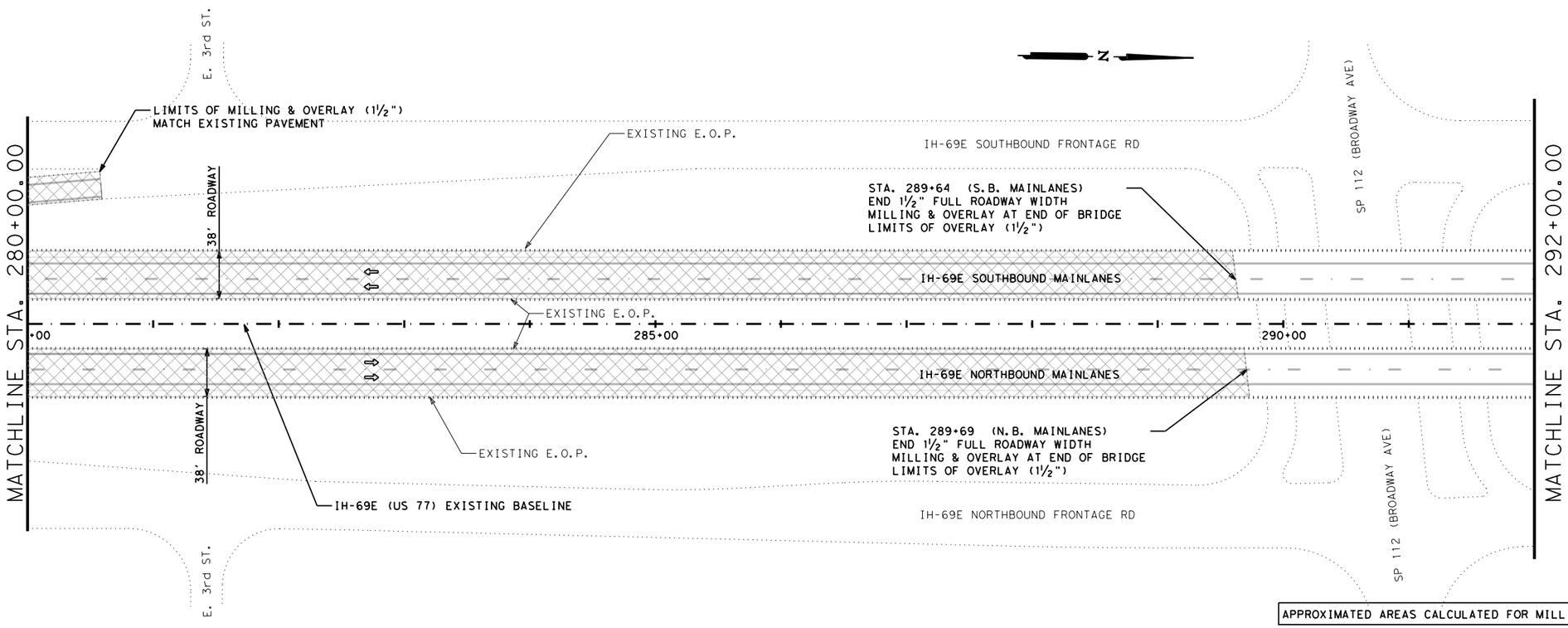


LEGEND

- PROP. 1½" MILLING & OVERLAY
- E.O.P. EDGE OF PAVEMENT
- TRAFFIC FLOW (TYP.)
- OBJECT MARKER TY 2
- DELIN. D-SY
- DELIN. D-SW

NOTES:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 268+00 TO STA. 289+69 = 22390 SY

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET): 0 50 100

Pharr District Central Design

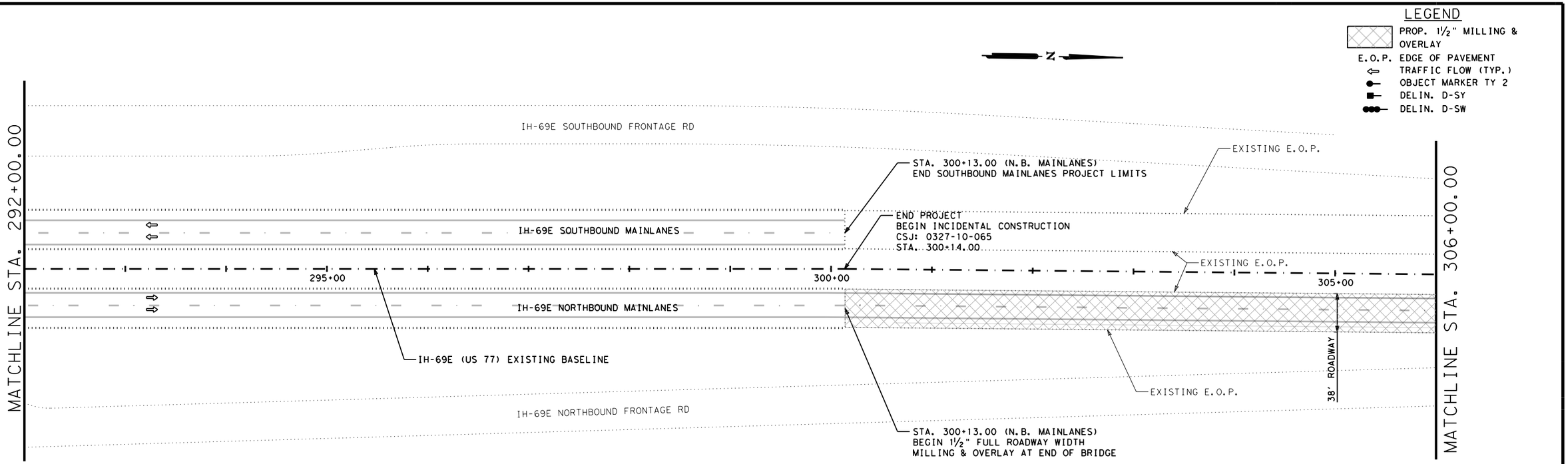
©2019 Texas Department of Transportation

IH-69C, Etc.
ROADWAY PLAN
LOCATION 2

SHEET 8 OF 9

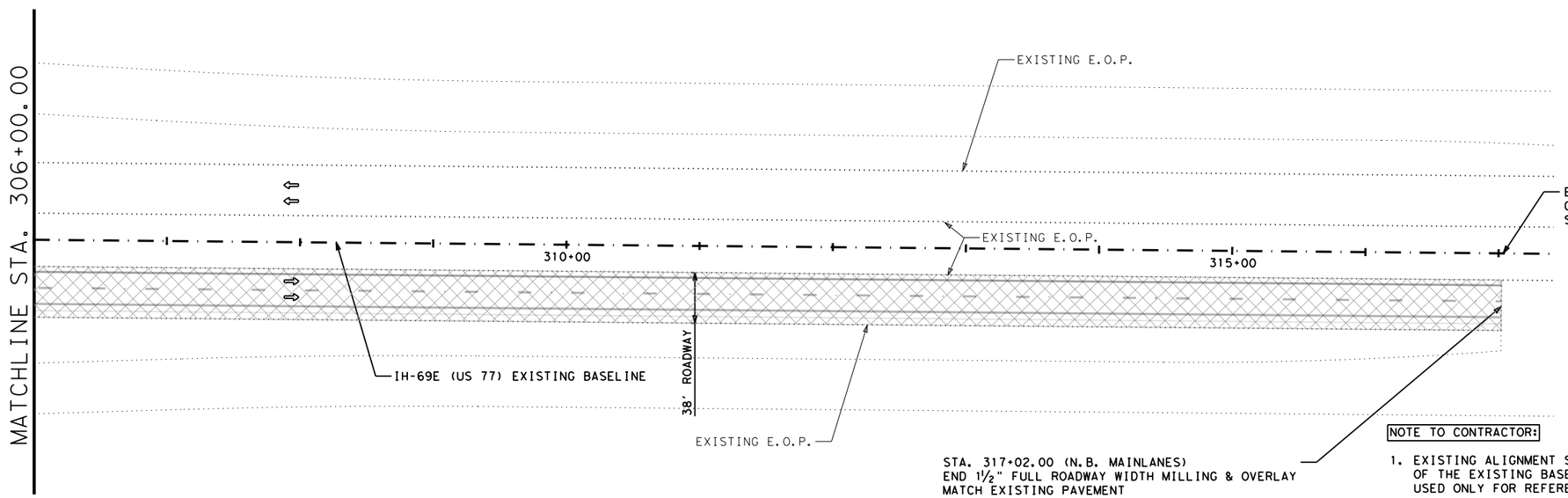
© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		52

DATE: 7/8/2021 5:11:33 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_08.dgn



APPROXIMATED AREAS CALCULATED FOR MILLING (SY)

STA. 300+13 TO STA. 316+03 = 6711 SY



NOTE TO CONTRACTOR:

1. EXISTING ALIGNMENT SHOWN IS A BEST-FIT OF THE EXISTING BASELINE AND IS TO BE USED ONLY FOR REFERENCE PURPOSES.
2. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. ALL OFFSETS ARE MEASURED FROM IH-69E (US 77) EXISTING BASELINE.
4. REFER TO D&OM STANDARDS FOR DELINEATOR & OBJECT MARKER SPACING.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

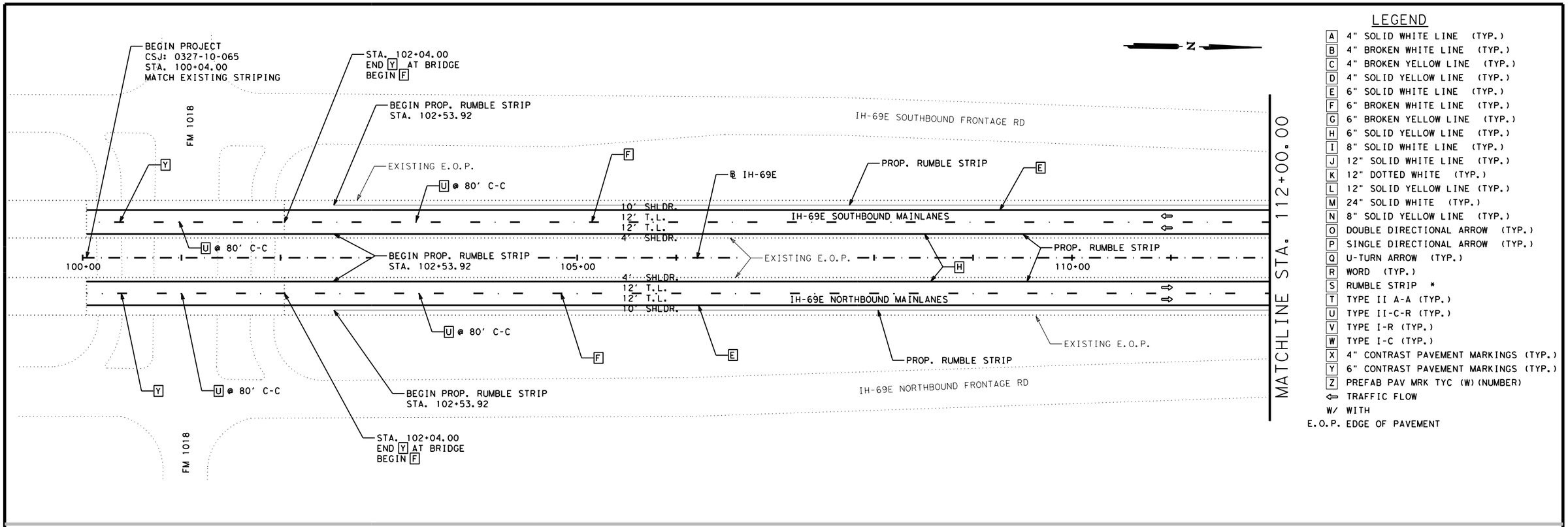
©2019 Texas Department of Transportation

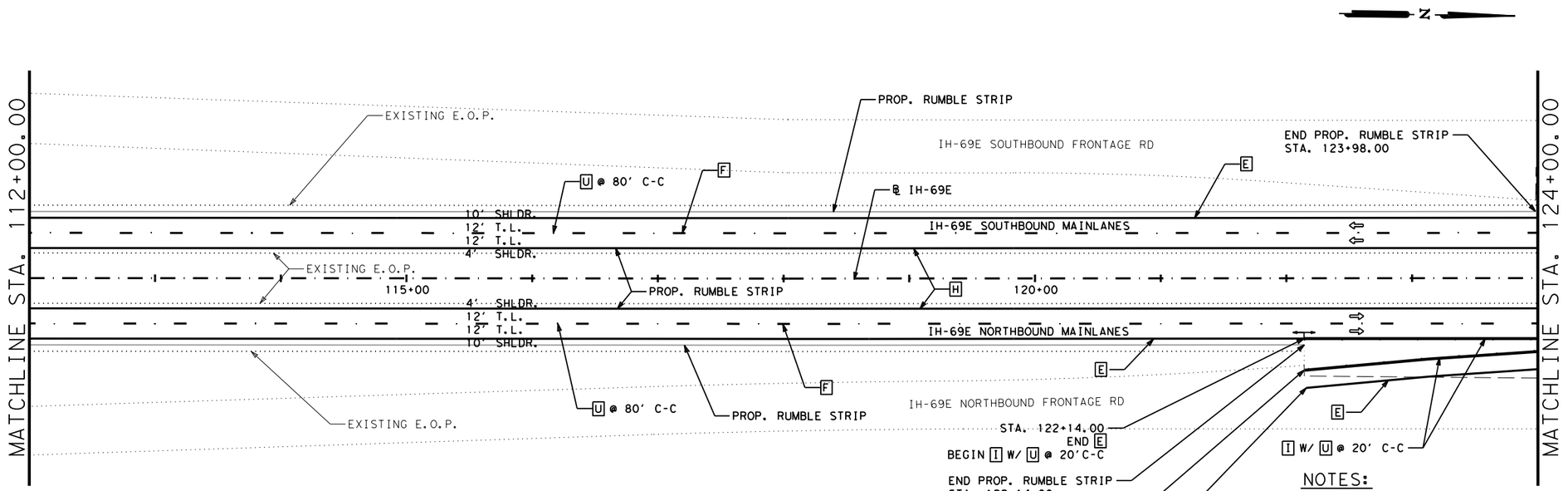
IH-69C, Etc.
ROADWAY PLAN
LOCATION 2

SHEET 9 OF 9

2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		53

DATE: 7/8/2021 5:11:38 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351577\MILLINGLO_09.dgn





NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

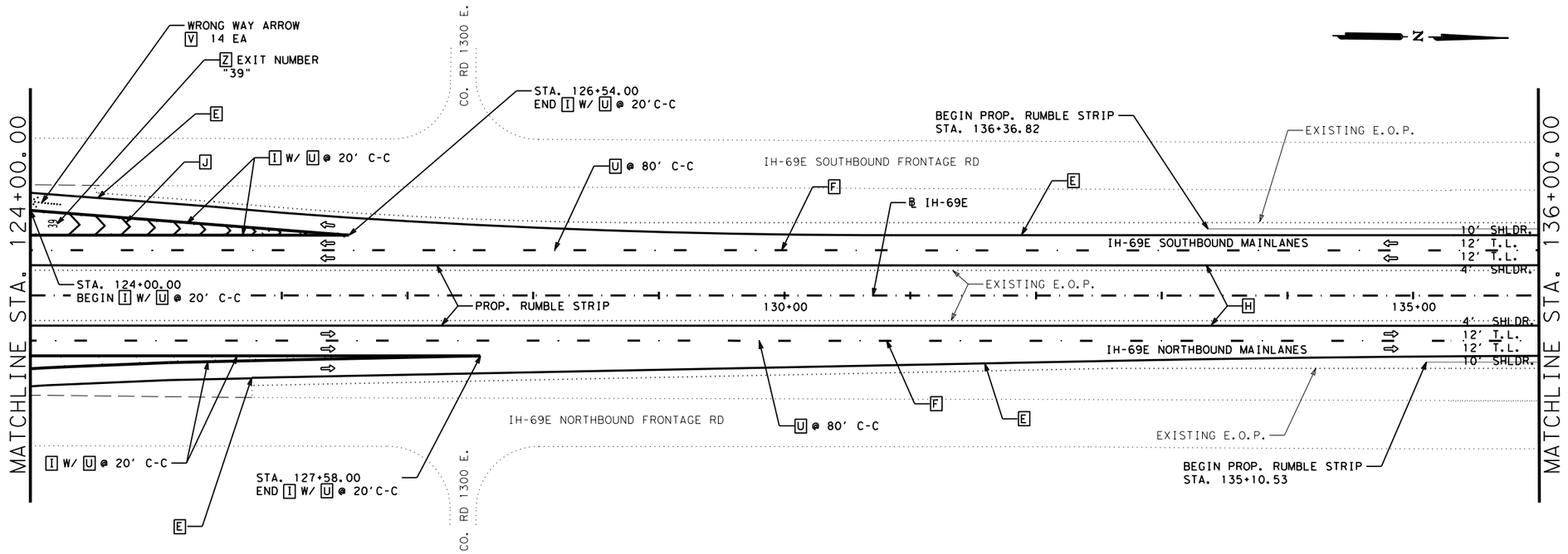
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 2

SHEET 1 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		54

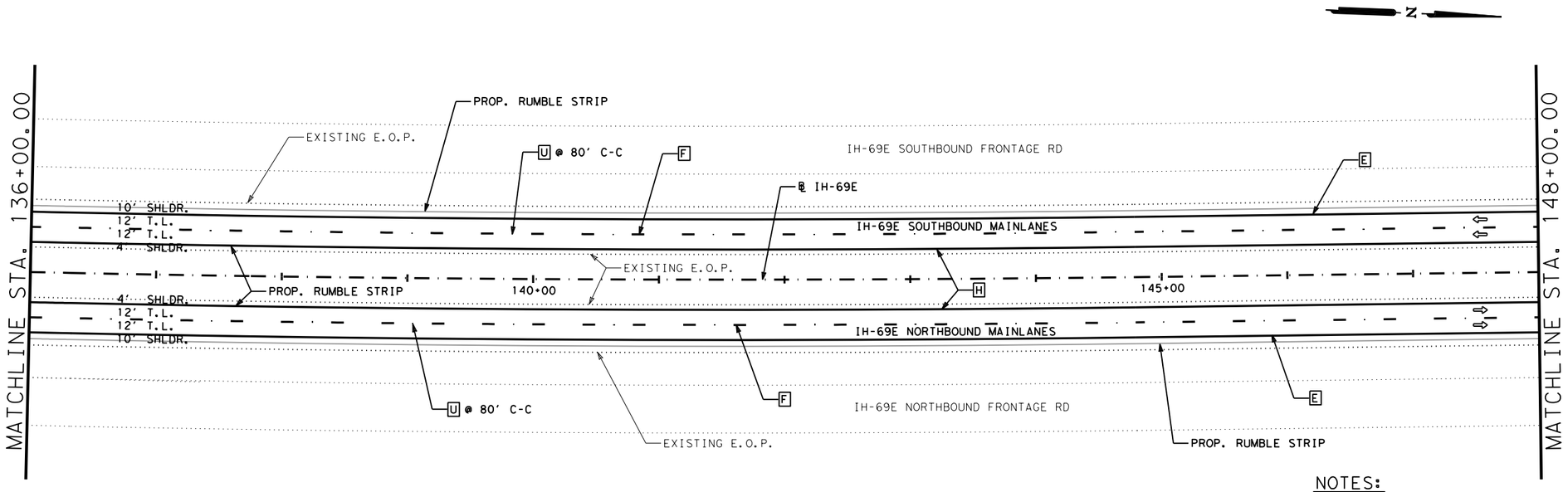
DATE: 7/8/2021 5:11:53 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_01.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)

⇦ TRAFFIC FLOW
W/ WITH
E.O.P. EDGE OF PAVEMENT



NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

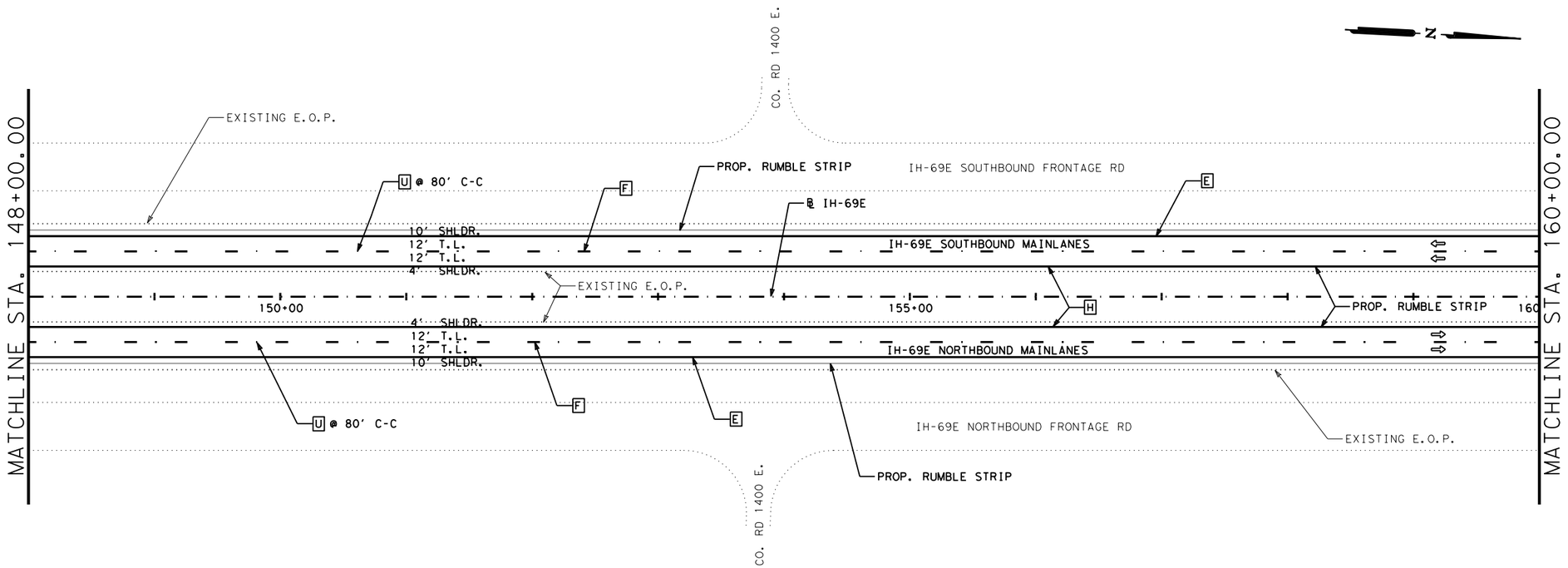
©2019 Texas Department of Transportation

IH-69C, Etc. PAVEMENT MARKING LAYOUTS LOCATION 2

SHEET 2 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		55

DATE: 7/8/2021 5:11:58 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_02.dgn



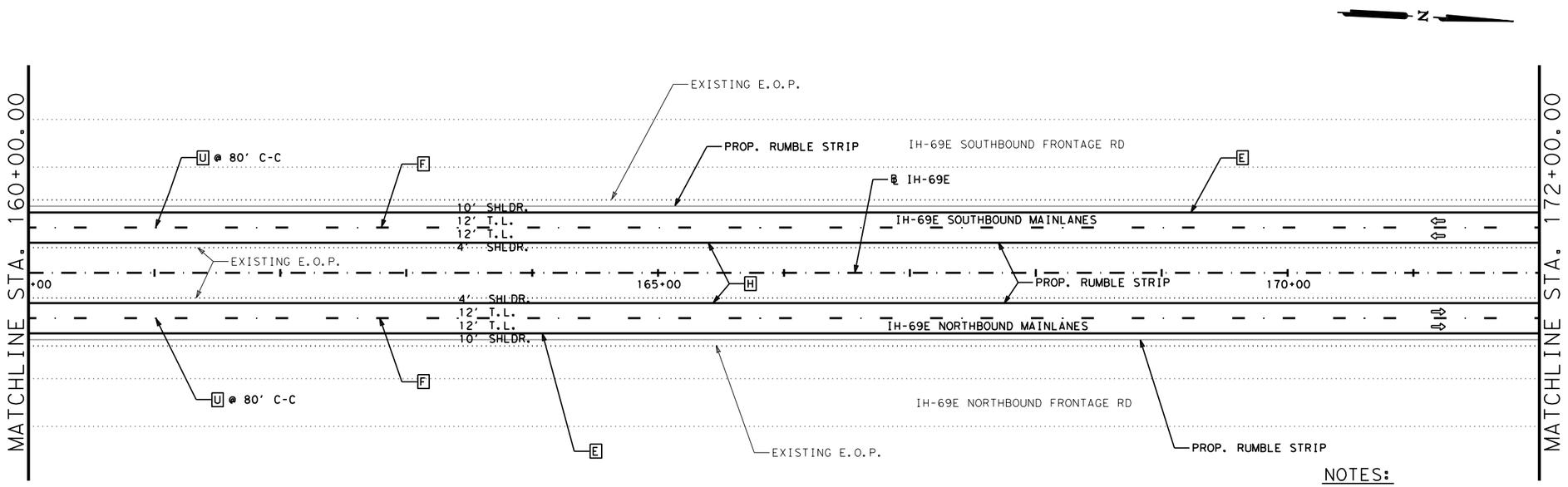
LEGEND

- A 4" SOLID WHITE LINE (TYP.)
- B 4" BROKEN WHITE LINE (TYP.)
- C 4" BROKEN YELLOW LINE (TYP.)
- D 4" SOLID YELLOW LINE (TYP.)
- E 6" SOLID WHITE LINE (TYP.)
- F 6" BROKEN WHITE LINE (TYP.)
- G 6" BROKEN YELLOW LINE (TYP.)
- H 6" SOLID YELLOW LINE (TYP.)
- I 8" SOLID WHITE LINE (TYP.)
- J 12" SOLID WHITE LINE (TYP.)
- K 12" DOTTED WHITE (TYP.)
- L 12" SOLID YELLOW LINE (TYP.)
- M 24" SOLID WHITE (TYP.)
- N 8" SOLID YELLOW LINE (TYP.)
- O DOUBLE DIRECTIONAL ARROW (TYP.)
- P SINGLE DIRECTIONAL ARROW (TYP.)
- Q U-TURN ARROW (TYP.)
- R WORD (TYP.)
- S RUMBLE STRIP *
- T TYPE II A-A (TYP.)
- U TYPE II-C-R (TYP.)
- V TYPE I-R (TYP.)
- W TYPE I-C (TYP.)
- X 4" CONTRAST PAVEMENT MARKINGS (TYP.)
- Y 6" CONTRAST PAVEMENT MARKINGS (TYP.)
- Z PREFAB PAV MRK TYC (W)(NUMBER)

⇦ TRAFFIC FLOW

W/ WITH

E.O.P. EDGE OF PAVEMENT



NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

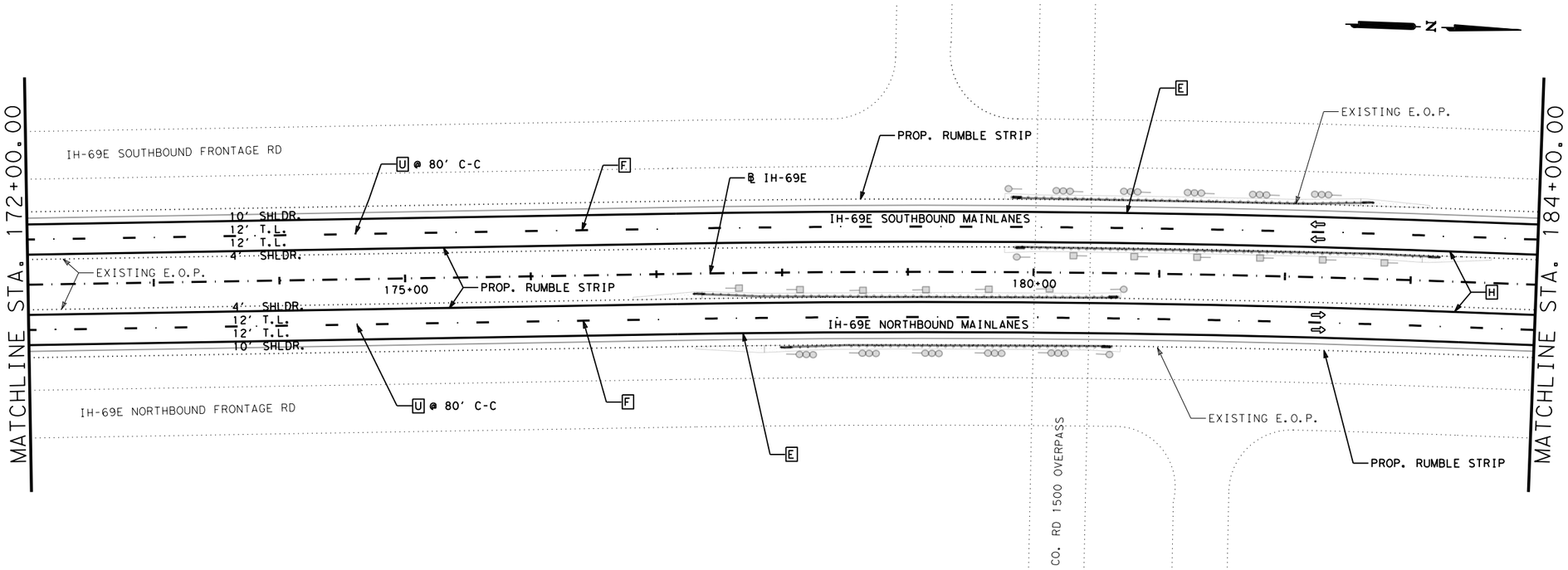
©2019 Texas Department of Transportation

IH-69C, Etc. PAVEMENT MARKING LAYOUTS LOCATION 2

SHEET 3 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		56

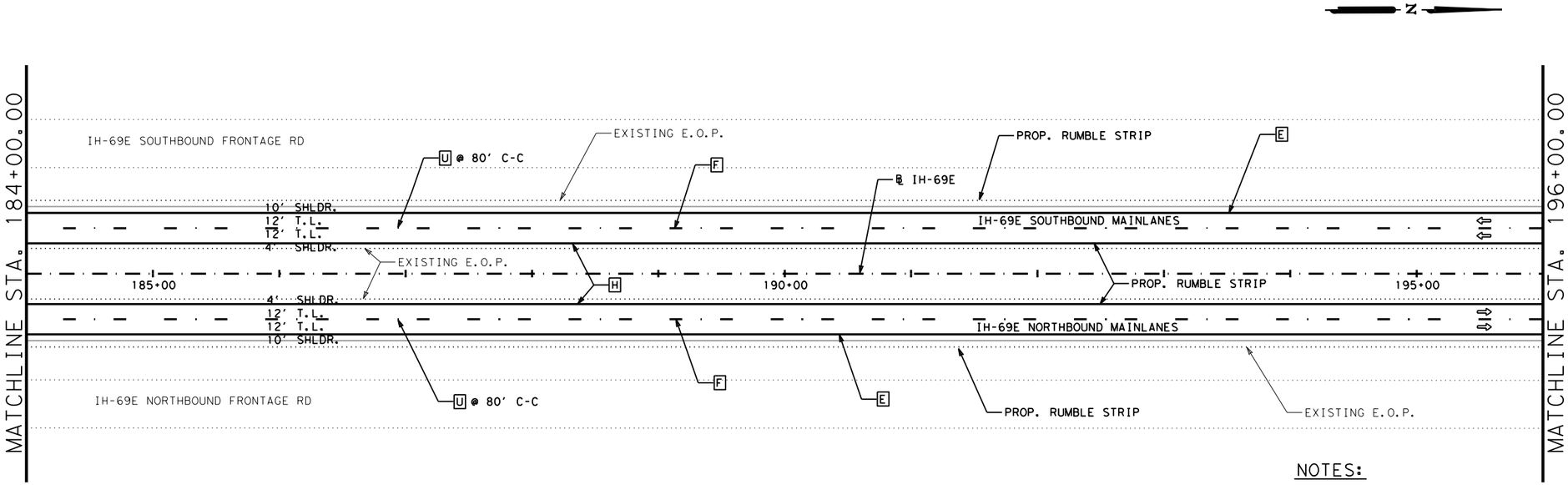
DATE: 7/8/2021 5:12:03 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_03.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)

⇦ TRAFFIC FLOW
W/ WITH
E.O.P. EDGE OF PAVEMENT



NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

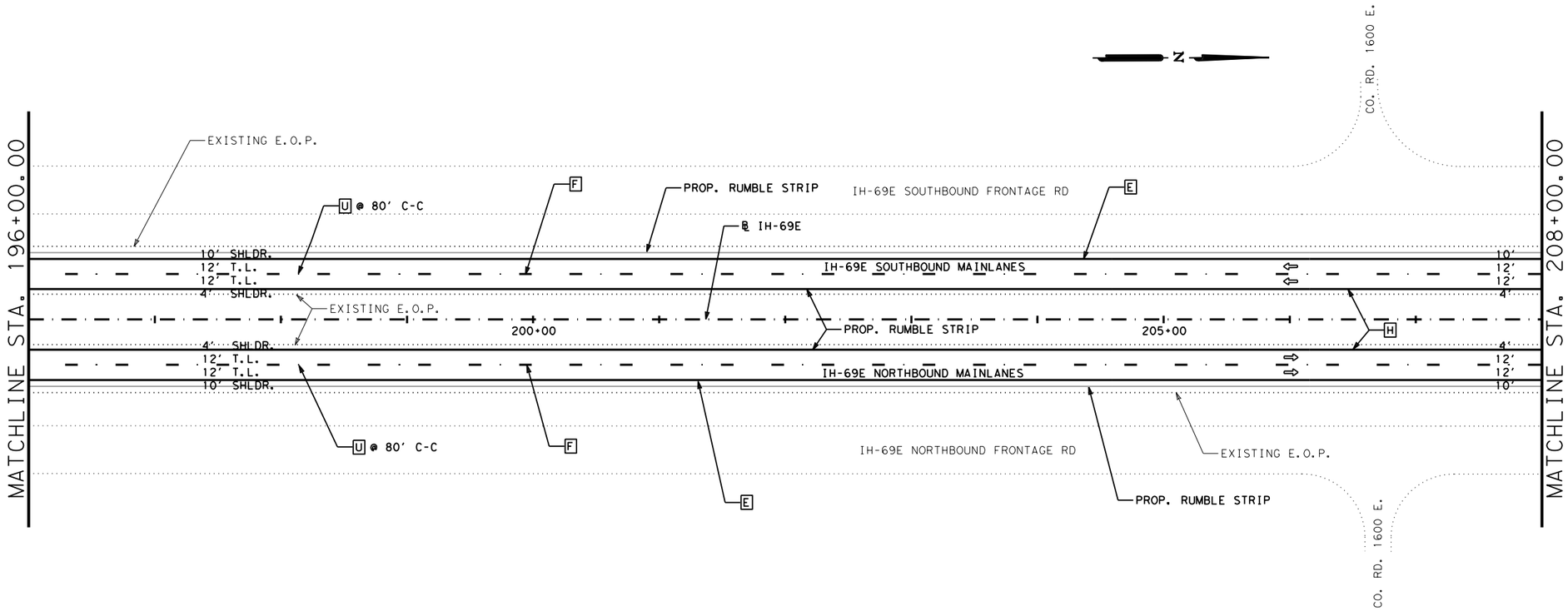
©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 2

SHEET 4 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		57

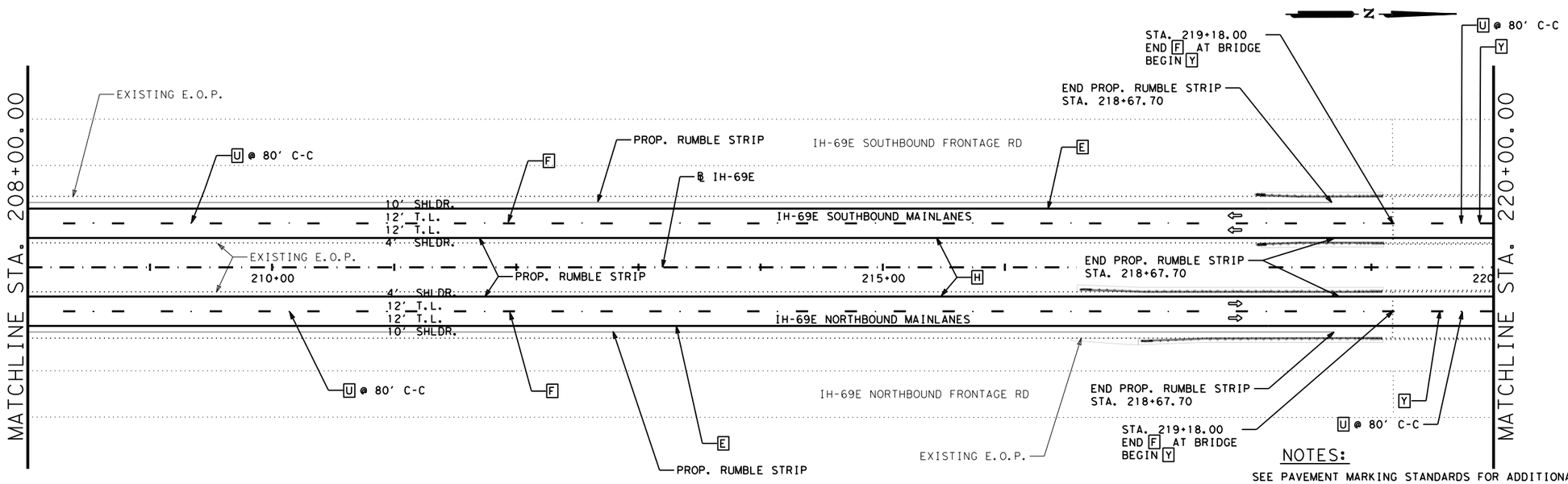
DATE: 7/8/2021 5:12:08 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_04.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)

⇦ TRAFFIC FLOW
W/ WITH
E.O.P. EDGE OF PAVEMENT



NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

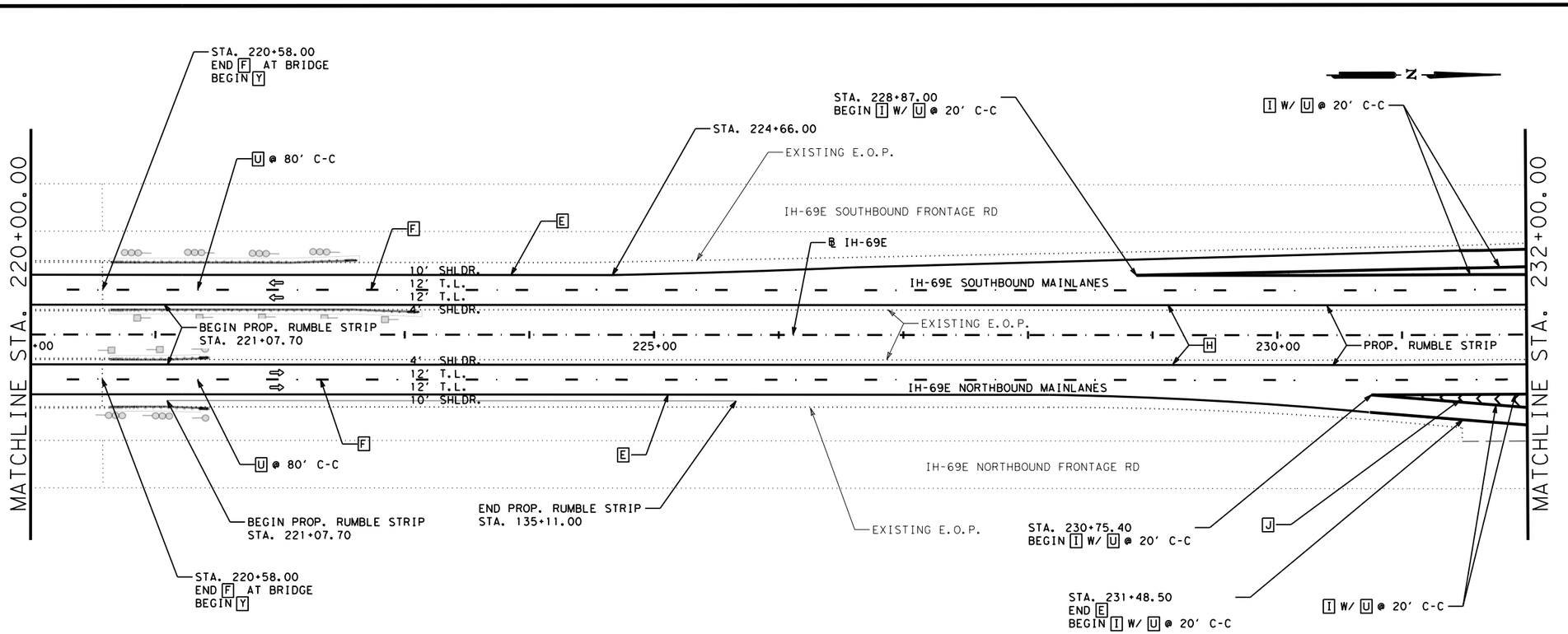
©2019 Texas Department of Transportation

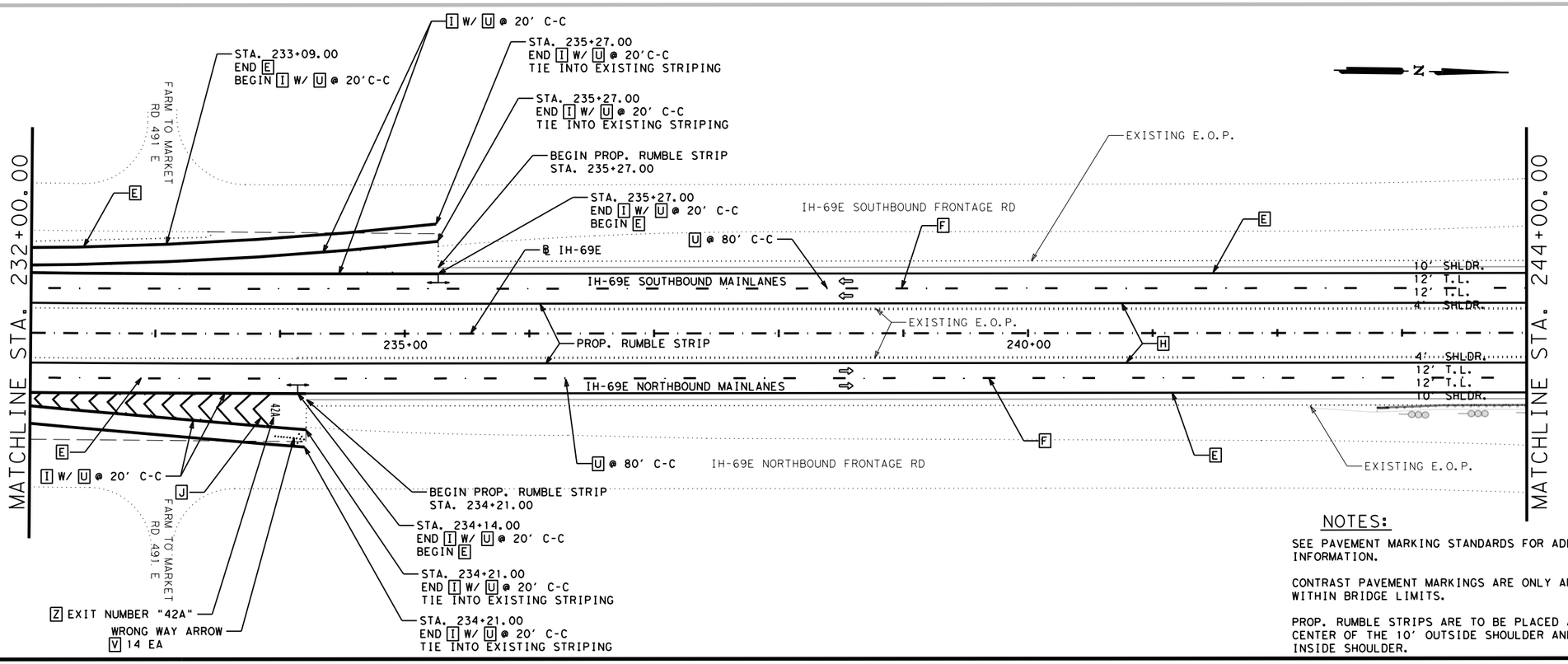
IH-69C, Etc. PAVEMENT MARKING LAYOUTS LOCATION 2

SHEET 5 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		58

DATE: 7/8/2021 5:12:13 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_05.dgn





LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)
⇦	TRAFFIC FLOW

W/ WITH
E.O.P. EDGE OF PAVEMENT

NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

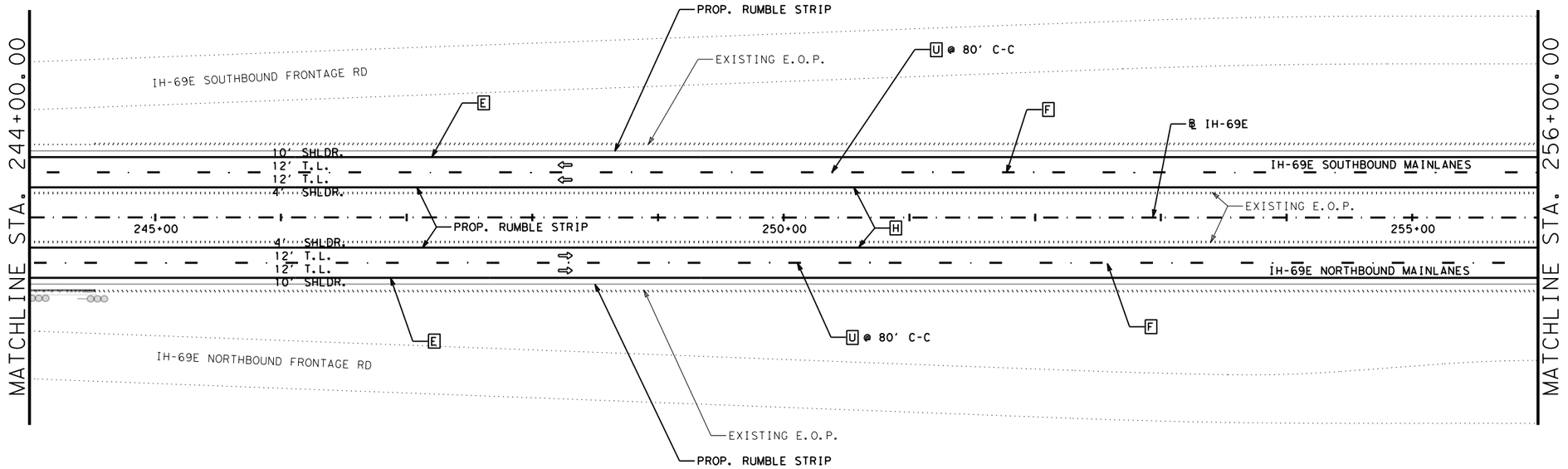
©2019 Texas Department of Transportation

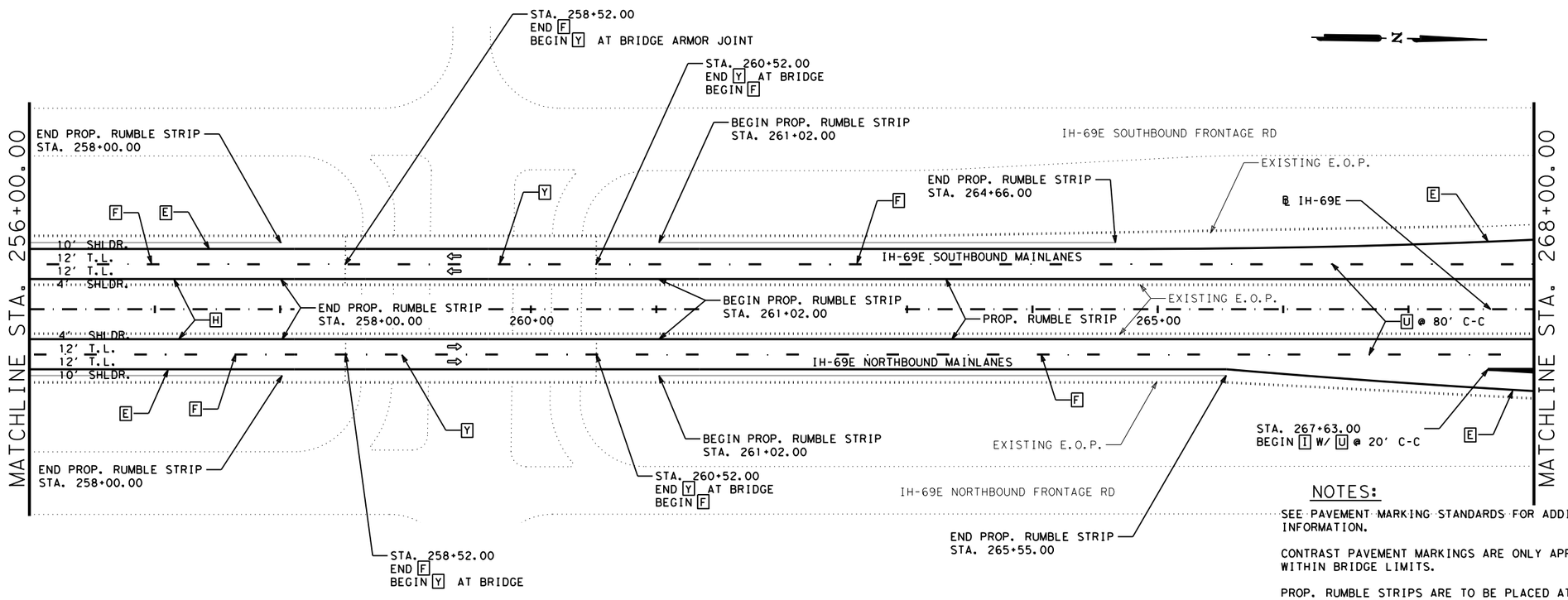
IH-69C, Etc. PAVEMENT MARKING LAYOUTS LOCATION 2

SHEET 6 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		59

DATE: 7/8/2021 5:12:19 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_06.dgn





LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)

⇦ TRAFFIC FLOW
W/ WITH
E.O.P. EDGE OF PAVEMENT

NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

Pharr District Central Design

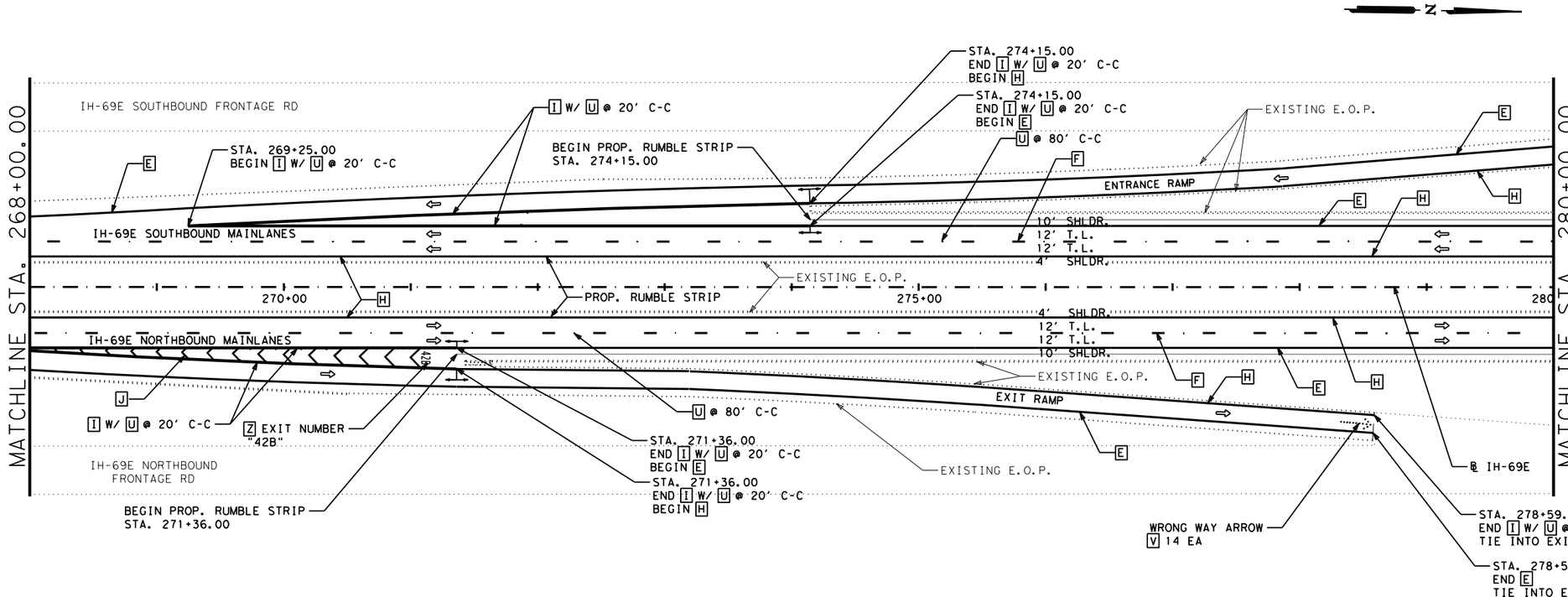
© 2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 2

SHEET 7 OF 9

© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		60

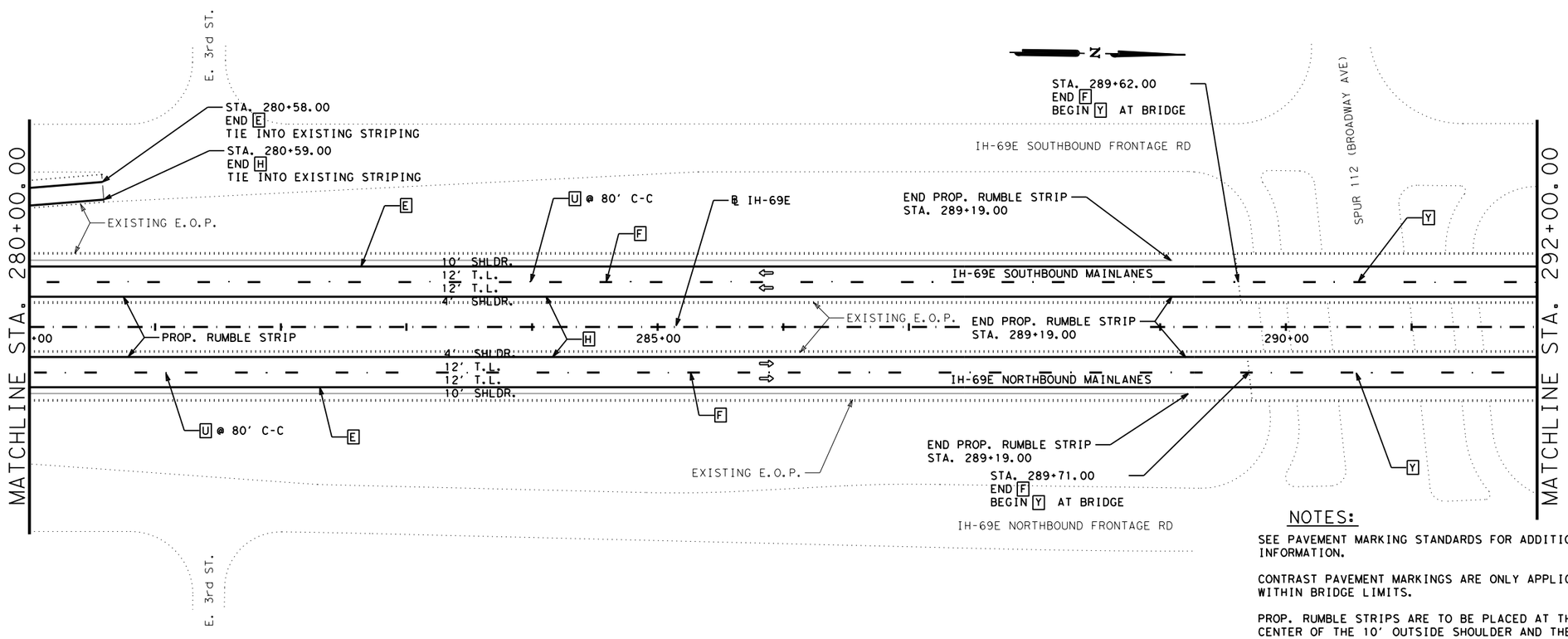
DATE: 7/8/2021 5:12:24 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_07.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)

⇦ TRAFFIC FLOW
W/ WITH
E.O.P. EDGE OF PAVEMENT



STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

Pharr District Central Design

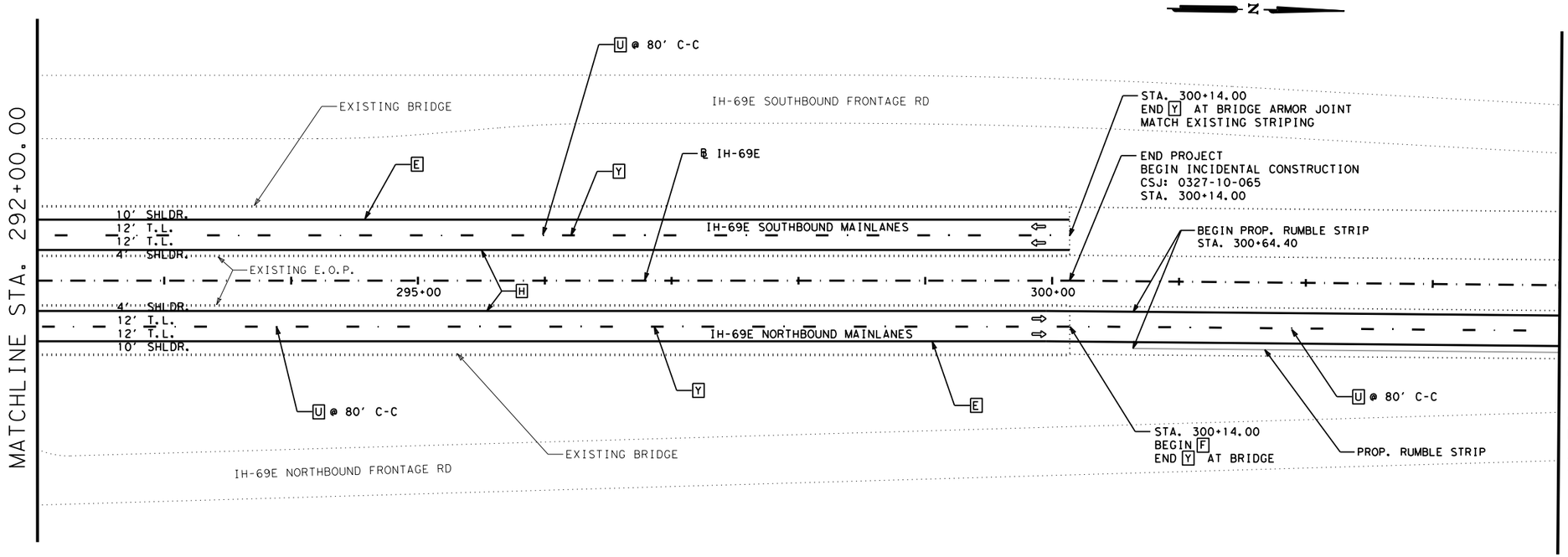
©2019 Texas Department of Transportation

IH-69C, Etc. PAVEMENT MARKING LAYOUTS LOCATION 2

SHEET 8 OF 9

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		61

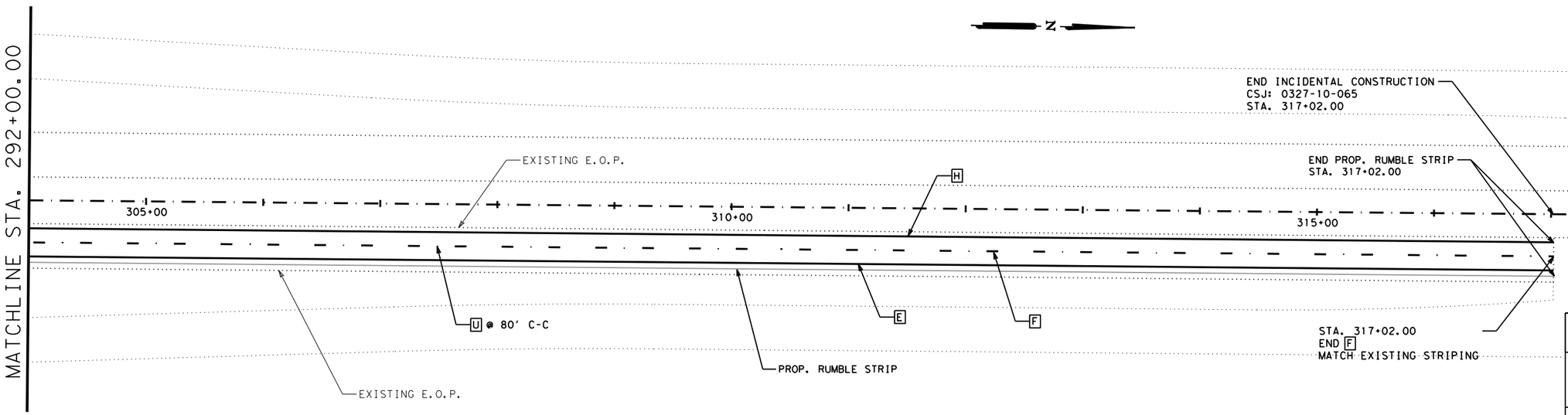
DATE: 7/8/2021 5:12:30 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_08.dgn



LEGEND

A	4" SOLID WHITE LINE (TYP.)
B	4" BROKEN WHITE LINE (TYP.)
C	4" BROKEN YELLOW LINE (TYP.)
D	4" SOLID YELLOW LINE (TYP.)
E	6" SOLID WHITE LINE (TYP.)
F	6" BROKEN WHITE LINE (TYP.)
G	6" BROKEN YELLOW LINE (TYP.)
H	6" SOLID YELLOW LINE (TYP.)
I	8" SOLID WHITE LINE (TYP.)
J	12" SOLID WHITE LINE (TYP.)
K	12" DOTTED WHITE (TYP.)
L	12" SOLID YELLOW LINE (TYP.)
M	24" SOLID WHITE (TYP.)
N	8" SOLID YELLOW LINE (TYP.)
O	DOUBLE DIRECTIONAL ARROW (TYP.)
P	SINGLE DIRECTIONAL ARROW (TYP.)
Q	U-TURN ARROW (TYP.)
R	WORD (TYP.)
S	RUMBLE STRIP *
T	TYPE II A-A (TYP.)
U	TYPE II-C-R (TYP.)
V	TYPE I-R (TYP.)
W	TYPE I-C (TYP.)
X	4" CONTRAST PAVEMENT MARKINGS (TYP.)
Y	6" CONTRAST PAVEMENT MARKINGS (TYP.)
Z	PREFAB PAV MRK TYC (W)(NUMBER)

⇦ TRAFFIC FLOW
W/ WITH
E.O.P. EDGE OF PAVEMENT



STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

SCALE (IN FEET):
0 50 100

NOTES:

SEE PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.

CONTRAST PAVEMENT MARKINGS ARE ONLY APPLICABLE WITHIN BRIDGE LIMITS.

PROP. RUMBLE STRIPS ARE TO BE PLACED AT THE CENTER OF THE 10' OUTSIDE SHOULDER AND THE 4' INSIDE SHOULDER.

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc.
PAVEMENT MARKING LAYOUTS
LOCATION 2

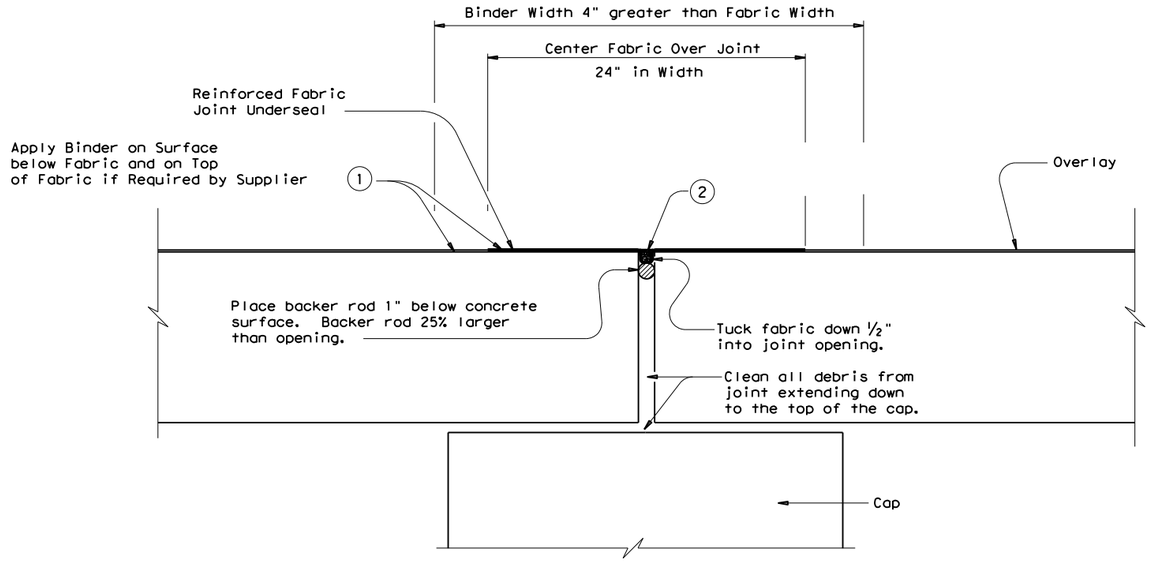
SHEET 9 OF 9

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		62

DATE: 7/8/2021 5:12:35 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351325\STRIPELO_09.dgn

TABLE 1

LOCATION No.	STRUCTURE NUMBER	FEATURE INTERSECTED	DIRECTION OF TRAFFIC	BRIDGE JOINT LOCATED ON:	CLEAR WIDTH (FT)
1	21-109-0-0255-08-071	NOLANA LOOP	NORTHBOUND	APPROACH	
				DEPARTURE	70'
1	21-109-0-0255-08-072	NOLANA LOOP	SOUTHBOUND	APPROACH	70'
				DEPARTURE	
1	21-109-0-0255-08-271	OWASSA RD.	NORTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-109-0-0255-08-272	OWASSA RD.	SOUTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-109-0-0255-08-261	TRENTON RD.	NORTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-109-0-0255-08-262	TRENTON RD.	SOUTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-109-0-0255-08-267	S. VETERANS BLVD.	NORTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-109-0-0255-08-268	S. VETERANS BLVD.	SOUTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-109-0-0255-08-265	CANTON RD.	NORTHBOUND	APPROACH	80'
				DEPARTURE	80'
1	21-109-0255-08-266	CANTON RD.	SOUTHBOUND	APPROACH	80'
				DEPARTURE	80'
1	21-109-0-0255-08-060	FREDDY GONZALEZ DR.	NORTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-108-0-0255-08-061	FREDDY GONZALEZ DR.	SOUTHBOUND	APPROACH	70'
				DEPARTURE	70'
1	21-109-0-0255-08-058	SPRAGUE ST.	NORTHBOUND	APPROACH	70'
				DEPARTURE	
1	21-109-0-0255-08-059	SPRAGUE ST.	SOUTHBOUND	APPROACH	
				DEPARTURE	70'
2	21-245-0-0327-10-060	FM 1018	NORTHBOUND	APPROACH	
				DEPARTURE	38'
2	21-245-0-0327-10-061	FM 1018	SOUTHBOUND	APPROACH	38'
				DEPARTURE	
2	21-245-0-0327-10-218	IRRIGATION CANAL	NORTHBOUND	APPROACH	38'
				DEPARTURE	38'
2	21-245-0-0327-10-219	IRRIGATION CANAL	SOUTHBOUND	APPROACH	38'
				DEPARTURE	38'
2	21-245-0-0327-10-052	FM 498	NORTHBOUND	APPROACH	38'
				DEPARTURE	38'
2	21-245-0-0327-10-053	FM 498	SOUTHBOUND	APPROACH	38'
				DEPARTURE	38'
2	21-245-0-0327-10-054	SPUR 112	NORTHBOUND	APPROACH	38'
				DEPARTURE	38'
2	21-245-0-0327-10-055	SPUR 112	SOUTHBOUND	APPROACH	
				DEPARTURE	38'



FABRIC JOINT SEAL DETAIL

(1) A tack coat must be applied if the surface has been milled.

(2) Placement of Fabric Underseal shall be done at structures listed on Basis of Estimate. As noted on the attached reference plan sheets for IH-69C and IH-69E on Locations 1 & 2.

SEQUENCE OF WORK:

1) Prior to the placement of the fabric joint underseal, clean joint opening of all old expansion materials/devices, bituminour materials, dirt, grease and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints and Cracks."
2) Repair any significant spalled or cracked areas, as determined by the Engineer, around the joint opening with an approved proprietary concrete repair material as Approved by the Engineer. This work will be paid for by "Force Account" or as directed.
3) Place tack coat or binder as required by the fabric joint underseal manufacturer's installation instructions. Place backer rod in joint opening prior to placing tack coat.
4) Place reinforced fabric joint underseal centered over joint opening. Tuck fabric down approximately ½" into the joint opening. Install underseal in accordance with manufacturer's recommendations.
5) When using the self-adhesive type fabric underseal, pressure roll fabric joint underseal to improve adhesion.
6) Just prior to seal coating, fill tucked in portion of underseal with sand flush with surface. Apply a tack coat to fabric joint underseal as required by the manufacturer's installation instructions. Mark location of centerline of joint on curb or barrier as approved.

GENERAL NOTES:

Cleaning of existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting joint opening, and sealing joint is paid for by Item 438, "Cleaning and Sealing Joints and Cracks" and measured by the foot of "Cleaning and Sealing of Existing Joints." Providing and applying tack coat and providing and placing fabric joint underseal is paid for by Item 356, "Fabric Underseal" and measured by the foot of "Pavement Joint Underseal."

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

Provide the reinforced fabric joint underseal in accordance with DMS-6260, "Reinforced Fabric Joint Underseal" or DMS-6220, "Fabric for Underseals."

Provide the Class 3 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers."

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc. BRIDGE FABRIC JOINT UNDERSEAL DETAIL

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		63

DATE: 7/8/2021 5:12:49 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335091\CLEAN JOINT - Revised per Rex 11-14-18 (1).dgn

DATE: 7/8/2021 5:13:03 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

Texas Department of Transportation — Traffic Safety Division Standard

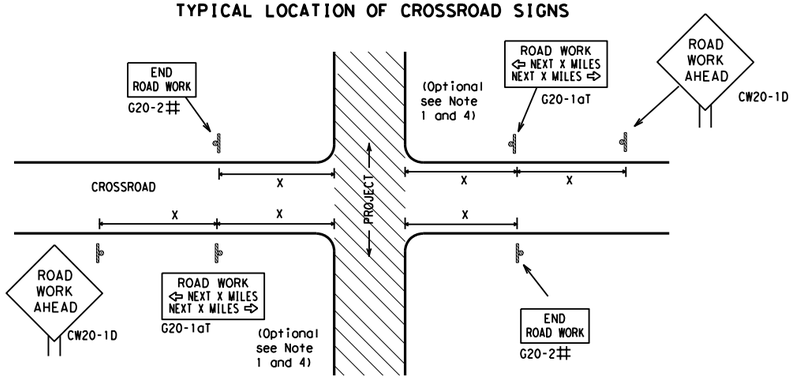
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		64

DATE: 7/8/2021 5:13:04 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

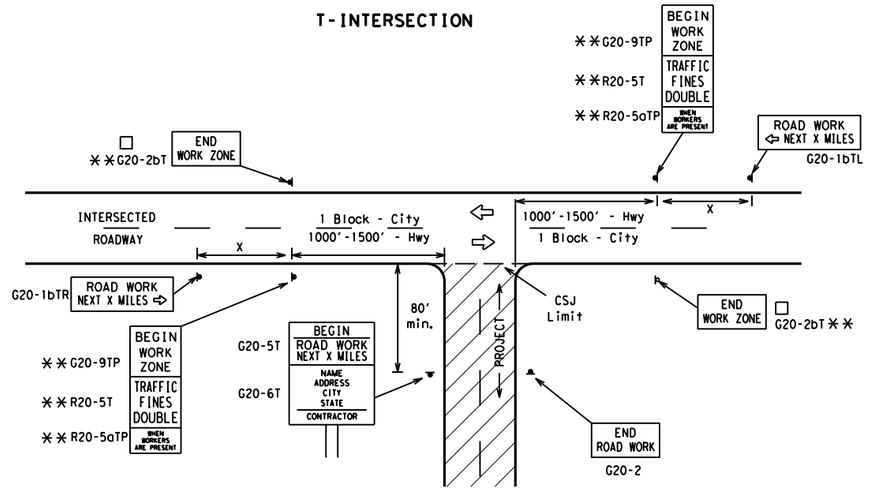
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

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

SIZE

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

SPACING

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

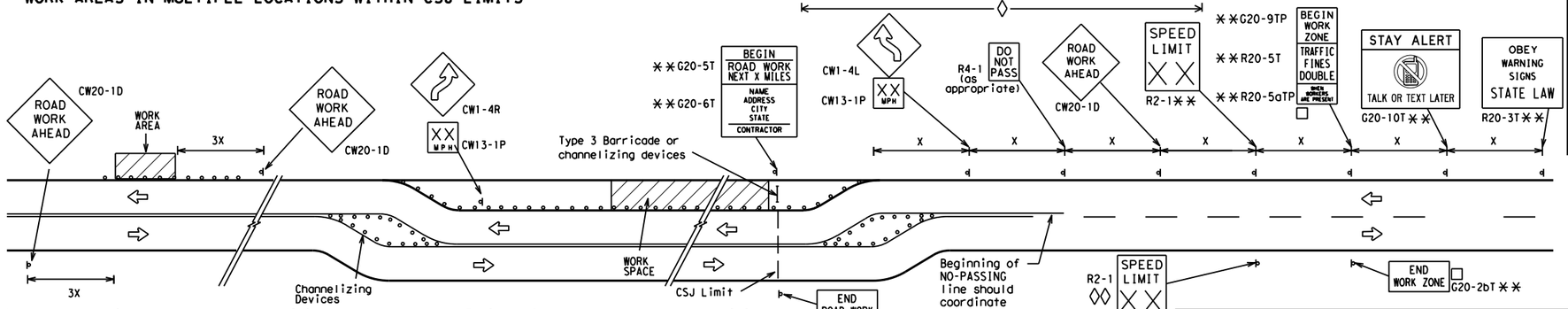
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

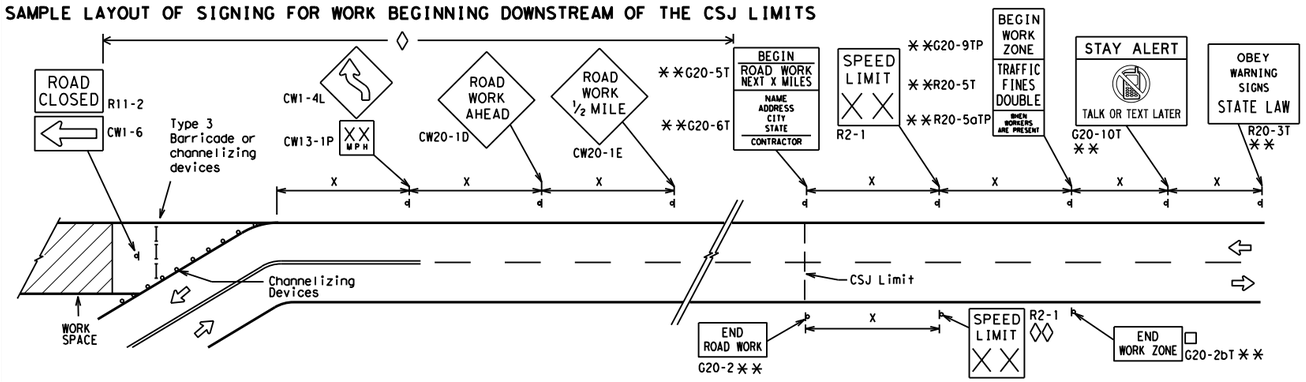
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

NOTES

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

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

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

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

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

LEGEND

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

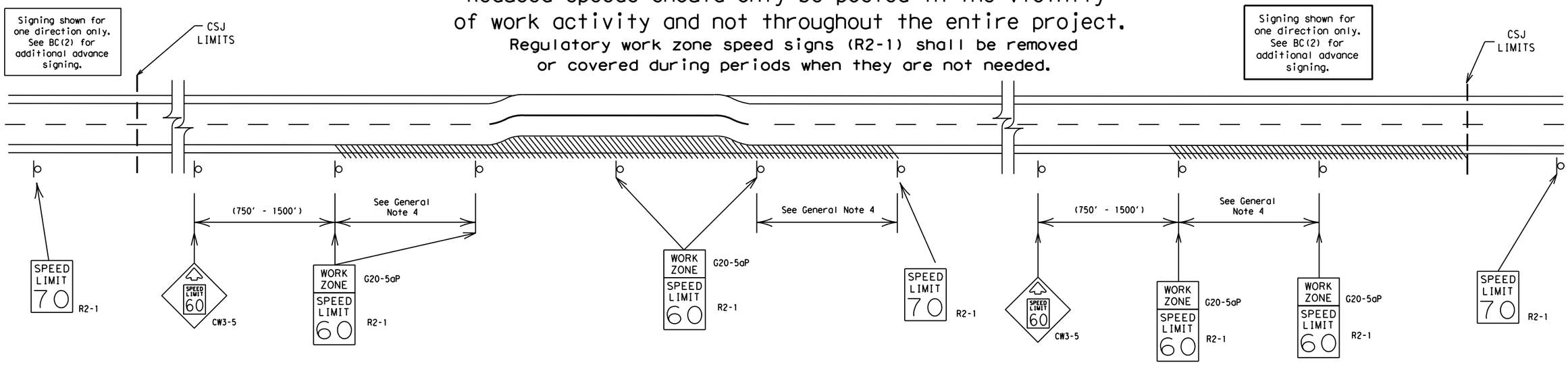
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO, etc.		65

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

DATE: 7/8/2021 5:13:04 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

SHEET 3 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

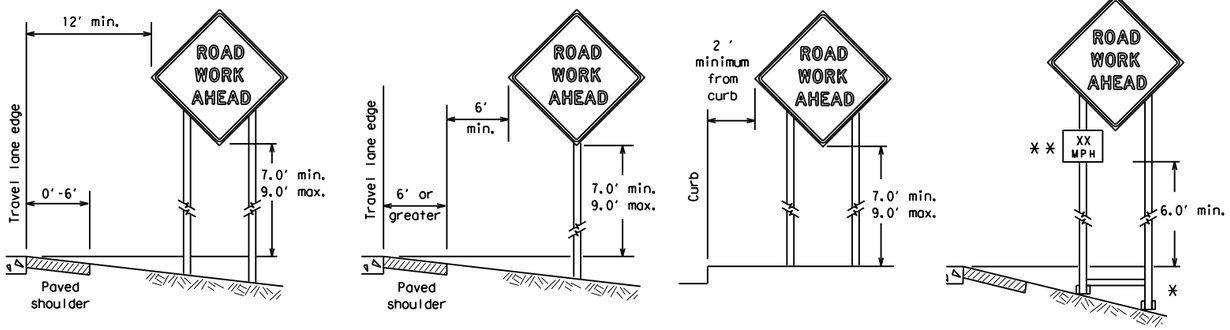
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO, etc.		66

DATE: 7/8/2021 5:13:05 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

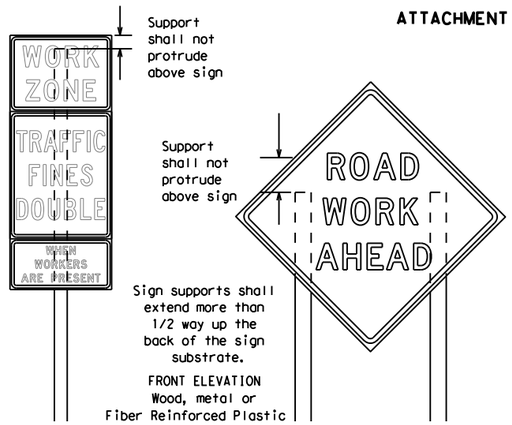
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

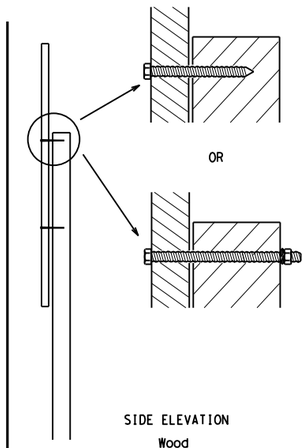


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





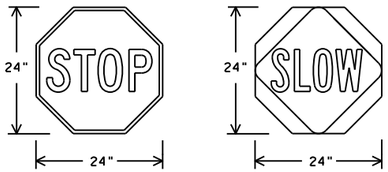
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

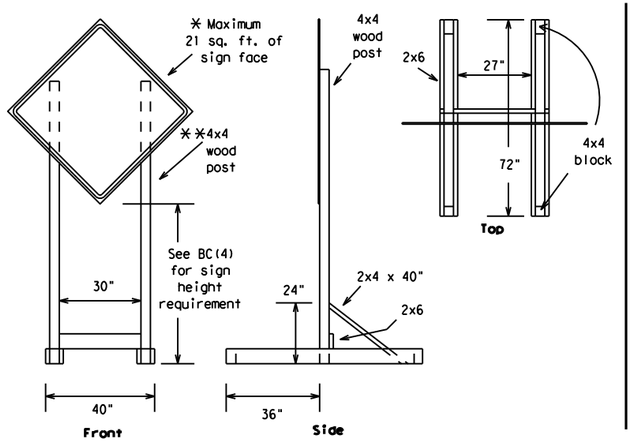
Texas Department of Transportation | Traffic Safety Division Standard

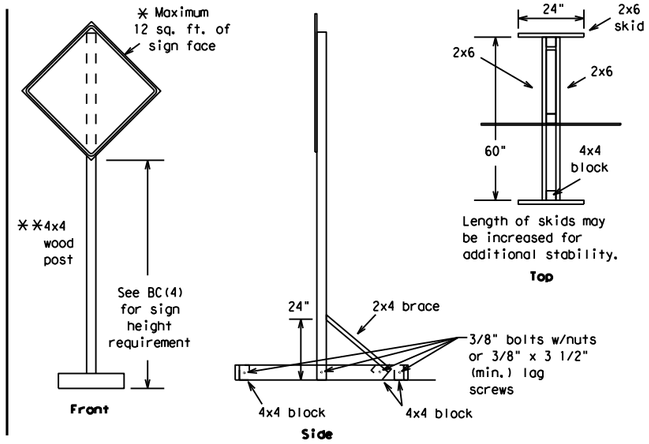
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO, etc.		67

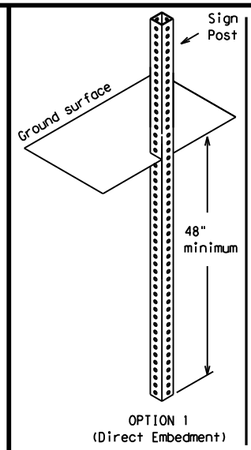
DATE: 7/8/2021 5:13:05 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

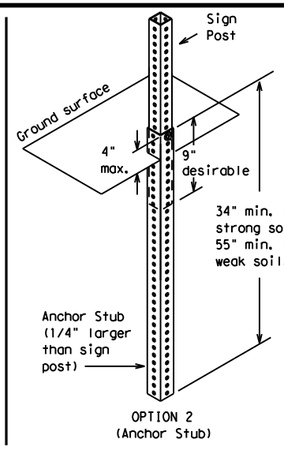


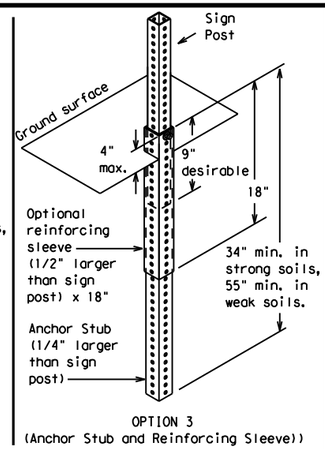


SKID MOUNTED WOOD SIGN SUPPORTS

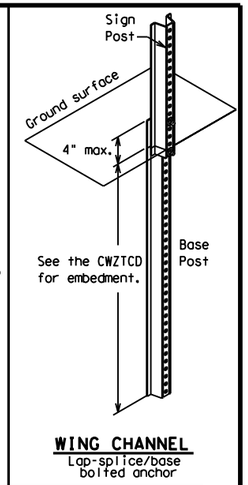
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







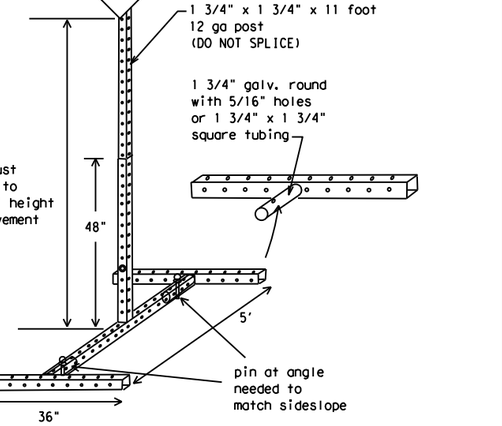
PERFORATED SQUARE METAL TUBING

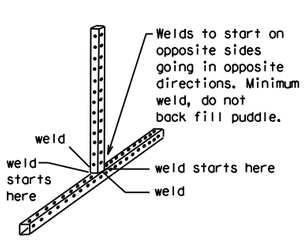


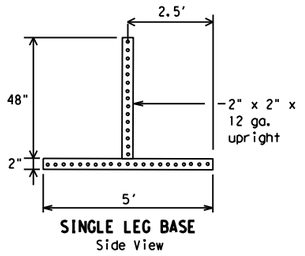
WING CHANNEL
Lap-splice/base bolted anchor

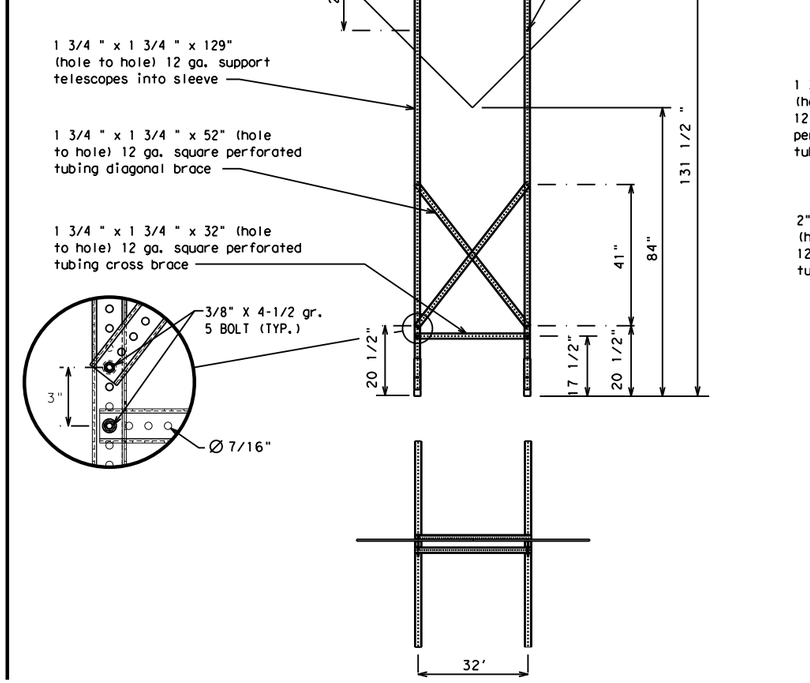
GROUND MOUNTED SIGN SUPPORTS

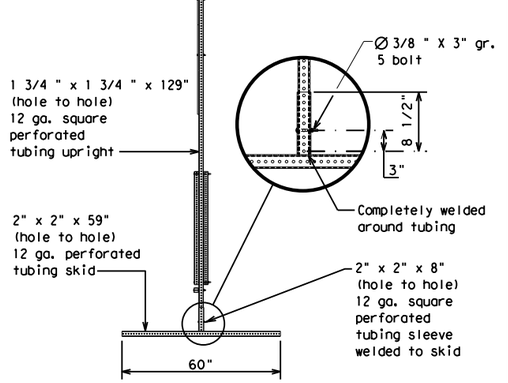
Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.











SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO, etc.		68

DATE: 7/8/2021 5:13:06 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

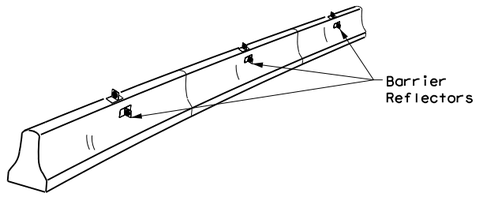
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO, etc.		69

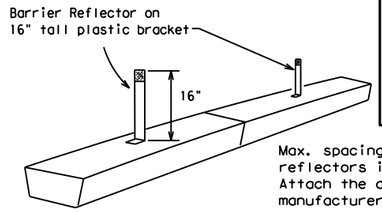
DATE: 7/8/2021 5:13:06 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

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



CONCRETE TRAFFIC BARRIER (CTB)

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

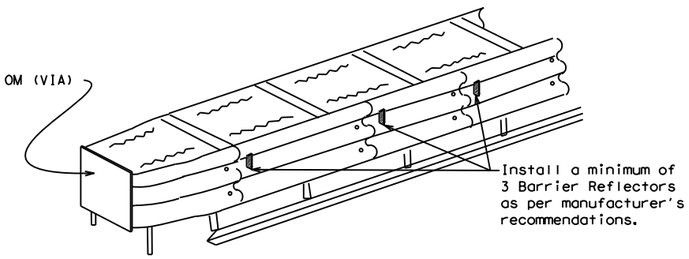


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

LOW PROFILE CONCRETE BARRIER (LPCB)

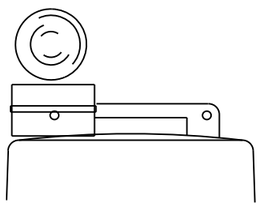


DELINEATION OF END TREATMENTS

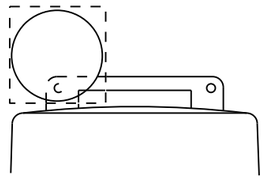
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

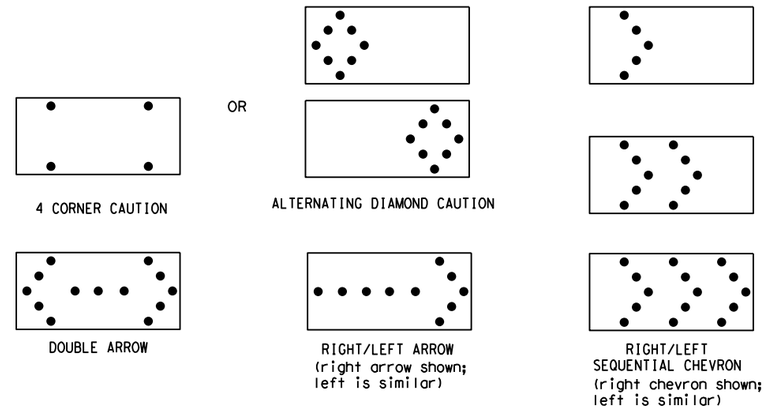
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO, etc.		70

101

DATE: 7/8/2021 5:13:07 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

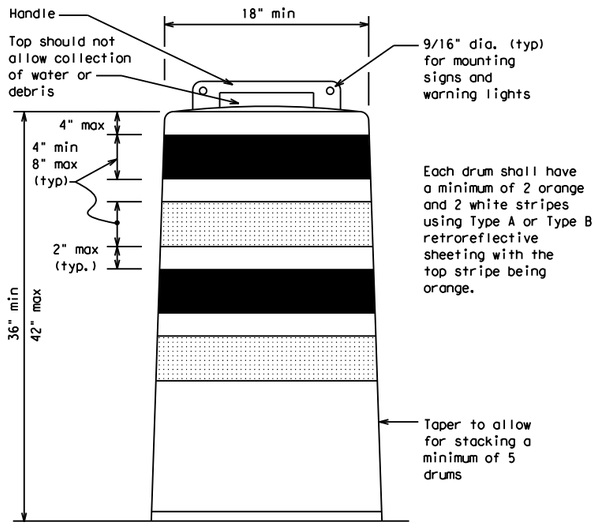
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

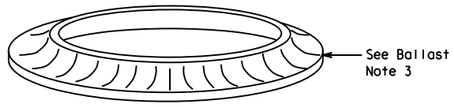
RETROREFLECTIVE SHEETING

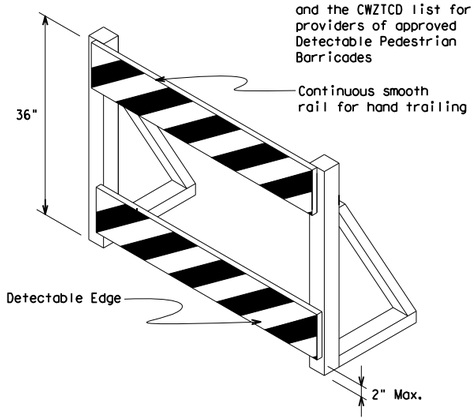
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

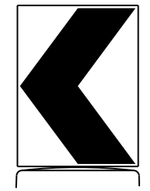




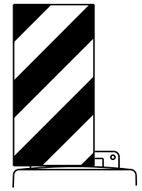


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

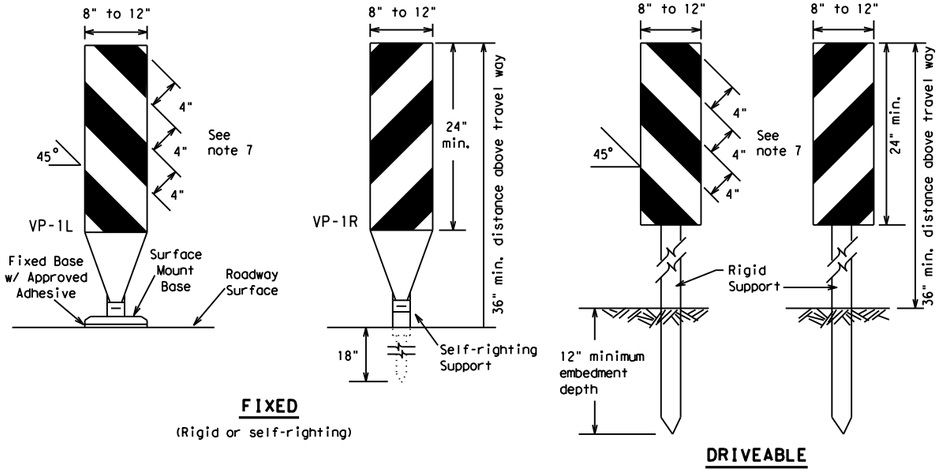
Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

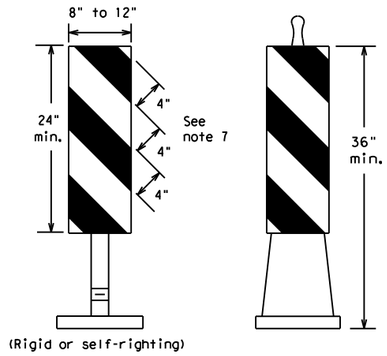
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	PHR	HIDALGO, etc.		71
7-13				

102



FIXED
(Rigid or self-righting)

DRIVEABLE

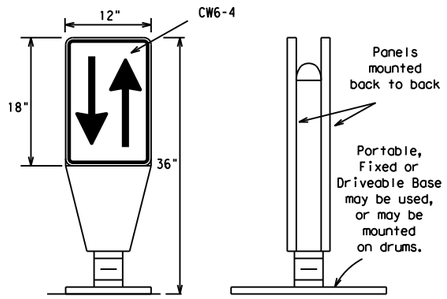


(Rigid or self-righting)

PORTABLE

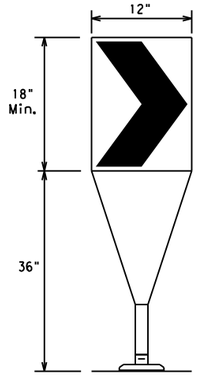
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



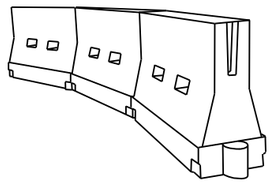
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

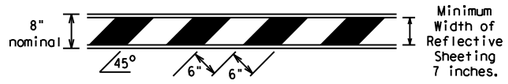
BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO, etc.		72

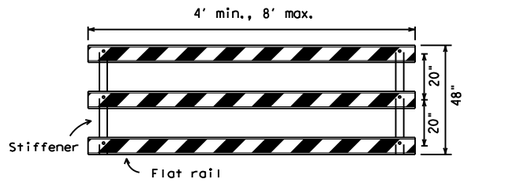
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



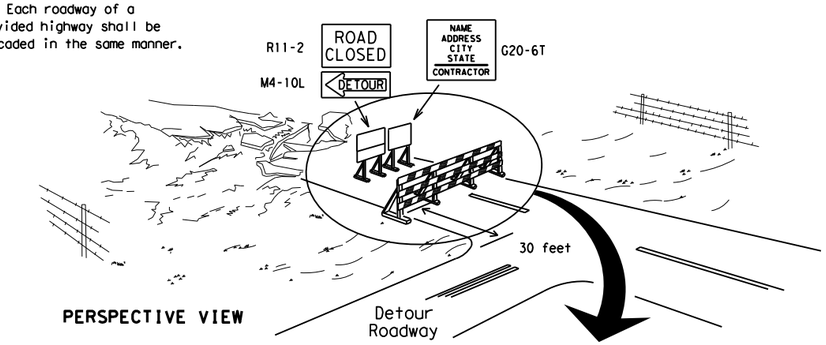
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

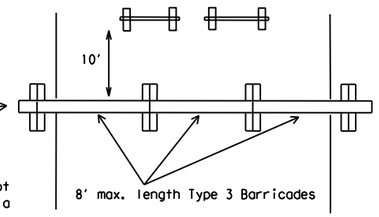
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

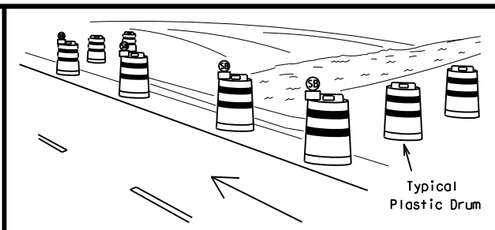
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

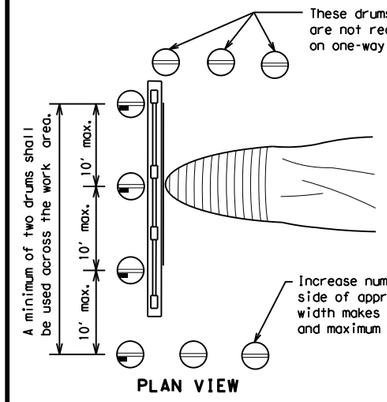
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

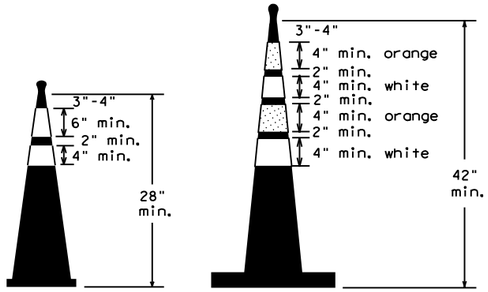
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



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

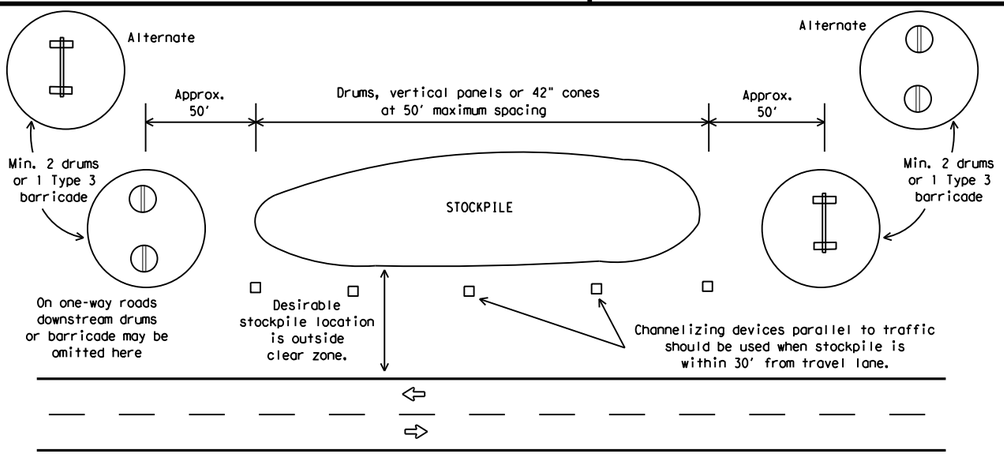
PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		73

104

DATE: 7/8/2021 5:13:08 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

DATE: 7/8/2021 5:13:08 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

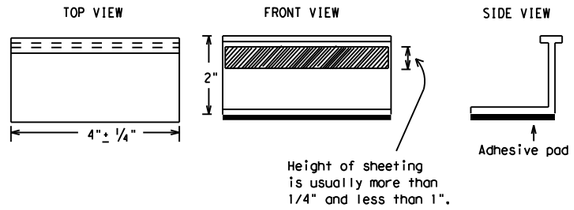
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

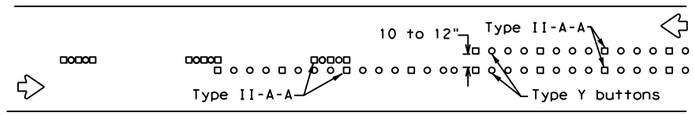
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	PHR	HIDALGO, etc.		74
11-02 8-14				

105

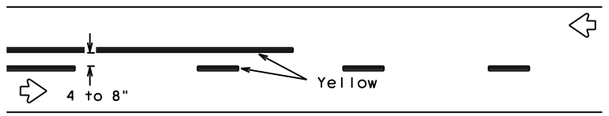
DATE: 7/8/2021 5:13:09 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bc-21.dgn

PAVEMENT MARKING PATTERNS

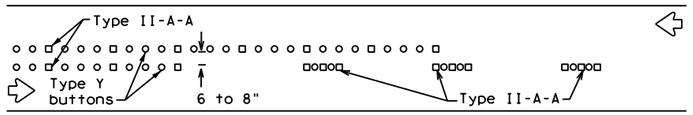
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



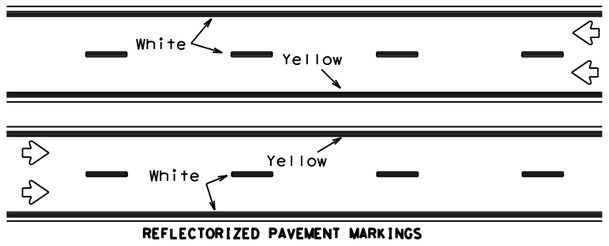
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



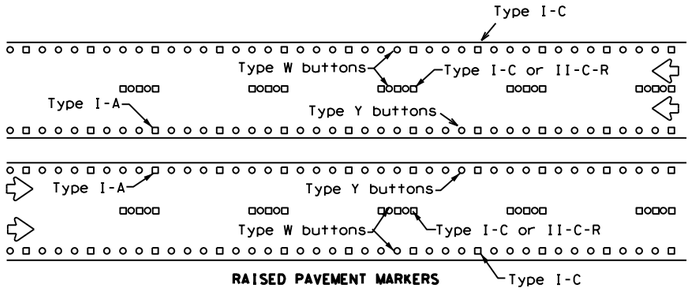
RAISED PAVEMENT MARKERS - PATTERN B

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

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



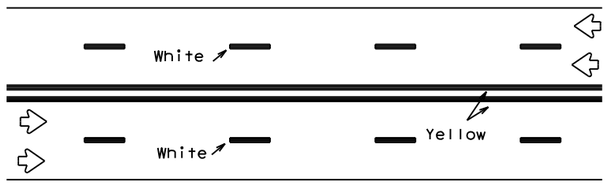
REFLECTORIZED PAVEMENT MARKINGS



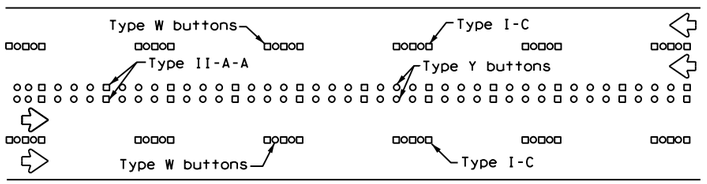
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



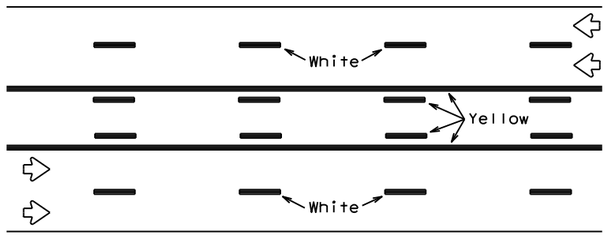
REFLECTORIZED PAVEMENT MARKINGS



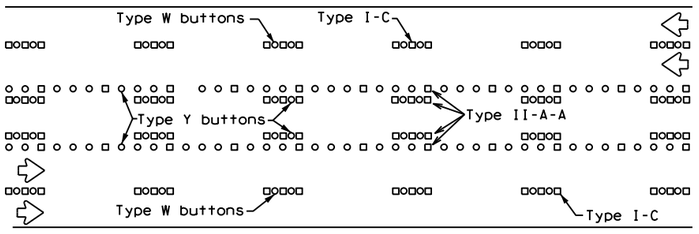
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

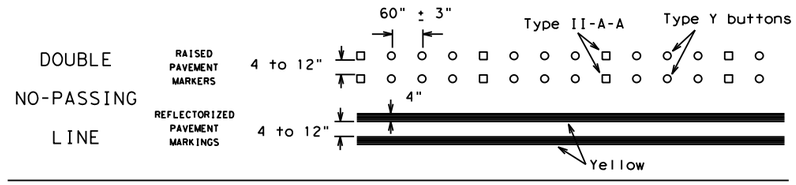
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

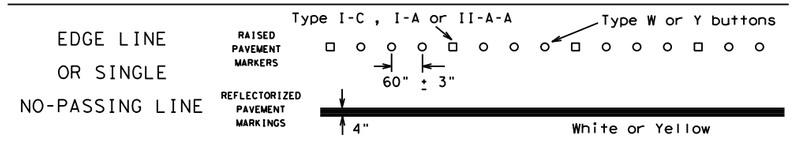
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

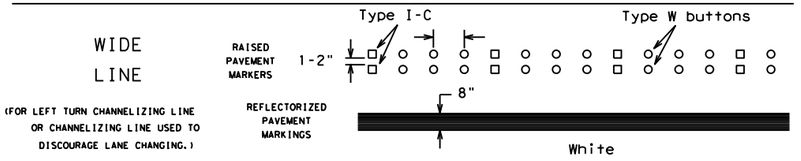


EDGE LINE OR SINGLE NO-PASSING LINE



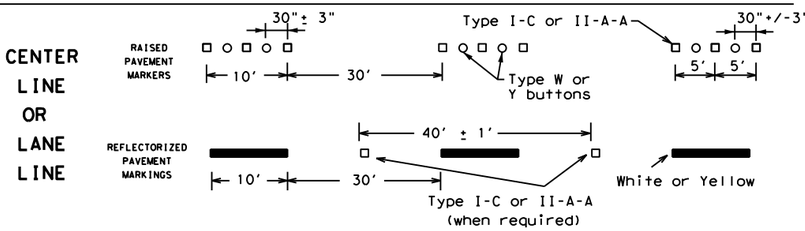
WIDE LINE

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

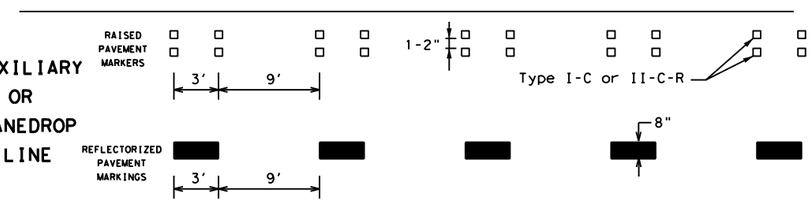


BROKEN LINES

CENTER LINE OR LANE LINE

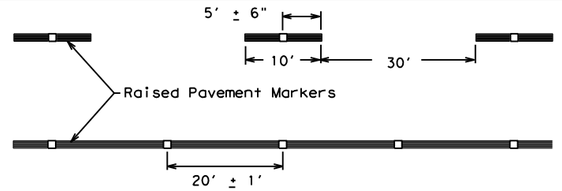


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

SHEET 12 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

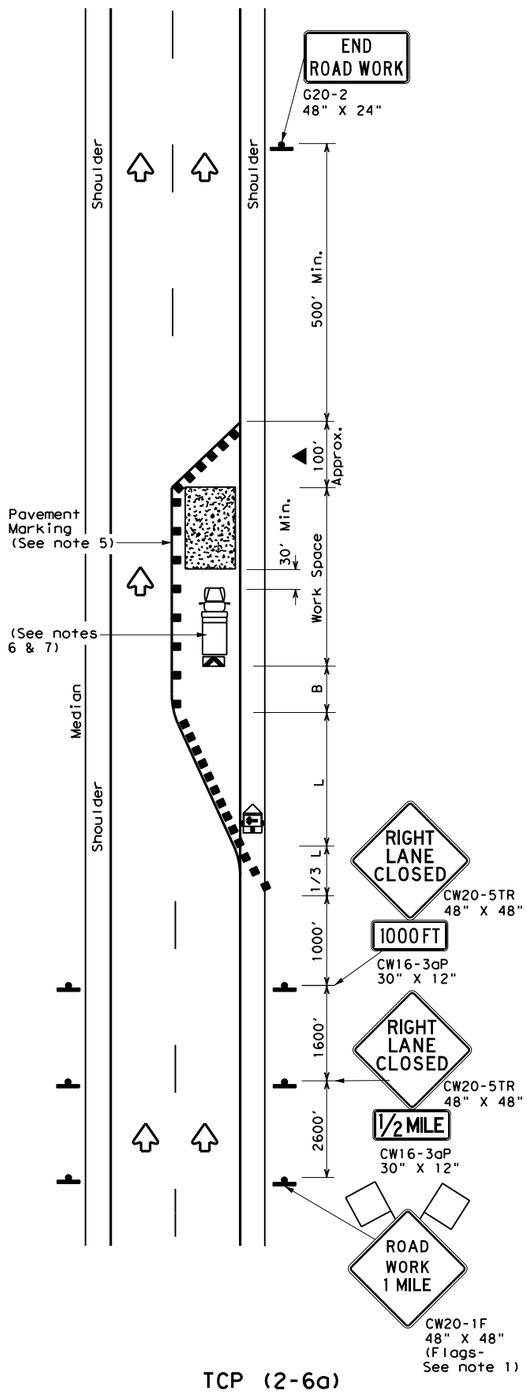
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		75

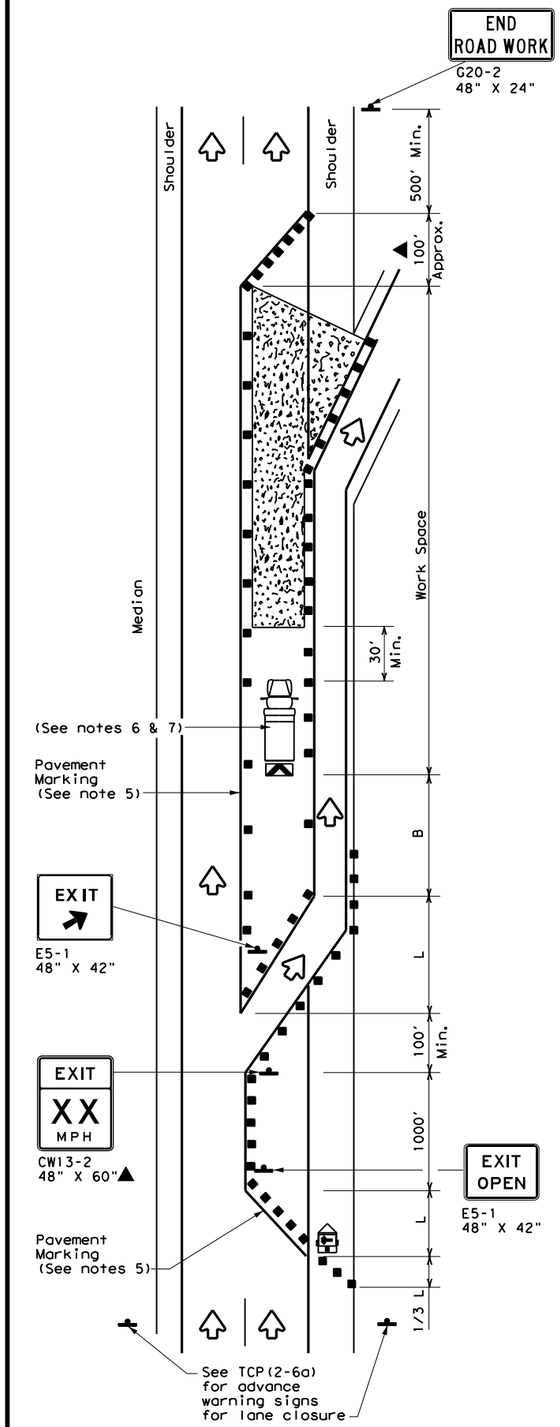
106

DATE: 7/8/2021 5:13:14 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP2618.dgn



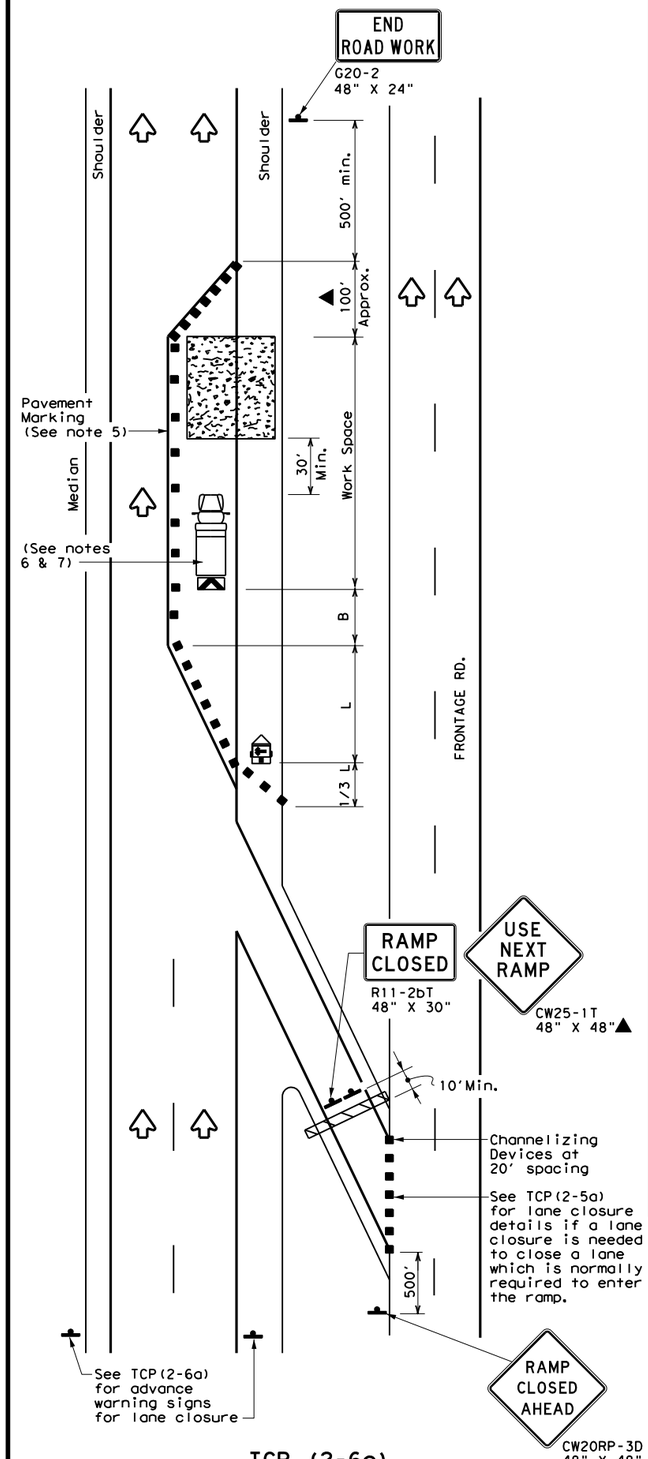
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

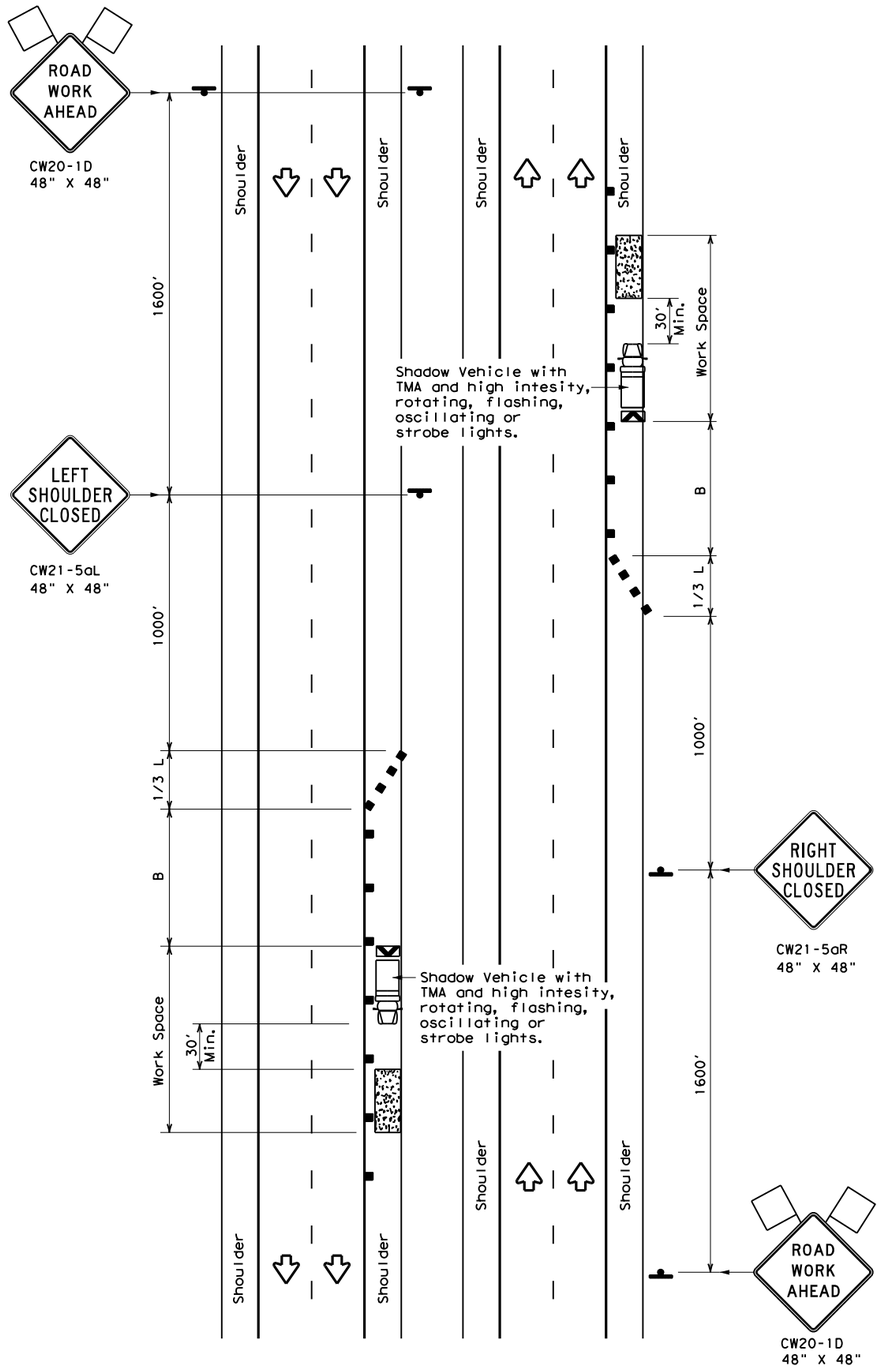
Texas Department of Transportation — *Traffic Operations Division Standard*

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

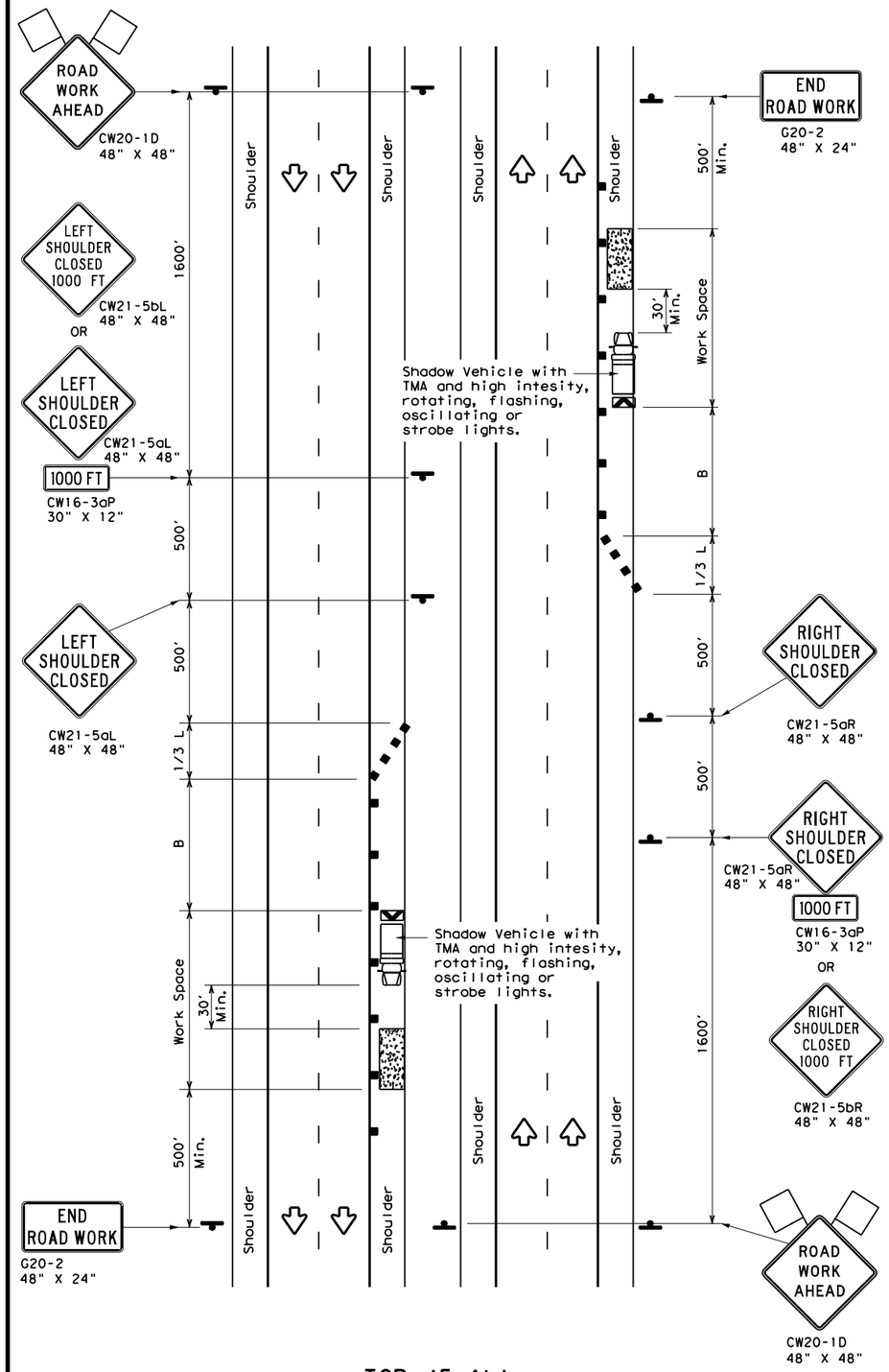
FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		76

DATE: 7/8/2021 5:13:19 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP5118.dgn



TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	90'
35		205'	225'	245'	35'	70'	120'
40		265'	295'	320'	40'	80'	155'
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE

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

GENERAL NOTES

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

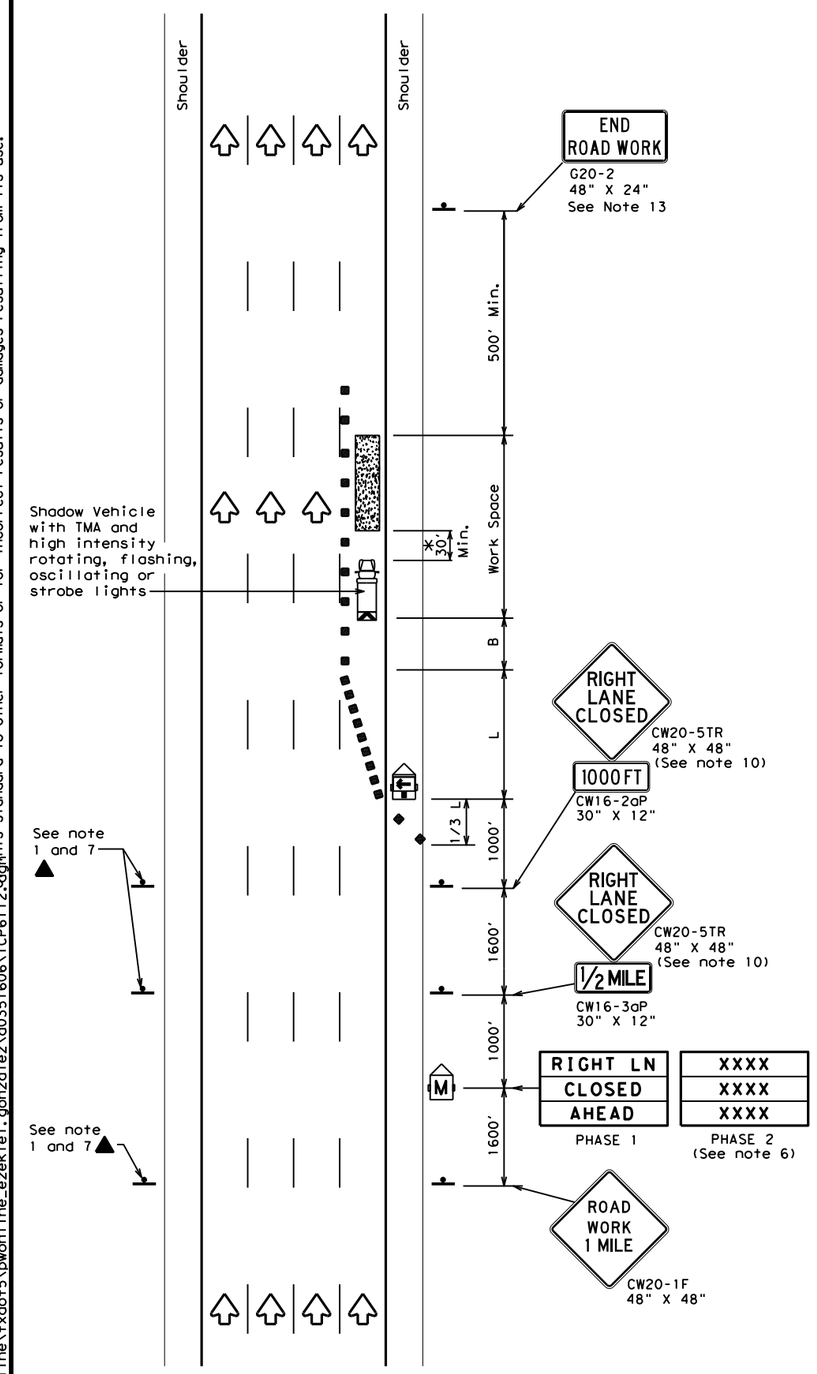
Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHOULDER WORK FOR FREEWAYS / EXPRESSWAYS

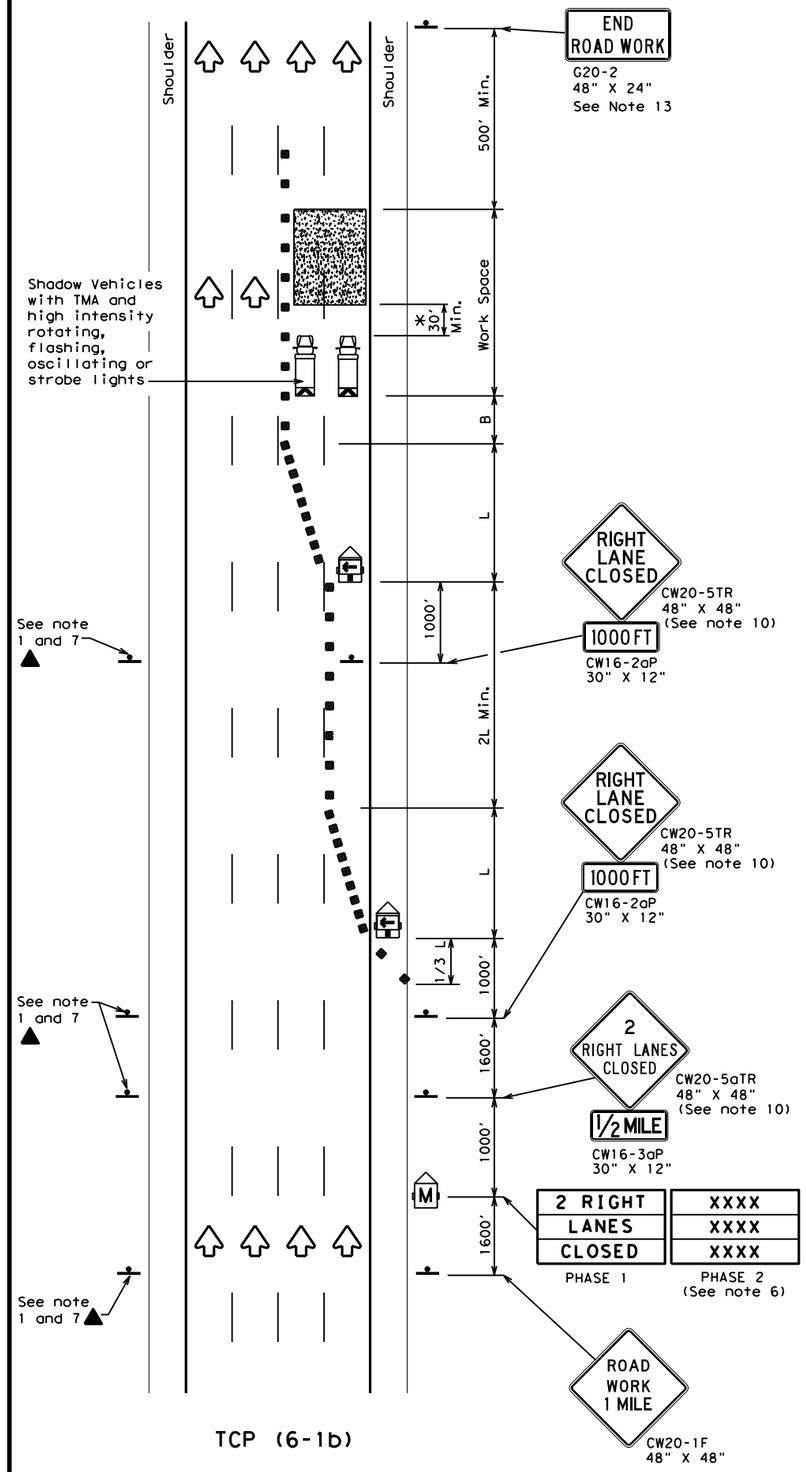
TCP(5-1)-18

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		77



TCP (6-1a)

TYPICAL FREEWAY ONE LANE CLOSURE



TCP (6-1b)

TYPICAL FREEWAY TWO LANE CLOSURE

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

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

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

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

GENERAL NOTES

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

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

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN FREEWAY LANE CLOSURES

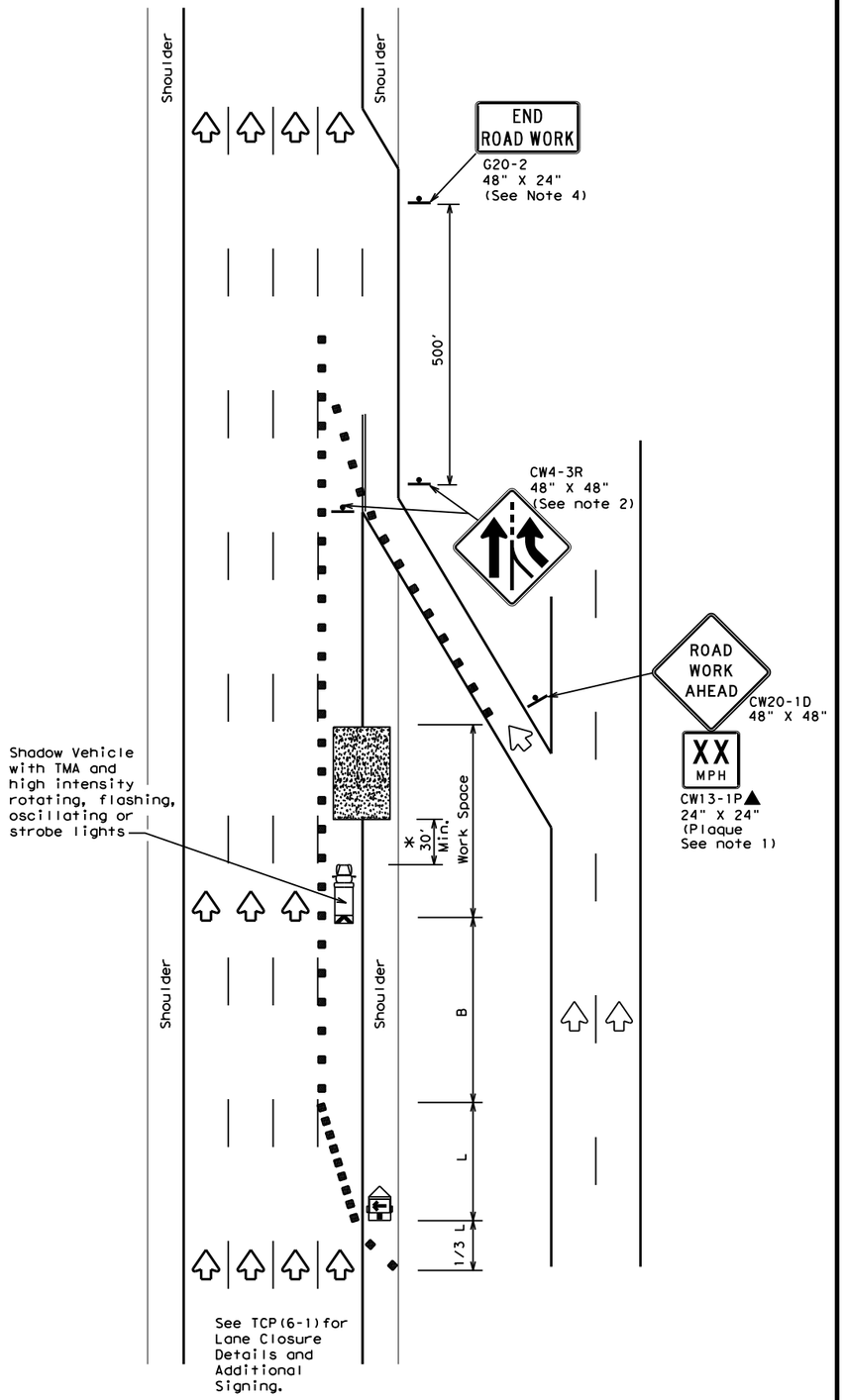
TCP(6-1)-12

FILE: tcp6-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
8-12	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		78

201

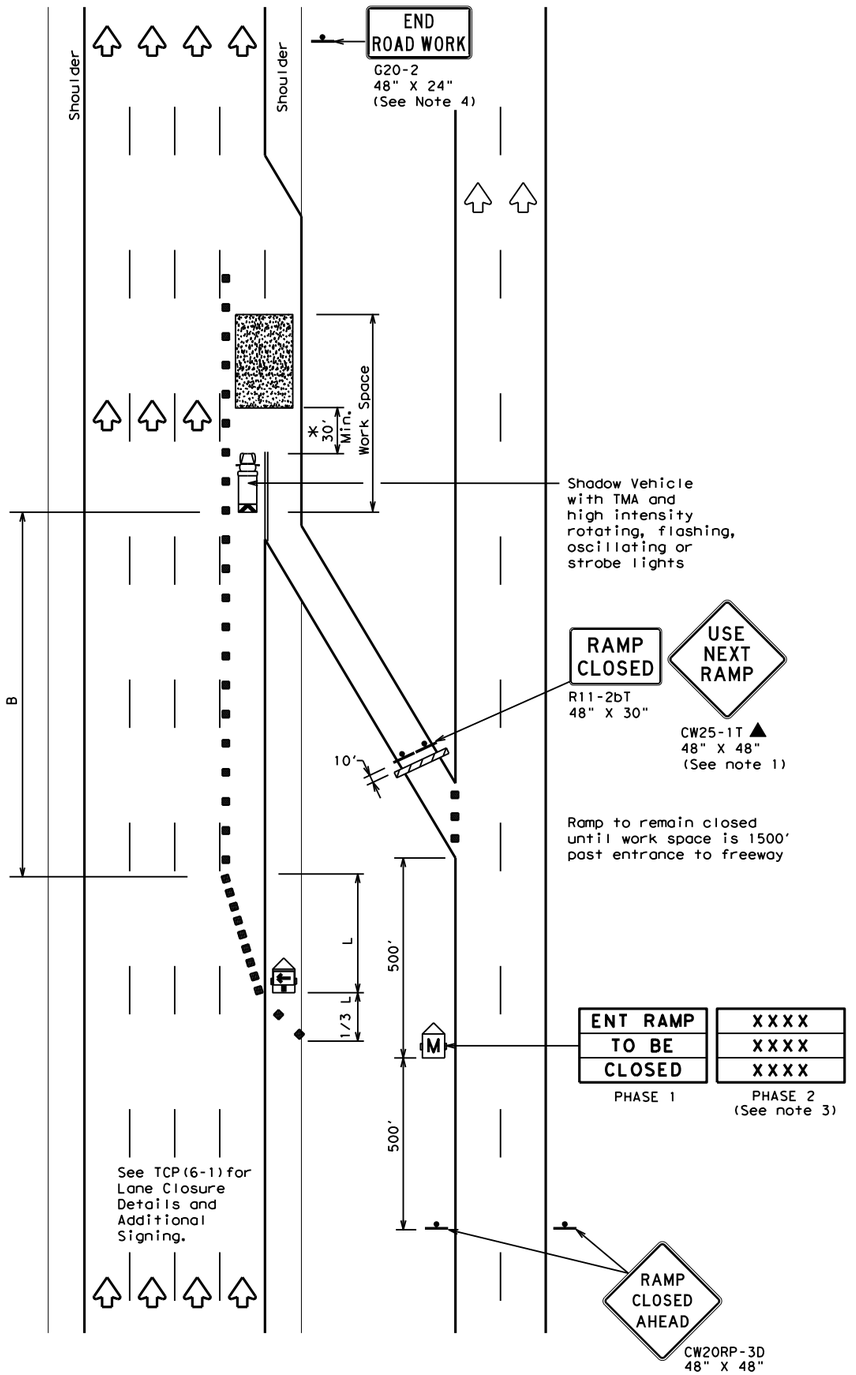
DATE: 7/8/2021 5:13:24 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6112-20.dgn

DATE: 7/8/2021 5:13:29 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6212-12.dgn



TCP (6-2a)

ENTRANCE RAMP OPEN
WORK WITHIN 500' OF RAMP



TCP (6-2b)

ENTRANCE RAMP CLOSED

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

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

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

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

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. ADDED LANE Symbol (CW4-3) sign may be omitted when sign between ramp and mainlane can be seen from both roadways.
3. See "Advance Notice List" on BC(6) for recommended date and time formatting options for PCMS Phase 2 message.
4. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

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

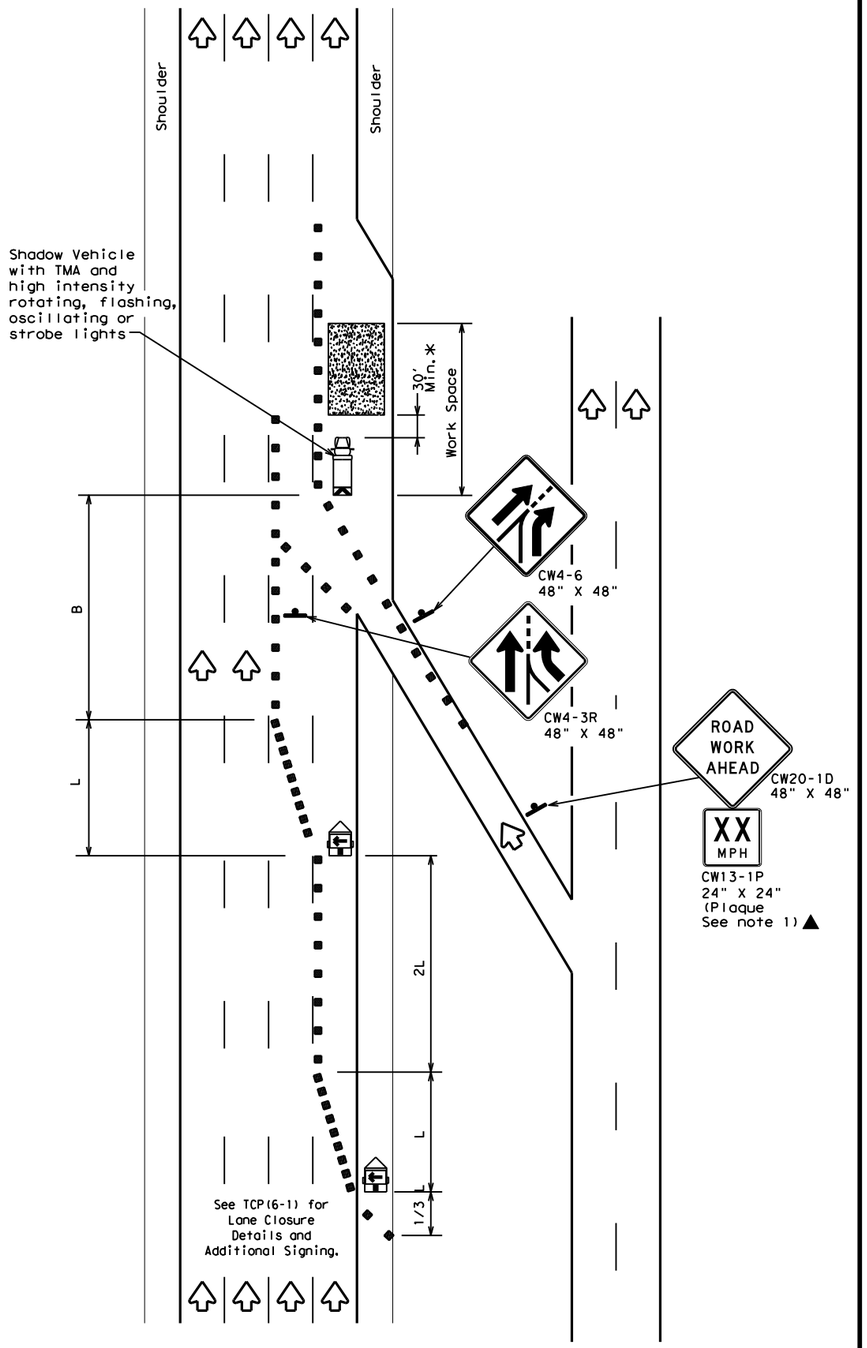
Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA NEAR RAMP

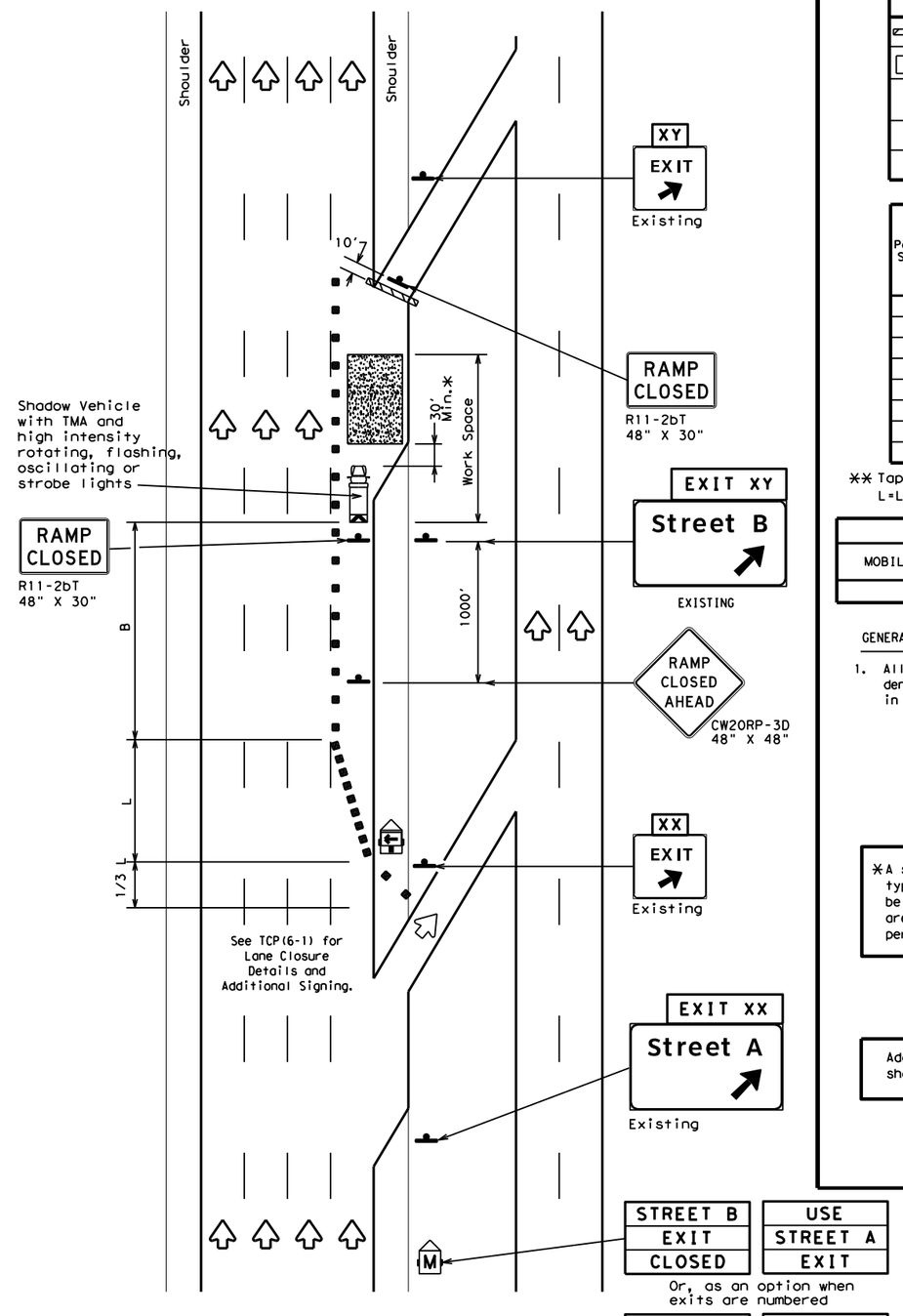
TCP(6-2)-12

FILE: tcp6-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	PHR	HIDALGO, etc.		79



TCP (6-3a)

ENTRANCE RAMP OPEN



STREET B	USE
EXIT	STREET A
CLOSED	EXIT

Or, as an option when exits are numbered

EXIT XY	USE
CLOSED	EXIT XX

Place 1 mile (approx.) in advance of Street A exit.

TCP (6-3b)

EXIT RAMP CLOSED
TRAFFIC EXITS PRIOR TO CLOSED RAMP

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

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

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

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

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.

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

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

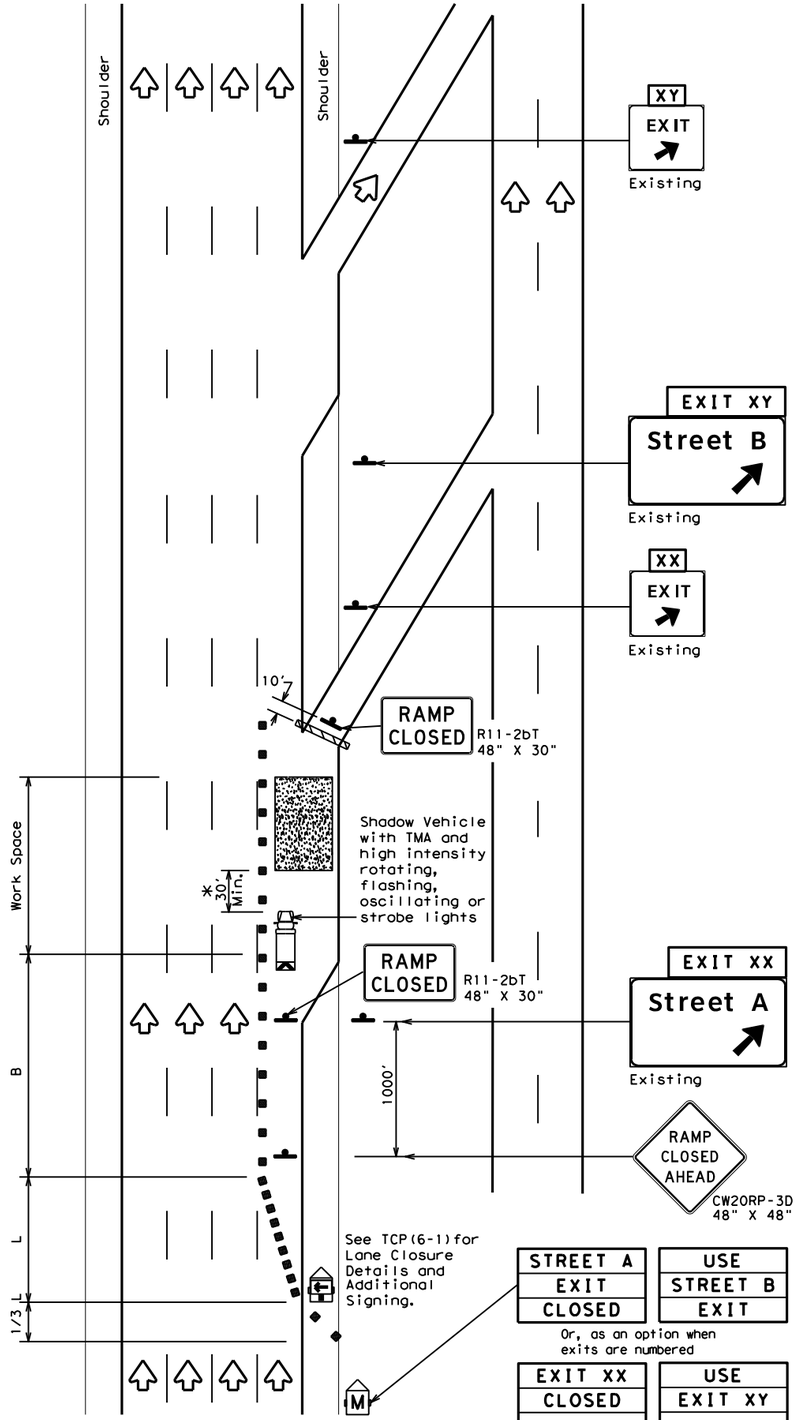
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA BEYOND RAMP

TCP(6-3)-12

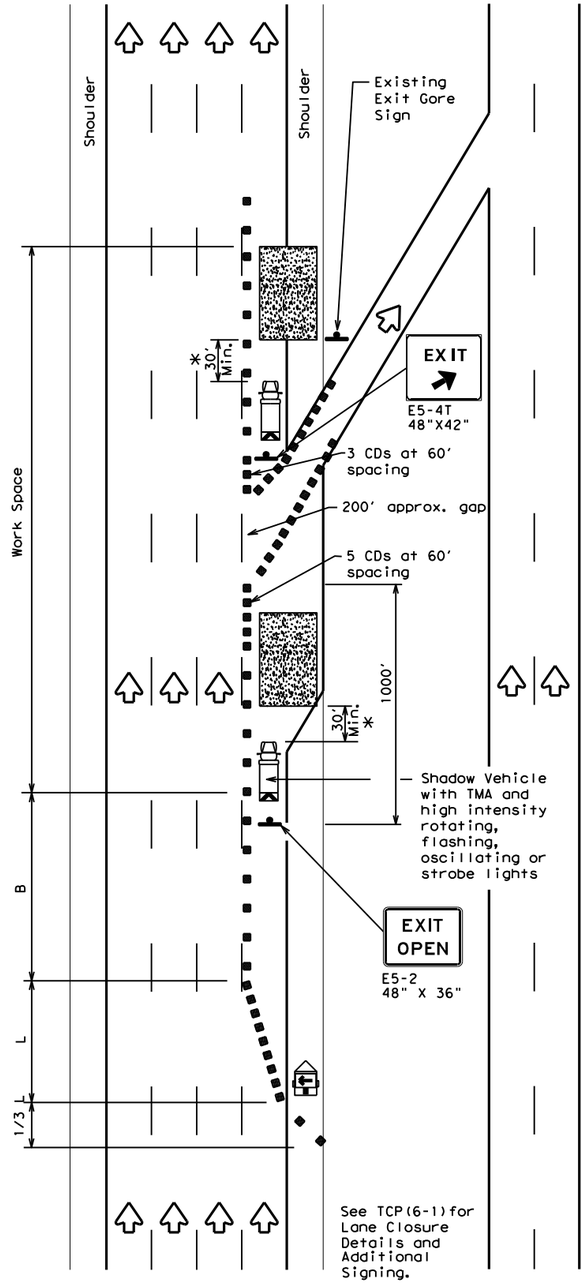
FILE: tcp6-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	PHR	HIDALGO, etc.		80

DATE: 7/8/2021 5:13:34 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6312.dgn



TCP (6-4a)

EXIT RAMP CLOSED
TRAFFIC EXITS PAST CLOSED RAMP



TCP (6-4b)

EXIT RAMP OPEN

LEGEND

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

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

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

TYPICAL USAGE

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

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC Standards for sign details.

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

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

Texas Department of Transportation
Traffic Operations Division Standard

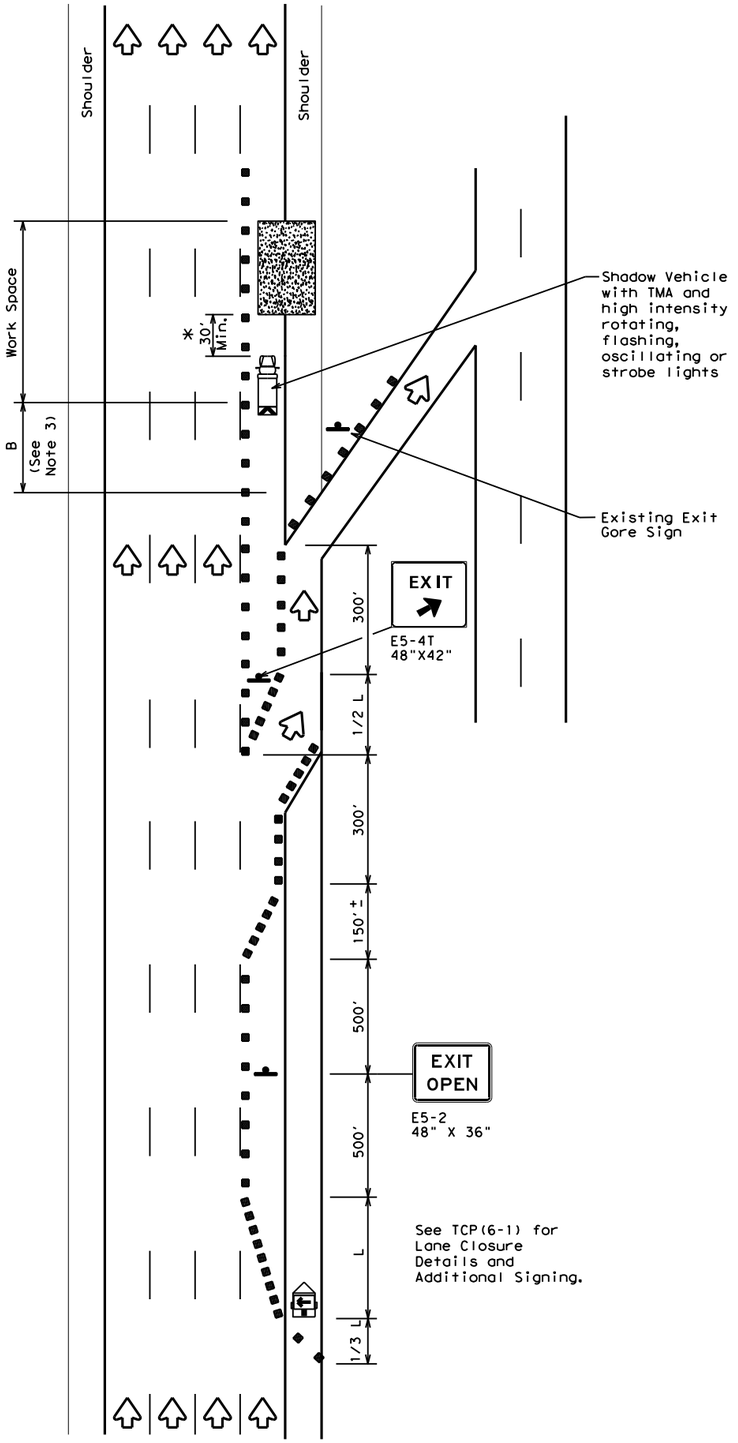
TRAFFIC CONTROL PLAN
WORK AREA AT EXIT RAMP

TCP(6-4)-12

FILE: tcp6-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Feburary 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	PHR	HIDALGO, etc.		81

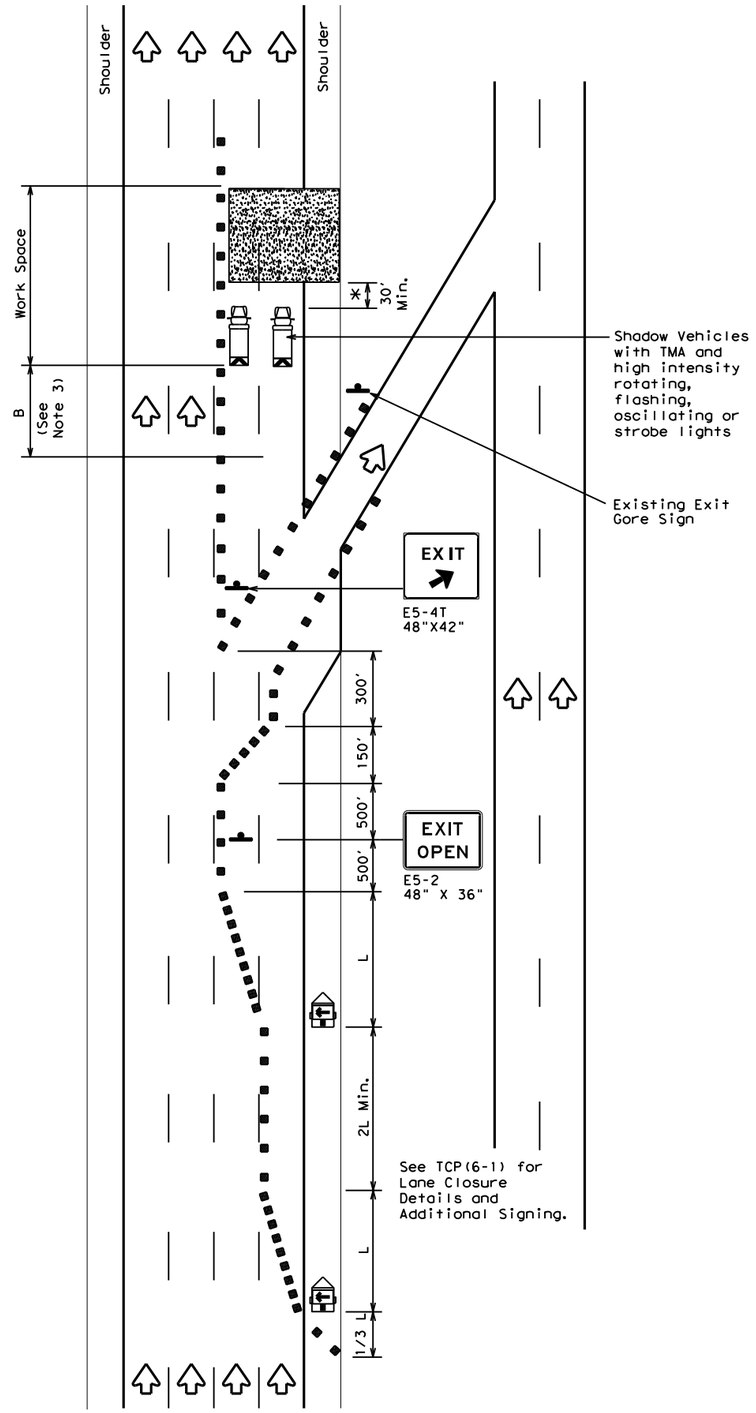
DATE: 7/8/2021 5:13:39 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6412.dgn

DATE: 7/8/2021 5:13:44 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6512.dgn



TCP (6-5a)

EXIT RAMP OPEN



TCP (6-5b)

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

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

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

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

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

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC standards for sign details.
3. If adequate longitudinal buffer length "B" does not exist between the work space and the exit ramp, consideration should be given to closing the ramp.

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

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

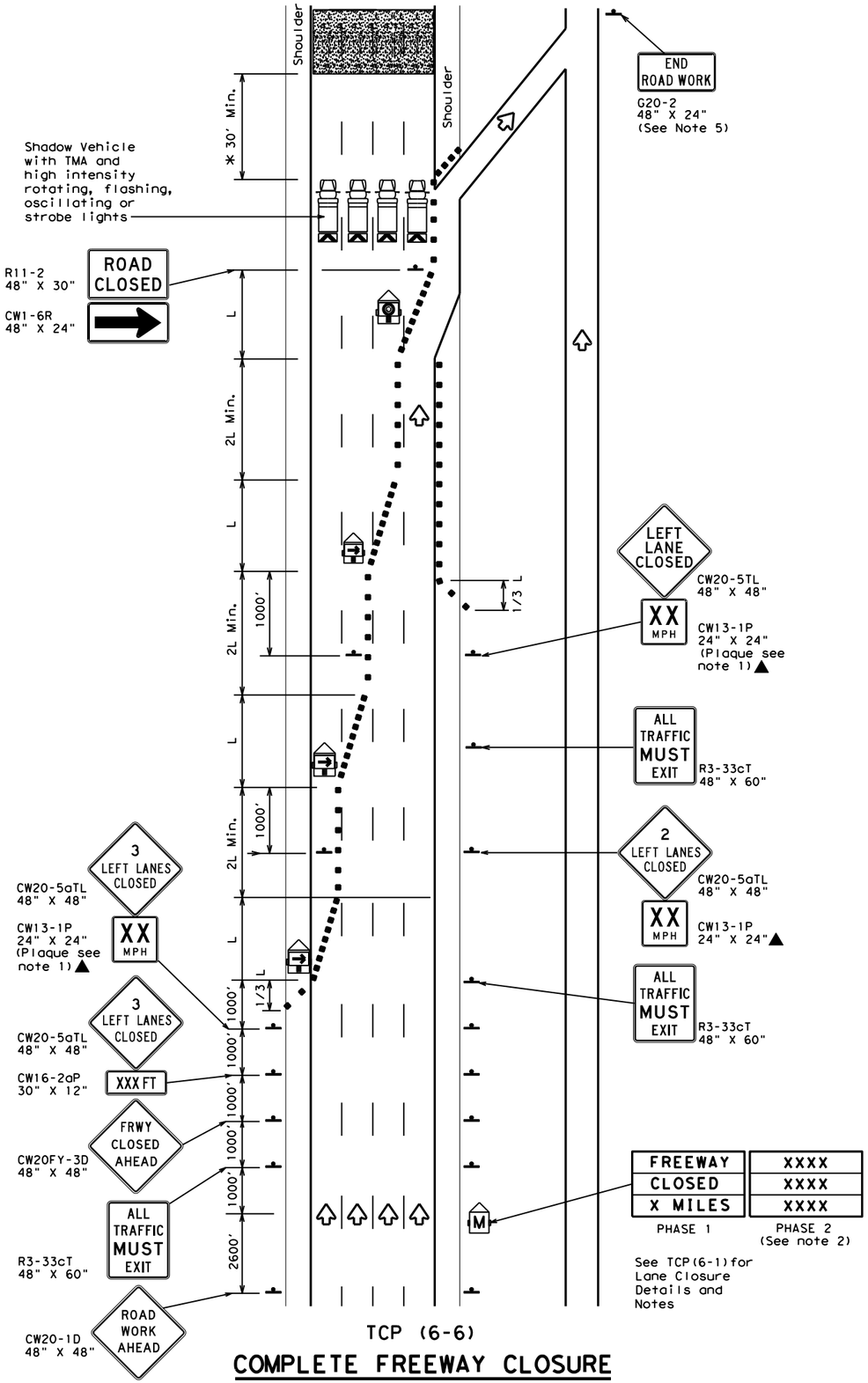
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA BEYOND EXIT RAMP

TCP(6-5)-12

FILE: tcp6-5.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Feburary 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	PHR	HIDALGO, etc.		82

DATE: 7/8/2021 5:13:48 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6612.dgn



TCP (6-6)

COMPLETE FREEWAY CLOSURE

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

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

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

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

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE RIGHT," recommended speed, delay, exit information, or other specific warnings.
3. Where queuing is anticipated beyond signing shown, additional PCMS signs, other warning signs, devices or Law Enforcement Officers should be available to warn approaching high speed traffic of the end of the queue, as directed by the Engineer.
4. Entrance ramps located from the advance warning area to the exit ramp should be closed whenever possible.
5. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

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

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

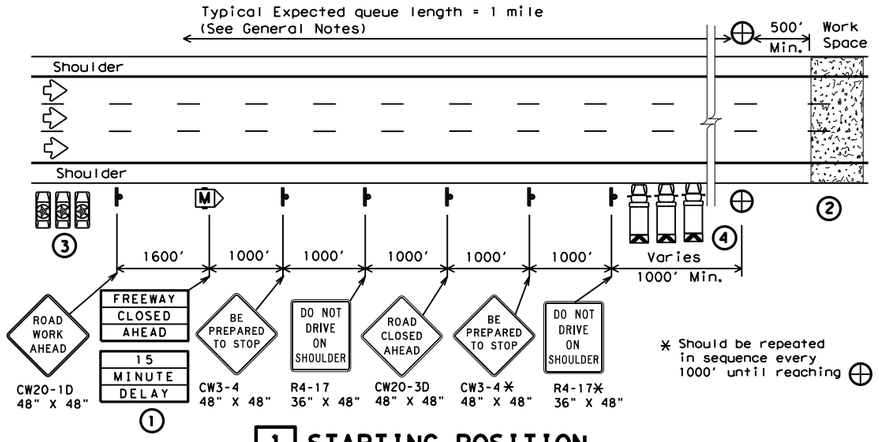
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN FREEWAY CLOSURE

TCP(6-6)-12

FILE: tcp6-6.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	PHR	HIDALGO, etc.		83

DATE: 7/8/2021 5:13:53 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6712.dgn



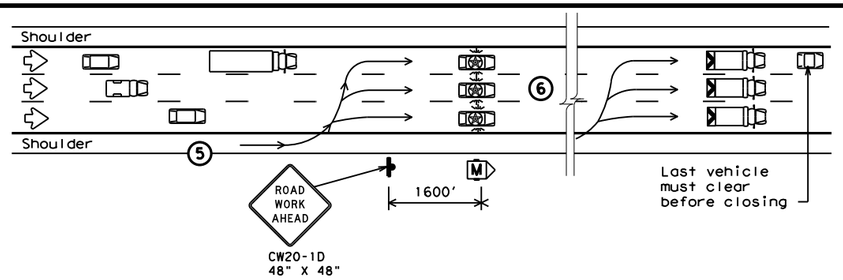
1 STARTING POSITION

(1) Traffic control devices should be installed or located near their intended position prior to beginning temporary roadway closure sequence. Duplicate signs should be erected on the median side of the roadway when median width permits. Warning signs should not be placed on the paved shoulders that will be used by the WARNING LEOV, or where movement of the LEOVs or barrier vehicles will be impeded.

(2) Prior to beginning the roadway closure sequence, all equipment, materials, personnel, and other items necessary to complete the work should be gathered near the work area. Entrance ramps located in the area where a queue is expected to build should be closed.

(3) There should be one LEOV for every lane to be controlled, plus a minimum of one to warn traffic approaching a queue. An additional lead law enforcement officer is desirable to remain with the Engineer's or Contractor's point of contact (POC) during the operation in order to improve communication with all LEOVs involved.

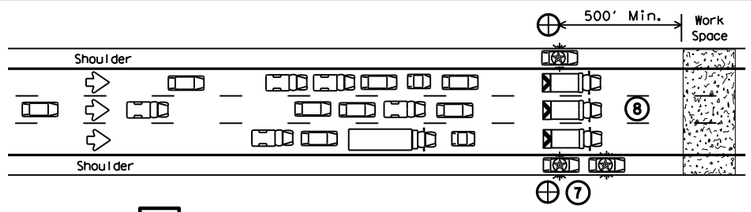
(4) One barrier vehicle with a Truck Mounted Attenuator and amber or blue and amber high intensity flashing/oscillating/strobe lighting shall be used for each lane to be closed.



2 REDUCING SPEED OPERATION

(5) Starting position of the LEOVs should be in advance of the most distant warning signs.

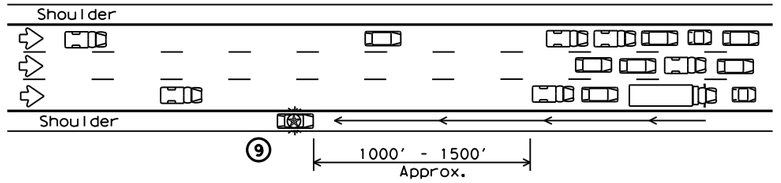
(6) Once the LEOVs have achieved an abreast blocking formation while traveling toward the CP, emergency lights and headlights should be turned "ON". The LEOVs should maintain formation, not allow traffic to pass, and begin to decelerate. The LEOVs should continue to decelerate, giving the barrier vehicles opportunity to be staged upstream of the work space after traffic has cleared. The LEOVs should then continue to decelerate slowly until bringing traffic to a stop near the barrier vehicles.



3 ALL TRAFFIC STOPPED AT CP

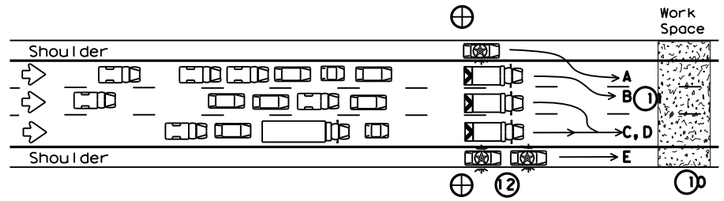
(7) Once traffic is stopped the LEOVs should park on the shoulders with emergency lighting "ON" in order to provide law enforcement presence at the closure and keep shoulders blocked ahead of the work space. They should stay in radio contact with the WARNING LEOV.

(8) The barrier vehicles should be parked, one in each lane, the parking brake set, with the high visibility flashing/oscillating/strobe lighting "ON," and the transmission in gear.



4 WARNING THE TRAFFIC QUEUE

(9) The WARNING LEOV should proceed to the right shoulder of the roadway, with emergency lights on approximately 1000' in advance of the traffic queue (stopped traffic) as the queue develops. When determined that limited sight distance situations (crest of hills, sharp roadway curvature, etc.) may occur to motorists approaching the queue, the WARNING LEOV may proceed 1/4 mile or more in advance of the queue.



5 RELEASING STOPPED TRAFFIC

(10) All equipment, materials, personnel, and other items should be removed from the roadway and maintain an adequate clear zone.

(11) When the roadway is clear for traffic, the LEOV should proceed forward from the left shoulder followed by the barrier vehicles, from left to right, as shown alphabetically in the plan view.

(12) The LEOV or LEOVs on the right shoulder may remain on the shoulder until satisfied that traffic is moving satisfactorily before merging or proceeding.

(13) LEOVs and barrier vehicles should re-group at their respective starting positions if necessary.

LEGEND			
■ ■	Channelizing Devices	⊕	Control Position (CP)
(M)	Portable Changeable Message Sign (PCMS)		Barrier Vehicle with Truck Mounted Attenuator
	Law Enforcement Officer's Vehicle(LEOV)		Traffic Flow

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

GENERAL NOTES

1. All traffic control devices shall conform with the latest edition of the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Additional guidelines for traffic control devices may be found in the TMUTCD. Signs conflicting with the roadway closure sequence should be completely removed or covered. Additional traffic control devices may be required for closure of access roads, cross streets, exit and entrance ramps as directed by the Engineer.

2. Law enforcement officers and all workers involved should review and understand all procedures before the roadway closure sequence begins. Pre-work meetings may be held for this purpose. Local emergency services and media should have advance notification of roadway closure, expected dates and approximate times of closures.

3. Law enforcement officers shall be in uniform and have jurisdiction in the locale of the work area. An additional WARNING Law Enforcement Officer's Vehicle (LEOV) may be used on the median side of the roadway where median shoulder width permits (See sequence #9).

4. The roadway closure should be during off-peak hours, as shown in the plans, or as directed by the Engineer.

5. Work should be limited to approximately 15 minutes maximum duration unless otherwise directed by the Engineer based on existing roadway conditions. If the work is not complete within 15 minutes, or if the end of the traffic queue extends past the most distant advance warning signs, the work area should be cleared of all equipment, materials, personnel, and other items, and the roadway reopened. When the queue has dissipated and the traffic flow appears normal the roadway closure sequence may be repeated.

6. For traffic volumes greater than 1000 Passenger Cars Per Hour Per Lane (PCPHPL), or for roadway closures that exceed 15 minutes, see details elsewhere in the plan.

7. If traffic queues beyond the advance warning signs during one road closure sequence, the advance warning should be extended prior to repeating the road closure sequence. When possible, PCMS signs should be located in advance of the last available exit prior to the closure to allow motorists the choice of an alternate route.

THIS PLAN IS INTENDED TO BE USED AT LOCATIONS/TIMES WHEN TRAFFIC VOLUMES ARE LESS THAN 1000 PASSENGER CARS PER HOUR PER LANE.

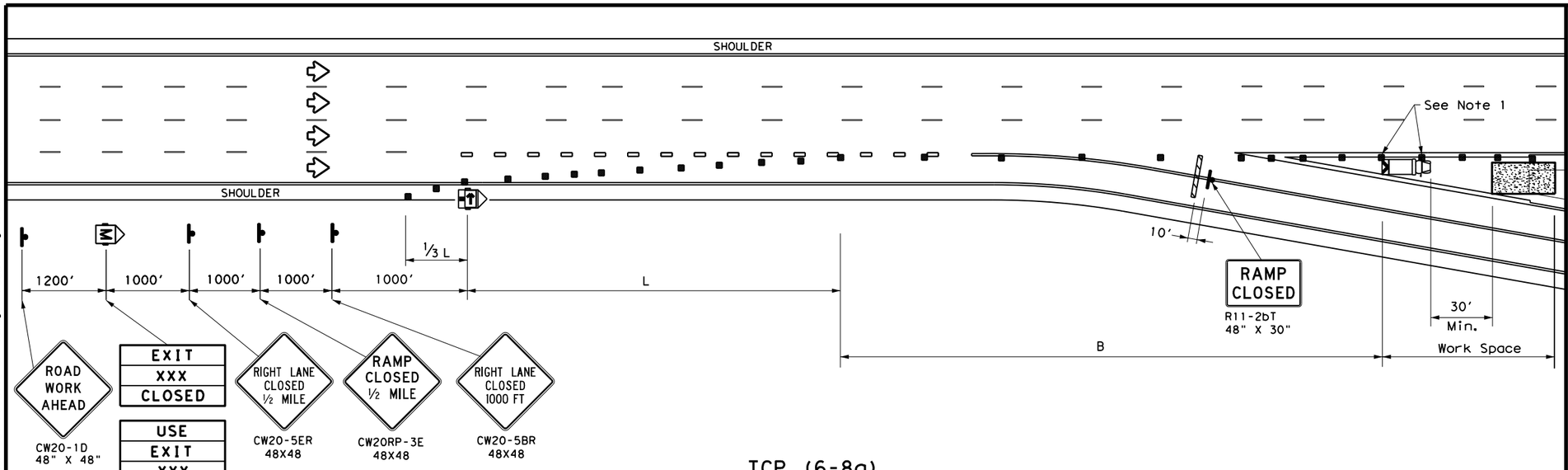
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHORT DURATION FREEWAY CLOSURE SEQUENCE

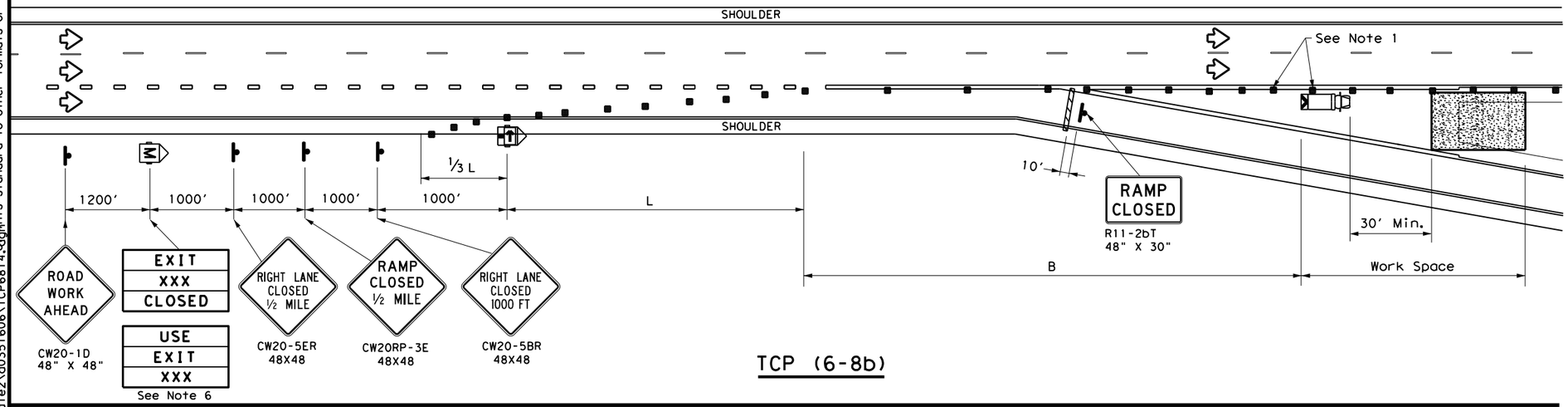
TCP(6-7)-12

FILE: tcp6-7.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
1-97 8-12	DIST	COUNTY		SHEET NO.
4-98	PHR	HIDALGO, etc.		84

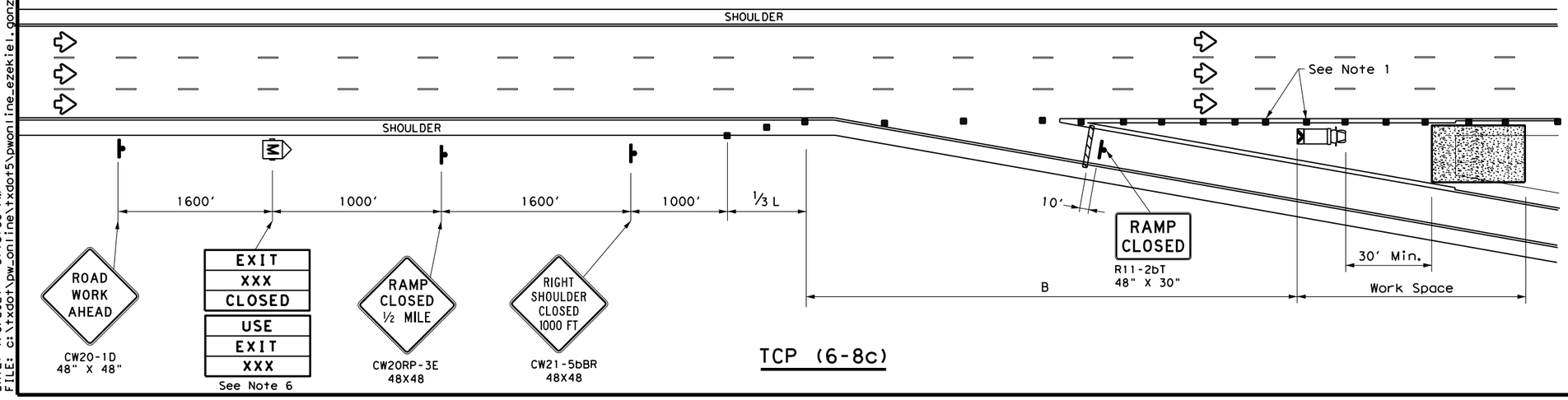
DATE: 7/8/2021 5:13:58 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP6814.dgn



TCP (6-8a)



TCP (6-8b)



TCP (6-8c)

LEGEND

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

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

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

TYPICAL USAGE

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

GENERAL NOTES

1. Place channelizing devices in the gore at 20' spacing.
2. See the Standard Highway Sign Design for Texas (SHSD) for sign details.
3. The PCMS may be omitted when a permanent DMS sign is available in an appropriate location to display a similar message as called for on the PCMS.
4. When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP(6-4) for traffic control details.
5. Truck mounted attenuator is required.
6. The PCMS may be omitted if replaced with a "RAMP CLOSED" AHEAD (CW20RP-3D) Sign.
7. Roadway ADT should be greater than 10,000.

Texas Department of Transportation

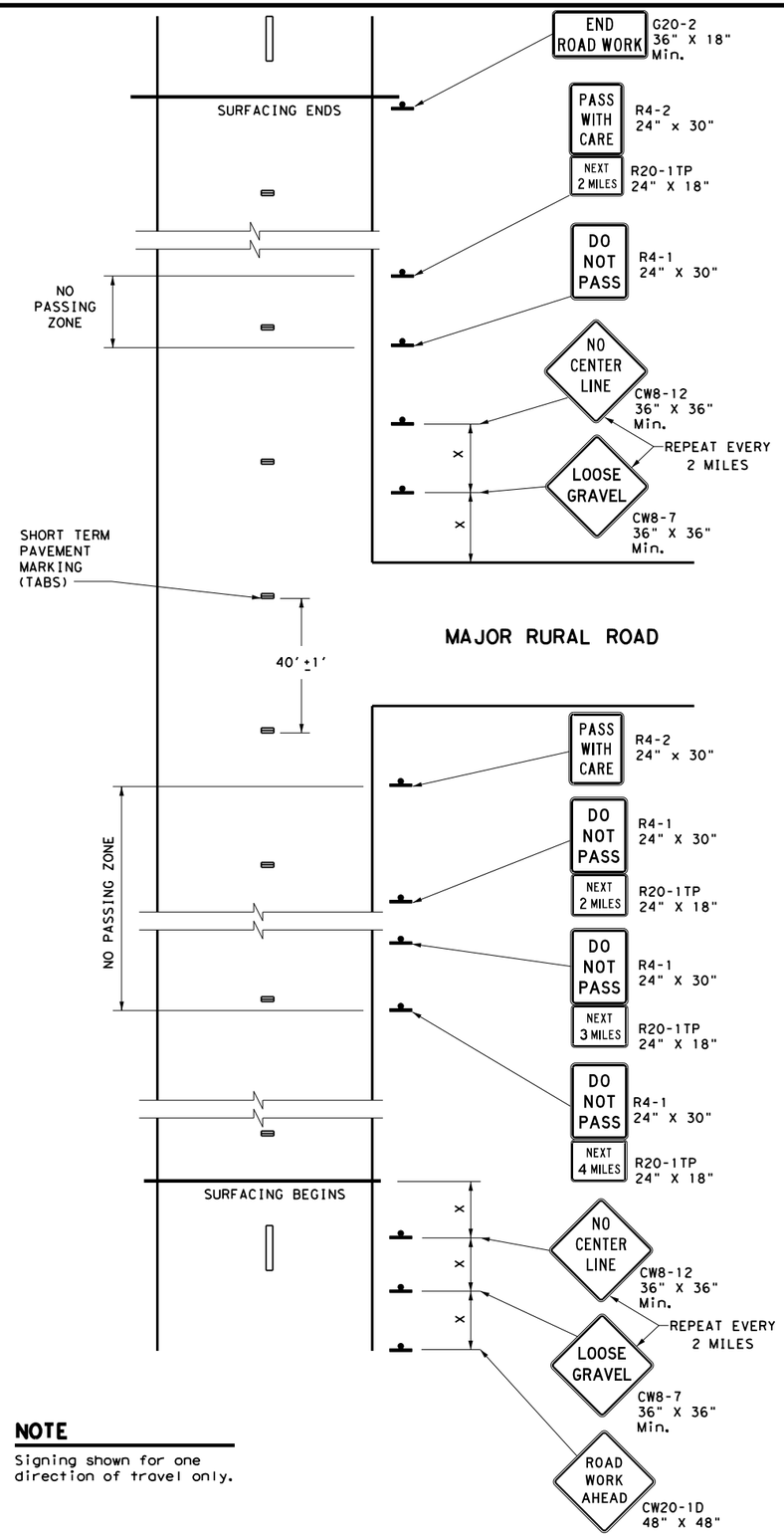
Traffic Operations Division Standard

WORK IN EXIT GORE FOR ADT GREATER THAN 10,000

TCP(6-8)-14

FILE: tcp6-8.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		85

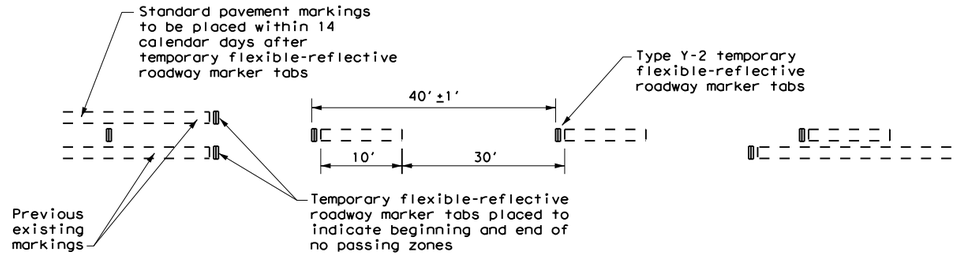
DATE: 7/8/2021 5:14:03 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\TCP7113.dgn



NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat, micro-surface or similar operations

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs 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.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined 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 (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque 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 surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings(low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. 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 surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

C. Tab placement for overlay/inlay operations shall be as shown on the WZ(STPM) standard sheet.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T)sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

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

* Conventional Roads Only

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

GENERAL NOTES

1. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.
2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Long-Term / Intermediate-Term Work Zone Sign Supports.
4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
5. Signs on divided highways, freeways and expressways will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

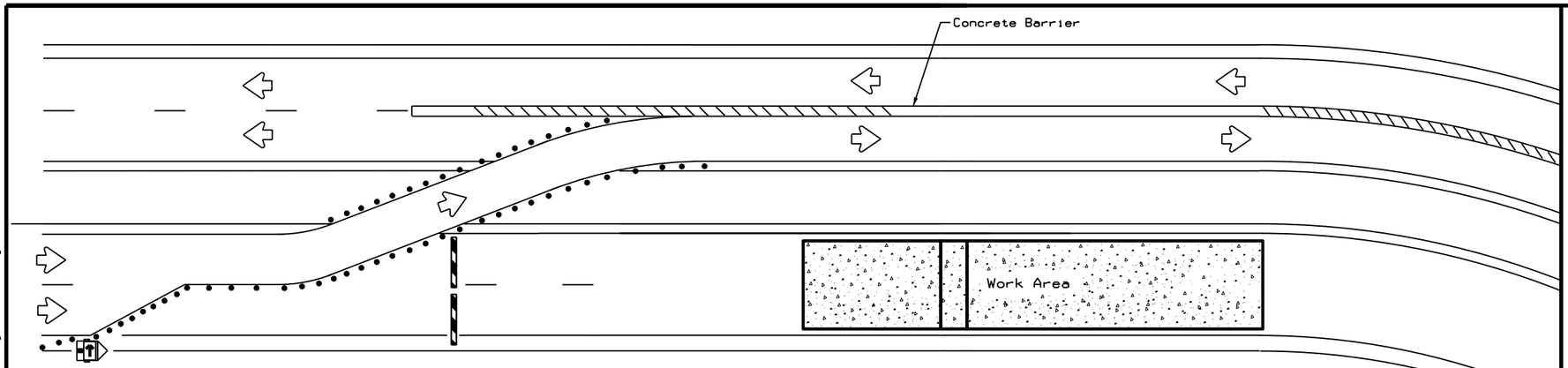
Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP(7-1)-13

FILE:	tcp7-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	March 1991	CONT	SECT	JOB	HIGHWAY
REVISIONS		0255	08	108, etc.	IH-69C, etc.
4-92 4-98		DIST	COUNTY		SHEET NO.
1-97 7-13		PHR	HIDALGO, etc.		86

210



NOTES:

1. Length of Safety Glare screen will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular safety glare screen 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 safety glare screen unit.
3. Screen Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Sign Face Materials, Type B or C Yellow, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one glare screen panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed with reflective sheeting as described.
4. Payment for these devices will be under statewide Special Specification "Modular Glare Screens for Headlight Barrier."
5. This detail is only intended to show types of locations where Glare Screens would be appropriate. Required signing and other devices shall be as shown elsewhere in the plans.

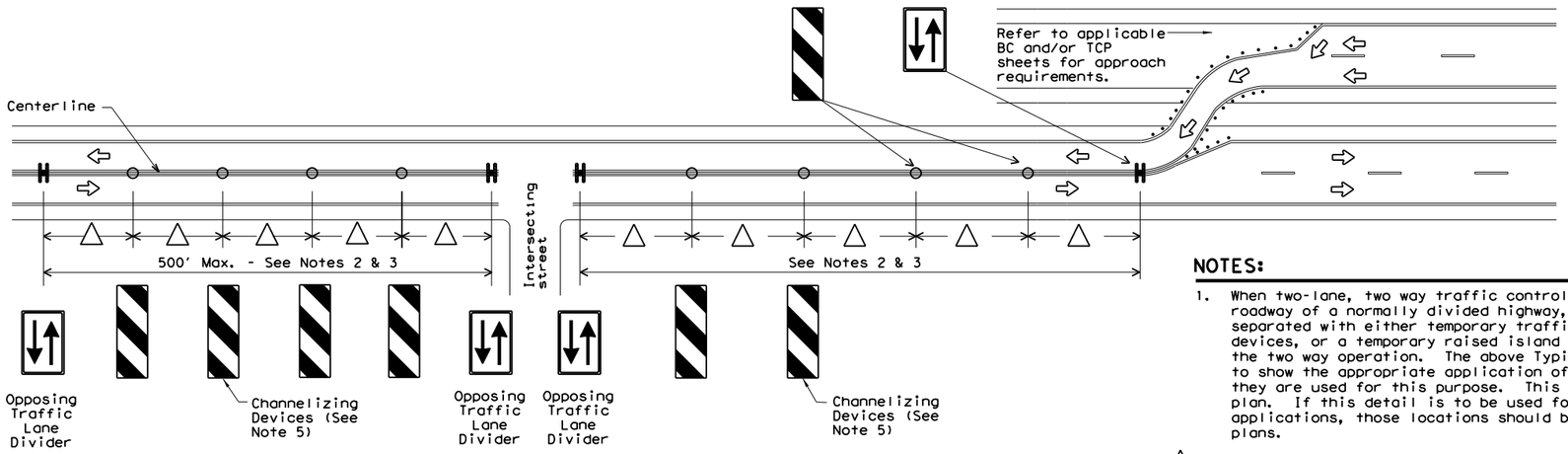
BARRIER DELINEATION WITH MODULAR GLARE SCREENS

LEGEND	
	Type 3 Barricade
• • •	Channelizing Devices
	Trailer Mounted Flashing Arrow Board
	Sign
\\\\	Safety glare screen

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER	DMS-8610

Only pre-qualified products shall be used. A copy of the Compliant Work Zone Traffic Control Devices List" CWZTCD)describes pre-qualified products and their sources and may be found at the following web address:

http://www.txdot.gov/business/resources/producer-list.html



VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS (OTLD) SEPARATING TWO-WAY TRAFFIC ON NORMALLY DIVIDED HIGHWAYS

NOTES:

1. When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.

△2. Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100'.

3. Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
4. Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
5. Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TYPICAL DETAILS

WZ(TD)-17

FILE: wztd-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 2-17 3-03 7-13	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		87

110

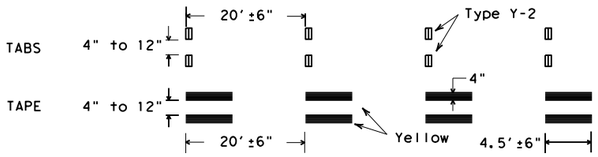
DATE: 7/8/2021 5:14:08 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\WZTD17.dgn

DATE: 7/8/2021 5:14:14 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\WZSTPM13.dgn

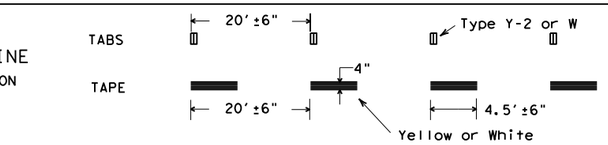
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

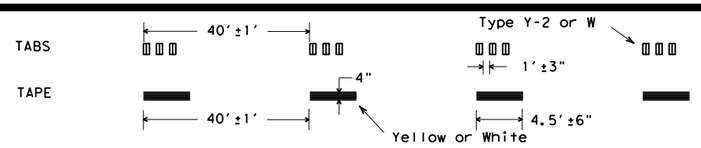


SINGLE NO-PASSING LINE or CHANNELIZATION LINE



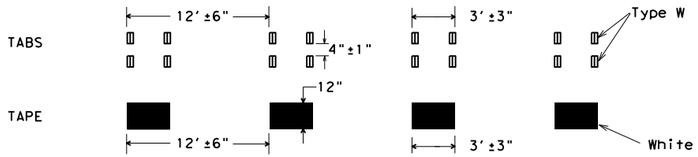
BROKEN LINES

(FOR CENTER LINE OR LANE LINE)

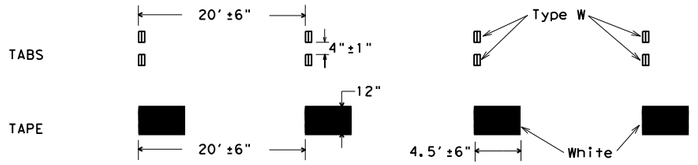


WIDE DOTTED LINES

(FOR LANE DROP LINES)



WIDE GORE MARKINGS



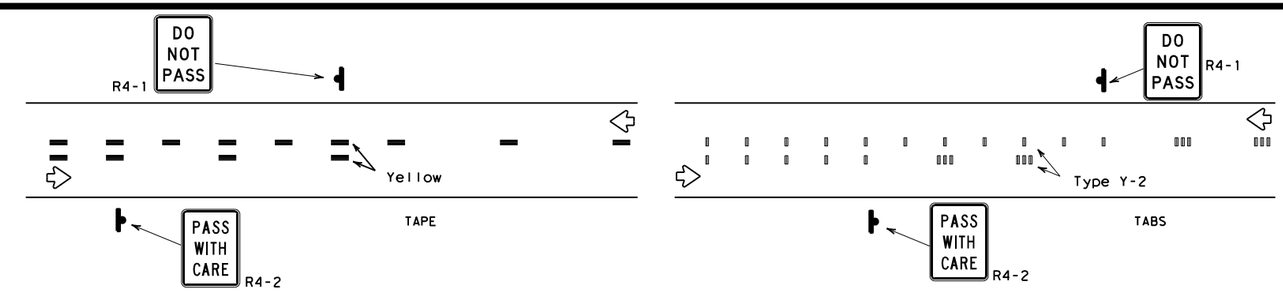
NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. 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 1/4 inch, unless otherwise noted.
4. 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.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. 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 "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. 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).
8. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

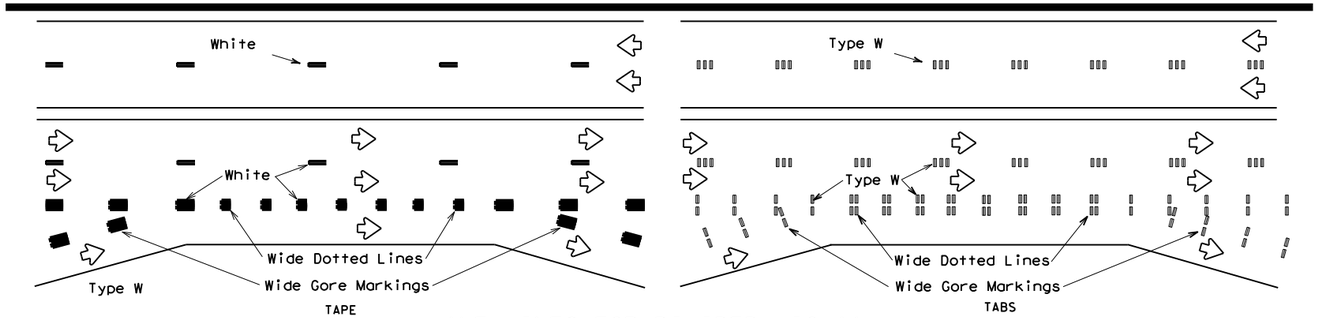
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

1. 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 white or silver reflective surface with white body). Additional details may be found on BC(11).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

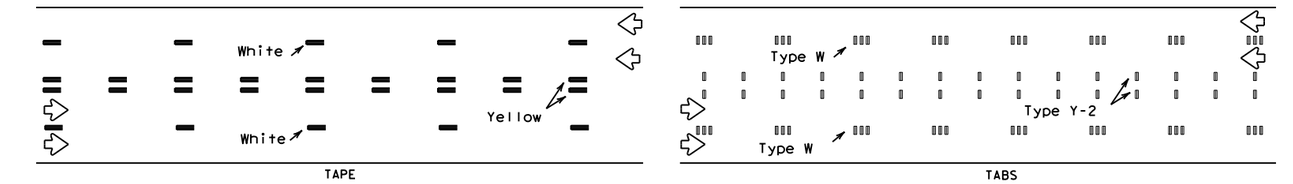
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



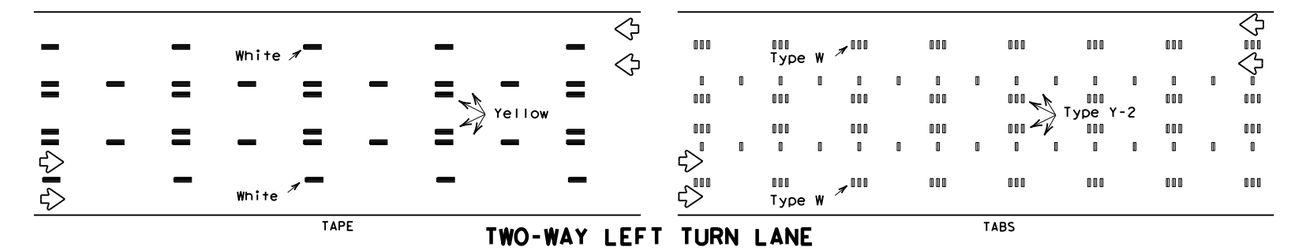
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



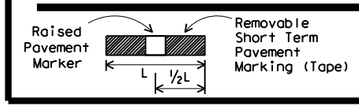
LANE LINES FOR DIVIDED HIGHWAY



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.

PREFABRICATED PAVEMENT MARKINGS

1. Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
2. Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Costruction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:
   http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

Texas Department of Transportation

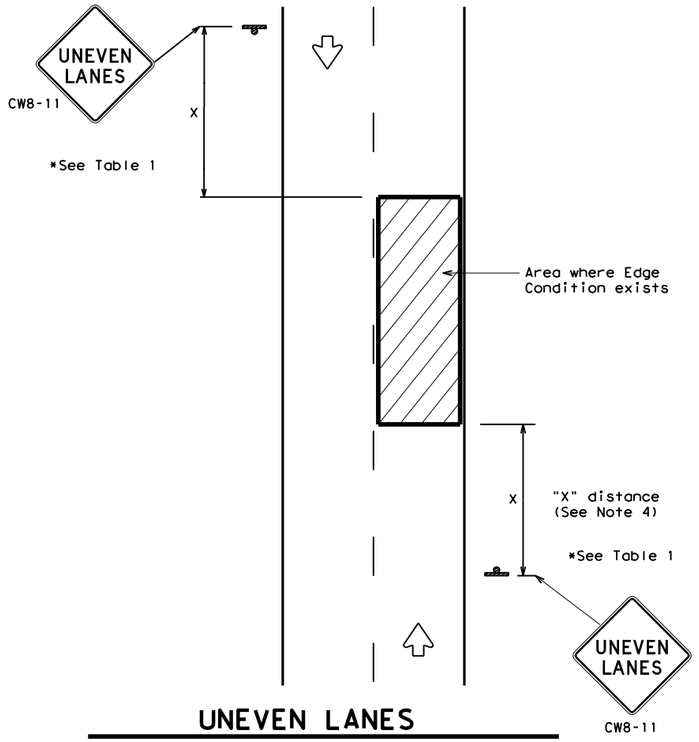
Traffic Operations Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

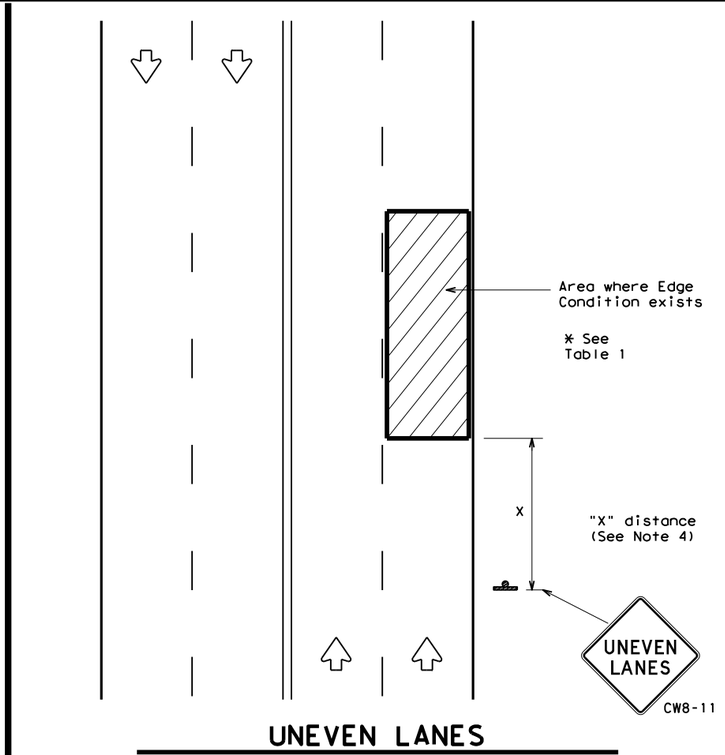
WZ(STPM)-13

FILE:	wzstpm-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS		0255	08	108, etc.	IH-69C,etc.
1-97		DIST	COUNTY		SHEET NO.
3-03		PHR	HIDALGO,etc.		88
7-13					

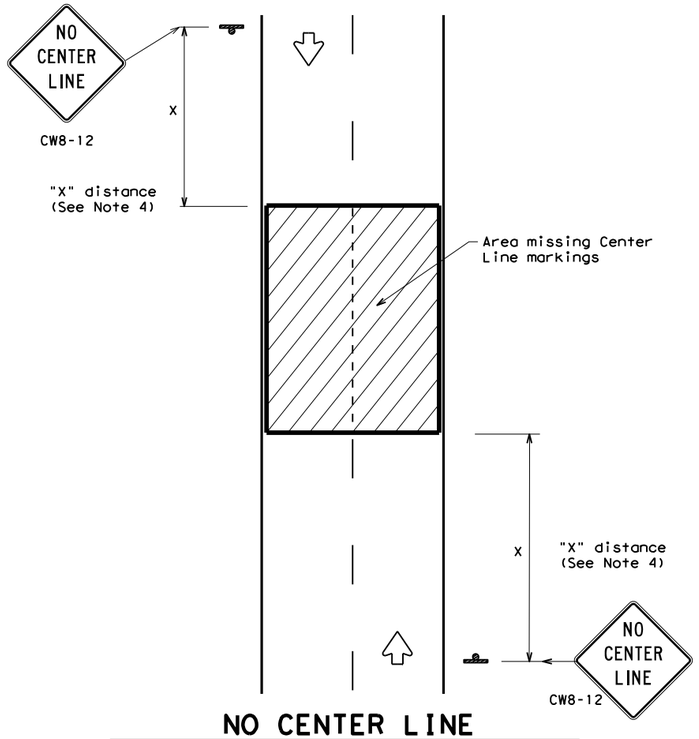
DATE: 7/8/2021 5:14:19 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\WZUL13.dgn



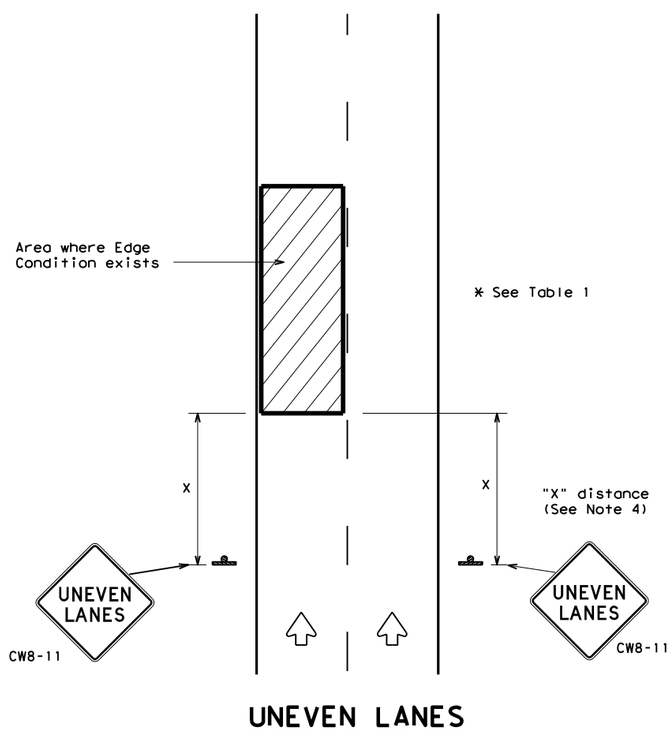
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

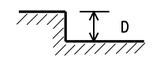
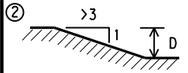
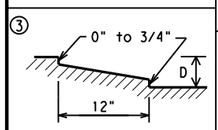
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

1. If spalling or holes occur, ROUGH ROAD (CW8-8) signs should be placed in advance of the condition and be repeated every two miles where the condition persists.
2. UNEVEN LANES (CW8-11) signs shall be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES (CW7-3aP) plaque or Advisory Speed (CW13-1P) plaque.
3. NO CENTER LINE (CW8-12) signs and temporary pavement markings as per the WZ(STPM) standard shall be installed if yellow centerlines separating two way traffic are obscured or obliterated. Repeat NO CENTER LINE signs every two miles where the center line markings are not in place. The signs and markings shall remain in place until permanent pavement markings are installed.
4. Signs shall be spaced at the distances recommended as per BC standards.
5. Additional signs may be required as directed by the Engineer. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to Item 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING."
6. Signs shall be fabricated and mounted on supports as shown on the BC standards and/or listed on the "Compliant Work Zone Traffic Control Devices" list.
7. Short term markings shall not be used to simulate edge lines.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition.

TABLE 1

Edge Condition	Edge Height (D)	* Warning Devices
① 	Less than or equal to: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② 	Less than or equal to 3"	Sign: CW8-11
③  Notched Wedge Joint	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

TRAFFIC CONTROL DURING PLANING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

MINIMUM WARNING SIGN SIZE	
Conventional roads	36" x 36"
Freeways/expressways, divided roadways	48" x 48"

Texas Department of Transportation

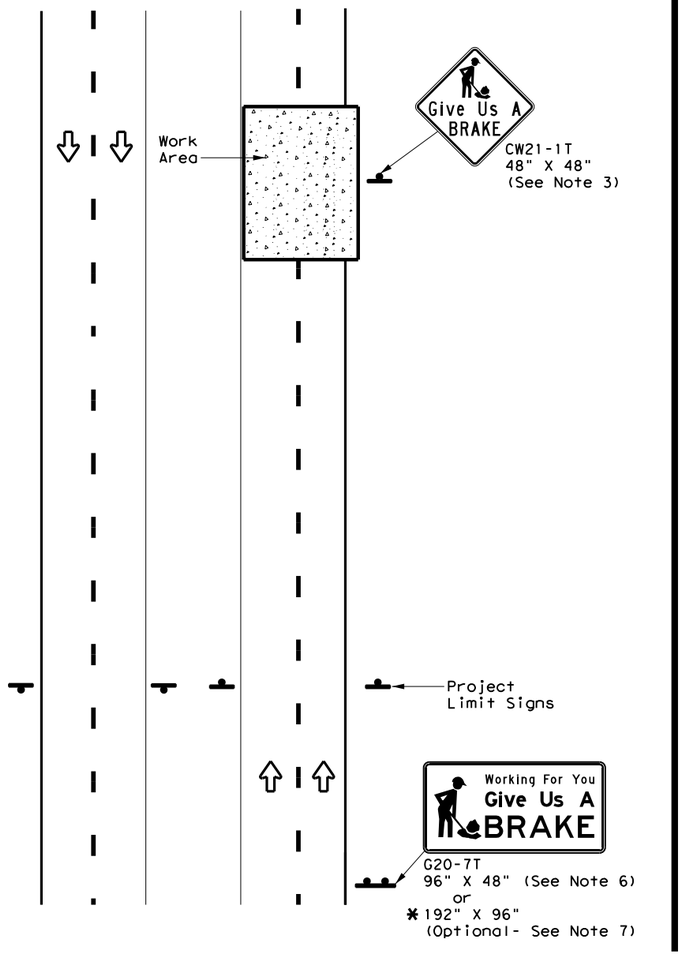
Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

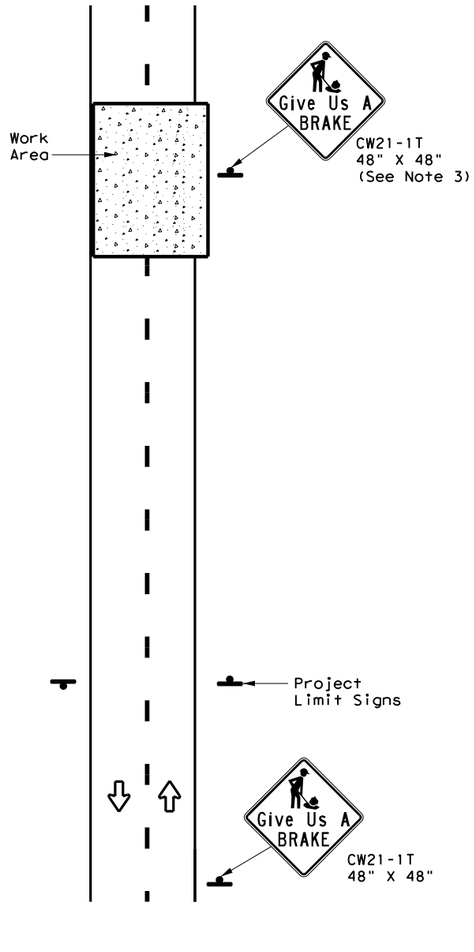
WZ(UL)-13

FILE: wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
8-95 2-98 7-13	DIST	COUNTY		SHEET NO.
1-97 3-03	PHR	HIDALGO, etc.		89

DATE: 7/8/2021 5:14:25 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\WZBRK13.dgn



DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

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

SUMMARY OF LARGE SIGNS

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

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

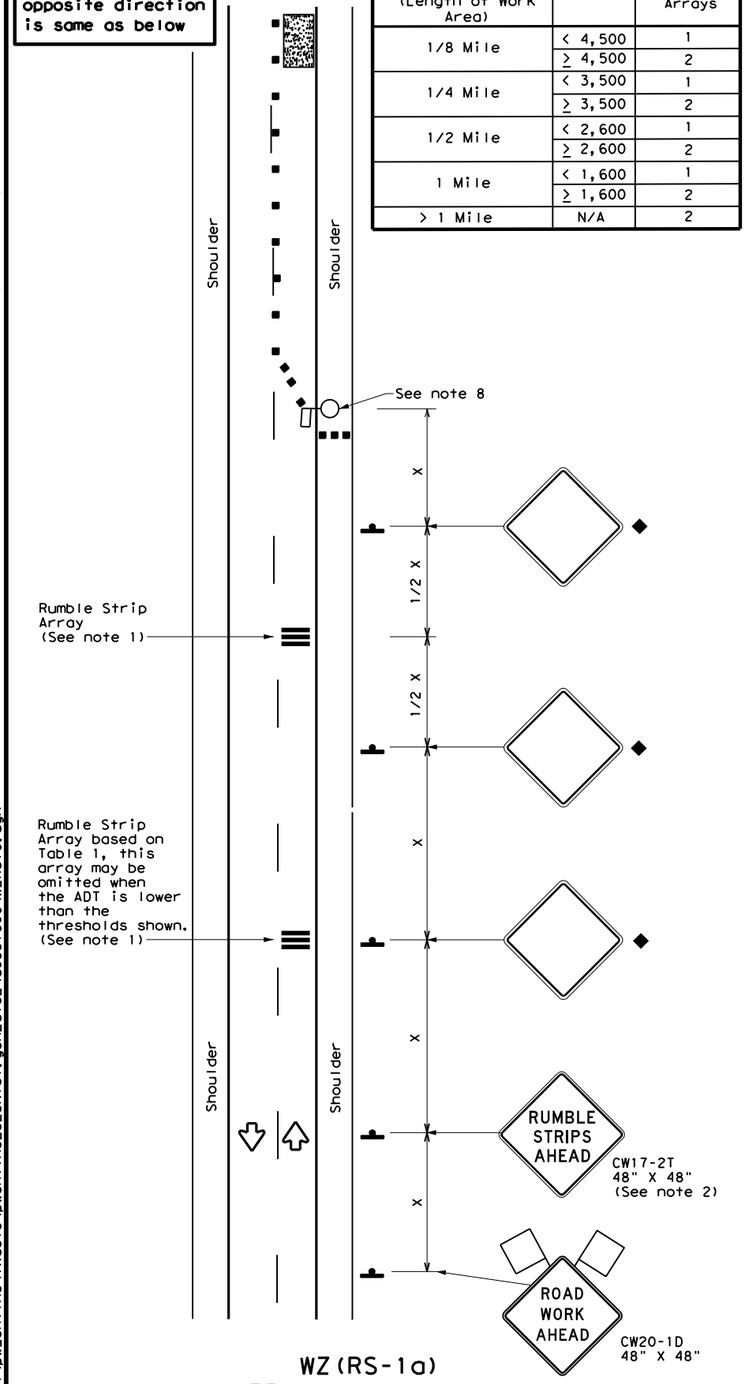
FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
6-96 5-98 7-13	DIST	COUNTY		SHEET NO.
8-96 3-03	PHR	HIDALGO, etc.		90

116

DATE: 7/8/2021 5:14:30 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\WZRS16.dgn

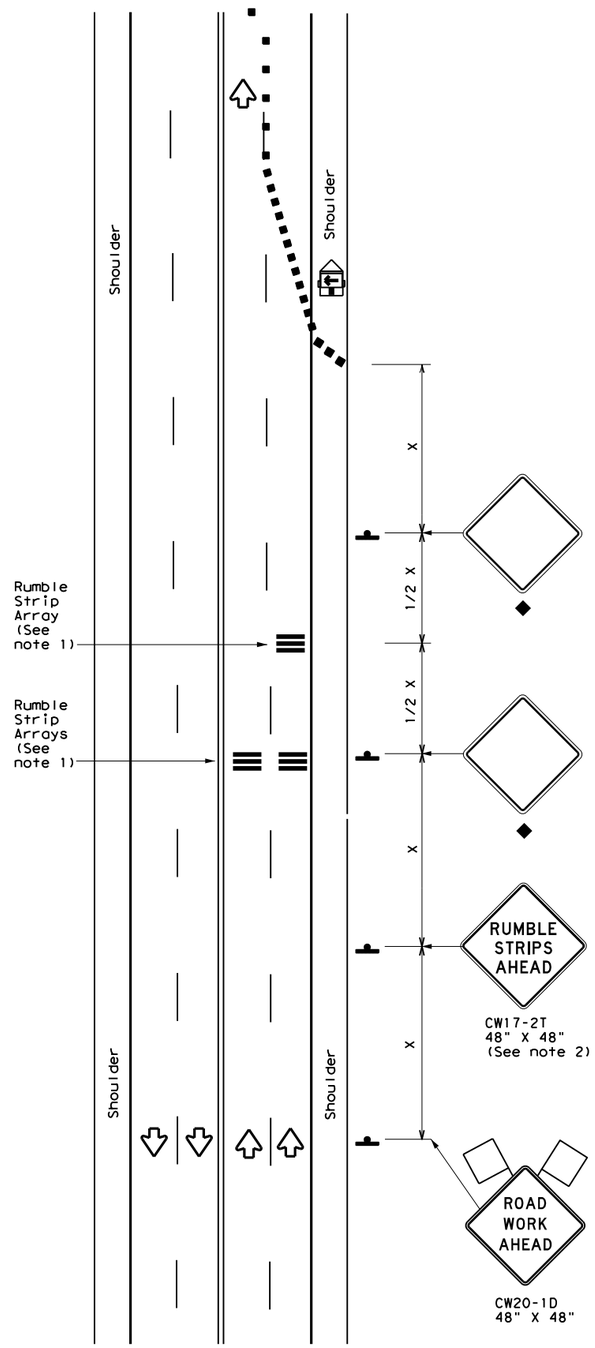
Warning sign and rumble strip sequence in opposite direction is same as below

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



WZ(RS-1a)
75 mph or Less

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)
75 mph or Less

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

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

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

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

* Conventional Roads Only

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

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

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

TABLE 2	
Speed	Approximate distance between strips in an Array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
> 55 MPH	20'

Texas Department of Transportation

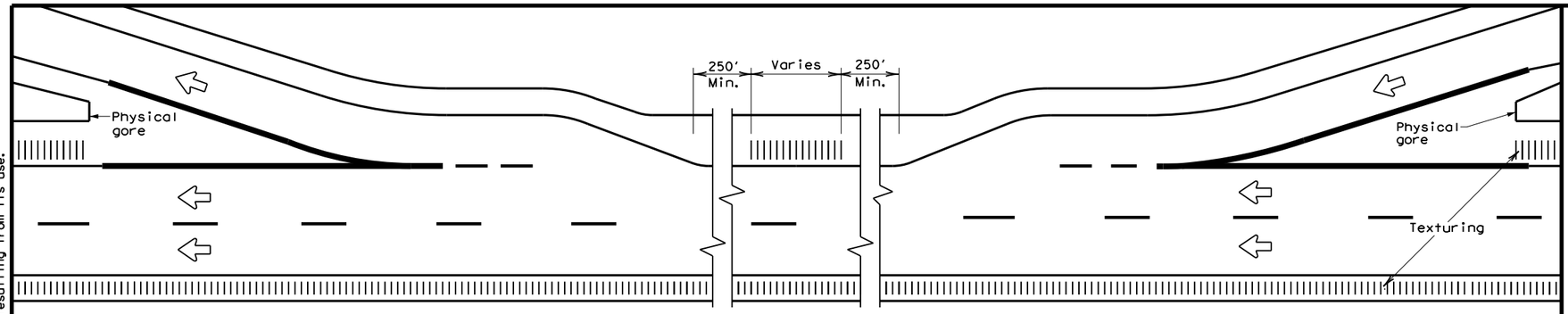
Traffic Operations Division Standard

TEMPORARY RUMBLE STRIPS

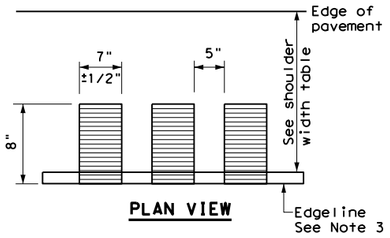
WZ(RS)-16

FILE: wzrs16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
2-14	DIST	COUNTY		SHEET NO.
4-16	PHR	HIDALGO, etc.		91

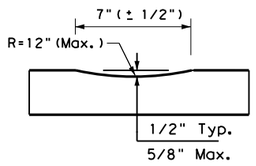
DATE: 7/8/2021 5:14:35 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\RS113.dgn



TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMPS

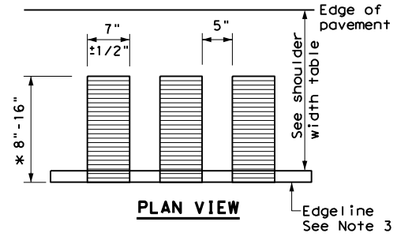


PLAN VIEW



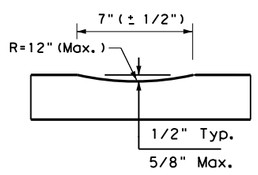
PROFILE VIEW
OPTION 1

CONTINUOUS MILLED DEPRESSIONS
(Rumble Stripes)



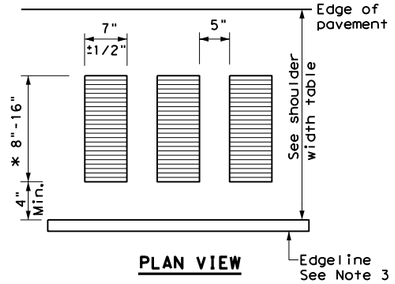
PLAN VIEW

* This distance may vary based on width of shoulder



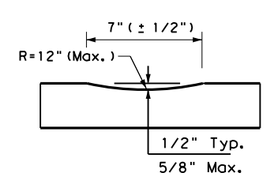
PROFILE VIEW
OPTION 2

CONTINUOUS MILLED DEPRESSIONS
(Rumble Stripes)



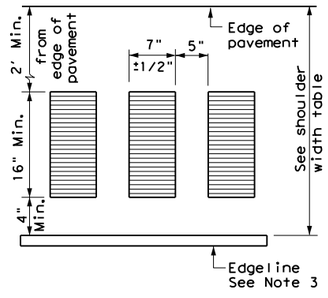
PLAN VIEW

* This distance may vary based on width of shoulder

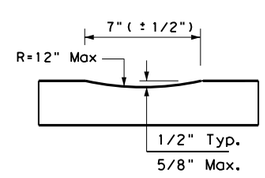


PROFILE VIEW
OPTION 3

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



PLAN VIEW



PROFILE VIEW
OPTION 4

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)

GENERAL NOTES

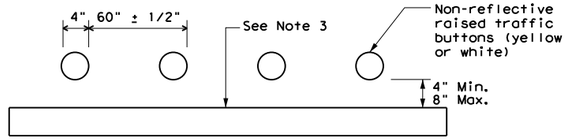
1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the table below for determining what options may be used for edgeline rumble strips.

WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:

5. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
6. Pavement markings can be applied over milled shoulder rumble strips to create an edgeline rumble stripe.
7. Breaks in edgeline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections and driveways with high usage of large trucks when installed on conventional highways.
8. Rumble strips shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
9. Consideration should be given to noise levels when edgeline rumble strips are installed near residential areas, schools, churches, etc. A minimum of 3/8 inches depth of milled rumble strip may be considered in these areas.
10. On roadways with high bicycle activity, consideration should be given before the installation of edgeline rumble strips. Things to consider include size of rumble strips, rumble strip material and location of rumble strips on the shoulder. If the designer determines that gaps are needed in the rumble strips due to bicycle use of the road, then follow the requirement shown in FHWA Technical Advisory T5040.39, or latest version. A detail of the spacing shall be included in the plans.

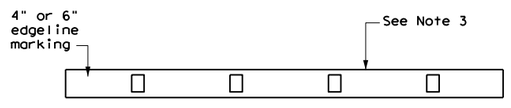
WHEN INSTALLING RAISED OR PROFILE EDGELINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edgeline when used as a rumble strip. The color of the button should match the color of the adjacent edgeline marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. Breaks in edgeline rumble strips using raised traffic buttons shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections and driveways with high usage of large trucks when installed on conventional highways.
15. The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
16. Raised profile thermoplastic markings used as edgelines may substitute for buttons.



PLAN VIEW
OPTION 5

RAISED EDGELINE RUMBLE STRIPS



PLAN VIEW
OPTION 6

PROFILE EDGELINE MARKINGS

SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5 OR 6	Option 1, 2, 3, 5 or 6	Option 2, 4, 5 OR 6

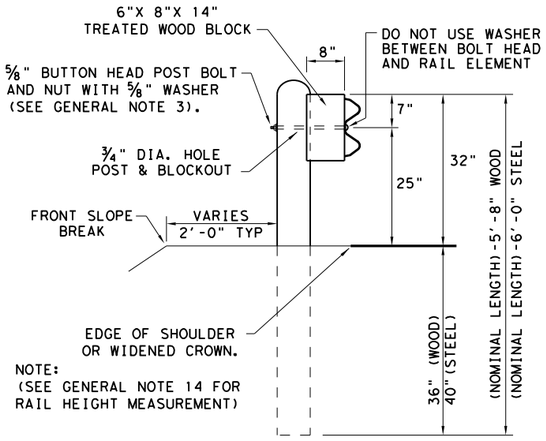
Texas Department of Transportation

Traffic Operations Division Standard

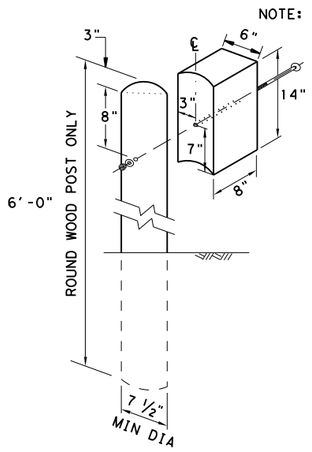
EDGELINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS
RS(1)-13

FILE: rs(1)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-10 10-13	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		92

DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\gf3119.dgn

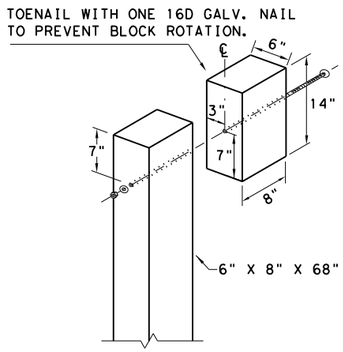


TYPICAL POST PLACEMENT

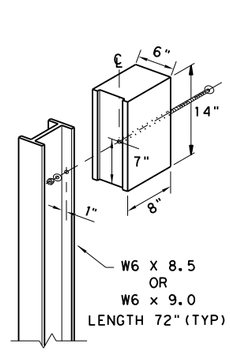


WOOD BLOCK TO ROUND WOOD POST

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.

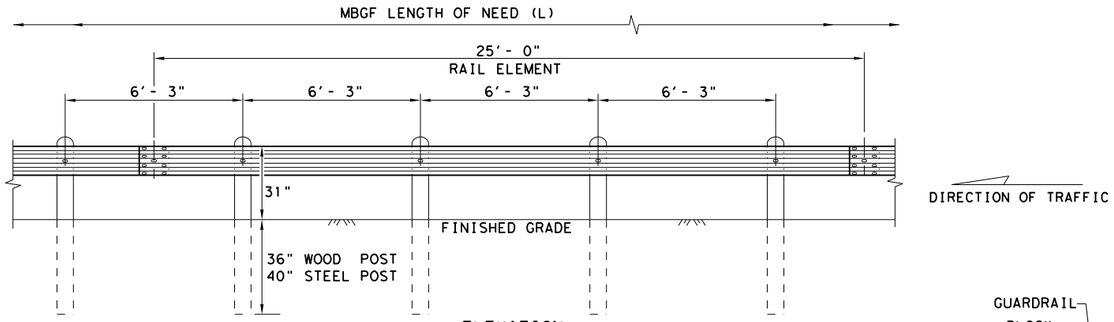


WOOD BLOCK TO RECTANGULAR WOOD POST



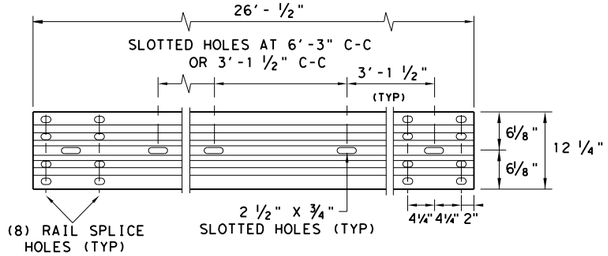
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



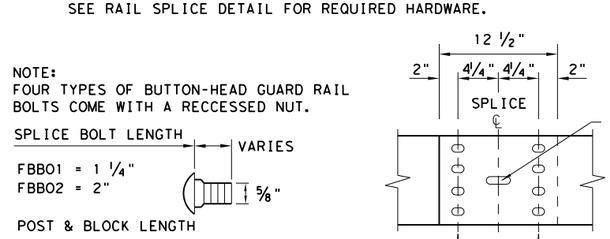
ELEVATION
MID-SPAN RAIL SPLICE

SHOWING A 25'- 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



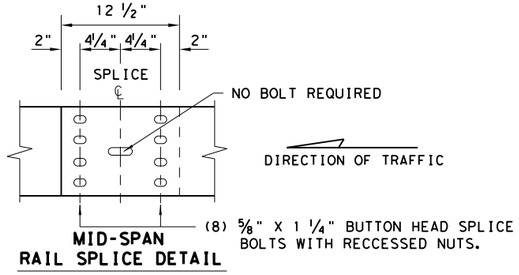
ELEVATION 25'- 0" (NOM.) W-BEAM SECTION

NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES.
SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.



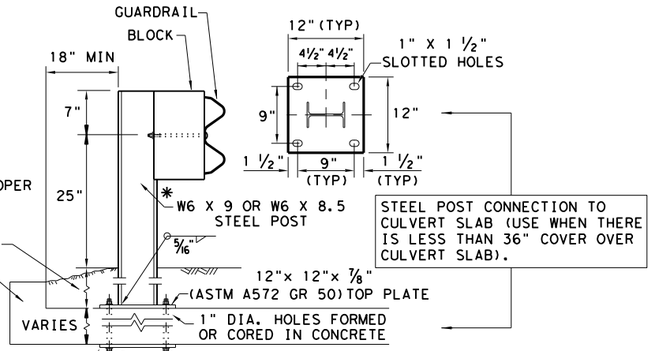
BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



MID-SPAN RAIL SPLICE DETAIL

NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.



*POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.

STEEL POST CONNECTION TO CULVERT SLAB (USE WHEN THERE IS LESS THAN 36" COVER OVER CULVERT SLAB).

LOW FILL CULVERT POST

NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS.
SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS.
SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. ⅞" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 ¼" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE ⅞" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS ¼" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

GENERAL NOTES

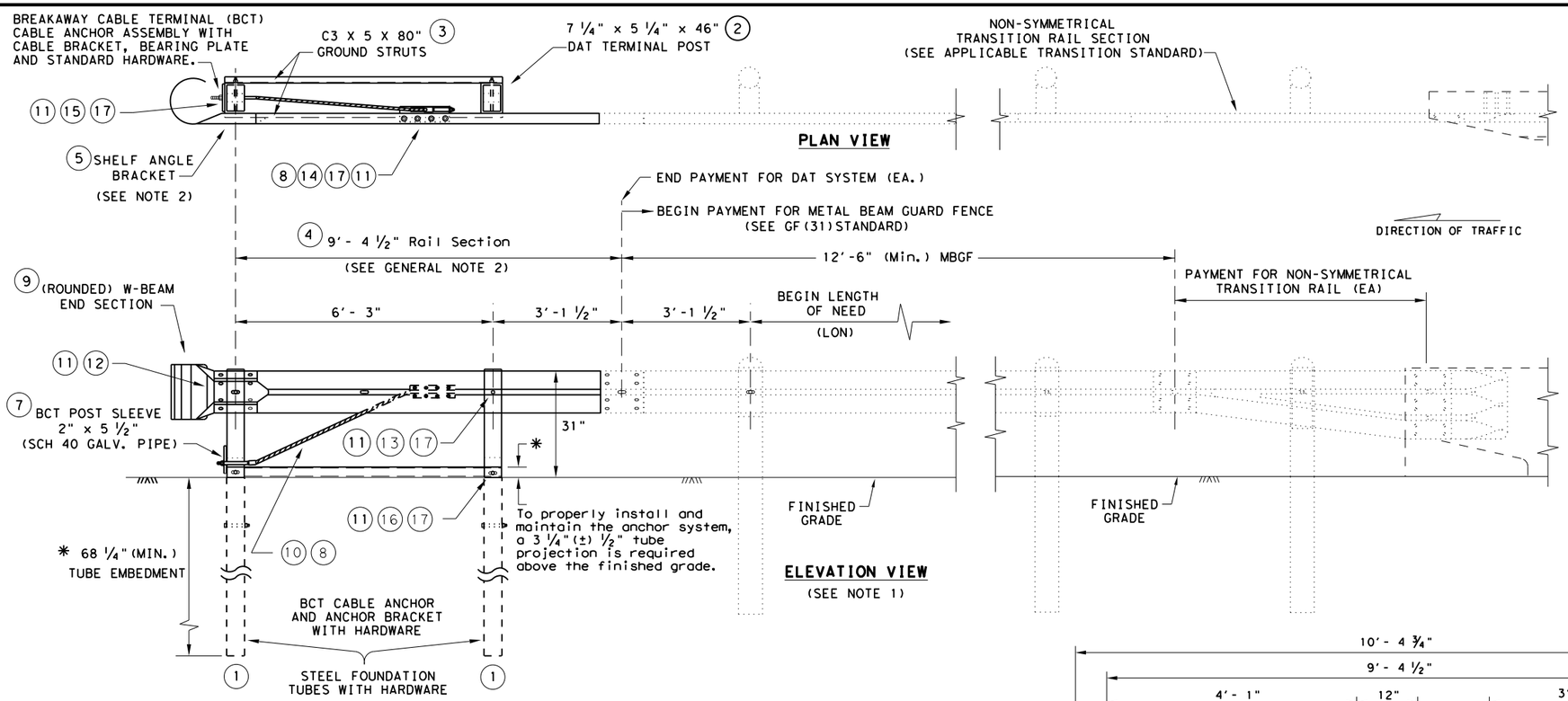
1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 ½" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13.

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE
TL-3 MASH COMPLIANT
GF(31)-19

FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		93

DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\gf31dat19.dgn



DOWNSTREAM ANCHOR TERMINAL (DAT)

NOTE: ONLY FOR DOWNSTREAM USE, WHEN LOCATED OUTSIDE THE HORIZONTAL CLEARANCE AREA OF OPPOSING TRAFFIC.

GENERAL NOTES

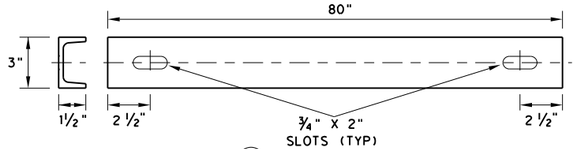
1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 3/4" ABOVE THE FINISHED GRADE.
4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
5. REFER TO GF(31) SHEET FOR TERMINAL CONNECTION DETAILS.

MOW STRIP INSTALLATION

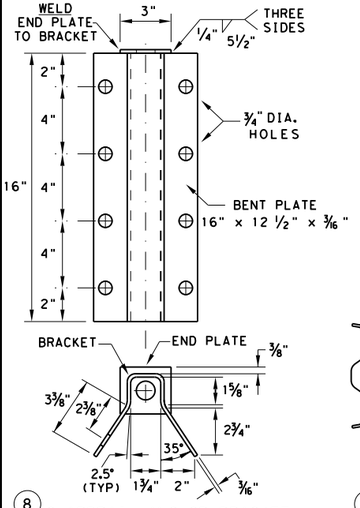
IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(DAT) PARTS LIST	QTY
(1)	STEEL FOUNDATION TUBE	2
(2)	DAT TERMINAL POST	2
(3)	CHANNEL STRUT	2
(4)	TERMINAL RAIL ELEMENT	1
(5)	SHELF ANGLE BRACKET	1
(6)	BCT BEARING PLATE	1
(7)	BCT POST SLEEVE	1
(8)	GUARDRAIL ANCHOR BRACKET	1
(9)	(ROUNDED) W-BEAM END SECTION	1
(10)	BCT CABLE ANCHOR	1
(11)	RECESSED NUT, GUARDRAIL	20
(12)	1 1/4" BUTTON HEAD BOLT	4
(13)	10" BUTTON HEAD BOLT	2
(14)	5/8" X 2" HEX HEAD BOLT	8
(15)	5/8" X 8" HEX HEAD BOLT	4
(16)	5/8" X 10" HEX HEAD BOLT	2
(17)	5/8" FLAT WASHER	18

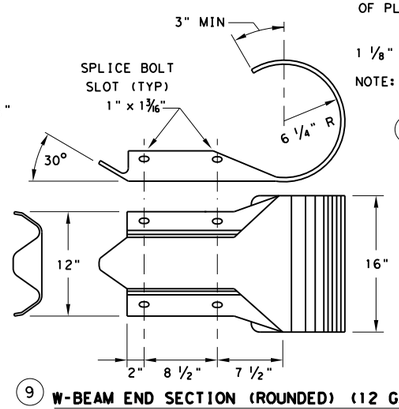
(4) TERMINAL RAIL ELEMENT FOR DAT



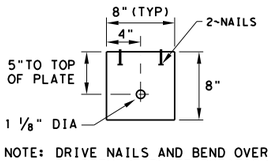
(3) CHANNEL STRUT
C3 X 5 X 80", GRADE A36



(8) GUARDRAIL ANCHOR BRACKET

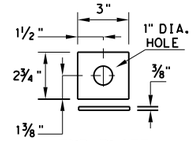


(9) W-BEAM END SECTION (ROUNDED) (12 GA.)

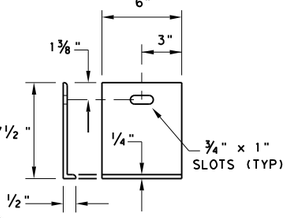


NOTE: DRIVE NAILS AND BEND OVER TO PREVENT PLATE ROTATION

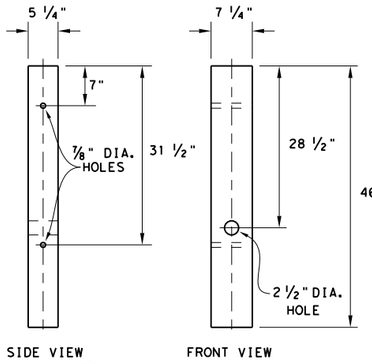
(6) BEARING PLATE
8"x 8"x 5/8" R



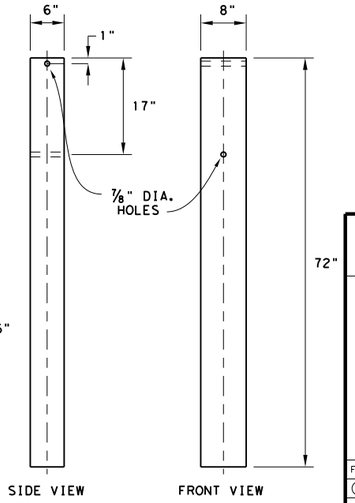
END PLATE



(5) SHELF ANGLE BRACKET



(2) TERMINAL POST
7 1/4"x 5 1/4"x 46" WOOD POST



(1) STEEL FOUNDATION TUBE
6"x 8"x 1/8" x 72" STEEL TUBE

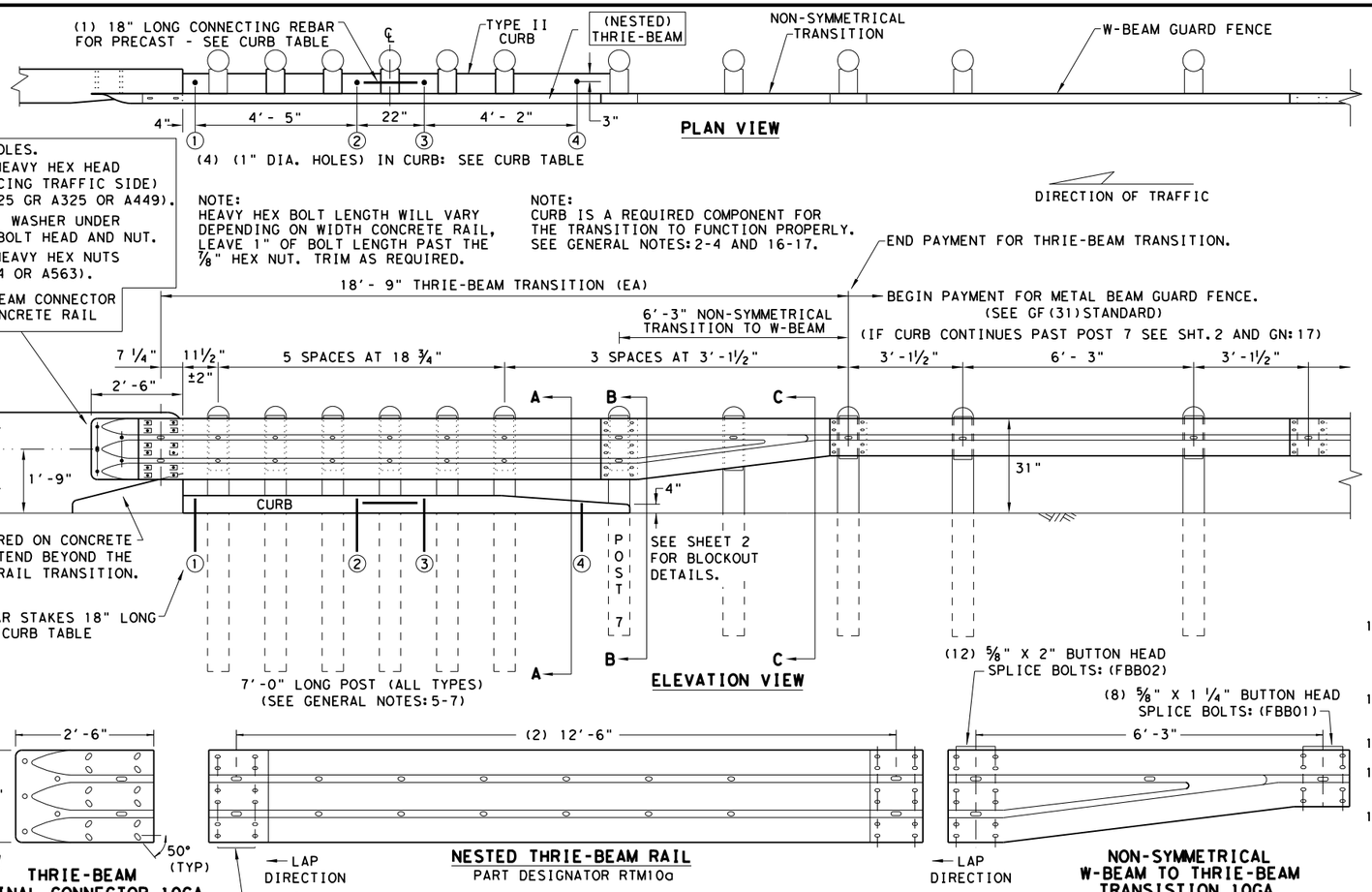
Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL)
TL-3 MASH COMPLIANT

GF(31)DAT-19

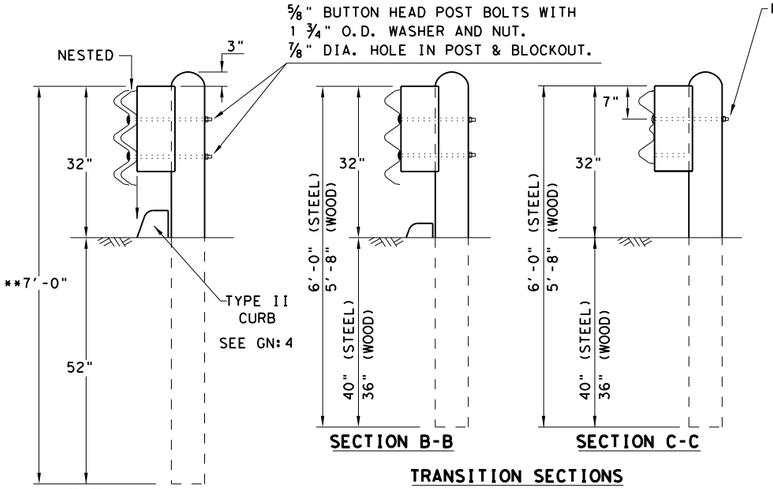
FILE: gf31dat19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		94

DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\gf31trt1320.dgn



GENERAL NOTES

1. CONTACT THE DESIGN DIVISION FOR DRAINAGE CUT OUT OPTIONS NEEDED WITHIN THE CURB SECTION OF THE THRIE-BEAM TRANSITION. (512) 416-2678
2. CONCRETE CURB MAY BE CAST-IN-PLACE OR PRECAST AS SHOWN ON THIS SHEET. WHEN USED IN CONJUNCTION WITH THE THRIE-BEAM TRANSITIONS, CURB SHALL BE TYPE II (5- ¾" HEIGHT); SEE CURRENT CCCG STANDARD SHEET FOR FURTHER DETAILS. IF OTHER CURB HEIGHTS ARE SHOWN IN THE PLANS IN CONJUNCTION WITH THE TRANSITION, THE CURB HEIGHT MAY BE FROM 4" TO 8" WITH A RELATIVELY VERTICAL FACE. CONCRETE CURB SHALL BE CONTINUOUS TO THE SEVENTH POST UNLESS OTHERWISE SHOWN IN THE PLANS. SEE GENERAL NOTE: 17 FOR CIRCUMSTANCES WHERE CURB CONTINUES PAST POST 7.
3. CONCRETE CURB TYPE II SUBSIDIARY TO "METAL BEAM GUARD FENCE TRANSITION". IF NO ADDITIONAL CURB IS INDICATED BEYOND THE TRANSITION, THEN ANY CURB HEIGHT GREATER THAN 4" WILL BE TAPERED DOWN BEGINNING AT THE LAST 7 FT. POST TO A MAXIMUM HEIGHT OF 4" AT POST 7. IF SHOWN ELSEWHERE IN THE PLANS, ADDITIONAL CURB UNDERNEATH GUARDRAIL WILL BE PAID FOR BY THE LINEAR FOOT.
4. UNLESS OTHERWISE SHOWN IN THE PLANS, TRANSITIONS SHALL BE PLACED WITH THE BLOCKOUT FACE IN FRONT OF OR DIRECTLY ABOVE THE CURB FACE. SEE SECTION A-A.
5. FOR ROUND WOOD POST SYSTEMS, ALL ROUND WOOD POSTS SHALL BE 7 ½" DIA. MINIMUM THROUGHOUT THE THRIE-BEAM TRANSITION.
6. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. REFER TO GF(31) STANDARD SHEET.
7. THE POST LENGTH SHALL BE MARKED ON ALL 7'- 0" LONG POSTS BY THE MANUFACTURER. THE MARK SHALL BE LOCATED WITHIN THE TOP 1 FT. REGION OF THE POST, AT LEAST ⅝" IN HEIGHT, AND VISIBLE AFTER INSTALLATION. WOODEN POSTS SHALL BE MARKED WITH A BRAND, AND STEEL POSTS WITH A STENCIL BEFORE GALVANIZING.
8. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
9. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED ON THE PLANS. THE THRIE-BEAM TERMINAL CONNECTOR AND THE THRIE-BEAM TRANSITION TO W-BEAM SHALL BE OF THE SAME MATERIAL, BUT SHALL NOT BE LESS THAN 10 GAUGE. CONTRACTOR SHALL VERIFY THAT THE LOCATIONS OF BOLT HOLES MATCH THOSE IN THE THRIE-BEAM TERMINAL CONNECTOR PRIOR TO ORDERING MATERIALS.
10. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
11. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
12. CROWN SHALL BE WIDENED TO ACCOMMODATE TRANSITIONS.
13. WHERE SOLID ROCK IS ENCOUNTERED, CONTACT THE DESIGN DIVISION FOR ADDITIONAL GUIDANCE. (512) 416-2678
14. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. TXDOT'S MATERIALS AND TESTS DIVISION MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210. ONLY PRODUCERS ON THE MPL CAN FURNISH COMPOSITE MATERIAL BLOCKS.
15. REFER TO GF(31) STANDARD SHEET & BRIDGE RAILING DETAILS FOR ADDITIONAL DETAILS.
16. THE INSTALLATION OF THE TYPE II CURB IS CRITICAL FOR THE PERFORMANCE OF THE THRIE-BEAM TRANSITION SYSTEM. THE CURB PREVENTS (VEHICLE WHEEL SNAGGING) AT THE CONCRETE RAIL AND IS REQUIRED TO MEET MASH CRASH TEST CRITERIA.
17. IF CURB EXTENDS BEYOND POST 7, 25' OF NESTED W-BEAM GUARDRAIL SHALL BE INSTALLED BEYOND THE PAY LIMITS OF THRIE-BEAM TRANSITION SECTION, (SEE SHT.2). PAYMENT FOR THIS 25' SECTION WILL BE BY LINEAR FOOT, PAY ITEM "0540 6XXX MTL W-BEAM GD FEN (NESTED)(TIM POST)" OR "540 6XXX MTL W-BEAM GD FEN (NESTED)(STEEL POST)" AS APPLICABLE FOR POST TYPE. SEE SHT.2 FOR ADDITIONAL INFORMATION.



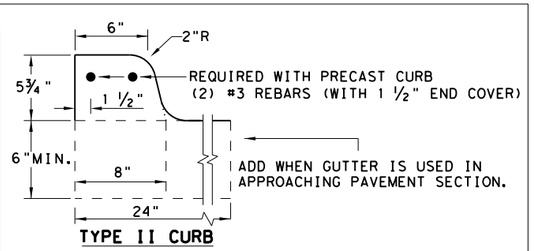
THRIE-BEAM TERMINAL - CURB TABLE

PRECAST CURB FULL LENGTH EQUALS 12'- 2"
THE PRECAST CURB MAY BE FORMED INTO TWO SECTIONS.

CURB (1) LENGTH 5'- 8"
CURB (2) LENGTH 6'- 6"
TAPER CURB (2) TO A HEIGHT OF 4" AT POST 7

CONNECTING PRECAST CURB SECTIONS (1) & (2):
FORM OR CORE 1" DIA. HOLE 9" LONG INTO EACH CURB END. USE (1) #5 GR.60 REBAR 18" LONG TO CONNECT BOTH CURBS.

SECURING PRECAST OR CAST-IN-PLACE TO FINISHED GRADE *:
FORM OR CORE (4) 1" DIA. HOLES, SEE PLAN AND ELEVATION VIEWS FOR HOLE LOCATIONS. DRIVE (4) #5 GR.60 REBAR STAKES 18" LONG INTO THE GROUND AND ½" BELOW TOP OF CURB.
FILL HOLES WITH APPROVED GROUT MIXTURE.



TYPE II CURB

NOTE: OPTIONS FOR TYPE II CURB:
1. PRECAST
2. CAST-IN-PLACE

* NOTES: NOT NEEDED FOR CAST-IN-PLACE.
SEE TYPE II CURB DETAIL FOR REBAR AND COVER REQUIREMENTS.
PERCUSSION DRILLING IS NOT PERMITTED WITH:
TYPE II CURB, BRIDGE RAIL OR CONCRETE TRAFFIC RAIL.

TYPE II CURB DETAILS

HIGH-SPEED TRANSITION

SHEET 1 OF 2

Texas Department of Transportation — Design Division Standard

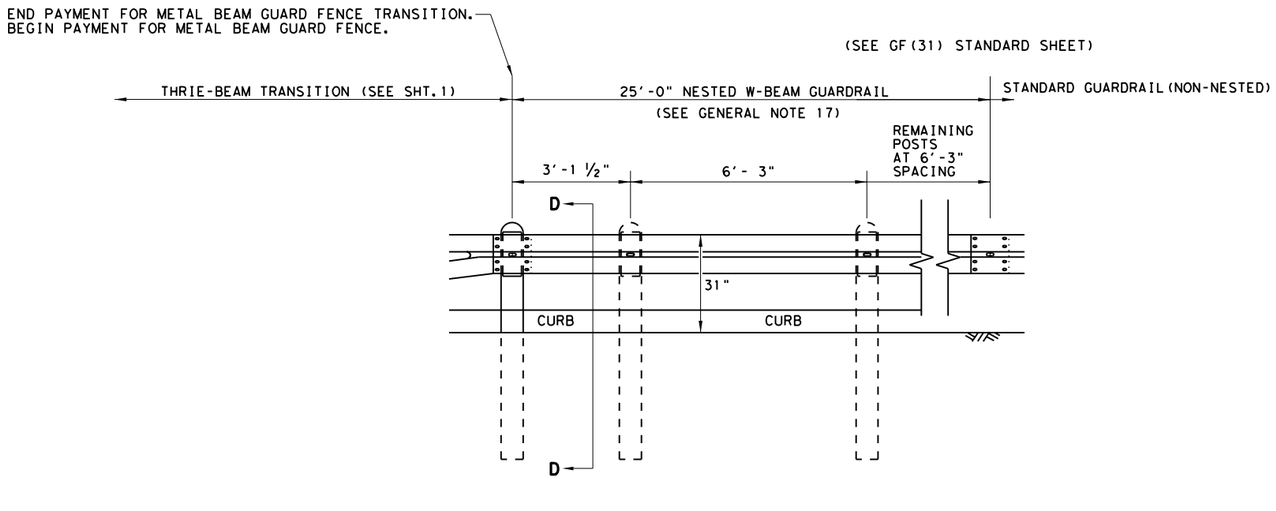
METAL BEAM GUARD FENCE THRIE-BEAM TRANSITION TL-3 MASH COMPLIANT

GF(31)TR TL3-20

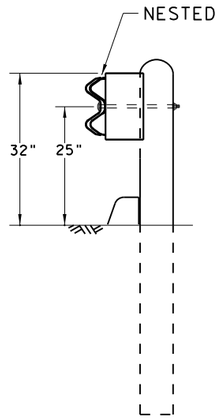
FILE: gf31trt1320.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		95

DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\gf31trt1320.dgn

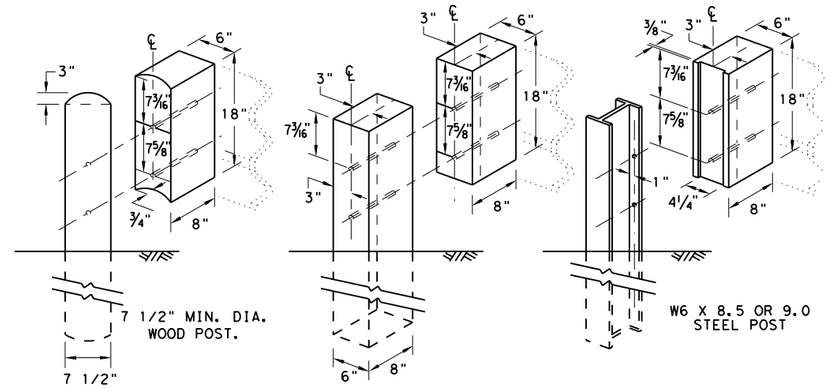
REQUIRED ALTERNATIVE FOR CONTINUOUS CURB EXTENDING PAST POST 7 (SEE SHT. 1 GENERAL NOTE 17)



ELEVATION VIEW



SECTION D-D



THRIE BEAM TRANSITION BLOCKOUT DETAILS

HIGH-SPEED TRANSITION

SHEET 2 OF 2

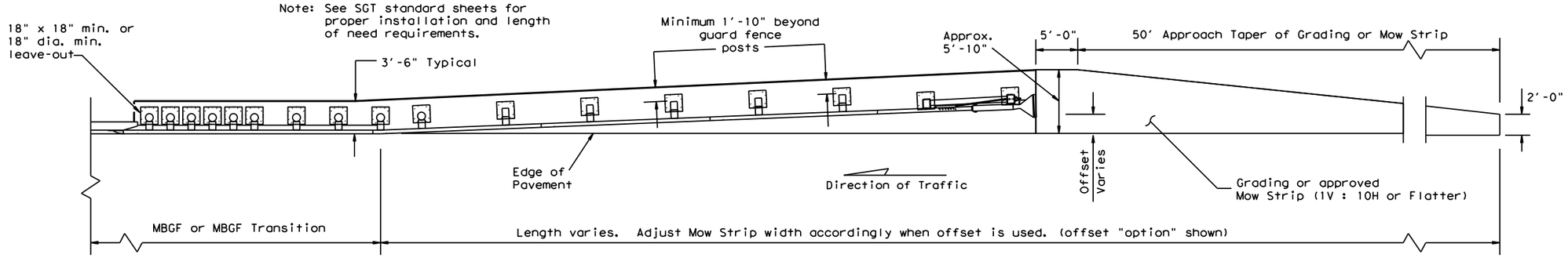
Texas Department of Transportation | Design Division Standard

METAL BEAM GUARD FENCE THRIE-BEAM TRANSITION TL-3 MASH COMPLIANT

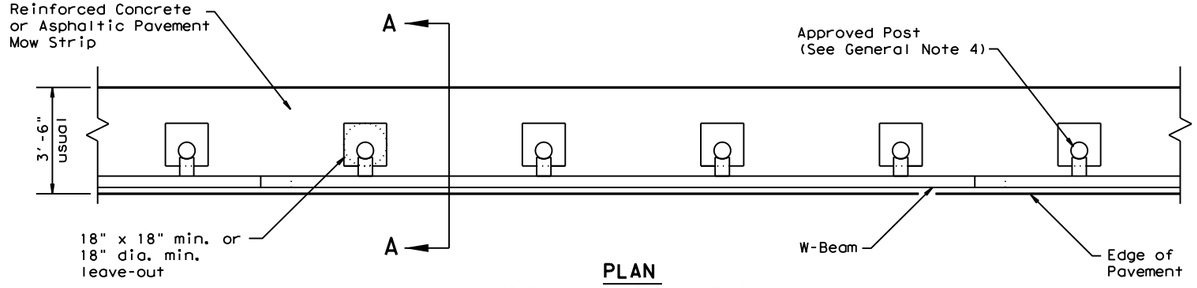
GF(31)TR TL3-20

FILE: gf31trt1320.dgn	DN: TxDOT	CK: KM	DW: KM	CK: CGL/AG
©TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		96

DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\gf31ms19.dgn

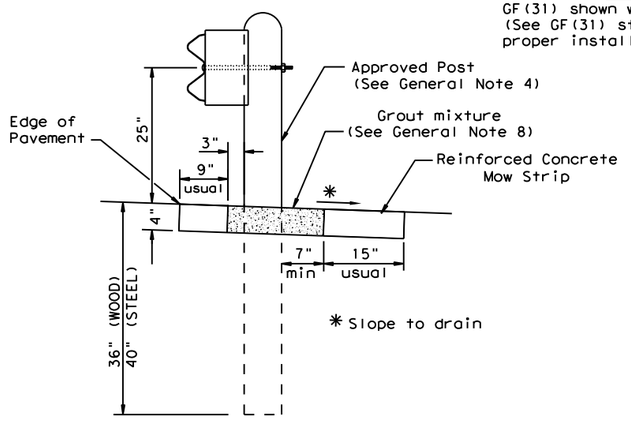


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS



PLAN

GF(31) shown with Mow Strip
(See GF(31) standard sheet for proper installation)

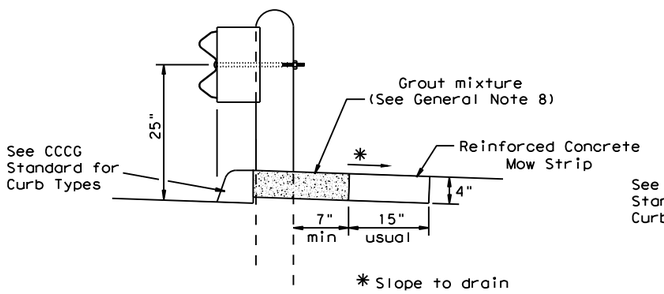


SECTION A-A

Typical

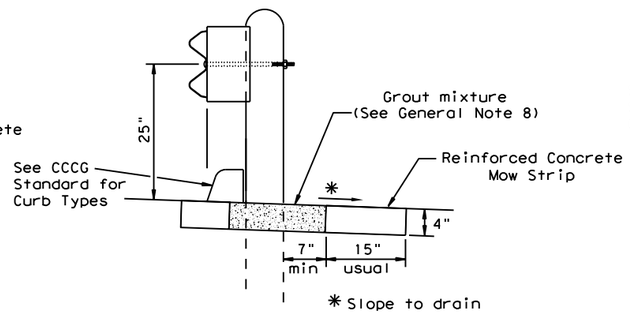
MOW STRIP DETAIL

Reinforced Concrete Mow Strip
with 18" x 18" Square or
18" Dia. minimum leave-out.



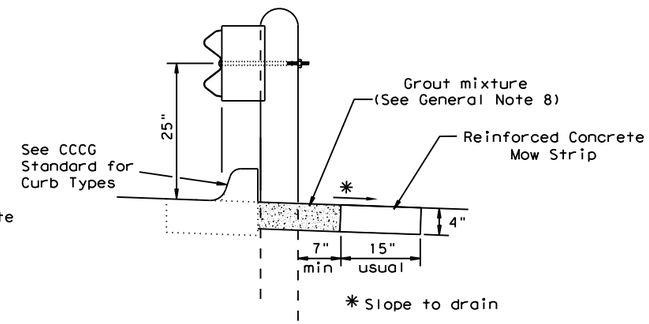
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

Note: Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF(31) MBGF or GF(31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 ½" Dia. round wood posts are acceptable for use in the mow strip. See GF(31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type 1 or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.

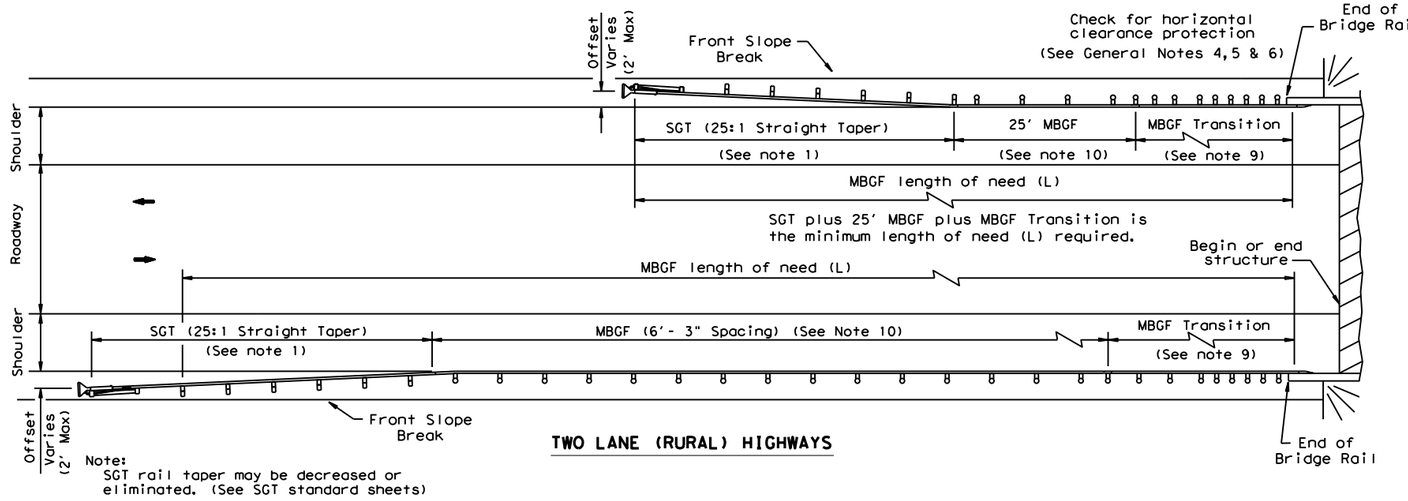
Texas Department of Transportation | Design Division Standard

METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT

GF(31)MS-19

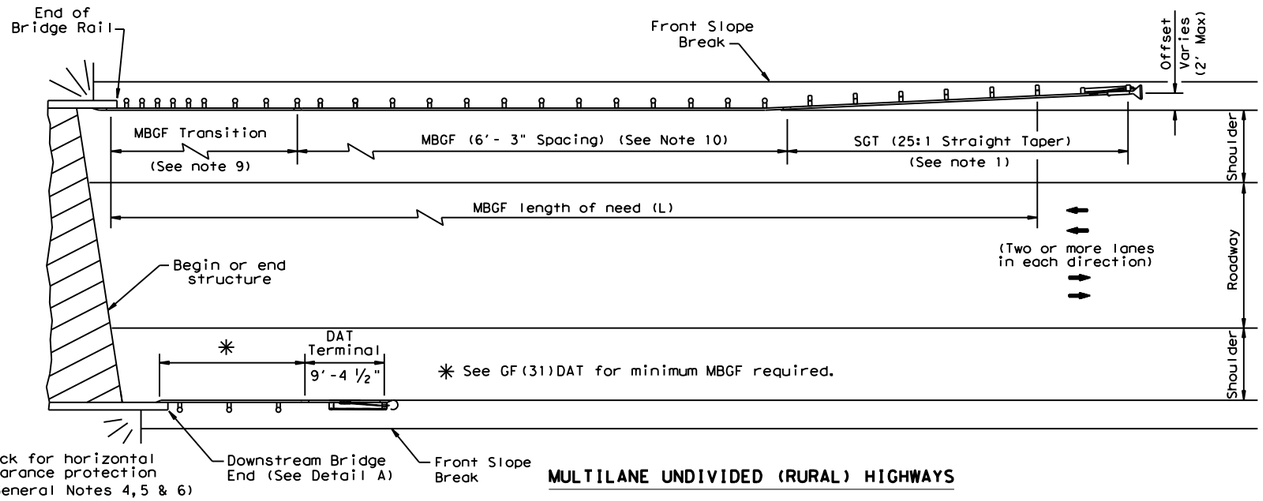
FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		97

DATE: 7/8/2021 5:15:00 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\bed14.dgn

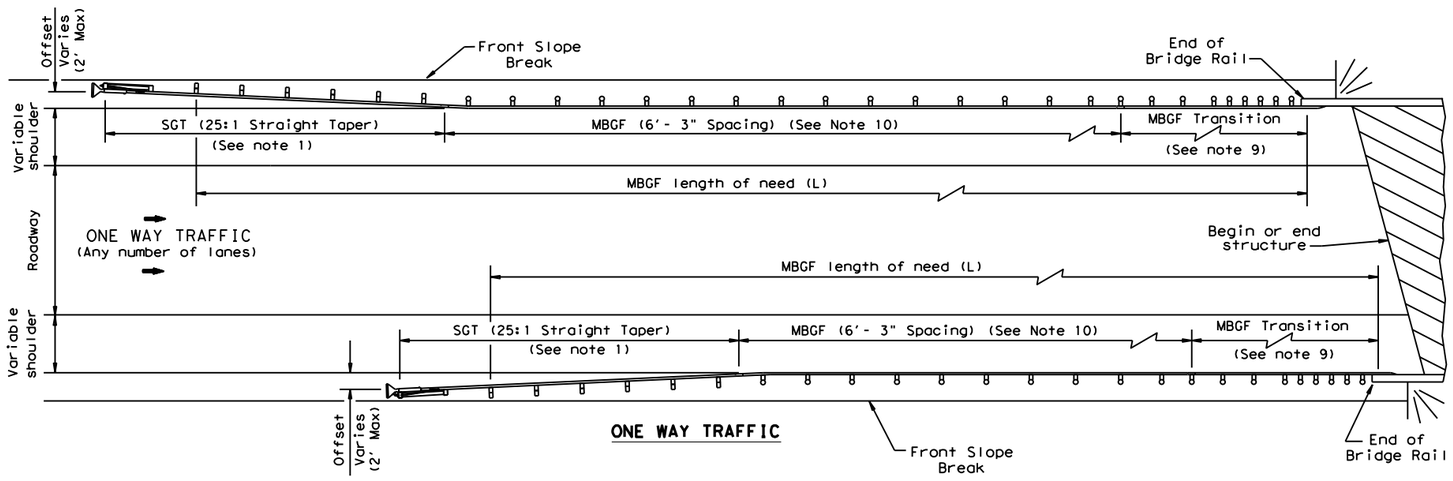


TWO LANE (RURAL) HIGHWAYS

Note:
SGT rail taper may be decreased or eliminated. (See SGT standard sheets)



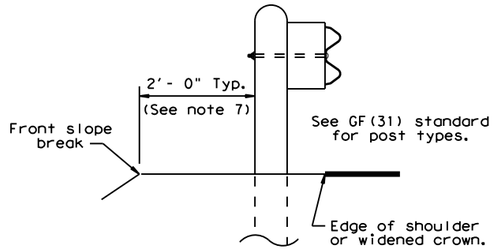
MULTILANE UNDIVIDED (RURAL) HIGHWAYS



ONE WAY TRAFFIC

GENERAL NOTES

1. For more detail: See GF(31), SGT( )31, GF(31)TR, and GF(31)TL2 standard sheets.
2. Quantities of metal beam guard fence (MBGF) at individual bridge ends are as shown in the plans.
3. Use average daily traffic (ADT) for the current year to determine MBGF length of need in accordance with the Roadway Design Manual unless otherwise specified. Where significant traffic volume growth is anticipated on low volume (0-750 ADT) highways, use length determinations for the higher volume category.
4. MBGF may not be required to shield departure end of bridge unless other obstacles within the horizontal clearance limits or opposing traffic indicate a MBGF consideration.
5. Downstream anchor terminals (DAT) are only for downstream end anchorage use, outside the horizontal clearance area of opposing traffic.
6. Direct connection of MBGF to concrete rails are only for downstream rail connections outside the horizontal clearance area of opposing traffic. (This requires a minimum of three standard line posts plus the DAT terminal, See Detail A)
7. The crown shall be widened to accommodate MBGF. Typically the "front slope" break should be 2'- 0" from the back of the MBGF post. This applies to new construction on new alignment or where existing roadway cross section is to be widened to increase roadway width. This does not apply to rehabilitation work where existing roadway crown width is to be retained (See Typical Cross Section at MBGF).
8. For restrictive bridge widths: The MBGF should be properly transitioned from the existing bridge rail to the adjoining MBGF (See MBGF Transition Standards). Metal beam guard fence at these bridge location(s) shall be flared at the rate of 25:1 or flatter, and be of the length necessary to locate the terminal end at the 2 ft. "maximum" offset from the shoulder edge in the approach direction.
9. Transition length and post spacing will vary depending on the transition type. Transition type will be shown elsewhere in the plans.
10. A minimum 25' length of MBGF will be required.



TYPICAL CROSS SECTION AT MBGF

Note:
All rail elements shall be lapped in the direction of adjacent traffic.

DETAIL A

Showing Downstream Rail Attachment

Texas Department of Transportation

Design Division Standard

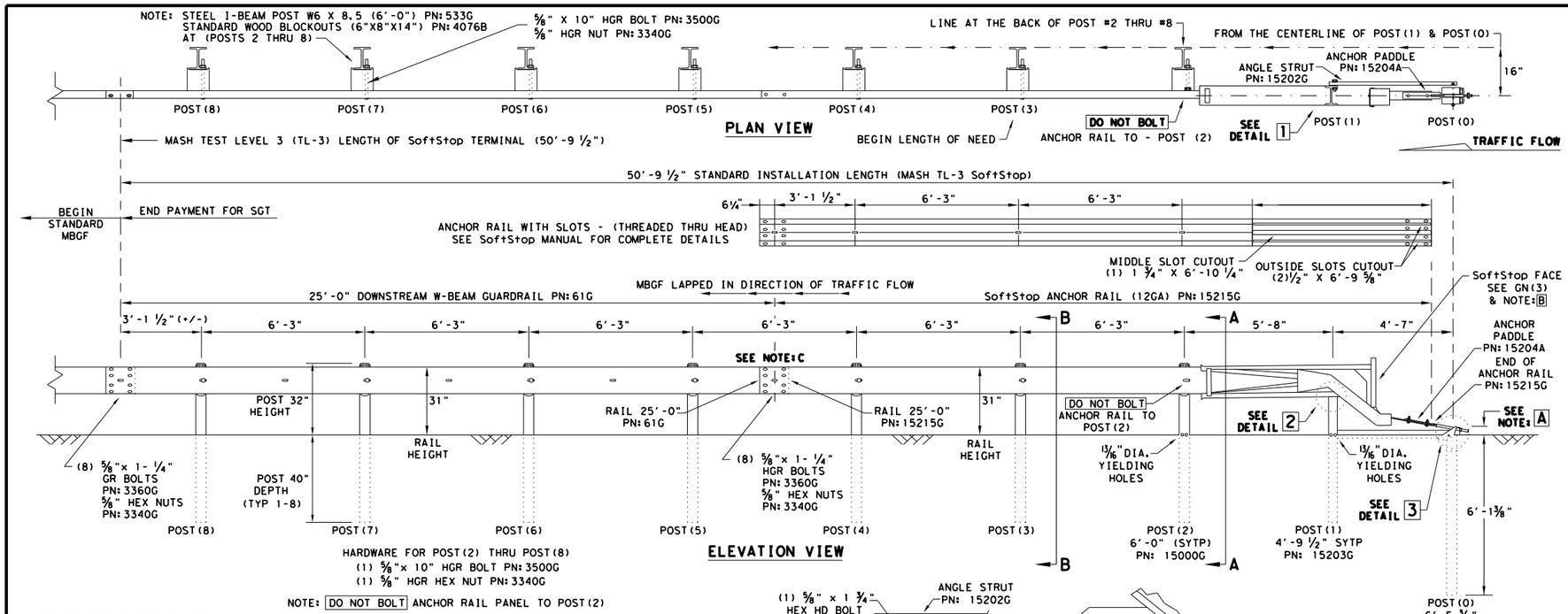
BRIDGE END DETAILS

(METAL BEAM GUARD FENCE APPLICATIONS TO RIGID RAILS)

BED-14

FILE: bed14.dgn	DN: TxDOT	CK: AM	DW: BD/VP	CK: CGL
© TxDOT: December 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
REVISED APRIL 2014 SEE (MEMO 0414)	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		98

DATE:
FILE:



GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: TRINITY HIGHWAY AT 1(888)323-6374. 2525 N. STEMMONS FREEWAY, DALLAS, TX 75207
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE; SoftStop END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL. PN: 620237B
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. A COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
7. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL AND REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
8. POSTS SHALL NOT BE SET IN CONCRETE.
9. IT IS ACCEPTABLE TO INSTALL THE SoftStop IMPACT HEAD PARALLEL TO THE GRADE LINE OR WITH AN UPWARD TILT.
10. DO NOT ATTACH THE SoftStop SYSTEM DIRECTLY TO A RIGID BARRIER.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE SoftStop SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.

NOTE:A	THE INSTALLATION HEIGHT OF FULLY ASSEMBLED ANCHOR POST WILL VARY FROM 3-¾" MIN. TO 4" MAX. ABOVE FINISHED GRADE.
NOTE:B	PART PN: 5852B RIGHT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING) PART PN: 5851B LEFT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING)
NOTE:C	W-BEAM SPLICE LOCATED BETWEEN LINE POST(4) AND LINE POST(5) GUARDRAIL PANEL 25'-0" PN: 61G ANCHOR RAIL 25'-0" PN: 15215G LAP GUARDRAIL IN DIRECTION OF TRAFFIC FLOW.

PART	QTY	MAIN SYSTEM COMPONENTS
620237B	1	PRODUCT DESCRIPTION ASSEMBLY MANUAL (LATEST REV.)
15208A	1	SoftStop HEAD (SEE MANUAL FOR RIGHT-LEFT APPROACH)
15215G	1	SoftStop ANCHOR RAIL (12GA) WITH CUTOUT SLOTS
61G	1	SoftStop DOWNSTREAM W-BEAM RAIL (12GA) (25'- 0")
15205A	1	POST #0 - ANCHOR POST (6'- 5 ⅜")
15203G	1	POST #1 - (SYTP) (4'- 9 ½")
15000G	1	POST #2 - (SYTP) (6'- 0")
533G	6	POST #3 THRU #8 - I-BEAM (W6 x 8.5) (6'- 0")
4076B	7	BLOCKOUT - WOOD (ROUTED) (6" x 8" x 14")
6777B	7	BLOCKOUT - COMPOSITE (4" x 7 ½" x 14")
15204A	1	ANCHOR PADDLE
15207G	1	ANCHOR KEEPER PLATE (24 GA)
15206G	1	ANCHOR PLATE WASHER (½" THICK)
15201G	2	ANCHOR POST ANGLE (10" LONG)
15202G	1	ANGLE STRUT
		HARDWARE
4902G	1	1" ROUND WASHER F436
3908G	1	1" HEAVY HEX NUT A563 GR.DH
3717G	2	¾" x 2 ½" HEX BOLT A325
3701G	4	¾" ROUND WASHER F436
3704G	2	¾" HEAVY HEX NUT A563 GR.DH
3360G	16	⅝" x 1 ¼" W-BEAM RAIL SPLICE BOLTS HGR
3340G	25	⅝" W-BEAM RAIL SPLICE NUTS HGR
3500G	7	⅝" x 10" HGR POST BOLT A307
3391G	1	⅝" x 1 ¾" HEX HD BOLT A325
4489G	1	⅝" x 9" HEX HD BOLT A325
4372G	4	⅝" WASHER F436
105285G	2	⅝" x 2 ½" HEX HD BOLT GR-5
105286G	1	⅝" x 1 ½" HEX HD BOLT GR-5
3240G	6	⅝" ROUND WASHER (WIDE)
3245G	3	⅝" HEX NUT A563 GR.DH
5852B	1	HIGH INTENSITY REFLECTIVE SHEETING - SEE NOTE:B

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE SoftStop END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

Design Division Standard

TRINITY HIGHWAY
SOFTSTOP END TERMINAL
MASH - TL-3
SGT(10S)31-16

FILE: sgt10s3116	DN: TxDOT	CK: KM	DW: VP	CK: MB/VP
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		99

DATE:
FILE:

(SEE GN NOTE 15)
STANDARD 31" MBGF

ITEM (6)
INNER SIDE SLIDER
(ISS) PANEL FOR RAIL 3

FIELD-SIDE
(RAIL 3)

NOTE:
RECESSED HEX NUTS FACING
TRAFFIC-SIDE **SEE DETAIL (C)**

REFERENCE LINE USED TO INSTALL
LINE POST(9) THRU POST(2)

POST 1 OFFSET DISTANCE MEASURED
7-⅝" FROM REFERENCE LINE

POST 9 POST 8 POST 7 POST 6 POST 5 POST 4 POST 3 POST 2

ITEM (10)
CABLE ASSEMBLY

ITEM (2)
GROUNDSTRUT

NO BLOCKOUT
AT (POST 1)

RAIL 4 RAIL 3 RAIL 2 RAIL 1

CABLES

NOTES:
1. ITEM (12) COMPOSITE BLOCKOUTS INSTALLED AT LINE POST(9) THRU LINE POST(2).
2. DO NOT INSTALL A BLOCKOUT AT LINE POST(1).

ITEM (5)
TRAFFIC SIDE SLIDER
(TSS) PANEL FOR RAIL 2

NOTE: SECURE THE (TSS) PANEL TO OUTSIDE OF RAIL 2 WITH THE PANEL ARROWS POINTING TOWARDS THE HEAD.

PLAN VIEW

MBGF RAIL 2

INSTALL GUARD FENCE RECESSED HEX NUTS ON TRAFFIC-SIDE

MBGF RAIL 1

DETAIL (C)

TRAFFIC FLOW

END PAYMENT (SGT) BY EACH

DO NOT BOLT
RAIL TO POST 6

BEGIN LENGTH OF NEED

INSTALLATION LENGTH 55'- ½"

49'-8 ⅝"

6'-3" 6'-3" 6'-3" 6'-¾" 6'-3" 6'-3" 6'-3" 37 ½" 5'-3 ⅛"

ITEM (25)
MAX-TENSION HEAD
SEE DETAIL (A)

RAIL HEIGHT 31"

ITEM (13) RAIL 4 ITEM (13) RAIL 3 ITEM (13) RAIL 2 ITEM (13) RAIL 1

ARROWS

DETAIL (D)

RAIL HEIGHT 31"

HEAD HEIGHT

DETAIL (B)

A

32-¼"

FINISHED GRADE

CABLES

FINISHED GRADE

ITEM (10)
CABLE ASSEMBLY

ITEM (2)
GROUNDSTRUT

68-⅛"

POST 9 POST 8 POST 7 POST 6 POST 5 POST 4 POST 3 POST 2

POST 1
ITEM (4)
I-BEAM
W6 X 9

NO BLOCKOUT
AT (POST 1)

SOIL
ANCHOR POST
ITEM (1)

(8) X-LITE LINE POST - ITEM (11)

ELEVATION VIEW

A

TSS PANEL
GALVANIZED
ITEM (5)

RSS PLATE
GALVANIZED
ITEM (8)

INSTALL THE TSS AND RSS WITH THE ARROWS POINTING TOWARDS THE MAX-HEAD

TSS PANEL AND RSS PLATE
DETAIL (D)

HEAD HEIGHT 32-¼"

TOP OF POST

31-⅞"

FINISHED GRADE

40-⅛"

68-⅛" ANCHOR POST DEPTH

ITEM (1) ANCHOR

ITEM (11)
LINE POSTS
2 THRU 9
(NOTE: ITEM (4) POST 1 (NOT SHOWN), TO BE INSTALLED AT SAME DEPTH AS LINE POSTS.)

SOIL ANCHOR, POST 1 & LINE POST 2 THRU 9

SECTION VIEW A-A

NOTE:
USE THE MASH APPROVED
X-TENSION CABLE ASSEMBLY.

7 ⅝"

2 ⅛"

UPPER CABLE
(BACK SIDE)

LOWER CABLE
(TRAFFIC SIDE)

DETAIL (B)

CABLE
FRICTION PLATE
HEAD UNIT
ITEM (9)

NOTE:
INSTALL ⅝" RECESSED HEX NUTS ON TRAFFIC SIDE.

ITEM (24)
ITEM (21)

ITEM (20)
8X

ITEM (17)
8X

ITEM (23)
6X
3 SCREWS
EACH SIDE

(RAIL 1)

ITEM (22)
BRACKET
SHIPPED FLAT

ITEM (3)

ITEM (16)
4X

* ITEM (25)
HIGH INTENSITY
REFLECTIVE SHEETING

NOTE: DELINEATION MARKER IN ACCORDANCE WITH TEXAS MUTCD.

SPLICE FOR IMPACT-HEAD TO GUARD FENCE (RAIL1)

DETAIL (A)

APPROX 5'-10"

5'-0"

50' APPROACH GRADING

STANDARD
MBGF

2'-0"

EDGE OF PAVEMENT

NOTE: ADJUST WIDTH ACCORDINGLY WHEN OFFSET IS USED. (OFFSET "OPTION" SHOWN)

2'-0" MAX.
RAIL OFFSET

APPROACH GRADING
(1V:10H OR FLATTER)
SEE PRODUCT ASSEMBLY MANUAL
FOR ADDITIONAL GUIDANCE.

NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

APPROACH GRADING AT GUARDRAIL END TREATMENTS

TRAFFIC FLOW

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800
2. FOR INSTALLATION, REPAIR, & MAINTENANCE REFER TO THE; MAX-TENSION INSTALLATION INSTRUCTION MANUAL. P/N MANMAX REV D (ECN 3516).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURE'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. ALL STEEL COMPONENTS ARE GALVANIZED PER ASTM A123 OR EQUIVALENT UNLESS OTHERWISE STATED.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POST WITH COMPOSITE BLOCKOUTS.
7. COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST(MPL)FOR CERTIFIED PRODUCERS.
8. REFER TO INSTALLATION MANUAL FOR SPECIFIC PANEL LAPPING GUIDANCE.
9. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR INSTALLATION GUIDANCE.
10. POSTS SHALL NOT BE SET IN CONCRETE.
11. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POST TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST.
12. MAX-TENSION SYSTEM SHALL NEVER BE INSTALLED WITHIN A CURVED SECTION OF GUARDRAIL.
13. IF A DELINEATION MARKER IS REQUIRED, MARKER SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
14. THE SYSTEM IS SHOWN WITH 12'-6" MBGF PANELS, 25'-0" MBGF PANELS ARE ALSO ALLOWED.
15. A MINIMUM OF 12'-6" OF 12GA. MBGF IS REQUIRED IMMEDIATELY DOWNSTREAM OF THE MAX-TENSION SYSTEM.

	ITEM #	PART NUMBER	DESCRIPTION	QTY
	1	BSI-1610060-00	SOIL ANCHOR - GALVANIZED	1
	2	BSI-1610061-00	GROUND STRUT - GALVANIZED	1
	3	BSI-1610062-00	MAX-TENSION IMPACT HEAD	1
	4	BSI-1610063-00	W6x9 I-BEAM POST 6FT.-GALVANIZED	1
	5	BSI-1610064-00	TSS PANEL - TRAFFIC SIDE SLIDER	1
	6	BSI-1610065-00	ISS PANEL - INNER SIDE SLIDER	1
	7	BSI-1610066-00	TOOTH - GEOMET	1
	8	BSI-1610067-00	RSS PLATE - REAR SIDE SLIDER	1
	9	B061058	CABLE FRICTION PLATE - HEAD UNIT	1
	10	BSI-1610069-00	CABLE ASSEMBLY - MASH X-TENSION	2
	11	BSI-1012078-00	X-LITE LINE POST-GALVANIZED	8
	12	B090534	8" W-BEAM COMPOSITE-BLOCKOUT XT110	8
	13	BSI-4004386	12'-6" W-BEAM GUARD FENCE PANELS 12GA.	4
	14	BSI-1102027-00	X-LITE SQUARE WASHER	1
	15	BSI-2001886	⅝" X 7" THREAD BOLT HH (GR.5)GEOMET	1
	16	BSI-2001885	¾" X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
	17	4001115	⅝" X 1 ¼" GUARD FENCE BOLTS (GR.2)MGAL	48
	18	2001840	⅝" X 10" GUARD FENCE BOLTS MGAL	8
	19	2001636	⅝" WASHER F436 STRUCTURAL MGAL	2
	20	4001116	⅝" RECESSED GUARD FENCE NUT (GR.2)MGAL	59
	21	BSI-2001888	⅝" X 2" ALL THREAD BOLT (GR.5)GEOMET	1
	22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
	23	BSI-2001887	¼" X ¾" SCREW SD HH 410SS	7
	24	4002051	GUARDRAIL WASHER RECT AASHTO FWR03	1
*	25	SEE NOTE BELOW	HIGH INTENSITY REFLECTIVE SHEETING	1
**	26	4002337	8" W-BEAM TIMBER-BLOCKOUT, PDB01B	8
**	27	BSI-4004431	25' W-BEAM GUARDRAIL PANEL,8-SPACE,12GA.	2
	28	MANMAX Rev-(D)	MAX-TENSION INSTALLATION INSTRUCTIONS	1

* TO BE PROVIDED BY DISTRIBUTOR OR CONTRACTOR.

** ALTERNATIVE ITEMS NOT SHOWN.
ITEM(26) 8" WOOD-BLOCKOUTS
ITEM(27) 25'GUARD FENCE PANELS

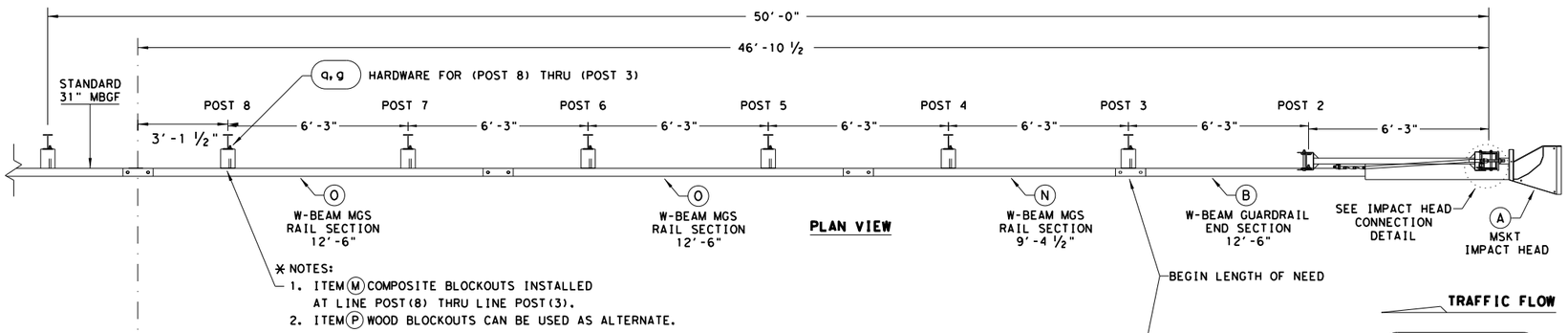
Texas Department of Transportation

Design Division Standard

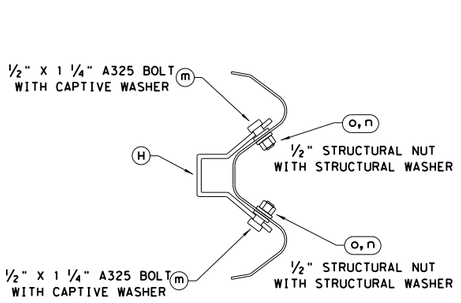
MAX-TENSION END TERMINAL
MASH - TL-3
SGT(11S)31-18

FILE: sgt11s3118.dgn	DN: TxDOT	CK: KM	DW: TxDOT	CK: CL
© TxDOT: FEBRUARY 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		100

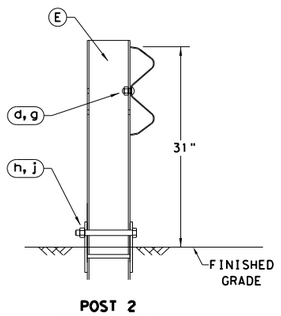
DATE:
FILE:



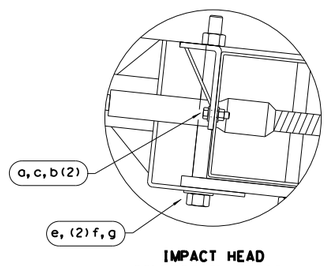
NOTE: SEE (GENERAL NOTE 14) FOR DRIVING CAP INFORMATION.



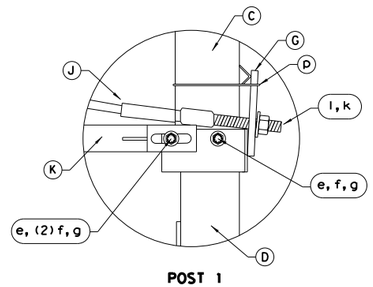
SECTION B-B
ANCHOR BRACKET



POST 2
SECTION A-A



IMPACT HEAD
CONNECTION DETAIL



POST 1
CONNECTION DETAIL

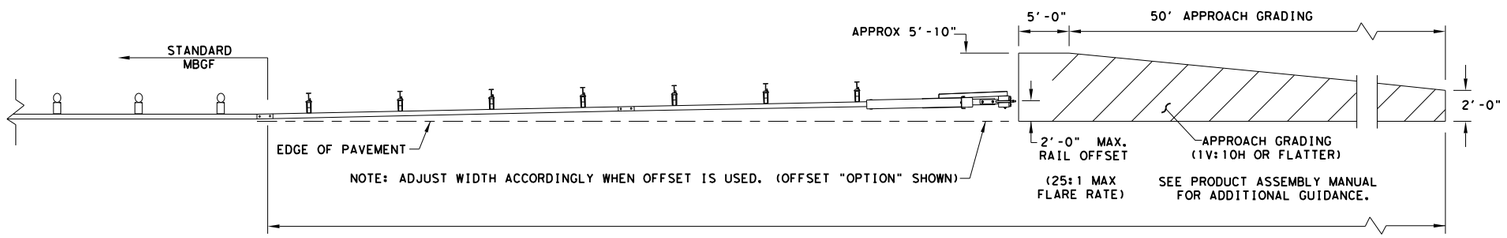
GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432)263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE; MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION~062717).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
7. A COMPOSITE MATERIAL BLOCKOUTS THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
8. IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
9. POSTS SHALL NOT BE SET IN CONCRETE.
10. SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
13. THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THEIR PLACE.
14. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POSTS 3-8 TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST. SPECIAL DRIVING CAP TO BE USED ON LOWER POSTS 1 & 2 TO PREVENT DAMAGE TO THE WELDED PLATES.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6x9 OR W6x8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
		SMALL HARDWARE	
a	2	5/16" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	5/16" WASHER	W0516
c	2	5/16" HEX NUT	N0516
d	25	5/8" Dia. x 1 1/4" SPLICE BOLT (POST 2)	B580122
e	2	5/8" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	5/8" WASHER	W050
g	33	5/8" Dia. H.G.R NUT	N050
h	1	3/4" Dia. x 8 1/2" HEX BOLT (GRD A449)	B340854A
j	1	3/4" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2" x 1 1/4" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	1/2" STRUCTURAL NUTS	N012A
o	8	1 1/16" O.D. x 9/16" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	5/8" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151

SEE NOTES: *

ALTERNATIVE ITEMS NOT SHOWN. **
* ITEM(P) 8" WOOD-BLOCKOUT
** ITEM(Q) 25'GUARD FENCE PANEL



NOTE: ADJUST WIDTH ACCORDINGLY WHEN OFFSET IS USED. (OFFSET "OPTION" SHOWN)

APPROACH GRADING AT GUARDRAIL END TREATMENTS

NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MSKT END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

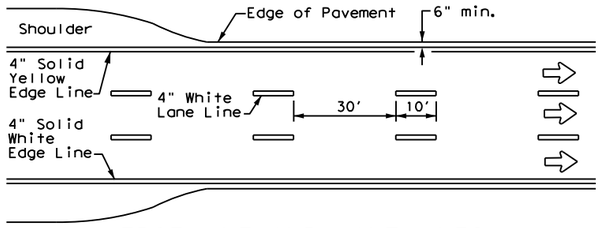
Design Division Standard

SINGLE GUARDRAIL TERMINAL

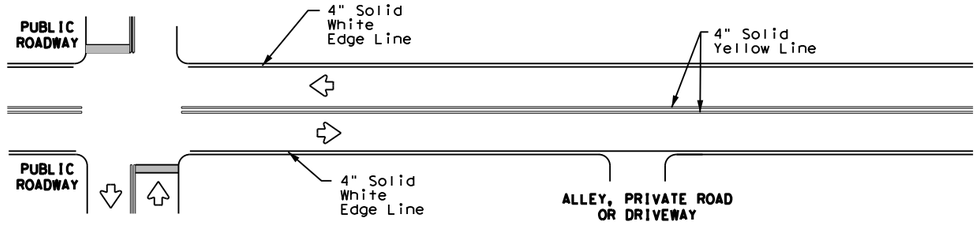
MSKT-MASH-TL-3

SGT(12S)31-18

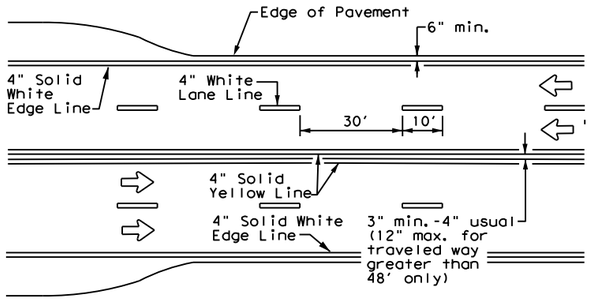
FILE: sgt12s3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL	
© TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0255	08	108, etc.	IH-69C, etc.	
	DIST	COUNTY		SHEET NO.	
	PHR	HIDALGO, etc.		101	



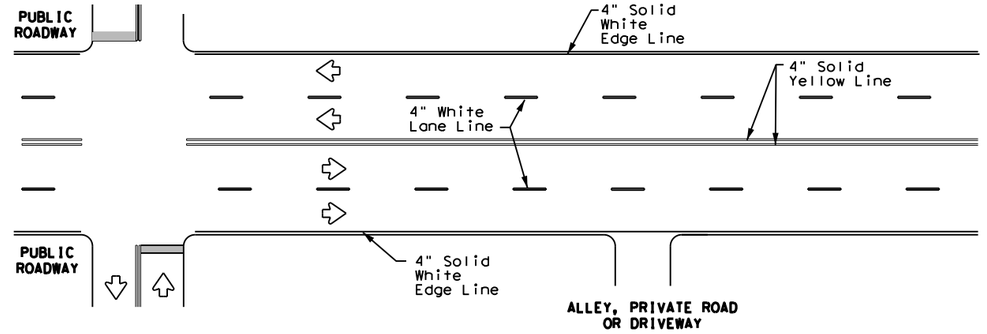
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



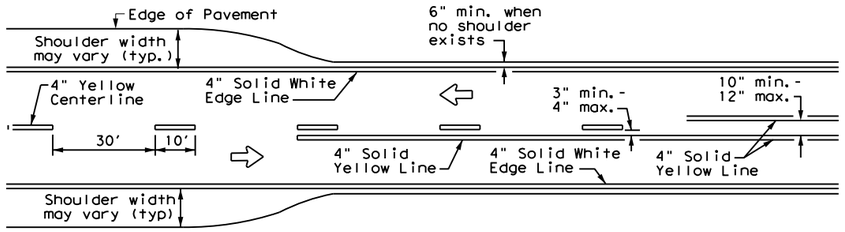
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



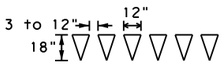
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



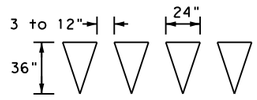
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

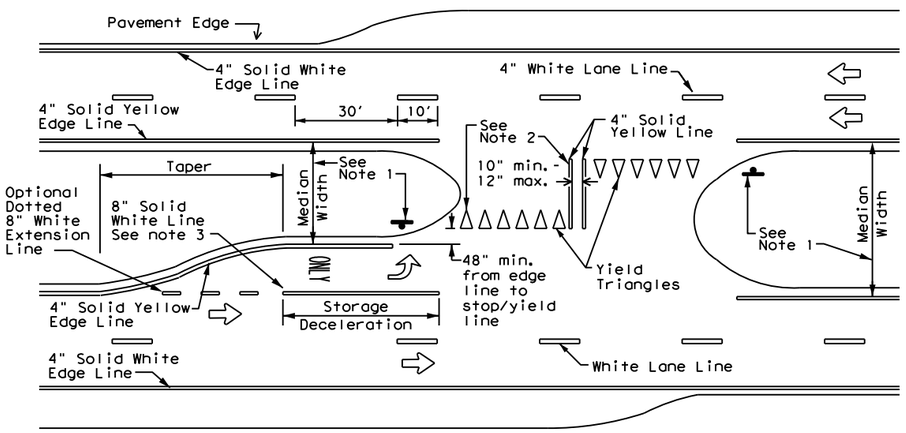


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles shall only be used with yield signs.

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

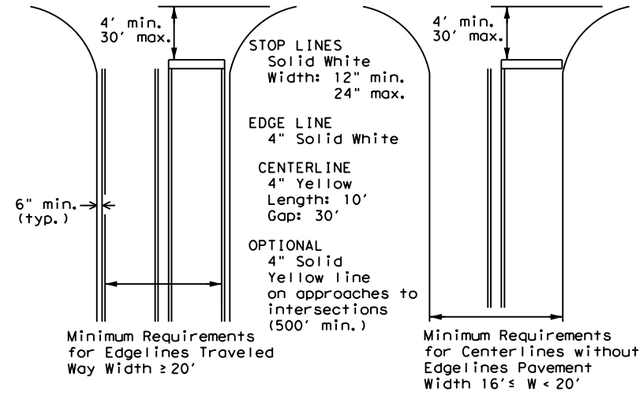
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.

2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

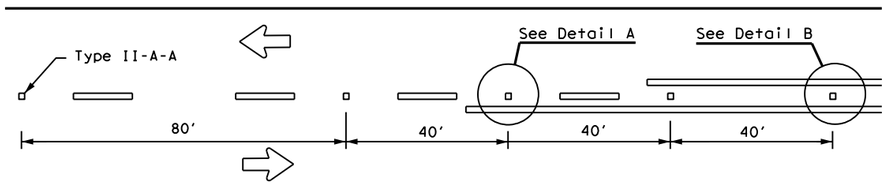
PM(1)-20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0255	08	108, etc.	IH-69C, etc.
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	PHR	HIDALGO, etc.		102

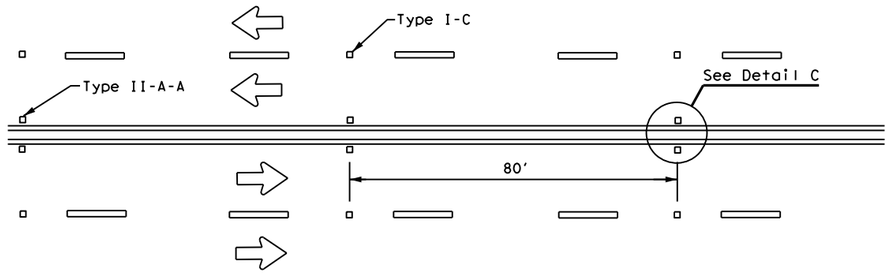
22A

DATE: 7/8/2021 5:15:20 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\pm1-20.dgn

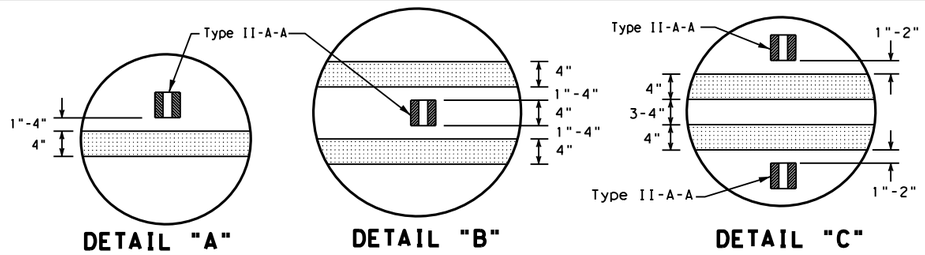
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



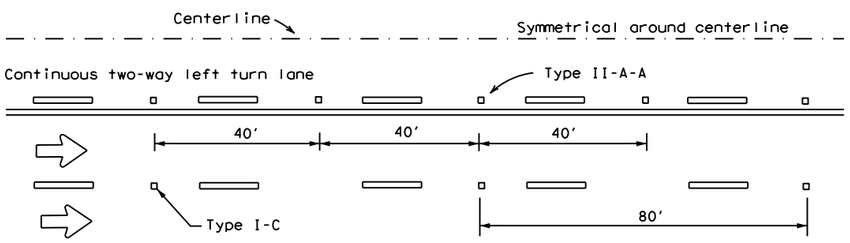
CENTERLINE FOR ALL TWO LANE ROADWAYS



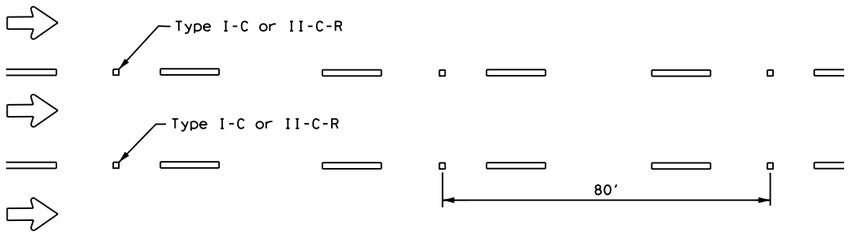
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



DETAIL "A" **DETAIL "B"** **DETAIL "C"**

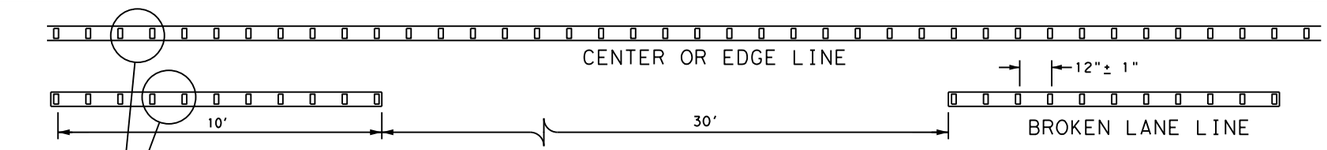


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



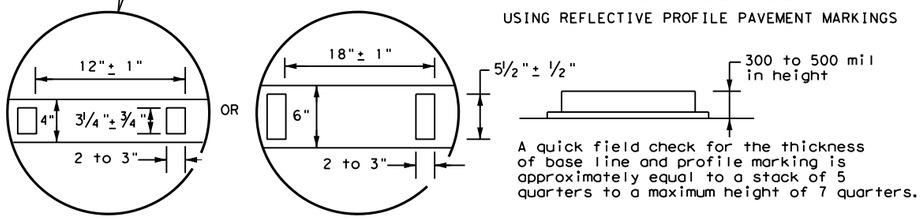
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTE

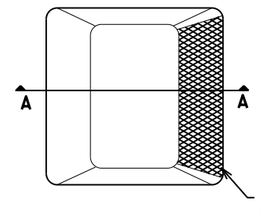
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

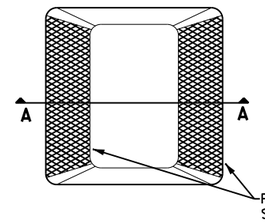
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

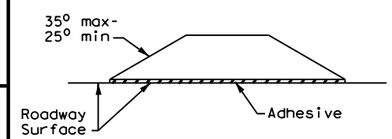
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

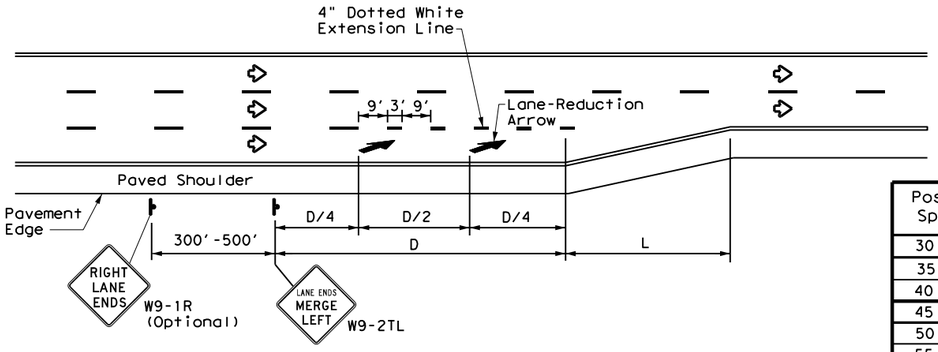
POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10 5-00 2-12 8-00 6-20	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		103

22B

DATE: 7/8/2021 5:15:25 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\pm2-20.dgn

DATE: 7/8/2021 5:15:30 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\pm3-20.dgn

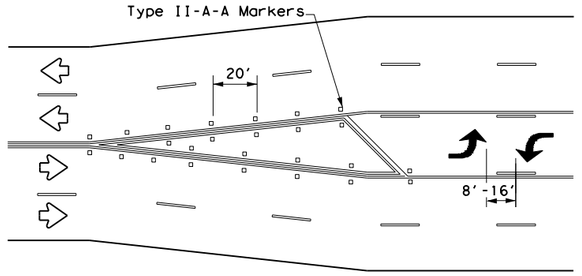


LANE REDUCTION

Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional W9-1R "RIGHT LANE ENDS" sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

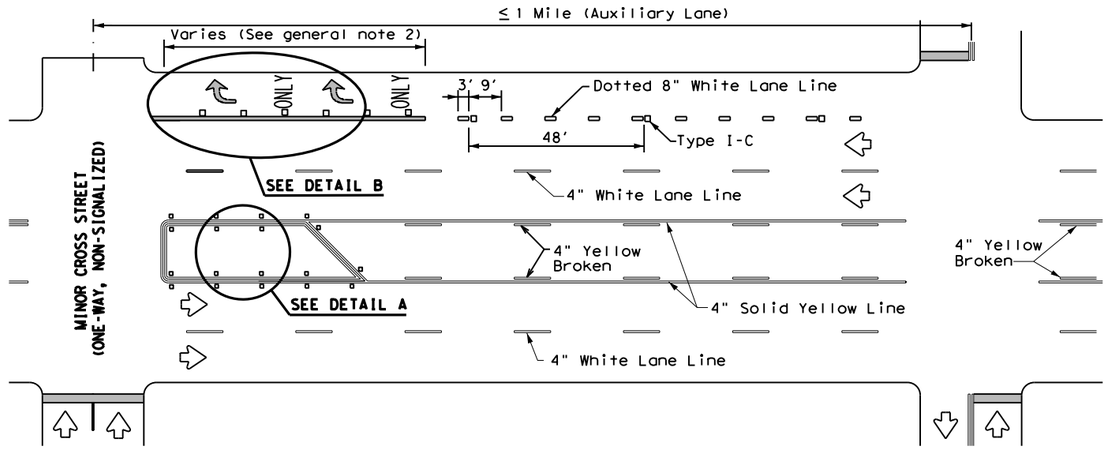
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

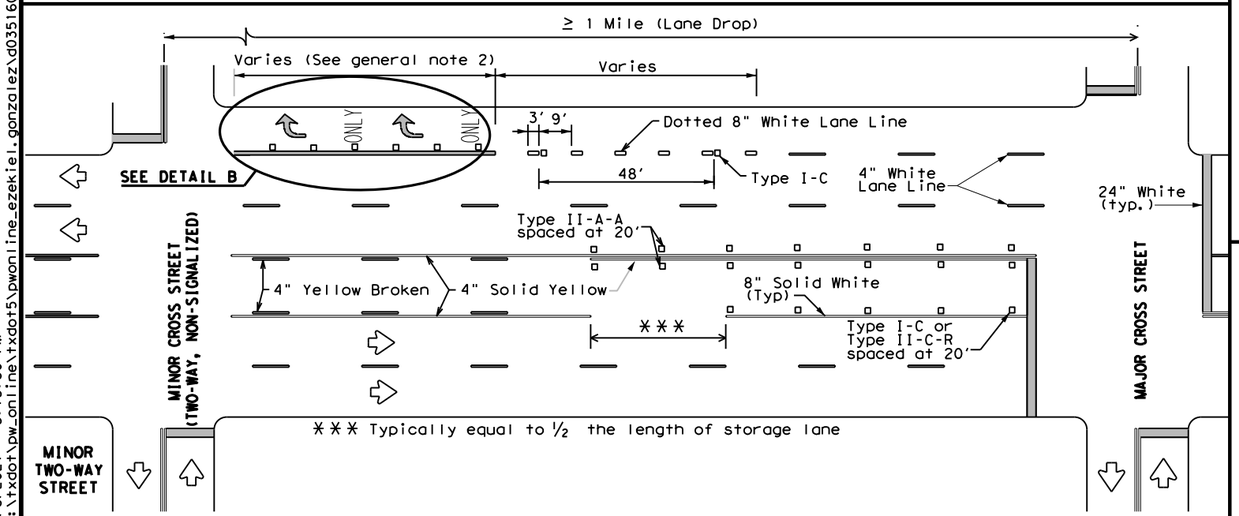
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

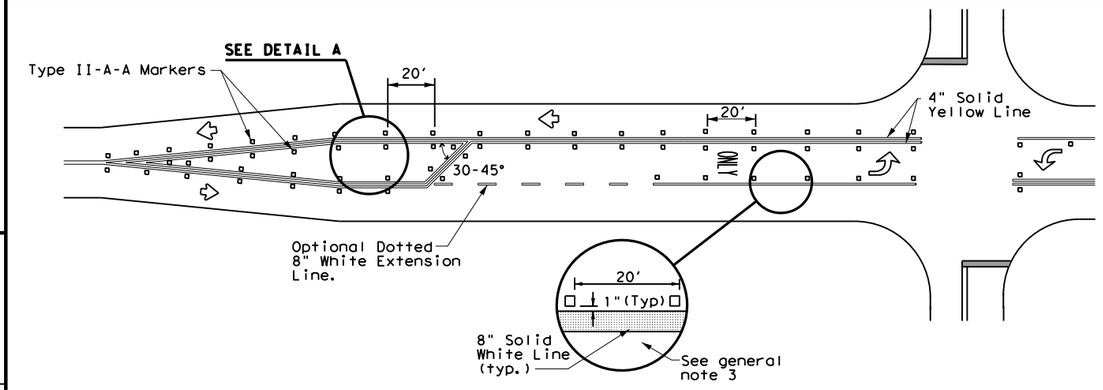
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



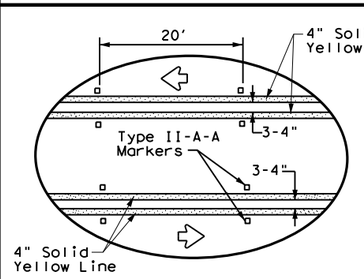
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



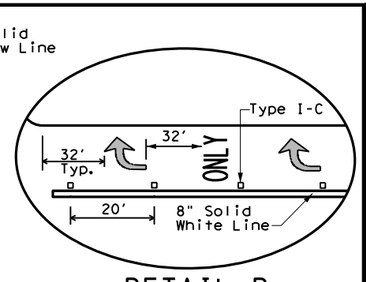
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

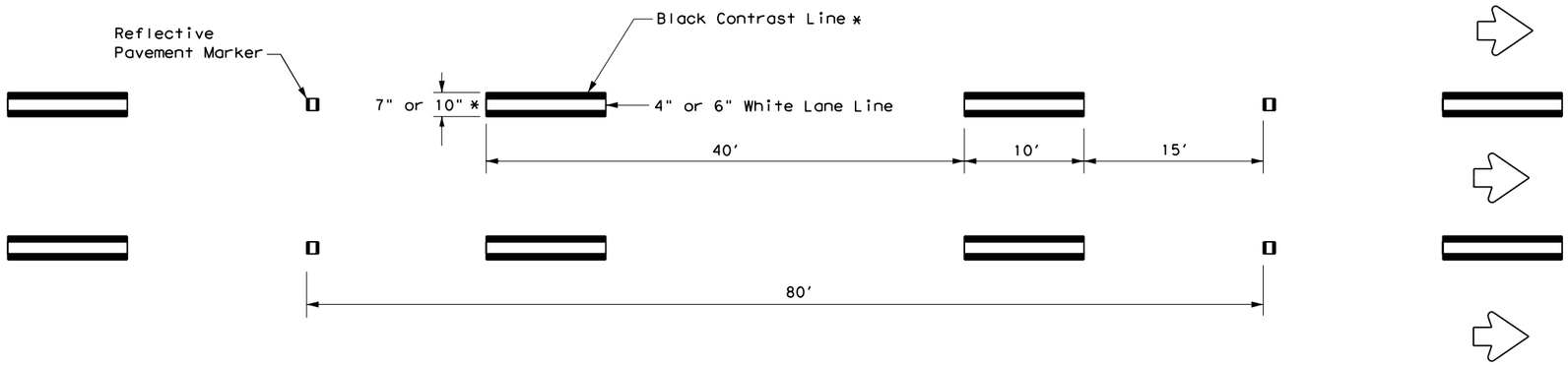
Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	PHR	HIDALGO, etc.		104
3-03 6-20				

22C



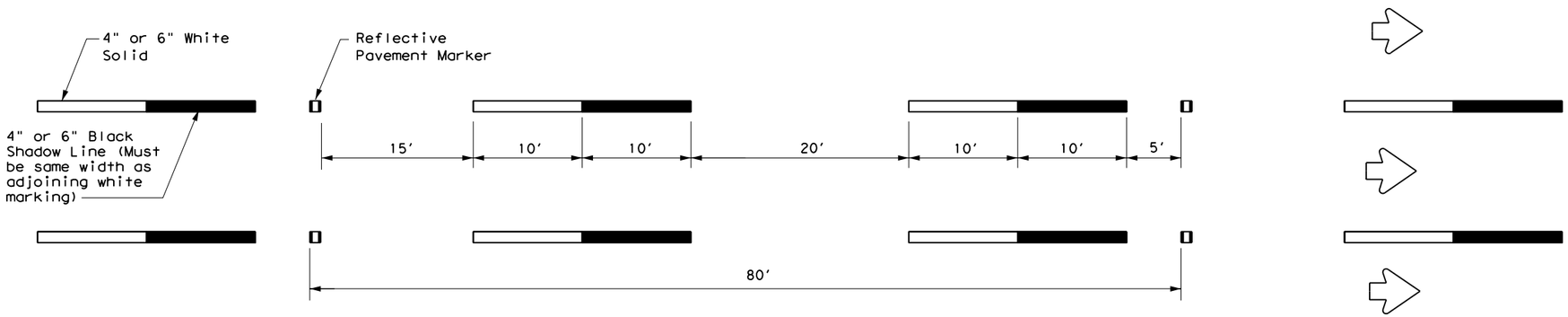
* See contrast line dimensions table for width of black line.

CONTRAST LANE LINE DESIGN

CONTRAST LINE DIMENSIONS		
White	Black (per side)	Total Width
4"	1.5"	7"
6"	2"	10"

GENERAL NOTES

1. Contrast and Shadow markings may only be used on concrete pavements.
2. Contrast and Shadow markings shall not be used on edge lines.
3. Contrast lane lines shall be permanent prefabricated pavement markings meeting DMS 8240.
4. Shadow lane line designs shall be a liquid markings system approved by TxDOT.
5. All raised reflective pavement markers placed in broken lines shall be placed in line with and midway between the white stripes.
6. See PM(2) for raised reflective pavement markings installation details.



SHADOW LANE LINE DESIGN

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

Texas Department of Transportation

Traffic Operations Division Standard

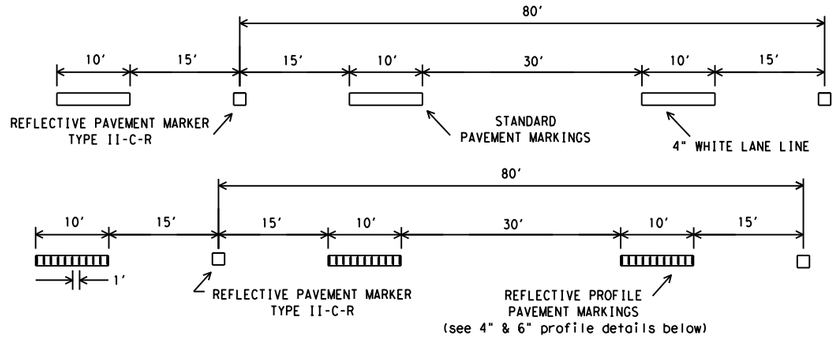
CONTRAST AND SHADOW PAVEMENT MARKINGS

CPM(1)-14

FILE: CPM(1)14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		105

22N

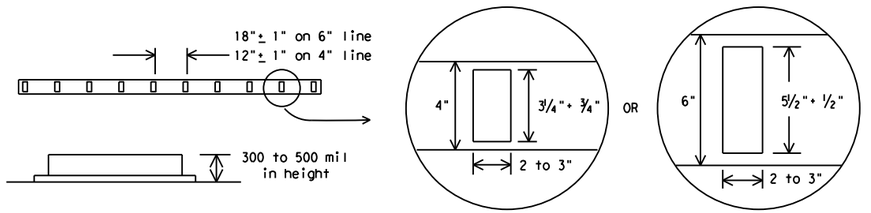
DATE: 7/8/2021 5:15:35 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\CPM114.dgn



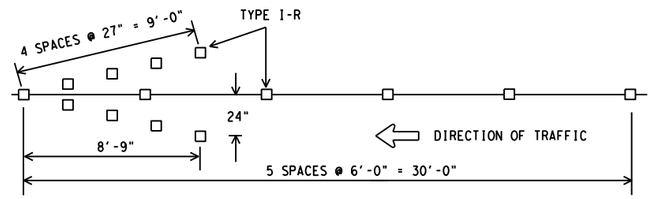
PAVEMENT MARKERS (REFL) TYPE II-C-R SHALL BE SPACED ON 80' CENTERS WITH THE CLEAR FACE TOWARD NORMAL TRAFFIC AND THE RED FACE TOWARD WRONG WAY TRAFFIC.

TRAFFIC LANE LINES PAVEMENT MARKING DETAILS

EDGELINES SHOULD TYPICALLY BE 4" WIDE AND THE MATERIALS SHALL BE AS SPECIFIED IN THE PLANS.
IF RAISED PROFILE PAVEMENT MARKINGS ARE USED SEE DETAILS BELOW.



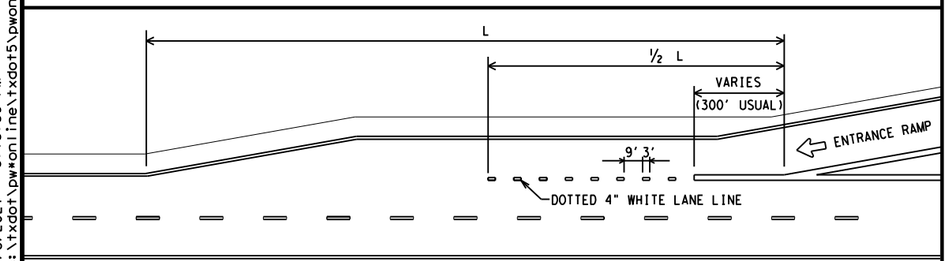
EDGELINE PAVEMENT MARKINGS



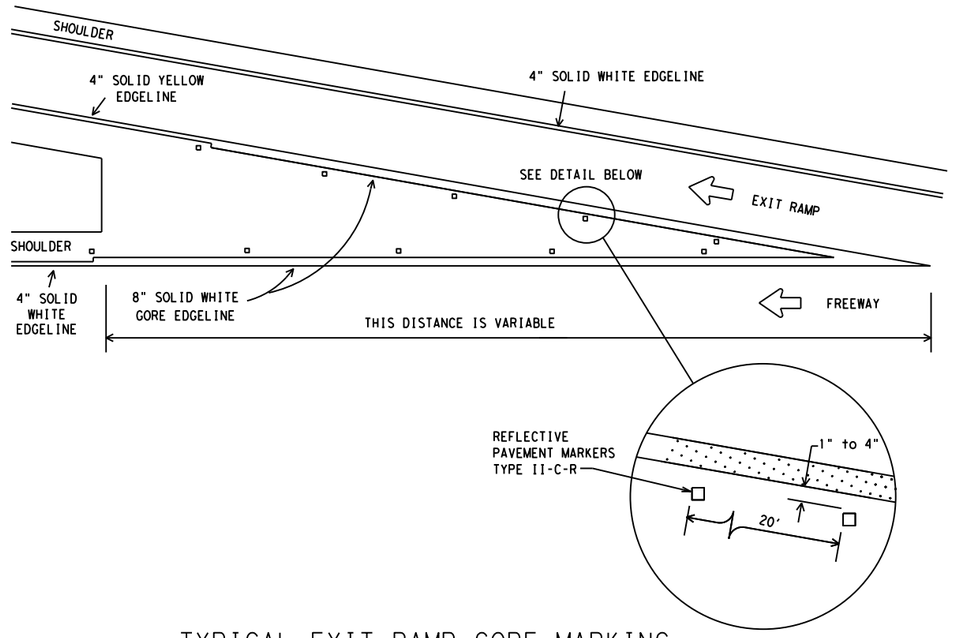
ALL RAISED MARKERS IN THE WRONG WAY ARROW SHALL BE TYPE I-R REFLECTORIZED PAVEMENT MARKERS WITH THE REFLECTORIZED SURFACE FACING THE WRONG WAY TRAFFIC. TYPE II-C-R SHALL NOT BE USED.

REFLECTORIZED WRONG WAY ARROWS, NOT TO EXCEED TWO, MAY BE PLACED ON EXIT RAMPS.
LOCATION OF THE ARROWS SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

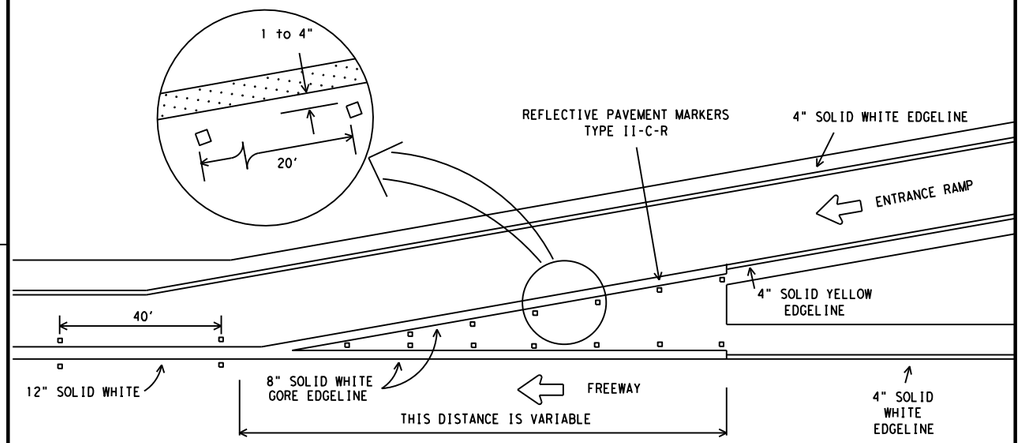
WRONG WAY ARROW DETAIL



PARALLEL ACCELERATION LANE

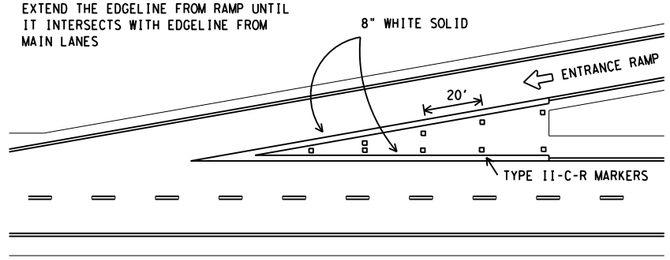


TYPICAL EXIT RAMP GORE MARKING



TYPICAL ENTRANCE RAMP GORE MARKING

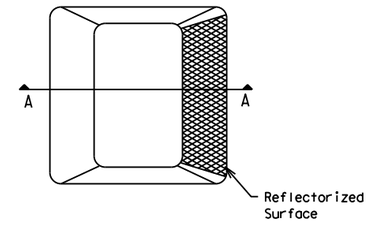
EXTEND THE EDGELINE FROM RAMP UNTIL IT INTERSECTS WITH EDGELINE FROM MAIN LANES



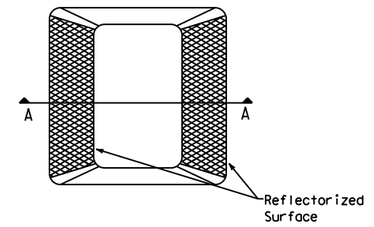
TAPERED ACCELERATION LANE

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

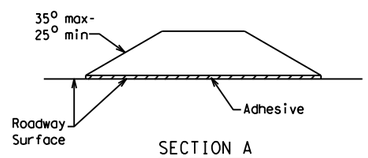
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS

FPM(1)-12

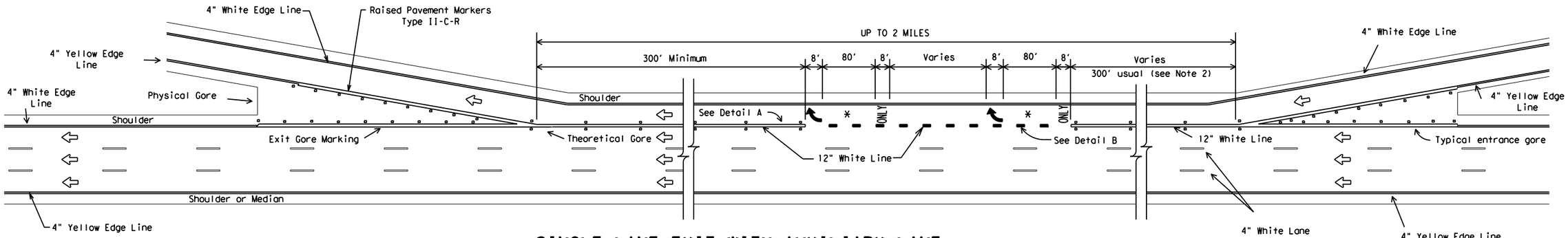
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS		CONT	SECT	JOB	HIGHWAY
4-92	2-10	0255	08	108, etc.	IH-69C, etc.
5-00	2-12	DIST	COUNTY		SHEET NO.
8-00		PHR	HIDALGO, etc.		106
2-08					

23A

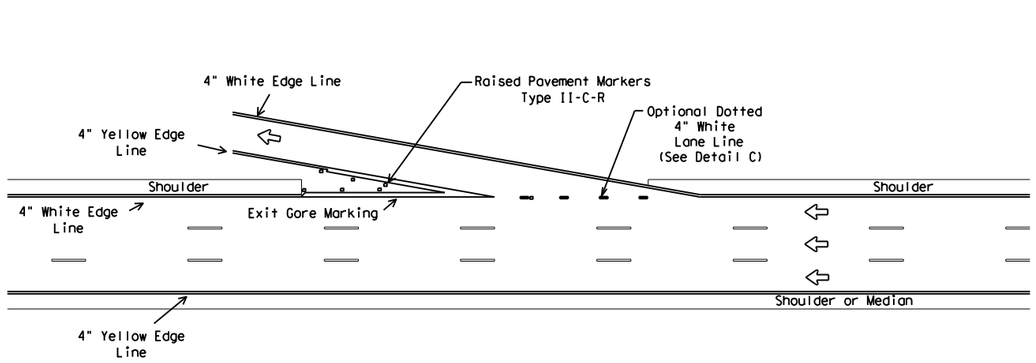
DATE: 7/8/2021 5:15:39 PM
FILE: c:\txdot\pw\online\txdot5\pwonline\ezekiel.gonzalez\d0351606\FPM112.dgn

DATE: 7/8/2021 5:15:44 PM
FILE: c:\txdot\pw*online\txdot5\pwonline*ezekiel.gonzalez\d0351606\FPM212.dgn

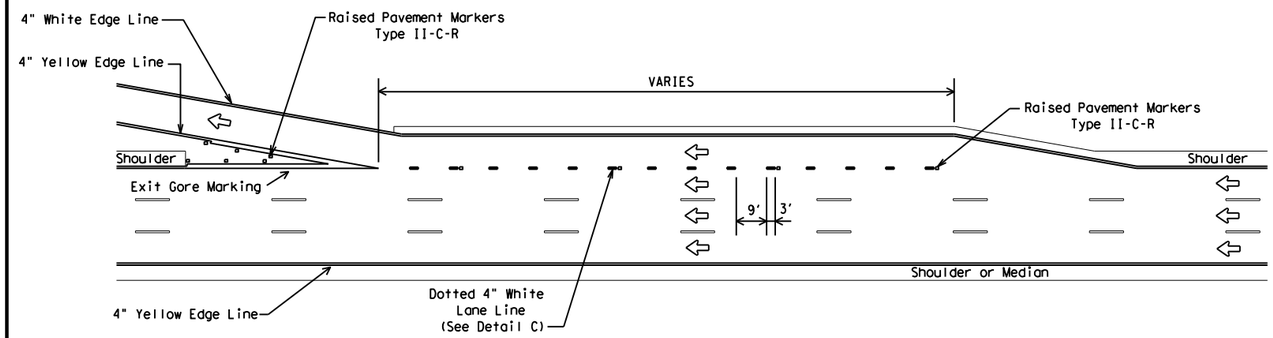


SINGLE LANE EXIT WITH AUXILIARY LANE

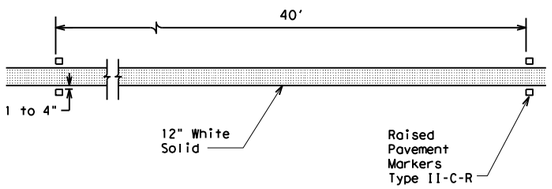
(See Note 2)



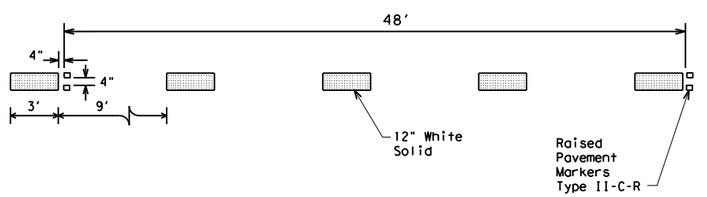
TAPERED DECELERATION LANE



PARALLEL DECELERATION LANE

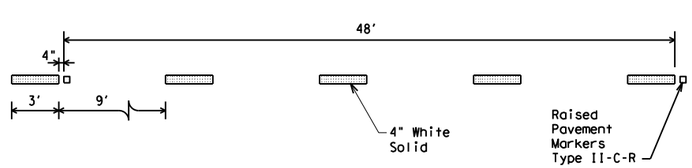


DETAIL A



DETAIL B

Wide (12") Dotted Lane Line (See Note 3)



DETAIL C

Normal (4") Dotted Lane Line (See Note 4)

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") Dotted Lane Line (See Detail B) is used to separate a through lane from a lane drop at normal exit ramp and from an auxiliary lane between an entrance and exit ramp.
4. Normal (4") Dotted Lane Line (See Detail C) is used at parallel acceleration and deceleration lanes.

LEGEND	
⇦	Denotes direction of traffic.
↱	Pavement marking arrows (white)
✳	Arrow markings are optional, however "ONLY" is required if arrow is used

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS ENTRANCE AND EXIT RAMPS

FPM(2)-12

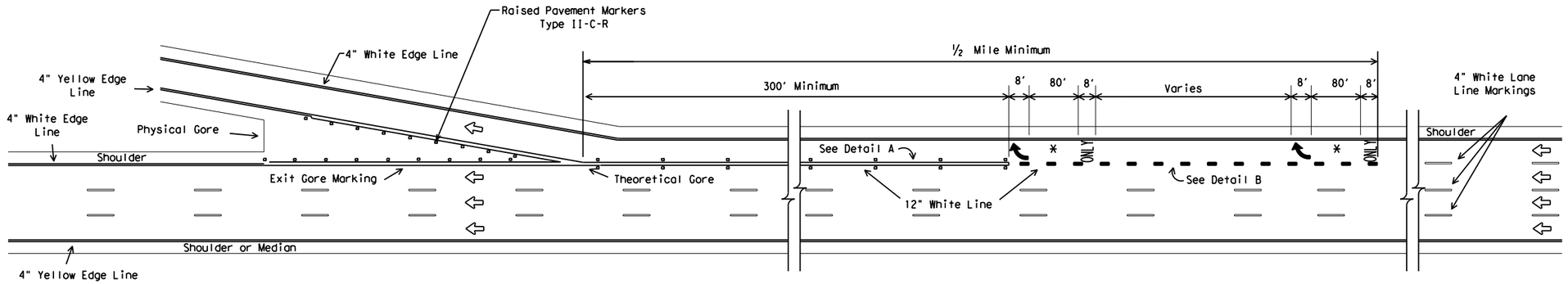
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
4-92 2-10
8-95 2-12
5-00
8-00

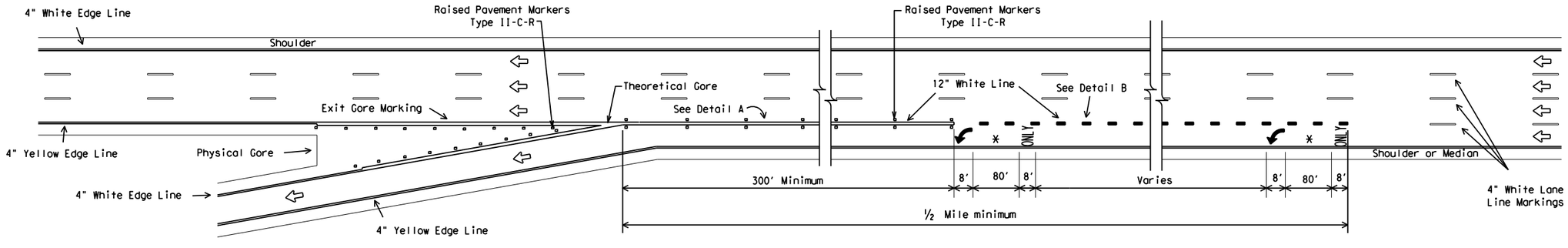
CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.

DIST	COUNTY	SHEET NO.
PHR	HIDALGO, etc.	107

23B



SINGLE LANE EXIT - LANE DROP OR EXIT ONLY

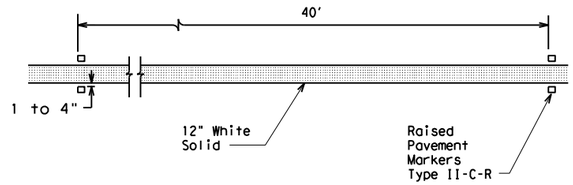


SINGLE LANE EXIT - LANE DROP OR EXIT ONLY (LEFTHAND)

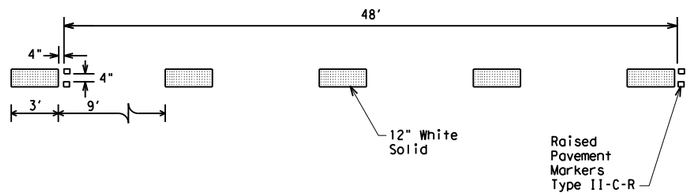
LEGEND	
⇦	Denotes direction of traffic.
↱	Pavement marking arrows (white)
✳	Arrow markings are optional, however "ONLY" is required if arrow is used

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") Dotted Lane Line (See Detail B) is used to separate a through lane from a lane drop at normal exit ramp and from an auxiliary lane between an entrance and exit ramp.



DETAIL A



DETAIL B

Wide (12") Dotted Lane Line (See Note 3)

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS LANE DROP (EXIT ONLY) EXIT RAMPS

FPM(3)-12

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

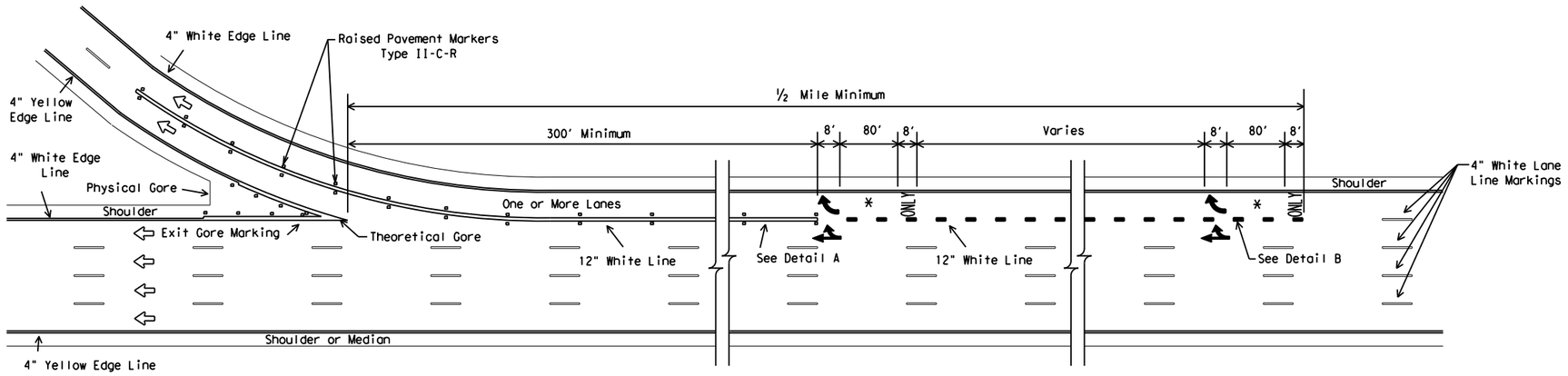
REVISIONS
5-00
8-00
2-10
2-12

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.

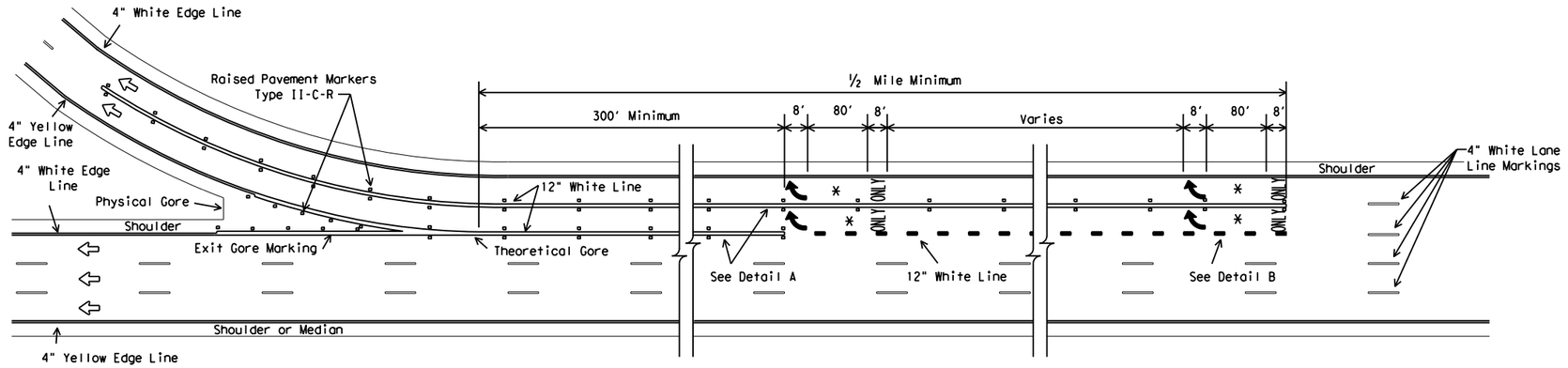
DIST	COUNTY	SHEET NO.
PHR	HIDALGO, etc.	108

23C

DATE: 7/8/2021 5:15:49 PM
FILE: c:\txdot\pw*online\txdot5\pwonline*ezekiel.gonzalez\d0351606\FPM312.dgn



MULTIPLE LANE EXIT - EXIT ONLY WITH OPTION LANE

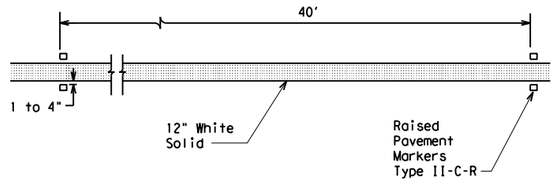


MULTIPLE LANE EXIT ONLY

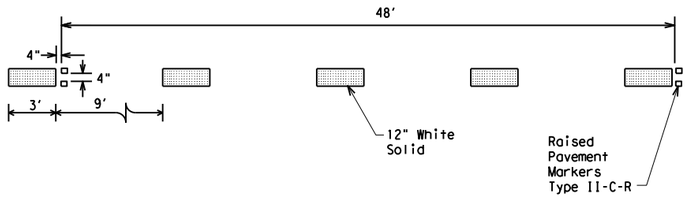
LEGEND	
⇦	Denotes direction of traffic
↱	Pavement marking arrow (white)
↱	Optional Pavement Marking Arrows (white)
✳	Arrow markings are optional, however "ONLY" is required if arrow is used

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") Dotted Lane Line (See Detail B) is used to separate a through lane from a lane drop at normal exit ramp and from an auxiliary lane between an entrance and exit ramp.



DETAIL A



DETAIL B

Wide (12") Dotted Lane Line (See Note 3)

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS LANE DROP (EXIT ONLY) DETAILS

FPM(4)-12

REVISIONS
5-00
8-00
2-10
2-12

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		109

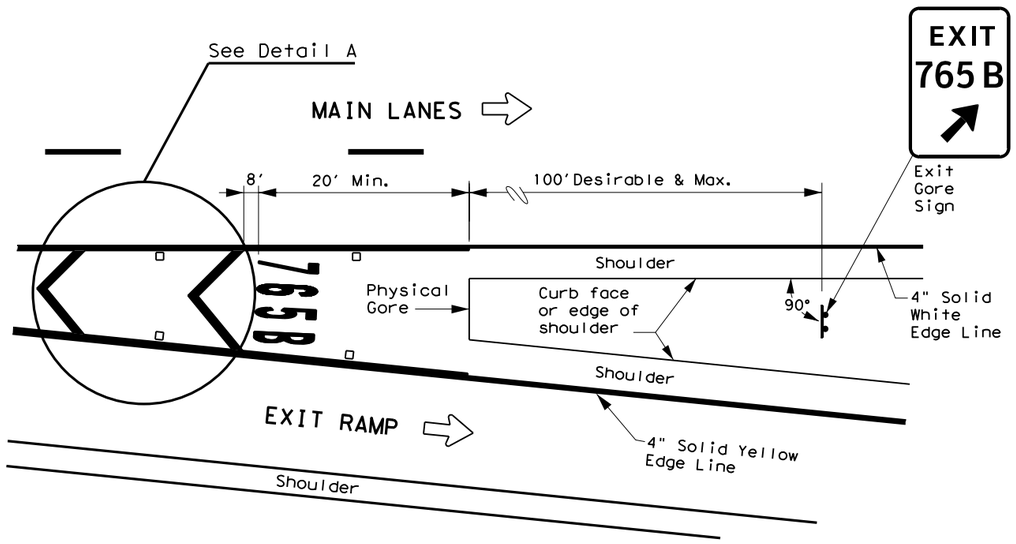
23D

DATE: 7/8/2021 5:15:54 PM
FILE: c:\txdot\pw*online\txdot5\pwonline*ezekiel.gonzalez\d0351606\FPM412.dgn

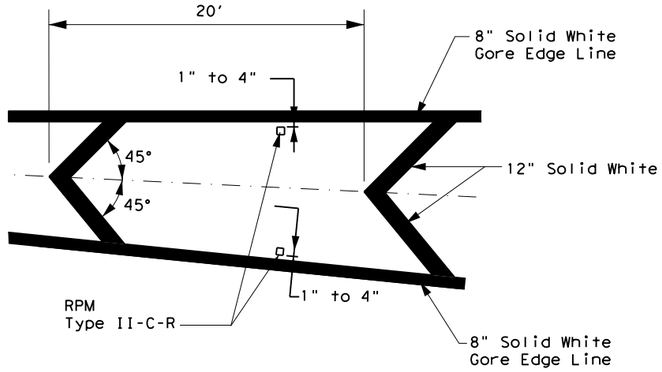
DATE: 7/8/2021 5:16:00 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351606\FPM519.dgn

EXIT NUMBER PAVEMENT MARKING NOTES

1. Minimum 8 foot white markings should be used, unless otherwise noted.
2. Spacing between letters and numbers should be approximately 4 inches.
3. Pavement markings are to be located as specified elsewhere in the plans.
4. All pavement marking materials shall meet the required Departmental Material Specifications or as specified in these plans.
5. Numbers and Letters details can be found in the Standard Highway Design for Texas (SHSD) Chapter 12 at http://www.txdot.gov



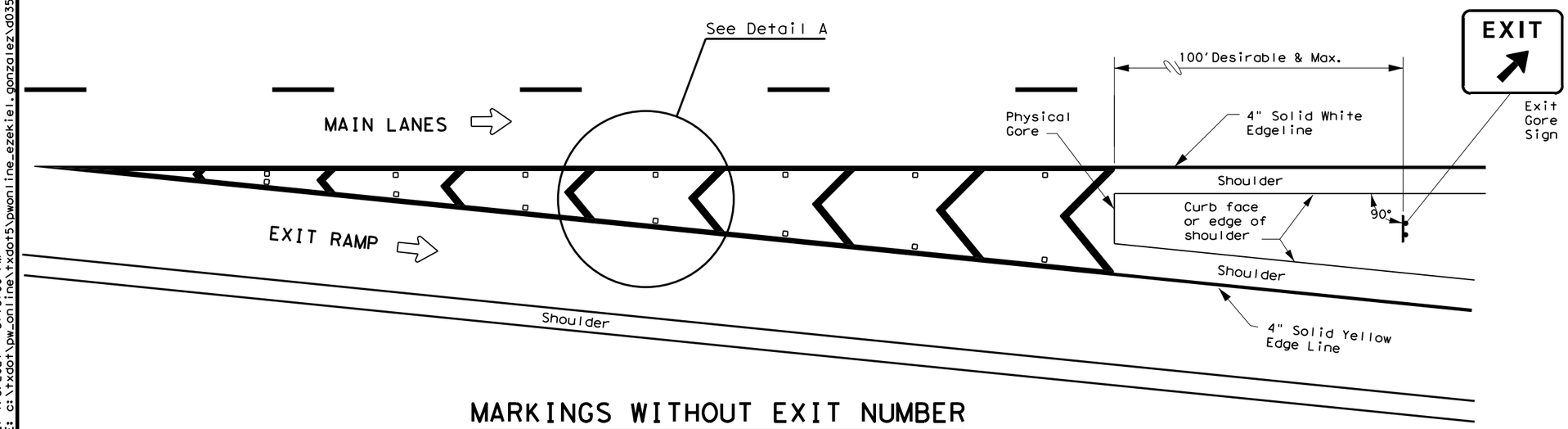
MARKINGS WITH EXIT NUMBER



NOTES

1. Raised pavement markers shall be centered between chevron or gore lines.
2. For more information, see Reflectorized Raised Pavement Marker Detail.

DETAIL A

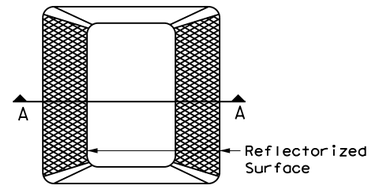


MARKINGS WITHOUT EXIT NUMBER

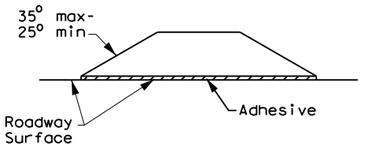
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

LEGEND	
⇦	Traffic flow
▫	Reflectorized Raised Markers (RPM) Type II-C-R



Type II (Top View)



SECTION A

REFLECTORIZED RAISED PAVEMENT MARKER (RPM)

Texas Department of Transportation

Traffic Safety Division Standard

EXIT GORE PAVEMENT MARKINGS

FPM(5)-19

FILE: fpm(5)-19.dgn	DN:	CK:	DW:	CK:
©TxDOT September 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		110

23F

SITE DESCRIPTION

PROJECT LIMITS: *See Title Sheet and Location Maps*

PROJECT SITE MAPS: *See Title Sheet and Location Maps*

PROJECT DESCRIPTION: *Construction of preventative maintenance of existing mainlanes consisting of milling, stone matrix asphaltic concrete overlay, pavement markings, rumble strips, and replacement of existing metal beam guard fence.*

MAJOR SOIL DISTURBING ACTIVITIES: *N/A*

TOTAL PROJECT AREA: *91.53 Acres*

TOTAL AREA TO BE DISTURBED: *N/A*

WEIGHTED RUNOFF COEFFICIENT: *No change in runoff coefficient will occor for both locations post construction.*

Before Construction: N/A

After Construction: N/A

EXISTING CONDITION OF SOIL & VEGETATIVE *See EPIC sheet*

NAME OF RECEIVING WATERS:
Main Floodway Channel of Willacy County Drainage District No. 1 is an adjacent recieving water for Location 2.

ENDANGERED SPECIES, DESIGNATED CRITICAL HABITAT AND HISTORICAL PROPERTY: *See EPIC Sheet*

The documentation satisfying TPDES Construction General Permit eligibility pertaining to the existence or of any protective action taken with regards to endangered species or designated critical habitat or historical property in this project area is contained in the project's Environmental Impact Study and can be viewed under the State Open Records Act at the address shown below:

TEXAS DEPARTMENT OF TRANSPORTATION
PHARR DISTRICT HEADQUARTERS
ATTN: ENVIRONMENTAL COORDINATOR
600 W. INTERSTATE 2
PHARR, TX 78577
PHONE: 956-702-6100

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- ___ TEMPORARY SEEDING
- ___ MULCHING (Hay or Straw)
- ___ BUFFER ZONES
- ___ PLANTING
- *P* SEEDING
- ___ SODDING
- ___ OTHER: (Specify Practice)
- ___ PRESERVATION OF NATURAL RESOURCES
- ___ FLEXIBLE CHANNEL LINER
- ___ RIGID CHANNEL LINER
- ___ SOIL RETENTION BLANKET
- ___ COMPOST MANUFACTURED COMPOST
- *T* BIODEGRADABLE EROSION CONTROL SOCKS

STRUCTURAL PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- ___ SILT FENCES
- *T* BIODEGRADABLE EROSION CONTROL SOCKS
- ___ HAY BALES
- ___ ROCK FILTER DAMS
- ___ 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
- ___ PIPE MATTING OR EQUAL 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: (Specify Practice)

STORM WATER MANAGEMENT:
Storm water drainage will be provided by existing storm sewer networks and roadside drainage ditches.

STORM WATER MANAGEMENT ACTIVITIES: (Sequence of Construction)
(Describe Storm Water Management Activities by Phases, See Example Below:)
The order of activities will be as follows:
1.- Install erosion control devices at all intets within and adjacent to project limits, and along bridge section as shown in "SW3P Typical Layout".
2. Conduct proposed overlay operation for all locations shown in package.
4. Install TY "A" backfill as shown in the typical sections.
5. Once construction is complete install permanent seeding along all areas where TY "A" Backfill has been installed, and remove all loose material from road surface.

NON-STORM WATER MANAGEMENT DISCHARGES:
Non-storm water discharges should be filtered, or held in retention basins, before being allowed to mix with storm water. These discharges consist of non-poliuted ground water, spring water, foundation and/or footing drain water; and water used for dust control, pavement washing and vehicle wastewater containing no detergents.

OTHER REQUIREMENTS & PRACTICES

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 drainage ways shall have priority followed by devices protecting storm sewer inlets.*

INSPECTION: *For areas of the construction site that have not been finally stabilized, area used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every fourteen (14) calendar days and within twenty-four (24) hours of the end of a storm event 0.5 inches or greater.*

WASTE MATERIALS: *All waste materials will be collected and stored in a securely lidded dumpster. All trash and construction debris from the site will be deposited as necessary at a local dump. No construction waste material will be buried on site.*

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): *At a minimum, any products in the following categories to be hazardous: Paints, Acids for cleaning masonry surfaces, Cleaning Solvents, Asphalt products, Chemical additives for soil stabilization, or Concrete curing compounds and additives. In the event of a spill which may be hazardous, the spill Coordinator should be contacted immediately. Emptying of excess concrete should not be allowed on site. Likewise, washout of concrete trucks should not be performed on site. These discharges are considered non-allowable non-storm water discharges. Concrete trucks should never be allowed to dump into storm drains or sanitary sewers.*

SANITARY WASTE: *All sanitary waste will be collected from the portable units as necessary or as required by local regulation by a licensed sanitary waste management contractor.*

OFFSITE VEHICLE TRACKING: *The Contractor shall be rquired, on a regular basis or as may be directed by the Engineer, to dampen haul roads for dust control, stabilize construction entrances and to remove excess dirt from the roadway.*

MANAGEMENT PRACTICES:

1. *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, water body or stream bed.*
2. *Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants.*
3. *All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, or debris or other obstructions placed during construction operations that are not a part of the finished work.*

OTHER: *Contractor shall adhere to the following:*

1. *Construction Materials List of materials stored on job site to be provided by Contractor.*
2. *The project SW3P File shall be located at the project field office or within the Contractor's mobile office at all times and shall contain the N.O.I., CGP, Signature Authorization, Certification/Qualification Statements, Inspection Reports, Required Maps, and the TPDES Permit, Part II. This File to be persented to authorized State and Federal Agents upon request.*

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/7/2021

, P.E.
Signature of Registrant & Date

Texas Department of Transportation

TxDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)

REV. 2-20-14 SW3P.DGN

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			111
STATE	DIST.	COUNTY	
TEXAS	PHARR	HIDALGO, Etc.	
CONT.	SECT.	JOB	HIGHWAY NO.
0255	08	108	IH-69C, Etc.

During the planning phase of project development, the following Environmental Permits, Issues and Commitments have been developed during coordination with resource agencies, local governmental entities and the general public. Any change orders and/or deviations from the final design must be reported to the Engineer prior to the commencement of construction activities as additional environmental clearances may be required.

I. Clean Water Act, Section 402; Stormwater Pollution Prevention

Action Items Required : ☐ No Action Required

1. ☒ The contractor must implement the SW3P by installing Best Management Practices (BMPs) as indicated in the construction plans and maintained appropriately throughout construction. BMPs must be in place prior to the start of construction. The SW3P may need to be revised as necessary as construction progresses.

2. ☒ For all construction PSL's off the ROW, the contractor must certify compliance with all applicable laws, rules and regulations pertaining to the preservation of cultural resources, natural resources and the environment.

3. ☒ Based on the acreage of impact, select the appropriate box below:

   ☒ This project will disturb less than 1 acre of soil and is not part of a larger common plan of development; therefore, a NOI and TPDES Site Notice are not required for this project.

   or

   ☐ This project will disturb equal to or more than 1 acre of soil but less than 5 acres; therefore a NOI is not required but a TPDES Site Notice is required. The Construction Site Notice (CSN) is required to be posted at the construction site in a publicly accessible location for review by the public, TCEQ, EPA and other Inspectors.

   or

   ☐ This project will disturb equal to or more than 5 acres of soil and will require a NOI and TPDES Site Notice. The NOI and Site Notice are required to be posted at the construction site in a publicly accessible location.

4. ☒ Need to address MS4 requirements (Cameron & Hidalgo Counties only) ☐ MS4 requirements not needed

II. Clean Water Act, Sections 401 and 404 Compliance

Action Items Rquired : ☐ No Action Required

1. ☒ Filling, dredging or excavating in any water bodies, rivers, creeks, streams, wetlands or wet areas is prohibited unless specified in the USACE permit and approved by the Engineer. The contractor shall adhere to all agreements, mitigation plans, and BMPs required by the NWP as regulated by the USACE.

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

   ☐ No Permit Required

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

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

   ☐ Individual 404 Permit Required

   ☐ Other Nationwide Permit Required: NWP#_____

2. ☒ The contractor is responsible for obtaining new or revised Section 404 permit(s) for Contractor initiated changes in construction methods that change Impacts To Waters Of The U.S., including wetlands. The Contractor will ensure that the water quality of the State will be maintained and not degraded.

3. ☒ Best Management Practices for applicable Section 401 General Conditions:

General Condition 12 - Categories I and II BMPs required

Category I (Erosion Control)

☐ Temporary Vegetation	☐ Interceptor Swale	☒ Mulch Filter Berms and/or Socks
☐ Blankets, Matting	☐ Diversion Dike	☐ Compost Filter Berms and/or Socks
☐ Mulch	☐ Erosion Control Compost	☐ Compost Blankets
☐ Sodding		

Category II (Sedimentation Control)

☐ Silt Fence	☐ Hay (Straw) Bale Dike	☒ Mulch Filter Berms and/or Socks
☐ Rock Berm	☐ Brush Berms	☐ Compost Filter Berms and/or Socks
☐ Triangular Filter Dike	☐ Sediment Basins	☐ Stone Outlet Sediment Traps
☐ Sand Bag Berm	☐ Erosion Control Compost	

General Condition 21 - Category III BMPs required

Category III (Post-Construction TSS Control)

☐ Vegetative Filter Strips	☐ Wet Basins	☐ Mulch Filter Berms and/or Socks
☐ Retention/Irrigation	☐ Grassy Swales	☐ Compost Filter Berms and/or Socks
☐ Extended Detention Basin	☐ Vegetation-Lined Ditches	☐ Sand Filter Systems
☐ Constructed Wetlands	☐ Erosion Control Compost	☐ Sedimentation Chambers

II. Clean Water Act, Sections 401 and 404 Compliance - Continued:

4. ☒ The Contractor's designated and qualified Contractor Responsible Person Environmental (CRPe) will monitor the project site daily to ensue compliance with SW3P and TPDES General Permit TXR 150000. Daily Monitoring Reports shall be provided to TxDOT within 48 hours, in accordance with Item 506.3.1.

5. ☒ Other Project Specific Actions:
   1. Contractor must sweep roadway & remove loss aggregate along edge of pavement upon completed daily operations.
   2. Contractor shall not place removed aggregate along adjacent grass areas.
   3. The project locations and limits are near a stream crossing. No PSL's are allowed in the vicinity of the stream.

III. Cultural Resources

Action Items Required : ☐ No Action Required

1. ☒ Refer to the 2014 TxDOT Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges, Item 7.7.1., in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

2. ☐ Other Project Specific Actions:

IV. Vegetation Resources

Action Items Required : ☐ No Action Required

1. ☒ In accordance with the 2014 TxDOT Standard Specifications; Item 164 - Seeding For Erosion Control; provide and install temporary or permanent seeding for erosion control as shown on the plans or as directed by the Engineer for all seeding and replanting of right of way where possible. (Required for Urban Settings)

2. ☐ In accordance with Executive Order 13112 on invasive species and the Executive Memorandum on Beneficial Landscaping, native species of plants shall be used for all seeding and replanting of right of way where possible for rural roadways. (Required for Rural Settings)

3. ☒ Preserve vegetation where possible throughout the project and minimize clearing, grubbing and excavation within stream banks, bed and approach sections.

4. ☐ Other Project Specific Actions:

Pharr District Contact No. 956-702-6100 Revised 01/30/2017

List of Abbreviations

BMP: Best Management Practice	NWP: Nationwide Permit
CGP: Construction General Permit	PCN: Pre-Construction Notification
CRPe: Contractor Responsible Person Environmental	PSL: Project Specific Location
DSHS: Texas Department of State Health Services	SPCC: Spill Prevention Control and Countermeasure
FEMA: Federal Emergency Management Agency	SW3P: Storm Water Pollution Prevention Plan
FHWA: Federal Highway Administration	TCEQ: Texas Commission on Environmental Quality
MOA: Memorandum of Agreement	THC: Texas Historical Commission
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MSAT: Mobile Source Air Toxic	TxDOT: Texas Department of Transportation
MBTA: Migratory Bird Treaty Act	T&E: Threatened and Endangered Species
NOI: Notice of Intent	USACE: U.S. Army Corp of Engineers
NOT: Notice of Termination	USFWS: U.S. Fish and Wildlife Service

Texas Department of Transportation

PHARR DISTRICT

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

SHEET 1 OF 2

FED. RD. DIV. NO.	PROJECT NO.		HIGHWAY NO.
6			IH-69C, etc.
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO, etc.	SHEET NO.
CONTROL	SECTION	JOB	
0255	08	108, etc.	112

Date Printed: X-X-XX

V. Federal Listed, and Proposed Threatened and Endangered Species, Critical Habitat, State Listed Species, Candidate Species and Migratory Birds

Action Items Required : ☐ No Action Required

1. ☒ Under the Migratory Bird Treaty Act (MBTA) of 1918, codified at 16 U.S.C. § 703-712 and as enforced by the USFWS, the proposed construction work will not remove active nests from bridges, trees, ground and other structures during migratory bird nesting season, (February 1st. through October 1st.). If the Contractor needs to perform work within the right of way during nesting season, a qualified Biologist shall conduct a survey to determine if active nests are present. If present, the Contractor shall maintain a buffer zone around the nest(s) as directed by the Biologist. The buffer zone will be protected from clearing and disturbance until such time as the Biologist has determined that the nest(s) is no longer active. Prior to the nesting season, existing bridges and culverts should be treated against migratory bird nesting by utilizing Bird Exclusion Methods. Bird Exclusion Methods should be monitored and maintained throughout the nesting season. Refer to Standard Bird Exclusion Details.

2. ☒ There is the potential for the presence of state-listed species & species of concern in the project area and state law prohibits the taking (incidental or otherwise) of state-listed species. Taking is defined as the collection, hooking, hunting, netting, shooting, or share by any means or devices. If any listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately.

3. ☒ Other Project Specific Actions:

VI. Hazardous Materials on Contamination Issues

Action Items Required : ☐ No Action Required

General (applies to all projects):

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

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

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

Contact the Engineer if any of the following are detected:

- Dead or distressed vegetation (identified as not normal)
- Trash piles, drums, canisters, barrels, etc.
- Undesirable smells or odors
- Evidence of leaching or seepage of contaminant substances

Any other evidence indicating possible hazardous materials or contamination discovered on site.

1. ☒ If potentially hazardous material and/or contaminated media (i.e.: soil, groundwater, surface water, sediment, building materials) are unexpectedly encountered during construction, assure that such materials and contamination are handled according to applicable federal and state regulations, cease work in the immediate area and contact the Engineer immediately.

VI. Hazardous Materials on Contamination Issues - Continued:

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

☐ Yes ☒ No

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

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

☐ Yes ☐ No

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

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

4. ☐ The Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and an Asbestos Consultant in order to minimize construction delays and subsequent claims.

VII. Other Environmental Issues

Action Items Required : ☐ No Action Required

1. ☒ Noise

Contractor shall make every reasonable effort to minimize construction noise through abatement measures such as work hour controls and proper maintenance of equipment mufflers.

2. ☒ Air

Contractor shall practice common dust control techniques such as surface chemical treatment or watering of unpaved road surfaces and vehicle speed reduction shall be implemented to minimize and prevent airborne dust during construction.

Contractor should minimize MSAT by utilizing measures to encourage use of EPA required cleaner diesel fuels, limits on idling, increase use of cleaner burning diesel engines, and other emission limitation techniques, as appropriate.

Pharr District Contact No. 956-702-6100 Revised 01/30/2017

List of Abbreviations

BMP: Best Management Practice	NWP: Nationwide Permit
CGP: Construction General Permit	PCN: Pre-Construction Notification
CRPe: Contractor Responsible Person Environmental	PSL: Project Specific Location
DSHS: Texas Department of State Health Services	SPCC: Spill Prevention Control and Countermeasure
FEMA: Federal Emergency Management Agency	SW3P: Storm Water Pollution Prevention Plan
FHWA: Federal Highway Administration	TCEQ: Texas Commission on Environmental Quality
MOA: Memorandum of Agreement	THC: Texas Historical Commission
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MSAT: Mobile Source Air Toxic	TxDOT: Texas Department of Transportation
MBTA: Migratory Bird Treaty Act	T&E: Threatened and Endangered Species
NOI: Notice of Intent	USACE: U.S. Army Corp of Engineers
NOT: Notice of Termination	USFWS: U.S. Fish and Wildlife Service

Texas Department of Transportation

PHARR DISTRICT

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

SHEET 2 OF 2

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			IH-69C, etc.
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	PHR	HIDALGO, etc.	
CONTROL	SECTION	JOB	
0255	08	108, etc.	113

Date Printed: X-X-XX

TPWD BMPs

The Programmatic Agreement defines Best Management Practices (BMPs) to be implemented by Texas Department of Transportation (TxDOT) per §2.213 (Programmatic Agreements) of the 2017 Memorandum of Understanding (MOU) between TxDOT and Texas Parks and Wildlife Department (TPWD). These BMPs are measures that TxDOT and TPWD agree will result in avoidance and minimization of potential impacts to natural resources and in some cases apply to particular types of TxDOT projects.

The purpose of this section is to provide BMPs to minimize impacts to species or groups of species. Implementation of these BMPs by TxDOT eliminates the need for coordination under §2.206(1)of the MOU, except as noted.

Due diligence should be used to avoid killing or harming any wildlife species in the implementation of TxDOT projects.

☒ Bird BMPs (Required)

In addition to complying with the Migratory Bird Treaty Act (MBTA) perform the following BMPs:

- ☒ Prior to construction, perform daytime surveys for nests including under bridges and in culverts to determine if they are active before removal. Nests that are active should not be disturbed.
- ☒ Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season.
- ☒ Avoid the removal of unoccupied, inactive nests, as practicable.
- ☐ Prevent the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair.
- ☒ Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.

☐ Bald Eagle *(Haliaeetus leucocephalus)*

- ☐ Bird BMPs and Bald and Golden Eagle Protection Act compliance

☐ Reddish Egret *(Egretta rufescens)* or
☐ White-faced Ibis *(Plegadis chihi)*

- ☐ Bird BMPs unless project is within 300 meters (984 feet)of a known colonial water bird rookery then coordinate with TPWD.

☐ Rookeries (Recommendations)

In general, nesting dates for herons and egrets range from early February to late August in Texas, depending on the species. Great Blue Herons (GBHE) are usually the first to nest. When GBHE get disrupted from the nest and abandon nesting, then the other species of herons and egrets may not attempt to nest at the colony that year. Breeding dates for rookery species are approximately as follows:

Species	Dates
Cattle Egret	Early April to late October
Little Blue Heron	Late March to late July
Snowy Egret	Late March to early August
Great Egret	Early March to early August
Black-crowned Night Heron	Early February to late July
Great Blue Heron	February to late August

☐ Rookeries (Recommendations) (Continued)

- ☐ Vegetation clearing in a primary buffer area of 300 meters (984 feet) from a heronry periphery should be avoided. Utilizing areas that have already been cleared within this buffer area may be acceptable depending on site-specific characteristics. Additionally, human foot-traffic or machinery use should not occur within this buffer area during the nesting season.
- ☐ Clearing activities or construction using heavy machinery in a secondary buffer area of 1,000 meters (3,281 feet) from the heronry periphery should be avoided during the breeding season (courting and nesting).

☐ Bat BMPs (Required)

To determine the appropriate BMP to avoid or minimize impacts to bats, review the habitat description for the species of interest on the TPWD Rare, Threatened, and Endangered Species of Texas by County List or other trusted resources. All bat surveys and other activities that include direct contact with bats shall comply with TPWD' recommended white-nose syndrome protocols located on the TPWD Wildlife Habitat Assessment Program website under "Project Design and Construction".

The following survey and exclusion protocols should be followed prior to commencement of construction activities. For the purposes of this document, structures are defined as bridges, culverts (concrete or metal), wells, and buildings.

- ☐ For activities that have the potential to impact structures, cliffs or caves, or trees; a qualified biologist will perform a habitat assessment and occupancy survey of the feature(s) with roost potential as early in the planning process as possible or within one year before project letting.
- ☐ For roosts where occupancy is strongly suspected but unconfirmed during the initial survey, revisit feature(s) at most four weeks prior to scheduled disturbance to confirm absence of bats.
- ☐ If bats are present or recent signs of occupation (i.e., piles of guano, distinct musky odor, or staining and rub marks at potential entry points) are observed, take appropriate measures to ensure that bats are not harmed, such as implementing non-lethal exclusion activities or timing or phasing of construction.
- ☐ Exclusion devices can be installed by a qualified individual between September 1 and March 31. Exclusion devices should be used for a minimum of seven days when minimum nighttime temperatures are above 50°F and minimum daytime temperatures are above 70°F. Prior to exclusion, ensure that alternate roosting habitat is available in the immediate area. If no suitable roosting habitat is available, installation of alternate roosts is recommended to replace the loss of an occupied roost. If alternate roost sites are not provided, bats may seek shelter in other inappropriate sites, such as buildings, in the surrounding area. See Additional Bat BMPs (Recommendations) for recommended acceptable methods for excluding bats from structures.
- ☐ If feature(s) used by bats are removed as a result of construction, replacement structures should incorporate bat-friendly design or artificial roosts should be constructed to replace these features, as practicable.
- ☐ Conversion of property containing cave or cliff features to transportation purposes should be avoided where feasible.

☐ Bat BMPs (Required)(Continued)

- ☐ Avoid unnecessary removal of dead fronds on native and ornamental palm trees in south Texas (Cameron, Hidalgo, Willacy, Kenedy, Brooks, Kleberg, Nueces, and San Patricio counties) from April 1st through October 31st. If removal of dead fronds is necessary at other times of the year, limit frond removal to extended warm periods (nighttime temperatures: 55°F for at least two consecutive nights), so bats can move away from the disturbance and find new roosts.
- ☐ Large hollow trees, snags (dead standing trees), and trees with shaggy bark should be surveyed for colonies and, if found, should not be disturbed until the bats are no longer occupying these features. Post-occupancy surveys should be conducted by a qualified biologist prior to tree removal from the landscape.
- ☐ Retain mature, large diameter hardwood forest species and native/ornamental palm trees where feasible.
- ☐ In all instances, avoid harm or death to bats. Bats should only be handled as a last resort and after communication with TPWD.

☐ Mexican Long-tongues Bat *(Choeronycteris mexicana)*

- ☐ Avoid unnecessary impacts to cacti and agave species.
- ☐ Bat BMPs.

☐ Additional Bat BMPs (Recommendations)

- ☐ Bat surveys of structures should include visual inspections of structural fissures (cracked or spalled concrete, damaged or split beams, split or damaged timber railings), crevices (expansion joints, space between parallel beams, spaces above supports piers), and alternative structures (drainage pipes, bolt cavities, open sections between support beams, swallow nests) for the presence of bats.
- ☐ Before excluding bats from any occupied structure, bat species, weather, temperature, season, and geographic location must be incorporated into any exclusion plans to avoid unnecessary harm or death to bats. Winter exclusion must entail a survey to confirm either, 1) bats are absent or 2) present but active (i.e. continuously active - not intermittently active due to arousals from hibernation).
- ☐ Avoid using materials that degrade quickly, like paper, steel wool or rags, to close holes.
- ☐ Avoid using products or making structural modifications that may block natural ventilation, like hanging plastic sheeting over an active roost entrance, thereby altering roost microclimate.
- ☐ Avoid using chemical and ultrasonic repellents.
- ☐ Avoid use of silicone, polyurethane or similar non-water-based caulk products.
- ☐ Avoid use of expandable foam products at occupied sites.
- ☐ Avoid the use of flexible netting attached with duct tape.

Pharr District Contact No. 956-702-6100

Revised 07/12/2017

List of Abbreviations

BMP: Best Management Practice
CGP: Construction General Permit
CRPe: Contractor Responsible Person Environmental
DSHS: Texas Department of State Health Services
FEMA: Federal Emergency Management Agency
FHWA: Federal Highway Administration
MOA: Memorandum of Agreement
MOU: Memorandum of Understanding
MS4: Municipal Separate Stormwater Sewer System
MSAT: Mobile Source Air Toxic
MBTA: Migratory Bird Treaty Act
NOI: Notice of Intent
NOT: Notice of Termination
NWP: Nationwide Permit
PCN: Pre-Construction Notification
PSL: Project Specific Location
SPCC: Spill Prevention Control and Countermeasure
SW3P: Storm Water Pollution Prevention Plan
TCEQ: Texas Commission on Environmental Quality
THC: Texas Historical Commission
TPDES: Texas Pollutant Discharge Elimination System
TPWD: Texas Parks and Wildlife Department
TxDOT: Texas Department of Transportation
T&E: Threatened and Endangered Species
USACE: U.S. Army Corp of Engineers
USFWS: U.S. Fish and Wildlife Service

Texas Department of Transportation

PHARR DISTRICT

EPIC SHEET SUPPLEMENTALS

TPWD BMPs

SHEET 1 OF 3

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			IH-69C, etc.
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO, etc.	SHEET NO.
CONTROL	SECTION	JOB	
0255	08	108, etc.	114

Date Printed: X-X-XX

☐ Additional Bat BMPs (Recommendations) (Continued)

- ☐ In order to avoid entombing bats, exclusion activities should be only implemented by a qualified individual. A qualified individual or company should possess at least the following minimum qualifications:
  - Experience in bat exclusion (the individual, not just the company).
  - Proof of rabies pre-exposure vaccinations.
  - Demonstrated knowledge of the relevant bat species, including maternity season date range and habitat requirements.
  - Demonstrated knowledge of rabies and histoplasmosis in relation to bat roosts.
- ☐ Contact TPWD for additional resources and information to assist in executing successful bat exclusions that will avoid unnecessary harm or death in bats.

☐ Fossorial Mammal BMPs (Required)

- ☐ If black-tailed prairie dog (BTPD) burrows or pocket gopher mounds are to be excavated/directly impacted coordinate with TPWD WHAB.
- ☐ When a construction zone is adjacent to active BTPD burrows or pocket gopher mounds, erect barriers to discourage individuals moving through or into the construction area.
- ☐ When seeding or revegetation is planned in an area adjacent to BTPD burrows or pocket gopher mounds, a vegetative barrier should be considered in the planting to discourage dispersal into the ROW.

☐ Coues' Rice Rat *(Oryzomys couesi)*

- ☐ Minimize impacts to wetland, Resaca, oxbow lakes, and marsh habitats.
- ☐ Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered.
- ☐ Water Quality BMPs.

☐ Plains Spotted Skunk *(Spilogale putorius interrupta)* or
☐ Swift Fox *(Vulpes velox)*

- ☐ Contractor will be advised of potential occurrence in the project area and to avoid harming the species if encountered and to avoid unnecessary impacts to dens.

☐ White nosed Coati *(Nasua narica)*/
☐ Yellow nosed Cotton Rat *(Sigmodon ochrognathus)*

- ☐ Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered.

☒ Terrestrial Reptile BMPs (Required)

- ☐ Apply hydro mulching and/or hydro seeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydro mulching and/or hydro seeding are not feasible due to site conditions, utilize erosion control blankets or mats that contain no netting or contain loosely woven, natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable.
- ☐ For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1 :1) in areas left uncovered. Visually inspect excavation areas for trapped wildlife prior to backfilling.
- ☒ Inform contractors that if reptiles are found on project site allow species to safely leave the project area.
- ☒ Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible.
- ☒ Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.

☒ Texas Tortoise *(Gopherus berlandieri)*

- ☒ Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.
- ☒ Utility trenches should be covered overnight or visually inspected before filling to avoid burial of the species.
- ☒ Terrestrial Reptile BMPs.

☒ Texas Horned Lizard *(Phrynosoma cornutum)*

- ☒ Avoid harvester ant mounds in the selection of Project Specific Locations (PSLs) where feasible.
- ☒ Terrestrial Reptile BMPs.

☐ Additional Reptile BMPs (Recommendations)

- ☐ Due to increased activity (mating) of reptiles during the spring, construction activities like clearing or grading should attempt to be scheduled outside of the spring (April-May) season. Also, timing ground disturbing activities before October when reptiles become less active and may be using burrows in the project area is also encouraged.
- ☐ When designing roadways with curbs, consider using Type I or Type III curbs to provide a gentle slope to enable turtles and small animals to get out of roadways.
- ☐ If Texas Tortoises are present in a project area, they should be removed from the area. After removal of the tortoises, the area that will be disturbed during active construction and project specific locations should be fenced off to exclude tortoises and other reptiles. The exclusion fence should be constructed and maintained as follows:
  - a. The exclusion fence should be constructed with metal flashing or drift fence material.
  - b. Rolled erosion control mesh material should not be used.
  - c. The exclusion fence should be buried at least 6 inches deep and be at least 24 inches high.
  - d. The exclusion fence should be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated.

☒ Amphibian and Aquatic Reptile BMPs (Required)

Unless absence of the species can be demonstrated, assume presence in suitable habitat and implement the following BMPs. Absence can only be demonstrated using TPWD-approved survey efforts (contact TPWD for minimum survey protocols for species and project site conditions).

- ☐ For projects within one mile of a known occupied location or observation of the species recorded from 1980 until the current year and suitable habitat is present, coordinate with TPWD.
- ☐ For new location roadway projects, coordinate with TPWD.
- ☒ For projects within existing right-of-way (ROW) when work is in water or will permanently impact a water feature and potential habitat exists for the target species complete the following:
  - a) Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.
  - b) Minimize impacts to wetland, temporary and permanent open water features, including depressions, and riverine habitats.
  - c) Maintain hydrologic regime and connections between wetlands and other aquatic features.

Pharr District Contact No. 956-702-6100

☐ Amphibian and Aquatic Reptile BMPs (Continued)

- d) Use barrier fencing to direct animal movements away from construction activities and areas of potential wildlife-vehicle collisions in construction areas directly adjacent, or that may directly impact, potential habitat for the target species.
- e) Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding are not feasible due to site conditions, using erosion control blankets or mats that contain no netting, or only contain loosely woven natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable.
- f) Project specific locations (PSLs) proposed within state-owned ROW should be located in uplands away from aquatic features.
- g) When work is directly adjacent to the water, minimize impacts to shoreline basking sites (e.g., downed trees, sand bars, exposed bedrock) and overwinter sites (e.g., brush and debris piles, crayfish burrows) where feasible.
- h) Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter, which may be refugia for terrestrial amphibians, where feasible.
- i) If gutters and curbs are part of the roadway design, where feasible install gutters that do not include the side box inlet and include sloped (i.e. mountable) curbs to allow small animals to leave roadway. If this modification to the entire curb system is not possible, install sections of sloped curb on either side of the storm water drain for several feet to allow small animals to leave the roadway. Priority areas for these design recommendations are those with nearby wetlands or other aquatic features.

☐ For projects that require acquisition of additional ROW and work within that new ROW is in water or will permanently impact a water feature, implement a) - i) above plus j) -l) below, where applicable:

- j) For sections of roadway adjacent to wetlands or other aquatic features, install wildlife barriers that prevent climbing. Barriers should terminate at culvert openings in order to funnel animals under the road. The barriers should be of the same length as the adjacent feature or 80 feet long in each direction, or whichever is the lesser of the two.
- k) For culvert extensions and culvert replacement/installation, incorporate measures to funnel animals toward culverts such as concrete wingwalls and barrier walls with overhangs.
- l) When riprap or other bank stabilization devices are necessary, their placement should not impede the movement of terrestrial or aquatic wildlife through the water feature. Where feasible, biotechnical streambank stabilization methods using live native vegetation or a combination of vegetative and structural materials should be used.

Revised 07/12/2017

List of Abbreviations

BMP: Best Management Practice	MSAT: Mobile Source Air Toxic	TCEQ: Texas Commission on Environmental Quality
CGP: Construction General Permit	MBTA: Migratory Bird Treaty Act	THC: Texas Historical Commission
CRPe: Contractor Responsible Person Environmental	NOI: Notice of Intent	TPDES: Texas Pollutant Discharge Elimination System
DSHS: Texas Department of State Health Services	NOT: Notice of Termination	TPWD: Texas Parks and Wildlife Department
FEMA: Federal Emergency Management Agency	NWP: Nationwide Permit	TxDOT: Texas Department of Transportation
FHWA: Federal Highway Administration	PCN: Pre-Construction Notification	T&E: Threatened and Endangered Species
MOA: Memorandum of Agreement	PSL: Project Specific Location	USACE: U.S. Army Corp of Engineers
MOU: Memorandum of Understanding	SPCC: Spill Prevention Control and Countermeasure	USFWS: U.S. Fish and Wildlife Service
MS4: Municipal Separate Stormwater Sewer System	SW3P: Storm Water Pollution Prevention Plan	

Texas Department of Transportation

PHARR DISTRICT

EPIC SHEET SUPPLEMENTALS

TPWD BMPs

SHEET 2 OF 3

FED. RD. DIV. NO.	PROJECT NO.		HIGHWAY NO.
6			IH-69C, etc.
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO, etc.	
CONTROL	SECTION	JOB	SHEET NO.
0255	08	108, etc.	115

Date Printed: X-X-XX

☒ Sheep Frog *(Hypopachus variolosus)*

- ☒ Minimize disturbance to burrows or downed woody debris.
- ☒ Water Quality BMPs.
- ☒ Amphibian BMPs.

☒ South Texas Siren (Large Form) *(Siren sp 1)*

- ☒ Minimize impacts to warm, shallow waters with vegetative cover such as ponds and ditches.
- ☒ Water Quality BMPs.
- ☒ Amphibian BMPs.

☐ Freshwater Mussel BMPs (Required)

- ☐ When work is in the water; survey project footprints for state listed species where appropriate habitat exists.
- ☐ When work is in the water and mussels are discovered during surveys; relocate state listed and SGCN mussels under TPWD authorization and implement Water Quality BMPs.
- ☐ When work is adjacent to the water; Water Quality BMPs implemented as part of the SWPPP for a construction general permit or any conditions of the Section 401 water quality certification for the project will be implemented.

☐ Fish BMPs (Required)

- ☐ For projects within the range of a SGCN or State-Listed fish and work is adjacent to water: Use Water Quality BMPs. No TPWD Coordination required.
- ☐ For projects within the range of a SGCN or State-Listed fish, and work is in the water: TPWD coordination is required.

☒ Water Quality BMPs (Required)

In addition to BMPs required for a TCEQ Storm Water Pollution Prevention Plan and/or Section 401 water quality permit:

- ☒ Minimize the use of equipment in streams and riparian areas during construction. When possible, equipment access should be from banks, bridge decks, or barges.
- ☐ When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossing.

☐ Additional Water Quality BMPs (Recommendations)

- ☐ Wet-Bottomed detention ponds are recommended to benefit wildlife and downstream water quality. Consider potential wildlife-vehicle interactions when siting detention ponds.
- ☐ Rubbish found near bridges on TxDOT ROW should be removed and disposed of properly to minimize the risk of pollution. Rubbish does not include brush piles or snags.

☐ Aquatic Mitigation (Recommendations)

- ☐ In-kind compensatory mitigation should be considered for all unavoidable impacts to aquatic resources including, but not limited to streams, wetlands, oysters, seagrass and mudflats, regardless of their jurisdictional status.
- ☐ Compensatory mitigation plans should be developed in consultation with TPWD Transportation Conservation Coordinator.

☐ Stream Crossings (Recommendations)

- ☐ Use spanning bridges rather than culverts when feasible.
- ☐ If using a culvert, staggered culverts that concentrate low flows but provide conveyance of higher flows through staggered culverts placed at higher elevations is recommended.
- ☐ Bottomless culverts are recommended to allow for fish and other aquatic wildlife passage in the low flow channel. If bottomless culverts are not feasible, making a low flow channel for fish passage is recommended.
- ☐ Avoid placing riprap across stream channels and instead use alternative stabilization such as biotechnical stream bank stabilization methods including live native vegetation or a combination of vegetative and structural materials. When riprap or other bank stabilization devices are necessary, their placement should not impede the movement of aquatic and terrestrial wildlife underneath the bridge. In some instances, riprap may be buried, back-filled with topsoil and planted with native vegetation.
- ☐ Incorporate bat-friendly design into bridges and culverts.
- ☐ Design bridges for adequate vertical and horizontal clearances under the roadway to allow for terrestrial wildlife to safely pass under the road.
- ☐ A span wide enough to cross the stream and allow for dry ground and a natural surface path under the roadway is encouraged. For culverts, incorporation of an artificial ledge inside the culvert on one or both sides for use by terrestrial wildlife is recommended.
- ☐ Riparian buffer zones should remain undisturbed where possible.

☒ Vegetation BMPs (Recommendations)

- ☒ Minimize the amount of vegetation cleared. Removal of native vegetation, particularly mature native trees and shrubs should be avoided to the greatest extent practicable. Wherever practicable, impacted vegetation should be replaced with in-kind on-site replacement/restoration of native vegetation.
- ☐ To minimize adverse effects, activities should be planned to preserve mature trees, particularly acorn, nut or berry producing varieties. These types of vegetation have high value to wildlife as food and cover.
- ☐ It is strongly recommended that trees greater than 12 inches in diameter at breast height (dbh) that are removed be replaced. TPWD's experience indicates that for ecologically effective replacement, a ratio of three trees for every one (3:1) lost should be provided to the extent practicable either on-site or off-site. Trees less than 12 inches dbh should be replaced at a 1:1 ratio.
- ☐ Replacement trees should be of equal or better wildlife quality than those removed and be regionally adapted native species.
- ☐ When trees are planted, a maintenance plan that ensures at least an 85 percent survival rate after three (3) years should be developed for the replacement trees.
- ☒ The use of any non-native vegetation in landscaping and revegetation is discouraged. Locally adapted native species should be used.
- ☒ The use of seed mix that contains seeds from only locally adapted native species is recommended.
- ☒ Avoid vegetation clearing activities during the general bird nesting season, March through August, to minimize adverse impacts to birds.

☐ Invasive Species BMPs (Recommendations)

- ☐ For all work in waters listed in the distribution of Zebra mussels on http://texasinvasives .org/ as well as those waters specified in 31 TAC §57.972 and any TPWD emergency orders regarding prevention of the spread of Zebra mussels all machinery, equipment, or vehicles coming in contact with such waters should follow clean/drain/dry protocols to prevent the potential spread of invasive Zebra mussels.
- ☐ Care should be taken to avoid the spread of aquatic invasive plants (such as Giant Salvinia, Hydrilla, Hyacinth, Watermilfoil, Water Lettuce, and Alligatorweed) from infested water bodies into areas not currently infested. All machinery/equipment/vehicles coming in contact with waters containing aquatic invasive plant species should follow clean/drain/dry protocols to prevent the potential spread of invasive plants.
- ☐ Colonization by invasive plants should be actively prevented on disturbed sites in terrestrial habitats. Vegetation management should include removing invasive species as soon as practical while allowing the existing native plants to revegetate the disturbed areas. If using hay bales for sediment control, use locally grown weed-free hay to prevent the spread of invasive species. Leave the hay bales in place and allow them to break down, as this acts as mulch assisting in revegetation.

☐ Wildlife Crossings (Recommendations)

- ☐ Design roadways on new location to incorporate wildlife crossings, particularly in areas that bisect wildlife travel corridors or seasonal movement routes.
- ☐ Consider using cable median barrier instead of concrete traffic barrier when feasible to increase permeability for animals encountering barriers.

Pharr District Contact No. 956-702-6100

Revised 07/12/2017

List of Abbreviations

BMP: Best Management Practice	MSAT: Mobile Source Air Toxic	TCEQ: Texas Commission on Environmental Quality
CGP: Construction General Permit	MBTA: Migratory Bird Treaty Act	THC: Texas Historical Commission
CRPe: Contractor Responsible Person Environmental	NOI: Notice of Intent	TPDES: Texas Pollutant Discharge Elimination System
DSHS: Texas Department of State Health Services	NOT: Notice of Termination	TPWD: Texas Parks and Wildlife Department
FEMA: Federal Emergency Management Agency	NWP: Nationwide Permit	TxDOT: Texas Department of Transportation
FHWA: Federal Highway Administration	PCN: Pre-Construction Notification	T&E: Threatened and Endangered Species
MOA: Memorandum of Agreement	PSL: Project Specific Location	USACE: U.S. Army Corp of Engineers
MOU: Memorandum of Understanding	SPCC: Spill Prevention Control and Countermeasure	USFWS: U.S. Fish and Wildlife Service
MS4: Municipal Separate Stormwater Sewer System	SW3P: Storm Water Pollution Prevention Plan	

Texas Department of Transportation
© 2017
PHARR DISTRICT

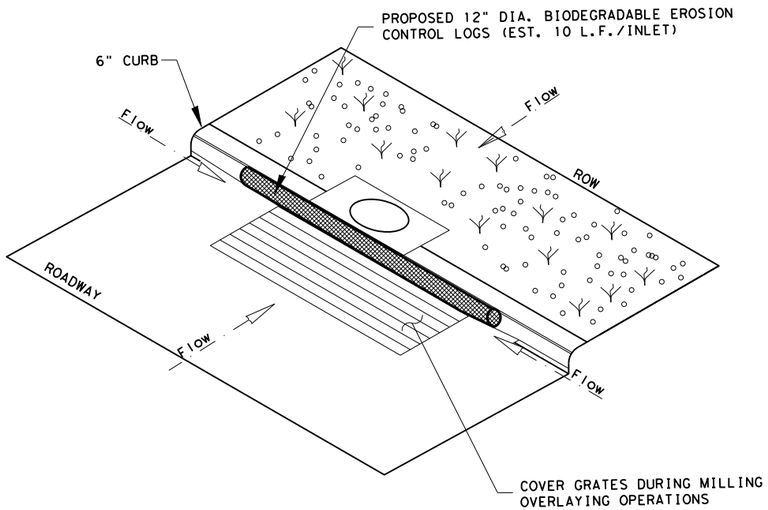
EPIC SHEET SUPPLEMENTALS

TPWD BMPs

SHEET 3 OF 3

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			IH-69C, etc.
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	PHR	HIDALGO, etc.	
CONTROL	SECTION	JOB	
0255	08	108, etc.	116

Date Printed: X-X-XX



URBAN SW3P TYPICAL DETAIL

NOTES:

1. CONTRACTOR SHALL INSTALL EROSION CONTROL LOGS PRIOR TO COMMENCING PLANING AND OVERLAY OPERATIONS.

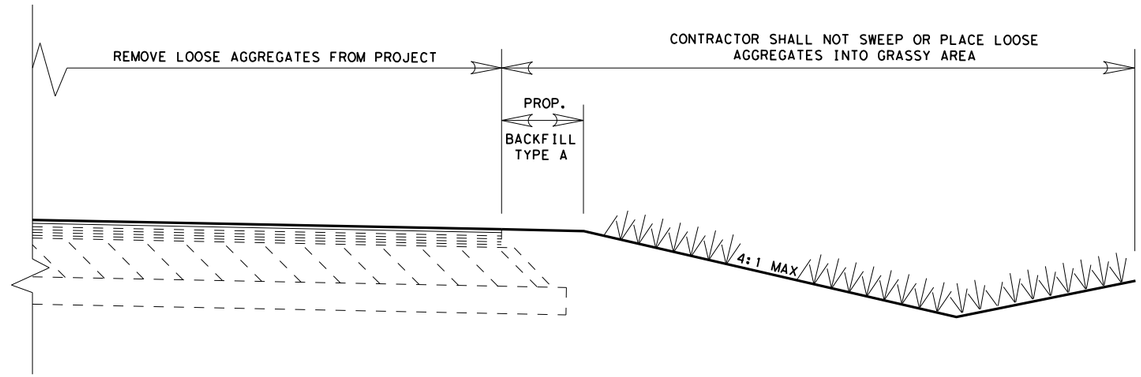
2. CONTRACTOR SHALL INSTALL GRATE COVERS PRIOR TO COMMENCING PLANING AND OVERLAY OPERATIONS. CONTRACTOR SHALL HAND SWEEP ALL LOOSE AGGREGATES IMMEDIATELY AFTER EACH OPERATION FROM AROUND INLETS AND GRATES.

3. CONTRACTOR SHALL SWEEP AND REMOVE LOOSE AGGREGATES FROM ROADWAY (INCLUDING CURB & GUTTER) AFTER DAILY OPERATIONS.

4. CONTRACTOR SHALL NOT DISPOSE THE AGGREGATES ON ADJACENT GRASS AREAS.

5. UPON COMPLETION OF ALL LOCATIONS, CONTRACTOR IS RESPONSIBLE FOR FINAL REMOVAL OF ALL LOOSE AGGREGATES ALONG ROADWAY.

6. UPON APPROVAL OF ENGINEER CONTRACTOR SHALL REMOVE EROSION CONTROL LOGS.



RURAL SECTION SW3P DETAIL

NOTES:

1. CONTRACTOR SHALL INSTALL EROSION CONTROL LOGS PRIOR TO COMMENCING MILLING & OVERLAY OPERATIONS.

2. CONTRACTOR SHALL SWEEP AND REMOVE LOOSE AGGREGATES FROM ROADWAY AFTER DAILY OPERATIONS.

3. CONTRACTOR SHALL NOT DISPOSE THE AGGREGATES ON ADJACENT GRASS AREAS.

4. UPON COMPLETION OF ALL LOCATIONS, CONTRACTOR IS RESPONSIBLE FOR FINAL REMOVAL OF ALL LOOSE AGGREGATES ALONG ROADWAY.

5. UPON APPROVAL OF ENGINEER CONTRACTOR SHALL REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES.

STATE OF TEXAS
EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER

7/9/2021

NOT TO SCALE

Pharr District Central Design

©2019 Texas Department of Transportation

IH-69C, Etc. SW3P TYPICAL DETAILS

CONT	SECT	JOB	HIGHWAY
0255	08	108, etc.	IH-69C, etc.
DIST	COUNTY		SHEET NO.
PHR	HIDALGO, etc.		117

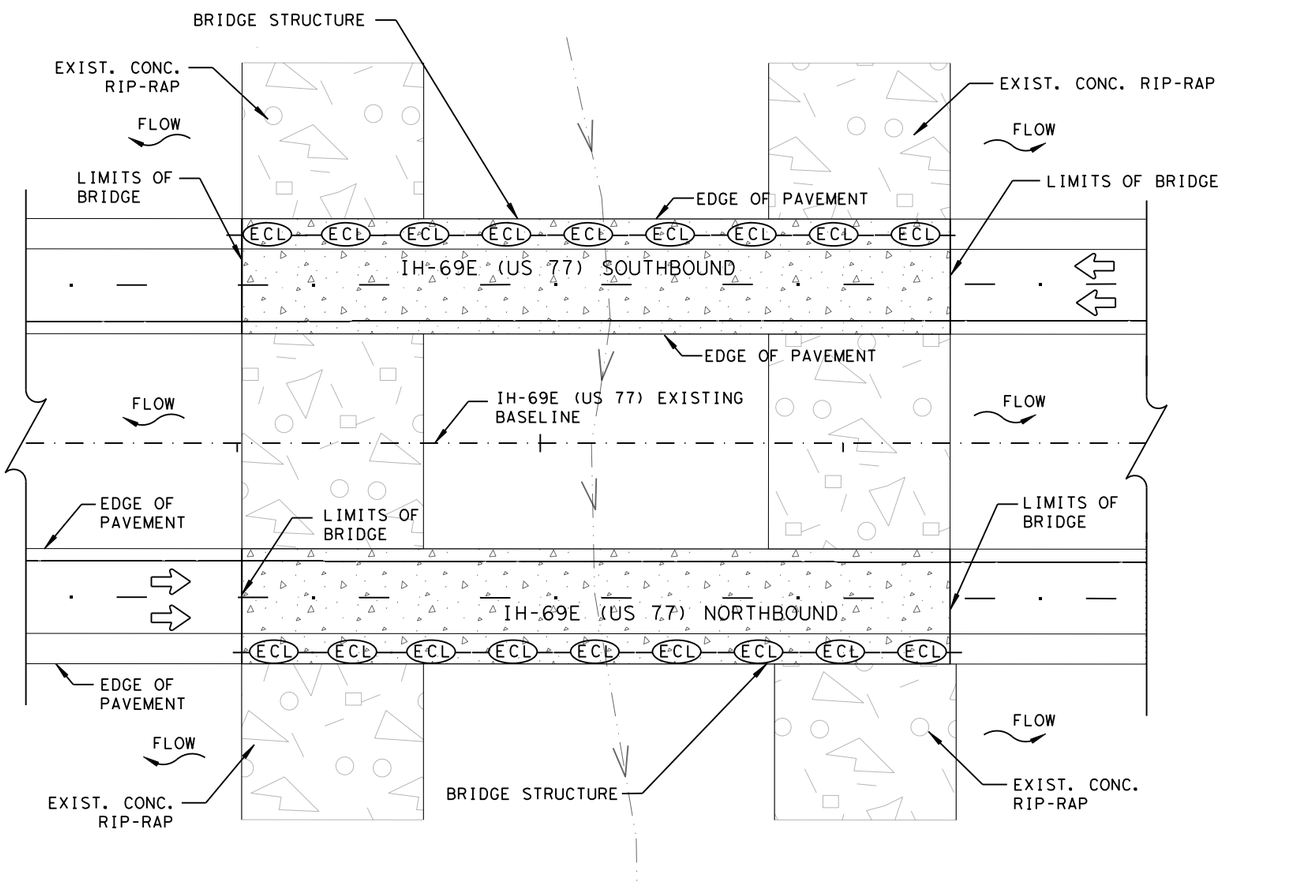
DATE: 7/8/2021 5:16:32 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d033509\SW3P DETAIL.dgn

LEGEND:

- (ECL) TEMPORARY EROSION CONTROL LOGS
- FLOW OF TRAFFIC
- EXISTING CONCRETE BRIDGE DECK
- EXISTING CONCRETE RIP-RAP

SW3P DETAIL

LOCATION: (2) IH-69E (US 77)



STATION	ROADWAY	OVERLAY LOCATION	STRUCTURE TYPE	506 / 6041 BIODEGRADABLE EROSION CONTROL LOGS (12") INSTALL LF	506 / 6043 BIODEGRADABLE EROSION CONTROL LOGS REMOVE LF	DATE INSTALLED	DATE REMOVED
CSJ: 0255-08-108, Etc.				EST	EST	DATE	DATE
STA 219+18 TO STA 220+58	IH-69E SB	#2	BRIDGE	160	160		
STA 219+18 TO STA 220+58	IH-69E NB	#2	BRIDGE	160	160		
PROJECT TOTALS				320	320		

EZEKIEL GONZALEZ
140225
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

7/9/2021

NOT TO SCALE

Pharr District Central Design

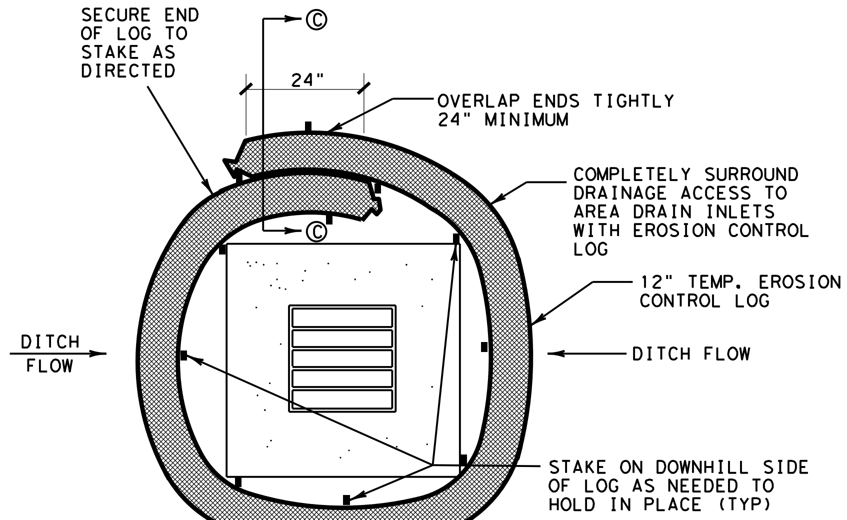
© 2019 Texas Department of Transportation

IH-69C, Etc.
SW3P LAYOUT

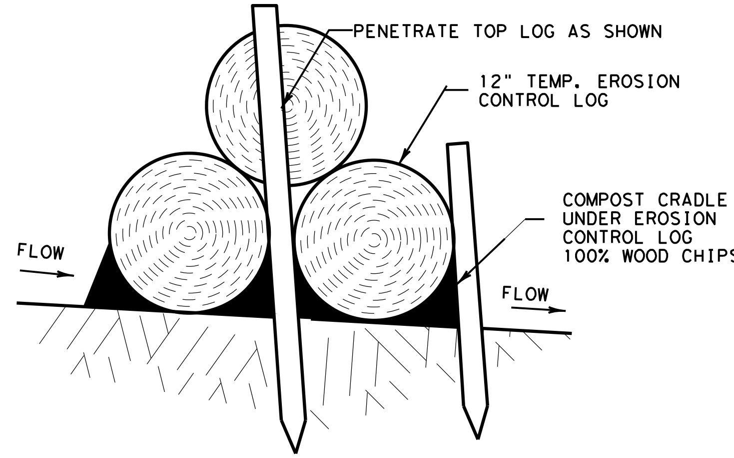
© 2019	CONT	SECT	JOB	HIGHWAY
	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		118

DATE: 7/8/2021 5:16:38 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0335097\SW3P LAYOUT.dgn

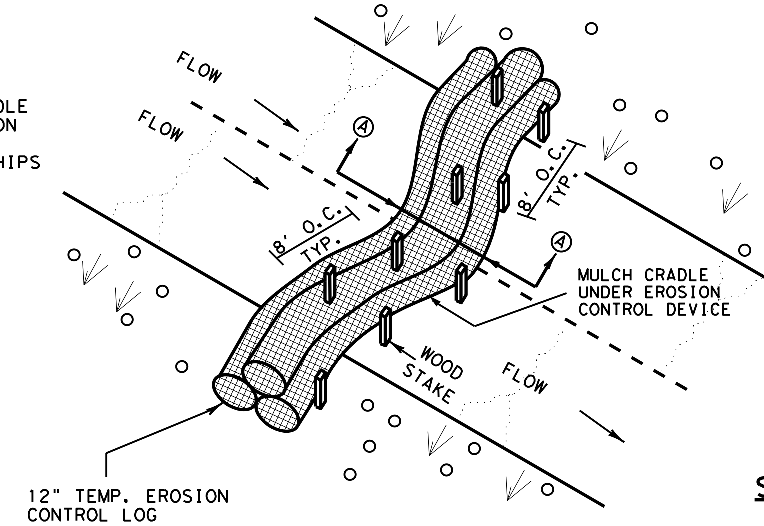
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



DROP INLET SEDIMENT TRAP
NTS
DI-ST



SECTION A-A
DITCH LINE SEDIMENT TRAP A-A
DL-ST



DITCH LINE SEDIMENT TRAP
DL-ST

PLANS SHEET LEGEND

DI-ST
DROP INLET SEDIMENT TRAP

DL-ST
DITCH LINE SEDIMENT TRAP

BOCI-ST
BACK OF CURB INLET SEDIMENT TRAP

ROW-ST
RIGHT OF WAY SEDIMENT TRAP

CI-ST
CURB INLET SEDIMENT TRAP

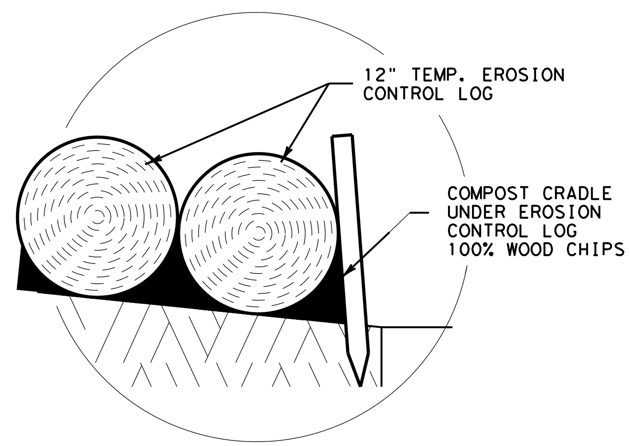
SEDIMENT BASIN & TRAP USAGE GUIDELINES

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

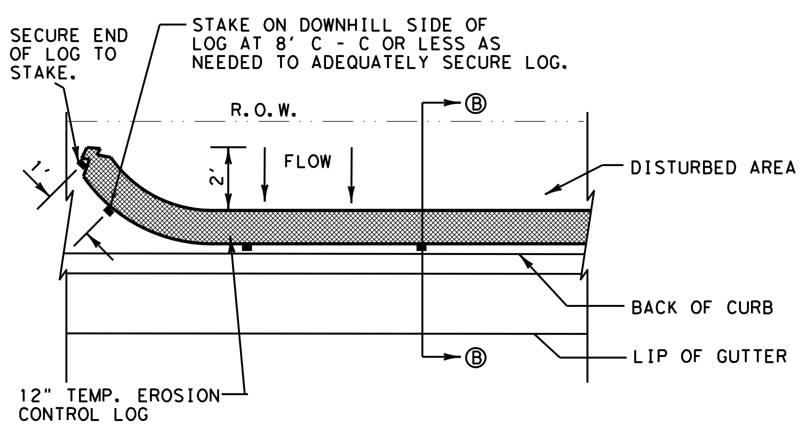
Traps: the drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Sediment traps should be placed in the following locations:
1. Immediately preceding drain inlets
2. Just before the drainage enters a water course
3. Just before the drainage leaves the right of way
4. Just before the drainage leaves the construction limits where drainage flows away from the project

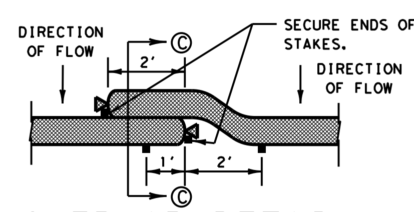
The trap should be cleaned when the capacity has been reduced by ½ or the sediment has accumulated to a depth of 1', whichever is less.
Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for seperately.



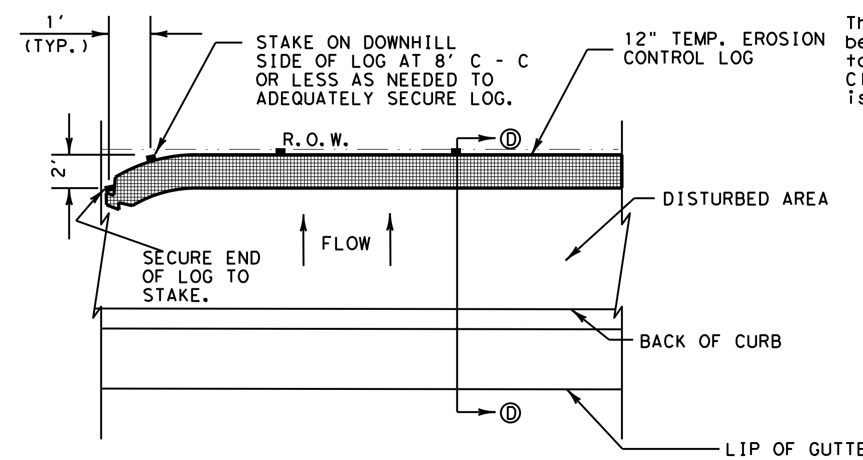
SECTION C-C
OVERLAP WITH COMPOST CRADLE



PLAN VIEW
NTS



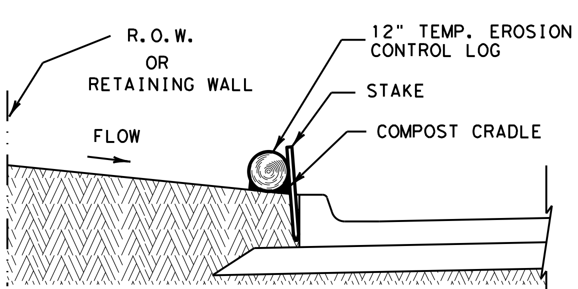
OVERLAP DETAIL PLAN VIEW
NTS



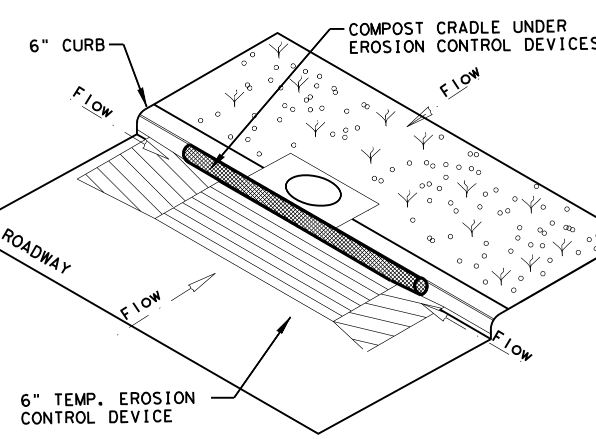
PLAN VIEW
NTS

GENERAL NOTES

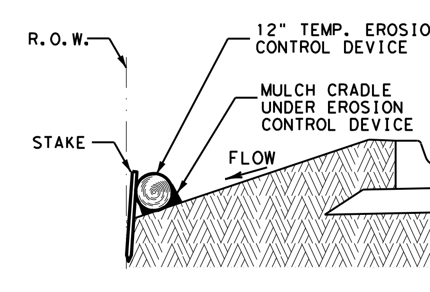
1. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED. MAXIMUM LENGTH OF LOGS SHALL BE 30' FOR 12" DIAMETER LOGS.
2. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
3. STUFF LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE DENSITY THAT WILL HOLD SHAPE WITHOUT EXCESSIVE DEFORMATION.
4. STAKES SHALL BE 2" X 2" WOOD 4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG.
5. COMPOST CRADLE MATERIAL IS INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.



SECTION B-B
BACK OF CURB INLET SEDIMENT TRAP
NTS
BOCI-ST



CURB INLET SEDIMENT TRAP
NTS
CI-ST



SECTION D-D
RIGHT-OF-WAY SEDIMENT TRAP
NTS
ROW-ST

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	

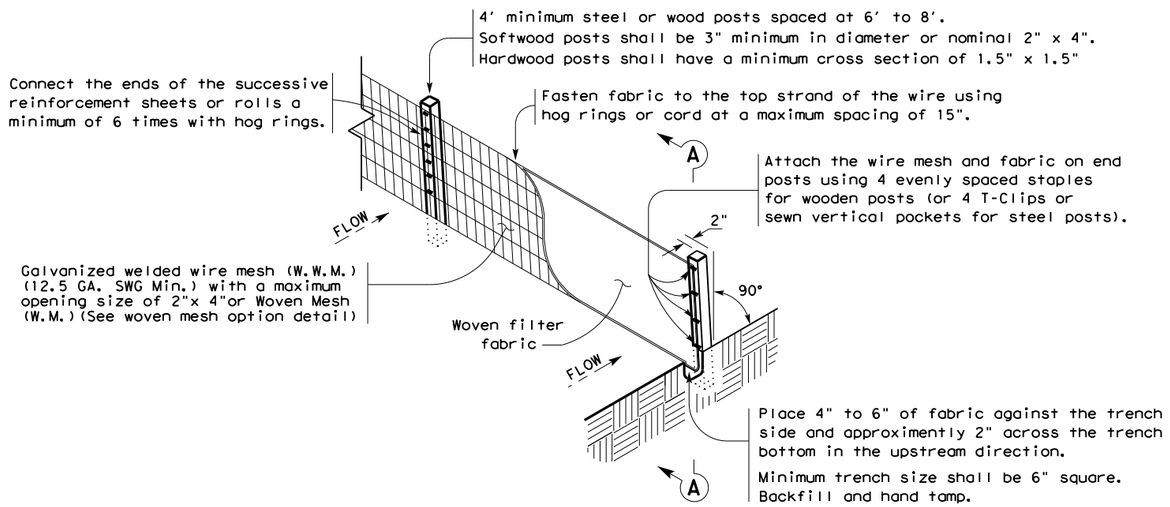
PHARR DISTRICT STANDARD

Texas Department of Transportation

TEMPORARY EROSION CONTROL LOGS
TECL-17 (PHR)

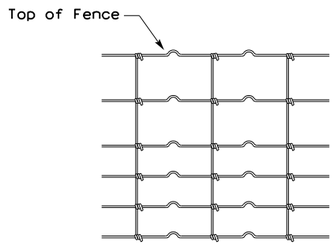
FED. RD. DIV. NO.	PROJECT NO.		HIGHWAY NO.
6			
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	PHARR	HIDALGO, etc.	119
CONTROL	SECTION	JOB	
0255	08	108, etc.	

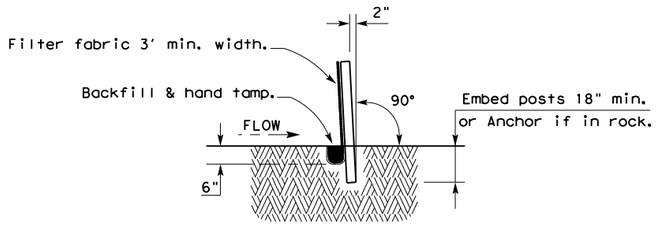
7/8/2021
C:\Users\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\D0351331\ec116.dgn



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

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

SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

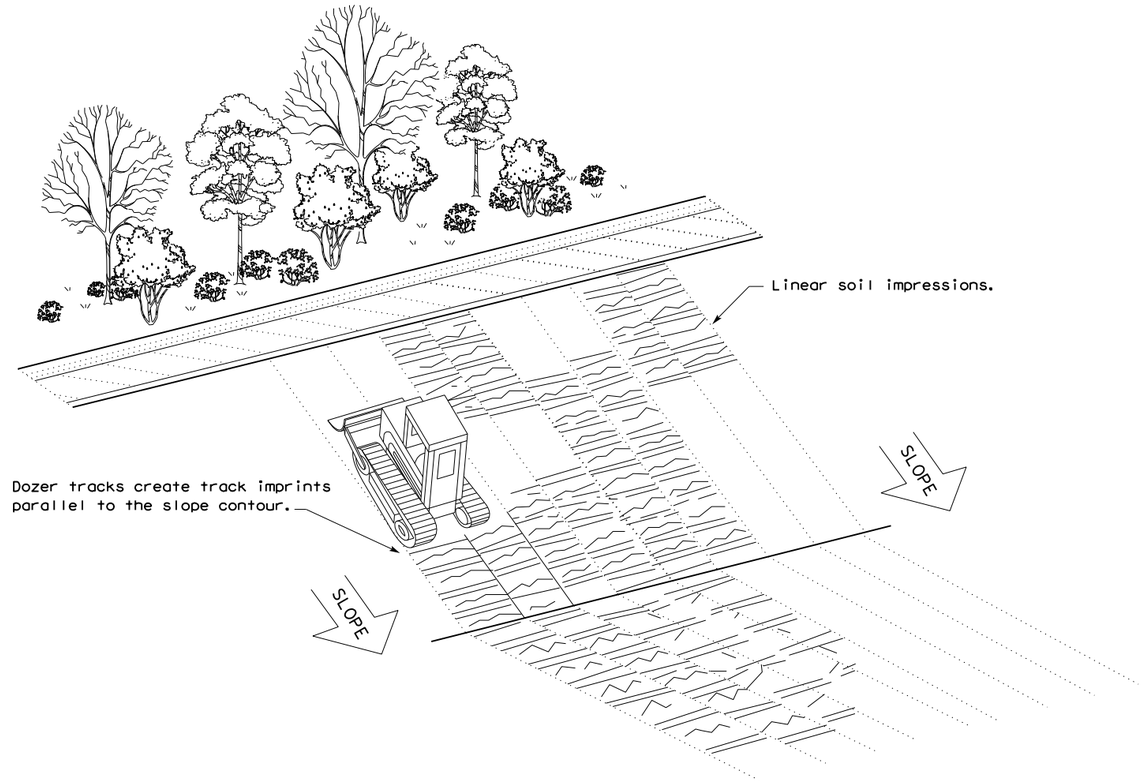
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

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



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

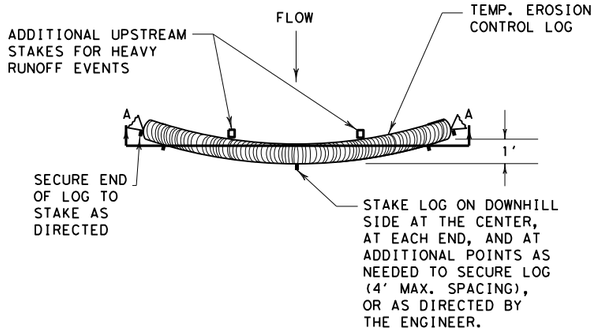
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

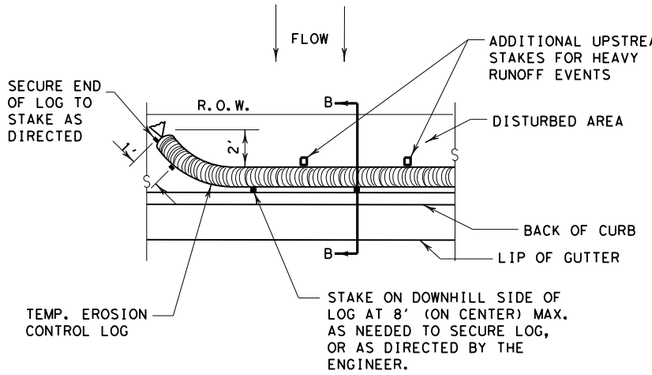
EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		120

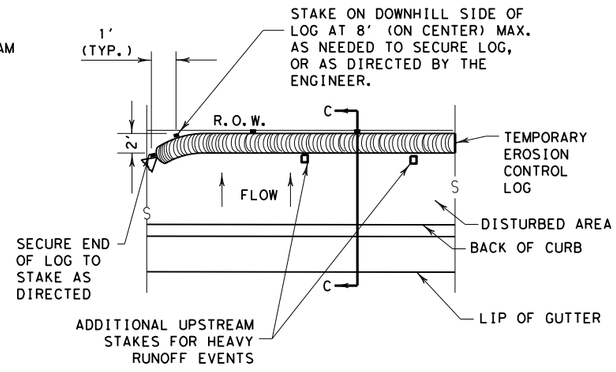
DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351331\ec916.dgn



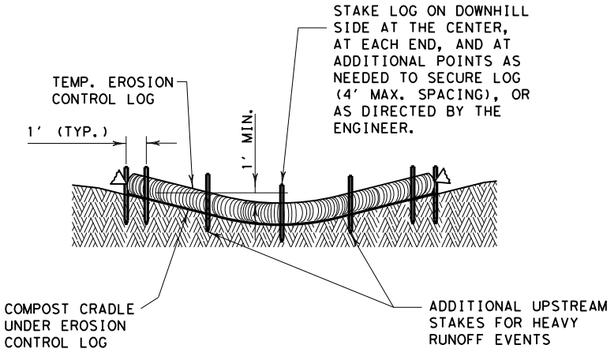
PLAN VIEW



PLAN VIEW



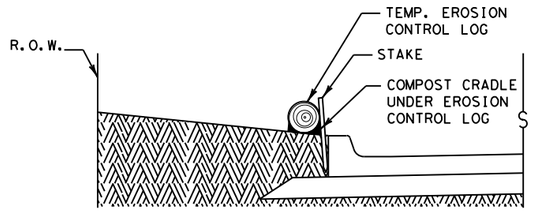
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

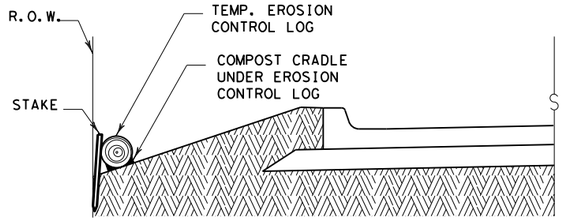
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

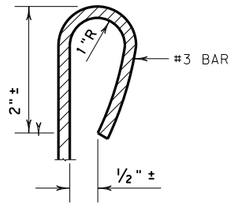
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



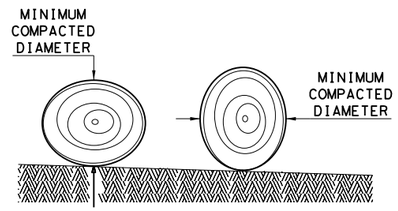
REBAR STAKE DETAIL

LEGEND

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

GENERAL NOTES:

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



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SEDIMENT BASIN & TRAP USAGE GUIDELINES

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

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

Control logs should be placed in the following locations:

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

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

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

Texas Department of Transportation

Design Division Standard

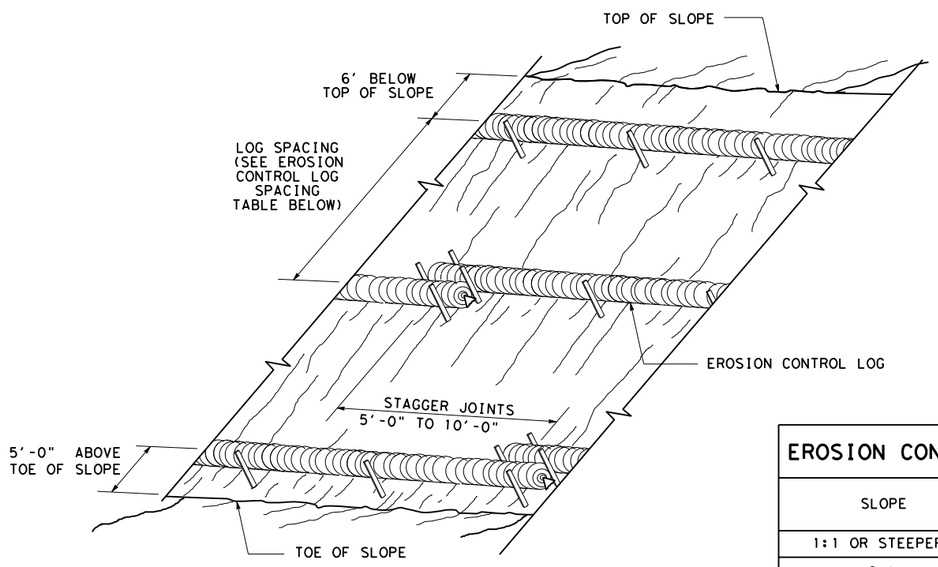
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

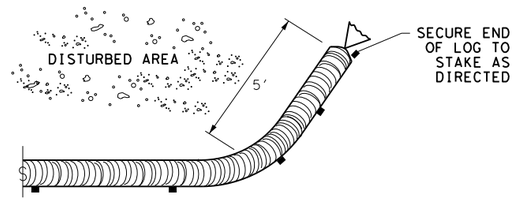
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0255	08	108, etc.	IH-69C, etc.
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO, etc.		121

DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351331\ec916.dgn



EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

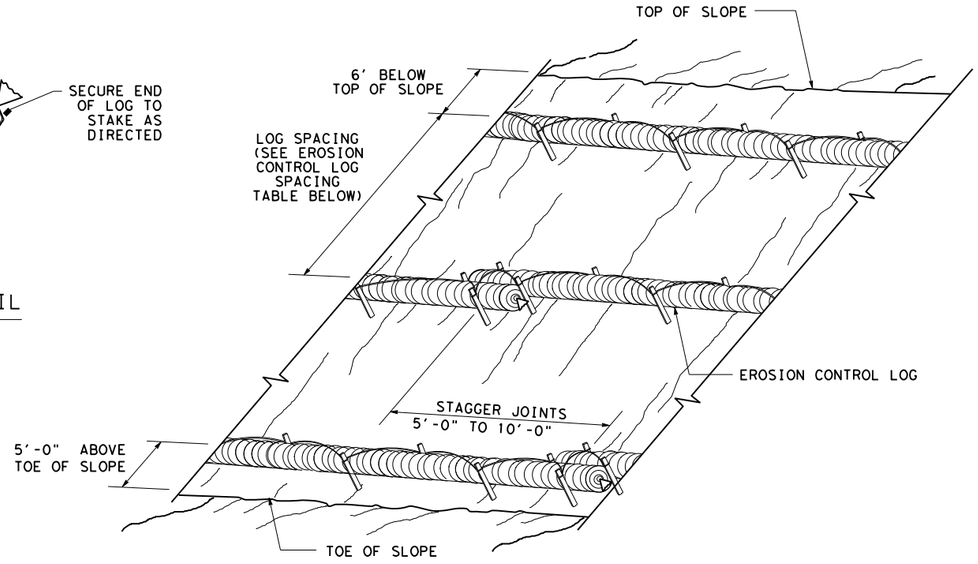
CL-SST



END SECTION RAP DETAIL

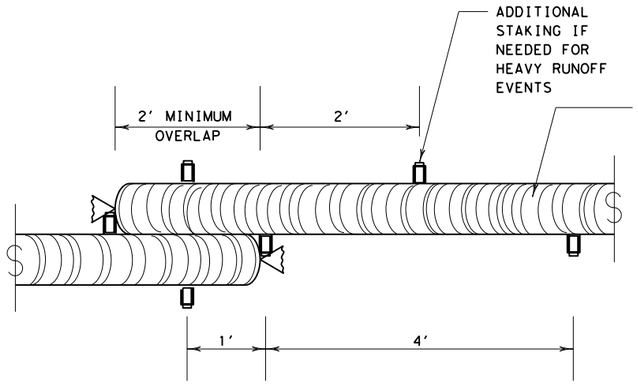
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

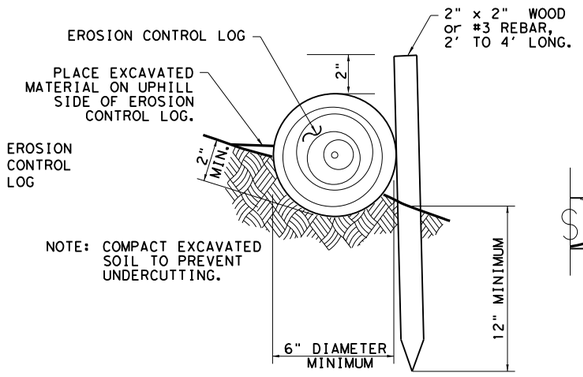
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

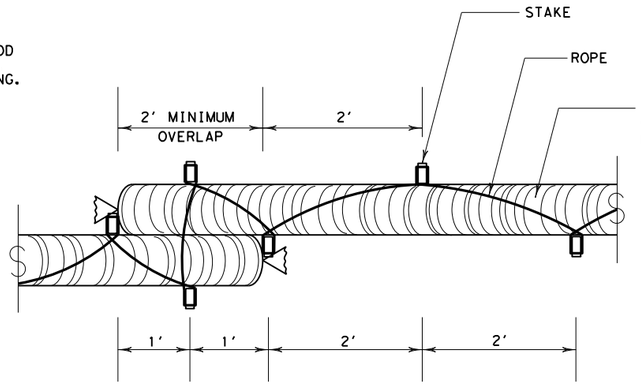


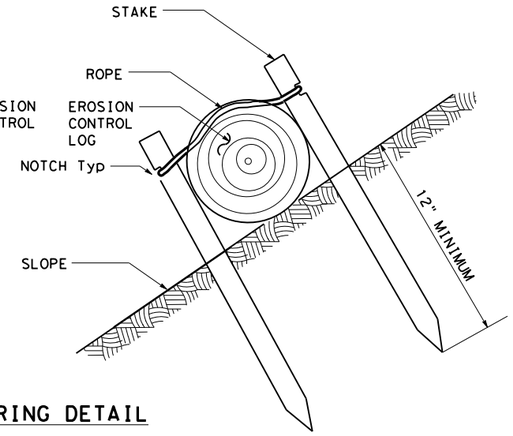


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

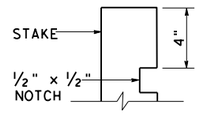
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

SHEET 2 OF 3

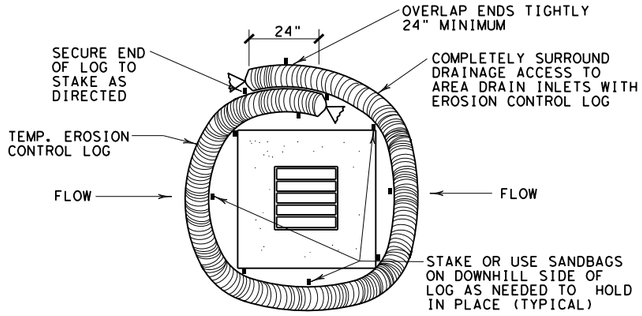
Texas Department of Transportation

Design Division Standard

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

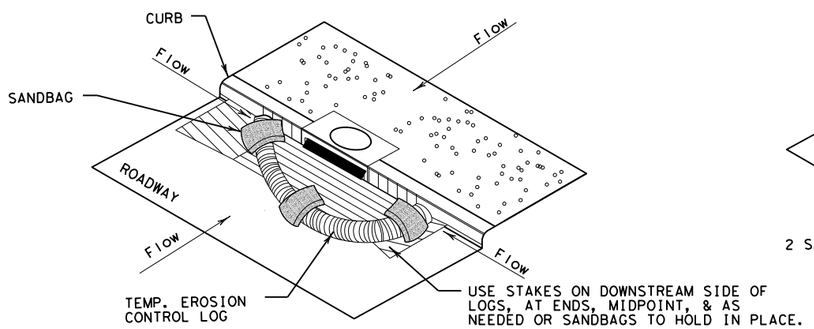
FILE: ec116	DN: TxDOT		CK: KM		DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0255	08	108, etc.		IH-69C, etc.	
	DIST	COUNTY			SHEET NO.	
	PHR	HIDALGO, etc.			122	

DATE: 7/8/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_ezekiel.gonzalez\d0351331\ec916.dgn



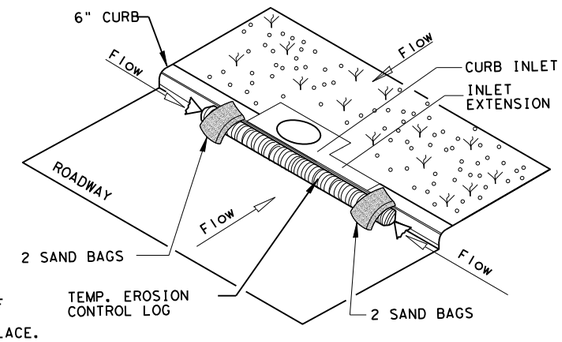
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

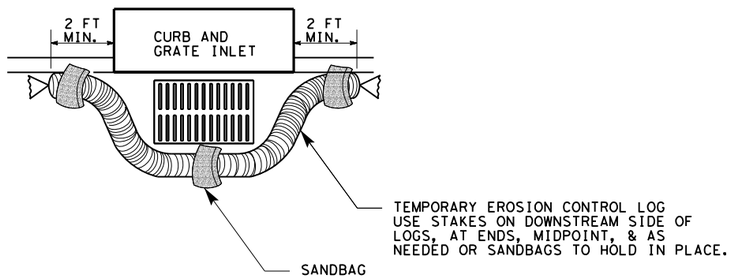
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

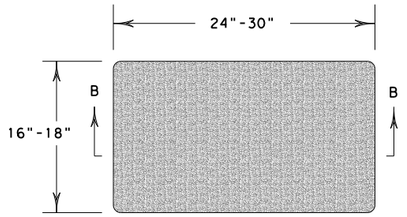
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS		
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY		
REVISIONS	0255	08	108, etc.	IH-69C, etc.		
	DIST	COUNTY		SHEET NO.		
	PHR	HIDALGO, etc.		123		