

# COMMERCIAL ACCESS PLANS FOR ALDEN BRIDGE SPORTS PARK EXPANSION

4751 TX-242  
THE WOODLANDS, TX 77384

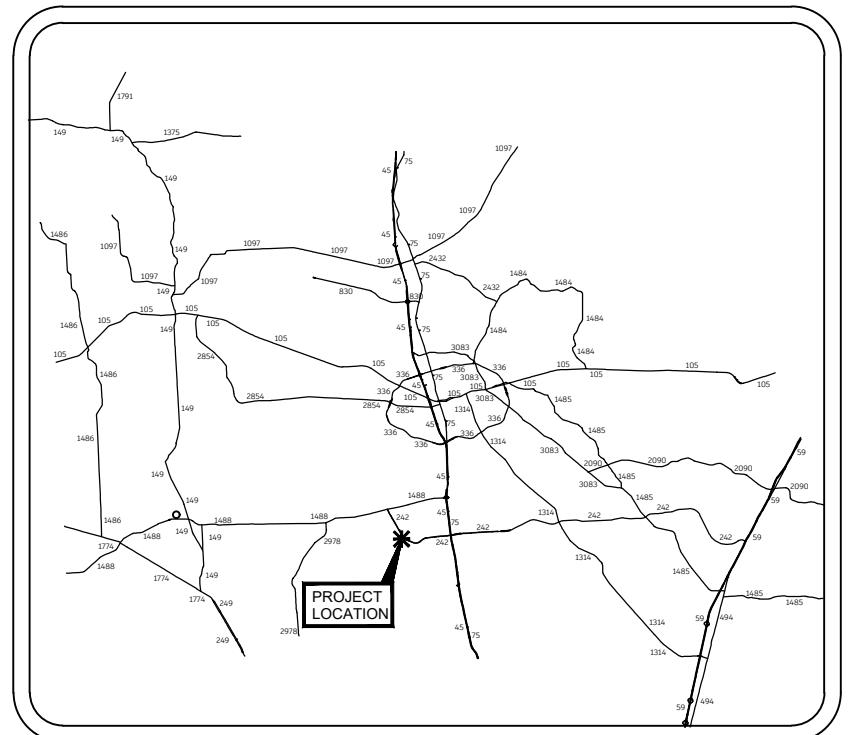


KEY MAP NO. 217N

**OWNER/DEVELOPER**  
THE WOODLANDS TOWNSHIP  
2801 TECHNOLOGY BLVD  
THE WOODLANDS, TX 77381  
CONTACT: CHRIS NUNES  
EMAIL: CNUNES@THEWOODLANDSTOWNSHIP-TX.GOV  
TEL: (281) 210-3906

**ENGINEER**  
HALFF ASSOCIATES, INC.  
14800 ST. MARY'S LANE, STE. 160  
HOUSTON, TX 77079  
CONTACT: TYLER EATON  
EMAIL: TEATON@HALFF.COM  
TEL: (713) 588-2470  
TBPELS FIRM# F-312

THE PROJECT AREA IS LOCATED IN ZONE X  
SHADE AND ZONE X UNSHADE PER  
FEMA FLOOD INSURANCE RATE MAP NO.  
48339C0530G, DATED AUGUST 18, 2014.



PROJECT LOCATION

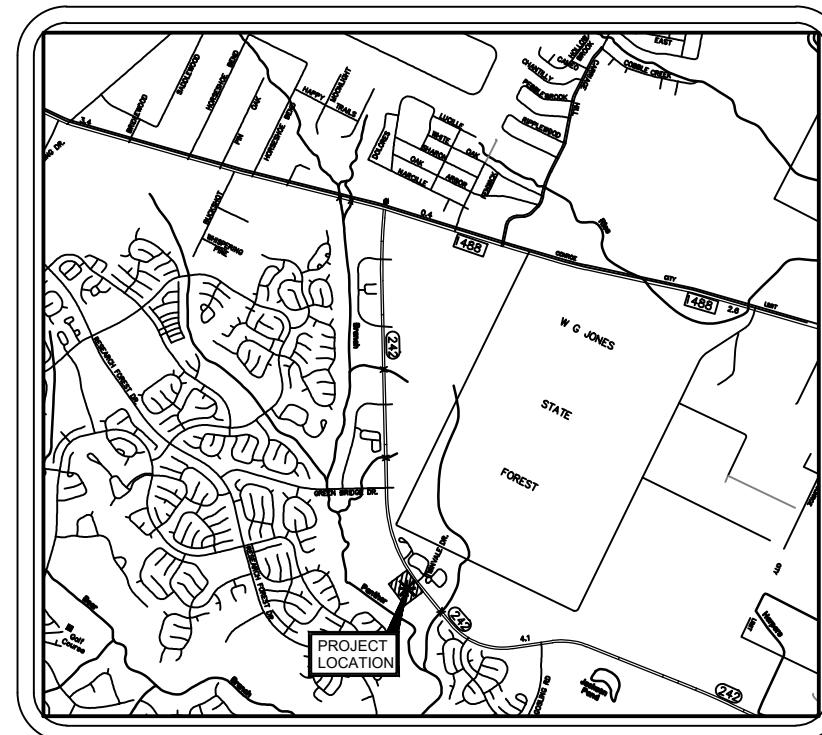
NOT TO SCALE

06/22/2024



14800 ST. MARY'S LN., SUITE 160  
HOUSTON, TEXAS 77079-2943  
TEL. (713) 588-2450  
TBPELS FIRM NO. F-312

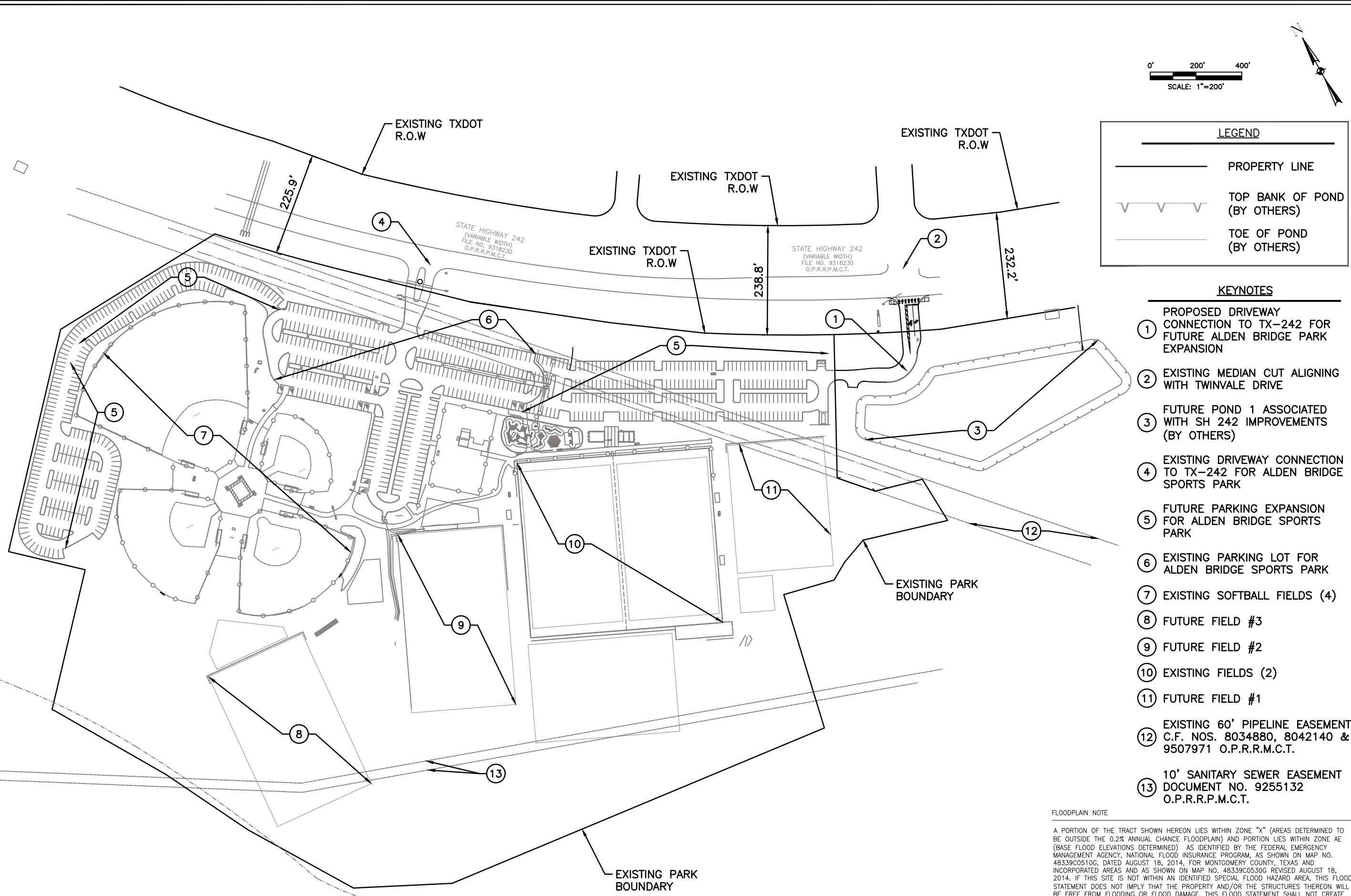
AVO: 52417.002 DATE: June 2024



LOCATION MAP

NOT TO SCALE

SHEET INDEX	
SHEET NO.	SHEET TITLE
C0.00	COVER SHEET
C1.00	OVERALL SITE PLAN
C2.00	CLEARING & GRUBBING PLAN
C3.00	GRADING PLAN
C4.00	STORM & DRAINAGE PLAN
C4.01	STORM CALCULATIONS
C5.00	PAVING AND DIMENSIONAL PLAN
C6.00	STRIPING & SIGNAGE PLAN
C7.00	TRAFFIC CONTROL PLAN
C8.00	DETAILS
C8.01	DETAILS
C8.02	DETAILS
C8.03	DETAILS
C8.04	DETAILS
C8.05	DETAILS
C8.06	DETAILS
C8.07	DETAILS
C8.08	DETAILS
C8.09	DETAILS
C8.10	DETAILS



COMMERCIAL  
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SPORTS PARK  
EXPANSION  
4751 TX-242  
THE WOODLANDS, TX 77384

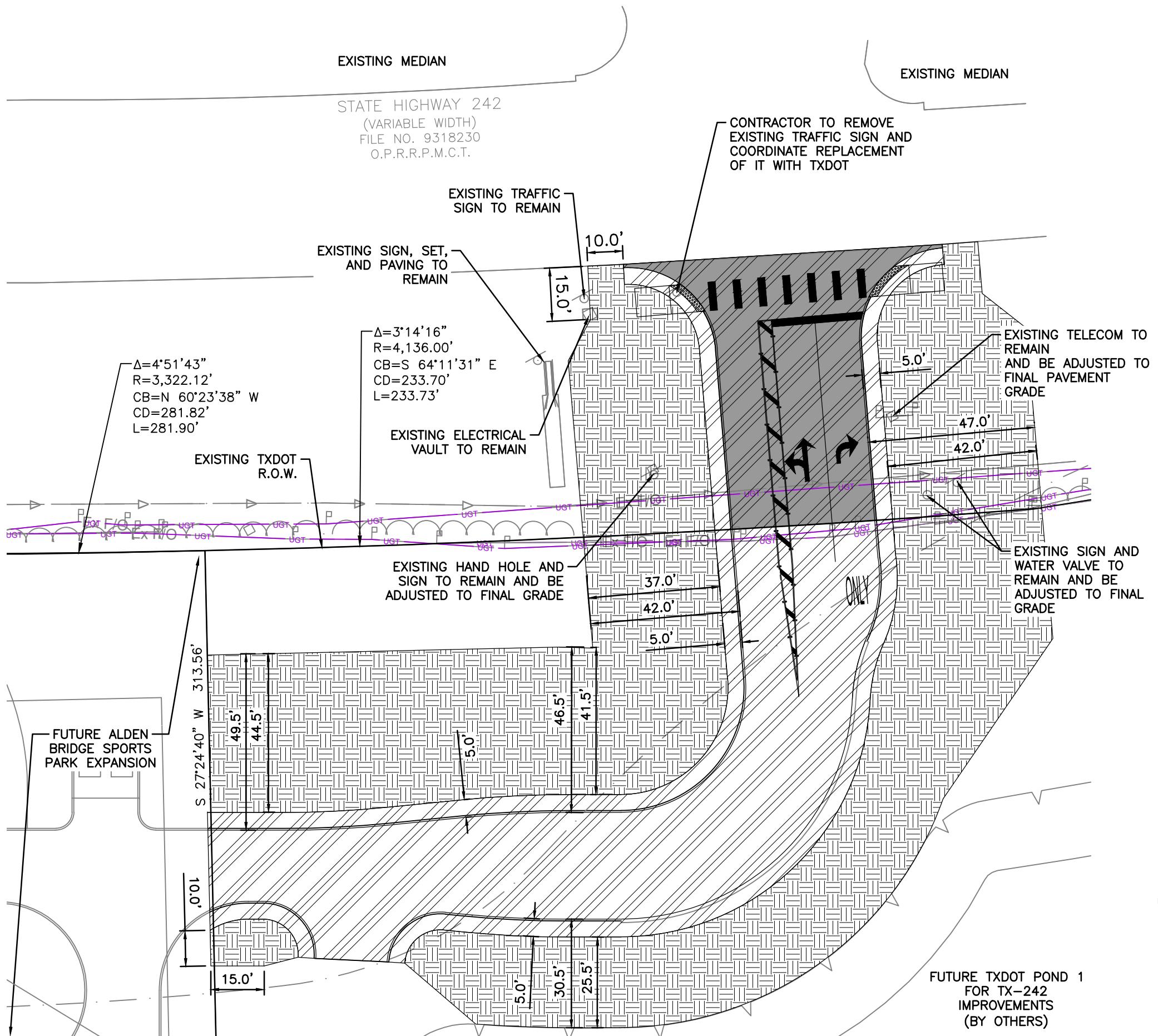
**haff**  
14800 ST. MARY'S LN. SUITE 160  
HOUSTON, TEXAS 77079-2943  
TEL: (713) 568-2450  
TBPEL'S FIRM NO. F-312

Revision No.	Date	Description



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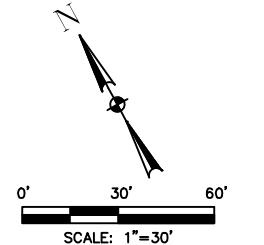
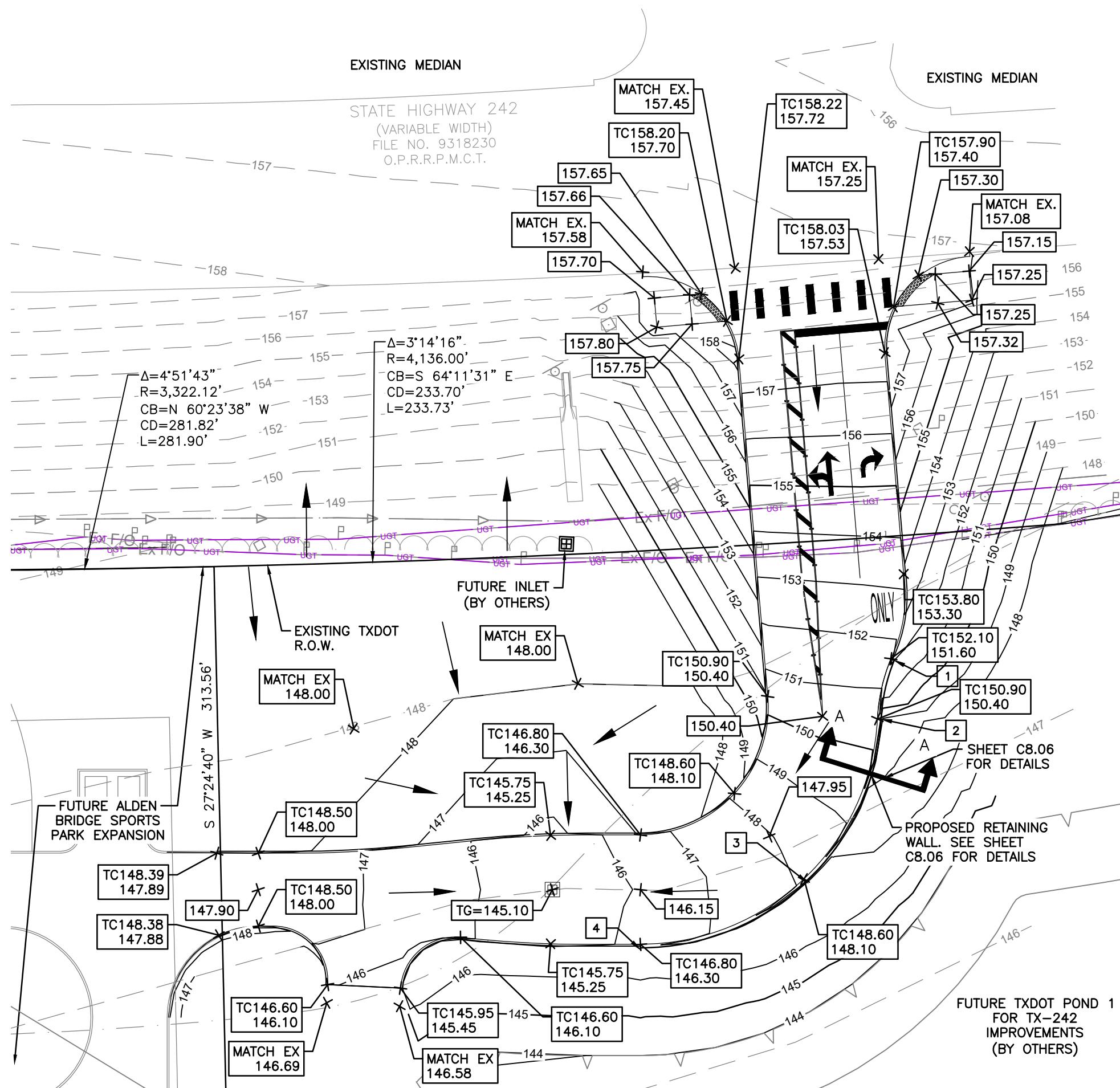
Project No.:	52417.002
Issued:	06/22/2024
Drawn By:	SW
Checked By:	TE
Scale:	AS NOTED
Sheet Title:	OVERALL SITE PLAN
	C 1.00
Sheet Number:	



LEGEND		
PROPERTY LINE		
TOP BANK OF POND (BY OTHERS)		
TOE OF POND (BY OTHERS)		
PROPOSED DITCH TO BE FILLED		
PROPOSED AREA TO BE CLEARED AND STRIPPED OF ALL UNSUITABLE MATERIALS FOR ACCESS ROAD CONSTRUCTION		
EXISTING TREES, SHRUBS, AND GROUND COVER TO BE REMOVED WITHIN LIMITS AS NEEDED FOR GRADING. SEE SHEET C3.00		
EXISTING TELECOMMS LINE		
EXISTING DITCH CENTER LINE		

COMMERCIAL  
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ALDEN BRIDGE  
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4751 TX-242  
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**hoff**  
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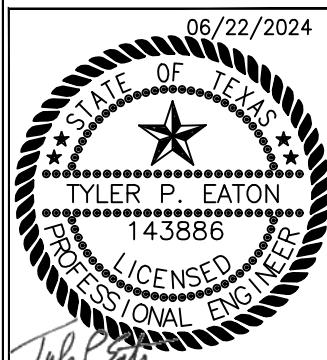


# COMMERCIAL ACCESS PLANS FOR ALDEN BRIDGE SPORTS PARK EXPANSION

4751 TX-242  
ODLANDS, TX 77384

The logo for half consists of the word "half" in a large, bold, dark blue sans-serif font, with the "f" being slightly smaller. Below the word is a graphic element of four dark blue squares arranged in a 2x2 grid. To the right of the logo, the address "1400 ST. MARY'S, SUITE 160" is written in a smaller, dark blue sans-serif font.

HOUSTON, TEXAS 77079-2943  
TEL. (713) 588-2450  
TBPELS FIRM NO.F- 312



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14800 St. Mary's Lane Suite 160, Houston,  
Texas 77070, phone #713-466-1100, fax #713-466-1101.

Texds 77079-2943. TBPE FIRM #F-512  
Project No.: 52417.002  
Issued: 06/22/2024  
Drawn By: SW  
Checklist Page: 1 of 1

Checked By:	IE
Scale:	AS NOTED
Sheet Title	
<b>GRADING PLAN</b>	
<b>C3.00</b>	
Sheet Number	

<u>LEGEND</u>	
—	PROPERTY LINE
└	TOP BANK OF POND (BY OTHERS)
—	TOE OF POND (BY OTHERS)
—	EXISTING CONTOUR
—	PROPOSED CONTOUR
—	EXISTING TELECOMMS LINE
—	EXISTING DITCH CENTER LINE
	STORM WATER FLOW DIRECTION
	TOP OF WALL ELEVATION
	NATURAL GROUND ELEVATION AT WALL
	TOP OF GRATE
	TOP OF CURB

## KEY NOTES

START OF WALL	TW148.60
TW152.10	NG146.60
NG152.10	N: 10071562.52
N: 10071604.22	E: 3824670.29
E: 3824720.50	
3	
TW150.90	END OF WALL
NG148.90	TW146.80
N: 10071591.78	NG146.80
E: 3824709.60	N: 10071568.41
4	E: 3824621.65

#### **FLOORPLAIN NOTE**

A PORTION OF THE TRACT SHOWN HEREON LIES WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND PORTION LIES WITHIN ZONE AE (BASE FLOOD ELEVATIONS DETERMINED) AS IDENTIFIED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, NATIONAL FLOOD INSURANCE PROGRAM, AS SHOWN ON MAP NO. 48339C0510G, DATED AUGUST 18, 2014, FOR MONTGOMERY COUNTY, TEXAS AND INCORPORATED AREAS AND AS SHOWN ON MAP NO. 48339C0530G REVISED AUGUST 18, 2014. IF THIS SITE IS NOT WITHIN AN IDENTIFIED SPECIAL FLOOD HAZARD AREA, THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SUB/EYOR.

## BENCHMARK

THE VERTICAL DATUM SHOWN HEREON IS NAVD88 (GEOID 18) BASED ON RTK DIFFERENTIAL  
LEVEL TO SITE CONTROL FROM NGS MONUMENT A56405

## GRADING PLAN

C3.00

Sheet Number

## EXISTING MEDIA

STATE HIGHWAY 242  
(VARIABLE WIDTH)  
FILE NO. 9318230  
O.P.R.R.P.M.C.T.

## EXISTING MEDIAN

EXISTING MEDIAN

STATE HIGHWAY 242  
(VARIABLE WIDTH)  
FILE NO. 9318230  
O.P.R.R.P.M.C.T.

EXISTING MEDIAN

$\Delta=4^{\circ}51'43''$   
 $R=3,322.12'$   
 $CB=N 60^{\circ}23'38'' W$   
 $CD=281.82'$   
 $L=281.90'$

EXISTING TXDOT R.O.W.

$\Delta=3^{\circ}14'16''$   
 $R=4,136.00'$   
 $CB=S 64^{\circ}11'31'' E$   
 $CD=233.70'$   
 $L=233.73'$

REINFD CONC PIPE FL 18 INCH

FUTURE ALDEN BRIDGE SPORTS PARK EXPANSION

S 27°24'40'' W 313.56'

FUTURE 36" STORM INLET IN TX-242 R.O.W. (BY OTHERS)

INSTALL:  
TXDOT TYPE 'AZ' INLET  
TG=145.10  
CONTRACTOR TO  
COORDINATE WITH TXDOT  
ON FLOWLINE ELEVATION  
OF FUTURE 36" PIPE

FUTURE 36" STORM PIPE FROM TX-242 R.O.W. TO POND 1 (BY OTHERS)

A1  
0.47 3.24

FUTURE 36" STORM PIPE FROM TX-242 R.O.W. TO POND 1 (BY OTHERS)

EXISTING TXDOT R.O.W.

FUTURE TXDOT POND 1 FOR TX-242 IMPROVEMENTS (BY OTHERS)

### LEGEND

## PROPERTY LINE

TOP BANK OF POND  
(BY OTHERS)

## TOE OF POND (TM CENTER)

#### **DAMAGES PAYMENT**

DRAINAGE AREA (AC)	0.14	1.26	100-YR CUMULATIVE FLOW (CES)
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## PROPOSED CRATE INLET

## PROPOSED

## EXISTING TELECOMMS

**EXISTING DITCH CENTER**

## NOTES.

1. SEE SHEET C4.01 FOR STORM SEWER CALCULATIONS

**COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION**

The logo for hatff, featuring the word "hatff" in a large, bold, sans-serif font. Below the logo is a graphic element consisting of a 3x3 grid of squares, with the top-left square being white and the other eight being a dark teal color.

OODLANDS, TX 77384

The seal is circular with a rope-like outer border. The words "STATE OF TEXAS" are at the top, and "PROFESSIONAL ENGINEER" are at the bottom. In the center is a five-pointed star. Below the star, the name "TYLER P. EATON" is written, followed by the license number "143886". The entire seal is white with black text and lines.

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Texas 77079-2943. TRIP FIRM #F-312

Project No.: 52417.002  
Issued: 06/22/2024  
Drawn By: SW  
Checked By: TE  
Scale: AS NOTED  
Sheet Title  
**STORM & DRAINAGE**

24.20

SILVERMAN



**Rainfall Intensity-Duration-Frequency Coefficients for Texas**

Based on "National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 Precipitation-Frequency Atlas of the United States, Volume 11 Version 2.0: Texas" (Perica et al. 2018)

**Parameter Selection**

1. Select Units: English
2. Select Methodology: Annual Maximum Series (AMS)
3. Select County: MONTGOMERY
4. Select County Zone: Zone-2
5. Select Time of Concentration ( $t_c$ ): 10 Minute

**Design Annual Exceedance Probability (Design Annual Recurrence Interval)**

Coefficient	50% (2-year)	20% (5-year)	10% (10-year)	4% (25-year)	2% (50-year)	1% (100-year)	0.2% (500-year)
e	0.8133	0.7801	0.7590	0.7341	0.7132	0.6967	0.6935
b	65.2959	75.8969	83.2070	92.1100	96.3295	102.8392	145.5571
d (min)	13.1516	12.8200	12.6902	12.6767	12.4917	12.8831	18.1819
Intensity (inches/hour)	5.07	6.62	7.78	9.31	10.46	11.62	14.37

Note: Montgomery County has 3 rainfall zones. Since Montgomery County county has more than 1 rainfall zone, consider using the accompanying Google Earth file to accurately locate a project.

Weighted Runoff Coefficient		
Description	C-Value	Area (ac)
Concrete	0.95	0.21
Lawn	0.30	0.26
Cw	0.59	

Proposed Drainage Area Flowrate Calculations		2-Year Flowrate	10-Year Flowrate	25-Year Flowrate	100-Year Flowrate
Proposed Flowrate (cfs)		1.41	2.17	2.60	3.24
Runoff Coefficient		0.59	0.59	0.59	0.59
Intensity (in/hr)		5.07	7.78	9.31	11.62
Drainage Area (acres)		0.4728	0.4728	0.4728	0.4728

2-year Storm Calculations													
Inlet or MH from	Inlet or MH to	Area (acres)	b	d	e	Time of Conc.	Reach (min)	Diameter or Rise (inches)	Slope (ft/ft)	Manning's n	Design Capacity (cfs)	Design Velocity (ft/s)	
			2 yr	65.2959	13.1516	0.8133							
A1	Pond	0.47	0.47	0.59	5.07	1.41	10.00	55.0	36	0.0010	0.013	21.21	3.00

100-year Storm Calculations													
Inlet or MH from	Inlet or MH to	Area (acres)	b	d	e	Time of Conc.	Reach (min)	Diameter or Rise (inches)	Slope (ft/ft)	Manning's n	Design Capacity (cfs)	Design Velocity (ft/s)	
			2 yr	102.839	12.8831	0.6967							
A1	Pond	0.473	0.47	0.59	11.61	3.24	10.00	55.0	36	0.0010	0.013	21.21	3.00

DRAINAGE SUMMARY TABLE		
TxDOT Tracking Number (TR#)	TR24050041	
Highway	SH 242	
TxDOT Frontage	1927	FT
TxDOT Area (the strip of site within 150-ft frontage)	6.63	AC
Total tract area based on submitted survey map	N/A	AC
Proposed disturbed area	0.47	AC
Project contributing drainage area to TxDOT	0.47	AC
Off-site contributing drainage area (if applicable)	0.00	AC
Increased impervious area	0.21	AC
10-yr required detention volume	N/A*	AC-FT
10-yr proposed detention volume	N/A*	AC-FT
10-yr design W.S.E.	N/A*	FT
10-yr Pre-developed peak flow	N/A*	CFS
10-yr Post-developed peak flow (before detention/restrictor)	2.17	CFS
10-yr Proposed discharge to TxDOT R.O.W. (with detention/restrictor)	N/A*	CFS
100-yr required detention volume	N/A*	AC-FT
100-yr proposed detention volume	N/A*	AC-FT
100-yr design W.S.E.	N/A*	FT
100-yr Pre-developed peak flow	N/A*	CFS
100-yr Post-developed peak flow (before detention/restrictor)	3.24	CFS
100-yr Proposed discharge to TxDOT R.O.W. (with detention/restrictor)	N/A*	CFS
TxDOT as-built or calculated allowable discharge	N/A*	CFS
Primary tie-in/outfall structure size	N/A*	INCH
Primary restrictor size	N/A*	INCH
Primary restrictor maximum discharge	N/A*	CFS
Secondary outfall device size (if applicable)	N/A*	CFS
Secondary outfall discharge (if applicable)	N/A*	CFS
Maximum combined pumped discharge (if applicable)	N/A*	GPM (CFS)
% Pumped discharge volume (if applicable)	N/A*	AC-FT
Effective gravity discharge elevation (if applicable)	N/A*	FT
B.F.E. per effective FIRM (if applicable)	N/A	FT
Proposed fill below B.F.E. (if applicable)	N/A	AC-FT
Proposed cut below B.F.E. (if applicable)	N/A	AC-FT

\* The future TxDOT Pond 1 for TX-242 Improvements shown in these plans is not part of this project and is being designed and constructed by TxDOT. Halff has coordinated with the respective TxDOT project manager and consulting engineer for the future pond on the allowance of the developed flow from the proposed driveway to be directed to the future pond.

COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION  
4751 TX-242  
THE WOODLANDS, TX 77384

**halff**

14800 ST. MARY'S LN. SUITE 160  
HOUSTON, TX 77079-2943  
TEL: (713) 568-2450  
TBPEL'S FIRM NO. F-312



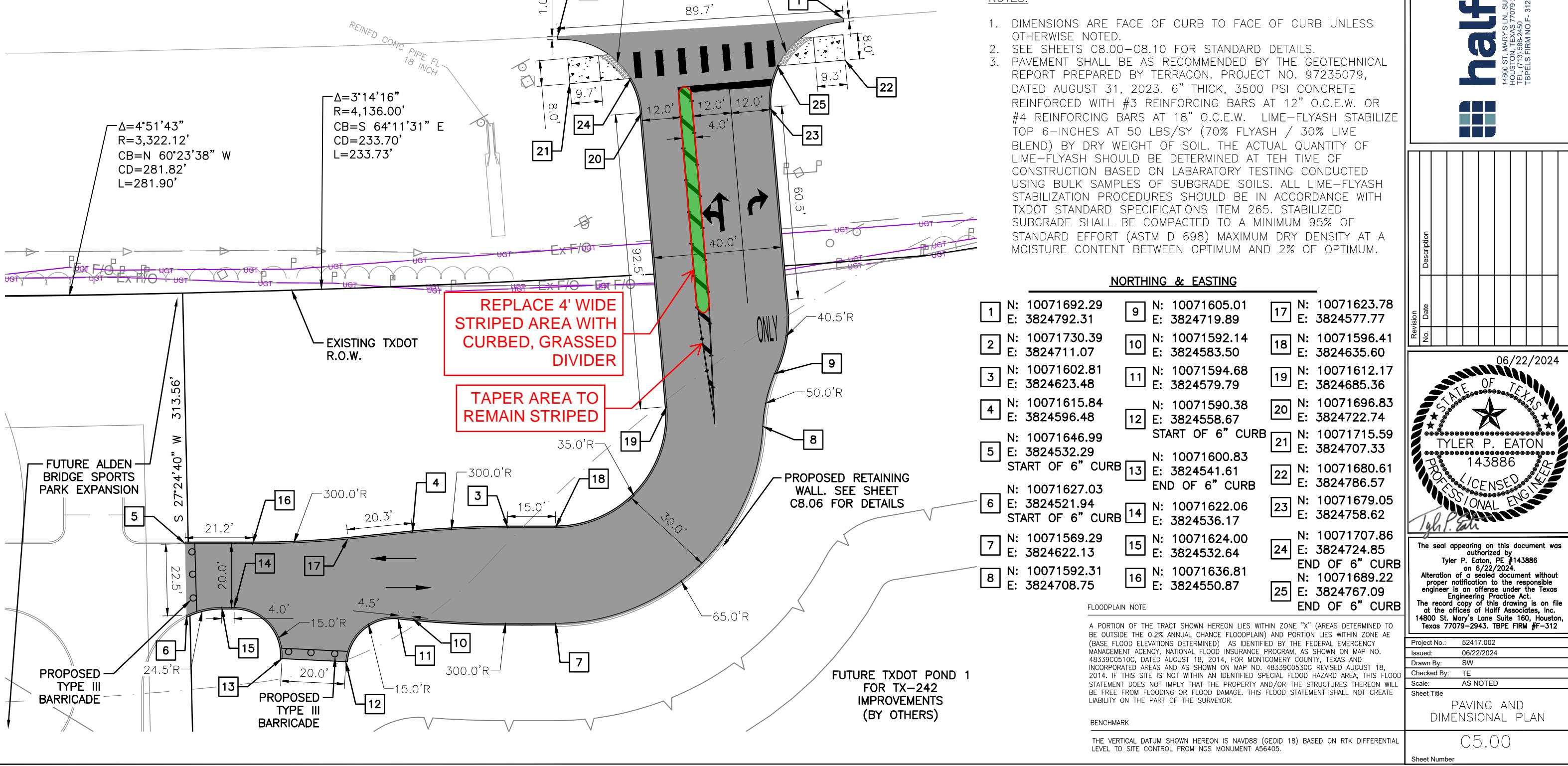
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Project No.: 52417.002  
Issued: 06/22/2024  
Drawn By: SW  
Checked By: TE  
Scale: AS NOTED  
Sheet Title: STORM  
CALCULATIONS  
C4.01  
Sheet Number: C4.01

**NOTES:**

- NO CHANGES TO THE PERMITTED DRIVEWAY LAYOUT WILL BE REQUIRED TO CONVERT THE CONCRETE, STRIPED MEDIAN TO A CURBED, GRASSED MEDIAN IN THE GREEN AREA SHOWN ON THIS EXHIBIT.
- LANDSCAPE WITHIN PROPOSED CURBED MEDIAN WILL BE BERMUDA GRASS COVER. NO PLANTS, TREES, OR IRRIGATION PROPOSED IN MEDIAN.
- DRIVEWAY LAYOUT HAS BEEN APPROVED UNDER TXDOT PERMIT NO. 24050041.

A:\52000s\52417\002\LD\CADD\EXHIBITS\TxDot Permit Drawings\Sheets\HOU\CE-PD-52417.002.dwg 6/22/2024



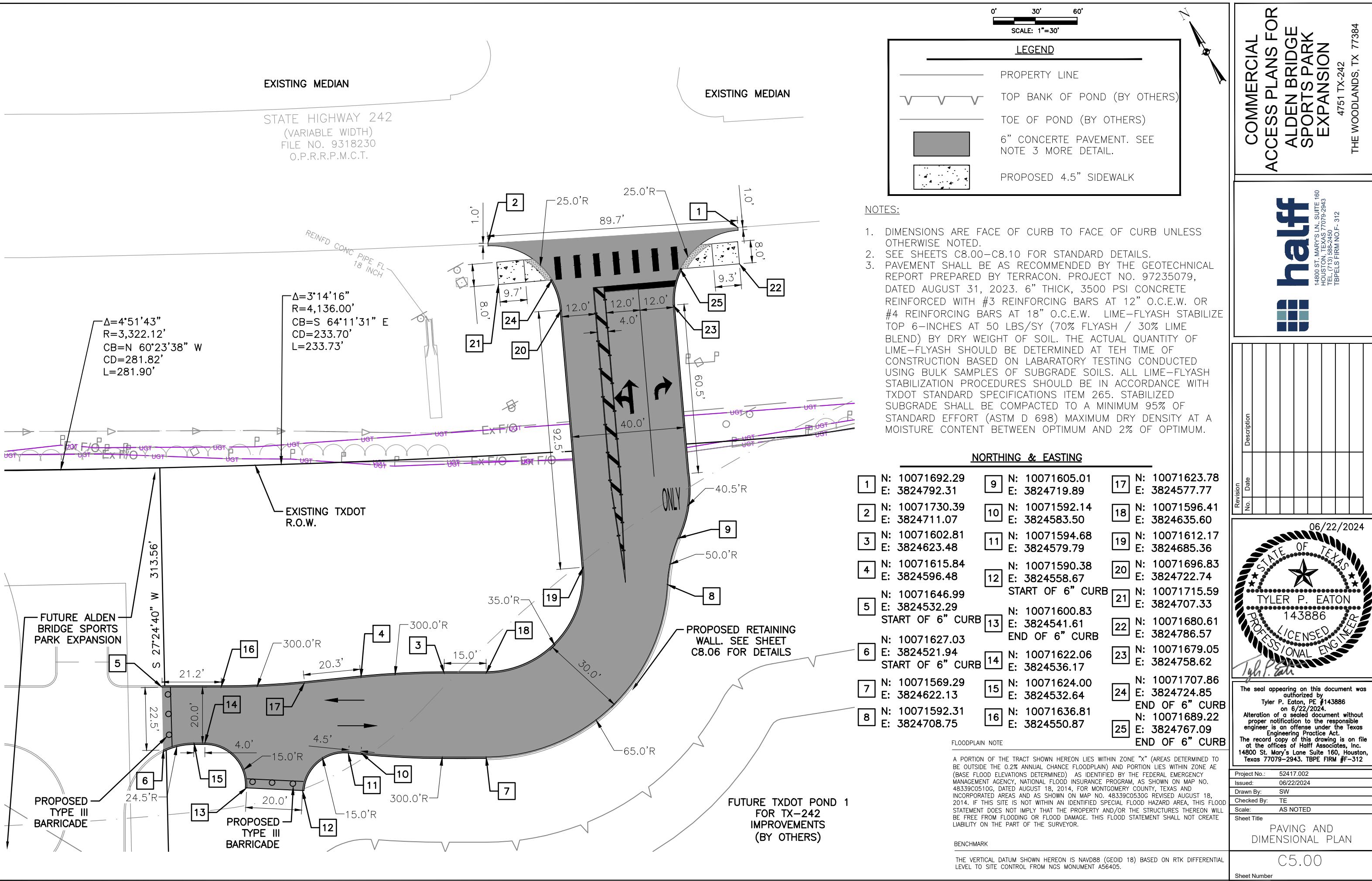
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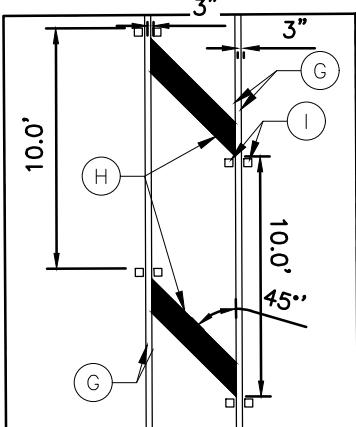
**half**  
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Project No.: 52417.002  
Issued: 06/22/2024  
Drawn By: SW  
Checked By: TE  
Scale: AS NOTED  
Sheet Title: PAVING AND DIMENSIONAL PLAN  
Sheet Number: C5.00

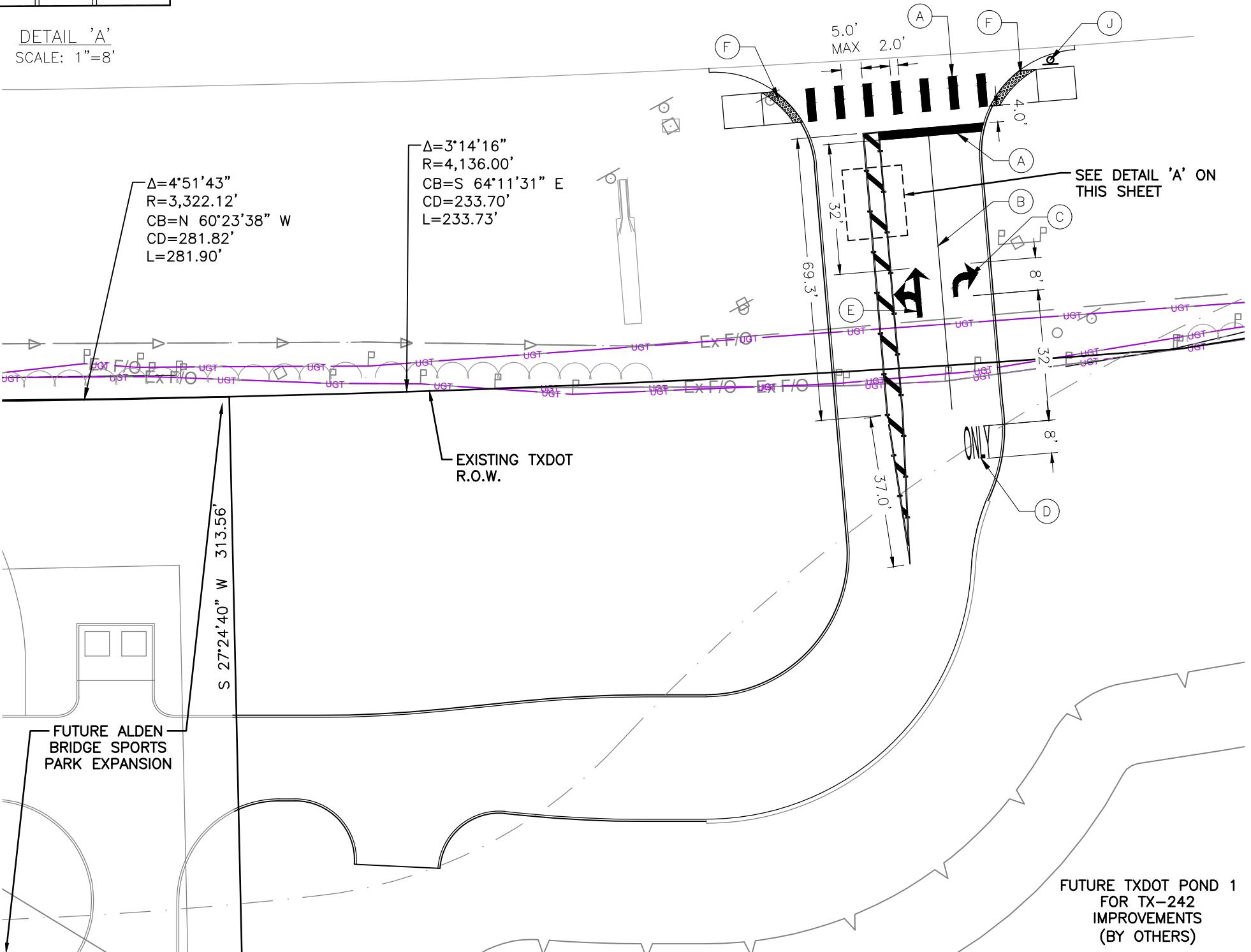




EXISTING MEDIAN

STATE HIGHWAY 242  
(VARIABLE WIDTH)  
FILE NO. 9318230  
O.P.R.R.P.M.C.T.

DETAIL 'A'  
SCALE: 1"=8'



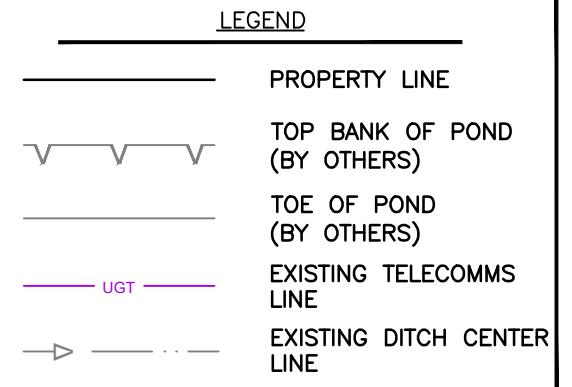
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R=4,136.00'  
CB=S 64°11'31" E  
CD=233.70'  
L=233.73'

$\Delta=4^{\circ}51'43''$   
R=3,322.12'  
CB=N 60°23'38" W  
CD=281.82'  
L=281.90'

0' 30' 60'  
SCALE: 1"=30'

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## NOTES:

1. ALL PROPOSED PAVEMENT MARKINGS SHOWN ARE TO BE INSTALLED IN ACCORDANCE WITH TXDOT STANDARDS.
2. ALL PAVEMENT MARKINGS MATERIAL SUPPLIED SHALL CONFORM TO TXDOT STANDARDS.
3. ALL SIGNAGE AND PAVEMENT MARKINGS TO BE INSTALLED UNLESS OTHERWISE NOTED.
4. CONTRACTOR TO COORDINATE EXACT SIGN LOCATIONS WITH TXDOT DURING INSTALLATION.

## KEYNOTES

- (A) MULTIPOLYMER PAV MRK (W) (24") (SLD)
- (B) MULTIPOLYMER PAV MRK (W) (6") (SLD)
- (C) PREFAB PAV MRK TY C (W) (ARROW)
- (D) PREFAB PAV MRK TY C (W) (WORD) "ONLY"
- (E) PREFAB PAV MRK TY C (W) (DBL ARROW)
- (F) DETECTABLE WARNING SURFACE SEE SHEET C8.09 FOR DETAILS
- (G) MULTIPOLYMER PAV MRK (Y) (6") (SLD)
- (H) MULTIPOLYMER PAV MRK (Y) (12") (SLD)
- (I) REFL PAV MRKR TY-II-A-A
- (J) PROPOSED R1-1 STOP SIGN. SEE SHEET C8.07 FOR DETAILS.

## FLOODPLAIN NOTE

A PORTION OF THE TRACT SHOWN HEREON LIES WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND PORTION LIES WITHIN ZONE AE (BASE FLOOD ELEVATIONS DETERMINED) AS IDENTIFIED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, NATIONAL FLOOD INSURANCE PROGRAM, AS SHOWN ON MAP NO. 48339C0510G, DATED AUGUST 18, 2014, FOR MONTGOMERY COUNTY, TEXAS AND INCORPORATED AREAS AND AS SHOWN ON MAP NO. 48339C0530G, REVISED AUGUST 18, 2014. IF THIS SITE IS NOT WITHIN AN IDENTIFIED SPECIAL FLOOD HAZARD AREA, THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

## BENCHMARK

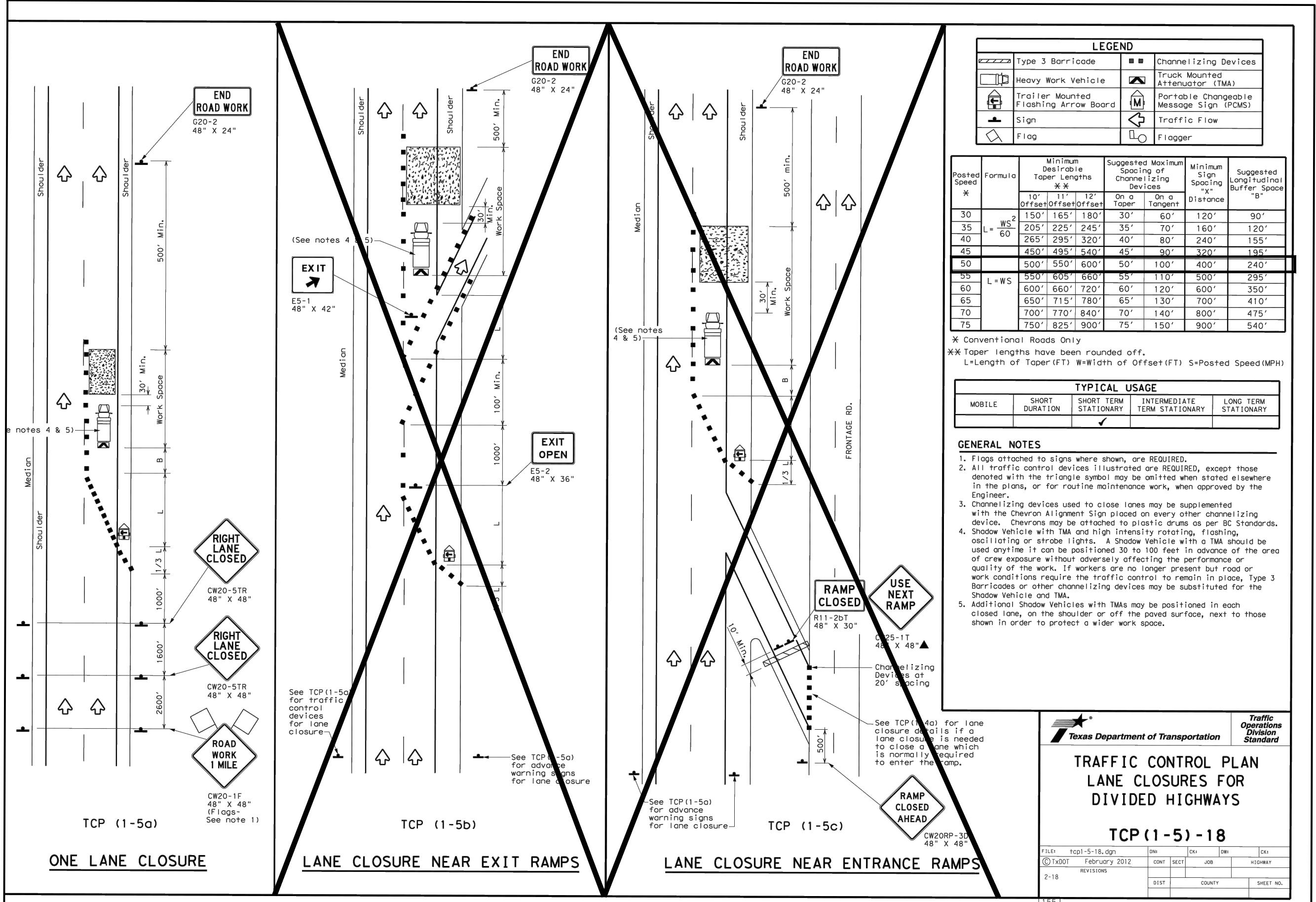
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Project No.:	52417.002
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Drawn By:	SW
Checked By:	TE
Scale:	AS NOTED
Sheet Title:	STRIPING & SIGNAGE PLAN
	C6.00
Sheet Number:	



COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION  
4751 TX-242  
THE WOODLANDS, TX 77384



14800 ST. MARY'S LN. SUITE 160  
HOUSTON, TEXAS 77079-2943  
TEL: (713) 568-2450  
TBPEL'S FIRM NO. F-312

Revision No.	Date	Description

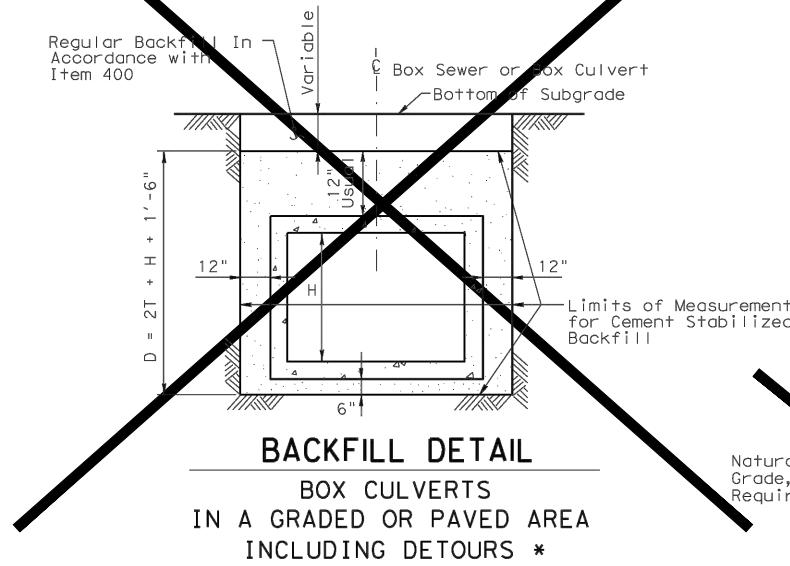
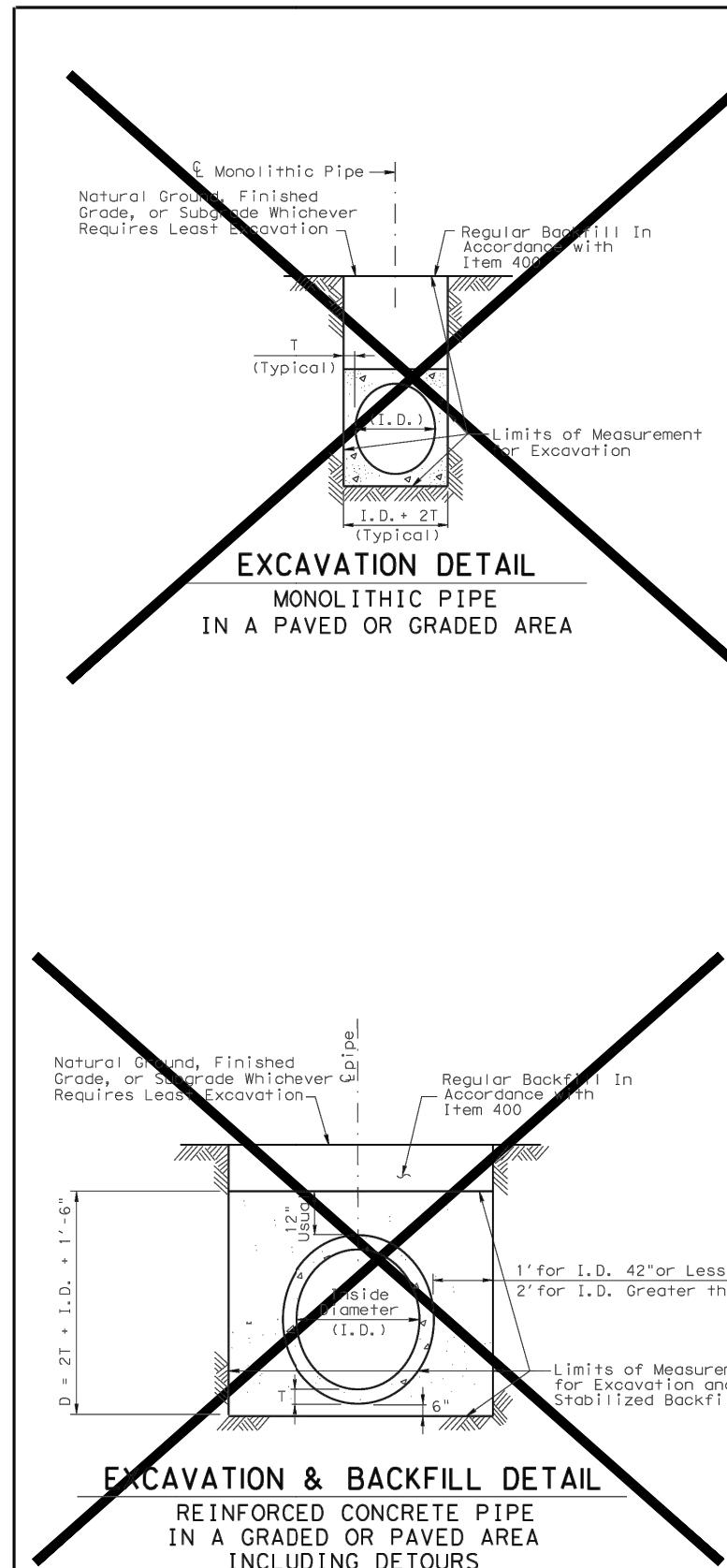


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Project No.: 52417.002  
Issued: 06/22/2024  
Drawn By: SW  
Checked By: TE  
Scale: AS NOTED  
Sheet Title: TRAFFIC CONTROL PLAN

C7.00

Sheet Number



### REINFORCED CONCRETE PIPE

#### EXCAVATION AND BACKFILL QUANTITIES

PIPE DIA. IN.	T FT.	CULVERT OR SEWER EXCAVATION IN A PAVED OR GRADED AREA	CEMENT STABILIZED BACKFILL IN A PAVED OR GRADED AREA
		C.Y. PER L.F. PER FT. OF DEPTH	C.Y. PER L.F. OF PIPE
18	0.19	0.144	0.383
24	0.23	0.165	0.478
30	0.29	0.188	0.586
36	0.33	0.210	0.692
42	0.38	0.231	0.808
48	0.42	0.257	1.394
54	0.46	0.349	1.560
60	0.50	0.370	1.731
66	0.54	0.392	1.907
72	0.58	0.414	2.088
78	0.62	0.435	2.275
84	0.67	0.457	2.474

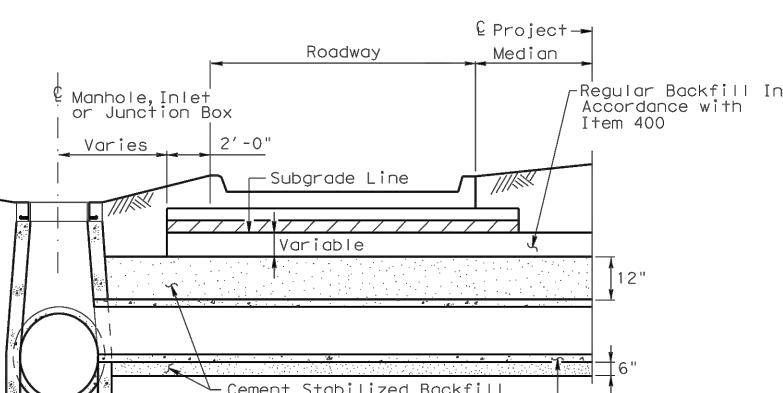
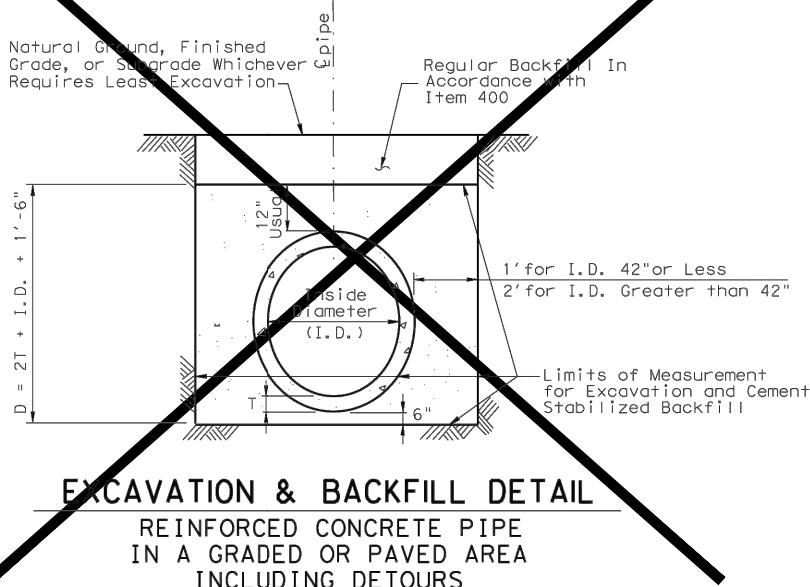
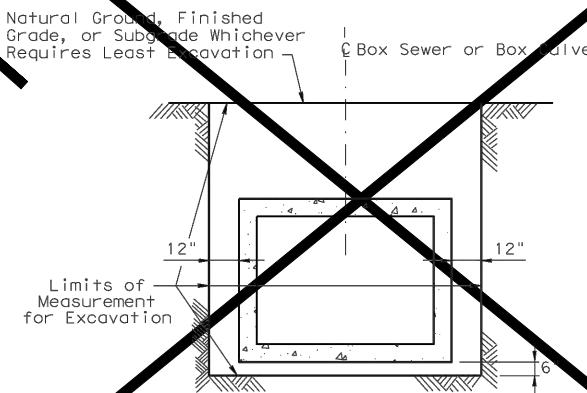
### MONOLITHIC PIPE

#### EXCAVATION QUANTITIES

PIPE DIA. IN.	T FT.	EXCAVATION
		C.Y. PER L.F. PER FT. OF DEPTH
36	0.417	0.142
42	0.458	0.164
48	0.458	0.182
54	0.500	0.204
60	0.583	0.228
66	0.583	0.247
72	0.625	0.269
78	0.625	0.287
84	0.625	0.306

### EXCAVATION DETAIL

#### BOX CULVERTS IN A GRADED AREA



#### NOTE:

Cement stabilized backfill may be omitted in private driveways as indicated elsewhere in the plans.

Rubber gaskets shall be required for all joints on proposed cross drainage, pipe culverts and proposed storm sewer systems, unless otherwise shown in the plans.

\* Backfill with cement stabilized material will be required for all structures under detours unless noted otherwise in the General Notes.

SHEET 1 OF 2

Texas Department of Transportation  
Houston District

### EXCAVATION AND BACKFILL DIAGRAMS

E&BD

FILE:	STDE1.DGN	DN: TxDot	CK: TxDot	DW: TxDot	CK: TxDot
©	TxDOT FEB 2010	DIST	FED REG	PROJECT NO.	SHEET
REVISED	11/2010 Added note to Table 1, Sh. 2 of 2.	Houston	6		
REVISED	2/2010	COUNTY	CONTROL	SECT	JOB
REVISED	8/12				HIGHWAY
REVISED	8/14				

COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION  
4751 TX-242  
THE WOODLANDS, TX 77384

**haff**

14800 ST. MARY'S LN. SUITE 160  
HOUSTON, TEXAS 77079-2943  
TEL: (713) 568-2450  
TBPEL'S FIRM NO. F-312



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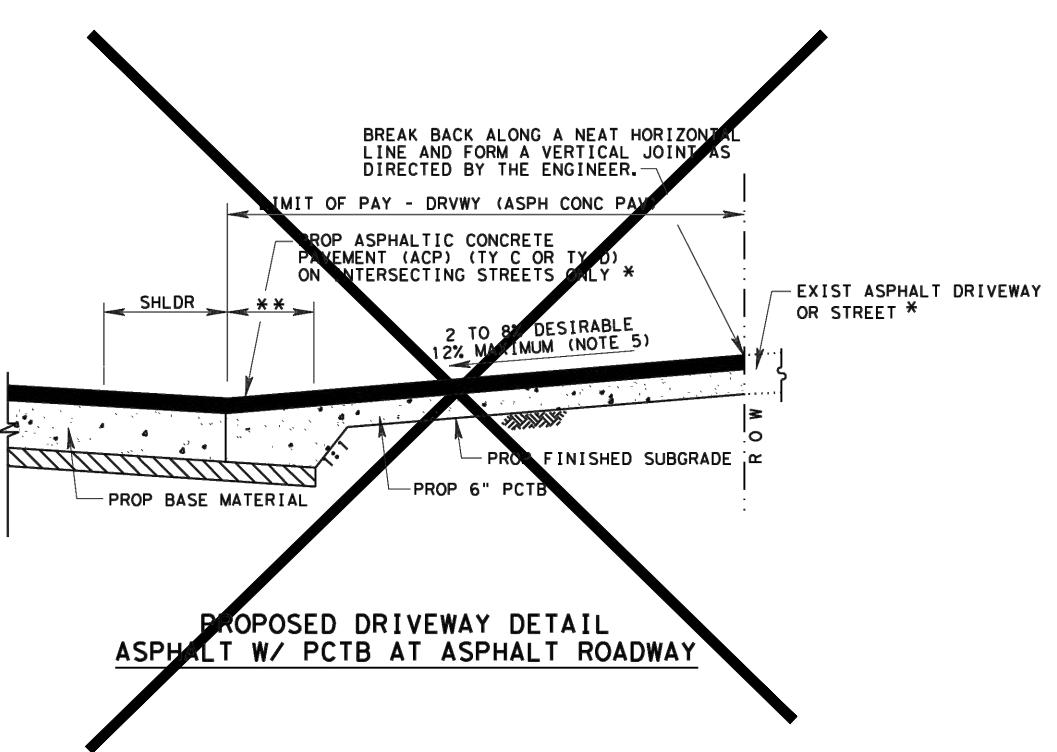
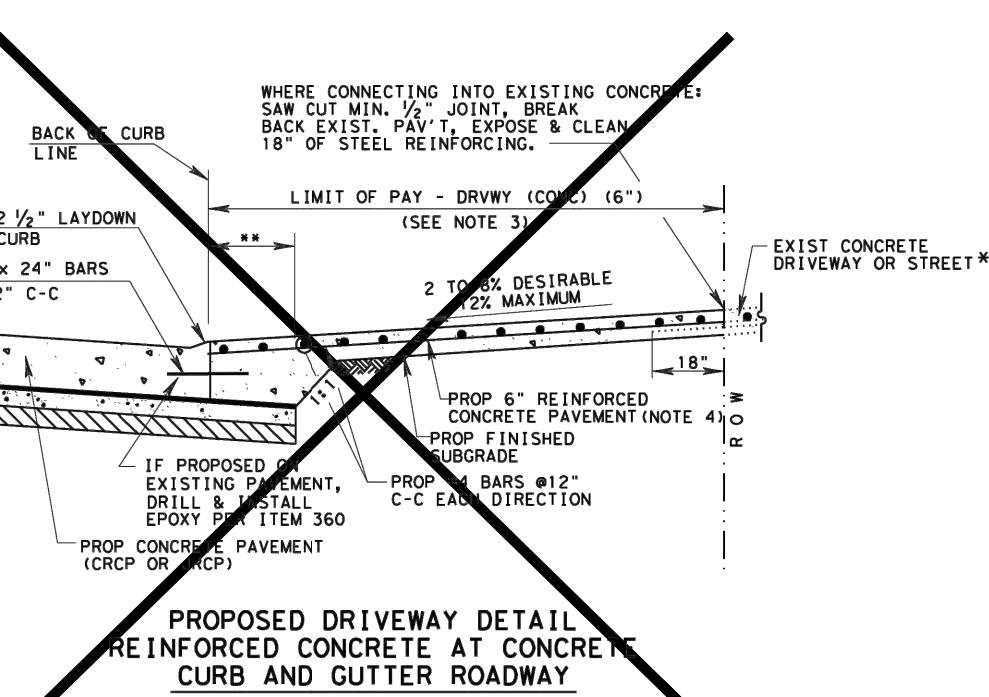
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Sheet Number

**COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION**



14800 ST. MARY'S LN. SUITE 160  
HOUSTON, TEXAS 77079-2943  
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## NOTES:

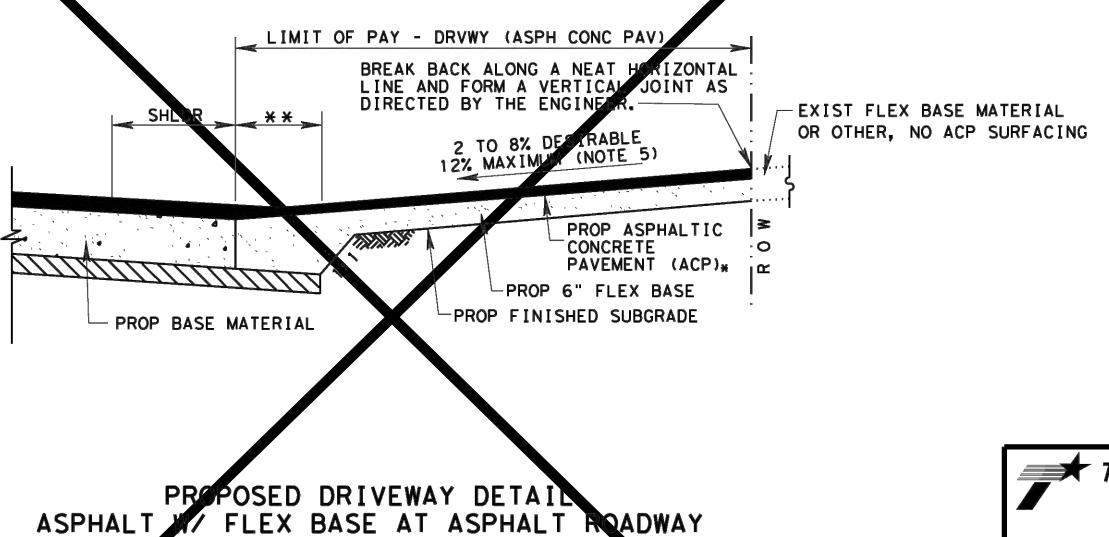
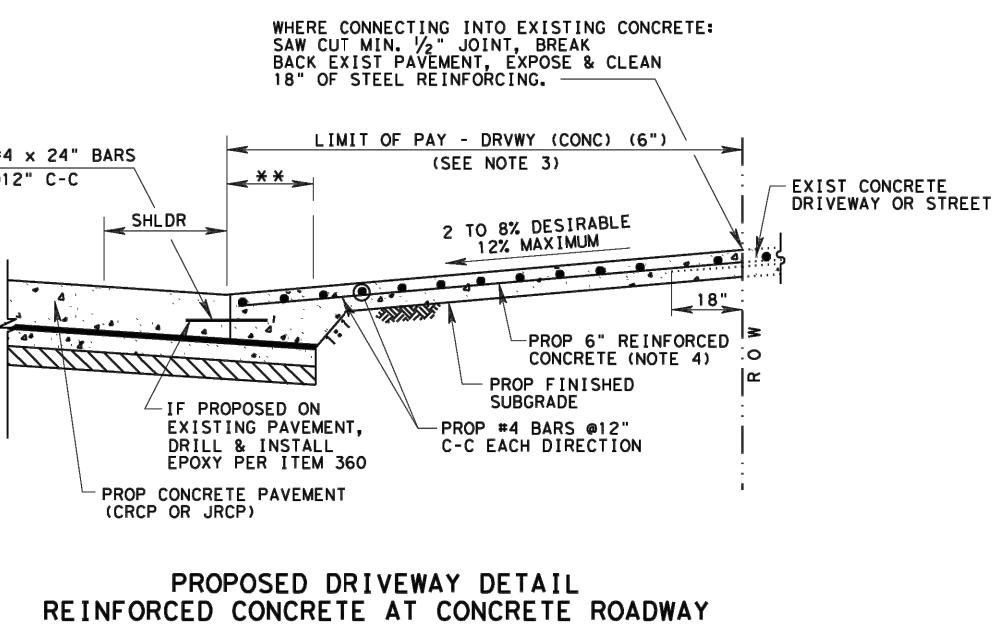
1. ALSO SEE SHEET 2 OF 2 FOR DRIVEWAY SLOPES WITH PROPOSED SIDEWALKS.
2. FOR INTERSECTIONS BUILT WITH CRCP PAVEMENT SEE CRCP DETAIL.
3. FAST TRACK CONCRETE IS PAID AS DRVWY (CONC) (FAST TRACK).
4. THICKNESS OF DRIVEWAY IS 6 INCHES FOR REGULAR AND FAST TRACK CONCRETE.
5. MAXIMUM SLOPE IS: 12% RESIDENTIAL 8% OTHERS

## LEGEND:

PCTB- PORTLAND CEMENT TREATED BASE  
JRCP- JOINTED REINFORCED CONCRETE PAVEMENT  
CRCP- CONTINUOUSLY REINFORCED CONCRETE PAVEMENT  
ACP- ASPHALTIC CONCRETE PAVEMENT

\* FOR STREET INTERSECTIONS REFER TO  
PAVING DETAILS AND INTERSECTION  
DETAILS FOR REINFORCING STEEL AND  
SECTION REQUIREMENTS.

\*\* PROPOSED LIMIT OF ROADWAY BASE  
AND/OR SUBGRADE



SHEET 1 OF 3

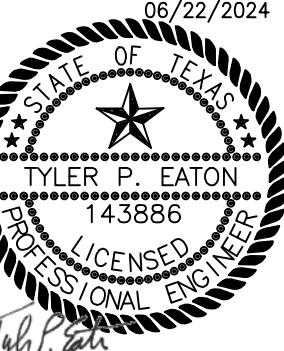
**Texas Department of Transportation**  
Houston District

## DRIVEWAY DETAILS

DD

FILE: STDB-8a.dgn	DN:	CK:	DN:	CK:
© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 11/15 ADDED NOTE FOR PCTB 5/17 MODIFIED PAVEMENT SLOPES	HOU	6		
	COUNTY	CONTROL	SECT	JOB

STDB8A



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Issued:	06/22/2024
Drawn By:	SW
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	C8.01
Sheet Number:	

COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION



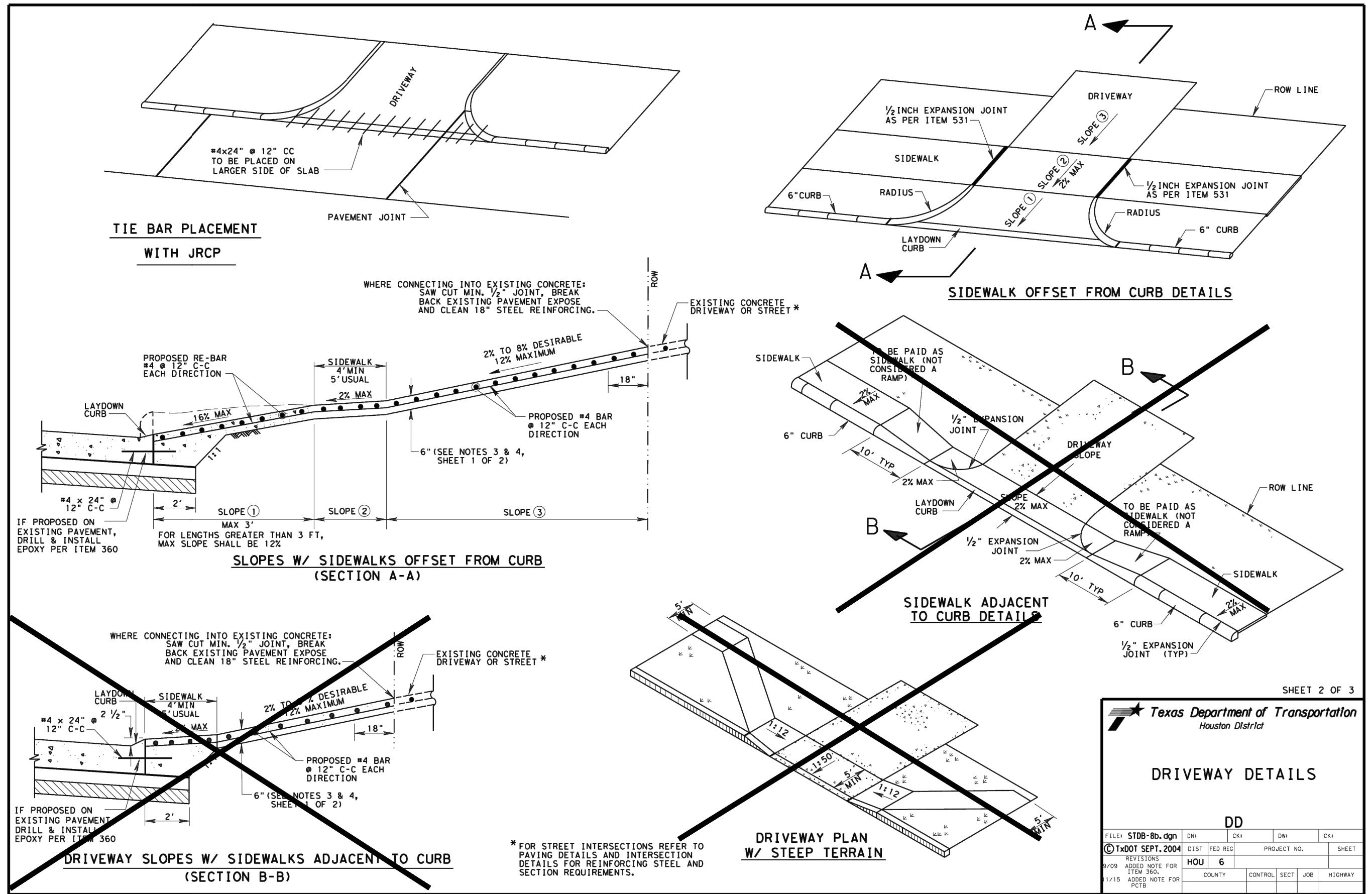
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HOUSTON, TEXAS 77079-2943  
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TBPEL'S FIRM NO. F-312

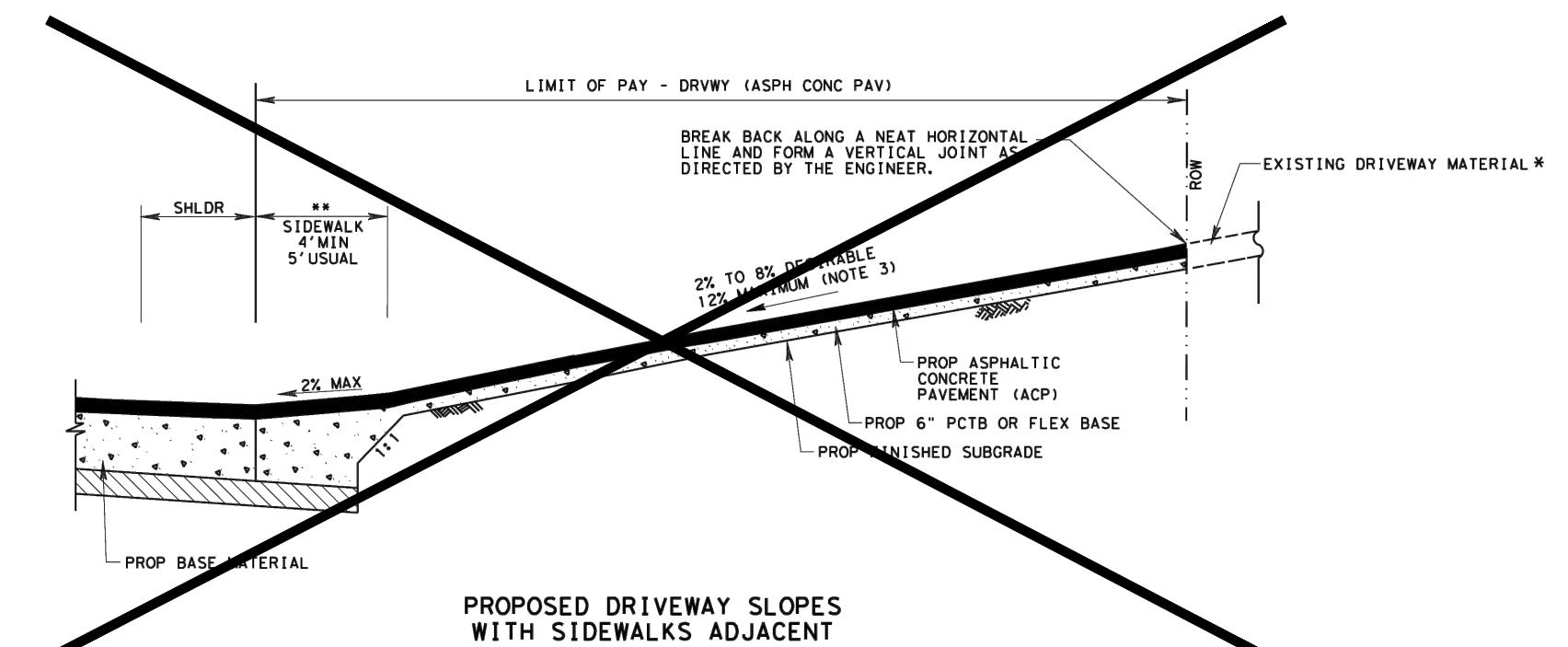
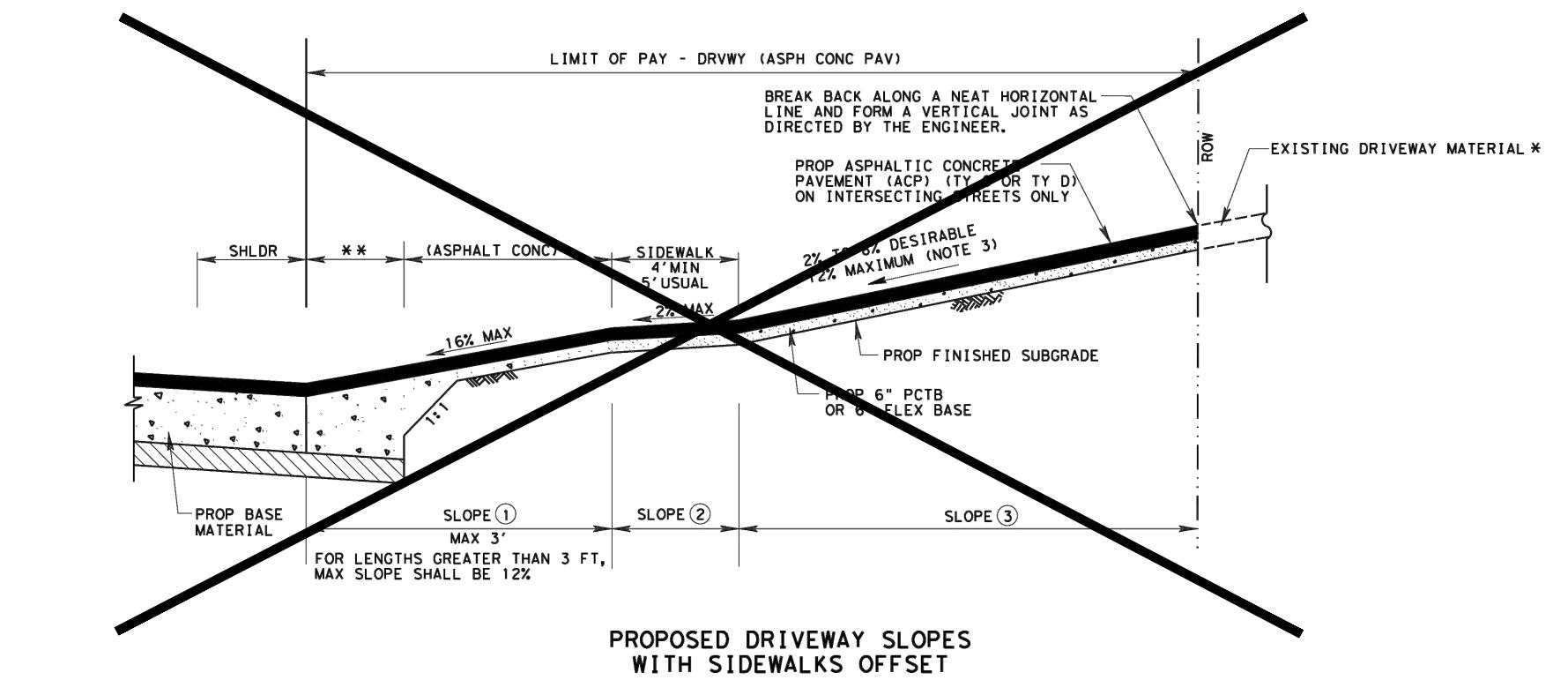
Revision No.	Date	Description
	06/22/2024	



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	C8.02
Sheet Number:	





SHEET 3 OF 3

*Texas Department of Transportation*  
*Houston District*

## DRIVEWAY DETAILS

D

FILE: <b>STDB-8c.dgn</b>	DN:	CK:	DW:	CK:	
<b>© TxDOT SEPT. 2004</b>		DIST	FED REG	PROJECT NO.	SHEET
REVISIONS		<b>HOU</b>	<b>6</b>		
11/15 ADDED NOTE FOR PCTE	COUNTY		CONTROL	SECT	JOB
3/17 MODIFIED PAVEMENT CLASSES					HIGHWAY

**ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION**

THE WOODLANDS, IX / 384

**haff**  
14800 ST. MARY'S LNN., SUITE 161  
HOUSTON, TEXAS 77079-2943

TEL. (713) 588-2450  
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A 3x6 grid of squares, intended for drawing a Venn diagram with two overlapping circles. The grid consists of 18 small squares arranged in three rows and six columns.



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75-2540. TYPE FIRM #1 612

52417.002

06/22/2024

TE

AS NOTED

## DETAILS

6903

68.05

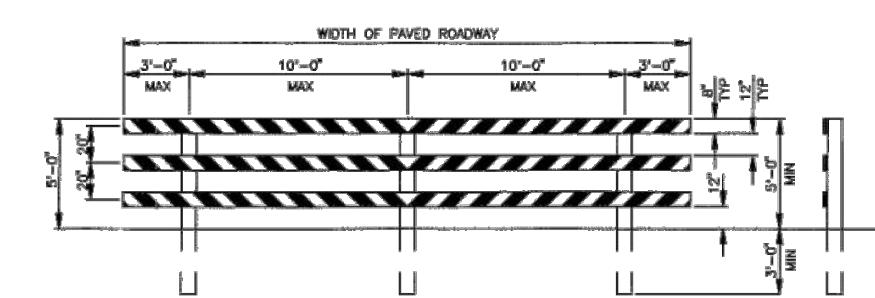
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Page 1 of 1



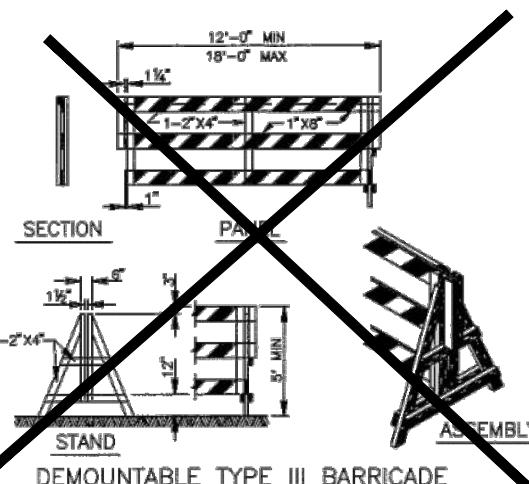
**COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
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EXPANSION**

**half**  
14800 ST. MARY'S LN. SUITE 160  
HOUSTON, TEXAS 77079-2943  
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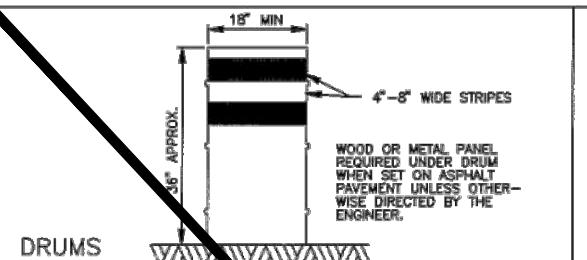


**TYPE III BARRICADE  
FOR END OF ROAD**

FOR TYPE III BARRICADE FOR END OF ROAD, THE THREE (3) RAILS SHALL BE REFLECTIVE RED AND REFLECTIVE WHITE STRIPES ON SIDE FACING TRAFFIC



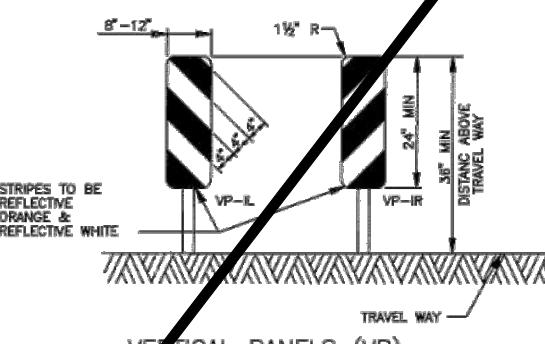
**DEMOUNTABLE TYPE III BARRICADE**



**DRUMS**

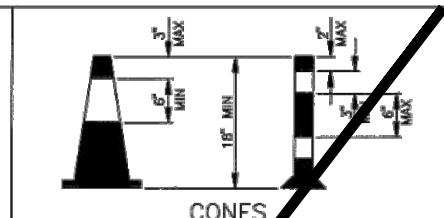
DRUMS, SET ON END, AND USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE APPROX. 36" IN HEIGHT AND A MIN OF 18" IN DIAMETER. THE CONTRACTOR, AT HIS OPTION, MAY USE DRUMS MADE FROM STEEL BARRELS OR BLACK POLYETHYLENE PLASTIC DRUM LINERS WEIGHING APPROX EIGHT POUNDS EACH. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, CIRCUMFERENTIAL, REFLECTORIZED ORANGE AND REFLECTORIZED WHITE STRIPES, 4 TO 8 INCHES WIDE. THE FIRST REFLECTORIZED STRIPE SHOULD START WITHIN TWO (2) INCHES OF THE TOP OF THE DRUM. THERE SHALL BE AT LEAST TWO ORANGE AND TWO WHITE STRIPES ON EACH DRUM. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, THEY SHALL BE NO MORE THAN 2 INCHES WIDE. METAL DRUMS SHALL BE PAINTED BLACK OR ORANGE BEFORE REFLECTORIZED STRIPES ARE ADDED. ALL DRUMS ON PROJECT WILL BE THE SAME COLOR. WHEN DRUMS ARE PLACED IN THE ROADWAY, APPROPRIATE WARNING SIGNS SHOULD BE USED. DURING HOURS OF DARKNESS, A FLASHING WARNING LIGHT SHOULD BE PLACED ON DRUMS USED SINGLY AS A WARNING DEVICE. STEADY BURN ELECTRIC LIGHTS OR DELINEATORS SHOULD BE PLACED ON DRUMS USED IN SERIES FOR TRAFFIC CHANNELIZATION. DRUMS SHALL BE WEIGHTED WITH SAND TO THE EXTENT INDICATED IN THE PLANS.

CWI-8 CHEVRON SIGNS, CWI-6A ARROW SIGNS OR VP-VERTICAL PANELS MOUNTED ABOVE DRUMS MAY BE USED AS SUPPLEMENTS TO DRUM DELINEATION.



STRIPES TO BE REFLECTIVE ORANGE & REFLECTIVE WHITE  
TRAVEL WAY  
VERTICAL PANELS (VP)

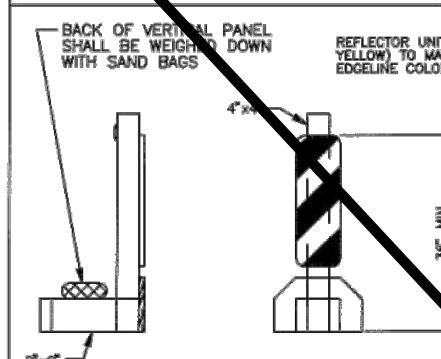
VERTICAL PANELS ARE NORMALLY USED AS CHANNELIZING DEVICES TO INDICATE TANGENT OR NEARLY TANGENT ROADWAY ALIGNMENT WHERE GOOD TARGET VALUE OF A DEVICE IS NEEDED IN DAYTIME AS WELL AS THE NIGHTTIME. IN ADDITION, VERTICAL PANELS SHOULD BE USED AT THE EDGE OF SHOULDER DROP-OFFS AND OTHER SUCH AREAS AS LANE TRANSITIONS WHERE POSITIVE DAY AND NIGHT DELINEATION MAY BE REQUIRED. VERTICAL PANELS SHOULD BE MOUNTED BACK TO BACK IF USED AT THE EDGE OF CUTS ADJACENT TO TWO-WAY TWO LANE ROADWAYS. STRIPES SHOULD ALWAYS SLOPE DOWNWARD TOWARD THE TRAVELED WAY.



TRAFFIC CONES AND TUBULAR MARKERS SHALL BE A MIN OF 18" IN HEIGHT WITH A BROADENED BASE AND MAY BE MADE OF VARIOUS MATERIALS TO WITHSTAND IMPACT WITHOUT DAMAGE TO THEMSELVES OR TO VEHICLES. LARGER SIZES SHOULD BE USED ON FREEWAY AND OTHER ROADWAYS WHERE SPEED IS RELATIVELY HIGH OR WHERE EVER MORE CONSPICUOUS GUIDANCE IS NEEDED. ORANGE SHALL BE THE PREDOMINANT COLOR ON CONES AND TUBULAR MARKERS. THEY SHOULD BE KEPT CLEAN AND BRIGHT FOR MAX TARGET VALUE. FOR NIGHT TIME USE THEY SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAX VISIBILITY. REFLECTORIZED MATERIAL SHALL HAVE A SMOOTH, SEALED OUTER SURFACE WHICH WILL DISPLAY THE SAME APPROX COLOR DAY AND NIGHT.

REFLECTORIZATION OF TUBULAR MARKERS SHALL BE A MIN OF TWO THREE-INCH BANDS PLACED A MAX OF 2' FROM THE TOP WITH A MAX OF 6" BETWEEN THE BANDS. REFLECTORIZATION OF CONES SHALL BE PROVIDED BY A MIN 6" BAND PLACED A MAX OF 3' FROM THE TOP.

CONES OR TUBULAR MARKERS ARE GENERALLY ONLY SUITABLE FOR TEMPORARY USAGE (UP TO HOURS) WITH OTHER CHANNELIZATION DEVICES SUCH AS VERTICAL PANELS OR BARRICADES PREFERRED FOR LONGER TERM USAGE. CARE SHOULD BE TAKEN TO INSURE THAT THEY REMAIN IN THEIR PROPER LOCATION AND IN AN UPRIGHT POSITION.



**BARRICADE NOTES**

THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND ITS REVISIONS, SHALL GOVERN THE CONSTRUCTION AND USE OF ALL ITEMS HEREIN DESCRIBED.

CHANNELIZATION DEVICES OTHER THAN BARRICADES SHOULD NORMALLY BE USED FOR CHANNELIZATION PURPOSES.

BARRICADES SHOULD NORMALLY BE PLACED PERPENDICULAR TO THE TRAFFIC FLOW. OTHER CHANNELIZING DEVICES, SUCH AS DRUMS, VERTICAL PANELS OR PORTABLE BARRIERS SHOULD BE USED WHERE NEEDED TO SEPARATE TRAFFIC FROM THE WORK AREA. IN ALL CASES, THE BARRICADES SHOULD BE SO LOCATED AS TO MOST ADVANTAGEOUSLY WARN AND DIRECT TRAFFIC.

BARRICADES MAY BE DESIGNED AND CONSTRUCTED FROM WOOD OR ANY OTHER SUITABLE MATERIAL IN A MANNER APPROVED BY THE DEPARTMENT OF TRAFFIC AND TRANSPORTATION. THE CONSTRUCTION DETAILS SHOWN HEREON ARE TYPICAL AND ARE SUGGESTED DETAILS FOR WOOD SUPPORT SYSTEMS FOR BARRICADES. THE DETAILS OF RAIL WIDTH AND STRIPING, NUMBER AND SPACING OF RAILS, MINIMUM LENGTH AND HEIGHT (ABOVE PAVEMENT) OF RAILS MUST BE ADHERED TO WHEN ALTERNATE DESIGNS ARE USED.

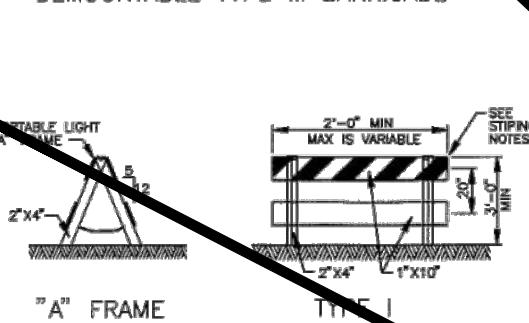
BARRICADES ARE TO BE CONSTRUCTED OF CLEAN SOUND MATERIAL. ALL SURFACES ABOVE GROUND, WHICH ARE NOT STRIPED, SHALL BE WHITE EXCEPT THE UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED.

COMPONENTS MADE OF LUMBER SHALL BE PAINTED WITH A MINIMUM OF TWO COATS OF AN APPROVED BRAND OF WHITE PAINT TO SECURE THOROUGH COVERAGE AND A UNIFORM WHITE COLOR.

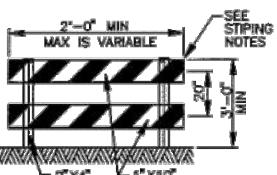
THE REFLECTORIZED WHITE AND REFLECTORIZED ORANGE (REFLECTORIZED RED) STRIPES FOR BARRICADES, DRUMS AND VERTICAL PANELS SHALL BE CONSTRUCTED OF "HIGH INTENSITY SHEETING" AND SHALL BE MAINTAINED TO MEET THE APPEARANCE, COLOR AND REFLECTIVITY REQUIREMENTS SET BY DOT.

THE CONTRACTOR SHALL MAINTAIN EACH BARRICADE IN A CLEAN AND GOOD CONDITION.

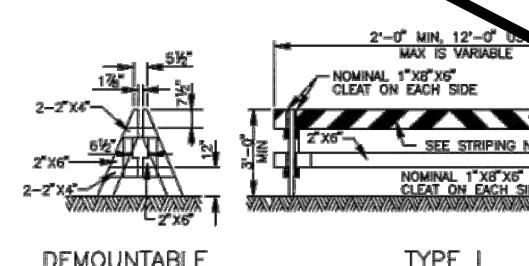
BARRICADES SHALL BE REMOVED UPON COMPLETION OF THE WORK AND/OR THE ELIMINATION OF THE HAZARD ON ANY SECTION.



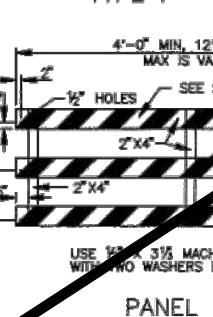
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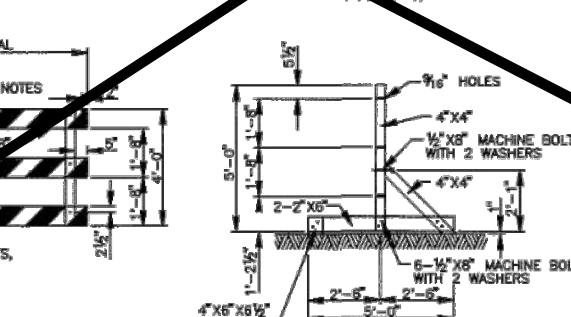
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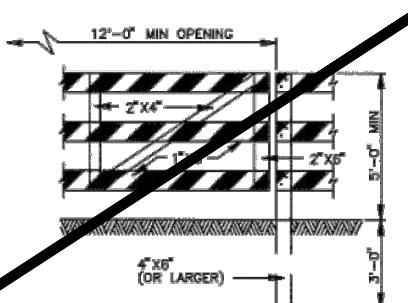
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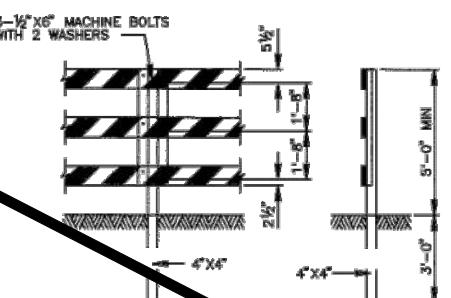
**PANEL FOR  
TYPE III BARRICADE**



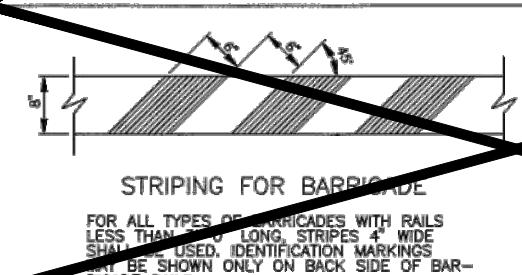
**STAND FOR  
TYPE III BARRICADE**



**GATE FOR  
TYPE III BARRICADE**



**POST FOR  
TYPE III BARRICADE**



**STRIPING FOR BARRICADE**

FOR ALL TYPES OF BARRICADES WITH RAILS LESS THAN 2'-0" LONG, STRIPES 4" WIDE SHALL BE USED. IDENTIFICATION MARKINGS MAY BE SHOWN ONLY ON BACK SIDE OF BARRICADE RAILS.

**CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION**

**BARRICADE STANDARD  
(NOT TO SCALE)**

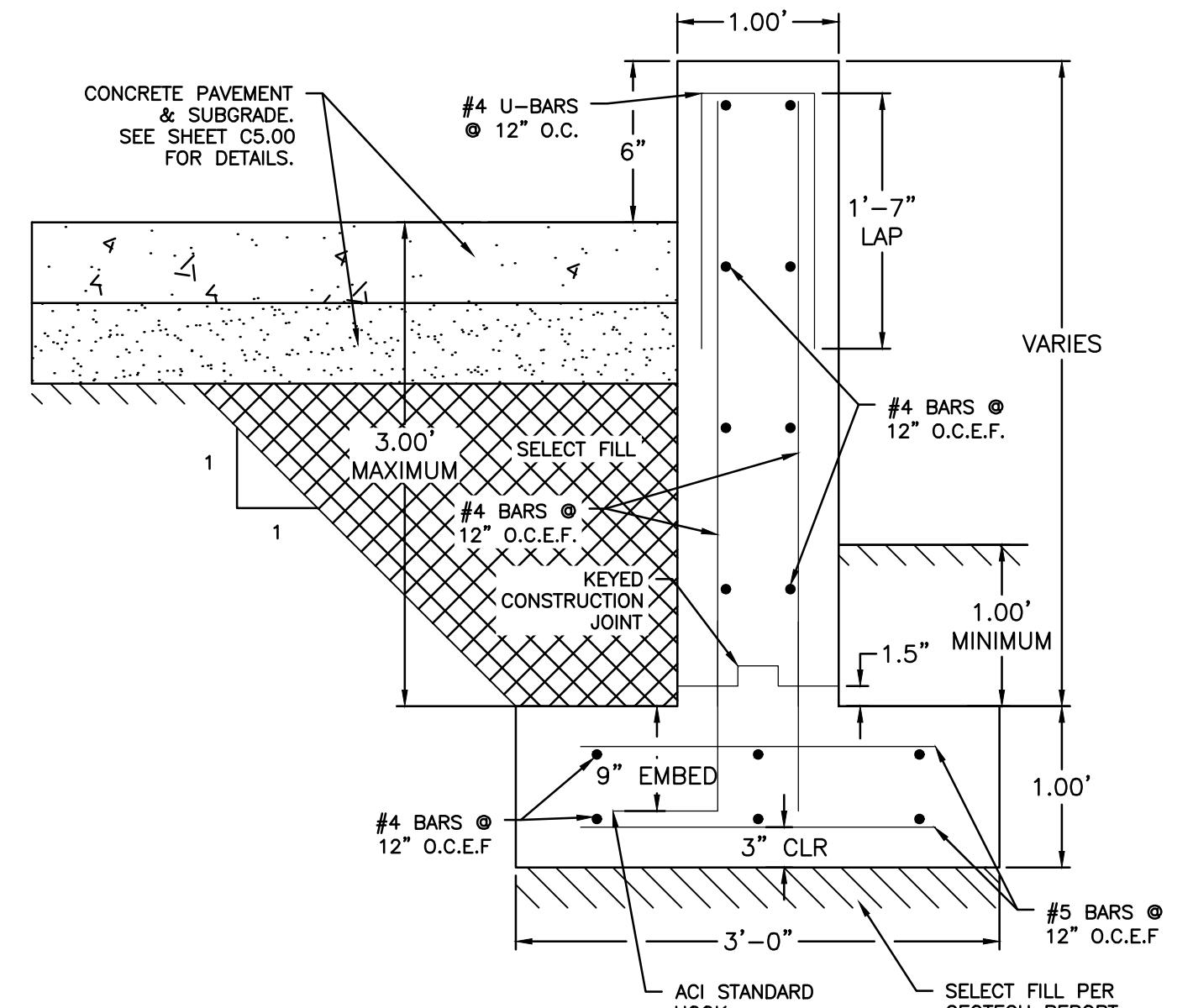
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CITY ENGINEER DIRECTOR OF PUBLIC  
WORKS AND ENGINEERING  
EFF. DATE: OCT-01-2002 DWG NO: 01580-01  
DETAILS



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C8.05



SEE SHEET C3.00 & C5.00 FOR LOCATION

NOTES:

1. PROVIDE TXDOT CLASS C CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH  $F'_C=3600$  PSI.
2. SELECT FILL SHALL MATCH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. THE FOOTING SHALL BEAR ON PROPERLY COMPACTED SUBGRADE.

RETAINING WALL SECTION

COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION  
4751 TX-242  
THE WOODLANDS, TX 77384



14800 ST. MARY'S LN. SUITE 160  
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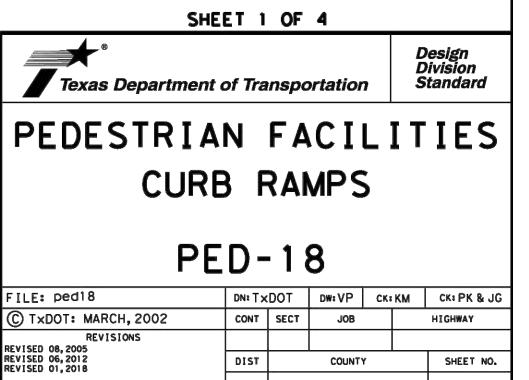
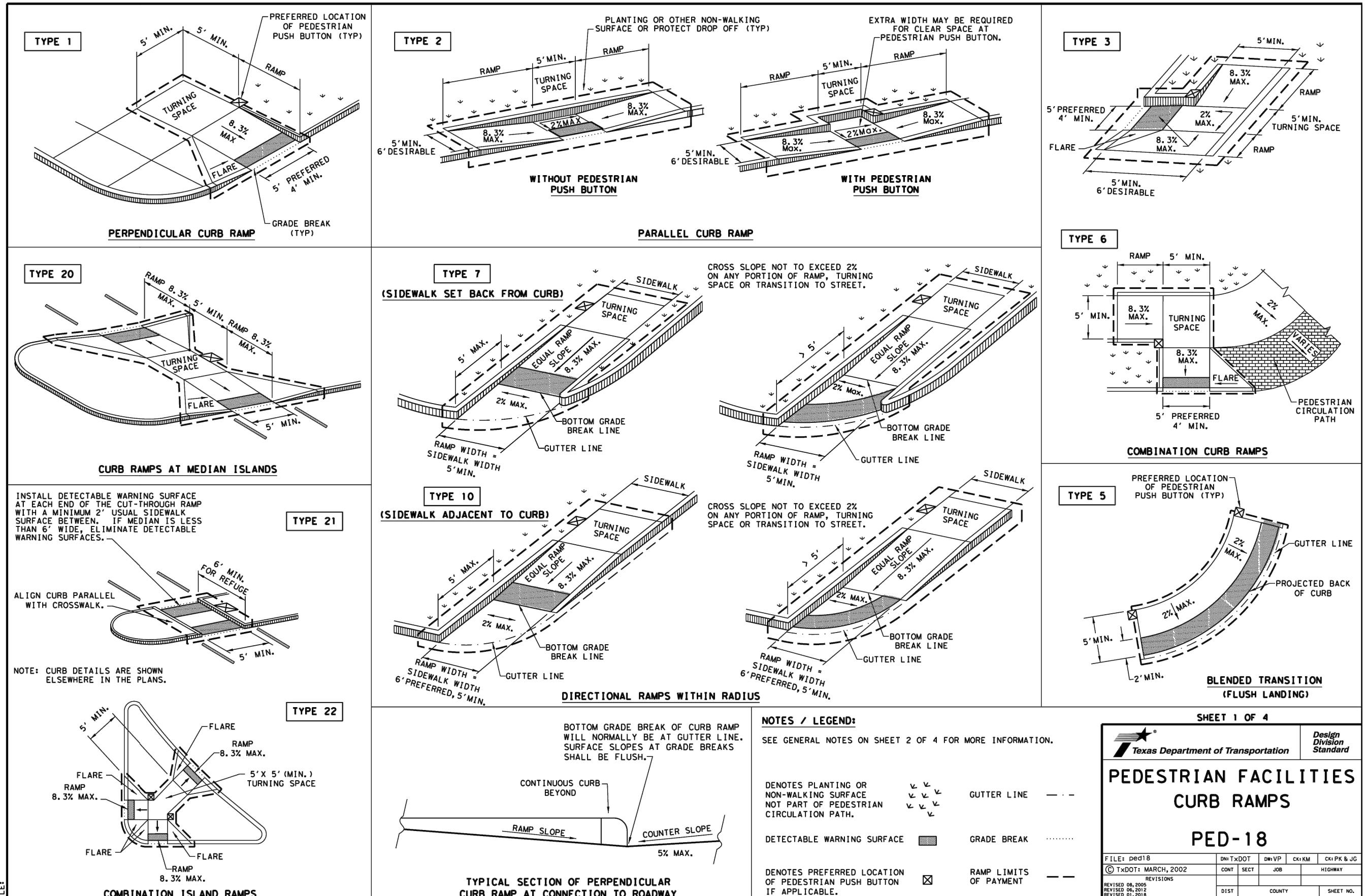
Revision	No.	Date	Description



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	C8.06
Sheet Number:	



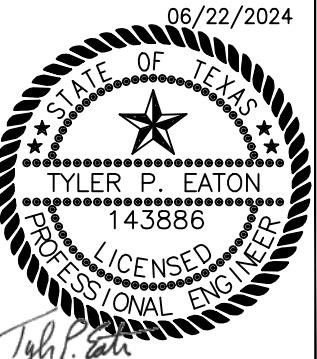


# COMMERCIAL ACCESS PLANS FOR ALDEN BRIDGE SPORTS PARK EXPANSION

4751 TX-242  
THE WOODLANDS, TX 77384

**Reutt**  
1000 ST. MARY'S LN., SUITE 1600  
USTON, TEXAS 77079-2943  
(713) 588-2450  
PEELS FIRM NO.F- 312

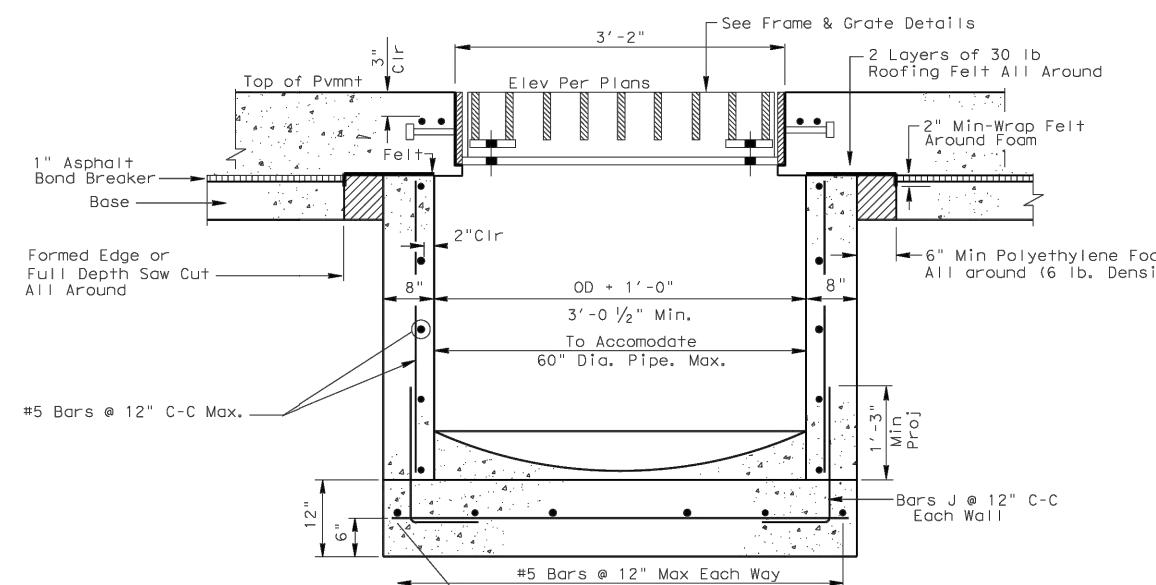
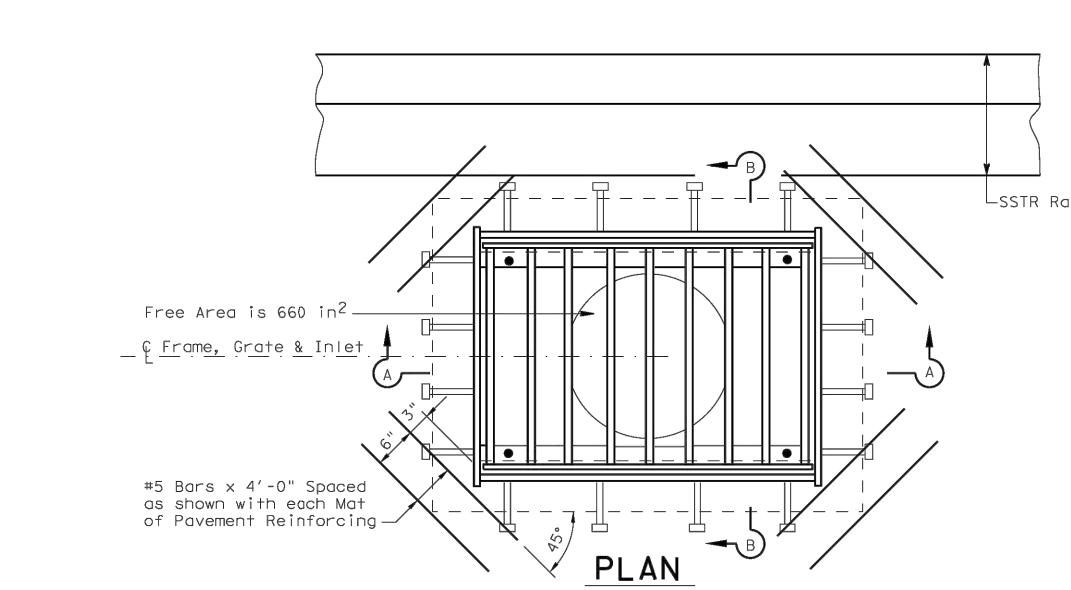
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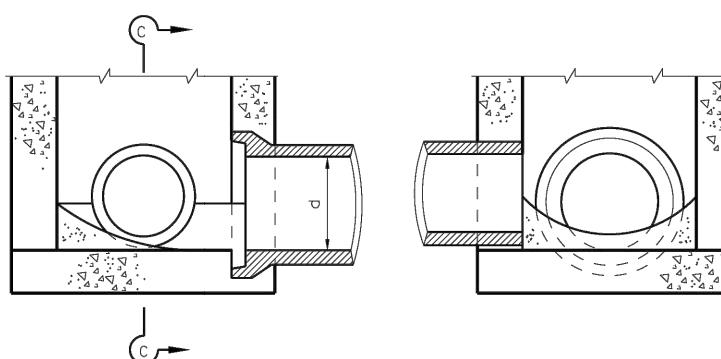
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Project No.: 52417.002  
Issued By: 06/22/2024  
Drawn By: SW  
Checked By: TE  
Scale: AS NOTED  
Sheet Title  
DETAILS  
C8.08  
Sheet Number





SECTION A-A



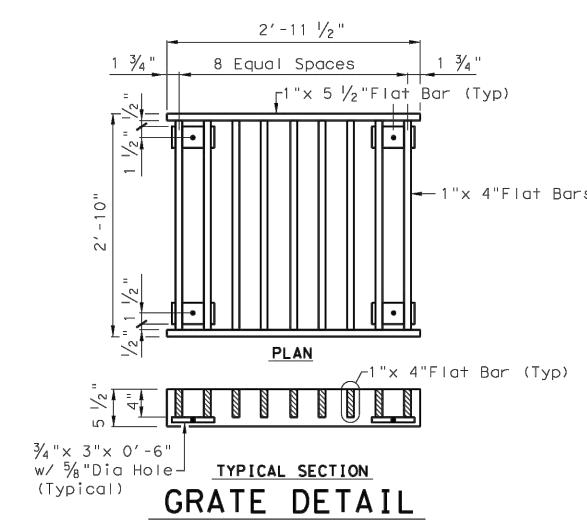
PART SECTION AT INVERT

SECTION C-C

Showing Shaping Of Invert, Pipe Entering From Adjacent Sides

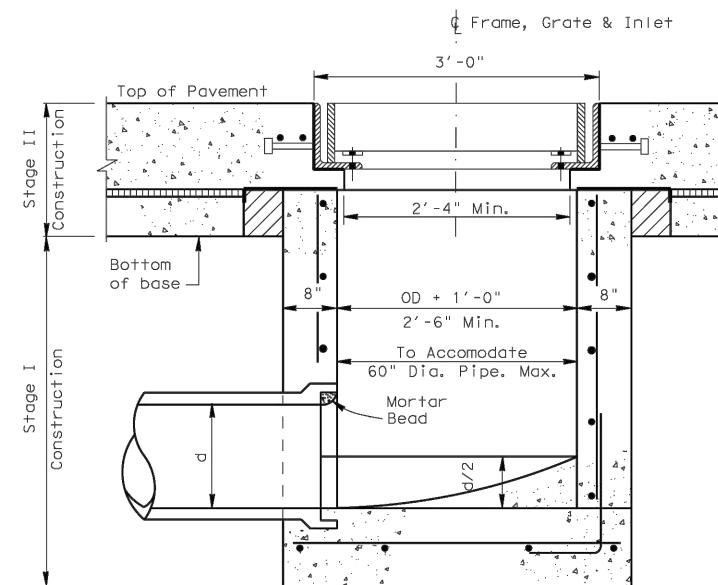
PART SECTION AT INVERT

Showing Shaping Of Invert, Pipe Entering From Adjacent Sides

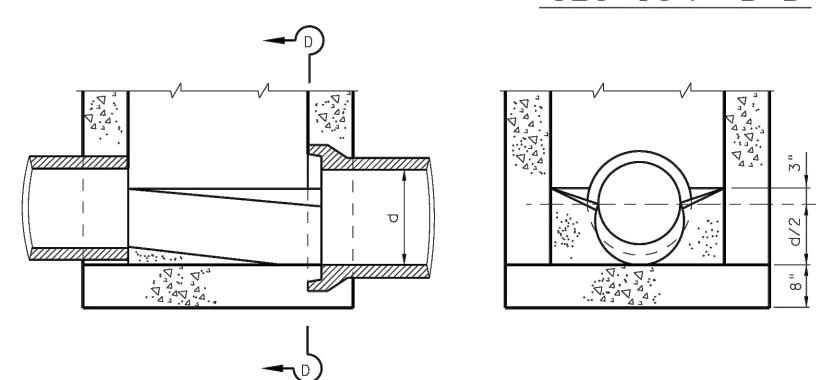


TYPICAL SECTION

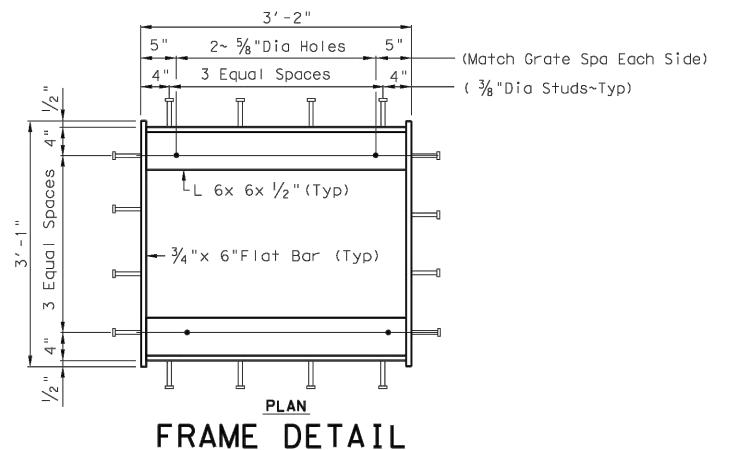
GRATE DETAIL



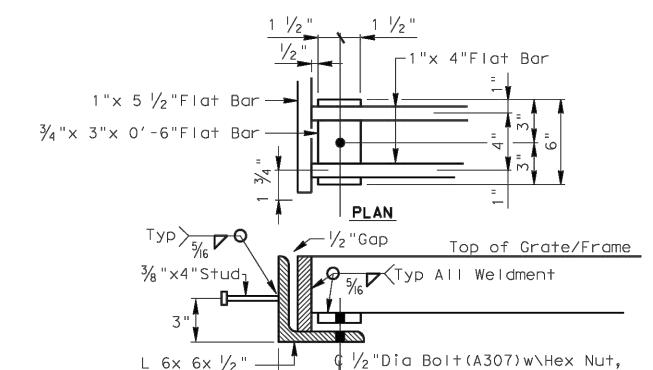
SECTION B-B



SECTION D-D



FRAME DETAIL



TYPICAL SECTION

WELDMENT DETAIL

## GENERAL NOTES:

All steel is ASTM-A36 and shall be galvanized after fabrication.

Cost Of Furnishing And Installing Frames, Grates, Additional Pavement Reinforcing, Roofing Felt And Polyethylene Foam Shall Be Included In The Unit Price Bid For The Type Of Inlet Selected.

All Concrete Shall Be Class C.

Shop Drawings Will Be Required For Precast Construction Of Inlets.

## FOR TRAFFIC LOADS

 Texas Department of Transportation  
Houston District

## INLET TYPE AZ

FILE#	STDD6.DGN	DN#	TXDOT	CK#	TXDOT	DW#	TXDOT	CK#	TXDOT	STD#
① TXDOT		2014	DIST	FED REG	PROJECT NO.					
REVISIONS				HOUS	6					
				COUNTY	CONTROL	SECT	JOB	HIGHWAY		

d = Diameter  
R = Radius

BARS J (#5)

HIL-AZ

COMMERCIAL  
ACCESS PLANS FOR  
ALDEN BRIDGE  
SPORTS PARK  
EXPANSION

4751 TX-2424

14800 ST. MARY'S LN. SUITE 160  
HOUSTON, TEXAS 77079-2943  
TEL: (713) 568-2450  
TBPEL'S FIRM NO. F-312

Revision No.	Date	Description



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Project No.: 52417.002  
Issued: 06/22/2024  
Drawn By: SW  
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Sheet Title: DETAILS  
Sheet Number: C8.10