

STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	STP 2B22 (006) TAPS		1
STATE	STATE DIST.	COUNTY	
TEXAS	ATL	BOWIE	
CONT.	SECT.	JOB	HIGHWAY NO.
0919	19	085	CS

INDEX OF SHEETS

SEE SHEET NO. 2

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL PROJECT
PROJECT NO. STP 2B22 (006) TAPS
CSJ: 0919-19-085
BOWIE COUNTY
N ROBISON RD

LIMITS FROM: N OF W 15TH ST
TO: RICHMOND RD

ROBISON ROAD = 7,280 FT = 1.378 MI
NET LENGTH OF PROJECT = 7,280 FT = 1.378 MI

FOR THE CONSTRUCTION OF PEDESTRIAN IMPROVEMENTS
CONSISTING OF CONSTRUCTING SIDEWALKS, CURB RAMPS,
PEDESTRIAN SIGNALS, SIGNS AND PAVEMENT MARKINGS

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS ACCEPTED: _____

FINAL CONTRACT COST: \$ _____

CONTRACTOR: _____

THE CONSTRUCTION WORK WAS PERFORMED IN SUBSTANTIAL
COMPLIANCE WITH THE CONTRACT.

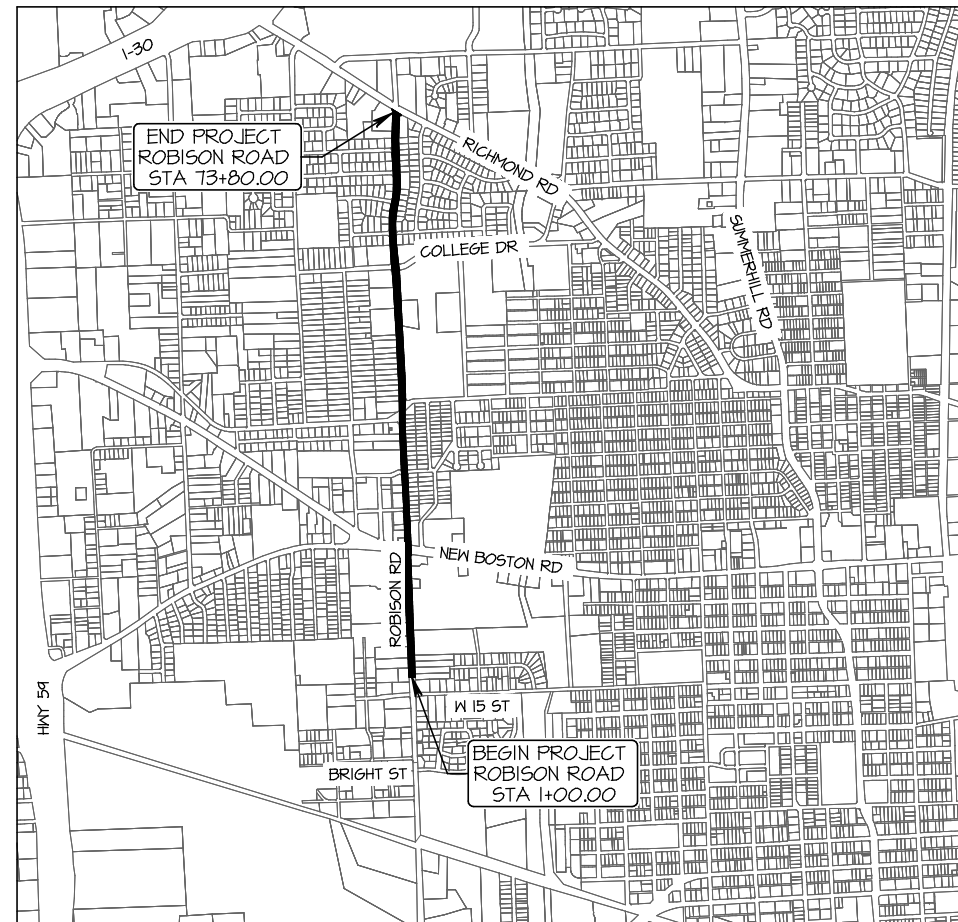
DATE

TDLR INSPECTION REQUIRED

TDLR TABS # TABS2025004133

THE CONTRACTOR SHALL MAKE HIS OWN INVESTIGATIONS AND ARRANGEMENTS FOR DELIVERY OF MATERIALS.

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT BARRICADE AND CONSTRUCTION OR BC SHEETS AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".



SCALE: 1" = 2500'

EXCEPTIONS: NONE
EQUATIONS: NONE
R.R. CROSSINGS: NONE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, SEPTEMBER 1, 2024 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 23, 2023)

COUNTY BOWIE PROJ. NO. STP 2B22 (006) TAPS
HWY. NO. VAR LETTING DATE _____
DATE ACCEPTED _____



RECOMMENDED FOR LETTING: 10/4/2024

DocuSigned by:
Katie Martin, P.E.
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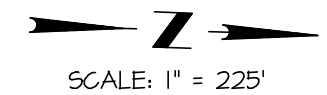
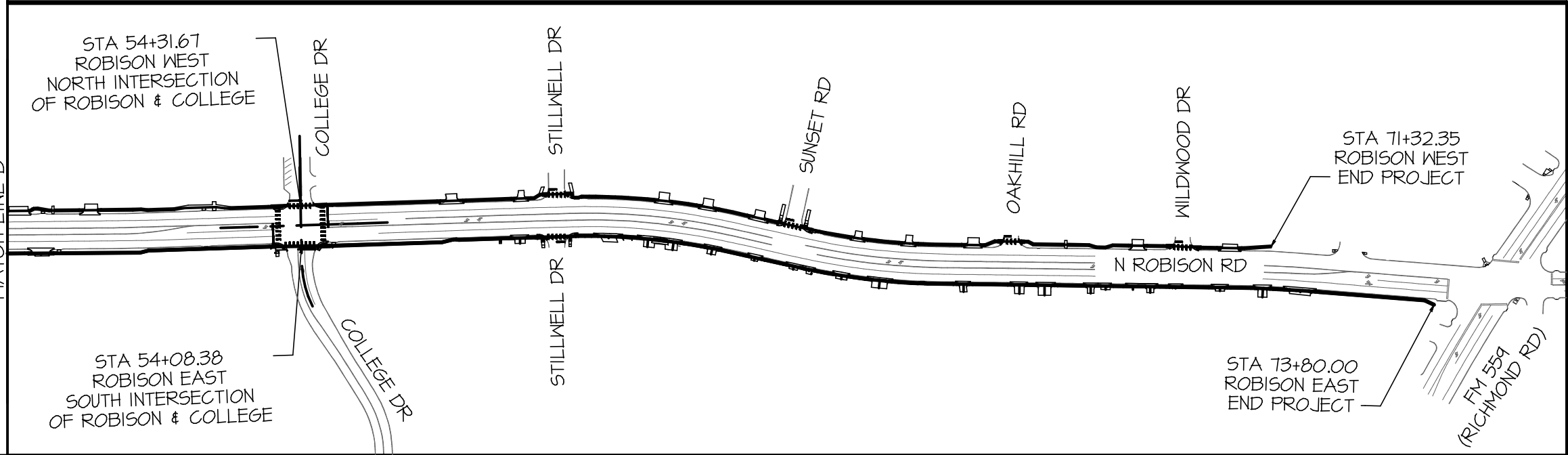
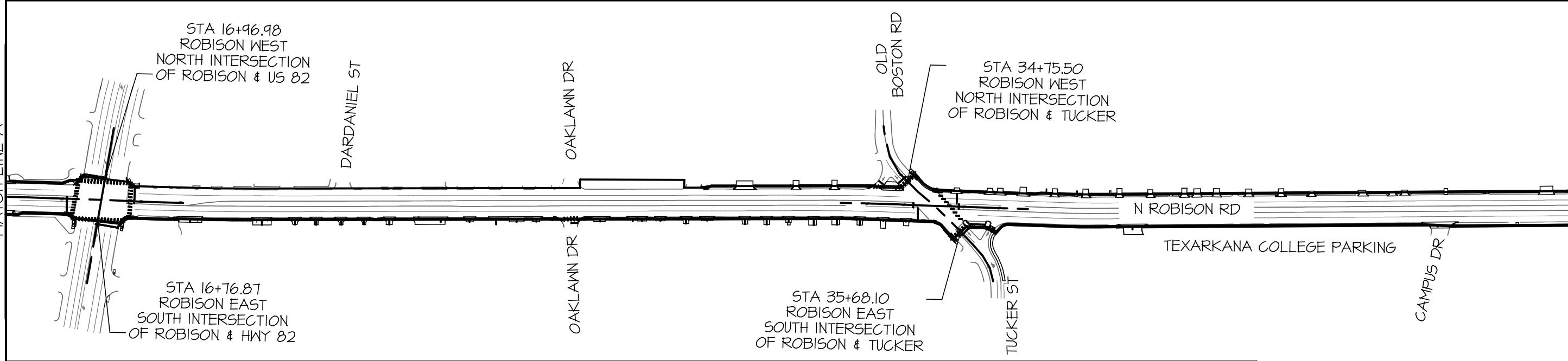
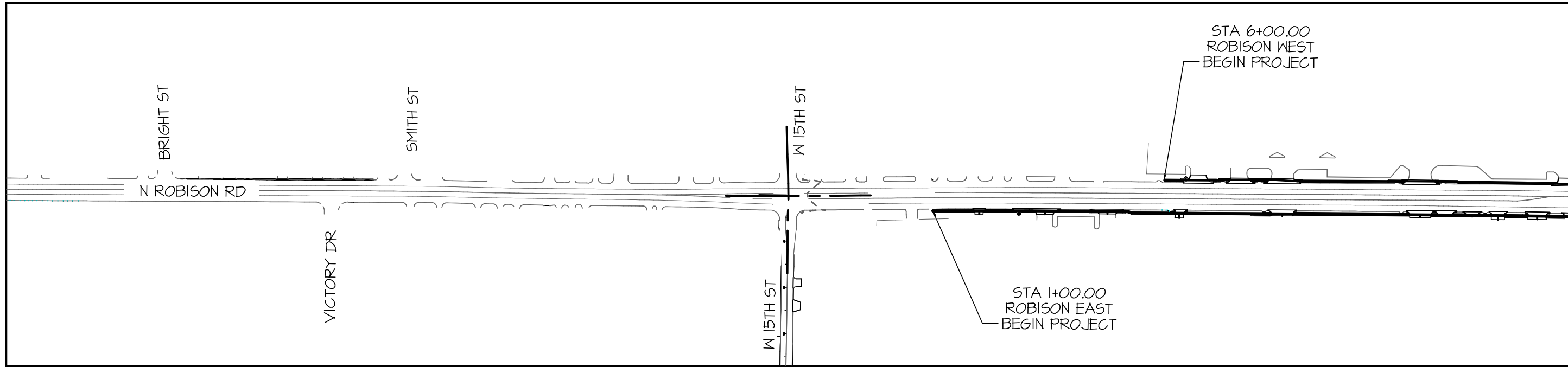
DISTRICT DIRECTOR OF TRANSPORTATION
PLANNING AND DEVELOPMENT

APPROVED FOR LETTING: 10/4/2024

DocuSigned by:
Robert L. White, P.E.
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DISTRICT ENGINEER

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_MC.pro
 FILE: Wed Oct 2, 2024 2:36PM



NO.	DATE	REVISION	APPROVED

10/2/2024

MTG ENGINEERS & SURVEYORS
5930 SUMMERHILL ROAD TEXARKANA, TX
 P 903.838.8533 www.mtgenr.com
 TBPE FIRM NO. F-354 AR COA NO. 125
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Texas Department of Transportation

ROBISON ROAD
 SIDEWALKS

PROJECT LAYOUT

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	3	

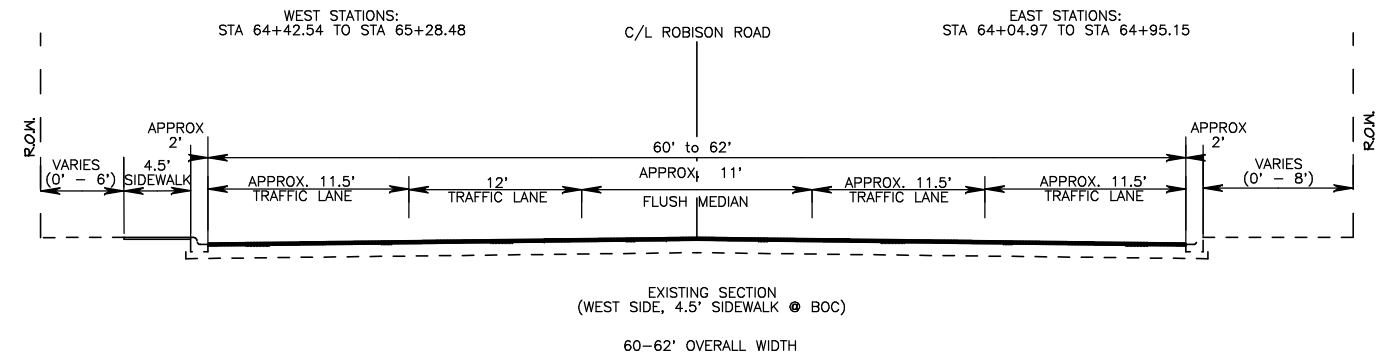
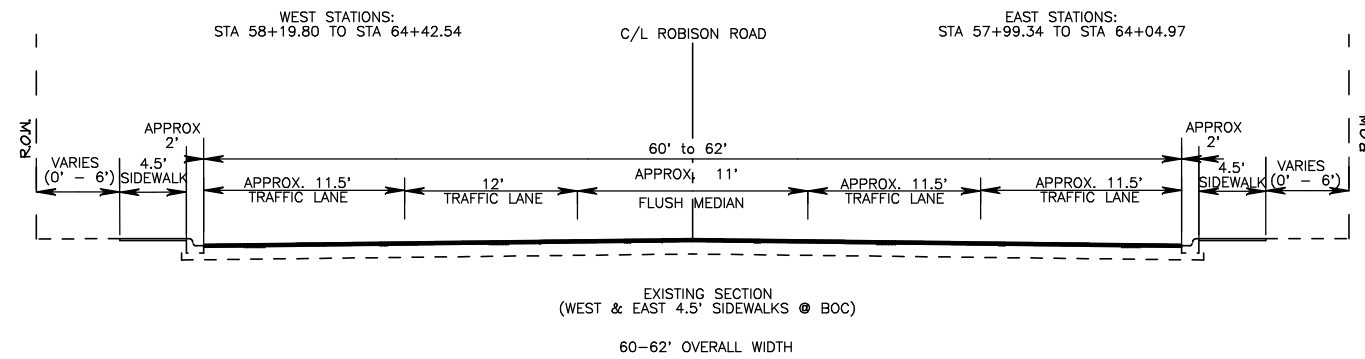
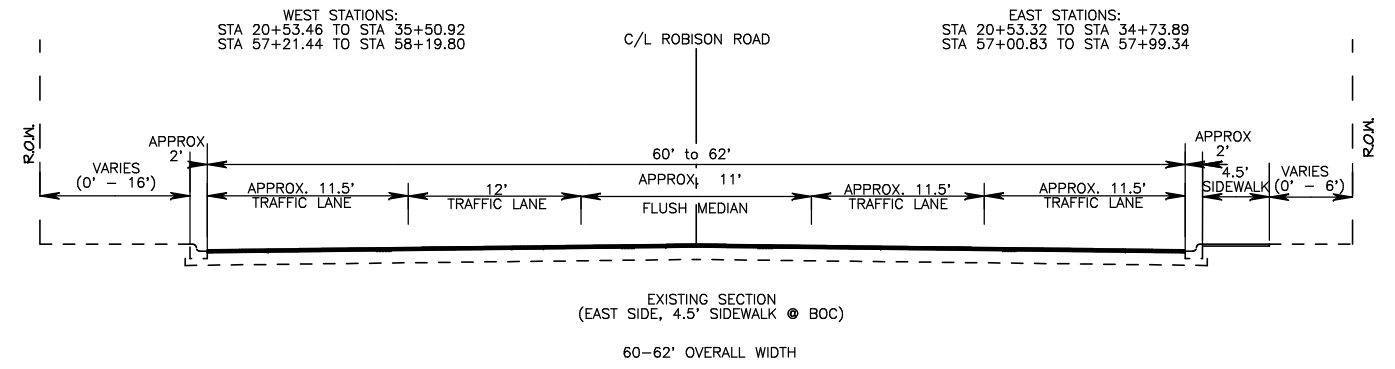
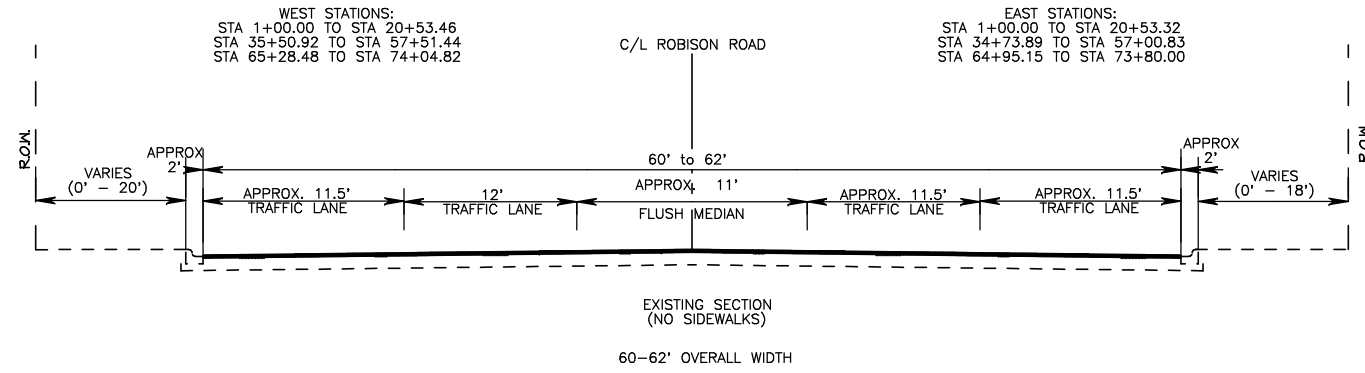
MATCH LINE A



MATCH LINE B

MATCH LINE A

MATCH LINE B

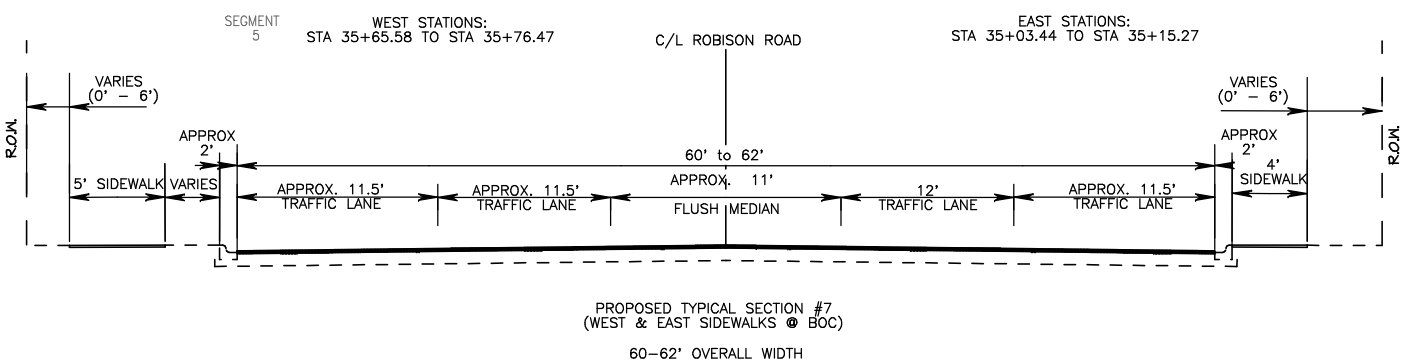
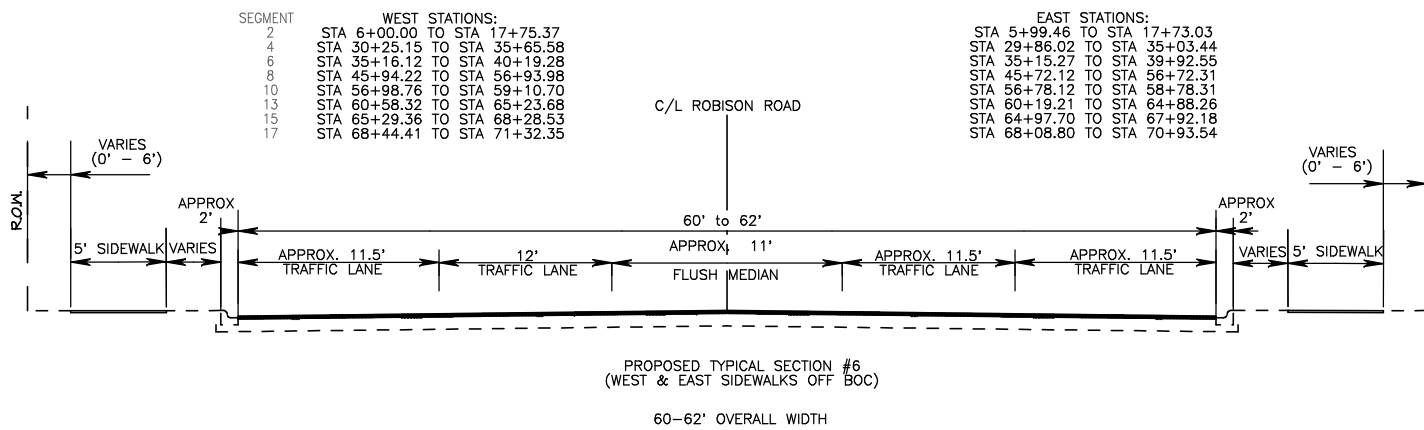
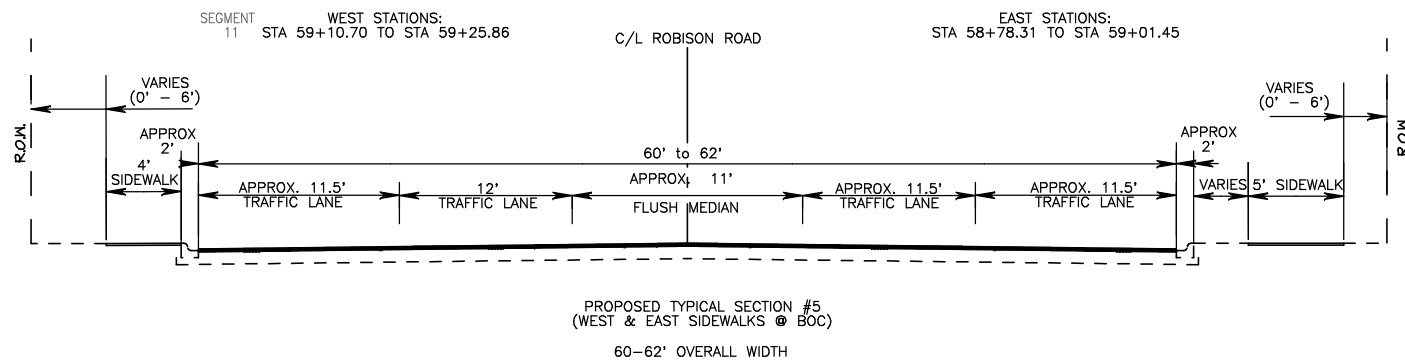
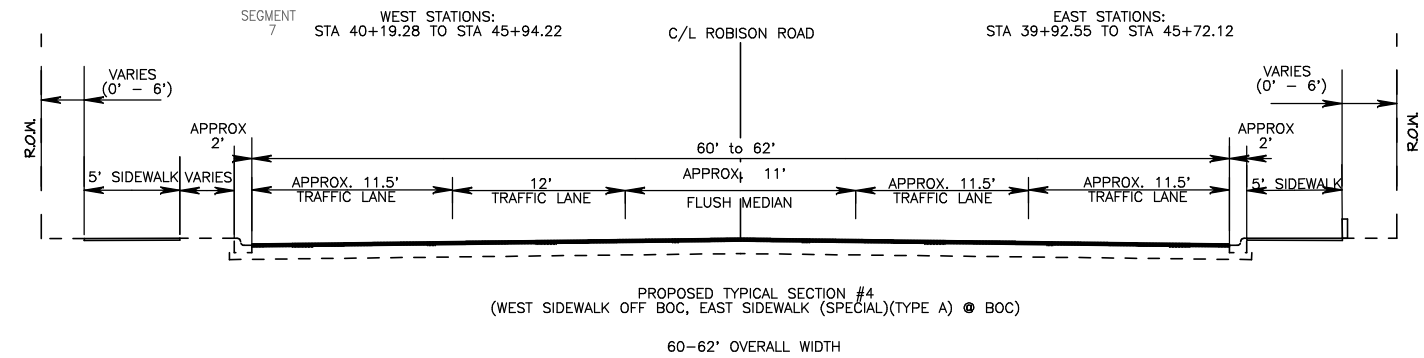
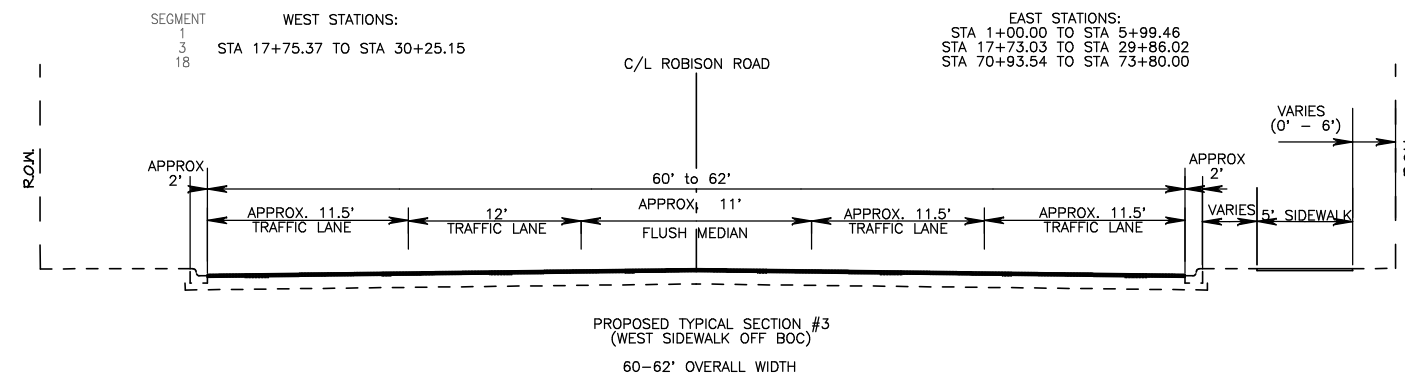
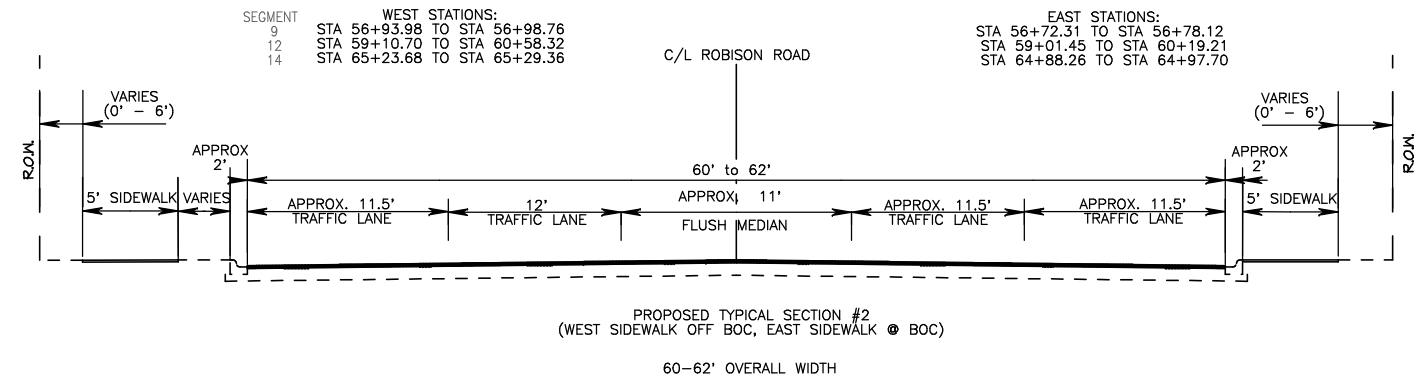
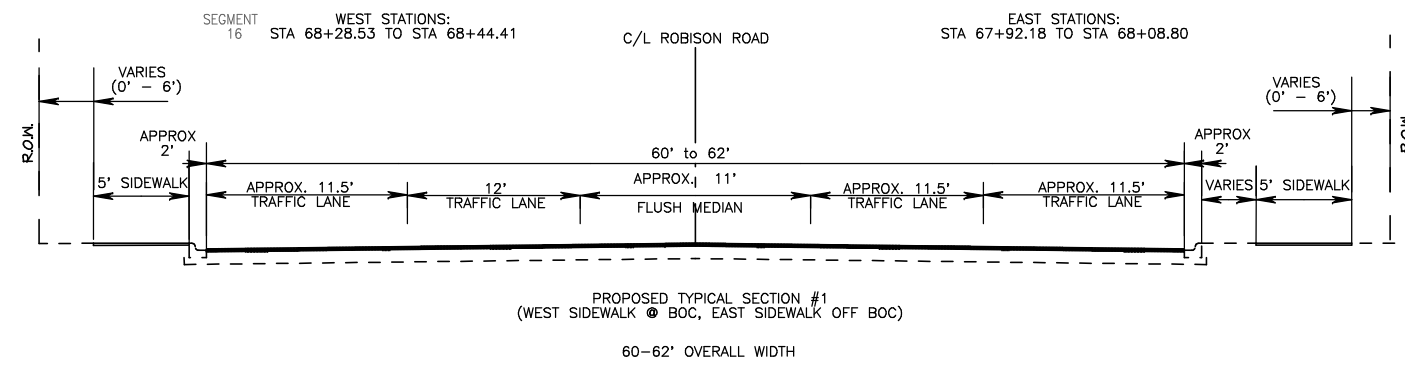
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NO.	DATE	REVISION	APPROVED
  EXISTING TYPICAL SECTIONS ROBISON ROAD			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	4	

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NO.	DATE	REVISION	APPROVED
PROPOSED TYPICAL SECTIONS ROBISON ROAD			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	5	

10/2/2024

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GENERAL NOTES:

General Requirements and Covenants:

Clean the existing curb and gutter, curb outlets and curb inlets in accordance with section 427.4.2.1.2 “blast cleaning” as part of the final clean up. Surfaces will exhibit a uniform appearance free from stains, marks, and all foreign matter. This work will be subsidiary to the pertinent bid items.

Relocate irrigation heads or cap irrigation lateral lines as directed. Irrigation heads and fixture relocations in conflict with the proposed improvements are not paid for separately but are subsidiary to various bid items.

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

Area Engineer		Assistant Area Engineer	
Tommy Bruce	Tommy.Bruce@txdot.gov	Dana Moore	Dana.Moore@txdot.gov

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

[https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors?%](https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors?%26)

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

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

All roadside signs, mailbox supports, delineators, and object markers located within the project limits shall be plumbed as part of the final cleanup. This work will not be paid for separately but will be considered subsidiary to the various bid items.

Each contract awarded by the Department stands on its own and as such, is separate from other contracts. A Contractor awarded multiple contracts must be capable and sufficiently staffed to concurrently process any or all contracts.

Notify the Engineer or his representative by 8:15 a.m. on any day when working in the District.

Clean up and remove all loose material resulting from contract operations each day before work is suspended for that day.

Repair all pavement damaged by the Contractor's forces during construction. Such repair is to be considered incidental to the various bid items in the project and must be approved by engineer.

References to manufacturer’s trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project and are approved by the Engineer.

All locations used for storing construction equipment, materials, and stockpiles of any type, within the right of way, will be as directed. Use of right of way for these purposes will be restricted to those locations where driver sight distance to businesses and side street intersections is not obstructed and at other locations where an unsightly appearance will not exist. The Contractor will not have exclusive use of right of way but will cooperate in the use of the right of way with city/county and various public utility companies as required.

If work is performed at Contractor’s option, when inclement weather is impending, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

ITEM 5 – Control of the Work:

Place construction points, stakes, and marks at intervals of no more than 100 ft., or as directed. Place stakes and marks so as not to interfere with normal maintenance operations. It is the Contractor’s responsibility to verify the accuracy of any department provided control points prior to use.

Contact all utility companies for the exact location of underground utilities before boring, trenching or any other work that might interfere with or damage existing utilities.

Repair any damage caused to utilities by Contractor operations at own expense and restore service in a timely manner.

Work on any project will not be accepted until all components have been shown to be fully operational.

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Sheet:

ITEM 6 - Control of Material:

The Buy America Material Classification Sheet is located at the below link.
<https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html> for clarification on material categorization.

When requesting payments for material on hand, contractor's material storage facility will be within the Atlanta District.

Pre-qualified products can be found at <http://www.txdot.gov/business/resources/producer-list.html>

ITEM 7 – Legal Relations and Responsibilities:

This project is considered a maintenance activity and is exempt from the Construction General Permit (CGP) coverage.

No significant traffic generator events.

ITEM 8 – Prosecution and Progress:

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

ITEM 100 – Preparing Right of Way:

Do not burn trash, debris, etc. within the City limits without prior written city approval.

ITEM 110 - Excavation:

Compact subgrade in earth cut sections, in accordance with section 132.3. 4.1 "Ordinary Compaction"

As cut slopes are constructed, round off the tops of back slopes to blend into the natural ground.

Excavation of existing stabilized materials will be measured and paid for as excavation (roadway).

Remove abandoned underground utility lines encountered. This work will be subsidiary to the pertinent bid items.

Flare ditches to prevent erosion of the toe of slope in areas of transition from cut to fill.

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Sheet: 6A

ITEM 162 – Sodding for Erosion Control:

Mow tall growing vegetation as directed, to provide optimum growing conditions for temporary or permanent seeded areas in accordance with Item 730 "Roadside Mowing" except for measurement and payment. This work will be subsidiary to pertinent bid items.

Repair mulch sod, damaged by causes other than the Contractor's operations, as directed using mulch sod, seeding, and fertilizer. This work will be measured and paid for in accordance with the applicable bid items of the contract.

ITEM 420 – Concrete Substructures:

Chamfer or tool exposed edges or joints of concrete as directed.

ITEM 432 - Riprap:

Provide ½" expansion joint material with an area equal to the area of contact between the two concrete surfaces. The joint material will be visually inspected for approval.

ITEM 502 – Barricades, Signs, and Traffic Handling:

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

Length of lane closures will be as directed based on the demonstrated ability to prosecute the work within the closed section.

Maintenance of driveways and intersections will not be paid for directly but is subsidiary to the pertinent bid items.

The Contractor's responsible person (CRP) will be responsible for ensuring that the signs and traffic control devices are in place and functioning properly.

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Sheet:

The CRP will inspect and ensure any deficiencies are corrected each and every day throughout the duration of this contract. Notify the Engineer in writing of the name, address, and telephone number of this employee or these employees.

Restrict the movement of equipment across traffic lanes to an absolute minimum.

Use strobe lights or rotating beacons on all motorized equipment, operating on or adjacent to the road surface.

Place and maintain U.S. mailboxes within project limits in such a manner as to ensure continuous mail service. See BC Standard for more information.

Provide flaggers at the ends of work areas and at all other points of conflict with roadway machinery and roadway traffic when and as directed.

In urban areas and high-speed areas the contractor will be required to set up full lane closures when working at intersections as directed by the Engineer.

Place construction fencing a minimum of 4 feet high around any open pits, bore pits, inlets, etc. that will remain open over night for pedestrian safety. Use appropriate post to install fencing around open pits, do not use equipment as part of post or fencing system. This will not be paid for directly but will be considered subsidiary to the pertinent bid items.

The Traffic Control Plan for this contract consists of the installation and maintenance of warning signs and or other traffic control devices shown in the plans, specification data which may be included in the general notes, applicable provisions of the Texas Manual on Uniform Traffic Control Devices (TMUTCD), traffic control plan sheets included in the plans, standard BC sheets and Item 502 of the standard specifications.

The traffic control plan sheets when shown in the plans for handling traffic through the work area. The signing arrangement and spacing shown may be varied as necessary to fit field conditions; however, any proposed changes in the traffic control plan must be approved by the Engineer prior to implementation.

Anytime equipment encroaches into a travel lane as shown on WZ BTS and TCP standards shown in this project, the Contractor will be required to have at least one shadow vehicle with a truck mounted attenuator as directed.

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All flaggers will be properly attired, orange or fluorescent type III vests and white hard hats are required. Proper flagging procedures must be demonstrated by all workers in accordance with the "Texas Manual on Uniform Traffic Control Device." A list of all qualified flaggers will be furnished by the Contractor before beginning work. This list will be updated as flaggers become qualified.

ITEM 503 – Portable Changeable Message Sign:

Portable Changeable Message signs will be used on this contract. The Portable Changeable Message Signs will be used in advance of signal work where changing conditions may warrant the use of message boards. They may also be required at other locations as directed by the Engineer. The Engineer will provide the Contractor with the location and the messages to be displayed for each specific event. The Engineer or his representative will inspect each location once the Contractor has placed the message boards to verify that the placement and message is correct. The Contractor will change the message board location and modify the message being displayed as directed before leaving the location to the satisfaction of the Engineer or his representative. The Portable Changeable Message Signs will be paid for by the day after installed and fully operational. All locations that the Contractor will be called upon to use the Portable Changeable Message Signs will be for a minimum of 10 days. The Engineer will notify the Contractor when the Portable Changeable Message Signs are needed, and the Contractor will have the Portable Changeable Message Signs on location and fully operational in 5 working days. In cases of emergency the Contractor will have the Portable Changeable Message Signs on location and fully operational in 3 working days. Refer to traffic control plan sheets for typical temporary portable changeable message sign layout.

ITEM 505–Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA):

The shadow vehicle with truck mounted attenuator (TMA) will not be optional but will be required as shown on the appropriate traffic control plan sheets.

A total of one (1) shadow vehicle with TMA will be required for work. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA's needed for the project.

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ITEM 506 – Temporary Erosion, Sedimentation, and Environmental

Controls:

Sprinkle water for dust control. Meet the requirements of Item 204, “Sprinkling” except for measurement and payment. Sprinkling will be considered subsidiary to this Item.

Provide and install additional erosion or water pollution control measures deemed necessary by the Engineer as prescribed by this item and in accordance with the appropriate specification. Payment for erosion control measures for which applicable pay items are not included in the Contract shall be made in accordance with Articles 4.4, “Changes in the Work” and 9.7, “Payment for Extra Work and Force Account Method”.

The project is exempt from the Texas Pollutant Discharge Elimination System (TPDES) General Permit (TXR15000). Exempt projects are those that disturb less than one acre or routine maintenance activities that maintain the original line and grade, hydraulic capacity, or original purposes of the site. No temporary erosion control measures or Storm Water Pollution Prevention Plan (SWP3) have been included in the plans.

ITEM 529 – Concrete Curb, Gutter, and Combined Curb and Gutter:

Use an approved curb template that will match the existing curb.

At the Contractor’s option, place the Type II curb and gutter monolithically.

Before placing machine laid curb, paint the surface with a coating of cement paste, having the consistency of a thick paint, or with another approved adhesive.

ITEM 530 – Intersections, Driveways, and Turnouts:

Unless otherwise shown in the plans, furnish W2.9 x W2.9 welded wire reinforcing in all concrete driveways.

Meet the requirements of Item 247, “Flexible Base” Type D, Grade 1-2 except for measurement and payment.

Control: 0919-19-085
County: Bowie
Highway: CS

Sheet: 6C

ITEM 531 – Sidewalks:

Unless otherwise directed, Construction of each curb ramp is to be completed within seven (7) working days after start of construction process. Construction process of curb ramps shall include: demolition of existing conditions, placement of concrete or brick, removal of lips, street surface patching in front of the curb or ramp, adjustment of counter slope within 24-inches of the bottom of the ramp or curb and gutter, street level landings, backfill, placement of topsoil, grading and sodding, and clean-up. All other related work such as adjustment of crosswalk, special heat-welds, asphalt overlays, and other work that does not affect accessibility shall be completed per a schedule pre-approved by TxDOT.

ITEM 618 – Conduit:

When the specifications for electrical items require UL listed products, it will be understood to mean UL listed or Any Nationally Recognized Testing Lab (NRTL).

Aluminum conduit is acceptable for this project where rigid metal conduit is used. Aluminum conduit specification will be submitted to the Engineer for approval. The aluminum conduit will be new and unused and UL-Listed. Notify the Engineer that aluminum conduit will be used on this project. Aluminum conduit will be installed, measured, and paid for under item 618.

Install a continuous bare or green insulated copper wire, No. 6 awg or larger, except where shown on the plans, in the conduit throughout the electrical system in accordance with the electrical detail sheets, and the latest edition of the National Electrical Code.

The locations of conduit as shown are for diagrammatic purposes only and may be varied to meet local conditions, subject to approval.

All conduit placed under existing pavement will be bored as directed. Cutting, trenching or jacking across roadways or driveways will not be permitted without approval.

Install a 3-inch warning tape on trenched conduit runs during backfill operations. The tape will be red polyethylene marked “CAUTION-BURIED ELECTRIC LINE”. Place the tape 12 inches above the conduit. Measurement and payment are subsidiary to Item 618, “Conduit”.

When backfilling bore pits, ensure the conduit does not become damaged. Place select backfill in three equal lifts to the bottom of the conduit or place sand to a point 2 inches above the conduit. Compact the backfill to obtain a density equal to the existing, adjacent soil. Prevent backfill material from entering the conduit.

Excavate bore pits no closer than 2 feet from the edge of pavement or base.

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Sheet:

The vertical and horizontal tolerances of bored conduits are not to exceed 18 inches as measured from the target point.

Ensure that all PVC conduit and fittings will be schedule 40.

Bell end fittings will be used at the ends of all non-metallic conduits. (e.g., metal junction box).

Where PVC, duct cable, and HDPE conduit 1" and larger is allowed and installed as per TxDOT standards, provide a PVC elbow in place of the galvanized rigid metal elbow required by the Electrical Detail Standards. Ensure the PVC elbow is of the same schedule rating as the conduit to which is connected. Ensure only a flat, high tensile strength polyester fiber pull tape is used for pulling conductor through the PVC conduit system.

ITEM 624 – Ground Boxes:

Locations of ground boxes are approximate. Final locations will be as approved.

Ground boxes will require an apron as directed by the Engineer as shown on standard ED (4).

When ground boxes are placed in existing concrete sidewalk, saw cut sidewalk, and repair any damage to the surrounding concrete. This work will not be paid for separately but considered subsidiary to this item.

ITEM 644 – Small Roadside Sign Assemblies:

Contractor will leave or maintain existing signs.

Existing sign assemblies will be removed after the relocated sign is installed.

For this project, the standard triangular slip base two bolt casting will be used. This casting must be furnished from an approved manufacturer.

Erect the proposed signs an appropriate distance from adjacent signs in accordance with the Texas MUTCD, as directed and as shown on the plans.

Verify the elevation difference between the edge of the travel lane and bottom of the sign.

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Sheet: 6D

Sign assemblies associated with warning signs or stop or yield signs will require Omni - Directional Post Wrap. Retroreflective sheeting wrapped around a warning sign is yellow. Stop or Yield signs will require red sheeting. Retroreflective sheeting wrapped around a sign has a height on the post of at least 12 inches. The bottom of the retroreflective sheeting will be placed two feet below the bottom of the sign. The Engineer will approve the retroreflective sheeting wrap prior to any installation. This work will not be paid for separately; but will be subsidiary to this Item.

ITEM 668 – Prefabricated Pavement Marking:

Prefabricated Pavement Markings will be placed at locations as directed.

ITEM 677 – Eliminating Existing Pavement Markings and Markers:

Furnish a high-pressure water blasting system for removing paint, thermoplastic, epoxy, and preformed tape materials from the following surfaces without causing any grooves or trenching of that surface, including asphalt, concrete, friction coarse asphalt, grooved asphalt, and grooved concrete.

Use a high-pressure water blasting system that consist of a vacuum recovery system that must provide for a nearly dry surface eliminating the possibility of uncontained run-off blasting water and debris.

All components required for the complete operation of the water blasting system – Ultra High Pressure (UHP) pump, vacuum system, clean water supply, vacuum recovery storage, blasting components will be mounted and transported on a single, fully self-contained and supporting truck chassis, thereby eliminating the need for any additional water, vacuum, or other transport vehicles.

ITEM 682 - Vehicle and Pedestrian Signal Heads:

Furnish signal head components constructed from plastic.

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County: Bowie
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Sheet: 6E


ITEM 688 – Pedestrian Detectors and Vehicle Loop Detectors:

Provide pedestrian push button detectors that meet latest TXDOT guidance for audible pedestrian signals. Audible push buttons shall also meet TAS, MUTCD, and ADA guidelines and standards. Also provide appropriate sign for to ensure pedestrians understand the geometry of the crossing and the status of the walk display, including the countdown module. At intersections where a minimum of 10 ft. spacing between adjacent audible pedestrian signal units is not possible, each audible pedestrian pushbutton must be provided with the following features: A pushbutton locator tone, a tactile arrow, a speech walk message for the walking person indication, and a speech pushbutton information message.” These items will be considered subsidiary to Item 688.

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_GN.pro
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ROBISON RD DEMO QUANTITIES												
SHEET NO.	0104-7013	0104-7011	0104-7041	0104-7008	0104-7015	0100-7012	0104-7025	0104-7017	0677-7002	0677-7004	0677-7008	0100-7004
	REMOVING CONC (SIDEWALK, RAMP OR SUP)	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (FLUMES)	REMOVING CONC (MEDIAN)	REMOVING CONC (CURB RAMPS)	PREP ROW (HAND CLEARING)	REMOVING RETAINING WALL	REMOVING CONC (CURB & GUTTER)	ELIM EXT PM & MRKS (6")	ELIM EXT PM & MRKS (8")	ELIM EXT PM & MRKS (24")	PREP ROW (TREE REMOVE) (12"-24" DIA)
	SY	SY	SY	SY	SY	STA	LF	LF	LF	LF	LF	EA
42	0	356	7	0	0	0	0	34	0	0	0	0
43	0	635	0	0	0	0	0	353	53	18	41	3
44	93	361	0	15	6	1	0	122	50	34	140	0
45	215	515	0	0	0	0	0	120.5	0	0	0	0
46	130	160	0	0	0	0.5	0	202.5	121	32	133	1
47	16	432	3	0	0	7	0	10	0	0	0	0
48	15	215	0	0	0	0	0	115	0	0	0	1
49	110	104	0	0	0	0	0	80.5	0	0	0	0
50	327	616	0	0	0	0	23	136.5	0	0	0	1
51	0	302	0	0	0	0	0	54	0	0	0	0
TOTALS	906	3696	10	15	6	8.5	23	1228	224	84	314	6


NO.		DATE		REVISION		APPROVED
						SUMMARY OF QUANTITIES
CONT	SECT	JOB	HIGHWAY			
0919	19	085	CS			
DIST		COUNTY	SHEET NO.			
ATL		BOWIE	7			


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SUMMARY OF ROADWAY ITEMS																		WEST ROBISON RD																	
Sheet No.	0162-7002	0168-7001	0420-7006	0529-7009	0530-7008	0530-7009	0531-7001	0529-7016	0531-7005	0531-7006	0531-7008	0531-7010	0531-7011	0479-7007	0479-7002	0644-7067	0560-7004	0450-7058																	
	BLOCK SODDING	VEGETATIVE WATERING (12 TGL / AC / 4 CYCLES)	CL A CONC (FLUME)	CONC CURB & GUTTER (TY II)	DRIVEWAYS (CONC) (TY 1=4")	DRIVEWAYS (CONC) (TY 2=6")	CONC SIDEWALKS (4")	CONC CURB (TY C1) (Avg Hght=18")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 5)	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)	ADJUSTING MANHOLES (WATER VALVE BOX)	ADJUSTING INLETS	RELOCATE SM RD SN SUP&AM TY S80	MAILBOX INSTALL-S (WC-POST) TY 3	RAIL (HANDRAIL) (TY A)																	
	SY	TGL	SY	LF	SY	SY	SY	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA																
52	55	1	3	-	-	158	45	-	-	-	-	-	-	-	1	-	-	-																	
53	134	2	-	-	-	98	148	-	-	-	-	-	-	-	2	-	-	-																	
54	77	1	-	-	-	117	141	-	-	-	-	-	-	-	1	-	-	-																	
55	99	1	-	-	-	25	66	-	-	-	2	-	-	-	-	-	-	-																	
56	100	1	-	-	-	80	77	-	-	-	-	-	-	-	-	-	-	-																	
57	173	2	-	-	32	30	109	-	2	1	-	1	-	1	-	4	-	-																	
58	236	3	-	-	56	120	114	-	-	1	-	-	-	-	1	1	2	-																	
59	284	4	-	-	168	-	142	-	-	-	-	-	-	-	2	-	4	-																	
60	154	2	-	-	93	22	164	-	-	-	-	-	-	-	-	1	5	-																	
61	189	2	-	-	-	63	179	-	-	-	-	-	-	-	1	-	-	-																	
62	197	3	-	-	-	112	162	-	-	-	-	-	-	3	2	3	-	47																	
63	166	2	-	-	-	-	137	-	-	-	2	-	-	-	1	-	-	-																	
64	205	3	-	-	33	54	142	-	2	-	-	-	-	-	1	2	-	-																	
65	165	2	-	-	142	-	125	-	-	-	-	-	1	-	-	1	-	-																	
66	162	2	-	-	114	-	142	-	-	-	-	1	1	1	1	-	-	-																	
67	158	2	-	-	44	-	124	-	2	-	-	1	-	-	-	1	-	-																	
68	58	1	-	-	42	-	48	-	-	-	-	1	-	-	-	-	-	-																	
SUB-TOTALS	2612	33	3	0	724	879	2065	0	6	2	4	4	2	5	13	13	11	47																	


NO.	DATE	REVISION	APPROVED
		 Texas Department of Transportation	
SUMMARY OF QUANTITIES			
SHEET 2 OF 4			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST		COUNTY	SHEET NO.
ATL		BOWIE	7A



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SUMMARY OF ROADWAY ITEMS																			EAST ROBISON RD																		
Sheet No.	0162-7002	0168-7001	0420-7006	0529-7009	0530-7008	0530-7009	0531-7001	0529-7016	0531-7005	0531-7006	0531-7008	0531-7010	0531-7011	0479-7007	0479-7002	0644-7067	0560-7004	0450-7058																			
	BLOCK SODDING	VEGETATIVE WATERING (12 TGL / AC / 4 CYCLES)	CL A CONC (FLUME)	CONC CURB & GUTTER (TY II)	DRIVEWAYS (CONC) (TY 1=4")	DRIVEWAYS (CONC) (TY 2=6")	CONC SIDEWALKS (4")	CONC CURB (TY C1) (Avg Hght=18")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 5)	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)	ADJUSTING MANHOLES (WATER VALVE BOX)	ADJUSTING INLETS	RELOCATE SM RD SN SUP&AM TY S80	MAILBOX INSTALL-S (WC-POST) TY 3	RAIL (HANDRAIL) (TY A)																			
	SY	TGL	CY	LF	SY	SY	SY	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF																		
70	192	2	-	-	63	75	98	-	-	-	-	-	-	-	-	2	2	-																			
71	168	2	-	-	-	112	146	-	-	-	-	-	-	-	1	-	-	-																			
72	161	2	-	206	-	76	177	-	-	-	-	-	-	1	1	1	-	-																			
73	136	1	-	192	-	306	101	-	-	-	-	-	-	-	2	1	-	-																			
74	217	2	-	37	-	34	105	-	-	-	2	-	-	-	1	-	-	-																			
75	123	1	-	-	-	177	123	-	-	-	-	-	-	-	1	1	-	-																			
76	143	1	-	-	237	1	101	-	-	-	-	-	-	2	1	-	-	-																			
77	79	1	-	-	140	71	42	-	-	-	-	-	2	1	-	-	-	-																			
78	82	1	-	-	188	-	103	-	-	-	-	-	-	-	-	-	-	-																			
79	93	1	-	-	206	-	116	-	-	-	-	-	-	1	2	-	-	-																			
80	195	2	-	-	-	-	202	-	2	1	-	-	-	-	-	3	-	-																			
81	144	1	-	-	-	70	46	122	-	-	-	-	-	-	2	3	-	-																			
82	159	2	-	-	-	-	-	208	-	-	-	-	-	-	1	-	-	-																			
83	149	1	-	-	-	91	129	29	-	-	-	-	-	-	1	2	-	-																			
84	177	2	-	-	-	53	173	-	-	-	-	-	-	-	1	2	-	47																			
85	151	1	-	-	-	-	134	-	-	-	2	-	-	-	2	1	-	-																			
86	194	2	-	-	38	-	126	12	-	-	-	2	2	-	-	2	-	-																			
87	154	2	-	-	224	-	94	21	-	-	-	-	-	-	-	1	-	-																			
88	157	2	-	-	177	-	119	-	-	-	-	-	-	-	-	-	-	-																			
89	154	2	-	-	238	-	94	-	-	-	-	-	-	-	-	1	-	-																			
90	158	2	-	-	77	65	133	-	-	-	-	-	-	-	-	1	-	-																			
91	93	1	-	-	-	-	47	-	-	-	-	-	-	-	-	0	-	-																			
SUB-TOTALS	3279	33	0	435	1588	1131	2409	392	2	1	4	2	4	5	16	21	2	47																			


NO.	DATE	REVISION	APPROVED
			<p>SUMMARY OF QUANTITIES</p> <p>SHEET 3 OF 4</p>
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	7B	

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ROBISON RD INTERSECTION QUANTITIES											
Sheet No.	Intersection	684-7010	0618-7054	0618-7055	0624-7007	0682-7018	0688-7001	0690-7087	0666-7352	0668-7089	0668-7110
		TRF SIG CBL (TY A) (12 AWG) (5 CONDR)	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	GRD BOX TYP A (162922)	PED SIG SEC (LED) (CNTDWN)	PED DETECT PUSH BUTTON (APS)	IN STL PED POLE ASSM	PAVEMENT SEALER (24")	PREFAB PAV MRK TY C (W) (24") (SLD)	PREFAB PAV MRK TY C (W) (18") (YLD TRI)
		LF	LF	LF	EA	EA	EA	EA	LF	LF	EA
68	N Robison Rd. & Stillwell Dr.	-	-	-	-	-	-	-	55	55	-
69	N Robison Rd. & Sunset Rd	-	-	-	-	-	-	-	55	55	-
71	N Robison Rd. & Oakhill Rd.	-	-	-	-	-	-	-	35	35	-
71	N Robison Rd. & Wildwood Dr.	-	-	-	-	-	-	-	53	53	-
81	N Robison Rd. & Oaklawn Dr.	-	-	-	-	-	-	-	56	56	-
90	N Robison Rd. & Stillwell Dr.	-	-	-	-	-	-	-	57	57	-
93	N Robison Rd. & US HWY 82	2976	140	299	5	8	8	4	553	553	-
95	N Robison Rd. & Tucker St.	2244	204	220	5	8	6	4	348	348	13
97	N Robison Rd. & College Dr.	2948	118	213	4	8	8	4	364	364	-
Totals		8168	462	732	14	24	22	12	1576	1576	13

NO.	DATE	REVISION	APPROVED
			
SUMMARY OF QUANTITIES SHEET 4 OF 4			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST		COUNTY	SHEET NO.
ATL		BOWIE	7C



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Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0919-19-085

DISTRICT Atlanta
HIGHWAY ROBISON RD N

COUNTY Bowie

CONTROL SECTION JOB				0919-19-085		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00179427			
COUNTY				Bowie			
HIGHWAY				ROBISON RD N			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	100-7004	PREP ROW (TREE REMOVE) (12"-24" DIA)	EA	6.000		6.000	
	100-7012	PREP ROW (HAND CLEARING)	STA	6.000		6.000	
	104-7008	REMOV CONC (MEDIANS)	SY	15.000		15.000	
	104-7011	REMOV CONC (DRIVEWAYS)	SY	3,696.000		3,696.000	
	104-7013	REMOV CONC (SIDEWALK, RAMP OR SUP)	SY	906.000		906.000	
	104-7015	REMOV CONC (CURB RAMP)	SY	6.000		6.000	
	104-7017	REMOV CONC (CURB & GUTTER)	LF	1,228.000		1,228.000	
	104-7025	REMOV CONC (RETAINING WALLS)	SY	23.000		23.000	
	104-7041	REMOV CONC (FLUME)	SY	10.000		10.000	
	162-7002	BLOCK SODDING	SY	5,891.000		5,891.000	
	168-7001	VEGETATIVE WATERING	TGL	66.000		66.000	
	420-7006	CL A CONC (FLUME)	CY	3.000		3.000	
	450-7058	RAIL (HANDRAIL)(TY A)	LF	94.000		94.000	
	479-7002	ADJUSTING INLETS	EA	29.000		29.000	
	479-7007	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	10.000		10.000	
	500-7001	MOBILIZATION	LS	1.000		1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	14.000		14.000	
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	167.000		167.000	
	505-7001	TMA (STATIONARY)	DAY	167.000		167.000	
	529-7009	CONC CURB & GUTTER (TY II)	LF	435.000		435.000	
	529-7016	CONC CURB (TY C1)	LF	392.000		392.000	
	530-7008	DRIVEWAYS (CONC) (TY 1)	SY	2,312.000		2,312.000	
	530-7009	DRIVEWAYS (CONC) (TY 2)	SY	2,010.000		2,010.000	
	531-7001	CONC SIDEWALKS (4")	SY	4,474.000		4,474.000	
	531-7005	CURB RAMPS (TY 1)	EA	8.000		8.000	
	531-7006	CURB RAMPS (TY 2)	EA	3.000		3.000	
	531-7008	CURB RAMPS (TY 5)	EA	8.000		8.000	
	531-7010	CURB RAMPS (TY 7)	EA	6.000		6.000	
	531-7011	CURB RAMPS (TY 10)	EA	6.000		6.000	
	536-7002	CONC MEDIAN	SY	9.000		9.000	
	560-7004	MAILBOX INSTALL-S (WC-POST) TY 3	EA	13.000		13.000	
	618-7054	CONDT (PVC) (SCH 80) (2")	LF	462.000		462.000	
	618-7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	732.000		732.000	
	624-7007	GROUND BOX TY D (162922)	EA	14.000		14.000	
	644-7067	RELOCATE SM RD SN SUP&AM TY S80	EA	34.000		34.000	
	666-7352	PAVEMENT SLER 24"	LF	1,576.000		1,576.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF	1,576.000		1,576.000	



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0919-19-085

DISTRICT Atlanta
HIGHWAY ROBISON RD N

COUNTY Bowie

CONTROL SECTION JOB				0919-19-085		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00179427			
COUNTY				Bowie			
HIGHWAY				ROBISON RD N			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	668-7110	PREFAB PM TY C (W)(18")(YLD TRI)	EA	13.000		13.000	
	677-7002	ELIM EXT PM & MRKS (6")	LF	224.000		224.000	
	677-7004	ELIM EXT PM & MRKS (8")	LF	84.000		84.000	
	677-7008	ELIM EXT PM & MRKS (24")	LF	314.000		314.000	
	682-7018	PED SIG SEC (LED)(COUNTDOWN)	EA	24.000		24.000	
	684-7010	TRF SIG CBL (TY A)(12 AWG)(5 CONDR)	LF	8,168.000		8,168.000	
	688-7001	PED DETECT PUSH BUTTON (APS)	EA	22.000		22.000	
	690-7087	INSTL PED POLE ASSM	EA	12.000		12.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:


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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

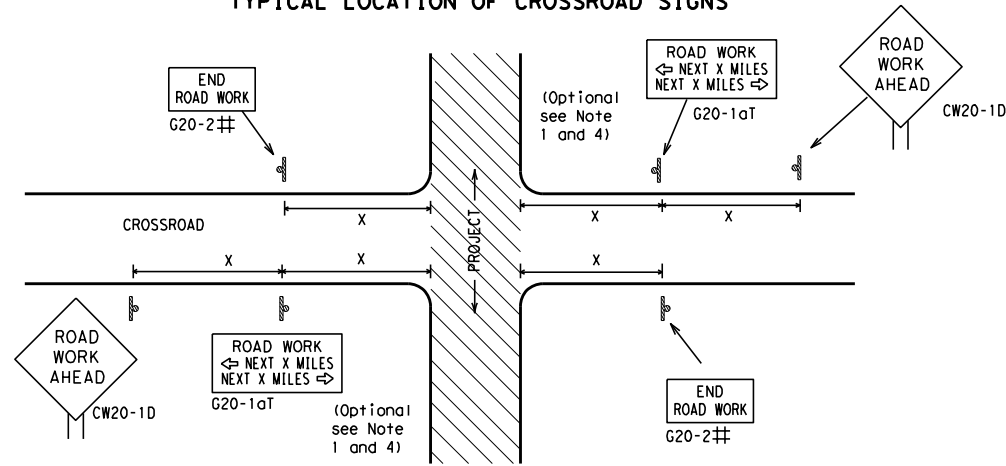
<p>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov</p>
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)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

SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
<p>BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS</p> <p>BC (1) - 21</p>			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CK:	TxDOT
		DW:	TxDOT
		CK:	TxDOT
REVISIONS		CONT	SECT
4-03	7-13	0919	19
9-07	8-14		
5-10	5-21		
		DIST	COUNTY
		ATL	BOWIE
			SHEET NO.
			9

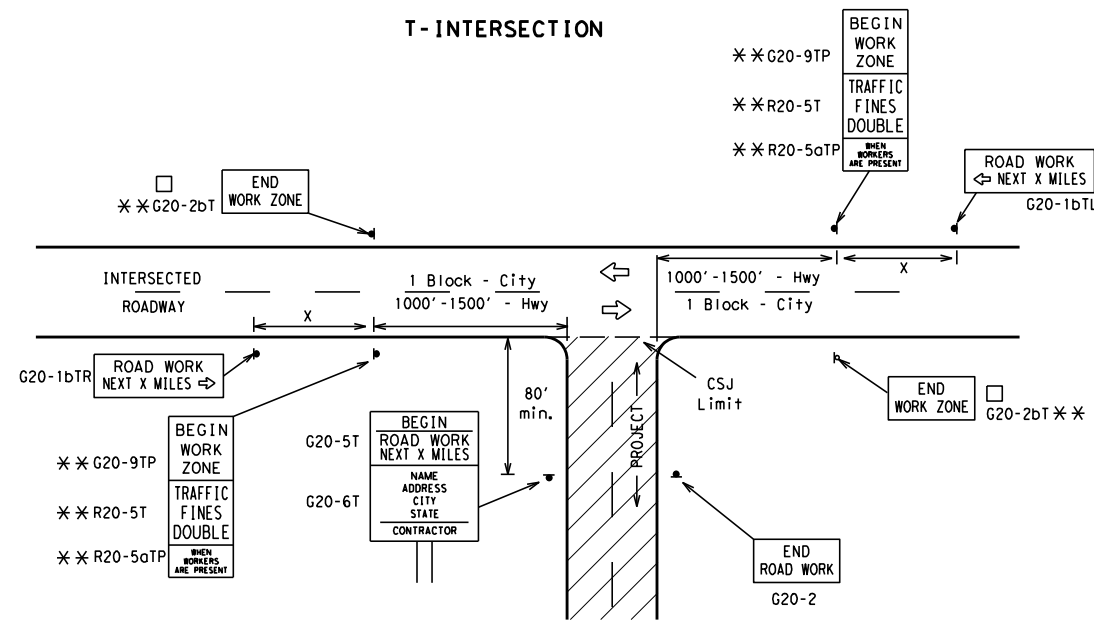
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ## May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- 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.
 - 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.
 - 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.
 - 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.
 - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
 - 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

- 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.
- 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}

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Δ Spacing "x" Feet (Apprx.)
CW20 ⁴	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW25			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 ²
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 ²
			65	700 ²
			70	800 ²
			80	1000 ²
*			*	* ³

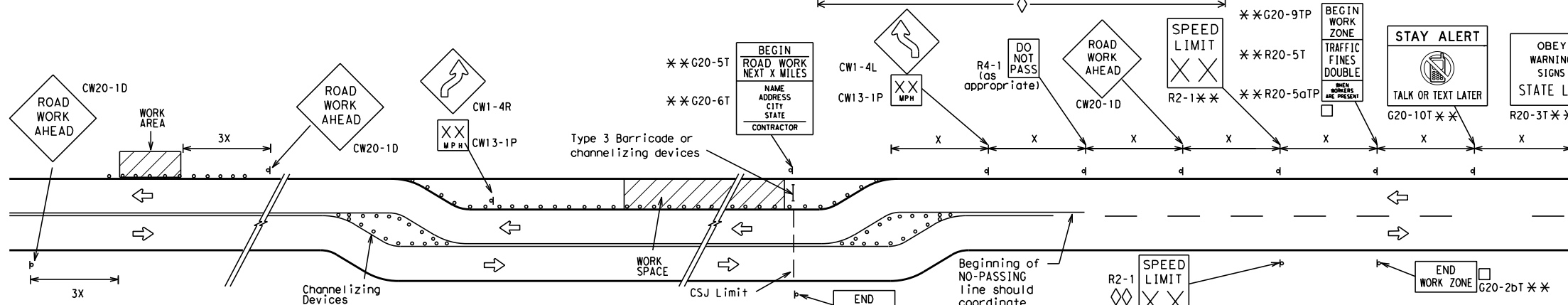
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

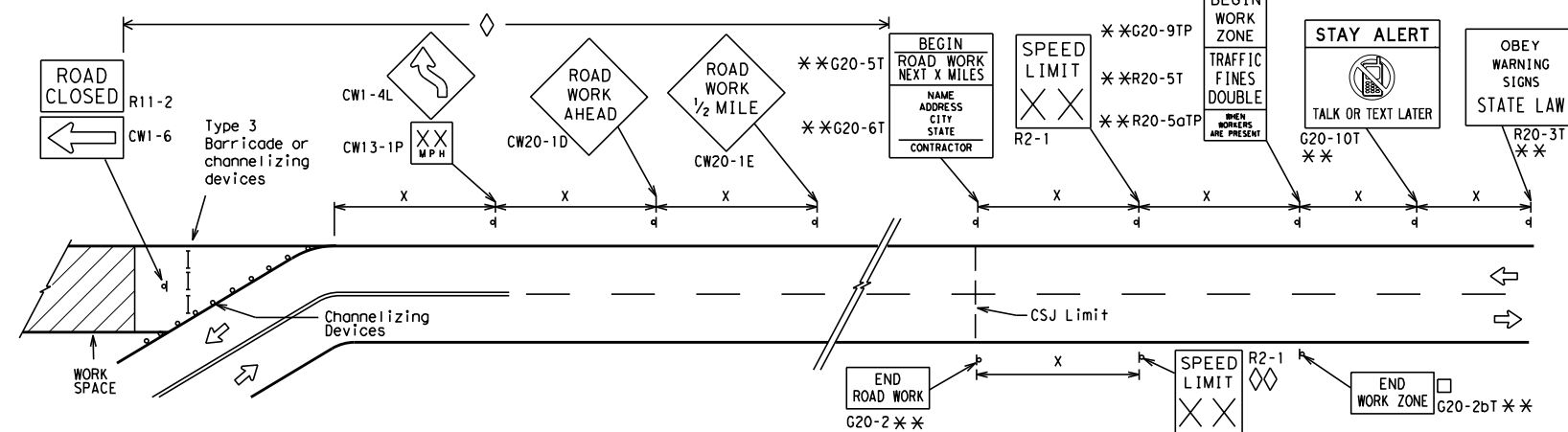
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be 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".
- Only diamond shaped warning sign sizes are indicated.
- 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

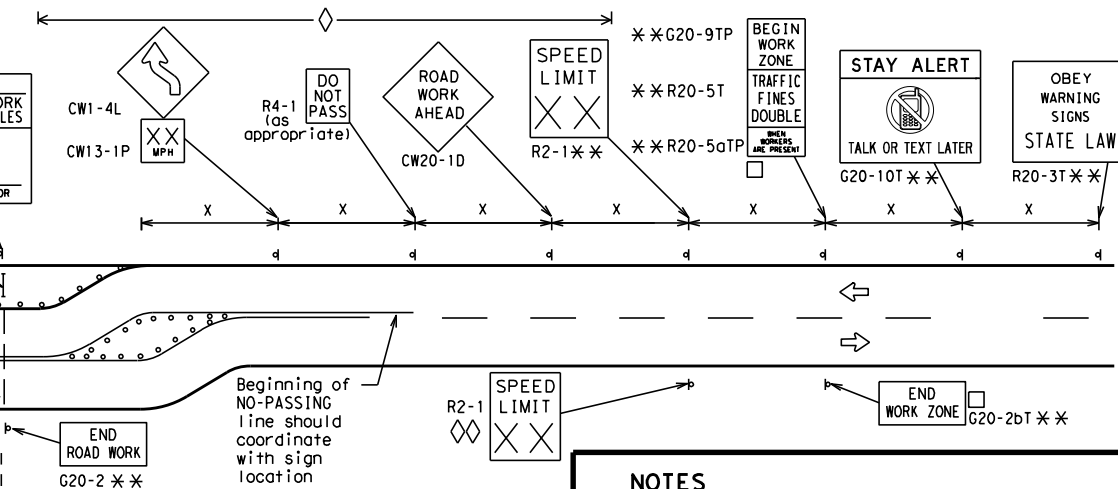


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

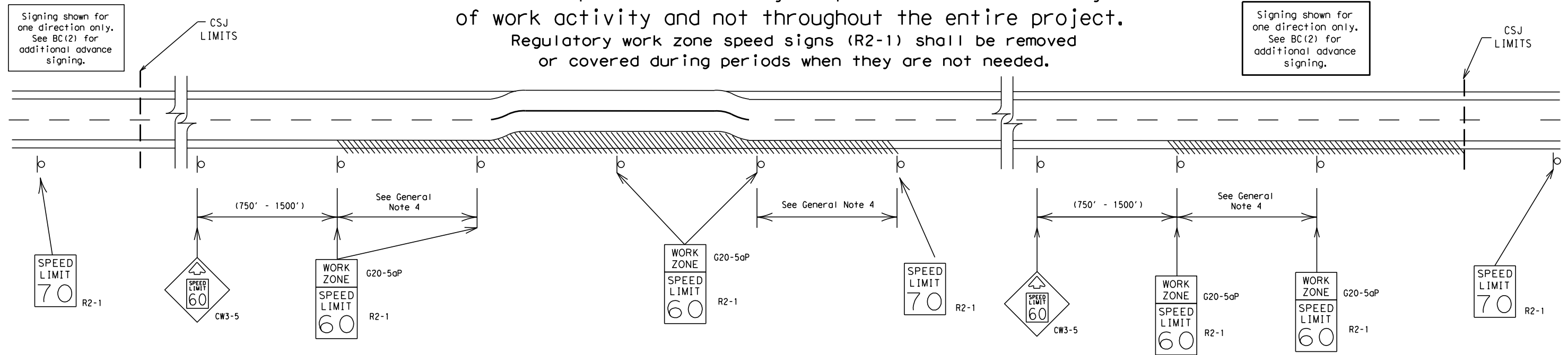
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- 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

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- 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
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- 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.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
 - Law enforcement.
 - Flagger stationed next to sign.
 - Portable changeable message sign (PCMS).
 - Low-power (drone) radar transmitter.
 - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- 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.

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SHEET 3 OF 12



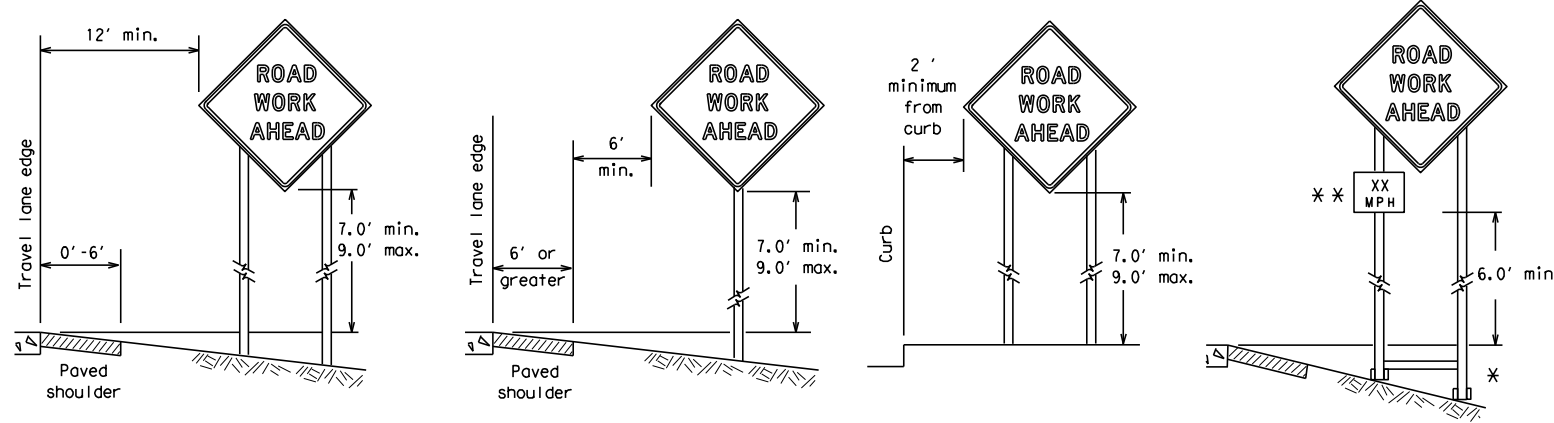
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC (3) - 21

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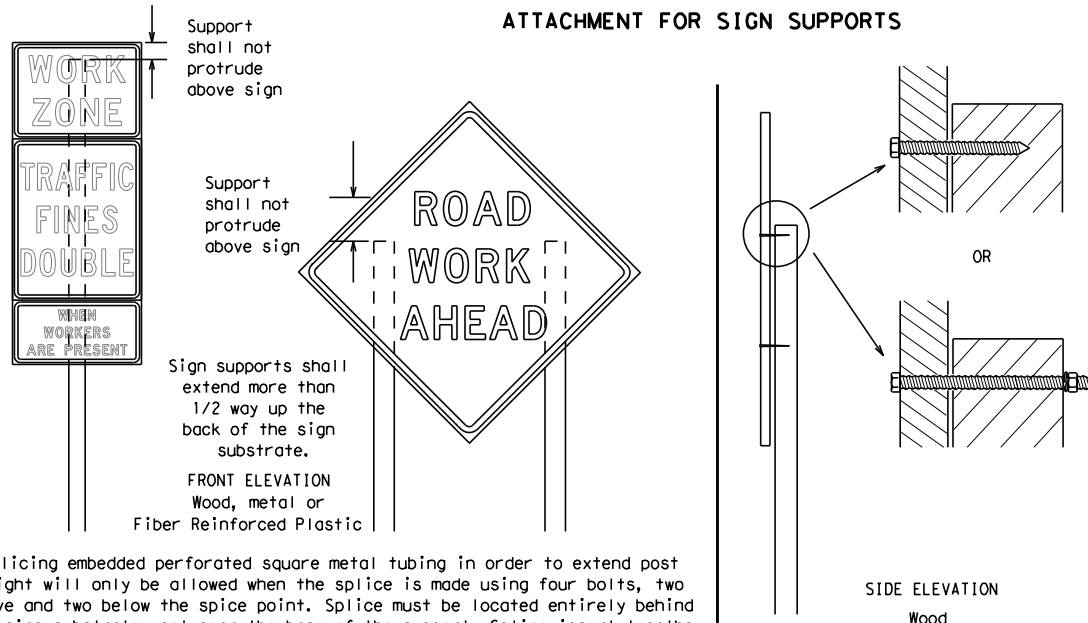
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



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

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

ATTACHMENT FOR SIGN SUPPORTS



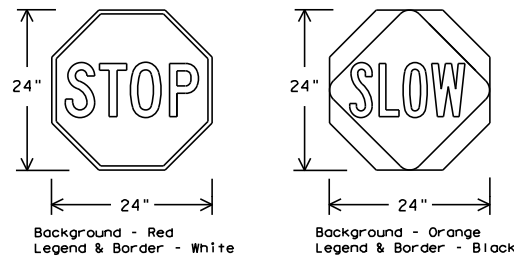
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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 splice 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 retroreflective 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.

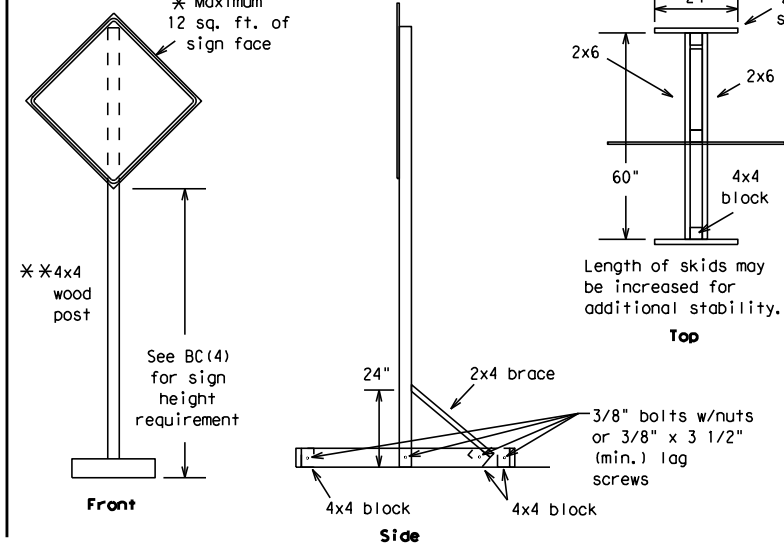
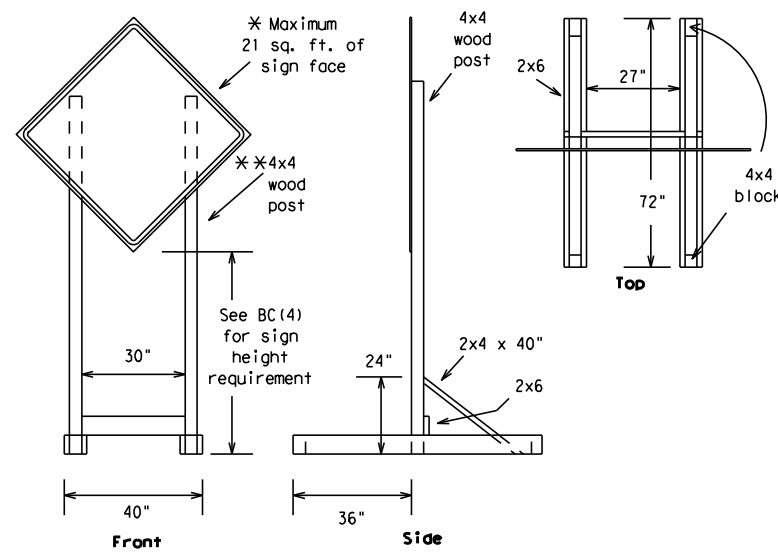


BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) -21

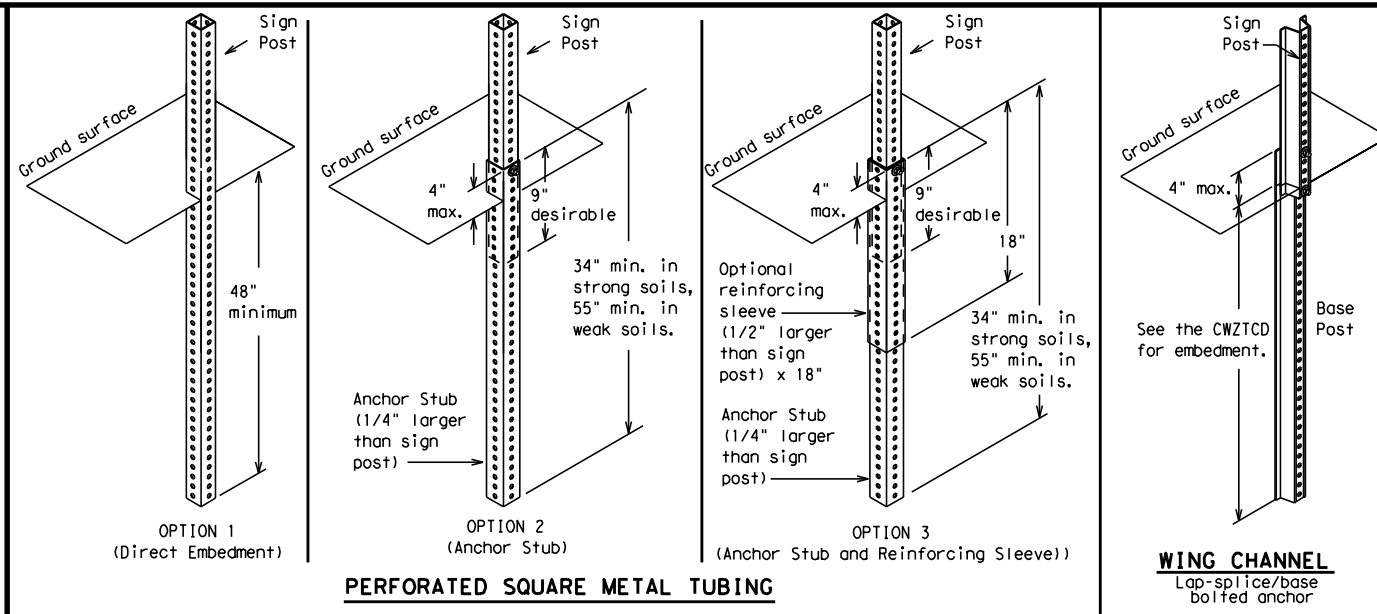
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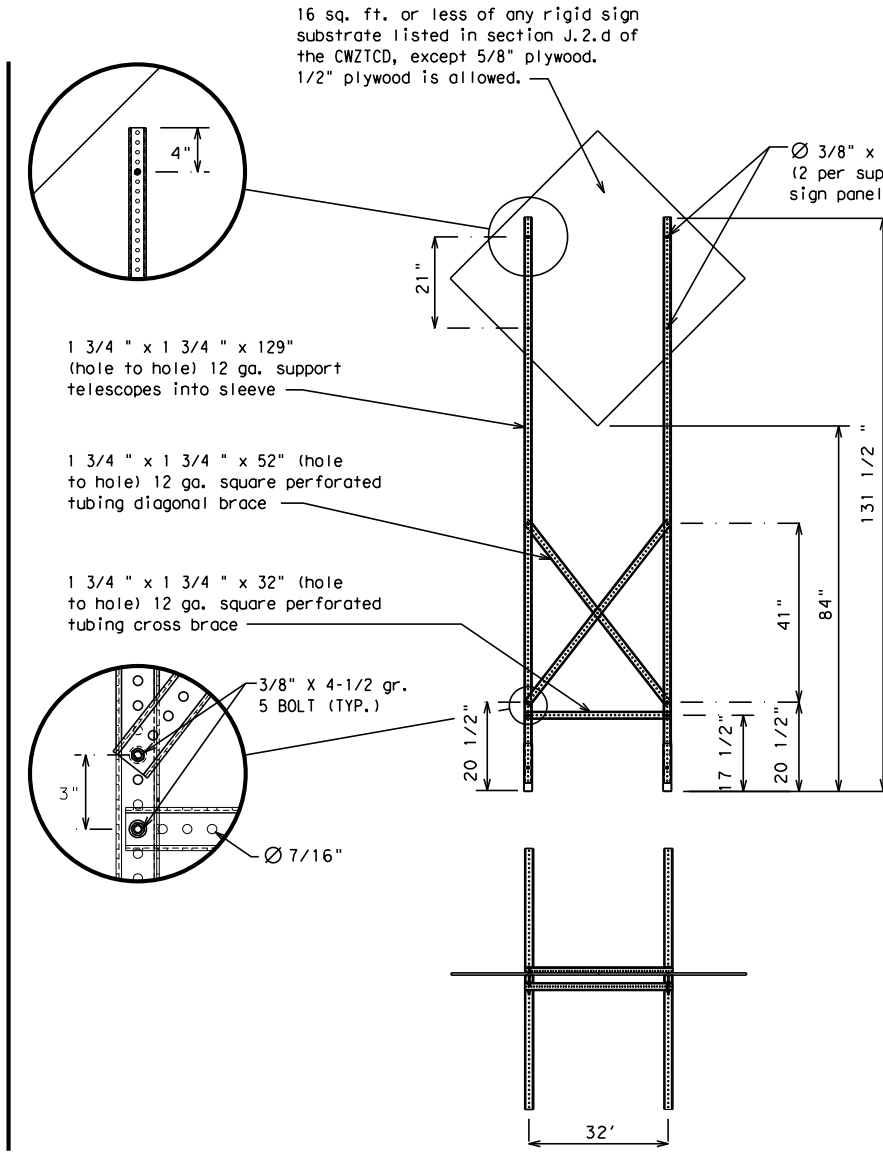
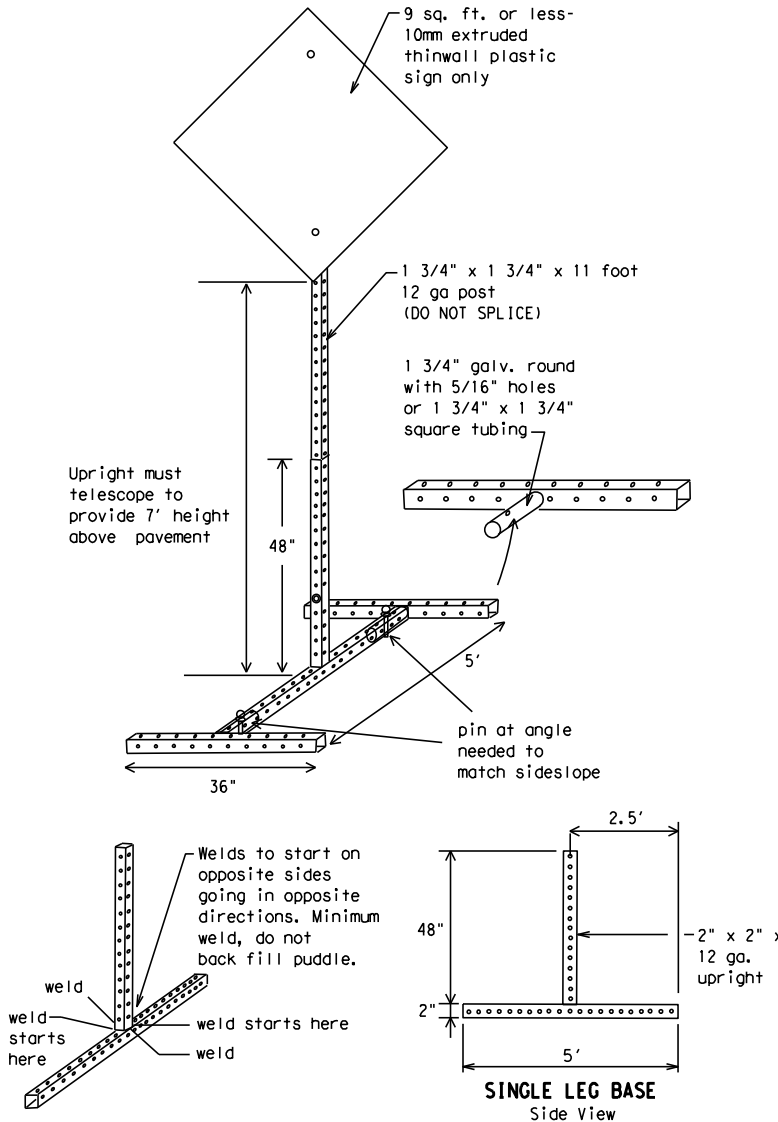
SKID MOUNTED WOOD SIGN SUPPORTS

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



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

- 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.
- No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
- When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

- * See BC(4) for definition of "Work Duration."
- ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
- See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- 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.
- 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.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- 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.
- 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.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- 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.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- 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.
- 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.
- Each line of text should be centered on the message board rather than left or right justified.
- 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.

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
XXXXXXXXX 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
XXXXXXXXX TO XXXXXXXX
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

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- 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.
- 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

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- 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

- 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.
- 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.
- 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.
- 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.

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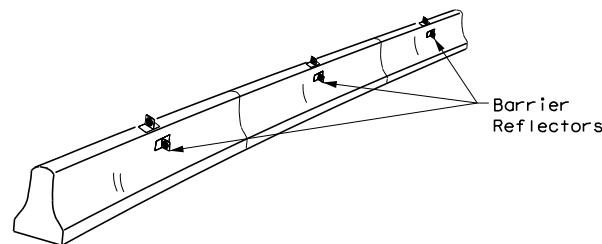
WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Canal	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking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

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

<h3>BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</h3>			
<h2>BC (6) - 21</h2>			
FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	DW: TxDOT
© TxDOT November 2002	CONT	SECT	JOB
REVISIONS	0919	19	085
9-07	8-14	DIST	COUNTY
7-13	5-21	ATL	BOWIE
			SHEET NO. 14

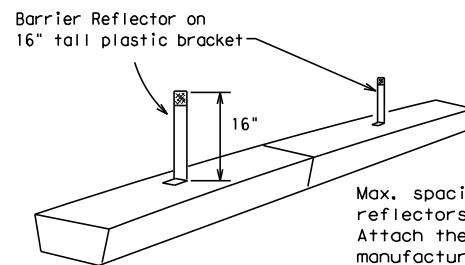
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)

- 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.
- 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.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.

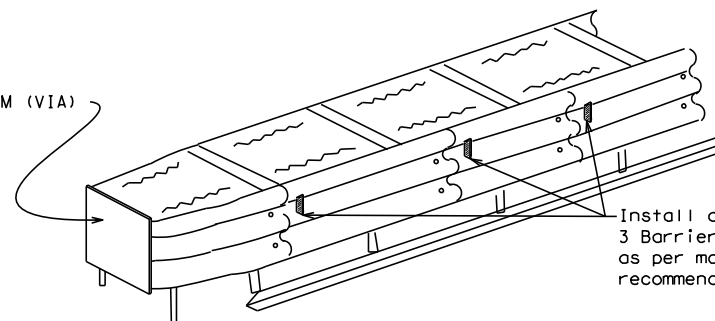


LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

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

LOW PROFILE CONCRETE BARRIER (LPCB)



DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

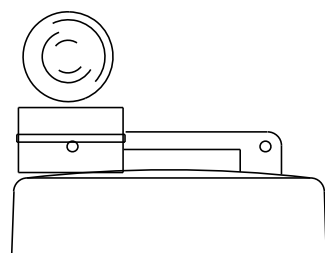
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet 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.
- 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".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- 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.
- 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.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

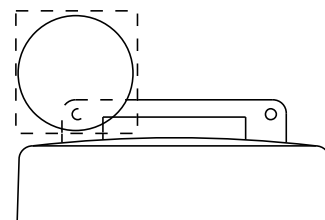
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing 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.
- 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.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- 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

- 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.
- 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.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- 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.
- 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.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



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

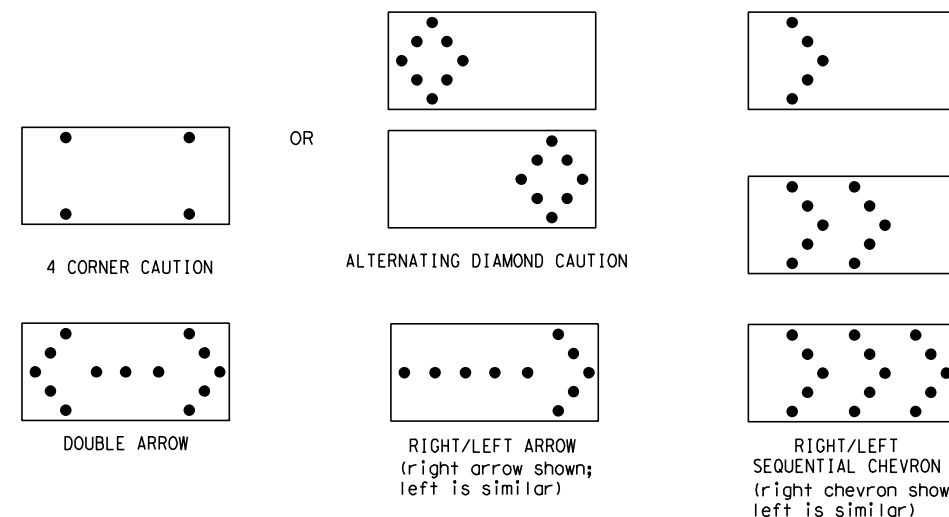


Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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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.

- 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.
- 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.
- 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.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- 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.
- 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.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- 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.
- 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

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- 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.
- 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.



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

BC (7) -21

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9-07	8-14	DIST:		COUNTY:		SHEET NO.:			
7-13	5-21	ATL:		BOWIE		15			

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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- 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.
- 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.
- 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).
- 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.
- 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:

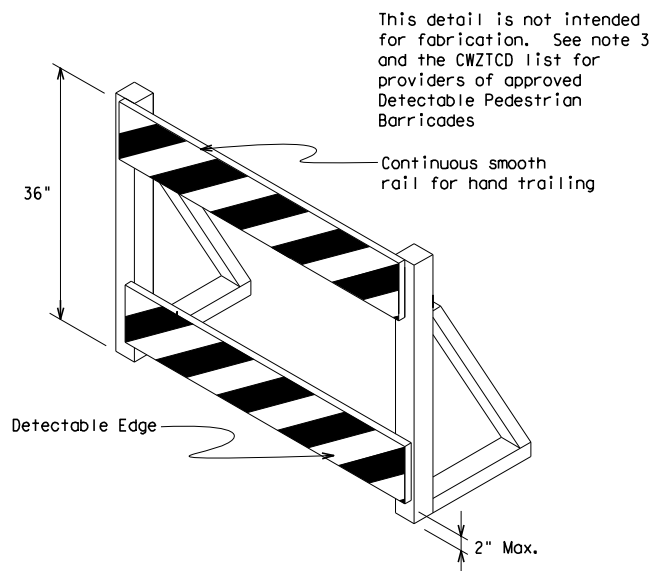
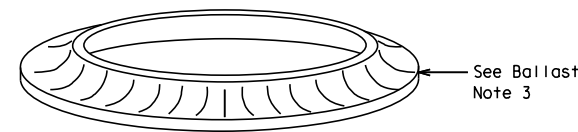
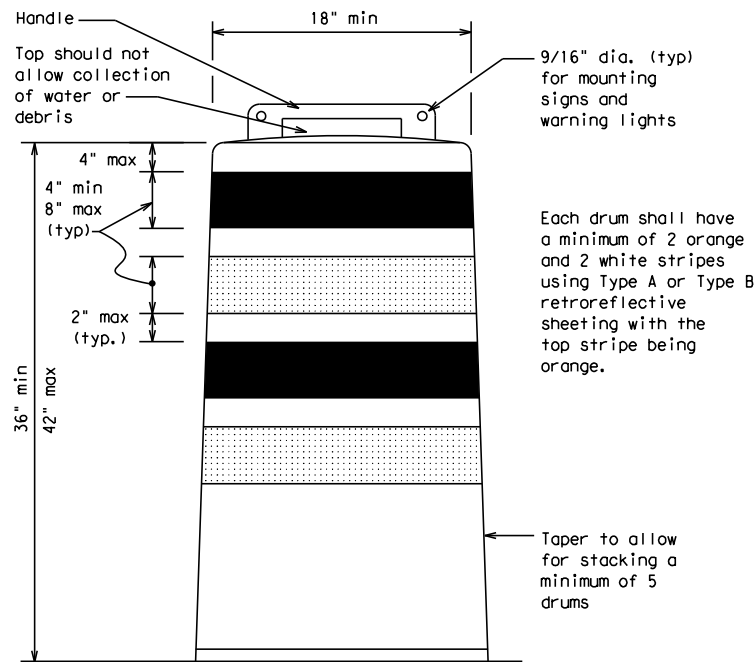
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- 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.
- 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.
- 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.
- 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.
- 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.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

- 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.
- 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.

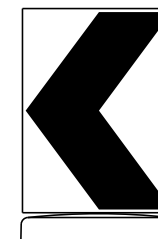
BALLAST

- 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.
- 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.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- 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.
- 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.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.

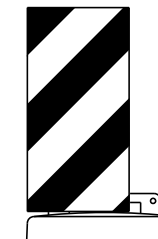


DETECTABLE PEDESTRIAN BARRICADES

- 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.
- 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.
- 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.
- 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.
- Warning lights shall not be attached to detectable pedestrian barricades.
- 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

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- 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.
- 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.
- 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.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- 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.
- 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.

SHEET 8 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

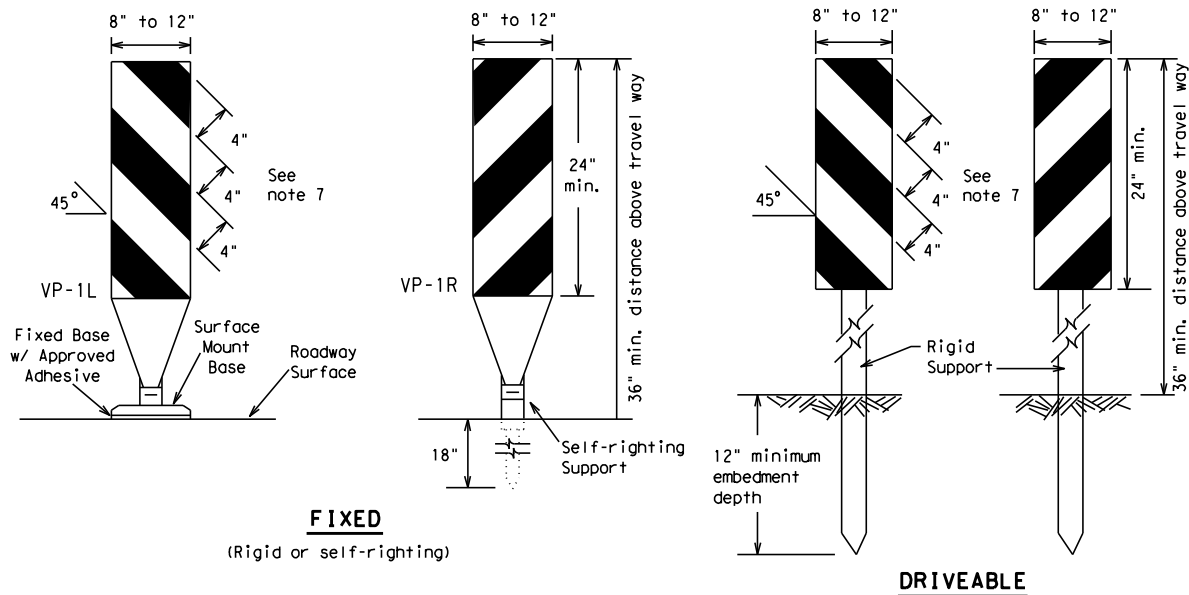
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9-07	5-21	ATL:		BOWIE	16				
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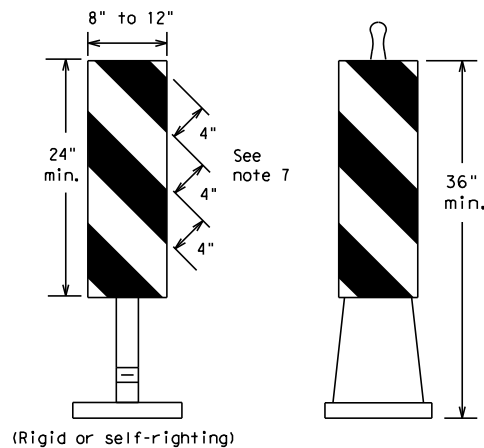
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FIXED
(Rigid or self-righting)

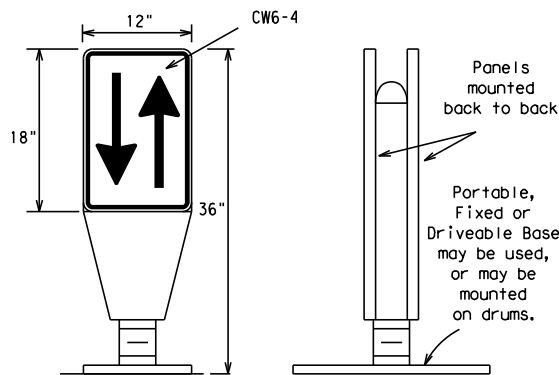
DRIVEABLE

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- 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.
- 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.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



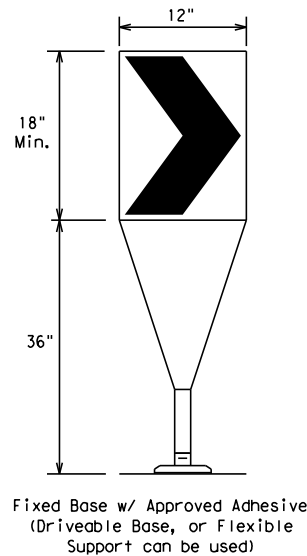
PORTABLE

VERTICAL PANELS (VPs)



OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

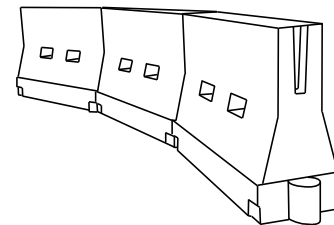
- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- 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.



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

- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- 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.
- 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.
- To be effective, the chevron should be visible for at least 500 feet.
- 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.
- For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

- 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.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- 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

- 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.
- 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.
- 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.
- 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.
- When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

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

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

GENERAL NOTES

- 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).
- 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.
- 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).
- 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.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- 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.
- The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Desirable Taper Lengths			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = 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



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

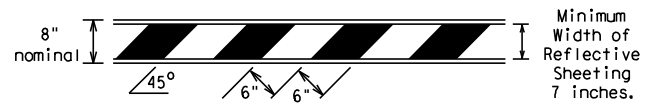
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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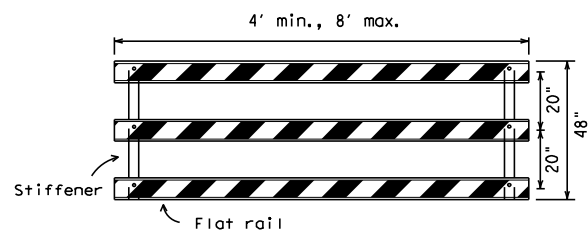
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



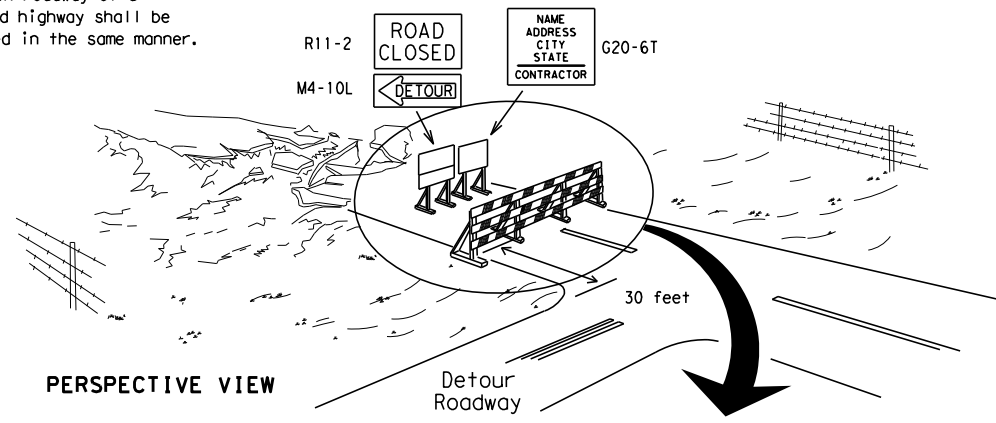
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

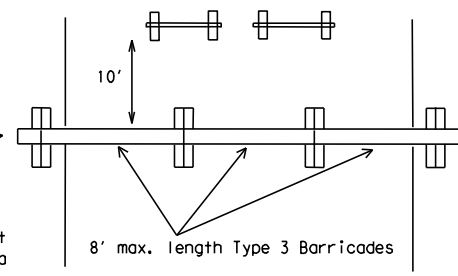
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

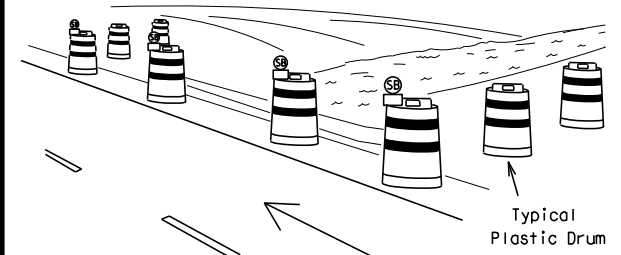
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



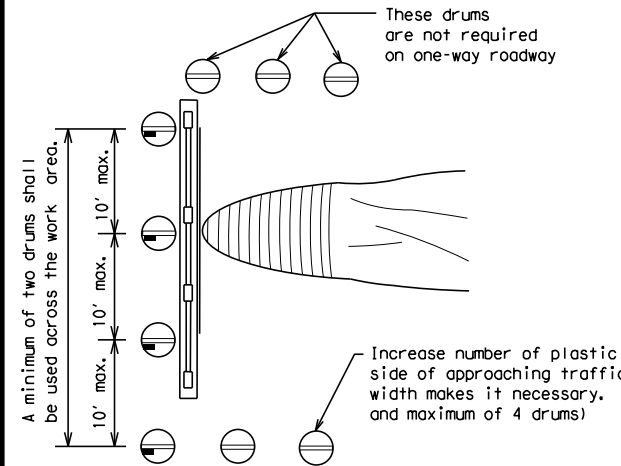
PLAN VIEW

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

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

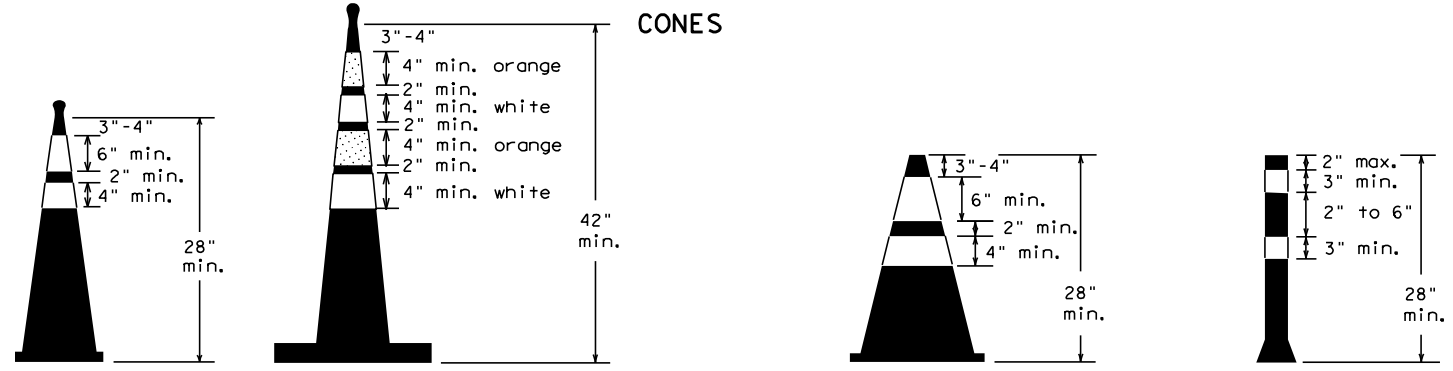


PLAN VIEW

1. Where positive redirection 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
	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



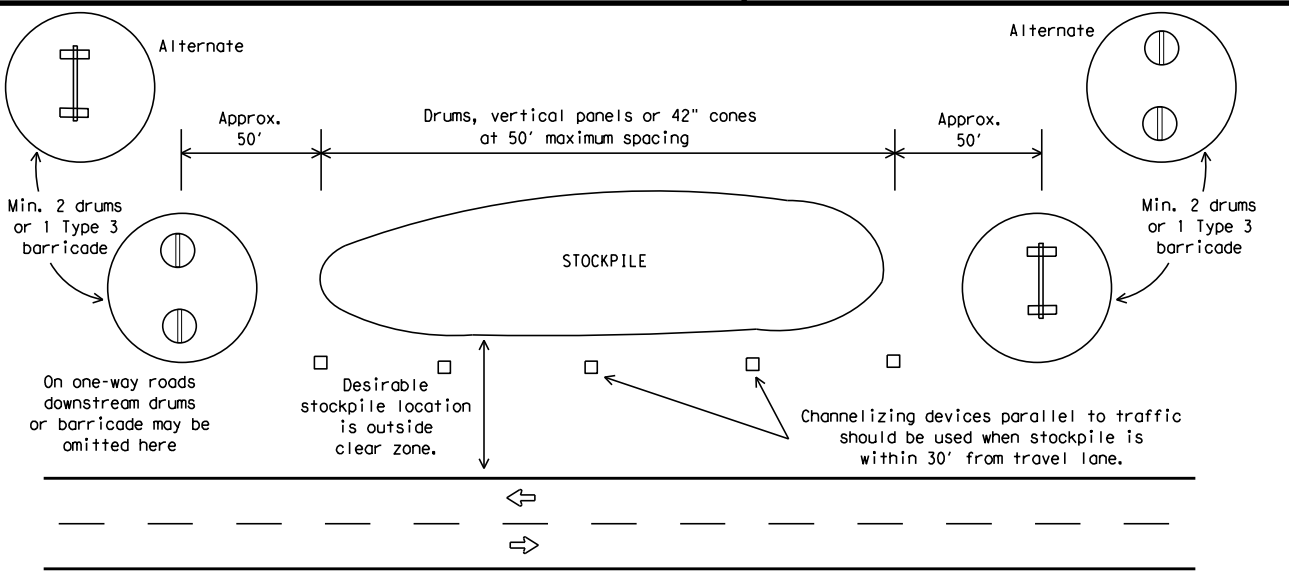
Two-Piece cones

One-Piece cones

Tubular Marker

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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

- 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.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
- 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.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- 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

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

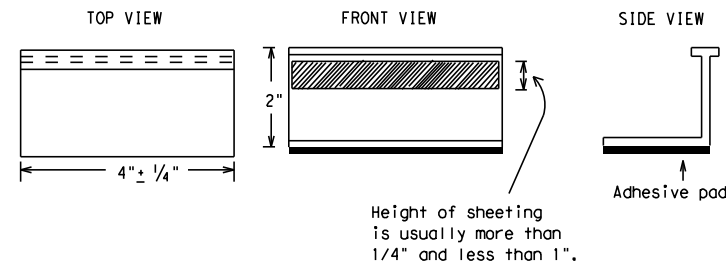
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- 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.
- 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.
- 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

- 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.
- 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.
- 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".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
- 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**

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
 - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
 - 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.
- Small design variances may be noted between tab manufacturers.
- 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

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

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

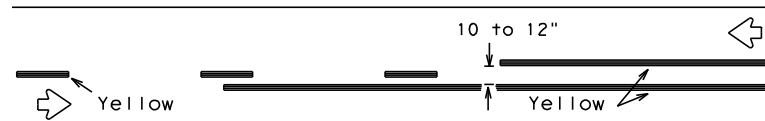
BC(11)-21

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2-98 9-07 5-21				
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11-02 8-14	ATL	BOWIE	19	

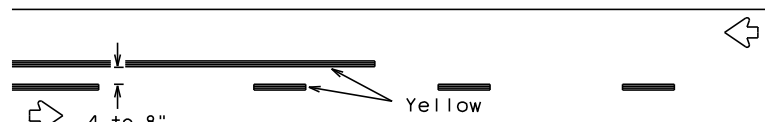
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PAVEMENT MARKING PATTERNS

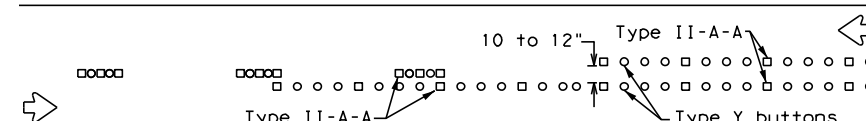


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

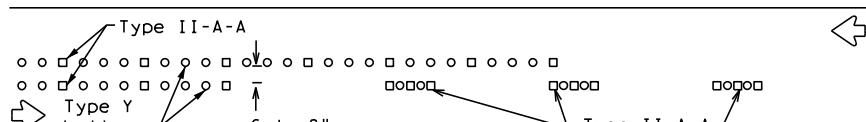


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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.

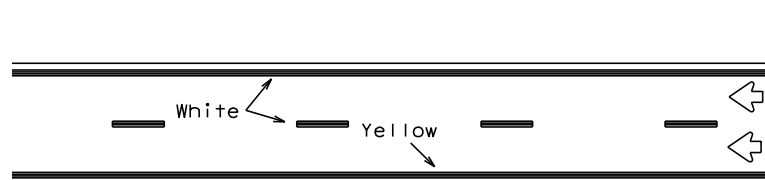


RAISED PAVEMENT MARKERS - PATTERN A



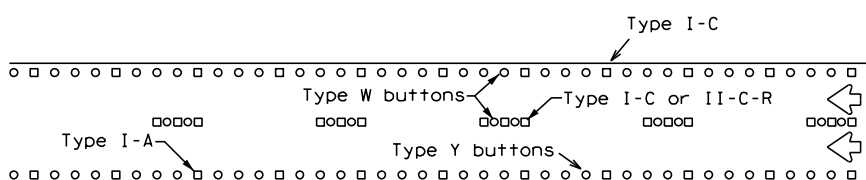
RAISED PAVEMENT MARKERS - PATTERN B

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



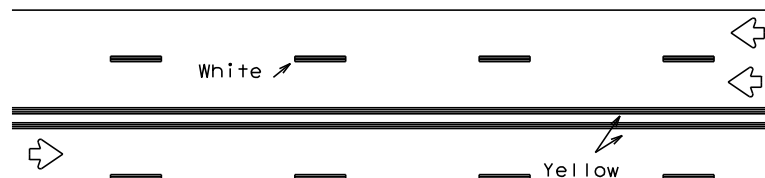
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



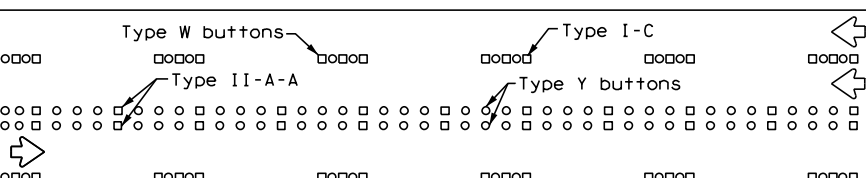
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



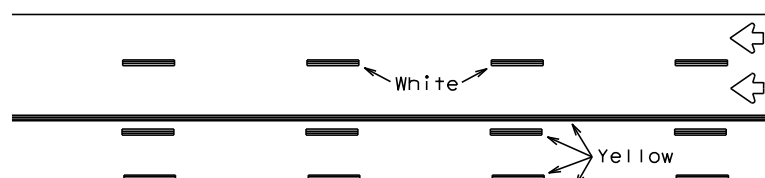
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



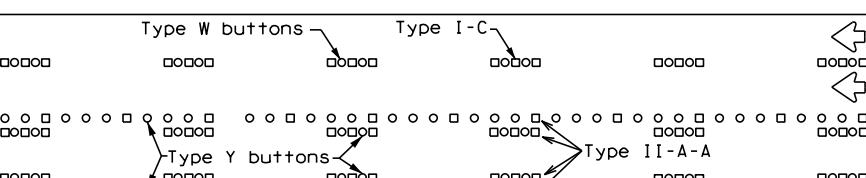
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

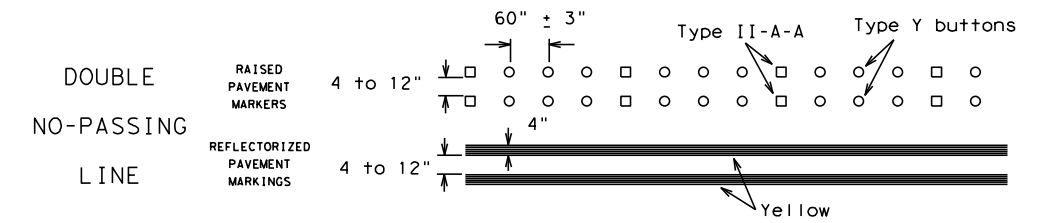
Prefabricated markings may be substituted for reflectORIZED pavement markings.



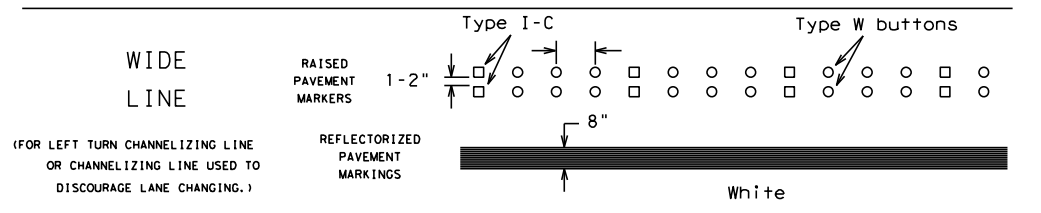
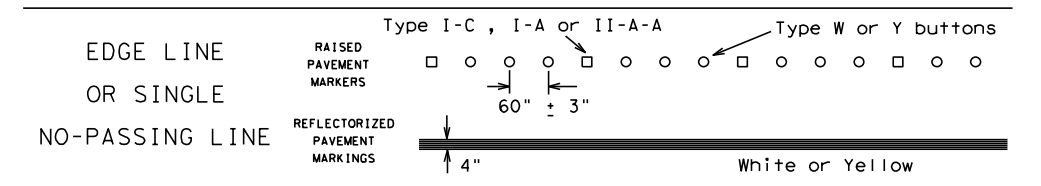
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

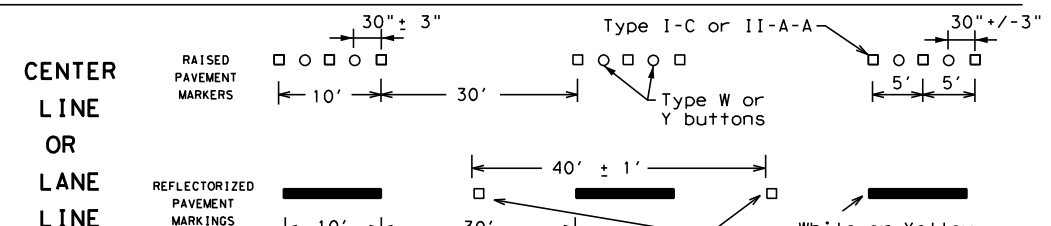
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



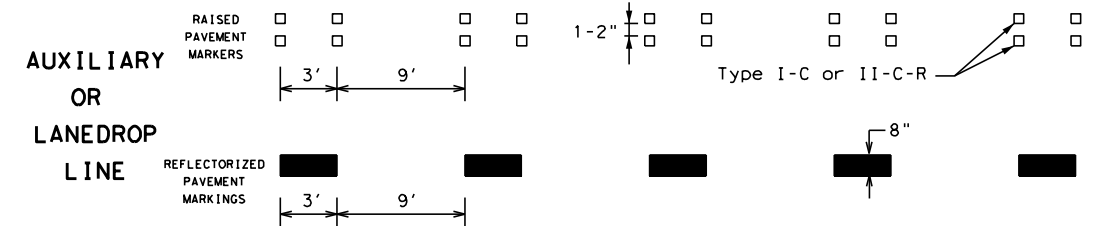
SOLID LINES



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

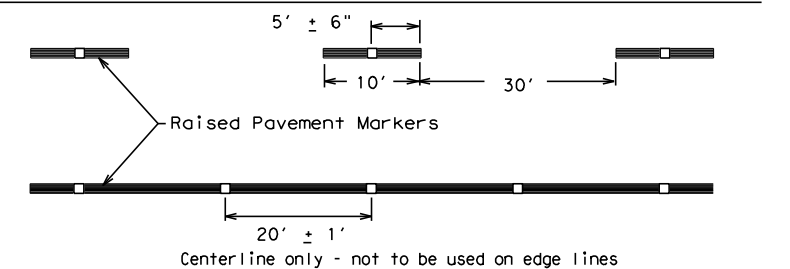


BROKEN LINES



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.



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 21

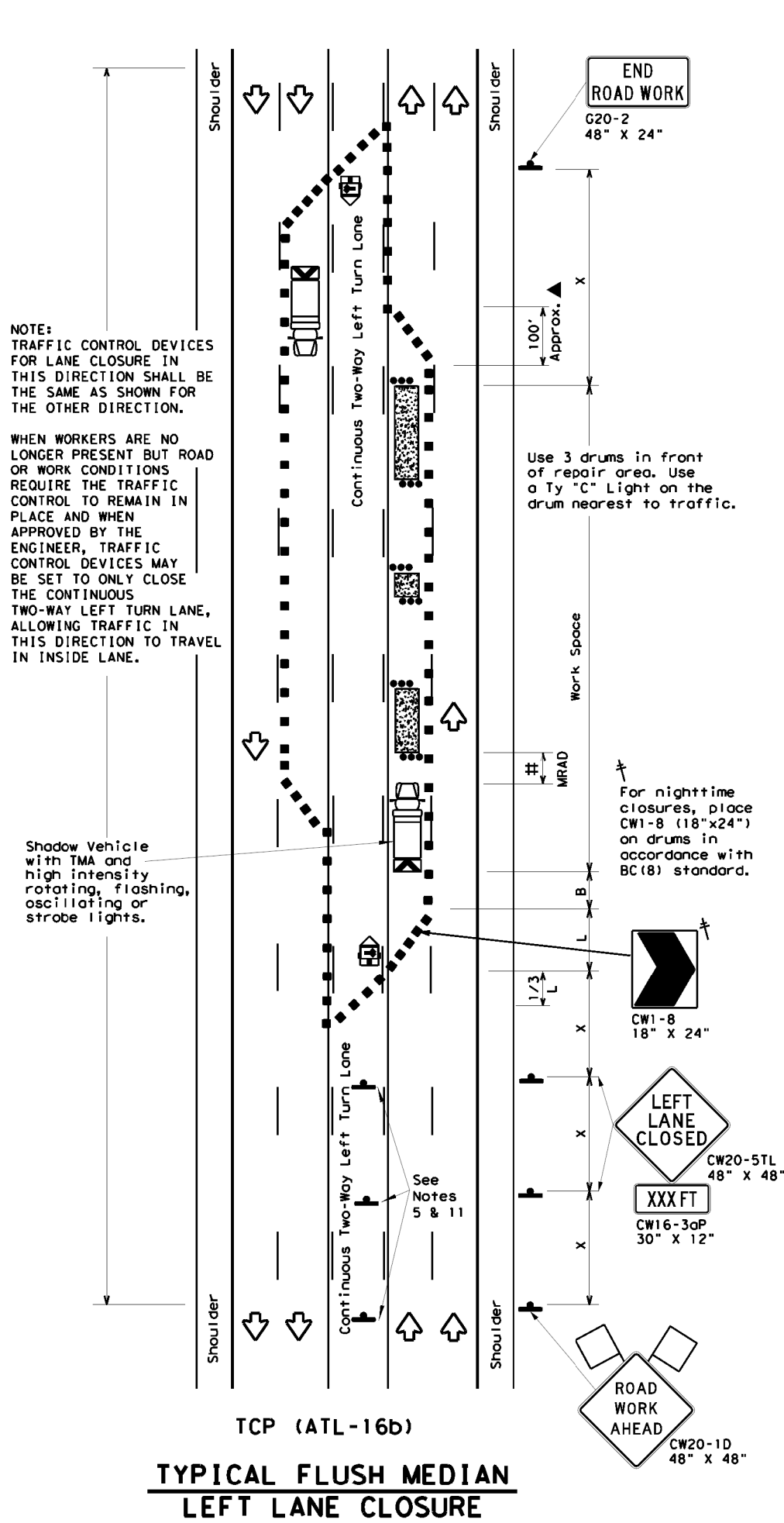
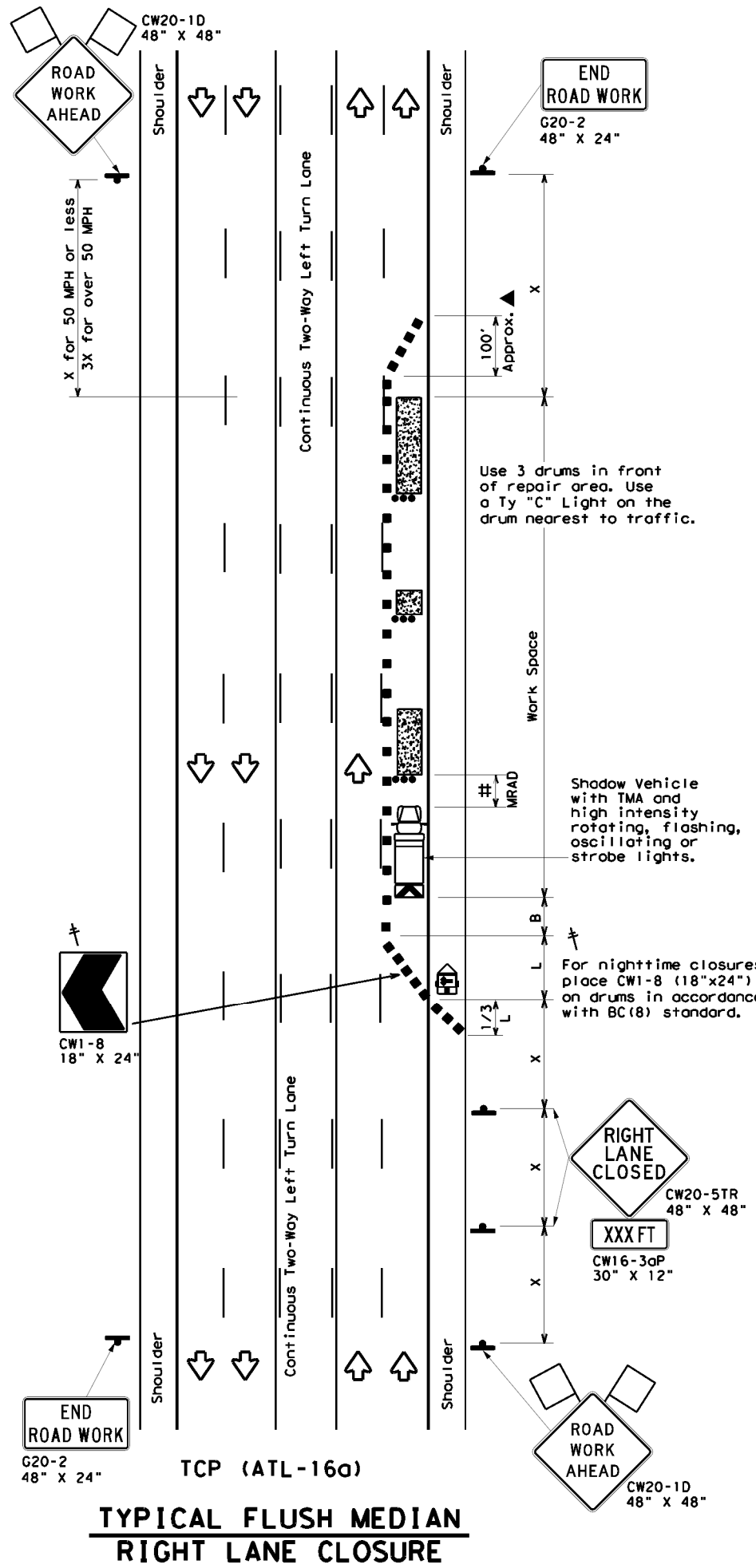
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Drum

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
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**
- All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans or when approved by the Engineer.
 - All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
 - The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
 - High level warning flags should be used on advance warning signs during daytime operations. Warning lights may be used to add emphasis to advance warning signs during nighttime operations.
 - Duplicate construction warning signs shall be erected on the median side.
 - See BC Standards for additional sign details.
 - Drums are the typical channelizing device. Cones or other devices may be used if approved by the Engineer. Drums shall be used during nighttime operations. Channelizing devices shall also be placed in accordance with "WORKSHEET FOR EDGE CONDITION TREATMENT TYPES."
 - Neither work activity nor storage of equipment, vehicles, or materials shall occur within the buffer space.
 - When signs are mounted at 1' height for short term stationary, 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.
 - The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.
 - For TCP (ATL-16b) Flush Median, median side signs shall be mounted at 7' height.

#A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used and positioned per the Manufacturer's Roll Ahead Distance (MRAD) in advance of the area of crew exposure without adversely affecting the work performance.

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.

Texas Department of Transportation
 Atlanta District Standard

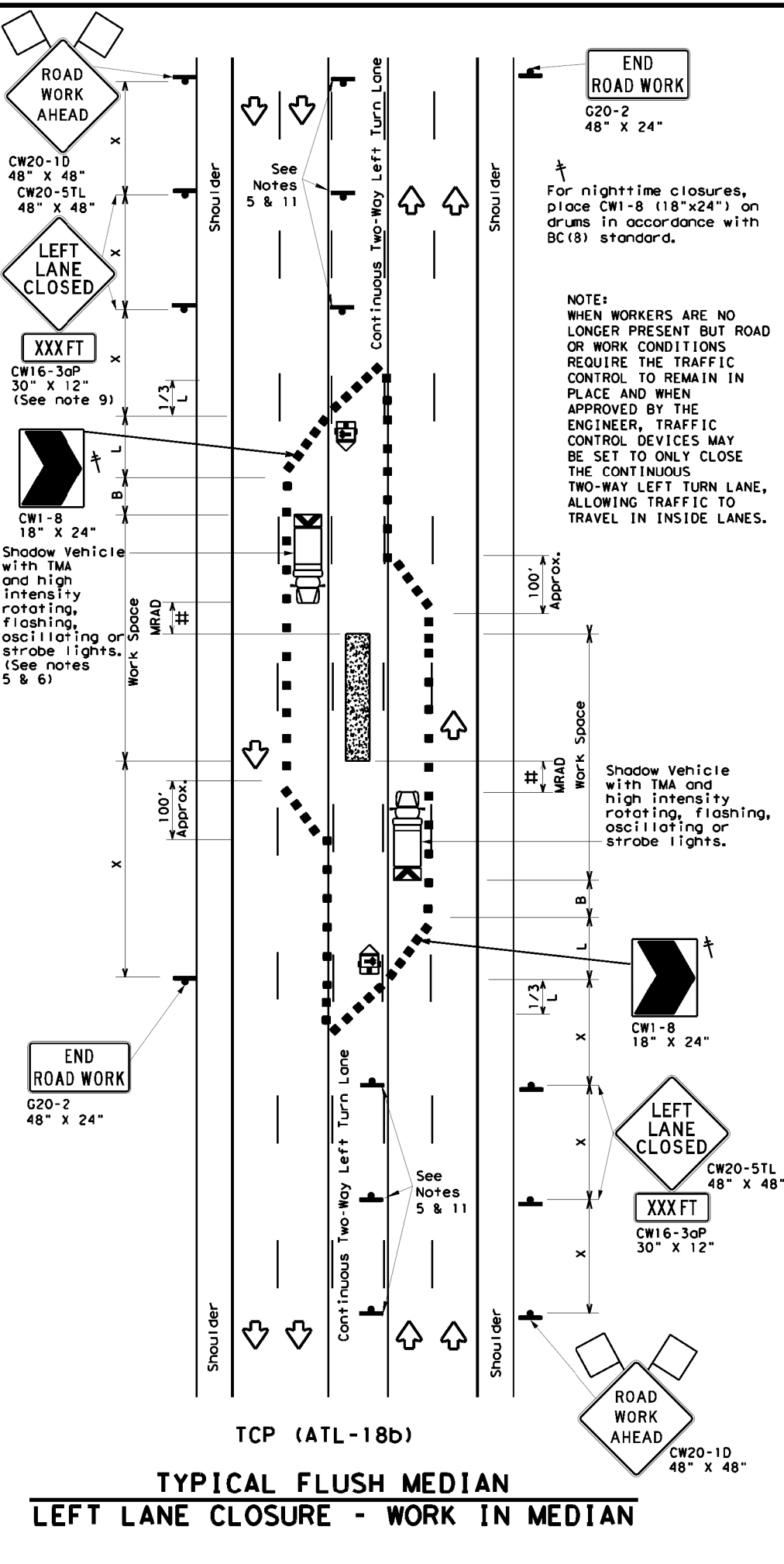
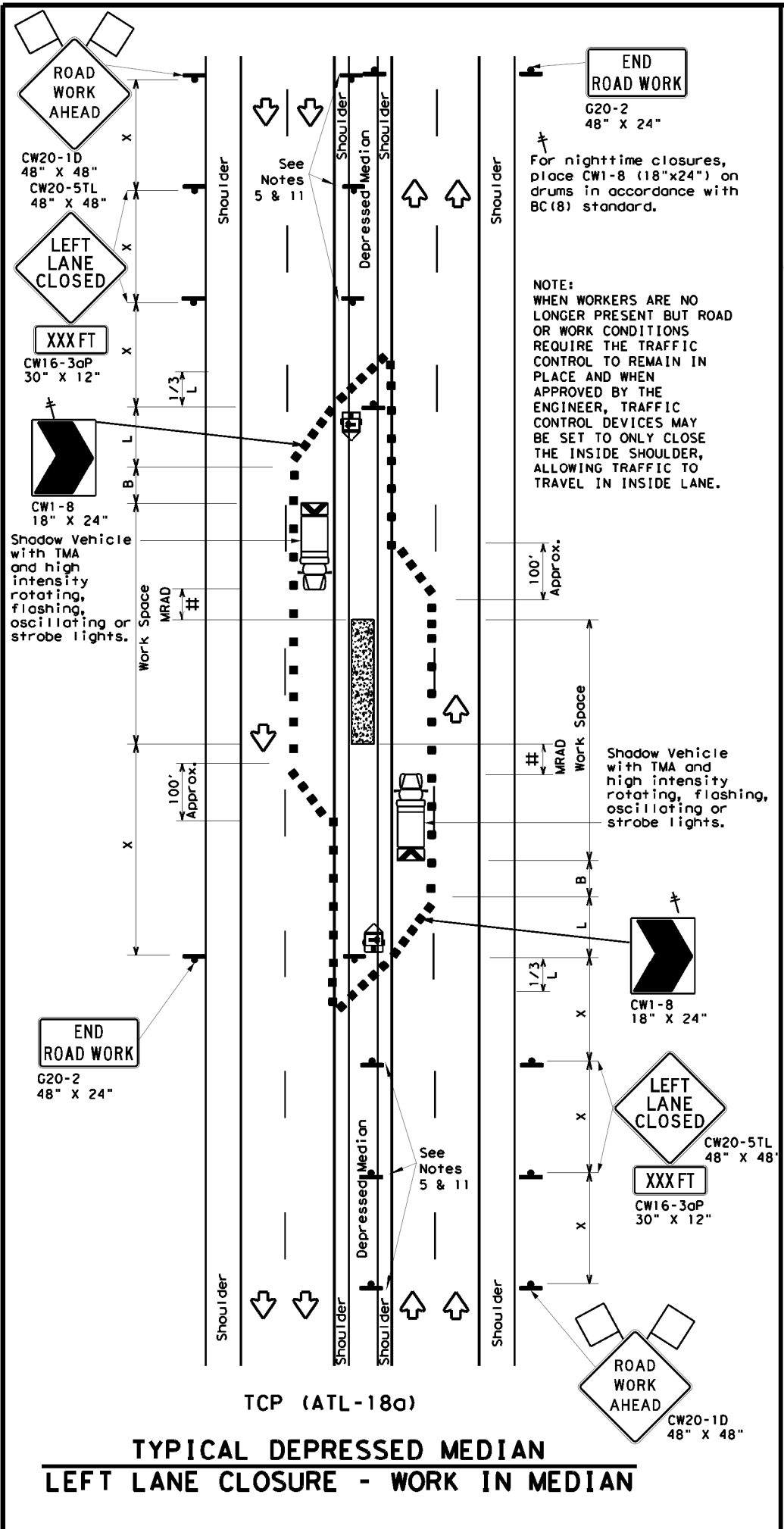
TRAFFIC CONTROL PLAN
PAVEMENT REPAIRS
(FLUSH MEDIAN)

TCP (ATL-16)-15

FILE: atl-16.dgn	DNR TxDOT	CR: TxDOT	DW: TxDOT	CR: TxDOT
©TxDOT January 2014	CONT	SECT	JOB	HIGHWAY
4-15	0919	19	085	CS
	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	21	

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LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = 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**
- All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans or when approved by the Engineer.
 - All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
 - The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
 - High level warning flags should be used on advance warning signs during daytime operations. Warning lights may be used to add emphasis to advance warning signs during nighttime operations.
 - Duplicate construction warning signs shall be erected on the median side.
 - See BC Standards for additional sign details.
 - Drums are the typical channelizing device. Cones or other devices may be used if approved by the Engineer. Drums shall be used during nighttime operations. Channelizing devices shall also be placed in accordance with "WORKSHEET FOR EDGE CONDITION TREATMENT TYPES."
 - Neither work activity nor storage of equipment, vehicles, or materials shall occur within the buffer space.
 - When signs are mounted at 1' height for short term stationary, 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.
 - The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.
 - Median side signs shall be mounted at 7' height.

☐ A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used and positioned per the Manufacturer's Roll Ahead Distance (MRAD) in advance of the area of crew exposure without adversely affecting the work performance.

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.

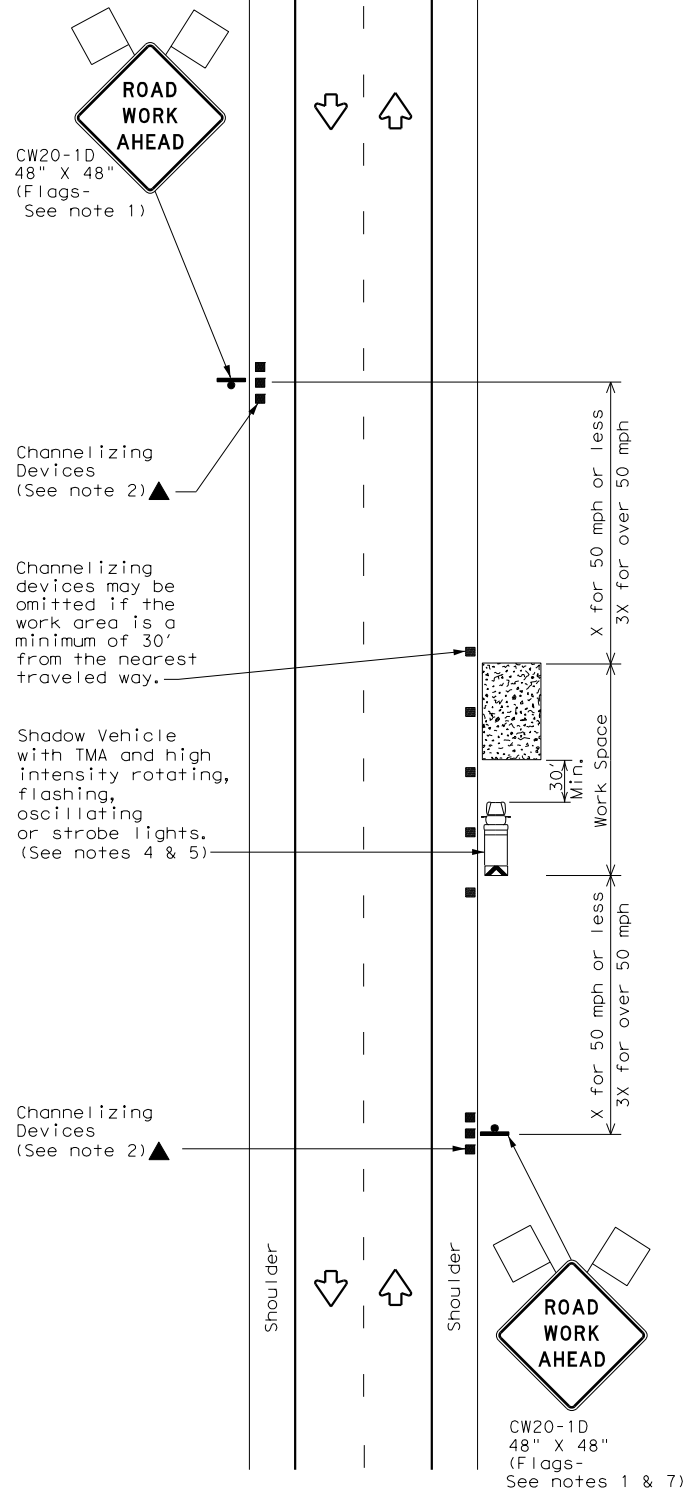
Texas Department of Transportation
 Atlanta District Standard

TRAFFIC CONTROL PLAN
WORK IN MEDIAN

TCP (ATL-18)-15

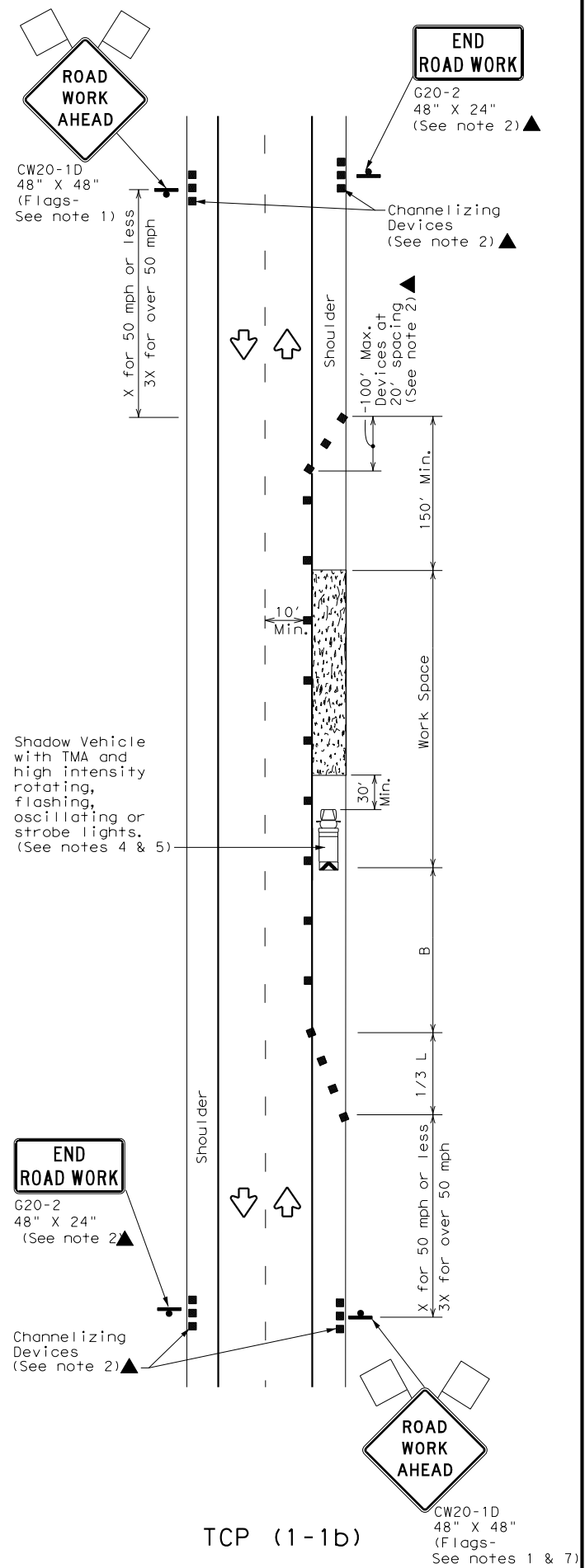
FILE: atl-18.dgn	DNR TxDOT	CR: TxDOT	DNR TxDOT	CR: TxDOT
©TxDOT January 2014	CONT	SECT	JOB	HIGHWAY
4-15	0919	19	085	CS
	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	22	

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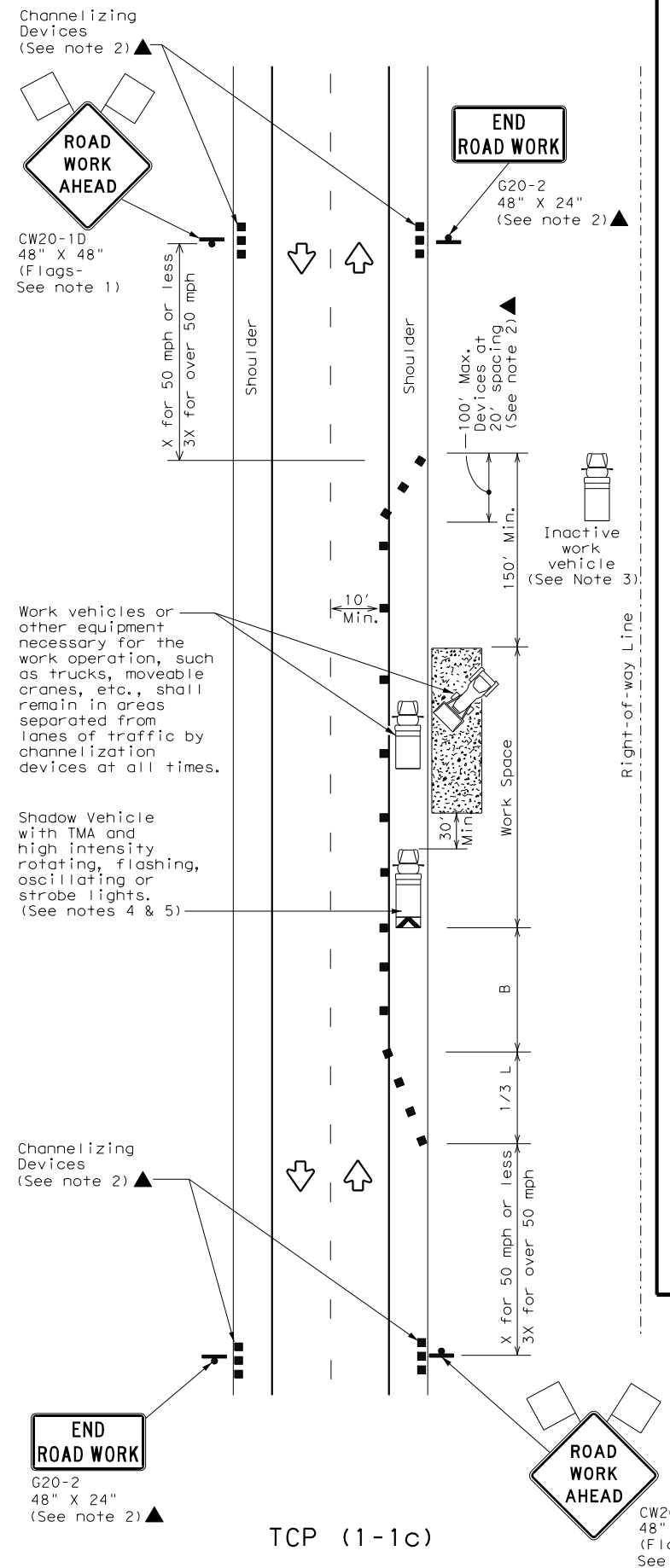
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
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**
- Flags attached to signs where shown are REQUIRED.
 - 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.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - 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.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.



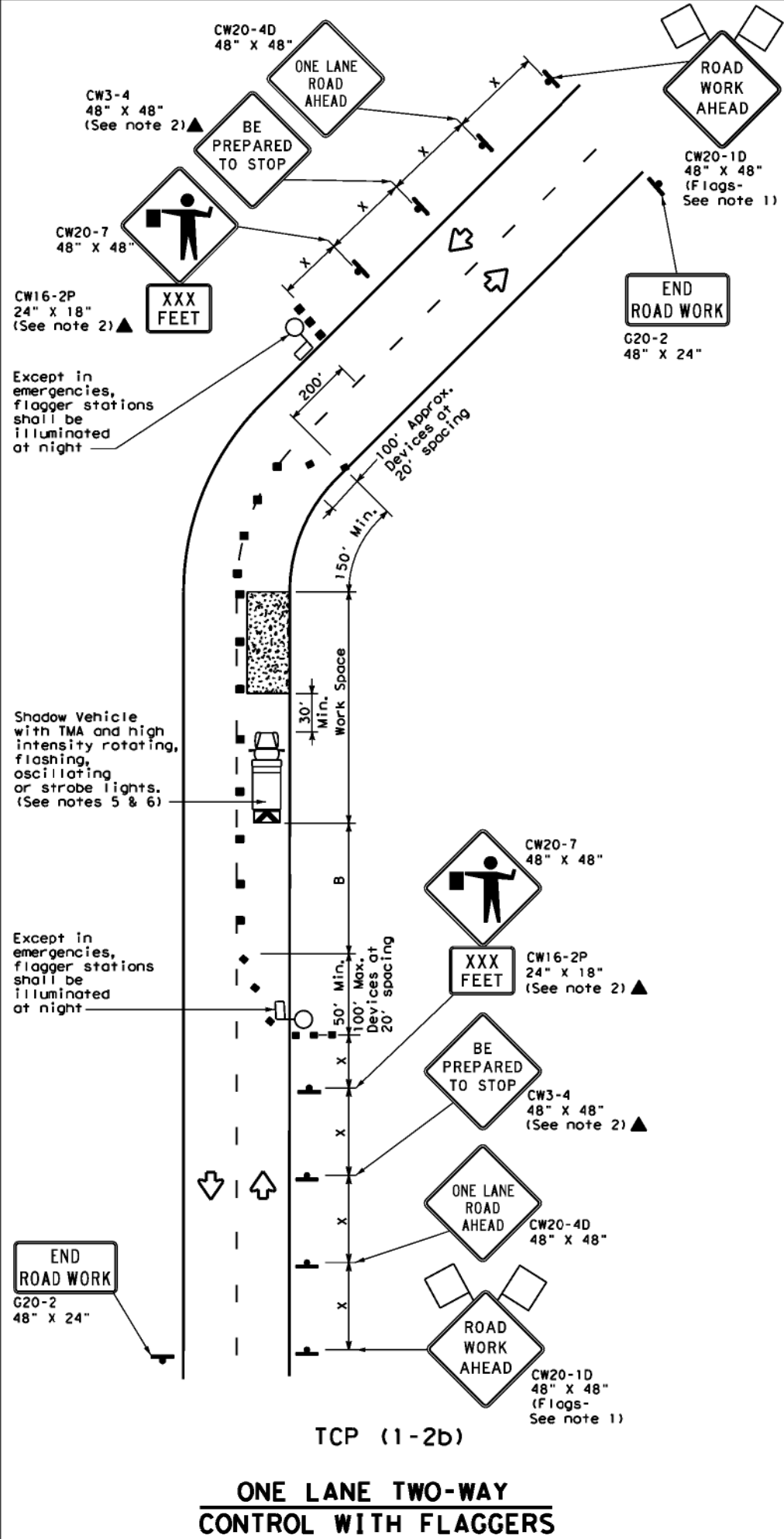
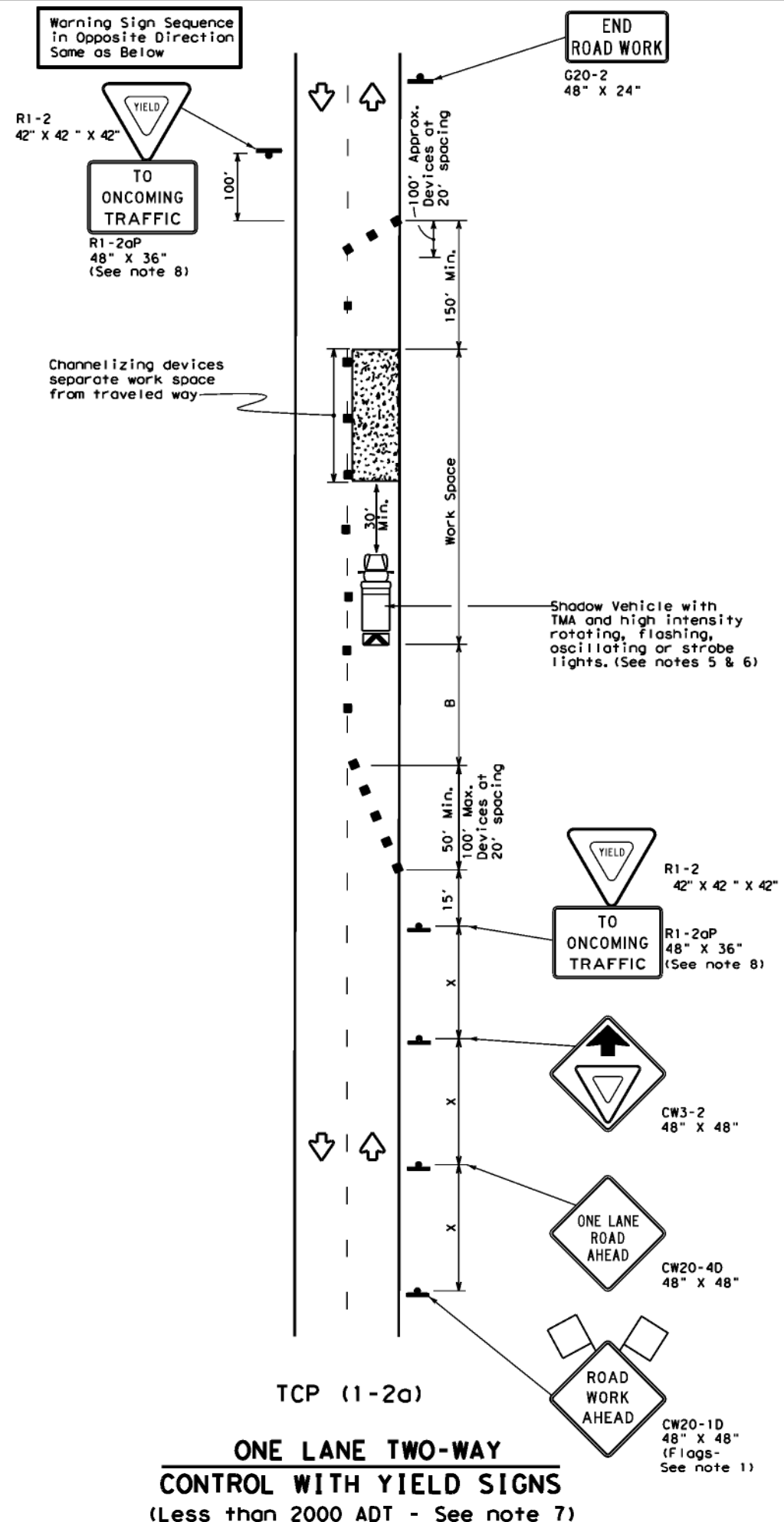
TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (1-1) - 18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	ATL	BOWIE	23	
1-97 2-18				

DATE:
FILE:

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LEGEND

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

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

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

TYPICAL USAGE

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

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
 - 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.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
 - Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
 - 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.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- TCP (1-2a)**
- R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
 - R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.
- TCP (1-2b)**
- Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
 - Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

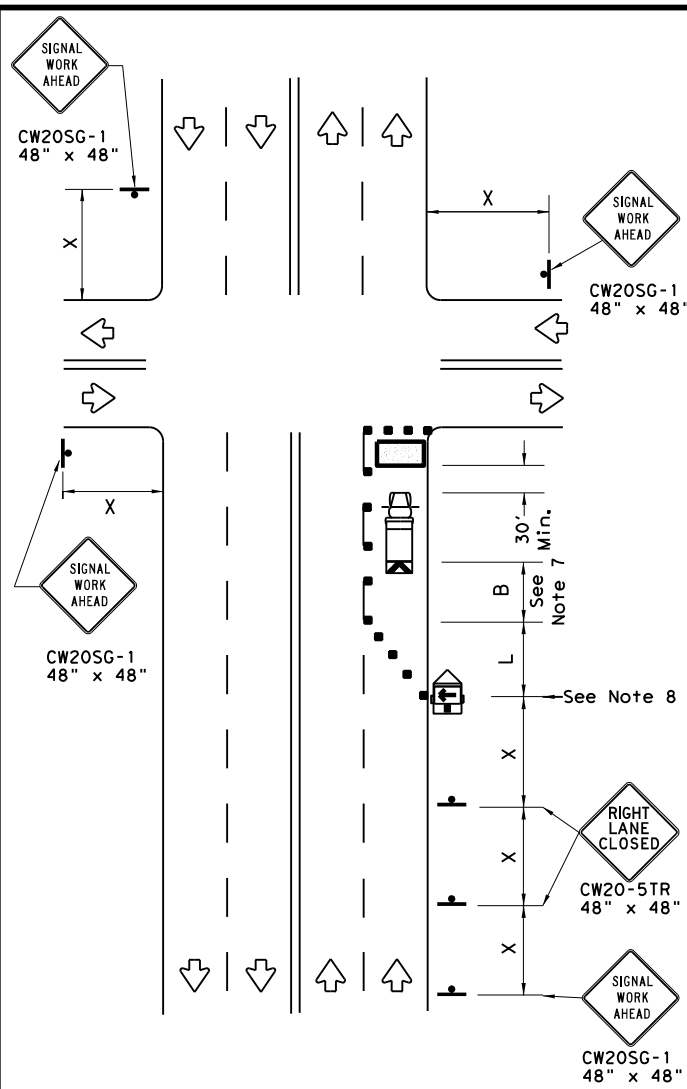
TCP (1-2) - 18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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4-90 4-98	DIST	COUNTY	SHEET NO.	
2-94 2-12	ATL	BOWIE	24	
1-97 2-18				

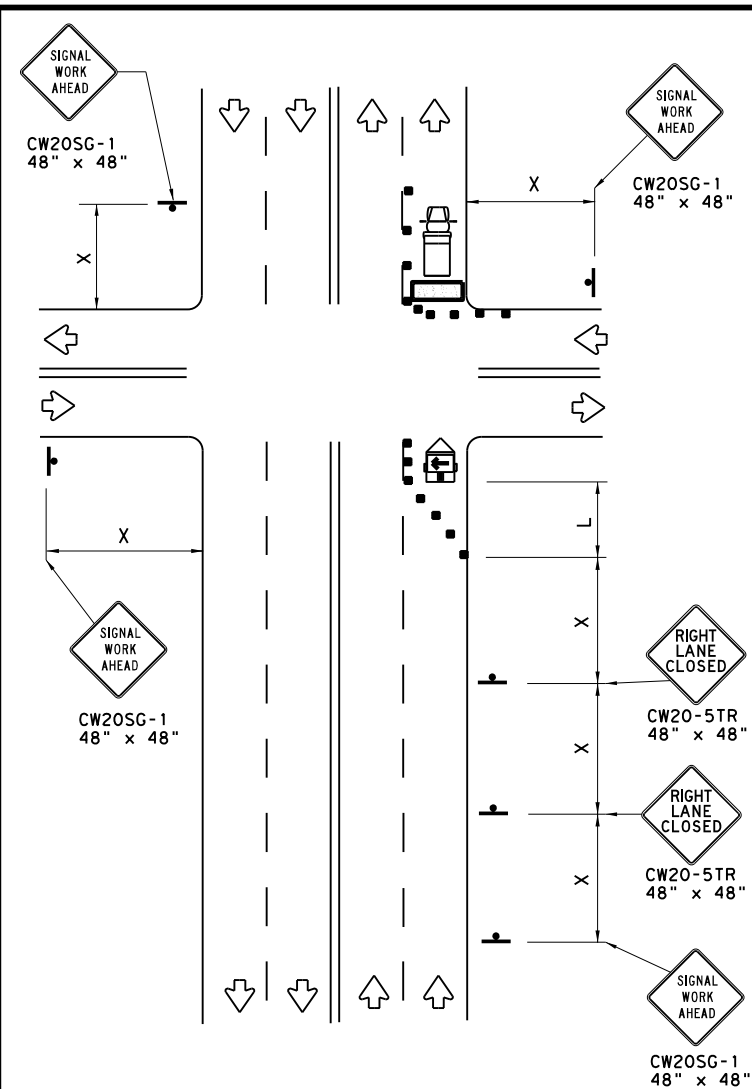
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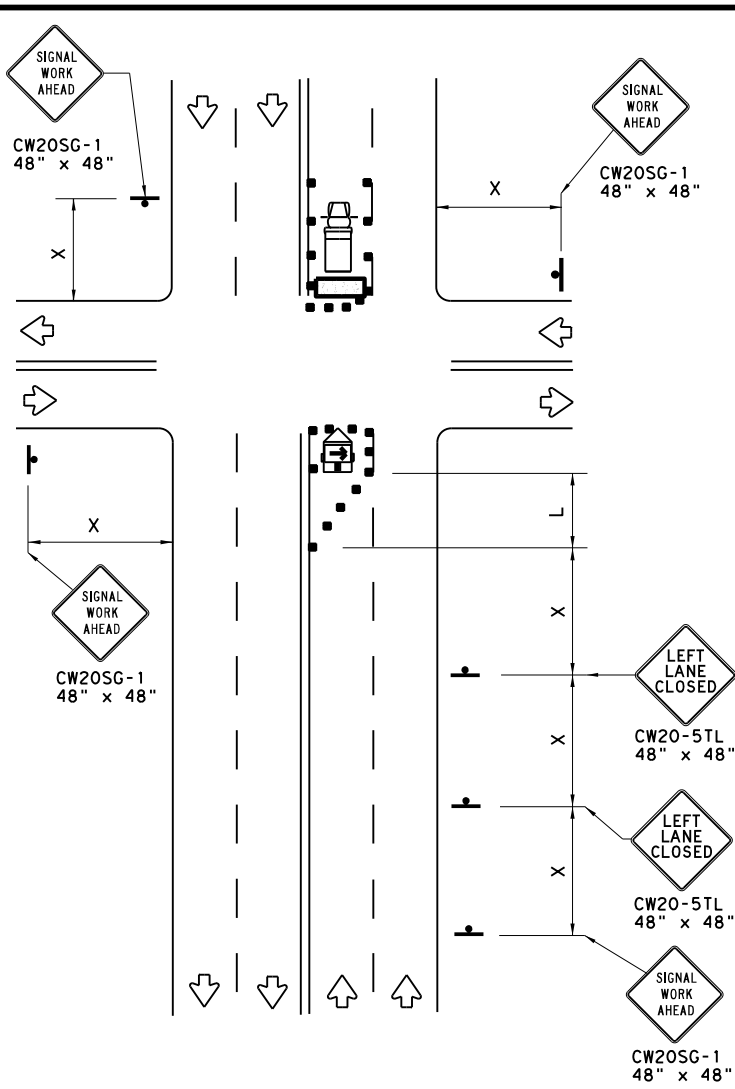
DATE: FILE:



NEAR SIDE LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE RIGHT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



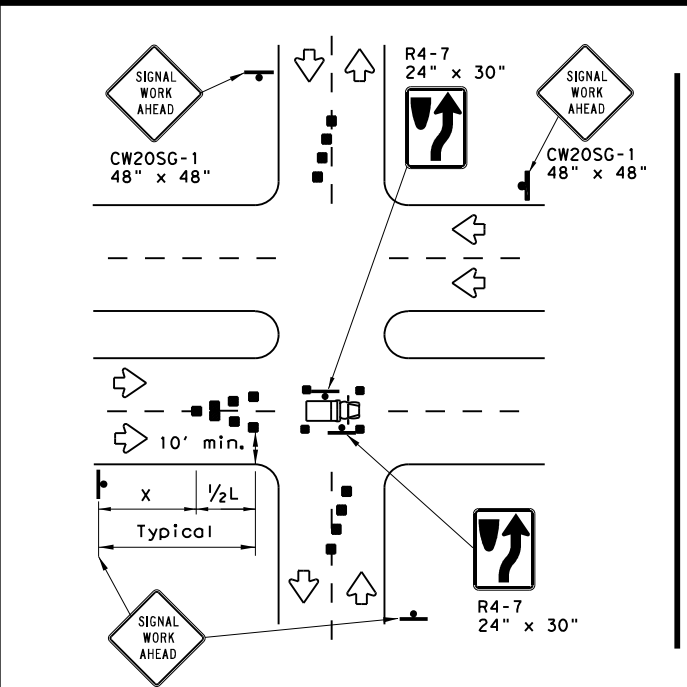
FAR SIDE LEFT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY

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

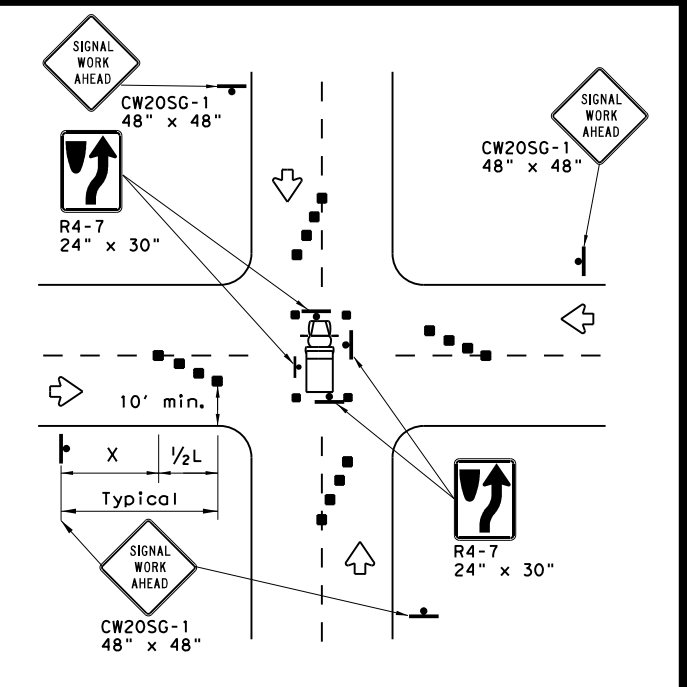
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
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)

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.



OPERATIONS IN THE INTERSECTION
SHORT DURATION



GENERAL NOTES

- The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
- Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
- Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
- Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
- High level warning devices (flag trees) may be used at corners of the vehicle.
- When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
- For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
- The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
- Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.



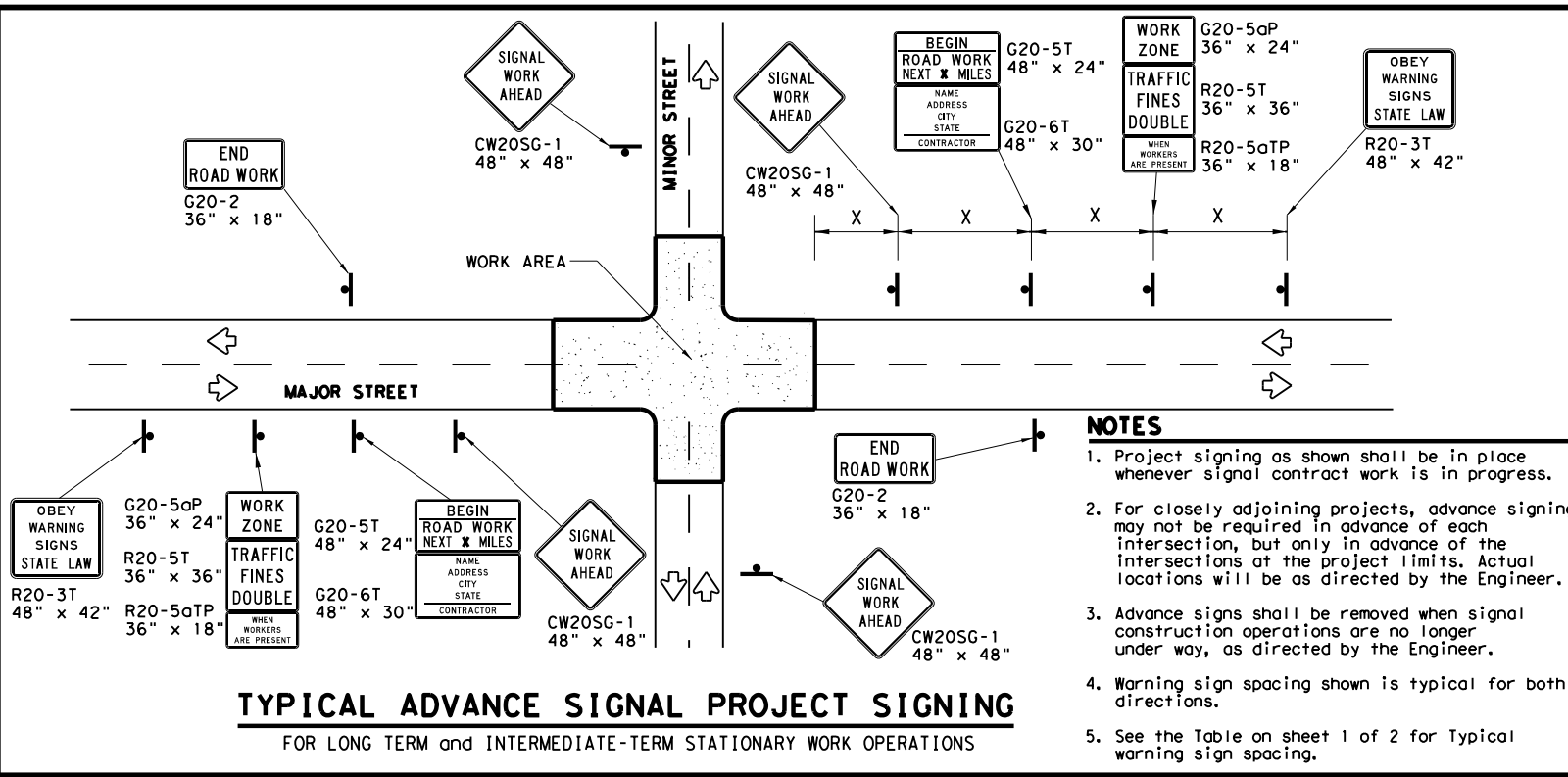
TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

FILE: wzbts-13.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
2-98 10-99 7-13	DIST	COUNTY	SHEET NO.	
4-98 3-03	ATL	BOWIE	25	

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TYPICAL ADVANCE SIGNAL PROJECT SIGNING
FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

- NOTES**
1. Project signing as shown shall be in place whenever signal contract work is in progress.
 2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
 3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
 4. Warning sign spacing shown is typical for both directions.
 5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. 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".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 60.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. 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. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
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 will 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.

LEGEND

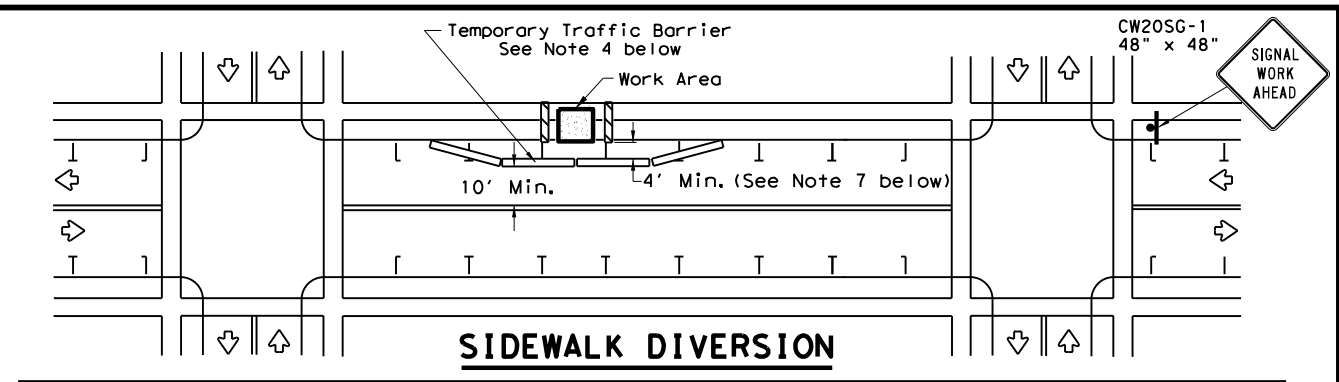
	Sign
	Channelizing Devices
	Type 3 Barricade

DEPARTMENTAL MATERIAL SPECIFICATIONS

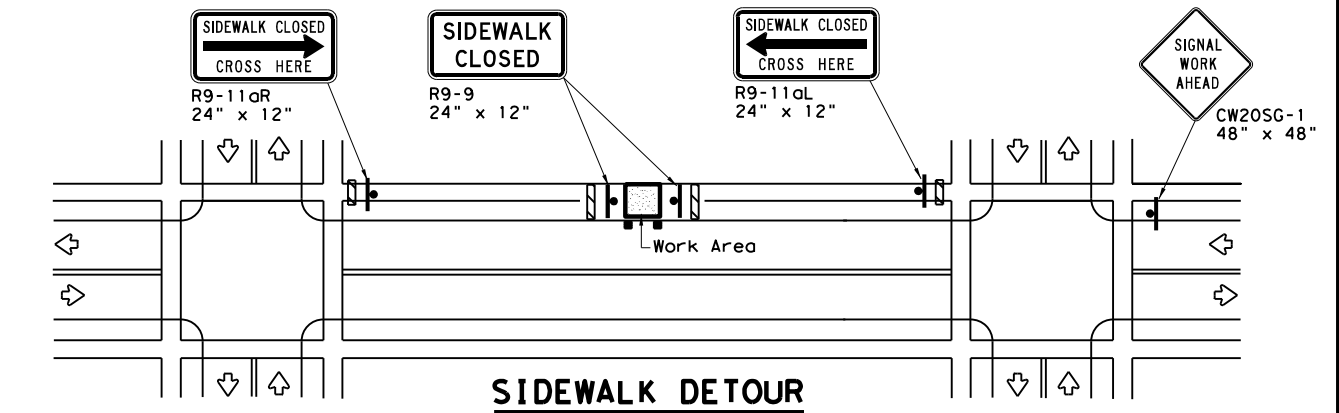
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B _{FL} OR TYPE C _{FL} SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

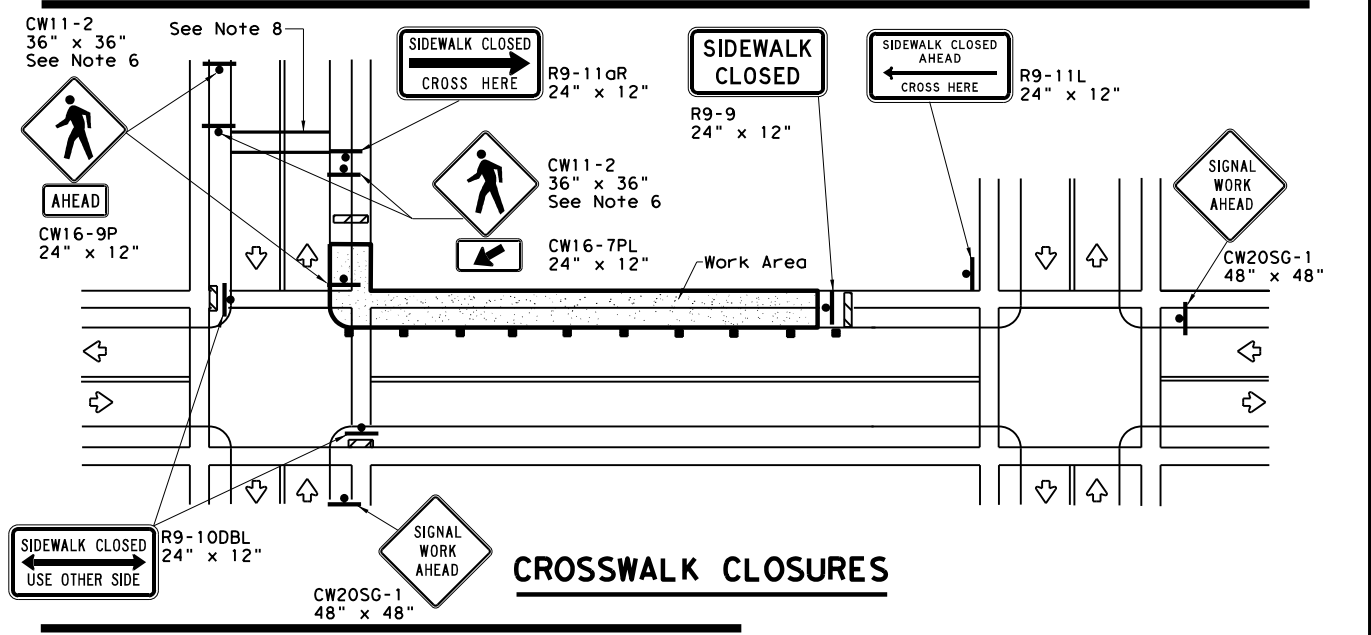
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

SHEET 2 OF 2

Texas Department of Transportation Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

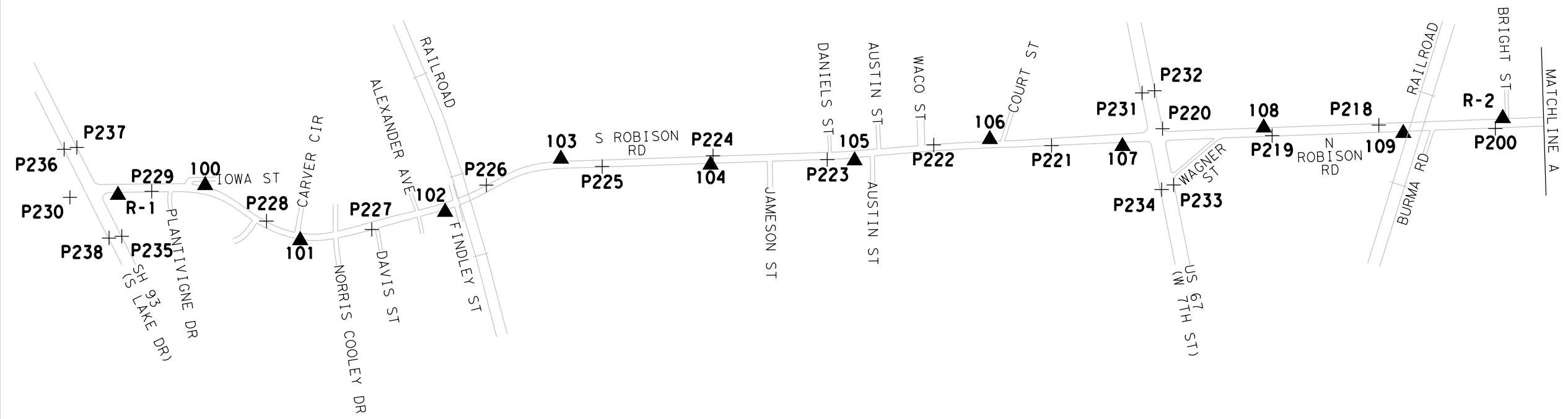
WZ (BTS-2) - 13

FILE: wzbts-13.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
2-98 10-99 7-13	DIST	COUNTY	SHEET NO.	
4-98 3-03	ATL	BOWIE	26	



LEGEND

▲ SURVEY CONTROL MONUMENT



- NOTES:
1. ALL COORDINATES SHOWN ARE BASED ON NORTH AMERICAN DATUM OF 1983, (NAD83) (2011 ADJUSTMENT, EPOCH 2010.00), TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE.
 2. HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED UTILIZING A COMBINATION OF REDUNDANT OBSERVATIONS BASED ON THE TxDOT REAL-TIME NETWORK (RTN), WITH OBSERVATIONS FLOWING FROM RTN, TEXARKANA+TXTE AND RTK OBSERVATIONS.
 3. ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) AND DERIVED FROM DIGITAL DIFFERENTIAL LEVELING, USING GEOID 12B
 4. ALL COORDINATES SHOWN ARE IN SURFACE VALUES AND MAY BE CONVERTED TO GRID BY DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00012. ALL MEASUREMENTS ARE IN U.S. SURVEY FEET.
 5. CONTROL VALUES MEET SPECIFICATIONS FOR TxDOT LEVEL 3 GPS SURVEYS.



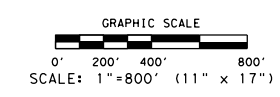
09/13/2024
THE CONTROL POINTS SHOWN HEREIN WERE DETERMINED BY A SURVEY MADE ON THE GROUND AND UNDER MY SUPERVISION.

PRIMARY CONTROL POINT NAME	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
R-1	7,222,081.01	3,317,338.47	303.67	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN CONCRETE
R-2	7,231,397.20	3,316,820.83	293.20	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN CONCRETE

SECONDARY CONTROL POINT NAME	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
100	7,222,667.42	3,317,272.15	306.04	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
101	7,223,306.82	3,317,643.63	304.81	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
102	7,224,282.09	3,317,452.34	301.35	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
103	7,225,061.26	3,317,094.77	292.54	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
104	7,226,067.70	3,317,134.33	294.66	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
105	7,227,036.61	3,317,105.91	302.68	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
106	7,227,946.76	3,316,962.50	291.71	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
107	7,228,838.83	3,317,009.33	282.61	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
108	7,229,788.63	3,316,884.27	289.28	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
109	7,230,728.07	3,316,921.91	292.82	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING

PANEL	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
P200	7,231,347.64	3,316,889.68	292.74	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P218	7,230,563.42	3,316,866.41	291.28	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P219	7,229,845.40	3,316,937.68	289.19	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P220	7,229,108.81	3,316,891.35	285.39	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P221	7,228,361.50	3,317,005.83	283.56	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P222	7,227,569.53	3,317,000.58	299.94	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P223	7,226,852.93	3,317,098.92	300.84	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P224	7,226,084.83	3,317,073.54	295.49	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P225	7,225,338.37	3,317,146.15	291.03	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P226	7,224,559.81	3,317,271.14	300.41	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P227	7,223,788.00	3,317,570.00	302.01	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P228	7,223,079.76	3,317,513.12	304.98	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P229	7,222,307.89	3,317,313.51	304.73	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P230	7,221,757.43	3,317,353.63	305.94	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P231	7,228,970.76	3,316,650.44	286.53	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P232	7,229,054.30	3,316,635.39	286.60	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P233	7,229,183.36	3,317,270.47	285.18	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P234	7,229,102.57	3,317,301.59	285.29	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P235	7,222,106.70	3,317,616.08	306.20	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P236	7,221,718.82	3,317,029.65	304.75	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P237	7,221,804.63	3,317,017.87	304.39	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P238	7,222,021.05	3,317,627.64	306.02	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL

FROM	TO	BEARING	DISTANCE
R-1	100	N6°27'09"W	590.15'
100	101	N30°09'21"E	739.48'
101	102	N1°05'50"W	993.85'
102	103	N24°39'03"W	857.30'
103	104	N2°15'03"E	1,007.22'
104	105	N°40'48"W	969.33'
105	106	N8°57'16"W	921.38'
106	107	N3°00'18"E	893.30'
107	108	N7°30'04"W	958.00'
108	109	N2°17'40"E	940.19'
109	R-2	N8°35'25"W	676.72'



UNIT OF MEASUREMENT: U.S. SURVEY FEET

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E.

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12940 Country Parkway
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Telephone: (210) 349-3271
TBPELS #10004100

N/S ROBISON RD
SURVEY CONTROL INDEX SHEET

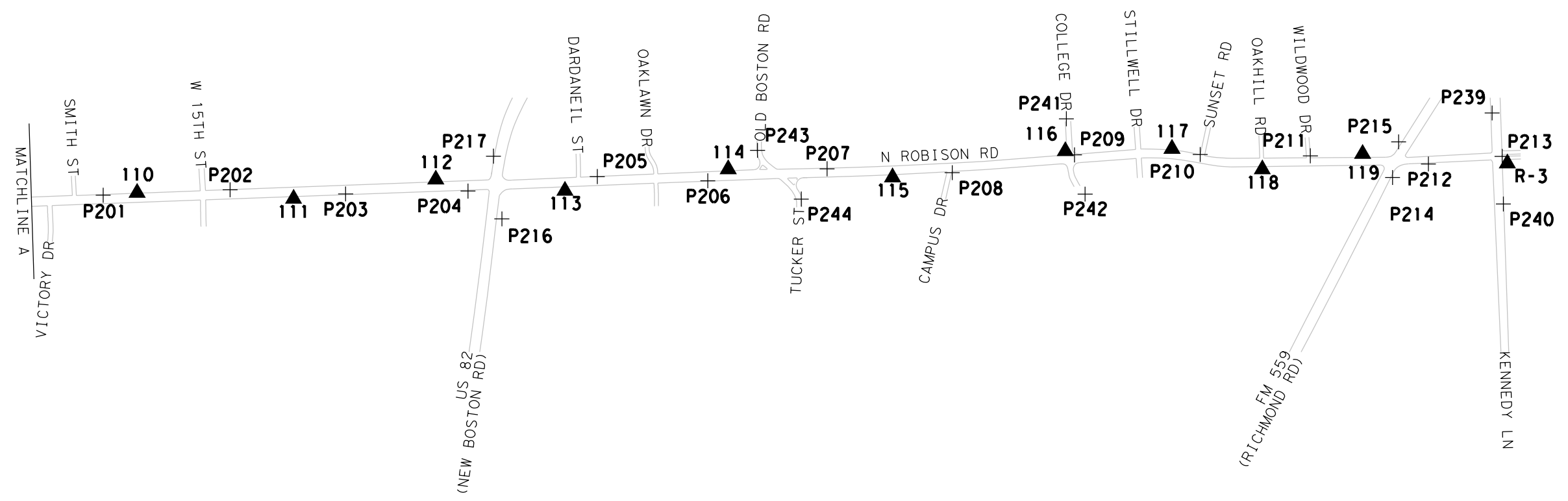
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	TEXAS		ROBISON
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
ATL	BOWIE	0919	19
		JOB NO.	SHEET NO.
		085	27

PAGE 1 OF 2



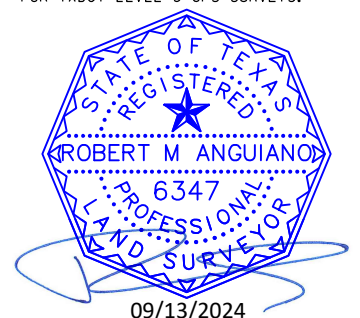
LEGEND

▲ SURVEY CONTROL MONUMENT



NOTES:

1. ALL COORDINATES SHOWN ARE BASED ON NORTH AMERICAN DATUM OF 1983, (NAD83) (2011 ADJUSTMENT, EPOCH 2010.00), TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE.
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5. CONTROL VALUES MEET SPECIFICATIONS FOR TXDOT LEVEL 3 GPS SURVEYS.



09/13/2024

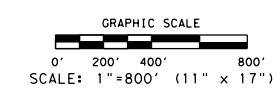
THE CONTROL POINTS SHOWN HEREIN WERE DETERMINED BY A SURVEY MADE ON THE GROUND AND UNDER MY SUPERVISION.

PRIMARY CONTROL POINT NAME	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
R-3	7,241,146.35	3,316,597.82	336.03	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN CONCRETE

SECONDARY CONTROL POINT NAME	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
110	7,232,350.45	3,316,786.70	297.81	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
111	7,233,355.00	3,316,824.84	309.84	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
112	7,234,268.07	3,316,700.94	302.89	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
113	7,235,096.81	3,316,773.10	312.68	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
114	7,236,144.99	3,316,635.03	330.75	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
115	7,237,200.11	3,316,687.11	322.27	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
116	7,238,309.59	3,316,518.76	312.86	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
117	7,238,993.85	3,316,503.86	330.07	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
118	7,239,573.55	3,316,635.37	338.62	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
119	7,240,217.26	3,316,536.80	340.60	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING

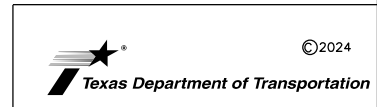
PANEL	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
P201	7,232,133.10	3,316,802.19	296.11	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P202	7,232,947.31	3,316,767.45	307.57	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P203	7,233,689.36	3,316,794.17	307.64	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P204	7,234,474.69	3,316,775.65	303.82	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P205	7,235,304.42	3,316,682.52	317.08	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P206	7,236,013.83	3,316,709.80	329.03	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P207	7,236,780.10	3,316,632.43	323.04	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P208	7,237,582.93	3,316,657.03	319.48	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P209	7,238,368.01	3,316,543.40	312.38	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P210	7,239,174.78	3,316,540.57	330.81	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P211	7,239,882.39	3,316,549.02	341.70	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P212	7,240,639.81	3,316,601.88	338.80	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P213	7,241,113.03	3,316,553.05	335.76	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P214	7,240,409.88	3,316,688.61	337.29	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P215	7,240,448.62	3,316,459.81	342.14	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P216	7,234,692.17	3,316,953.94	304.16	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P217	7,234,638.31	3,316,551.23	305.90	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P239	7,241,048.77	3,316,274.06	338.21	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL
P240	7,241,121.27	3,316,858.57	331.81	THERMAL PLASTIC CHEVRON PANEL WITH MAG NAIL

FROM	TO	BEARING	DISTANCE
R-2	110	N2°03'02"W	953.86'
110	111	N2°10'28"E	1,005.27'
111	112	N7°43'39"W	921.44'
112	113	N4°58'35"E	831.88'
113	114	N7°30'14"W	1,057.23'
114	115	N2°49'33"E	1,056.40'
115	116	N8°37'41"W	1,122.18'
116	117	N1°44'51"W	684.42'
117	118	N12°46'54"E	594.43'
118	119	N8°42'21"W	651.21'
119	R-3	N3°45'27"E	931.09'



UNIT OF MEASUREMENT: U.S. SURVEY FEET

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E.



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TBP ELS #10004100

**N/S ROBISON RD
SURVEY CONTROL INDEX SHEET**

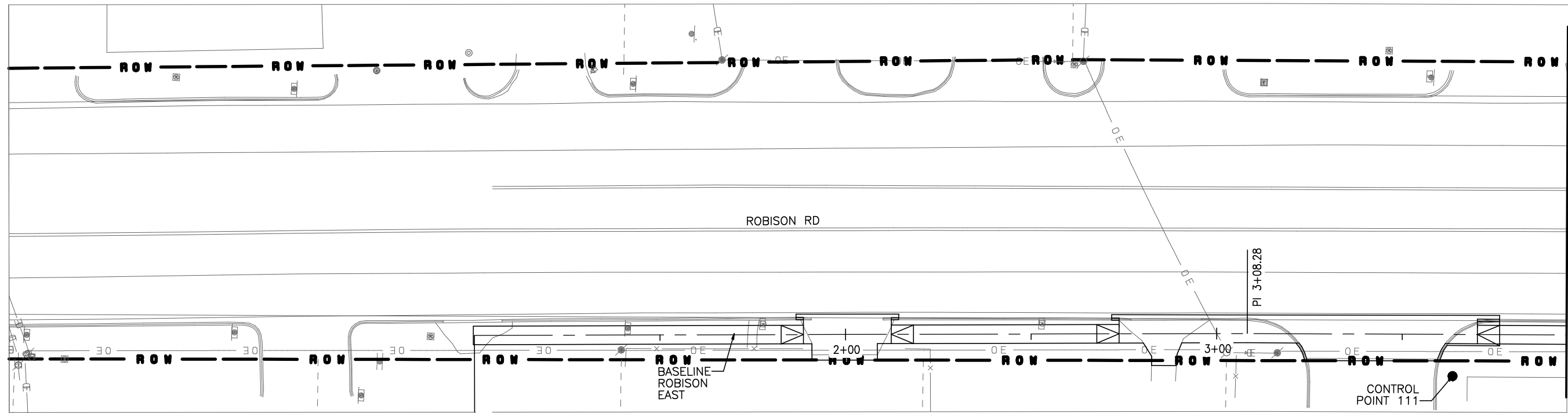
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	TEXAS		ROBISON
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
ATL	BOWIE	0919	19
			JOB NO.
			085
			SHEET NO.
			28

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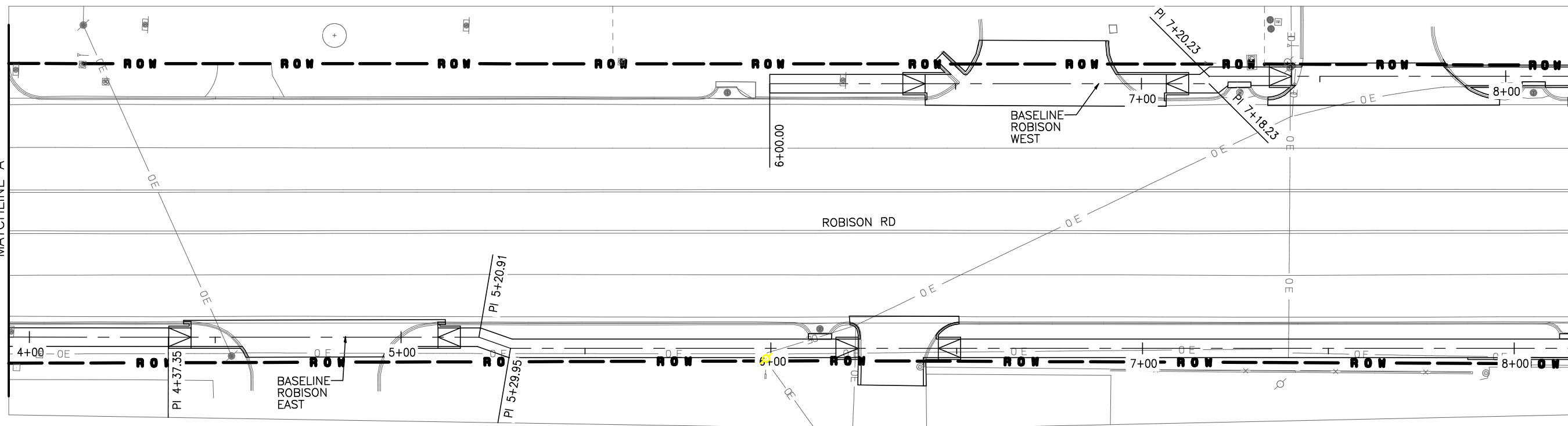
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SCALE: 1" = 30'

MATCHLINE A



SCALE: 1" = 30'

MATCHLINE PAGE 2 OF 11

GENERAL LEGEND			
	APPROX. PROPERTY LINE		MATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

NOTES:
 1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202), NORTH AMERICAN DATUM OF 1983 (2011 ADJ. ; EPOCH 2010.00).
 2. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOD 12B).
 3. COORDINATES AND DISTANCES ARE U.S. SURVEY FEET, DISPLAYED IN SURFACE VALUES, AND AMY BE CONVERTED TO NAD83 (GRID) VALUES BY APPLYING THE SURFACE ADJUSTMENT FACTOR (SAF) FOR BOWIE COUNTY, SAF = 1.00012, USING THE FORMULA: SURFACE / SAF = GRID

NO.	DATE	REVISION	APPROVED

10/2/2024

MTG ENGINEERS & SURVEYORS

5930 SUMMERHILL ROAD TEXARKANA, TX
 P 903.838.8533 www.mtgenr.com
 TBPE FIRM NO. F-354 AR COA NO. 125
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Texas Department of Transportation

HORIZONTAL ALIGNMENT

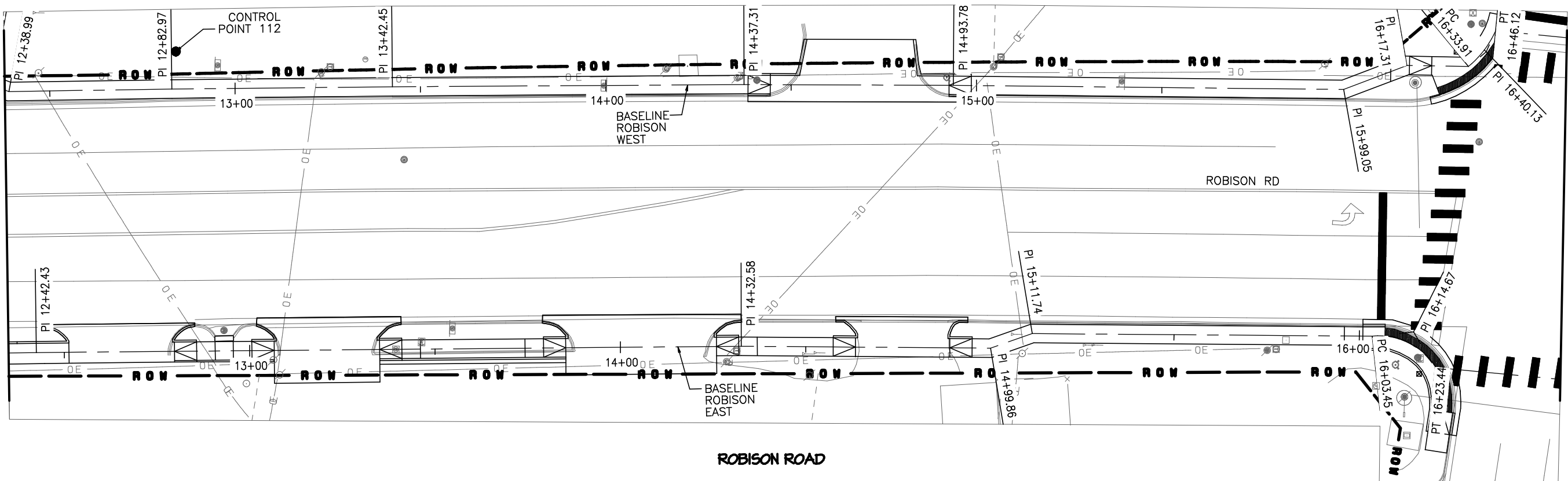
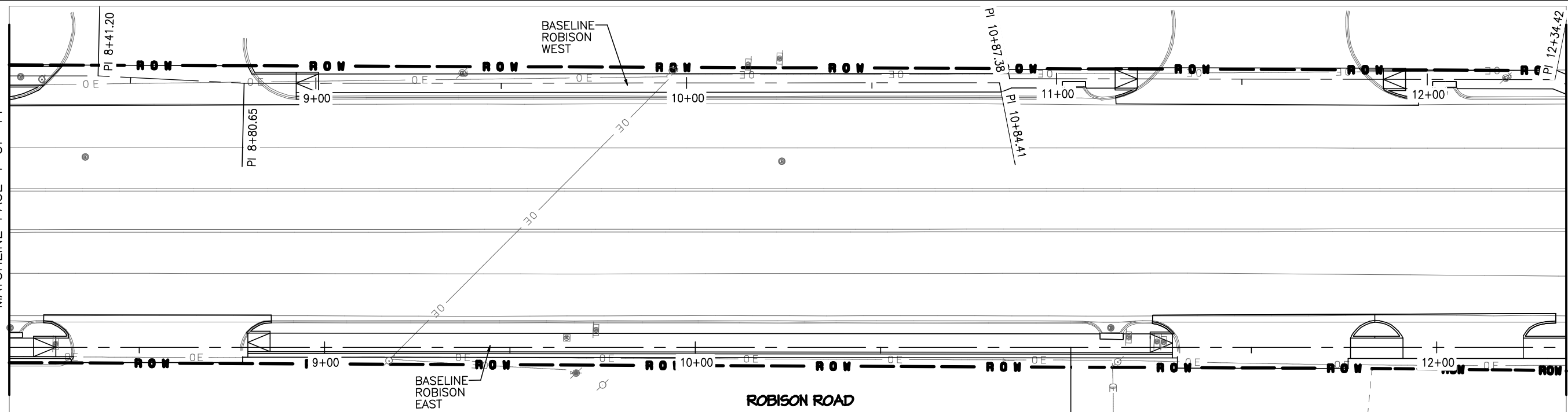
SHEET 1 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	24	

DATE: 10/2/2024
 FILE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_Align.pro

MATCHLINE PAGE 1 OF 11

MATCHLINE B



SCALE: 1" = 30'

SCALE: 1" = 30'

MATCHLINE B

MATCHLINE PAGE 3 OF 11

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

NOTES:
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NO.	DATE	REVISION	APPROVED

10/2/2024

MTG ENGINEERS & SURVEYORS

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 P 903.838.8533 www.mtgengineers.com
 TBPE FIRM NO. F-354 AR COA NO. 125
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Texas Department of Transportation

HORIZONTAL ALIGNMENT

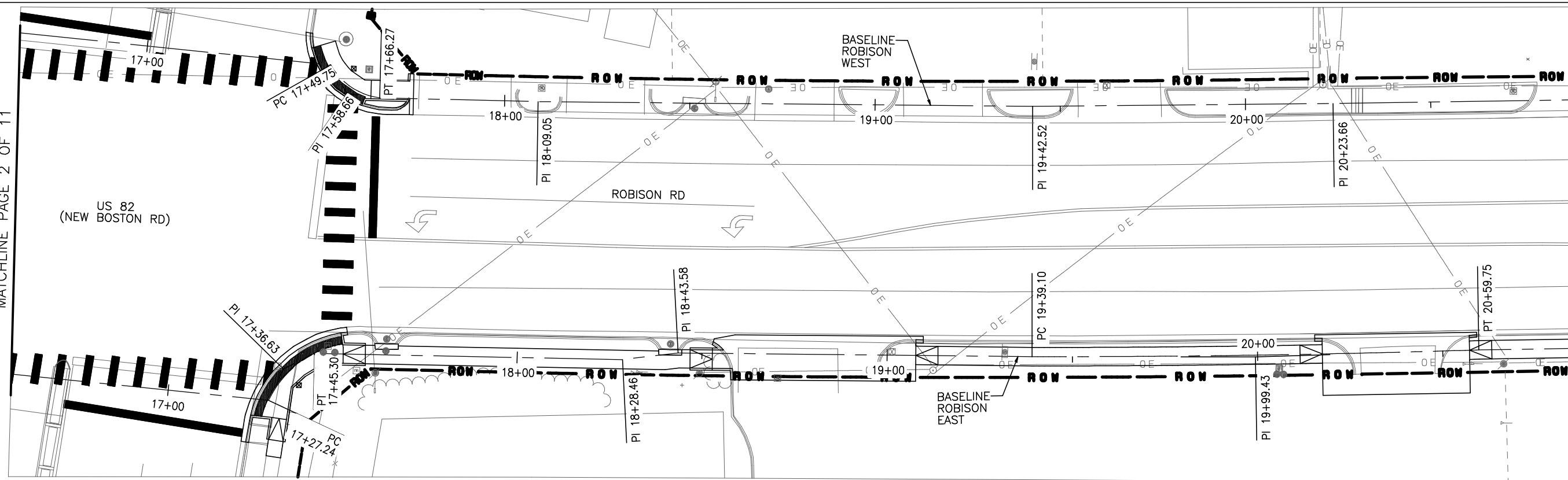
SHEET 2 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	30	

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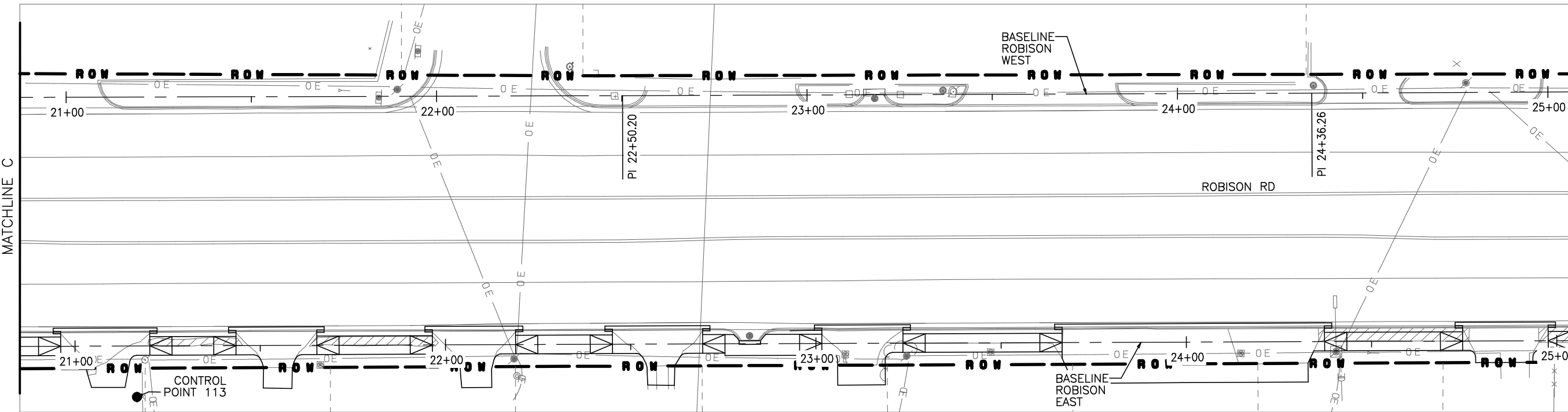
MATCHLINE PAGE 2 OF 11

MATCHLINE C



ROBISON ROAD

SCALE: 1" = 30'



ROBISON ROAD

SCALE: 1" = 30'

MATCHLINE C

MATCHLINE PAGE 4 OF 11

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW - APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

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NO.	DATE	REVISION	APPROVED

10/2/2024

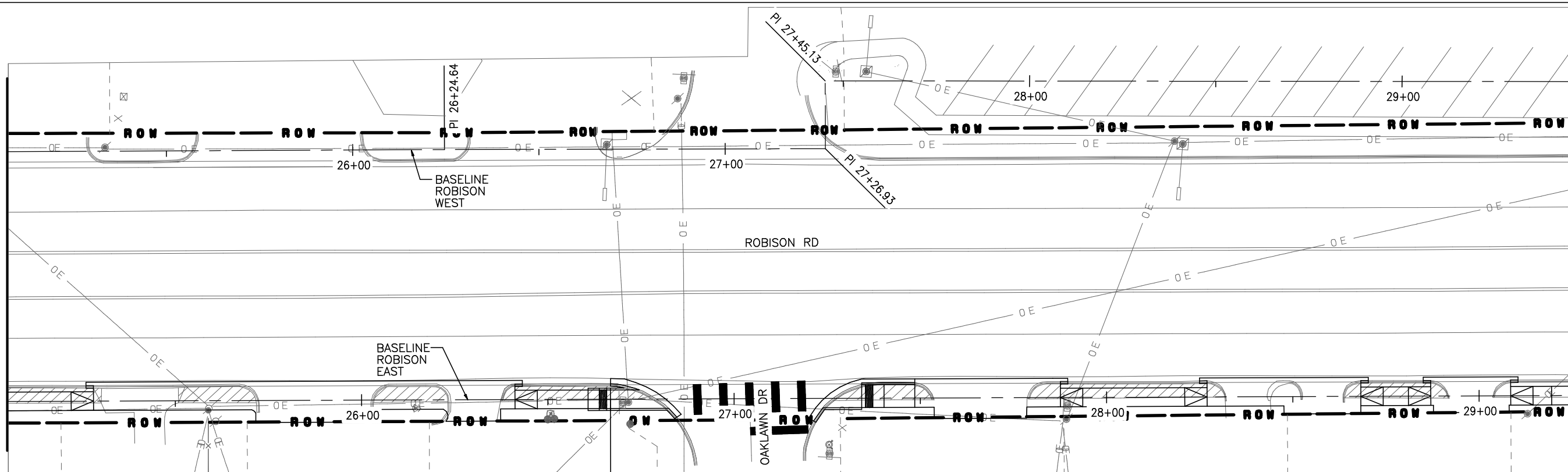
HORIZONTAL ALIGNMENT

SHEET 3 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	31	

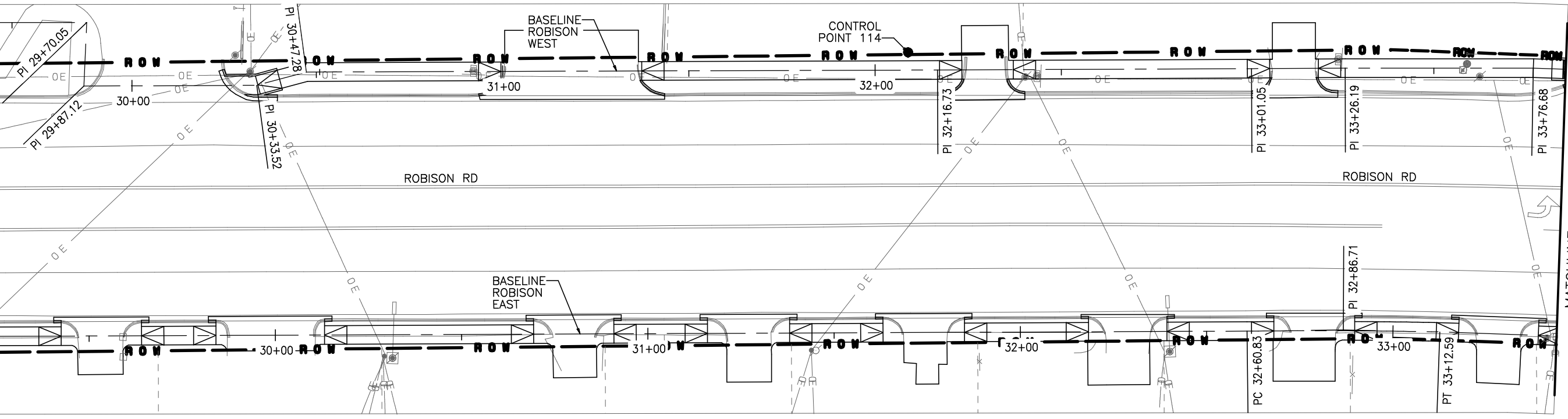
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MATCHLINE PAGE 3 OF 11



SCALE: 1" = 30'

MATCHLINE D



SCALE: 1" = 30'

MATCHLINE PAGE 5 OF 11

ROBISON ROAD

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW		SIGN (TYPICAL)
	APPROX. EXISTING ROW		FIRE HYDRANT
	TEMPORARY WORK AREA		LIGHT POLE
	OVERHEAD POWER LINE		TELEPHONE JUNCTION BOX
	WATER MAIN		ELECTRIC JUNCTION BOX
	SANITARY SEWER MAIN		GUY WIRE
	TELEPHONE LINE		TREE
	POWER POLE		
	WATER METER		

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10/2/2024

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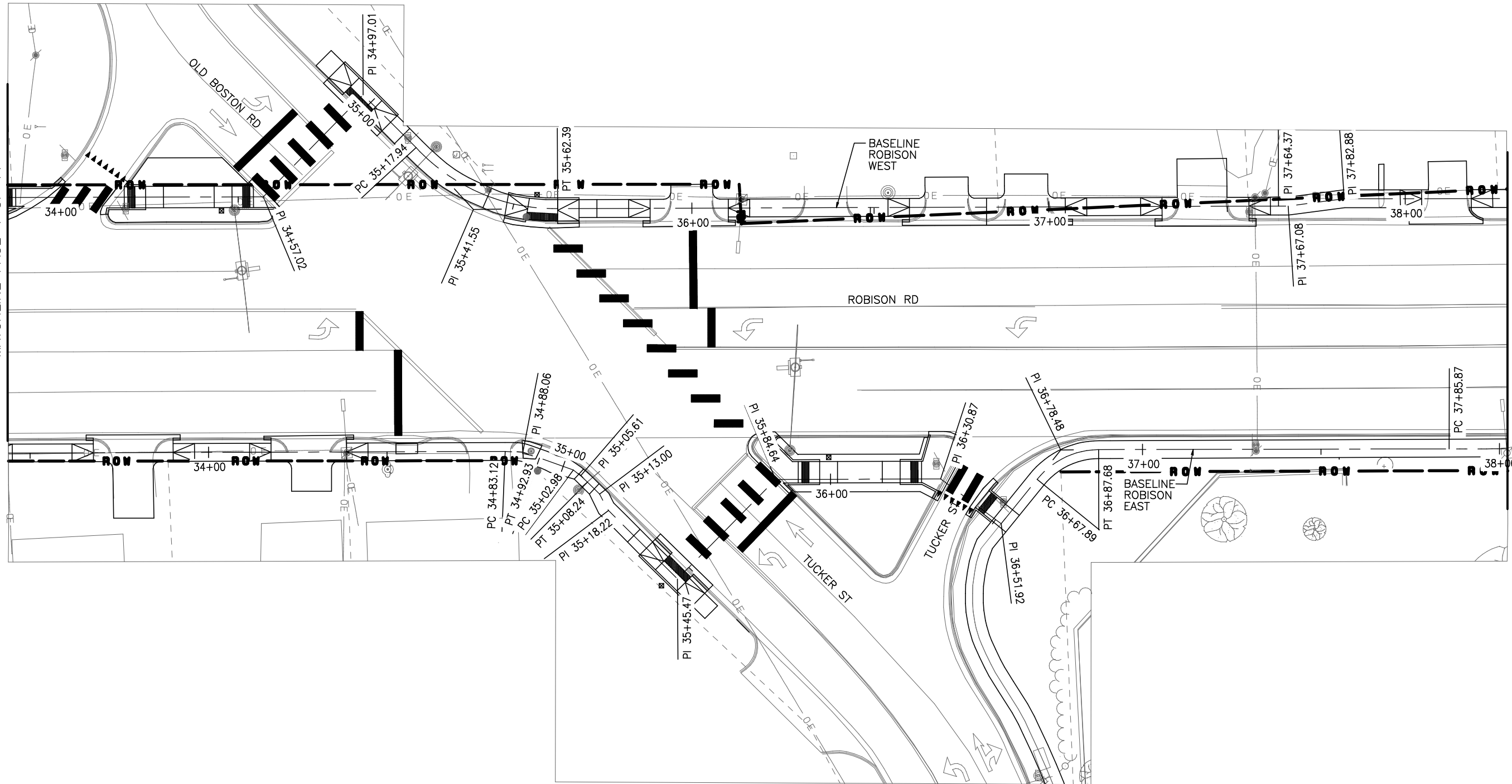
HORIZONTAL ALIGNMENT

SHEET 4 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	32	

DATE: 10/2/2024
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MATCHLINE PAGE 4 OF 11



SCALE: 1" = 30'

MATCHLINE PAGE 6 OF 11

ROBISON ROAD

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW - APPROX. EXISTING R.O.W.		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OE - OVERHEAD POWER LINE		LIGHT POLE
	W - WATER MAIN		TELEPHONE JUNCTION BOX
	S - SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	T - TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

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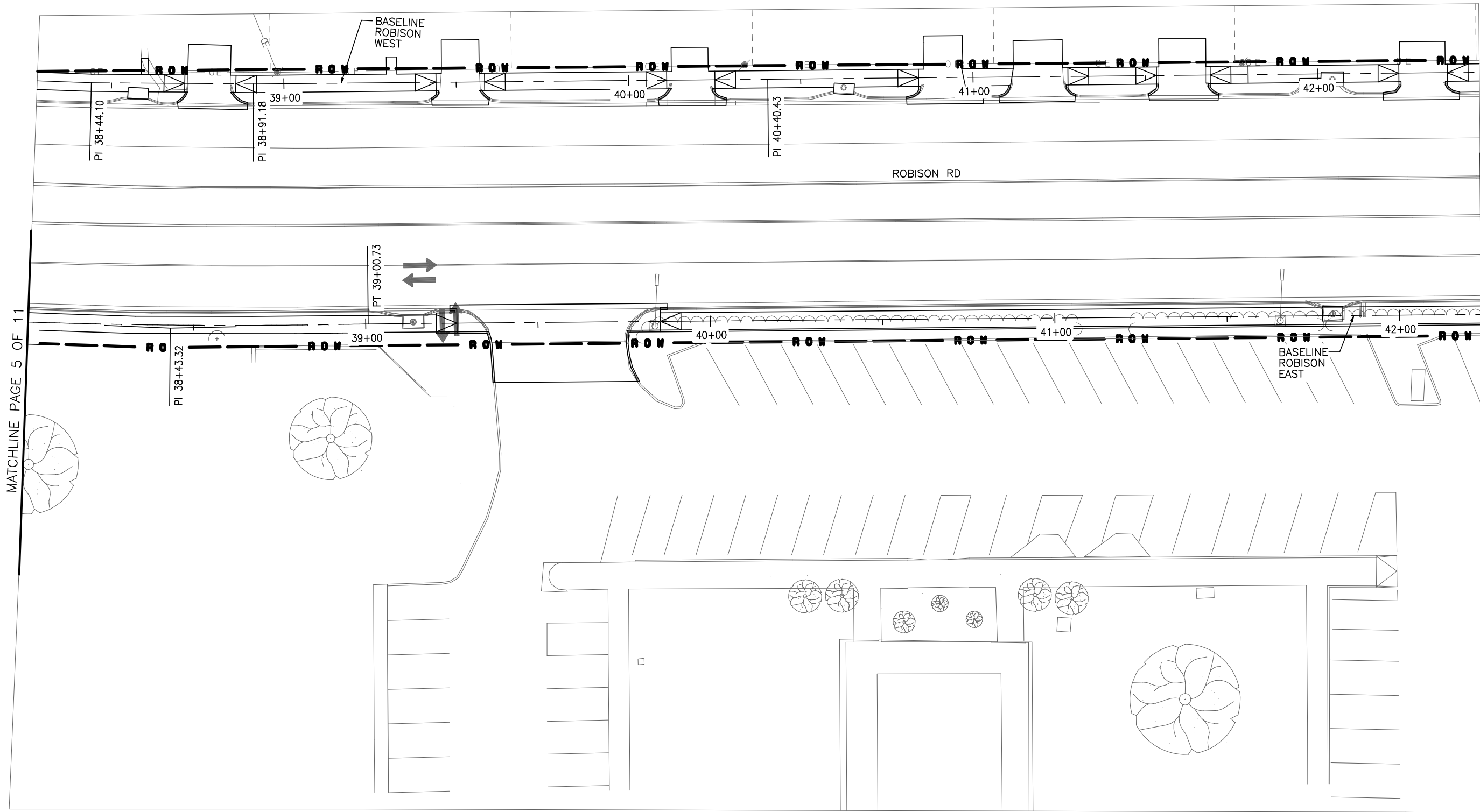
HORIZONTAL ALIGNMENT

SHEET 5 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	33	

DATE: 10/2/2024
 FILE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_Align.pro

MATCHLINE PAGE 5 OF 11



SCALE: 1" = 30'

MATCHLINE PAGE 7 OF 11

ROBISON ROAD

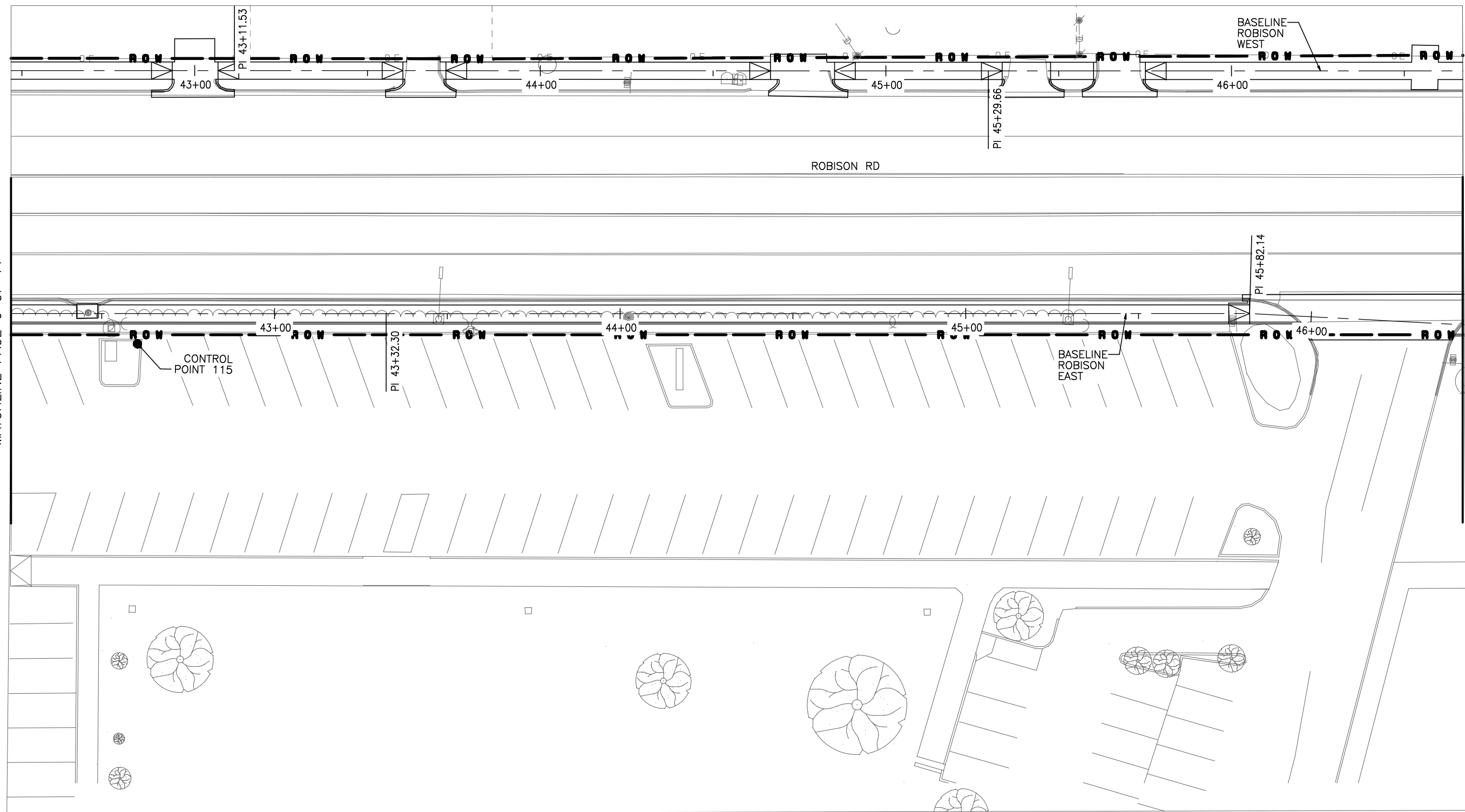
GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW - APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

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NO.	DATE	REVISION	APPROVED																
				<p>HORIZONTAL ALIGNMENT</p> <p>SHEET 6 OF 11</p>															
	<table border="1"> <thead> <tr> <th>CONT</th> <th>SECT</th> <th>JOB</th> <th>HIGHWAY</th> </tr> </thead> <tbody> <tr> <td>0919</td> <td>19</td> <td>085</td> <td>CS</td> </tr> <tr> <th>DIST</th> <th>COUNTY</th> <th colspan="2">SHEET NO.</th> </tr> <tr> <td>ATL</td> <td>BOWIE</td> <td colspan="2">34</td> </tr> </tbody> </table>			CONT	SECT	JOB	HIGHWAY	0919	19	085	CS	DIST	COUNTY	SHEET NO.		ATL	BOWIE	34	
CONT	SECT	JOB	HIGHWAY																
0919	19	085	CS																
DIST	COUNTY	SHEET NO.																	
ATL	BOWIE	34																	

DATE: 10/2/2024
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MATCHLINE PAGE 6 OF 11



SCALE: 1" = 30'

MATCHLINE PAGE 8 OF 11

ROBISON ROAD

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW - APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

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10/2/2024

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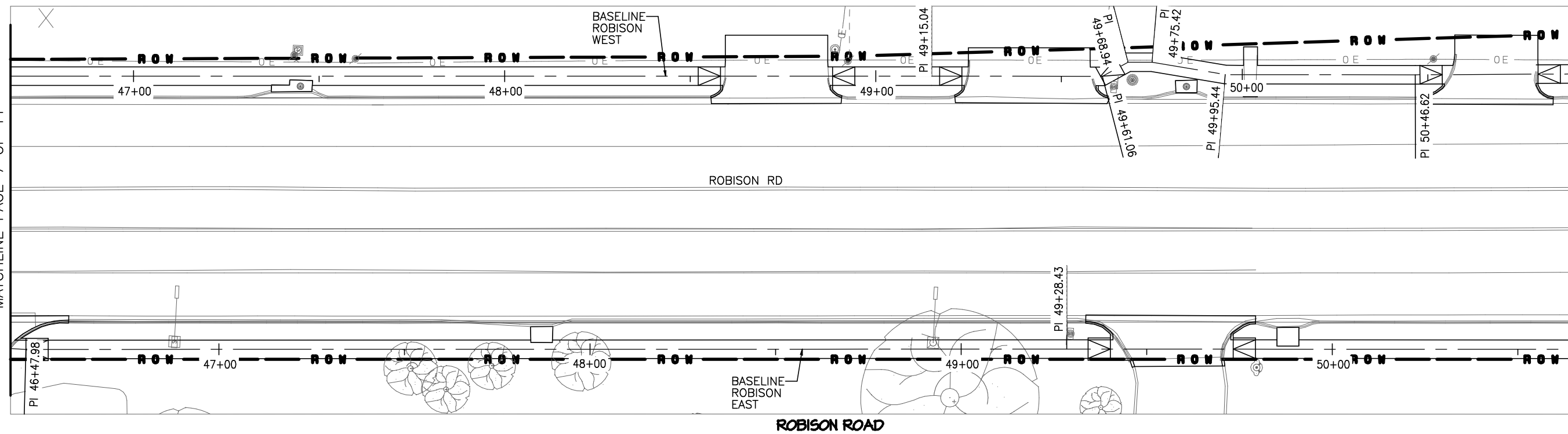
HORIZONTAL ALIGNMENT

SHEET 7 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	35	

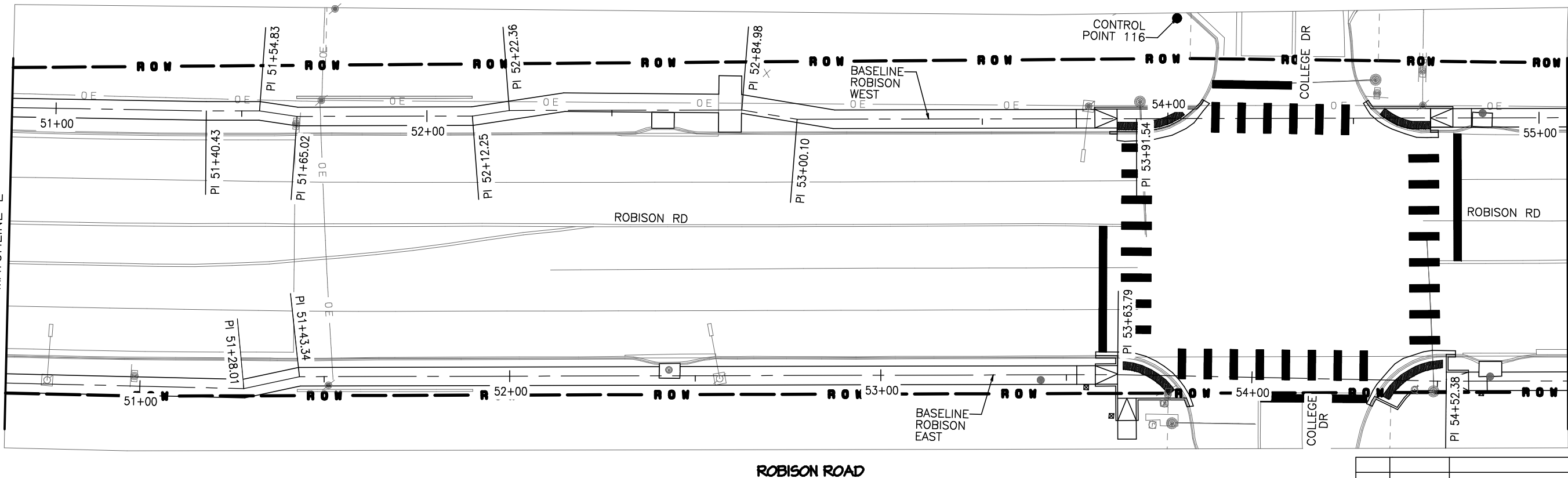
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MATCHLINE PAGE 7 OF 11



SCALE: 1" = 30'

MATCHLINE E



SCALE: 1" = 30'

MATCHLINE PAGE 9 OF 11

ROBISON ROAD

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW - APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

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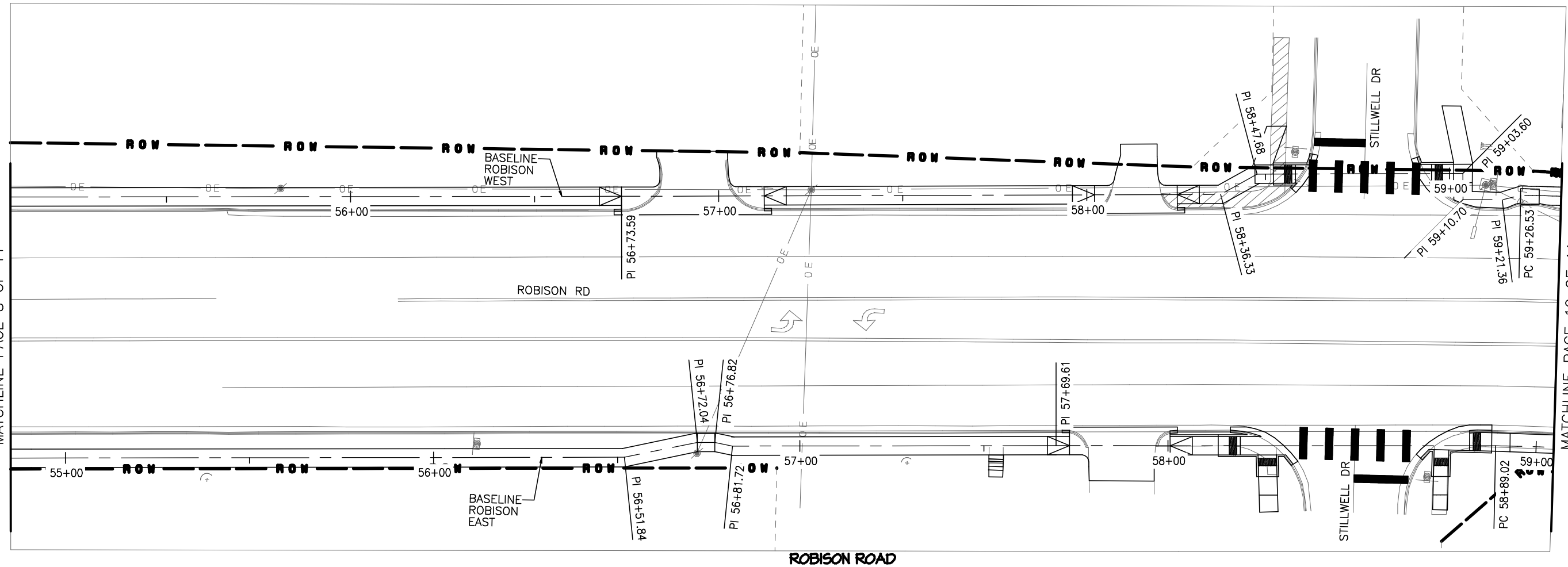
HORIZONTAL ALIGNMENT

SHEET 8 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	36	

DATE: 10/2/2024
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MATCHLINE PAGE 8 OF 11



SCALE: 1" = 30'

MATCHLINE PAGE 10 OF 11

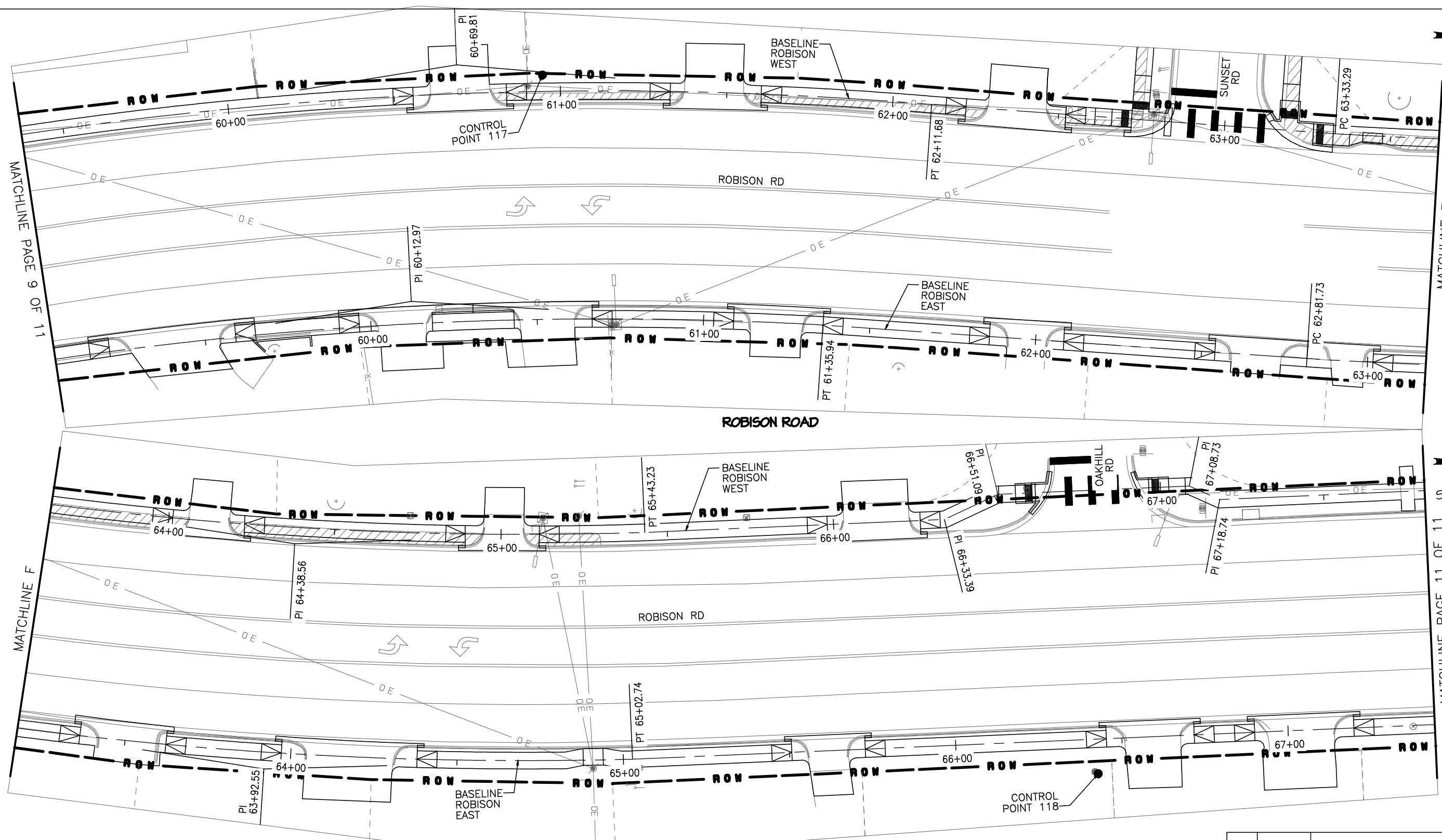
GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW		SIGN (TYPICAL)
	APPROX. EXISTING R.O.W.		FIRE HYDRANT
	TEMPORARY WORK AREA		LIGHT POLE
	OVERHEAD POWER LINE		TELEPHONE JUNCTION BOX
	WATER MAIN		ELECTRIC JUNCTION BOX
	SANITARY SEWER MAIN		GUY WIRE
	TELEPHONE LINE		TREE
	POWER POLE		
	WATER METER		

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NO.	DATE	REVISION	APPROVED
HORIZONTAL ALIGNMENT			
SHEET 9 OF 11			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	31	

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SCALE: 1" = 30'

SCALE: 1" = 30'

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW		SIGN (TYPICAL)
	APPROX. EXISTING ROW/L		FIRE HYDRANT
	TEMPORARY WORK AREA		LIGHT POLE
	OVERHEAD POWER LINE		TELEPHONE JUNCTION BOX
	WATER MAIN		ELECTRIC JUNCTION BOX
	SANITARY SEWER MAIN		GUY WIRE
	TELEPHONE LINE		TREE
	POWER POLE		
	WATER METER		

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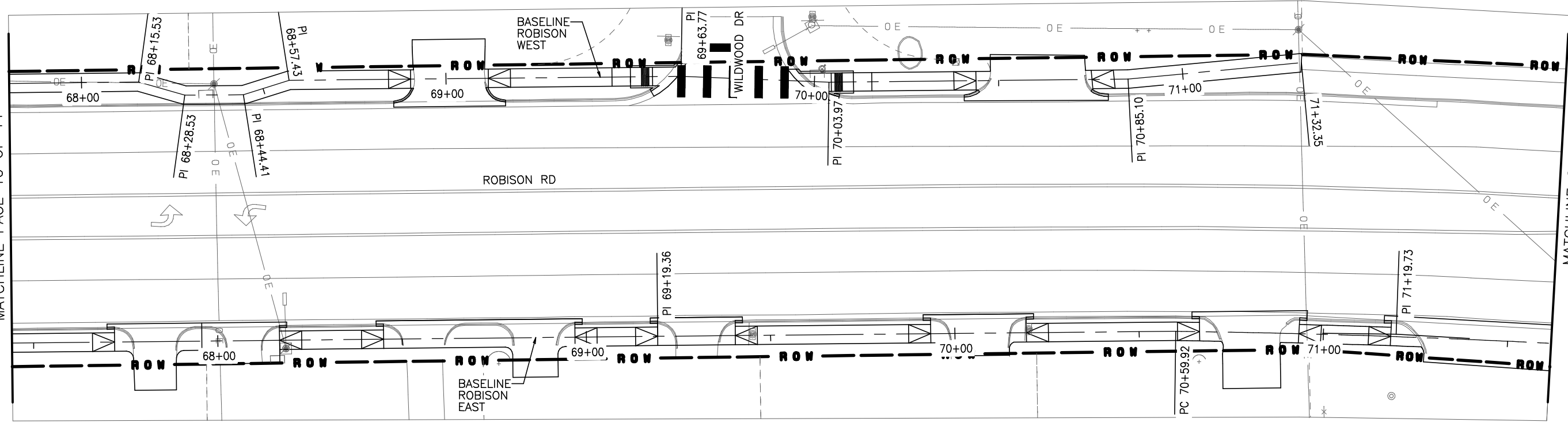
SHEET 10 OF 11

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	36	

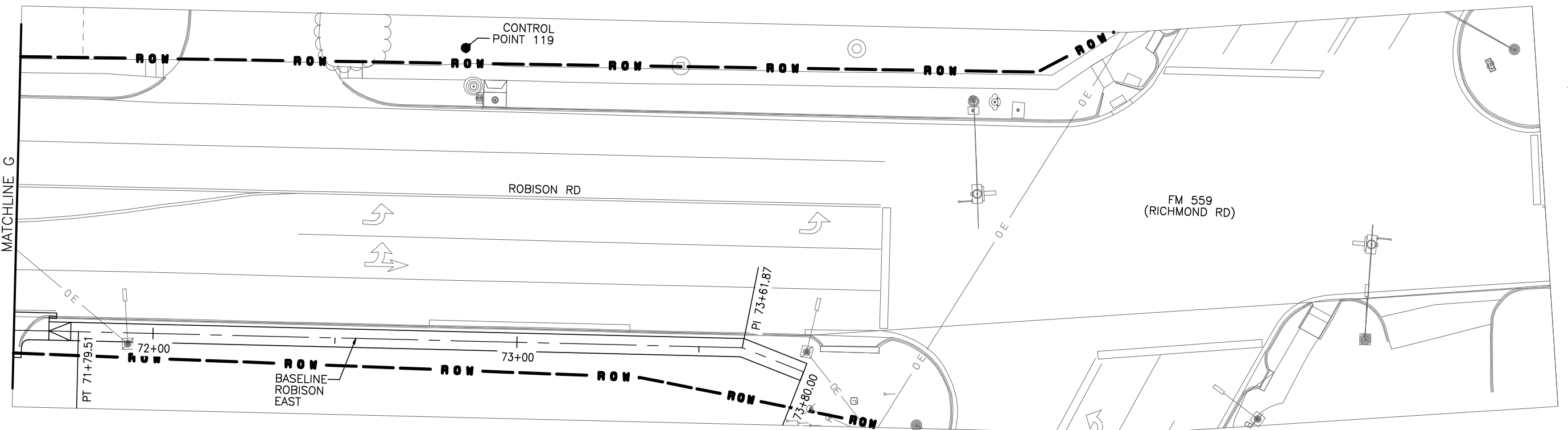
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MATCHLINE PAGE 10 OF 11

MATCHLINE G



SCALE: 1" = 30'



SCALE: 1" = 30'

GENERAL LEGEND			
	APPROX. PROPERTY LINE		WATER VALVE
	CURB AND GUTTER		SANITARY SEWER MANHOLE
	BUILDING EDGE		STORM DRAIN MANHOLE
	ROW APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

ROBISON ROAD

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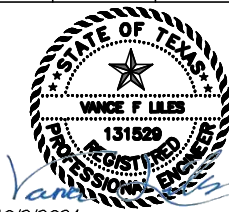

SHEET 11 OF 11


CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	34	

DATE: 10/2/2024
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Alignment Name: Baseline West Robison Sidewalk

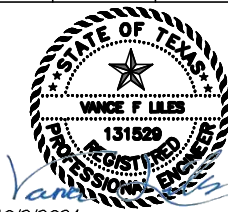

Point Number	Bearing	Description	Chainage	Northing	Easting	Elevation											
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	N02°11'52"W	118.23															
72996			7+18.23	7233705.4835	3316731.9213												
	S87°48'08"W	2.00															
73016			7+20.23	7233705.4068	3316729.9228												
	N02°11'52"W	120.97															
73017			8+41.20	7233826.2903	3316725.2836												
	N00°43'19"E	39.45															
73018			8+80.65	7233865.7369	3316725.7806												
	N02°14'10"W	203.76															
73019			10+84.41	7234069.3388	3316717.8308												
	N23°53'11"W	2.97															
73020			10+87.38	7234072.0540	3316716.6284												
	N02°05'06"W	147.05															
73021			12+34.42	7234219.0028	3316711.2784												
	N19°42'59"E	4.57															
73022			12+38.99	7234223.3043	3316712.8200												
	N02°14'10"W	43.98															
73034			12+82.97	7234267.2510	3316711.1040												
	N01°56'47"W	59.48															
73035			13+42.45	7234326.6933	3316709.0840												
	N01°42'29"W	94.86															
73036			14+37.31	7234421.5107	3316706.2563												
	N01°09'41"W	56.47															
73037			14+93.78	7234477.9657	3316705.1118												
	N00°44'38"W	105.28															
73038			15+99.05	7234583.2362	3316703.7451												
	N22°10'33"W	18.25															
73039			16+17.31	7234600.1381	3316696.8558												
	N00°22'28"W	16.60															
73040			16+33.91	7234616.7395	3316696.7473												
	N02°22'28"W	16.60															
73041			16+33.91	7234599.6890	3316676.9412												
	N02°22'28"W	16.60															
		Radius:															
		Delta:															
		Arc Length:															
		Chord Bearing:															
		Chord Length:															
		Middle Ordinate:															
		External:															
		Deg of Curvature:															
		Tangent:															
73042			16+46.12	7234623.8337	3316686.9430												
	N04°10'12"E	103.62															
73043			17+49.75	7234727.1843	3316694.4783												
	N04°10'12"E	103.62															
73044			17+49.75	7234742.4077	3316685.2512												
	N04°10'12"E	103.62															
		Radius:															
		Delta:															
		Arc Length:															
		Chord Bearing:															
		Chord Length:															
		Middle Ordinate:															
		External:															
		Deg of Curvature:															
		Tangent:															
73045			17+66.27	7234740.6758	3316702.9682												
	N00°22'45"W	42.78															
73046			18+09.05	7234783.4532	3316702.6851												
	N01°11'39"W	133.47															
73047			19+42.52	7234916.8969	3316699.9038												
	N02°16'24"W	81.14															
73048			20+23.66	7234997.9723	3316696.6851												
	N02°37'23"W	226.53															
73049			22+50.20	7235224.2671	3316686.3181												
	N02°40'03"W	186.06															
73050			24+36.26	7235410.1282	3316677.6587												
	N02°43'56"W	188.38															
73051			26+24.64	7235598.2986	3316668.6785												
	N02°35'31"W	102.28															
73052			27+26.93	7235700.4774	3316664.0529												
	S87°19'20"W	18.20															
73053			27+45.13	7235699.6271	3316645.8730												
	N02°24'26"W	224.92															
73054			29+70.05	7235924.3473	3316636.4258												
	S89°56'17"E	17.07															
73055			29+87.12	7235924.3288	3316653.4979												
	N02°41'03"W	46.40															
73056			30+33.52	7235970.6800	3316651.3249												
	N17°27'08"W	13.76															
73057			30+47.28	7235983.8029	3316647.1992												
	N02°37'30"W	169.45															
73058			32+16.73	7236153.0782	3316639.4384												
	N02°41'09"W	84.32															
73059			33+01.05	7236237.3036	3316635.4872												
	N02°45'49"W	25.14															
73060			33+26.19	7236262.4141	3316634.2751												
	N02°25'18"W	50.49															
73061			33+76.68	7236312.8592	3316632.1418												
	N00°25'47"W	80.35															
73062			34+57.02	7236393.2046	3316631.5391												
	N45°51'18"W	39.98															
73063			34+97.01	7236421.0530	3316602.8468												

NO.		DATE		REVISION		APPROVED	
							
CONT	SECT	JOB	HIGHWAY				
0919	19	085	CS				
DIST		COUNTY		SHEET NO.			
ATL		BOWIE		40			

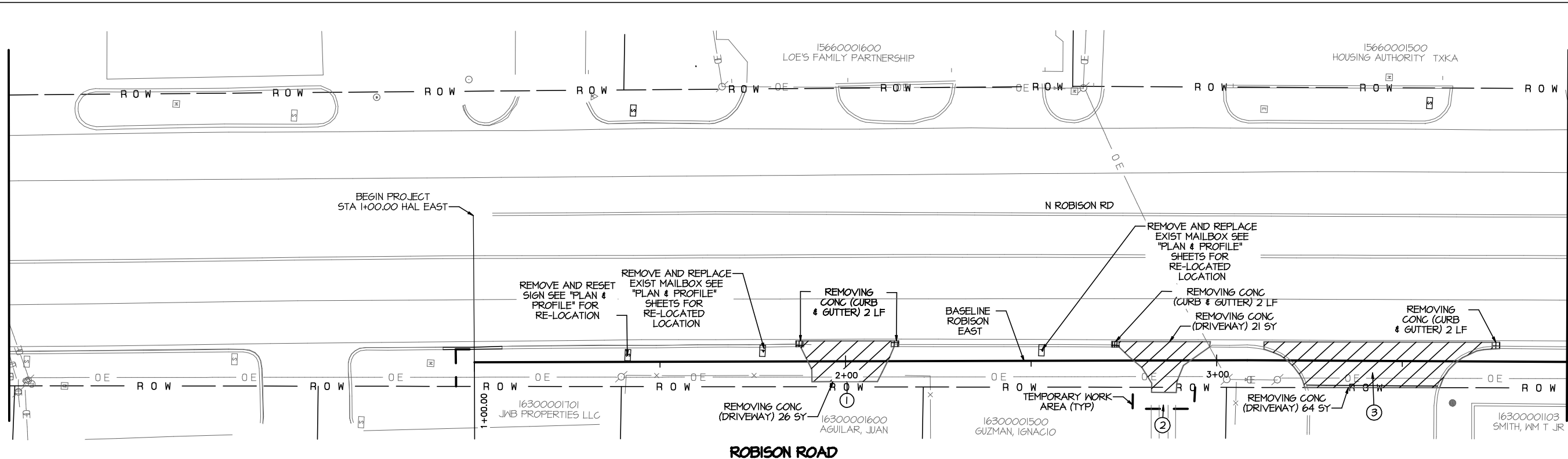

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Alignment Name: Baseline East Robison Sidewalk																
Bearing	Distance	Station	Northing	Easting												
					N00°00'00"E	0.00		33+12.59	7236290.8002	3316703.9687	N04°25'32"W	199.47		54+52.38	7238389.2293	3316610.8687
					N00°28'48"W	170.53		33+12.59	7236290.8002	3316703.9687	N15°50'13"W	20.20		56+51.84	7238588.1008	3316595.4770
N02°34'38"W	208.28	1+00.00	7233091.2145	3316825.0769	N00°00'00"W	0.00		34+83.12	7236461.3250	3316702.5402	N04°25'55"W	4.78		56+72.04	7238607.5333	3316589.9647
N02°10'00"W	129.07	3+08.28	7233299.2828	3316815.7111	Begin Circular Arc—			34+83.12	7236461.3250	3316702.5402	N07°18'20"E	4.90		56+76.82	7238612.2947	3316589.5956
N02°11'14"W	83.56	4+37.35	7233428.2628	3316810.8316	Arc Center:				7236460.1353	3316735.4355	N04°25'32"W	87.89		56+81.72	7238617.1583	3316590.2191
N17°12'09"E	9.04	5+20.91	7233511.7597	3316807.6428	Radius:	32.92					N04°20'09"W	119.41		57+69.61	7238704.7887	3316583.4370
N02°11'14"W	571.32	5+29.95	7233520.3920	3316810.3153	Delta:	17°04'52" Right					N90°00'00"W	0.00		58+89.02	7238823.8546	3316574.4097
N02°12'01"W	141.17	11+01.27	7234091.2968	3316788.5120	Arc Length:	9.81					Begin Circular Arc—			58+89.02	7238823.8546	3316574.4097
N01°52'20"W	190.15	12+42.43	7234232.3578	3316783.0927	Chord Bearing:	N10°36'42"E					Arc Center:			7238887.3973	3317710.8503	
N00°55'15"W	67.27	14+32.58	7234422.4096	3316776.8798	Chord Length:	9.78					Radius:	1138.22				
N20°35'09"W	11.89	14+99.86	7234489.6745	3316775.7986	Middle Ordinate:	0.37					Delta:	12°25'45" Right				
N00°55'15"W	91.70	15+11.74	7234500.8019	3316771.6192	External:	0.37					Arc Length:	246.91				
N90°00'00"W	0.00	16+03.45	7234592.4919	3316770.1454	Deg of Curvature:	174°03'45" Arc Definition					Chord Bearing:	N03°00'52"E				
Begin Circular Arc—		16+03.45	7234592.4919	3316770.1454	Tangent:	4.94					Chord Length:	246.43				
Arc Center:			7234594.7412	3316787.6428	PI Chainage:	34+88.06					Middle Ordinate:	6.69				
Radius:	17.64				N19°09'08"E	10.05					External:	6.73				
Delta:	64°56'40" Right				N90°00'00"W	0.00					Deg of Curvature:	5°02'02" Arc Definition				
Arc Length:	20.00				Begin Circular Arc—						Tangent:	123.94				
Chord Bearing:	N25°08'49"E				Arc Center:						PI Chainage:	60+12.97				
Chord Length:	18.94				Radius:	34.42					N90°00'00"W	0.00				
Middle Ordinate:	2.76				Delta:	8°45'10" Right					N09°54'55"E	145.79				
External:	3.27				Arc Length:	5.26					N90°00'00"W	0.00				
Deg of Curvature:	324°46'45" Arc Definition				Chord Bearing:	N40°30'24"E					Begin Circular Arc—					
Tangent:	11.23				Middle Ordinate:	0.10					Arc Center:					
PI Chainage:	16+14.67				External:	0.10					Radius:	1200.98				
N90°00'00"W	0.00	16+23.44	7234609.6395	3316778.1950	Deg of Curvature:	166°28'33" Arc Definition					Delta:	10°32'39" Left				
N04°04'09"E	103.79	16+23.44	7234609.6395	3316778.1950	Tangent:	2.63					Arc Length:	221.02				
N90°00'00"W	0.00	17+27.24	7234713.1726	3316785.5605	PI Chainage:	35+05.61					Chord Bearing:	N04°24'11"E				
Begin Circular Arc—		17+27.24	7234713.1726	3316785.5605	N90°00'00"W	0.00					Chord Length:	220.70				
Arc Center:			7234737.7535	3316796.1723	N04°29'10"E	4.76					Middle Ordinate:	5.08				
Radius:	26.77				N61°11'07"E	5.22					External:	5.10				
Delta:	38°38'40" Right				N44°29'10"E	27.25					Deg of Curvature:	4°46'15" Arc Definition				
Arc Length:	18.06				N45°41'33"W	39.17					Tangent:	110.82				
Chord Bearing:	N47°19'39"W				N00°25'55"W	46.23					PI Chainage:	63+92.55				
Chord Length:	17.72				N36°09'18"E	21.06					N90°00'00"W	0.00				
Middle Ordinate:	1.51				N51°15'21"W	15.97					N01°49'04"W	416.62				
External:	1.60				Begin Circular Arc—						N01°45'57"W	140.56				
Deg of Curvature:	214°00'00" Arc Definition				Arc Center:						N90°00'00"W	0.00				
Tangent:	9.39				Radius:	22.50					Begin Circular Arc—					
PI Chainage:	17+36.63				Delta:	50°22'50" Right					Arc Center:					
N90°00'00"W	0.00	17+45.30	7234725.1819	3316772.5337	Arc Length:	19.78					Radius:	2684.39				
N00°36'27"W	83.16	17+45.30	7234725.1819	3316772.5337	Chord Bearing:	N26°03'56"W					Delta:	2°33'10" Right				
N08°32'00"W	15.13	18+28.46	7234808.3379	3316771.6521	Chord Length:	19.15					Arc Length:	119.60				
N01°08'20"W	95.51	18+43.58	7234823.2962	3316769.4077	Middle Ordinate:	2.14					Chord Bearing:	N00°48'26"E				
N90°00'00"W	0.00	19+39.10	7234918.7917	3316767.5093	External:	2.36					Chord Length:	119.59				
Begin Circular Arc—		19+39.10	7234918.7917	3316767.5093	Deg of Curvature:	254°38'52" Arc Definition					Middle Ordinate:	0.67				
Arc Center:			7234812.9699	3313111.4184	Tangent:	10.58					External:	0.67				
Radius:	3657.62				PI Chainage:	36+78.48					Deg of Curvature:	2°08'04" Arc Definition				
Delta:	1°53'24" Left				N90°00'00"W	0.00					Tangent:	59.81				
Arc Length:	120.66				N00°24'19"W	98.19					PI Chainage:	71+19.73				
Chord Bearing:	N02°36'11"W				N90°00'00"W	0.00					N90°00'00"W	0.00				
Chord Length:	120.65				Begin Circular Arc—						N01°58'26"E	182.36				
Middle Ordinate:	0.50				Arc Center:						N22°08'35"E	18.13				
External:	0.50				Radius:	1849.19										
Deg of Curvature:	1°33'59" Arc Definition				Delta:	3°33'31" Left										
Tangent:	60.33				Arc Length:	114.85										
PI Chainage:	19+99.43				Chord Bearing:	N01°53'08"W										
N90°00'00"W	0.00	20+59.75	7235039.3191	3316762.0300	Chord Length:	114.84										
N02°40'17"W	607.03	20+59.75	7235039.3191	3316762.0300	Middle Ordinate:	0.89										
N02°40'52"W	594.04	26+66.79	7235645.6921	3316733.7369	External:	0.89										
N90°00'00"W	0.00	32+60.83	7236239.0810	3316705.9494	Deg of Curvature:	3°05'54" Arc Definition										
Begin Circular Arc—		32+60.83	7236239.0810	3316705.9494	Tangent:	57.45										
Arc Center:			7236327.5836	3318340.6645	PI Chainage:	38+43.32										
Radius:	1637.11				N90°00'00"W	0.00										
Delta:	1°48'41" Right				N02°55'46"W	431.58										
Arc Length:	51.76				N02°58'28"W	249.84										
Chord Bearing:	N02°11'36"W				N00°04'22"E	65.84										
Chord Length:	51.76				N02°58'28"W	280.45										
Middle Ordinate:	0.20				N02°56'13"W	199.58										
External:	0.20				N16°21'43"W	15.33										
Deg of Curvature:	3°29'59" Arc Definition				N04°25'32"W	220.45										
Tangent:	25.88				N03°07'55"W	88.58										
PI Chainage:	32+86.71															

NO.	DATE	REVISION	APPROVED
		 ROBISON EAST HORIZONTAL ALIGNMENT DATA	
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	41	

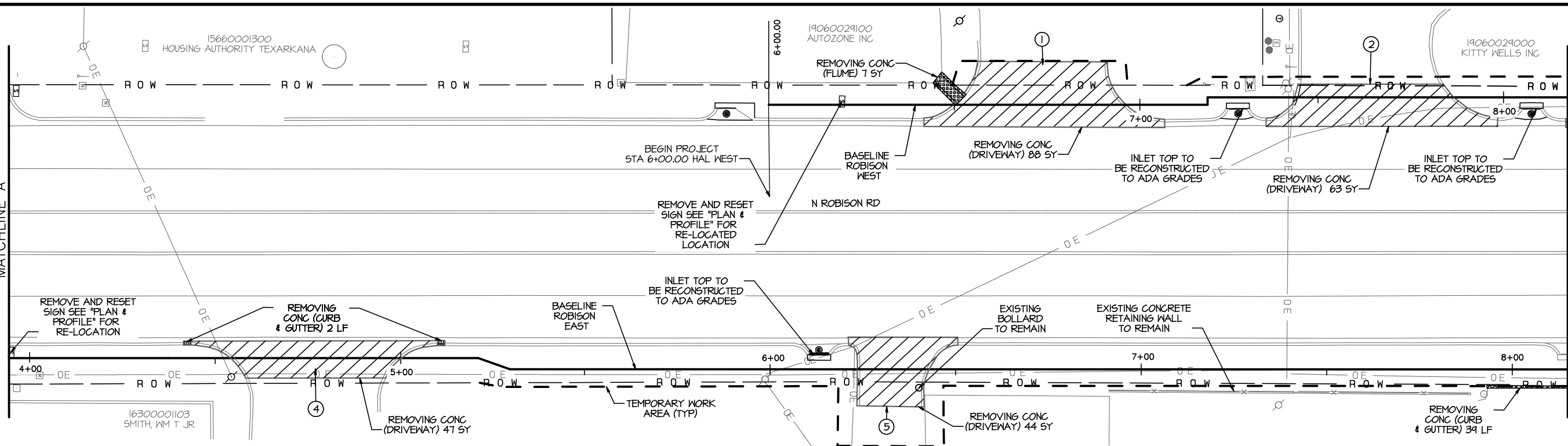
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SCALE: 1" = 30'

MATCHLINE A

ROBISON ROAD



SCALE: 1" = 30'

MATCHLINE PAGE 2 OF 10

ROBISON ROAD

GENERAL LEGEND

	APPROX. PROPERTY LINE		DRIVEWAY NUMBER
	CURB AND GUTTER		WATER VALVE
	BUILDING EDGE		SANITARY SEWER MANHOLE
	ROW		STORM DRAIN MANHOLE
	APPROX. EXISTING ROW		SIGN (TYPICAL)
	TEMPORARY WORK AREA		FIRE HYDRANT
	OVERHEAD POWER LINE		LIGHT POLE
	WATER MAIN		TELEPHONE JUNCTION BOX
	SANITARY SEWER MAIN		ELECTRIC JUNCTION BOX
	TELEPHONE LINE		GUY WIRE
	POWER POLE		TREE
	WATER METER		

REMOVAL PLAN LEGEND

	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
	REMOVE CURB & GUTTER
	REMOVE SIDEWALK OR CURB RAMP
	REMOVE & RECONSTRUCT INLET TOP
	REMOVE & RESET SIGN AND SIGN POST
	REMOVE TREE

- NOTES:
- SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
 - ALL OFFSETS ARE BASED OFF ROBISON SIDEWALK BASELINE EAST OR WEST UNLESS OTHERWISE NOTED.
 - ONE CALL IS REQUIRED BEFORE ANY CONSTRUCTION. THE UTILITY INFORMATION SHOWN IS APPROXIMATE. FIELD VERIFY LIMITS AND LOCATIONS OF UTILITIES PRIOR TO CONSTRUCTION.
 - ANY ITEMS REQUIRING REMOVAL THAT ARE NOT DIRECTLY CALLED OUT WILL NOT BE CONSIDERED SUBSIDIARY TO PERTINENT ITEMS.
 - EXISTING PAVEMENT DEPTHS ARE UNKNOWN.
 - REFER TO DRIVEWAY SUMMARY SHEETS FOR ADDITIONAL DESIGN AND DIMENSIONAL INFORMATION.

NO.	DATE	REVISION	APPROVED

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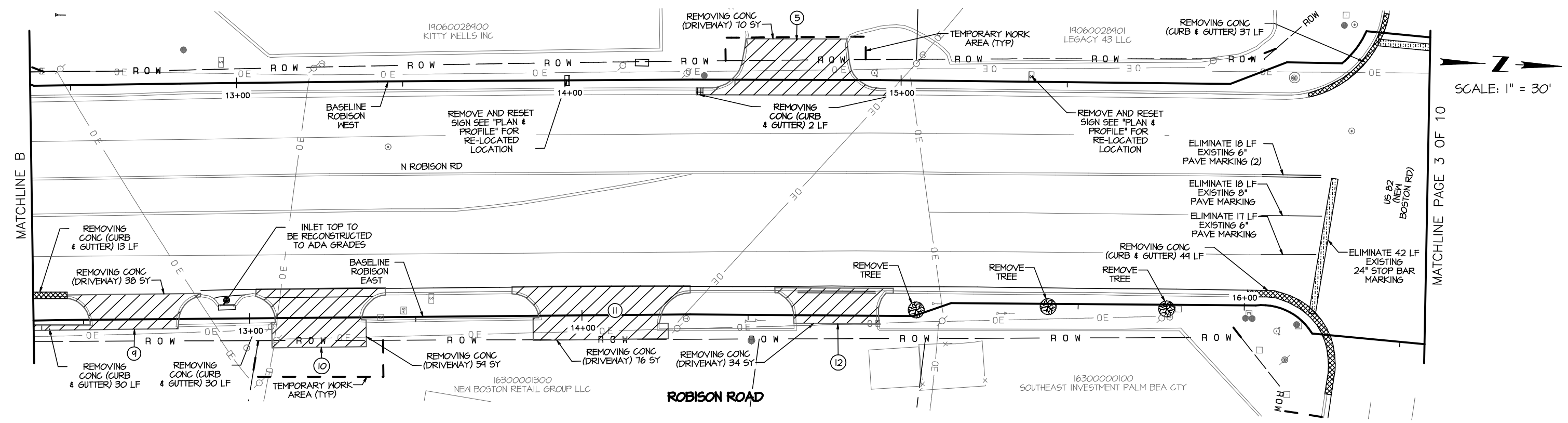
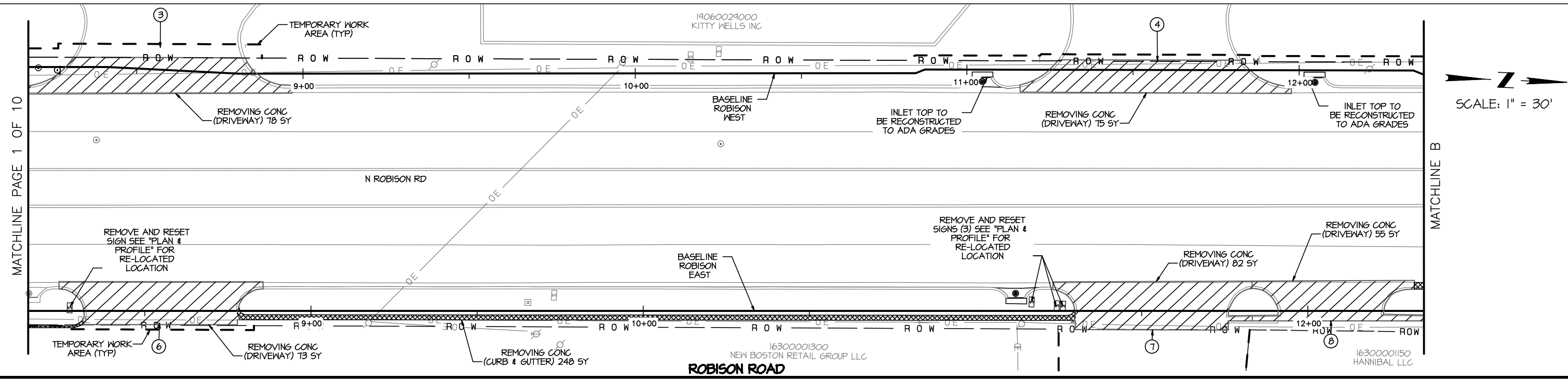
Texas Department of Transportation

EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET 1 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	42	

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GENERAL LEGEND

	APPROX. PROPERTY LINE		DRIVEWAY NUMBER
	CURB AND GUTTER		WATER VALVE
	BUILDING EDGE		SANITARY SEWER MANHOLE
	ROW		STORM DRAIN MANHOLE
	TEMPORARY WORK AREA		SIGN (TYPICAL)
	OVERHEAD POWER LINE		FIRE HYDRANT
	WATER MAIN		LIGHT POLE
	SANITARY SEWER MAIN		TELEPHONE JUNCTION BOX
	TELEPHONE LINE		ELECTRIC JUNCTION BOX
	POWER POLE		GUY WIRE
	WATER METER		TREE

REMOVAL PLAN LEGEND

	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
	REMOVE CURB & GUTTER
	REMOVE SIDEWALK OR CURB RAMP
	REMOVE & RECONSTRUCT INLET TOP
	REMOVE & RESET SIGN AND SIGN POST
	REMOVE TREE

- NOTES:**
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NO.	DATE	REVISION	APPROVED

10/2/2024

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EXISTING CONDITIONS AND DEMOLITION PLAN

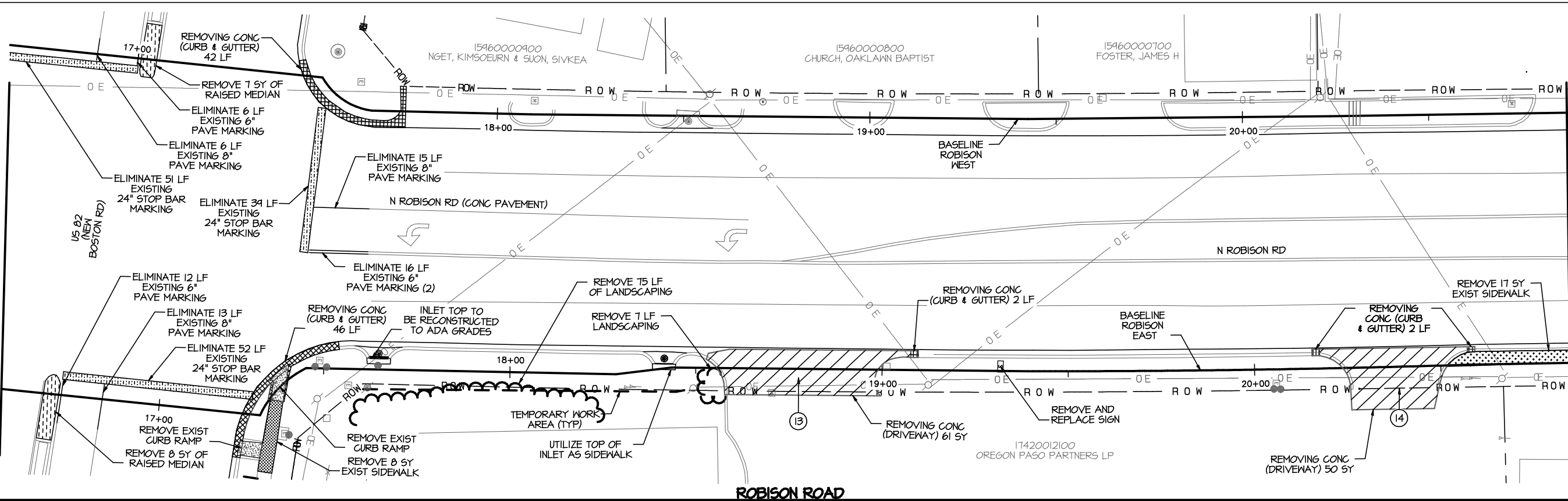
SHEET 2 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	43	

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MATCHLINE PAGE 2 OF 10

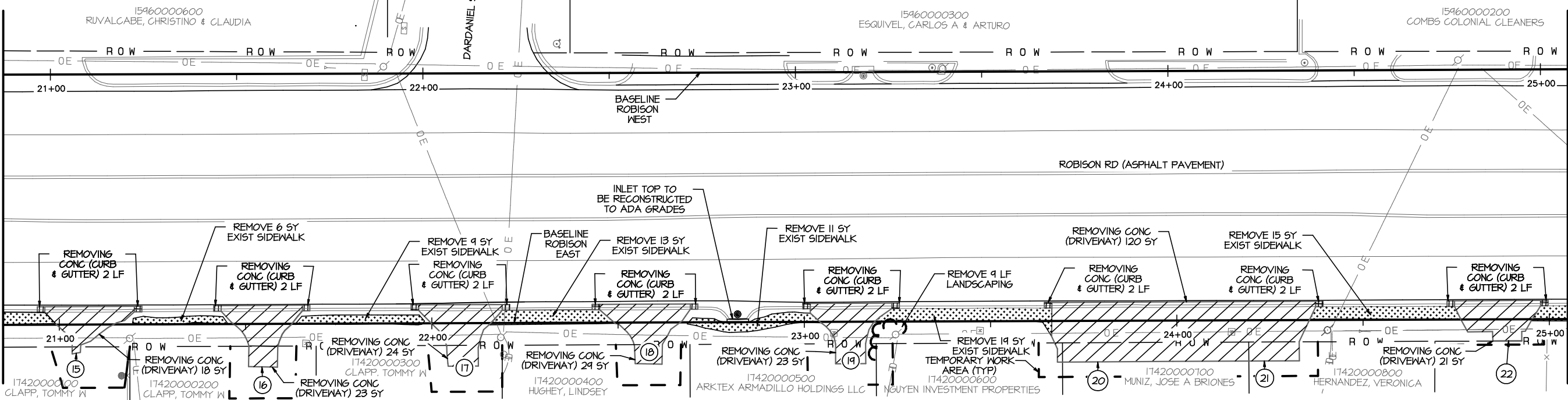
MATCHLINE C



SCALE: 1" = 30'

MATCHLINE C

MATCHLINE PAGE 4 OF 10



SCALE: 1" = 30'

GENERAL LEGEND	
---	APPROX. PROPERTY LINE
---	CURB AND GUTTER
---	BUILDING EDGE
---	ROW - APPROX. EXISTING ROW
---	TEMPORARY WORK AREA
OE	OVERHEAD POWER LINE
W	WATER MAIN
S	SANITARY SEWER MAIN
T	TELEPHONE LINE
⊙	POWER POLE
⊠	WATER METER
①	DRIVEWAY NUMBER
⊙	WATER VALVE
⊙	SANITARY SEWER MANHOLE
⊙	STORM DRAIN MANHOLE
⊠	SIGN (TYPICAL)
⊠	FIRE HYDRANT
⊠	LIGHT POLE
⊠	TELEPHONE JUNCTION BOX
⊠	ELECTRIC JUNCTION BOX
⊠	GUY WIRE
⊠	TREE

REMOVAL PLAN LEGEND	
[Hatched Box]	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
[Grid Box]	REMOVE CURB & GUTTER
[Dotted Box]	REMOVE SIDEWALK OR CURB RAMP
[Circle with X]	REMOVE & RECONSTRUCT INLET TOP
[Circle with X]	REMOVE & RESET SIGN AND SIGN POST
[Circle with X]	REMOVE TREE

ROBISON ROAD

- NOTES:
- SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
 - ALL OFFSETS ARE BASED OFF ROBISON SIDEWALK BASELINE EAST OR WEST UNLESS OTHERWISE NOTED.
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 - EXISTING PAVEMENT DEPTHS ARE UNKNOWN.
 - REFER TO DRIVEWAY SUMMARY SHEETS FOR ADDITIONAL DESIGN AND DIMENSIONAL INFORMATION.

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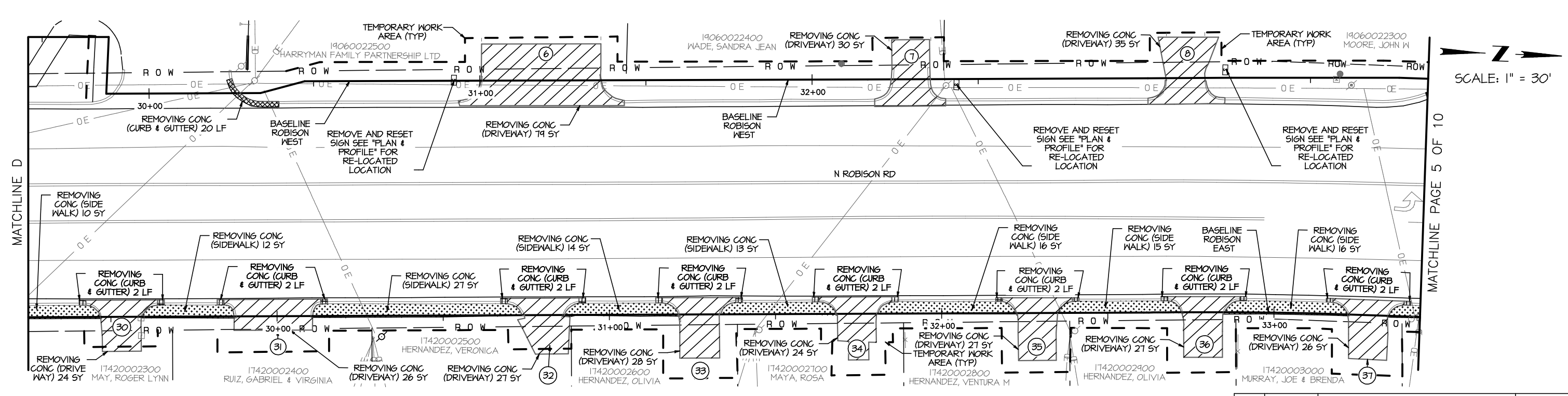
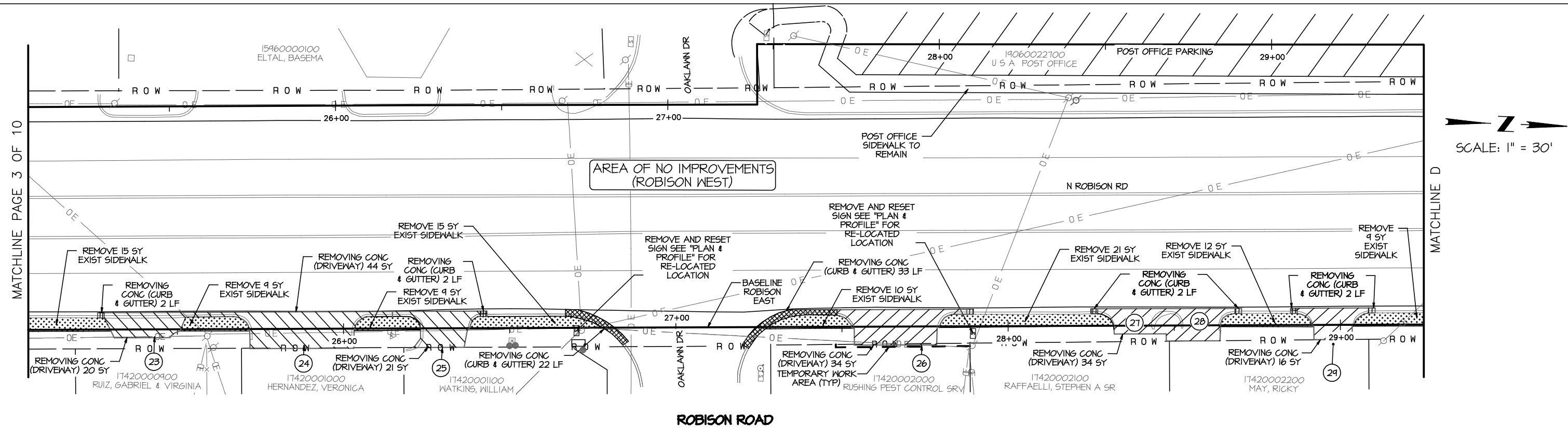
Texas Department of Transportation

EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET 3 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	44	

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GENERAL LEGEND	
	APPROX. PROPERTY LINE
	CURB AND GUTTER
	BUILDING EDGE
	ROW APPROX. EXISTING R.O.W.
	TEMPORARY WORK AREA
	OVERHEAD POWER LINE
	WATER MAIN
	SANITARY SEWER MAIN
	TELEPHONE LINE
	POWER POLE
	WATER METER
	DRIVEWAY NUMBER
	WATER VALVE
	SANITARY SEWER MANHOLE
	STORM DRAIN MANHOLE
	SIGN (TYPICAL)
	FIRE HYDRANT
	LIGHT POLE
	TELEPHONE JUNCTION BOX
	ELECTRIC JUNCTION BOX
	GUY WIRE
	TREE

REMOVAL PLAN LEGEND	
	REMOVE STAB BASE AND ASPH PAY (FULL DEPTH) (SEE NOTE 5)
	REMOVE CURB & GUTTER
	REMOVE SIDEWALK OR CURB RAMP
	REMOVE & RECONSTRUCT INLET TOP
	REMOVE & RESET SIGN AND SIGN POST
	REMOVE TREE

ROBISON ROAD

- NOTES:**
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NO.	DATE	REVISION	APPROVED

10/2/2024

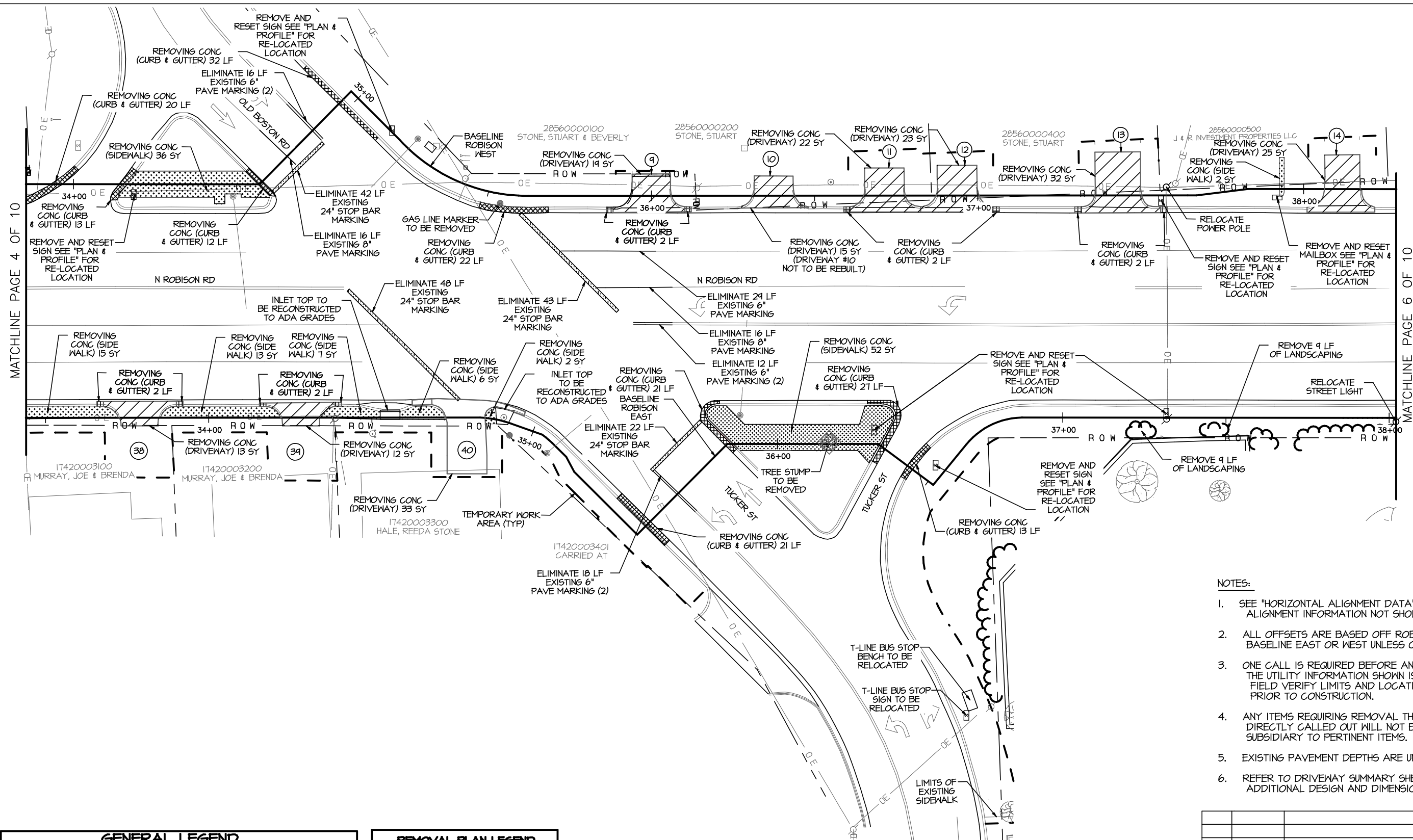
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET 4 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	45	

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MATCHLINE PAGE 4 OF 10

MATCHLINE PAGE 6 OF 10

SCALE: 1" = 30'

- NOTES:**
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 - EXISTING PAVEMENT DEPTHS ARE UNKNOWN.
 - REFER TO DRIVEWAY SUMMARY SHEETS FOR ADDITIONAL DESIGN AND DIMENSIONAL INFORMATION.

GENERAL LEGEND	
	APPROX. PROPERTY LINE
	CURB AND GUTTER
	BUILDING EDGE
	ROW - APPROX. EXISTING R.O.W.
	TEMPORARY WORK AREA
	OVERHEAD POWER LINE
	WATER MAIN
	SANITARY SEWER MAIN
	TELEPHONE LINE
	POWER POLE
	WATER METER
	DRIVEWAY NUMBER
	WATER VALVE
	SANITARY SEWER MANHOLE
	STORM DRAIN MANHOLE
	SIGN (TYPICAL)
	FIRE HYDRANT
	LIGHT POLE
	TELEPHONE JUNCTION BOX
	ELECTRIC JUNCTION BOX
	GUY WIRE
	TREE

REMOVAL PLAN LEGEND	
	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
	REMOVE CURB & GUTTER
	REMOVE SIDEWALK OR CURB RAMP
	REMOVE & RECONSTRUCT INLET TOP
	REMOVE & RESET SIGN AND SIGN POST
	REMOVE TREE

NO.	DATE	REVISION	APPROVED

10/2/2024

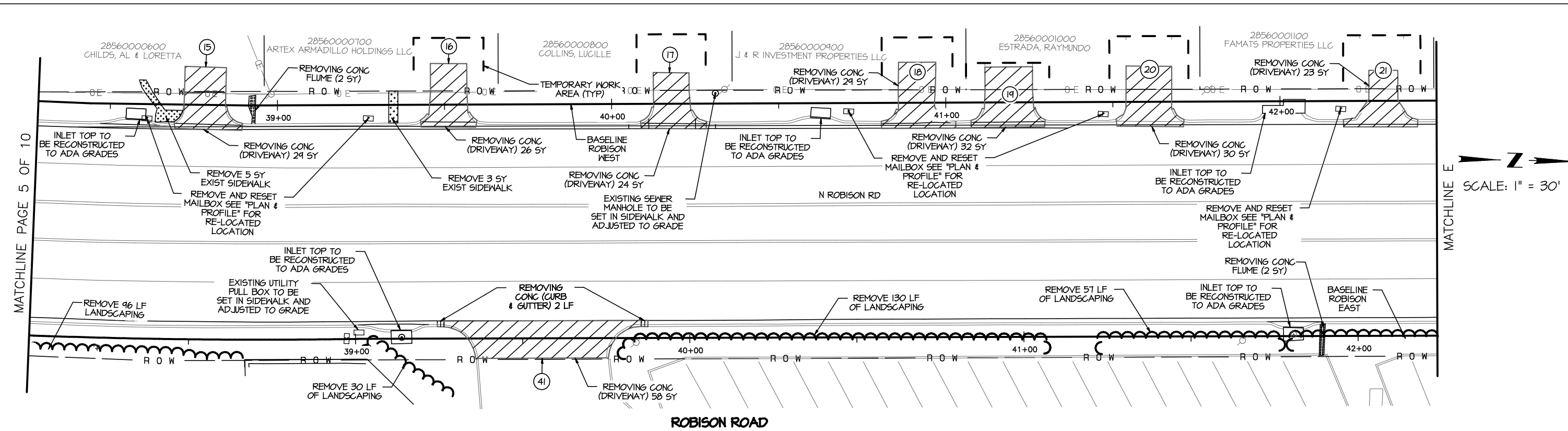
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET 5 OF 10

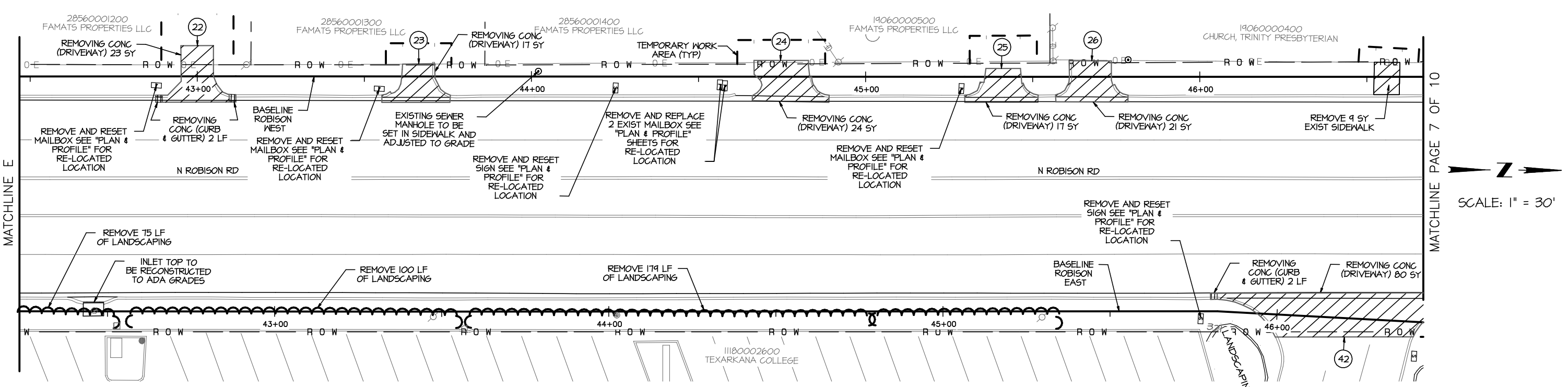
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	46	

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ROBISON ROAD



ROBISON ROAD

GENERAL LEGEND	
	APPROX. PROPERTY LINE
	CURB AND GUTTER
	BUILDING EDGE
	ROW
	APPROX. EXISTING ROW
	TEMPORARY WORK AREA
	OVERHEAD POWER LINE
	WATER MAIN
	SANITARY SEWER MAIN
	TELEPHONE LINE
	POWER POLE
	WATER METER
	DRIVEWAY NUMBER
	WATER VALVE
	SANITARY SEWER MANHOLE
	STORM DRAIN MANHOLE
	SIGN (TYPICAL)
	FIRE HYDRANT
	LIGHT POLE
	TELEPHONE JUNCTION BOX
	ELECTRIC JUNCTION BOX
	GUY WIRE
	TREE

REMOVAL PLAN LEGEND	
	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
	REMOVE CURB & GUTTER
	REMOVE SIDEWALK OR CURB RAMP
	REMOVE & RECONSTRUCT INLET TOP
	REMOVE & RESET SIGN AND SIGN POST
	REMOVE TREE

NOTES:

- SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
- ALL OFFSETS ARE BASED OFF ROBISON SIDEWALK BASELINE EAST OR WEST UNLESS OTHERWISE NOTED.
- ONE CALL IS REQUIRED BEFORE ANY CONSTRUCTION. THE UTILITY INFORMATION SHOWN IS APPROXIMATE. FIELD VERIFY LIMITS AND LOCATIONS OF UTILITIES PRIOR TO CONSTRUCTION.
- ANY ITEMS REQUIRING REMOVAL THAT ARE NOT DIRECTLY CALLED OUT WILL NOT BE CONSIDERED SUBSIDIARY TO PERTINENT ITEMS.
- EXISTING PAVEMENT DEPTHS ARE UNKNOWN.
- REFER TO DRIVEWAY SUMMARY SHEETS FOR ADDITIONAL DESIGN AND DIMENSIONAL INFORMATION.

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EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET 6 OF 10

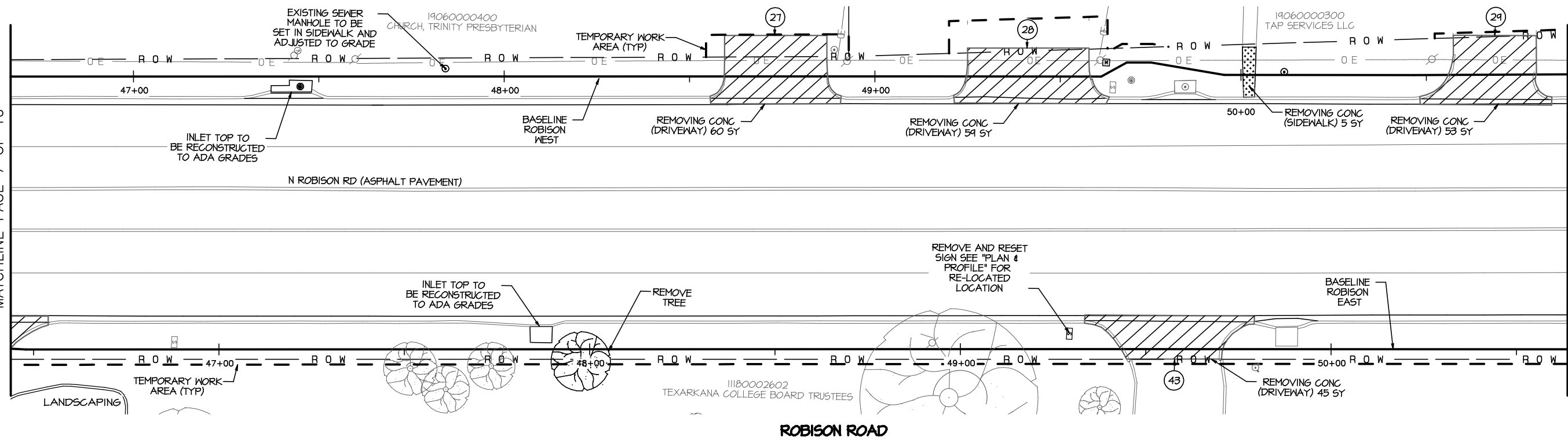
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	47	

DATE: 10/2/2024
 FILE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_DS.pro

MATCHLINE PAGE 7 OF 10

MATCHLINE F

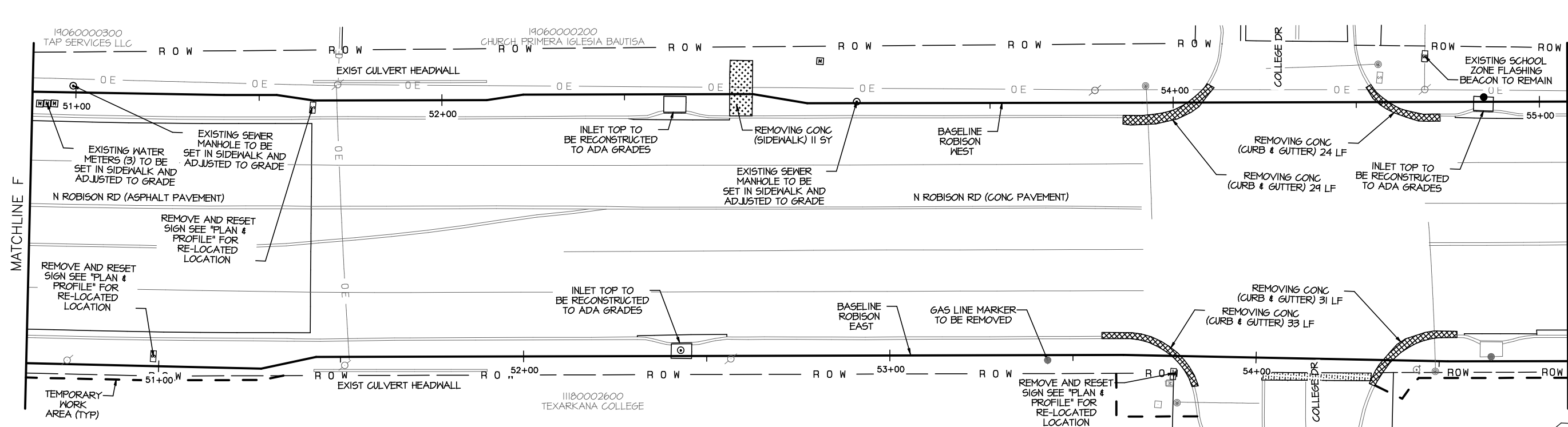
MATCHLINE F



SCALE: 1" = 30'

MATCHLINE F

ROBISON ROAD



SCALE: 1" = 30'

MATCHLINE PAGE 9 OF 10

ROBISON ROAD

GENERAL LEGEND	
---	APPROX. PROPERTY LINE
---	CURB AND GUTTER
---	BUILDING EDGE
---	ROW - APPROX. EXISTING R.O.W.
---	TEMPORARY WORK AREA
OE	OVERHEAD POWER LINE
W	WATER MAIN
S	SANITARY SEWER MAIN
T	TELEPHONE LINE
Q	POWER POLE
M	WATER METER
①	DRIVEWAY NUMBER
△	WATER VALVE
○	SANITARY SEWER MANHOLE
⊙	STORM DRAIN MANHOLE
⊞	SIGN (TYPICAL)
⊕	FIRE HYDRANT
⊖	LIGHT POLE
⊞	TELEPHONE JUNCTION BOX
⊞	ELECTRIC JUNCTION BOX
⊞	GUY WIRE
⊞	TREE

REMOVAL PLAN LEGEND	
[Hatched Box]	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
[Grid Box]	REMOVE CURB & GUTTER
[Dotted Box]	REMOVE SIDEWALK OR CURB RAMP
[Circle with X]	REMOVE & RECONSTRUCT INLET TOP
[Circle with Arrow]	REMOVE & RESET SIGN AND SIGN POST
[Tree Symbol]	REMOVE TREE

NOTES:

- SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
- ALL OFFSETS ARE BASED OFF ROBISON SIDEWALK BASELINE EAST OR WEST UNLESS OTHERWISE NOTED.
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- REFER TO DRIVEWAY SUMMARY SHEETS FOR ADDITIONAL DESIGN AND DIMENSIONAL INFORMATION.

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TEXAS DEPARTMENT OF TRANSPORTATION

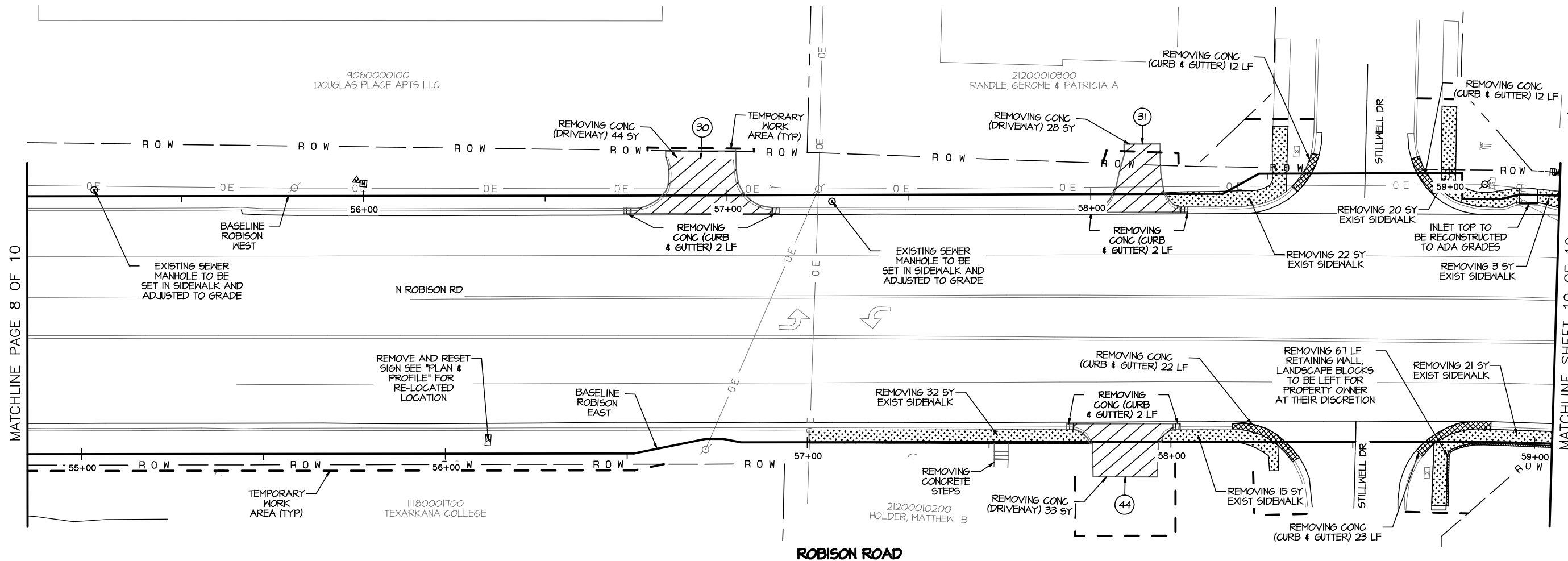
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET 7 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	46	

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MATCHLINE PAGE 8 OF 10

SCALE: 1" = 30'

MATCHLINE SHEET 10 OF 10

GENERAL LEGEND	
---	APPROX. PROPERTY LINE
---	CURB AND GUTTER
---	BUILDING EDGE
---	ROW - APPROX. EXISTING R.O.W.
---	TEMPORARY WORK AREA
---	OE - OVERHEAD POWER LINE
---	W - WATER MAIN
---	S - SANITARY SEWER MAIN
---	T - TELEPHONE LINE
---	P - POWER POLE
---	W - WATER METER
①	DRIVEWAY NUMBER
△	WATER VALVE
○	SANITARY SEWER MANHOLE
⊙	STORM DRAIN MANHOLE
⊞	SIGN (TYPICAL)
⊞	FIRE HYDRANT
⊞	LIGHT POLE
⊞	TELEPHONE JUNCTION BOX
⊞	ELECTRIC JUNCTION BOX
⊞	GUY WIRE
⊞	TREE

REMOVAL PLAN LEGEND	
[Hatched Pattern]	REMOVE STAB BASE AND ASPH PAY (FULL DEPTH) (SEE NOTE 5)
[Grid Pattern]	REMOVE CURB & GUTTER
[Dotted Pattern]	REMOVE SIDEWALK OR CURB RAMP
[Circle with X]	REMOVE & RECONSTRUCT INLET TOP
[Circle with X]	REMOVE & RESET SIGN AND SIGN POST
[Circle with X]	REMOVE TREE

NOTES:

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Texas Department of Transportation

EXISTING CONDITIONS AND DEMOLITION PLAN

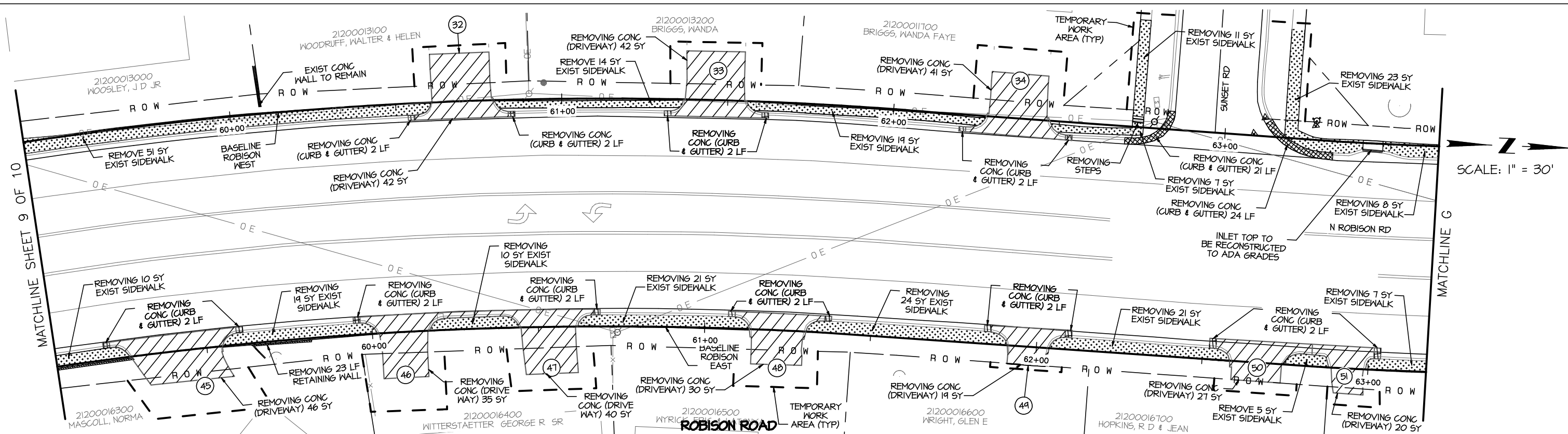
SHEET 8 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	44	

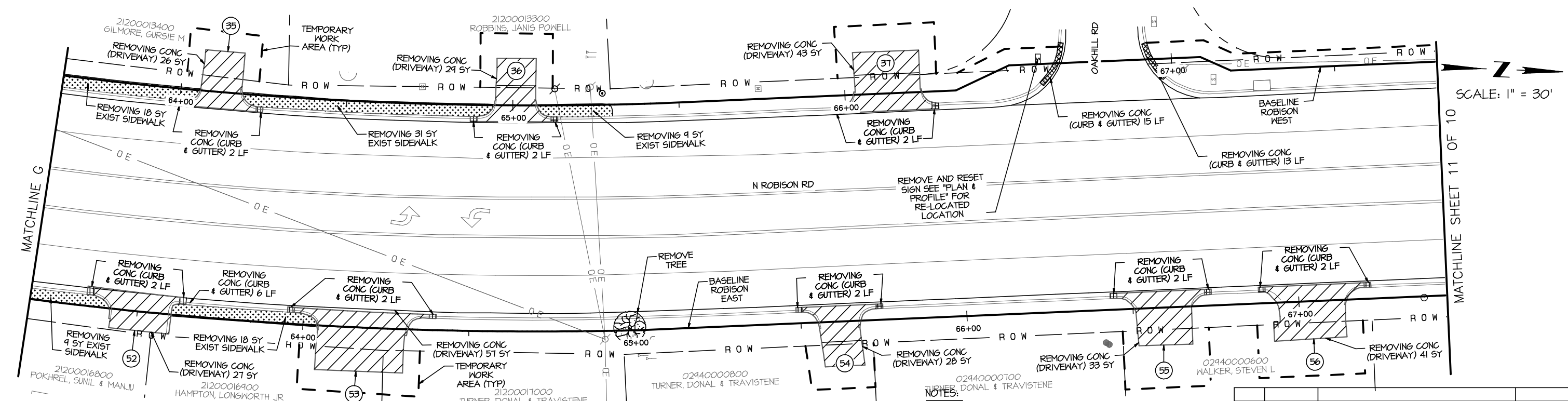
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SCALE: 1" = 30'



SCALE: 1" = 30'

GENERAL LEGEND

---	APPROX. PROPERTY LINE	①	DRIVEWAY NUMBER
---	CURB AND GUTTER	△	WATER VALVE
---	BUILDING EDGE	○	SANITARY SEWER MANHOLE
---	ROW - APPROX. EXISTING R.O.W.	⊙	STORM DRAIN MANHOLE
---	TEMPORARY WORK AREA	⊠	SIGN (TYPICAL)
---	OE	⊕	FIRE HYDRANT
---	W	⊕	LIGHT POLE
---	S	⊕	TELEPHONE JUNCTION BOX
---	T	⊕	ELECTRIC JUNCTION BOX
⊕	POWER POLE	⊕	GUY WIRE
⊕	WATER METER	⊕	TREE

REMOVAL PLAN LEGEND

▨	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
▧	REMOVE CURB & GUTTER
⊕	REMOVE SIDEWALK OR CURB RAMP
⊕	REMOVE & RECONSTRUCT INLET TOP
⊕	REMOVE & RESET SIGN AND SIGN POST
⊕	REMOVE TREE

ROBISON ROAD

- NOTES:**
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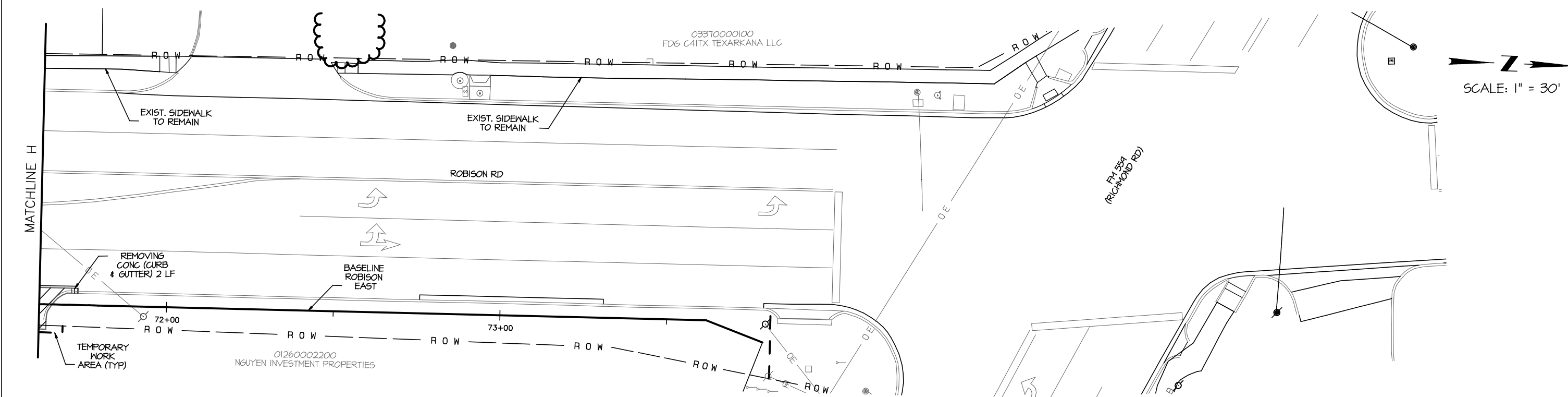
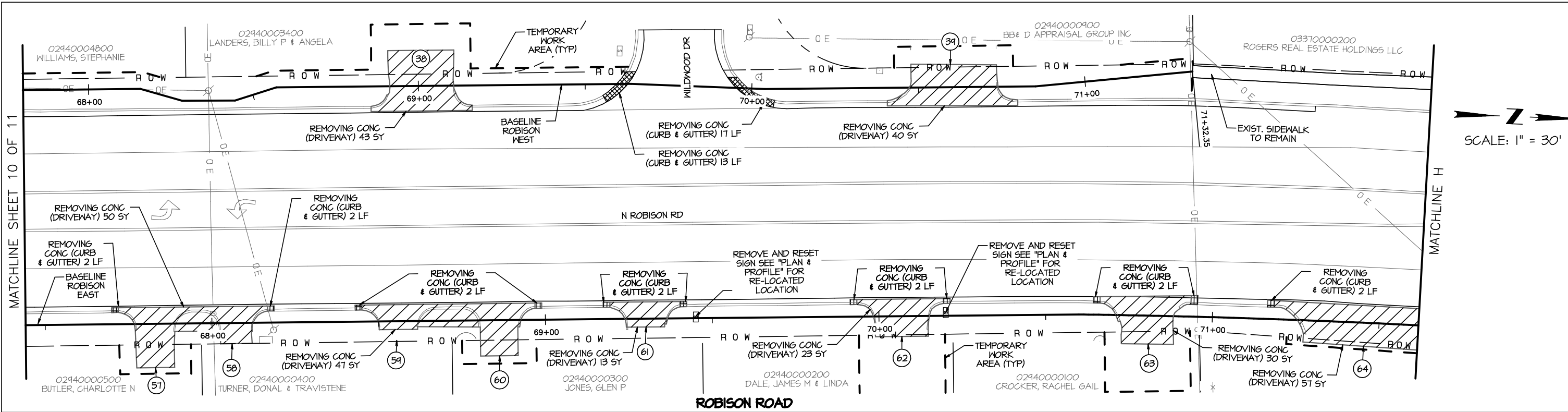
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET 9 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	50	

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GENERAL LEGEND	
	APPROX. PROPERTY LINE
	CURB AND GUTTER
	BUILDING EDGE
	ROW
	APPROX. EXISTING ROW
	TEMPORARY WORK AREA
	OVERHEAD POWER LINE
	WATER MAIN
	SANITARY SEWER MAIN
	TELEPHONE LINE
	POWER POLE
	WATER METER
	DRIVEWAY NUMBER
	WATER VALVE
	SANITARY SEWER MANHOLE
	STORM DRAIN MANHOLE
	SIGN (TYPICAL)
	FIRE HYDRANT
	LIGHT POLE
	TELEPHONE JUNCTION BOX
	ELECTRIC JUNCTION BOX
	GUY WIRE
	TREE

REMOVAL PLAN LEGEND	
	REMOVE STAB BASE AND ASPH PAV (FULL DEPTH) (SEE NOTE 5)
	REMOVE CURB & GUTTER
	REMOVE SIDEWALK OR CURB RAMP
	REMOVE & RECONSTRUCT INLET TOP
	REMOVE & RESET SIGN AND SIGN POST
	REMOVE TREE

ROBISON ROAD

NOTES:

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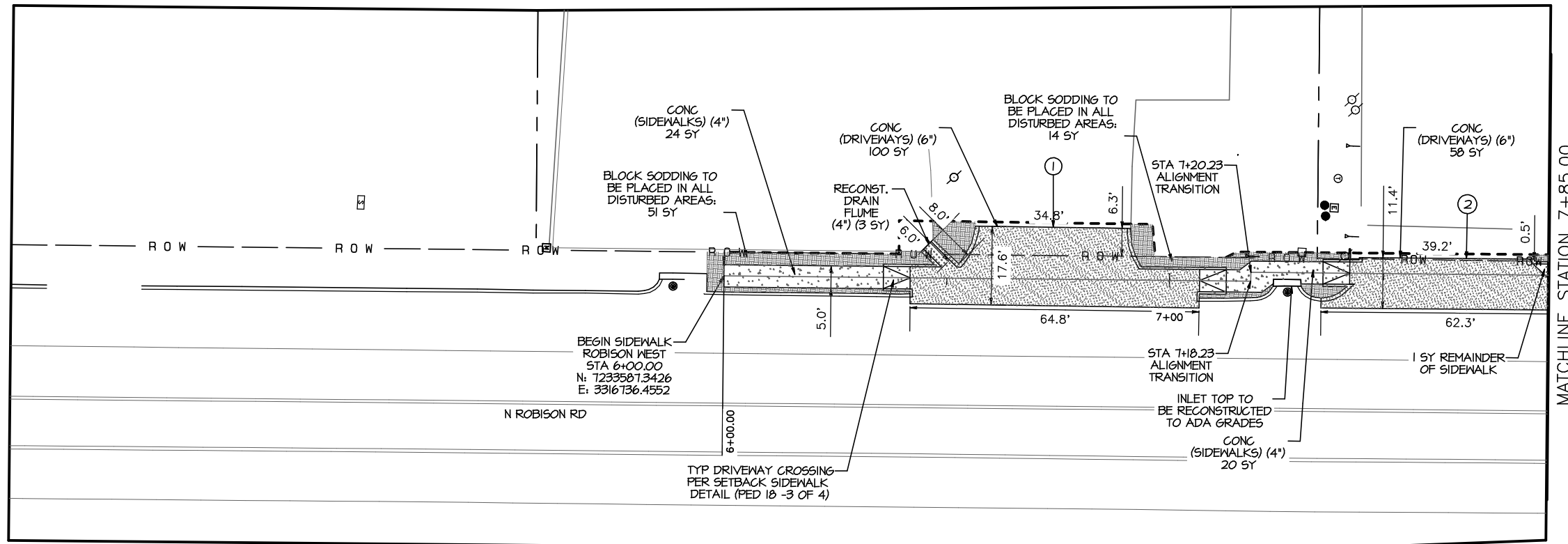
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EXISTING CONDITIONS AND DEMOLITION PLAN

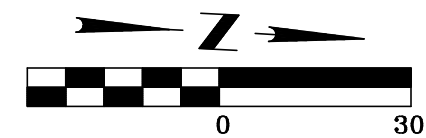
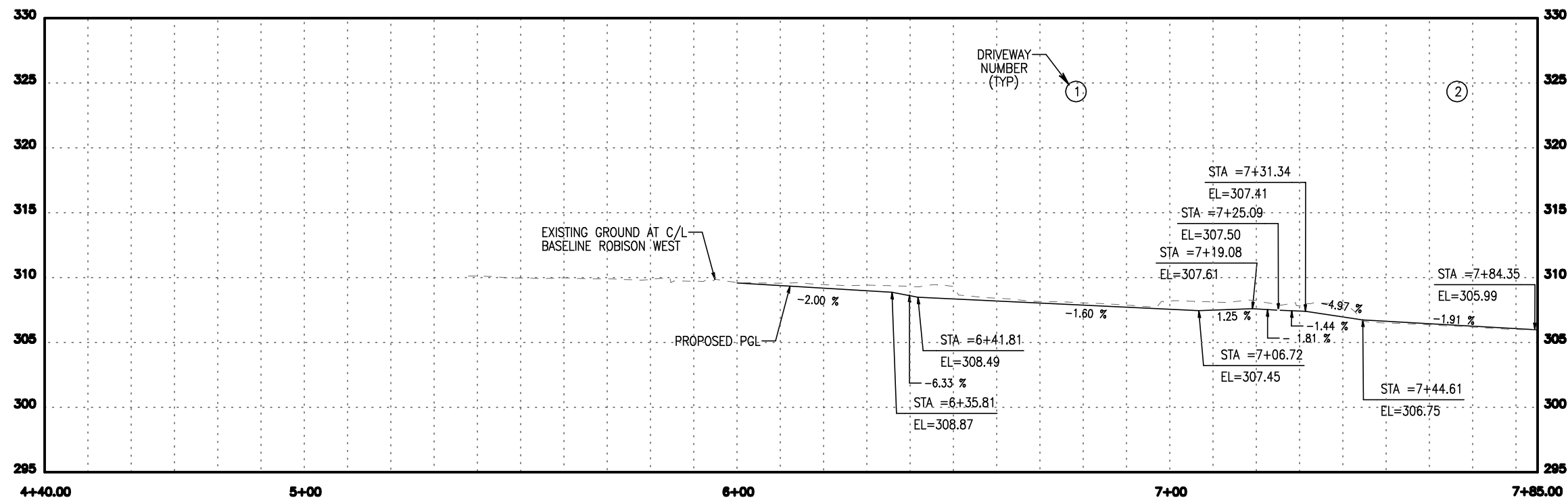
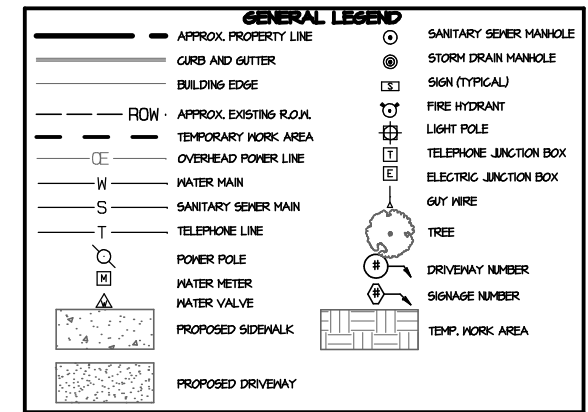
SHEET 10 OF 10

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	91	

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 FILE: Wed Oct 2, 2024 2:57PM



- NOTES:
1. SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
 2. ALL DIMENSIONS AND OFFSETS ARE TO EDGE OF SIDEWALK PAVEMENT (EOP) OR TO LIP OF GUTTER (LOG) AND ARE BASED OFF OF ROBISON SIDEWALK BASELINE (C/L ROBISONSDWK) UNLESS OTHERWISE NOTED.
 3. ALL CURB RAMPS WILL BE 6' CLEAR WIDTH UNLESS OTHERWISE NOTED.
 4. PROPOSED SIDEWALK ALONG EXISTING CURB WILL MATCHING EXISTING TOP OF CURB ELEVATION UNLESS OTHERWISE SHOWN IN PLANS.
 5. CONTRACTOR WILL VERIFY EXISTING ELEVATIONS PRIOR TO CONSTRUCTION. CONTRACTOR WILL ENSURE POSITIVE DRAINAGE AWAY FROM EXISTING BUILDINGS.
 6. ONE CALL IS REQUIRED BEFORE ANY CONSTRUCTION. THE UTILITY INFORMATION SHOWN IN APPROXIMATE. FIELD VERIFY LIMITS AND LOCATIONS OF UTILITIES PRIOR TO CONSTRUCTION.



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

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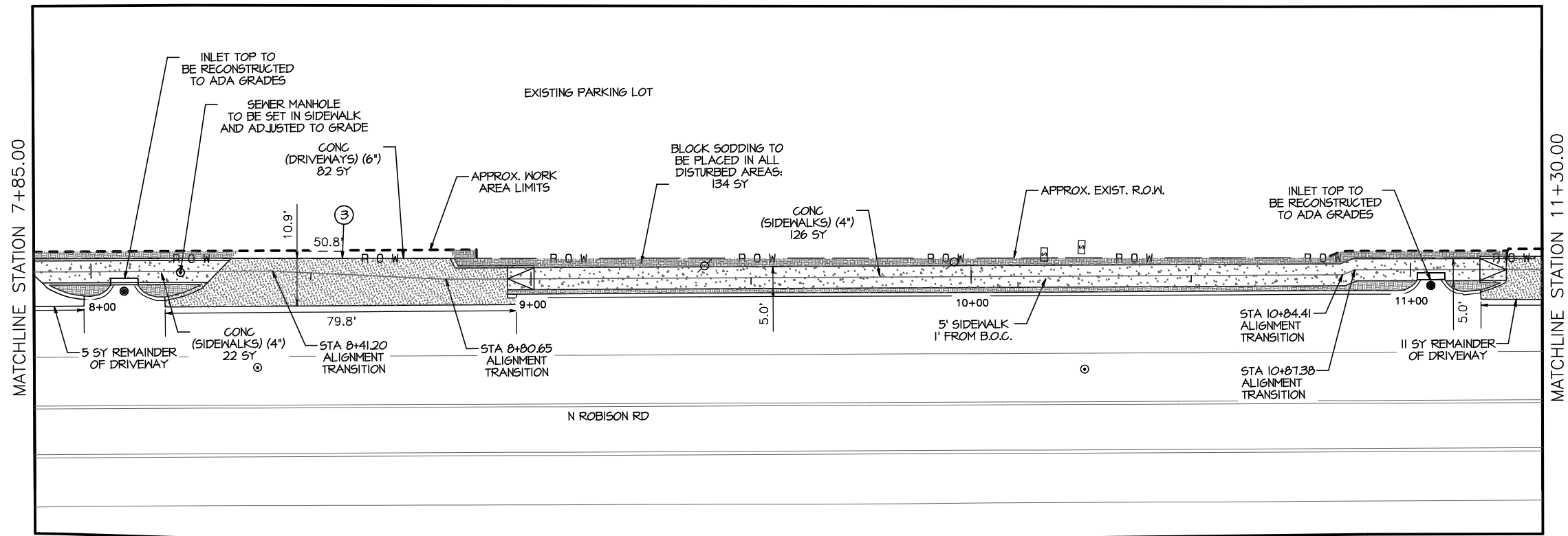
WEST SIDEWALK PLAN AND PROFILE

SHEET 1 OF 17

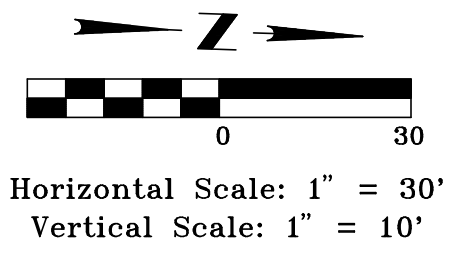
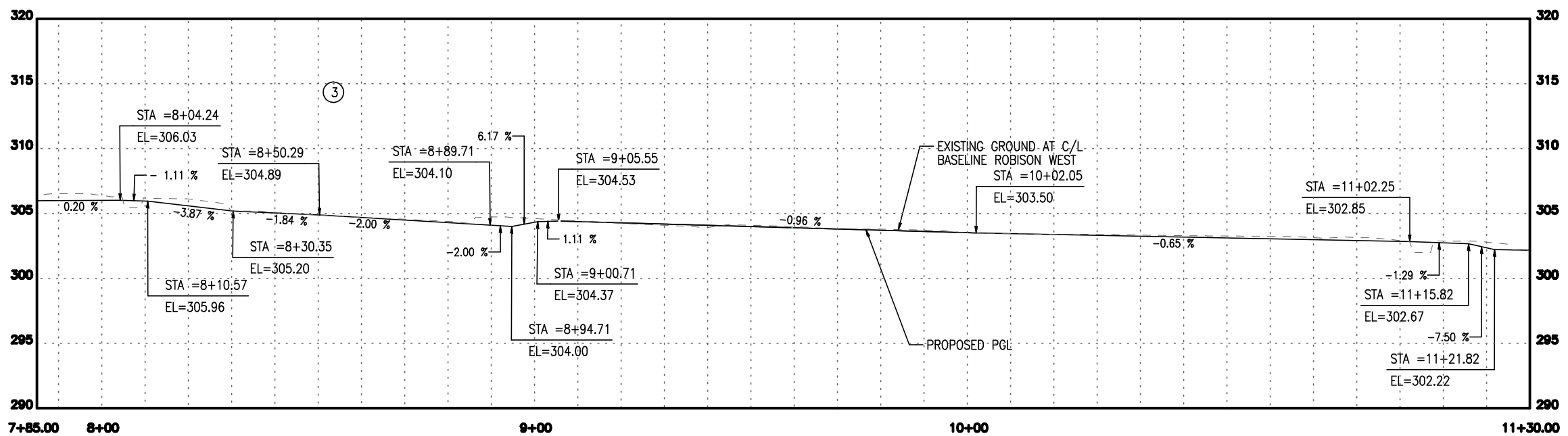
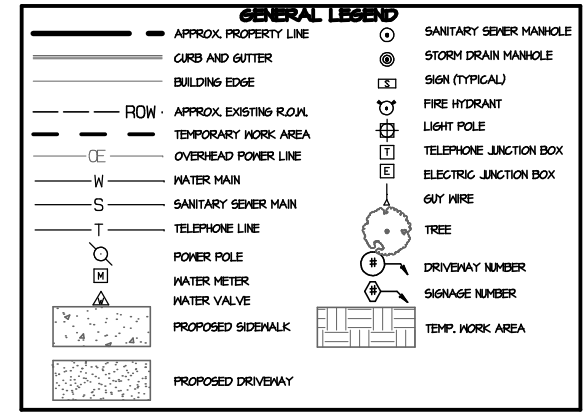
STA 6+00.00 TO STA 7+85.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	52	

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 4. PROPOSED SIDEWALK ALONG EXISTING CURB WILL MATCHING EXISTING TOP OF CURB ELEVATION UNLESS OTHERWISE SHOWN IN PLANS.
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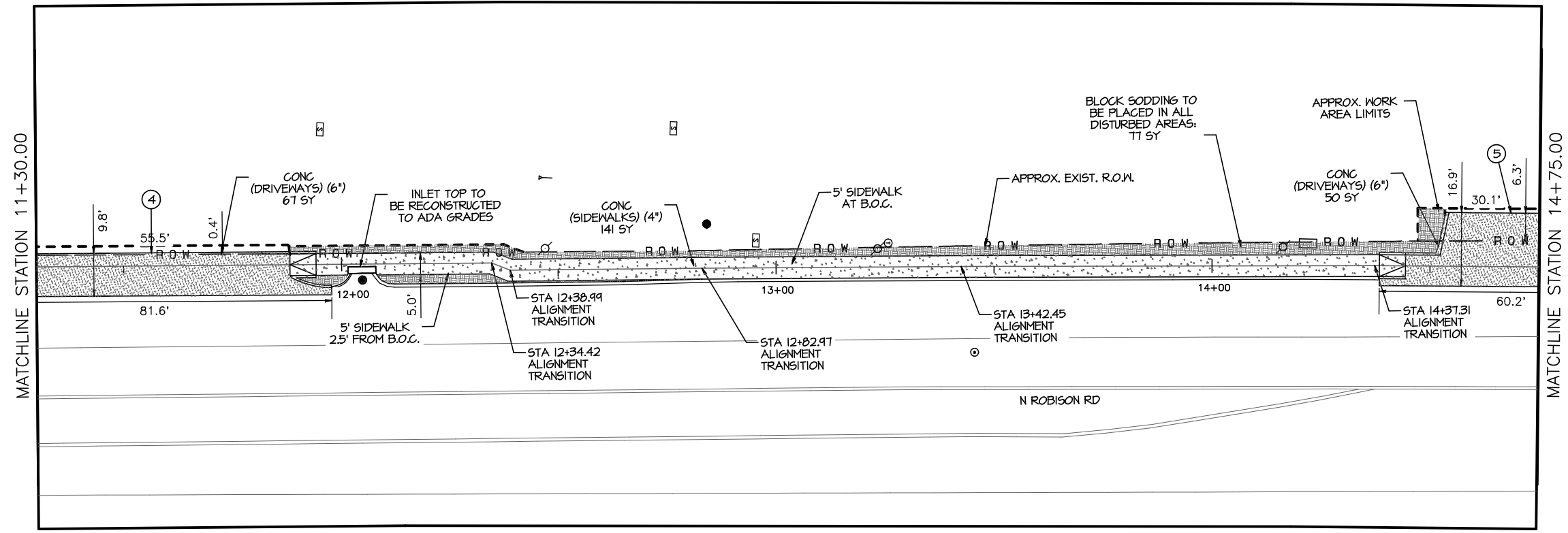
NO.	DATE	REVISION	APPROVED

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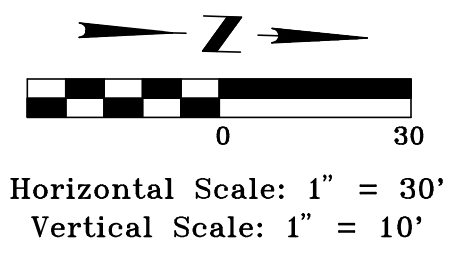
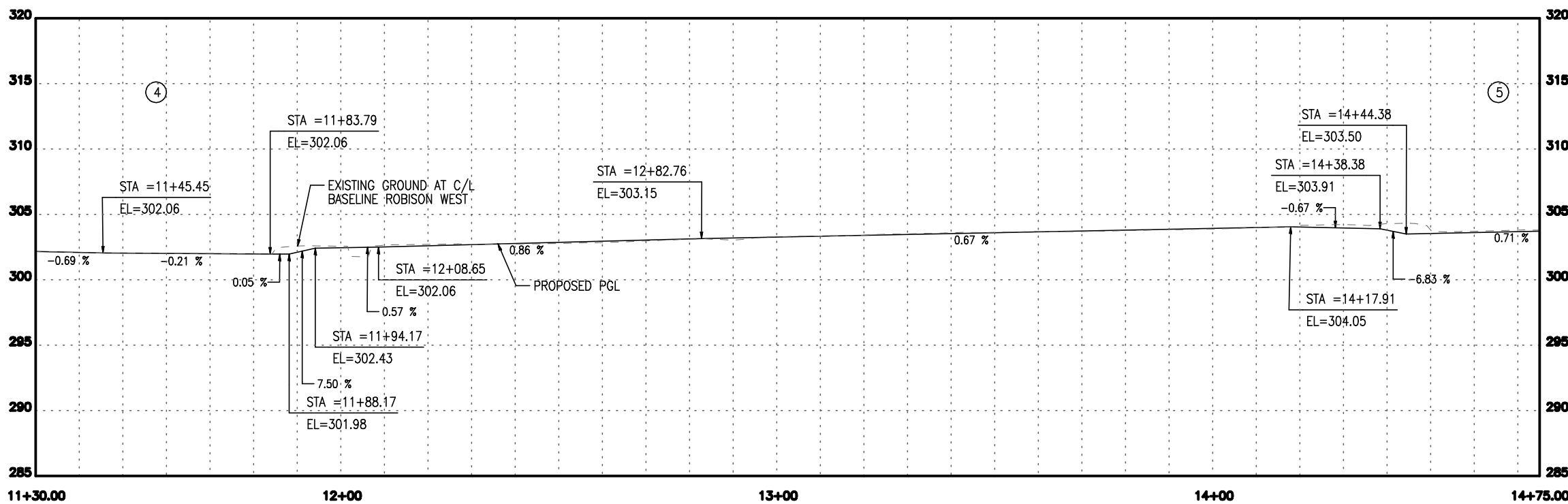
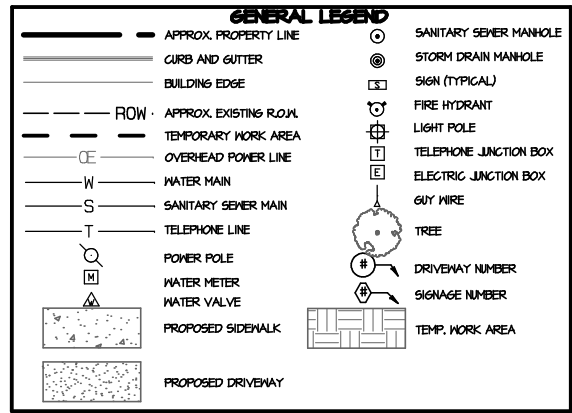
WEST SIDEWALK PLAN AND PROFILE
 SHEET 2 OF 17
 STA 7+85.00 TO STA 11+30.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	53	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\5ft_Design_PP.pro
 FILE: Wed Oct 2, 2024 2:57PM



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 3. ALL CURB RAMP WILL BE 6' CLEAR WIDTH UNLESS OTHERWISE NOTED.
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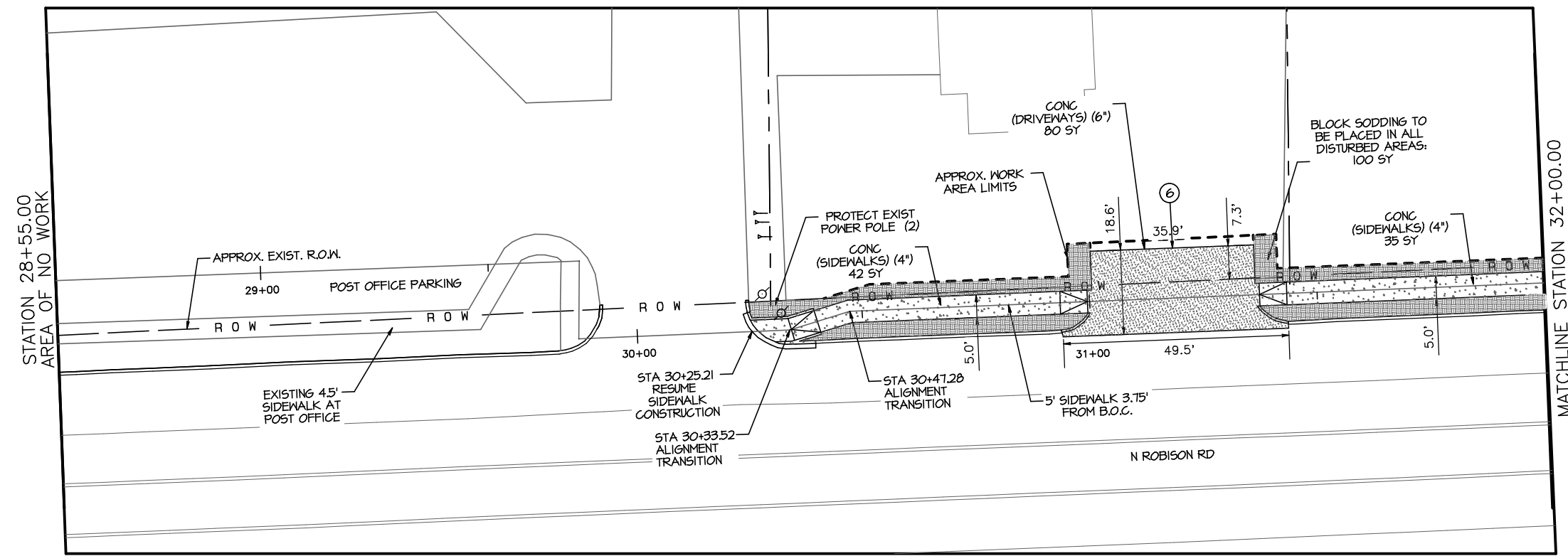
WEST SIDEWALK PLAN AND PROFILE

SHEET 3 OF 17

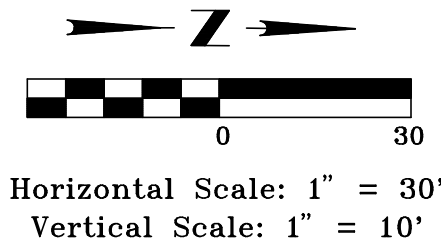
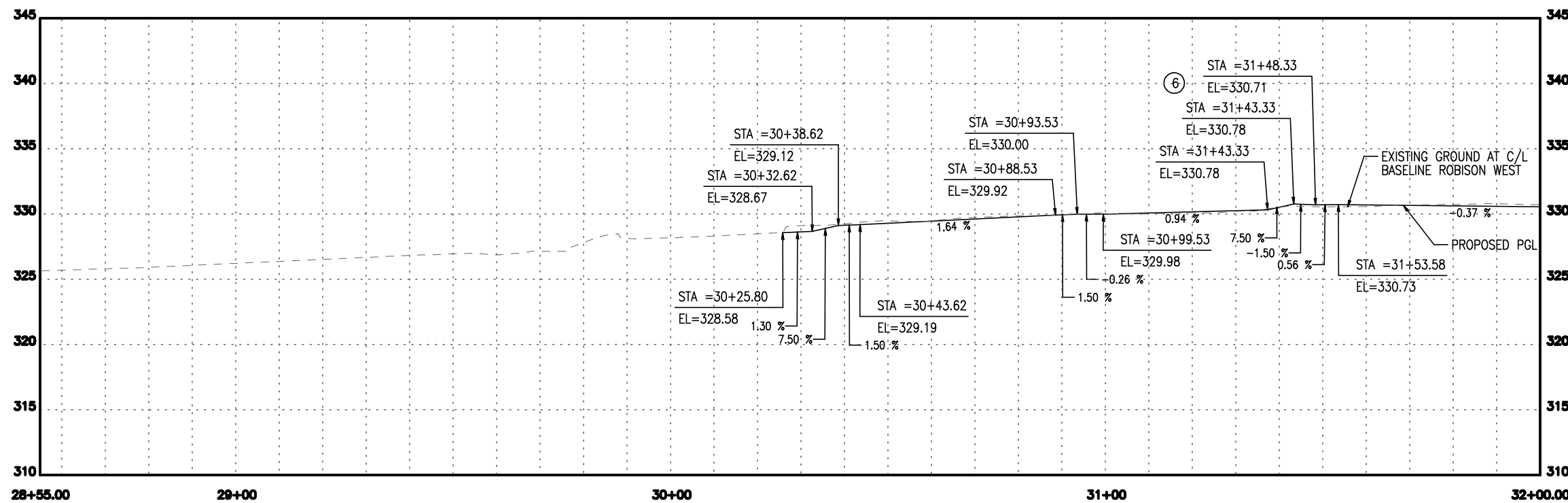
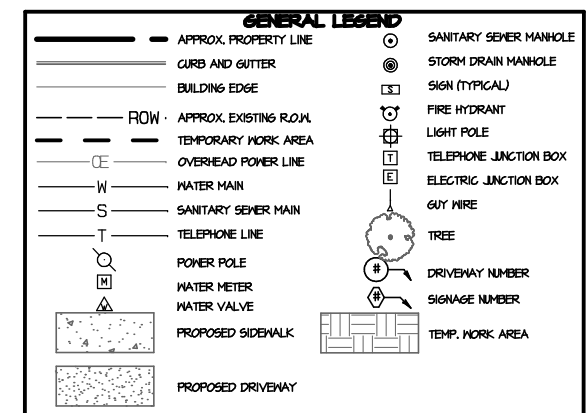
STA 11+30.00 TO STA 14+75.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	54	

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WEST SIDEWALK PLAN AND PROFILE

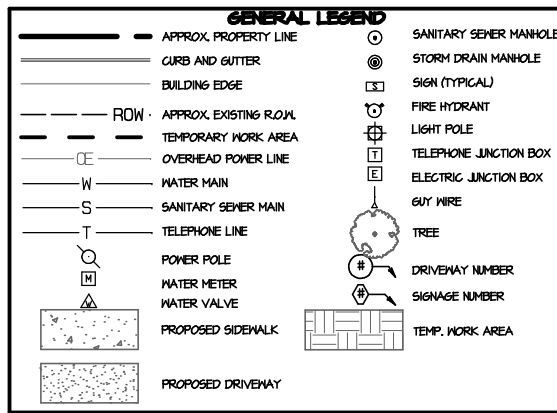
SHEET 5 OF 17

STA 28+55.00 TO STA 32+00.00

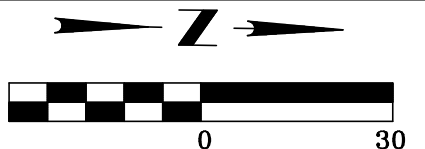
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	56	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\5ft_Design_PP.pro
 FILE: Wed Oct 2, 2024 2:57PM

- NOTES:
- SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
 - ALL DIMENSIONS AND OFFSETS ARE TO EDGE OF SIDEWALK PAVEMENT (EOP) OR TO LIP OF GUTTER (LOG) AND ARE BASED OFF OF ROBISON SIDEWALK BASELINE (C/L ROBISONSDINK) UNLESS OTHERWISE NOTED.
 - ALL CURB RAMP WILL BE 6' CLEAR WIDTH UNLESS OTHERWISE NOTED.
 - PROPOSED SIDEWALK ALONG EXISTING CURB WILL MATCHING EXISTING TOP OF CURB ELEVATION UNLESS OTHERWISE SHOWN IN PLANS.
 - CONTRACTOR WILL VERIFY EXISTING ELEVATIONS PRIOR TO CONSTRUCTION. CONTRACTOR WILL ENSURE POSITIVE DRAINAGE AWAY FROM EXISTING BUILDINGS.
 - ONE CALL IS REQUIRED BEFORE ANY CONSTRUCTION. THE UTILITY INFORMATION SHOWN IN APPROXIMATE. FIELD VERIFY LIMITS AND LOCATIONS OF UTILITIES PRIOR TO CONSTRUCTION.



- SIGNAGE:**
- 1 - R2-1 40 MPH SPEED LIMIT SIGN
 - 2 - R1-2 YIELD SIGN
 - 3 - R5-1 DO NOT ENTER SIGN
 - 4 - R5-2 NO TRUCKS SIGN
- NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

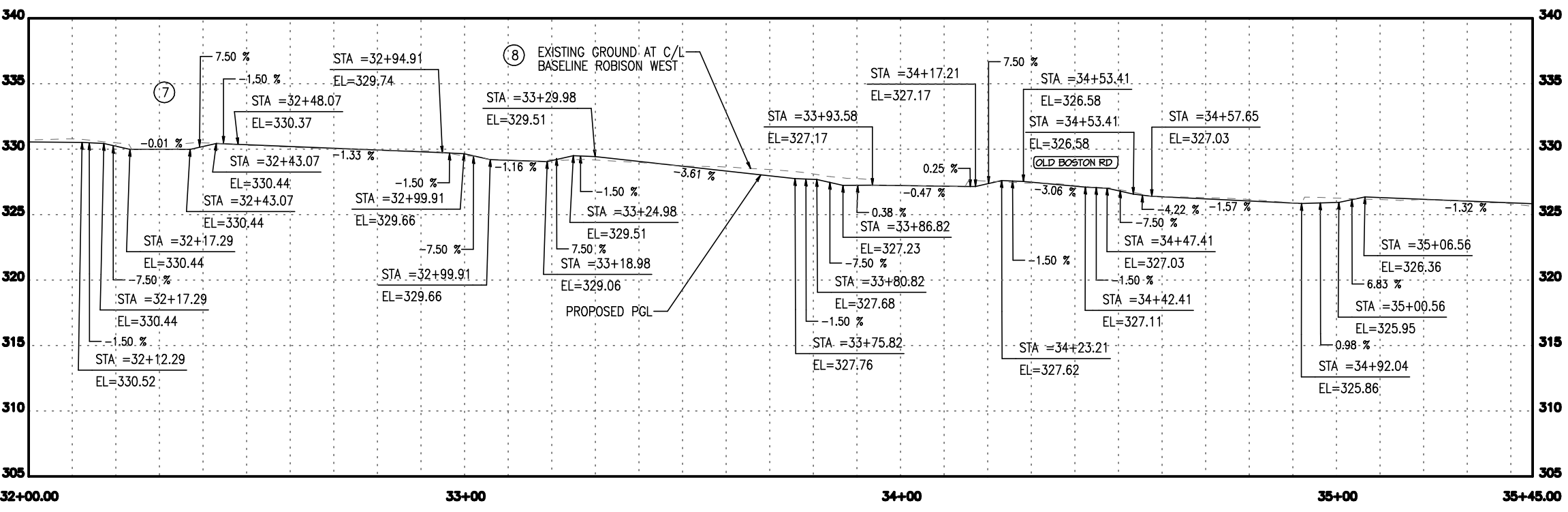
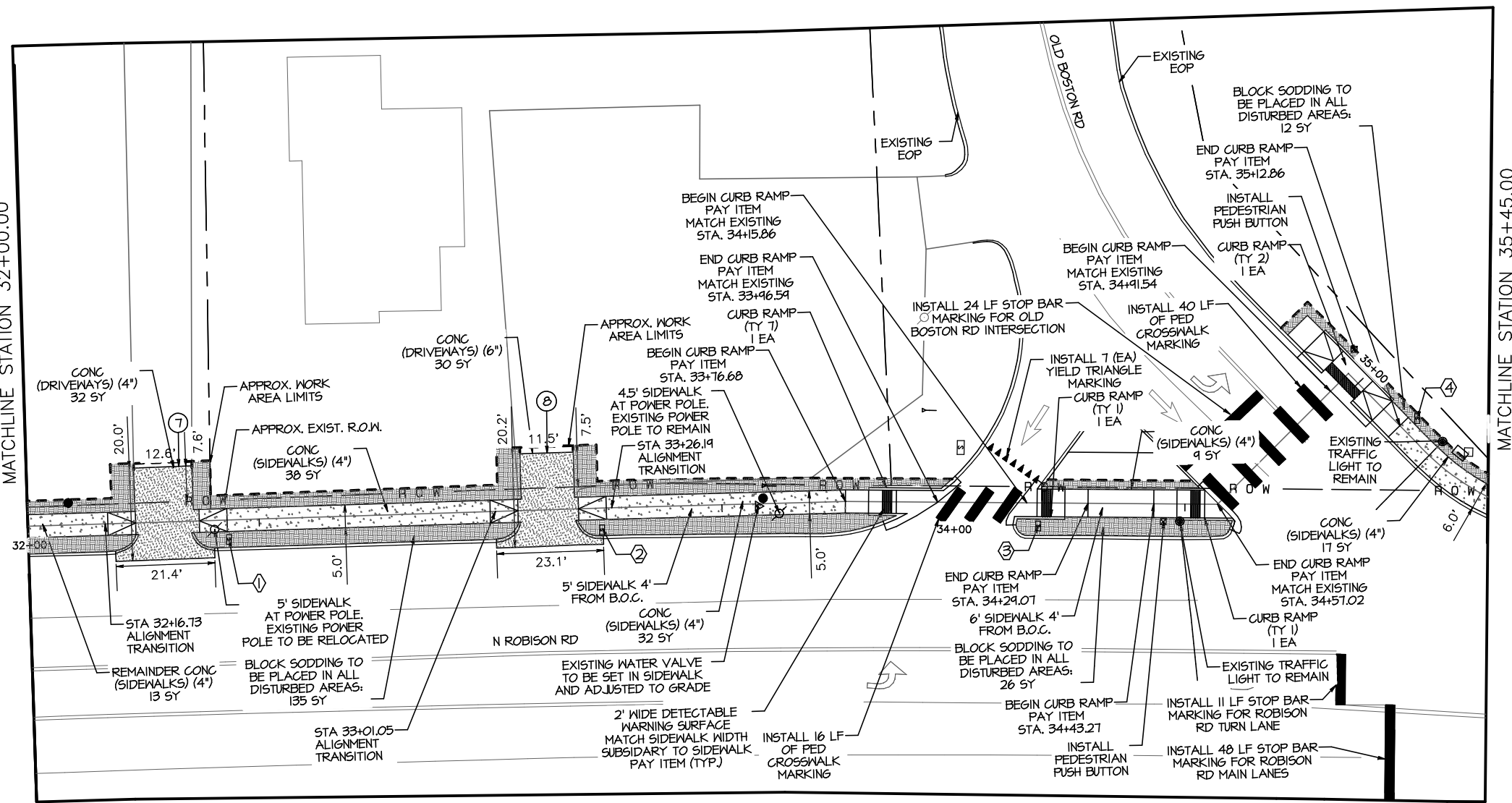
NO.	DATE	REVISION	APPROVED

10/2/2024

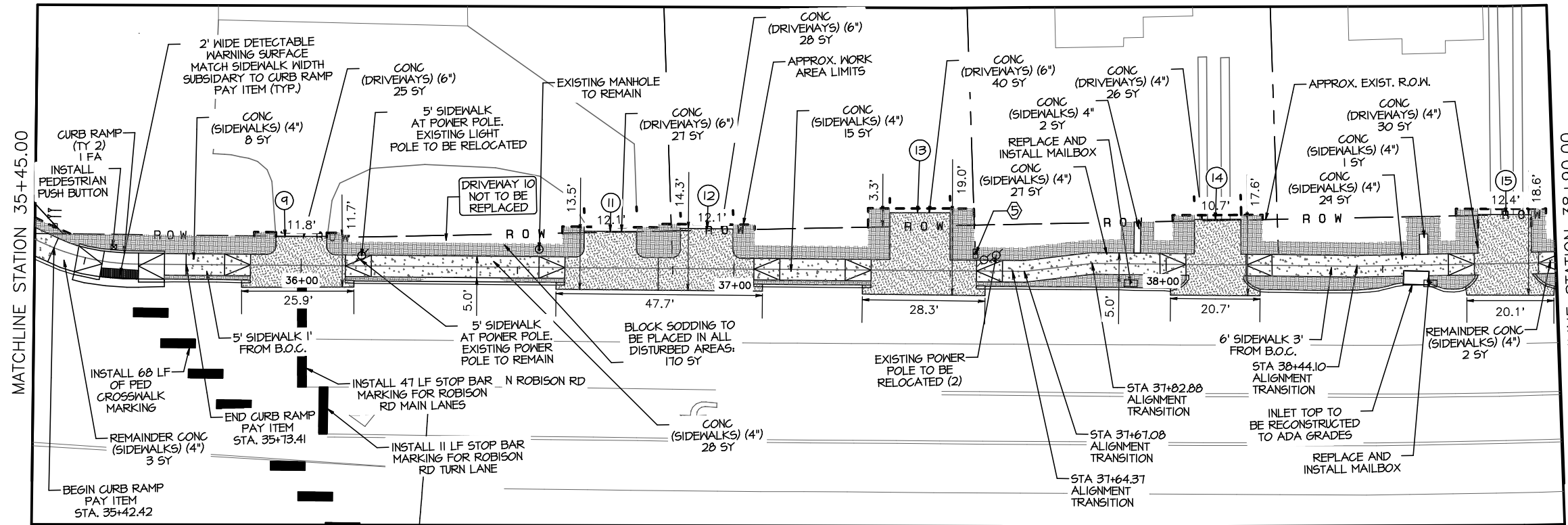
WEST SIDEWALK PLAN AND PROFILE
 SHEET 6 OF 17
 STA 32+00.00 TO STA 35+45.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	57	

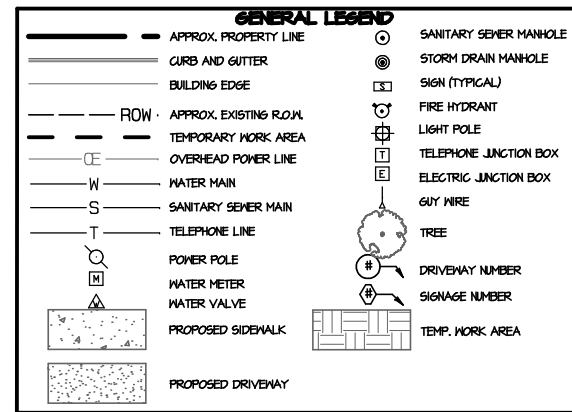
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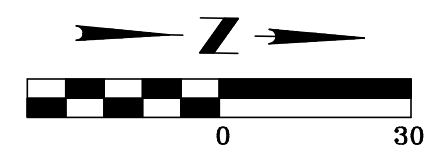
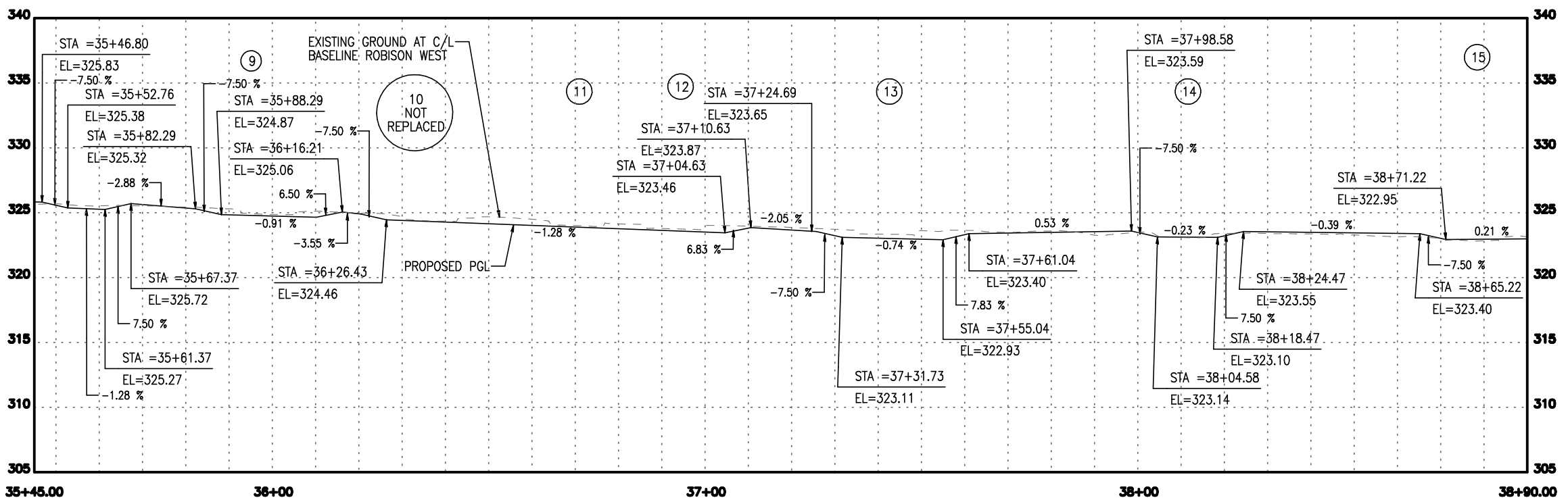
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 FILE: Wed Oct 2, 2024 2:57PM



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SIGNAGE:
 5 - R3-9B CENTER LANE ONLY SIGN
 NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED

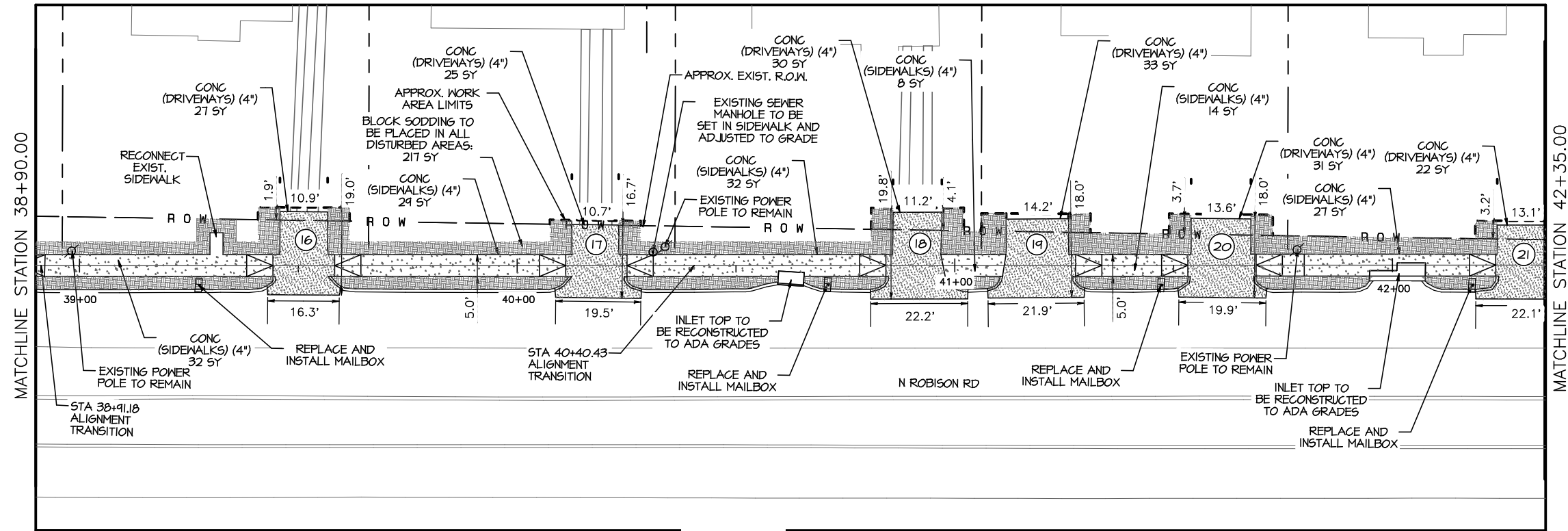
10/2/2024

WEST SIDEWALK PLAN AND PROFILE
 SHEET 7 OF 17
 STA 35+45.00 TO STA 38+90.00

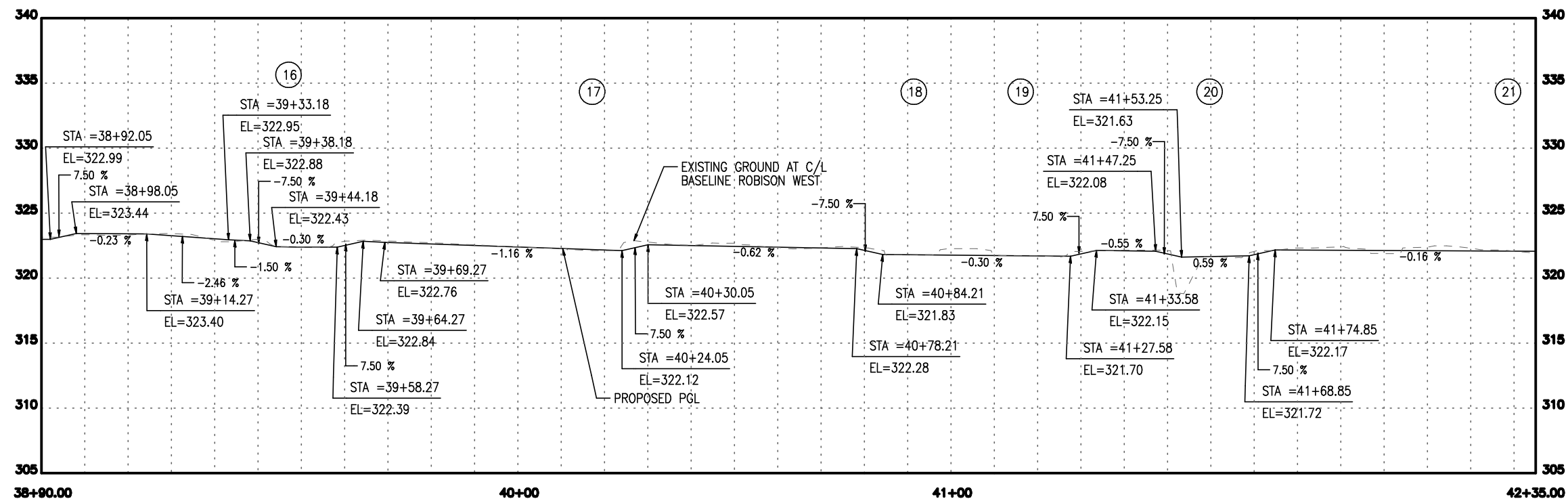
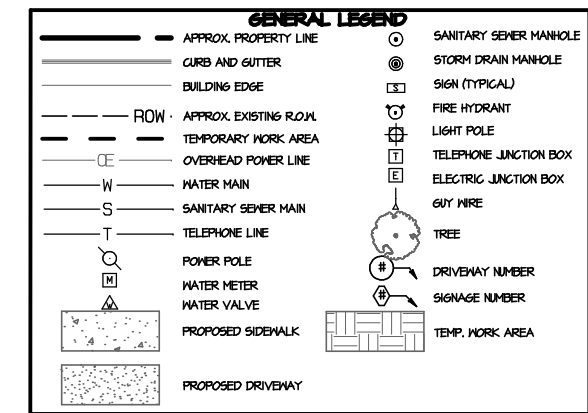
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	50	

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 FILE: Wed Oct 2, 2024 2:58PM



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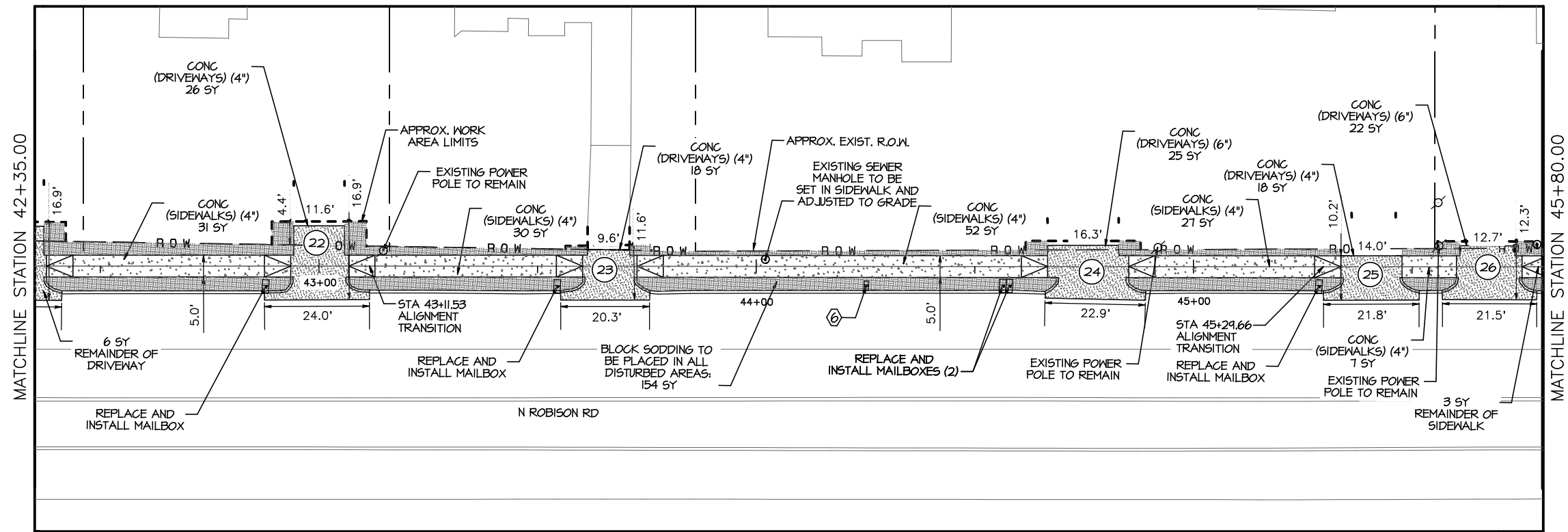


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 Vertical Scale: 1" = 10'

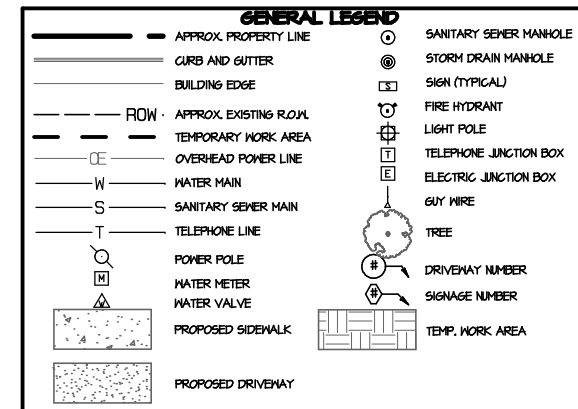
NO.	DATE	REVISION	APPROVED
WEST SIDEWALK PLAN AND PROFILE SHEET 8 OF 17 STA 38+90.00 TO STA 42+35.00			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	54	

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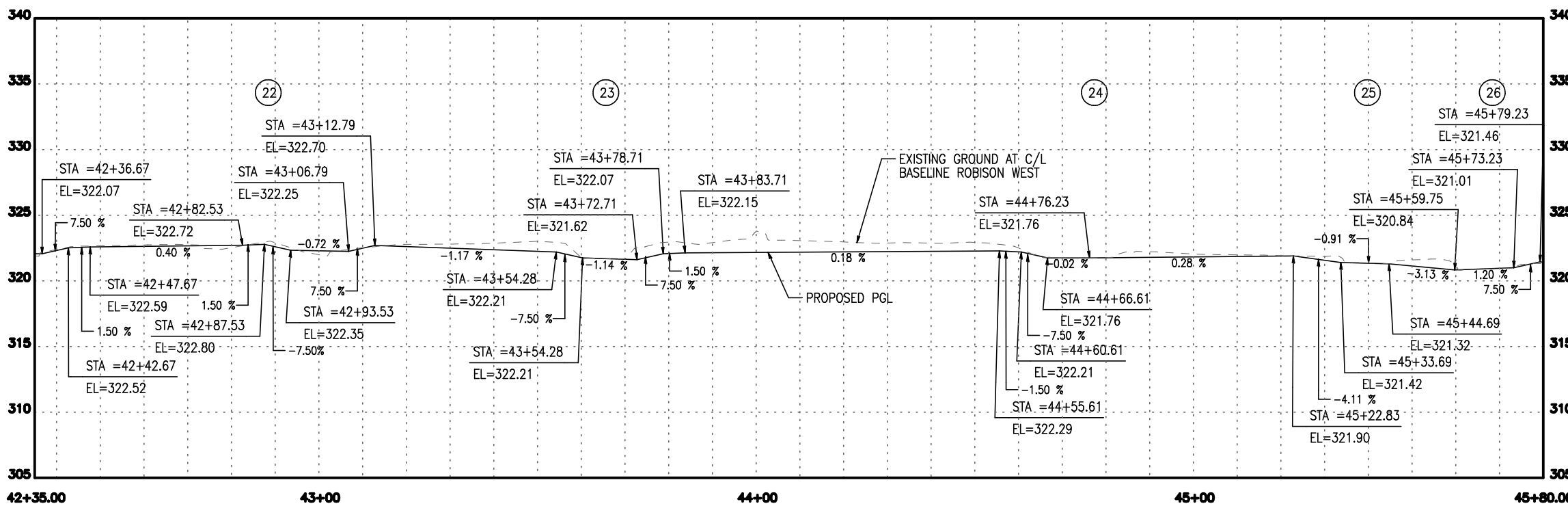
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 FILE: Wed Oct 2, 2024 2:58PM



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SIGNAGE:
 6 - R2-1 40 MPH SPEED LIMIT SIGN
 NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED

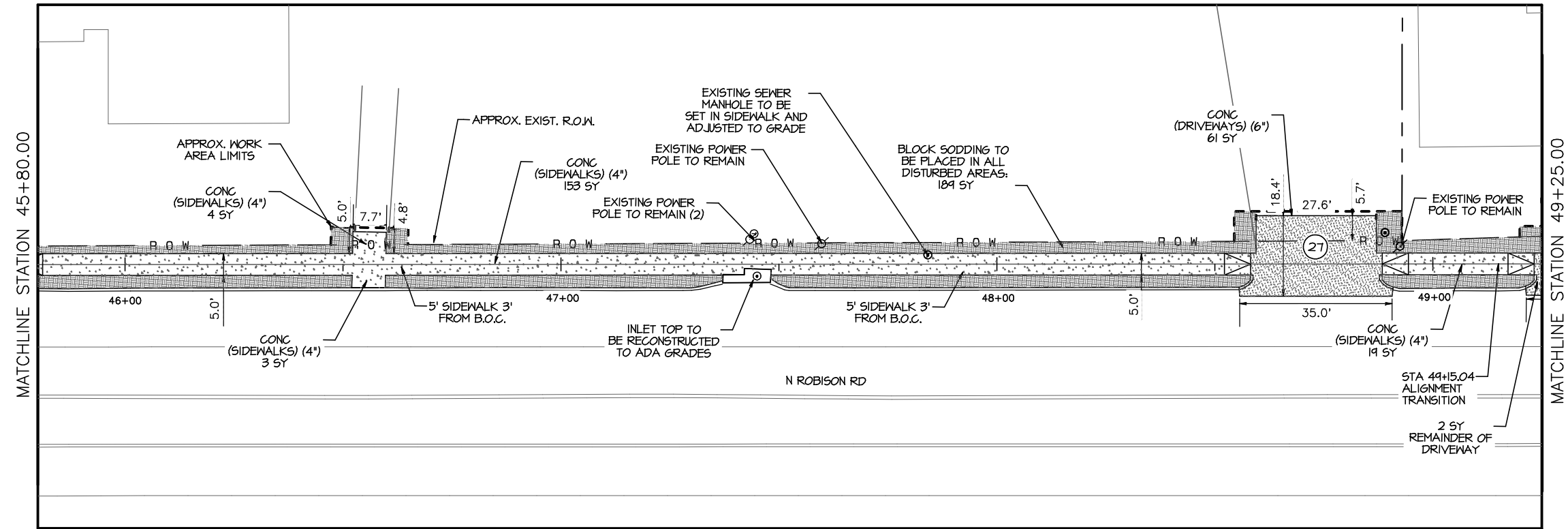
10/2/2024

WEST SIDEWALK PLAN AND PROFILE
 SHEET 9 OF 17
 STA 42+35.00 TO STA 45+80.00

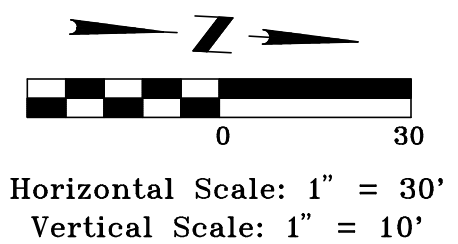
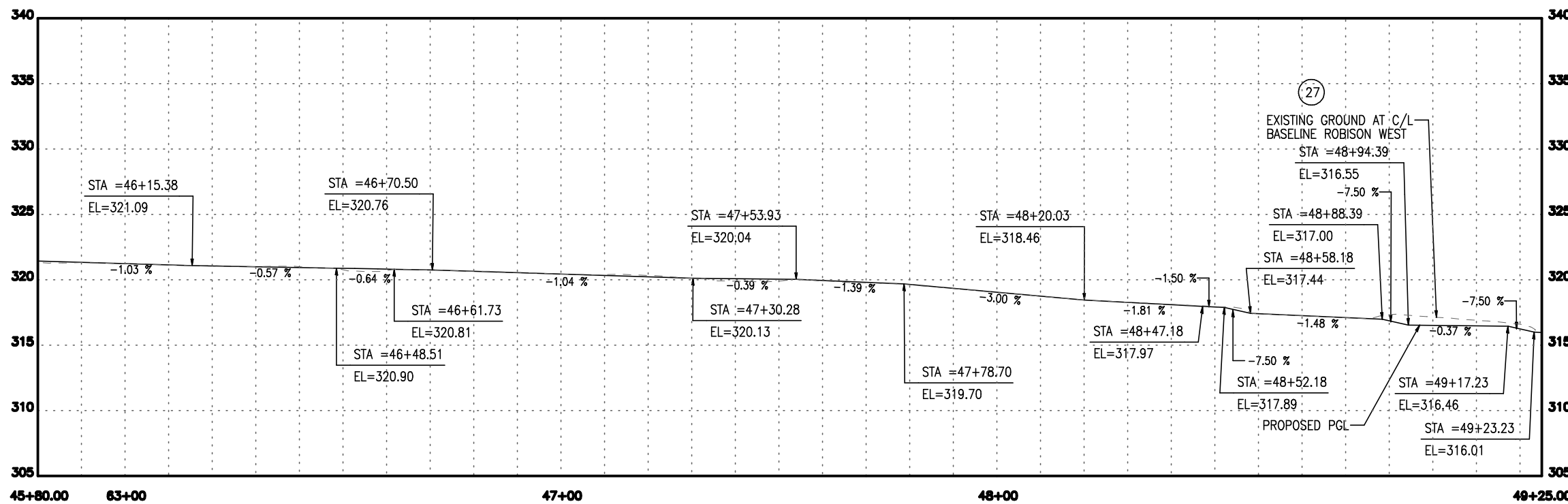
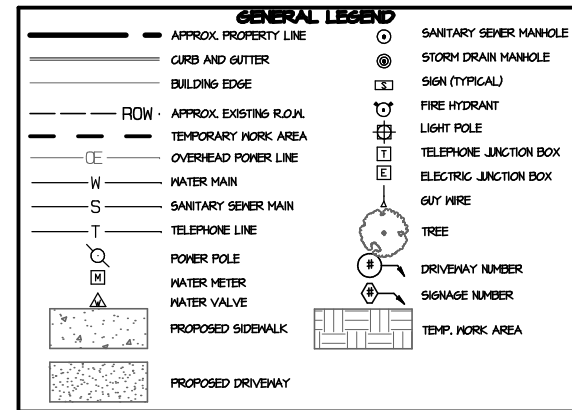
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	60	

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 FILE: Wed Oct 2, 2024 2:58PM



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NO.	DATE	REVISION	APPROVED

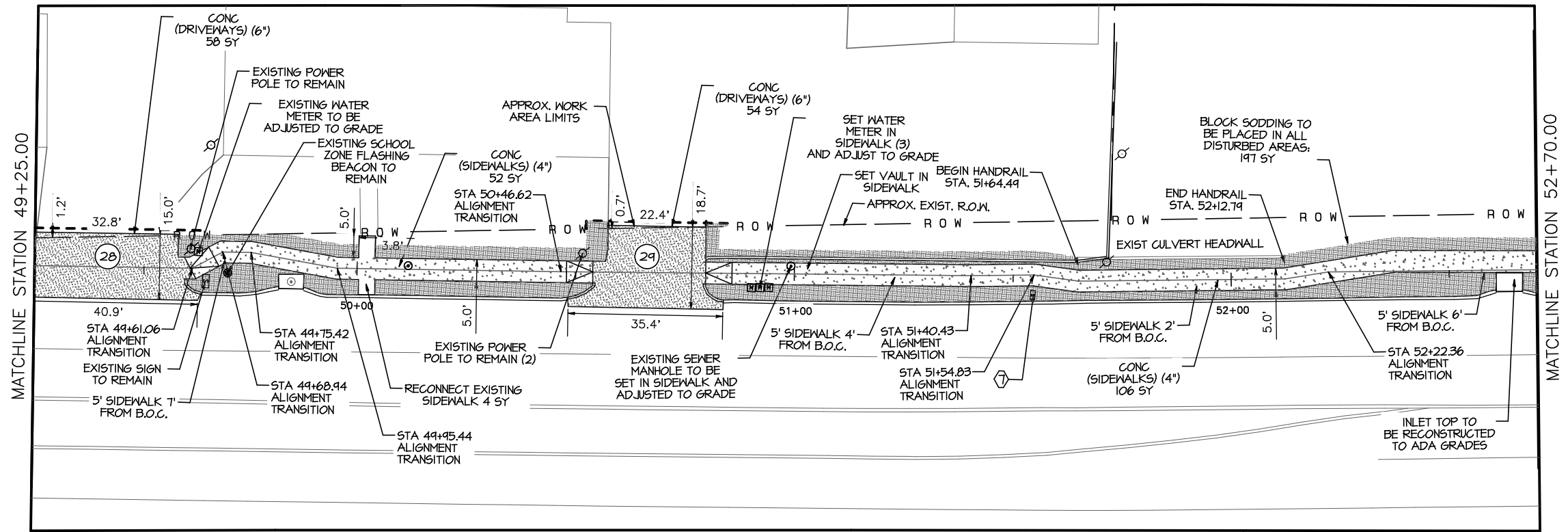
10/2/2024

WEST SIDEWALK PLAN AND PROFILE
SHEET 10 OF 17
STA 45+80.00 TO STA 49+25.00

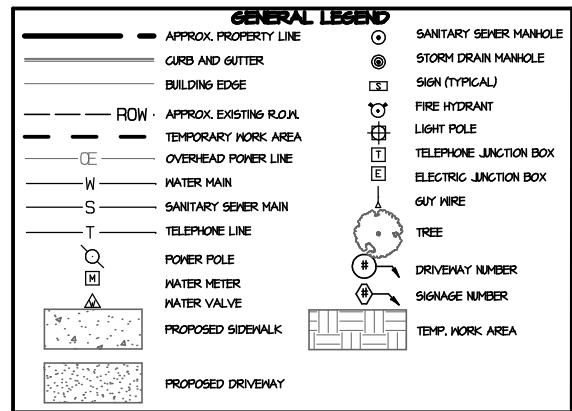
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	61	

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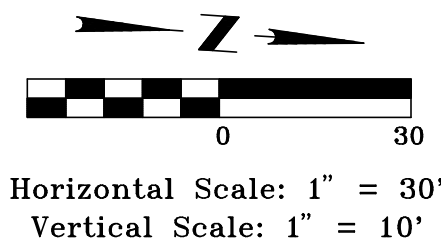
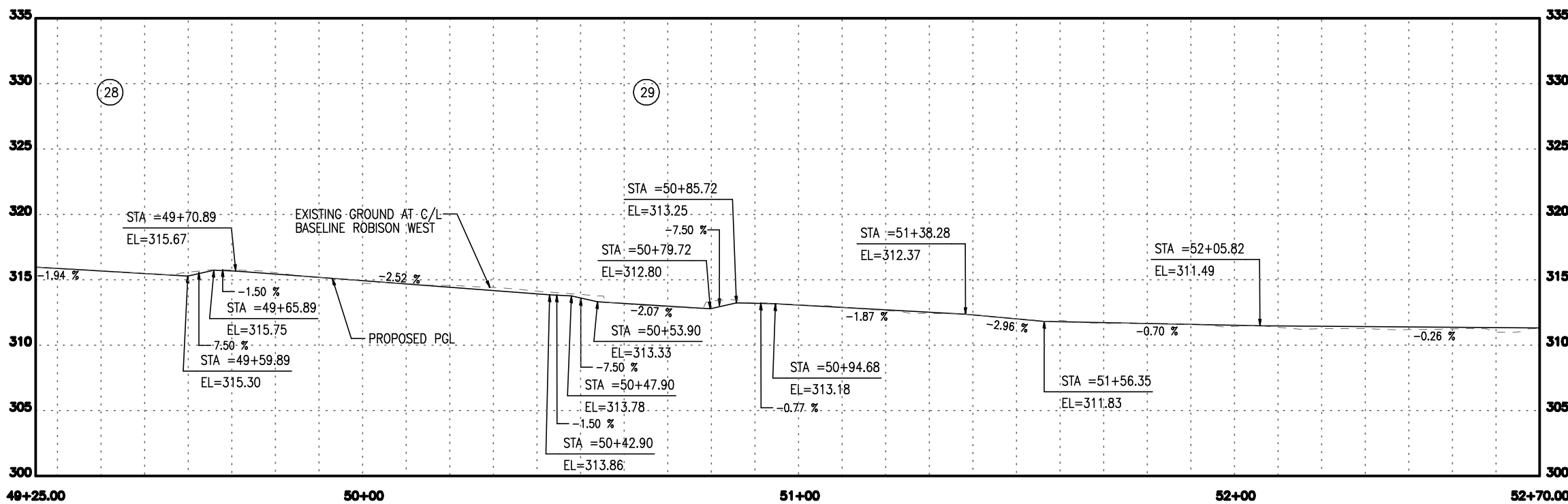
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 FILE: Wed Oct 2, 2024 2:58PM



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SIGNAGE:
 7 - R3-9B CENTER LANE ONLY SIGN
 NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

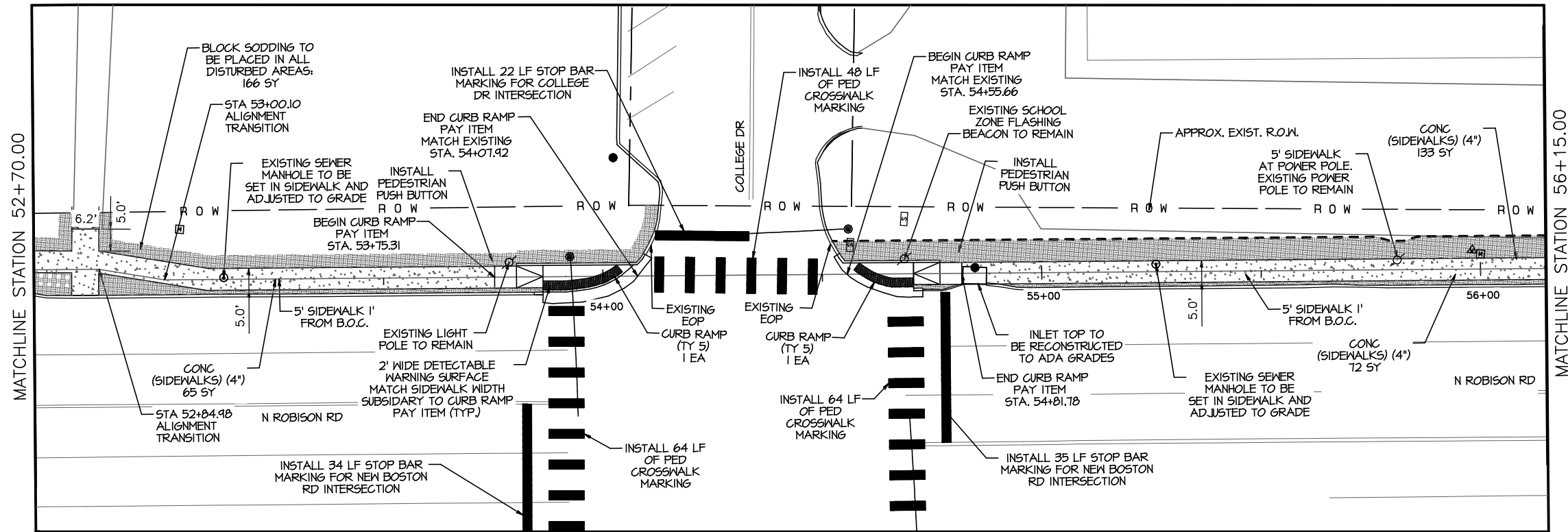
10/2/2024

WEST SIDEWALK PLAN AND PROFILE
 SHEET 11 OF 17
 STA 49+25.00 TO STA 52+70.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	62	

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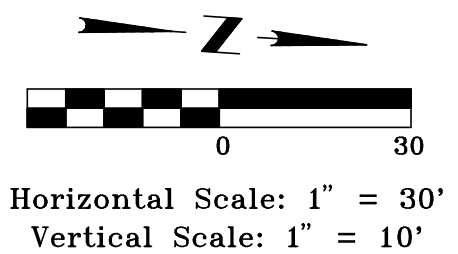
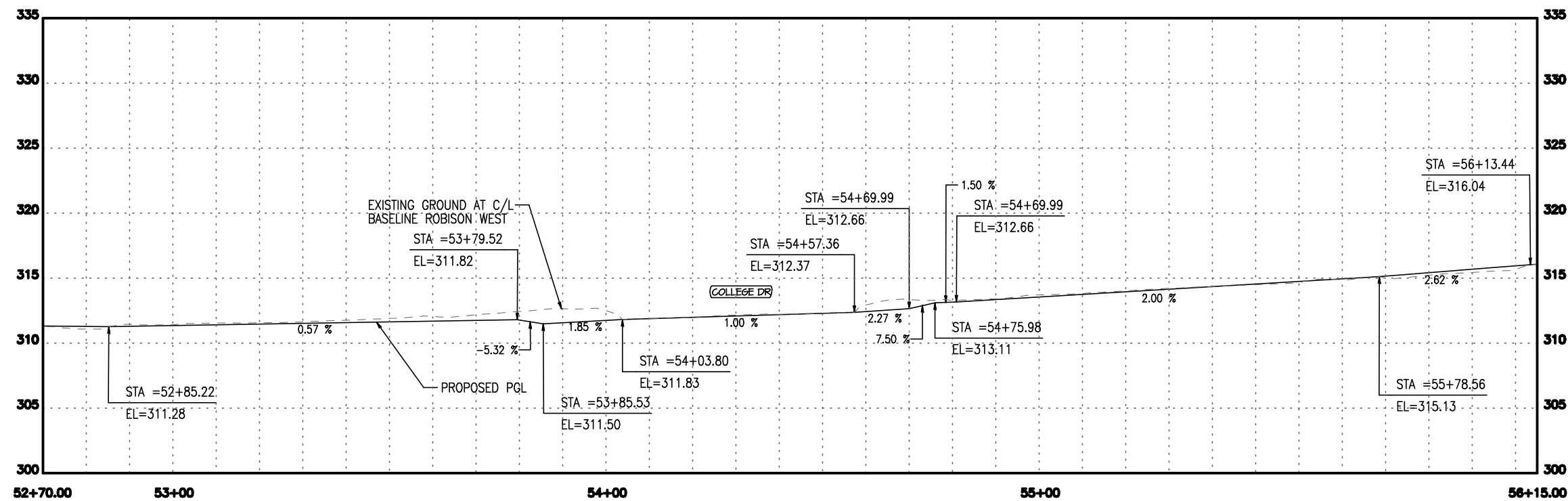
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GENERAL LEGEND

—	APPROX. PROPERTY LINE	⊙	SANITARY SEWER MANHOLE
—	CURB AND GUTTER	⊙	STORM DRAIN MANHOLE
—	BUILDING EDGE	⊙	SIGN (TYPICAL)
—	ROW	⊙	FIRE HYDRANT
—	APPROX. EXISTING ROW	⊙	LIGHT POLE
—	TEMPORARY WORK AREA	⊙	TELEPHONE JUNCTION BOX
—	OVERHEAD POWER LINE	⊙	ELECTRIC JUNCTION BOX
—	W	—	GUY WIRE
—	WATER MAIN	—	TREE
—	S	—	DRIVEWAY NUMBER
—	SANITARY SEWER MAIN	—	SIGNAGE NUMBER
—	TELEPHONE LINE	—	TEMP. WORK AREA
⊙	POWER POLE	—	
⊙	WATER METER	—	
⊙	WATER VALVE	—	
⊙	PROPOSED SIDEWALK	—	
⊙	PROPOSED DRIVEWAY	—	



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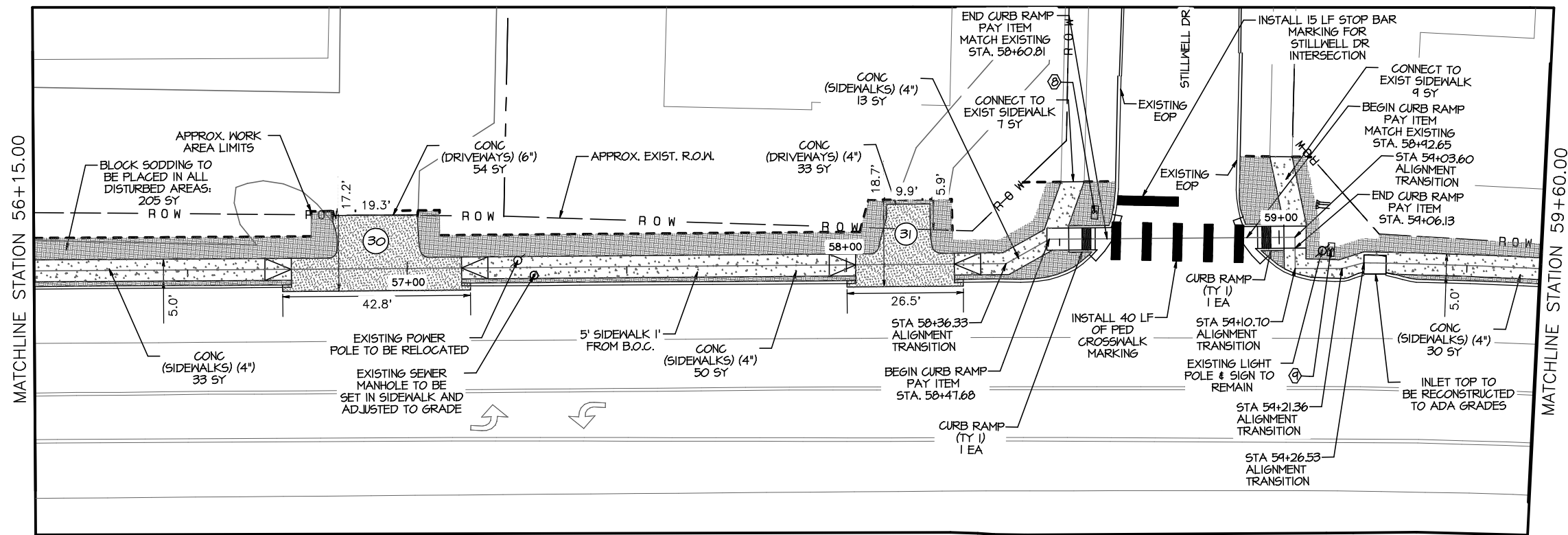
WEST SIDEWALK PLAN AND PROFILE

SHEET 12 OF 17

STA 52+70.00 TO STA 56+15.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	63	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\5ft_Design_PP.pro
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GENERAL LEGEND

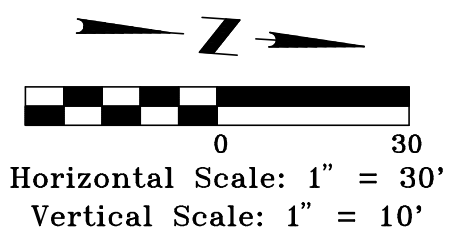
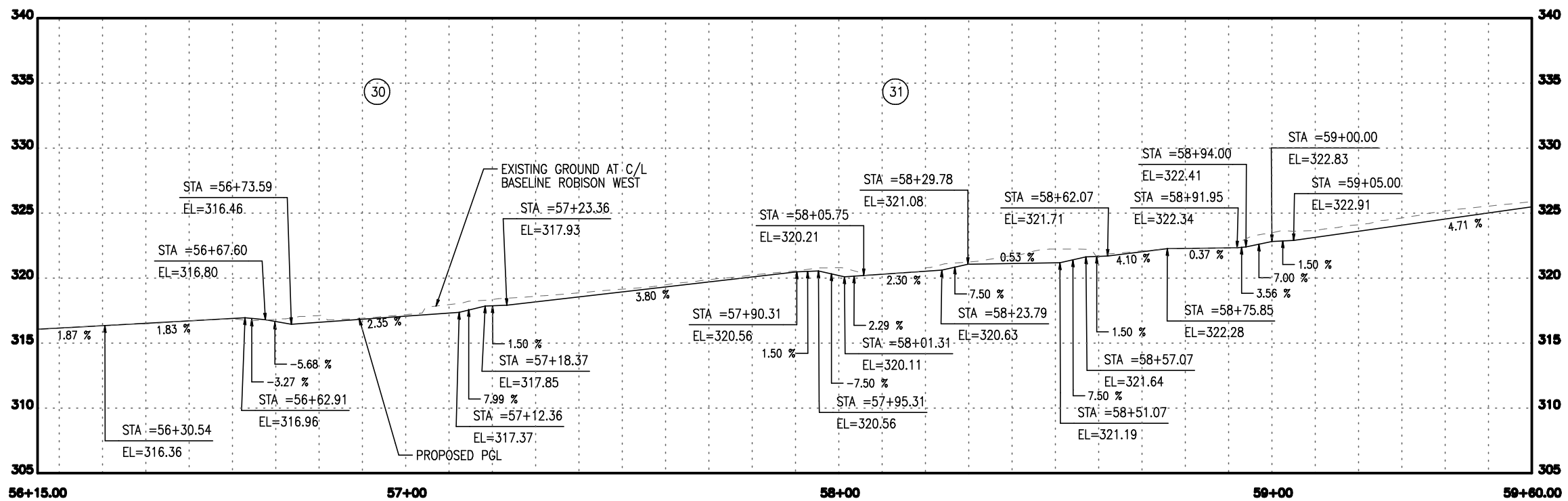
—	APPROX. PROPERTY LINE	⊙	SANITARY SEWER MANHOLE
—	CURB AND GUTTER	⊙	STORM DRAIN MANHOLE
—	BUILDING EDGE	⊙	SIGN (TYPICAL)
—	ROW	⊙	FIRE HYDRANT
—	APPROX. EXIST. R.O.W.	⊙	LIGHT POLE
—	TEMPORARY WORK AREA	⊙	TELEPHONE JUNCTION BOX
—	OVERHEAD POWER LINE	⊙	ELECTRIC JUNCTION BOX
—	W	⊙	GUY WIRE
—	S	⊙	TREE
—	SANITARY SEWER MAIN	⊙	DRIVEWAY NUMBER
—	TELEPHONE LINE	⊙	SIGNAGE NUMBER
⊙	POWER POLE	⊙	TEMP. WORK AREA
⊙	WATER METER		
⊙	WATER VALVE		
⊙	PROPOSED SIDEWALK		
⊙	PROPOSED DRIVEWAY		

SIGNAGE:

8 - R1-1 STOP SIGN

9 - R3-9B CENTER LANE ONLY SIGN

NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

10/2/2024

WEST SIDEWALK PLAN AND PROFILE

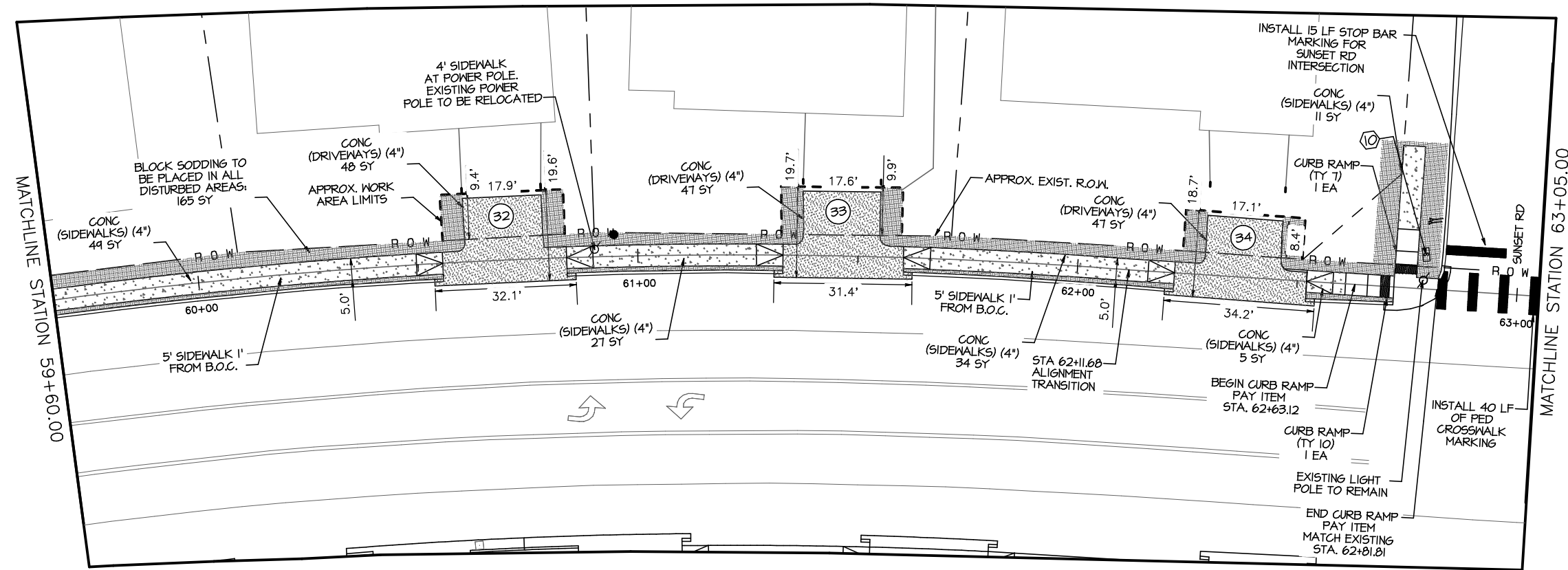
SHEET 13 OF 17

STA 56+15.00 TO STA 59+60.00

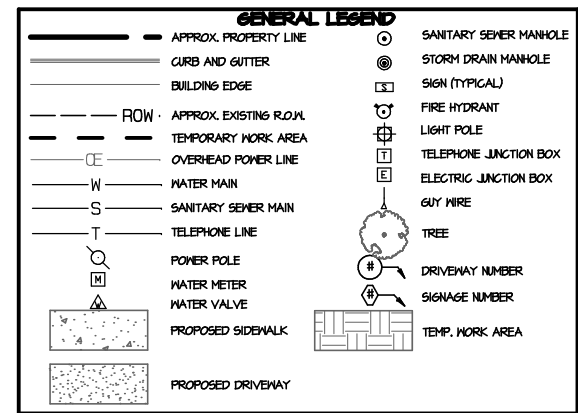
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	64	

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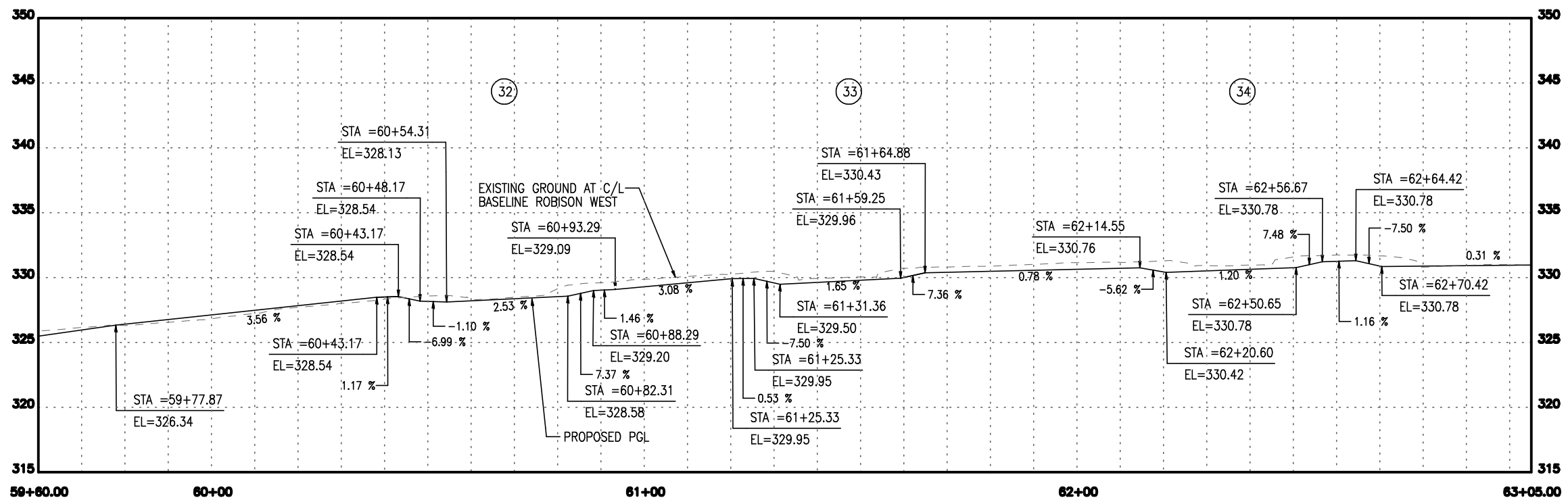
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SIGNAGE:
 10 - R1-1 STOP SIGN
 NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED

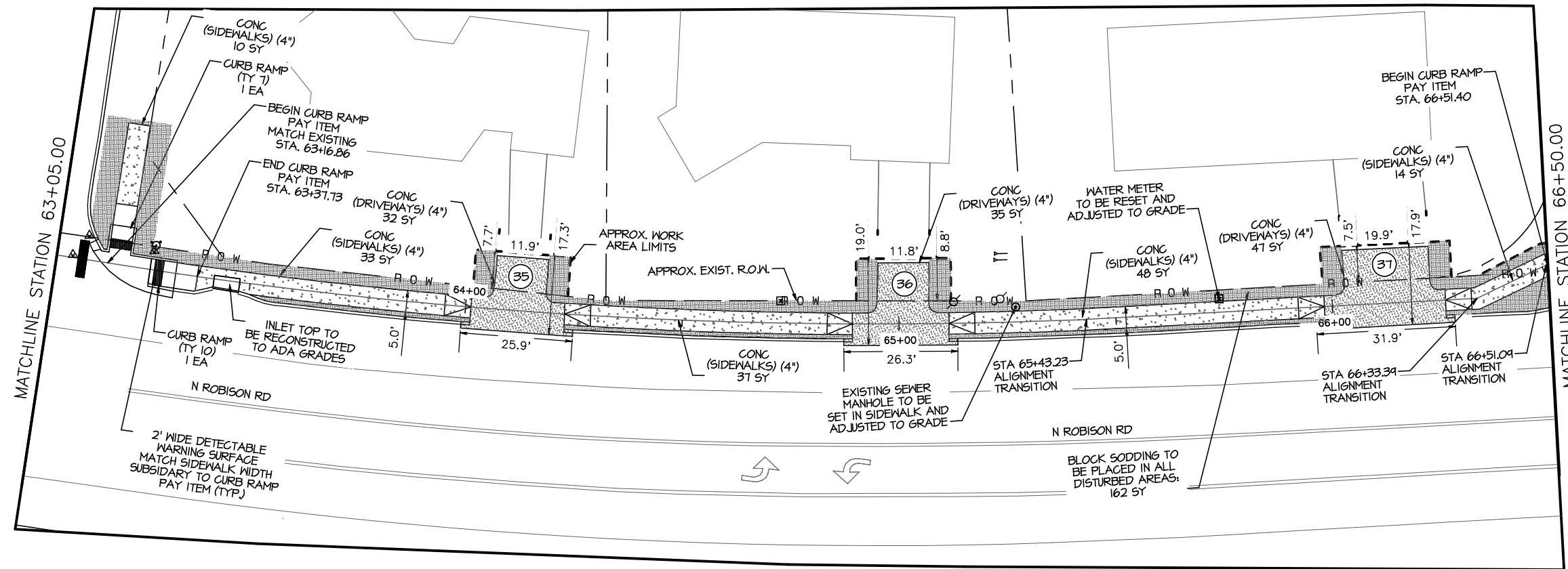
10/2/2024

WEST SIDEWALK PLAN AND PROFILE
 SHEET 14 OF 17
 STA 59+60.00 TO STA 63+05.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	65	

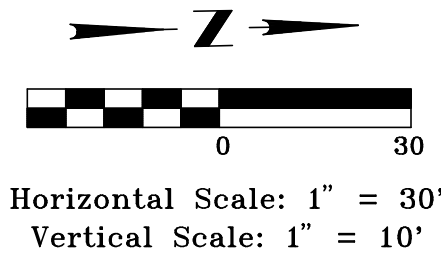
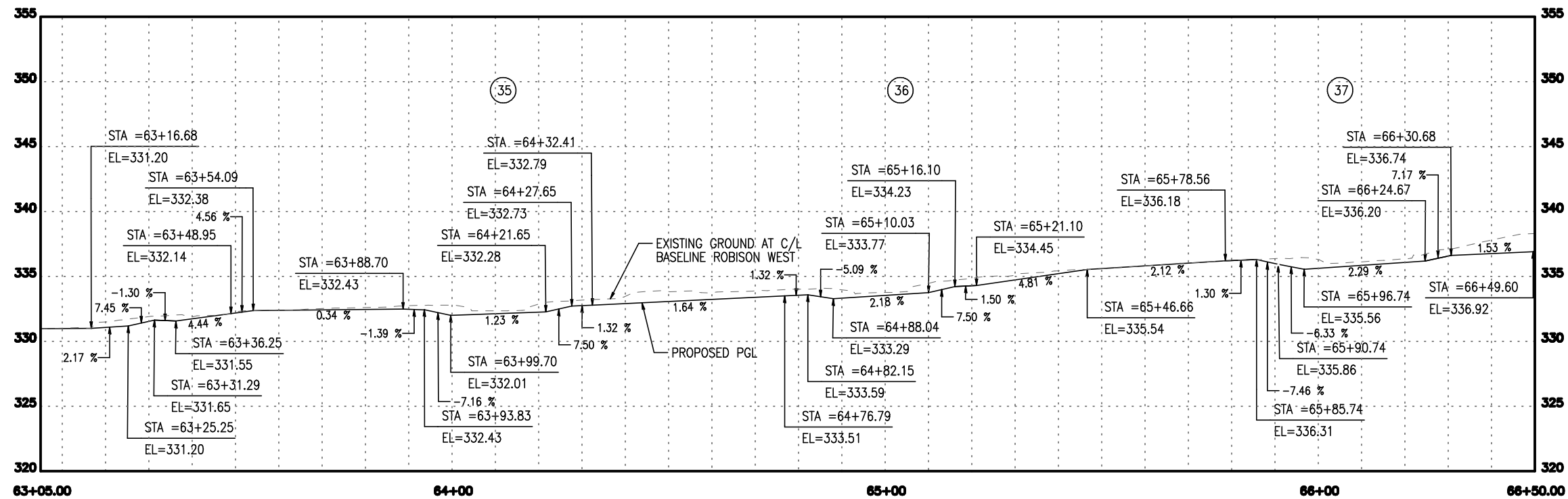
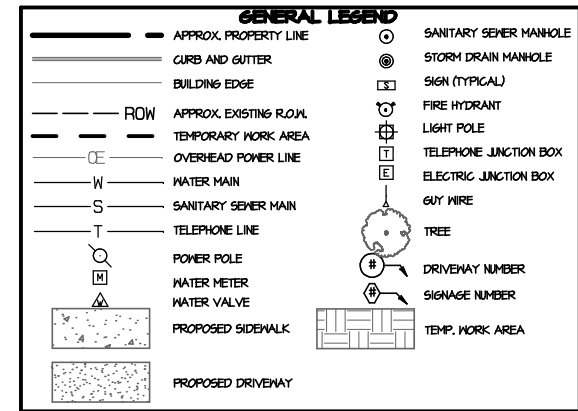
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FILE: Wed Oct 2, 2024 2:59PM



NOTES:

1. SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
2. ALL DIMENSIONS AND OFFSETS ARE TO EDGE OF SIDEWALK PAVEMENT (EOP) OR TO LIP OF GUTTER (LOG) AND ARE BASED OFF OF ROBISON SIDEWALK BASELINE (C/L ROBISONSDWK) UNLESS OTHERWISE NOTED.
3. ALL CURB RAMP WILL BE 6' CLEAR WIDTH UNLESS OTHERWISE NOTED.
4. PROPOSED SIDEWALK ALONG EXISTING CURB WILL MATCHING EXISTING TOP OF CURB ELEVATION UNLESS OTHERWISE SHOWN IN PLANS.
5. CONTRACTOR WILL VERIFY EXISTING ELEVATIONS PRIOR TO CONSTRUCTION. CONTRACTOR WILL ENSURE POSITIVE DRAINAGE AWAY FROM EXISTING BUILDINGS.
6. ONE CALL IS REQUIRED BEFORE ANY CONSTRUCTION. THE UTILITY INFORMATION SHOWN IN APPROXIMATE. FIELD VERIFY LIMITS AND LOCATIONS OF UTILITIES PRIOR TO CONSTRUCTION.



NO.	DATE	REVISION	APPROVED

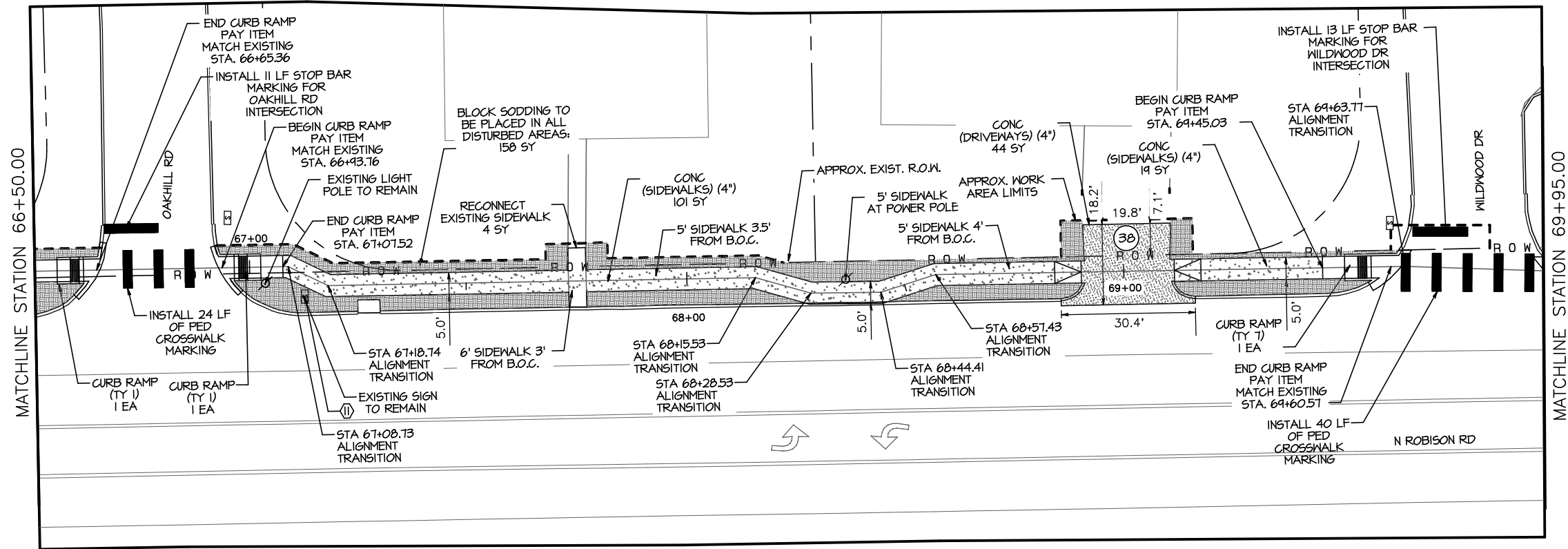
10/2/2024

WEST SIDEWALK PLAN AND PROFILE
SHEET 15 OF 17
STA 63+05.00 TO STA 66+50.00

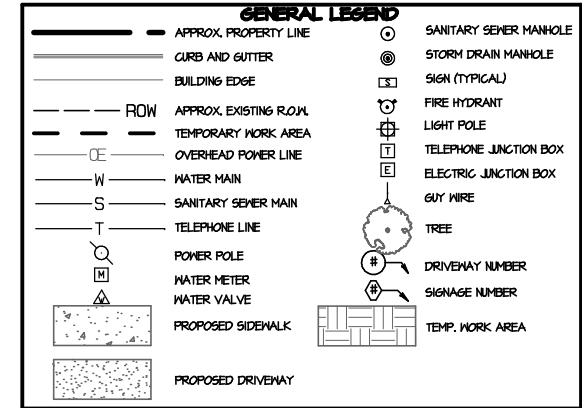
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	66	

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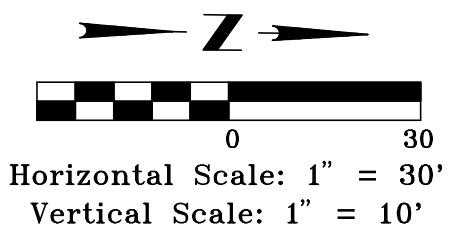
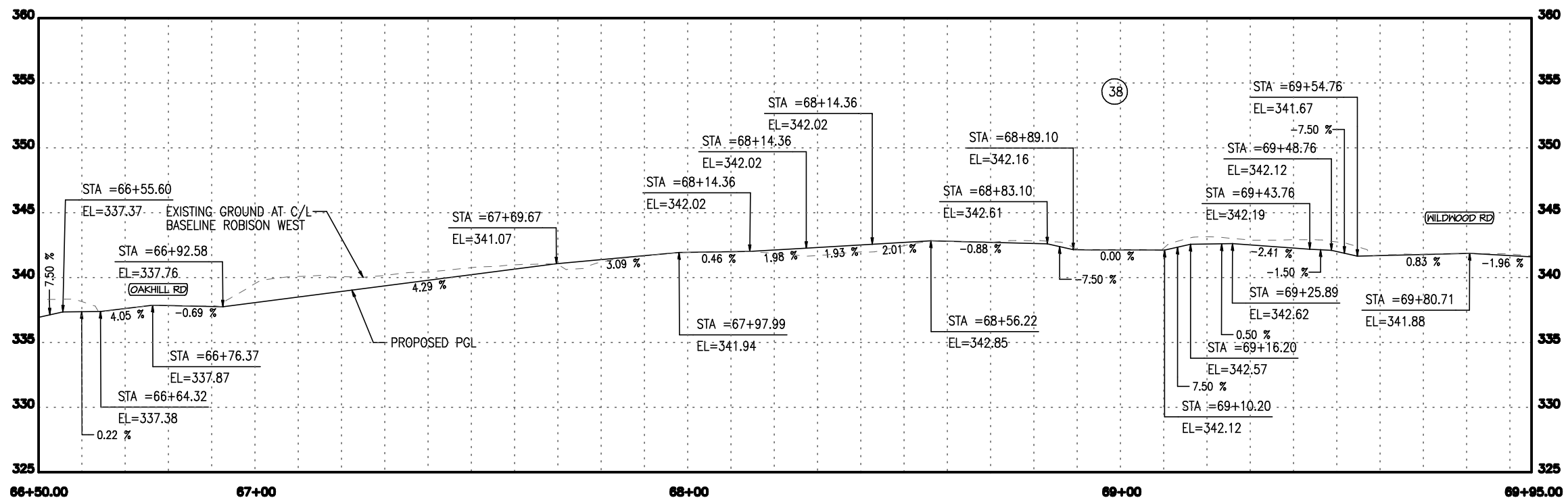
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 FILE: Wed Oct 2, 2024 2:59PM



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SIGNAGE:
 11- R2-1 35 MPH SPEED LIMIT SIGN
 NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

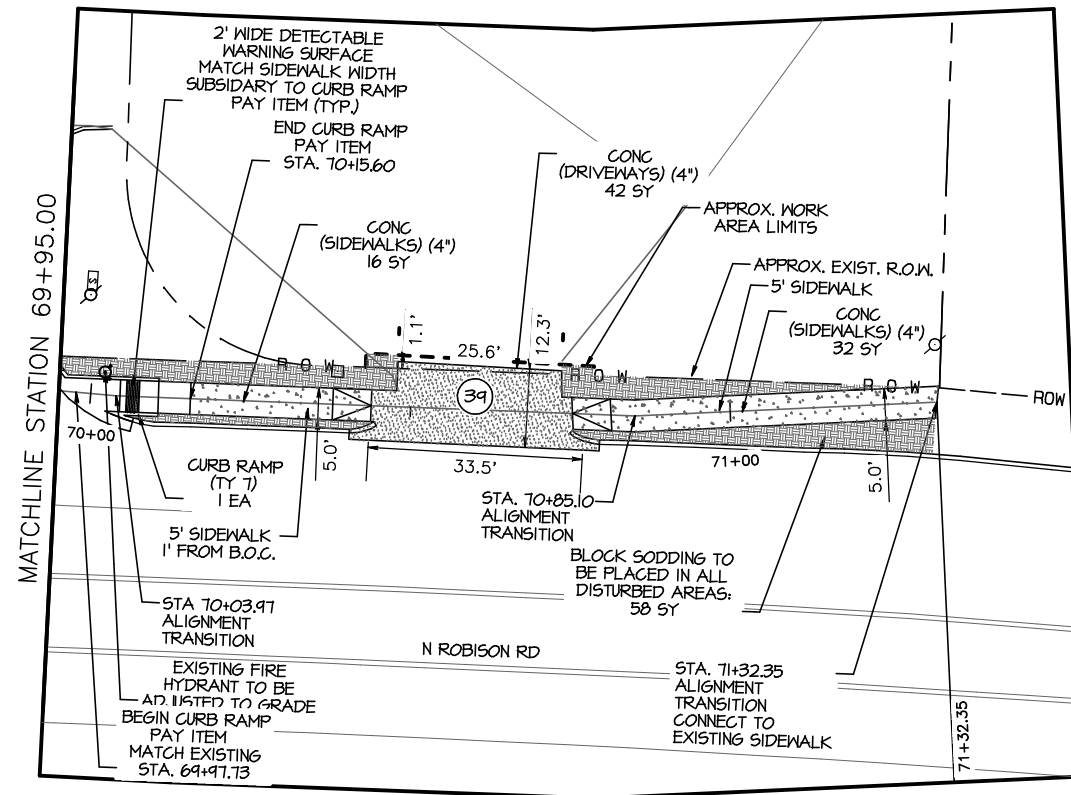
10/2/2024

WEST SIDEWALK PLAN AND PROFILE
 SHEET 16 OF 17
 STA 66+50.00 TO STA 69+95.00

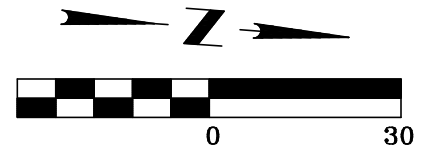
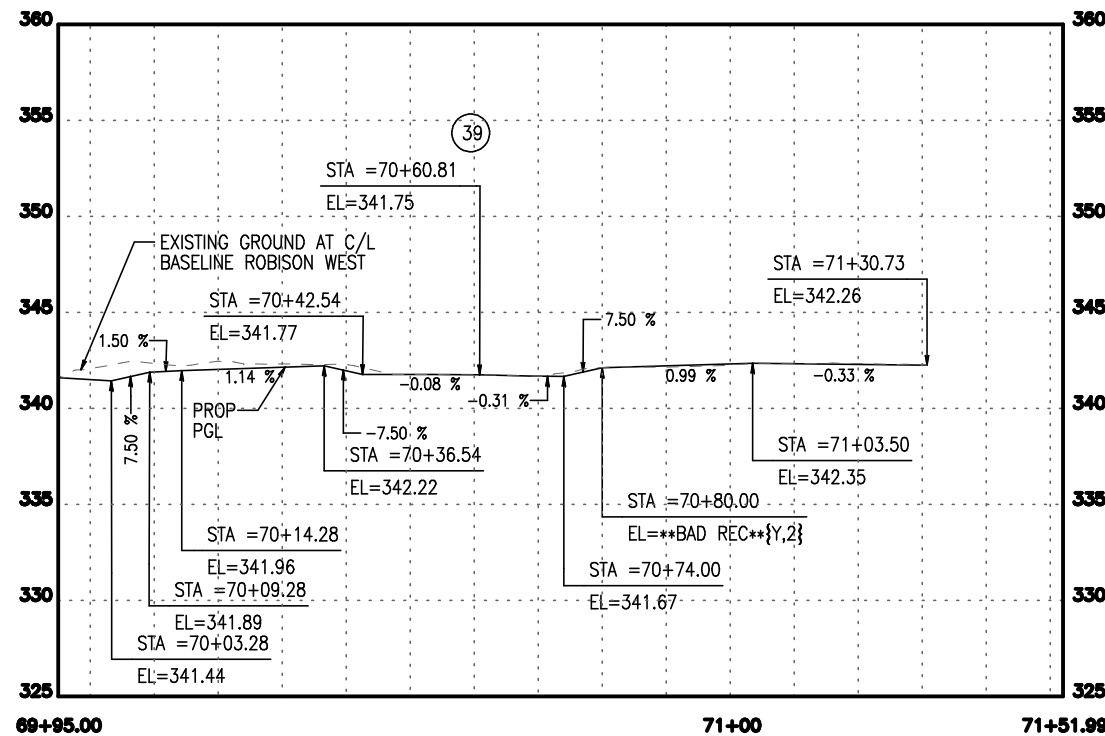
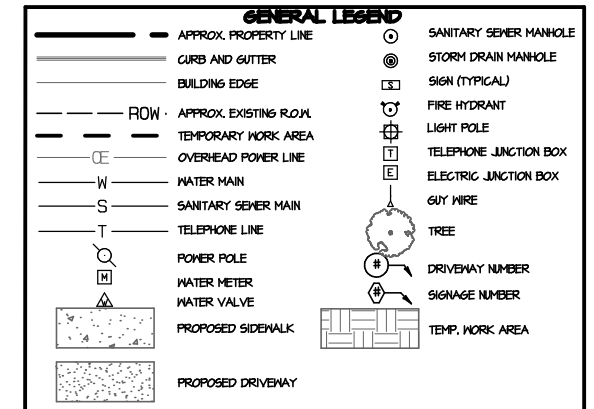
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	67	

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 FILE: Wed Oct 2, 2024 2:59PM



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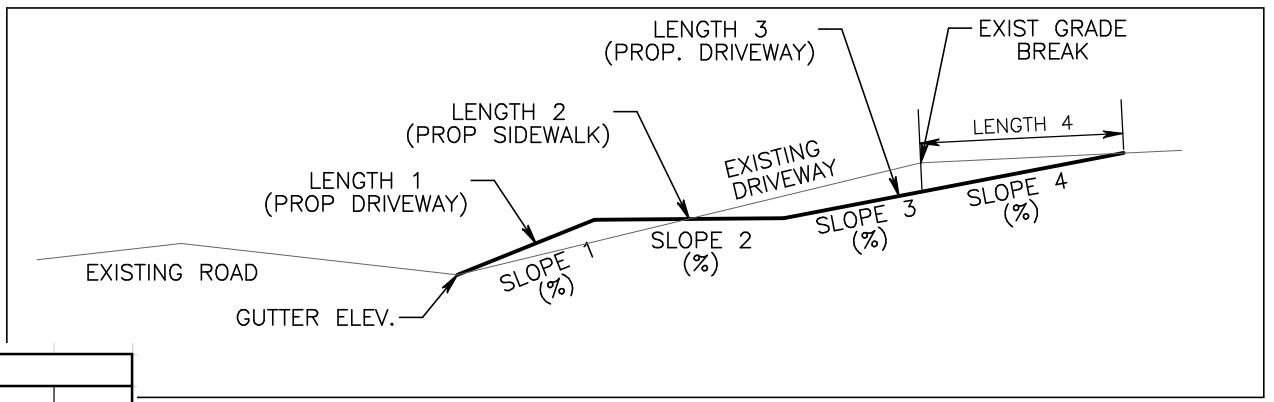
Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED
WEST SIDEWALK PLAN AND PROFILE SHEET 17 OF 17 STA 69+95.00 TO STA 71+21.64			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	60	

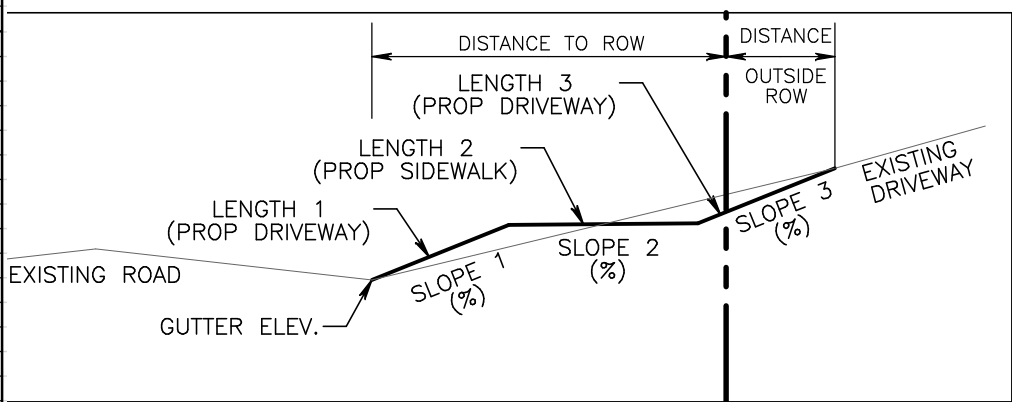
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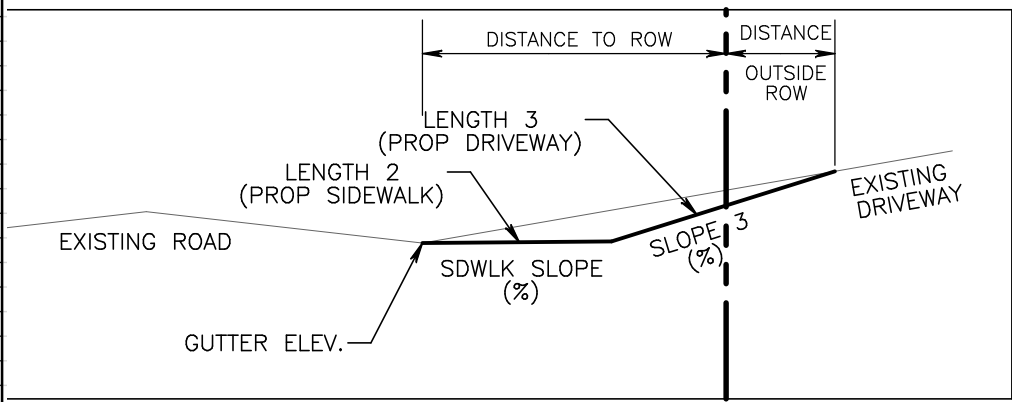
DRIVEWAY DESIGN TABLE - WEST SIDEWALK ROBISON ROAD																							
Driveway ID	SDWLK STATION @ CL OF DRIVE	Sheet Number	Drive Width	USE	DISTANCE Gutter TO ROW	Exist Slope From Gutter	Distance Gutter to Grade Break	Remain Distance to ROW	Exist Slope Beyond Grade Break	Elev Change within ROW	Length #1 Gutter to SW	Slope #1 Gutter to SW	Length #2 Sidewalk	Slope #1 Sidewalk	Length #3 SW to ROW	Slope #3 ROW to End OR Grade Break	Length #4 Grade Break to Limit	Slope #4 Grade Break to Limit	Length Past ROW	Total Length Gutter To Limit	Algebraic Difference Slope #1 to #2	Algebraic Difference Slope #2 to #3	Algebraic Difference Slope #3 to #4
#	STA	Pg	FT	-	FT	%	FT	FT	%	FT	FT	%	FT	%	FT	%	FT	%	FT	FT	%	%	%
1	06+73.91	52	35	COM	11.3	8.6%	15.5	-4.2	5.0%	0.97	4	5.0%	4	2.0%	7.5	12.0%	2.1	12.0%	6.3	17.6	3.0%	10.0%	0.0%
2	07+64.18	52	36	COM	11	2.0%	15	-4	1.0%	0.22	5.5	2.0%	4	2.0%						9.5	0.0%		
3	08+56.72	53	47	COM	10.8	4.5%	15	-4.2	1.0%	0.49	3.5	4.5%	4	2.0%	3.3	7.6%				10.8	2.5%	5.6%	
4	11+55.13	54	47	COM	10.8	1.4%	40	-29.2	1.0%	0.15	5	1.4%	4	1.4%						9.0	0.0%		
5	14+68.67	54	31	COM	10.5	7.4%	40	-29.5	1.0%	0.78	2.5	5.0%	4	2.0%	10.4	10.0%	0.1	10.0%	6.4	16.9	3.0%	8.0%	0.0%
6	31+18.54	56	36	COM	11.1	6.8%	40	-28.9	1.0%	0.75	5.5	5.0%	4	2.0%	9.1	10.0%				7.5	18.6	3.0%	8.0%
7	32+29.49	57	12	RES	12.4	7.4%	40	-27.6	1.0%	0.92	6	5.0%	4	2.0%	10.0	11.0%				7.6	20.0	3.0%	9.0%
8	33+12.52	57	12	COM	12.6	7.6%	40	-27.4	1.0%	0.96	5.5	5.0%	4	2.0%	10.6	11.0%	0.1	11.0%	7.5	20.1	3.0%	9.0%	0.0%
9	36+00.00	58	12	COM	12.2	4.1%	40	-27.8	1.0%	0.5	3.5	4.1%	4	2.0%	4.7	6.0%				12.2	2.1%	4.0%	
10	DEMO	58	12	COM	12.5																0.0%	0.0%	0.0%
11	36+71.37	58	12	COM	13.5	7.8%	10	3.5	1.2%	0.82	3	5.0%	4	2.0%	6.5	9.8%	2.1	9.8%		13.5	3.0%	7.8%	0.0%
12	36+93.65	58	12	COM	13.9	7.6%	10	3.9	4.0%	0.92	3	5.0%	4	2.0%	3.0	9.6%	4.3	9.6%	0.4	14.3	3.0%	7.6%	0.0%
13	37+42.82	58	14	COM	15.9	9.8%	40	-24.1	1.0%	1.56	3.5	5.0%	4	2.0%	11.4	14.0%				3.0	18.9	3.0%	12.0%
14	38+11.60	58	11	RES	17.3	8.2%	40	-22.7	1.0%	1.42	5	5.0%	4	2.0%	8.5	13.0%				0.2	17.5	3.0%	11.0%
15	38+78.40	58	12	RES	18.6	5.8%	40	-21.4	1.0%	1.08	5	5.0%	4	2.0%	9.6	7.8%				18.6	3.0%	5.8%	
16	39+51.23	59	11	RES	17	9.5%	15	2	1.2%	1.45	5	5.0%	4	2.0%	6.0	11.5%	4	11.5%	2.0	19.0	3.0%	9.5%	0.0%
17	40+17.84	59	11	RES	16.7	10.2%	10	6.7	1.5%	1.12	5.5	5.0%	4	2.0%	7.2	12.2%	4.4	12.2%		16.7	3.0%	10.2%	0.0%
18	40+91.45	59	11	RES	15.7	10.9%	15	0.7	0.8%	1.64	5.5	5.0%	4	2.0%	5.5	12.9%	4.8	12.9%	4.1	19.8	3.0%	10.9%	0.0%
19	41+18.85	59	14	RES	15	6.7%	20	-5	4.2%	1.01	5.5	5.0%	4	2.0%	8.5	10.0%				3.0	18.0	3.0%	8.0%
20	41+60.80	59	14	RES	14.3	12.9%	10	4.3	4.2%	1.47	5.5	5.0%	4	2.0%	0.5	14.9%	8	14.9%	3.7	18.0	3.0%	12.9%	0.0%
21	42+30.51	59	13	RES	13.6	16.9%	10	3.6	1.0%	1.73	5.5	5.0%	4	2.0%	0.5	18.9%	6.9	18.9%	3.3	16.9	3.0%	16.9%	0.0%
22	43+00.04	60	12	RES	12.4	16.8%	10	2.4	1.0%	1.7	5.5	5.0%	4	2.0%	0.5	18.8%	6.9	18.8%	4.5	16.9	3.0%	16.8%	0.0%
23	43+66.24	60	10	RES	11.5	4.9%	10	1.5	1.0%	0.51	5.5	4.9%	4	2.0%	2.0	8.0%	0.7	8.0%		11.5	2.9%	6.0%	0.0%
24	44+74.73	60	10	RES	11.3	6.2%	10	1.3	1.0%	0.63	5.5	5.0%	4	2.0%	0.5	10.0%	2.3	10.0%	1.0	12.3	3.0%	8.0%	0.0%
25	45+41.20	60	10	RES	11.7	1.1%	10	1.7	1.0%	0.13	5.5	1.1%	4	1.1%						9.5	0.0%		
26	45+67.20	60	13	COM	11.7	5.6%	10	1.7	1.0%	0.58	5.5	5.0%	4	2.0%	0.5	8.0%	2.3	8.0%	0.6	12.3	3.0%	6.0%	0.0%
27	48+73.27	61	28	COM	12.8	7.4%	40	-27.2	1.0%	0.95	5	5.0%	4	2.0%	9.4	11.0%				5.6	18.4	3.0%	9.0%
28	49+41.35	62	33	COM	14.2	6.6%	40	-25.8	1.0%	0.94	5	5.0%	4	2.0%	5.9	11.0%				0.7	14.9	3.0%	9.0%
29	50+59.52	62	22	COM	18.7	5.4%	40	-21.3	1.0%	1.01	6	5.0%	4	2.0%	8.7	7.2%				18.7	3.0%	5.2%	
30	56+92.81	64	19	COM	17.2	6.3%	40	-22.8	1.0%	1.08	3	5.0%	4	2.0%	10.2	8.3%				17.2	3.0%	6.3%	
31	58+02.10	64	13	RES	13.1	10.0%	40	-26.9	1.0%	1.31	3	5.0%	4	2.0%	11.8	14.0%				5.7	18.8	3.0%	12.0%
32	60+69.68	65	29	RES	10.3	12.6%	16	-5.7	1.2%	1.3	3	5.0%	4	2.0%	9.0	14.6%	3.6	14.6%	9.3	19.6	3.0%	12.6%	0.0%
33	61+46.09	65	29	RES	9.8	12.8%	16	-6.2	1.5%	1.25	3	5.0%	4	2.0%	9.0	14.8%	3.7	14.8%	9.9	19.7	3.0%	12.8%	0.0%
34	62+37.34	65	28	RES	10.3	9.5%	16	-5.7	2.3%	0.98	3	5.0%	4	2.0%	9.0	11.5%	2.7	11.5%	8.4	18.7	3.0%	9.5%	0.0%
35	64+12.38	66	23	RES	9.5	11.2%	13	-3.5	3.0%	1.06	3	5.0%	4	2.0%	6.0	13.2%	4.3	13.2%	7.8	17.3	3.0%	11.2%	0.0%
36	65+01.08	66	23	RES	10.2	12.0%	15	-4.8	2.7%	1.22	3	5.0%	4	2.0%	8.0	14.0%	4	14.0%	8.8	19.0	3.0%	12.0%	0.0%
37	66+12.76	66	20	RES	10.2	8.8%	15	-4.8	1.9%	0.9	3	5.0%	4	2.0%	8.0	10.8%	2.6	10.8%	7.4	17.6	3.0%	8.8%	0.0%
38	69+00.81	67	20	RES	11.6	8.8%	15	-3.4	0.0%	1.02	6	5.0%	4	2.0%	5.0	10.8%	3.7	10.8%	7.1	18.7	3.0%	8.8%	0.0%
39	70+60.59	68	26	RES	11.5	6.0%	40	-28.5	1.0%	0.69	3.5	5.0%	4	2.0%	4.8	10.0%	0.1	10.0%	0.8	12.3	3.0%	8.0%	0.0%



3.0' FROM BACK OF CURB SIDEWALK SECTION N.T.S.



3.0' FROM BACK OF CURB SIDEWALK SECTION N.T.S.



BACK OF CURB SIDEWALK SECTION N.T.S.

NO.	DATE	REVISION	APPROVED

10/2/2024

WEST DRIVEWAY SUMMARY TABLE

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	64	

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GENERAL LEGEND

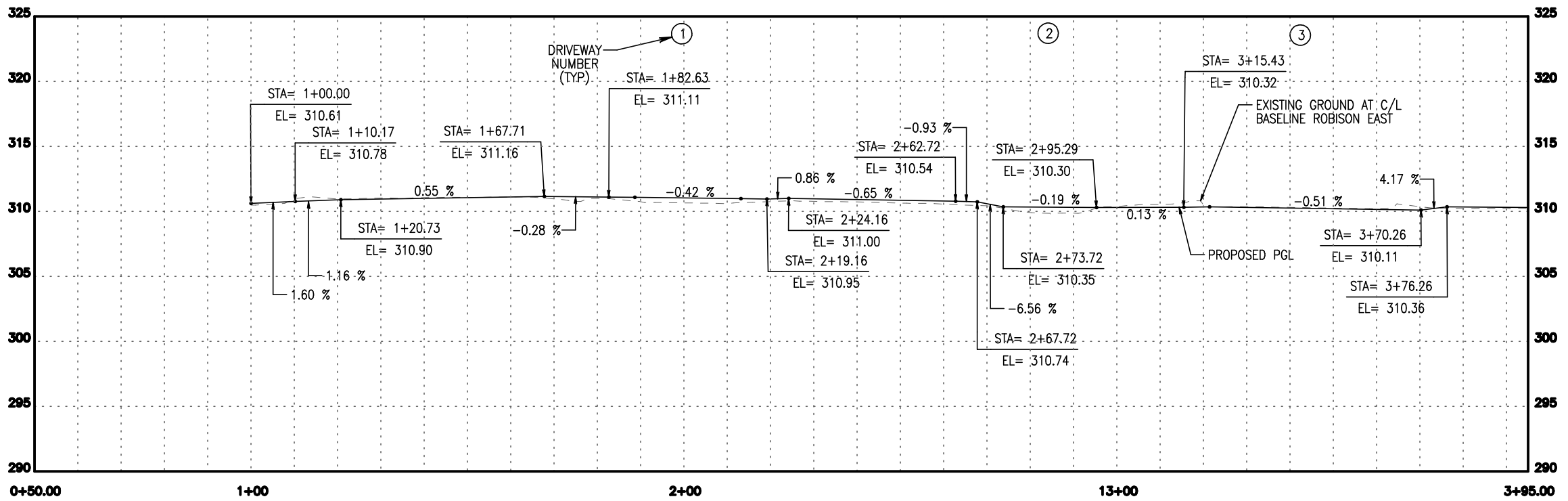
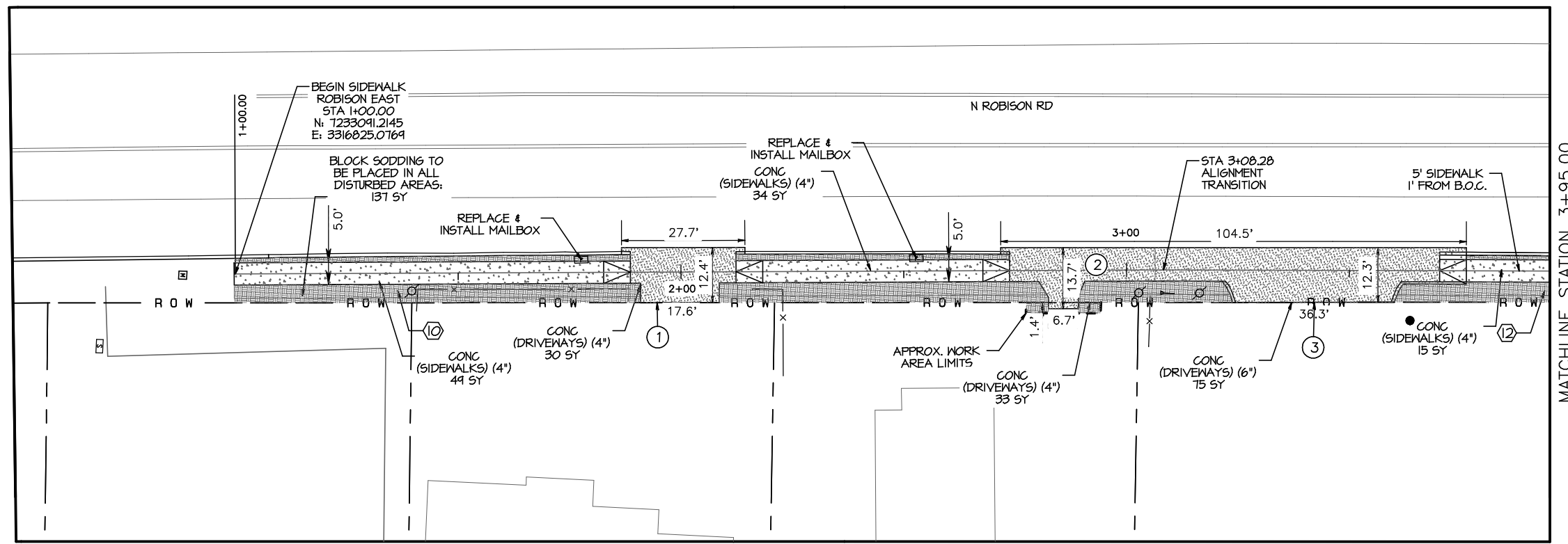
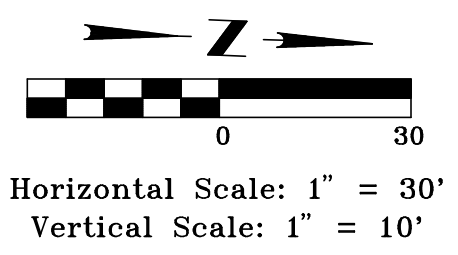
—	APPROX. PROPERTY LINE	⊙	SANITARY SEWER MANHOLE
—	CURB AND GUTTER	⊗	STORM DRAIN MANHOLE
—	BUILDING EDGE	⊠	SIGN (TYPICAL)
—	ROW - APPROX. EXISTING RO/W	⊕	FIRE HYDRANT
—	TEMPORARY WORK AREA	⊕	LIGHT POLE
—	OVERHEAD POWER LINE	⊕	TELEPHONE JUNCTION BOX
—	W - WATER MAIN	⊕	ELECTRIC JUNCTION BOX
—	S - SANITARY SEWER MAIN	⊕	GUY WIRE
—	T - TELEPHONE LINE	⊕	TREE
⊕	POWER POLE	⊕	DRIVEWAY NUMBER
⊕	WATER METER	⊕	SIGNAGE NUMBER
⊕	WATER VALVE	⊕	TEMP. WORK AREA
▨	PROPOSED SIDEWALK		
▨	PROPOSED DRIVEWAY		

SIGNAGE:

12- R7-13 NO PARKING SIGN

13- R7-13 NO PARKING SIGN

NOTE: USE EXISTING SIGN



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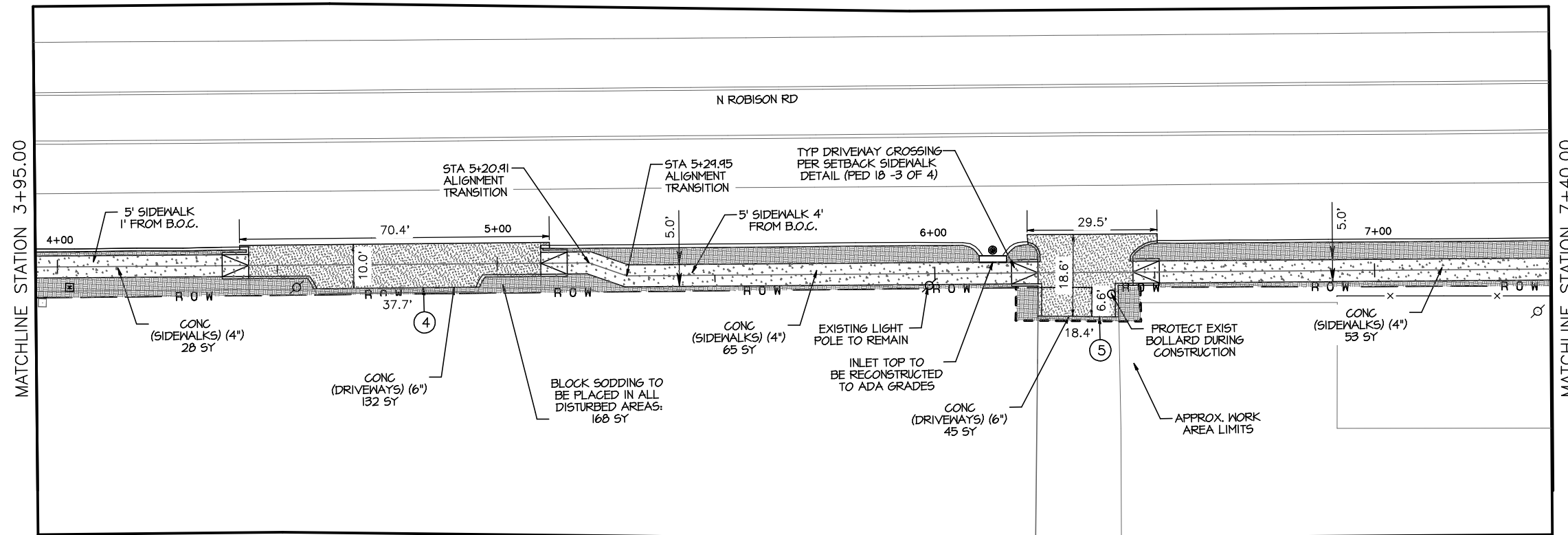
EAST SIDEWALK PLAN AND PROFILE

SHEET 1 OF 22

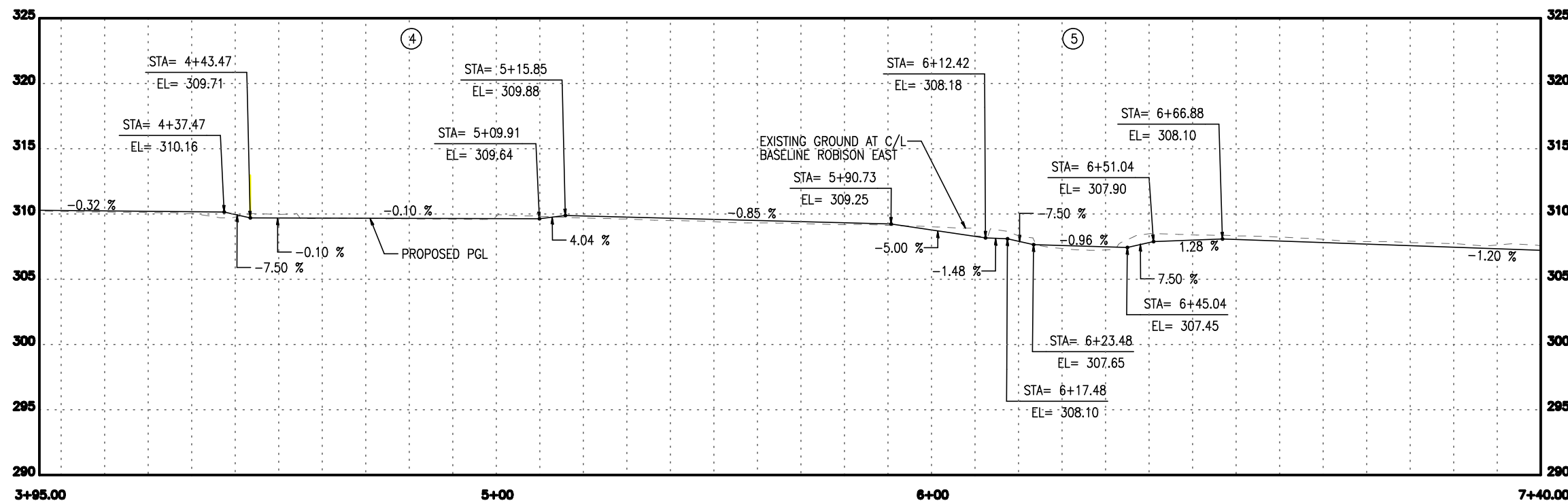
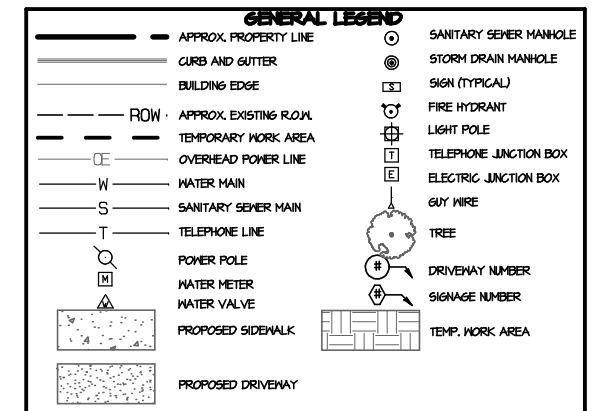
STA 1+00.00 TO STA 3+95.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	10	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\5ft_Design_PP.pro
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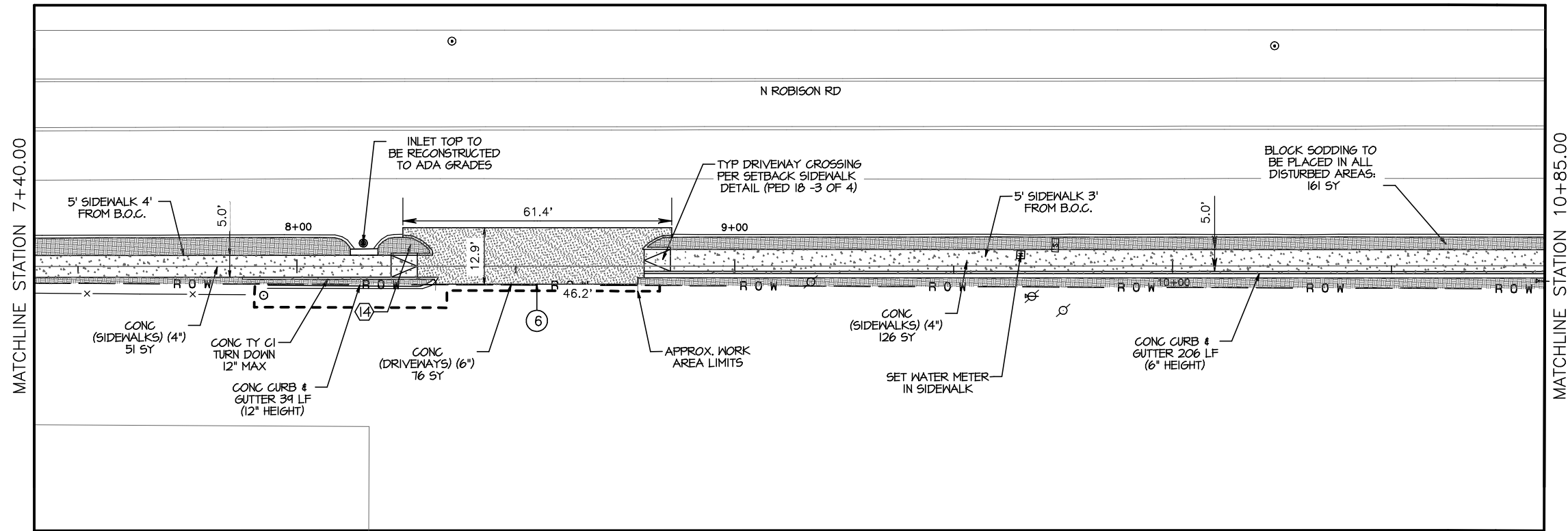


Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED
EAST SIDEWALK PLAN AND PROFILE SHEET 2 OF 22 STA 3+95.00 TO STA 7+40.00			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	71	

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DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_PP.pro
 FILE: Wed Oct 2, 2024 3:02PM

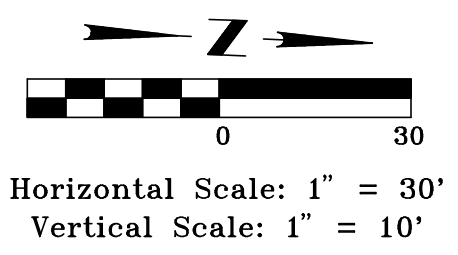
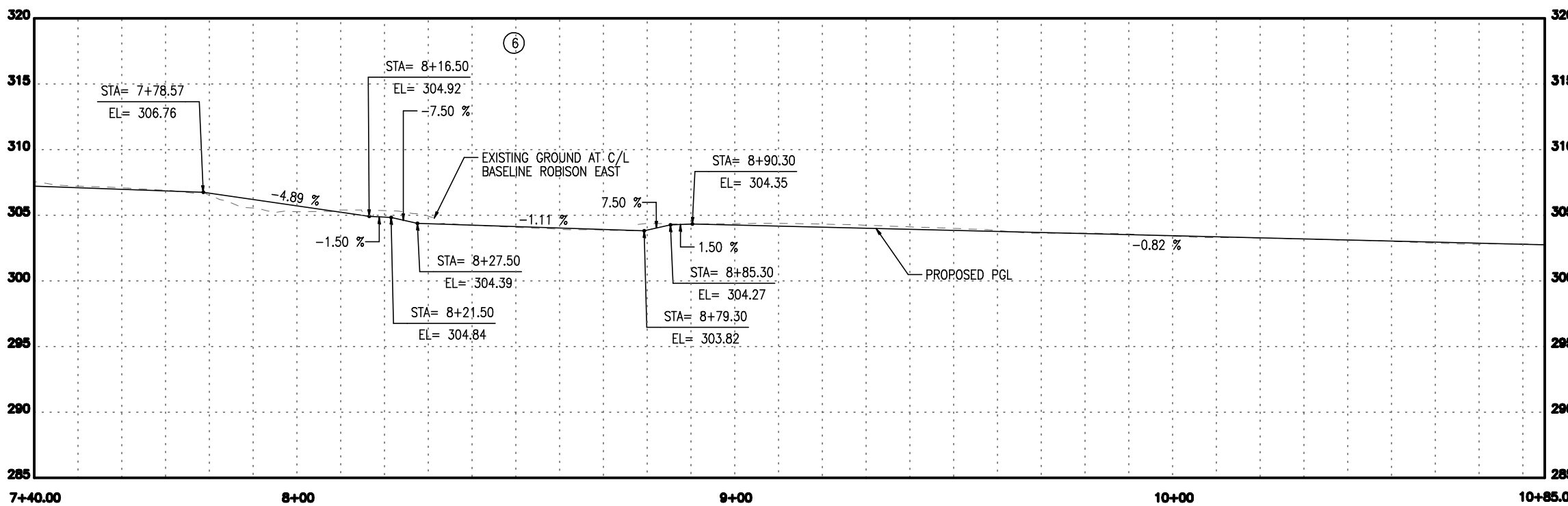


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GENERAL LEGEND

—	APPROX. PROPERTY LINE	⊙	SANITARY SEWER MANHOLE
—	CURB AND GUTTER	⊙	STORM DRAIN MANHOLE
—	BUILDING EDGE	⊙	SIGN (TYPICAL)
—	ROW	⊙	FIRE HYDRANT
—	APPROX. EXISTING R.O.W.	⊙	LIGHT POLE
—	TEMPORARY WORK AREA	⊙	TELEPHONE JUNCTION BOX
—	OVERHEAD POWER LINE	⊙	ELECTRIC JUNCTION BOX
—	WATER MAIN	⊙	GUY WIRE
—	SANITARY SEWER MAIN	⊙	TREE
—	TELEPHONE LINE	⊙	DRIVEWAY NUMBER
⊙	POWER POLE	⊙	SIGNAGE NUMBER
⊙	WATER METER	⊙	TEMP. WORK AREA
⊙	WATER VALVE		
⊙	PROPOSED SIDEWALK		
⊙	PROPOSED DRIVEWAY		

SIGNAGE:
 14- R5-2 NO 18 WHEELER SIGN
 NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

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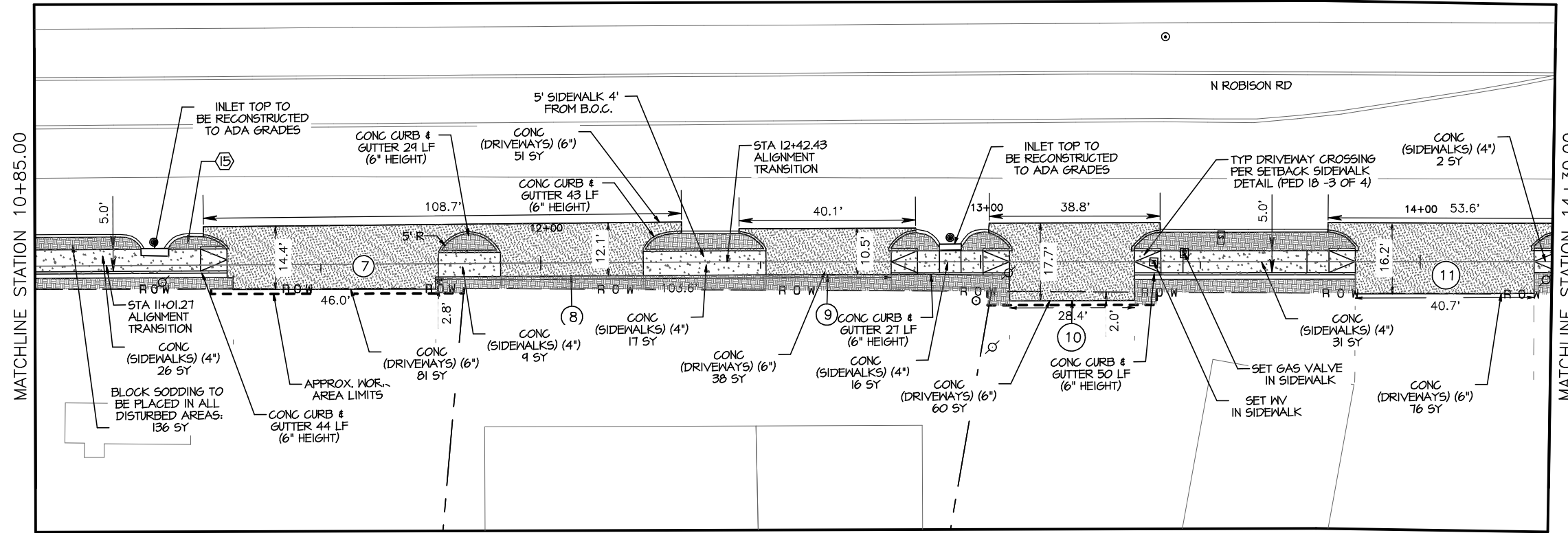
EAST SIDEWALK PLAN AND PROFILE
 SHEET 3 OF 22
 STA 7+40.00 TO STA 10+85.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	72	

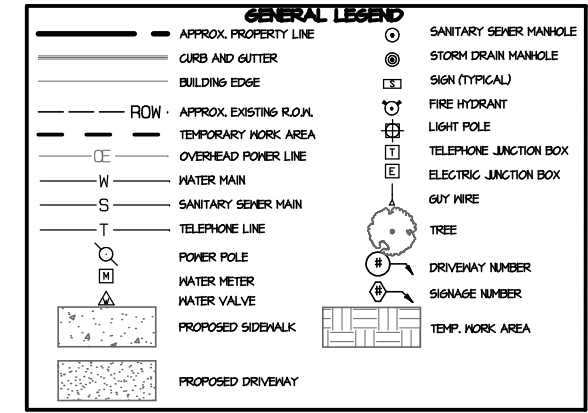
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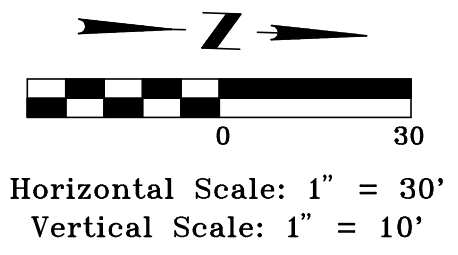
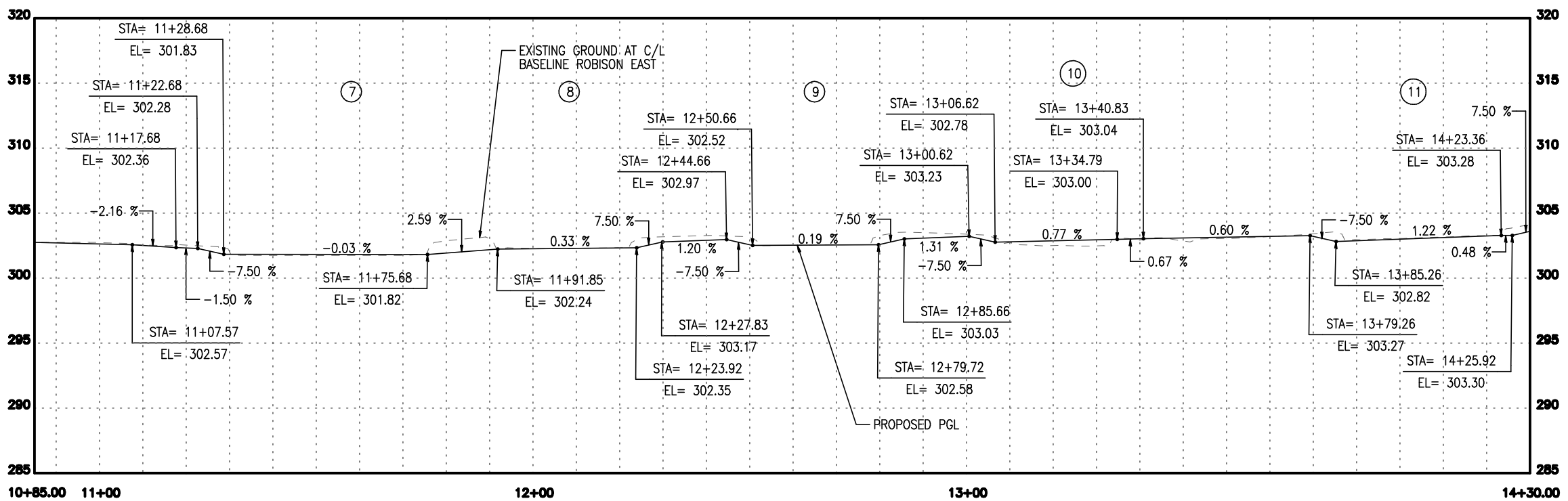
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 FILE: Wed Oct 2, 2024 3:01PM



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SIGNAGE:
 15- R5-2 NO 18 WHEELER SIGN
 NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

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EAST SIDEWALK PLAN AND PROFILE
 SHEET 4 OF 22
 STA 10+85.00 TO STA 14+30.00

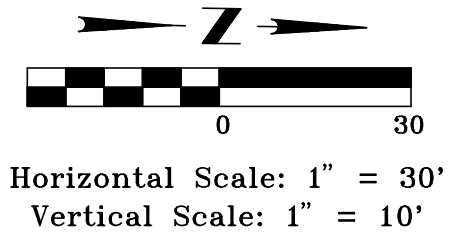
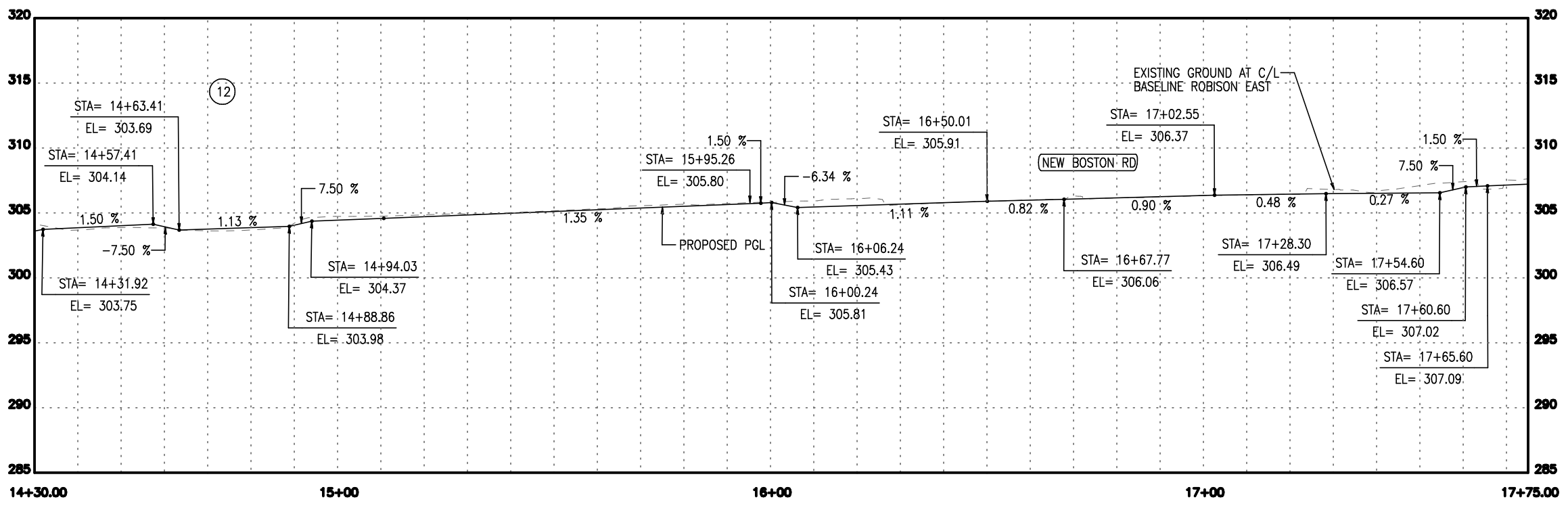
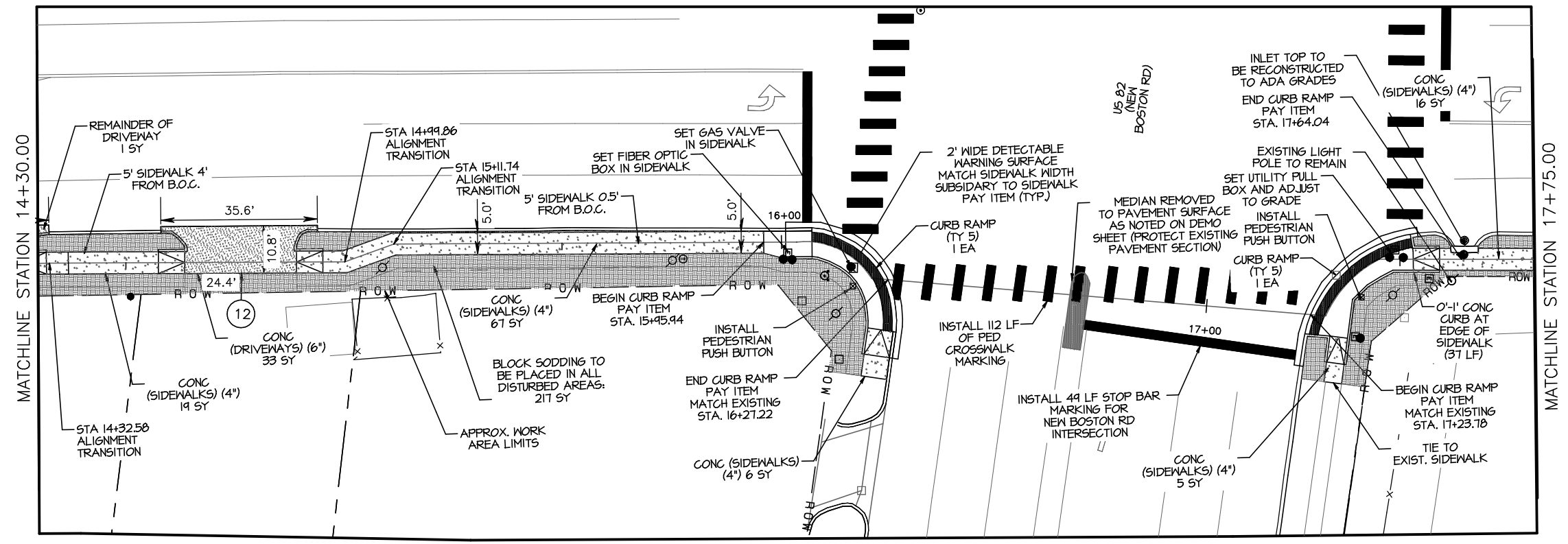
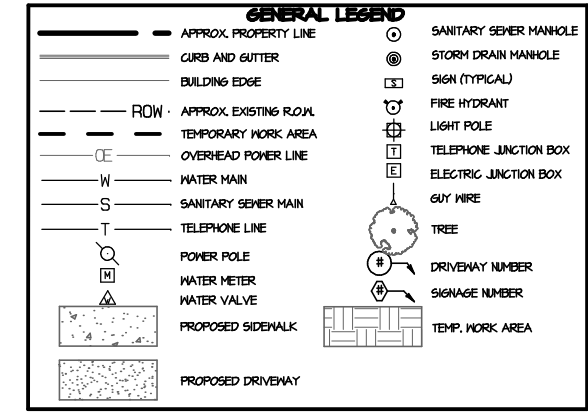
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	73	

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EAST SIDEWALK PLAN AND PROFILE

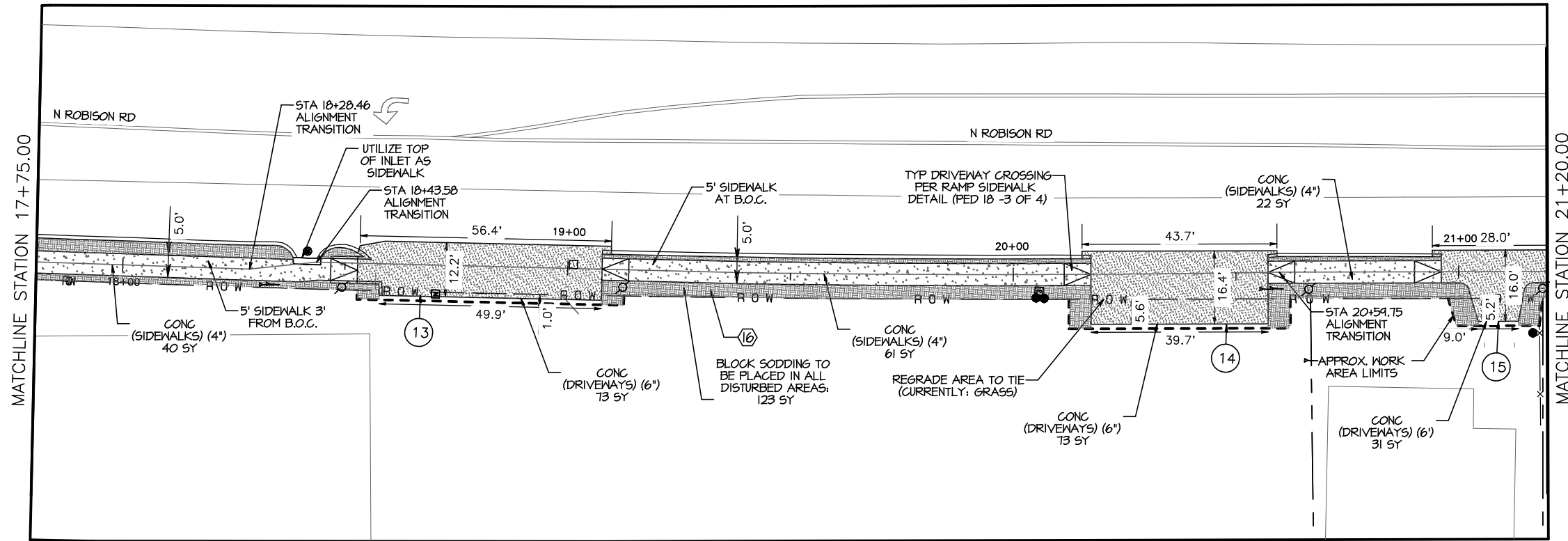
SHEET 5 OF 22

STA 14+30.00 TO STA 17+75.00

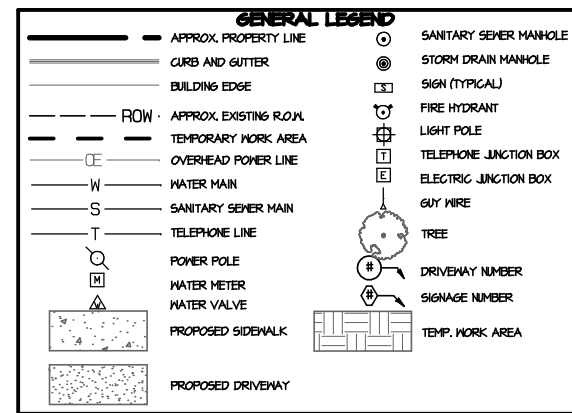
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	14	

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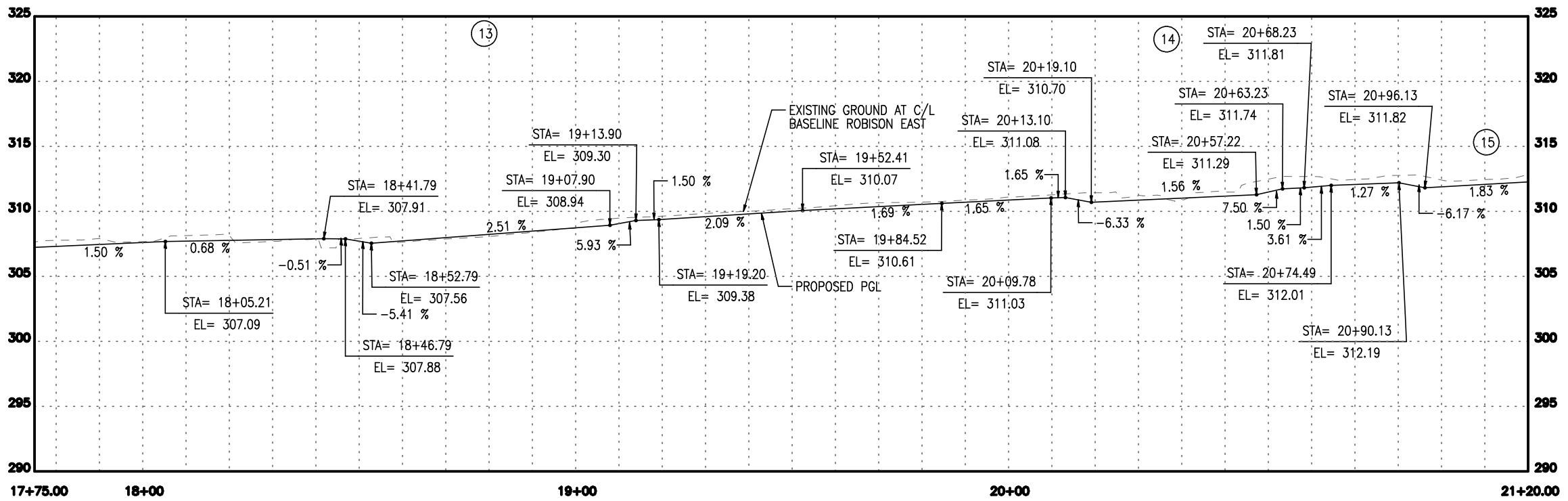
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SIGNAGE:
 16 - R2-1 40 MPH SPEED LIMIT SIGN
 NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED

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EAST SIDEWALK PLAN AND PROFILE

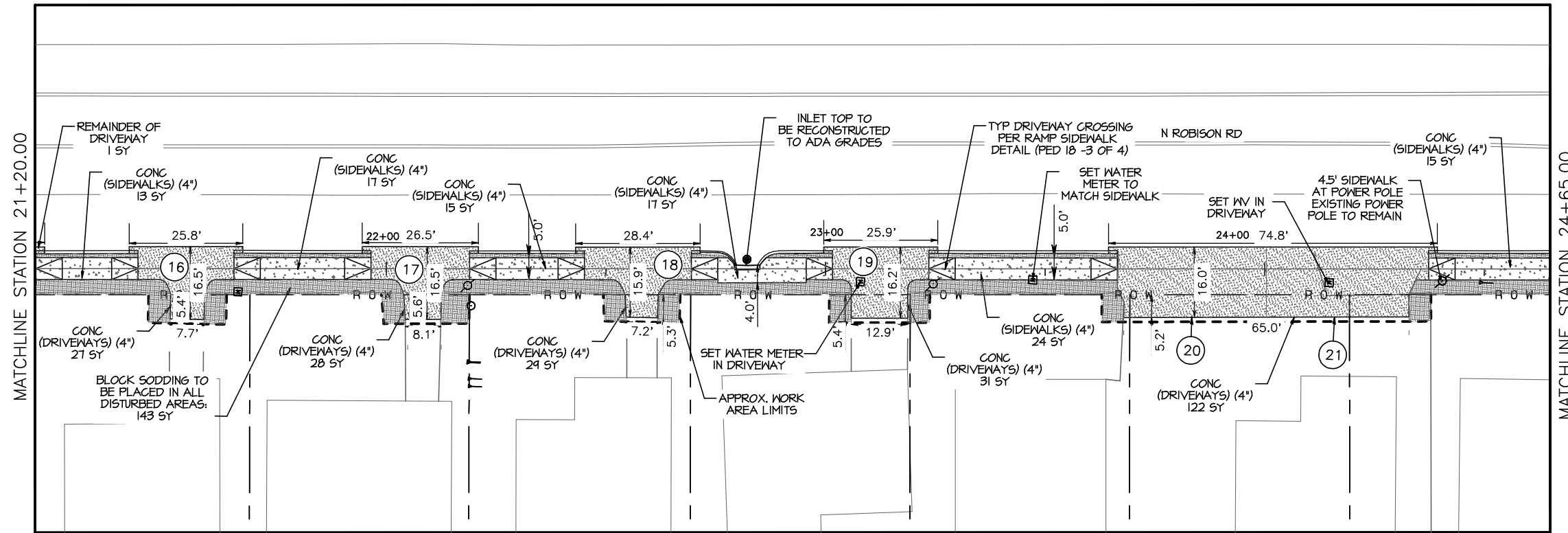
SHEET 6 OF 22

STA 17+75.00 TO STA 21+20.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	75	

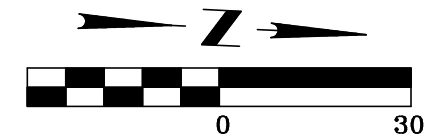
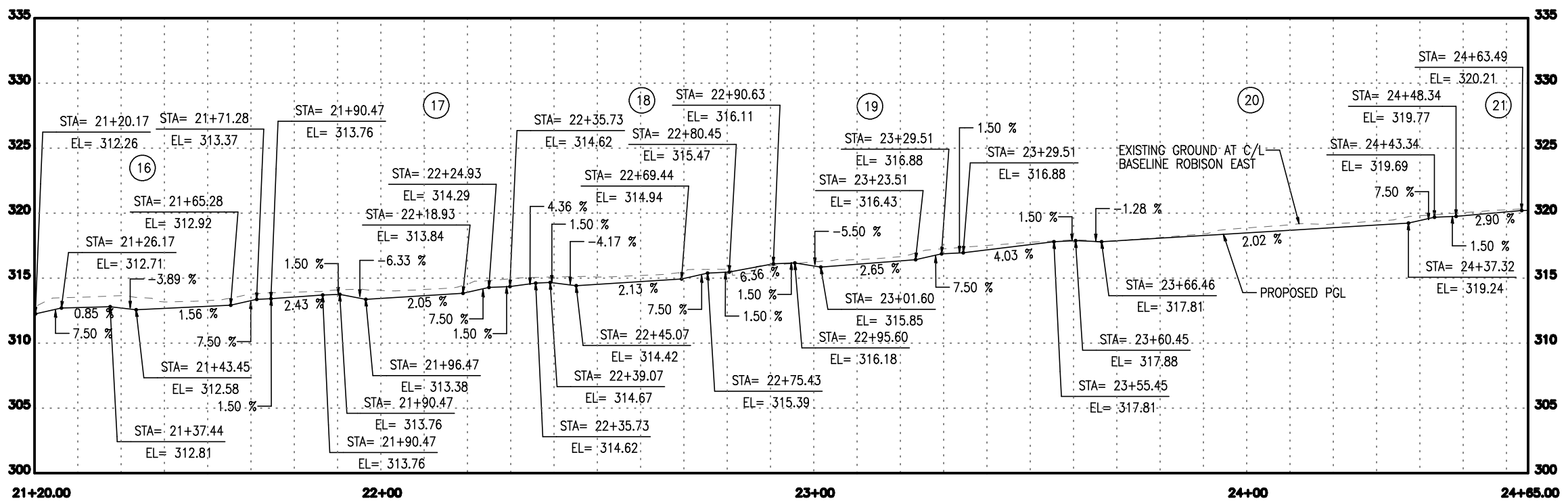
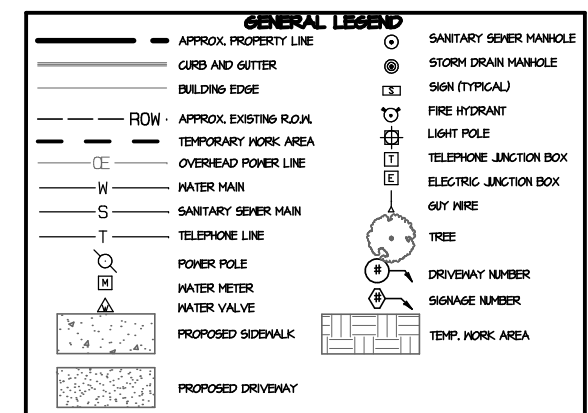
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MATCHLINE STATION 21+20.00
 MATCHLINE STATION 24+65.00

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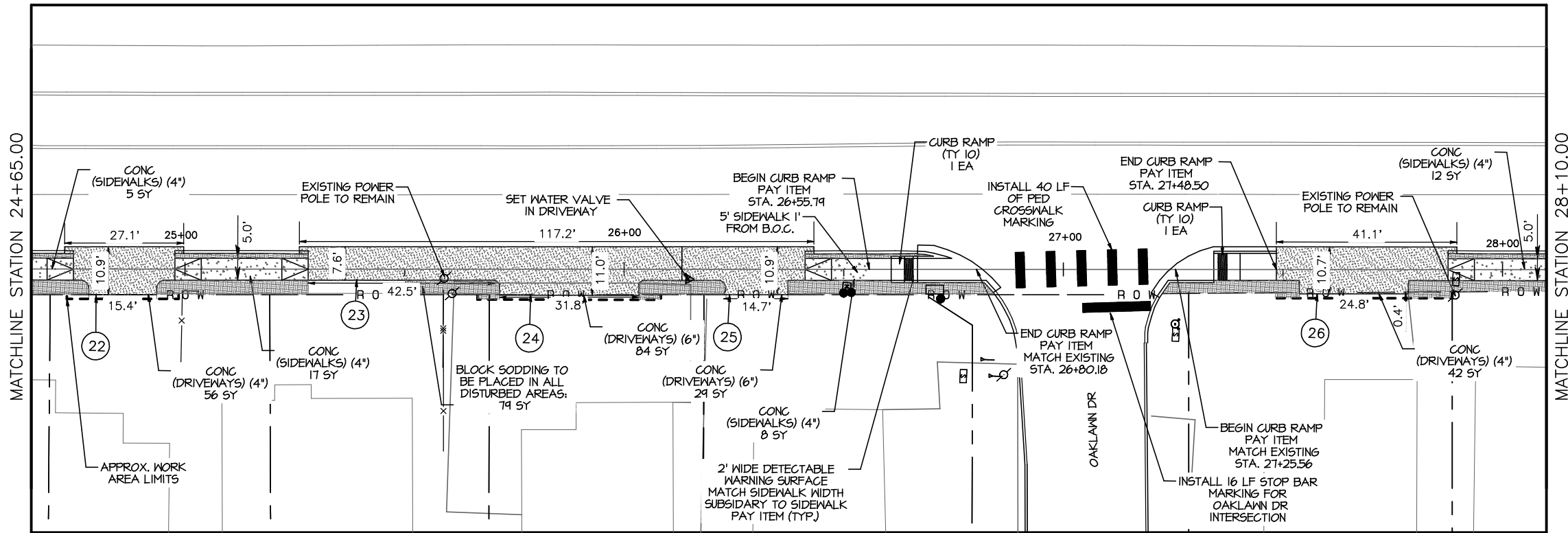
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 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED

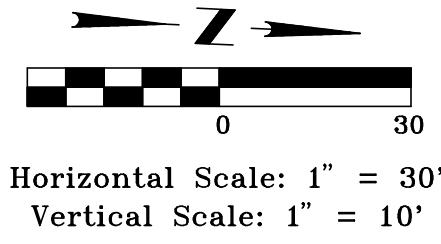
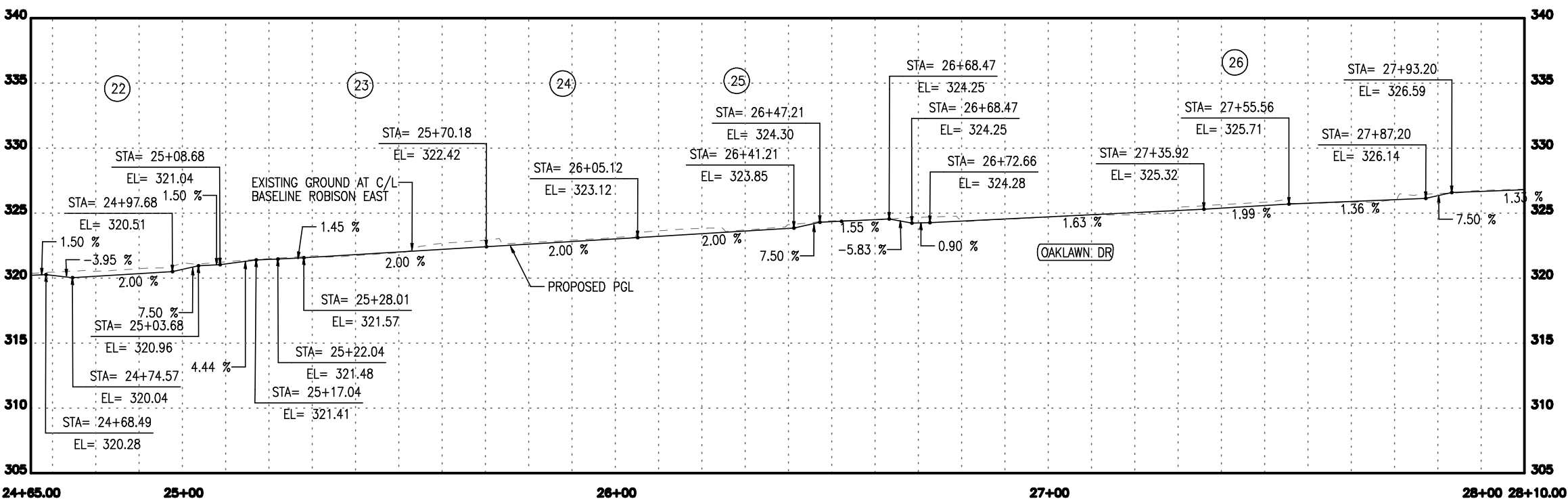
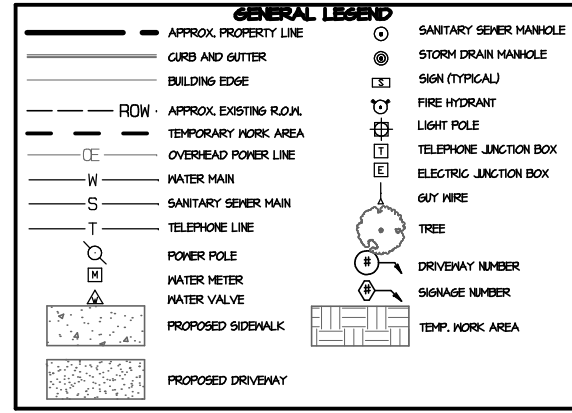
EAST SIDEWALK PLAN AND PROFILE SHEET 7 OF 22 STA 21+20.00 TO STA 24+65.00			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	76	

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EAST SIDEWALK PLAN AND PROFILE

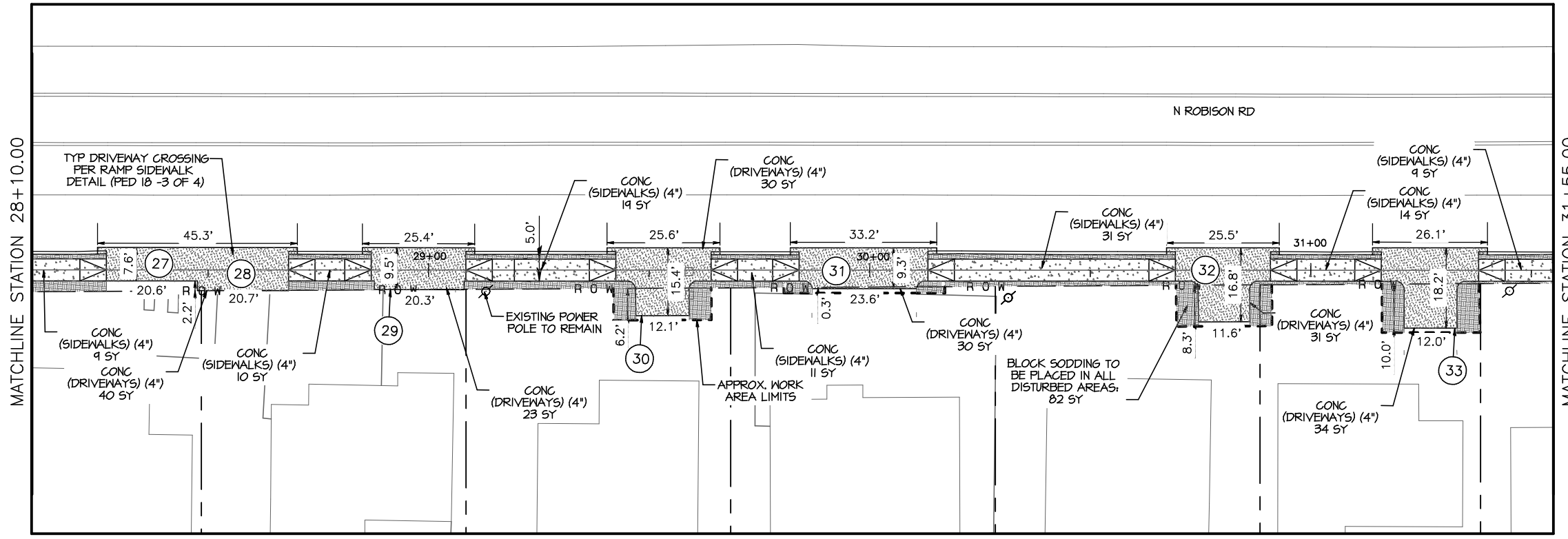
SHEET 8 OF 22

STA 24+65.00 TO STA 28+10.00

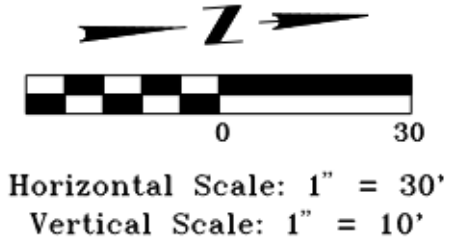
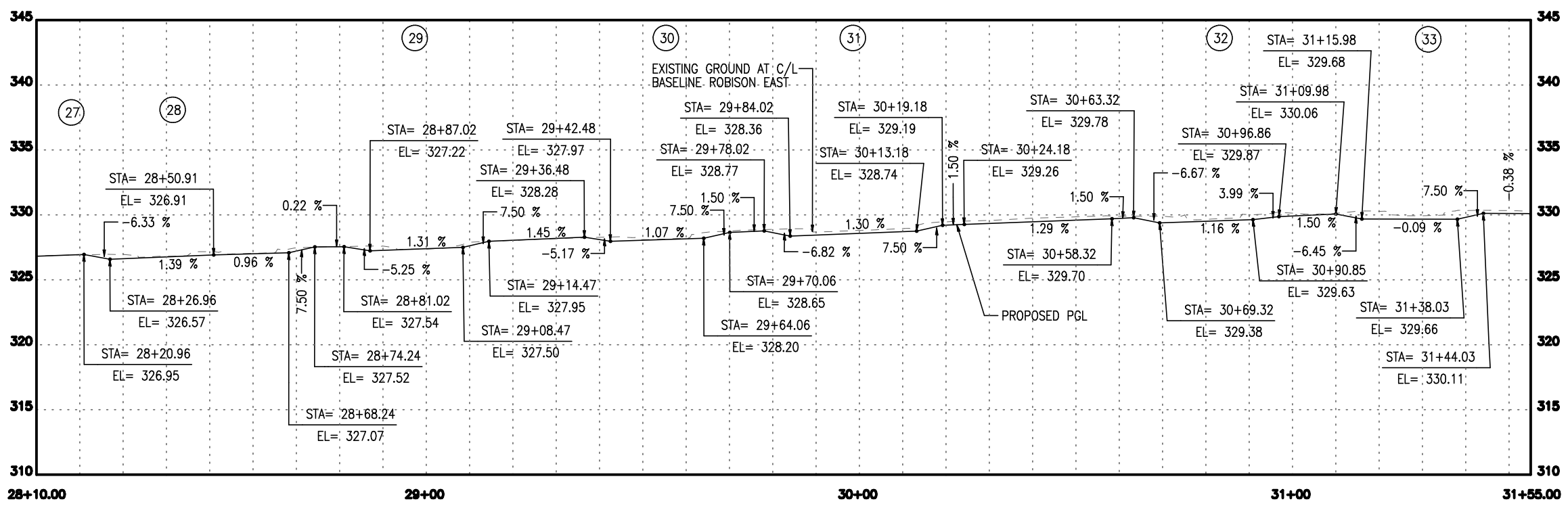
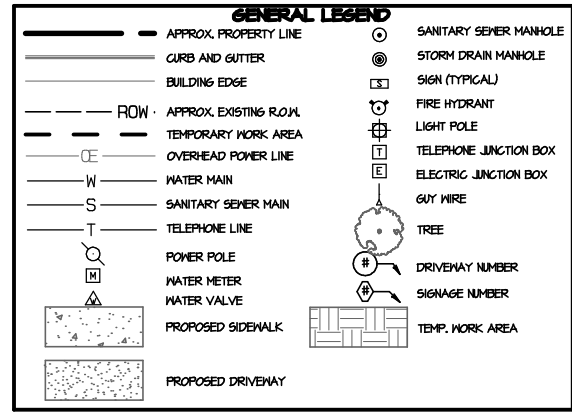
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	71	

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EAST SIDEWALK PLAN AND PROFILE

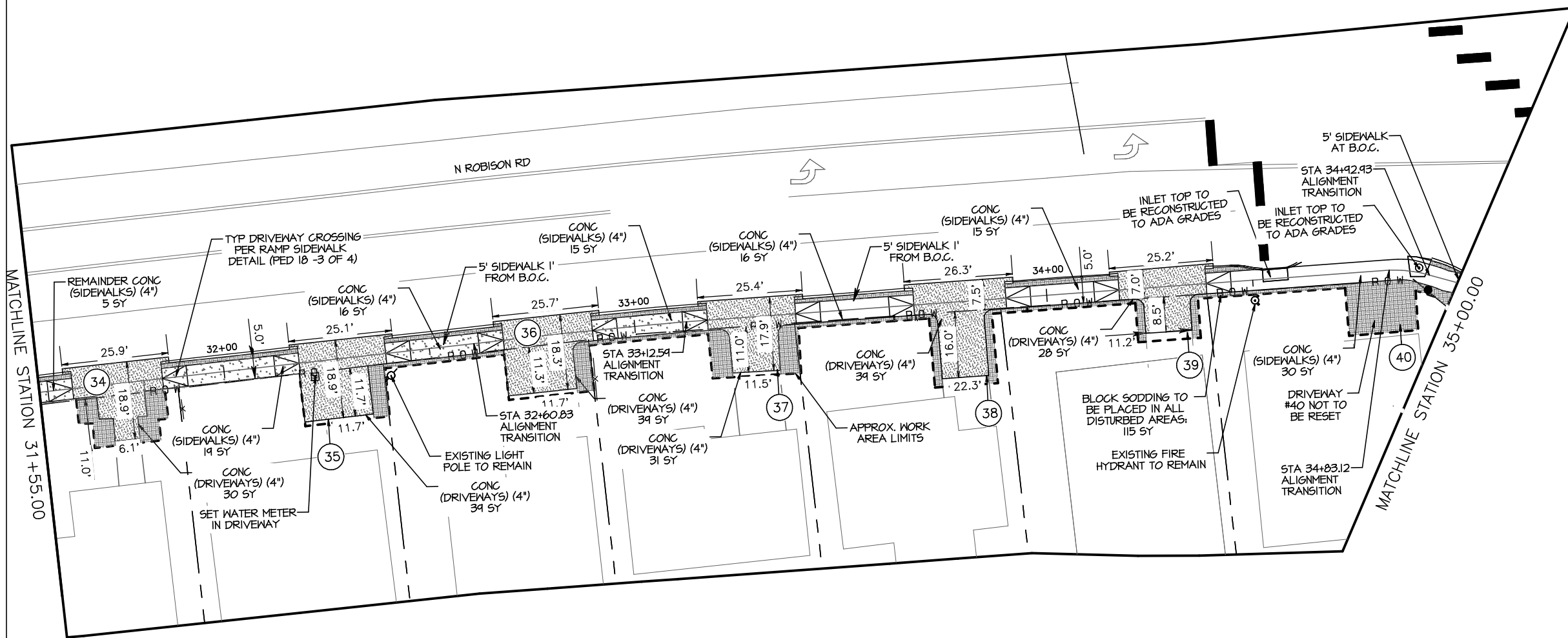
SHEET 9 OF 22

STA 28+10.00 TO STA 31+55.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	78	

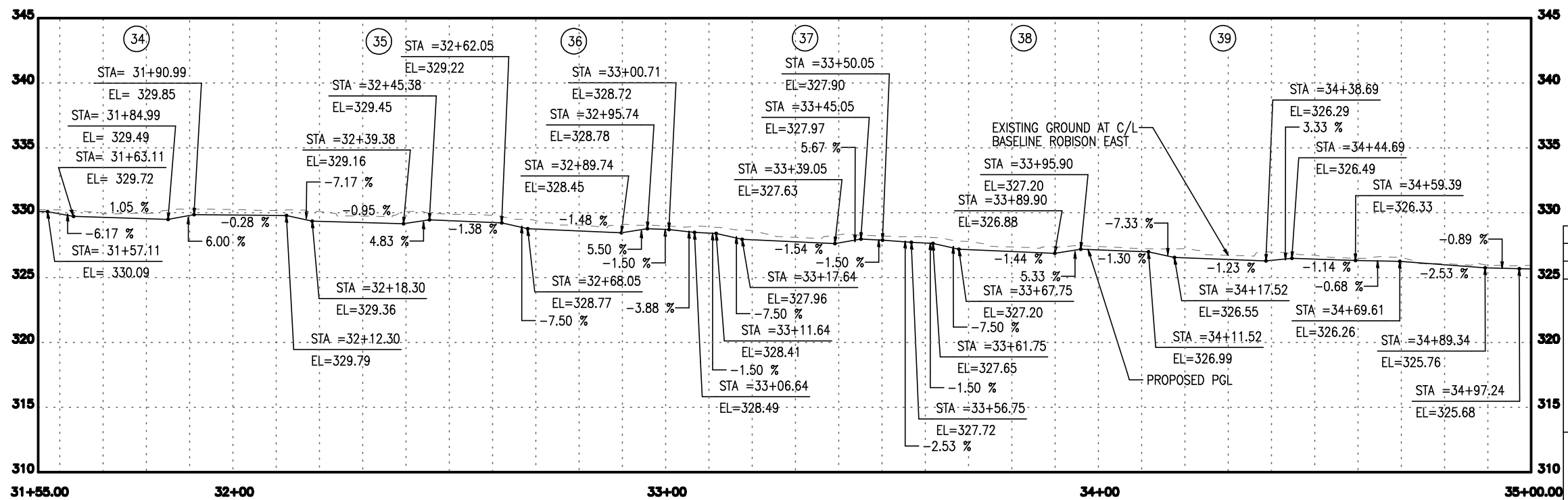
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GENERAL LEGEND			
	APPROX. PROPERTY LINE		SANITARY SEWER MANHOLE
	CURB AND GUTTER		STORM DRAIN MANHOLE
	BUILDING EDGE		SIGN (TYPICAL)
	ROW - APPROX. EXISTING ROW		FIRE HYDRANT
	TEMPORARY WORK AREA		LIGHT POLE
	OVERHEAD POWER LINE		TELEPHONE JUNCTION BOX
	WATER MAIN		ELECTRIC JUNCTION BOX
	SANITARY SEWER MAIN		GUY WIRE
	TELEPHONE LINE		TREE
	POWER POLE		DRIVEWAY NUMBER
	WATER METER		SIGNAGE NUMBER
	WATER VALVE		TEMP. WORK AREA
	PROPOSED SIDEWALK		
	PROPOSED DRIVEWAY		



Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED

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EAST SIDEWALK PLAN AND PROFILE

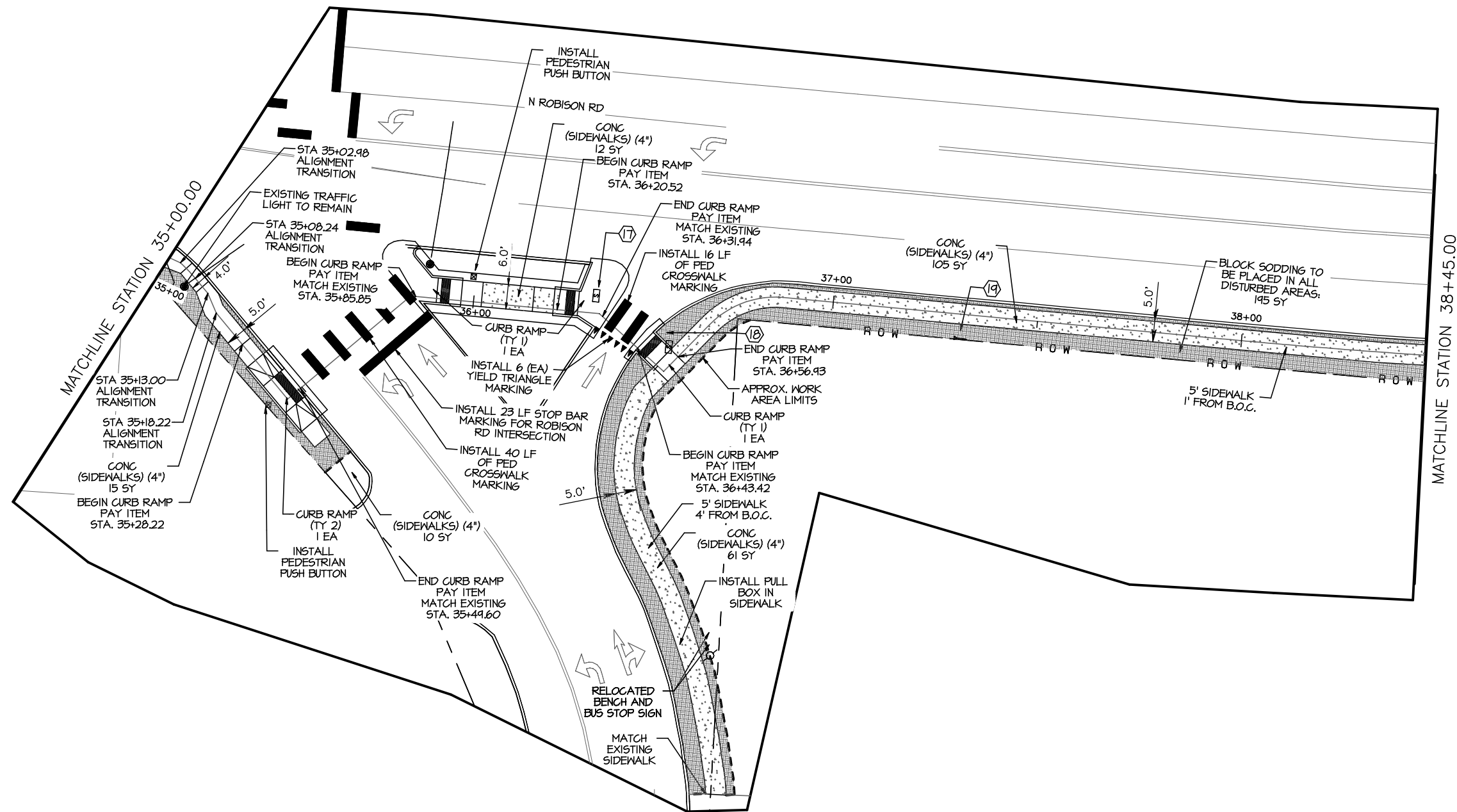
SHEET 10 OF 22

STA 31+55.00 TO STA 35+00.00

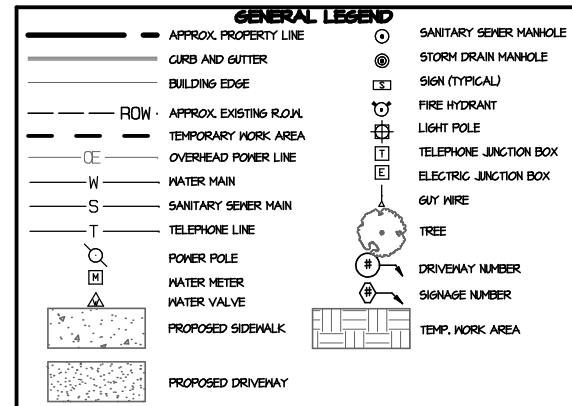
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	14	

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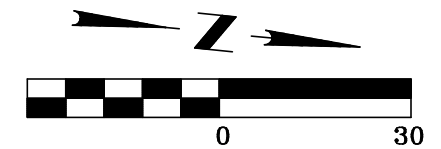
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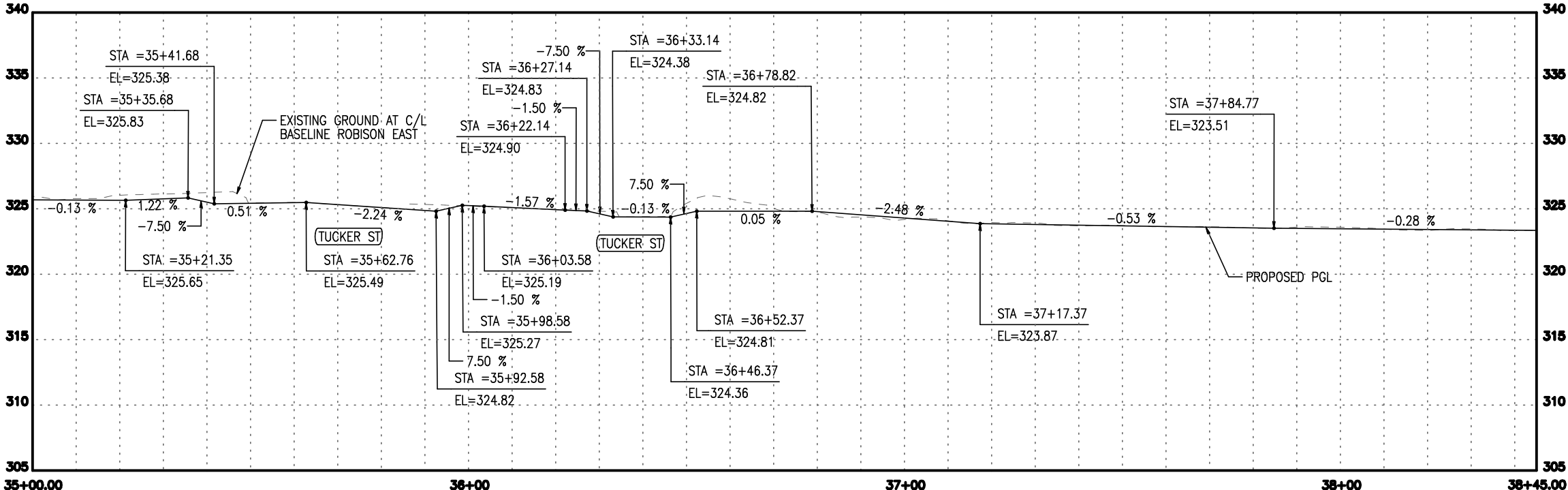
SIGNAGE:

- 17- R5-1 DO NOT ENTER SIGN
- 18- R1-2 YIELD SIGN
- 19- R3-9b CENTER LANE SIGN

NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'



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 TBPE FIRM NO. F-354 AR COA NO. 125
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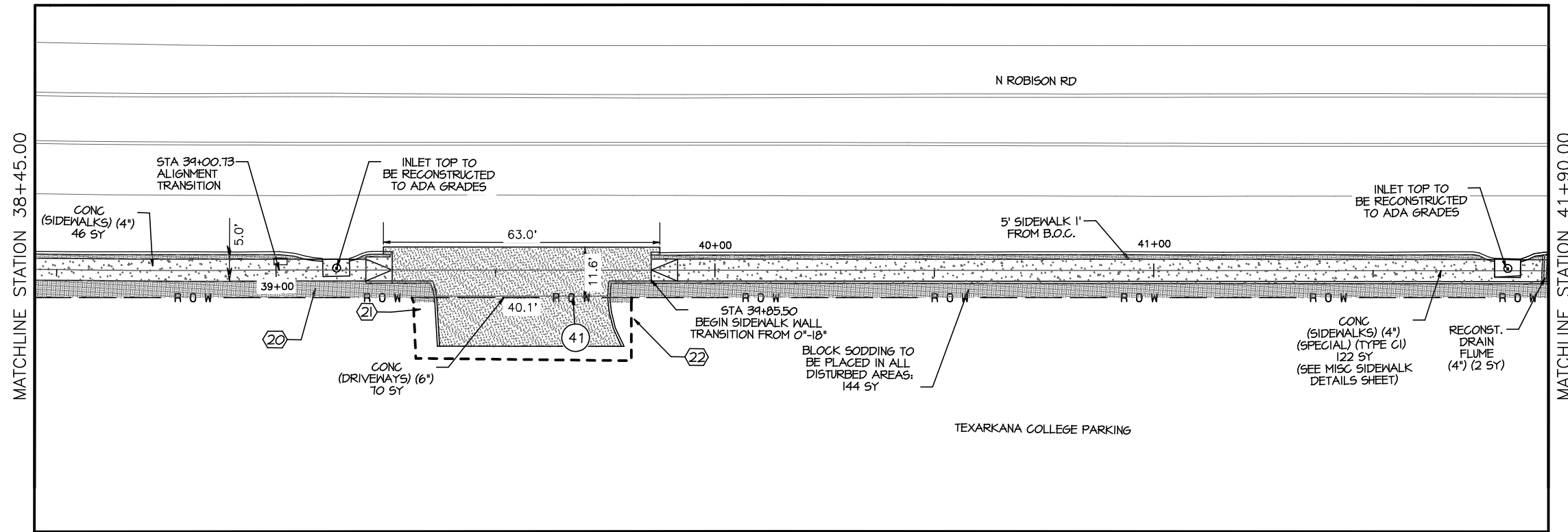
EAST SIDEWALK PLAN AND PROFILE

SHEET 11 OF 22

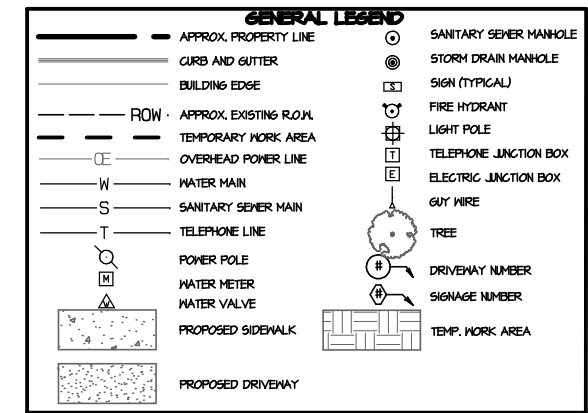
STA 35+00.00 TO STA 38+45.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	20	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\5ft_Design_PP.pro
 FILE: Wed Oct 2, 2024 3:00PM



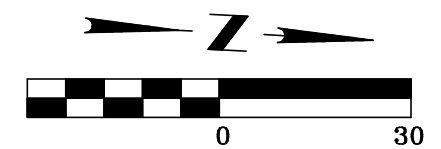
- NOTES:
1. SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
 2. ALL DIMENSIONS AND OFFSETS ARE TO EDGE OF SIDEWALK PAVEMENT (EOP) OR TO LIP OF GUTTER (LOG) AND ARE BASED OFF OF ROBISON SIDEWALK BASELINE (C/L ROBISONSDWK) UNLESS OTHERWISE NOTED.
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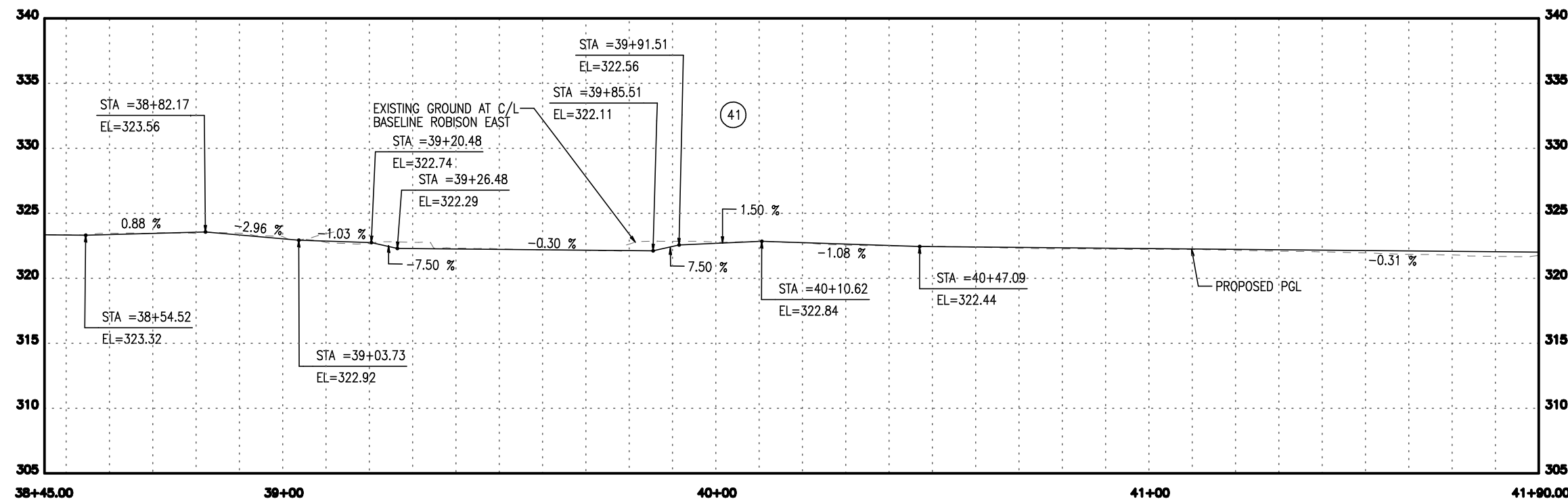
SIGNAGE:

- 20 - R2-1 40 MPH SPEED LIMIT SIGN
- 21- TC EXIT SIGN
- 22-TC EXIT SIGN

NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'



NO.	DATE	REVISION	APPROVED

10/2/2024

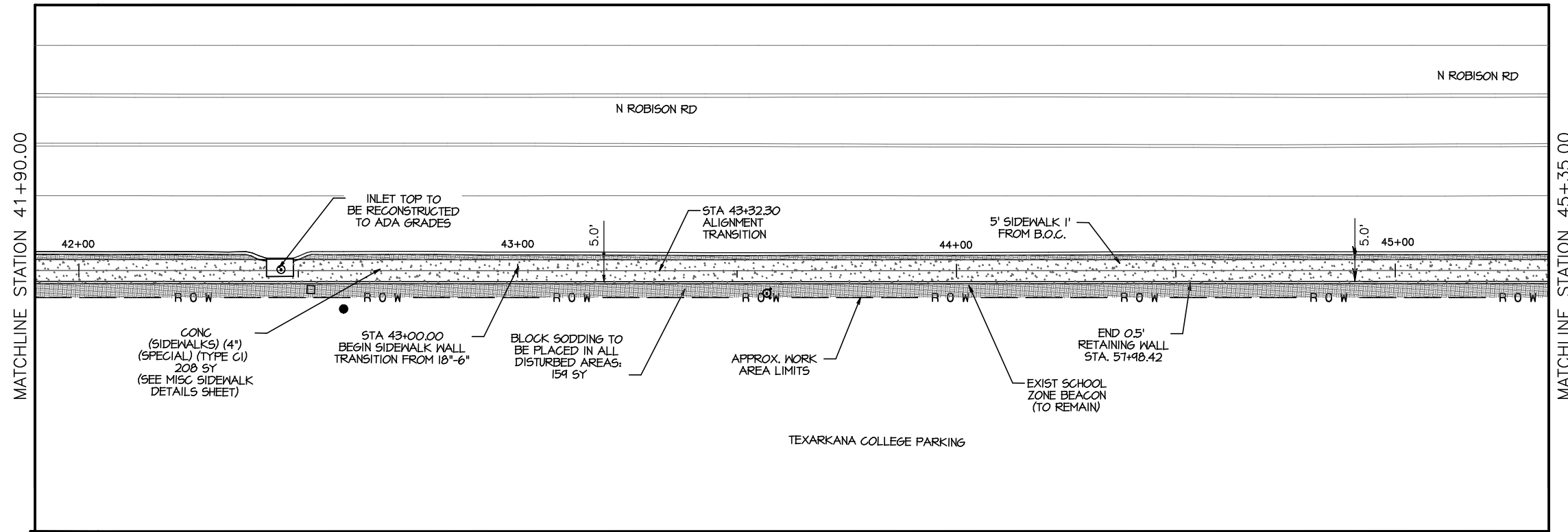
EAST SIDEWALK PLAN AND PROFILE
 SHEET 12 OF 22
 STA 38+45.00 TO STA 41+90.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	01	

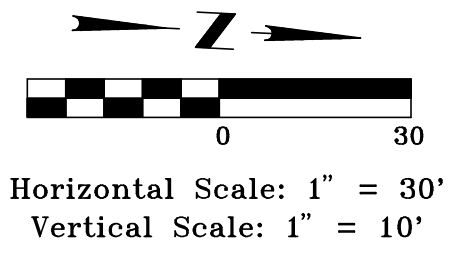
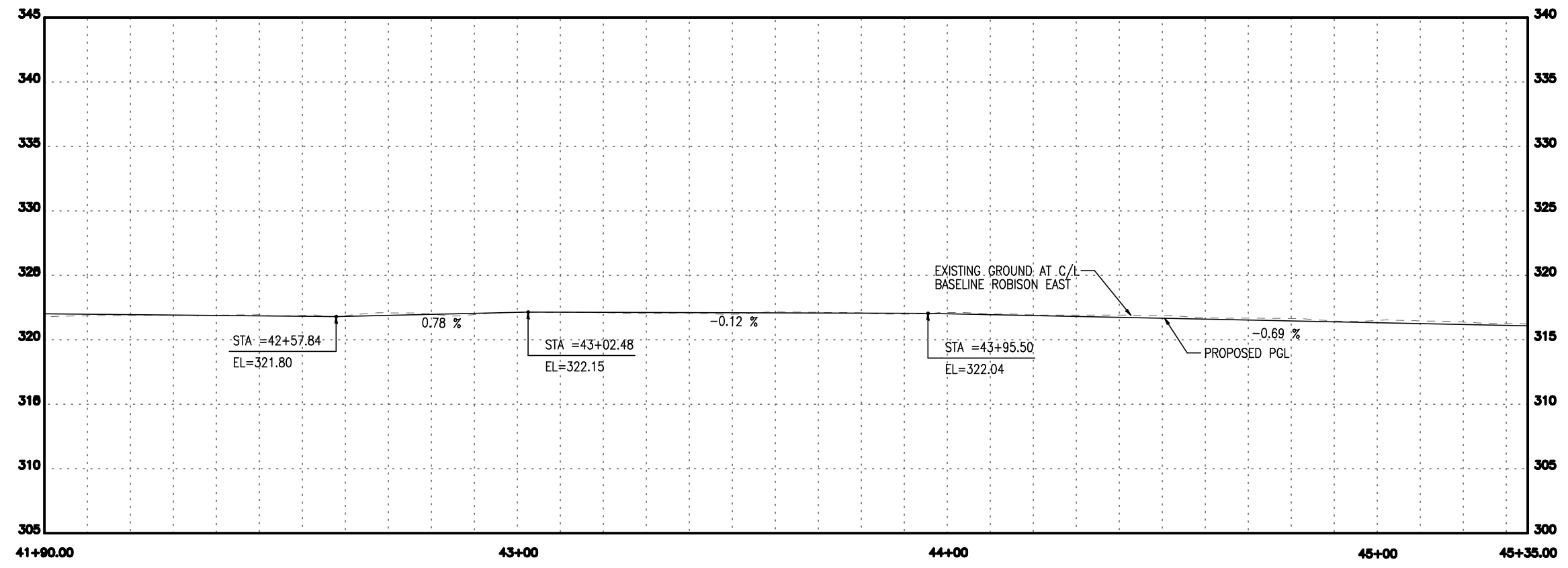
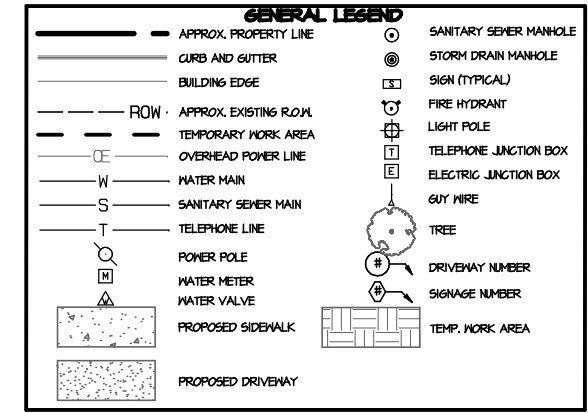
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- NOTES:
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NO.	DATE	REVISION	APPROVED

10/2/2024

Texas Department of Transportation

EAST SIDEWALK PLAN
AND PROFILE

SHEET 13 OF 22

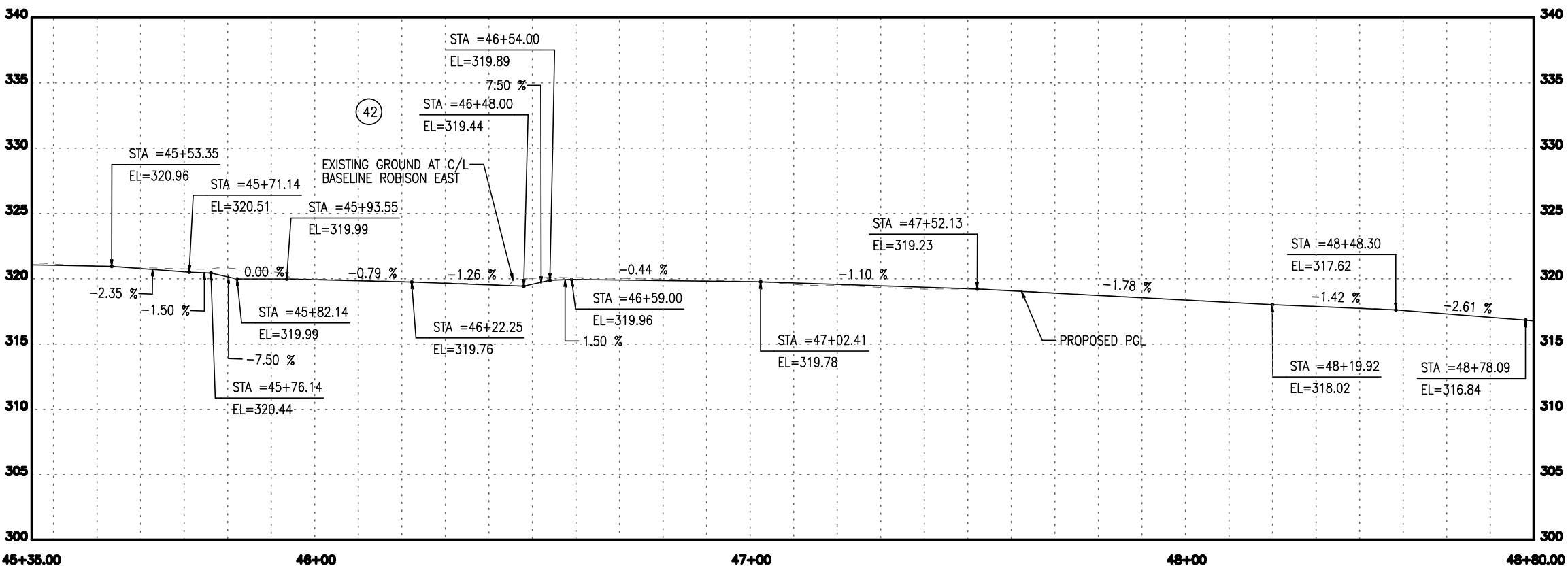
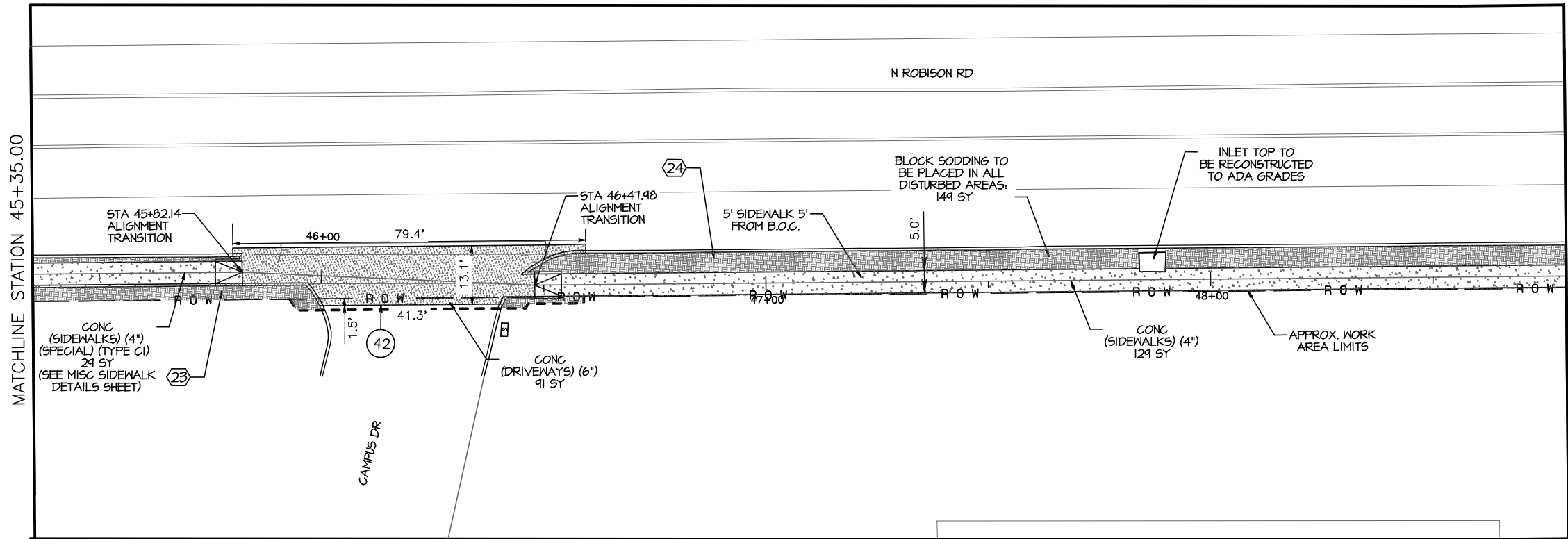
STA 41+90.00
TO STA 45+35.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	82	

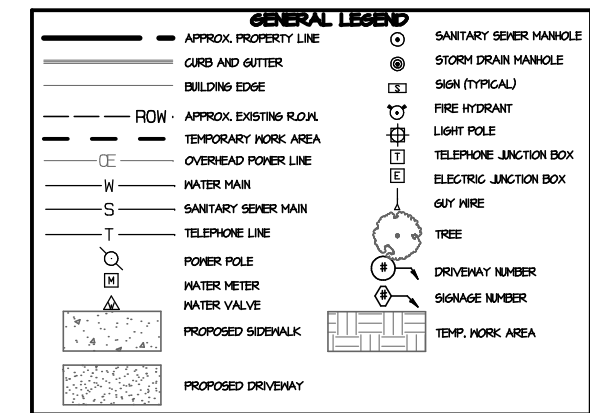
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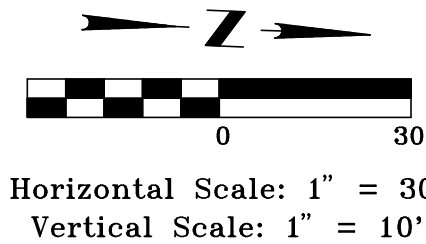
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 FILE: Wed Oct 2, 2024 3:00PM



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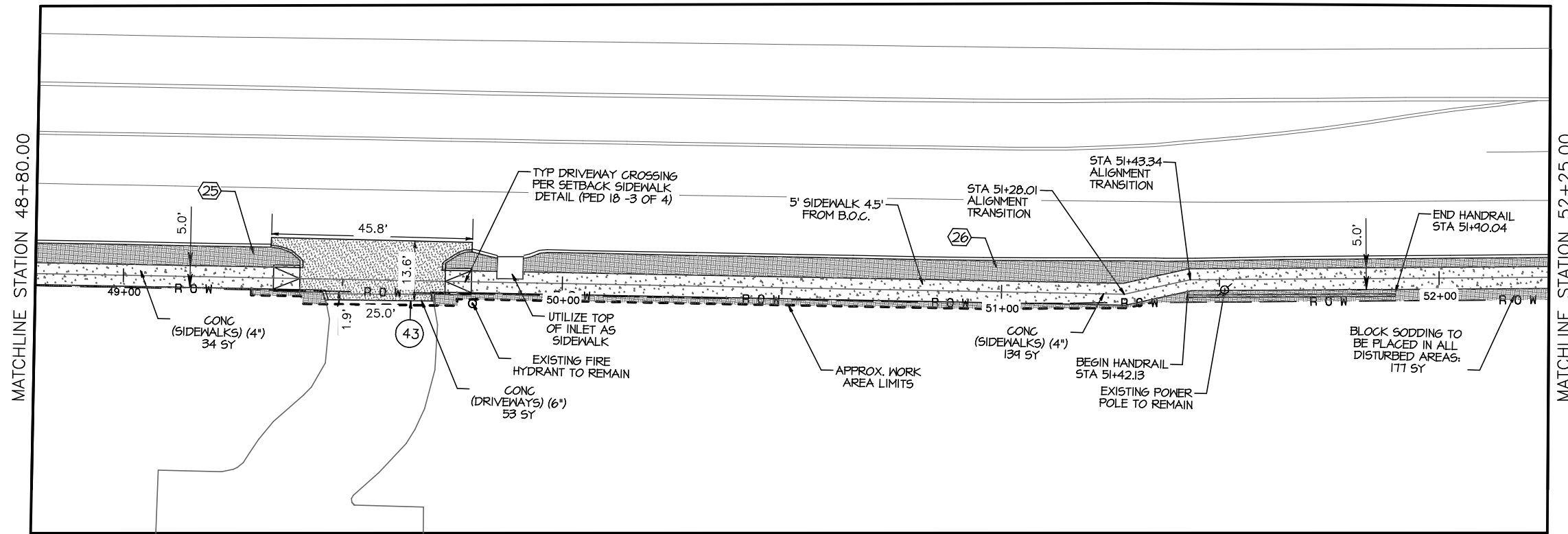


SIGNAGE:
 23 - DUAL POST SN CONGRESS SIGN
 24 - T-LINE SIGN
 NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED
EAST SIDEWALK PLAN AND PROFILE SHEET 14 OF 22 STA 45+35.00 TO STA 48+80.00			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	83	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\5ft_Design_PP.pro
 FILE: Wed Oct 2, 2024 3:00PM



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GENERAL LEGEND

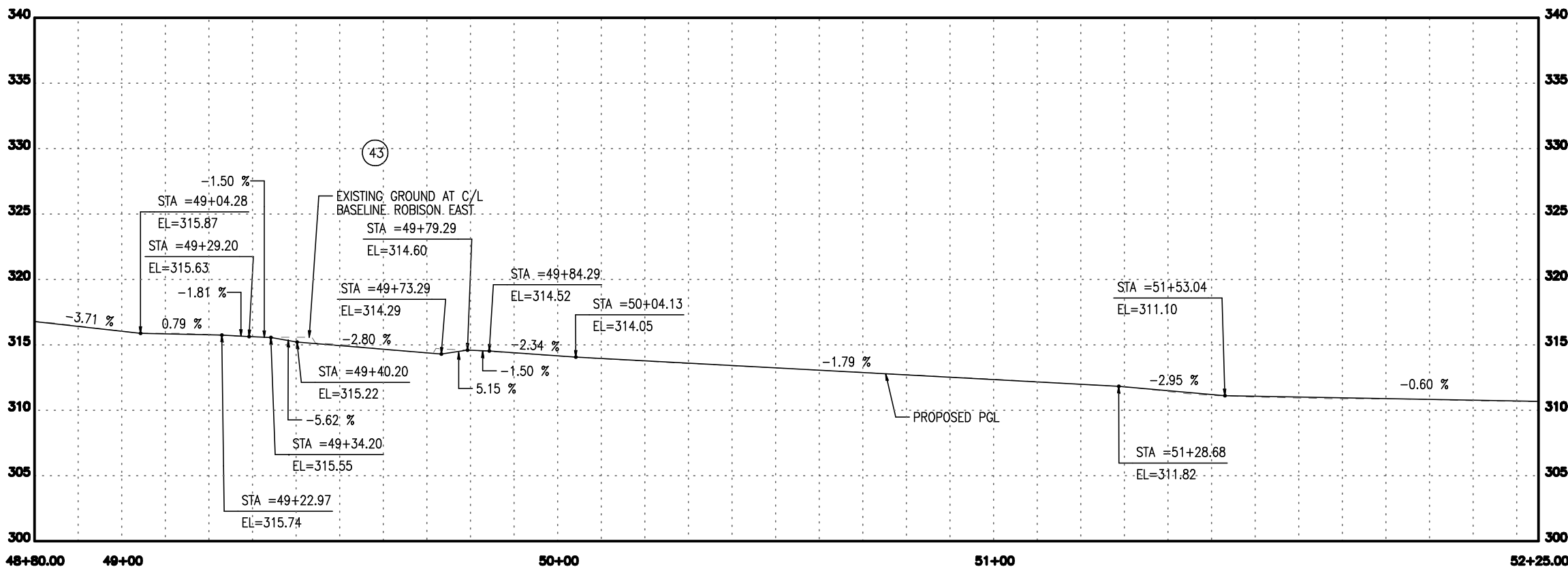
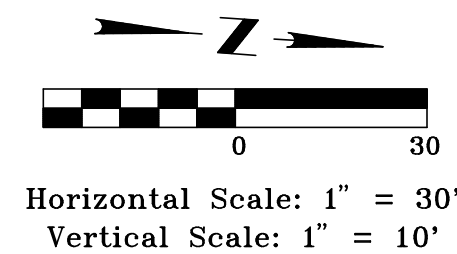
—	APPROX. PROPERTY LINE	⊙	SANITARY SEWER MANHOLE
—	CURB AND GUTTER	⊙	STORM DRAIN MANHOLE
—	BUILDING EDGE	⊙	SIGN (TYPICAL)
—	ROW	⊙	FIRE HYDRANT
—	APPROX. EXISTING R.O.M.	⊙	LIGHT POLE
—	TEMPORARY WORK AREA	⊙	TELEPHONE JUNCTION BOX
—	OVERHEAD POWER LINE	⊙	ELECTRIC JUNCTION BOX
—	W	—	GUY WIRE
—	WATER MAIN	—	TREE
—	S	—	DRIVEWAY NUMBER
—	SANITARY SEWER MAIN	—	SIGNAGE NUMBER
—	TELEPHONE LINE	—	TEMP. WORK AREA
⊙	POWER POLE		
⊙	WATER METER		
⊙	WATER VALVE		
⊙	PROPOSED SIDEWALK		
⊙	PROPOSED DRIVEWAY		

SIGNAGE:

25- R2-1 40 MPH SPEED LIMIT SIGN

26- R3-9B CENTER LANE SIGN

NOTE: USE EXISTING SIGN



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Texas Department of Transportation

EAST SIDEWALK PLAN AND PROFILE

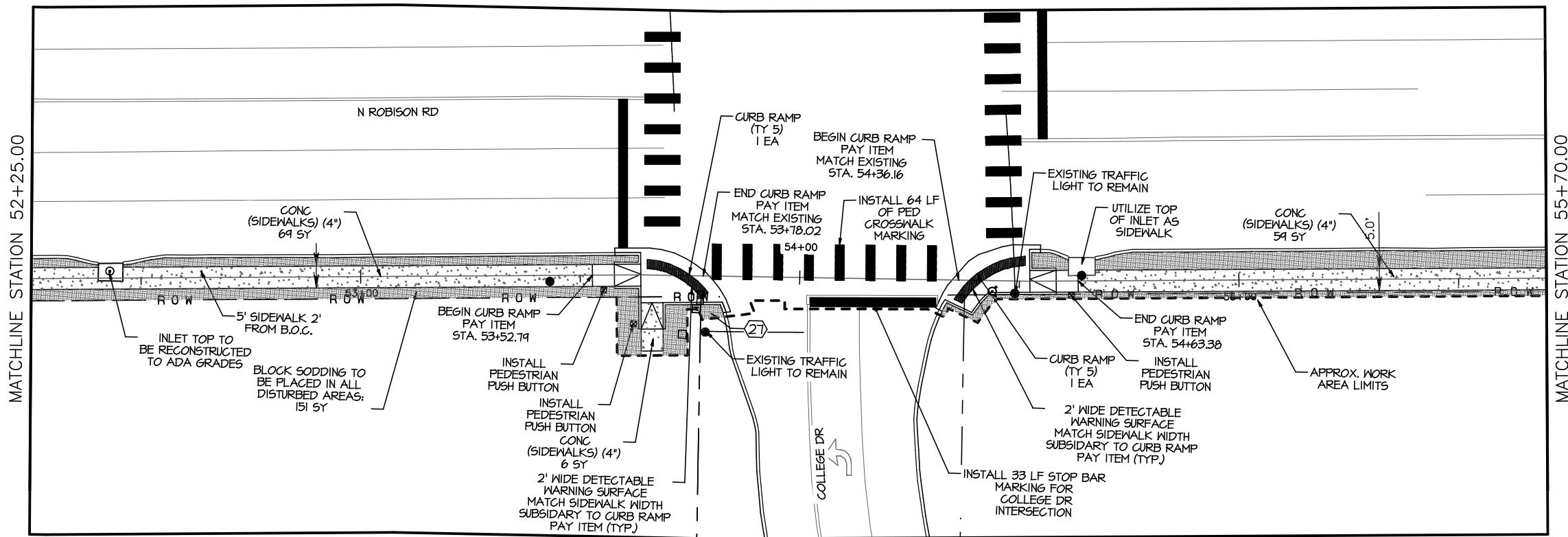
SHEET 15 OF 22

STA 48+80.00 TO STA 52+25.00

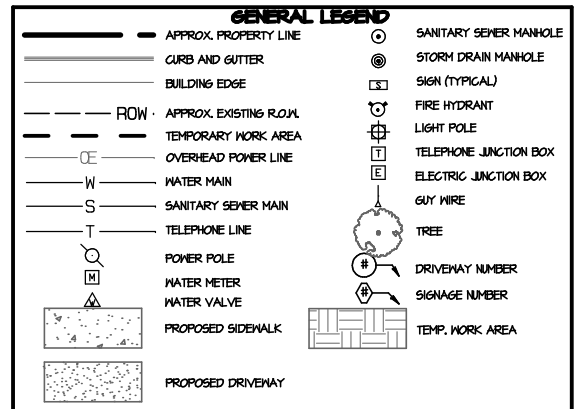
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	84	

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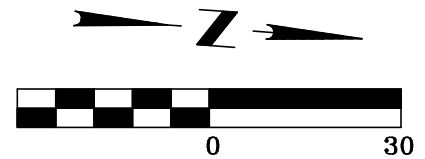
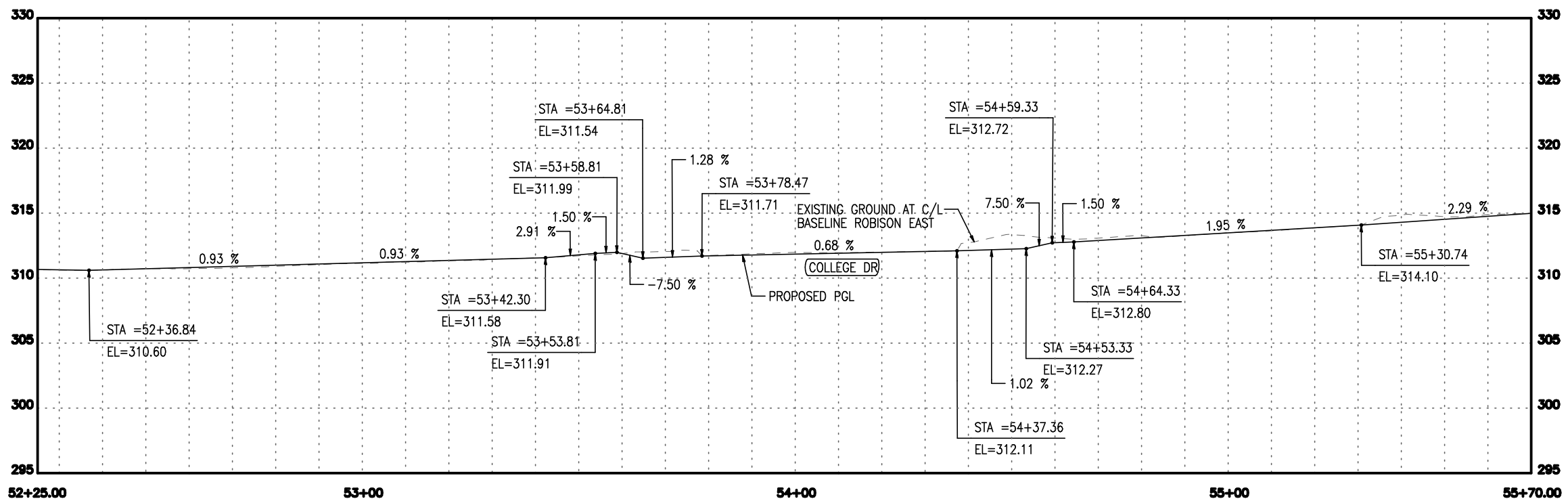
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 FILE: Wed Oct 2, 2024 3:00PM



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SIGNAGE:
 27 - R5-2 NO TRUCKS SIGN
 NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

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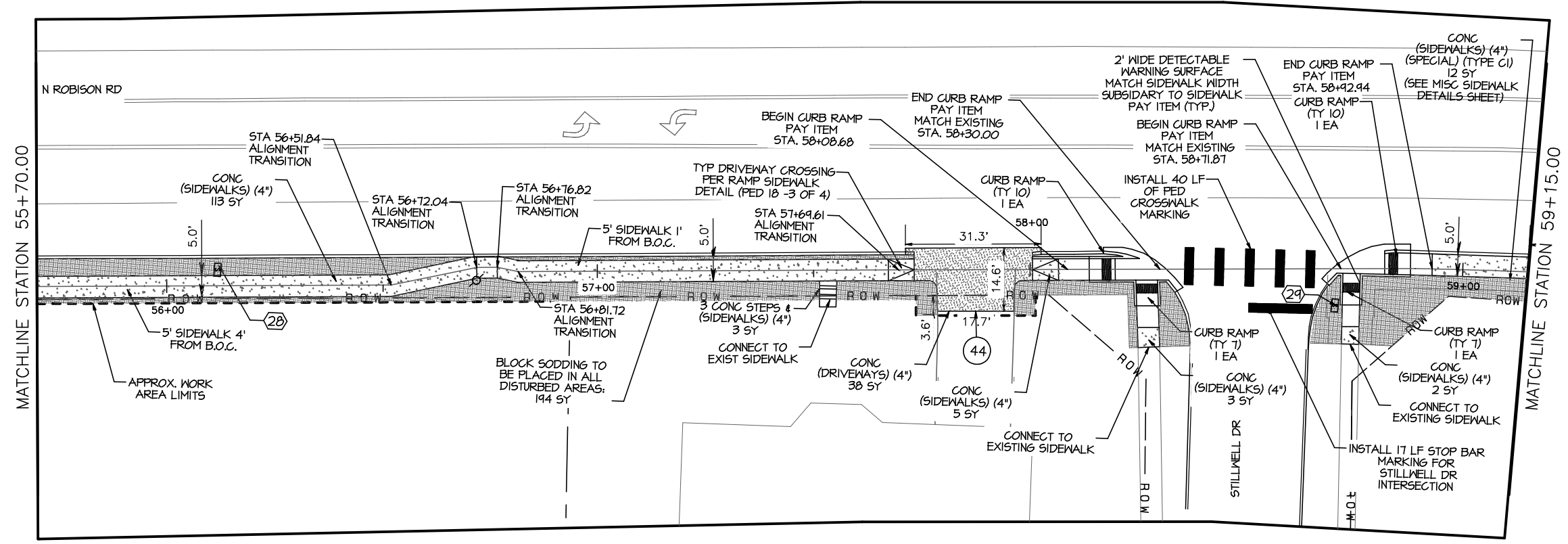
EAST SIDEWALK PLAN AND PROFILE

SHEET 16 OF 22

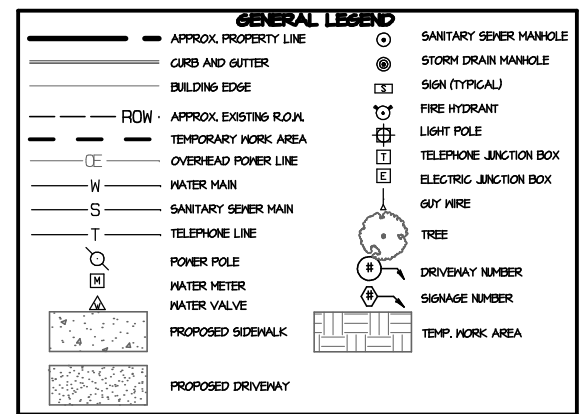
STA 52+25.00 TO STA 55+70.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	85	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\5ft_Design_PP.pro
FILE: Wed Oct 2, 2024 3:00PM



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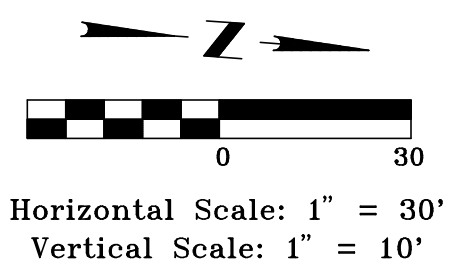
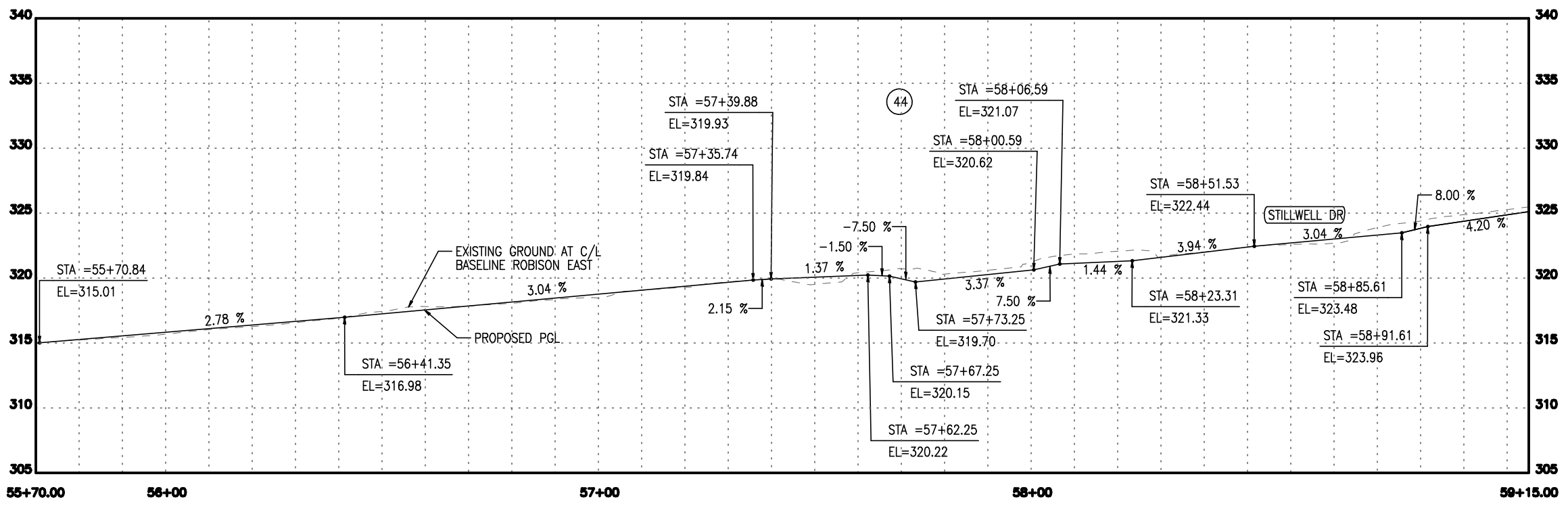


SIGNAGE:

28- R2-1 35 MPH SPEED LIMIT SIGN

29- R1-1 STOP SIGN

NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

10/2/2024

Texas Department of Transportation

EAST SIDEWALK PLAN AND PROFILE

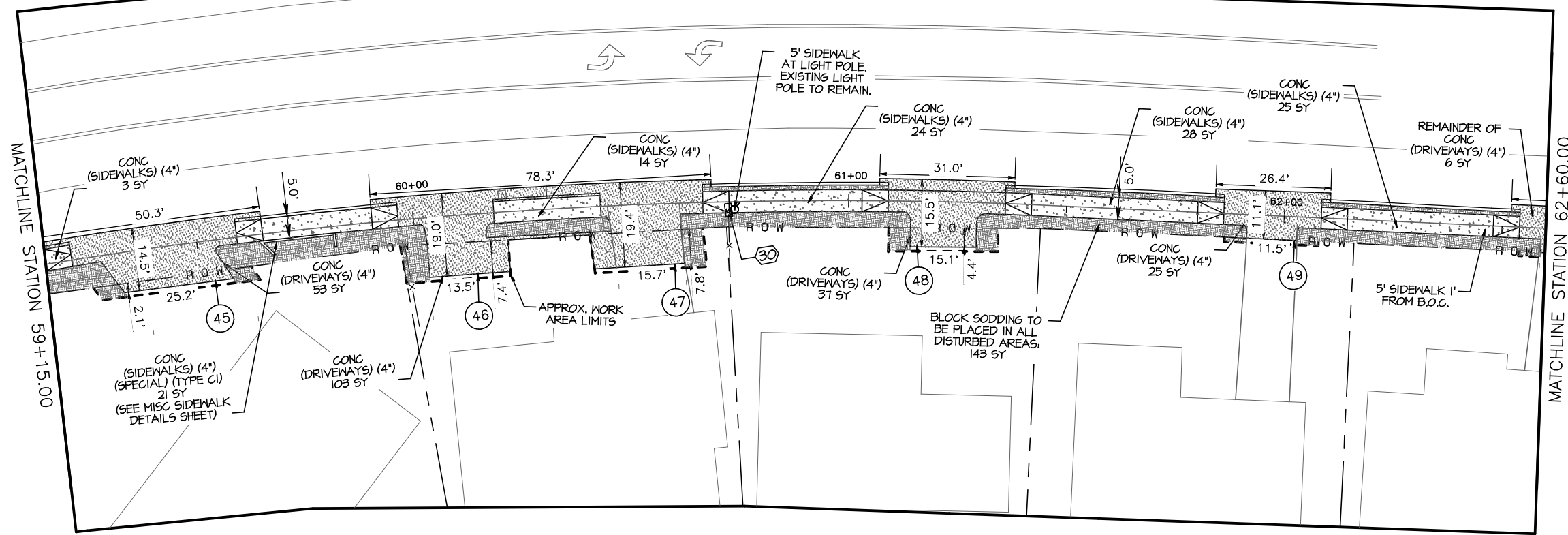
SHEET 17 OF 22

STA 55+70.00 TO STA 59+15.00

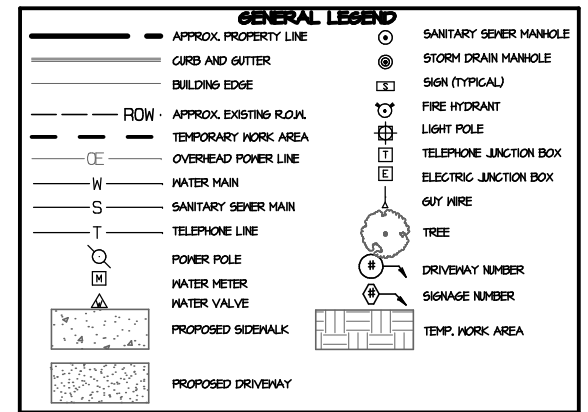
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	26	

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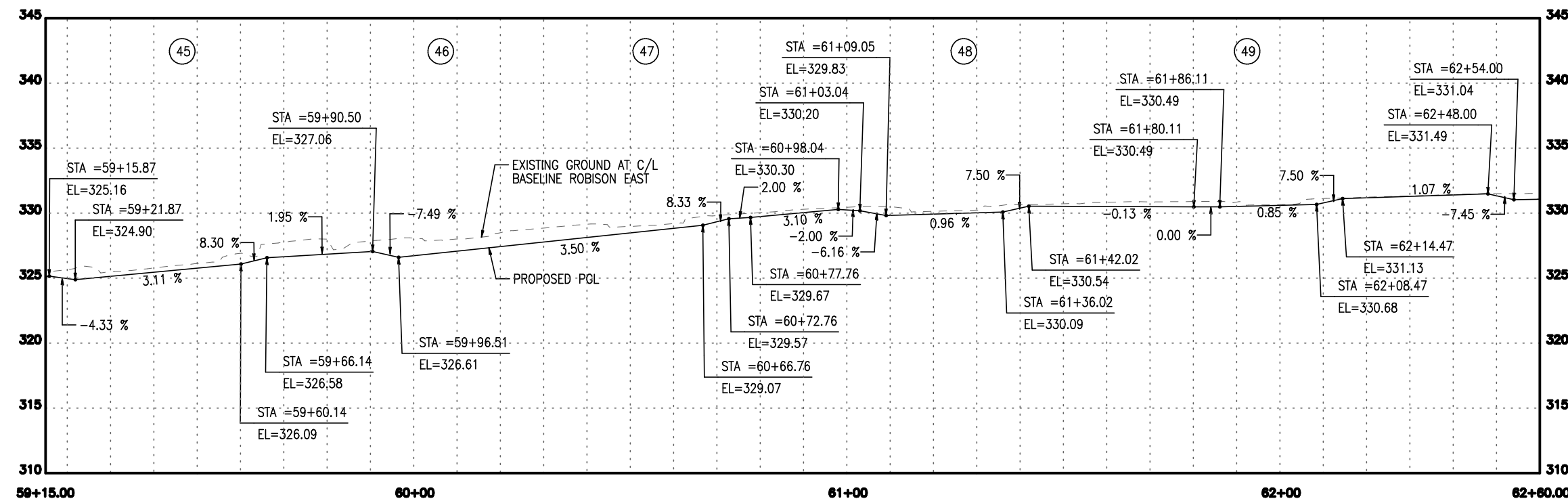
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 FILE: Wed Oct 2, 2024 3:00PM



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SIGNAGE:
 30 - R3-9B CENTER LANE ONLY SIGN
 NOTE: USE EXISTING SIGN



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

NO.	DATE	REVISION	APPROVED

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Texas Department of Transportation

EAST SIDEWALK PLAN AND PROFILE

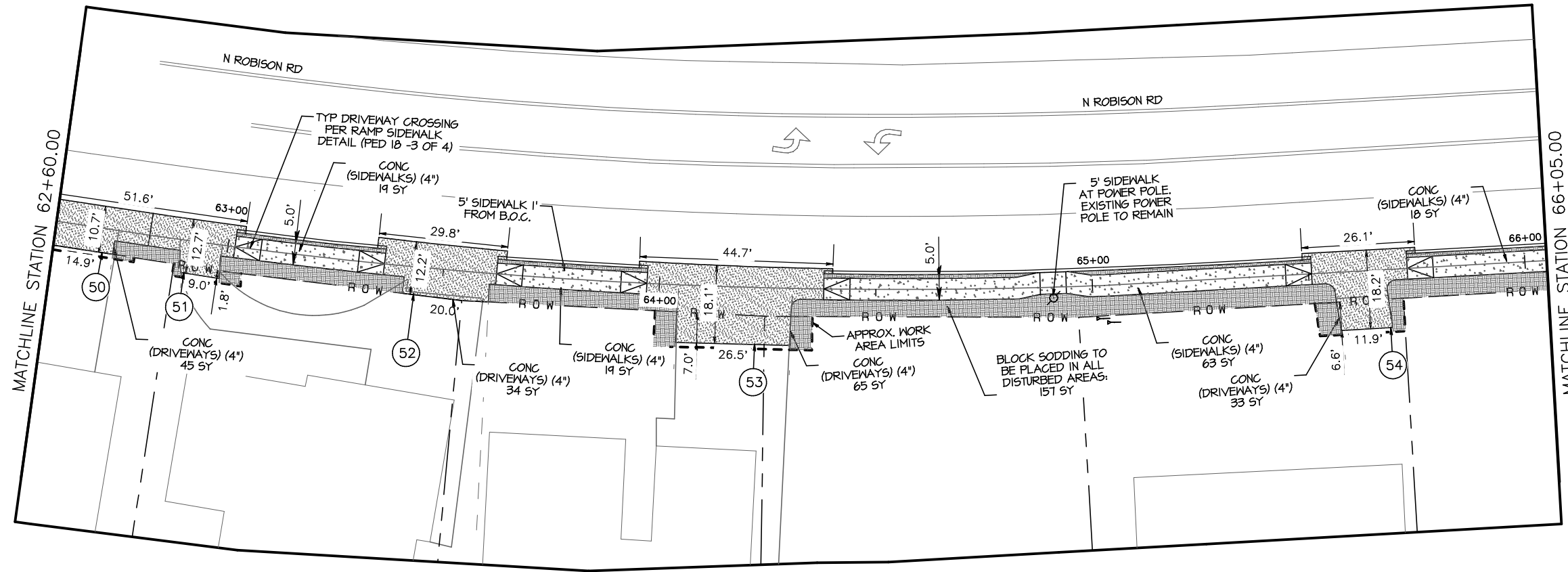
SHEET 18 OF 22

STA 59+15.00 TO STA 62+60.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	87	

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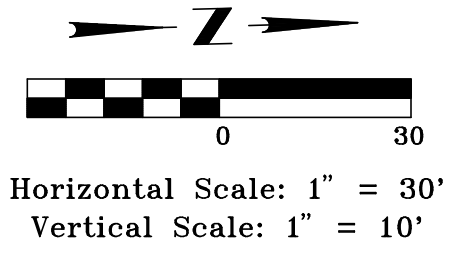
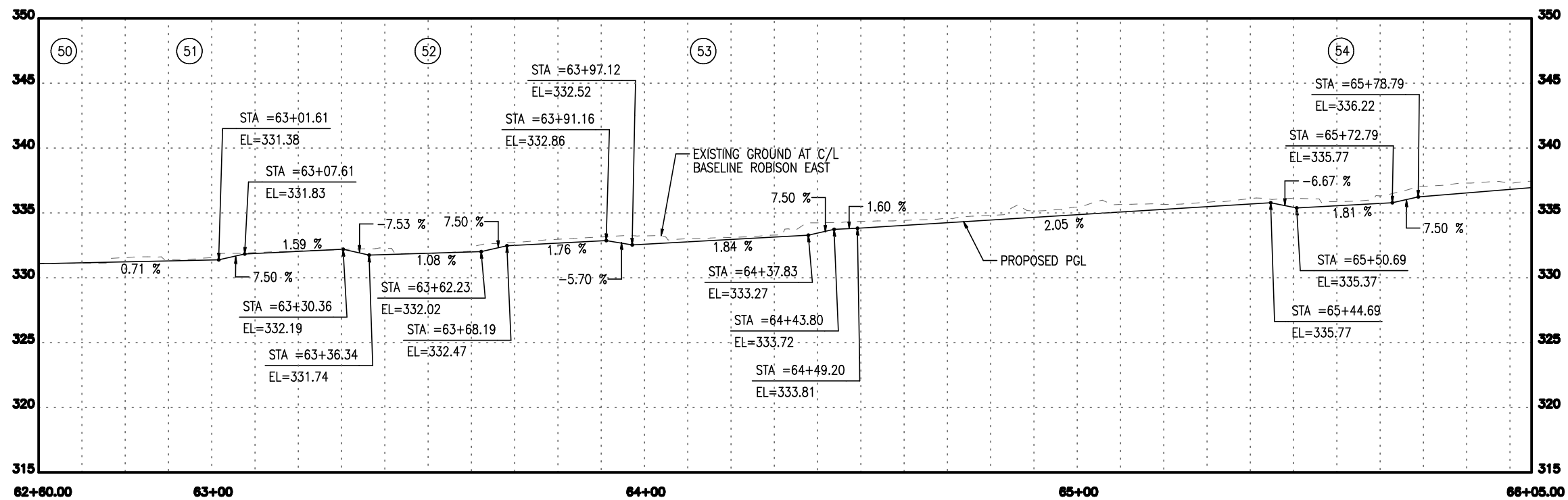
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GENERAL LEGEND

—	APPROX. PROPERTY LINE	⊙	SANITARY SEWER MANHOLE
—	CURB AND GUTTER	⊙	STORM DRAIN MANHOLE
—	BUILDING EDGE	⊙	SIGN (TYPICAL)
—	ROW - APPROX. EXISTING R.O.M.	⊙	FIRE HYDRANT
—	TEMPORARY WORK AREA	⊙	LIGHT POLE
—	OVERHEAD POWER LINE	⊙	TELEPHONE JUNCTION BOX
—	W - WATER MAIN	⊙	ELECTRIC JUNCTION BOX
—	S - SANITARY SEWER MAIN	⊙	GUY WIRE
—	T - TELEPHONE LINE	⊙	TREE
⊙	POWER POLE	⊙	DRIVEWAY NUMBER
⊙	WATER METER	⊙	SIGNAGE NUMBER
⊙	WATER VALVE	⊙	TEMP. WORK AREA
▨	PROPOSED SIDEWALK		
▨	PROPOSED DRIVEWAY		



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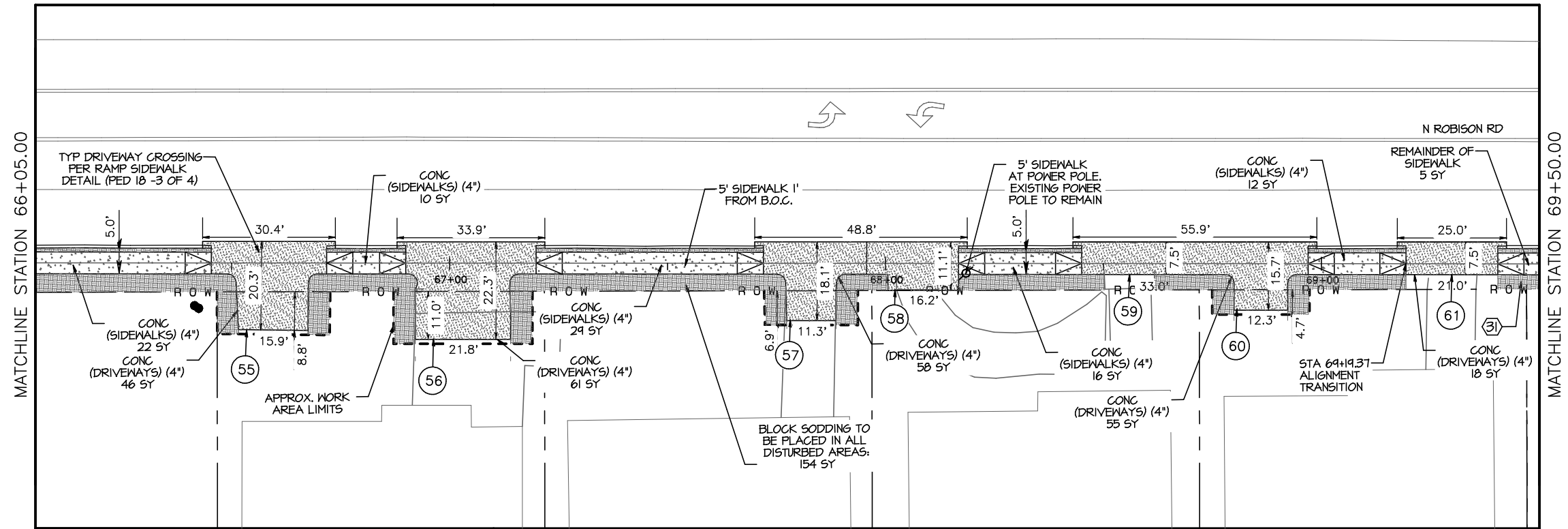
EAST SIDEWALK PLAN
 AND PROFILE

SHEET 19 OF 22

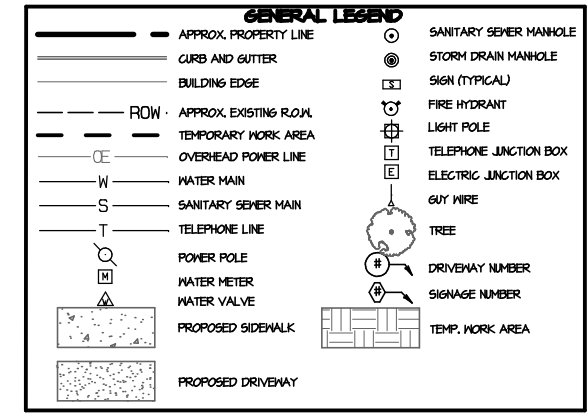
STA 62+60.00
 TO STA 66+05.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	20	

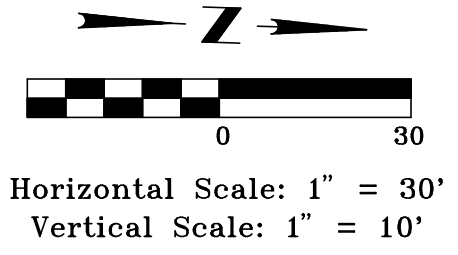
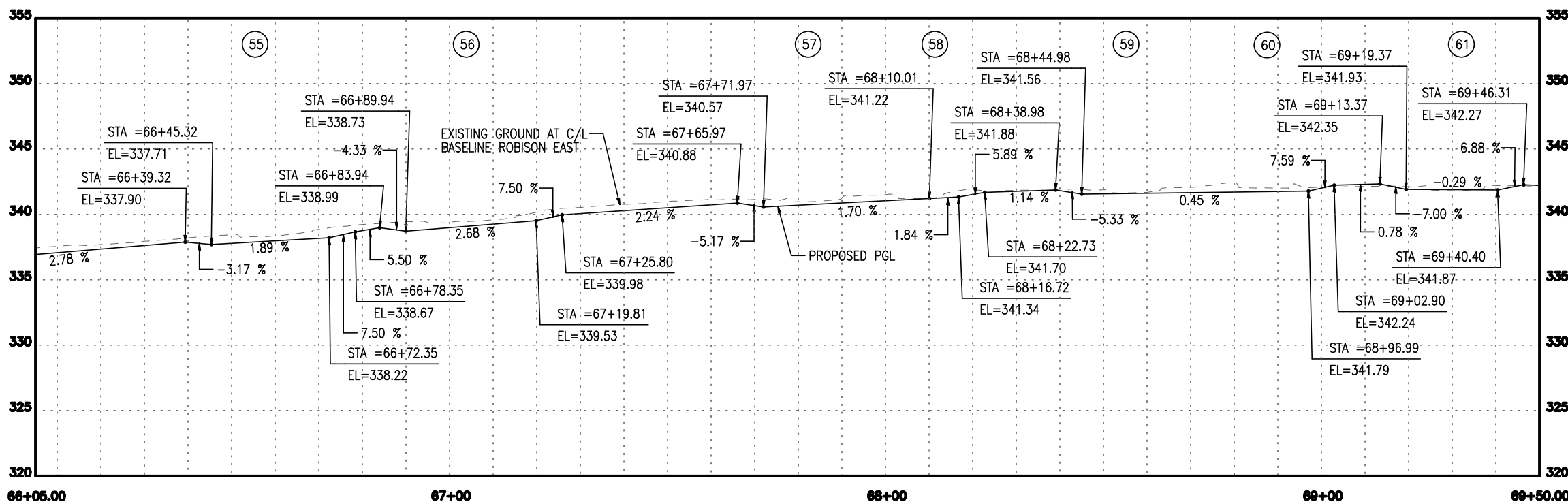
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SIGNAGE:
 31 - RT-13 NO PARKING SIGN
 NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

10/2/2024

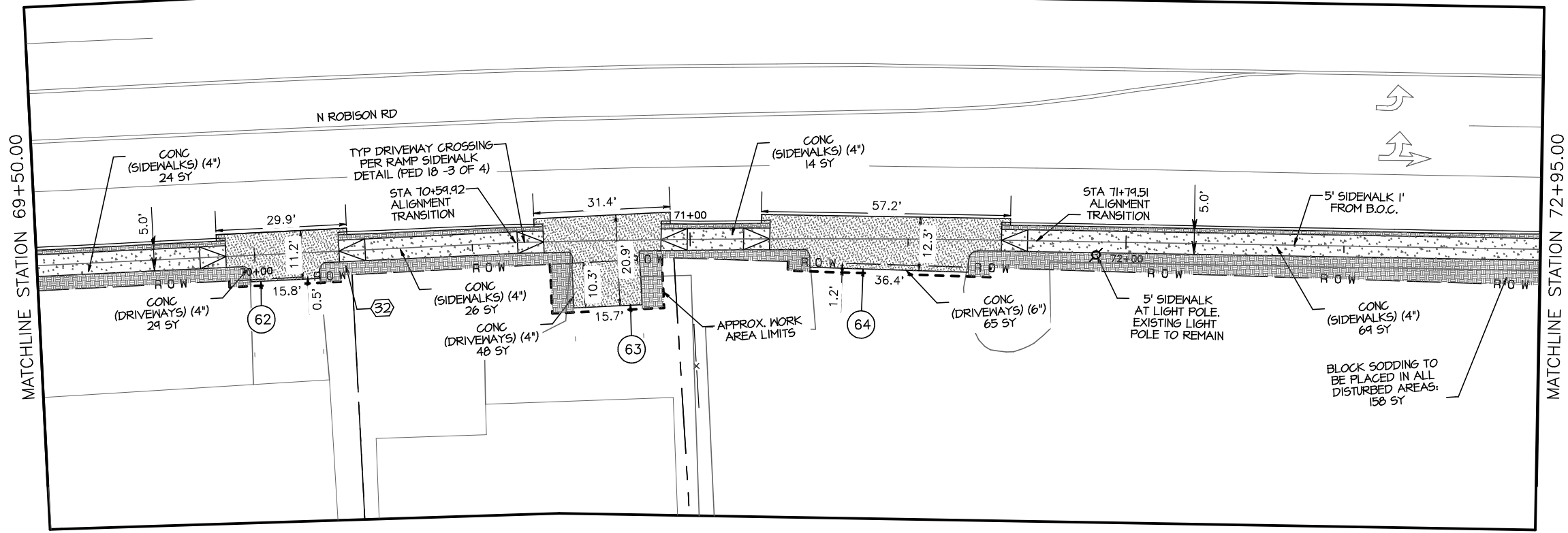
Texas Department of Transportation

EAST SIDEWALK PLAN AND PROFILE
 SHEET 20 OF 22
 STA 66+05.00 TO STA 69+50.00

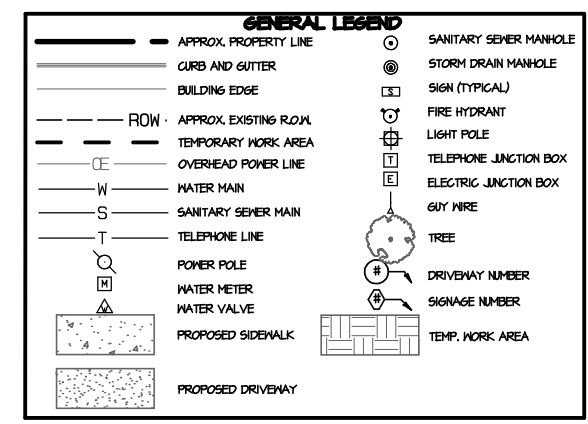
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	04	

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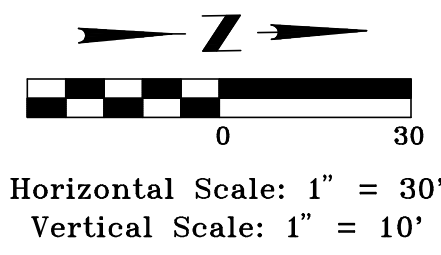
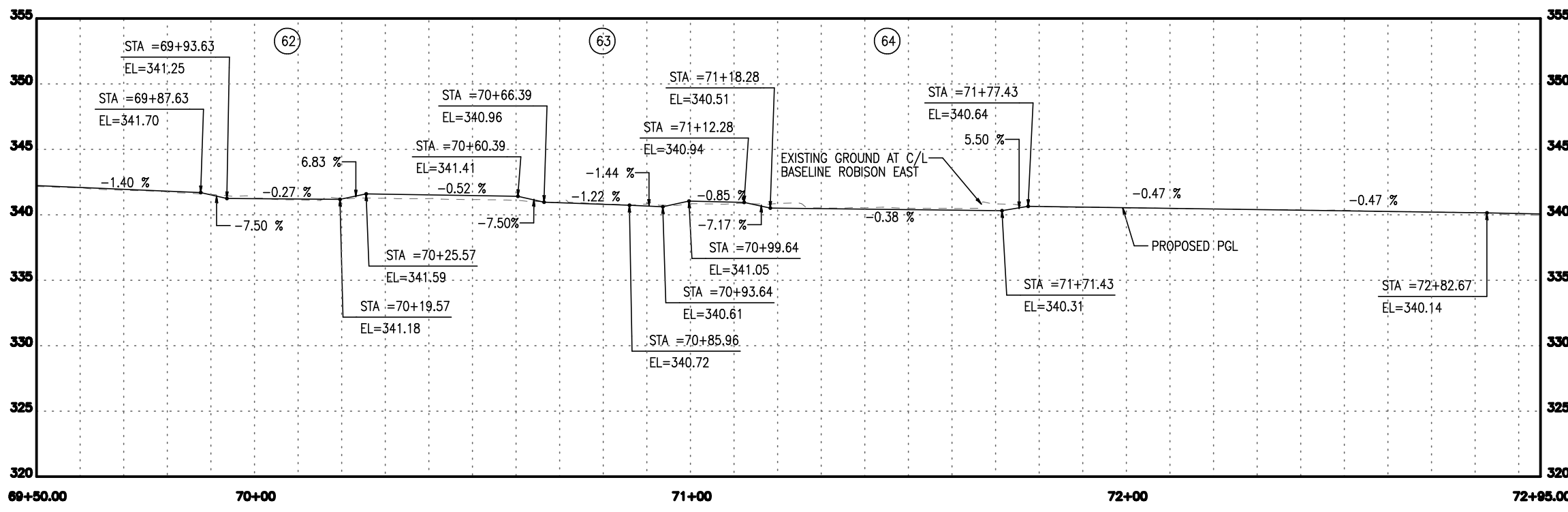
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 FILE: Wed Oct 2, 2024 2:59PM



- NOTES:
1. SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
 2. ALL DIMENSIONS AND OFFSETS ARE TO EDGE OF SIDEWALK PAVEMENT (EOP) OR TO LIP OF GUTTER (LOG) AND ARE BASED OFF OF ROBISON SIDEWALK BASELINE (C/L ROBISONSDWK) UNLESS OTHERWISE NOTED.
 3. ALL CURB RAMP WILL BE 6' CLEAR WIDTH UNLESS OTHERWISE NOTED.
 4. PROPOSED SIDEWALK ALONG EXISTING CURB WILL MATCHING EXISTING TOP OF CURB ELEVATION UNLESS OTHERWISE SHOWN IN PLANS.
 5. CONTRACTOR WILL VERIFY EXISTING ELEVATIONS PRIOR TO CONSTRUCTION. CONTRACTOR WILL ENSURE POSITIVE DRAINAGE AWAY FROM EXISTING BUILDINGS.
 6. ONE CALL IS REQUIRED BEFORE ANY CONSTRUCTION. THE UTILITY INFORMATION SHOWN IN APPROXIMATE. FIELD VERIFY LIMITS AND LOCATIONS OF UTILITIES PRIOR TO CONSTRUCTION.



SIGNAGE:
 32 - R3-8 DOUBLE LEFT TURN SIGN
 NOTE: USE EXISTING SIGN



NO.	DATE	REVISION	APPROVED

10/2/2024

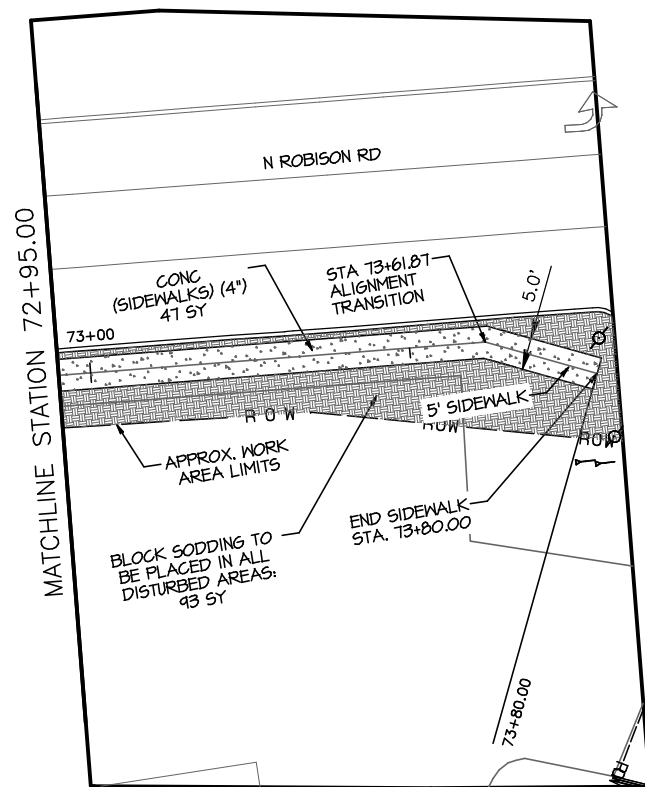
Texas Department of Transportation

EAST SIDEWALK PLAN AND PROFILE
 SHEET 21 OF 22
 STA 69+50.00 TO STA 72+95.00

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	40	

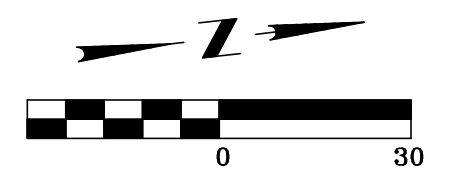
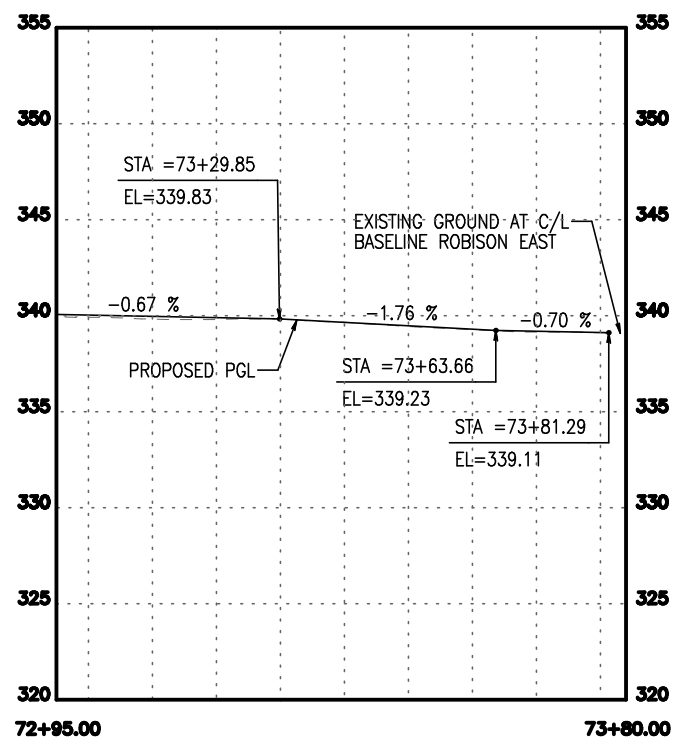
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 FILE: Wed Oct 2, 2024 2:59PM



- NOTES:
1. SEE "HORIZONTAL ALIGNMENT DATA" SHEET FOR ALIGNMENT INFORMATION NOT SHOWN.
 2. ALL DIMENSIONS AND OFFSETS ARE TO EDGE OF SIDEWALK PAVEMENT (EOP) OR TO EDGE OF SIDEWALK PAVEMENT (EOP) OR TO LIP OF GUTTER (LOG) AND ARE BASED OFF OF ROBISON SIDEWALK BASELINE (C/L ROBISONSDWK) UNLESS OTHERWISE NOTED.
 3. ALL CURB RAMP WILL BE 6' CLEAR WIDTH UNLESS OTHERWISE NOTED.
 4. PROPOSED SIDEWALK ALONG EXISTING CURB WILL MATCHING EXISTING TOP OF CURB ELEVATION UNLESS OTHERWISE SHOWN IN PLANS.
 5. CONTRACTOR WILL VERIFY EXISTING ELEVATIONS PRIOR TO CONSTRUCTION. CONTRACTOR WILL ENSURE POSITIVE DRAINAGE AWAY FROM EXISTING BUILDINGS.
 6. ONE CALL IS REQUIRED BEFORE ANY CONSTRUCTION. THE UTILITY INFORMATION SHOWN IN APPROXIMATE. FIELD VERIFY LIMITS AND LOCATIONS OF UTILITIES PRIOR TO CONSTRUCTION.

GENERAL LEGEND			
—	APPROX. PROPERTY LINE	⊙	SANITARY SEWER MANHOLE
—	CURB AND GUTTER	⊗	STORM DRAIN MANHOLE
—	BUILDING EDGE	⊠	SIGN (TYPICAL)
—	ROW	⊕	FIRE HYDRANT
—	APPROX. EXISTING R.O.W.	⊕	LIGHT POLE
—	TEMPORARY WORK AREA	⊕	TELEPHONE JUNCTION BOX
—	OVERHEAD POWER LINE	⊕	ELECTRIC JUNCTION BOX
—	W	—	GUY WIRE
—	SANITARY SEWER MAIN	⊕	TREE
—	TELEPHONE LINE	⊕	DRIVEWAY NUMBER
⊕	POWER POLE	⊕	SIGNAGE NUMBER
⊕	WATER METER	⊕	TEMP. WORK AREA
⊕	WATER VALVE		
⊕	PROPOSED SIDEWALK		
⊕	PROPOSED DRIVEWAY		



Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 10'

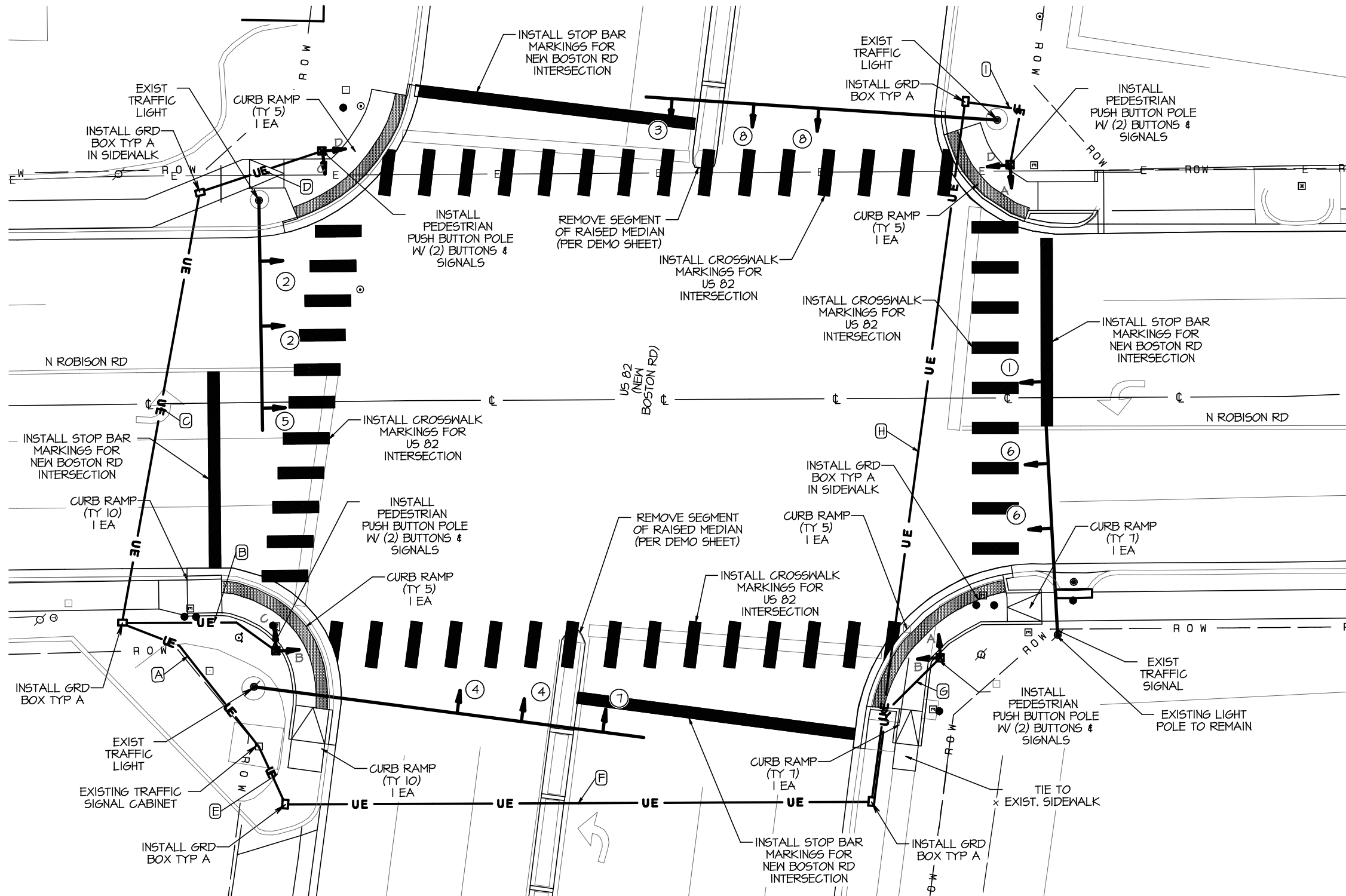
NO.	DATE	REVISION	APPROVED
EAST SIDEWALK PLAN AND PROFILE SHEET 22 OF 22 STA 72+95.00 TO STA 73+80.00			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	41	

10/2/2024
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 FILE: Wed Oct 2, 2024 2:59PM

DRIVEWAY DESIGN TABLE - EAST SIDEWALK ROBISON ROAD																								
Driveway ID	SDWLK STATION @ CL OF DRIVE	Sheet Number	Drive Width	USE	DISTANCE Gutter TO ROW	Exist Slope From Gutter	Distance Gutter to Grade Break	Remain Distance to ROW	Exist Slope Beyond Grade Break	Elev Change within ROW	Length #1 Gutter to SW	Slope # 1 to SW	Length #2 Sidewalk	Slope # 1 Sidewalk	Length #3 SW to ROW	Slope # 3 ROW to End OR Grade Break	Length #4 Grade Break to Limit	Slope # 4 Grade Break to Limit	Length Past ROW	Total Length Gutter To Limit	Algebraic Difference Slope #1 to #2	Algebraic Difference Slope #2 to #3	Algebraic Difference Slope #3 to #4	
#	STA	Pg	FT	-	FT	%	FT	FT	%	FT	FT	%	FT	%	FT	%	FT	%	FT	FT	%	%	%	
1	02+00.45	70	19	RES	12.37	3.6%	40	-27.63	1.0%	0.45	3	3.6%	4	2.0%	5.4	4.8%			1.4	12.4	1.6%	2.8%		
2	02+85.76	70	7	RES	12.33	8.7%	11	1.33	0.6%	0.96	2.5	5.0%	4	2.0%	4.5	10.7%	2.7	10.7%		13.7	3.0%	8.7%	0.0%	
3	03+42.16	70	34	COM	12.29	2.2%	40	-27.71	1.0%	0.27	6	2.2%	4	2.0%	2.3	2.6%				12.3	0.2%	0.6%		
4	04+77.10	71	34	COM	11.4	0.7%	40	-28.6	1.0%	0.08	6	0.7%	4	2.0%						10.0	1.3%			
5	06+32.58	71	18	COM	12.08	10.9%	40	-27.92	1.0%	1.32	6	8.0%	4	2.0%	8.7	17.0%			6.6	18.7	6.0%	15.0%		
6	08+54.79	72	46	COM	12.89	4.8%	14	-1.11	3.8%	0.62	6	4.8%	4	2.0%	2.9	16.3%				12.9	2.8%	14.3%		
7	11+53.06	73	46	COM	14.38	7.6%	11	3.38	-0.2%	0.83	6	5.0%	4	2.0%	1.0	10.0%	3.5	10.0%	0.1	14.5	3.0%	8.0%	0.0%	
8	12+07.47	73	31	COM	15.06	1.0%	40	-24.94	1.0%	0.15	6	1.0%	4	1.0%						10.0	0.0%			
9	12+65.20	73	27	COM	14.09	1.1%	40	-25.91	1.0%	0.15	6	1.1%	4	1.1%						10.0	0.0%			
10	13+20.86	73	25	COM	15.66	8.7%	40	-24.34	1.0%	1.36	6	8.0%	4	1.4%	7.7	13.0%	0.1	13.0%	2.0	17.7	6.6%	11.6%	0.0%	
11	14+05.60	73	35	COM	16.07	2.6%	40	-23.93	1.0%	0.42	6	2.6%	4	2.0%	6.1	3.0%				16.1	0.6%	1.0%		
12	14+76.13	74	25	COM	15.23	1.1%	40	-24.77	1.0%	0.17	6	1.1%	4	1.1%						10.0	0.0%			
13	18+82.44	75	40	COM	11.17	3.4%	40	-28.83	1.0%	0.38	2.5	3.4%	4	2.0%	4.7	4.5%				11.2	1.4%	2.5%		
14	20+37.26	75	24	COM	10.8	11.6%	14	-3.2	0.5%	1.25	2.5	5.0%	4	2.0%	7.5	14.5%	2.4	14.5%	5.6	16.4	3.0%	12.5%	0.0%	
15	21+08.93	75	19	COM	10.84	9.0%	40	-29.16	1.0%	0.98	2.5	5.0%	4	2.0%	9.5	13.0%			5.2	16.0	3.0%	11.0%		
16	21+54.62	76	8	RES	10.94	11.6%	40	-29.06	1.0%	1.27	2.5	5.0%	4	2.0%	10.0	17.0%			5.6	16.5	3.0%	15.0%		
17	22+08.40	76	8	RES	10.92	9.9%	14	-3.08	0.5%	1.08	2.5	5.0%	4	2.0%	7.5	11.9%	2.5	11.9%	5.6	16.5	3.0%	9.9%	0.0%	
18	22+58.17	76	8	RES	10.84	8.3%	14	-3.16	1.5%	0.9	2.5	5.0%	4	2.0%	7.5	10.3%	2	10.3%	5.2	16.0	3.0%	8.3%	0.0%	
19	23+12.26	76	8	RES	10.85	8.5%	40	-29.15	1.0%	0.92	2.5	5.0%	4	2.0%	9.7	12.0%	0.1	12.0%	5.4	16.2	3.0%	10.0%	0.0%	
20	23+75.77	76	22	RES	10.82	8.7%	14	-3.18	0.1%	0.94	2.5	5.0%	4	2.0%	7.5	10.7%	2	10.7%	5.2	16.0	3.0%	8.7%	0.0%	
21	24+23.51	76	18	RES	10.85	8.4%	40	-29.15	1.0%	0.91	2.5	5.0%	4	2.0%	9.4	12.0%			5.1	15.9	3.0%	10.0%		
22	24+85.81	77	16	RES	10.88	4.3%	40	-29.12	1.0%	0.47	2.5	4.3%	4	2.0%	4.4	6.4%				10.9	2.3%	4.4%		
23	25+43.16	77	16	RES	11.17	2.0%	40	-28.83	1.0%	0.22	2.5	2.0%	4	2.0%						6.5	0.0%			
24	25+87.46	77	30	RES	11.02	5.6%	40	-28.98	1.0%	0.62	2.5	5.0%	4	2.0%	4.5	9.1%				11.0	3.0%	7.1%		
25	26+29.96	77	15	COM	10.89	3.3%	40	-29.11	1.0%	0.36	2.5	3.3%	4	2.0%	4.4	4.6%				10.9	1.3%	2.6%		
26	27+67.73	77	25	RES	10.66	3.3%	40	-29.34	1.0%	0.35	2.5	3.3%	4	2.0%	4.2	4.6%				10.7	1.3%	2.6%		
27	28+38.03	78	12	RES	9.89	1.3%	40	-30.11	1.0%	0.13	2.5	1.3%	4	1.3%						6.5	0.0%			
28	28+57.93	78	12	RES	9.76	2.9%	40	-30.24	1.0%	0.28	2.5	2.9%	4	2.0%	3.3	4.0%				9.8	0.9%	2.0%		
29	28+97.89	78	12	RES	9.5	4.0%	40	-30.5	1.0%	0.38	2.5	4.0%	4	2.0%	3.0	6.7%				9.5	2.0%	4.7%		
30	29+53.06	78	12	RES	9.17	7.7%	14	-4.83	1.5%	0.71	2.5	5.0%	4	2.0%	7.5	10.0%	1.4	10.0%	6.2	15.4	3.0%	8.0%	0.0%	
31	29+98.80	78	24	RES	8.92	5.3%	40	-31.08	1.0%	0.47	2.5	5.0%	4	2.0%	2.8	10.0%	0.1	10.0%	0.4	9.3	3.0%	8.0%	0.0%	
32	30+80.40	78	12	RES	8.46	10.8%	14	-5.54	0.8%	0.91	2.5	5.0%	4	2.0%	7.5	12.8%	2.8	12.8%	8.3	16.8	3.0%	10.8%	0.0%	
33	31+27.14	78	12	RES	8.17	13.6%	14	-5.83	2.2%	1.11	2.5	5.0%	4	1.1%	7.5	15.6%	4.2	15.6%	10.0	18.2	3.9%	14.5%	0.0%	
34	31+74.49	79	12	RES	7.88	16.3%	14	-6.12	4.0%	1.28	2.5	5.0%	4	2.0%	7.5	18.3%	4.9	18.3%	11.0	18.9	3.0%	16.3%	0.0%	
35	32+28.91	79	12	RES	7.12	12.9%	40	-32.88	1.0%	0.92	2.5	5.0%	4	2.0%	12.4	18.0%				11.7	18.9	3.0%	16.0%	
36	32+78.65	79	12	RES	6.95	12.4%	40	-33.05	1.0%	0.86	2.5	5.0%	4	2.0%	11.8	17.5%				11.3	18.3	3.0%	15.5%	
37	33+28.62	79	12	RES	6.81	12.0%	40	-33.19	1.0%	0.82	2.5	5.0%	4	2.0%	11.4	17.0%	0.1	17.0%	11.1	17.9	3.0%	15.0%	0.0%	
38	33+78.92	79	12	RES	7.34	13.0%	40	-32.66	1.0%	0.95	2.5	5.0%	4	2.0%	16.0	17.0%				15.2	22.5	3.0%	15.0%	
39	34+28.11	79	12	RES	7.07	10.5%	40	-32.93	1.0%	0.74	2.5	5.0%	4	2.0%	8.5	16.0%				7.9	15.0	3.0%	14.0%	
40	DEMO	79	12	COM	8.1	10.2%	40	-31.9	1.0%	0.82	2.5	5.0%									5.0%	0.0%	0.0%	
41	39+55.78	81	38	COM	11.59	7.9%	16	-4.41	1.5%	0.92	2.5	5.0%	4	2.0%	9.5	10.0%	1.3	10.0%	5.7	17.3	3.0%	8.0%	0.0%	
42	46+15.21	83	35	COM	11.83	0.4%	17	-5.17	1.0%	0.05	2.5	0.4%	4	0.4%						6.5	0.0%			
43	49+56.74	84	24	COM	11.78	2.6%	10	1.78	2.3%	0.3	6.5	2.6%	4	2.0%	1.3	3.9%	0.6	3.9%		11.8	0.6%	1.9%	0.0%	
44	57+87.43	86	18	RES	10.94	13.9%	10	0.94	2.3%	1.41	2.5	5.0%	4	2.0%	3.5	15.9%	4.6	15.9%	3.7	14.6	3.0%	13.9%	0.0%	
45	59+41.13	87	24	RES	12.5	13.0%	10	2.5	2.3%	1.36	2.5	5.0%	4	2.0%	3.5	15.0%	4.5	15.0%	2.0	14.5	3.0%	13.0%	0.0%	
46	60+09.52	87	13	RES	11.66	16.4%	15	-3.34	1.0%	1.91	2.5	5.0%	4	2.0%	8.5	18.4%	4	18.4%	7.3	19.0	3.0%	16.4%	0.0%	
47	60+53.97	87	15	RES	11.53	11.4%	11	0.53	0.2%	1.26	2.5	5.0%	4	2.0%	4.5	13.4%	3.3	13.4%	2.8	14.3	3.0%	11.4%	0.0%	
48	61+21.89	87	15	RES	11.67	8.3%	40	-28.33	1.0%	0.97	2.5	5.0%	4	2.0%	8.9	12.0%				3.8	15.4	3.0%	10.0%	
49	61+97.30	87	12	RES	11.11	4.2%	40	-28.89	1.0%	0.47	3	4.2%	4	2.0%	4.1	6.3%	0.2	6.3%		11.1	2.2%	4.3%	0.0%	
50	62+66.50	88	15	RES	12.09	4.7%	40	-27.91	1.0%	0.57	3	4.7%	4	2.0%	5.1	6.9%				12.1	2.7%	4.9%		
51	62+93.90	88	9	RES	12.45	6.7%	40	-27.55	1.0%	0.83	3	5.0%	4	2.0%	7.3	10.0%				1.8	14.3	3.0%	8.0%	
52	63+51.01	88	18	RES	12.29	2.7%	10	2.29	0.0%	0.27	3	2.7%	4	2.0%	5.3	2.1%	2.9	2.1%		12.3	0.7%	0.1%	0.0%	
53	64+17.34	88	27	RES	12.13	10.2%	15	-2.87	1.5%	1.24	3	5.0%	4	2.0%	8.0	12.2%	3	12.2%	5.9	18.0	3.0%	10.2%	0.0%	
54	65+62.73	88	12	RES	12.25	10.5%	15.5	-3.25	0.0%	1.29	3	5.0%	4	2.0%	8.5	12.5%	2.7	12.5%	6.0	18.2	3.0%	10.5%	0.0%	
55	65+59.52	89	16	RES	11.98	13.3%	15.5	-3.52	7.5%	1.59	3	5.0%	4	2.0%	8.5	16.5%	4.8	16.5%	8.3	20.3	3.0%	14.5%	0.0%	
56	67+03.06	89	22	RES	11.88	12.7%	40.1	-28.22	1.0%	1.51	3	5.0%	4	2.0%	15.4	17.0%				10.5	22.4	3.0%	15.0%	
57	67+82.98	89	11	RES	11.68	8.0%	40	-28.32	1.0%	0.93	3	5.0%	4	2.0%	11.0	11.0%				6.3	18.0	3.0%	9.0%	
58	68+08.64	89	10	RES	11.1	4.3%	40	-28.9	1.0%	0.48	3	4.3%	4	2.0%	4.1	6.6%				11.1	2.3%	4.6%		
59	68+56.00	89	9	RES	11.51	1.5%	40	-28.49	1.0%	0.17	3	1.5%	4	1.5%						7.0	0.0%			
60	68+86.10	89	12	RES	11.5	7.0%	40	-28.5	1.0%	0.81	3	5.0%	4	2.0%	8.7	10.0%				4.2	15.7	3.0%	8.0%	
61	69+29.89	89	11	RES	11.41	1.0%	2	9.41	-7.5%	-0.69	3	1.0%	4	1.0%						7.0	0.0%			
62	70+06.83	90	16	RES	11.21	7.4%	2	9.21	3.5%	0.47	3	5.0%	4	2.0%	4.2	5.7%	16.4	5.7%		11.2	3.0%	3.7%	0.0%</	

DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_MC.pro
 FILE: Wed Oct 2, 2024 2:36PM



SCALE: 1" = 20'

GENERAL LEGEND			
---	APPROX. PROPERTY LINE	①	DRIVENWAY NUMBER
—	CURB AND GUTTER	△	WATER VALVE
—	BUILDING EDGE	○	SANITARY SEWER MANHOLE
---	ROW APPROX. EXISTING R.O.W.	⊙	STORM DRAIN MANHOLE
---	TEMPORARY WORK AREA	□	SIGN (TYPICAL)
—OE—	OVERHEAD POWER LINE	⊕	FIRE HYDRANT
—W—	WATER MAIN	⊕	LIGHT POLE
—S—	SANITARY SEWER MAIN	⊕	TELEPHONE JUNCTION BOX
—T—	TELEPHONE LINE	⊕	ELECTRIC JUNCTION BOX
⊕	POWER POLE	⊕	GUY WIRE
⊕	WATER METER	⊕	TREE

NOTE:
 ALL TERMINATION OF WIRE IN SIGNAL CABINET SHALL BE COORDINATED WITH TXDOT.

NOTE:
 48 HOUR NOTICE SHALL BE GIVEN TO TXDOT ATLANTA SIGNAL SHOP (903) 799-1362. ANY AND ALL DAMAGE TO SIGNAL WIRE/CONDUIT WILL BE REPAIRED BY CONTRACTOR IMMEDIATELY TO ELIMINATE DOWNTIME OF SIGNAL.



NO.	DATE	REVISION	APPROVED
US HIGHWAY 82 INTERSECTION LAYOUT			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	43	


5930 SUMMERHILL ROAD TEXARKANA, TX
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 TBPE FIRM NO. F-354 AR COA NO. 125
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DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_MC.pro
 FILE: Wed Oct 2, 2024 2:36PM

PHASE FACE	01+06	CLEARANCE	02+06	CLEARANCE	02+05	CLEARANCE	01+05	CLEARANCE	04+07	CLEARANCE	04+08	CLEARANCE	03+08	CLEARANCE	03+07	CLEARANCE	EMERGENCY FLASHING
A-A	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W 7SEC	FDW 14SEC	DW	DW	DW
B-B	W 7SEC	FDW 21SEC	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
C-C	DW	DW	DW	DW	DW	DW	DW	DW	W 7SEC	FDW 14SEC	DW	DW	DW	DW	DW	DW	DW
D-D	DW	DW	DW	DW	W 7SEC	FDW 21SEC	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW

WIRE RUN - N ROBISON RD/ HWY 82										
ITEM	RUN	A	B	C	D	E	F	G	H	I
WIRE	5/C #12	8	4	4	4	8	8	4	4	4
CONDUIT	2" PVC	X	X	X	X	X	X	X	X	X
	RUN LENGTH (FT)	33'	28'	75' (BORE)	21'	10'	102' (BORE)	29'	122' (BORE)	19'

NO.	DATE	REVISION	APPROVED
			
US HIGHWAY 82 PHASING			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	44	

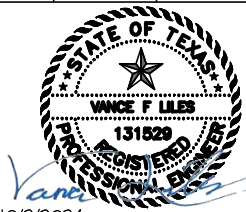

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 FILE: Wed Oct 2, 2024 2:36PM


PHASE	01+05	CLEARANCE	01+06	CLEARANCE	02+05	CLEARANCE	02+06	CLEARANCE	03+07	CLEARANCE	03+08	CLEARANCE	04+07	CLEARANCE	04+08	CLEARANCE	EMERGENCY FLASHING
FACE																	
A-A	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W 7SEC	FDW 17SEC	W 7SEC	FDW 17SE	DW
B-B	DW	DW	W 7SEC	FDW 7SEC	DW	DW	W 7SEC	FDW 7SEC	DW	DW	DW	DW	DW	DW	DW	DW	DW
C-C	DW	DW	DW	DW	W 7SEC	FDW 7SEC	W 7SEC	FDW 7SEC	DW	DW	DW	DW	DW	DW	DW	DW	DW

WIRE RUN - N ROBISON RD/ TUCKER ST											
ITEM	RUN	A	B	C	D	E	F	G	H	I	J
WIRE	5/C #12	12	2	2	2	2	6	6	4	2	2
CONDUIT	2" PVC	X	X	X	X	X	X	X	X	X	X
	RUN LENGTH (FT)	7'	40'	71' (BORE)	9'	18'	98'	84' (BORE)	9'	65' (BORE)	23'

NO.	DATE	REVISION	APPROVED



Vance F. Liles
10/2/2024



TUCKER STREET PHASING



CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	46	


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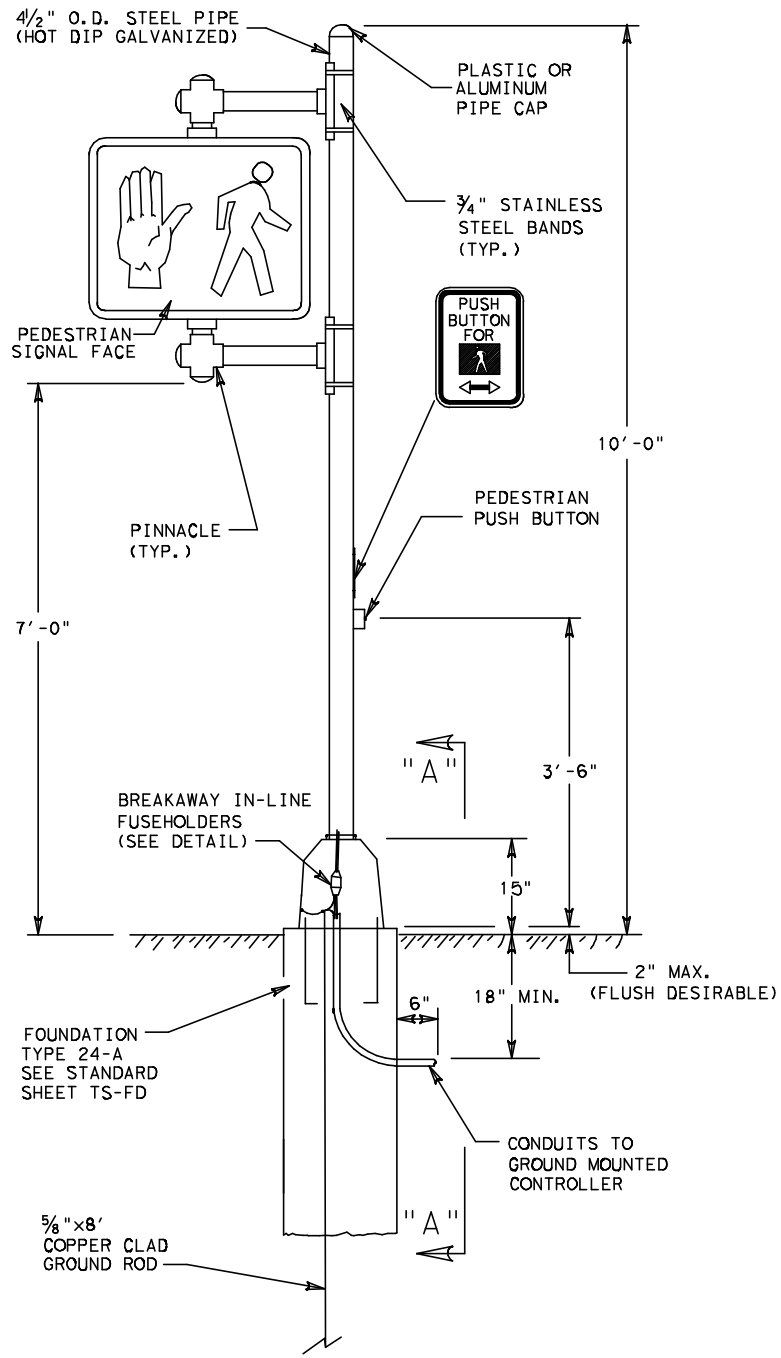
PHASE	01+06	CLEARANCE		02+05	CLEARANCE		02+06	CLEARANCE		04+08	CLEARANCE		EMERGENCY FLASHING
FACE													
A-A	DW	DW	DW	DW	DW	DW	DW	DW	DW	W 7SEC	FDW 11SEC	DW	
B-B	W 7SEC	FDW 11SEC	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	
C-C	DW	DW	DW	DW	DW	DW	DW	DW	DW	W 7SEC	FDW 11SEC	DW	
D-D	DW	DW	DW	DW	W 7SEC	FDW 11SEC	DW	DW	DW	DW	DW	DW	

WIRE RUN - N ROBISON RD/ COLLEGE DR										
ITEM	RUN	A	B	C	D	E	F	G	H	
WIRE	5/C #12	16	4	12	4	8	4	4	4	4
CONDUIT	2" PVC	X	X	X	X	X	X	X	X	X
	RUN LENGTH (FT)	6	34'	59' (BORE)	35'	90' (BORE)	20'	64' (BORE)	23'	

NO.	DATE	REVISION	APPROVED
			
COLLEGE DRIVE PHASING			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	48	


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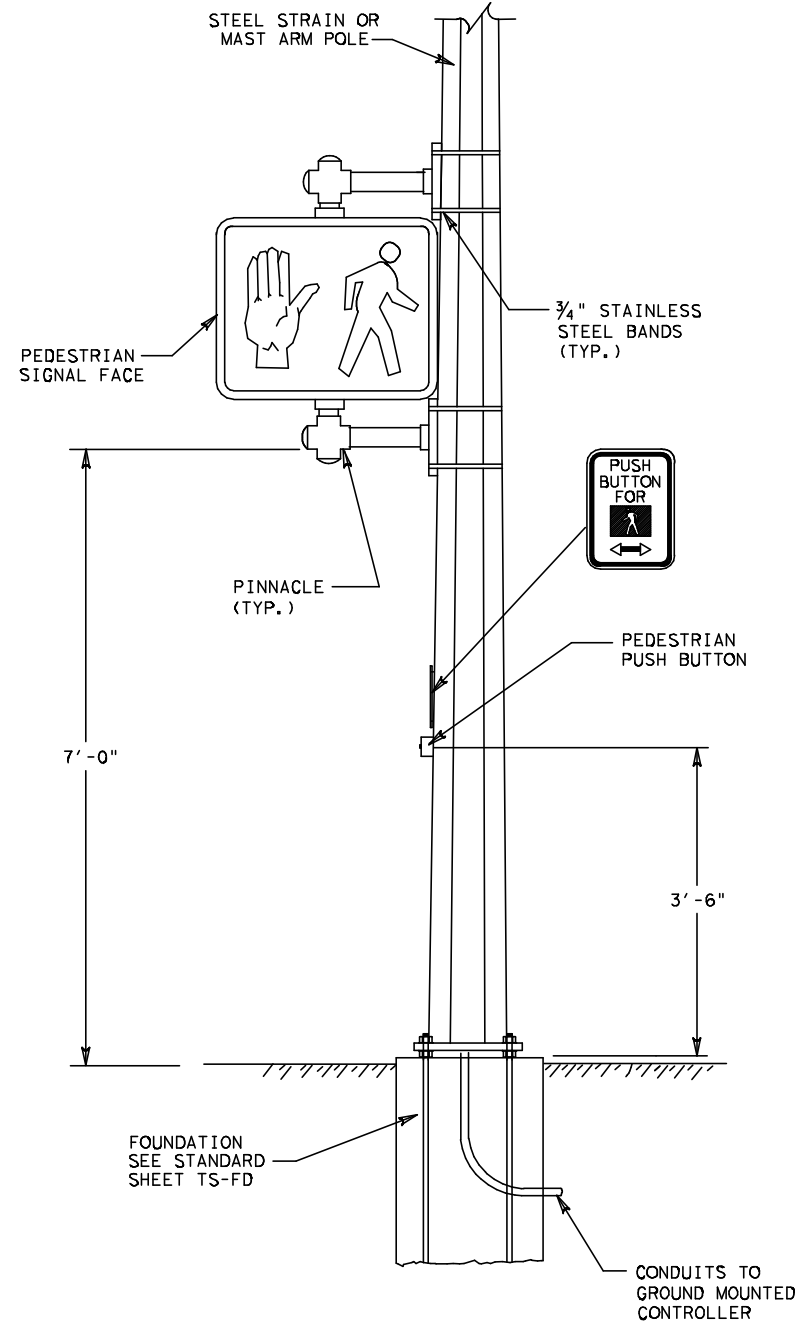
DATE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_GN.pro
 FILE: Wed Oct 2, 2024 2:02PM



PEDESTAL POLE DETAIL

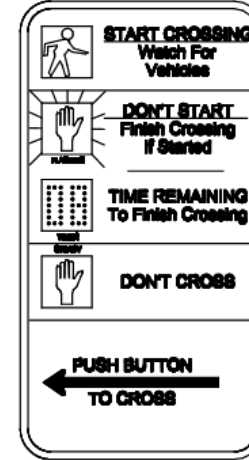
NOTES:

- BREAKAWAY ELECTRICAL QUICK-DISCONNECTS SHALL BE WATERTIGHT BUSSMANN HEB SERIES OR EQUAL.
- DRILL POLE FOR WIRE ENTRY. USE BUSHING OR RUBBER GROMMET TO PROTECT CONDUCTORS.
- POLE SHAFT SHALL BE STEEL PIPE, ASTM A-53 GRADE A OR B, OR SCHEDULE 40 UL APPROVED RIGID STEEL ELECTRICAL CONDUIT. SHAFT MATERIAL SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUT IN ACCORDANCE WITH ASTM A-123.



DETAIL-PEDESTRIAN SIGNALS

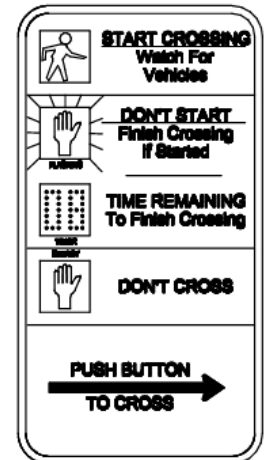
PROPOSED



R10-3eL
9" X 15"

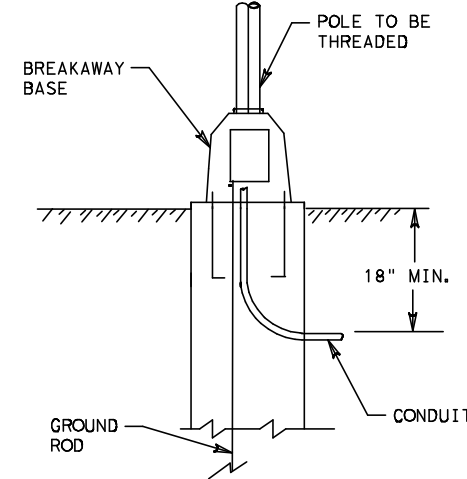
Signs 1, 3, 5, 6

PROPOSED

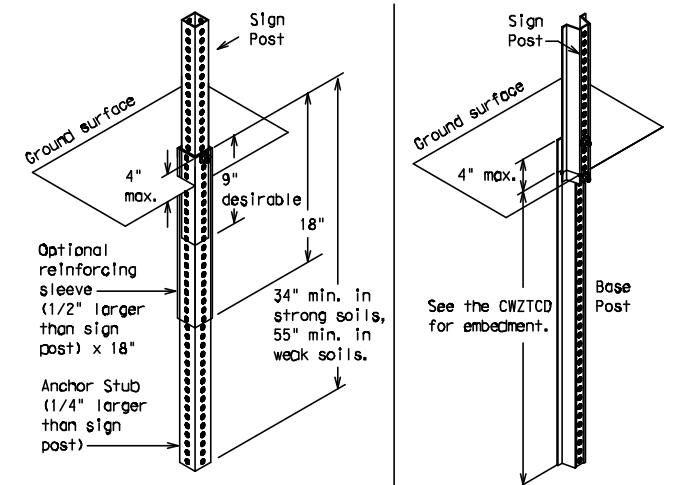


R10-3eR
9" X 15"

Signs 2, 4, 7, 8



SECTION "A A"

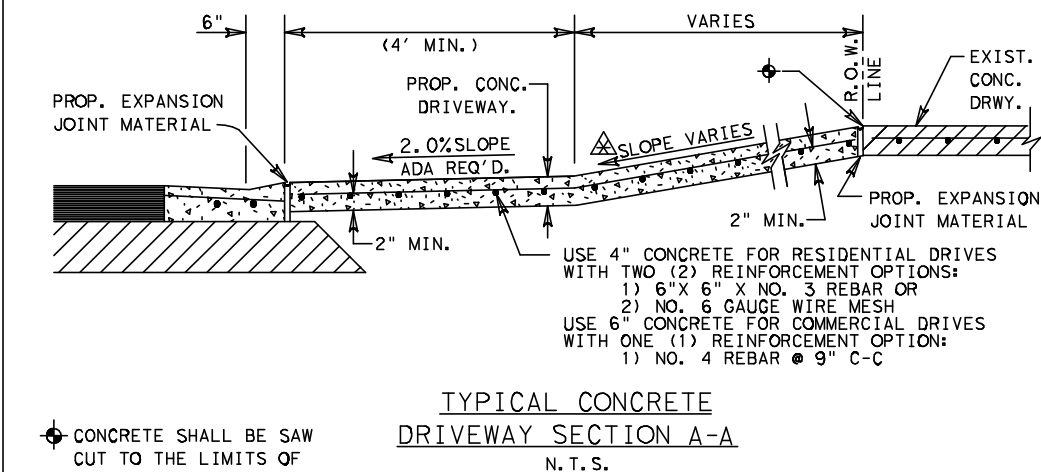
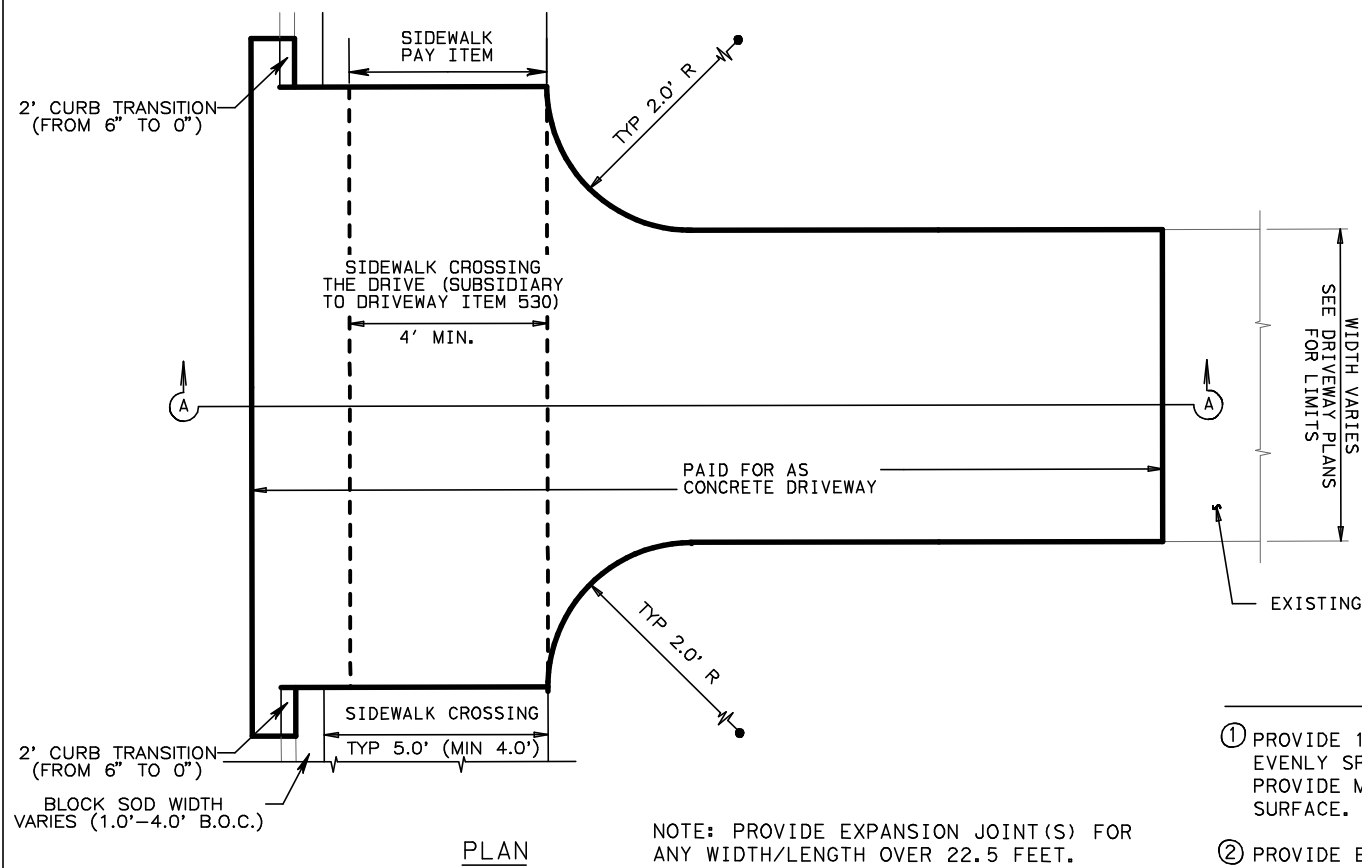


PERFORATED SQUARE METAL TUBING

NO.	DATE	REVISION	APPROVED
MISCELLANEOUS ROADWAY DETAILS			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	49	

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FILE: Thu Oct 3, 2024 1:30PM



PROP. DWY ALGEBRAIC DIFFERENCE TABLE	
COMMERCIAL DRIVEWAYS @ A = 6% MAX.	RESIDENTIAL DRIVEWAYS @ A = 8% MAX.

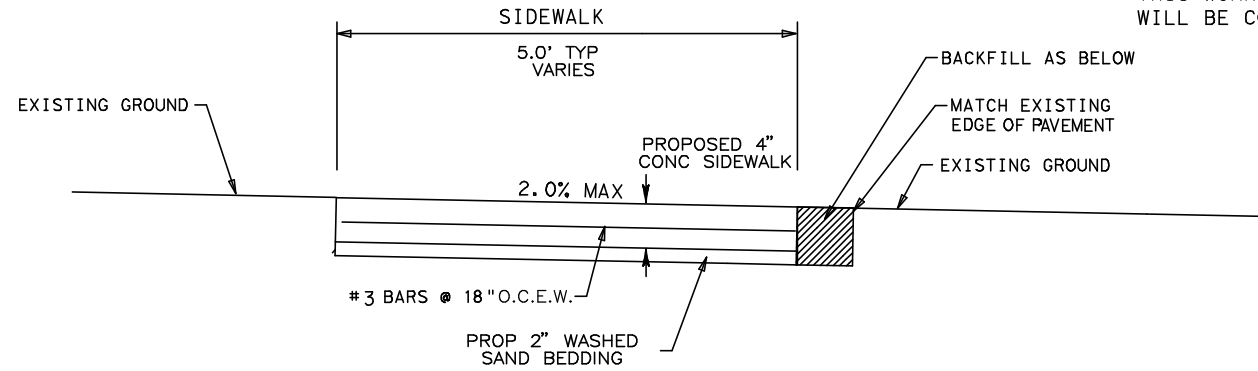
*EXCEPT IN LOCATIONS LISTED ON DRIVEWAY SUMMARY TABLE WITH EXISTING SLOPES IN EXCESS OF MAX SLOPES LISTED ABOVE

PROPOSED DRIVEWAY SLOPE TABLE	
COMMERCIAL DRIVEWAYS @ 8.33% MAX.	RESIDENTIAL DRIVEWAYS @ 10.0% MAX.

*EXCEPT IN LOCATIONS LISTED ON DRIVEWAY SUMMARY TABLE WITH EXISTING SLOPES IN EXCESS OF MAX SLOPES LISTED ABOVE

GENERAL NOTES

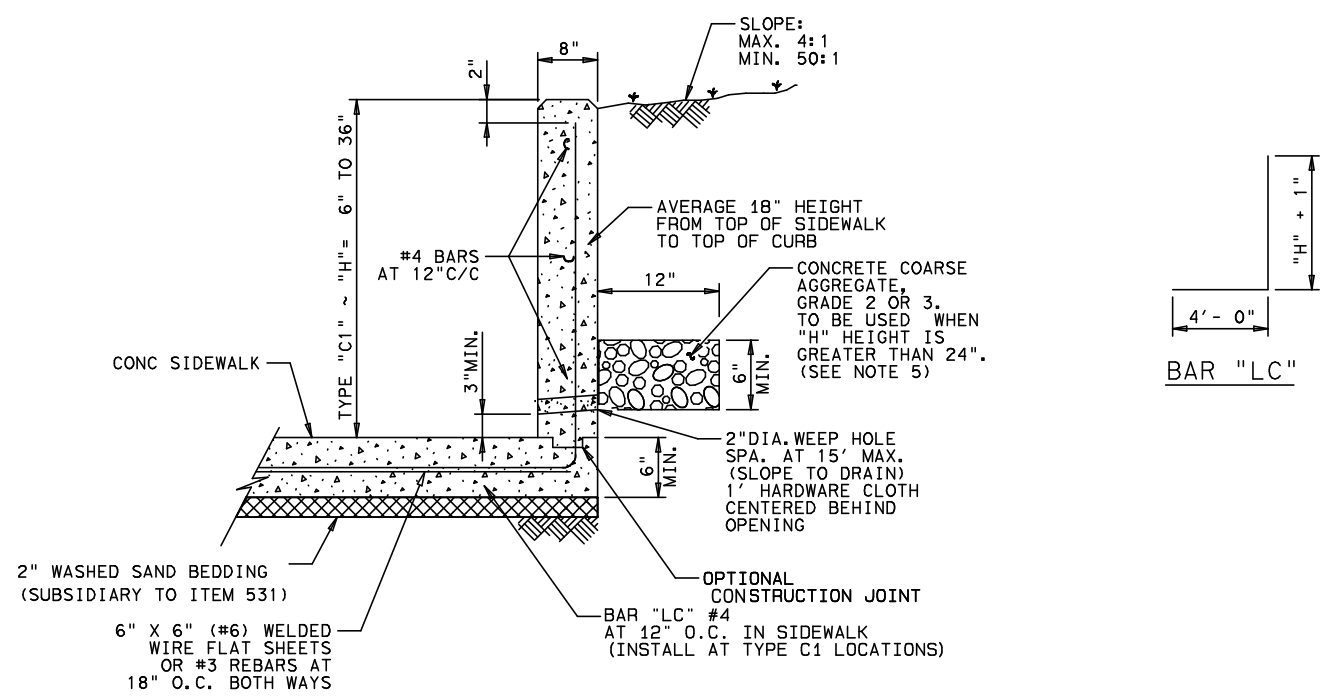
- PROVIDE 1/2" DEEP TOOLED OR SAW CUT JOINTS EVENLY SPACED AT 5' TYP / 10' MAX SPACING. PROVIDE MEDIUM BROOM FINISH TO CONCRETE SURFACE.
- PROVIDE EXPANSION JOINTS AT 40' MAX SPACING. JOINTS TO EXTEND THROUGH THE RETAINING WALL.
- EMBANKMENT AND SAND FOR SIDEWALK FOUNDATION ARE SUBSIDIARY TO ITEM 531.
- DO NOT BLOCK EXISTING DRAINAGE PATHS OR APPURTENANCES WITH PROPOSED SIDEWALK.
- IF CURB & GUTTER AND SIDEWALK ARE NOT PLACED MONOLITHICALLY, PROVIDE 1/2" EXPANSION JOINT MATERIAL AND JOINT SEALING COMPOUND BETWEEN SIDEWALK AND CURB & GUTTER.
- NOTIFY PROPERTY OWNERS A MINIMUM OF 1 WEEK IN ADVANCE TO CONFIRM EASEMENT, WHERE NECESSARY, PRIOR TO RECONSTRUCTING DRIVEWAYS.



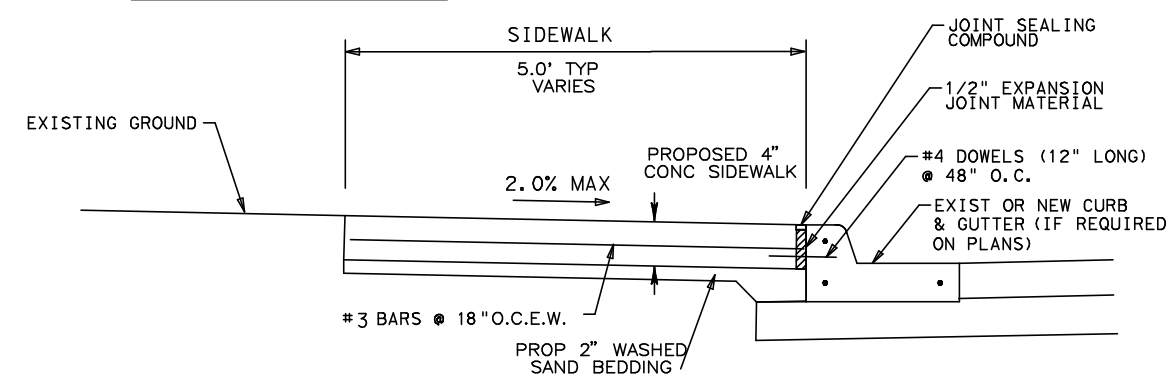
VEGETATIVE AREAS, BACKFILL WILL CONSIST OF NATIVE MATERIALS AND WILL BE CONSIDERED SUBSIDIARY TO ITEM 531. MATERIAL EXCAVATED FOR SIDEWALK MAY BE USED IF APPROVED BY THE ENGINEER.

THIS WORK, INCLUDING EXCAVATION, EMBANKMENT, SAND, AND BACKFILL WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

TYPICAL SIDEWALK SECTION OFFSET FROM EDGE OF PAVEMENT



TYPE "C1" CURB



VEGETATIVE AREAS, BACKFILL WILL CONSIST OF NATIVE MATERIALS AND WILL BE CONSIDERED SUBSIDIARY TO ITEM 531. MATERIAL EXCAVATED FOR SIDEWALK MAY BE USED IF APPROVED BY THE ENGINEER.

THIS WORK, INCLUDING EXCAVATION, EMBANKMENT, SAND, AND BACKFILL WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

TYPICAL SIDEWALK SECTION ADJACENT TO CURB

NO.	DATE	REVISION	APPROVED

Vance F. Iles
10/2/2024

MISCELLANEOUS SIDEWALK AND ROADWAY DETAILS

CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	100	

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GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

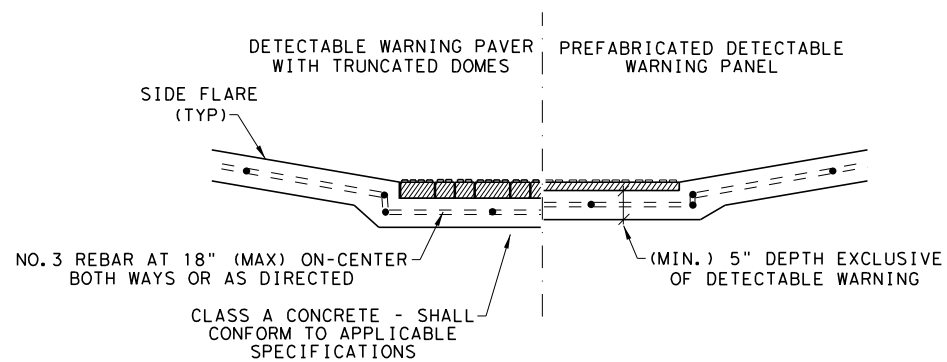
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

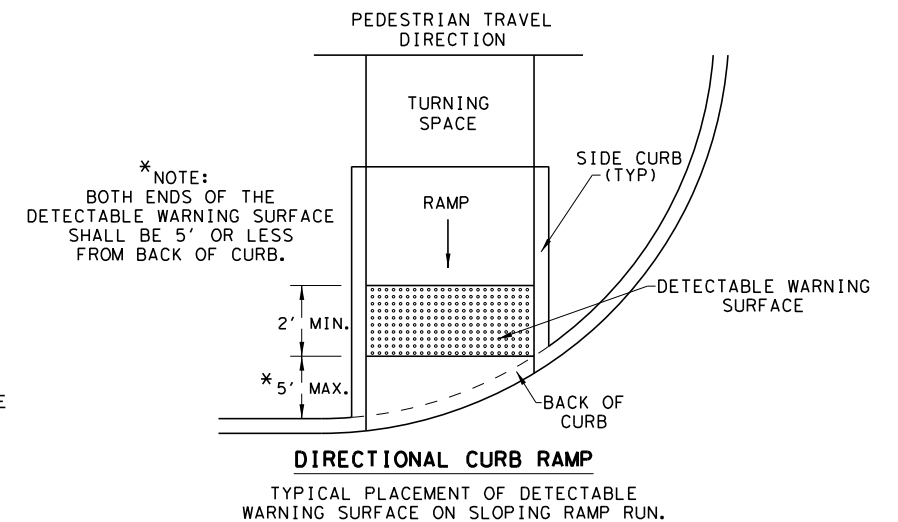
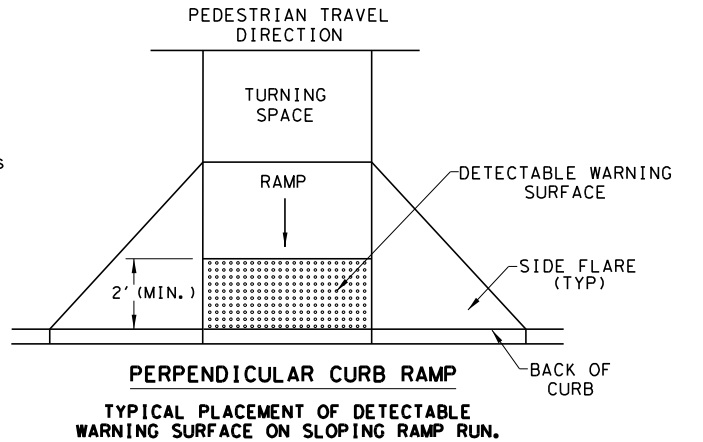
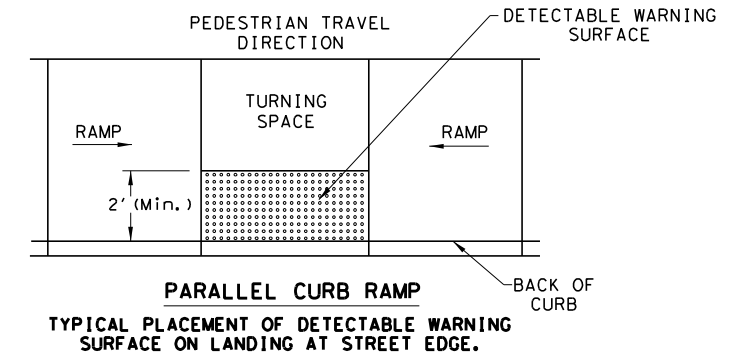
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



**SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS**

DETECTABLE WARNING SURFACE DETAILS



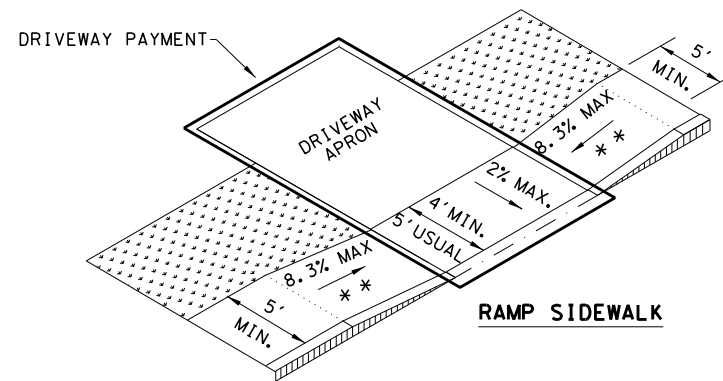
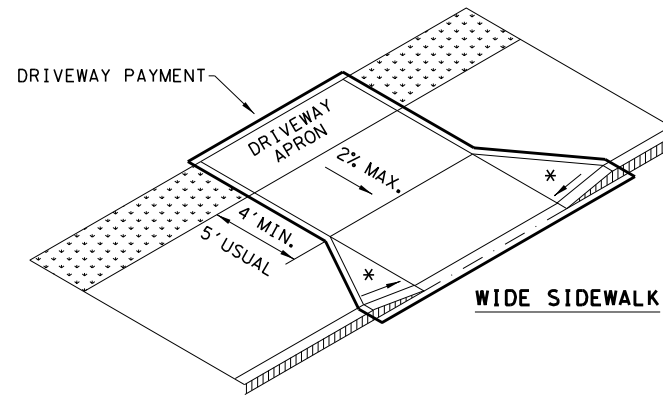
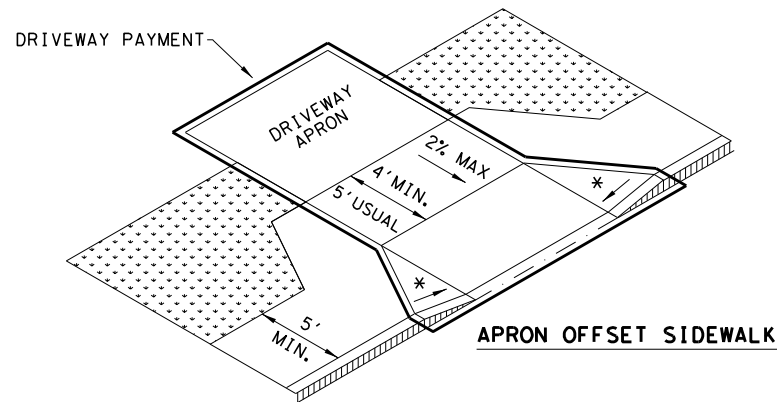
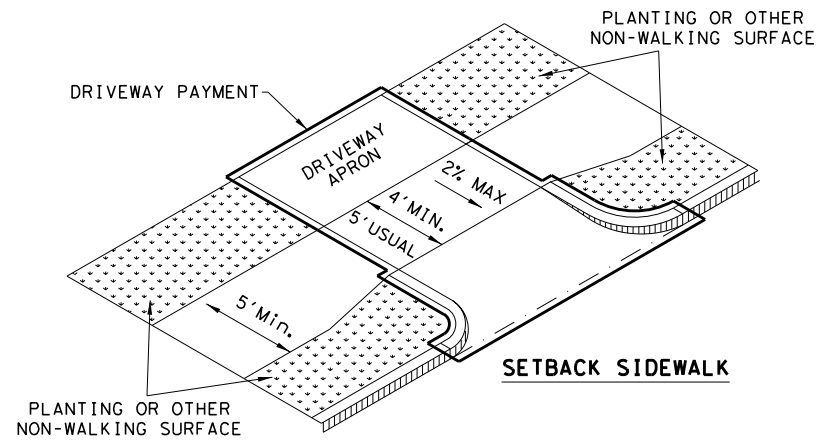
SHEET 2 OF 4

		Design Division Standard	
PEDESTRIAN FACILITIES CURB RAMPS			
PED-18			
FILE: ped18	DN: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CONT	SECT	JOB
REVISIONS	0919	19	085
REVISED 08, 2005	DIST	COUNTY	SHEET NO.
REVISED 06, 2012	ATL	BOWIE	103
REVISED 01, 2018			

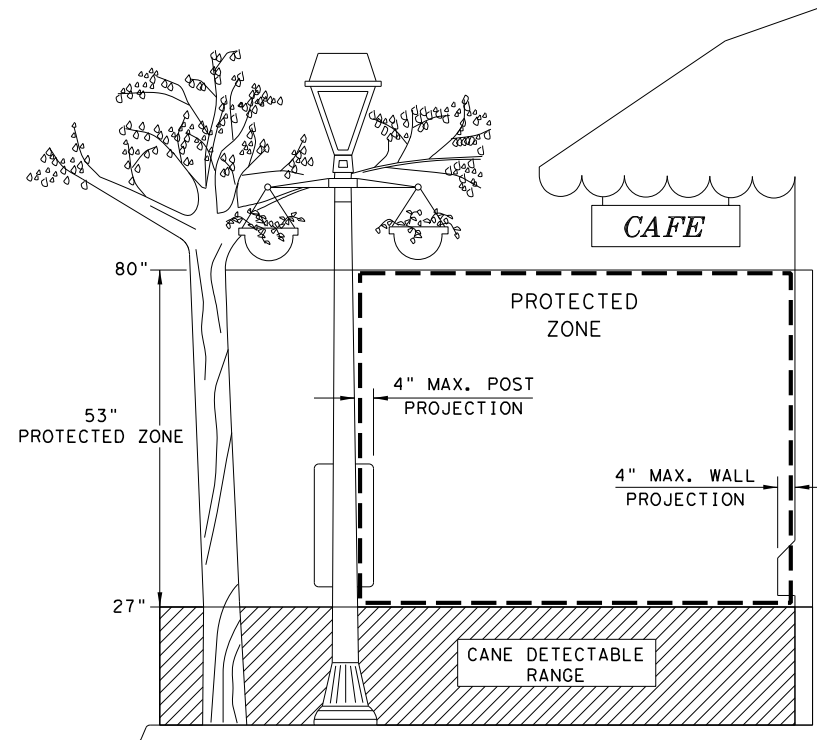
DATE:
FILE:

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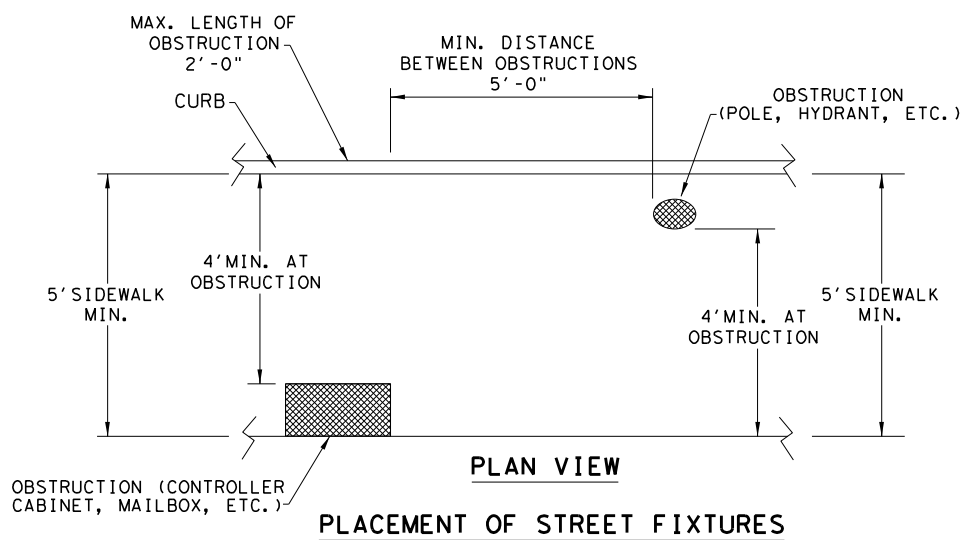
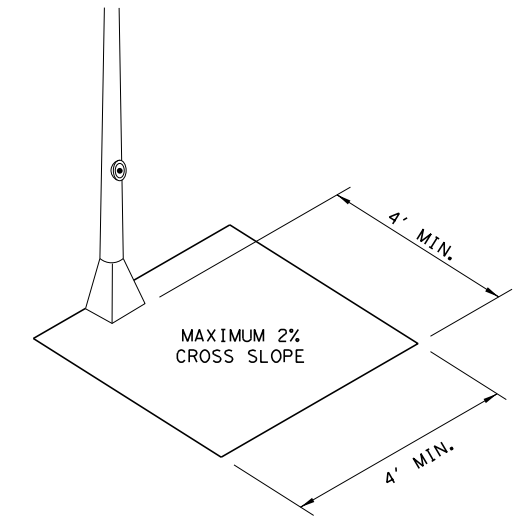
SIDEWALK TREATMENT AT DRIVEWAYS



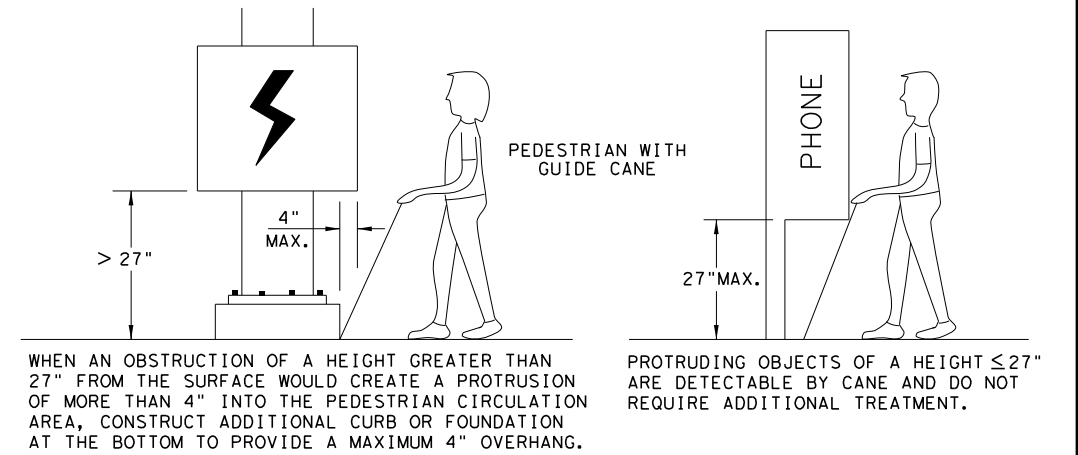
NOTES:
 * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
 ** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

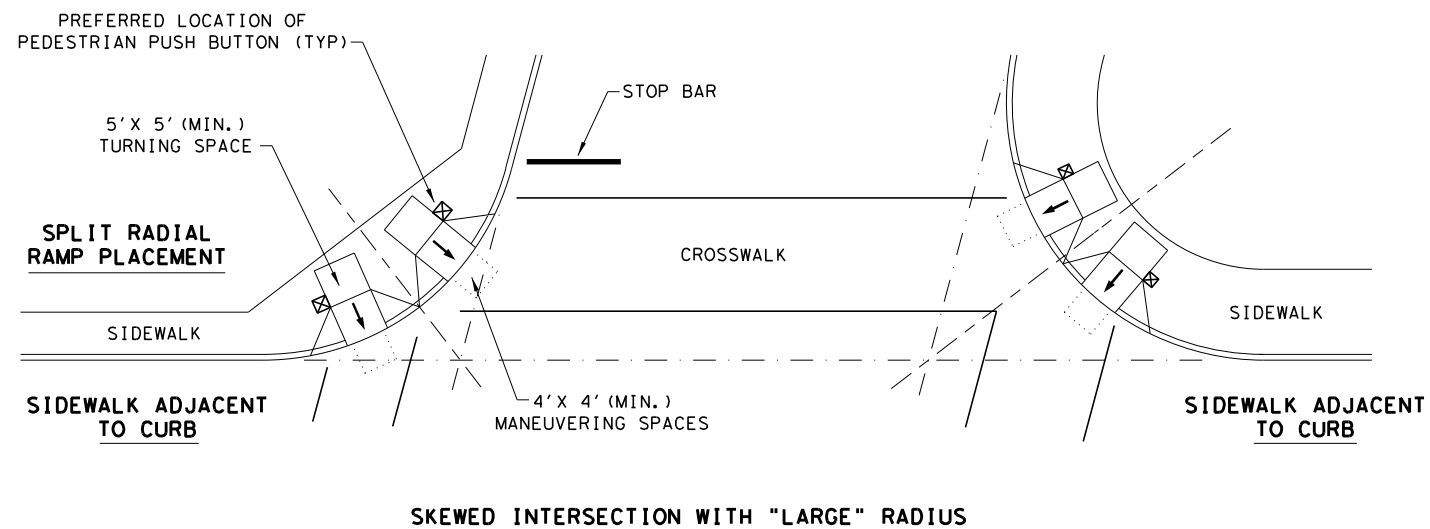
PEDESTRIAN FACILITIES CURB RAMPS
PED-18

FILE: ped18	DW: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012	ATL	BOWIE	104	
REVISED 01, 2018				

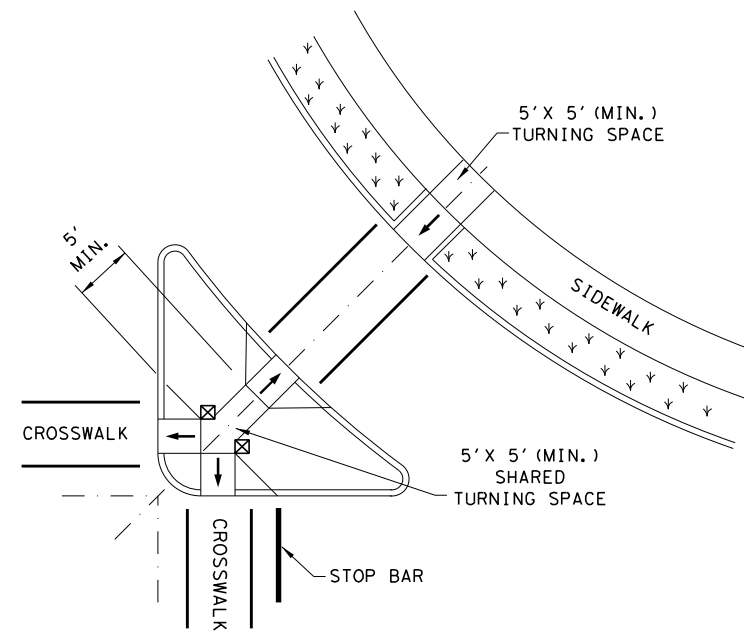
DATE:
FILE:

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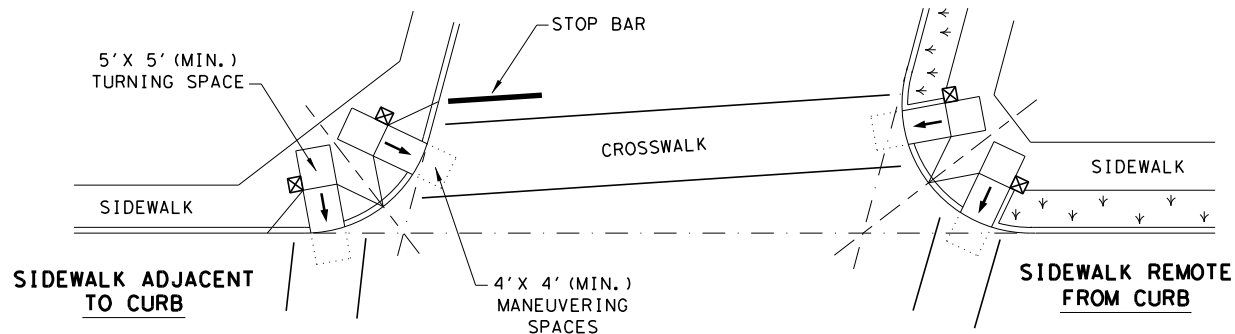
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



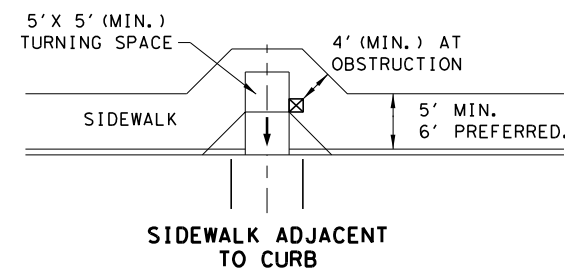
SKewed INTERSECTION WITH "LARGE" RADIUS



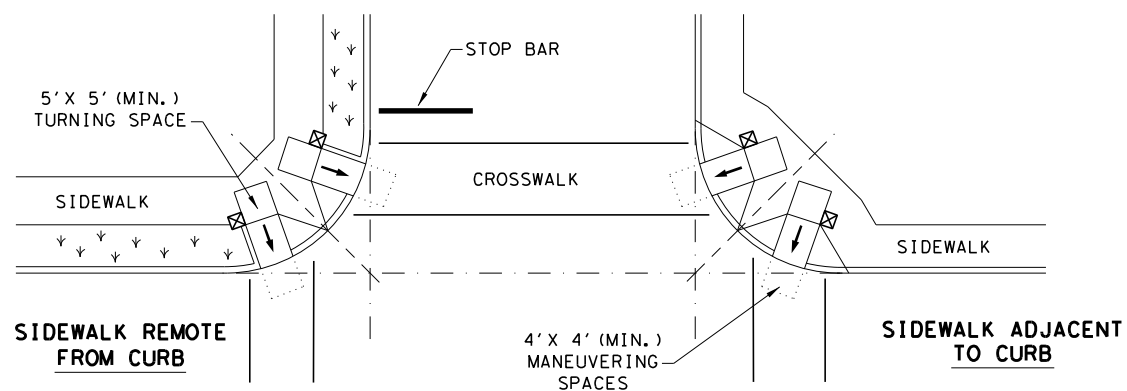
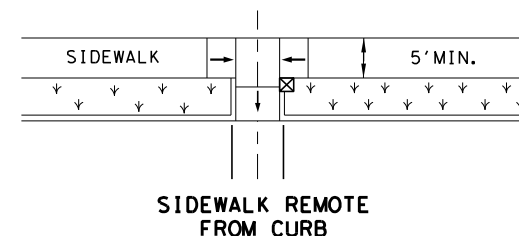
AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↗ ↖

SHEET 4 OF 4



PEDESTRIAN FACILITIES
CURB RAMPS

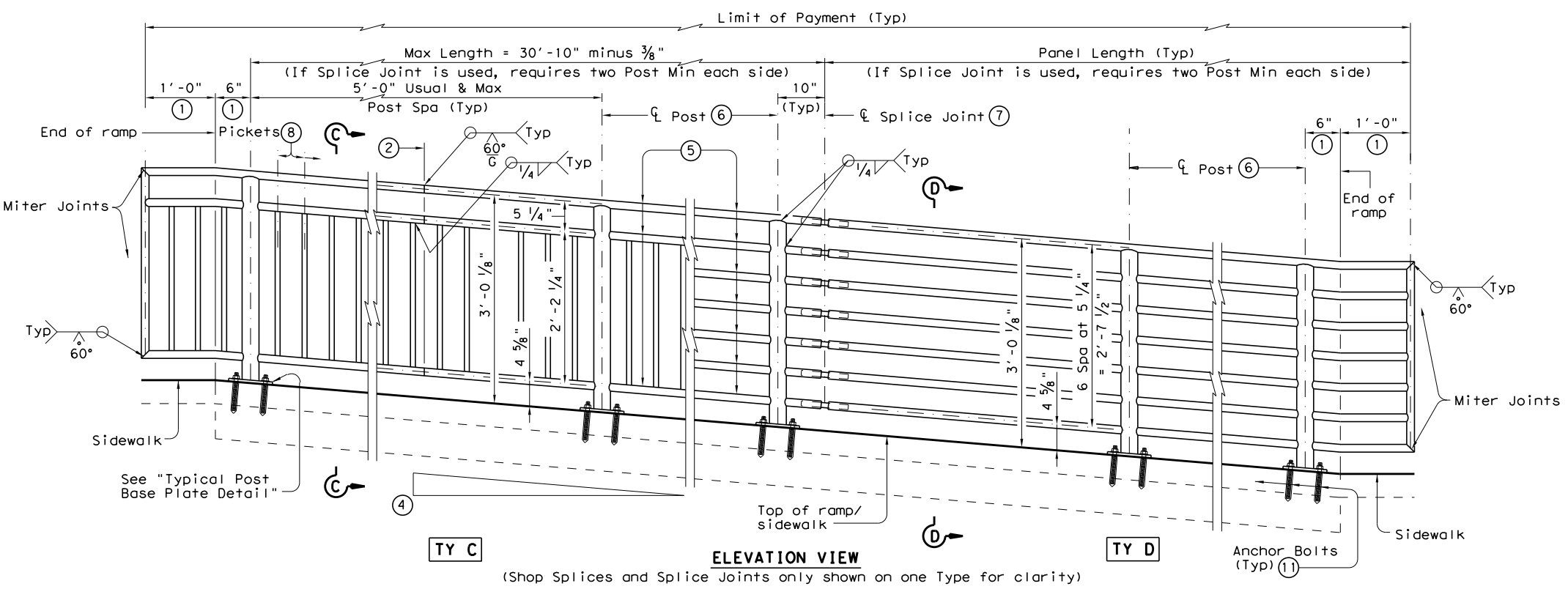
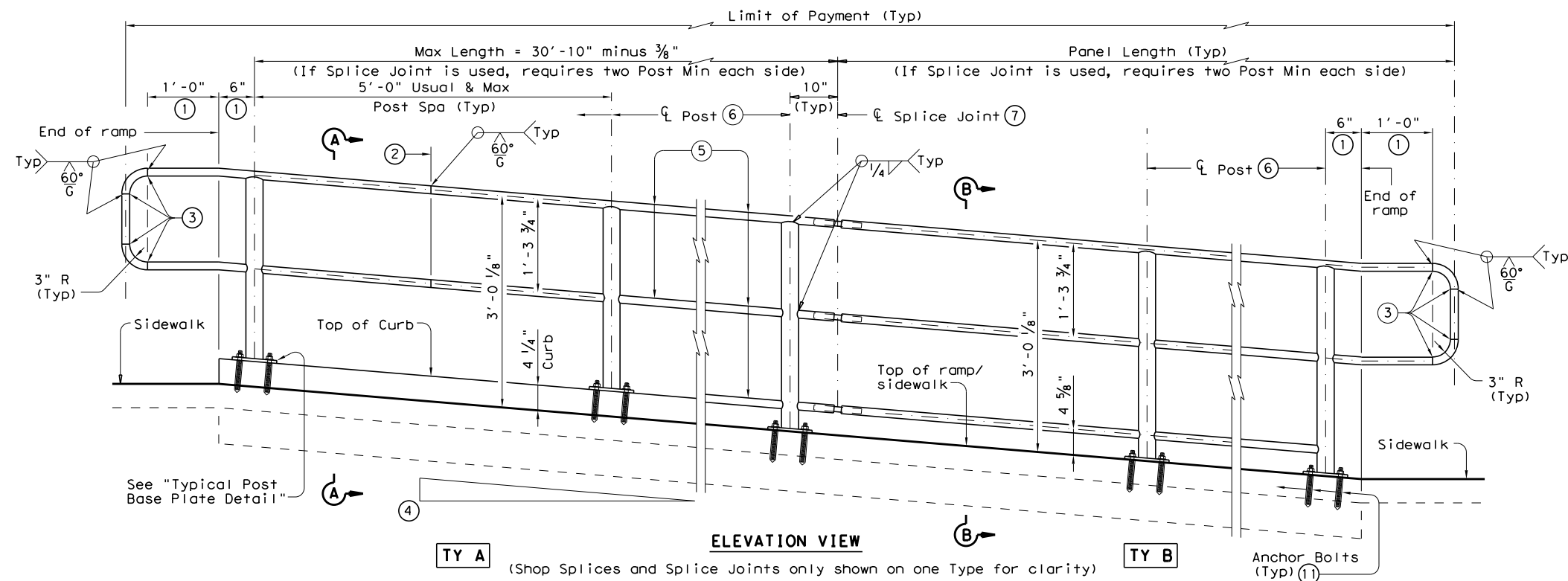
PED-18

FILE: ped18	DW: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012	ATL	BOWIE	105	
REVISED 01, 2018				

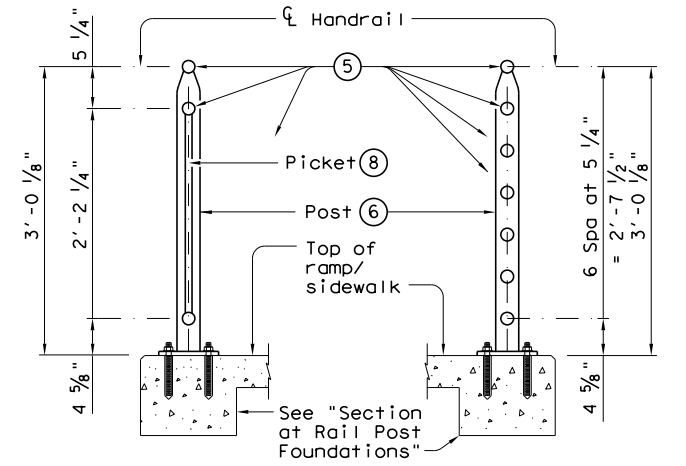
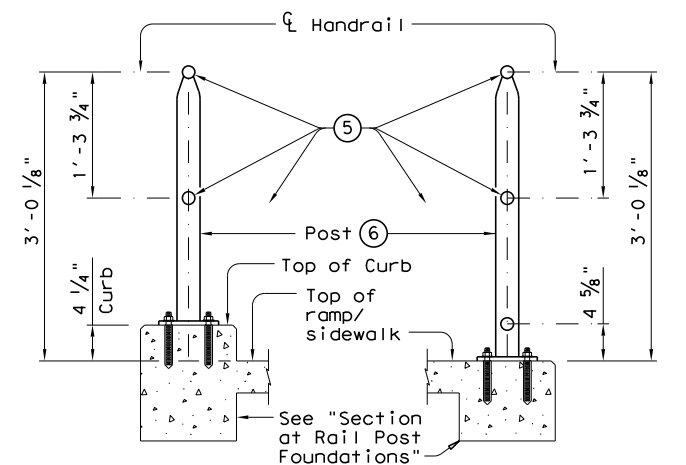
DATE:
FILE:

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DATE:
FILE:



RECOMMENDED USAGE ⑨ ⑩	
Dropoff Height/Condition	Recommended Rail Options
< 30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F



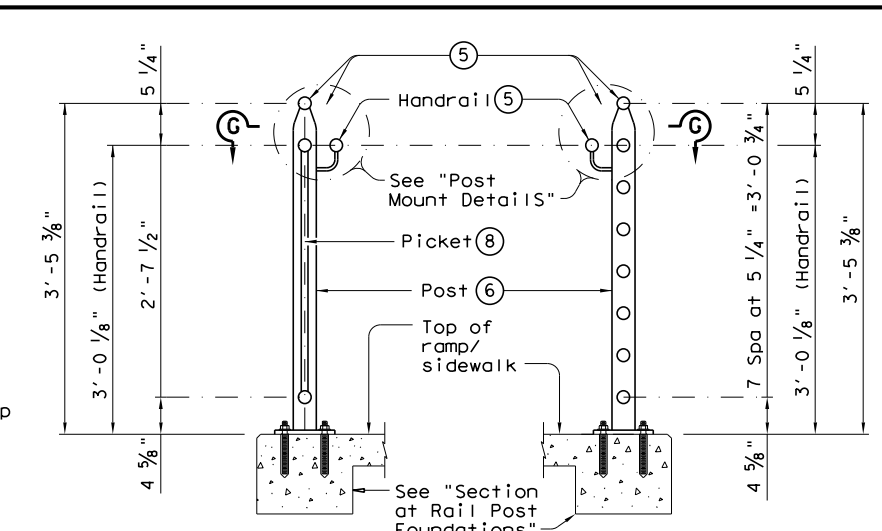
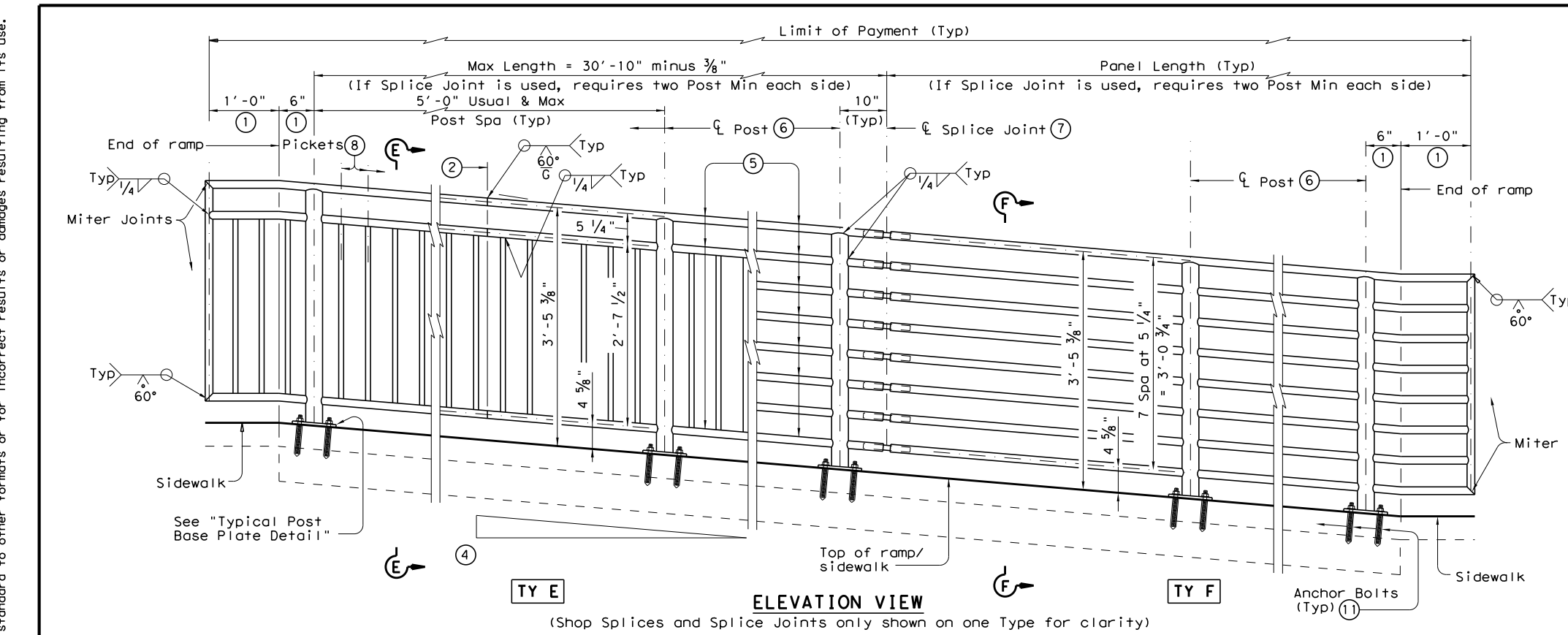
- ① Parallel to ground.
- ② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ③ Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ④ See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
- ⑤ 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.

- ⑥ 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
- ⑦ See "Handrail Fabrication Details" for Splice Joints.
- ⑧ 5/8" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑨ When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.
- ⑩ Not to be used on bridges.
- ⑪ See "General Notes" for anchor bolt information.

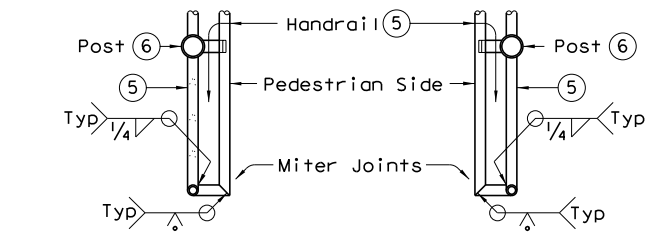
SHEET 1 OF 3

		Design Division Standard	
<h2>PEDESTRIAN HANDRAIL DETAILS</h2> <h3>PRD-13</h3>			
FILE: prd13.dgn	DN: TxDOT	CR: AM	DW: JTR
© TxDOT December 2006	CONT	SECT	JOB
REVISIONS	0919	19	085
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.
	ATL	BOWIE	106

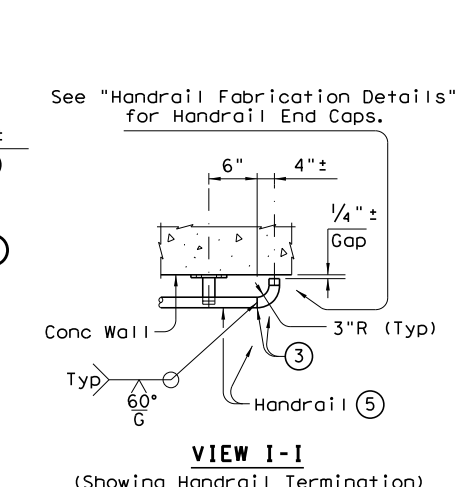
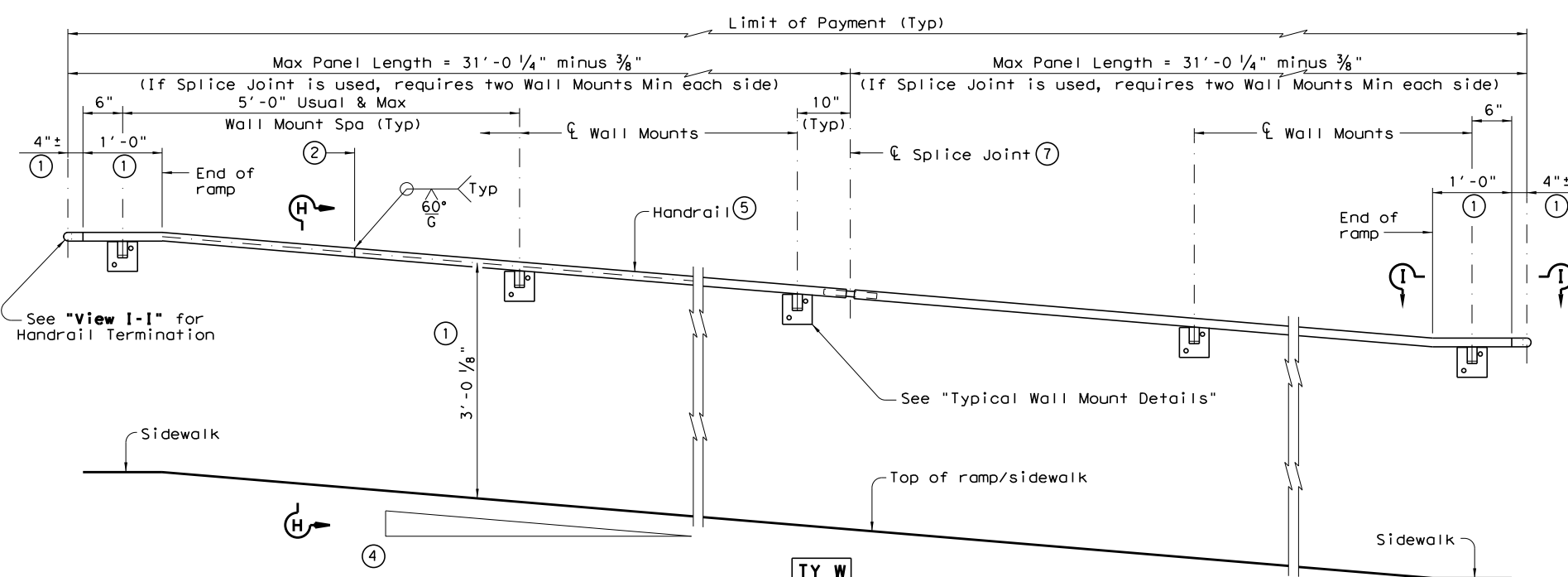
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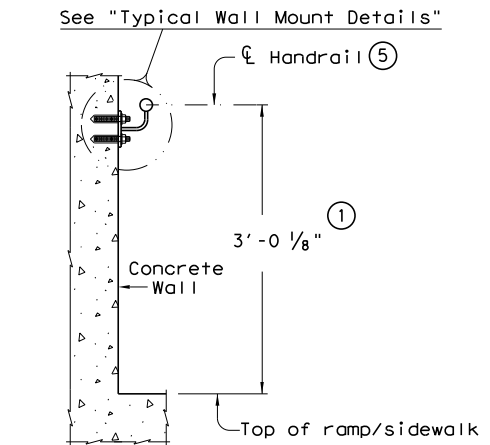
SECTION E-E (Showing Handrail TY E) SECTION F-F (Showing Handrail TY F)



SECTION G-G (Showing Handrail Termination)



VIEW I-I (Showing Handrail Termination)



SECTION H-H (Showing Handrail TY W)

ELEVATION VIEW

- ① Parallel to ground.
- ② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ③ Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ④ See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
- ⑤ 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- ⑥ 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
- ⑦ See "Handrail Fabrication Details" for Splice Joints.
- ⑧ 1/2" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑪ See "General Notes" for anchor bolt information.

Design Division Standard

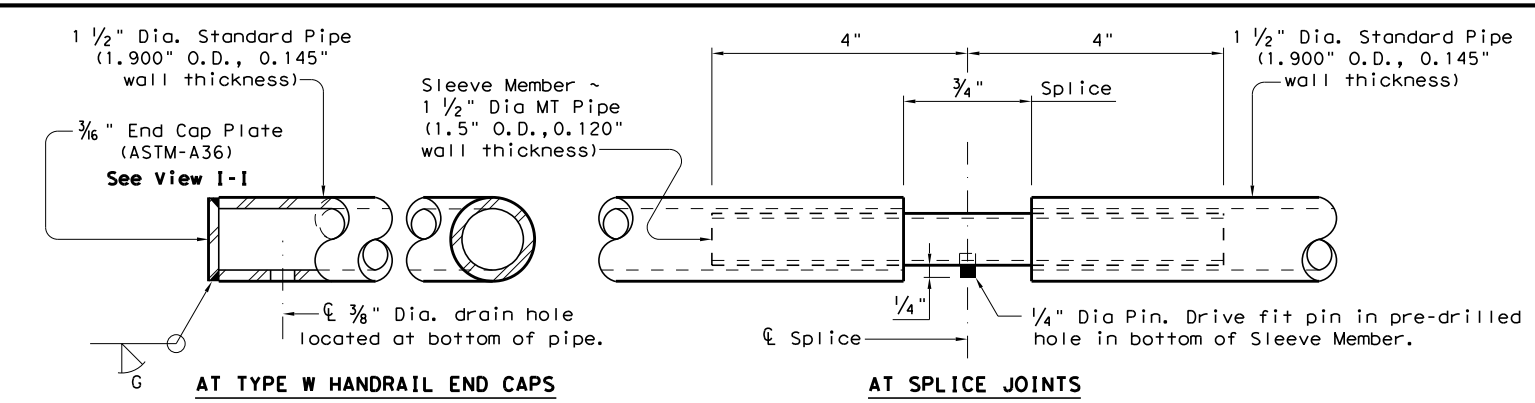
PEDESTRIAN HANDRAIL DETAILS

PRD-13

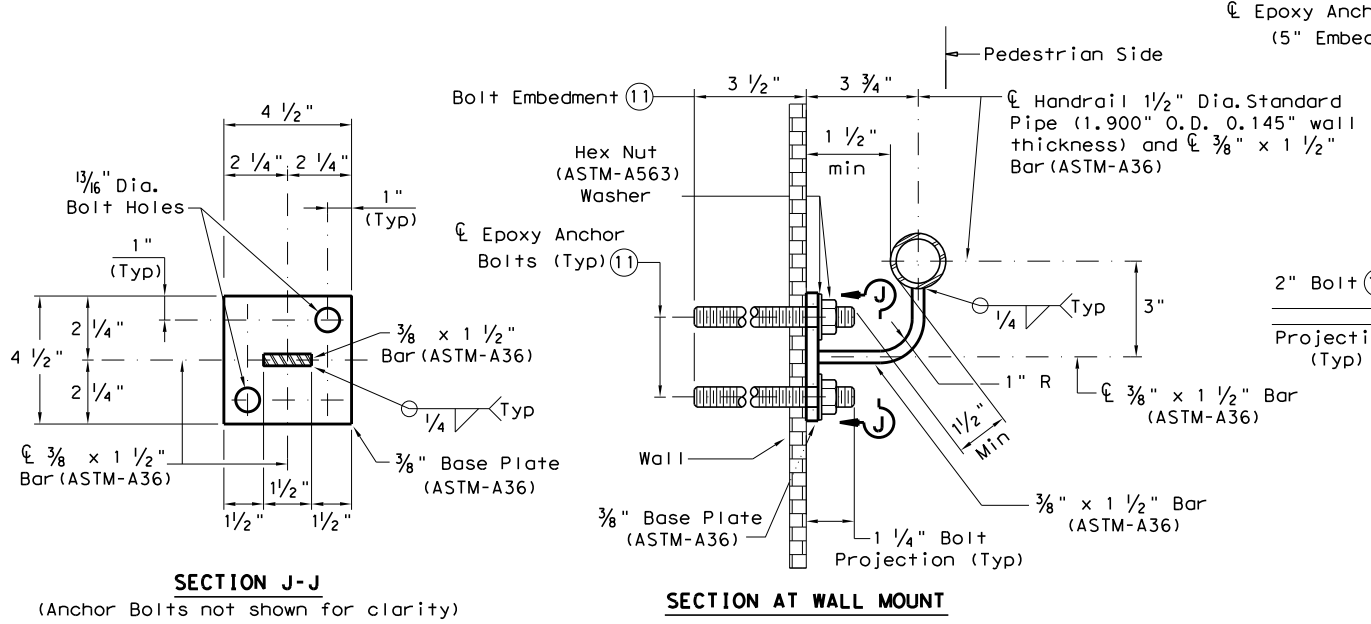
FILE: prd13.dgn	DN: TxDOT	CR: AM	DW: JTR	CK: CGL
© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	107	

DATE: FILE:

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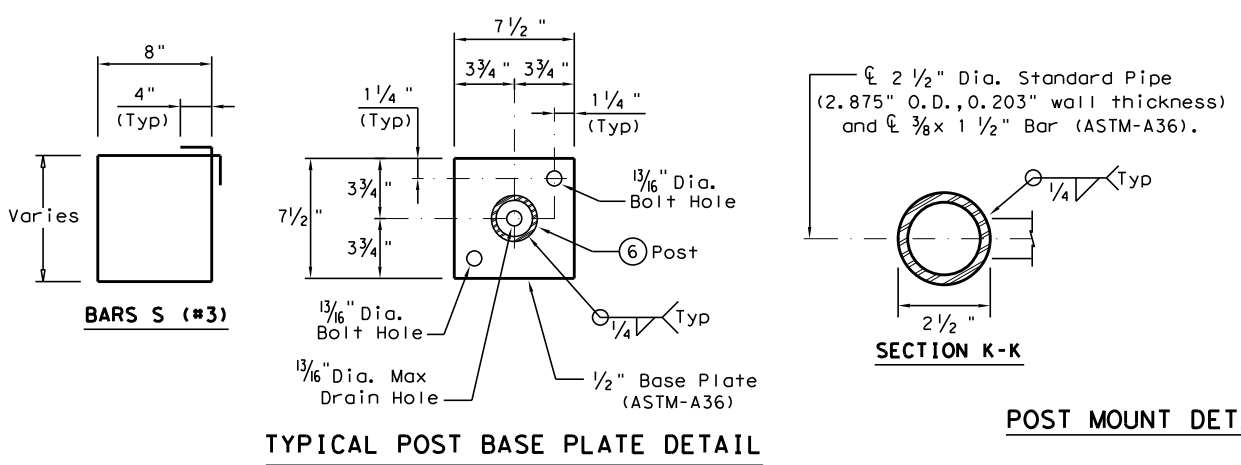


HANDRAIL FABRICATION DETAILS

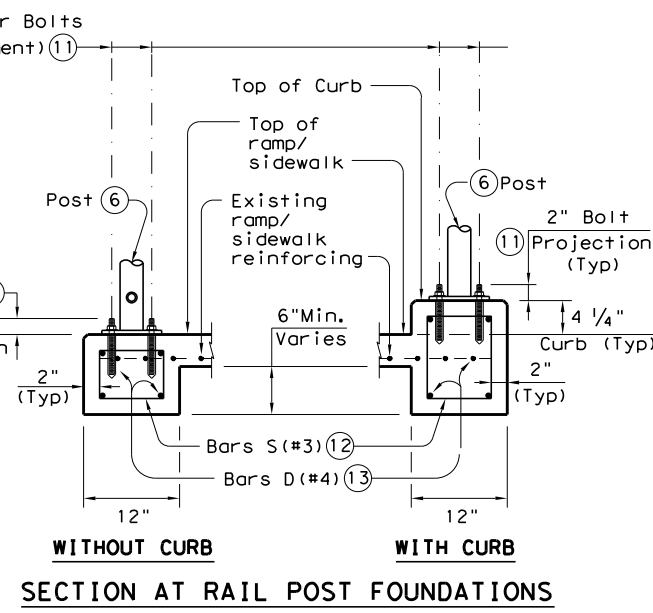
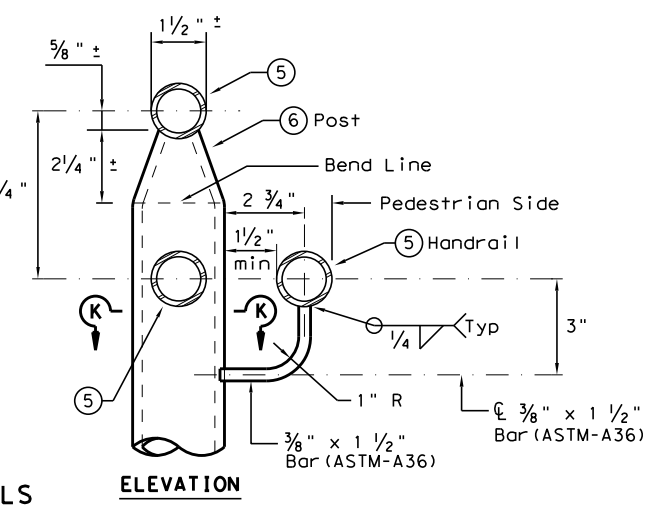


TYPICAL WALL MOUNT DETAILS

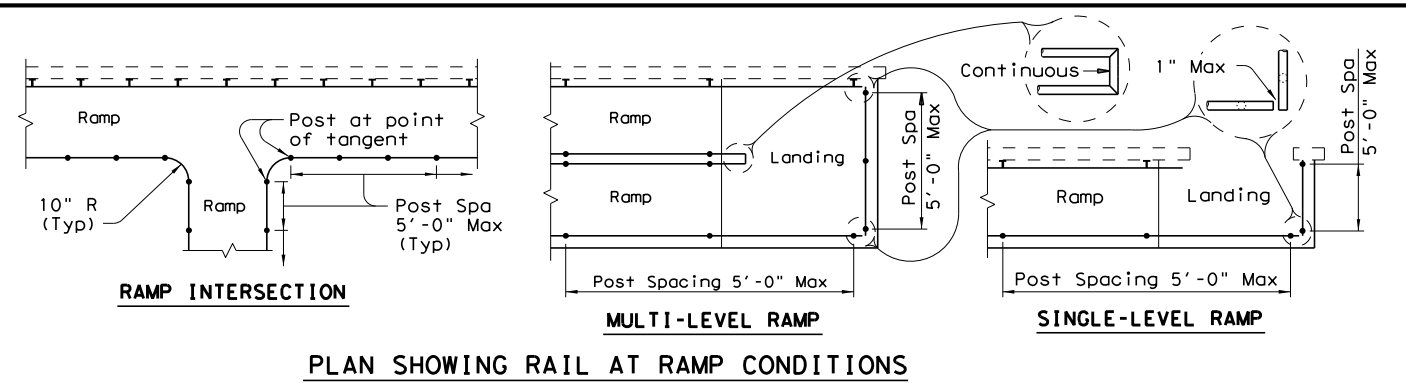
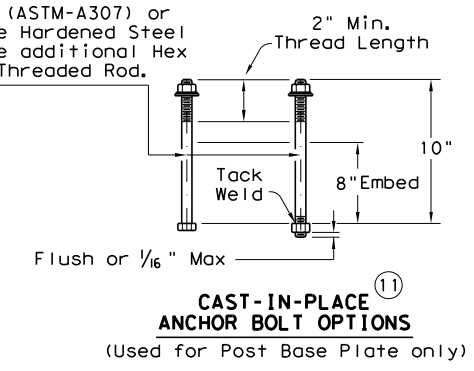
- (5) 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- (6) 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diameter of top rail. Provide holes as needed in post for galvanizing drainage and venting.
- (11) See "General Notes" for anchor bolt information.
- (12) Bars S(#3) spaced at 12" Max (Spaced 3" from outside edge of overall length of Ramp/Sidewalk).
- (13) Provide 1 1/2" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



POST MOUNT DETAILS



SECTION AT RAIL POST FOUNDATIONS



GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B. Steel plates and steel bars will conform to ASTM-A36. Mechanical tubing (MT) will conform to ASTM A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". All reinforcing steel must be Grade 60. Bar laps, where required, will be as follows: Uncoated ~ #4 = 1'-5" Epoxy coated ~ #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be 5/8" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. 3/8" Dia. threaded rod embedment depth for wall mounts is 3 1/2" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxyes and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be 5/8" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-place bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted. For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show handrail mount locations with bolts setting, spacing, ramp slope, and/or splice joint locations, and handrail lengths with identification showing where each handrail goes on the layout.

Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

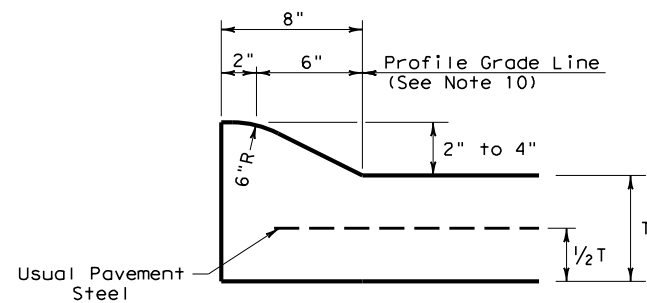
All exposed edges will be rounded or chamfered to approximately 1/8" by grinding.

		Design Division Standard	
<h2>PEDESTRIAN HANDRAIL DETAILS</h2> <h3>PRD-13</h3>			
FILE: prd13.dgn	DN: TxDOT	CR: AM	DW: JTR
© TxDOT December 2006	CONT	SECT	JOB
REVISIONS	0919	19	085
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.
	ATL	BOWIE	108

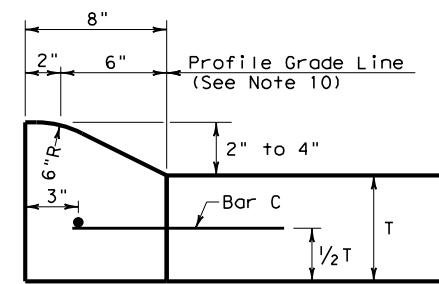
DATE: FILE:

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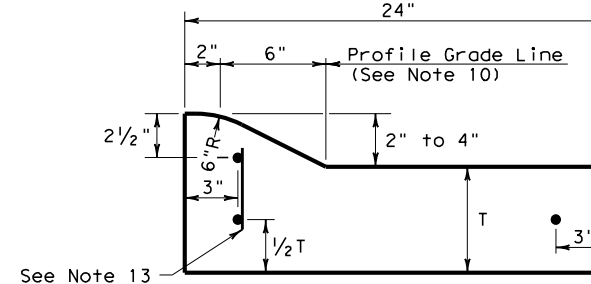
DATE:
FILE:



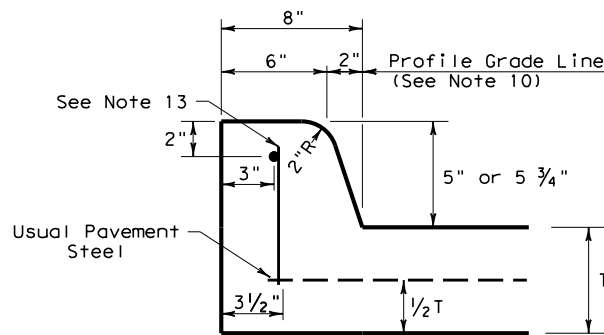
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



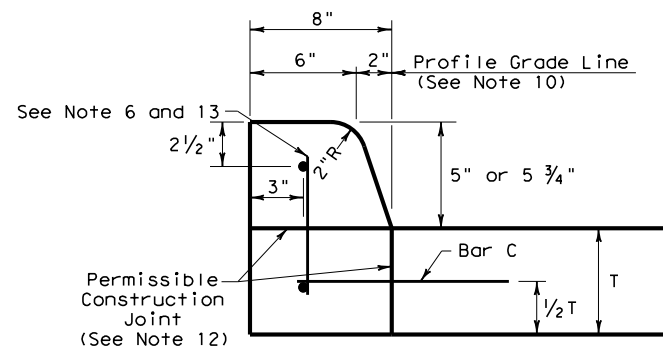
TYPE I CURB
2" - 4" HEIGHT



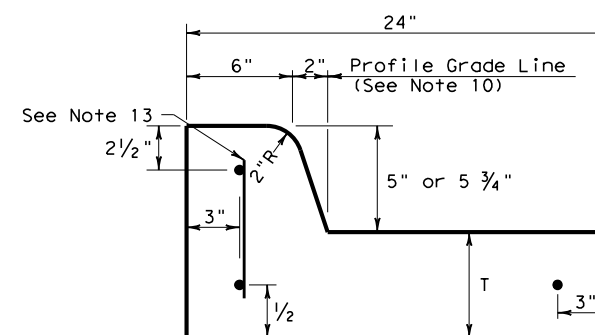
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



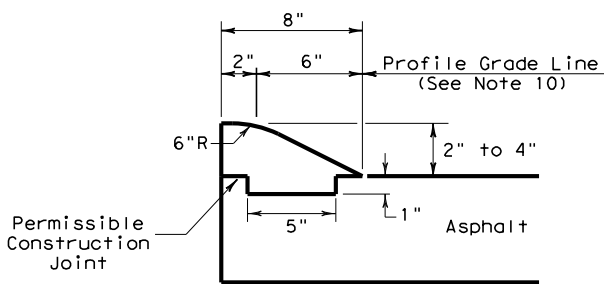
TYPE II CURB (MONOLITHIC)
5" - 5 3/4" HEIGHT



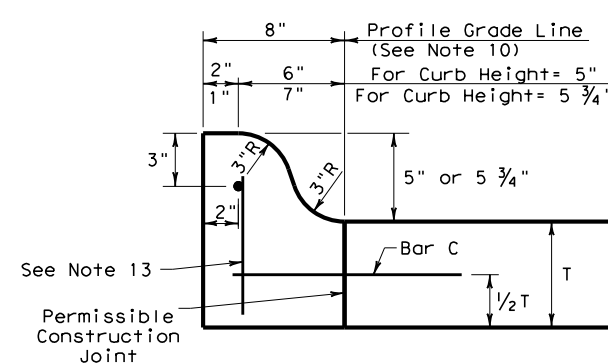
TYPE II CURB
5" - 5 3/4" HEIGHT



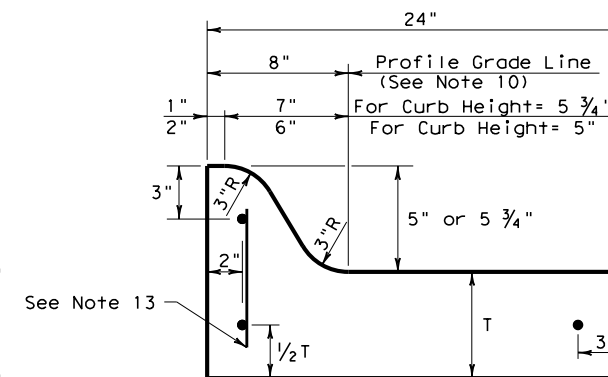
TYPE II CURB AND GUTTER
5" - 5 3/4" HEIGHT



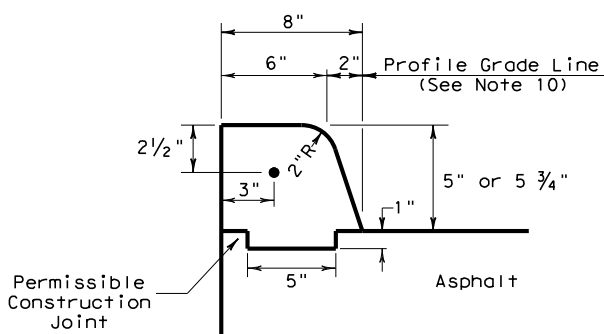
TYPE III CURB (KEYED)
2" - 4" HEIGHT



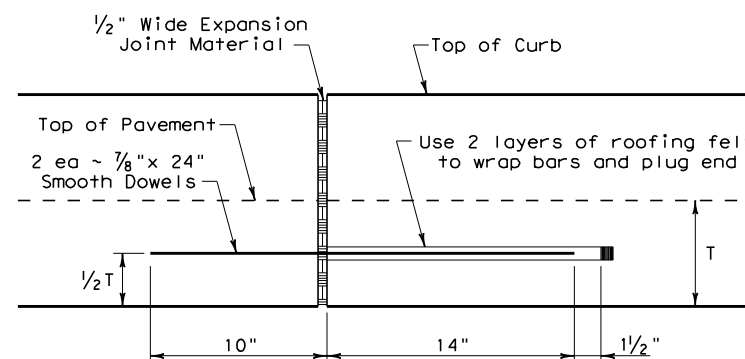
TYPE IIa CURB
5" - 5 3/4" HEIGHT



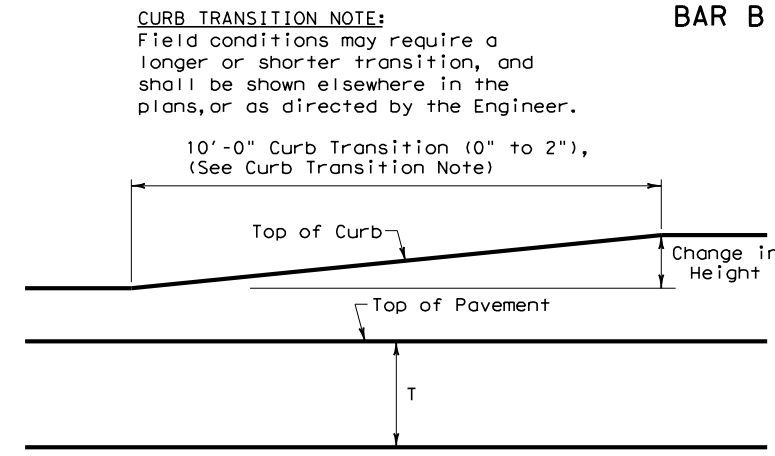
TYPE IIa CURB AND GUTTER
5" - 5 3/4" HEIGHT



TYPE IV CURB (KEYED)
5" - 5 3/4" HEIGHT



EXPANSION JOINT DETAIL

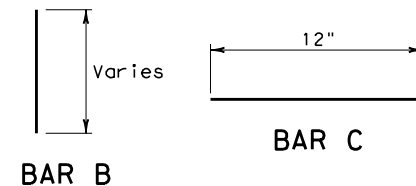


CURB TRANSITION

Note: To be paid for as Highest Curb

GENERAL NOTES

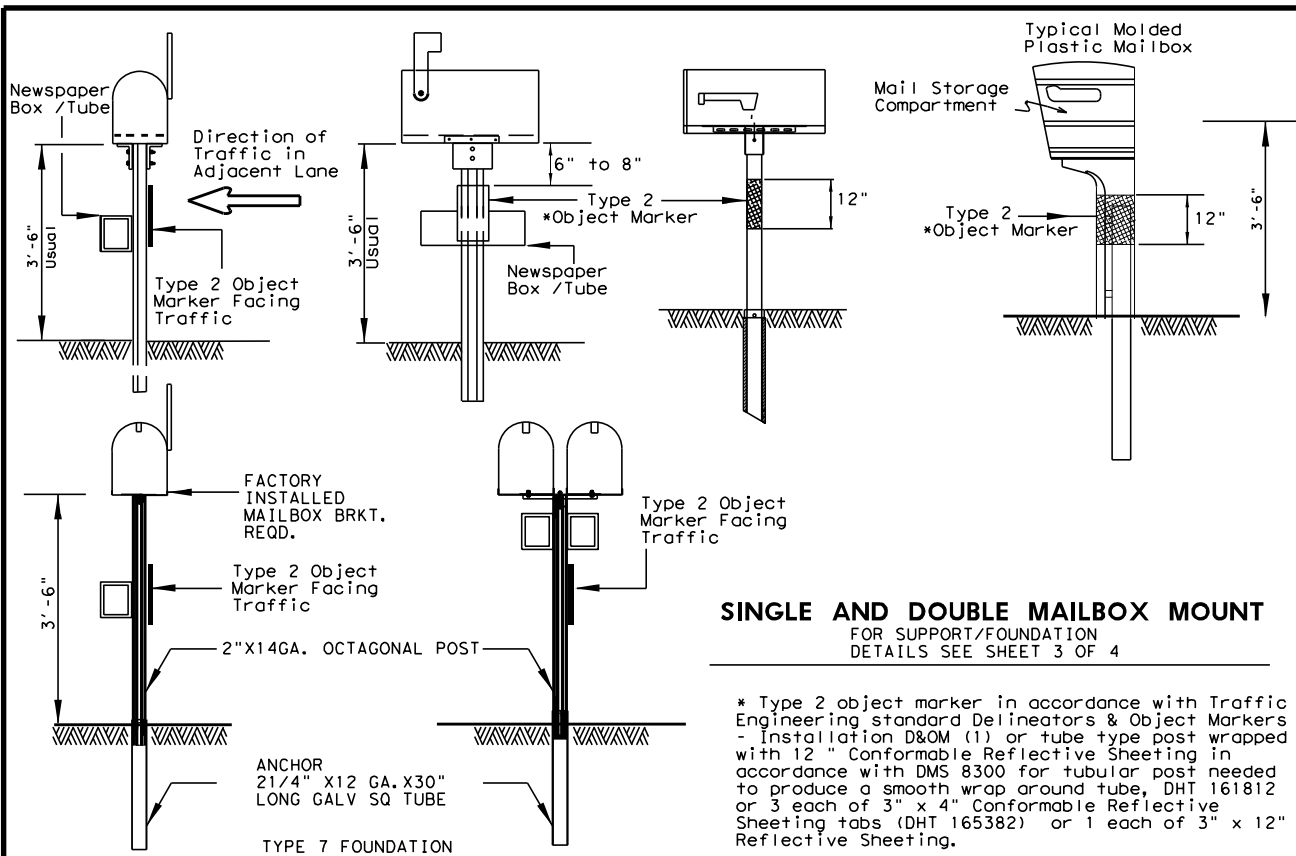
- All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
- Concrete shall be Class A.
- When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
- Round exposed sharp edges with a rounding tool, to a minimum radius of 1/4 inch.
- All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
- Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and grouted in place, or may be inserted into fresh concrete.
- Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
- Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
- Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
- Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
- One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
- When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
- Bar B placement as needed (typically at four ft. C-C) to support curb reinforcing steel during concrete placement.



CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.

		Design Division Standard	
CONCRETE CURB AND GUTTER			
CCCG-22			
FILE: cccg21.dgn	DN: TxDOT	CK: AN	DW: CS
© TxDOT: JUNE 2022	CONT: 0919	SECT: 19	JOB: 085
REVISIONS		HIGHWAY: CS	
DIST: ATL	COUNTY: BOWIE	SHEET NO. 109	

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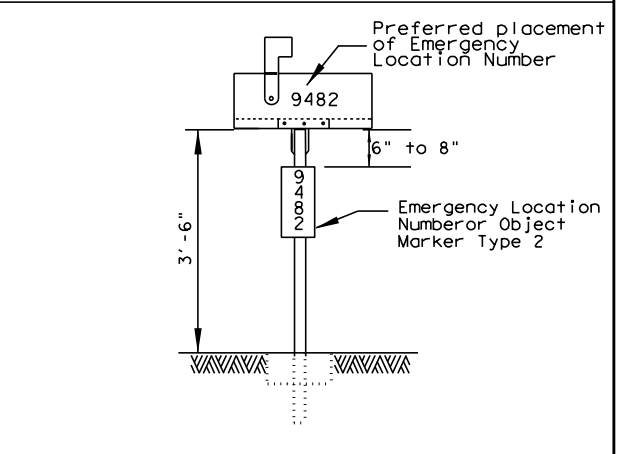


SINGLE AND DOUBLE MAILBOX MOUNT FOR SUPPORT/FOUNDATION DETAILS SEE SHEET 3 OF 4

* Type 2 object marker in accordance with Traffic Engineering standard Delineators & Object Markers - Installation D&OM (1) or tube type post wrapped with 12" Conformable Reflective Sheeting in accordance with DMS 8300 for tubular post needed to produce a smooth wrap around tube, DHT 161812 or 3 each of 3" x 4" Conformable Reflective Sheeting tabs (DHT 165382) or 1 each of 3" x 12" Reflective Sheeting.

Note: Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Pedestrian Facilities Curb ramps standard *PED-XX for pedestrian facilities.

*PED-XX: XX is the standard year for example PED-12, PED-13, etc.



PLACEMENT OF EMERGENCY LOCATION NUMBER

Location Number shall be placed on: 1. A yellow, type A plate with class 1 flat surface reflective sheeting in accordance with DMS 8600. The color of numbers shall be black, or 2. A green or blue plate with white numbers attached to post beside the object marker. Other contrasting color configuration, as approved, may be used. (Use Same type plate as used for the type 2 Object Marker. Recommended sign size is 6" by 15")

SIZE	TYPICAL MAILBOX SIZE			LIGHT WEIGHT MATERIAL	
	LENGTH	WIDTH	HEIGHT	SHEET METAL	**PLASTIC
	INCHES			POUNDS	
SMALL	19 1/2	6	7	5	5
MEDIUM	22 1/2	8	11 1/2	7	7
LARGE	23 1/2*	11 1/2*	13 1/2*	10	10

* Maximum allowed dimensions for mailbox
** Excluding Molded Plastic on 4 X 4 Post

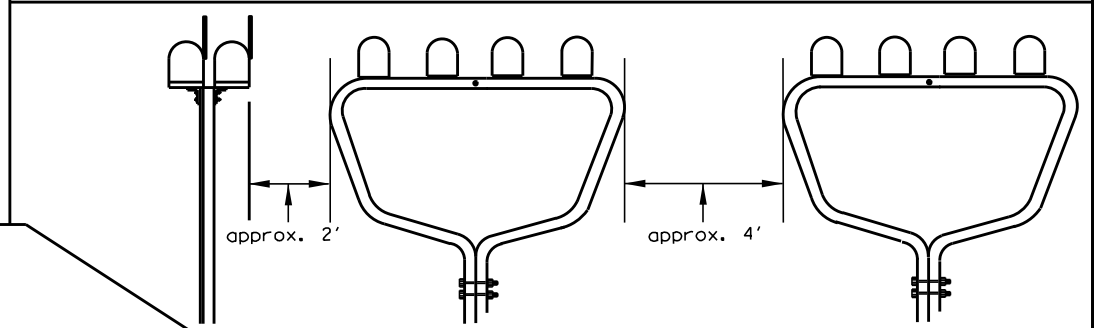
LOCKABLE ARCHITECTURAL MAILBOX SIZE (INCHES)					
VIEW	TOP	BOTTOM	FRONT SIDE	BACK SIDE	WEIGHT
SIDE	18	15	18.3	15	(POUNDS)
BACK	11 1/2	11 1/2		15	22.4

SEE TOP RIGHT CORNER OF SHEET 2 OF 4

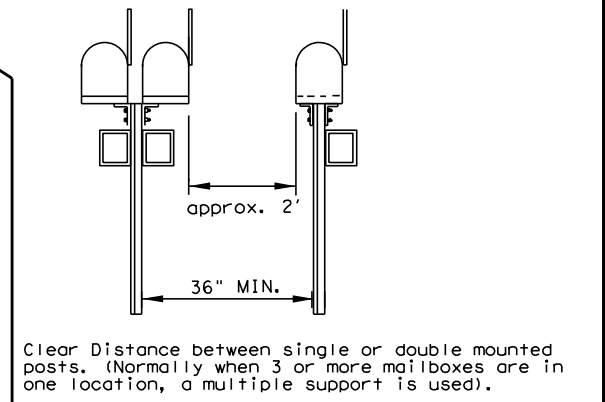
Mailboxes shall be made of light weight sheet metal or light weight plastic. Lockable architectural mailboxes shall meet the requirements of the above table.

Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

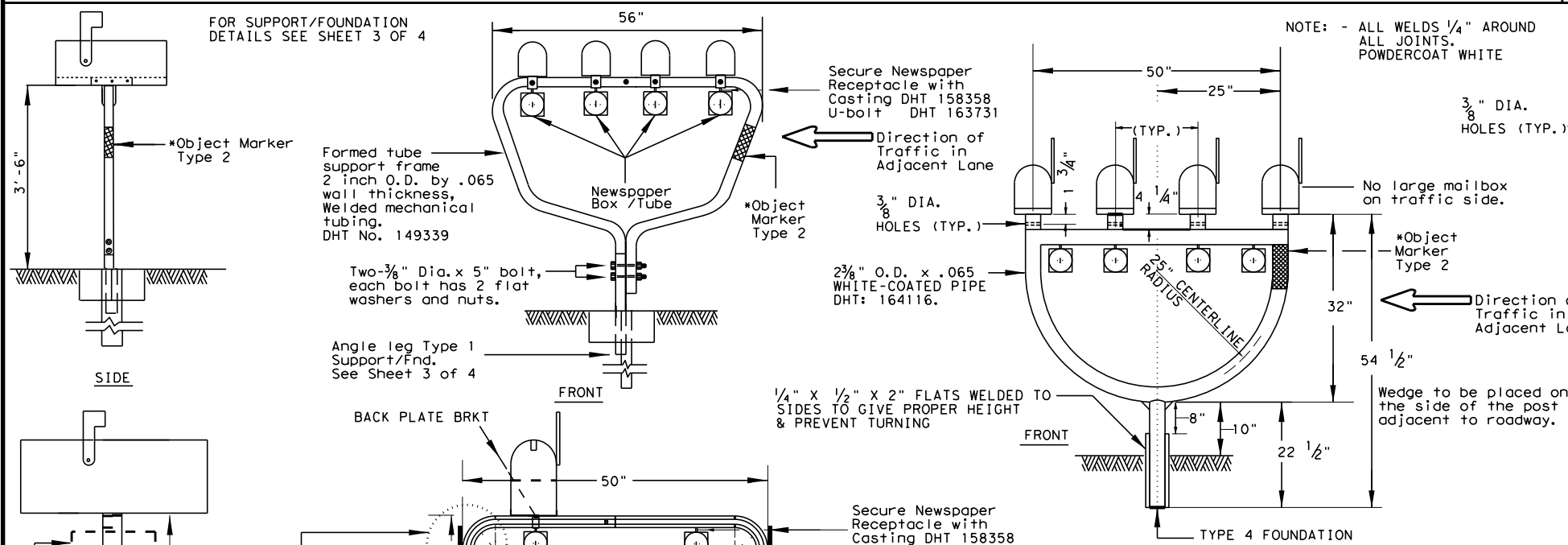
MAILBOX SIZES



MULTIPLE MAILBOX PLACEMENT



SINGLE & DOUBLE MAILBOX PLACEMENT



DOUBLE AND MULTIPLE MAILBOX MOUNT

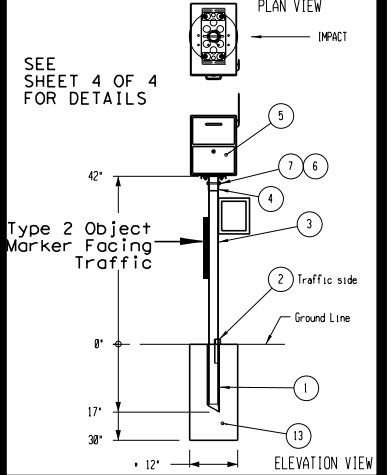
FOR SUPPORT/FOUNDATION DETAILS SEE SHEET 3 OF 4 FOR DHT NUMBERS SEE SHEET 4 OF 4

NEWSPAPER RECEPTACLE

A light weight receptacle for newspaper delivery can be attached to mailbox posts as shown on this page if the receptacle:

- Does not touch the mailbox.
- Does not present a hazard to traffic or delivery of the mail.
- Does not extend beyond the front of the mailbox.
- Does not display advertising, except the publication title.
- Newspaper receptacles on separate supports are prohibited.

LOCKABLE ARCHITECTURAL MAILBOX



MULTIPLE MAILBOX MOUNT

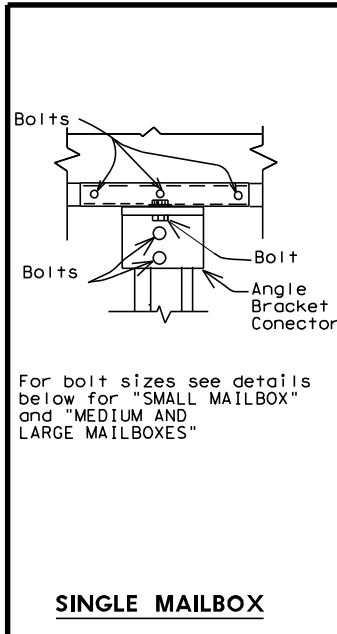
INDEX OF MAILBOX DETAIL SHEETS

1 of 4	MAILBOX MOUNTING AND SPACING
2 of 4	MAILBOX BRACKET CONNECTING DETAILS
3 of 4	MAILBOX SUPPORT / FOUNDATION
4 of 4	TABLE OF DHT NUMBERS

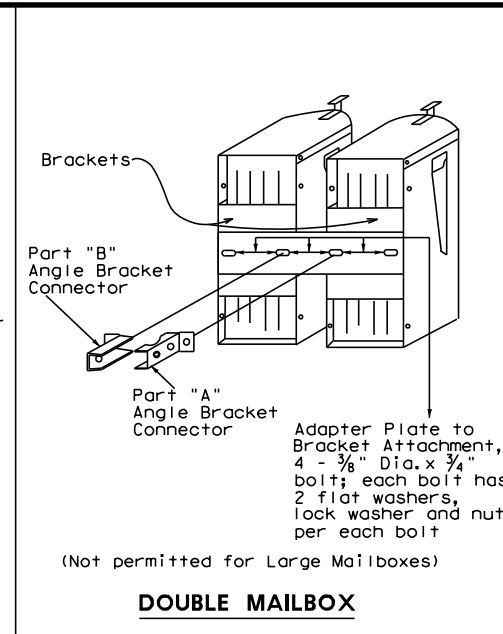
MAILBOX MOUNTING AND SPACING MB-15(1)

FILE:MB14(1).DGN	DN: JEO	CK: JEO	DW:	CK:
© TxDOT APRIL 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS:	0919	19	085	CS
Added additional newspaper receptacle for double mailbox support	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	110	

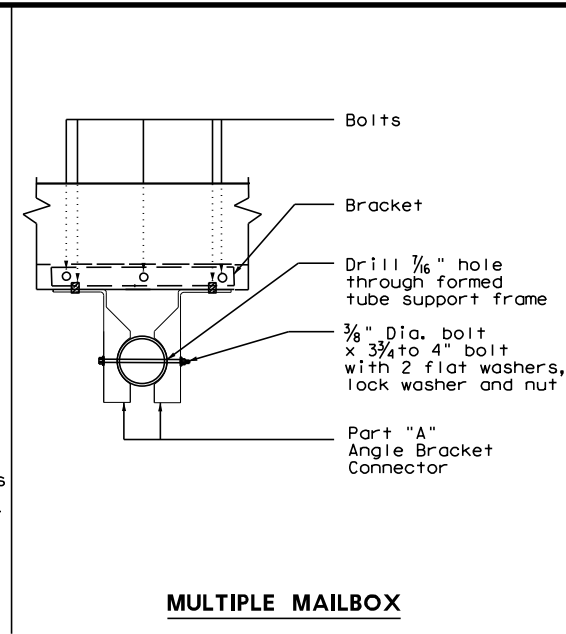
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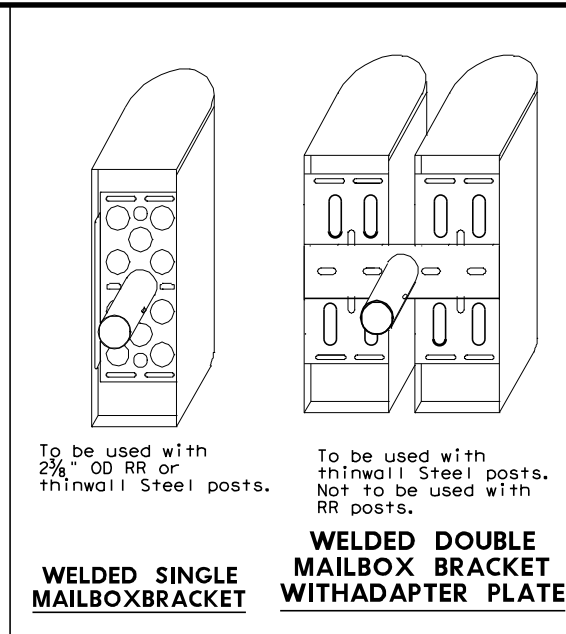
SINGLE MAILBOX



DOUBLE MAILBOX

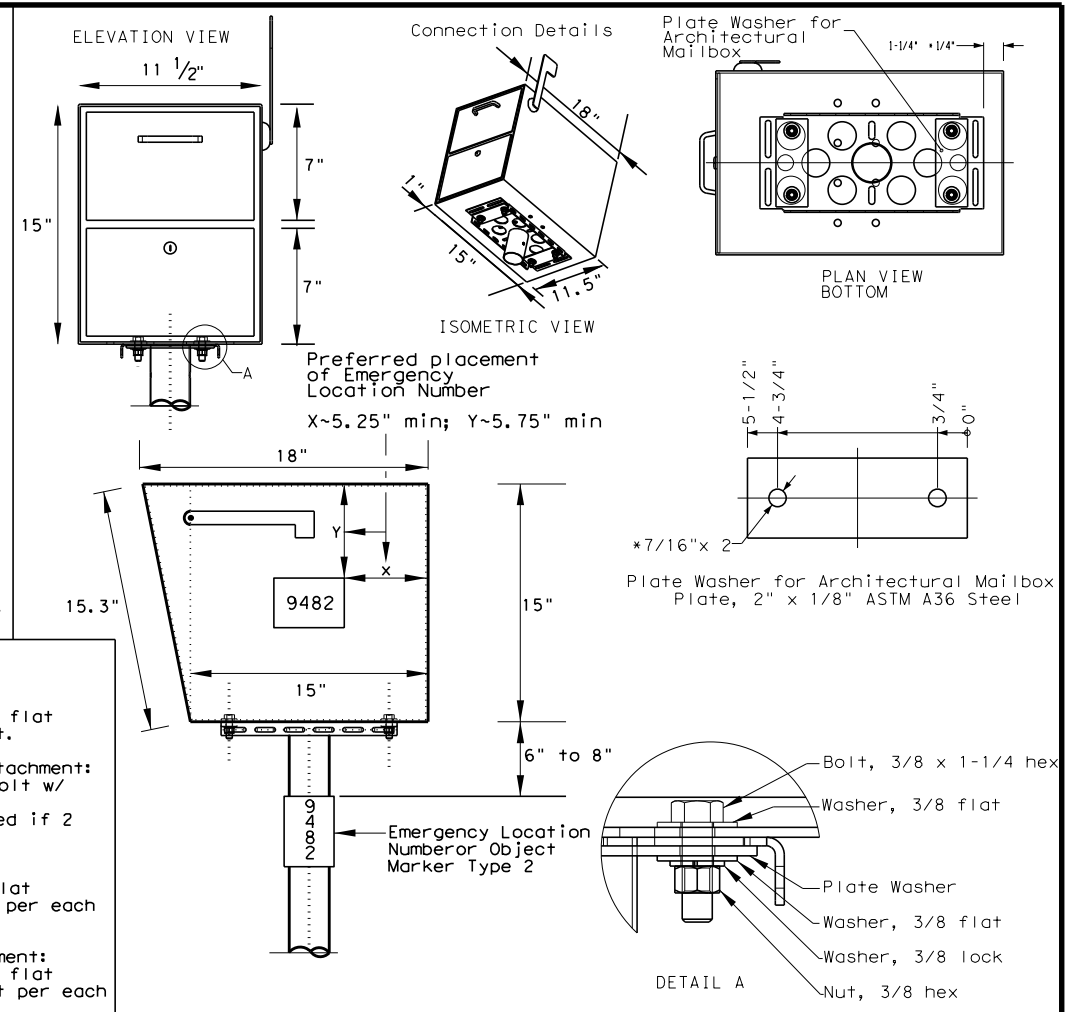


MULTIPLE MAILBOX

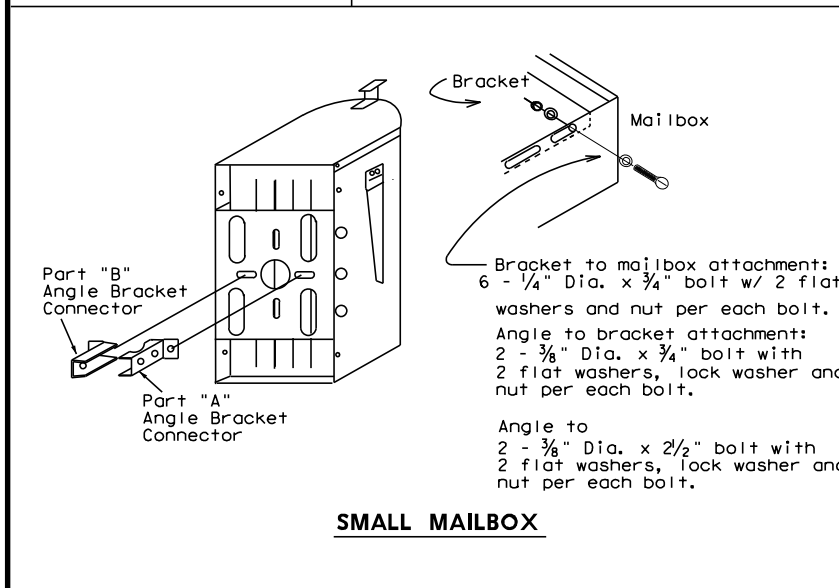


WELDED SINGLE MAILBOX BRACKET

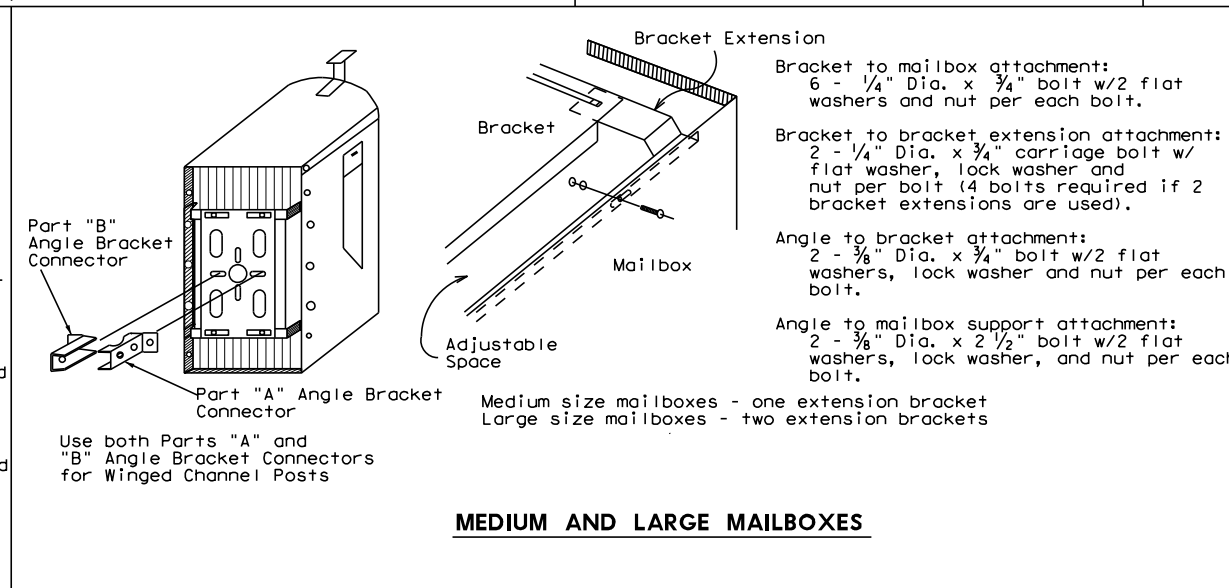
WELDED DOUBLE MAILBOX BRACKET WITH ADAPTER PLATE



LOCKABLE ARCHITECTURAL MAILBOX CONNECTION DETAILS



SMALL MAILBOX

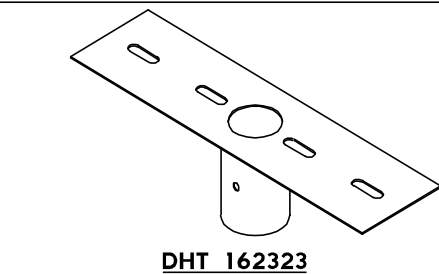


MEDIUM AND LARGE MAILBOXES

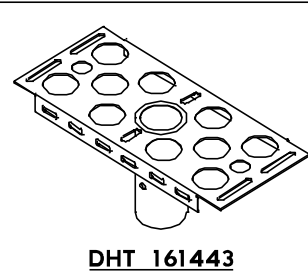
GENERAL NOTES

- Connecting hardware detailed on this sheet is for the hardware that the Department stocks at the Regional Warehouses. This hardware is available to the contractor only when so stated elsewhere in the plans or specification.
- Hardware for mounting mailboxes to the support/foundation furnished by industry should be used when shown on the Maintenance Divisions "Approved Products List." Only mailbox hardware that have been crash tested in accordance with NCHRP Report 350, will be on the approved list.
- Hardware furnished by industry shall be erected in accordance with the manufacturer's recommendation.
- Bracket and bracket extension shall be constructed of 14 gauge galvanized steel sheet metal.
- The angles, brackets and adapter plates shall be constructed of 12 gauge galvanized steel sheet metal.
- Items with evidence of damage to the galvanized coating or wet storage stains (white rust) will not be accepted.

SHEET 2 OF 4



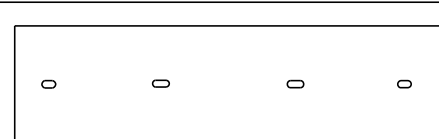
DHT 162323



DHT 161443

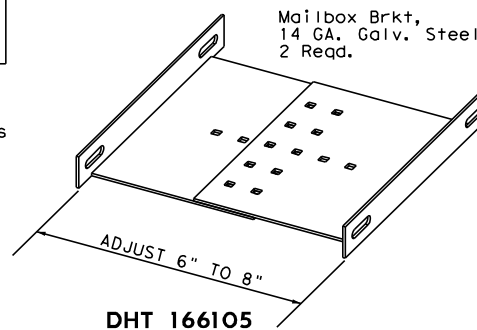
For use with galvanized thinwall steel posts DHT # 143426 or powder-coated thinwall steel post DHT # 162911.

For use with RCR post DHT # 161442 or galvanized thinwall steel post DHT # 143426 or powder-coated thinwall steel post. DHT # 162911.

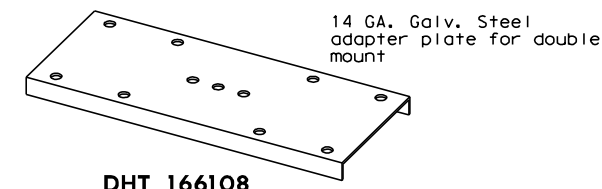


DHT #3789

Used for mounting two Mailboxes on the same post.

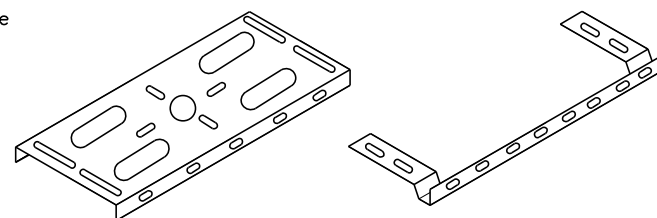


DHT 166105



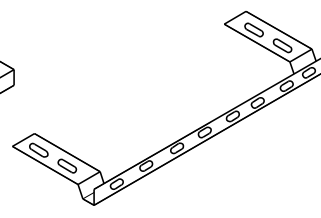
DHT 166108

14 GA. Galv. Steel adapter plate for double mount



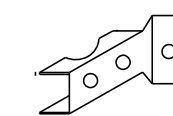
DHT 148939

Mailbox Bracket



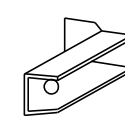
DHT 148938

Used for extending 6" wide bracket to attach larger mailboxes.
Bracket Extension



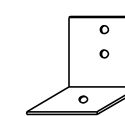
DHT 159489

Part "A" Angle Bracket Connector



DHT 159490

Part "B" Angle Bracket Connector



DHT 2917

Angle Bracket For Temporary Mailbox

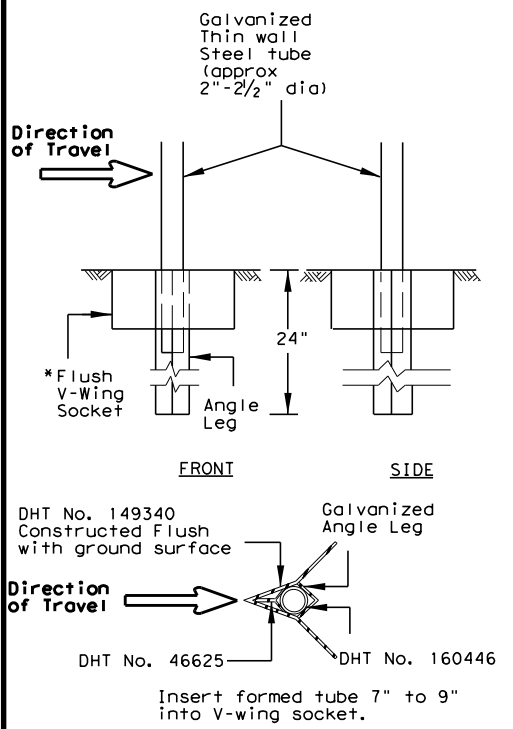
HARDWARE AT TXDOT REGIONAL WAREHOUSES

Brackets and adapter plate shown in this section should be available to the Contractor when stated elsewhere in plans or specifications.

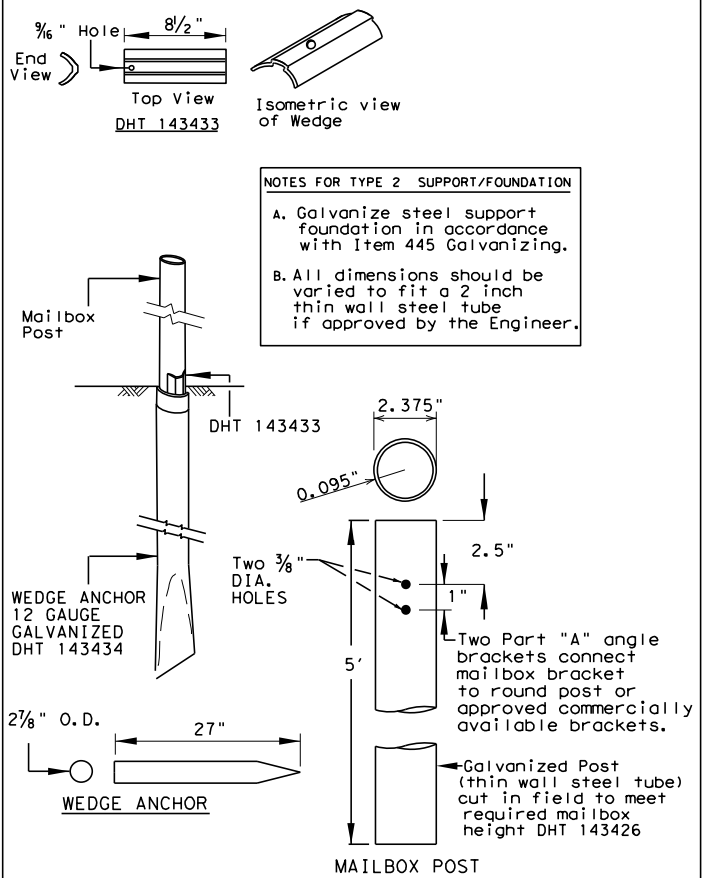
See Table of Applicable DHT Numbers on sheet 4 of 4 for DHT description and unit of measure.

		Maintenance Division Standard	
MAILBOX BRACKET CONNECTING DETAILS MB-15(1)			
FILE:MB14(1).DGN	DN: JEO	CK:	DW: JEO
© TxDOT APRIL 2015	CONT	SECT	JOB
ADDED DHT 163730	0919	19	085
	DIST	COUNTY	SHEET NO.
	ATL	BOWIE	111

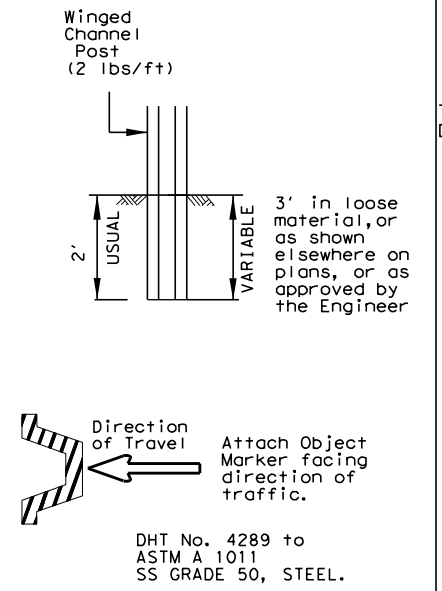
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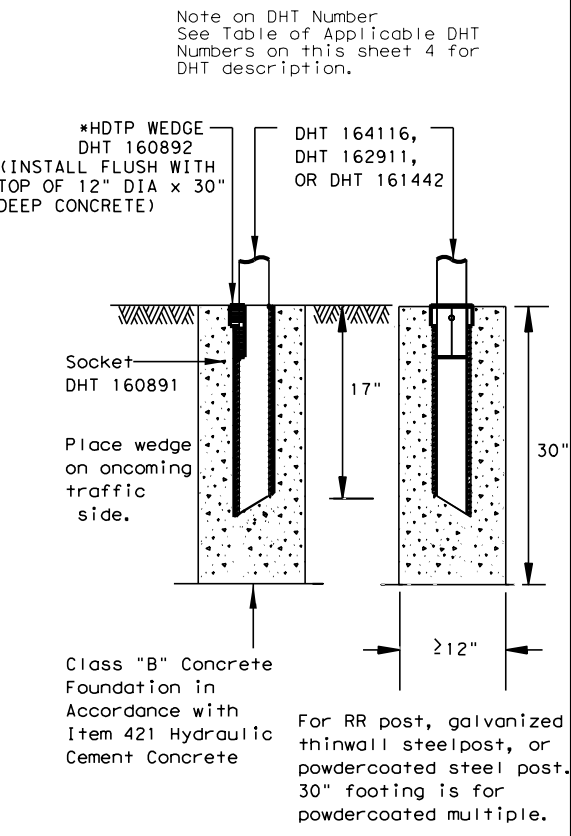
TYPE 1 SUPPORT/FOUNDATION
THIN WALL STEEL TUBE w/ V-LOC ANCHORAGE



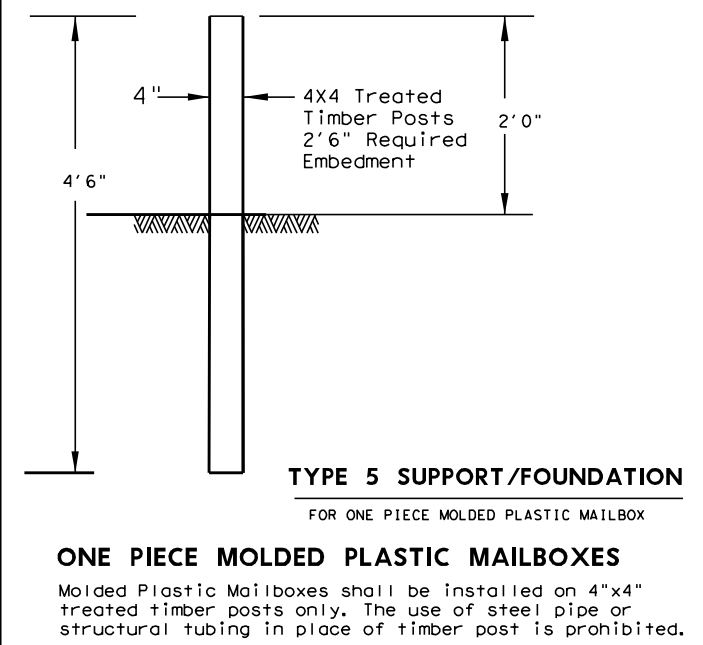
TYPE 2 SUPPORT/FOUNDATION
THIN WALL STEEL TUBE w/ WEDGE ANCHOR SYSTEM



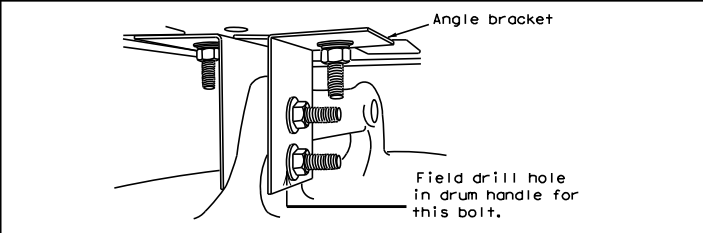
TYPE 3 SUPPORT/FOUNDATION
WINGED CHANNEL POST



TYPE 4 SUPPORT/FOUNDATION
FOR WHITECOATED STEEL POST, MULTIPLE POST, AND RECYCLED RUBBER.

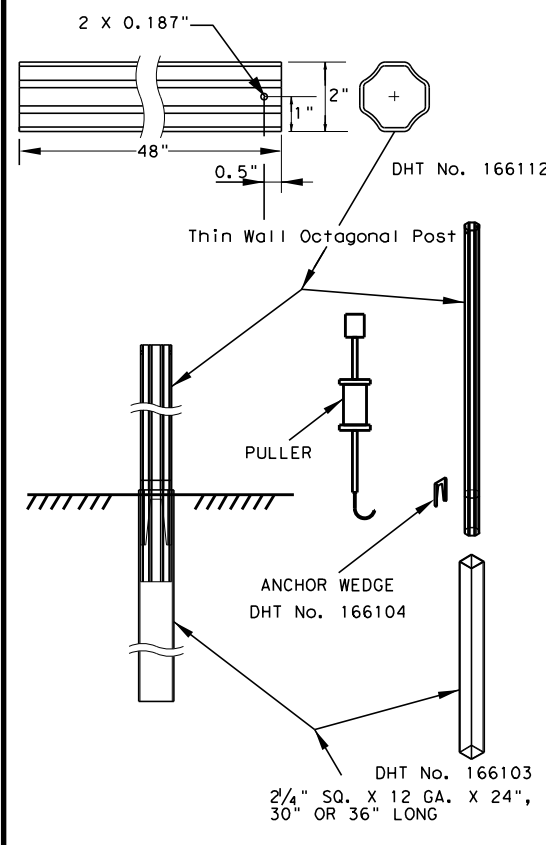


TYPE 5 SUPPORT/FOUNDATION
FOR ONE PIECE MOLDED PLASTIC MAILBOXES
ONE PIECE MOLDED PLASTIC MAILBOXES
Molded Plastic Mailboxes shall be installed on 4"x4" treated timber posts only. The use of steel pipe or structural tubing in place of timber post is prohibited.



TYPE 6 TEMPORARY MAILBOX SUPPORT
CONNECTION DETAIL

- GENERAL NOTES**
- Erect post plumb or vertical.
 - When galvanized part is required galvanize in accordance with Item 445.
 - type 1, 2, 3, 4 or 7 supports or foundation can be used for single or double mailbox installations. The RCR post should be used only for a single installation with a small mailbox. The Type 5 support/foundation is used for the single molded plastic mailbox. The Type 4 support/foundation is used for the 2.375" O.D. RR post, thin wall steel post, and white multiple mailbox post.
 - The Type 1 or type 7 support/foundation can be used for a multiple mailbox mount.
 - The Type 4 support should be used with thin wall steel pipe for the medium, large and double mailbox installations.
 - Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition.



TYPE 7 MAILBOX SUPPORT/FOUNDATION
CONNECTION DETAIL

MB-(X) ASSM TY (XXX) (X) (XX) (OPTIONAL)

Type of Mailbox
S = Single
D = Double
M = Multiple
SP = Single Plastic

Type of Post
WC = Winged Channel Post
RR = Recycled Rubber
TWW = Thin Walled White Tubing
TWG = Thin Walled Galvanized Tubing
TIM = Timber

Type of Foundation
Ty 1 = V-Loc
Ty 2 = Wedge Anchor Steel System
Ty 3 = Winged Channel Post
Ty 4 = Wedge Anchor Plastic System
Ty 5 = 4 X 4 Post
Ty 7 = Wedge Anchor

Type of Bracket
AB = Angle Bracket.
TB = 2.375" Tube Bracket

DOUBLE AND LARGE MAILBOXES MUST BE ON STEEL POST.

*HDTIP: High density thermoplastic polyesters



MAILBOX SUPPORT AND FOUNDATION
MB-15(1)

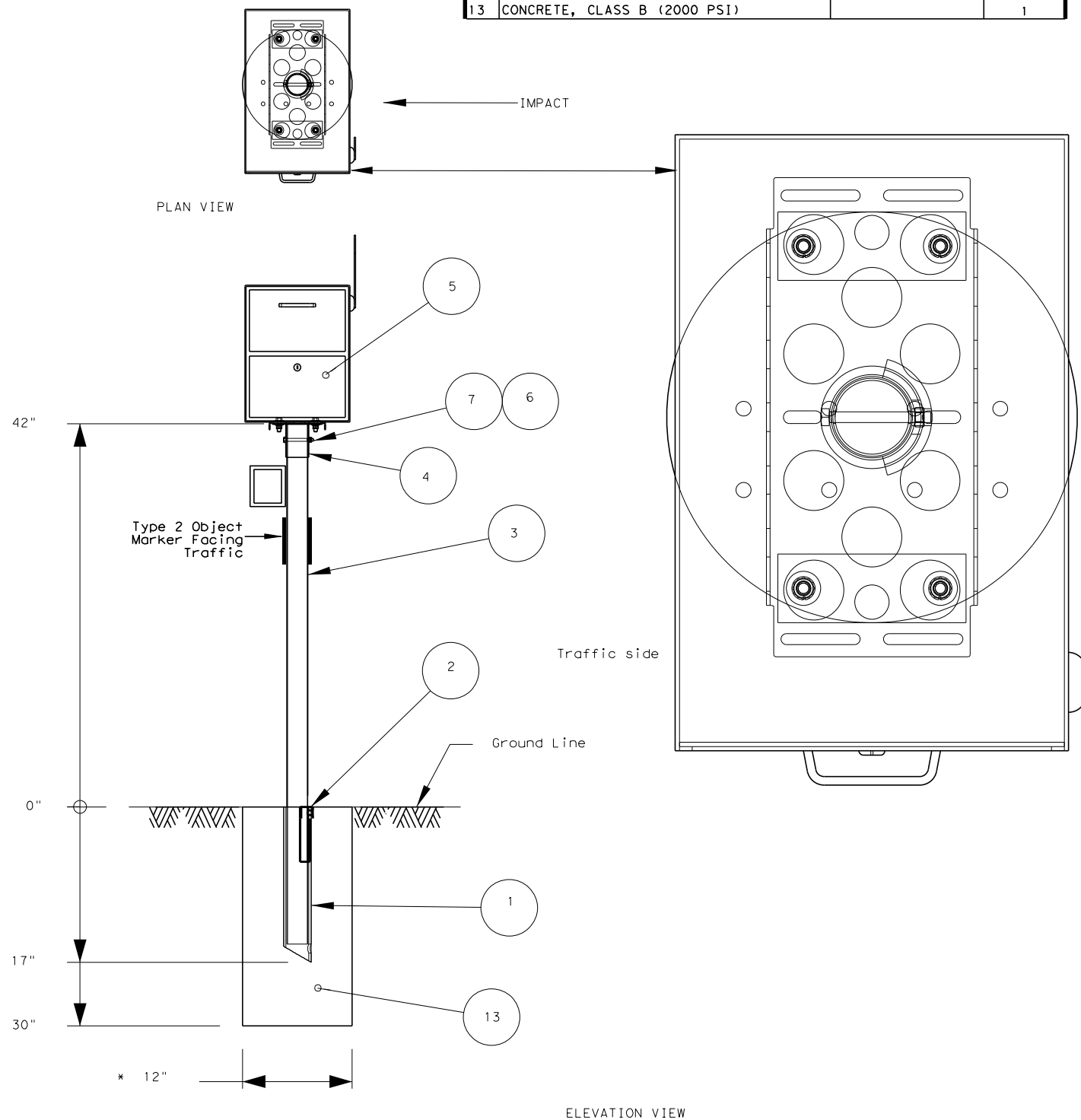
FILE:MB14(1).DGN	DN: JEO	CK:	DW: JEO	CK:
© TxDOT APRIL 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	112	

LOCKABLE ARCHITECTURAL MAILBOX

SINGLE-MOUNT INSTALLATION PARTS

#	PART NAME	PART/DHT #	QTY
1	SOCKET, TYPE 4 FOUNDATION	160891	1
2	WEDGE FOR TYPE 4 FOUNDATION	160892	1
3	THIN-WALL WHITE STEEL TUBE 2.375 OD	162911	1
4	BRACKET FOR ATTACHING MAILBOX	161443	1
5	ARCHITECTURAL MAILBOX	SEE NOTE	1
6	NUT, 5/16" HEX	NUT, 5/16" HEX	1
7	BOLT, 5/16 X 3 HEX	GRADE 5	1
8	PLATE WASHER FOR ARCHITECTURAL MAILBOX	SEE SEE SHEET 2	2
9	WASHER, 3/8 FLAT		8
10	WASHER, 3/8 LOCK		4
11	NUT, 3/8 HEX		4
12	BOLT, 3/8 X 1-1/4 HEX	GRADE 5	4
13	CONCRETE, CLASS B (2000 PSI)		1

LOCKABLE ARCHITECTURAL MAILBOX DETAILS



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TABLE OF APPLICABLE DHT NUMBERS

DHT NUMBER	DESCRIPTION
FOUNDATIONS	
46625	WEDGE FOR V-WING SOCKET FOR TYPE 1 FOUNDATION
149340	V-WING SOCKET FOR TYPE 1 FOUNDATION
143433	WEDGE FOR TYPE 2 FOUNDATION
143434	ANCHOR FOR TYPE 2 FOUNDATION
166103	ANCHOR FOR TYPE 7 FOUNDATION
160891	SOCKET FOR TYPE 4 FOUNDATION
160892	WEDGE FOR TYPE 4 FOUNDATION
166104	WEDGE FOR TYPE 7 FOUNDATION
POSTS	
4289	WINGED CHANNEL MAILBOX POST
149339	MULTIPLE MAILBOX POST (GALVANIZED TUBING)
164116	MULTIPLE MAILBOX POST (WHITE COATED)
166114	MULTIPLE MAILBOX POST (WHITE COATED OCTAGONAL)
166153	MULTIPLE MAILBOX POST (GALVANIZED OCTAGONAL)
161442	RECYCLED RUBBER POST. FOR SMALL MAILBOX ONLY
143426	THIN-WALL GALVANIZED STEEL TUBE 2.375" OUTER DIAMETER
162911	THINWALL WHITE STEEL TUBE 2.375" OUTER DIAMETER
	SINGLE OR DOUBLE THIN-WALL MAILBOX POST GALVANIZED
166152	2" OCTAGONAL
	SINGLE OR DOUBLE THIN-WALL MAILBOX POST WHITECOATED
166112	2" OCTAGONAL
REFLECTIVE SHEETING	
161812	REFLECTIVE SHEETING FOR EMERGENCY LOCATION NUMBER PANEL
CONNECTING HARDWARE	
2917	ANGLE BRACKET USED FOR TEMPORARY MAILBOX SUPPORT
166105	BRACKET FOR SINGLE MOUNTING OF MAILBOXES (MOUNTING KIT)
3789	PLATE FOR DOUBLE MOUNTING OF MAILBOXES
166108	BRACKET FOR DOUBLE MOUNTING OF MAILBOXES (MOUNTING KIT)
166111	BRACKET FOR MULTIPLE MOUNTING OF MAILBOXES (MOUNTING KIT)
148939	BRACKET FOR ATTACHING SMALL OR MEDIUM SIZE MAIL BOX
148938	EXTENDER TO BRACKET FOR ATTACHING LARGE MAILBOX
159489	ANGLE BRACKET PART A
159490	ANGLE BRACKET PART B
	BRACKET FOR DOUBLE MOUNTING OF MAILBOXES ON THINWALL
162323	STEEL POST, GALVANIZED OR POWDERCOATED.
	BRACKET FOR ATTACHING MAILBOX TO RECYCLED RUBBER POST
161443	AND TO MULTIPLE WHITE MAILBOX POST
158358	CASTING (NEWSPAPER RECEPTACLE BRACKET)
163731	U-BOLT (NEWSPAPER RECEPTACLE BRACKET)
160698	BOLT; HEX HEAD, GALV; 3/8"DIA X 3/4"L HD, W/2-FLAT WASHERS
163750	BOLT; HEX HEAD, GALV; 3/8" X 1-1/2, 16 NC, W/WASHERS
160701	BOLT; HEX HEAD, GALV; 3/8"DIA X 2-1/2"L, HD, W/2-FLAT WASHERS
163730	BOLT; HEX HEAD, GALV; 3/8" X 3-1/2", NC, W/NUT, 2 FLAT WASHERS
160699	BOLT; HEX HEAD, GALV; 3/8"DIA X 3-3/4"L HD, W/2-FLAT WASHERS
160700	BOLT; HEX HEAD, GALV; 3/8"DIA X 4"L HD, W/2-FLAT WASHERS

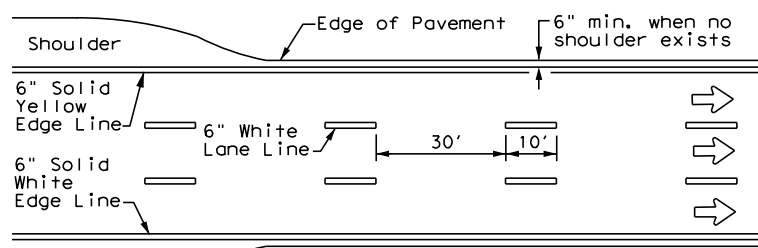


DHT NUMBERS TABLE
MB-15(1)

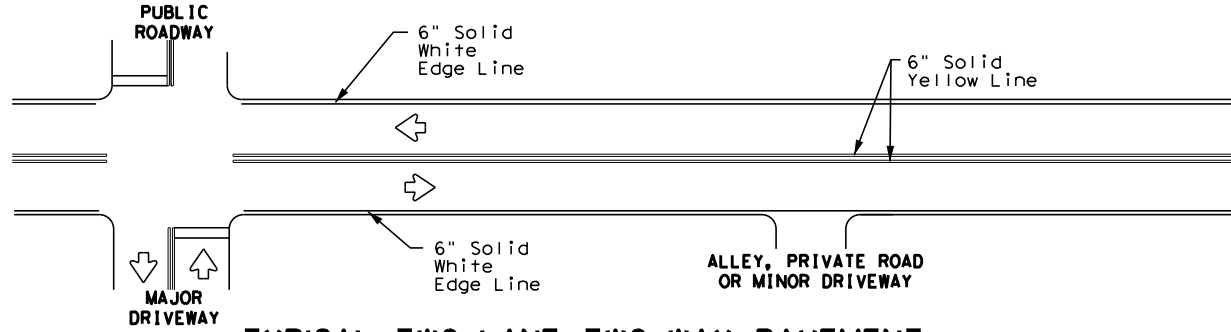
FILE:MB14(1).DGN	DN:	CK:	DW:	CK:
© TxDOT APRIL 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	113	

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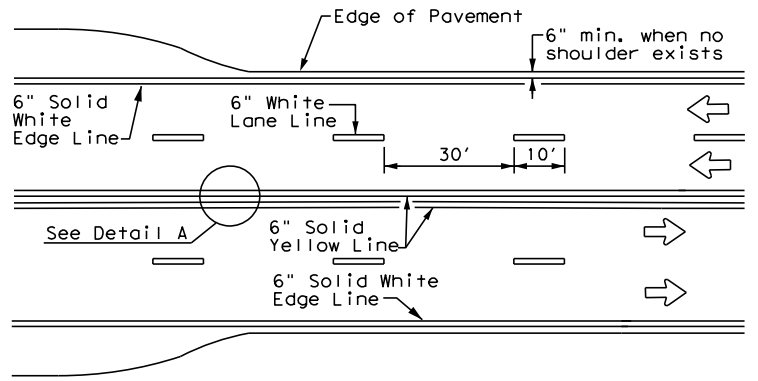
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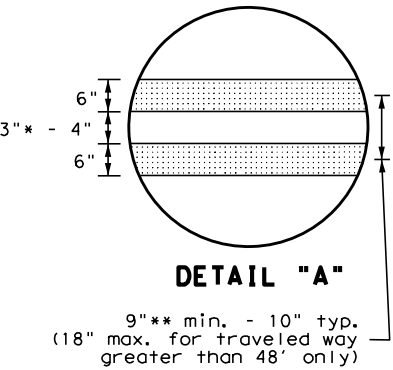
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

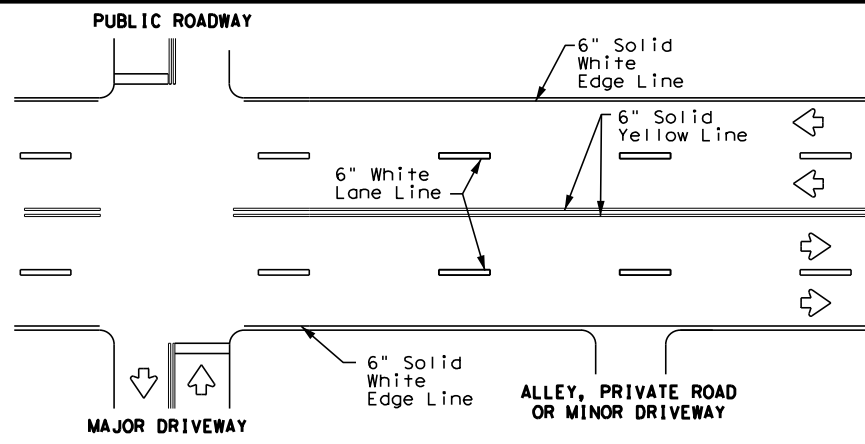


**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

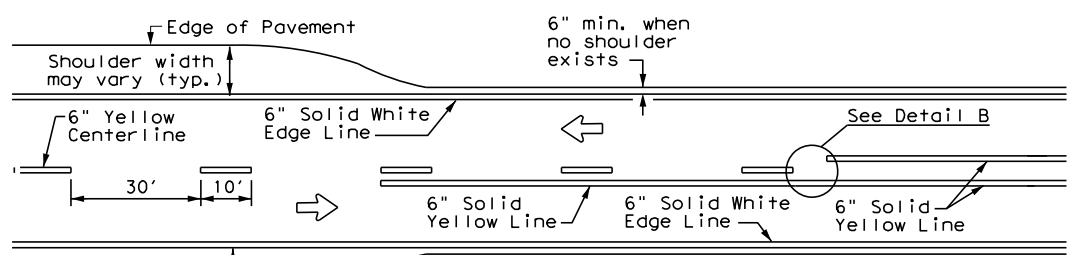


DETAIL "A"
9" min. - 10" typ.
(18" max. for traveled way greater than 48' only)

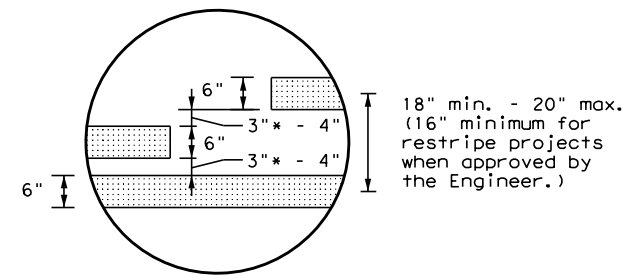
* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.



**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

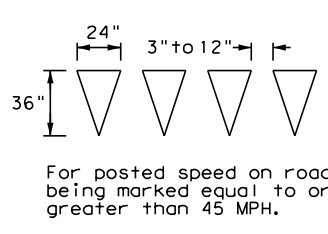


**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



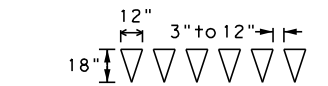
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.



YIELD LINES

For posted speed on road being marked equal to or greater than 45 MPH.



For posted speed on road being marked equal to or less than 40 MPH.

NOTES

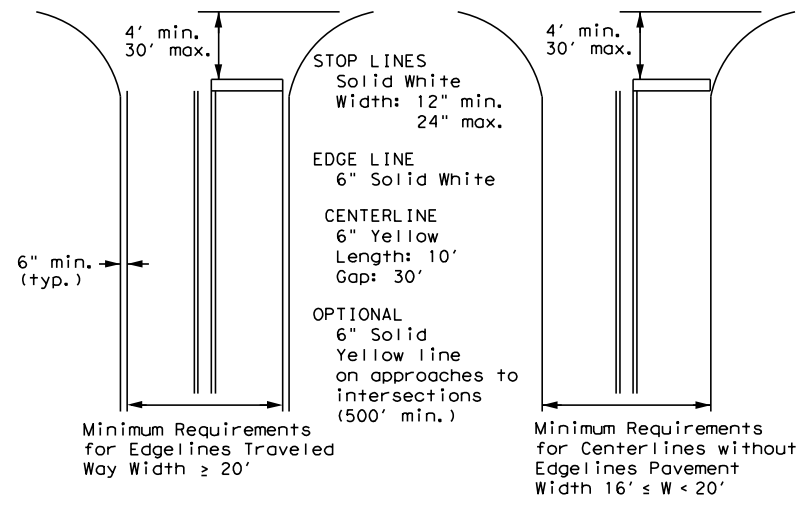
- Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
- 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

- Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
- 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 center of edge line to the center of edge line of a two lane roadway.

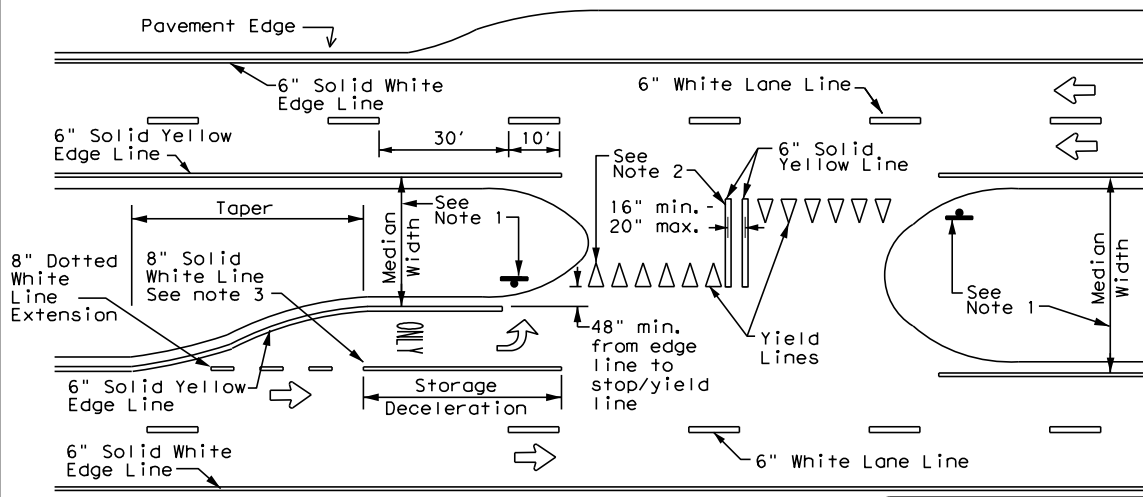
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

**GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE**
Based on Traveled Way and Pavement Widths for Undivided Roadways



FOUR LANE DIVIDED ROADWAY CROSSOVERS

Texas Department of Transportation

Traffic Safety Division Standard

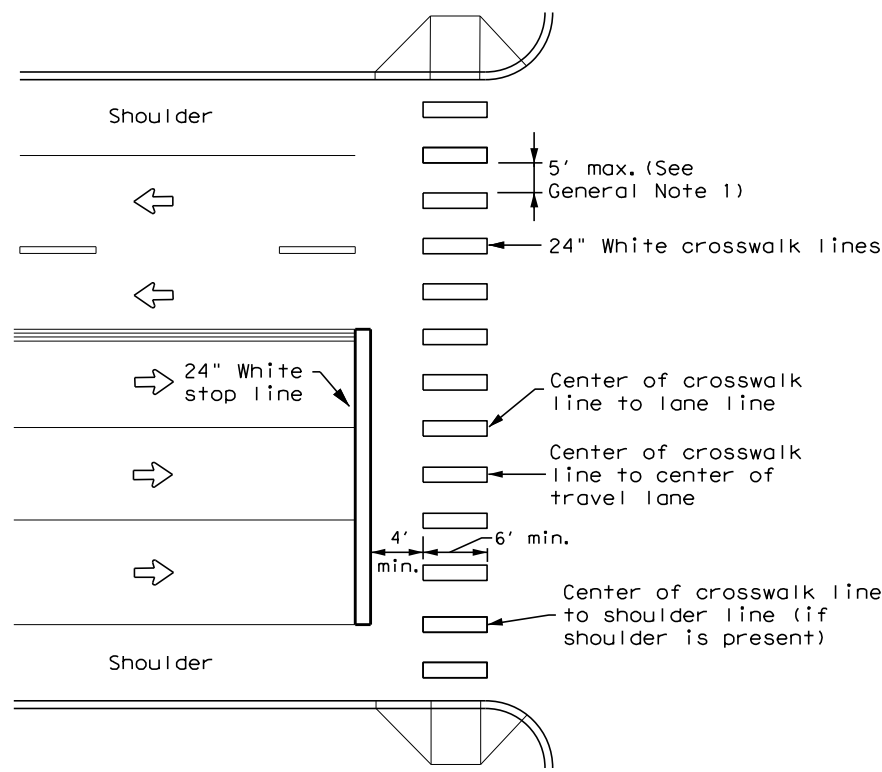
**TYPICAL STANDARD
PAVEMENT MARKINGS**

PM(1) - 22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0919	19	085	CS
11-78 8-00 6-20	DIST	COUNTY	SHEET NO.	
8-95 3-03 12-22	ATL	BOWIE	114	
5-00 2-12				

22A

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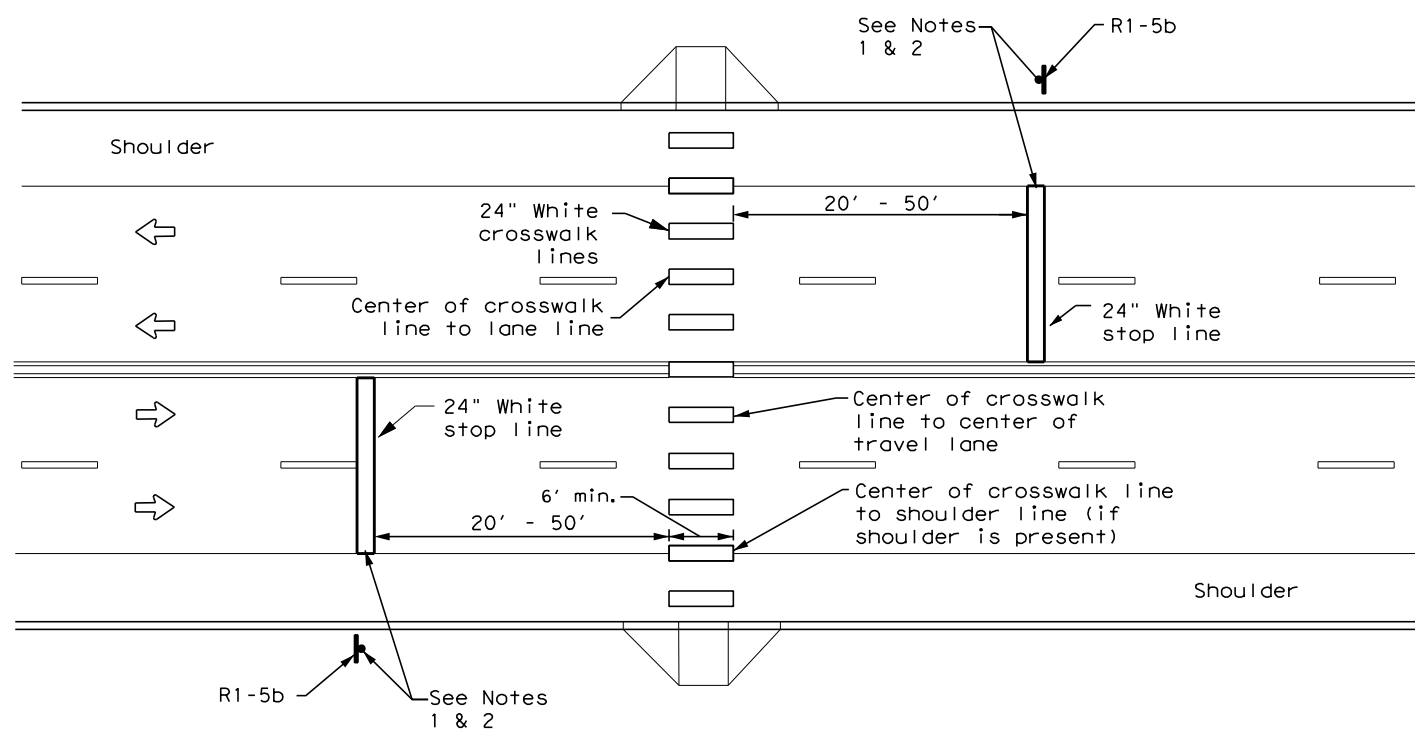
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

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.



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock crosswalks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at midblock crosswalks controlled by traffic signals or pedestrian hybrid beacons.

		Traffic Safety Division Standard			
<h2>CROSSWALK PAVEMENT MARKINGS</h2> <h3>PM(4) - 22A</h3>					
FILE: pm4-22a.dgn	DN:	CK:	DW:	CK:	
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY	
REVISIONS		0919	19	085	CS
6-20		DIST	COUNTY	SHEET NO.	
6-22		ATL	BOWIE	115	
12-22					

DATE: FILE:

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
 TWT = Thin-Walled Tubing (see SMD(TWT))
 10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
 S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

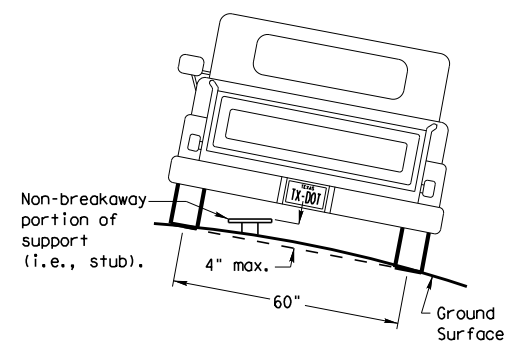
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
 UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
 WS = Wedge Anchor Steel - (see SMD(TWT))
 WP = Wedge Anchor Plastic (see SMD(TWT))
 SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
 SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
 T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
 U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
 IF REQUIRED
 1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
 BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
 WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
 EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

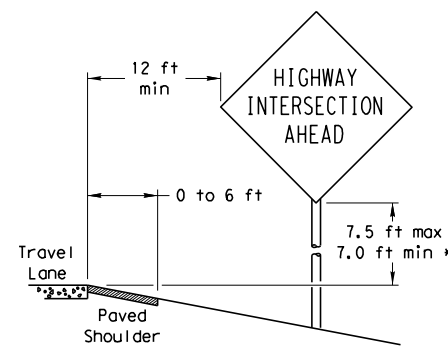
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

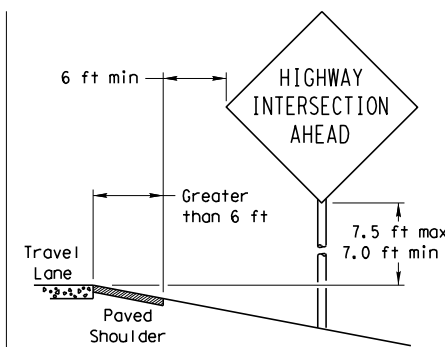
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

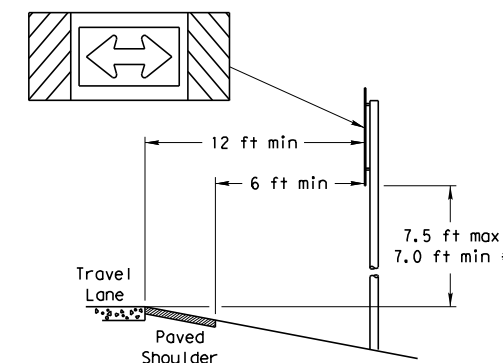
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

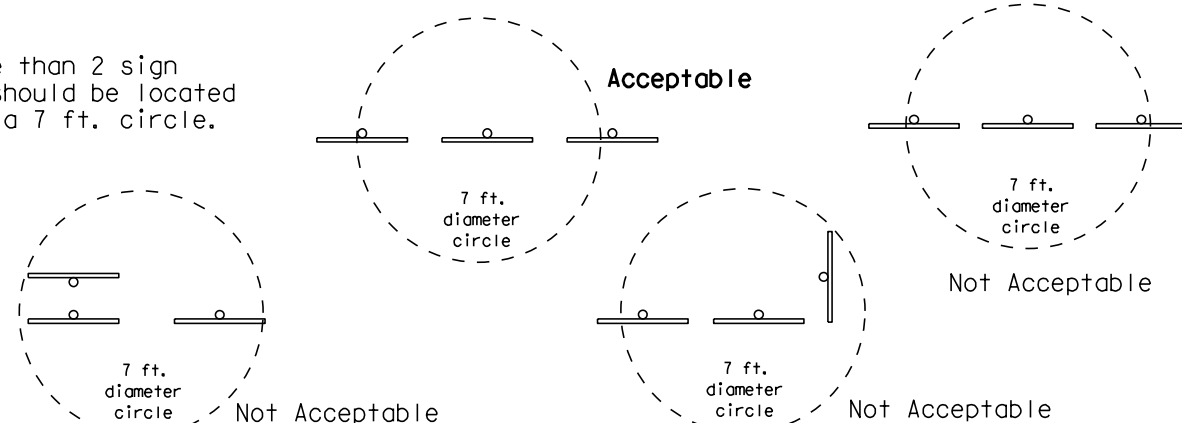
When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

T-INTERSECTION

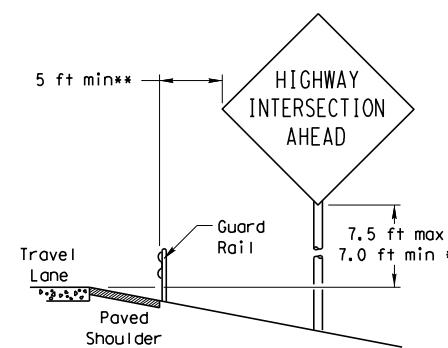


When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

No more than 2 sign posts should be located within a 7 ft. circle.

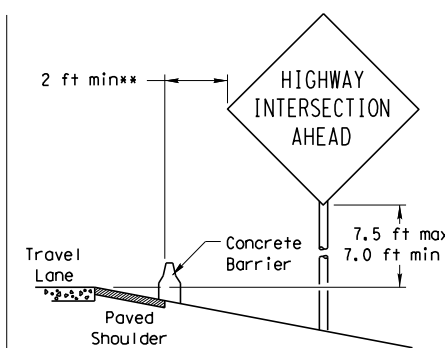


BEHIND BARRIER

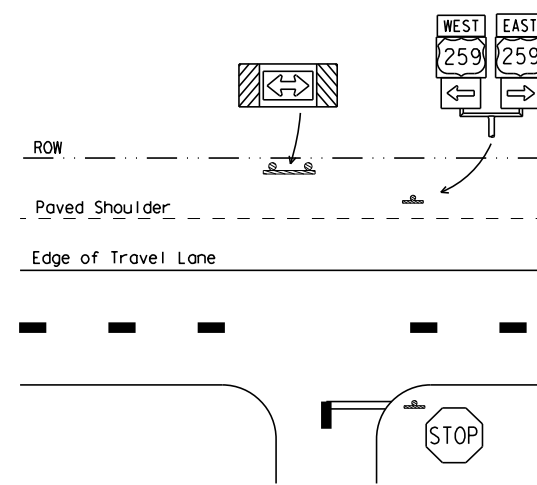


BEHIND GUARDRAIL

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.



BEHIND CONCRETE BARRIER



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

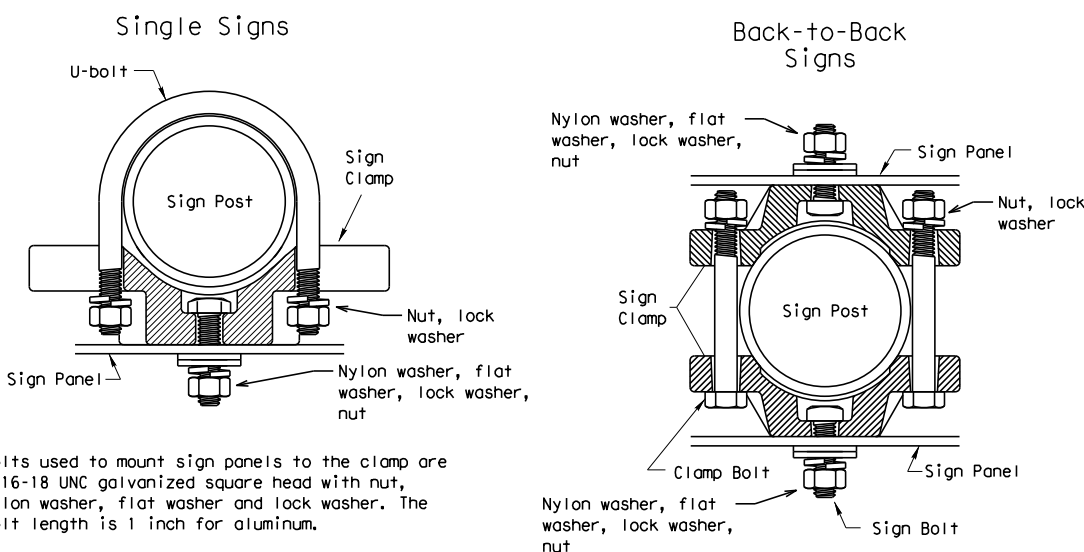
- (1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or
- (2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
<http://www.txdot.gov/publications/traffic.htm>

TYPICAL SIGN ATTACHMENT DETAIL



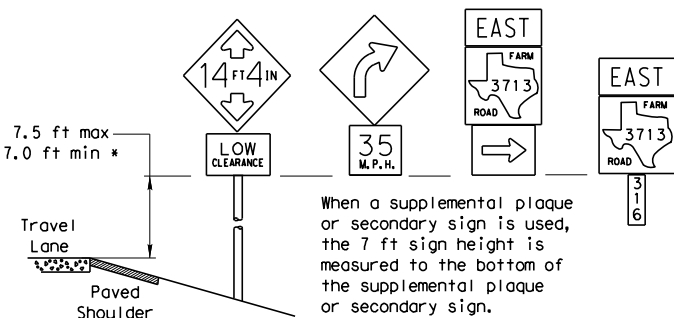
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

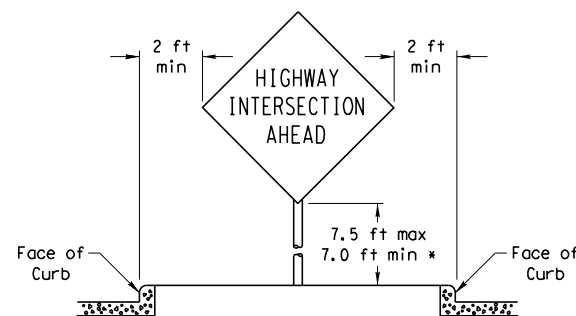
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

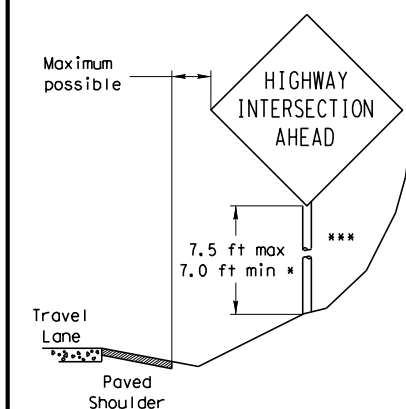


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY (When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.



SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD (GEN) -08

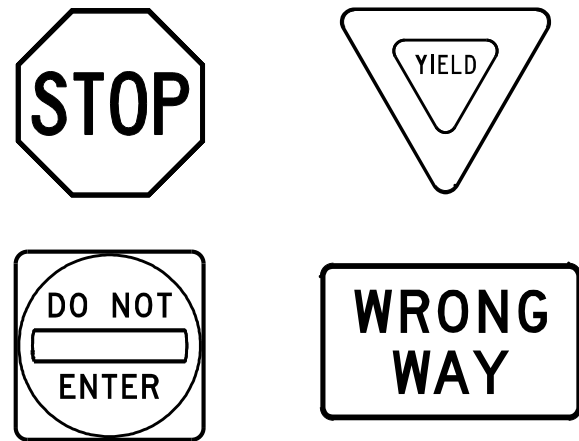
© TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
9-08	REVISIONS	CONT	SECT	JOB	HIGHWAY
		0919	19	085	CS
		DIST	COUNTY		SHEET NO.
		ATL	BOWIE		116

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DATE: FILE:

REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

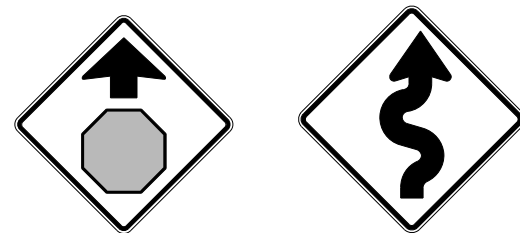
(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

- Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
- Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
- Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
- Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
- White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
- Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
- Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website:
<http://www.txdot.gov/>

		<i>Traffic Operations Division Standard</i>	
<h2>TYPICAL SIGN REQUIREMENTS</h2>			
<h3>TSR(4) - 13</h3>			
FILE:	tsr4-13.dgn	DN:	TxDOT
© TxDOT	October 2003	CK:	TxDOT
REVISIONS		DW:	TxDOT
0919	19	CONT	SECT
		JOB	HIGHWAY
		085	CS
12-03	7-13	DIST	COUNTY
9-08		ATL	BOWIE
			SHEET NO.
			117

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GENERAL NOTES FOR ALL ELECTRICAL WORK

- The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.
- Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.
- Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is 1/2 in. or less in diameter.
- Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.
- Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.
- When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

- Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.
- Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.
- Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.


AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

- Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.
- Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.
- Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.
- Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

- Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.
- When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.
- Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

- Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.
- Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.
- Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.
- Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.
- When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."
- Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.
- During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.
- Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.
- Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.
- Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.
- At all electrical services, install a 6 AWG solid copper grounding electrode conductor.
- Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).
- Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.
- File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

					Traffic Operations Division Standard	
<h1>ELECTRICAL DETAILS CONDUITS & NOTES</h1>						
<h2>ED(1) - 14</h2>						
FILE:	ed1-14.dgn	DW:	CK:	DW:	CK:	
© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY	
REVISIONS		0919	19	085	CS	
		DIST	COUNTY		SHEET NO.	
		ATL	BOWIE		118	

ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS) 11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.
2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.
3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.
4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.
4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.
5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.
6. Support conductors in illumination poles with a J-hook at the top of the pole.
7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.
8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.
9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.
10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.
2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.
3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.
4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.
5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

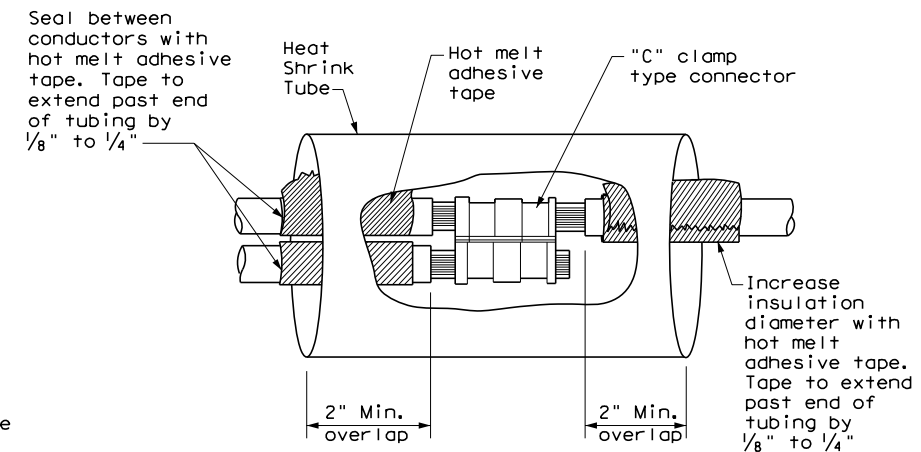
GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

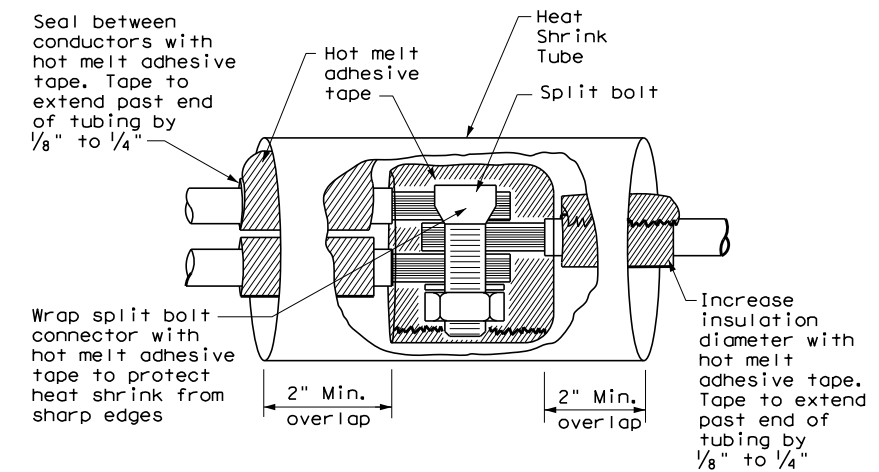
1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

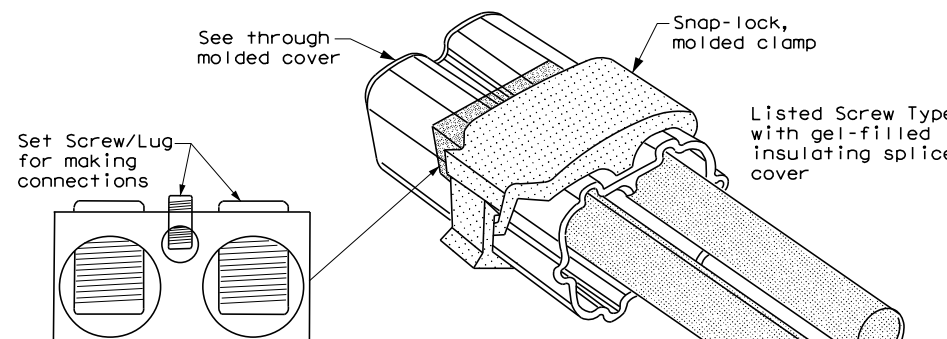
1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.
2. Do not place ground rods in the same drilled hole as a timber pole.
3. Install ground rods so the imprinted part number is at the upper end of the rod.
4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.
6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



**SPLICE OPTION 1
Compression Type**



**SPLICE OPTION 2
Split Bolt Type**



**SPLICE OPTION 3
Listed Screw Type**

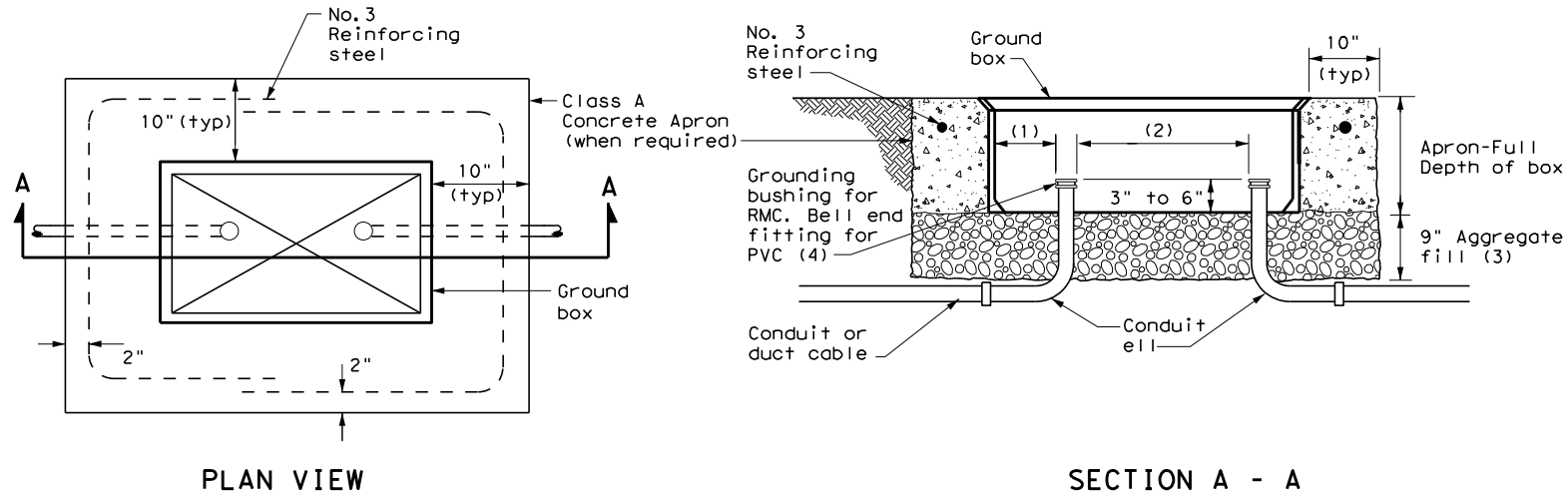
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: FILE:

		Texas Department of Transportation		Traffic Operations Division Standard	
<h1>ELECTRICAL DETAILS CONDUCTORS</h1>					
<h2>ED(3) - 14</h2>					
FILE:	ed3-14.dgn	DN:	TxDOT	CK:	TxDOT
© TxDOT	October 2014	CONT:	SECT:	JOB:	HIGHWAY:
REVISIONS		0919	19	085	CS
		DIST:	COUNTY:	SHEET NO.	
		ATL	BOWIE	119	

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.

DATE: FILE:

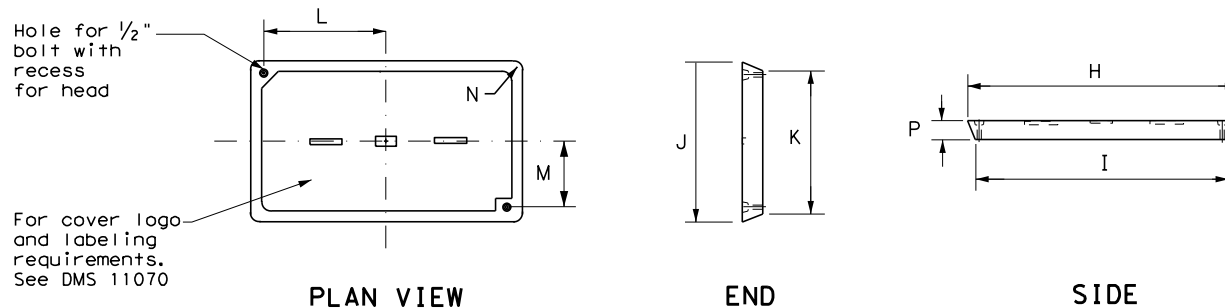


APRON FOR GROUND BOX

- (1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.
- (2) Maintain sufficient space between conduits to allow for proper installation of bushing.
- (3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.
- (4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



GROUND BOX COVER

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."
2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.

3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.

4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown in Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.
2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.
3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.
4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.
5. Temporarily seal all conduits in the ground box until conductors are installed.
6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.
7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.
8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.
9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.
10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.
11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

				Traffic Operations Division Standard	
<h2>ELECTRICAL DETAILS GROUND BOXES</h2>					
<h3>ED(4) - 14</h3>					
FILE:	ed4-14.dgn	DN:	TxDOT	CK:	TxDOT
© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS		0919	19	085	CS
		DIST	COUNTY		SHEET NO.
		ATL	BOWIE		120

DATE: 10/2/2024
FILE: X:\2022 Projects\226086 City Sidewalks - Texarkana\05 Engineering Design\Design\5ft_Design_EC.pro

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. The project is located within the boundary of an MS4.

2. No Action Required Required Action

Action No.

1. This project is considered a maintenance activity and is exempt from the requirements of TPDES TXR 150000.

Commitment No.

1. Refer to the SWP3 Plan Sheet, BMPs, and Detail. It will address sweeping, chemical storage, sanitary waste, and all other management practices.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

- 1.
- 2.
- 3.
- 4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
<input checked="" type="checkbox"/> Temporary Vegetation	<input checked="" type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input checked="" type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input checked="" type="checkbox"/> Compost Filter Berm and Socks	<input checked="" type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

No Action Required Required Action

Action No.

- 1.
- 2.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

No Action Required Required Action

Action No.

- 1.
- 2.

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

No Action Required Required Action

Action No.

- 1.
- 2.
- 3.
- 4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP: Best Management Practice	SPCC: Spill Prevention Control and Countermeasure
CGP: Construction General Permit	SW3P: Storm Water Pollution Prevention Plan
DSHS: Texas Department of State Health Services	PCN: Pre-Construction Notification
FHWA: Federal Highway Administration	PSL: Project Specific Location
MOA: Memorandum of Agreement	TCEQ: Texas Commission on Environmental Quality
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MBTA: Migratory Bird Treaty Act	TxDOT: Texas Department of Transportation
NOT: Notice of Termination	T&E: Threatened and Endangered Species
NWP: Nationwide Permit	USACE: U.S. Army Corps of Engineers
NOI: Notice of Intent	USFWS: U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labeling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- * Dead or distressed vegetation (not identified as normal)
- * Trash piles, drums, canister, barrels, etc.
- * Undesirable smells or odors
- * Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacement (bridge class structures not including box culverts)?

Yes No

If "No", then no further action is required. If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

Yes No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

No Action Required Required Action

Action No.

- 1.
- 2.
- 3.



VII. OTHER ENVIRONMENTAL ISSUES

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

No Action Required Required Action

Action No.

- 1.
- 2.
- 3.

NO.	DATE	REVISION	APPROVED
			
CONT	SECT	JOB	HIGHWAY
0919	19	085	CS
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	121	

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TBP# FIRM NO. F-354 AR COA NO. 125
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