FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	F 2025(288)		SH 5, ETC.
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DAL	COLLIN	1
CONTROL	SECTION	JOB	
0047	05	057, etc.	

SH 5
A.D.T. (2025)= 35,800
A.D.T. (2045)= 47,950

FINAL PLANS

NAME OF CONTRACTOR: ____________

DATE OF LETTING: ____________

DATE WORK BEGAN: ____________

DATE WORK COMPLETED: ____________

DATE WORK ACCEPTED: ____________

SUMMARY OF CHANGE ORDERS:

ATTACHMENT NO. 1-24 TO SPECIAL AGREEMENT FOR CONSTRUCTION, MAINTENANCE, AND OPERATION OF CONTINUOUS HIGHWAY LIGHTING SYSTEMS WITHIN A MUNICIPALITY (FREEWAYS OR EXPRESSWAYS)(SPECIFIC LIMITS) DATED 9/16/2024. THE CITY-STATE CONSTRUCTION, MAINTENANCE, AND OPERATION RESPONSIBILITIES SHALL BE AS HERETOFORE AGREED TO, ACCEPTED, AND SPECIFIED IN THE AGREEMENT TO WHICH THESE PLANS ARE MADE A PART.

[signature] 10-02-2024
CITY OF MCKINNEY DATE

VOLUME III

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT
F 2025(288)
CSJ: 0047-05-057, ETC.

SH 5, ETC.
COLLIN COUNTY

DESIGN SPEEDS = 60 MPH (SS 399 MAINLANES SOUTH OF STEWART RD BRIDGE)
40 MPH (SS 399 MAINLANES NORTH OF STEWART RD BRIDGE, SH 5 MAINLANES, HARRY MCKILLOP BLVD (FM 546), EL DORADO PKWY / INDUSTRIAL BLVD, FRONTAGE ROADS, RAMPS)
30 MPH ALL OTHER CROSS STREETS

FUNCTIONAL CLASSIFICATION:
URBAN PRINCIPAL ARTERIAL:
SS 399 MAINLANE, SH 5 MAINLANE, UNIVERSITY DR (US 380), RAMPS

URBAN MINOR ARTERIAL:
HARRY MCKILLOP BLVD (FM 546), ELDORADO PKWY / INDUSTRIAL BLVD

URBAN COLLECTOR:
STEWART RD, E VIRGINIA ST, E LOUISIANA ST, TENNESSEE ST, FRONTAGE ROADS

URBAN/RURAL LOCAL:
ALL OTHER STREETS

SS 399
LIMITS: AT SH 5
CCSJ: 0364-04-049

ROADWAY =	2,410.00 FT.	=	0.456 MI.
BRIDGE =	803.00 FT.	=	0.152 MI.
TOTAL =	3,213.00 FT.	=	0.609 MI.

SS 399
LIMITS: FROM: US 75
TO: SH 5
CCSJ: 0364-04-051

ROADWAY =	4,682.31 FT.	=	0.887 MI.
BRIDGE =	277.39 FT.	=	0.053 MI.
TOTAL =	4,954.70 FT.	=	0.939 MI.

SH 5
LIMITS: FROM: STEWART ROAD
TO: EL DORADO PARKWAY
CCSJ: 0047-05-057

ROADWAY =	5,659.00 FT.	=	1.072 MI.
BRIDGE =	1,411.52 FT.	=	0.105 MI.
TOTAL =	6,212.00 FT.	=	1.177 MI.

SH 5
LIMITS: FROM: SPUR 399 INTERSECTION
TO: STEWART RD
CCSJ: 0047-05-058

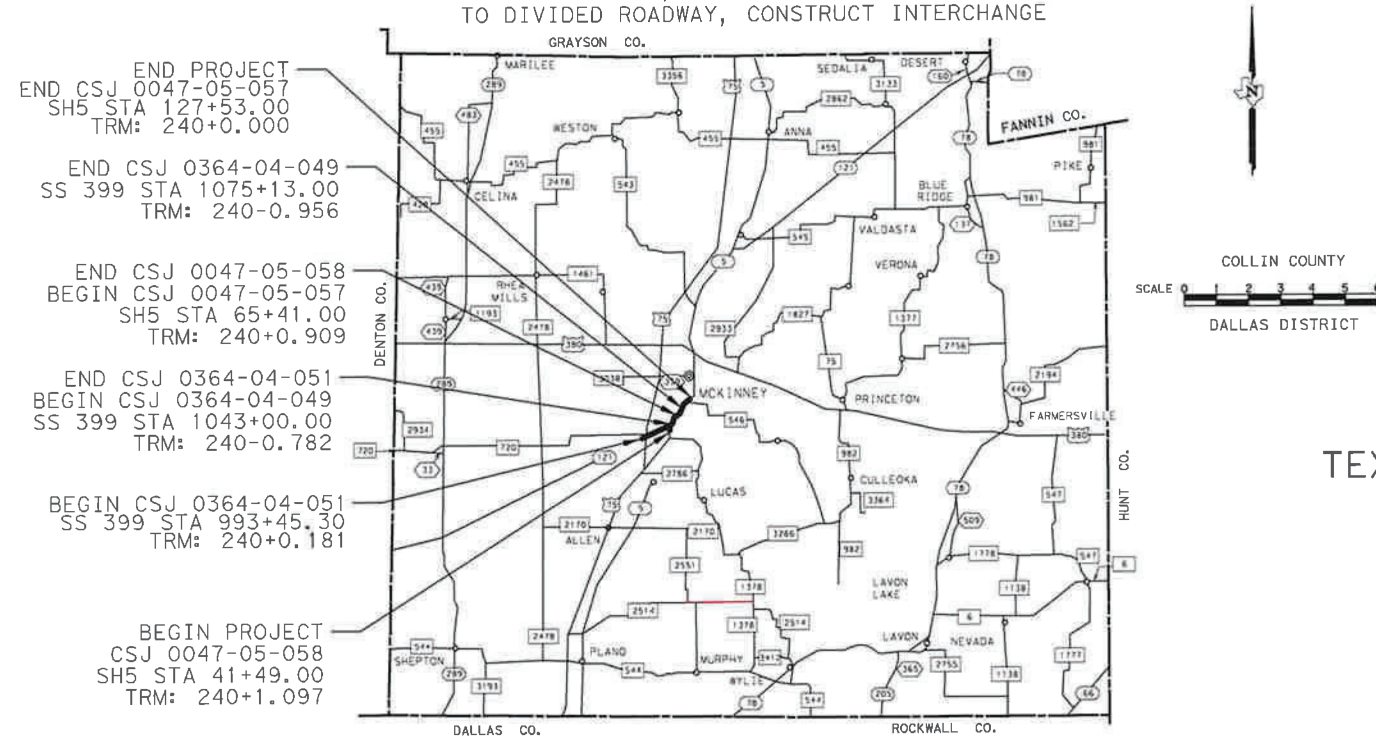
ROADWAY =	2,392.00 FT.	=	0.453 MI.
BRIDGE =	0.00 FT.	=	0.00 MI.
TOTAL =	2,392.00 FT.	=	0.453 MI.

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

Registered Accessibility Specialist (RAS) inspection required. TDLR No. TABS202402304

TYPE OF WORK: WIDEN NON-FREEWAY AND FREEWAY, INTERCHANGE (NEW OR RECONSTRUCTED). NEW LOCATION FREEWAY

CONSISTING OF: RECONSTRUCT AND WIDEN FREEWAY AND CONSTRUCT CONTINUOUS FRONTAGE ROADS, RECONSTRUCT AND WIDEN UNDIVIDED ROADWAY TO DIVIDED ROADWAY, CONSTRUCT INTERCHANGE



HDR
Firm Registration No. F-754
17111 Preston Road, Suite 200
Dallas, Texas 75248-1229
972.960.4400

SUBMITTED FOR LETTING 10/01/2024
[signature], P.E.
CONSULTANT DESIGN ENGINEER OR PROJECT MANAGER

TEXAS DEPARTMENT OF TRANSPORTATION

RECOMMENDED 10/2/2024
Signed by: James P. Campbell
98671C109B6A4C3..., P.E.
TRANSPORTATION PLANNING & DEVELOPMENT

RECOMMENDED 10/2/2024
DocuSigned by: Jennifer Vorster
4DB68ED9336D4F7..., P.E.

APPROVED 10/2/2024
DocuSigned by: Carson Clemens
A879E0D10CD6464..., P.E.
ENGINEER

WORK WAS COMPLETED ACCORDING TO THE PLANS AND CONTRACT.

________, P.E.
Signature of Registrant & Date

EQUATIONS: NONE
EXCEPTIONS: NONE
RAILROAD CROSSINGS: NONE

100% PLANS SUBMITTAL

VOLUME 1

VOLUME 1 - CONTINUED

VOLUME 1 - CONTINUED

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

BRIAN VERWIJST, P.E. — 10/1/2024 DATE

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

MOHAMMED S. ULA, P.E. — 10/1/2024 DATE

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SH 5

INDEX OF SHEETS

N.T.S. SHEET 1 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AKS	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AKS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MH	TEXAS	DAL	COLLIN	1109
CHECK JMD	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10BII5-SP399-SEGI.tbl
USER: ASRINVASA DATE: 10/1/2024 TIME: 1:37:22 PM SCALE: 1:1
FILE: S399PU32.dgn

100% PLANS SUBMITTAL

VOLUME 1 - CONTINUED

SHEETS	DESCRIPTION
	ROADWAY MCKINNEY STANDARDS
466	# MEDIAN NOSE DETAIL
	ROADWAY NTTA STANDARDS
467	# CPJ-201-2012
468	# IDD-001(1)-2018
469	# IDD-001(2)-2018
470	# IDD-001(3)-2018
471	# IDD-001(4)-2018
472	# IDD-001(5)-2023
473	# IDD-001(6)-2018
474	# IDD-001(7)-2018
475	# IDD-001(8)-2018
476	# IDS-001(1)-2018
477	# IDS-001(2)-2018
478	# IDS-001(3)-2018
479	# IRS-001(1)-2008
	IV. RETAINING WALL DETAILS
480 - 481	BORING LOGS LAYOUT
482	BORING LOGS LAYOUT TABLE
483 - 563	BORING LOGS
564 - 565	RETAINING AND NOISE WALL KEY MAP AND AESTHETIC FINISHES
566	SIDEWALK WALL TABLE
567	RETAINING WALL S39900 PLAN AND PROFILE
568	RETAINING WALL S39900 TYPICAL SECTIONS
569	RETAINING WALL S39901 PLAN AND PROFILE
570	RETAINING WALL S39901 TYPICAL SECTIONS
571	RETAINING WALL S39901A PLAN AND PROFILE
572	RETAINING WALL S39901A TYPICAL SECTIONS
573	RETAINING WALL S39902 PLAN AND PROFILE
574	RETAINING WALL S39902 TYPICAL SECTIONS
575 - 576	RETAINING WALL S39903 PLAN AND PROFILE
577	RETAINING WALL S39903 TYPICAL SECTIONS
578 - 580	RETAINING WALL S39903 SOIL NAIL LAYOUT
581 - 584	RETAINING WALL S39903 DETAILS
585	RETAINING WALL S39904 PLAN AND PROFILE
586	RETAINING WALL S39904 TYPICAL SECTIONS
587 - 588	RETAINING WALL S39907 PLAN AND PROFILE
589	RETAINING WALL S39907 TYPICAL SECTIONS
590	RETAINING WALL S39909 PLAN AND PROFILE
591	RETAINING WALL S39909 TYPICAL SECTIONS
592	RETAINING WALL S39910 PLAN AND PROFILE
593	RETAINING WALL S39910 TYPICAL SECTIONS
594	RETAINING WALL S39911 PLAN AND PROFILE
595	RETAINING WALL S39911 TYPICAL SECTIONS
596 - 597	RETAINING WALL S39915 PLAN AND PROFILE
598	RETAINING WALL S39915 TYPICAL SECTIONS
599	RETAINING WALL S39915A PLAN AND PROFILE
600	RETAINING WALL S39915A TYPICAL SECTION
601	RETAINING WALL S39916 PLAN AND PROFILE
602	RETAINING WALL S39916 TYPICAL SECTIONS
603	RETAINING WALL S39917 PLAN AND PROFILE
604	RETAINING WALL S39917 TYPICAL SECTIONS
605	RETAINING WALL STE01 PLAN AND PROFILE
606	RETAINING WALL STE01 TYPICAL SECTIONS
607	RETAINING WALL STE03 PLAN AND PROFILE
608	RETAINING WALL STE03 TYPICAL SECTIONS
609 - 610	RETAINING WALL NBFR101 WITH NOISE WALL PLAN AND PROFILE
611	RETAINING WALL NBFR101 TYPICAL SECTIONS
612 - 613	RETAINING WALL NBFR101 & NBFR103 DETAILS
614 - 615	RETAINING WALL NBFR102 WITH NOISE WALL PLAN AND PROFILE
616	RETAINING WALL NBFR102 TYPICAL SECTIONS
617	RETAINING WALL NBFR102 DETAILS
618 - 619	RETAINING WALL NBFR103 WITH NOISE WALL PLAN AND PROFILE
620	RETAINING WALL NBFR103 TYPICAL SECTIONS
621 - 622	RETAINING WALL NBFR201 WITH NOISE WALL PLAN AND PROFILE
623	RETAINING WALL NBFR201 TYPICAL SECTIONS
624 - 625	RETAINING WALL NBFR201 WITH NOISE WALL DETAILS
626 - 628	RETAINING WALL NBFR202 PLAN AND PROFILE
629	RETAINING WALL NBFR202 TYPICAL SECTIONS
630 - 631	RETAINING WALL NBFR210 PLAN AND PROFILE

VOLUME 1 - CONTINUED

SHEETS	DESCRIPTION
632	RETAINING WALL NBFR210 TYPICAL SECTIONS
633 - 634	RETAINING WALL NBFR210 DETAILS
635 - 636	RETAINING WALL NBFR203 PLAN AND PROFILE
637	RETAINING WALL NBFR203 TYPICAL SECTIONS
638	RETAINING WALL NBFR204 PLAN AND PROFILE
639	RETAINING WALL NBFR204 TYPICAL SECTIONS
640	RETAINING WALL NBFR205 PLAN AND PROFILE
641	RETAINING WALL NBFR205 TYPICAL SECTIONS
642 - 643	RETAINING WALL NBFR301 PLAN AND PROFILE
644	RETAINING WALL NBFR301 TYPICAL SECTIONS
645	RETAINING WALL NBFR302 PLAN AND PROFILE
646	RETAINING WALL NBFR302 TYPICAL SECTIONS
647	RETAINING WALL NBFR303 PLAN AND PROFILE
648	RETAINING WALL NBFR303 TYPICAL SECTIONS
649	RETAINING WALL SB511 PLAN AND PROFILE
650	RETAINING WALL SB511 TYPICAL SECTIONS
651	RETAINING WALL SB512 PLAN AND PROFILE
652	RETAINING WALL SB512 TYPICAL SECTIONS
653 - 654	RETAINING WALL SB513 PLAN AND PROFILE
655	RETAINING WALL SB513 TYPICAL SECTIONS
656 - 657	RETAINING WALL SB501 PLAN AND PROFILE
658	RETAINING WALL SB501 TYPICAL SECTIONS
659	RETAINING WALL SB502 PLAN AND PROFILE
660	RETAINING WALL SB502 TYPICAL SECTIONS
661	RETAINING WALL SB503 PLAN AND PROFILE
662	RETAINING WALL SB503 TYPICAL SECTIONS
663 - 664	RETAINING WALL SB01 PLAN AND PROFILE
665	RETAINING WALL SB01 TYPICAL SECTIONS
666	RETAINING WALL SR01 PLAN AND PROFILE
667	RETAINING WALL SR01 TYPICAL SECTIONS
668	RETAINING WALL NB01 PLAN AND PROFILE
669	RETAINING WALL NB01 TYPICAL SECTIONS
670	RETAINING WALL RNX101 PLAN AND PROFILE
671	RETAINING WALL RNX101 TYPICAL SECTIONS
672	RETAINING WALL RNX102 PLAN AND PROFILE
673	RETAINING WALL RNX102 TYPICAL SECTIONS
674	RETAINING WALL RNX103 PLAN AND PROFILE
675	RETAINING WALL RNX103 TYPICAL SECTIONS
676 - 677	RETAINING WALL WL01 PLAN AND PROFILE
678	RETAINING WALL WL01 TYPICAL SECTIONS
679 - 680	RETAINING WALL CEM PLAN AND PROFILE
681	RETAINING WALL CEM TYPICAL SECTIONS
682	NOISE WALL NW01 PLAN AND PROFILE
683	NOISE WALL NW01 TYPICAL SECTIONS
684	NOISE WALL NW01 DETAILS
685	RETAINING WALL MISCELLANEOUS DETAILS
686	RETAINING WALL MISCELLANEOUS DETAILS POCKET DRAIN
687 - 694	AESTHETIC WALL TREATMENT
695 - 696	RW(MSE)DD(MOD)
697	RW(SFB)(MOD)
698	RW(SF)(MOD)
	RETAINING WALL TXDOT STANDARDS
699	# RW(BTR)
700 - 701	# RW(MSE)
702	# RW(TRF)
703	# RW(EM)
	RETAINING WALL NTTA STANDARDS
704	# RW(TRF)(MOD)
705	# RWD-201-2009
706	# RWD-202-2009
707	# RWD-203-2009
708	# RWD-204-2014

STATE OF TEXAS
BRIAN VERWIJST
127741
LICENSED
PROFESSIONAL ENGINEER

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

BRIAN VERWIJST, P.E. — 10/1/2024 DATE

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5

INDEX OF SHEETS

N.T.S. — SHEET 2 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AKS	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AKS	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1110
MH	0047	05	057, ETC.	
CHECK				
JMD				

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100% PLANS SUBMITTAL

VOLUME 2

SHEETS	DESCRIPTION
	V. DRAINAGE DETAILS
1	TITLE SHEET
709 - 713	INDEX OF SHEETS
714	DRAINAGE AREA MAP CULVERT GG
715	DRAINAGE AREA MAP WILSON CREEK
716	HYDROLOGIC DATA SHEET
717 - 728	STORM SEWER DRAINAGE AREA MAPS
729 - 731	STORM SEWER OFFSITE DRAINAGE AREA MAPS
732	HYDRAULIC DATA SHEET CULVERT GG
733	HYDRAULIC DATA SHEET STEWART ROAD CULVERTS
734 - 736	HYDRAULIC DATA SHEET WILSON CREEK
737 - 739	SCOUR DATA SHEET WILSON CREEK
740 - 752	DRAINAGE COMPUTATIONS
753	CULVERT GG
754	BRIDGE CLASS CULVERT STEWART ROAD LAYOUT
755 - 770	DRAINAGE PLAN
771 - 786	DRAINAGE PROFILE
787 - 788	MISC DETAILS JUNCTION BOX GG
	DRAINAGE TXDOT STANDARDS
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793	* SCC-MD
794 - 795	* SCC-5&6
796 - 797	* SCC-8
798	* SCP-MD
799	* SCP-6
800	* SCP-8
801	* SCP-10
802	* MC-MD
803 - 804	* MC-10-7
805	* BCS
806	* PW-MSE(DAL)
807 - 808	* SETB-CD
809 - 810	* SETP-CD
811	* SETP-PD
812	* PB
813	* PBGC
814	* PJB
815	* PDD
816	* PRM
817 - 818	* PCO
819 - 820	* PCU
821 - 822	* PSL
823	* PAZD
824	* CGT-PCU
825	* CGT-PCO
	VI. UTILITIES
826 - 838	UTILITY LAYOUT
	VII. BRIDGES
839 - 840	SH 5 NBML WILSON CREEK BRIDGE BRIDGE LAYOUT
841	SH 5 NBML WILSON CREEK BRIDGE BRIDGE TYPICAL SECTIONS
842	SH 5 NBML WILSON CREEK BRIDGE EST QTYS, BRG SEAT ELEVS
843 - 844	SH 5 NBML WILSON CREEK BRIDGE ABUTMENT NO. 1
845 - 846	SH 5 NBML WILSON CREEK BRIDGE ABUTMENT NO. 8
847	SH 5 NBML WILSON CREEK BRIDGE INTERIOR BENT NO. 2
848	SH 5 NBML WILSON CREEK BRIDGE INTERIOR BENT NO. 3
849	SH 5 NBML WILSON CREEK BRIDGE INTERIOR BENT NO. 4
850	SH 5 NBML WILSON CREEK BRIDGE INTERIOR BENT NO. 5
851	SH 5 NBML WILSON CREEK BRIDGE INTERIOR BENT NO. 6
852	SH 5 NBML WILSON CREEK BRIDGE INTERIOR BENT NO. 7
853	SH 5 NBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 1
854 - 855	SH 5 NBML WILSON CREEK BRIDGE 205.00' PRESTRESSED CONCRETE GIRDER UNIT 1
856	SH 5 NBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 2
857 - 858	SH 5 NBML WILSON CREEK BRIDGE 140.00' PRESTRESSED CONCRETE GIRDER UNIT 2
859	SH 5 NBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 3
860 - 861	SH 5 NBML WILSON CREEK BRIDGE 145.00' PRESTRESSED CONCRETE GIRDER UNIT 3
862	IGND
863 - 865	SH 5 SBML WILSON CREEK BRIDGE BRIDGE LAYOUT
866	SH 5 SBML WILSON CREEK BRIDGE BRIDGE TYPICAL SECTIONS
867	SH 5 SBML WILSON CREEK BRIDGE EST QTYS, BRG SEAT ELEVS

VOLUME 2 - CONTINUED

SHEETS	DESCRIPTION
868	SH 5 SBML WILSON CREEK BRIDGE ABUTMENT NO. 1
869 - 870	SH 5 SBML WILSON CREEK BRIDGE ABUTMENT NO. 12
871	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NOS. 2 - 4
872	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NO. 5
873	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NO. 6
874	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NO. 7
875	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NO. 8
876	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NO. 9
877	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NO. 10
878	SH 5 SBML WILSON CREEK BRIDGE INTERIOR BENT NO. 11
879	SH 5 SBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 1
880 - 881	SH 5 SBML WILSON CREEK BRIDGE 168.00' PRESTRESSED CONCRETE GIRDER UNIT 1
882	SH 5 SBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 2
883 - 884	SH 5 SBML WILSON CREEK BRIDGE 168.00' PRESTRESSED CONCRETE GIRDER UNIT 2
885	SH 5 SBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 3
886 - 887	SH 5 SBML WILSON CREEK BRIDGE 80.00' PRESTRESSED CONCRETE GIRDER UNIT 3
888	SH 5 SBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 4
889 - 890	SH 5 SBML WILSON CREEK BRIDGE 120.00' PRESTRESSED CONCRETE GIRDER UNIT 4
891	SH 5 SBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 5
892 - 893	SH 5 SBML WILSON CREEK BRIDGE 145.00' PRESTRESSED CONCRETE GIRDER UNIT 5
894	SH 5 SBML WILSON CREEK BRIDGE FRAMING PLAN UNIT 6
895 - 896	SH 5 SBML WILSON CREEK BRIDGE 145.00' PRESTRESSED CONCRETE GIRDER UNIT 6
897	IGND
898	SPUR 399 NBML OVERPASS AT STEWART RD BRIDGE LAYOUT
899	SPUR 399 NBML OVERPASS AT STEWART RD BRIDGE TYPICAL SECTIONS
900	SPUR 399 NBML OVERPASS AT STEWART RD EST QTYS, BRG SEAT ELEVS
901 - 902	SPUR 399 NBML OVERPASS AT STEWART RD ABUTMENT NO. 1
903	SPUR 399 NBML OVERPASS AT STEWART RD INTERIOR BENT NOS. 2 - 4
904	SPUR 399 NBML OVERPASS AT STEWART RD FRAMING PLAN
905 - 906	SPUR 399 NBML OVERPASS AT STEWART RD 235.00' PRESTRESSED CONCRETE GIRDER UNIT
907	IGND
908 - 910	SPUR 399 SBML OVERPASS AT STEWART RD BRIDGE LAYOUT
911 - 912	SPUR 399 SBML OVERPASS AT STEWART RD BRIDGE TYPICAL SECTIONS
913	SPUR 399 SBML OVERPASS AT STEWART RD EST QTYS, BRG SEAT ELEVS
914 - 915	SPUR 399 SBML OVERPASS AT STEWART RD ABUTMENT NO. 1
916	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 2
917	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 3
918	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 4
919	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 5
920	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 6
921	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 7
922	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 8
923	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 9
924	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 10
925	SPUR 399 SBML OVERPASS AT STEWART RD BENT NO. 11
926	SPUR 399 SBML OVERPASS AT STEWART RD FRAMING PLAN UNIT 1
927 - 928	SPUR 399 SBML OVERPASS AT STEWART RD 235.00' PRESTRESSED CONCRETE GIRDER UNIT 1
929	SPUR 399 SBML OVERPASS AT STEWART RD FRAMING PLAN UNIT 2
930 - 931	SPUR 399 SBML OVERPASS AT STEWART RD 248.00' PRESTRESSED CONCRETE GIRDER UNIT 2
932	SPUR 399 SBML OVERPASS AT STEWART RD FRAMING PLAN UNIT 3
933 - 934	SPUR 399 SBML OVERPASS AT STEWART RD 160.00' PRESTRESSED CONCRETE GIRDER UNIT 3
935	SPUR 399 SBML OVERPASS AT STEWART RD FRAMING PLAN UNIT 4
936 - 937	SPUR 399 SBML OVERPASS AT STEWART RD 160.00' PRESTRESSED CONCRETE GIRDER UNIT 4
938	IGND
939 - 941	SPUR 399 SH 5 SB FLYOVER AT SP 399 BRIDGE LAYOUT
942	SPUR 399 SH 5 SB FLYOVER AT SP 399 BRIDGE TYPICAL SECTIONS
943	SPUR 399 SH 5 SB FLYOVER AT SP 399 ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS
944	SPUR 399 SH 5 SB FLYOVER AT SP 399 ABUTMENT NO. 1
945	SPUR 399 SH 5 SB FLYOVER AT SP 399 ABUTMENT NO. 7
946	SPUR 399 SH 5 SB FLYOVER AT SP 399 FOUNDATION DETAILS
947 - 948	SPUR 399 SH 5 SB FLYOVER AT SP 399 COLUMN DETAILS
949	SPUR 399 SH 5 SB FLYOVER AT SP 399 DECK DRAIN AND PIPE ROUTING DETAILS
950	SPUR 399 SH 5 SB FLYOVER AT SP 399 AESTHETIC COLUMN DETAILS
951 - 952	SPUR 399 SH 5 SB FLYOVER AT SP 399 INTERIOR BENT NO. 2
953 - 954	SPUR 399 SH 5 SB FLYOVER AT SP 399 INTERIOR BENT NO. 3
955 - 956	SPUR 399 SH 5 SB FLYOVER AT SP 399 INTERIOR BENT NO. 4
957 - 958	SPUR 399 SH 5 SB FLYOVER AT SP 399 INTERIOR BENT NO. 5
959 - 960	SPUR 399 SH 5 SB FLYOVER AT SP 399 INTERIOR BENT NO. 6
961	SPUR 399 SH 5 SB FLYOVER AT SP 399 FRAMING PLAN UNIT 1
962 - 963	SPUR 399 SH 5 SB FLYOVER AT SP 399 208.50' PRESTR CONC IGIRDER UNIT 1
964	SPUR 399 SH 5 SB FLYOVER AT SP 399 FRAMING PLAN UNIT 3
965 - 966	SPUR 399 SH 5 SB FLYOVER AT SP 399 198.50' PRESTR CONC IGIRDER UNIT 3

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

DON STEEL, P.E. — 10/1/2024 DATE

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5

INDEX OF SHEETS

N. T. S. SHEET 3 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AKS	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AKS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MH	TEXAS	DAL	COLLIN	1111
CHECK JMD	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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USER: ASRINIVASA DATE: 10/1/2024 TIME: 1:37:23 PM SCALE: 1:1
FILE: S399PU34.dgn

100% PLANS SUBMITTAL

VOLUME 2 - CONTINUED

SHEETS	DESCRIPTION
967	IGND
968 - 977	SPUR 399 SH 5 SB FLYOVER AT SP 399 456.00' CONTINUOUS STEEL PLATE GIRDER UNIT 2
978 - 980	SGEB (MOD)
981 - 983	SGMD (MOD)
984	SGTS (MOD)
985 - 986	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK BRIDGE LAYOUT
987	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK BRIDGE TYPICAL SECTIONS
988	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK EST QTYS, BRG SEAT ELEVS
989 - 990	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK ABUTMENT NO. 1
991 - 992	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK ABUTMENT NO. 8
993	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK INTERIOR BENTS 2 - 4
994	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK INTERIOR BENT 5
995	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK INTERIOR BENT 6
996	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK INTERIOR BENT 7
997	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK FRAMING PLAN UNIT 1
998 - 999	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK 318.00' PRESTRESSED CONCRETE GIRDER UNIT 1
1000	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK FRAMING PLAN UNIT 2
1001 - 1002	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK 182.00' PRESTRESSED CONCRETE GIRDER UNIT 2
1003	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK FRAMING PLAN UNIT 3
1004	SPUR 399 SBFR AT TRIBUTARY TO WILSON CREEK 200.00' PRESTRESSED CONCRETE GIRDER UNIT 3
1005	IGND
1006 - 1007	SH 5 NB RAMP OVERPASS AT STEWART RD BRIDGE LAYOUT
1008	SH 5 NB RAMP OVERPASS AT STEWART RD EST QTYS, BRG SEAT ELEVS
1009 - 1010	SH 5 NB RAMP OVERPASS AT STEWART RD ABUTMENT NO. 1
1011	SH 5 NB RAMP OVERPASS AT STEWART RD ABUTMENT NO. 8
1012	SH 5 NB RAMP OVERPASS AT STEWART RD INTERIOR BENT NOS. 2 - 4
1013	SH 5 NB RAMP OVERPASS AT STEWART RD INTERIOR BENT NOS. 5 - 7
1014	SH 5 NB RAMP OVERPASS AT STEWART RD FRAMING PLAN UNIT 1
1015	SH 5 NB RAMP OVERPASS AT STEWART RD 233.00' PRESTRESSED CONCRETE GIRDER UNIT 1
1016	SH 5 NB RAMP OVERPASS AT STEWART RD FRAMING PLAN UNIT 2
1017	SH 5 NB RAMP OVERPASS AT STEWART RD 160.00' PRESTRESSED CONCRETE GIRDER UNIT 2
1018	SH 5 NB RAMP OVERPASS AT STEWART RD FRAMING PLAN UNIT 3
1019	SH 5 NB RAMP OVERPASS AT STEWART RD 160.00' PRESTRESSED CONCRETE GIRDER UNIT 3
1020	IGND
1021 - 1022	SH 5 SB RAMP CONNECTOR BRIDGE LAYOUT
1023	SH 5 SB RAMP CONNECTOR BRIDGE TYPICAL SECTIONS
1024	SH 5 SB RAMP CONNECTOR EST QTYS, BRG SEAT ELEVS
1025	SH 5 SB RAMP CONNECTOR INTERIOR BENT NO. 2
1026	SH 5 SB RAMP CONNECTOR INTERIOR BENT NO. 3
1027	SH 5 SB RAMP CONNECTOR INTERIOR BENT NO. 4 - 6
1028	SH 5 SB RAMP CONNECTOR INTERIOR BENT NO. 7
1029	SH 5 SB RAMP CONNECTOR FRAMING PLAN UNIT 1
1030 - 1031	SH 5 SB RAMP CONNECTOR 184.20' PRESTRESSED CONCRETE GIRDER UNIT 1
1032	SH 5 SB RAMP CONNECTOR FRAMING PLAN UNIT 2
1033 - 1034	SH 5 SB RAMP CONNECTOR 183.00' PRESTRESSED CONCRETE GIRDER UNIT 2
1035	SH 5 SB RAMP CONNECTOR FRAMING PLAN UNIT 3
1036 - 1037	SH 5 SB RAMP CONNECTOR 183.00' PRESTRESSED CONCRETE GIRDER UNIT 3
1038	SH 5 SB RAMP CONNECTOR FRAMING PLAN UNIT 4
1039	SH 5 SB RAMP CONNECTOR 93.04' PRESTRESSED CONCRETE GIRDER UNIT 4
1040	SH 5 SB RAMP CONNECTOR 93.04' PRESTRESSED CONCRETE GIRDER UNIT 5
1041	IGND
1042	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR BRIDGE LAYOUT
1043	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR BRIDGE TYPICAL SECTIONS
1044	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR EST QTY, BRG ST ELEV
1045	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR ABUTMENT NO. 1
1046	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR ABUTMENT NO. 4
1047	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR INTERIOR BENT NOS. 2 & 3
1048	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR FRAMING PLAN
1049	SPUR 399 SBML OVERPASS AT MEDICAL CENTER DR 277.39' PRESTRESSED CONCRETE GIRDER UNIT (SPANS 1, 2, AND 3)
1050	IGND
1051	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR BRIDGE LAYOUT
1052	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR BRIDGE TYPICAL SECTIONS
1053	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR EST QTY, BRG ST ELEV
1054	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR ABUTMENT NO. 1
1055	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR ABUTMENT NO. 4
1056	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR BENT 2 & 3
1057	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR FRAMING PLAN
1058	SPUR 399 NBML OVERPASS AT MEDICAL CENTER DR 277.39' PRESTRESSED CONCRETE GIRDER UNIT (SPANS 1, 2, AND 3)
1059	IGND
1060 - 1061	SPUR 399 NB ENTRANCE RAMP AT STEWART RD ABUTMENT NO. 1

VOLUME 2 - CONTINUED

SHEETS	DESCRIPTION
	BRIDGE TXDOT STANDARDS
1062	## BD-1 (MOD)
1063	## BAS-C
1064 - 1066	## BMCS
1067 - 1068	## BRSM
1069	## BS-EJCP
1070 - 1073	## C402
1074 - 1075	## CSAB
1076 - 1077	## FD
1078 - 1079	## IGD
1080 - 1082	## IGEB
1083 - 1084	## IGMS-DAL
1085	## IGSK
1086	## IGTS-DAL
1087 - 1088	## MEBR(C)
1089 - 1092	## PCP-DAL
1093	## PCP-FAB
1094 - 1095	## PMDF
1096	## SEJ-M
1097 - 1098	## SRR
1099 - 1100	## SSTR
1101 - 1103	## T402
1104	## NBIS
	BRIDGE NTTA STANDARDS
1105	## ABG201(1)-2023(MOD)
1106	## ABG201(2)-2023(MOD)
1107	## ABG201(3)-2023(MOD)
1108	## BAS-201-2010

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

CORY L. SHIPMAN, P.E. — 10/1/2024 DATE

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
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Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5

INDEX OF SHEETS

N.T.S. SHEET 4 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
JMD	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
CZ	TEXAS	DAL	COLLIN	1112
CHECK WFF	CONTROL	SECTION	JOB	
CHECK JMD	0047	05	057, ETC.	

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100% PLANS SUBMITTAL

VOLUME 3

SHEETS	DESCRIPTION
	VIII. TRAFFIC ITEMS -SIGNALS
1	TITLE SHEET
1109 - 1113	INDEX OF SHEETS
1114	TEMPORARY SIGNAL GENERAL NOTES
1115	TEMPORARY SIGNAL LAYOUT SH 5 AND SPUR 399 PHASE 2
1116	TEMPORARY SIGNAL LAYOUT SH 5 AND SPUR 399 PHASE 3 STEP 1
1117	TEMPORARY SIGNAL LAYOUT SH 5 AND SPUR 399 PHASE 3 STEP 2
1118	TEMPORARY SIGNAL DETAILS SH 5 AND SPUR 399
1119	TEMPORARY SIGNAL LAYOUT SH 5 & HARRY MCKILLOP BLVD PHASE 1 STEP 1
1120	TEMPORARY SIGNAL LAYOUT SH 5 & HARRY MCKILLOP BLVD PHASE 1 STEP 2
1121	TEMPORARY SIGNAL LAYOUT SH 5 & HARRY MCKILLOP BLVD PHASE 2 STEP 1
1122	TEMPORARY SIGNAL LAYOUT SH 5 & HARRY MCKILLOP BLVD PHASE 2 STEP 2
1123	TEMPORARY SIGNAL LAYOUT SH 5 & HARRY MCKILLOP BLVD PHASE 3 STEP 1
1124	TEMPORARY SIGNAL DETAILS SH 5 AND MCKILLOP BLVD
1125	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 1 STEP 1
1126	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 1 STEP 2
1127	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 1 STEP 3
1128	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 2 STEP 1
1129	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 2 STEP 2
1130	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 2 STEP 3
1131	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 3 STEP 1
1132	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 3 STEP 2
1133	TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 3 STEP 3
1134	TEMPORARY SIGNAL DETAILS SH 5 AND ELDORADO PKWY
1135	TRAFFIC SIGNAL EXISTING LAYOUT (REMOVAL) SH 5 AND SPUR 399
1136	TRAFFIC SIGNAL EXISTING LAYOUT SH 5 AND STEWART RD
1137 - 1138	TRAFFIC SIGNAL PROPOSED LAYOUT SPUR 399 AND STEWART RD
1139 - 1142	TRAFFIC SIGNAL PROPOSED QUANTITIES SPUR 399 AND STEWART RD
1143	TRAFFIC SIGNAL EXISTING LAYOUT SH 5 AND HARRY MCKILLOP BLVD
1144	TRAFFIC SIGNAL PROPOSED LAYOUT SH 5 AND HARRY MCKILLOP BLVD
1145 - 1147	TRAFFIC SIGNAL PROPOSED QUANTITIES SH 5 AND HARRY MCKILLOP BLVD
1148	TRAFFIC SIGNAL EXISTING LAYOUT SH 5 AND ELDORADO PKWY
1149	TRAFFIC SIGNAL PROPOSED LAYOUT SH 5 AND ELDORADO PKWY
1150 - 1153	TRAFFIC SIGNAL PROPOSED QUANTITIES SH 5 AND ELDORADO PKWY
	TRAFFIC SIGNAL TXDOT STANDARDS
1154	⁂TS-FD-12
1155	⁂SMA-80(1)-12(DAL)
1156	⁂SMA-80(2)-12(DAL)
1157	⁂LMA(1)-12(DAL)
1158	⁂LMA(2)-12(DAL)
1159	⁂LMA(3)-12
1160	⁂LMA(4)-12(DAL)
1161	⁂LMA(5)-12(DAL)
1162	⁂DMA-80(1)-12(DAL)
1163	⁂DMA-80(2)-12(DAL)
1164	⁂DMA-80(3)-12(DAL)
1165	⁂ED(1)-14
1166	⁂ED(3)-14
1167	⁂ED(4)-14
1168	⁂ED(5)-14
1169	⁂ED(6)-14
1170	⁂ED(8)-14
1171	⁂ED(9)-14
1172	⁂MA-C-12
1173	⁂MA-D-12 (DAL)
1174	⁂LUM-A-12
1175	⁂CFA-12
1176	⁂MA-DPD-20
1177	⁂TS-BP-20
1178	⁂TS-CF-21
1179	⁂TRAFFIC SIGNAL HEAD DETAILS (DAL)
1180	⁂PEDESTRIAN SIGNAL HEAD DETAILS (DAL)
1181	⁂RVDS-23 (DAL)
1182	⁂WV & IZ-14
1183 - 1185	+CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED TRAFFIC SIGNALS (DAL)
	IX. TRAFFIC ITEMS - ITS & ILLUMINATION
1186 - 1194	ITS & ILLUMINATION PLAN
1195	ITS & ILLUMINATION PLAN UNDERPASS LAYOUT
1196	ITS & ILLUMINATION PLAN UNDERPASS DETAIL
1197 - 1198	ITS & ILLUMINATION PLAN SPUR 399/SH5 CIRCUIT DIAGRAM

VOLUME 3 - CONTINUED

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1200	ΨED(10)-14
1201 - 1204	ΨRIP(1)-19 THRU RIP(4)-19
1205 - 1207	ΨRID(1)-20 THRU RID(3)-20
1208 - 1214	ΨHMID(1)-24 THRU HMID(7)-24
1215 - 1216	ΨHMIP(1)-16 THRU HMIP(2)-16
1217 - 1218	ΨHMIF(1)-98 THRU HMIF(2)-98
	ITS & ILLUMINATION MCKINNEY STANDARDS
1219	ΨSTANDARD DRAWING NO. 7004M
1220	ΨROADWAY ILLUMINATION POLE DETAIL
	ITS & ILLUMINATION NTTA STANDARDS
1221	ΨITS-006(1) - 2023
1222	ΨITS-006(2) - 2023
1223	ΨESC-001(1) - 2015
1224	ΨESC-003(1) - 2015
1225	ΨESC-003(2) - 2015
1226	ΨESC-003(3) - 2015
1227	ΨESC-003(4) - 2015
	X. TRAFFIC ITEMS - SIGNING AND MARKING
1228 - 1240	SIGNING LAYOUT
1241 - 1248	LARGE SIGN STRUCTURE DETAIL
1249 - 1250	SMALL SIGN DETAILS
1251 - 1256	LARGE SIGN DETAILS
1257 - 1269	PAVEMENT MARKING LAYOUT
	SIGNING AND MARKINGS TXDOT STANDARDS
1270	+TSR (1)-13
1271	+TSR (2)-13
1272	+TSR (3)-13
1273	+TSR (4)-13
1274	+TSR (5)-13
1275	+D & OM (1)-20
1276	+D & OM (2)-20
1277	+D & OM (3)-20
1278	+D & OM (4)-20
1279	+D & OM (5)-20
1280	+D & OM (6)-20
1281	+D & OM (VIA)-20
1282	+PM(1)-22
1283	+PM (2) - 22
1284	+PM (3) - 22
1285	+PM(4)-22A
1286	+CPM(1)-23
1287	+FPM(1)-22
1288	+FPM(2)-22
1289	+FPM(3)-22
1290	+FPM(4)-22
1291	+FPM(5)-22
1292	+FPM(6)-22
1293 - 1294	+HORIZONTAL SIGNING DALLAS DISTRICT
1295	+PAVEMENT MARKINGS (EXIT TO FRONTAGE ROAD) DALLAS DISTRICT STANDARD
1296	+SMD (GEN) -08
1297	+SMD (SLIP - 1) - 08 (DAL)
1298	+SMD (SLIP - 2) - 08
1299	+SMD (SLIP - 3) - 08
1300	+SMD (BR - 1) -14
1301	+SMD (BR - 2) -14
1302	+SMD (BR - 3) -14
1303 - 1305	+BMCS
1306	+SMD (2-1)-24
1307	+SMD (2-2)-24
1308	+SMD (2-3)-24
1309	+SMD (2-4)-24
1310	+SMD (2-5)-24
1311	+SMD (2-6)-24
1312	+SMD(LRSS-1)-24
1313	+SMD(LRSS-2)-24
1314	+SMD(LRSS-3)-24
1315	+SMD(LRSS-4)-24

VOLUME 3 - CONTINUED

SHEETS	DESCRIPTION
1315	+SMD(LRSS-4)-24
1316 - 1317	+OSB-Z4I
1318 - 1319	+HOSB-Z4I
1320	+OSBT (1) - 21
1321	+OSBT (2) - 21
1322	+OSBC
1323	+OSB-FD
1324	+COSS-Z4 & Z4I-10
1325 - 1326	+COSSD
1327	+COSSF-21
1328	+COSS-FD
	SIGNING AND MARKINGS NTTA STANDARDS
1329	+NTTA STA MRKR
1330	+PAVEMENT MARKING DETAILS
	XI. ENVIRONMENTAL ITEMS
1331 - 1332	STORM WATER POLLUTION PREVENTION PLAN (SW3P)
1333 - 1334	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)
1335 - 1338	SW3P SITE MAP - PHASE 0
1339 - 1351	SW3P SITE MAP - PHASE 1
1352 - 1364	SW3P SITE MAP - PHASE 2
1365 - 1377	SW3P SITE MAP - PHASE 3
	EROSION CONTROL TXDOT STANDARDS
1378	ΔEC (1) - 16
1379	ΔEC (2) - 16
1380	ΔEC (3) - 16
1381 - 1383	ΔEC (9) - 16
1384	ΔCURB INLET SEDIMENT PROTECTION (DAL)
1385	ΔVEGETATION ESTABLISHMENT SHEET (DAL)
1386	ΔSW3P SIGN SHEET (DAL)

STATE OF TEXAS · ERIC SNOW KRAMER · 150414 · LICENSED PROFESSIONAL ENGINEER

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

ERIC SNOW KRAMER, P.E. — DATE 10/1/2024

STATE OF TEXAS · KHANDAKER N. ASHFAQUE · 147636 · REGISTERED PROFESSIONAL ENGINEER

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

KHANDAKER N. ASHFAQUE, P.E. — 10/1/2024 DATE

STATE OF TEXAS · MOHAMMED S. ULA · 131559 · LICENSED PROFESSIONAL ENGINEER

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

MOHAMMED S. ULA, P.E. — 10/1/2024 DATE

STATE OF TEXAS · PRAGNA TATA · 129174 · LICENSED PROFESSIONAL ENGINEER

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

PRAGNA TATA, P.E. — 10/1/2024 DATE

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
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Texas Department of Transportation

SH 5

INDEX OF SHEETS

N.T.S. — SHEET 5 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
JMD	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
CZ	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	
WFF	0047	05	057, ETC.	1113
CHECK				
JMD				

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SCALE: 1:1

100% PLANS SUBMITTAL

NOTES FOR TEMPORARY TRAFFIC SIGNALS:

1. PROVIDE AND INSTALL TEMPORARY TRAFFIC SIGNALS PRIOR TO ROADWAY CONSTRUCTION. DO NOT REMOVE TEMPORARY TRAFFIC SIGNALS UNTIL THE PROPOSED SIGNALS ARE INSTALLED AND IN OPERATION. UTILIZE EXISTING POWER SOURCE FOR INSTALLING THE TEMPORARY SIGNALS, IF POSSIBLE. INSPECT THE SITE TO DETERMINE THE METHOD OF PROVIDING SERVICE TO TEMPORARY SIGNAL INSTALLATION, IF NECESSARY. ADDITIONAL CONDUIT, POLE, CABLE, ETC., ARE CONSIDERED INCIDENTAL TO ITEM 681, "TEMPORARY TRAFFIC SIGNALS FOR CONSTRUCTION".

2. PROVIDE A CONTROLLER FOR EACH TEMPORARY SIGNAL INSTALLATION .PROVIDE A MINIMUM OF TWO (2) SIGNAL HEADS FOR EACH THROUGH APPROACH. PROVIDE EACH SPAN WITH SUFFICIENT SPARE SIGNAL CABLE TO ALLOW FOR ADJUSTMENTS NECESSARY TO LOCATE THE SIGNAL HEADS OVER THE APPROPRIATE LANES DURING EACH PHASE AND SEQUENCE OF CONSTRUCTION. THE TEMPORARY SIGNAL IS PAID FOR UNDER ITEM 681, "TEMPORARY TRAFFIC SIGNALS FOR CONSTRUCTION".

3. MAINTAIN THE TEMPORARY SIGNAL INSTALLATION AS DIRECTED IN THE CONSTRUCTION NARRATIVE. COVER THE SIGNAL HEADS WITH BLACK PLASTIC OR SUITABLE MATERIAL TO CONCEAL THE SIGNAL FACES FROM THE TIME OF THE INSTALLATION UNTIL PLACING INTO OPERATION. DO NOT USE BURLAP.

4. INSTALL TEMPORARY WOOD POLES WITHIN THE EXISTING RIGHT-OF-WAY OR TEMPORARY EASEMENT IN ACCORDANCE WITH THE LATEST TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE ENGINEER WILL APPROVE THE LOCATION(S) OF POLES, CONTROLLER(S), ELECTRICAL SERVICE, ETC.

5. PROVIDE A UNIFORMED POLICE OFFICER FOR TRAFFIC CONTROL, AT NO EXPENSE TO THE DEPARTMENT, DURING THE "SWITCH OVER" OF SIGNAL INSTALLATIONS AND DURING ANY PERIOD OF TIME THAT A SIGNAL INSTALLATION MAY BE OUT OF SERVICE. THE UNIFORMED POLICE OFFICER SHALL HAVE JURISDICTION WITHIN THE PROJECT LIMITS.

6. ALL EQUIPMENT UTILIZED FOR THE TEMPORARY TRAFFIC SIGNAL INSTALLATION MUST CONFORM TO, AND BE INSTALLED IN ACCORDANCE WITH, THE DEPARTMENT STANDARDS AND SPECIFICATIONS.

7. INSTALL SIGNALS HORIZONTALLY AT A MINIMUM OF 18 FT. - 6 IN. ABOVE THE ROADWAY.

8. REPLACE PAVEMENT, SIDEWALKS, OR CURBS DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION. SUCH REPAIR IS INCIDENTAL TO ITEM 681, "TEMPORARY TRAFFIC SIGNALS FOR CONSTRUCTION".

9. DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REPAIR ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR AT NO EXPENSE TO THE DEPARTMENT.

10. RESPOND IMMEDIATELY (24 HOURS A DAY) TO REPORTED TRAFFIC SIGNAL MALFUNCTIONS AT ANY OF THE INCLUDED SIGNALIZED INTERSECTIONS AFTER ASSUMING RESPONSIBILITY FOR THE MAINTENANCE OF THE SIGNAL EQUIPMENT AS OUTLINED ABOVE.

11. PHASING SEQUENCE AND SIGNAL TIMING WILL BE COORDINATED WITH THE CITY OF MCKINNEY SUBJECT TO THE APPROVAL OF THE ENGINEER.

12. PROVIDE A QUALIFIED TRAFFIC SIGNAL TECHNICIAN AS NEEDED TO BE RESPONSIBLE FOR THE MAINTENANCE AND/OR REPLACEMENT OF ALL TRAFFIC SIGNAL DEVICES.

13. COORDINATE INSTALLATIONS OF THE TEMPORARY TRAFFIC SIGNALS DURING CONSTRUCTION WITH THE VARIOUS PHASES AND SEQUENCES OF THE PROPOSED ROADWAY CONSTRUCTION.

14. INSTALL CERTAIN PORTIONS OF THE PERMANENT TRAFFIC SIGNAL SYSTEMS, IF POSSIBLE, DURING CONSTRUCTION, IF THERE IS NO CONFLICT WITH ROADWAY CONSTRUCTION AND AS APPROVED.

15. WRAP TRAFFIC SIGNAL HEADS NOT USED DURING CERTAIN PHASES OR SEQUENCES OF THE TRAFFIC CONTROL PLAN WITH DARK PLASTIC OR SUITABLE MATERIAL TO CONCEAL SIGNAL FACES UNTIL THEY ARE PLACED IN OPERATION. DO NOT USE BURLAP. DISCONNECT TRAFFIC SIGNAL CABLE IN THE CONTROLLER FOR UNUSED SIGNAL HEADS.

16. COIL SUFFICIENT AMOUNT OF SIGNAL CABLE TO ACCOMMODATE SIGNAL HEAD ADJUSTMENTS DURING THE VARIOUS PHASES OF CONSTRUCTION.

17. REUSE EXISTING WIRE AND CABLES, IF POSSIBLE, DURING VARIOUS PHASES/SEQUENCES OF CONSTRUCTION IF DEEMED ACCEPTABLE.

18. VERIFY THE EXACT LOCATION OF THE SERVICE OUTLET DURING THE VARIOUS PHASES/SEQUENCES OF CONSTRUCTION. THE SERVICE OUTLET IS SUBJECT TO RELOCATION TO ANY CORNER AT NO ADDITIONAL COST TO THE DEPARTMENT DURING ANY PHASE/SEQUENCE OF CONSTRUCTION.

19. FOR EACH PHASE/SEQUENCE OF THE TRAFFIC CONTROL, BEFORE STARTING OTHER CONSTRUCTION, CONSTRUCT AND MAKE THE TEMPORARY TRAFFIC SIGNAL(S) OPERATIONAL.

20. ENSURE THAT TEMPORARY SIGNALS REMAIN OPERATIONAL UNTIL THE "SWITCH OVER" TO NEXT PHASE/SEQUENCE OF CONSTRUCTION. KEEP DOWN TIME, IF ANY, TO A MINIMUM. ACCOMPLISH THE "SWITCH OVER" DURING OFF-PEAK HOURS BETWEEN 9:00 AM AND 3:00 PM.

21. FURNISH NEW TEMPORARY POLE MOUNTED CONTROLLERS. IN ADDITION TO ATTACHING THE CONTROLLER TO THE POLE, FURNISH AND INSTALL A STURDY PLATFORM TO STABILIZE THE CONTROLLER. SECURE THE ENGINEER'S APPROVAL OF THE CABINET PLATFORM BEFORE INSTALLATION.

22. FURNISH 3/8-IN. GALVANIZED DOWN GUY (SI (HIGH STRENGTH> FOR WOOD POLES. FURNISH 8 FT. - 10 IN. SCREW ANCHORS. FURNISH "SIDEWALK" DOWN-GUYS IF FIELD CONDITIONS DO NOT ALLOW FOR THE STANDARD DOWN-GUY ASSEMBLY. REUSE EXISTING SIGNAL POLE AS TEMPORARY SIGNAL POLE IF POSSIBLE.

23. PROVIDE CONTINUOUS CONDUCTORS WITHOUT SPLICES FROM SIGNAL CONTROLLERS TO SIGNAL HEADS. PROVIDE CONTINUOUS CONDUCTORS WITHOUT SPLICES FROM LUMINAIRES (IF REQUIRED) TO SERVICE ENCLOSURE. IF USING EXISTING SERVICE, PROVIDE NEW SERVICE ENCLOSURE (IF NECESSARY> WITH PHOTOELECTRIC CONTROL TO ACCOMMODATE THE LUMINAIRE CABLE.

24. AIM LUMINAIRE ARMS MOUNTED ON TRAFFIC SIGNAL POLES PERPENDICULAR TO THE CENTERLINE OF THE ROADWAY IT IS INTENDED TO COVER TO DEVELOP THE PROPER ILLUMINATION PATTERN FOR THE INTERSECTION.

25. PROVIDE 250 WATT LEDLUMINAIRES OPERATING AT 240 VOLTS.

26. VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS) IS TO BE USED TO DETECT VEHICLES DURING THE VARIOUS PHASES OF CONSTRUCTION. RELOCATE CAMERAS AS NECESSARY. PROVIDE SUFFICIENT AMOUNT OF COAXIAL CABLE AND POWER CONDUCTORS TO ACCOMMODATE ANY ADJUSTMENTS DURING THE VARIOUS PHASES OF CONSTRUCTION. THIS WORK IS INCIDENTAL TO ITEM 681, "TEMPORARY TRAFFIC SIGNALS".

27. FOR SPAN WIRE SIGNALS, ATTACH THE VIVDS COAXIAL AND POWER CABLE TO A 3/8-IN. GALVANIZED GUY WIRE (HIGH STRENGTH) BETWEEN THE SIGNAL POLES ABOVE THE TRAFFIC SIGNAL CABLE. STRAP THE VIVDS CABLE TO THE GUY WIRE WITH A METAL CABLE STRAP (ALUMINUM OR STAINLESS STEEL>, 3/4-IN. MINIMUM WIDTH AND TWO WRAPS AT 15 IN. MAXIMUM SPACING.

28. FOR VIVDS CAMERA(S) MOUNTED TO LUMINAIRE ARMS, STRAP THE VIVDS COAXIAL AND POWER CABLE TO THE ARM WITH A METAL CABLE STRAP (ALUMINUM OR STAINLESS STEEL), 3/4-IN. MINIMUM WIDTH AND TWO WRAPS AT 15 IN. MAXIMUM SPACING.

29. FURNISH VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS) CABLE RECOMMENDED BY MANUFACTURER OR PURCHASE CABLE FROM THE SAME MANUFACTURER THAT SUPPLIED/PROVIDED THE VIVDS EQUIPMENT.

30. RETAIN ALL REMOVED TEMPORARY SIGNAL COMPONENTS.

31. THE EMERGENCY DETECTORS AND CABLES TO BE PROVIDED BY THE AGENCIES WHO REQUEST EMERGENCY PREEMPTION AT NO COST OF DEPARTMENT. THE INSTALLATION IS CONSIDERED AS INCIDENTAL TO ITEM 681, "TEMPORARY TRAFFIC SIGNALS FOR CONSTRUCTION".

Mohammed S Ula
10/1/2024

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SH 5
TEMPORARY SIGNAL
GENERAL NOTES

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1114
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181/5-SP399-SEGI.tbl
USER: sdsha DATE: 10/1/2024 TIME: 10:29:28 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Temp Signal General Notes

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CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

PROP. TEMP. SIGNAL HEADS

R Y G

E1, E2, E3, E4

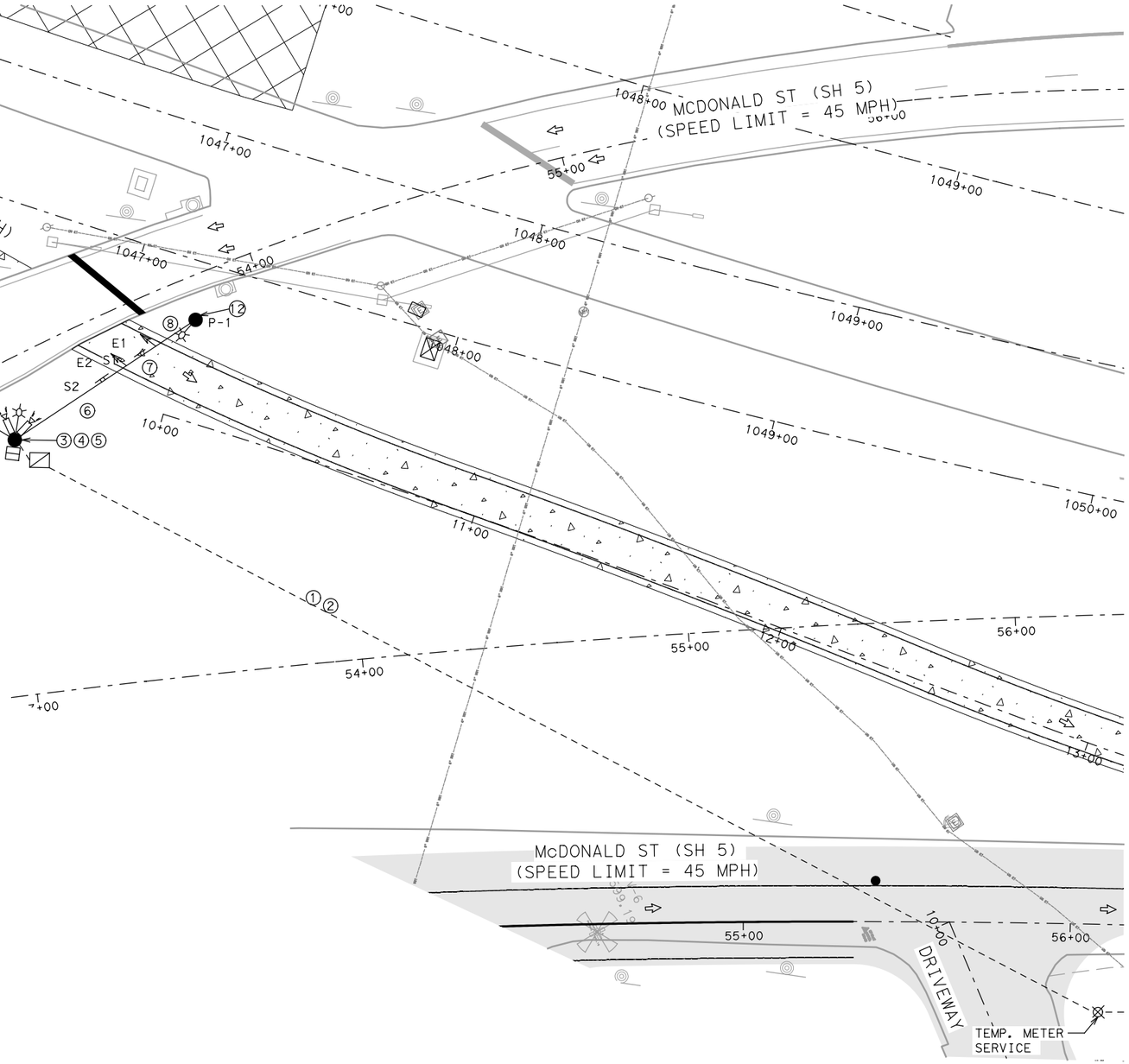
RELOCATED EX. SIGNS

S1

S2

S3

S4



LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/04/2024

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND SPUR 399
PHASE 2

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1115
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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USER: safsha
FILE: SH5_TCP SGNL_Spur 399_Phase 2
PENTABLE: I08II5-SP399-SEGI.tbl
DATE: 10/4/2024
TIME: 11:09:13 AM
SCALE: 1:40.0032

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CAUTION

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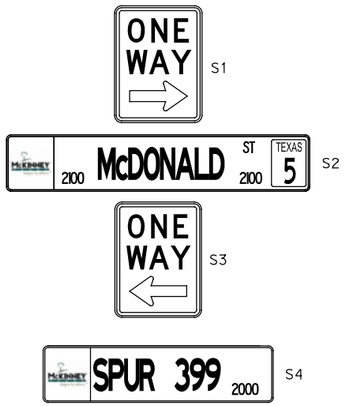
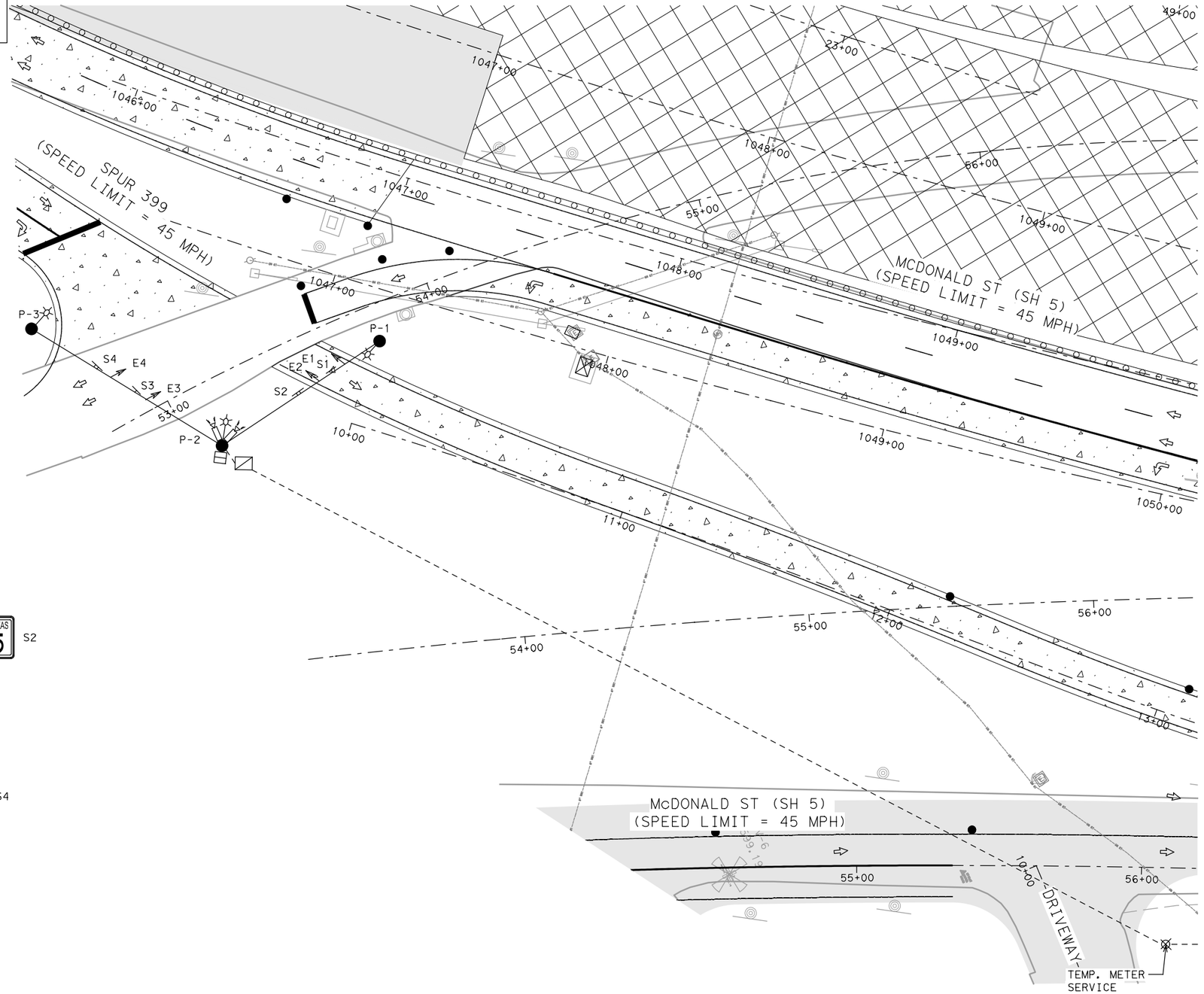
RELOCATED EX. SIGNAL HEADS

R Y G

E1, E2, E3, E4

RELOCATED EX. SIGNS





LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND SPUR 399
PHASE 3 STEP 1

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1116
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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USER: safsha DATE: I0/4/2024 TIME: II:09:30 AM SCALE: I:40.0032
FILE: SH5_TCP SGNL_Spur 399_Phase 3 Step I

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CAUTION

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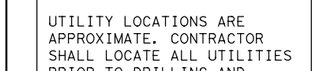
RELOCATED EX. SIGNAL HEADS

R Y G

E1, E2, E3, E4

RELOCATED EX. SIGNS



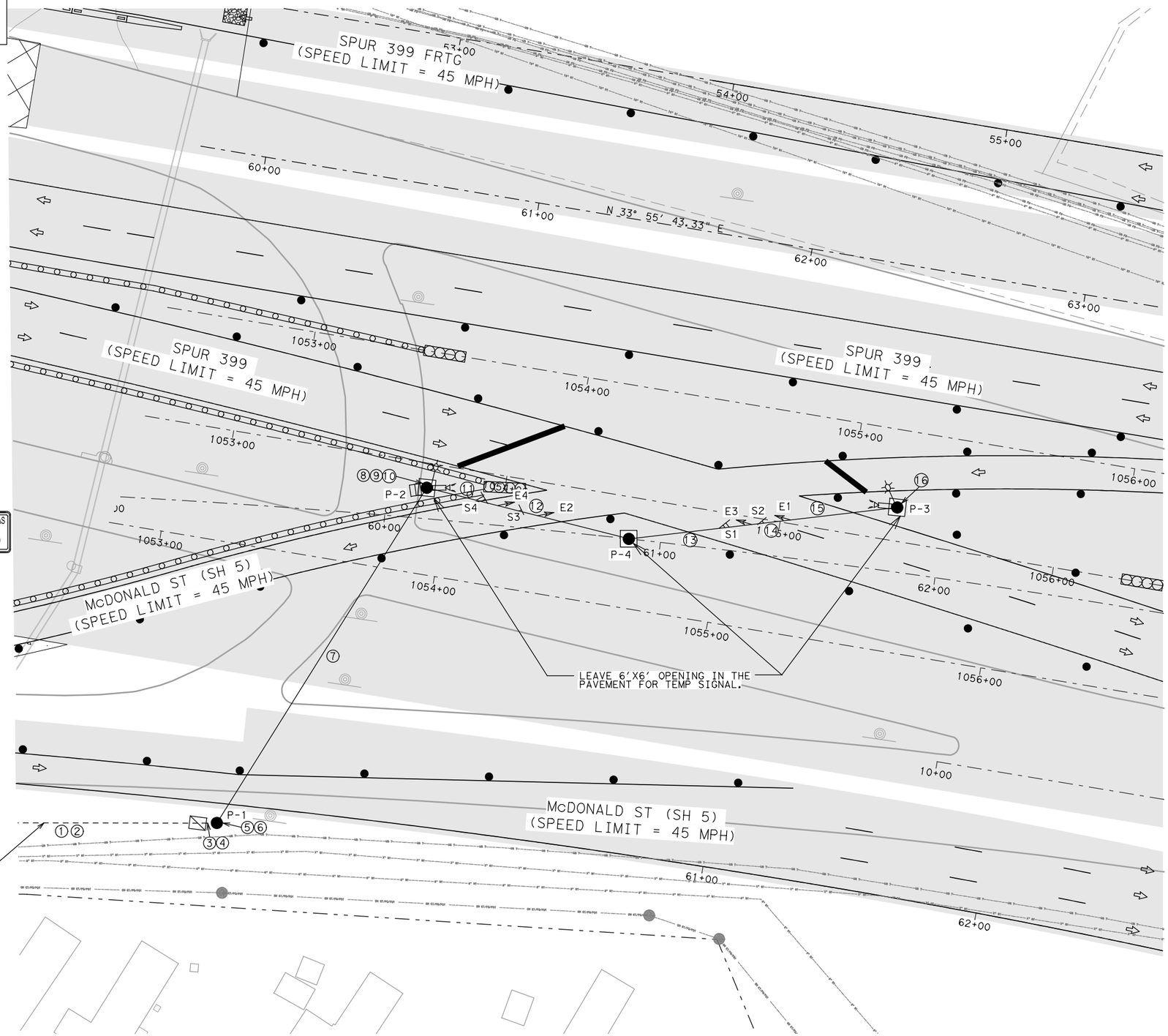
S1

S2

S3

S4

CONNECT TO TEMP METER SERVICE CONSTRUCTED IN PREVIOUS STEP



LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
MOHAMMED S. ULA
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PROFESSIONAL ENGINEER

Mohammed S Ula
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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND SPUR 399
PHASE 3 STEP 2

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1117
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEQ1.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:09:46 AM SCALE: 1:40.0032
FILE: SH5_TCP SGNL_Spur 399_Phase 3 Step 2

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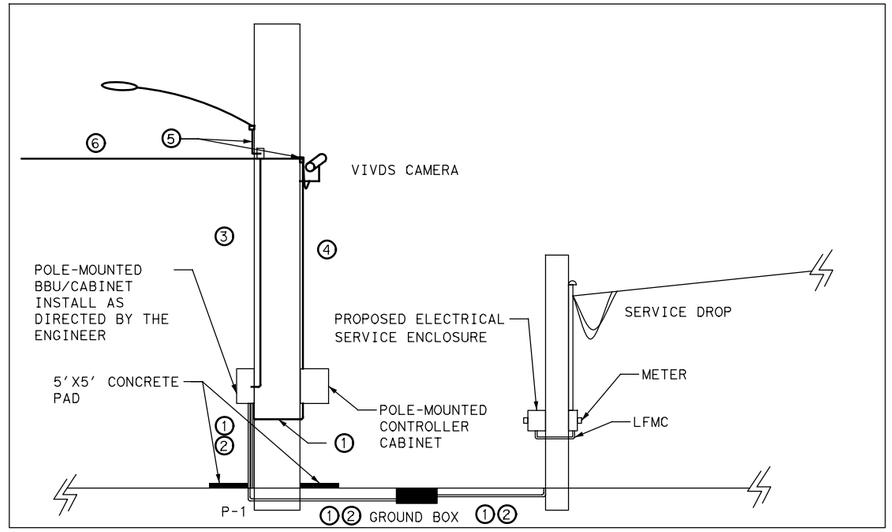
CONDUIT AND CONDUCTOR RUNS (PHASE 2 AND PHASE 3 STEP 1)																							
RUN NO.	CONDUIT										CONDUCTORS								CABLES				TOTAL LENGTH OF RUNS
	2" CONDUIT						4" CONDUIT		OVERHEAD SPAN WIRE		POWER				GROUND				VEHICLE SIGNAL		VIVDS CABLE		
	TRENCH PVC		BORE PVC		EXPOSED RMC		EXPOSED RMC				NO. 6 XHHW		NO. 8 XHHW		NO.6 BARE		NO.8 BARE		NO. 12/9C				
	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	LF
1	1	250	1	130	1	10					2	390			1	390							390
2	1	250	1	130	1	10							2	390			1	390					390
3					1	20							2	20			1	20					20
4							1	20											2	20	2	20	20
5					1	10							2	10							2	10	10
6									1	40			2	40					1	40			40
7									1	15			2	15					1	15			15
8									1	10			2	10									10
9									1	20			2	20					1	20			20
10									1	20			2	20					1	20			20
11									1	25			2	25									25
12					1	10							2	10									10
13					1	10							2	10									10
*SLACK																			2	30			60 SLACK
TOTAL		500		260		70		20		130		780		1140		390		410		195		60	TOTAL

*: ADD 30' NO.12/9C EACH SLACK FOR MOVING SIGNAL HEADS.

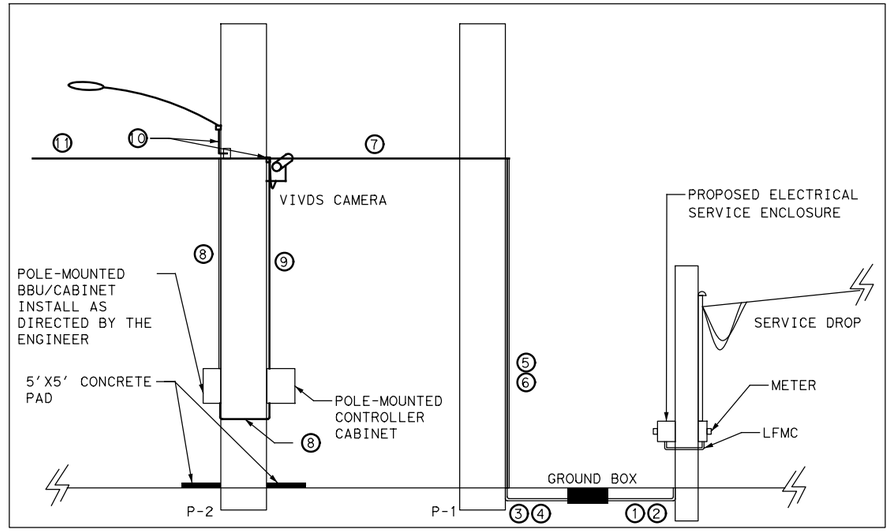
CONDUIT AND CONDUCTOR RUNS (PHASE 3 STEP 2)																							
RUN NO.	CONDUIT								OVERHEAD SPAN WIRE		CONDUCTORS								CABLES				TOTAL LENGTH OF RUNS
	2" CONDUIT						4" CONDUIT				POWER				GROUND				VEHICLE SIGNAL		VIVDS CABLE		
	TRENCH PVC		BORE PVC		EXPOSED RMC		EXPOSED RMC				NO. 6 XHHM		NO. 8 XHHM		NO. 6 BARE		NO. 8 BARE		NO. 12/9C				
	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	LF
1	1	300									2	300			1	300							300
2	1	300											2	300			1	300					300
3	1	10									2	10			1	10							10
4	1	10											2	10			1	10					10
5					1	35					2	35											35
6					1	35							2	35									35
7									1	155	2	155	2	155									155
8					1	20					2	20	2	20									20
9							1	20											2	20	2	20	20
10					1	10							2	10							1	10	10
11									1	50			2	50					2	50	1	50	50
12									1	40			2	40					2	40	1	40	40
13									1	20			2	20					2	20	1	20	20
14									1	40			2	40					1	40	1	40	40
15									1	50			2	50							1	50	50
16					1	10							2	10							1	10	10
TOTAL		620				110		20		355		1040		1480		310		310		300		260	TOTAL

POLE LOCATION CHART (PHASE 2 & PHASE 3 STEP 1)		
POLE#	STA	OFF
POLE 1	1047+07	57' RT
POLE 2	1046+68	109' RT
POLE 3	1045+93	91' RT

POLE LOCATION CHART (PHASE 3 STEP 2)		
POLE#	STA	OFF
POLE 1	1053+17	140' RT
POLE 2	1053+72	09' RT
POLE 3	1055+40	12' LT
POLE 4	1054+47	15' RT



POLE-MOUNTED SIGNAL CABINET DETAILS (NOT TO SCALE)



POLE-MOUNTED SIGNAL CABINET DETAILS (NOT TO SCALE)

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SH 5
TEMPORARY SIGNAL DETAILS
SH 5 AND SPUR 399

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	
CHECK IEI	CONTROL	SECTION	JOB	1118
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0181S-SP399-SEGI.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:09:54 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Spur 399 Details

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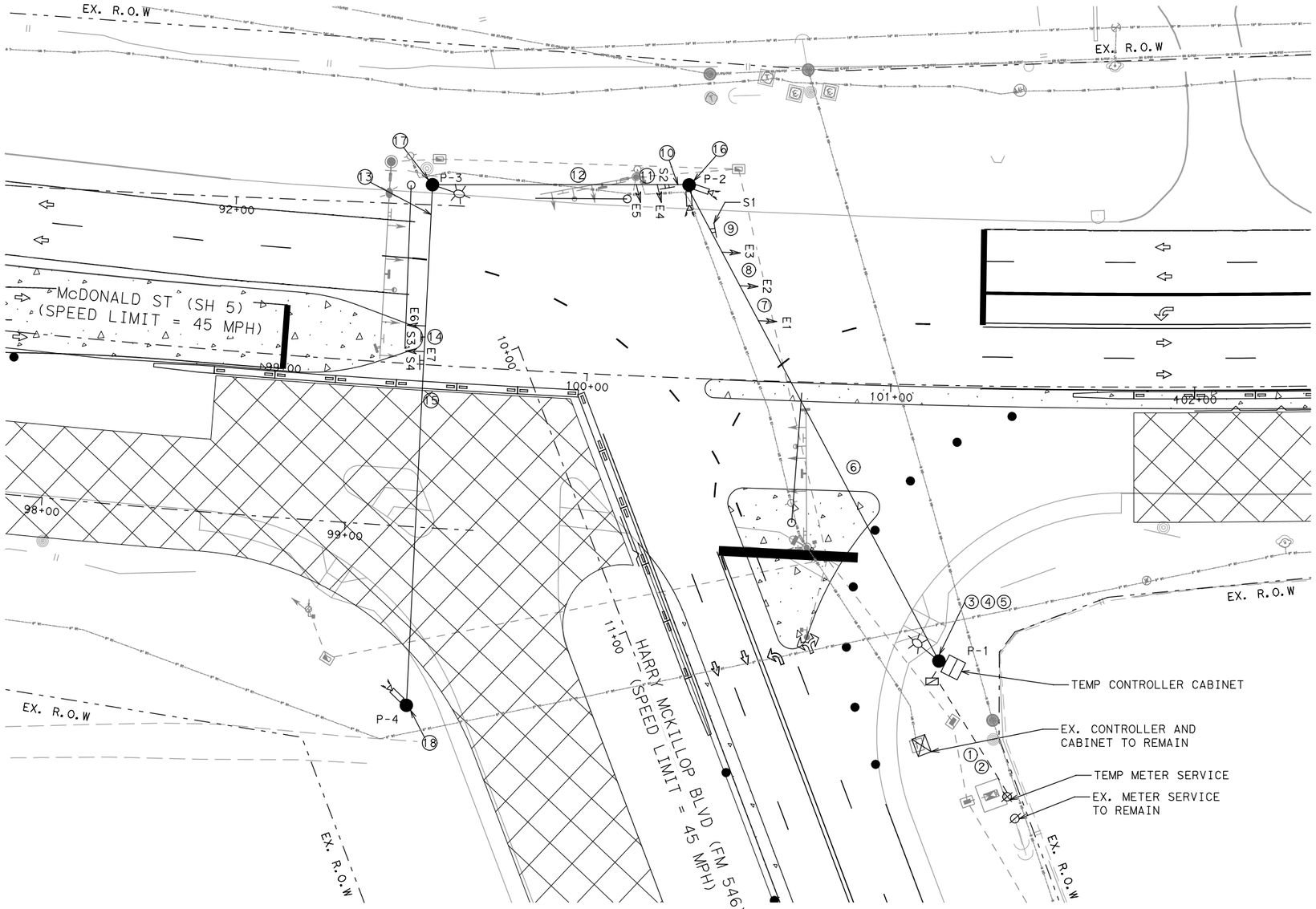
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



LEGEND

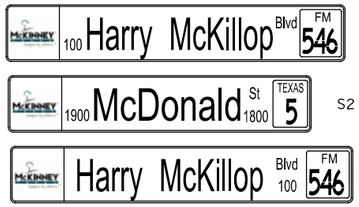
- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

PROP. TEMP. SIGNAL HEADS

E1 — E2, E3, E4, E5, E6, E7

RELOACTED EX. SIGNS



S3

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 & HARRY MCKILLOP BLVD
PHASE 1 STEP 1

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1119
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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USER: safsha DATE: 10/4/2024 TIME: 11:10:15 AM SCALE: 1:40
FILE: SH5_TCP SGNL_McKillop Blvd Phase I Step I

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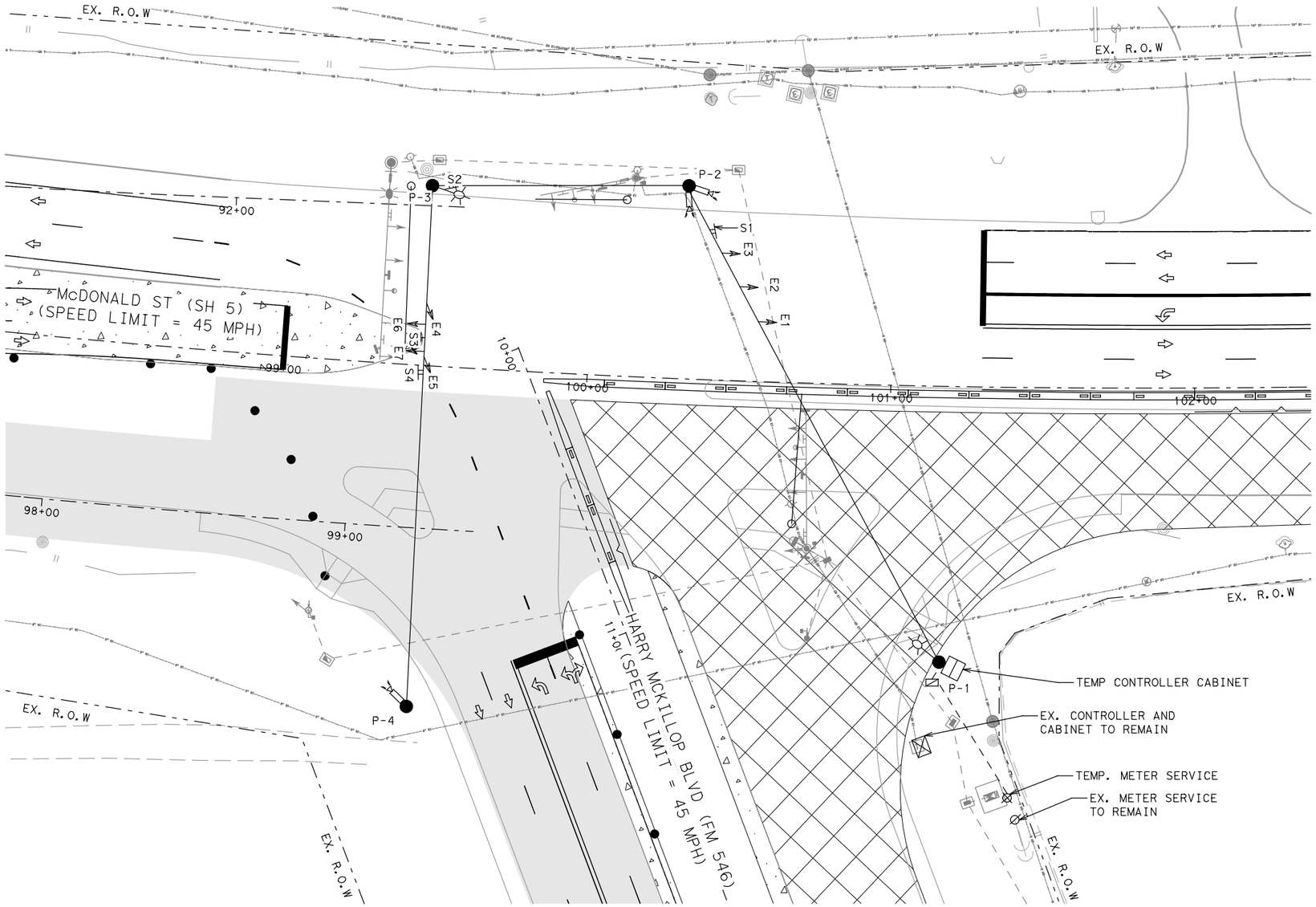
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



LEGEND

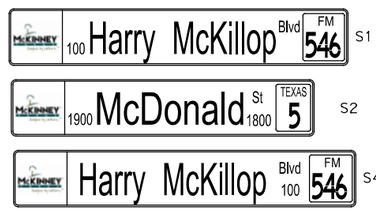
- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

E1 — E2, E3, E4, E5, E6, E7

RELOACTED EX. SIGNS



S3

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 & HARRY MCKILLOP BLVD
PHASE 1 STEP 2

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1120
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: I0/4/2024 TIME: II:I0:44 AM SCALE: I:40
FILE: SH5_TCP SGNL_McKillop Blvd Phase I Step 2

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CAUTION

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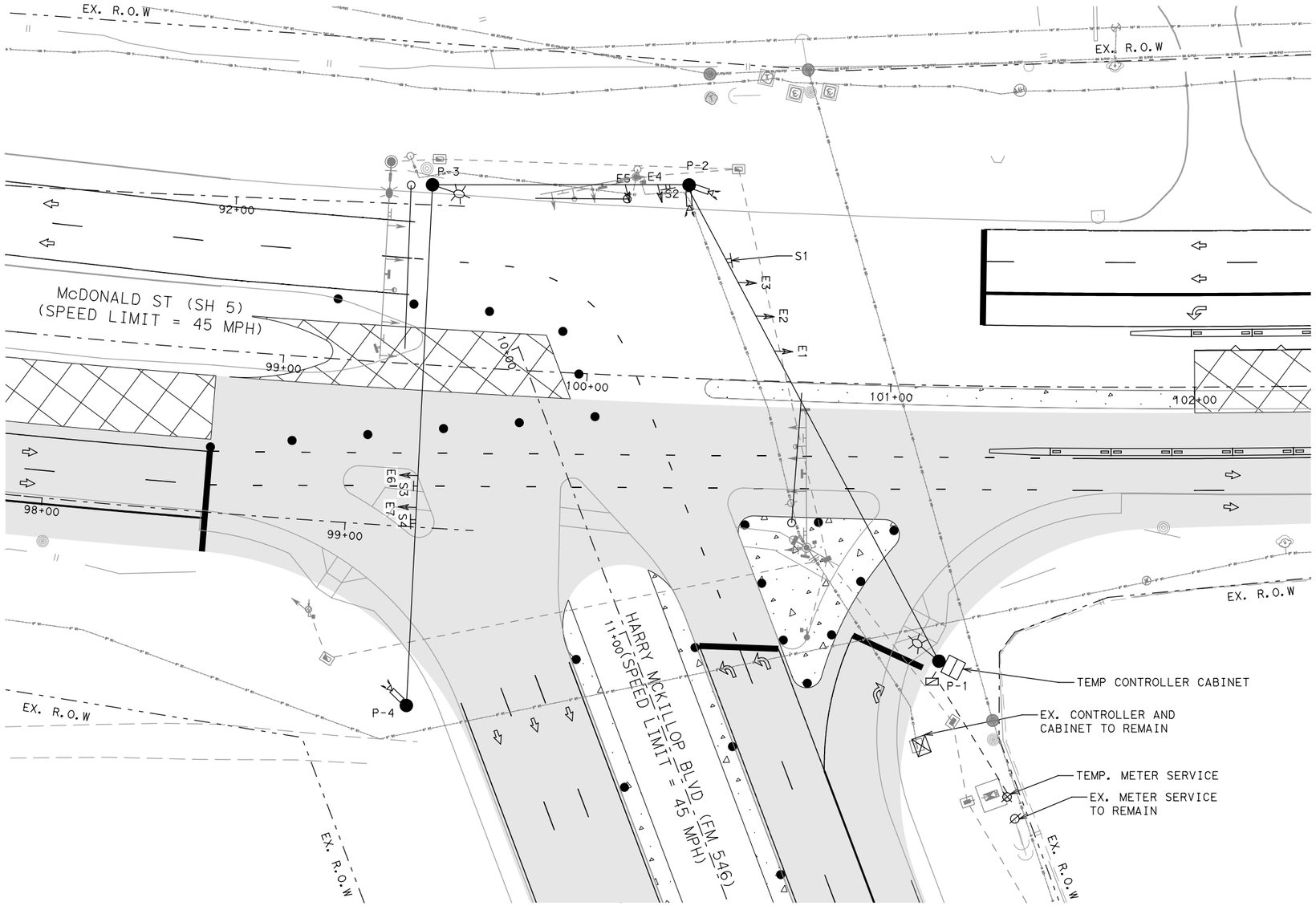

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
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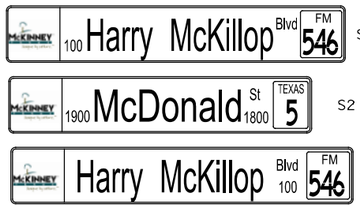
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

E1 E2, E3, E4, E5, E6, E7

RELOACTED EX. SIGNS



S3

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 & HARRY MCKILLOP BLVD
PHASE 2 STEP 1

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DAL	COLLIN	1121
CHECK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: I0/4/2024 TIME: II:II:23 AM SCALE: I:40
FILE: SH5_TCP SGNL_McKillop Blvd Phase 2 Step I

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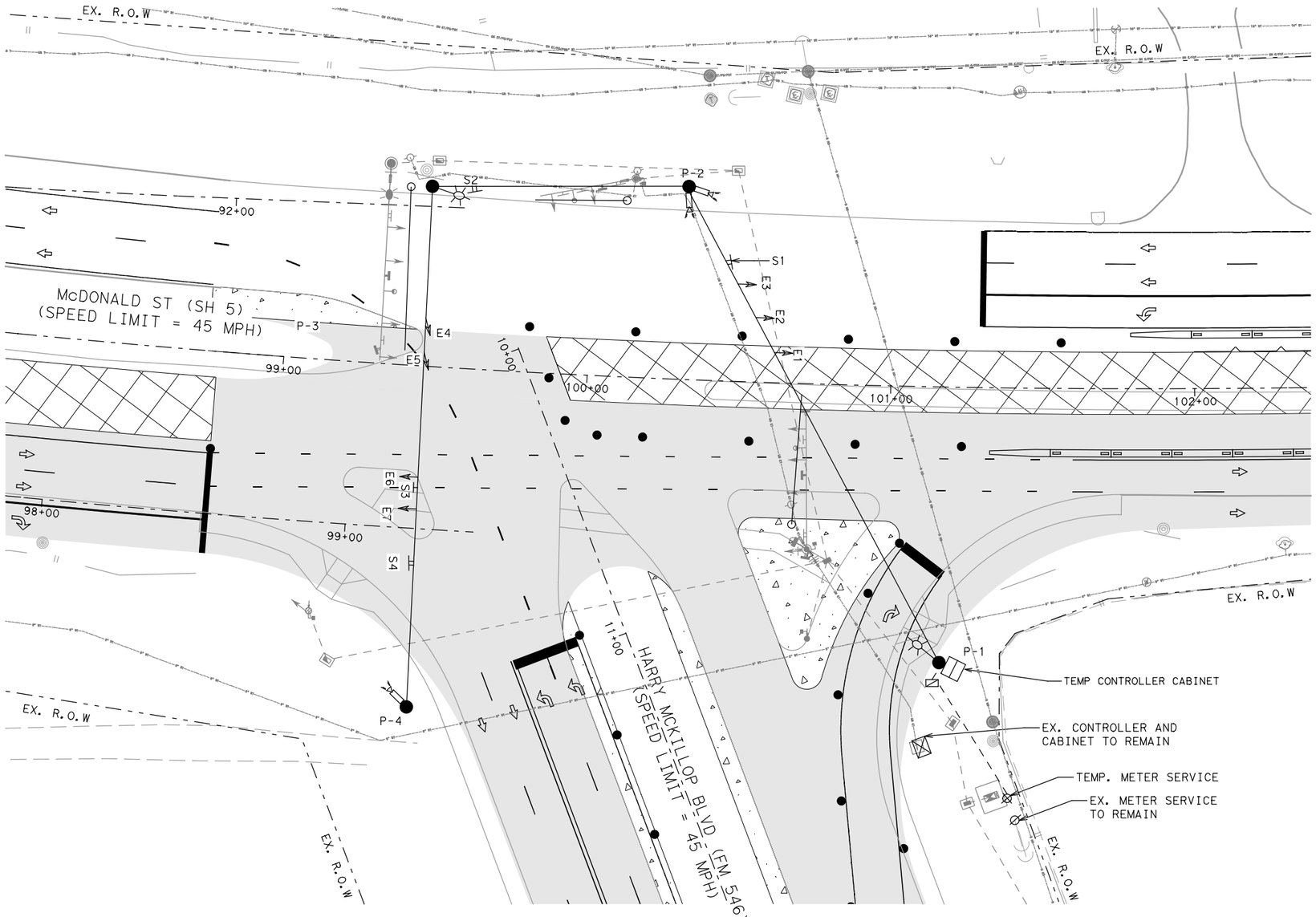
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



LEGEND

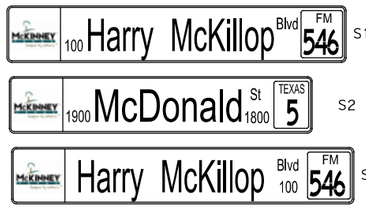
- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

E1 — E2, E3, E4, E5, E6, E7

RELOACTED EX. SIGNS



S3

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131559
LICENSED
PROFESSIONAL ENGINEER

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 & HARRY MCKILLOP BLVD
PHASE 2 STEP 2

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1122
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: I0/4/2024 TIME: II:43:20 AM SCALE: I:40
FILE: SH5_TCP SGNL_McKillop Blvd Phase 2 Step 2

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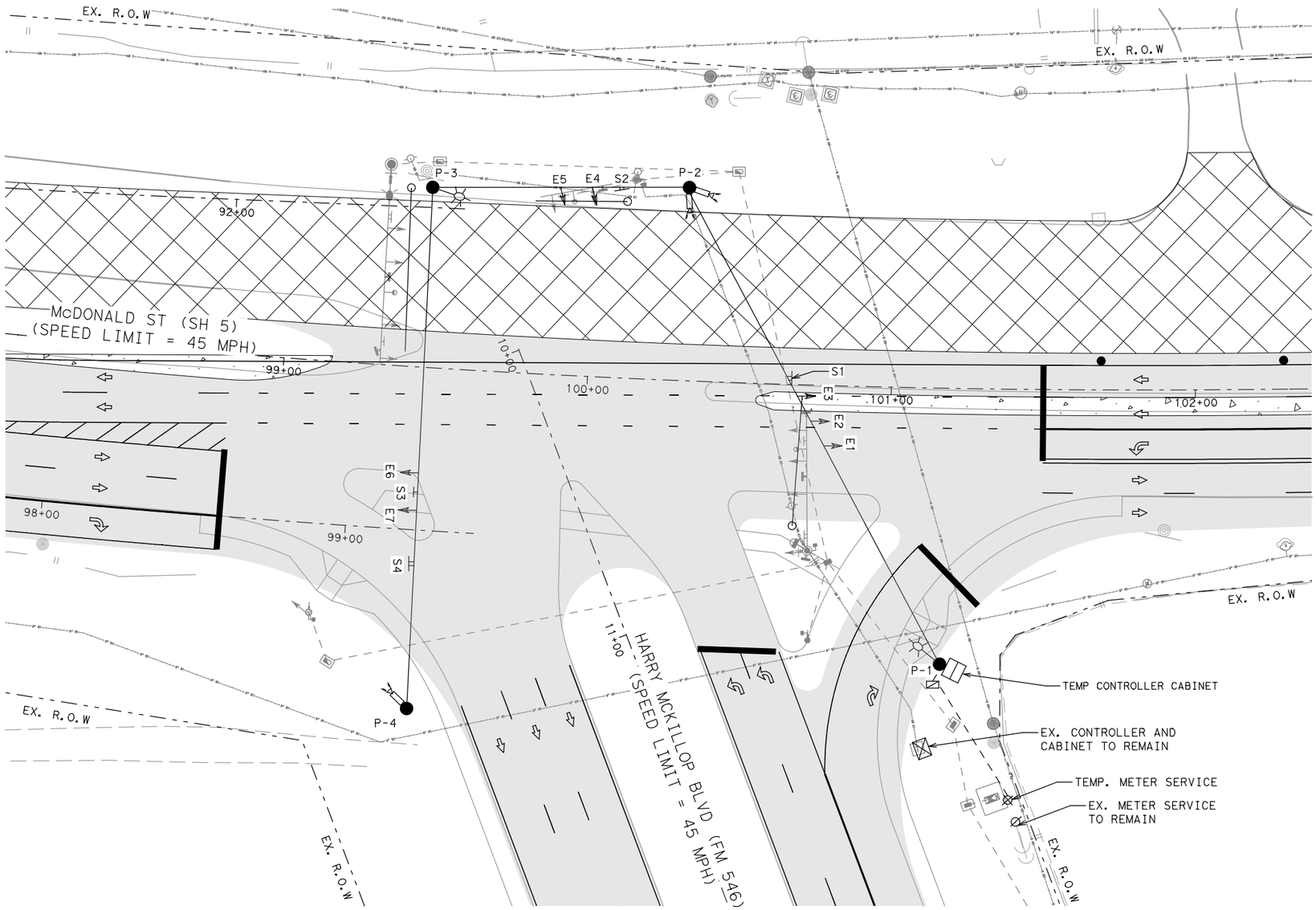
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



LEGEND

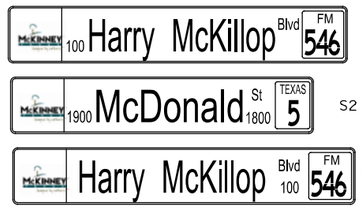
- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

E1 E2, E3, E4, E5, E6, E7

RELOACTED EX. SIGNS



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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 & HARRY MCKILLOP BLVD
PHASE 3 STEP 1

SHEET 1 OF 1

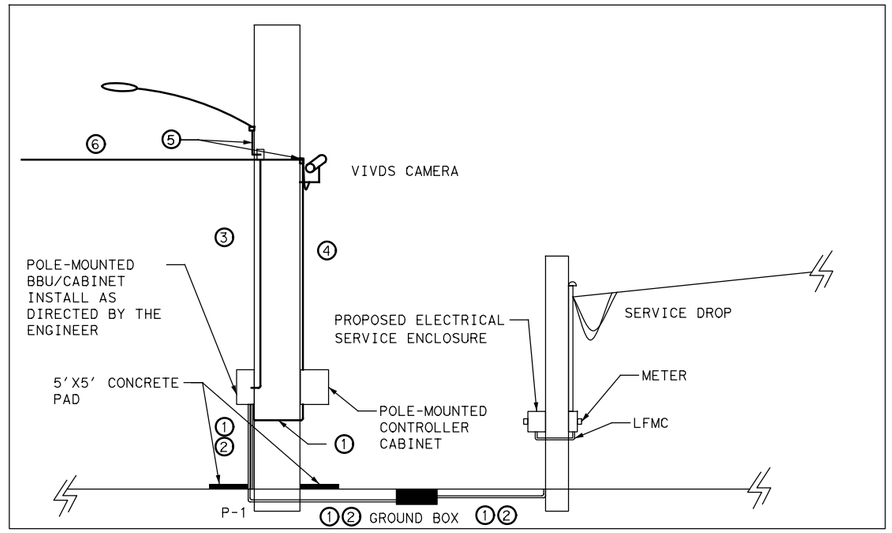
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1123
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:35:35 AM SCALE: 1:40
FILE: SH5_TCP SGNL_McKllp Blvd Phase 3 Step 1

100% PLANS SUBMITTAL

CONDUIT AND CONDUCTOR RUNS																							
RUN NO.	CONDUIT										CONDUCTORS								CABLES				TOTAL LENGTH OF RUNS
	2" CONDUIT						4" CONDUIT		OVERHEAD SPAN WIRE		POWER				GROUND				VEHICLE SIGNAL		VIVDS CABLE		
	TRENCH PVC		BORE PVC		EXPOSED RMC		EXPOSED RMC				NO. 6 XHHW		NO. 8 XHHW		NO. 6 BARE		NO. 8 BARE		NO. 12/9C				
	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	LF
1			1	100	1	10					2	110			1	110							110
2			1	100	1	10							2	110			1	110					110
3					1	20							2	20			1	20					20
4							1	20											3	20	3	20	20
5					1	10							2	10									10
6									1	130			2	130					3	130	2	130	130
7									1	15			2	15					3	15	2	15	15
8									1	15			2	15					3	15	2	15	15
9									1	30			2	30					2	30	2	30	30
10									1	10			2	10					2	10	1	10	10
11									1	15			2	15					2	15	1	15	15
12									1	80			2	80					1	80	1	80	80
13									1	75			2	75					1	75	1	75	75
14									1	15			2	15					1	15	1	15	15
15									1	100			2	100							1	100	100
16					1	10															2	10	10
17					1	10							2	10									
18					1	10															1	10	
SLACK*																			3	80			240 SLACK
TOTAL		0		200		80		20		485		220		1270		110		130		1060		755	TOTAL

*: ADD 80' NO.12/9C EACH SLACK FOR MOVING SIGNAL HEADS.



POLE-MOUNTED SIGNAL CABINET DETAILS (NOT TO SCALE)

POLE LOCATION CHART		
POLE#	STA	OFF
POLE 1	101+17	90' RT
POLE 2	100+30	63' LT
POLE 3	99+44	59' LT
POLE 4	99+48	112' RT

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SH 5
TEMPORARY SIGNAL DETAILS
SH 5 & HARRY MCKILLOP BLVD

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1124
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:35:1 AM SCALE: 1:40
FILE: SH5_TCP SGNL_McKillop Blvd Details

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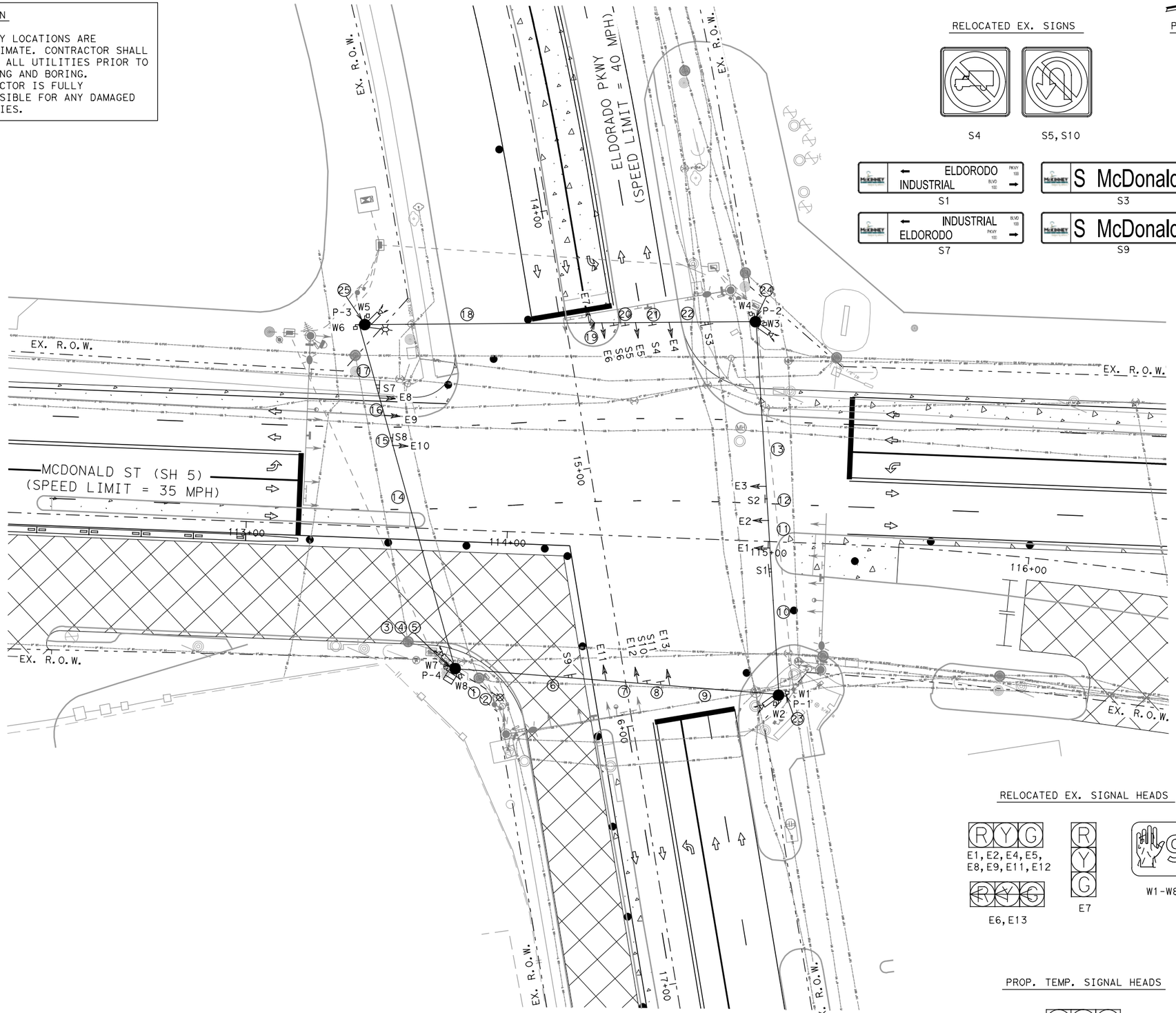
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



RELOCATED EX. SIGNS

S4 S5, S10

PROP TEMP. SIGNS

S2, S6, S8, S11

S1

S3

S7

S9

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

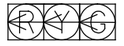
E1, E2, E4, E5, E8, E9, E11, E12

E7

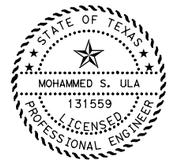
W1-W8

E6, E13

PROP. TEMP. SIGNAL HEADS



E3, E10



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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 1 STEP 1

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1125
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: 10/4/2024 TIME: II:4408 AM SCALE: I:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase I Step I

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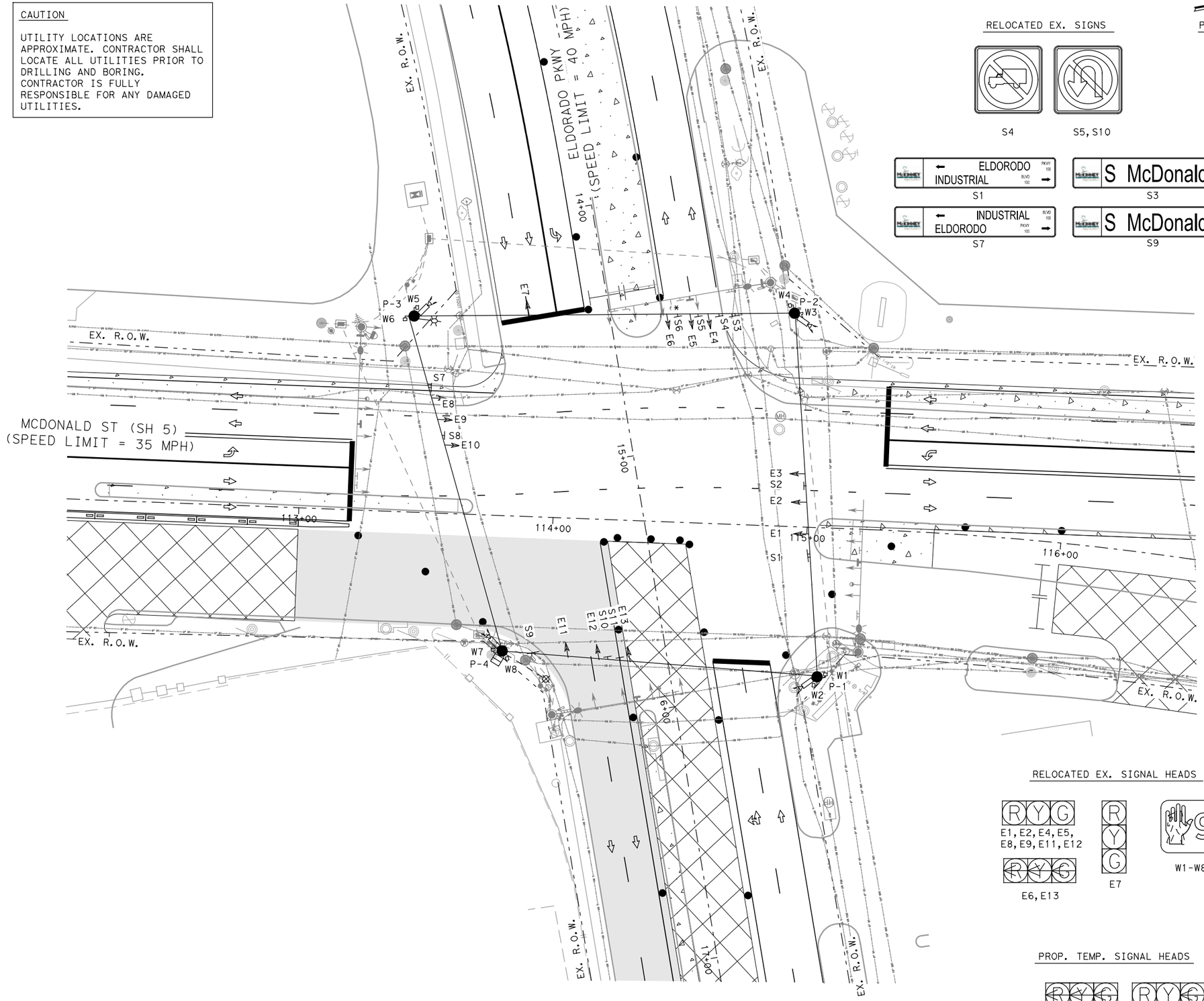
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



RELOCATED EX. SIGNS

S4 S5, S10

PROP TEMP. SIGNS

S2, S6, S8, S11 *

S1

S3

S7

S9

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

*: SIGNS TO BE COVERED AT THIS STEP.

RELOCATED EX. SIGNAL HEADS

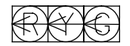
E1, E2, E4, E5, E8, E9, E11, E12

E6, E13

E7

W1-W8

PROP. TEMP. SIGNAL HEADS



E3, E10

E6

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SH 5 TEMPORARY SIGNAL LAYOUT SH 5 AND ELDORADO PKWY PHASE 1 STEP 2

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1126
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10810-SP399-SEG1.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:42:1 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase I Step 2

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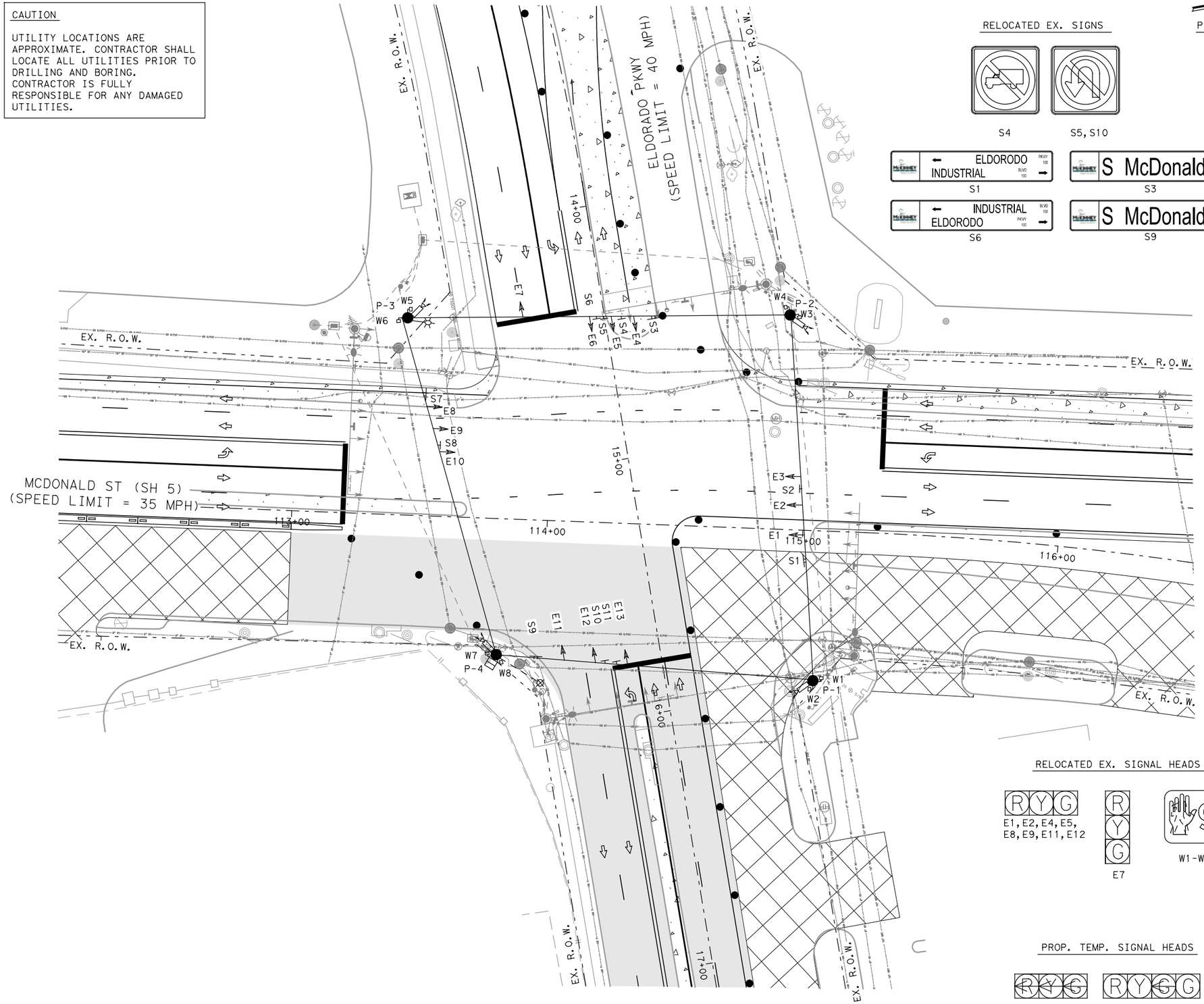
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



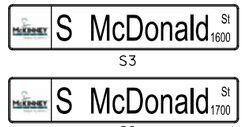
RELOCATED EX. SIGNS

S4 S5, S10

PROP. TEMP. SIGNS

S2, S6, S8, S11

S1



S3

S6

S9

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

E1, E2, E4, E5, E8, E9, E11, E12

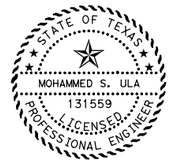
E7

W1-W8

PROP. TEMP. SIGNAL HEADS

E3, E10

E6, E13



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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 1 STEP 3

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1127
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8II5-SP399-SEGI.tbl
USER: safsha DATE: I0/4/2024 TIME: II:4:34 AM SCALE: I:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase I Step 3

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CAUTION

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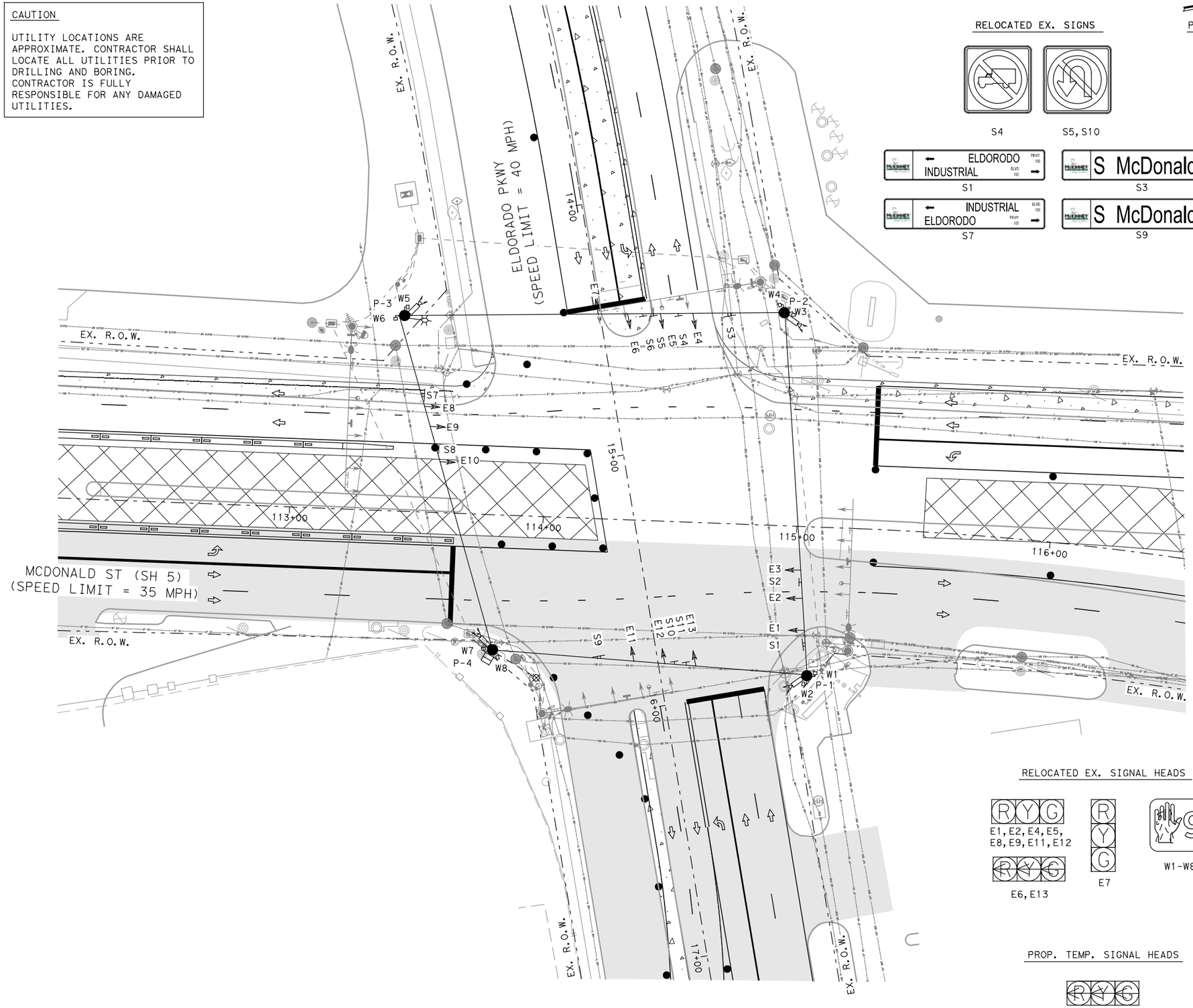


RELOCATED EX. SIGNS

S4

S5, S10

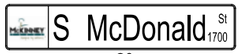
PROP TEMP. SIGNS

S2, S6, S8, S11

S1

S3

S7



S9

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

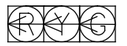
E1, E2, E4, E5, E8, E9, E11, E12

E6, E13

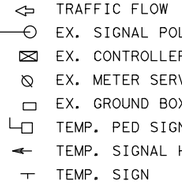
E7

W1-W8

PROP. TEMP. SIGNAL HEADS



E3, E10



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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 2 STEP 1

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1128
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10/8/15-SP399-SEG1.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:14:58 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase 2 Step 1

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CAUTION

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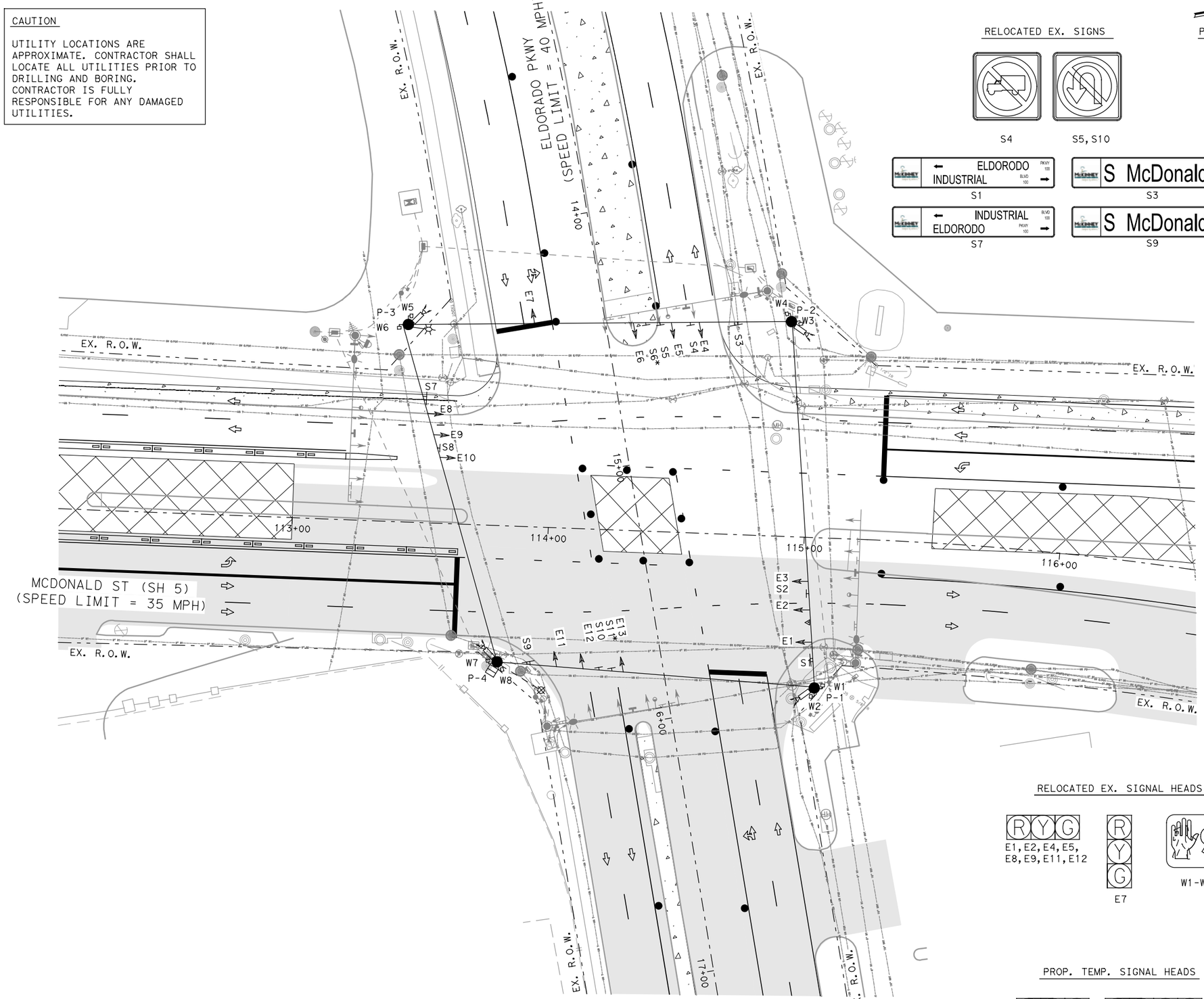
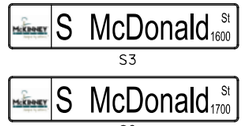


RELOCATED EX. SIGNS

S4 S5, S10

S1



S3

S7

S9

PROP TEMP. SIGNS

S2, S6*, S8, S11*

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

* : SIGNS TO BE COVERED AT THIS STEP.

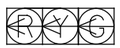
RELOCATED EX. SIGNAL HEADS

E1, E2, E4, E5, E8, E9, E11, E12

E7

W1-W8

PROP. TEMP. SIGNAL HEADS



E3, E10

E6, E13

Mohammed S Ula
10/04/2024

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 2 STEP 2

SHEET 1 OF 1

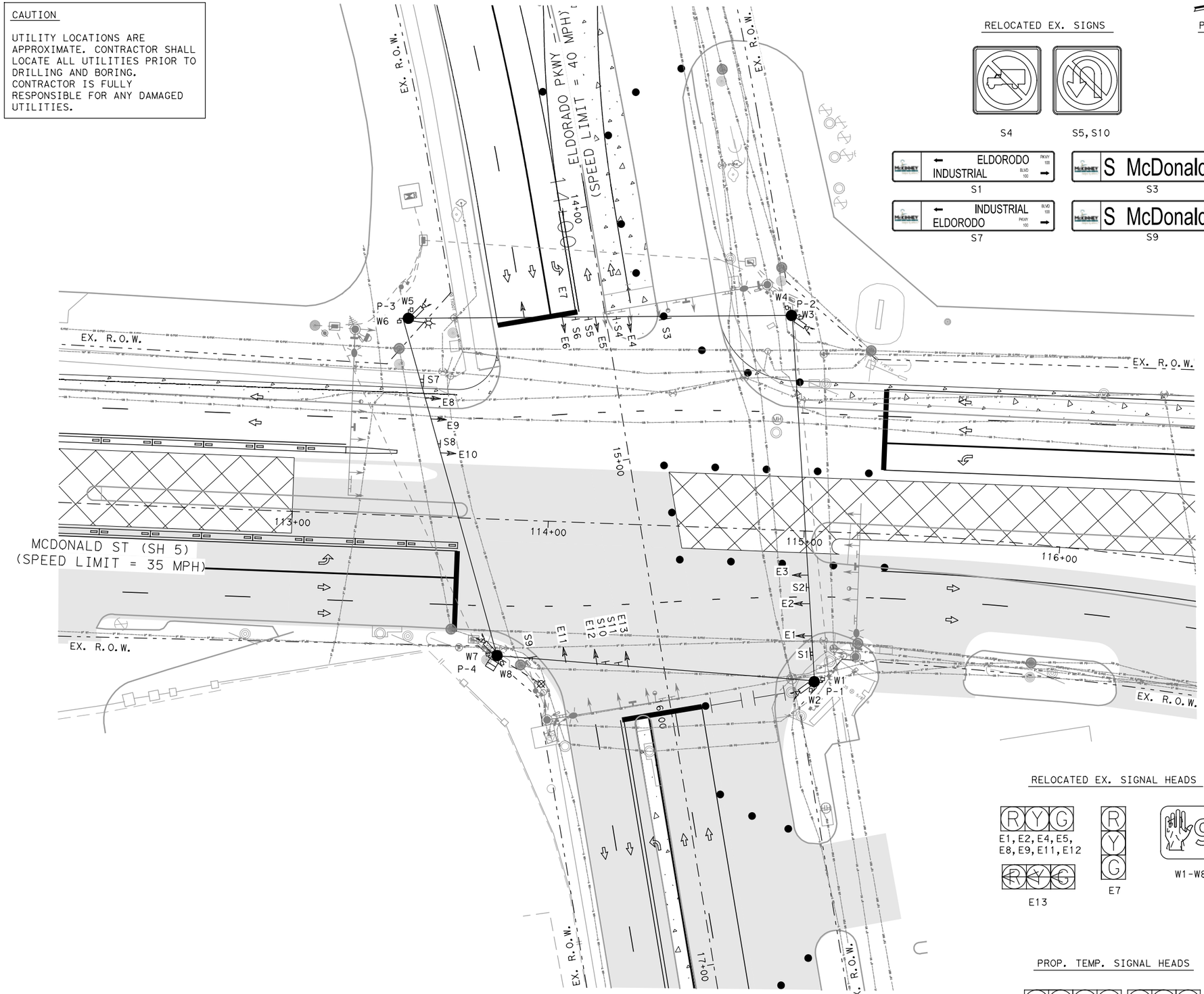
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1129
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181i5-SP399-SEG1.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:51:11 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase 2 Step 2

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



RELOCATED EX. SIGNS

S4

S5, S10

PROP TEMP. SIGNS

S2, S6, S8, S11

S1

S3

S7

S9

RELOCATED EX. SIGNAL HEADS

E1, E2, E4, E5, E8, E9, E11, E12

E7

W1-W8

E13

PROP. TEMP. SIGNAL HEADS

E6 E3, E10

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/04/2024

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 2 STEP 3

SHEET 1 OF 1

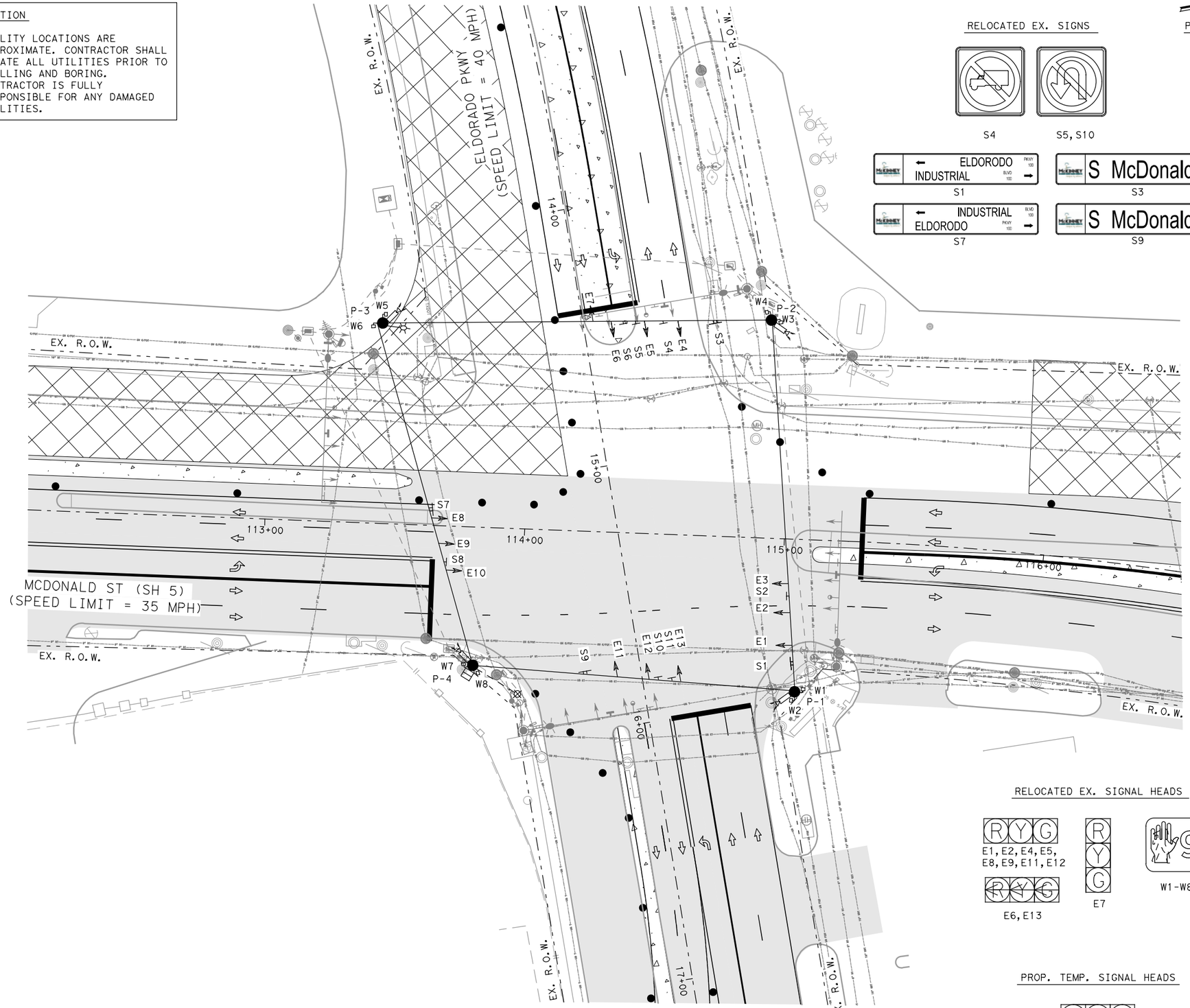
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1130
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10/8/15-SP399-SEGI.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:15:30 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase 2 Step 3

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



RELOCATED EX. SIGNS

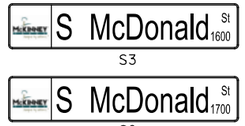
S4

S5, S10

PROP TEMP. SIGNS

S2, S6, S8, S11

S1



S3

S7

S9

RELOCATED EX. SIGNAL HEADS

E1, E2, E4, E5, E8, E9, E11, E12

E6, E13

E7

W1-W8

PROP. TEMP. SIGNAL HEADS

E3, E10

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/04/2024

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 3 STEP 1

SHEET 1 OF 1

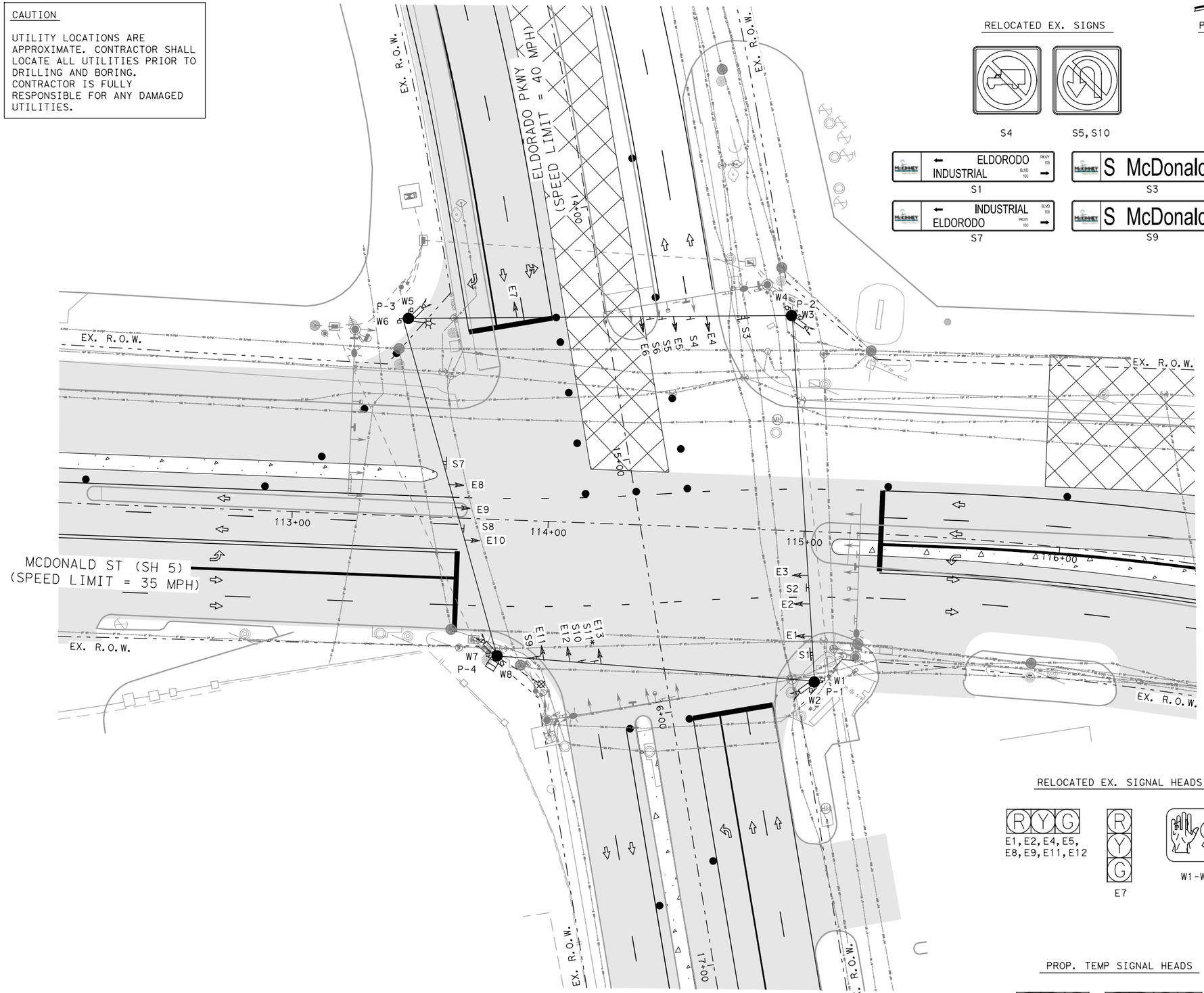
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1131
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10/8/15-SP399-SEGI.tbl
USER: sdsha DATE: 10/4/2024 TIME: 11:15:44 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase 3 Step 1

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



RELOCATED EX. SIGNS

S4

S5, S10

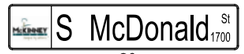
PROP TEMP. SIGNS

S2, S6, S8, S11*

S1

S3

S7



S9

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

* : SIGNS TO BE COVERED AT THIS STEP.

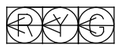
RELOCATED EX. SIGNAL HEADS

E1, E2, E4, E5, E8, E9, E11, E12

E7

W1-W8

PROP. TEMP SIGNAL HEADS



E3, E6, E10

E13

STATE OF TEXAS
MOHAMMED S. ULA
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10/04/2024

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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 3 STEP 2

SHEET 1 OF 1

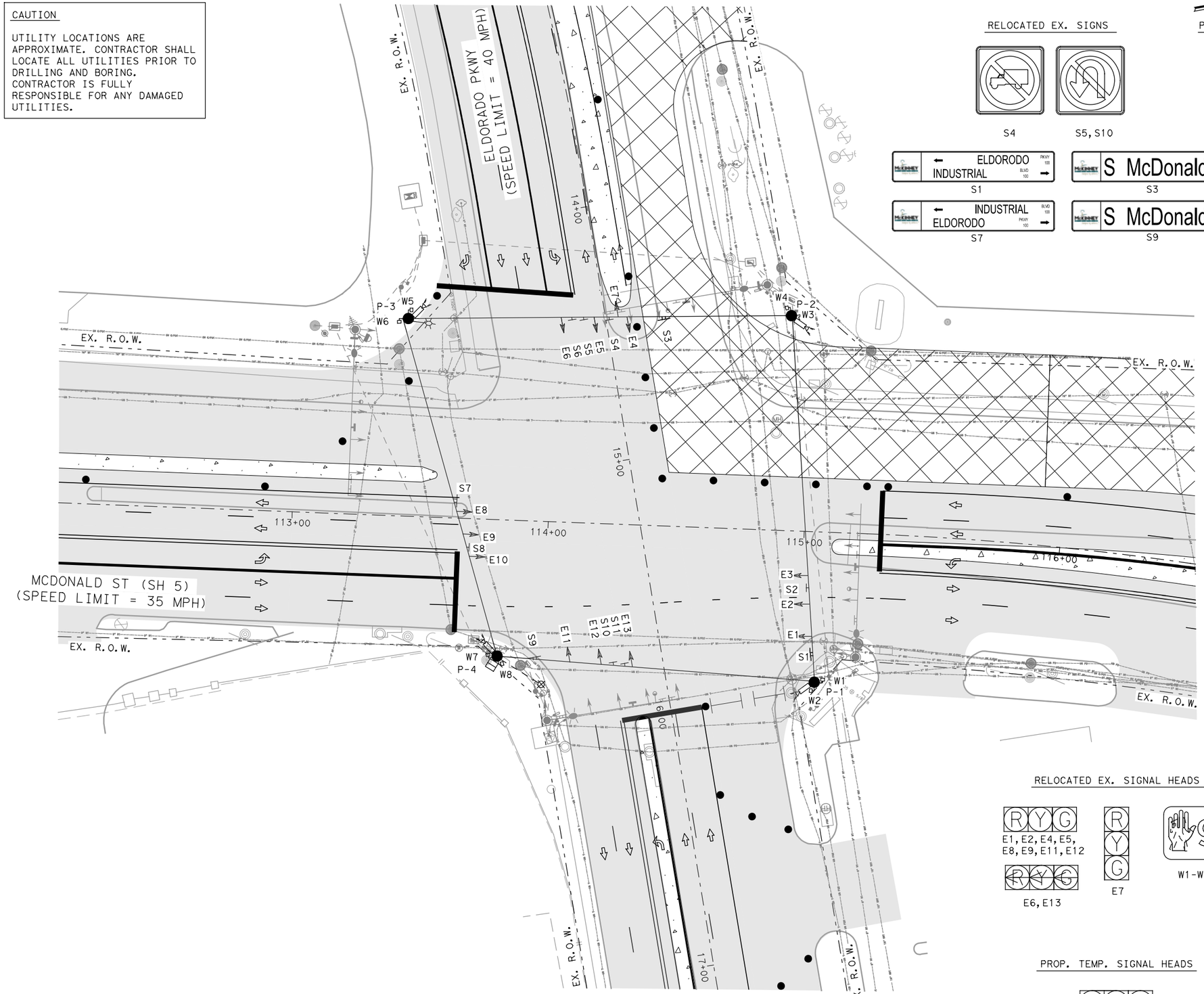
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DAL	COLLIN	
	CONTROL	SECTION	JOB	1132
CHECK	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10/8/15-SP399-SEGI.tbl
USER: safsha DATE: 10/4/2024 TIME: 11:16:03 AM SCALE: 1:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase 3 Step 2

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



RELOCATED EX. SIGNS

S4

S5, S10

S1

S3

S7

S9

PROP TEMP. SIGNS

ONLY

S2, S6, S8, S11

LEGEND

- TRAFFIC FLOW
- EX. SIGNAL POLE AND MAST ARM
- EX. CONTROLLER CABINET
- EX. METER SERVICE
- EX. GROUND BOX
- TEMP. PED SIGNAL HEAD
- TEMP. SIGNAL HEAD
- TEMP. SIGN
- TEMP. STREET NAME SIGN
- TEMP. TIMBER POLE
- TEMP. CONTROLLER CABINET
- TEMP. METER SERVICE
- TEMP. GROUND BOX
- TEMP. VIVDS CAMERA
- TEMP. LUMINAIRE
- TEMP. CONDUIT RUNS
- TEMP. CONDUIT

0 10 20 30 40
SCALE IN FEET

RELOCATED EX. SIGNAL HEADS

E1, E2, E4, E5, E8, E9, E11, E12

E6, E13

E7

W1-W8

PROP. TEMP. SIGNAL HEADS

E3, E10

STATE OF TEXAS
MOHAMMED S. ULA
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SH 5
TEMPORARY SIGNAL LAYOUT
SH 5 AND ELDORADO PKWY
PHASE 3 STEP 3

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1133
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8II5-SP399-SEGI.tbl
USER: safsha DATE: I0/4/2024 TIME: II:6:I9 AM SCALE: I:40
FILE: SH5_TCP SGNL_Eldorado Pkwy Phase 3 Step 3

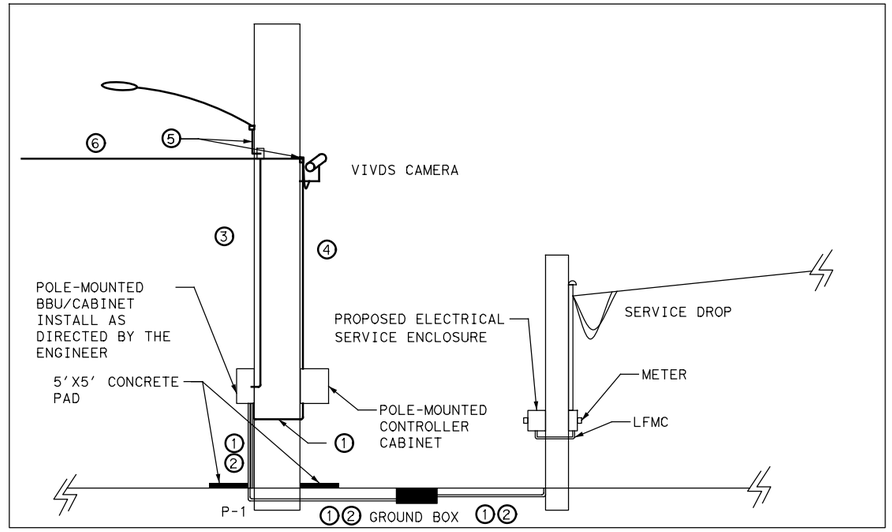
100% PLANS SUBMITTAL

CONDUIT AND CONDUCTOR RUNS

Run No.	CONDUIT										CONDUCTORS								CABLES						TOTAL LENGTH OF RUNS
	2" CONDUIT						4" CONDUIT		OVERHEAD SPAN WIRE		POWER				GROUND				PED SIGNAL		VEHICLE SIGNAL		VIVDS CABLE		
	TRENCH PVC		BORE PVC		EXPOSED RMC		EXPOSED RMC				NO. 6 XHHW		NO. 8 XHHW		NO. 6 BARE		NO. 8 BARE		NO. 12/7C		NO. 12/9C				
	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	EA	LF	LF
1	1	20			1	10					2	30			1	30									30
2	1	20			1	10							2	30			1	30							30
3					1	20							2	20			1	20							20
4							1	20									1	20	3	20	5	20	4	20	20
5					1	20											1	20	1	10			1	10	20
6									1	60									2	60	2	60	2	60	60
7									1	15									2	15	2	15	2	15	15
8									1	15									2	15	2	15	2	15	15
9									1	45									2	45	1	45	2	45	45
10									1	55									1	55	1	55	1	55	55
11									1	15									1	15	1	15	1	15	15
12									1	15									1	15	1	15	1	15	15
13									1	65									1	65			1	65	65
14									1	80			2	80					1	80	3	80	1	80	80
15									1	15			2	15					1	15	3	15	1	15	15
16									1	15			2	15					1	15	3	15	1	15	15
17									1	40			2	40					1	40	2	40	1	40	40
18									1	90											2	90	1	90	90
19									1	15											1	15			15
20									1	15											1	15			15
21									1	15											1	15			15
22									1	30															30
22					1	40											1	40	1	30			1	10	40
23					1	40							2	10			1	40	1	30			1	10	40
24					1	40											1	40	1	30			1	10	40
25					1	40							2	10			1	40	1	30			1	10	
SLACK*																					4	80			320 SLACK
TOTAL		40		0		220		20		600		60		440		30		250		760		1365		790	TOTAL

*: ADD 80' NO.12/9C EACH SLACK FOR MOVING SIGNAL HEADS.

POLE LOCATION CHART		
POLE#	STA	OFF
POLE 1	115+06	58' RT
POLE 2	114+92	83' LT
POLE 3	113+42	77' LT
POLE 4	113+82	53' RT



POLE-MOUNTED SIGNAL CABINET DETAILS (NOT TO SCALE)

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/04/2024

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
TEMPORARY SIGNAL DETAILS
SH 5 AND ELDORADO PKWY

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1134
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

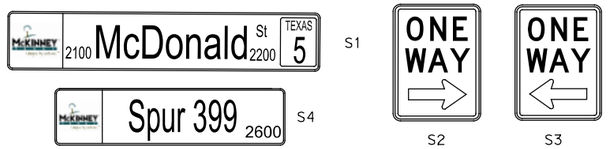
PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: SH5_TCP SGNL_Eldorado Pkwy Details
DATE: 10/4/2024
TIME: 11:16:25 AM
PENTABLE: 10BW15-SP399-SEG1.tbl
SCALE: 1:40

100% PLANS SUBMITTAL

CAUTION

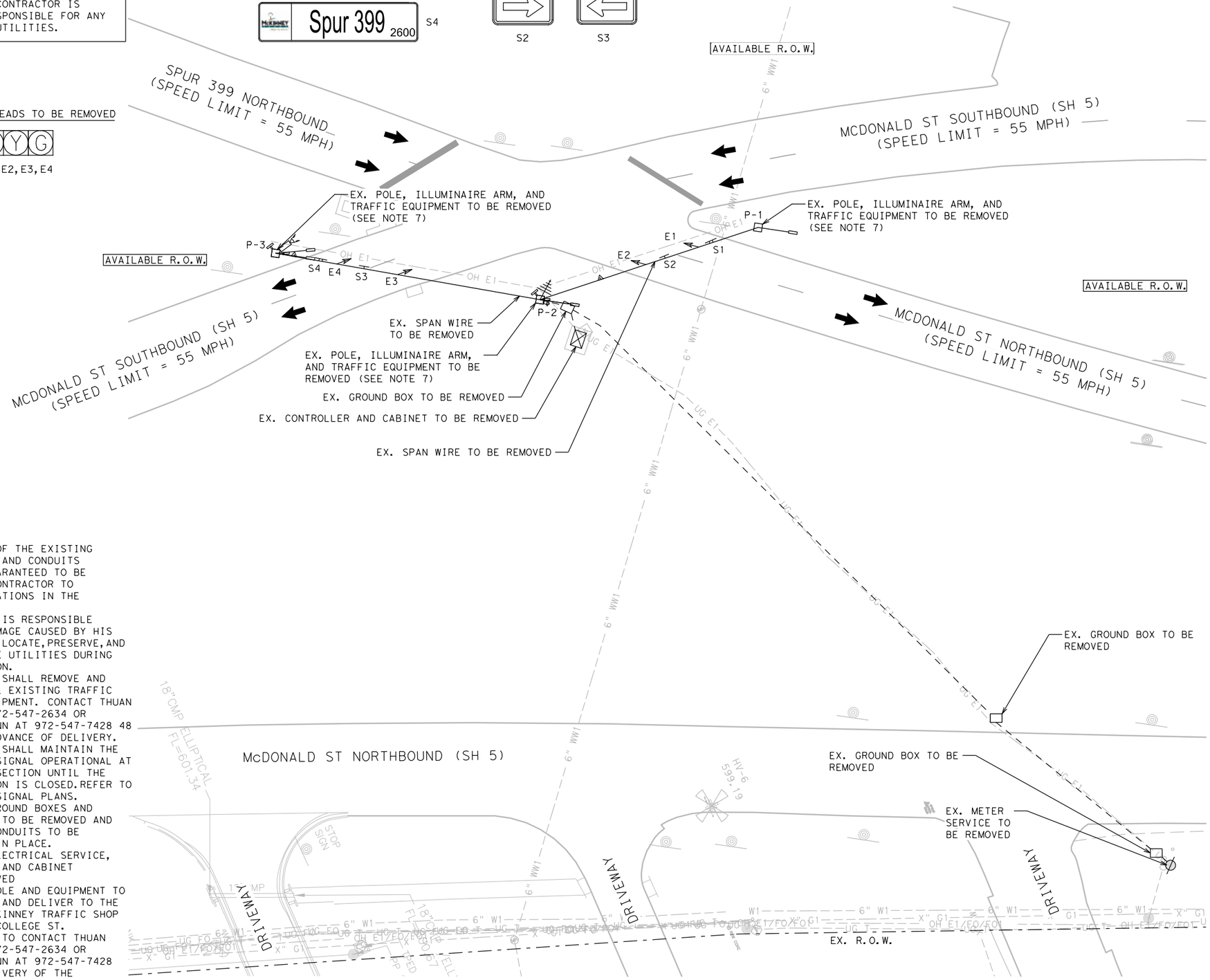
UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

EX. SIGNS ON SPAN WIRE TO BE REMOVED



EX. SIGNAL HEADS TO BE REMOVED

E1,E2,E3,E4



LEGEND

- EX. LUMINAIRE POLE WITH SPAN WIRE
- EX. SIGNAL HEAD
- EX. SIGN ON MAST ARM
- EX. STREET NAME SIGN
- EX. VIVDS CAMERA
- EX. RADAR DETECTION
- EX. CONTROLLER AND CABINET
- EX. ANTENNA
- EX. PTZ CAMERA
- EX. PREEMPTION
- EX. ENFORCEMENT LIGHT
- EX. METER SERVICE
- EX. GROUND BOX
- TRAFFIC FLOW
- EX. CONDUIT
- EX. R.O.W.
- EX. GAS
- EX. OVERHEAD ELECTRIC
- EX. OVERHEAD ELECTRIC FIBER
- EX. UNDERGROUND ELECTRIC
- EX. UNDERGROUND FIBER
- EX. UNDERGROUND TELEPHONE
- EX. SANITARY SEWER
- EX. WATER

0 20 40 60 80

SCALE IN FEET

NOTES:

1. LOCATIONS OF THE EXISTING GROUND BOX AND CONDUITS ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO VERIFY LOCATIONS IN THE FIELD.
2. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE, PRESERVE, AND PROTECT THE UTILITIES DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE AND SALVAGE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT. CONTACT THUAN HUYNH AT 972-547-2634 OR DOUGLAS DUNN AT 972-547-7428 48 HOURS IN ADVANCE OF DELIVERY.
4. CONTRACTOR SHALL MAINTAIN THE TEMPORARY SIGNAL OPERATIONAL AT THIS INTERSECTION UNTIL THE INTERSECTION IS CLOSED. REFER TO TEMPORARY SIGNAL PLANS.
5. EXISTING GROUND BOXES AND CONDUCTORS TO BE REMOVED AND EXISTING CONDUITS TO BE ABANDONED IN PLACE.
6. EXISTING ELECTRICAL SERVICE, CONTROLLER AND CABINET TO BE REMOVED
7. EXISTING POLE AND EQUIPMENT TO BE REMOVED AND DELIVER TO THE CITY OF MCKINNEY TRAFFIC SHOP AT 1550 S COLLEGE ST. CONTRACTOR TO CONTACT THUAN HUYNH AT 972-547-2634 OR DOUGLAS DUNN AT 972-547-7428 BEFORE DELIVERY OF THE EQUIPMENT TO THE MCKINNEY TRAFFIC SHOP.

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER
T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH5 TRAFFIC SIGNAL EXISTING LAYOUT (REMOVAL) SH 5 AND SPUR 399

SCALE: 1"=40' SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AM	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1135
PT	0047	05	057, ETC.	
CHECK				
PT				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8II5-SP399-SEGI.tbl
USER: SALMEIDA DATE: I0/I/2024 TIME: I0:43:40 AM SCALE: I:40
FILE: EXISTING SIGNAL LAYOUT_SH 5 AND SPUR 399

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

EX. SIGNS TO BE REMOVED

S1

S2

S3

NOTES:
1. THIS INTERSECTION TO BE CLOSED AND CHANGED TO GRADE SEPARATED INTERCHANGE.
2. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE, PRESERVE, AND PROTECT THE UTILITIES DURING CONSTRUCTION.
3. CONTRACTOR SHALL MAINTAIN THE EXISTING STOP CONTROL AT THIS INTERSECTION UNTIL THE INTERSECTION IS CLOSED.
4. CONTRACTOR SHALL REMOVE AND SALVAGE ALL EXISTING SIGNS AND CONTACT THUAN HUYNH AT 972-547-2634 OR DOUGLAS DUNN AT 972-547-7428 48 HOURS IN ADVANCE OF DELIVERY.

LEGEND

- EX. POST MOUNTED SIGN
- TRAFFIC FLOW
- EX. R.O.W.
- EX. GAS
- EX. OVERHEAD ELECTRIC FIBER
- EX. UNDERGROUND FIBER
- EX. UNDERGROUND TELEPHONE
- EX. UNDERGROUND CATV
- EX. UNDERGROUND ELECTRIC
- EX. WATER

0 20 40 60 80
SCALE IN FEET

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
1711 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
EXISTING LAYOUT
SH 5 AND STEWART RD

SCALE: 1"=40' SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1136
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:43:47 AM SCALE: 1:40
FILE: EXISTING SIGNAL LAYOUT_S399 AND STEWART RD

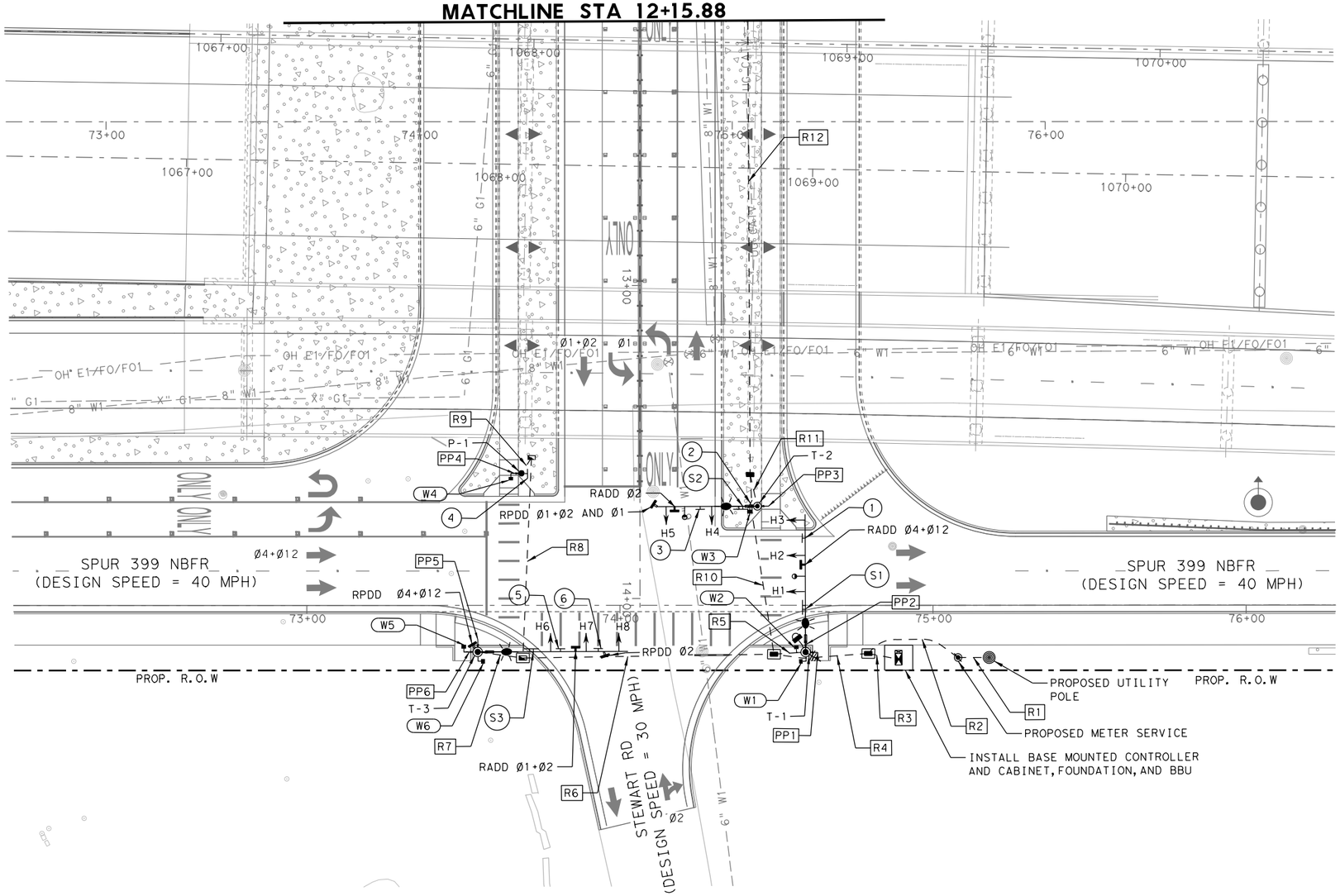
100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE, PRESERVE, AND PROTECT THE UTILITIES DURING CONSTRUCTION.
2. PERMANENT SIGNALS WILL BE INSTALLED AFTER PHASE THREE OF CONSTRUCTION IS COMPLETED. REFER TO TRAFFIC CONTROL PLANS FOR SEQUENCE OF CONSTRUCTION.
3. ALL SIGNAL HEADS SHALL HAVE A MINIMUM OF 19' CLEARANCE ABOVE CROWN OF ROADWAY SURFACE.
4. THE LOCATION OF RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
5. THE CITY OF MCKINNEY SHALL SUPPLY THE FOLLOWING EQUIPMENT ITEMS REQUIRED BY THE PROJECT.
   (A) SIGNAL CONTROLLER AND CABINET AND ALL INTERNAL COMPONENTS (TXDOT FUNDED)
   (B) ENCOM RADIO WITH ANTENNA
   (C) BATTERY BACK UP UNIT (BBU) (TXDOT FUNDED)
   (D) APS SYSTEM (TXDOT FUNDED)
   (E) OPTICOM DETECTORS, LEAD-IN CABLE, AND CABINET EQUIPMENT
   (F) PTZ CAMERA AND CABLE
   (G) ENFORCEMENT LIGHT AND CABLE
   (H) RADAR DETECTORS AND CABLE (TXDOT FUNDED)
   (I) NETWORK SWITCH
   (J) STREET NAME SIGNS

MATCHLINE STA 12+15.88



0 20 40 60 80
SCALE IN FEET

LEGEND

- PROP. SIGNAL POLE W/MAST ARM
- PROP. SIGNAL HEAD
- PROP. PED POLE
- PROP. PED HEAD
- PROP. SIGN
- PROP. STREET NAME SIGN
- PROP. LUMINAIRE
- PROP. PEDESTRIAN PUSH BUTTON
- PROP. RADAR PRESENCE
- PROP. RADAR ADVANCE
- PROP. PREMPTION
- PROP. PTZ CAMERA
- PROP. ENFORCEMENT LIGHT
- PROP. ANTENNA
- PROP. CONTROLLER AND CABINET W/BBU
- PROP. METER SERVICE
- PROP. TY C GROUND BOX
- PROP. TY C GROUND BOX W/APRON
- PROP. TY D GROUND BOX
- PROP. TY D GROUND BOX W/APRON
- PROP. CULVERT
- PROP. ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP. CONDUIT
- PROP. R.O.W.
- TRAFFIC FLOW
- EX. R.O.W.
- EX. GAS — X" G1 —
- EX. OVERHEAD ELECTRIC FIBER — OH E1/FO/FO1 —
- EX. UNDERGROUND FIBER — UG FO —
- EX. UNDERGROUND TELEPHONE — UG T —
- EX. UNDERGROUND CATV — UG CATV —
- EX. UNDERGROUND ELECTRIC — UG E —
- EX. WATER — X" W1 —

PROP. PED PUSH BUTTON SIGNS

R10-3eL (9"X15") — PP3, PP5, PP6

R10-3eR (9"X15") — PP1, PP2, PP4

PROP. SIGNAL HEADS
12" LED SIGNAL SECTIONS WITH RETROREFLECTIVE BACKPLATES

H3GA — H5, H6

H3 — H1, H2, H3, H4, H7

H5FLT — H8

LED COUNTDOWN PEDESTRIAN SIGNAL — W1-W6

PROP. SIGNS

S1: McKINNEY 100 Stewart Rd

S2: McKINNEY 1900 Spur 399

S3: McKINNEY 1900 Spur 399

R3-5L (30"X36") — ONLY — 1

R9-3 (30"X30") — 2 4

R6-2R (30"X36") — ONE WAY — 3

R6-2L (30"X36") — ONE WAY — 5

R10-17T (36"X42") — LEFT TURN YIELD ON FLASHING YELLOW ARROW — 6

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER
T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED LAYOUT
SPUR 399 AND STEWART RD

SCALE: 1"=40' SHEET 1 OF 2

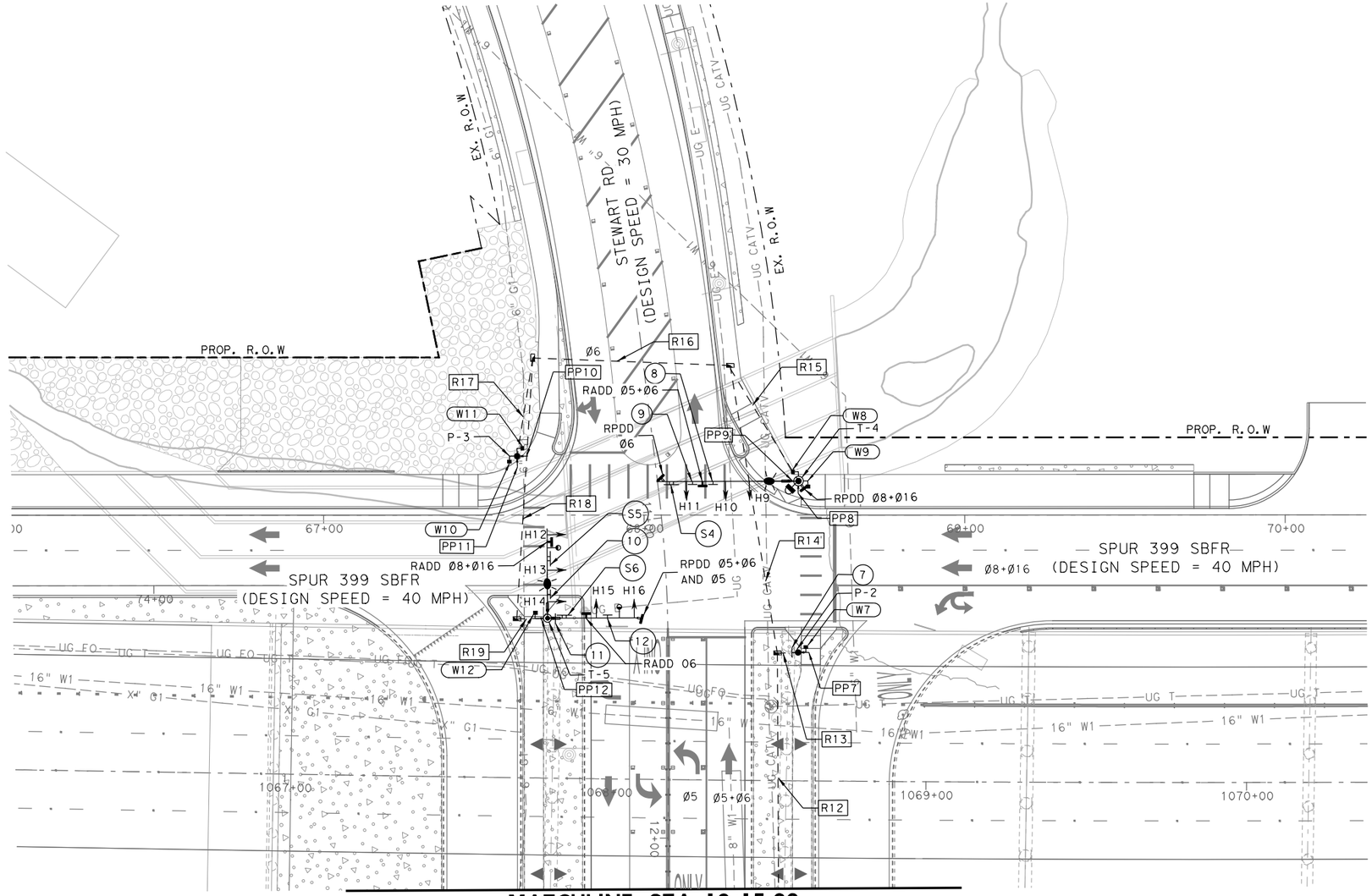
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	
CHECK PT	CONTROL	SECTION	JOB	1137
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181S-SP399-SEG1.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:43:59 AM SCALE: 1:40
FILE: PROPOSED SIGNAL LAYOUT_SPUR 399 AND SOUTH STEWART RD

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.



LEGEND

- PROP. SIGNAL POLE W/MAST ARM
- PROP. SIGNAL HEAD
- PROP. PED POLE
- PROP. PED HEAD
- PROP. SIGN
- PROP. STREET NAME SIGN
- PROP. LUMINAIRE
- PROP. PEDESTRIAN PUSH BUTTON
- PROP. RADAR PRESENCE
- PROP. RADAR ADVANCE
- PROP. PREMPTION
- PROP. PTZ CAMERA
- PROP. ENFORCEMENT LIGHT
- PROP. ANTENNA
- PROP. CONTROLLER AND CABINET W/BBU
- PROP. METER SERVICE
- PROP. TY C GROUND BOX
- PROP. TY C GROUND BOX W/APRON
- PROP. TY D GROUND BOX
- PROP. TY D GROUND BOX W/APRON
- PROP. CULVERT
- PROP. ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP. CONDUIT
- PROP. R.O.W.
- TRAFFIC FLOW
- EX. R.O.W.
- EX. GAS
- EX. OVERHEAD ELECTRIC FIBER
- EX. UNDERGROUND FIBER
- EX. UNDERGROUND TELEPHONE
- EX. UNDERGROUND CATV
- EX. UNDERGROUND ELECTRIC
- EX. WATER

0 20 40 60 80
SCALE IN FEET

PROP. PED PUSH BUTTON SIGNS

R10-3eL (9"X15") — PP7, PP8, PP10, PP12

R10-3eR (9"X15") — PP9, PP11

PROP. SIGNAL HEADS
12" LED SIGNAL SECTIONS WITH RETROREFLECTIVE BACKPLATES

H3GA — H10, H16

H3 — H9, H12, H13, H14, H15

H5FLT — H11

LED COUNTDOWN PEDESTRIAN SIGNAL — W7-W12

PROP. SIGNS

- S4: Spur 399 1900
- S5: Stewart Rd 100
- S6: Spur 399 1900

R9-3 (30"X30") — 7, 11

R6-2L (30"X36") — ONE WAY — 8

R10-17T (36"X42") — LEFT TURN YIELD ON FLASHING YELLOW ARROW — 9

R3-5L (30"X36") — ONE ONLY — 10

R6-2R (30"X36") — ONE WAY — 12

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SH 5
TRAFFIC SIGNAL
PROPOSED LAYOUT
SPUR 399 AND STEWART RD

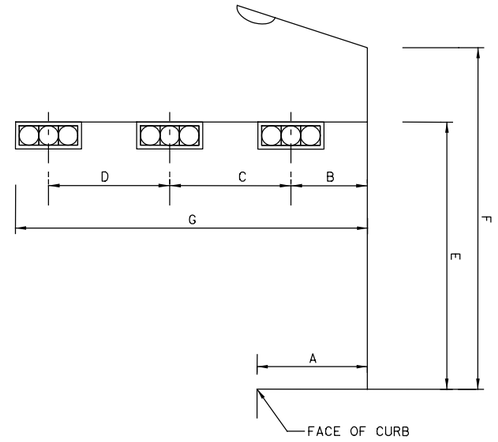
SCALE: 1"=40' SHEET 2 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AM	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1138
PT	0047	05	057, ETC.	
CHECK				
PT				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08I15-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:07 AM SCALE: 1:40
FILE: PROPOSED SIGNAL LAYOUT_SPUR 399 AND NORTH STEWART RD

100% PLANS SUBMITTAL

POLE STATION AND OFFSET				
POLE	ROADWAY	STATION (FT)	OFFSET (FT)	SIDE
T-1	SPUR 399 NBFR	74+59.30	14.94	RT
T-2	SPUR 399 NBFR	74+43.89	31.67	LT
T-3	SPUR 399 NBFR	73+54.56	14.87	RT
P-1	SPUR 399 NBFR	73+68.55	42.17	LT
P-2	SPUR 399 SBFR	68+48.09	42.90	RT
T-4	SPUR 399 SBFR	68+48.32	10.62	LT
P-3	SPUR 399 SBFR	67+60.30	18.38	LT
T-5	SPUR 399 SBFR	67+69.84	32.19	RT



SIGNAL POLE AND POLE PLACEMENT

INTERSECTION	GEOMETRIC CORNER	POLE NUMBER	STATUS	A (FT)	B (FT)	C (FT)	D (FT)	E (FT)	F (FT)	G (FT)	NO. OF HEADS* (EA)	PRE-EMPTION	APS	PTZ CAMERA	RADAR DETECTION: PRESENCE	RADAR DETECTION: ADVANCED	LUM	DRILLED SHAFT LENGTH (FT): 24" DIA SUB TO ITEM 687 **	DRILLED SHAFT LENGTH (FT): 30" DIA TYPE A ITEM 416	DRILLED SHAFT LENGTH (FT): 36" DIA TYPE A ITEM 416	FDN. TYPE: WIND ZONE 80 MPH
STEWART RD AT SPUR 399 NBFR	SE	T-1	I	11	20	10	14	20	30	44	3	1	2	1	-	1	Y	-	-	13	36-A
	NE	T-2	I	8	15	15	-	20	30	32	2	1	1	-	1	1	Y	-	11	-	30-A
	NW	P-1	I	7	10' PEDESTRIAN SIGNAL POLE			10	-	-	-	-	1	-	-	-	-	6	-	-	24-A
	SW	T-3	I	10	21	10	12	20	30	48	3	-	2	-	2	1	Y	-	-	13	36-A
STEWART RD AT SPUR 399 SBFR	SE	P-2	I	8	10' PEDESTRIAN SIGNAL POLE			10	-	-	-	-	1	-	-	-	-	6	-	-	24-A
	NW	P-3	I	12	10' PEDESTRIAN SIGNAL POLE			15	-	-	1	-	2	-	-	-	-	6	-	-	24-A
	NE	T-4	I	8	15	8	12	20	30	44	3	-	2	1	2	1	Y	-	-	13	36-A
	SW (SB)	T-5	I	7	15	12	1	20	30	28	2	1	1	-	1	1	-	-	11	-	30-A
	SW (WB)	T-5	I	11	5	9	12	20	30	28	3	1		-	-	1	Y				
											TOTAL:	4	12	2	6	6		18	22	39	

NOTE: T-5 IS A DUAL MAST ARM POLE (28'-28')
I=PROPOSED TO BE INSTALLED; N=NO; Y=YES
* - DOES NOT INCLUDE VERTICAL SIDEMOUT SIGNAL HEADS OR PEDESTRIAN SIGNAL HEADS
**- SUBSIDIARY TO ITEM 687-6001 (PED POLE ASSEMBLY)

ELECTRICAL SERVICE DATA											
ELEC. SERVICE NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED(5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	TWO-POLE CONTRACTOR AMPS	PANELBD./ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
ES-01	ELC SRV TY D 120 / 240 060 (NS)SS(E)PS(U)	2"	3/#6	N/A	2P/60	N/A	100	TRAFFIC SIGNAL	1P/30	24	4
								LIGHTING	2P/15	4.5	

GROUND BOX SUMMARY			
DESCRIPTION	UNIT	STATUS	QTY.
GROUND BOX TYPE C W/APRON	EA	I	1
GROUND BOX TYPE C	EA	I	5
GROUND BOX TYPE D W/APRON	EA	I	2
GROUND BOX TYPE D	EA	I	1

I=PROPOSED TO BE INSTALLED

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

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Texas Department of Transportation

SH5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SPUR 399 AND STEWART RD

SHEET 1 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1139
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181S-SP399-SEG1.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:12 AM SCALE: 1:40
FILE: DETAILS 1 OF 4_SPUR 399 AND STEWART RD

100% PLANS SUBMITTAL

CABLE TERMINATION CHART

CNDR. NO.	CONDUCTOR COLOR	CABLE 1 20 CNDR. #14 FROM T-1 TO CNTRL.	CABLE 2 20 CNDR. #14 FROM T-2 TO CNTRL.	CABLE 3 20 CNDR. #14 FROM T-3 TO CNTRL.	CABLE 5 20 CNDR. #14 FROM T-4 TO CNTRL.	CABLE 6 20 CNDR. #14 FROM T-5 TO CNTRL.	CABLE 7 7 CNDR. #14 FROM P-1 TO CNTRL.	CABLE 8 7 CNDR. #14 FROM P-2 TO CNTRL.	CABLE 9 7 CNDR. #14 FROM P-3 TO CNTRL.
1	BLACK	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
2	WHITE	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM
3	RED	H1,H2,H3 - PHASE 4+12 R	H4,H5 - PHASE 2 R	H6,H7 - PHASE 1+2 R	H9,10 - PHASE 5+6 R	H12,H13,H14 - PHASE 8+16 R	SPARE	SPARE	SPARE
4	GREEN	H1,H2,H3 - PHASE 4+12 G	H4,H5 - PHASE 2 G	H6,H7 - PHASE 1+2 G	H9 - PHASE 5+6 G	H12,H13,H14 - PHASE 8+16 G	SPARE	SPARE	W10 - PHASE 6 DW
5	ORANGE	H1,H2,H3 - PHASE 4+12 Y	H4,H5 - PHASE 2 Y	H6,H7 - PHASE 1+2 Y	H9,10 - PHASE 5+6 Y	H12,H13,H14 - PHASE 8+16 Y	SPARE	SPARE	W10 - PHASE 6 W
6	BLUE	W1 - PHASE 4 DW	W3 - PHASE 2 DW	W5 - PHASE 2 DW	W8 - PHASE 8 DW	W12 - PHASE 6 DW	W4 - PHASE 2 DW	W7 - PHASE 6 DW	W11 - PHASE 8 DW
7	WHITE/BLACK	W1 - PHASE 4 W	W3 - PHASE 2 W	W5 - PHASE 2 W	W8 - PHASE 8 W	W12 - PHASE 6 W	W4 - PHASE 2 W	W7 - PHASE 6 W	W11 - PHASE 8 W
8	RED/BLACK	W2 - PHASE 2 DW	SPARE	W6 - PHASE 4 DW	W9 - PHASE 6 DW	SPARE			
9	GREEN/BLACK	W2 - PHASE 2 W	SPARE	W6 - PHASE 4 W	W9 - PHASE 6 W	SPARE			
10	ORANGE/BLACK	SPARE	SPARE	SPARE	SPARE	SPARE			
11	BLUE/BLACK	SPARE	SPARE	SPARE	SPARE	SPARE			
12	BLACK/WHITE	SPARE	SPARE	H8 - PHASE 1 R (LT ARW)	H11 - PHASE 5 R (LT ARW)	H15,H16 - PHASE 6 R			
13	RED/WHITE	SPARE	SPARE	H8 - PHASE 1 G (LT ARW)	H11 - PHASE 5 G (LT ARW)	H15,H16 - PHASE 6 G			
14	GREEN/WHITE	SPARE	SPARE	H8 - PHASE 1 Y (LT ARW)	H11 - PHASE 5 Y (LT ARW)	H15,H16 - PHASE 6 Y			
15	BLUE/WHITE	SPARE	SPARE	SPARE	SPARE	SPARE			
16	BLACK/RED	SPARE	SPARE	SPARE	SPARE	SPARE			
17	WHITE/RED	SPARE	SPARE	SPARE	SPARE	SPARE			
18	ORANGE/RED	SPARE	SPARE	H8 - PHASE 2 FY (LT ARW)	H11 - PHASE 6 FY (LT ARW)	SPARE			
19	BLUE/RED	SPARE	SPARE	SPARE	SPARE	SPARE			
20	RED/GREEN	SPARE	SPARE	SPARE	SPARE	SPARE			

NOTE: INSTALL SEPARATE TY C 2 CONDR. # 12 AWG TO EACH PUSH BUTTON FOR PED CALL

SIGNAL HEADS

POLE NUMBER	SIGNAL HEAD NUMBER	SIGNAL HEAD TYPE	STATUS	BACK PLATE		12" LED SIGNAL INDICATIONS								PED SIG SEC (LED) (COUNTDOWN)
				3 SEC	5 SEC	R	Y	G	° -G-	<-R-	<-Y-	<-G-	<-FY-	
				EA		EA	EA	EA	EA	EA	EA	EA	EA	EA
T-1	H1	H3	I	1		1	1	1						
	H2	H3	I	1		1	1	1						
	H3	H3	I	1		1	1	1						
	W1	PED	I											1
	W2	PED	I											1
P-1	W4	PED	I											1
T-2	H4	H3	I	1		1	1	1						
	H5	H3GA	I	1		1	1		1					
	W3	PED	I											1
T-3	H6	H3GA	I	1		1	1		1					
	H7	H3	I	1		1	1	1						
	H8	H5FLT	I		1					2	1	1	1	
	W5	PED	I											1
	W6	PED	I											1
P-2	W7	PED	I											1
	W8	PED	I											1
	W9	PED	I											1
T-4	H9	H3	I	1		1	1	1						
	H10	H3GA	I	1		1	1		1					
	H11	H5FLT	I		1					2	1	1	1	
P-3	W10	PED	I											1
	W11	PED	I											1
T-5 (WB)	H12	H3	I	1		1	1	1						
	H13	H3	I	1		1	1	1						
	H14	H3	I	1		1	1	1						
T-5 (SB)	H15	H3	I	1		1	1	1						
	H16	H3GA	I	1		1	1		1					
	W12	PED	I											1
TOTAL (NEW)				14	2	14	14	10	4	4	2	2	2	12

I=PROPOSED TO BE INSTALLED

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED
PROFESSIONAL
ENGR.

T. Pragna

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Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SPUR 399 AND STEWART RD

SHEET 2 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1140
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181i5-SP399-SEG1.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:17 AM SCALE: 1:40
FILE: DETAILS 2 OF 4_SPUR 399 AND STEWART RD

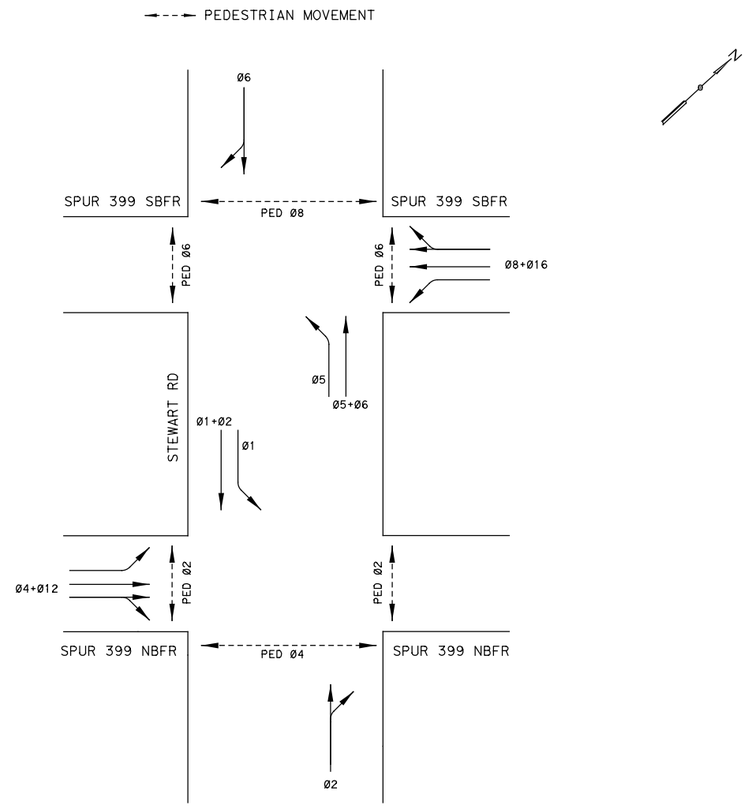
100% PLANS SUBMITTAL

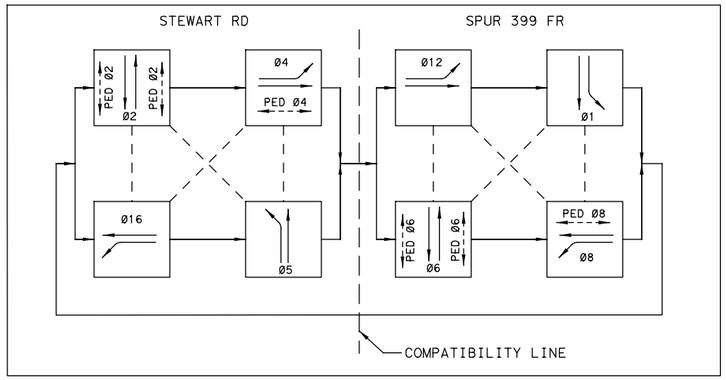
SIGNS SUMMARY					
SIGN #	SIGN TYPE	SIGN LEGEND	STATUS	SUPPORT	DIMENSION
1	R3-5L	LANE ASSIGNMENT (LEFT TURN ONLY)	I	T-1	30" x 36"
2	R9-3	NO PEDESTRIAN CROSSING	I	T-2	30" x 30"
3	R6-2R	ONE WAY (RIGHT)	I	T-2	30" x 36"
4	R9-3	NO PEDESTRIAN CROSSING	I	P-1	30" x 30"
5	R6-2L	ONE WAY (LEFT)	I	T-3	30" x 36"
6	R10-17T	LEFT TURN YIELD ON FLASHING YELLOW ARROW	I	T-3	36" x 42"
7	R9-3	NO PEDESTRIAN CROSSING	I	P-2	30" x 30"
8	R6-2L	ONE WAY (LEFT)	I	T-4	30" x 36"
9	R10-17T	LEFT TURN YIELD ON FLASHING YELLOW ARROW	I	T-4	36" x 42"
10	R3-5L	LANE ASSIGNMENT (LEFT TURN ONLY)	I	T-5 (WB)	30" x 36"
11	R9-3	NO PEDESTRIANS	I	T-5 (SB)	30" x 30"
12	R6-2R	ONE WAY (RIGHT)	I	T-5 (SB)	30" x 36"
S1	STREET NAME	STEWART RD	I	T-1	PROVIDED BY CITY
S2	STREET NAME	MCDONALD ST	I	T-2	PROVIDED BY CITY
S3	STREET NAME	MCDONALD ST	I	T-3	PROVIDED BY CITY
S4	STREET NAME	MCDONALD ST	I	T-4	PROVIDED BY CITY
S5	STREET NAME	STEWART RD	I	T-5 (WB)	PROVIDED BY CITY
S6	STREET NAME	MCDONALD ST	I	T-5 (SB)	PROVIDED BY CITY
PP1	R10-3eR	PED PUSH BUTTON	I	T-1	9" X 15"
PP2	R10-3eR	PED PUSH BUTTON	I	T-1	9" X 15"
PP3	R10-3eL	PED PUSH BUTTON	I	T-2	9" X 15"
PP4	R10-3eR	PED PUSH BUTTON	I	P-1	9" X 15"
PP5	R10-3eL	PED PUSH BUTTON	I	T-3	9" X 15"
PP6	R10-3eL	PED PUSH BUTTON	I	T-3	9" X 15"
PP7	R10-3eL	PED PUSH BUTTON	I	P-2	9" X 15"
PP8	R10-3eL	PED PUSH BUTTON	I	T-4	9" X 15"
PP9	R10-3eR	PED PUSH BUTTON	I	T-4	9" X 15"
PP10	R10-3eL	PED PUSH BUTTON	I	P-3	9" X 15"
PP11	R10-3eR	PED PUSH BUTTON	I	P-3	9" X 15"
PP12	R10-3eL	PED PUSH BUTTON	I	T-5 (SB)	9" X 15"

I=PROPOSED TO BE INSTALLED

APS MESSAGE CHART				
POLE LOCATION	PED PUSH BUTTON	PEDESTRIAN MOVEMENT	FUNCTIONS	SPEECH MESSAGE/SOUND DETAILS
T-1	PP1	PHASE 2	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 NBFR, WALK SIGN IS ON TO CROSS SPUR 399 NBFR
	PP2	PHASE 4	BUTTON PUSH ON DW	WAIT TO CROSS STEWART RD AT SPUR 399 NBFR
			EXTENDED BUTTON PUSH	WAIT TO CROSS STEWART RD AT SPUR 399 NBFR
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	STEWART RD, WALK SIGN IS ON TO CROSS STEWART RD
T-2	PP3	PHASE 2	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 NBFR, WALK SIGN IS ON TO CROSS SPUR 399 NBFR
T-3	PP5	PHASE 4	BUTTON PUSH ON DW	WAIT TO CROSS STEWART RD AT SPUR 399 NBFR
			EXTENDED BUTTON PUSH	WAIT TO CROSS STEWART RD AT SPUR 399 NBFR
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	STEWART RD, WALK SIGN IS ON TO CROSS STEWART RD
	PP6	PHASE 2	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 NBFR, WALK SIGN IS ON TO CROSS SPUR 399 NBFR
P-1	PP4	PHASE 2	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 NBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 NBFR, WALK SIGN IS ON TO CROSS SPUR 399 NBFR
P-2	PP7	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 SBFR, WALK SIGN IS ON TO CROSS SPUR 399 SBFR
T-4	PP8	PHASE 8	BUTTON PUSH ON DW	WAIT TO CROSS STEWART RD AT SPUR 399 SBFR
			EXTENDED BUTTON PUSH	WAIT TO CROSS STEWART RD AT SPUR 399 SBFR
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	STEWART RD, WALK SIGN IS ON TO CROSS STEWART RD
	PP9	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 SBFR, WALK SIGN IS ON TO CROSS SPUR 399 SBFR
P-3	PP10	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 SBFR, WALK SIGN IS ON TO CROSS SPUR 399 SBFR
	PP11	PHASE 8	BUTTON PUSH ON DW	WAIT TO CROSS STEWART RD AT SPUR 399 SBFR
			EXTENDED BUTTON PUSH	WAIT TO CROSS STEWART RD AT SPUR 399 SBFR
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	STEWART RD, WALK SIGN IS ON TO CROSS STEWART RD
T-5 (SB)	PP12	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			EXTENDED BUTTON PUSH	WAIT TO CROSS SPUR 399 SBFR AT STEWART RD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	SPUR 399 SBFR, WALK SIGN IS ON TO CROSS SPUR 399 SBFR

PHASE DIAGRAM AND SEQUENCE





NOTE:
1. ALL PHASE DIAGRAM INFORMATION IS APPROXIMATE. CONTRACTOR TO COORDINATE WITH THE CITY FOR SIGNAL TIMING AND PHASING.

2. Ø12 AND Ø16 ARE CLEARANCE PHASES.

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SPUR 399 AND STEWART RD

SHEET 3 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AM	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1141
PT	0047	05	057, ETC.	
CHECK				
PT				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8I15-SP399-SEGI.tbl
USER: SALMEIDA DATE: I0/I/2024 TIME: I0:44:22 AM SCALE: 1:40
FILE: DETAILS 3 OF 4_SPUR 399 AND STEWART RD

100% PLANS SUBMITTAL

SUMMARY OF CONDUIT AND CABLES

RUN NO./POLE NO.	CONDUIT STATUS	LENGTH OF RUN	ITEM 618 CONDUIT										CABLE STATUS	ITEM 620 ELECTRICAL CONDUCTORS						ITEM 684 TRAFFIC SIGNAL CABLES						PTZ CABLE (ETHERNET)*		OPTICOM CABLE*		PRESENCE RADAR CABLE*		ADVANCE RADAR CABLE*		ENFORCEMENT LIGHT CABLE*		ANTENNA CABLE*		RUN NO./POLE NO.
			2" PVC (TRENCH)		2" PVC (BORE)		3" PVC (TRENCH)		4" PVC (TRENCH)		4" PVC (BORE)			No. 6 XHHW		No. 6 BARE		No. 8 XHHW		TY A 20 COND. #14		TY A 7 COND. #14		TY C 2 COND. #12												
			QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN		QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	
R1	I	10	1	10		-		-		-		-	I	TO BE INSTALLED BY OTHERS																						R1
R2	I	35	1	35		-		-		-		-	I		-	1	45	2	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R2
	I	35	1	35		-		-		-		-	I	2	45	1	45	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R3	I	10		-		-		-	2	10		-	I		-	2	20	-	20	5	20	4	20	12	20	2	20	4	20	6	20	6	20	5	20	2	20	R3
	I	10	1	10		-		-		-		-	I	2	20	1	20	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	I	10		-		-	2	10		-		-	I	FOR FUTURE USE																				-	-	
R4	I	30		-		-		-	1	30		-	I		-	1	40		-	5	40	4	40	12	40	2	40	4	40	6	40	6	40	5	40	2	40	R4
	I	30	2	30		-		-		-		-	I	2	40	2	40	2	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R5	I	10		-		-	1	10		-		-	I		-	1	20		-	1	20	-	-	2	20	1	20	1	20	-	-	1	20	1	20	1	20	R5
	I	10	1	10		-		-		-		-	I		-	1	20	4	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R6	I	80		-		-		-		-	1	80	I		-	1	90		-	1	90	2	90	3	90	-	-	-	-	2	90	1	90	1	90	-	-	R6
	I	80		-	1	80		-		-		-	I		-	1	90	4	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R7	I	15		-		-	1	15		-		-	I		-	1	25		-	1	25	1	25	2	25	-	-	-	-	2	25	1	25	1	25	-	-	R7
	I	15	1	15		-		-		-		-	I		-	1	25	4	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R8	I	70		-		-		-		-	1	70	I		-	1	80		-	-	-	1	80	1	80	-	-	-	-	-	-	-	-	-	-	-	-	R8
	I	70		-	1	70		-		-		-	I		-	1	80		-		-		-		-		-		-		-		-		-	
R9	I	10		-		-	1	10		-		-	I		-	1	20		-	-	-	1	20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	R9
R10	I	65		-		-		-		-	1	65	I		-	1	75		-	3	75	2	75	7	75	1	75	3	75	4	75	4	75	3	75	1	75	R10
	I	65		-	1	65		-		-		-	I		-	1	75	2	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R11	I	10		-		-	1	10		-		-	I		-	1	20		-	1	20	-	-	1	20	-	-	1	20	1	20	1	20	1	20	-	-	R11
	I	10	1	10		-		-		-		-	I		-	1	20	4	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R12	I	220		-		-		-	1	220		-	I		-	1	230		-	2	230	2	230	6	230	1	230	2	230	3	230	3	230	2	230	1	230	R12
	I	220	1	220		-		-		-		-	I		-	1	230	2	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R13	I	10		-		-	1	10		-		-	I		-	1	20		-	-	-	1	20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	R13
R14	I	95		-		-		-		-	1	95	I		-	1	105		-	2	105	1	105	5	105	1	105	2	105	3	105	3	105	2	105	1	105	R14
	I	95		-	1	95		-		-		-	I		-	1	105	2	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R15	I	45		-		-	1	45		-		-	I		-	1	55		-	1	55	-	-	2	55	1	55	-	-	2	55	1	55	1	55	1	55	R15
R16	I	65		-		-		-		-	1	65	I		-	1	75		-	1	75	1	75	3	75	-	-	2	75	1	75	3	75	1	75	-	-	R16
	I	65		-	1	65		-		-		-	I		-	1	75	2	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R17	I	35		-		-	1	35		-		-	I		-	1	45		-	-	-	1	45	2	45	-	-	-	-	-	-	1	45	-	-	-	-	R17
	I	35	1	35		-		-		-		-	I		-	1	45	4	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R18	I	85		-		-		-		-	1	85	I		-	1	95		-	1	95	-	-	1	95	-	-	2	95	1	95	2	95	1	95	-	-	R18
	I	85		-	1	85		-		-		-	I		-	1	95	2	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R19	I	10		-		-	1	10		-		-	I		-	1	20		-	1	20	-	-	1	20	-	-	2	20	1	20	2	20	1	20	-	-	R19
	I	10	1	10		-		-		-		-	I		-	1	20	2	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SUBTOTAL				450		460		165		270		460			210		2,125		2,170		1,595		1,400		4,190		605		1,555		2,215		2,375		1,595		605	
T-1													P		-		-		170		-		185		20		40		55		-		65		30		40	
T-2													P		-		-		170		-		105		15		-		55		75		60		30		-	
P-1													P		-		-		-		-		20		15		-		-		-		-		-		-	
T-3													P		-		-		170		-		185		20		-		-		115		70		30		-	
P-2													P		-		-		-		-		20		15		-		-		-		-		-		-	
P-3													P		-		-		-		-		45		20		-		-		-		-		-		-	
T-4													P		-		-		170		-		190		20		40		-		95		60		30		-	
T-5 (SB)													P		-		-		-		-		105		15		-		55		70		45		30		-	
T-5 (WB)													P		-		-		90		-		90		-		-		55		-		55		30		-	
SUBTOTAL															-		-		770		-		945		140		80		220		355		355		90		40	
TOTAL				450		460		165		270		460			210		2,125		2,940		1,595		2,345		4,330		685		1,775		2,570		1,905		1,685		645	

I=PROPOSED TO BE INSTALLED; P=WIRE TO BE INSTALLED INSIDE STEEL POLE

* - TO BE PROVIDED BY CITY

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

T. Pragna

10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SPUR 399 AND STEWART RD

SHEET 4 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AM	TEXAS	DAL	COLLIN	1142
CHECK	CONTROL	SECTION	JOB	
PT	0047	05	057, ETC.	
CHECK				
PT				

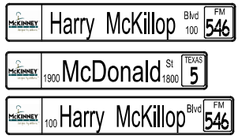
PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181/5-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:28 AM SCALE: 1:40
FILE: DETAILS 4 OF 4_SPUR 399 AND STEWART RD

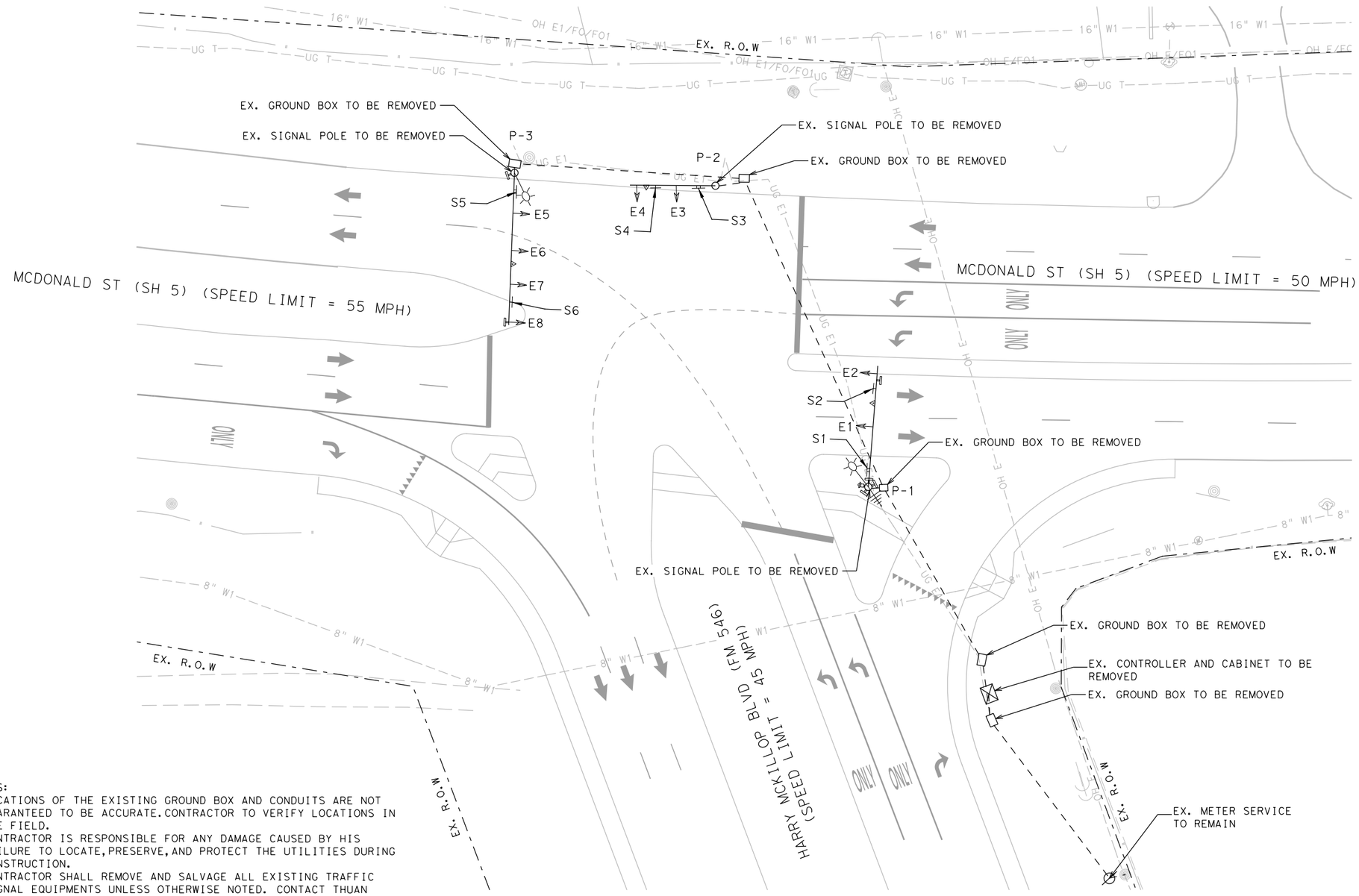
100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

EX. SIGNS TO BE REMOVED





LEGEND

- EX. SIGNAL POLE W/MAST ARM
- EX. SIGNAL HEAD
- EX. SIGN ON MAST ARM
- EX. STREET NAME SIGN
- EX. RADAR DETECTION
- EX. CONTROLLER AND CABINET
- EX. ANTENNA
- EX. LUMINAIRE
- EX. PTZ CAMERA
- EX. PREEMPTION
- EX. METER SERVICE
- EX. GROUND BOX
- TRAFFIC FLOW
- EX. CONDUIT
- EX. R.O.W.
- OH E — EX. OVERHEAD ELECTRIC
- OH E1/FO/FO1 — EX. OVERHEAD ELECTRIC FIBER
- UG E1 — EX. UNDERGROUND ELECTRIC
- UG T — EX. UNDERGROUND TELEPHONE
- X" W1 — EX. WATER

0 20 40 60 80
SCALE IN FEET

NOTES:
1. LOCATIONS OF THE EXISTING GROUND BOX AND CONDUITS ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO VERIFY LOCATIONS IN THE FIELD.
2. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE, PRESERVE, AND PROTECT THE UTILITIES DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE AND SALVAGE ALL EXISTING TRAFFIC SIGNAL EQUIPMENTS UNLESS OTHERWISE NOTED. CONTACT THUAN HUYNH AT 972-547-2634 OR DOUGLAS DUNN AT 972-547-7428 48 HOURS IN ADVANCE OF DELIVERY.
4. CONTRACTOR SHALL MAINTAIN THE TEMPORARY SIGNAL OPERATIONAL AT THIS INTERSECTION UNTIL THE PROPOSED SIGNAL IS OPERATIONAL. REFER TO TEMPORARY SIGNAL PLANS.
5. EXISTING GROUND BOXES AND CONDUCTORS TO BE REMOVED AND EXISTING CONDUITS TO BE ABANDONED IN PLACE.
6. EXISTING ELECTRICAL SERVICE TO REMAIN IN PLACE.

EX. SIGNAL HEADS TO BE REMOVED

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER
T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation
© 2024

SH 5
TRAFFIC SIGNAL
EXISTING LAYOUT
SH 5 AND HARRY MCKILLOP BLVD

SCALE: 1"=40' SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1143
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0IBII5-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:34 AM SCALE: 1:40
FILE: EXISTING SIGNAL LAYOUT_SH 5 AND HARRY MCKILLOP BLVD

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALLLOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

PROP. SIGNAL HEADS

12" LED SIGNAL SECTIONS WITH RETROREFLECTIVE BACKPLATES

H3 — H2, H3, H4 H7, H8

H4LT — H5, H6, H9, H10

V3 — H11

V5RT — H1

LED COUNTDOWN PEDESTRAIN SIGNAL — W1-W4

PROP. PED PUSH BUTTON SIGNS

R10-3eL (9"X15") — PP1 PP3, PP4

R10-3eR (9"X15") — PP2

PROP. SIGNS

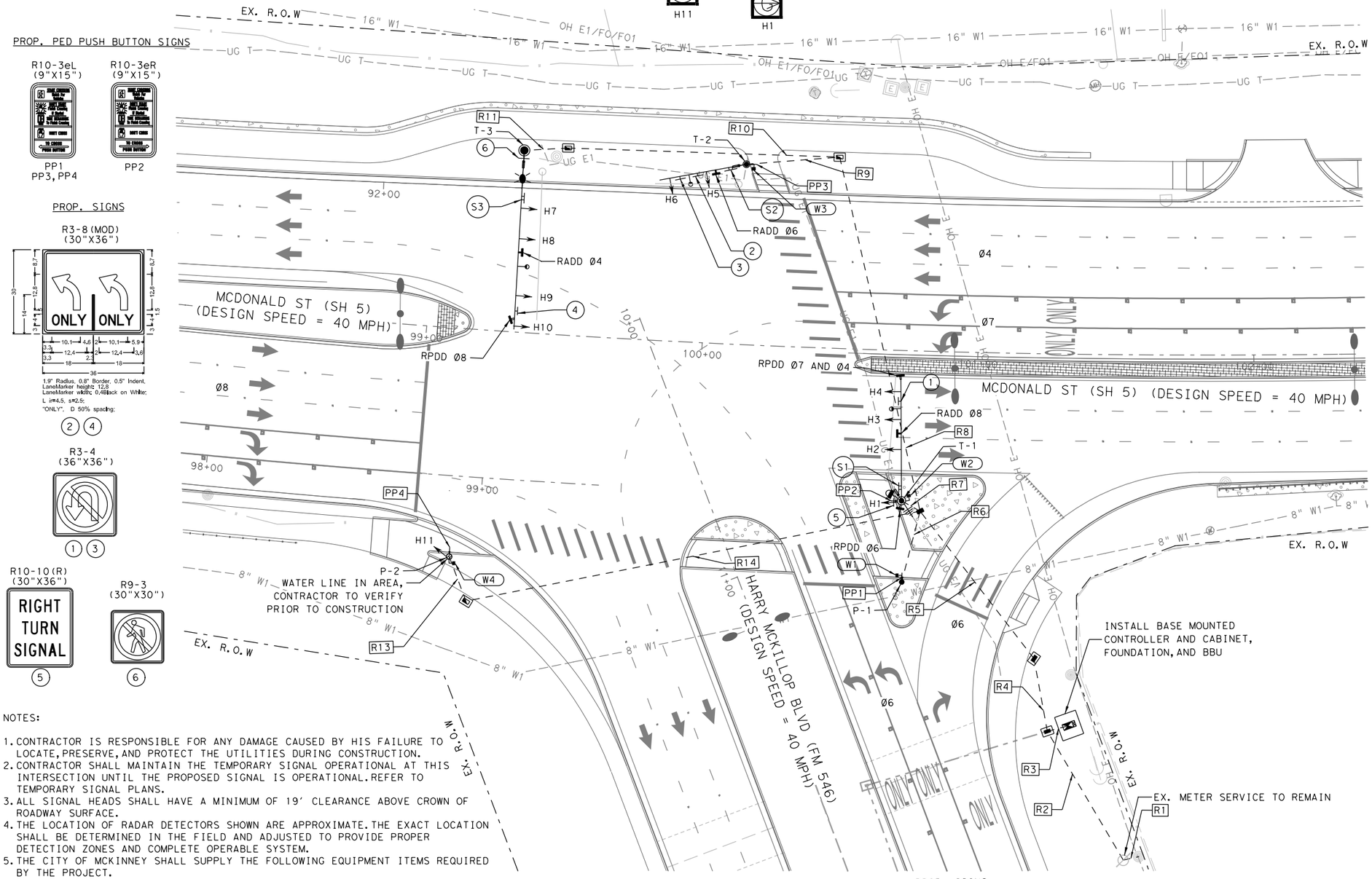
R3-8 (MOD) (30"X36")

1.9" Radius, 0.8" Border, 0.5" Indent, LaneMarker height: 12.8 LaneMarker width: 0.48 black on White; L a=4.5, s=2.5; "ONLY", D 50% spacing; (2) (4)

R3-4 (36"X36") (1) (3)

R10-10(R) (30"X36") RIGHT TURN SIGNAL (5)

R9-3 (30"X30") (6)



NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE, PRESERVE, AND PROTECT THE UTILITIES DURING CONSTRUCTION.
2. CONTRACTOR SHALL MAINTAIN THE TEMPORARY SIGNAL OPERATIONAL AT THIS INTERSECTION UNTIL THE PROPOSED SIGNAL IS OPERATIONAL. REFER TO TEMPORARY SIGNAL PLANS.
3. ALL SIGNAL HEADS SHALL HAVE A MINIMUM OF 19' CLEARANCE ABOVE CROWN OF ROADWAY SURFACE.
4. THE LOCATION OF RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND COMPLETE OPERABLE SYSTEM.
5. THE CITY OF MCKINNEY SHALL SUPPLY THE FOLLOWING EQUIPMENT ITEMS REQUIRED BY THE PROJECT.
   (A) SIGNAL CONTROLLER AND CABINET AND ALL INTERNAL COMPONENTS (TXDOT FUNDED)
   (B) ENCOM RADIO WITH ANTENNA
   (C) BATTERY BACK UP UNIT (BBU) (TXDOT FUNDED)
   (D) APS SYSTEM (TXDOT FUNDED)
   (E) OPTICOM DETECTORS, LEAD-IN CABLE, AND CABINET EQUIPMENT
   (F) PTZ CAMERA AND CABLE
   (G) ENFORCEMENT LIGHT AND CABLE
   (H) RADAR DETECTION AND CABLE (TXDOT FUNDED)
   (I) NETWORK SWITCH
   (J) STREET NAME SIGNS

PROP. SIGNS

LEGEND

- PROP. SIGNAL POLE W/MAST ARM
- PROP. SIGNAL HEAD
- PROP. PED POLE (10')
- PROP. PED POLE (15')
- PROP. PED HEAD
- PROP. SIGN
- PROP. STREET NAME SIGN
- PROP. LUMINAIRE
- PROP. PEDESTRIAN PUSH BUTTON
- PROP. RADAR PRESENCE
- PROP. RADAR ADVANCE
- PROP. PREEMPTION
- PROP. PTZ CAMERA
- PROP. ENFORCEMENT LIGHT
- PROP. ANTENNA
- PROP. CONTROLLER AND CABINET W/BBU
- PROP. TY D GROUND BOX W/APRON
- PROP. TY C GROUND BOX W/APRON
- PROP. TY D GROUND BOX
- PROP. TY D GROUND BOX W/APRON
- PROP. ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP. ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. CONDUIT
- TRAFFIC FLOW
- EX. METER SERVICE
- EX. R.O.W.
- EX. OVERHEAD ELECTRIC
- EX. OVERHEAD ELECTRIC FIBER
- EX. UNDERGROUND ELECTRIC
- EX. UNDERGROUND TELEPHONE
- EX. WATER

0 20 40 60 80

SCALE IN FEET

STATE OF TEXAS — PRAGNA TATA — 129174 — LICENSED PROFESSIONAL ENGINEER

T. Pragna

10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5 TRAFFIC SIGNAL PROPOSED LAYOUT SH 5 AND HARRY MCKILLOP BLVD

SCALE: 1"=40' SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1144
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08I15-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:44 AM SCALE: 1:40
FILE: PROPOSED SIGNAL LAYOUT_SH 5 AND HARRY MCKILLOP BLVD

100% PLANS SUBMITTAL

SUMMARY OF CONDUIT AND CABLES

RUN NO./POLE NO.	CONDUIT STATUS	LENGTH OF RUN	ITEM 618 CONDUIT										CABLE STATUS	ITEM 620 ELECTRICAL CONDUCTORS						ITEM 684 TRAFFIC SIGNAL CABLES						PTZ CABLE (ETHERNET)*		OPTICOM CABLE*		PRESENCE RADAR CABLE*		ADVANCE RADAR CABLE*		ENFORCEMENT LIGHT CABLE*		ANTENNA CABLE*		RUN NO./POLE NO.
			2" PVC (TRENCH)		2" PVC (BORE)		3" PVC (TRENCH)		4" PVC (TRENCH)		4" PVC (BORE)			No. 6 XHHW		No. 6 BARE		No. 8 XHHW		TY A 20 COND. #14		TY A 7 COND. #14		TY C 2 COND. #12												
			QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN		QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	
R1	E	-		-		-		-		-		-	I	EXISTING CONNECTION TO REMAIN																							R1
R2	I	55	1	55		-		-		-		-	I	2	65	1	65	2	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R2
R3	I	10		-		-		-	2	10		-	I		-	2	20		-	3	20	3	20	4	20	1	20	3	20	3	20	3	20	3	20	1	20	R3
	I	10	1	10		-		-		-		-	I	2	20	1	20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	I	10		-		-	2	10		-		-	I	FUTURE COMMUNICATION CONDUIT																						-	-	
R4	I	30		-		-		-	2	30		-	I		-	2	40		-	3	40	3	40	4	40	1	40	3	40	3	40	3	40	3	40	1	40	R4
	I	30	2	30		-		-		-		-	I	2	40	2	40	2	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R5	I	70		-		-		-		-	1	70	I		-	1	80		-	3	80	3	80	4	80	1	80	3	80	3	80	3	80	3	80	1	80	R5
	I	70		-	1	70		-		-		-	I		-	1	80	2	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R6	I	30		-		-	1	30		-		-	I		-	1	40		-	-	-	1	40	1	40	-	-	-	-	-	-	-	-	-	-	-	-	R6
R7	I	10		-		-	1	10		-		-	I		-	1	20		-	1	20	-	-	1	20	1	20	1	20	2	20	1	20	1	20	1	20	R7
	I	10	1	10		-		-		-		-	I		-	1	20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R8	I	135		-		-		-		-	1	135	I		-	1	145		-	2	145	1	145	1	145	-	-	2	145	1	145	2	145	2	145	-	-	R8
	I	135		-	1	135		-		-		-	I		-	1	145	2	145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R9	I	35		-		-		-	1	35		-	I		-	1	45		-	1	45	1	45	1	45	-	-	1	45	-	-	1	45	1	45	-	-	R9
	I	35	1	35		-		-		-		-	I		-	1	45		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R10	I	100		-		-		-	1	100		-	I		-	1	110		-	1	110	-	-	-	-	-	-	1	110	1	110	1	110	1	110	-	-	R10
	I	100	1	100		-		-		-		-	I		-	1	110	2	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R11	I	20		-		-	1	20		-		-	I		-	1	30		-	1	30	-	-	-	-	-	-	1	30	1	30	1	30	1	30	-	-	R11
	I	20	1	20		-		-		-		-	I		-	1	30	2	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R13	I	20		-		-	1	20		-		-	I		-	1	30		-	-	-	1	30	1	30	-	-	-	-	-	-	-	-	-	-	-	-	R13
R14	I	170		-		-		-		-	1	170	I		-	1	180		-	-	-	1	180	1	180	-	-	-	-	-	-	-	-	-	-	-	-	R14
SUBTOTAL				260		205		100		215		375			250		1,395		940		915		860		1,020		160		915		745		915		915		160	
T-1													P		-		-		-		-		190		15		40		65		110		55		30		40	
P-1													P		-		-		-		-		20		15		-		-		-		-		-		-	
T-2													P		-		-		-		-		105		15		-		50		-		45		30		-	
T-3													P		-		-		90		-		290		-		-		75		105		65		30		-	
P-2													P		-		-		-		-		30		15		-		-		-		-		-		-	
SUBTOTAL															-		-		90		-		635		60		40		190		215		165		90		40	
TOTAL				260		205		100		215		375			250		1,395		1,030		915		1,495		1,080		200		1,105		960		1,080		1,005		200	

I=PROPOSED TO BE INSTALLED; E=EXISTING TO REMAIN; P=WIRE TO BE INSTALLED INSIDE STEEL POLE
* - TO BE PROVIDED BY CITY

SIGNAL POLE AND POLE PLACEMENT

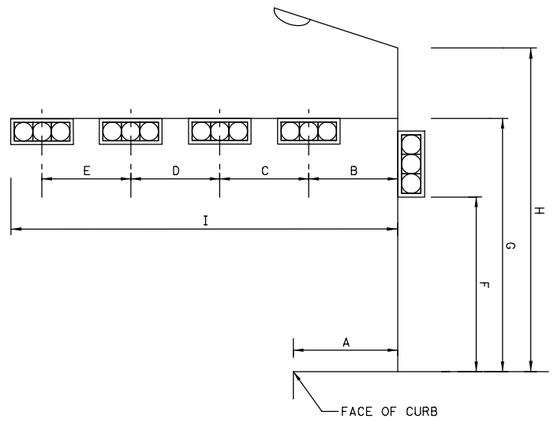
GEOMETRIC CORNER	POLE NUMBER	STATUS	A (FT)	B (FT)	C (FT)	D (FT)	E (FT)	F (FT)	G (FT)	H (FT)	I (FT)	NO. OF HEADS* (EA)	PRE-EMPTION	APS	PTZ CAMERA	RADAR DETECTION: PRESENCE	RADAR DETECTION: ADVANCE	LUM	DRILLED SHAFT LENGTH (FT): 24" DIA SUB TO ITEM 687 **	DRILLED SHAFT LENGTH (FT): 30" DIA TYPE A ITEM 416	DRILLED SHAFT LENGTH (FT): 36" DIA TYPE A ITEM 416	DRILLED SHAFT LENGTH (FT): 48" DIA TYPE A ITEM 416	FDN. TYPE: WIND ZONE 80 MPH
NE	T-1	I	10	19	11	10	-	14	20	-	44	3	1	1	1	2	1	N	-	-	13	-	36-A
	P-1	I	10	10' PEDESTRIAN SIGNAL POLE				-	10	-	-	-	-	1	-	-	-	-	6	-	-	-	24-A
NW	T-2	E	10	14	14	-	-	-	20	-	32	2	1	1	-	-	1	N	-	11	-	-	30-A
SW	T-3	I	12	21	11	21	11	-	20	30	65	4	1	-	-	1	1	Y	-	-	-	22	48-A
SE	P-2	I	9	15' PEDESTRIAN SIGNAL POLE				-	10	-	-	1	-	1	-	-	-	-	6	-	-	-	24-A
												TOTAL:	3	4	1	3	3		12	11	13	22	

I=PROPOSED TO BE INSTALLED; E=EXISTING TO REMAIN; N=NO; Y=YES
*-DOES NOT INCLUDE VERTICAL SIDEMOUT SIGNAL HEADS OR PEDESTRIAN SIGNAL HEADS
**- SUBSIDIARY TO ITEM 687-6001 (PED POLE ASSEMBLY)

GROUND BOX SUMMARY			
DESCRIPTION	UNIT	STATUS	QTY.
GROUND BOX TYPE C W/APRON	EA	I	3
GROUND BOX TYPE D W/APRON	EA	I	2
GROUND BOX TYPE D	EA	I	1

I=PROPOSED TO BE INSTALLED

POLE STATION AND OFFSET				
POLE	ROADWAY	STATION (FT)	OFFSET (FT)	SIDE
T-1	MCDONALD ST (SH 5)	100+63.08	54.44	RT
T-2	MCDONALD ST (SH 5)	100+14.17	63.08	LT
T-3	MCDONALD ST (SH 5)	99+31.08	65.93	LT
P-1	MCDONALD ST (SH 5)	100+74.96	83.87	RT
P-2	MCDONALD ST (SH 5)	99+14.04	82.85	RT



STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER
T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SH 5 AND HARRY MCKILLOP BLVD

SHEET 1 OF 3

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1145
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:48 AM SCALE: 1:40
FILE: DETAILS 1 OF 3_SH 5 AND HARRY MCKILLOP BLVD

100% PLANS SUBMITTAL

CABLE TERMINATION CHART						
CNDR. NO.	CONDUCTOR COLOR	CABLE 1 20 CNDR. #14 FROM T-1 TO CNTRL.	CABLE 2 20 CNDR. #14 FROM T-2 TO CNTRL.	CABLE 3 20 CNDR. #14 FROM T-3 TO CNTRL.	CABLE 5 7 CNDR. #14 FROM P-1 TO CNTRL.	CABLE 6 7 CNDR. #14 FROM P-2 TO CNTRL.
1	BLACK	SPARE	SPARE	SPARE	SPARE	SPARE
2	WHITE	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM
3	RED	H1,H2,H3,H4 - PHASE 8 R	SPARE	H7,H8 - PHASE 4 R	SPARE	H11 - PHASE 8 R
4	GREEN	H1,H2,H3,H4 - PHASE 8 G	SPARE	H7,H8 - PHASE 4 G	SPARE	H11 - PHASE 8 G
5	ORANGE	H1,H2,H3,H4 - PHASE 8 Y	SPARE	H7,H8 - PHASE 4 Y	SPARE	H11 - PHASE 8 Y
6	BLUE	W2 - PHASE 6 DW	W3 - PHASE 6 DW	SPARE	W1 - PHASE 8 DW	W4 - PHASE 8 DW
7	WHITE/BLACK	W2 - PHASE 6 W	W3 - PHASE 6 W	SPARE	W1 - PHASE 8 W	W4 - PHASE 8 W
8	RED/BLACK	SPARE	SPARE	SPARE		
9	GREEN/BLACK	SPARE	H5,H6 - PHASE 6 R (LT ARW)	H9,H10 - PHASE 7 R (LT ARW)		
10	ORANGE/BLACK	H1 - PHASE 6 G (RT ARW)	H5,H6 - PHASE 6 G (LT ARW)	H9,H10 - PHASE 7 G (LT ARW)		
11	BLUE/BLACK	H1 - PHASE 6 Y (RT ARW)	H5,H6 - PHASE 6 Y (LT ARW)	H9,H10 - PHASE 7 Y (LT ARW)		
12	BLACK/WHITE	SPARE	SPARE	SPARE		
13	RED/WHITE	SPARE	SPARE	SPARE		
14	GREEN/WHITE	SPARE	SPARE	SPARE		
15	BLUE/WHITE	SPARE	SPARE	SPARE		
16	BLACK/RED	SPARE	SPARE	SPARE		
17	WHITE/RED	SPARE	SPARE	SPARE		
18	ORANGE/RED	SPARE	SPARE	SPARE		
19	BLUE/RED	SPARE	SPARE	SPARE		
20	RED/GREEN	SPARE	SPARE	SPARE		

NOTE: INSTALL SEPARATE TY C 2 CONDR. # 12 AWG TO EACH PUSH BUTTON FOR PED CALL

SIGNAL HEADS															
POLE NUMBER	SIGNAL HEAD NUMBER	SIGNAL HEAD TYPE	STATUS	BACK PLATE			12" LED SIGNAL INDICATIONS								PED SIG SEC (LED) (COUNTDOWN)
				3 SEC	4 SEC	5 SEC	R	Y	G	<-R-	<-Y-	<-G-	-Y->	-G->	
				EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
P-1	W1	PED	I												1
T-1	H1	V5RT	I			1	1	1	1				1	1	
	H2	H3	I	1			1	1	1						
	H3	H3	I	1			1	1	1						
	H4	H3	I	1			1	1	1						
	W2	PED	I												1
T-2	H5	H4LT	I		1					2	1	1			
	H6	H4LT	I		1					2	1	1			
	W3	PED	I												1
T-3	H7	H3	I	1			1	1	1						
	H8	H3	I	1			1	1	1						
	H9	H4LT	I		1					2	1	1			
	H10	H4LT	I		1					2	1	1			
P-2	H11	H3	I	1			1	1	1						
	W4	PED	I												1
TOTAL (NEW)				6	4	1	7	7	7	8	4	4	1	1	4

I=PROPOSED TO BE INSTALLED

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED
PROFESSIONAL
ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SH 5 AND HARRY MCKILLOP BLVD

SHEET 2 OF 3

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1146
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

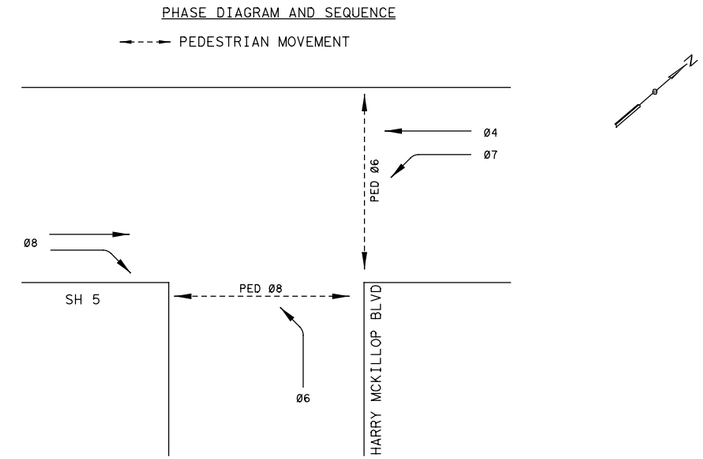
PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10BII5-SP399-SEG1.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:44:54 AM SCALE: 1:40
FILE: DETAILS 2 OF 3_SH 5 AND HARRY MCKILLOP BLVD

100% PLANS SUBMITTAL

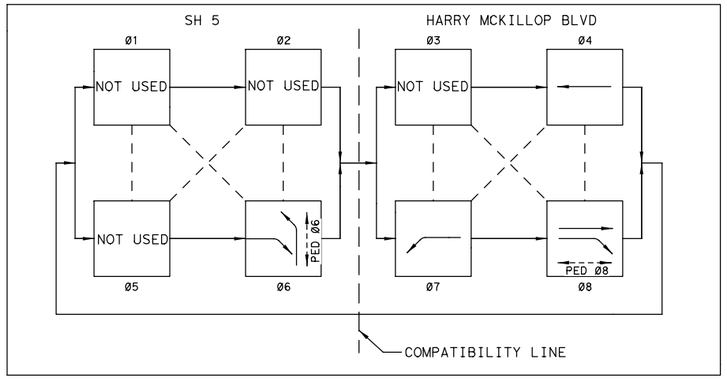
SIGNS SUMMARY					
SIGN #	SIGN TYPE	SIGN LEGEND	STATUS	SUPPORT	DIMENSION
1	R3-4	NO U-TURN	I	T-1	36" X 36"
2	R3-8(MOD)	LANE ASSIGNMENT (DUAL LEFT TURN ONLY)	I	T-2	30" X 36"
3	R3-4	NO U-TURN	I	T-2	36" X 36"
4	R3-8(MOD)	LANE ASSIGNMENT (DUAL LEFT TURN ONLY)	I	T-3	30" X 36"
5	R10-10 (R)	RIGHT TURN SIGNAL	I	T-1	30" X 36"
6	R9-3	NO PEDESTRIANS	I	T-2	30" X 30"
S1	STREET NAME	HARRY MCKILLOP BLVD	I	T-1	PROVIDED BY CITY
S2	STREET NAME	MCDONALD ST	I	T-2	PROVIDED BY CITY
S3	STREET NAME	HARRY MCKILLOP BLVD	I	T-3	PROVIDED BY CITY
PP1	R10-3eL	PED PUSH BUTTON	I	P-1	9" X 15"
PP2	R10-3eR	PED PUSH BUTTON	I	T-1	9" X 15"
PP3	R10-3eL	PED PUSH BUTTON	I	T-2	9" X 15"
PP4	R10-3eL	PED PUSH BUTTON	I	P-2	9" X 15"

I=PROPOSED TO BE INSTALLED

PHASE DIAGRAM AND SEQUENCE



APS MESSAGE CHART				
POLE LOCATION	PED PUSH BUTTON	PEDESTRIAN MOVEMENT	FUNCTIONS	SPEECH MESSAGE/SOUND DETAILS
T-1	PP2	PHASE 4	BUTTON PUSH ON DW	WAIT TO CROSS MCDONALD ST AT HARRY MCKILLOP BLVD
			EXTENDED BUTTON PUSH	WAIT TO CROSS MCDONALD ST AT HARRY MCKILLOP BLVD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	MCDONALD ST, WALK SIGN IS ON TO CROSS MCDONALD ST
P-1	PP1	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS HARRY MCKILLOP BLVD AT MCDONALD ST
			EXTENDED BUTTON PUSH	WAIT TO CROSS HARRY MCKILLOP BLVD AT MCDONALD ST
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	HARRY MCKILLOP BLVD, WALK SIGN IS ON TO CROSS HARRY MCKILLOP BLVD
P-2	PP3	PHASE 4	BUTTON PUSH ON DW	WAIT TO CROSS MCDONALD ST AT HARRY MCKILLOP BLVD
			EXTENDED BUTTON PUSH	WAIT TO CROSS MCDONALD ST AT HARRY MCKILLOP BLVD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	MCDONALD ST, WALK SIGN IS ON TO CROSS MCDONALD ST
P-3	PP4	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS HARRY MCKILLOP BLVD AT MCDONALD ST
			EXTENDED BUTTON PUSH	WAIT TO CROSS HARRY MCKILLOP BLVD AT MCDONALD ST
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	HARRY MCKILLOP BLVD, WALK SIGN IS ON TO CROSS HARRY MCKILLOP BLVD



NOTE:
1. ALL PHASE DIAGRAM INFORMATION IS APPROXIMATE. CONTRACTOR TO COORDINATE WITH THE CITY FOR SIGNAL TIMING AND PHASING.

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED
PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

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Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SH 5 AND HARRY MCKILLOP BLVD

SHEET 3 OF 3

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1147
CHECK PT	CONTROL 0047	SECTION 05	JOB 057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: SALMEIDA DATE: I0/1/2024 TIME: I0:44:58 AM SCALE: 1:40
FILE: DETAILS 3 OF 3_SH 5 AND HARRY MCKILLOP BLVD

100% PLANS SUBMITTAL

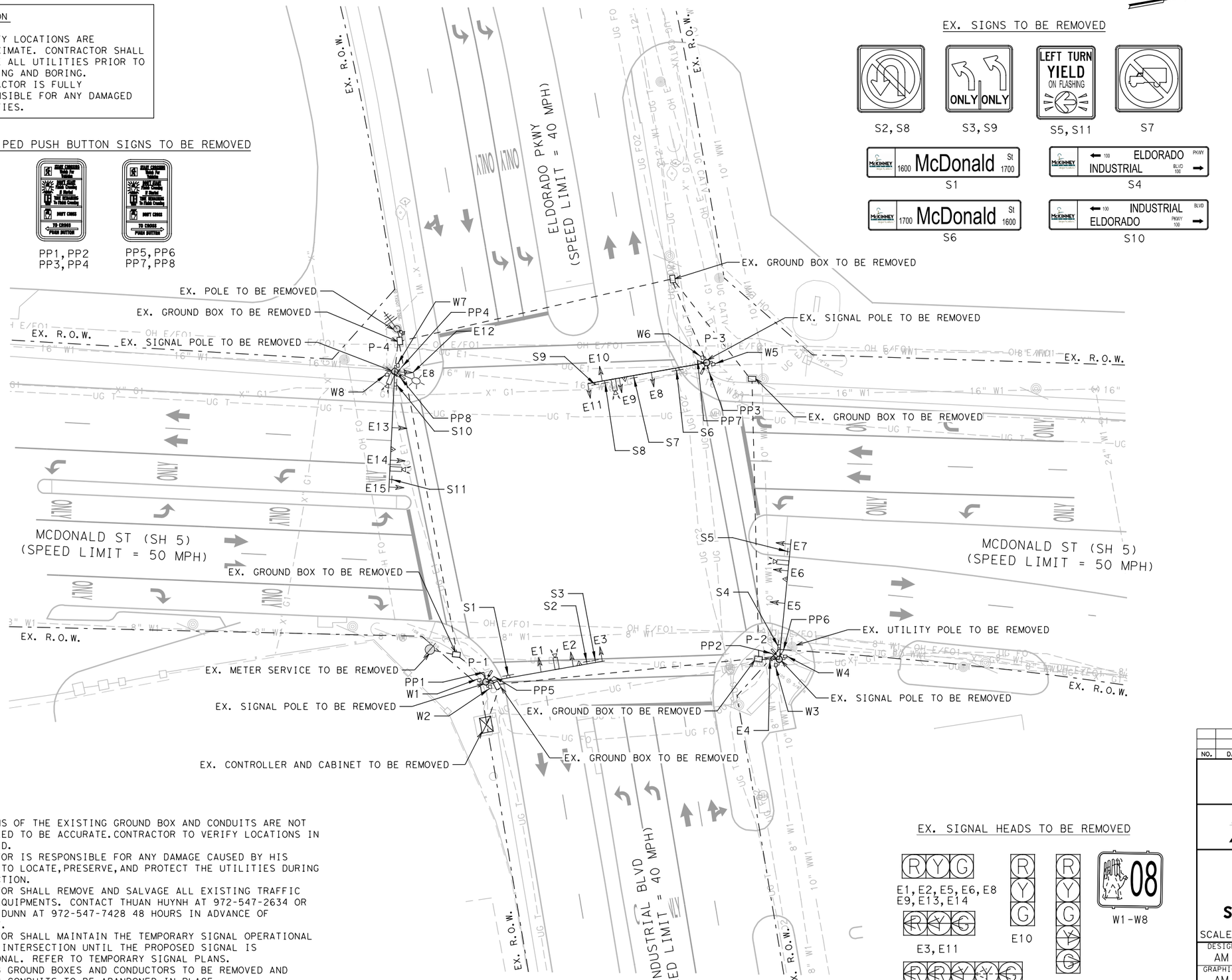
CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

EX. PED PUSH BUTTON SIGNS TO BE REMOVED

PP1, PP2
PP3, PP4

PP5, PP6
PP7, PP8



EX. SIGNS TO BE REMOVED

S2, S8

S3, S9

S5, S11

S7

S1

S4

S6

S10

LEGEND

- EX. SIGNAL POLE W/MAST ARM
- EX. UTILITY POLE
- EX. SIGNAL HEAD
- EX. SIGN ON MAST ARM
- EX. STREET NAME SIGN
- EX. VIVDS CAMERA
- EX. CONTROLLER AND CABINET
- EX. ANTENNA
- EX. LUMINAIRE
- EX. PTZ CAMERA
- EX. PREEMPTION
- EX. ENFORCEMENT LIGHT TO BE REMOVED
- EX. PED SIGNAL HEAD
- EX. PED PUSH BUTTON
- EX. METER SERVICE
- EX. GROUND BOX
- TRAFFIC FLOW
- EX. CONDUIT
- EX. R.O.W.
- EX. GAS
- EX. OVERHEAD ELECTRIC FIBER
- EX. OVERHEAD FIBER
- EX. UNDERGROUND CATV
- EX. UNDERGROUND ELECTRIC
- EX. UNDERGROUND FIBER
- EX. UNDERGROUND TELEPHONE
- EX. SANITARY SEWER
- EX. WATER

NOTES:
1. LOCATIONS OF THE EXISTING GROUND BOX AND CONDUITS ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO VERIFY LOCATIONS IN THE FIELD.
2. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE, PRESERVE, AND PROTECT THE UTILITIES DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE AND SALVAGE ALL EXISTING TRAFFIC SIGNAL EQUIPMENTS. CONTACT THUAN HUYNH AT 972-547-2634 OR DOUGLAS DUNN AT 972-547-7428 48 HOURS IN ADVANCE OF DELIVERY.
4. CONTRACTOR SHALL MAINTAIN THE TEMPORARY SIGNAL OPERATIONAL AT THIS INTERSECTION UNTIL THE PROPOSED SIGNAL IS OPERATIONAL. REFER TO TEMPORARY SIGNAL PLANS.
5. EXISTING GROUND BOXES AND CONDUCTORS TO BE REMOVED AND EXISTING CONDUITS TO BE ABANDONED IN PLACE.
6. EXISTING ELECTRICAL SERVICE, CONTROLLER AND CABINET TO BE REMOVED.

EX. SIGNAL HEADS TO BE REMOVED

E1, E2, E5, E6, E8
E9, E13, E14

E3, E11

E7, E15

E10

E4, E12

W1-W8

0 20 40 60 80
SCALE IN FEET

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

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Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation
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SH 5
TRAFFIC SIGNAL
EXISTING LAYOUT
SH 5 AND ELDORADO PKWY

SCALE: 1"=40' SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AM	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1148
PT	0047	05	057, ETC.	
CHECK				
PT				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:45:06 AM SCALE: 1:40
FILE: EXISTING SIGNAL LAYOUT_SH 5 AND ELDORADO PKWY

100% PLANS SUBMITTAL

CAUTION

UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO DRILLING AND BORING. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGED UTILITIES.

PROP. SIGNS

S1: ← 100 Industrial Blvd / Eldorado Pkwy 100 →

S3: ← 100 Eldorado Pkwy / Industrial Blvd 100 →

S2: 1600 McDonald St 1700

S4: 1700 McDonald St 1600

PROP. SIGNAL HEADS

12" LED SIGNAL SECTIONS WITH RETROREFLECTIVE BACKPLATES

H3 (R Y G): H2, H3, H7, H8, H12, H13, H17, H18

H4LT (R R Y G): H4, H5, H14, H15, H9, H10, H19, H20

LED COUNTDOWN PEDESTRAIN SIGNAL: 08 — W1-W8

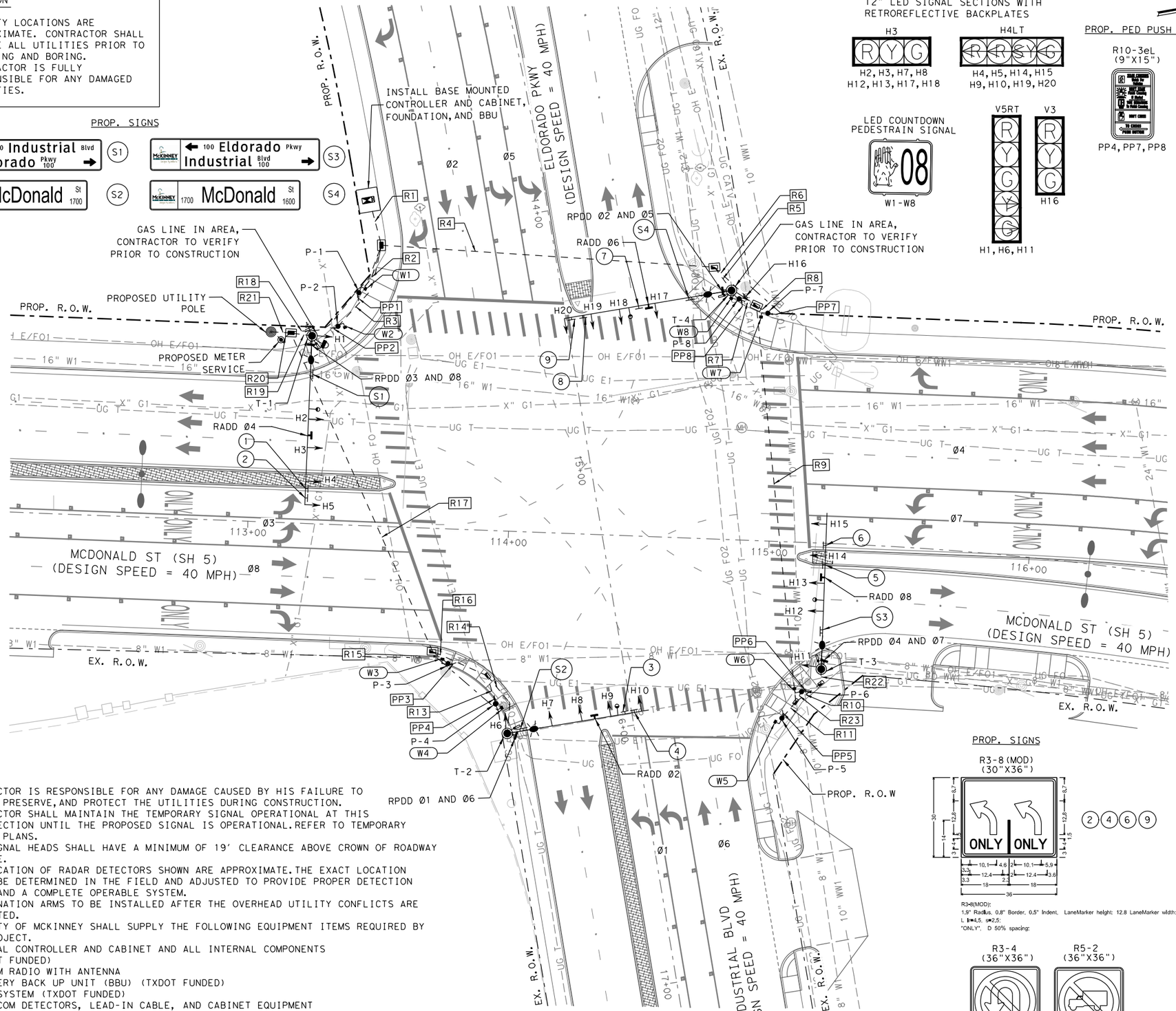
V5RT (R Y G G Y G): H1, H6, H11

V3 (R Y G): H16

PROP. PED PUSH BUTTON SIGNS

R10-3eL (9"X15"): PP4, PP7, PP8

R10-3eR (9"X15"): PP1, PP2, PP3, PP5, PP6



PROP. SIGNS

R3-8 (MOD) (30"X36"): ONLY | ONLY — 2 4 6 9

R3-8(MOD):
1.9" Radius, 0.8" Border, 0.5" Indent, LaneMarker height: 12.8 LaneMarker width: 0.4Black on White;
L l=4.5, s=2.5;
"ONLY", D 50% spacing;

R3-4 (36"X36") — 1 3 5 8

R5-2 (36"X36") — 7

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE, PRESERVE, AND PROTECT THE UTILITIES DURING CONSTRUCTION.
2. CONTRACTOR SHALL MAINTAIN THE TEMPORARY SIGNAL OPERATIONAL AT THIS INTERSECTION UNTIL THE PROPOSED SIGNAL IS OPERATIONAL. REFER TO TEMPORARY SIGNAL PLANS.
3. ALL SIGNAL HEADS SHALL HAVE A MINIMUM OF 19′ CLEARANCE ABOVE CROWN OF ROADWAY SURFACE.
4. THE LOCATION OF RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
5. ILLUMINATION ARMS TO BE INSTALLED AFTER THE OVERHEAD UTILITY CONFLICTS ARE RELOCATED.
6. THE CITY OF MCKINNEY SHALL SUPPLY THE FOLLOWING EQUIPMENT ITEMS REQUIRED BY THE PROJECT.
   (A) SIGNAL CONTROLLER AND CABINET AND ALL INTERNAL COMPONENTS (TXDOT FUNDED)
   (B) ENCOM RADIO WITH ANTENNA
   (C) BATTERY BACK UP UNIT (BBU) (TXDOT FUNDED)
   (D) APS SYSTEM (TXDOT FUNDED)
   (E) OPTICOM DETECTORS, LEAD-IN CABLE, AND CABINET EQUIPMENT
   (F) PTZ CAMERA AND CABLE
   (G) ENFORCEMENT LIGHT AND CABLE
   (H) RADAR DETECTION AND CABLE (TXDOT FUNDED)
   (I) NETWORK SWITCH
   (J) STREET NAME SIGNS

LEGEND

- PROP. SIGNAL POLE W/MAST ARM
- PROP. SIGNAL HEAD
- PROP. PED POLE
- PROP. PED HEAD
- PROP. SIGN
- PROP. STREET NAME SIGN
- PROP. LUMINAIRE
- PROP. PEDESTRIAN PUSH BUTTON
- PROP. RADAR PRESENCE
- PROP. RADAR ADVANCE
- PROP. PREEMPTION
- PROP. PTZ CAMERA
- PROP. ENFORCEMENT LIGHT
- PROP. ANTENNA
- PROP. CONTROLLER AND CABINET W/BBU
- PROP. METER SERVICE
- PROP. TY C GROUND BOX
- PROP. TY C GROUND BOX W/APRON
- PROP. TY D GROUND BOX W/APRON
- PROP. ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP. CONDUIT
- PROP. R.O.W.
- TRAFFIC FLOW
- EX. R.O.W.
- EX. GAS
- EX. OVERHEAD ELECTRIC FIBER
- EX. OVERHEAD FIBER
- EX. UNDERGROUND CATV
- EX. UNDERGROUND ELECTRIC
- EX. UNDERGROUND FIBER
- EX. UNDERGROUND TELEPHONE
- EX. SANITARY SEWER
- EX. WATER

0 20 40 60 80
SCALE IN FEET

STATE OF TEXAS — PRAGNA TATA — 129174 — LICENSED PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SH 5
TRAFFIC SIGNAL
PROPOSED LAYOUT
SH 5 AND ELDORADO PKWY

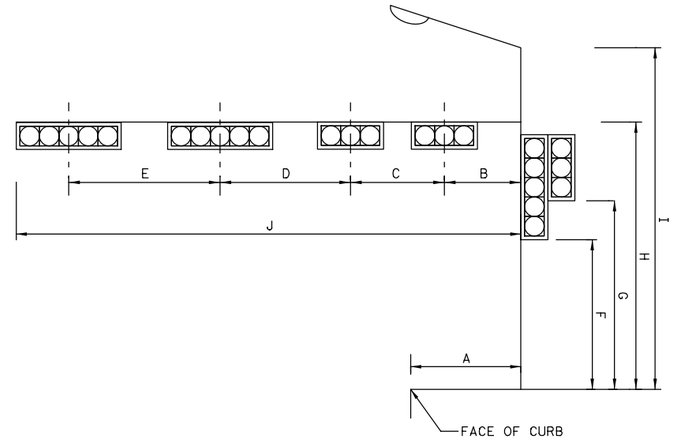
SCALE: 1"=40′ SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1149
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10\8\15-SP399-SEG1.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 2:39:34 PM SCALE: 1:40
FILE: PROPOSED SIGNAL LAYOUT_SH 5 AND ELDORADO PKWY

100% PLANS SUBMITTAL

POLE STATION AND OFFSET				
POLE	ROADWAY	STATION (FT)	OFFSET (FT)	SIDE
T-1	MCDONALD ST (SH 5)	113+39.01	72.07	LT
T-2	MCDONALD ST (SH 5)	113+99.54	77.6	RT
T-3	MCDONALD ST (SH 5)	115+21.91	48.29	RT
T-4	MCDONALD ST (SH 5)	114+81.92	95.58	LT
P-1	MCDONALD ST (SH 5)	113+43.01	89.06	LT
P-2	MCDONALD ST (SH 5)	113+31.66	76.04	LT
P-3	MCDONALD ST (SH 5)	113+78.79	51.63	RT
P-4	MCDONALD ST (SH 5)	113+97.62	66.36	RT
P-5	MCDONALD ST (SH 5)	115+07.53	67.65	RT
P-6	MCDONALD ST (SH 5)	115+14.68	57.22	RT
P-7	MCDONALD ST (SH 5)	114+96.08	87.39	LT
P-8	MCDONALD ST (SH 5)	114+85.09	92.47	LT



SIGNAL POLE AND POLE PLACEMENT

GEOMETRIC CORNER	POLE NUMBER	STATUS	A (FT)	B (FT)	C (FT)	D (FT)	E (FT)	F (FT)	G (FT)	H (FT)	I (FT)	J (FT)	NO. OF HEADS* (EA)	PRE-EMPTION	APS	PTZ CAMERA	RADAR DETECTION: PRESENCE	RADAR DETECTION: ADVANCE	LUM	DRILLED SHAFT LENGTH (FT): 24" DIA SUB TO ITEM 687 **	DRILLED SHAFT LENGTH (FT): 48" DIA TYPE A ITEM 416	FDN. TYPE: WIND ZONE 80 MPH
SW	T-1	I	13	32	11	13	9	12	-	20	30	65	4	1	-	1	1	1	Y	-	22	48-A
	P-1	I	9	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
	P-2	I	9	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
SE	T-2	I	8	18	12	12	12	12	-	20	30	55	4	1	-	-	1	1	Y	-	22	48-A
	P-3	I	5	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
	P-4	I	7	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
NE	T-3	I	7	22	11	11	12	12	14	20	30	60	4	1	-	-	1	1	Y	-	22	48-A
	P-5	I	9	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
	P-6	I	9	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
NW	T-4	I	13	30	14	11	10	-	-	20	30	65	4	1	-	-	1	1	Y	-	22	48-A
	P-7	I	8	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
	P-8	I	9	10' PEDESTRIAN SIGNAL POLE				-	-	10	-	-	-	-	1	-	-		-	6	-	24-A
													TOTAL:	4	8	1	4	4		48	88	

I=PROPOSED TO BE INSTALLED; N=NO; Y=YES
*-DOES NOT INCLUDE VERTICAL SIDEMOUT SIGNAL HEADS OR PEDESTRIAN SIGNAL HEADS
**- SUBSIDIARY TO ITEM 687-6001 (PED POLE ASSEMBLY)

ELECTRICAL SERVICE DATA

ELEC. SERVICE NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED(5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	TWO-POLE CONTRACTOR AMPS	PANELBD./ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
ES-03	ELC SRV TY D 120 / 240 060 (NS)SS(E)PS(U)	2"	3/#6	N/A	2P/60	N/A	100	TRAFFIC SIGNAL	1P/30	24	3.6
								LIGHTING	2P/15	3	

GROUND BOX SUMMARY

DESCRIPTION	UNIT	STATUS	QTY.
GROUND BOX TYPE C W/APRON	EA	I	3
GROUND BOX TYPE C	EA	I	3
GROUND BOX TYPE D W/APRON	EA	I	2

I=PROPOSED TO BE INSTALLED

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER
T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SH 5 AND ELDORADO PKWY

SHEET 1 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1150
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: SALMEIDA DATE: I0/1/2024 TIME: I0:45:22 AM SCALE:1:40
FILE: DETAILS 1OF 4_SH 5 AND ELDORADO PKWY

100% PLANS SUBMITTAL

CABLE TERMINATION CHART

CNDR. NO.	CONDUCTOR COLOR	CABLE 1 20 CNDR. #14 FROM T-1 TO CNTRL.	CABLE 2 20 CNDR. #14 FROM T-2 TO CNTRL.	CABLE 3 20 CNDR. #14 FROM T-3 TO CNTRL.	CABLE 4 20 CNDR. #14 FROM T-4 TO CNTRL.	CABLE 5 7 CNDR. #14 FROM P-1 TO CNTRL.	CABLE 6 7 CNDR. #14 FROM P-2 TO CNTRL.	CABLE 7 7 CNDR. #14 FROM P-3 TO CNTRL.	CABLE 8 7 CNDR. #14 FROM P-4 TO CNTRL.	CABLE 9 7 CNDR. #14 FROM P-5 TO CNTRL.	CABLE 10 7 CNDR. #14 FROM P-6 TO CNTRL.	CABLE 11 7 CNDR. #14 FROM P-7 TO CNTRL.	CABLE 12 7 CNDR. #14 FROM P-8 TO CNTRL.
1	BLACK	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
2	WHITE	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM	SIGNAL COMM
3	RED	H1,H2,H3 - PHASE 4 R	H6,H7,H8 - PHASE 2 R	H11,H12,H13 - PHASE 8 R	H17,H18 - PHASE 6 R	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
4	GREEN	H1,H2,H3 - PHASE 4 G	H6,H7,H8 - PHASE 2 G	H11,H12,H13 - PHASE 8 G	H17,H18 - PHASE 6 G	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
5	ORANGE	H1,H2,H3 - PHASE 4 Y	H6,H7,H8 - PHASE 2 Y	H11,H12,H13 - PHASE 8 Y	H17,H18 - PHASE 6 Y	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
6	BLUE	SPARE	SPARE	SPARE	SPARE	W1 - PHASE 4 DW	W2 - PHASE 2 DW	W3 - PHASE 2 DW	W4 - PHASE 8 DW	W5 - PHASE 8 DW	W6 - PHASE 6 DW	W7 - PHASE 6 DW	W8 - PHASE 4 DW
7	WHITE/BLACK	SPARE	SPARE	SPARE	SPARE	W1 - PHASE 4 W	W2 - PHASE 2 W	W3 - PHASE 2 W	W4 - PHASE 8 W	W5 - PHASE 8 W	W6 - PHASE 6 W	W7 - PHASE 6 W	W8 - PHASE 4 W
8	RED/BLACK	SPARE	SPARE	SPARE	SPARE								
9	GREEN/BLACK	H4,H5 - PHASE 7 R (LT ARW)	H9,H10 - PHASE 5 R (LT ARW)	H14,H15 - PHASE 3 R (LT ARW)	H19,H20 - PHASE 1 R (LT ARW)								
10	ORANGE/BLACK	H4,H5 - PHASE 7 G (LT ARW)	H9,H10 - PHASE 5 G (LT ARW)	H14,H15 - PHASE 3 G (LT ARW)	H19,H20 - PHASE 1 G (LT ARW)								
11	BLUE/BLACK	H4,H5 - PHASE 7 Y (LT ARW)	H9,H10 - PHASE 5 Y (LT ARW)	H14,H15 - PHASE 3 Y (LT ARW)	H19,H20 - PHASE 1 Y (LT ARW)								
12	BLACK/WHITE	SPARE	SPARE	SPARE	SPARE								
13	RED/WHITE	H1 - PHASE 5 G (RT ARW)	H6 - PHASE 3 G (RT ARW)	H11 - PHASE 1 G (RT ARW)	SPARE								
14	GREEN/WHITE	H1 - PHASE 5 Y (RT ARW)	H6 - PHASE 3 Y (RT ARW)	H11 - PHASE 1 Y (RT ARW)	SPARE								
15	BLUE/WHITE	SPARE	SPARE	SPARE	SPARE								
16	BLACK/RED	SPARE	SPARE	SPARE	SPARE								
17	WHITE/RED	SPARE	SPARE	SPARE	H16 - PHASE 4 R								
18	ORANGE/RED	SPARE	SPARE	SPARE	H16 - PHASE 4 G								
19	BLUE/RED	SPARE	SPARE	SPARE	H16 - PHASE 4 Y								
20	RED/GREEN	SPARE	SPARE	SPARE	SPARE								

NOTE: WIRING FOR PED POLE CONNECTS FROM TRAFFIC SIGNAL POLE TERMINATION BLOCK.

SIGNAL HEADS

POLE NUMBER	SIGNAL HEAD NUMBER	SIGNAL HEAD TYPE	STATUS	BACK PLATE 3 SEC	BACK PLATE 4 SEC	BACK PLATE 5 SEC	12" LED SIGNAL INDICATIONS R	Y	G	<-R-	<-Y-	<-G-	-Y->	-G->	PED SIG SEC (LED) (COUNTDOWN)
				EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
T-1	H1	V5RT	I			1	1	1	1				1	1	
	H2	H3	I	1			1	1	1						
	H3	H3	I	1			1	1	1						
	H4	H4FLT	I		1					2	1	1			
	H5	H4FLT	I		1					2	1	1			
P-1	W1	PED	I												1
P-2	W2	PED	I												1
T-2	H6	V5RT	I			1	1	1	1				1	1	
	H7	H3	I	1			1	1	1						
	H8	H3	I	1			1	1	1						
	H9	H4FLT	I		1					2	1	1			
	H10	H4FLT	I		1					2	1	1			
P-3	W3	PED	I												1
P-4	W4	PED	I												1
T-3	H11	V5RT	I			1	1	1	1				1	1	
	H12	H3	I	1			1	1	1						
	H13	H3	I	1			1	1	1						
	H14	H4FLT	I		1					2	1	1			
	H15	H4FLT	I		1					2	1	1			
P-5	W5	PED	I												1
P-6	W6	PED	I												1
T-4	H16	V3	I	1			1	1	1						
	H17	H3	I	1			1	1	1						
	H18	H3	I	1			1	1	1						
	H19	H4FLT	I		1					2	1	1			
	H20	H4FLT	I		1					2	1	1			
P-7	W7	PED	I												1
P-8	W8	PED	I												1
TOTAL (NEW)				9	8	3	12	12	12	16	8	8	3	3	8

I=PROPOSED TO BE INSTALLED

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SH 5 AND ELDORADO PKWY

SHEET 2 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1151
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:45:26 AM SCALE: 1:40
FILE: DETAILS 2 OF 4_SH 5 AND ELDORADO PKWY

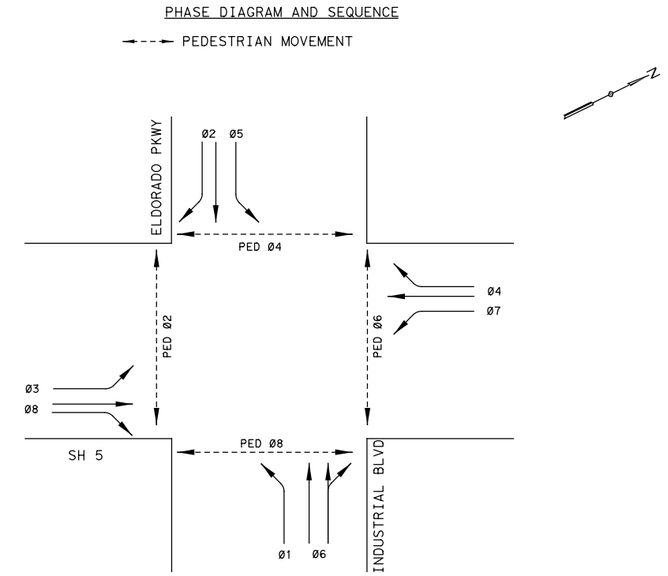
100% PLANS SUBMITTAL

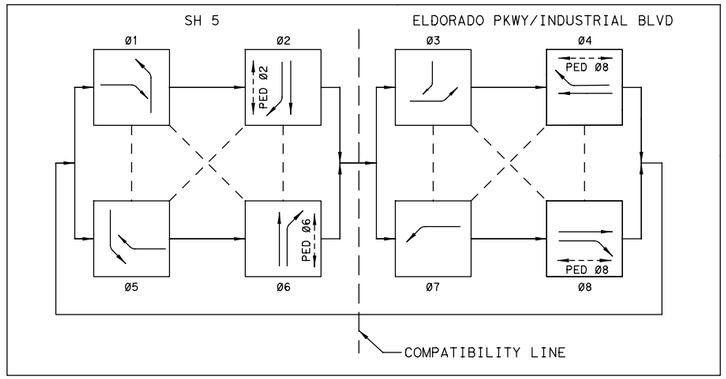
SIGNS SUMMARY					
SIGN #	SIGN TYPE	SIGN LEGEND	STATUS	SUPPORT	DIMENSION
1	R3-4	NO U-TURN	I	T-1	36" X 36"
2	R3-8(MOD)	LANE ASSIGNMENT (DUAL LEFT TURN ONLY)	I	T-1	30" X 36"
3	R3-4	NO U-TURN	I	T-2	36" X 36"
4	R3-8(MOD)	LANE ASSIGNMENT (DUAL LEFT TURN ONLY)	I	T-2	30" X 36"
5	R3-4	NO U-TURN	I	T-3	36" X 36"
6	R3-8(MOD)	LANE ASSIGNMENT (DUAL LEFT TURN ONLY)	I	T-3	30" X 36"
7	R5-2	NO TRUCKS	I	T-4	36" X 36"
8	R3-4	NO U-TURN	I	T-4	36" X 36"
9	R3-8(MOD)	LANE ASSIGNMENT (DUAL LEFT TURN ONLY)	I	T-4	30" X 36"
S1	STREET NAME	INDUSTRIAL BLVD AND ELDORADO PKWY	I	T-1	PROVIDED BY CITY
S2	STREET NAME	MCDONALD ST	I	T-2	PROVIDED BY CITY
S3	STREET NAME	ELDORADO PKWY AND INDUSTRIAL BLVD	I	T-3	PROVIDED BY CITY
S4	STREET NAME	MCDONALD ST	I	T-4	PROVIDED BY CITY
PP1	R10-3eR	PED PUSH BUTTON	I	P-1	9" X 15"
PP2	R10-3eR	PED PUSH BUTTON	I	P-2	9" X 15"
PP3	R10-3eR	PED PUSH BUTTON	I	P-3	9" X 15"
PP4	R10-3eL	PED PUSH BUTTON	I	P-4	9" X 15"
PP5	R10-3eR	PED PUSH BUTTON	I	P-5	9" X 15"
PP6	R10-3eR	PED PUSH BUTTON	I	P-6	9" X 15"
PP7	R10-3eL	PED PUSH BUTTON	I	P-7	9" X 15"
PP8	R10-3eL	PED PUSH BUTTON	I	P-8	9" X 15"

I=PROPOSED TO BE INSTALLED

APS MESSAGE CHART				
POLE LOCATION	PED PUSH BUTTON	PEDESTRIAN MOVEMENT	FUNCTIONS	SPEECH MESSAGE/SOUND DETAILS
P-1	PP1	PHASE 4	BUTTON PUSH ON DW	WAIT TO CROSS ELDORADO PKWY AT MCDONALD ST
			EXTENDED BUTTON PUSH	WAIT TO CROSS ELDORADO PKWY AT MCDONALD ST
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	ELDORADO PKWY , WALK SIGN IS ON TO CROSS ELDORADO PKWY
P-2	PP2	PHASE 2	BUTTON PUSH ON DW	WAIT TO CROSS MCDONALD ST AT ELDORADO PKWY
			EXTENDED BUTTON PUSH	WAIT TO CROSS MCDONALD ST AT ELDORADO PKWY
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	MCDONALD ST, WALK SIGN IS ON TO CROSS MCDONALD ST
P-3	PP3	PHASE 2	BUTTON PUSH ON DW	WAIT TO CROSS MCDONALD ST AT INDUSTRIAL BLVD
			EXTENDED BUTTON PUSH	WAIT TO CROSS MCDONALD ST AT INDUSTRIAL BLVD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	MCDONALD ST, WALK SIGN IS ON TO CROSS MCDONALD ST
P-4	PP4	PHASE 8	BUTTON PUSH ON DW	WAIT TO CROSS INDUSTRIAL BLVD AT MCDONALD ST
			EXTENDED BUTTON PUSH	WAIT TO CROSS INDUSTRIAL BLVD AT MCDONALD ST
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	INDUSTRIAL BLVD , WALK SIGN IS ON TO CROSS INDUSTRIAL BLVD
P-5	PP5	PHASE 8	BUTTON PUSH ON DW	WAIT TO CROSS INDUSTRIAL BLVD AT MCDONALD ST
			EXTENDED BUTTON PUSH	WAIT TO CROSS INDUSTRIAL BLVD AT MCDONALD ST
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	INDUSTRIAL BLVD , WALK SIGN IS ON TO CROSS INDUSTRIAL BLVD
P-6	PP6	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS MCDONALD ST AT INDUSTRIAL BLVD
			EXTENDED BUTTON PUSH	WAIT TO CROSS MCDONALD ST AT INDUSTRIAL BLVD
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	MCDONALD ST, WALK SIGN IS ON TO CROSS MCDONALD ST
P-7	PP7	PHASE 6	BUTTON PUSH ON DW	WAIT TO CROSS MCDONALD ST AT ELDORADO PKWY
			EXTENDED BUTTON PUSH	WAIT TO CROSS MCDONALD ST AT ELDORADO PKWY
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	MCDONALD ST, WALK SIGN IS ON TO CROSS MCDONALD ST
P-8	PP8	PHASE 4	BUTTON PUSH ON DW	WAIT TO CROSS ELDORADO PKWY AT MCDONALD ST
			EXTENDED BUTTON PUSH	WAIT TO CROSS ELDORADO PKWY AT MCDONALD ST
			LOCATOR TONE	SLOW TICK
			WALK INDICATION	ELDORADO PKWY , WALK SIGN IS ON TO CROSS ELDORADO PKWY

PHASE DIAGRAM AND SEQUENCE





NOTE:
1. ALL PHASE DIAGRAM INFORMATION IS APPROXIMATE. CONTRACTOR TO COORDINATE WITH THE CITY FOR SIGNAL TIMING AND PHASING.

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SH 5 AND ELDORADO PKWY

SHEET 3 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AM	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1152
PT	0047	05	057, ETC.	
CHECK				
PT				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10801l5-SP399-SEQ1.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:45:30 AM SCALE: 1:40
FILE: DETAILS 3 OF 4_SH 5 AND ELDORADO PKWY

100% PLANS SUBMITTAL

SUMMARY OF CONDUIT AND CABLES

RUN NO./POLE NO.	CONDUIT STATUS	LENGTH OF RUN	ITEM 618 CONDUIT										CABLE STATUS	ITEM 620 ELECTRICAL CONDUCTORS						ITEM 684 TRAFFIC SIGNAL CABLES						PTZ CABLE (ETHERNET)*		OPTICOM CABLE*		PRESENCE RADAR CABLE*		ADVANCE RADAR CABLE*		ENFORCEMENT LIGHT CABLE*		ANTENNA CABLE*		RUN NO./POLE NO.
			2" PVC (TRENCH)		2" PVC (BORE)		3" PVC (TRENCH)		4" PVC (TRENCH)		4" PVC (BORE)			No. 6 XHHW		No. 6 BARE		No. 8 XHHW		TY A 20 COND. #14		TY A 7 COND. #14		TY C 2 COND. #12												
			QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN		QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	QTY	LEN	
R1	I	15		-		-		-	2	15		-	I		-	2	25		-	4	25	8	25	8	25	1	25	4	25	4	25	4	25	4	25	1	25	
	I	15	1	10									I	2	25	1	25		-		-		-		-		-									-	R1
	I	15		-		-	2	15		-		-	I	FUTURE COMMUNICATION CONDUIT																								
R2	I	25		-		-	1	25		-		-	I		-	1	35		-	-	-	1	35	1	35	-	-	-	-	-	-	-	-	-	-	-	-	R2
R3	I	40		-		-	1	40		-		-	I		-	1	50		-	-	-	1	50	1	50	-	-	-	-	-	-	-	-	-	-	-	-	R3
R4	I	130		-		-		-		-	1	130	I		-	1	140		-	2	140	4	140	4	140	-	-	2	140	2	140	2	140	2	140	-	-	R4
	I	130		-	1	130		-		-		-	I		-	1	140	4	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R5	I	15		-		-	1	15		-		-	I		-	1	25		-	1	25	-	-	-	-	-	-	1	25	1	25	1	25	1	25	-	-	R5
	I	15	1	15		-		-		-		-	I		-	1	25	4	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R6	I	25		-		-		-	1	25		-	I		-	1	35		-	1	35	4	35	4	35	-	-	1	35	1	35	1	35	1	35	-	-	R6
	I	25	1	25		-		-		-		-	I		-	1	35	2	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R7	I	10		-		-	1	10		-		-	I		-	1	20		-	-	-	1	20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	R7
R8	I	10		-		-	1	10		-		-	I		-	1	20		-	-	-	1	20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	R8
R9	I	155		-		-		-		-	1	155	I		-	1	165		-	1	165	2	165	2	165	-	-	1	165	1	165	1	165	1	165	-	-	R9
	I	155		-	1	155		-		-		-	I		-	1	165	2	165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R10	I	15		-		-		-	1	15		-	I		-	1	25		-	1	25	-	-	-	-	-	-	1	25	1	25	1	25	1	25	-	-	R10
	I	15	1	15		-		-		-		-	I		-	1	25	2	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R11	I	10		-		-	1	10		-		-	I		-	1	20		-	-	-	1	20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	R11
R13	I	15		-		-	1	15		-		-	I		-	1	25		-	-	-	1	25	1	25	-	-	-	-	-	-	-	-	-	-	-	-	R13
R14	I	30		-		-	1	30		-		-	I		-	1	40		-	1	40	-	-	-	-	-	-	1	40	1	40	1	40	1	40	-	-	R14
	I	30	1	30		-		-		-		-	I		-	1	40	2	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R15	I	10		-		-	1	10		-		-	I		-	1	20		-	-	-	1	20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	R15
R16	I	25		-		-		-	1	25		-	I		-	1	35		-	1	35	1	35	1	35	-	-	1	35	1	35	1	35	1	35	-	-	R16
	I	25	1	25		-		-		-		-	I		-	1	35	2	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R17	I	135		-		-		-		-	1	135	I		-	1	145		-	1	145	2	145	2	145	-	-	1	145	1	145	1	145	1	145	-	-	R17
	I	135		-	1	135		-		-		-	I		-	1	145	2	145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R18	I	55		-		-		-	1	55		-	I		-	1	65		-	2	65	2	65	2	65	1	65	2	65	2	65	2	65	2	65	1	65	R18
	I	55	1	55		-		-		-		-	I	2	65	1	65		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R19	I	10		-		-	1	10		-		-	I		-	1	20		-	1	20	-	-	-	-	1	20	1	20	1	20	1	20	1	20	1	20	R19
	I	10	1	10		-		-		-		-	I		-	1	20	4	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R20	I	5	1	5		-		-		-		-	I		-	1	15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R20
	I	5	1	5		-		-		-		-	I	2	15	1	15	4	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R21	I	10	1	10		-		-		-		-	I	TO BE INSTALLED BY OTHERS																								R21
R22	I	10		-		-	1	10		-		-	I		-	1	20		-	1	20	-	-	-	-	-	-	1	20	1	20	1	20	1	20	-	-	R22
	I	10	1	10		-		-		-		-	I		-	1	20	2	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R23	I	10		-		-	1	10		-		-	I		-	1	20		-	-	-	1	20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	R23
SUBTOTAL				215		420		225		150		420			210		1,745		1,730		1,020		1,895		1,895		110		1,020		1,020		1,020		1,020		110	
T-1													P		-		-		170		-		315		10		40		60		30		70		30		40	
P-1													P		-		-		-		-		20		15		-		-		-		-		-		-	
P-2													P		-		-		-		-		20		15		-		-		-		-		-		-	
T-2													P		-		-		170		-		250		10		-		60		30		65		30		-	
P-3													P		-		-		-		-		20		15		-		-		-		-		-		-	
P-4													P		-		-		-		-		20		15		-		-		-		-		-		-	
T-3													P		-		-		90		-		265		10		-		60		30		65		30		-	
P-5													P		-		-		-		-		20		15		-		-		-		-		-		-	
P-6													P		-		-		-		-		20		15		-		-		-		-		-		-	
T-4													P		-		-		170		-		299		10		-		70		30		65		30		-	
P-7													P		-		-		-		-		20		15		-		-		-		-		-		-	
P-8													P		-		-		-		-		20		15		-		-		-		-		-		-	
SUBTOTAL															-		-		600		-		1,289		160		40		250		120		265		120		40	
TOTAL				215		420		225		150		420			210		1,745		2,330		1,020		3,184		2,055		150		1,270		1,140		1,285		1,140		150	

I=PROPOSED TO BE INSTALLED; P=WIRE TO BE INSTALLED INSIDE STEEL POLE

* - TO BE PROVIDED BY CITY

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED PROFESSIONAL ENGINEER

T. Pragna

10/1/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
TRAFFIC SIGNAL
PROPOSED QUANTITIES
SH 5 AND ELDORADO PKWY

SHEET 4 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
AM	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS AM	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK PT	TEXAS	DAL	COLLIN	1153
CHECK PT	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10IBII5-SP399-SEGI.tbl
USER: SALMEIDA DATE: 10/1/2024 TIME: 10:45:34 AM SCALE: 1:40
FILE: DETAILS 4 OF 4_SH 5 AND ELDORADO PKWY

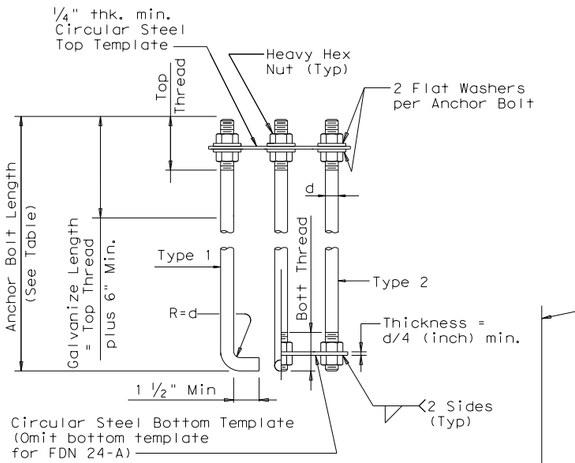
FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

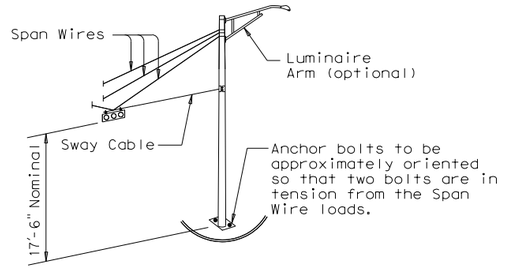
		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'

EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

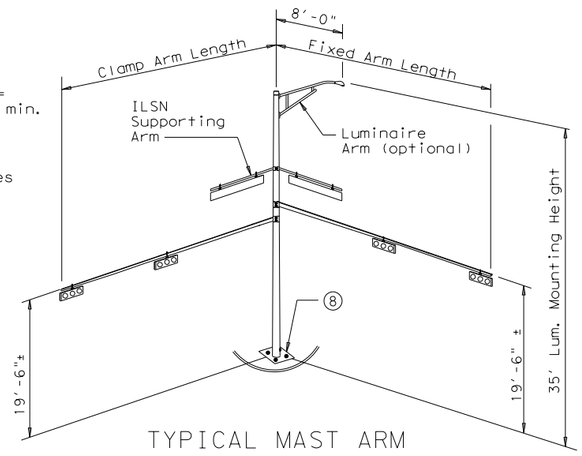


ANCHOR BOLT ASSEMBLY

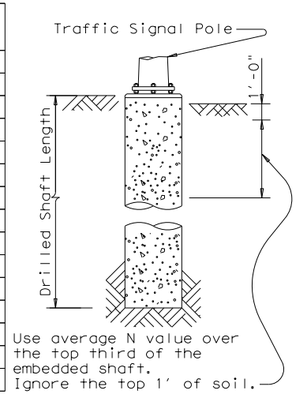
⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.

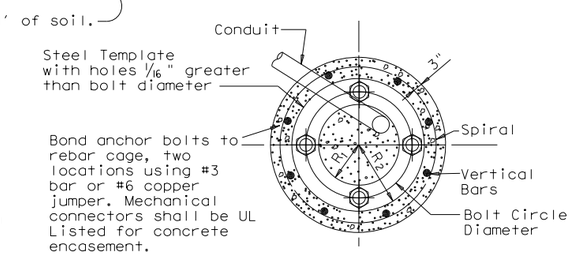


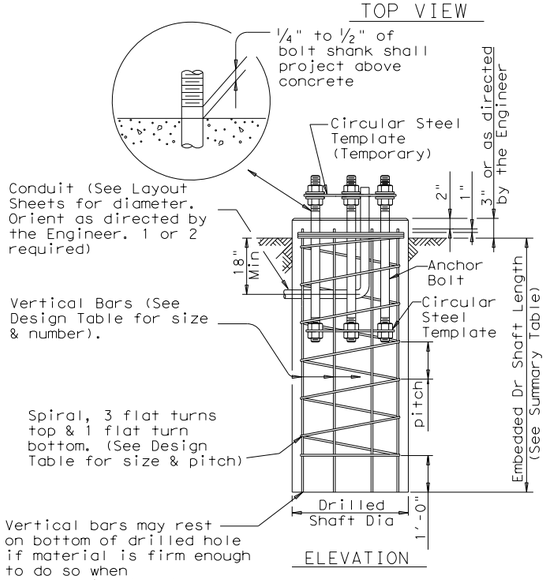
TYPICAL STRAIN POLE ASSEMBLY



TYPICAL MAST ARM ASSEMBLY







FOUNDATION DETAILS

ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
SPUR 399 AND	**10**	**24-A**	**3**	**6**				
STEWART RD	**10**	**30-A**	**2**		**11**			
	10	**36-A**	**3**			**13**		
SH 5 AND HARRY	**10**	**24-A**	**2**	**6**				
MCKILLOP BLVD	**10**	**30-A**	**1**		**11**			
	10	**36-A**	**1**			**13**		
SH 5 AND	**10**	**24-A**	**8**	**6**				
ELDORADO PKWY								
TOTAL DRILLED SHAFT LENGTHS				**78**	**33**	**52**		

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED
PROFESSIONAL ENGINEER
T. Pragna
10/1/2024

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1154

DATE: 10/1/2024 10:45:36 AM
FILE: c:\pwworking\central01\d4279729\ts-fd.dgn

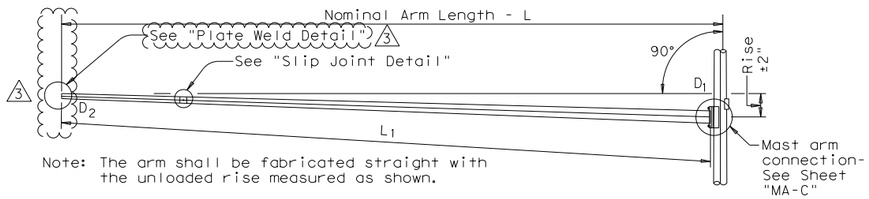
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"
48	47.0	10.5	4.1	.239	3′-4"	47.0	11.0	3.5	.239	2′-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

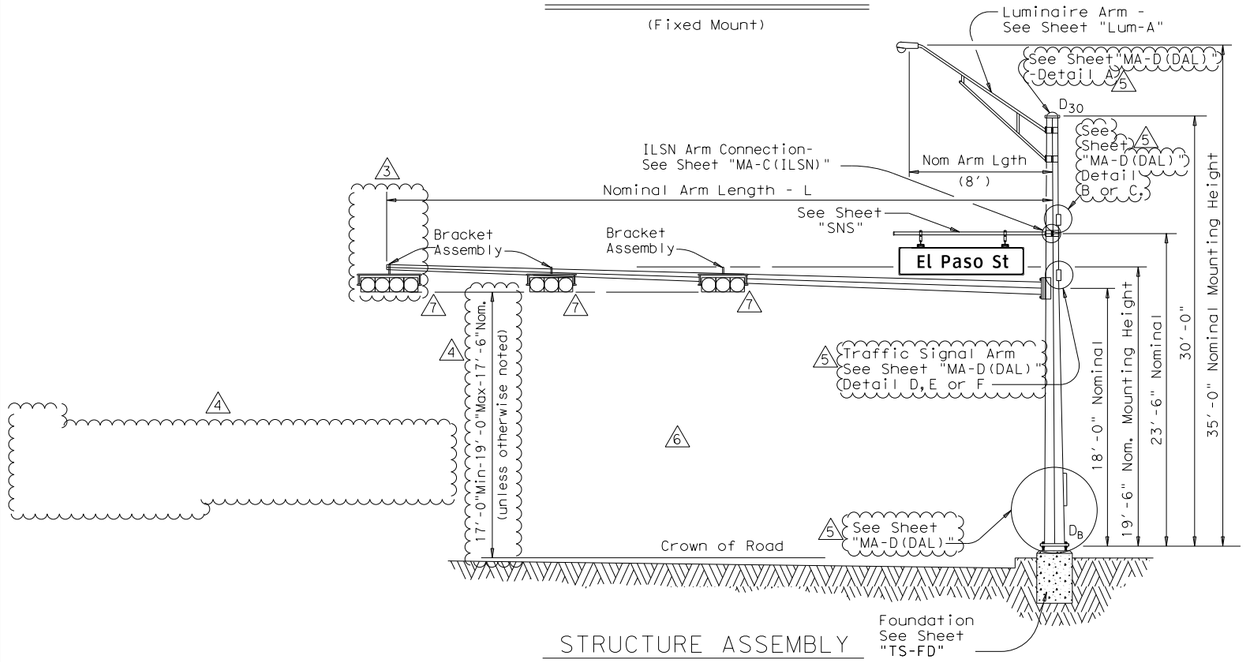
② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)



STRUCTURE ASSEMBLY

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED
PROFESSIONAL ENGINEER

T. Pragna

10/1/2024

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	
28	28L-80		28S-80		28-80	
32	32L-80	1	32S-80		32-80	1
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80	2	44S-80		44-80	1
48	48L-80	1	48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 1 Bracket Assembly		2 Bracket Assemblies		3 Bracket Assemblies	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80	2	32III-80	
36			36II-80		36III-80	
40			2 40II-80		40III-80	
44			44II-80		44III-80	3
48					48III-80	1

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	4

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3′-4"	3
1 ¾"	3′-10"	3

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

MODIFICATIONS:

1 REPLACED CGB CONNECTOR WITH BRACKET ASSEMBLY. (2/12)

2 ADDITIONAL OPTION. (3/12)

3 REPLACED TENON DETAIL WITH PLATE WELD DETAIL. (2/12)

4 REVISED MINIMUM SIGNAL HEIGHT. (3/12)

5 REPLACED "MA-D" WITH "MA-D(DAL)". (2/12)

6 REMOVED TABLE OF DIMENSIONS "A". (2/12)

7 REMOVED CGB CONNECTORS. (2/12)

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

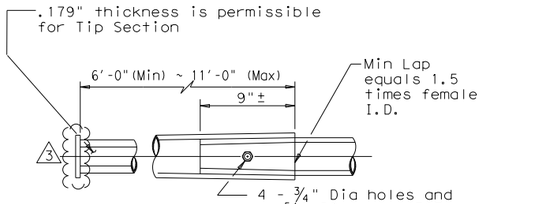
SMA-80(1)-12(DAL)

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.
DIST	COUNTY		SHEET NO.
DAL	COLLIN		1155

122A



Note: A slip joint is permissible for arms 40' and greater in length. The slip joint shall be made in the shop, but may be match marked and shipped disassembled.

SLIP JOINT DETAIL

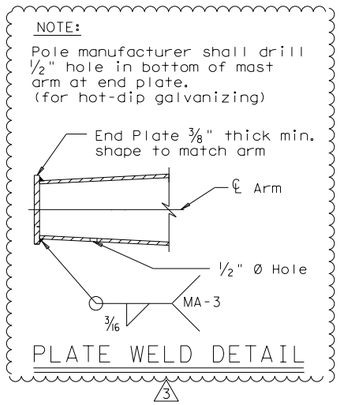


PLATE WELD DETAIL

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY

VIBRATION WARNING

Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor.

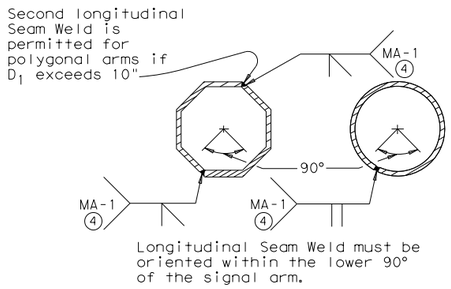
Poles are designed to support one 8'-0" luminaire arm, one 9'-0" internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign load applied 4.5 ft from the centerline of the pole equals 85 lbs vertical dead load plus horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

5 See Standard Sheet "MA-D(DAL)" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

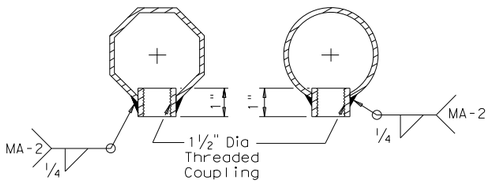
Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.



ARM WELD DETAIL

4 60% Min. penetration 100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

3 REPLACED TENON DETAIL WITH PLATE WELD DETAIL(2/12).

5 REPLACED "MA-D" WITH "MA-D(DAL)"(2/12).

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(2)-12(DAL)

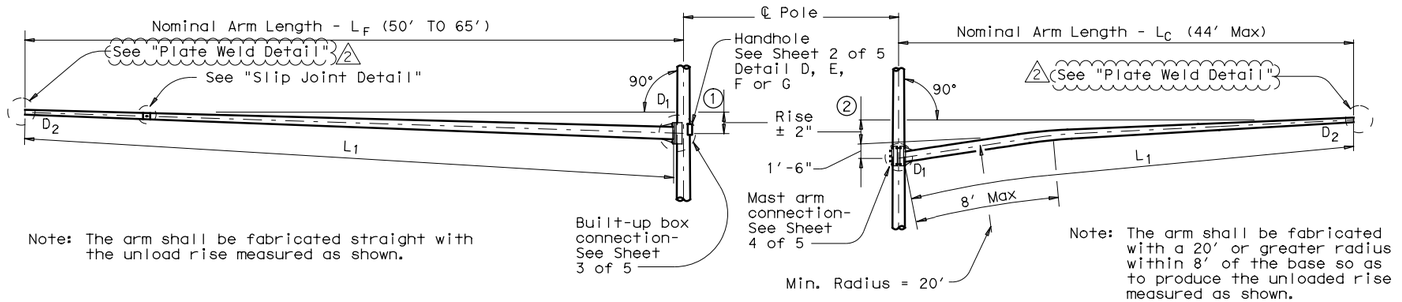
DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1156

122B



Note: The arm shall be fabricated straight with the unload rise measured as shown.

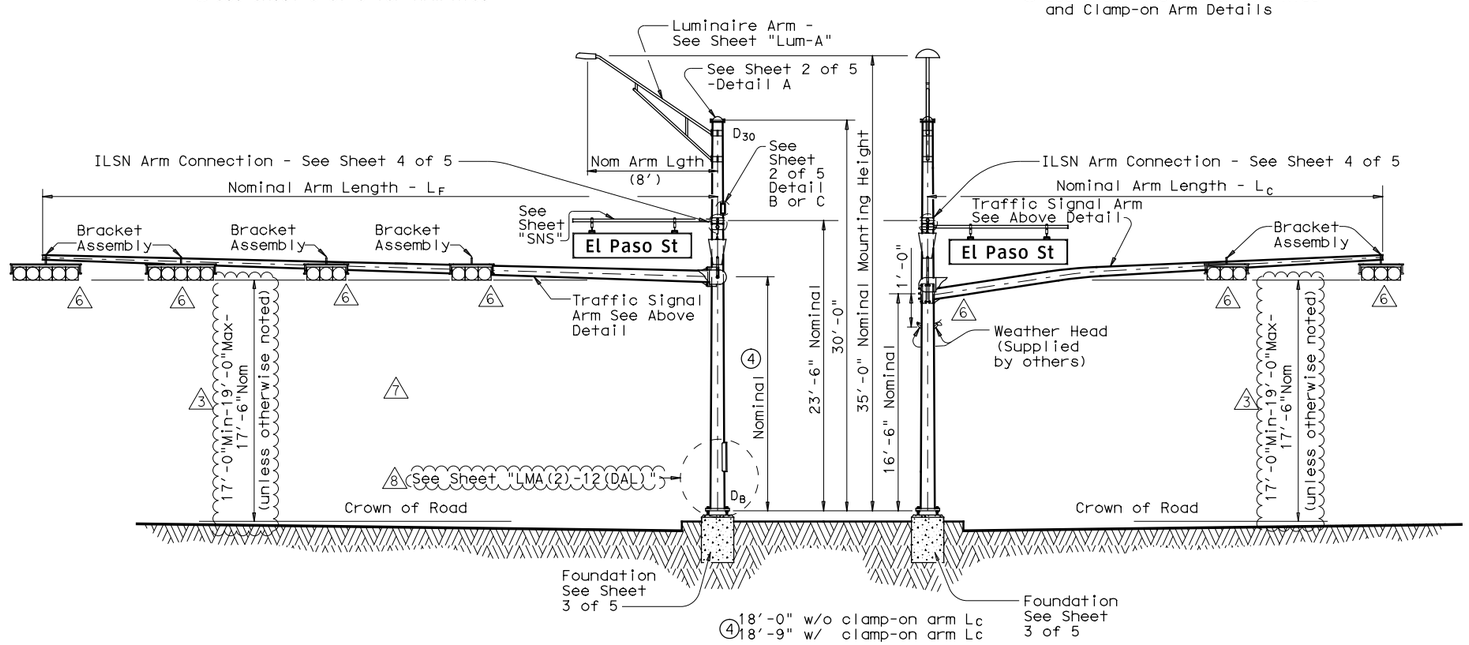
Note: The arm shall be fabricated with a 20′ or greater radius within 8′ of the base so as to produce the unloaded rise measured as shown.

FIXED MOUNT TRAFFIC SIGNAL ARM

1 See Sheet 3 of 5 for Arm Rise

CLAMP-ON TRAFFIC SIGNAL ARM (IF REQUIRED)

2 See Sheet 4 of 5 for Arm Rise and Clamp-on Arm Details



4 18′-0" w/o clamp-on arm Lc
18′-9" w/ clamp-on arm Lc

ELEVATION
(Showing fixed mount arm)

STRUCTURE ASSEMBLY

ELEVATION
(Showing clamp-on arm)

MODIFICATIONS:

1 REPLACED CGB CONNECTOR WITH BRACKET ASSEMBLY. (2/12)

2 REPLACED TENON DETAIL WITH PLATE WELD DETAIL. (2/12)

3 REVISED MINIMUM SIGNAL HEIGHT. (3/12)

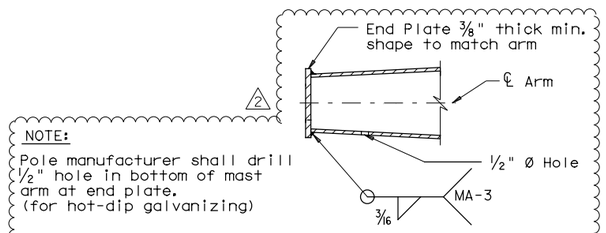
4 REMOVED "MA-D" REFERENCE. (2/12)

5 REMOVED TABLE OF DIMENSIONS "A". (2/12)

6 REMOVED CGB CONNECTORS. (2/12)

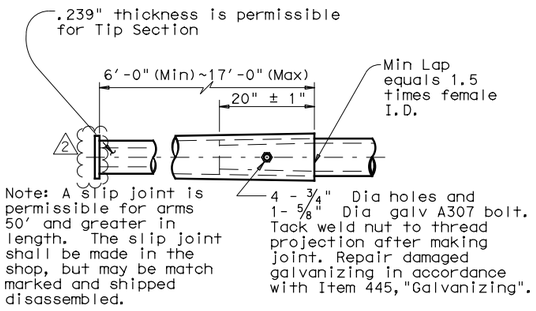
7 REMOVED THREADED COUPLING FOR CGB CONNECTOR. (2/12)

8 REVISED THE ELEVATION OF ACCESS COMPARTMENT. (3/12)



NOTE:
Pole manufacturer shall drill ½" hole in bottom of mast arm at end plate. (for hot-dip galvanizing)

PLATE WELD DETAIL



Note: A slip joint is permissible for arms 50′ and greater in length. The slip joint shall be made in the shop, but may be match marked and shipped disassembled.

SLIP JOINT DETAIL (FIXED MOUNT ARM)

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed can be either 100 mph or 80 mph plus a 1.3 gust factor. If clamp-on traffic signal is required, designs are based on an arm included angle of 90 degrees or more. Angles of less than approximately 75 degrees will require a special design.

Poles are designed to support one 8′-0" luminaire arm, two 9′-0" internally lighted street name (ILSN) signs and two traffic signal arms with limited length combinations.

Each arm with its related attachment is shown below

Arm	Equivalent DL ⑤	WL EPA ⑤⑥
8′ Luminaire Arm	Luminaire 60 lbs	1.6 sq ft
9′ ILSN Arm	Sign 85 lbs	11.5 sq ft
50′ to 65′ Fixed Mount Arm	Signal Loads 310 lbs	52 sq ft
Up to 44′ Clamp-on Arm	Signal Loads 180 lbs	32.4 sq ft

⑤ Equivalent dead load plus horizontal wind load applied at the end of arm except ILSN arm, which applied 4.5′ from the centerline of the pole.

⑥ Effective projected area (actual area times drag coefficient) for the application of horizontal wind load.

4 Except as noted in Sheet 1 thru 5 of 5, other details not covered shall refer to Standard Sheet "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Material, fabrication tolerances, and shipping practices shall also meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing" after fabrication.

Deviations from the details and dimensions shown herein require submission of shop drawings in accordance with the Item 441, "Steel Structures". Alternate designs are not acceptable.

Installation of damping plate for the long mast arm is not recommended.

Provision of the bracket assembly used to support the traffic signal heads shall be under the direction of the Engineer for approval.

Design also conforms to NCHRP Report 412 for fatigue resistance except that there are no stiffeners at the base plate. TxDOT is conducting tests to determine if stiffeners at the base plate will or will not result in optimal performance; depending upon the results of the tests, poles may need a retrofit to ensure optimal fatigue performance.

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)
LMA(1)-12(DAL)

Sheet 1 of 5

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
4-20-01
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1157

131A

DATE: 10/1/2024 10:45:40 AM
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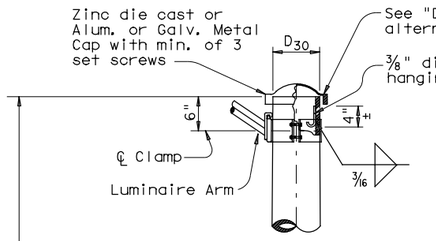
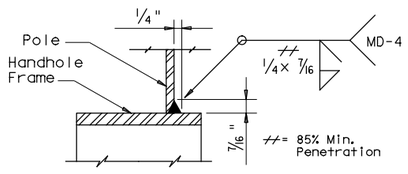
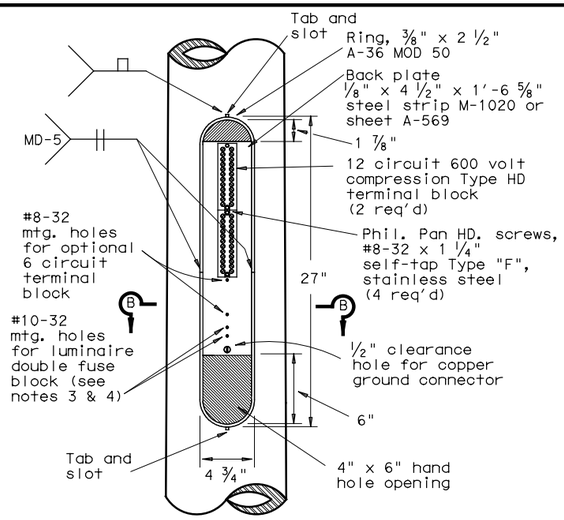


DETAIL A

(for pole with luminaire)



DETAIL H

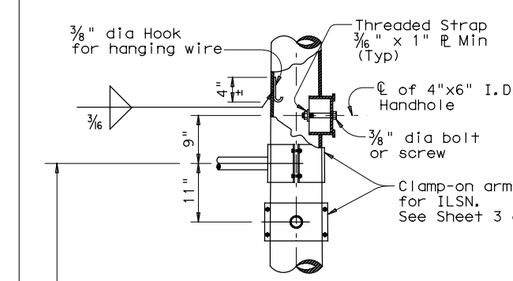


ACCESS COMPARTMENT

MATERIALS	
Round Shafts or Polygonal Shafts (7)	ASTM A595 Gr.A, A588, A1008 HSLAS Gr.50 Class 2, A1011 HSLAS Gr.50 Class 2, A572 Gr.50 or A1011 SS Gr.50 (8)
Plates (7)	ASTM A36, A588, or A572 Gr.50
Connection Bolts	ASTM A325, or A449 except where noted
Pin Bolts	ASTM A325
Pipe (7)	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50
Misc. Hardware	Galvanized steel or stainless steel or as noted

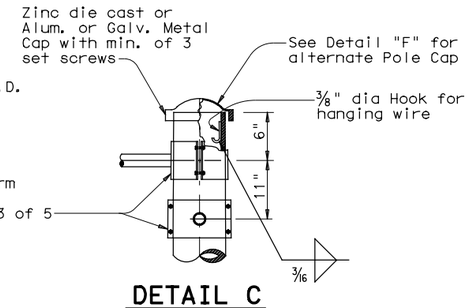
(7) ASTM A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F, or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

(8) ASTM A1011 SS Gr.50 shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

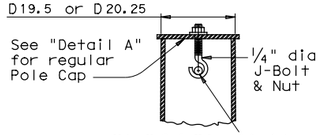


DETAIL B

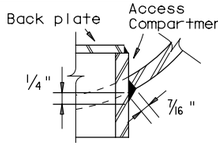
(If ILSN applied)



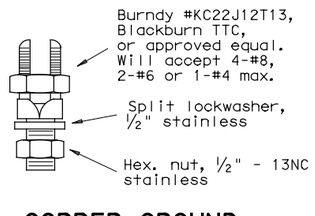
DETAIL C



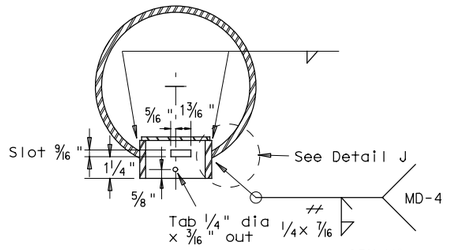
SECTION Y-Y



DETAIL J

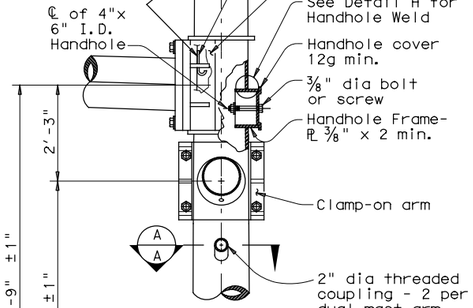


COPPER GROUND CONNECTOR



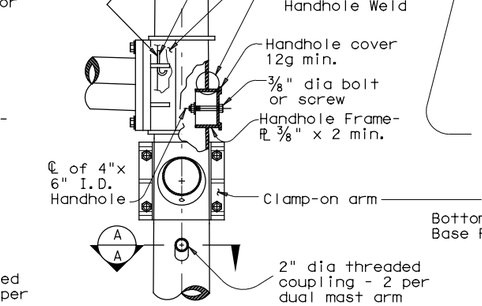
SECTION B-B

Opening for access compartment shall be no more than 1/16 inch wider than the access compartment itself.



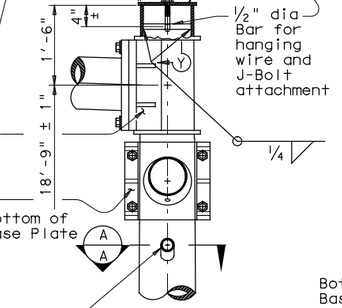
DETAIL D

(for 30′ pole with luminaire and ILSN sign)



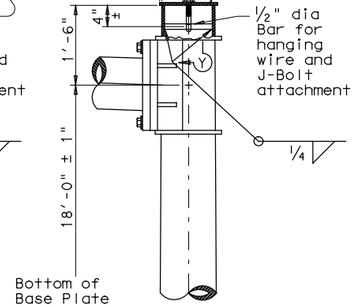
DETAIL E

(for 24′ pole with ILSN sign and no luminaire, single or dual mast arm)



DETAIL F

(for 20.25′ pole with no ILSN sign and no luminaire, dual mast arm)

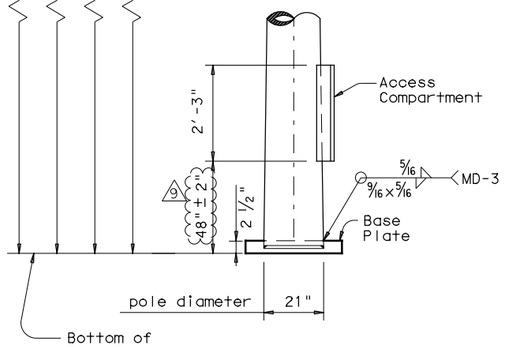


DETAIL G

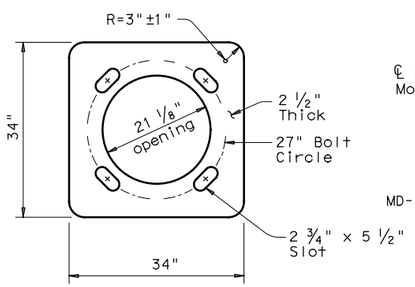
(for 19.5′ pole with no ILSN sign and no luminaire, single mast arm)

ACCESS COMPARTMENT NOTES:

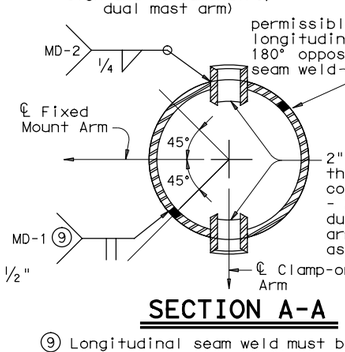
1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1 1/4" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.



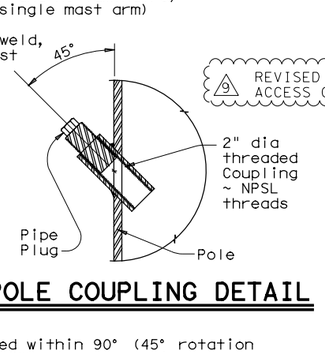
POLE ELEVATION



BASE PLATE



SECTION A-A



POLE COUPLING DETAIL

(9) Longitudinal seam weld must be oriented within 90° (45° rotation each side) along the fixed mount arm. 60% min penetration required, 100% penetration within 6" of circumferential base weld.

(9) REVISED THE ELEVATION OF ACCESS COMPARTMENT (2/12).

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

Sheet 2 of 5 — LMA(2)-12(DAL)

DN: JSY	CK: ARC	DW: TGG	CK: JSY
REVISIONS	CONT	SECT	JOB	HIGHWAY
4-20-01 1-12	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1158

131B

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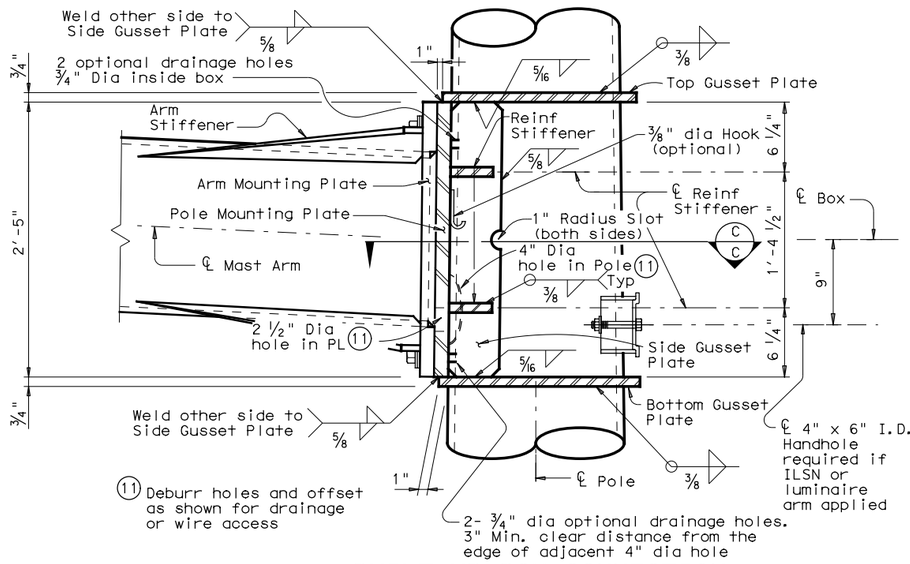
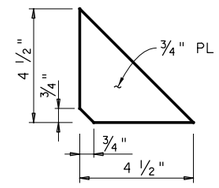
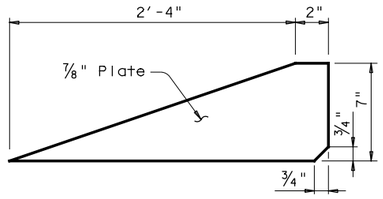


BUILT-UP BOX CONNECTION

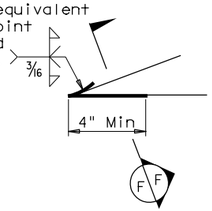


REINFORCING STIFFENER



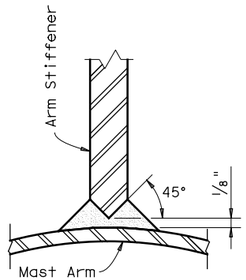
ARM STIFFENER
(Cut to match arm inclination and taper)

Provide Detail shown in SECTION F-F or equivalent 100% complete joint penetration weld from both sides.



Only 4" length at tip of Arm Stiffener requires a complete joint penetration weld. Smooth weld radius to connect Stiffener. Only a fillet weld is required for the remaining weld length.

DETAIL "K"



SECTION F-F

Fixed Mount Arm L_F	ROUND POLES (13)					Foundation Type
	D_B	$D_{19.5}$ or $D_{20.25}$	D_{24}	D_{30}	(12) thk	
ft.	in.	in.	in.	in.	in.	
50', 55' 60', 65'	21.0	18.2	17.6	16.8	.3125	48-A

Fixed Mount Arm L_F	ROUND ARMS (13)				
	L_1	D_1	D_2	(12) thk	Rise
ft.	ft.	in.	in.	in.	
50	49	18.5	11.7	.3125	3'- 3"
55	54	18.5	11.0	.3125	3'- 7"
60	59	18.5	10.3	.3125	3'-11"
65	64	18.5	9.6	.3125	4'- 4"

D_B = Pole Base O.D.
$D_{19.5}$ = Pole Top O.D. with no Luminaire and no ILSN (single mast arm)
$D_{20.25}$ = Pole Top O.D. with no Luminaire and no ILSN (dual mast arm)
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length

(12) Thickness shown is minimum, thicker materials may be used.

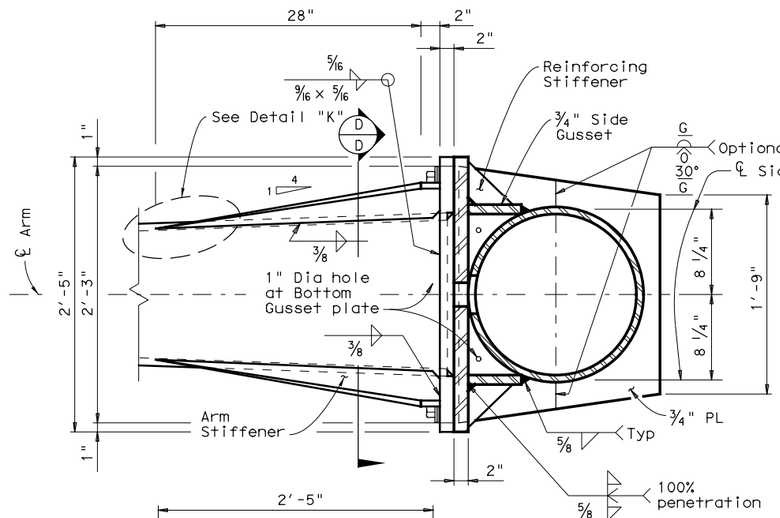
(13) Shaft profile 16-sided or 18-sided is considered to be equivalent to round section.

GENERAL NOTES:

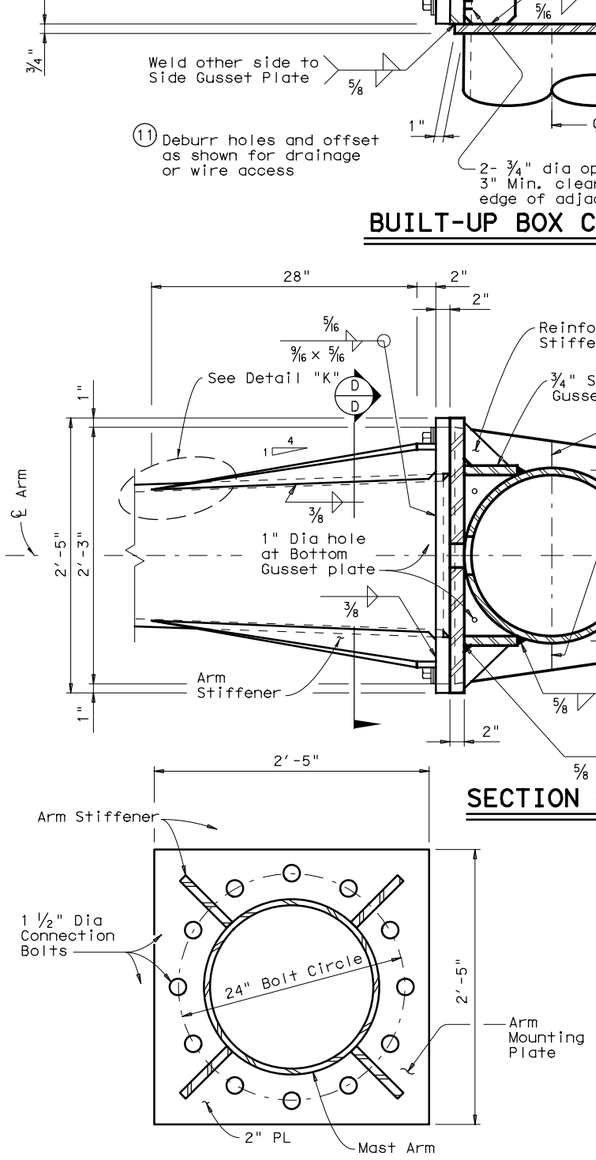
Built-up Box Connection: For the welded arm-to-pole connection as a build-up box configuration illustrated here is an example only, fabricators are required to submit a shop drawing of box connection for approval. The drawing shall specify the details of each box element, welds of arm-to-pole connection, arm-to-plate socket connection, and arm rise creation. Specify the proper location of drain holes along the pole. 2 1/2" dia hole in the pole mounting plate and 4" dia hole in the pole need to be aligned for wiring access or drainage. Arm stiffeners cut to match arm inclination and taper shall also be included.

The deviation from flat for either arm or pole mounting plate shall not exceed 3/32 in., which is measured along the center of mounting plate to a radial distance of 13.5 in. The deformed-from-flat connection between arm and pole mounting plates shall not be allowed if the center of both mounting plates cannot contact directly.

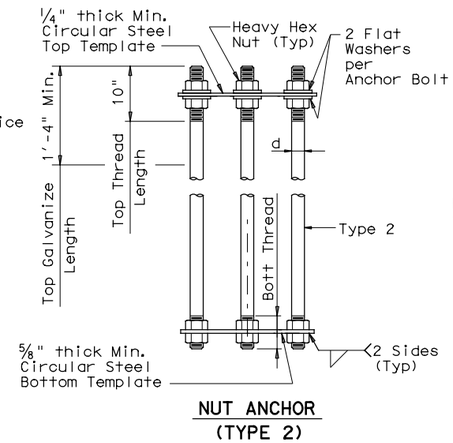
Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.



SECTION C-C

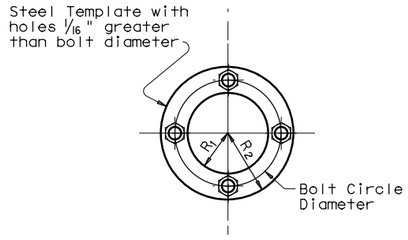


SECTION D-D



NUT ANCHOR
(TYPE 2)

ANCHOR BOLT ASSEMBLY



TEMPLATE DETAIL

ANCHOR BOLT & TEMPLATE SIZE						
Bolt Dia in.	Length ‡	Top Thread	Bottom Thread	Bolt Circle	R_2	R_1
2 1/2"	5'-2"	10"	6 1/2"	27"	16"	11"

‡ Min dimension given, longer bolts are acceptable.

FOUNDATION DESIGN TABLE													
FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		DRILLED SHAFT LENGTH-ft (16), (17), (18)			ANCHOR BOLT DESIGN (14)				FOUNDATION DESIGN LOAD (15)		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
48-A	48"	20 #9	#4 at 6"	21.9	19.5	14.7	2 1/2"	55	27"	2	490	10	50' to 65' Mast arm assembly.

SEE SHEET "TS-FD" FOR ADDITIONAL DETAILS.

(14) Anchor bolt design develops the foundation capacity given under Foundation Design Laods.

(15) Foundation Design Loads are the allowable moments and shears at the base of the structure.

(16) Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

(17) If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

(18) Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

Texas Department of Transportation

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

Sheet 3 of 5 — LMA(3)-12

DN: JSY	CK: ARC	DW: TGG	CK: JSY

REVISIONS
4-20-01
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.
DIST	COUNTY		SHEET NO.
DAL	COLLIN		1159

131C

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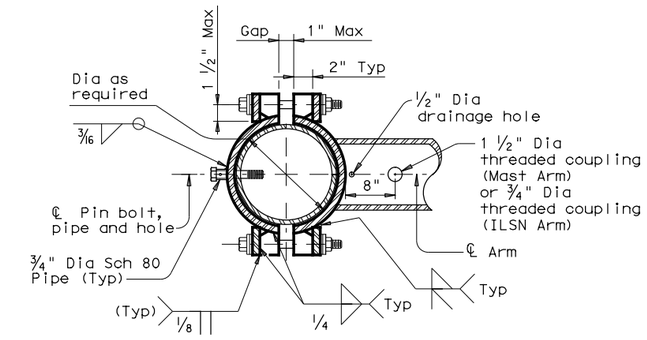
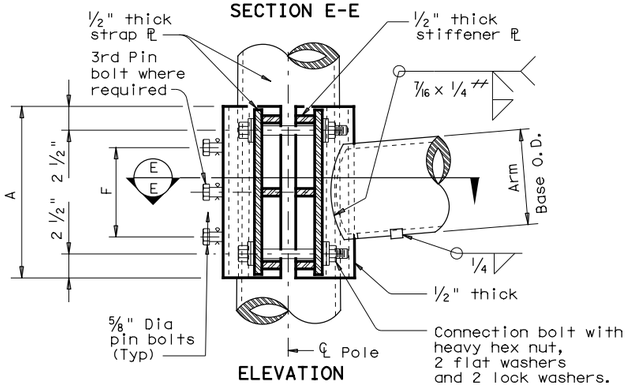


SECTION E-E



ELEVATION
(Mast Arm or ILSN Arm to pole)

= 85% Min. Penetration

CLAMP-ON CONNECTION

80 MPH WIND

Clamp-on Arm Lc	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	thk (12)	Rise	L_1	D_1	D_2	thk (12)	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"

100 MPH WIND

Clamp-on Arm Lc	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	thk (12)	Rise	L_1	D_1	D_2	thk (12)	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	8.0	5.3	.179	1'-8"	19.1	8.0	3.5	.179	1'-7"
24	23.1	9.0	5.8	.179	1'-9"	23.1	9.0	3.5	.179	1'-8"
28	27.1	9.5	5.7	.179	1'-10"	27.1	10.0	3.5	.179	1'-9"
32	31.0	9.5	5.2	.239	1'-11"	31.0	9.5	3.5	.239	1'-10"
36	35.0	10.0	5.1	.239	2'-0"	35.0	10.0	3.5	.239	1'-11"
40	39.0	10.5	5.1	.239	2'-3"	39.0	11.0	3.5	.239	2'-1"
44	43.0	11.0	5.1	.239	2'-8"	43.0	11.5	4.0	.239	2'-3"

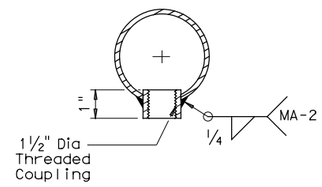
D1 = Arm Base O.D.
D2 = Arm End O.D.
L1 = Shaft Length
Lc = Clamp-on Arm Length

(12) Thickness shown is minimum, thicker materials may be used.

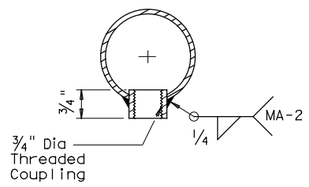
CLAMP-ON ARM CONNECTION

ILSN Arm Size		A	F	4 Conn. Bolts	5/8" Dia. Pin Bolts
Sch 40 pipe Dia	Thick			Dia	No.
in.	in.	in.	in.	in.	ea
3	.216	10	4	¾	2

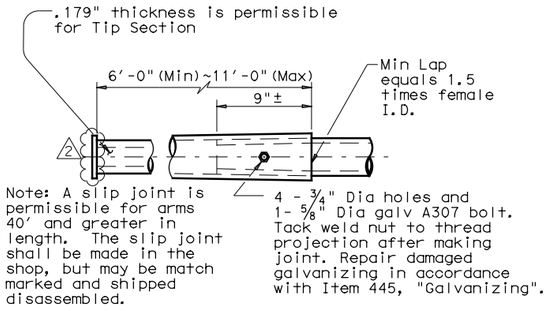
Mast Arm Size		A	F	4 Conn. Bolts	5/8" Dia. Pin Bolts
Base Dia	Thick			Dia	No.
in.	in.	in.	in.	in.	ea
6.5	.179	12	6	1	2
7.5	.179	14	8	1	2
8.0	.179	14	8	1	2
9.0	.179	16	10	1	2
9.5	.179	18	12	1 ¼	3
9.5	.239	18	12	1 ¼	3
10.0	.239	18	12	1 ¼	3
10.5	.239	18	12	1 ¼	3
11.0	.239	18	12	1 ¼	3
11.5	.239	18	12	1 ¼	3



ARM COUPLING DETAIL



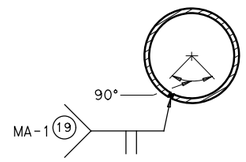
ILSN ARM COUPLING DETAIL



SLIP JOINT DETAIL (CLAMP-ON ARM)

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL

(19) Longitudinal Seam Weld must be oriented within the lower 90° of the signal arm.
60% Min penetration
100% penetration within 6" of circumferential base welds.

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies or ILSN arm support. For a clamp-on mast arm, a maximum 1 ½" wide vertical slotted hole may be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1". For an ILSN arm, a 1 ½" diameter hole shall be cut in the front clamp plate for wire access. A matched hole shall be field drilled through the pole to provide wire access after arm is oriented. Deburr both holes.

Where duplicate parts occur on a detail, welds shown for part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces. Pin bolts shall be ASTM A325 with threads excluded from the shear plane. Pin bolt and ¾" diameter pipe shall have 3/16" diameter holes for a ⅛" diameter galvanized cotter pin. Back clamp plate shall be furnished with a ¾" diameter hole for each pin bolt. An 11/16" diameter hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

2 REPLACED TENON DETAIL WITH PLATE WELD DETAIL (2/12).

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

Sheet 4 of 5 LMA(4)-12(DAL)

DN: JK	CK: GRB	DW: FDN	CK: CAL

REVISIONS
4-20-01 1-12

CONT	SECT	JOB	HIGHWAY
0047	05057, ETC.		SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1160

131D

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Shipping Parts List

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers, and any additional hardware listed in the table.

Nominal Arm Length	30′ Poles with Luminaire See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex		24′ Poles with ILSN See note above plus one small hand hole		19.50′ (Single Mast Arm) 20.25′ (Dual Mast Arm) Poles with no Luminaire and no ILSN See note above	
Single Mast Arm						
Lf ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
50	50L		50S		50	
55	55L	1	55S		55	
60	60L	1	60S		60	
65	65L	3	65S		65	
Dual Mast Arm						
Lf ft. / Lc ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
50 / 20	5020L		5020S		5020	
50 / 24	5024L		5024S		5024	
50 / 28	5028L		5028S		5028	
50 / 32	5032L		5032S		5032	
50 / 36	5036L		5036S		5036	
50 / 40	5040L		5040S		5040	
50 / 44	5044L		5044S		5044	
55 / 20	5520L		5520S		5520	
55 / 24	5524L		5524S		5524	
55 / 28	5528L		5528S		5528	
55 / 32	5532L		5532S		5532	
55 / 36	5536L		5536S		5536	
55 / 40	5540L		5540S		5540	
55 / 44	5544L		5544S		5544	
60 / 20	6020L		6020S		6020	
60 / 24	6024L		6024S		6024	
60 / 28	6028L		6028S		6028	
60 / 32	6032L		6032S		6032	
60 / 36	6036L		6036S		6036	
60 / 40	6040L		6040S		6040	
60 / 44	6044L		6044S		6044	
65 / 20	6520L		6520S		6520	
65 / 24	6524L		6524S		6524	
65 / 28	6528L		6528S		6528	
65 / 32	6532L		6532S		6532	
65 / 36	6536L		6536S		6536	
65 / 40	6540L		6540S		6540	
65 / 44	6544L		6544S		6544	

Shipping Parts List

Traffic Signal Arms (Fixed Mount) (1 per pole)
Ship each arm with listed equipment attached

Nominal Arm Length	Type IV Arm (4 Signals) 1 4 Bracket Assemblies	
ft.	Designation	Quantity
50	50IV	
55	55IV	1
60	60IV	1
65	65IV	3

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	5

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Traffic Signal Arms (80 MPH Clamp-On Mount) (1 per pole) Ship each arm with listed equipment attached

Nominal Arm Length (1)	Type I Arm (1 Signal) 1 Bracket Assembly and 1 clamp w/bolts and washers		Type II Arm (2 Signals) 2 Bracket Assemblies and 1 clamp w/bolts and washers		Type III Arm (3 Signals) 3 Bracket Assemblies and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	

Traffic Signal Arms (100 MPH Clamp-On Mount) (1 per pole) Ship each arm with listed equipment attached

Nominal Arm (1)	Type I Arm (1 Signal) 1 Bracket Assembly and 1 clamp w/bolts and washers		Type II Arm (2 Signals) 2 Bracket Assemblies and 1 clamp w/bolts and washers		Type III Arm (3 Signals) 3 Bracket Assemblies and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-100					
24	24I-100		24II-100			
28	28I-100		28II-100			
32			32II-100		32III-100	
36			36II-100		36III-100	
40					40III-100	
44					44III-100	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
2 1/2 "	5′ - 3"	5

Each anchor bolt assembly consists of the following: Top and bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers and 4 nut anchor devices (type 2) per Standard Drawing "TS-FD".
Templates may be removed for shipment.

Foundation Summary Table **

Location Ident.	Avg. N Blow/ft.	No. Each	Drill Shaft *** Length (feet)
			48-A
SH 5 AND HARRY MCKILLOP BLVD	10	1	22
SH 5 AND ELDORADO PKWY	10	4	22
Total Drill Shaft Length			110

Notes

** Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

*** Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

Abbreviations
Lf= Fixed Arm Length
Lc= Clamp-on Arm Length (44′ Max.)

STATE OF TEXAS · PRAGNA TATA · 129174 · PROFESSIONAL ENGINEER

10/1/2024 T. Pragna

1 REPLACED CGB CONNECTOR WITH BRACKET ASSEMBLY(2/12).

Texas Department of Transportation
DALLAS DISTRICT STANDARD

LONG MAST ARM ASSEMBLY PARTS LIST

LMA(5)-12(DAL)

Sheet 5 of 5

DN: JK	CK: GRB	DW: FDN	CK: CAL

REVISIONS
4-20-01 1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1161

131E

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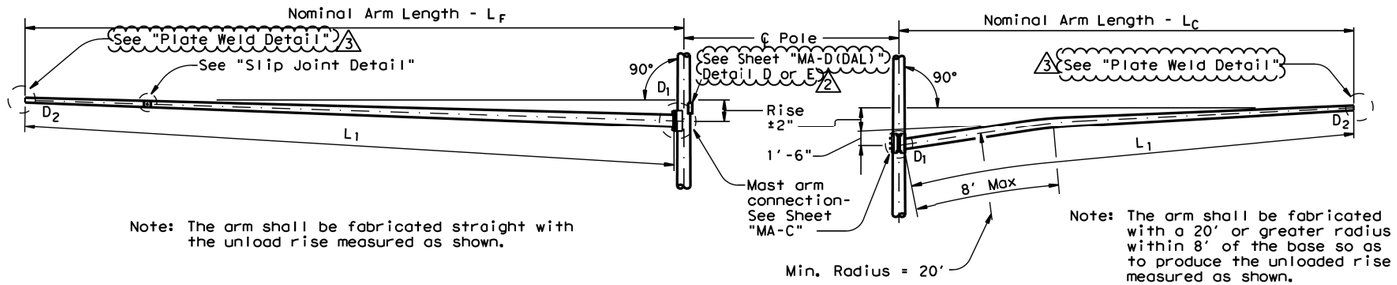
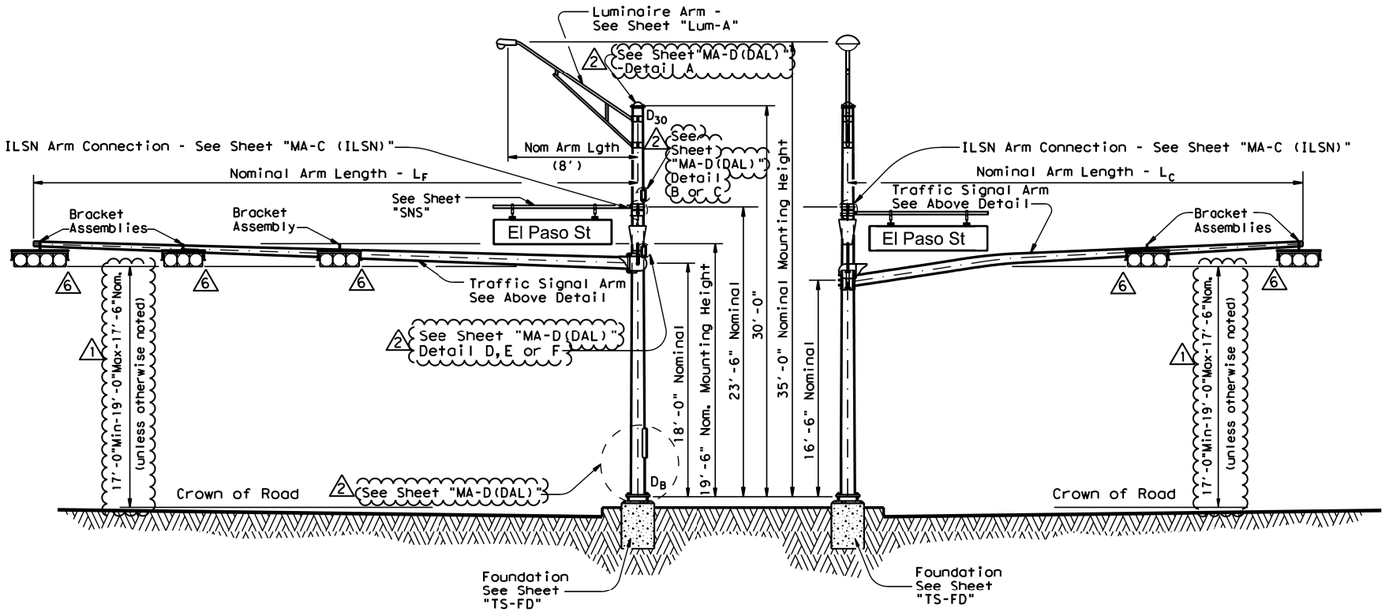


Note: The arm shall be fabricated straight with the unload rise measured as shown.

Note: The arm shall be fabricated with a 20' or greater radius within 8' of the base so as to produce the unloaded rise measured as shown.

FIXED MOUNT TRAFFIC SIGNAL ARM

CLAMP-ON TRAFFIC SIGNAL ARM



ELEVATION
(Showing fixed mount arm)

STRUCTURE ASSEMBLY

ELEVATION
(Showing clamp mount arm)

5

1

MODIFICATIONS:

1. REVISED MINIMUM SIGNAL HEIGHT. (3/12)
2. REPLACED "MA-D" WITH "MA-D(DAL)". (2/12)
3. REPLACED TENON DETAIL WITH PLATE WELD DETAIL. (2/12)
4. NOT USED
5. REMOVED TABLE OF DIMENSIONS "A". (2/12)
6. REMOVED CGB CONNECTORS. (2/12)

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor. Designs are based on an arm included angle of 90 degrees or more. Angles of less than approximately 75 degrees will require a special design.

Poles are designed to support one 8'-0" luminaire arm, two 9'-0" internally lighted street name signs and two traffic signal arms with length combinations as tabulated. The specified luminaire load applied at the end of luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign applied 4'-6" from the centerline of the pole equals 85 lbs vertical dead load plus the horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

2 See Standard Sheet "MA-D(DAL)" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (1)-12(DAL)

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.
DIST	COUNTY		SHEET NO.
DAL	COLLIN		1162

124A

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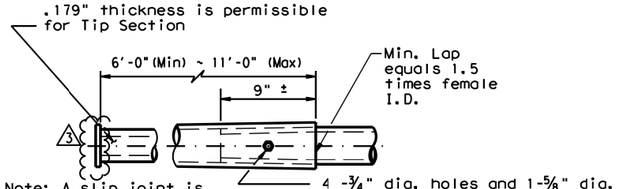


SLIP JOINT DETAIL

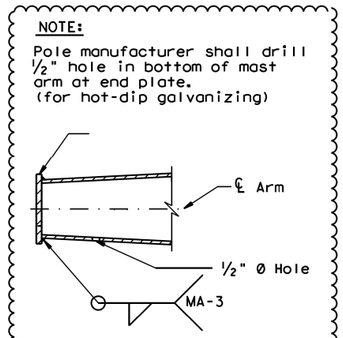
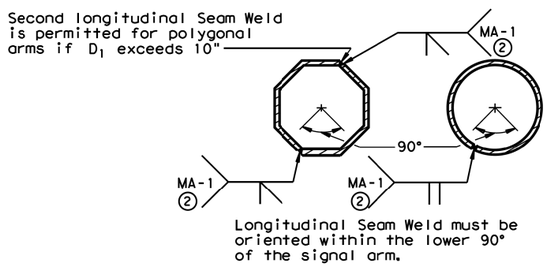


PLATE WELD DETAIL

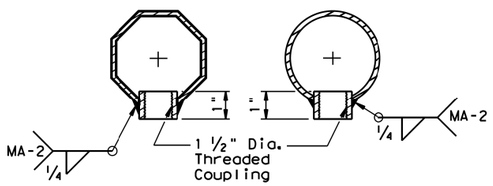
Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL

(2) 60% Min. penetration
100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

VIBRATION WARNING

Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.

3 REPLACED TENON DETAIL WITH PLATE WELD DETAIL (2/12).

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (2)-12(DAL)

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1163

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PENTABLE: 10181S-SP399-SEGI.tbl
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TIME: 10:46:32 AM
SCALE: 1:40

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length		30' Poles With Luminaire		24' Poles With ILSN		19' Poles With no Luminaire and no ILSN	
		See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex		See note above plus one small hand hole		See note above	
LF	Lc						
ft.	ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20	2020L-80		2020S-80		2020-80	
24	20	2420L-80		2420S-80		2420-80	
	24	2424L-80		2424S-80		2424-80	
28	20	2820L-80		2820S-80		2820-80	
	24	2824L-80		2824S-80		2824-80	
	28	2828L-80	1	2828S-80		2828-80	
32	20	3220L-80		3220S-80		3220-80	
	24	3224L-80		3224S-80		3224-80	
	28	3228L-80		3228S-80		3228-80	
	32	3232L-80		3232S-80		3232-80	
36	20	3620L-80		3620S-80		3620-80	
	24	3624L-80		3624S-80		3624-80	
	28	3628L-80		3628S-80		3628-80	
	32	3632L-80		3632S-80		3632-80	
	36	3636L-80		3636S-80		3636-80	
40	20	4020L-80		4020S-80		4020-80	
	24	4024L-80		4024S-80		4024-80	
	28	4028L-80		4028S-80		4028-80	
	32	4032L-80		4032S-80		4032-80	
	36	4036L-80		4036S-80		4036-80	
44	20	4420L-80		4420S-80		4420-80	
	24	4424L-80		4424S-80		4424-80	
	28	4428L-80		4428S-80		4428-80	
	32	4432L-80		4432S-80		4432-80	
	36	4436L-80		4436S-80		4436-80	

Traffic Signal Arms (Fixed Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	④ 1 Bracket Assembly		2 Bracket Assemblies		3 Bracket Assemblies	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80	1		
32			32II-80		32III-80	
36			36II-80		36III-80	
40			⑦ (40II-80)		40III-80	
44					44III-80	

Traffic Signal Arms (Clamp-On Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 Bracket Assembly and 1 clamp w/bolts and washers		2 Bracket Assemblies and; 1 clamp w/bolts and washers		3 Bracket Assemblies and; 1 clamp w/bolts and washers	④
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80		20II-80			
24	24I-80		24II-80			
28	28I-80		28II-80	1		
32			32II-80		32III-80	
36			36II-80		36III-80	

Luminaire Arms (1 per 30' pole)

Nominal Arm Length	Quantity
8' Arm	1

ILSN Arm (1 or 2 per pole) ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7' Arm	
9' Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 1/2"	3'-4"	1
1 3/4"	3'-10"	
2"	4'-3"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

ARMS		ROUND POLES					POLYGONAL POLES					Foundation Type
LF	Lc	D_B	D_{19}	D_{24}	D_{30}	③ thk	D_B	D_{19}	D_{24}	D_{30}	③ thk	
ft.	ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	20	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
24	20	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.179	30-A
	24	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.239	30-A
28	20	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	24	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	28	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
32	20	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	24	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	28	12.0	9.3	8.6	7.8	.239	13.0	10.0	9.2	8.3	.239	30-A
	32	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
36	20	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	24	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	28	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	32	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	36	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
40	20	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	24	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	28	13.0	10.3	9.6	8.8	.239	14.0	11.0	10.2	9.3	.239	36-A
	32	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A
	36	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
44	20	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	24	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	28	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	32	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B
	36	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B

Arm L_F or L_C	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	③ thk	Rise	L_1	D_1	④ D_2	③ thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire

D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length
L_C = Clamp-on Arm Length (36' Max)

③ Thickness shown are minimums, thicker materials may be used.

④ D_2 may be increased by up to 1.0" for polygonal arms.

STATE OF TEXAS
PRAGNA TATA
129174
LICENSED
PROFESSIONAL ENGINEER

T. Pragna
10/1/2024

④ REPLACED CGB CONNECTOR WITH BRACKET ASSEMBLY(2/12).

⑦ ADDITIONAL OPTION(2/12).

Texas Department of Transportation
DALLAS DISTRICT STANDARD

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (3)-12(DAL)

DN: MS	CK: JSY	DW: MWF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0047	05057, ETC.		SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1164

124C

GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. 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.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. 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.

5. 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.

6. 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

1. 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.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. 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"

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.

5. 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.

6. 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.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. 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.

9. 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.

10. 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

1. 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.

2. 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.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. 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.

5. 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."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. 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.

8. 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.

9. 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.

10. 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.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. 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).

13. 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.

14. 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.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

FILE:	ed1-14.dgn	DN:	CK:	DW:	CK:
© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS		0047	05	057, ETC.	SH5, ETC.
		DIST	COUNTY		SHEET NO.
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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.

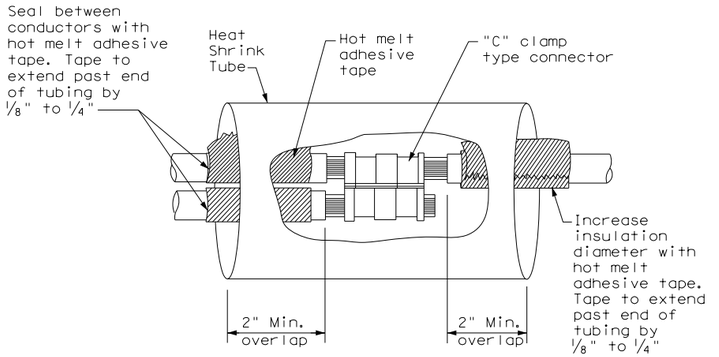
3. Install ground rods so the imprinted part number is at the upper end of the rod.

4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.

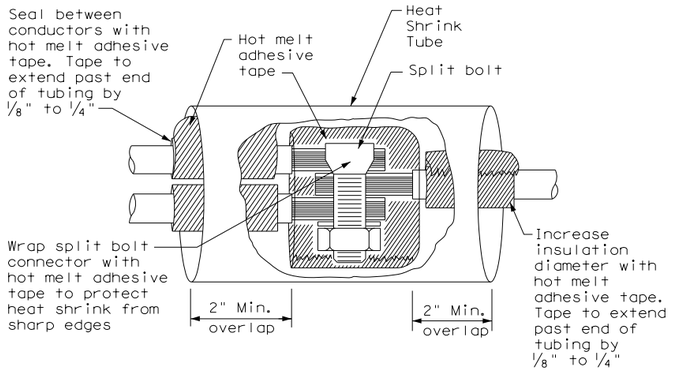
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.

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.

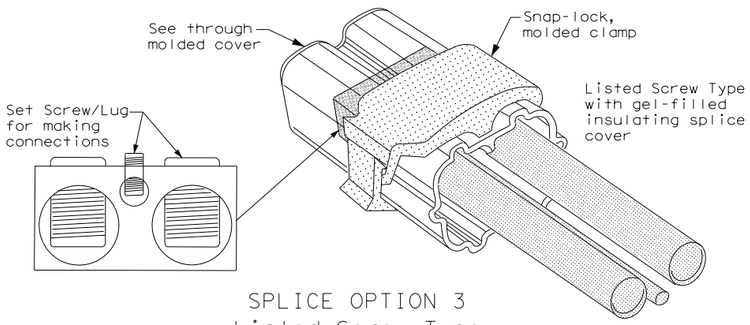
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

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Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-14

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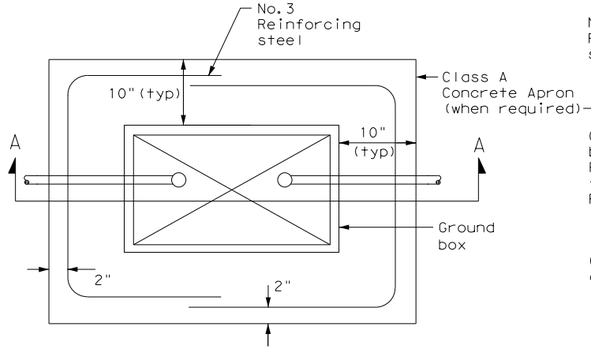
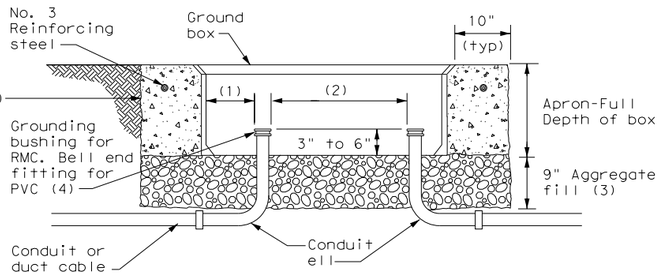


PLAN VIEW



SECTION A - A

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.

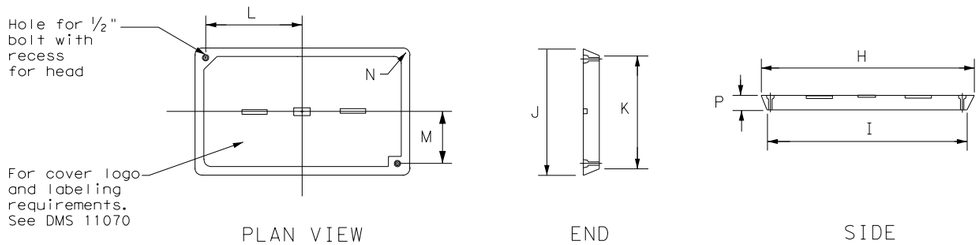
(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(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



PLAN VIEW END SIDE

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 on 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.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
GROUND BOXES

ED(4)-14

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ELECTRICAL SERVICES NOTES

1. Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.

2. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services,"DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

3. Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.

4. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

5. The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

6. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

7. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

8. Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.

9. All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.

10. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.

11. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.

12. Ensure all mounting hardware and installation details of services conform to utility company specifications.

13. For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.

14. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.

15. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

1. Provide threaded hub for all conduit entries into the top of enclosure.

2. Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.

3. Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.

4. Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

* ELECTRICAL SERVICE DATA

Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit **Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

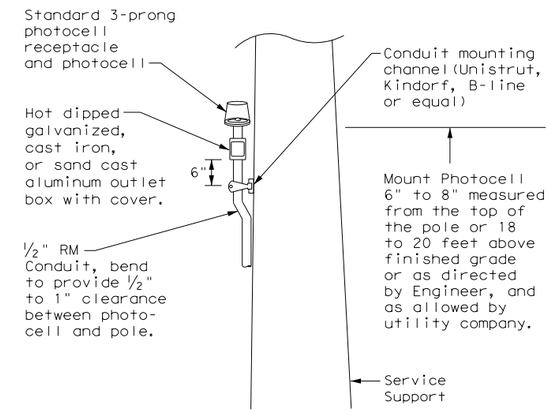
* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National ELectrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

ELEC SERV TY X XXX/XXX XXX (XX) XX (X) XX (X)

- Schematic Type
- Service Voltage V / V
- Disconnect Amp Rating
  000 indicates main lug only/
  Typically Type T
- (SS)= Safety Switch Ahead of Meter-Check with Utility
  (NS)= No safety Switch Ahead of Meter-Check with Utility
- Enclosure Type
  GS= Galvanized steel("off the shelf")
  SS= Stainless steel(Custom Enclosure)See MPL
  AL= Aluminum (Custom Enclosure)See MPL
- Photocell Mounting Location
  (E)= Inside Service/Enclosure Mounted
  (T)= Top of pole
  (L)= Luminaire mounted
  (N)= None/No Photocell or Lighting Contactor Required
- Service Support Type
  GC= Granite concrete
  OC= Other concrete
  TP= Timber pole
  SP= Steel pole
  SF= Steel frame
  OT= Pole by others or paid for separately
  EX= Existing pole
  TS= Service on traffic signal pole
  PS= Pedestal Service
- O= Overhead Service Feed from Utility
  U= Underground Service Feed from Utility



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE NOTES & DATA

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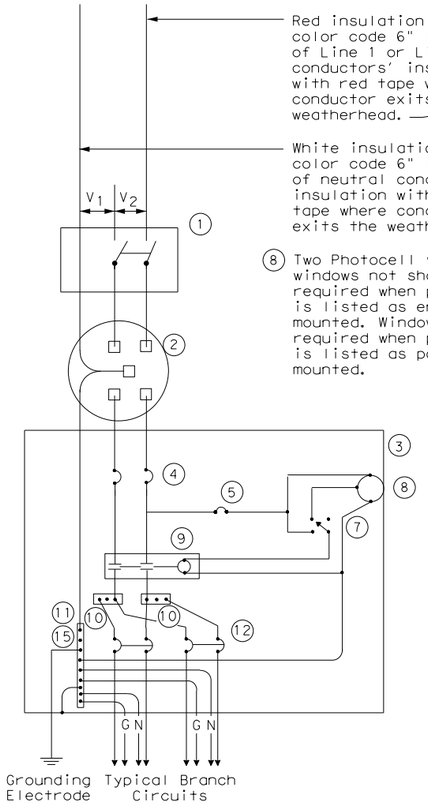
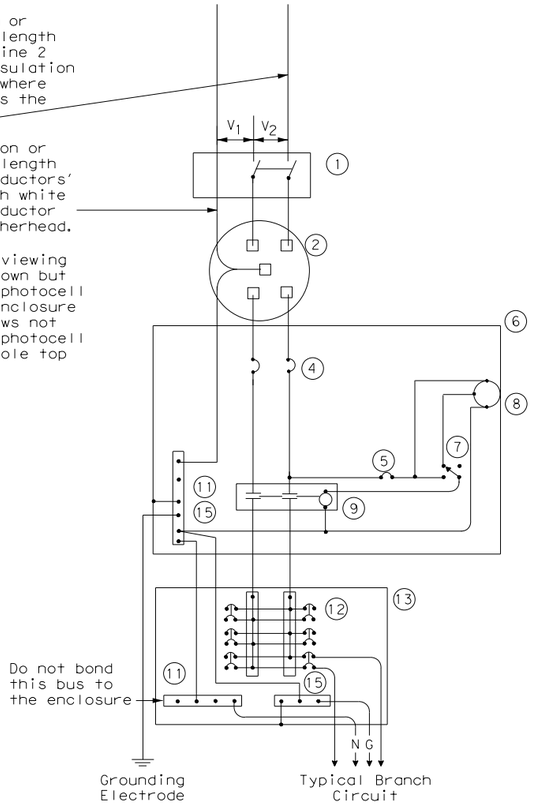
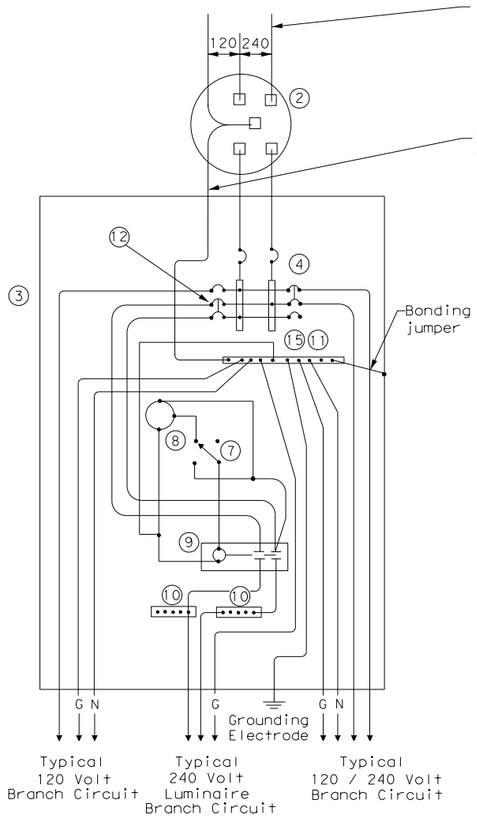


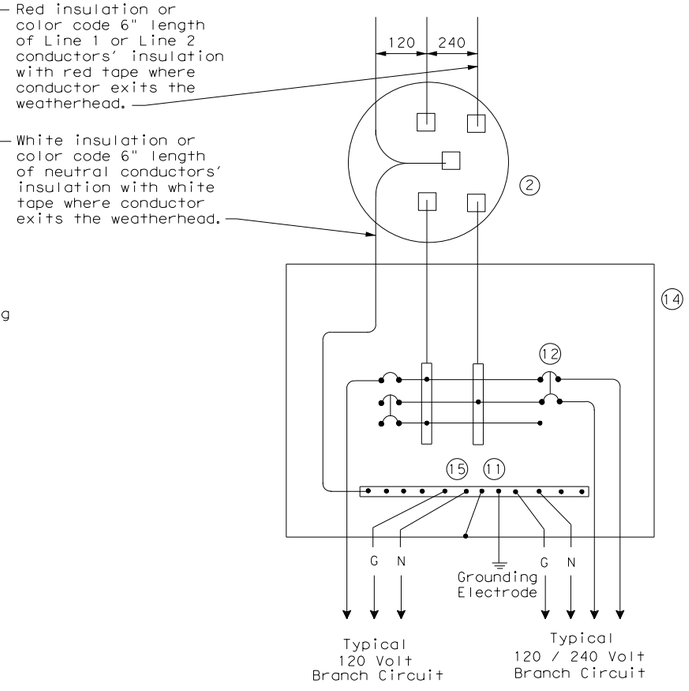
SCHEMATIC TYPE A
THREE WIRE



SCHEMATIC TYPE C
THREE WIRE



SCHEMATIC TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



SCHEMATIC TYPE T
120/240 VOLTS - THREE WIRE

Galvanized steel-"Buy Off The Shelf" only. When required install photocell top of the pole or on luminaire only, no lighting contractor will be installed.

WIRING LEGEND	
———	Power Wiring
———	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor-always required

SCHEMATIC LEGEND	
1	Safety Switch (when required)
2	Meter (when required-verify with electric utility provider)
3	Service Assembly Enclosure
4	Main Disconnect Breaker (See Electrical Service Data)
5	Circuit Breaker, 15 Amp (Control Circuit)
6	Auxiliary Enclosure
7	Control Station ("H-O-A" Switch)
8	Photo Electric Control (enclosure-mounted shown)
9	Lighting Contactor
10	Power Distribution Terminal Blocks
11	Neutral Bus
12	Branch Circuit Breaker (See Electrical Service Data)
13	Separate Circuit Breaker Panelboard
14	Load Center
15	Ground Bus

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE ENCLOSURE AND NOTES

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	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1169

71F

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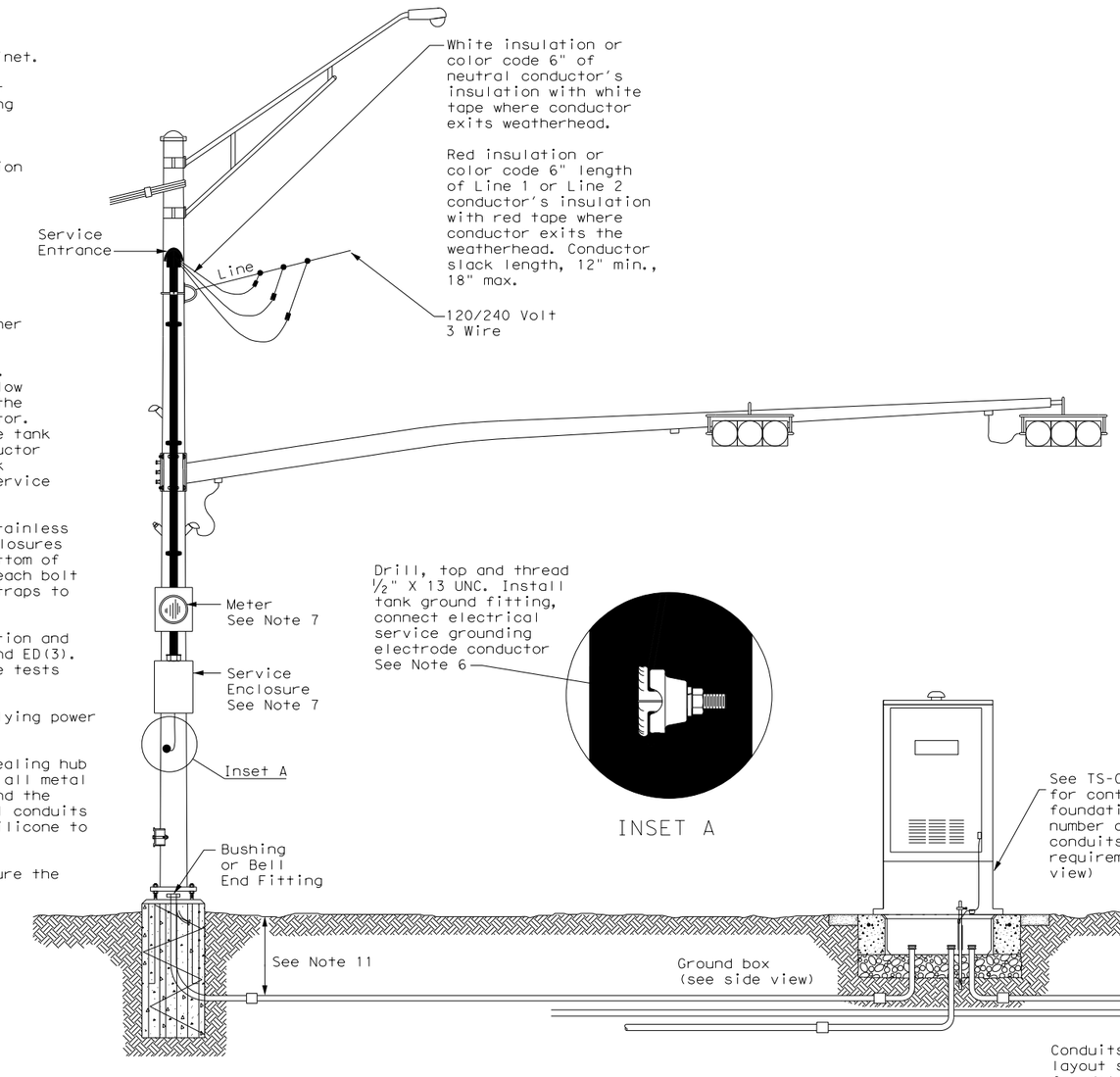
TRAFFIC SIGNAL NOTES

1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of ¾ in. Secure enclosures to bands using two-bolt brackets. Install brackets near top and bottom of each enclosure. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".

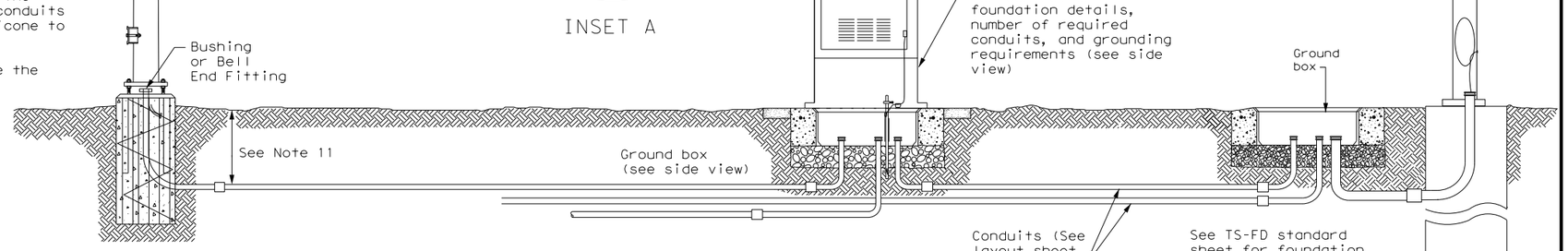


SIGNAL POLE WITH SERVICE

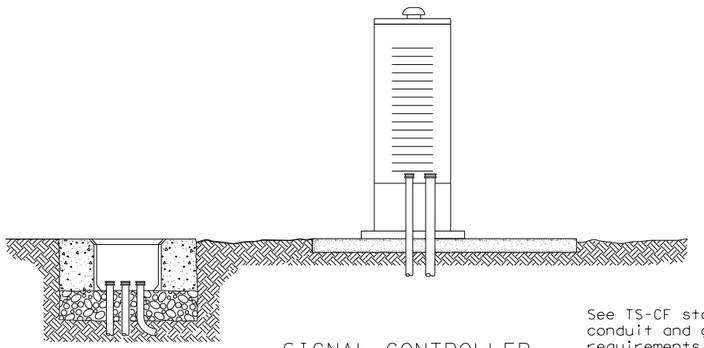
Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.

INSET A

SIGNAL CONTROLLER FRONT VIEW



SIGNAL POLE



SIGNAL CONTROLLER SIDE VIEW

See TS-CF standard for conduit and grounding requirements. See layout sheets for ground box locations and any additional conduits that are required.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(8)-14

FILE: ed8-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1170

71H

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PEDESTAL SERVICE NOTES

1. Manufacture pedestal electrical services in accordance with Departmental Material Specifications (DMS)11080 "Electrical Services", 11085 "Electrical Services-Pedestal (PS)" and Item 628 "Electrical Services. "Provide pedestal electrical services as listed on the Material Producers list (MPL) on the Department's web site under "Roadway Illumination and Electrical Supplies," Item 628. Ensure all mounting hardware and installation details of services meet utility company specifications. Contact the local utility company for approval of pedestal details prior to installing the electrical pedestal service. Submit any changes required by the utility company prior to manufacturing the pedestal enclosure.

2. When a meter socket is required, provide a socket with a minimum 100 amp rating that complies with local utility requirements.

3. Provide Class A or C concrete for pedestal service foundations in accordance with Item 420, "Concrete Substructures," except that concrete will not be paid for directly but is considered subsidiary to Item 628.

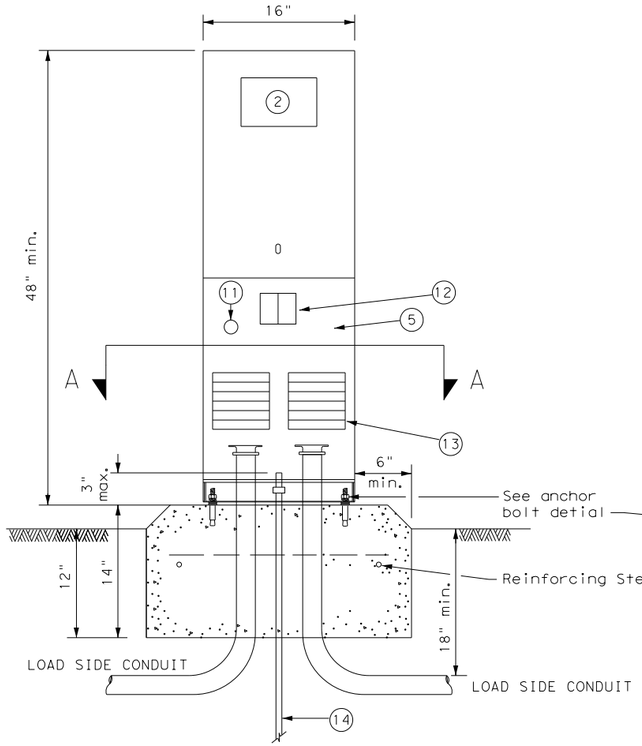
4. Provide #4 reinforcing steel for foundations in accordance with Item 440, "Reinforcement for Concrete."

5. Install ½ in. X 2 ⁷⁄₁₆ in. minimum length concrete single expansion type anchors for mounting pedestal enclosure to foundation. Anchor location to match mounting holes in each corner of enclosure. Secure each of the four corners of the pedestal enclosure to the anchors in the foundation with a ½ in. galvanized or stainless steel machine thread bolt, a properly sized locknut and a flat washer.

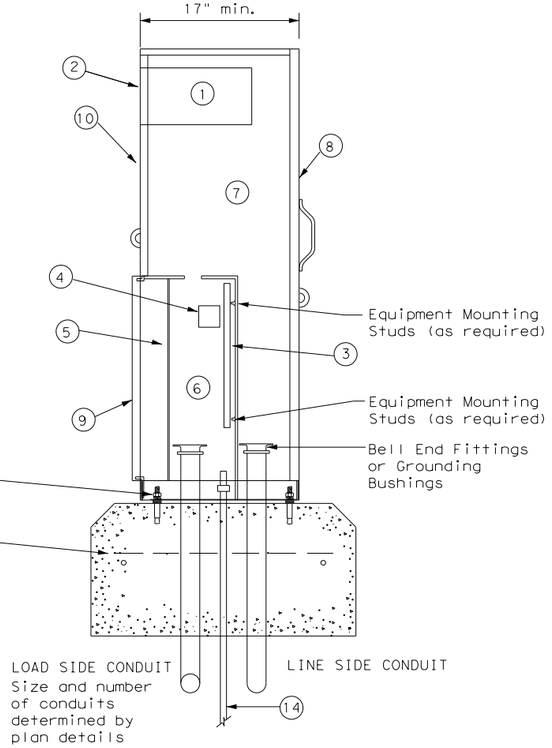
6. Finish top of concrete foundation in a neat and workmanlike manner. If leveling washers are used, ensure no more than ⅛ in. gap at any corner. Do not exceed a maximum dip or rise in the foundation of ⅛ in. per foot. When properly installed, ensure the top of the service enclosure is level front to back and side to side within ¼ in. Repair rocking or movement of the service enclosure at no additional cost to the department.

7. Do not use liquidtight flexible metal conduit (LFMC) on pedestal type services.

8. Ensure all elbows in the foundation are sized as per utility provider's conduit requirements for underground conduit and feeders. PVC extensions may be installed provided the ends of the rigid metal conduits are more than 2 in. below the top of the concrete foundation. Where extension conduits are metal, grounding bushings must be installed with a bonding jumper properly terminated.

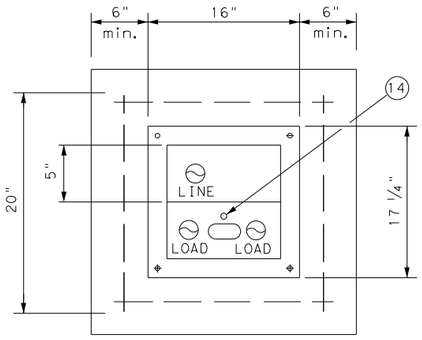


FRONT VIEW

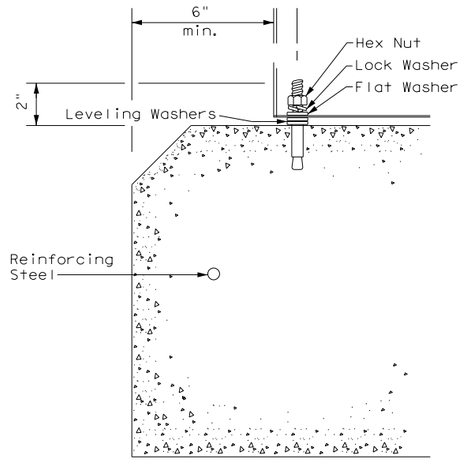


SIDE VIEW

TYPE C shown, TYPE A similar except that TYPE A shall have individual circuit breakers (CB) mounted on an equipment mounting panel. CB Handles shall protrude through hinged deadfront trim.



SECTION A-A



ANCHOR BOLT DETAIL

LEGEND	
1	Meter Socket, (when required)
2	Meter Socket Window, (when required)
3	Equipment Mounting Panel
4	Photo Electric Control Window, (When required)
5	Hinged Deadfront Trim
6	Load Side Conduit Trim
7	Line Side Conduit Area
8	Utility Access Door, with handle
9	Pedestal Door
10	Hinged Meter Access
11	Control Station (H-O-A Switch)
12	Main Disconnect
13	Branch Circuit Breakers
14	Copper Clad Ground Rod - 5/8" X 10'

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
ELECTRICAL SERVICE SUPPORT
PEDESTAL SERVICE TYPE PS
ED(9)-14

FILE: ed9-14.dgn		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT		
©TxDOT October 2014		CONT	SECT	JOB	HIGHWAY		
REVISIONS		0047	05	057, ETC.	SH5, ETC.		
		DIST	COUNTY		SHEET NO.		
		DAL	COLLIN		1171		

71J

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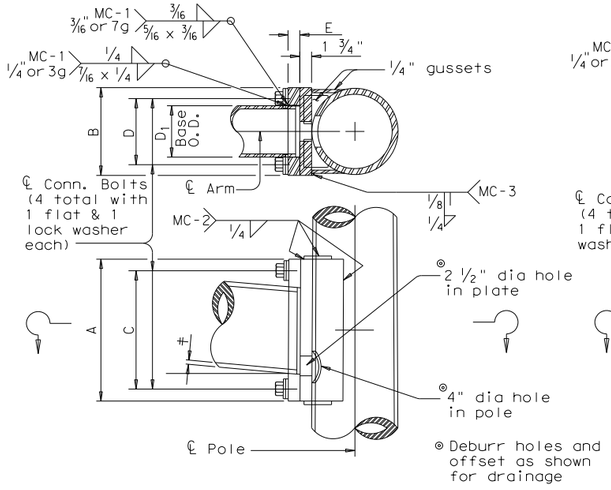
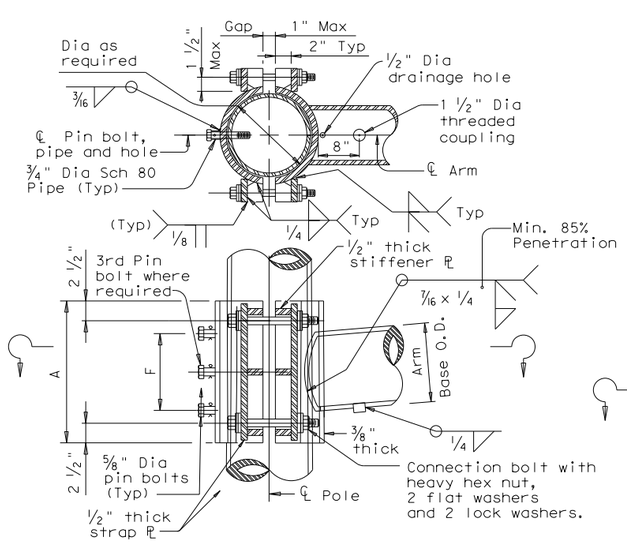
ARM SIZE D_1	ARM SIZE ǂ	A	B	C	D	E	CONN BOLT DIA
in.	in.	in.	in.	in.	in.	in.	in.
6.5	.179	12	9	9	6	1 ¾	1
7.5	.179	13	9	10	6	1 ¾	1
8.0	.179	14	10	11	7	2	1 ¼
9.0	.179	16	11	13	8	2	1 ¼
9.5	.179	17	12	14	9	2	1 ¼
9.5	.239	18	12	15	9	2	1 ¼
10.0	.239	18	12	15	9	2	1 ¼
10.5	.239	18	13	15	10	3	1 ½
11.0	.239	18	13	15	10	3	1 ½



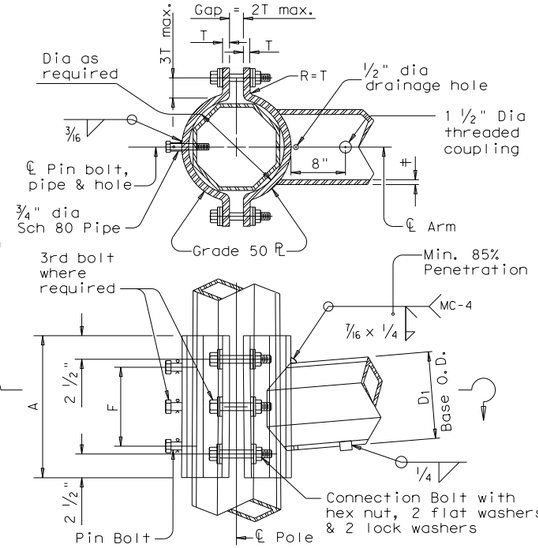
FIXED MOUNT DETAIL 1

ARM SIZE D_1	ARM SIZE ǂ	A	F	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	ea.	in.	ea.	in.
6.5	.179	12	6	4	1	2	⅝
7.5	.179	14	8	4	1	2	⅝
8.0	.179	14	8	4	1	2	⅝
9.0	.179	16	10	4	1	2	⅝
9.5	.179	18	12	4	1 ¼	3	⅝
9.5	.239	18	12	4	1 ¼	3	⅝
10.0	.239	18	12	4	1 ¼	3	⅝



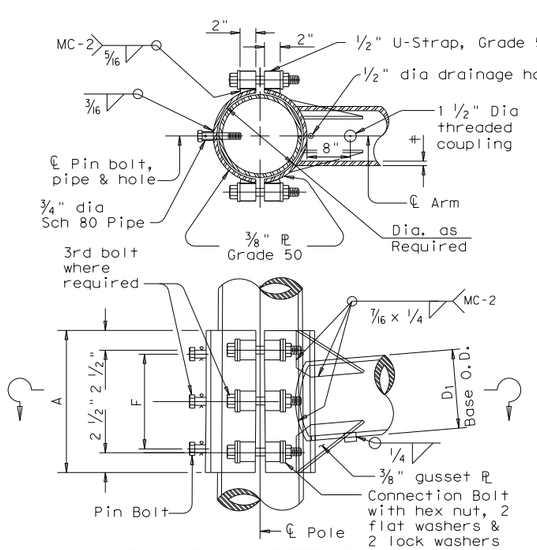
CLAMP-ON DETAIL 1

ARM SIZE D_1	ARM SIZE ǂ	A	F	T	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	in.	ea.	in.	ea.	in.
7.0	.179	12	6	¾	4	¾	2	⅝
7.5	.179	14	8	¾	4	¾	2	⅝
8.0	.179	14	8	¾	4	¾	2	⅝
9.0	.179	16	10	⅞	4	1	2	⅝
10.0	.179	18	10	⅞	4	1	2	⅝
9.5	.239	18	10	1	6	1	3	⅝
10.0	.239	18	10	1	6	1	3	⅝

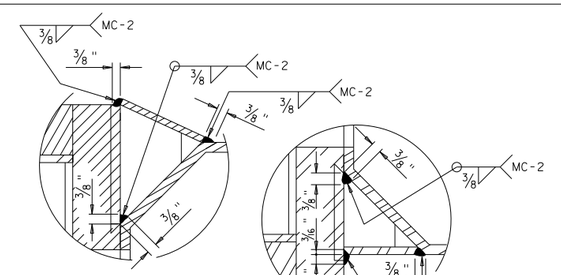


CLAMP-ON DETAIL 2

ARM SIZE D_1	ARM SIZE ǂ	A	F	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	ea.	in.	ea.	in.
6.5	.179	12	6	4	1	2	⅝
7.5	.179	14	8	4	1	2	⅝
8.0	.179	14	8	4	1	2	⅝
9.0	.179	16	10	4	1	2	⅝
9.5	.179	18	12	6	1	3	⅝
9.5	.239	18	12	6	1	3	⅝
10.0	.239	18	12	6	1	3	⅝

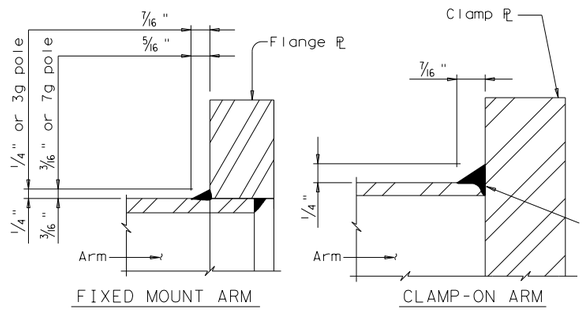


CLAMP-ON DETAIL 3



DETAIL A

DETAIL B



FIXED MOUNT ARM

CLAMP-ON ARM

ARM BASE WELD DETAILS

MATERIALS	
Round Shafts or Polygonal Shafts ①	ASTM A595 Gr.A, A588, A1008 HSLAS Gr.50 Class 2, A1011 HSLAS Gr.50 Class 2, A572 Gr.50 or A1011 SS Gr.50 ②
Plates ①	ASTM A36, A588, or A572 Gr.50
Connection Bolts	ASTM A325 or A449, except where noted
Pin Bolts	ASTM A325
Pipe ①	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50
Misc. Hardware	Galvanized steel or stainless steel or as noted

① ASTM A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

② ASTM A1011 SS Gr.50 material shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies. A Maximum 1 ½" wide vertical slotted hole shall be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1"

Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and ¾" dia pipe shall have 5/16" dia holes for a 1/8" dia galvanized cotter pin. Back clamp plate shall be furnished with a ¾" dia hole for each pin bolt. An 11/16" dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES

MAST ARM CONNECTIONS

MA-C-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
5-09
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.

DIST	COUNTY	SHEET NO.
DAL	COLLIN	1172

126A

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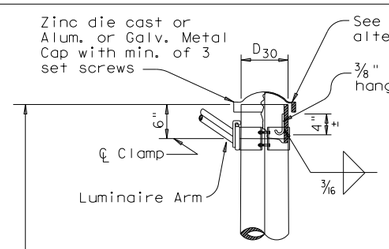
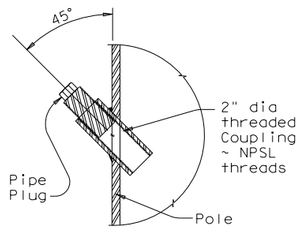
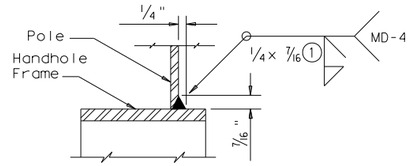


DETAIL A

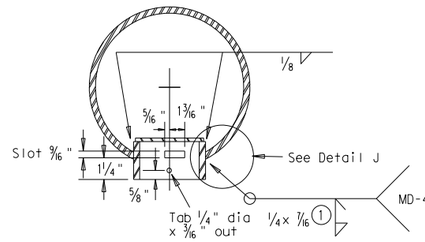
(for pole with luminaire)



POLE COUPLING DETAIL

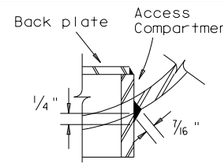


DETAIL G

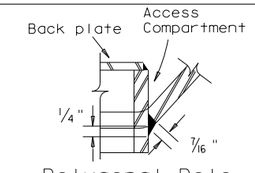


SECTION X-X

Opening for access compartment shall be no more than 1/16 inch wider than the access compartment itself.

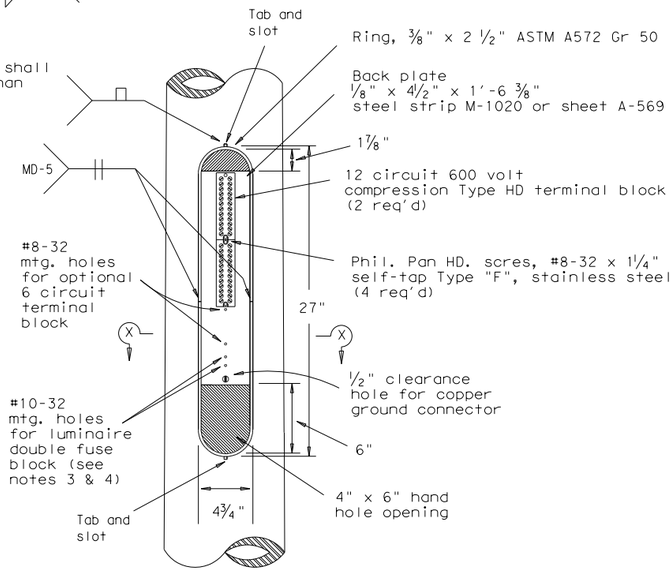


Round Pole

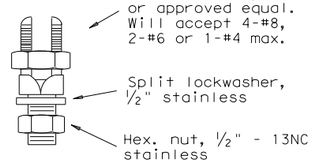


Polygonal Pole

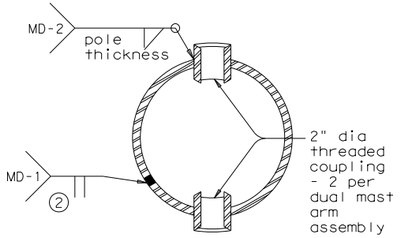
DETAIL J



ACCESS COMPARTMENT



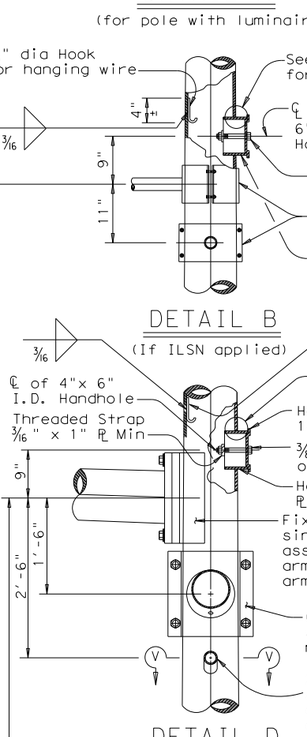
COPPER GROUND CONNECTOR



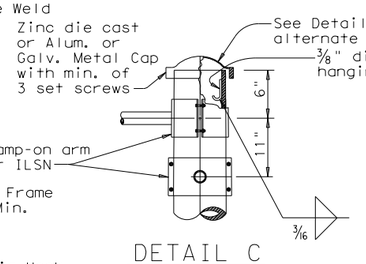
SECTION V-V

NOTES:

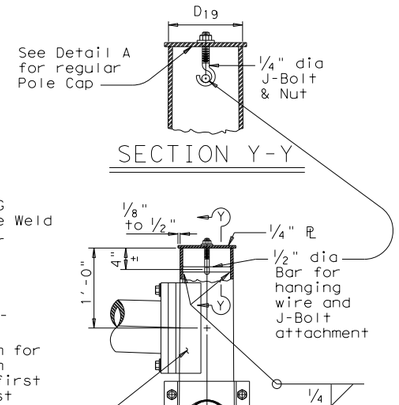
1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1 1/4" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.



DETAIL B



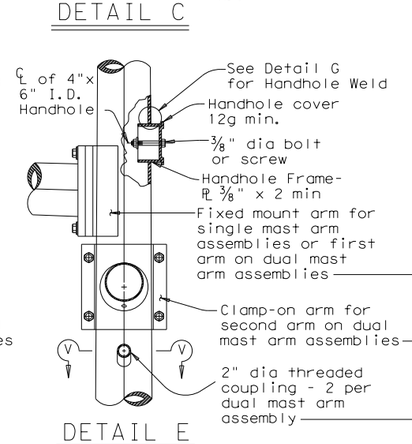
DETAIL C



SECTION Y-Y

DETAIL D

(for 30' pole with luminaire and ILSN sign)



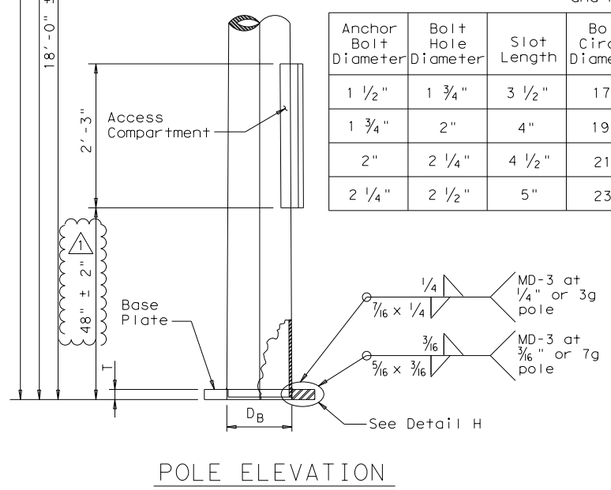
DETAIL E

(for 24' pole with ILSN sign and no luminaire)

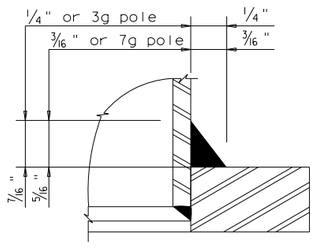
DETAIL F

(for 19' pole with no ILSN sign and no luminaire)

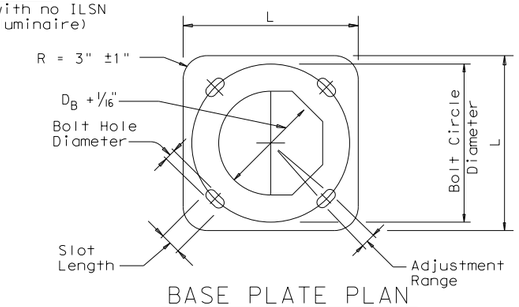
Anchor Bolt Diameter	Bolt Hole Diameter	Slot Length	Bolt Circle Diameter	Base ℞ Dim. L x T	Adjust. Range
1 1/2"	1 3/4"	3 1/2"	17"	18" x 1 1/2"	13.4°
1 3/4"	2"	4"	19"	20" x 1 3/4"	13.5°
2"	2 1/4"	4 1/2"	21"	22" x 2"	13.6°
2 1/4"	2 1/2"	5"	23"	24" x 2 1/4"	13.7°



POLE ELEVATION



DETAIL H



BASE PLATE PLAN

(1) 85% Min. penetration

(2) 60% Min. penetration 100% pemetration within 6" of circumferential base welds.

1 REVISED THE ELEVATION OF ACCESS COMPARTMENT (2/12).

Texas Department of Transportation

TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM POLE DETAILS

MA-D-12(DAL)

DN: MS	CK: JSY	DW: FDN	CK: CAL

REVISIONS
8-99
1-12

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.

DIST	COUNTY	SHEET NO.
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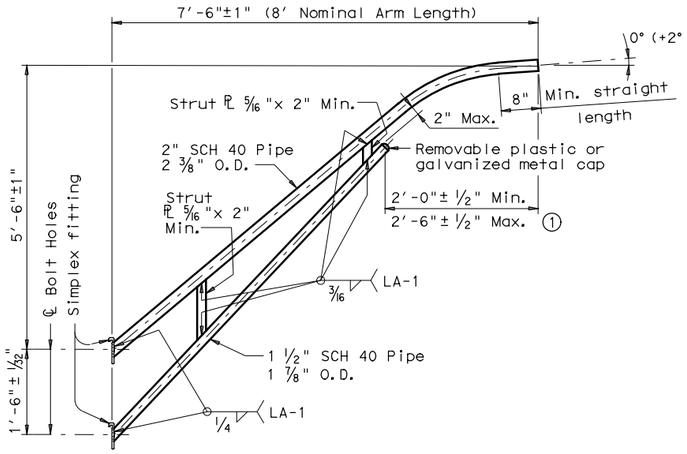
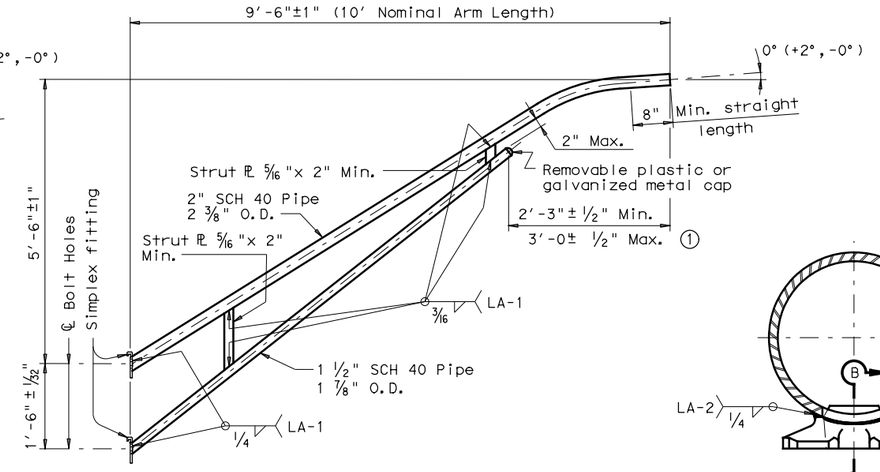
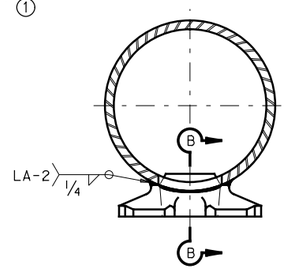


8-FOOT LUMINAIRE ARM



10-FOOT LUMINAIRE ARM



DIRECT ATTACHMENT DETAIL

MATERIALS	
Pole or Arm Simplex	ASTM A27 Gr.65-35 or A148 Gr.80-50, A576 Gr.1021 (3), or A36 (Arm only)
Arm Pipes	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50 (4), or A1011 HSLAS-F Gr.50 (4)
Arm Strut Plates (2)	ASTM A36, A572 Gr.50 (4), or A588
Misc.	ASTM designations as noted

(1) Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.

(2) Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.

(3) A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.

(4) ASTM A572, A1008 HSLAS-F, and A1011 HSLAS-F may have higher yield strengths but shall not have less elongation than the grade indicated.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto. Design Wind Speed equals 90 mph plus a 1.3 gust factor. Arms are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq. ft.

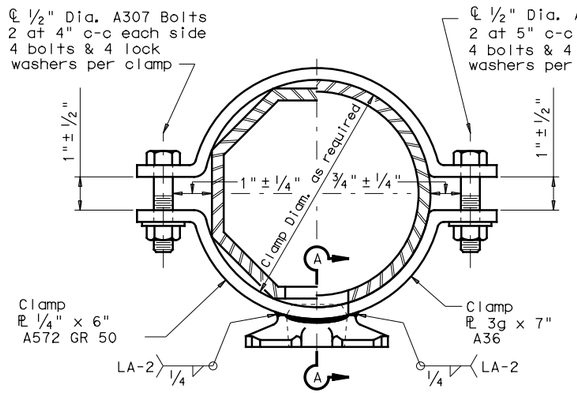
Materials and fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absense of specified Fabricaton tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.

Unless otherwise noted, all parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing".

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

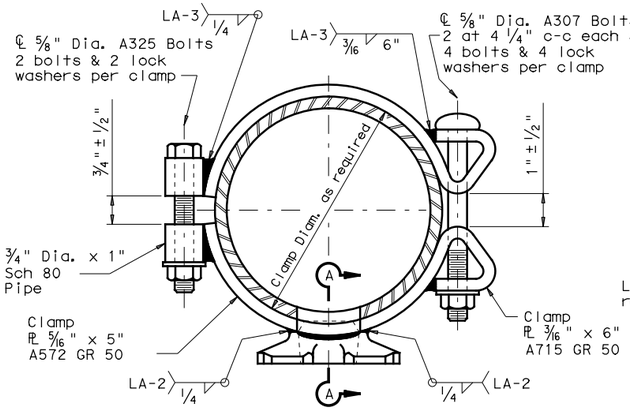
Each pole simplex fitting shall be supplied with 2 ASTM A325 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans. When clamp attachment is specified, the Fabricator shall ship the clamp assembly securely attached to the pole at the location shown on the plans.

If clamp assemblies are ordered without poles, the Fabricator shall ship one upper and one lower clamp assembly together in a single package, including all nuts and washers required for the clamps and simplex fittings.



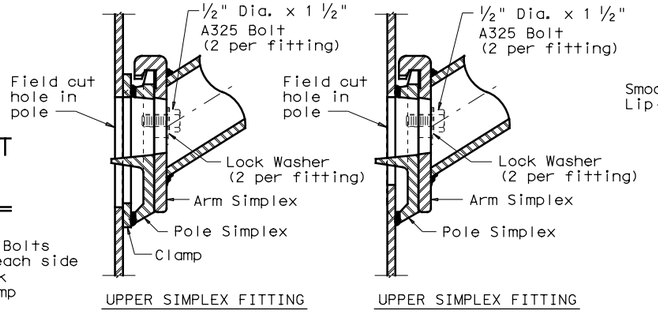
CLAMP ATTACHMENT DETAIL NO.1 (HALF SECTION)

CLAMP ATTACHMENT DETAIL NO.2 (HALF SECTION)



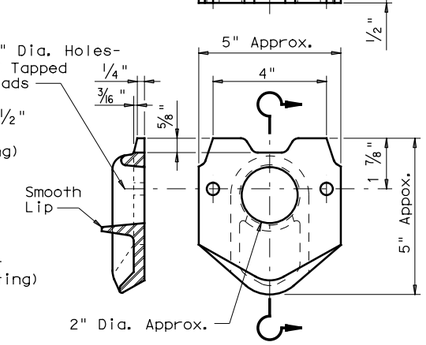
CLAMP ATTACHMENT DETAIL NO.3 (HALF SECTION)

CLAMP ATTACHMENT DETAIL NO.4 (HALF SECTION)

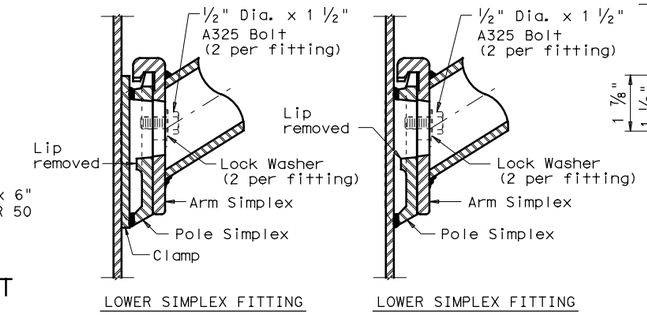


UPPER SIMPLEX FITTING

UPPER SIMPLEX FITTING



POLE SIMPLEX DETAIL

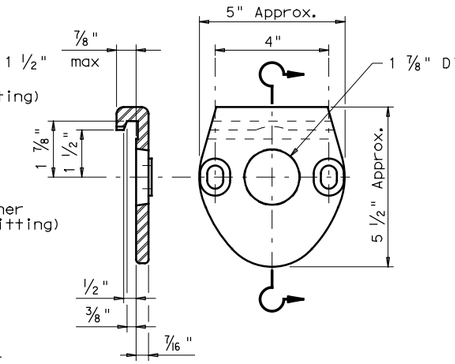


LOWER SIMPLEX FITTING

LOWER SIMPLEX FITTING

SECTON A-A

SECTON B-B



ARM SIMPLEX DETAIL

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY DRAWINGS FOR LUMINAIRE SUPPORT STRUCTURES

ARM DETAILS

LUM-A-12

DN: LEH	CK: JSY	DW: LTT	CK: TEB

REVISIONS	CONT	SECT	JOB	HIGHWAY
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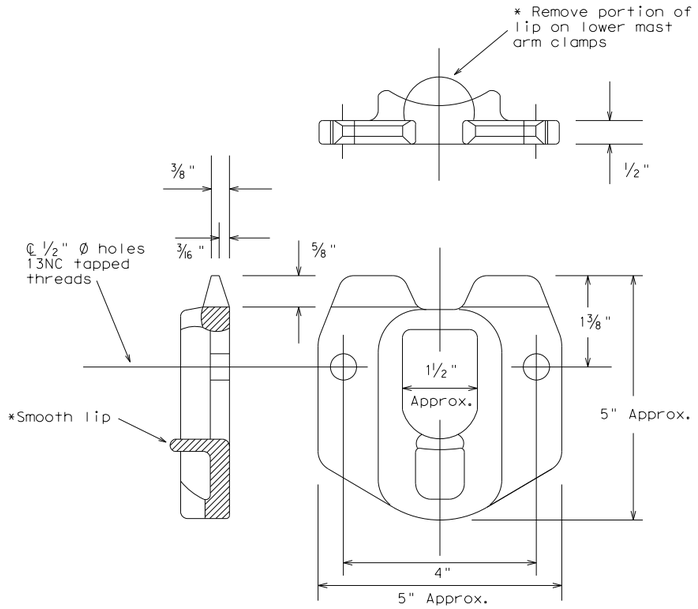
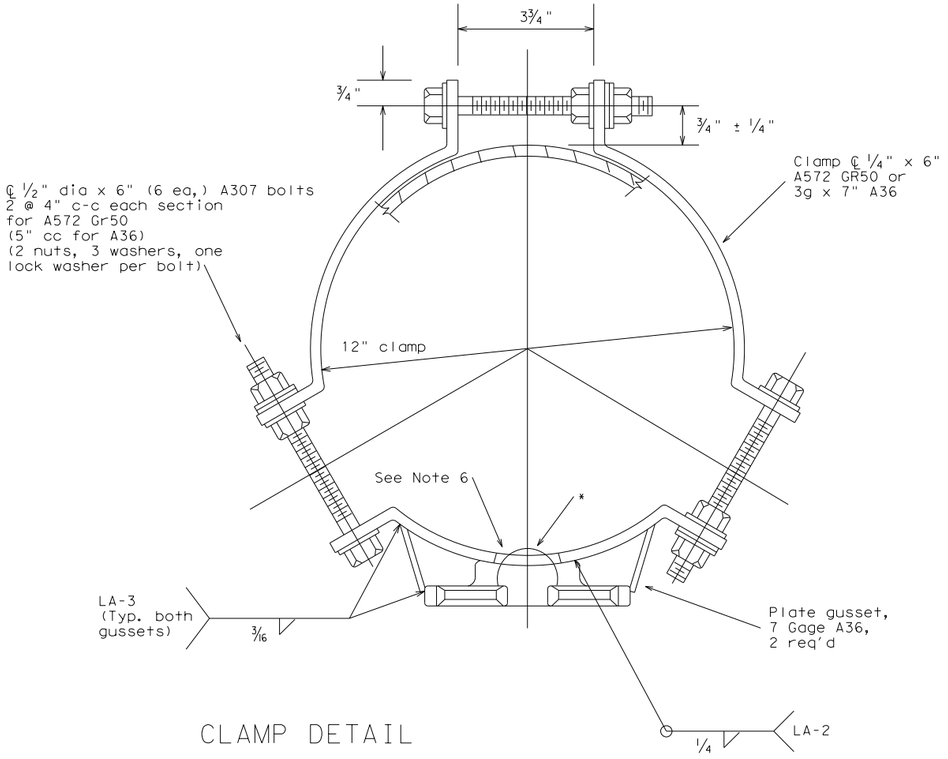
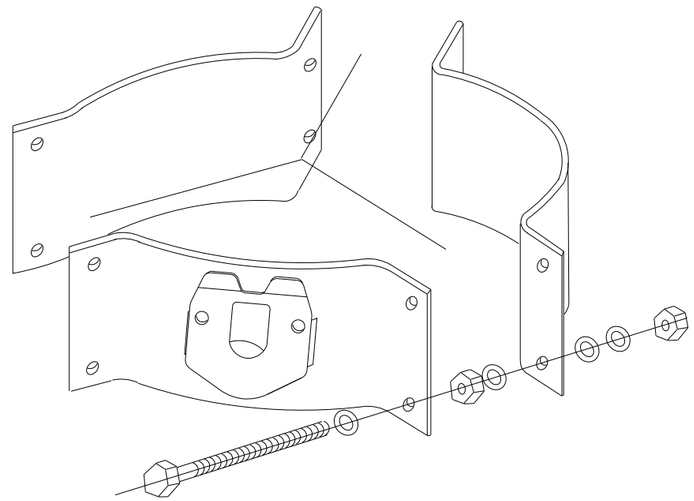


POLE SIMPLEX DETAILS



CLAMP DETAIL



PROJECTION

OTHER MATERIALS:

1. Pole simplex shall be ASTM A27 GR65-35 or A148 GR80-50 or A576 GR1021. ASTM A576 must be suitable for forging and also meet minimum tensile of 65ksi, minimum yield of 35ksi, and a minimum elongation of 22 percent in 2 inches.
2. Welded tabs and backplates shall be ASTM A-36 steel or better.
3. Nylon insert locknuts shall conform to ASTM A563.

GENERAL NOTES:

1. Materials and fabrication shall be in accordance with Standard Sheet "MA-C" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.
2. All parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing". The throat of the Simplex shall be made free of all rough or sharp edges resulting from the galvanizing process.
3. Each simplex fitting shall be supplied with 2 ASTM A325 bolts, 1/2in. X 1 1/2in. and 2 lock washers. The bolts and lock washers shall be secured to the clamp with the other hardware items. The Fabricator shall ship clamp assembly together in a single package, including all bolts, nuts, and washers required for the clamp and simplex fitting.
4. Design conforms to 1994 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" and interim revisions thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor. Clamps are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq.ft.,12 ft. maximum arm length.
5. Each assembly shall consist of one upper piece simplex fitting having a smooth lip and one lower piece simplex fitting with the lip removed.
6. Approximately 2 in. diameter hole in upper mast arm clamp.

For 8.9 - 12 inch diameter Signal Poles
(Two req'd for each mast arm)

Texas Department of Transportation
Traffic Operations Division

CLAMP ON FITTING ASSEMBLY FOR LUMINAIRE MAST ARM

CFA-12

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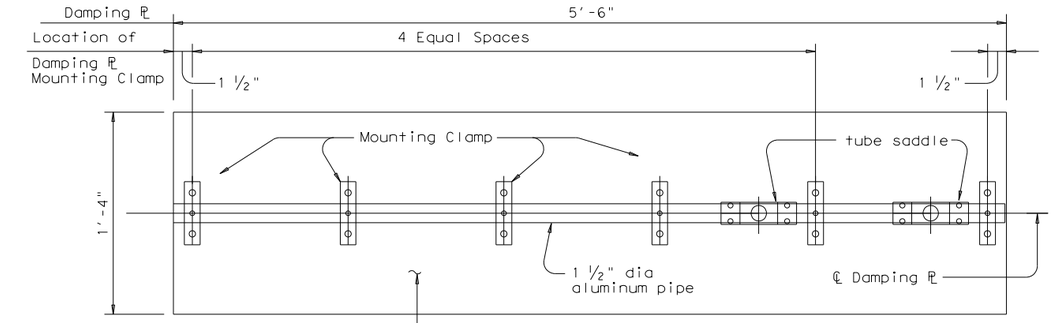
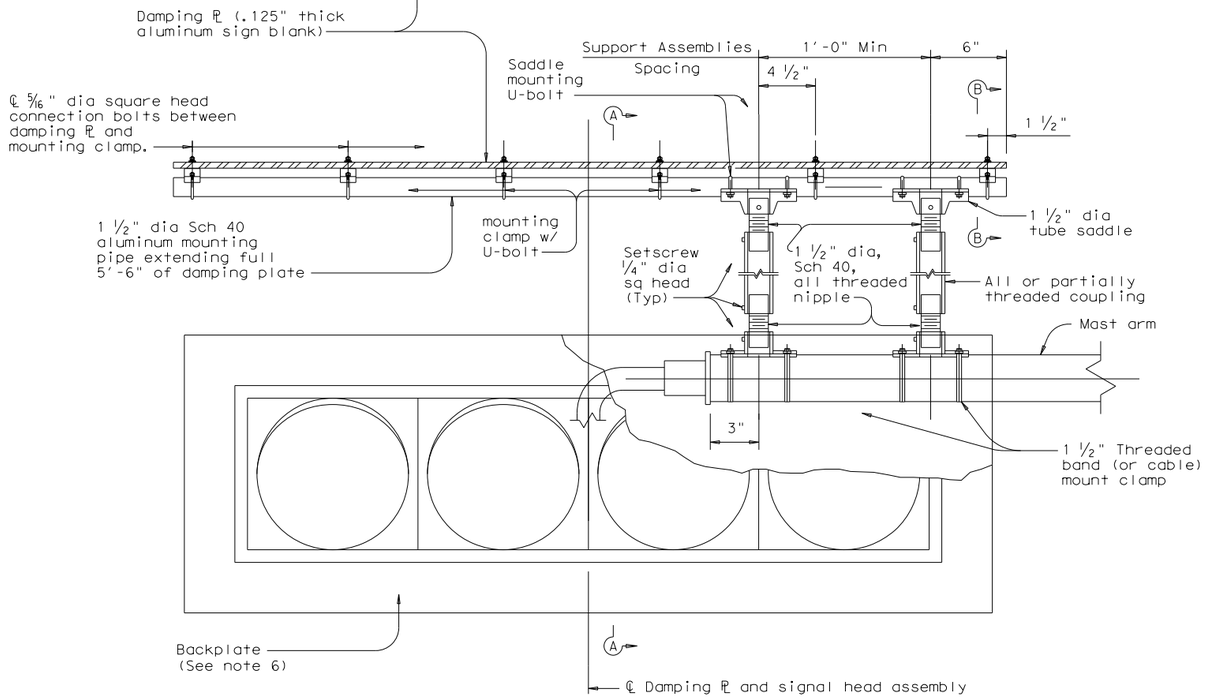


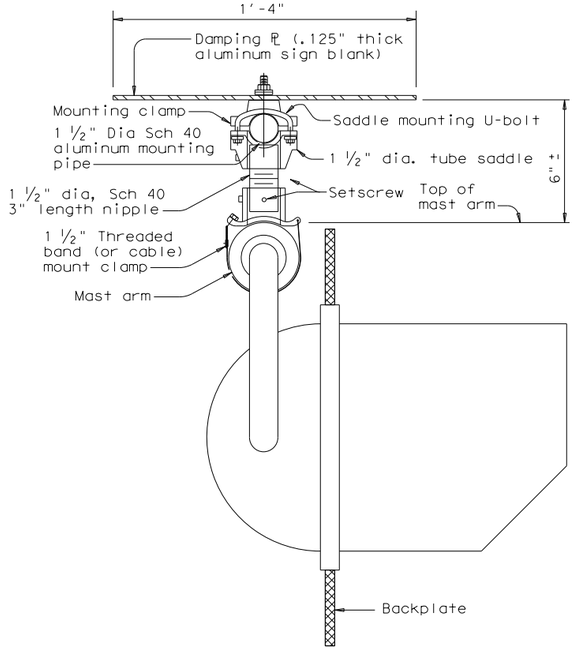
PLAN



ELEVATION

DAMPING PLATE MOUNTING DETAILS

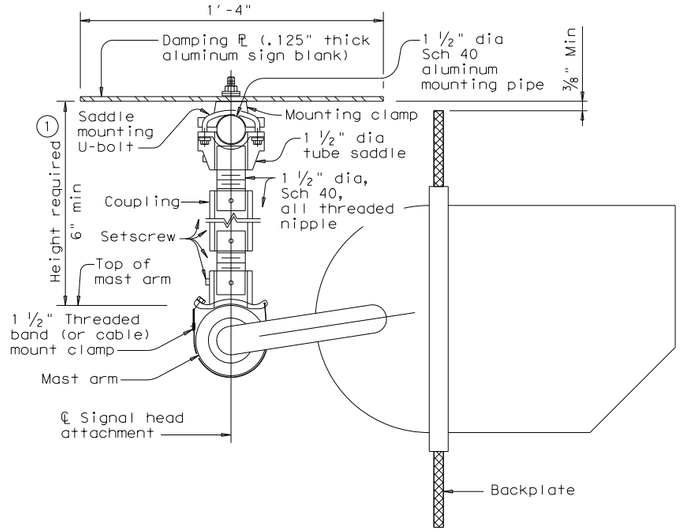
(Showing alternate placement of signal head)



SECTION A-A

(Showing standard placement of signal head)

(Mounting clamp U-bolt is not shown for clarity)

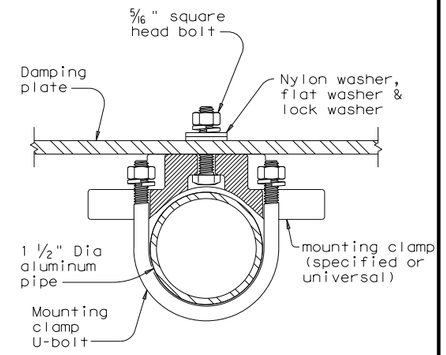


SECTION A-A

(Showing alternate placement of signal head)

(Mounting clamp U-bolt is not shown for clarity)

① Recommended supporting assemblies to achieve required height for horizontal section heads			
Height required	One nipple each length	Two nipples each length plus	One coupling each length
6"-6 ¾"	3"	-	-
7"-8 ½"	4"	-	-
9"-10 ½"	6"	-	-
11"-15 ½"	-	4"	5"
16"-24"	-	6"	10"



SECTION B-B

(Showing damping plate attachment)

GENERAL NOTES:

1. In accordance with the findings of TxDOT sponsored research, the installation of a damping plate in accordance with the details shown here at the end of signal mast arms of SMA and DMA standard structures reduces excessive harmonic vertical vibration, and thus fatigue damage. Any deviation from these details may reduce the effectiveness of this damping device.

2. Aluminum sign blank for damping plate will conform to Departmental Material Specifications DMS-7110. Materials for mast arm mounting clamp and tube saddle will be aluminum castings or aluminum alloys as in accordance with manufacturers' stipulations. Mounting pipe, pipe nipple and coupling will be aluminum alloy 6061-T6 or 6063-T6. Damping plate mounting clamp and u-bolt assemblies will conform to Standard sheet SMD(GEN). U-bolts for saddle mounting will have a minimum yield strength of 36 ksi.

3. Damping plate will be mounted horizontally. Position centerline of damping plate to align with centerline of mast arm or horizontal signal head assembly. Vertical clearance between signal head (with or without backing plate) and bottom of damping plate will be maintained as shown. The attachments shown here are examples only, other supporting details which meet both alignment and vertical clearance requirements are also acceptable.

4. Unless stipulated by the manufacturers, all steel parts will be galvanized finish in accordance with Standard Specification Item 445, "Galvanizing".

5. Contractor will verify applicable field dimensions before the installation.

6. Backplates are optional for traffic signals. When backplates are used, Backplates will have a 2-inch fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 "Sign Face Materials." See Sheet TS-BP-20 for backplate details.

Texas Department of Transportation

Traffic Safety Division Standard

MAST ARM DAMPING PLATE DETAILS

MA-DPD-20

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©TxDOT January 2012	CONT	SECT	JOB	HIGHWAY
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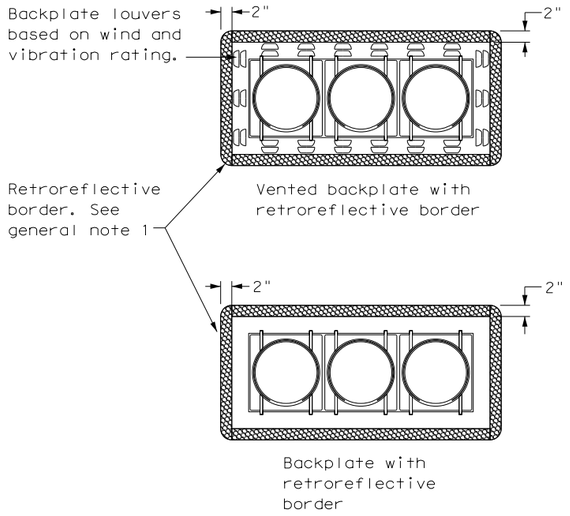
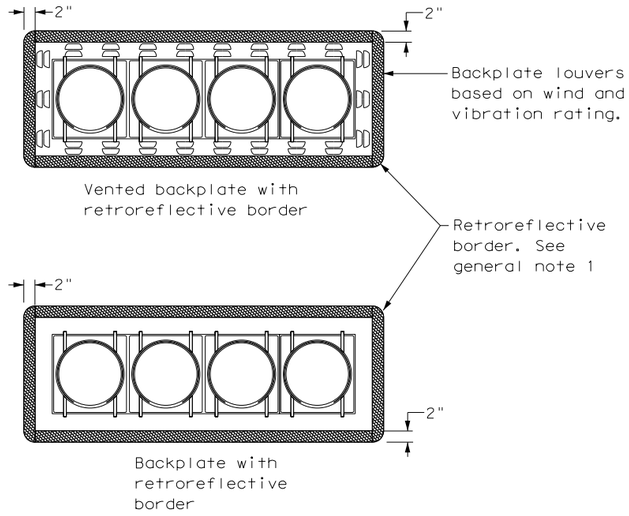
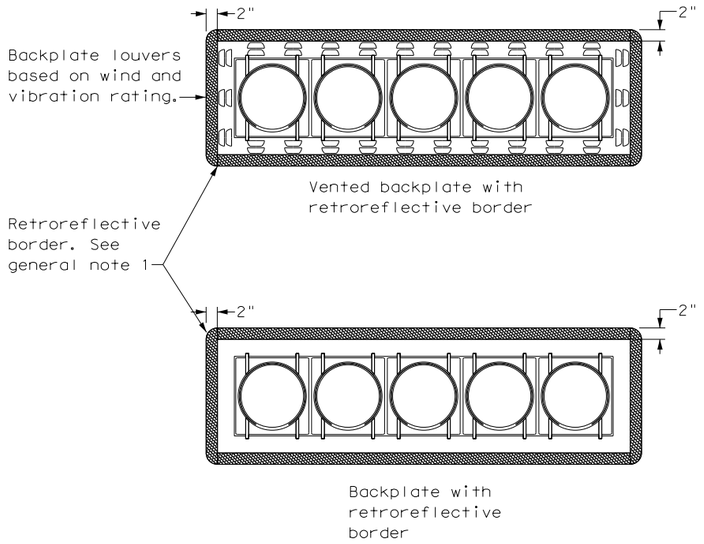


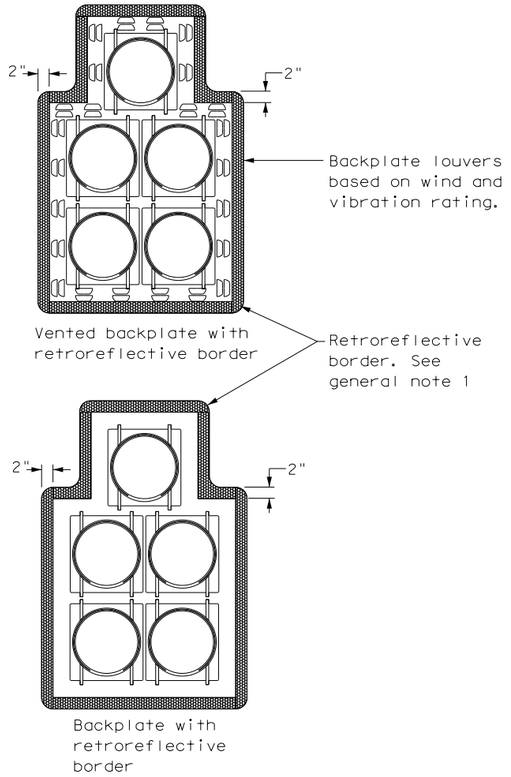
THREE-SECTION HEAD
HORIZONTAL OR VERTICAL



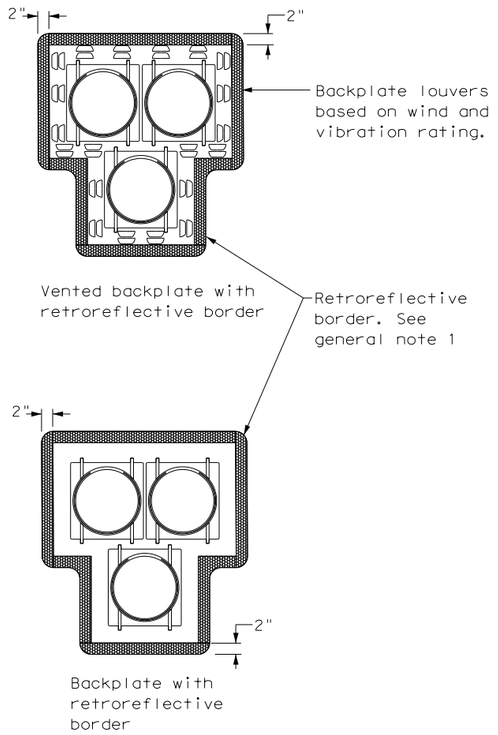
FOUR-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
CLUSTER



PEDESTRIAN HYBRID
BEACON

GENERAL NOTES:

1. Backplates are optional for traffic signals and pedestrian hybrid beacons. When backplates are used, a 2-inch wide fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 is required. Place on all approaches when used.
2. Signal head and backplate compatability must be verified by the contractor prior to installation.
3. When using backplates on signal heads, venting is preferred to reduce cyclic vibration stress.
4. When a vented backplate is used, the retroreflective border must not be placed over the louvers.
5. This standard sheet applies to all signal heads with backplates, including but not limited to:
   - Pole mounted
   - Overhead mounted
   - Span wire mounted
   - Mast arm mounted
   - Vertical signal heads
   - Horizontal signal heads
   - Clustered signal heads
   - Pedestrian hybrid beacons

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL HEAD WITH BACKPLATE

TS-BP-20

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©TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
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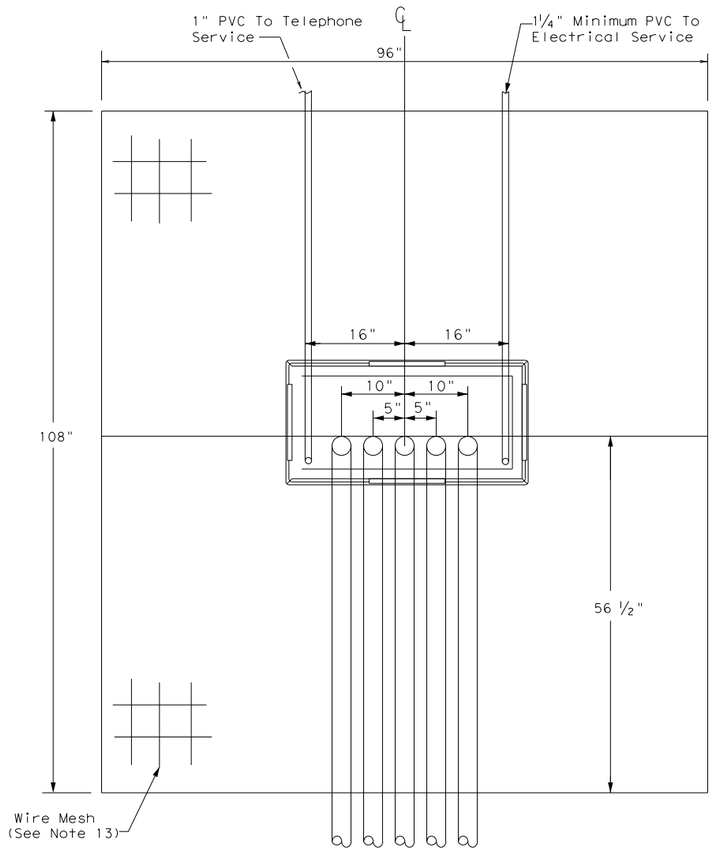
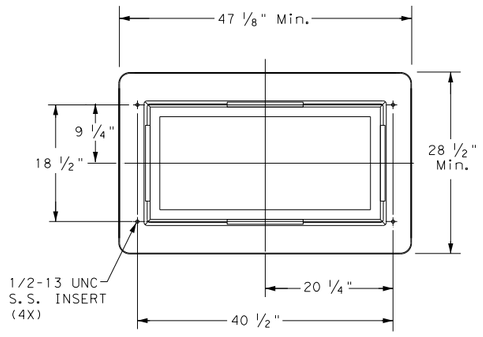
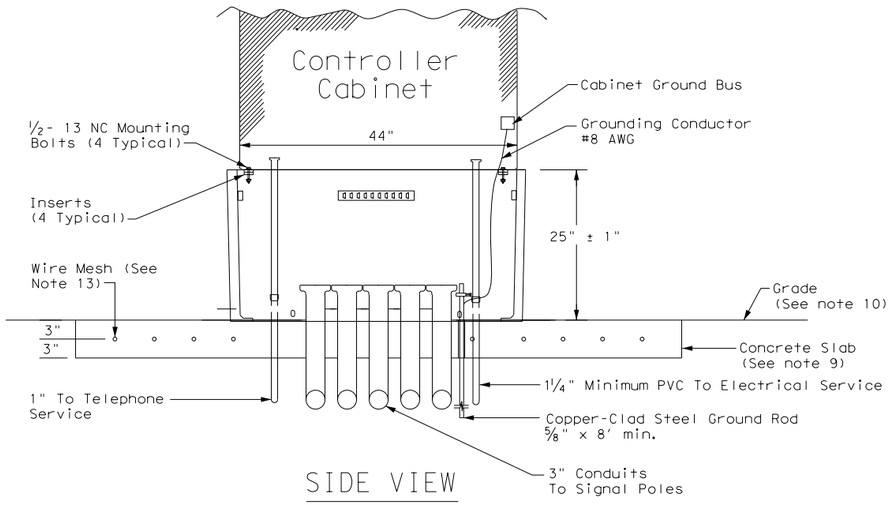
	DAL	COLLIN		1177



TOP VIEW



CABINET BASE



SIDE VIEW

TRAFFIC SIGNAL CONTROLLER BASE:

1. Provide a traffic signal controller base (cabinet base) manufactured of polymer concrete material consisting of calcareous and siliceous stone; glass fibers and thermoset polyester resin. The polymer concrete cabinet base must be reinforced on the inside of the cabinet base with fiberglass matting. Provide one of the following bases: Armorcast Part # A6001848X24, Quazite Model # PG3048Z709, or other as approved by TxDOT Traffic Safety Division.
2. The polymer concrete material must have a minimum compressive strength of 10,300 pounds per square inch (psi), minimum flexural strength of 3600 psi, and minimum shear strength of 3600 psi.
3. The polymer concrete cabinet base must conform to the dimensions shown and must accommodate a standard TxDOT basemount cabinet.
4. Supply the cabinet base with four 1#2"-13 UNC stainless steel inserts for attachment of the cabinet to the base. Inserts must withstand a minimum torque of 50 ft-lb and a minimum straight pull out strength of 750 lbs.
5. Provide the cabinet base with 4 cable racks mounted one on each side of the base 2" to 7 " from the top edge of the base. Unless approved otherwise, cable racks must be 1-1/2 x 9#16x 3#16inch steel channel with eight T-slots spaced at 1-1/2 inches. The cable racks must easily accommodate the insertion of tie wraps to attach field wiring to the racks to serve as strain relief. Secure cable racks to the base using 1#2"-13 UNC stainless steel screws and inserts.
6. The cabinet base, when secured to the concrete slab with controller cabinet attached, must withstand a minimum wind load of 125 mph or a 850 lb force applied at 49" above the bottom of the base without causing the base or cabinet to come out of their anchored position or cause any permanent deformation. The manufacturer must supply certification by an independent testing laboratory or sealed by a Texas Licensed Professional Engineer. Provide the cabinet base with hardware for attachment to a concrete slab.
7. The traffic signal base must be permanently marked either by impress or by permanent ink with the manufacturer's model number and name or logo.
8. Seal the base to the concrete with a silicone caulk bead and fastened to the slab per manufacturer's instructions.

CONCRETE SLAB:

9. Traffic signal controller pad must be a portland cement concrete slab poured in place, must conform to the dimensions shown, and must be level.
10. Grade earthwork such that it is flush with the concrete pad on all four sides, unless otherwise shown on the plans. Subsidiary to ITEM 680, four inch rip rap may be used in lieu of earthwork. Slopes shall gradually contour to match plans.
11. Bond a #8 AWG copper ground wire and an 8 ft ground rod bonded to the reinforcing mesh by a suitable UL listed clamp and terminated to the cabinet grounding bus for the purpose of providing a local ground for the electrical grounding conductor. The electrical grounding conductor specified in Item 680-3.A.4 is required and must be terminated to the cabinet ground bus.
12. Install a PVC sleeve to prevent the ground rod from direct embedment in the slab.
13. Provide welded wire mesh 6X6-W2.9 X W2.9 for reinforcement. Provide joints and splices in the mesh with a minimum 6-inch overlap. Center the mesh between top and bottom and provide a minimum 3 inch cover on the edges.
14. Provide Class B concrete minimum for the slab in accordance with Item 421. Construct the slab in accordance with Item 531.

CONDUITS:

15. Stub up and run 3-inch conduits through the slab to the various traffic signal poles and ground boxes as shown on the layouts. Install the number of conduits as shown on layouts plus two additional 3 inch conduits for future use. Terminate the conduits with a bushing between 2 and 4-inches above the slab.
16. Extend conduits for future use at least 18-inches from the edge of the slab, terminate underground with a coupling, and cap and seal so that the seal can be removed without damaging the coupling. This must also apply to unused telephone conduit.
17. Stub up two separate conduits through the slab from the electrical and telephone services. Run the conduit for the electrical feed directly to the electrical service enclosure. Run the conduit for the telephone line directly to the telephone service, usually located on the same pole as the electrical service. Telephone must not under any circumstance share a conduit with any other function.
18. Terminate electric and telephone conduits above the slab with a coupling. After the base is installed, extend the conduits above the top of the base and secure to the base using a steel one-hole strap or similar suitable substitute.

CONTROLLER CABINET:

19. Anchor the controller cabinet to the base using four stainless steel 1/2-13 NC bolts.
20. The silicone caulk bead specified in Item 680.3.B must be RTV 133.

PAYMENT:

21. Bid TS-CF as subsidiary to Item 680.

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL CONTROLLER CABINET BASE AND PAD
TS-CF-21

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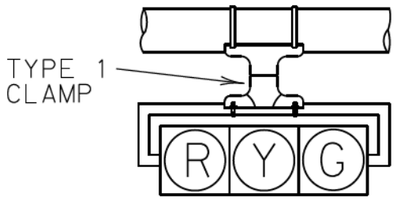

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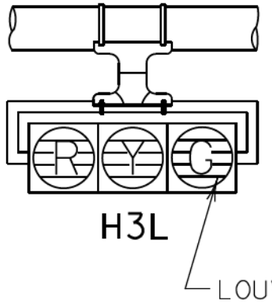

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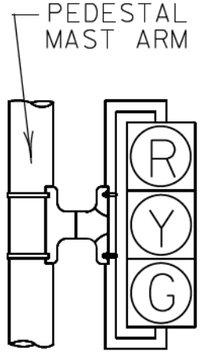

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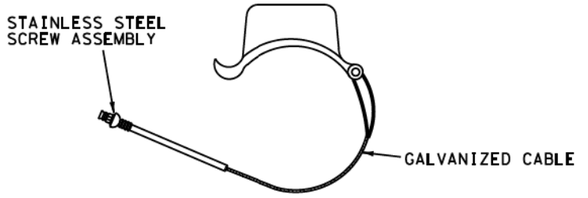
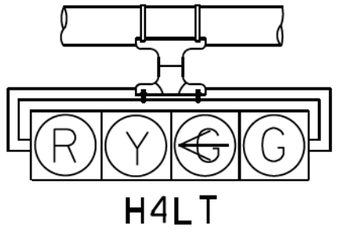
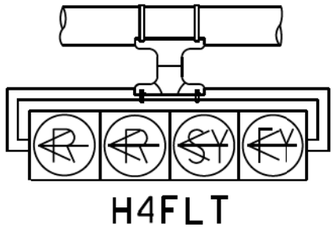


TYPE 1 AND 2 CLAMPS



H4LT



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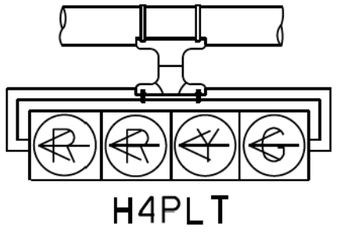
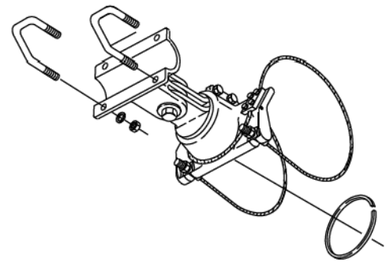
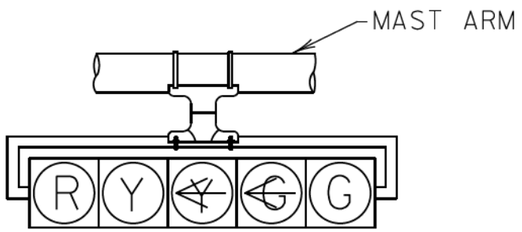


H4PLT

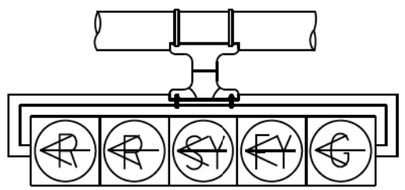


TYPE 2 CLAMP KIT

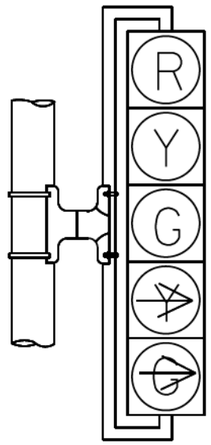
SHALL BE INSTALLED WHEN ROTATION ABOUT
THE HORIZONTAL AND VERTICAL AXES ARE NEEDED.



H5LT



H5FLT



V5RT

NOTES:

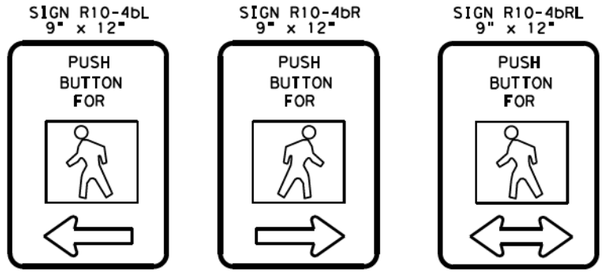
1. VEHICLE SIGNAL HEADS SHALL BE MOUNTED WITH TYPE 1 CLAMP AND APPROPRIATE TUBING.
2. ALL POLE MOUNTED VEHICLE HEADS SHALL BE INSTALLED ON THE AWAY-FROM-TRAFFIC SIDE OF THE PEDESTAL OR MAST ARM POLE.
3. THE SIGNAL HEADS SHOWN ARE NOT MEANT TO REFLECT ALL POSSIBLE SIGNAL HEADS, BUT ARE REPRESENTATIVE OF SIGNAL HEADS COMMONLY IN USE. SEE THE TRAFFIC SIGNAL LAYOUT FOR REQUIRED SIGNAL HEADS, AND THE NUMBER AND ORIENTATION OF LOUVERS.

DALLAS DISTRICT STANDARD

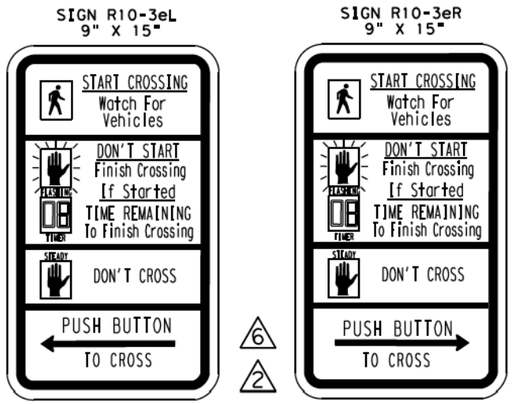
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		1179
STATE	STATE DIST.	COUNTY	
TEXAS	DALLAS	COLLIN	
CONT.	SECT.	JOB	HIGHWAY NO.
0047	05	057,ETC	SH5,ETC

TRAFFIC SIGNAL HEAD DETAILS (DAL)

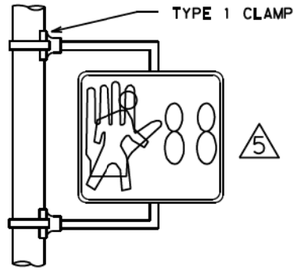
PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I:\Bill\5-SP399-SEG1.tbl
USER: SALMEIDA DATE: 8/15/2024 TIME: 4:22:07 PM SCALE: 1:40
FILE: TRAFFIC SIGNAL HEAD DETAILS (DAL)



PEDESTRIAN PUSHBUTTON SIGN DETAILS

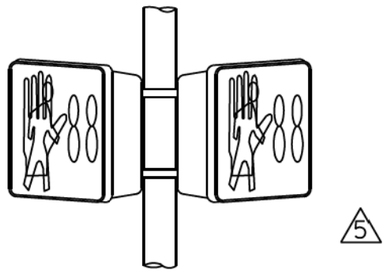


COUNTDOWN PEDESTRIAN PUSHBUTTON SIGN DETAILS



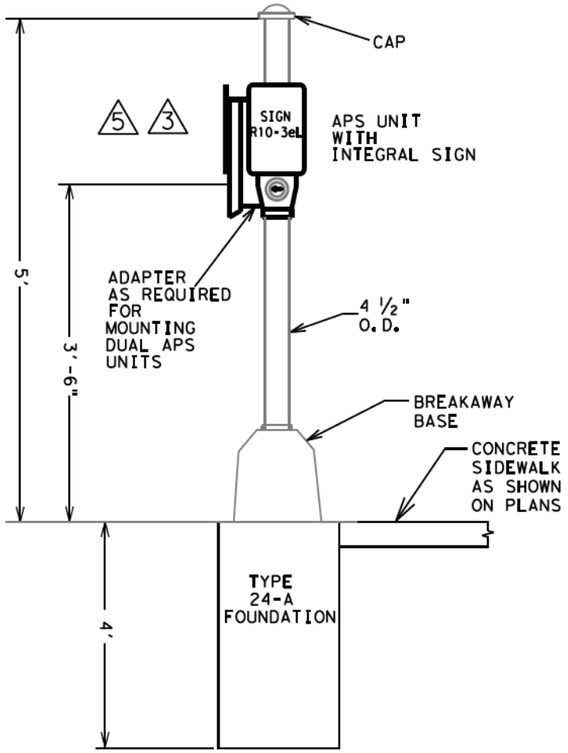
PEDESTRIAN SIGNAL HEAD MOUNTING FOR ONE PEDESTRIAN SIGNAL HEAD

152A

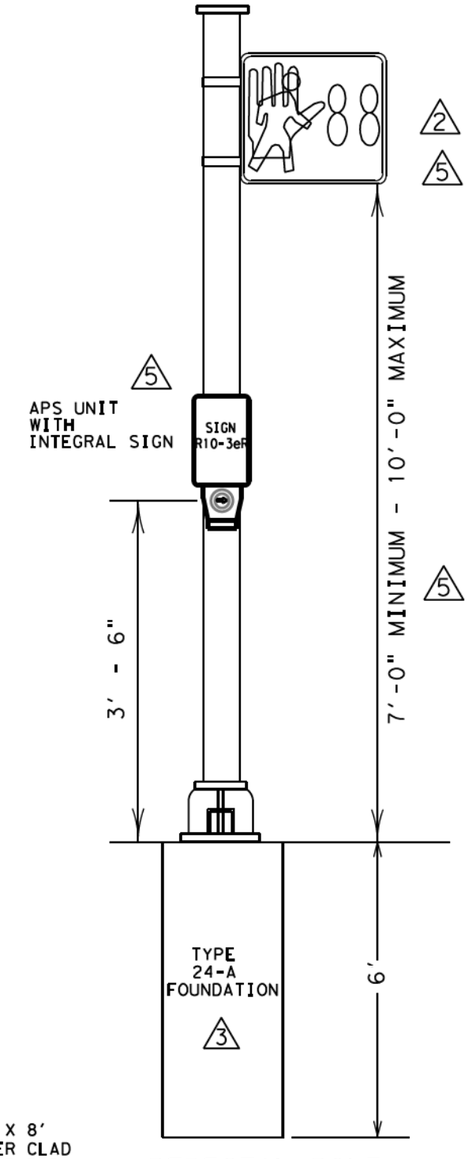


PEDESTRIAN SIGNAL HEAD MOUNTING FOR TWO PEDESTRIAN SIGNAL HEADS

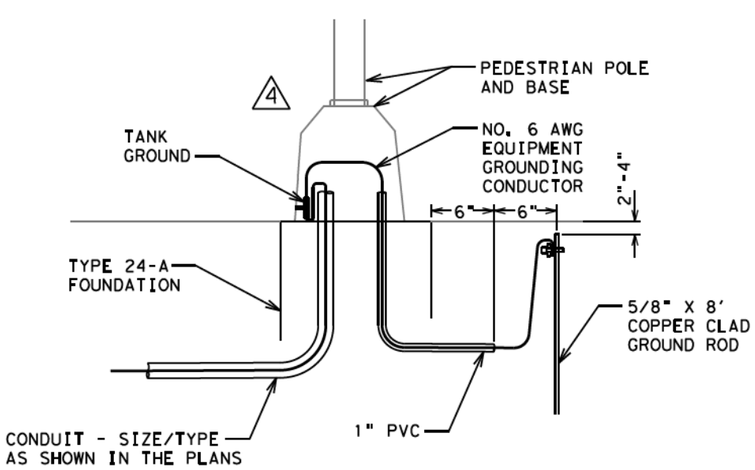
143C



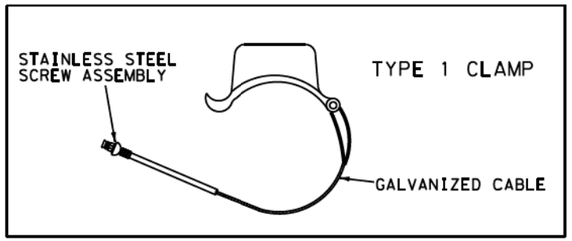
PEDESTRIAN PUSH BUTTON POLE



PEDESTAL POLE



PEDESTRIAN PUSH BUTTON POLE GROUNDING DETAILS



1 5 NOTE: EITHER TYPE 1 CLAMPS OR CLAM SHELL MOUNTING HARDWARE MAY BE USED AS APPROVED BY THE ENGINEER. FOR CLAM SHELLS, USE ICC P/N 4805 OR McCAIN QUICKMOUNT OR APPROVED EQUAL.

1 ALTERNATIVE MOUNTING METHOD
revised 12-92

2 ALTERNATIVE PEDESTRIAN SIGNAL HEAD AND SIGNING
revised 10-08

3 PEDESTRIAN PUSH BUTTON POLE
revised 01-11

4 PEDESTRIAN PUSH BUTTON POLE GROUNDING DETAILS
revised 09-15

5 APS UNIT ADDED
"SYMBOLS ONLY" PEDESTRIAN SIGNAL HEAD REMOVED
MOUNTING HARDWARE NOTES REVISED
MOUNTING HEIGHT REVISED
revised 06-17

6 APS SIGN REVISED
revised 11-20

NOTES:

5
1. ALL PEDESTRIAN SIGNAL HEADS SHALL BE INSTALLED ON THE AWAY-FROM-TRAFFIC SIDE OF THE PEDESTAL OR MAST ARM POLE.
2. ALL WIRING FOR PEDESTRIAN SIGNALS SHALL BE TOTALLY ENCLOSED WITHIN THE SIGNAL MOUNTING HARDWARE.
3. ALL PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON SIGNS SHALL DISPLAY THE SYMBOLIZED MESSAGES SHOWN ABOVE.

NOTE:
THE POLES ON THIS DRAWING ARE SHOWN AS AN EXAMPLE ONLY. POLES OF SIMILAR DESIGN FOR ANY CROSS SECTION WHICH MEET THE SPECIFICATIONS AND REQUIREMENTS SHOWN ON THESE DRAWINGS AND ARE APPROVED BY THE ENGINEER WILL BE DEEMED ACCEPTABLE.

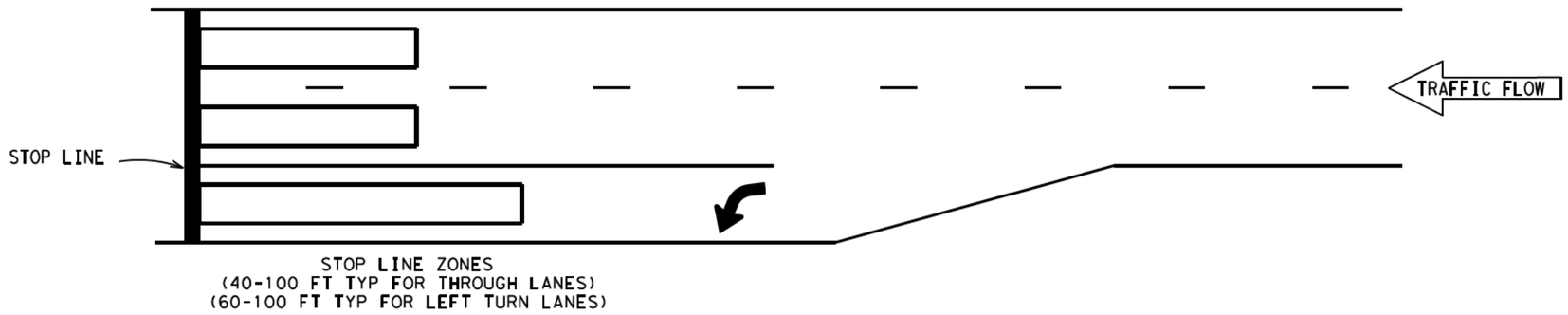
DALLAS DISTRICT STANDARD

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		1180
STATE	STATE DIST.	COUNTY	
TEXAS	18	COLLIN	
CONT.	SECT.	JOB	HIGHWAY NO.
0047	05	057,ETC	SH5,ETC

PEDESTRIAN SIGNAL HEAD DETAILS (DAL)

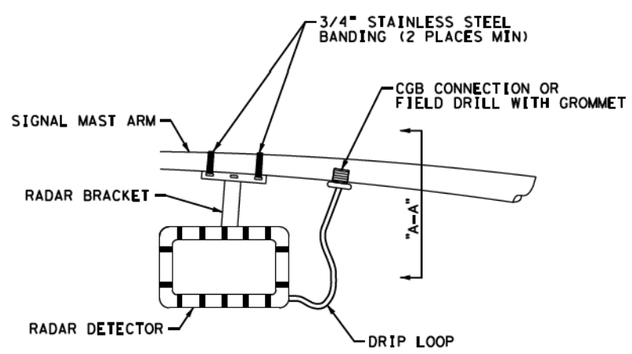
PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I01BI15-SP399-SEGI.tbl
USER: SALMEIDA DATE: 8/15/2024 TIME: 4:22:09 PM SCALE: 1:40
FILE: PEDESTRIAN SIGNAL HEAD DETAILS (DAL)

RADAR DETECTION ZONE LOCATIONS

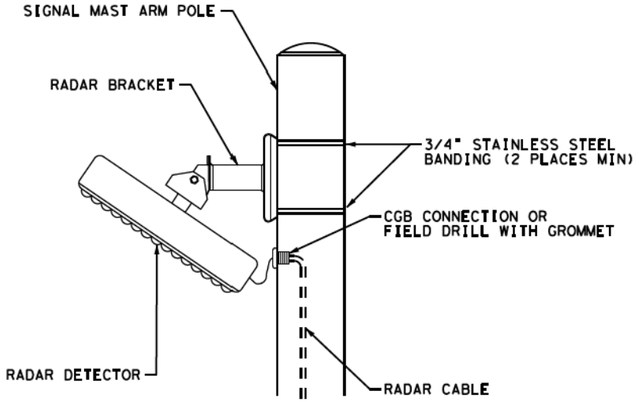


APPROACH SPEED LIMIT (MPH)	MINIMUM RANGE OF ADVANCE DETECTION (LF)
40	355
45	400
50	440
55	490
60	530
65	575
70	620

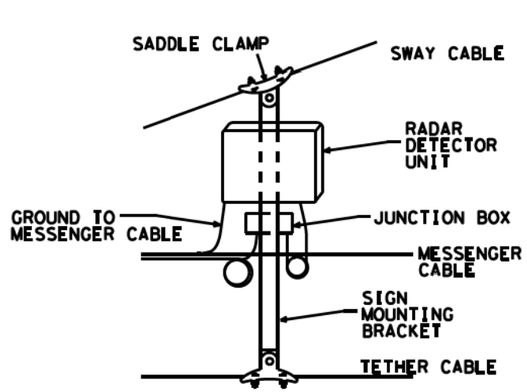
RADAR DETECTION INSTALLATION DETAILS



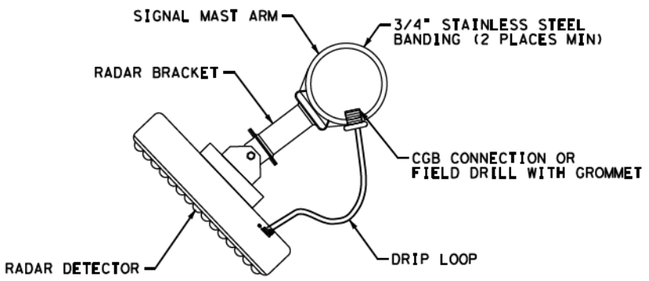
MAST ARM MOUNT



POLE MOUNT



SPAN WIRE MOUNT FOR ADVANCE RADAR



SECTION "A-A"

NOTES:

1. THE RADAR SENSOR MOUNTING BRACKET MUST BE ADJUSTABLE TO TILT UP, DOWN, LEFT, RIGHT, AND TO ROTATE.

2. THE RADAR DETECTOR UNITS SHOWN ARE NOT INTENDED TO REPRESENT ANY SPECIFIC BRAND OR PRODUCT, AND ALTERNATE MOUNTING METHODS MAY BE SUBMITTED FOR APPROVAL.

DALLAS DISTRICT STANDARD

Texas Department of Transportation

Dallas District

RADAR VEHICLE DETECTION SYSTEM

RVDS-23 (DAL)

©TxDOT May 2018	DN-EF	CK:- ---	DW-EF	CK:- TRF-Aus.
REVISIONS	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
	6	(SEE TITLE SHEET)		SH5,ETC
	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	18	COLLIN	1181
	CONTROL	SECTION	JOB	
	0047	05	057,ETC	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: SALMEIDA DATE: 8/15/2024 TIME: 4:38:23 PM SCALE:1:40
FILE: RADAR VEHICLE DETECTION SYSTEM

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: 10/1/2024 10:47:50 AM
FILE: c:\pwworking\central01\d4279729\windice.dgn

NOTE: Structures north of ice line to be designed for ice.

ICE LINE

ZONE 2
(90 MPH WIND)

ZONE 3
(80 MPH WIND)

ZONE 4
(70 MPH WIND)

ZONE 4
(70 MPH WIND)

ICE LINE

ZONE 3
(80 MPH WIND)

ZONE 1
(100 MPH WIND)

LEGEND

ZONE 1 - = (100 MPH WIND)
ZONE 2 - = (90 MPH WIND)
ZONE 3 - = (80 MPH WIND)
ZONE 4 - = (70 MPH WIND)
= (ICE LINE)
= (DISTRICT LINES)

APPLICABLE STANDARDS SHEETS

OVERHEAD SIGN BRIDGE STANDARDS:

OSB-SE
OSB-Z#
OSB-Z#1
HOSB-Z#
HOSB-Z1L
HOSB-Z#1
OSBT
OSBC
OSBC-SC-Z#
OSBS-SC
OSB-FD
OSB-FD-SC

CANTILEVER OVERHEAD SIGN SUPPORT STANDARDS:

COSS-SE
COSS-Z#-10
HCOSS-Z#-10
COSS-Z21-10
COSS-Z#&Z#1-10
COSSD
COSSF
COSS-FD

Note: # = Wind Zone number 1, 2, 3 or 4

HIGH MAST ILLUMINATION POLE STANDARDS:

HMIP-98
HMIF-98

WALKWAYS AND BRACKETS STANDARDS:

SWW
SB(SWL-1)

TRAFFIC SIGNAL POLE STANDARDS:

SP-80
SP-100
SMA-80
SMA-100
DMA-80
DMA-100
MA-C
MAC(ILSN)
MAD-D
TS-FD
LUM-A
CFA
LMA
TS-C
MA-DPD

FOR HARRIS CO. ONLY
Zone line is just North of US 90, around on the North, West and South sides of IH 610 and down the West side of SH 288.

FOR JACKSON CO. ONLY
Zone line is just North of SH 616.

WIND VELOCITY & ICE ZONES FOR APPLICABLE OVERHEAD SIGN SUPPORTS, HIGH MAST POLES, AND TRAFFIC SIGNAL POLES

Based on 50 Year Mean Recurrence Interval of Fastest Mile Wind Velocity at 33 feet height.

THIS SHEET TO BE INCLUDED IN ALL P.S.&E. PACKAGES CONTAINING ONE OR MORE OF THE APPLICABLE STANDARD SHEETS LISTED HEREON

Texas Department of Transportation

Traffic Operations Division Standard

WIND VELOCITY AND ICE ZONES

WV & IZ-14

FILE: windice.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1996	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-14-Added list of applicable standards, restricting use to structures designed for Fastest Mile wind speeds.	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1182

DATE: 10/1/2024 11:20:25 AM
FILE: c:\pwworking\central01\d0209797\CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED TRAFFIC SIGNALS.dgn

COMPRESSION FITTING

SOURCES:
RELIABLE ELECTRIC NO. 5264
FARGO NO. OR EQUAL

THIMBLEYE BOLT (Angle Type)

SOURCES:
HUBBELL POWER SYS. NO. 5016
MCLEAN POWER SYS. NO. J8154
OR EQUAL

LIFT PLATE

SOURCES:
HUBBELL POWER SYS. NO. 7898
MCLEAN POWER SYS. NO. J7890
OR EQUAL

EYE NUTS (Twineye & tripleye)

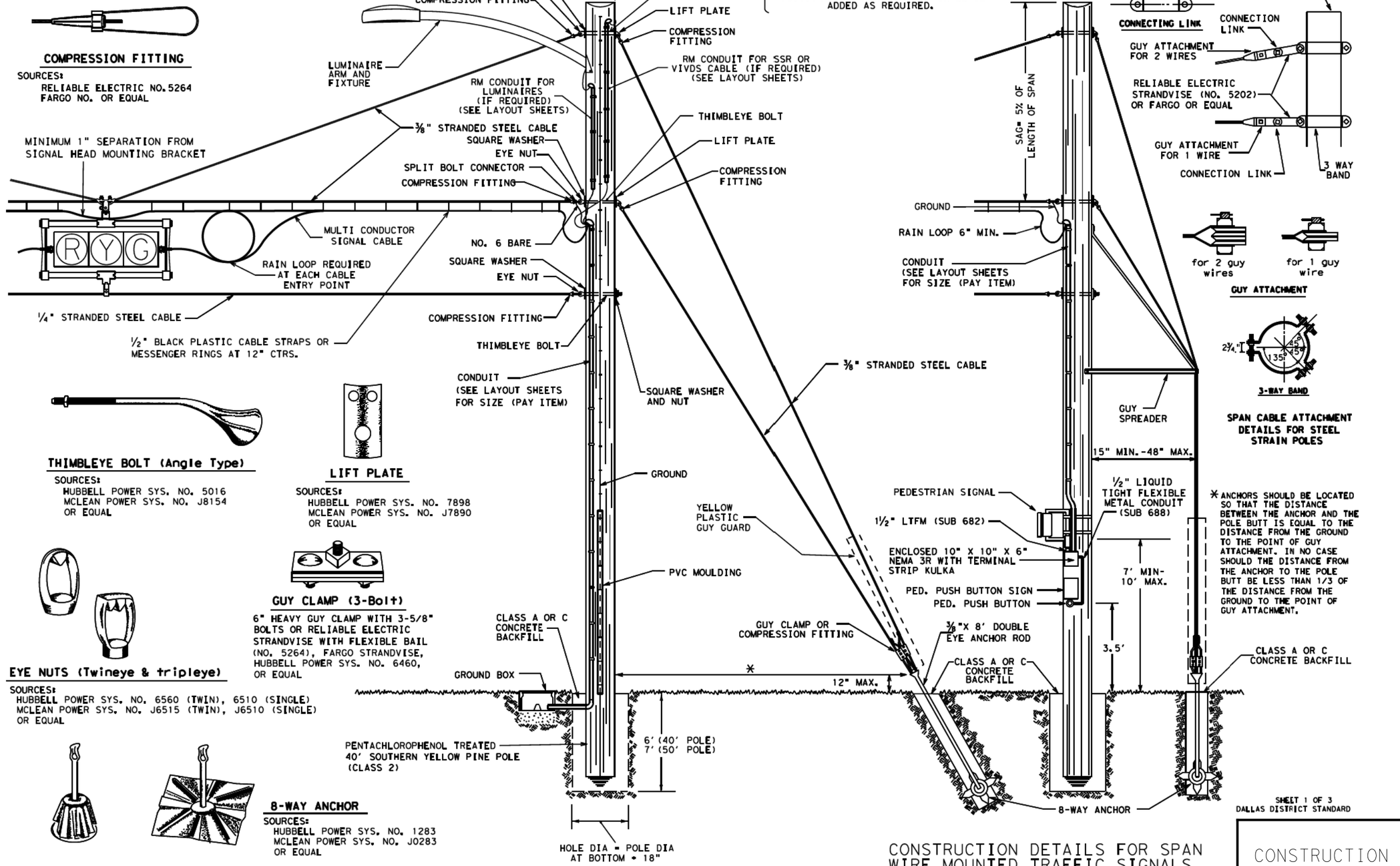
SOURCES:
HUBBELL POWER SYS. NO. 6560 (TWIN), 6510 (SINGLE)
MCLEAN POWER SYS. NO. J6515 (TWIN), J6510 (SINGLE)
OR EQUAL

GUY CLAMP (3-Bolt)

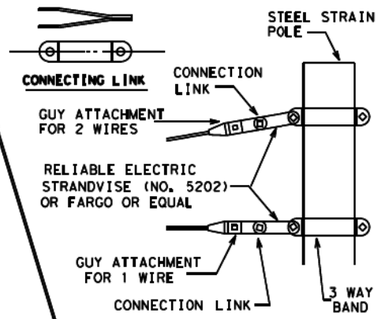
6" HEAVY GUY CLAMP WITH 3-5/8" BOLTS OR RELIABLE ELECTRIC STRANDVISE WITH FLEXIBLE BAIL (NO. 5264), FARGO STRANDVISE, HUBBELL POWER SYS. NO. 6460, OR EQUAL

8-WAY ANCHOR

SOURCES:
HUBBELL POWER SYS. NO. 1283
MCLEAN POWER SYS. NO. J0283
OR EQUAL



EACH THIMBLEYE BOLT SHALL NOT BE USED TO SUPPORT MORE THAN 3 SAG SPANS. ADDITIONAL THIMBLEYE BOLTS SHALL BE ADDED AS REQUIRED.



GUY ATTACHMENT

3-WAY BAND

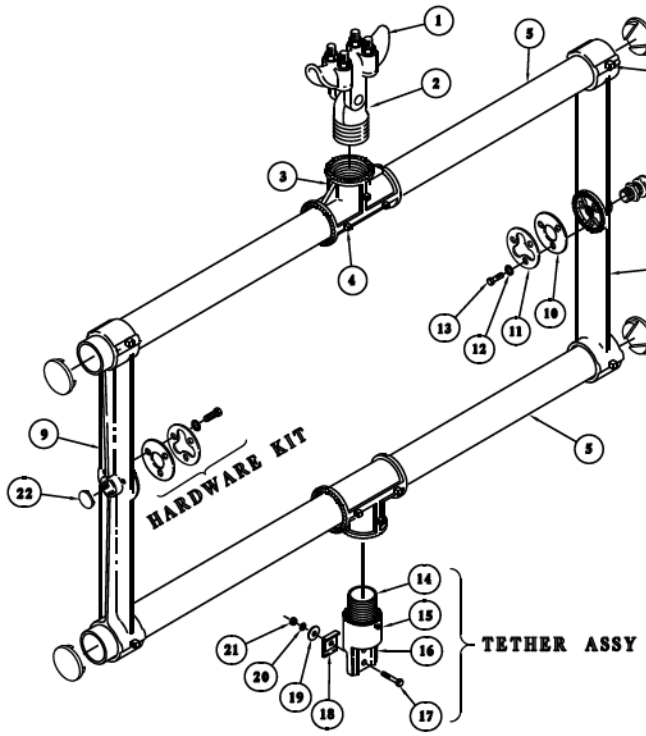
SPAN CABLE ATTACHMENT DETAILS FOR STEEL STRAIN POLES

* ANCHORS SHOULD BE LOCATED SO THAT THE DISTANCE BETWEEN THE ANCHOR AND THE POLE BUTT IS EQUAL TO THE DISTANCE FROM THE GROUND TO THE POINT OF GUY ATTACHMENT. IN NO CASE SHOULD THE DISTANCE FROM THE ANCHOR TO THE POLE BUTT BE LESS THAN 1/3 OF THE DISTANCE FROM THE GROUND TO THE POINT OF GUY ATTACHMENT.

SHEET 1 OF 3
DALLAS DISTRICT STANDARD

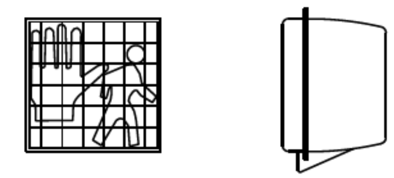
CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED TRAFFIC SIGNALS

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1183

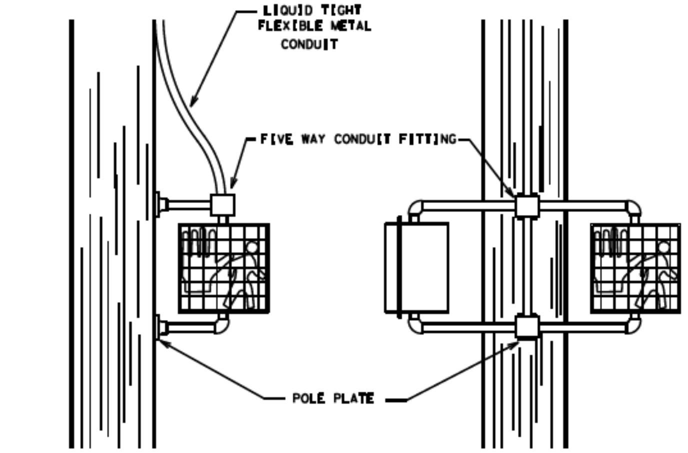


BOTTOM TETHERED, SPAN WIRE SIGNAL HEAD HARDWARE ASSEMBLY (BACKPLATE NOT SHOWN)

ITEM	DESCRIPTION	QTY
1	SPAN WIRE CLAMP, IRON, W/ U-BOLTS	1
2	SPAN WIRE ADAPTER, ALUM W/ STAINLESS BUSHING	1
3	TEE HORIZONTAL SLIP, DIE CAST ALUM	2
4	SCREW, SET SQ HD, 1/4"-20 X 1/2", STAINLESS	6
5	TUBE, 1 1/2" X LENGTH, ALUM	2
6	TUBE CAP, 1 1/2", PLASTIC	4
7	SCREW, SET SQ HD, 5/16"-18 X 5/8", STAINLESS	8
8	CGB, 3/4" .55-.65, ZINC 1	1
9	CAST ARM, FOR HORIZONTAL MOUNTED SIGNAL, ALUM	2
10	GASKET, TRI-BOLT, 1/16" X 70 DURO NEOPRENE	2
11	WASHER, SLOTTED, ZINC 2	2
12	WASHER, LOCK SPLIT, 1/4", STAINLESS	6
13	BOLT, HEX HD, 1/4"-20 X 1 1/2", GRADE 5, STAINLESS	6
14	NIPPLE, ALLTHREAD, 1 1/2" NPS X 2.13", ALUM	1
15	SCREW, SET SQ HD, 1/4"-20 X 5/8", STAINLESS	1
16	BODY, 1 1/2", HANGER, ALUM	1
17	BOLT, HEX HD, 5/16"-18 X 1 1/2", STAINLESS	1
18	PLATE, TETHER, 1-HOLE, ALUM	1
19	WASHER, FENDER, 5/16", STAINLESS	1
20	WASHER, SPLIT LOCK, 5/16", STAINLESS	1
21	NUT, HEX HD, 5/16"-18, STAINLESS	1
22	CAP, EN-3/4, BLUE (FOR CGB)	1

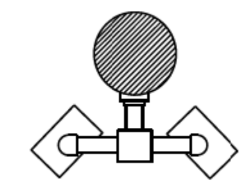


"EGGCRATE" VISOR PEDESTRIAN SIGNAL
WITH ONE-PIECE REFLECTOR



152A
ONE-WAY
ADJUSTABLE FACE SIGNAL FOR WOOD POLE MOUNTING

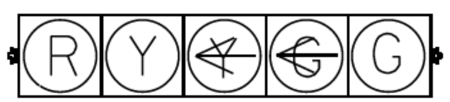
143C
TWO-WAY
ADJUSTABLE FACE SIGNAL FOR WOOD POLE MOUNTING



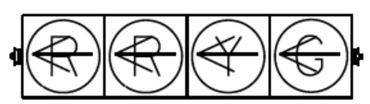
143C
PLAN VIEW

SIGN R10-4bR
SIGN R10-4bL
9"X12"

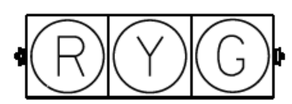
PEDESTRIAN PUSHBUTTON SIGN DETAILS



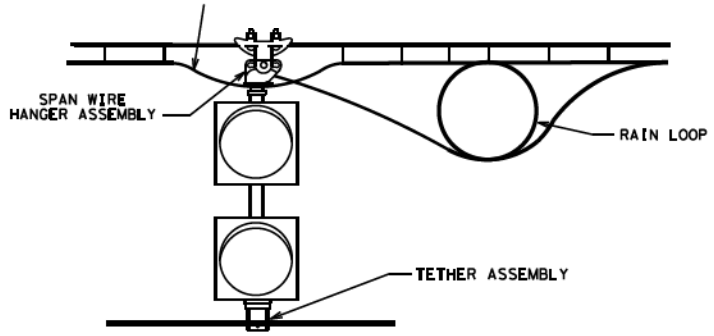
H5LT
TYPICAL SPAN WIRE HORIZONTAL MOUNT INSTALLATION



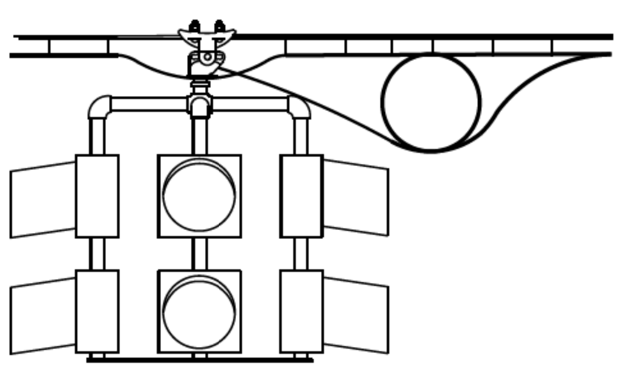
H4LT
TYPICAL SPAN WIRE HORIZONTAL MOUNT INSTALLATION



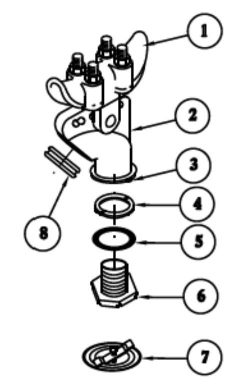
H3
TYPICAL SPAN WIRE HORIZONTAL MOUNT INSTALLATION



TYPICAL
ONE-WAY FLASHING BEACON INSTALLATION



TYPICAL
FOUR-WAY FLASHING BEACON INSTALLATION



SPAN WIRE FLASHING BEACON
SIGNAL HEAD HANGER ASSEMBLY

SPAN WIRE FLASHING BEACON SIGNAL HEAD HANGER ASSEMBLY

ITEM	DESCRIPTION	QTY
1	SPAN WIRE CLAMP, IRON, W/ U-BOLTS	1
2	WIRE OUTLET BODY, 3/4", ALUM	1
3	SET SCREW, SQUARE HD, CUP POINT, 1/4"-20X5/8", TYPE 304 STAINLESS	1
4	LOCKRING, SERRATED, 380 DIE CAST ALUM	1
5	GASKET, 70 DURO NEOPRENE	1
6	NIPPLE, HEX, 1-1/2" NPS, ALUM	1
7	KIT, SIGNAL CLOSURE	1
8	GROMMET, 1-1/2", W/ DIAPHRAGM	1

SHEET 2 OF 3
DALLAS DISTRICT STANDARD

CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED TRAFFIC SIGNALS

CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED TRAFFIC SIGNALS

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT 0047	SECT 05	JOB 057, ETC.	HIGHWAY SH5, ETC.
REVISIONS 2-18	DIST DAL	COUNTY COLLIN		SHEET NO. 1184

190

DATE: 10/1/2024 11:20:28 AM
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DATE: 10/1/2024 11:20:30 AM
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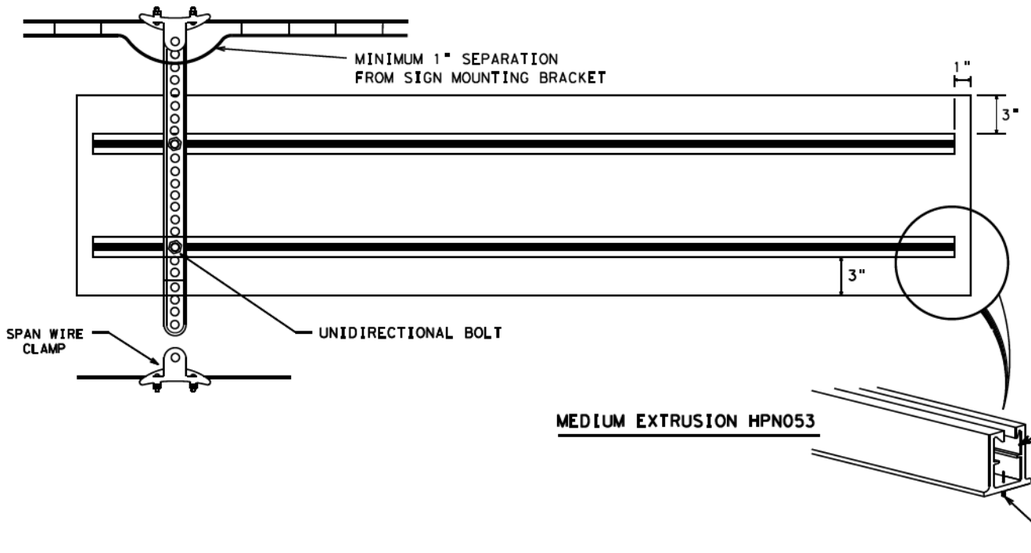
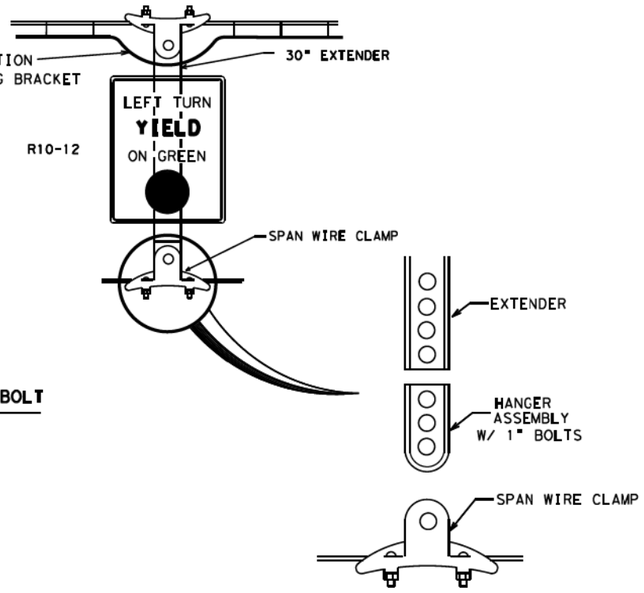
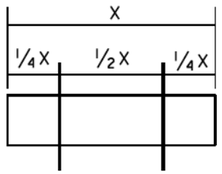
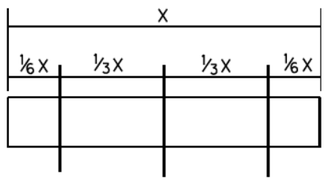




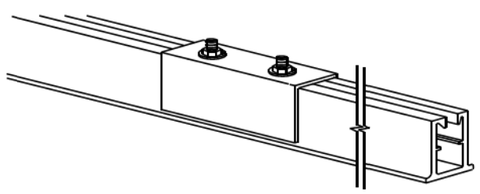




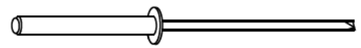
HANGER ASSEMBLY DETAILS

NOTES: 1. BASED ON SIGN WIDTH, THE NUMBER OF VERTICAL SUPPORTS REQUIRED ARE AS FOLLOWS:
3'-0" OR LESS - 1 SUPPORT REQUIRED
>3'-0" UP TO 8'-0" - 2 SUPPORTS REQUIRED
>8'-0" - 3 SUPPORTS REQUIRED
SEE DIAGRAMS FOR SIGN SUPPORT SPACING

2. FOR STREET NAME SIGNS, EXTRUDED ALUMINUM SHALL BE MOUNTED FOR HORIZONTAL SUPPORT AS SHOWN.



5" ALUMINUM COUPLING
6061-T6



ALUMINUM RIVET

NOTE: ALUMINUM RIVETS SHALL BE USED TO ATTACH THE SIGN TO THE EXTRUDED ALUMINUM. SPACINGS OF RIVETS SHALL BE 6" O.C.

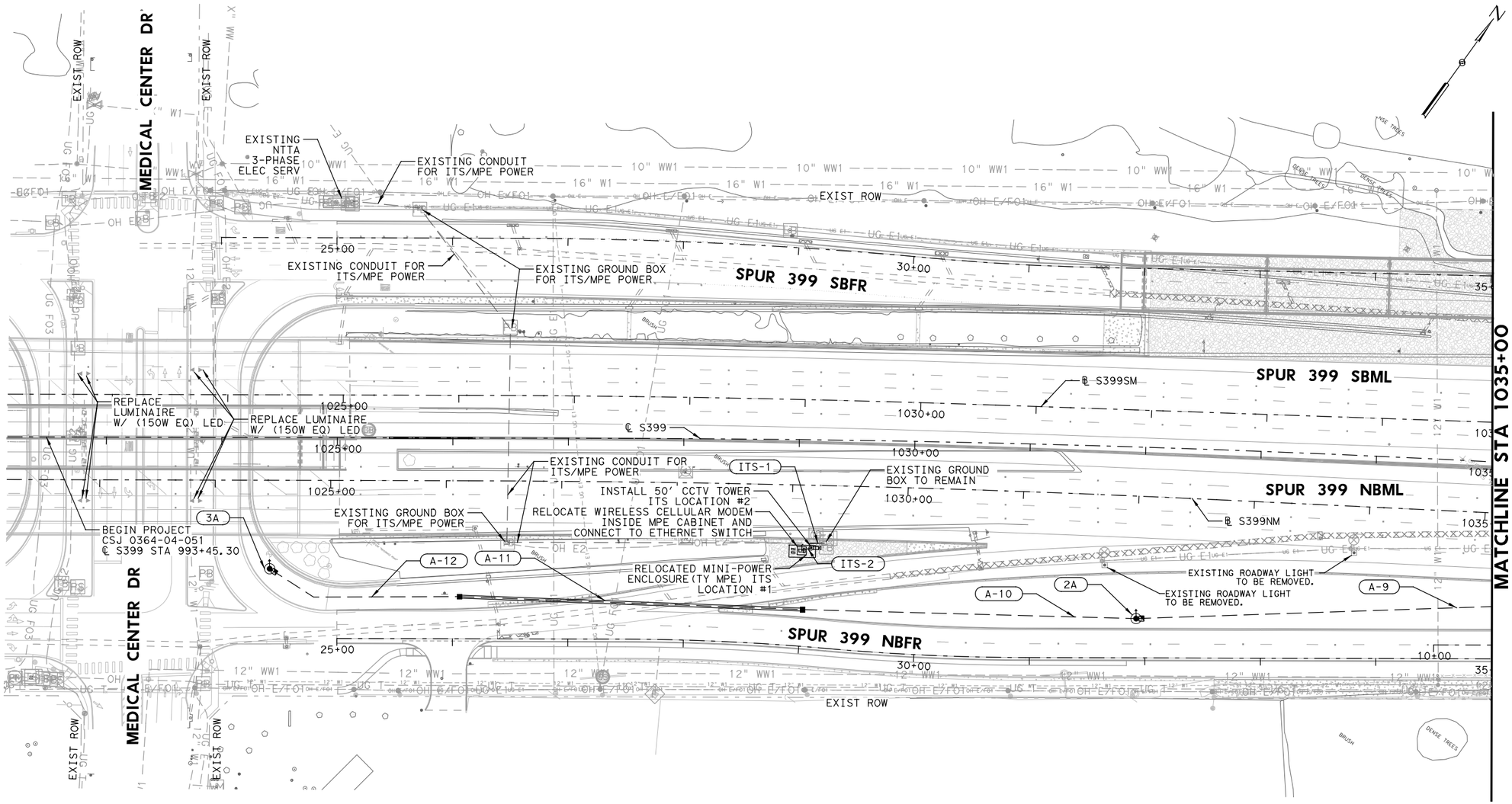
SHEET 3 OF 3
DALLAS DISTRICT STANDARD

CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED TRAFFIC SIGNALS

CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED TRAFFIC SIGNALS

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1185

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW
- ITS GND BOX TY 1 (243648) W/APRON
- PROP IRRIGATION CONDUIT AND WIRING
- PROPOSED ITS CCTV TOWER
- EXISTING ELECTRICAL SERVICE CENTER ENCLOSURE(TYPE MPE)

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED ACCORDING TO THE LATEST TXDOT, CITY OF MCKINNEY STANDARDS, UTILITY COMPANY STANDARDS AND THE NATIONAL ELECTRICAL CODE.
2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING/PROPOSED UNDERGROUND UTILITIES PRIOR TO DRILLING FOUNDATIONS TO AVOID CONFLICT OR DAMAGE TO THE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO THE EXISTING/PROPOSED UTILITIES.
3. MAINTAIN 10' CLEARANCE TO OVERHEAD POWER LINES.
4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
10/17/2024

SHEET TOTALS

ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7037	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	54
416	7008	DRILL SHAFT (48 IN)	LF	17
432	7001	RIPRAP (CONC)(4 IN)	CY	5.12
610	7009	REMOVE RD IL ASM (TRANS-BASE)	EA	2
610	7011	REPLACE LUMINAIRE W/(150W EQ) LED	EA	8
613	7007	HI MST IL POLE (175 FT)(80 MPH)	EA	2
614	7009	LED HI MST IL ASM(6 FIXT) (TY A)SHLD	EA	2
618	7054	CONDT (PVC) (SCH 80) (2")	LF	885
618	7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	300
620	7009	ELEC CONDR (NO.6) BARE	LF	1160
620	7010	ELEC CONDR (NO.6) INSULATED	LF	2320
620	7015	ELEC CONDR (NO.2) BARE	LF	45
620	7016	ELEC CONDR (NO.2) INSULATED	LF	90
624	7001	GROUND BOX TY A (122311)	EA	2
624	7002	GROUND BOX TY A (122311)W/APRON	EA	2
624	7007	GROUND BOX TY D (162922)	EA	2
6062	7001	CAMERA POLE STRUCT (PRECASE CONC)(50')	EA	1
6050	7001	RELOCATE EXIST GND MT COMM CABINET	EA	1
6050	7003	INSTALL GND MT COMM CABINET FOUNDATION	EA	1

CABLE AND CONDUIT SUMMARY

CIRCUIT NO.	RUN NO.	2" PVC SCH 80		CONDUCTOR SUMMARY			
		TRENCH	BORE	#6 BARE		#6 XHHW	
A	A-9	375		1	380	2	380
A	A-10	290		1	295	2	295
A	A-11		300	1	305	2	305
A	A-12	175		1	180	2	180
TOTAL		840	300	1160		2320	

CABLE AND CONDUIT FOR ITS RELOCATION SUMMARY

RUN NO.	QUANTITY	2" PVC SCH 80	CONDUCTOR SUMMARY			
		TRENCH	#2 BARE		#2 XHHW	
ITS-1	1	25	1	30	2	30
ITS-2*	2	10	1	15	2	15
TOTAL		45	45		90	

* ONE SPARE CONDUIT PROPOSED FOR FUTURE USE

ROADWAY ILLUMINATION ASSEMBLY SUMMARY

STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
3A	1024+41.69	CLS399, 113.65' RT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 32 LF DS
2A	1031+96.32	CLS399, 148.61' RT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 22 LF DS

ITS ASSEMBLY SUMMARY

ITEM	STATION	LOCATION
ITS ELECTRIC SERVICE ENCLOSEURE LOCATION #1	1028+9.06	CLS399, 56.85' RT
ITS CCTV TOWER 50' LOCATION #2	1028+17.30	CLS399, 54.6' RT

5. CONTACT FREDDY ROBERSON (NTTA) AT 214-224-2496 (O) OR 917-679-7772 (C) TO COORDINATE REMOVAL OF NTTA CONVENTIONAL LIGHT POLES.
6. ITS EQUIPMENT WILL BE REMOVED AND INSTALLED BY NTTA FORCES.

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

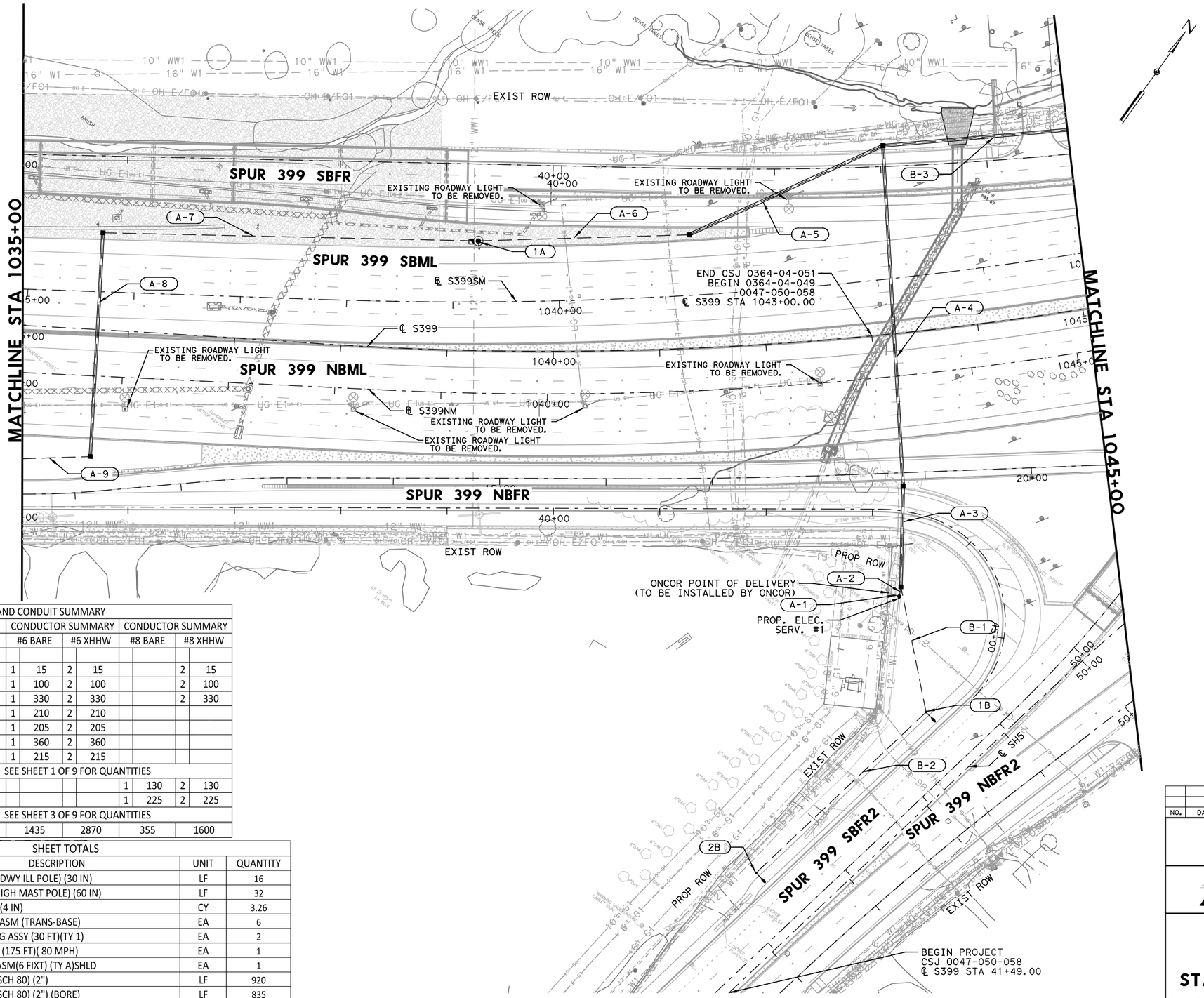
SH 5
ITS & ILLUMINATION PLAN
SPUR 399
BEGIN PROJECT TO STA 1035+00

SCALE: 1"=100' SHEET 1 OF 9

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1186
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: FGAO DATE: 10/15/2024 TIME: 10:00:50 AM SCALE: 1:100
FILE: PI_START TO STA 1035+00

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED ACCORDING TO THE LATEST TXDOT, CITY OF MCKINNEY STANDARDS, UTILITY COMPANY STANDARDS AND THE NATIONAL ELECTRICAL CODE.

2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING/PROPOSED UNDERGROUND UTILITIES PRIOR TO DRILLING FOUNDATIONS TO AVOID CONFLICT OR DAMAGE TO THE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO THE EXISTING/PROPOSED UTILITIES.

3. MAINTAIN 10' CLEARANCE TO OVERHEAD POWER LINES.

4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

5. CONTACT FREDDY GOVEA (NTTA) AT 214-234-2314 (O) OR 817-504-7732 (C) TO COORDINATE REMOVAL OF NTTA CONVENTIONAL LIGHT POLES.

ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

CABLE AND CONDUIT SUMMARY											
CIRCUIT NO.	RUN NO.	2" PVC SCH 80		CONDUCTOR SUMMARY				CONDUCTOR SUMMARY			
		TRENCH	BORE	#6 BARE		#6 XHHW		#8 BARE		#8 XHHW	
	A-1	10									
A,B	A-2	10		1	15	2	15			2	15
A,B	A-3		95	1	100	2	100			2	100
A,B	A-4		325	1	330	2	330			2	330
A	A-5		205	1	210	2	210				
A	A-6	200		1	205	2	205				
A	A-7	355		1	360	2	360				
A	A-8		210	1	215	2	215				
A	A-9	SEE SHEET 1 OF 9 FOR QUANTITIES									
B	B-1	125						1	130	2	130
B	B-2	220						1	225	2	225
B	B-3	SEE SHEET 3 OF 9 FOR QUANTITIES									
TOTAL		920	835	1435		2870		355		1600	

SHEET TOTALS				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7040	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	16
416	7037	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	32
432	7001	RIPRAP (CONC)(4 IN)	CY	3.26
610	7009	REMOVE RD IL ASM (TRANS-BASE)	EA	6
6022	7001	RDWY LIGHTING ASSY (30 FT)(TY 1)	EA	2
613	7007	HI MST IL POLE (175 FT)(80 MPH)	EA	1
614	7009	LED HI MST IL ASM(6 FIXT) (TY A)SHLD	EA	1
618	7054	CONDT (PVC) (SCH 80) (2")	LF	920
618	7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	835
620	7007	ELEC CONDR (NO.8) BARE	LF	355
620	7008	ELEC CONDR (NO.8) INSULATED	LF	1600
620	7009	ELEC CONDR (NO.6) BARE	LF	1435
620	7010	ELEC CONDR (NO.6) INSULATED	LF	2870
624	7001	GROUND BOX TY A (122311)	EA	1
624	7002	GROUND BOX TY A (122311)W/APRON	EA	6
628	7045	ELC SRV TY A $^{240}/_{480}$ 060(NS)SS(E)GC(U)	EA	1

ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
1A	1042+82.86	CLS399, 58.78' LT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 32 LF DS
1B	48+60.10	CLSH5, 61.34' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 1) [30T-4 (250W EQ) LED (TYPE 3)]
2B	46+40.25	CLSH5, 53.17' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 1) [30T-4 (250W EQ) LED (TYPE 3)]

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

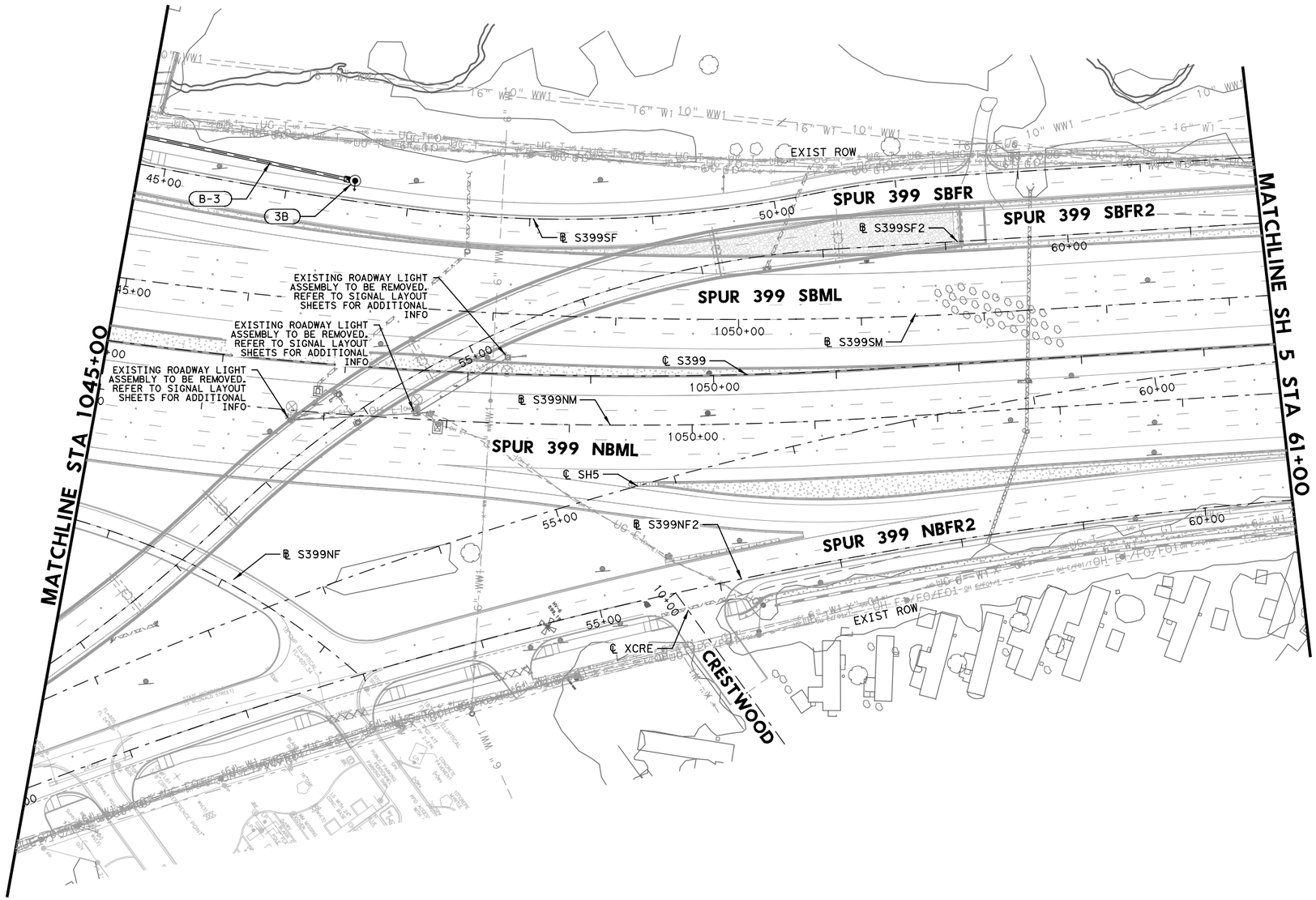
SH 5
ITS & ILLUMINATION PLAN
SPUR 399
STA 1035+00 TO STA 1045+00

SCALE: 1"=100' SHEET 2 OF 9

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1187
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: EKRAMER DATE: 10/1/2024 TIME: 11:46:26 AM SCALE: 1:00
FILE: SH5LT02.dgn

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED ACCORDING TO THE LATEST TXDOT, CITY OF MCKINNEY STANDARDS, UTILITY COMPANY STANDARDS AND THE NATIONAL ELECTRICAL CODE.

2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING/PROPOSED UNDERGROUND UTILITIES PRIOR TO DRILLING FOUNDATIONS TO AVOID CONFLICT OR DAMAGE TO THE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO THE EXISTING/PROPOSED UTILITIES.

3. MAINTAIN 10′ CLEARANCE TO OVERHEAD POWER LINES.

4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

ERIC SNOW KRAMER 150414 LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

CABLE AND CONDUIT SUMMARY							
CIRCUIT NO.	RUN NO.	2" PVC SCH 80		CONDUCTOR SUMMARY			
		TRENCH	BORE	#8 BARE		#8 XHHW	
B	B-3		355	1	360	2	360
TOTAL		0	355	360		720	

ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
3B	1046+94.76	CLS399, 122.41' LT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 34 LF DS

SHEET TOTALS				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7037	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	34
432	7001	RIPRAP (CONC)(4 IN)	CY	2.56
613	7007	HI MST IL POLE (175 FT)(80 MPH)	EA	1
614	7009	LED HI MST IL ASM(6 FIXT) (TY A)SHLD	EA	1
618	7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	355
620	7007	ELEC CONDR (NO.8) BARE	LF	360
620	7008	ELEC CONDR (NO.8) INSULATED	LF	720
624	7001	GROUND BOX TY A (122311)	EA	1

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation
© 2024

SCALE: 1"=100′ SHEET 3 OF 9

SH 5
ITS & ILLUMINATION PLAN
SPUR 399 & SH 5
SPUR 399 STA 1045+00 TO SH 5 STA 61+00

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1188
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: EKRAMER
FILE: SH5LT03.dgn
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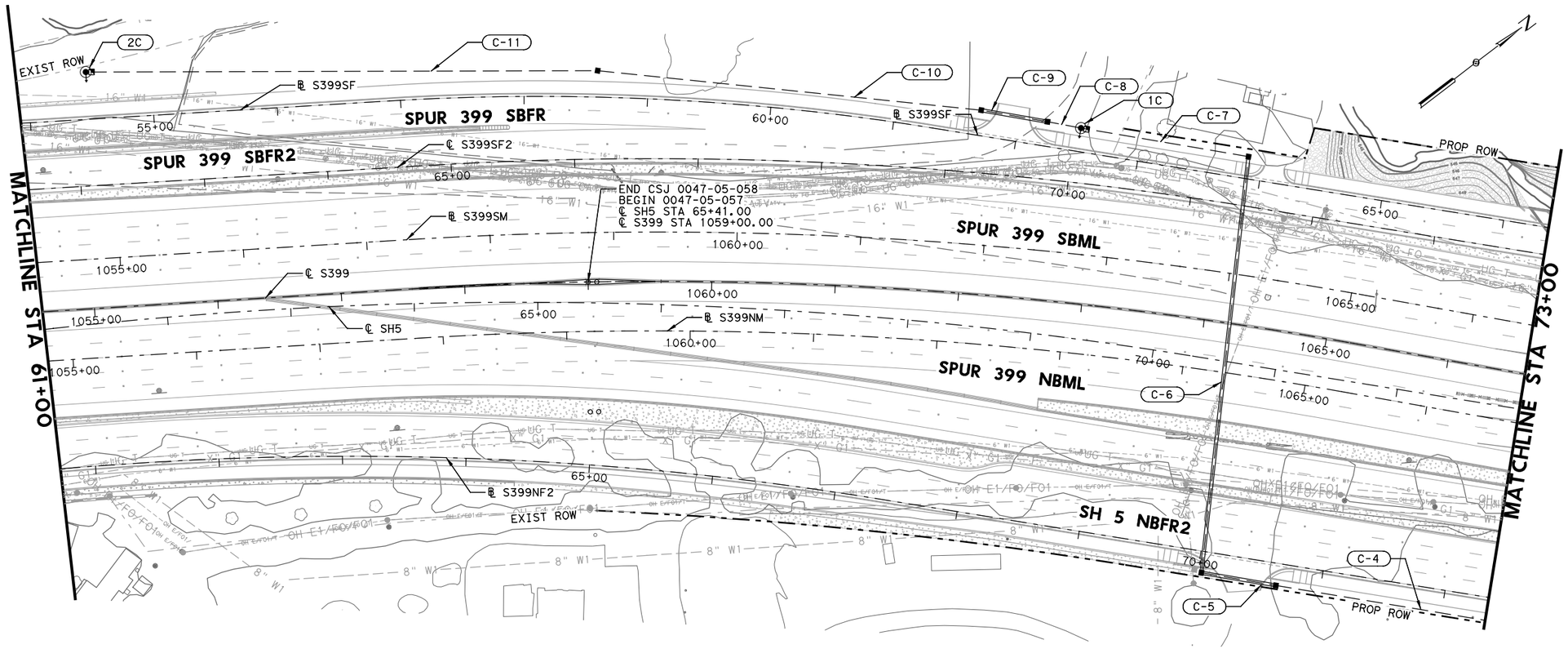
DATE: I0/1/2024
TIME: II:46:30 AM
SCALE: 1:100

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED ACCORDING TO THE LATEST TXDOT, CITY OF MCKINNEY STANDARDS, UTILITY COMPANY STANDARDS AND THE NATIONAL ELECTRICAL CODE.

2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING/PROPOSED UNDERGROUND UTILITIES PRIOR TO DRILLING FOUNDATIONS TO AVOID CONFLICT OR DAMAGE TO THE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO THE EXISTING/PROPOSED UTILITIES.

3. MAINTAIN 10′ CLEARANCE TO OVERHEAD POWER LINES.

4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

CABLE AND CONDUIT SUMMARY							
CIRCUIT NO.	RUN NO.	2" PVC SCH 80		CONDUCTOR SUMMARY			
		TRENCH	BORE	#8 BARE		#8 XHHW	
C	C-4	275		1	280	2	280
C	C-5		65	1	70	2	70
C	C-6		340	1	345	2	345
C	C-7	140		1	145	2	145
C	C-8	30		1	35	2	35
C	C-9		55	1	60	2	60
C	C-10	315		1	320	2	320
C	C-11	360		1	365	2	365
TOTAL		1120	460	1620		3240	

SHEET TOTALS - CSJ: 0047-05-058				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7037	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	34
432	7001	RIPRAP (CONC)(4 IN)	CY	2.56
613	7007	HI MST IL POLE (175 FT)(80 MPH)	EA	1
614	7009	LED HI MST IL ASM(6 FIXT) (TY A)SHLD	EA	1
618	7054	CONDT (PVC) (SCH 80) (2")	LF	360
620	7007	ELEC CONDR (NO.8) BARE	LF	365
620	7008	ELEC CONDR (NO.8) INSULATED	LF	730
624	7001	GROUND BOX TY A (122311)	EA	1

SHEET TOTALS - CSJ: 0047-05-057				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7037	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	22
432	7001	RIPRAP (CONC)(4 IN)	CY	2.56
613	7007	HI MST IL POLE (175 FT)(80 MPH)	EA	1
614	7009	LED HI MST IL ASM(6 FIXT) (TY A)SHLD	EA	1
618	7054	CONDT (PVC) (SCH 80) (2")	LF	760
618	7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	460
620	7007	ELEC CONDR (NO.8) BARE	LF	1255
620	7008	ELEC CONDR (NO.8) INSULATED	LF	2510
624	7001	GROUND BOX TY A (122311)	EA	1
624	7002	GROUND BOX TY A (122311)W/APRON	EA	6

ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
2C	1055+4.75	CLS399, 191.34' LT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 34 LF DS
1C	1062+84.81	CLS399, 141.71' LT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 22 LF DS

STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

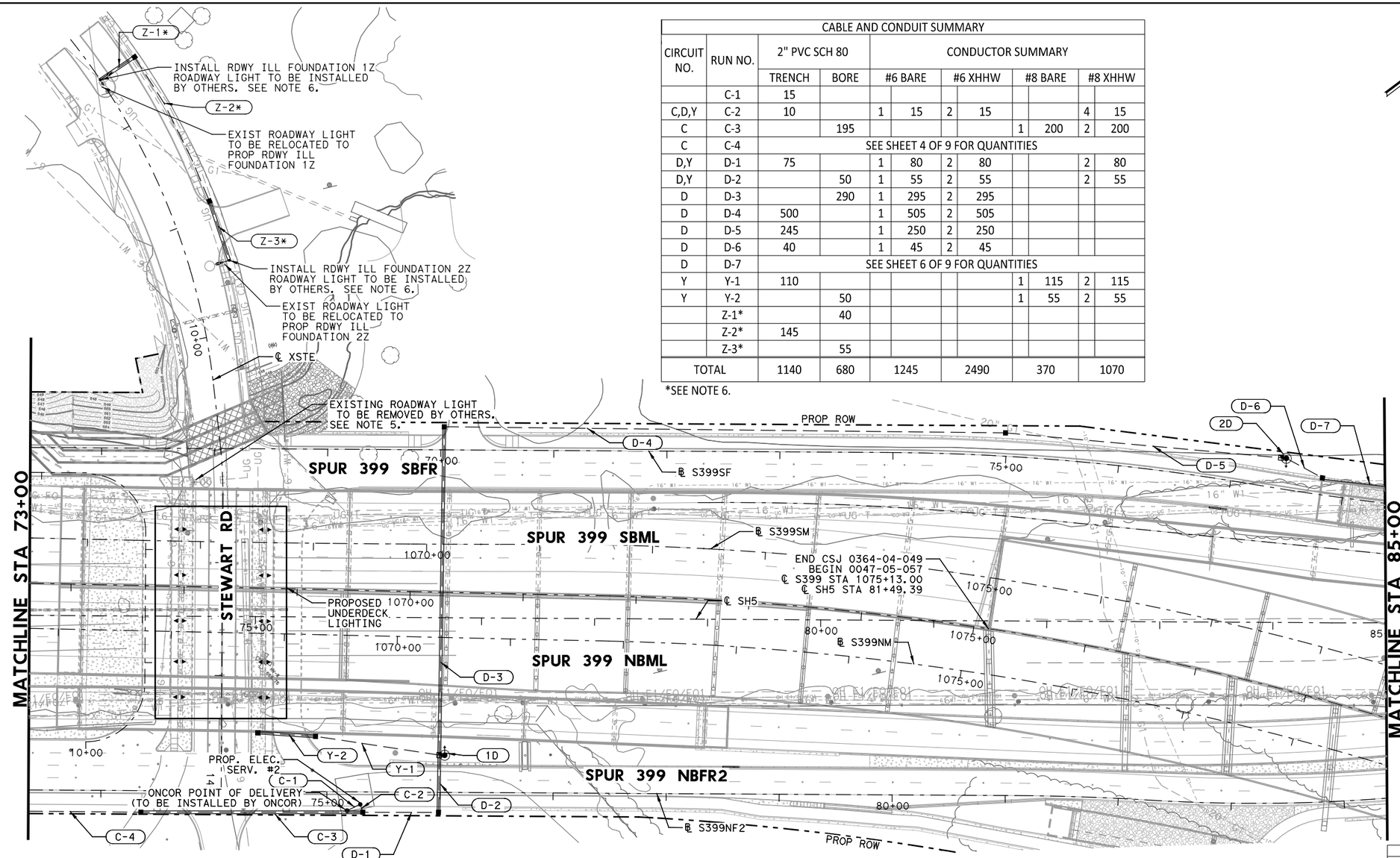
SH 5
ITS & ILLUMINATION PLAN
SH 5
STA 61+00 TO STA 73+00

SCALE: 1"=100′ SHEET 4 OF 9

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1189
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: EKRAMER DATE: 10/1/2024 TIME: 11:46:33 AM SCALE: 1:100
FILE: SH5LT04.dgn

100% PLANS SUBMITTAL



CABLE AND CONDUIT SUMMARY											
CIRCUIT NO.	RUN NO.	2" PVC SCH 80		CONDUCTOR SUMMARY							
		TRENCH	BORE	#6 BARE		#6 XHHW		#8 BARE		#8 XHHW	
	C-1	15									
C,D,Y	C-2	10		1	15	2	15			4	15
C	C-3		195					1	200	2	200
C	C-4	SEE SHEET 4 OF 9 FOR QUANTITIES									
D,Y	D-1	75		1	80	2	80			2	80
D,Y	D-2		50	1	55	2	55			2	55
D	D-3		290	1	295	2	295				
D	D-4	500		1	505	2	505				
D	D-5	245		1	250	2	250				
D	D-6	40		1	45	2	45				
D	D-7	SEE SHEET 6 OF 9 FOR QUANTITIES									
Y	Y-1	110						1	115	2	115
Y	Y-2		50					1	55	2	55
	Z-1*		40								
	Z-2*	145									
	Z-3*		55								
TOTAL		1140	680	1245		2490		370		1070	

*SEE NOTE 6.

0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW

GENERAL NOTES

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3. MAINTAIN 10' CLEARANCE TO OVERHEAD POWER LINES.

4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

5. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH ONCOR PRIOR TO REMOVAL AFTER CONSTRUCTION OF PROPOSED ILLUMINATION SYSTEM SHOWN IN THESE PLANS IS COMPLETED.

SHEET TOTALS				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7037	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	70
432	7001	RIPRAP (CONC)(4 IN)	CY	5.12
610	XXXX*	REMOVE UTILITY MNTD IL ASM BY OTHERS	EA	1
416	7040	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	16
613	7007	HI MST IL POLE (175 FT)(80 MPH)	EA	2
614	7009	LED HI MST IL ASM(6 FIXT) (TY A)SHLD	EA	2
618	7054	CONDT (PVC) (SCH 80) (2")	LF	1140
618	7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	680
620	7007	ELEC CONDR (NO.8) BARE	LF	370
620	7008	ELEC CONDR (NO.8) INSULATED	LF	1070
620	7009	ELEC CONDR (NO.6) BARE	LF	1245
620	7010	ELEC CONDR (NO.6) INSULATED	LF	2490
624	7001	GROUND BOX TY A (122311)	EA	2
624	7002	GROUND BOX TY A (122311)W/APRON	EA	10
628	7045	ELC SRV TY A $^{240}/_{480}$ 060(NS)SS(E)GC(U)	EA	1

*SEE NOTE #5

ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
1D	1070+33.69	CLS399, 144.17' RT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 34 LF DS
2D	1077+34.14	CLS399, 198.97' LT, GROUND MOUNTED	HIGH MAST - TYPE A (380W) 480V - 6X400 EQ LED - 36 LF DS
1Z	12+48.37	CLXSTE, 0.22' LT, GROUND MOUNTED	RDWY ILL ASSEMBLY BY OTHERS
2Z	10+59.99	CLXSTE, 35.5' RT, GROUND MOUNTED	RDWY ILL ASSEMBLY BY OTHERS

6. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH ONCOR FOR INSTALLATION OF ROADWAY ILLUMINATION ASSEMBLIES AND CONDUCTORS PRIOR TO CONSTRUCTION OF PROPOSED ILLUMINATION SYSTEM SHOWN IN THESE PLANS.

ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

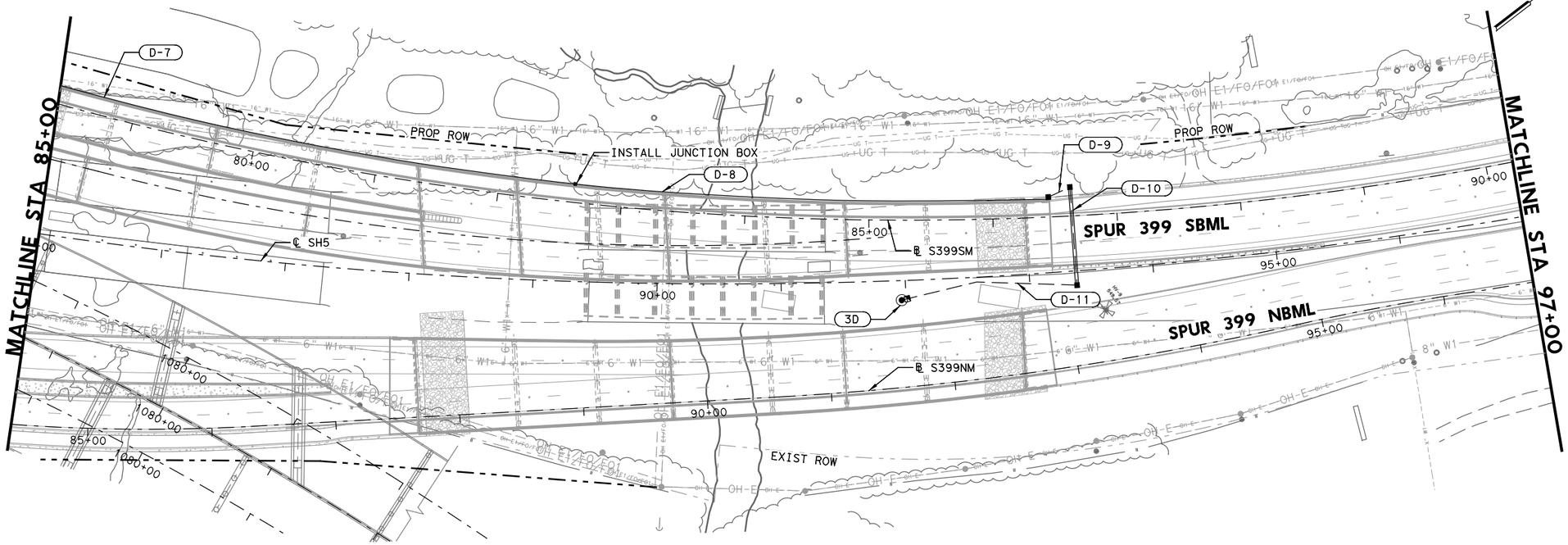
SH 5
ITS & ILLUMINATION PLAN
SH 5
STA 73+00 TO STA 85+00

SCALE: 1"=100' SHEET 5 OF 9

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1190
CHECK MK	CONTROL 0047	SECTION 05	JOB 057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10i8i15-SP399-SEG1.tbl
USER: EKRAMER DATE: 10/1/2024 TIME: 12:10:25 PM SCALE: 1:100
FILE: SH5LT05.dgn

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW

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4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

SHEET TOTALS				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7037	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	37
432	7001	RIPRAP (CONC)(4 IN)	CY	2.56
613	7007	HI MST IL POLE (175 FT)(80 MPH)	EA	1
614	7001	LED HI MST IL ASM (6 FIXT) (TY S)	EA	1
618	7054	CONDT (PVC) (SCH 80) (2")	LF	165
618	7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	80
618	7072	CONDT (RM) (1")	LF	865
620	7009	ELEC CONDR (NO.6) BARE	LF	1135
620	7010	ELEC CONDR (NO.6) INSULATED	LF	2270
624	7001	GROUND BOX TY A (122311)	EA	1
624	7002	GROUND BOX TY A (122311)W/APRON	EA	3

CABLE AND CONDUIT SUMMARY								
CIRCUIT NO.	RUN NO.	2" PVC SCH 80		1"	CONDUCTOR SUMMARY			
		TRENCH	BORE	RMC	#6 BARE		#6 XHHW	
D	D-7			480	1	485	2	485
D	D-8			385	1	390	2	390
D	D-9	20			1	25	2	25
D	D-10		80		1	85	2	85
D	D-11	145			1	150	2	150
TOTAL		165	80	865	1135		2270	

ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
3D	91+96.62	CLSH5, 15.74' RT, GROUND MOUNTED	HIGH MAST - TYPE S (380W) 480V - 6X400 EQ LED - 37 LF DS

ERIC SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SH 5
ITS & ILLUMINATION PLAN
SH 5
STA 85+00 TO STA 97+00

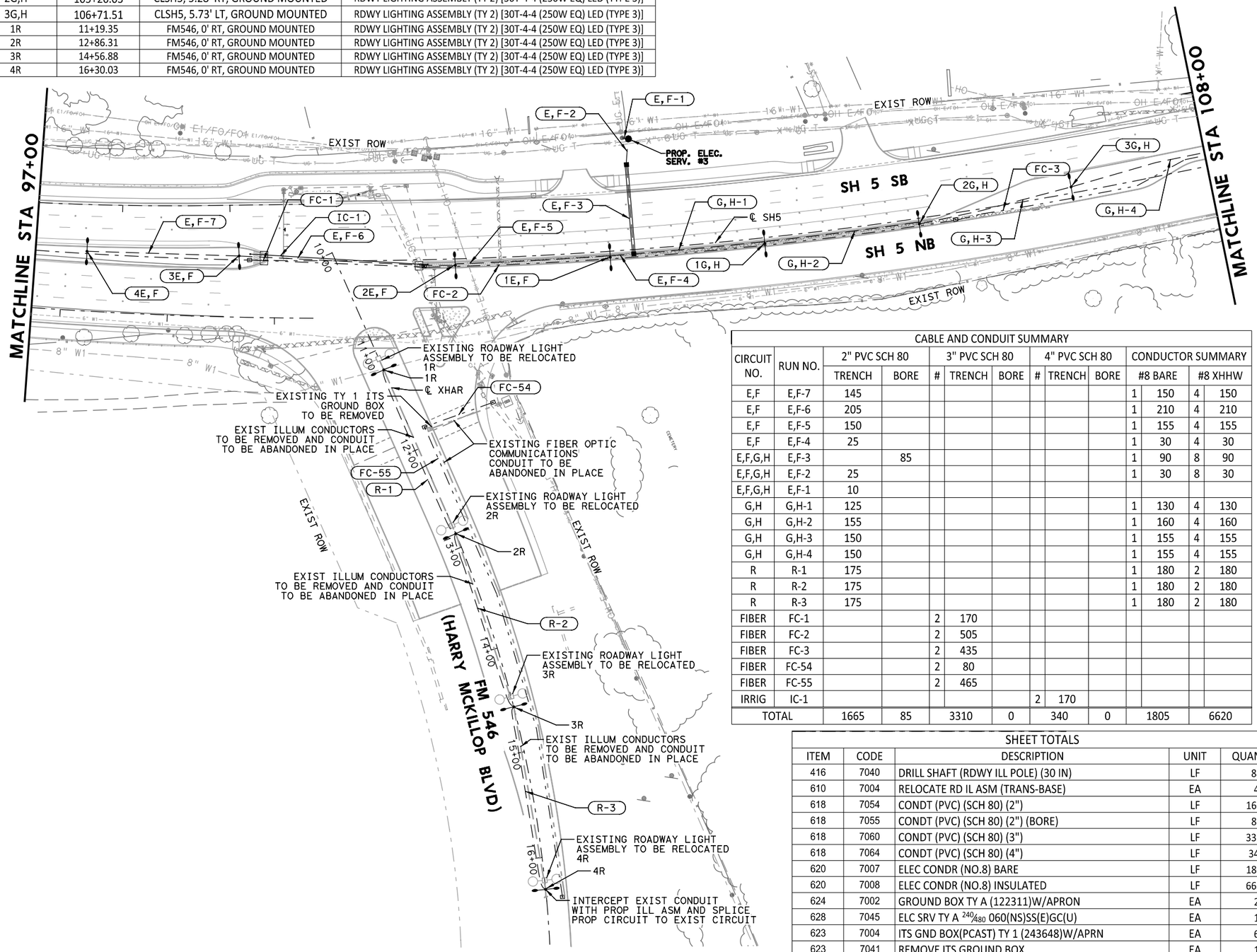
SCALE: 1"=100′ SHEET 6 OF 9

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1191
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: EKRAMER DATE: 10/1/2024 TIME: 11:46:44 AM SCALE: 1:100
FILE: SH5LT06.dgn

100% PLANS SUBMITTAL

ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
4E,F	97+48.00	CLSH5, 2.2' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
3E,F	98+90.11	CLSH5, 3.66' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
2E,F	100+91.78	CLSH5, 5.95' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
1E,F	102+36.42	CLSH5, 5.57' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
1G,H	103+81.07	CLSH5, 5.34' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
2G,H	105+26.03	CLSH5, 5.28' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
3G,H	106+71.51	CLSH5, 5.73' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
1R	11+19.35	FM546, 0' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
2R	12+86.31	FM546, 0' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
3R	14+56.88	FM546, 0' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
4R	16+30.03	FM546, 0' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]



0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW
- ITS GND BOX TY 1 (243648) W/APRON
- PROP IRRIGATION CONDUIT AND WIRING

GENERAL NOTES

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CABLE AND CONDUIT SUMMARY													
CIRCUIT NO.	RUN NO.	2" PVC SCH 80		3" PVC SCH 80			4" PVC SCH 80			CONDUCTOR SUMMARY			
		TRENCH	BORE	#	TRENCH	BORE	#	TRENCH	BORE	#8 BARE		#8 XHHW	
E,F	E,F-7	145								1	150	4	150
E,F	E,F-6	205								1	210	4	210
E,F	E,F-5	150								1	155	4	155
E,F	E,F-4	25								1	30	4	30
E,F,G,H	E,F-3		85							1	90	8	90
E,F,G,H	E,F-2	25								1	30	8	30
E,F,G,H	E,F-1	10											
G,H	G,H-1	125								1	130	4	130
G,H	G,H-2	155								1	160	4	160
G,H	G,H-3	150								1	155	4	155
G,H	G,H-4	150								1	155	4	155
R	R-1	175								1	180	2	180
R	R-2	175								1	180	2	180
R	R-3	175								1	180	2	180
FIBER	FC-1			2	170								
FIBER	FC-2			2	505								
FIBER	FC-3			2	435								
FIBER	FC-54			2	80								
FIBER	FC-55			2	465								
IRRIG	IC-1						2	170					
TOTAL		1665	85	3310		0	340		0	1805		6620	

SHEET TOTALS				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7040	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	88
610	7004	RELOCATE RD IL ASM (TRANS-BASE)	EA	4
618	7054	CONDT (PVC) (SCH 80) (2")	LF	1665
618	7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	85
618	7060	CONDT (PVC) (SCH 80) (3")	LF	3310
618	7064	CONDT (PVC) (SCH 80) (4")	LF	340
620	7007	ELEC CONDR (NO.8) BARE	LF	1805
620	7008	ELEC CONDR (NO.8) INSULATED	LF	6620
624	7002	GROUND BOX TY A (122311)W/APRON	EA	2
628	7045	ELC SRV TY A 240/480 060(NS)SS(E)GC(U)	EA	1
623	7004	ITS GND BOX(PCAST) TY 1 (243648)W/APRN	EA	6
623	7041	REMOVE ITS GROUND BOX	EA	1
6022	7002	RDWY LIGHTING ASSY (30 FT)(TY 2)	EA	7

STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

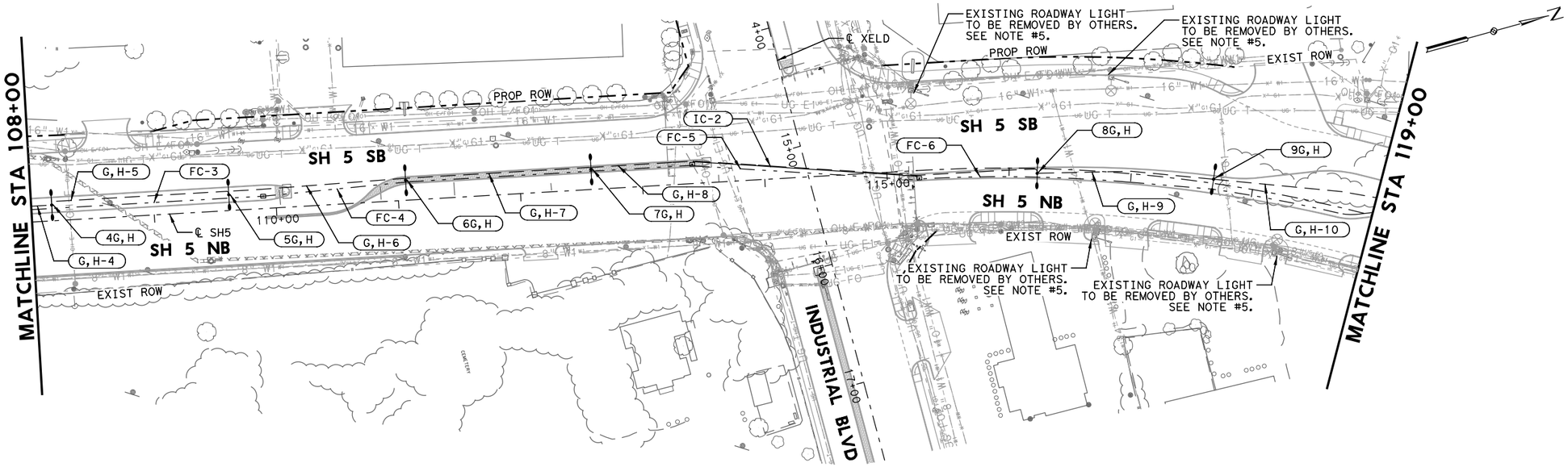
SH 5
ITS & ILLUMINATION PLAN
SH 5
STA 97+00 TO STA 108+00

SCALE: 1"=100' SHEET 7 OF 9

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
ESK	TEXAS	DAL	COLLIN	1192
CHECK	CONTROL	SECTION	JOB	
MK	0047	05	057, ETC.	
CHECK				
MK				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: EKRAMER
FILE: SH5LTOT.dgn
PENTABLE: I08I15-SP399-SEGI.tbl
DATE: 10/1/2024
TIME: 4:46:19 PM
SCALE: 1:100

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW
- ITS GND BOX TY 1 (243648) W/APRON
- PROP IRRIGATION CONDUIT AND WIRING

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED ACCORDING TO THE LATEST TXDOT, CITY OF MCKINNEY STANDARDS, UTILITY COMPANY STANDARDS AND THE NATIONAL ELECTRICAL CODE.

2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING/PROPOSED UNDERGROUND UTILITIES PRIOR TO DRILLING FOUNDATIONS TO AVOID CONFLICT OR DAMAGE TO THE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO THE EXISTING/PROPOSED UTILITIES.

3. MAINTAIN 10' CLEARANCE TO OVERHEAD POWER LINES.

4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

5. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH ONCOR PRIOR TO REMOVAL AFTER CONSTRUCTION OF PROPOSED ILLUMINATION SYSTEM SHOWN IN THESE PLANS IS COMPLETED.

CABLE AND CONDUIT SUMMARY

CIRCUIT NO.	RUN NO.	2" PVC SCH 80		3" PVC SCH 80			4" PVC SCH 80			CONDUCTOR SUMMARY			
		TRENCH	BORE	#	TRENCH	BORE	#	TRENCH	BORE	#8 BARE		#8 XHHW	
G,H	G,H-4	SEE SHEET 7 OF 9 FOR QUANTITIES											
G,H	G,H-5	150								1	155	4	155
G,H	G,H-6	150								1	155	4	155
G,H	G,H-7	155								1	160	4	160
G,H	G,H-8	370								1	375	4	375
G,H	G,H-9	150								1	155	4	155
G,H	G,H-10	150								1	155	4	155
FIBER	FC-3	SEE SHEET 7 OF 9 FOR QUANTITIES											
FIBER	FC-4			2	355								
FIBER	FC-5			2	190								
FIBER	FC-6			2	505								
IRRIG	IC-2						2	185					
TOTAL		1125	0	2100		0	370		0	1155		4620	

SHEET TOTALS

ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7040	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	48
610	XXXX*	REMOVE UTILITY MNTD IL ASM BY OTHERS	EA	4
618	7054	CONDT (PVC) (SCH 80) (2")	LF	1125
618	7060	CONDT (PVC) (SCH 80) (3")	LF	2100
618	7064	CONDT (PVC) (SCH 80) (4")	LF	370
620	7007	ELEC CONDR (NO.8) BARE	LF	1155
620	7008	ELEC CONDR (NO.8) INSULATED	LF	4620
623	7004	ITS GND BOX(PCAST) TY 1 (243648)W/APRN	EA	3
6022	7002	RDWY LIGHTING ASSY (30 FT)(TY 2)	EA	6

*SEE NOTE #5

ROADWAY ILLUMINATION ASSEMBLY SUMMARY

STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
4G,H	108+16.75	CLSH5, 13' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
5G,H	109+61.75	CLSH5, 13' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
6G,H	111+06.75	CLSH5, 16.42' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
7G,H	112+58.63	CLSH5, 16.5' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
8G,H	116+23.11	CLSH5, 3.91' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
9G,H	117+67.29	CLSH5, 7.61' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]

STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
ITS & ILLUMINATION PLAN
SH 5
STA 108+00 TO STA 119+00

SCALE: 1"=100'

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1193
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: EKRAMER
FILE: SH5LT08.dgn
DATE: 10/1/2024
TIME: 11:46:50 AM
SCALE: 1:100
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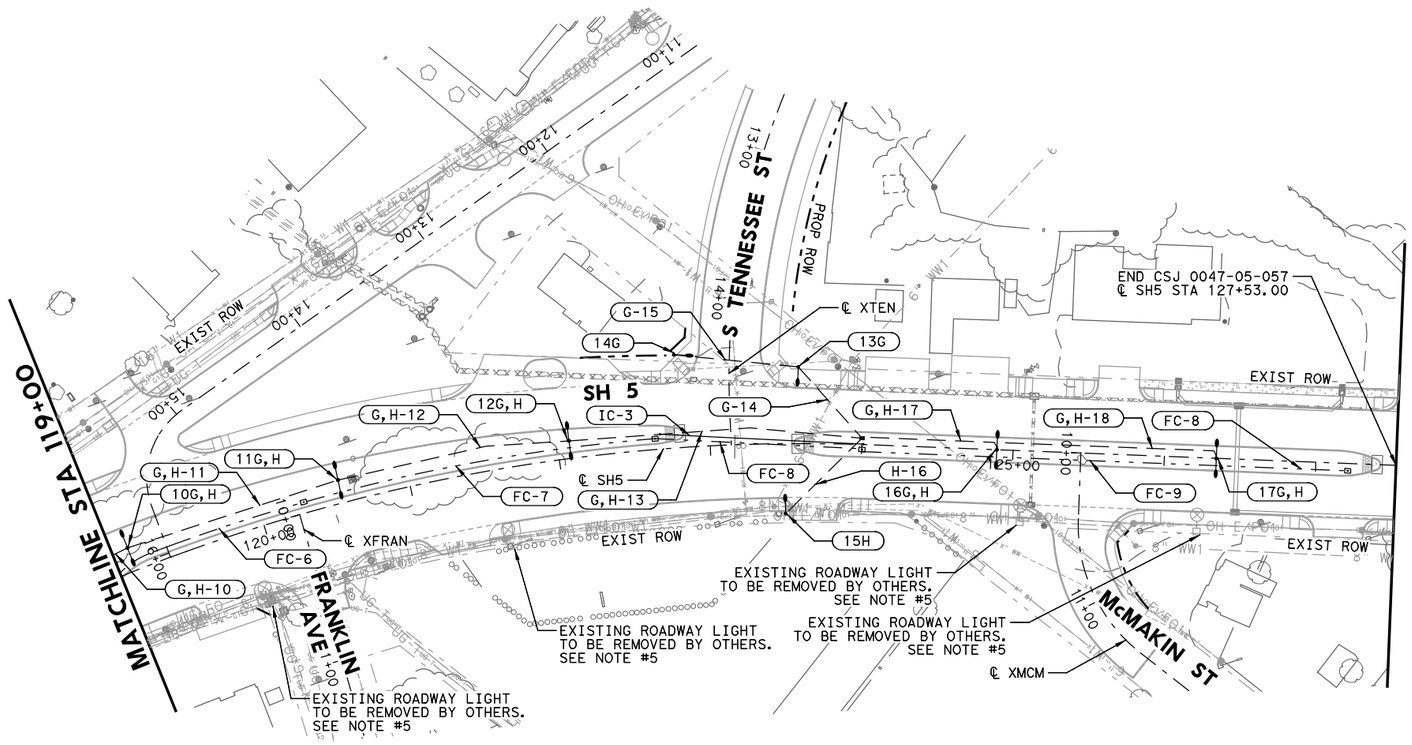
100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW
- ITS GND BOX TY 1 (243648) W/APRON
- PROP IRRIGATION CONDUIT AND WIRING

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED ACCORDING TO THE LATEST TXDOT, CITY OF MCKINNEY STANDARDS, UTILITY COMPANY STANDARDS AND THE NATIONAL ELECTRICAL CODE.

2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING/PROPOSED UNDERGROUND UTILITIES PRIOR TO DRILLING FOUNDATIONS TO AVOID CONFLICT OR DAMAGE TO THE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO THE EXISTING/PROPOSED UTILITIES.

3. MAINTAIN 10′ CLEARANCE TO OVERHEAD POWER LINES.

4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
10/01/2024

CABLE AND CONDUIT SUMMARY

CIRCUIT NO.	RUN NO.	2" PVC SCH 80			3" PVC SCH 80			4" PVC SCH 80			CONDUCTOR SUMMARY			
		TRENCH	BORE	RMC	#	TRENCH	BORE	#	TRENCH	BORE	#8 BARE		#8 XHHW	
G,H	G,H-10	SEE SHEET 8 OF 22 FOR QUANTITIES												
G,H	G,H-11	150									1	155	4	155
G,H	G,H-12	160									1	165	4	165
G,H	G,H-13	200									1	205	4	205
G	G-14	65									1	70	2	70
G	G-15	85									1	90	2	90
H	H-16	75									1	80	2	80
G,H	G,H-17	95									1	100	4	100
G,H	G,H-18	155									1	160	4	160
FIBER	FC-6	SEE SHEET 8 OF 22 FOR QUANTITIES												
FIBER	FC-7				2	240								
FIBER	FC-8				2	140								
FIBER	FC-9				2	500								
IRRIG	IC-3							2	135					
TOTAL		985	0	0	1760		0	270		0	1025		3620	

SHEET TOTALS

ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
416	7040	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	64
610	XXXX*	REMOVE UTILITY MNTD IL ASM BY OTHERS	EA	4
618	7054	CONDT (PVC) (SCH 80) (2")	LF	985
618	7060	CONDT (PVC) (SCH 80) (3")	LF	1760
618	7064	CONDT (PVC) (SCH 80) (4")	LF	270
620	7007	ELEC CONDR (NO.8) BARE	LF	1025
620	7008	ELEC CONDR (NO.8) INSULATED	LF	3620
624	7002	GROUND BOX TY A (122311)W/APRON	EA	1
623	7004	ITS GND BOX(PCAST) TY 1 (243648)W/APRN	EA	4
6022	7001	RDWY LIGHTING ASSY (30 FT)(TY 1)	EA	3
6022	7002	RDWY LIGHTING ASSY (30 FT)(TY 2)	EA	5

*SEE NOTE #5

ROADWAY ILLUMINATION ASSEMBLY SUMMARY

STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
10G,H	119+10.62	CLSH5, 15.85' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
11G,H	120+54.79	CLSH5, 15.34' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
12G,H	122+07.83	CLSH5, 11.69' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
14G	122+80.06	CLSH5, 61.47' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 1) [30T-4 (250W EQ) LED (TYPE 3)]
13G	123+58.27	CLSH5, 50.63' LT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 1) [30T-4 (250W EQ) LED (TYPE 3)]
15H	123+49.44	CLSH5, 46.21' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 1) [30T-4 (250W EQ) LED (TYPE 3)]
16G,H	124+89.27	CLSH5, 0' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]
17G.H	126+34.27	CLSH6, 0' RT, GROUND MOUNTED	RDWY LIGHTING ASSEMBLY (TY 2) [30T-4-4 (250W EQ) LED (TYPE 3)]

5. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH ONCOR PRIOR TO REMOVAL AFTER CONSTRUCTION OF PROPOSED ILLUMINATION SYSTEM SHOWN IN THESE PLANS IS COMPLETED.

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SH 5
ITS & ILLUMINATION PLAN
SH 5
STA 119+00 TO STA 127+53

SCALE: 1"=100′ SHEET 9 OF 9

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
MK	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1194
MK				
CHECK	0047	05	057, ETC.	
ESK				

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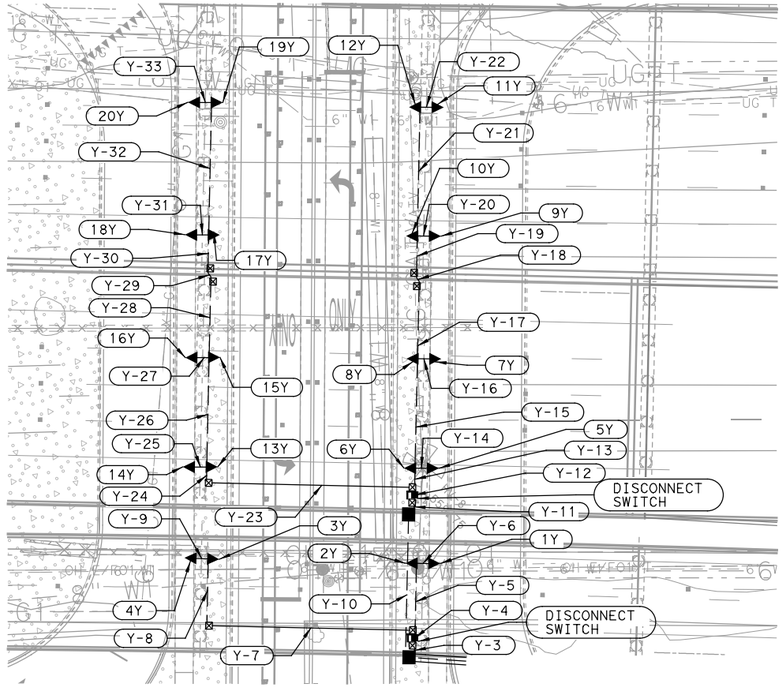
USER: EKRAMER DATE: 10/1/2024 TIME: 11:47:05 AM SCALE: 1:100
FILE: SH5LT09.dgn

100% PLANS SUBMITTAL

CABLE AND CONDUIT SUMMARY												
CIRCUIT NO.	RUN NO.	2" PVC SCH 80		1"	CONDUCTOR SUMMARY				CONDUCTOR SUMMARY			
		EMBEDDED	TRENCH	RMC	#8 BARE		#8 XHHW		#12 BARE		#12 XHHW	
Y	Y-3	10			1	15	2	15				
Y	Y-4	20							1	25	2	25
Y	Y-5	25							1	30	2	30
Y	Y-6	5							1	10	2	10
Y	Y-7			70					1	75	2	75
Y	Y-8	25							1	30	2	30
Y	Y-9	5							1	10	2	10
Y	Y-10		50						1	55	2	55
Y	Y-11	20							1	10	2	10
Y	Y-12	5							1	5	2	5
Y	Y-13	5							1	5	2	5
Y	Y-14	5							1	10	2	10
Y	Y-15	40							1	40	2	40
Y	Y-16	5							1	10	2	10
Y	Y-17	40							1	40	2	40
Y	Y-18	5							1	5	2	5
Y	Y-19	15							1	15	2	15
Y	Y-20	5							1	10	2	10
Y	Y-21	45							1	45	2	45
Y	Y-22	5							1	10	2	10
Y	Y-23			70					1	70	2	70
Y	Y-24	5							1	5	2	5
Y	Y-25	5							1	10	2	10
Y	Y-26	40							1	40	2	40
Y	Y-27	5							1	10	2	10
Y	Y-28	40							1	40	2	40
Y	Y-29	5							1	5	2	5
Y	Y-30	15							1	15	2	15
Y	Y-31	5							1	10	2	10
Y	Y-32	45							1	45	2	45
Y	Y-33	5							1	10	2	10
TOTAL		455	50	140	15		30		700		1400	



0 50 100 150 200

SCALE IN FEET

LEGEND

- EX ROAD ILLUM. ASSEM. TO BE REMOVED
- EX ROAD ILLUM. ASSEM. TO REMAIN
- PROP ROAD ILLUM. ASSEM. DOUBLE-ARM CONVENTIONAL
- PROP ROAD ILLUM. ASSEM. SINGLE-ARM CONVENTIONAL
- PROP. HI MST IL & ASM (TY A) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. HI MST IL & ASM (TY S) (6-400 EQ LED) (175 FT) (80 MPH)
- PROP. IN RD IL (U/P)
- JUNCTION BOX
- EX ELEC CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING
- PROP ITS CONDUIT AND WIRING
- PROP ELEC CONDUIT AND WIRING (BORE)
- PROP ELEC CONDUIT AND WIRING (RMC)
- EX ELEC HANDHOLE
- EX ELEC JUNCTION BOX
- PROP GROUND BOX (TY A)
- PROP GROUND BOX (TY A) W/ APRON
- EX ELEC MANHOLE
- EX ELEC POWER POLE
- EX ELEC POLE W/ RISER
- EX TRANSMISSION POLE
- PROP ELEC POWER SERVICE
- EX ROW
- PROP ROW
- NEMA 3R DISCONNECT SWITCH
- JUNCTION BOX

GENERAL NOTES

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3. MAINTAIN 10' CLEARANCE TO OVERHEAD POWER LINES.

4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
STD.	STATION	LOCATION	LIGHT STD. SCHEDULE
1Y	1068+84.44	CLSH5, 56.64' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
2Y	1068+79.24	CLSH5, 56.64' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
3Y	1068+12.61	CLSH5, 56.69' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
4Y	1068+6.44	CLSH5, 56.69' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
5Y	1068+84.43	CLSH5, 25.2' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
6Y	1068+78.27	CLSH5, 25.3' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
7Y	1068+84.43	CLSH5, 10.92' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
8Y	1068+78.27	CLSH5, 10.92' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
9Y	1068+83.44	CLSH5, 51.42' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
10Y	1068+78.27	CLSH5, 51.42' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
11Y	1068+83.44	CLSH5, 93.95' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
12Y	1068+78.27	CLSH5, 93.95' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
13Y	1068+11.44	CLSH5, 26.36' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
14Y	1068+5.22	CLSH5, 26.36' RT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
15Y	1068+11.44	CLSH5, 9.81' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
16Y	1068+5.22	CLSH5, 9.81' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
17Y	1068+10.43	CLSH5, 50.19' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
18Y	1068+4.27	CLSH5, 50.19' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
19Y	1068+10.43	CLSH5, 93.91' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED
20Y	1068+4.27	CLSH5, 93.91' LT, BRIDGE MOUNTED	IN RD IL (U/P) (TY 1) (250W EQ) LED

SHEET TOTALS				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
610	7015	IN RD IL (U/P) (TY 1) (250W EQ) LED	EA	20
618	7054	CONDT (PVC) (SCH 80) (2")	LF	455
618	7072	CONDT (RM) (1")	LF	140
620	7003	ELEC CONDR (NO.12) BARE	LF	700
620	7004	ELEC CONDR (NO.12) INSULATED	LF	1400
620	7007	ELEC CONDR (NO.8) BARE	LF	15
620	7008	ELEC CONDR (NO.8) INSULATED	LF	30
624	7002	GROUND BOX TY A (122311)W/APRON	LF	1
		JUNCTION BOX (INSTALL)*	EA	10

*JUNCTION BOX IS SUBSIDIARY TO ITEM 618 AND SHOWN FOR CONTRACTOR CONVENIENCE ONLY

*SEE ITS & ILLUMINATION PLAN SHEET 5 OF 9 FOR DESIGN DETAILS.

STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
ITS & ILLUMINATION PLAN
UNDERPASS LAYOUT
SB STEWART RD

SCALE: 1"=100' SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1195
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10801I5-SP399-SEGI.tbl
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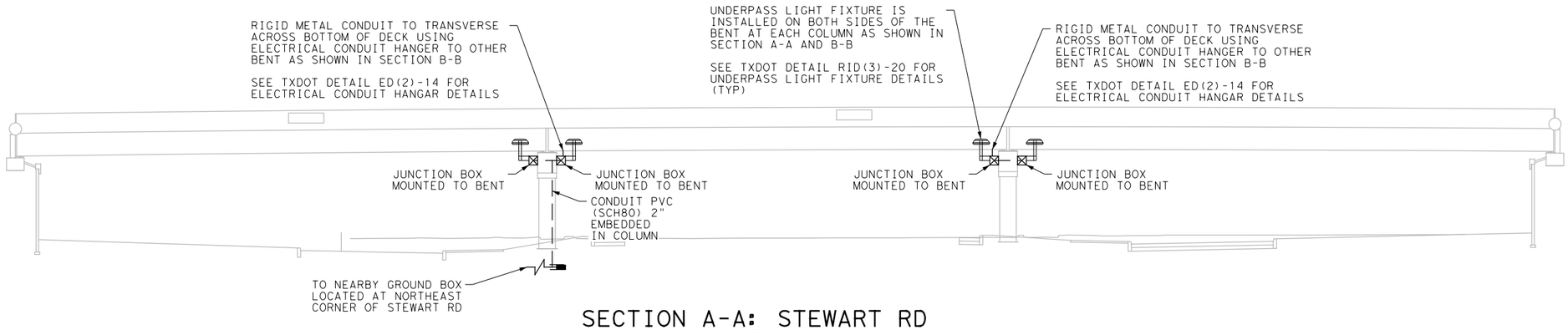
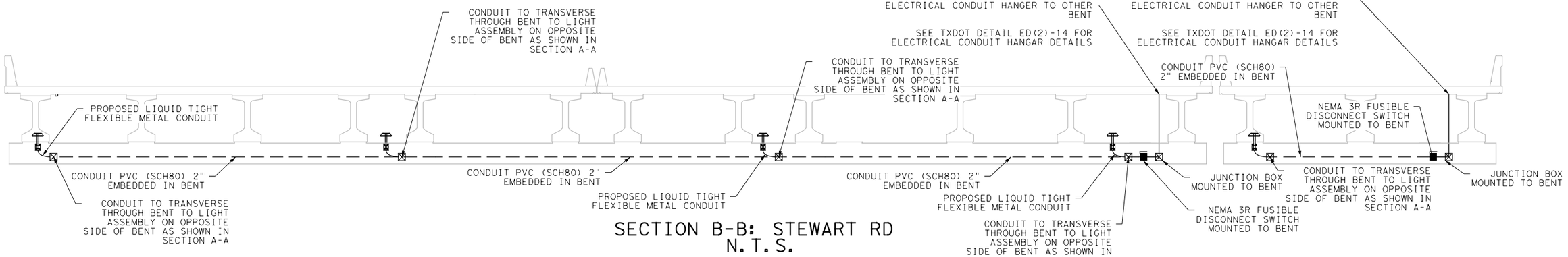
FILE: SH5LT23.dgn DATE: 10/1/2024

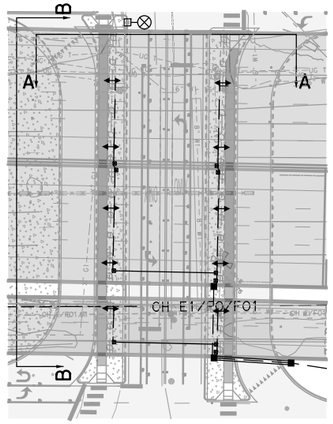
100% PLANS SUBMITTAL



SECTION A-A: STEWART RD
N.T.S.



SECTION B-B: STEWART RD
N.T.S.



SECTION VIEW DIAGRAM

LEGEND

- JUNCTION BOX MOUNTED TO BEND
- NEMA 3R DISCONNECT SWITCH
- UNDERPASS LIGHT FIXTURE
- 1 RIGID METAL CONDUIT
- PROPOSED LIQUID TIGHT FLEXIBLE METAL CONDUIT
- RIGID METAL CONDUIT MOUNTED TO BENT

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED ACCORDING TO THE LATEST CITY OF MCKINNEY STANDARDS, UTILITY COMPANY STANDARDS AND THE NATIONAL ELECTRIC CODE.
2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING/PROPOSED UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION TO AVOID CONFLICT OR DAMAGE TO THE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO THE EXISTING/PROPOSED UTILITIES.
3. MAINTAIN 10' CLEARANCE TO OVERHEAD POWER LINES.
4. CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER. ELECTRIC UTILITY PROVIDER IN THIS AREA IS ONCOR ELECTRIC DELIVERY. FOR ELECTRICAL SERVICE COORDINATION, CONTACT AMANDA LONGORIO, P.E. WITH ONCOR AT 432-213-4450.

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
ITS & ILLUMINATION PLAN
UNDERPASS DETAIL
SB STEWART RD

SCALE: 1"=100' SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1196
MK	0047	05	057, ETC.	

STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
10/01/2024

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
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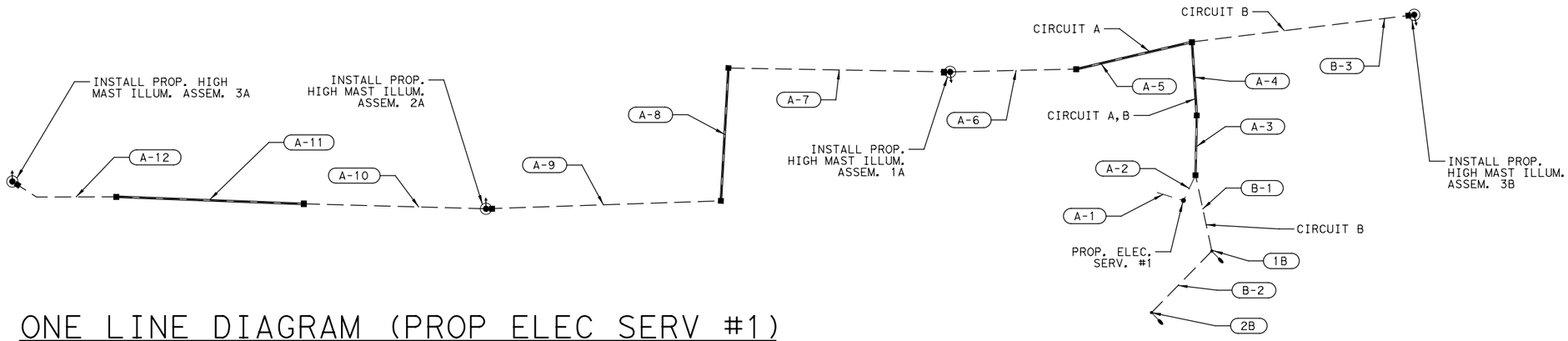
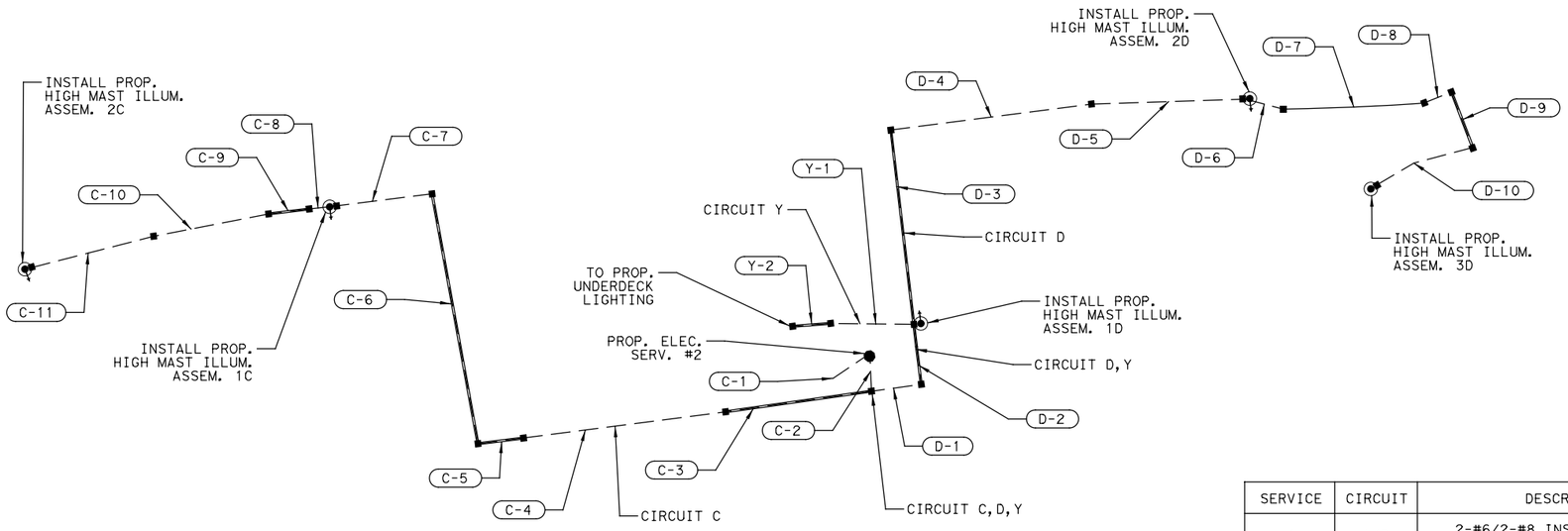
FILE: SH5LT24.dgn

100% PLANS SUBMITTAL



ONE LINE DIAGRAM (PROP ELEC SERV #1)



ONE LINE DIAGRAM (PROP ELEC SERV #2)

SERVICE	CIRCUIT	DESCRIPTION
1	A/B	2-#6/2-#8 INSULATED (POWER) 1-#6/1-#8 BARE (GROUND)
2	C/D/Y	2-#8/2-#6/2-#12 INSULATED (POWER) 1-#6/1-#12 BARE (GROUND)

ELEC SVC NO	SHEET NO	ELECTRICAL SERVICE DESCRIPTION	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO/SIZE	SAFETY SWITCH AMPS	MAIN CKT BKR POLE/AMP	TWO-POLE CONTACTOR AMPS	PANELBD/ LOADCENTER AMP RATING	CIRCUIT NO	BRANCH CKT BKR POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
1	2	ELC SRV TY A 240 / 480 060 (NS)SS(E)GC(U)	2"	3/#6	N/A	2P/60	2P/ 60	N/A	A	2P/30	22.5	14.70
									B	2P/20	8.2	
2	5	ELC SRV TY A 240 / 480 060 (NS)SS(E)GC(U)	2"	3/#6	N/A	2P/60	2P/ 60	N/A	C	2P/20	15	20.10
									D	2P/30	22.5	
									Y	2P/20	4.41	

ERIC SNOW KRAMER
150414
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
ITS & ILLUMINATION PLAN
SPUR 399/SH5
CIRCUIT DIAGRAM

SCALE: 1"=100' SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
ESK	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1197
MK	0047	05	057, ETC.	
CHECK				
MK				

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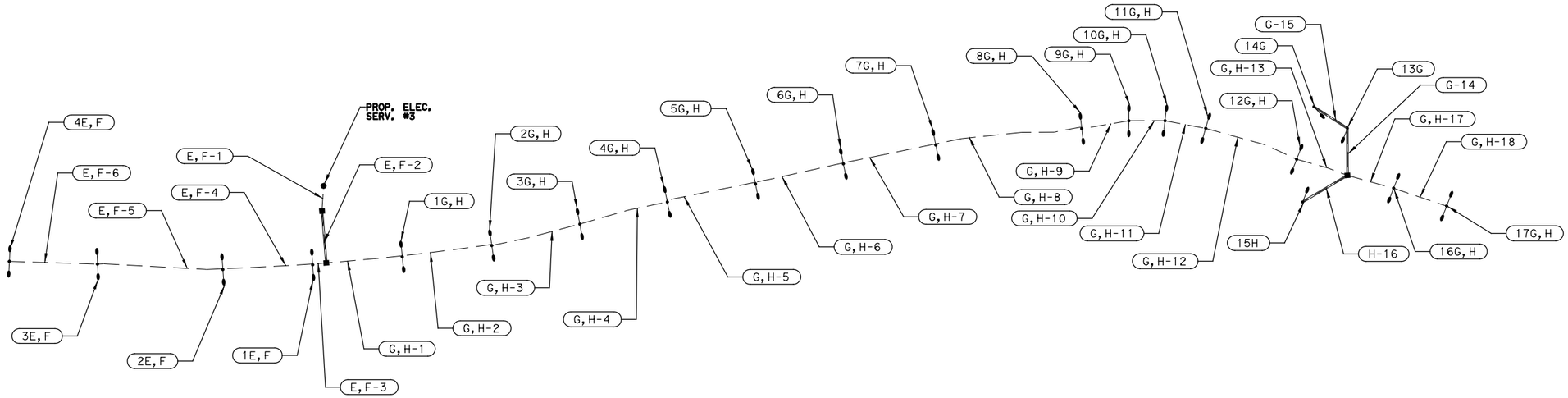
100% PLANS SUBMITTAL



ONE LINE DIAGRAM (PROP ELEC SERV #3)

SERVICE	CIRCUIT	DESCRIPTION
3	E/F/G/H	8-#8 INSULATED (POWER) 1-#8 BARE (GROUND)

ELEC SVC NO	SHEET NO	ELECTRICAL SERVICE DESCRIPTION	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO/SIZE	SAFETY SWITCH AMPS	MAIN CKT BKR POLE/AMP	TWO-POLE CONTACTOR AMPS	PANELBD/ LOADCENTER AMP RATING	CIRCUIT NO	BRANCH CKT BKR POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
3	7	ELC SRV TY A 240 / 480 060 (NS)SS(E)GC(U)	2"	3/#6	N/A	2P/60	2P/ 60	N/A	E	2P/20	1.4	6.60
									F	2P/20	1.4	
									G	2P/20	5.6	
									H	2P/20	5.25	

Erik Kramer
10/01/2024

STATE OF TEXAS
ERIK SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SH 5
ITS & ILLUMINATION PLAN
SPUR 399/SH5
CIRCUIT DIAGRAM

SCALE: 1"=100' SHEET 2 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1198
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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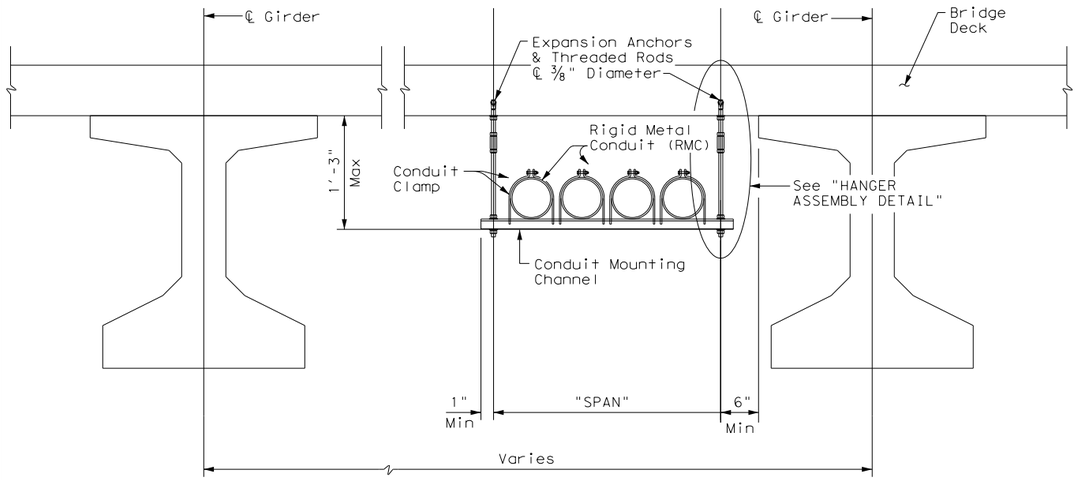
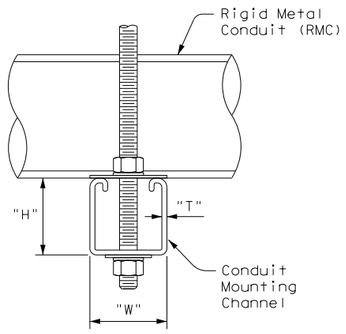
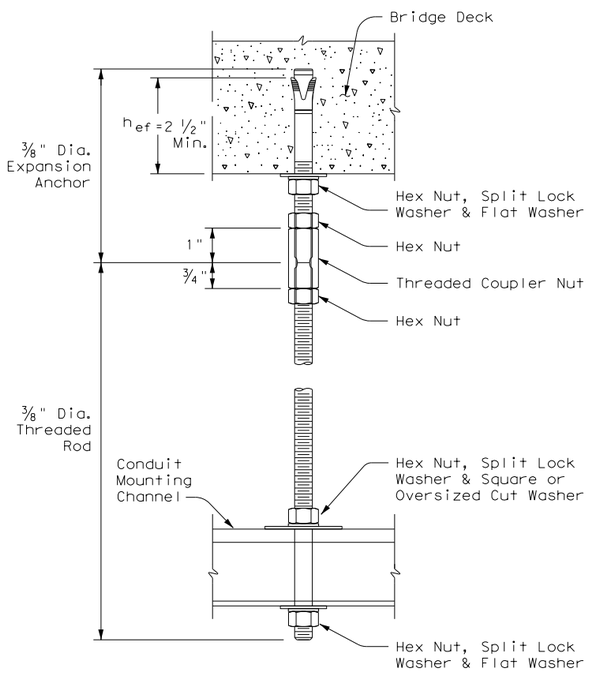


CONDUIT HANGING DETAIL

CONDUIT MOUNTING CHANNEL		
"SPAN"	"W" x "H"	"T"
less than 2'	1 5/8" x 1 3/8"	12 Ga.
2'-0" to 2'-6"	1 5/8" x 1 5/8"	12 Ga.
>2'-6" to 3'-0"	1 5/8" x 2 7/16"	12 Ga.

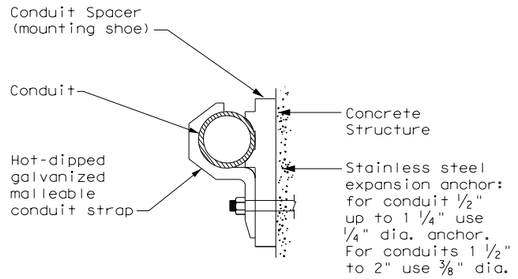
Channels with round or short slotted hole patterns are allowed, if the load carrying capacity is not reduced by more than 15%.

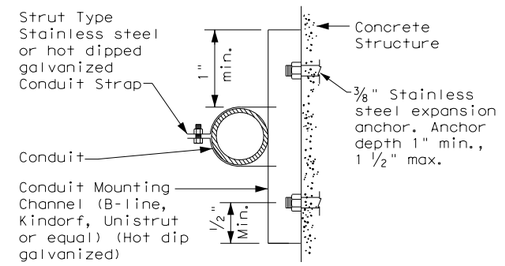




HANGER ASSEMBLY DETAIL

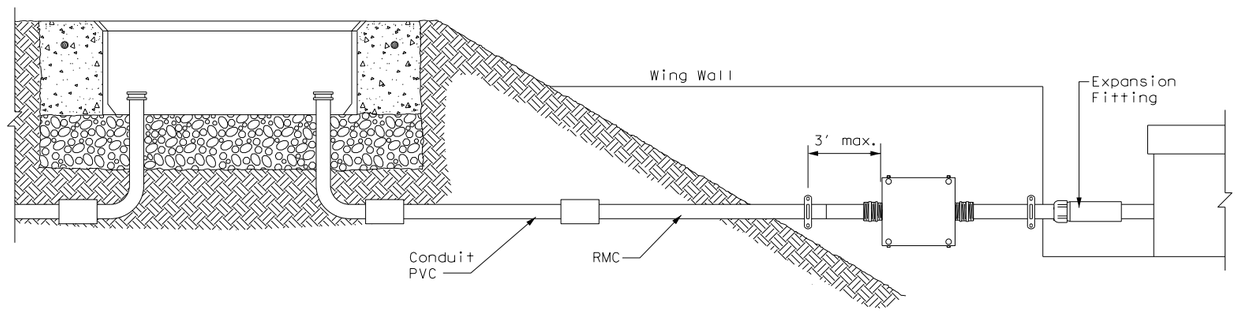
ELECTRIC CONDUIT TO BRIDGE DECK ATTACHMENT





CONDUIT MOUNTING OPTIONS

Attachment to concrete surfaces
See ED(1)B.2



TYPICAL CONDUIT ENTRY TO BRIDGE STRUCTURE DETAIL

EXPANSION ANCHOR NOTES FOR BRIDGE DECK ATTACHMENT

1. Use torque controlled mechanical expansion anchors that are approved for use in cracked concrete by the International Code Council, Evaluation Service (ICC-ES). The chosen anchor product shall have a designated ICC-ES Evaluation Report number, and its approval status shall be maintained on the ICC-ES website under Division 031600 for Concrete Anchors.

2. Unless otherwise approved by the Engineer: do not use adhesive anchors; do not use expansion anchors that are not included in the ICC-ES approval list; and do not use expansion anchors that are only approved for use in uncracked concrete.

3. Use anchors manufactured with stainless steel expansion wedges. Anchors manufactured with carbon steel expansion wedges are not allowed. Anchor bodies can be either zinc-plated carbon steel or stainless steel. For application in marine environment, both the anchor body and expansion wedge shall be stainless steel.

4. Install anchors as shown on the plans and in accordance with the anchor manufacturer's published installation instructions. Arrange a field demonstration test to evaluate the procedures and tools. The test shall be witnessed and approved by the Engineer prior to furnishing anchors on the structure.

5. Prior to hole drilling, use rebar locator to ensure clearing of existing deck strands or reinforcement. Install anchors to ensure a minimum effective embedment depth, (h_{ef}), as shown. Increase (h_{ef})as needed to ensure sufficient thread length for proper torqueing and tightening of anchors.

6. Use anchors of minimum 1600 Lbs tensile capacity (minimum of steel, concrete breakout, and concrete pullout strengths as determined by ACI 318 Appendix D) at the required minimum embedment depth (h_{ef}). No lateral loads shall be introduced after conduit installation.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUIT SUPPORTS

ED(2)-14

FILE: ed2-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1199

71B

DATE: 10/1/2024 11:47:34 AM
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DATE: 10/1/2024 11:47:36 AM
FILE: c:\pwworking\central01\d3769069\ed10-14.dgn

TIMBER POLE(TP)SERVICE SUPPORT NOTES

1. Ensure electrical service support is a class 5 treated timber pole as per Item 627 "Treated Timber Poles." Embed timber pole to depth required in Item 627.
2. Conduit and electrical conductors attached to the electrical service pole and underground within 12 in. of service pole are not paid for directly but are subsidiary to the electrial service.
3. Install pole-top mounted photocell (T) on north side of pole, or in service enclosure (E) as required. See Electrical Service Data chart in plan set.
4. Gain pole as required to provide flat surface for each channel. Gain timber pole to 5/8 in. max. depth and 1 7/8 in. max. height. Gain pole in a neat and workmanlike manner.
5. Mount meter and service equipment on stainless steel or galvanized channel (Unistrut, Kindorf, or equal). Provide channel sized 1 in. to 3 3/4 in. maximum depth, and 1½ in. to 1⅝ in. maximum width. File smooth the cut ends of galvanized channel and paint with zinc rich paint before installing on pole. Secure each channel section to timber pole with two galvanized or SS lag bolts, ¼ in. minimum diameter by 1½ in. minimum length. Use a galvanized or SS flat washer on each lag bolt. Do not stack channel.
6. When excess length must be trimmed from poles, trim from the top end only.

(1) Class 5 pole, height as required

(2) Service drop from utility company (attached below weatherhead)

(3) Service conduit (RMC)and service entrance conductors - One Red, One Black, One White (See Electrical Service Data)

(4) Safety switch (when required)

(5) Meter (when required)

(6) Service enclosure

(7) 6 AWG bare grounding electrode conductor in ½ in. PVC to ground rod - extend ½ in. PVC 6 in. underground.

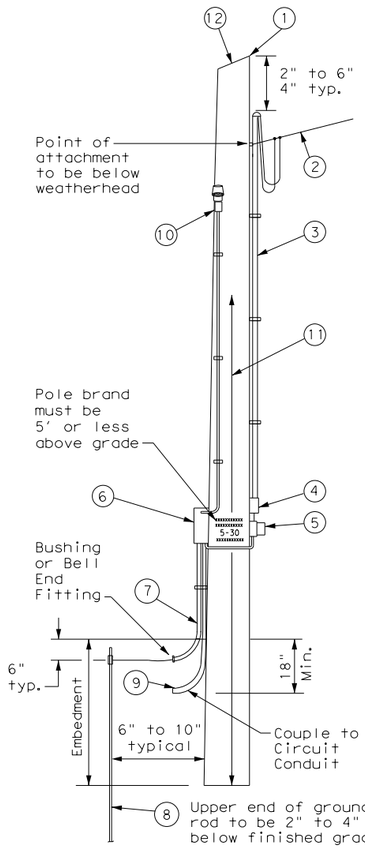
(8) 5/8 in. x 8 ft. Copper clad ground rod - drive ground rod to a depth of 2 in. to 4 in. below grade.

(9) RMC same size as branch circuit conduit.

(10) See pole-top mounted photocell detail on ED(5).

(11) When required by the serving utility provide bare 6 AWG copper conductor. Run wire from pole top to butt wrap or copper butt plate. Protect conductor with non-conductive material to a height of 8 ft. above finished grade.

(12) When required by utility, cut top of pole at an angle to enhance rain run off.

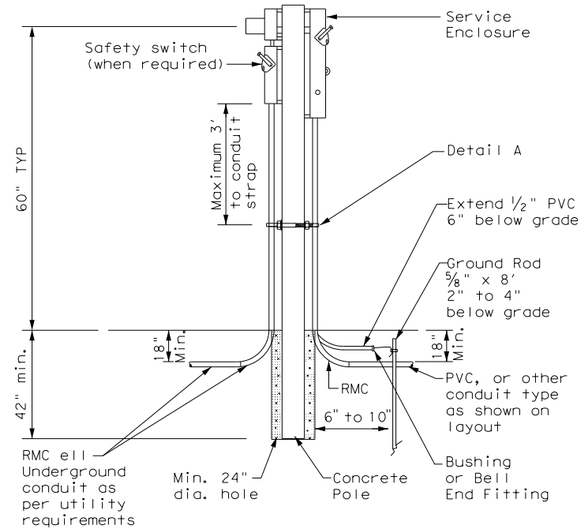


SERVICE SUPPORT TYPE TP (O)

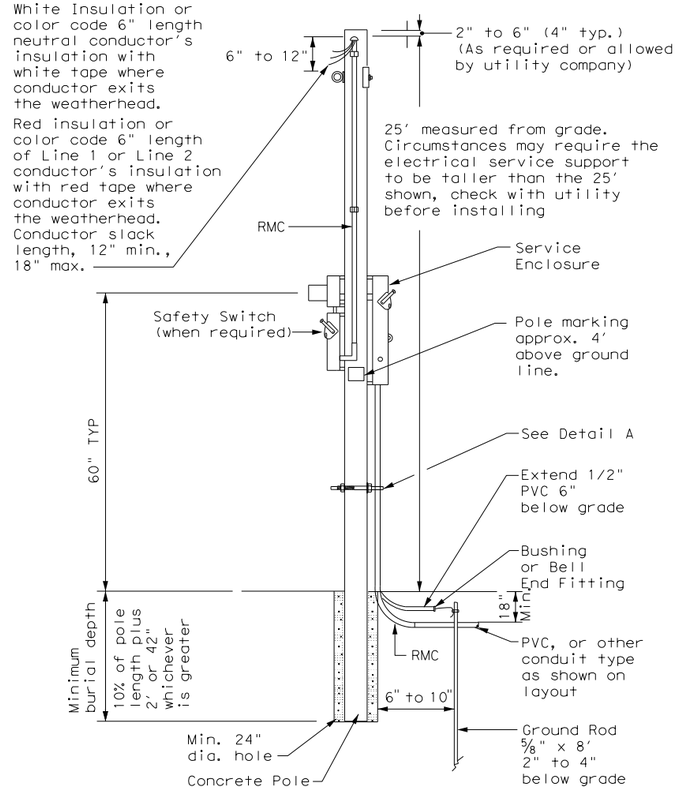
GRANITE CONCRETE(GC)& OTHER CONCRETE(OC)NOTES

Ensure electrical service support structures bid as type Granite Concrete (GC) or Other Concrete (OC) meet the following requirements.

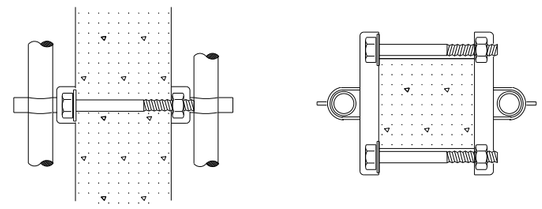
1. Provide GC and OC poles that meet the requirements of DMS 11080 "Electrical Services."
2. Provide prestressed concrete poles suitable for direct embedment into the ground without special foundations.
3. Verify poles are marked as required on DMS 11080. Location of marking should be approximately 4' above final grade. Use the two-point pickup locations when handling pole in horizontal position, and one-point pickup location for use in raising the pole to a vertical position. These marks are small but conspicuous.
4. Embed poles 42 in. or 10% of the length plus 2 ft., whichever is greater.
5. Ensure all installation details of services are in accordance with utility company specifications.
6. Install a one point rack or eye bolt bracket 6 inches to 12 inches below the weatherhead as an overhead service drop anchoring point for the electric utility.
7. Furnish and install galvanized or stainless steel channel strut 1 ½ in. or 1 ⅝ in. wide by 1 in. up to 3 ¾ in. deep (Unistrut, Kindorf, B-line or equal). Attach channel strut with stainless steel concrete anchors (max. 1" depth), square U-bolts or back to back channel strut with long bolts, or other secure mounting as approved by the Engineer. Ensure bolts are galvanized in accordance with ASTM A153. Do not stack channel struts.
8. Backfill the holes thoroughly by tamping in 6 in. lifts. After tamping to grade, place additional backfill material in a 6 inch high cone around the pole to allow for settling. Use material equal in composition and density to the surrounding area. Backfilling will not be paid for directly but is subsidiary to various bid items.



CONCRETE SERVICE SUPPORT
Underground(U)



CONCRETE SERVICE SUPPORT
Overhead(O)



DETAIL A

See Note 7. Before installing channel that has been cut, file sharp edges and paint with zinc-rich paint. Ensure there is no paint splatter on the pole.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES GC, OC, & TP

ED(10)-14

FILE: ed10-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1200

71K

SHIPPING PARTS LIST - POLES AND LUMINAIRE ARMS

Nominal Mounting Ht. (ft)	Shoe Base Designation				Quantity	T-Base Designation				Quantity	CSB/SSCB Mounted Designation				Quantity
	Pole	A1	A2	Luminaire		Pole	A1	A2	Luminaire		Pole	A1	A2	Luminaire	
20	(Type SA 20 S - 4)			(150W EQ) LED		(Type SA 20 T - 4)			(150W EQ) LED						
	(Type SA 20 S - 4 - 4)			(150W EQ) LED		(Type SA 20 T - 4 - 4)			(150W EQ) LED						
30	(Type SA 30 S - 4)			(250W EQ) LED		(Type SA 30 T - 4)			(250W EQ) LED		(Type SP 28 S - 4)			(250W EQ) LED	
	(Type SA 30 S - 4 - 4)			(250W EQ) LED		(Type SA 30 T - 4 - 4)			(250W EQ) LED		(Type SP 28 S - 4 - 4)			(250W EQ) LED	
	(Type SA 30 S - 8)			(250W EQ) LED		(Type SA 30 T - 8)			(250W EQ) LED		(Type SP 28 S - 8)			(250W EQ) LED	
	(Type SA 30 S - 8 - 8)			(250W EQ) LED		(Type SA 30 T - 8 - 8)			(250W EQ) LED		(Type SP 28 S - 8 - 8)			(250W EQ) LED	
40	(Type SA 40 S - 4)			(250W EQ) LED		(Type SA 40 T - 4)			(250W EQ) LED		(Type SP 38 S - 4)			(250W EQ) LED	
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50	(Type SA 50 S - 4)			(400W EQ) LED		(Type SA 50 T - 4)			(400W EQ) LED		(Type SP 48 S - 4)			(400W EQ) LED	
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	(Type SA 50 S - 8 - 8)			(400W EQ) LED		(Type SA 50 T - 8 - 8)			(400W EQ) LED		(Type SP 48 S - 8 - 8)			(400W EQ) LED	
	(Type SA 50 S - 10)			(400W EQ) LED		(Type SA 50 T - 10)			(400W EQ) LED		(Type SP 48 S - 10)			(400W EQ) LED	
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	(Type SA 50 S - 12 - 12)			(400W EQ) LED		(Type SA 50 T - 12 - 12)			(400W EQ) LED		(Type SP 48 S - 12 - 12)			(400W EQ) LED	

OTHER Designation				Quantity
Pole	A1	A2	Luminaire	

GENERAL NOTES:

1. All work, materials and services not shown on the plans which may be necessary for complete and proper construction shall be performed, furnished and installed by the Contractor. Faulty fabrication or poor workmanship in any material, equipment or installation will be considered justification for rejection. Where manufacturers provide warranties or guarantees as a customary trade practice, furnish to the Department such warranties or guarantees.

2. The location of poles and fixtures are diagrammatic only and may be shifted by the Engineer to accommodate local conditions. Install or remove poles and luminaires located near overhead electrical lines using established industry and utility safety practices and in accordance with laws governing such work. Consult with the appropriate utility company prior to beginning such work.

3. Standard Steel Pole Designs. Steel poles fabricated in accordance with the details and dimensions shown herein, shall be considered standard designs. Submission of shop drawings and design calculations for standard designs is not required.

4. Optional Steel Pole Designs. Multi-sided steel poles may be allowed as optional designs, if steel poles are permitted or required, pending approval by the Department as outlined below.

   a. Shop Drawings. Optional designs require submission of shop drawings and design calculations bearing the seal of an engineer licensed in the State of Texas, in accordance with Item 441, "Steel Structures." The Department may elect to pre-approve some shop drawings for optionally designed poles. Submission of shop drawings and design calculations is not required for structures fabricated in accordance with the details of shop drawings on the pre-approved list maintained by the TxDOT Traffic Operations Division. Any deviation from the pre-approved shop drawings will require submission of shop drawings of the complete assembly and design calculations as described above.
   b. Structural Support Design for Luminaires. Lighting support structures shall be designed for a 25 year design life in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 6th Edition (2013) and Interim Revisions thereto. All poles shall be designed for 110 mph 3-second gust wind speeds. The Gust Factor, G, and Wind Importance Factor, Ir, shall be applied as per the AASHTO Specifications assuming a 25-year design life. The design wind pressure for hurricane wind velocities greater than 100 mph shall not be less than the design wind pressure using 100 mph with the non-hurricane Wind Importance Factor, Ir, value. For transformer base poles, fabricator shall include transformer base and connecting hardware in design calculations and shop drawing submittals. All transformer bases shall have been structurally tested to resist the theoretical plastic moment capacity of the pole. Certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished shall be submitted with the shop drawings. Shop drawings shall show breakaway base model number, and manufacturer's name and logo. Manufacturer's shop drawings shall include the ASTM designations for all materials to be used.
   c. Mast Arm Attachments. All poles and attachments shall be structurally designed to support two 12-foot mast arms and luminaires. Poles shall be supplied with mast arm combinations as shown in the plans. All mast arms shall be designed for a 60-pound luminaire having an effective projected area of 1.6 square feet.
   d. Anchor Bolt Assembly. Anchor bolt assemblies for optionally designed poles shall be the same as those shown herein.

5. Aluminum Pole Designs. Aluminum pole designs may be allowed, if aluminum poles are permitted or required, pending approval by the Department as outlined below.

   a. Meet all of the requirements stated above for optional steel pole designs and the following:
      1. Aluminum poles shall be fabricated in accordance with "Structural Welding Code-Aluminum" AWS D1.2.
      2. Aluminum pole designs shall use the same anchor bolt assembly and be subject to the same geometric restraints and other requirements for steel poles specified herein.
      3. Aluminum poles shall be equipped with vibration mitigation devices, as approved by the engineer.
      4. Pole components shall be constructed using the following material:
         Shaft: ASTM B221 or B241 Alloy 6063-T6, ASTM B209 Alloy 5086-H34, ASTM B221 Alloy 6005-T5.
         Base Flange: ASTM B26 Alloy 356.0-T6 or ASTM B108 Alloy 356.0-T6 (Yield strength test required).
         Mast Arm Fitting: ASTM B209 Alloy 6061-T6 or ASTM B221 Alloy 6005-T5.
         Mast Arms: ASTM B241 Alloy 6061-T6 or Alloy 6063-T6.
         Pole Cap: ASTM B209 Alloy 5086-H32 or ASTM B108 or B26 Alloy 356.0-T6.
         Bolts: Stainless Steel AISI 300 series. Bolts threading into aluminum threads shall be treated with anti-seize compound, Never-Seez Compound, Permatex 133K or equal.

6. Special Designs. Poles with architectural treatments shall meet the requirements shown elsewhere in the plans.

7. Luminaire Mounting Height. Actual luminaire mounting height shall be the nominal mounting height given on RIP(2) for all pole-arm combinations except for poles with 4 ft. luminaire arms, which shall be 3'-0" lower than the nominal height, unless otherwise shown or directed.

EXPLANATION OF ROADWAY ILLUMINATION ASSEMBLY DESIGNATIONS

(TYPE SA 50 T - X - X) (400W EQ) LED

- SA: Pole and mast arm may be steel or aluminum.
- ST: Pole and mast arm must be steel.
- AL: Pole and mast arm must be aluminum.
- SP: Special (ovalized) steel or aluminum pole for installing on CSB or SSCB. See standard sheet CSB (4), or SSCB (4).

Two numerical digits denote nominal mounting height in feet.

Next letter denotes type of base, (S-Shoe Base, T-Transformer Base, or B-Bridge/Ret.Wall Mount)

First number denotes length of mast arm in feet.

Use of second mast arm is indicated by second dashed number which denotes length in feet.

Luminaire rating in watts (i.e. 400W). Equivalent wattage LED fixtures will include EQ (i.e. 400W EQ)

Last letters indicate light source (S - High Pressure Sodium; LED - LED luminaire)

SHEET 1 OF 4

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

RIP(1)-19

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	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1201

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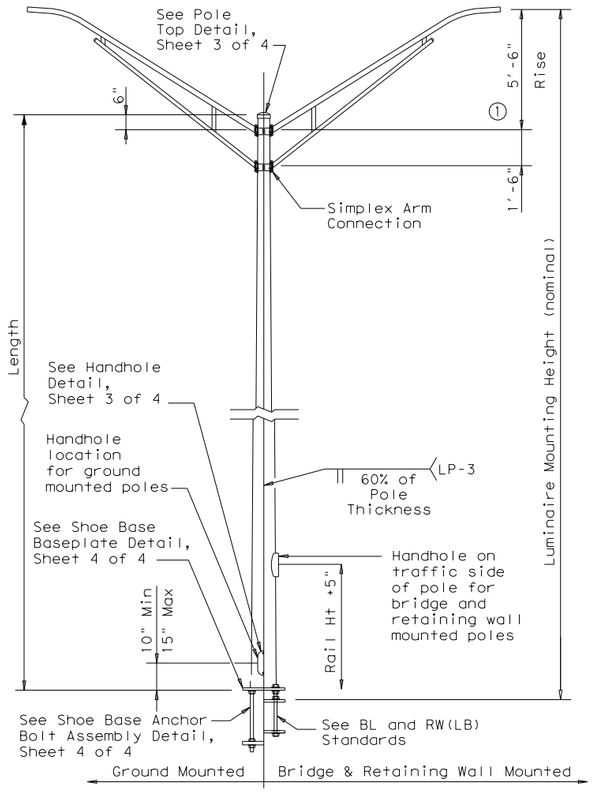
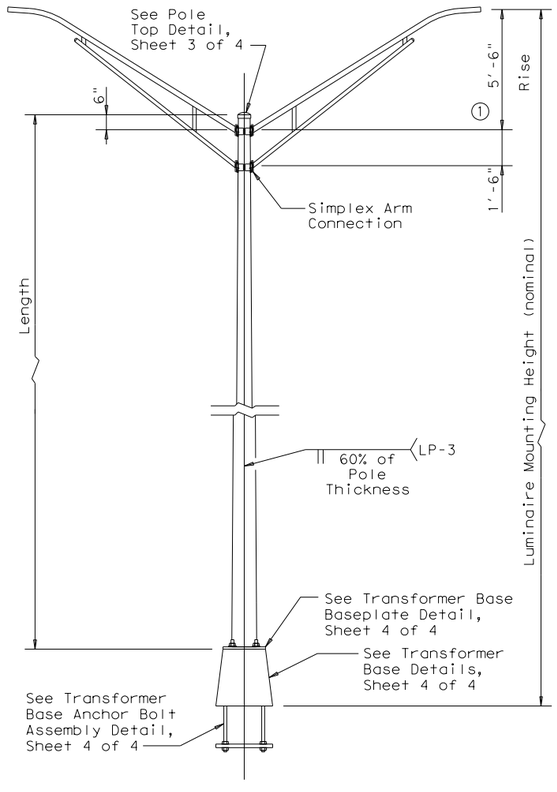


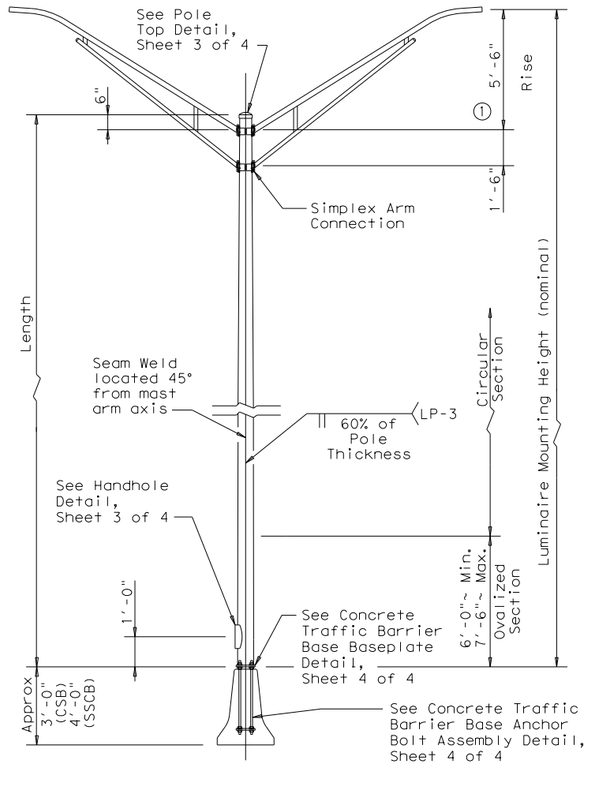
SHOE BASE POLE

SHOE BASE POLE					
Luminaire Mounting Height (Nominal) (ft)	Base Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)
20.00	7.00	4.90	15.00	0.1196	7.1
30.00	7.50	4.00	25.00	0.1196	13.2
31.00-39.00	8.00	4.36-3.24	26.00-34.00	0.1196	20.7
40.00	8.50	3.60	35.00	0.1196	20.7
50.00	10.50	4.20	45.00	0.1196	30.3



TRANSFORMER BASE POLE

TRANSFORMER BASE POLE					
Luminaire Mounting Height (Nominal) (ft)	Base Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)
20.00	7.00	5.11	13.50	0.1196	7.1
30.00	7.50	4.21	23.50	0.1196	13.2
31.00-39.00	8.00	4.57-3.45	24.50-32.50	0.1196	20.7
40.00	8.50	3.81	33.50	0.1196	20.7
50.00	10.00	3.91	43.50	0.1196	30.3



CONCRETE TRAFFIC BARRIER BASE POLE

CONCRETE TRAFFIC BARRIER BASE POLE (CSB/SSCB)						
Luminaire Mounting Height (Nominal) (ft)	Base ② Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)	
					About ℄ of Rail	Perp. to Rail
28.00	9.00	5.78	23.00	0.1196	10.3	13.2
38.00	9.00	4.38	33.00	0.1196	16.6	20.8
48.00	10.50	4.48	43.00	0.1345	25.1	30.5

MATERIAL DATA		
COMPONENT	ASTM DESIGNATION	MIN. YIELD (ksi)
Pole Shaft (0.14"/ft. Taper)	A572 Gr 50, A595 Gr A, A1011 HSLAS Gr 50 Cl 2 ③, or A1008 HSLAS Gr 50 Cl 2	50
Base Plate and Handhole Frame	A572 Gr.50, or A36	36
T-Base Connecting Bolts	F3125 Gr A325	92
Anchor Bolts	F1554 Gr 55, A193-B7 or A321	55 105
Anchor Bolt Templates	A36	36
Heavy Hex (H.H.) Nuts	A194 Gr 2H, or A563 Gr DH	
Flat Washers	F436	

NOTES:

① 2'-6" rise for 4 ft. luminaire arms.

② Before ovalized as shown on Concrete Traffic Barrier Base Baseplate details, Sheet 4 of 4.

③ A1011 SS Gr 50 may be used instead of HSLAS, provided the material meets the elongation requirements for HSLAS.

POLE ASSEMBLY FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Shaft length	+1"
I.D. of outside piece of slip fitting pieces	+1/8", -1/16"
O.D. of inside piece of slip fitting pieces	+1/32", -1/8"
Shaft diameter: other	+3/16"
Out of "round"	1/4"
Straightness of shaft	±1/4" in 10 ft
Twist in multi-sided shaft	4° in 50 ft
Perpendicular to baseplate	1/8" in 24"
Pole centered on baseplate	±1/4"
Location of Attachments	±1/4"
Bolt hole spacing	±1/16"

GENERAL NOTES:

1. Designs conform to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals , 6th Edition (2013) and Interim Revisions thereto. Design 3-Second Gust Wind Speed equals 110 mph with a 1.14 gust factor. A wind importance factor of 0.80 is applied to adjust the wind speed to a 25 year recurrence interval. Design moments listed in tables assume base of pole is 25' above natural ground level.
2. Structures are designed to support two 12' luminaire mast arms and luminaires. Mast arms are designed to support a 60-pound luminaire having an effective projected area of 1.6 square feet.
3. Fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Do not submit shop drawings for roadway illumination pole assemblies fabricated in accordance with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of these sheets and the Specifications. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.
4. For mounting heights between values shown in the tables, use base diameter and thickness values for the larger height.
5. Unless otherwise noted, all steel parts shall be galvanized in accordance with Item 445, "Galvanizing."
6. Steel poles shall be fabricated in accordance with Item 441, "Steel Structures." Longitudinal seam welds for pole sections shall have 60% minimum penetration. All welding shall be in accordance with AWS D1.1, Structural Welding Code-Steel.
7. Two-section poles joined by circumferential welds will not be permitted, unless otherwise shown on the plans. Poles may be fabricated in two sections and field-assembled by the lap-joint method. The two sections shall telescope together with a lap length of not less than 1-1/2 times the shaft diameter at the lap joint.
8. Alternate material equal to or better than material specified may be substituted with the approval of the Engineer.
9. Lubricate and tighten anchor bolts, when erecting shoe base poles and concrete traffic barrier base poles, in accordance with Item 449, "Anchor Bolts."
10. All poles, except Transformer Base Poles, shall have hand holes with reinforcing frames and covers. For ground mounted shoe base poles, hand holes shall be placed 90 degrees to mast arm unless otherwise noted on the plans. For poles mounted on a concrete traffic barrier with one luminaire arm, hand holes shall be located 180 degrees from luminaire arm. For poles mounted on a concrete traffic barrier with two luminaire arms, all hand holes shall be on the same side of the barrier. For poles mounted on a bridge lighting bracket or a retaining wall lighting bracket, hand hole shall be on traffic side of the pole, at a height that will clear the barrier.
11. The finished pole shall have a smooth, uniform finish free of pits, blisters, or other defects. Scratched, chipped, and other damaged galvanized areas on poles and mast arms shall be repaired in accordance with Item 445, "Galvanizing."
12. Pole length is based on a 5'-6" luminaire arm rise. 4 ft. luminaire arms have a 2'-6" rise. A pole with 4 ft. luminaire arms will have an actual mounting height 3'-0" less than the nominal mounting height. Increasing the pole length to meet the nominal mounting height is allowed, but unnecessary unless otherwise directed by the engineer.
13. Erect transformer base poles in accordance with sheet RID(1).

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

RIP(2)-19

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7-17	DIST	COUNTY		SHEET NO.
12-19	DAL	COLLIN		1202

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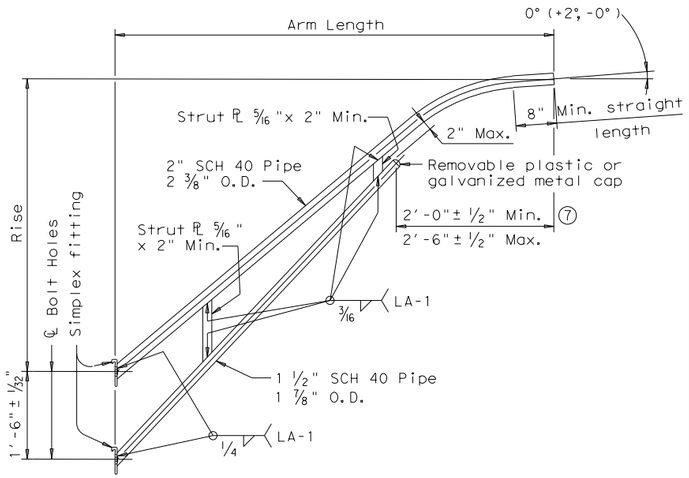
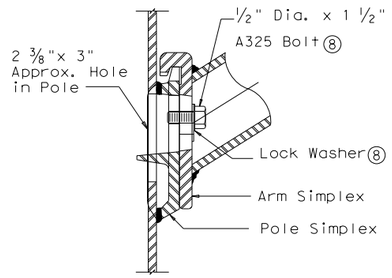


LUMINAIRE ARM

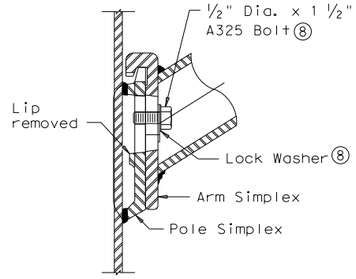
LUMINAIRE ARM DIMENSIONS		
Nominal Arm Length	Arm Length	Rise
4'-0"	3'-6"	2'-6"
6'-0"	5'-6"	5'-6"
8'-0"	7'-6"	5'-6"
10'-0"	9'-6"	5'-6"
12'-0"	11'-6"	5'-6"

ARM ASSEMBLY FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Arm Length	±1"
Arm Rise	±1"
Deviation from flat	1/8" in 12"
Spacing between holes	±1/32"



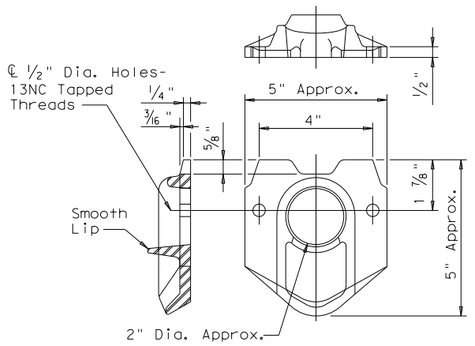
UPPER SIMPLEX FITTING

(Gusset not shown for clarity)

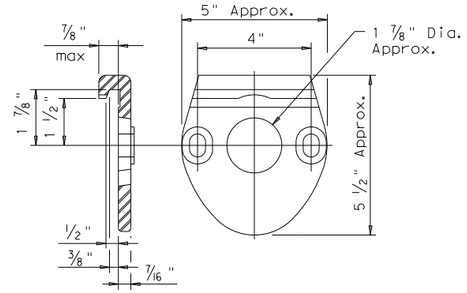


LOWER SIMPLEX FITTING
(Gusset not shown for clarity)

SECTION B-B



POLE SIMPLEX DETAIL ⑨



ARM SIMPLEX DETAIL ⑨

NOTES:

④ Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.

⑤ A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.

⑥ A572, A1008 HSLAS-F, and A1011 HSLAS-F materials may have higher yield strengths but shall not have less elongation than the grade indicated.

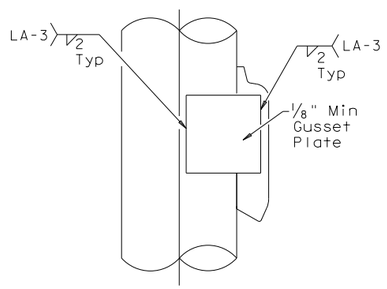
⑦ Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.

⑧ Each pole simplex fitting shall be supplied with 2 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans.

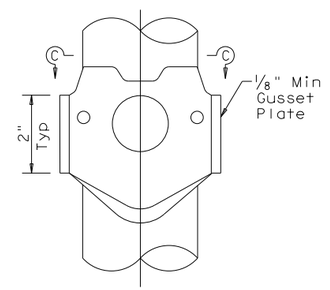
⑨ Proposed deviations in arm simplex dimensions or materials must be submitted to the Department for approval.

⑩ A welded handhole frame is permissible. Maximum of two (2) CJP weld splices is allowed.

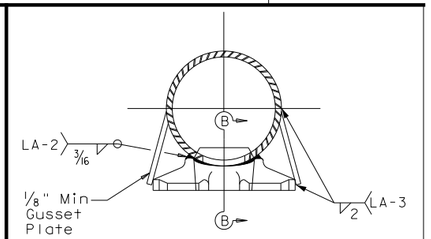
MATERIALS	
Pole or Arm Simplex	ASTM A27 Gr 65-35 or Gr 70-36, A148 Gr 80-50, A576 Gr 1021 ⑤, or A36 (Arm only)
Arm Pipes	ASTM A53 Gr A or B, A500 Gr B, A501, A 1008 HSLAS-F Gr 50 ⑥, or A1011 HSLAS-F Gr 50 ⑥
Arm Struts and Gusset Plates ④	ASTM A36, A572 Gr 50 ⑥, or A588
Misc.	ASTM designations as noted



SIDE

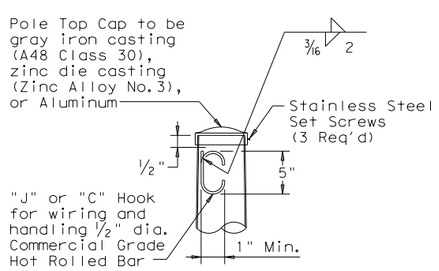


ELEVATION

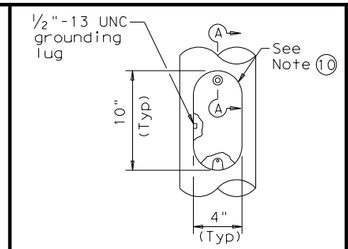


SECTION C-C

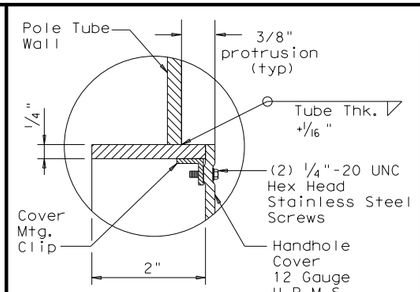
SIMPLEX ATTACHMENT DETAIL



POLE TOP



ELEVATION



SECTION A-A

HANDHOLE

SHEET 3 OF 4

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

RIP(3)-19

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12-19	DAL	COLLIN		1203

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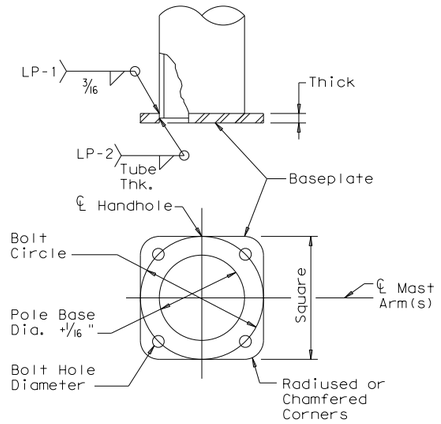
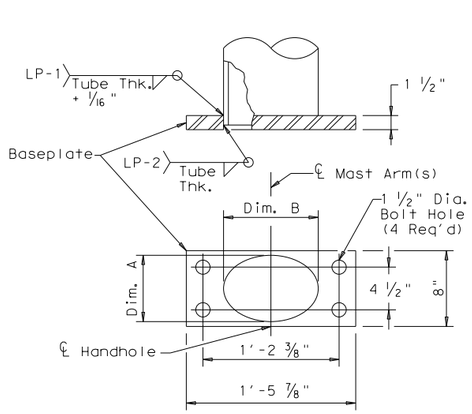


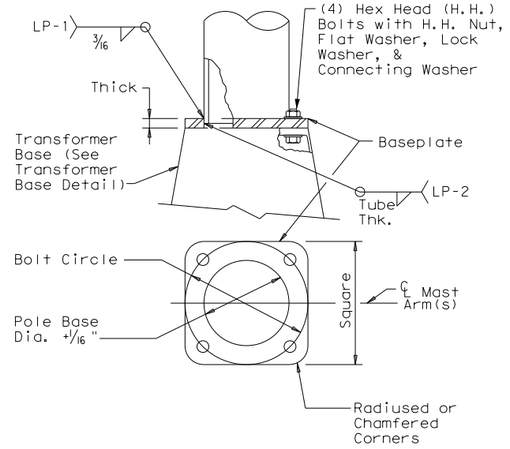
SHOE BASE BASEPLATE

SHOE BASE BASEPLATE TABLE				
MOUNTING HEIGHTS (nominal)	BOLT CIRCLE	SQUARE	THICK	BOLT HOLE DIAMETER
20′ - 39′	13"	13"	1 1/4"	1 1/4"
40′	15"	15"	1 1/4"	1 1/2"
50′	15"	15"	1 1/2"	1 1/2"



CONCRETE TRAFFIC BARRIER BASE BASEPLATE

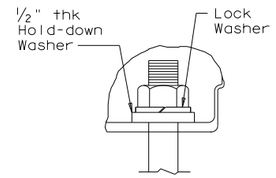
CONCRETE TRAFFIC BARRIER BASE BASEPLATE TABLE			
MOUNTING HEIGHTS (nominal)	POLE DIA.(12)	DIM. A	DIM. B
28′ - 38′	9"	7"± 1/4"	10"± 1/4"
48′	10 1/2"	7"± 1/4"	13"± 1/4"



TRANSFORMER BASE BASEPLATE

TRANSFORMER BASE BASEPLATE TABLE						
MOUNTING HEIGHTS (nominal)	BOLT CIRCLE	SQUARE	THICK	CONNECTING BOLT DIA.	BOLT HOLE DIAMETER	TRANSFOMER BASE TYPE
20′ - 39′	13"	13"	1 1/4"	1"	1 1/4"	A
40′	15"	15"	1 1/4"	1 1/4"	1 1/2"	B
50′	15"	15"	1 1/2"	1 1/4"	1 1/2"	B

TRANSFORMER BASE TABLE		
TYPE	TOP B.C.	BTM. B.C.
A	13"	14"
B	15"	17 1/4"



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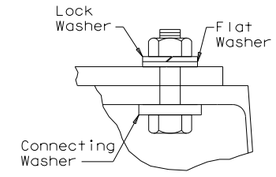

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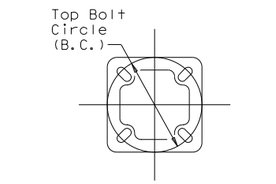
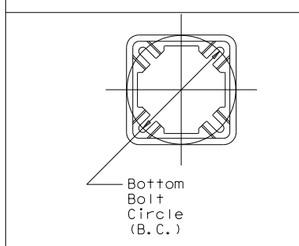


TOP PLAN



BOTTOM PLAN

GENERAL NOTES:

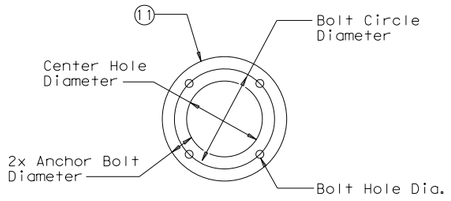
1. For mounting heights between those shown in the table, use the values in the table for the larger mounting height.
2. All breakaway bases shall meet the breakaway requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 6th Edition (2013) and Interim Revisions thereto, and shall have been tested by FHWA-approved methods. All bases shall have been structurally tested to resist 150% of the design moment.
3. Transformer bases shall be cast from aluminum, ASTM B108 or B26 Alloy 356.0-T6, or other material approved by the Engineer. Four Hex Head (H.H.) bolts with four H.H. nuts, four lock washers, four flat washers, and connecting and hold-down washers as recommended by the manufacturer, galvanized to ASTM A153 Class C or D, or B695 Class 50, shall be provided with each transformer base for connecting the pole. Bolts shall be ASTM A325 or approved equal. Nuts shall be ASTM A563 grade DH galvanized.
4. Bases shall be stamped, incised or by other approved permanent means, marked to show fabricator's name or logo, and model number. Such information shall be placed in a readily seen location, inside or outside the base, but shall not be placed on the door.
5. Doors for transformer bases shall be made of plastic, fiberglass or other non-metallic material approved by the Engineer and shall be attached with stainless steel screws or bolts. Transformer bases shall be cleaned by grit blast cleaning after heat treatment. Certification by the manufacturer of heat treatment shall be furnished with transformer bases. The certification shall show the metal alloy and temper and that the base meets those requirements, chemical and physical. The certification shall also show the material ASTM specification. Transformer bases shall be cast with a removable tab bar for material testing. Some bars may have been removed by the manufacturer for testing.

NOTES:

(11) Anchor Bolt Templates do not need to be galvanized.

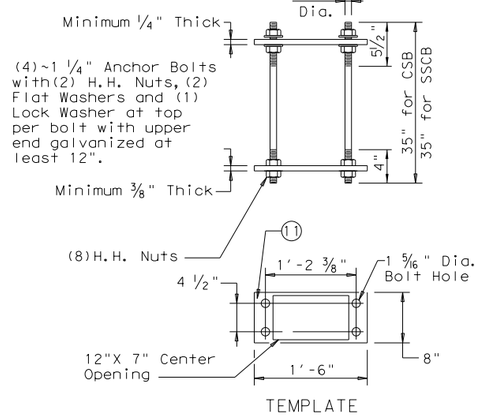
(12) Pole diameter before ovalized.

ANCHOR BOLT FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Length	± 1/2"
Threaded length	± 1/2"
Galvanized length (if required)	- 1/4"



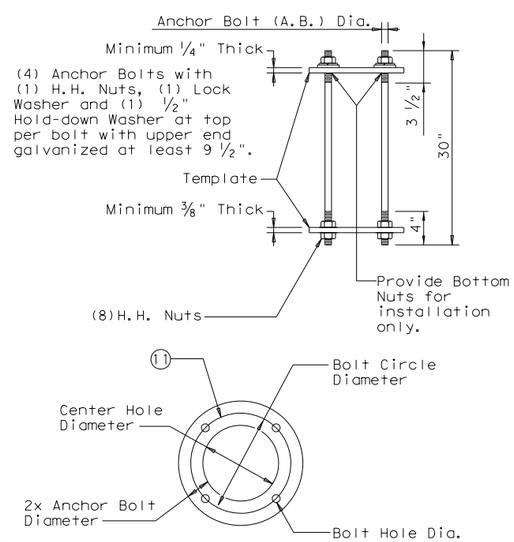
SHOE BASE ANCHOR BOLT ASSEMBLY

SHOE BASE ANCHOR BOLT ASSEMBLY TABLE				
MOUNTING HEIGHTS (nominal)	A.B. Dia.	BOLT CIRCLE DIAMETER	CTR. HOLE DIAMETER	BOLT HOLE DIAMETER
20′-39′	1"	13"	11"	1 1/16"
40′-50′	1 1/4"	15"	12 1/2"	1 5/16"

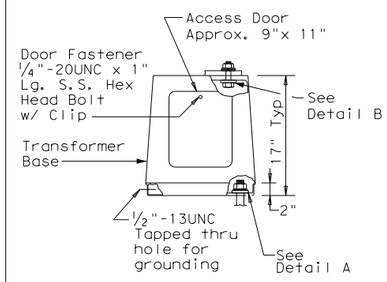


CONCRETE TRAFFIC BARRIER BASE ANCHOR BOLT ASSEMBLY

TRANSFORMER BASE ANCHOR BOLT ASSEMBLY TABLE				
MOUNTING HEIGHTS (nominal)	A.B. Dia.	BOLT CIRCLE DIAMETER	CTR. HOLE DIAMETER	BOLT HOLE DIAMETER
20′- 39′	1"	14"	12"	1 1/16"
40′- 50′	1 1/4"	17 1/4"	14 3/4"	1 5/16"



TRANSFORMER BASE ANCHOR BOLT ASSEMBLY



ELEVATION

TRANSFORMER BASE DETAILS

Texas Department of Transportation — Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

RIP(4)-19

FILE: rip-19.dgn	DN:	CK:	DW:	CK:
©TxDOT January 2007	CONT	SECT	JOB	HIGHWAY
REVISIONS 7-17 12-19	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1204

730

ROADWAY ILLUMINATION ASSEMBLY NOTES

1. Details apply to roadway lighting installations bid or referenced under Item 610, "Roadway Illumination Assemblies." Provide, furnish, and install all other materials not shown on the plans which may be necessary for complete and proper construction. Where manufacturers provide warranties or guarantees as a customary trade practice, furnish to the State such warranties or guarantees.

2. The locations of poles and fixtures may be shifted by the Engineer to accommodate local conditions. Install or remove poles and luminaires located near overhead electrical lines using established industry and utility safety practices and in accordance with laws governing such work. Consult with the appropriate utility company prior to beginning such work.

3. 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, Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection.

4. Provide Roadway Illumination Light Fixtures as per TxDOT Departmental Material Specification (DMS) 11010, Item 610, and as shown on the Material Producers List (MPL) for Roadway Illumination and Electrical Supplies.

5. Fabricate steel roadway illumination poles in accordance with Roadway Illumination Poles (RIP) standards and Item 610. Poles fabricated according to RIP standards do not require shop drawing submittals.

   a. Alternate designs to RIP standards or the use of aluminum to fabricate poles will require the submission of shop drawings electronically. For instructions on submitting shop drawings electronically see "Guide to Electronic Shop Drawing Submittal" on the TxDOT web site.

   b. Limitations on use of the RIP standard: The RIP standard details were developed for installations in locations where the 3-second gust basic maximum wind speed is 110 mph, and where the elevation of the base of the pole is less than (i.e. not more than) 25′ above the elevation of the surrounding terrain, in accordance with the "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals," 6th Edition (2013) of the AASHTO Design Specifications. For poles to be installed in regions where the maximum basic wind speed exceeds 110 mph or to be mounted more than 25′ above the surrounding terrain, provide poles meeting the following requirements:

      i. Submittals. Following the electronic shop drawing submittal process (see Guide to Electronic Shop Drawing Submittal on the TxDOT web site), submit to the Engineer for approval fabrication drawings and calculations for the poles, sealed by a Texas licensed professional engineer (P.E.).

      ii. Luminaire Structural Support Requirements. Provide light poles, arms, and anchor bolt assemblies with a 25 year design life to safely resist dead loads, ice loads and the required basic wind speeds at the location of installation in accordance with the 6th edition (2013) of the AASHTO Design Specifications. For transformer base poles, include transformer base and connecting hardware in calculations and shop drawing submittals. Structurally test all transformer bases to resist the theoretical plastic moment capacity of the pole. Submit certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished with the shop drawings. Show breakaway base model number, manufacturer's name, and logo on shop drawings. Include on manufacturer's shop drawings the ASTM designations for all materials to be used.

6. For both transformer and shoe-base type illumination poles, provide and install double-pole breakaway fuse holders as specified by DMS-11040. Breakaway fuse holders are listed on the MPL for Roadway Illumination and Electrical Supplies under Items 610 & 620. Provide 10 amp time delay fuses for breakaway connectors in light poles, or inside the light fixture for underpass luminaires. In each pole, connect luminaires to the breakaway connector with continuous stranded 12 AWG copper conductors as listed on the MPL. Bond all equipment grounding conductors together and to the ground lug in the transformer base or hand hole.

7. Tighten anchor bolts for shoe base, concrete traffic barrier base, and bridge mount roadway illumination poles, in accordance with Item 449.

8. Install T-Base with following procedure:

   a. Anchor Bolt Tightening.

      i. Coat the threads of the anchor bolts with electrically conductive lubricant.

      ii. Place the T-base over the anchor bolts. Foundation must be level and flat. The maximum permissible gap under any one corner of the t-base is 1/8" before nuts are tightened.

      iii. Coat the bearing surfaces of the nuts and washers with electrically conductive lubricant. Install (1) 1/2" hold down washer, (1) lock washer, and (1) nut on each anchor bolt. Turn the nuts onto the bolts so that each is hand-tight against the washer.

      iv. Using a torque wrench, tighten each nut to 150 ft-lb. Uniform contact is required between the foundation and the T-base in the corner regions of the T-base, and all corner gaps must be closed after applying torque. If a gap still exists after torquing to 150 ft-lbs, continue torquing each bolt incrementally until gap is closed or maximum allowable torque of 250 ft. pound is reached, whichever comes first. If 250 ft-lbs is not enough to close the gap the foundation must be leveled. Gaps along the straight sides of the T-bases and the foundation are permissible. Ensure that no high point of contact occurs between the straight sides of the T-base and the foundation.

      v. Check top of T-base for level. If not level then foundation must be leveled.

   b. Top Bolt Procedure

      i. Erect pole over T-base with crane. Coat bolts, nuts, washers, and lock washers with electrically conductive lubricant.

      ii. Install bolts and 1/2" connecting washers from the inside of the T-base, thread up through the pole base. Install flat washers, lock washers and nuts snug tight according to Item 447, "Structural Bolting."

      iii. Tighten each nut to 150 ft-lb. using a torque wrench.

   c. Level and Plumb

      i. Ensure pole is plumb and mast arm is perpendicular to the roadway according to plans to within 5 degrees.

9. Construct luminaire pole foundations in accordance with Item 416, "Drilled Shaft Foundations," and TxDOT standard sheet RID(2).

10. Provide and install underpass luminaires in accordance with Item 610, DMS-11010, and TxDOT standard sheet RID(3). Typical luminaire size for underpass luminaires is 150W HPS or 150W EQ LED.

11. Mount luminaires on arms level as shown by the luminaire level indicator.

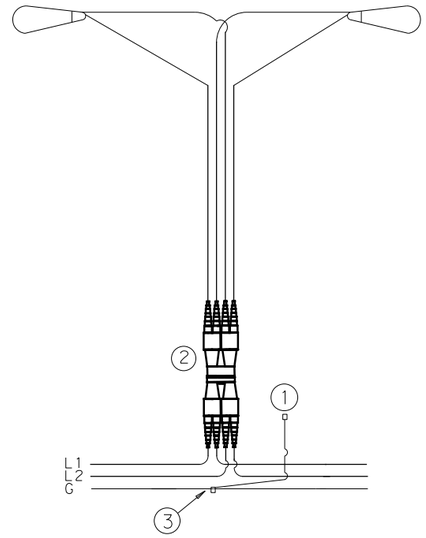
12. Orient luminaires perpendicular to the roadway intended to be lit unless otherwise shown on the plans.

Wiring Diagram Notes:

(1) Use 1/2 in.-13 UNC threaded, copper or tin-plated copper, pole bonding connector, sized appropriately for conductors, bonded to T-base, or use ground lug in handhole as available.

(2) Use pre-qualified two-pole breakaway connectors for all luminaire pole installations. For luminaires fed by a circuit with a neutral conductor, use double pole breakaway connectors with the neutral side unfused and marked white.

(3) Split Bolt or other connector.



L1,L2 = Hot Conductors
G = Grounding Conductor

TYPICAL WIRING DIAGRAM

LUMINAIRES SERVED AT 480V ON 240/480 VOLT SERVICE OR LUMINAIRES SERVED AT 240V FOR 120/240 VOLT SERVICE.

Decorative LED Lighting Notes:

1. LED Drivers in Remote Outdoor enclosures (for drivers that do not include an enclosure as part of a factory assembly):

   a. Provide NEMA 3R outdoor enclosure or as approved.

   b. Install enclosure at least 12" above ground or other horizontal surface. Mount vertically or on ceiling, and avoid direct sun where possible.

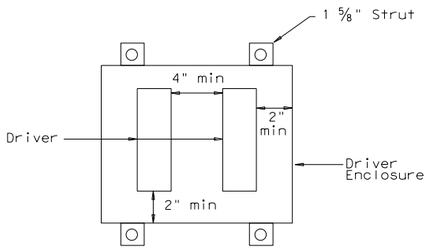
   c. Install drivers with at least 2 inches of space from enclosure walls.

   d. For multiple drivers in an enclosure, provide at least 4 inches side to side and 1 inch end to end from other drivers or electronic equipment

   e. For drivers mounted on back wall of enclosure, mount enclosure on 1 5/8" strut or other standoff to dissipate heat, or mount driver to side of the enclosure or to the metal cover.

   f. Provide remote drivers with a maximum of 100 watts

   g. Provide drivers with documentation of 100,000 hr lifetime at Tcase of 65C or higher.



Driver Spacing In Remote Enclosure

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS

RID(1)-20

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REVISIONS	0047	05	057, ETC.	SH5, ETC.
7-17	DIST	COUNTY		SHEET NO.
12-20	DAL	COLLIN		1205

72A

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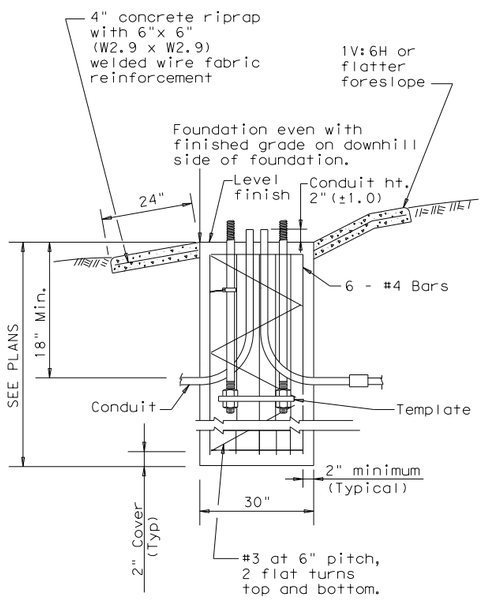
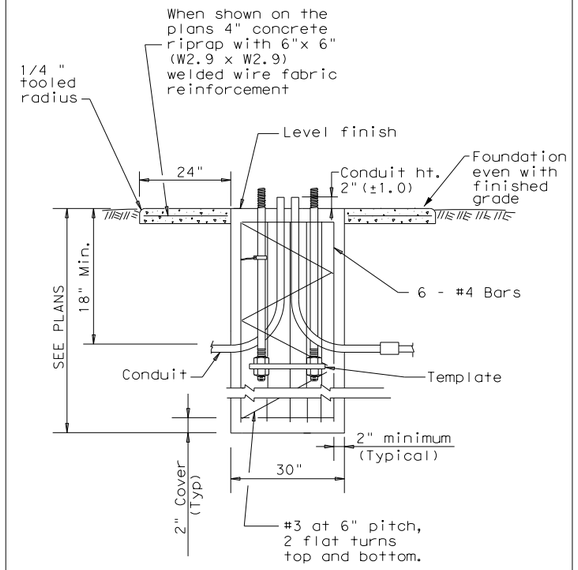


SECTION A-A
SHOWING SLOPED GRADE



SECTION A-A
SHOWING CONSTANT GRADE

TABLE 1

ANCHOR BOLTS

POLE MOUNTING HEIGHT	BOLT CIRCLE		ANCHOR BOLT SIZE
	Shoe Base	T-Base	
<40 ft.	13 in.	14 in.	1in. x 30in.
40-50 ft.	15 in.	17 ¼in.	1 ¼in. x 30in.

TABLE 2

RECOMMENDED FOUNDATION LENGTHS (See note 1)

MOUNTING HEIGHT	TEXAS CONE PENETROMETER N Blows/ft		
	10	15	40
≤20 ft.	6′	6′	6′
>20 ft. to 30 ft.	8′	6′	6′
>30 ft. to 40 ft.	8′	8′	6′
>40 ft. to 50 ft.	10′	8′	6′

TABLE 3

PAY QUANTITY OF RIPRAP PER FOUNDATION (Install only when shown on the plans)

Foundation Diameter	RIPRAP DIAMETER	RIPRAP (CONC) (CL B)
30 in.	78 in.	0.35 CY

GENERAL NOTES:

1. "Recommended Foundation Lengths" table is for information purposes only. Foundation lengths shall be as shown on the plans, or as directed by the Engineer. Foundations will be paid for under Item 416, "Drilled Shaft Foundations," unless otherwise shown on the plans.
2. Erect roadway illumination assembly poles plumb and true. Form and level the top 6" of the foundation so the pole will be plumb. Use leveling nuts to plumb shoe base poles. Do not use shims or leveling nuts under transformer bases. Do not grout between baseplate and the foundation.
3. Ensure Class 2A and 2B fit for anchor bolts and nuts. Tap and chase nuts after galvanizing. Anchor bolt body with rolled threads need not be full size.
4. Use appropriate class of concrete as specified in Items 416 and 432. Concrete for riprap may be upgraded to Class C at no extra cost to the Department.
5. Place riprap around the foundation when called for elsewhere in the plans. Riprap will be paid for under Item 432.
6. Locate breakaway roadway illumination assemblies as shown in the placement table, unless otherwise dimensioned on the plans. Protect non-breakaway illumination assemblies from vehicular impact (i.e. 2.5 ft. behind guard rail or mounted on traffic barrier), or located outside the clear zone, except that 2.5 ft. from curb face is minimum desired for light poles on city streets, 45 mph or less. See Roadway Design Manual for further information.
7. Use 4 hold down and 4 connecting washers on transformer base poles as recommended by the manufacturer and supplied with base.
8. Install a minimum of 2 conduits in each foundation. See lighting layout sheets for locations of foundations with more than 2 conduits. Cap unused conduits in foundations on both ends.
9. Conduit location in foundations is critical for breakaway devices. Place conduits 2 in. apart on centerline as shown.
10. Bond anchor bolt to rebar cage with #6 bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. The bonded steel in the foundation creates a concrete encased grounding electrode which replaces the ground rod.
11. Grade earthwork around T-base foundations even with the finished grade as shown in Section A-A to ensure proper function of the breakaway device. Use riprap on T-base foundations that are located on sloped grades, and as shown on the plans for level grades.

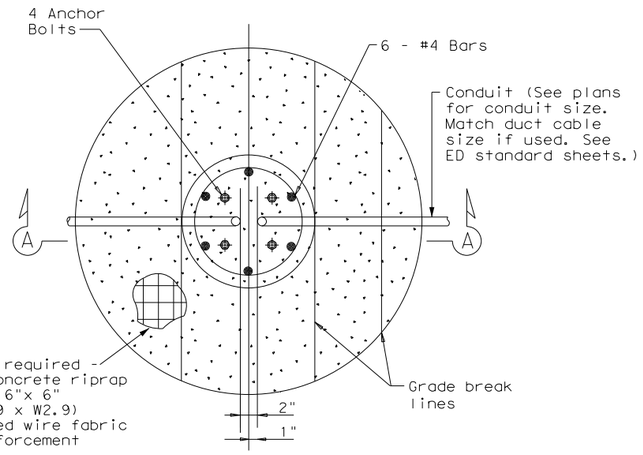
TABLE 4

BREAKAWAY POLE PLACEMENT (See note 6)

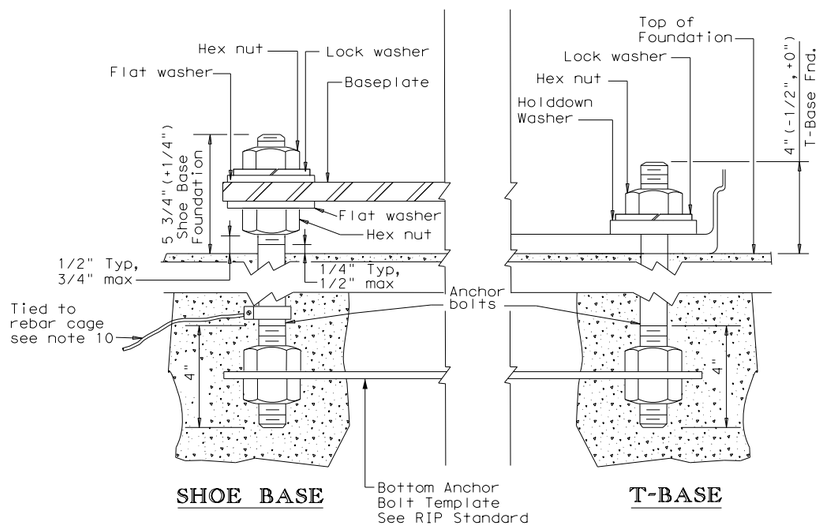
ROADWAY FUNCTIONAL CLASSIFICATION	** POLE OFFSET (DISTANCE TO FACE OF TRANSFORMER BASE)
Freeway Mainlanes (roadway with full control of access)	15 ft. (minimum and typical) from lane edge
All curbed, 45 mph or less design speed	2.5 ft. minimum (15 ft. desirable) from curb face
All others	10 ft. minimum*(15 ft. desirable) from lane edge

* or as close to ROW line as is practical

** provide 2/5 of the luminaire mounting height behind the pole for "falling area" to prevent encroachment on the other travel lanes. See design guidelines.



FOUNDATION DETAIL



SHOE BASE

T-BASE

ANCHOR BOLT DETAIL

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS (RDWY ILLUM FOUNDATIONS)

RID(2)-20

FILE: rid2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT January 2007	CONT	SECT	JOB	HIGHWAY
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1-11	DIST	COUNTY		SHEET NO.
7-17	DAL	COLLIN		1206
12-20				

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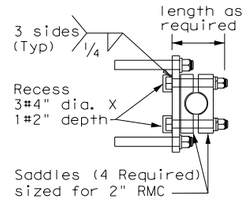
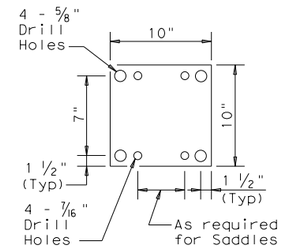
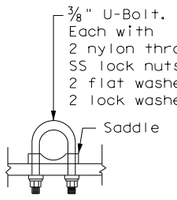


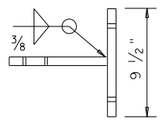
SECTION A-A



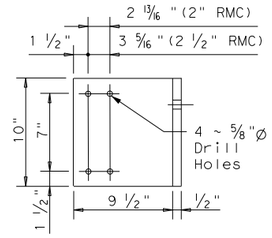
MOUNTING PLATE
(ASTM A-36 or better)



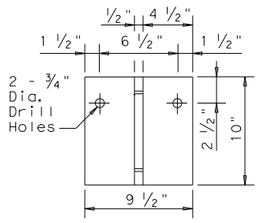
CLAMP DETAIL
(2 Req'd)



PLAN VIEW

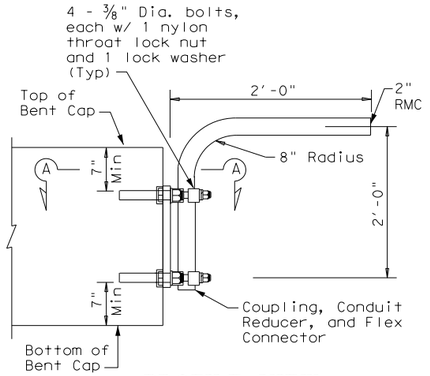


FRONT

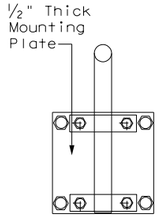


SIDE

BRACKET DETAIL
Make from 1/2" plate (ASTM A-36 or better)

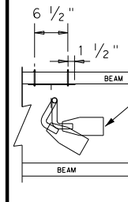


PROFILE VIEW
Or as Required
(See Note A.3)



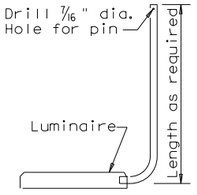
END VIEW

UNDERPASS LIGHTING ARM



PLAN VIEW

FIXTURE ORIENTATION



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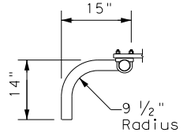
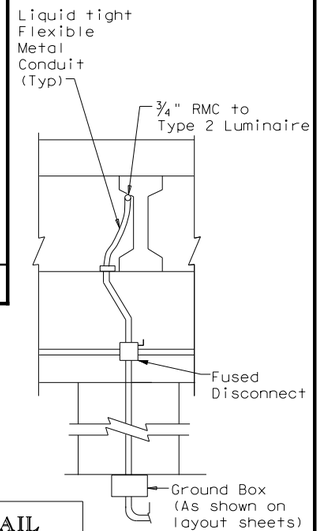
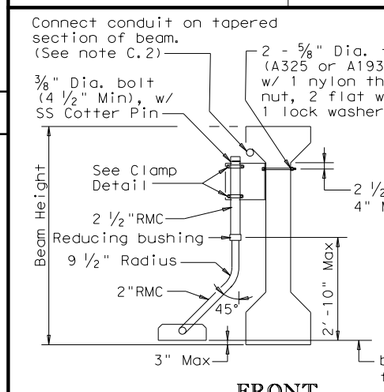


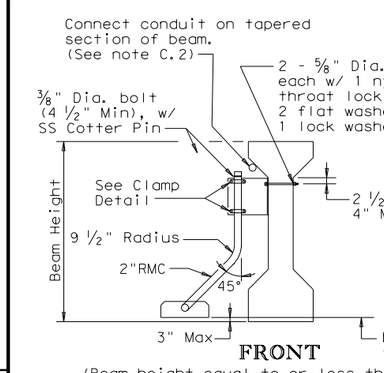
PLAN VIEW

ARM DETAIL





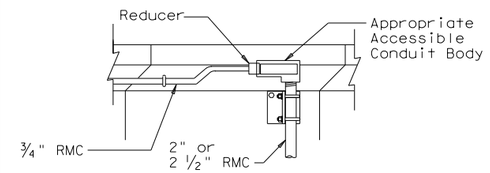
FRONT
(Beam height greater than 54")



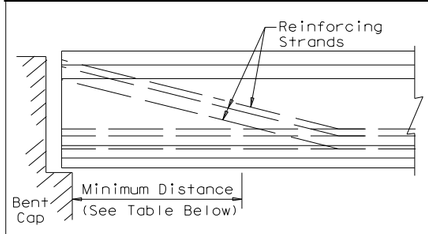
FRONT
(Beam height equal to or less than 54")

3 - No. 12 XHHW in 3/4" RMC for Branch Circuit runs from fused disconnect to underpass Luminaires

CONDUIT DETAIL



CONDUIT CONNECTION PROFILE



LOCATION OF UNDERPASS LIGHT MOUNTING BRACKET

TABLE 5

LOCATION OF UNDERPASS LIGHT MOUNTING BRACKET TABLE

SPAN LENGTH	MINIMUM DISTANCE
≤ 50'	10'-0"
50' - 70'	15'-0"
70' - 90'	20'-0"
> 90'	25'-0"

GENERAL NOTES:

A. ALL 150 watt HPS and 150 watt equivalent LED Luminaires

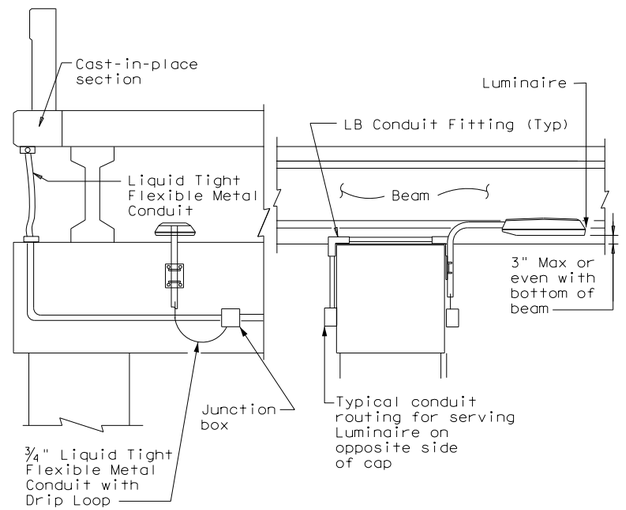
1. Luminaire locations, conduit and conductor sizes and routing are typical and diagrammatic only. See project layout sheets for specific details.
2. Conduit will be paid for under Item 618, "Conduit" and conductors will be paid for under Item 620, "Electrical Conductors," unless otherwise shown on the plans.
3. Adjust conduit in saddles to place fixture height and orientation as required. See fixture orientation detail and plans. Where practicable, place luminaires so the bottom of luminaire is above the bottom of the beam, maximum of 3 in. (See detail UNDERPASS LIGHTING ARM TYPE 2)
4. Except as noted, galvanize all structural steel and exposed bolts, nuts, and washers in accordance with Item 445 "Galvanizing".
5. Fabrication of brackets and support arms will not be paid for directly but is subsidiary to Item 610, "Roadway Illumination Assemblies."
6. Install a heavy duty NEMA 3R fused disconnect or breaker enclosure rated at 30 amps and 480 volts to switch underpass luminaires as shown on plans, with at least one per bridge circuit. Install 20 amp time-delay fuses or inverse-time circuit breakers. Mount disconnect or breaker enclosure 10 ft.(min) above grade on columns or bent caps as approved by the Department. Modify disconnect to allow padlocking in the "ON" and "OFF" positions. Padlocks and disconnect switches or circuit breakers for underpass fixtures will not be paid for directly but are subsidiary to the various bid items of the contract.
7. Conduit on columns, caps, and slab is shown surface mounted. For new columns and caps, embed PVC conduit in concrete. Bond and ground metal junction boxes and conduit.

B. TYPE 1

1. Provide 2 in. rigid metal conduit (2.375" O.D., 0.146" wall) for Type 1 arm shaft.
2. Use 3/8 in. stainless steel bolt or stud non-epoxy type expansion anchors for concrete for Type 1 mounting. Except as noted, provide an allowable 2650 lbs minimum pull-out force (after consideration of adjustment factors for edge distance and bolt spacing) for each anchor. Install each anchor to the embedment depth recommended by the manufacturer.
3. Attach conduit to plate with 4 saddles, four - 3/8 in. diameter bolts, nylon throat lock nuts, and lock washers.

C. TYPE 2

1. Provide 2 in. rigid metal conduit (2.375" O.D., 0.146" wall) or provide a combination of 2 1/2 in. (2.875" O.D., 0.193" wall) and 2 in. (2.375" O.D., 0.146" wall) rigid metal conduits with a reducing bushing as beam height stipulated for Type 2 arm shaft. Field cutting and threading will be permitted. Paint cut and threaded areas with zinc rich paint after conduit is connected to adjacent fitting.
2. Connecting conduit may be strapped to tapered section only of precast beams as shown. Anchor as approved by the Engineer. Maximum anchor depth is 1 in.
3. Indiscriminate drilling into precast concrete beams may result in reduced beam strength. Use drilling location and method as directed by the Engineer. See Location of Underpass Lighting Mounting Bracket detail. The locations shown in the table are such that reinforcing strands will not be damaged.



IN RD IL AM (U/P)(TY 1)
If bridge has pre-cast panels under deck, run circuit under deck edge.

UNDERPASS LIGHTING TYPE 1

IN RD IL AM (U/P)(TY 2)

UNDERPASS LIGHTING TYPE 2

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS
(UNDERPASS LIGHT FIXTURES)

RID(3)-20

FILE: rid3-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
2-14 7-17 12-20	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1207

72C

DATE: 10/1/2024 11:48:24 AM
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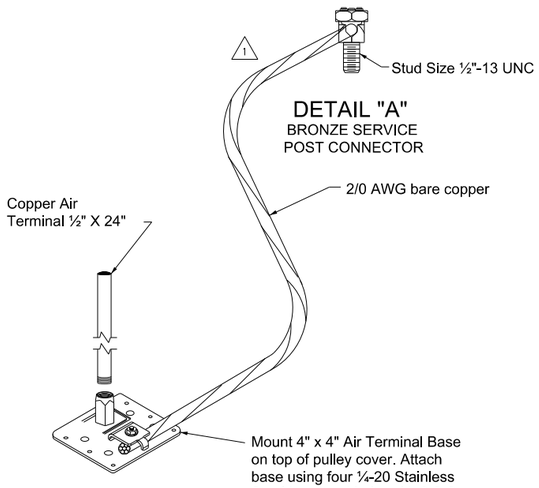
NOTES:

1. Assemble and erect pole, ring, and ring support so that Reference Line is parallel to center line of roadway or as shown in the plans.

2. Place fixtures on ring to provide a min. clearance of 7" between fixtures.

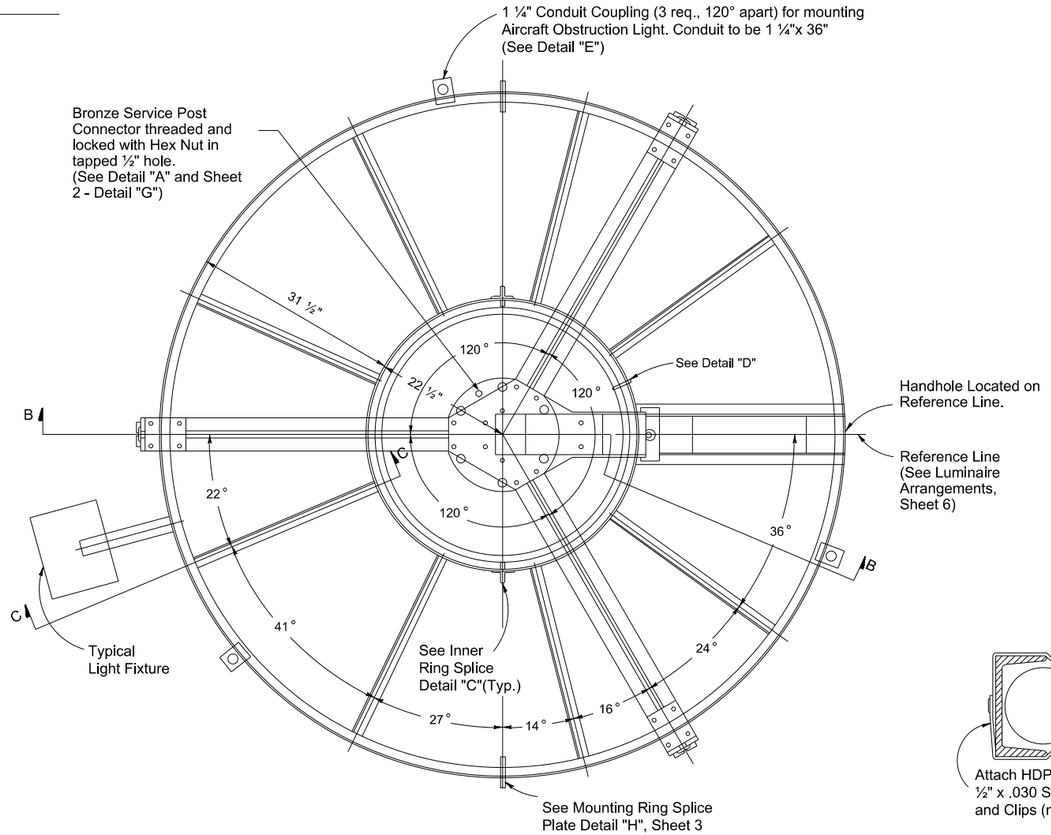


DETAIL "A"
BRONZE SERVICE POST CONNECTOR

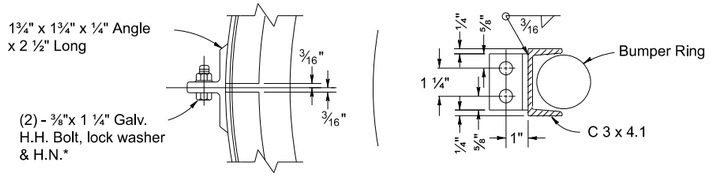
DETAIL "B"
AIR TERMINAL BASE

NOTE:

All lightning protection materials and components shall comply in size and composition with NFPA-780 requirements for this type of structure.

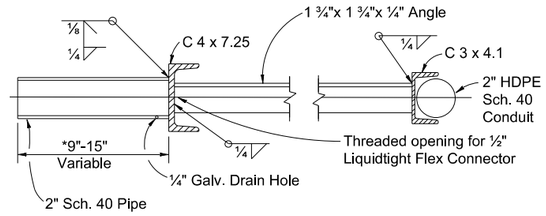


LIGHT MOUNTING RING & SUPPORT ASSEMBLY



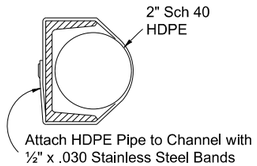
DETAIL "C"
INNER RING SPLICE

* Note: Torque bolts to 30 foot pounds or as recommended by the manufacturer

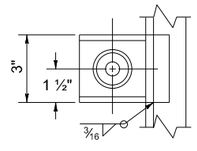


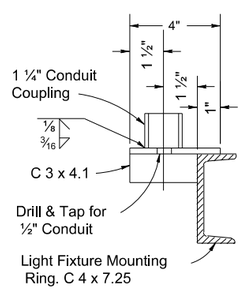
SECTION C-C

* Note: Determine tenon length according to required clearance and fixture used.

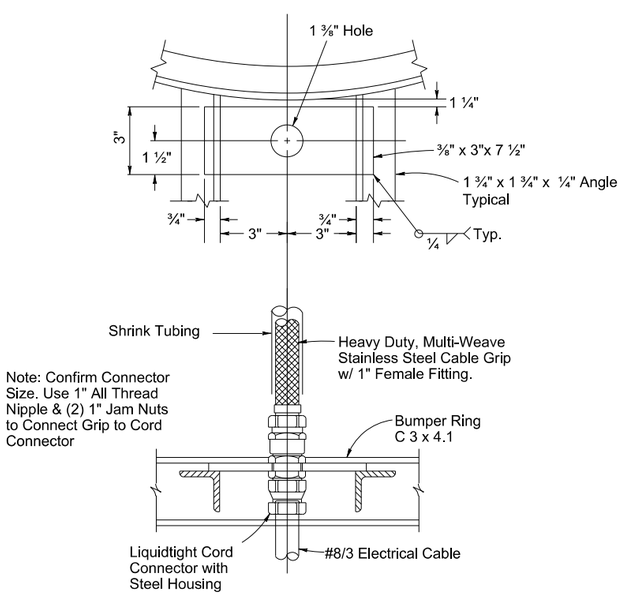


DETAIL "D"
BUMPER RING ATTACHMENT





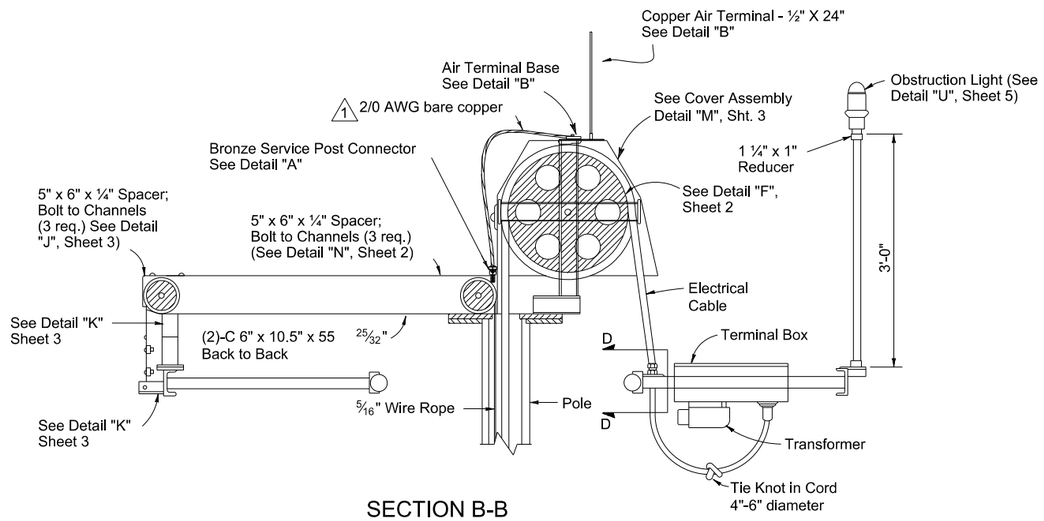
DETAIL "E"
CONDUIT ATTACHMENT FOR OBSTRUCTION LIGHTS. TYPICAL (3) PLACES



SECTION D-D

NOTE:

2 Cover cable grip with heat shrink or cold shrink tubing for entire length of cable grip. Stainless steel bands are no longer used to hold cable grip.



SECTION B-B

1 Rev. lightning Rod Details

2 Rev. Cord Grip Details

Texas Department of Transportation

Traffic Safety Division Standard

HIGH MASK ILLUMINATION DETAILS

HMID(1)-24

FILE: hmid-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-86 5-87 2-24 5-86 10-87 4-87 4-96	0047	05	057, ETC.	SH5, ETC.
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	DAL	COLLIN		1208

76A

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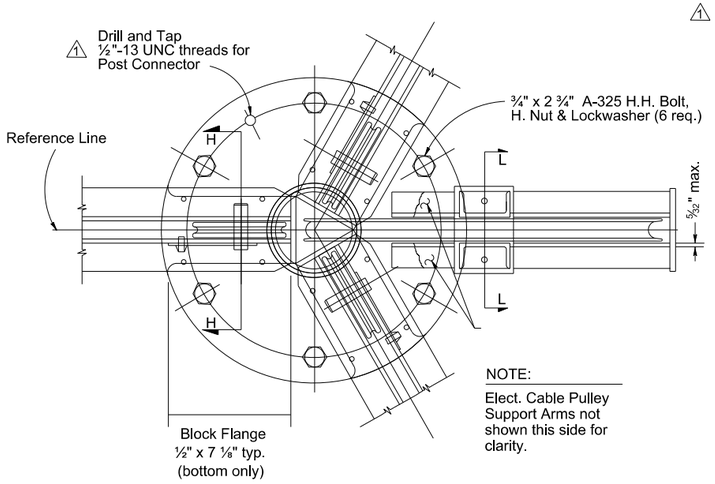
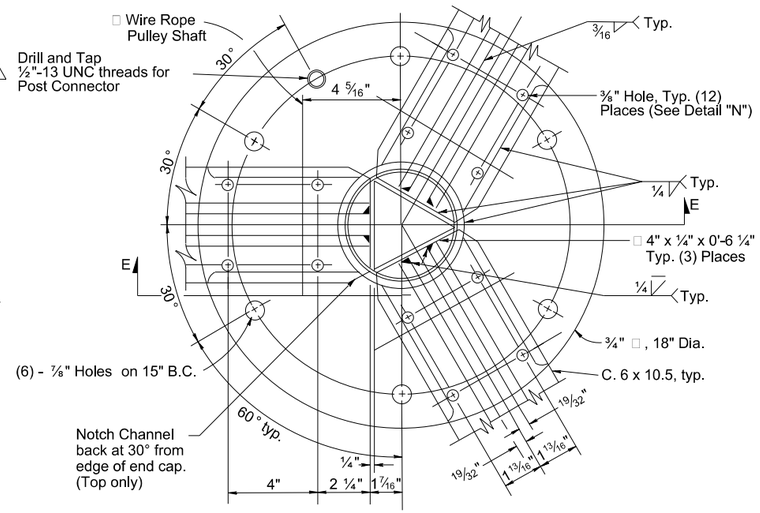
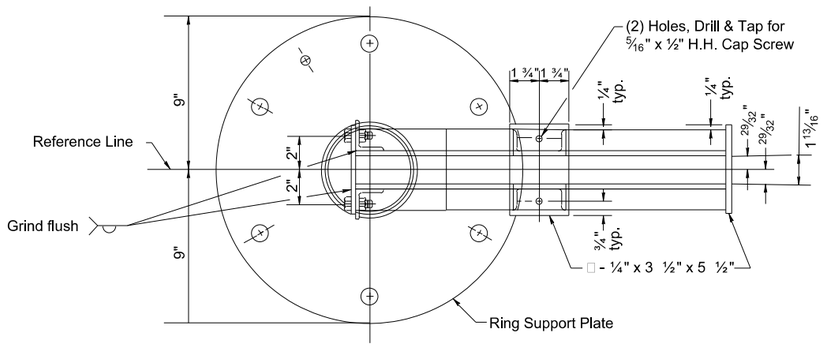


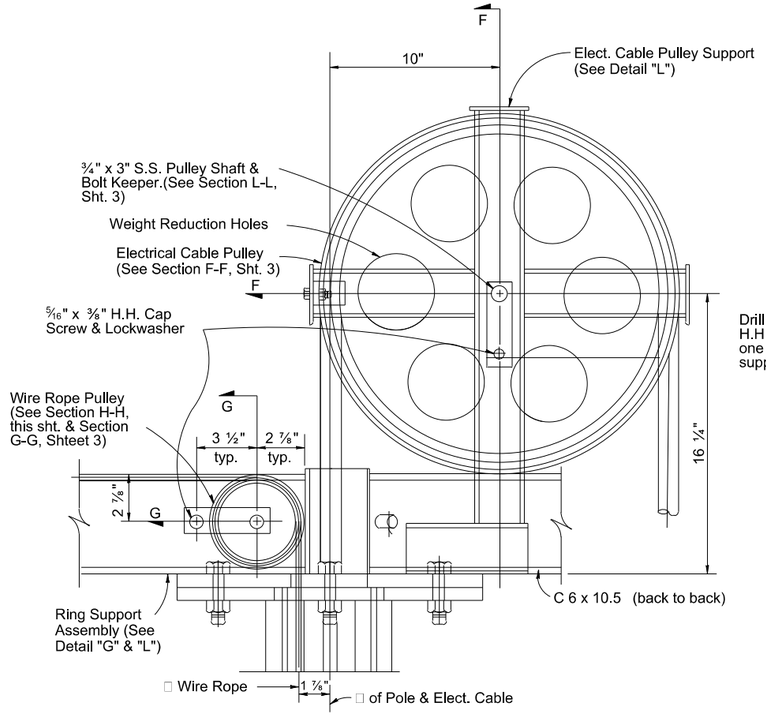
PLAN VIEW



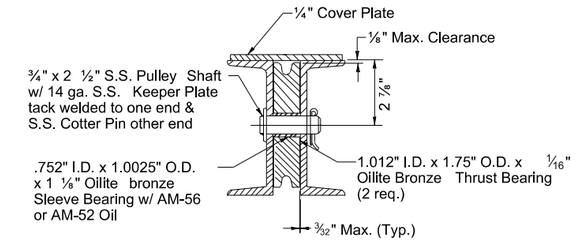
DETAIL "G"
TOP PLATE CONNECTION
(LESS ELECT. CABLE PULLEY SUPPORT)
(See DETAIL "L")



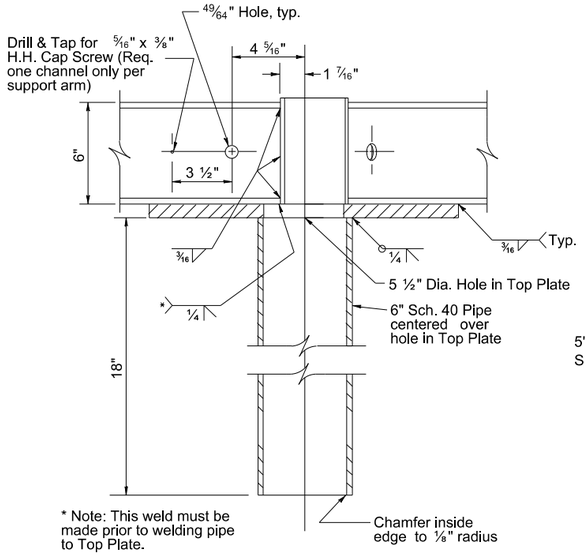
PLAN VIEW



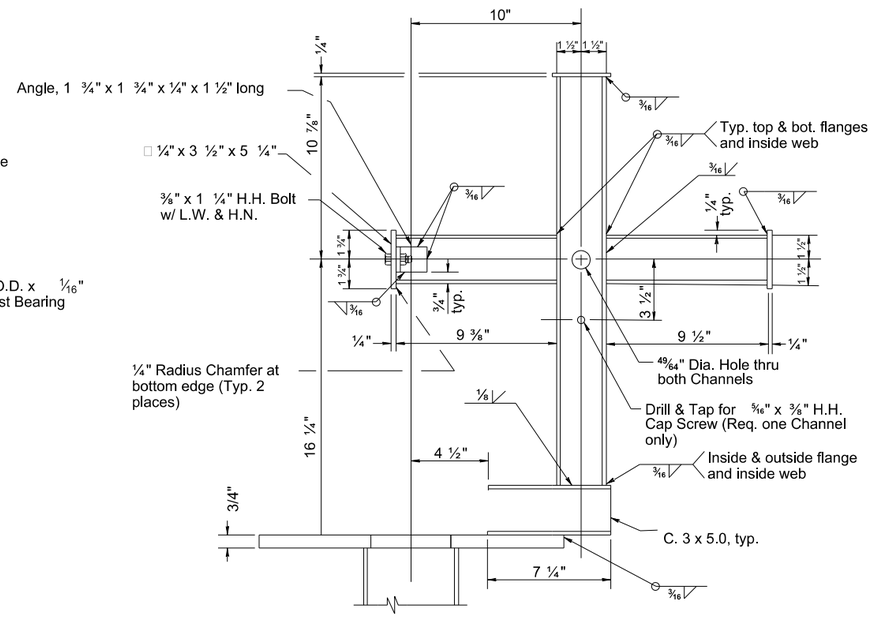
DETAIL "F"
RING SUPPORT ASSEMBLY
(near side Support Arm & Elect. Cable Pulley Cover not shown for clarity)



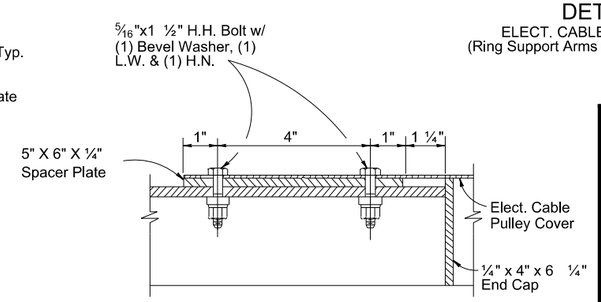
SECTION "H-H"
PULLEY MOUNTING FOR RING SUPPORT ARMS



SECTION "E - E"



DETAIL "L"
ELECT. CABLE PULLEY SUPPORT
(Ring Support Arms not shown for clarity)



DETAIL "N"

1 Revised Hole Size For Lightning Rod

Texas Department of Transportation

Traffic Safety Division Standard

HIGH MAST ILLUMINATION DETAILS

HMID(2)-24

FILE: hmid-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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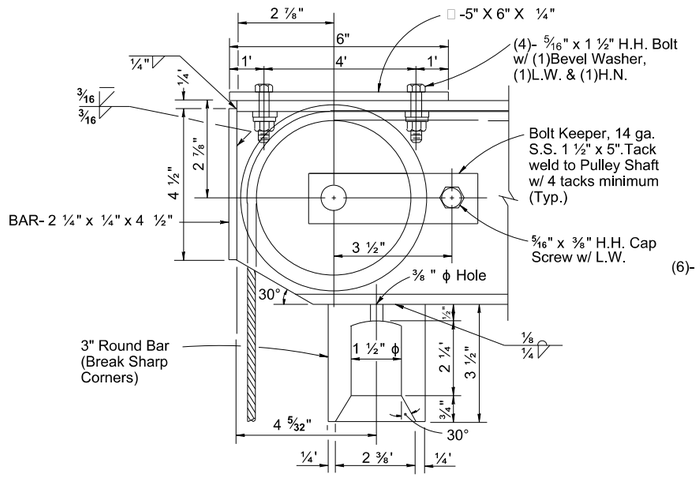
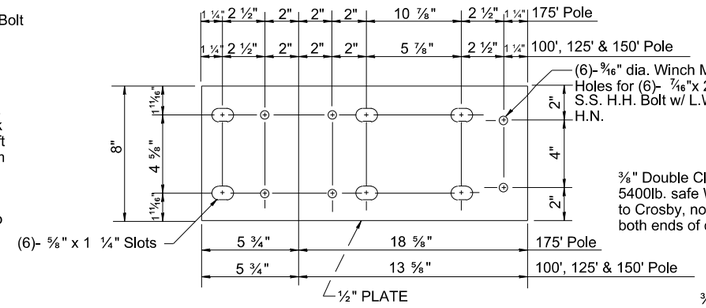
REVISIONS 1-86 5-87 2-24 4-86 12-87 5-86 4-96	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1209

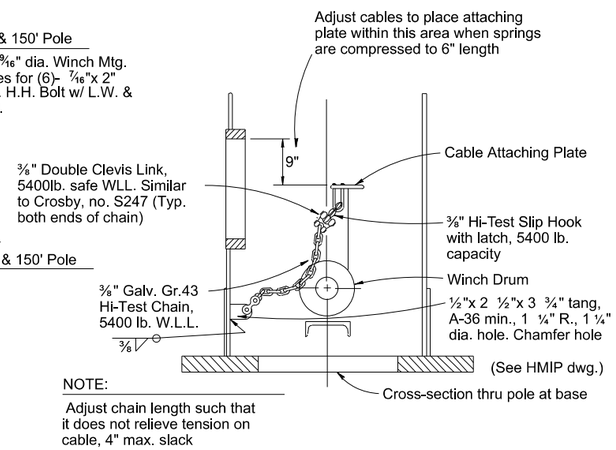
76B



DETAIL "J"

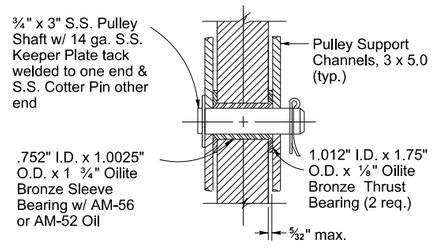


DETAIL "V"
WINCH MOUNTING PLATE
Dimensions may vary - Verify with winch manufacturer.



NOTE:
Adjust chain length such that it does not relieve tension on cable, 4" max. slack

SAFETY LANYARD DETAIL

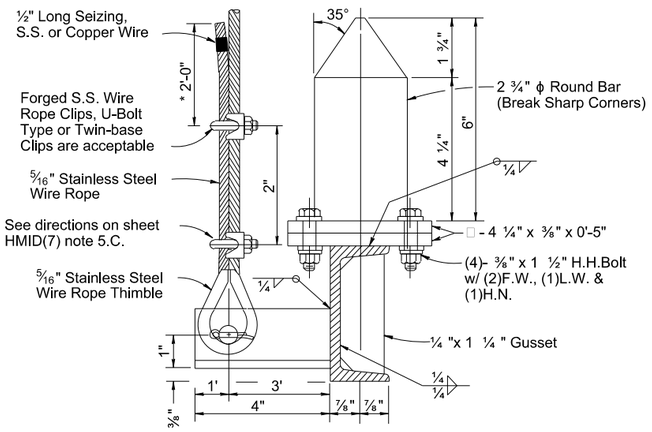


SECTION L-L
ELECTRICAL CABLE PULLEY MOUNTING

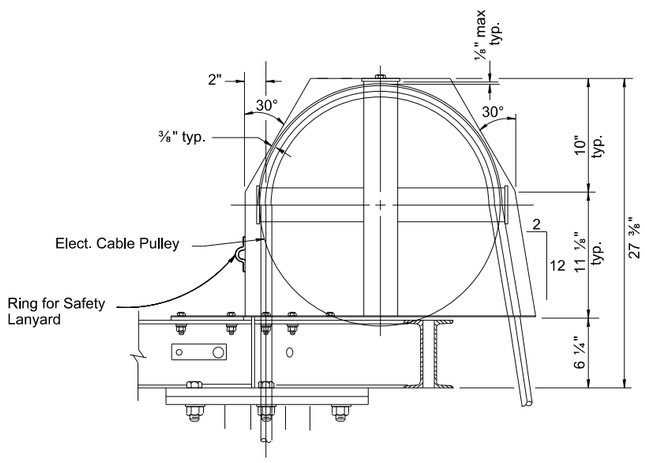
SECTION F-F
ELECTRICAL CABLE PULLEY
(Pulley material to be aluminum alloy, Type 356-T6 or equal)

DETAIL "H"
MOUNTING RING SPLICE PLATE

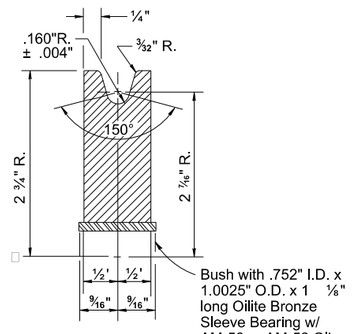
* Note: Torque bolts to 70 foot pounds or as recommended by the manufacturer



DETAIL "K"
MOUNTING RING CONNECTION & STABILIZER
* Extra 2'-0" of wire cable to be coiled and attached to ring with SS Bands as directed by Engineer.



DETAIL "M"
COVER CAP ASSEMBLY



SECTION G-G
WIRE ROPE PULLEY

1 (See DMS-11021 for pulley material specification)

1 Revised Pulley and Cover Material

Texas Department of Transportation

Traffic Safety Division Standard

HIGH MAST ILLUMINATION DETAILS

HMID(3)-24

FILE: hmid-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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1-86 10-88 5-86 4-96 10-86 2-24	DIST	COUNTY		SHEET NO.
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76C

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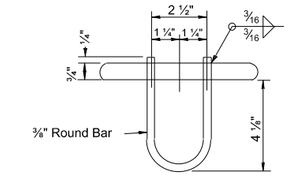
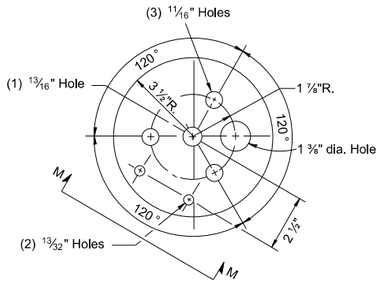
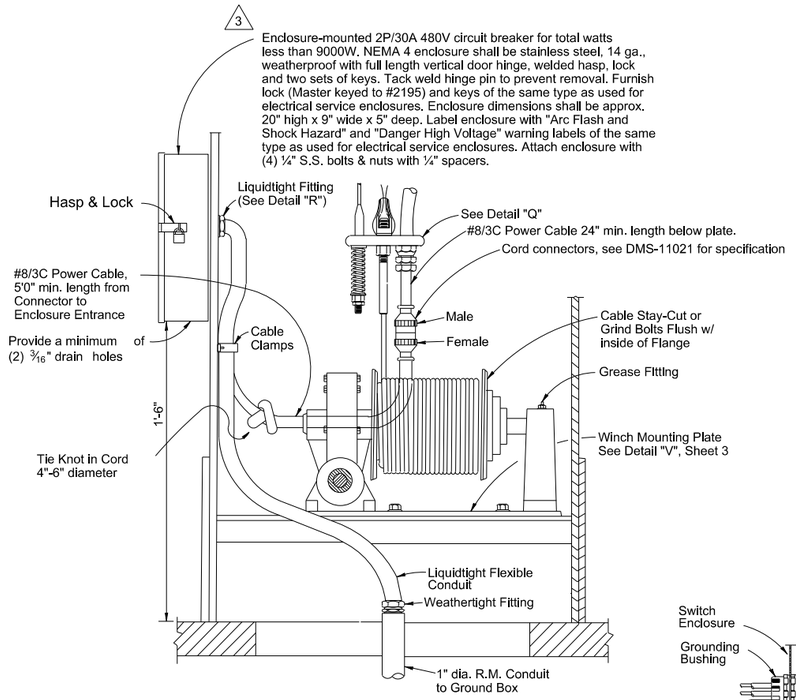


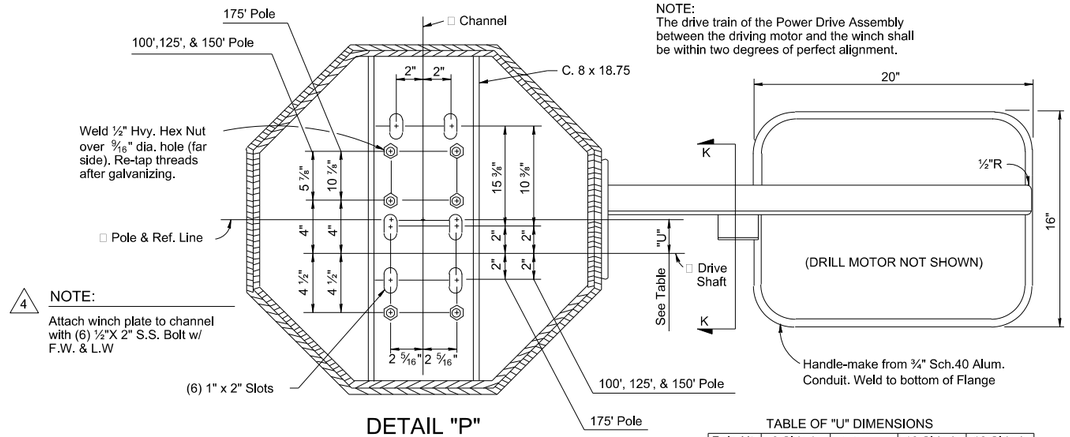
VIEW "M-M"



PLAN VIEW



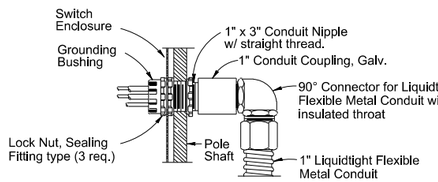
SECTION J-J
(WINCH ASSEMBLY)



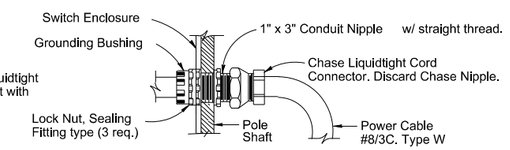
DETAIL "P"
(WINCH MOUNTING CHANNEL)
Dimensions may vary - Verify with winch manufacturer.

TABLE OF "U" DIMENSIONS

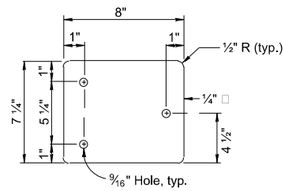
Pole Ht. Ft.	8 Sided 80 MPH	8 Sided 100 MPH	12 Sided 80 MPH	12 Sided 100 MPH
100	3 ½"	3 ½"	2 ½"	2 ½"
125	3 ½"	3 ½"	2 ½"	2 ½"
150	3 ½"	3 ½"	2 ½"	2 ½"
175	4 ½"	4 ½"	3 ½"	3 ½"



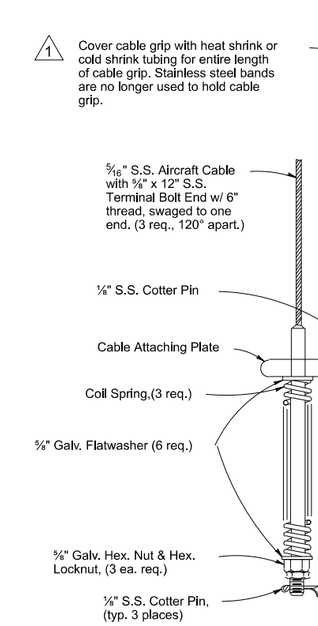
(POWER FEED FROM GROUND BOX)



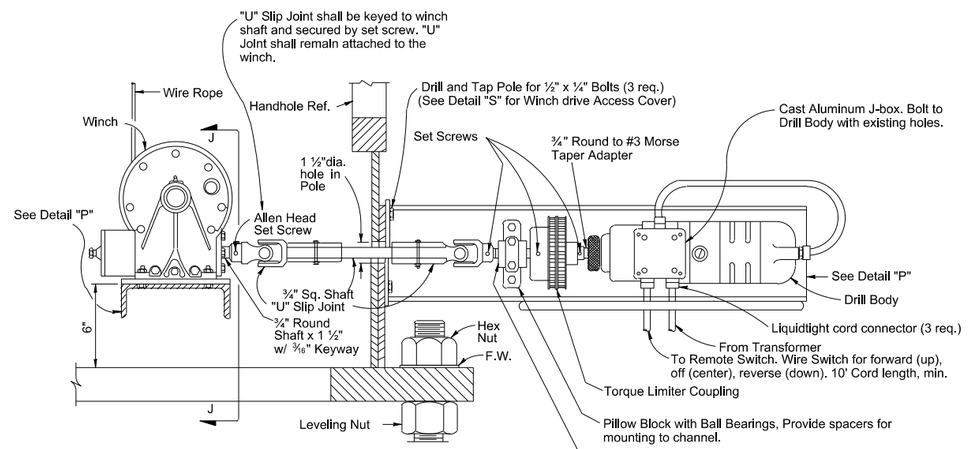
(POWER OUT TO LIGHT RING)



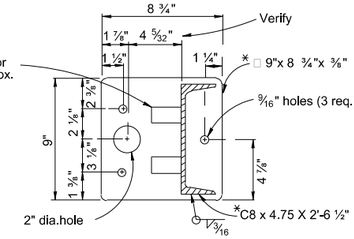
DETAIL "S"
(WINCH DRIVE ACCESS COVER)



DETAIL "Q"
(CABLE ATTACHING PLATE)



POWER DRIVE ASSEMBLY



SECTION K-K
(DRILL MOTOR MOUNTING PLATE)
*Make from 6061-T6 Aluminum

1	Revised Cable Grip
2	Revised Bushings
3	Revised Enclosure
4	Revised Bolts

Texas Department of Transportation

Traffic Safety Division Standard

HIGH MAST ILLUMINATION DETAILS

HMID(4)-24

FILE: hmid-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 1-86 12-86 10-93 4-86 12-87 4-96 5-86 4-89 2-24	0047	05	057, ETC.	SH5, ETC.
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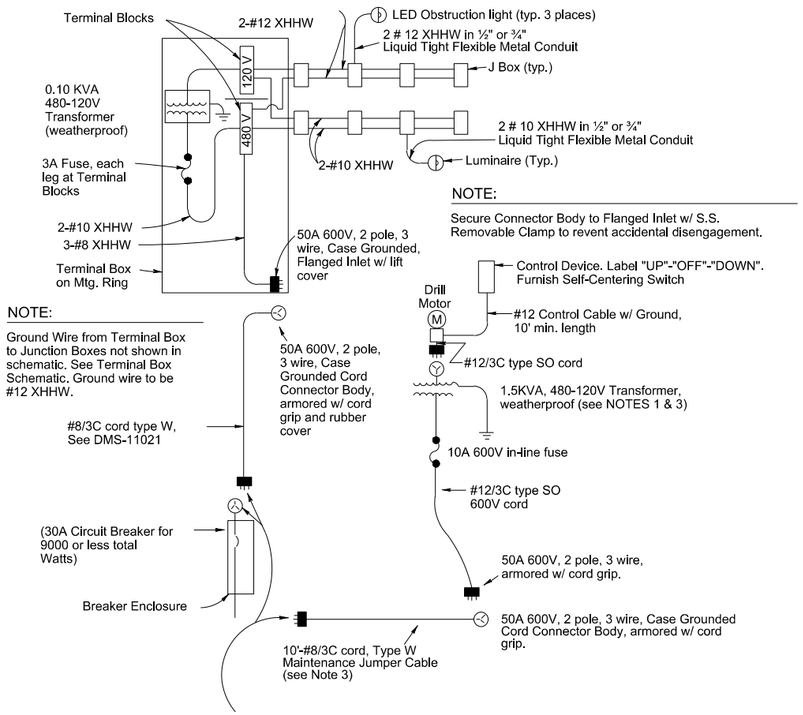
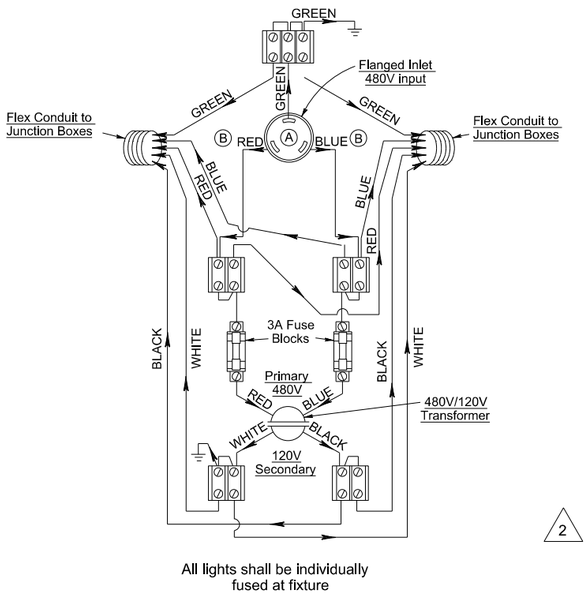


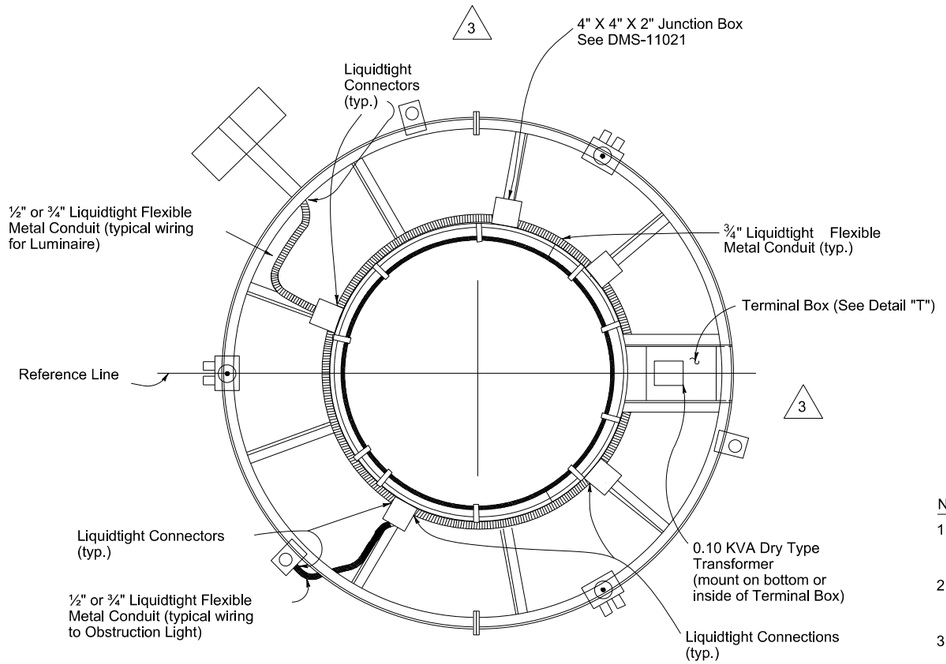
ONE-LINE SCHEMATIC



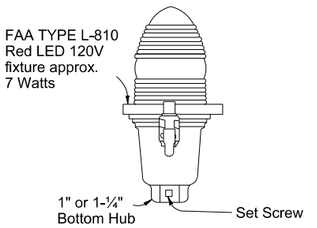
TERMINAL BOX SCHEMATIC

TERMINAL BOX NOTES:

1. Obstruction light color code: from secondary side of the transformer throughout circuit to socket, WHITE-NEUTRAL, BLACK-LOAD.
2. Power supply cord to flanged inlet: GREEN-GROUND, WHITE-LINE, BLACK-LINE. From flanged inlet (A) to terminal blocks: GREEN-GROUND, RED-LINE, BLUE-LINE. From there, all 480V circuit wires to be RED and BLUE to junction boxes.
3. Wire size from power supply to 480V terminal blocks shall be #8 AWG - see (B) on terminal box schematic.
4. Wire size from 480V terminal blocks to junction boxes for luminaires shall be #10 AWG.
5. Wire size from 120V terminal blocks to junction boxes for obstruction lights shall be #12 AWG.
2. Mount terminal blocks on ¾" exterior grade plywood.



LIGHT MOUNTING RING

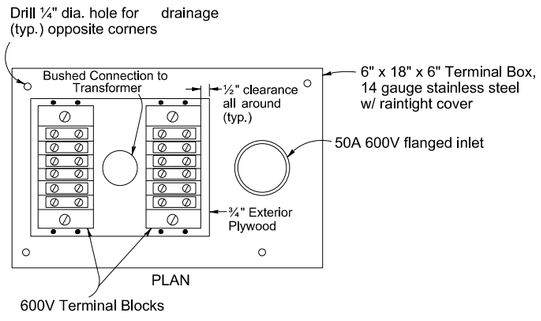


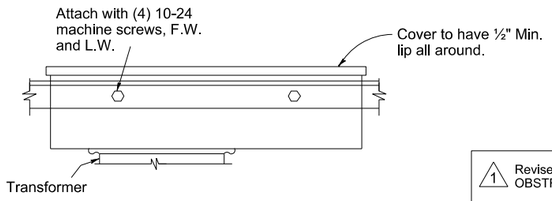
1 DETAIL "U"
(OBSTRUCTION LIGHT)

NOTES:

1. Provide handle on 1.5 KVA Transformer for portability. (see ONE-LINE SCHEMATIC)
2. Conduit entries into terminal box shall be into side of the box.
3. A minimum of one (1) maintenance jumper cable shall be supplied for each project. Supply (1) portable transformer for each power drive unit required for project.
4. Strap LFMC within 12" of each box and at intervals not to exceed 4 ½ feet. If strapping of LFMC within 12 in of Luminaire is not possible, then the strapping distance may be increased up to 3 ft from luminaire.

3





DETAIL "T"
(TERMINAL BOX)

1 Revised OBSTRUCTION LIGHT
2 Revised TERMINAL BOX NOTES
3 Revised RING LFMC

Texas Department of Transportation

Traffic Safety Division Standard

HIGH MAST ILLUMINATION DETAILS

HMID(5)-24

FILE: hmid-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
1-86 10-88 2-24 6-87 10-93 11-87 4-96	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1212

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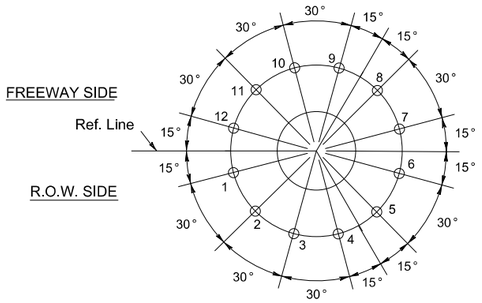
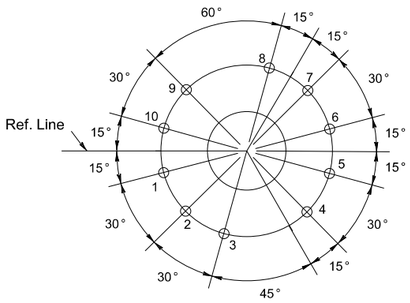
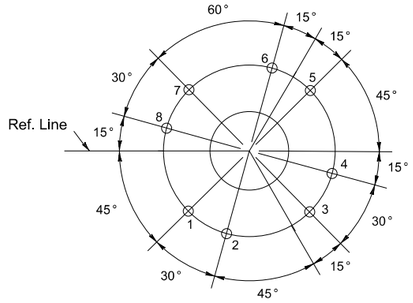


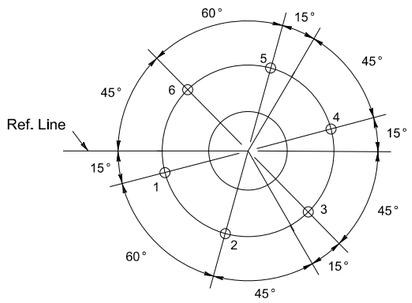
12-LIGHT SETTING



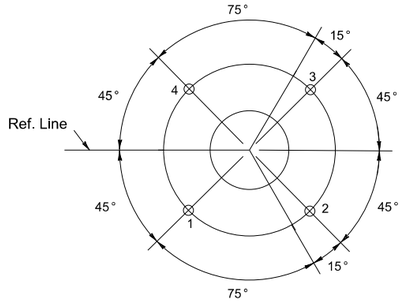
10-LIGHT SETTING



8-LIGHT SETTING



6-LIGHT SETTING



4-LIGHT SETTING

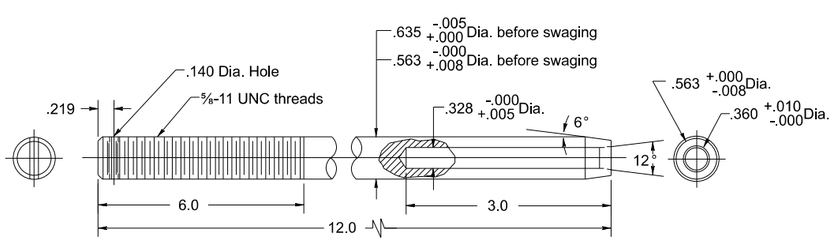
LUMINAIRE ARRANGEMENTS

1

NOTE:

Aircraft obstruction light locations not shown. Three are required,located approximately 120° apart. Locations will vary dependent on the light setting used.

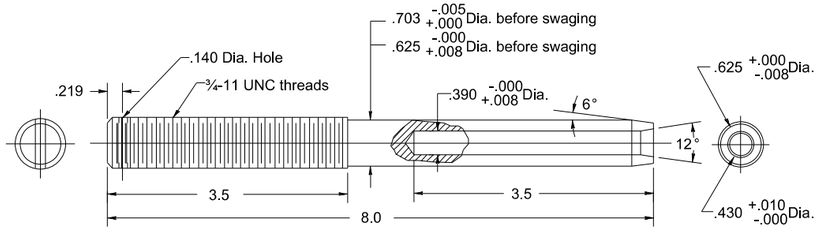
Note: Min. Swage Length = 2.06
Max. Swage Length = 2.94



TERMINAL FOR ⅝" WIRE ROPE

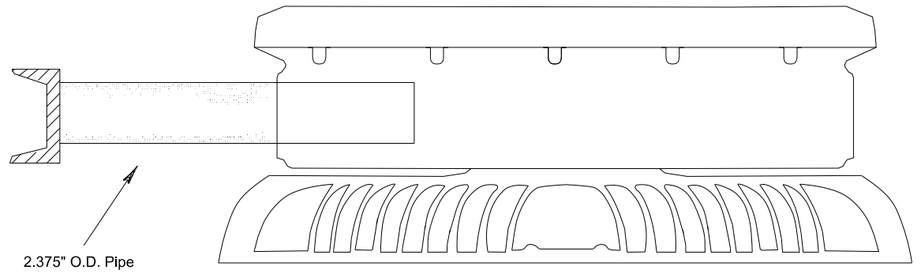
Material: Stainless Steel, Type 303SE or 304 with 115,000 P.S.I. max. ultimate tensile strength

Note: Min. Swage Length = 3.12
Max. Swage Length = 3.44



TERMINAL FOR ⅜" WIRE ROPE

Material: Stainless Steel, TYPE 303SE or 304 with 115,000 P.S.I. max. ultimate tensile strength



LUMINAIRE MOUNTING ASSEMBLY (TYP.)

NOTE:

For Type A, B, and C luminaires, orient optics of each fixture in the same direction, as shown on the plans, to properly illuminate the adjacent roadway(s). For type S luminaires, orient all optics radially from the center.

1 Added alternate luminaire arrangements

Texas Department of Transportation

Traffic Safety Division Standard

HIGH MAST ILLUMINATION DETAILS

HMID(6)-24

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REVISIONS	0047	05	057, ETC.	SH5, ETC.
1-86 4-96 10-93 3-03 10-95 2-24	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1213

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DATE: 10/1/2024 11:48:27 AM
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1. GENERAL

A. All material shall be in accordance with the applicable sections of the NEC. All conduit and conductors shall meet the requirements of Items 618 and 620. Heat shrink tubing, for use with cable grips and cable splicing, shall meet the requirements of Item 620. Luminaires shall meet the requirements of Item 614 and DMS-11020. High mast kit materials shall meet the requirements of Item 614 and DMS-11021.

B. Obstruction Lights

1. When obstruction lights are required by layout sheets, summary sheets, or general notes; control the entire high mast assembly with an FAA-approved photocell - mounted inside the service enclosure. Control luminaires with a photo control installed on each fixture. This will allow operation of obstruction lights at twilight and luminaires during darkness. Submit alternate control methods for approval.

   a) Provide service enclosure mounted photocell (FAA photocell) that turns on at light levels below 35 foot-candles and turns off above 58 foot-candles. FAA photocell shall be rated for operation at 240 volts. Install a permanent placard on the inside of the service enclosure door, to indicate that an FAA approved photocell is required.

   b) Install a one foot-candle photocell, rated for the operating voltage, in the photocell receptacle of each fixture. Provide photocells that turn on at light levels below 1.0 foot-candle (plus or minus 0.5), and turn off at 2 foot-candles higher than this level.

2. When obstruction lights are not required, eliminate the 3 obstruction light fixtures, 3 mounting posts, 480/120 volt transformer, 120 volt wiring, fixture-mounted photocells, FAA photocell, and 3 mounting post support connections shown on detail "E", sheet 1.

2. TESTING

A. After the high mast assembly has been completely assembled, the Engineer may require the Contractor to fully lower and raise each high mast ring one time to demonstrate proper operation of the lowering mechanism or for inspection of the ring or fixtures. If any malfunction occurs, correct the problem at the Contractor's expense and repeat the lowering test.

3. WINCH

A. Any winch that is operated without oil shall be considered damaged and shall be replaced by the Contractor at the Contractor's expense.

4. POWER DRIVE ASSEMBLY (ONE ONLY FOR THIS CONTRACT UNLESS OTHERWISE SHOWN ELSEWHERE ON THE PLANS)

A. Torque Limiter Coupling

1. Run-in the torque limiter coupling for 4 minutes at approximately 60 RPM at a torque setting of 70% to 80% of spring rating. Provide written certification that run-in has been accomplished.

2. After run-in, set the torque limiter coupling to a torque limit of 35 pound-feet or as directed by the Engineer. Demonstrate the proper setting of the coupling to the Engineer.

5. CONSTRUCTION METHODS

A. Fabrication

1. Drill (do not punch) all holes supporting pulley shafts prior to galvanizing.

2. Fabricate mounting rings and ring support assemblies with the use of jigs that have been inspected and approved by Materials and Tests Division (MTD) personnel.

3. Manufacturer shall proof test wire rope terminals to 40% of the rated strength of the wire rope. Furnish manufacturer's certification of proof test to the Engineer. Permanently incise manufacturer's logo on wire rope terminal.

B. Wire Rope Installation

1. Deliver wire rope on a reel from the manufacturer.

2. Use extreme care to prevent wire rope from kinking, nicking, or from sustaining other damage during installation. Do not install rope by pulling from flat coil, instead carefully unroll its full length or place on a horizontal axis and unreel according to wire rope industry standards. Before installation, inspect the wire rope for kinks, nicks, and flaws. Reject, if defects are found.

3. For right-lay wire rope, attach the rope to the drum on the end opposite the winch gear train. Wind rope on the drum so that the free end comes off the backside of the drum during normal operation of the winch. Carefully unroll wire rope as stated above. Ensure that all layers lay full and tight on drum.

4. Install all wire rope only under direct supervision of the Engineer or his authorized representative. Do not remove wire rope from the manufacturer's reel until authorized by the Engineer. Install wire rope on winch in accordance with the above and accepted industry practice. Install the three hoist cables from the top end of the pole.

5. Provide winch cable of sufficient length to leave a minimum of one full layer of cable on the drum when the fixture mounting ring is in the full down position.

6. Inspect wire rope for damage, kinks, and fraying, whenever ring is lowered.

C. Wire Rope Clips Installation

1. Turn back approx. 2' 3" of rope, measured from the top of thimble. Apply seizing to pigtail end of wire rope prior to cutting to length. See detail "K", Sheet 3. Apply first clip approx. 3" from the top of thimble with U-bolt over dead end and live end in clip saddle. Tighten nuts evenly to 30 foot-pounds of torque, or as recommended by manufacturer.

2. Install second clip as near thimble as possible, take out slack and torque nuts evenly to 30 foot-pounds or as recommended by manufacturer.

3. After final erection and assembly of the pole and high mast assembly, retighten nuts to required torque.

D. Light Ring and Luminaire Installation

1. Prior to mounting luminaires to the light ring, ensure the ring is level. Install luminaires level on the light ring.

2. Orient all Type A, B, or C luminaires on each ring in the same direction, as shown on plans. Orient Type S luminaires radially from the center.

E. Operation and Maintenance

1. When lowering ring, protect hardware and equipment at the base of the pole from damage.

2. Follow safe work practices when servicing the ring, luminaires, and associated equipment.

3. Inspect wire rope for damage, kinks, and fraying.

△1

1	Transferred material info to DMS 11020 and DMS 11021

Texas Department of Transportation

Traffic Safety Division Standard

HIGH MAST ILLUMINATION DETAILS

HMID(7)-24

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© TxDOT February 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
1-86 4-96 9-91 3-03 10-93 2-24	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1214

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DATE:
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℄ 4 Permissible 1" Dia assembly holes 180° apart. (Typ each splice)

4 additional 1" Dia holes are permissable 12" from assembly holes

6" Min
12" Max

12"

12"

SPLICE DETAIL

7/8" Dia Holes equally spaced on 15" Dia Bolt Circle

7 1/4" Dia

Match Mark

3/4"

3/8"

85 Percent Minimum Penetration

HM-6

Reference Line

VIEW C

8"

1/4" Plate

1"

5 1/4"

1"

3 1/2"

7 1/4"

1"

6"

1"

Provide 3~ 1/2" Dia x1 1/4" bolts

WINCH DRIVE ACCESS COVER

Reference Line

O.D. of Base Plate

Match marks

C 8x18.75 for mounting winch (See Detail)

VIEW E (2 opposite corners)

℄ 2 ~ 1 3/8" Dia holes 24" above Base Plate

2 3/4" Dia Bolt Holes equally spaced on Bolt circle

℄ Pole

2"

2"

I.D. Base Plate

Galvanizing drain slots are not permitted in base plate. Drain to small end.

T

SECTION A-A

℄ Winch Drive

Reference Line

U

Cut channel to fit for 100′ & 125′ 12 Sided Poles

4 1/2" 4" 5 7/8", 100′,125′ & 150′ Poles

10 7/8" 175′ Pole

6 ~ 1/2" Heavy Hex Nuts welded under 9/16" Dia holes. Tap nuts after galvanizing.

2 5/16"

2 5/16"

℄ Channel

2"2"

6 ~ 1"x2" Slots 2"2" 10 3/8" 100′,125′ & 150′ Poles

15 3/8" 175′ Pole

WINCH MOUNTING CHANNEL

Nominal Pole Height

Taper 0.1600 in/ft(for 80 MPH) and 0.1900 in/ft(for 100 MPH)

A

B

C

D

E

F

Splice Length

8 SIDED

VIEW C

Taper 0.1750 in/ft(for 80 MPH) and 0.1850 in/ft(for 100 MPH)

A

B

C

D

Section Length

12 SIDED

POLE ELEVATIONS

(Showing 175 Ft Poles)

T

1/2"

Handhole Frame

HM-3

1/4

3/4x 3/8

1/4

HM-7

Winch Drive Access Cover

Tang

Channel

8"

6"

VIEW F

VIEW D

HM-8

3/8

1/2"x2 1/2"x3 3/4" Tang, A36 Min, 1 1/4" R, 1 1/4" Dia chamfered hole. Place Tang on flat adjacent to handhole.

SECTION B-B

1′-0"

B

Access Cover to be 1/4" Plate

Drill and tap for 1/2"x1" cap screw (4 req'd)

A

Ground Sleeve

1/4" Typ

S

R=3 1/2"

A

1′-6"

Drill and Tap for 3 1/2" bolts.

1 1/2" Dia Hole

5 1/4"

5 5/16"

3"-3"

8 7/8"

8 13/16"

1′-0"

1′-7"

See HMIF for Anchor Bolt Detail

3/8" U

6"

VIEW G

B

ELEV OF POLE BASE

U

Reference Line

6 ~ 5/8"x1 1/4" Slots 4 1/2" 4" 5 7/8" 100′,125′ & 150′ Poles

10 7/8" 175′ Pole

2 1/2"

1 1/4"

2"2"2"

2 1/2"

1 1/4"

1 11/16"

8"

4 5/8"

1 11/16"

2"

4"

2"

1/2" Plate

6 ~ 3/4" Dia holes 2"2" 10 3/8" 100′,125′ & 150′ Poles

15 3/8" 175′ Pole

WINCH MOUNTING PLATE

G

HM-9

G

S

A bent and welded handhole frame is permissable. Heating, bending, and finish grinding must be approved with the HM-9 weld procedure.

OPTIONAL HANDHOLE FRAME

3/8"

t

1/4

t x 3/8

HM-1

STANDARD WELD

1/4

Chip & Grind

OPTIONAL WELD STEP 1

(a) Prepare Shaft and ground sleeve.
(b) Weld shaft to base plate, chip and grind flush (1/8 " max radius.)

VIEWS D

3/8"

t

1/4

t x 3/8

HM-2

OPTIONAL WELD STEP 2

(c) Positiion ground sleeve.
(d) Weld to base plate with tapered reinforcement.

85% Minimum penetration

HM-5

Ground sleeve to be same thickness as lower pole section, except shall not be less than 0.375 inch

Provide 100% penetration in outer sections at splices and at base plates for 1.5 pole diameters plus 6". Also provide 100% penetration for ground sleeve seam welds.

VIEW E

t

HM-4

7/8x t

7/8"

VIEW F

℄ Winch Drive

1 3/8" Min

G

Provide welded and ground filler or cover plate where winch drive conflicts with bend line in ground sleeve for the 8 sided, 80 mph, 100′ pole, the 12 sided, 100 mph, 100′ pole, and the 12 sided, 80 mph, 175′, 125′ and 100′ poles.

VIEW G

SHEET 1 OF 2

Texas Department of Transportation

Traffic Operations Division Standard

HIGH MAST ILLUMINATION POLES 100′ - 125′ - 150′ - 175′

HMIP(1)-16

FILE: hmip-16.dgn	DN:	CK:	DW:	CK:
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REVISIONS	0047	05	057, ETC.	SH5, ETC.
5-98	DIST	COUNTY		SHEET NO.
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DATE:
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TABLE OF VARIABLE POLE DIMENSIONS

	Ht (ft)	Section	8 SIDED POLE Diameter (Inches) Bottom	Top	Thickness (inches)	Length (feet)	Splice (inches)	12 SIDED POLE Diameter (Inches) Bottom	Top	Thickness (inches)	Length (feet)	Splice (inches)
80 MPH DESIGNS	175	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.92	25	24.858	15.817	.313	51.67	36
		C	22.250	16.583	.375	35.42	32	32.625	23.583	.313	51.67	48
		D	25.375	20.948	.438	27.67	36	36.250	31.175	.375	29.00	~
		E	28.375	23.895	.500	28.00	41					
		F	31.250	26.703	.500	28.42	~					
	150	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.92	25	24.858	15.817	.313	51.67	36
		C	22.250	16.583	.375	35.42	32	32.625	23.583	.313	51.67	~
		D	25.375	20.948	.438	27.67	36					
		E	28.375	23.895	.500	28.00	~					
	125	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.92	25	24.858	15.817	.313	51.67	36
		C	22.250	16.583	.375	35.67	32	28.250	23.583	.313	26.67	~
		D	25.375	20.948	.438	27.67	~					
	100	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.67	25	24.625	15.817	.313	50.33	~
		C	22.250	16.583	.375	35.67	~					
100 MPH DESIGNS	175	A	14.208	7.875	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.747	16.173	.438	51.75	37
		C	25.250	18.473	.438	35.67	36	33.750	24.176	.438	51.75	49
		D	29.000	23.680	.500	28.00	42	37.375	31.995	.500	29.08	~
		E	32.625	27.210	.563	28.50	47					
		F	36.125	30.631	.563	28.92	~					
	150	A	14.208	7.875	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.747	16.173	.438	51.75	37
		C	25.250	18.473	.438	35.67	36	33.750	24.176	.438	51.75	~
		D	29.00	23.680	.500	28.00	42					
		E	32.625	27.210	.563	28.50	~					
	125	A	14.208	7.785	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.747	16.173	.438	51.75	37
		C	25.250	18.473	.438	35.67	36	29.125	24.176	,438	26.75	~
		D	29.00	23.680	.500	28.00	~					
	100	A	14.208	7,875	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.500	16.173	.375	50.42	~
		C	25.250	18.473	.438	35.67	~					

Diameters are measured across the flats.

TABLE OF VARIABLE BASE DIMENSIONS

	Ht (ft)	O.D. (inches)	I.D. (inches)	Bolt Cir (inches)	No. Bolts	S (inches)	T (inches)	U (inches)
80 MPH DESIGNS	8 SIDED POLE							
	175′	47	22	41	16	2.00	3.75	4.50
	150′	44	18	38	12	2.00	4.00	3.50
	125′	41	16	35	8	2.00	4.50	3.50
	100′	37	14	31	6	2.00	5.00	3.50
	12 SIDED POLE							
	175′	50	24	44	12	1.75	3.50	3.50
	150′	47	22	41	10	1.75	3.50	2.50
	125′	42	18	36	8	1.75	3.75	2.50
	100′	38	13	32	6	1.75	4.00	2.50
100 MPH DESIGNS	8 SIDED POLE							
	175′	52	27	46	20	1.75	3.50	4.50
	150′	49	23	43	16	1.75	4.00	3.50
	125′	45	21	39	12	1.75	4.50	3.50
	100′	40	17	34	10	1.75	4.50	3.50
	12 SIDED POLE							
	175′	52	27	46	16	1.75	3.25	3.50
	150′	50	25	44	12	1.75	3.50	2.50
	125′	46	22	40	10	1.75	3.75	2.50
	100′	42	19	36	6	1.75	4.00	2.50

NOTE: Base Plate may be round or with 8 or 12 equal segments matching the pole.

MATERIALS

Polygonal Shafts Ground Sleeves	ASTM A709 Grade 50 A572 Grade 50 (1) (2)
Base Plate and Handhole Frame	ASTM A709 Grade 50 A572 Grade 50 (1) A633 Grade C (1)
Miscellaneous Steel	ASTM A36 or equal

(1) ASTM A572 and A633 may have higher yield strength but shall not have less elongation than the grade indicated.

(2) The silicon content of all steel shall be controlled to ensure high quality galvanizing and to avoid discoloration.

GENERAL NOTES:

1. Design conforms to AASHTO 1994 Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals and Interim Revisions thereto. The Design Wind Speed is 80 mph or 100 mph.

2. The required design height and wind speed shall be as shown elsewhere in the plans.

3. Each pole section, top flange plate and base plate shall be permanently marked on the reference line. The required mark locations are shown on the baseplate, top plate, and foundation plan details. These marks shall be used in pole assembly and erection alignment. The reference line and anchor bolt orientation shall be parallel to roadway centerline unless otherwise shown on Lighting Layouts.

Texas Department of Transportation

Traffic Operations Division Standard

HIGH MAST ILLUMINATION POLES 100′ - 125′ - 150′ - 175′

HMIP(2)-16

FILE: hmip-16.dgn	DN:	CK:	DW:	CK:		
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REVISIONS 5-98 8-16	0047	05	057, ETC.	SH5, ETC.		
	DIST	COUNTY		SHEET NO.		
	DAL	COLLIN		1216		

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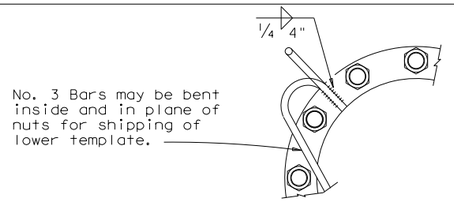
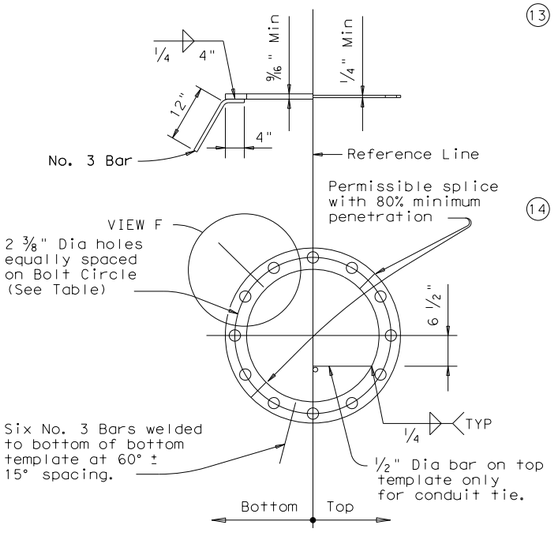
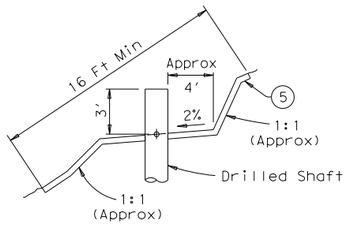


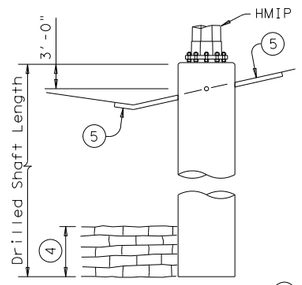
VIEW F



ANCHOR BOLT TEMPLATES

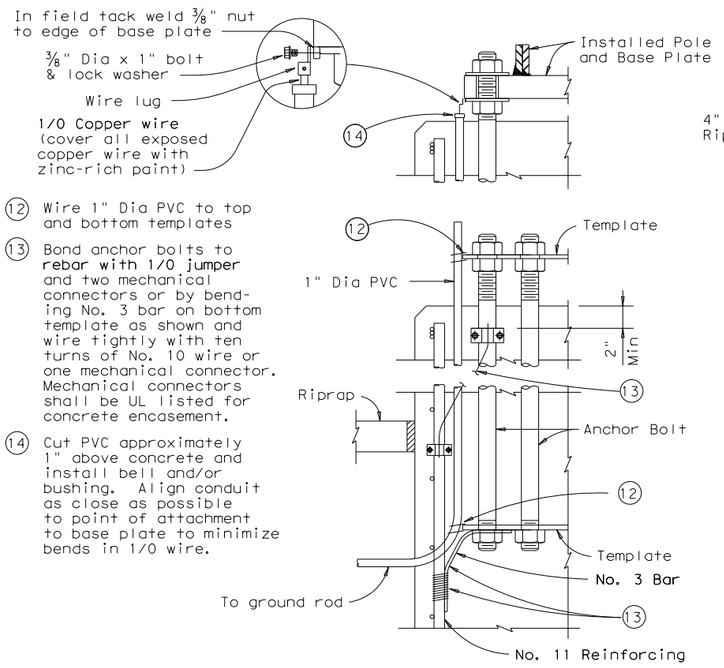


RIPRAP ON SLOPES



(5) Match slope of finished ground if slope is less than approx 4 to 1. For steeper slopes, bench to provide work area with approx 2 % slope around pole base. Other configurations may be shown elsewhere on the plans.

(4) If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

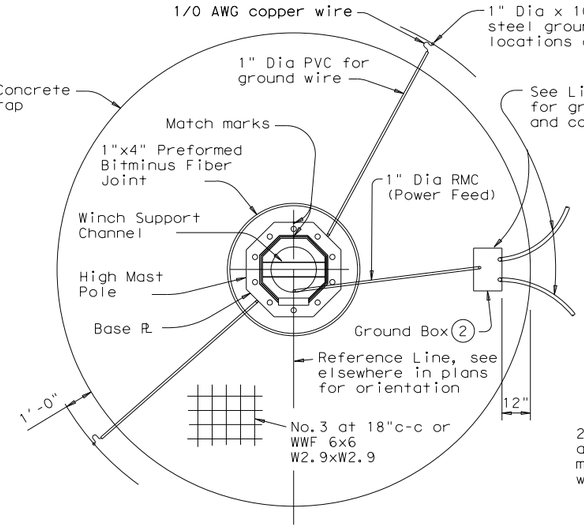


(12) Wire 1" Dia PVC to top and bottom templates

(13) Bond anchor bolts to **rebar with 1/0 jumper** and two mechanical connectors or by bending No. 3 bar on bottom template as shown and wire tightly with ten turns of No. 10 wire or one mechanical connector. Mechanical connectors shall be UL listed for concrete encasement.

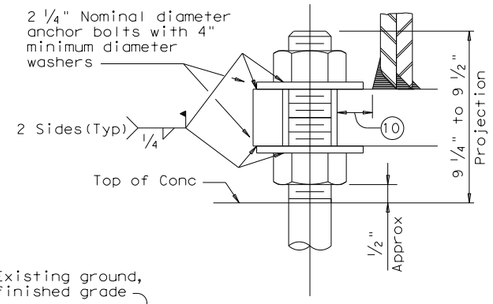
(14) Cut PVC approximately 1" above concrete and install bell and/or bushing. Align conduit as close as possible to point of attachment to base plate to minimize bends in 1/0 wire.

LIGHTNING PROTECTION SYSTEM



(2) Place ground box cover flush with riprap.

(10) If, due to tolerances in fabrication, the anchor bolt hole to ground sleeve weld is less than approx 7/8", clipped 1/2" thick washers shall be supplied at those



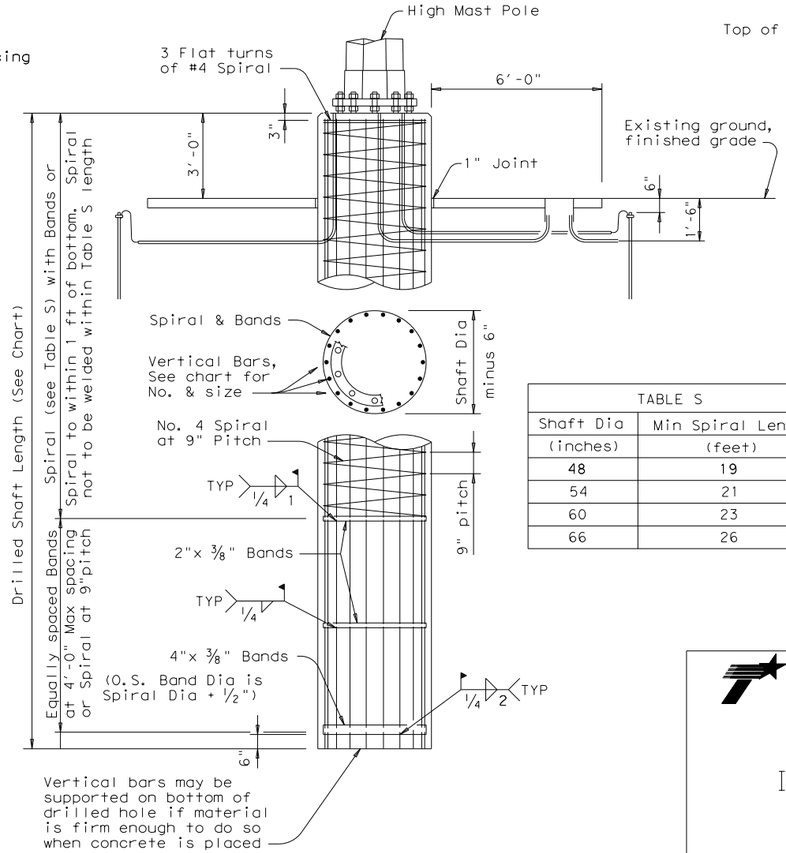
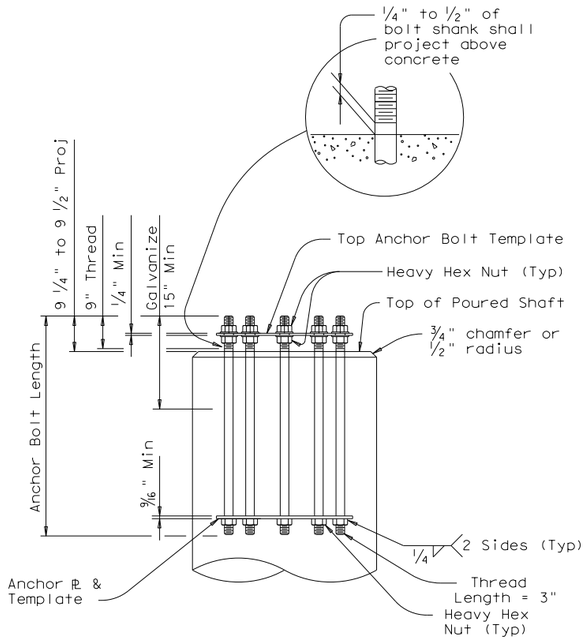


TABLE S	
Shaft Dia (inches)	Min Spiral Length (feet)
48	19
54	21
60	23
66	26

DRILLED SHAFT FOUNDATION DETAIL



ANCHOR BOLT ASSEMBLY

(See Anchor Bolt Table for number of bolts required)

Texas Department of Transportation
Traffic Operations Division

HIGH MAST ILLUMINATION POLE FOUNDATIONS

SHEET 1 OF 2 HMIF(1)-98

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

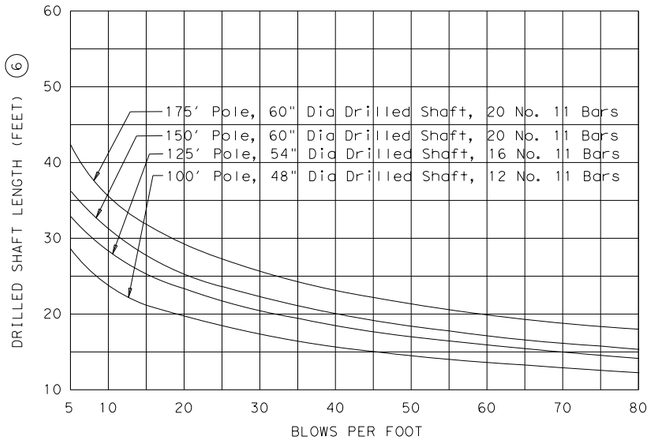
REVISIONS
11-97
5-98 ~ Anchor Bolt Circle Dia

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.
DIST	COUNTY		SHEET NO.
DAL	COLLIN		1217

78A

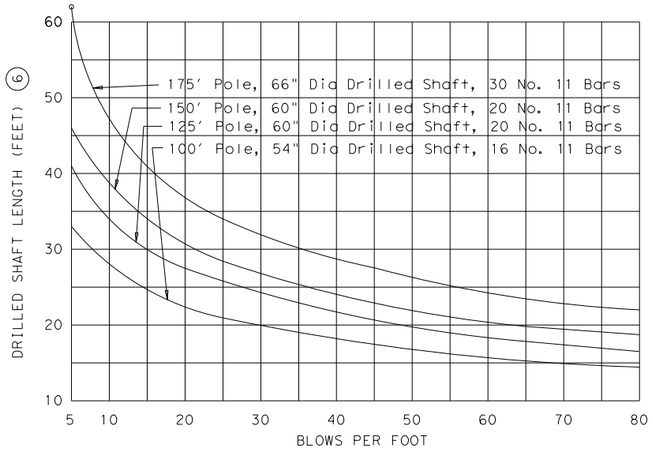
DATE:
FILE:

⑥ Includes normal 3 Ft exposure.
Shafts with more than 3 Ft exposure
must have additional length.



80 MPH POLES

Do not extrapolate below 5 Blows/Ft. A special design will be required for soil less than 5 Blows/Ft.



100 MPH POLES

Do not extrapolate below 5 Blows/Ft. A special design will be required for soil less than 5 Blows/Ft.

TEXAS CONE PENETROMETER TEST TABLES

NOTE: Use average "N" value over the top third of the embedded shaft. Ignore the top 2′ of soil.

ANCHOR BOLT TABLE

	Pole Height	Bolt Diameter	Bolt Length	Bolt Templates O D	Bolt Templates I D	No. of Bolts	Bolt Cir Dia
	(feet)	(inches)	(feet)	(inches)	(inches)	~	(inches)
80 MPH DESIGNS	8 SIDED POLE						
	175	2.25	4.83	45.5	36.5	16	41
	150	2.25	4.83	42.5	33.5	12	38
	125	2.25	4.83	39.5	30.5	8	35
	100	2.25	4.83	35.5	26.5	6	31
	12 SIDED POLE						
	175	2.25	4.83	48.5	39.5	12	44
	150	2.25	4.83	45.5	36.5	10	41
	125	2.25	4.83	40.5	31.5	8	36
	100	2.25	4.83	36.5	27.5	6	32
100 MPH DESIGNS	8 SIDED POLE						
	175	2.25	4.83	50.5	41.5	20	46
	150	2.25	4.83	47.5	38.5	16	43
	125	2.25	4.83	43.5	34.5	12	39
	100	2.25	4.83	38.5	29.5	10	34
	12 SIDED POLE						
	175	2.25	4.83	50.5	41.5	16	46
	150	2.25	4.83	48.5	39.5	12	44
	125	2.25	4.83	44.5	35.5	10	40
	100	2.25	4.83	40.5	31.5	6	36

MISCELLANEOUS QUANTITIES - ONE HMIF

Shaft Diameter	(in)	⑦	48	54	60
Concrete Riprap	(CY)		2.33	2.44	2.56
Reinforcing	(Lbs)	⑧	94	99	103
Ground Box	(ea)		1	1	1
R O W Marker	(ea)	⑨	1	1	1

⑦ See elsewhere on plans for length of Drilled Shaft required.
⑧ For Contractors information only.
⑨ Designated elsewhere on plans if required.

GENERAL NOTES:

Unless otherwise noted, the welded steel bands may be replaced with spiral as shown on the foundation details.

Anchor bolts shall be placed in foundation so there are always two bolts on reference line.

Drilled shaft lengths as determined from the foundation design chart or other acceptable methods are to be as shown elsewhere on the plans.

ODSR may not be used for HMIF drilled shafts.

Concrete for drilled shafts shall be Class C.

Repair welded areas with zinc-rich paint.

All Anchor Bolts, Nuts and Washers shall be galvanized in accordance with Item 445, "Galvanizing".

Texas Department of Transportation
Traffic Operations Division

HIGH MAST ILLUMINATION POLE FOUNDATIONS

SHEET 2 OF 2 HMIF(2)-98

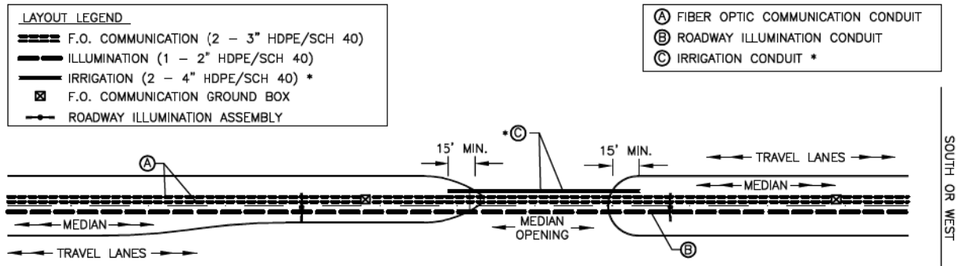
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
5-98 ~ Anchor Bolt Circle Dia

CONT	SECT	JOB	HIGHWAY
0047	05	057, ETC.	SH5, ETC.
DIST	COUNTY		SHEET NO.
DAL	COLLIN		1218

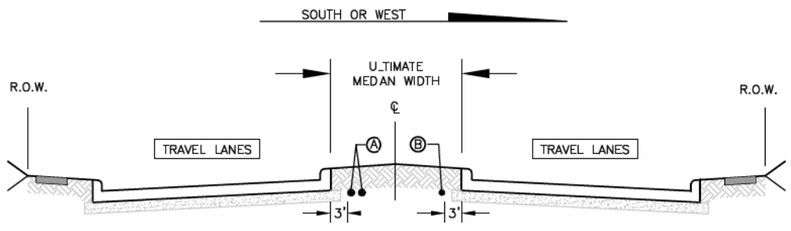
78B

100% PLANS SUBMITTAL



*IRRIGATION CONDUIT TO BE PLACED AT A 3' OFFSET FROM FIBER OPTIC COMMUNICATION CONDUIT AT ALL CONSTRUCTED MEDIAN OPENINGS AS SHOWN AND EXTENDED A MINIMUM OF 15' INTO EACH MEDIAN. MEDIAN CURB SHALL BE NOTCHED TO ESTABLISH LOCATION FOR FUTURE CONNECTION.

STANDARD LAYOUT SHOWING CONDUIT PLACEMENT IN MEDIAN
N.T.S.



STANDARD SECTION SHOWING FIBER & ILLUMINATION CONDUIT PLACEMENT IN MEDIAN
N.T.S.

NOTES

1. INSTALL ONE – TWO (2) INCH DIAMETER HDPE OR SCHEDULE 40 PVC CONDUIT (DOVE GREY IN COLOR) FOR ROADWAY LIGHTING AND TWO THREE (3) INCH HDPE OR SCHEDULE 40 PVC CONDUIT (DOVE GREY IN COLOR) FOR FIBER OPTIC COMMUNICATION CABLE WITH TYPE 1 GROUND BOXES SPACED ON 500 FOOT INTERVALS. ROADWAY LIGHTING CONDUIT SHALL BE IN A SEPARATE TRENCH FROM THE COMMUNICATION CONDUITS SIX (6) FEET APART, THREE (3) FEET MINIMUM. CONTRACTOR SHALL COORDINATE FINAL CONDUIT LOCATION WITH ENGINEERING STAFF. CONDUIT SHALL BE CONFORMING TO TXDOT SPECIFICATION ITEM 618 AND HAVE A MINIMUM BURIAL DEPTH OF 30 INCHES UNDER NEW PAVEMENT.
2. WHERE BENDS ARE REQUIRED, THEY SHALL BE OF THE LONG RADIUS TYPE.
3. THE CONDUIT SHALL BE CAPPED AFTER INSTALLATION WITH RED MARKER TAPE INSTALLED ON EACH CAP, WITH A MEANS PROVIDED TO PROVE CONDUIT IS UNOBSTRUCTED BEFORE THE INTERSECTION PAVING WILL BE ACCEPTED BY THE CITY OF MCKINNEY.
4. THE GROUND BOXES AND THEIR INSTALLATION SHALL CONFORM TO THE LATEST VERSION OF TXDOT SPECIFICATION ITEMS 618 AND 624 AND TXDOT STANDARD DRAWINGS ED(4)–14 AND ITS(41)–16.
5. THE COVER SHALL BE POLYMER FOR ALL BOXES OF THE BOLT–DOWN TYPE. COMMUNICATION GROUND BOXES IN THE MEDIAN SHALL BE PERMANENTLY MARKED "CITY OF McKINNEY COMMUNICATIONS".
6. ALL GROUND BOXES SHALL HAVE REINFORCED CONCRETE APRONS AND SHALL BE BEDDED FLUSH WITH THE FINISHED GRADE.
7. THE EXACT LOCATIONS WHERE CONDUIT CROSSES UNDER THE PAVING ARE TO BE MARKED WITH AN "X" AND PAINTED WITH RED PAINT ON THE CURB OR PAVING.
8. A NO. 9 GALVANIZED WIRE SHALL BE IN ALL CONDUIT. THIS WIRE SHALL EXTEND 1 FOOT (MINIMUM) BEYOND THE CONDUIT END WHEN THE CAP IS REMOVED. THE WIRE END SHALL BE COILED AND THEN TAPED TO THE CONDUIT SURFACE AT THE CONDUIT END FOR EASY FUTURE ACCESS.
9. CONDUIT AND GROUND BOXES DESCRIBED AND SHOWN ABOVE SHALL BE INSTALLED AT ALL ARTERIAL–ARTERIAL AND ARTERIAL–MAJOR COLLECTOR INTERSECTIONS PRIOR TO PAVEMENT CONSTRUCTION. (NOTE 10 FOR ILLUMINATION MAINTAINED BY ONCOR AND GRAYSON–COLLIN ELECTRIC COOPERATIVE)
10. TWO (2) INCH DIAMETER CONDUIT FOR ROADWAY ILLUMINATION SHALL RUN BETWEEN EACH ILLUMINATION POLE BASE AND SHALL NOT BE PLACED INSIDE GROUND BOXES. ONLY EXCEPTION IS ALLOWED AT THE ELECTRICAL SERVICE METER.

McKINNEY TEXAS Unique by nature.	MEDIAN CONDUIT SYSTEMS CITY OF McKINNEY, TEXAS	DATE: DECEMBER 2018 STANDARD DRAWING NO. 7004M

ERIC SNOW KRAMER 150414 LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/17/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SH 5
STANDARD DRAWING NO. 7004M
(CITY OF MCKINNEY)

N. T. S. SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1219
CHECK MK	CONTROL 0047	SECTION 05	JOB 057, ETC.	

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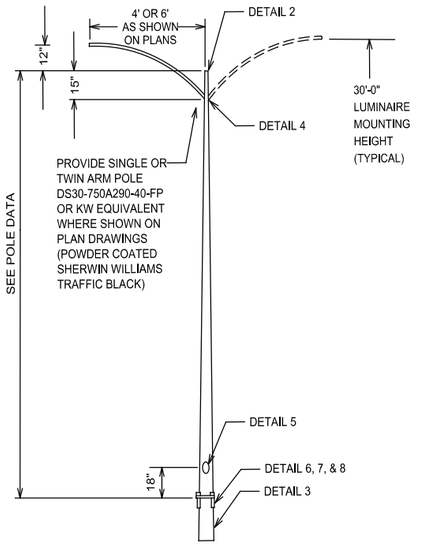
100% PLANS SUBMITTAL

POLE DATA

QTY.	POLE TYPE	POLE TUBE				POLE BASE				POLE ANCHOR BOLT				NOTES
		BASE DIA (IN)	TOP DIA (IN)	LENGTH (FT)	GAUGE OR THICK (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK "M" (IN)	HOLE/SLOT "Z" (IN)	DIA"K"(IN)	LENGTH "J"(IN)	HOOK "H" (IN)	THREAD LENGTH "U"(IN)	
151	DS30	7.5	3.44	29.00	11 GA.	11.25	10.5	0.875	1.13 X 1.69	1.00	36	4.00	6.00	

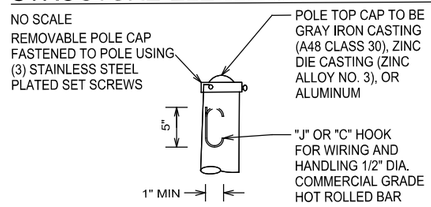
MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE SHAFT	A595 GR. A	55	GALVANIZING-HARDWARE	A153	
ARM SHAFT	2" SC40 PIPE	36	GALVANIZING-STRUCTURE	A153	
POLE BASE	A36	36			
ANCHOR BOLTS	F1554 GR. 55	55			
HEAVY HEX NUTS	A194 GR 2H				
FLAT WASHERS	F436				



01 STANDARD ROADWAY ILLUMINATION STRUCTURE-ELEVATION

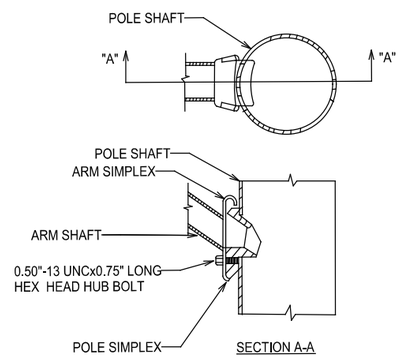
NO SCALE



02 ILLUMINATION STRUCTURE-POLE TOP DETAIL

NO SCALE

REFER TO NEXT SHEET

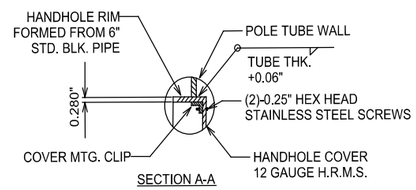


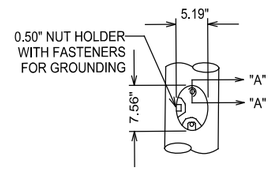
03 ILLUMINATION STRUCTURE-ANCHOR BOLT DETAIL

NO SCALE

04 ILLUMINATION STRUCTURE-SINGLE BOLT SIMPLEX DETAIL

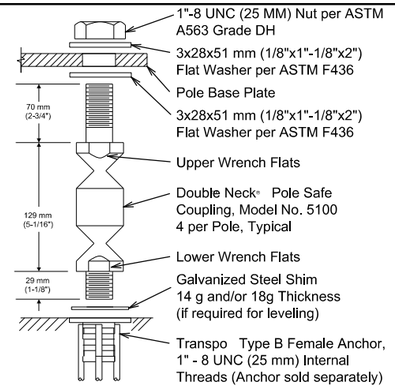
NO SCALE





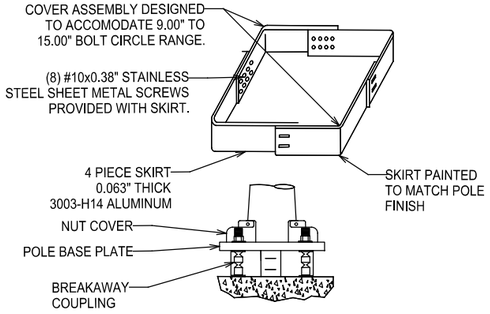
05 ILLUMINATION STRUCTURE-HANDHOLE DETAIL

NO SCALE



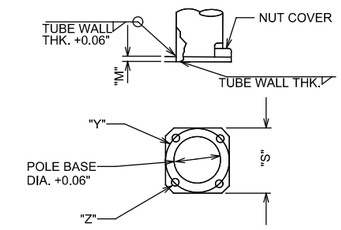
06 ILLUMINATION STRUCTURE-BREAKAWAY COUPLING

NO SCALE



07 ILLUMINATION STRUCTURE-BREAKAWAY COUPLING SKIRT DETAIL

NO SCALE

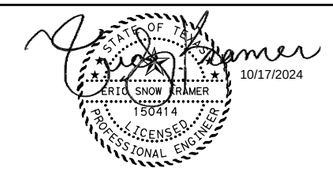


08 ILLUMINATION STRUCTURE-POLE BASE DETAIL

NO SCALE

NOTES

1. All breakaway bolts shall meet the breakaway requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 6th Edition (2013) and Interim Revisions thereto, and shall have been tested by FHWA-approved methods. Design 3-second gust wind speed equals 110 mph with a 1.14 gust factor. All bases shall have been structurally tested to resist 150% of the design moment. Pole manufacturer shall certify design conforms to the above requirements.
2. Fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Shop drawings shall be submitted for roadway illumination pole assemblies to ensure fabrication in accordance with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of these sheets and the Specifications. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.
3. Unless otherwise noted, all steel parts shall be galvanized in accordance with Item 445, "Galvanizing."
4. Steel poles shall be fabricated in accordance with Item 441,"Steel Structures." Longitudinal seam welds for pole sections shall have 60% minimum penetration. All welding shall be in accordance with AWS D1.1, Structural Welding Code-Steel.
5. Two-section poles joined by circumferential welds will not be permitted, unless otherwise shown on the plans. Poles may be fabricated in two sections and field-assembled by the lap-joint method. The two sections shall telescope together with a lap length of not less than 1-1/2 times the shaft diameter at the lap joint.
6. Alternate material equal to or better than material specified may be substituted with the approval of the Engineer.
7. Lubricate and tighten anchor bolts in accordance with Item 449, "Anchor Bolts."
8. All poles shall have hand holes placed 90 degrees to mast arms unless otherwise noted on the plans.
9. The finished pole shall have a smooth, uniform finish free of pits, blisters, or other defects. Scratched, chipped, and other damaged galvanized areas on poles and mast arms shall be repaired in accordance with Item 445, "Galvanizing."



NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

McKINNEY TEXAS
Unique by nature.

Texas Department of Transportation

SH 5
ROADWAY ILLUMINATION POLE DETAIL (CITY OF MCKINNEY)

SHEET 1 OF 1

DESIGN	FED.RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
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CHECK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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100% PLANS SUBMITTAL

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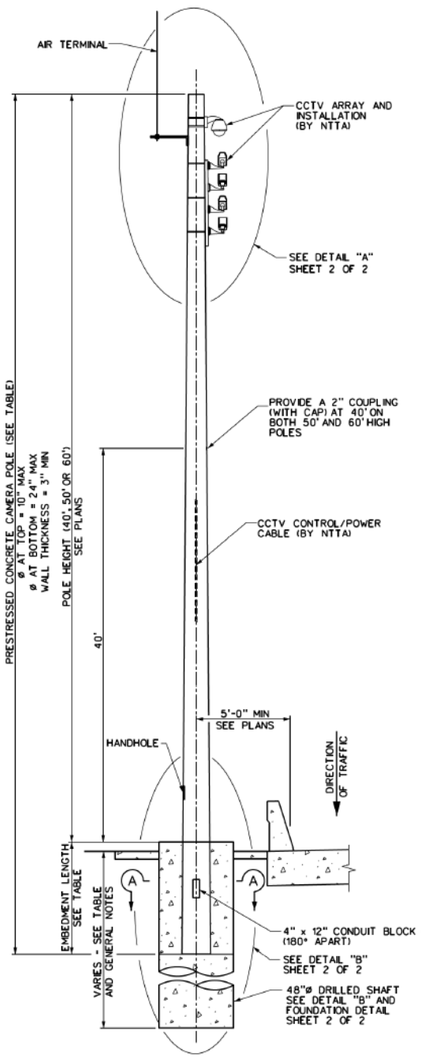


TYPICAL CAMERA POLE ELEVATION

CONCRETE POLE ERECTION PROCEDURE:

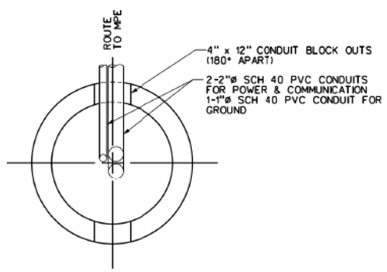
1. PLACE SHAFT TO CONSTRUCTION JOINT. ALLOW CONCRETE TO CURE FOR ONE CURING DAY ACCORDING TO ITEM 420, "CONCRETE STRUCTURES".
2. PLACE POLE IN CENTER OF REINFORCEMENT CAGE, PLUMB POLE AND ADEQUATELY BRACE. POSITION CONDUITS AND GROUND WIRE WITHIN LOWER SECTION OF POLE.
3. PLACE REMAINDER OF SHAFT. REMOVE BRACING WHEN SHAFT CONCRETE ATTAINS A COMPRESSIVE STRENGTH OF 3600 PSI AS INDICATED BY TEST CYLINDER OR BEAM BREAKS.

POLE MOUNTING HEIGHT (FT)	OVERALL LENGTH (FT)	POLE EMBED (FT)
40	46	6
50	57	7
60	68	8

CONCRETE POLE LENGTH AND EMBEDMENT

POLE MOUNTING HEIGHT (FT)	BLOWS PER FT (N)					
	10	15	20	30	40	50
40	15	14	13	13	12	12
50	17	16	15	14	13	13
60	18	16	15	14	13	13

MINIMUM DRILLED SHAFT EMBEDMENT LENGTH



SECTION A-A
(SHOWING POLE ONLY)

GENERAL NOTES:

1. PRESTRESSED CONCRETE POLE SHALL BE DESIGNED IN ACCORDANCE WITH THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS. DESIGN FOR A MAXIMUM OF 8 SQUARE FOOT OF TOTAL ATTACHMENT SURFACE AREA INCLUDING CAMERA AREA AT POLE TIP.
2. THE PRESTRESSED CONCRETE POLE MAY HAVE EITHER AN OCTAGONAL OR CIRCULAR CROSS SECTION AND SHALL TAPER FROM BASE TO TIP.
3. CONCRETE POLES SHALL BE FABRICATED WITH A UNIFORM COLOR AND CONSISTENT, SMOOTH SURFACE APPEARANCE.
4. SHOP DRAWINGS SHALL BE PREPARED, SEALED BY A LICENSED TEXAS PROFESSIONAL ENGINEER, AND SUBMITTED FOR REVIEW PRIOR TO BEGINNING FABRICATION.
5. ⅝", 1800 LB PULL TAPE SHALL BE PROVIDED FOR ALL CONDUITS THROUGH TO TOP OF POLE.
6. REINFORCING BARS SHALL BE GRADE 60 (Fy = 60 KSI) AND CONFORM TO ASTM A615. WIRE FOR FABRIC REINFORCEMENT SHALL CONFORM TO ASTM A82 OR A496. WIRE FABRIC SHALL CONFORM TO ASTM A185 OR A497. ALL REINFORCING SHALL CONFORM TO ITEM 440 "REINFORCING STEEL".
7. CONCRETE MOW STRIP IS CONSIDERED SUBSIDIARY TO ITEM 865 "CCTV CAMERA POLE STRUCTURE".
8. THE AIR TERMINAL SHALL MEET THE FOLLOWING REQUIREMENTS:
   A. HEIGHT - CAMERA EQUIPMENT TO BE WITHIN 30 DEGREE PROTECTIVE ZONE TERMINAL.
   B. CONDUCTIVITY - EQUIVALENT TO #6 AWG COPPER CONDUCTOR.
   C. CLEARANCE - 24" TO CLOSEST CAMERA APPROACH.
   D. BONDING - POLE-AIR TERMINAL TO BE WELDED OR EQUIVALENT CLAMPING.
   E. STRUCTURE - WITHSTAND ENVIRONMENT WITHOUT VIBRATION.
   F. ⅝" x 8'-0" COPPERCLAD TAPER TIP STEEL AIR TERMINAL WITH MIN OF 2½" THREADS AND STAINLESS STEEL ATTACHMENT HARDWARE.
9. THE AIR TERMINAL SUPPORT BAR SHALL BE MOUNTED ON THE SIDE OF THE POLE AWAY FROM TRAFFIC.
10. THE FURNISHING AND INSTALLATION OF THE 1" CONDUIT, GROUND ROD, 1/0 AWG GROUND WIRE, GROUND CLAMP AND OTHER MATERIALS REQUIRED TO COMPLETE THE GROUNDING OF THE CAMERA POLE FOUNDATION AS PER NEC SHALL BE SUBSIDIARY TO ITEM 865 "CCTV CAMERA POLE STRUCTURE". THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED FROM DAMAGE AND BE ELECTRICALLY CONTINUOUS PER NEC.
11. THE CAMERA POLE SHALL BE MOUNTED SO THAT THE CCTV CAMERAS FACE THE TOLLWAY MAINLANES. ALL CCTV LOCATIONS SHALL BE FIELD APPROVED BY THE NTTA IT DEPARTMENT. PRIOR TO EXCAVATION OF CCTV CAMERA POLE FOUNDATION, THE CONTRACTOR SHALL NOTIFY THE NTTA IT DEPARTMENT TO COORDINATE AND OBTAIN FIELD APPROVAL OF THE FOUNDATION LOCATION. IF REQUIRED, CONTRACTOR SHALL ADJUST LOCATION OF CCTV CAMERA POLE FOUNDATION AS DIRECTED.
12. SEE ESC-003 FOR FURTHER SITE LAYOUT INFORMATION.
13. DRILLED SHAFT CONCRETE SHALL BE CLASS "C" (F'c = 3600 PSI), RIPRAP CONCRETE SHALL BE CLASS "B" (F'c = 2000 PSI) AND CONFORM TO ITEM 421 "HYDRAULIC CEMENT CONCRETE".
14. ALL VERTICAL REINFORCING SHALL BE CARRIED TO THE BOTTOM OF THE DRILLED SHAFT.
15. PLACE THREE FLAT TURNS OF THE SPIRAL BAR AT THE TOP AND BOTTOM OF THE DRILLED SHAFT.
16. REQUIRED MINIMUM DRILLED SHAFT EMBEDMENT LENGTH SHALL BE DETERMINED USING THE TABLE ON THIS SHEET AND THE TXDOT STANDARD PENETROMETER MEASUREMENT APPROPRIATE FOR THE POLE LOCATION. THE AVERAGE THD CONE PENETROMETER BLOW COUNT, N, SHALL BE THE AVERAGE OVER THE UPPER THIRD OF THE DRILLED SHAFT EMBEDMENT LENGTH. THE REQUIRED DRILLED SHAFT EMBEDMENT LENGTH SHALL BE MEASURED FROM THE LOWER OF TOP OF IN SITU MATERIAL, BOTTOM OF ADJACENT PAVEMENT SECTION OR BOTTOM OF ADJACENT RETAINING WALL TO BOTTOM OF DRILLED SHAFT. THE LENGTH OF DRILLED SHAFT LOCATED WITHIN A FILL SECTION OR BEHIND A RETAINING WALL SHALL NOT BE CONSIDERED PART OF THE REQUIRED DRILLED SHAFT EMBEDMENT LENGTH.
17. THE MINIMUM REQUIRED DRILLED SHAFT EMBEDMENT LENGTH SHALL BE DETERMINED USING THE METHOD ON THIS SHEET OR A MAXIMUM PENETRATION OF 8 FT INTO UNWEATHERED ROCK. UNWEATHERED ROCK IS DEFINED AS MATERIAL HAVING A MAXIMUM PENETRATION OF 6 INCHES PER 100 BLOWS.
18. THESE DRILLED SHAFT EMBEDMENT LENGTHS DO NOT APPLY TO SAND OR OTHER NON-CLAY SOILS. A CLAY IS CLASSIFIED AS A FINE-GRAINED SOIL (MORE THAN HALF OF MATERIAL LARGER THAN NO. 200 SIEVE). THE ENGINEER SHALL DETERMINE EMBEDMENT LENGTHS FOR SAND OR OTHER NON-CLAY SOILS.
19. THE TOP PORTION OF DRILLED SHAFT FOUNDATION SHALL BE FORMED. THE FORM SHALL EXTEND A MINIMUM OF 1'-0" BELOW THE PROPOSED GRADE.
20. DRILLED SHAFT SHALL BE MEASURED BY THE LINEAR FOOT AND PAID UNDER ITEM 416 "DRILL SHAFT (CCTV MTS) (48 IN)".
21. THE CONTRACTOR SHALL FURNISH ALL MATERIALS NECESSARY TO INSTALL THE CCTV CAMERA POLE. THE CCTV CAMERA POLE INSTALLATION SHALL BE PAID FOR UNDER ITEM 865 "CCTV CAMERA POLE STRUCTURE" WITH THE HEIGHT SPECIFIED ELSEWHERE IN THE PLANS. THE CAMERA UNIT (INCLUDES CAMERA, HOUSING, CABLES, AND PAN/TILT UNIT) AND CCTV EQUIPMENT CABINET SHALL BE INSTALLED BY THE NTTA.

NO.	DATE	REVISION	APPROV.

NTTA NORTH TEXAS TOLLWAY AUTHORITY

CCTV CAMERA POLE DETAILS
PRECAST CONCRETE POLE
DRILLED SHAFT FOUNDATION
ITS-006(1)-2023

DRAWN BD	DATE 07/07/23	DESIGNED AG	DATE 07/07/23
CHECKED SA	DATE 07/07/23	SCALE NTS	
CONTRACT NO. $$CONTRACTNO$$		SHEET 571 OF 639	

DRN: 18925

$$sytime$$ $$sydate$$

SHEET 1 OF 2

ERIC SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
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972.960.4400

Texas Department of Transportation

SPUR 399
ITS-006(1)-2023
NTTA STANDARDS

N.T.S. SHEET 1 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1221
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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100% PLANS SUBMITTAL

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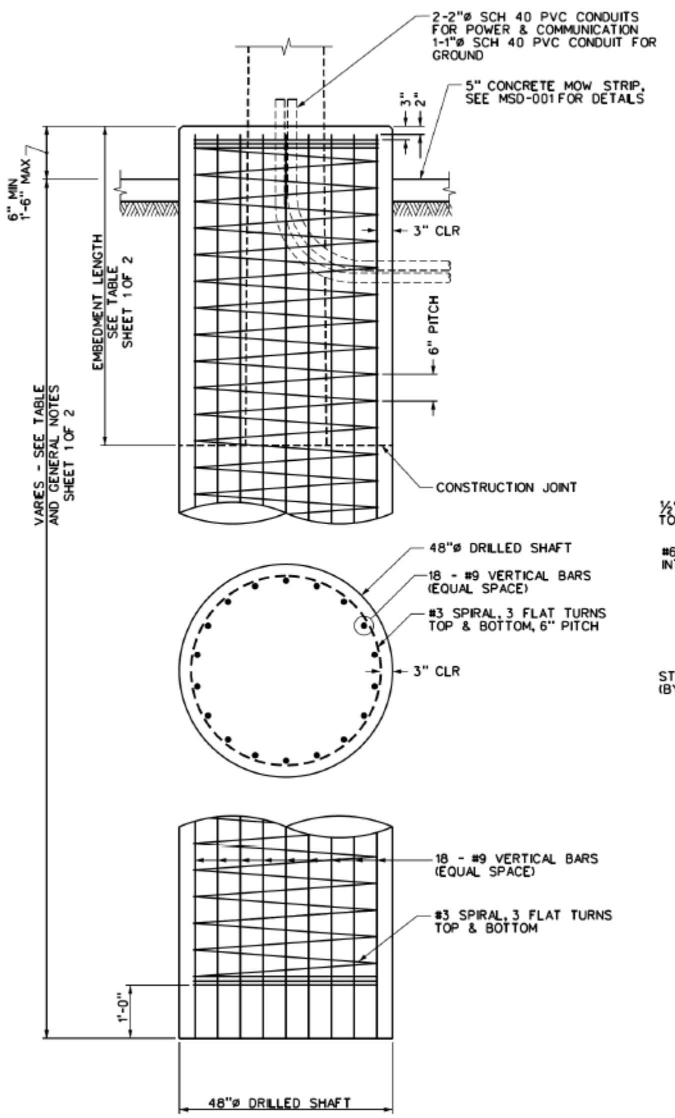

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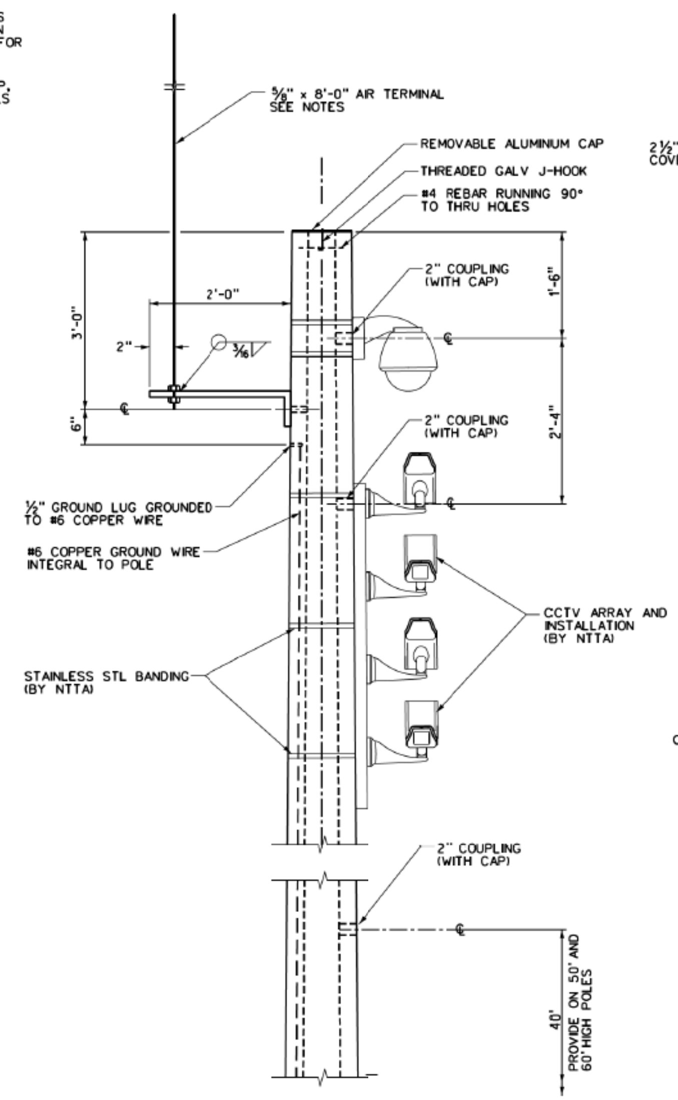

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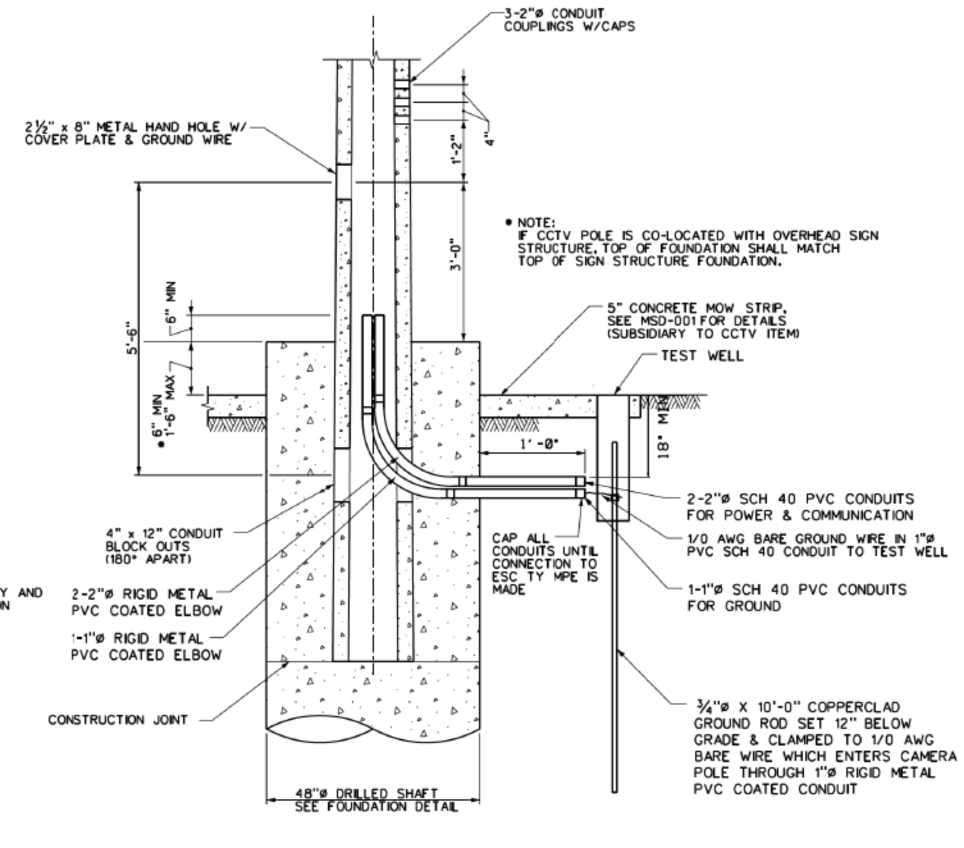

DETAIL B

NO.	DATE	REVISION	APPROV.

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

CCTV CAMERA POLE DETAILS
PRECAST CONCRETE POLE
DRILLED SHAFT FOUNDATION

ITS-006(2)-2023

DRAWN BD DATE 07/07/23 DESIGNED AG DATE 07/07/23
CHECKED SA DATE 07/07/23 SCALE NTS

CONTRACT NO. $$CONTRACTNO$$ SHEET 572 OF 639

SHEET 2 OF 2

DRN: 10925

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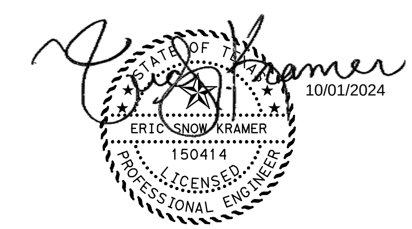

NO.	DATE	REVISION	APPROVED

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Texas Department of Transportation

SPUR 399
ITS-006(2)-2023
NTTA STANDARDS

N.T.S. SHEET 2 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
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CHECK MK	CONTROL	SECTION	JOB	1222
CHECK MK	0047	05	057, ETC.	

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FILE: ITS-004(1&2)-2023.dgn

100% PLANS SUBMITTAL

ESC-001(1)-2009

GENERAL NOTES:

GENERAL:

1. SEE ILLUMINATION PLANS AND I.T.S. PLANS, ONE-LINE DIAGRAM AT THE END OF THE ITS PLANS AND PANEL BOARD SCHEDULES FOR CONDUIT LOCATIONS AND CONDUCTOR SIZES.
2. SEE PLAN SUMMARY TABLES FOR QUANTITIES OF DIFFERENT TYPES OF ELECTRICAL SERVICE CENTER ENCLOSURES.
3. ALL MATERIALS, EQUIPMENT, LABOR, AND INCIDENTALS, WHETHER OR NOT SPECIFICALLY SHOWN ON THE PLANS, WHICH MAY BE NECESSARY FOR A COMPLETE AND PROPER INSTALLATION OF THE ELECTRICAL ENCLOSURE SHALL BE FURNISHED, PERFORMED, AND INSTALLED BY THE CONTRACTOR.
4. ALL MATERIALS SHALL BE NEW AND IN GOOD CONDITION. ALL SERVICE ASSEMBLIES AND ELECTRICAL EQUIPMENT SHALL BE UNDERWRITERS LABORATORIES (UL) LISTED FOR THE INTENDED PURPOSE. THE INSTALLATION SHALL COMPLY WITH APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) STANDARDS.
5. FAULTY FABRICATION OR POOR WORKMANSHIP IN ANY MATERIAL, EQUIPMENT, OR INSTALLATION SHALL BE JUSTIFICATION FOR REJECTION.
6. MANUFACTURER'S WARRANTIES OR GUARANTEES SHALL BE UNDER THE AUTHORITY'S NAME. CONTRACTOR SHALL FURNISH THESE WARRANTIES OR GUARANTEES TO THE AUTHORITY UPON THE COMPLETION OF THE INSTALLATIONS.
7. THE ELECTRICAL ENCLOSURES SHALL BE PROTECTED BY FLEXIBLE OR RIGID BARRIER, OR SAFETY BOLLARDS. SEE PLANS FOR INFORMATION.

SHOP DRAWING SUBMITTALS:

8. THE CONTRACTOR SHALL INCLUDE PRODUCT SPECIFICATIONS AND SUBMITTAL CUT SHEETS IN THE SHOP DRAWING SUBMITTALS FOR REVIEW AND APPROVAL. SUBMITTALS SHALL BE LEGIBLE AND THE FURNISHED PRODUCT SHALL BE CLEARLY MARKED ON THE CUT-SHEET.

FOUNDATIONS:

9. FOUNDATION SHALL BE IN ACCORDANCE WITH ITEM 656, "FOUNDATION FOR TRAFFIC CONTROL DEVICES".
10. ANCHOR BOLTS SHALL BE ALLOY STEEL OR STAINLESS STEEL AND BE IN ACCORDANCE WITH ITEM 449, "ANCHOR BOLTS".
11. ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ITEM 440, "REINFORCING STEEL", GRADE 60.
12. MAXIMUM DIP OR RISE IN FOUNDATION SHALL NOT EXCEED ,INCH PER FOOT. WHEN PROPERLY INSTALLED, TOP OF SERVICE ENCLOSURE SHALL BE LEVEL FRONT TO BACK AND SIDE TO SIDE WITHIN ,INCH.
13. THE CONTRACTOR SHALL ENSURE THAT FINISHED GRADING PERMITS POSITIVE DRAINAGE AND THAT NO STANDING WATER WILL OCCUR AFTER CONSTRUCTION.

ENCLOSURES:

14. ALL EXPOSED ENCLOSURES SHALL BE TYPE 316 STAINLESS STEEL MEETING NEMA 3R SPECIFICATIONS, AND SHALL HAVE TWO (2) MINIMUM HEAVY-DUTY LIFTING EYES ANCHORED INTO THE REINFORCED TOP SERVING AS LIFTING DEVICES.
15. ALL ENCLOSURES INSIDE THE EXPOSED ENCLOSURE SHALL MEET NEMA 1 SPECIFICATIONS.
16. ALL FASTENERS AND MISCELLANEOUS HARDWARE USED IN THE ENCLOSURE SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED ON THE PLANS.
17. EACH MAIN ENCLOSURE'S DOOR SHALL HAVE A CONTINUOUS STAINLESS STEEL PIANO HINGE WITH A STAINLESS STEEL PIN, A DOOR STOP, LEVER HANDLE, AND LOCKING MECHANISM WITH A 3/8-INCH MINIMUM HOLE FOR A PADLOCK.
18. THE ENCLOSURE'S DOOR(S) SHALL BE CAPABLE OF OPENING AT LEAST 130 DEGREES WITH ARM(S) OR OTHER APPROVED MEANS TO HOLD THE DOOR(S) OPEN.
19. ENCLOSURES AT EACH SITE SHALL BE KEYED ALIKE. THIS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
20. ALL ENCLOSURES SHALL BE LABELED WITH TAGS MADE OF LINEN PHENOLIC MATERIAL, GRADE LE. TAGS SHALL BE SECURED WITH FOUR (4) STAINLESS STEEL SCREWS, ONE AT EACH CORNER.
21. THE FOLLOWING INFORMATION SHALL BE INCLUDED ON THE TAG FOR ALL ENCLOSURES UNLESS OTHERWISE NOTED:

    A. "DANGER HIGH VOLTAGE" – COLOR BACKGROUND AND TEXT SIZE SHALL MEET OSHA'S REQUIREMENTS,

21. (CONT.)

    B. ARC FLASH – COLOR BACKGROUND AND TEXT SIZE SHALL MEET OSHA'S REQUIREMENTS. THE WARNING LABEL WILL HAVE THE FOLLOWING TEXT: "DANGER ARC FLASH AND SHOCK HAZARD / APPROPRIATE PPE PROTECTION REQUIRED / FOLLOW ALL SAFETY PROCEDURES AND WEAR PROPER PPE PROTECTION N ACCORDANCE WITH NFPA 70E. FAILURE TO COMPLY CAN RESULT IN SERIOUS INJURY OR DEATH"

    C. STREET ADDRESS FOR SERVICE ENTRANCE ENCLOSURE ONLY – 2-INCH BLACK ENGRAVED LETTERING ON YELLOW BACKGROUND,

    D. ELECTRICAL SERVICE CENTER NAME DESIGNATED AS NOTED ON PLANS WITH CENTERLINE STAION AND OFFSET – 2-INCH BLACK ENGRAVED LETTERING ON YELLOW BACKGROUND,

    E. ELECTRICAL SERVICE IDENTIFIER (ESI) NUMBER FOR SERVICE ENTRANCE ENCLOSURE ONLY– 1-INCH BLACK ENGRAVED LETTERING ON YELLOW BACKGROUND,

    F. GLOBAL POSITIONING SYSTEM (GPS) LOCATION – 1-INCH BLACK ENGRAVED LETTERING ON YELLOW BACKGROUND,

22. A 12" X 12" MINIMUM DOCUMENT POCKET, CONSTRUCTED OF METAL, SHALL BE MOUNTED ON THE BACK OF EACH ENCLOSURE'S DOOR. THE CONTRACTOR SHALL PREPARE AND SUBMIT A ONE LINE SCHEMATIC DRAWING UNIQUE TO AN INDIVIDUAL ENCLOSURE. THE APPROVED DRAWING SHALL BE LAMINATED AND PLACED IN THE DOCUMENT POCKET OF THE ENCLOSURE AT THE TIME OF SHIPMENT TO THE JOB SITE.
23. ALL APPLICABLE WIRING DIAGRAMS AND PLAN SHEET LAYOUTS FOR ALL EQUIPMENT AND BRANCH CIRCUITS SUPPLIED BY THAT ENCLOSURE SHALL ALSO BE LAMINATED AND PLACED IN THE DOCUMENT POCKET PRIOR TO ACCEPTANCE.
24. ENCLOSURE SHALL INCLUDE A REMOVABLE BACKBOARD PANEL INSTALLED INSIDE THE ENCLOSURE ON COLLAR STUDS OR TAPPED BOSSES.
25. GROUNDING BUS BAR ASSEMBLY SHALL BE FACTORY PROVIDED, SIZED, AND PERMANENTLY BONDED TO ACCEPT REQUIRED GROUNDING CONDUCTORS UTILIZING PROPERLY SIZED LUGS. GROUNDING BUS BAR KIT SHALL INCLUDE ONE (1) 1/4-INCH THICK COPPER BUS BAR WITH PRE-PUNCHED OR TAPPED HOLES FOR 3/8-INCH BOLTS, AND FOUR (4) 1-INCH STANDOFFS.
26. ALL CONDUITS AND CONDUCTORS ATTACHED TO AND WITHIN 24 INCHES OF THE ENCLOSURE WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO ITEM 628.
27. ALL EQUIPMENT USED INSIDE A SPECIFIC TYPE OF ENCLOSURE SHALL BE MANUFACTURED BY THE SAME COMPANY UNLESS OTHERWISE NOTED ON THE PLANS. ENCLOSURE AND ASSOCIATED COMPONENTS SHALL BE PRE-ASSEMBLED AND SHIPPED AS A COMPLETE UNIT.
28. THE BOTTOM OF ENCLOSURES SHALL BE SEALED WITH BACKER ROD AND UNI-WEATHER SOLVENT BASED SEALANT APPROVED BY THE NTTA.
29. ALL CIRCUIT BREAKERS SHALL BE BOLT-IN.

CONDUITS AND CONDUCTORS:

30. ALL EXPOSED CONDUITS SHALL BE GALVANIZED RIGID STEEL AND ALL UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE NOTED.
31. STUB-UPS SHALL BE PVC COATED GALVANIZED RIGID STEEL.
32. ALL CONDUIT ELBOWS USED FOR UNDERGROUND INSTALLATION SHALL BE PVC COATED GALVANIZED RIGID STEEL.
33. ALL PVC COATED GALVANIZED RIGID STEEL CONDUITS AND FITTINGS SHALL BE UL LISTED, AND FREE OF BLISTERS, BUBBLES, OR PINHOLES. GALVANIZED RIGID STEEL CONDUITS AND FITTINGS SHALL BE COATED UNIFORMLY AND CONSISTENTLY WITH PVC COATING, 40-MILS THICK ON THE EXTERIOR SURFACE AND URETHANE COATING, 2-MILS THICK ON THE INTERIOR SURFACE AND SHALL BE ETL LABELED. PROVIDE MATERIALS MANUFACTURED BY PLASTI-BOND, PERMA-COTE. KORKAP, OR APPROVED EQUALS.
34. PROVIDE GROUNDING BUSHINGS ON METAL CONDUITS.
35. NO CONDUIT ENTRIES ARE ALLOWED THROUGH THE TOP OF THE ENCLOSURE, WITH EXCEPTION OF PHOTOCELL, IF REQUIRED.
36. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH 5/8-INCH POLYESTER, 1800 LB PULL TAPE.
37. ALL CONDUCTORS SHALL BE XHHW-2 UNLESS OTHERWISE NOTED.
38. UNDERGROUND CONDUITS SHALL BE INSTALLED 24" MINIMUM BELOW FINISHED GRADE.

GROUNDING:

39. GROUNDING CONDUCTORS SHALL BE SIZED PER NEC OR AS INDICATED, WHICHEVER IS LARGER.
40. GROUNDING ROD SHALL BE LOCATED INSIDE ALL ENCLOSURES. GROUNDING SHALL CONFORM TO NEC REQUIREMENTS, OR AS INDICATED, WHICHEVER IS MORE STRINGENT.

EXPLANATION OF ELECTRICAL ENCLOSURE DESCRIPTIVE CODE

ELC SRV TY XXX (XXX/XXX) XXXX (SS) PS (U)

- ENCLOSURE TYPE: MPE = MINI POWER ENCLOSURE, S/E = SERVICE ENTRANCE ENCLOSURE, OR R, S, MLG = ELECTRICAL SERVICE CENTER ENCLOSURE
- SERVICE VOLTAGE: 120/240, SINGLE PHASE OR 480Y/277, THREE PHASE
- POWER OR CURRENT RATING: kVA OF MINI POWER TRANSFORMER, OR AMPACITY OF DISCONNECT SWITCH, OR AMPACITY OF MAIN BREAKER IN THE MAIN PANELBOARD
- ENCLOSURE MATERIAL: SS = STAINLESS STEEL
- SUPPORT TYPE: PS = PEDESTAL
- CONNECTION TYPE: U = UNDERGROUND

ABBREVIATIONS:

A/C	–	AIR CONDITIONING UNIT MOUNTING ON THE ENCLOSURE
A.V.I.	–	AUTOMATIC VEHICLE IDENTIFICATION
CCTV	–	CLOSED CIRCUIT TELEVISION
DMS	–	DYNAMIC MESSAGE SIGN
I.T.S.	–	INTELLIGENT TRANSPORTATION SYSTEMS
MDP	–	MAIN DISTRIBUTION PANELBOARD
NEC	–	NATIONAL ELECTRICAL CODE
NEMA	–	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	–	NATIONAL FIRE PROTECTION ASSOCIATION
OSHA	–	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PPE	–	PERSONAL PROTECTIVE EQUIPMENT
PVC	–	POLYVINYL CHLORIDE
GRS	–	GALVANIZED RIGID STEEL
TxDOT	–	TEXAS DEPARTMENT OF TRANSPORTATION
TRG	–	TRANSFORMER

40. CONTRACTOR SHALL PROVIDE RESISTANCE TO GROUND TEST; MAX RESISTANCE SHALL BE NO MORE THAN 25 OHMS. TEST REPORTS SHALL BE INCLUDED IN THE OPERATIONS/MAINTENANCE (O&M) MANUAL, ADDITIONALLY ONE COPY OF THE REPORT WILL BE LAMINATED AND PLACED IN THE EQUIPMENT DOCUMENT POCKET.

EQUIPMENT ARCH FLASH LABELS:

41. CONTRACTOR SHALL ENGAGE A QUALIFIED AGENCY TO PERFORM ARC FLASH HAZARD ANALYSIS STUDY AND INSTALL ASSOCIATED WARNING LABELS FOR ALL ENERGIZED ELECTRICAL EQUIPMENT.

NO.	DATE	REVISION	APPROV.	DRN
1	6/17/14	REVISED TEXT	MM	10532

NTTA NORTH TEXAS TOLLWAY AUTHORITY

ELECTRICAL SERVICE CENTER GENERAL NOTES

ESC-001(1)-2009

DRAWN IEL DATE 12-30-09 | DESIGNED IEL DATE 12-30-09
CHECKED RW DATE 12-30-09 | SCALE NTS

CONTRACT NO. _____ SHEET ____ OF ____

DRN: 10086

SHEET 1 OF 1

2/19/2015

ERIC SNOW KRAMER 150414 LICENSED PROFESSIONAL ENGINEER — STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SPUR 399
ESC-001(1)-2015
NTTA STANDARDS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
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CHECK MK	TEXAS	DAL	COLLIN	1223
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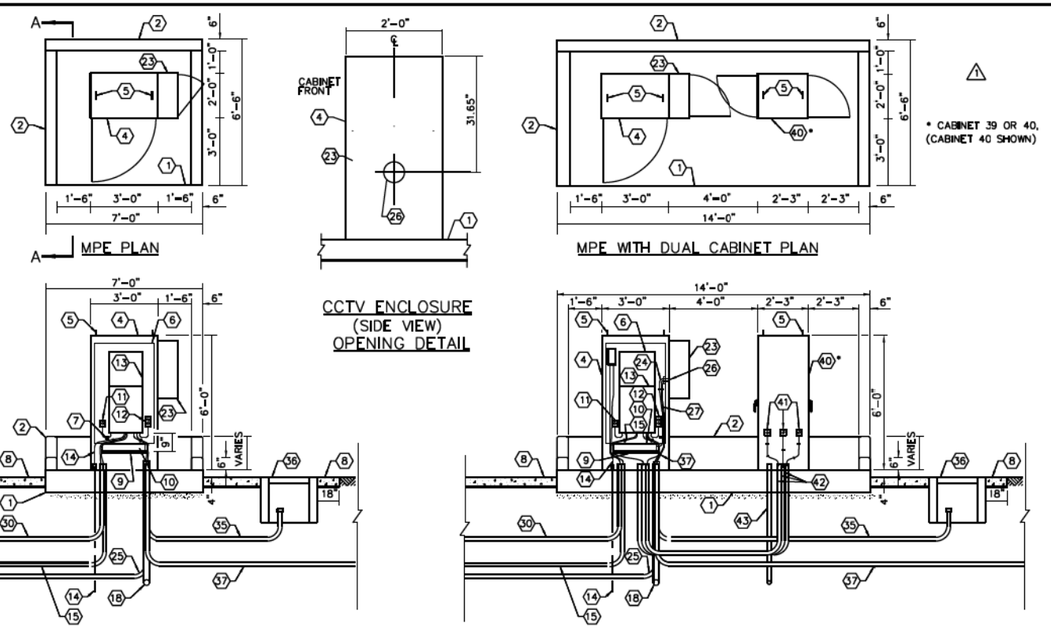
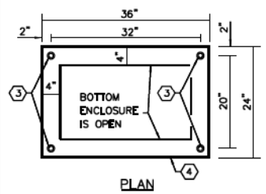
FILE: ESC-001-2009-V2.dgn

100% PLANS SUBMITTAL

ESC-003(1)-2009



SEE NTTA ESC-003, SHEET 3 OF 4 FOR ADDITIONAL ESC TYPE MPE ENCLOSURE CONFIGURATIONS.



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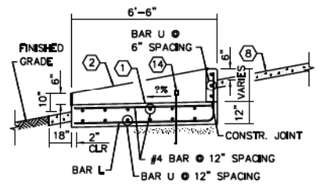
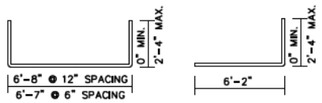


SECTION A-A - BAR DETAILS



#4 BAR @ 6" OR 12" SPACING

#4 BAR @ 12" SPACING

MINI-POWER PANELBOARD LAYOUT

KVA RATING	TRANSFORMER CIRCUIT BREAKER			
	PRIMARY		SECONDARY	
10	30A		60A	
10 KVA MINI POWER				
LOAD DESCRIPTION	CT #	PHASE	CT #	LOAD DESCRIPTON
20A/1P RECEPTACLE	1	A	2	40A/2P DMS (REQUIRES NEUTRAL
15A/1P FALCON 1.5 KVA UPS	3	B	4	SAME SIZE AS PHASE CONDUCTORS.
20A/1P LSCP	5	A	6	20A/1P SPARE
20A/1P AVI	7	B	8	20A/1P SPARE
20A/1P SPARE	9	A	10	20A/1P SPARE

NOTES:
1. REFER TO THE ONE-LINE DIAGRAM AFTER THE ITS PLANS FOR CONDUIT AND CIRCUIT SIZES.
2. VERIFY CIRCUIT SIZES FOR VOLTAGE DROP.
3. ALL LOADS REQUIRE SEPERATE NEUTRALS.
4. 10 KVA WILL SERVE ALL OR A SINGLE COMBINATION OF THE FOLLOWING A.V.I., DMS, CCTV, LSCP, FALCON 1.5 KVA UPS.

GENERAL NOTES:

1. TYPE MPE ELECTRICAL SERVICE CENTER ENCLOSURE PROVIDES POWER FOR I.T.S., LANDSCAPING, AND OTHER EQUIPMENT AS REQUIRED.
2. TYPE MPE ELECTRICAL SERVICE CENTER ENCLOSURE WILL BE PAID FOR UNDER ITEM 628 AT THE UNIT PRICE BID FOR: "ELC SRV TY MPE (120/240)10KVA(SS)PS(U)"
3. SEE NTTA ESC-003, SHEET 2 OF 4 FOR KEYED NOTES AND CONDUIT BLOCKOUT DETAILS.
4. SEE NTTA ESC-001 FOR GENERAL NOTES INFORMATION.
5. SEE NTTA ESC 005, AND 006 STANDARDS FOR PROPER ELECTRICAL SERVICE CENTER ENCLOSURE DETAILS.
6. SEE NTTA ITS-002 FOR TYPE FO GROUND BOX DETAILS.
7. SEE TXDOT ED (3) FOR TYPE D GROUND BOX DETAILS.
8. CONDUITS SHALL BE IN ACCORDANCE WITH ITEM 618.
9. CONDUCTORS SHALL BE IN ACCORDANCE WITH ITEM 620.
10. SERVICE PAD/FOUNDATION SHALL BE IN ACCORDANCE WITH ITEM 656. PROVIDE CLASS "C" CONCRETE.
11. RIPRAP SHALL BE IN ACCORDANCE WITH ITEM 432.
12. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
13. OMIT 6" THICK WALL WHEN THE ELECTRICAL SERVICE CENTER MPE ENCLOSURE IS LOCATED ON TRANSVERSE OR LONGITUDINAL SLOPE 20:1 OR FLATTER.
14. DO NOT LOCATE THE ELECTRICAL SERVICE CENTER MPE ENCLOSURE IN A FLOW LINE OF A DITCH.
15. DO NOT LOCATE THE ELECTRICAL SERVICE CENTER MPE ENCLOSURE IN AN AREA WHERE TRANSVERSE SLOPE IS STEEPER THAN 4:1.
16. MINIMUM BAR LAPPING = 1'-6".
17. PLACE 9 INCHES (9") MINIMUM GRAVEL BED UNDERNEATH ALL GROUND BOXES.
18. PLACE 2 INCHES (2") MINIMUM SAND BED UNDERNEATH THE ENCLOSURE'S PAD.
19. BRANCH CIRCUIT DIAGRAM SHALL INCLUDE THE LOCATION AND NAME OF THE ELECTRICAL SERVICE CENTER SUPPLYING THE POWER TO THE MPE ENCLOSURE.
20. EACH CONDUIT OR INNER DUCT SHALL BE SEALED WITH MECHANICALLY EXPANDABLE DUCT PLUG. PLUGS SHALL BE CORROSION AND CHEMICAL RESISTANT, REMOVABLE, REUSABLE AND PROVIDE A LIGHT, LIQUID, AND AIR TIGHT SEAL. THE PLUG SHALL HAVE AN INDIVIDUAL ENTRY PORT FOR EACH INSTALLED CABLE. EXPANDABLE FOAM SHALL NOT BE USED. THIS ITEM SHALL BE CONSIDERED SUBSIDIARY TO ITEM 628.
21. SEE NTTA ESC-003, SHEET 4 FOR 15 KVA DUAL CABINET CONFIGURATION DETAIL AT DMS AND AUXILIARY RADIO RECEIVER INSTALLATION SITES.
22. SEE NTTA IT FOR CCTV CONTROL ENCLOSURE HOLE TEMPLATE.
23. THE DSE SHALL LABEL THE LAYOUT TYPE FROM ESC-003 (3) AND ESC-003 (4) FOR EACH USE OF A MPE IN THE PROJECT ON THE ONE-LINE DIAGRAM.

NO.	DATE	REVISION	APPROV.	DRN
2	8/1/15	REVISED DWG & TEXT	MM	10576
1	6/17/14	REVISED TEXT	MM	10534

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

ELECTRICAL SERVICE CENTER
TYPE MPE ENCLOSURE
ESC-003(1)-2009

DRAWN IEL	DATE 12-30-09	DESIGNED IEL	DATE 12-30-09
CHECKED RW	DATE 12-30-09	SCALE NTS	

CONTRACT NO. _____ SHEET ____ OF ____

DRN: 10086

SHEET 1 OF 4

9/21/2015

ERIC SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

SPUR 399
ESC-003(1)-2015
NTTA STANDARDS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1224
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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USER: EKRAMER
FILE: ESC-003-2009-V2.dgn
PENTABLE: 10181S-SP399-SEG1.tbl
DATE: 10/1/2024
TIME: 12:08:04 PM
SCALE: 1:20

100% PLANS SUBMITTAL

ESC-003(2)-2009

KEYED NOTES (ELECTRICAL SERVICE CENTER TYPE MPE):

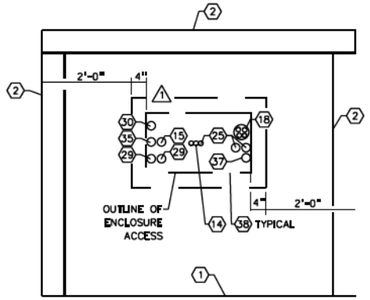
1. 12-INCH THICK SERVICE PAD/FOUNDATION.
2. 6-INCH THICK WALL WHEN TRANSVERSE OR LONGITUDINAL SLOPE IS STEEPER THAN 20:1. THE WALL IS SUBSIDIARY TO ITEM 628.
3. STAINLESS STEEL HEX NUT, LOCK WASHER, FLAT WASHER, AND CONCRETE WEDGE ANCHORS. USE 3/4-INCH DIA. CONCRETE WEDGE ANCHORS WITH 6-INCH MINIMUM EMBEDMENT IN THE CONCRETE. TYPICAL.
4. ELECTRICAL SERVICE CENTER (ESC) ENCLOSURE TYPE MPE. 36"Wx72"Hx24"D ENCLOSURE, 12 GAUGE, TYPE 316 STAINLESS STEEL, NEMA 3R ENCLOSURE. ENCLOSURE SHALL HAVE A SINGLE-DOOR, DOOR HANDLE, PADLOCK PROVISION, LIFTING DEVICES, AND TWO LOUVER PLATES MOUNTED ON THE DOOR FOR VENTILATION. THE TOP LOUVER PLATE SHALL BE LOCATED 6-INCH FROM THE TOP OF THE DOOR AND THE BOTTOM LOUVER PLATE SHALL BE LOCATED 6-INCH FROM THE BOTTOM OF THE DOOR. EACH LOUVER PLATE ASSEMBLY SHALL HAVE A MINIMUM AREA OF 18"Wx9"H WITH AT LEAST 6 LOUVERS AND A STAINLESS STEEL 18X14 INSECT SCREEN MESH MADE OF 0.011-INCH DIAMETER WIRE. SEE I.T.S. PLANS FOR LOCATION. EACH SIDE OF THE ENCLOSURE FRAME SHALL BE DESIGNED TO SUPPORT AN ADDITIONAL LOAD OF UP TO 500 LBS FOR THE MOUNTING OF CCTV ENCLOSURE OR A.V.I. TRAVEL TIME SENSOR/DMS ENCLOSURE WHEN REQUIRED BY THE PLANS.
5. LIFTING DEVICE.
6. MOUNTING PANEL OR BACKBOARD PANEL, 32"Wx 54"H TYPICAL.
7. METAL DISTRIBUTION RINGS TYPICAL, "D" TYPE. SIZE VARIES.
8. 5-INCH THICK CONCRETE RIPRAP/APRON REINFORCED WITH #3 BARS AT 18-INCH ON CENTER EACH WAY. THE RIPRAP/APRON IS SUBSIDIARY TO VARIOUS BID ITEMS.
9. 24"Wx18"Dx 1"MIN. THICK STAINLESS STEEL SHELF WITH BACK SUPPORT. SHELVING MATERIAL SHALL BE TYPE 304 STAINLESS STEEL SHEETING, 12 GAUGE.
10. 1.5 KVA UNINTERRUPTIBLE POWER SUPPLY (UPS) UNIT FURNISHED AND INSTALLED BY THE NTTA.
11. 15A, NEMA L5-15, SINGLE TWIST-LOCK RECEPTACLE, CAST ALUMINUM BOX WITH NEMA 1 COVER. USE #10 XHHW-2 CONDUCTORS.
12. 20A/120V DUPLEX GROUND FAULT INTERRUPTER CIRCUIT, GFCI, RECEPTACLE, CAST ALUMINUM BOX WITH NEMA 1 COVER. USE #12 AWG XHHW-2 CONDUCTORS. ⚠1
13. 10 KVA MINI POWER ENCLOSURE, SINGLE-PHASE, NEMA 1 ENCLOSURE. THIS DRY-TYPE TRANSFORMER CONVERTS 480 VAC TO 120/240 VAC SERVING 3 WIRE PANELBOARD SECTION. SEE ONE-LINE DIAGRAM AND PANEL BOARD SCHEDULES AFTER THE I.T.S. PLANS FOR CONDUIT AND CONDUCTOR SIZES. ⚠1
14. GROUNDING SYSTEM SHALL INCLUDE 3/4" DIA. x 10 LF COPPER-CLAD STEEL GROUND ROD AND MINIPOWER ENCLOSURE TRANSFORMER GROUND CONDUCTOR SIZED PER NEC, OR AS INDICATED, WHICHEVER IS LARGER.
15. 2-INCH SCHEDULE 40 PVC CONDUIT AND XHHW-2 CONDUCTORS CONNECTING THE GROUND BOX, TYPE D, AND THE MINI POWER ENCLOSURE. SEE ONE-LINE DIAGRAM AND PANEL BOARD SCHEDULES AFTER THE I.T.S. PLANS FOR CONDUIT AND CONDUCTOR SIZES. CONDUCTORS AND GROUND BOX ARE SUBSIDIARY TO ITEM 628. ⚠1
16. 2-INCH SCHEDULE 40 PVC CONDUIT AND XHHW-2 CONDUCTORS CONNECTING THE ELECTRICAL SERVICE CENTER TO THE MINI POWER ENCLOSURE. SEE ONE-LINE DIAGRAM AND PANEL BOARD SCHEDULES AFTER THE I.T.S. PLANS FOR CONDUIT AND CONDUCTOR SIZES. ⚠1
17. GROUND BOX WITH APRON, TYPE D. SEE I.T.S. PLANS FOR LOCATION. GROUND BOX WILL BE PAID IN ACCORDANCE TO ITEM 624.
18. FIBER OPTIC LATERAL, MULTIDUCT CONDUIT (PVC) (4-1.25 INCH INNERDUCT) CONNECTING THE FIBER OPTIC GROUND BOX, TYPE FO (484860) AND THE MINI POWER ENCLOSURE. SEE I.T.S. PLANS FOR LOCATION. MULTIDUCT IS SUBSIDIARY TO ITEM 628.
19. FIBER OPTIC GROUND BOX WITH APRON, TYPE FO (484860). SEE I.T.S. PLANS FOR LOCATION. FIBER OPTIC GROUND BOX WILL BE PAID IN ACCORDANCE TO ITEM 624.
20. FIBER OPTIC BACKBONE, MULTIDUCT CONDUIT (PVC) (4-1.25 INCH INNERDUCT) SEE I.T.S. PLANS FOR LOCATION. MULTIDUCT CONDUIT WILL BE PAID IN ACCORDANCE TO ITEM 860.
21. FIBER OPTIC CABLES, INSTALLED BY THE NTTA, SERVING A.V.I. TRAVEL TIME SENSOR/DMS EQUIPMENT.
22. FIBER OPTIC CABLES, INSTALLED BY THE NTTA, SERVING CCTV ENCLOSURE.
23. CLOSED CIRCUIT TELEVISION (CCTV) ENCLOSURE WHERE REQUIRED. THE NTTA WILL FURNISH AND SHALL INSTALL THE ENCLOSURE. SEE I.T.S. PLANS FOR REQUIREMENTS.
24. ONE (1) POWER CORD PROVIDED BY THE NTTA CONNECTING THE U.P.S. AND THE CCTV ENCLOSURE WHEN REQUIRED.
25. (2) 2-INCH SCHEDULE 40 PVC COMMUNICATION, (1) 1 INCH SCHEDULE 40 PVC GROUNDING CONDUIT TO CCTV STRUCTURE. ⚠1
26. PREFABRICATED 3.594" DIA. FOR NOMINAL 3" HOLE TO CCTV ENCLOSURE. VERIFY WITH I.T.S. IF REQUIRED PRIOR TO ROUGH IN. SEE ESC-003(1) FOR OPENING DETAIL.
27. COMMUNICATION/POWER CABLES INSTALLED BY THE NTTA CONNECTING THE CCTV ENCLOSURE AND THE CCTV CAMERAS.
28. ONE (1) POWER CORD PROVIDED BY NTTA CONNECTING THE U.P.S. AND THE A.V.I. TRAVEL TIME SENSOR/DMS EQUIPMENT WHEN REQUIRED.
29. (2) 2-INCH SCHEDULE 40 PVC COMMUNICATION AND POWER, (1) INCH SCHEDULE 40 PVC GROUNDING CONDUIT AND XHHW-2 CONDUCTORS TO DMS STRUCTURE. SEE ONE-LINE DIAGRAM AND PANEL BOARD SCHEDULES AFTER THE I.T.S. PLANS FOR CONDUIT AND CONDUCTOR SIZES. ⚠1
30. 2-INCH SCHEDULE 40 PVC COMMUNICATION CONDUIT TO THE A.V.I. TRAVEL TIME SENSOR MOUNTED ON THE OVERHEAD SIGN STRUCTURE OR DMS STRUCTURE. COMMUNICATION CABLES WILL BE INSTALLED BY THE NTTA.
31. COMMUNICATION CABLES INSTALLED BY THE NTTA CONNECTING THE CCTV ENCLOSURE AND THE A.V.I. TRAVEL TIME SENSOR/DMS EQUIPMENT. ⚠1
32. COMMUNICATION/POWER CABLES INSTALLED BY THE NTTA CONNECTING THE A.V.I. TRAVEL TIME SENSOR/DMS EQUIPMENT.
33. NOT USED.
34. COMMUNICATION CABLE INSTALLED BY NTTA CONNECTING THE A.V.I. TRAVEL TIME SENSOR/DMS EQUIPMENT.
35. 2-INCH SCHEDULE 40 PVC CONDUIT WITH 5/8-INCH POLYESTER, 1800 LB PULL TAPE TO GROUND BOX, TYPE D, FOR FUTURE USE. CAP AT BOTH ENDS. CONDUIT IS SUBSIDIARY TO ITEM 528.
36. SPARE GROUND BOX, TYPE D WITH APRON, FOR FUTURE USE. THE NTTA WILL SPECIFY THE LOCATION OF GROUND BOX IF NOT SHOWN ON THE PLANS. GROUND BOX IS SUBSIDIARY TO ITEM 628.
37. 2-INCH SCHEDULE 40 PVC CONDUIT AND XHHW-2 CONDUCTORS, AS REQUIRED, TO LANDSCAPING CONTROLLER. SEE ONE-LINE DIAGRAM AND PANEL BOARD SCHEDULES AFTER THE I.T.S. PLANS FOR CONDUIT AND CONDUCTOR SIZES. PROVIDE EMPTY CONDUIT WITH 5/8-INCH POLYESTER, 1800 LB PULL TAPE AND TYPE D GROUND BOX FOR FUTURE CONNECTION OF LANDSCAPING CONTROLLER. CONDUIT AND GROUND BOX ARE SUBSIDIARY TO ITEM 528. ⚠1
38. CONDUIT STUB UP 3" ABOVE FINISHED SURFACE. CONDUIT STUB UP LAYOUT SHALL BE INSTALLED WITH A TEMPLATE MATCHING CABINET BOTTOM. TEMPLATE SHALL BE SECURED IN PLACE PRIOR TO PLACEMENT OF CONCRETE. (TYPICAL) ⚠1
39. DYNAMIC MESSAGE SIGN (DMS) CONTROL CABINET ENCLOSURE. 30"Wx42"Hx24"D GROUND MOUNTED ENCLOSURE, STAINLESS STEEL, NEMA 3R ENCLOSURE. ENCLOSURE PROCURED AND INSTALLED BY NTTA.
40. AUXILIARY RADIO RECEIVER ENCLOSURE. 24"Wx72"Hx27"D DUAL ACCESS ENCLOSURE, STAINLESS STEEL, NEMA 3R ENCLOSURE. ENCLOSURE PROCURED BY NTTA AND INSTALLED BY CONTRACTOR.
41. 20A, NEMA 5-20R, SINGLE RECEPTACLE, CAST ALUMINUM BOX WITH NEMA 1 COVER.
42. (3) 2-INCH SCHEDULE 40 PVC CONDUITS CONNECTING ELECTRICAL SERVICE CENTER TYPE MPE TO THE DMS CONTROL CABINET OR AUXILIARY RADIO RECEIVER ENCLOSURE.
43. (1) 2-INCH SCHEDULE 40 PVC COMMUNICATION CONDUIT CONNECTING AUXILIARY RADIO RECEIVER ENCLOSURE TO THE CCTV POLE CONDUIT STUB.

GENERAL NOTES:

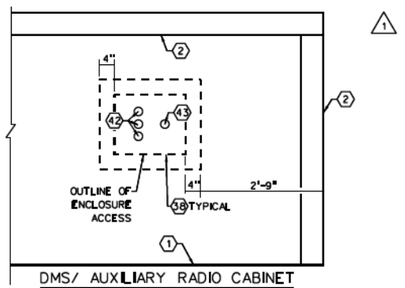
⚠1 1. SEE NTTA ESC-003, SHEET 1 OF 3 FOR GENERAL NOTES, PLAN AND ELEVATION, BAR DETAILS, AND PANELBOARD LAYOUT.

⚠1 2. SEE NTTA ESC-003, SHEET 3 AND 4 FOR SPECIFIC SITE LAYOUTS, AND MPE CONFIGURATIONS.

3. A SIGN SHALL BE PERMANENTLY PLACED PER THE NEC FOR EMERGENCY POWER PANELS AND ENCLOSURES WHEN CONNECTED TO AN EMERGENCY SYSTEM WITH THE WORDS "EMERGENCY SYSTEM".



CONDUIT STUB UP/BLOCKOUT DETAIL



⚠1

DMS/ AUXILIARY RADIO CABINET CONDUIT STUB UP/BLOCKOUT DETAIL

NO.	DATE	REVISION	APPROV.	DRN
⚠1	6/17/14	REVISED TEXT	MM	10534

NTTA NORTH TEXAS TOLLWAY AUTHORITY

ELECTRICAL SERVICE CENTER TYPE MPE ENCLOSURE

ESC-003(2)-2009

DRAWN IEL DATE 12-30-09		DESIGNED IEL DATE 12-30-09	
CHECKED RW DATE 12-30-09		SCALE NTS	
CONTRACT NO.	SHEET ___ OF ___		

DRN: 10086

SHEET 2 OF 4

2/19/2015

STATE OF TEXAS ERIC SNOW KRAMER 150414 LICENSED PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SPUR 399
ESC-003(2)-2015
NTTA STANDARDS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1225
CHECK MK	CONTROL 0047	SECTION 05	JOB 057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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DATE: 10/1/2024
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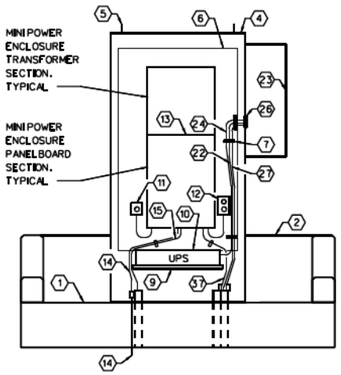
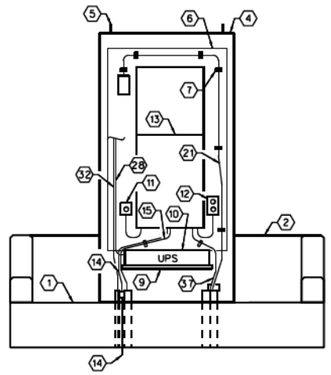
100% PLANS SUBMITTAL

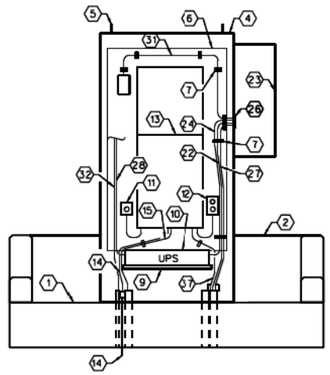
ESC-003(3)-2009



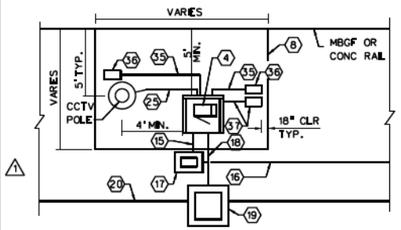
CASE #1 - 10 KVA MPE CONFIGURATION FOR CCTV AND LANDSCAPING ELEMENTS



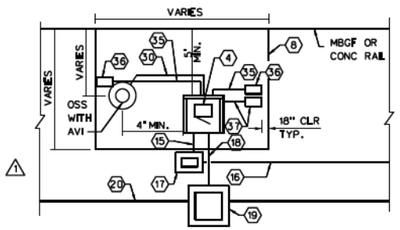
CASE #2 - 10 KVA MPE CONFIGURATION FOR AVI TRAVEL TIME SENSOR, AND LANDSCAPING ELEMENTS



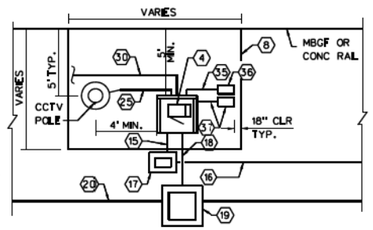
CASE #3 - 10 KVA MPE CONFIGURATION FOR CCTV, AVI TRAVEL TIME SENSOR, AND LANDSCAPING ELEMENTS



TYPICAL LAYOUT FOR CASE 1



TYPICAL LAYOUT FOR CASE 2



TYPICAL LAYOUT FOR CASE 3

GENERAL NOTES:

1. SEE NTTA ESC-003, SHEET 1 FOR GENERAL NOTES, PLAN AND ELEVATION, BAR DETAILS, AND PANELBOARD LAYOUT.
2. SEE NTTA ESC-003, SHEET 2 FOR KEYED NOTES AND CONDUIT BLOCKOUT DETAILS.

NO.	DATE	REVISION	APPROV.	DRN
1	6/17/14	REVISED TEXT & DRAWING	MM	10534

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

ELECTRICAL SERVICE CENTER
TYPE MPE ENCLOSURE
ESC-003(3)-2009

DRAWN IEL DATE 12-30-09 | DESIGNED IEL DATE 12-30-09
CHECKED RW DATE 12-30-09 | SCALE NTS

CONTRACT NO. _____ SHEET ____ OF ____

DRN: 10086

SHEET 3 OF 4

2/19/2015

Eric Snow Kramer
10/01/2024
STATE OF TEXAS
ERIC SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

SPUR 399
ESC-003(3)-2015
NTTA STANDARDS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
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GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1226
CHECK MK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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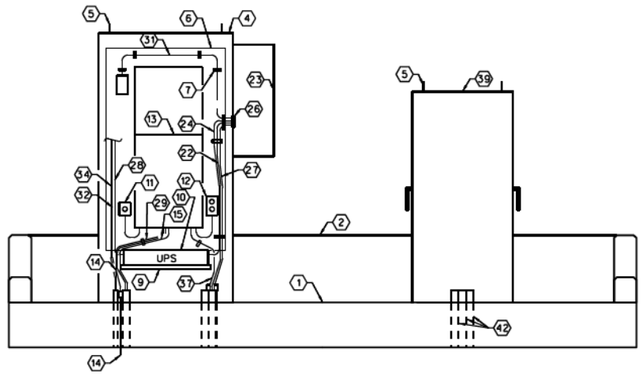
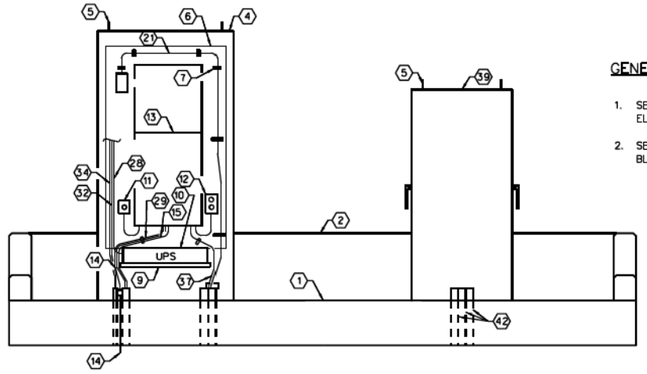
100% PLANS SUBMITTAL

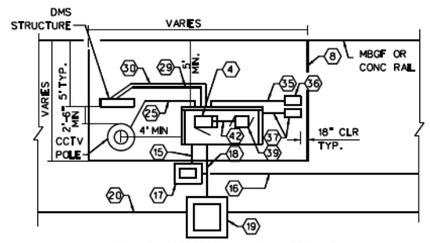
ESC-003(4)-2014



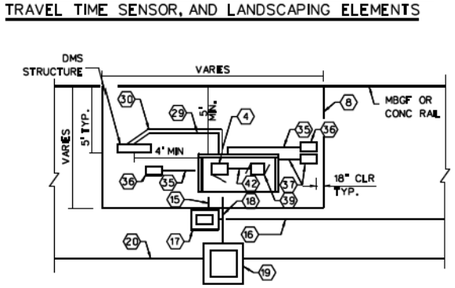
CASE #4 - 10 KVA MPE CONFIGURATION FOR CCTV, DMS, AVI TRAVEL TIME SENSOR, AND LANDSCAPING ELEMENTS



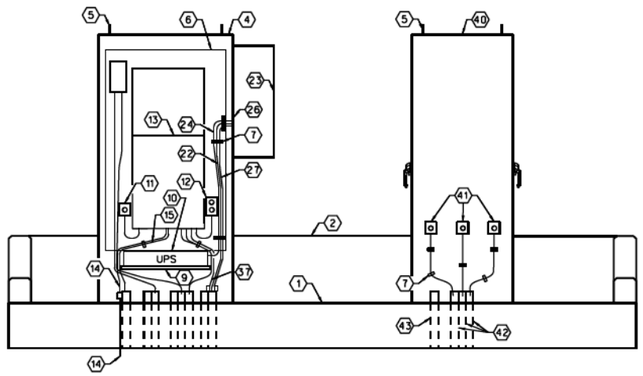
CASE #5 - 10 KVA MPE CONFIGURATION FOR DMS, AVI TRAVEL TIME SENSOR, AND LANDSCAPING ELEMENTS



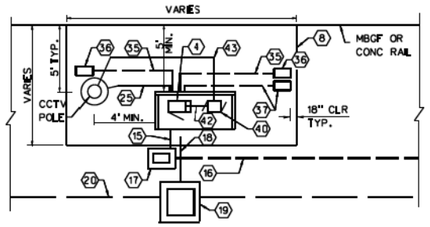
TYPICAL LAYOUT FOR CASE 4



TYPICAL LAYOUT FOR CASE 5



CASE #6 - 10 KVA MPE CONFIGURATION FOR CCTV AND RADIO RECEIVER ELEMENTS



TYPICAL LAYOUT FOR CASE 6

GENERAL NOTES:

1. SEE NTTA ESC-003, SHEET 1 FOR GENERAL NOTES, PLAN AND ELEVATION, BAR DETAILS, AND PANELBOARD LAYOUT.
2. SEE NTTA ESC-003, SHEET 2 FOR KEYED NOTES AND CONDUIT BLOCKOUT DETAILS.

NO.	DATE	REVISION	APPROV.	DRN
6	6/17/14	REVISED TEXT & DRAWING	MM	10534

NTTA NORTH TEXAS TOLLWAY AUTHORITY

ELECTRICAL SERVICE CENTER
TYPE MPE ENCLOSURE
ESC-003(4)-2014

DRAWN TS	DATE 06-17-14	DESIGNED MM	DATE 06-17-14
CHECKED MM	DATE 06-17-14	SCALE NTS	

CONTRACT NO. _____ SHEET ____ OF ____

2/19/2015

DRN: 10086

SHEET 4 OF 4

ERIC SNOW KRAMER
150414
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
Firm Registration No. F-754
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Texas Department of Transportation

SPUR 399
ESC-003(4)-2015
NTTA STANDARDS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
ESK	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS ESK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MK	TEXAS	DAL	COLLIN	1227
CHECK MK	CONTROL 0047	SECTION 05	JOB 057, ETC.	

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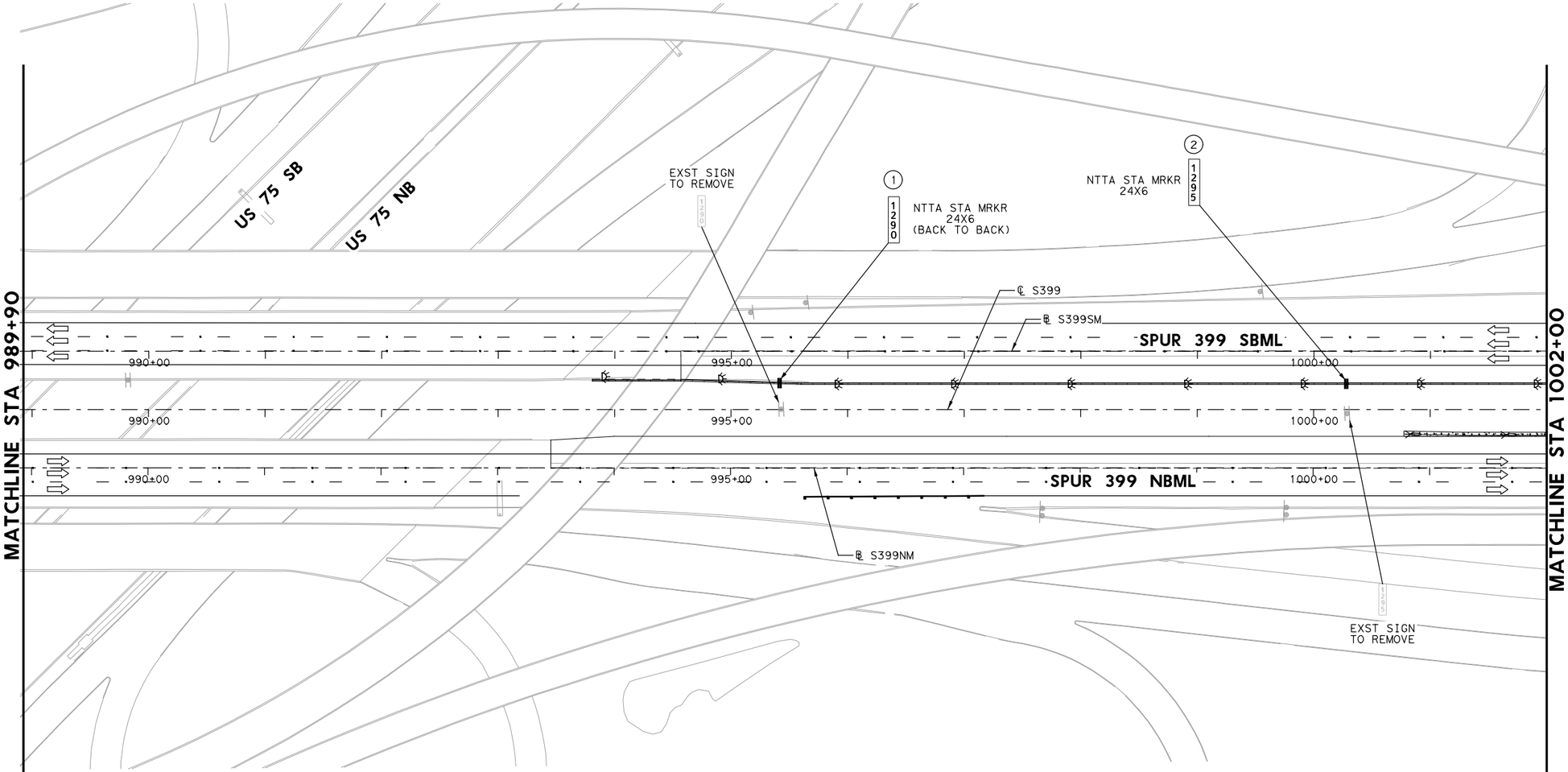
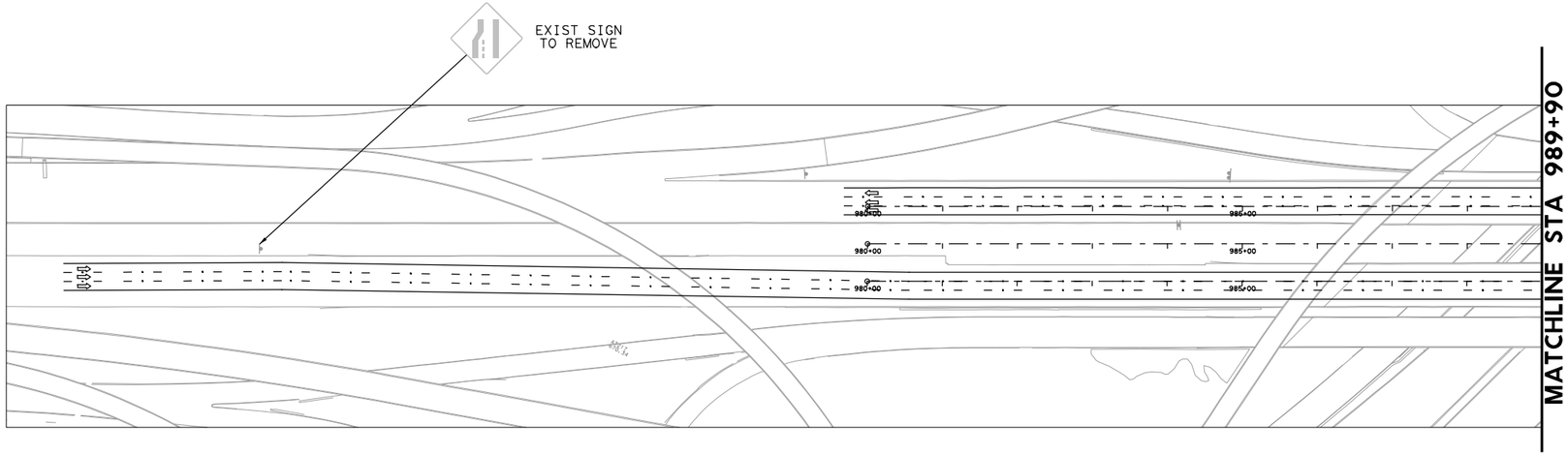
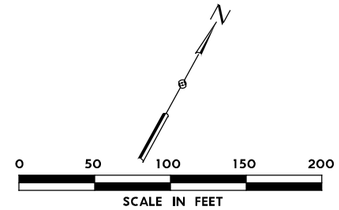
100% PLANS SUBMITTAL







LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

NOTES:

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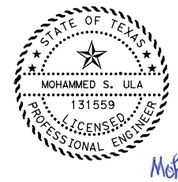
2. ALL PROPOSED SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED, AS APPROVED.
3. ALL SIGNS ARE NOT TO SCALE. SEE SIGN DIMENSION IN SIGN DETAIL SHEETS.
4. ALL SIGN DIMENSIONS ARE IN INCHES.



Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

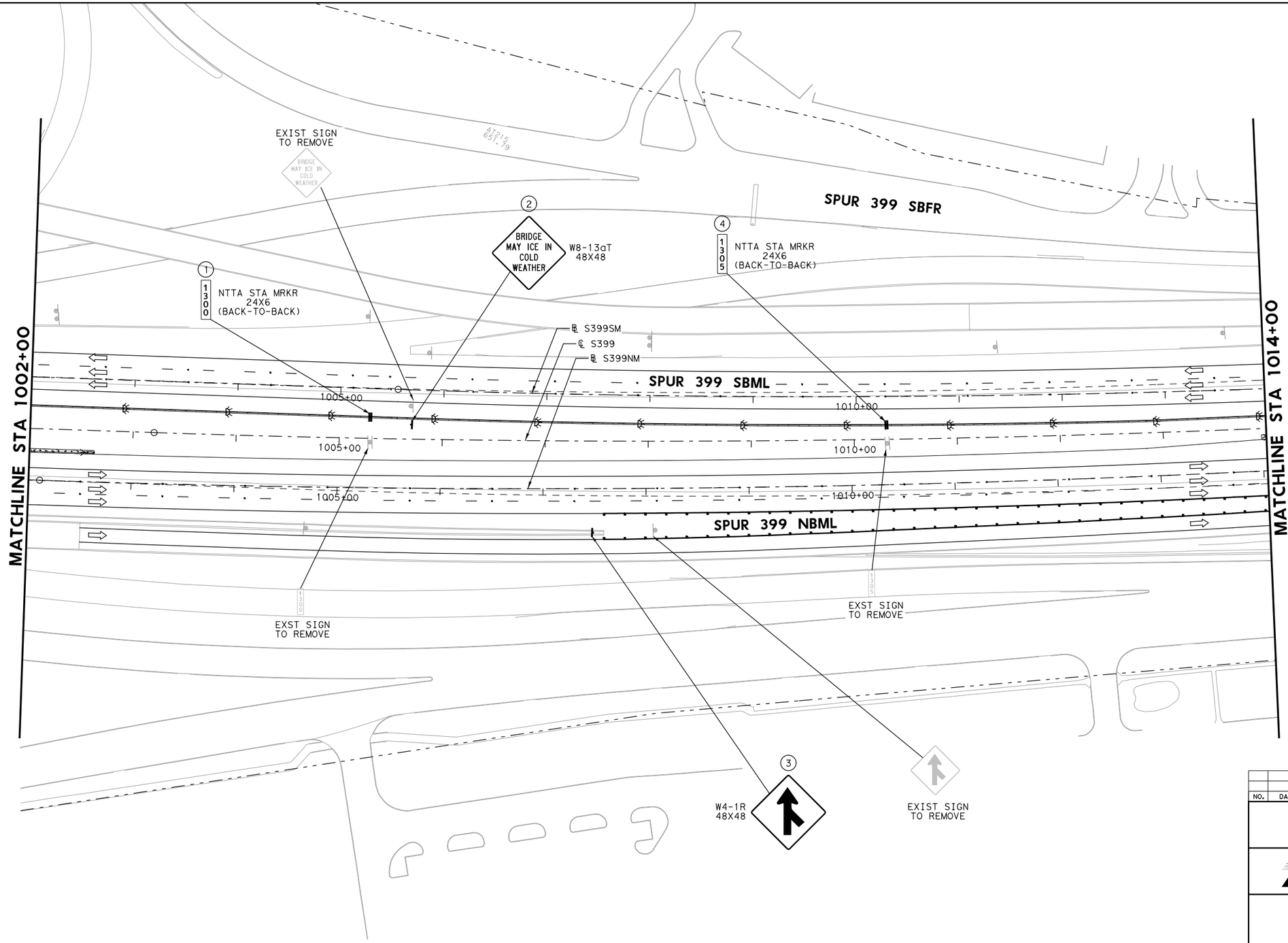
SPUR 399
SIGNING LAYOUT
SPUR 399
BEGIN PROJECT TO STA 1002+00

SCALE: 1"=100' SHEET 1 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1228
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:52:44 AM SCALE: 1:00
FILE: SIGNING LAYOUT-1

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

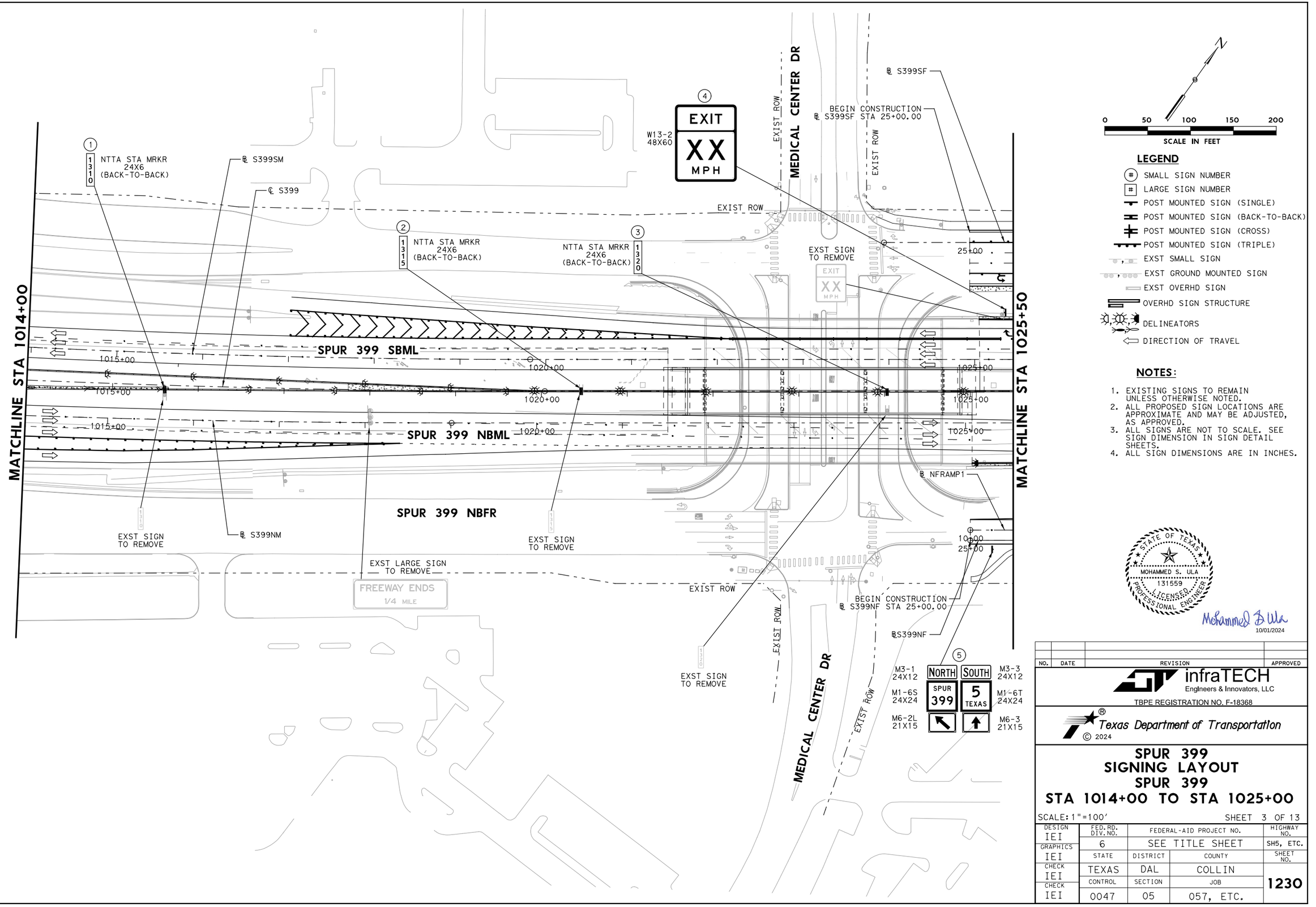
SPUR 399
SIGNING LAYOUT
SPUR 399
STA 1002+00 TO STA 1014+00

SCALE: 1"=100' SHEET 2 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1229
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha TIME: 10:53:02 AM SCALE: 1:100
DATE: 10/1/2024
FILE: SIGNING LAYOUT-2

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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STATE OF TEXAS
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NO.	DATE	REVISION	APPROVED

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Texas Department of Transportation

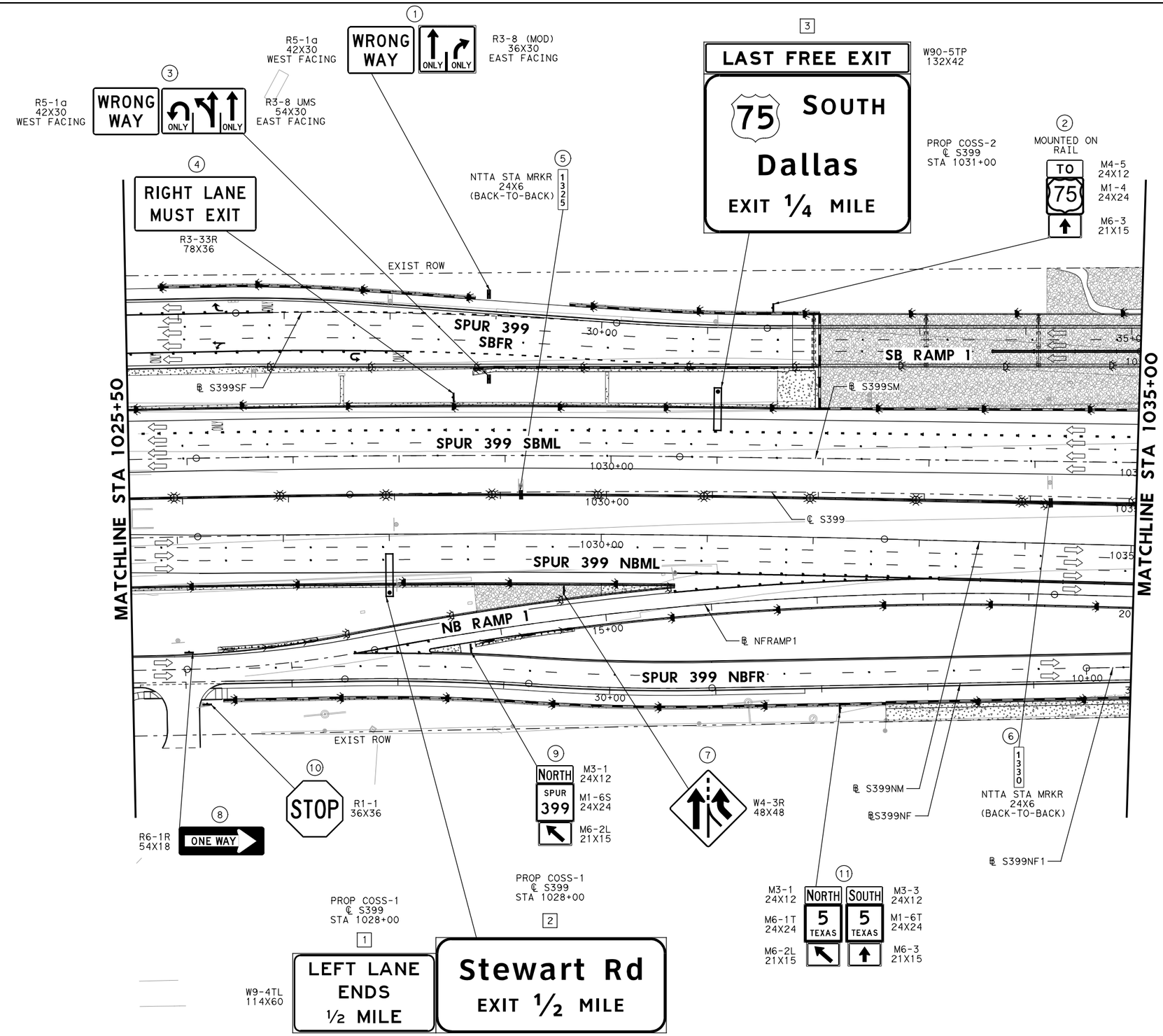
SPUR 399
SIGNING LAYOUT
SPUR 399
STA 1014+00 TO STA 1025+00

SCALE: 1"=100' SHEET 3 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1230
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: SIGNING LAYOUT-3
PENTABLE: 10818-SP399-SEGI.tbl
DATE: 10/1/2024
TIME: 10:53:11 AM
SCALE: 1:100

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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STATE OF TEXAS
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Mohammed S Ula
10/01/2024

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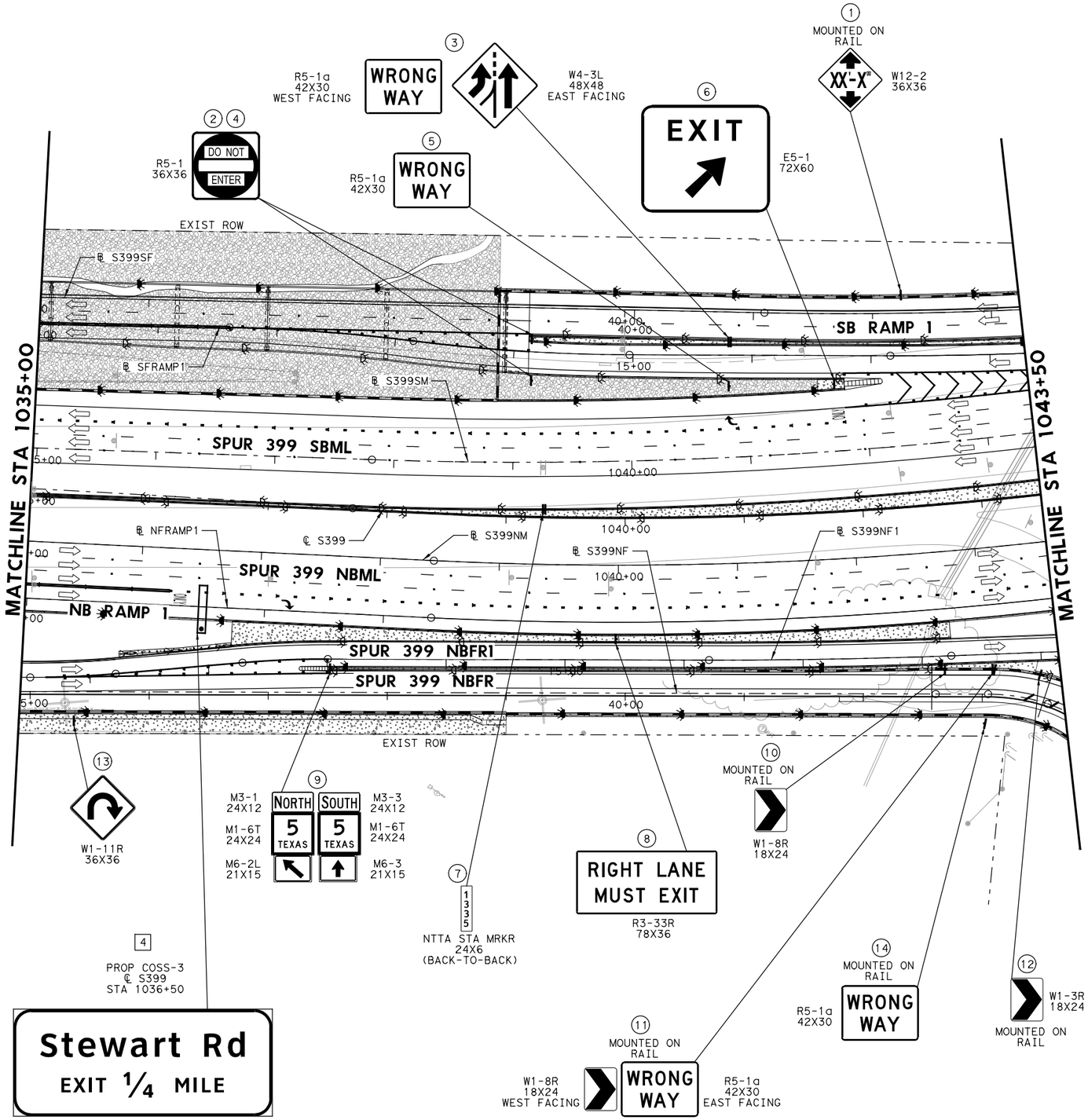
SPUR 399
SIGNING LAYOUT
SPUR 399
STA 1025+00 TO STA 1035+00

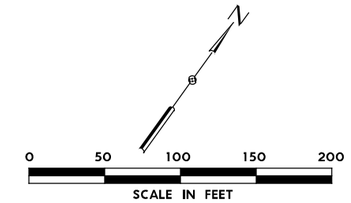
SCALE: 1"=100' SHEET 4 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1231
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10IBI15-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:53:18 AM SCALE: 1:100
FILE: SIGNING LAYOUT-4

100% PLANS SUBMITTAL





LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
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- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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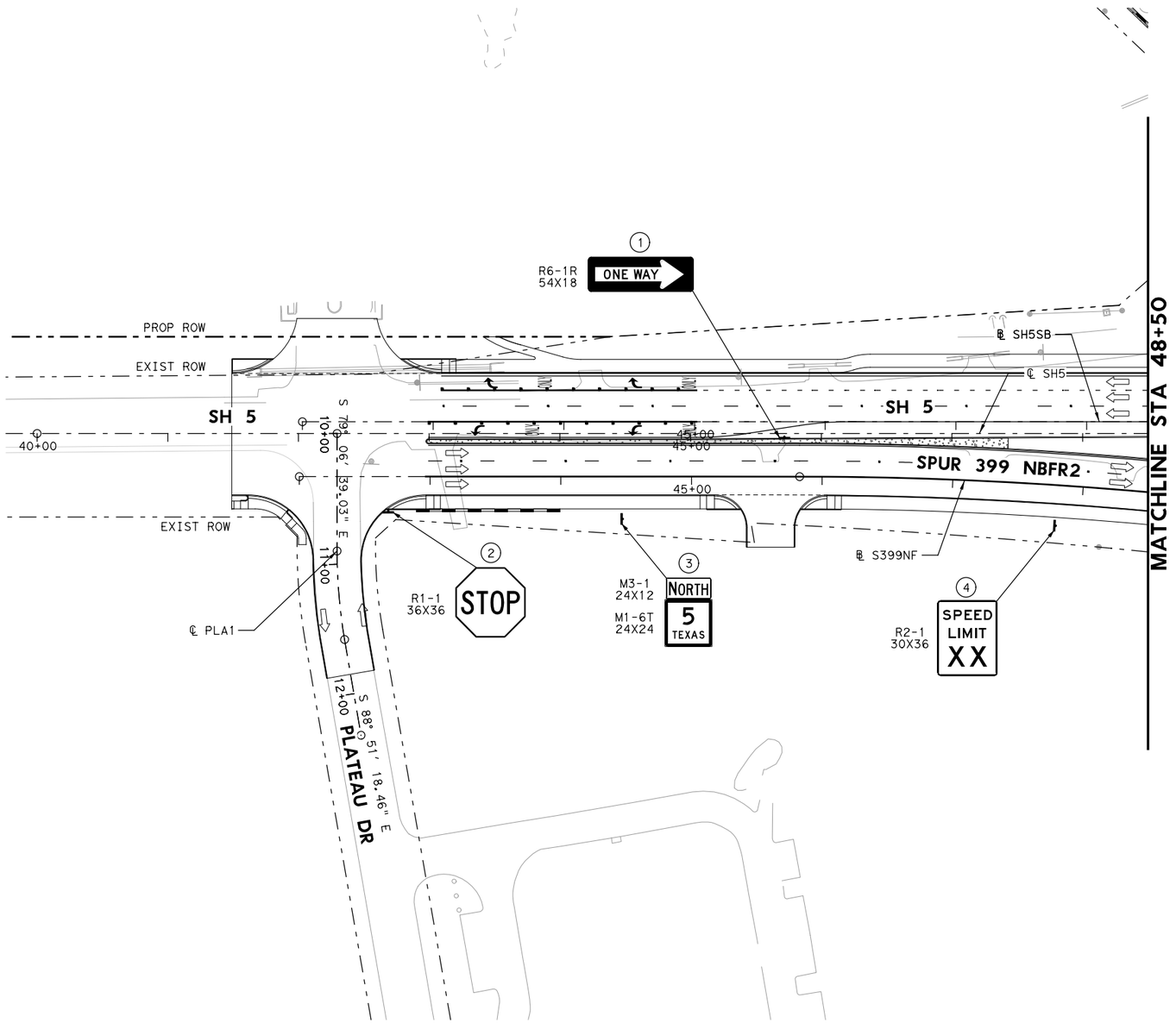
SPUR 399
SIGNING LAYOUT
SPUR 399
STA 1035+00 TO STA 1043+00

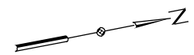
SCALE: 1"=100' SHEET 5 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1232
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I:\IBII5-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:53:28 AM SCALE: 1:100
FILE: SIGNING LAYOUT-5

100% PLANS SUBMITTAL





0 50 100 150 200

SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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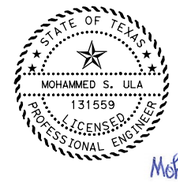


Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

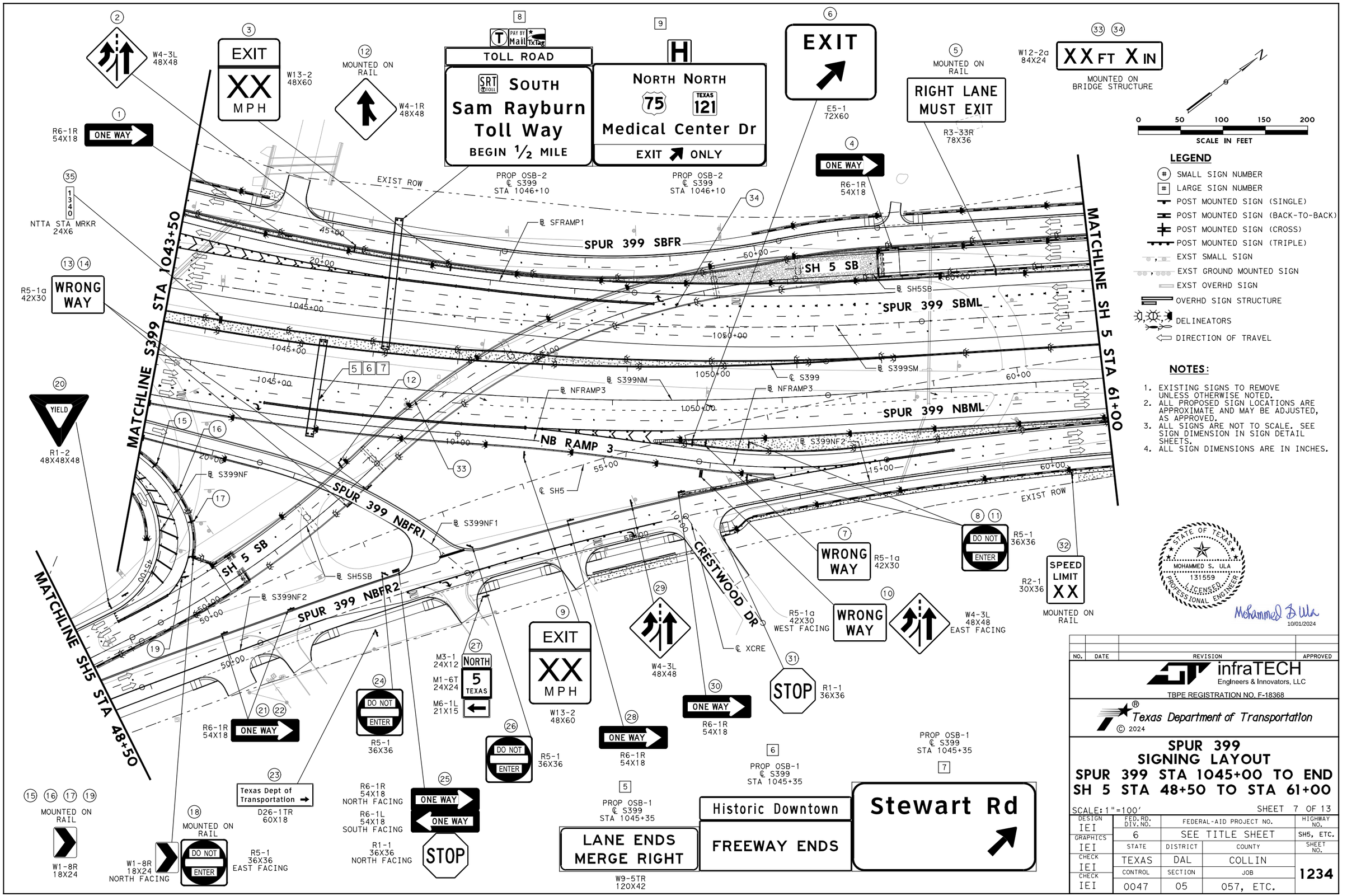
SPUR 399
SIGNING LAYOUT
SH 5
STA 41+49.50 TO STA 48+50

SCALE: 1"=100' SHEET 6 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1233
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: safsha TIME: 10:54:01 AM
DATE: 10/1/2024 SCALE: 1:100
FILE: SIGNING LAYOUT-6

100% PLANS SUBMITTAL



LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
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- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER
Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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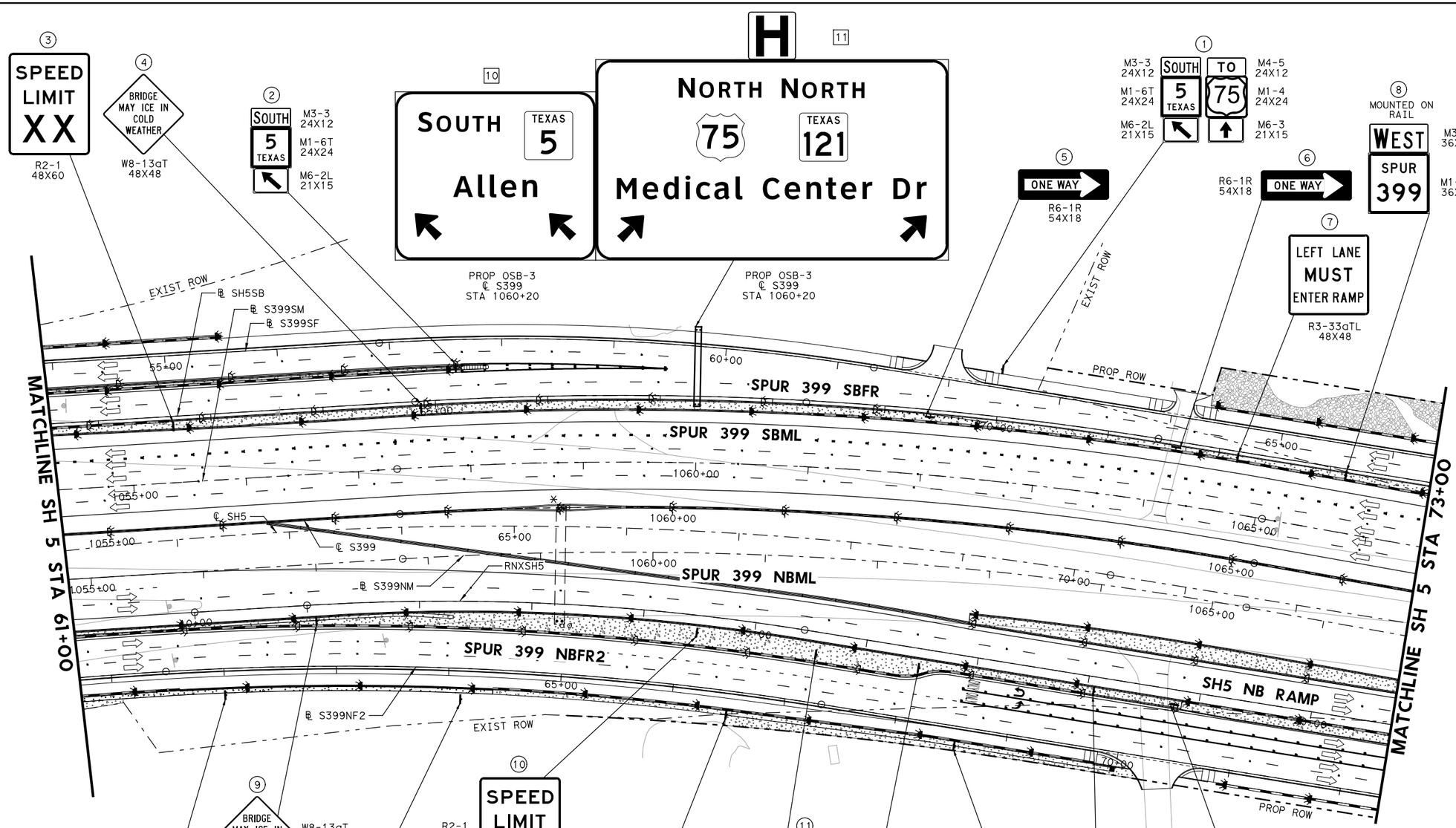
SPUR 399 SIGNING LAYOUT
SPUR 399 STA 1045+00 TO END
SH 5 STA 48+50 TO STA 61+00

SCALE: 1"=100' SHEET 7 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1234
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8I15-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:54:27 AM SCALE: 1:100
FILE: SIGNING LAYOUT-7

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
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- DIRECTION OF TRAVEL

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* OSB WILL BE BUILT IN THE FUTURE. DRILL SHAFT QUANTITY HAS BEEN ACCOUNTED FOR AND CAN BE FOUND IN THE QUANTITY SUMMARY SIGNING SHEET 1 OF 2.

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED PROFESSIONAL ENGINEER
Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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TBPE REGISTRATION NO. F-18368

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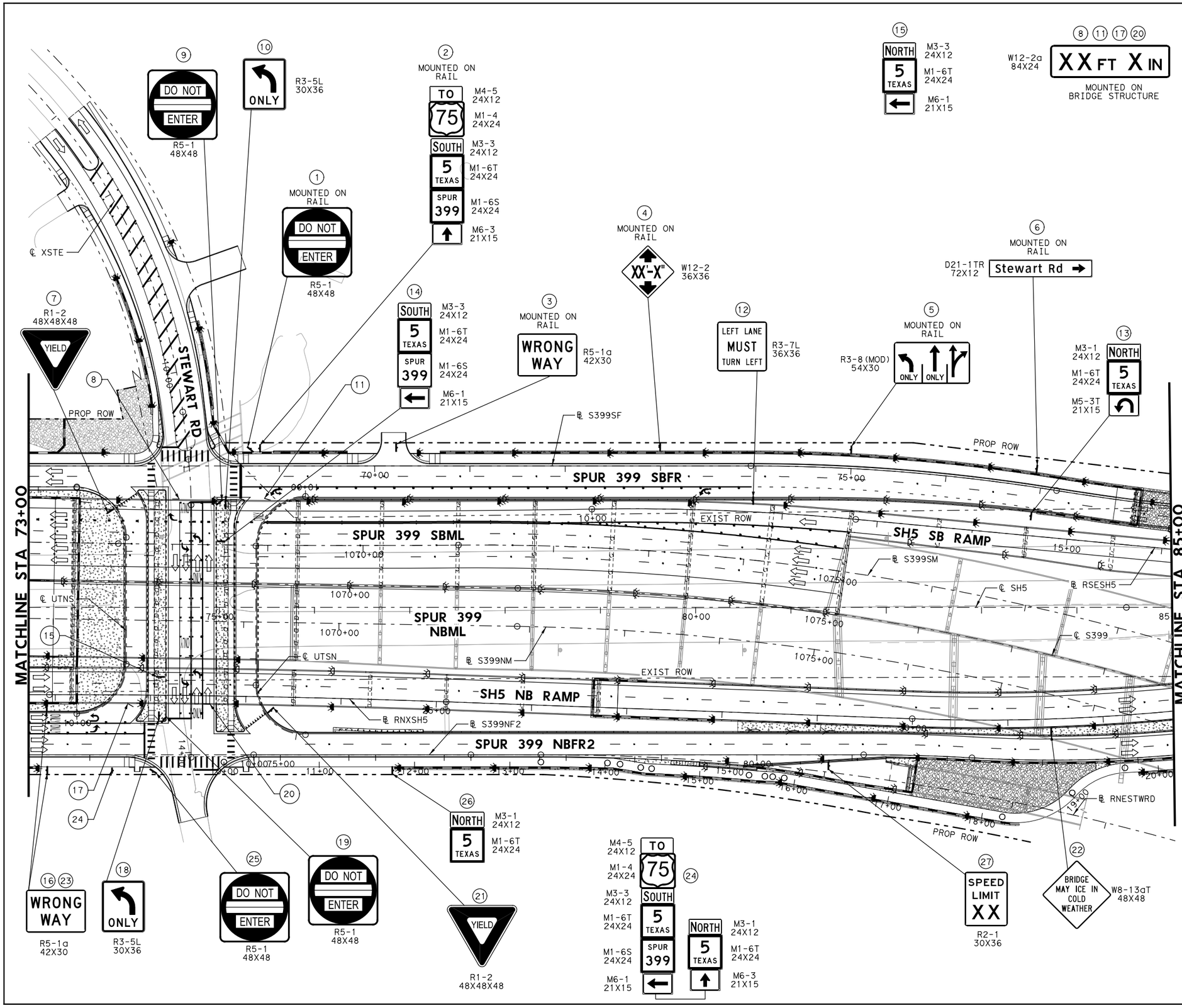
SPUR 399
SIGNING LAYOUT
SH 5
STA 61+00 TO STA 73+00

SCALE: 1"=100' SHEET 8 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1235
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8I15-SP399-SEGI.tbl
USER: safsha DATE: I0/1/2024 TIME: I0:54:41 AM SCALE: 1:100
FILE: SIGNING LAYOUT-8

100% PLANS SUBMITTAL



LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
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- OVERHD SIGN STRUCTURE
- DELINEATORS
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STATE OF TEXAS
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NO.	DATE	REVISION	APPROVED

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TBPE REGISTRATION NO. F-18368

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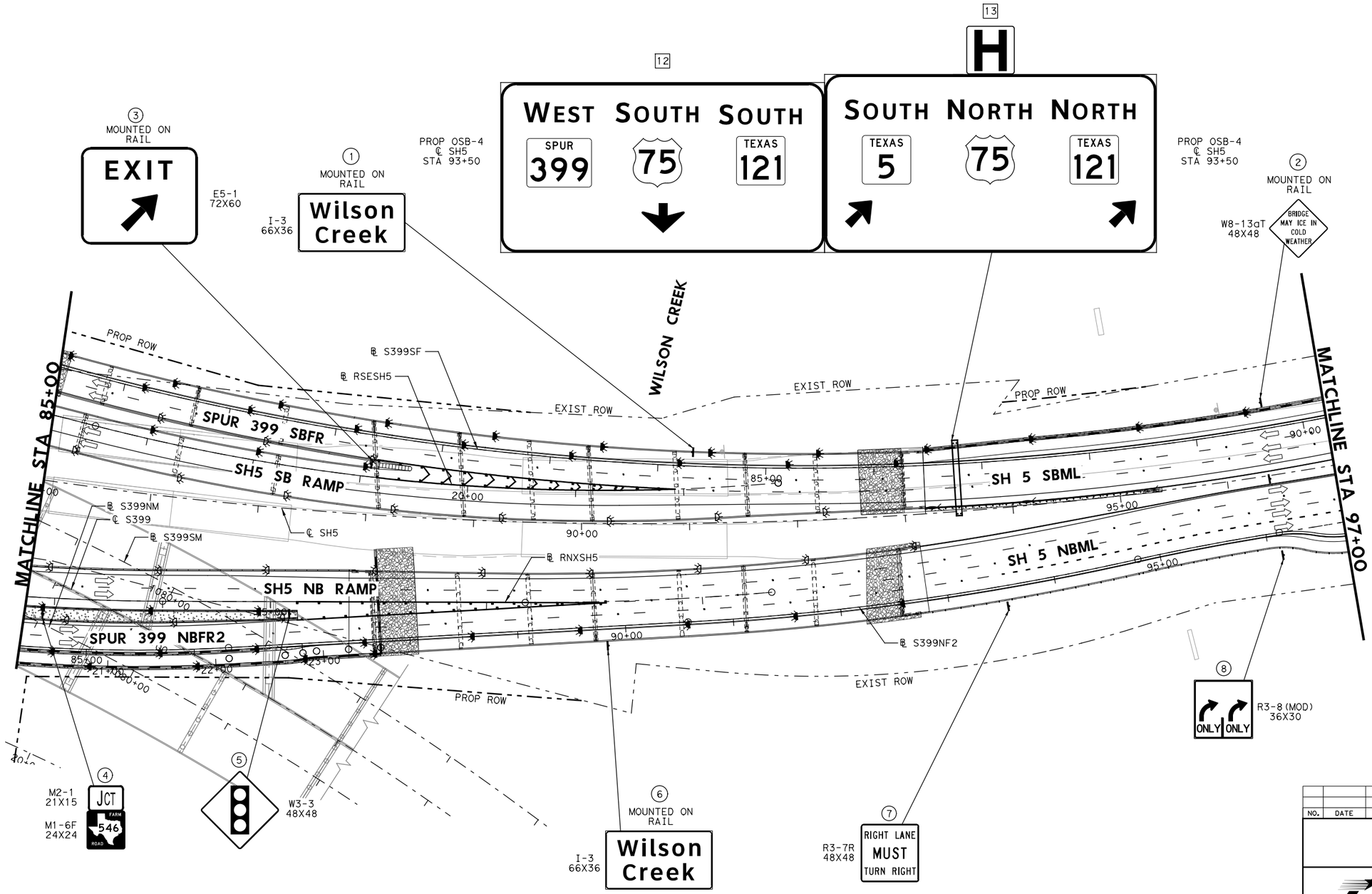
SPUR 399
SIGNING LAYOUT
SH 5
STA 61+00 TO STA 85+00

SCALE: 1"=100' SHEET 9 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	
CHECK IEI	CONTROL	SECTION	JOB	1236
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0IBI15-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:54:54 AM SCALE: 1:100
FILE: SIGNING LAYOUT-9

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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STATE OF TEXAS
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Texas Department of Transportation

SPUR 399
SIGNING LAYOUT
SH 5
STA 85+00 TO STA 97+00

SCALE: 1"=100' SHEET 10 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1237
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: SIGNING LAYOUT-10
PENTABLE: 101B15-SP399-SEG1.tbl
DATE: 10/1/2024
TIME: 10:55:06 AM
SCALE: 1:100

100% PLANS SUBMITTAL

14

Stewart Rd
Medical Center Dr
NEXT RIGHT

PROP GM SIGN
℄ SH5
STA 98+00

1
W1-7T
96X36

2
M3-2 24X12 EAST FARM 546 ROAD M3-1 24X12
M1-6F 24X24 M1-6T 24X24
M6-1L 21X15 5 TEXAS M6-3 21X15

3
D2-2
72X30
Fairview 3
Allen 6

4
SPEED LIMIT XX
R2-1
36X48

MATCHLINE STA 97+00

MATCHLINE STA 108+00

℄ S399SF

EXIST ROW

℄ SH5

℄ S399NF2

SH 5

(HARRY MCKILLOP BLVD)

FM 546

5
M3-1 24X12 NORTH 5 TEXAS M3-2 24X12
M1-6T 24X24 EAST FARM 546 ROAD M1-6F 24X24
M6-3 21X15 M6-1R 21X15

6
TURNING VEHICLES
STOP FOR
R10-15R
30X30

7
YIELD
R1-2
48X48X48

8
NORTH 5 TEXAS
M3-1 24X12
M1-6T 24X24

9
MOUNTED ON RAIL
D7-7aTR
48X48
HISTORICAL MARKER
6191

10
TURNING VEHICLES
STOP FOR
R10-15R
30X30

11
M3-3 24X12 SOUTH 5 TEXAS NORTH 5 TEXAS M3-1 24X12
M1-6T 24X24 M1-6T 24X24
M6-1L 21X15 M6-1R 21X15

10+00
100+00
11+00
12+00
13+00
14+00
15+00
16+00
105+00

℄ XHAR

EXIST ROW

EXIST ROW

15
H
SOUTH NORTH NORTH
TEXAS 5
75
TEXAS 121
EXIT 1/4 MILE

PROP COSS-4
℄ SH5
STA 106+50

0 50 100 150 200
SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

NOTES:

1. EXISTING SIGNS TO REMOVE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED, AS APPROVED.
3. ALL SIGNS ARE NOT TO SCALE. SEE SIGN DIMENSION IN SIGN DETAIL SHEETS.
4. ALL SIGN DIMENSIONS ARE IN INCHES.

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
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Texas Department of Transportation

SPUR 399
SIGNING LAYOUT
SH 5
STA 97+00 TO STA 108+00

SCALE: 1"=100' SHEET 11 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1238
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
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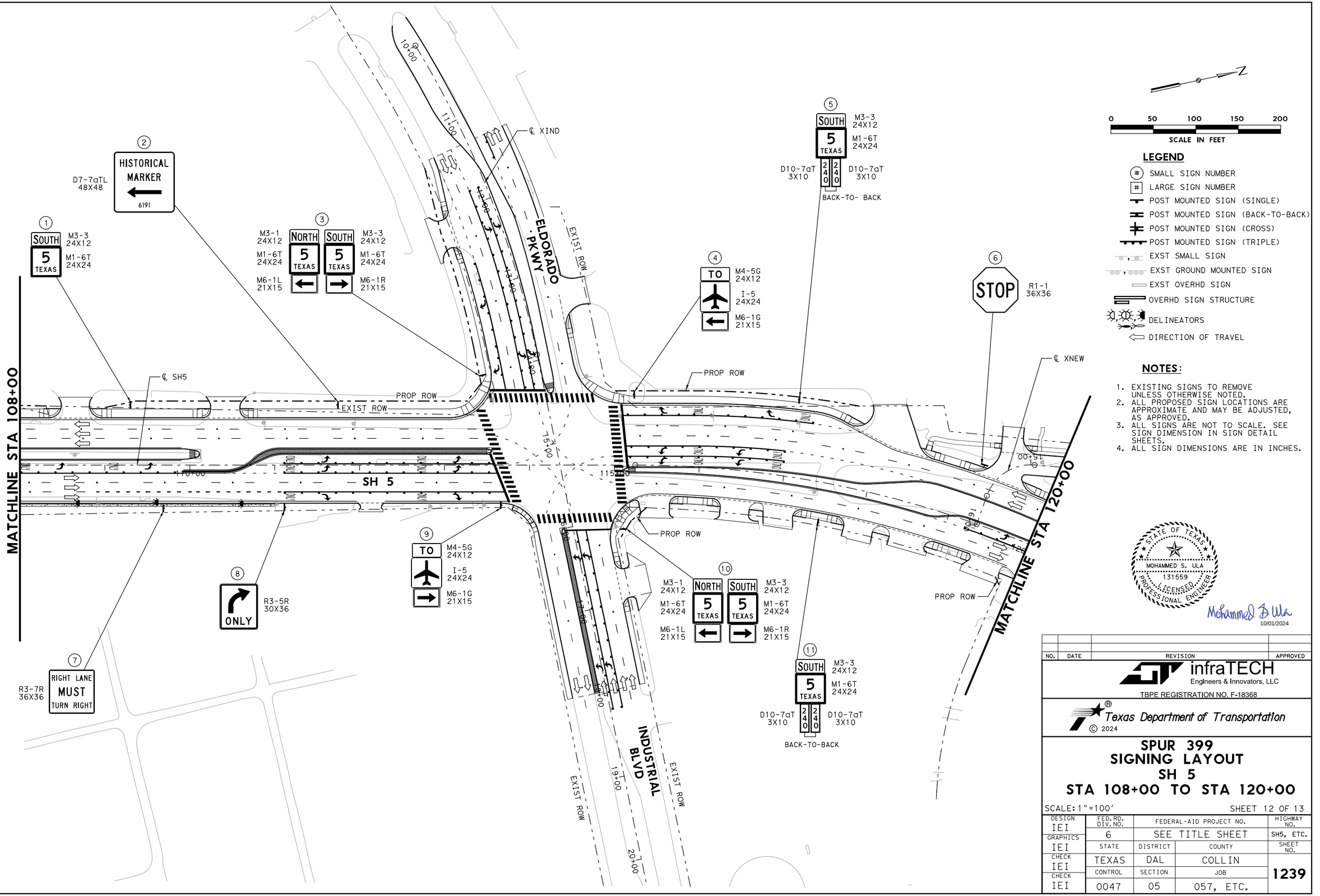
FILE: SIGNING LAYOUT-11

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

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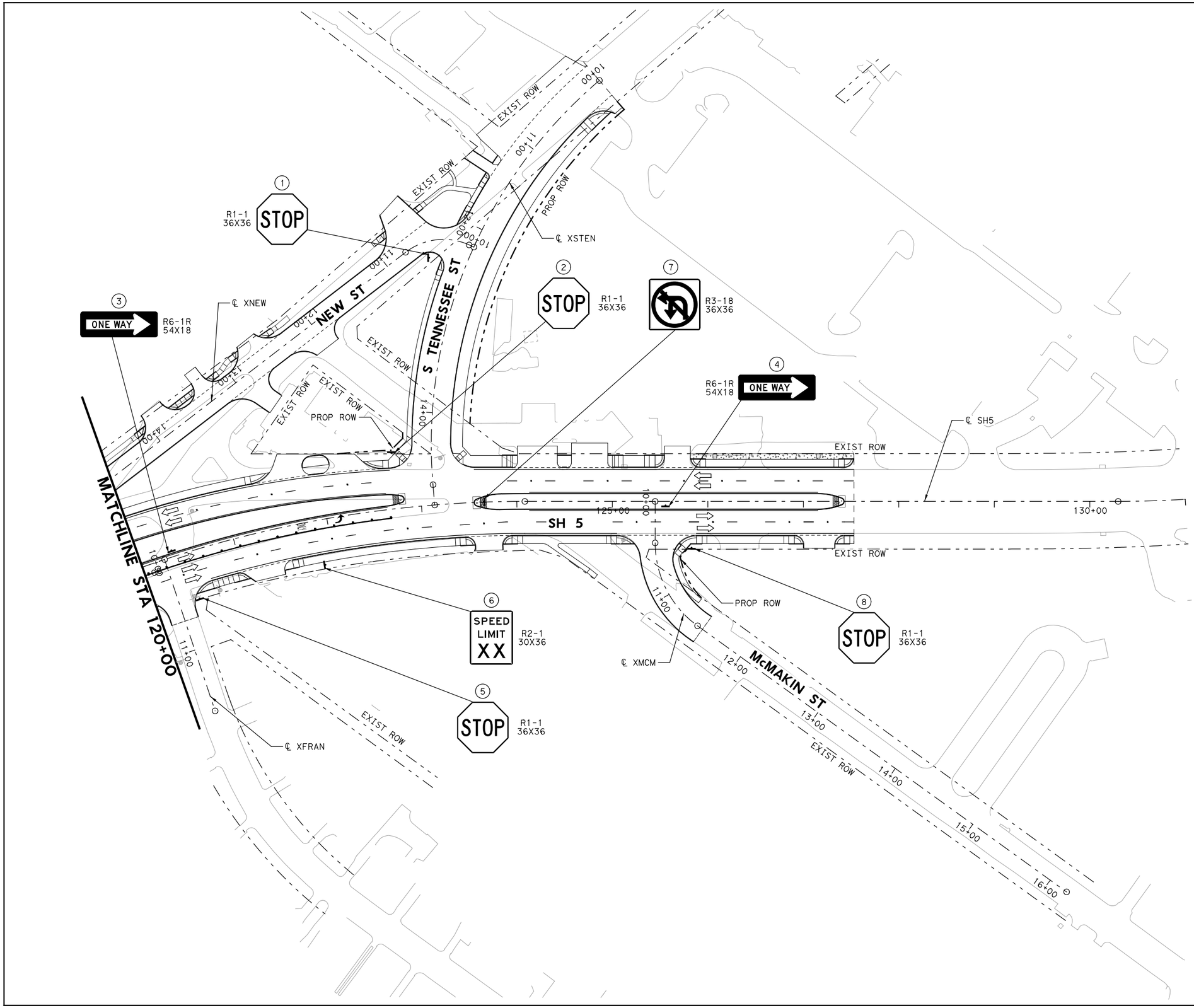
SPUR 399
SIGNING LAYOUT
SH 5
STA 108+00 TO STA 120+00

SCALE: 1"=100' SHEET 12 OF 13

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1239
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: SIGNING LAYOUT-I2
PENTABLE: I08II5-SP399-SEGI.tbl
DATE: 10/1/2024
TIME: 10:55:26 AM
SCALE: 1:100

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

- (#) SMALL SIGN NUMBER
- [#] LARGE SIGN NUMBER
- POST MOUNTED SIGN (SINGLE)
- POST MOUNTED SIGN (BACK-TO-BACK)
- POST MOUNTED SIGN (CROSS)
- POST MOUNTED SIGN (TRIPLE)
- EXST SMALL SIGN
- EXST GROUND MOUNTED SIGN
- EXST OVERHD SIGN
- OVERHD SIGN STRUCTURE
- DELINEATORS
- DIRECTION OF TRAVEL

NOTES:

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SPUR 399
SIGNING LAYOUT
SH 5
STA 120+00 TO STA END

SCALE: 1"=100' SHEET 13 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1240
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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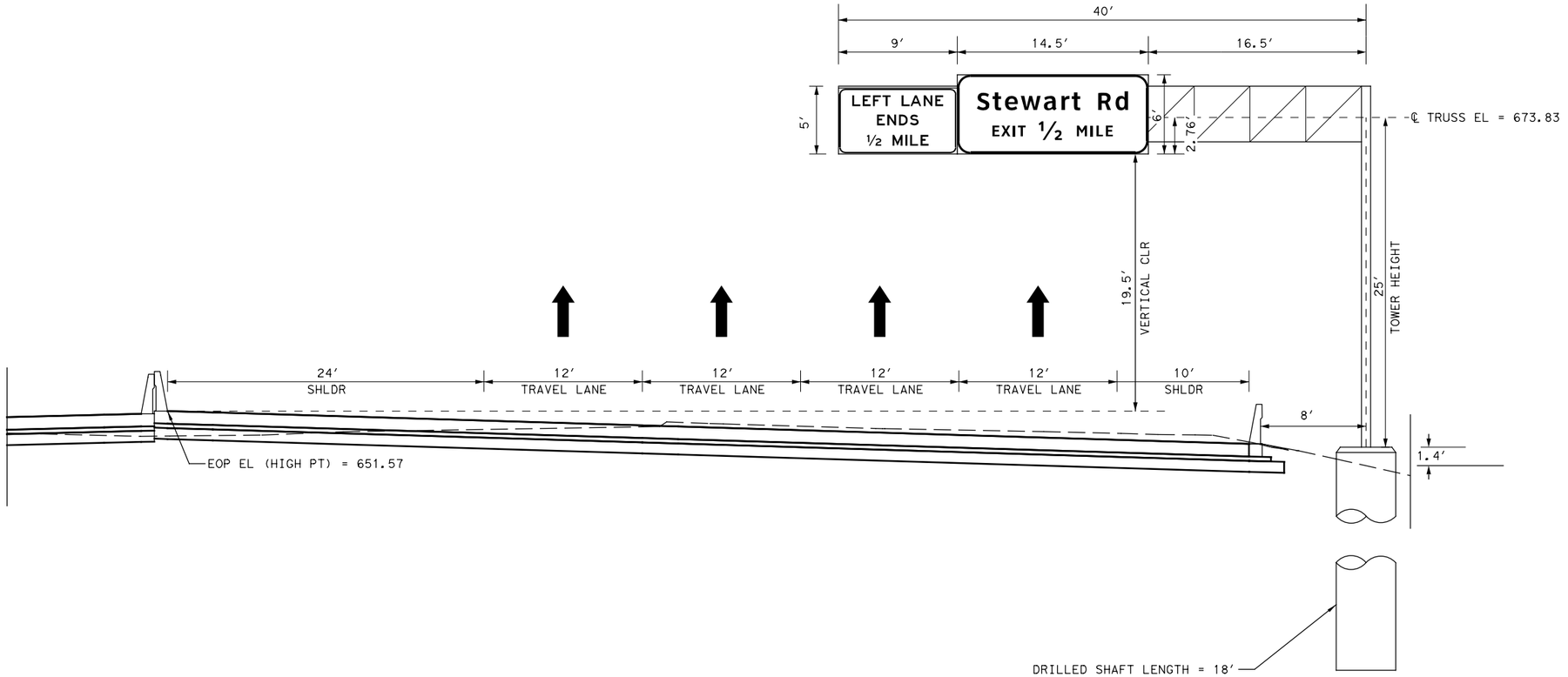
FILE: SIGNING LAYOUT-13

100% PLANS SUBMITTAL



COSS-1
STA 1028+00
SPUR 399 NBML

DESIGN DATA

SPAN LENGTH	40 FT
TOWER HEIGHT	25 FT
DESIGN SIGN AREA	400 SF
ACTUAL SIGN AREA	132 SF
PENETROMETER VALUE	15 (ASSUMED)
DESIGN LOADS	
TORSION	211.94 KIP-FT
MOMENT	308.01 KIP-FT

STRUCTURE DATA

STRUCTURE CODE	COSS-Z4 & Z4I-10
TRUSS SIZE	4.0 X 4.0
TOWER SIZE	30 INCH

SUMMARY OF DRILLED SHAFT

18 FT OF 54 IN DIA DRILLED SHAFT

BOTTOM OF BASE PLATE EL	648.83
TOP OF DRILLED SHAFT EL	648.61
GROUND EL	647.42
BOTTOM OF DRILLED SHAFT EL	630.61

GENERAL NOTES

1. THE DIMENSIONS SHOWN ON THESE OVERHEAD SIGN STRUCTURE ELEVATIONS ARE FURNISHED TO THE CONTRACTOR FOR BIDDING PURPOSES ONLY.

2. DESIGNS SHOWN FOR OVERHEAD SIGN STRUCTURES WERE DEVELOPED FROM DESIGN CROSS SECTIONS AND DESIGN TYPICAL SECTIONS.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE ACTUAL MEASUREMENTS BEFORE ORDERING FABRICATION OF THE COMPONENT PARTS OF THE OVERHEAD SIGN STRUCTURES.

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SH 5
LARGE SIGN STRUCTURE DETAIL

SCALE: 1" = 10′ SHEET 1 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1241
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8I15-SP399-SEGI.tbl
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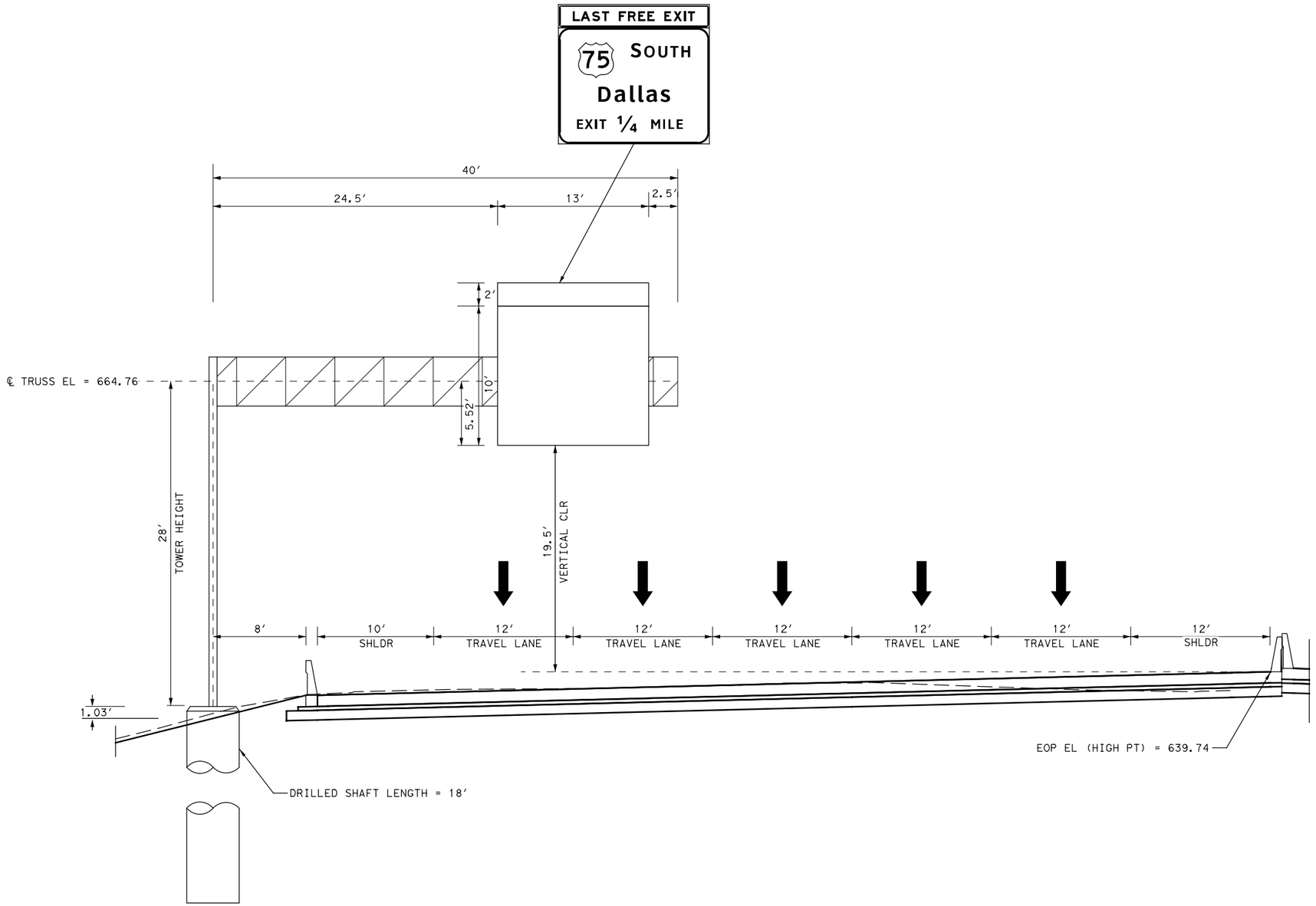
FILE: Overhead Sign Layout I

100% PLANS SUBMITTAL



COSS-2
STA 1031+00
SPUR 399 SBML

DESIGN DATA

SPAN LENGTH	40 FT
TOWER HEIGHT	28 FT
DESIGN SIGN AREA	400 SF
ACTUAL SIGN AREA	156 SF
PENETROMETER VALUE	N = 15 (ASSUMED)
DESIGN LOADS	
TORSION	211.94 KIP-FT
MOMENT	339.89 KIP-FT

STRUCTURE DATA

STRUCTURE CODE	COSS-Z4 & Z4I-10
TRUSS SIZE	4.0 X 4.0
TOWER SIZE	30 INCH

SUMMARY OF DRILLED SHAFT

18 FT OF 54 IN DIA DRILLED SHAFT	
BOTTOM OF BASE PLATE EL	636.76
TOP OF DRILLED SHAFT EL	636.39
GROUND EL	635.73
BOTTOM OF DRILLED SHAFT EL	618.39

GENERAL NOTES

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SH 5
LARGE SIGN STRUCTURE DETAIL

SCALE: 1" = 10′ SHEET 2 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1242
CHECK IEI	CONTROL	SECTION	JOB	
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PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: I0/1/2024 TIME: I0:55:44 AM SCALE: it00
FILE: Overhead Sign Layout 2

100% PLANS SUBMITTAL

DESIGN DATA

SPAN LENGTH	40 FT
TOWER HEIGHT	24 FT
DESIGN SIGN AREA	400 SF
ACTUAL SIGN AREA	87 SF
PENETROMETER VALUE	N = 32
DESIGN LOADS	
TORSION	211.94 KIP-FT
MOMENT	297.57 KIP-FT

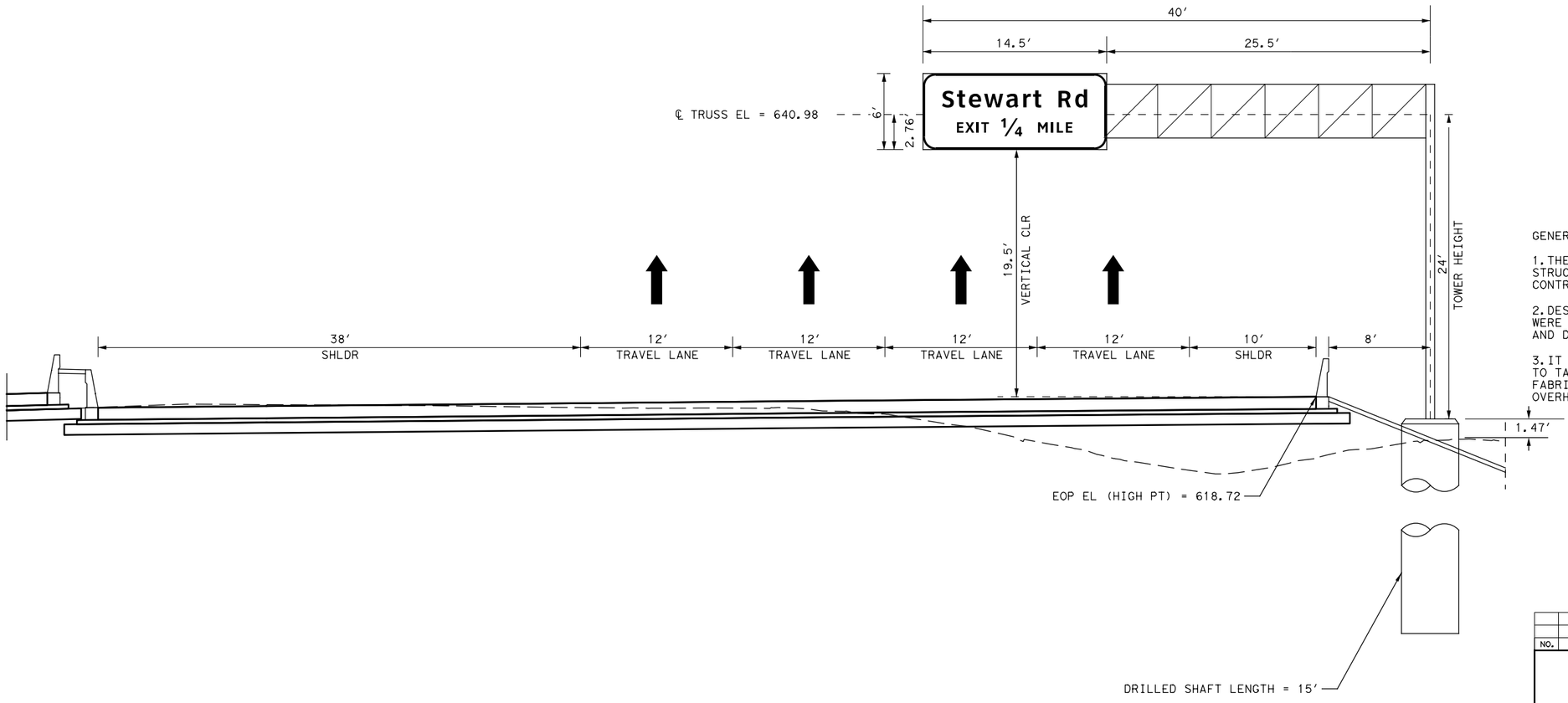
STRUCTURE DATA

STRUCTURE CODE	COSS-Z4 & Z4I-10
TRUSS SIZE	4.0 X 4.0
TOWER SIZE	30 INCH

SUMMARY OF DRILLED SHAFT

15 FT OF 54 IN DIA DRILLED SHAFT

BOTTOM OF BASE PLATE EL	616.98
TOP OF DRILLED SHAFT EL	616.75
GROUND EL	615.50
BOTTOM OF DRILLED SHAFT EL	601.75



GENERAL NOTES

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SH 5
LARGE SIGN STRUCTURE DETAIL

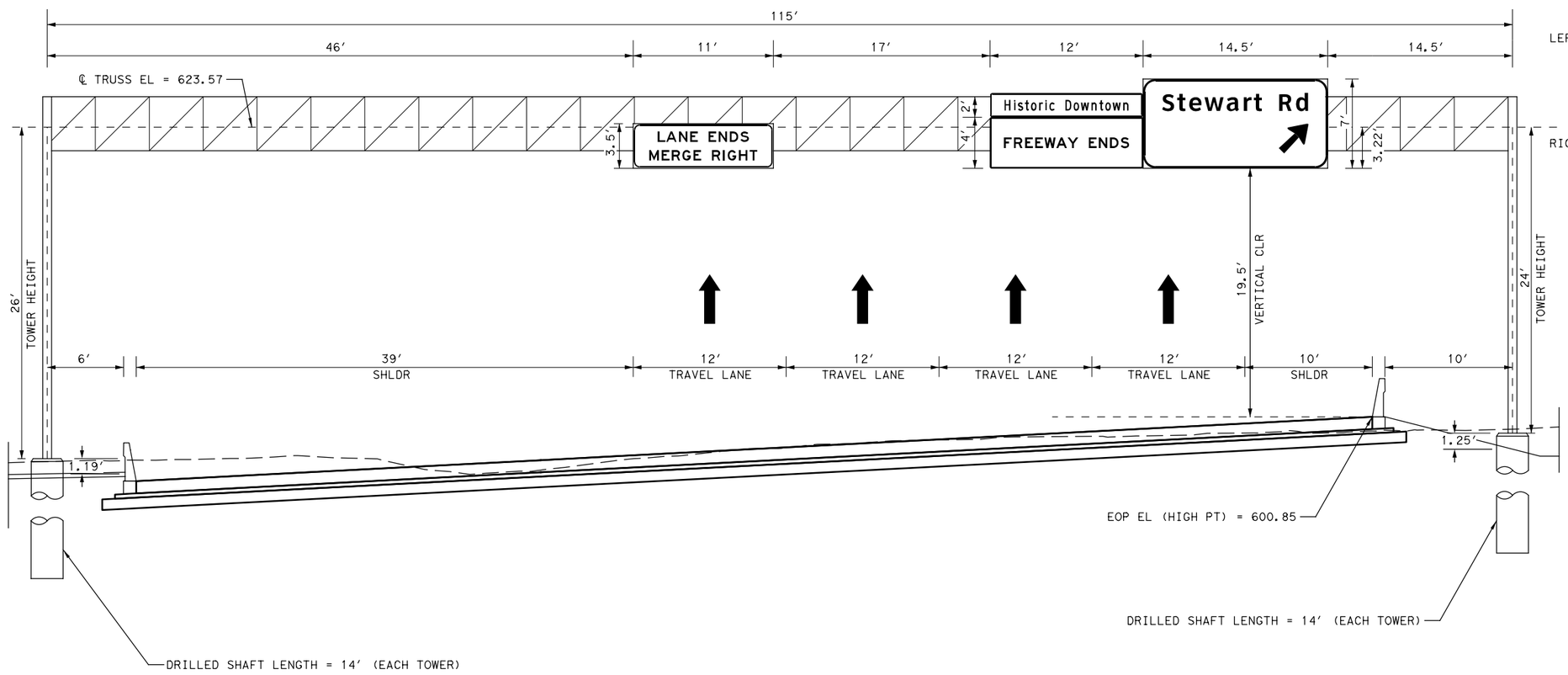
SCALE: 1" = 10′ SHEET 3 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	
CHECK IEI	CONTROL	SECTION	JOB	1243
	0047	05	057, ETC.	

COSS-3
STA 1036+50
SPUR 399 NBML

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 101BII5-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:55:52 AM SCALE: 1:00
FILE: Overhead Sign Layout 3

100% PLANS SUBMITTAL



OSB-1
STA 1045+35
SPUR 399 NBML

DESIGN DATA

SPAN LENGTH	115 FT
LEFT TOWER HEIGHT	26 FT
RIGHT TOWER HEIGHT	24 FT
DESIGN SIGN AREA	862.5 SF
ACTUAL SIGN AREA	212 SF
PENETROMETER VALUE	N = 45
DESIGN LOADS	
LEFT UPLIFT	57.4 KIP-FT
RIGHT UPLIFT	52.1 KIP-FT

STRUCTURE DATA

STRUCTURE CODE	OSB-Z4I
TRUSS SIZE	4.5 X 4.5
TOWER SIZE	W 14X30
TOWER SPACING	7′

SUMMARY OF DRILLED SHAFT

14 FT OF 36 IN DIA DRILLED SHAFT, EA LEFT TOWER
14 FT OF 36 IN DIA DRILLED SHAFT, EA RIGHT TOWER

LEFT TOWER

BOTTOM OF BASE PLATE EL	597.57
TOP OF DRILLED SHAFT EL	597.36
GROUND EL	596.38
BOTTOM OF DRILLED SHAFT EL	583.36

RIGHT TOWER

BOTTOM OF BASE PLATE EL	599.57
TOP OF DRILLED SHAFT EL	599.36
GROUND EL	598.30
BOTTOM OF DRILLED SHAFT EL	585.36

GENERAL NOTES

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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
LARGE SIGN STRUCTURE DETAIL

SCALE: 1" = 10′ SHEET 4 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1244
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
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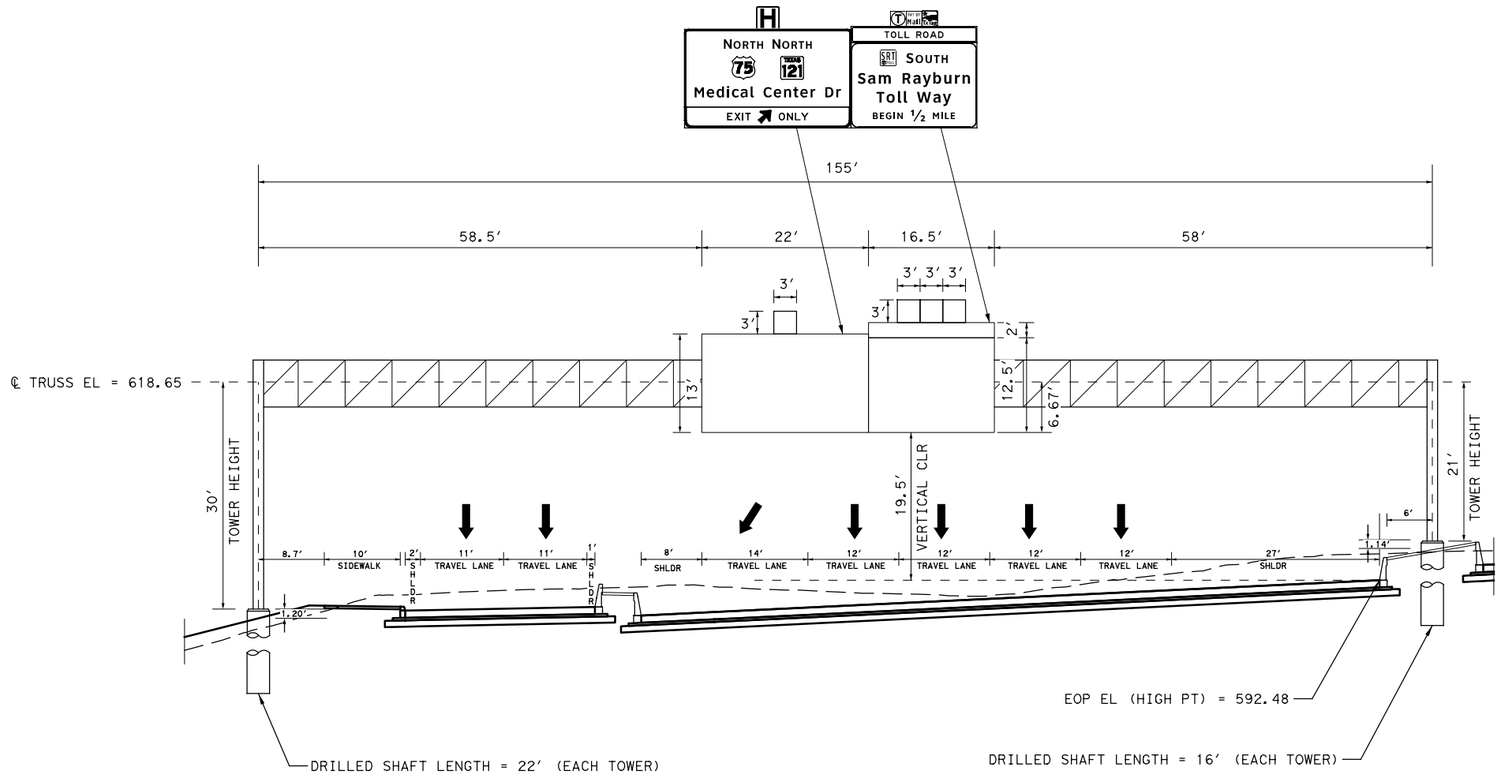
FILE: Overhead Sign Layout 4

100% PLANS SUBMITTAL



OSB-2
STA 1046+10
SPUR 399 SBML

DESIGN DATA

SPAN LENGTH	155 FT
LEFT TOWER HEIGHT	30 FT
RIGHT TOWER HEIGHT	21 FT
DESIGN SIGN AREA	1162.5 SF
ACTUAL SIGN AREA	561.25 SF
PENETROMETER VALUE	N = 8
DESIGN LOADS	
LEFT UPLIFT	84.0 KIP-FT
RIGHT UPLIFT	56.5 KIP-FT

STRUCTURE DATA

STRUCTURE CODE	OSB-Z4I
TRUSS SIZE	5.0 X 5.0
TOWER SIZE	W 14X34
TOWER SPACING	7.5′

SUMMARY OF DRILLED SHAFT

22 FT OF 36 IN DIA DRILLED SHAFT, EA LEFT TOWER
16 FT OF 36 IN DIA DRILLED SHAFT, EA RIGHT TOWER

LEFT TOWER

BOTTOM OF BASE PLATE EL	588.65
TOP OF DRILLED SHAFT EL	588.44
GROUND EL	587.45
BOTTOM OF DRILLED SHAFT EL	566.44

RIGHT TOWER

BOTTOM OF BASE PLATE EL	597.65
TOP OF DRILLED SHAFT EL	597.44
GROUND EL	596.51
BOTTOM OF DRILLED SHAFT EL	581.44

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10/01/2024

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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
LARGE SIGN STRUCTURE DETAIL

SCALE: 1" = 5′ SHEET 5 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1245
IEI	0047	05	057, ETC.	
CHECK				
IEI				

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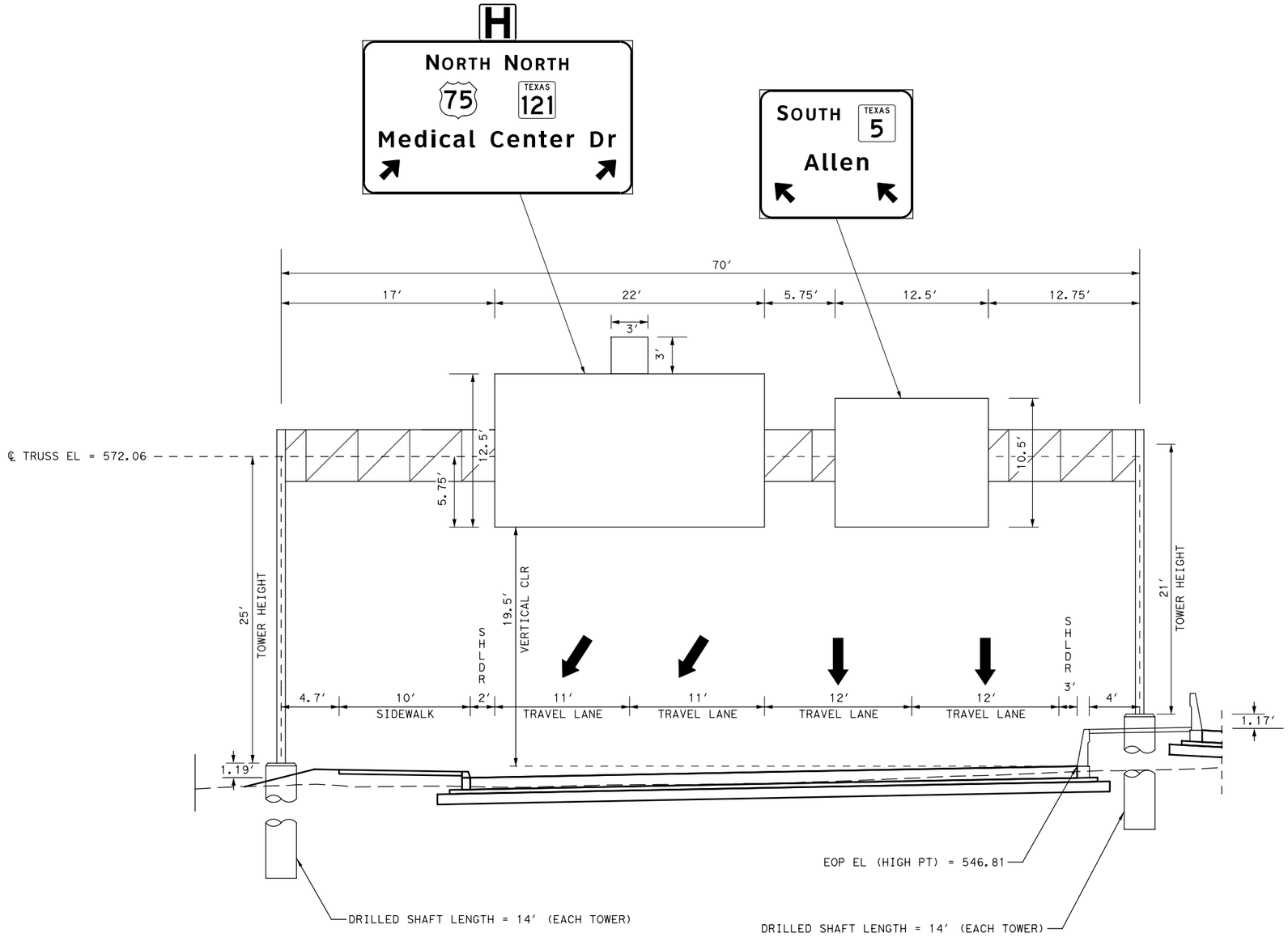
FILE: Overhead Sign Layout 5

100% PLANS SUBMITTAL



OSB-3
STA 1060+20
SPUR 399 SBFR

DESIGN DATA

SPAN LENGTH	70 FT
LEFT TOWER HEIGHT	25 FT
RIGHT TOWER HEIGHT	21 FT
DESIGN SIGN AREA	525 SF
ACTUAL SIGN AREA	415.25 SF
PENETROMETER VALUE	N = 50
DESIGN LOADS	
LEFT UPLIFT	36.4 KIP-FT
RIGHT UPLIFT	30.2 KIP-FT

STRUCTURE DATA

STRUCTURE CODE	OSB-Z4I
TRUSS SIZE	4.0 X 4.0
TOWER SIZE	W 10X22
TOWER SPACING	6.5′

SUMMARY OF DRILLED SHAFT

14 FT OF 30 IN DIA DRILLED SHAFT, EA LEFT TOWER
14 FT OF 30 IN DIA DRILLED SHAFT, EA RIGHT TOWER

LEFT TOWER

BOTTOM OF BASE PLATE EL	547.06
TOP OF DRILLED SHAFT EL	546.91
GROUND EL	545.87
BOTTOM OF DRILLED SHAFT EL	532.91

RIGHT TOWER

BOTTOM OF BASE PLATE EL	551.06
TOP OF DRILLED SHAFT EL	550.91
GROUND EL	549.89
BOTTOM OF DRILLED SHAFT EL	536.91

GENERAL NOTES

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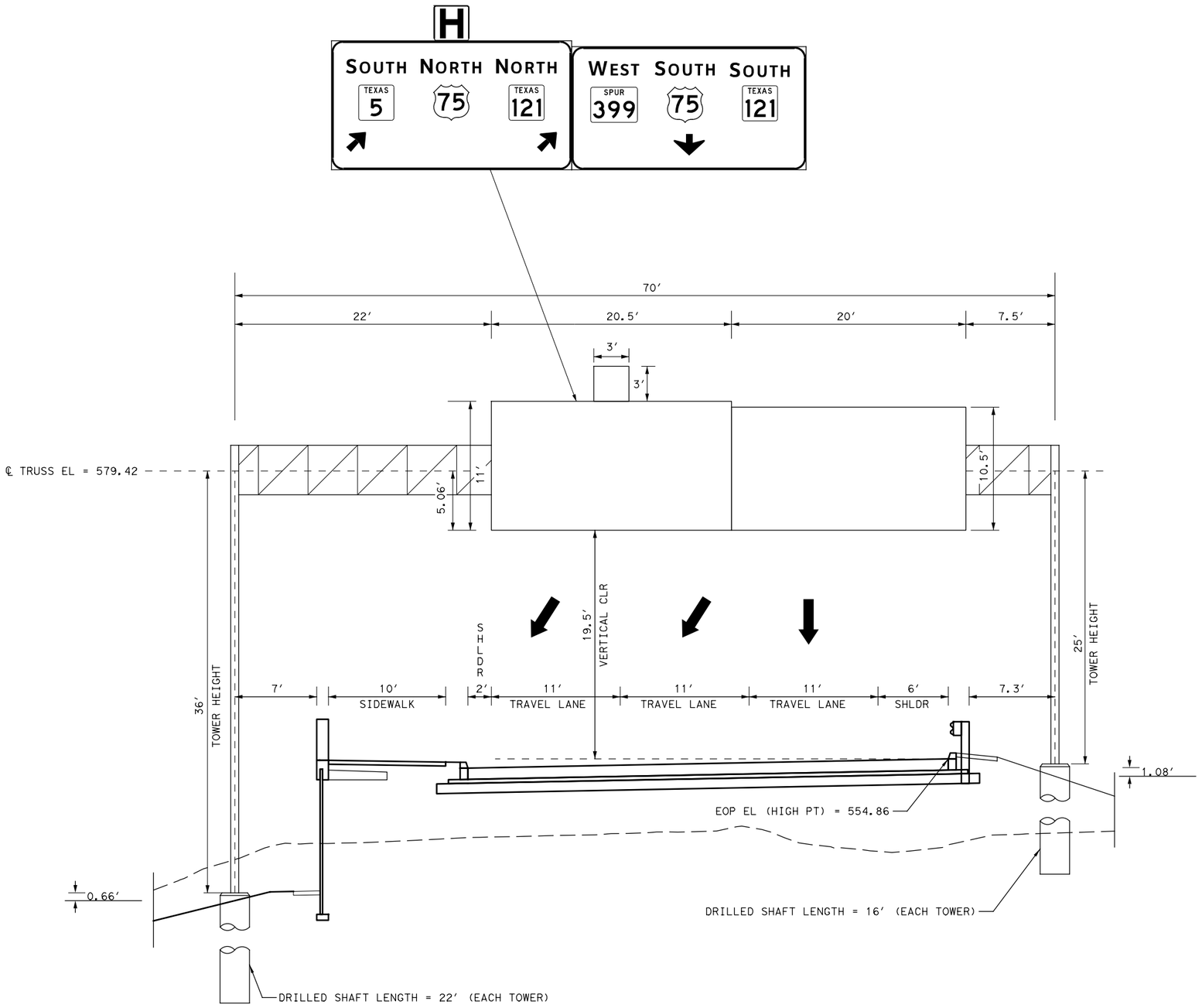
SH 5
LARGE SIGN STRUCTURE DETAIL

SCALE: 1" = 10′ SHEET 6 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1246
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8I15-SP399-SEGI.tbl
USER: safsha DATE: I0/I/2024 TIME: I0:56:I0 AM SCALE: 1:I00
FILE: Overhead Sign Layout 6

100% PLANS SUBMITTAL



OSB-4
STA 93+50
SH 5 SBML

DESIGN DATA

SPAN LENGTH	70 FT
LEFT TOWER HEIGHT	36 FT
RIGHT TOWER HEIGHT	25 FT
DESIGN SIGN AREA	525 SF
ACTUAL SIGN AREA	444.5 SF
PENETROMETER VALUE	N = 7.5
DESIGN LOADS	
LEFT UPLIFT	67.7 KIP-FT
RIGHT UPLIFT	41.0 KIP-FT

STRUCTURE DATA

STRUCTURE CODE	HOSB-Z4I
TRUSS SIZE	4.0 X 4.0
TOWER SIZE	W 14X30
TOWER SPACING	6.5′

SUMMARY OF DRILLED SHAFT

22 FT OF 36 IN DIA DRILLED SHAFT, EA LEFT TOWER
16 FT OF 36 IN DIA DRILLED SHAFT, EA RIGHT TOWER

LEFT TOWER

BOTTOM OF BASE PLATE EL	543.42
TOP OF DRILLED SHAFT EL	543.21
GROUND EL	542.76
BOTTOM OF DRILLED SHAFT EL	521.21

RIGHT TOWER

BOTTOM OF BASE PLATE EL	554.42
TOP OF DRILLED SHAFT EL	554.21
GROUND EL	553.37
BOTTOM OF DRILLED SHAFT EL	538.21

GENERAL NOTES

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3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE ACTUAL MEASUREMENTS BEFORE ORDERING FABRICATION OF THE COMPONENT PARTS OF THE OVERHEAD SIGN STRUCTURES.

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NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

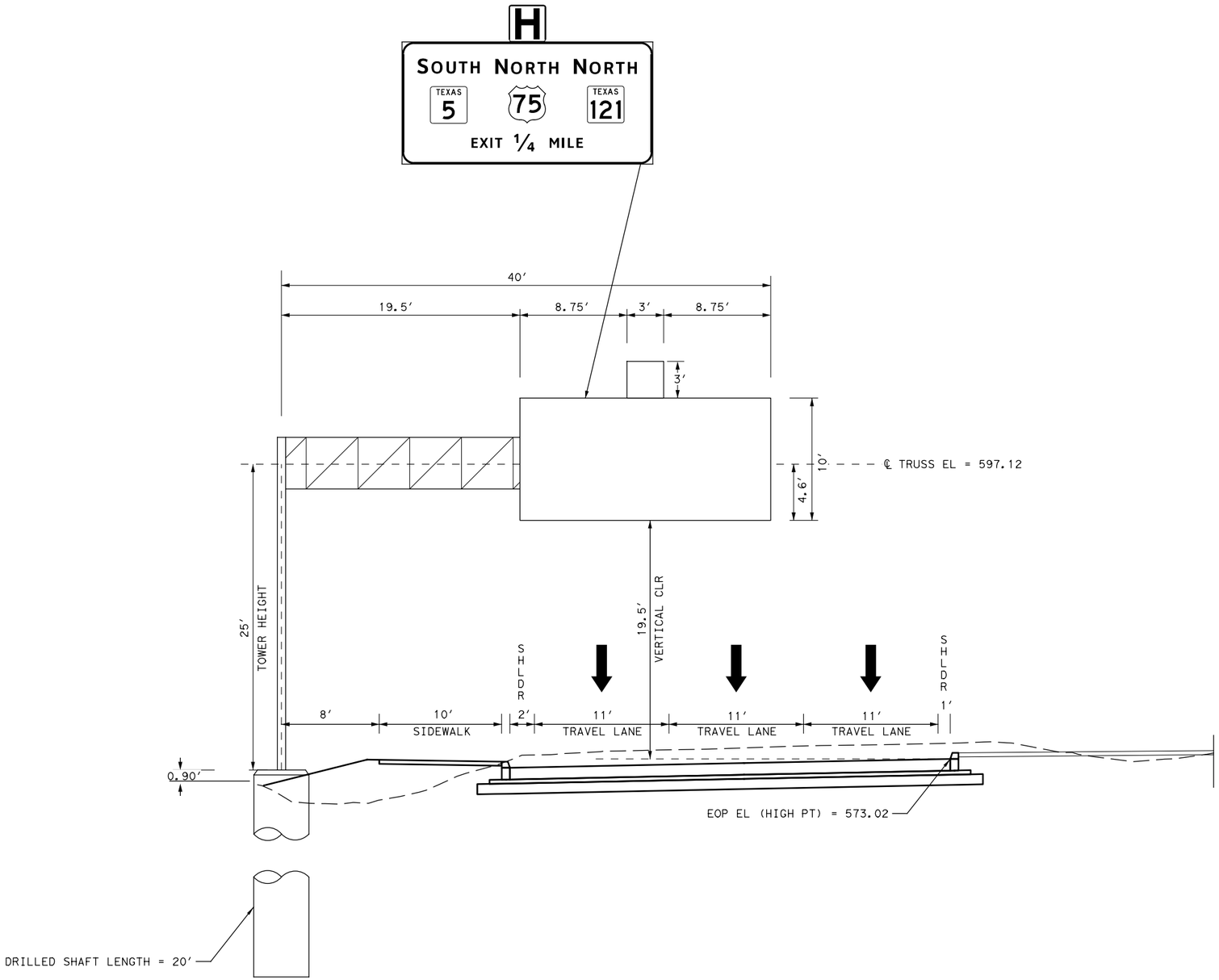
SH 5
LARGE SIGN STRUCTURE DETAIL

SCALE: 1" = 10′ SHEET 7 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1247
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 101815-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:56:16 AM SCALE: 1:00
FILE: Overhead Sign Layout 7

100% PLANS SUBMITTAL



COSS-4
STA 106+50
SH 5 SB

DESIGN DATA

SPAN LENGTH	40 FT
TOWER HEIGHT	25 FT
DESIGN SIGN AREA	400 SF
ACTUAL SIGN AREA	214 SF
PENETROMETER VALUE	N = 12 (ASSUMED)
DESIGN LOADS	
TORSION	211.94 KIP-FT
MOMENT	308.01 KIP-FT

STRUCTURE DATA

STRUCTURE CODE	COSS-Z4 & Z4I-10
TRUSS SIZE	4.0 X 4.0
TOWER SIZE	30 INCH

SUMMARY OF DRILLED SHAFT

20 FT OF 54 IN DIA DRILLED SHAFT	
BOTTOM OF BASE PLATE EL	572.12
TOP OF DRILLED SHAFT EL	571.89
GROUND EL	571.22
BOTTOM OF DRILLED SHAFT EL	551.89

GENERAL NOTES

1. THE DIMENSIONS SHOWN ON THESE OVERHEAD SIGN STRUCTURE ELEVATIONS ARE FURNISHED TO THE CONTRACTOR FOR BIDDING PURPOSES ONLY.

2. DESIGNS SHOWN FOR OVERHEAD SIGN STRUCTURES WERE DEVELOPED FROM DESIGN CROSS SECTIONS AND DESIGN TYPICAL SECTIONS.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE ACTUAL MEASUREMENTS BEFORE ORDERING FABRICATION OF THE COMPONENT PARTS OF THE OVERHEAD SIGN STRUCTURES.

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER
Mohammed S Ula
10/01/2024

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SH 5
LARGE SIGN STRUCTURE DETAIL

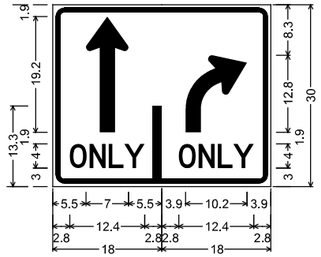
SCALE: 1" = 10′ SHEET 8 OF 8

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1248
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 101BI15-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:56:23 AM SCALE: 1:00
FILE: Overhead Sign Layout 8

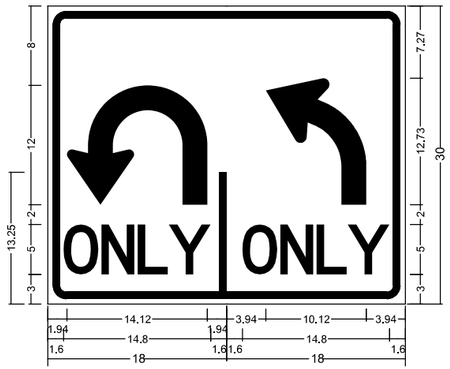
100% PLANS SUBMITTAL

SIGN NO 1
SHEET 4 OF 13



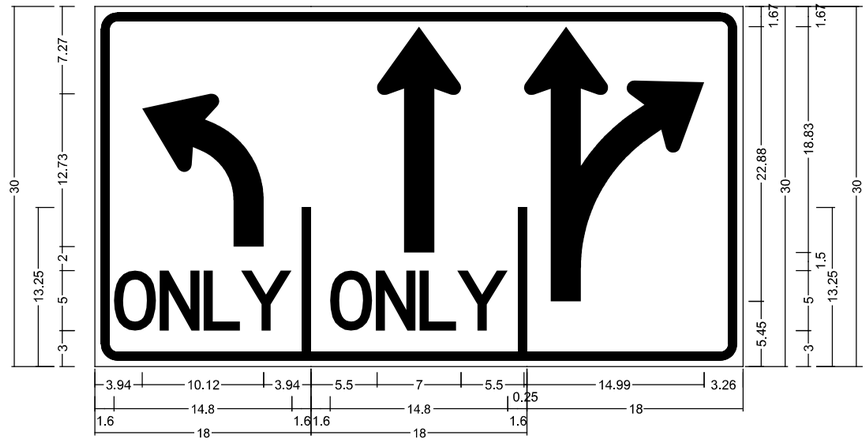
R3-8 SR;
1.9" Radius, 0.8" Border, 0.5" Indent,
LaneMarker height: 12.0 LaneMarker width: 1.5Black on, White;
S h=19.125, s=2.5;
"ONLY" D 50% spacing;
AR ir=4.5, s=2.5;
"ONLY" D 50% spacing;

SIGN NO 12
SHEET 8 OF 13



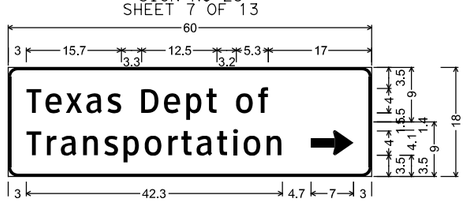
R3-8 (MOD)
1.875" Radius, 0.75" Border, 0.50" Indent,
LaneMarker height: 12.00 LaneMarker width: 0.75Black on White;
UL ir=3.5, s=2.5;
AL ir=4.5, s=2.5;
"ONLY", D 25% spacing;

SIGN NO 5
SHEET 9 OF 13



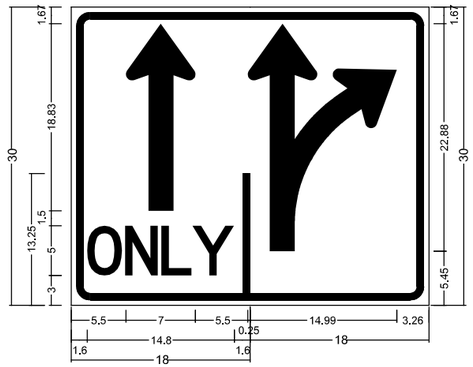
R3-8 LSK;
1.875" Radius, 0.75" Border, 0.50" Indent,
LaneMarker height: 12.00 LaneMarker width: 0.75Black on White;
AL ir=4.5, s=2.5;
C h=18.875, s=2.5;
BR ir=13.25, s=2.5;
"ONLY", D 25% spacing;

SIGN NO 23
SHEET 7 OF 13



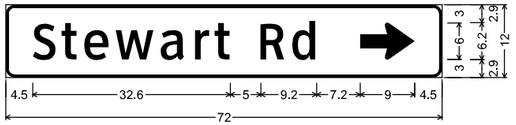
D26-1TR;
1.5" Radius, 0.5" Border, White on, Green;
"Texas Dept of" ClearviewHwy-3-W;
1.5" Radius, 0.5" Border, White on, Green;
"Transportation" ClearviewHwy-3-W;
Standard Arrow Custom 7.0" X 4.1" 0';

SIGN NO 18
SHEET 8 OF 13



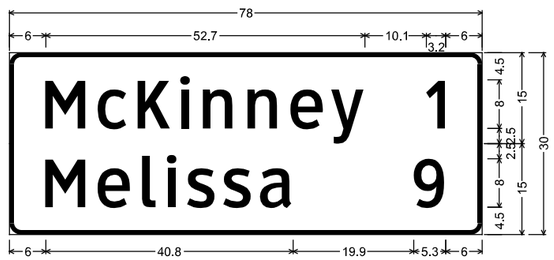
R3-8 (MOD)
1.875" Radius, 0.75" Border, 0.50" Indent,
LaneMarker height: 12.00 LaneMarker width: 0.75Black on White;
C h=18.875, s=2.5;
R ir=13.25, s=2.5;
"ONLY", D 25% spacing;

SIGN NO 6
SHEET 9 OF 13



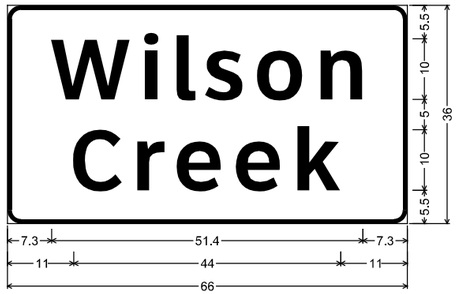
D21-1TR;
1.5" Radius, 0.5" Border, White on, Green;
"Stewart Rd" ClearviewHwy-3-W;
Standard Arrow Custom 9.0" X 6.1" 0';

SIGN NO 15
SHEET 8 OF 13



D2-2;
1.9" Radius, 0.8" Border, White on, Green;
"McKinney" ClearviewHwy-3-W; "1" ClearviewHwy-3-W;
1.9" Radius, 0.8" Border, White on, Green;
"Melissa" ClearviewHwy-3-W; "9" ClearviewHwy-3-W;

SIGN NO 1 & 6
SHEET 10 OF 13



I-3;
2.3" Radius, 0.8" Border, White on, Green;
"Wilson" ClearviewHwy-5-W-R; "Creek" ClearviewHwy-5-W-R;

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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
SMALL SIGN DETAILS

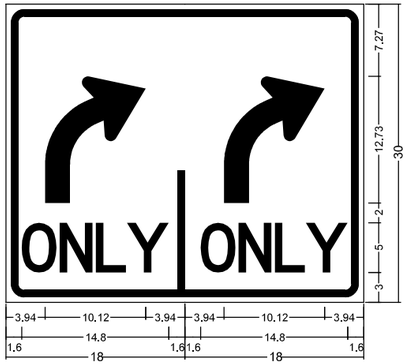
SCALE: NTS SHEET 1 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1249
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: I0/1/2024 TIME: I0:56:3I AM SCALE: I:00
FILE: Small Sign Details I

100% PLANS SUBMITTAL

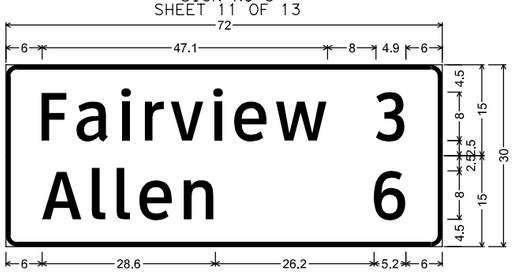
SIGN NO 8
SHEET 10 OF 13



R3-8 (MOD)

1.875" Radius, 0.75" Border, 0.50" Indent,
LaneMarker height: 12.00 LaneMarker width: 0.75Black on White;
AR ir=4.5, s=2.5;
"ONLY", D 25% spacing;

SIGN NO 3
SHEET 11 OF 13

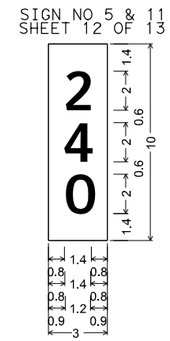


D2-2;

1.9" Radius, 0.8" Border, White on, Green;
"Fairview" ClearviewHwy-3-W; "3" ClearviewHwy-3-W;

1.9" Radius, 0.8" Border, White on, Green;
"Allen" ClearviewHwy-3-W; "6" ClearviewHwy-3-W;

SIGN NO 5 & 11
SHEET 12 OF 13



D10-7aT;
No border, White on, Green;
"2" ClearviewHwy-4-W;
"4" ClearviewHwy-4-W;
"0" ClearviewHwy-4-W;

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER
Mohammed S Ula
10/01/2024

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
SMALL SIGN DETAILS

SCALE: NTS SHEET 2 OF 2

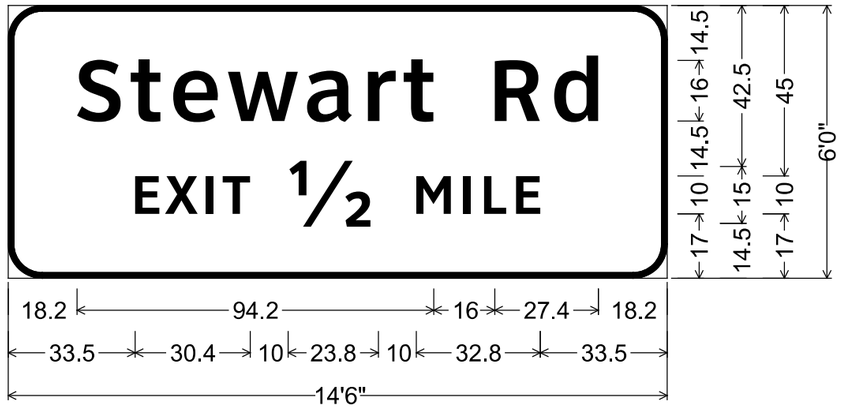
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1250
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: I0/I/2024 TIME: I0:56:38 AM SCALE: 1:00
FILE: Small Sign Details 2

100% PLANS SUBMITTAL

2

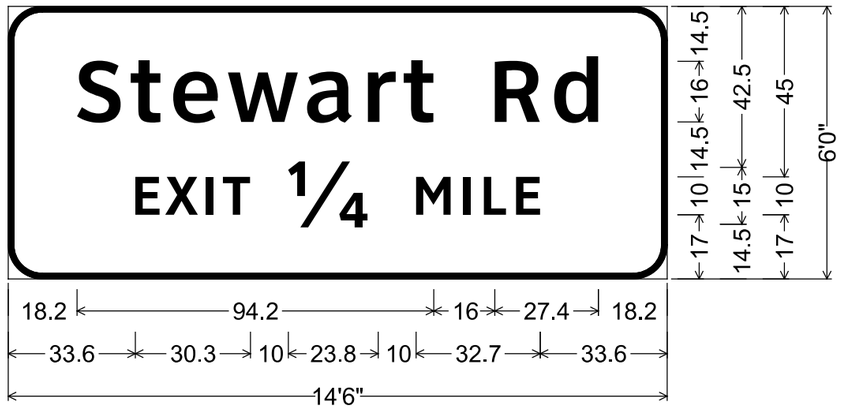
STA 1028+00
℄ S399
SHEET 4 OF 13



9.0" Radius, 1.5" Border, White on Green;
"Stewart Rd", ClearviewHwy-5-W-R;
"EXIT", ClearviewHwy-5-W-R; "½", ClearviewHwy-5-W-R;
"MILE", ClearviewHwy-5-W-R;

4

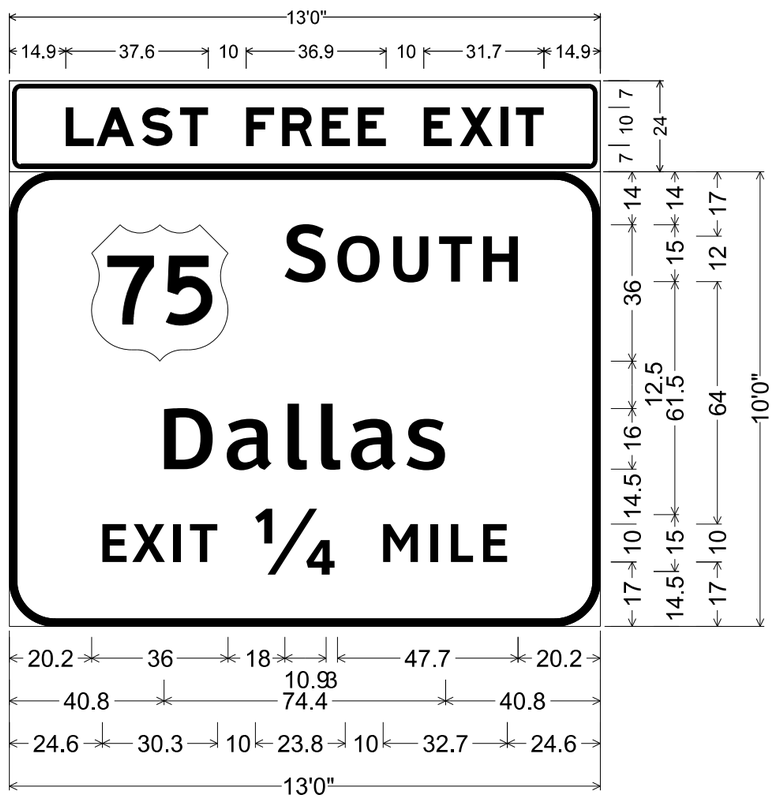
STA 1036+50
℄ S399
SHEET 5 OF 13



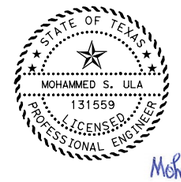
9.0" Radius, 1.5" Border, White on Green;
"Stewart Rd", ClearviewHwy-5-W-R;
"EXIT", ClearviewHwy-5-W-R; "¼", ClearviewHwy-5-W-R;
"MILE", ClearviewHwy-5-W-R;

3

STA 1031+00
℄ S399
SHEET 4 OF 13



12.0" Radius, 2.0" Border, White on Green;
"S OUTH", ClearviewHwy-5-W-R;
"Dallas", ClearviewHwy-5-W-R;
"EXIT", ClearviewHwy-5-W-R;
"¼", ClearviewHwy-5-W-R;
"MILE", ClearviewHwy-5-W-R;
W90-5TP;
3.0" Radius, 1.3" Border, 0.8" Indent, Black on, Yellow;
"LAST FREE EXIT" E Mod;



Mohammed S Ula
10/01/2024

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Texas Department of Transportation

SH 5
LARGE SIGN DETAILS

SCALE: NTS SHEET 1 OF 6

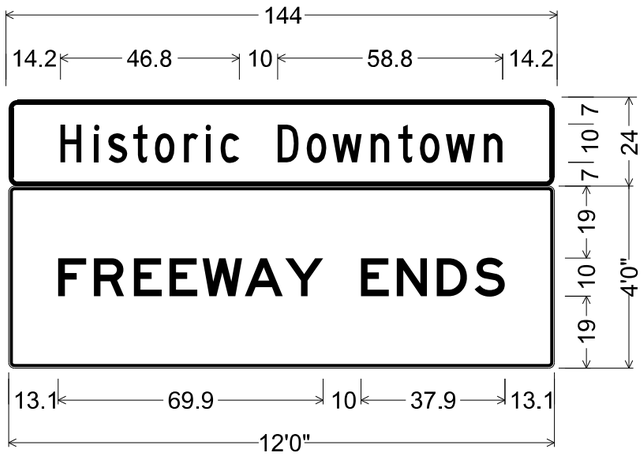
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1251
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: Large Sign Details 1
DATE: 10/1/2024
TIME: 10:56:47 AM
PENTABLE: 10818S-SP399-SEGI.tbl
SCALE: 1:00

100% PLANS SUBMITTAL

5

STA 1045+35
℄ S399
SHEET 7 OF 13

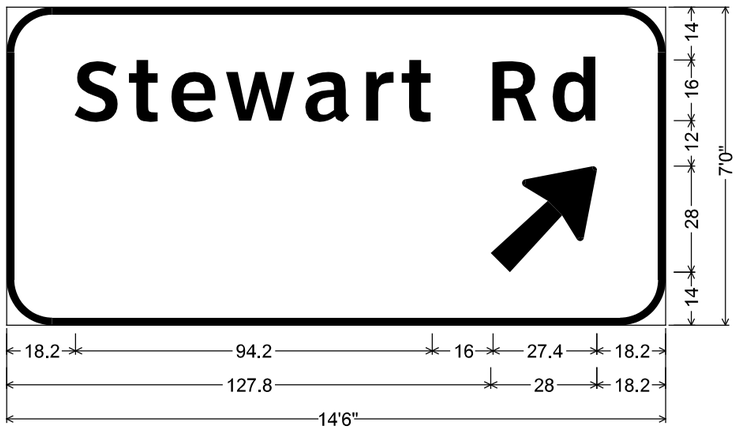


1.5" Radius, 0.6" Border, 0.4" Indent, Black on Yellow;
"FREEWAY ENDS", E;

3.0" Radius, 1.3" Border, 0.8" Indent, Black on Brown;
"Historic Downtown" White, C;

7

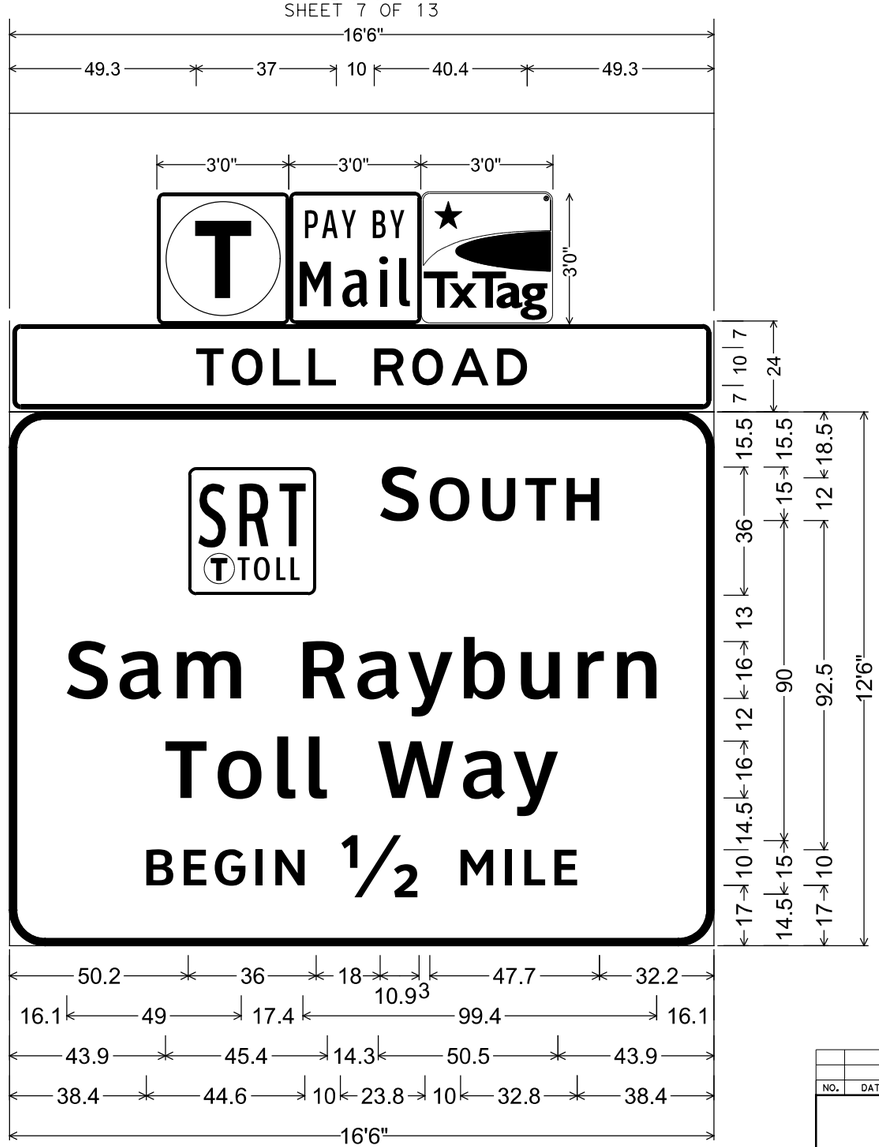
STA 1045+35
℄ S399
SHEET 7 OF 13



12.0" Radius, 2.0" Border, White on, Green;
"Stewart Rd" ClearviewHwy-5-W-R; Arrow A-3 - 35.6" 45';

8

STA 1046+10
℄ S399
SHEET 7 OF 13



10.0" Radius, 2.0" Border, White on Green;
"S OUTH", ClearviewHwy-5-W-R;
"Sam Rayburn", ClearviewHwy-5-W-R;
"Toll Way", ClearviewHwy-5-W-R;
"BEGIN", ClearviewHwy-5-W-R; "1/2", ClearviewHwy-5-W-R;
"MILE", ClearviewHwy-5-W-R;
NTAA TOLLTAG_36X36;
R91-1TP_36x36;
R91-2TP_36x36;
1.5" Radius, 0.6" Border, 0.4" Indent, Black on, White;
"PAY BY" ClearviewHwy-1-W;
"Mail" ClearviewHwy-2-W;

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SH 5
LARGE SIGN DETAILS

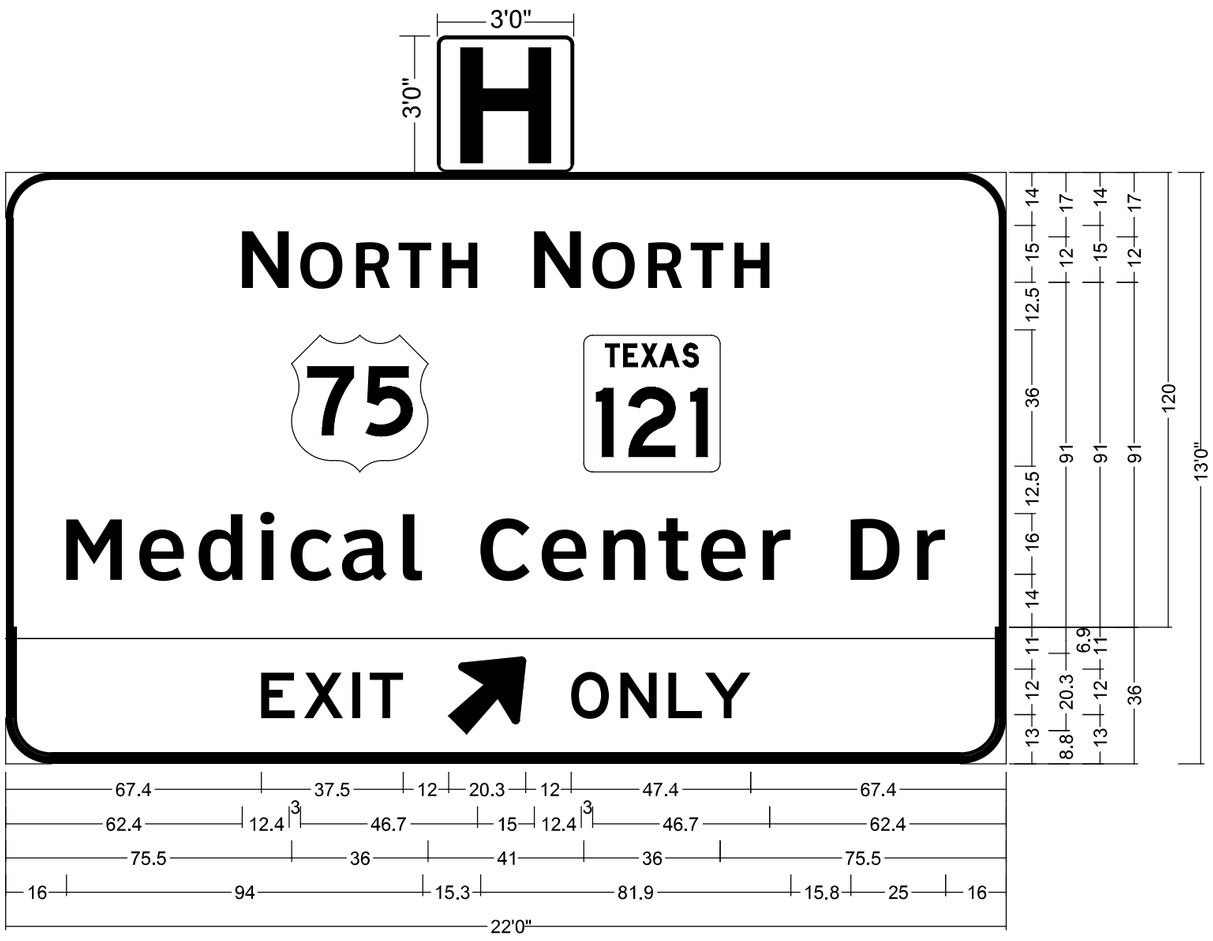
SCALE: NTS SHEET 2 OF 6

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1252
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10/8/15-SP399-SEGI.tbl
USER: safsha TIME: 10:56:55 AM
DATE: 10/1/2024 SCALE: 1:100
FILE: Large Sign Details 2

9

STA 1046+10
℄ S399
SHEET 7 OF 13

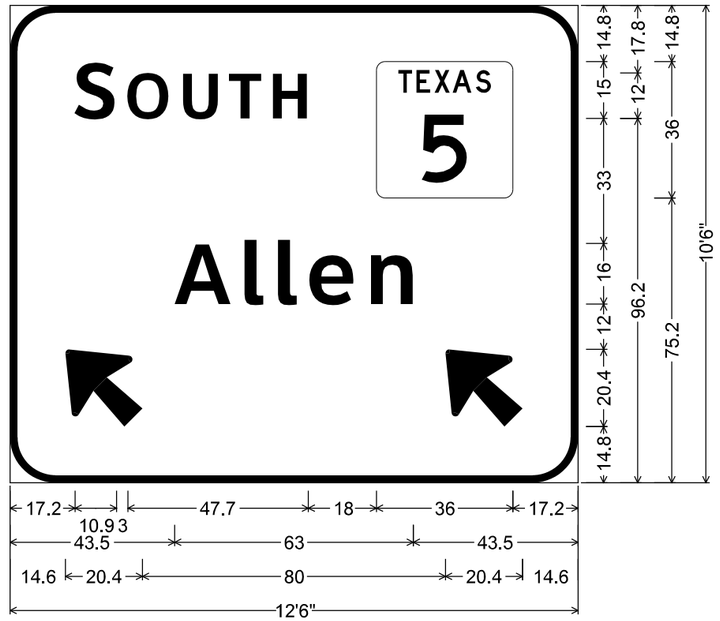


12.0" Radius, 2.0" Border, White on Green;
"N ORTH", ClearviewHwy-5-W-R; State Highway 121 M1-6T3; "N ORTH", ClearviewHwy-5-W-R;
US 75 M1-4; "Medical Center Dr", ClearviewHwy-5-W-R;

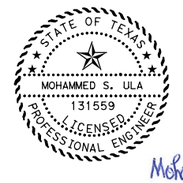
1.0" Inner border Green, 12.0" Radius, 2.0" Outer border;
"EXIT" Black, E; Arrow B-3 - 25.0" 45° Black; "ONLY" Black, E;

10

STA 1060+20
℄ S399
SHEET 8 OF 13



12.0" Radius, 2.0" Border, White on, Green;
"S OUTH" ClearviewHwy-5-W-R; State Highway 5 M1-6T1;
"Allen" ClearviewHwy-5-W-R; Arrow B-3 - 25.0" 135';
Arrow B-3 - 25.0" 135';



Mohammed S Ula
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Texas Department of Transportation

SH 5
LARGE SIGN DETAILS

SCALE: NTS

SHEET 3 OF 6

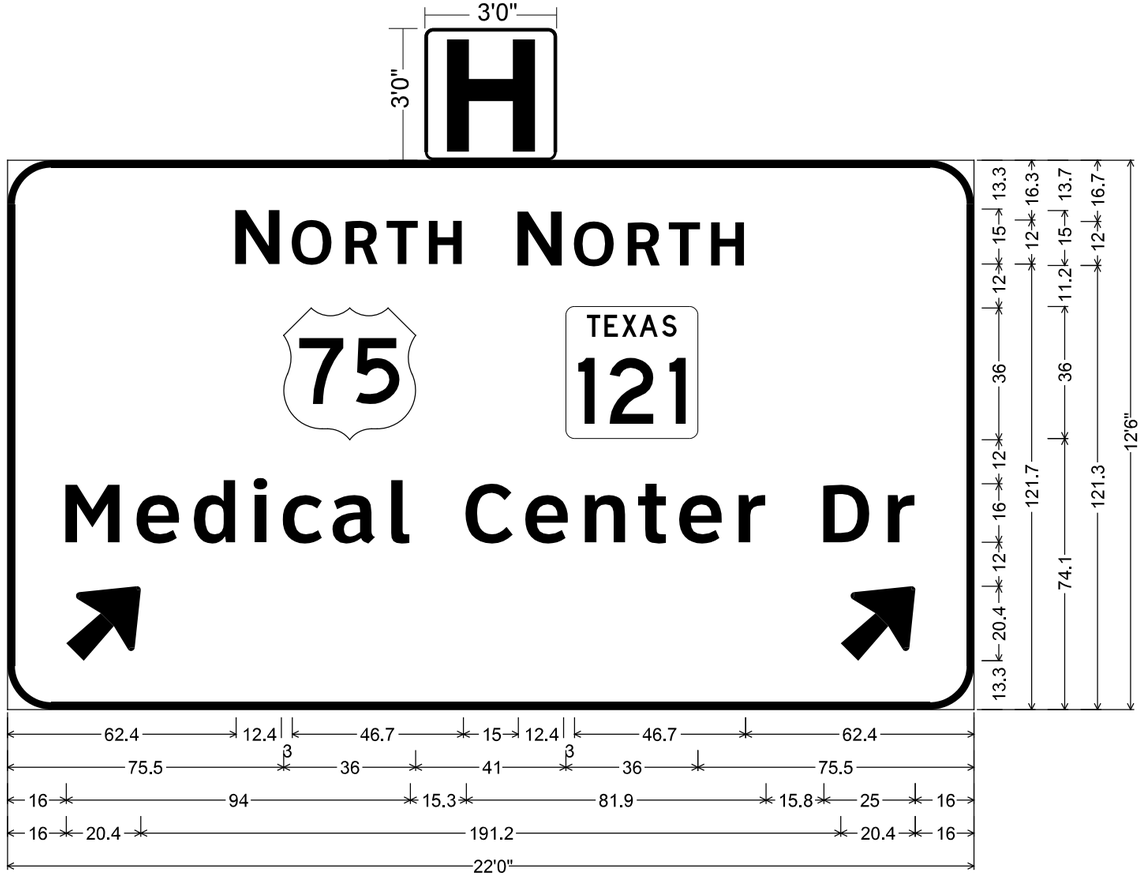
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	
CHECK IEI	CONTROL	SECTION	JOB	1253
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10IBI15-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:57:05 AM SCALE: 1:00
FILE: Large Sign Details 3

100% PLANS SUBMITTAL

11

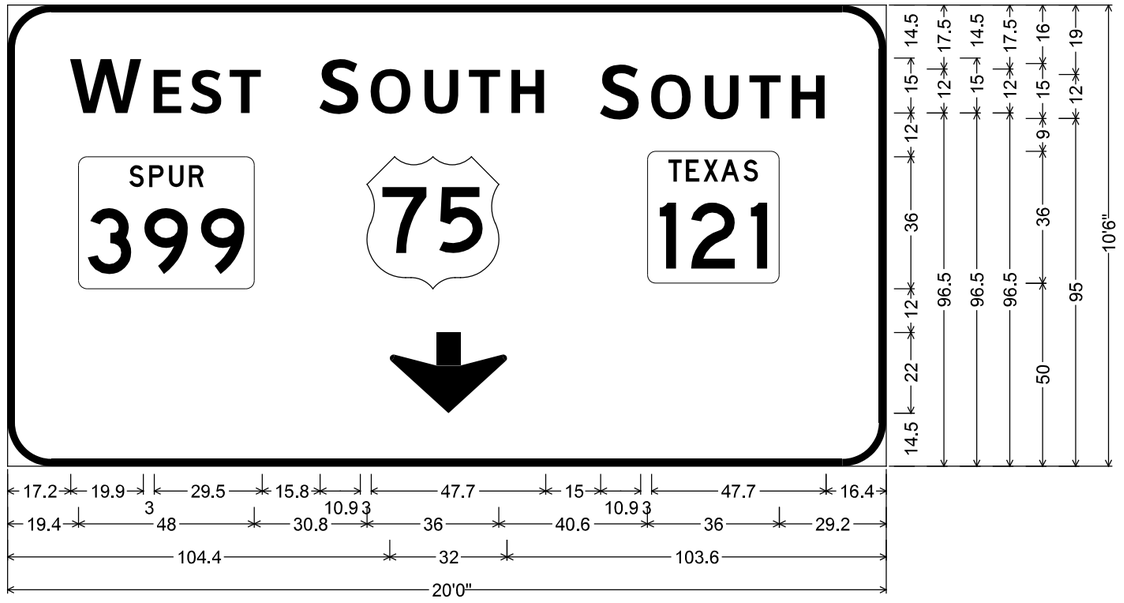
STA 1060+20
℄ S399
SHEET 8 OF 13



12.0" Radius, 2.0" Border, White on, Green;
"N ORTH" ClearviewHwy-5-W-R; US 75 M1-4; "N ORTH" ClearviewHwy-5-W-R; State Highway 121 M1-6T3;
"Medical Center Dr" ClearviewHwy-5-W-R; Arrow B-3 - 25.0" 45'; Arrow B-3 - 25.0" 45';

12

STA 93+50
℄ SH5
SHEET 10 OF 13



12.0" Radius, 2.0" Border, White on, Green;
"W EST" ClearviewHwy-5-W-R; State Highway 399 M1-6S3; "S OUTH" ClearviewHwy-5-W-R;
US 75 M1-4; "S OUTH" ClearviewHwy-5-W-R; State Highway 121 M1-6T3;
Down Arrow 22 - 22.0" 270';

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SH 5
LARGE SIGN DETAILS

SCALE: NTS SHEET 4 OF 6

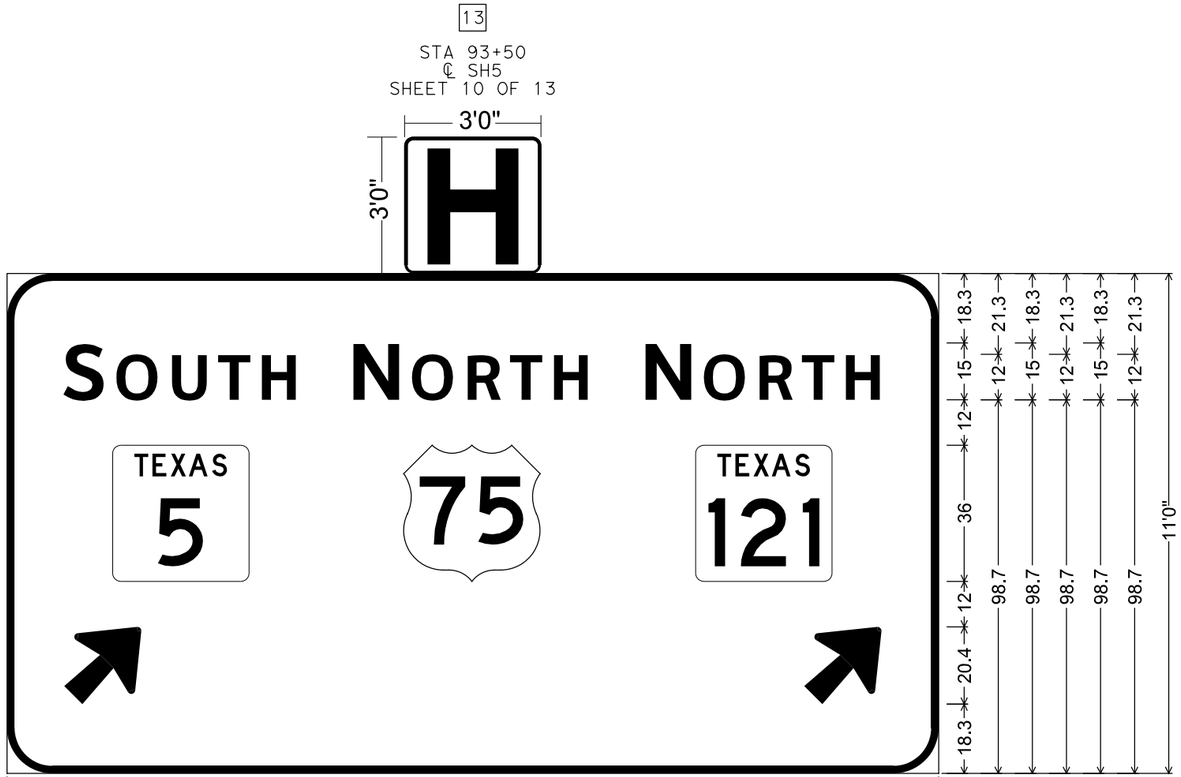
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1254
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: Large Sign Details 4
DATE: 10/1/2024
TIME: 10:57:15 AM
PENTABLE: I0181I5-SP399-SEGI.tbl
SCALE: 1:100

100% PLANS SUBMITTAL

13

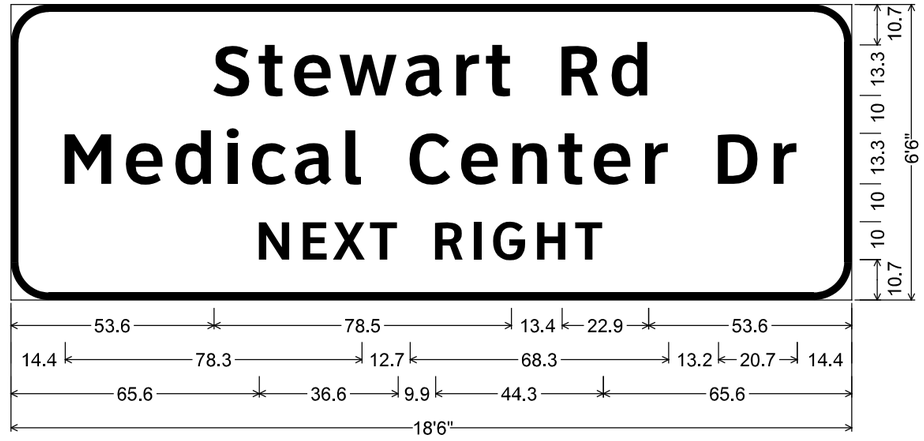
STA 93+50
℄ SH5
SHEET 10 OF 13



12.0" Radius, 2.0" Border, White on, Green;
"S OUTH" ClearviewHwy-5-W-R; State Highway 5 M1-6T1; "N ORTH" ClearviewHwy-5-W-R;
US 75 M1-4; "N ORTH" ClearviewHwy-5-W-R; State Highway 121 M1-6T3; Arrow B-3 - 25.0" 45';
Arrow B-3 - 25.0" 45';

14

STA 98+00
℄ SH5
SHEET 11 OF 13



10.0" Radius, 2.0" Border, White on, Green;
"Stewart Rd" ClearviewHwy-5-W-R; "Medical Center Dr" ClearviewHwy-5-W-R;
"NEXT RIGHT" ClearviewHwy-5-W-R;

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
LARGE SIGN DETAILS

SCALE: NTS SHEET 5 OF 6

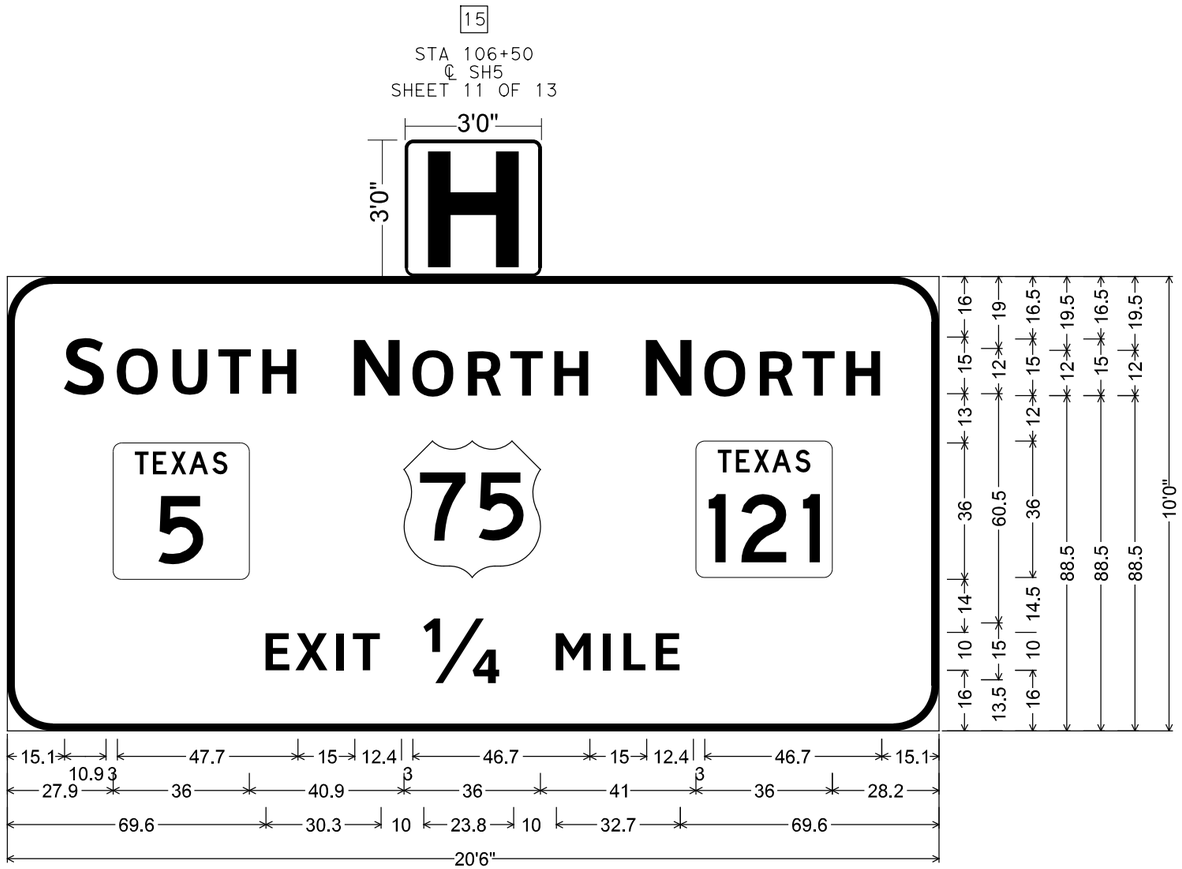
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1255
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: Large Sign Details 5
DATE: 10/1/2024
TIME: 10:57:24 AM
PENTABLE: 1018115-SP399-SEG1.tbl
SCALE: 1:100

100% PLANS SUBMITTAL

15

STA 106+50
℄ SH5
SHEET 11 OF 13



12.0" Radius, 2.0" Border, White on, Green;
"S OUTH" ClearviewHwy-5-W-R; State Highway 5 M1-6T1; "N ORTH" ClearviewHwy-5-W-R;
US 75 M1-4; "N ORTH" ClearviewHwy-5-W-R; State Highway 121 M1-6T3;
"EXIT ¼ MILE" ClearviewHwy-5-W-R;

STATE OF TEXAS
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131559
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PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

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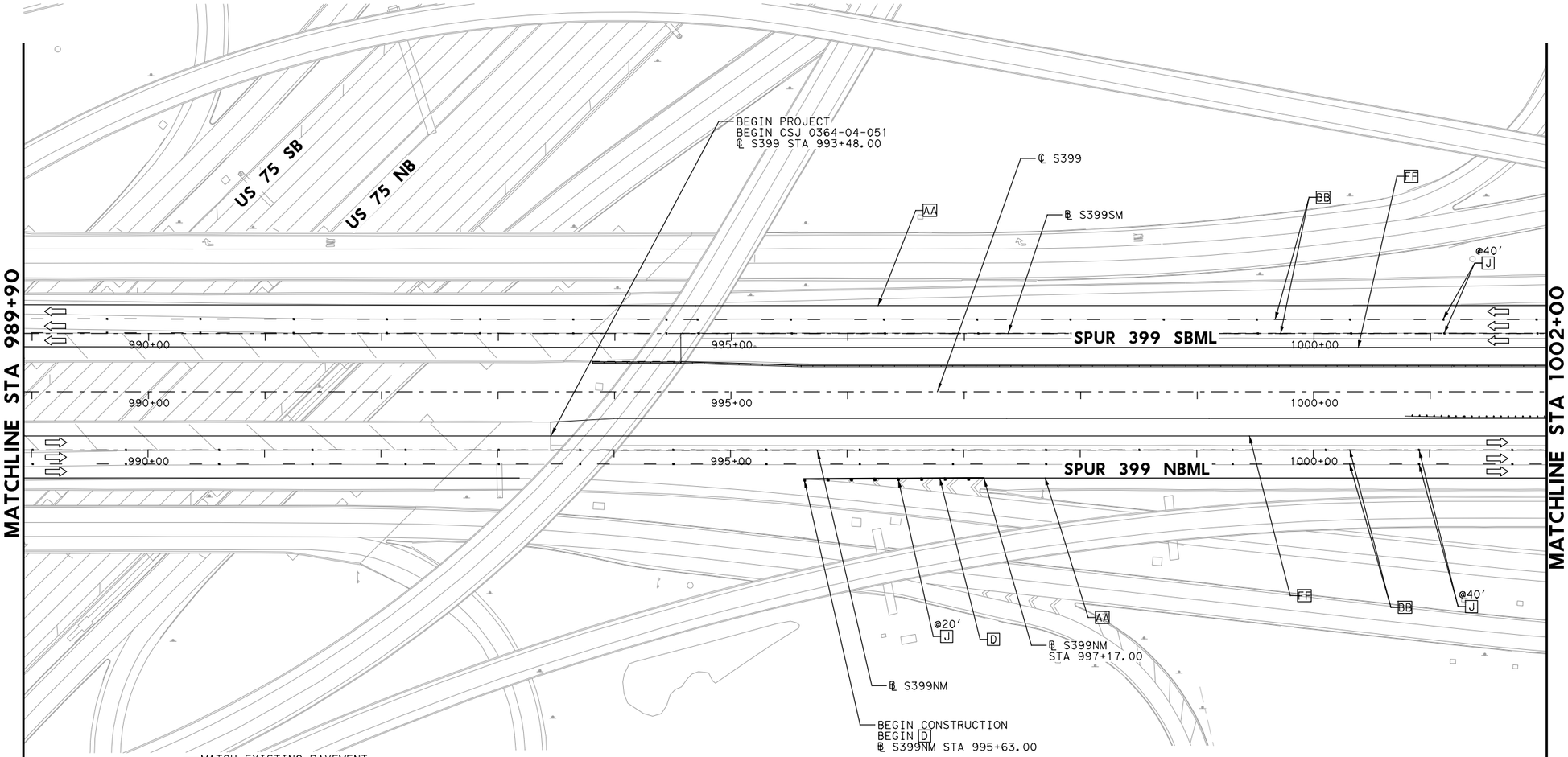
SH 5
LARGE SIGN DETAILS

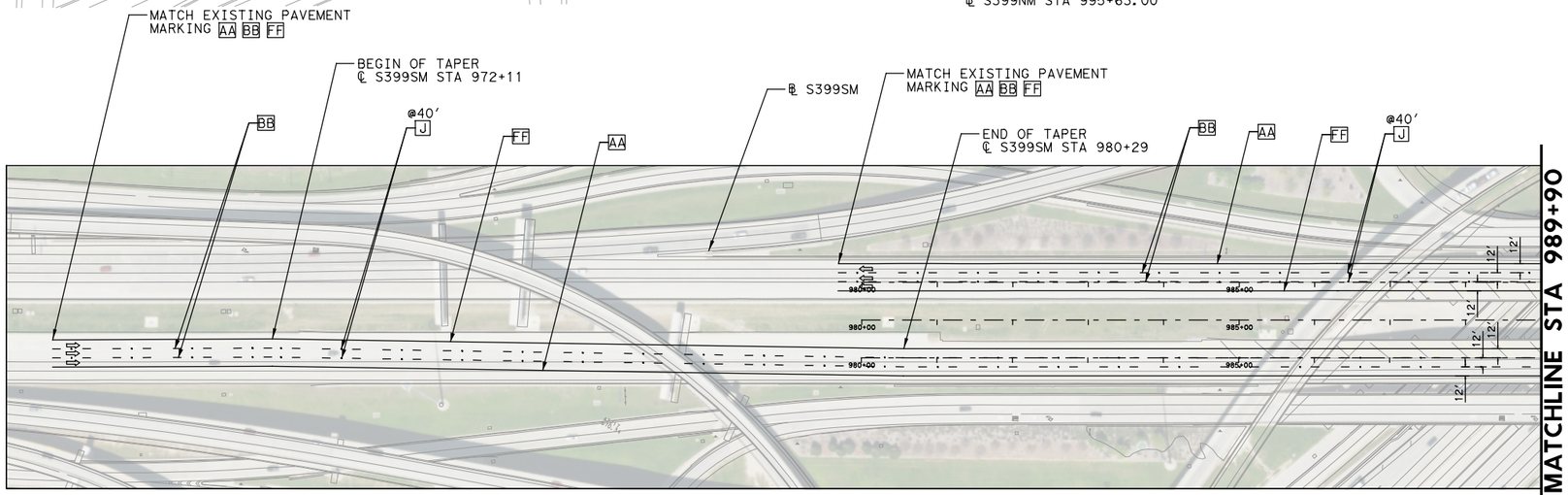
SCALE: NTS SHEET 6 OF 6

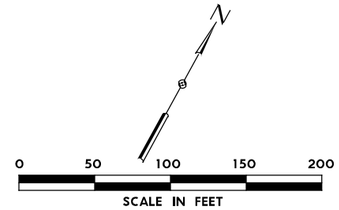
DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1256
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SE01.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:57:32 AM SCALE: 1:100
FILE: Large Sign Details 6

100% PLANS SUBMITTAL







LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

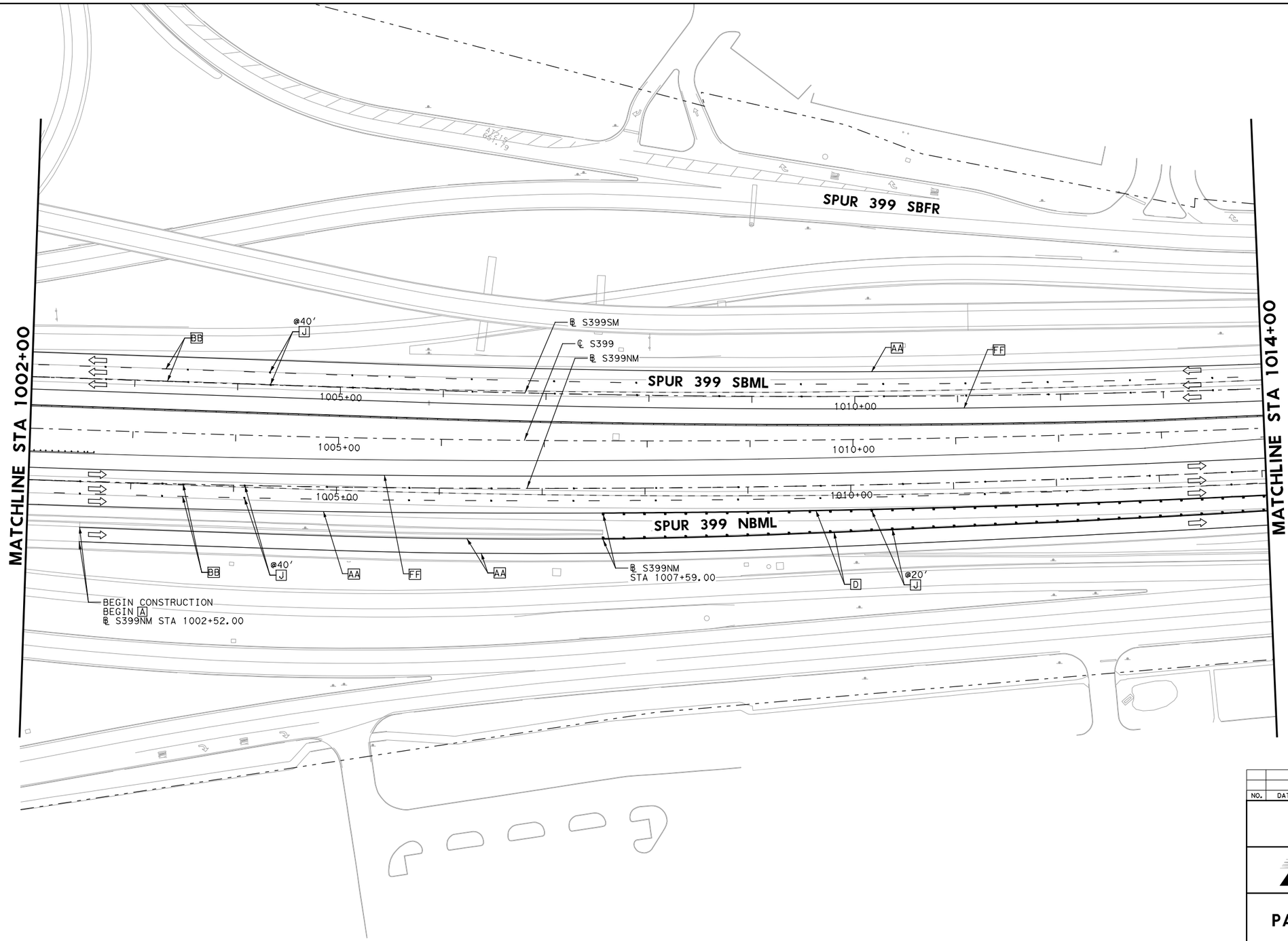
SPUR 399
PAVEMENT MARKING LAYOUT
SPUR 399
BEGIN PROJECT TO STA 1002+00

SCALE: 1"=100' SHEET 1 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1257
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10/8/15-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:57:47 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-1

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

- A RE PM W/RET REQ TY I (W)6"(SLD)
- AA RE PROFILE PM TYI(W)6"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (W)6"(BRK)
- BB PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
- C RE PM W/RET REQ TY I (W)6"(DOT)
- D REFL PAV MRK TY I (W) 8"(SLD)
- E REFL PAV MRK TY I (W) 8"(DOT)
- F RE PM W/RET REQ TY I (Y)6"(SLD)
- FF RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
- G REFL PAV MRK TY I (Y) 8"(SLD)
- H REFL PAV MRKR TY II-A-A
- J REFL PAV MRKR TY II-C-R
- K PREFAB PAV MRK TY C (W) (36") (YLD TRI)
- L PREFAB PAV MRK TY C (W) (WORD)
- M PREFAB PAV MRK TY C (W) (ARROW)
- N PREFAB PAV MRK TY C (W) (DBL ARROW)
- P PREFAB PAV MRK TY C (W) (UTURN ARROW)
- Q PREFAB PAV MRK TY C (W) (LNDP ARROW)
- R PREFAB PAV MRK TY C (W) 12"(SLD)
- S PREFAB PAV MRK TY C (W) 12"(DOT)
- T PREFAB PAV MRK TY C (Y) 12"(SLD)
- U PREFAB PAV MRK TY C (W) 24"(SLD)
- V PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

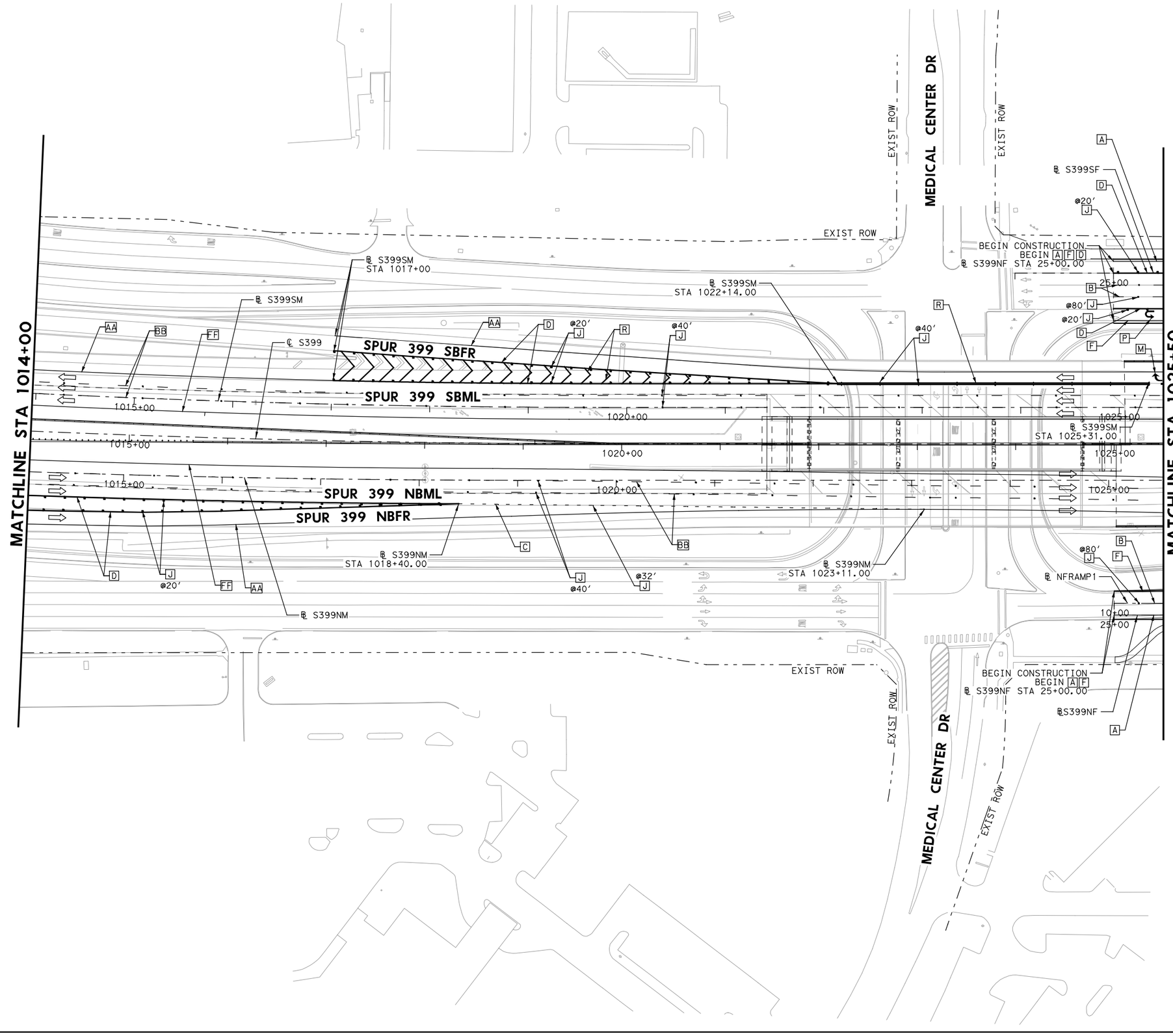
SPUR 399
PAVEMENT MARKING LAYOUT
SPUR 399
STA 1002+00 TO STA 1014+00

SCALE: 1"=100′ SHEET 2 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1258
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8II5-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:58:27 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-2

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

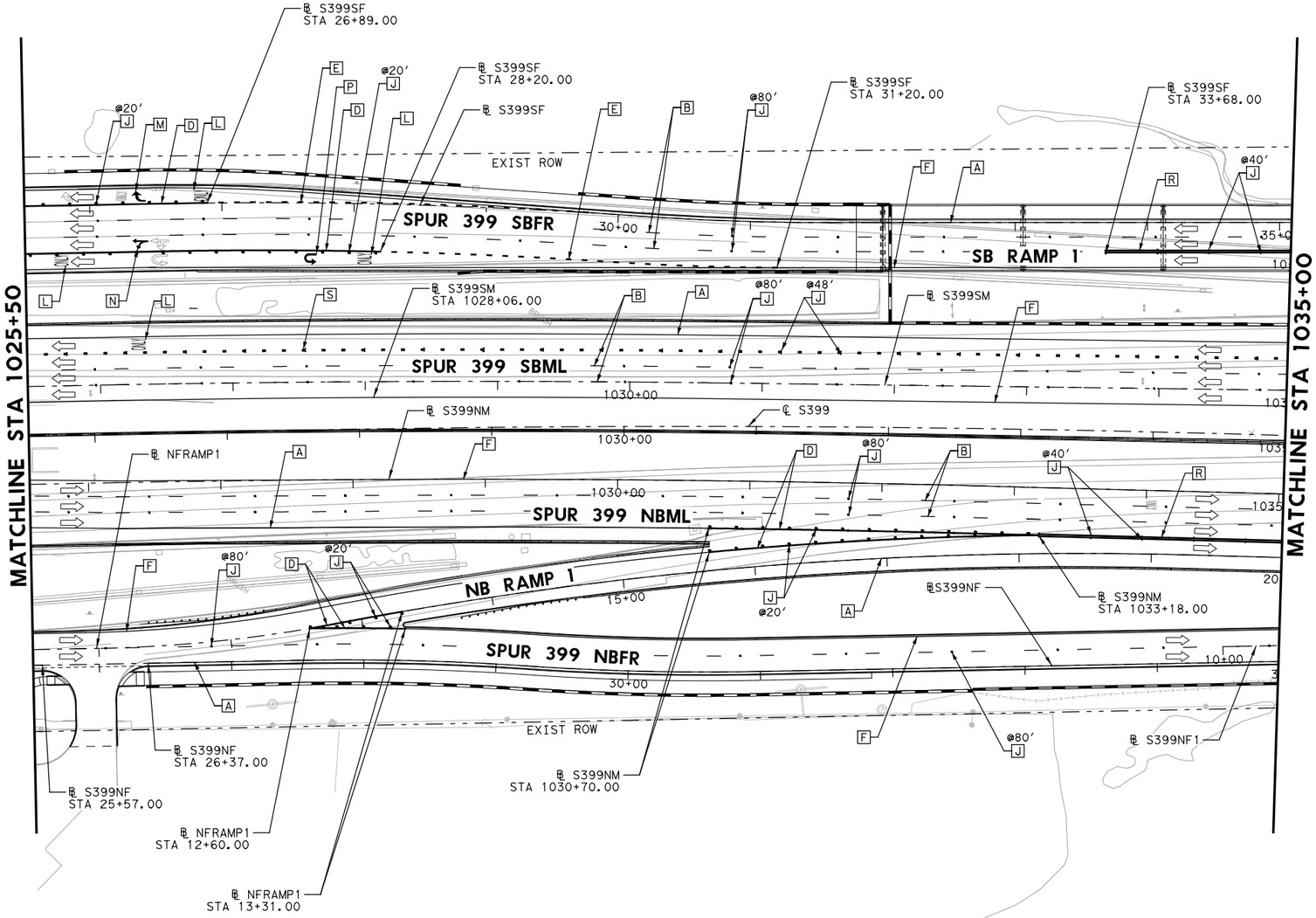
SPUR 399
PAVEMENT MARKING LAYOUT
SPUR 399
STA 1014+00 TO STA 1025+00

SCALE: 1"=100′ SHEET 3 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1259
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TYDOT_PDF_BW.pltcfg PENTABLE: I018II5-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:58:43 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-3

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

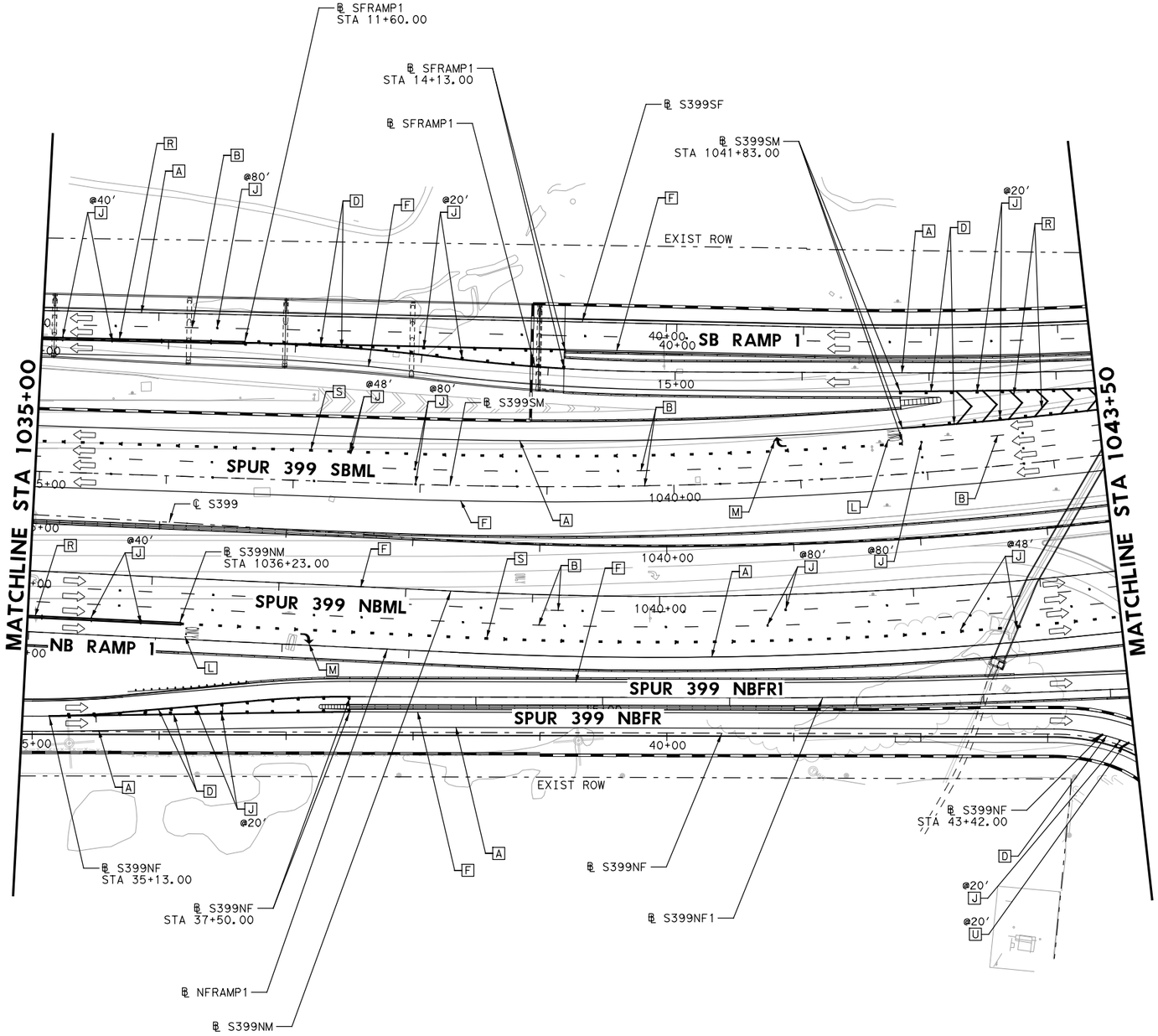
SPUR 399
PAVEMENT MARKING LAYOUT
SPUR 399
STA 1025+00 TO STA 1035+00

SCALE: 1"=100′ SHEET 4 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1260
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: \0IBII5-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:58:55 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-4

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- A RE PM W/RET REQ TY I (W)6"(SLD)
- AA RE PROFILE PM TYI(W)6"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (W)6"(BRK)
- BB PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
- C RE PM W/RET REQ TY I (W)6"(DOT)
- D REFL PAV MRK TY I (W) 8"(SLD)
- E REFL PAV MRK TY I (W) 8"(DOT)
- F RE PM W/RET REQ TY I (Y)6"(SLD)
- FF RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
- G REFL PAV MRK TY I (Y) 8"(SLD)
- H REFL PAV MRKR TY II-A-A
- J REFL PAV MRKR TY II-C-R
- K PREFAB PAV MRK TY C (W) (36") (YLD TRI)
- L PREFAB PAV MRK TY C (W) (WORD)
- M PREFAB PAV MRK TY C (W) (ARROW)
- N PREFAB PAV MRK TY C (W) (DBL ARROW)
- P PREFAB PAV MRK TY C (W) (UTURN ARROW)
- Q PREFAB PAV MRK TY C (W) (LNDP ARROW)
- R PREFAB PAV MRK TY C (W) 12"(SLD)
- S PREFAB PAV MRK TY C (W) 12"(DOT)
- T PREFAB PAV MRK TY C (Y) 12"(SLD)
- U PREFAB PAV MRK TY C (W) 24"(SLD)
- V PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

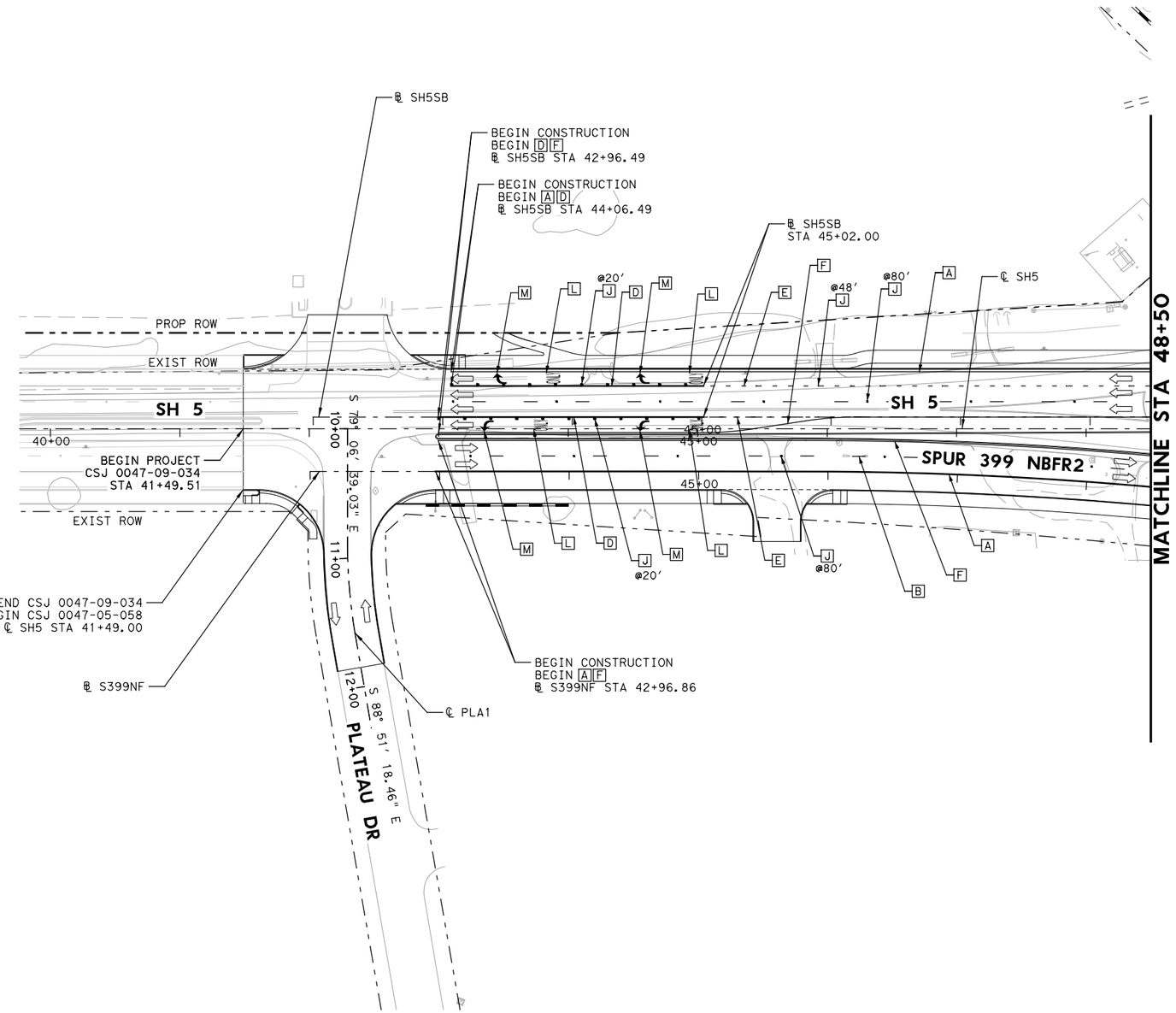
SPUR 399
PAVEMENT MARKING LAYOUT
SPUR 399
STA 1035+00 TO STA 1043+00

SCALE: 1"=100′ SHEET 5 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1261
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:59:10 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-5

100% PLANS SUBMITTAL



0 50 100 150 200
SCALE IN FEET

LEGEND

- A RE PM W/RET REQ TY I (W)6"(SLD)
- AA RE PROFILE PM TYI(W)6"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (W)6"(BRK)
- BB PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
- C RE PM W/RET REQ TY I (W)6"(DOT)
- D REFL PAV MRK TY I (W) 8"(SLD)
- E REFL PAV MRK TY I (W) 8"(DOT)
- F RE PM W/RET REQ TY I (Y)6"(SLD)
- FF RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
- G REFL PAV MRK TY I (Y) 8"(SLD)
- H REFL PAV MRKR TY II-A-A
- J REFL PAV MRKR TY II-C-R
- K PREFAB PAV MRK TY C (W) (36") (YLD TRI)
- L PREFAB PAV MRK TY C (W) (WORD)
- M PREFAB PAV MRK TY C (W) (ARROW)
- N PREFAB PAV MRK TY C (W) (DBL ARROW)
- P PREFAB PAV MRK TY C (W) (UTURN ARROW)
- Q PREFAB PAV MRK TY C (W) (LNDP ARROW)
- R PREFAB PAV MRK TY C (W) 12"(SLD)
- S PREFAB PAV MRK TY C (W) 12"(DOT)
- T PREFAB PAV MRK TY C (Y) 12"(SLD)
- U PREFAB PAV MRK TY C (W) 24"(SLD)
- V PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

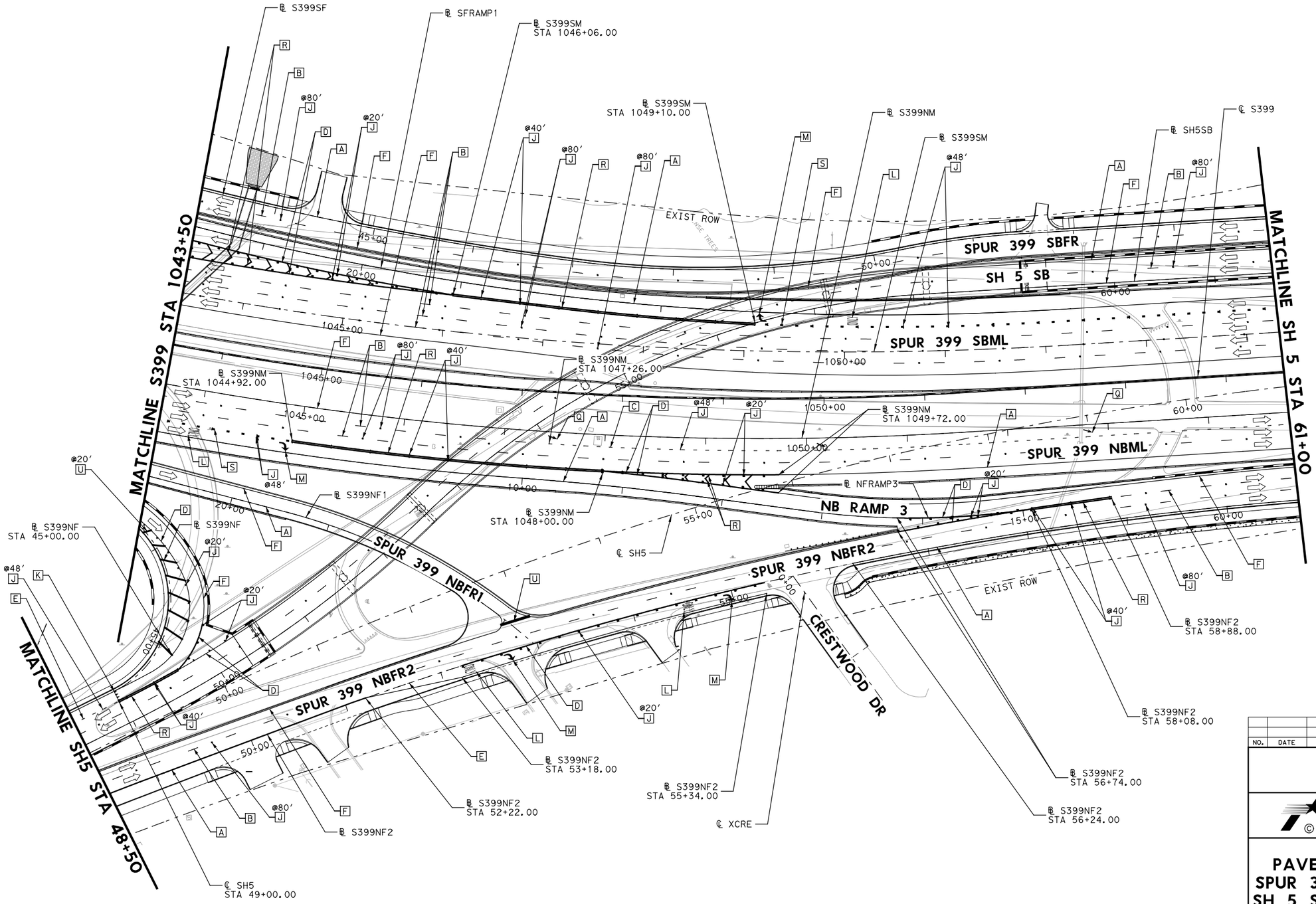
SPUR 399
PAVEMENT MARKING LAYOUT
SH 5
STA 41+49.50 TO STA 48+50

SCALE: 1"=100′ SHEET 6 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1262
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:59:25 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-6

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

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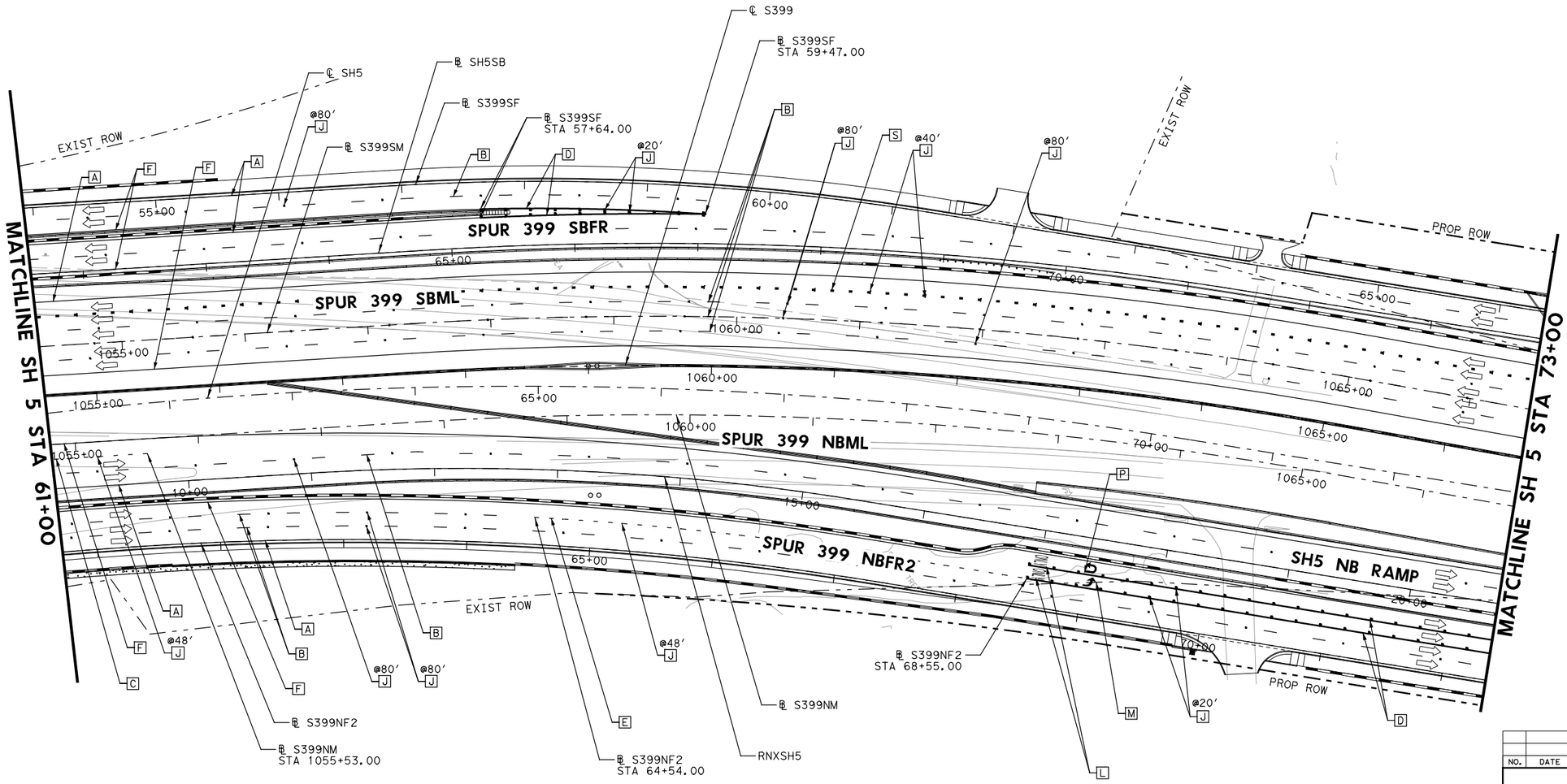
SPUR 399
PAVEMENT MARKING LAYOUT
SPUR 399 STA 1045+00 TO END
SH 5 STA 48+50 TO STA 61+00

SCALE: 1"=100' SHEET 7 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1263
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:59:37 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-7

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

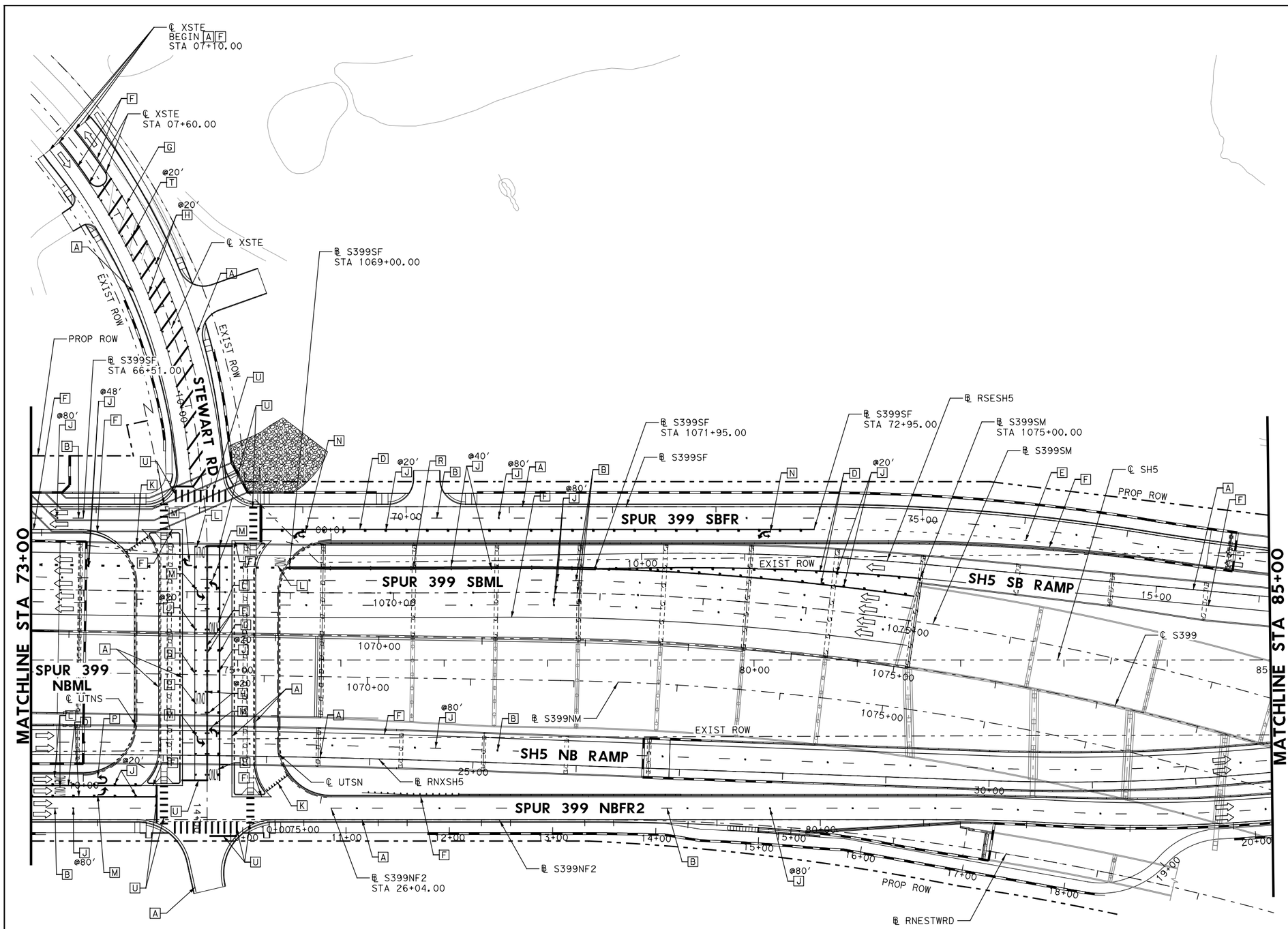
SPUR 399
PAVEMENT MARKING LAYOUT
SH 5
STA 61+00 TO STA 73+00

SCALE: 1"=100′ SHEET 8 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1264
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 10:59:52 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-8

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

- A RE PM W/RET REQ TY I (W)6"(SLD)
- AA RE PROFILE PM TYI(W)6"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (W)6"(BRK)
- BB PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
- C RE PM W/RET REQ TY I (W)6"(DOT)
- D REFL PAV MRK TY I (W) 8"(SLD)
- E REFL PAV MRK TY I (W) 8"(DOT)
- F RE PM W/RET REQ TY I (Y)6"(SLD)
- FF RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
- G REFL PAV MRK TY I (Y) 8"(SLD)
- H REFL PAV MRKR TY II-A-A
- J REFL PAV MRKR TY II-C-R
- K PREFAB PAV MRK TY C (W) (36") (YLD TRI)
- L PREFAB PAV MRK TY C (W) (WORD)
- M PREFAB PAV MRK TY C (W) (ARROW)
- N PREFAB PAV MRK TY C (W) (DBL ARROW)
- P PREFAB PAV MRK TY C (W) (UTURN ARROW)
- Q PREFAB PAV MRK TY C (W) (LNDP ARROW)
- R PREFAB PAV MRK TY C (W) 12"(SLD)
- S PREFAB PAV MRK TY C (W) 12"(DOT)
- T PREFAB PAV MRK TY C (Y) 12"(SLD)
- U PREFAB PAV MRK TY C (W) 24"(SLD)
- V PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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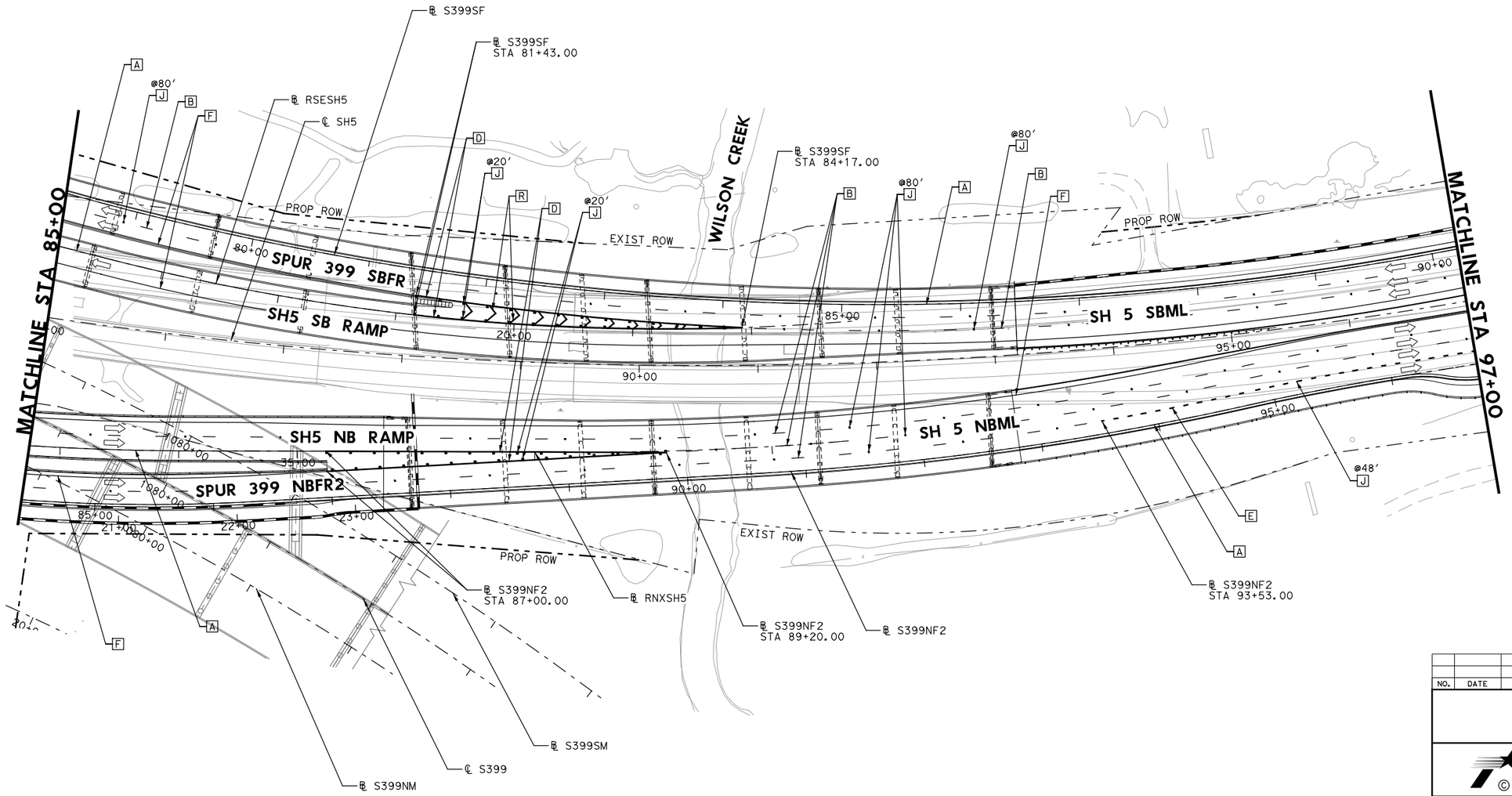
SPUR 399
PAVEMENT MARKING LAYOUT
SH 5
STA 61+00 TO STA 85+00

SCALE: 1"=100′ SHEET 9 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1265
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08I15-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 11:00:10 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-9

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

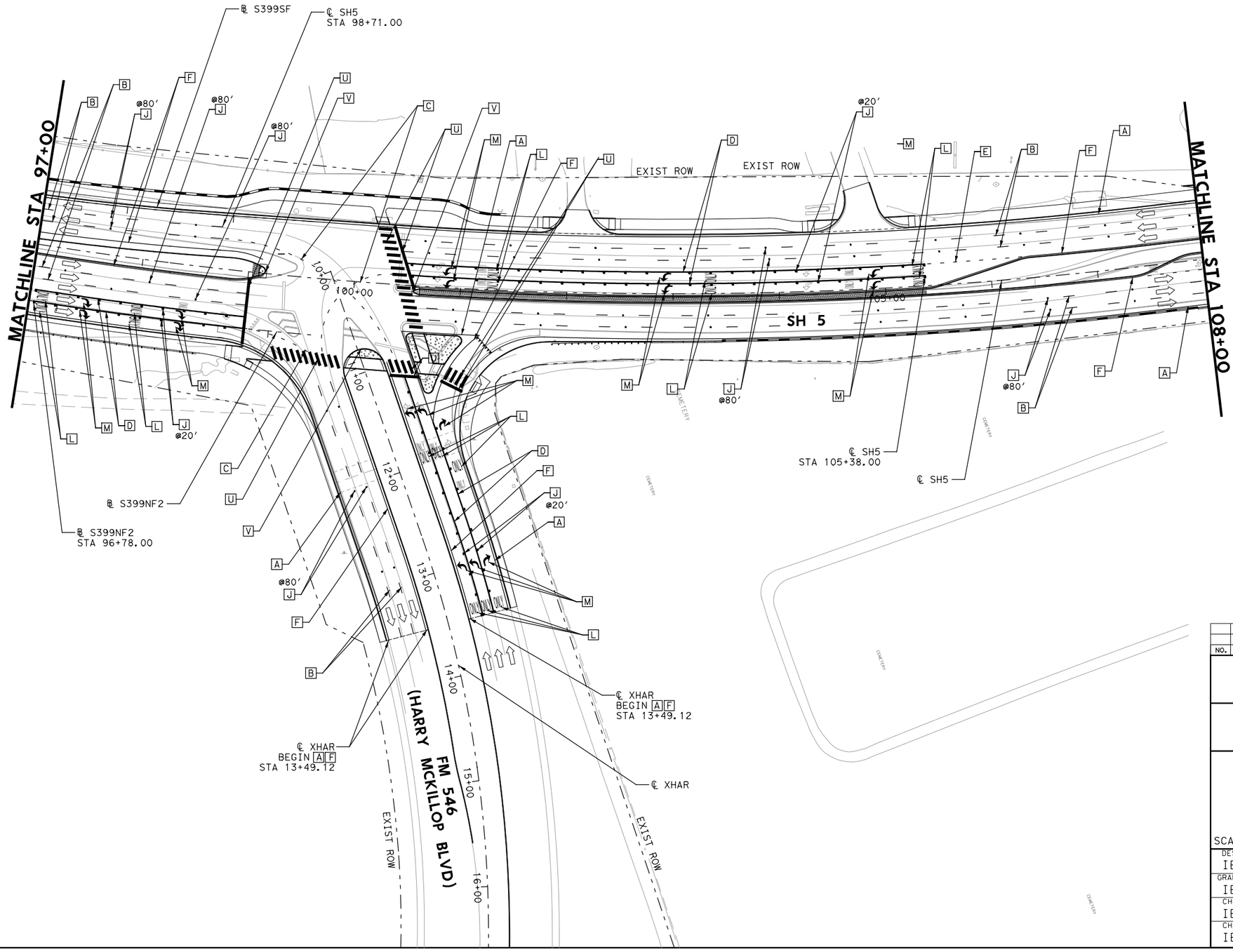
SPUR 399
PAVEMENT MARKING LAYOUT
SH 5
STA 85+00 TO STA 97+00

SCALE: 1"=100′ SHEET 10 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1266
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: \0IBI15-SP399-SEG1.tbl
USER: safsha DATE: 10/1/2024 TIME: 11:00:27 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-10

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

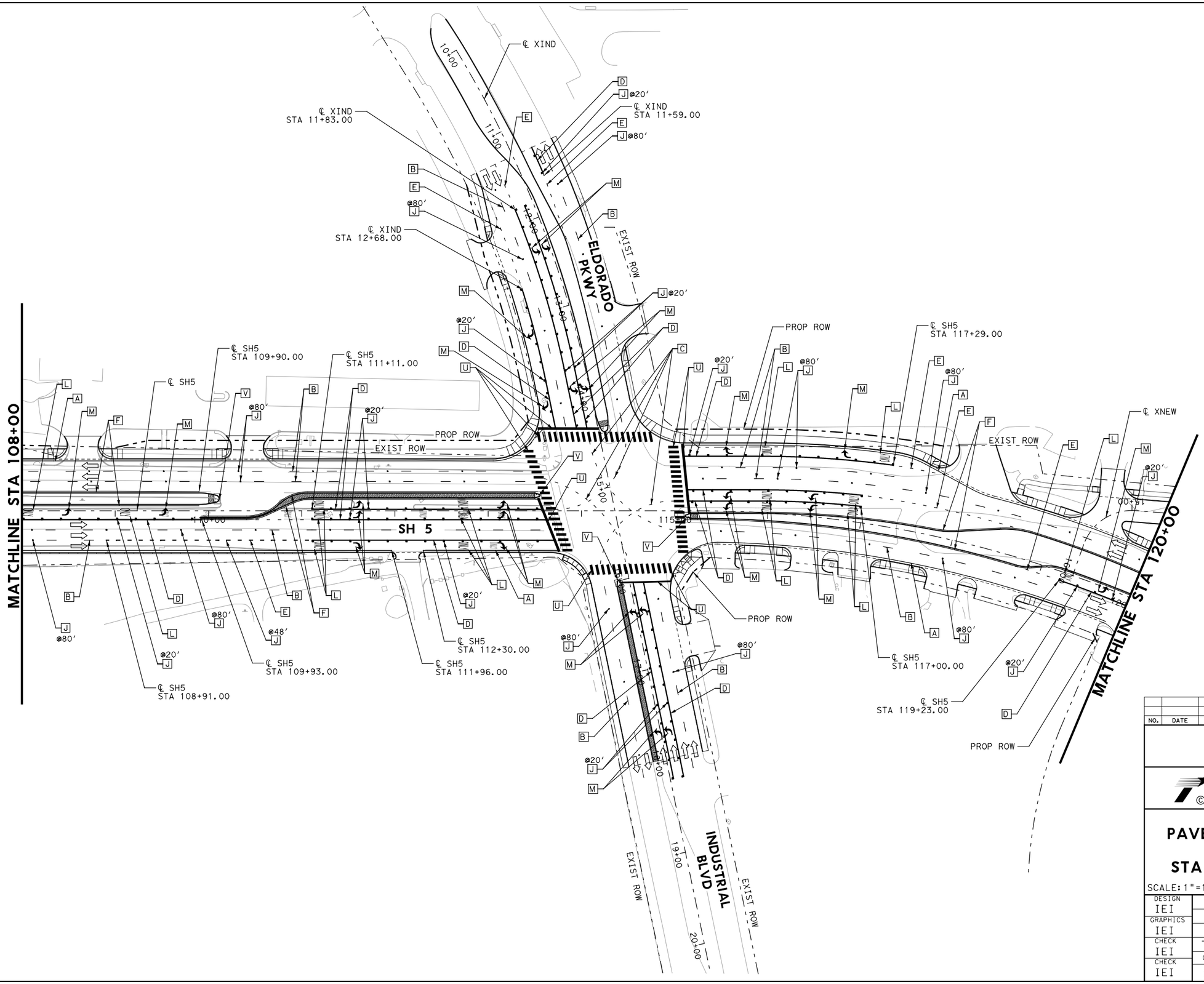
SPUR 399
PAVEMENT MARKING LAYOUT
SH 5
STA 97+00 TO STA 108+00

SCALE: 1"=100′ SHEET 11 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1267
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 11:00:45 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-II

100% PLANS SUBMITTAL



SCALE IN FEET
0 50 100 150 200

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)
⇦	DIRECTION OF TRAVEL

MOHAMMED S. ULA
131559

Mohammed S. Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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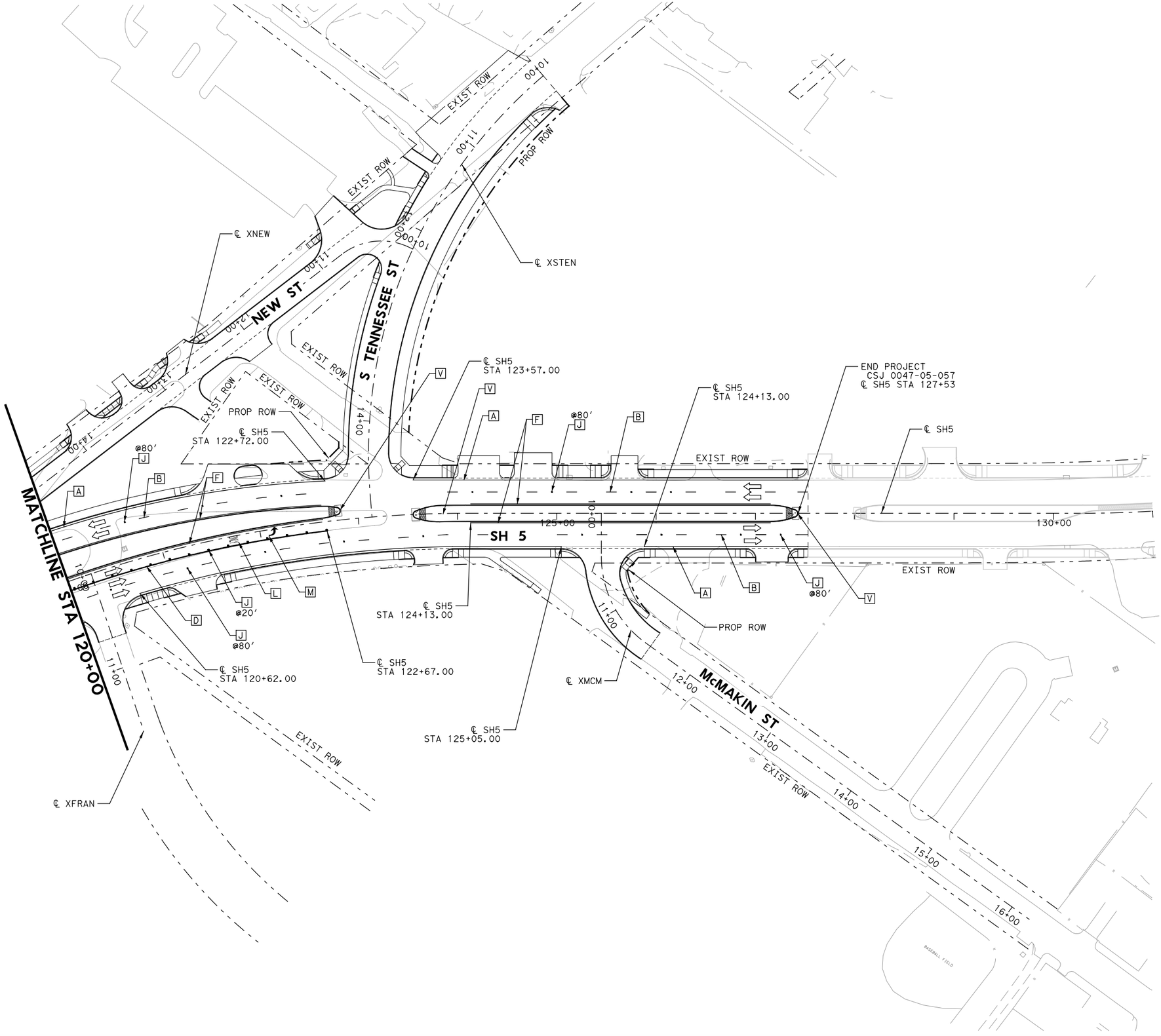
SPUR 399
PAVEMENT MARKING LAYOUT
SH 5
STA 108+00 TO STA 120+00

SCALE: 1"=100'
SHEET 12 OF 13

DESIGN IEI	FED.RD. DIV.NO. 6	FEDERAL-AID PROJECT NO. SEE TITLE SHEET		HIGHWAY NO. SH5, ETC.
GRAPHICS IEI	STATE TEXAS	DISTRICT DAL	COUNTY COLLIN	SHEET NO. 1268
CHECK IEI	CONTROL 0047	SECTION 05	JOB 057, ETC.	
CHECK IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 1018115-SP399-SEGI.tbl
USER: safsha DATE: 10/1/2024 TIME: 11:01:00 AM SCALE: 1:100
FILE: PAVEMENT MARKING LAYOUT-12

100% PLANS SUBMITTAL



0 50 100 150 200

SCALE IN FEET

LEGEND

A	RE PM W/RET REQ TY I (W)6"(SLD)
AA	RE PROFILE PM TYI(W)6"(SLD)(100MIL)
B	RE PM W/RET REQ TY I (W)6"(BRK)
BB	PREFAB PAV MRK (W)6"(BRK)CNTST W/ REFL PAV MRKR TY II-C-R @ 40FT CENT
C	RE PM W/RET REQ TY I (W)6"(DOT)
D	REFL PAV MRK TY I (W) 8"(SLD)
E	REFL PAV MRK TY I (W) 8"(DOT)
F	RE PM W/RET REQ TY I (Y)6"(SLD)
FF	RE PROFILE PM TYI(Y)6"(SLD)(100MIL)
G	REFL PAV MRK TY I (Y) 8"(SLD)
H	REFL PAV MRKR TY II-A-A
J	REFL PAV MRKR TY II-C-R
K	PREFAB PAV MRK TY C (W) (36") (YLD TRI)
L	PREFAB PAV MRK TY C (W) (WORD)
M	PREFAB PAV MRK TY C (W) (ARROW)
N	PREFAB PAV MRK TY C (W) (DBL ARROW)
P	PREFAB PAV MRK TY C (W) (UTURN ARROW)
Q	PREFAB PAV MRK TY C (W) (LNDP ARROW)
R	PREFAB PAV MRK TY C (W) 12"(SLD)
S	PREFAB PAV MRK TY C (W) 12"(DOT)
T	PREFAB PAV MRK TY C (Y) 12"(SLD)
U	PREFAB PAV MRK TY C (W) 24"(SLD)
V	PREFAB PAV MRK TY C (Y) (MED NOSE)

⇦ DIRECTION OF TRAVEL

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
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Texas Department of Transportation

SPUR 399
PAVEMENT MARKING LAYOUT
SH 5
STA 120+00 TO STA END

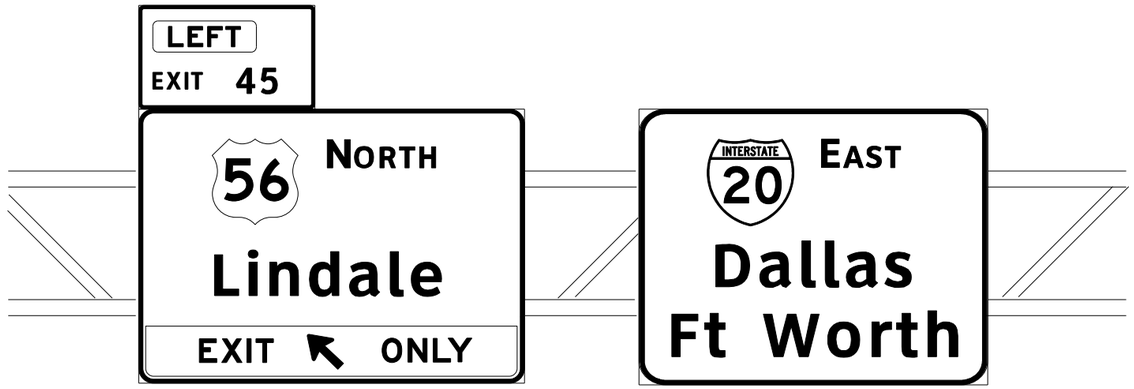
SCALE: 1"=100′ SHEET 13 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1269
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: PAVEMENT MARKING LAYOUT-13
PENTABLE: 10Bll5-SP399-SEGi.tbl
DATE: 10/1/2024
TIME: 11:01:20 AM
SCALE: 1:100

REQUIREMENTS FOR OVERHEAD AND LARGE GROUND-MOUNTED SIGNS

TYPICAL EXAMPLES



GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign summary sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Black legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod, or F).
   White legend shall use the Clearview Alphabet.
   The following Clearview fonts shall be used to replace the existing white FHWA lettering, when not specified in the SHSD or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. 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.
4. Black legend shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be cut-out white sheeting applied to colored background sheeting.
6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius need not be trimmed or rounded if fabricated from an extruded material.
7. Sign substrate for ground-mounted signs shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative. Sign substrate for overhead signs shall be any material that meets DMS-7110. Exit Number Panels attached above the parent sign shall be made with the same substrate and sheeting as the parent sign.
8. Mounting details of attachments to parent sign face are shown on Standard Plan Sheet TSR(5). Mounting details of exit number panels above parent sign are shown in the "SMD series" Standard Plan Sheets.
9. Background sheeting shall be applied to the substrate per sheeting manufacturer's recommendations. Sheeting will not be allowed to bridge the horizontal gap between panels.
10. Cut all legend, symbols, borders, and direct applied sign attachments at panel joints.

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/

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE B OR C SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

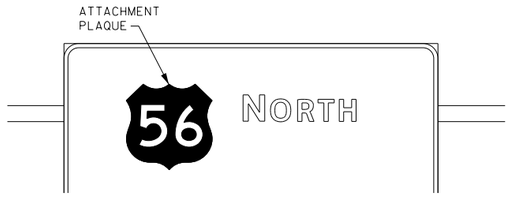
TSR(1)-13

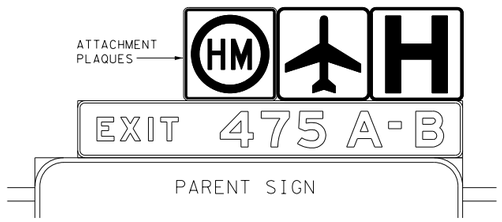
FILE: tsr1-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	DAL	COLLIN, ETC		1270

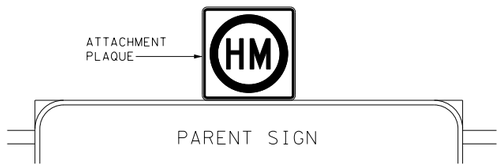
1

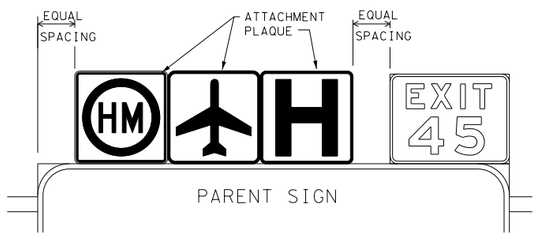
DATE: 10/1/2024 11:18:53 AM
FILE: c:\pwworking\central01\d2097791\tsr1-13.dgn

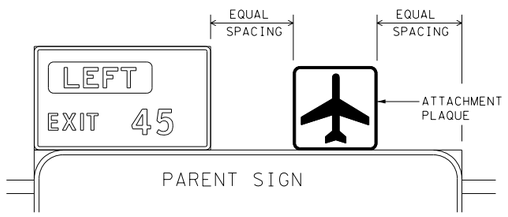
REQUIREMENTS FOR ATTACHMENTS TO OVERHEAD AND LARGE GROUND MOUNTED SIGNS









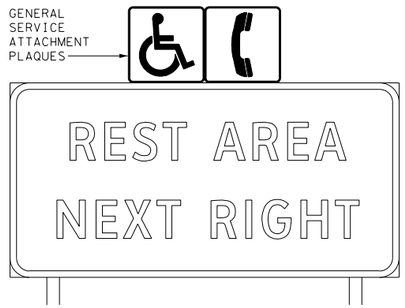


DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B OR C SHEETING

GENERAL NOTES

1. 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).
2. Route Marker legends (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod, or F).
3. 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.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. 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.
6. Colored legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to white background sheeting, or combination thereof.
7. Route markers and other attachments within the parent sign face shall be direct applied unless otherwise specified in the plans. Attachments not direct applied shall use 0.063 inch thick one piece sheet aluminum signs (Type A).
8. General Service Plaques shall be 0.080 inch thick and Routing Plaques shall be 0.100 inch thick.
9. The priority for Routing Plaques shall be (left to right) Hazardous Material, Airport then Hospital. See examples for mounting location.
10. Mounting details of attachments to parent signs face are shown on Standard Plan Sheet TSR(5). Mounting details of sign plaque attachments above and below parent sign are shown in the "SMD series" Standard Plan Sheets.
11. Plaques shall be horizontally centered at the top of the parent sign. If an exit number panel exists, the plaque shall be centered between the edge of the parent sign and the edge of the exit number panel. The plaque may be placed above the exit number panel when there is insufficient space.

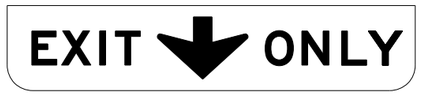


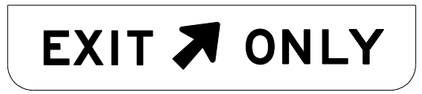
TYPICAL EXAMPLES

REQUIREMENTS FOR EXIT ONLY AND LEFT EXIT PANELS

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

SHEETING REQUIREMENTS FOR OVERHEAD EXIT PANELS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLUORESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND	BLACK	ACRYLIC NON-REFLECTIVE FILM





TYPICAL EXAMPLES

GENERAL NOTES

1. 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). Individual panel sizes shown in the plans may be adjusted to fit actual parent sign sizes if necessary.
2. Exit Panel legend shall use the Federal Highway Administration (FHWA)Standard Highway Alphabets E Series.
3. 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.
4. Black legend shall be applied by screening process or cut-out acrylic non-reflective black film to yellow background sheeting, or combination thereof.
5. Exit Only and Left Exit panels within the parent sign face shall be direct applied unless otherwise specified in the plans. Panels not direct applied shall use 0.063 inch thick one piece sheet aluminum signs (Type A).
6. Mounting details of Exit Only and Left Exit panel attachments to parent signs face are shown on Standard Plan Sheet TSR(5).

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(2)-13

FILE: tsr2-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	DAL	COLLIN, ETC		1271

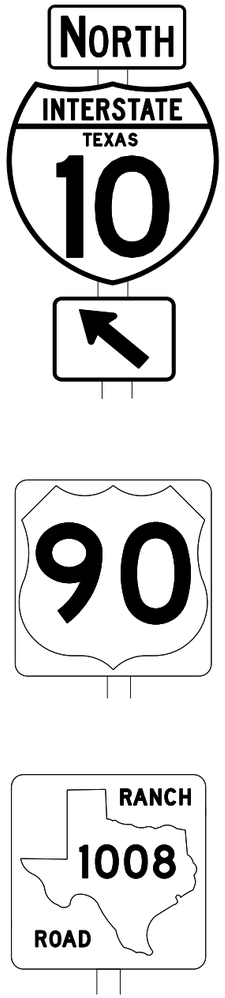
2

DATE: 10/1/2024 11:18:56 AM
FILE: c:\pworking\central01\d0209791\tsr2-13.dgn

DATE: 10/1/2024 11:18:59 AM
FILE: c:\pwworking\central01\d2097791\tsr3-13.dgn

REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

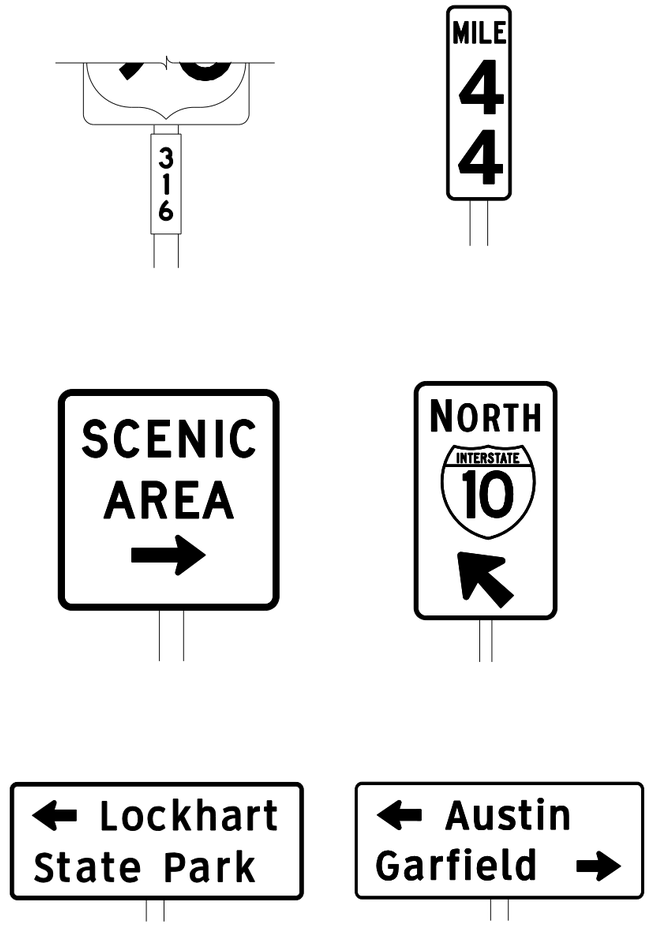
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

REQUIREMENTS FOR BLUE, BROWN & GREEN D AND I SERIES GUIDE SIGNS

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND, SYMBOLS & BORDERS	ALL OTHERS	TYPE B OR C SHEETING



TYPICAL EXAMPLES

GENERAL NOTES

1. 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).

2. White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).

4. 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.

5. Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.

6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.

7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.

8. Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

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

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

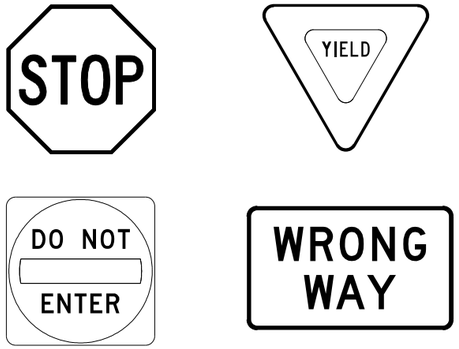
TSR(3)-13

FILE: tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	DAL	COLLIN, ETC		1272

DATE: 10/1/2024 11:19:02 AM
FILE: c:\pwworking\central01\d2097791\tsr4-13.dgn

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

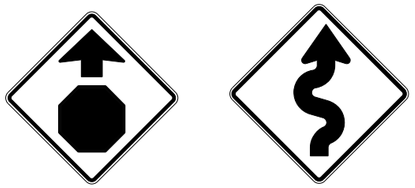
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(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

1. 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).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. 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.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. 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.
6. 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.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. 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/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0047	05	058, ETC.	S399
12-03 7-13 9-08	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1273

DATE: 10/1/2024 11:19:05 AM
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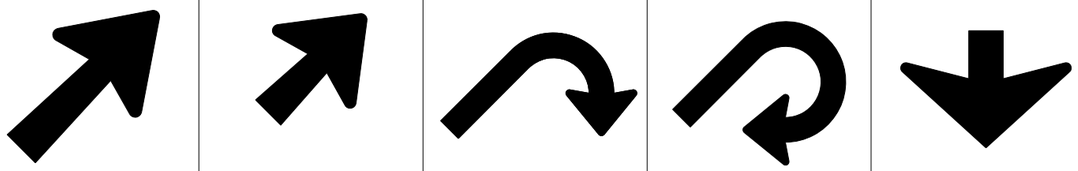
ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

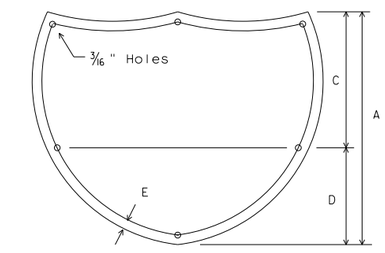
NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

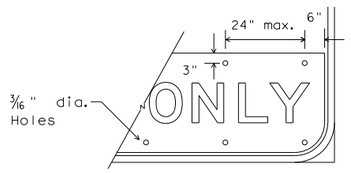
http://www.txdot.gov/

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)

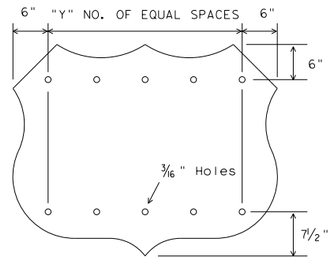


INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4

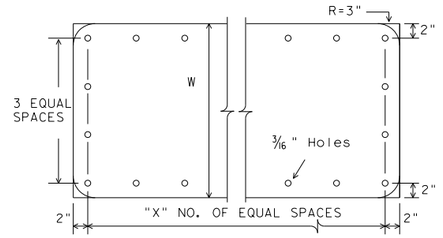


EXIT ONLY PANEL



U.S. ROUTE MARKERS

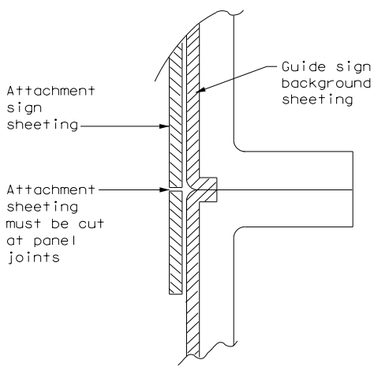
Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

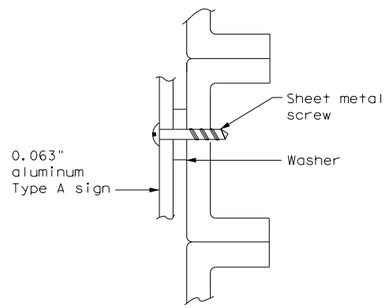
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



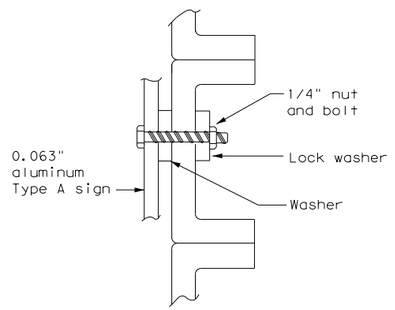
DIRECT APPLIED ATTACHMENT

NOTE:

1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT



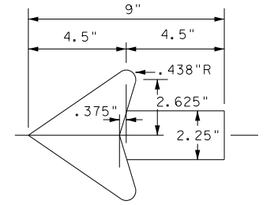
NUT/BOLT ATTACHMENT

NOTE:

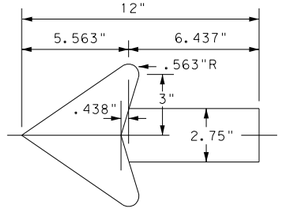
Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.



Standard arrow to be used with 8 inch letters.

Texas Department of Transportation

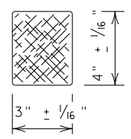
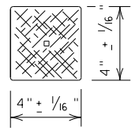
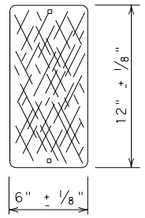
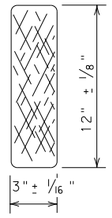
Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

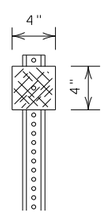
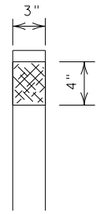
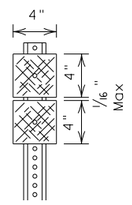
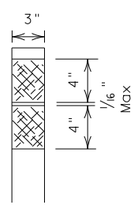
TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	DAL	COLLIN, ETC		1274

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

DEVICE	SINGLE		DOUBLE	
				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

NUMBER OF REFLECTORS
- S = Single
- D = Double

COLOR OF REFLECTORS
- W = White
- Y = Yellow
- R = Red

REFLECTOR UNIT SIZE
- 1 or 2

TYPE OF POST OR DELINEATOR
- WC = Wing Channel Post
- YFLX = Yellow Flexible Post
- WFLX = White Flexible Post
- BRF = Barrier Reflector

TYPE OF MOUNT
- GND = Embedded (drivable or set in concrete)
- CTB = Concrete Barrier Mount
- GF1 or GF2 = Guard Fence Attachment
- SRF = Surface Mount

DIRECTION
- If Required
- BI = Bi-Directional
- BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
- 1, 2, 3, or 4

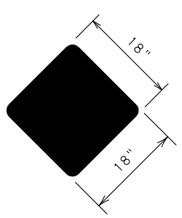
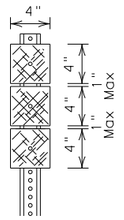
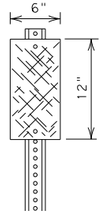
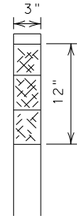
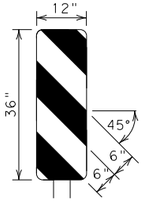
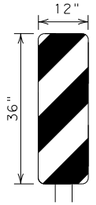
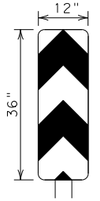
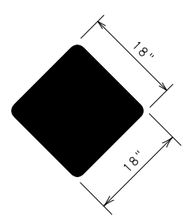
NUMBER OF REFLECTORS OR DIRECTION
- X = 3-Size 2 reflector units (Type 2 only)
- Y = 1-Size 3 reflector unit (Type 2 only)
- Z = 3-Size 1 or 1-Size 4 reflector unit(s) (Type 2 only)
- L = Left Side (Type 3 Object Marker only)
- R = Right Side (Type 3 Object Marker only)
- C = Center (Type 3 Object Marker only)

TYPE OF POST
- WC = Wing Channel Post
- WFLX = White Flexible Post
- TWT = Thin Walled Tubing

TYPE OF MOUNT
- GND = Embedded (drivable)
- SRF = Surface Mount
- WAS = Wedge Anchor Steel
- WAP = Wedge Anchor Plastic

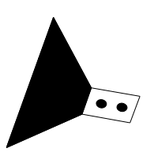
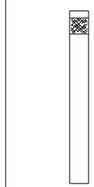
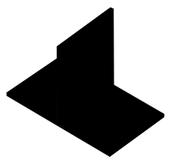
DIRECTION
- If Required
- BI = Bi-Directional

OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

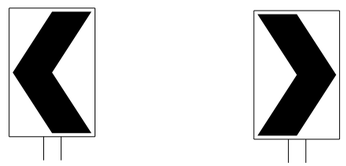
DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE

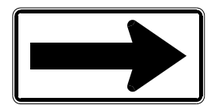


W1-8

SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

ONE DIRECTION LARGE ARROW

DEVICE



W1-6

SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE

1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	DAL	COLLIN, ETC		1275

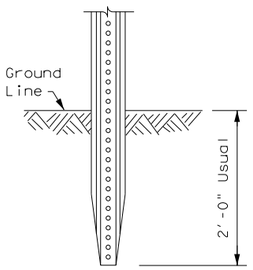
20A

DATE: 10/1/2024 11:19:08 AM
FILE: c:\pwworking\central01\d2097791\dom1-20.dgn

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

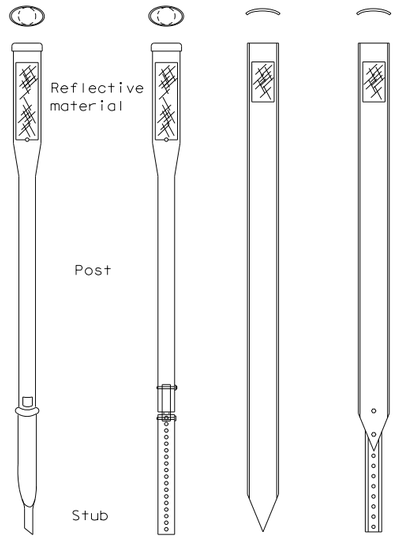


NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

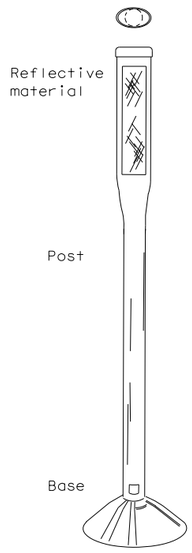
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



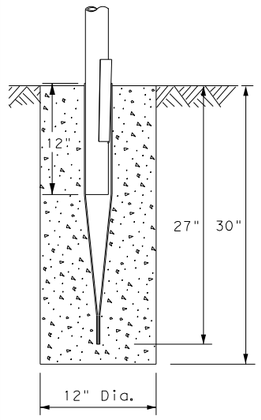
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

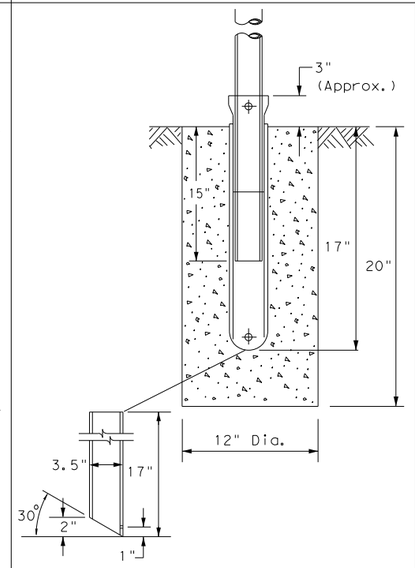
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

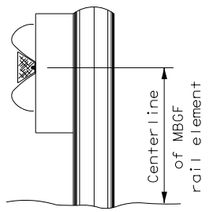
NOTE

1. Install per manufacturer's recommendations.

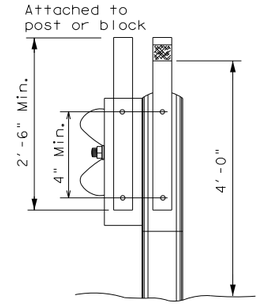
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

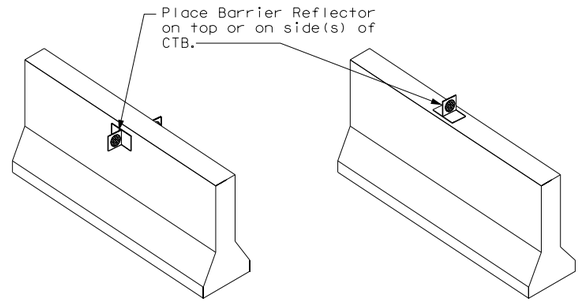
GF1



GF2



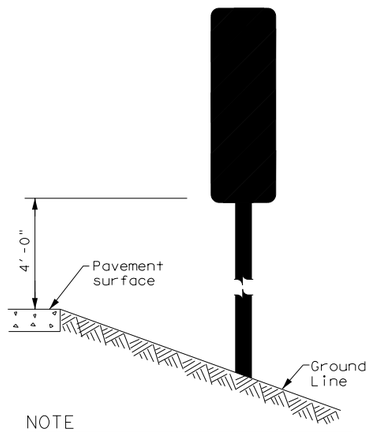
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

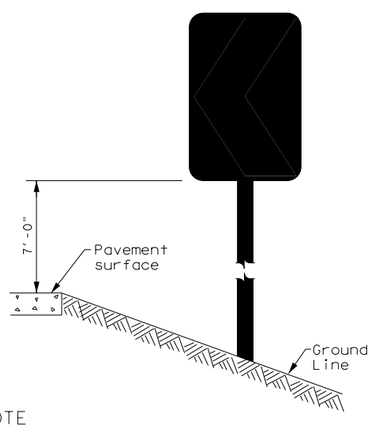
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

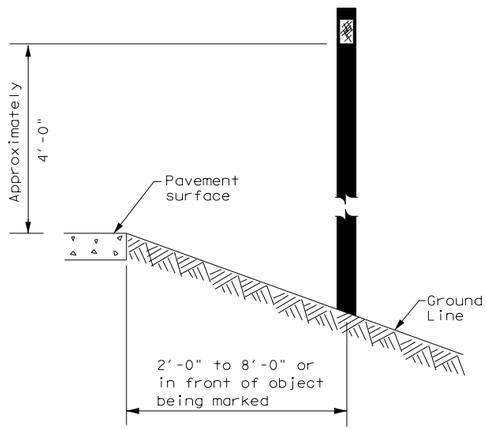
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

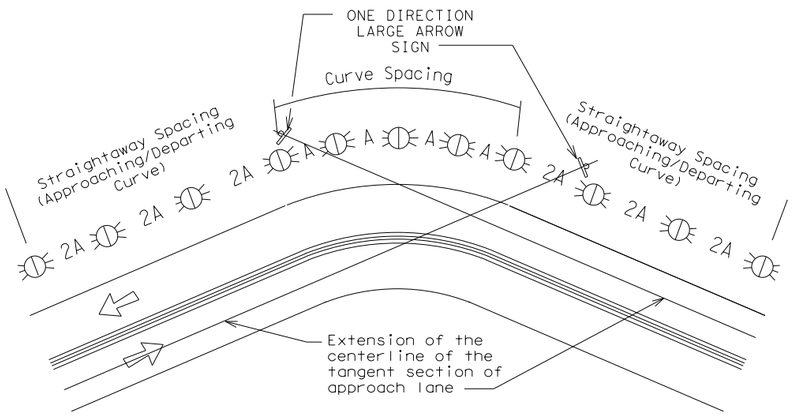
FILE: dom2-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	DAL	COLLIN, ETC		1276

20B

MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	• RPMs	• RPMs
15 MPH & 20 MPH	• RPMs and One Direction Large Arrow sign	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	• RPMs and Chevrons

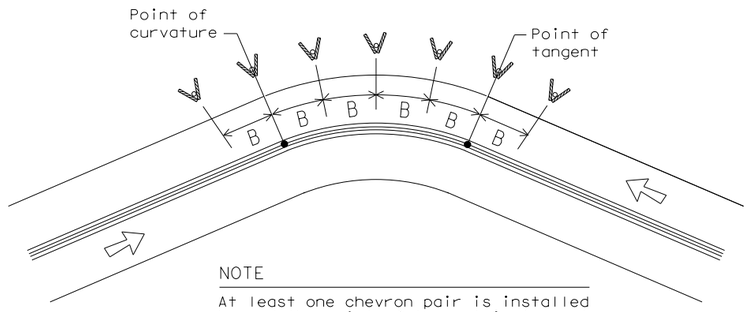
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN

Degree of Curve	FEET			
	Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	——
2	2865	160	320	——
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN

Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp.Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete)and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100'max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100'max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

1. Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND	
	Bi-directional Delineator
	Delineator
	Sign

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
3-15 8-15	DIST	COUNTY		SHEET NO.
8-15 7-20	DAL	COLLIN, ETC		1277

20C

DATE: 10/1/2024 11:19:19 AM
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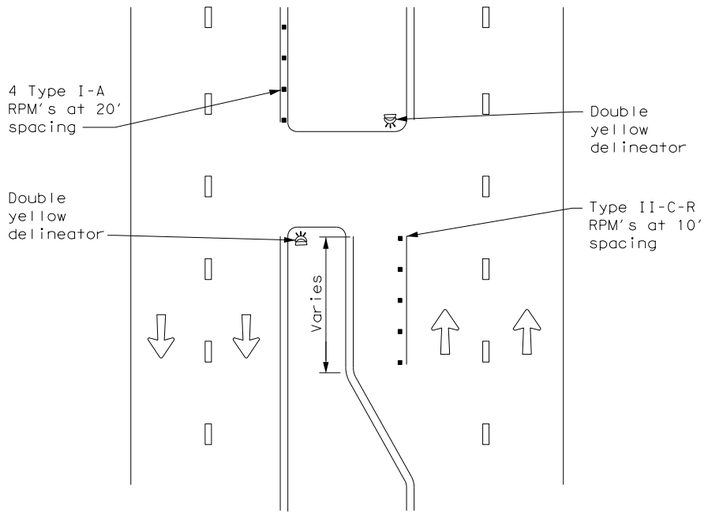
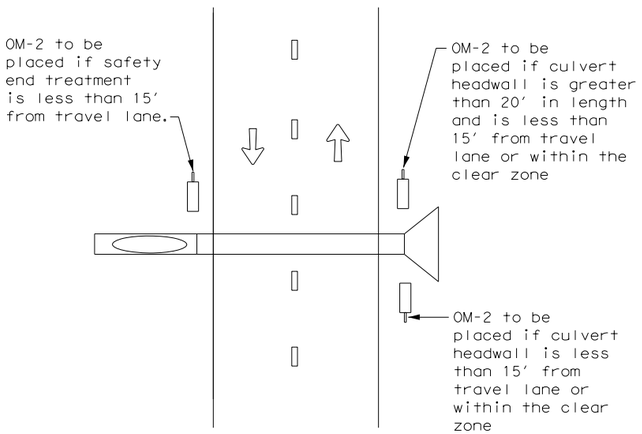
CROSSOVERS



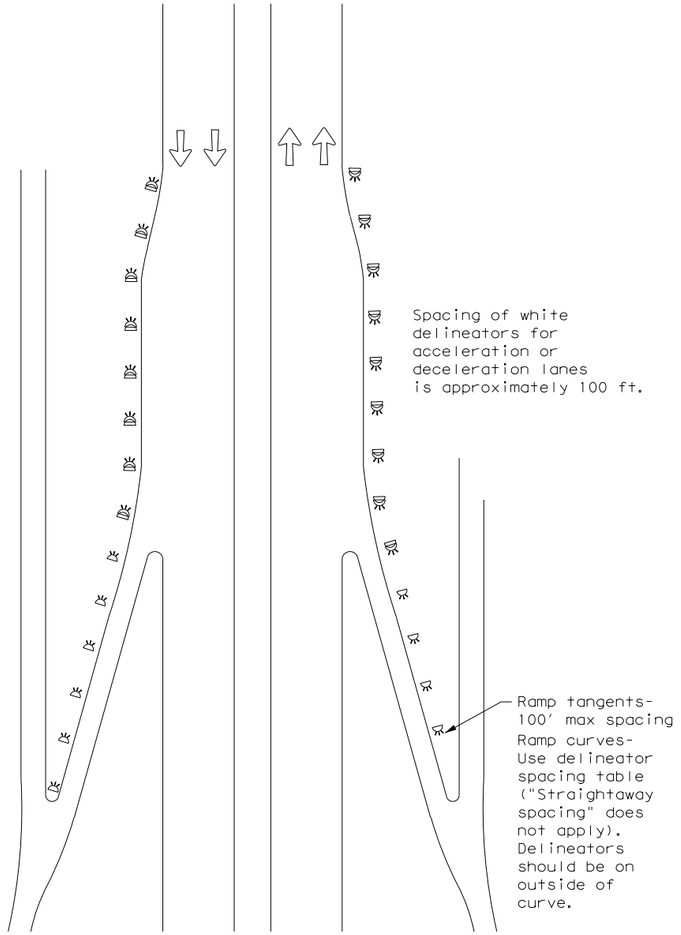
DETAIL 1

FOR CULVERTS WITHOUT MBGF



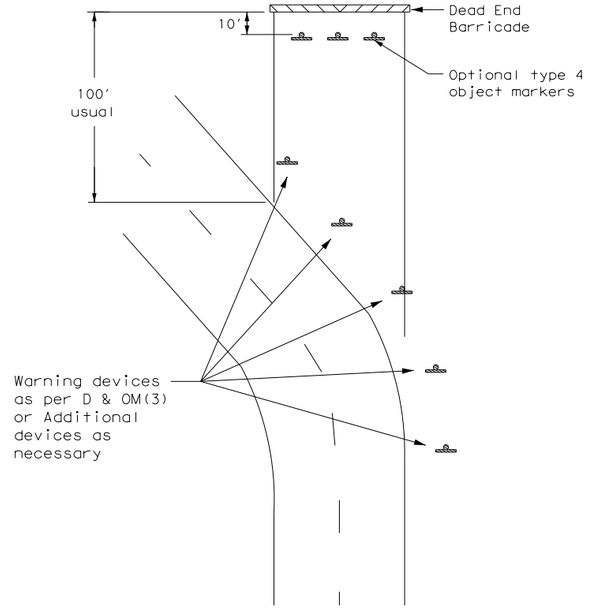
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



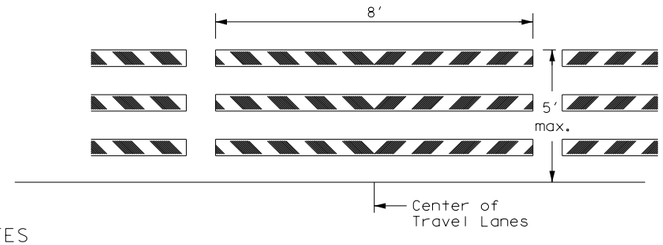
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

LEGEND	
	Bidirectional Delineator
	Delineator
	OM-3
	Barricade
	Sign
	OM-2
	Double Delineator

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4)-20

FILE: dom4-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
3-15 7-20	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1278

20D

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DATE: 10/1/2024 11:19:32 AM
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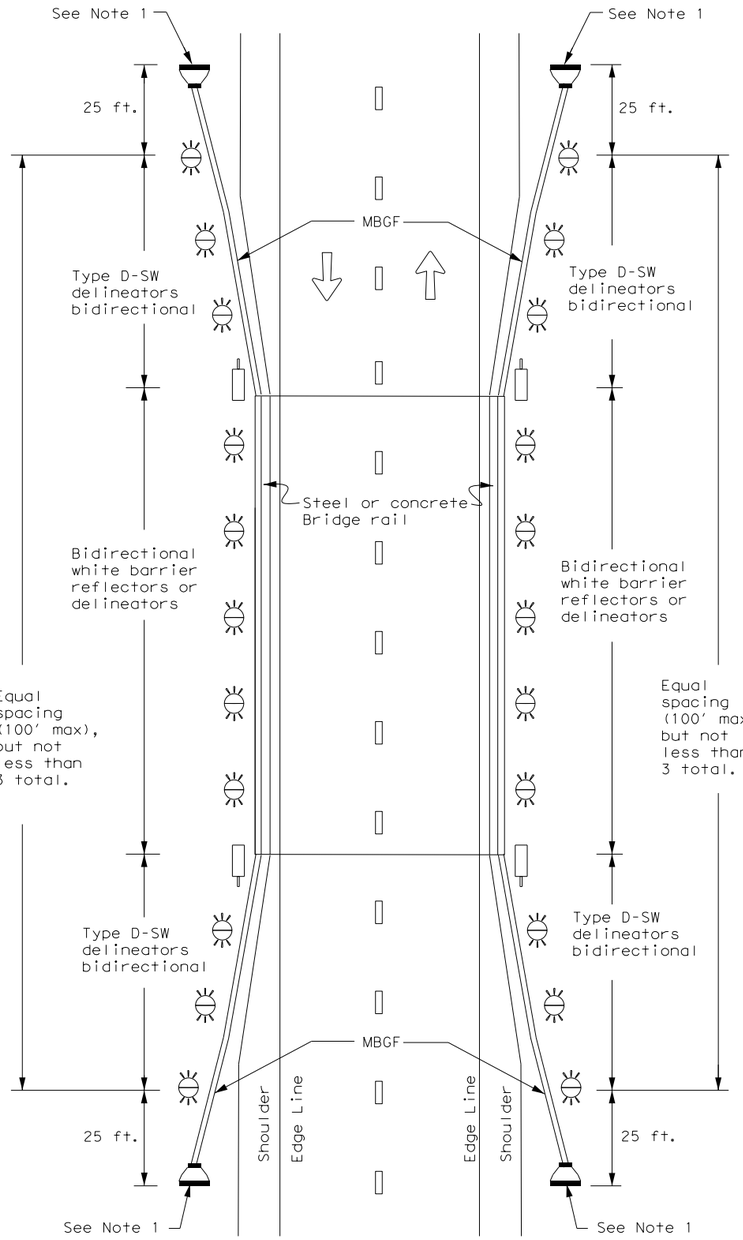
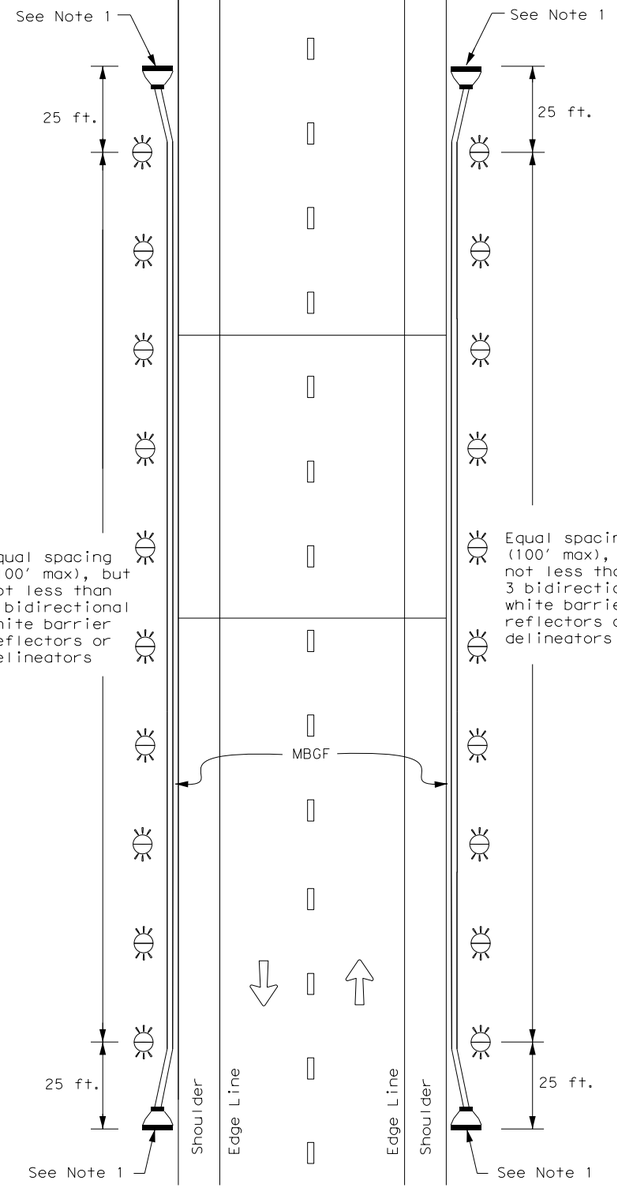
TWO-WAY, TWO LANE ROADWAY WITH REDUCED WIDTH APPROACH RAIL



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

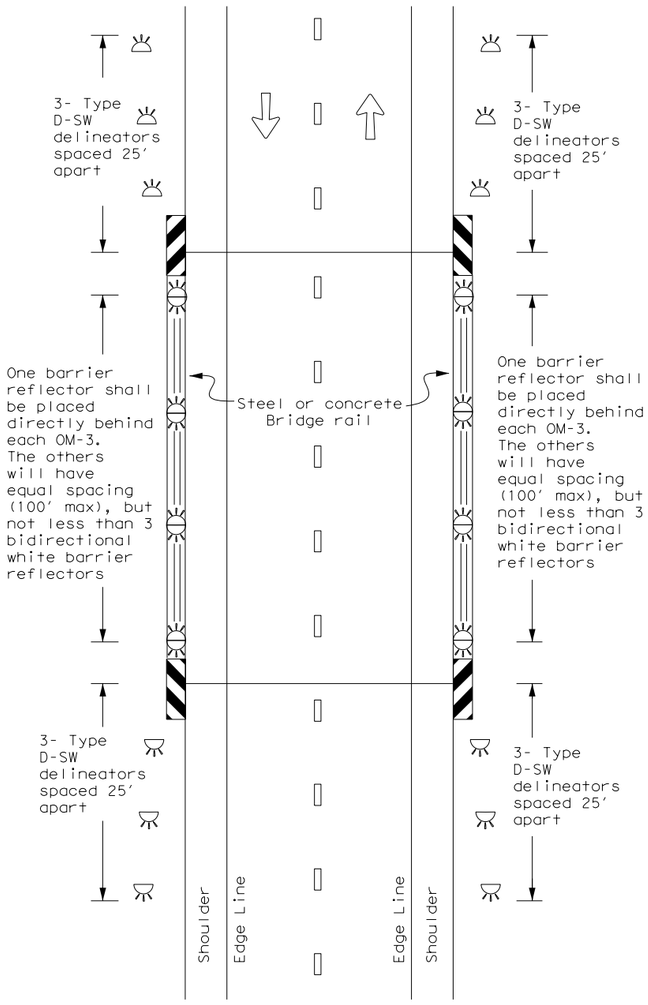
TWO-WAY, TWO LANE ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

TWO-WAY, TWO LANE ROADWAY BRIDGE WITH NO APPROACH RAIL



LEGEND

	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(5)-20

FILE: dom5-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
7-20	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1279

20E

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DATE: 10/1/2024 11:19:36 AM
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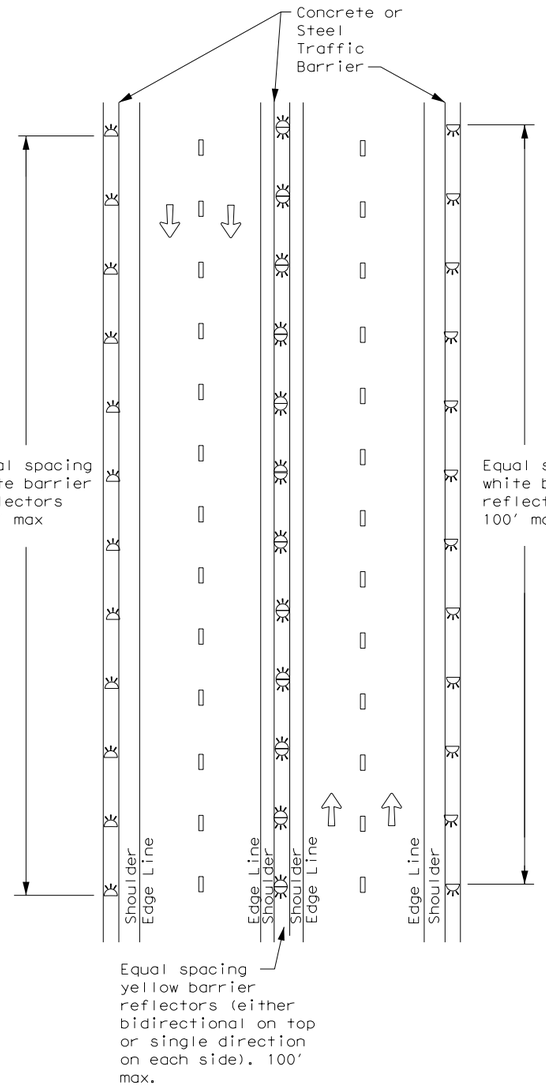
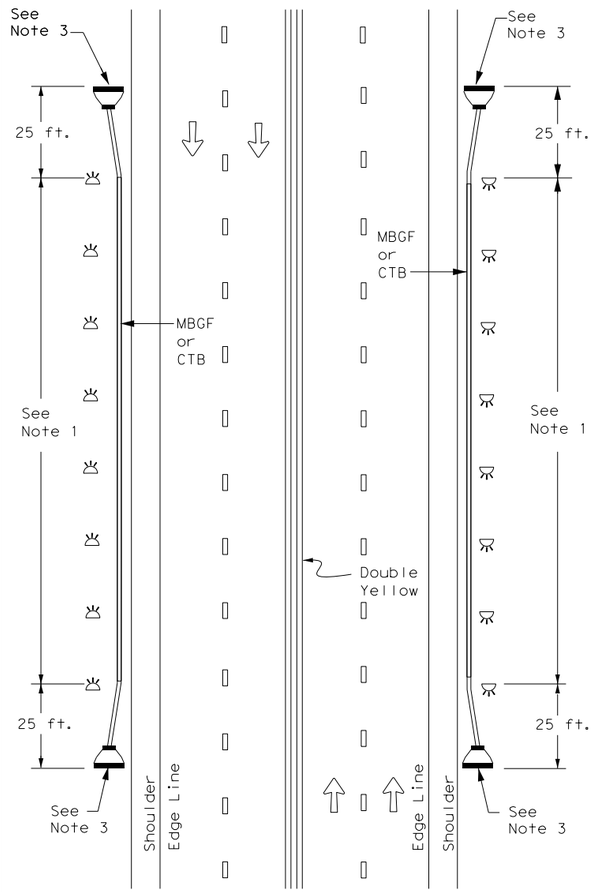
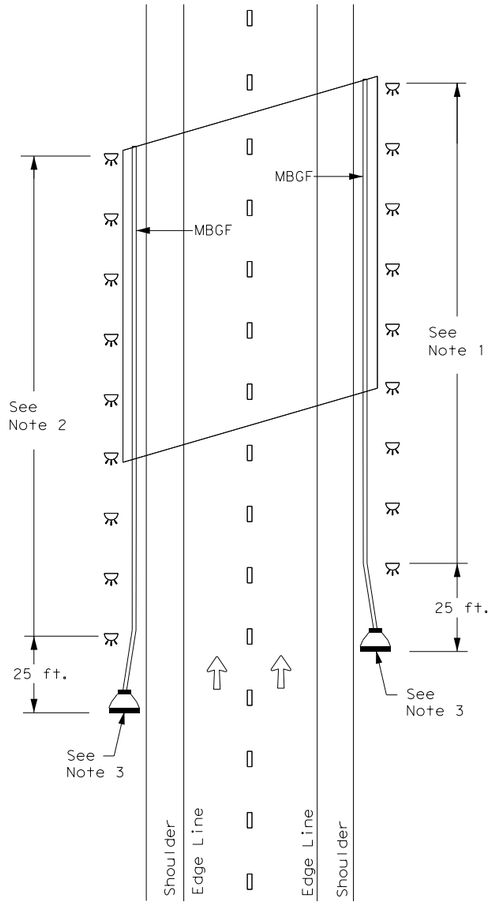
CONTINUOUS CONCRETE OR STEEL BARRIER



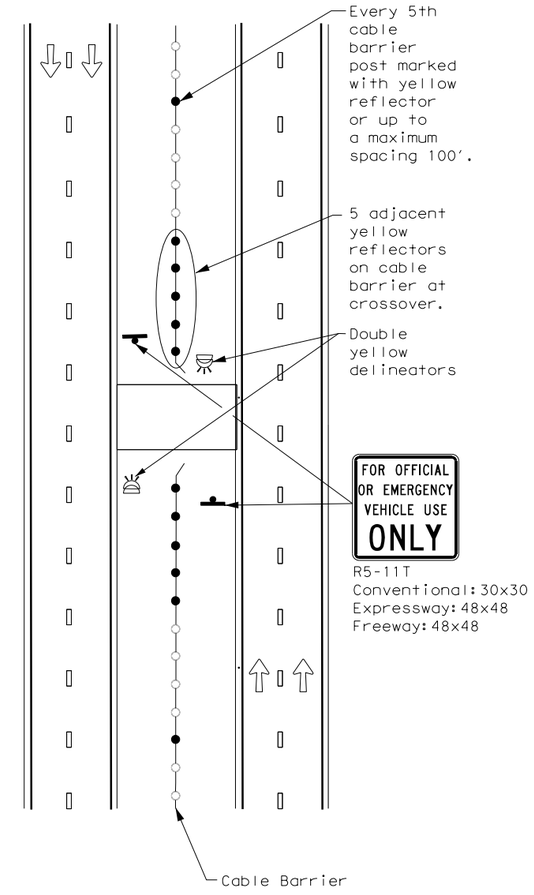
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



DIVIDED ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



EMERGENCY CROSSOVER



NOTES

1. Equal spacing (100′ max), but not less than 3 single directional white barrier reflectors or delineators. On Continuos Barrier, equal spacing (100′ max.)
2. Equal spacing (100′ max), but not less than 3 single directional yellow barrier reflectors or delineators.
3. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3)in front of the terminal end.

LEGEND

	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(6)-20

FILE: dom6-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
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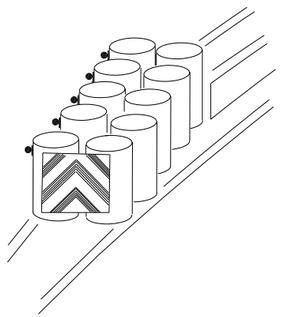
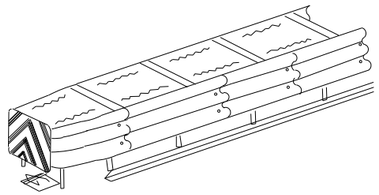
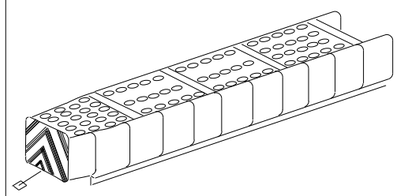
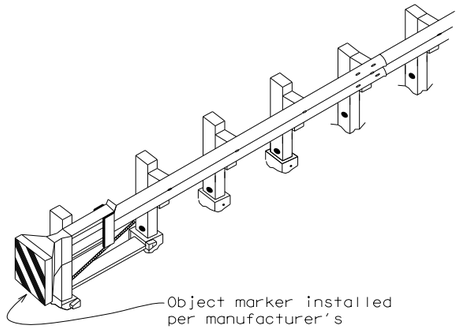
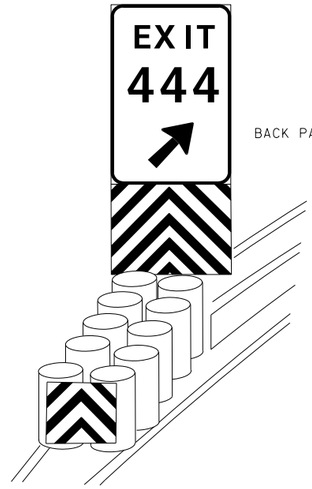
	DAL	COLLIN, ETC		1280

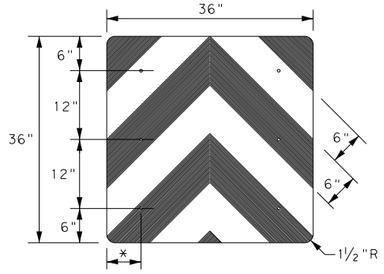


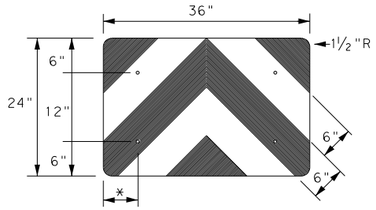




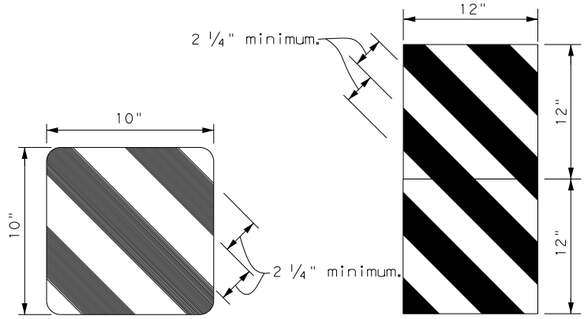




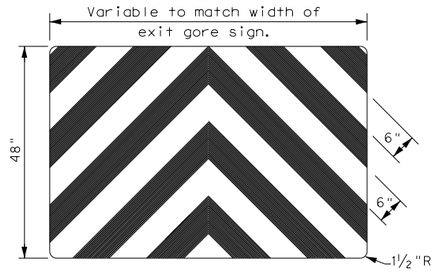


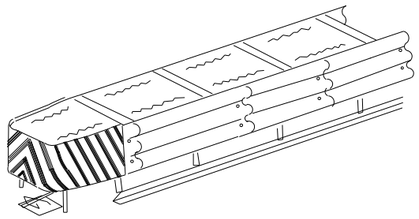


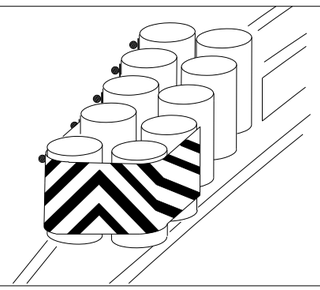
* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer

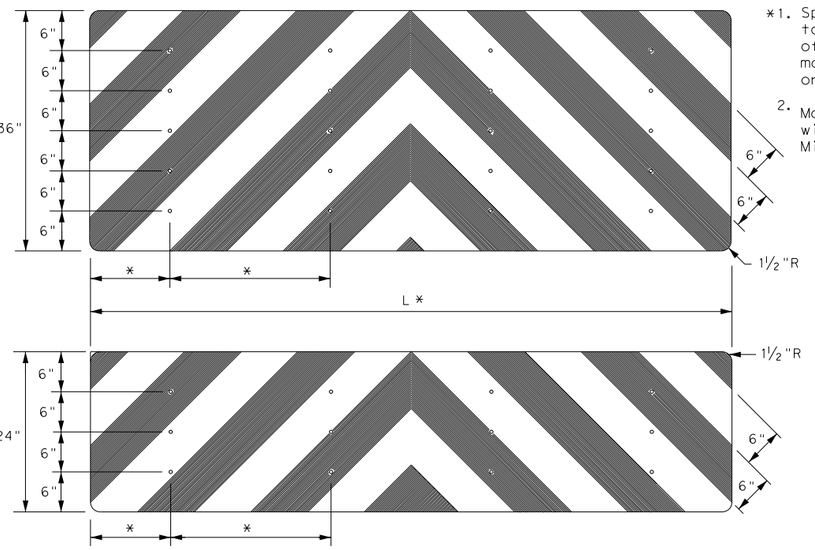


OBJECT MARKERS SMALLER THAN 3 FT^2









NOTES

*1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturers recommendation, or as directed by the Engineer.

2. Mounting should be flush with top of attenuator. Minimum size 96" x 24".

NOTES

1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification DMS 8300. Background shall be yellow reflective sheeting (Type B or C) and Chevron shall be black.

2. Object Markers may be fabricated from adhesive backed reflective sheeting applied directly to guardrail end treatment, or applied directly to an "end cap" as per the manufacturer's recommendation. Direct applied sheeting shall provide a smooth surface and have no wrinkles, air bubbles, cuts or tears. A radius at the corners is not required for direct applied sheeting.

3. Object Marker size may be reduced to fit smaller devices. Width of alternating black and yellow stripes are typically 6". Object Markers smaller than 3ft may have reduced width stripes of a minimum of 2 ¼".

4. Pop rivets, screws, or nuts and bolts may be used to attach object markers and reflectors. Holes, slots or other openings may be cut or drilled through object markers to allow cable or other attachments.

5. Object Marker at nose of attenuator is subsidiary to the attenuator.

6. See D & OM (1-4) for required barrier reflectors.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS

D & OM(VIA)-20

FILE: domvia20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT December 1989	CONT	SECT	JOB	HIGHWAY
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4-92 8-04	DIST	COUNTY		SHEET NO.
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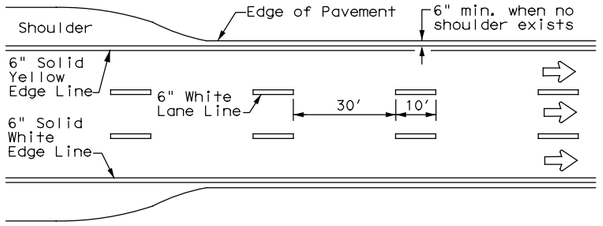
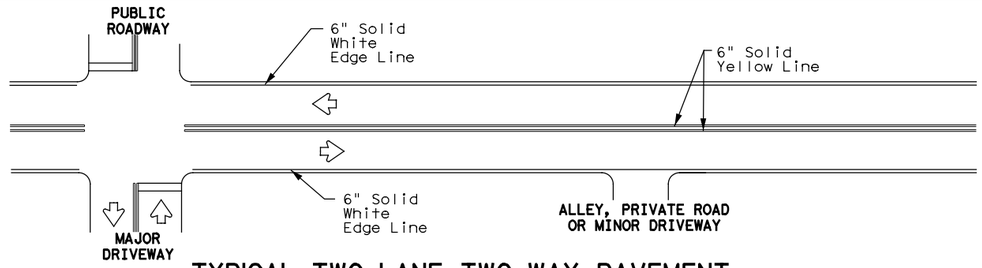
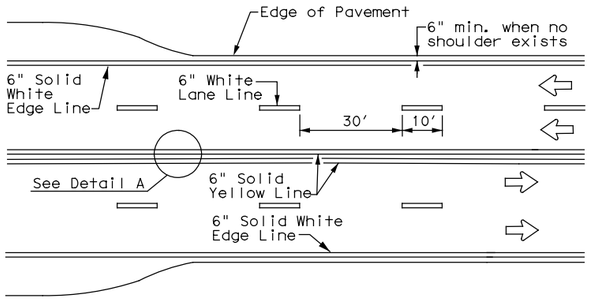
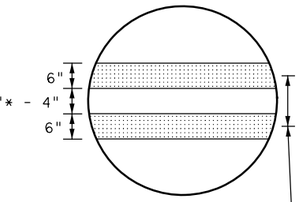


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



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





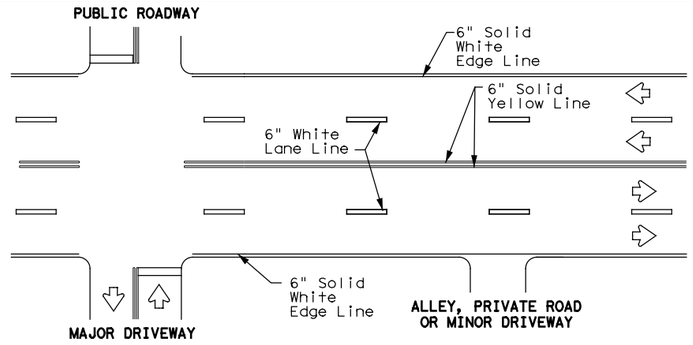
DETAIL "A"

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

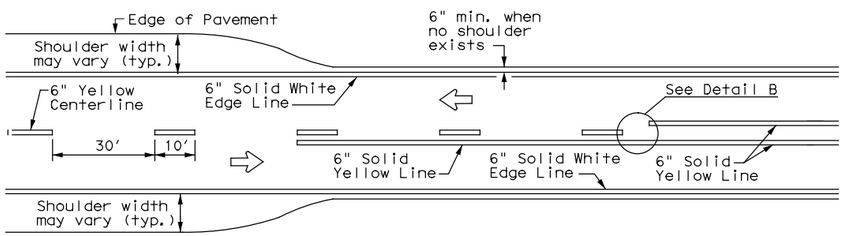
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

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

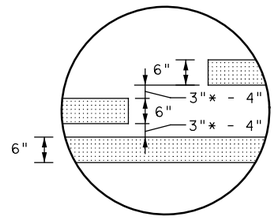
** 8" minimum for restripe projects when approved by the Engineer.



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



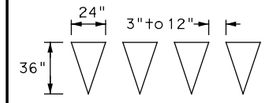
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



18" min. - 20" max.
(16" minimum for restripe projects when approved by the Engineer.)

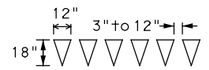
DETAIL "B"

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

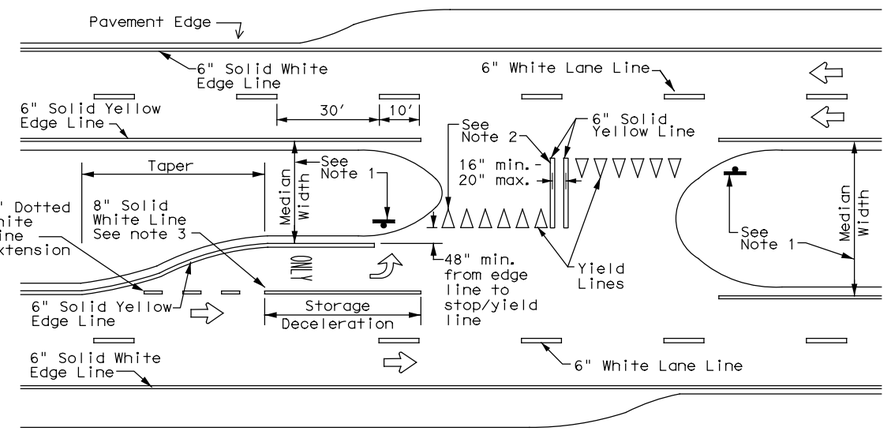


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



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



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

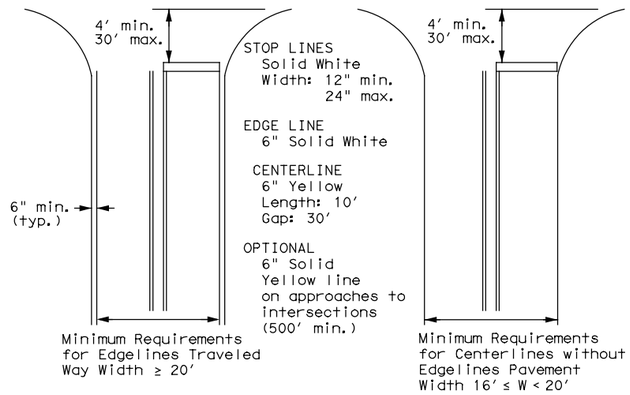
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. 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.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. 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.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the 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

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
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11-78 8-00 6-20	DIST	COUNTY		SHEET NO.
8-95 3-03 12-22	DAL	COLLIN, ETC		1282
5-00 2-12				

22A

DATE: 10/1/2024 11:19:48 AM
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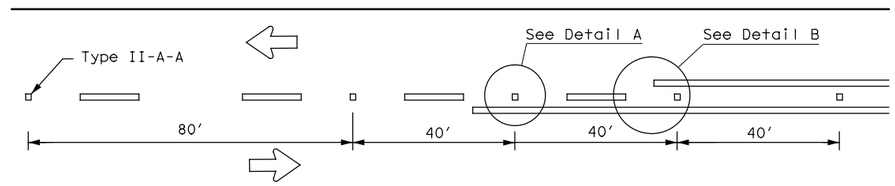
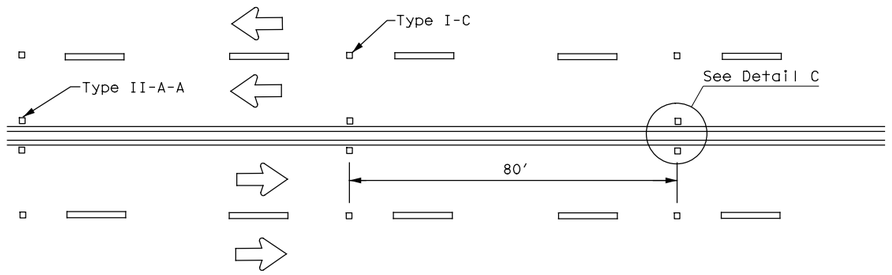
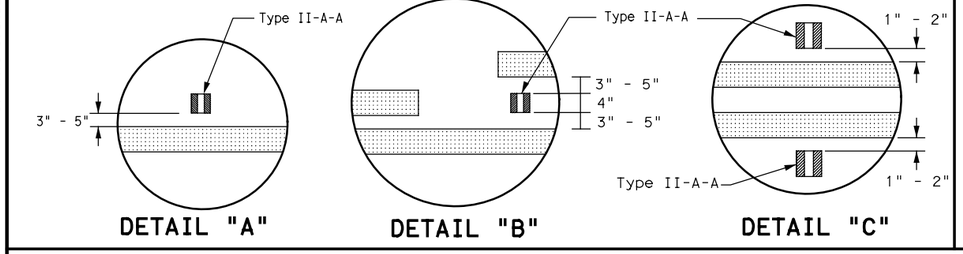
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

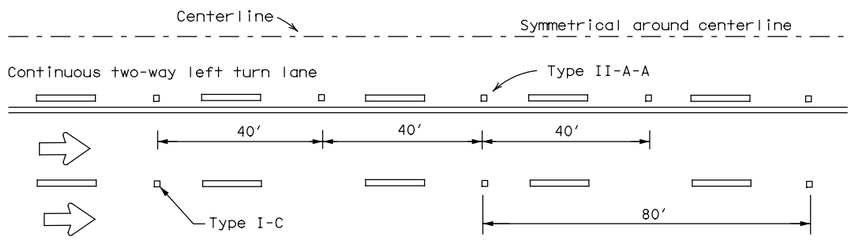


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

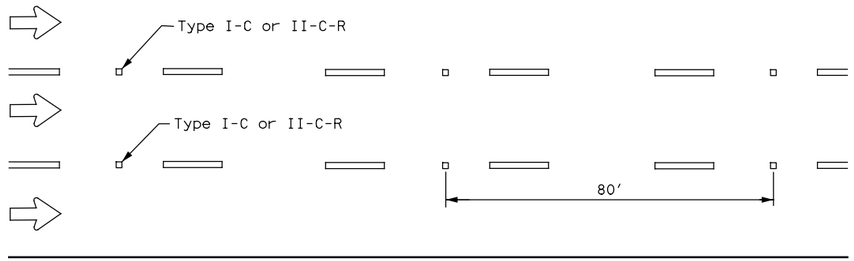


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



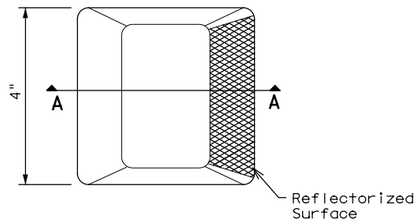
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

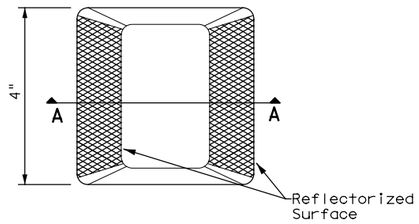
See Note 3.

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

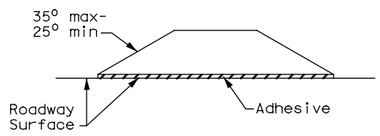
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

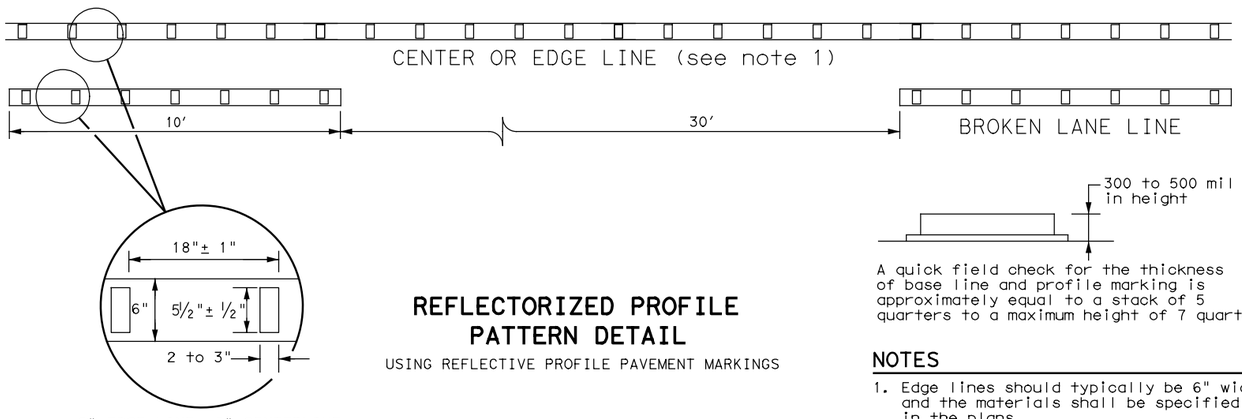


Type II (Top View)



SECTION A

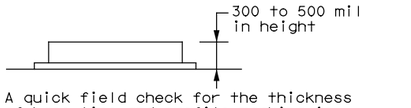
RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1283

22B

DATE: 10/1/2024 11:19:50 AM
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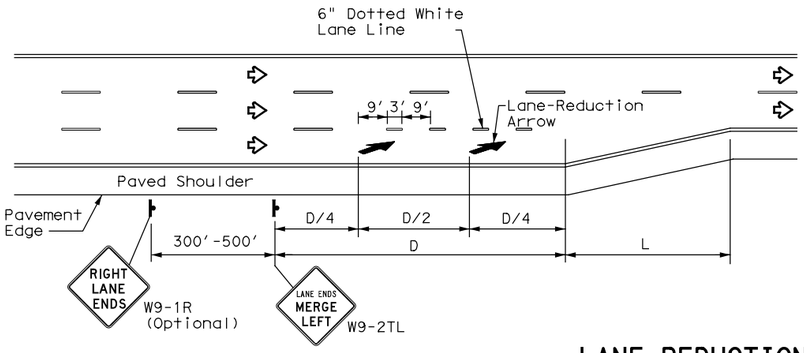
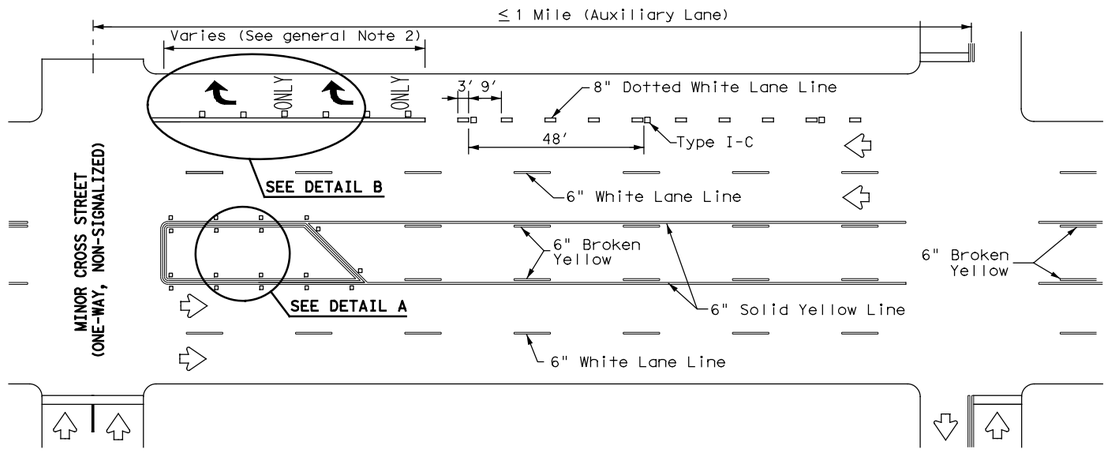


LANE REDUCTION

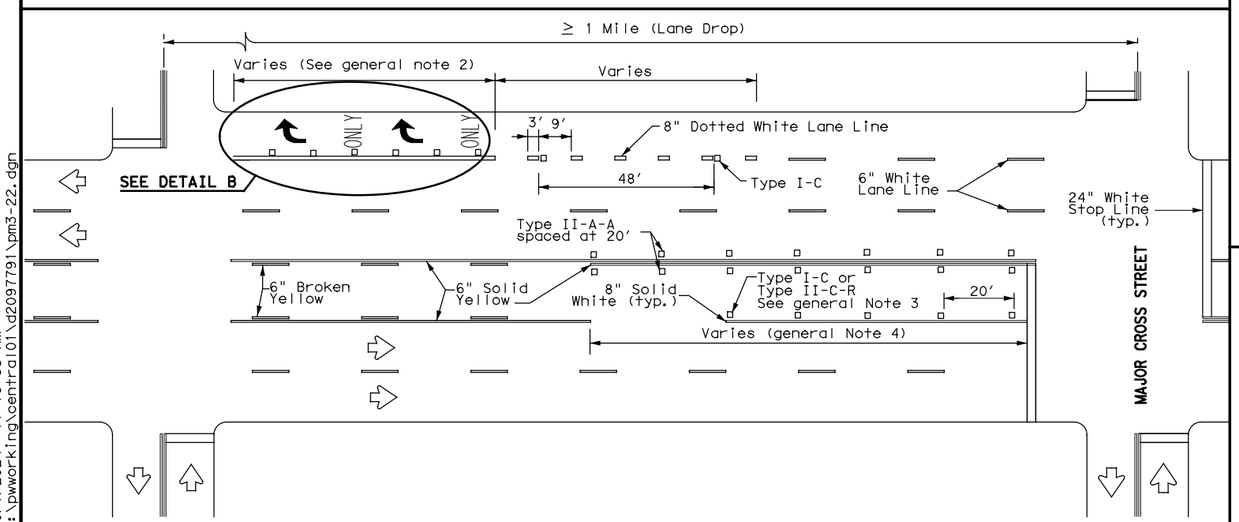
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

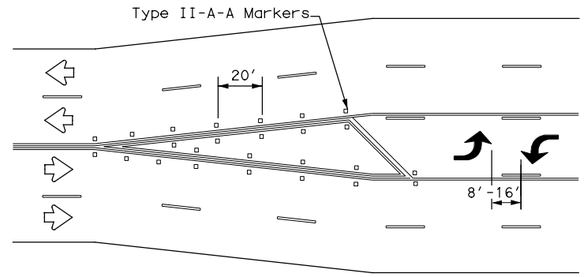
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

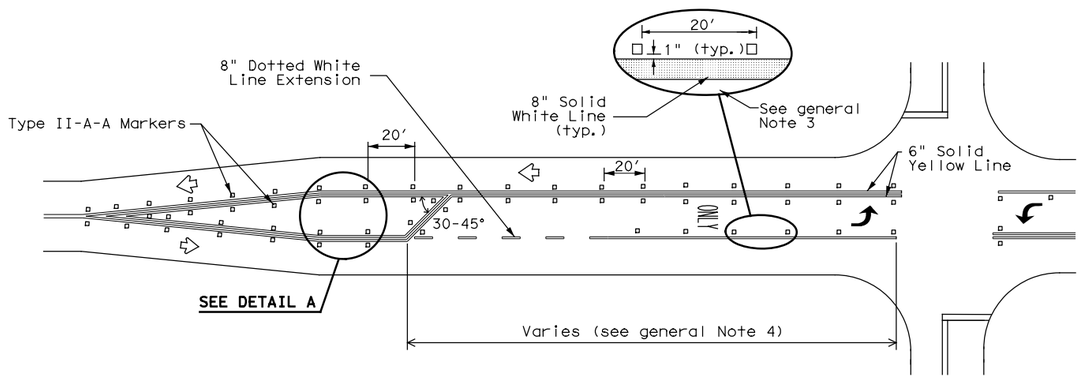
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

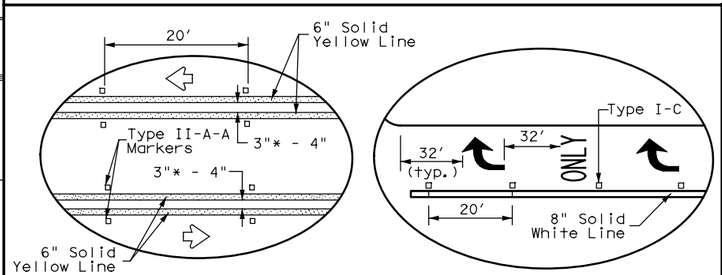
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

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

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



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



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

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1284

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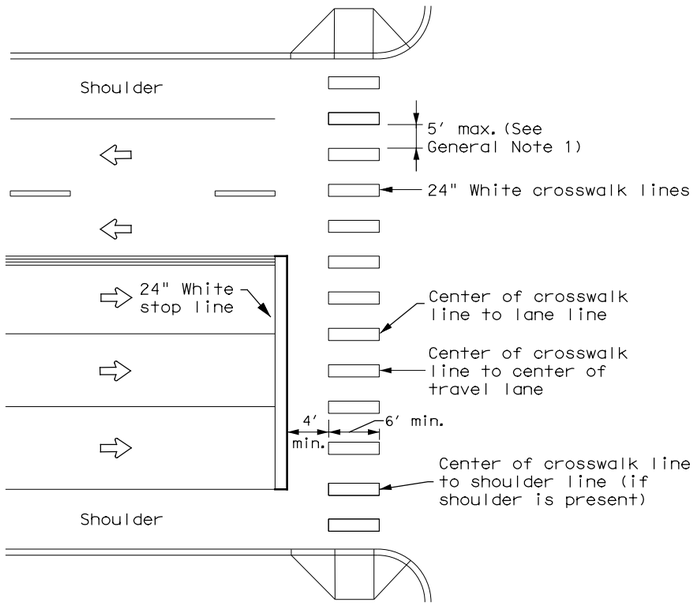


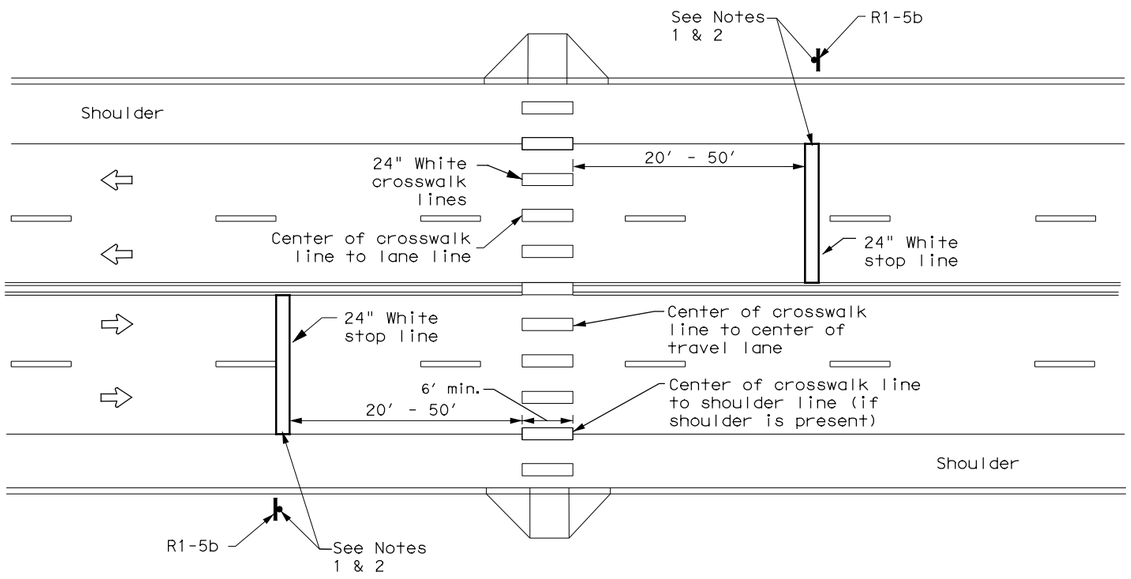
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

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 cross walks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22A

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© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
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6-22	DAL	COLLIN, ETC		1285
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22D				

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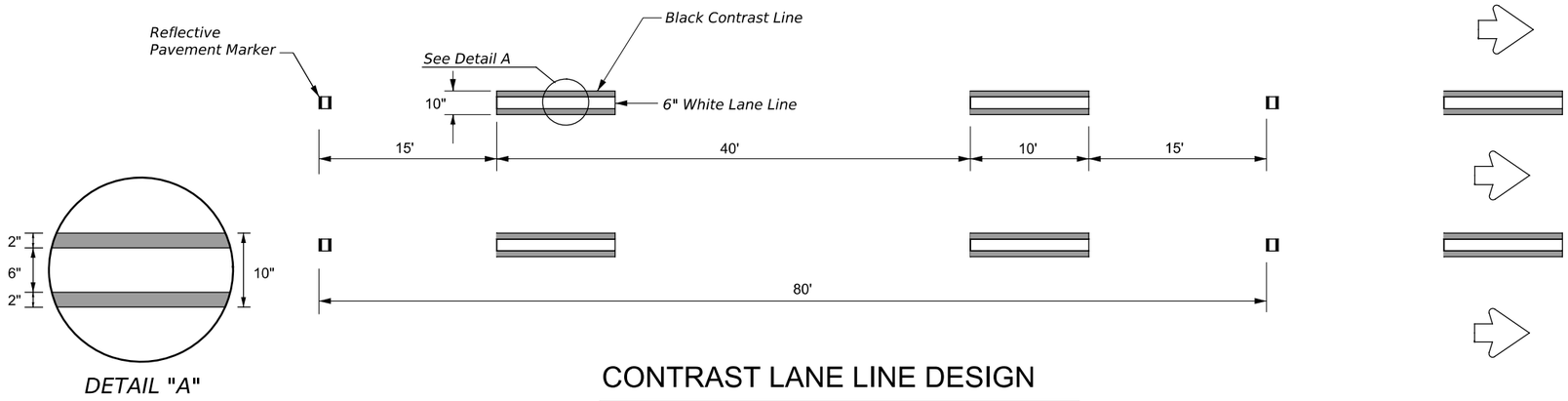
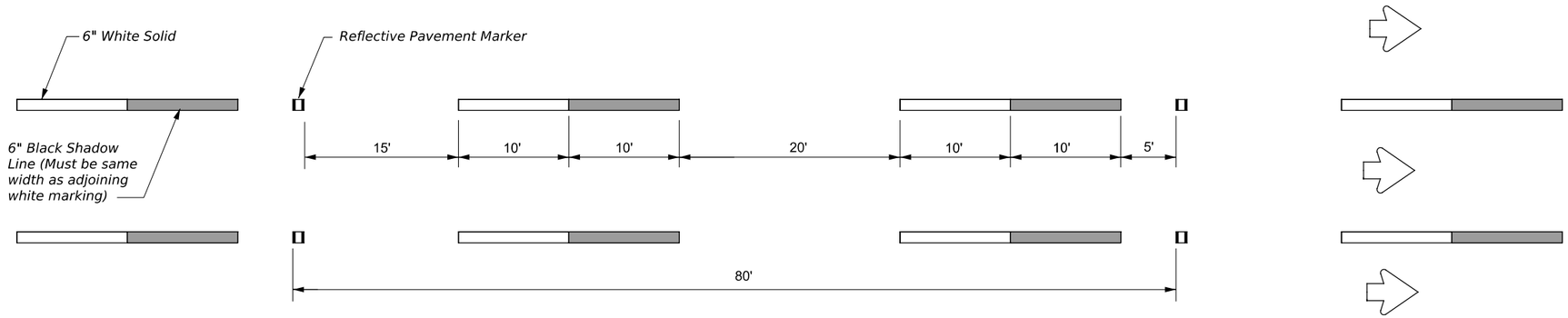
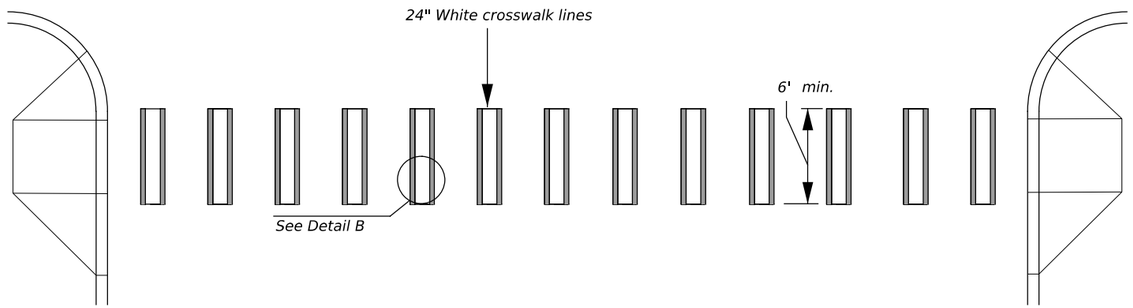


DETAIL "A"

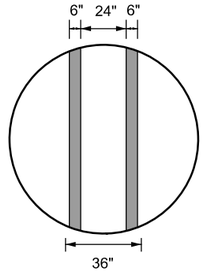
CONTRAST LANE LINE DESIGN



SHADOW LANE LINE DESIGN



CONTRAST CROSSWALK DESIGN



DETAIL "B"

(See PM(4) for crosswalk line placement details)

GENERAL NOTES

1. Contrast and Shadow markings may only be used on concrete pavements.
2. Contrast and Shadow markings shall not be used on edge lines.
3. Contrast lane lines shall be permanent prefabricated pavement markings meeting DMS 8240.
4. Shadow lane line designs shall be a liquid markings system approved by TxDOT.
5. All raised reflective pavement markers placed in broken lines shall be placed in line with and midway between the white stripes.
6. See PM(2) for raised reflective pavement markings installation details.

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

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

Texas Department of Transportation

Traffic Safety Division Standard

CONTRAST AND SHADOW PAVEMENT MARKINGS

CPM(1)-23

FILE: CPM(1)-23.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
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5-14	DIST	COUNTY		SHEET NO.
2-23	DAL	COLLIN, ETC		1286

22N

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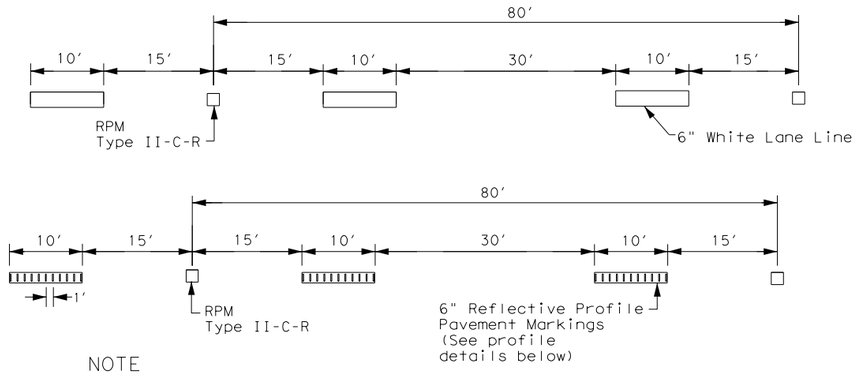
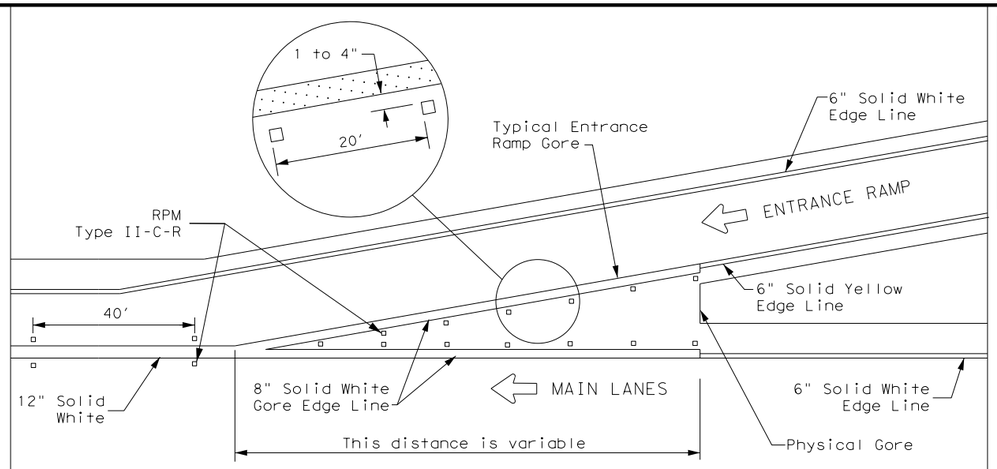


NOTE

Reflectorized raised pavement markers Type II-C-R shall be spaced on 80′ centers with the clear face toward normal traffic and the red face toward wrong way traffic. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.

TRAFFIC LANE LINES PAVEMENT MARKING



TYPICAL ENTRANCE RAMP GORE MARKING

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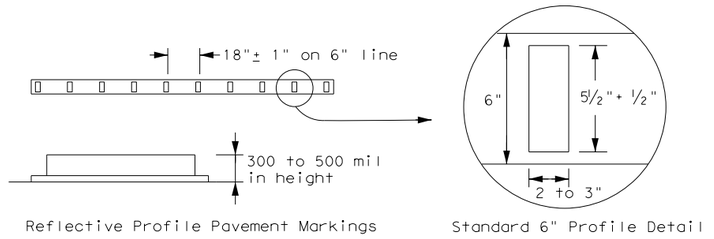
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

LEGEND	
⇦	Traffic flow
↱	Pavement marking arrows (white)
▫	Reflectorized Raised Markers (RPM) Type II-C-R



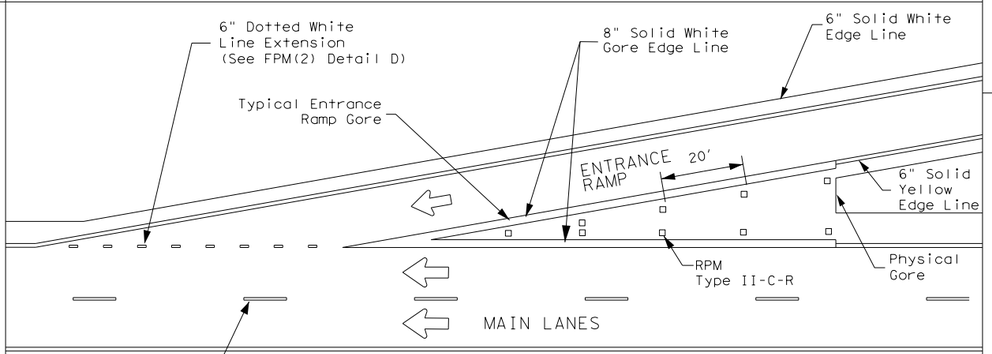
Reflective Profile Pavement Markings

Standard 6" Profile Detail

NOTE

Edge lines should typically be 6" wide and the materials shall be as specified in the plans. See details above if reflective profile pavement markings are to be used.

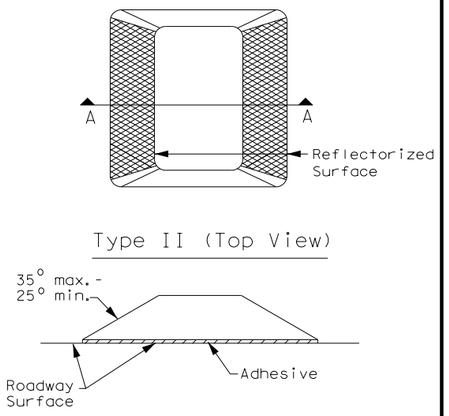
EDGE LINE PAVEMENT MARKINGS



NOTE

See the Roadway Design Manual Chapter 3 to determine if a tapered acceleration lane may be used.

TAPERED ACCELERATION LANE



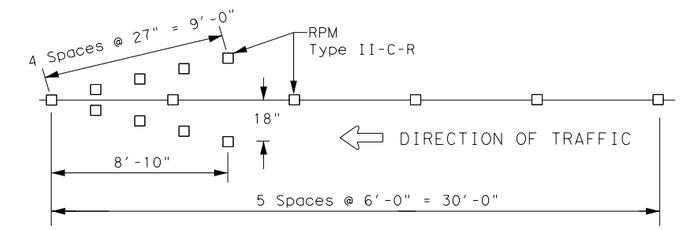
Type II (Top View)

SECTION A

REFLECTORIZED RAISED PAVEMENT MARKER (RPM)

GENERAL NOTE

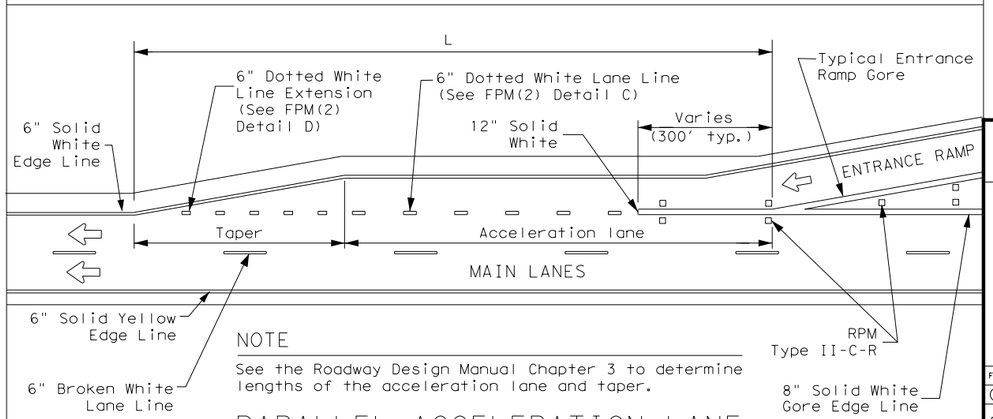
On concrete pavements the raised pavement markers shall be placed to one side of the longitudinal joints.



NOTES

1. Reflectorized raised pavement markers Type-II-C-R in the wrong way arrow shall have the clear face toward normal traffic and the red face toward the wrong way traffic.
2. Red reflectorized wrong way arrows, not to exceed two, may be placed on exit ramps. Locations of the arrows shall be as shown in the plans or as directed by the engineer.

WRONG WAY ARROW



NOTE

See the Roadway Design Manual Chapter 3 to determine lengths of the acceleration lane and taper.

PARALLEL ACCELERATION LANE

Texas Department of Transportation

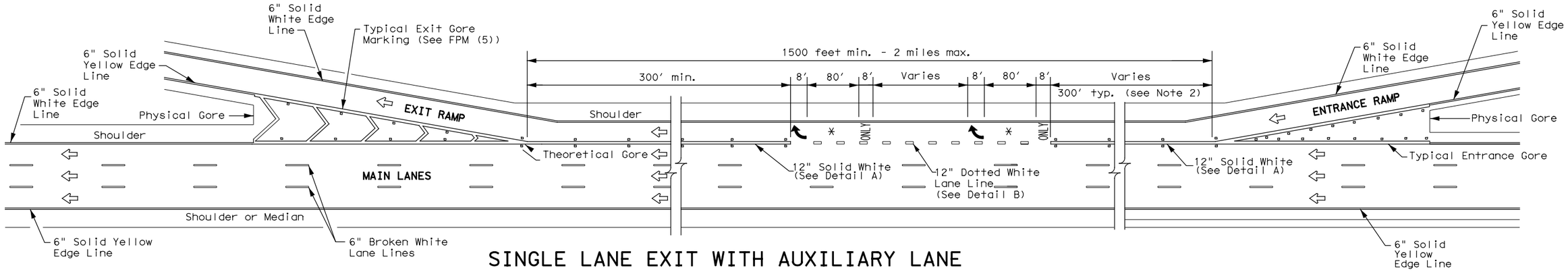
Traffic Safety Division Standard

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS

FPM(1)-22

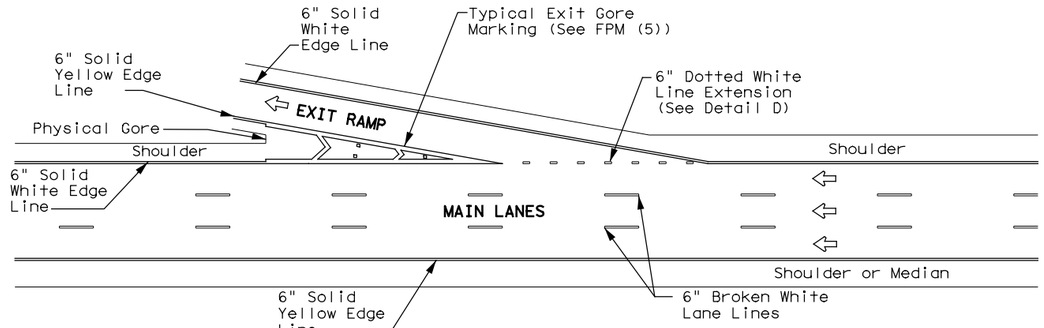
FILE: fpm(1)-22.dgn	DN:	CK:	DW:	CK:
©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
5-74 8-00 2-12	DIST	COUNTY		SHEET NO.
4-92 2-08 10-22	DAL	COLLIN, ETC		1287
5-00 2-10				

23A



SINGLE LANE EXIT WITH AUXILIARY LANE

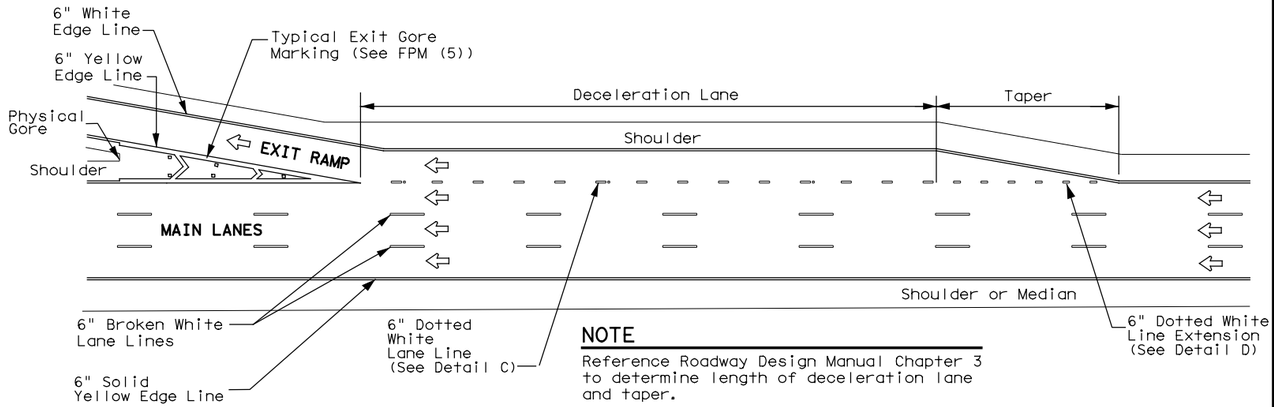
(See Note 2)



NOTE

Reference Roadway Design Manual Chapter 3 to determine if tapered deceleration lane may be used.

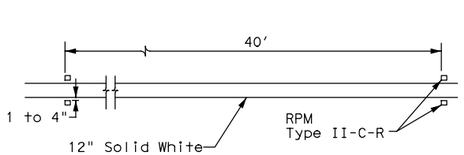
TAPERED DECELERATION LANE



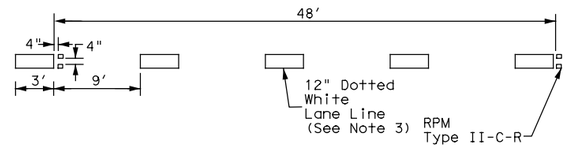
NOTE

Reference Roadway Design Manual Chapter 3 to determine length of deceleration lane and taper.

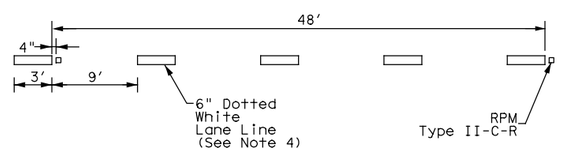
PARALLEL DECELERATION LANE



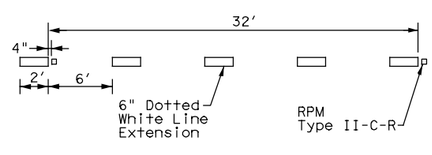
DETAIL A



DETAIL B



DETAIL C



DETAIL D

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Normal (6") dotted lane line (see Detail C) is used at parallel acceleration and deceleration lanes.
5. See FPM(1) for traffic lane line pavement marking details.

LEGEND	
⇦	Traffic flow
↱	Pavement marking arrows (white)
▫	Reflectorized Raised Markers (RPM) Type II-C-R
✳	Arrow markings are optional, however "ONLY" is required if arrow is used

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

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

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS ENTRANCE AND EXIT RAMPS

FPM(2)-22

FILE: fpm(2)-22.dgn	DN:	CK:	DW:	CK:
©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1288

23B

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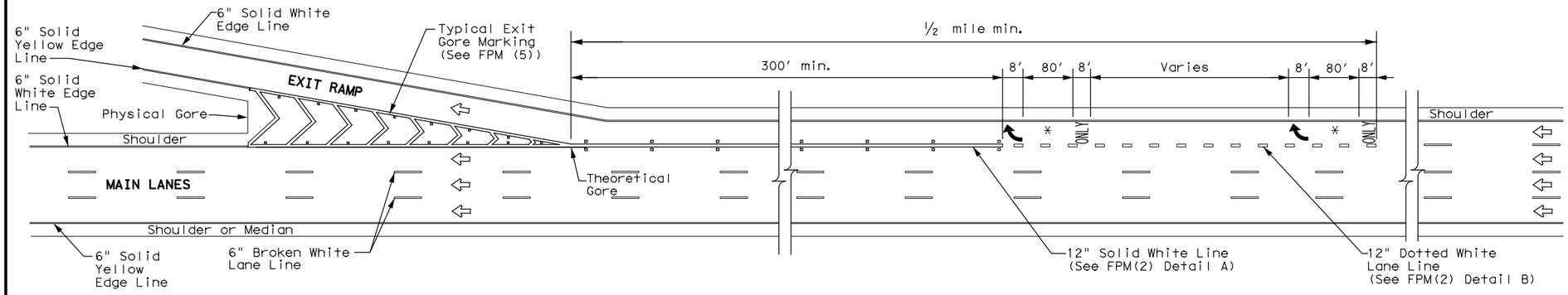
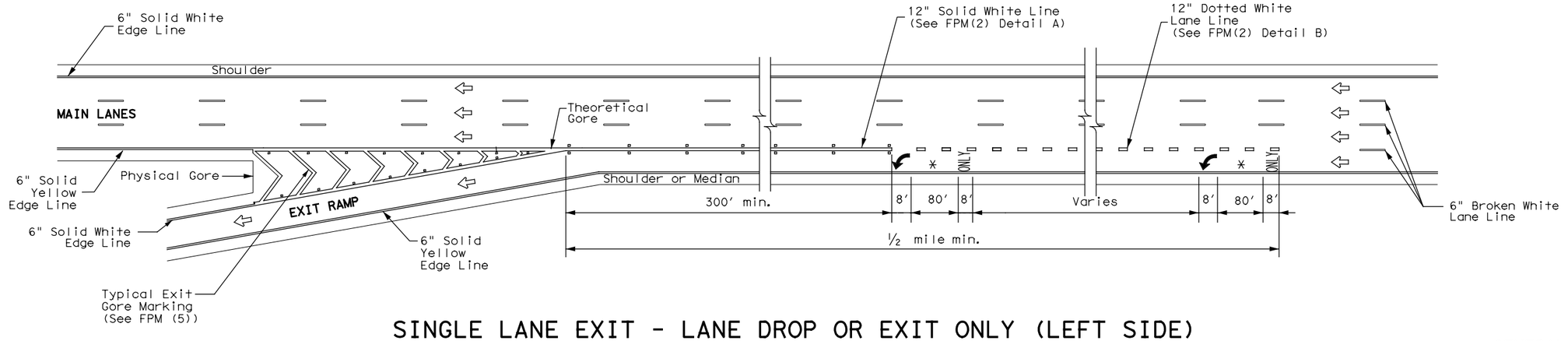


SINGLE LANE EXIT - LANE DROP OR EXIT ONLY

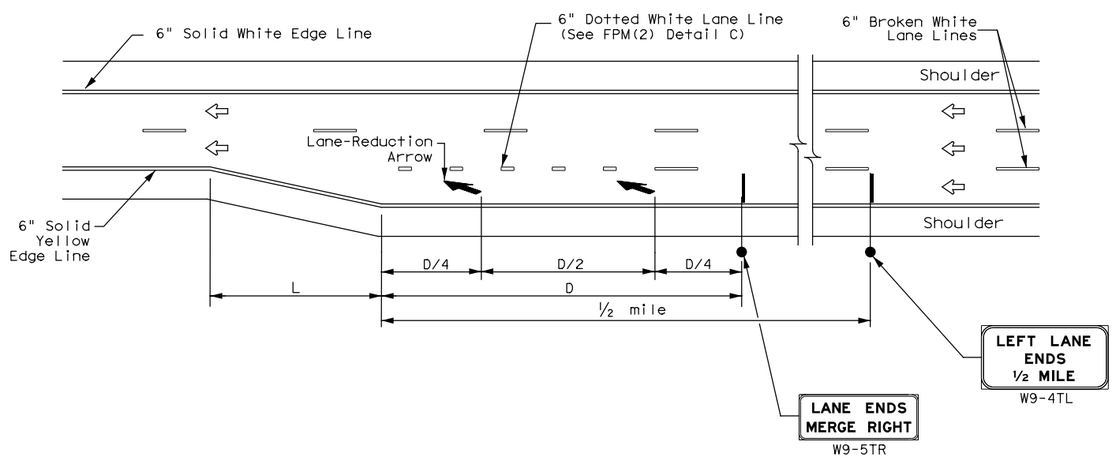
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

LEGEND	
⇦	Traffic flow
↱	Pavement marking arrows (white)
▫	Reflectorized Raised Markers (RPM) Type II-C-R
⚹	Arrow markings are optional, however "ONLY" is required if arrow is used



SINGLE LANE EXIT - LANE DROP OR EXIT ONLY (LEFT SIDE)



FREEWAY LANE REDUCTION

NOTES

1. Large Guide signs shall conform to the TxDOT Freeway Signing Handbook.
2. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
3. Arrows and sign details can be found in the Standard Highway Sign Designs for Texas (SHSD) at http://www.txdot.gov.
4. These guidelines may also be applied to the design of a right side lane reduction. Use LANE ENDS MERGE LEFT (W9-5TL) and RIGHT LANE ENDS 1/2 MILE (W9-4TR) signs in lieu of what is shown on drawing.

ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	
80 MPH	1,500	
85 MPH	1,625	

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see FPM(2) Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Edge lines are not required in curb and gutter sections of frontage roads.
5. See FPM(1) for traffic lane line pavement marking details.

Texas Department of Transportation

Traffic Safety Division Standard

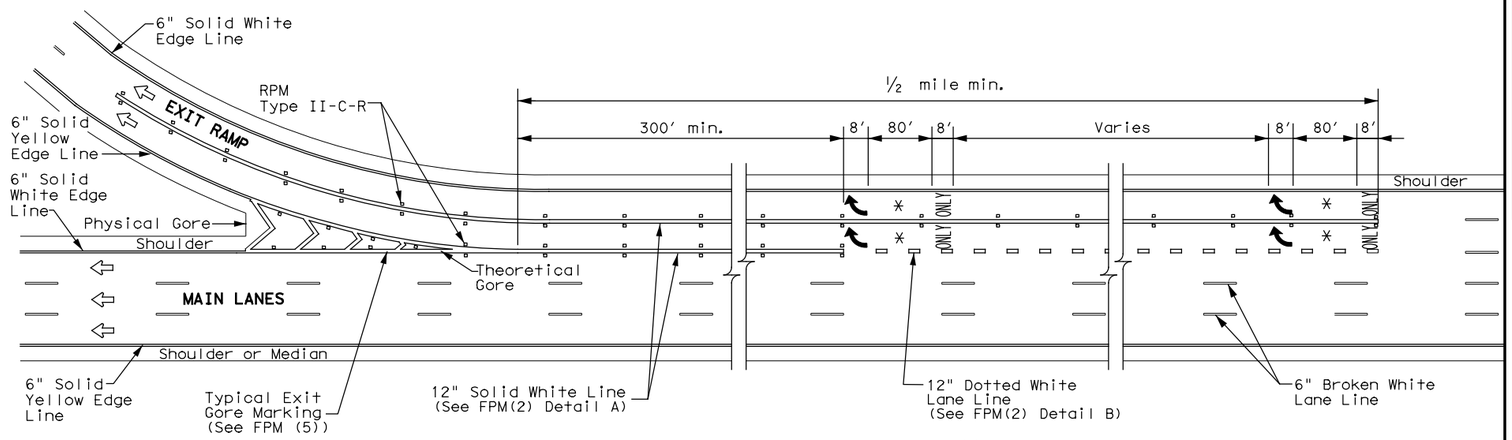
TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS SINGLE LANE DROP(EXIT ONLY) AND LANE REDUCTION DETAILS

FPM(3)-22

FILE: fpm(3)-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
4-92 2-10	DIST	COUNTY		SHEET NO.
5-00 2-12	DAL	COLLIN, ETC		1289
8-00 10-22				

23C

DATE: 10/1/2024 11:20:13 AM
FILE: c:\pwworking\central01\d209779\fpm(3)-22.dgn



MULTIPLE LANE EXIT ONLY

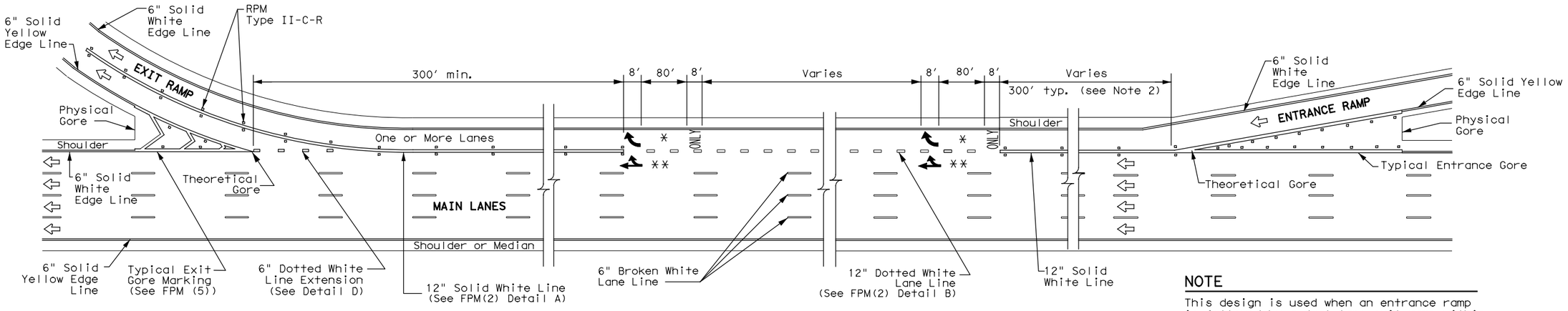
LEGEND	
⇦	Traffic Flow
▫	Reflectorized Raised Markers (RPM) Type II-C-R
↱	Pavement marking arrow (white)
*	Arrow markings are optional, however "ONLY" is required if arrow is used
**	Arrow markings are optional

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.

GENERAL NOTES

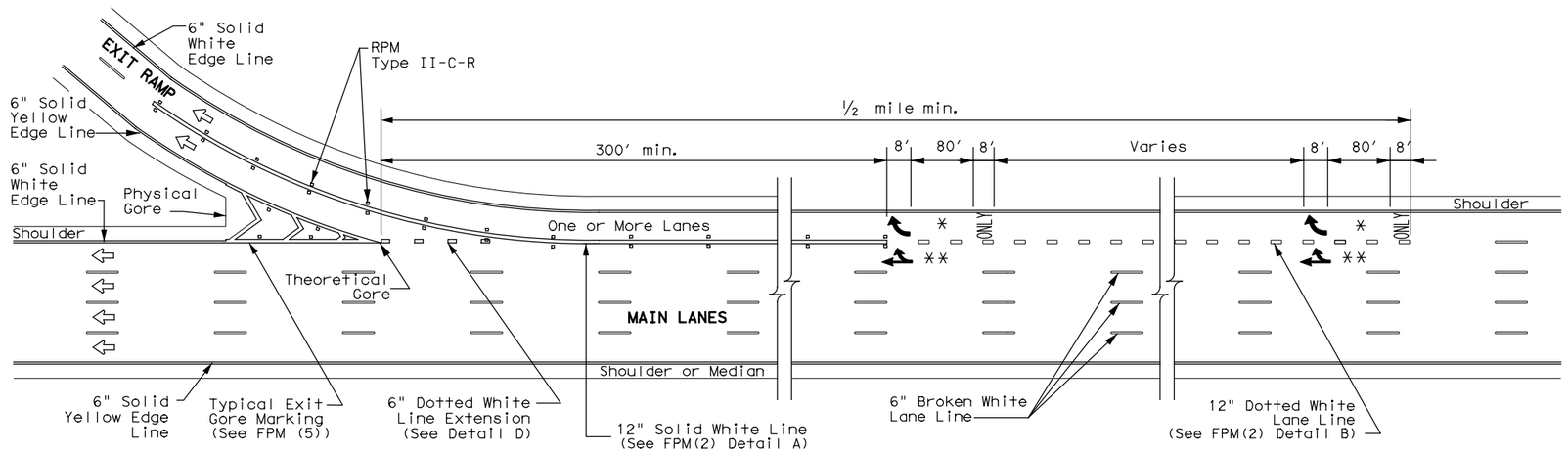
1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see FPM(2) Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Edge lines are not required in curb and gutter sections of frontage roads.
5. See FPM(1) for traffic lane line pavement marking details.



SINGLE LANE ENTRANCE WITH MULTIPLE LANE EXIT - EXIT ONLY WITH OPTION LANE

NOTE

This design is used when an entrance ramp is followed by a dual lane exit ramp within 2400' downstream (theoretical gore to theoretical gore).



MULTIPLE LANE EXIT - EXIT ONLY WITH OPTION LANE

Texas Department of Transportation — Traffic Safety Division Standard

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS MULTIPLE LANE DROP (EXIT) DETAILS

FPM(4)-22

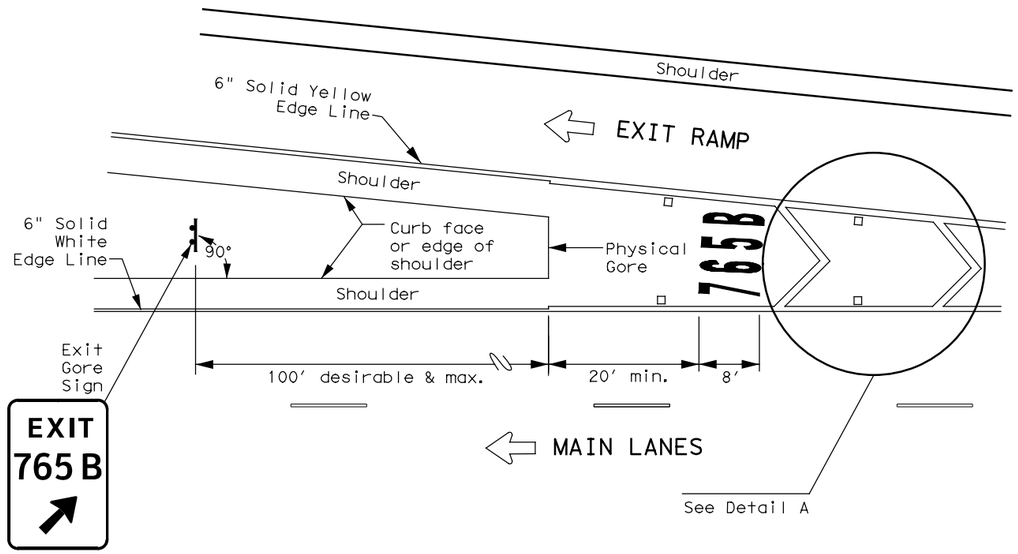
FILE: fpm(4)-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
2-77 2-10	DIST	COUNTY		SHEET NO.
5-00 2-12	DAL	COLLIN, ETC		1290
8-00 10-22				

230

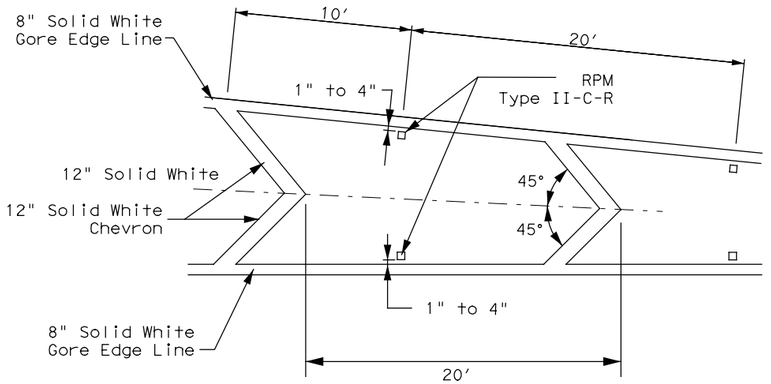
DATE: 10/1/2024 11:20:18 AM
FILE: c:\pwworking\central01\d2097791\fpm(4)-22.dgn

EXIT NUMBER PAVEMENT MARKING NOTES

1. Minimum 8 foot white exit number pavement markings should be used, unless otherwise noted.
2. Spacing between letters and numbers should be approximately 4 inches.
3. Pavement markings are to be located as specified elsewhere in the plans.
4. Numbers and Letters details can be found in the Standard Highway Design for Texas (SHSD) Section 12 at http://www.txdot.gov



MARKINGS WITH EXIT NUMBER



NOTES

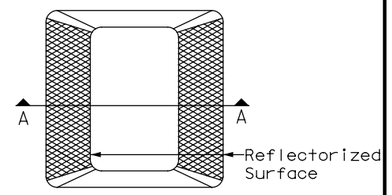
1. Raised pavement markers shall be centered between each chevron or neutral area line.
2. For more information, see Reflectorized Raised Pavement Marker Detail.

DETAIL A

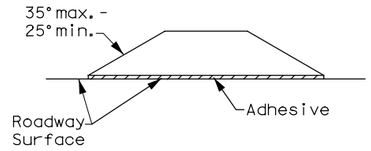
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

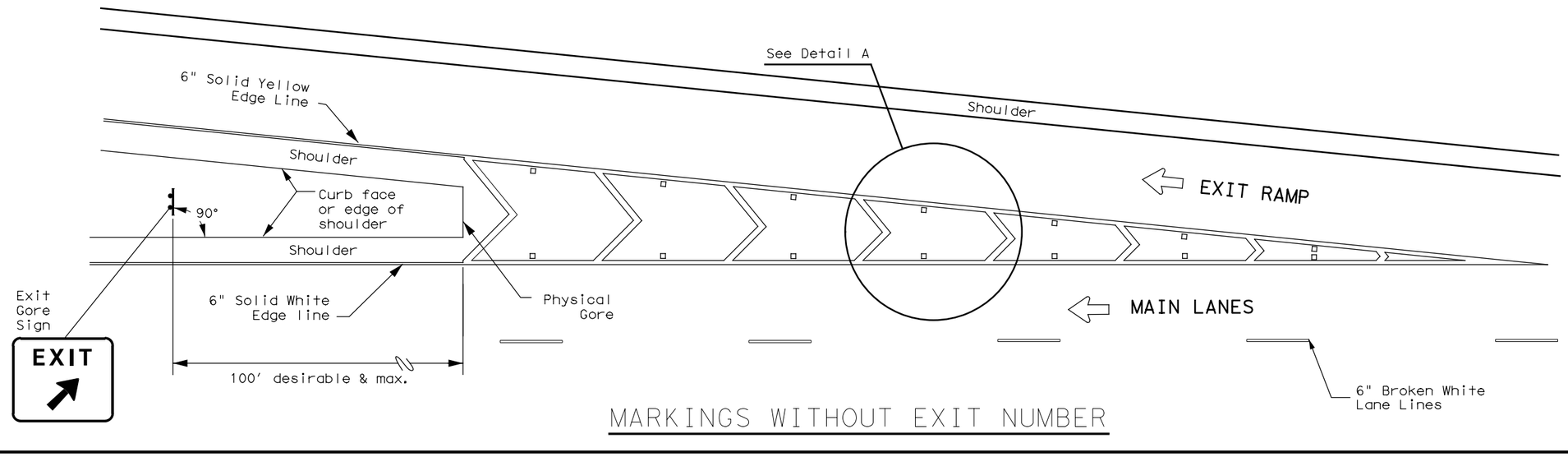
LEGEND	
⇦	Traffic flow
▫	Reflectorized Raised Markers (RPM) Type II-C-R



Type II (Top View)



SECTION A



MARKINGS WITHOUT EXIT NUMBER

REFLECTORIZED RAISED PAVEMENT MARKER (RPM)

Texas Department of Transportation — Traffic Safety Division Standard

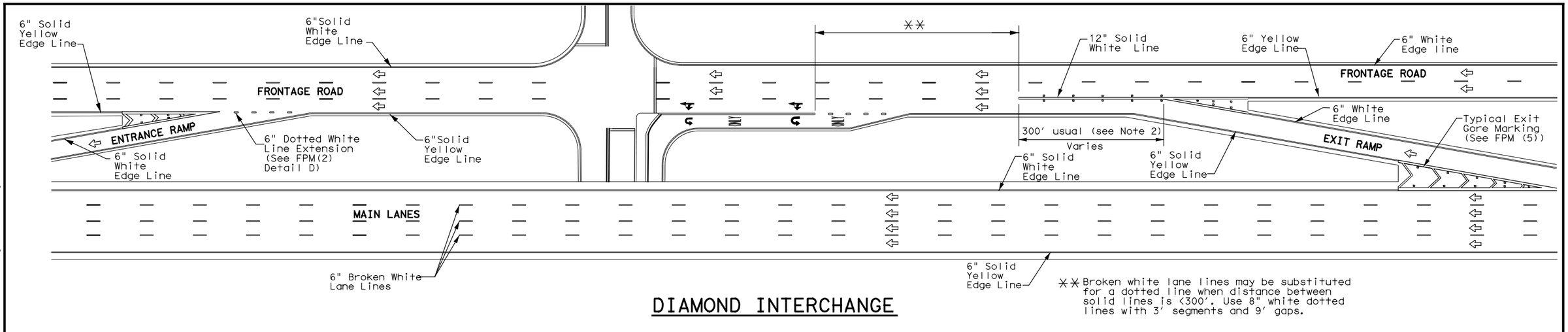
EXIT GORE PAVEMENT MARKINGS

FPM(5)-22

FILE: fpm(5)-22.dgn	DN:	CK:	DW:	CK:
©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-19 10-22	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1291

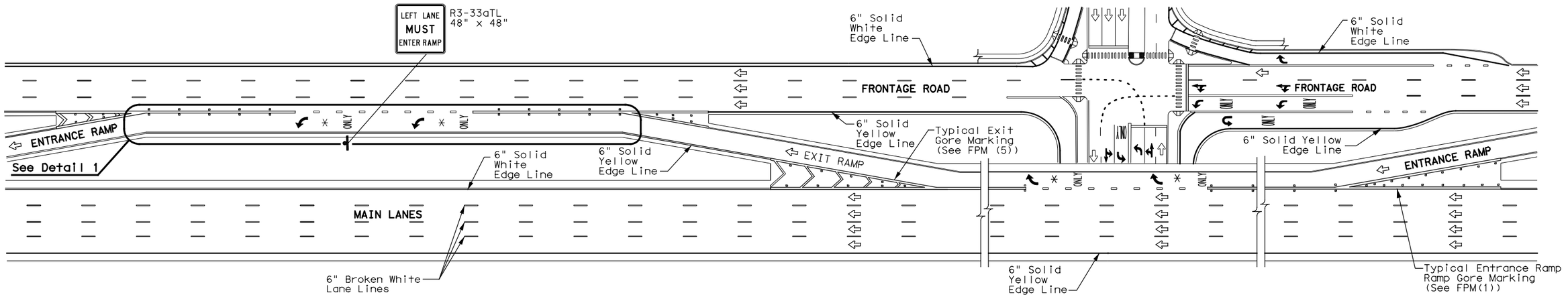
23E

DATE: 10/1/2024 11:20:20 AM
FILE: c:\pwworking\centra101\d2097791\fpm(5)-22.dgn

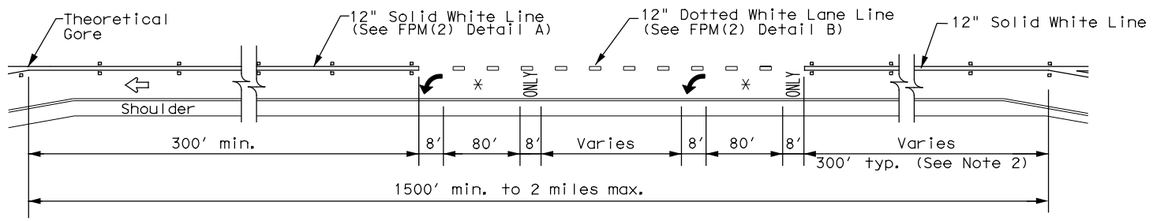


DIAMOND INTERCHANGE

** Broken white lane lines may be substituted for a dotted line when distance between solid lines is <300'. Use 8" white dotted lines with 3' segments and 9' gaps.



URBAN X-RAMP WITH FRONTAGE ROAD AUXILIARY LANE



DETAIL 1

(Frontage Road Auxiliary Lane for X-Ramps)

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.

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see FPM(2) Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Edge lines are not required in curb and gutter sections of frontage roads.
5. See FPM(1) for traffic lane line pavement marking details.

LEGEND	
⇦	Traffic flow
↱	Pavement marking arrows (white)
▫	Reflectorized Raised Markers (RPM) Type II-C-R
✳	Arrow markings are optional, however "ONLY" is required if arrow is used

Texas Department of Transportation

Traffic Safety Division Standard

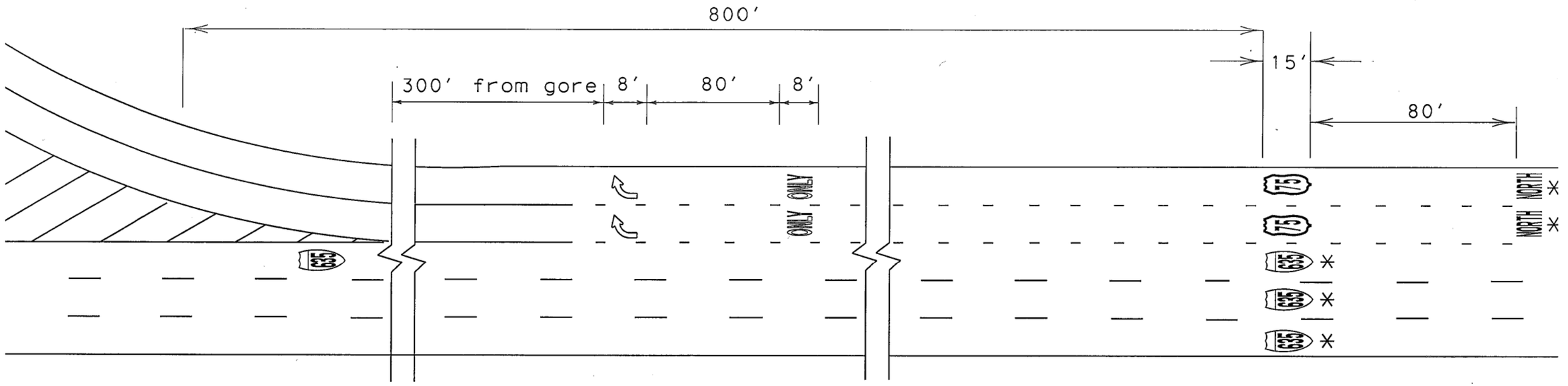
TYPICAL STANDARD FREEWAY AND FRONTAGE ROAD PAVEMENT MARKINGS

FPM(6)-22

FILE: fpm(6)-22.dgn	DN:	CK:	DW:	CK:
©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-22	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1292

23F

DATE: 10/1/2024 11:20:24 AM
FILE: c:\pwworking\central01\d2097791\fpm(6)-22.dgn



* OPTIONAL MARKINGS

DOUBLE LANE EXIT

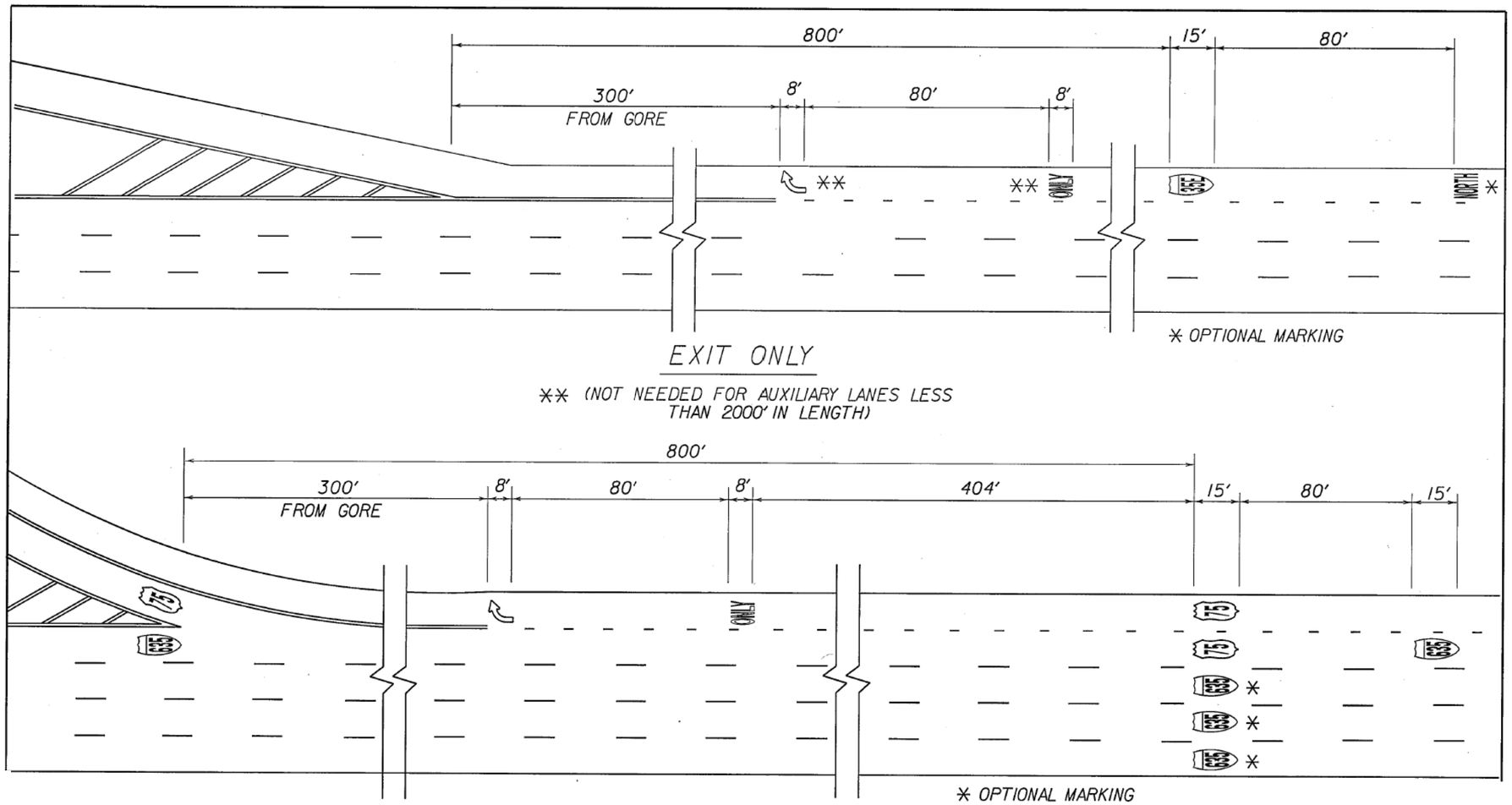
NOT TO SCALE

Texas Department f Transportation

HORIZONTAL SIGNING
DALLAS DISTRICT

SHEET 1 OF 2

FILE:	DN:	CK:	DW:	CK:
© TxDOT 2008	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	DAL	6	SEE TITLE SHEET	1293
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	COLLIN, ETC	0047	05	058,ETC	S399



EXIT ONLY / EXIT OPTION SPLIT

NOT TO SCALE

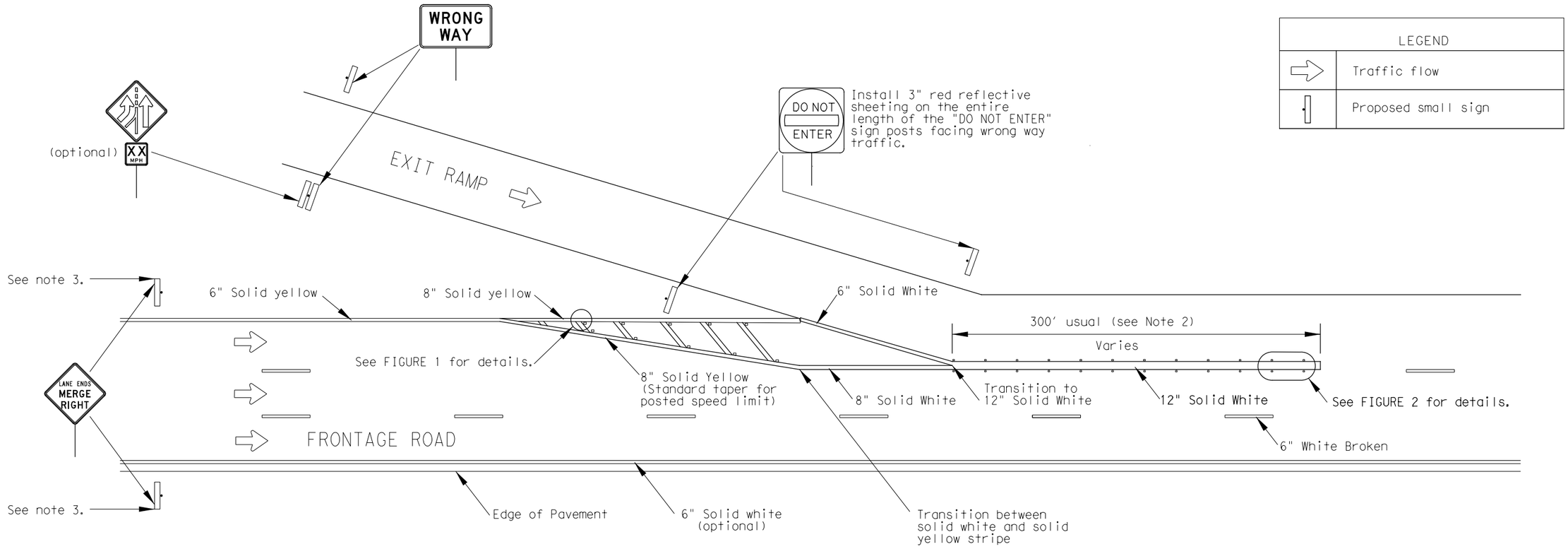
Texas Department f Transportation

HORIZONTAL SIGNING
DALLAS DISTRICT

SHEET 2 OF 2

FILE:	DN:	CK:	DW:	CK:
© TxDOT 2008	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	DAL	6	SEE TITLE SHEET	1294
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	COLLIN, ETC	0047	05	058,ETC	S399

TYPICAL PAVEMENT MARKINGS
FREEWAY EXIT TO 3 LANE FRONTAGE RD.



NOTES

1). FOR 2 LANE FRONTAGE ROADS, EXITING VOLUME VERSUS FRONTAGE ROAD VOLUME WITH A 2:1 RATIO SHALL HAVE THE SAME PAVEMENT MARKINGS. ALL OTHER CONDITIONS SHALL BE SIGNED AS A YIELD CONDITION.

2). LENGTH OF 12" WHITE LINE MAY VARY DEPENDING ON LOCATION.

3). REFER TO TMUTCD TABLE 2C-4 FOR ADVANCE WARNING SIGN PLACEMENT.

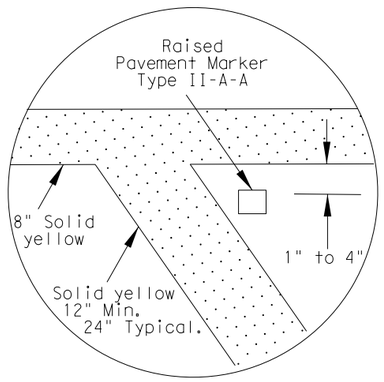


FIGURE 1

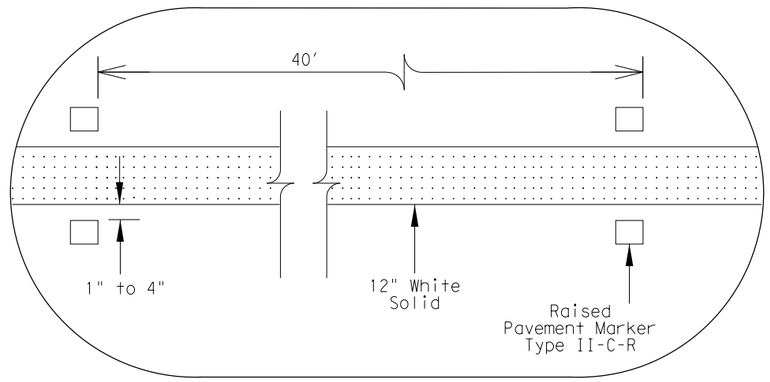


FIGURE 2

PAVEMENT MARKINGS (EXIT TO FRONTAGE ROAD) DALLAS DISTRICT STANDARD

NOT TO SCALE

DESIGN	FED.RD. DIV.NO.			HIGHWAY NO.
IEI	6			S399
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DALLAS	COLLIN, ETC	
CHECK	CONTROL	SECTION	JOB	1295
IEI	0047	05	058, ETC	
CHECK				
IEI				

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)

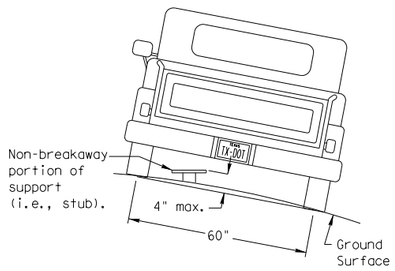
Anchor Type

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

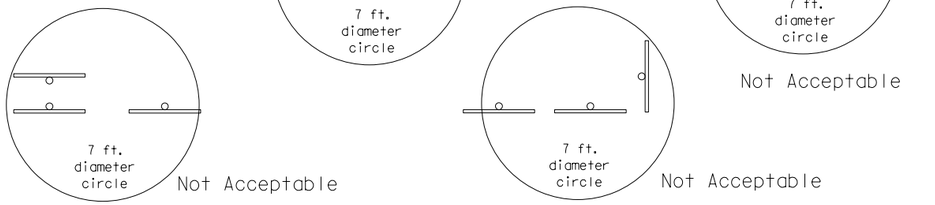
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))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

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



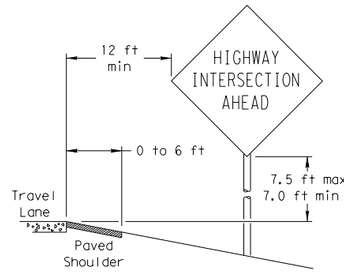
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

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



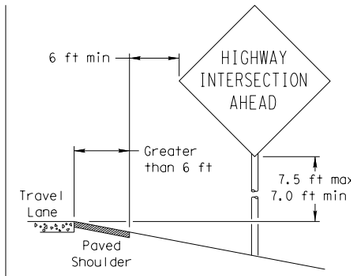
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

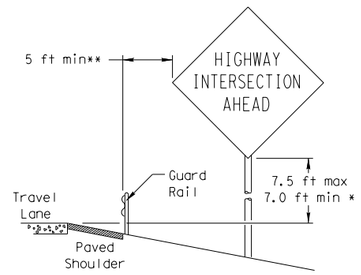
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



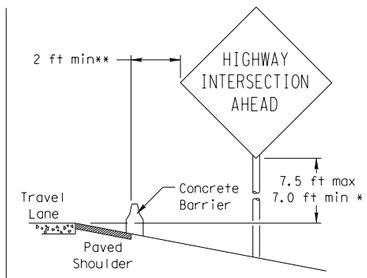
GREATER THAN 6 FT. WIDE

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.

BEHIND BARRIER



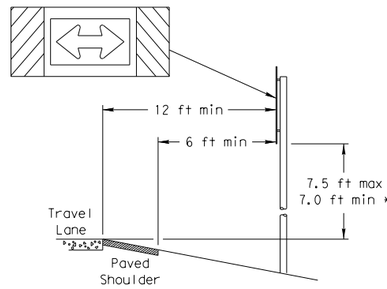
BEHIND GUARDRAIL



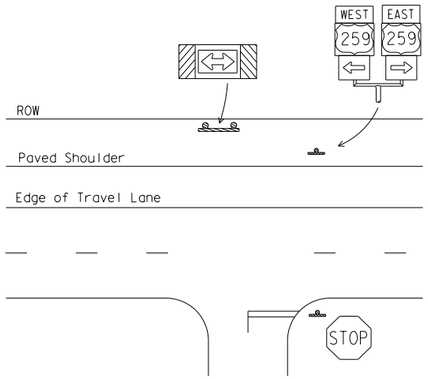
BEHIND CONCRETE BARRIER

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

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.



* 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.

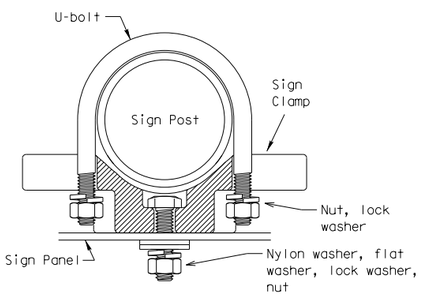
The maximum values may be increased when directed by the Engineer.

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

Single Signs

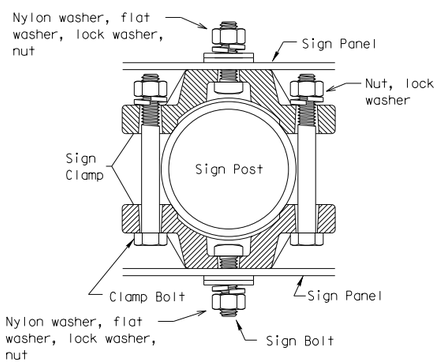


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

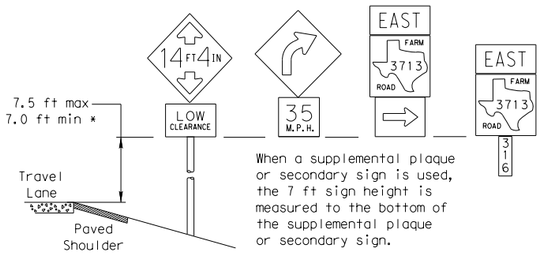
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



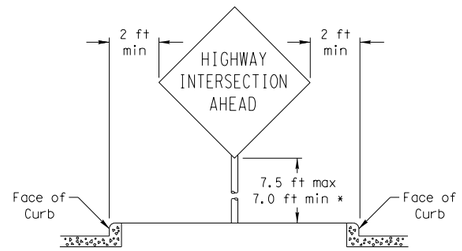
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



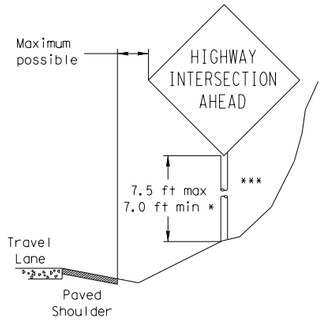
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS
9-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

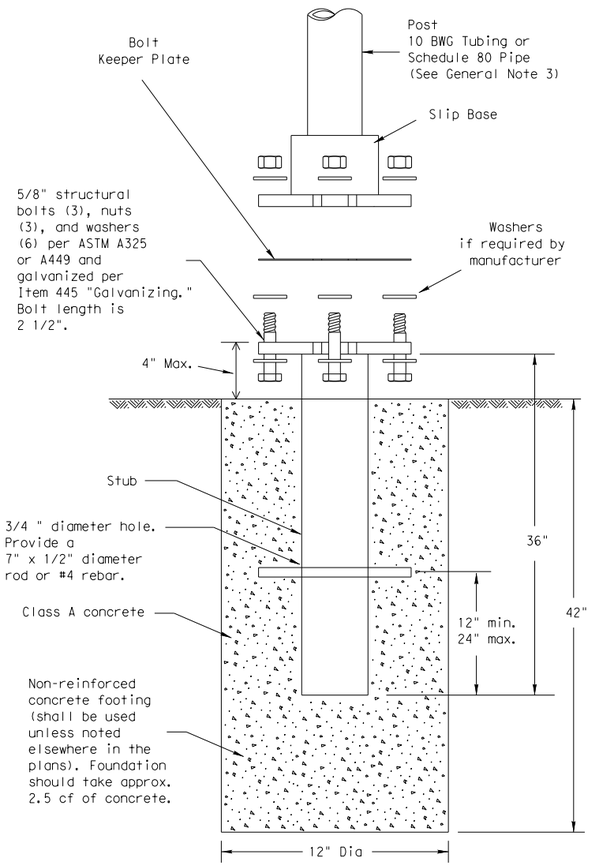
CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399

DIST	COUNTY	SHEET NO.
DAL	COLLIN, ETC	1296

26A

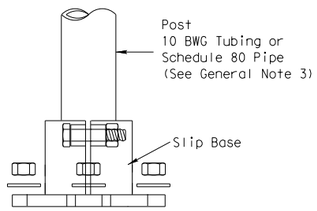
DATE: 10/1/2024 11:20:39 AM
FILE: c:\pwworking\central01\d2097791\smdgen.dgn

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS

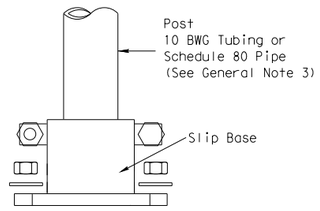


SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

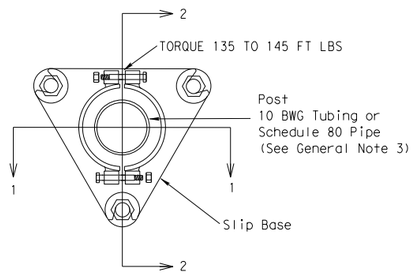
NOTE
The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.



SIDE VIEW 1-1



SIDE VIEW 2-2



TOP VIEW

DETAIL A

GENERAL NOTES:

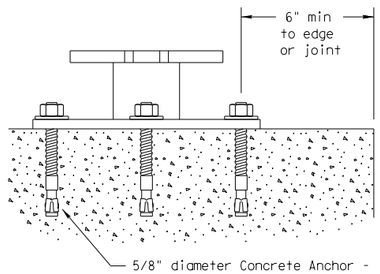
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:
   http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



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

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

ADDED DETAIL A FOR CLAMP BASE
10-2010

Texas Department of Transportation
Dallas District Standard

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08(DAL)

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

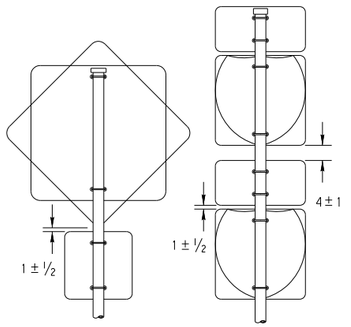
9-08 REVISIONS
12-10 (DISTRICT) ADDED CLAMP BASE DETAIL FOR SLIP BASE INSTALLATION

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399

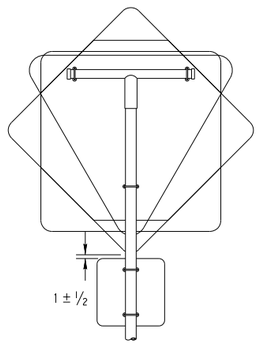
DIST	COUNTY	SHEET NO.
DAL	COLLIN, ETC	1297

26B

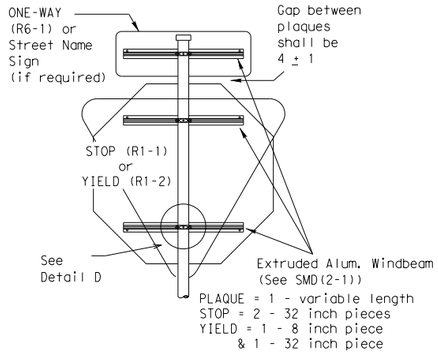
DATE:
FILE:



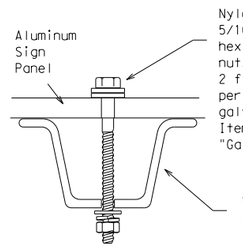
SM RD SGN ASSM TY XXXXX(1)XX(P)



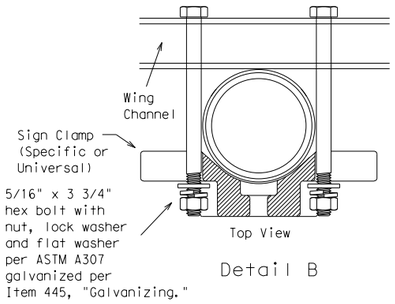
SM RD SGN ASSM TY XXXXX(1)XX(T)



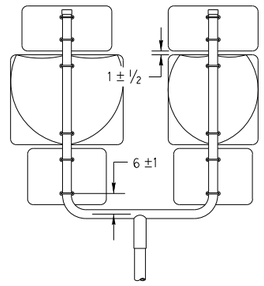
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



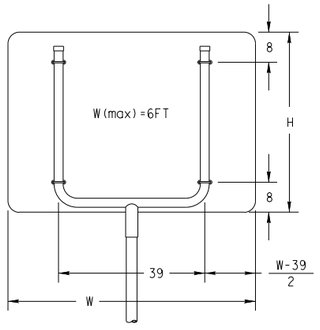
Detail A



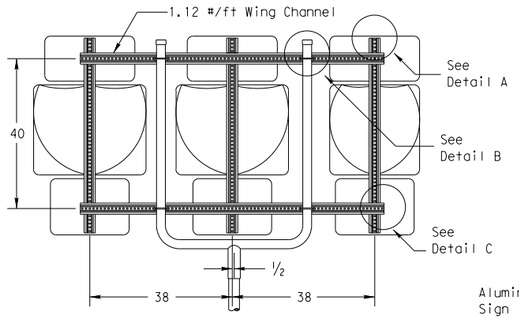
Detail B



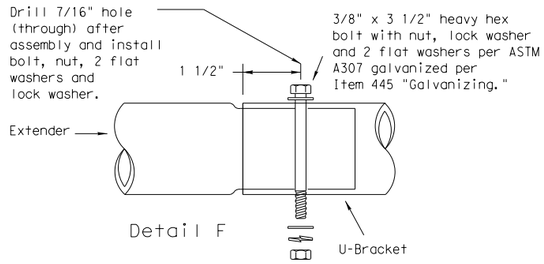
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

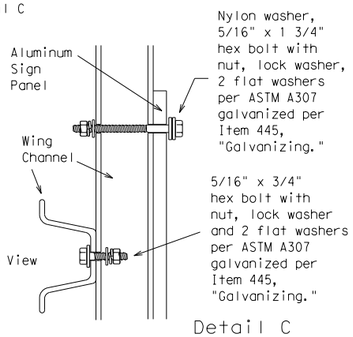


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

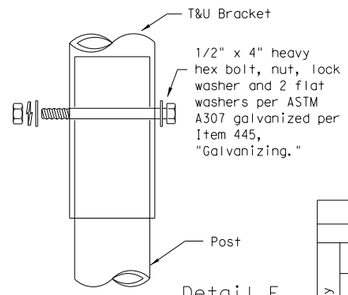


Detail F

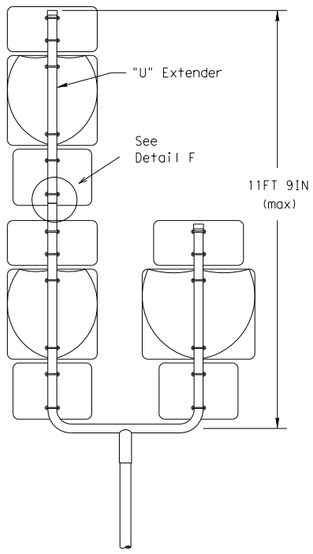
Splices shall only be allowed behind the sign substrate.



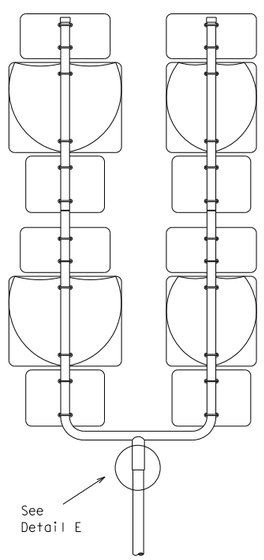
Detail C



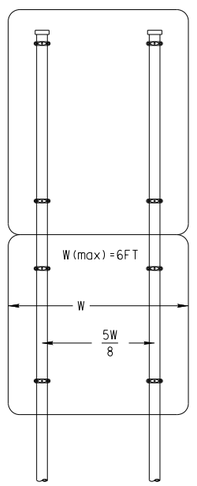
Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)

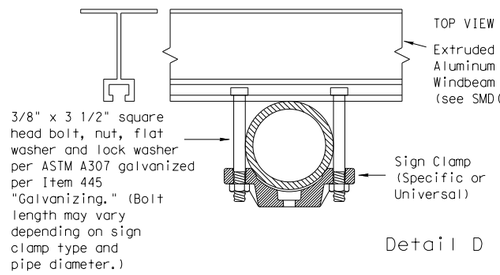


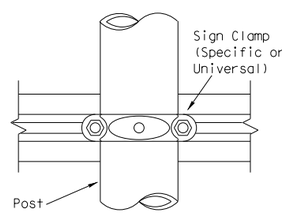
SM RD SGN ASSM TY S80(1)XX(U-2EXT)



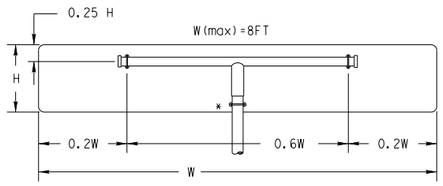
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW





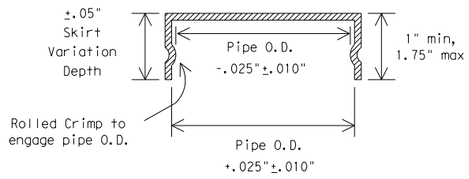
Detail D



SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1298

26C

DATE: 10/1/2024 11:20:45 AM
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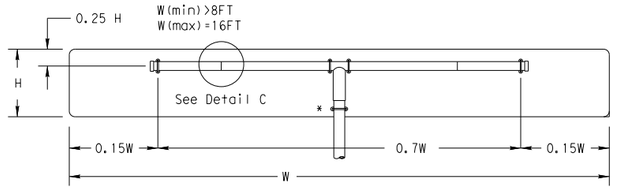
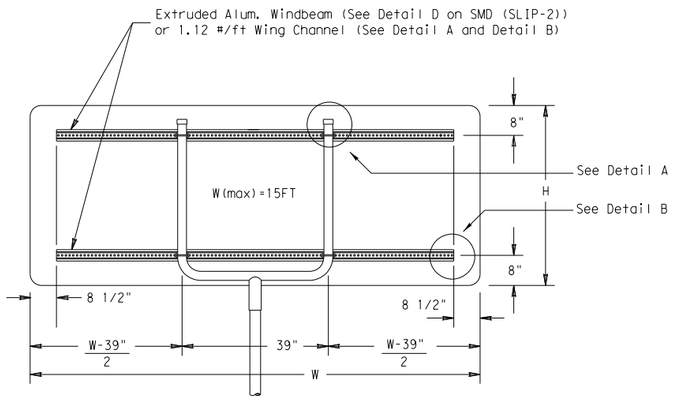
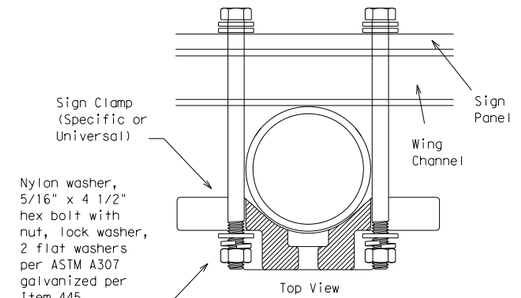


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

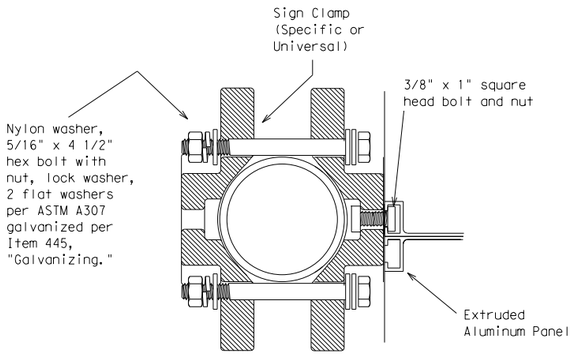
(* - See Note 12)



SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

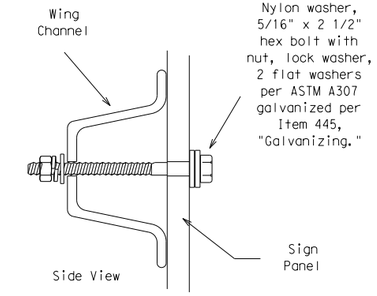


Detail A

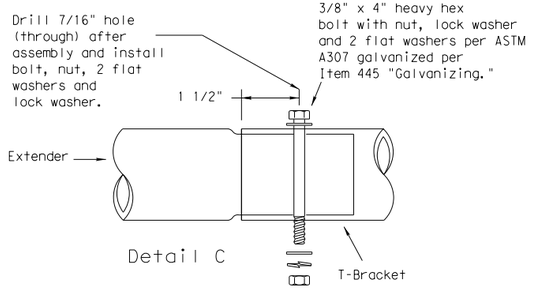


Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET

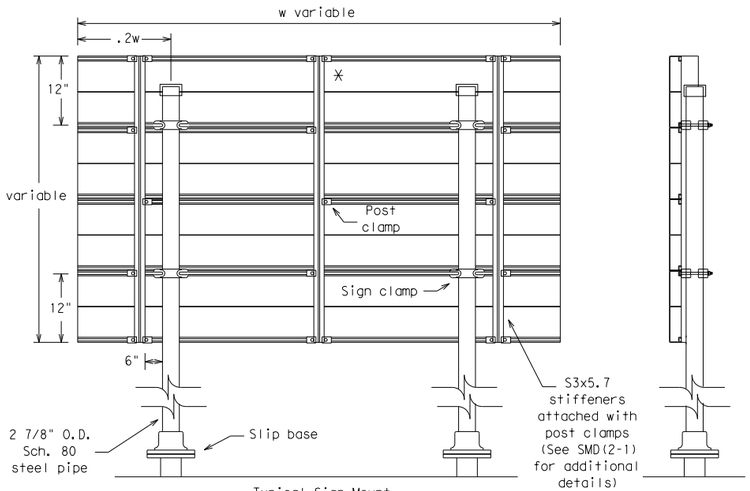


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

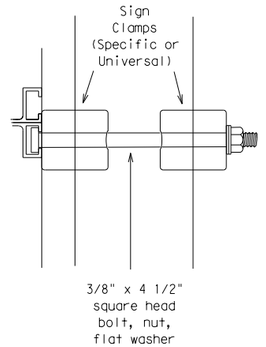


Typical Sign Mount

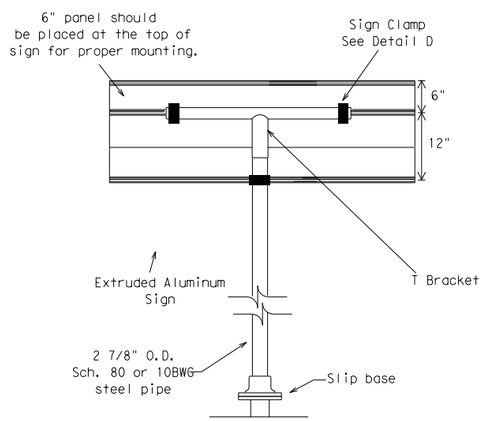
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

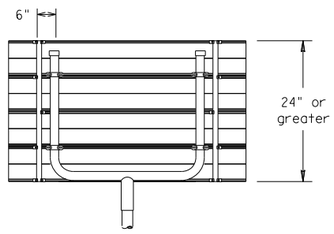
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

REVISIONS

9-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399

DIST	COUNTY	SHEET NO.
DAL	COLLIN, ETC	1299

26D

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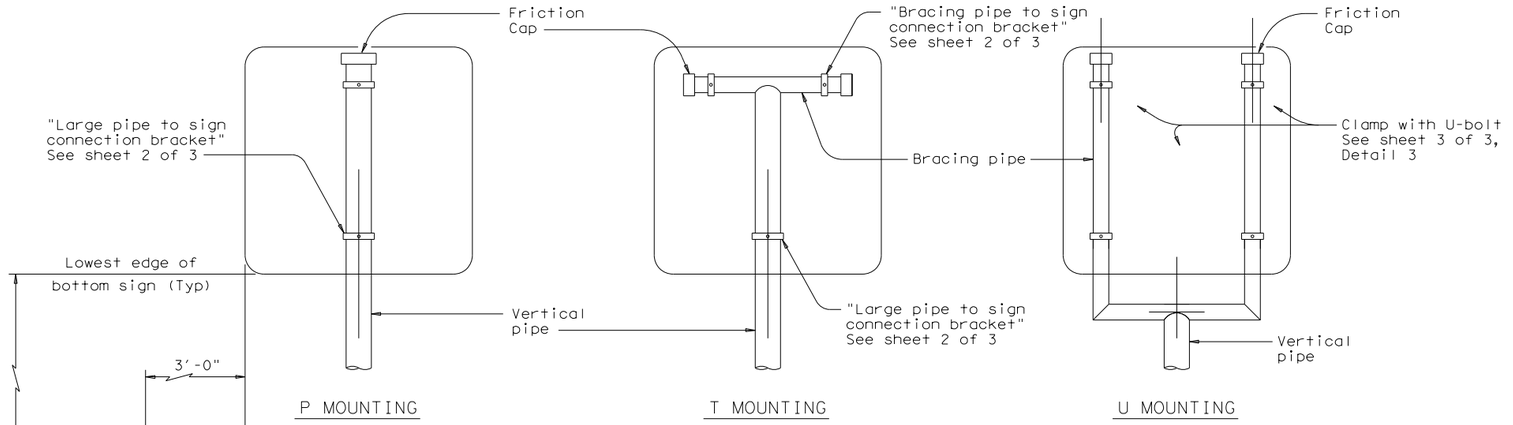
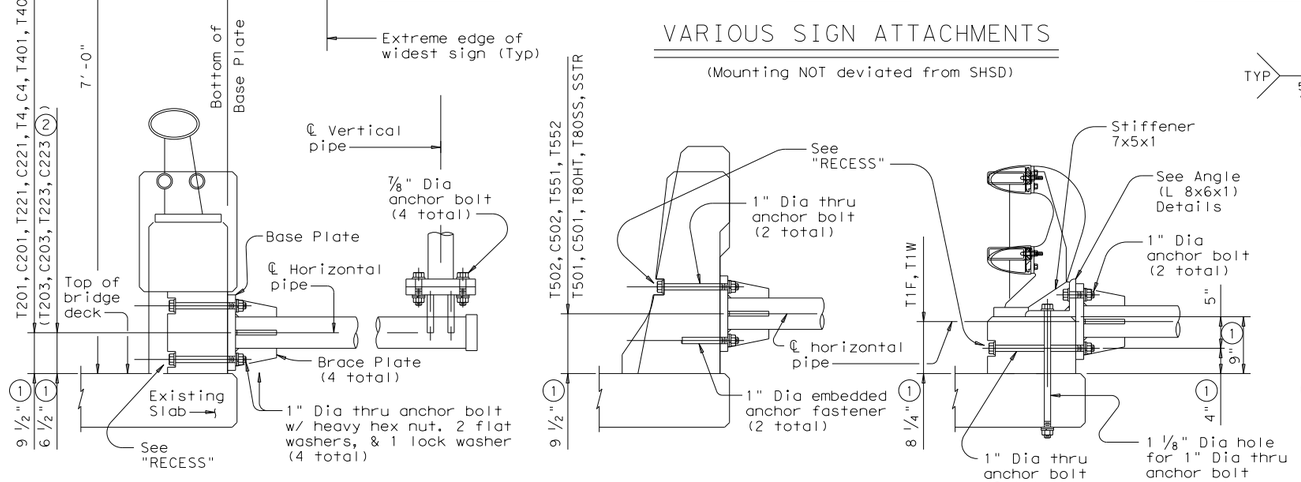


VARIOUS SIGN ATTACHMENTS

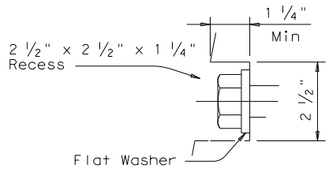
(Mounting NOT deviated from SHSD)



LONGITUDINAL SECTION THROUGH RAILING & SIGN MOUNT

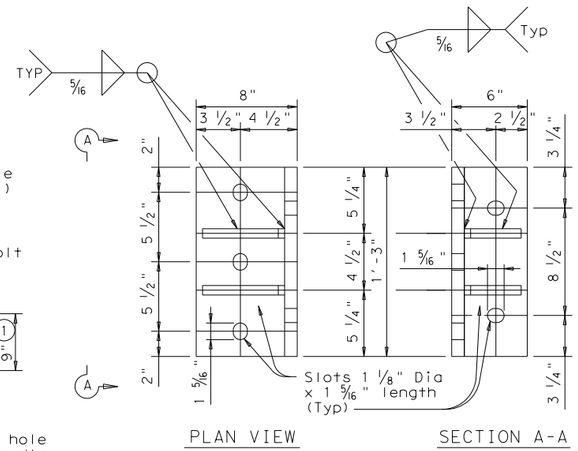
(1) Increase 2" for structure with overlay.

(2) Attached at ℄ post.



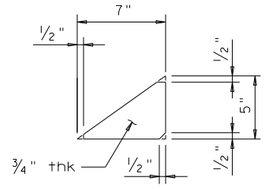
RECESS

PIPE SIZE AND THICKNESS			
Pipe Placement / Design Wind Speed	Horizontal	Vertical	Bracing
90 mph	5" X-Strong (.375")	4" X-Strong (.337")	2 ½" Standard (.203")
130 mph	6" X-Strong (.432")	5" X-Strong (.375")	3" X-Strong (.300")



PLAN VIEW

SECTION A-A



STIFFENER

ANGLE (L 8x6x1) DETAILS

GENERAL NOTES:

Design conforms to 2013 AASHTO Standard Specifications for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design 3-second gust wind speeds of 90 mph and 130 mph with a 1.14 gust factor, and a wind importance factor of 1.0 (50-year mean recurrence interval) for the supporting structures. For mounting connection between sign panel and pipe, wind importance factors of 0.71 and 0.54, for 90 mph and 130 mph winds, respectively, are applied to adjust the wind speeds to a 10-year mean recurrence interval.

See standard sheet WV & IZ(LTS2013) for the boundaries of each design wind zone. All mounting shall be based on 130 mph wind speed design except when located in 90 mph wind zone. Maximum panel area is 30 sq. ft. Maximum design height is 50 ft, with design height defined as the distance between natural ground (average elevation of surrounding terrain) and the center of sign(s) at the mounting location.

Material for pipe shall be ASTM A53 Grade B, or A501. Structural steel plates shall be ASTM A36, A572 Grade 50, or A588. Bolts used to connect pipe and mounting bracket, and wind beam to sign panel shall be ASTM A307. Anchor bolts shall be ASTM A325 or A193 B7. Each anchor bolt shall be provided with 2 flat washers, 1 lock washer, and 1 heavy hex nut. All parts shall be galvanized in accordance with Standard Specifications Item 445, "Galvanizing".

Attach horizontal pipe at least 2'-0" from the edge of any nearby drain slot.

Contractor shall verify applicable field dimensions before fabrication. Holes drilled through the railing parapet wall shall be drilled with rotary (coring or masonry drill) type equipment. Percussion (star) drilling shall not be allowed. Anchorage for pipe attached to rail shall be placed using an anchoring system approved by the engineer. Installation of anchor fasteners including hole depth, diameter and material shall be in accordance with the manufacturers' recommendation.

Each embedded anchor fastener shall resist an allowable design loading (after applying the reduction factors of bolt spacing and bolt edge distance) of:

	130 mph	90 mph
Tension	12.5 kips	7.5 kips
Shear	9.0 kips	5.0 kips

Each anchoring system shall provide a capacity to resist the required tension and shear acting simultaneously.

For sign connection to mounting, shop drill holes on sign blank in accordance with the current Standard Highway Sign Designs for Texas (SHSD). Additional hole(s) needed to meet a stipulated-type mounting may be field drilled. For multi-sign or back-to-back signs mounting, the engineer shall determine the proper type which ensures each individual mounting meets requirements.

Refer to Standard sheets SMD(GEN), SMD(SLIP-2 and SMD(2-1) for details not covered here.

Texas Department of Transportation

Traffic Operations Division Standard

BRIDGE RAILING SIGN MOUNT DETAILS

SMD(BR-1)-14

FILE: smdbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2014	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1300

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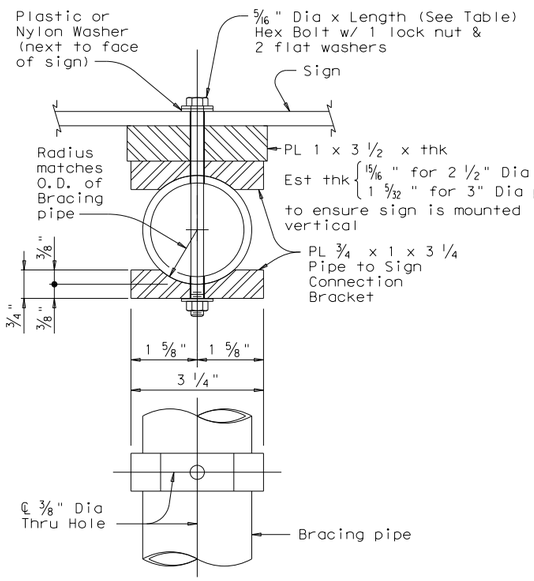
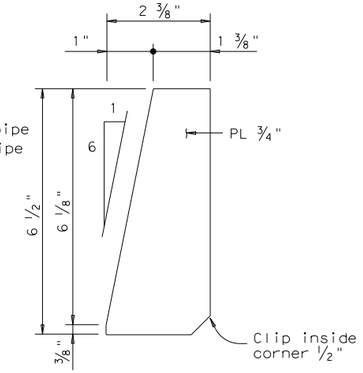
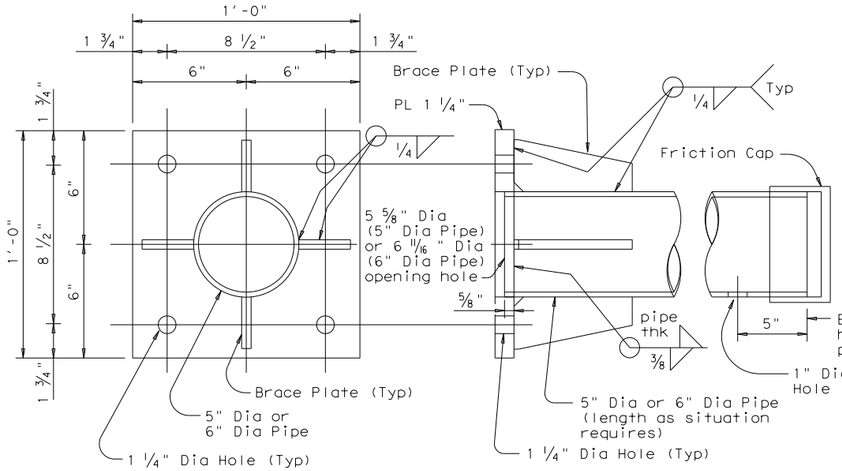


BRACING PIPE TO SIGN CONNECTION BRACKET DETAILS

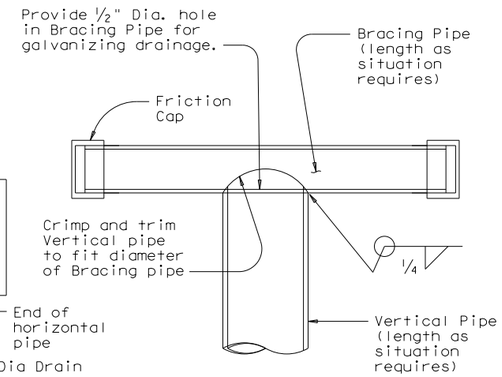
(Showing T Mounting)

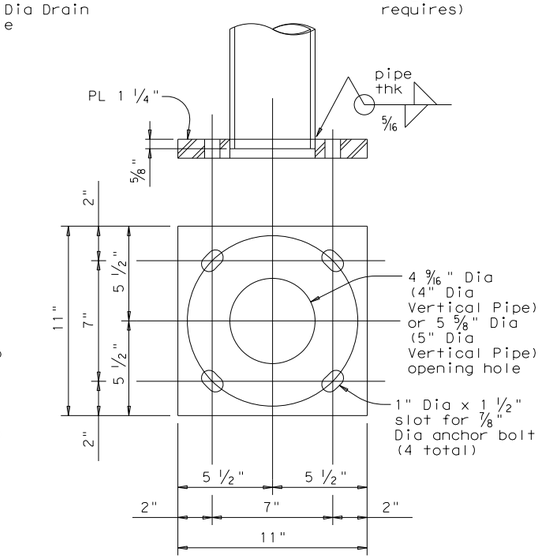


BRACE PLATE DETAILS



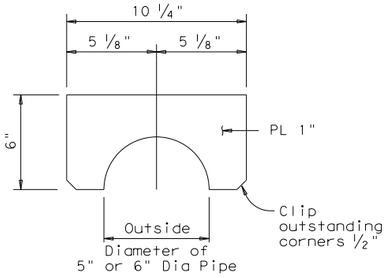
BASE PLATE DETAILS



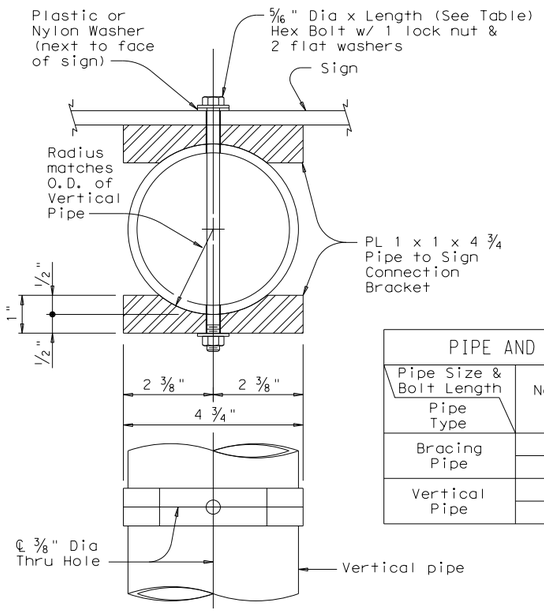


SIGN POLE & POLE BASE PLATE DETAILS

(Showing only T Mounting)



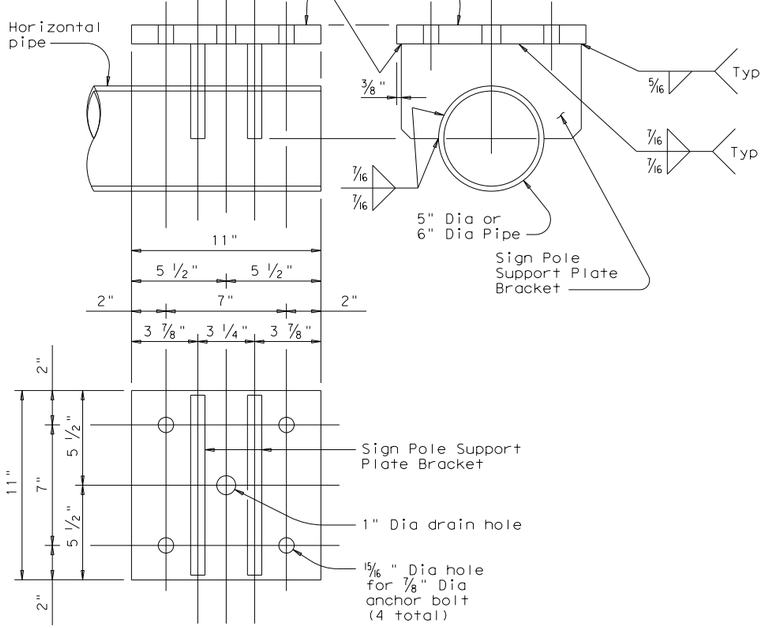
SIGN POLE SUPPORT PLATE BRACKET DETAILS



LARGE PIPE TO SIGN CONNECTION BRACKET DETAILS

(Showing P or T Mounting)

PIPE AND BOLT SPECIFICATIONS		
Pipe Size & Bolt Length / Pipe Type	Nominal Pipe Dia (in.)	Bolt Length (in.)
Bracing Pipe	2 1/2	6
	3	7
Vertical Pipe	4	7
	5	8



SIGN POLE SUPPORT PLATE DETAILS

SHEET 2 OF 3

Texas Department of Transportation

Traffic Operations Division Standard

BRIDGE RAILING SIGN MOUNT DETAILS

SMD(BR-2)-14

FILE: smdbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2014	CONT	SECT	JOB	HIGHWAY
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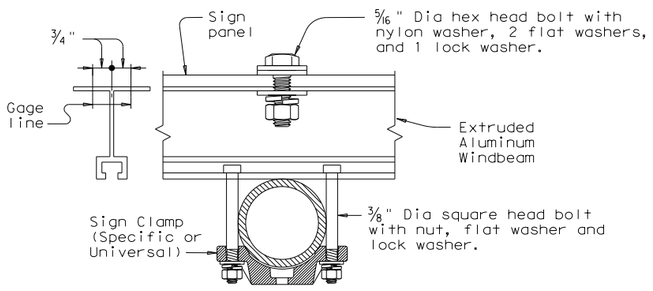
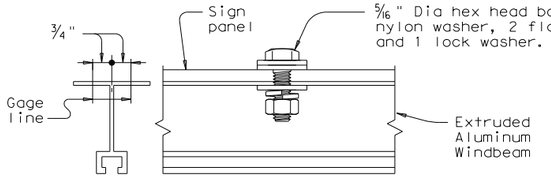
	DAL	COLLIN, ETC		1301

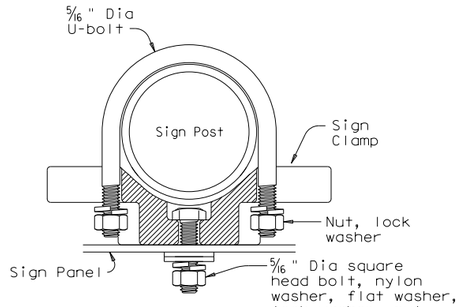
26H



DETAIL 1



DETAIL 2

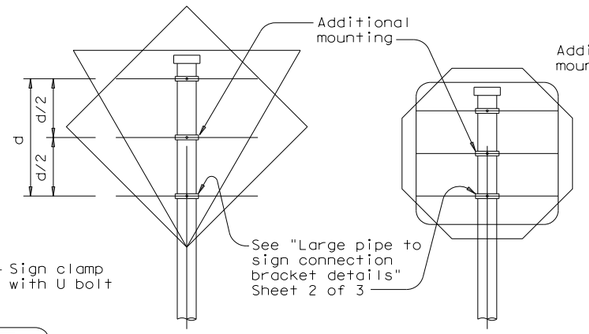


DETAIL 3

SIGN SHAPE	SQUARE			HORIZONTAL RECTANGLE			VERTICAL RECTANGLE			DIAMOND			OCTAGON			EQUILATERAL TRIANGLE			INTERSTATE SHIELD	PENTAGON (SCHOOL)	
Type of Sign Mounting on SHSD / Design Wind Speed	P	T	U	P	T	U	P	T	U	P	T	U	P	T	U	P	T	U	P	P	T
90 mph					(Type 23) 60"x48"	(Type 3) 72"x36" 78"x36"		(Type 2) 36"x48"			(Type 3) 60"x60"								(Type Special) 45"x36"		
						(Type 23) 72"x30" 84"x24"		(Type 32) 36"x60" 36"x72" 42"x60" 48"x54" 48"x60" 48"x72"													
								(Type 3) 48"x84"													
130 mph	(Type 1) 30"x30" 36"x36"	(Type 3) 48"x48"		(Type 1) 36"x24" 36"x30"	(Type 23) 48"x42" 54"x42" 60"x30" 66"x36" 84"x24"	(Type 3) 72"x36" 78"x36"	(Type 1) 30"x36" 30"x42"	(Type 3) 36"x48" 36"x60" 36"x72" 42"x60" 48"x54" 48"x60"	(Type 3) 48"x60"	(Type 1) 36"x36"	(Type 3) 48"x48" 60"x60"					(Type 1) 48"x48"			(Type Special) 36"x36" 45"x36"		
					(Type 3) 60"x48"	(Type 23) 72"x30" 84"x24"		(Type 4) 48"x72" 48"x84"													

Notes:
1. Drill holes in addition to the hole pattern of the Standard Highway Sign Designs for Texas (SHSD) at specified locations to meet a stipulated-type mounting indicated in the parenthesis ( ).
2. "Blank" in the above table indicates all other signs excluded from stipulated mounting shall be mounted in accordance with SHSD.

(1) In lieu of welding, the Fabricator may bend bracing pipe elbows if the following conditions are met:
a. Spacing between vertical bracing pipes is equal to or greater than 2'-6".
b. Bending radius is 12".
c. The distance between the lowest clamp and centerline of horizontal bent pipe is 13" max.



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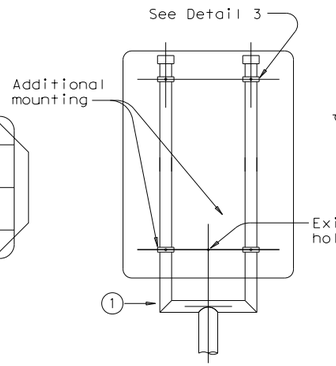

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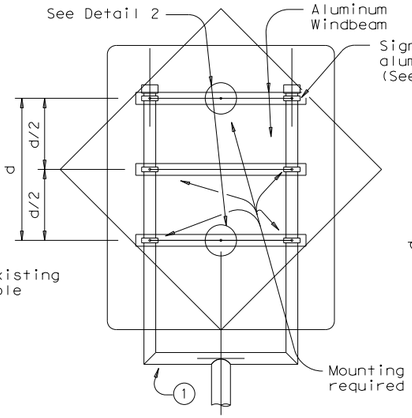

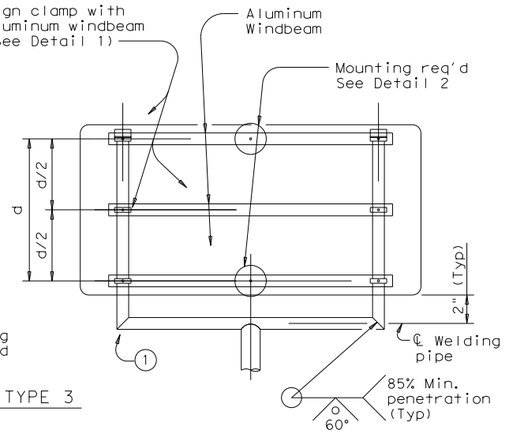

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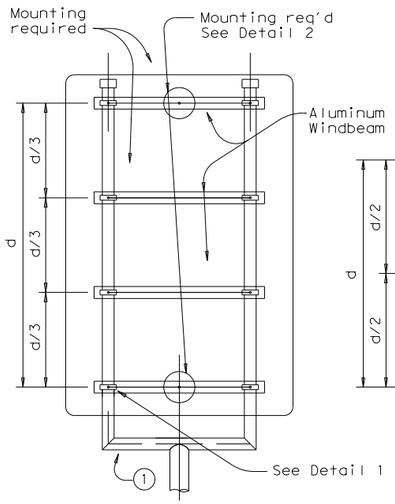

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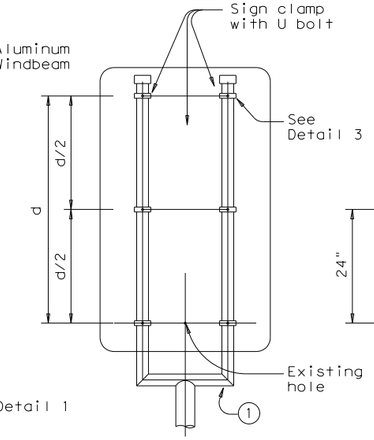

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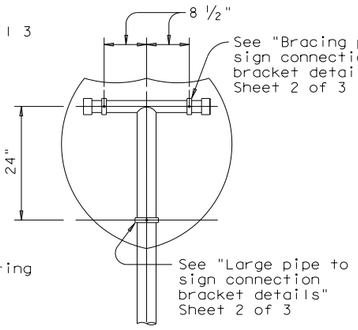

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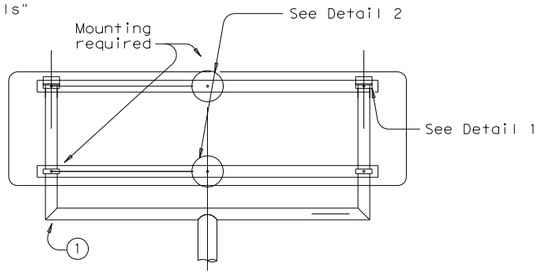

TYPE 23

SHEET 3 OF 3

Texas Department of Transportation

Traffic Operations Division Standard

BRIDGE RAILING SIGN MOUNT DETAILS

SMD(BR-3)-14

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©TxDOT August 2014	CONT	SECT	JOB	HIGHWAY
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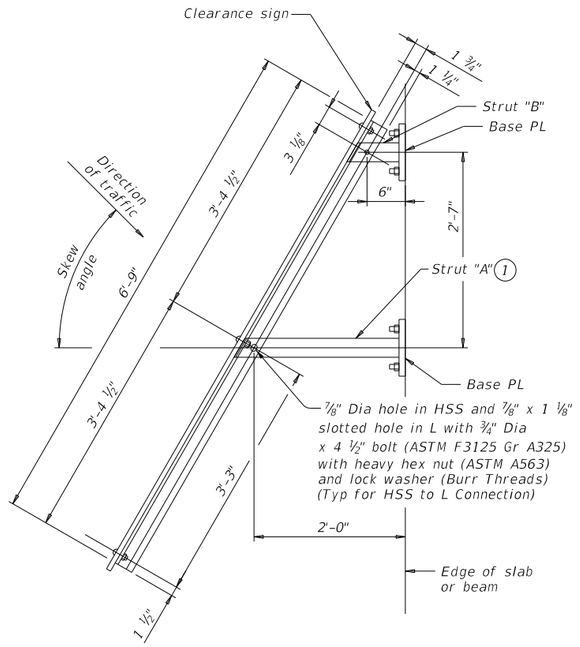
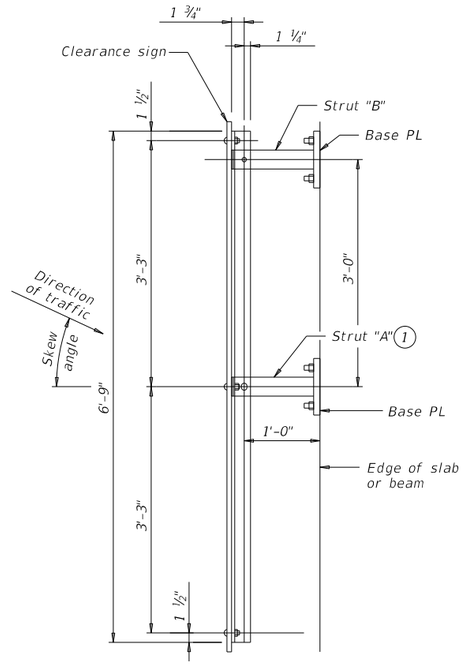


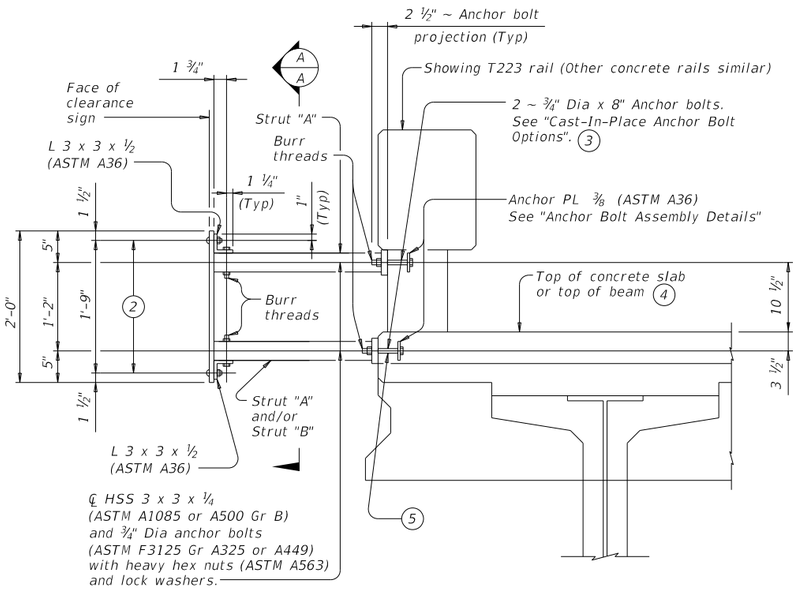
PLAN OF TYPE S MOUNT

(Used for skews over 30°)

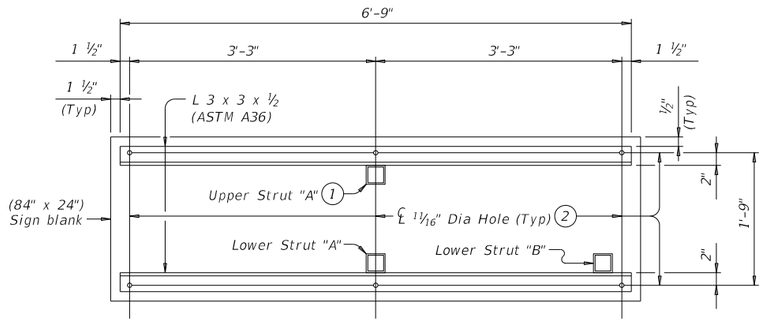


PLAN OF TYPE N MOUNT

(Used for 0° to 30° skews)



SECTION



SECTION A-A

(1) Locate centerline of Strut A no closer than 12" from a vertical concrete edge.

(2) ℄ ⅝" Dia x 2" Hexagon socket button head cap screws (ASTM A574) with hex nuts. Attach hex nuts to L 3 x 3 x ½ by tack welding in two places. Threads must have Class 3A fit tolerance in accordance ASME B1.1. Six screws required.

(3) At the Contractor's option fully threaded adhesive anchors may be use instead of cast-in-place anchor bolts. Expansion anchors are not allowed. Provide adhesive anchors that are ¾" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). Embed fully threaded rods using a Type III, Class C, D, E, or F anchor adhesive. Adhesive anchor embedment depth is 8". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 2.2 kips per anchor (edge distance and spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

(4) For decked slab beams topped with a 2 course surface treatment and ACP overlay.

(5) Anchor bolts to be cast into decked slab beams topped with a 2 course surface treatment or ACP overlay. Anchor bolts with heavy hex nuts, regular lock washers, hardened washers and anchor plate that is embedded in the beam will be provided by the beam Fabricator.

CONSTRUCTION NOTES:

Install the vertical face of clearance sign plumb unless otherwise approved by the Engineer.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 1 anchor per bridge mounted clearance sign installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

MATERIAL NOTES:

Galvanize all steel components after fabrication unless otherwise noted.

GENERAL NOTES:

This standard provides details to mount a vertical clearance sign (84" x 24") to bridges. Rail Types T631, T631LS, PR11, PR22 and PR3 are not accommodated.

The Engineer will furnish the clearance to be shown on the sign.

See Bridge Layout for sign location and mounting type (Type N or S).

Cost of furnishing, installing, relocating or removing a clearance sign, including structural steel for sign mount, is included in unit price bid for Item 644, "Small Roadside Sign Assemblies".

One Sign Blank (84" x 24") is 14 SF.

Average steel weight for one complete Type N Mount is 219 Lb.

Average steel weight for one complete Type S Mount is 233 Lb.

SHEET 1 OF 3

Texas Department of Transportation

Bridge Division Standard

BRIDGE MOUNTED CLEARANCE SIGN ASSEMBLY

BMCS

FILE: bmcsste1-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
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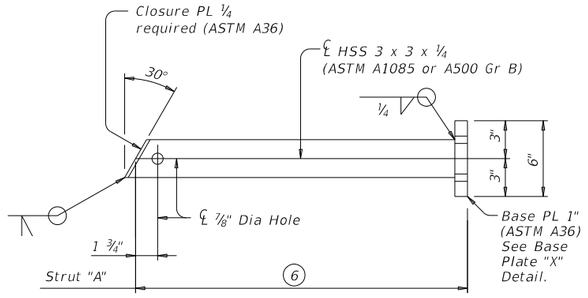
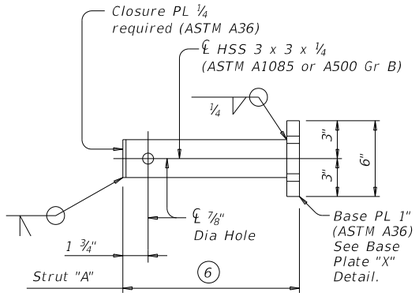
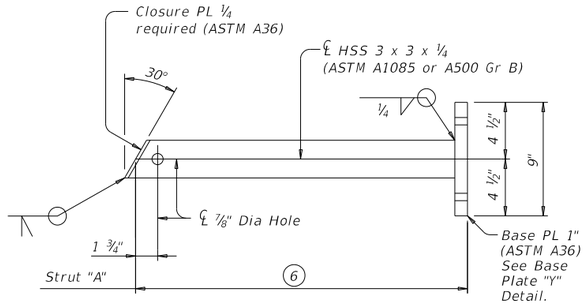


FOR T411 AND
C411 RAIL TYPES



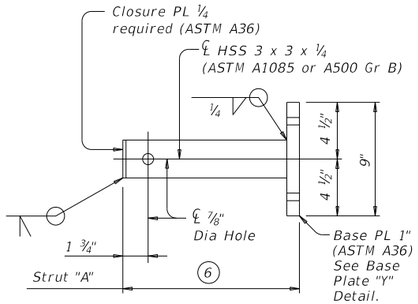
FOR T411 AND
C411 RAIL TYPES



FOR T221, C221, T222, T223, C223,
T401, T402, C402, T551, T552,
T80HT, T80SS AND SSTR RAIL TYPES

UPPER STRUT DETAIL FOR (TYPE S MOUNT)

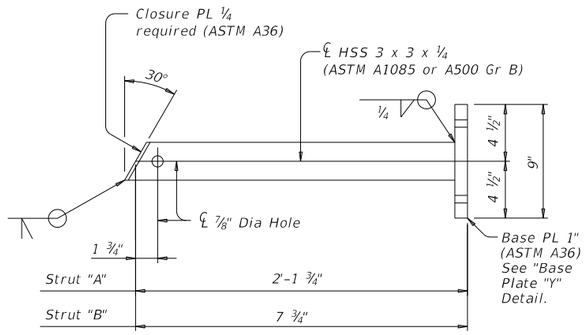
(Used for skews over 30°)



FOR T221, C221, T222, T223, C223,
T401, T402, C402, T551, T552,
T80HT, T80SS AND SSTR RAIL TYPES

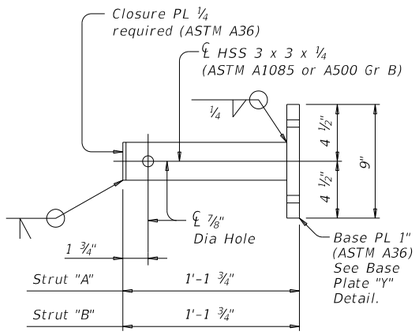
UPPER STRUT DETAIL FOR (TYPE N MOUNT)

(Used for 0° to 30° skews)



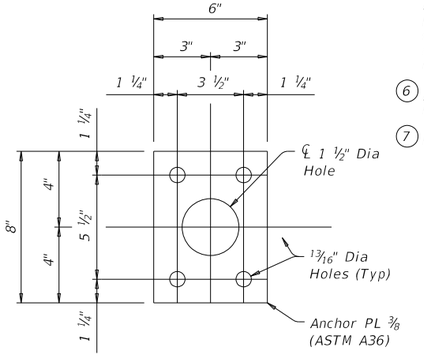
LOWER STRUT DETAILS FOR (TYPE S MOUNT)

(Used for skews over 30°)

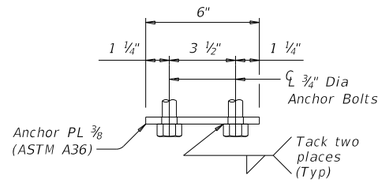


LOWER STRUT DETAILS FOR (TYPE N MOUNT)

(Used for 0° to 30° skews)



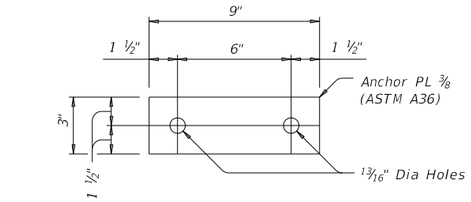
PLAN OF ANCHOR PLATE



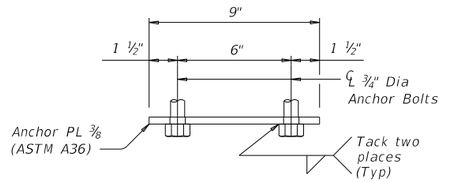
ELEVATION

ANCHOR BOLT ASSEMBLY DETAILS (3)

(Used on Base Plate "X" with T411 and C411 rail types.)



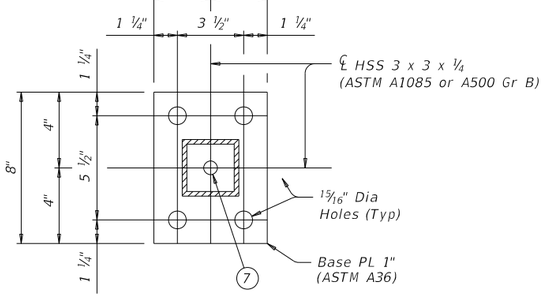
PLAN OF ANCHOR PLATE



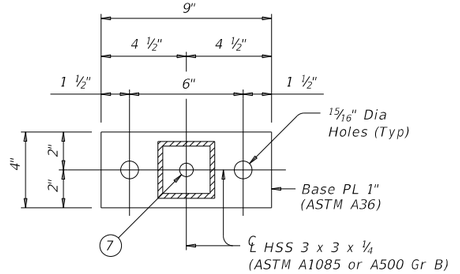
ELEVATION

ANCHOR BOLT ASSEMBLY DETAILS (3)

(Used on Base Plate "Y" and with T1F, T2P, C2P,
T1W, C1W, T66 and C66 rail types.)

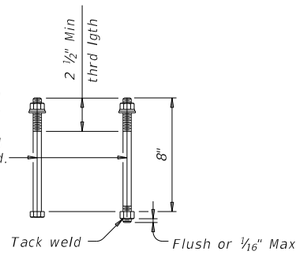


BASE PLATE "X" DETAIL



BASE PLATE "Y" DETAIL

℄ ¾" Dia heavy hex head anchor bolt (ASTM F3125 Gr A325 or A449) or threaded rod (ASTM A193 Gr B7 or F1554 Gr 105) with one hardened washer and one regular lock washer placed under heavy hex nut (ASTM A563). Furnish one additional heavy hex nut for each threaded rod.



CAST-IN-PLACE ANCHOR BOLT OPTIONS (3)

(3) At the Contractor's option fully threaded adhesive anchors may be use instead of cast-in-place anchor bolts. Expansion anchors are not allowed. Provide adhesive anchors that are ¾" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). Embed fully threaded rods using a Type III, Class C, D, E, or F anchor adhesive. Adhesive anchor embedment depth is 8". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 2.2 kips per anchor (edge distance and spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

(6) Adjust length to accommodate edge of slab to back of rail for specific project conditions and to help plumb the vertical face of clearance sign.

(7) Hole required to drain zinc from base plate during galvanizing.

Texas Department of Transportation

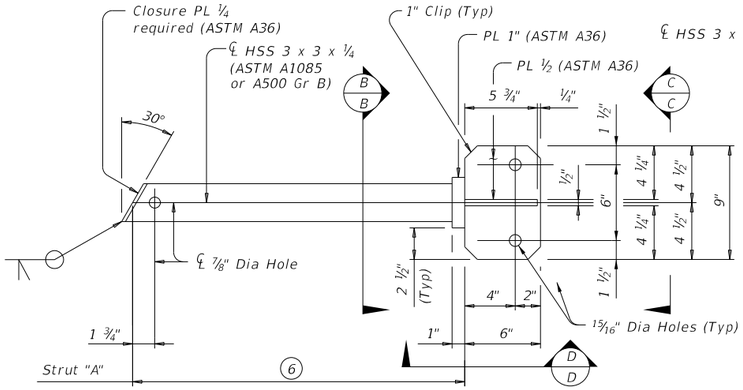
Bridge Division Standard

BRIDGE MOUNTED CLEARANCE SIGN ASSEMBLY

BMCS

FILE: bmcsste1-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1304

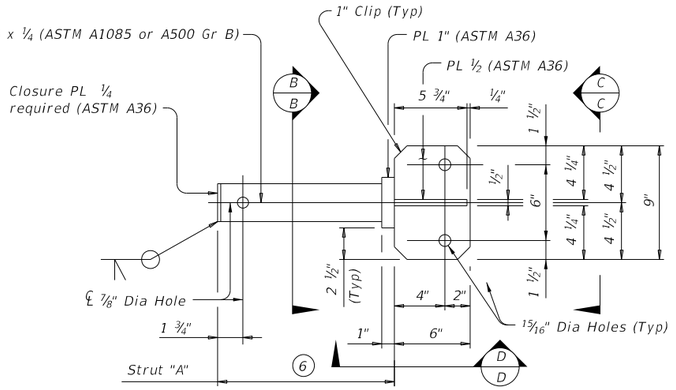
DATE: 10/1/2024 11:20:57 AM
FILE: c:\pwworking\central01\d2097791\bmcsste1-19.dgn



FOR T1F, T2P, C2P, T1W, C1W, T66 AND C66 RAIL TYPES

UPPER STRUT DETAIL FOR (TYPE S MOUNT)

(Used for skews over 30°)



FOR T1F, T2P, C2P, T1W, C1W, T66 AND C66 RAIL TYPES

UPPER STRUT DETAIL FOR (TYPE N MOUNT)

(Used for 0° to 30° skews)

(2) ℄ ⅜" Dia x 2" Hexagon socket button head cap screws (ASTM A574) with hex nuts. Attach hex nuts to L 3 x 3 x ½ by tack welding in two places. Threads must have Class 3A fit tolerance in accordance ASME B1.1. Six screws required.

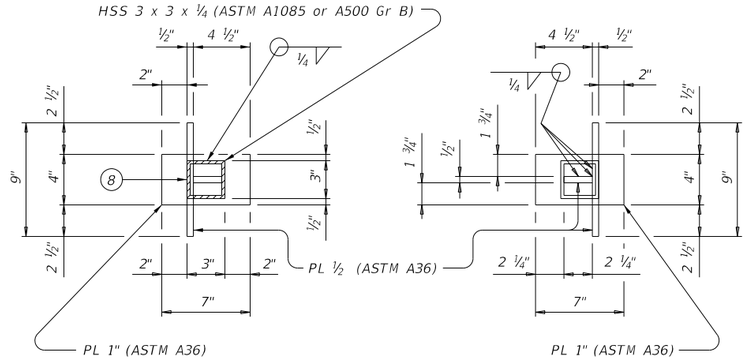
(3) At the Contractor's option fully threaded adhesive anchors may be use instead of cast-in-place anchor bolts. Expansion anchors are not allowed. Provide adhesive anchors that are ¾" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). Embed fully threaded rods using a Type III, Class C, D, E, or F anchor adhesive. Adhesive anchor embedment depth is 8". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 2.2 kips per anchor (edge distance and spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

(4) For decked slab beams topped with a 2 course surface treatment and ACP overlay.

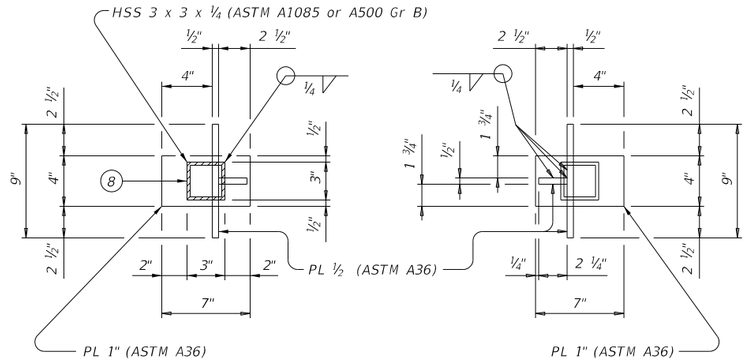
(6) Adjust length to accommodate edge of slab to back of rail for specific project conditions and to help plumb the vertical face of clearance sign.

(8) Hole required in bottom of HSS to drain zinc during galvanizing.

(9) 11" curb is for structures with 2" ACP overlay.

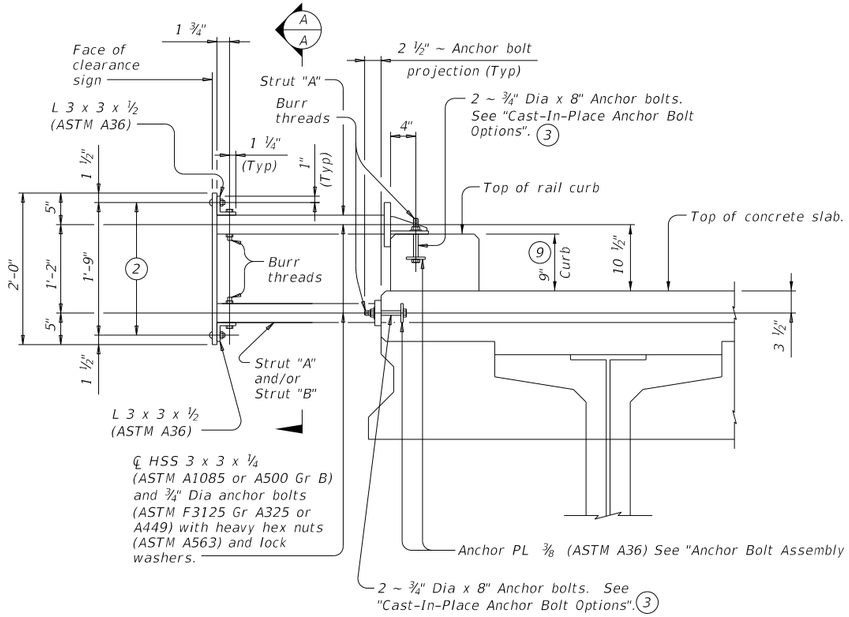


FOR 9" HIGH CURBS



FOR 11" HIGH CURBS

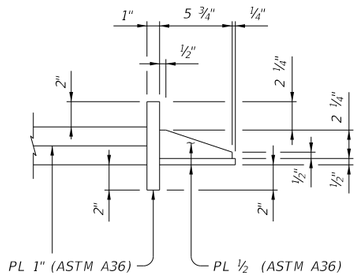
SECTION B-B



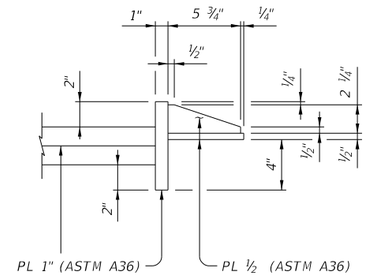
SECTION THRU T1F, T2P, C2P, T1W, C1W, T66 AND C66 RAIL CURB

Showing sign mount on a 9" high curb, 11" high curb similar.

VIEW C-C



FOR 9" HIGH CURBS



FOR 11" HIGH CURBS

VIEW D-D

SHEET 3 OF 3

Texas Department of Transportation

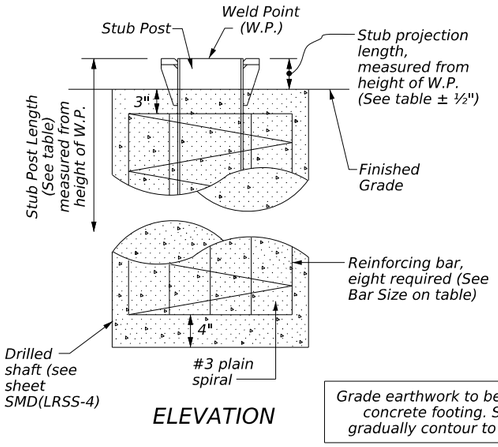
Bridge Division Standard

BRIDGE MOUNTED CLEARANCE SIGN ASSEMBLY

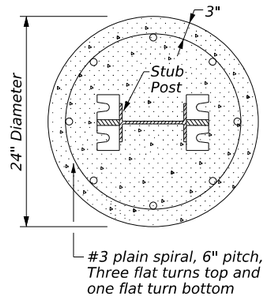
BMCS

FILE: bmcsste1-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1305

REINFORCED FOUNDATION DETAIL



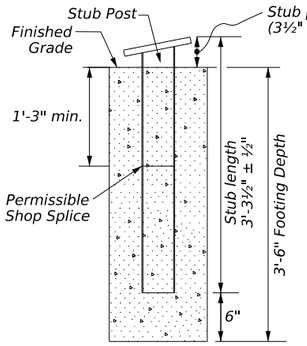
ELEVATION



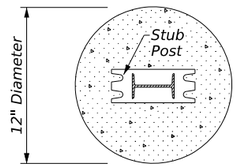
PLAN

Grade earthwork to be flush with the concrete footing. Slopes shall gradually contour to match plans.

⊛ NON-REINFORCED FOUNDATION DETAIL



ELEVATION



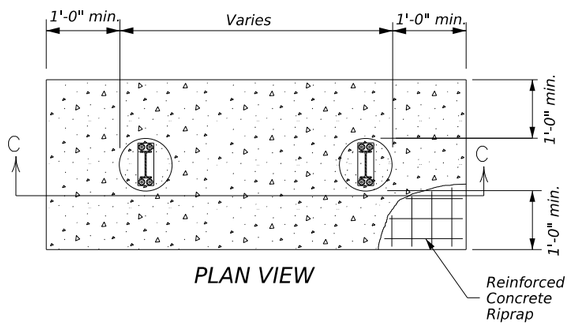
PLAN

Grade earthwork to be flush with the concrete footing. Slopes shall gradually contour to match plans.

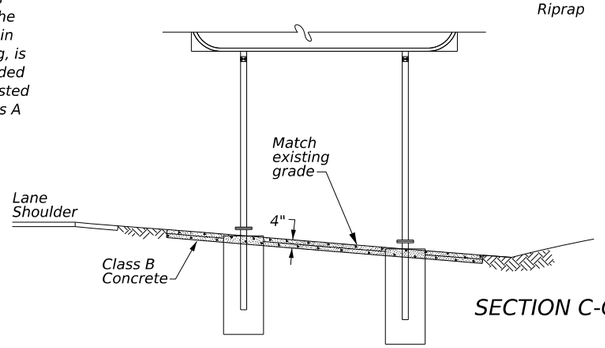
SIGN RIPRAP APRON DETAIL

NOTES:

1. Sign riprap aprons are optional.
2. If used, the depth of the apron shall be 4" or as indicated elsewhere on the plans.
3. Reinforced concrete shall be placed in accordance with Item 432, "Riprap."
4. Typical reinforcement is comprised of #3 or #4 bars @ 12" c.c. in both directions. However, the use of synthetic fiber, in lieu of steel reinforcing, is also acceptable; provided the fiber producer is listed on the "Fibers for Class A and Class B Concrete Applications" Material Producer List (MPL).



PLAN VIEW



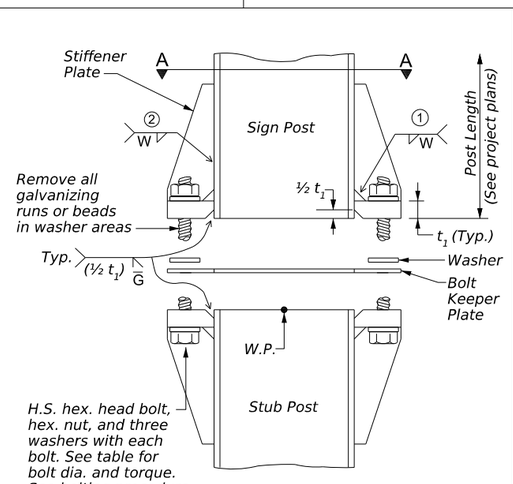
SECTION C-C

BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

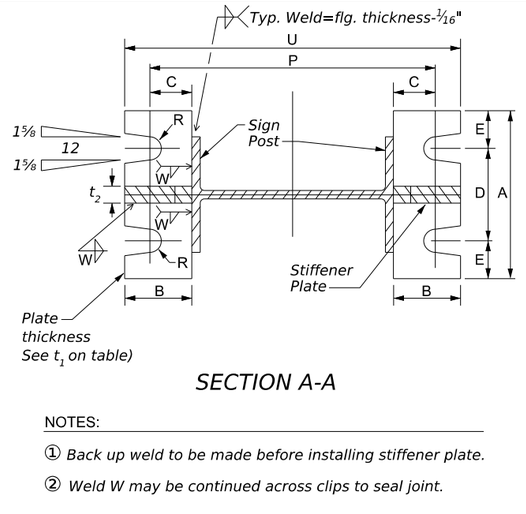
1. Assemble sign post, BOLT KEEPER PLATE and stub post with bolts and three flat washers per bolt, as shown.
2. Shim as required, to plumb post.
3. Tighten all bolts to the maximum possible with a 12 to 15 inch wrench to clean bolt threads and to bed washers and shims.
4. Loosen each bolt in sequence and retighten bolts in a systematic order, to the prescribed torque. Do not overtighten.
5. To prevent nut loosening, burr threads of bolt at junction with nut using a center punch.

STRUCTURAL DATA TABLE

DIMENSIONS	BASE CONNECTION										BOLT KEEPER PLATE			FOUNDATION				
Post Size	Bolt Size & Torque	A	B	C	D	E	t_1	t_2	W	R	P	S	U	Stub length	Stub projection	Drill Shaft diameter	Bar Size	Concrete Type
W12x26	¾"Φ x 3½" 740-750 inch pounds 62-63 foot pounds	6"	2¼"	1⅜"	3½"	1¼"	1"	¾"	5/16"	13/32"	15"	1½"	16¾"	3'-0"	2½"	24"	#11	C
W10x22											12⅞"		14⅜"	3'-0"	2½"		#9	
W8x21											11"		12¾"	3'-0"	2½"		#8	
W8x18	⅝"Φ x 2¾" 440-450 inch pounds 36-38 foot pounds	5"	2"	1¼"	2¾"	1⅛"	¾"	½"	¼"	11/32"	10⅝"	1"	12⅛"	2'-6"	3"		#7	
W6x15											8½"		10"	2'-6"	3"		#6	
W6x9											8⅜"		9⅞"	2'-0"	3"		#5	
S4x7.7	½"Φ x 2½" 440-450 inch pounds 36-38 foot pounds	See Sign Post Stub (S4x7.7 and S3x5.7)									See Sign Post Stub (S4x7.7 and S3x5.7)			3'-3½"	3½"	12"	Non-reinforced ⊛	A
S3x5.7																		



ELEVATION

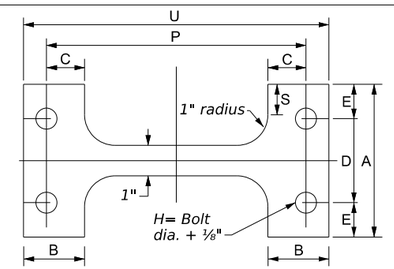


SECTION A-A

NOTES:

① Back up weld to be made before installing stiffener plate.

② Weld W may be continued across clips to seal joint.

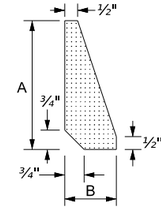


BOLT KEEPER PLATE
30 Ga galv. sheet steel

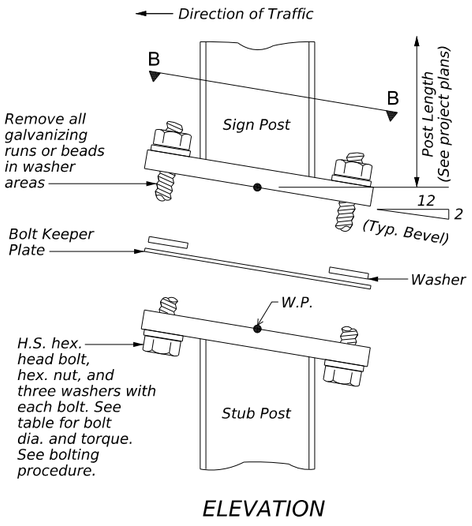
STIFFENER PLATE DETAIL

Steel Plate (thickness = t2)

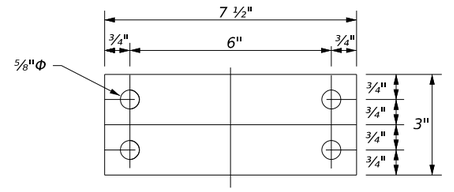
(See Structural Data Table for dimensions)



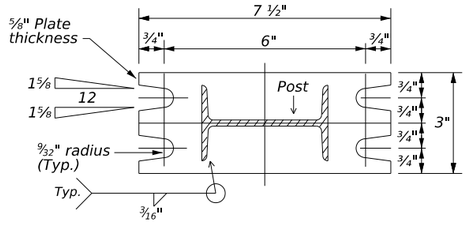
SIGN POST AND STUB POST FOR WIDE FLANGE BEAMS (W)



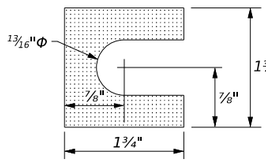
ELEVATION



BOLT KEEPER PLATE
30 ga. galv. sheet steel



SECTION B-B



SHIM DETAIL

Furnish two .012"± thick and two .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM B36.

SIGN POST AND STUB POST (FOR S4x7.7 AND S3x5.7)

Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS LARGE ROADSIDE SIGNS FOUNDATION & STUB

SMD(2-1)-24

FILE: smd(2-1)-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
8-95 5-24 4-98 9-08	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1306

27A

DATE: 10/1/2024 11:21:22 AM
FILE: c:\pwworking\centr-a101\d2097791\smd(2-1)-24.dgn

TYPICAL SIGN INSTALLATION AND LOCATION

LATERAL CLEARANCE NOTES:

1. *Lateral clearances of signs mounted on the median side of the main lanes are the same as shown, where space will permit. Where a sign is to be located behind guardrail, an allowable minimum clearance of 5' may be used, measured from the face of the guardrail to the near edge of sign.*
2. ** 6' minimum and desirable may be used only in areas of limited lateral clearance and when approved by the Engineer.*

POST SPACING NOTES:

1. *Post spacing on a two post sign may be varied a maximum of ±10% of the total sign width to fit field conditions.*
2. *Post spacing on a three post sign may be varied a maximum of ±5% of the total sign width to fit field conditions.*

SIGN HEIGHT NOTES:

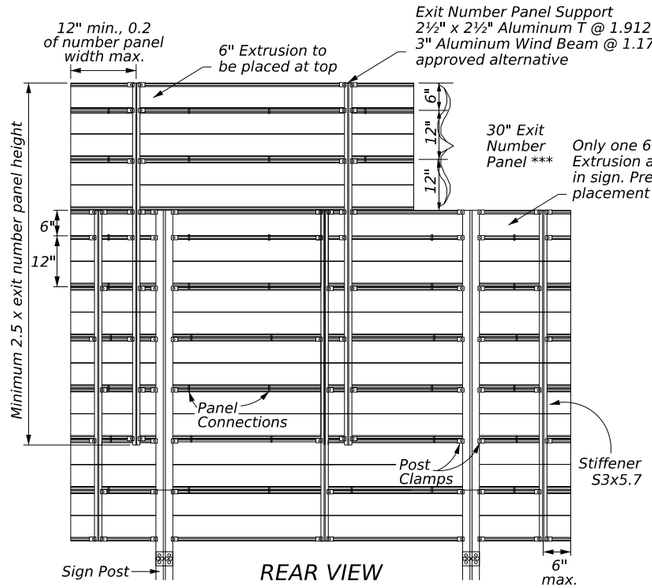
1. *** The 8'-6" maximum may be exceeded when placing signs on extreme slopes. In these conditions, a 7' minimum from natural ground to bottom of sign must be maintained.*

GENERAL NOTES:

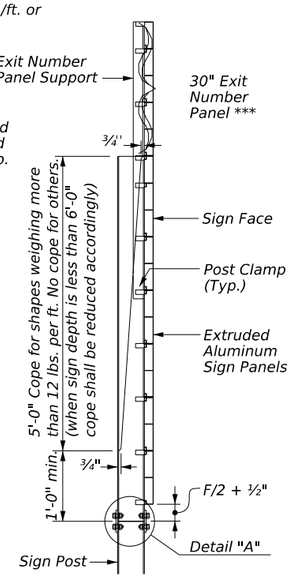
1. *Exit number panel supports shall be ASTM A36 structural steel galvanized after fabrication, or ASTM B221 aluminum alloy 6061-T6 or approved alternative.*
2. *In accordance with DMS-7120, High-Strength (H.S.) Bolts, Nuts, and Washers shall be galvanized per ASTM Designation: B695 Class 50, or A153 Class C or D.*
3. *Posts, parent sign panels, and exit number panels shall comply with notes on sheets SMD(2-1) and SMD(2-3).*
4. *Signs (such as exit number panels) attached above a parent sign shall be made of the same type material as the parent sign. General Service and Routing sign plaques may be fabricated from flat sheet aluminum.*
5. *Exit number panel supports and other connection hardware required to fasten exit number panel to parent sign shall be subsidiary to "Aluminum Signs".*
6. *Signs to be furnished shall be detailed elsewhere in the plans. Refer to the "Typical Sign Requirements" standard for additional information.*
7. **** Alternate exit number panel heights may be used, in accordance with the "Standard Highway Sign Designs for Texas (SHSD)."*

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120

ALUMINUM PARENT SIGN & EXIT NUMBER PANEL MOUNTING DETAILS

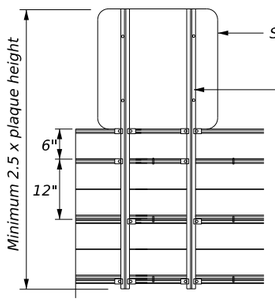


REAR VIEW



SIDE VIEW

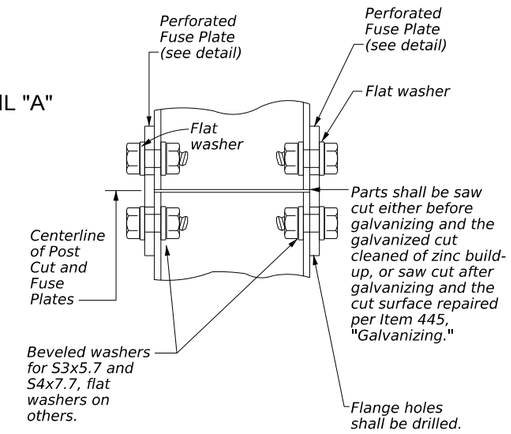
SIGN PLAQUE MOUNTING DETAIL



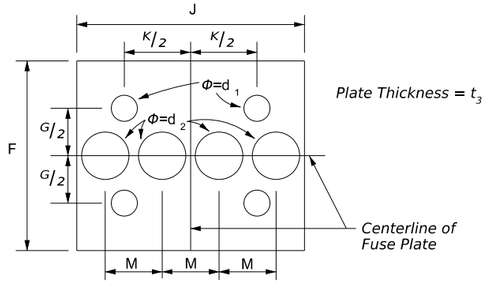
REAR VIEW

NOTE:
A sign plaque may be mounted to the parent sign or the exit number panel. See TSR(2) for typical plaque placement.

DETAIL "A"



PERFORATED FUSE PLATE DETAIL



NOTE:
Use H.S. hex head bolts, hex head nut, and bevel or flat washer (where req'd) under nut. All holes shall be drilled, sub-punched, and reamed. All plate cuts shall preferably be saw cuts. However, flame cutting will be permitted, provided all edges are ground. Metal projecting beyond the plane of the plate face will not be permitted. Steel fuse plates shall conform to the requirements of ASTM A36. ASTM A572 Grade 50 or ASTM A588 may be substituted for A36 at the option of the fabricator. Mill test reports shall be submitted for Fuse Plates. Steel used shall have an ultimate tensile strength not to exceed 80 KSI. For alternative Fuse Plates, contact the Traffic Safety Division.

STRUCTURAL DATA TABLE

DIMENSIONS	PERFORATED FUSE PLATE										
Post Size	F	G	J	K	M	d_1	d_2	t_3	Bolt Dia.	Wt. (ea.) (lbs.)	Bolt length
W12x26	6"	3"	6½"	3½"	1⅜"	13/16"	1 5/16"	½"	¾"	4.47	2¼"
W10x22	6"	3"	5¾"	2¾"	1⅜"	13/16"	1⅛"	½"	¾"	4.03	2¼"
W8x21	5½"	2½"	5¼"	2¾"	1¼"	13/16"	1"	½"	¾"	3.35	2¼"
W8x18	5"	2½"	5¼"	2¾"	1¼"	11/16"	1 1/16"	⅜"	⅝"	2.26	2¼"
W6x15	5"	2½"	6"	3½"	1½"	11/16"	1¼"	⅜"	⅝"	2.51	2¼"
W6x9	4¼"	2"	4"	2¼"	1"	9/16"	¾"	¼"	½"	1.01	1½"
S4x7.7	3¾"	1½"	2⅝"	1½"	⅝"	9/16"	⅜"	¼"	½"	0.60	1½"
S3x5.7											

Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS LARGE ROADSIDE SIGNS EXTRUDED ALUMINUM

SMD(2-2)-24

FILE: smd(2-2)-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
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8-95 9-08 5-24	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1307

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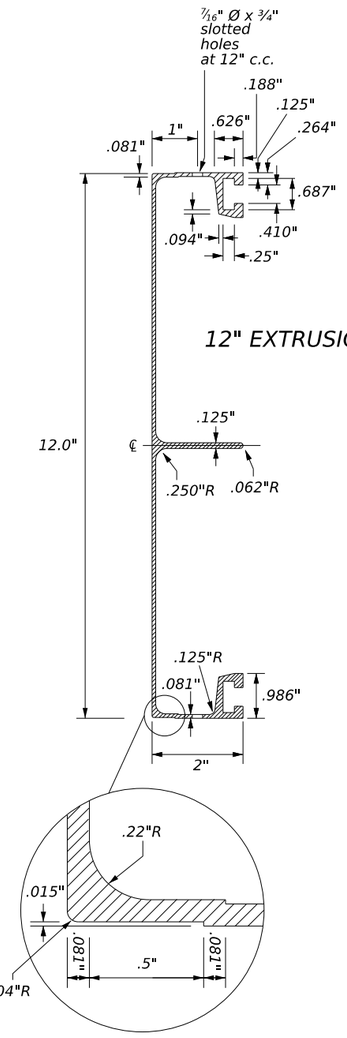
DATE: 10/1/2024 11:21:26 AM
FILE: c:\pwworking\central01\d2097791\smd(2-2)-24.dgn

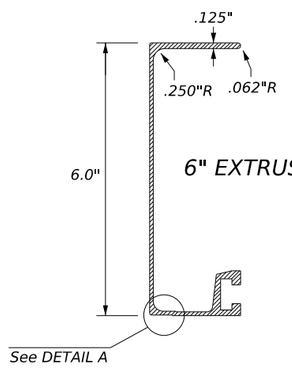
DATE: 10/1/2024 11:21:28 AM
FILE: c:\pwworking\central01\d2097791\smd(2-3)-24.dgn

ALUMINUM SIGN PANEL EXTRUSION DETAILS

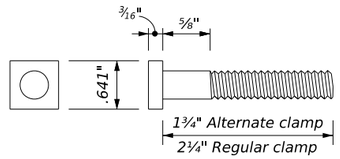


12" EXTRUSION

DETAIL A

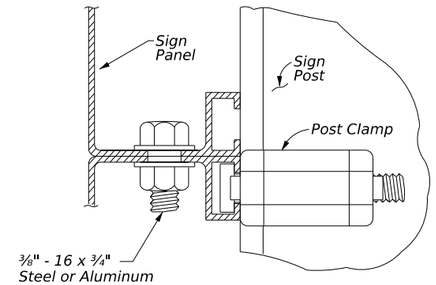


6" EXTRUSION



POST CLAMP BOLT DETAIL

PANEL CONNECTION DETAIL



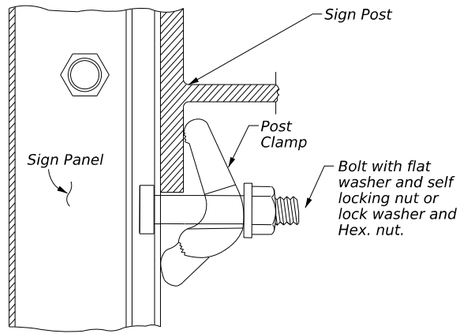
SIDE VIEW OF PANELS

GENERAL NOTES:

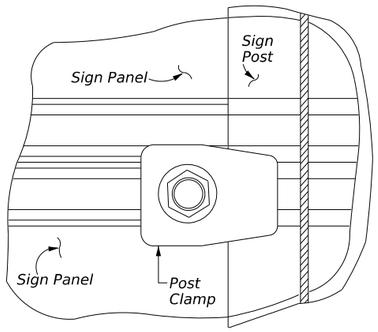
1. *Design conforms with the 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (Large Roadside Signs with a 25-year Mean Recurrence Interval, MRI, and Overhead Signs with a 50-year MRI).*
2. *Materials and fabrication shall conform to the requirements of the Department Material Specifications.*
3. *Structural steel shall be "low-alloy steel" for non-bridge structures per Item 442, "Metal For Structures."*

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	*DMS-7110*
SIGN HARDWARE	*DMS-7120*

POST CONNECTION DETAIL



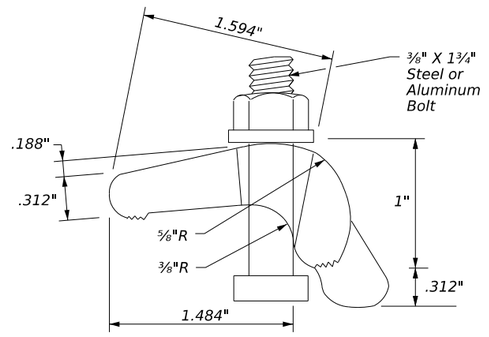
TOP VIEW OF POST



TOP VIEW OF CLAMP

REGULAR POST CLAMP DETAIL

PLAN

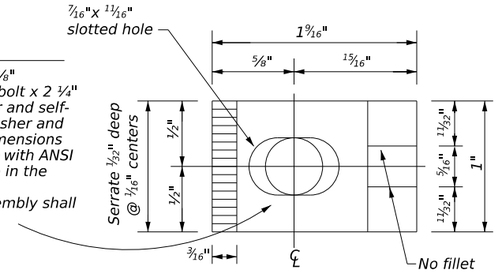


ELEVATION

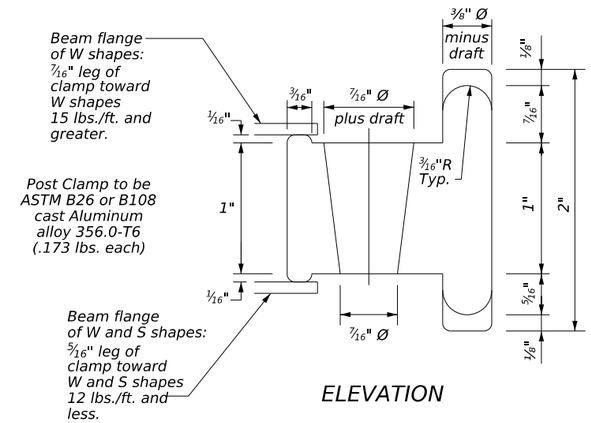
ALTERNATE POST CLAMP DETAIL

NOTE:

Centerline of hole for ⅜" diameter squarehead bolt x 2 ¼" long with a flat washer and self-locking nut, or lock washer and hex. nut. Bolt head dimensions shall be in accordance with ANSI B 18.2.1 as referred to in the AISC Manual of steel construction. Bolt assembly shall be galvanized.

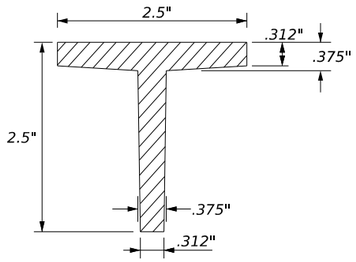


PLAN



ELEVATION

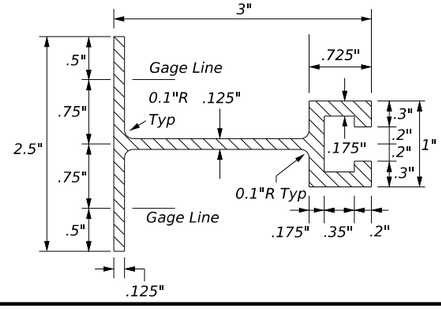
ALUMINUM T SECTION OR APPROVED ALTERNATIVE



1.912 lbs/ft

WINDBEAM CROSS SECTION

Windbeam to be extruded aluminum (1.175 lbs./ft.) or approved alternative



Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS SIGN PANELS & HARDWARE EXTRUDED ALUMINUM

SMD(2-3)-24

FILE: smd(2-3)-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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FILE: c:\pwworking\central01\d2097791\smd(2-4)-24.dgn

TABLE 1

EXAMPLES (FOR DETERMINING Si and Sw)

NO.	SUPPORT	ZONE	"d"	EXIT PANEL	Si	Sw	COMMENT
1	S4x7.7 SPLIT 54%-46%	1	15.0	YES	5.0	10.0	Sw = 2x(Si)
2		2	14.0	YES	7.5	7.5	Sw = Si
3		1	15.0	NO	8.5	8.5	Sw = Si
4		3	14.0	NO	10.0	10.0	Sw = Si

Values shown for Si are maximum values. Si may be varied for different sign lengths and Truss mounting conditions. Sw should not exceed two times Si (Max.) or 10 feet.

TABLE 2

SPLIT 54%-46%

MAXIMUM SIGN SUPPORT SPACING "Si" (FEET)

Bracket Type	"d" Deepest Sign in Group (feet)	EXTRUDED ALUMINUM SIGN PANELS							
		WITH EXIT NUMBER PANELS				WITHOUT EXIT NUMBER PANELS			
		WIND ZONE				WIND ZONE			
		1	2	3	4	1	2	3	4
S4x7.7	17	3.5	4.5	5.5	7	6	7.5	9	10
	16	4	5	6	8	7	9	10	10
	15	5	7	8	10	8.5	10	10	10
	14	6	7.5	9.5	10	10	10	10	10
	13	7.5	9	10	10	10	10	10	10
	12	8.5	10	10	10	10	10	10	10
	< 11	10	10	10	10	10	10	10	10
W6x12	20	6.5	8	9.5	10	10	10	10	10
	19	7.5	9	10	10	10	10	10	10
	18	8	10	10	10	10	10	10	10
	17	9	10	10	10	10	10	10	10
	16	10	10	10	10	10	10	10	10
	15	10	10	10	10	10	10	10	10
	14	10	10	10	10	10	10	10	10
	13	10	10	10	10	10	10	10	10
	12	10	10	10	10	10	10	10	10
	< 11	10	10	10	10	10	10	10	10

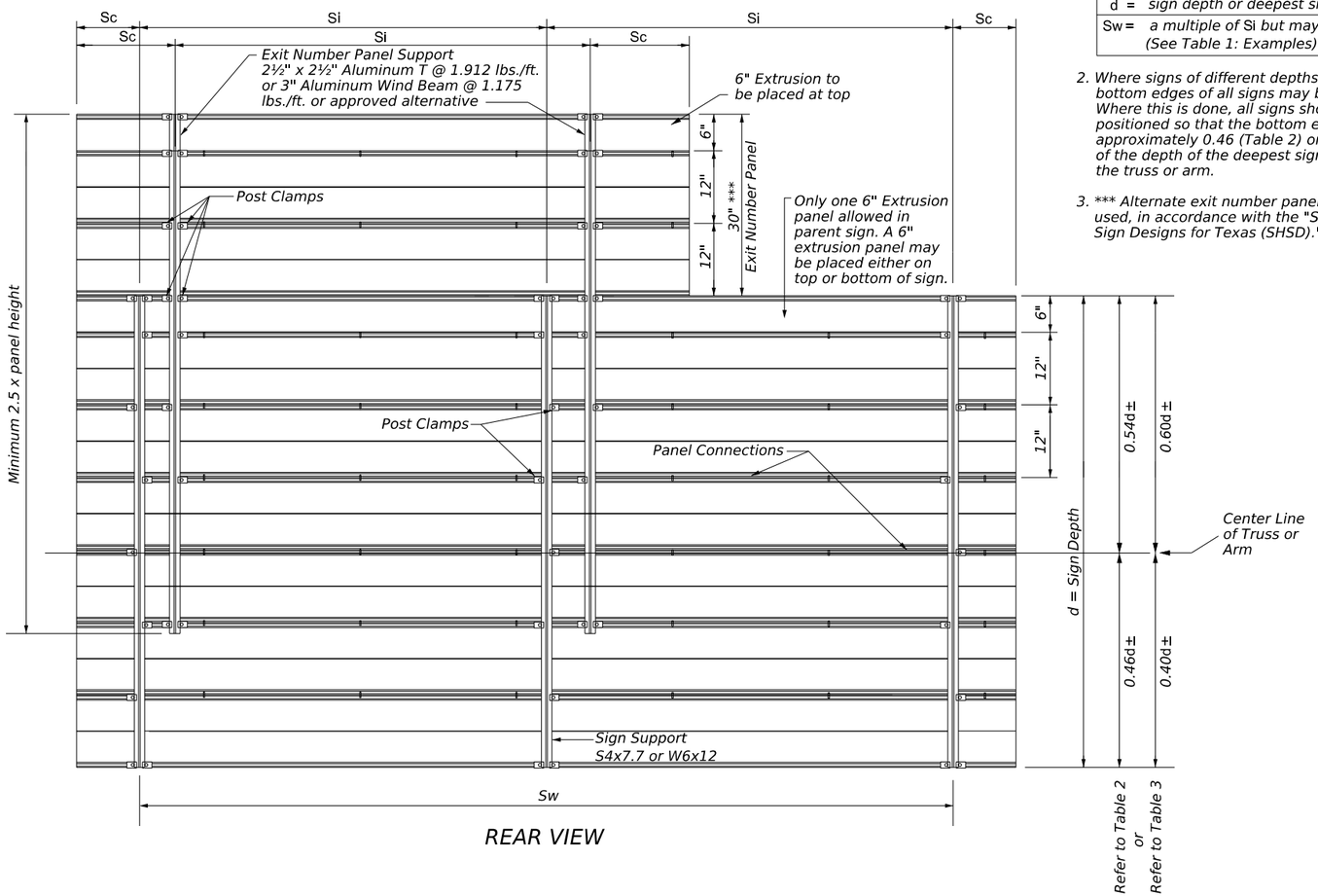
TABLE 3

SPLIT 60%-40%

MAXIMUM SIGN SUPPORT SPACING "Si" (FEET)

Bracket Type	"d" Deepest Sign in Group (feet)	EXTRUDED ALUMINUM SIGN PANELS							
		WITH EXIT NUMBER PANELS				WITHOUT EXIT NUMBER PANELS			
		WIND ZONE				WIND ZONE			
		1	2	3	4	1	2	3	4
S4x7.7	15	3.5	4.5	5.5	7	6	7.5	9.5	10
	14	4	5	6.5	8	7.5	9.5	10	10
	13	5	6	7.5	9	9.5	10	10	10
	12	6	7	9	10	10	10	10	10
	< 11	7	8.5	10	10	10	10	10	10
W6x12	20	5	6	7	9.5	7	9	10	10
	19	5.5	6.5	8	10	8	10	10	10
	18	6	7.5	9	10	9.5	10	10	10
	17	7	8.5	10	10	10	10	10	10
	16	8	9.5	10	10	10	10	10	10
	15	9	10	10	10	10	10	10	10
	14	10	10	10	10	10	10	10	10
	13	10	10	10	10	10	10	10	10
	12	10	10	10	10	10	10	10	10
	< 11	10	10	10	10	10	10	10	10

ALUMINUM PARENT SIGN & EXIT NUMBER PANEL MOUNTING DETAILS



REAR VIEW

GENERAL NOTES:

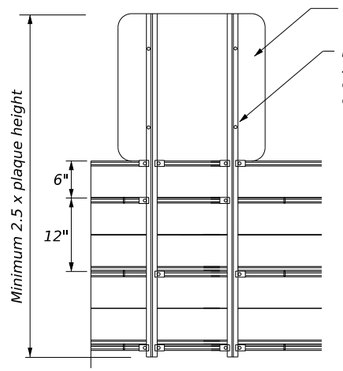
1.

Variables	
Sc =	6" Min., .25 Si Max.
Si =	Max. sign support spacing (feet)
d =	sign depth or deepest sign in group
Sw =	a multiple of Si but may not exceed 10' (See Table 1: Examples)

2. Where signs of different depths are used, the bottom edges of all signs may be placed in line. Where this is done, all signs should be positioned so that the bottom edges are approximately 0.46 (Table 2) or 0.40 (Table 3) of the depth of the deepest sign below the ℄ of the truss or arm.

3. *** Alternate exit number panel heights may be used, in accordance with the "Standard Highway Sign Designs for Texas (SHSD)."

SIGN PLAQUE MOUNTING DETAIL



REAR VIEW

NOTE:
A sign plaque may be mounted to the parent sign or the exit number panel. See TSR(2) for typical plaque placement.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120

Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS OVERHEAD SIGNS EXTRUDED ALUMINUM

SMD(2-4)-24

FILE: smd(2-4)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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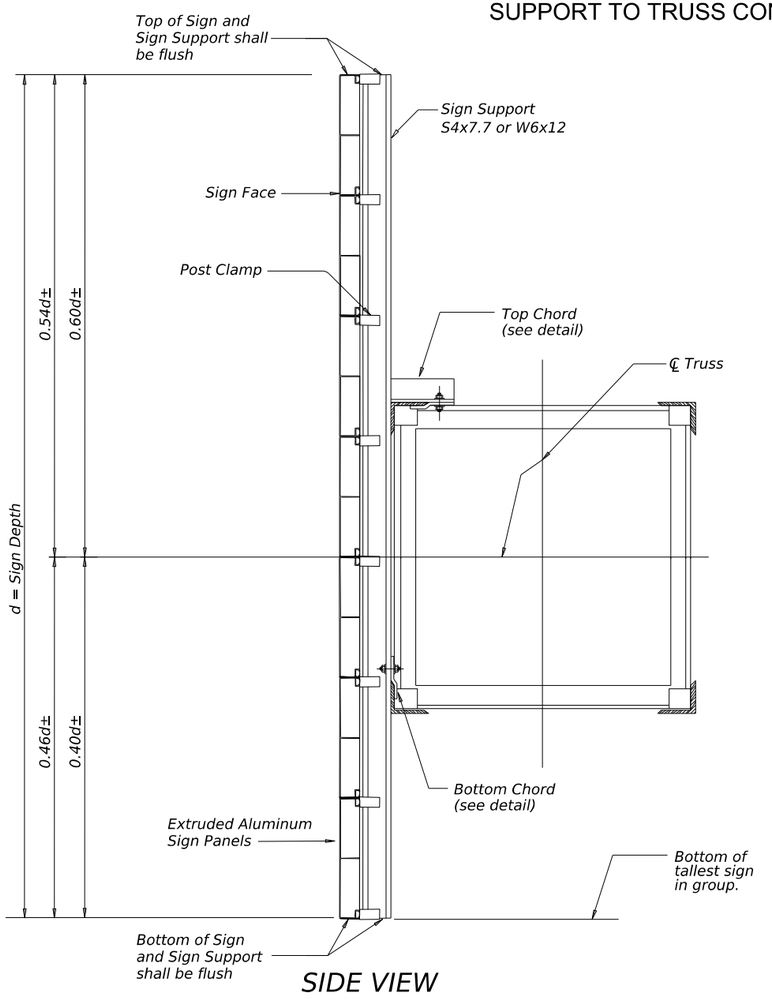
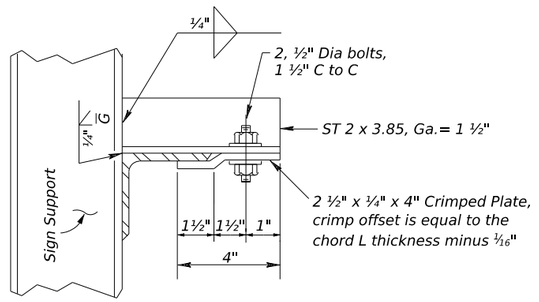
27D

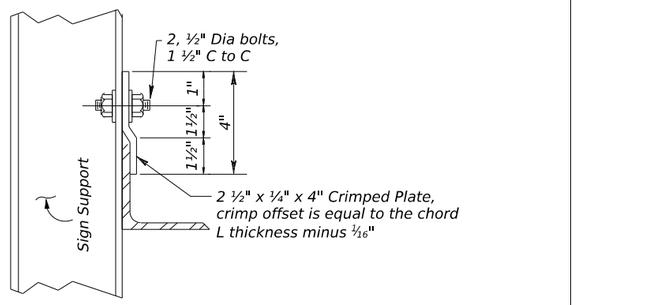
SUPPORT TO TRUSS CONNECTION - COSS AND OSB



SIDE VIEW



TOP CHORD

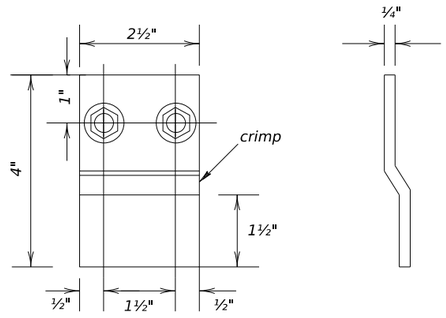


BOTTOM CHORD

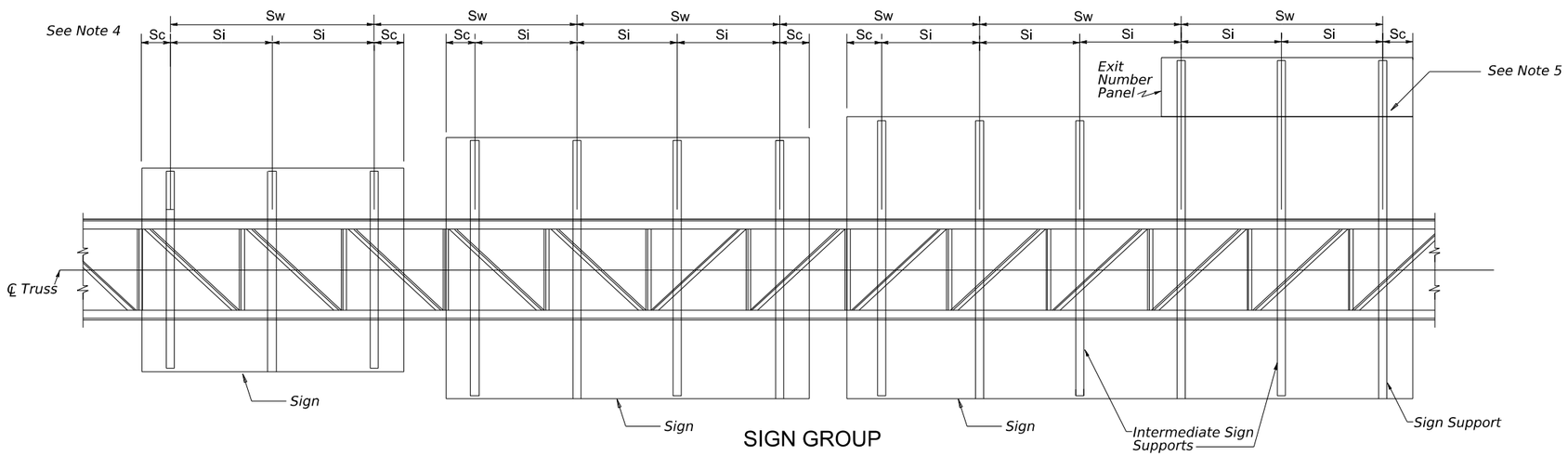
GENERAL NOTES:

1. Materials, fabrication, construction, and erection shall conform to the requirements of the Departmental Material Specifications and with details, dimensions, and weld procedures shown herein. Structural steel shall conform with ASTM A36 unless noted otherwise.
2. Bolts shall have hexagon heads and nuts and conform with ASTM A307.
3. All parts shall be galvanized after fabrication per Item 445, "Galvanizing".
4. See sheet SMD(2-4) for Extruded Aluminum Sign Details & max. support spacing.
5. An Exit Number Panel may be supported by sign support brackets as shown below, or may be supported as shown on sheet SMD(2-4). Regardless of method used spacing of supports shall not exceed Si.

CRIMPED PLATE DETAIL



PLAN ELEVATION



SIGN GROUP

Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS OVERHEAD SIGNS SUPPORT TO TRUSS CONNECTION SMD(2-5)-24

FILE: smd(2-5)-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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12-95 9-08 5-24	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1310

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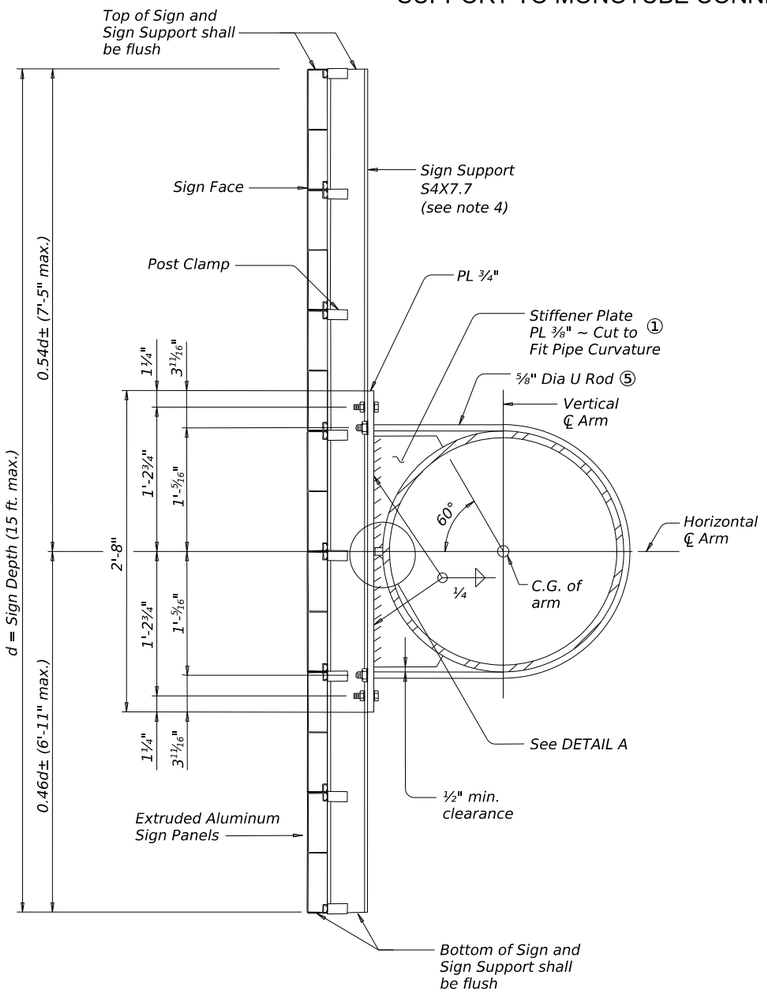
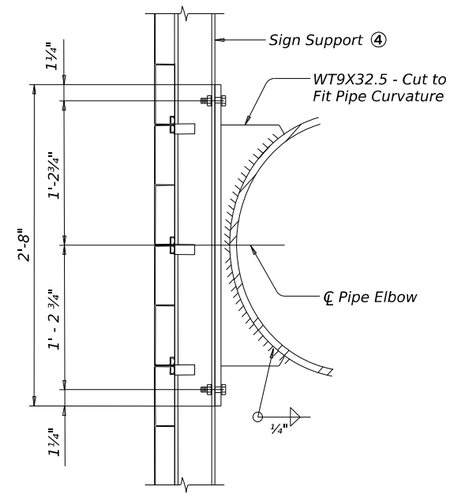
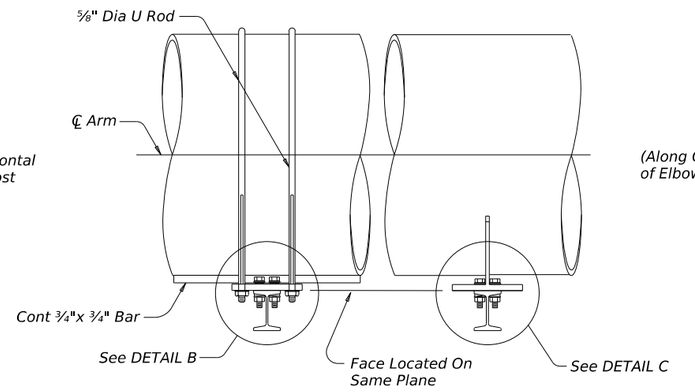
SUPPORT TO MONOTUBE CONNECTION - CANTILEVER AND SPAN



SIDE VIEW



SIDE VIEW
(At Curvature of Elbow)



PLAN VIEW

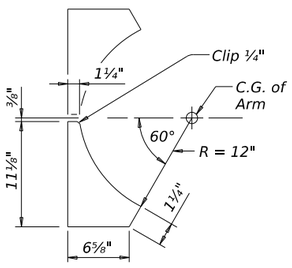
GENERAL NOTES:

1. Materials, fabrication, construction, and erection shall conform to the requirements of the Departmental Material Specifications and with details, dimensions, and weld procedures shown herein. Structural steel shall conform with ASTM A36 unless noted otherwise.
2. Bolts shall have hexagon heads and nuts and conform with ASTM A307.
3. All parts shall be galvanized after fabrication per Item 445, "Galvanizing".
4. Monotube Sign Supports may only be S4X7.7 with a 54%-46% split. See Table 2 on SMD(2-4) for maximum support spacing.

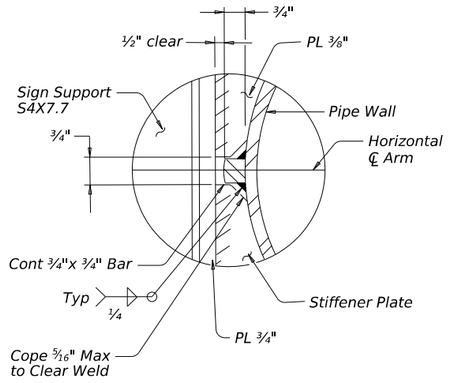
NOTES:

① Total of 4 ~ per assembly. See Stiffener Plate detail.
② ½" Dia bolt with one hardened washer, one beveled washer, and one lock washer.
③ ⅝" Dia prevailing torque lock nut and washer ~ Typ.
④ Raise sign bracket on sign support at elbow to match others located on arm.
⑤ See U Rod detail.

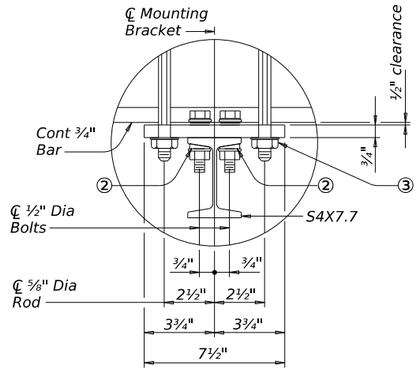
U ROD



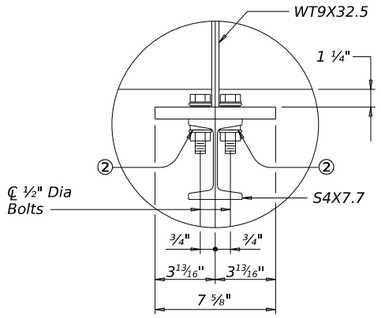
STIFFENER PLATE



DETAIL A



DETAIL B



DETAIL C

Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS OVERHEAD SIGNS SUPPORT TO MONOTUBE CONNECTION SMD(2-6)-24

FILE: smd(2-6)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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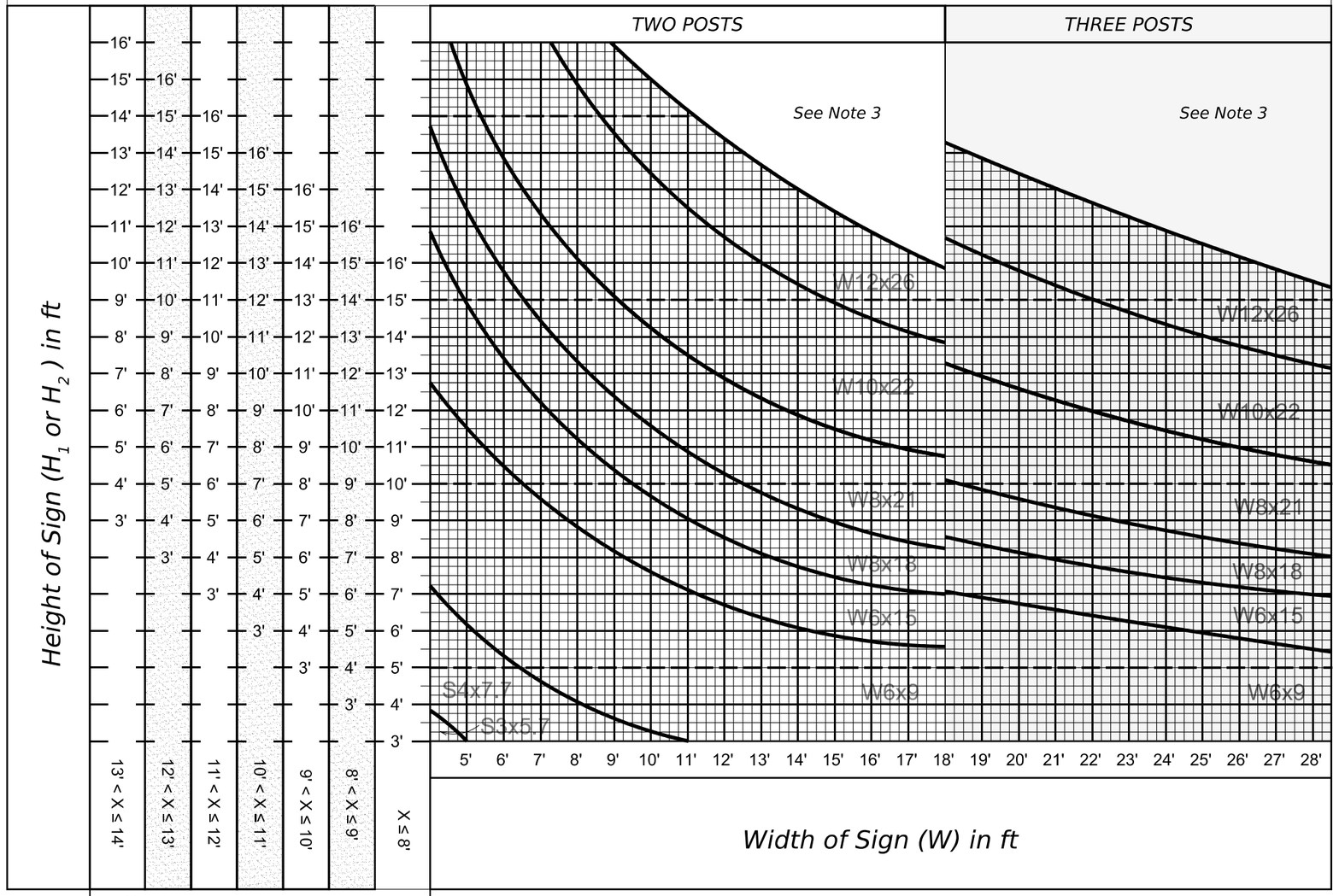
27F

DATE: 10/1/2024 11:21:37 AM
FILE: c:\pwworking\centra01\d2097791\smd(2-6)-24.dgn

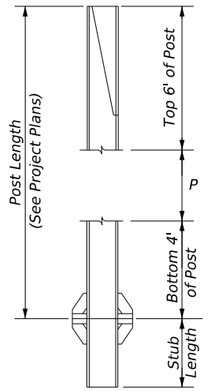
Zone 1 - 90 MPH Wind Chart



X = *the average height from the ground line to the bottom edge of the sign.*

NOTES:

1. *The Post Weight Data Table shows the weight of a one, two, or three post(s) assembly - (this includes the top 6' and bottom 4' of the post, the foundation stub, related base connection plates and stiffeners, perforated fuse plates, and all high strength bolts, nuts, and washers).*
2. *See the Wind Velocity Worksheet to determine the wind zone for each large roadside sign.*
3. *Sign design falls outside of designed support tolerances - adjust sign height and/or width or sign location. In some cases, two post sign designs may be adjusted and increased to a three post sign design.*



For total post weight add length (P) times post weight per ft. to weight shown in table below.

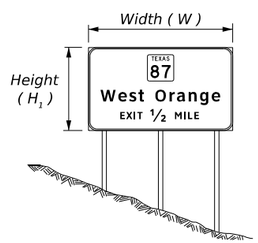
Weight Shown in Table + P x Post Weight per ft. = Total Post Weight

See SOLS (TYG) - Note 5, for example calculation.

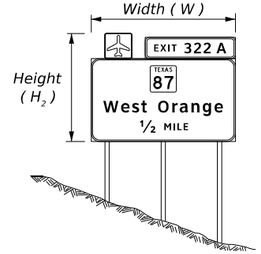
POST WEIGHT DATA

Post Size	Weight of One Post Assembly (lbs)	Weight of Two Post Assembly (lbs)	Weight of Three Post Assembly (lbs)
W12x26*	308.6	617.2	925.8
W10x22*	266.0	532.0	798.0
W8x21*	254.7	509.4	764.1
W8x18*	201.8	403.6	605.4
W6x15*	167.8	335.6	503.4
W6x9*	123.2	246.4	369.6
S4x7.7*	112.2	224.4	336.6
S3x5.7*	85.9	171.8	257.7

** Second number = POST WEIGHT PER FOOT*
(Example: W12X26 weighs 26 pounds/foot of the post length)



OR



NOTE:

If an exit number panel or sign plaque is present, H_2 is to be used when determining post size. H_2 is measured from the bottom of the parent sign to the top of the highest attachment.

Texas Department of Transportation

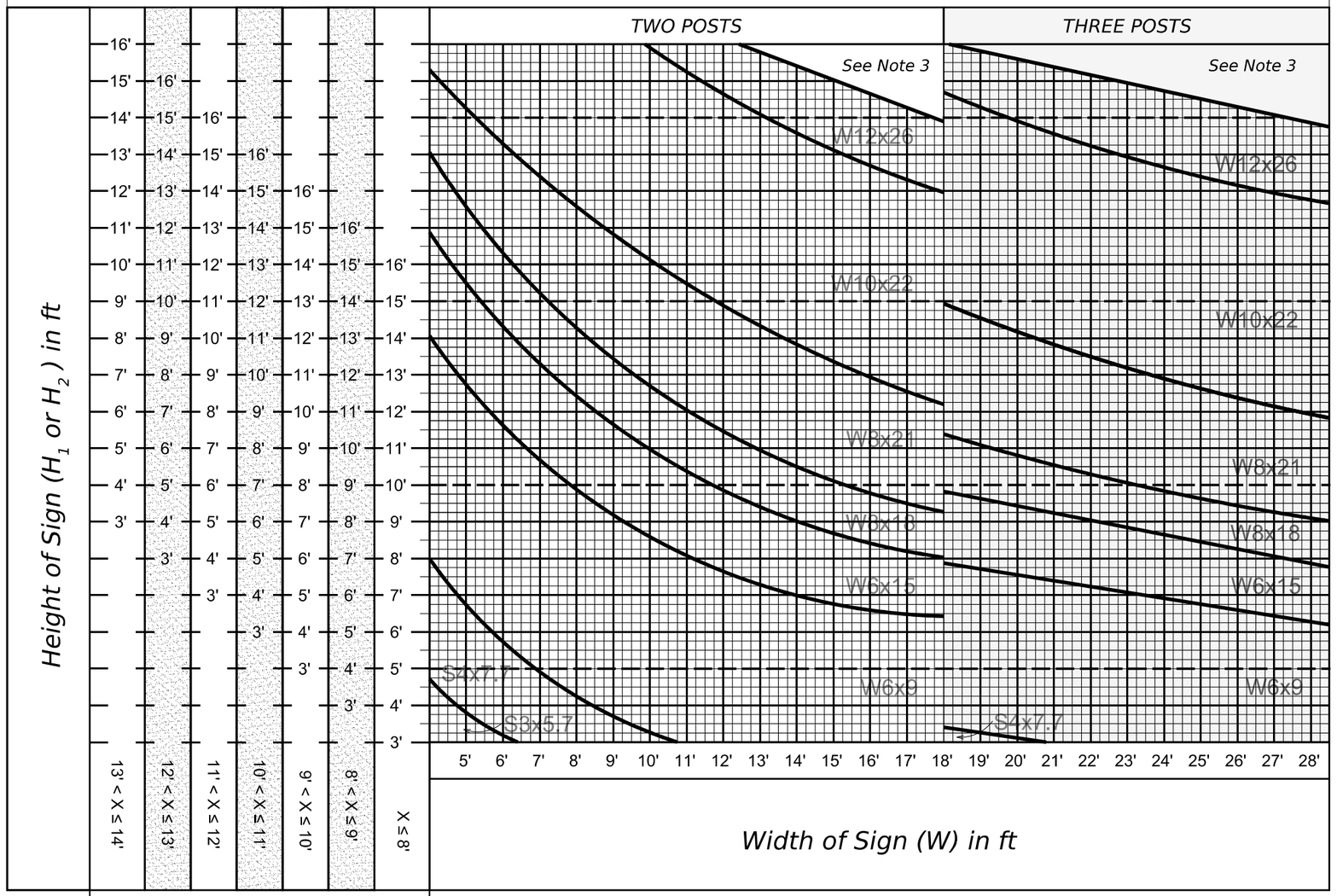
Traffic Safety Division Standard

LARGE ROADSIDE SIGN SUPPORT POST SELECTION WORKSHEET
Zone 1 - 90 MPH
SMD(LRSS-1)-24

FILE: lrss-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
7-78 9-08 1-82 5-24 5-01	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1312
29A				

DATE: 10/1/2024 11:21:42 AM
FILE: c:\pwworking\central01\d2097791\smd-lrss-24.dgn

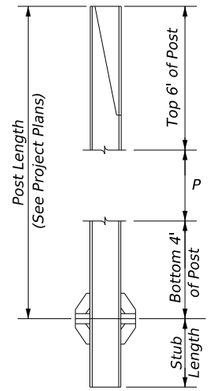
Zone 2 - 80 MPH Wind Chart



X = *the average height from the ground line to the bottom edge of the sign.*

NOTES:

1. *The Post Weight Data Table shows the weight of a one, two, or three post(s) assembly - (this includes the top 6' and bottom 4' of the post, the foundation stub, related base connection plates and stiffeners, perforated fuse plates, and all high strength bolts, nuts, and washers).*
2. *See the Wind Velocity Worksheet to determine the wind zone for each large roadside sign.*
3. *Sign design falls outside of designed support tolerances - adjust sign height and/or width or sign location. In some cases, two post sign designs may be adjusted and increased to a three post sign design.*



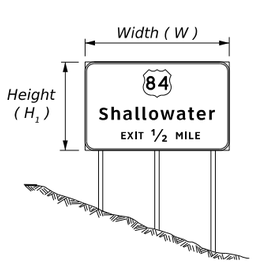
For total post weight add length (P) times post weight per ft. to weight shown in table below.

Weight Shown in Table + *P* x *Post Weight per ft.* = *Total Post Weight*

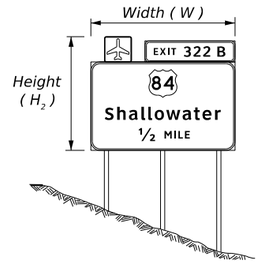
See SOLS (TYG) - Note 5, for example calculation.

POST WEIGHT DATA			
Post Size	*Weight of One Post Assembly (lbs)*	*Weight of Two Post Assembly (lbs)*	*Weight of Three Post Assembly (lbs)*
*W12x26**	*308.6*	*617.2*	*925.8*
*W10x22**	*266.0*	*532.0*	*798.0*
*W8x21**	*254.7*	*509.4*	*764.1*
*W8x18**	*201.8*	*403.6*	*605.4*
*W6x15**	*167.8*	*335.6*	*503.4*
*W6x9**	*123.2*	*246.4*	*369.6*
*S4x7.7**	*112.2*	*224.4*	*336.6*
*S3x5.7**	*85.9*	*171.8*	*257.7*

** Second number = POST WEIGHT PER FOOT*
(Example: W12X26 weighs 26 pounds/foot of the post length)



OR



NOTE:

If an exit number panel or sign plaque is present, H_2 is to be used when determining post size. H_2 is measured from the bottom of the parent sign to the top of the highest attachment.

Texas Department of Transportation

Traffic Safety Division Standard

LARGE ROADSIDE SIGN SUPPORT POST SELECTION WORKSHEET
Zone 2 - 80 MPH
SMD(LRSS-2)-24

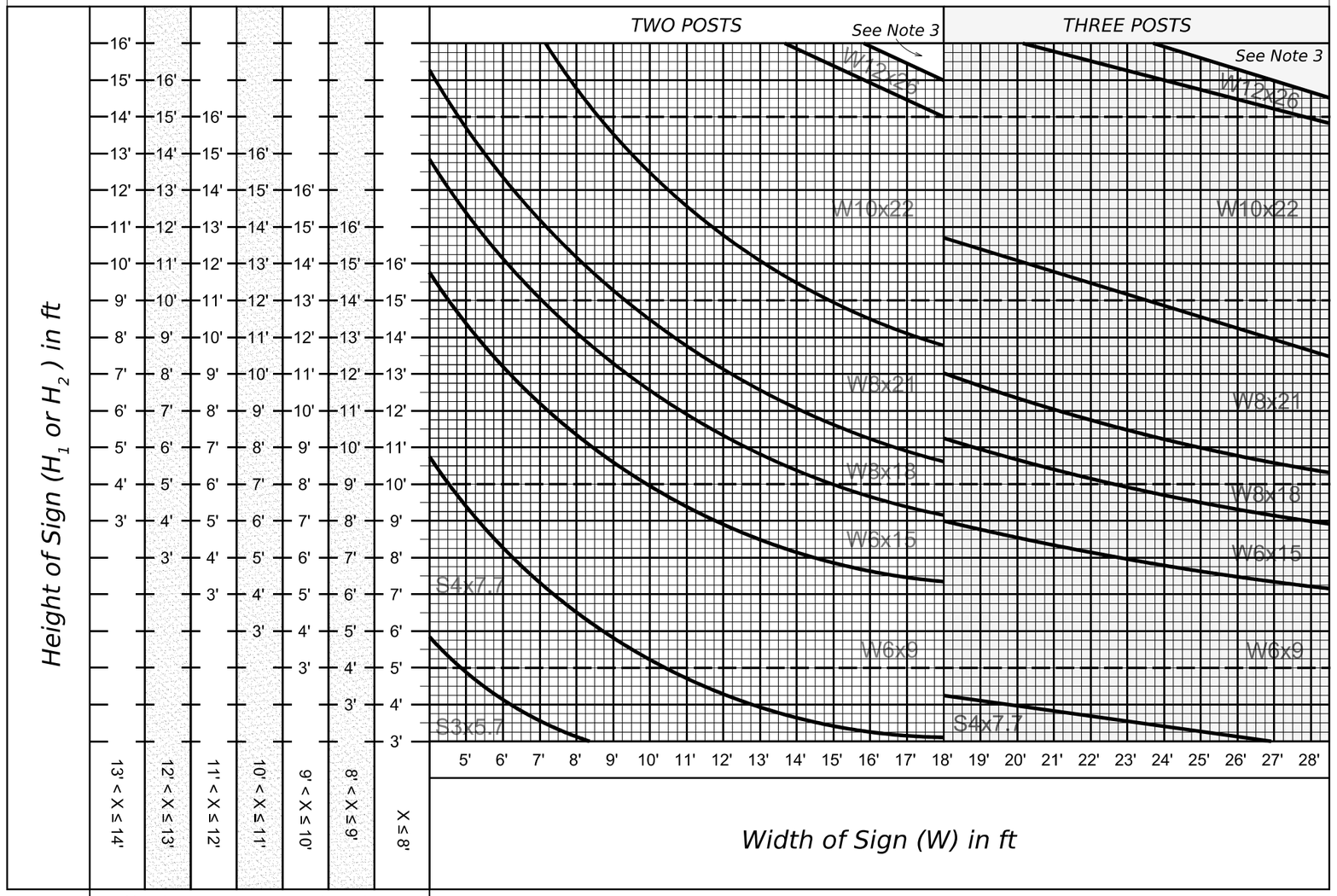
FILE: lrss-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
7-78 9-08 1-82 5-24 5-01	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1313

29B

DATE: 10/1/2024 11:21:44 AM
FILE: c:\pwworking\central01\d2097791\smd-lrss-24.dgn

DATE: 10/1/2024 11:21:45 AM
FILE: c:\pworking\central01\d0209779\smd-lrss-24.dgn

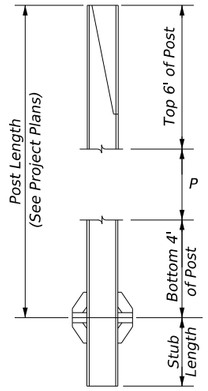
Zone 3 - 70 MPH Wind Chart



X = *the average height from the ground line to the bottom edge of the sign.*

NOTES:

1. *The Post Weight Data Table shows the weight of a one, two, or three post(s) assembly - (this includes the top 6' and bottom 4' of the post, the foundation stub, related base connection plates and stiffeners, perforated fuse plates, and all high strength bolts, nuts, and washers).*
2. *See the Wind Velocity Worksheet to determine the wind zone for each large roadside sign.*
3. *Sign design falls outside of designed support tolerances - adjust sign height and/or width or sign location. In some cases, two post sign designs may be adjusted and increased to a three post sign design.*



For total post weight add length (P) times post weight per ft. to weight shown in table below.

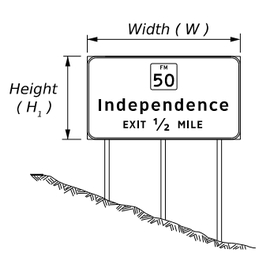
Weight Shown in Table + P x Post Weight per ft. = Total Post Weight

See SOLS (TYG) - Note 5, for example calculation.

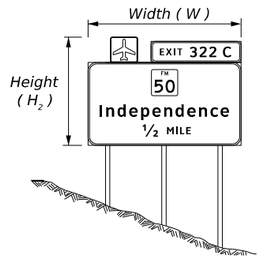
POST WEIGHT DATA

Post Size	Weight of One Post Assembly (lbs)	Weight of Two Post Assembly (lbs)	Weight of Three Post Assembly (lbs)
W12x26*	308.6	617.2	925.8
W10x22*	266.0	532.0	798.0
W8x21*	254.7	509.4	764.1
W8x18*	201.8	403.6	605.4
W6x15*	167.8	335.6	503.4
W6x9*	123.2	246.4	369.6
S4x7.7*	112.2	224.4	336.6
S3x5.7*	85.9	171.8	257.7

** Second number = POST WEIGHT PER FOOT*
(Example: W12X26 weighs 26 pounds/foot of the post length)



OR



NOTE:
If an exit number panel or sign plaque is present, H_2 is to be used when determining post size. H_2 is measured from the bottom of the parent sign to the top of the highest attachment.

Texas Department of Transportation — Traffic Safety Division Standard

LARGE ROADSIDE SIGN SUPPORT POST SELECTION WORKSHEET
Zone 3 - 70 MPH
SMD(LRSS-3)-24

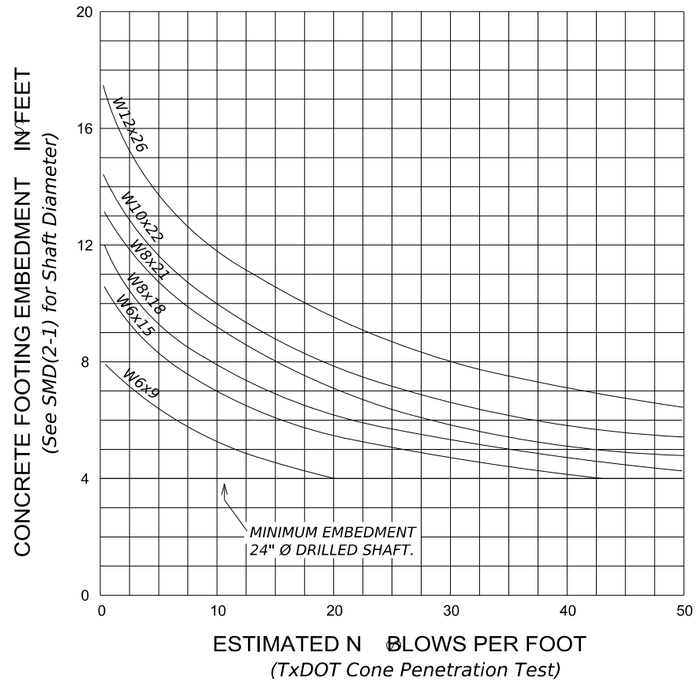
FILE: lrss-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS 7-78 9-08 1-82 5-24 5-01	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1314

29C

DRILLED CONCRETE FOOTING DEPTH CHART

(TxDOT PENETROMETER DESIGN)

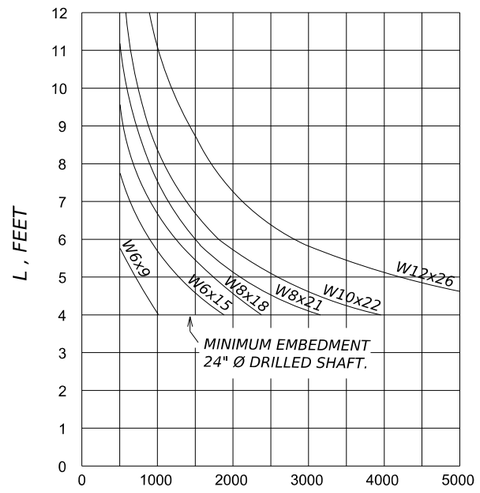
The estimated N value should be based at approximately the upper one-third point of the drilled concrete footing below the ground line.



GENERAL NOTES:

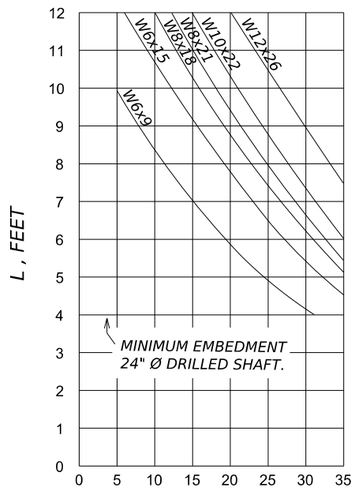
1. *Curves shown on this sheet are applicable for reinforced concrete footings only.*
2. *Reinforced concrete footings shall use class C concrete.*
3. *Footings for S3x5.7 and S4x7.7 post sizes shall be non-reinforced and use class A concrete. For non-reinforced concrete footings see SMD (2-1).*

I



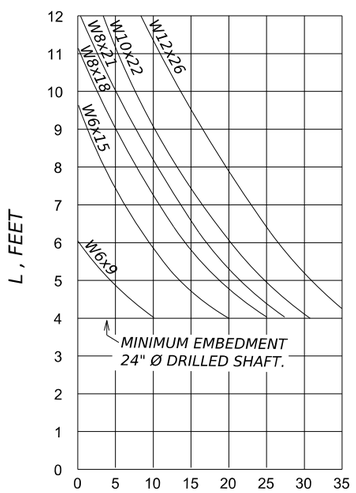
ϕ = 0 Degrees

II



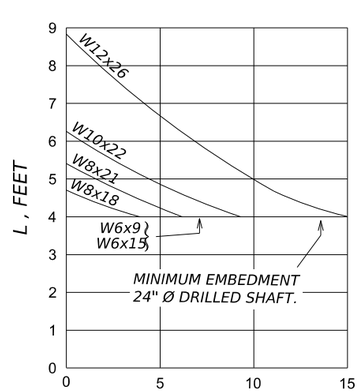
C = 0 PSF

III



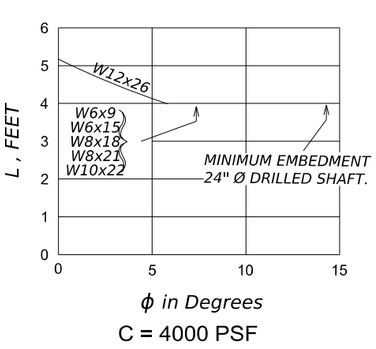
C = 500 PSF

IV



C = 2000 PSF

V



C = 4000 PSF

DRILLED CONCRETE FOOTING DEPTH CHARTS

(COHFRIC DESIGN)

These charts may be used as an alternate to the chart above, provided that soil cohesion and internal friction (cohfric) data are available.

LEGEND

L = Required embedment of concrete drilled shaft, in feet
C = Cohesive shear strength of soil, in psf
ϕ = Angle of internal friction of soil, in degrees

For values of C and ϕ, which are intermediate to those on the charts, embedments may be determined by straight line interpolation.

SHEET 4 OF 4

Texas Department of Transportation

Traffic Safety Division Standard

LARGE ROADSIDE SIGN SUPPORT FOUNDATION WORKSHEET

SMD(LRSS-4)-24

FILE: lrss-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
7-72 9-08 5-74 5-24 4-78	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1315

29D

DATE: 10/1/2024 11:21:46 AM
FILE: c:\pwworking\centra101\d2097791\smd-lrss-24.dgn

ZONE 4 WITH ICE 70 M.P.H. WIND

SPAN	40′	45′	50′	55′	60′	65′	70′	75′
	TRUSS DETAILS — 5/8" Dia. H.S. Bolts, Spans 40′ Thru 95′							
W x D = WIDTH x DEPTH	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0
CHORD -②, Unless Otherwise Shown	L 3 x 3 x 3/16 ③ [4]	L 3 x 3 x 3/16 ③ [4]	L 3 x 3 x 3/16 ③ [4]	L 3 x 3 x 1/4 ③ [4]	L 3 x 3 x 1/4 [6]	L 3 x 3 x 1/4 [6]	L 3 x 3 x 5/16 [6]	L 3 x 3 x 5/16 [8]
DEAD LOAD DIAGONAL -③	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [3]
WIND LOAD DIAGONAL -③	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 3 x 3 x 3/16 [2]	L 3 x 3 x 3/16 [2]	L 3 x 3 x 3/16 [2]
DEAD LOAD VERTICAL -③	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]
WIND LOAD STRUT - ③	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]
TOTAL DEFL. & TRUSS D.L.	DEFL=0.14" L=37 lb/ft	DEFL=0.21" L=37 lb/ft	DEFL=0.31" L=38 lb/ft	DEFL=0.36" L=43 lb/ft	DEFL=0.49" L=43 lb/ft	DEFL=0.67" L=45 lb/ft	DEFL=0.76" L=50 lb/ft	DEFL=0.99" L=50 lb/ft
	TOWER DETAILS							
S = COLUMN SPACING	6.0′	6.0′	6.0′	6.0′	6.0′	6.0′	6.5′	6.5′
TOWER HEIGHT								
15′	**W 10 x 15 (13.8)**	W 10 x 15 (15.4)	W 10 x 15 (17.0)	W 10 x 15 (18.5)	W 10 x 15 (20.0)	W 10 x 15 (21.6)	W 10 x 15 (21.1)	W 10 x 17 (22.6)
16′	W 10 x 15 (14.8)	W 10 x 15 (16.5)	W 10 x 15 (18.2)	W 10 x 15 (19.8)	W 10 x 15 (21.5)	W 10 x 15 (23.2)	W 10 x 15 (22.6)	W 10 x 17 (24.2)
17′	W 10 x 15 (15.8)	W 10 x 15 (17.6)	W 10 x 15 (19.4)	W 10 x 15 (21.1)	W 10 x 15 (23.0)	W 10 x 15 (24.8)	W 10 x 17 (24.1)	W 10 x 17 (25.8)
18′	W 10 x 15 (16.8)	W 10 x 15 (18.7)	W 10 x 15 (20.6)	W 10 x 15 (22.5)	W 10 x 15 (24.4)	W 10 x 17 (26.3)	W 10 x 17 (25.6)	W 10 x 17 (27.4)
19′	W 10 x 15 (17.8)	W 10 x 15 (19.8)	W 10 x 15 (21.8)	W 10 x 15 (23.8)	W 10 x 15 (25.8)	W 10 x 17 (27.8)	W 10 x 22 (27.1)	W 10 x 22 (29.0)
20′	W 10 x 15 (18.8)	W 10 x 15 (20.9)	W 10 x 15 (23.1)	W 10 x 17 (25.1)	W 10 x 17 (27.1)	W 10 x 17 (29.3)	W 10 x 22 (28.6)	W 10 x 22 (30.6)
21′	W 10 x 15 (19.8)	W 10 x 15 (22.1)	W 10 x 15 (24.3)	W 10 x 17 (26.5)	W 10 x 17 (28.6)	W 10 x 22 (30.8)	W 10 x 22 (30.2)	W 10 x 22 (32.3)
22′	W 10 x 15 (20.9)	W 10 x 15 (23.2)	W 10 x 17 (25.6)	W 10 x 17 (27.8)	W 10 x 17 (30.0)	W 10 x 22 (32.4)	W 10 x 22 (31.7)	W 10 x 22 (33.9)
23′	W 10 x 15 (21.9)	W 10 x 15 (24.4)	W 10 x 17 (26.8)	W 10 x 22 (29.2)	W 10 x 22 (31.5)	W 10 x 22 (33.9)	W 10 x 22 (33.3)	W 10 x 22 (35.5)
24′	W 10 x 17 (23.0)	W 10 x 17 (25.5)	W 10 x 22 (28.1)	W 10 x 22 (30.6)	W 10 x 22 (33.0)	W 10 x 22 (35.5)	W 10 x 22 (34.8)	W 10 x 22 (37.2)
25′	W 10 x 17 (24.0)	W 10 x 17 (26.7)	W 10 x 22 (29.4)	W 10 x 22 (32.0)	W 10 x 22 (34.5)	W 10 x 22 (37.1)	W 10 x 26 (36.4)	W 10 x 26 (38.9)
26′	W 10 x 17 (25.1)	W 10 x 22 (27.9)	W 10 x 22 (30.6)	W 10 x 22 (33.3)	W 10 x 22 (36.0)	W 10 x 22 (38.7)	W 10 x 26 (37.9)	W 10 x 26 (40.5)
27′	W 10 x 22 (26.2)	**W 10 x 22 (29.1)**	W 10 x 22 (31.9)	W 10 x 22 (34.7)	W 10 x 26 (37.5)	W 10 x 26 (40.3)	W 10 x 26 (39.5)	W 12 x 26 (42.6)
28′	W 10 x 22 (27.3)	W 10 x 22 (30.3)	W 10 x 22 (33.2)	W 10 x 22 (36.2)	W 10 x 26 (39.0)	W 10 x 26 (41.9)	W 10 x 26 (41.1)	W 12 x 26 (44.3)
29′	W 10 x 22 (28.4)	W 10 x 22 (31.5)	W 10 x 22 (34.5)	W 10 x 26 (37.6)	W 10 x 26 (40.5)	W 12 x 26 (43.1)	W 12 x 26 (43.1)	W 12 x 26 (46.0)
30′	W 10 x 22 (29.5)	W 10 x 22 (36.7)	W 10 x 26 (35.9)	W 10 x 26 (39.0)	W 10 x 26 (42.0)	W 12 x 26 (44.7)	W 12 x 26 (44.7)	W 12 x 26 (47.7)

COLUMN SIZE & UPLIFT (kips)

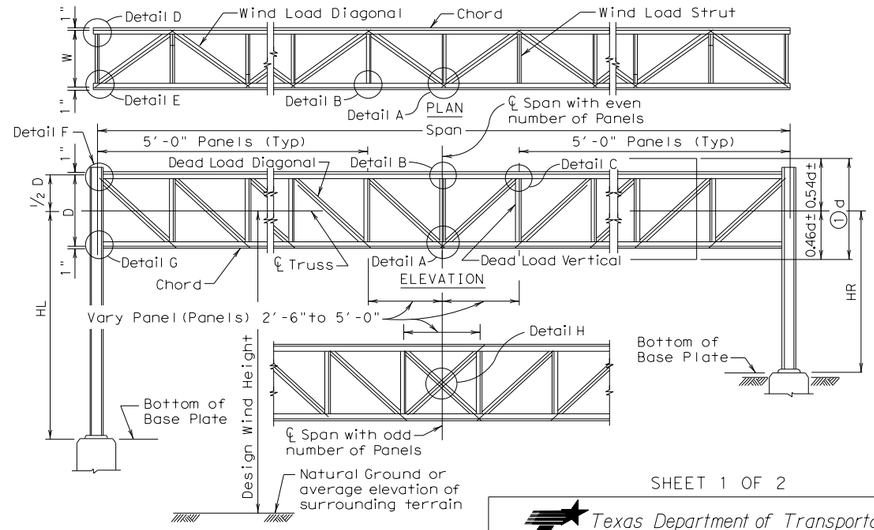
Tower Height = (HL + HR)/2

ZONE 4 WITH ICE 70 M.P.H. WIND

SPAN	80′	85′	90′	95′
	TRUSS DETAILS — 5/8" Dia. H.S. Bolts, Spans 40′ Thru 95′			
W x D = WIDTH x DEPTH	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0
CHORD -②, Unless Otherwise Shown	L 3 x 3 x 3/8 [9]	L 3 x 3 x 7/16 [10]	L 3 1/2 x 3 1/2 x 3/8 [11]	L 3 1/2 x 3 1/2 x 3/8 [11]
DEAD LOAD DIAGONAL -③	L 2 1/2 x 2 1/2 x 3/16 [3]	L 2 1/2 x 2 1/2 x 3/16 [3]	L 3 x 2 x 3/16 [3]	L 3 x 2 x 3/16 [3]
WIND LOAD DIAGONAL -③	L 3 x 3 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 3 x 3 x 1/4 [3]	L 3 x 2 1/2 x 1/4 [3]
DEAD LOAD VERTICAL -③	L 2 x 2 x 3/16 [2]	L 3 x 2 x 3/16 [2]	L 3 x 2 x 3/16 [2]	L 3 x 2 x 3/16 [2]
WIND LOAD STRUT - ③	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]
TOTAL DEFL. & TRUSS D.L.	DEFL=1.12" L=56 lb/ft	DEFL=1.28" L=63 lb/ft	DEFL=1.58" L=63 lb/ft	DEFL=1.94" L=66 lb/ft
	TOWER DETAILS			
S = COLUMN SPACING	6.5′	6.5′	6.5′	6.5′
TOWER HEIGHT				
15′	**W 10 x 17 (23.4)**	W 10 x 17 (24.7)	W 10 x 17 (26.2)	W 10 x 22 (27.6)
16′	W 10 x 17 (25.0)	W 10 x 17 (26.5)	W 10 x 22 (28.0)	W 10 x 22 (29.5)
17′	W 10 x 17 (26.7)	W 10 x 22 (28.2)	W 10 x 22 (29.9)	W 10 x 22 (31.4)
18′	W 10 x 17 (28.3)	W 10 x 22 (30.0)	W 10 x 22 (31.7)	W 10 x 22 (33.4)
19′	W 10 x 22 (30.0)	W 10 x 22 (31.8)	W 10 x 22 (33.6)	W 10 x 22 (35.4)
20′	W 10 x 22 (31.7)	W 10 x 22 (33.5)	W 10 x 22 (35.5)	W 10 x 22 (37.3)
21′	W 10 x 22 (33.4)	W 10 x 22 (35.3)	W 10 x 26 (37.3)	W 10 x 26 (39.3)
22′	W 10 x 22 (35.1)	W 10 x 22 (37.1)	W 10 x 26 (39.2)	W 10 x 26 (41.3)
23′	W 10 x 26 (36.8)	W 10 x 26 (38.9)	W 10 x 26 (41.1)	W 12 x 26 (43.6)
24′	W 10 x 26 (38.5)	W 10 x 26 (40.7)	W 10 x 26 (43.0)	W 12 x 26 (45.6)
25′	W 10 x 26 (40.2)	W 12 x 26 (42.9)	W 12 x 26 (45.3)	W 12 x 26 (47.6)
26′	W 10 x 26 (41.9)	W 12 x 26 (44.7)	W 12 x 26 (47.2)	W 12 x 26 (49.7)
27′	W 12 x 26 (44.0)	W 12 x 26 (46.5)	W 12 x 26 (49.2)	W 12 x 26 (51.7)
28′	W 12 x 26 (45.8)	W 12 x 26 (48.4)	W 12 x 26 (51.1)	W 12 x 26 (53.8)
29′	W 12 x 26 (47.6)	W 12 x 26 (50.3)	W 12 x 26 (53.1)	W 14 x 30 (55.9)
30′	W 12 x 26 (49.3)	W 12 x 26 (52.2)	W 14 x 30 (55.1)	W 14 x 30 (58.0)

COLUMN SIZE & UPLIFT (kips)

Tower Height = (HL + HR)/2



① d = Sign Depth
Where signs of different depths are used, the bottom edges of all signs may be placed in line. Where this is done, all signs should be so positioned that the bottom edges are approximately 0.46 of the depth of the deepest sign below the ℄ of the truss.

② "Low-Alloy Steel" for non-bridge structures per Item 442, "Metal For Structures".

③ "Carbon Steel" for non-bridge structures per Item 442, "Metal For Structures".

SHEET 1 OF 2

Texas Department of Transportation
Traffic Operations Division

OVERHEAD SIGN BRIDGE DETAILS

OSB-Z4I

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
	CONT	SECT	JOB	HIGHWAY
	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1316

43A

DATE: 10/1/2024 11:22:38 AM
FILE: c:\pwworking\central01\d2097791\stds43.dgn

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ZONE 4 WITH ICE 70 M.P.H. WIND

	TRUSS DETAILS (¾" Dia. H.S. Bolts, Spans 96′ Thru 155′)																	
SPAN	100′		105′		110′		115′		120′		125′		130′		135′	
W x D = WIDTH x DEPTH	4.5 x 4.5		4.5 x 4.5		4.5 x 4.5		4.5 x 4.5		5.0 x 5.0		5.0 x 5.0		5.0 x 5.0		5.0 x 5.0	
CHORD -②, Unless Otherwise Shown	L 3 ½x 3 ½x ⅜	[7]	L 3 ½x 3 ½x 7/16	[9]	L 4 x 4 x ⅜	[9]	L 4 x 4 x ⅜	[10]	L 4 x 4 x ⅜	[10]	L 4 x 4 x 7/16	[11]	L 4 x 4 x ½	[12]	L 4 x 4 x ½	[13]
DEAD LOAD DIAGONAL -③	L 3 x 2 x ⅜	[2]	L 3 x 2 ½x ⅜	[3]	L 3 x 3 x ⅜	[3]	L 3 x 3 x ⅜	[3]	L 3 x 3 x ⅜	[3]	L 3 x 2 x ¼	[3]	L 3 x 2 x ¼	[3]	L 3 x 2 ½x ¼	[3]
WIND LOAD DIAGONAL -③	L 3 x 2 ½x ¼	[2]	L 3 x 2 ½x ¼	[2]	L 3 x 2 ½x ¼	[2]	L 3 x 3 x ¼	[2]	L 3 x 3 x ¼	[2]	L 3 x 3 x ¼	[2]	L 3 x 3 x ¼	[2]	L 3 x 3 x ¼	[3]
DEAD LOAD VERTICAL -③	L 3 x 2 x ⅜	[2]	L 3 x 2 x ⅜	[2]	L 3 x 2 x ⅜	[2]	L 3 x 2 ½x ⅜	[2]	L 3 x 2 ½x ⅜	[2]	L 3 x 2 ½x ⅜	[2]	L 3 x 2 ½x ⅜	[2]	L 3 x 3 x ⅜	[2]
WIND LOAD STRUT - ③	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]
TOTAL DEFL. & TRUSS D.L.	DEFL=1.94" L=69 lb/ft		DEFL=2.14" L=76 lb/ft		DEFL=2.60" L=78 lb/ft		DEFL=3.02" L=78 lb/ft		DEFL=2.97" L=81 lb/ft		DEFL=3.16" L=88 lb/ft		DEFL=3.46" L=93 lb/ft		DEFL=3.91" L=97 lb/ft	
	TOWER DETAILS															
S = COLUMN SPACING	7.0′		7.0′		7.0′		7.0′		7.0′		7.0′		7.0′		7.0′	
TOWER HEIGHT																
15′	W 10 x 22	(27.5)	W 10 x 22	(28.7)	W 10 x 22	(30.1)	W 10 x 22	(31.5)	W 10 x 22	(32.8)	W 10 x 26	(34.0)	W 10 x 26	(35.5)	W 10 x 26	(36.9)
16′	W 10 x 22	(29.5)	W 10 x 22	(30.8)	W 10 x 22	(32.3)	W 10 x 22	(33.7)	W 10 x 22	(35.1)	W 10 x 26	(36.4)	W 10 x 26	(38.1)	W 10 x 26	(39.5)
17′	W 10 x 22	(31.4)	W 10 x 22	(32.8)	W 10 x 22	(34.4)	W 10 x 22	(35.9)	W 10 x 26	(37.6)	W 10 x 26	(39.0)	W 10 x 26	(40.6)	W 10 x 26	(42.2)
18′	W 10 x 22	(33.4)	W 10 x 22	(34.9)	W 10 x 22	(36.6)	W 10 x 26	(38.2)	W 10 x 26	(40.0)	W 10 x 26	(41.5)	W 10 x 26	(43.2)	W 10 x 26	(44.8)
19′	W 10 x 22	(35.5)	W 10 x 26	(36.8)	W 10 x 26	(38.5)	W 10 x 26	(40.5)	W 10 x 26	(42.2)	W 12 x 26	(44.1)	W 12 x 26	(45.8)	W 12 x 26	(47.5)
20′	W 10 x 22	(37.3)	W 10 x 26	(38.8)	W 10 x 26	(40.7)	W 10 x 26	(42.7)	W 10 x 26	(44.5)	W 12 x 26	(46.6)	W 12 x 26	(48.3)	W 12 x 26	(50.2)
21′	W 10 x 26	(39.3)	W 10 x 26	(41.1)	W 12 x 26	(43.1)	W 12 x 26	(45.2)	W 12 x 26	(47.3)	W 12 x 26	(49.1)	W 12 x 26	(50.9)	W 12 x 26	(52.8)
22′	W 10 x 26	(41.3)	W 10 x 26	(43.2)	W 12 x 26	(45.3)	W 12 x 26	(47.5)	W 12 x 26	(49.7)	W 12 x 26	(51.6)	W 12 x 26	(53.5)	W 12 x 26	(55.5)
23′	W 12 x 26	(43.6)	W 12 x 26	(45.6)	W 12 x 26	(47.5)	W 12 x 26	(49.8)	W 12 x 26	(52.1)	W 12 x 26	(54.1)	W 14 x 30	(56.6)	W 14 x 30	(58.7)
24′	W 12 x 26	(45.6)	W 12 x 26	(47.7)	W 12 x 26	(49.7)	W 12 x 26	(52.1)	W 12 x 26	(54.5)	W 14 x 30	(56.6)	W 14 x 30	(59.2)	W 14 x 30	(61.5)
25′	W 12 x 26	(47.6)	W 12 x 26	(49.8)	W 12 x 26	(51.5)	W 14 x 30	(55.0)	W 14 x 30	(57.5)	W 14 x 30	(59.7)	W 14 x 30	(61.9)	W 14 x 30	(64.2)
26′	W 12 x 26	(49.7)	W 12 x 26	(52.0)	W 12 x 26	(53.7)	W 14 x 30	(57.4)	W 14 x 30	(59.7)	W 14 x 30	(62.2)	W 14 x 30	(64.6)	W 14 x 30	(67.0)
27′	W 12 x 26	(51.7)	W 14 x 30	(54.5)	W 14 x 30	(57.0)	W 14 x 30	(59.8)	W 14 x 30	(62.5)	W 14 x 34	(64.8)	W 14 x 34	(67.2)	W 14 x 34	(69.7)
28′	W 12 x 26	(53.8)	W 14 x 30	(56.7)	W 14 x 30	(59.3)	W 14 x 30	(62.2)	W 14 x 30	(64.9)	W 14 x 34	(67.4)	W 14 x 34	(69.9)	W 14 x 34	(72.5)
29′	W 14 x 30	(56.3)	W 14 x 30	(58.9)	W 14 x 30	(61.6)	W 14 x 34	(64.3)	W 14 x 34	(67.4)	W 14 x 34	(69.9)	W 14 x 34	(72.6)	W 16 x 36	(75.8)
30′	W 14 x 30	(58.4)	W 14 x 30	(61.1)	W 14 x 30	(63.9)	W 14 x 34	(66.7)	W 14 x 34	(69.9)	W 14 x 34	(72.5)	W 16 x 36	(75.3)	W 16 x 36	(78.6)

COLUMN SIZE & UPLIFT (kips)

Tower Height = (HL + HR)/2

ZONE 4 WITH ICE 70 M.P.H. WIND

¾" Dia. H.S. Bolts, Spans 96′ Thru 155′ — TRUSS DETAILS									
SPAN	140′		145′		150′		155′		
W x D = WIDTH x DEPTH	5.0 x 5.0		5.0 x 5.0		5.0 x 5.0		5.0 x 5.0		
CHORD -②, Unless Otherwise Shown	L 5 x 5 x 7/16	[14]	L 5 x 5 x 7/16	[15]	L 5 x 5 x ½	[16]	L 5 x 5 x ½	[18]	
DEAD LOAD DIAGONAL -③	L 3 x 2 ½ x ¼	[3]	L 3 x 3 x ¼	[3]	L 3 ½x 3 x ¼	[4]	L 3 ½x 3 x ¼	[4]	
WIND LOAD DIAGONAL -③	L 3 x 3 x ¼	[3]	L 3 x 3 x ¼	[3]	L 3 ½x 3 ½x ¼	[3]	L 3 ½x 3 ½x ¼	[3]	
DEAD LOAD VERTICAL -③	L 3 x 3 x 3/16	[2]	L 3 x 2 x ¼	[3]	L 3 x 2 ½x ¼	[3]	L 3 x 2 ½x ¼	[3]	
WIND LOAD STRUT - ③	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	L 2 ½x 2 ½x ⅜	[1]	
TOTAL DEFL. & TRUSS D.L.	DEFL=4.49" L=103 lb/ft		DEFL=5.14" L=105 lb/ft		DEFL=5.23" L=118 lb/ft		DEFL=5.94" L=118 lb/ft		
	TOWER DETAILS								
S = COLUMN SPACING	7.5′		7.5′		7.5′		7.5′		
TOWER HEIGHT									
15′	W 12 x 26	(35.0)	W 12 x 26	(36.4)	W 12 x 26	(37.3)	W 12 x 26	(38.8)	
16′	W 12 x 26	(37.6)	W 12 x 26	(39.1)	W 12 x 26	(40.1)	W 12 x 26	(41.7)	
17′	W 12 x 26	(40.1)	W 12 x 26	(41.7)	W 12 x 26	(42.8)	W 12 x 26	(44.5)	
18′	W 12 x 26	(42.7)	W 12 x 26	(44.4)	W 12 x 26	(45.6)	W 12 x 26	(47.4)	
19′	W 12 x 26	(45.3)	W 12 x 26	(47.1)	W 12 x 26	(48.4)	W 12 x 26	(50.3)	
20′	W 12 x 26	(47.9)	W 12 x 26	(49.7)	W 12 x 26	(51.1)	W 14 x 30	(53.2)	
21′	W 12 x 26	(50.5)	W 14 x 30	(52.8)	W 14 x 30	(54.3)	W 14 x 30	(56.5)	
22′	W 14 x 30	(53.1)	W 14 x 30	(55.6)	W 14 x 30	(57.2)	W 14 x 30	(59.4)	
23′	W 14 x 30	(56.2)	W 14 x 30	(58.3)	W 14 x 30	(60.0)	W 14 x 34	(62.3)	
24′	W 14 x 30	(58.8)	W 14 x 30	(61.1)	W 14 x 30	(62.8)	W 14 x 34	(65.2)	
25′	W 14 x 30	(60.9)	W 14 x 34	(63.8)	W 14 x 34	(65.7)	W 14 x 34	(68.2)	
26′	W 14 x 30	(63.6)	W 14 x 34	(66.6)	W 14 x 34	(68.5)	W 14 x 34	(71.2)	
27′	W 14 x 34	(66.8)	W 14 x 34	(69.3)	W 16 x 36	(72.1)	W 16 x 36	(74.8)	
28′	W 14 x 34	(69.5)	W 16 x 36	(72.1)	W 16 x 36	(75.0)	W 16 x 36	(77.9)	
29′	W 16 x 36	(72.9)	W 16 x 36	(75.7)	W 16 x 36	(77.9)	W 16 x 40	(80.9)	
30′	W 16 x 36	(75.7)	W 16 x 36	(78.5)	W 16 x 36	(80.9)	W 16 x 40	(84.0)	

COLUMN SIZE & UPLIFT (kips)

Tower Height = (HL + HR)/2

KEY TO TRUSS AND TOWER DETAILS

Truss members are all angles.
Truss columns are all wide flange shapes.

W 10 x 26 (44.2) ← 44.2 kips Uplift at base plate
- 26 Pounds per foot.
- 10" Nominal size
- Wide Flange

DEFL = 0.12" = inches Deflection due to dead load of truss, walkway, signs and lights.
DL = 42 lb/ft = pounds per foot dead load of truss members only; does not include walkway, signs, and lights.

NOTE: Details on these sheets are for Design Wind Heights up to 30 feet.

GENERAL NOTES

Design conforms to AASHTO 1994 Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto.

For overhead sign bridges with different tower heights, average the height of the two towers and use the tabulated height nearest the calculated average. For average heights falling midway between the two tabulated heights use the larger height.

For truss lengths falling between those shown in the tables use the sizes called for in the next longer span.

Overhead sign bridges are designed for the equivalent area of a 10 foot deep sign panel over 75 percent of the span length, located as necessary to produce maximum stress. Design includes 3 pounds per square foot for sign panel, 20 pounds per linear foot for lights, and 50 pounds per linear foot for walkway, all placed as specified for the design sign panel.

Refer to "Overhead Sign Bridge Truss Details" for details called out in plan and elevation views.

The number of High Strength Bolts required in truss connection or splice are indicated in brackets, e.g. [3], after the member size.

Texas Department of Transportation
Traffic Operations Division

OVERHEAD SIGN BRIDGE DETAILS

OSB-Z4I

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS	CONT	SECT	JOB	HIGHWAY
8/08 add missing HS bolt dia; applicability note; noted design specifications	0047	05	058, ETC.	S399
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1317

43B

DATE: 10/1/2024 11:22:38 AM
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ZONE 4 WITH ICE 70 M.P.H. WIND

SPAN	40′	45′	50′	55′	60′	65′	70′	75′
	TRUSS DETAILS						5/8" Dia. H.S. Bolts Spans 40′ Thru 95′	
W x D = WIDTH x DEPTH	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0
CHORD -②, Unless Otherwise Shown	L 3 x 3 x 3/16 ③ [4]	L 3 x 3 x 3/16 ③ [4]	L 3 x 3 x 3/16 ③ [4]	L 3 x 3 x 1/4 ③ [4]	L 3 x 3 x 1/4 [6]	L 3 x 3 x 5/16 [6]	L 3 x 3 x 5/16 [6]	L 3 x 3 x 5/16 [8]
DEAD LOAD DIAGONAL -③	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [3]
WIND LOAD DIAGONAL -③	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 3 x 3 x 3/16 [2]	L 3 x 3 x 3/16 [2]	L 3 x 3 x 3/16 [2]
DEAD LOAD VERTICAL -③	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]
WIND LOAD STRUT - ③	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]
TOTAL DEFL. & TRUSS D.L.	DEFL=0.17" L=37 lb/ft	DEFL=0.25" L=38 lb/ft	DEFL=0.38" L=38 lb/ft	DEFL=0.36" L=43 lb/ft	DEFL=0.55" L=43 lb/ft	DEFL=0.58" L=50 lb/ft	DEFL=0.77" L=50 lb/ft	DEFL=0.99" L=50 lb/ft
	TOWER DETAILS							
S = COLUMN SPACING	6.0′	6.0′	6.0′	6.0′	6.0′	6.0′	6.5′	6.5′
TOWER HEIGHT								
25′	W 10 x 22 (27.2)	W 10 x 22 (30.2)	W 10 x 22 (33.1)	W 10 x 22 (36.0)	W 10 x 22 (39.0)	W 10 x 26 (41.8)	W 10 x 26 (41.0)	W 10 x 26 (43.7)
26′	W 10 x 22 (32.6)	W 10 x 22 (35.6)	W 10 x 22 (38.7)	W 10 x 26 (41.6)	W 10 x 26 (44.7)	W 10 x 26 (47.7)	W 12 x 26 (46.5)	W 12 x 26 (49.4)
27′	W 10 x 22 (34.1)	W 10 x 22 (37.3)	W 10 x 26 (40.4)	W 10 x 26 (43.5)	W 10 x 26 (46.7)	W 12 x 26 (49.8)	W 12 x 26 (48.6)	W 12 x 26 (51.9)
28′	W 10 x 22 (35.7)	W 10 x 26 (38.9)	W 10 x 26 (42.2)	W 10 x 26 (45.4)	W 12 x 26 (48.7)	W 12 x 26 (52.0)	W 12 x 26 (50.7)	W 12 x 26 (53.8)
29′	W 10 x 26 (37.2)	W 10 x 26 (40.6)	W 10 x 26 (44.0)	W 12 x 26 (47.3)	W 12 x 26 (50.8)	W 12 x 26 (54.2)	W 12 x 26 (52.8)	W 12 x 26 (56.0)
30′	W 10 x 26 (33.8)	W 10 x 26 (42.3)	W 12 x 26 (45.8)	W 12 x 26 (49.3)	W 12 x 26 (52.8)	W 12 x 26 (56.3)	W 12 x 26 (54.9)	W 14 x 30 (58.1)
31′	W 10 x 26 (40.4)	W 12 x 26 (44.0)	W 12 x 26 (47.7)	W 12 x 26 (51.3)	W 12 x 26 (54.9)	W 14 x 30 (58.5)	W 14 x 30 (57.0)	W 14 x 30 (60.4)
32′	W 10 x 26 (42.0)	W 12 x 26 (45.8)	W 12 x 26 (49.5)	W 12 x 26 (53.2)	W 12 x 26 (57.0)	W 14 x 30 (60.7)	W 14 x 30 (59.1)	W 14 x 30 (62.6)
33′	W 12 x 26 (43.7)	W 12 x 26 (47.6)	W 12 x 26 (51.4)	W 12 x 26 (55.2)	W 14 x 30 (59.0)	W 14 x 30 (62.9)	W 14 x 30 (61.3)	W 14 x 34 (64.7)
34′	W 12 x 26 (45.4)	W 12 x 26 (49.3)	W 12 x 26 (53.3)	W 14 x 30 (57.2)	W 14 x 30 (61.2)	W 14 x 30 (65.2)	W 14 x 34 (63.3)	W 14 x 34 (67.0)
35′	W 12 x 26 (47.0)	W 12 x 26 (51.2)	W 14 x 30 (55.2)	W 14 x 30 (59.2)	W 14 x 30 (63.3)	W 14 x 34 (67.2)	W 14 x 34 (65.5)	W 14 x 34 (69.3)
36′	W 12 x 26 (48.8)	W 14 x 30 (52.9)	W 14 x 30 (57.1)	W 14 x 30 (61.3)	W 14 x 34 (65.3)	W 14 x 34 (69.5)	W 14 x 34 (67.7)	W 14 x 34 (71.7)
37′	W 12 x 26 (50.5)	W 14 x 30 (54.7)	W 14 x 30 (59.0)	W 14 x 34 (63.1)	W 14 x 34 (67.5)	W 14 x 34 (71.8)	W 14 x 34 (69.9)	W 16 x 36 (73.8)
38′	W 14 x 30 (52.1)	W 14 x 30 (56.6)	W 14 x 30 (61.0)	W 14 x 34 (65.2)	W 14 x 34 (69.7)	W 14 x 34 (74.1)	W 16 x 36 (72.0)	W 16 x 36 (76.2)
39′	W 14 x 30 (53.9)	W 14 x 30 (58.4)	W 14 x 34 (62.8)	W 14 x 34 (67.3)	W 14 x 34 (71.9)	W 16 x 36 (76.3)	W 16 x 36 (74.3)	W 16 x 36 (78.5)
40′	W 14 x 30 (55.6)	W 14 x 34 (60.1)	W 14 x 34 (64.8)	W 14 x 34 (69.4)	W 16 x 36 (73.9)	W 16 x 36 (78.6)	W 16 x 36 (76.5)	W 16 x 36 (80.9)
42′	W 14 x 34 (59.0)	W 14 x 34 (63.9)	W 14 x 34 (68.9)	W 16 x 36 (73.5)	W 16 x 36 (78.5)	W 16 x 36 (83.4)	W 16 x 40 (80.6)	W 16 x 40 (85.2)
45′	W 14 x 34 (64.5)	W 16 x 36 (69.6)	W 16 x 36 (74.8)	W 16 x 36 (80.1)	W 16 x 40 (84.9)	W 16 x 40 (90.1)	W 16 x 40 (87.6)	W 18 x 46 (92.4)

COLUMN SIZE & UPLIFT (kips)

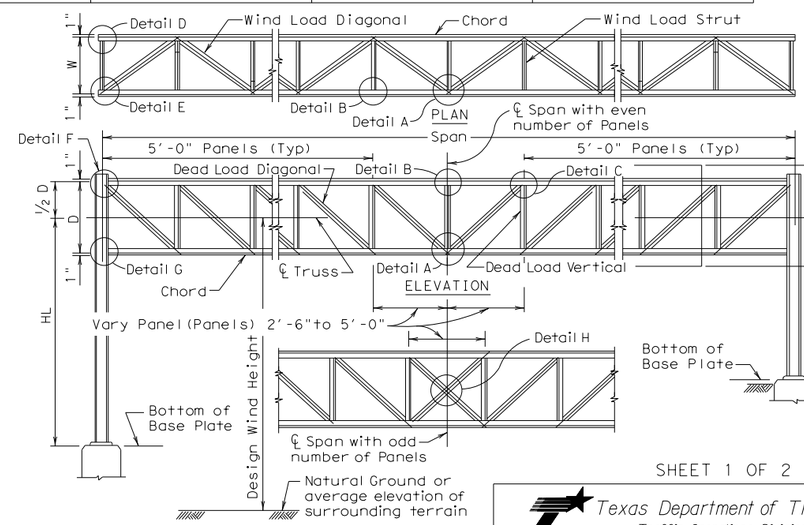
Tower Height = (HL + HR)/2

ZONE 4 WITH ICE 70 M.P.H. WIND

SPAN	80′	85′	90′	95′
	5/8" Dia. H.S. Bolts Spans 40′ Thru 95′ TRUSS DETAILS			
W x D = WIDTH x DEPTH	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0
CHORD -②, Unless Otherwise Shown	L 3 x 3 x 3/8 [9]	L 3 x 3 x 7/16 [10]	L 3 1/2 x 3 1/2 x 3/8 [11]	L 3 1/2 x 3 1/2 x 3/8 [11]
DEAD LOAD DIAGONAL -③	L 2 1/2 x 2 1/2 x 3/16 [3]	L 3 x 2 x 3/16 [3]	L 3 x 2 x 3/16 [3]	L 3 x 2 x 3/16 [3]
WIND LOAD DIAGONAL -③	L 3 x 3 x 3/16 [2]	L 3 x 3 x 3/16 [2]	L 3 x 2 1/2 x 1/4 [3]	L 3 x 2 1/2 x 1/4 [3]
DEAD LOAD VERTICAL -③	L 2 x 2 x 3/16 [2]	L 3 x 2 x 3/16 [2]	L 3 x 2 x 3/16 [2]	L 3 x 2 x 3/16 [2]
WIND LOAD STRUT - ③	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]
TOTAL DEFL. & TRUSS D.L.	DEFL=1.11" L=56 lb/ft	DEFL=1.29" L=62 lb/ft	DEFL=1.60" L=65 lb/ft	DEFL=1.95" L=65 lb/ft
	TOWER DETAILS			
S = COLUMN SPACING	6.5′	6.5′	6.5′	6.5′
TOWER HEIGHT				
25′	W 12 x 26 (46.4)	W 12 x 26 (49.0)	W 12 x 26 (51.7)	W 12 x 26 (54.5)
26′	W 12 x 26 (52.2)	W 12 x 26 (54.9)	W 12 x 26 (57.7)	W 14 x 30 (60.5)
27′	W 12 x 26 (54.4)	W 12 x 26 (57.3)	W 14 x 30 (60.2)	W 14 x 30 (63.2)
28′	W 12 x 26 (56.7)	W 14 x 30 (59.7)	W 14 x 30 (62.7)	W 14 x 30 (65.8)
29′	W 14 x 30 (59.0)	W 14 x 30 (62.1)	W 14 x 30 (65.2)	W 14 x 34 (68.3)
30′	W 14 x 30 (61.3)	W 14 x 30 (64.6)	W 14 x 34 (67.6)	W 14 x 34 (71.0)
31′	W 14 x 30 (63.7)	W 14 x 34 (66.9)	W 14 x 34 (70.2)	W 14 x 34 (73.6)
32′	W 14 x 34 (65.7)	W 14 x 34 (69.4)	W 14 x 34 (72.9)	W 14 x 34 (76.3)
33′	W 14 x 34 (68.1)	W 14 x 34 (71.8)	W 14 x 34 (75.4)	W 16 x 36 (78.9)
34′	W 14 x 34 (70.5)	W 14 x 34 (74.4)	W 16 x 36 (77.8)	W 16 x 36 (81.6)
35′	W 14 x 34 (72.9)	W 16 x 36 (76.7)	W 16 x 36 (80.5)	W 16 x 36 (84.4)
36′	W 16 x 36 (75.3)	W 16 x 36 (79.2)	W 16 x 36 (83.1)	W 16 x 36 (87.1)
37′	W 16 x 36 (77.8)	W 16 x 36 (81.8)	W 16 x 36 (85.8)	W 16 x 40 (89.5)
38′	W 16 x 36 (80.3)	W 16 x 36 (84.4)	W 16 x 40 (88.1)	W 16 x 40 (92.3)
39′	W 16 x 36 (82.7)	W 16 x 40 (86.8)	W 16 x 40 (90.8)	W 16 x 40 (95.1)
40′	W 16 x 40 (84.8)	W 16 x 40 (89.1)	W 16 x 40 (93.4)	W 16 x 40 (97.7)
42′	W 16 x 40 (89.7)	W 16 x 40 (93.9)	W 18 x 46 (98.7)	W 18 x 46 (103.4)
45′	W 18 x 46 (97.2)	W 18 x 46 (101.9)	W 18 x 46 (107.0)	W 18 x 50 (112.0)

COLUMN SIZE & UPLIFT (kips)

Tower Height = (HL + HR)/2



① d = Sign Depth
Where signs of different depths are used, the bottom edges of all signs may be placed in line. Where this is done, all signs should be so positioned that the bottom edges are approximately 0.46 of the depth of the deepest sign below the ℄ of the truss.

② "Low-Alloy Steel" for non-bridge structures per Item 442, "Metal For Structures".

③ "Carbon Steel" for non-bridge structures per Item 442, "Metal For Structures".

Texas Department of Transportation
Traffic Operations Division

HIGH LEVEL OVERHEAD SIGN BRIDGE DETAILS

HOSB-Z4I

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
8/08 = of HS bolts

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399

DIST	COUNTY	SHEET NO.
DAL	COLLIN, ETC	1318

44A

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ZONE 4 WITH ICE 70 M.P.H. WIND

	TRUSS DETAILS (¾" Dia. H.S. Bolts, Spans 96′ Thru 155′)						
SPAN	100′	105′	110′	115′	120′	125′	130′	135′
W x D = WIDTH x DEPTH	4.5 x 4.5	4.5 x 4.5	4.5 x 4.5	4.5 x 4.5	5.0 x 5.0	5.0 x 5.0	5.0 x 5.0	5.0 x 5.0
CHORD -②, Unless Otherwise Shown	L 3 ½x 3 ½x ⅜ [7]	L 3 ½x 3 ½x 7⁄16 [9]	L 4 x 4 x ⅜ [9]	L 4 x 4 x 7⁄16 [10]	L 4 x 4 x 7⁄16 [10]	L 4 x 4 x 7⁄16 [11]	L 4 x 4 x ½ [12]	L 5 x 5 x 7⁄16 [13]
DEAD LOAD DIAGONAL -③	L 3 x 2 x ⅜ [2]	L 3 x 2 ½x ⅜ [3]	L 3 x 3 x ⅜ [3]	L 3 x 3 x ⅜ [3]	L 3 x 3 x ⅜ [2]	L 3 x 2 x ¼ [3]	L 3 x 2 x ¼ [3]	L 3 x 2 ½x ¼ [3]
WIND LOAD DIAGONAL -③	L 3 x 2 ½x ¼ [2]	L 3 x 3 x ¼ [2]	L 3 x 3 x ¼ [2]	L 3 x 3 x ¼ [2]	L 3 x 3 x ¼ [2]	L 3 x 3 x ¼ [2]	L 3 x 3 x ¼ [2]	L 3 x 3 x ¼ [3]
DEAD LOAD VERTICAL -③	L 3 x 2 x ⅜ [2]	L 3 x 2 x ⅜ [2]	L 3 x 2 x ⅜ [2]	L 3 x 2 x ⅜ [2]	L 3 x 2 ½x ⅜ [2]	L 3 x 2 ½x ⅜ [2]	L 3 x 2 ½x ⅜ [2]	L 3 x 3 x ⅜ [2]
WIND LOAD STRUT - ③	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]
TOTAL DEFL. & TRUSS D.L.	DEFL=1.96" L=69 lb/ft	DEFL=2.16" L=77 lb/ft	DEFL=2.59" L=78 lb/ft	DEFL=2.78" L=83 lb/ft	DEFL=2.73" L=86 lb/ft	DEFL=3.14" L=87 lb/ft	DEFL=3.35" L=92 lb/ft	DEFL=3.90" L=102 lb/ft
	TOWER DETAILS							
S = COLUMN SPACING	7.0′	7.0′	7.0′	7.0′	7.0′	7.0′	7.0′	7.0′
TOWER HEIGHT								
25′	**W 14 x 30 (56.3)**	W 14 x 30 (58.6)	W 14 x 30 (61.4)	W 14 x 30 (63.8)	W 14 x 34 (66.3)	W 14 x 34 (68.9)	W 14 x 34 (71.3)	W 14 x 34 (73.6)
26′	W 14 x 30 (58.8)	W 14 x 30 (61.2)	W 14 x 30 (64.1)	W 14 x 34 (66.5)	W 14 x 34 (69.3)	W 14 x 34 (71.9)	W 14 x 34 (74.5)	W 14 x 34 (76.9)
27′	W 14 x 30 (61.3)	W 14 x 30 (63.9)	W 14 x 34 (66.7)	W 14 x 34 (69.3)	W 14 x 34 (72.2)	W 14 x 34 (75.0)	W 14 x 34 (77.6)	W 16 x 36 (80.0)
28′	W 14 x 30 (63.9)	W 14 x 34 (66.4)	W 14 x 34 (69.4)	W 14 x 34 (72.2)	W 14 x 34 (75.2)	W 14 x 34 (78.1)	W 16 x 36 (80.7)	W 16 x 36 (83.3)
29′	W 14 x 34 (66.4)	W 14 x 34 (69.1)	W 14 x 34 (72.2)	W 14 x 34 (75.1)	W 16 x 36 (78.0)	W 16 x 36 (80.8)	W 16 x 36 (83.9)	W 16 x 36 (86.6)
30′	W 14 x 34 (69.0)	W 14 x 34 (71.7)	W 14 x 34 (75.0)	W 16 x 36 (77.8)	W 16 x 36 (81.0)	W 16 x 36 (83.9)	W 16 x 36 (87.1)	W 16 x 40 (89.5)
31′	W 14 x 34 (71.6)	W 14 x 34 (74.4)	W 16 x 36 (77.7)	W 16 x 36 (80.7)	W 16 x 36 (84.0)	W 16 x 36 (87.1)	W 16 x 40 (90.0)	W 16 x 40 (92.9)
32′	W 14 x 34 (74.3)	W 16 x 36 (77.0)	W 16 x 36 (80.5)	W 16 x 36 (83.7)	W 16 x 36 (87.1)	W 16 x 40 (90.0)	W 16 x 40 (93.2)	W 16 x 40 (96.2)
33′	W 16 x 36 (76.7)	W 16 x 36 (79.7)	W 16 x 36 (83.3)	W 16 x 36 (86.6)	W 16 x 40 (89.8)	W 16 x 40 (93.2)	W 16 x 40 (96.5)	W 18 x 46 (99.4)
34′	W 16 x 36 (79.4)	W 16 x 36 (82.5)	W 16 x 40 (85.8)	W 16 x 40 (89.2)	W 16 x 40 (92.8)	W 16 x 40 (96.3)	W 18 x 46 (99.5)	W 18 x 46 (102.8)
35′	W 16 x 36 (82.0)	W 16 x 40 (84.9)	W 16 x 40 (88.6)	W 16 x 40 (92.1)	W 16 x 40 (95.9)	W 18 x 46 (99.8)	W 18 x 46 (102.8)	W 18 x 46 (106.2)
36′	W 16 x 40 (84.3)	W 16 x 40 (87.6)	W 16 x 40 (91.5)	W 16 x 40 (95.1)	W 18 x 46 (98.8)	W 18 x 46 (103.0)	W 18 x 46 (106.1)	W 18 x 46 (109.5)
37′	W 16 x 40 (87.0)	W 16 x 40 (90.4)	W 16 x 40 (94.2)	W 18 x 46 (97.9)	W 18 x 46 (101.9)	W 18 x 46 (106.2)	W 18 x 46 (109.4)	W 18 x 46 (113.0)
38′	W 16 x 40 (89.7)	W 18 x 46 (93.0)	W 18 x 46 (97.1)	W 18 x 46 (100.9)	W 18 x 46 (105.0)	W 18 x 46 (109.4)	W 18 x 46 (112.7)	W 18 x 50 (116.2)
39′	W 18 x 46 (92.2)	W 18 x 46 (95.8)	W 18 x 46 (100.0)	W 18 x 46 (103.9)	W 18 x 46 (108.1)	W 18 x 50 (111.9)	W 18 x 50 (115.9)	W 18 x 50 (119.6)
40′	W 18 x 46 (94.9)	W 18 x 46 (98.6)	W 18 x 46 (102.9)	W 18 x 46 (106.9)	W 18 x 46 (111.2)	W 18 x 50 (115.2)	W 18 x 50 (119.2)	W 18 x 50 (123.1)
42′	W 18 x 46 (97.6)	W 18 x 46 (104.3)	W 18 x 46 (108.8)	W 18 x 50 (112.8)	W 18 x 50 (117.3)	W 18 x 50 (121.7)	W 18 x 55 (125.7)	W 18 x 55 (129.8)
45′	W 18 x 50 (108.5)	W 18 x 50 (112.7)	W 18 x 50 (117.5)	W 18 x 55 (121.8)	W 18 x 55 (126.7)	W 21 x 57 (130.9)	W 21 x 57 (135.5)	W 21 x 57 (139.8)

COLUMN SIZE & UPLIFT (kips)

Tower Height = (HL + HR) / 2

ZONE 4 WITH ICE 70 M.P.H. WIND

TRUSS DETAILS (¾" Dia. H.S. Bolts, Spans 96′ Thru 155′)				
140′	145′	150′	155′	SPAN
5.0 x 5.0	5.0 x 5.0	5.0 x 5.0	5.0 x 5.0	W x D = WIDTH x DEPTH
L 5 x 5 x 7⁄16 [14]	L 5 x 5 x ½ [15]	L 5 x 5 x ½ [16]	L 5 x 5 x ½ [18]	CHORD -②, Unless Otherwise Shown
L 3 x 2 ½x ¼ [3]	L 3 x 3 x ¼ [3]	L 3 ½x 3 x ¼ [4]	L 3 ½x 3 x ¼ [4]	DEAD LOAD DIAGONAL -③
L 3 ½x 3 x ¼ [3]	L 3 ½x 3 ½x ¼ [3]	L 3 ½x 3 ½x ¼ [3]	L 3 ½x 3 ½x ¼ [3]	WIND LOAD DIAGONAL -③
L 3 x 2 x ¼ [2]	L 3 x 2 ½x ¼ [3]	L 3 x 2 ½x ¼ [3]	L 3 x 2 ½x ¼ [3]	DEAD LOAD VERTICAL -③
L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	L 2 ½x 2 ½x ⅜ [1]	WIND LOAD STRUT - ③
DEFL=4.51" L=105 lb/ft	DEFL=4.55" L=117 lb/ft	DEFL=5.23" L=118 lb/ft	DEFL=5.26" L=118 lb/ft	TOTAL DEFL. & TRUSS D.L.
TOWER DETAILS				
7.5′	7.5′	7.5′	7.5′	S = COLUMN SPACING
				TOWER HEIGHT
W 14 x 34 (70.5)	W 14 x 34 (72.7)	W 16 x 36 (75.1)	W 16 x 36 (77.7)	25′
W 14 x 34 (73.7)	W 16 x 36 (75.9)	W 16 x 36 (78.4)	W 16 x 36 (81.2)	26′
W 16 x 36 (76.7)	W 16 x 36 (79.0)	W 16 x 36 (81.8)	W 16 x 36 (84.6)	27′
W 16 x 36 (79.8)	W 16 x 36 (82.3)	W 16 x 40 (84.9)	W 16 x 40 (87.8)	28′
W 16 x 36 (83.0)	W 16 x 40 (85.3)	W 16 x 40 (88.2)	W 16 x 40 (91.3)	29′
W 16 x 40 (85.9)	W 16 x 40 (88.6)	W 16 x 40 (91.6)	W 16 x 40 (94.8)	30′
W 16 x 40 (89.1)	W 16 x 40 (91.9)	W 18 x 46 (94.9)	W 18 x 46 (98.2)	31′
W 16 x 40 (92.3)	W 18 x 46 (94.8)	W 18 x 46 (98.3)	W 18 x 46 (101.7)	32′
W 18 x 46 (95.3)	W 18 x 46 (98.2)	W 18 x 46 (101.8)	W 18 x 46 (105.2)	33′
W 18 x 46 (98.6)	W 18 x 46 (101.5)	W 18 x 46 (105.2)	W 18 x 46 (108.8)	34′
W 18 x 46 (101.8)	W 18 x 46 (104.9)	W 18 x 46 (108.7)	W 18 x 50 (112.2)	35′
W 18 x 46 (105.1)	W 18 x 46 (108.2)	W 18 x 50 (112.0)	W 18 x 50 (115.7)	36′
W 18 x 46 (108.4)	W 18 x 50 (111.6)	W 18 x 50 (115.4)	W 18 x 50 (119.3)	37′
W 18 x 50 (111.5)	W 18 x 50 (115.0)	W 18 x 50 (118.9)	W 18 x 55 (122.7)	38′
W 18 x 50 (114.8)	W 18 x 50 (118.4)	W 18 x 55 (122.3)	W 18 x 55 (126.4)	39′
W 18 x 50 (118.1)	W 18 x 55 (121.6)	W 18 x 55 (125.8)	W 18 x 55 (130.0)	40′
W 18 x 55 (124.5)	W 18 x 55 (128.5)	W 21 x 57 (132.5)	W 21 x 57 (136.9)	42′
W 21 x 57 (134.2)	W 21 x 57 (138.5)	W 21 x 62 (143.0)	W 21 x 62 (147.7)	45′

COLUMN SIZE & UPLIFT (kips)

Tower Height = (HL + HR) / 2

KEY TO TRUSS AND TOWER DETAILS

Truss members are all angles.
Truss columns are all wide flange shapes.

W 10 x 26 (44.2) ← 44.2 kips Uplift at base plate
- 26 Pounds per foot.
- 10" Nominal size
- Wide Flange

DEFL = 0.12" = inches Deflection due to dead load of truss, walkway, signs and lights.
DL = 42 lb/ft = pounds per foot dead load of truss members only; does not include walkway, signs, and lights.

NOTE: Details on these sheets are for Design Wind Heights between 30 feet and 50 feet.

GENERAL NOTES

Design conforms to AASHTO 1994 Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto.

For overhead sign bridges with different tower heights, average the height of the two towers and use the tabulated height nearest the calculated average. For average heights falling midway between the two tabulated heights use the larger height.

For truss lengths falling between those shown in the tables use the sizes called for in the next longer span.

Overhead sign bridges are designed for the equivalent area of a 10 foot deep sign panel over 75 percent of the span length, located as necessary to produce maximum stress. Design includes 3 pounds per square foot for sign panel, 20 pounds per linear foot for lights, and 50 pounds per linear foot for walkway, all placed as specified for the design sign panel.

Refer to "Overhead Sign Bridge Truss Details" for details called out in plan and elevation views.

The number of High Strength Bolts required in truss connection or splice are indicated in brackets, e.g. [3], after the member size.

SHEET 2 OF 2

Texas Department of Transportation
Traffic Operations Division

HIGH LEVEL OVERHEAD SIGN BRIDGE DETAILS

HOSB-Z4I

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
8/08 add missing HS bolt dia (select spans); applicability note; noted design specifications

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399
DIST	COUNTY		SHEET NO.
DAL	COLLIN, ETC		1319

DATE: 10/1/2024 11:22:42 AM
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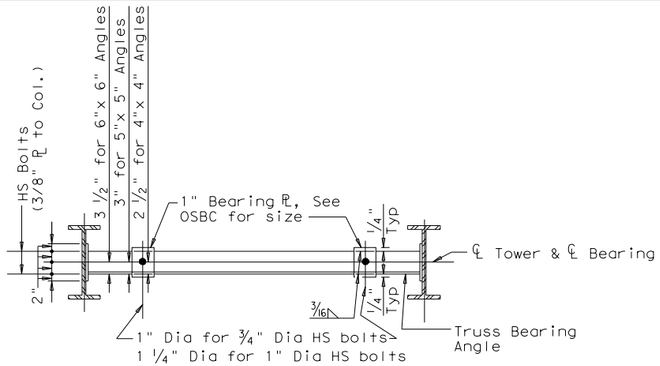


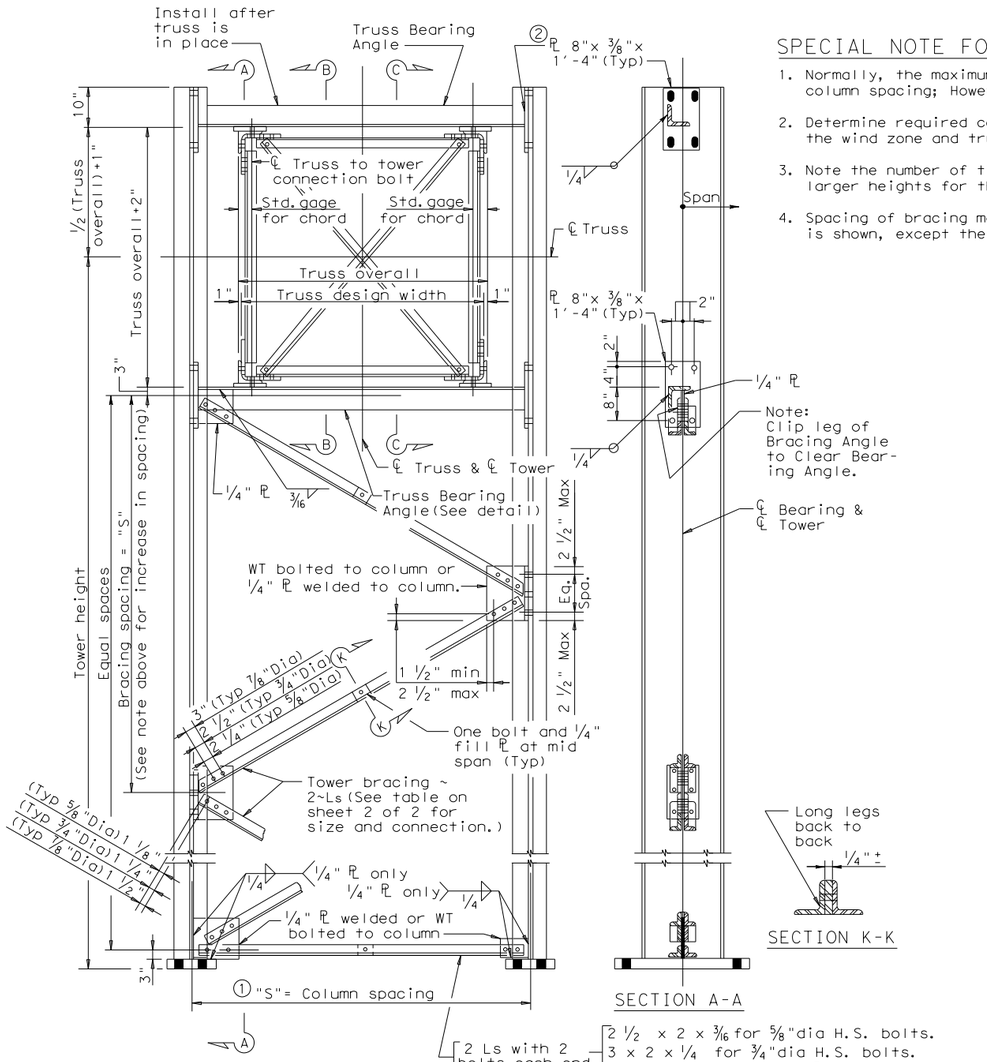
PLAN AT TRUSS BEARING ANGLE

COLUMN SPA. "S"	TRUSS BEARING ANGLE	HS BOLTS (DIA)
6'-0"	L 4 x 4 x 5/16	5/8"
6'-6"	L 5 x 5 x 3/8	5/8"
7'-0"	L 5 x 5 x 1/2	3/4"
7'-6" to 8'-6"	L 6 x 6 x 5/8	3/4"
9'-0"	L 6 x 6 x 3/4	3/4"
9'-6"	L 6 x 6 x 7/8	3/4"

② Nominal Dia. x 1 ½" slots in plate. (Top ℄ only) Use washer on plate side of HS bolt. (See table above for size of bolts.)

GENERAL NOTES

1. Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and Interim revisions thereto for design heights up to 50 feet.
2. For size and spacing of columns see sheets, "Overhead Sign Bridge Details."
3. At contractor's option tower bracing connections may be high strength (HS) bolted or welded. If welded connections are used, length of connection shall be taken from the table shown on sheet, "Overhead Sign Bridge Truss Details-OSBC."
4. All connection bolts shall conform to ASTM A325 Type 1. Washers shall conform to ASTM F436. Bolts, nuts and washers shall be galvanized per Item 445, "Galvanizing".
5. All structural steel shall conform to ASTM A36 except where noted. Structural steel shall be galvanized after fabrication per Item 445, "Galvanizing".
6. Anchor bolts and nuts for anchor bolts shall be "Alloy steel" per Item 449, "Anchor Bolts".
7. Anchor bolts shall be rigidly held in position during concrete placement by using steel templates at the top and bottom. The bottom template and anchor plate assembly shall remain in place and shall not be damaged during concrete placement. The top template shall be removed after concrete has set.
8. Exposed nuts and washers shall be galvanized in accordance with Item 449, "Galvanizing". Embedded nuts and top and bottom templates need not be galvanized.
9. Lubricate and tighten the anchor bolts when erecting the structure per Item 449, "Anchor Bolts". After the structure has been aligned in its final position and the anchor bolts have been properly tightened, tack weld anchor bolt nuts to washers, and tack weld washers to base plates. Galvanizing in tack welded areas shall be repaired per Item 445, "Galvanizing".
10. Concrete shall be Class "C".



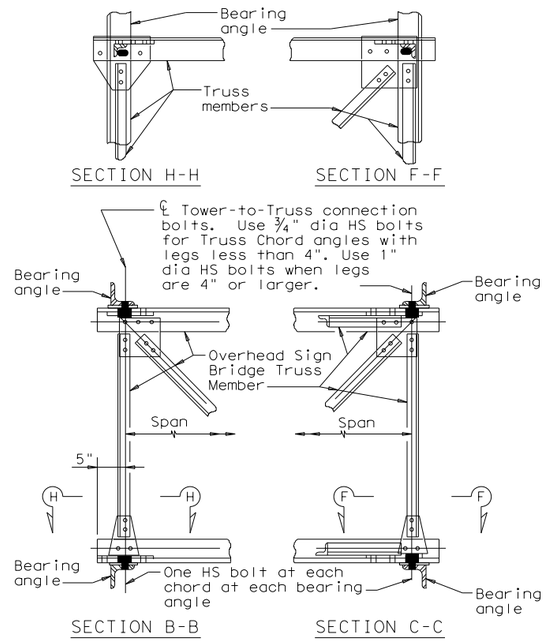
TRUSS DETAILS

① For column spacing see standard drawing, "Overhead Sign Bridge Details"

2 Ls with 2 bolts each end
- 2 ½ x 2 x 3/16 for ⅝"dia H.S. bolts.
- 3 x 2 x ¼ for ¾"dia H.S. bolts.
- 3 ½ x 2 ½ x ¼ for ⅞"dia H.S. bolts.

SPECIAL NOTE FOR TOWER BRACING

1. Normally, the maximum spacing for tower bracing is the same as column spacing; However, this spacing may be increased as follows:
2. Determine required column size and spacing to satisfy height for the wind zone and truss span being used. Height=$(H_L + H_R)/2$.
3. Note the number of times this column size is shown for larger heights for the same span and wind zone.
4. Spacing of bracing may be increased 1'-0" for each time height is shown, except the increase shall not exceed 5'-0".



TRUSS-TO-TOWER CONNECTION DETAILS

SHEET 1 OF 2

Texas Department of Transportation

Traffic Safety Division Standard

OVERHEAD SIGN BRIDGE TOWER DETAILS

OSBT(1)-21

FILE: osbt-21.dgn	DN:	CK:	DW:	CK:
©TxDOT November 2007	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
8-21	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1320

45A

DATE: 10/1/2024 11:22:45 AM
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DATE: 10/1/2024 11:22:46 AM
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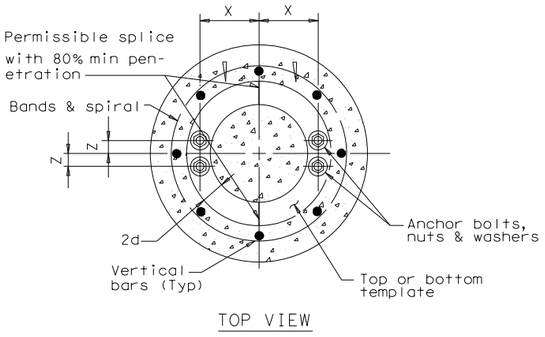
BRACING FOR 9′-0" TO 9′-6" COLUMN SPACING				
SIZE DOUBLE ANGLES	BOLTS REQUIRED			
	BRACING		WT to W	
	¾"	⅞"	¾"	⅞"
2 Ls 4 x 4 x 5/16	6	4	10	8
2 Ls 4 x 4 x 5/16	6	4	10	8
2 Ls 4 x 4 x 5/16	6	4	10	8
2 Ls 4 x 4 x 5/16	6	4	10	8
2 Ls 4 x 3 ½ x 5/16	5	4	10	8
2 Ls 4 x 3 ½ x 5/16	5	4	10	8
2 Ls 4 x 3 ½ x 5/16	5	4	10	8
2 Ls 4 x 3 x 5/16	5	4	10	8
2 Ls 4 x 3 x 5/16	5	4	10	8
2 Ls 4 x 3 x 5/16	5	4	10	8
2 Ls 4 x 3 x 5/16	5	4	10	8

BRACING FOR 8′-0" TO 8′-6" COLUMN SPACING.				
SIZE DOUBLE ANGLES	BOLTS REQUIRED			
	BRACING		WT to W	
	¾"	⅞"	¾"	⅞"
2 Ls 4 x 3 x 5/16	5	4	10	8
2 Ls 4 x 3 x 5/16	5	4	10	8
2 Ls 4 x 3 x 5/16	5	4	10	8
2 Ls 3 ½ x 3 x 5/16	5	4	8	6
2 Ls 3 ½ x 3 x 5/16	5	4	8	6
2 Ls 3 ½ x 3 x 5/16	5	4	8	6
2 Ls 4 x 3 x ¼	4	3	8	6
2 Ls 4 x 3 x ¼	4	3	8	6
2 Ls 3 ½ x 3 x ¼	4	3	8	6

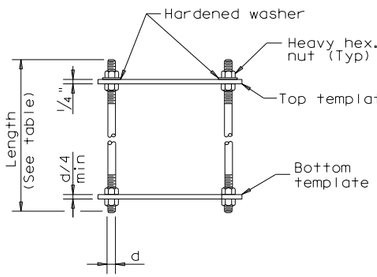
BRACING FOR 7′-0" TO 7′-6" COLUMN SPACING.						
SIZE DOUBLE ANGLES	BOLTS REQUIRED					
	BRACING			WT to W		
	⅝"	¾"	⅞"	⅝"	¾"	⅞"
2 Ls 4 x 3 x 5/16	7	5	4	12	10	8
2 Ls 4 x 3 x 5/16	7	5	4	12	10	8
2 Ls 4 x 3 x 5/16	7	5	4	12	10	8
2 Ls 3 ½ x 3 x 5/16	6	5	4	12	8	6
2 Ls 3 ½ x 3 x ¼	6	4	3	10	8	6
2 Ls 3 ½ x 3 x ¼	6	4	3	10	8	6
2 Ls 3 ½ x 3 x ¼	6	4	3	10	8	6
2 Ls 3 ½ x 3 x ¼	6	4	3	10	8	6
2 Ls 3 ½ x 3 x ¼	6	4	3	10	8	6
2 Ls 3 ½ x 3 x ¼	5	4	3	10	6	4
2 Ls 3 ½ x 2 ½ x ¼	5	4	3	8	6	4
2 Ls 3 ½ x 2 ½ x ¼	4	3	~	8	6	4
2 Ls 3 x 2 ½ x ¼	4	3	~	8	6	4
2 Ls 3 x 2 ½ x ¼	4	3	~	8	6	4
2 Ls 3 x 2 ½ x ¼	3	2	~	6	4	4
2 Ls 3 x 3 x 3/16	2	2	~	4	4	4
2 Ls 3 x 3 x 3/16	2	2	~	4	4	4
2 Ls 2 ½ x 2 ½ x 3/16	2	~	~	4	4	4
2 Ls 2 ½ x 2 x 3/16	2	~	~	4	4	4

BRACING FOR 6′-0" TO 6′-6" COLUMN SPACING.				
SIZE DOUBLE ANGLES	BOLTS REQUIRED			
	BRACING		WT to W	
	⅝"	¾"	⅝"	¾"
2 Ls 3 x 3 x ¼	4	3	8	6
2 Ls 3 x 3 x ¼	4	3	8	6
2 Ls 3 x 2 ½ x ¼	4	3	8	6
2 Ls 3 x 2 ½ x ¼	4	3	6	4
2 Ls 3 x 2 ½ x ¼	4	3	6	4
2 Ls 3 x 2 ½ x ¼	4	3	6	4
2 Ls 3 x 2 ½ x ¼	4	3	6	4
2 Ls 3 x 2 ½ x ¼	4	3	6	4
2 Ls 2 ½ x 2 ½ x 3/16	3	~	4	4
2 Ls 2 ½ x 2 x 3/16	2	~	4	4
2 Ls 2 ½ x 2 x 3/16	2	~	4	4
2 Ls 2 ½ x 2 x 3/16	2	~	4	4
2 Ls 2 ½ x 2 x 3/16	2	~	4	4

"X"	"Y"	"Z"	BASE PLATE SIZE	ANCHOR BOLT SIZE	FOUNDATION DATA	COLUMN SIZE
			L x W x T	DIA. x LENGTH	DIA. DRILL SHAFT/W REINF.	
16 ¾"	5 ½"	4 ½"	20"x 3 ½"x 3′-8 ½"	2 ¾"x 5′-8"	54" Dr Shaft with 20~#11	W27 x 84
						W27 x 94
15 ¼"	5"	4"	18"x 3 ¼"x 3′-4 ½"	2 ¾"x 5′-8"	48" Dr Shaft with 18~#11	W24 x 117
15 ¼"	5"	4"	18"x 3 ⅛"x 3′-4 ½"	2 ¾"x 5′-8"	48" Dr Shaft with 18~#11	W24 x 104
15 ¼"	5"	4"	18"x 3"x 3′-4 ½"	2 ¾"x 5′-8"	48" Dr Shaft with 18~#11	W24 x 94
15"	4 ½"	3 ¾"	16 ½"x 3"x 3′-3"	2 ½"x 5′-2"	48" Dr Shaft with 14~#11	W24 x 84
14 ¾"	4 ½"	3 ¾"	16 ½"x 2 ¾"x 3′-2 ½"	2 ½"x 5′-2"	48" Dr Shaft with 14~#11	W24 x 76
14 ¾"	4 ½"	3 ¾"	16 ½"x 2 ¾"x 3′-2 ½"	2 ½"x 5′-2"	48" Dr Shaft with 14~#11	W24 x 68
13 ½"	4 ½"	3 ¾"	16 ½"x 2 ¾"x 3′-0"	2 ½"x 5′-2"	42" Dr Shaft with 12~#11	W21 x 68
13 ½"	4 ½"	3 ¾"	16 ½"x 2 ½"x 3′-0"	2 ½"x 5′-2"	42" Dr Shaft with 12~#11	W21 x 62
13"	4"	3 ½"	15"x 2 ½"x 2′-10"	2 ¼"x 4′-9"	42" Dr Shaft with 10~#11	W21 x 57
11 ¾"	4"	3 ½"	15"x 2 ½"x 2′-7 ½"	2 ¼"x 4′-9"	42" Dr Shaft with 10~#11	W18 x 55
11 ¾"	4"	3 ½"	15"x 2 ½"x 2′-7 ½"	2 ¼"x 4′-9"	42" Dr Shaft with 10~#11	W18 x 50
11 ½"	3 ½"	3"	13"x 2 ½"x 2′-6"	2"x 4′-3"	42" Dr Shaft with 8~#10	W18 x 46
10 ½"	3 ½"	3"	13"x 2 ¼"x 2′-4"	2"x 4′-3"	36" Dr Shaft with 8~#10	W16 x 40
10 ¼"	3"	2 ¾"	11 ½"x 2 ¼"x 2′-2 ½"	1 ¾"x 3′-10"	36" Dr Shaft with 8~#9	W16 x 36
9 ½"	3"	2 ¾"	11 ½"x 2 ¼"x 2′-1"	1 ¾"x 3′-10"	36" Dr Shaft with 8~#9	W14 x 34
9 ¼"	3"	2 ¾"	11 ½"x 2"x 2′-0 ½"	1 ¾"x 3′-10"	36" Dr Shaft with 8~#9	W14 x 30
8"	2 ¾"	2 ⅛"	9 ¾"x 1 ¾"x 1′-9 ½"	1 ½"x 3′-4"	30" Dr Shaft with 8~#8	W12 x 26
7"	2 ½"	2"	9"x 1 ¾"x 1′-7"	1 ⅜"x 3′-1"	30" Dr Shaft with 8~#8	W10 x 26
6 ¾"	2 ¼"	1 ⅞"	8 ¼"x 1 ½"x 1′-6"	1 ¼"x 2′-11"	30" Dr Shaft with 8~#8	W10 x 22
6 ¾"	2"	1 ⅝"	7 ¼"x 1 ⅜"x 1′-5 ½"	1 ⅛"x 2′-8"	24" Dr Shaft with 8~#7	W10 x 17
6 ½"	1 ¾"	1 ½"	6 ½"x 1 ¼"x 1′-4 ½"	1"x 2′-5"	24" Dr Shaft with 8~#7	W10 x 15

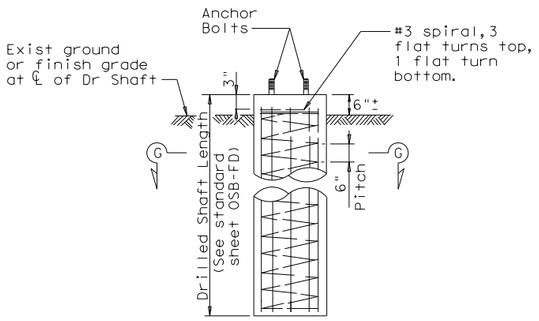


TOP VIEW

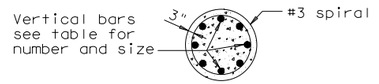


SIDE VIEW
(PRIOR TO INSTALLATION)

ANCHOR BOLT ASSEMBLY



FOUNDATION DETAIL



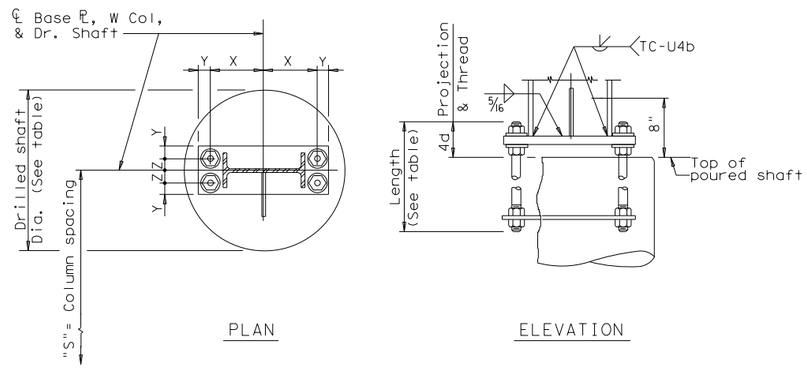
SECTION G-G

Anchor Bolt Dia. (d)	Washer Dimensions				Hole in Base Plate
	Outside Diameter	Hole Diameter	Thickness Min	Thickness Max	
1½"orless	2d	d + ⅛"	0.136"	0.177"	d + ¼"
1 ¾"	2d - ⅛"	d + ⅛"	0.178"	0.280"	d + 5/16"
2"	2d - ¼"	d + ⅛"	0.178"	0.280"	d + 5/16"
over 2"	2d - ½"	d + ⅛"	0.240"	0.340"	d + 5/16"

ANCHOR BOLT SIZE				
DIA	BOLT ③ LENGTH	THREAD ③ LENGTH	PROJECTION LENGTH	GALVAN. ③ LENGTH
1"	2′-5"	4"	4 ½"	10"
1 ⅛"	2′-8"	4 ½"	5"	10 ½"
1 ¼"	2′-11"	5"	5 ½"	11"
1 ⅜"	3′-1"	5 ½"	6"	11 ½"
1 ½"	3′-4"	6"	6 ½"	1′-0"
1 ¾"	3′-10"	7"	7 ½"	1′-1"
2"	4′-3"	8"	8 ½"	1′-2"
2 ¼"	4′-9"	9"	9 ½"	1′-3"
2 ½"	5′-2"	10"	10 ½"	1′-4"
2 ¾"	5′-8"	11"	11 ½"	1′-5"

③ Anchor Bolt Fabrication Tolerances:
Bolt Length ~ ±½"
Thread Length ~ ±½"
Galvanized Length ~ -¼"

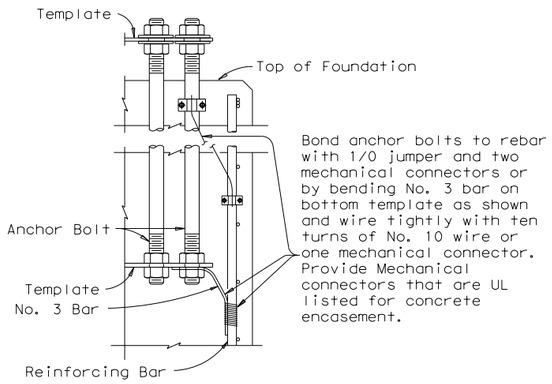
④ Thread lenght applies to upper and lower threads



PLAN ELEVATION

BEARING SEAT DETAILS

(See table for base plate size anchor bolt size, dimensions X,Y,Z and drilled shaft diameter.)



Bond anchor bolts to rebar with 1/0 jumper and two mechanical connectors or by bending No. 3 bar on bottom template as shown and wire tightly with ten turns of No. 10 wire or one mechanical connector. Provide Mechanical connectors that are UL listed for concrete encasement.

LIGHTNING PROTECTION SYSTEM

SHEET 2 OF 2

Texas Department of Transportation

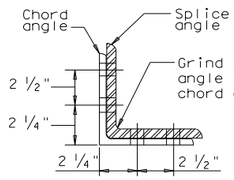
Traffic Safety Division Standard

OVERHEAD SIGN BRIDGE TOWER DETAILS

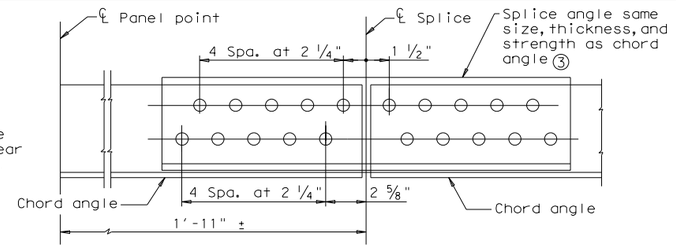
OSBT(2)-21

FILE: osbt-21.dgn	DN:	CK:	DW:	CK:
©TxDOT November 2007	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
8-21	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1321

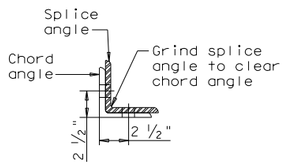
45B



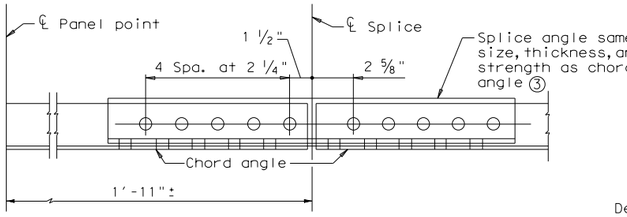
SECTION ON ℄ SPLICE
(6" L Shown)



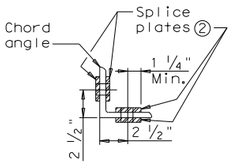
CHORD SPLICE USING ANGLES (SINGLE SHEAR)
(Place splice angle on inside of truss)
(6" L Shown)



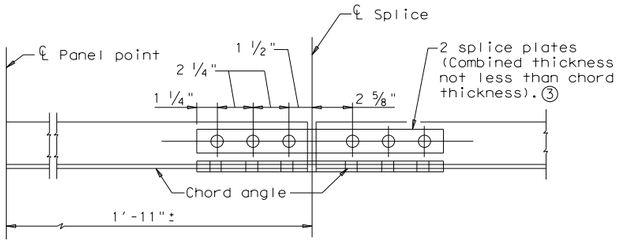
SECTION ON ℄ SPLICE
(4" L Shown)



CHORD SPLICE USING ANGLES (SINGLE SHEAR)
(Place splice angle on inside of truss)
(4" L Shown)

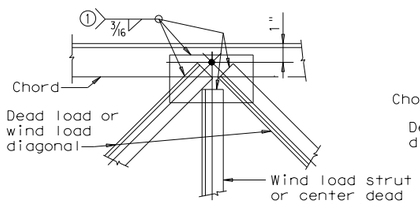


SECTION ON ℄ SPLICE
(4" L Shown)

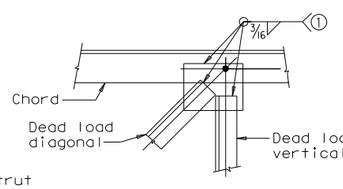


CHORD SPLICE USING PLATES (DOUBLE SHEAR) ④

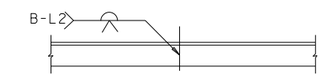
SPLICE DETAILS



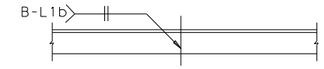
DETAIL A



DETAIL C
Gussets plates in details "E" & "F" to be similar.



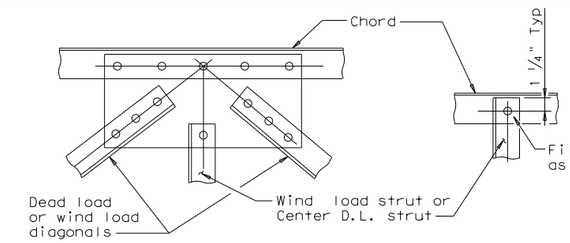
FOR L'S OVER 1/4" IN THICKNESS



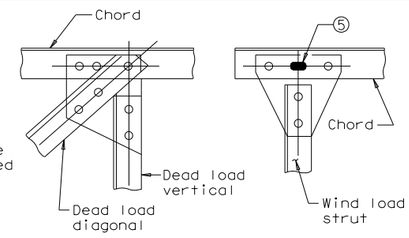
FOR L'S 1/4" OR LESS IN THICKNESS

ALTERNATE WELDED SPLICE AND CONNECTION DETAILS

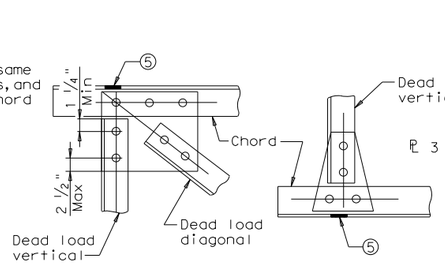
TABLE OF MINIMUM WELD LENGTHS		
Number of bolts	3/16" Fillet Weld Replaces:	
	5/8" Dia. Bolt	3/4" Dia. Bolt
1	2"	3"
2	4"	6"
3	6"	9"
4	8"	11 1/2"
5	10"	14 1/2"
6	12"	17 1/2"
7	14"	20"



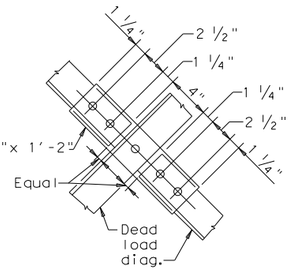
DETAIL A DETAIL B



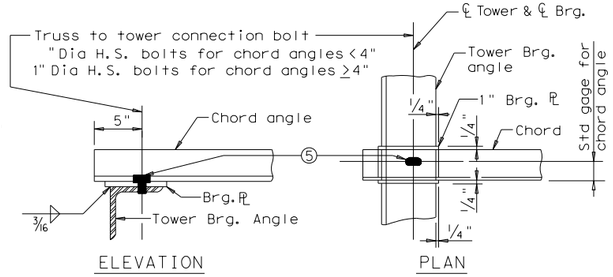
DETAIL C DETAIL D DETAIL E



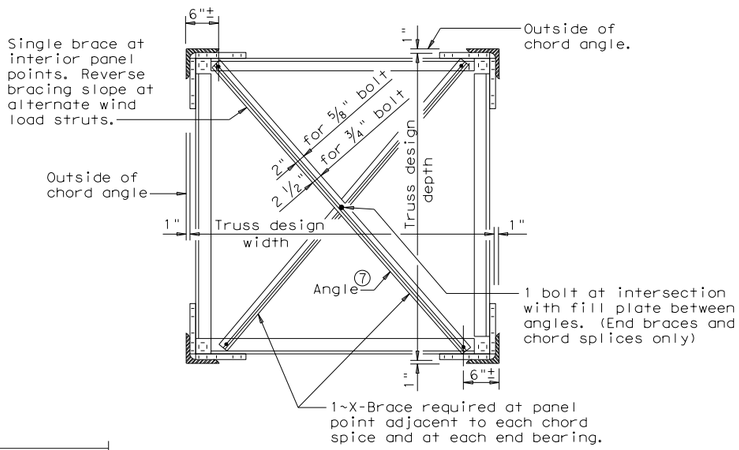
DETAIL F DETAIL G



DETAIL H



BEARING PLATE DETAILS ⑥



TRUSS SECTION
(Diagonals not shown)

Total No. of Bolts in Diagonals at Joints	No. of Bolts required in Gusset ℄ at Chord Connection
0	2
2	2
3	3
4	3
5	4
6	4
8	5
10	6
12	6

① See "TABLE OF MINIMUM WELD LENGTHS" for the length of welds.

② Area of splice plates shall be equal to or greater than area of chord angle.

③ When chord angles of different thickness are spliced, use shim plate and number of bolts required for thinner angle. For splice angle use thickness of the thinner angle.

④ When splice plates are used on both sides of chord angle (double shear) only half the number of bolts shown in the table on standard drawing "OVERHEAD SIGN BRIDGE DETAILS" are required.

⑤ Slotted hole in Gusset ℄ and chord angle 1"x 1 1/2" slot for 3/4" dia. bolts, 1 1/4"x 2" slot for 1" dia. bolts. Use ℄ washer on Gusset ℄ side.

⑥ Bearing plate may be omitted if welded connections are used on wind truss.

⑦ 2"x 1 1/2"x 3/16" angle for 5/8" Dia bolts [1]
2 1/2"x 2"x 3/16" angle for 3/4" Dia bolts [1]

GENERAL NOTES:

All bolts shall be in accordance with Item 447, "Structural Bolting".

The truss shall have an upward camber not less than the dead load deflections shown in the table on standard drawings "Overhead Sign Bridge Details" when blocked at the ends under dead load of the truss only.

Chord angles may be spliced in convenient lengths for galvanizing. Connection and splice details are typical only. Actual size of member and number of bolts will vary. The details shown on this sheet are intended as a guide only. See standard drawings "Overhead Sign Bridge Details" for number of bolts and size of members. Number of bolts shown for chord splice is based on single shear.

Gusset plates to be same thickness as thickest web member in connection.

Texas Department of Transportation
Traffic Operations Division

OVERHEAD SIGN BRIDGE TRUSS DETAILS

OSBC

REVISIONS

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399
DIST	COUNTY		SHEET NO.
DAL	COLLIN, ETC		1322

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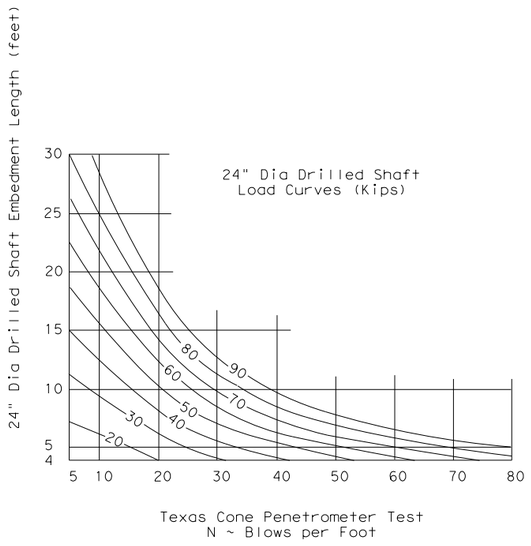
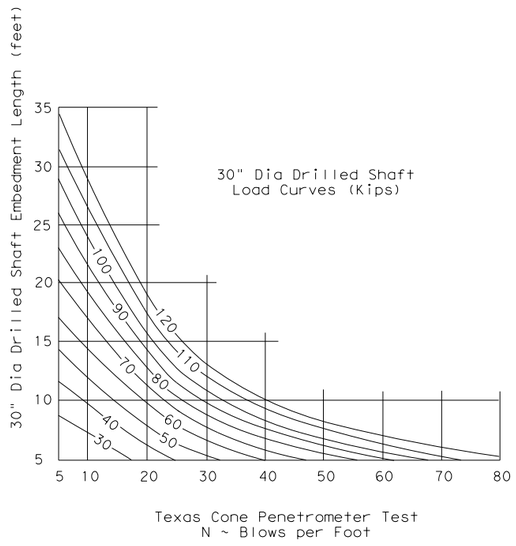
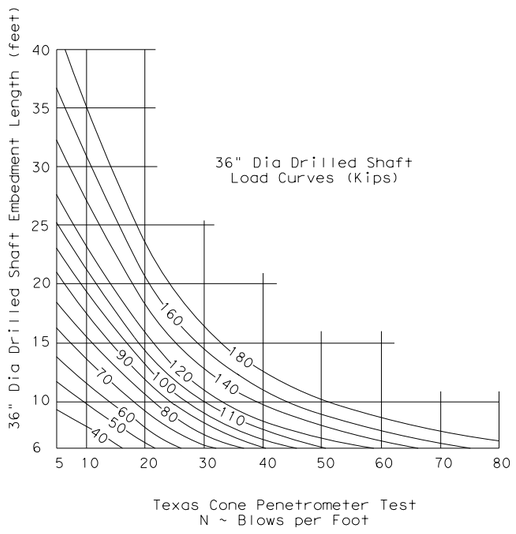
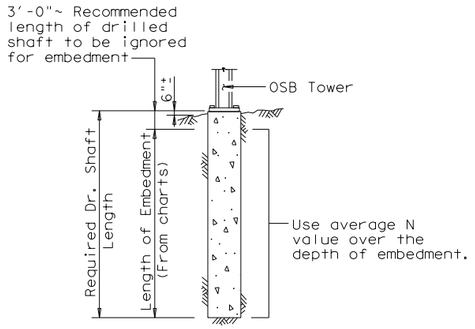


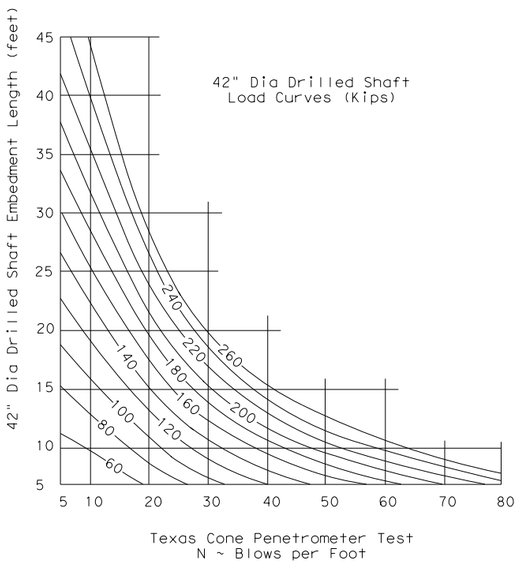


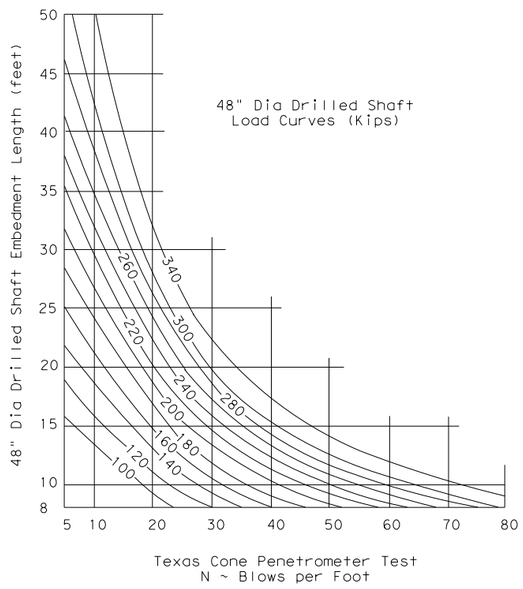


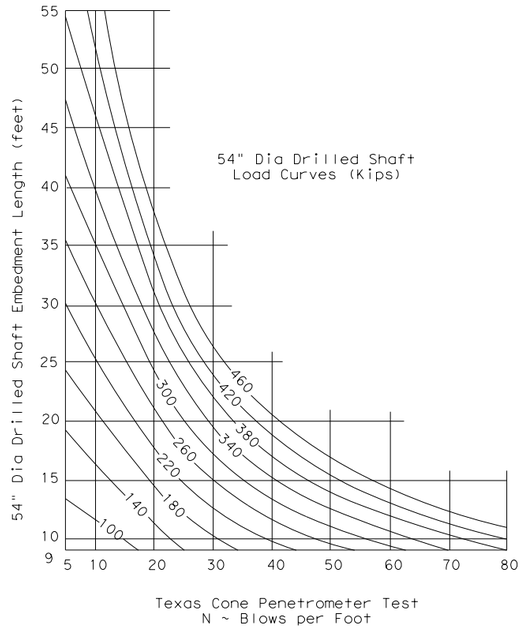


PROCEDURE:

1. Determine uplift from the applicable "Overhead Sign Bridge Details" standard drawing.
2. Determine required drilled shaft diameter from standard drawing OSBT.
3. Make an initial estimate of the required embedment length.
4. From Texas Cone Penetrometer Test data determine the average N value over the length of embedment.
5. Enter chart (for the correct shaft diameter) from the bottom at the average N value.
6. Proceed vertically into chart and locate intersection with column uplift. Interpolate between curves as needed.
7. From intersection point turn 90° to left and read embedment length along vertical scale.
8. If embedment length differs significantly from estimated value return to step 4 with embedment length determined in step 7.
9. Compute the required length of drilled shaft by adding 3'-0" to the required embedment length.







GENERAL NOTES:

These charts are to be used for Simple Span Overhead Sign Bridges with two shafts per tower.

Numbers shown on curved lines are uplift in kip.

Dead load of concrete in drilled shafts is included in curves.

Minimum embedment of drilled shafts is two diameters.

Load curves shall not be extrapolated below the N value of 5 blows per foot.

Texas Department of Transportation
Traffic Operations Division

FOUNDATION EMBEDMENT SELECTION CHARTS

OSB-FD

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399

DIST	COUNTY	SHEET NO.
DAL	COLLIN, ETC	1323

DATE: 10/1/2024 11:22:52 AM
FILE: c:\pwworking\central01\d2097791\stds52.dgn

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ZONE 4 WITH AND WITHOUT ICE 70 MPH WIND

10' SPAN

TOWER HEIGHT (ft)	TOWER PIPE O.D. (in)	TOWER PIPE WALL THICK (in)	TOWER PIPE DEFL ΔH (in)	ANCHOR BOLTS SIZE DIA (in)	ANCHOR BOLTS NO.	ANCHOR BOLTS BOLT CIR DIA	BASE PLATE SIZE (in)	TRUSS DEFL ΔV (in)	DESIGN LOADS SHEAR V (Kips)	DESIGN LOADS TORSION T (K-ft)	DESIGN LOADS MOMENT M (K-ft)
14'	16	0.250	0.104	1 1/4	6	20 1/2"	24 x 1 1/4	0.2	2.75	12.39	38.53
15'	↑	↑	0.119	↑	↑	↑	↑	↑	2.76	↑	41.23
16'			0.136						2.77		43.94
17'			0.153						2.79		46.68
18'			0.172						2.80		49.43
19'			0.191						2.81		52.20
20'			0.212						2.83		54.99
21'			0.234					↓	2.84		57.79
22'			0.257					0.2	2.85		60.61
23'			0.280					0.3	2.87		63.45
24'			0.305	↓		↓	↓	↑	2.88		66.30
25'			0.331	1 1/4		20 1/2"	24 x 1 1/4		2.89		69.16
26'			0.358	1 3/8		20 3/4"	24 1/2 x 1 3/8		2.90		72.04
27'			0.386	↑		↑	↑		2.92		74.93
28'			0.416						2.93		77.84
29'			0.446	↓		↓	↓		2.94		80.76
30'			0.477	1 3/8		20 3/4"	24 1/2 x 1 3/8		2.96		83.69
31'	↓	↓	0.509	1 1/2	↓	21"	25 x 1 1/2	↓	2.97	↓	86.64
32'	16	0.250	0.543	1 1/2	6	21"	25 x 1 1/2	0.3	2.98	12.39	89.61

15' SPAN

TOWER HEIGHT (ft)	TOWER PIPE O.D. (in)	TOWER PIPE WALL THICK (in)	TOWER PIPE DEFL ΔH (in)	ANCHOR BOLTS SIZE DIA (in)	ANCHOR BOLTS NO.	ANCHOR BOLTS BOLT CIR DIA	BASE PLATE SIZE (in)	TRUSS DEFL ΔV (in)	DESIGN LOADS SHEAR V (Kips)	DESIGN LOADS TORSION T (K-ft)	DESIGN LOADS MOMENT M (K-ft)
14'	16	0.250	0.234	1 3/8	6	20 3/4"	24 1/2 x 1 1/4	0.5	4.13	28.76	59.63
15'	↑	↑	0.268	↑	↑	↑	24 1/2 x 1 1/4	0.6	4.14	↑	63.62
16'			0.305	↓		↓	24 1/2 x 1 3/8	0.6	4.16		67.63
17'			0.345	1 3/8		20 3/4"	24 1/2 x 1 3/8	0.6	4.17		71.67
18'			0.386	1 1/2		21"	25 x 1 3/8	0.7	4.18		75.74
19'			0.431	↑		↑	25 x 1 1/2	0.7	4.20		79.83
20'			0.477				↑	0.7	4.21		83.94
21'			0.526		↓		↓	0.8	4.22		88.08
22'			0.577		6		25 x 1 1/2	0.8	4.23		92.23
23'			0.631		8		25 x 1 5/8	0.9	4.25		96.40
24'			0.687		↑		↑	0.9	4.26		100.60
25'			0.745					0.9	4.27		104.81
26'			0.806					1.0	4.29		109.03
27'		↓	0.869					↑	4.30		113.28
28'		0.250	0.935						4.31		117.54
29'		0.280	0.898						4.33		121.82
30'		↑	0.961					↓	4.34		126.11
31'	↓	↓	1.026	↓	↓	↓	↓	1.0	4.35	↓	130.42
32'	16	0.280	1.094	1 1/2	8	21"	25 x 1 5/8	1.1	4.36	28.76	134.74

20' SPAN

TOWER HEIGHT (ft)	TOWER PIPE O.D. (in)	TOWER PIPE WALL THICK (in)	TOWER PIPE DEFL ΔH (in)	ANCHOR BOLTS SIZE DIA (in)	ANCHOR BOLTS NO.	ANCHOR BOLTS BOLT CIR DIA	BASE PLATE SIZE (in)	TRUSS DEFL ΔV (in)	DESIGN LOADS SHEAR V (Kips)	DESIGN LOADS TORSION T (K-ft)	DESIGN LOADS MOMENT M (K-ft)
14'	16	0.250	0.419	1 3/4	6	21 1/2"	26 x 1 3/4	1.3	5.59	52.67	83.06
15'	↑	0.250	0.481	↑	↑	↑	↑	1.4	5.61	↑	88.34
16'		0.250	0.547					1.5	5.62		93.66
17'		0.281	0.549					1.4	5.63		99.03
18'		↑	0.615					1.5	5.64		104.44
19'		↓	0.685				↓	1.5	5.66		109.88
20'		0.281	0.759				26 x 1 3/4	1.6	5.67		115.36
21'		0.310	0.759				26 x 2	1.5	5.68		120.86
22'		↑	0.834		↓		↑	1.6	5.70		126.40
23'		↓	0.911		6			1.7	5.71		131.96
24'		0.310	0.992		8			↑	5.77		138.12
25'		0.340	0.990		↑			↓	5.73		143.15
26'		0.340	1.071					1.7	5.75		148.78
27'		0.340	1.155					1.8	5.76		154.43
28'		0.375	1.139					1.7	5.77		160.10
29'		0.375	1.221					1.8	5.79		165.79
30'		0.375	1.307					↑	5.80		171.49
31'	↓	0.410	1.297	↓	↓	↓	↓	↓	5.81	↓	177.22
32'	16	0.410	1.382	1 3/4	8	21 1/2"	26 x 2	1.8	5.83	52.67	182.97

25' SPAN

TOWER HEIGHT (ft)	TOWER PIPE O.D. (in)	TOWER PIPE WALL THICK (in)	TOWER PIPE DEFL ΔH (in)	ANCHOR BOLTS SIZE DIA (in)	ANCHOR BOLTS NO.	ANCHOR BOLTS BOLT CIR DIA	BASE PLATE SIZE (in)	TRUSS DEFL ΔV (in)	DESIGN LOADS SHEAR V (Kips)	DESIGN LOADS TORSION T (K-ft)	DESIGN LOADS MOMENT M (K-ft)
14'	20	0.250	0.333	1 3/8	8	24 3/4"	28 1/2 x 1 3/8	1.4	7.00	82.44	107.23
15'	↑	↑	0.382	↑	↑	↑	↑	1.5	7.02	↑	113.64
16'			0.435					1.6	7.03		120.14
17'			0.491	↓		↓	↓	1.7	7.05		126.71
18'			0.550	1 3/8		24 3/4"	28 1/2 x 1 3/8	1.7	7.07		133.34
19'			0.613	1 1/2		25"	29 x 1 1/2	1.8	7.08		140.03
20'		↓	0.679	↑		↑	↑	1.9	7.10		146.77
21'		0.250	0.749				↓	2.0	7.12		153.56
22'		0.281	0.735				29 x 1 1/2	↑	7.13		160.39
23'		↑	0.803	↓		↓	29 x 1 5/8		7.15		167.26
24'		↓	0.874	1 1/2		25"	↑	↓	7.16		174.17
25'		0.281	0.949	1 3/4		25 3/8"	↓	2.0	7.18		181.12
26'		0.312	0.920	↑		↑	29 x 1 5/8	2.1	7.20		188.02
27'		↑	0.992				29 3/4 x 1 3/4	↑	7.21		195.03
28'		↓	1.067				29 3/4 x 1 3/4	↓	7.23		202.07
29'		0.312	1.145				29 3/4 x 1 3/4	2.1	7.24		209.14
30'		0.344	1.119				29 3/4 x 2	2.2	7.26		216.23
31'	↓	0.344	1.194	↓	↓	↓	29 3/4 x 2	2.2	7.28	↓	223.35
32'	20	0.344	1.273	1 3/4	8	25 3/8"	29 3/4 x 2	2.2	7.29	82.44	230.50

ZONE 4 WITH AND WITHOUT ICE 70 MPH WIND

30' SPAN

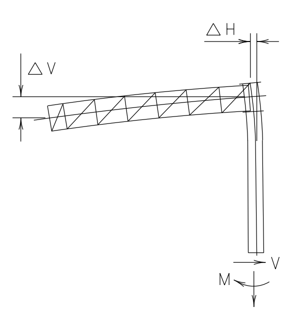
TOWER HEIGHT (ft)	TOWER PIPE O.D. (in)	TOWER PIPE WALL THICK (in)	TOWER PIPE DEFL ΔH (in)	ANCHOR BOLTS SIZE DIA (in)	ANCHOR BOLTS NO.	ANCHOR BOLTS BOLT CIR DIA	BASE PLATE SIZE (in)	TRUSS DEFL ΔV (in)	DESIGN LOADS SHEAR V (Kips)	DESIGN LOADS TORSION T (K-ft)	DESIGN LOADS MOMENT M (K-ft)
14'	24	0.250	0.285	1 1/2	8	29"	33 x 1 1/2	1.6	8.42	119.01	134.48
15'	↑	↑	0.327	↑	↑	↑	↑	1.6	8.44	↑	141.90
16'			0.372					1.7	8.46		149.44
17'			0.420					1.8	8.48		157.10
18'			0.471					1.9	8.50		164.85
19'			0.524					2.0	8.52		172.68
20'			0.581	↓		↓	↓	2.1	8.54		180.60
21'			0.641	1 1/2		29"	33 x 1 1/2	2.2	8.56		188.59
22'			0.703	1 3/4		29 3/8"	33 3/4 x 1 1/2	2.2	8.58		196.65
23'			0.768	↑		↑	33 3/4 x 1 1/2	2.3	8.60		204.76
24'			0.837				33 3/4 x 1 5/8	2.4	8.62		212.93
25'		↓	0.908				33 3/4 x 1 5/8	2.5	8.64		221.15
26'		0.250	0.982				33 3/4 x 1 5/8	2.6	8.66		229.42
27'		0.281	0.949				33 3/4 x 1 3/4	2.4	8.67		237.74
28'		↑	1.021	↓		↓	33 3/4 x 1 3/4	2.5	8.69		246.10
29'			1.095	1 3/4		29 3/8"	33 3/4 x 1 3/4	2.6	8.71		254.49
30'			1.172	2		29 3/4"	34 1/2 x 1 3/4	2.7	8.73		262.93
31'	↓	↓	1.251	2	↓	29 3/4"	34 1/2 x 1 3/4	2.8	8.75	↓	271.41
32'	24	0.281	1.333	2	8	29 3/4"	34 1/2 x 1 3/4	2.8	8.77	119.01	279.92

35' SPAN

TOWER HEIGHT (ft)	TOWER PIPE O.D. (in)	TOWER PIPE WALL THICK (in)	TOWER PIPE DEFL ΔH (in)	ANCHOR BOLTS SIZE DIA (in)	ANCHOR BOLTS NO.	ANCHOR BOLTS BOLT CIR DIA	BASE PLATE SIZE (in)	TRUSS DEFL ΔV (in)	DESIGN LOADS SHEAR V (Kips)	DESIGN LOADS TORSION T (K-ft)	DESIGN LOADS MOMENT M (K-ft)
14'	24	0.250	0.406	1 3/4	8	29 3/8"	33 3/4 x 1 1/2	2.6	9.77	161.98	165.20
15'	↑	↑	0.467	↑	↑	↑	↑	2.7	9.79	↑	173.37
16'		↓	0.531				↓	2.8	9.81		181.71
17'		0.250	0.599				33 3/4 x 1 1/2	3.0	9.83		190.21
18'		0.281	0.602				33 3/4 x 1 5/8	2.9	9.85		198.85
19'		↑	0.671				↑	3.0	9.87		207.61
20'			0.743				↓	3.1	9.89		216.48
21'		↓	0.820				33 3/4 x 1 5/8	3.2	9.91		225.46
22'		0.281	0.900				33 3/4 x 1 3/4	3.4	9.93		234.52
23'		0.312	0.889	↓		↓	33 3/4 x 1 3/4	3.2	9.95		243.67
24'		↑	0.968	1 3/4		29 3/8"	33 3/4 x 1 3/4	3.3	9.96		252.90
25'			1.050	2		29 3/4"	34 1/2 x 1 7/8	3.5	9.98		262.20
26'		↓	1.136	↑		↑	↑	3.6	10.00		271.57
27'		0.312	1.225				↓	3.7	10.02		280.99
28'		0.340	1.200				34 1/2 x 1 7/8	3.5	10.04		290.48
29'		↑	1.287				34 1/2 x 2	3.6	10.06		300.02
30'			1.377				↑	3.7	10.08		309.61
31'	↓	↓	1.471	↓	↓	↓	↓	3.8	10.10	↓	319.25
32'	24	0.340	1.567	2	8	29 3/4"	34 1/2 x 2	3.9	10.12	161.98	328.93

40' SPAN

TOWER HEIGHT (ft)	TOWER PIPE O.D. (in)	TOWER PIPE WALL THICK (in)	TOWER PIPE DEFL ΔH (in)	ANCHOR BOLTS SIZE DIA (in)	ANCHOR BOLTS NO.	ANCHOR BOLTS BOLT CIR DIA	BASE PLATE SIZE (in)	TRUSS DEFL ΔV (in)	DESIGN LOADS SHEAR V (Kips)	DESIGN LOADS TORSION T (K-ft)	DESIGN LOADS MOMENT M (K-ft)
14'	30	0.250	0.280	1 3/4	8	35 3/8"	39 3/4 x 1 1/2	2.4	11.22	211.94	200.44
15'	↑	↑	0.322	↑	↑	↑	↑	2.5	11.24	↑	209.33
16'			0.366					2.6	11.27		218.45
17'			0.413					2.7	11.29		227.79
18'		↓	0.463					2.8	11.32		237.32
19'		0.250	0.516					2.9	11.34		247.01
20'		0.281	0.510					2.8	11.37		256.86
21'		↑	0.562					2.9	11.39		266.86
22'			0.617				↓	3.0	11.41		276.98
23'			0.675	↓		↓	39 3/4 x 1 1/2	3.1	11.44		287.22
24'			0.735	1 3/4		35 3/8"	39 3/4 x 1 5/8	3.2	11.46		297.57
25'			0.797	2		35 3/4"	40 1/2 x 1 5/8	3.3	11.49		308.01
26'			0.862	↑		↑	40 1/2 x 1 5/8	3.4	11.51		318.55
27'			0.930				40 1/2 x 1 5/8	3.5	11.54		329.18
28'			1.000				40 1/2 x 1 3/4	3.6	11.56		339.89
29'			1.073				↑	3.7	11.58		350.68
30'			1.148					3.8	11.61		361.53
31'	↓	↓	1.226	↓	↓	↓	↓	3.9	11.63	↓	372.46
32'	30	0.281	1.306	2	8	35 3/4"	40 1/2 x 1 3/4	4.0	11.68	211.94	384.26



ELEVATION

(SHOWING DESIGN LOADS AND DEAD LOAD DEFLECTIONS)

TRUSS DETAILS

SPAN	10', 15', & 20'	25'	30'	35'	40'
W x D = WIDTH x DEPTH	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0	4.0 x 4.0
CHORD-①, Unless Otherwise Shown	L 3 x 3 x 3/16 ② [4]	L 3 x 3 x 3/16 ② [4]	L 3 x 3 x 1/4 [6]	L 3 x 3 x 5/16 [6]	L 3 x 3 x 3/8 [9]
DEAD LOAD DIAGONAL-②	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [3]
WIND LOAD DIAGONAL-②	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 2 1/2 x 2 1/2 x 3/16 [2]	L 3 x 3 x 3/16 [2]	L 3 x 3 x 3/16 [2]
DEAD LOAD VERTICAL-②	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]	L 2 x 2 x 3/16 [2]
WIND LOAD STRUT-②	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]	L 2 x 2 x 3/16 [1]
TRUSS DEAD LOAD	37 lb/ft	38 lb/ft	43 lb/ft	50 lb/ft	56 lb/ft
SIZE H. S. BOLTS IN CONNECTION	5/8" DIA	5/8" DIA	5/8" DIA	5/8" DIA	5/8" DIA
NO. & SIZE OF H. S. BOLTS IN CHORD ANGLE TO TOWER CONNECTION PLATE	4 ~ 5/8" DIA ea	4 ~ 5/8" DIA or 3 ~ 3/4" DIA ea	6 ~ 5/8" DIA or 5 ~ 3/4" DIA ea	6 ~ 5/8" DIA or 5 ~ 3/4" DIA ea	9 ~ 5/8" DIA or 7 ~ 3/4" DIA ea

① "Low-Alloy Steel" for non-bridge structures per Item 442, "Metal For Structures".

② "Carbon Steel" for non-bridge structures per Item 442, "Metal For Structures".

GENERAL NOTES :

Design conforms to AASHTO 1994 Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto.

Steel for tower pipe shall conform to ASTM A53 Grade B or to ASTM A501. Tower pipe wall thickness shown is the minimum allowable. Fabricator may use the wall thickness shown or pipe of the same diameter with greater wall thickness.

All connection bolts shall conform to Item 447, "Structural Bolting". All structural steel, connection bolts, nuts and washers shall be galvanized in accordance with the Specifications.

Compensate for truss deflection at free end by offsetting upper and lower bolt holes at truss-to-tower connection.

For truss details see standard drawing COSSD.

For base and foundation details see standard drawing COSSF.

For cantilever truss lengths falling between those shown use sizes called for in the next longer span.

Truss and towers for cantilever sign supports are designed for the equivalent area of a 10'-0" deep sign panel over 100% of the span length. Design includes 3 pounds per foot squared for sign panel and 20 pounds per foot for lights and 50 pounds per foot for walkways all placed as specified for the design sign panel.

Details called for hereon are applicable for Design Wind Heights up to 30' inclusive.

Number of High Strength bolts required in truss connection or splice are indicated in brackets, e.g. [3], after the member size.

Deflections shown include the design loads for Truss, Sign Panel, Lights and Walkways.

Texas Department of Transportation
Traffic Operations Division

CANTILEVER OVERHEAD SIGN SUPPORTS

COSS-Z4 & Z4I-10

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS			
4-10			

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399
DIST		COUNTY	SHEET NO.
DAL		COLLIN, ETC	1324

65

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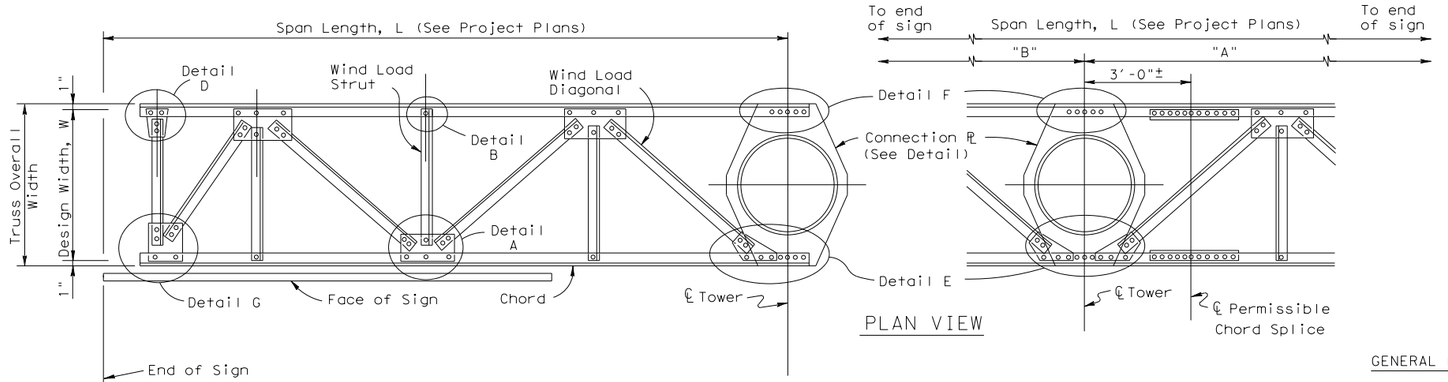
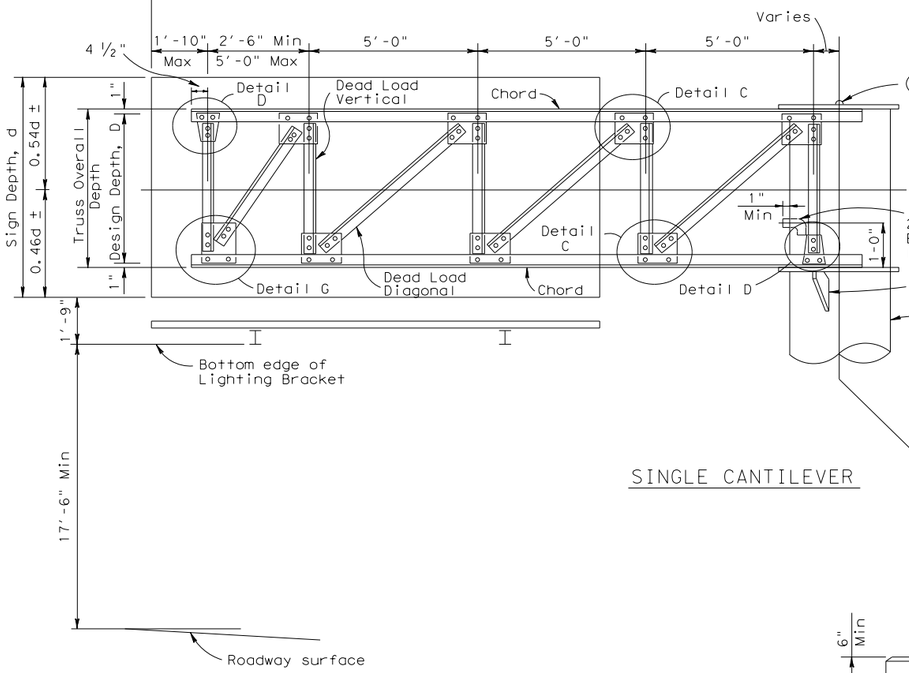
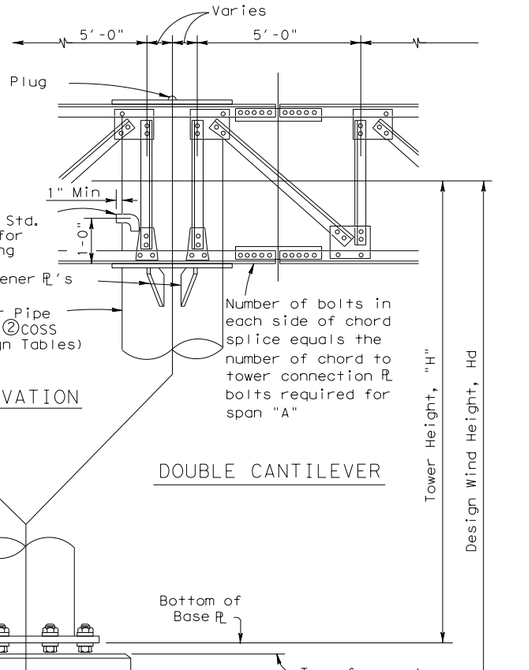


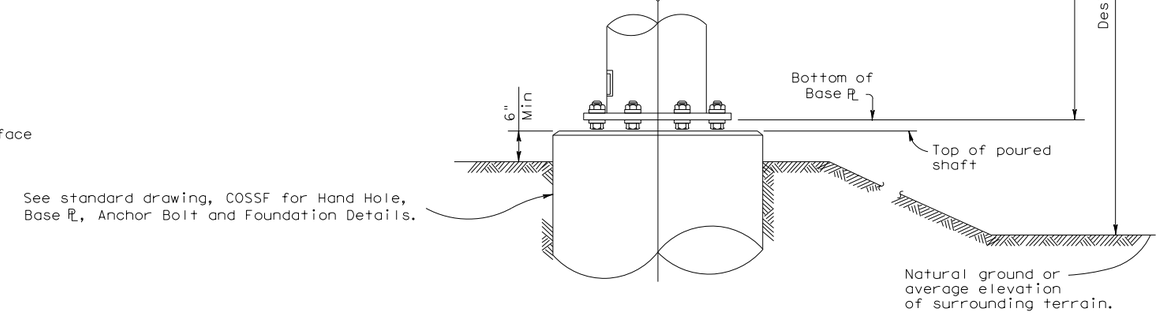
GENERAL NOTES:

Design conforms to 1975 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and Interim revisions thereto. Connection details are typical only. Actual size of member and number of bolts will vary. The details on this sheet are intended as a guide only. See "Cantilever Overhead Sign Supports" or "High Level Cantilever Overhead Sign Supports" sheets for number of bolts and size of members.

Gusset plates to be same thickness as thickest web member in connection.







① Note: Cap shall be solid steel sheet ⅜" nominal thickness. Drill, tap and plug galvanizing vent. Weld plate to pipe with ⅜" weld all around.

② For COSS design tables see standard drawing, "Cantilever Overhead Sign Supports" or "High Level Cantilever Overhead Sign Supports".

Texas Department of Transportation
Traffic Operations Division

CANTILEVER OVERHEAD SIGN SUPPORT DETAILS

COSSD

REVISIONS

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399

DIST	COUNTY	SHEET NO.
DAL	COLLIN, ETC	1325

66A

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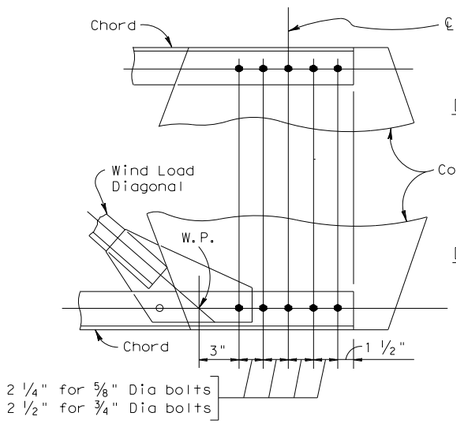
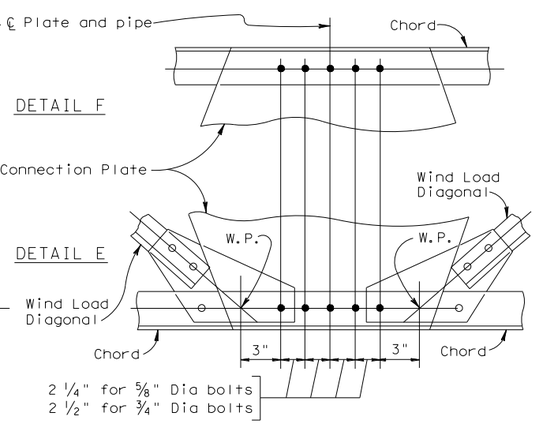
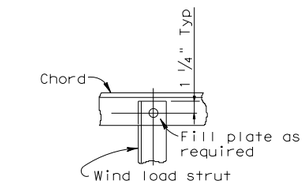


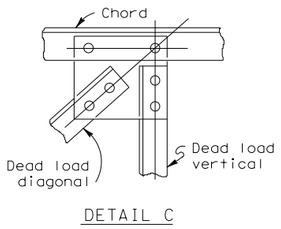
SINGLE CANTILEVER



DOUBLE CANTILEVER

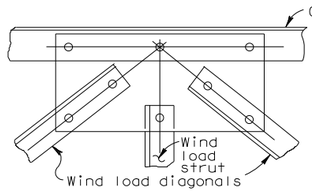


DETAIL B

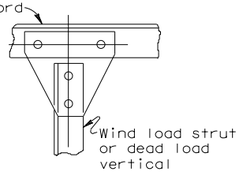


DETAIL C

CONNECTION DETAILS



DETAIL A



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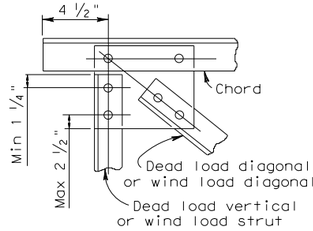
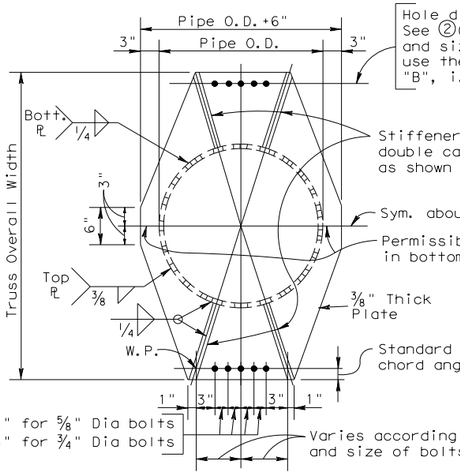
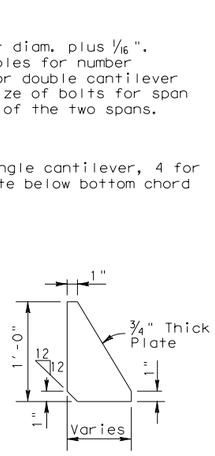


DETAIL G

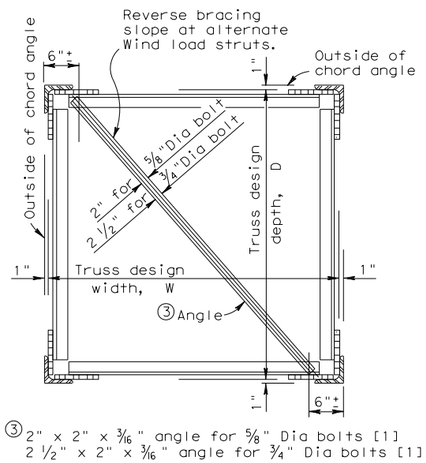
TOTAL NO. OF BOLTS IN DIAG'S. IN JOINT	NUMBER OF BOLTS REQD. IN GUSSET ℄ TO CHORD CONNECTION
0	2
2	2
3	3
4	3
5	4
6	4
8	5
10	6



CONNECTION PLATE DETAIL



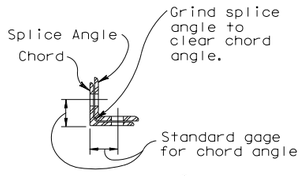
STIFFENER ℄ DETAIL



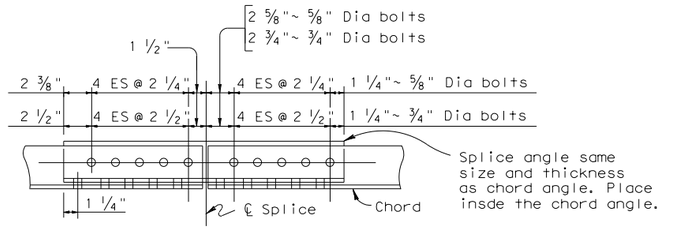
③2" x 2" x 3/16" angle for ⅝" Dia bolts [1]
2 ½" x 2" x 3/16" angle for ¾" Dia bolts [1]

TRUSS SECTION

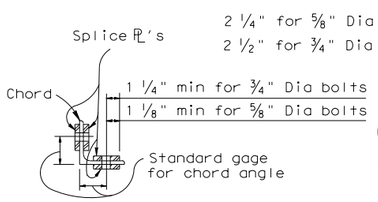
(DIAGONALS NOT SHOWN)



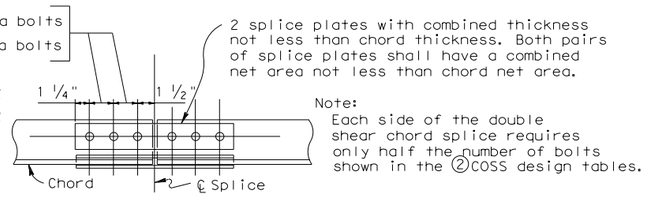
SECTION ON ℄ SPLICE



SINGLE SHEAR CHORD SPLICE



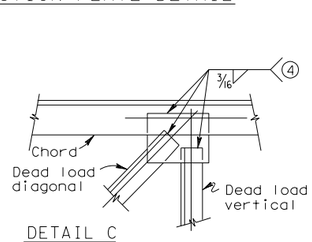
SECTION ON ℄ SPLICE



Note:
Each side of the double shear chord splice requires only half the number of bolts shown in the ②COSS design tables.

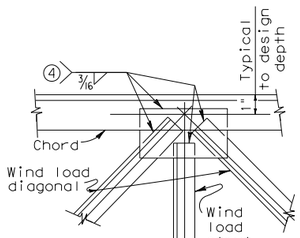
DOUBLE SHEAR CHORD SPLICE

SPLICE DETAILS



DETAIL C

(Gusset plates in other details to be similar)



DETAIL A

ALTERNATE WELDED CONNECTION DETAILS

④MINIMUM LENGTH OF 3/16" FILLET WELD REQUIRED		
NUMBER OF BOLTS	TO REPLACE ⅝" DIA BOLTS	TO REPLACE ¾" DIA BOLTS
1	2"	3"
2	4"	6"
3	6"	9"
4	8"	11 ½"
5	10"	14 ½"
6	12"	17 ½"
7	14"	20"

Texas Department of Transportation
Traffic Operations Division

CANTILEVER OVERHEAD SIGN SUPPORT DETAILS

COSSD

REVISIONS

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399
DIST	COUNTY		SHEET NO.
DAL	COLLIN, ETC		1326

66B

DATE: 10/1/2024 11:22:58 AM
FILE: c:\pwworking\central01\d2097791\stds66.dgn

Washers shall conform to ASTM F436.

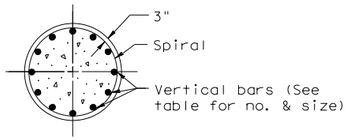
ANCHOR BOLT DIA.	WASHER DIMENSIONS				HOLE IN BASE PLATE
	OUTSIDE DIAMETER	HOLE DIAMETER	THICKNESS		
d			MIN.	MAX.	
1 ½" or less	2d	d + ⅛"	0.136"	0.177"	d + ¼"
1 ¾"	2d - ⅛"	d + ⅛"	0.178"	0.280"	d + 5/16"
2"	2d - ¼"	d + ⅛"	0.178"	0.280"	d + 5/16"
Over 2"	2d - ½"	d + ⅛"	0.240"	0.340"	d + 5/16"

ANCHOR BOLT SIZE				
DIA	BOLT ① LENGTH	THREAD ① LENGTH	PROJECTION LENGTH	GALVAN. ① LENGTH
1 ¼"	2'-11"	5"	5 ¼"	11 ¼"
1 ⅜"	3'-1"	5 ½"	5 ¾"	11 ¾"
1 ½"	3'-4"	6"	6 ¼"	1'-0 ¼"
1 ¾"	3'-10"	7"	7 ¼"	1'-1 ¼"
2"	4'-3"	8"	8 ¼"	1'-2 ¼"
2 ¼"	4'-9"	9"	9 ¼"	1'-3 ¼"
2 ½"	5'-2"	10"	10 ¼"	1'-4 ¼"
2 ¾"	5'-8"	11"	11 ¼"	1'-5 ¼"
3"	6'-1"	1'-0"	1'-0 ¼"	1'-6 ¼"

① Anchor Bolt Fabrication Tolerances:
Bolt Length ~ ±½"
Thread Length ~ ±½"
Galvanized Length ~ -¼"

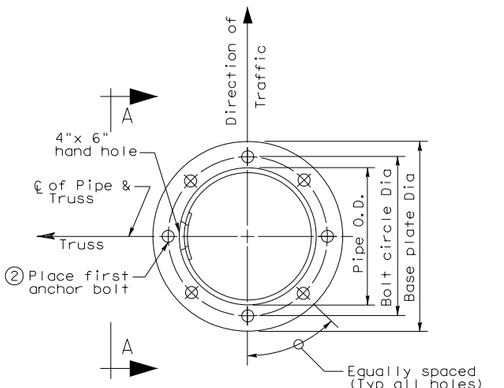
② Thread lenght applies to upper and lower threads

ANCHOR BOLT SIZE	PIPE OUTSIDE DIAMETER											
	16"			20"			24"			30"		
	BOLT CIRCLE DIA	DRILLED SHAFT SIZE	DRILLED SHAFT REINF	BOLT CIRCLE DIA	DRILLED SHAFT SIZE	DRILLED SHAFT REINF	BOLT CIRCLE DIA	DRILLED SHAFT SIZE	DRILLED SHAFT REINF	BOLT CIRCLE DIA	DRILLED SHAFT SIZE	DRILLED SHAFT REINF
1 ¼"Dia x 2'-11"	20 ½"	36" Dia	14-#8 (A)	24 ½"	36" Dia	14-#8 (A)						
1 ⅜"Dia x 3'-1"	20 ¾"	36" Dia	12-#9 (A)	24 ¾"	42" Dia	14-#9 (A)						
1 ½"Dia x 3'-4"	21"	36" Dia	12-#9 (A)	25"	42" Dia	14-#9 (A)	29"	42" Dia	14-#9 (C)			
1 ¾"Dia x 3'-10"	21 ½"	36" Dia	10-#10(A)	25 ⅜"	42" Dia	12-#10(B)	29 ⅜"	48" Dia	16-#10(C)	35 ⅜"	54" Dia	18-#10(C)
2"Dia x 4'-3"	22"	36" Dia	12-#10(A)	25 ¾"	42" Dia	12-#10(B)	29 ¾"	48" Dia	16-#10(C)	35 ¾"	54" Dia	18-#10(C)
2 ¼"Dia x 4'-9"	22 ½"	42" Dia	12-#11(A)	26"	42" Dia	10-#11(B)	30"	48" Dia	14-#11(C)	36"	54" Dia	14-#11(D)
2 ½"Dia x 5'-2"				26 ½"	42" Dia	12-#11(B)	30 ½"	48" Dia	16-#11(C)	36 ½"	54" Dia	16-#11(D)
2 ¾"Dia x 5'-8"							31 ½"	48" Dia	18-#11(D)	37"	54" Dia	20-#11(D)
3"Dia x 6'-1"										37 ½"	54" Dia	24-#11(D)



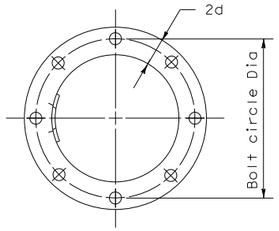
SECTION

A = #3 Plain spiral at 6" pitch (Grade 40)
B = #4 Plain spiral at 6" pitch (Grade 40)
C = #4 Plain spiral at 6" pitch (Grade 60)
D = #4 Plain spiral at 3 ½" pitch (Grade 60)

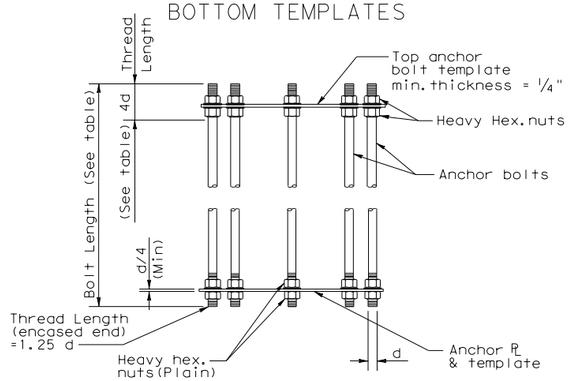


PLAN

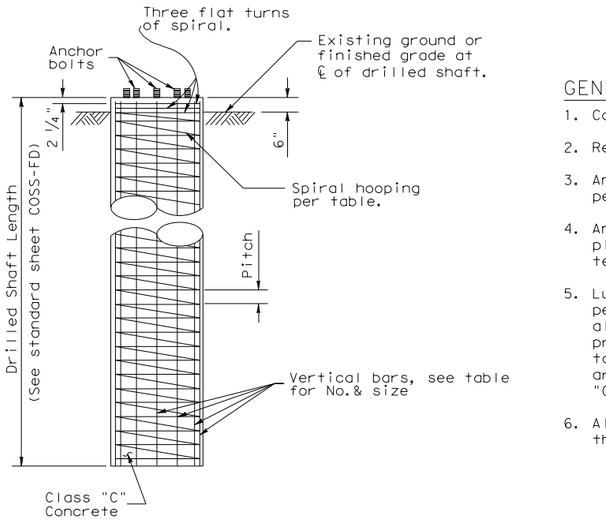
② See "Cantilever Overhead Sign Support" or "High Lever Cantilever Overhead Sign Support" sheets for number and size.



TOP VIEW OF TOP & BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY
(PRIOR TO INSTALLATION)



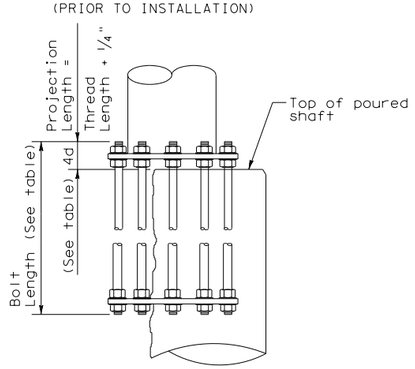
FOUNDATION DETAIL

Cut 5" x 7" hole in pipe. Center 4" x 6" hand hole in ⅜" x 8" x 10" back up plate. Provide attachable cover made from section cut from pipe.

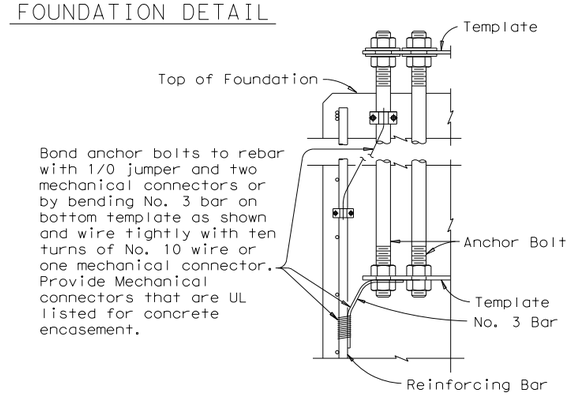
VIEW A-A

③ BASE PLATE & HANDHOLE DETAILS

③ See "Cantilever Overhead Sign Support" or "High Level Cantilever Overhead Sign Support" sheets for Diameter and thickness of base plate.



BEARING SEAT ELEVATION



LIGHTNING PROTECTION SYSTEM

GENERAL NOTES

1. Concrete shall be Class "C".
2. Reinforcing shall conform to Item 440, "Reinforcing Steel".
3. Anchor bolts and nuts for anchor bolts shall be "Alloy Steel" per Item 449, "Anchor Bolts".
4. Anchor bolts shall be rigidly held in position during concrete placement using steel templates at the top and bottom. The top templates shall be removed after the concrete has set.
5. Lubricate and tighten anchor bolts when erecting the structure per Item 449, "Anchor Bolts". After the structure has been aligned in its final position and the anchor bolts have been properly tightened, tack weld anchor bolt nuts to washer, and tack weld washers to base plate. Galvanizing in tack welded areas shall be repaired in accordance with Item 445, "Galvanizing".
6. All vertical reinforcing shall be carried to the bottom of the Drilled Shaft.

Texas Department of Transportation

Traffic Safety Division Standard

CANTILEVER OVERHEAD SIGN SUPPORT FOUNDATION

COSSF-21

FILE: cossf-21.dgn	DN:	CK:	DW:	CK:
©TxDOT November 2007	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	058, ETC.	S399
8-21	DIST	COUNTY		SHEET NO.
	DAL	COLLIN, ETC		1327

DATE: 10/1/2024 11:23:02 AM
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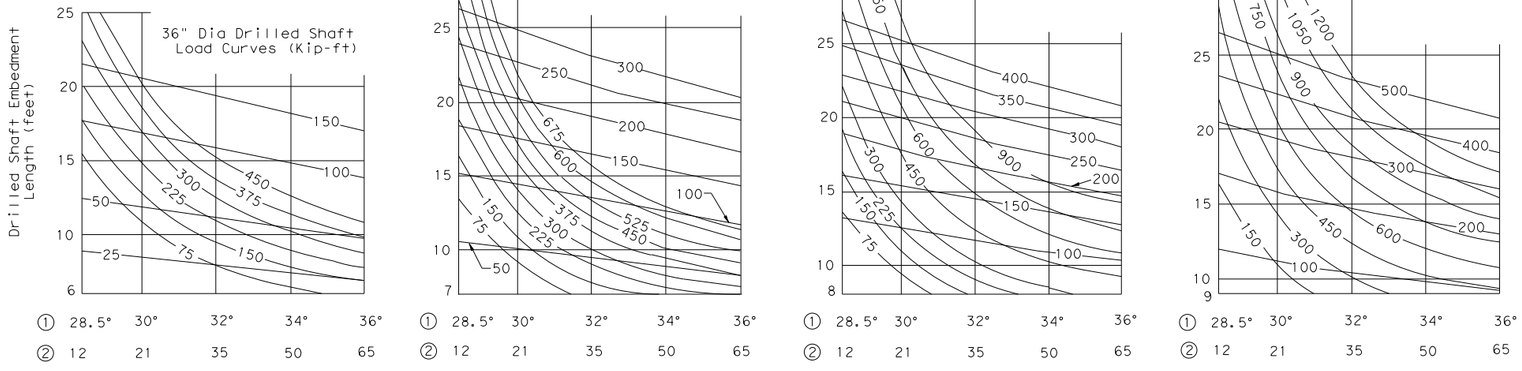


① Ø = Angle of internal friction of soil (degrees)

② N = Texas cone penetrometer value (blows per ft)

④ C(psi) = Cohesive shear strength of soil (psi)

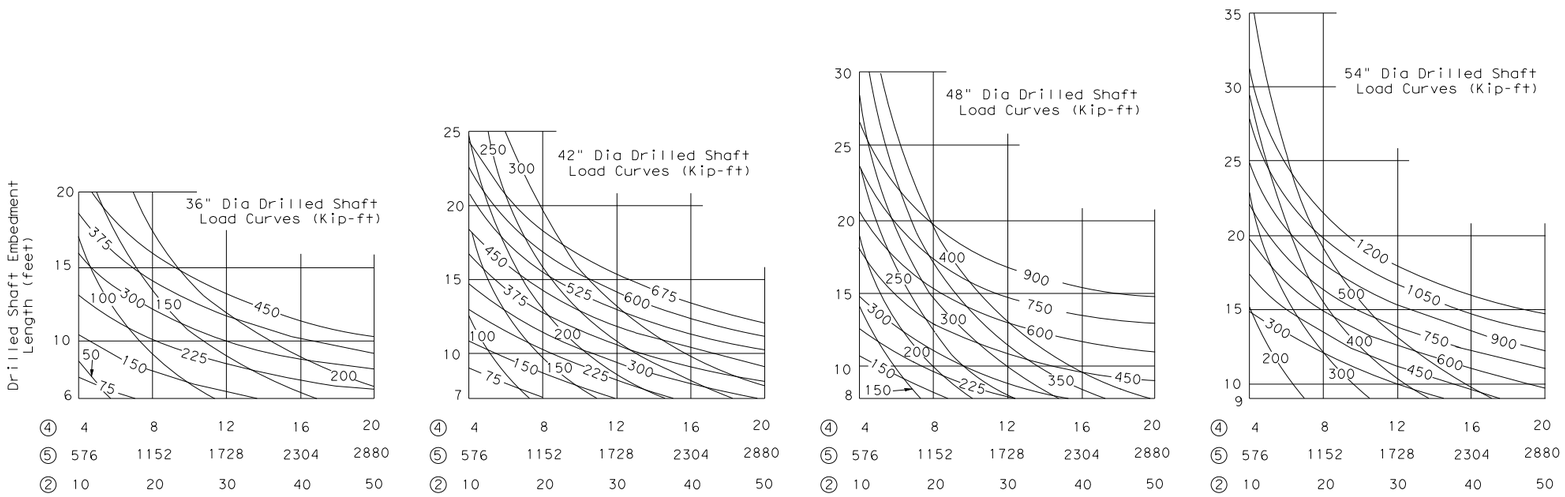
⑤ C(psf) = Cohesive shear strength of soil (psf)

③ SUBMERGED SAND SOIL (COHESIONLESS)

Moment ——————

Torsion ——————

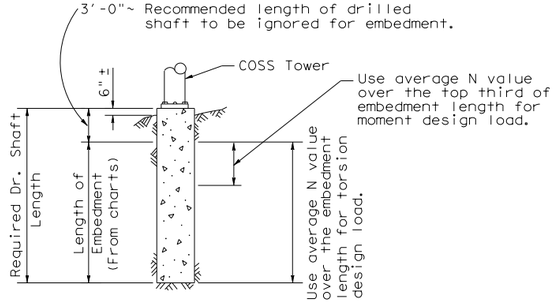
③ Note:
For unsubmerged sands and clayey sands the charts for clay soil will give a conservative foundation design.



CLAY SOIL (COHESIVE)

Moment ——————

Torsion ——————



PROCEDURE:

1. Determine design moment and torsion, and the required drilled shaft diameter as outlined in the selection example sheet COSS-SE.
2. Make an initial estimate of the required embedment length.
3. From soil exploration data determine type of soil and average N value or soil property along the upper third of the drilled shaft.
4. Enter chart (for the correct shaft diameter and soil type) from the bottom at the average N value or soil property determined in step 3.
5. Proceed vertically into chart and locate intersection with design moment. Interpolate between moment curves (solid lines) as needed.
6. From intersection point turn 90° to left and read embedment length along vertical scale.
7. If embedment length differs significantly from estimated value return to step 3 with the embedment length determined in step 6.
8. From soil exploration data determine average N value or soil property over the entire length of the embedment.
9. Enter chart (for correct shaft diameter and soil type) from the bottom at the average N value or soil property determined in step 8.
10. Proceed vertically into chart and locate intersection with design torsion. Interpolate between torsion curves (dashed lines) as needed.
11. From intersection point turn 90° to left and read embedment length along vertical scale.
12. Compute the required length of drilled shaft by adding 3'-0" to longer embedment length required for moment or torsion.

GENERAL NOTES:

These charts are for use with Cantilever Overhead Sign Supports with one shaft per tower.
Solid curves are base moment in Kip-ft.
Dash curves are base torsion in Kip-ft.
Minimum embedment of drilled shaft is two diameters.
Add 3'-0" to the required embedment length to determine the required length of drilled shaft.

Texas Department of Transportation
Traffic Operations Division

FOUNDATION EMBEDMENT SELECTION CHARTS

COSS-FD

REVISIONS

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0047	05	058, ETC.	S399
DIST	COUNTY		SHEET NO.
DAL	COLLIN, ETC		1328

DATE: 10/1/2024 11:23:04 AM
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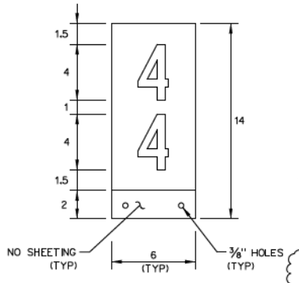
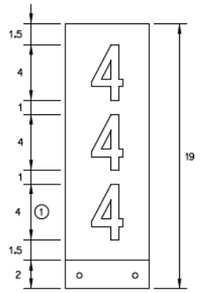
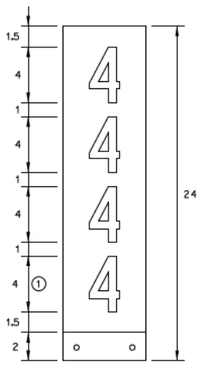
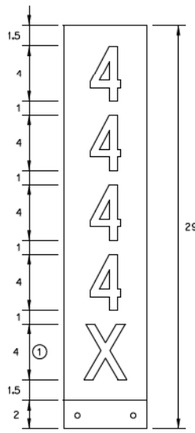
100% PLANS SUBMITTAL

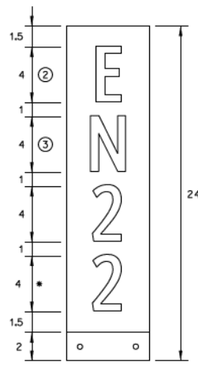
M:\JOBS\62190 NTTA PMC\PROJECT WORK\2 - Standards\3 - Development\SGN-2019\NTTA-SGN-206-2019.dgn











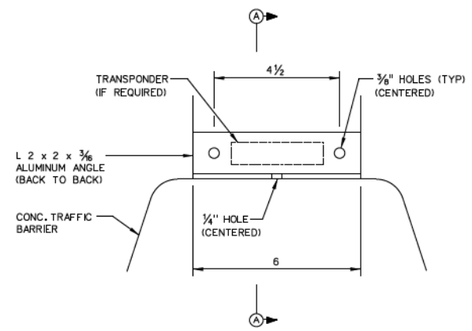
MAINLANES

① STATIONS ON PGBT THAT ARE WEST OF IH-35E SHALL DISPLAY A TRAILING "W"
STATIONS ON PGBT THAT ARE EAST OF IH-35E SHALL DISPLAY A TRAILING "E"

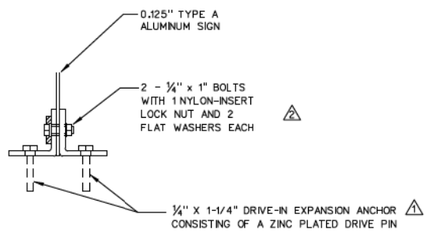
DIRECT CONNECTORS

② "FROM" DIRECTION

③ "TO" DIRECTION



SIGN MOUNTING DETAIL



EXPANSION ANCHOR-ULTIMATE LOADS		
EMBED. DEPTH	2000 PSI	
(IN.)	TENSION	SHEAR
1	795 lb	1585 lb

ASSUME FACTOR OF SAFETY OF 5.0

SECTION A-A

SPECIFICATION REFERENCE TABLE TXDOT MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

NTTA STATION MARKERS

USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	GREEN	TYPE B SHEETING
LEGEND	WHITE	TYPE D SHEETING

USE CV-6W CLEARVIEW FONT FOR LEGEND.

GENERAL NOTES:

1. THIS STANDARD PROVIDES TYPICAL DETAILS FOR VARIOUS SIZE STATION MARKERS. STRUCTURAL DESIGN OF STATION MARKER ATTACHMENT WAS BASED ON TXDOT STANDARD WIND AND ICE LOADS.
2. SUBSTITUTION OF FIBERGLASS FOR ALUMINUM SIGN BLANKS WILL NOT BE PERMITTED.
3. BOTH SIDES OF THE MARKER SHALL BE IDENTICAL.
4. SEE ITEM 636 OF NTTA GENERAL NOTES AND SPECIFICATION DATA FOR ADDITIONAL REQUIREMENTS.
5. STATION MARKERS WILL BE PAID FOR UNDER ITEM 644, "SMALL ROADSIDE SIGN ASSEMBLIES," FOR EACH STATION MARKER.
6. ALL SIGN DIMENSIONS ARE IN INCHES.

NO.	DATE	REVISION	BY	APPROV.	DRN
3	3-14-19	REVISED GENERAL NOTES, TABLE. RENAMED STANDARD: FORMERLY "STATION MARKER DETAILS, SGN-003-2004"	MDB	10790	
2	10-16-12	REVISED BOLT LENGTH TO 1" UPDATED SPECIFICATION REFERENCE TABLE	DWP	10446	
1	08-09-10	REPLACED LEGEND AND BACKGROUND SHEETING TO CONFORM TO TYPE D PRISMATIC SHEETING AND OTHER REQUIREMENTS. SUBSTITUTED GENERIC TERMINOLOGY FOR EXPANSION ANCHOR SEC. A-A DETAIL.	DWP	10227	

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

STATION MARKERS
SGN-206-2019

DRAWN	JPW	DATE	07-30-04	DESIGNED	JPW	DATE	07-30-04
CHECKED	CES	DATE	07-30-04	SCALE		NTS	

CONTRACT NO. _____ SHEET ____ OF ____

4/18/2019

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED PROFESSIONAL ENGINEER

Mohammed S Ula
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SPUR 399

NTTA STA MRKR

N.T.S

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1329
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	

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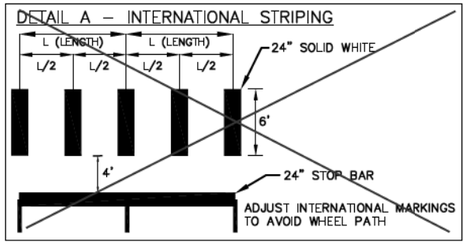
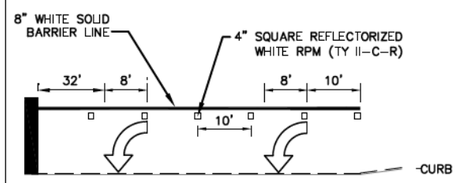
USER: safsha DATE: 10/1/2024 TIME: 11:37:33 AM SCALE: 1:2
FILE: NTTA STA MRKR.dgn

100% PLANS SUBMITTAL

DETAIL A – INTERNATIONAL STRIPING



DETAIL B – LEFT TURN BAY



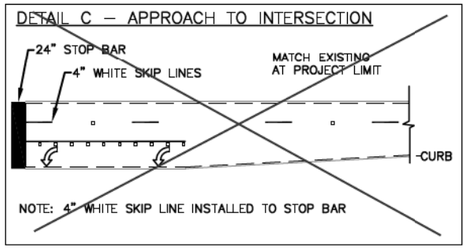
LEFT TURN ARROWS SHALL BE PLACED AT 32' FROM THE STOP BAR AND AT THE END OF THE LEFT TURN LANE.

IF THE LEFT TURN LANE IS OVER 150' IN LENGTH PLACE ONE ARROW MARKING IN THE MIDDLE BETWEEN THE OTHER TWO ARROWS.

BEGIN 8" STRIPE WHERE TURN BAY REACHES FULL WIDTH.

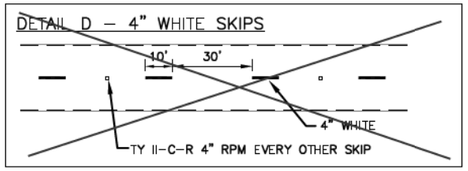
STOP BAR AND ARROWS ARE NOT REQUIRED FOR AN UNCONTROLLED APPROACH UNLESS OTHERWISE NOTED.

DETAIL C – APPROACH TO INTERSECTION

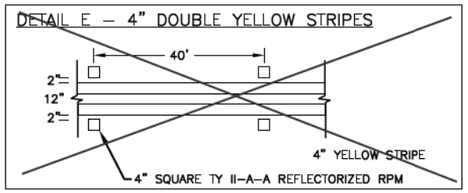


NOTE: 4" WHITE SKIP LINE INSTALLED TO STOP BAR

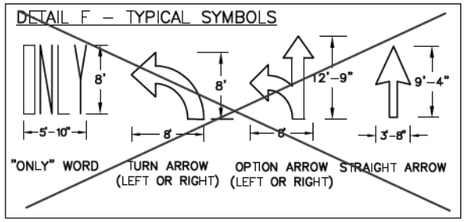
DETAIL D – 4" WHITE SKIPS



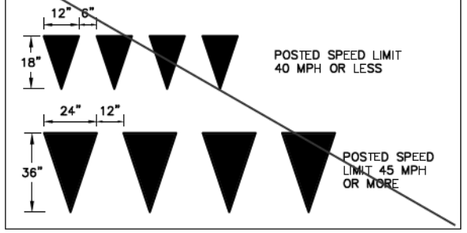
DETAIL E – 4" DOUBLE YELLOW STRIPES



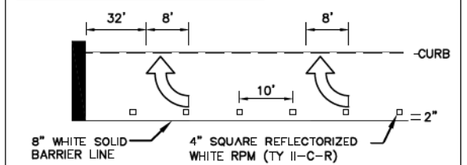
DETAIL F – TYPICAL SYMBOLS



DETAIL H – YIELD TRIANGLES



DETAIL I – RIGHT TURN BAY



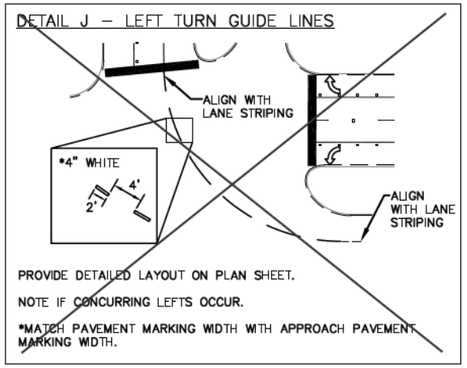
RIGHT TURN ARROWS SHALL BE PLACED AT 32' FROM THE STOP BAR AND AT THE END OF THE RIGHT TURN LANE.

IF THE RIGHT TURN LANE IS OVER 150' IN LENGTH PLACE ONE ARROW MARKING IN THE MIDDLE BETWEEN THE OTHER TWO ARROWS.

BEGIN 8" STRIPE WHERE TURN BAY REACHES FULL WIDTH.

STOP BAR AND ARROWS ARE NOT REQUIRED FOR AN UNCONTROLLED APPROACH UNLESS OTHERWISE NOTED.

DETAIL J – LEFT TURN GUIDE LINES



PROVIDE DETAILED LAYOUT ON PLAN SHEET.

NOTE IF CONCURRING LEFTS OCCUR.

*MATCH PAVEMENT MARKING WIDTH WITH APPROACH PAVEMENT MARKING WIDTH.

SHEET 3 OF 4

McKINNEY TEXAS Unique by nature.

PAVEMENT MARKING DETAILS

CITY OF McKINNEY, TEXAS

DATE: JANUARY 2023

STANDARD DRAWING NO.

7002M

STATE OF TEXAS
MOHAMMED S. ULA
131559
LICENSED
PROFESSIONAL ENGINEER

Mohammed S Ula

10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation
© 2024

SPUR 399

PAVEMENT MARKING DETAILS

N.T.S

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1330
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: safsha
FILE: CITY OF McKinney.dgn
PENTABLE: 10811S-SP399-SEG1.tbl
DATE: 10/1/2024
TIME: 11:37:38 AM
SCALE: 1:20

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
CSJ 0047-05-057, Etc. (SH 5)

1.2 PROJECT LIMITS:

From: SS 399 south of Medical Center Drive

To: Tennessee and McMakin streets

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 33.16295 (Long) -96.635569

END: (Lat) 33.216553, (Long) -96.613611

1.4 TOTAL PROJECT AREA (Acres): 98

1.5 TOTAL AREA TO BE DISTURBED (Acres): 30

1.6 NATURE OF CONSTRUCTION ACTIVITY:
RECONSTRUCTION AND WIDENING WITH PLANNED BRIDGES, RETAINING WALLS AND SOUND WALLS

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Houston Black clay, 1 to 3 percent slopes	Clay, moderately well drained, very high runoff potential
Austin silty clay, 2 to 5 percent slopes, moderately eroded	Silty clay, well drained, high runoff potential
Altoga silty clay, 5 to 8 percent slopes, eroded	Silty clay, silty clay loam, well drained, very high runoff potential
Austin silty clay, 5 to 8 percent slopes, moderately eroded	Silty clay, bedrock, well drained, high runoff potential
Austin silty clay, 1 to 3 percent slopes	Silty clay, bedrock, well drained, high runoff potential

Blackland prairies, not prime farmland, mean annual precipitation 30-40 inches, depth to water table more than 80 inches. General vegetation types include maintained ROW grasses, trees, shrubs, etc. Aproximate vegetation density in unpaved area is about 80%.

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

X PSLs determined during preconstruction meeting
☐ PSLs determined during construction
☐ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:
(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

X Mobilization
X Install sediment and erosion controls
X Blade existing topsoil into windrows, prep ROW, clear and grub
X Remove existing pavement
X Grading operations, excavation, and embankment
X Excavate and prepare subgrade for proposed pavement widening
X Remove existing culverts, safety end treatments (SETs)
X Remove existing metal beam guard fence (MBGF), bridge rail
X Install proposed pavement per plans
X Install culverts, culvert extensions, SETs
X Install mow strip, MBGF, bridge rail
X Place flex base
X Rework slopes, grade ditches
X Blade windrowed material back across slopes
X Revegetation of unpaved areas
X Achieve site stabilization and remove sediment and erosion control measures
X Other: Remove Existing Bridge
X Other: Install Bridge
X Other: Install Retaining Wall

☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

X Sediment laden stormwater from stormwater conveyance over disturbed area
X Fuels, oils, and lubricants from construction vehicles, equipment, and storage
X Solvents, paints, adhesives, etc. from various construction activities
X Transported soils from offsite vehicle tracking
X Construction debris and waste from various construction activities
X Contaminated water from excavation or dewatering pump-out water
X Sanitary waste from onsite restroom facilities
X Trash from various construction activities/receptacles
X Long-term stockpiles of material and waste
X Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities.

☐ Other: _____

☐ Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
Wilson Creek [0821C; impaired by bacteria in water (Recreation Use)] and its tributary and wetlands	0821 Lake Lavon Not Impaired

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

X Development of plans and specifications
X Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
X Post Construction Site Notice
X Submit NOI/CSN to local MS4
X Perform SWP3 inspections
X Maintain SWP3 records and update to reflect daily operations
X Complete and submit Notice of Termination to TCEQ
X Maintain SWP3 records for 3 years
☐ Other: _____

☐ Other: _____

☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

X Day To Day Operational Control
X Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
X Post Construction Site Notice
X Submit NOI/CSN to local MS4
X Maintain schedule of major construction activities
X Install, maintain and modify BMPs
X Complete and submit Notice of Termination to TCEQ
X Maintain SWP3 records for 3 years
☐ Other: _____

☐ Other: _____

☐ Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity
Collin County Phase II MS4 Contact Tracy Homfeld
Town of Fairview Phase II MS4 James Chancellor
City of McKinney Phase II MS4 Amesha Morris

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		1331
STATE	STATE DIST.	COUNTY	
TEXAS	DAL	COLLIN	
CONT.	SECT.	JOB	HIGHWAY NO.
0047	05	057, ETC.	SH5, ETC.

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- X X Protection of Existing Vegetation
- X X Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- X ☐ Temporary Seeding
- ☐ X Permanent Planting, Sodding or Seeding
- X ☐ Biodegradable Erosion Control Logs
- X ☐ Rock Filter Dams/ Rock Check Dams
- X ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ X Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ X Other: Compost Manufactured Topsoil
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- X ☐ Biodegradable Erosion Control Logs
- X ☐ Dewatering Controls
- X ☐ Inlet Protection
- X ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- X ☐ Sediment Control Fence
- X ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- X X Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - X Not required (<10 acres disturbed per drainage area)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☐ Required (>10 acres), but not feasible due to:
    - ☐ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type		Stationing From	Stationing To
Permanent Seeding & Sodding	S 399	STA 993+29	STA 1119+58
	S 399	STA 1025+06	STA 1045+00
	SH 5	STA 42+00	STA 88+08
	SH 5	STA 92+54	STA 131+00
Rock Riprap	S 399	STA 1032+2	STA 1041+57
	S 399	STA 1043+61	STA 1044+18
	SH 5	STA 55+87	STA 58+47
	SH 5	STA 70+92	STA 74+34
	SH 5	STA 82+29	STA 84+15
	SH 5	STA 84+67	STA 85+08
	SH 5	STA 88+05	STA 88+40
	SH 5	STA 92+59	STA 93+00
Concrete Riprap	S 399	STA 1026+30	STA 1027+25
	S 399	STA 1028+30	STA 1032+2
	S 399	STA 1033+55	STA 1045+00
	SH 5	STA 47+41	STA 74+00
	SH 5	STA 74+15	STA 74+40
	SH 5	STA 74+97	STA 75+16
	SH 5	STA 79+24	STA 87+49
	SH 5	STA 99+06	STA 99+14
	SH 5	STA 99+92	STA 100+29
	SH 5	STA 100+50	STA 105+57
	SH 5	STA 109+93	STA 113+73
	SH 5	STA 114+25	STA 114+30
	SH 5	STA 115+00	STA 116+19
	SH 5	STA 122+75	STA 122+80
	SH 5	STA 123+86	STA 123+91

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- X Excess dirt/mud on road removed daily
- X Haul roads dampened for dust control
- X Loaded haul trucks to be covered with tarpaulin
- X Stabilized construction exit
- ☐ Daily street sweeping
- X Other: Dampen disturbed soil areas are needed for dust control
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- X Chemical Management
- X Concrete and Materials Waste Management
- X Debris and Trash Management
- X Dust Control
- X Sanitary Facilities
- X Other: Avoid strong portable sanitary units, concrete washout or chemicals within 50 feet upgradient of a receiving water or drainage conveyance w/o pollution controls
- X Other: Capture saw-cutting debris and concrete slurry for proper disposal
- X Other: During the construction of headwalls/wingwalls and bridge abutments, capture loose materials for proper disposal
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing From	Stationing To
Wetland 1 at Wilson Creek	STA 77+00 (SH5)	STA 88+00 (SH5)
Crossing 2a Tributary to Wilson Creek*	STA 1034+00 (SPUR 399) STA 64+00 (SH5)	STA 1039+00 (SPUR 399) STA 76+00 (SH5)
Crossing 2b Tributary to Wilson Creek*	STA 1043+00 (SPUR 399)	STA 1046+00 (SPUR 399)
Crossing 3 at Wilson Creek**	STA 90+00 (SH5)	STA 91+00 (SH5)

*Disturbance due to ramp and riprap construction- SCF provided for protection.

**Disturbance due to bridge construction- RFD and SCF provided for protection.

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- X Fire hydrant flushings
- X Irrigation drainage
- X Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- X Potable water sources
- X Springs
- X Uncontaminated groundwater
- X Water used to wash vehicles or control dust
- X Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER

10/01/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		1332
STATE	STATE DIST.	COUNTY	
TEXAS	DAL	COLLIN	
CONT.	SECT.	JOB	HIGHWAY NO.
0047	05	057, ETC.	SH5, ETC.

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 damage resulting from its use.

Notes To Designer:
1. *Do not alter Sheet Design or Font style, size or weight - match text attributes.*
2. *If additional space is needed for a numbered section, fence and adjust sections up or down as needed for proportioning and readability but do not relocate from its relative position.*
3. *All areas should be addressed thoroughly and verify the necessary pay items are set up to support actions needed.*

Filled Out: XX/XX/XXXX
Prepared by: Name/Section

I. STORMWATER POLLUTION PREVENTION PLAN-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 adjacent MS 4 Operator(s) that receive discharges from this project. They need to be notified prior to construction activities.
(Note: Leave blank only if no adjacent MS 4 Operator(s) are affected.)

1. Collin County Phase II MS4 Contact Tracy Homfeld
2. Town of Fairview Phase II MS4 James Chancellor
3. City of McKinney Phase II MS4 Amesha Morris

☐ No Action Required ☒ Required Action

Action Number:
1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000.
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas. No equipment is allowed in any sream channel below the ordinary High Water Mark except on approved temporary stream crossings or drill pads.

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# 3(a)

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. Bridge - STA 1067+10.00 - Barksdale Creeek - Stream Impacts

CONTINUED ON PAGE 2 OF 2

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 for applicable 401 General Conditions:
(Note: If CORP Permit not required, do not check boxes.)

Erosion	Sedimentation	Post-Construction TSS
☒ Temporary Vegetation	☒ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☒ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ 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 Number:

1.

2.

3.

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 Number:

1.

2.

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

☐ No Action Required ☒ Required Action

Action Number:

1. The following species could occur in the project area: Southern crawfish frog, Woodhouse's toad, alligator snapping turtle, White-faced Ibis, Wood Stork, Franklin's Gull, Louisiana pigtoe, Texas heelsplitter, timber rattlesnake, Texas garter snake, eastern box turtle, eastern spotted skunk, long-tailed weasel, and western hog-nosed skunk. Follow the Special Notes and the BMPs listed below to protect the species.

CONTINUED ON PAGE 2 OF 2

Special Notes:

1. Avoid harming all wildlife species if encountered and allow them to safely leave the project site. Due diligence should be used to avoid killing or harming any wildlife species in the implementation of transportation projects.
2. 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 immediated area, and contact the Engineer immediately.
3. The Migratory Bird Act of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade or transport any migratory bird, nest, young, feather or egg in part or in whole, without a federal permit issued in accordance within the Act's policies and regulations. The contractor would remove all old migratory bird nests from any structure or trees where work would be done from October 1 to February 15. In addition, the contractor would be prepared to prevent migratory birds from building nest(s) between February 15 to October 1. In the event that migratory birds are encountered on-site during project construction, efforts to avoid adverse impacts on protected birds, active nests, eggs and/or young would be observed.

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 Corp 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 Safety Data Sheets (SDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act. Maintain an adequate supply of on-site spill response materials, as indicated in the SDS. In the event of a spill, take actions to mitigate the spill as indicated in the SDS, 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, canisters, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation(s) or replacement(s) (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 Number:

1. Lead based paint on metal bridge rails - No abatement required - Contractor can unbolt segmented sections.

CONTINUED ON PAGE 2 OF 2

VII. OTHER ENVIRONMENTAL ISSUES

GENERAL NOTE:

Any change orders and/or deviations from the final design must be reported to the Engineer prior to commencement of construction activities, as additional environmental clearance may be required.

LAST REVISION: 1/15/15

 Texas Department of Transportation
Dallas District

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH5, ETC.
STATE	DISTRICT	COUNTY	
TEXAS	DALLAS	Collin	
CONTROL	SECTION	JOB	SHEET NO.
0047	05	057, etc.	**1333**

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

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.

2. Bridge STA 21+17.00 - unnamed tributary to Sloan Creek
3. Bridge STA 90+50.00 - Wilson Creek Stream Impacts

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

☐ No Action Required ☒ Required Action

2. Contractor to implement the following BMPs from "Beneficial Management Practices: Avoiding, Minimizing, and Mitigating Impacts of Transportation Projects on State Natural Resources" available at https://ftp.txdot.gov/pub/txdot-info/env/toolkit/300-01-bmp.pdf.
   a. Minimize impacts to wetland and riverine habitats and isolated ephemeral pools.
   b. Section 2.6.1 Aquatic Amphibian and Reptile BMP (barrier fencing not required)
   c. Section 2.6.2 Terrestrial Amphibian and Reptile BMP
   d. Section 2.4.3 Freshwater Mussel BMP
   e. Section 2.2.1 Bird BMP
   f. Section 1.5 Stream Crossing BMP
   g. Section 1.4 Water Quality BMP
   h. Section 1.2 Vegetation BMP

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

2. Metal guardrails are segmented and can be unbolted and removed without torch cutting, therefore, Lead Base Paint (LBP) on metal guardrails will not require abatement.
   a. SH 5 NB over Wilson Creek (NBI 180430004705081) - silver LBP on metal guardrails (49600ppm)
   b. SH 5 SB over Wilson Creek (NBI 180430004705082) - silver LBP on metal guardrails (42400ppm)
   c. SH 5 NB over Wilson Creek Relief (NBI 180430004705083) - silver LBP on metal guardrails (3130ppm)
   d. SH 5 SB over Wilson Creek Relief (NBI 180430004705084) - silver LBP on metal guardrails (3470ppm)

LIST OF ABBREVIATIONS

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NWP:	Nationwide Permit	USACE:	U.S. Army Corp of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

GENERAL NOTE:

Any change orders and/or deviations from the final design must be reported to the Engineer prior to commencement of construction activities, as additional environmental clearance may be required.

LAST REVISION: 1/15/15

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH5, ETC.
STATE	DISTRICT	COUNTY	
TEXAS	DALLAS	Collin	
CONTROL	SECTION	JOB	SHEET NO.
0047	05	057, etc.	1334

Notes To Designer:
1. *Do not alter Sheet Design or Font style, size or weight - match text attributes.*
2. *If additional space is needed for a numbered section, fence and adjust sections up or down as needed for proportioning and readability but do not relocate from its relative position.*
3. *All areas should be addressed thoroughly and verify the necessary pay items are set up to support actions needed.*

Filled Out: XX/XX/XXXX
Prepared by: Name/Section

100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
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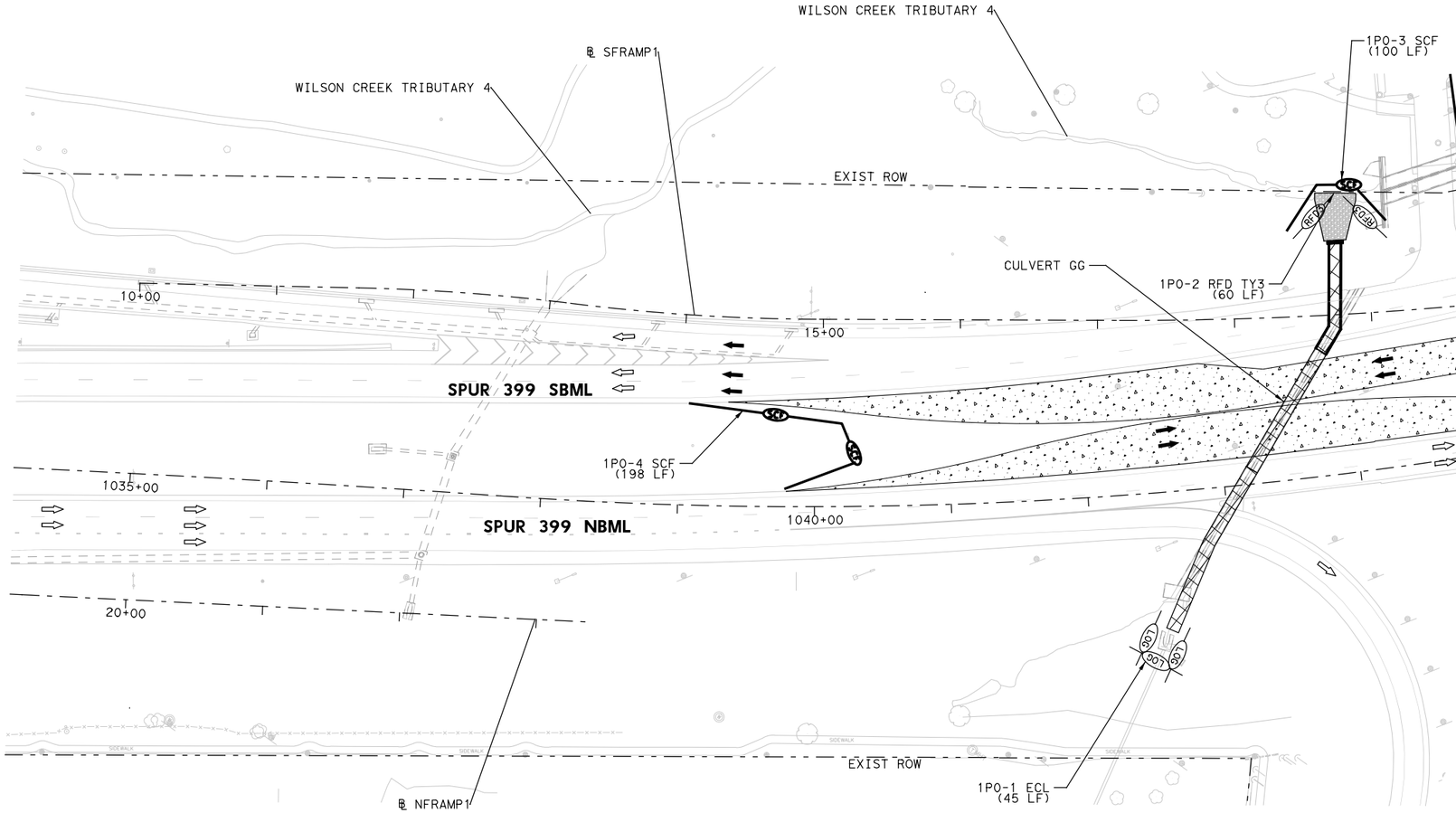
1PO-2		
1PO-3		
1PO-4		



0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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2. SW3P MEASURES SHALL BE PLACED AT THE BEGINNING OF THE PHASE SHOWN, AND SHALL REMAIN UNTIL THEIR CONTROL AREA HAS BEEN RE-STABILIZED, OR AS OTHERWISE DIRECTED BY ENGINEER.
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6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER

10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation
© 2024

SH 5
SW3P SITE MAP - PHASE 0
SPUR 399
BEGIN TO STA 1045+00

SCALE: 1"=100'

SHEET 1 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1335
	0047	05	057, ETC.	

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100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	2039

BMP ID	INSTALL DATE	REMOVAL DATE
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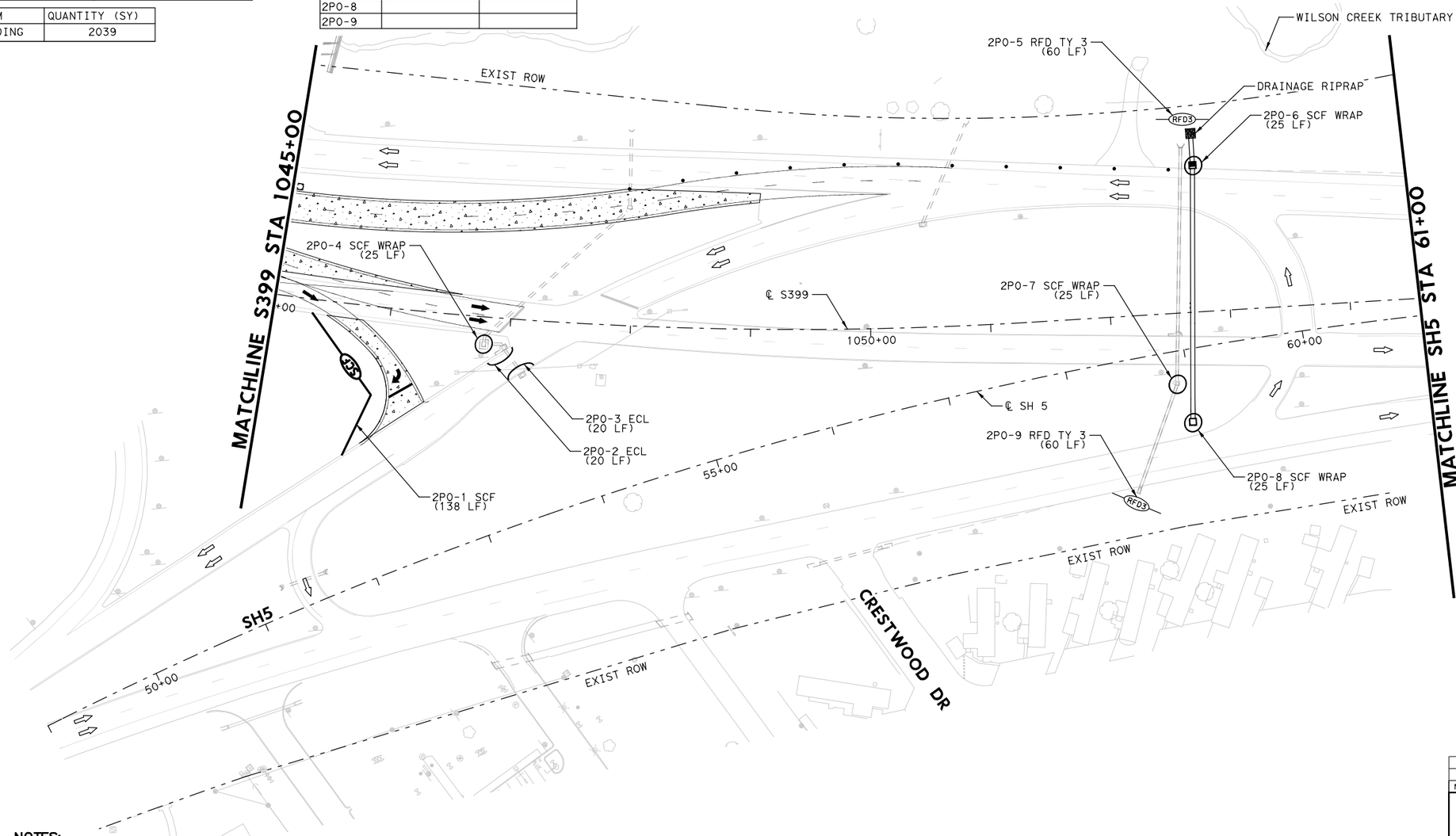
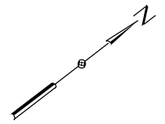
2P0-2		
2P0-3		
2P0-4		
2P0-5		
2P0-6		
2P0-7		
2P0-8		
2P0-9		





0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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KHANDAKER N. ASHFAQUE
147636
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
SW3P SITE MAP - PHASE 0
SPUR 399 & SH5
S399 STA 1045+00 TO SH5 STA 61+00

SCALE: 1"=100' SHEET 2 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DAL	COLLIN	1336
CHECK	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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FILE: SH5SW3_POS02.dgn

100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	1590

BMP ID	INSTALL DATE	REMOVAL DATE
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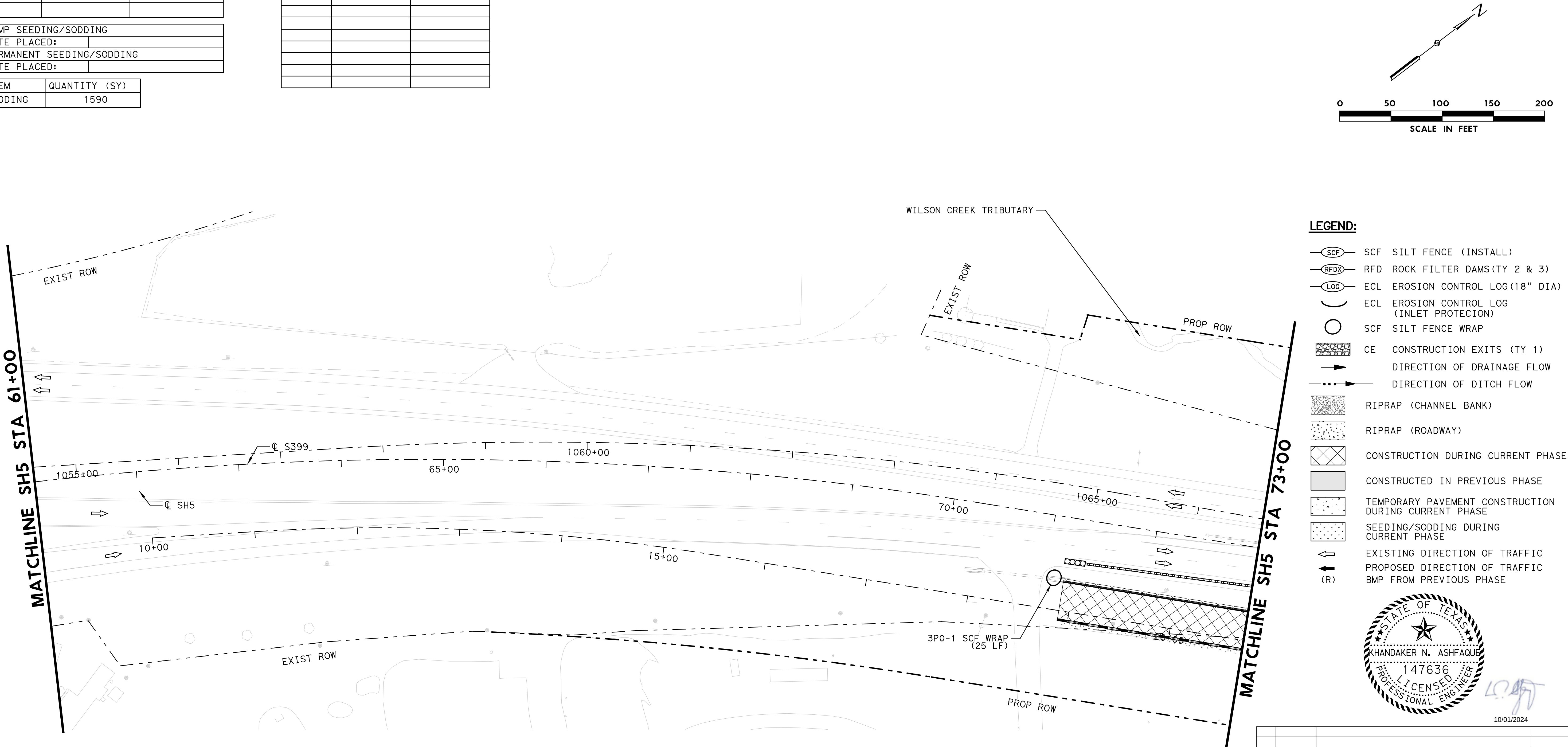

LEGEND:

- SCF SILT FENCE (INSTALL)
- RFD ROCK FILTER DAMS(TY 2 & 3)
- ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
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STATE OF TEXAS
KHANDAKER N. ASHFAQUE
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NO.	DATE	REVISION	APPROVED

infraTECH Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
SW3P SITE MAP - PHASE 0
SH5
STA 61+00 TO STA 73+00

SCALE: 1"=100'
SHEET 3 OF 4

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DAL	COLLIN	1337
	CONTROL	SECTION	JOB	
CHECK	0047	05	057, ETC.	

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100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	2546

BMP ID	INSTALL DATE	REMOVAL DATE
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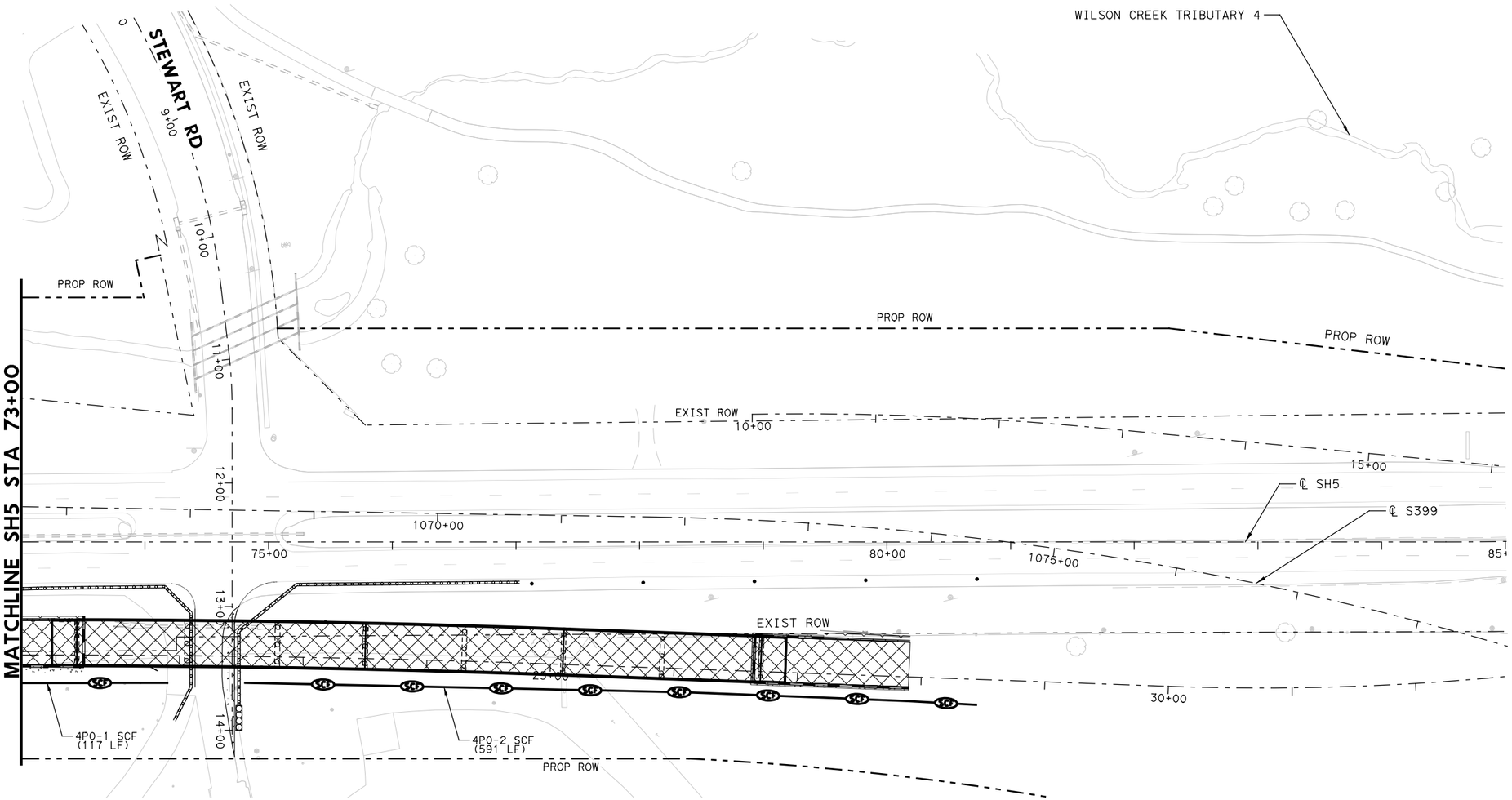
4P0-2		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
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147636
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH 5
SW3P SITE MAP - PHASE 0
SH5
STA 73+00 TO END

SCALE: 1"=100' SHEET 4 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1338
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
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DATE: 10/1/2024
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100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	3770

BMP ID	INSTALL DATE	REMOVAL DATE
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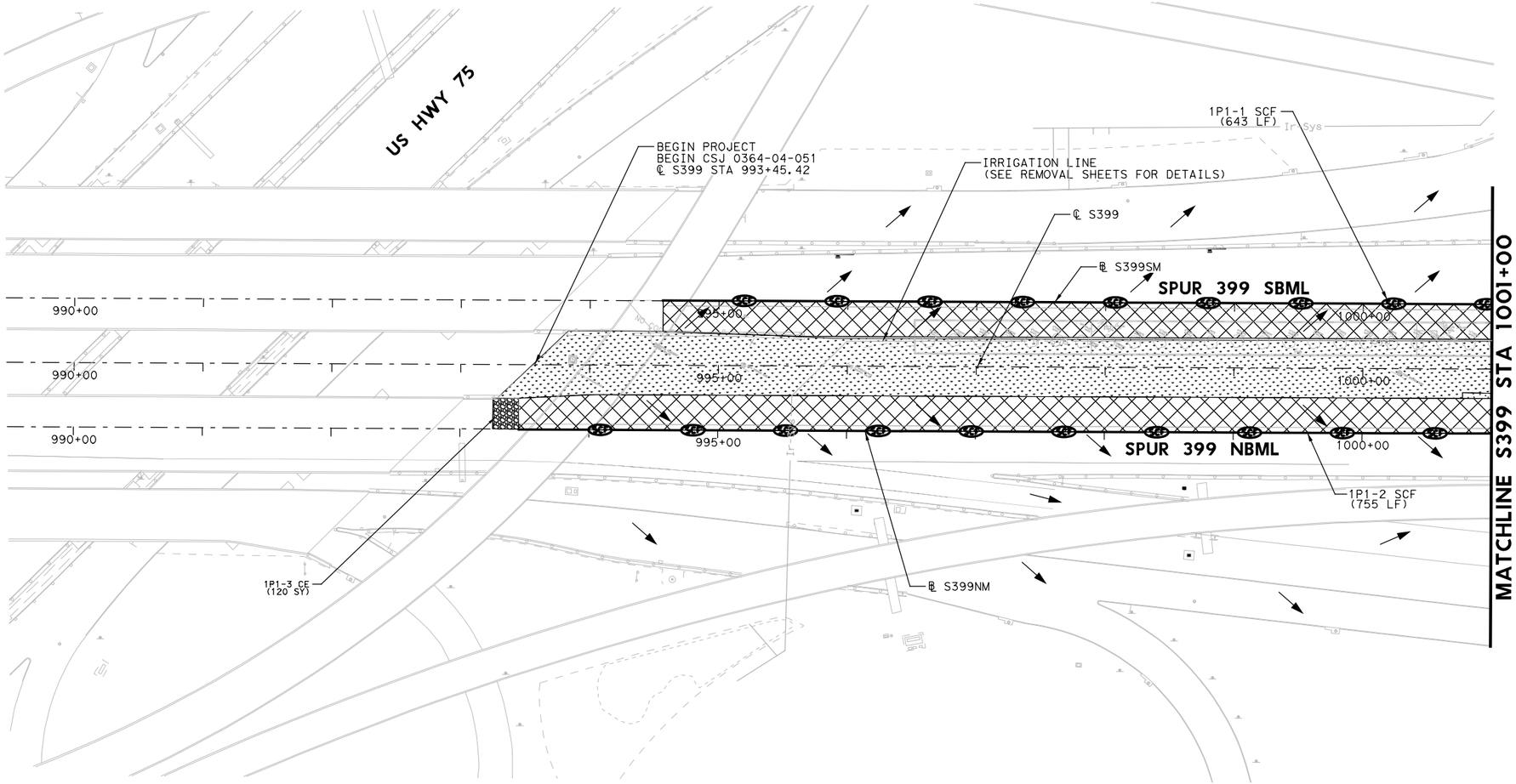
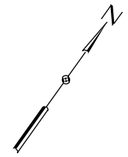
1P1-2		
1P1-3		





0 50 100 150 200

SCALE IN FEET

LEGEND:

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- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
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- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

1. BMPs SHALL BE INSTALLED NO SOONER THAN TWO WEEKS PRIOR TO SOIL DISTURBANCE OR OTHER POTENTIAL POLLUTANT GENERATING ACTIVITIES IN THEIR CONTROL AREA.
2. SW3P MEASURES SHALL BE PLACED AT THE BEGINNING OF THE PHASE SHOWN, AND SHALL REMAIN UNTIL THEIR CONTROL AREA HAS BEEN RE-STABILIZED, OR AS OTHERWISE DIRECTED BY ENGINEER.
3. CONSTRUCTION EXIT LOCATIONS SHOWN IN SHEETS ARE APPROXIMATE. THEY MAY BE RELOCATED WITH THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL PRESERVE TREES AND MINIMIZE DISTURBANCE OF CREEK BEDS AND CREEK SIDE VEGETATION, TO THE EXTENT FEASIBLE.
5. DURING THE CONSTRUCTION OF HEADWALLS AND/OR WINGWALLS OF CULVERTS, BRIDGES AND WALLS, THE CONTRACTOR WILL ENSURE THAT SEDIMENT AND LOOSE MATERIALS ARE HANDLED AND MANAGED APPROPRIATELY TO AVOID CONTAMINATION OF THE WATER BELOW.
6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation
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SH5
SW3P SITE MAP - PHASE 1
SPUR 399
BEGIN TO STA 1001+00

SCALE: 1"=100' SHEET 1 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1339
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I018I5-SP399-SEG1.tbl
USER: ramln TIME: 10:00:45 AM SCALE: 1:100
DATE: 10/1/2024
FILE: SPUR 399 BEGIN TO STA 1001+00

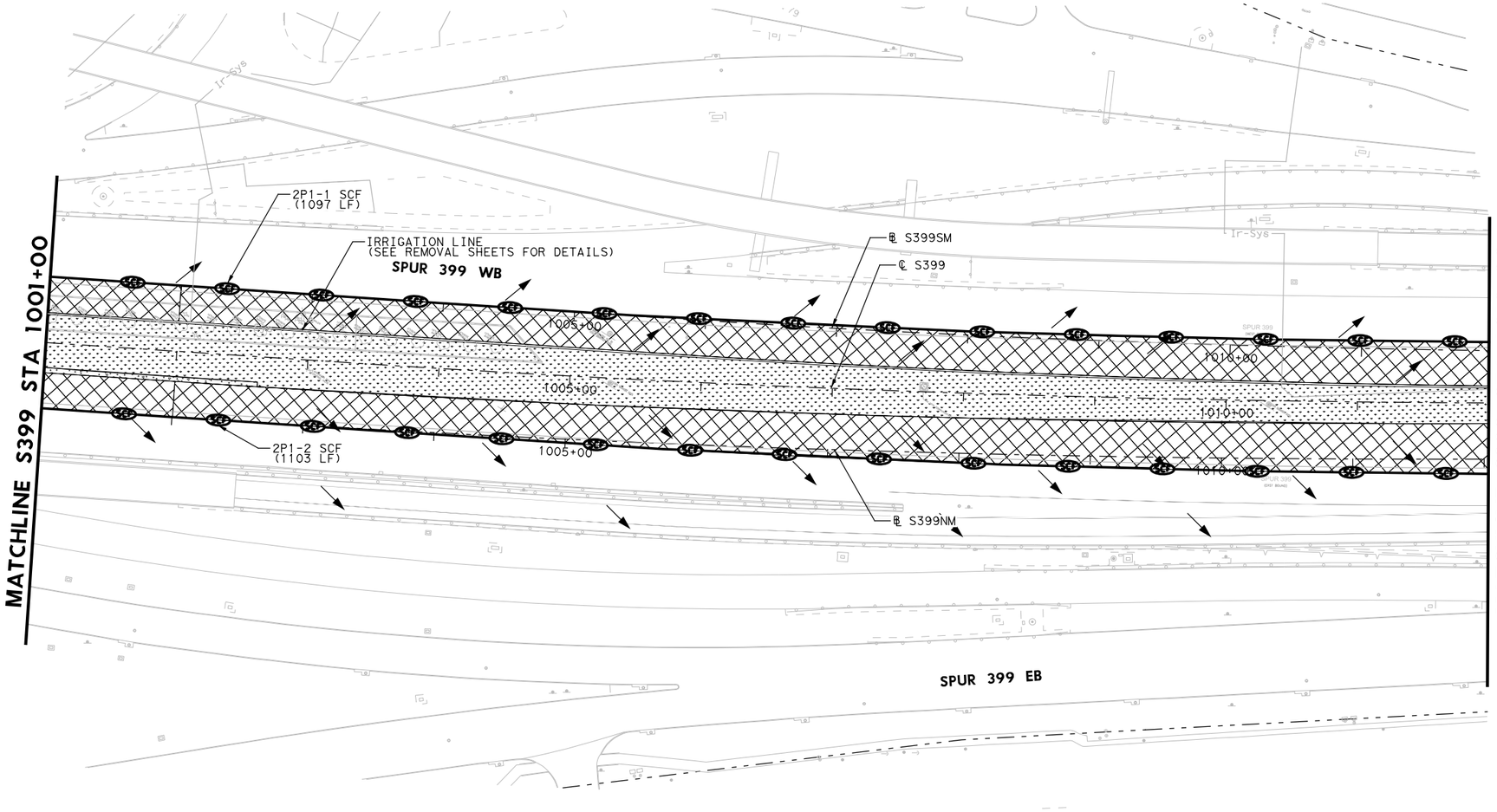
100% PLANS SUBMITTAL

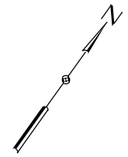
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	4481

BMP ID	INSTALL DATE	REMOVAL DATE
2P1-1		
2P1-2		





0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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KHANDAKER N. ASHFAQUE
147636
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PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

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infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SPUR 399
STA 1001+00 TO STA 1012+00

SCALE: 1"=100' SHEET 2 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	
CHECK IEI	CONTROL	SECTION	JOB	1340
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:00:58 AM SCALE: 1:100
FILE: SPUR 399 STA 1001+00 TO STA 1012+00

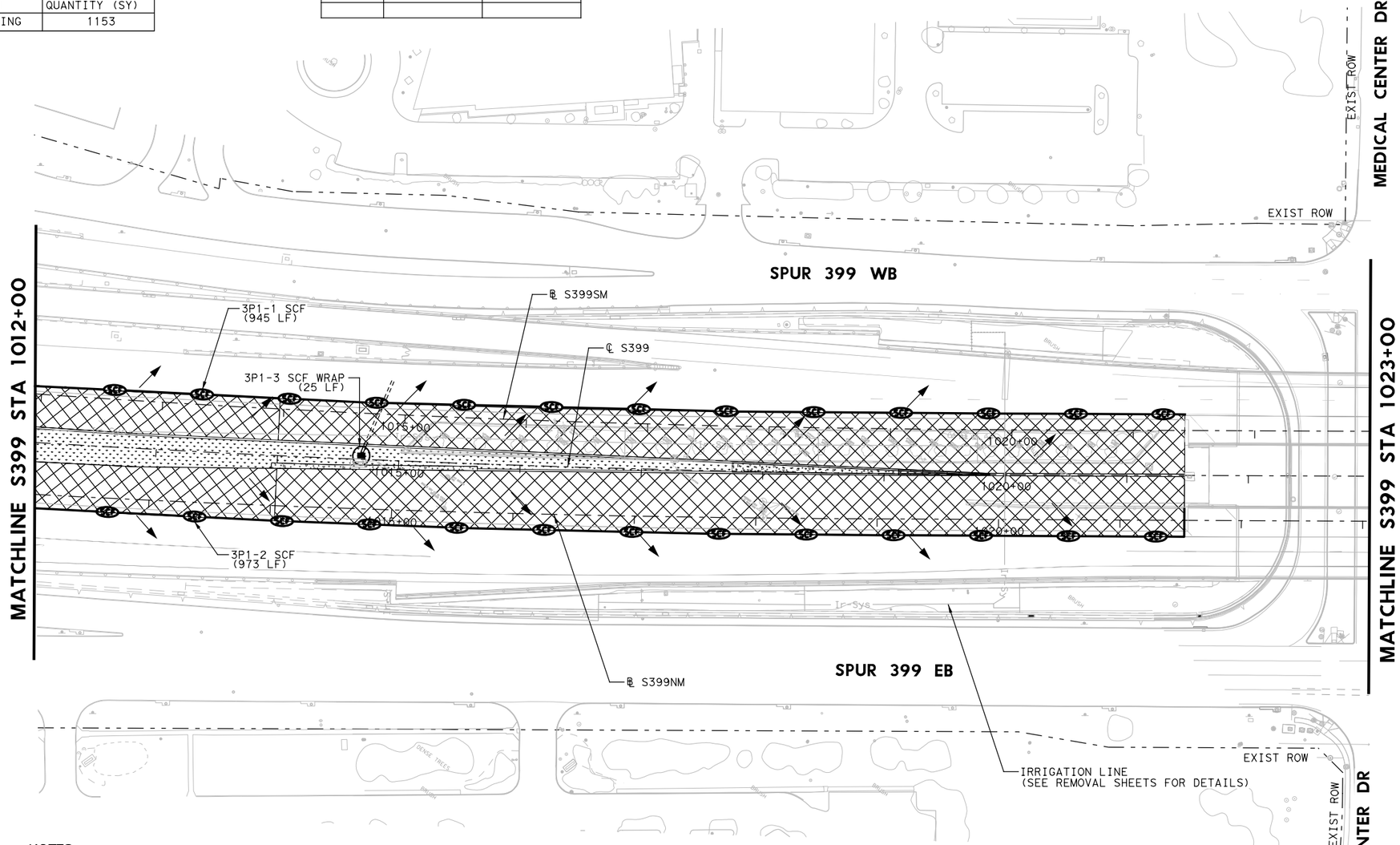
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	1153

BMP ID	INSTALL DATE	REMOVAL DATE
3P1-1		
3P1-2		
3P1-3		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
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- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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STATE OF TEXAS
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Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SPUR 399
STA 1012+00 TO STA 1023+00

SCALE: 1"=100' SHEET 3 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1341
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10801S-SP399-SEGI.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:01:10 AM SCALE: 1:100
FILE: SPUR 399 STA 1012+00 TO STA 1023+00

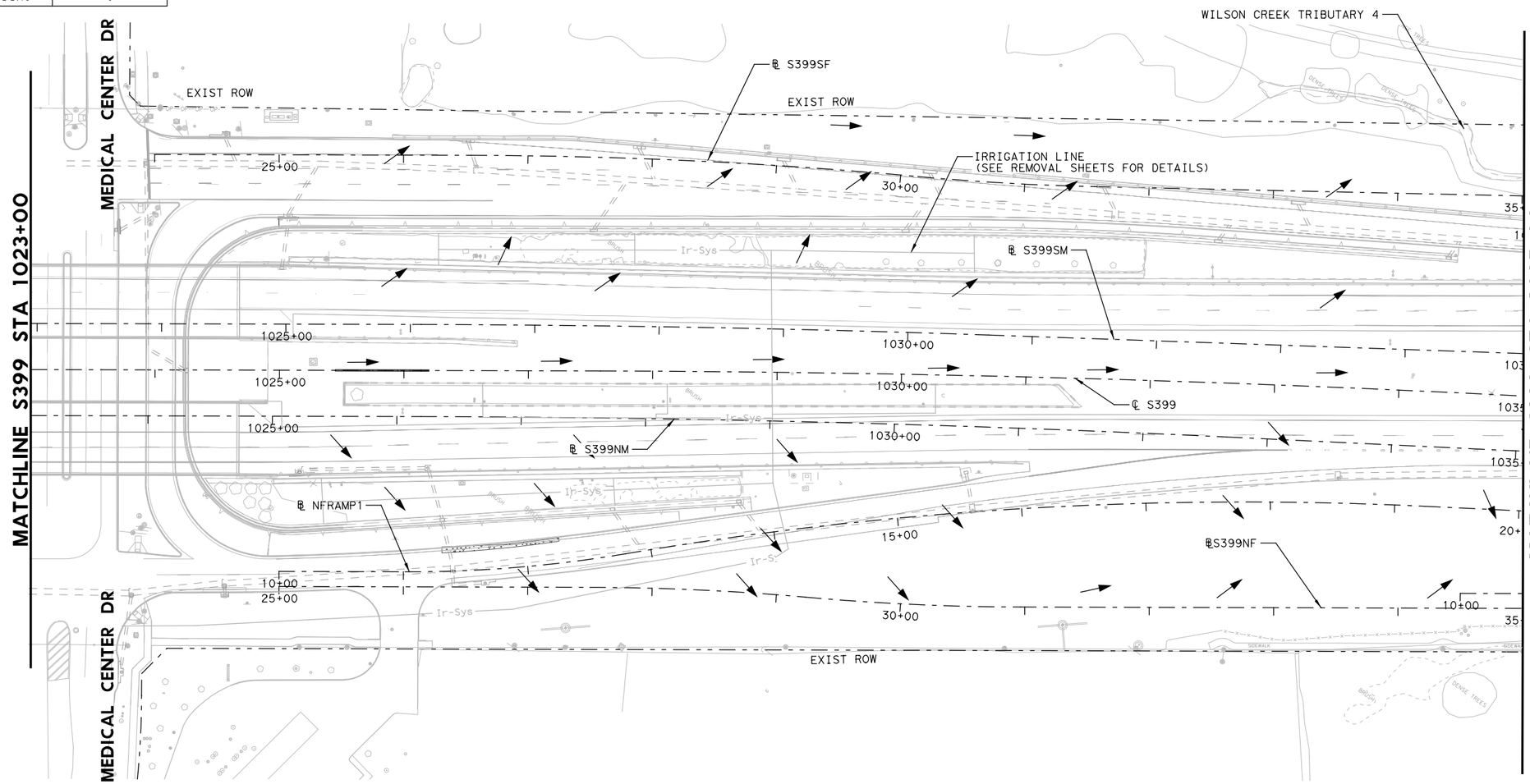
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

BMP ID	INSTALL DATE	REMOVAL DATE

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
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SH5
SW3P SITE MAP - PHASE 1
SPUR 399
STA 1023+00 TO STA 1035+00

SCALE: 1"=100' SHEET 4 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1342
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181S-SP399-SEGI.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:01:24 AM SCALE: 1:100
FILE: SPUR 399 STA 1023+00 TO STA 1035+00

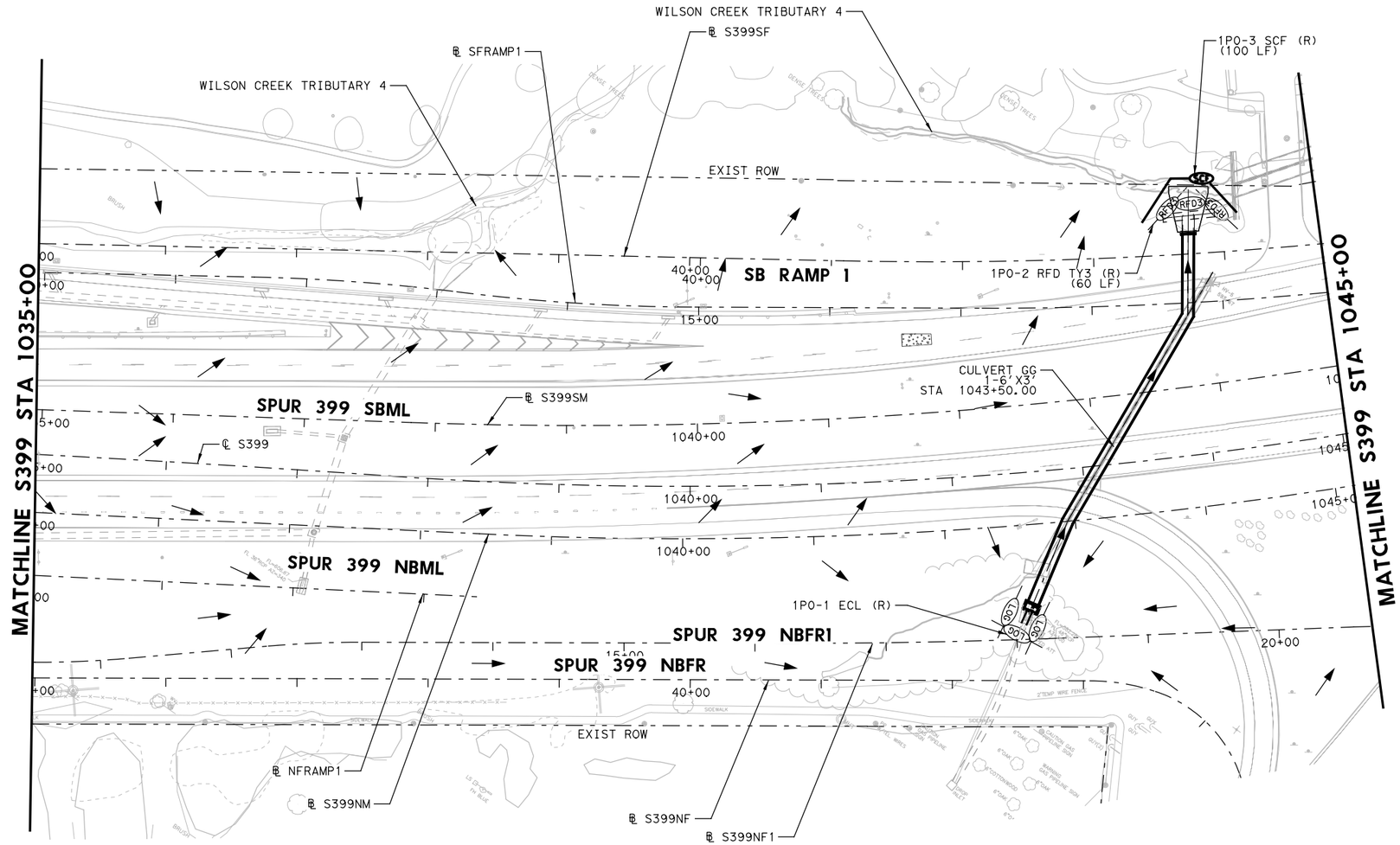
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE



0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
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STATE OF TEXAS
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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SPUR 399
STA 1035+00 TO STA 1045+00

SCALE: 1"=100' SHEET 5 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1343
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:01:35 AM SCALE: 1:100
FILE: SPUR 399 STA 1035+00 TO STA 1045+00

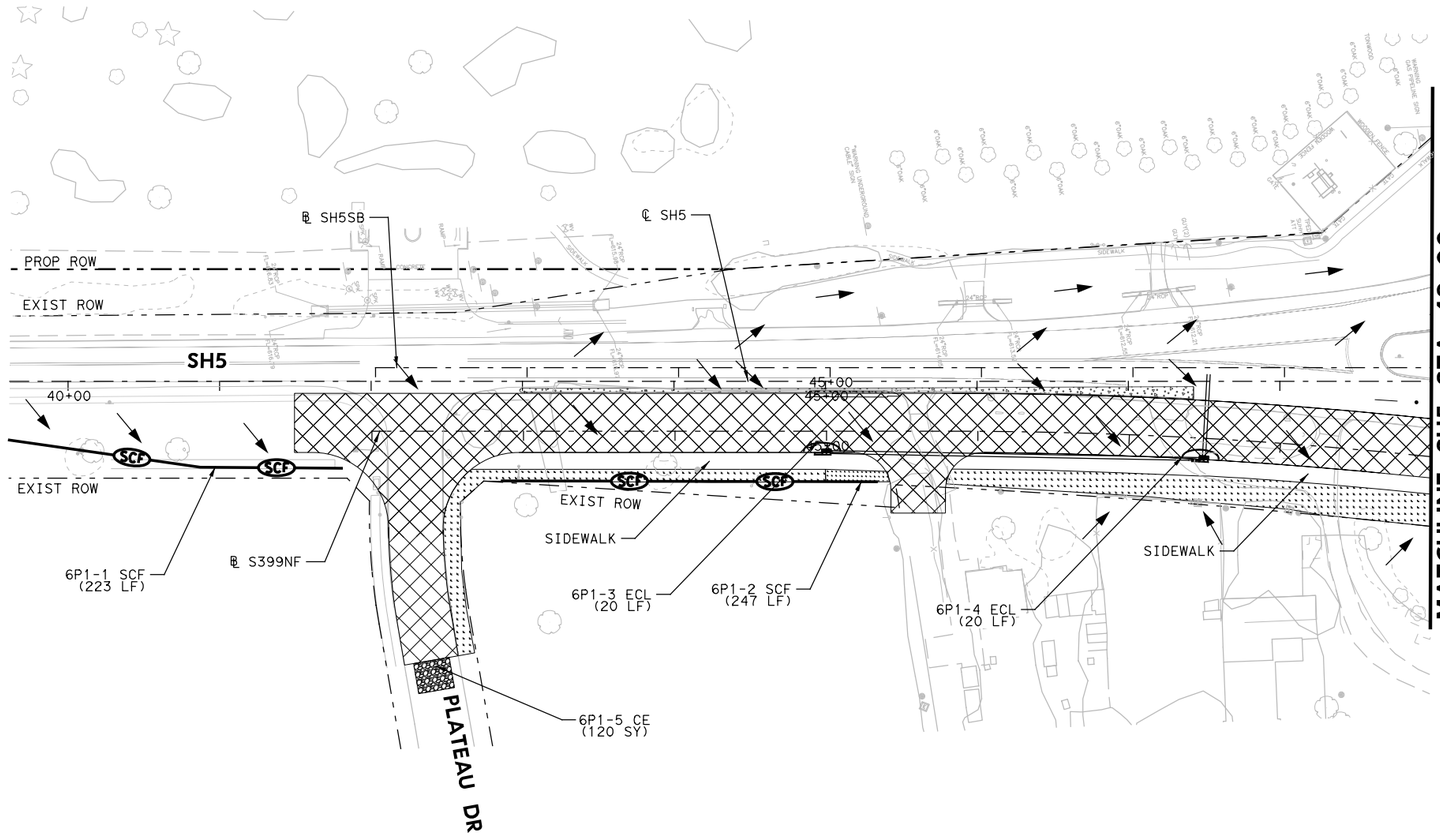
100% PLANS SUBMITTAL

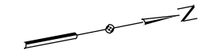
AREA ID	DATE DISTURBED	DATE STABILIZED

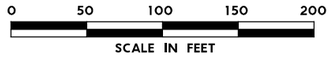
TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	972

BMP ID	INSTALL DATE	REMOVAL DATE
6P1-1		
6P1-2		
6P1-3		
6P1-4		
6P1-5		







LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
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- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
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10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SH5
STA 39+61 TO STA 49+00

SCALE: 1"=100' SHEET 6 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1344
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10\8\15-SP399-SEQ1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:01:49 AM SCALE: 1:100
FILE: SH5 STA 39+61 TO STA 49+00

100% PLANS SUBMITTAL

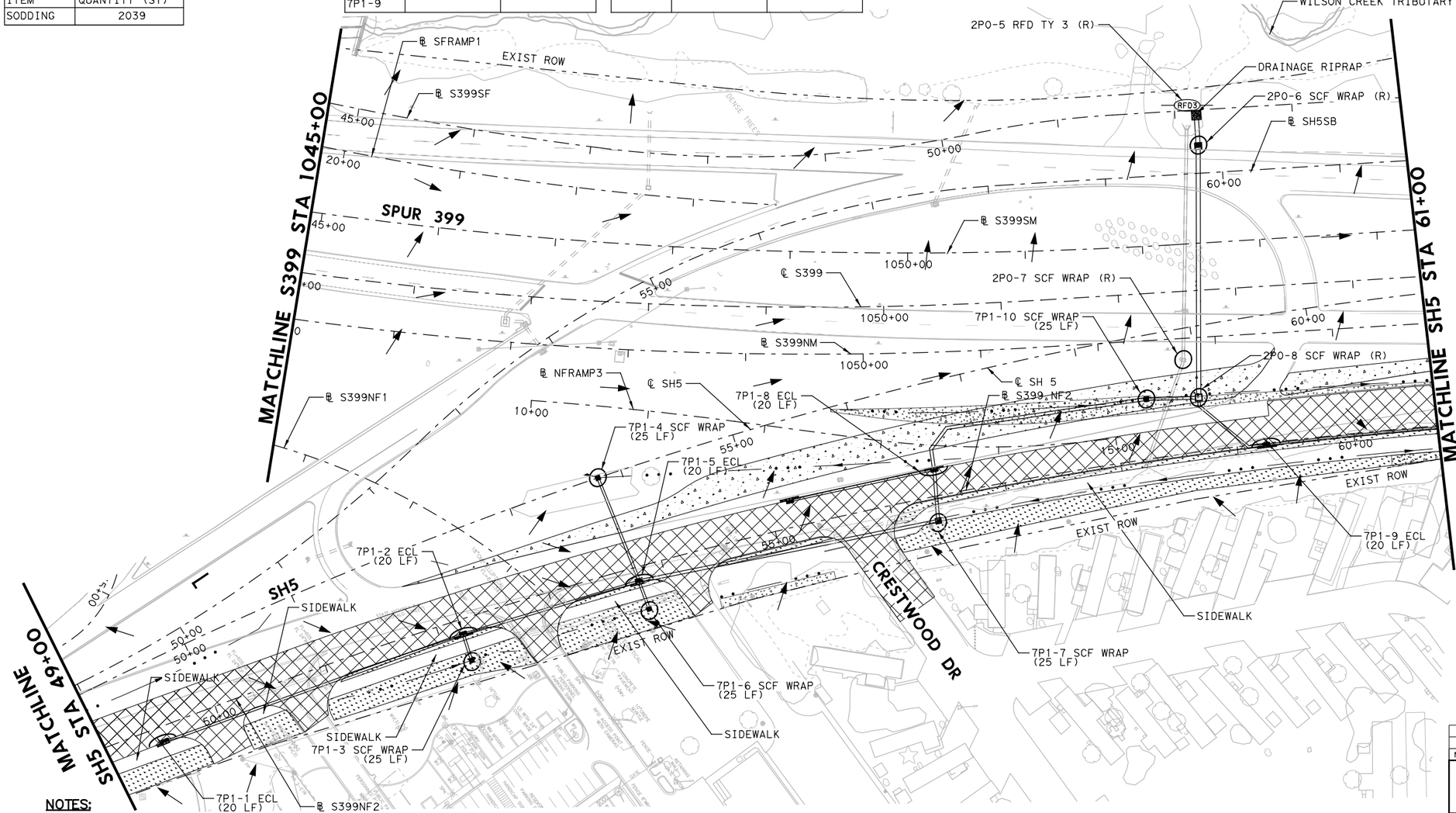
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	2039

BMP ID	INSTALL DATE	REMOVAL DATE
7P1-1		
7P1-2		
7P1-3		
7P1-4		
7P1-5		
7P1-6		
7P1-7		
7P1-8		
7P1-9		

BMP ID	INSTALL DATE	REMOVAL DATE
7P1-10		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (TY 2 & 3)
- ECL — EROSION CONTROL LOG (18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
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- DIRECTION OF DITCH FLOW
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- RIPRAP (ROADWAY)
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- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

1. BMPs SHALL BE INSTALLED NO SOONER THAN TWO WEEKS PRIOR TO SOIL DISTURBANCE OR OTHER POTENTIAL POLLUTANT GENERATING ACTIVITIES IN THEIR CONTROL AREA.
2. SW3P MEASURES SHALL BE PLACED AT THE BEGINNING OF THE PHASE SHOWN, AND SHALL REMAIN UNTIL THEIR CONTROL AREA HAS BEEN RE-STABILIZED, OR AS OTHERWISE DIRECTED BY ENGINEER.
3. CONSTRUCTION EXIT LOCATIONS SHOWN IN SHEETS ARE APPROXIMATE. THEY MAY BE RELOCATED WITH THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL PRESERVE TREES AND MINIMIZE DISTURBANCE OF CREEK BEDS AND CREEK SIDE VEGETATION, TO THE EXTENT FEASIBLE.
5. DURING THE CONSTRUCTION OF HEADWALLS AND/OR WINGWALLS OF CULVERTS, BRIDGES AND WALLS, THE CONTRACTOR WILL ENSURE THAT SEDIMENT AND LOOSE MATERIALS ARE HANDLED AND MANAGED APPROPRIATELY TO AVOID CONTAMINATION OF THE WATER BELOW.
6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SH5
STA 49+00 TO STA 61+00

SCALE: 1"=100' SHEET 7 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1345
IEI	0047	05	057, ETC.	
CHECK				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEQ1.tbl
USER: ramln TIME: 10:02:03 AM
DATE: 10/1/2024 SCALE: 1:100
FILE: SH5 STA 49+00 TO STA 61+00

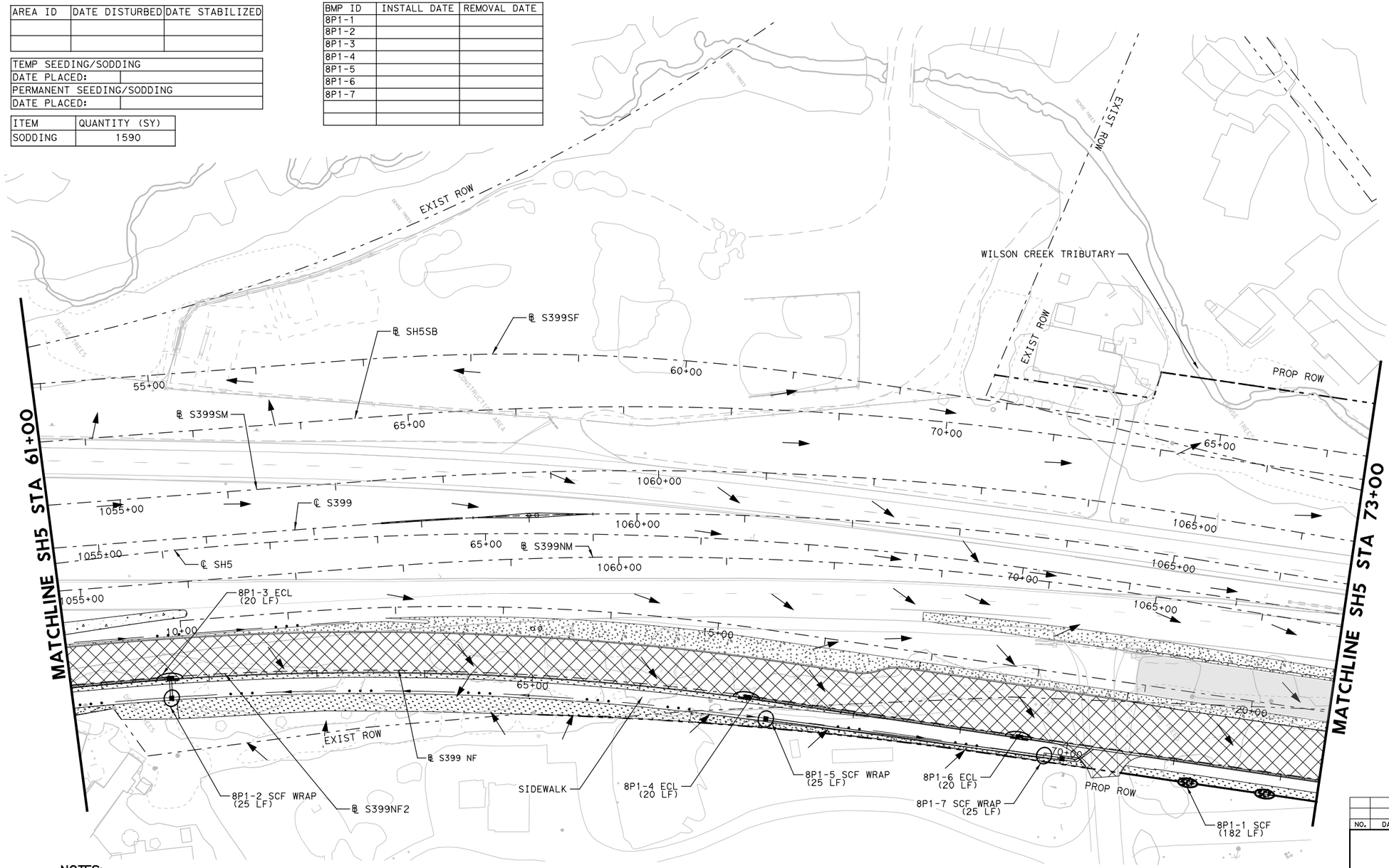
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	1590

BMP ID	INSTALL DATE	REMOVAL DATE
8P1-1		
8P1-2		
8P1-3		
8P1-4		
8P1-5		
8P1-6		
8P1-7		



LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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10/01/2024

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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SH5
STA 61+00 TO STA 73+00

SCALE: 1"=100' SHEET 8 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1346
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg DATE: 10/1/2024
USER: ramln TIME: 10:02:22 AM
FILE: SH5 STA 61+00 TO STA 73+00 PENTABLE: 10181i5-SP399-SEQi.tbl SCALE: 1:100

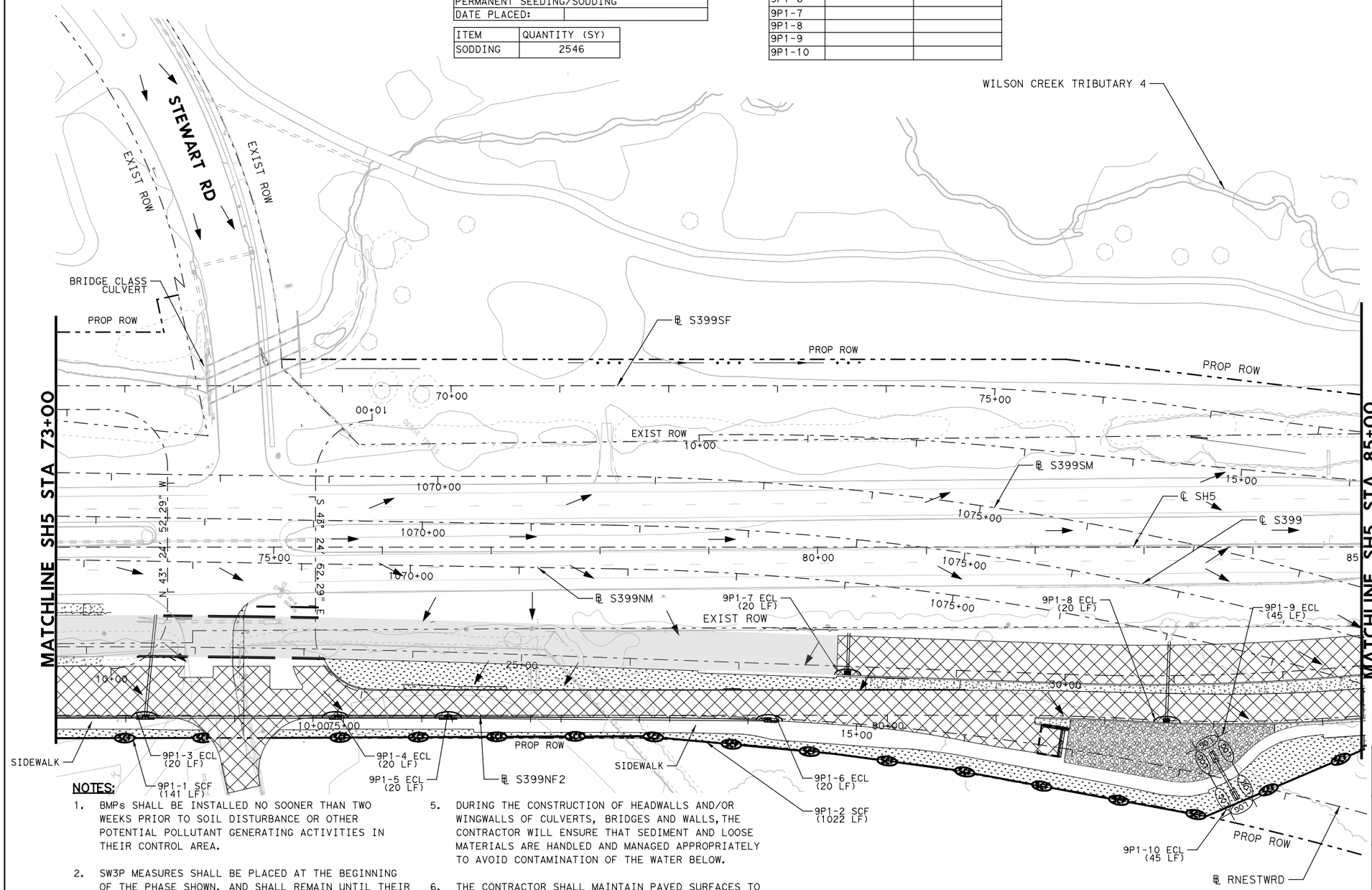
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	2546

BMP ID	INSTALL DATE	REMOVAL DATE
9P1-1		
9P1-2		
9P1-3		
9P1-4		
9P1-5		
9P1-6		
9P1-7		
9P1-8		
9P1-9		
9P1-10		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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STATE OF TEXAS
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10/01/2024

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infraTECH Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SH5
STA 73+00 TO STA 85+00

SCALE: 1"=100' SHEET 9 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1347
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg DATE: 10/1/2024 FILE: SH5 STA 73+00 TO STA 85+00
USER: ramin TIME: 10:02:35 AM SCALE: 1"=100.0'
PENTABLE: 10BII5-SP399-SEGI.tbl

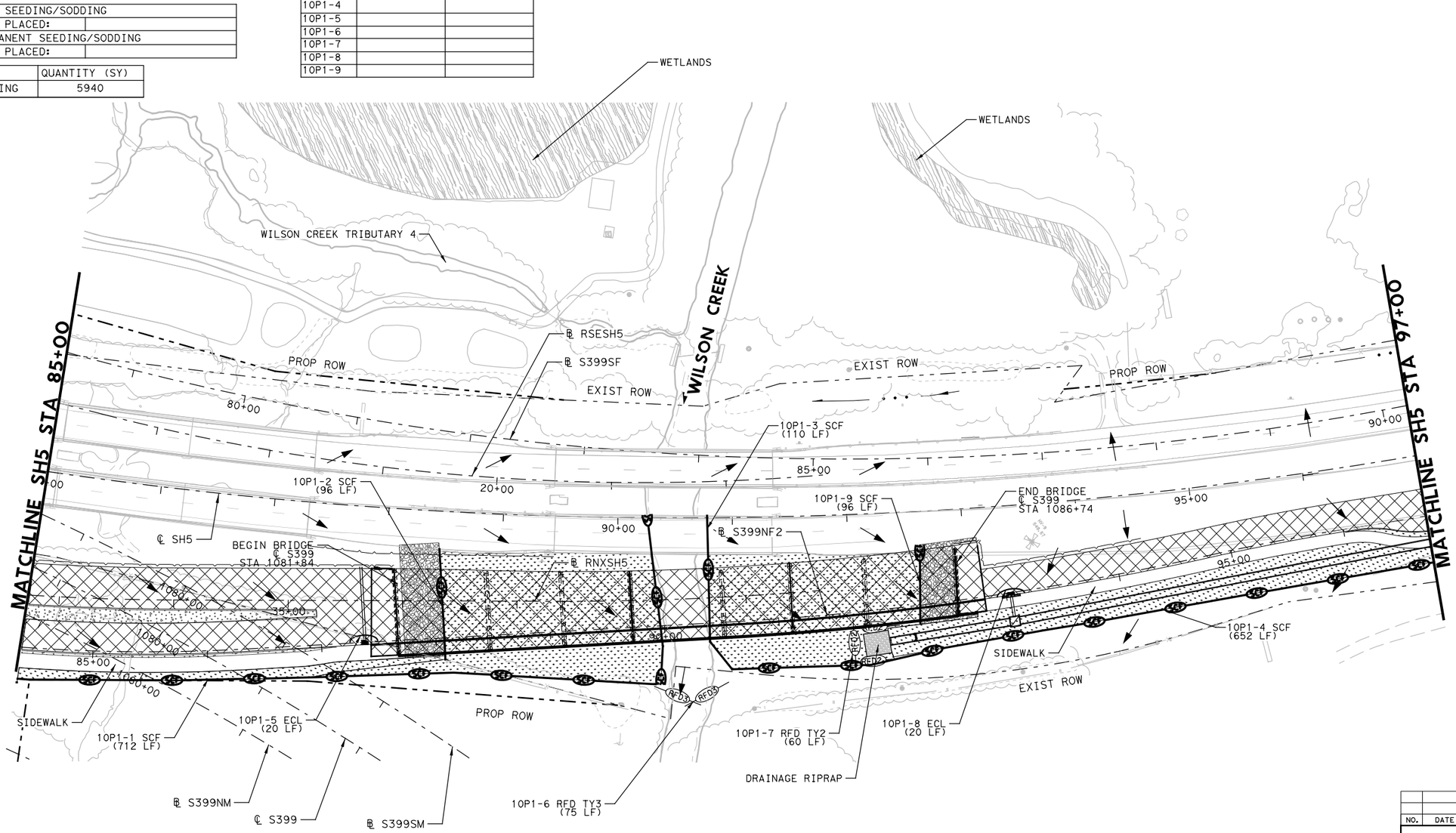
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	5940

BMP ID	INSTALL DATE	REMOVAL DATE
10P1-1		
10P1-2		
10P1-3		
10P1-4		
10P1-5		
10P1-6		
10P1-7		
10P1-8		
10P1-9		



LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (TY 2 & 3)
- ECL — EROSION CONTROL LOG (18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
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- (R) BMP FROM PREVIOUS PHASE

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STATE OF TEXAS
KHANDAKER N. ASHFAQUE
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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SH5
STA 85+00 TO STA 97+00

SCALE: 1"=100' SHEET 10 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1348
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg DATE: 10/1/2024
USER: ramln TIME: 10:02:49 AM
FILE: SH5 STA 85-00 TO STA 97-00 PENTABLE: 10IBII5-SP399-SEGI.tbl
SCALE: 1:100

100% PLANS SUBMITTAL

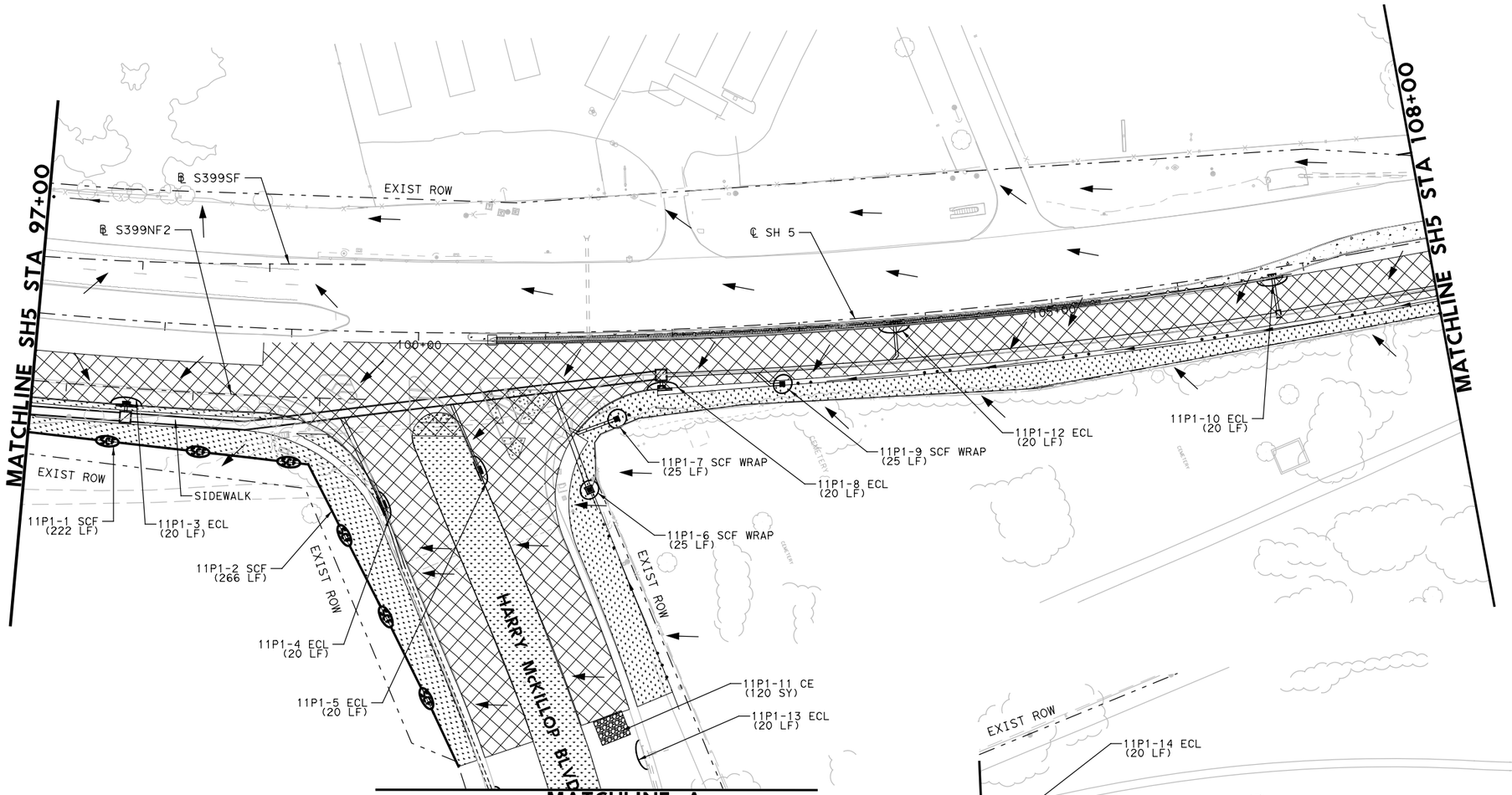
AREA ID	DATE DISTURBED	DATE STABILIZED

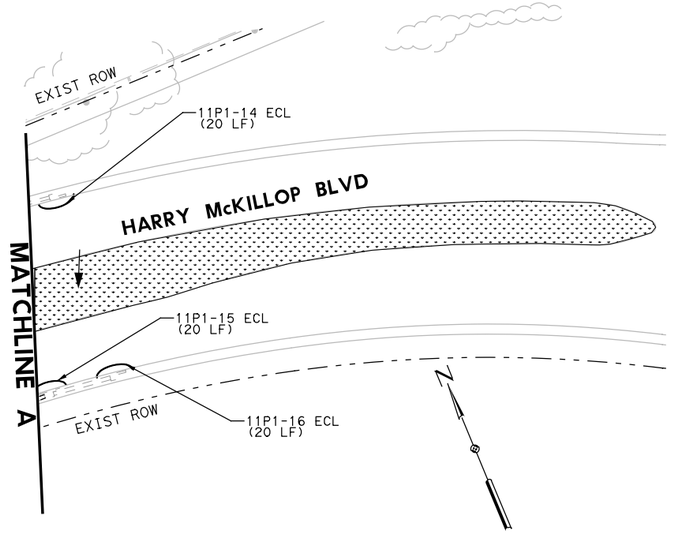
TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

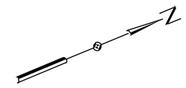
ITEM	QUANTITY (SY)
SODDING	4027

BMP ID	INSTALL DATE	REMOVAL DATE
11P1-1		
11P1-2		
11P1-3		
11P1-4		
11P1-5		
11P1-6		
11P1-7		
11P1-8		

BMP ID	INSTALL DATE	REMOVAL DATE
11P1-9		
11P1-10		
11P1-11		
11P1-12		
11P1-13		
11P1-14		
11P1-15		
11P1-16		







0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
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STATE OF TEXAS
KHANDAKER N. ASHFAQUE
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LICENSED
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NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation
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SH5
SW3P SITE MAP - PHASE 1
SH5
STA 97+00 TO STA 108+00

SCALE: 1"=100' SHEET 11 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1349
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8II5-SP399-SEGI.tbl
USER: ramln DATE: I0/I/2024 TIME: I0:03:09 AM SCALE: 1:100
FILE: SH5 STA 97+00 TO STA 108+00

100% PLANS SUBMITTAL

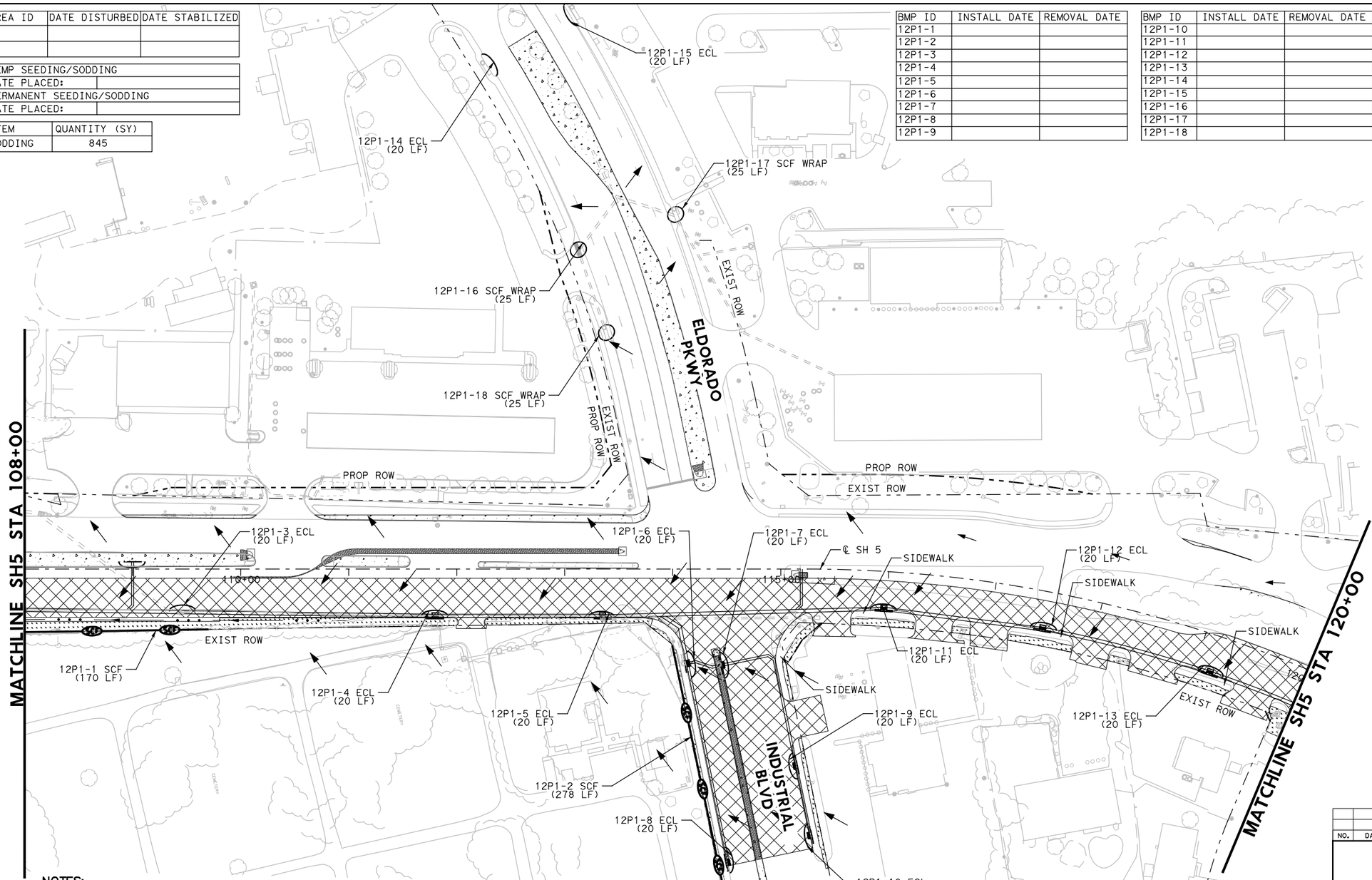
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	845

BMP ID	INSTALL DATE	REMOVAL DATE
12P1-1		
12P1-2		
12P1-3		
12P1-4		
12P1-5		
12P1-6		
12P1-7		
12P1-8		
12P1-9		

BMP ID	INSTALL DATE	REMOVAL DATE
12P1-10		
12P1-11		
12P1-12		
12P1-13		
12P1-14		
12P1-15		
12P1-16		
12P1-17		
12P1-18		



LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFDX — ROCK FILTER DAMS (TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG (18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
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- (R) BMP FROM PREVIOUS PHASE

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SH5
SW3P SITE MAP - PHASE 1
SH5
STA 108+00 TO STA 120+00

SCALE: 1"=100' SHEET 12 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1350
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0181S-SP399-SEQ1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:03:25 AM SCALE: 1:100
FILE: SH5 STA 108+00 TO STA 120+00

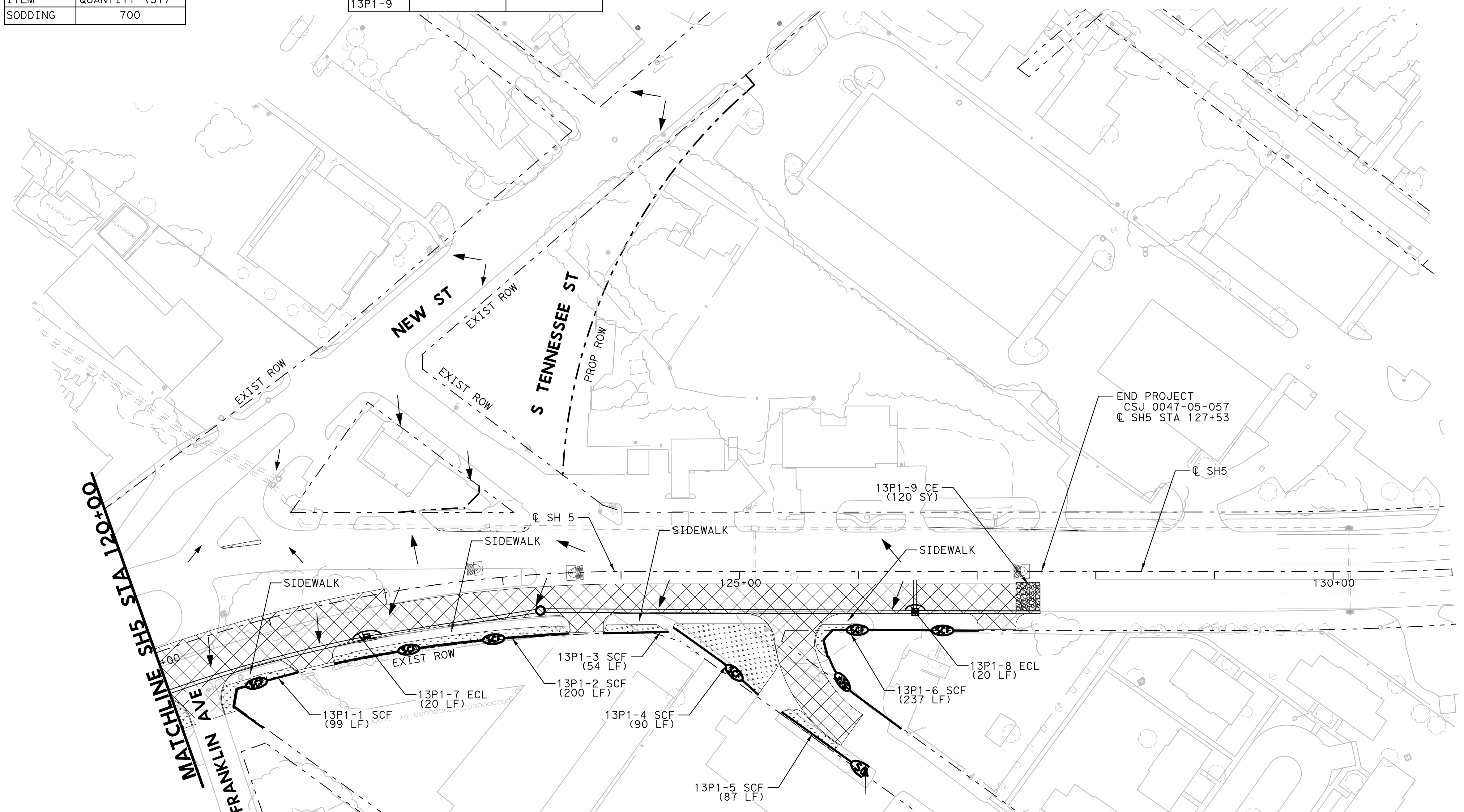
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	700

BMP ID	INSTALL DATE	REMOVAL DATE
13P1-1		
13P1-2		
13P1-3		
13P1-4		
13P1-5		
13P1-6		
13P1-7		
13P1-8		
13P1-9		



LEGEND:

- SCF SILT FENCE (INSTALL)
- RFD ROCK FILTER DAMS(TY 2 & 3)
- ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
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- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NOTES:

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3. CONSTRUCTION EXIT LOCATIONS SHOWN IN SHEETS ARE APPROXIMATE. THEY MAY BE RELOCATED WITH THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL PRESERVE TREES AND MINIMIZE DISTURBANCE OF CREEK BEDS AND CREEK SIDE VEGETATION, TO THE EXTENT FEASIBLE.
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6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 1
SH5
STA 120+00 TO END

SCALE: 1"=100' SHEET 13 OF 13

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1351
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 1018115-SP399-SEGI.tbl
USER: ramin DATE: 10/1/2024 TIME: 10:03:40 AM SCALE: 1:100
FILE: SH5 STA 120+00 TO END

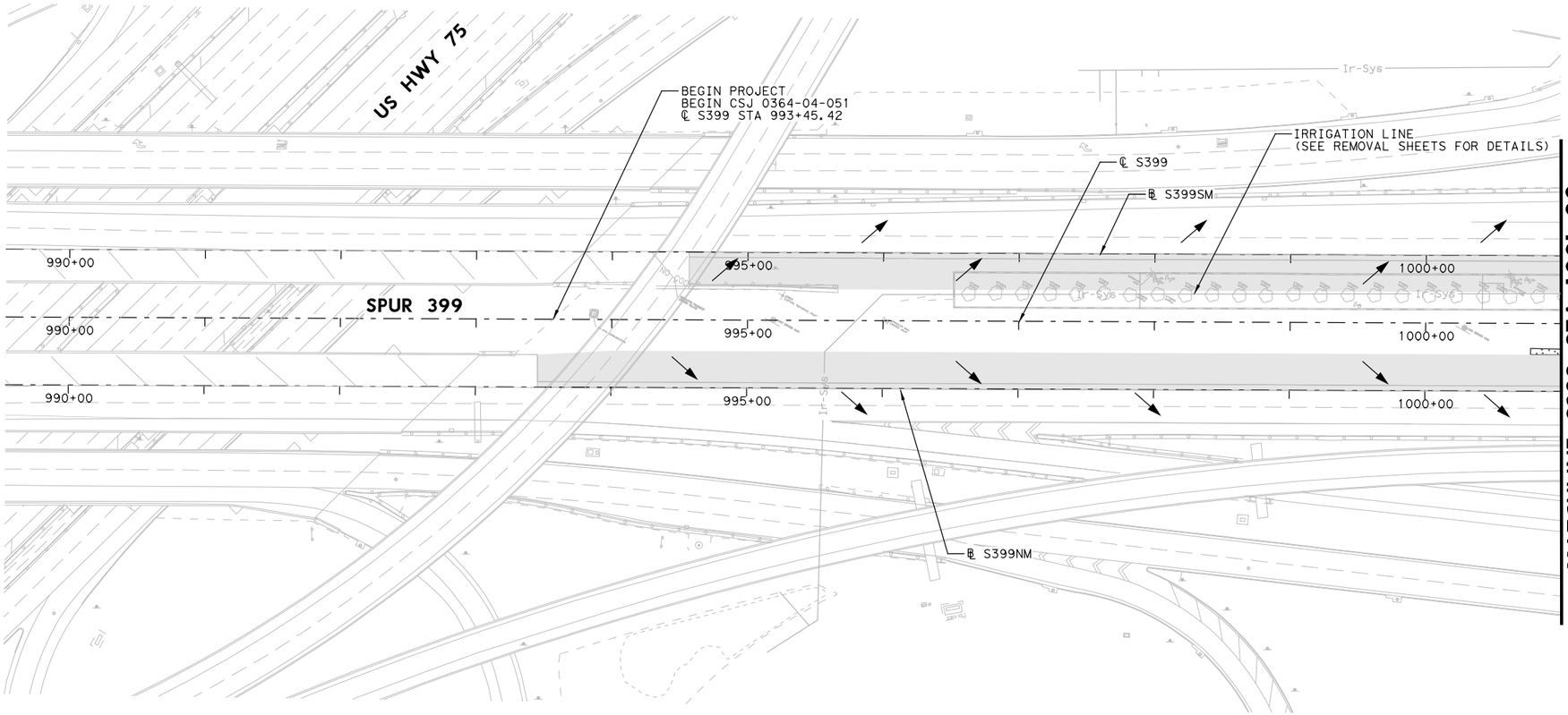
100% PLANS SUBMITTAL

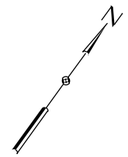
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE





0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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10/01/2024

NO.	DATE	REVISION	APPROVED

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SPUR 399
BEGIN TO STA 1001+00

SCALE: 1"=100' SHEET 1 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1352
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: ramln
FILE: SPUR 399 BEGIN TO STA 1001+00
DATE: 10/1/2024
TIME: 10:03:55 AM
SCALE: 1:100
PENTABLE: 10181i5-SP399-SEGi.tbl

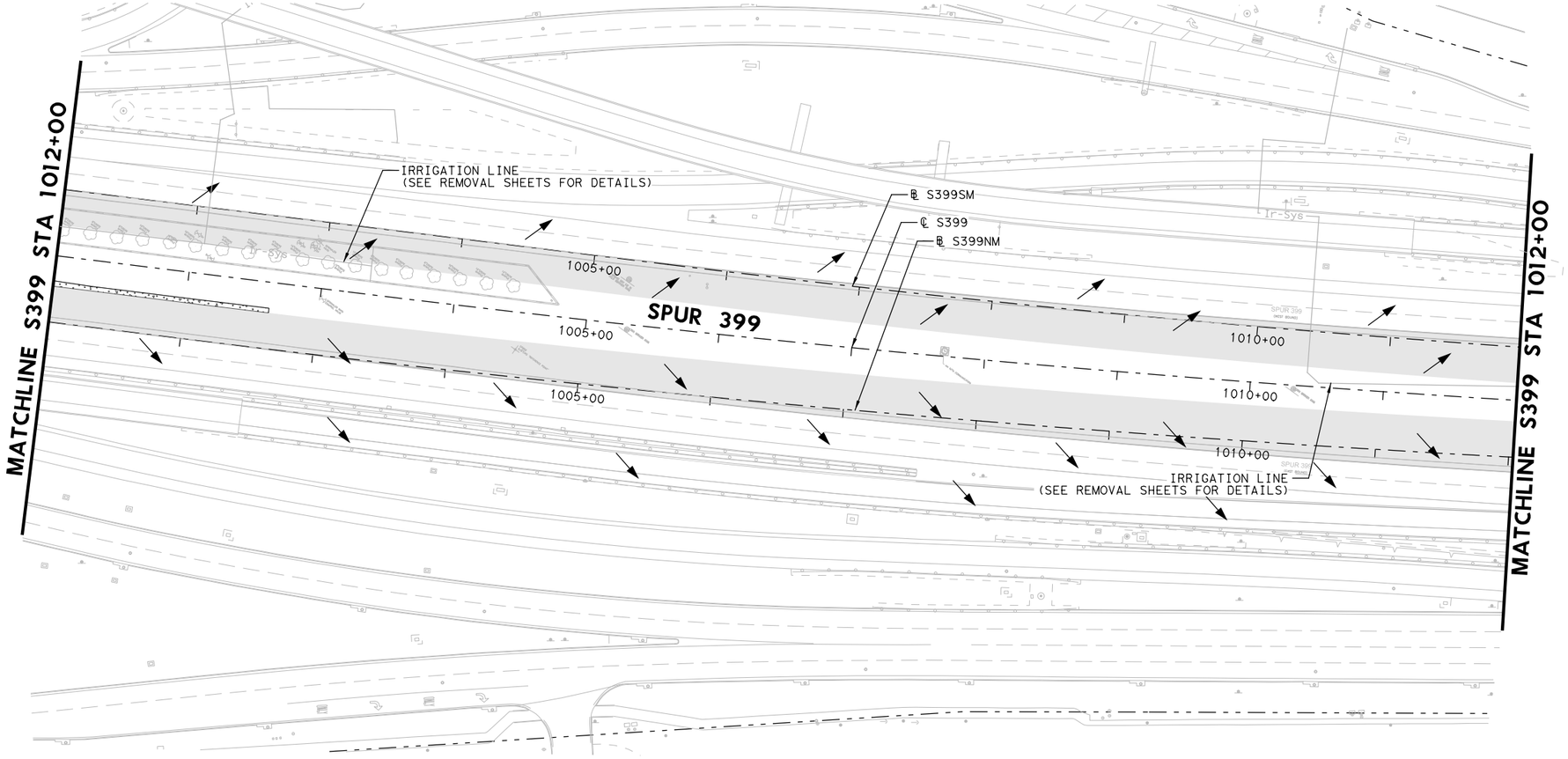
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE



0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF SILT FENCE (INSTALL)
- RFD ROCK FILTER DAMS(TY 2 & 3)
- ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
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STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SPUR 399
STA 1001+00 TO STA 1012+00

SCALE: 1"=100' SHEET 2 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1353
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I:\BII5-SP399-SEG1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:04:09 AM SCALE: 1:100
FILE: SPUR 399 STA 1001+00 TO STA 1012+00

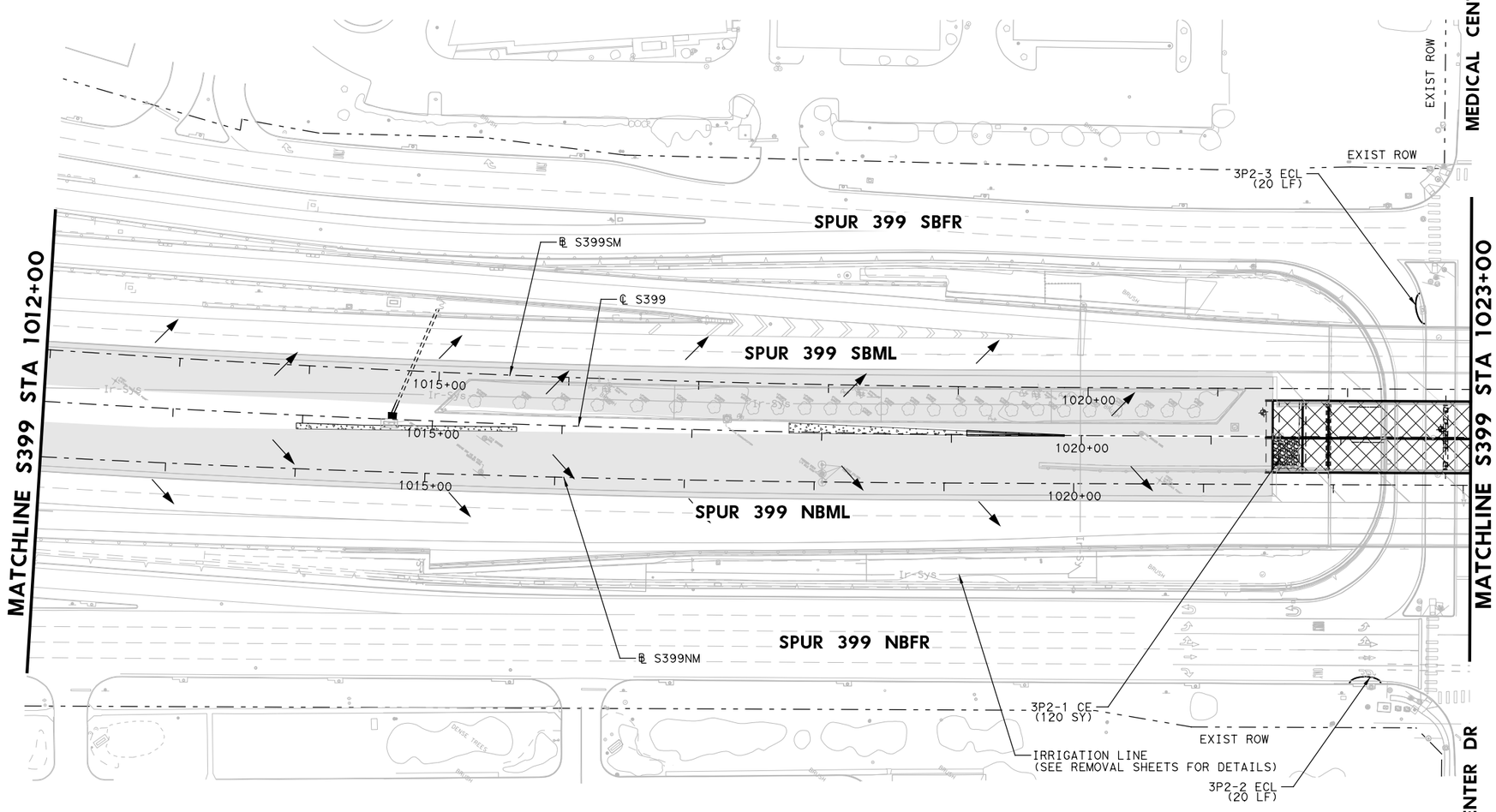
100% PLANS SUBMITTAL

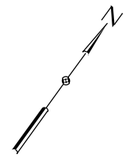
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
3P2-1		
3P2-2		
3P2-3		





0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
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- (R) BMP FROM PREVIOUS PHASE

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10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SPUR 399
STA 1012+00 TO STA 1023+00

SCALE: 1"=100' SHEET 3 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	SEE TITLE SHEET		SH5, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1354
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: ramln DATE: I0/1/2024 TIME: I0:04:24 AM SCALE: 1:I00
FILE: SPUR 399 STA I012+00 TO STA I023+00

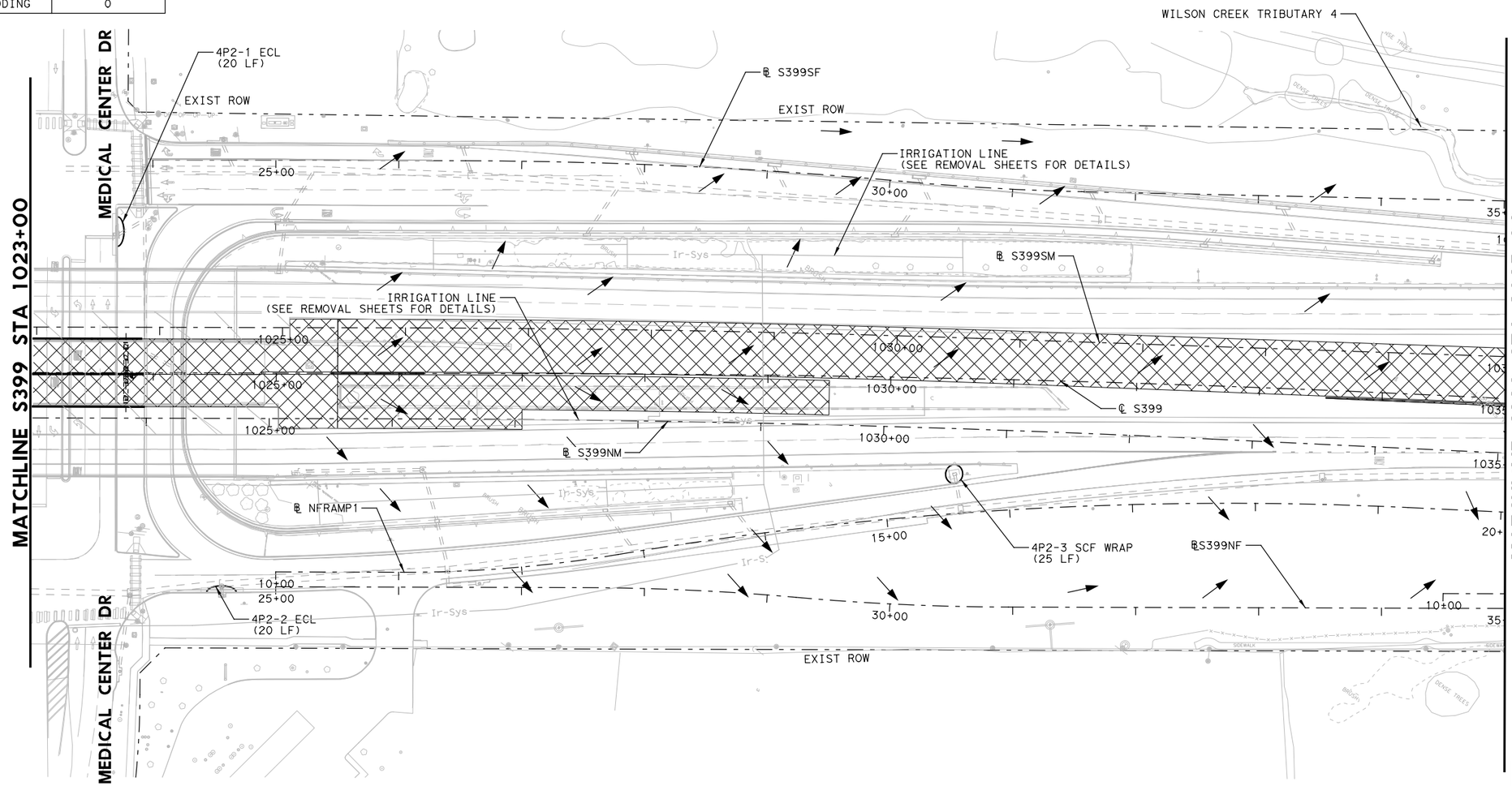
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
4P2-1		
4P2-2		
4P2-3		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
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STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SPUR 399
STA 1023+00 TO STA 1035+00

SCALE: 1"=100' SHEET 4 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1355
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181\5-SP399-SEG1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:04:40 AM SCALE: 1:100
FILE: SPUR 399 STA 1023+00 TO STA 1035+00

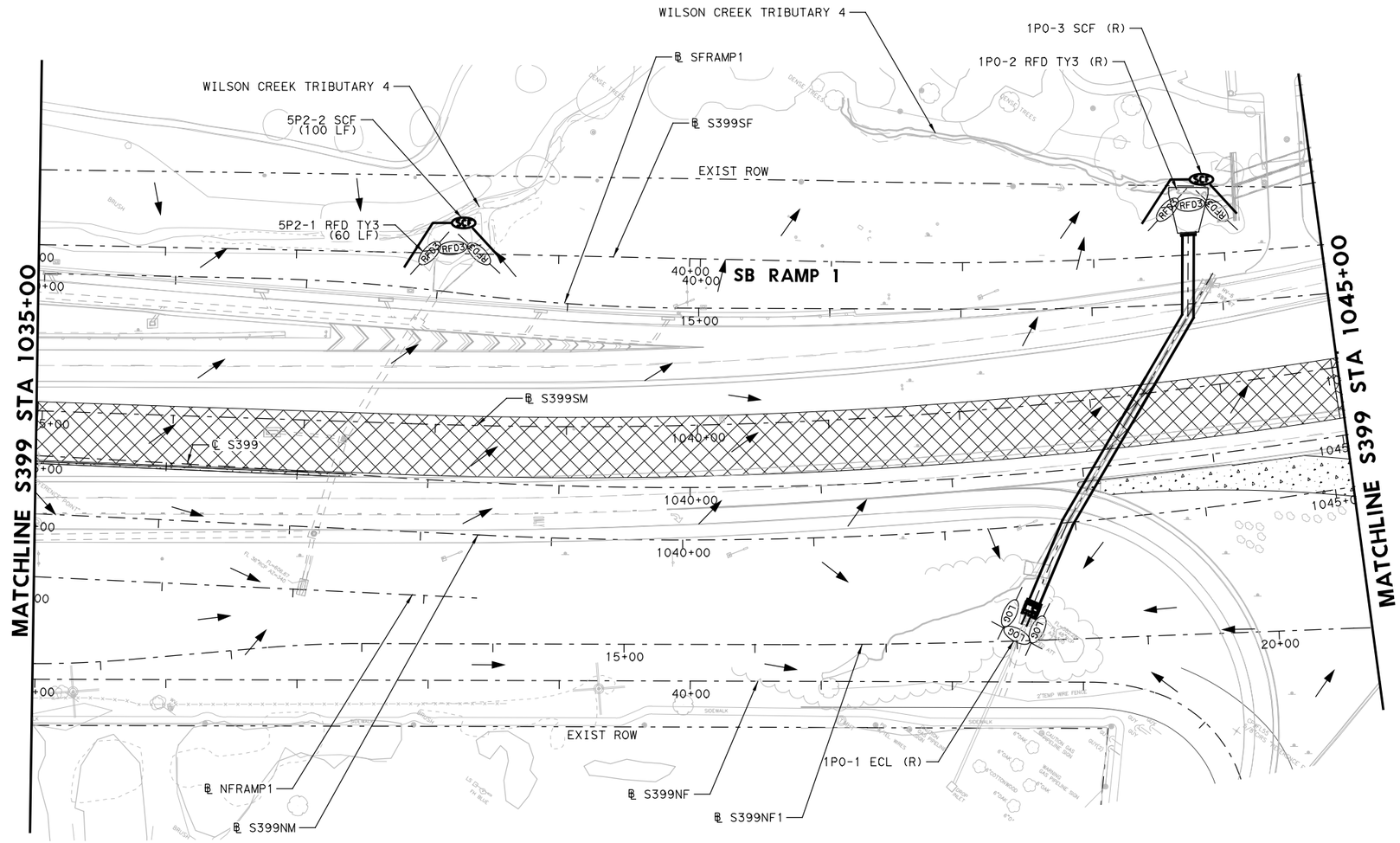
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
5P2-1		
5P2-2		



0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFDX — ROCK FILTER DAMS (TY 2 & 3)
- LOG — EROSION CONTROL LOG (18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
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Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SPUR 399
STA 1035+00 TO STA 1045+00

SCALE: 1"=100' SHEET 5 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1356
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10\8\15-SP399-SEQ1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:05:02 AM SCALE: 1:100
FILE: SPUR 399 STA 1035+00 TO STA 1045+00

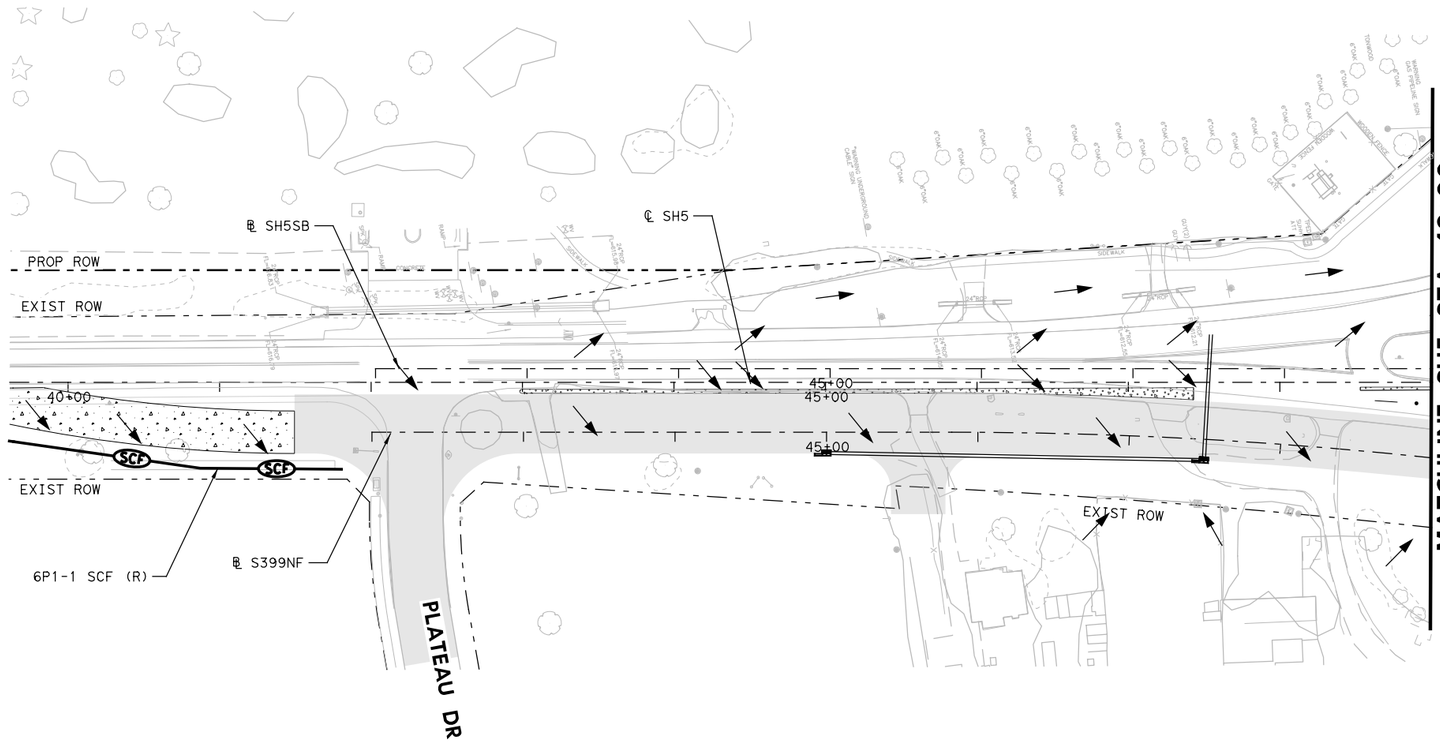
100% PLANS SUBMITTAL

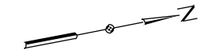
AREA ID	DATE DISTURBED	DATE STABILIZED

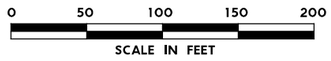
TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE







LEGEND:

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- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
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- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
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3. CONSTRUCTION EXIT LOCATIONS SHOWN IN SHEETS ARE APPROXIMATE. THEY MAY BE RELOCATED WITH THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL PRESERVE TREES AND MINIMIZE DISTURBANCE OF CREEK BEDS AND CREEK SIDE VEGETATION, TO THE EXTENT FEASIBLE.
5. DURING THE CONSTRUCTION OF HEADWALLS AND/OR WINGWALLS OF CULVERTS, BRIDGES AND WALLS, THE CONTRACTOR WILL ENSURE THAT SEDIMENT AND LOOSE MATERIALS ARE HANDLED AND MANAGED APPROPRIATELY TO AVOID CONTAMINATION OF THE WATER BELOW.
6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 39+61 TO STA 49+00

SCALE: 1"=100' SHEET 6 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1357
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 10181i5-SP399-SEGi.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:05:23 AM SCALE: 1:100
FILE: SH5 STA 3961 TO STA 4900

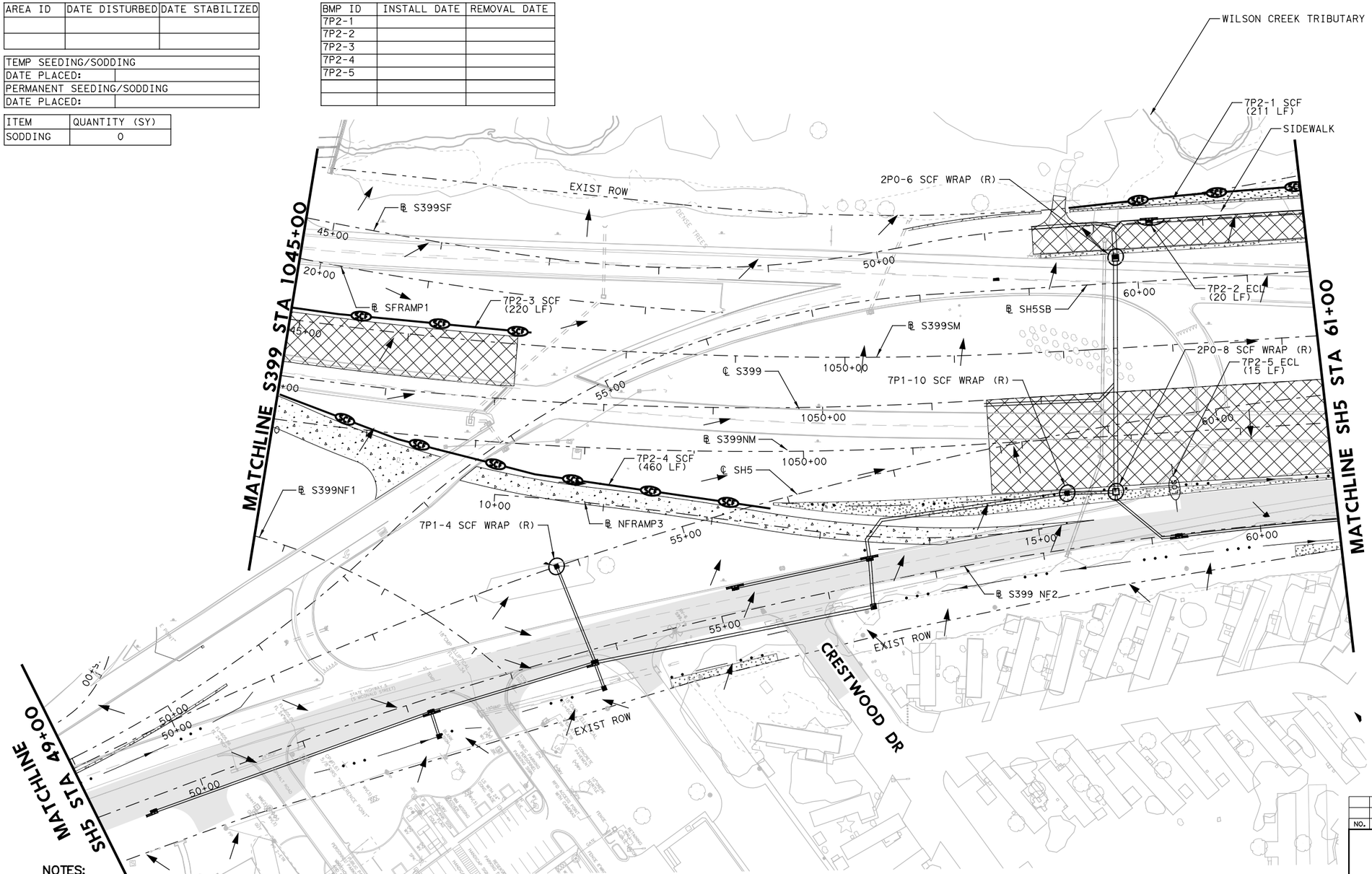
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
7P2-1		
7P2-2		
7P2-3		
7P2-4		
7P2-5		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 49+00 TO STA 61+00

SCALE: 1"=100' SHEET 7 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1358
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg DATE: 10/1/2024
USER: ramln TIME: 10:05:49 AM
FILE: SH5 STA 49+00 TO STA 61+00 PENTABLE: 10181I5-SP399-SEQ1.tbl SCALE: 1:100

100% PLANS SUBMITTAL

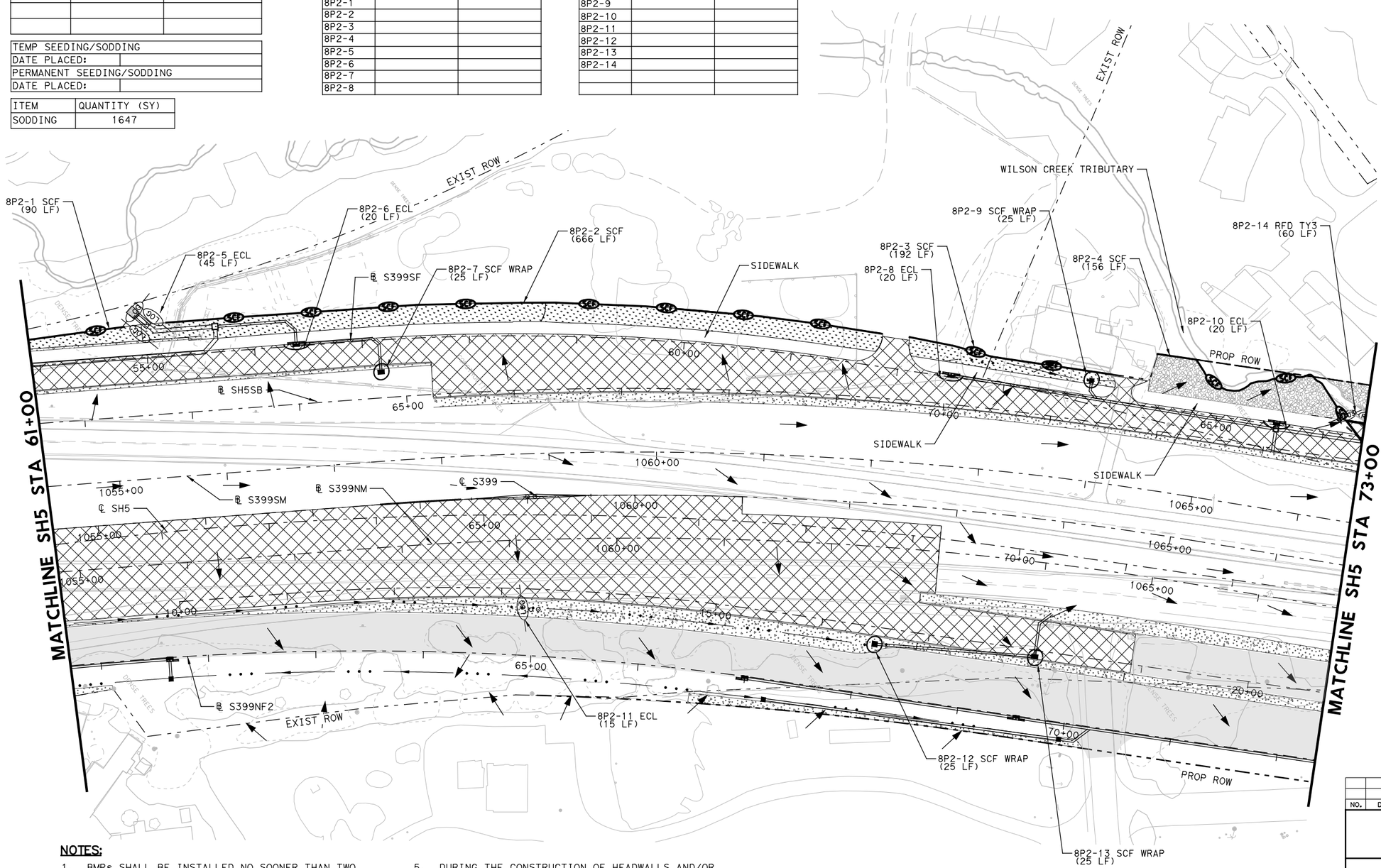
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	1647

BMP ID	INSTALL DATE	REMOVAL DATE
8P2-1		
8P2-2		
8P2-3		
8P2-4		
8P2-5		
8P2-6		
8P2-7		
8P2-8		

BMP ID	INSTALL DATE	REMOVAL DATE
8P2-9		
8P2-10		
8P2-11		
8P2-12		
8P2-13		
8P2-14		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (TY 2 & 3)
- ECL — EROSION CONTROL LOG (18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation
© 2024

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 61+00 TO STA 73+00

SCALE: 1"=100' SHEET 8 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1359
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEGI.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:06:09 AM SCALE: 1:100
FILE: SH5 STA 61+00 TO STA 73+00

100% PLANS SUBMITTAL

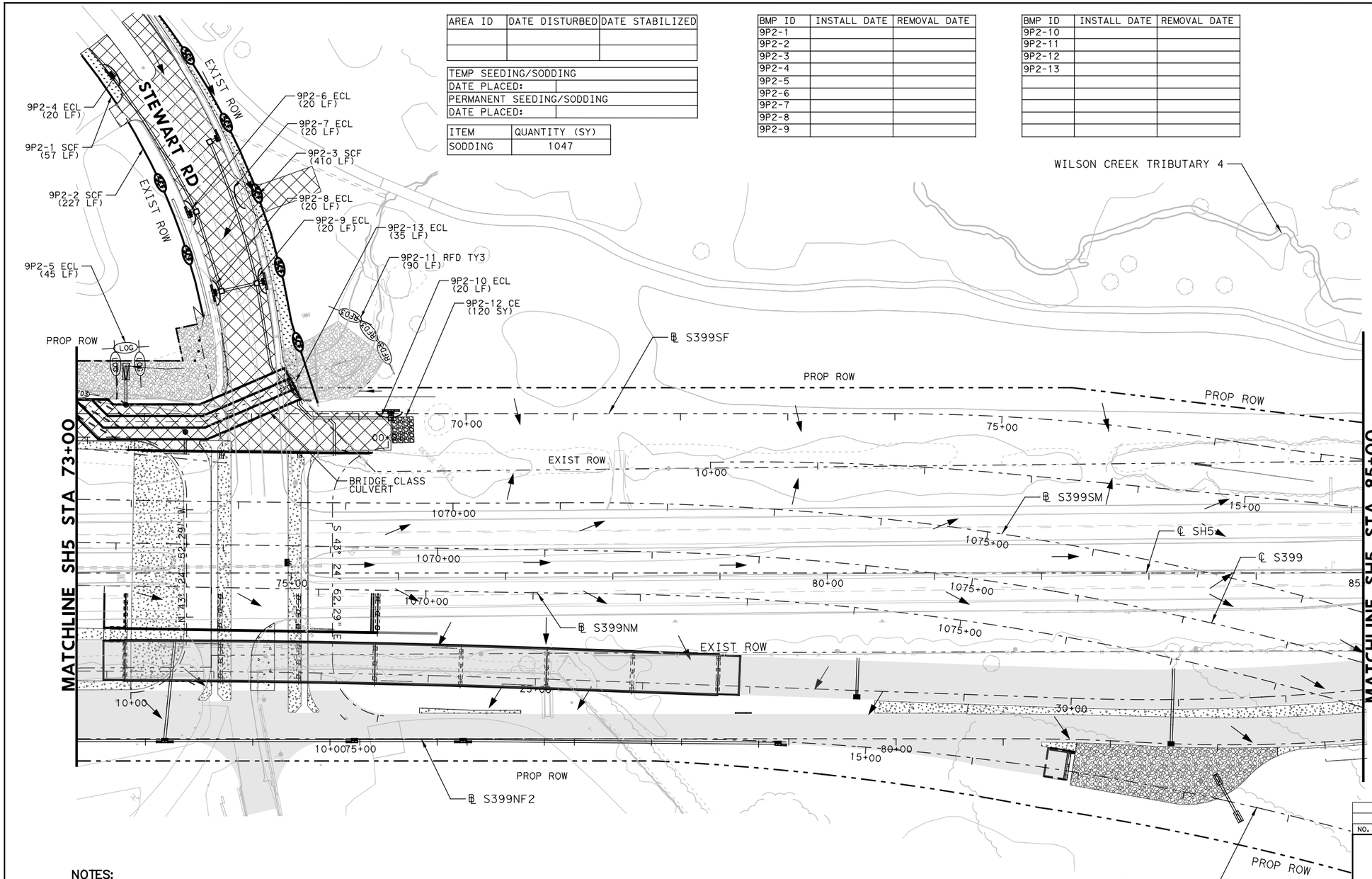
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	1047

BMP ID	INSTALL DATE	REMOVAL DATE
9P2-1		
9P2-2		
9P2-3		
9P2-4		
9P2-5		
9P2-6		
9P2-7		
9P2-8		
9P2-9		

BMP ID	INSTALL DATE	REMOVAL DATE
9P2-10		
9P2-11		
9P2-12		
9P2-13		



0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (TY 2 & 3)
- ECL — EROSION CONTROL LOG (18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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KHANDAKER N. ASHFAQUE
147636
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 73+00 TO STA 85+00

SCALE: 1"=100' SHEET 9 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1360
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEQI.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:06:26 AM SCALE: 1:100.0 3
FILE: SH5 STA 73+00 TO STA 85+00

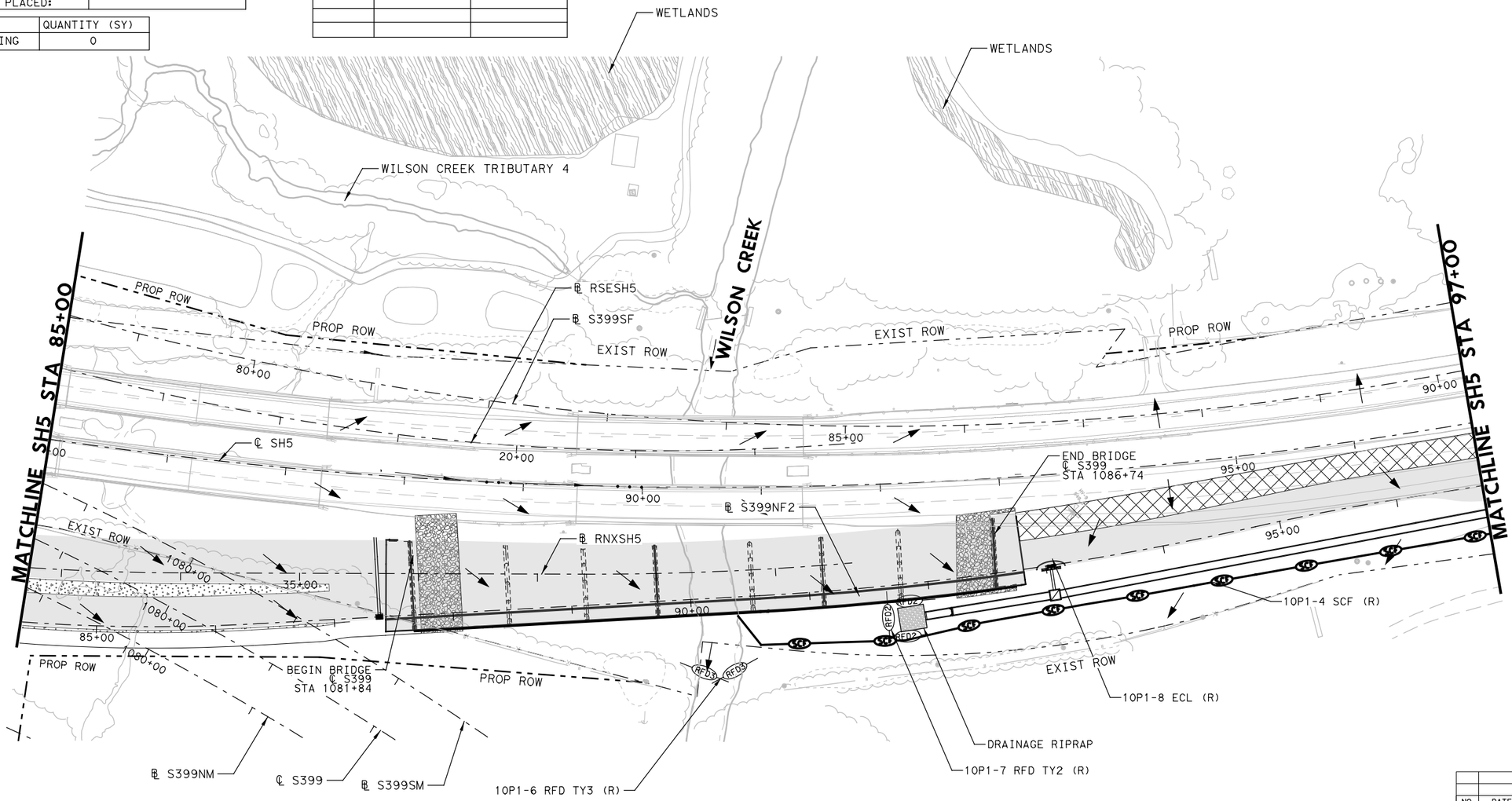
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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STATE OF TEXAS
KHANDAKER N. ASHFAQUE
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infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 85+00 TO STA 97+00

SCALE: 1"=100' SHEET 10 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1361
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg DATE: 10/1/2024
USER: ramln TIME: 10:06:44 AM
FILE: SH5 STA 85+00 TO STA 97+00 PENTABLE: 10811i5-SP399-SEQi.tbl
SCALE: 1i00

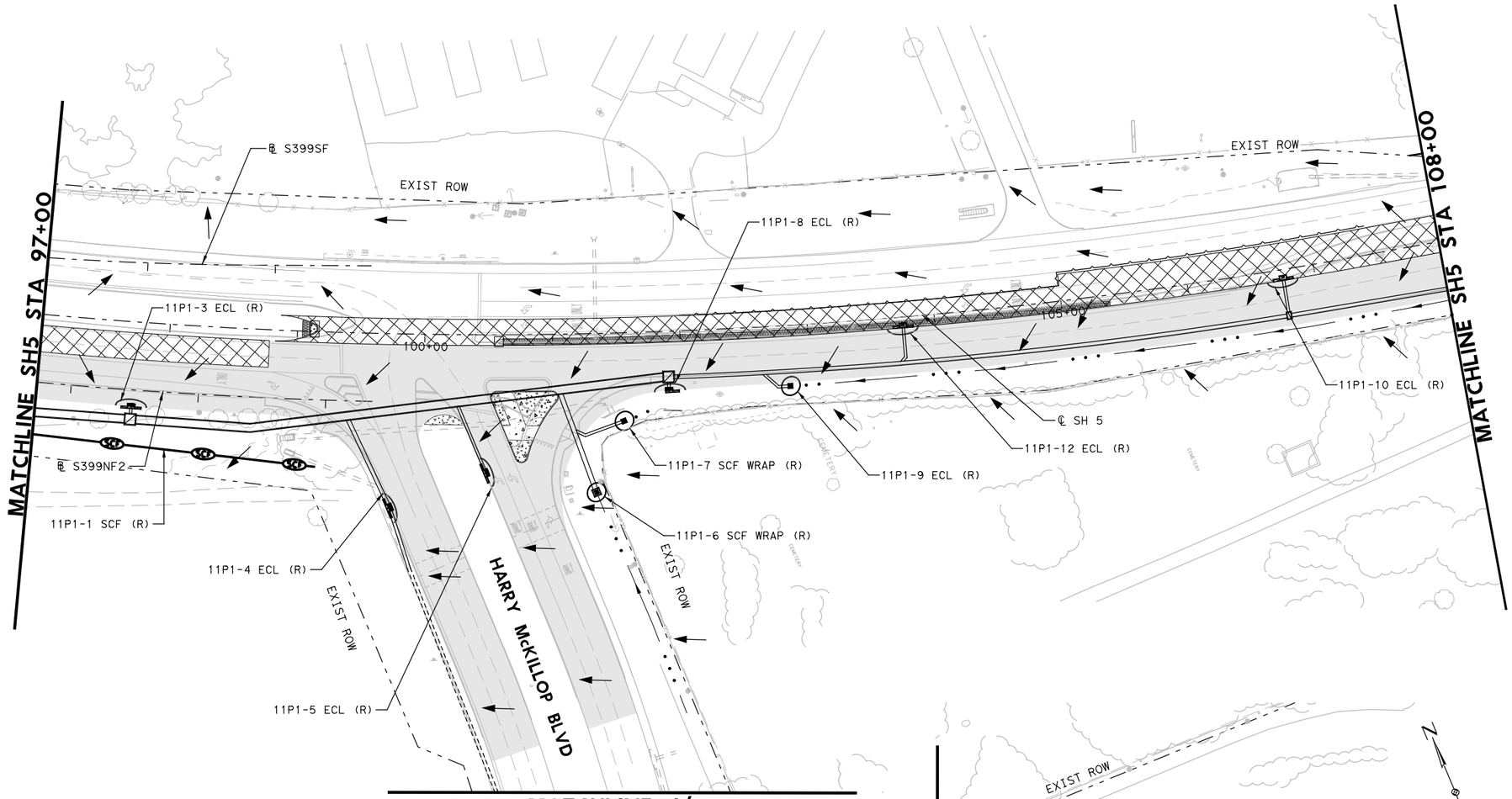
100% PLANS SUBMITTAL

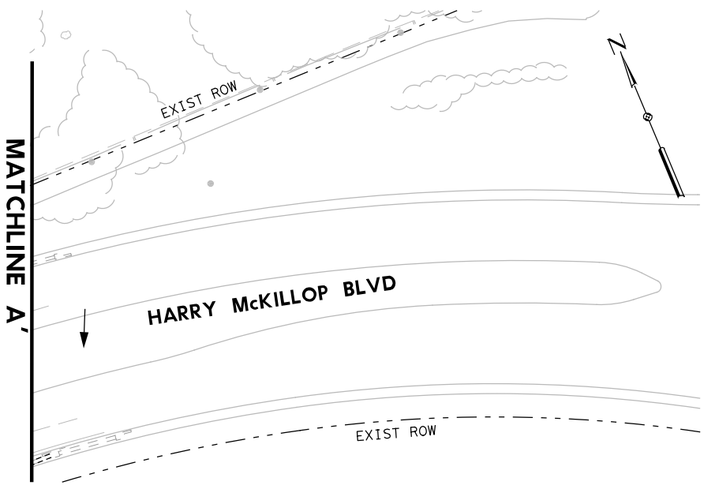
AREA ID	DATE DISTURBED	DATE STABILIZED

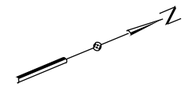
TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE







0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) — BMP FROM PREVIOUS PHASE

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KHANDAKER N. ASHFAQUE
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LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 97+00 TO STA 108+00

SCALE: 1"=100' SHEET 11 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1362
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg DATE: 10/1/2024
USER: ramln TIME: 10:07:04 AM
FILE: SH5 STA 97+00 TO STA 108+00 PENTABLE: 10181I5-SP399-SEGI.tbl
SCALE: 1:100

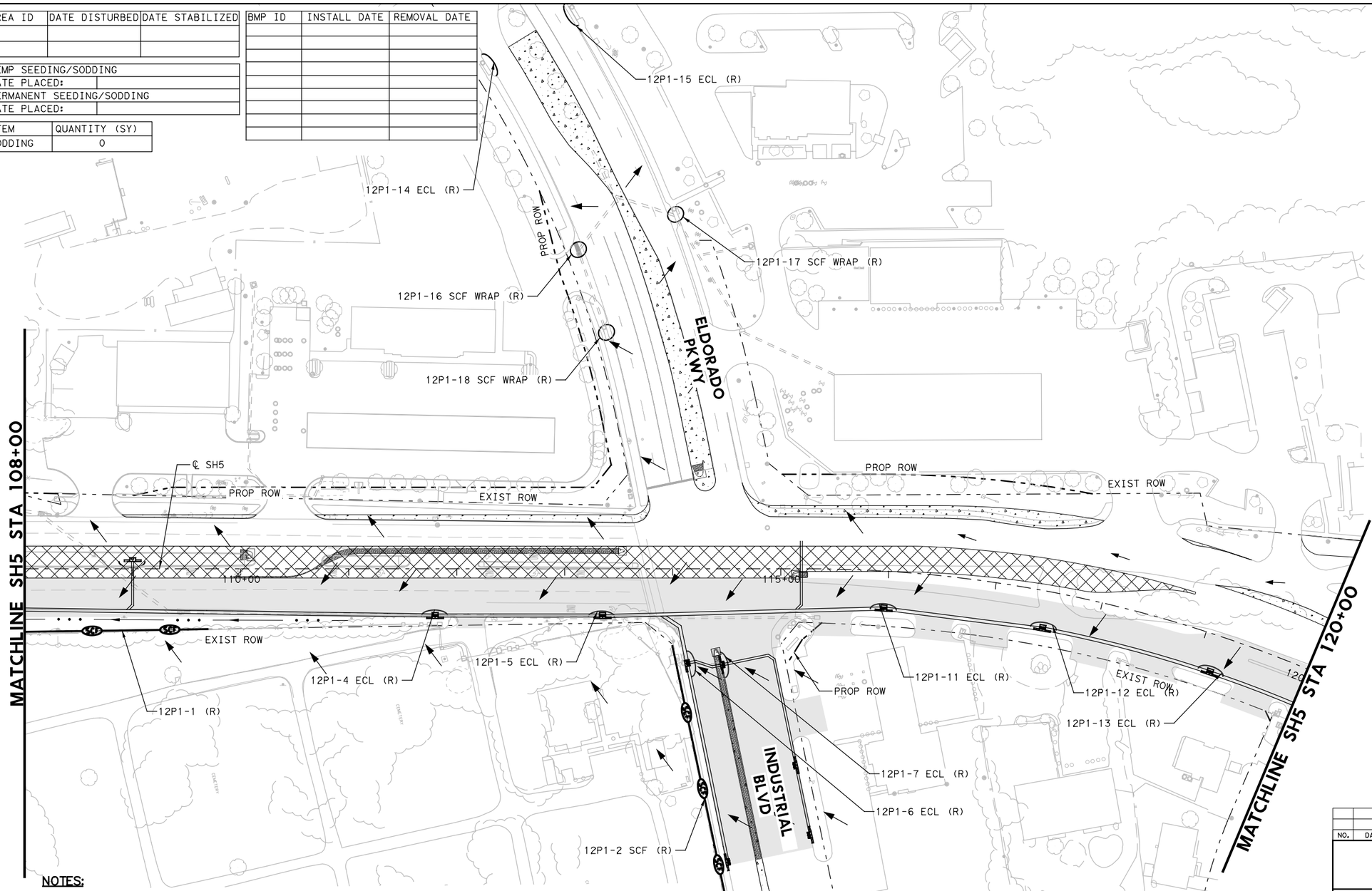
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

BMP ID	INSTALL DATE	REMOVAL DATE

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0



N

0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
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- (R) BMP FROM PREVIOUS PHASE

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6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

KHANDAKER N. ASHFAQUE
147636
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 108+00 TO STA 120+00

SCALE: 1"=100' SHEET 12 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1363
IEI	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8II5-SP399-SEGI.tbl
USER: ramln TIME: I0:07:19 AM SCALE: NOT TO SCALE
DATE: I0/I/2024
FILE: SH5 STA I08+00 TO STA I20+00

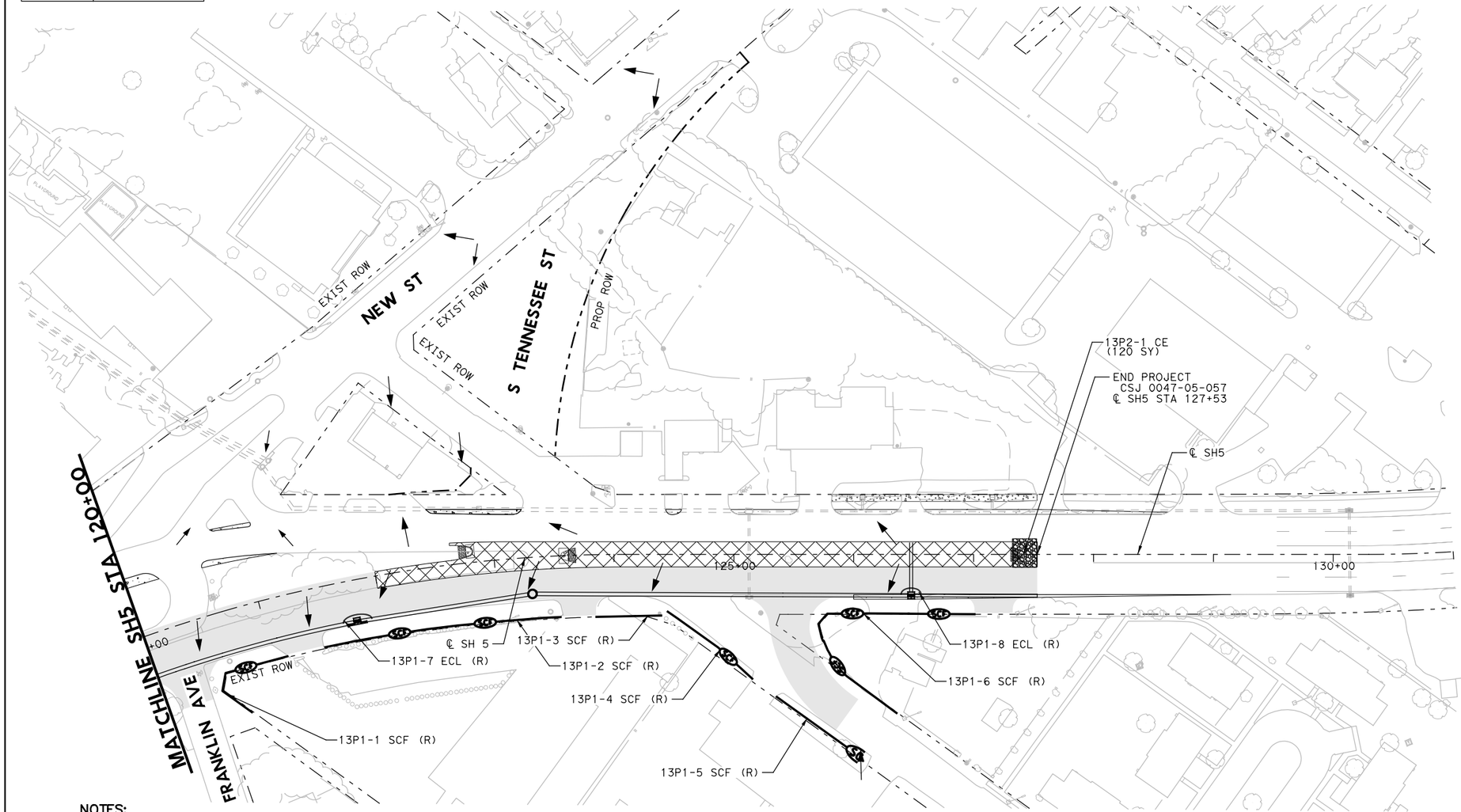
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
13P2-1		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFD — RFD ROCK FILTER DAMS(TY 2 & 3)
- ECL — ECL EROSION CONTROL LOG(18" DIA)
- ECL — ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF — SCF SILT FENCE WRAP
- CE — CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

1. BMPs SHALL BE INSTALLED NO SOONER THAN TWO WEEKS PRIOR TO SOIL DISTURBANCE OR OTHER POTENTIAL POLLUTANT GENERATING ACTIVITIES IN THEIR CONTROL AREA.
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Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 2
SH5
STA 120+00 TO END

SCALE: 1"=100' SHEET 13 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1364
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:07:34 AM SCALE: 1:100
FILE: SH5 STA 120+00 TO END

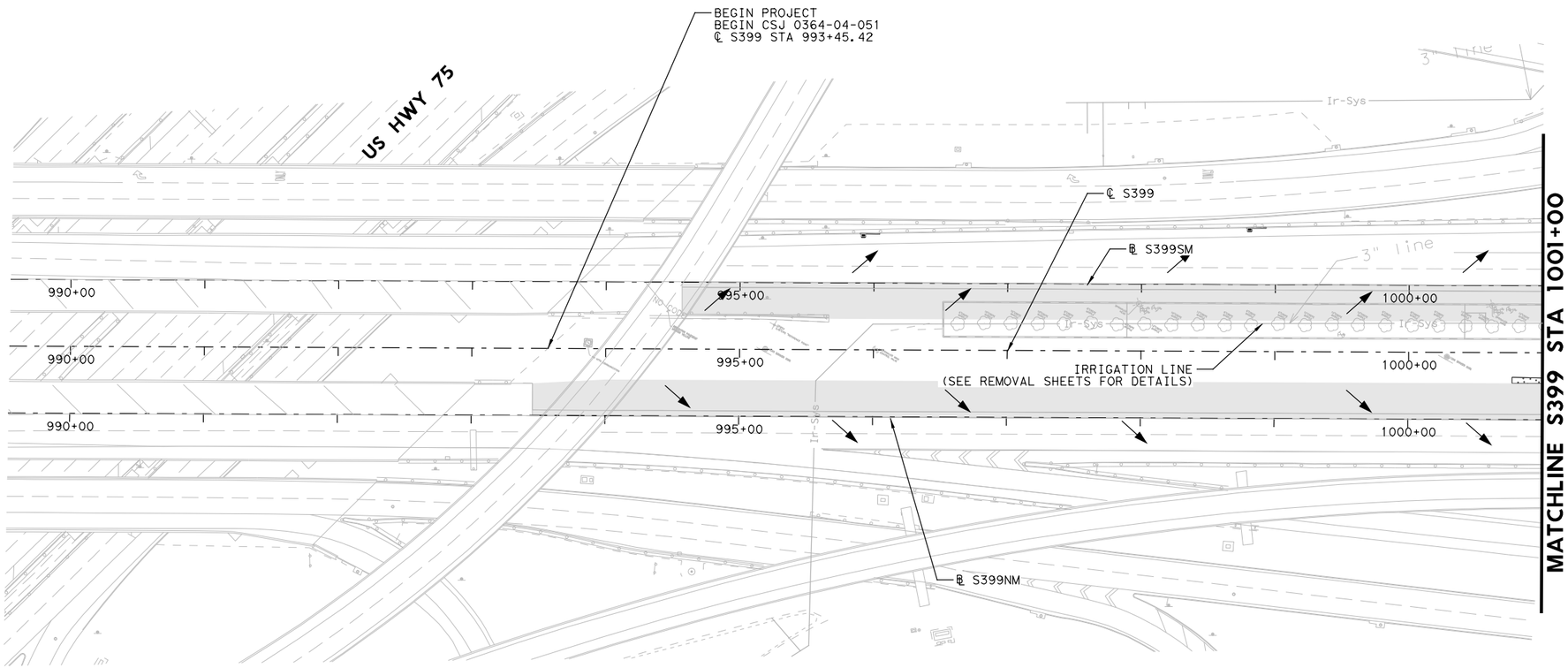
100% PLANS SUBMITTAL

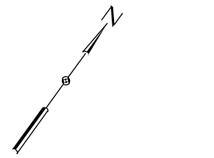
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
SEEDING		





LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (TY 2 & 3)
- ECL — EROSION CONTROL LOG (18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) — BMP FROM PREVIOUS PHASE

NOTES:

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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation
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SH5
SW3P SITE MAP - PHASE 3
SPUR 399
BEGIN TO STA 1001+00

SCALE: 1"=100' SHEET 1 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1365
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I0I8II5-SP399-SEGI.tbl
USER: ramln TIME: I0:07:48 AM SCALE: 1:100
DATE: I0/1/2024
FILE: SPUR 399 BEGIN TO STA 1001+00

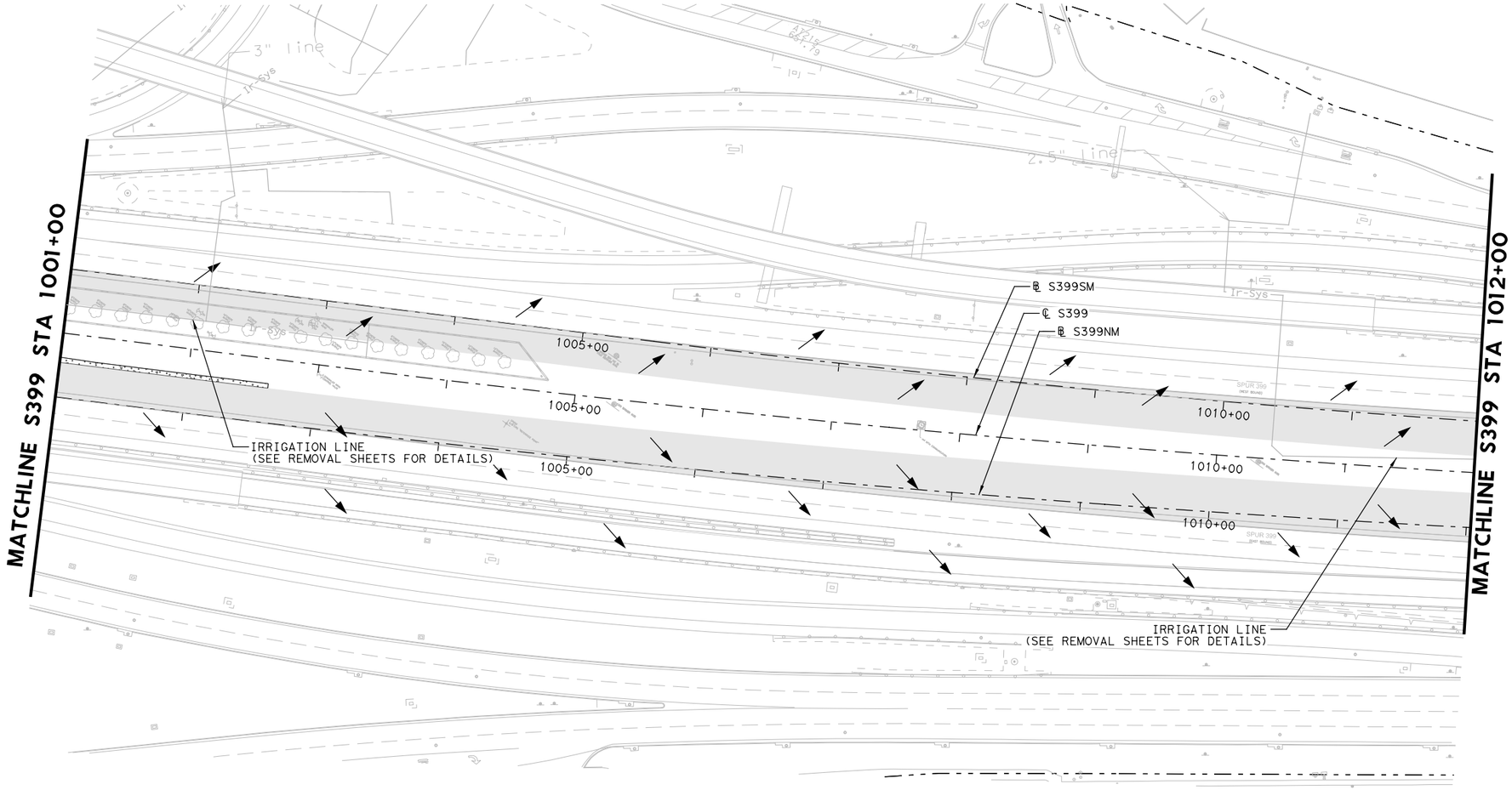
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE



0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
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STATE OF TEXAS
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147636
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10/01/2024

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TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SPUR 399
STA 1001+00 TO STA 1012+00

SCALE: 1"=100' SHEET 2 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1366
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08I15-SP399-SEQ1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:08:00 AM SCALE: 1:100
FILE: SPUR 399 STA 1001+00 TO STA 1012+00

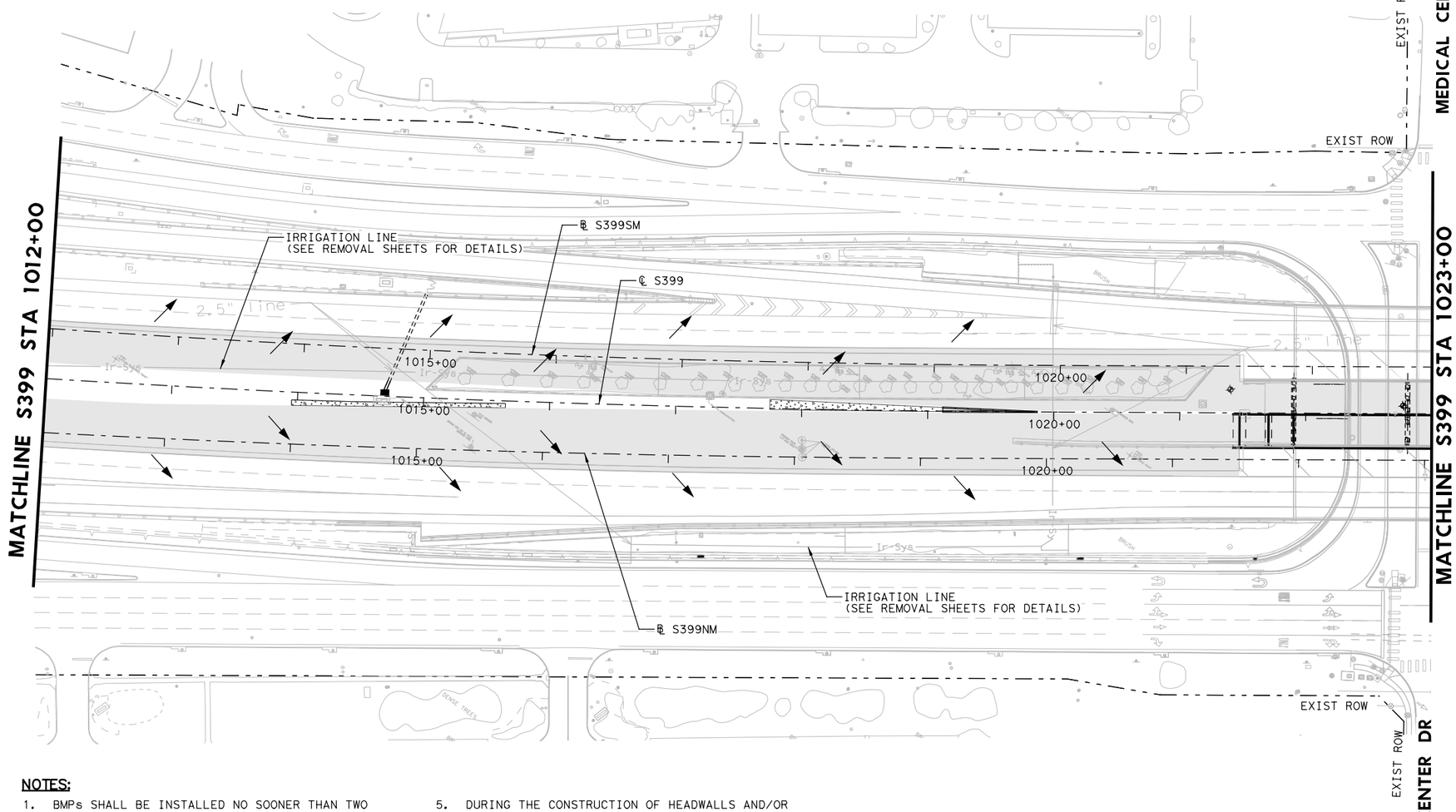
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) — BMP FROM PREVIOUS PHASE

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Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SPUR 399
STA 1012+00 TO STA 1023+00

SCALE: 1"=100' SHEET 3 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1367
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I:\Bill\5-SP399-SEQ\.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:08:23 AM SCALE: 1:100
FILE: SPUR 399 STA 1012+00 TO STA 1023+00

100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

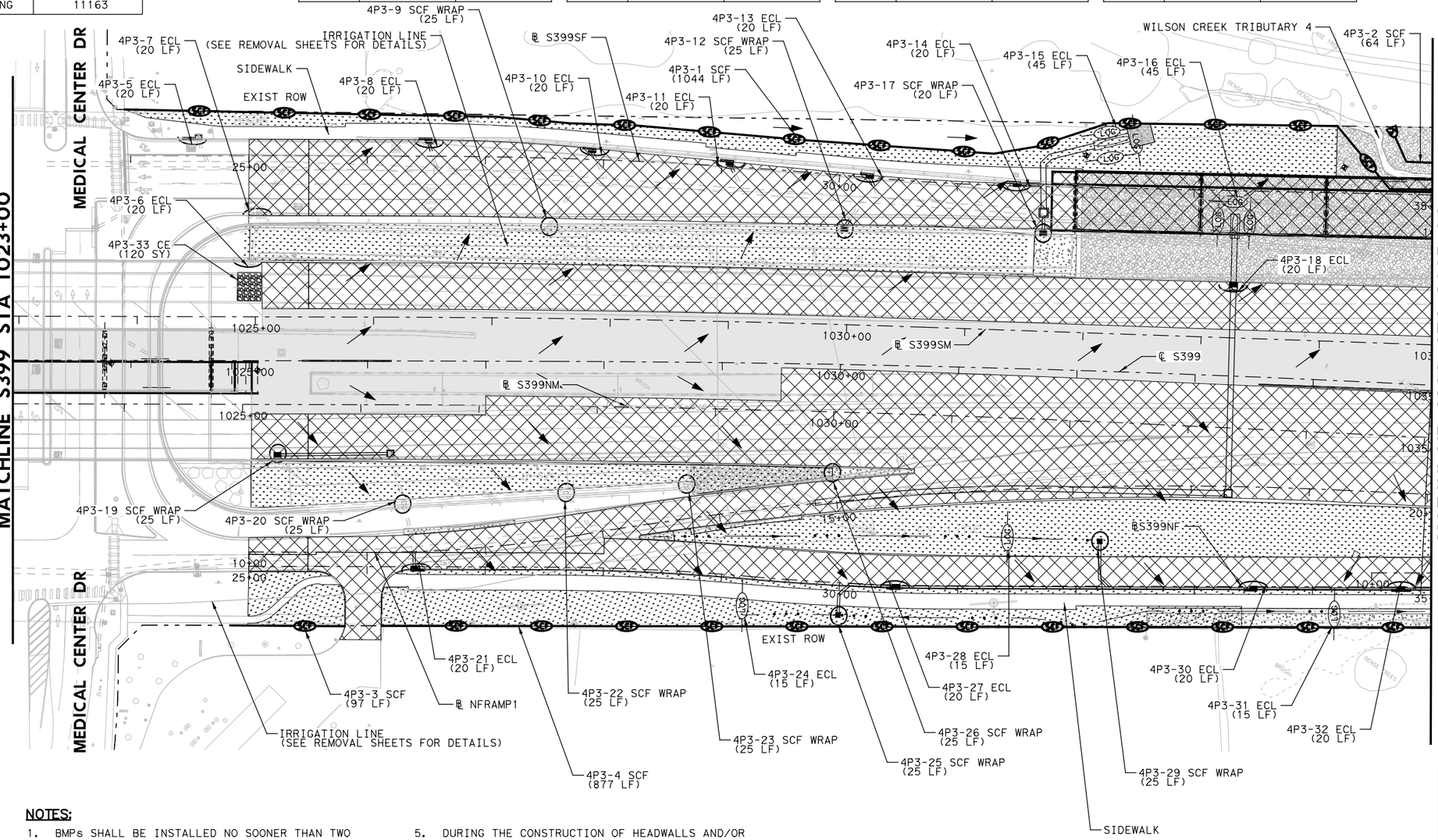
ITEM	QUANTITY (SY)
SODDING	11163

BMP ID	INSTALL DATE	REMOVAL DATE
4P3-1		
4P3-2		
4P3-3		
4P3-4		
4P3-5		
4P3-6		
4P3-7		
4P3-8		
4P3-9		

BMP ID	INSTALL DATE	REMOVAL DATE
4P3-10		
4P3-11		
4P3-12		
4P3-13		
4P3-14		
4P3-15		
4P3-16		
4P3-17		
4P3-18		

BMP ID	INSTALL DATE	REMOVAL DATE
4P3-19		
4P3-20		
4P3-21		
4P3-22		
4P3-23		
4P3-24		
4P3-25		
4P3-26		
4P3-27		

BMP ID	INSTALL DATE	REMOVAL DATE
4P3-28		
4P3-29		
4P3-30		
4P3-31		
4P3-32		
4P3-33		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS (TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG (18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SPUR 399
STA 1023+00 TO STA 1035+00

SCALE: 1"=100' SHEET 4 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1368
IEI	0047	05	057, ETC.	
CHECK				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEQ1.tbl
USER: ramin DATE: 10/1/2024 TIME: 10:08:39 AM SCALE: 1:100
FILE: SPUR 399 STA 1023+00 TO STA 1035+00

100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

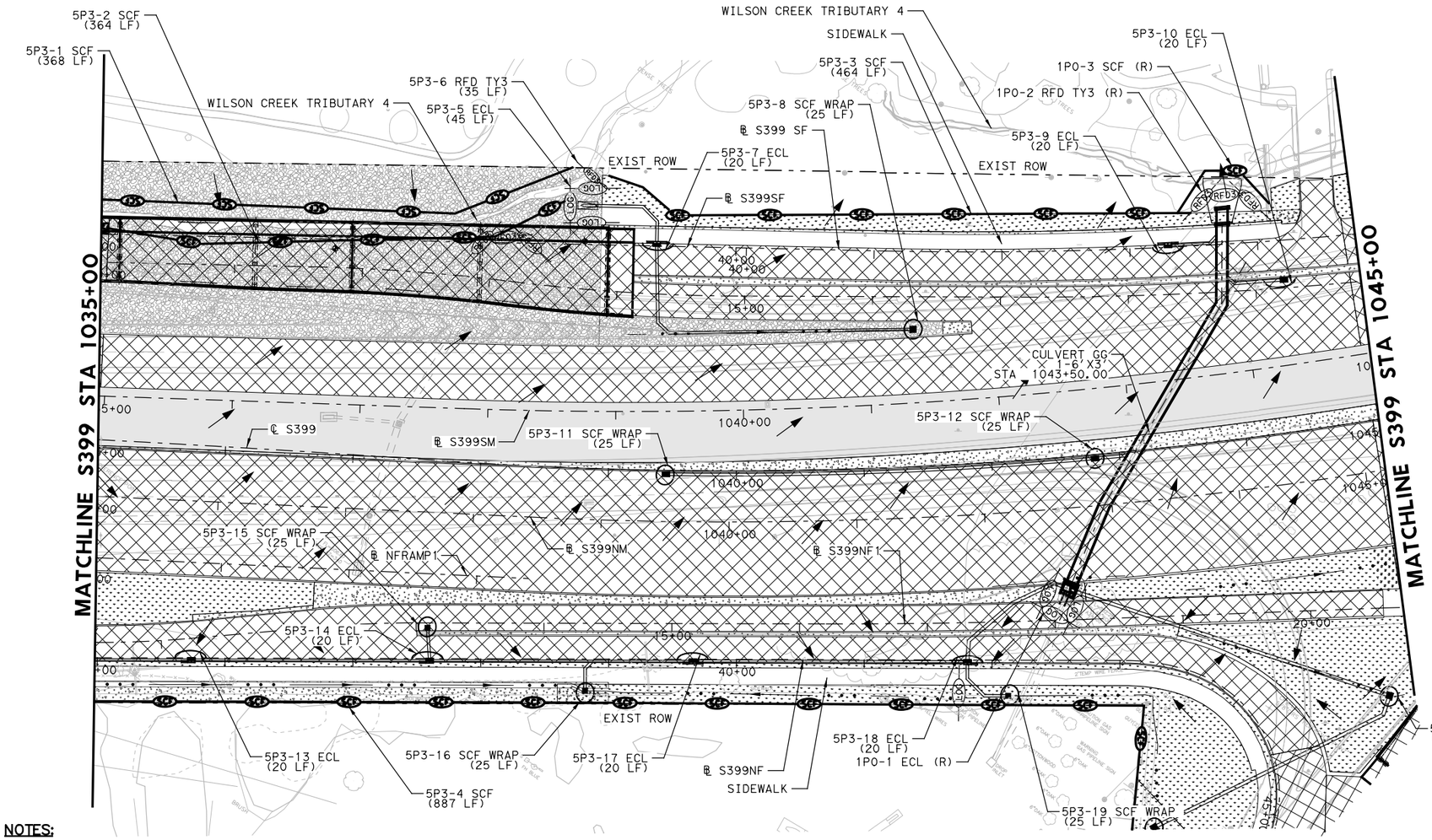
TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

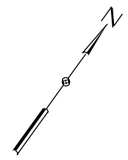
ITEM	QUANTITY (SY)
SODDING	4206

BMP ID	INSTALL DATE	REMOVAL DATE
5P3-1		
5P3-2		
5P3-3		
5P3-4		
5P3-5		
5P3-6		
5P3-7		
5P3-8		
5P3-9		

BMP ID	INSTALL DATE	REMOVAL DATE
5P3-10		
5P3-11		
5P3-12		
5P3-13		
5P3-14		
5P3-15		
5P3-16		
5P3-17		
5P3-18		

BMP ID	INSTALL DATE	REMOVAL DATE
5P3-19		
5P3-20		





0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFDX — ROCK FILTER DAMS(TY 2 & 3)
- LOG — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
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- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
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- (R) BMP FROM PREVIOUS PHASE

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2. SW3P MEASURES SHALL BE PLACED AT THE BEGINNING OF THE PHASE SHOWN, AND SHALL REMAIN UNTIL THEIR CONTROL AREA HAS BEEN RE-STABILIZED, OR AS OTHERWISE DIRECTED BY ENGINEER.
3. CONSTRUCTION EXIT LOCATIONS SHOWN IN SHEETS ARE APPROXIMATE. THEY MAY BE RELOCATED WITH THE APPROVAL OF THE ENGINEER.
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6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SPUR 399
STA 1035+00 TO STA 1045+00

SCALE: 1"=100' SHEET 5 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1369
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEG1.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:08:58 AM SCALE: 1:100
FILE: SPUR 399 STA 1035+00 TO STA 1045+00

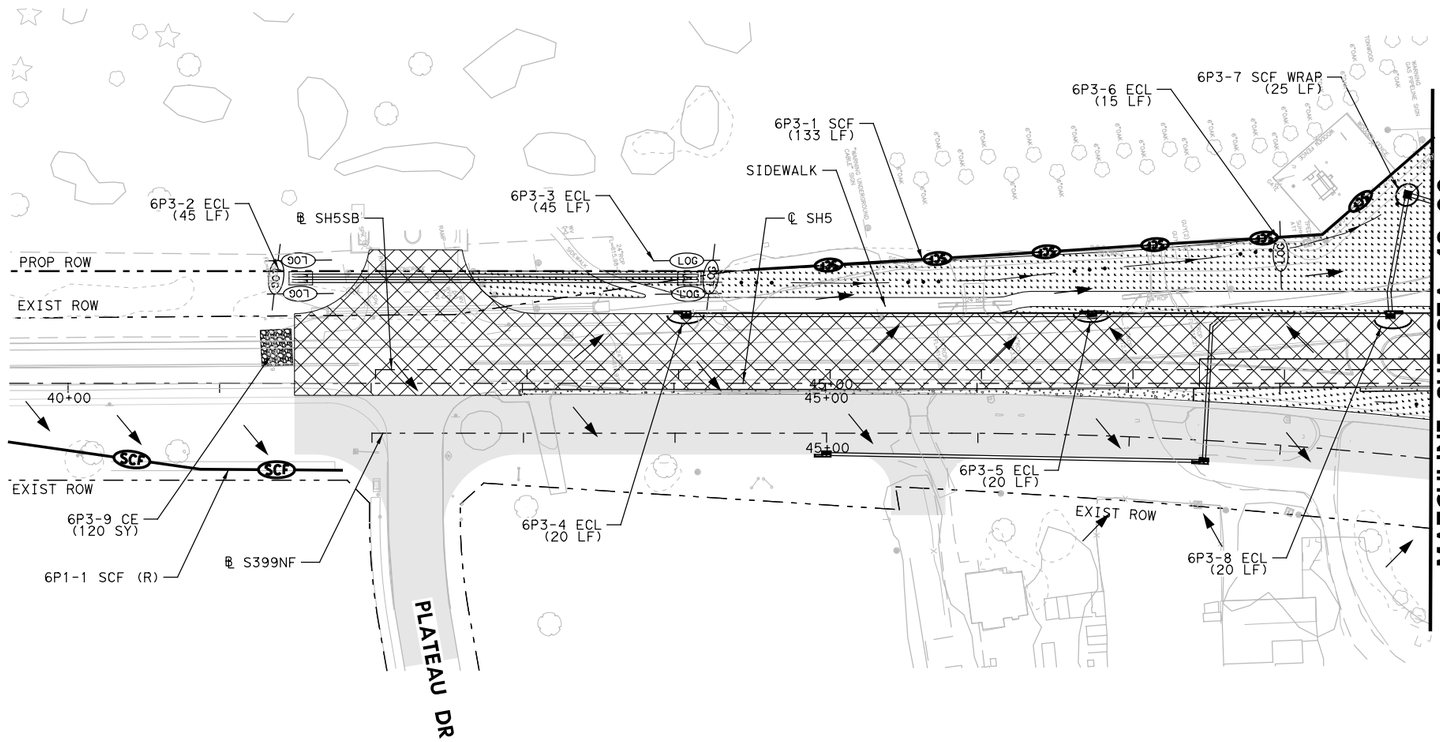
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	2313

BMP ID	INSTALL DATE	REMOVAL DATE
6P3-1		
6P3-2		
6P3-3		
6P3-4		
6P3-5		
6P3-6		
6P3-7		
6P3-8		
6P3-9		



0 50 100 150 200

SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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STATE OF TEXAS
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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SH5
STA 39+61 TO STA 49+00

SCALE: 1"=100' SHEET 6 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1370
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SE01.tbl
USER: ramln TIME: 10:09:20 AM SCALE: 1:100
DATE: 10/1/2024
FILE: SH5 STA 3961 TO STA 4900

100% PLANS SUBMITTAL

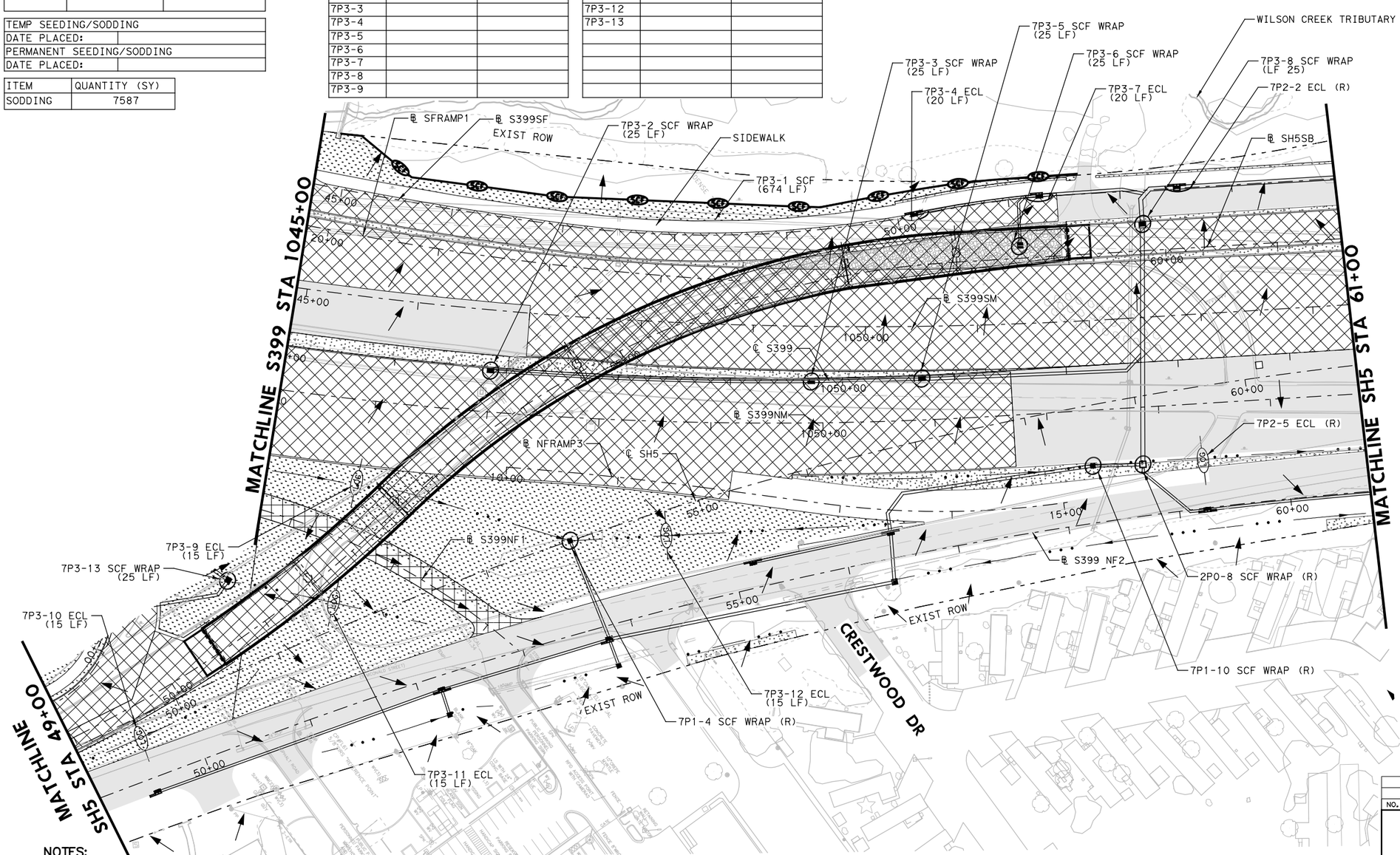
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	7587

BMP ID	INSTALL DATE	REMOVAL DATE
7P3-1		
7P3-2		
7P3-3		
7P3-4		
7P3-5		
7P3-6		
7P3-7		
7P3-8		
7P3-9		

BMP ID	INSTALL DATE	REMOVAL DATE
7P3-10		
7P3-11		
7P3-12		
7P3-13		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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STATE OF TEXAS
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Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SH5
STA 49+00 TO STA 61+00

SCALE: 1"=100' SHEET 7 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1371
IEI	0047	05	057, ETC.	
CHECK				
IEI				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08II5-SP399-SEQI.tbl
USER: ramln DATE: 10/1/2024 TIME: 10:09:40 AM SCALE: 1:100
FILE: SH5 STA 49+00 TO STA 61+00

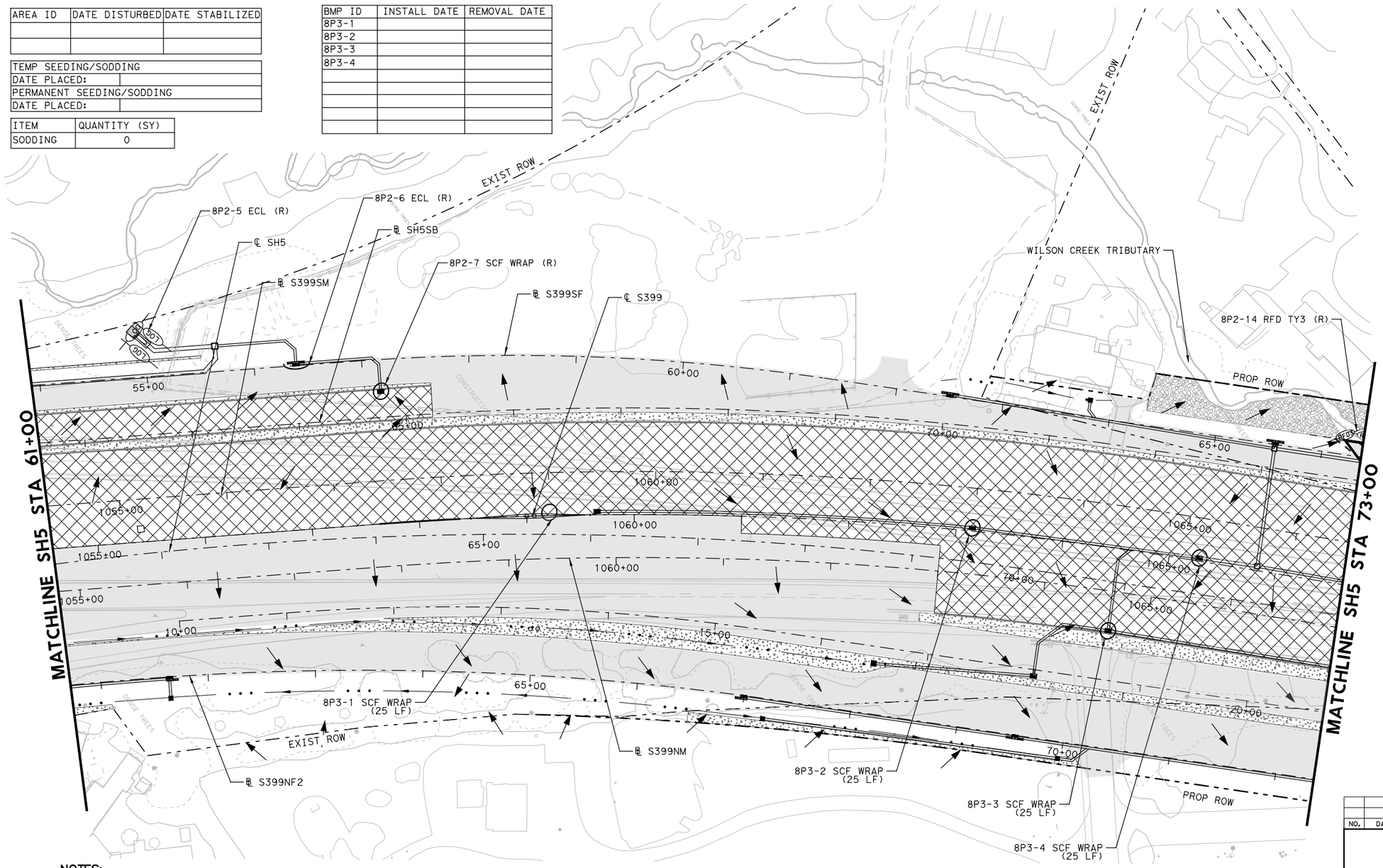
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	0

BMP ID	INSTALL DATE	REMOVAL DATE
8P3-1		
8P3-2		
8P3-3		
8P3-4		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS(TY 2 & 3)
- ECL — EROSION CONTROL LOG(18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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STATE OF TEXAS
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Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SH5
STA 61+00 TO STA 73+00

SCALE: 1"=100' SHEET 8 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1372
CHECK IEI	CONTROL 0047	SECTION 05	JOB 057, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: ramln
FILE: SH5 STA 61+00 TO STA 73+00
PENTABLE: I08II5-SP399-SEGI.tbl
DATE: 10/1/2024
TIME: 10:06:03 AM
SCALE: 1:100

100% PLANS SUBMITTAL

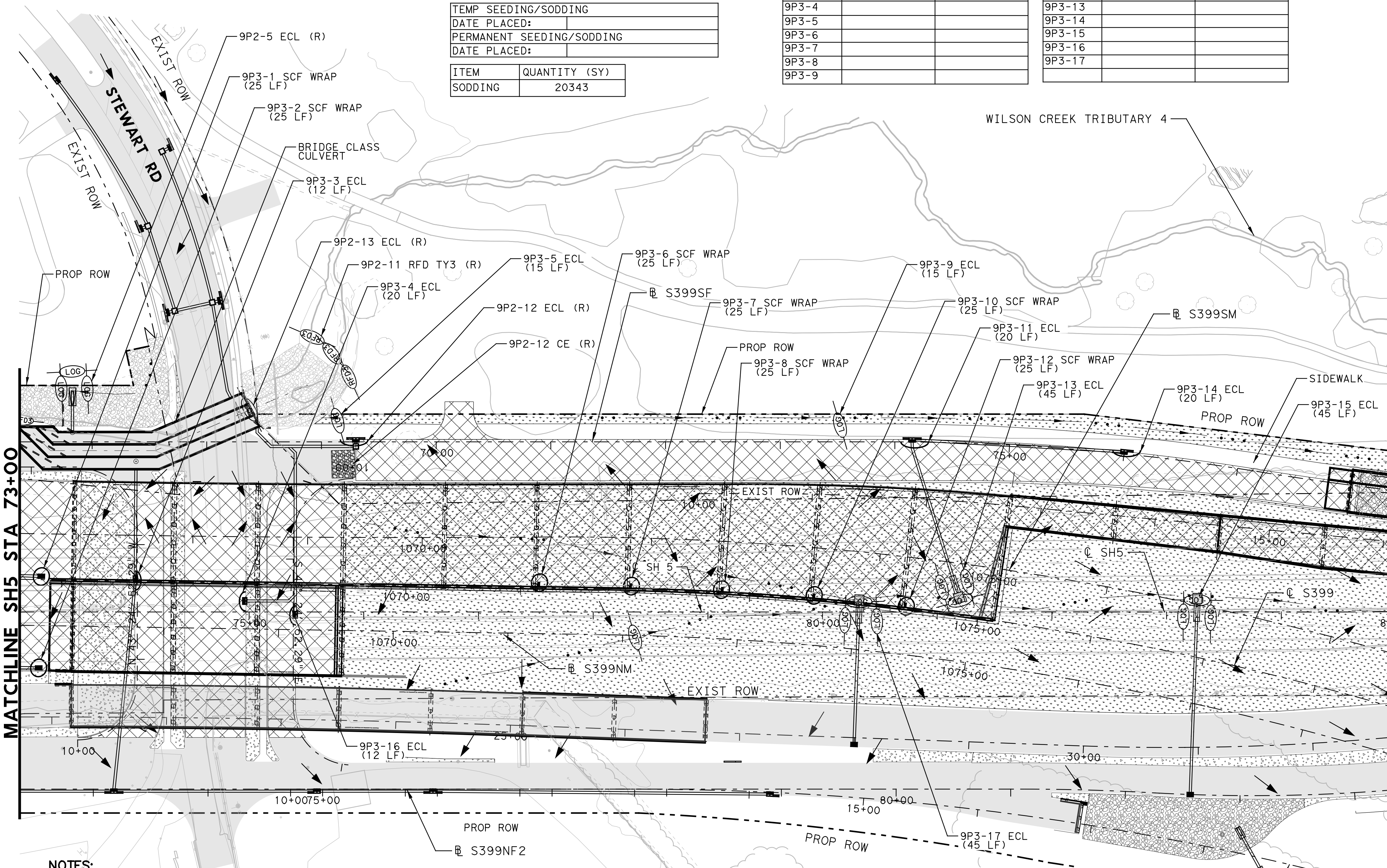
AREA ID	DATE DISTURBED	DATE STABILIZED

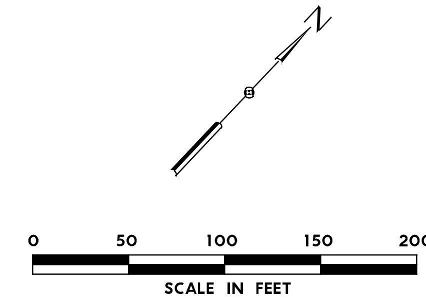
TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	20343

BMP ID	INSTALL DATE	REMOVAL DATE
9P3-1		
9P3-2		
9P3-3		
9P3-4		
9P3-5		
9P3-6		
9P3-7		
9P3-8		
9P3-9		

BMP ID	INSTALL DATE	REMOVAL DATE
9P3-10		
9P3-11		
9P3-12		
9P3-13		
9P3-14		
9P3-15		
9P3-16		
9P3-17		





LEGEND:

SCF	SCF	SILT FENCE (INSTALL)
RFDX	RFD	ROCK FILTER DAMS (TY 2 & 3)
LOG	ECL	EROSION CONTROL LOG (18" DIA)
	ECL	EROSION CONTROL LOG (INLET PROTECION)
	SCF	SILT FENCE WRAP
	CE	CONSTRUCTION EXITS (TY 1)
		DIRECTION OF DRAINAGE FLOW
		DIRECTION OF DITCH FLOW
		RIPRAP (CHANNEL BANK)
		RIPRAP (ROADWAY)
		CONSTRUCTION DURING CURRENT PHASE
		CONSTRUCTED IN PREVIOUS PHASE
		TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
		SEEDING/SODDING DURING CURRENT PHASE
		EXISTING DIRECTION OF TRAFFIC
		PROPOSED DIRECTION OF TRAFFIC
(R)		BMP FROM PREVIOUS PHASE

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

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PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: 1018115-SP399-SEGI.tbl
USER: ramin DATE: 10/1/2024 TIME: 10:10:27 AM SCALE: 1:100.013
FILE: SH5 STA 73+00 TO STA 85+00

NO.	DATE	REVISION	APPROVED

infraTECH Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5 SW3P SITE MAP - PHASE 3 SH5 STA 73+00 TO STA 85+00

SCALE: 1"=100' SHEET 9 OF 13

DESIGN	FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1373
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	
CHECK				
IEI				

100% PLANS SUBMITTAL

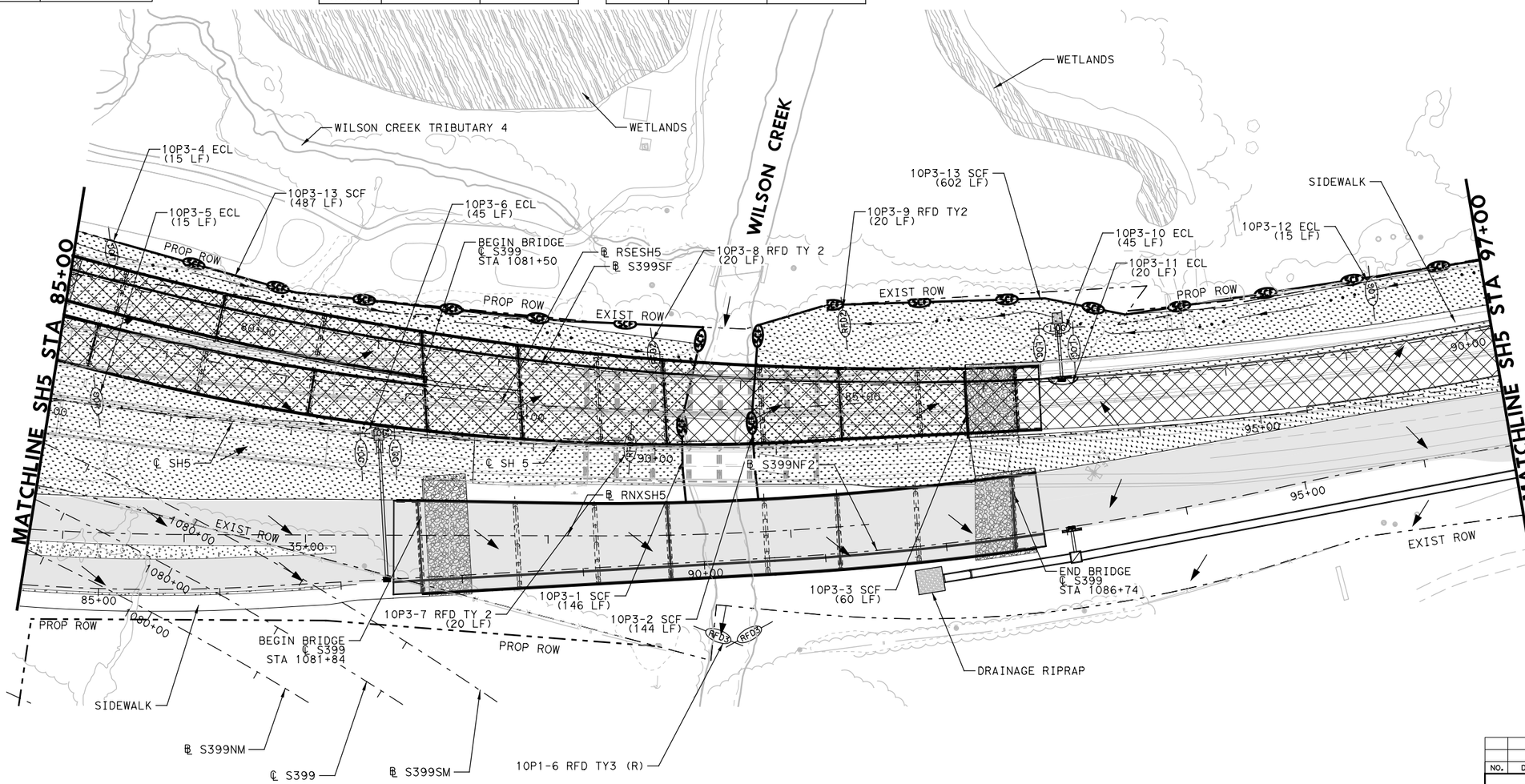
AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	15140

BMP ID	INSTALL DATE	REMOVAL DATE
10P3-1		
10P3-2		
10P3-3		
10P3-4		
10P3-5		
10P3-6		
10P3-7		
10P3-8		
10P3-9		
10P3-10		

BMP ID	INSTALL DATE	REMOVAL DATE
10P3-11		
10P3-12		
10P3-13		
10P3-14		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (TY 2 & 3)
- ECL — EROSION CONTROL LOG (18" DIA)
- ECL — EROSION CONTROL LOG (INLET PROTECION)
- SCF — SILT FENCE WRAP
- CE — CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

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Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SH5
STA 85+00 TO STA 97+00

SCALE: 1"=100' SHEET 10 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	
CHECK	CONTROL	SECTION	JOB	1374
IEI	0047	05	057, ETC.	
CHECK				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: ramln
FILE: SH5 STA 85+00 TO STA 97+00
PENTABLE: I08I5-SP399-SEGI.tbl
DATE: 10/1/2024
TIME: 10:10:52 AM
SCALE: 1:100

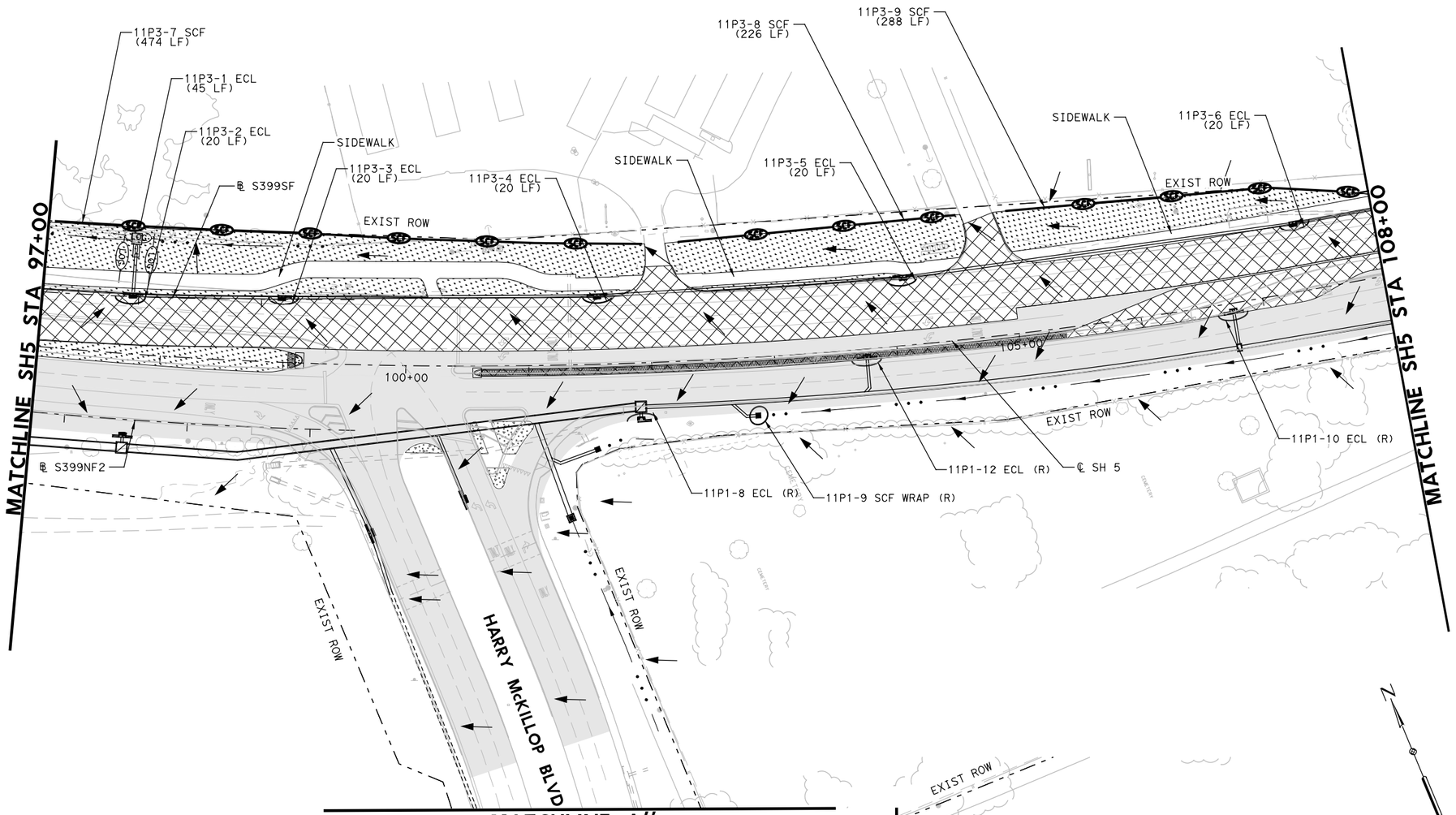
100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	3928

BMP ID	INSTALL DATE	REMOVAL DATE
11P3-1		
11P3-2		
11P3-3		
11P3-4		
11P3-5		
11P3-6		
11P3-7		
11P3-8		
11P3-9		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

1. BMPs SHALL BE INSTALLED NO SOONER THAN TWO WEEKS PRIOR TO SOIL DISTURBANCE OR OTHER POTENTIAL POLLUTANT GENERATING ACTIVITIES IN THEIR CONTROL AREA.
2. SW3P MEASURES SHALL BE PLACED AT THE BEGINNING OF THE PHASE SHOWN, AND SHALL REMAIN UNTIL THEIR CONTROL AREA HAS BEEN RE-STABILIZED, OR AS OTHERWISE DIRECTED BY ENGINEER.
3. CONSTRUCTION EXIT LOCATIONS SHOWN IN SHEETS ARE APPROXIMATE. THEY MAY BE RELOCATED WITH THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL PRESERVE TREES AND MINIMIZE DISTURBANCE OF CREEK BEDS AND CREEK SIDE VEGETATION, TO THE EXTENT FEASIBLE.
5. DURING THE CONSTRUCTION OF HEADWALLS AND/OR WINGWALLS OF CULVERTS, BRIDGES AND WALLS, THE CONTRACTOR WILL ENSURE THAT SEDIMENT AND LOOSE MATERIALS ARE HANDLED AND MANAGED APPROPRIATELY TO AVOID CONTAMINATION OF THE WATER BELOW.
6. THE CONTRACTOR SHALL MAINTAIN PAVED SURFACES TO ENSURE THEY ARE FREE OF SEDIMENT AND DEBRIS.
7. REFER TO TRAFFIC CONTROL PLANS FOR CONSTRUCTION AND TRAFFIC PHASING NOT SHOWN ON SW3P SHEETS.
8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

KHANDAKER N. ASHFAQUE
147636
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SH5
STA 97+00 TO STA 108+00

SCALE: 1"=100' SHEET 11 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1375
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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DATE: 10/1/2024 SCALE: 1:100
FILE: SH5 STA 97+00 TO STA 108+00

100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	3344

BMP ID	INSTALL DATE	REMOVAL DATE
12P3-1		
12P3-2		
12P3-3		
12P3-4		
12P3-5		
12P3-6		
12P3-7		
12P3-8		

BMP ID	INSTALL DATE	REMOVAL DATE
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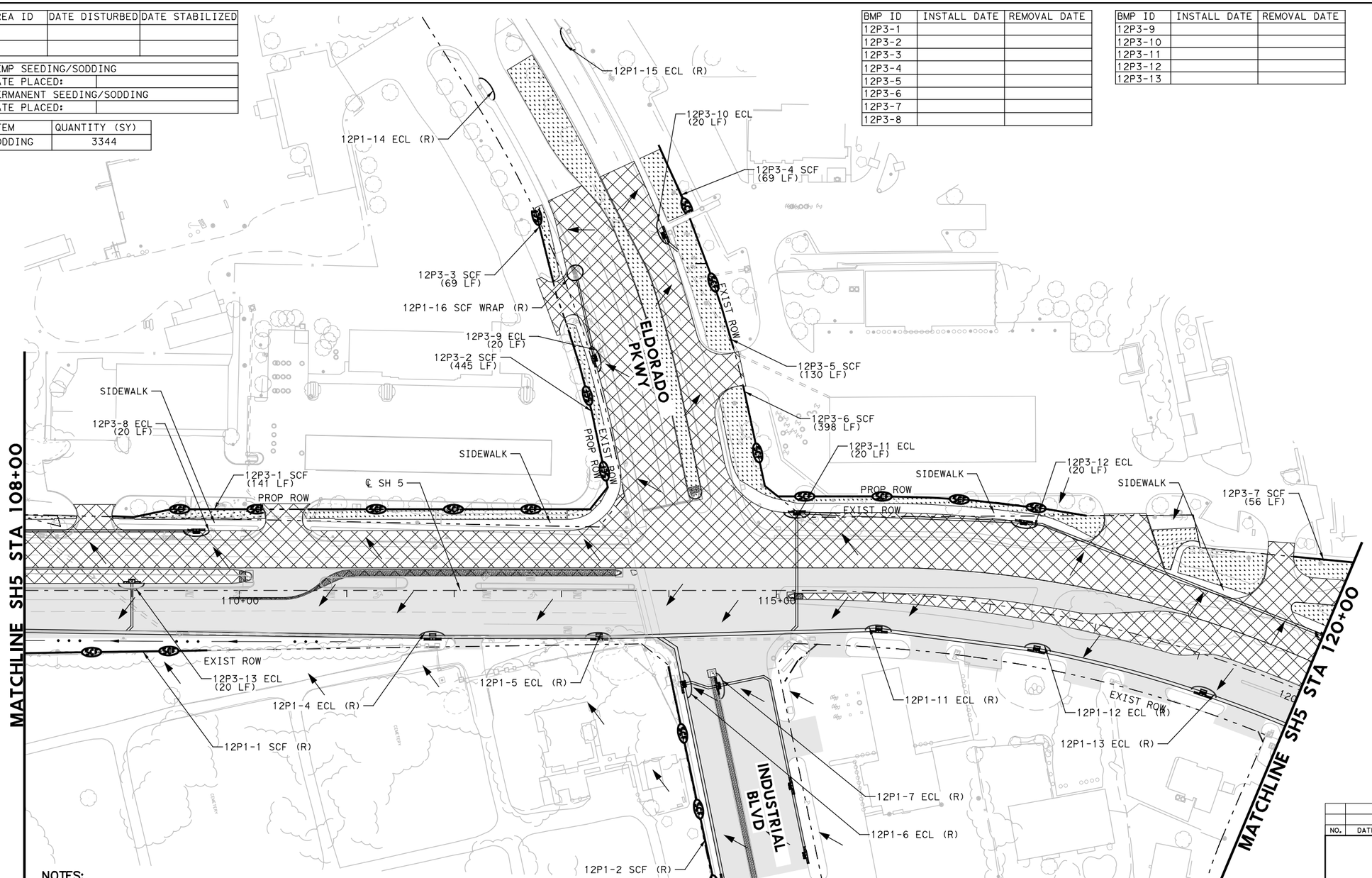
12P3-10		
12P3-11		
12P3-12		
12P3-13		



0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED DIRECTION OF TRAFFIC
- (R) BMP FROM PREVIOUS PHASE

NOTES:

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8. ALL FINAL STABILIZATION LIMITS ARE UP TO ROW UNLESS OTHERWISE NOTED.
9. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.

STATE OF TEXAS
KHANDAKER N. ASHFAQUE
147636
LICENSED
PROFESSIONAL ENGINEER
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SH5
STA 108+00 TO STA 120+00

SCALE: 1"=100' SHEET 12 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS IEI	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK IEI	TEXAS	DAL	COLLIN	1376
CHECK IEI	CONTROL	SECTION	JOB	
	0047	05	057, ETC.	

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FILE: SH5 STA 108+00 TO STA 120+00 DATE: 10/1/2024

100% PLANS SUBMITTAL

AREA ID	DATE DISTURBED	DATE STABILIZED

TEMP SEEDING/SODDING	
DATE PLACED:	
PERMANENT SEEDING/SODDING	
DATE PLACED:	

ITEM	QUANTITY (SY)
SODDING	2822

BMP ID	INSTALL DATE	REMOVAL DATE
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13P3-2		
13P3-3		
13P3-4		
13P3-5		
13P3-6		
13P3-7		
13P3-8		
13P3-9		

BMP ID	INSTALL DATE	REMOVAL DATE
13P3-10		
13P3-11		
13P3-12		
13P3-13		
13P3-14		
13P3-15		
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13P3-17		
13P3-18		

BMP ID	INSTALL DATE	REMOVAL DATE
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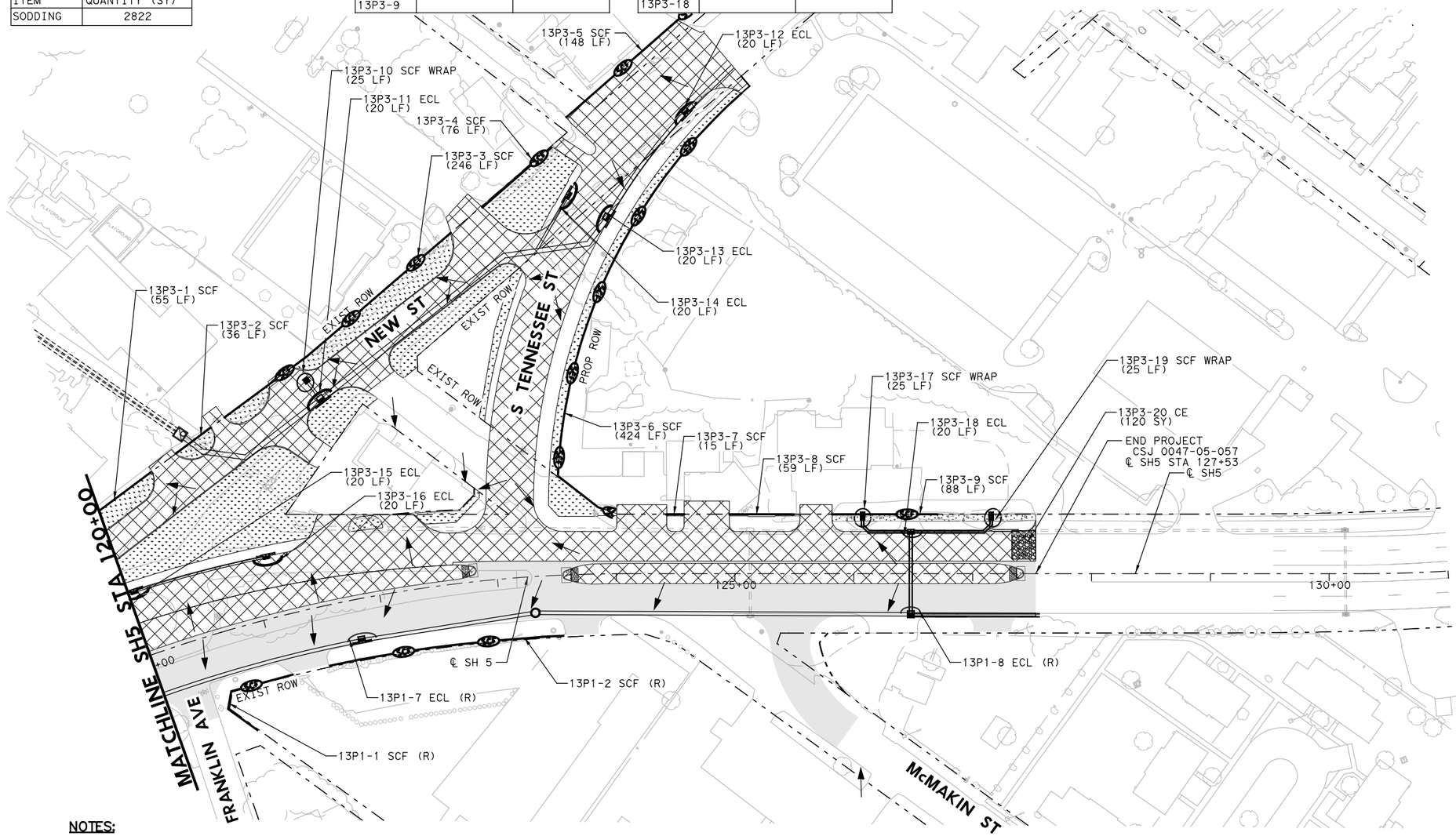

0 50 100 150 200
SCALE IN FEET

LEGEND:

- SCF — SCF SILT FENCE (INSTALL)
- RFDX — RFD ROCK FILTER DAMS(TY 2 & 3)
- LOG — ECL EROSION CONTROL LOG(18" DIA)
- ECL EROSION CONTROL LOG (INLET PROTECION)
- SCF SILT FENCE WRAP
- CE CONSTRUCTION EXITS (TY 1)
- DIRECTION OF DRAINAGE FLOW
- DIRECTION OF DITCH FLOW
- RIPRAP (CHANNEL BANK)
- RIPRAP (ROADWAY)
- CONSTRUCTION DURING CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT CONSTRUCTION DURING CURRENT PHASE
- SEEDING/SODDING DURING CURRENT PHASE
- EXISTING DIRECTION OF TRAFFIC
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KHANDAKER N. ASHFAQUE
147636
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/01/2024

NO.	DATE	REVISION	APPROVED

infraTECH
Engineers & Innovators, LLC
TBPE REGISTRATION NO. F-18368

Texas Department of Transportation

SH5
SW3P SITE MAP - PHASE 3
SH5
STA 120+00 TO END

SCALE: 1"=100' SHEET 13 OF 13

DESIGN	FED.RD. DIV.NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
IEI	6	SEE TITLE SHEET		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
IEI	TEXAS	DAL	COLLIN	1377
CHECK	CONTROL	SECTION	JOB	
IEI	0047	05	057, ETC.	
CHECK				

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: I08I15-SP399-SEQI.tbl
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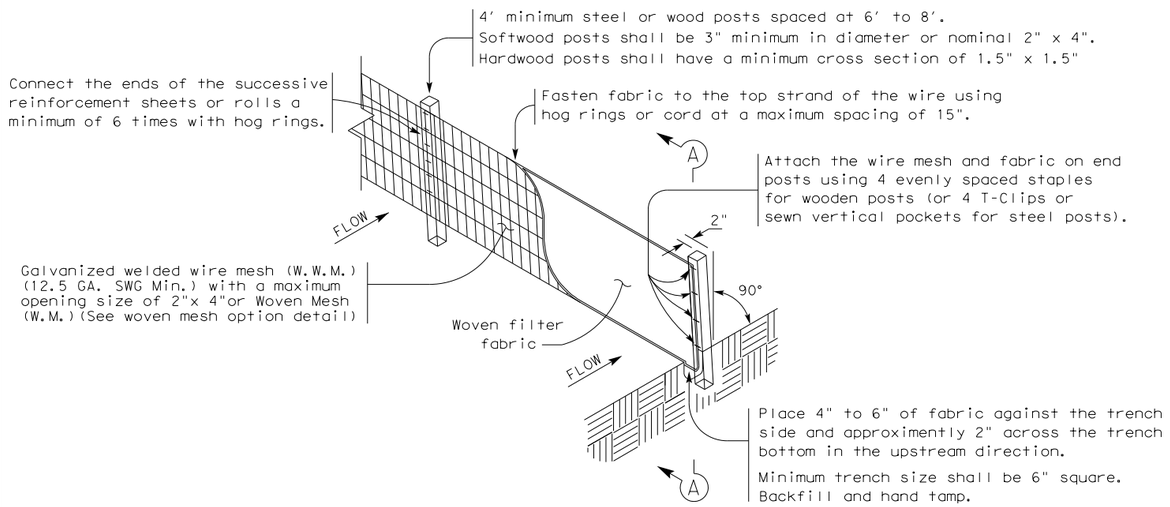
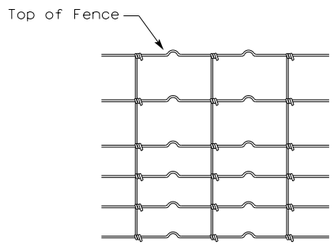
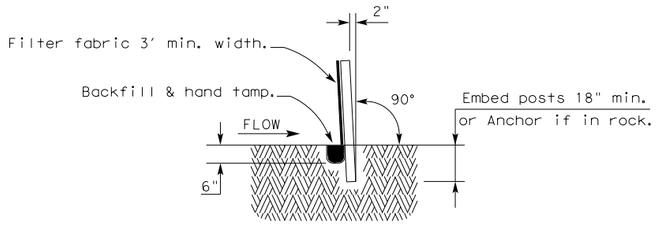
FILE: SH5 STA 120+00 TO END



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

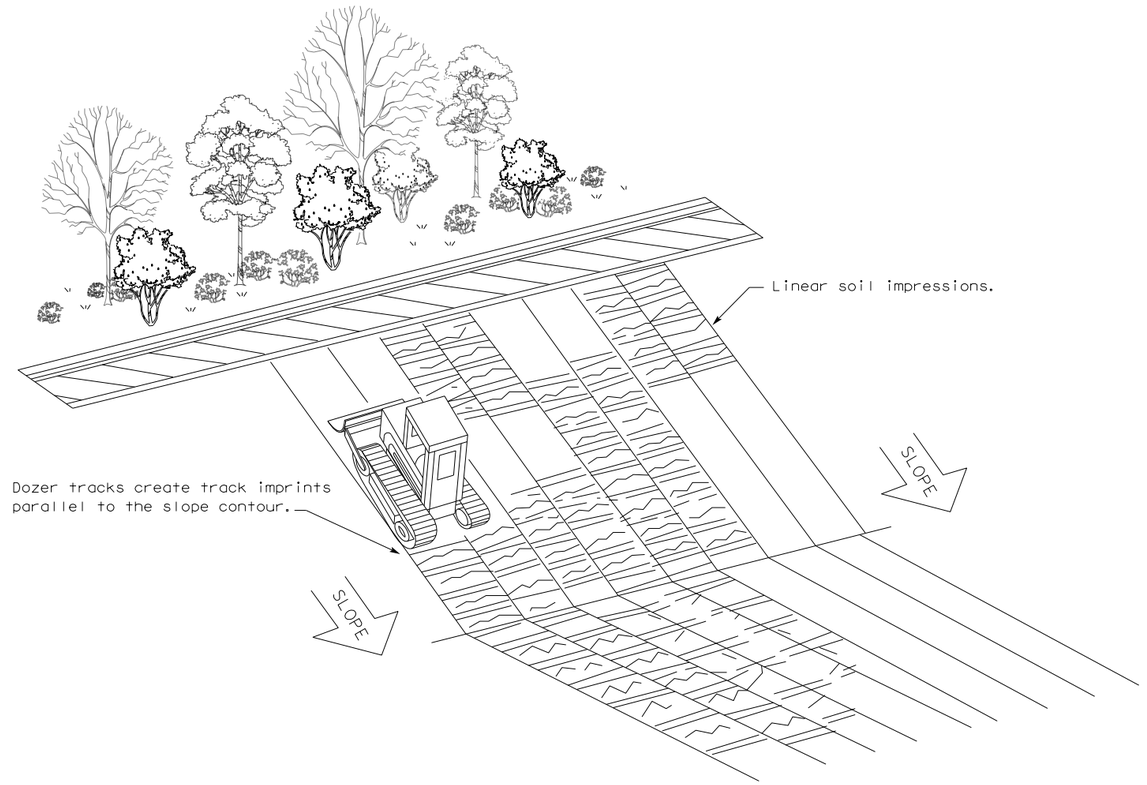
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1378

DATE:2024
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DATE: 10/1/2024
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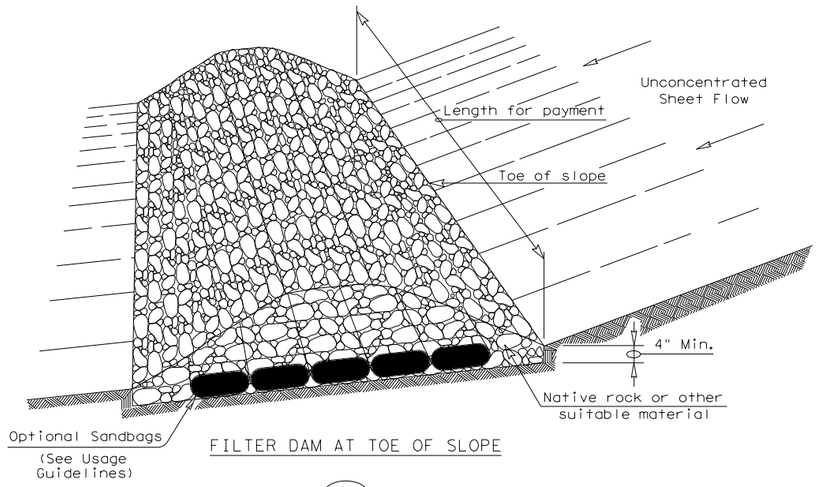
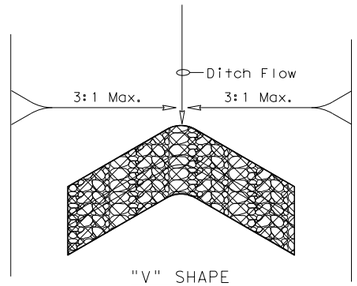


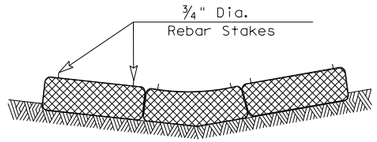
FILTER DAM AT TOE OF SLOPE

RFD1

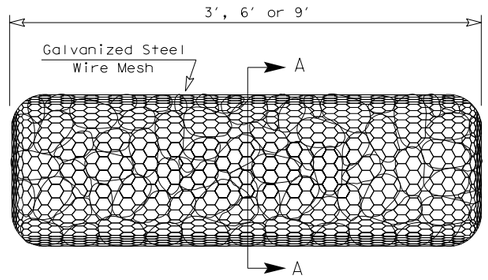


"V" SHAPE
PLAN VIEW

PLAN VIEW

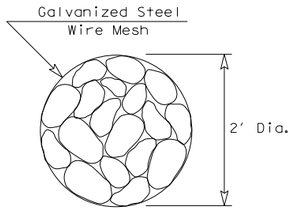


SECTION B-B

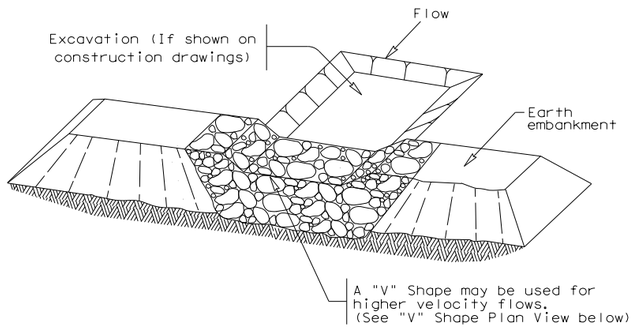


TYPE 4 (SACK GABIONS)

RFD4

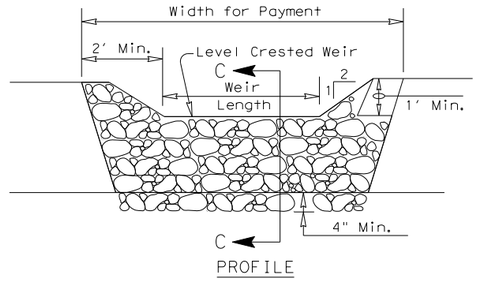


SECTION A-A



FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2



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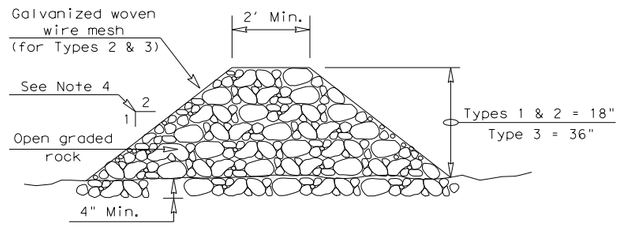
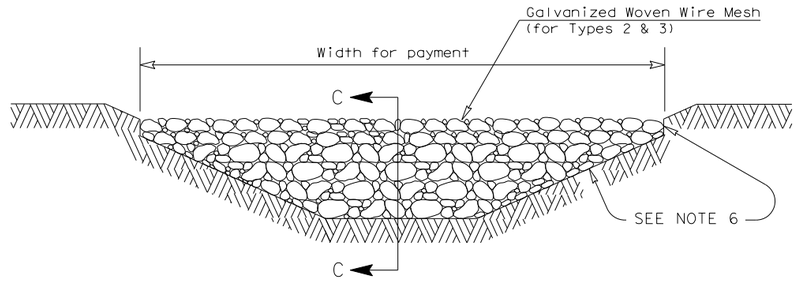


SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam	RFD1
Type 2 Rock Filter Dam	RFD2
Type 3 Rock Filter Dam	RFD3
Type 4 Rock Filter Dam	RFD4

Texas Department of Transportation — Design Division Standard

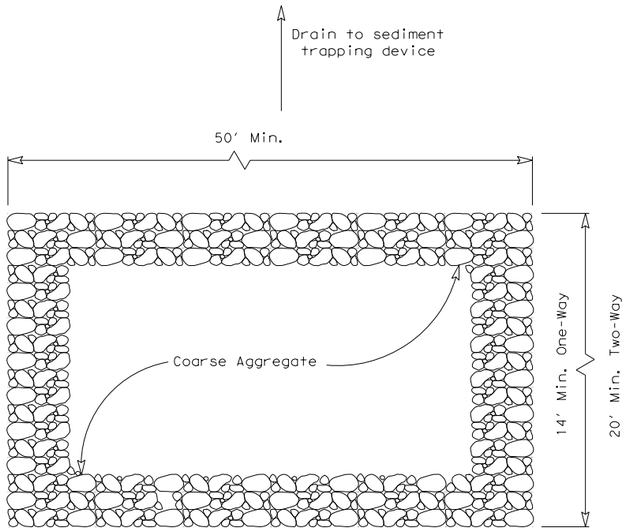
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

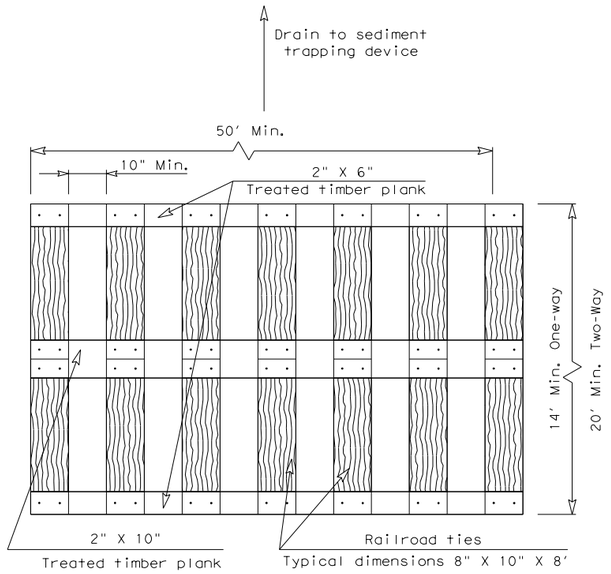
EC(2)-16

FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1379

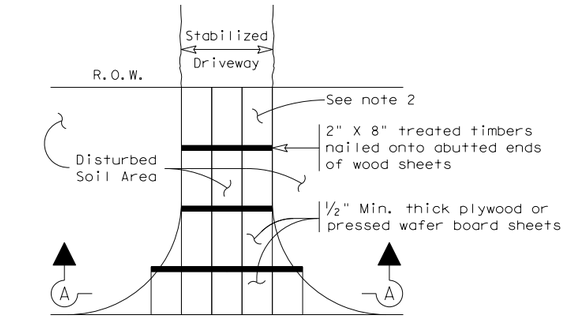
DATE: 10/1/2024
FILE: c:\pwworking\central01\d2097790\ec316.dgn



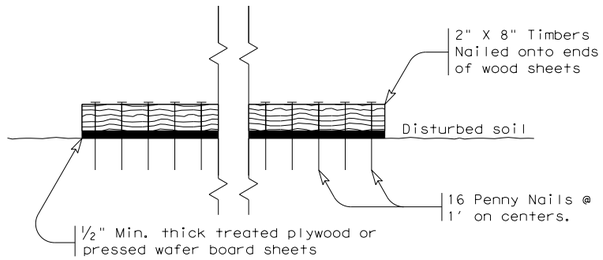
PLAN VIEW



PLAN VIEW



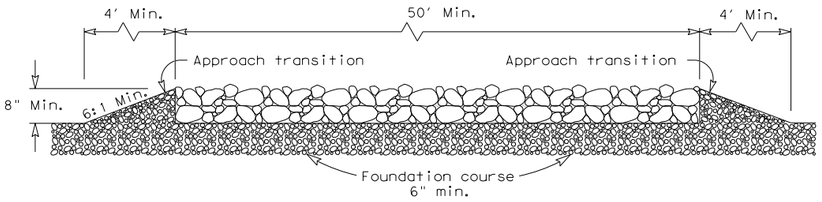
PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

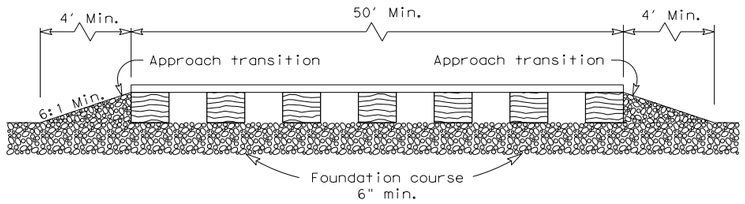
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50′.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50′.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1380

DATE: 10/1/2024
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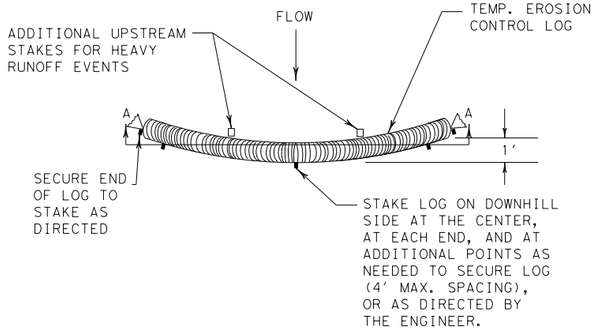
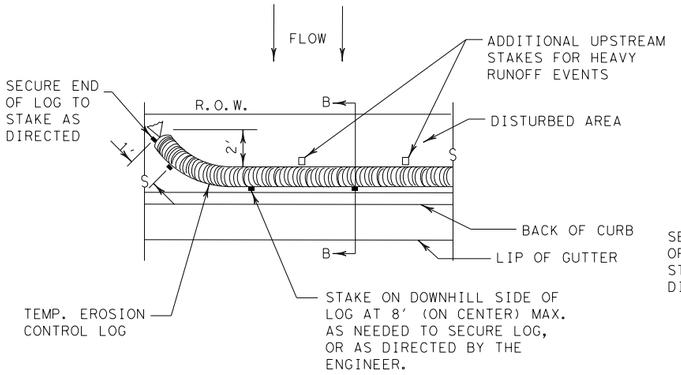
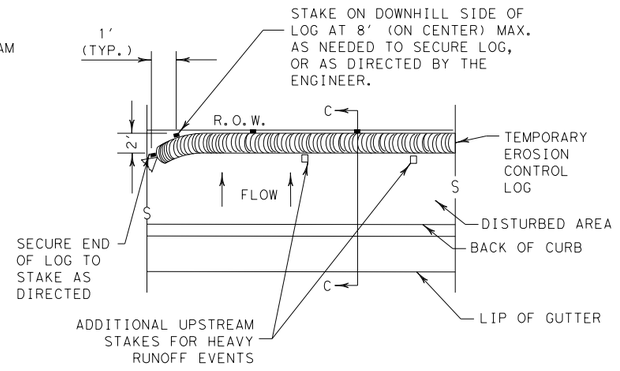


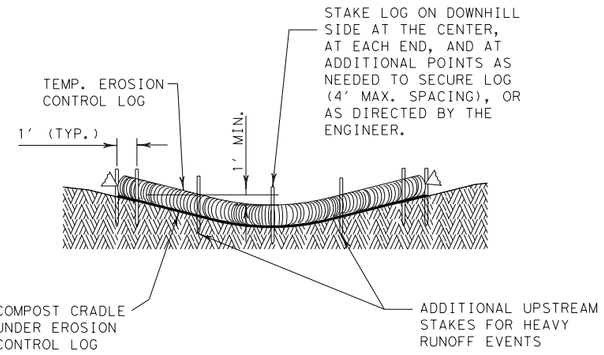
PLAN VIEW



PLAN VIEW



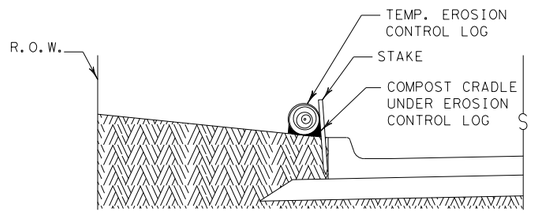
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

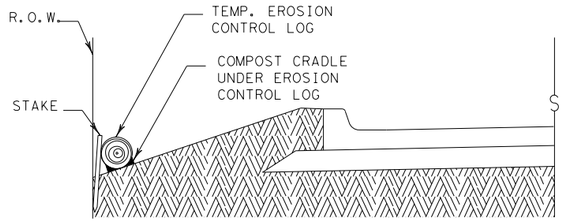
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



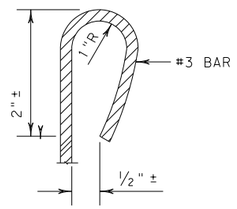
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

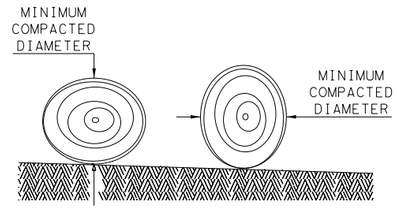
CL-ROW

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0047	05	057, ETC.	SH5, ETC.	
	DIST	COUNTY		SHEET NO.	
	DAL	COLLIN		1381	

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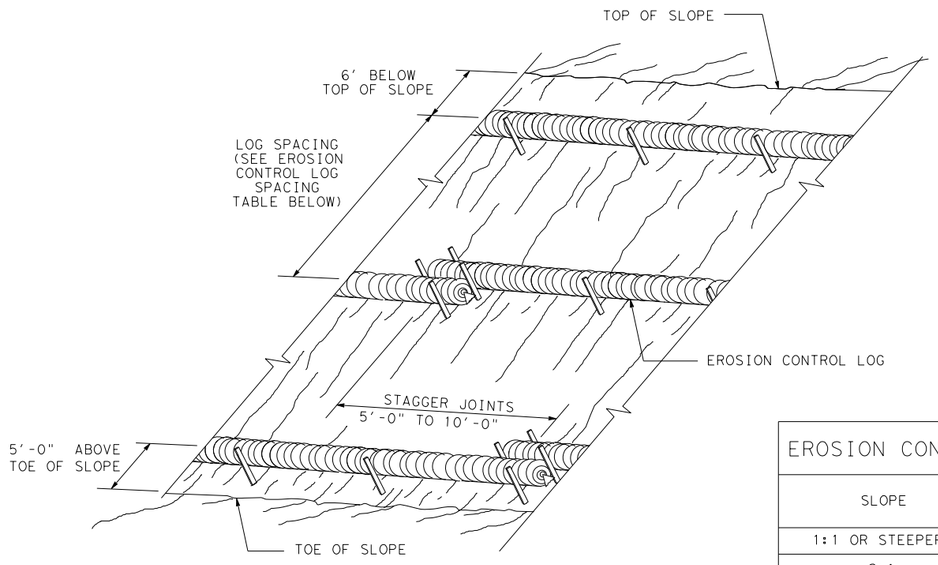
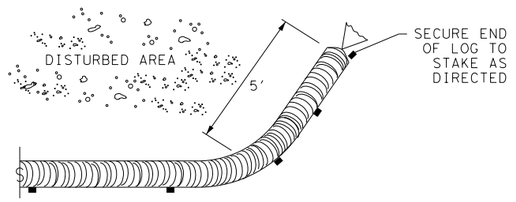


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

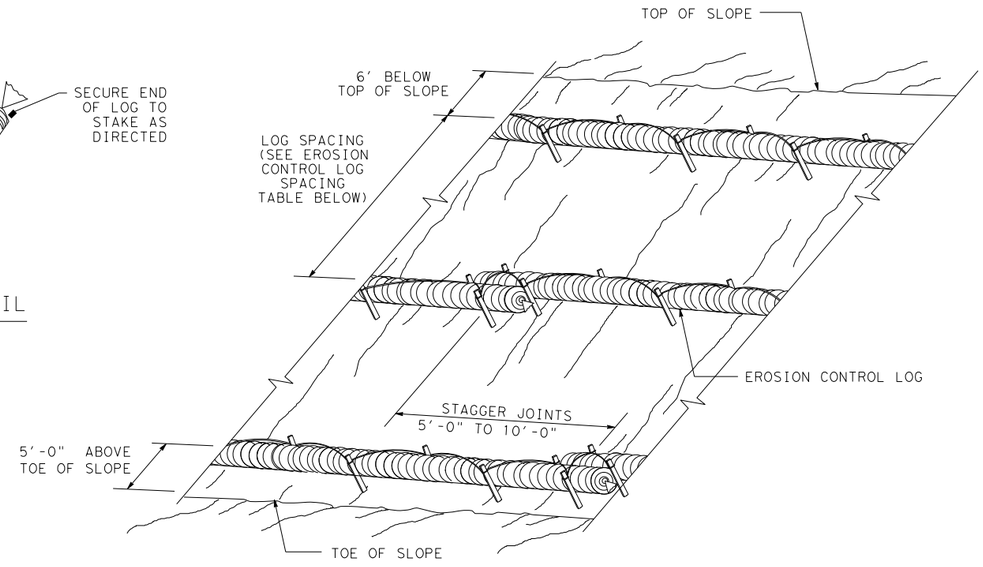
CL-SST



END SECTION RAP DETAIL

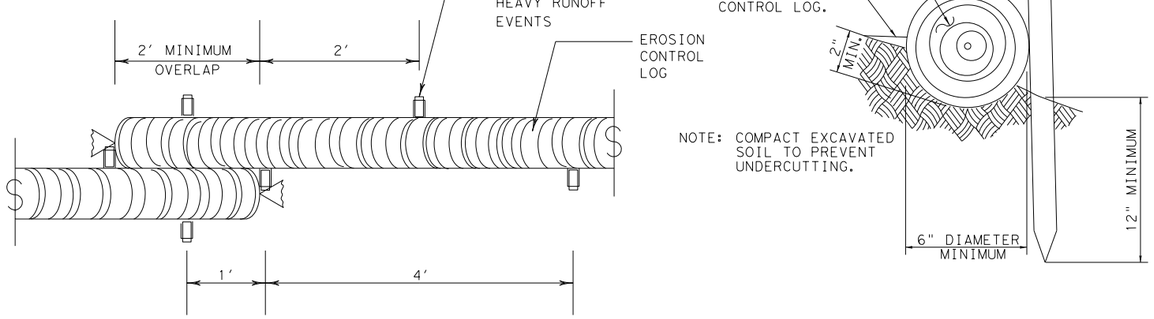
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

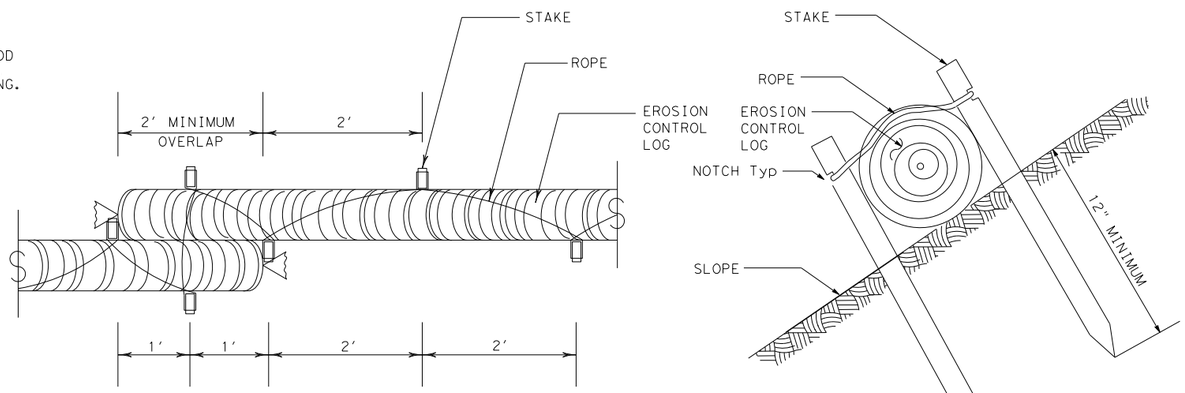
CL-SSL



STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"



STAKE AND LASHING ANCHORING DETAIL

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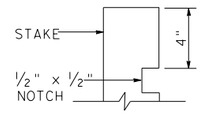

STAKE NOTCH DETAIL

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0047	05	057, ETC.	SH5, ETC.	
	DIST	COUNTY		SHEET NO.	
	DAL	COLLIN		1382	

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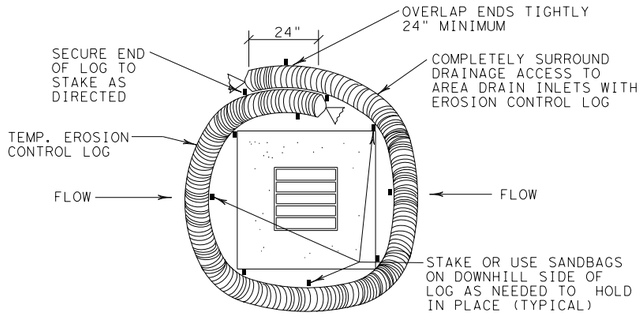
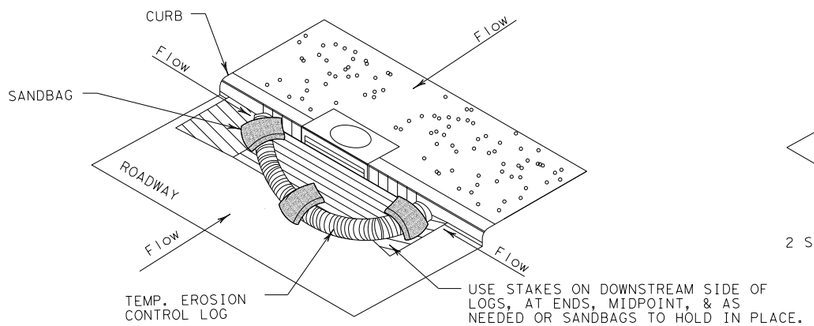


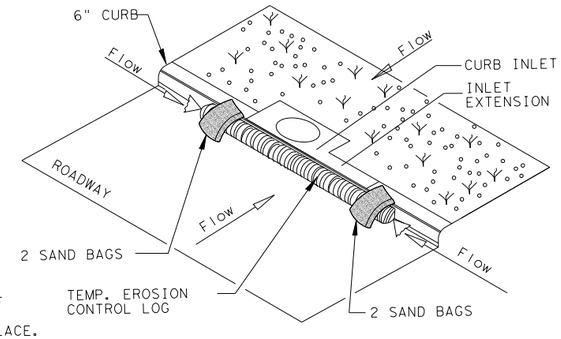
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

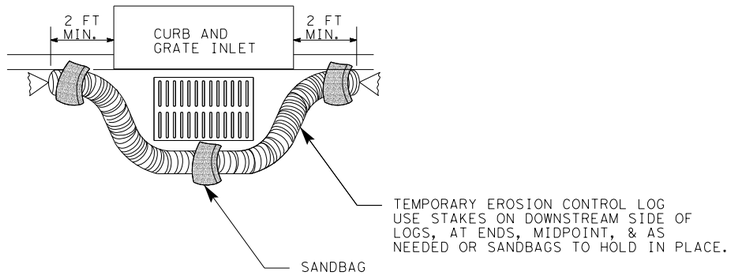
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

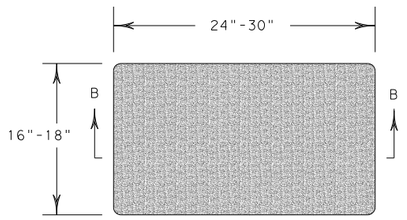
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT		CK: KM		DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY		
REVISIONS	0047	05	057, ETC.		SH5, ETC.		
	DIST	COUNTY					SHEET NO.
	DAL	COLLIN					1383

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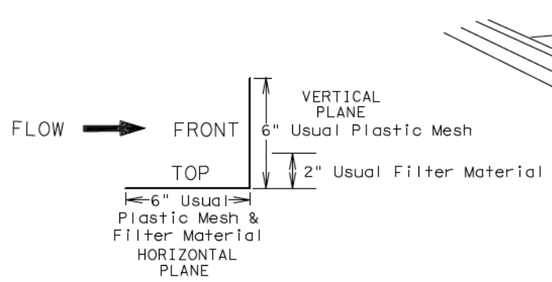
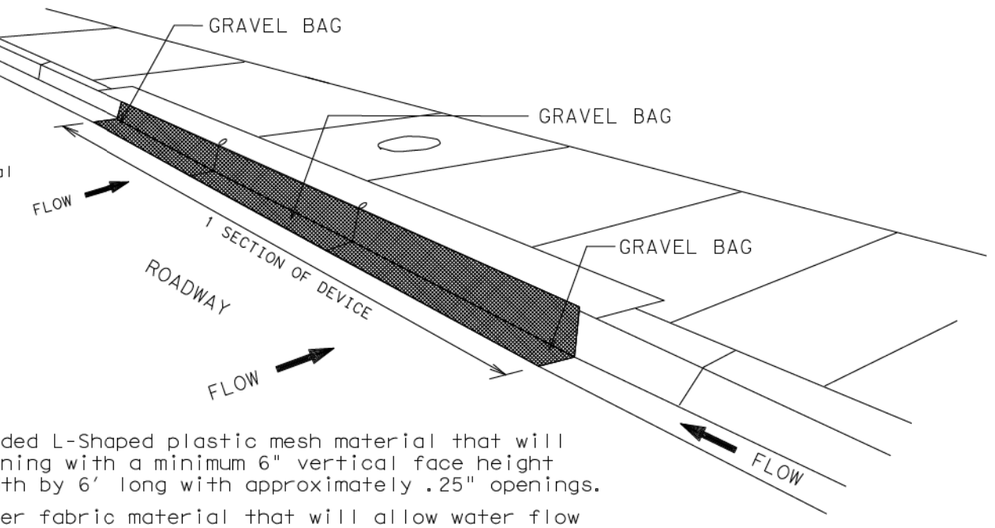


PLASTIC MESH L-SHAPE
CROSS SECTION



NOTES:

1. The device shall be a molded L-Shaped plastic mesh material that will cover the entire curb opening with a minimum 6" vertical face height by 6" horizonal plane width by 6' long with approximately .25" openings.
2. The device must have filter fabric material that will allow water flow but stop sediment. It will extend from bottom up vertical plane a minimum of 2" and full width of horizontal bottom plane. The filter fabric shall be attached to the back of the plastic mesh. It shall not cover more than 1/3 of the height of the vertical plane opening to allow overflow in larger strom events to prevent flooding of travel lanes.

Filter Fabric Physical Requirements Table

Apparent Opening Size (AOS)	400 to 600 microns
Percent Open Area (POA)	>10%
Flow Rate	130 gallons per SF per minute with clean water or greater.

3. Place with horizontal plane pointing away from curb.
4. For high openings, the device or attachment should extend above opening.
5. For long curb openings, overlap the segments 6". Tie together with 4 zip ties in 4 places, 2 at the top and 2 at the bottom.
6. Install gravel, not sand, bags at each end, at overlaps and in the middle of each section. Use 1/3 full bags for low profile and best traffic avoidance.
7. Use bags that will have long-term resistance to UV exposure.
8. Sediment should be removed and device cleaned when sediment reaches 1" in depth.

CURB INLET SEDIMENT PROTECTION (DALLAS DISTRICT)

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0047	05	057, ETC.	SH5, ETC.
2-18	DIST	COUNTY		SHEET NO.
	DAL	COLLIN		1384

USER ID

SURFACE PREPARATION ITEM 160× FURN & PLACE TOPSOIL / ITEM 161× COMPOST MANUF TOPSOIL (4") SY

SURFACE PREPARATION

Prepare planting area surface BEFORE placing Topsoil, Compost, Fertilizer, Seed and/or Sod.
Once project area has been completed to final lines, grade and compaction, remove objectionable materials from planting area surface and scarify existing surface to a depth of 4-inches, unless otherwise specified or directed.

Refer to Items 160 and 161 of TxDOT 2024 Standard Specifications× for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.

TOPSOIL NOTES:
1. When Topsoil is specified under Item 160, use suitable material salvaged from the project ROW in accordance with Item 160 specifications, and/or secure additional good material from approved sources.
2. Topsoil shall include only the top 6-inches of its native surface, and be easily cultivated, fertile, erosion-resistant and free of objectionable materials. Topsoil obtained from sites outside of the ROW must come from approved sources and have a pH between 5.5 and 8.5 su.
3. Place Topsoil on pre-scarified surface, spread to a uniform loose cover at thickness specified, and shape per plans.
4. Water and roll the finished surface with a light roller or other suitable equipment per Item 160.3: do not over-compact.

COMPOST NOTES:
1. When Compost Manufactured Topsoil (4") is specified under Item 161, use compost meeting all requirements of Item 161.2 and Table 1. Provide quality control (QC) documentation and obtain Engineer approval prior to compost delivery.
2. Contractor shall provide tickets/invoices that document material type, quantity and placement for all compost delivered.
3. Additional topsoil may be required to be imported to achieve the compost/topsoil mix ratio. Topsoil must meet Item 160 specifications.

APPLICATION OF COMPOST MANUFACTURED TOPSOIL (4")

AFTER Surface Preparation, uniformly spread a 1-inch layer of compost on-grade with 3-inches topsoil over pre-scarified planting area.
(25% compost and 75% topsoil = 1" compost and 3" topsoil.)
Then mix compost and topsoil together by cultivating the compost into the topsoil (by till or disk) to a 4-inch (4") depth.
Roll the finished surface with a light corrugated drum: do not over-compact.

FERTILIZER ITEM 166× FERTILIZER TON

SOIL ANALYSIS FOR FERTILIZER APPLICATION RATE

Unless otherwise stated in the plans, Contractor shall perform at least one soil analysis on each project before fertilization, and submit results to Engineer with recommended fertilizer rates based on soil analysis. Engineer may direct sample location(s).
Soil analysis may be waived if both compost and sod are used on entire project.

FERTILIZER NOTES:
1. Refer to Item 166 of TxDOT 2024 Standard Specifications× for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
2. Apply fertilizer BEFORE seeding, or AFTER placing sod.
3. Use fertilizer containing nitrogen (N), phosphoric acid (P) and potash (K) nutrients, unless otherwise specified. At least 50% of the Nitrogen component shall be a slow-release sulfur-coated urea as described in Item 166.3. Do not apply more than 60-pounds (lbs) Nitrogen per acre without Engineer concurrence.
4. Deliver fertilizer in bags, clearly labeled to show contents, unless otherwise specified or approved prior to delivery. When non-bagged, loose fertilizer is approved, provide documentation for each load of material delivered, to validate authenticity of the material.
5. Apply fertilizer uniformly, as a dry, granular material, essentially dust-free, and do not mix with water for application as a slurry.
6. When both temporary and permanent seeding are specified for the same area, apply half of the required fertilizer before the temporary seeding operation and the other half before the permanent seeding operation.

SODDING FOR EROSION CONTROL ITEM 162× BLOCK SODDING SY

BLOCK OR ROLL SOD	COMMON NAME	BOTANICAL NAME
	Common Bermuda Grass	Cynodon dactylon

SODDING NOTES:
1. Refer to Item 162 of TxDOT 2024 Standard Specifications× for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
2. Place sod between the average date of the last freeze in the Spring and 6 weeks before the average date of the first freeze in the Fall, per the Texas Almanac for the project area.
3. Place sod only AFTER soil surface preparation is complete as detailed in this sheet. Dry soil may require pre-watering.
4. Place all sod (blocks or rolls) within 24-hours of delivery to the site, and keep moist from the time it is dug up until it is planted. Sod with dried roots will not be accepted.
5. Place sod with joints alternating on each row to prevent all joints from lining up, and place blocks firmly against adjacent blocks. Roll, tamp and trim sod per Item 162.3.
6. Place fertilizer promptly AFTER sodding operation is complete in each area.
7. Water sod immediately following placement, and continue Vegetative Watering per Item 168.

VEGETATIVE WATERING FOR ESTABLISHING SEED AND SOD ITEM 168× VEGETATIVE WATERING TGL

WATERING SCHEDULE

SEASON (Usual Months)	RATE	TIME SCHEDULE	TOTAL WATER ESTIMATE
SPRING & FALL (March, April, May, and October)	7,000 gallons/acre per working day	Vegetative watering for seed shall begin on the day after rainfall described below and continue for 60-consecutive working days. Vegetative watering for sod shall begin on the day sod is placed and continue for a minimum of 15-consecutive working days.	420,000 gallons/acre (60 working days)
SUMMER (June through September)	12,000 gallons/acre per working day		720,000 gallons/acre (60 working days)
WINTER (November through February)	1,000 gallons/acre per working day	Vegetative watering for seed and/or sod shall begin on the day after placement and continue for 15-consecutive working days	15,000 gallons/acre (15 working days)

Notes: Watering rate and frequency may be adjusted, with the approval of the Engineer, to meet site conditions (especially with sod).
For informational purposes only: 1,000-gallons equals 1 TGL

VEGETATIVE WATERING NOTES:
1. Refer to Item 168 of TxDOT 2024 Standard Specifications× for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
2. Use clean water, free of industrial waste and other substances harmful to vegetation growth, per Item 168.2.
3. For seeding, use Vegetative Watering to keep the seed bed moist during germination; not to provide initial watering. [After drill seeding, postpone watering operations until site receives at least 1/2-inch of natural rainfall in a single day. Also delay watering operations for warm season grasses until soil temperature exceeds 70 degrees F.]
4. For sod, water immediately.
5. All water distribution equipment shall be furnished and operated to provide water at a uniform and controllable rate. Use a metering device on all watering equipment.
6. Evenly distribute water over entire area designated for seeding and/or sodding, using even spray patterns that do not disturb seed bed and/or dislodge seed from seed bed.
7. Do not water between the hours of 12:00 p.m. and 6:00 p.m. when daytime temperatures exceed 95 degrees F.
8. After initial establishment period, continue intermittent watering of newly established seed or sod at a rate of approximately 1-inch water/week, during summer months until end of contract.
9. If 1/4-inch or more of rainfall occurs on site on any given working day, no vegetative watering will be needed on that working day. (Note: 1/4-inch of rain equals 7,000 gallons of water per acre.)
10. Should the Contractor fail to apply the specified amount of water within the time allowed, any seed or sod in poor condition shall be replaced, fertilized, and watered at Contractor's expense.

SEEDING FOR EROSION CONTROL ITEM 164× DRILL SEED SY

PERMANENT SEEDING MIXES (ADD FLOWER SEEDING MIX TO PERMANENT SEED, ALL SOILS) PERMANENT SEED PLANTING SEASON: FEB. 1 TO MAY 15

			Pure Live Seed Rate ××
RURAL CLAY SOILS (PERM_RURAL_CLAY)	Sideoats Grama (Haskell)	15%	1.5 lbs PLS per acre
	Hooded Windmillgrass (Burnet)	15%	0.3 lbs PLS per acre
	White Tridens (Guadalupe)	15%	0.3 lbs PLS per acre
	Little Bluestem (OK Select)	15%	1.05 lbs PLS per acre
	Buffalograss (Texoka)×××	10%	1.5 lbs PLS per acre
	Silver Bluestem (Santiago)	05%	0.2 lbs PLS per acre
	Green Sprangletop (Van Horn)	05%	0.2 lbs PLS per acre
	Shortspike Windmillgrass (Welder)	05%	0.1 lbs PLS per acre
	Canada Wildrye (Lavaca)	10%	2.0 lbs PLS per acre
	Sand Dropseed (Taylor)	05%	0.1 lbs PLS per acre
URBAN CLAY SOILS (PERM_URBAN_CLAY)	Green Sprangletop		0.3 lbs PLS per acre
	Sideoats Grama (El Reno)		3.6 lbs PLS per acre
	Buffalograss (Texoka)×××		1.6 lbs PLS per acre
	Bermudagrass		2.4 lbs PLS per acre

			Pure Live Seed Rate ××
RURAL SANDY SOILS (PERM_RURAL_SAND)	Shortspike Windmillgrass (Welder)	10%	0.2 lbs PLS per acre
	Hairy Grama (Chaparral)	15%	0.6 lbs PLS per acre
	Sand Dropseed (Taylor)	10%	0.2 lbs PLS per acre
	Little Bluestem (OK Select)	15%	1.05 lbs PLS per acre
	Sideoats Grama (Haskell)	10%	1.0 lbs PLS per acre
	Green Sprangletop (Van Horn)	10%	0.4 lbs PLS per acre
	Hooded Windmillgrass (Burnet)	10%	0.2 lbs PLS per acre
	Sand Lovegrass (Mason)	10%	0.4 lbs PLS per acre
	Silver Bluestem (Santiago)	10%	0.4 lbs PLS per acre
URBAN SANDY SOILS (PERM_URBAN_SAND)	Green Sprangletop		0.3 lbs PLS per acre
	Buffalograss (Texoka)×××		1.6 lbs PLS per acre
	Bermudagrass		3.6 lbs PLS per acre
	Sand Dropseed (Borden Co.)		0.4 lbs PLS per acre

TEMPORARY SEEDING MIX DRILL SEED (TEMP_WARM_COOL)

		Pure Live Seed Rate ××
COOL SEASON (Sept.1 to Jan.31)	Brownton Millet	20.0 lbs PLS per acre
WARM SEASON (Feb.1 to Aug.30)	Oats	30.0 lbs PLS per acre
	Wheat	30.0 lbs PLS per acre
	Little Barley	5.0 lbs PLS per acre
	Western Wheatgrass	5.0 lbs PLS per acre

FLOWER SEEDING MIX (INCLUDE WITH PERMANENT SEED, ALL SOILS)

Engelmann Daisy (Eldorado)	1.5 lbs PLS per acre
Awnless Bushsunflower (Plateau)	1.5 lbs PLS per acre
Partridge Pea	1.5 lbs PLS per acre
Illinois Bundleflower (Sabine)	1.5 lbs PLS per acre
Rio Grande Clammyweed (Zapata)	2.0 lbs PLS per acre

×× Note: The amount of Pure Live Seed (PLS) in one-pound (1 lb) of bulk seed is based on three factors: % Purity, % Germination, and % Dormant. Use the following formula to calculate PLS in bulk seed: PLS = % Purity X (% Germination + % Dormant) Ensure that the specified amount of pure live seed is placed.
××× Note: When Buffalograss is specified, use seed that is treated with potassium nitrate to overcome dormancy.

SEEDING NOTES:
1. When seeding is specified under Item 164, refer to TxDOT 2024 Standard Specifications× for specifications, dimensions, volumes, and measurements that have been modified or not shown. Materials and construction shall meet all specifications.
2. Conduct seeding upon completion of each applicable construction stage (dependent upon planting season requirements), without compensation for additional move-ins.
3. Place seed AFTER preparing planting area surface. Refer to Surface Preparation detail this sheet, as well as Topsoil Item 160 and Compost Manufactured Topsoil Item 161 when specified. Apply fertilizer per Item 166 BEFORE seeding, per specifications and this sheet, to help drill the fertilizer into the soil.
4. When temporary grasses are well-established and more than 2-inches tall, mow planting area before seeding permanent grasses: mowing for this purpose will be subsidiary. When vegetation is not already well-established, scarify planting area to a depth as described in Item 164.3, before temporary seeding and before permanent seeding.
5. Seed material must be appropriate to the location, soil type and season. Use the seed mix species and pure live seed rates designated in Tables 1-5 of the TxDOT 2024 Standard Specifications× for Item 164, unless otherwise specified.
6. All seed shall meet labeling, delivery, analysis, and testing requirements described in Item 164.2.1. Deliver seed in labeled, unopened bags or containers to Engineer prior to planting.
7. Uniformly plant seed over the designated planting area, along the contour of slopes, and drill seed to a depth as described in Item 164.3.5.
8. Hydroseeding per Item 164.2.5.2 and 164.3.4 may be allowed, when specified or Engineer concurs. For hydroseeding, increase PLS rate by 25% and avoid microplastics.
9. Implement and continue Vegetative Watering per the schedule, rate and volume specified under Item 168.

TXDOT REFERENCE MATERIALS:

- ×"STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES" 2024
- "A GUIDANCE TO ROADSIDE VEGETATION ESTABLISHMENT" 2004
- ONLINE TRAINING COURSE: MNT415 REVEGETATION DURING CONSTRUCTION
- DALLAS DISTRICT "VEGETATION ESTABLISHMENT GUIDELINES"

ROADSIDE MOWING ITEM 730× AC

MOWING NOTES:
1. During project construction, once seed is established, use mowing to promote permanent grasses by mowing any remaining temporary grasses.
2. Also mow established turf and ROW grasses in designated areas of project limits as specified or directed by Engineer.
3. Remove litter and debris prior to mowing.
4. Do not mow on wet ground when soil rutting can occur.
5. Hand-trim around obstructions and stormwater control devices as needed.
6. Maintain paved surfaces free of tracked soils and clipped vegetation.

SEQUENCE OF WORK:

- SCARIFY SURFACE SOIL.
- PREPARE / PLACE TOPSOIL, OR
- PREPARE / PLACE COMPOST MANUFACTURED TOPSOIL.
- APPLY FERTILIZER AND THEN PLACE SEEDING, OR
- PLACE SOD AND THEN APPLY FERTILIZER.
- CONDUCT VEGETATIVE WATERING.
- CONDUCT ROADSIDE MOWING, AS DIRECTED.

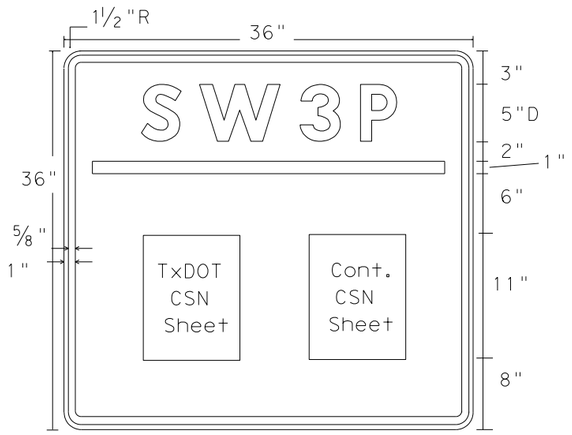
VEGETATION ESTABLISHMENT SHEET

(DALLAS DISTRICT)

TEMPLATE REVISION DATE: 07/17/24

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RAD	6	(See Title Sheet)		SH5, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
XXX	TEXAS	DALLAS	COLLIN	1385
CHECK	CONTROL	SECTION	JOB	
XXX	0047	05	057, ETC.	
CHECK				
XXX				

DATE



SW3P SIGN

TxDOT & Contractor Construction Site Note (CSN)

Sign Dimensions

36" X 36"

Letters - White
Numbers - White
Border - White
Background - Blue

GENERAL NOTES:

1. The alphabets and lateral spacing between letters and numerals shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways", (TMUTCD) latest edition, and the "Compliant Work Zone Traffic Control Devices List". Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications.
2. Legend and border may be applied by reverse screening process with transparent colored ink, cut-out white reflective sheeting applied to colored background or combination thereof. Background shall be reflective sheeting Type C.
3. CSN Sheets will be laminated and attached to the sign with an adhesive. Ensure sheets remain dry.(See Figure 1).
4. SW3P Signs should be placed just inside the ROW line at the project limits at a readable height. It may be placed perpendicular or parallel to ROW line.If the sign cannot be placed outside the clear zone, it will be mounted per TMUTCD requirements.
5. Final location of the signs will be as approved by the Engineer.

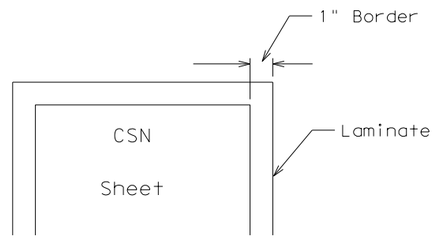
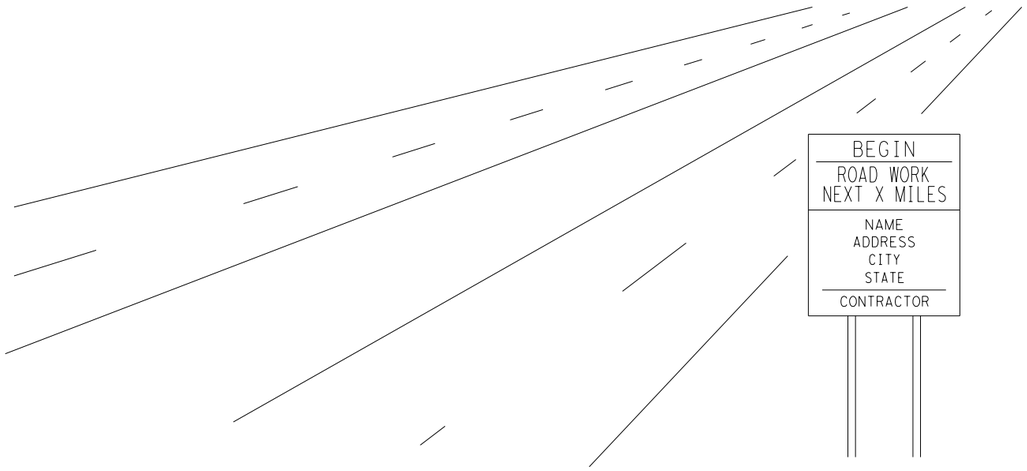
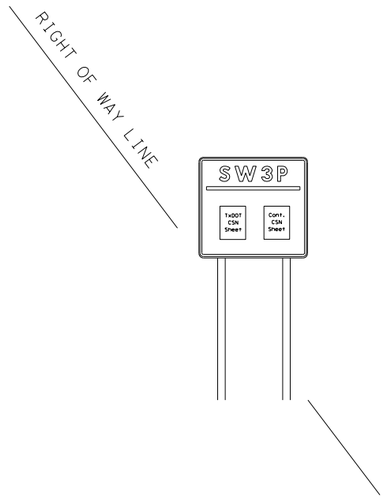


Figure 1





DEPARTMENT MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
VINYL NON-REFLECTIVE DECAL SHEETING	DMS-8320

COLOR	USAGE	REFLECTIVE SHEETING OR OTHER MATERIAL
BLUE	BACKGROUND	TYPE C (FLUORESCENT PRISMATIC)
WHITE	LEGEND & BORDERS	VINYL NON-REFLECTIVE DECAL SHEETING

Texas Department of Transportation
DALLAS DISTRICT STANDARD

SW3P SIGN SHEET

FILE:	DN: TxDOT	CK:	DW:	CK:	
©TxDOT 2016	DISTRICT	FEDERAL AID PROJECT			SHEET
	18	SEE TITLE SHEET			1386
REVISION DATE: 10-16-15	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	COLLIN		0047	05	057, ETC.	SHS, ETC.

PATH:

LEVELS DISPLAYED

1