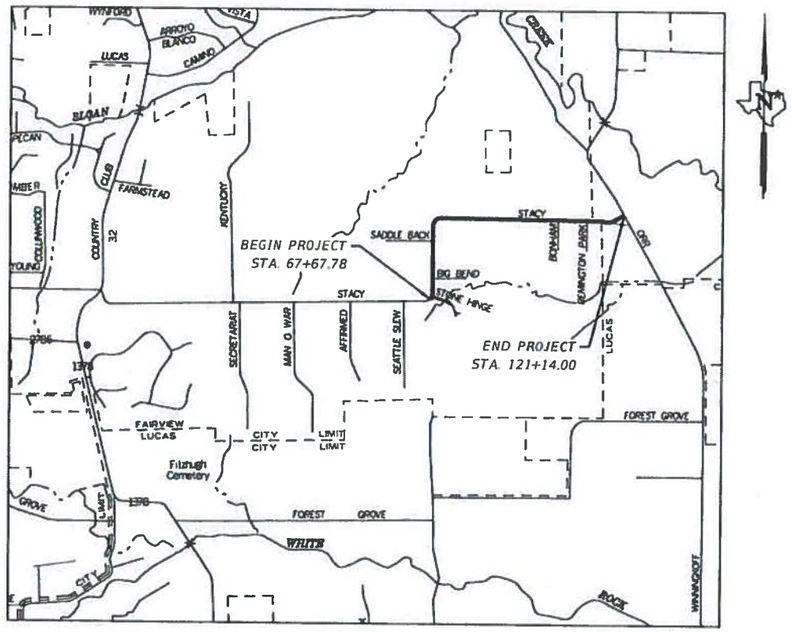
TOWN OF FAIRVIEW, TEXAS
EAST STACY ROAD IMPROVEMENTS

JANUARY 3, 2018

APPROVED BY:
TOWN OF FAIRVIEW, TEXAS

1/3/18
JULIE COUCH — DATE
TOWN MANAGER

1/3/18
JAMES CHANCELLOR, PE — DATE
TOWN ENGINEER



ROADWAY: 5,346.22 FT
BRIDGE: 0.0 FT
RAILROAD CROSSINGS: NONE
NO STATION EQUATIONS

PROJECT VICINITY MAP

SUBMITTED BY:
HUITT-ZOLLARS, INC.

Stephen C Woodruff PE 1.3.18
STEPHEN C. WOODRUFF, PE — DATE

STATE OF TEXAS
STEPHEN C. WOODRUFF
92733
LICENSED PROFESSIONAL ENGINEER

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

SPECIFICATIONS ADOPTED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG), OCTOBER 2004, SHALL GOVERN ON THIS PROJECT, UNLESS NOTED OTHERWISE.

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N/A	RESIDENTIAL STREET REHABILITATION	

THE STANDARD SHEETS INDENTIFIED ON THIS SHEET WITH A "*" HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

January 3, 2018

CHRISTIAN L. MOORMAN, P.E. DATE
TEXAS PE #: 93828

THE STANDARD SHEETS INDENTIFIED ON THIS SHEET WITH A "**" HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

01-03-18

HAMILTON DALLAGASPERINA, P.E. DATE
TEXAS PE #: 91748

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

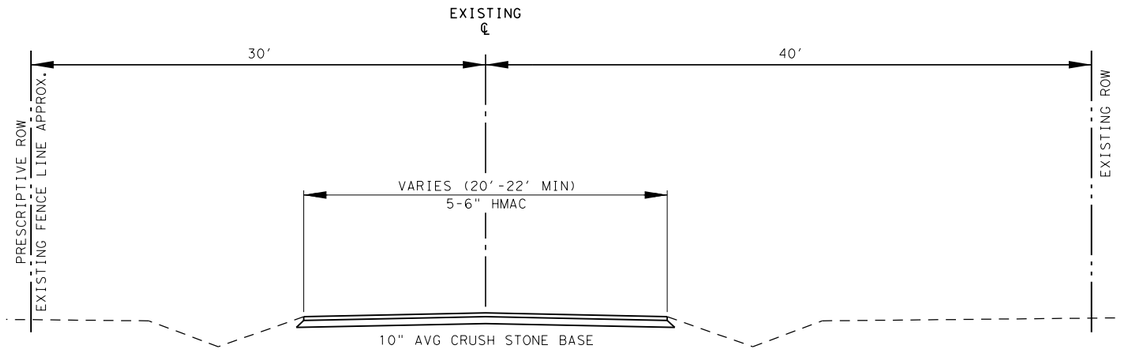
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CLM	CLM	SCW

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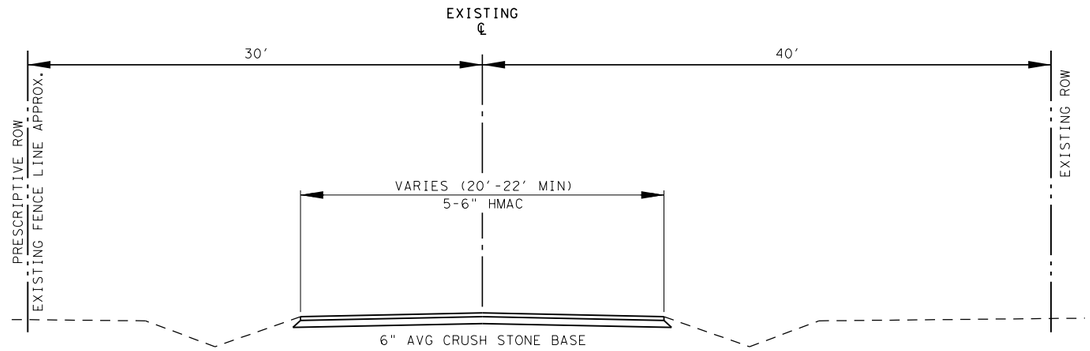
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EXISTING TYPICAL SECTION

E. STACY ROAD

FROM STONE HINGE DRIVE
TO APPROX. STA. 82+50



EXISTING TYPICAL SECTION

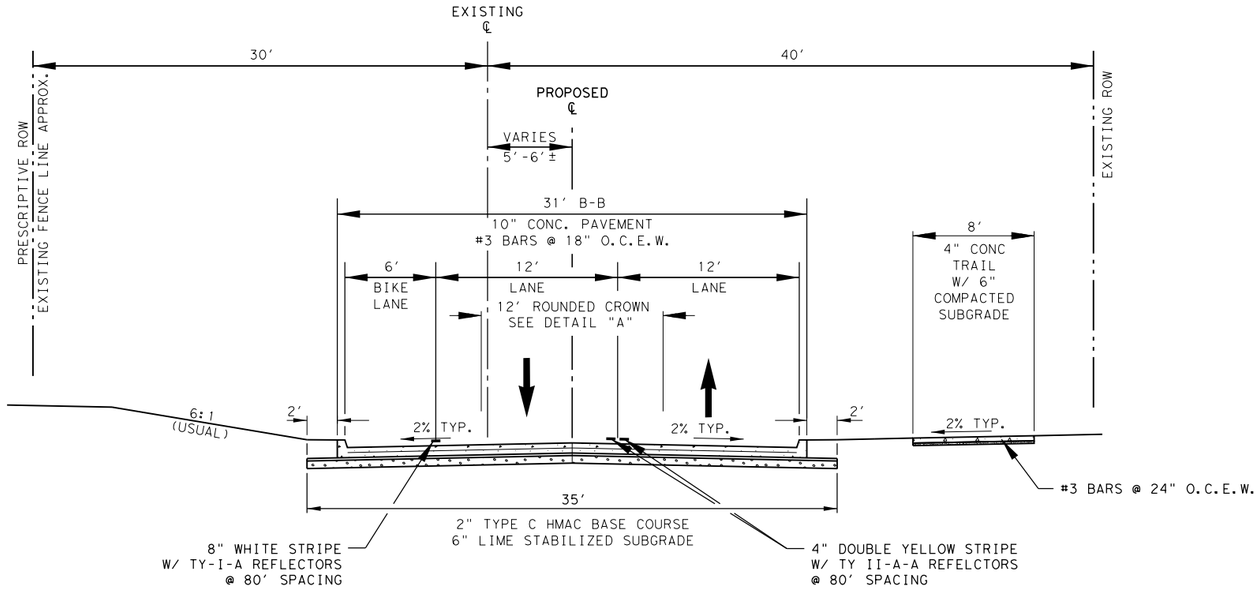
E. STACY ROAD

FROM APPROX. STA. 82+50
TO ORR ROAD

NOTES:

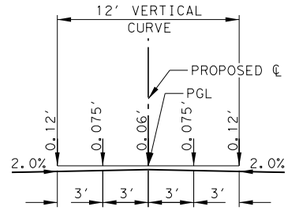
1. CONCRETE PAVEMENT DESIGN PROVIDED BY TERRACON CONSULTANTS, INC., GEOTECHNICAL ENGINEERING REPORT, OCTOBER 26, 2016.

2. SIDEWALK/TRAIL DESIGN PROVIDED BY TERRACON CONSULTANTS, INC., INTER-OFFICE EMAIL, APRIL 10, 2017.



PROPOSED TYPICAL SECTION

E. STACY ROAD



DETAIL "A"

ROUNDED CROWN DETAIL

CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

TYPICAL SECTIONS

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GENERAL NOTES

1. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS BEFORE ANY WORK MAY BEGIN. ALL PERMIT FEES SHALL BE CONSIDERED INCIDENTAL TO PAY ITEMS.

2. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE UPDATE TO THE ENGINEER AND THE CONSTRUCTION INSPECTOR WITH THE MONTHLY PAY ESTIMATE.

3. NO FINAL PAYMENT TO CONTRACTOR SHALL BE RELEASED PRIOR TO THE ACCEPTANCE OF THE FINAL INSPECTION FROM THE AUTHORIZED PERSONNEL OF THE TOWN OF FAIRVIEW.

4. THE CONTRACTOR SHALL CONTACT THE CITY SHOULD ANY DISCREPANCIES BE FOUND IN THE CONSTRUCTION PLANS AND/OR THE SPECIAL PROVISIONS. THE CONTRACTOR WILL NOT BE COMPENSATED FOR ANY WORK NOT AUTHORIZED BY THE TOWN OF FAIRVIEW.

5. THE CONTRACTOR MUST FURNISH AT LEAST TWO PHONE NUMBERS WHERE RESPONSIBLE PERSONNEL CAN BE REACHED IN CASE OF EMERGENCY DURING WORKING AND NON-WORKING HOURS. IF THERE ARE ANY CHANGES, THE INFORMATION MUST BE UPDATED IMMEDIATELY FOR THE DURATION OF THE PROJECT.

6. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL REPAIR EXISTING DRIVEWAYS TO SAME OR BETTER CONDITION. STREET SIGNS, REFLECTORS, AND PLANTER BOXES SHALL BE REPLACED OR REPAIRED TO SAME OR BETTER CONDITION BY THE CONTRACTOR.

7. MAILBOXES IN CONSTRUCTION AREAS ARE TO BE TEMPORARILY RELOCATED TO THE CLOSEST LOCATION OUT OF THE CONSTRUCTION AREA. THEY ARE TO REMAIN IN SERVICE AT ALL TIMES. UPON COMPLETION OF CONSTRUCTION, MAILBOXES ARE TO BE REINSTALLED IN THE SAME OR BETTER CONDITION.

ENVIRONMENTAL NOTES

8. THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THIS PROPOSED PROJECT SHALL BE CONSISTENT WITH THE STATE IMPLEMENTATION PLANS AS PREPARED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY.

9. CONTRACTOR SHALL PROVIDE TRASH PICKUP IF EXISTING TRASH PICKUP IS INTERRUPTED BY CONSTRUCTION.

10. THE CONTRACTOR SHALL MINIMIZE TURBIDITY IN WATERWAYS DURING ALL PHASES OF THE PROJECT. THE CONTRACTOR SHALL EMPLOY ADEQUATE METHODS TO ENSURE MINIMUM TURBIDITY FROM NEAR AND LONG TERM EROSION FOR FILL, SPOIL, AND/OR DE-VEGETATED AREAS DURING AND FOLLOWING CONSTRUCTION. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS CONCERNING WATER POLLUTION AND CONTROL OF EROSION.

11. ALL STORM WATER POLLUTION PREVENTION MEASURES SHALL BE USED IN COMPLIANCE WITH THE STANDARD SPECIFICATIONS, ITEM 102. >STORM WATER POLLUTION PREVENTION PLAN. EROSION CONTROL MEASURES SHALL BE REMOVED UPON THE SUCCESSFUL COMPLETION OF THE PROJECT.

12. ALL WASTE MATERIAL SHALL BE DISPOSED OF OFF SITE. COPIES OF AGREEMENTS BETWEEN THE CONTRACTOR AND PROPERTY OWNER OF DISPOSAL SITES SHALL BE FURNISHED TO THE TOWN OF FAIRVIEW.

13. EXCAVATED MATERIALS NOT MEETING SPECIFICATIONS SHALL BE CONSIDERED WASTE AND SHALL BE DISPOSED OF OFF SITE AT THE CONTRACTOR'S EXPENSE.

14. CONTRACTOR SHALL KEEP DIRT, MUD AND DEBRIS OFF OF PUBLIC STREETS AROUND PROJECT. CONTRACTOR SHALL IMMEDIATELY CLEAN DIRT, MUD AND DEBRIS FROM PUBLIC STREETS AS SOON AS IT IS NOTICED BY THE CONTRACTOR OR NOTIFIED BY THE CITY, ENGINEER OR PROPERTY OWNERS.

15. THE PAY LIMIT FOR GRASS SPOT OR BLOCK SODDING REPLACEMENT DUE TO THE CONSTRUCTION SHALL BE 2-FEET OUTSIDE THE PROPOSED SIDEWALKS, BARRIER FREE RAMPS, DRIVEWAYS, AND STREET REPAIR AREAS UNLESS OTHERWISE NOTED ON THE PLANS. ALL OTHER GRASS DAMAGED OR DESTROYED DURING THIS INSTALLATION SHALL BE REPLACED AT THE SOLE EXPENSE OF THE CONTRACTOR.

16. THE CONTRACTOR SHALL HAVE AN ON-SITE SPILL RESPONSE KIT. CONSTRUCTION PERSONNEL SHALL BE TRAINED ON HOW TO USE THE SPILL RESPONSE KIT. NO SPILLS WILL BE ALLOWED TO ENTER THE STORM DRAINAGE SYSTEM.

PAVING NOTES

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING ANY PROPERTY CORNERS, BENCHMARKS, OR CONTROL POINTS DISTURBED BY HIS CONSTRUCTION OPERATIONS. ANY DISTURBED PROPERTY CORNERS SHALL BE RE-SET BY A LICENSED PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF TEXAS. NO SEPARATE PAY ITEM.

18. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL HORIZONTAL AND VERTICAL CONSTRUCTION STAKING AS REQUIRED FOR THE PROJECT DEVELOPMENT. ENGINEER HAS ESTABLISHED INITIAL CONTROL STAKING FOR PROJECT, BUT CONTRACTOR WILL BE RESPONSIBLE FOR ESTABLISHING ALL LINES AND GRADES TO CONSTRUCT PROJECT. NO SEPARATE PAY ITEM.

19. ALL EXISTING PAVEMENT SHALL BE SAWCUT TO ENSURE A STRAIGHT SMOOTH SURFACE. NO SEPARATE PAY ITEM.

20. NO ADJUSTMENT FACTORS WERE USED IN DETERMINATION OF EXCAVATION AND EMBANKMENT QUANTITIES. PLAN QUANTITIES ARE ACTUAL IN PLACE VALUES. THIS IS A PLAN QUANTITY MEASUREMENT ITEM. THE QUANTITY TO BE PAID IS THE QUANTITY SHOWN IN THE PROPOSAL.

21. ALL FILLS SHALL BE LESS THAN 9 INCHES THICK (LOOSE LIFT). SUBGRADE SURFACE SHALL BE SCARIFIED A MINIMUM OF 6" PRIOR TO LIME TREATMENT.

22. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.

23. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.

24. ALL CONCRETE SHALL BE PLACED IN COMPLIANCE WITH THE SPECIFIED CLASSES AND QUALITY OF CONCRETE IN THE STANDARD SPECIFICATIONS UNLESS OTHERWISE MODIFIED BY THE PLANS AND SPECIAL PROVISIONS OF THE PROJECT. ALL OTHER CONCRETE NOT SPECIFIED SHALL BE CLASS A CONCRETE.

25. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE COMPLETE CONCRETE MIX (BATCH) DESIGN AT THE PRE-CONSTRUCTION CONFERENCE AND/OR AT LEAST TEN WORKING DAYS PRIOR TO THE START OF ANY CONCRETE PLACING OPERATIONS.

26. ALL REINFORCING STEEL AND DOWEL BARS IN PAVEMENT SHALL BE SUPPORTED AND MAINTAINED AT THE CORRECT CLEARANCES BY THE USE OF BAR CHAIRS OR OTHER APPROVED SUPPORT.

27. THE USE OF WOOD FORMS FOR PAVEMENT CONSTRUCTION WILL BE PERMITTED ONLY FOR LEAVEOUTS, ALLEYS, SIDEWALKS, DRIVEWAYS, BARRIER FREE RAMPS AND INTERSECTIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

28. BARRIER FREE RAMPS WILL BE BUILT WITH THIS PROJECT. PAY ITEMS WILL BE THOSE SHOWN ON THE PLANS. LOCATIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER TO CLEAR OBSTRUCTIONS. ALL BARRIER FREE RAMPS SHALL MEET REQUIREMENTS FOR SLOPE, TEXTURE, SURFACE FINISH AND COLOR, AS SHOWN IN THE TEXAS ACCESSIBILITY STANDARDS, AS CURRENTLY AMENDED BY THE TEXAS DEPARTMENT OF LICENSING & REGULATION.

29. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL EXISTING FACILITIES IN AND AROUND THE PROJECT AREA. THESE INCLUDE TREES, PLANTINGS, CONCRETE PAVING, SIGNS AND OTHER FACILITIES FOUND ON SITE. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY FACILITIES DAMAGED DURING CONSTRUCTION, AT NO COST TO THE CITY, UNLESS A SEPARATE PAY ITEM HAS BEEN PROVIDED, OR AS DIRECTED BY THE ENGINEER.

30. BEFORE THE START OF CONSTRUCTION, SPRINKLER SYSTEMS MUST BE CHECKED IN THE PRESENCE OF THE PROPERTY OWNER. ANY DAMAGES TO EXISTING SPRINKLER SYSTEMS DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, UNLESS A SEPARATE PAY ITEM HAS BEEN PROVIDED, OR AS DIRECTED BY THE ENGINEER.

UTILITY NOTES

31. THE INFORMATION SHOWN IN THE PLANS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND PIPELINES, CONDUITS AND STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES AND BY PROSPECTING IN ADVANCE OF EXCAVATION OPERATIONS. ANY DAMAGE TO UTILITIES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.

32. PRIOR TO BEGINNING CONSTRUCTION IN CLOSE PROXIMITY TO FRANCHISE UTILITIES, CALL TEXAS 811 AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, SO THAT THE LOCATION OF FACILITIES CAN BE MARKED. IF NECESSARY, TEST DITCHES SHALL BE DUG TO VERIFY/DETERMINE ACTUAL FIELD LOCATIONS AND CONDITIONS.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 3, 2018

HUITT-ZOLLARS

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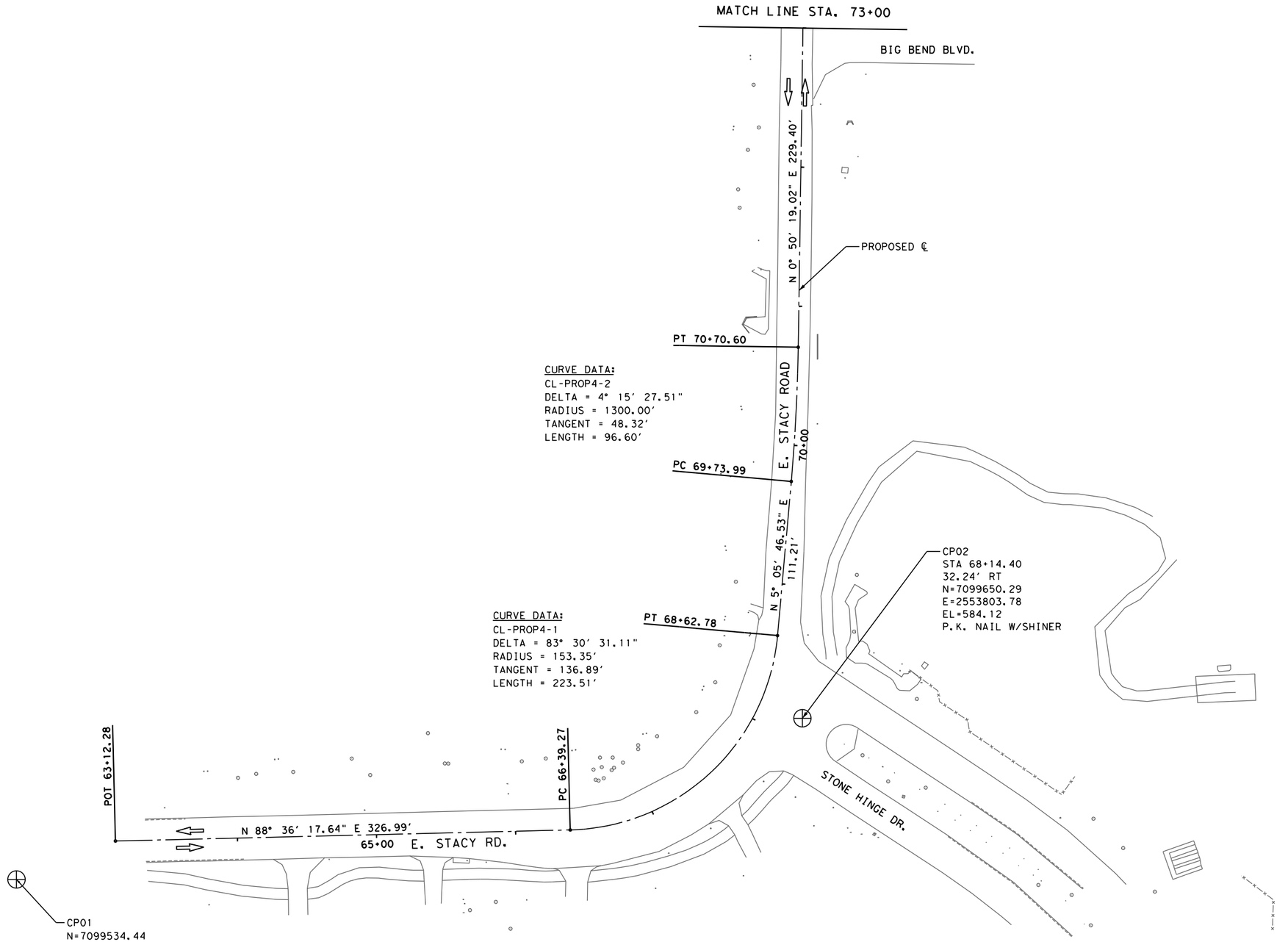
E. STACY ROAD IMPROVEMENTS

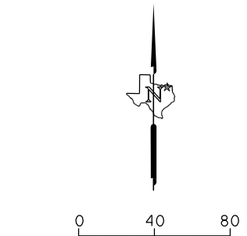
GENERAL & TECHNICAL NOTES

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LEGEND

⊕ CONTROL POINT

⇨ TRAFFIC FLOW

NOTE: 1. SEE HORIZONTAL ALIGNMENT DATA SHEET FOR INFORMATION NOT SHOWN HERE.



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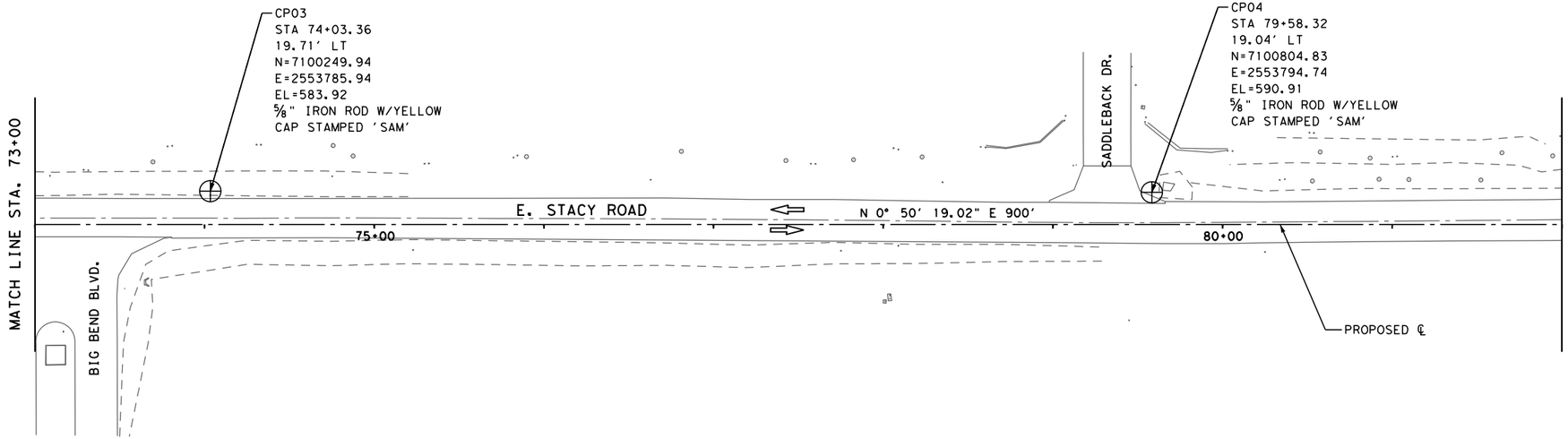
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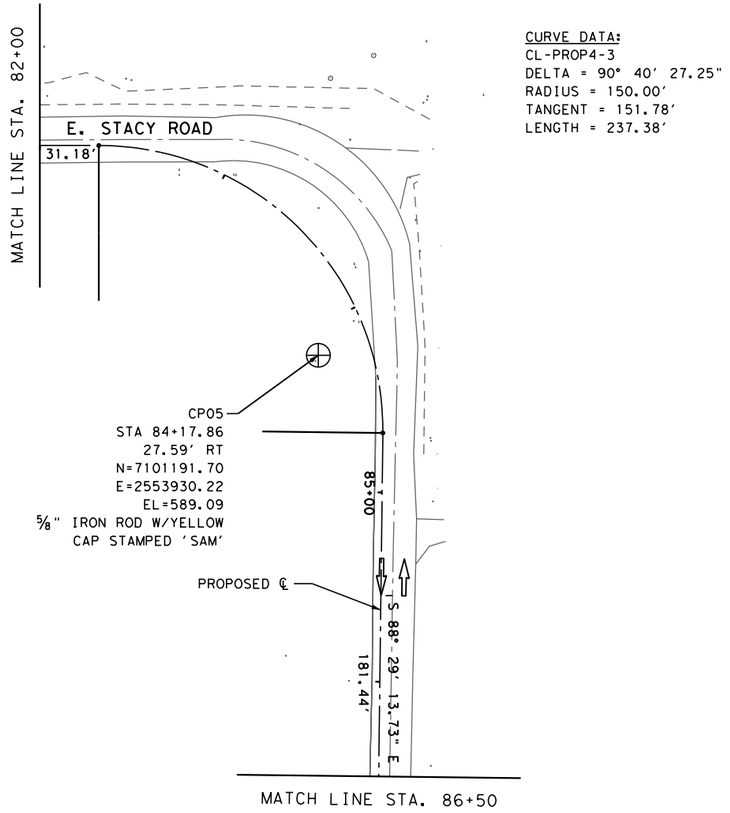
HORIZONTAL ALIGNMENT AND PROJECT CONTROL

BEGIN TO STA. 73+00

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CURVE DATA:
CL-PROP4-3
DELTA = 90° 40' 27.25"
RADIUS = 150.00'
TANGENT = 151.78'
LENGTH = 237.38'

HORIZ: 0 40 80
SCALE: 1" = 40'

LEGEND

⊕ CONTROL POINT

⇨ TRAFFIC FLOW

NOTE: 1. SEE HORIZONTAL ALIGNMENT DATA SHEET FOR INFORMATION NOT SHOWN HERE.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 3, 2018

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FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

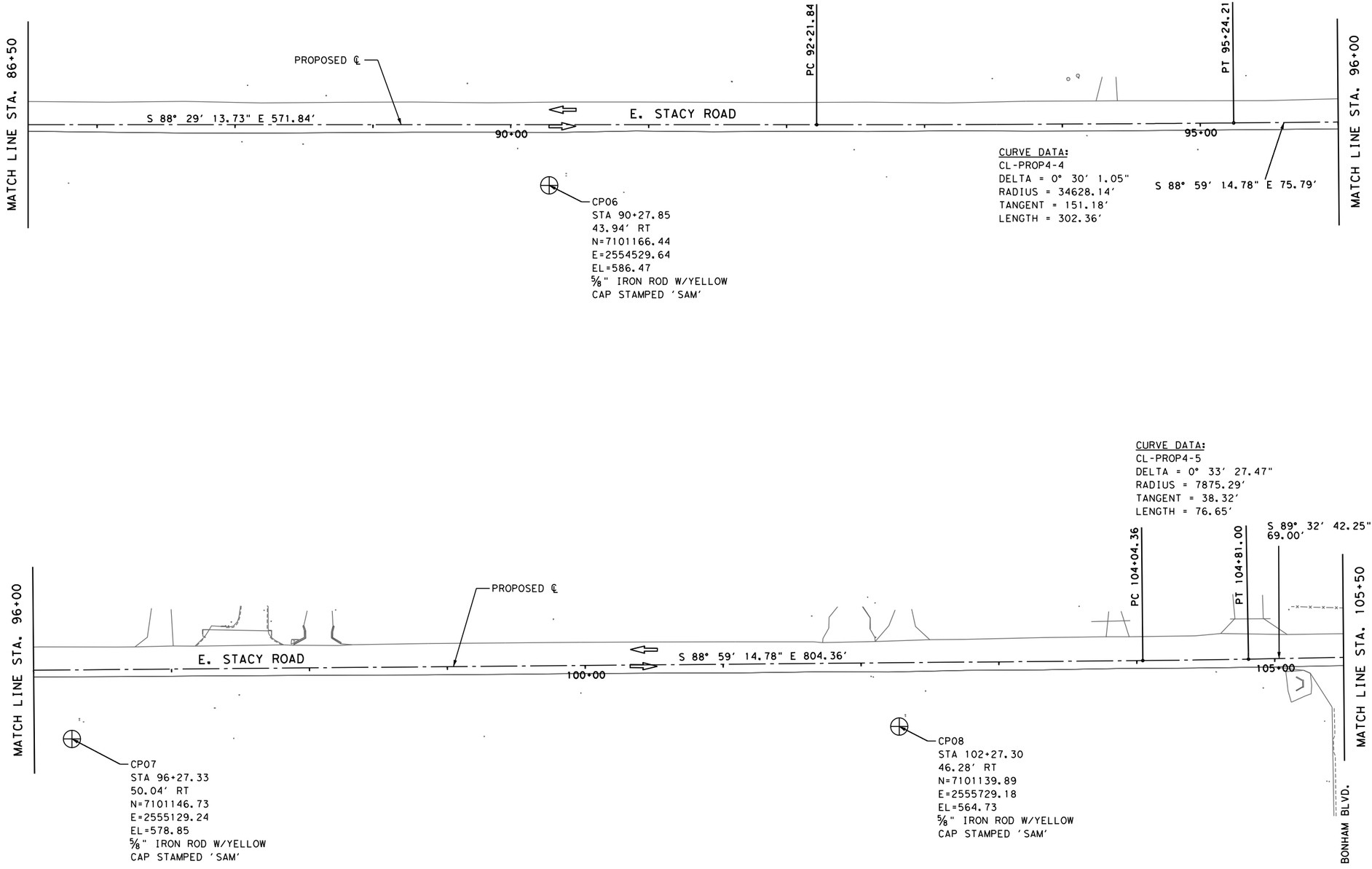
HORIZONTAL ALIGNMENT AND PROJECT CONTROL

STA. 73+00 TO STA. 86+50

SCALE: H: 1" = 40' SHEET 2 OF 4

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	6

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N

HORIZ: 0 40 80

SCALE: 1" = 40'

LEGEND

⊕ CONTROL POINT

⇨ TRAFFIC FLOW

NOTE: 1. SEE HORIZONTAL ALIGNMENT DATA SHEET FOR INFORMATION NOT SHOWN HERE.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 5, 2018

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

HORIZONTAL ALIGNMENT AND PROJECT CONTROL

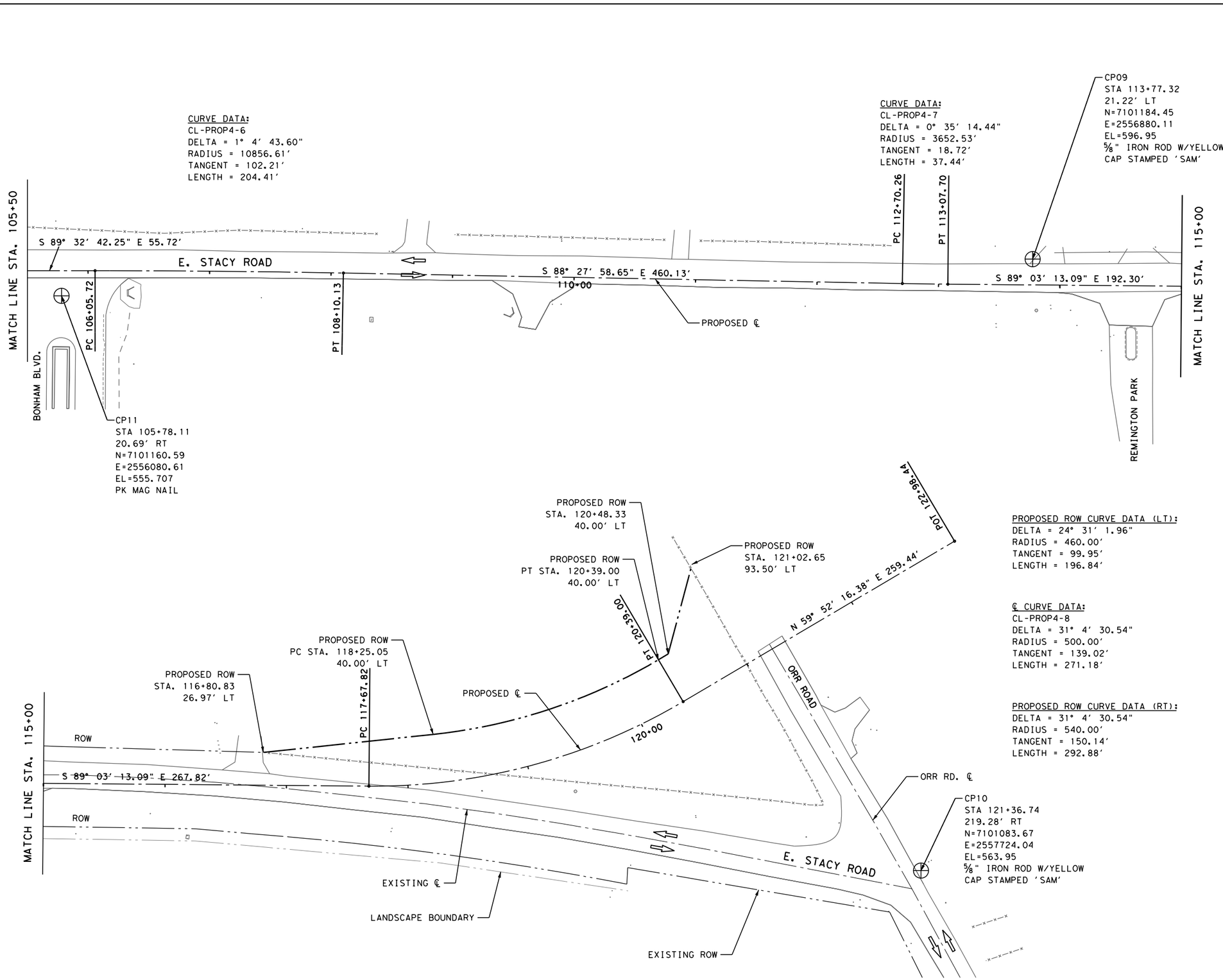
STA. 86+50 TO STA. 105+50

SCALE: H: 1" = 40'	SHEET 3 OF 4	SHEET NO.

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

7

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NOTE: 1. SEE HORIZONTAL ALIGNMENT DATA SHEET FOR INFORMATION NOT SHOWN HERE.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 3, 2018

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

HORIZONTAL ALIGNMENT AND PROJECT CONTROL

STA. 105+50 TO END

SCALE: H: 1" = 40'	SHEET 4 OF 4	SHEET NO.
DESIGNED BY: CLM	DRAWN BY: RAW	CHECKED BY: SCW	8

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STACY ROAD ALIGNMENT DATA

Beginning chain CL-PROP4 description

Point 303 N 7,099,562.0560 E 2,553,309.9987 Sta 63+12.28

Course from 303 to PC CL-PROP4-1 N 88° 36′ 17.64" E Dist 326.9908

Curve Data

Curve CL-PROP4-1					
P.I. Station	67+76.16	N	7,099,573.3500	E	2,553,773.7415
Delta =	83° 30′ 31.11" (LT)				
Degree =	37° 21′ 47.26"				
Tangent =	136.8895				
Length =	223.5055				
Radius =	153.3485				
External =	52.2105				
Long Chord =	204.2411				
Mid. Ord. =	38.9494				
P.C. Station	66+39.27	N	7,099,570.0171	E	2,553,636.8926
P.T. Station	68+62.78	N	7,099,709.6983	E	2,553,785.9013
C.C.		N	7,099,723.3201	E	2,553,633.1591
Back = N	88° 36′ 17.64" E				
Ahead = N	5° 05′ 46.53" E				
Chord Bear = N	46° 51′ 02.09" E				

Course from PT CL-PROP4-1 to PC CL-PROP4-2 N 5° 05′ 46.53" E Dist 111.2137

Curve Data

Curve CL-PROP4-2					
P.I. Station	70+22.32	N	7,099,868.6050	E	2,553,800.0729
Delta =	4° 15′ 27.51" (LT)				
Degree =	4° 24′ 26.52"				
Tangent =	48.3237				
Length =	96.6028				
Radius =	1,300.0000				
External =	0.8978				
Long Chord =	96.5806				
Mid. Ord. =	0.8972				
P.C. Station	69+73.99	N	7,099,820.4724	E	2,553,795.7804
P.T. Station	70+70.60	N	7,099,916.9235	E	2,553,800.7802
C.C.		N	7,099,935.9504	E	2,552,500.9194
Back = N	5° 05′ 46.53" E				
Ahead = N	0° 50′ 19.02" E				
Chord Bear = N	2° 58′ 02.77" E				

Course from PT CL-PROP4-2 to PC CL-PROP4-3 N 0° 50′ 19.02" E Dist 1,160.5830

Curve Data

Curve CL-PROP4-3					
P.I. Station	83+82.96	N	7,101,229.1416	E	2,553,819.9880
Delta =	90° 40′ 27.25" (RT)				
Degree =	38° 11′ 49.87"				
Tangent =	151.7756				
Length =	237.3846				
Radius =	150.0000				
External =	63.3913				
Long Chord =	213.3765				
Mid. Ord. =	44.5599				
P.C. Station	82+31.18	N	7,101,077.3822	E	2,553,817.7666
P.T. Station	84+68.56	N	7,101,225.1345	E	2,553,971.7107
C.C.		N	7,101,075.1868	E	2,553,967.7505
Back = N	0° 50′ 19.02" E				
Ahead = S	88° 29′ 13.73" E				
Chord Bear = N	46° 10′ 32.64" E				

Course from PT CL-PROP4-3 to PC CL-PROP4-4 S 88° 29′ 13.73" E Dist 753.2778

STACY ROAD ALIGNMENT DATA (CONT.)

Curve Data

Curve CL-PROP4-4					
P.I. Station	93+73.02	N	7,101,201.2557	E	2,554,875.8560
Delta =	0° 30′ 01.05" (LT)				
Degree =	0° 09′ 55.66"				
Tangent =	151.1827				
Length =	302.3635				
Radius =	34,628.1420				
External =	0.3300				
Long Chord =	302.3625				
Mid. Ord. =	0.3300				
P.C. Station	92+21.84	N	7,101,205.2471	E	2,554,724.7259
P.T. Station	95+24.21	N	7,101,198.5840	E	2,555,027.0151
C.C.		N	7,135,821.3186	E	2,555,638.9498
Back = S	88° 29′ 13.73" E				
Ahead = S	88° 59′ 14.78" E				
Chord Bear = S	88° 44′ 14.26" E				

Course from PT CL-PROP4-4 to PC CL-PROP4-5 S 88° 59′ 14.78" E Dist 880.1511

Curve Data

Curve CL-PROP4-5					
P.I. Station	104+42.68	N	7,101,182.3531	E	2,555,945.3462
Delta =	0° 33′ 27.47" (LT)				
Degree =	0° 43′ 39.14"				
Tangent =	38.3234				
Length =	76.6462				
Radius =	7,875.2940				
External =	0.0932				
Long Chord =	76.6459				
Mid. Ord. =	0.0932				
P.C. Station	104+04.36	N	7,101,183.0304	E	2,555,907.0288
P.T. Station	104+81.00	N	7,101,182.0488	E	2,555,983.6684
C.C.		N	7,109,057.0946	E	2,556,046.1978
Back = S	88° 59′ 14.78" E				
Ahead = S	89° 32′ 42.25" E				
Chord Bear = S	89° 15′ 58.52" E				

Course from PT CL-PROP4-5 to PC CL-PROP4-6 S 89° 32′ 42.25" E Dist 124.7187

Curve Data

Curve CL-PROP4-6					
P.I. Station	107+07.93	N	7,101,180.2471	E	2,556,210.5882
Delta =	1° 04′ 43.60" (RT)				
Degree =	0° 31′ 39.90"				
Tangent =	102.2083				
Length =	204.4106				
Radius =	10,856.6082				
External =	0.4811				
Long Chord =	204.4076				
Mid. Ord. =	0.4811				
P.C. Station	106+05.72	N	7,101,181.0586	E	2,556,108.3831
P.T. Station	108+10.13	N	7,101,177.5114	E	2,556,312.7599
C.C.		N	7,090,324.7926	E	2,556,022.1822
Back = S	89° 32′ 42.25" E				
Ahead = S	88° 27′ 58.65" E				
Chord Bear = S	89° 00′ 20.45" E				

Course from PT CL-PROP4-6 to PC CL-PROP4-7 S 88° 27′ 58.65" E Dist 460.1272

Curve Data

Curve CL-PROP4-7					
P.I. Station	112+88.98	N	7,101,164.6950	E	2,556,791.4370
Delta =	0° 35′ 14.44" (LT)				
Degree =	1° 34′ 07.17"				
Tangent =	18.7214				
Length =	37.4424				
Radius =	3,652.5336				
External =	0.0480				
Long Chord =	37.4422				
Mid. Ord. =	0.0480				
P.C. Station	112+70.26	N	7,101,165.1961	E	2,556,772.7223
P.T. Station	113+07.70	N	7,101,164.3858	E	2,556,810.1558
C.C.		N	7,104,816.4212	E	2,556,870.4826
Back = S	88° 27′ 58.65" E				
Ahead = S	89° 03′ 13.09" E				
Chord Bear = S	88° 45′ 35.87" E				

Course from PT CL-PROP4-7 to PC CL-PROP4-8 S 89° 03′ 13.09" E Dist 460.1209

STACY ROAD ALIGNMENT DATA (CONT.)

Curve Data

Curve CL-PROP4-8					
P.I. Station	119+06.84	N	7,101,154.4902	E	2,557,409.2104
Delta =	31° 04′ 30.54" (LT)				
Degree =	11° 27′ 32.96"				
Tangent =	139.0155				
Length =	271.1818				
Radius =	500.0000				
External =	18.9656				
Long Chord =	267.8703				
Mid. Ord. =	18.2725				
P.C. Station	117+67.82	N	7,101,156.7863	E	2,557,270.2139
P.T. Station	120+39.00	N	7,101,224.2684	E	2,557,529.4448
C.C.		N	7,101,656.7181	E	2,557,278.4721
Back = S	89° 03′ 13.09" E				
Ahead = N	59° 52′ 16.38" E				
Chord Bear = N	75° 24′ 31.65" E				

Course from PT CL-PROP4-8 to 304 N 59° 52′ 16.38" E Dist 259.4344

Point 304 N 7,101,354.4902 E 2,557,753.8294 Sta 122+98.44

Ending chain CL-PROP4 description

DRIVEWAY 109+25 ALIGNMENT DATA

Beginning chain DRV-10925 description

Point 64 N 7,101,174.4154 E 2,556,428.3933 Sta 10+00.00

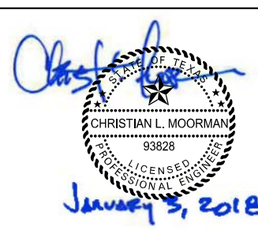
Course from 64 to 74 S 1° 32′ 01.35" W Dist 185.6443

Point 74 N 7,100,988.8376 E 2,556,423.4246 Sta 11+85.64

Course from 74 to 75 S 4° 09′ 27.34" E Dist 75.4585

Point 75 N 7,100,913.5777 E 2,556,428.8953 Sta 12+61.10

Ending chain DRV-10925 description



HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

HORIZONTAL ALIGNMENT DATA

STACY ROAD & DRIVEWAY 109+25

SCALE: NONE SHEET 1 OF 1

SHEET NO. 9

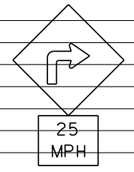
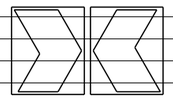
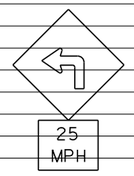
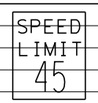
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CLM	CLM	SCW

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SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE: FRP = Fiberglass, TWT = Thin-Wall, 10BWG = 10 BWG, S80 = Sch 80	POSTS: 1 or 2	ANCHOR TYPE: UA=Universal Conc, UB=Universal Bolt, SA=Slipbase-Conc, SB=Slipbase-Bolt, WS=Wedge Steel, WP=Wedge Plastic	MOUNTING DESIGNATION: PREFABRICATED (P = "Plain", T = "T", U = "U")	MOUNTING DESIGNATION: 1EXT or 2EXT = # of Ext, BM = Extruded Wind Beam, WC = 1.12 #/ft Wing Channel, EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE: TY N, TY S
1 OF 2												
	1	R3-17		24X18			TWT	1	UA	P		
	2	R2-1		24X30			TWT	1	UA	P		
	3	R2-1		24X30			TWT	1	UA	P		
	4	W1-1R W13-1P		30X30 18X18			TWT	1	UA	P		
	5	W1-8R & W1-8L		12X18			TWT	1	UA	P		
	6	W1-1L W13-1P		30X30 18X18			TWT	1	UA	P		
	7	R2-1		24X30			TWT	1	UA	P		
	8	R3-17		24X18			TWT	1	UA	P		
	9	R2-1		24X30			TWT	1	UA	P		
	10	R2-1		24X30			TWT	1	UA	P		

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/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

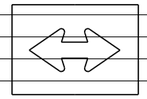
FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS					E. STACY ROAD
4-16		DIST	COUNTY		SHEET NO.
8-16			COLLIN		10

18

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SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
2 OF 2												
	11	W3-1		30X30			TWT	1	UA	P		
	12	R2-1		24X30			TWT	1	UA	P		
	13	R3-17		24X18			TWT	1	UA	P		
	14	W3-1		30X30			10BWG	1	SA	P		
	15	R1-1		30X30			10BWG	1	SA	P		
	16	W1-7		36X18			10BWG	1	SA	T		
	17	R1-1		30X30			10BWG	1	SA	P		
	18	R1-1		30X30			10BWG	1	SA	P		
	19	W3-1		30X30			10BWG	1	SA	P		

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

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3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				E. STACY ROAD
4-16 8-16	DIST	COUNTY		SHEET NO.
		COLLIN		11

18

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TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL MAINTAIN PROPER BARRICADES AND SAFETY MEASURES FOR THE PROTECTION OF THE TRAVELING PUBLIC DURING THE CONSTRUCTION OF THIS PROJECT. IF, AT ANY TIME DURING CONSTRUCTION, THE CONTRACTOR'S PROPOSED PLAN OF OPERATION FOR HANDLING TRAFFIC DOES NOT PROVIDE FOR SAFE, COMFORTABLE MOVEMENT AT THE DETERMINATION OF THE ENGINEER, THE CONTRACTOR SHALL, IMMEDIATELY CHANGE THE OPERATIONS TO CORRECT THE UNSATISFACTORY CONDITION. THE SEQUENCE OF WORK AS OUTLINED ON THE PLANS IS A GUIDE ONLY AND MAY BE REVISED BY THE CONTRACTOR WITH APPROVAL OF THE ENGINEER.

2. ALL BARRICADES, WARNING SIGNS, LIGHTS, DEVICES, ETC., FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS MUST CONFORM TO THE INSTALLATION SHOWN IN THE LATEST TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), AS CURRENTLY AMENDED BY THE TEXAS DEPARTMENT OF TRANSPORTATION.

3. THE CONTRACTOR SHALL PROVIDE ADVANCE WARNING AND TRAFFIC CONTROL FOR THIS PROJECT AS SHOWN IN THE PLANS AND AS PROVIDED FOR IN THE CURRENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (TMUTCD).

4. THE CONTRACTOR SHALL PLAN WORK SEQUENCE IN A MANNER THAT WILL CAUSE MINIMUM INTERFERENCE WITH TRAFFIC DURING CONSTRUCTION OPERATIONS. BEFORE BEGINNING THE WORK ON THIS PROJECT, THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL BY THE ENGINEER, A PLAN OF CONSTRUCTION OPERATIONS OUTLINING IN DETAIL A SEQUENCE OF WORK TO BE FOLLOWED AND SETTING OUT THE METHOD OF HANDLING TRAFFIC ALONG, ACROSS AND ADJACENT TO WORK.

5. BARRICADES AND WARNING SIGNS, AS APPROPRIATE, SHALL BE PLACED AT STOCKPILES TO ADEQUATELY WARN MOTORISTS. AT ALL STOCKPILE SITES THAT ARE LESS THAN 30 FEET FROM THE EDGE OF ANY TRAVELED LANE, A TYPE III BARRICADE SHALL BE PLACED IMMEDIATELY IN FRONT OF AND AT EACH END OF THE STOCKPILE IF REQUIRED BY THE ENGINEER. WHEN A STOCKPILE SITE EQUALS OR EXCEEDS 100 FEET IN LENGTH, ONE OBJECT MARKER (0M2HP) PER 100 FEET SHALL BE PLACED ALONGSIDE THE STOCKPILE.

6. SUBJECT TO THE APPROVAL OF THE ENGINEER, PORTIONS OF THIS PROJECT WHICH ARE NOT AFFECTED BY OR IN CONFLICT WITH THE PROPOSED METHOD OF HANDLING TRAFFIC OR UTILITY ADJUSTMENTS CAN BE CONSTRUCTED DURING ANY PHASE.

7. DURING CONSTRUCTION, THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN VERTICAL PANELS ALONG THE EDGE OF PAVEMENTS AND FILLS IN ACCORDANCE WITH THE CURRENT VERSION OF THE TMUTCD. BARRICADES AND SIGNS SHALL BE PLACED IN SUCH A MANNER AS TO NOT INTERFERE WITH THE SIGHT DISTANCE OF DRIVERS ENTERING THE STREET FROM DRIVEWAYS OR SIDE STREETS.

8. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FLAGGERS AT SUCH POINTS FOR SUCH PERIODS OF TIME AS MAY BE REQUIRED TO PROVIDE FOR THE SAFETY AND CONVENIENCE OF THE TRAVELING PUBLIC AND CONTRACTOR'S PERSONNEL, AND AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THESE FLAGGERS SHALL BE LOCATED AT EACH END OF ANY LANE CLOSURE AND SHALL BE PROPERLY ATTIRED. THESE FLAGGERS SHALL BE IN TWO WAY RADIO CONTACT WITH EACH OTHER AT ALL TIMES. PADDLES MAY BE REQUIRED FOR THE PROJECT.

9. THE CONTRACTOR WILL NOT BE PERMITTED TO COMMENCE WORK ON THE ROAD BEFORE SUNRISE AND SHALL ARRANGE THE WORK SO THAT NO MACHINERY OR EQUIPMENT SHALL BE CLOSER THAN 10 FEET TO THE TRAVELED ROADWAY AFTER SUNSET EXCEPT AS AUTHORIZED BY THE ENGINEER.

10. THE CONTRACTOR SHALL KEEP TRAVELED SURFACES USED IN THE HAULING OPERATION CLEAR AND FREE OF DIRT OR OTHER MATERIALS.

11. THE USE OF RUBBER-TIRED EQUIPMENT WILL BE REQUIRED FOR MOVING DIRT AND OTHER MATERIALS ALONG OR ACROSS PAVED SURFACES.

12. WHERE THE CONTRACTOR DESIRES TO MOVE ANY EQUIPMENT NOT LICENSED FOR OPERATION ON PUBLIC STREET OR ACROSS ANY PAVEMENT, THE CONTRACTOR SHALL PROTECT THE PAVEMENT FROM ALL DAMAGE AS DIRECTED BY THE ENGINEER.

13. TEMPORARY RAMPS FOR ACCESS DURING CONSTRUCTION SHALL CONSIST OF FLEXIBLE BASE OR OTHER ALL-WEATHER AGGREGATE MATERIAL. COST TO PROVIDE MATERIAL AND CONSTRUCT RAMPS SHALL BE INCLUDED IN THE PRICE BID FOR TRAFFIC CONTROL.

14. ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND SIDE STREETS AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION.

15. ALL BARRICADES AND WARNING SIGNS SHALL HAVE TYPE C, HIGH SPECIFIC INTENSITY SHEETS.

TRAFFIC CONTROL NOTES (CONTINUED)

16. THE CONTRACTOR SHALL REMOVE ALL EXISTING PAVEMENT MARKINGS IN DETOUR AREAS TO AVOID CONFLICTS WITH TEMPORARY PAVEMENT MARKINGS, AS DIRECTED BY THE ENGINEER. WHEN A PAY ITEM IS NOT INCLUDED IN THE PLANS, WORK SHALL BE INCIDENTAL TO THE PROJECT. DETOURS OUTSIDE THE PROJECT LIMITS THAT ROUTE TRAFFIC AROUND A CLOSED ROADWAY SHALL UTILIZE EXISTING PAVEMENT MARKINGS.

17. TEMPORARY RAMPS FOR ACCESS DURING CONSTRUCTION SHALL CONSIST OF FLEXIBLE BASE OR OTHER ALL-WEATHER AGGREGATE MATERIAL. COST TO PROVIDE MATERIAL AND CONSTRUCT RAMPS SHALL BE INCLUDED IN THE PRICE BID FOR TRAFFIC CONTROL.

18. ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND SIDE STREETS AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION.

SUGGESTED SEQUENCE OF CONSTRUCTION

PHASE 1

1. PLACE ADVANCED WARNING SIGNS, PERTINENT BARRICADES AND EROSION CONTROL MEASURES NECESSARY FOR OPEN CUT CULVERT INSTALLATION AT STA. 70+69. CONTRACTOR SHALL COORDINATE WITH THE TOWN OF FAIRVIEW AND ADJACENT NEIGHBORHOOD ASSOCIATIONS FOR THE TEMPORARY LANE CLOSURES OF E. STACY ROAD FOR THE INSTALLATION OF THE CULVERT AT STA. 70+69. CULVERT INSTALLATION MAY TAKE PLACE OVER MULTIPLE DAYS/NIGHTS. A CONSTRUCTION SEQUENCE SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO CLOSING ANY LANE OF E. STACY ROAD. E. STACY ROAD LANE CLOSURES SHALL NOT OCCUR DURING PEAK HOUR TIMES.

2. DURING THE CULVERT INSTALLATION AT STA. 70+69, DRAINAGE INSTALLATION AS SHOWN IN PHASE 1, MAY COMMENCE CONCURRENTLY.

3. PLACE NECESSARY TEMPORARY DRAINAGE FEATURES AS SHOWN IN THE PLANS. PLACE REMAINING EROSION CONTROL MEASURES AS SHOWN IN THE PLANS.

4. UPON COMPLETION OF ALL DRAINAGE FEATURES SHOWN FOR PHASE 1, PROPOSED DETOUR CONSTRUCTION MAY BEGIN WITH THE APPROVAL OF THE ENGINEER.

PHASE 2

1. UPON COMPLETION OF THE TEMPORARY DETOUR SHOWN IN PHASE 1, PLACE THE BARRICADES AND SIGNS AS SHOWN FOR THE TRAFFIC SWITCH.

2. SWITCH NORTHBOUND AND EASTBOUND TRAFFIC AS SHOWN IN PHASE 2 TO THE TEMPORARY PAVEMENT.

3. BEGIN CONSTRUCTION ON THE PROPOSED NORTHBOUND/EASTBOUND LANES AND DRAINAGE FEATURES AS SHOWN IN THE PLANS.

PHASE 3

1. UPON COMPLETION OF THE HALF ROADWAY AND DRAINAGE FEATURES IN PHASE 2, PLACE THE BARRICADES AND SIGNS AS SHOWN FOR THE TRAFFIC SWITCH.

2. SWITCH SOUTHBOUND/WESTBOUND TRAFFIC TO THE PROPOSED PAVEMENT CONSTRUCTED IN PHASE 2.

3. BEGIN CONSTRUCTION ON THE PROPOSED SOUTHBOUND/WESTBOUND LANES AND DRAINAGE FEATURES AS SHOWN IN THE PLANS.

PHASE 4

1. UPON COMPLETION OF THE ROADWAY AND DRAINAGE FEATURES IN PHASE 3, BARRICADES AND CHANNELIZING DEVICES MAY BE REMOVED. ADVANCE WARNING SIGNS SHALL REMAIN IN PLACE UNTIL THE PROJECT IS COMPLETE.

2. CONSTRUCT THE 8' CONCRETE PATH AS DIRECTED BY THE ENGINEER.

3. PERFORM PROJECT CLEAN UP AND REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND APPLICABLE EROSION CONTROL MEASURES AS DIRECTED BY THE ENGINEER.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 3, 2018

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

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372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

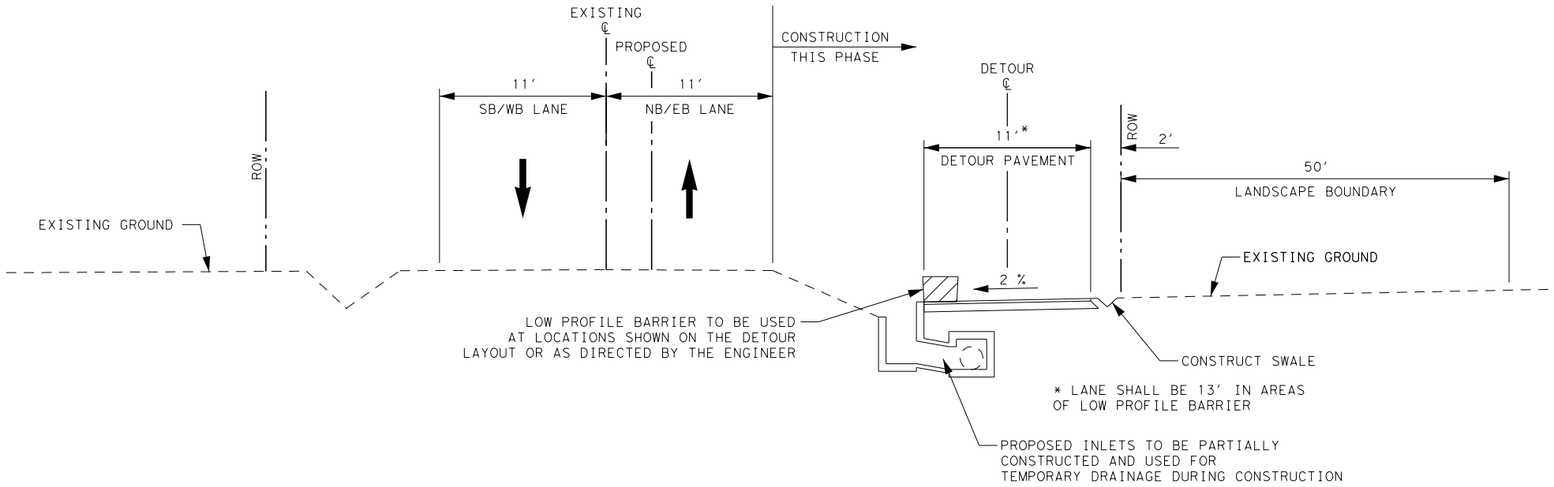
E. STACY ROAD IMPROVEMENTS

CONSTRUCTION PHASING NARRATIVE & NOTES

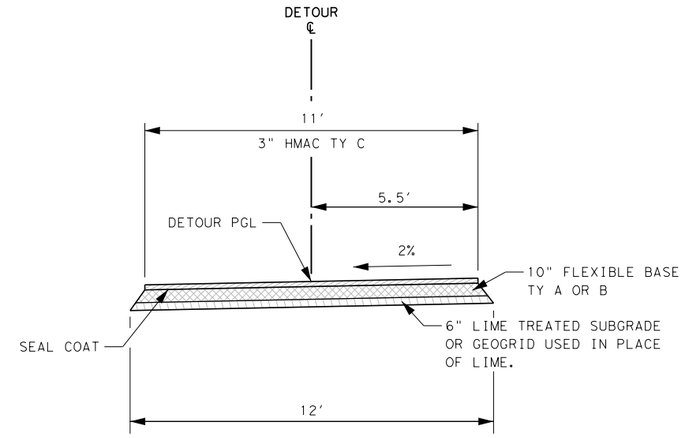
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CLM		SCW

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TRAFFIC CONTROL PLAN
TYPICAL SECTION
PHASE 1

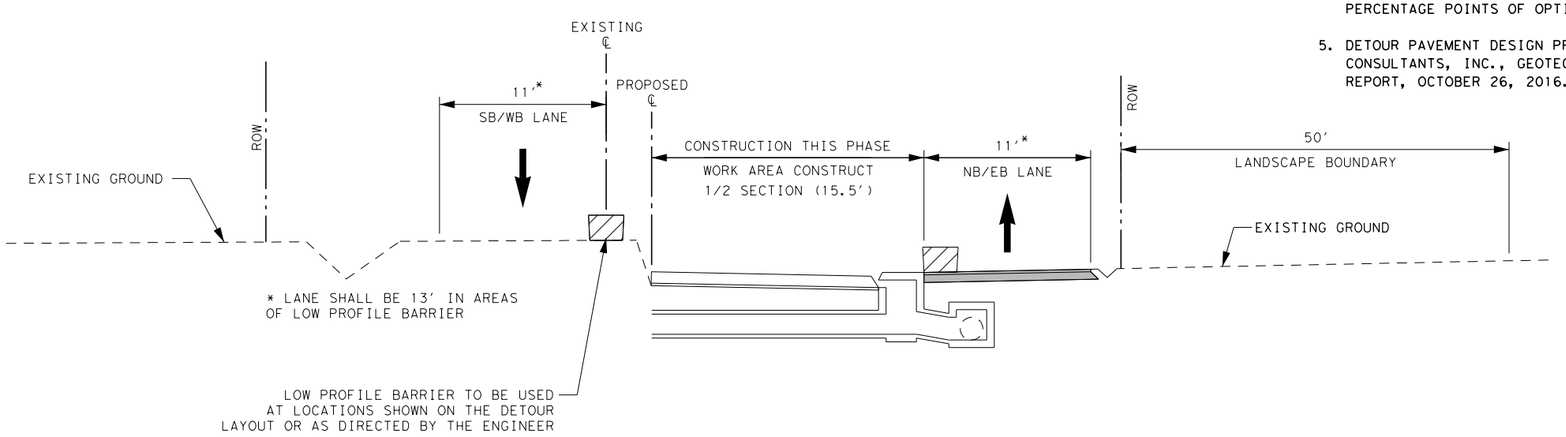


DETOUR PAVEMENT
TYPICAL SECTION

FOR CONTRACTOR INFORMATION ONLY

NOTES:

1. FLEXIBLE BASE MATERIAL SHALL BE PLACED AND COMPACTED IN TWO EQUAL LIFTS.
2. FLEXIBLE BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 98% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF -2 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
3. SEAL COAT SHALL CONSIST OF AGGREGATES TY B or PB, GRADE 3 AND THE BINDER COURSE OF ASPHALT (CRS-2P). AGGREGATE RATE: 1 CY/95 SY ASPHALT RATE: 0.60 GAL/SY
4. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
5. DETOUR PAVEMENT DESIGN PROVIDED BY TERRACON CONSULTANTS, INC., GEOTECHNICAL ENGINEERING REPORT, OCTOBER 26, 2016.



TRAFFIC CONTROL PLAN
TYPICAL SECTION
PHASE 2

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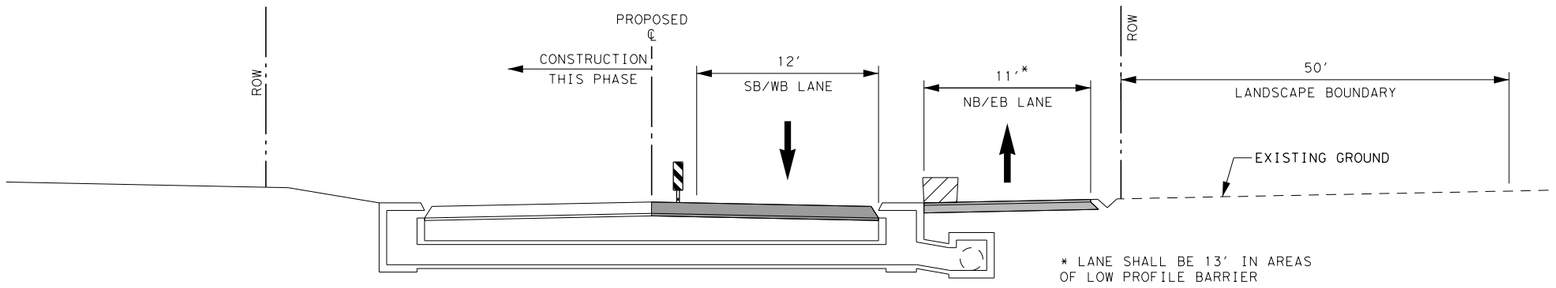
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E. STACY ROAD IMPROVEMENTS

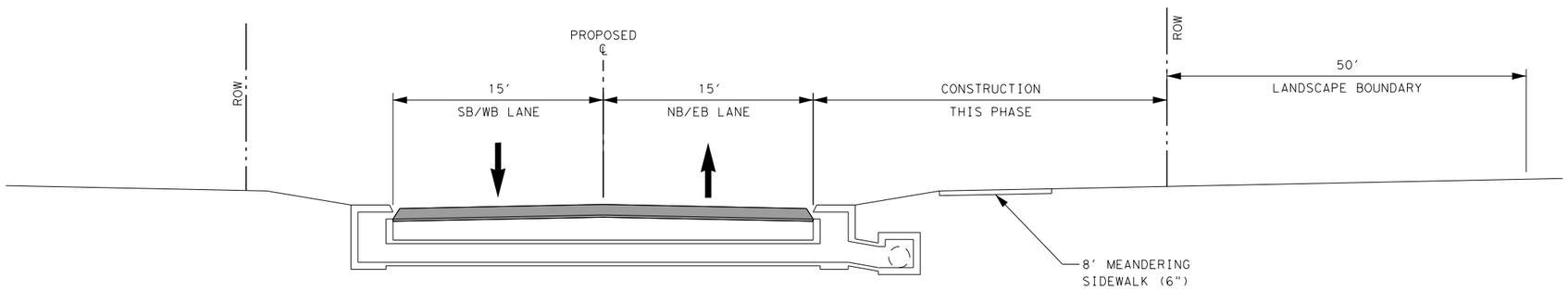
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS

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TRAFFIC CONTROL PLAN
TYPICAL SECTION
PHASE 3



TRAFFIC CONTROL PLAN
TYPICAL SECTION
PHASE 4

STATE OF TEXAS
CHRISTIAN L. MOORMAN
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January 3, 2018

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E. STACY ROAD IMPROVEMENTS

TRAFFIC CONTROL PLAN
TYPICAL SECTIONS

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Beginning chain TCP-02 description

Point 80 N 7,099,559.7084 E 2,553,537.3263 Sta 300+00.00

Course from 80 to PC TCP-02-1 N 88° 31′ 45.97" E Dist 107.0721

Curve Data

Curve TCP-02-1

P.I. Station	302+59.97	N	7,099,566.3802	E	2,553,797.2152
Delta =	83° 25′ 59.44"	(LT)			
Degree =	33° 24′ 21.28"				
Tangent =	152.9024				
Length =	249.7557				
Radius =	171.5139				
External =	58.2603				
Long Chord =	228.2667				
Mid. Ord. =	43.4881				
P.C. Station	301+07.07	N	7,099,562.4562	E	2,553,644.3632
P.T. Station	303+56.83	N	7,099,718.6782	E	2,553,810.7974
C.C.		N	7,099,733.9137	E	2,553,639.9615
Back = N	88° 31′ 45.97" E				
Ahead = N	5° 05′ 46.53" E				
Chord Bear = N	46° 48′ 46.25" E				

Course from PT TCP-02-1 to PC TCP-02-2 N 5° 05′ 46.53" E Dist 100.0578

Curve Data

Curve TCP-02-2

P.I. Station	305+06.10	N	7,099,867.3617	E	2,553,824.0573
Delta =	4° 15′ 27.51"	(LT)			
Degree =	4° 19′ 38.91"				
Tangent =	49.2158				
Length =	98.3863				
Radius =	1,324.0000				
External =	0.9144				
Long Chord =	98.3636				
Mid. Ord. =	0.9138				
P.C. Station	304+56.89	N	7,099,818.3405	E	2,553,819.6855
P.T. Station	305+55.27	N	7,099,916.5722	E	2,553,824.7776
C.C.		N	7,099,935.9504	E	2,552,500.9194
Back = N	5° 05′ 46.53" E				
Ahead = N	0° 50′ 19.02" E				
Chord Bear = N	2° 58′ 02.77" E				

Course from PT TCP-02-2 to PC TCP-02-3 N 0° 50′ 19.02" E Dist 1,118.5918

Curve Data

Curve TCP-02-3

P.I. Station	318+43.35	N	7,101,204.5088	E	2,553,843.6300
Delta =	90° 40′ 27.25"	(RT)			
Degree =	34° 12′ 23.17"				
Tangent =	169.4828				
Length =	265.0795				
Radius =	167.5000				
External =	70.7869				
Long Chord =	238.2704				
Mid. Ord. =	49.7585				
P.C. Station	316+73.86	N	7,101,035.0442	E	2,553,841.1494
P.T. Station	319+38.94	N	7,101,200.0343	E	2,554,013.0537
C.C.		N	7,101,032.5926	E	2,554,008.6315
Back = N	0° 50′ 19.02" E				
Ahead = S	88° 29′ 13.73" E				
Chord Bear = N	46° 10′ 32.64" E				

Course from PT TCP-02-3 to PC TCP-02-4 S 88° 29′ 13.73" E Dist 711.2866

Curve Data

Curve TCP-02-4

P.I. Station	328+01.52	N	7,101,177.2613	E	2,554,875.3271
Delta =	0° 30′ 01.05"	(LT)			
Degree =	0° 09′ 55.24"				
Tangent =	151.2875				
Length =	302.5731				
Radius =	34,652.1420				
External =	0.3303				
Long Chord =	302.5721				
Mid. Ord. =	0.3302				
P.C. Station	326+50.23	N	7,101,181.2555	E	2,554,724.0923
P.T. Station	329+52.80	N	7,101,174.5878	E	2,555,026.5909
C.C.		N	7,135,821.3186	E	2,555,638.9498
Back = S	88° 29′ 13.73" E				
Ahead = S	88° 59′ 14.78" E				
Chord Bear = S	88° 44′ 14.26" E				

Course from PT TCP-02-4 to PC TCP-02-5 S 88° 59′ 14.78" E Dist 880.1511

Curve Data

Curve TCP-02-5

P.I. Station	338+71.39	N	7,101,158.3548	E	2,555,945.0388
Delta =	0° 33′ 27.47"	(LT)			
Degree =	0° 43′ 31.18"				
Tangent =	38.4402				
Length =	76.8798				
Radius =	7,899.2940				
External =	0.0935				
Long Chord =	76.8795				
Mid. Ord. =	0.0935				
P.C. Station	338+32.95	N	7,101,159.0341	E	2,555,906.6047
P.T. Station	339+09.83	N	7,101,158.0496	E	2,555,983.4778
C.C.		N	7,109,057.0946	E	2,556,046.1978
Back = S	88° 59′ 14.78" E				
Ahead = S	89° 32′ 42.25" E				
Chord Bear = S	89° 15′ 58.52" E				

Course from PT TCP-02-5 to PC TCP-02-6 S 89° 32′ 42.25" E Dist 124.7186

Curve Data

Curve TCP-02-6

P.I. Station	341+36.53	N	7,101,156.2496	E	2,556,210.1717
Delta =	1° 04′ 43.60"	(RT)			
Degree =	0° 31′ 44.11"				
Tangent =	101.9824				
Length =	203.9587				
Radius =	10,832.6082				
External =	0.4800				
Long Chord =	203.9557				
Mid. Ord. =	0.4800				
P.C. Station	340+34.55	N	7,101,157.0593	E	2,556,108.1926
P.T. Station	342+38.51	N	7,101,153.5200	E	2,556,312.1176
C.C.		N	7,090,324.7926	E	2,556,022.1822
Back = S	89° 32′ 42.25" E				
Ahead = S	88° 27′ 58.65" E				
Chord Bear = S	89° 00′ 20.45" E				

Course from PT TCP-02-6 to PC TCP-02-7 S 88° 27′ 58.65" E Dist 460.1272

Curve Data

Curve TCP-02-7

P.I. Station	347+17.48	N	7,101,140.7003	E	2,556,790.9176
Delta =	0° 35′ 14.44"	(LT)			
Degree =	1° 33′ 30.31"				
Tangent =	18.8444				
Length =	37.6884				
Radius =	3,676.5336				
External =	0.0483				
Long Chord =	37.6882				
Mid. Ord. =	0.0483				
P.C. Station	346+98.64	N	7,101,141.2047	E	2,556,772.0799
P.T. Station	347+36.33	N	7,101,140.3891	E	2,556,809.7594
C.C.		N	7,104,816.4212	E	2,556,870.4826
Back = S	88° 27′ 58.65" E				
Ahead = S	89° 03′ 13.09" E				
Chord Bear = S	88° 45′ 35.87" E				

Course from PT TCP-02-7 to PC TCP-02-8 S 89° 03′ 13.09" E Dist 386.1455

Curve Data

Curve TCP-02-8

P.I. Station	352+84.09	N	7,101,131.3420	E	2,557,357.4493
Delta =	8° 46′ 58.95"	(RT)			
Degree =	2° 43′ 21.13"				
Tangent =	161.6192				
Length =	322.6051				
Radius =	2,104.5000				
External =	6.1968				
Long Chord =	322.2893				
Mid. Ord. =	6.1786				
P.C. Station	351+22.47	N	7,101,134.0114	E	2,557,195.8522
P.T. Station	354+45.08	N	7,101,104.0291	E	2,557,516.7439
C.C.		N	7,099,029.7984	E	2,557,161.0934
Back = S	89° 03′ 13.09" E				
Ahead = S	80° 16′ 14.14" E				
Chord Bear = S	84° 39′ 43.61" E				

Course from PT TCP-02-8 to 81 S 80° 16′ 14.14" E Dist 189.3486

Point 81 N 7,101,072.0301 E 2,557,703.3691 Sta 356+34.43

Ending chain TCP-02 description

STATE OF TEXAS
CHRISTIAN L. MOORMAN
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LICENSED PROFESSIONAL ENGINEER
January 3, 2018

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E. STACY ROAD IMPROVEMENTS

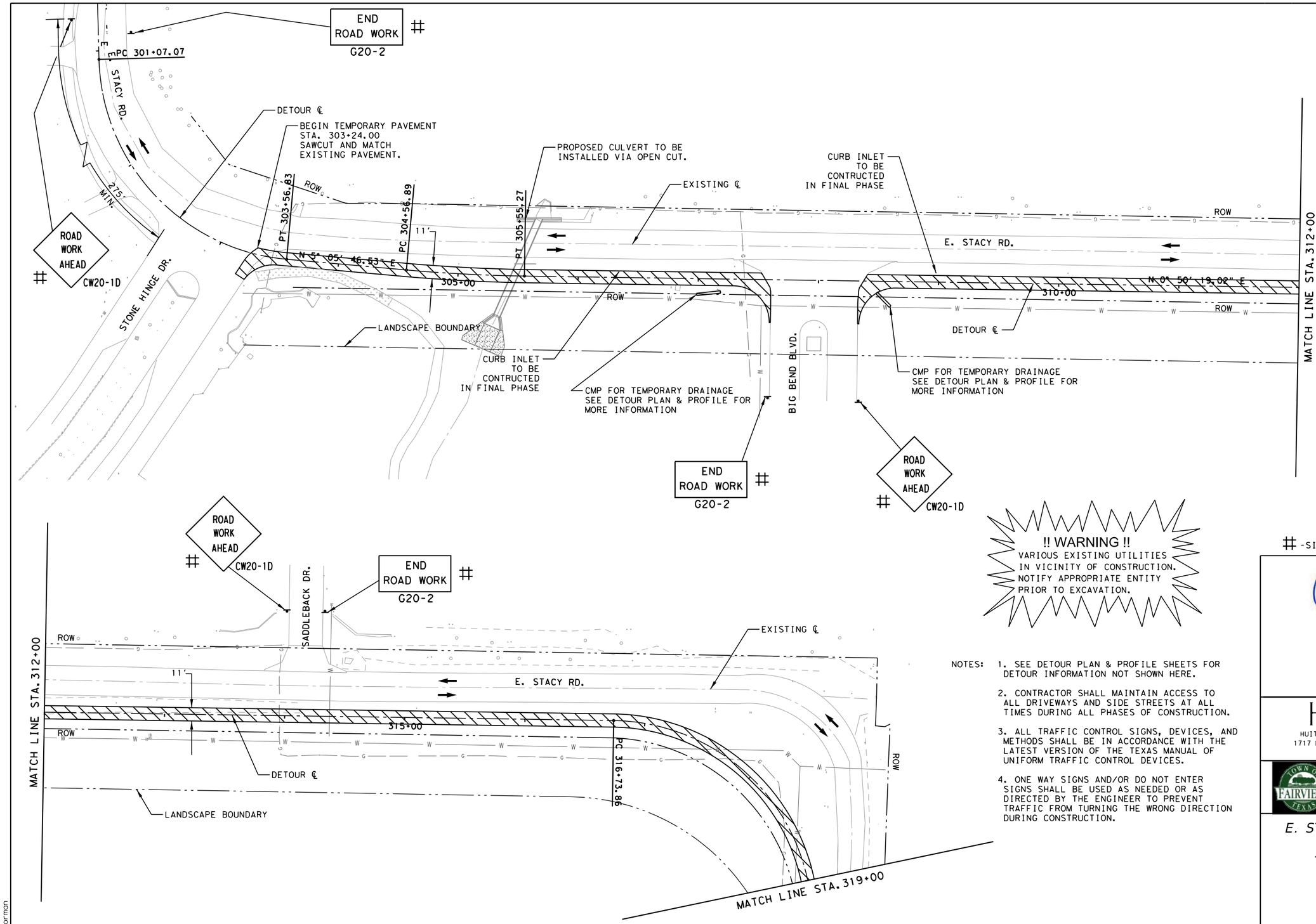
TRAFFIC CONTROL PLAN
DETOUR ALIGNMENT DATA

SCALE: NONE SHEET 1 OF 1

SHEET NO. 15

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	CLM	SCW

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SCALE: 1" = 40'

LEGEND

- TRAFFIC FLOW
- DETOUR CONSTRUCTION THIS PHASE
- CONCRETE REMOVAL SEE REMOVAL PLANS
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE

!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.

-SIGNS TO REMAIN THROUGHOUT CONSTRUCTION.

NOTES:
1. SEE DETOUR PLAN & PROFILE SHEETS FOR DETOUR INFORMATION NOT SHOWN HERE.
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AND SIDE STREETS AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION.
3. ALL TRAFFIC CONTROL SIGNS, DEVICES, AND METHODS SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. ONE WAY SIGNS AND/OR DO NOT ENTER SIGNS SHALL BE USED AS NEEDED OR AS DIRECTED BY THE ENGINEER TO PREVENT TRAFFIC FROM TURNING THE WRONG DIRECTION DURING CONSTRUCTION.

STATE OF TEXAS
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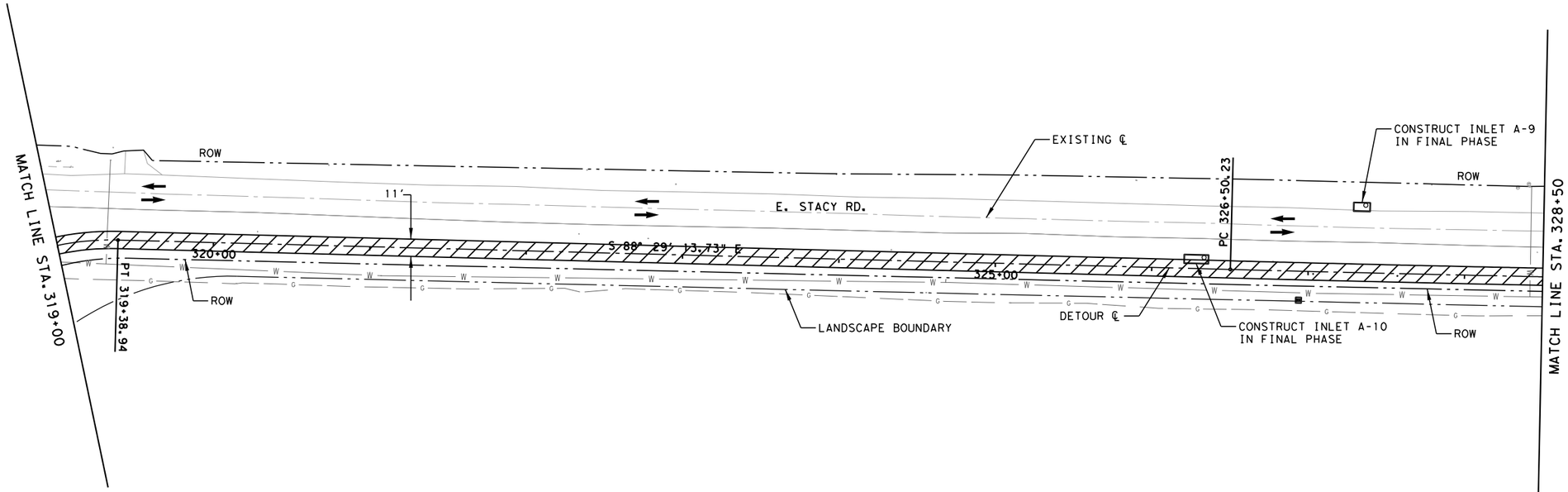
E. STACY ROAD IMPROVEMENTS

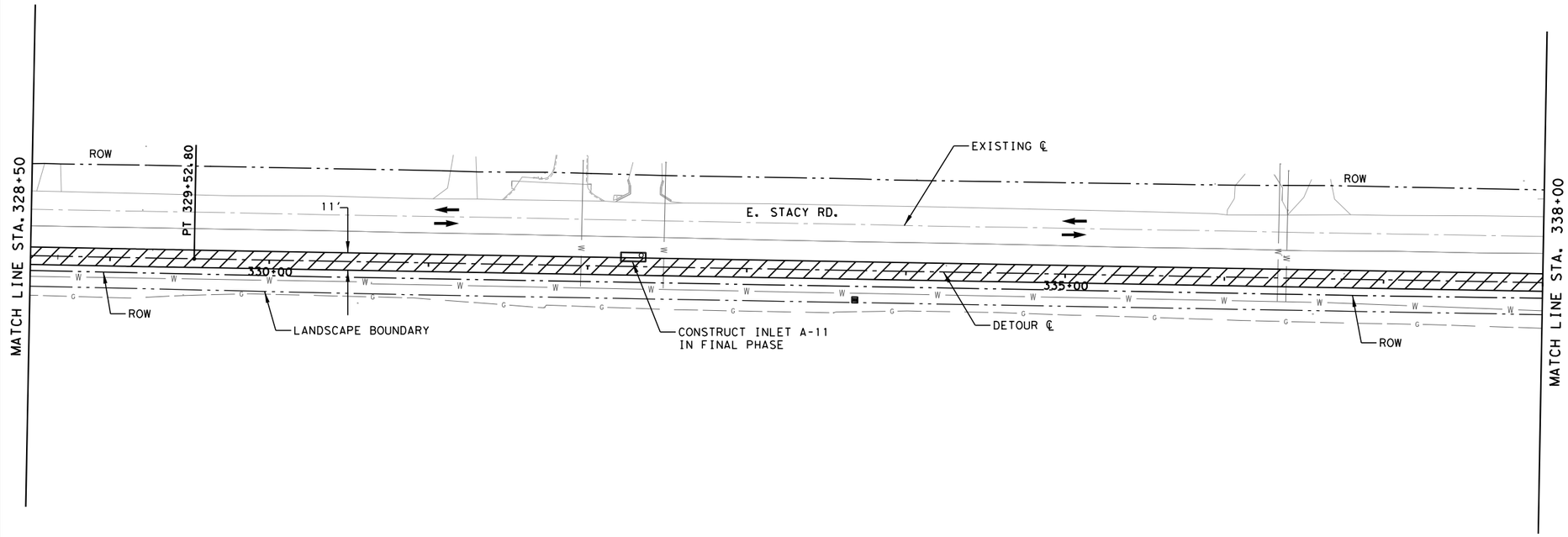
TRAFFIC CONTROL PLAN
PHASE 1

BEGIN TO STA. 319+00

SCALE: 1" = 40'	SHEET 1 OF 3	SHEET NO.
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!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

0 40 80
SCALE: 1" = 40'

LEGEND

- TRAFFIC FLOW
- DETOUR CONSTRUCTION THIS PHASE
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE

NOTES:
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972-562-0522

E. STACY ROAD IMPROVEMENTS

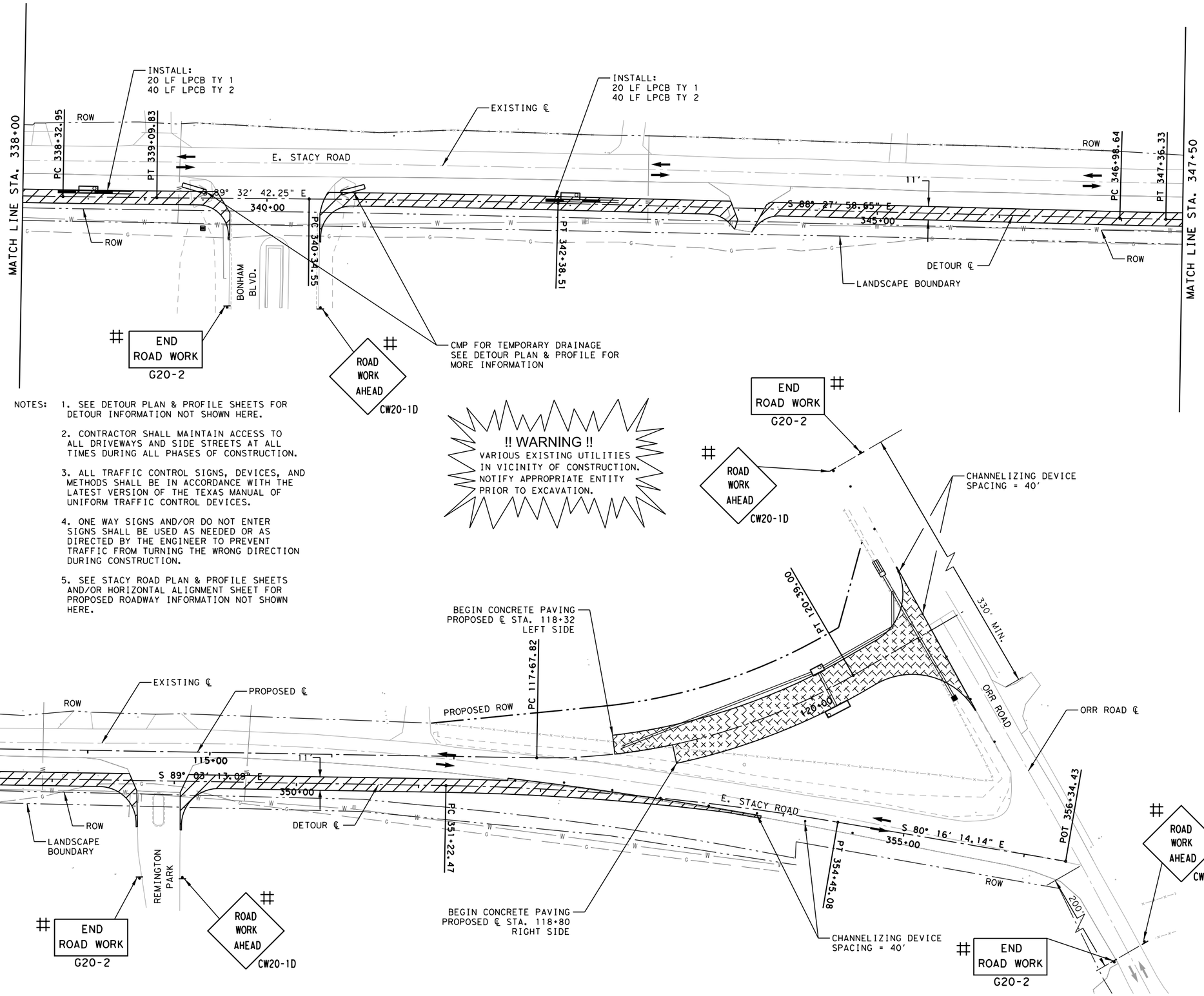
TRAFFIC CONTROL PLAN
PHASE 1

STA. 319+00 TO STA. 338+00

SCALE: 1" = 40' SHEET 2 OF 3 SHEET NO. 17

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	CLM	SCW

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1/3/2018 2:36:55 PM cmoorman



NOTES:

1. SEE DETOUR PLAN & PROFILE SHEETS FOR DETOUR INFORMATION NOT SHOWN HERE.
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5. SEE STACY ROAD PLAN & PROFILE SHEETS AND/OR HORIZONTAL ALIGNMENT SHEET FOR PROPOSED ROADWAY INFORMATION NOT SHOWN HERE.

0 40 80

SCALE: 1" = 40'

LEGEND

- TRAFFIC FLOW
- DETOUR CONSTRUCTION THIS PHASE
- PERMANENT CONSTRUCTION THIS PHASE
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE
- CHANNELIZING DEVICES

#-SIGNS TO REMAIN THROUGHOUT CONSTRUCTION.

CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

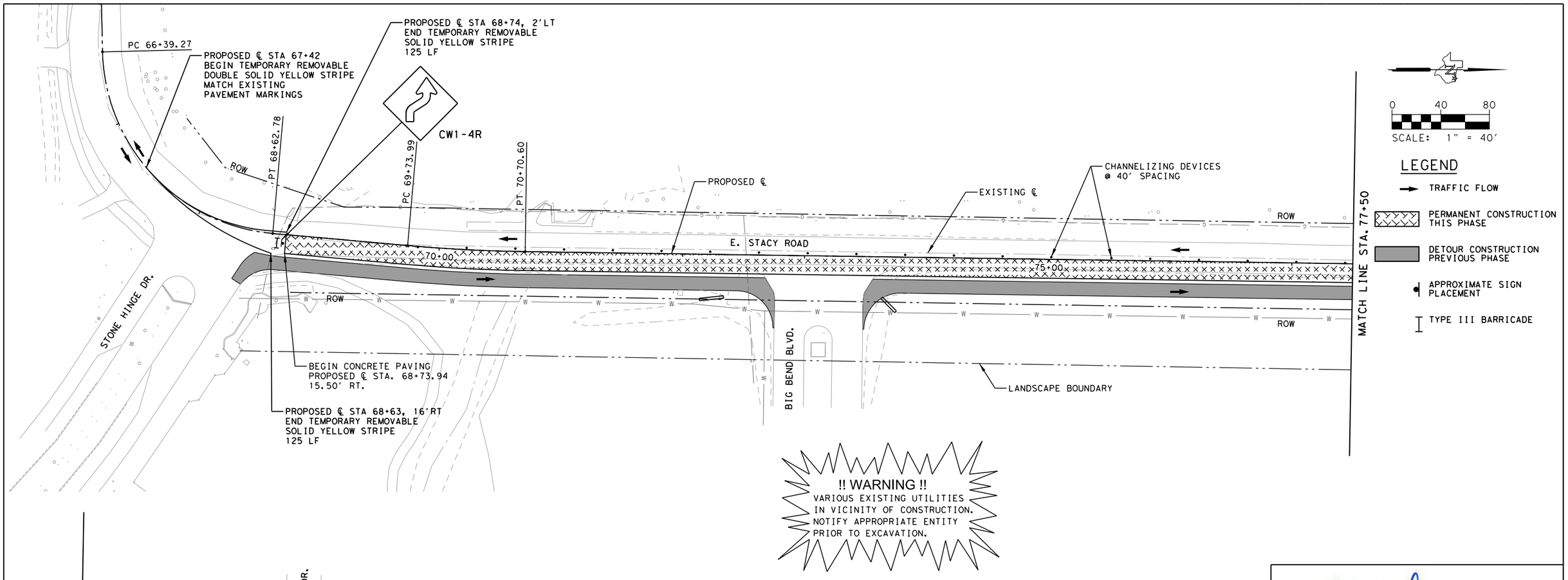
E. STACY ROAD IMPROVEMENTS

TRAFFIC CONTROL PLAN PHASE 1

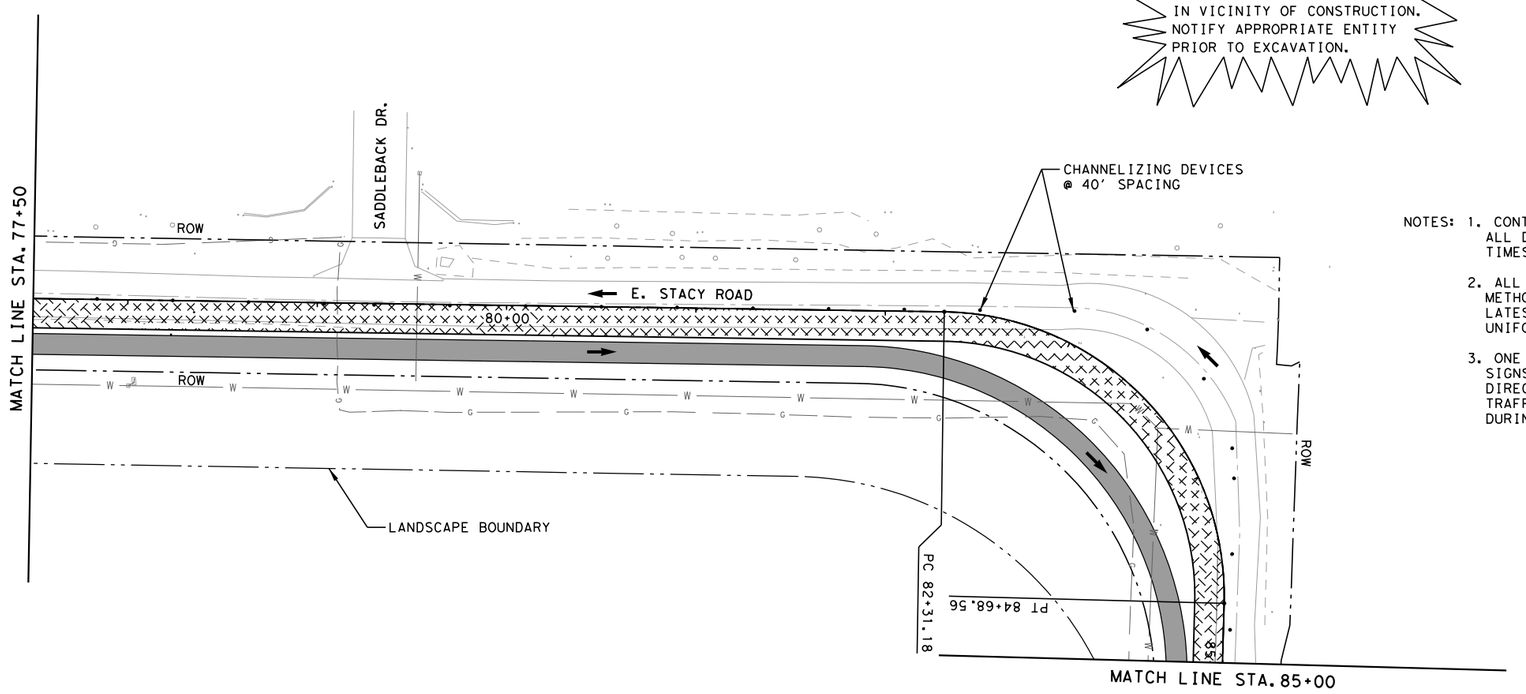
STA. 338+00 TO END

SCALE: 1" = 40'		SHEET 3 OF 3	SHEET NO.
DESIGNED BY:	DRAWN BY:	CHECKED BY:	18
CLM	CLM	SCW	

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!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.



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E. STACY ROAD IMPROVEMENTS

TRAFFIC CONTROL PLAN
PHASE 2

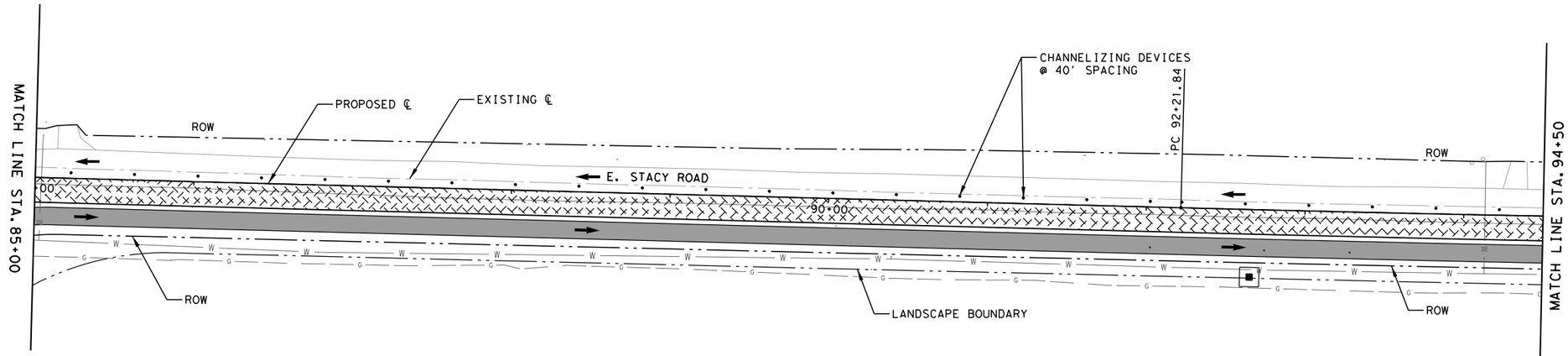
BEGIN TO STA. 85+00

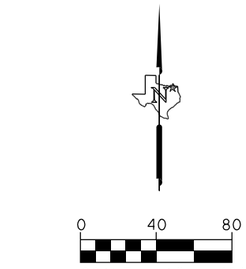
SCALE: 1" = 40' SHEET 1 OF 3

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	CLM	SCW

SHEET NO. 19

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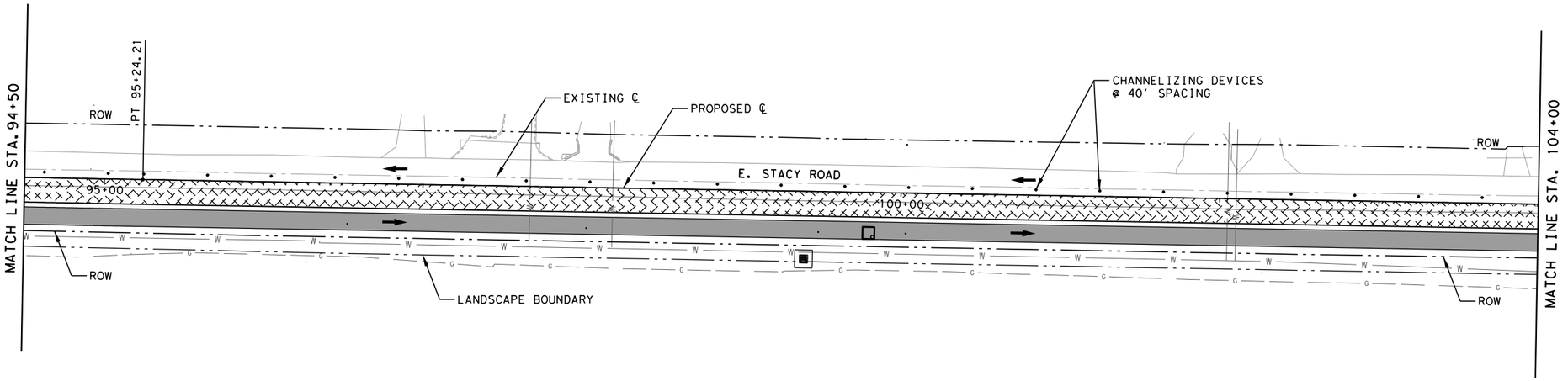


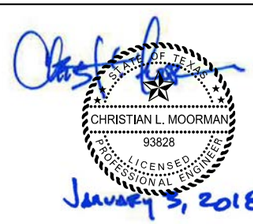
LEGEND

- TRAFFIC FLOW
- PERMANENT CONSTRUCTION THIS PHASE
- DETOUR CONSTRUCTION PREVIOUS PHASE
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE

!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

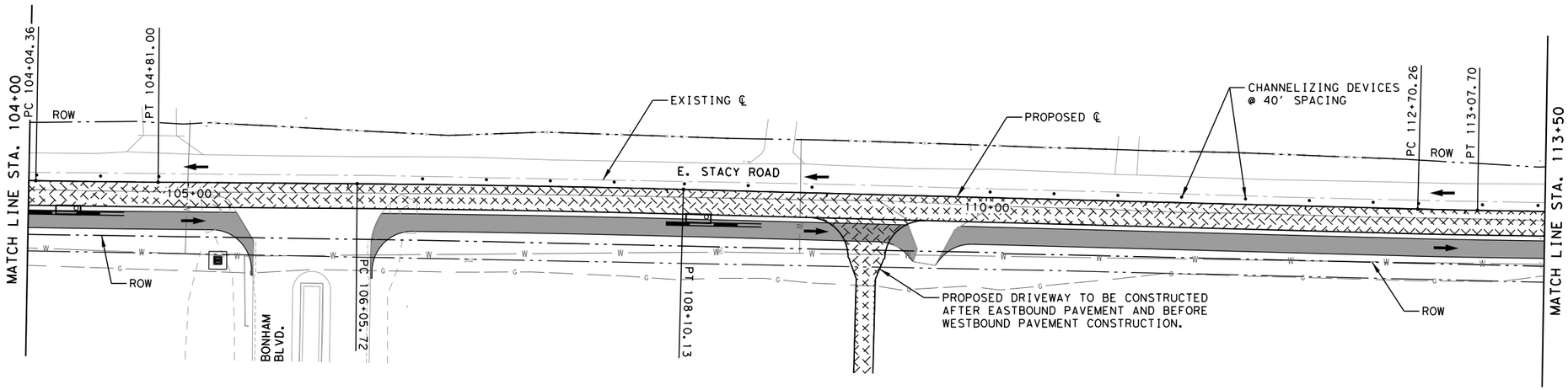
E. STACY ROAD IMPROVEMENTS

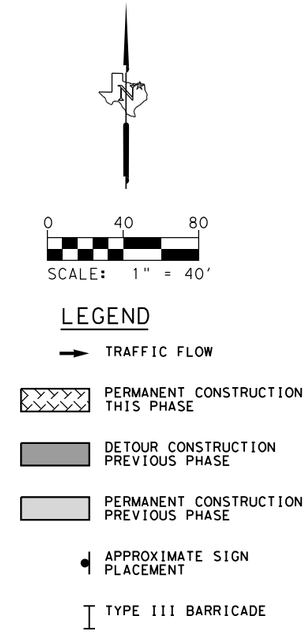
TRAFFIC CONTROL PLAN
PHASE 2

STA. 85+00 TO STA. 104+00

SCALE: 1" = 40'	SHEET 2 OF 3		SHEET NO.
DESIGNED BY:	DRAWN BY:	CHECKED BY:	20
CLM	CLM	SCW	

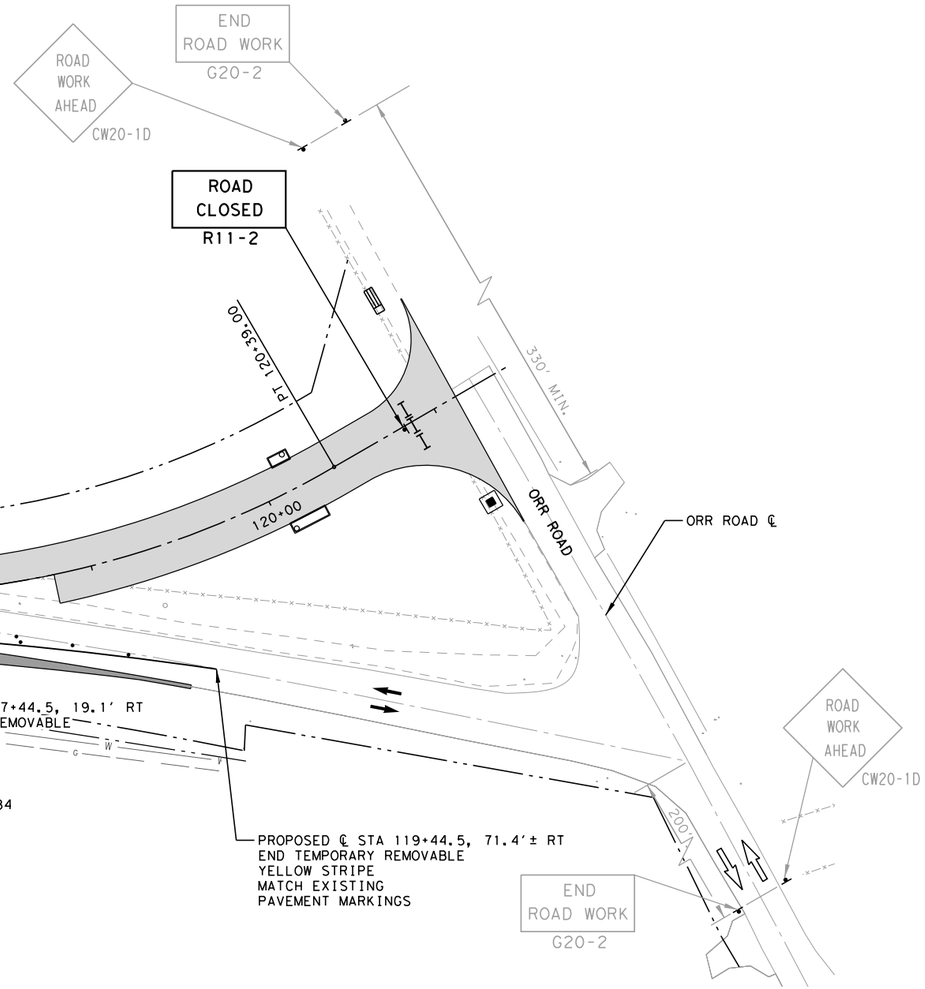
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STATE OF TEXAS
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January 3, 2018

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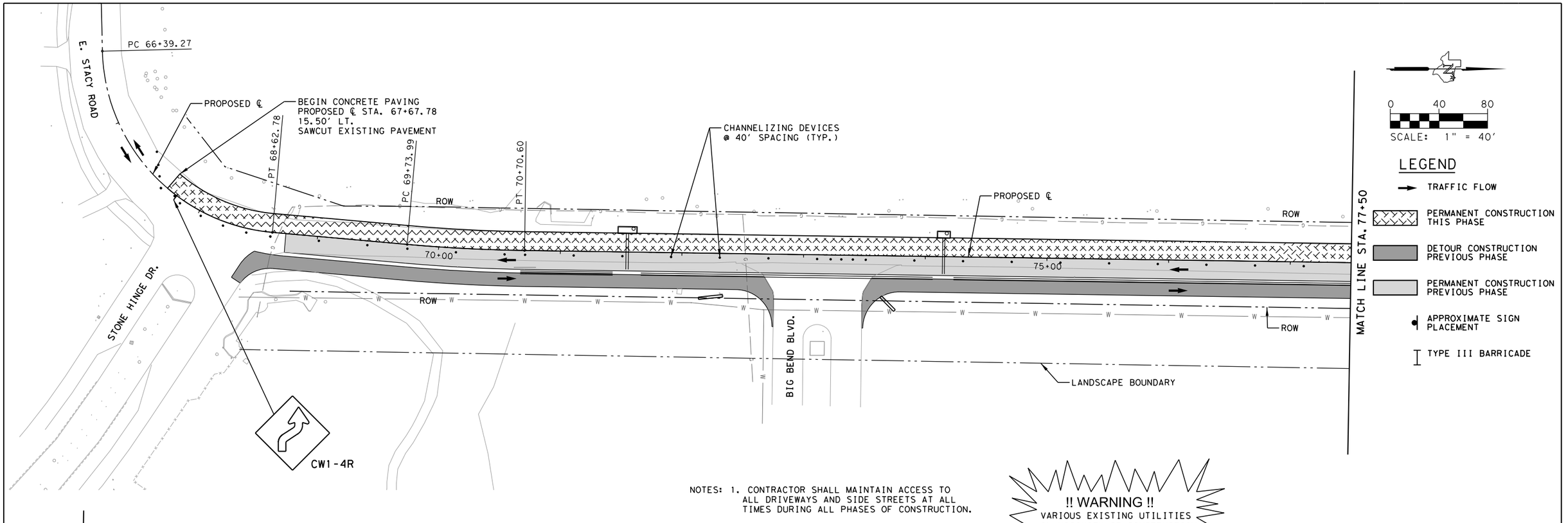
E. STACY ROAD IMPROVEMENTS

TRAFFIC CONTROL PLAN PHASE 2

STA. 104+00 TO END

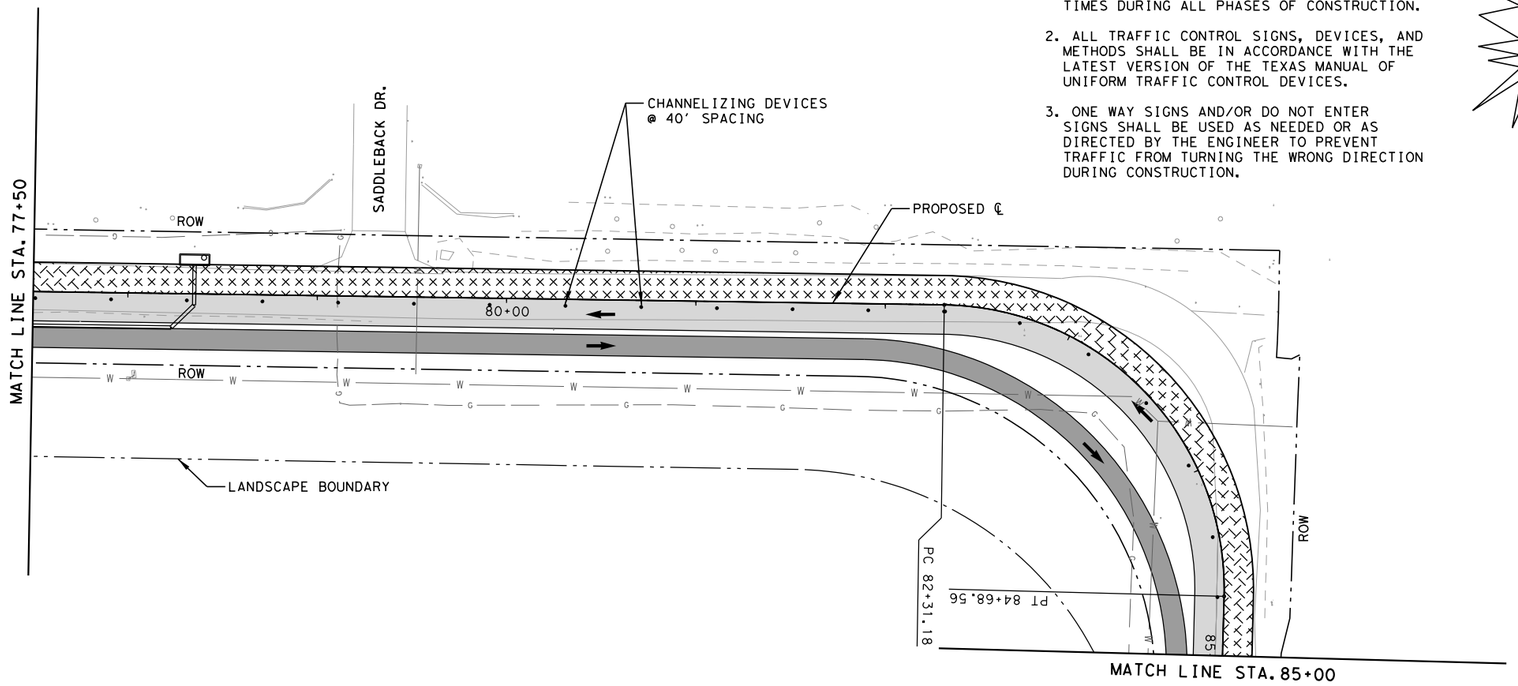
SCALE: 1" = 40'	SHEET 3 OF 3		SHEET NO.
DESIGNED BY:	DRAWN BY:	CHECKED BY:	21
CLM	CLM	SCW	

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TOWN OF FAIRVIEW, TEXAS
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E. STACY ROAD IMPROVEMENTS

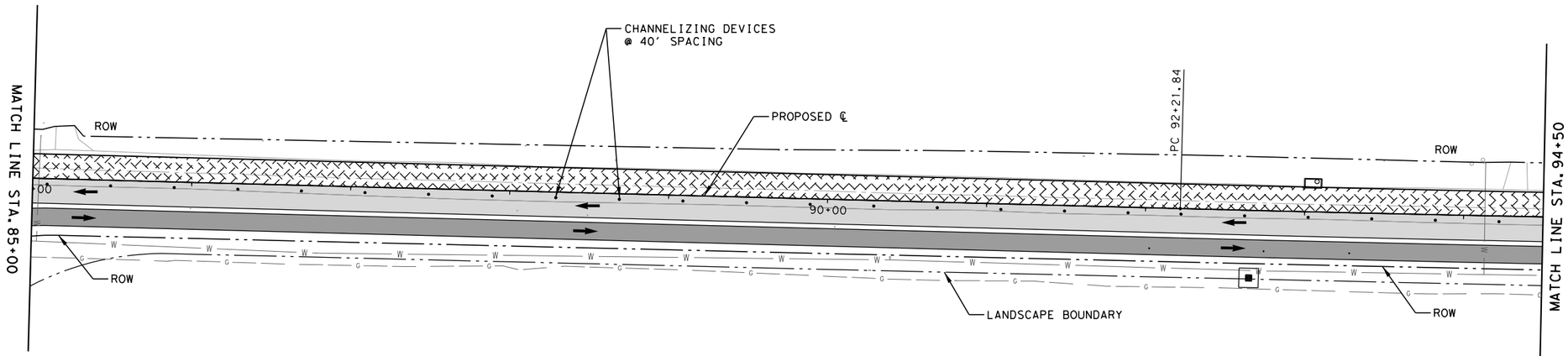
TRAFFIC CONTROL PLAN
PHASE 3

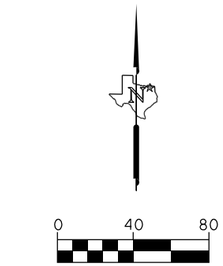
BEGIN TO STA. 85+00

SCALE: 1" = 40' SHEET 1 OF 4 SHEET NO. 22

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	CLM	SCW

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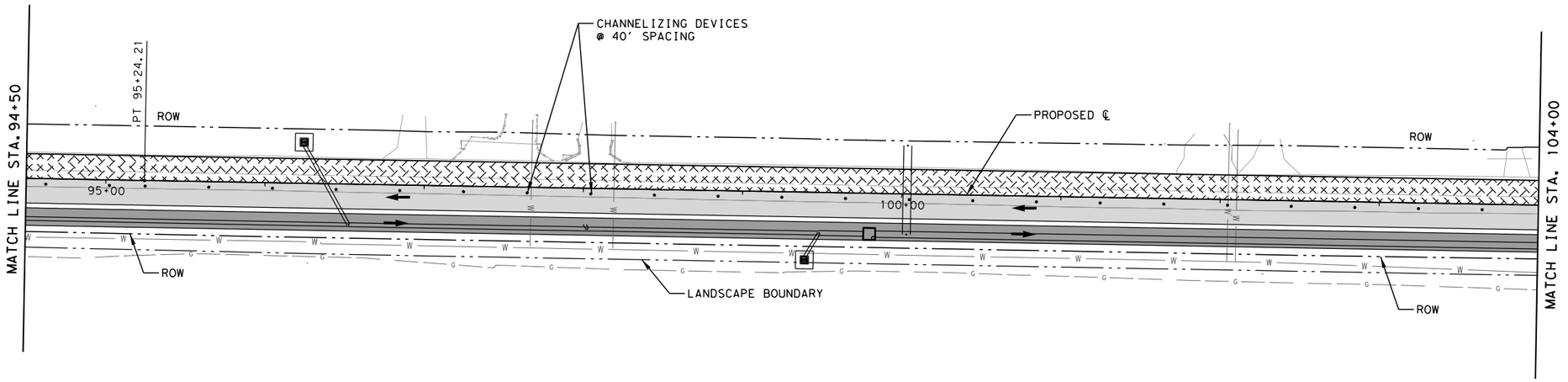


LEGEND

- TRAFFIC FLOW
- PERMANENT CONSTRUCTION THIS PHASE
- DETOUR CONSTRUCTION PREVIOUS PHASE
- PERMANENT CONSTRUCTION PREVIOUS PHASE
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

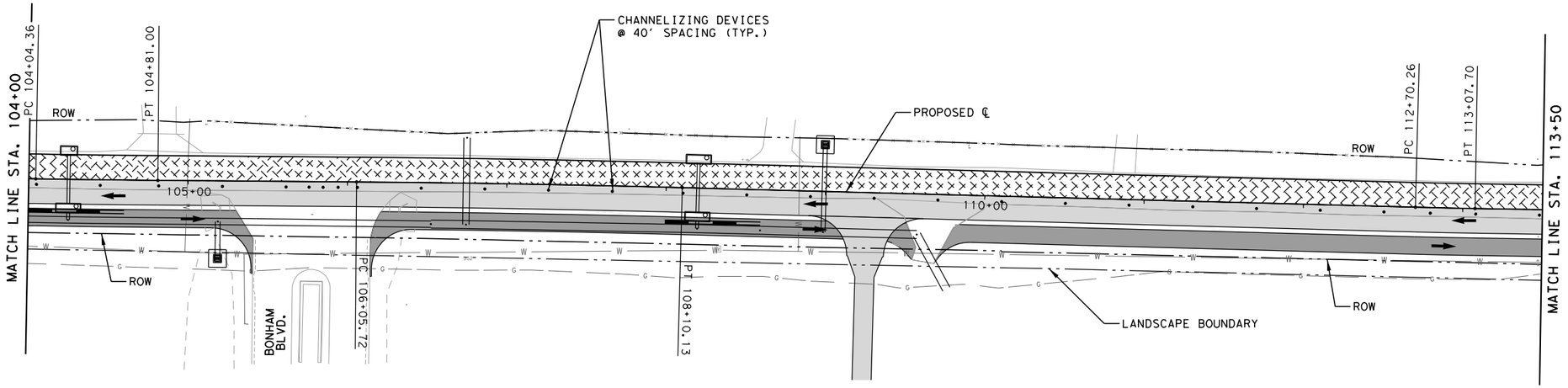
E. STACY ROAD IMPROVEMENTS

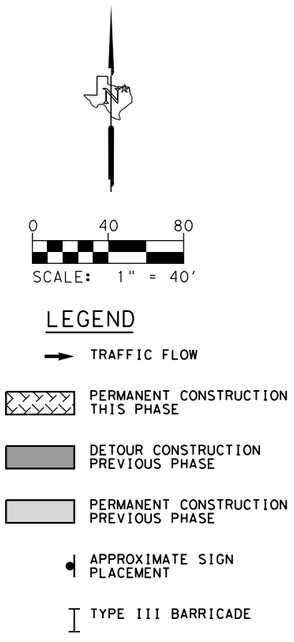
TRAFFIC CONTROL PLAN
PHASE 3

STA. 85+00 TO STA. 104+00

SCALE: 1" = 40'	SHEET 2 OF 4	SHEET NO.
DESIGNED BY: CLM	DRAWN BY: CLM	CHECKED BY: SCW
		23

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-tcp phase 03-02.dgn
1/3/2018 2:37:08 PM cmoorman

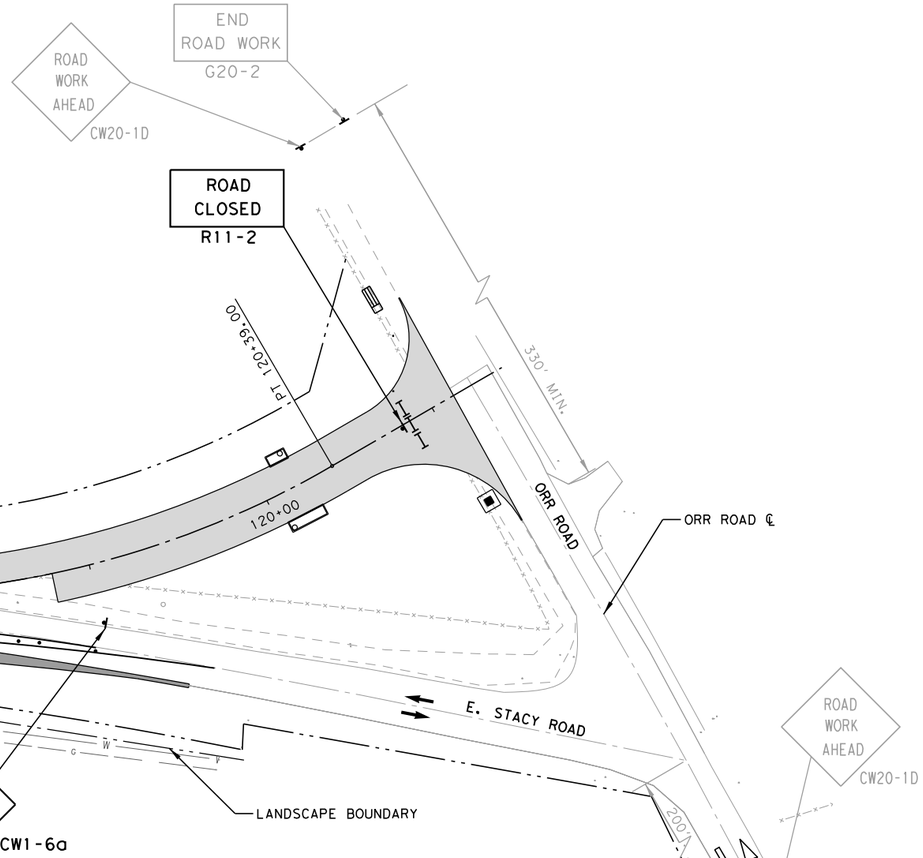




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January 3, 2018

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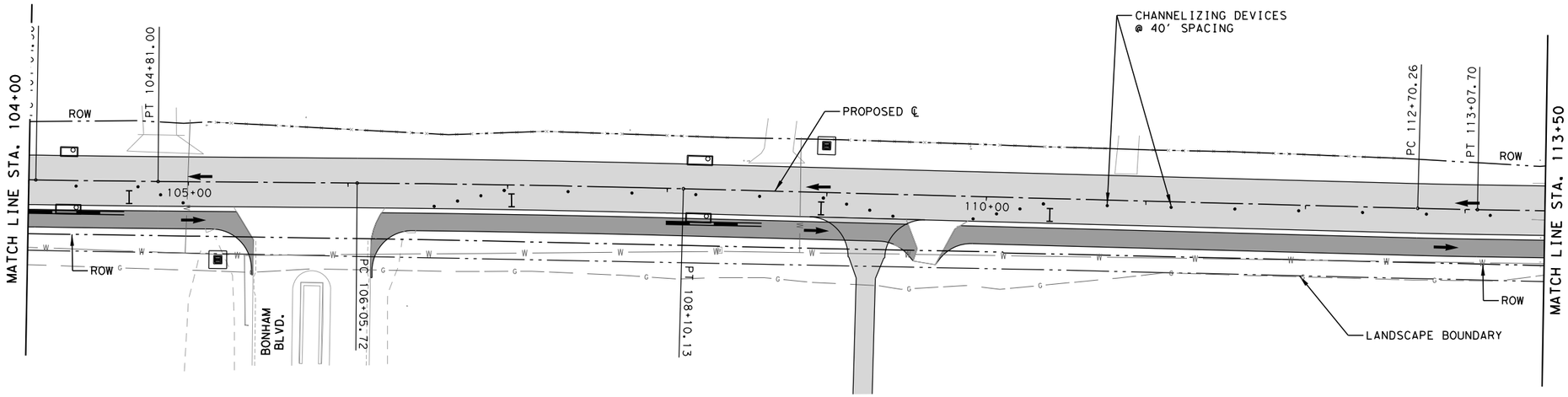
E. STACY ROAD IMPROVEMENTS

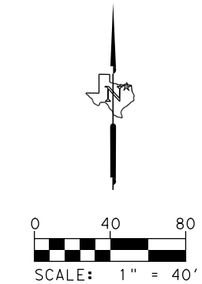
TRAFFIC CONTROL PLAN PHASE 3A

STA. 104+00 TO END

SCALE: 1" = 40'		SHEET 3 OF 4	SHEET NO.
DESIGNED BY:	DRAWN BY:	CHECKED BY:	24
CLM	CLM	SCW	

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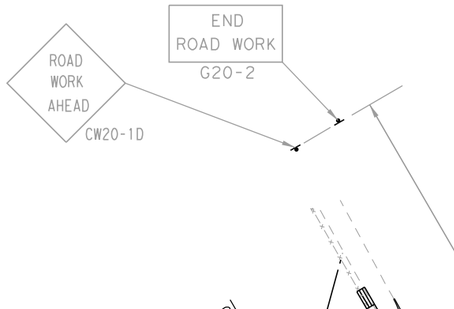


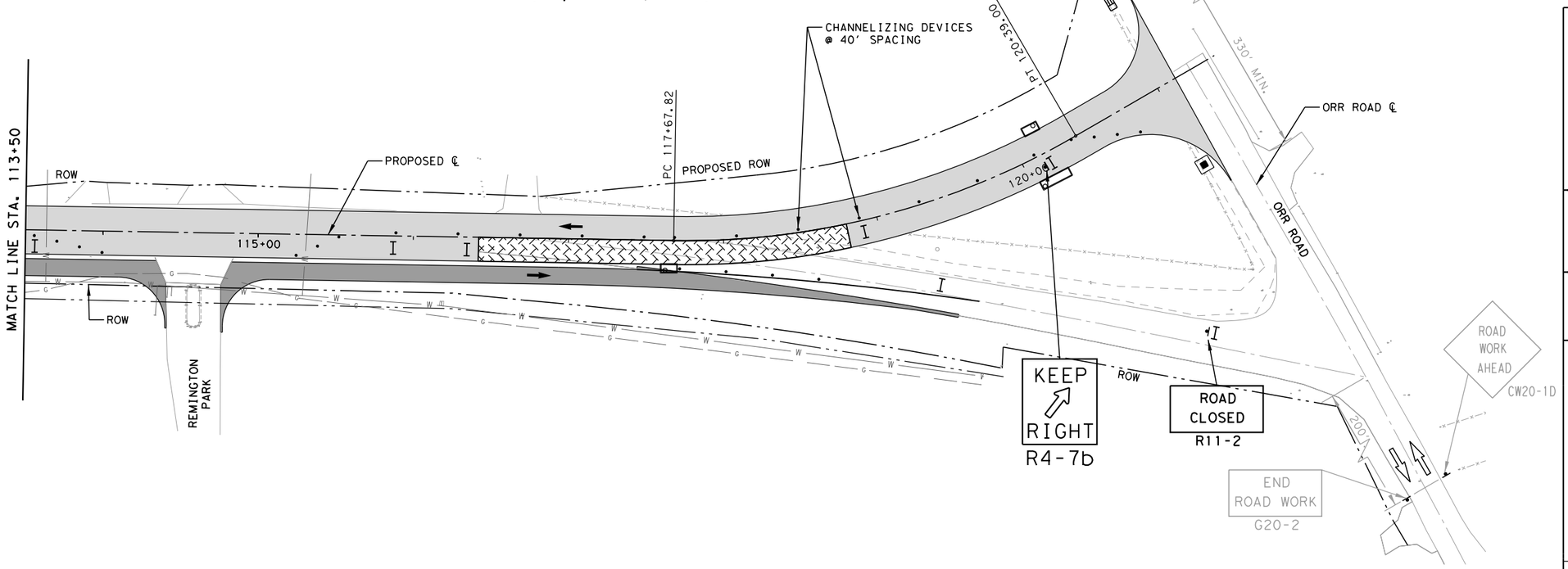
LEGEND

- TRAFFIC FLOW
- PERMANENT CONSTRUCTION THIS PHASE
- DETOUR CONSTRUCTION PREVIOUS PHASE
- PERMANENT CONSTRUCTION PREVIOUS PHASE
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE

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January 5, 2018

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
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E. STACY ROAD IMPROVEMENTS

TRAFFIC CONTROL PLAN PHASE 3B

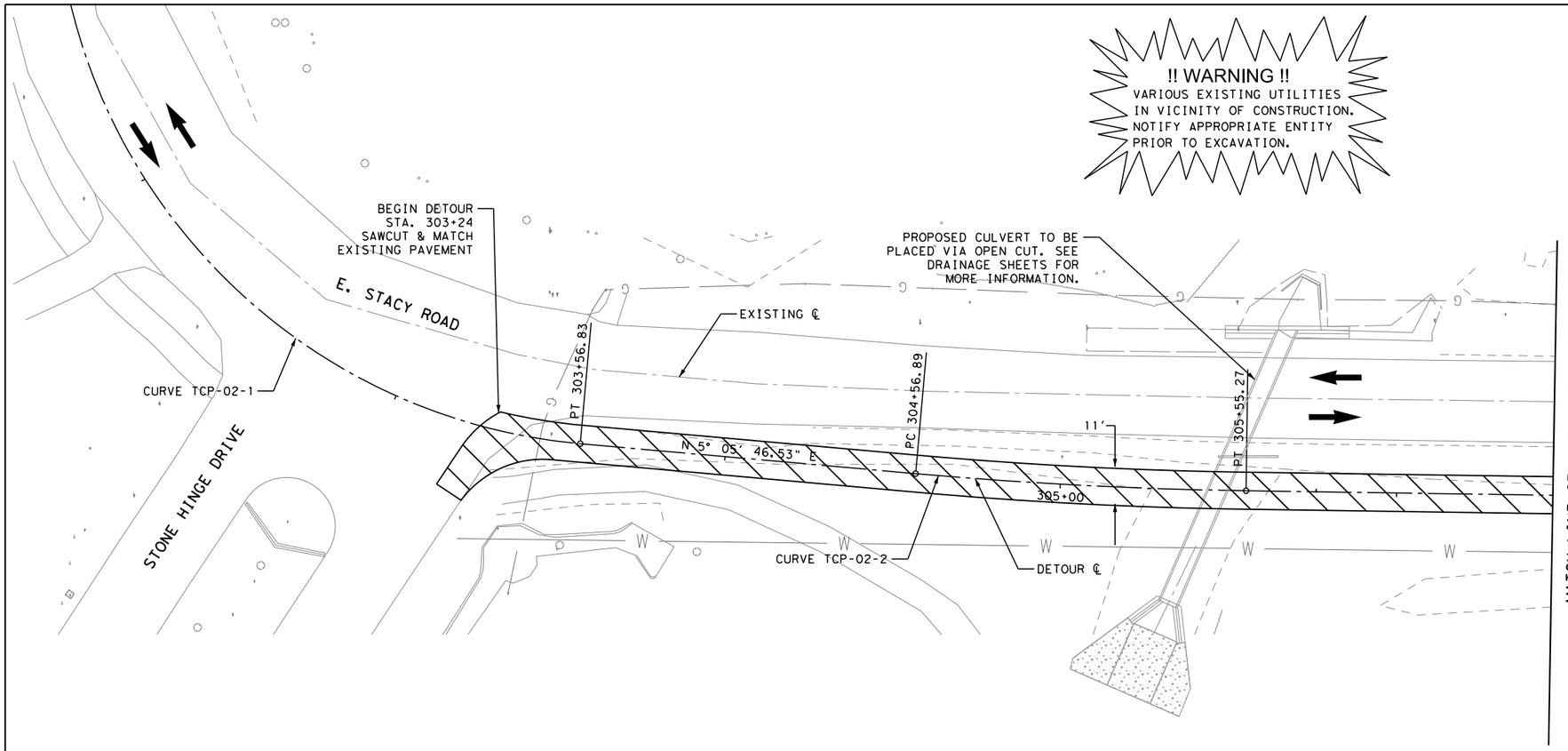
STA. 104+00 TO END

SCALE: 1" = 40' SHEET 4 OF 4

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	CLM	SCW

SHEET NO. 25

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-tcp phase 03b-03.dgn
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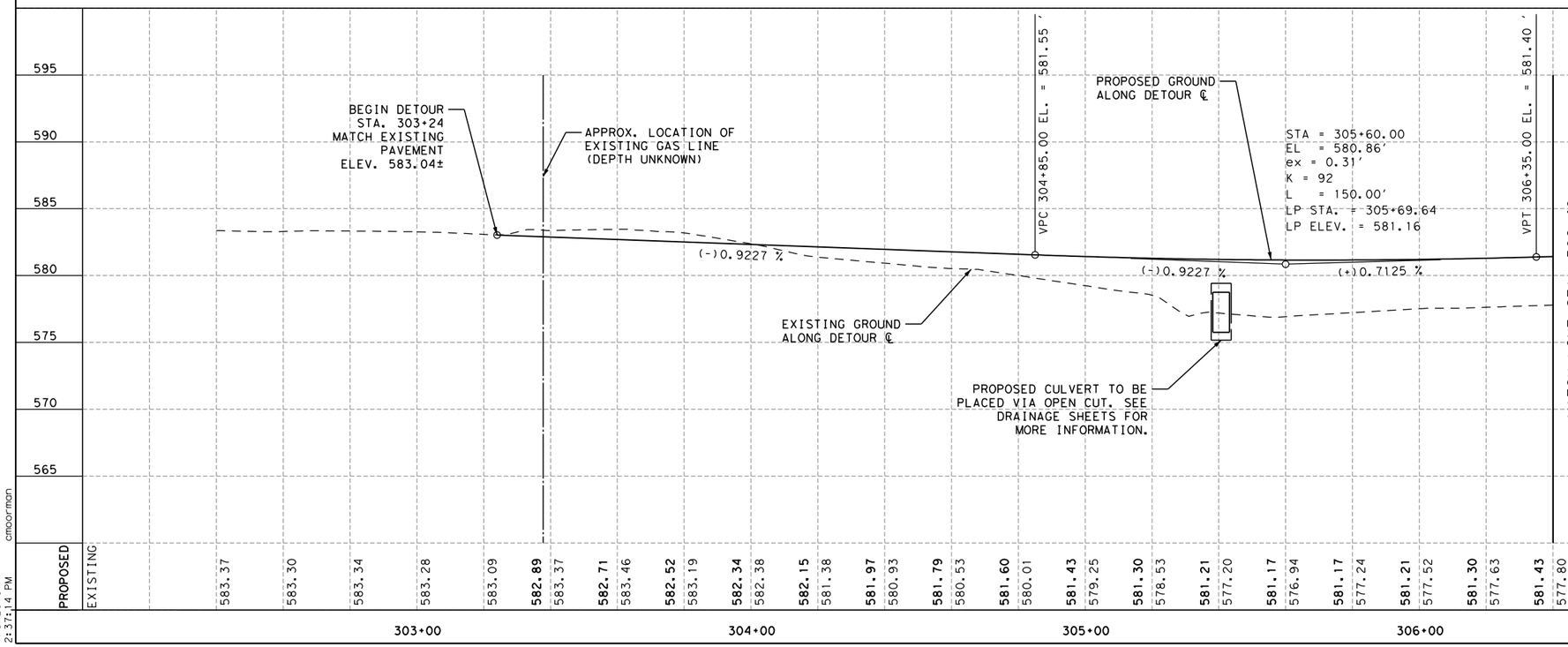
LEGEND

- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

NOTES:

1. CONSTRUCT DRAINAGE FEATURES OUTSIDE THE PROPOSED ROADWAY PRIOR TO CONSTRUCTING DETOUR PAVEMENT.
2. THE INFORMATION SHOWN ON THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND PIPELINES, CONDUITS, AND STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES AND BY PROSPECTING IN ADVANCE OF EXCAVATION OPERATIONS.
3. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
4. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.



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E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

BEGIN TO STA. 306+40

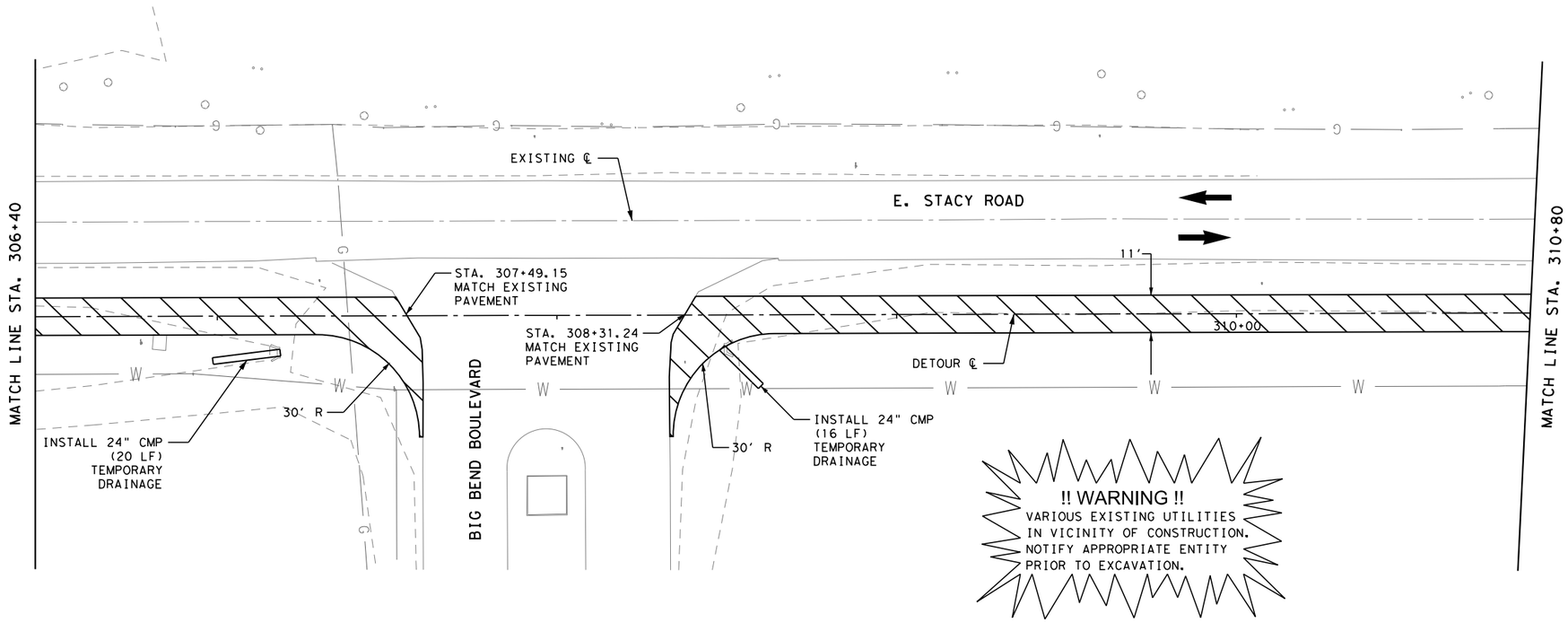
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 1 OF 12

SHEET NO. 26

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-detour plprf-01.dgn
1/3/2018 2:37:14 PM cmoorman



LEGEND

TRAFFIC FLOW

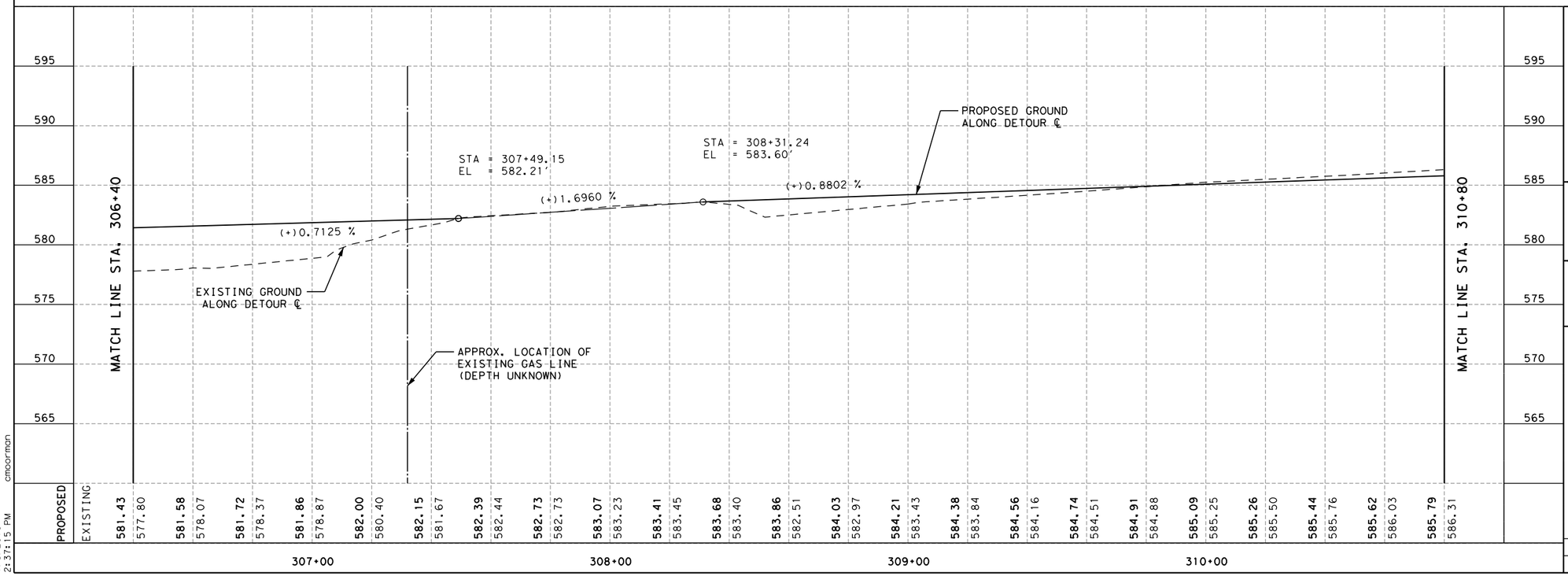
TEMP DETOUR PAVEMENT

H: 0 20 40

V: 0 5 10

NOTES:

1. CONSTRUCT DRAINAGE FEATURES OUTSIDE THE PROPOSED ROADWAY PRIOR TO CONSTRUCTING DETOUR PAVEMENT.
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CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 5, 2018

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 306+40 TO STA. 310+80

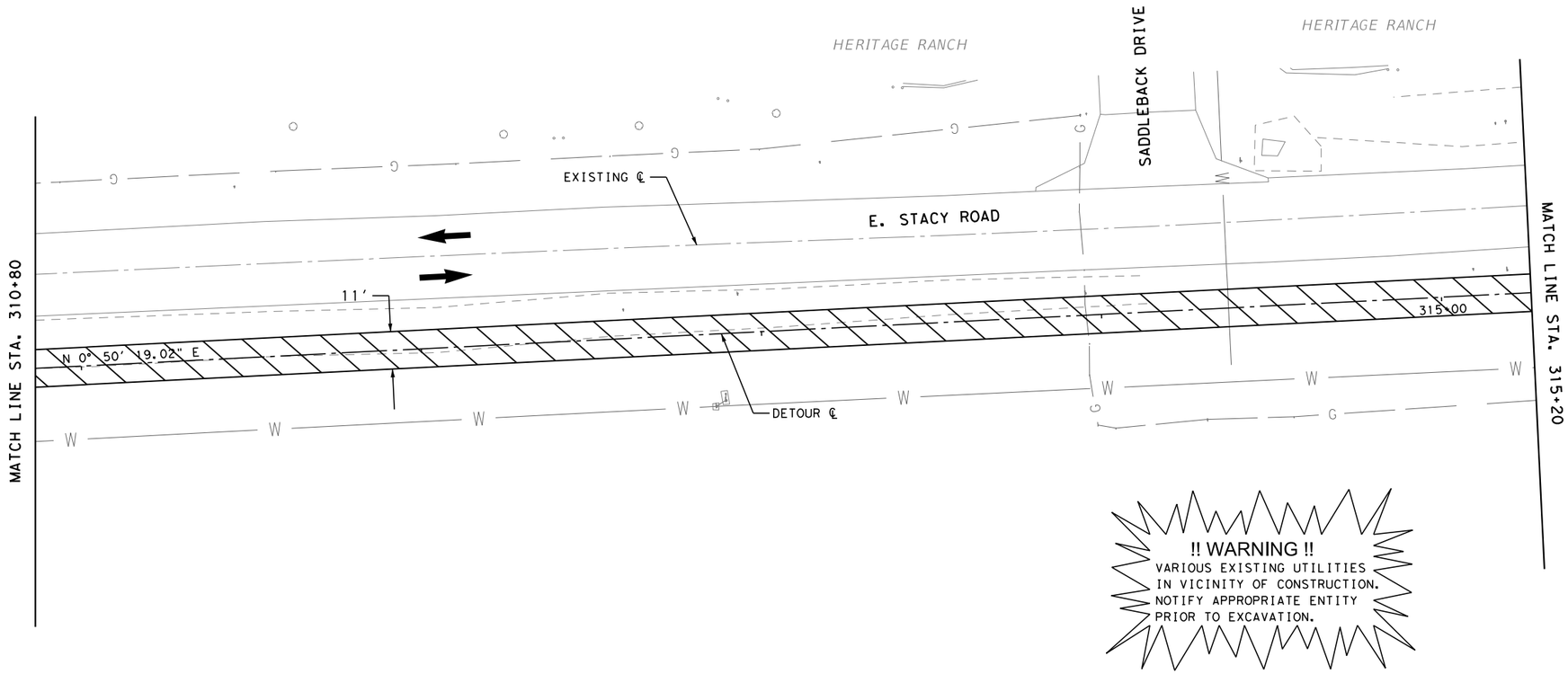
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 2 OF 12

SHEET NO. 27

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-detour plprf-02.dgn
1/3/2018 2:37:15 PM cmoorman



LEGEND

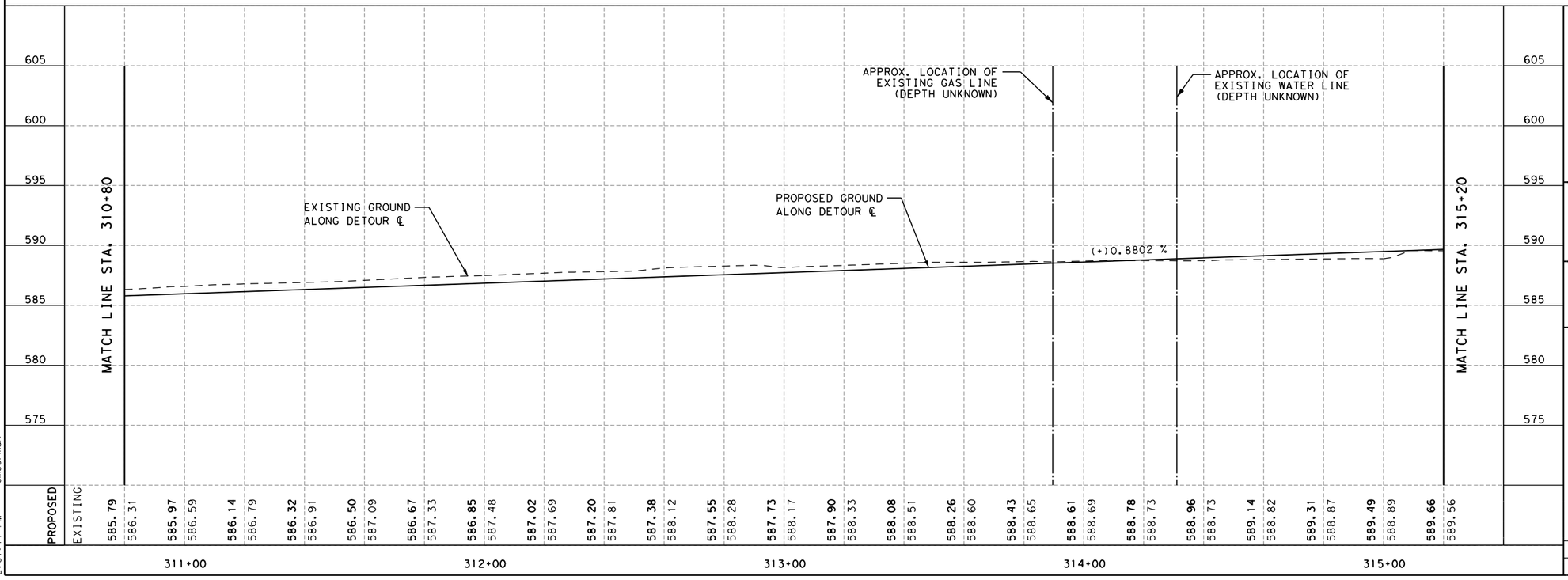
- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 310+80 TO STA. 315+20

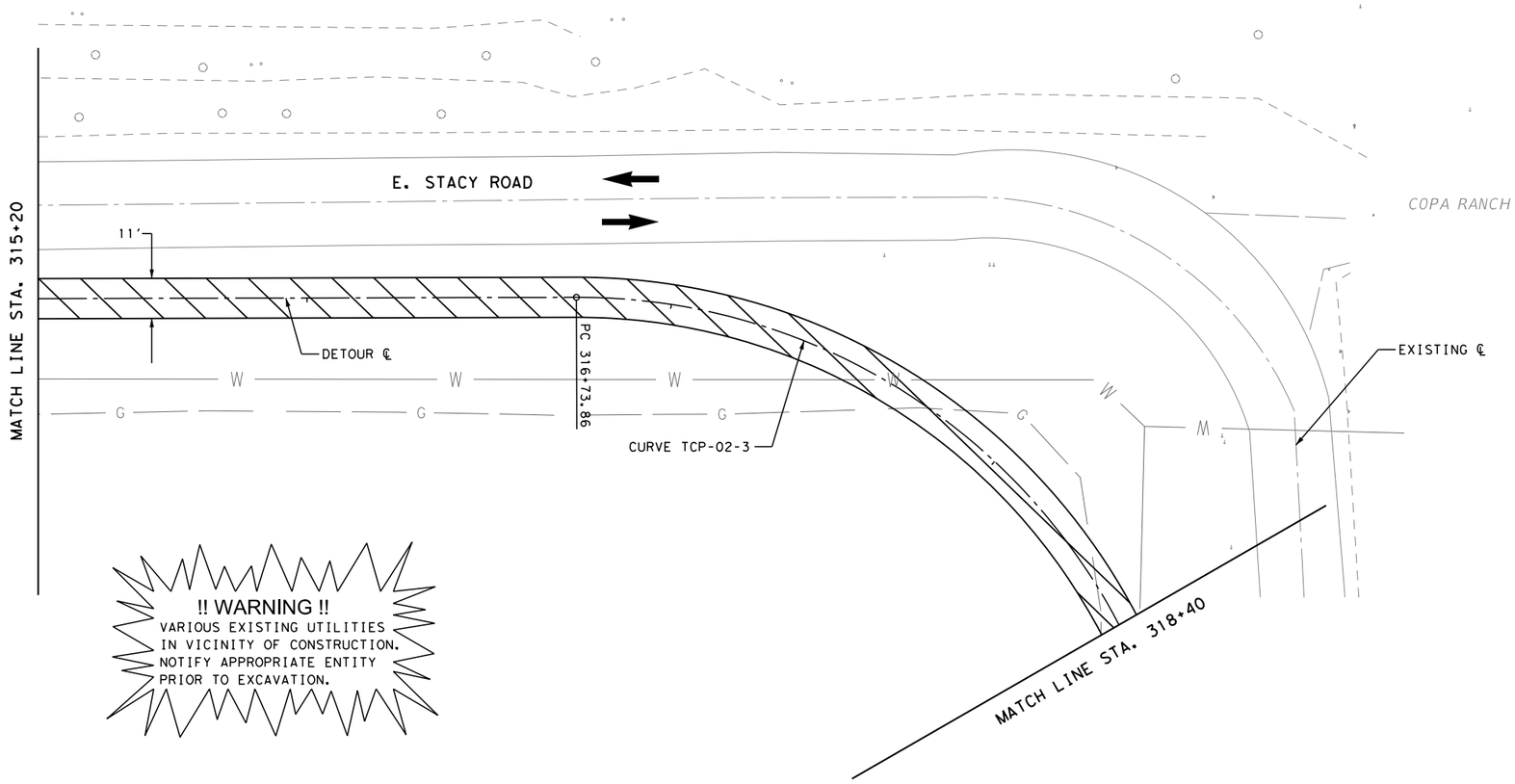
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 3 OF 12

SHEET NO. 28

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-detour plprf-03.dgn
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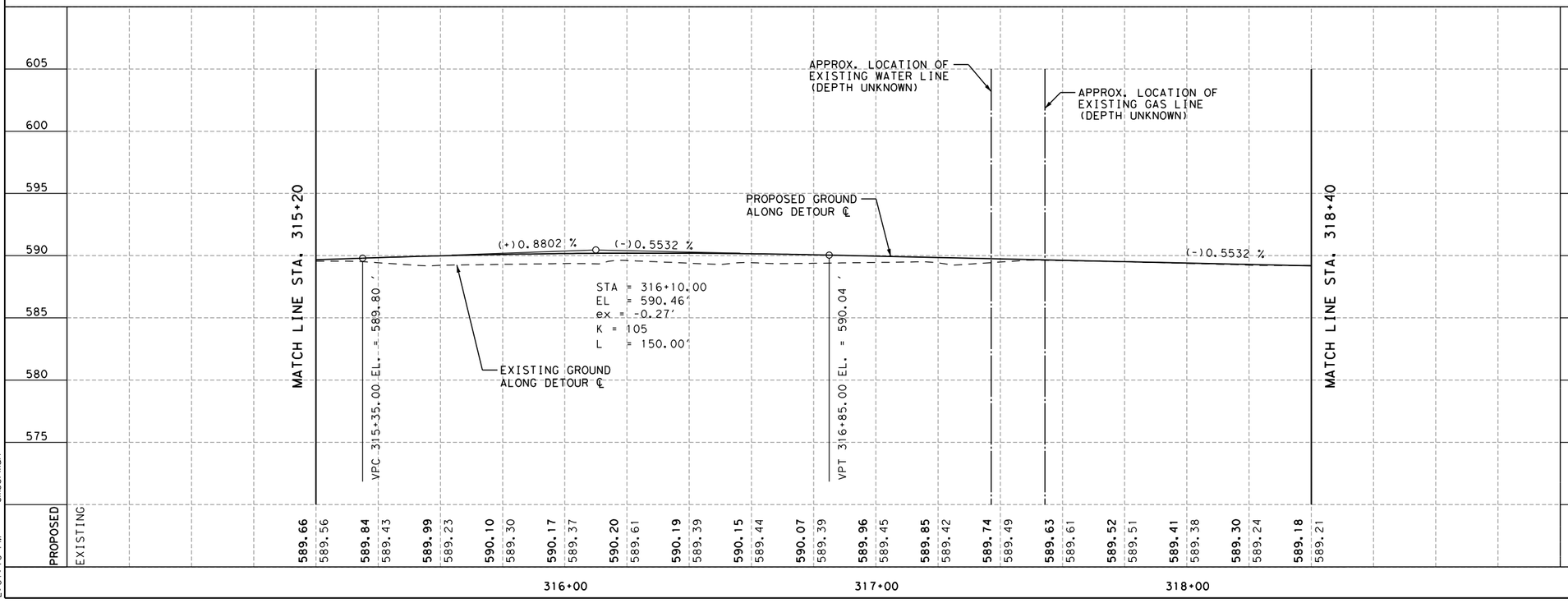
LEGEND

- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
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972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 315+20 TO STA. 318+40

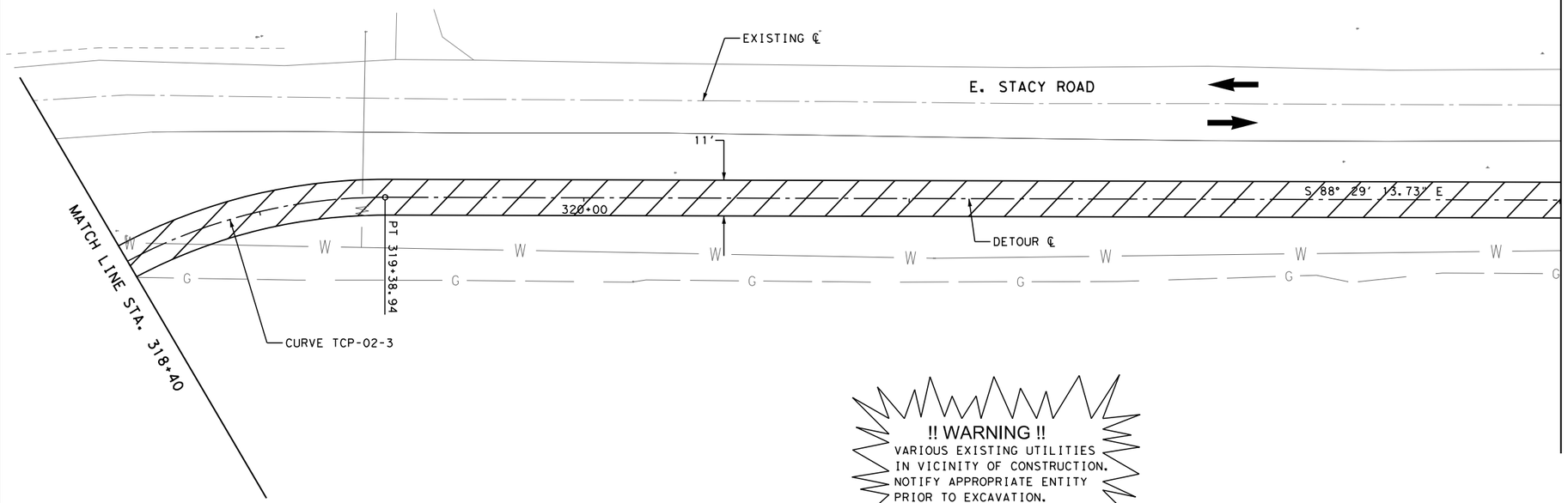
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 4 OF 12

SHEET NO. 29

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-detour plprf-04.dgn
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!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

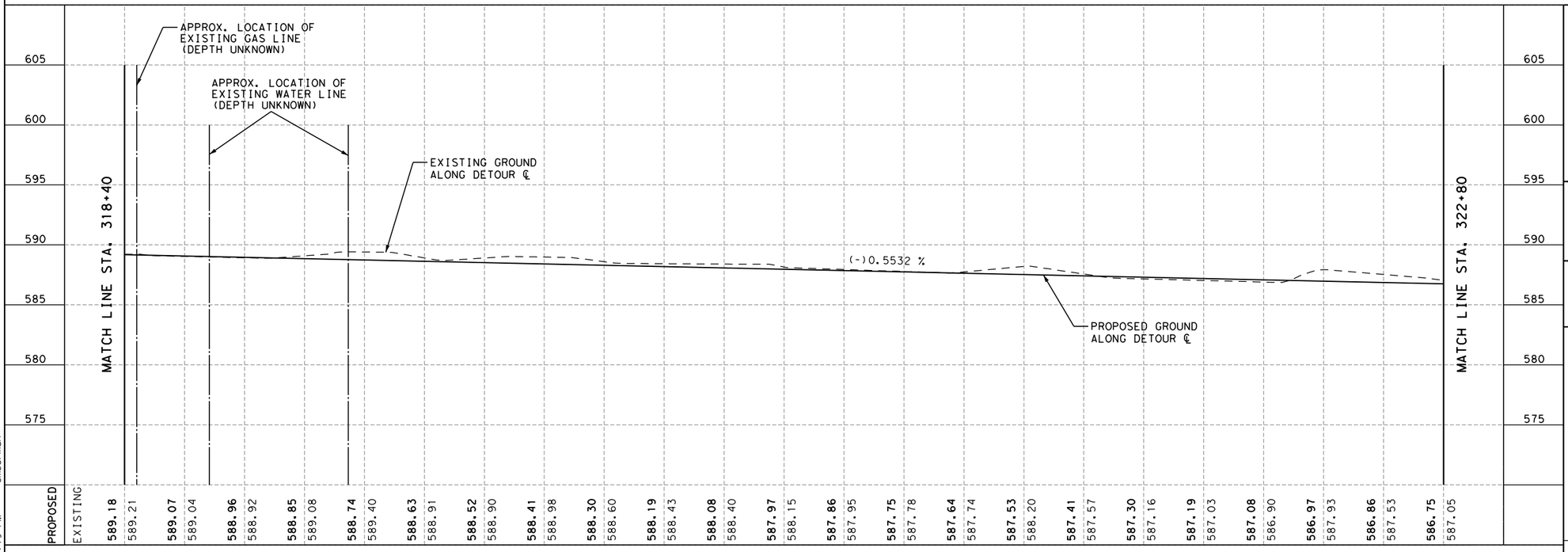
LEGEND

- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

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Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 318+40 TO STA. 322+80

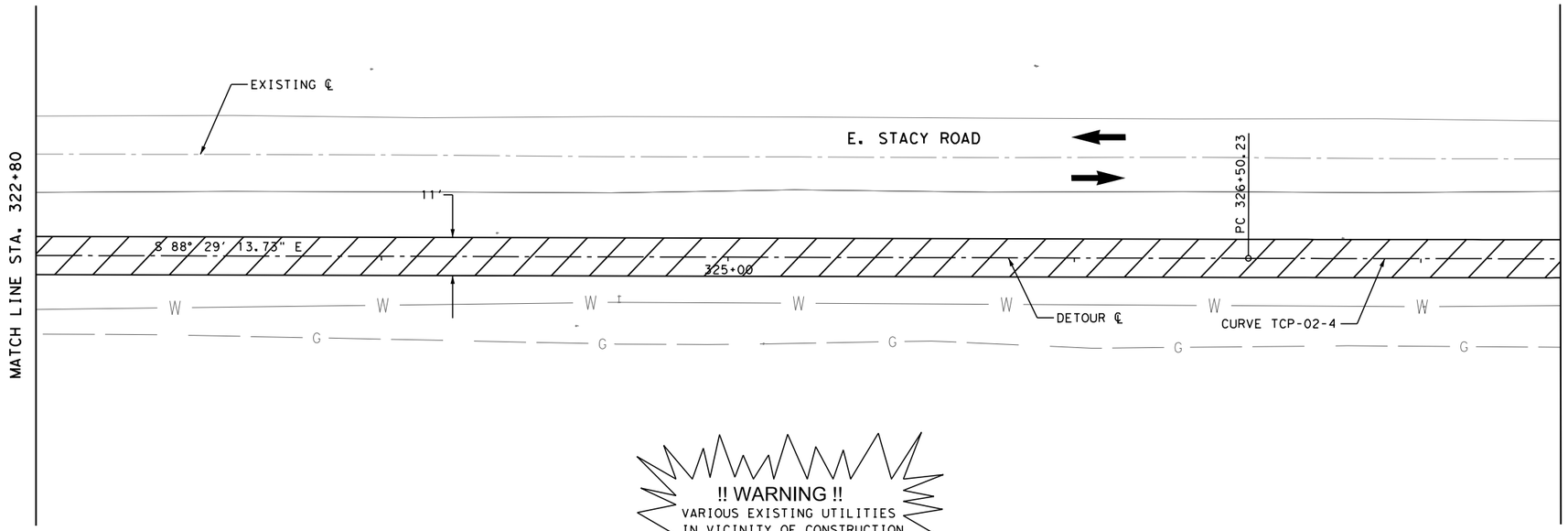
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 5 OF 12

SHEET NO. 30

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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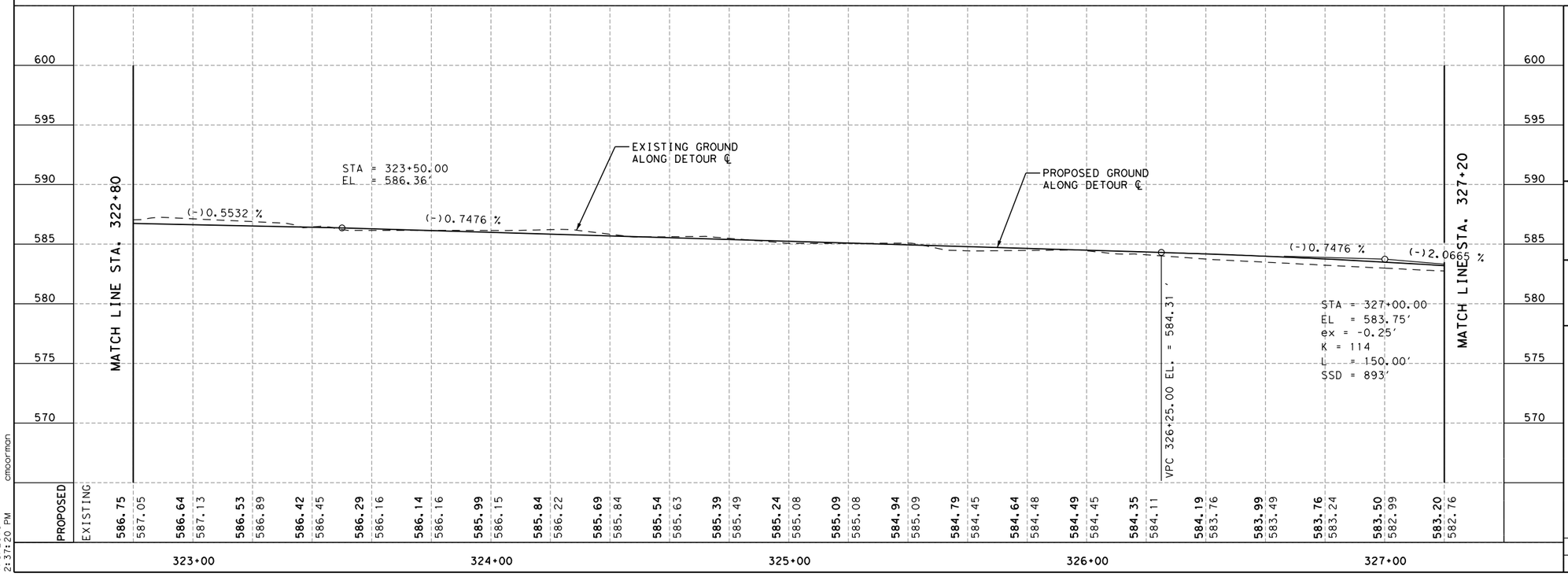
LEGEND

- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

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372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR
PLAN & PROFILE

STA. 322+80 TO STA. 327+20

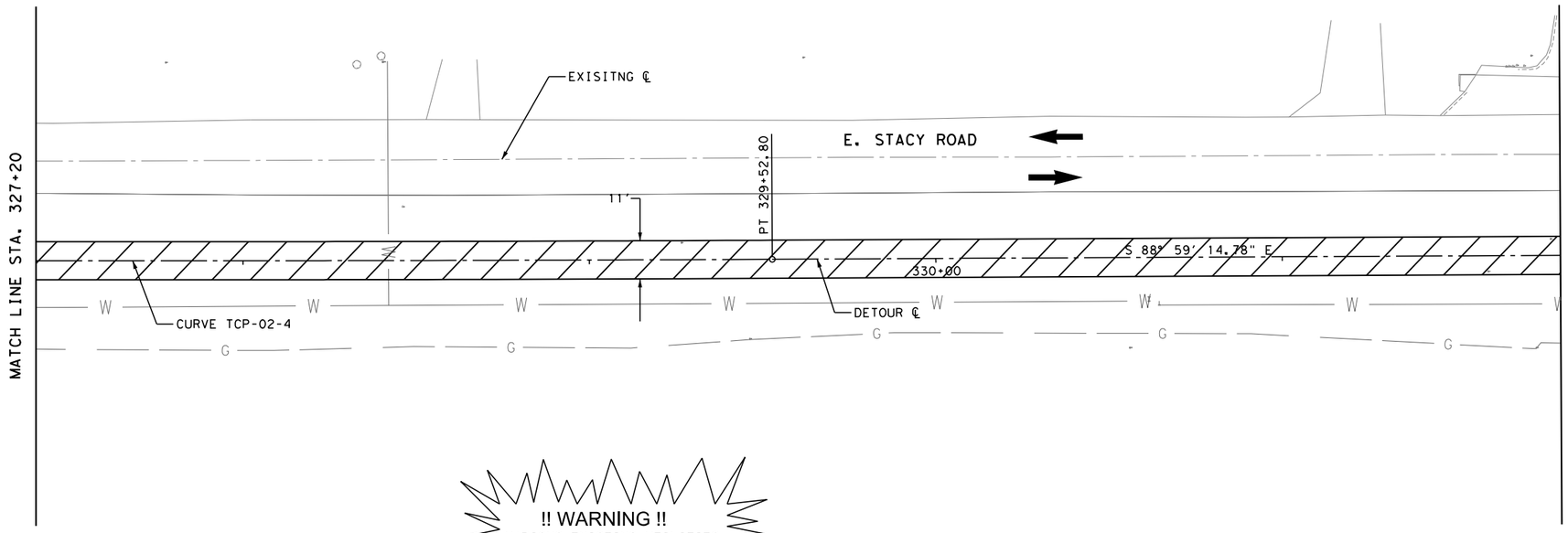
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V: 1" = 5'

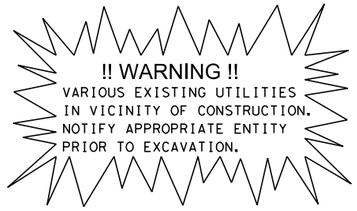
SHEET 6 OF 12

SHEET NO. 31

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-detour plprf-06.dgn
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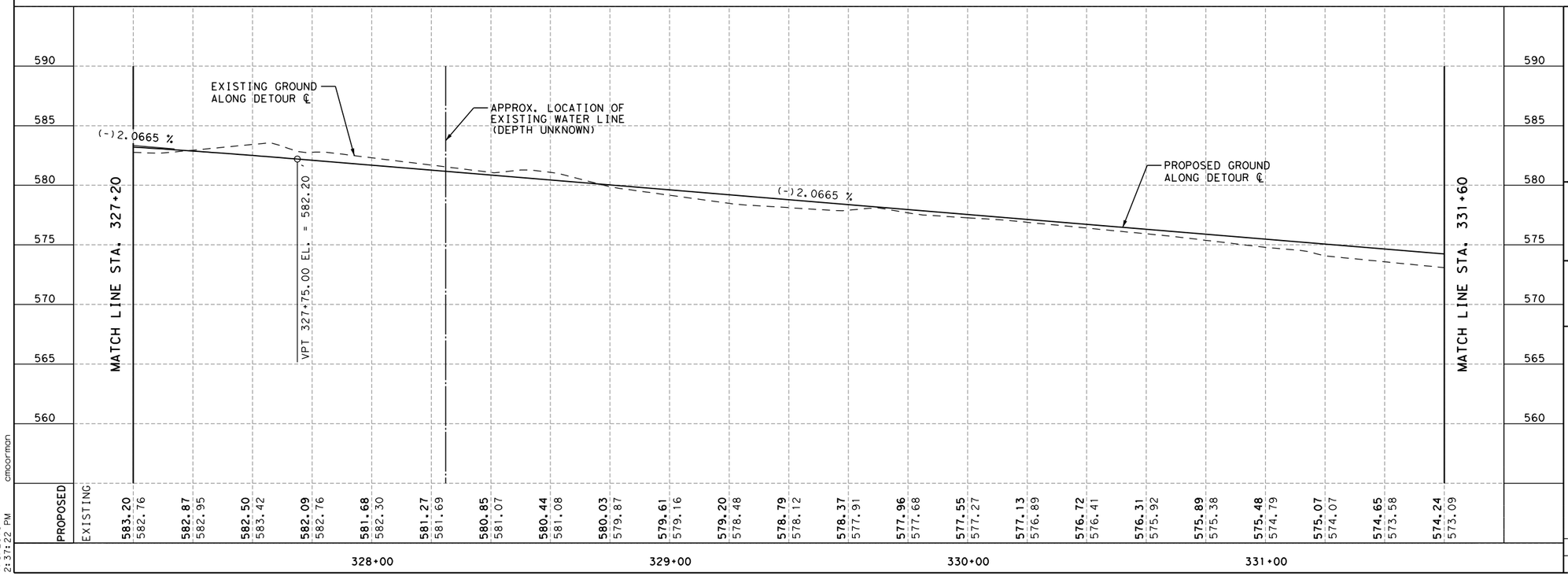
LEGEND

- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

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E. STACY ROAD IMPROVEMENTS

DETOUR
PLAN & PROFILE

STA. 327+20 TO STA. 331+60

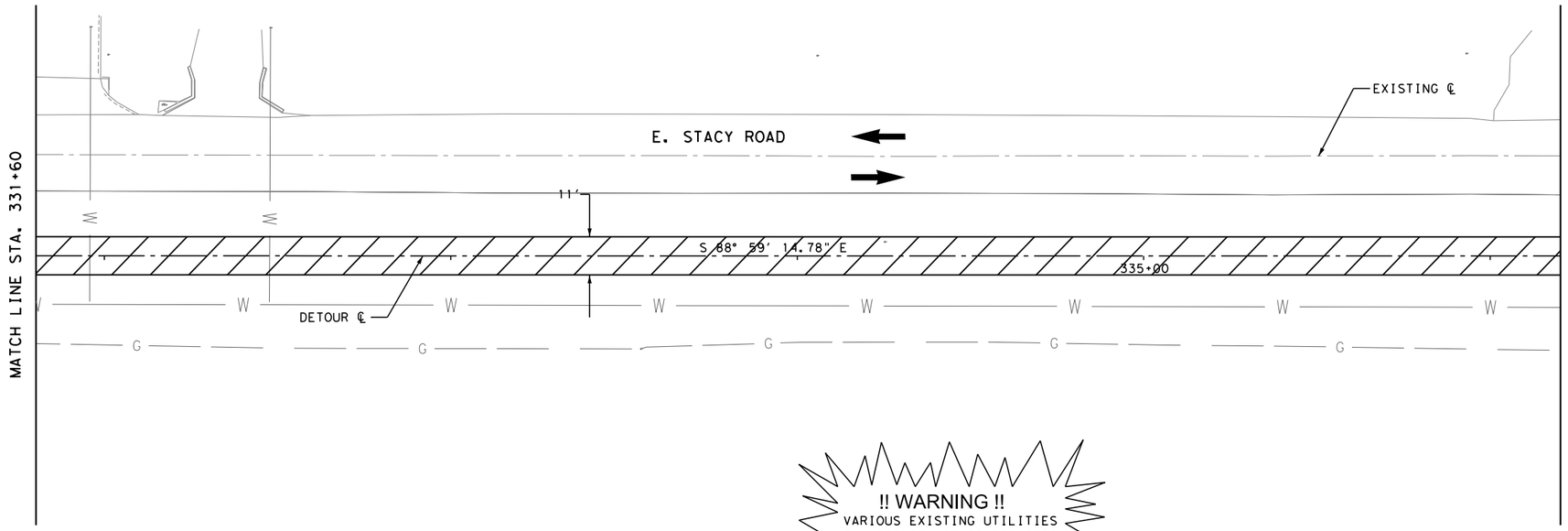
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V: 1" = 5'

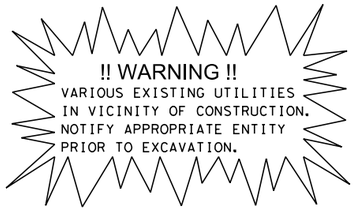
SHEET 7 OF 12

SHEET NO. 32

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-detour plprf-07.dgn
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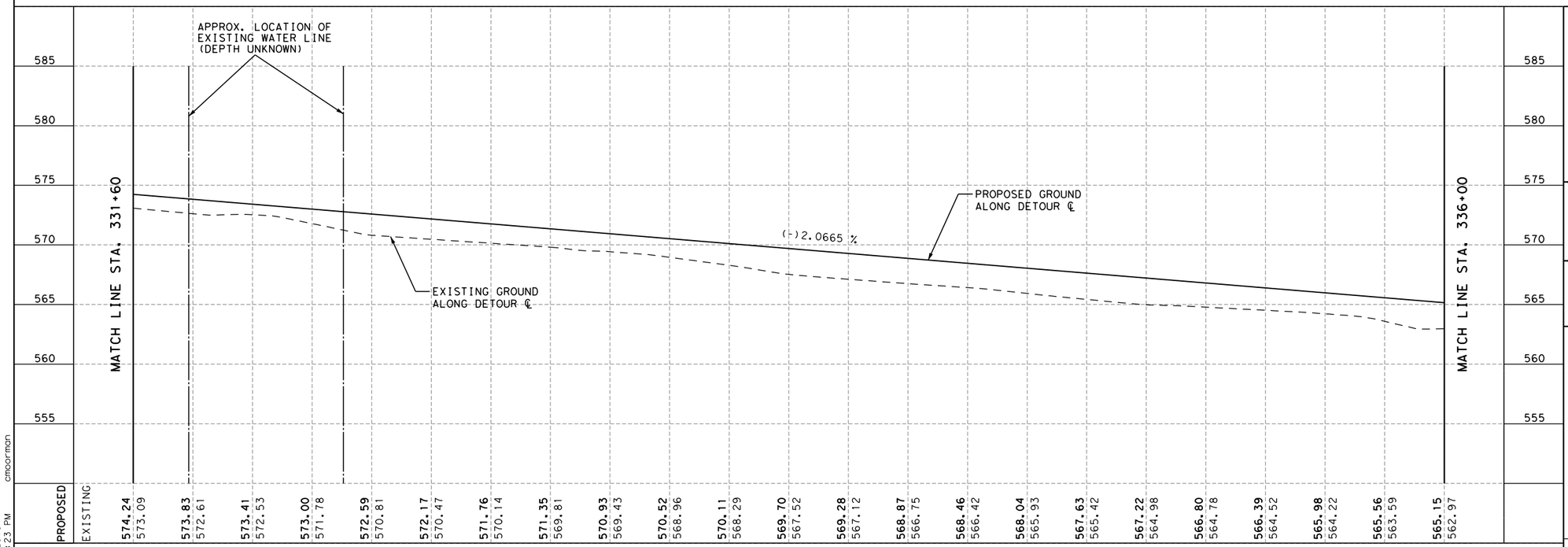
LEGEND

- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

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E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 331+60 TO STA. 336+00

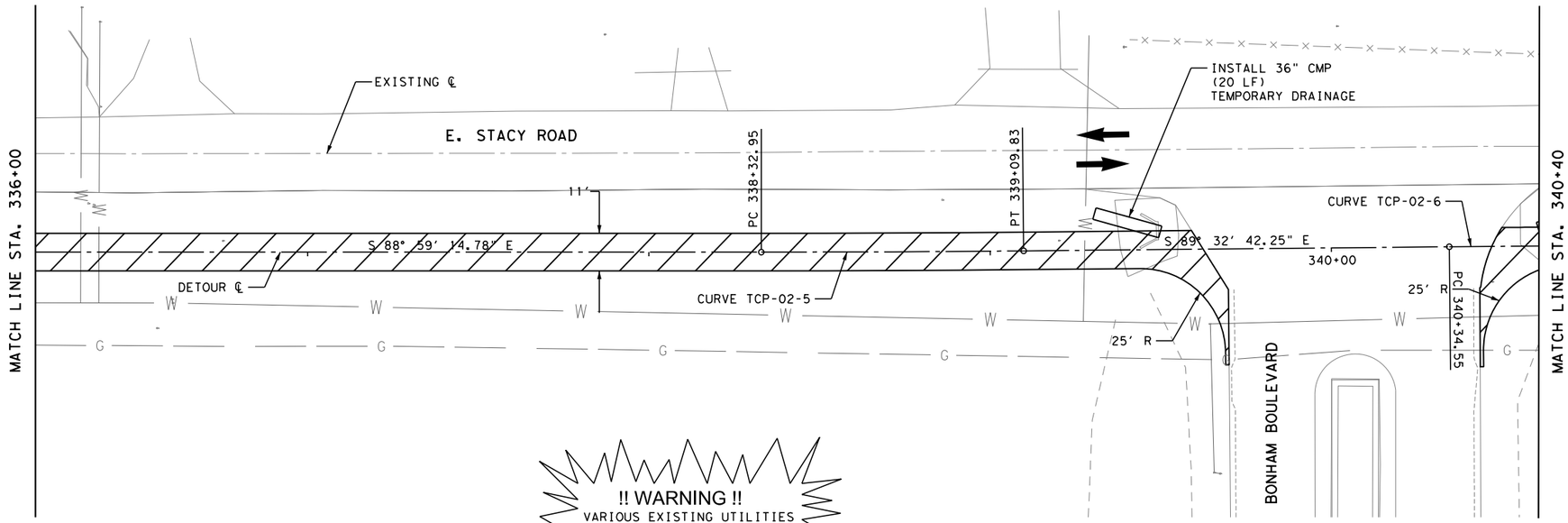
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 8 OF 12

SHEET NO. 33

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\02 TCP\305245-detour plprf-08.dgn
1/3/2018 2:37:23 PM cmoorman



LEGEND

TRAFFIC FLOW

TEMP DETOUR PAVEMENT

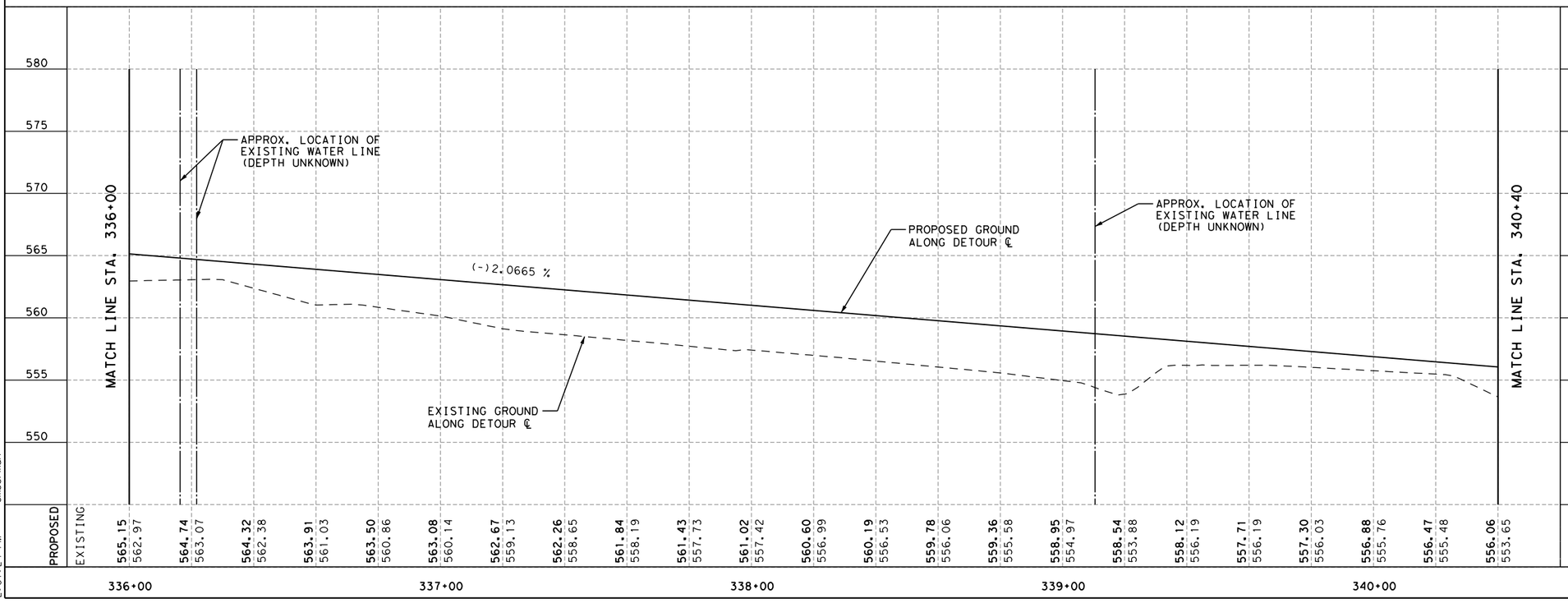
H: 0 20 40

V: 0 5 10

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E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 336+00 TO STA. 340+40

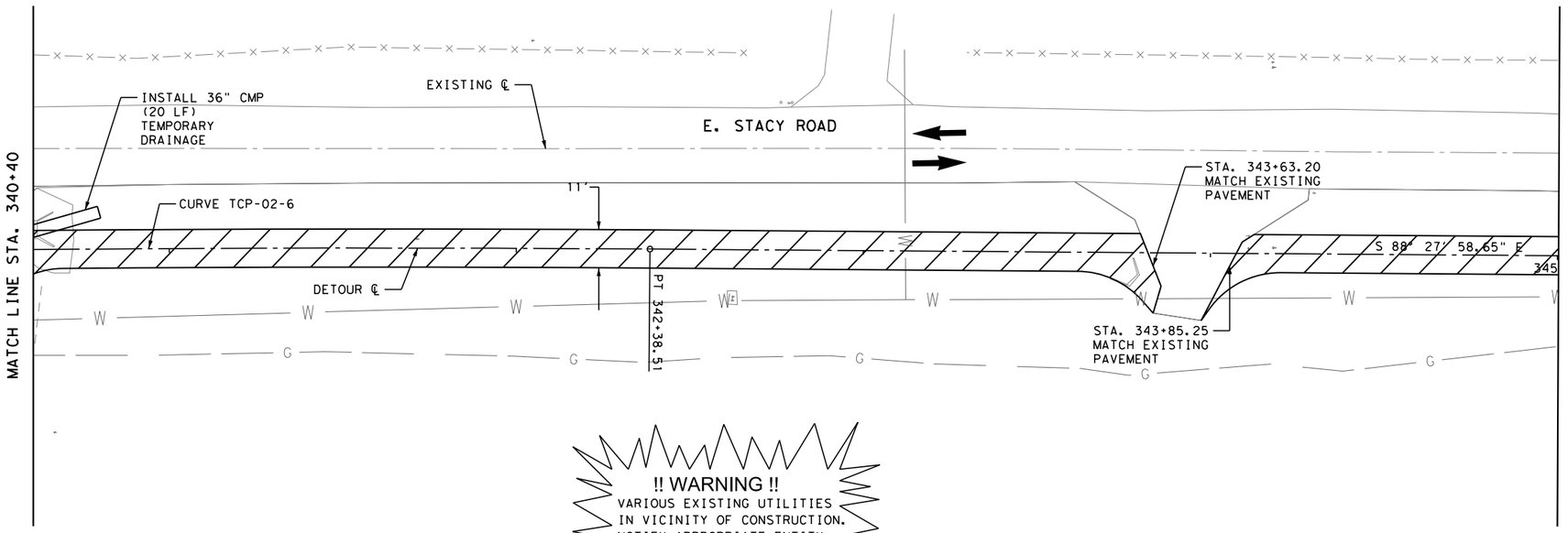
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 9 OF 12

SHEET NO. 34

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CLM	RAW	SCW

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!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

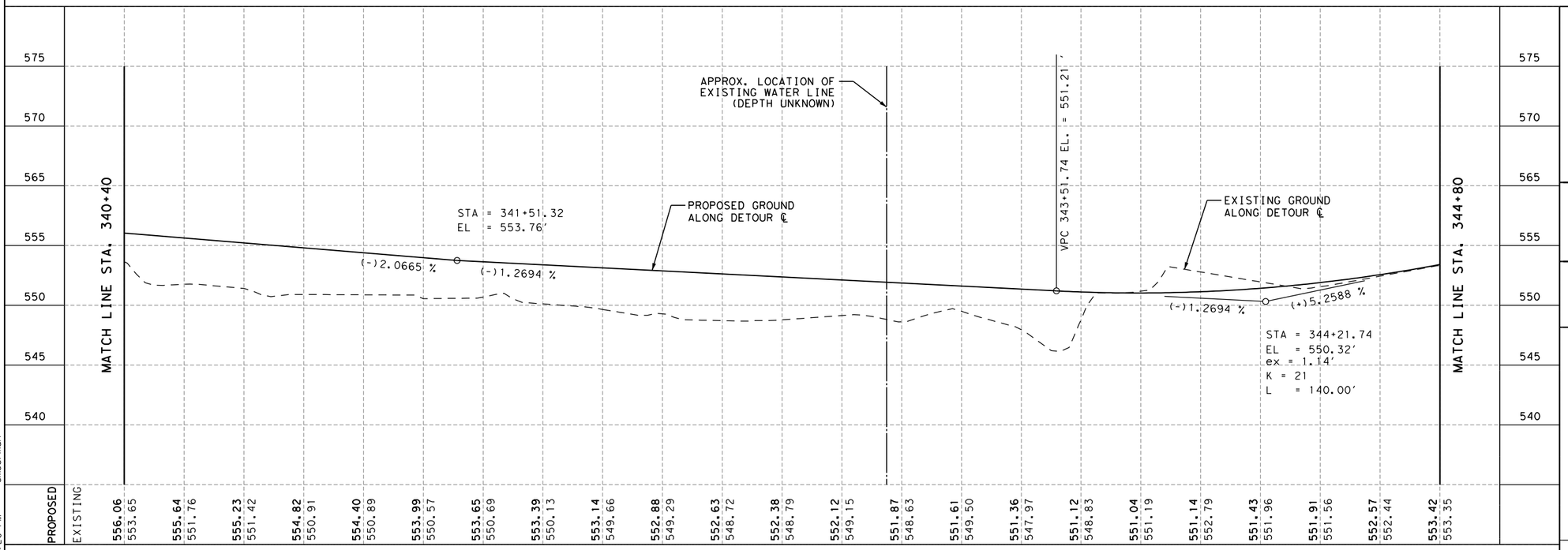
LEGEND

- TRAFFIC FLOW
- TEMP DETOUR PAVEMENT

H: 0 20 40
V: 0 5 10

NOTES:

1. CONSTRUCT DRAINAGE FEATURES OUTSIDE THE PROPOSED ROADWAY PRIOR TO CONSTRUCTING DETOUR PAVEMENT.
2. THE INFORMATION SHOWN ON THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND PIPELINES, CONDUITS, AND STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES AND BY PROSPECTING IN ADVANCE OF EXCAVATION OPERATIONS.
3. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
4. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.



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93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 5, 2018

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Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 340+40 TO STA. 344+80

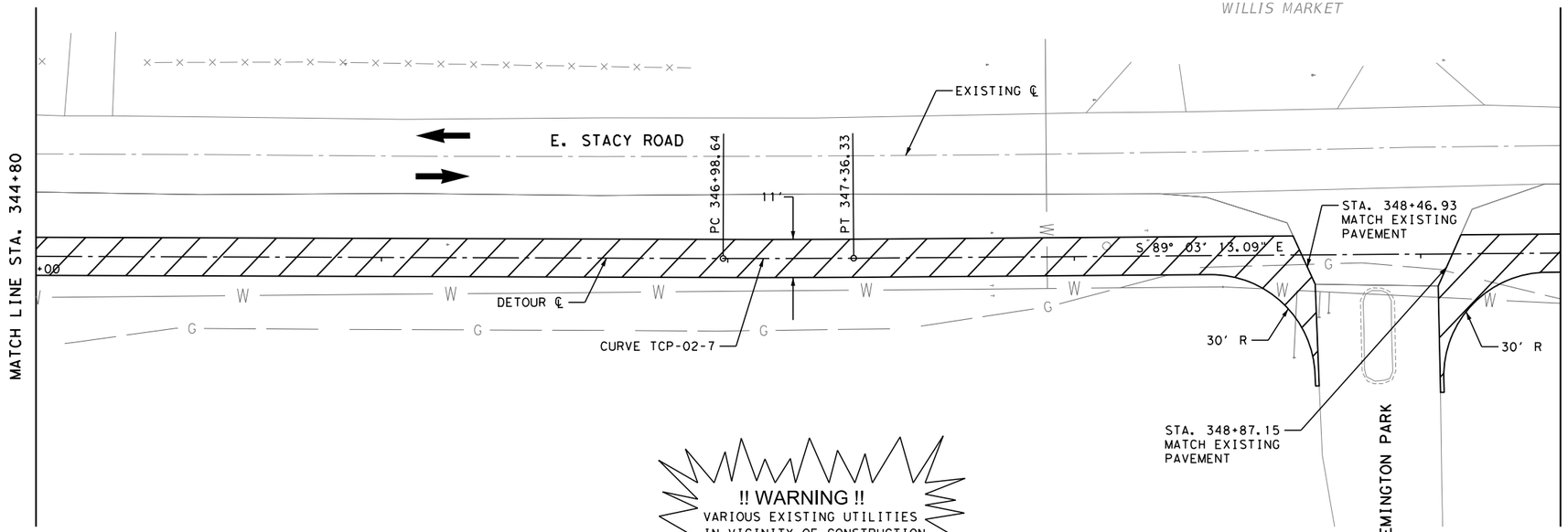
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V: 1" = 5'

SHEET 10 OF 12

SHEET NO. 35

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LEGEND

TRAFFIC FLOW

TEMP DETOUR PAVEMENT

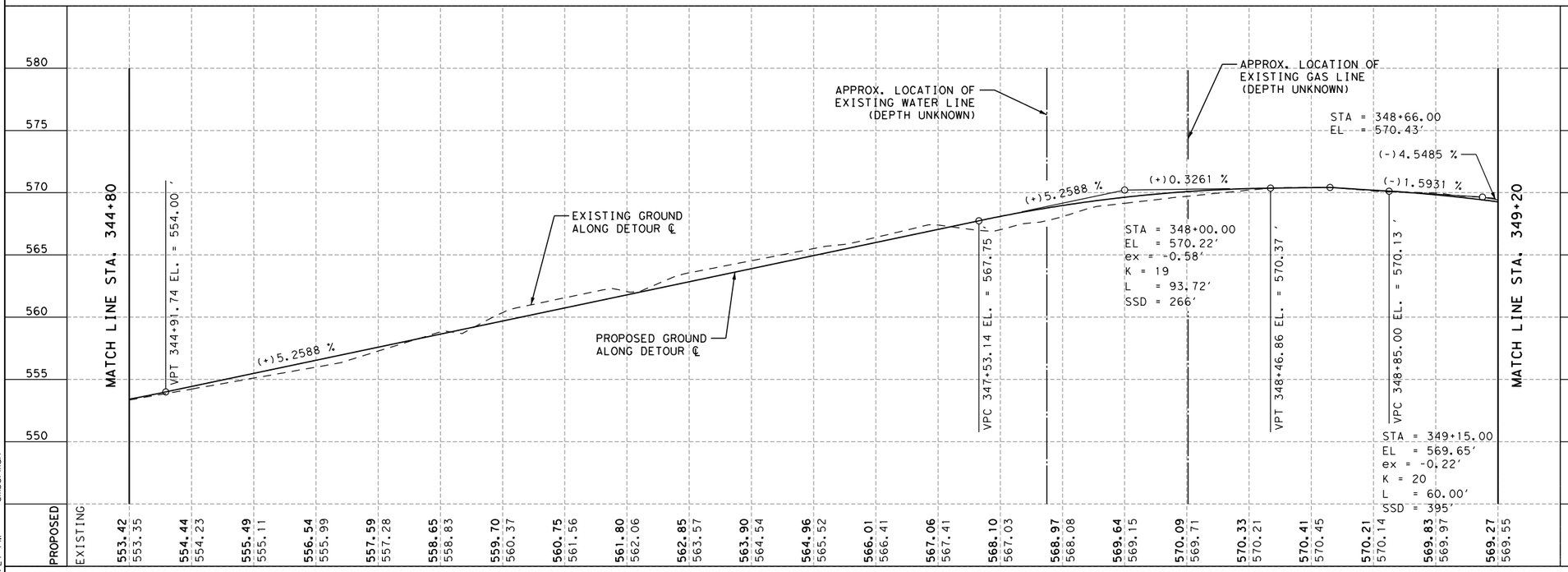
H: 0 20 40

V: 0 5 10

!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

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972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR PLAN & PROFILE

STA. 344+80 TO STA. 349+20

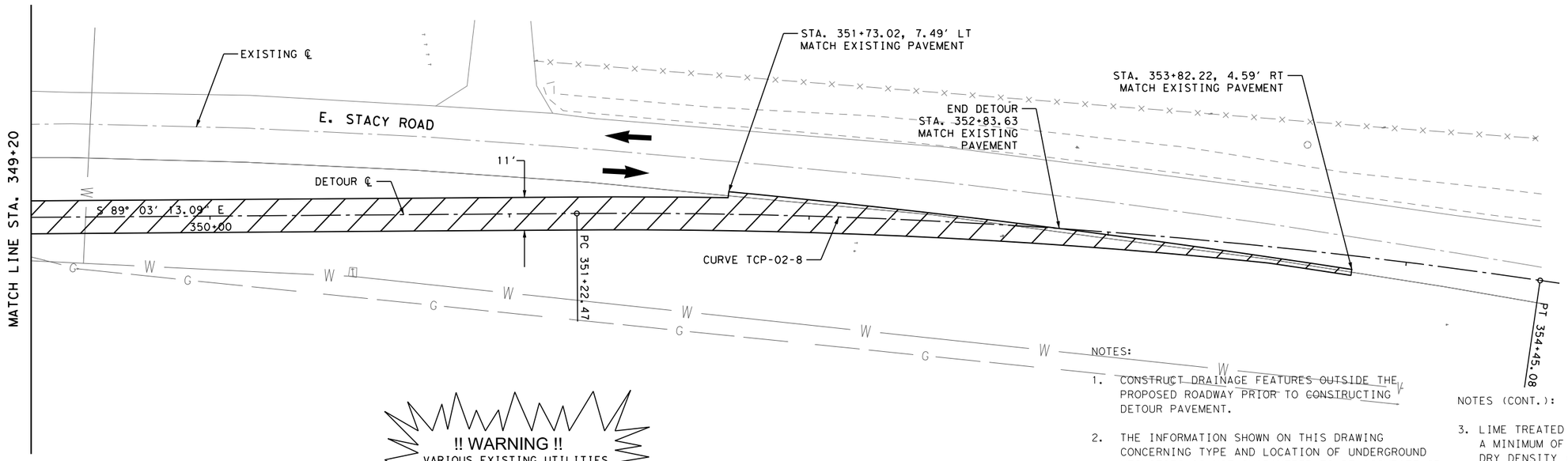
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V: 1" = 5'

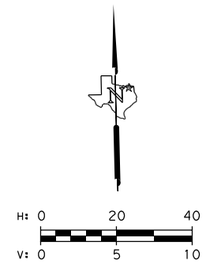
SHEET 11 OF 12

SHEET NO. 36

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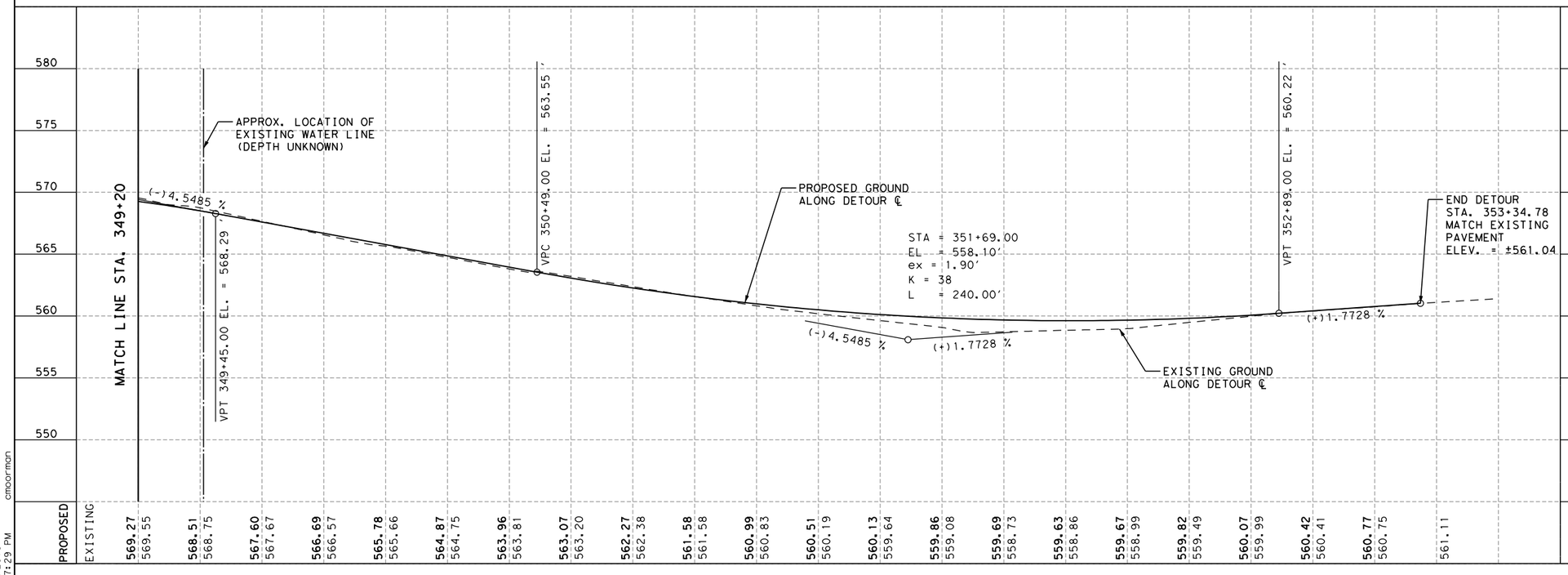
!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

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NOTES (CONT.):

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FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DETOUR
PLAN & PROFILE

STA. 349+20 TO END

SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 12 OF 12

SHEET NO. 37

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

10. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.

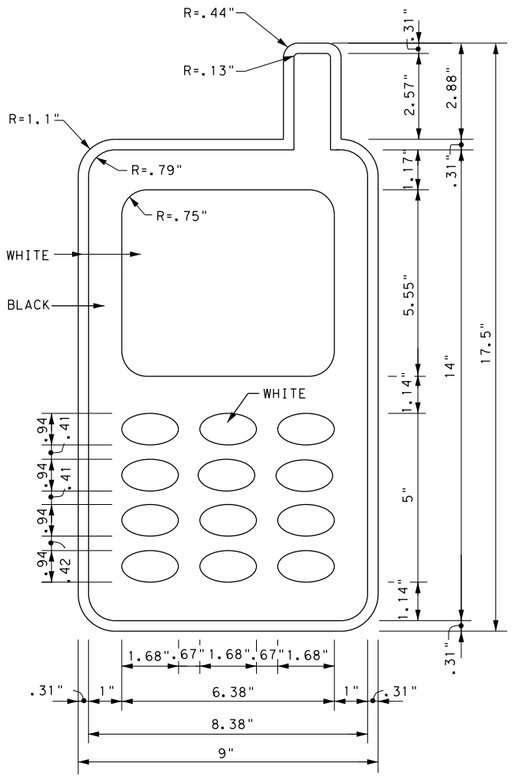
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

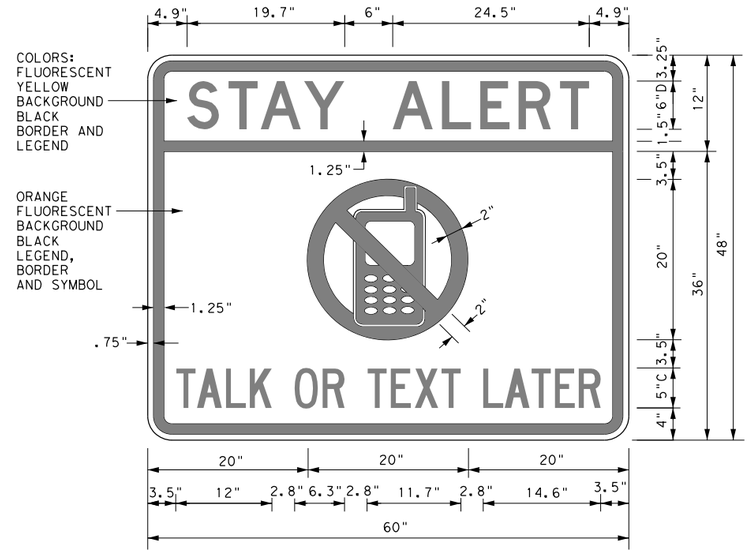
12. The Engineer has the final decision on the location of all traffic control devices.

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

WORKER SAFETY APPAREL NOTES:

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





3.0" Radius, 1.25" Border, 0.75" Indent, Black on Yellow;
[STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[TALK OR TEXT LATER] Font: C specified length;

SIGN DETAIL (G20-10T)

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

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

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

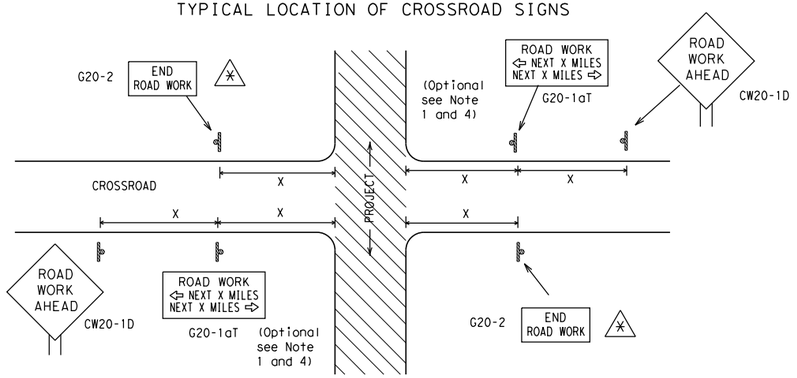
BC(1)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
4-03 5-10 8-14	DIST	COUNTY		SHEET NO.
9-07 7-13		COLLIN		38

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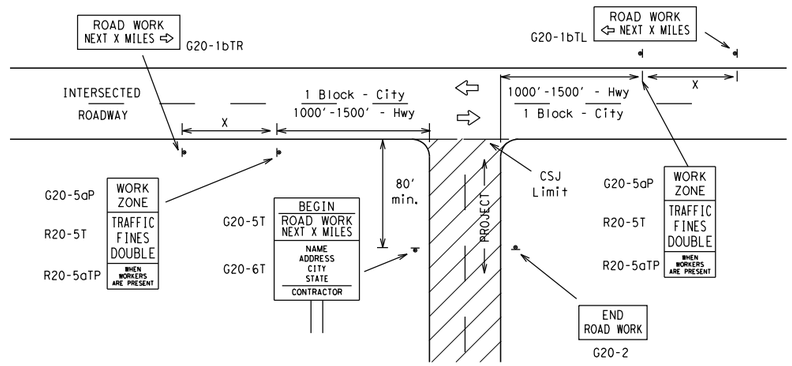
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

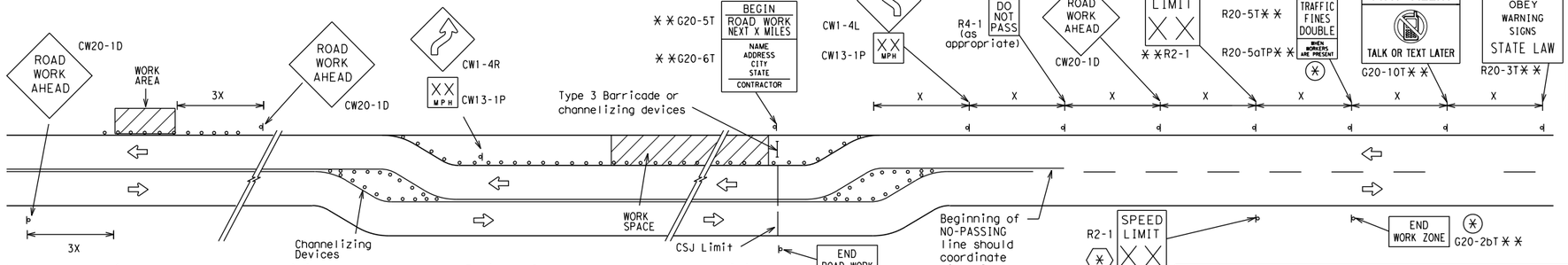
⚹ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

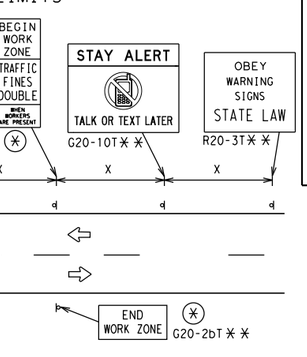
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

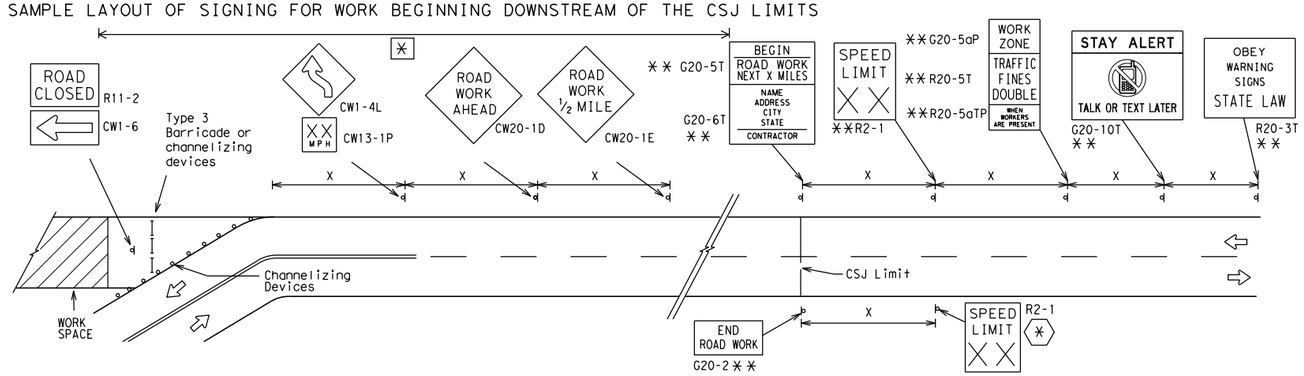


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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



NOTES

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

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

⚹⚹ Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.

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

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

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

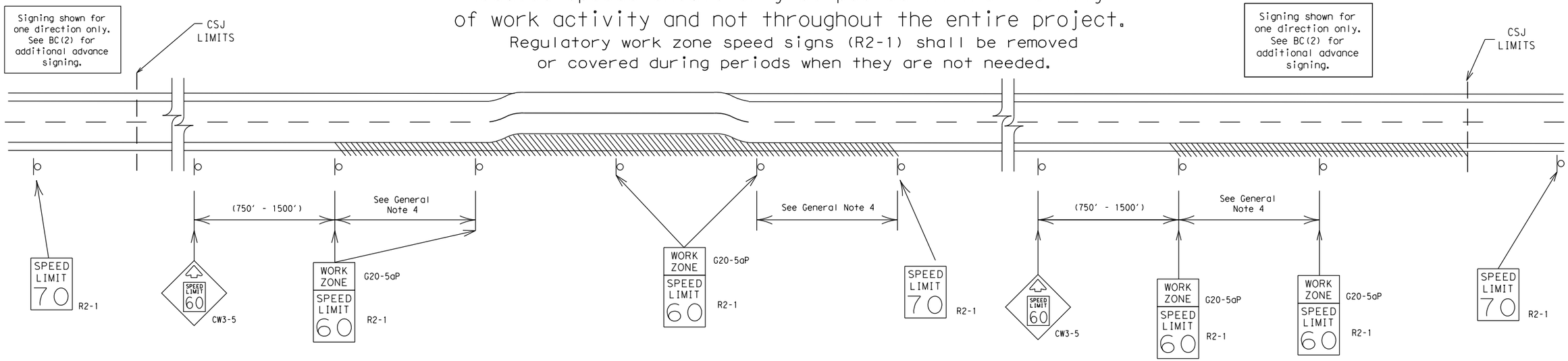
FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				STACY ROAD
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13		COLLIN		39

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

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Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

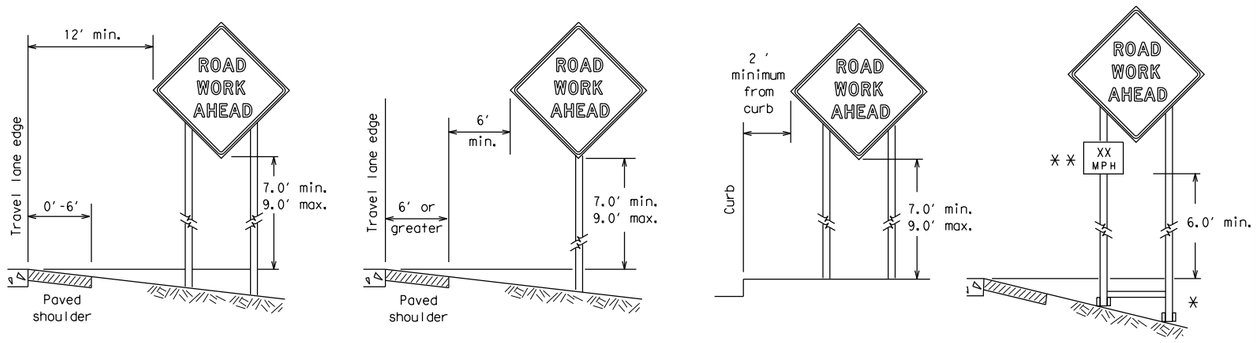
BC(3)-14

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13				STACY ROAD
	DIST	COUNTY		SHEET NO.
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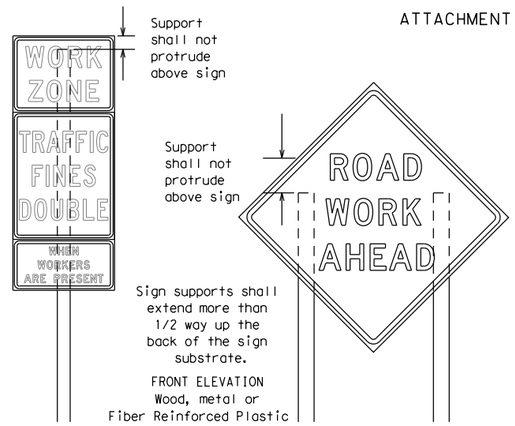
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

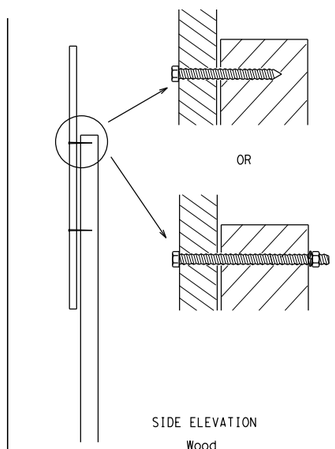


⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





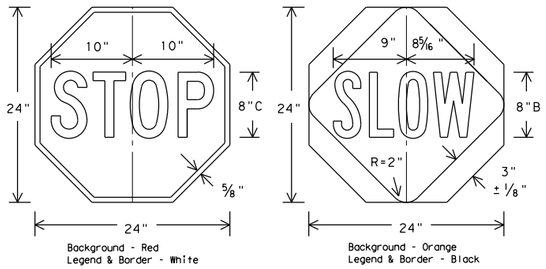
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation

Traffic Operations Division Standard

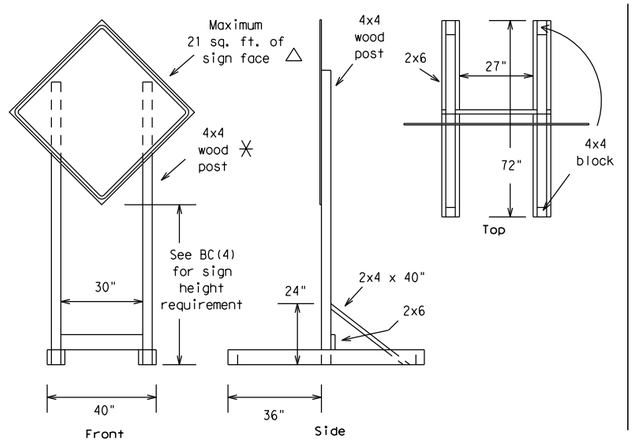
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

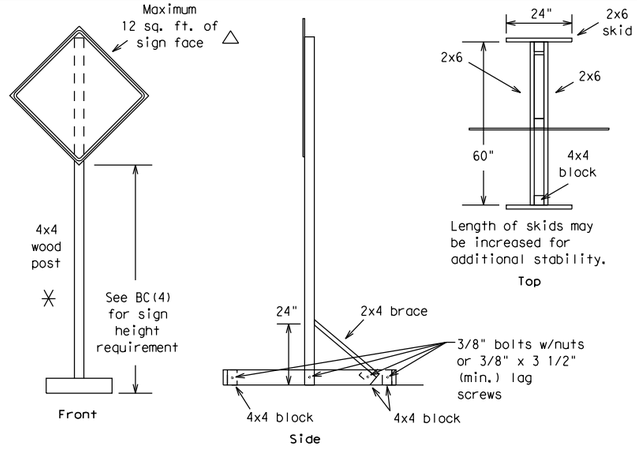
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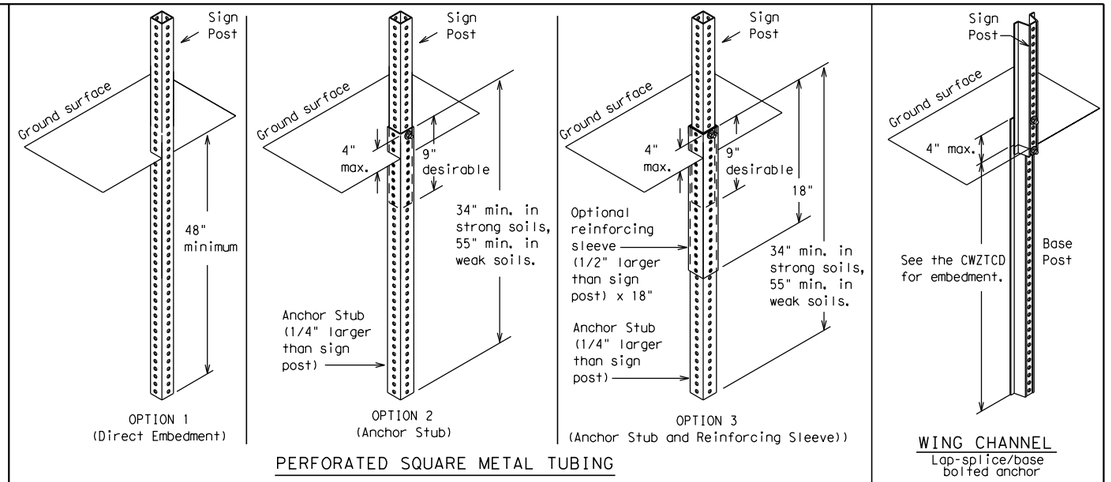
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SKID MOUNTED WOOD SIGN SUPPORTS

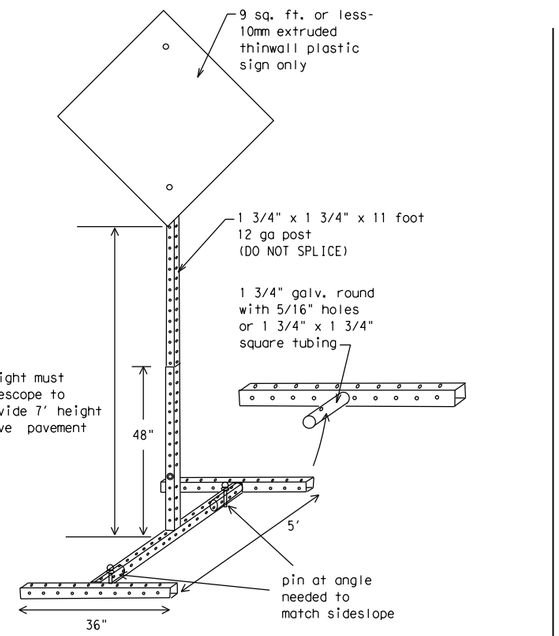
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □

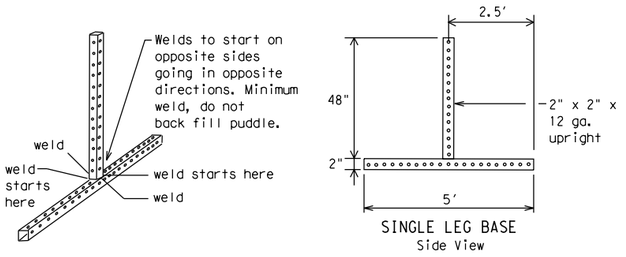


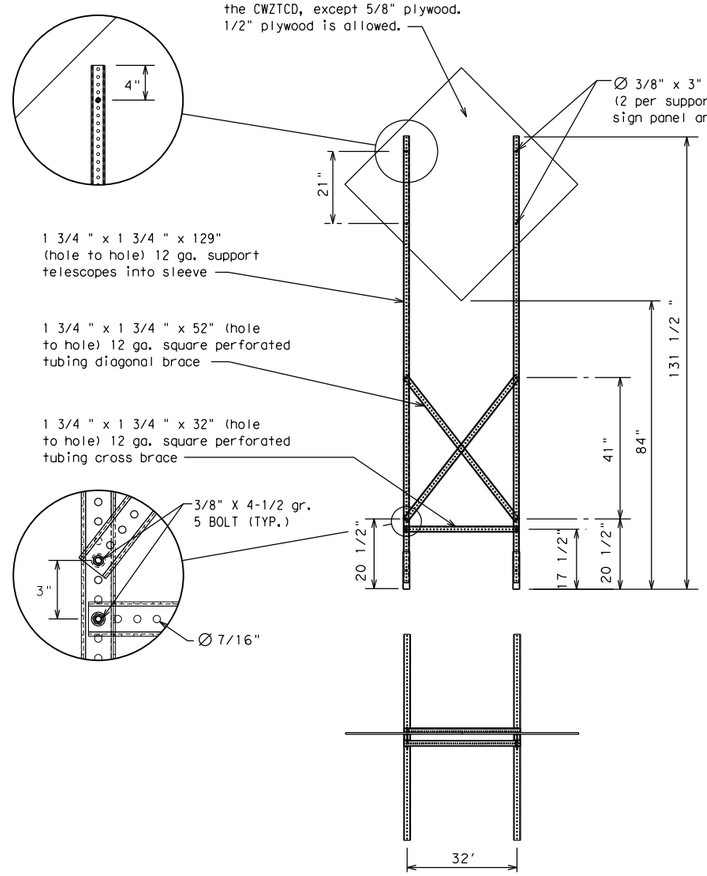
PERFORATED SQUARE METAL TUBING

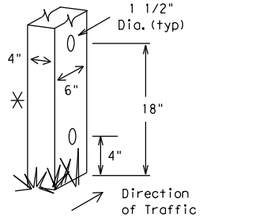
GROUND MOUNTED SIGN SUPPORTS

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



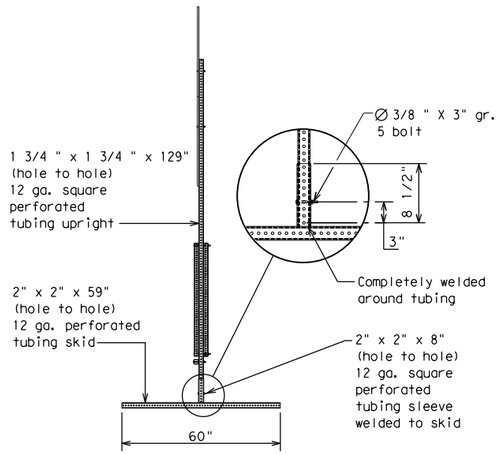






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS



WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

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BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

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SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List		Other Condition List	
FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED	ROADWORK XXX FT	ROAD REPAIRS XXXX FT
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT	FLAGGER XXXX FT	LANE NARROWS XXXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT	RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
RIGHT X LANES CLOSED	RIGHT X LANES OPEN	MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
CENTER LANE CLOSED	DAYTIME LANE CLOSURES	LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED	DETOUR X MILE	ROUGH ROAD XXXX FT
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE	ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
EXIT CLOSED	RIGHT LN TO BE CLOSED	BUMP XXXX FT	US XXX EXIT X MILES
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI	TRAFFIC SIGNAL XXXX FT	LANES SHIFT *
XXXXXXXX BLVD CLOSED			

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List		Location List	Warning List	** Advance Notice List
MERGE RIGHT	FORM X LINES RIGHT	AT FM XXXX	SPEED LIMIT XX MPH	TUE-FRI XX AM- X PM
DETOUR NEXT X EXITS	USE XXXXX RD EXIT	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH	APR XX-XX X PM-X AM
USE EXIT XXX	USE EXIT I-XX NORTH	NEXT X MILES	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N	PAST US XXX EXIT	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	WATCH FOR TRUCKS	XXXXXXX TO XXXXXXX	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	EXPECT DELAYS	US XXX TO FM XXXX	USE CAUTION	NEXT FRI-SUN
EXPECT DELAYS	PREPARE TO STOP		DRIVE SAFELY	XX AM TO XX PM
REDUCE SPEED XXX FT	END SHOULDER USE		DRIVE WITH CARE	NEXT TUE AUG XX
USE OTHER ROUTES	WATCH FOR WORKERS			TONIGHT XX PM- XX AM
STAY IN LANE *				

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation — Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-14

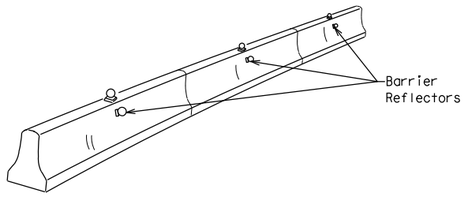
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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
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7-13		COLLIN		43

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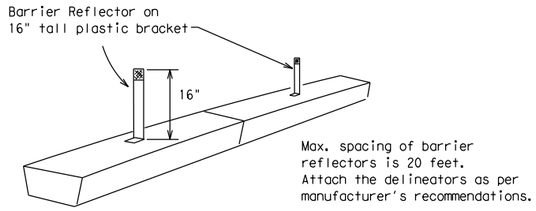
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1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors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

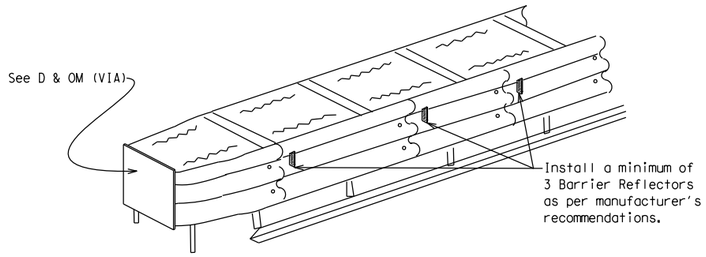


CONCRETE TRAFFIC BARRIER (CTB)

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



LOW PROFILE CONCRETE BARRIER (LPCB)

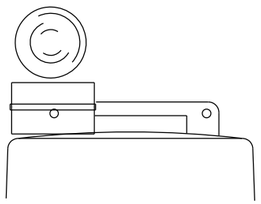


DELINEATION OF END TREATMENTS

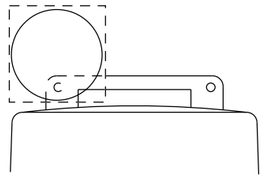
END TREATMENTS FOR
CTB'S USED
IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

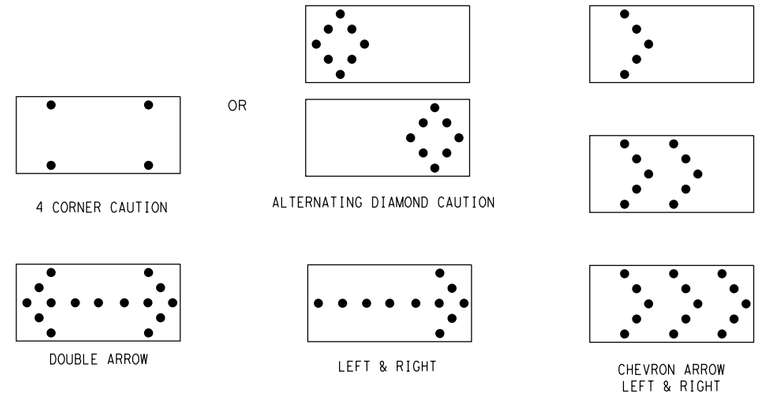
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



4 CORNER CAUTION

ALTERNATING DIAMOND CAUTION

DOUBLE ARROW

LEFT & RIGHT

CHEVRON ARROW
LEFT & RIGHT

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

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

ATTENTION
Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

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

BC(7)-14

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

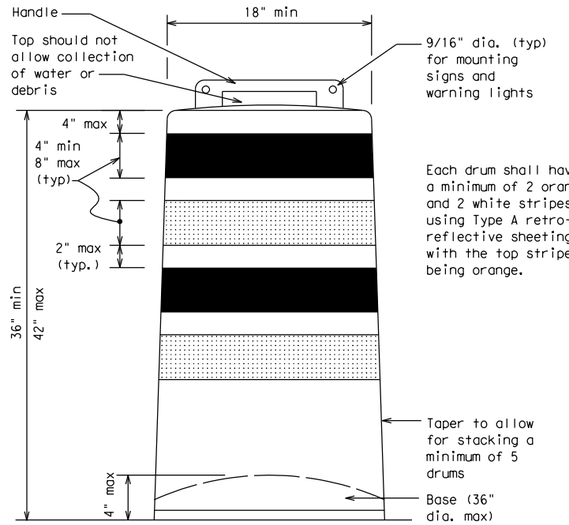
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

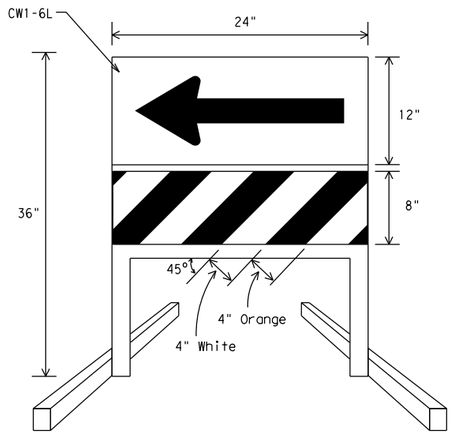
RETROREFLECTIVE SHEETING

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

BALLAST

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

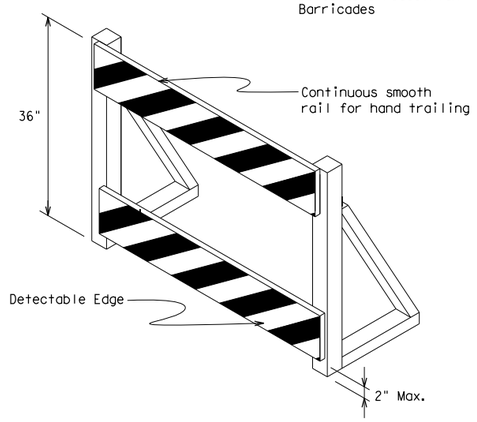




DIRECTION INDICATOR BARRICADE

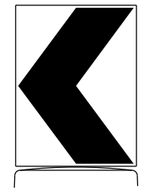
1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B_{FL} or Type C_{FL} Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

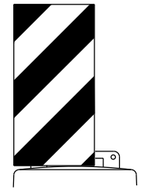


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

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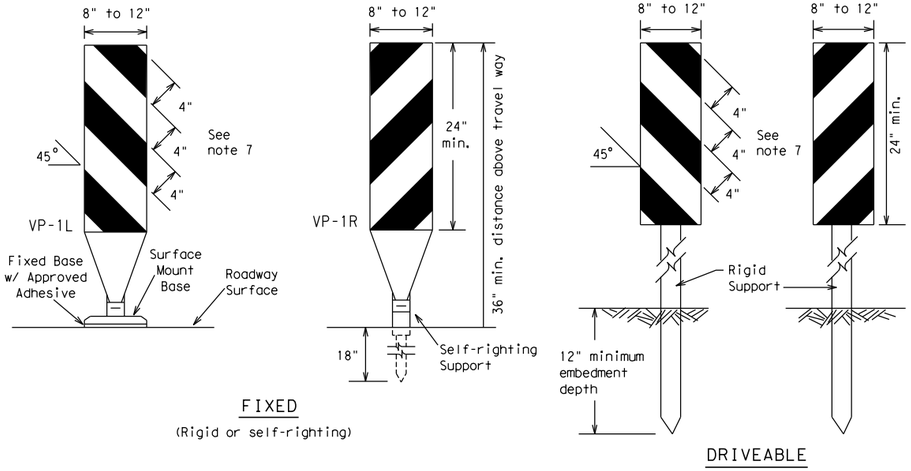
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

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REVISIONS				STACY ROAD
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14		COLLIN		45

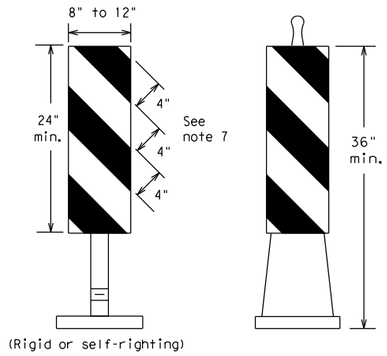
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FIXED
(Rigid or self-righting)

DRIVEABLE

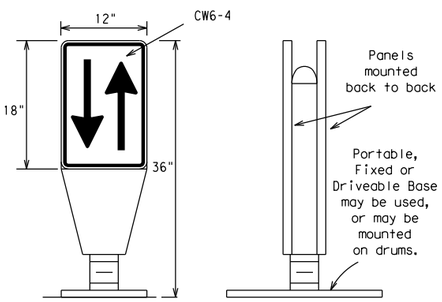


(Rigid or self-righting)

PORTABLE

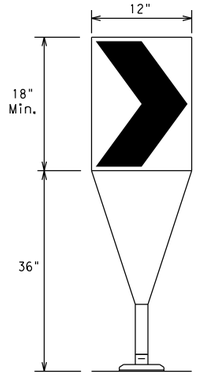
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



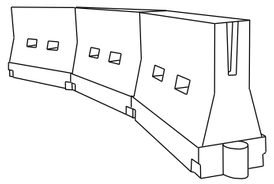
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

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REVISIONS 9-07 8-14 7-13				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		46

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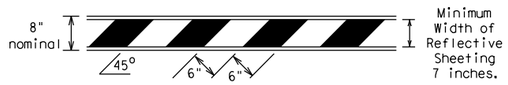
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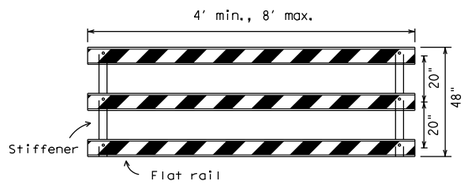
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



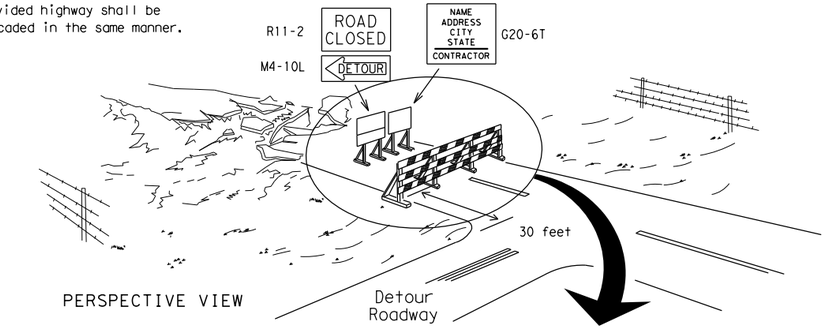
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

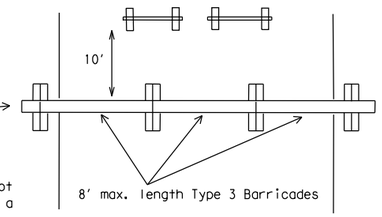
TYPICAL PANEL DETAIL
FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

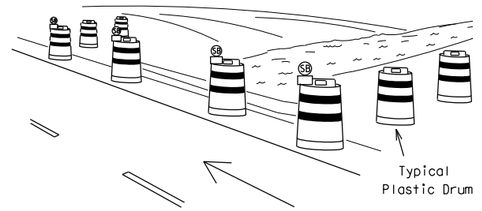
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

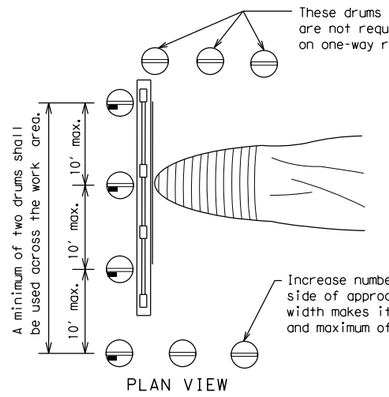
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

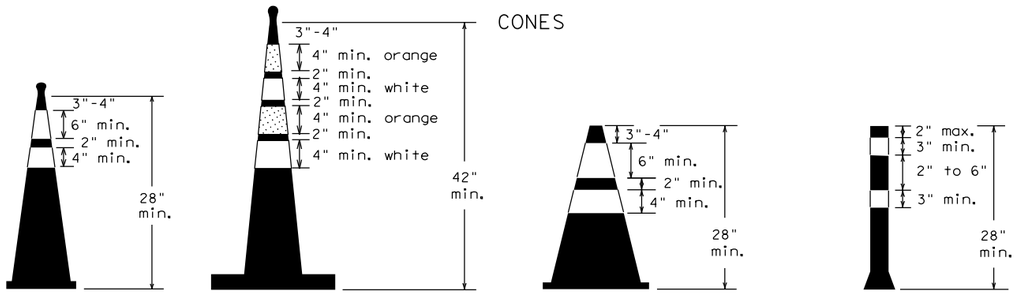
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



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

PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

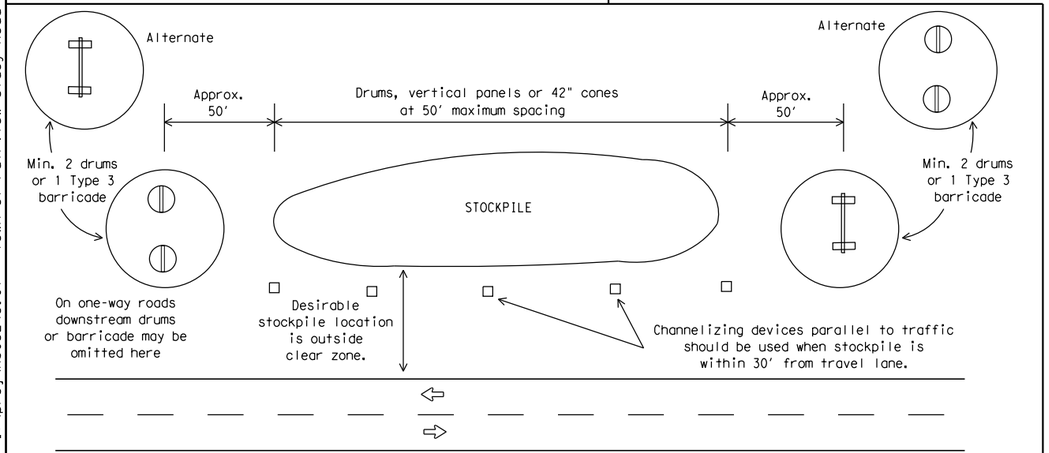


Two-Piece cones | One-Piece cones | Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

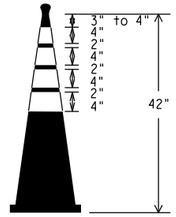
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

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REVISIONS 9-07 8-14 7-13				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		47

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

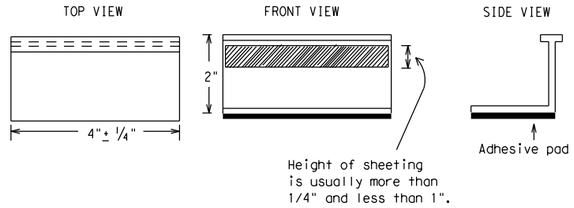
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

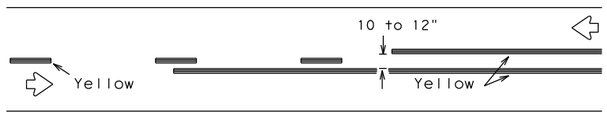
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2-98 9-07	DIST	COUNTY		SHEET NO.
1-02 7-13		COLLIN		48
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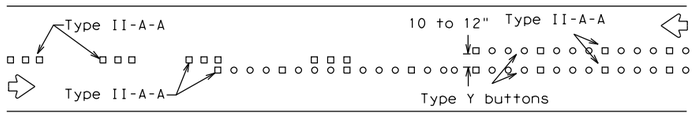
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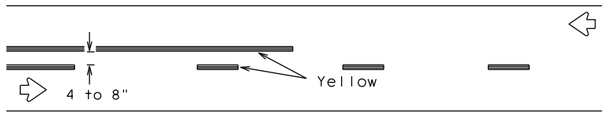
PAVEMENT MARKING PATTERNS



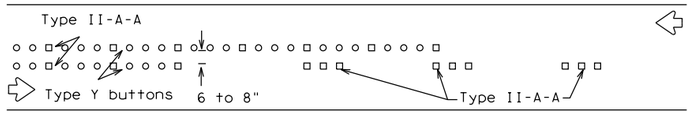
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



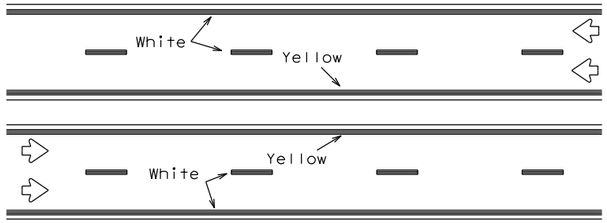
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



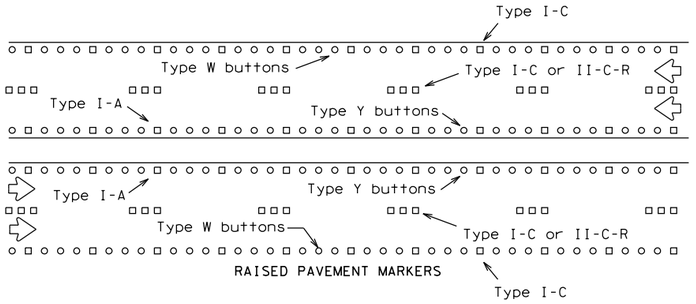
RAISED PAVEMENT MARKERS - PATTERN B

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

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



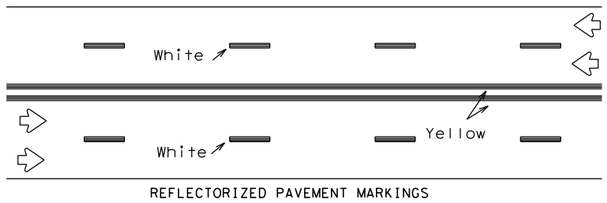
REFLECTORIZED PAVEMENT MARKINGS



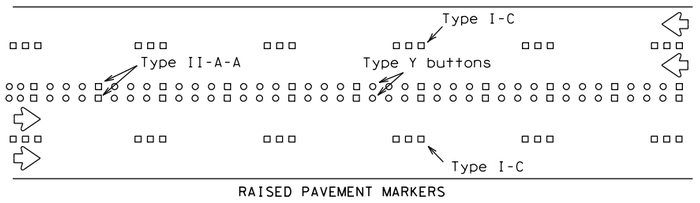
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



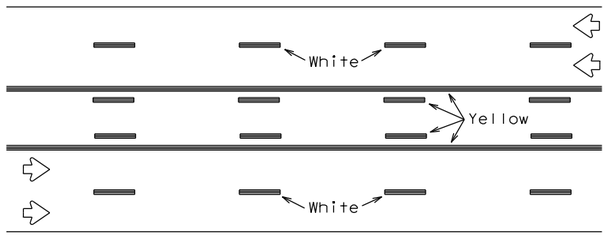
REFLECTORIZED PAVEMENT MARKINGS



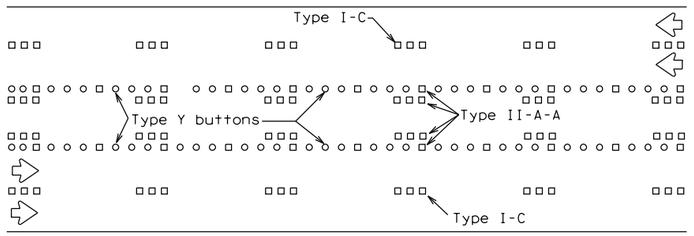
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

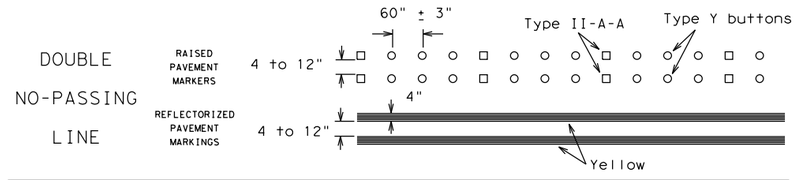
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

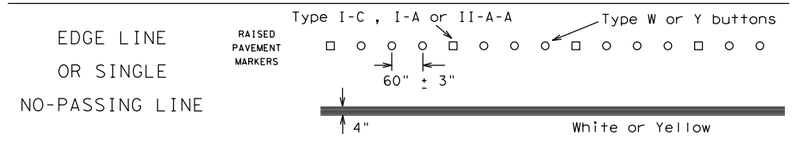
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

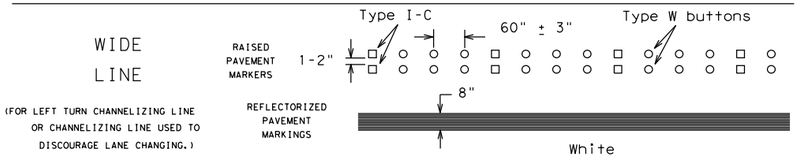


EDGE LINE OR SINGLE NO-PASSING LINE



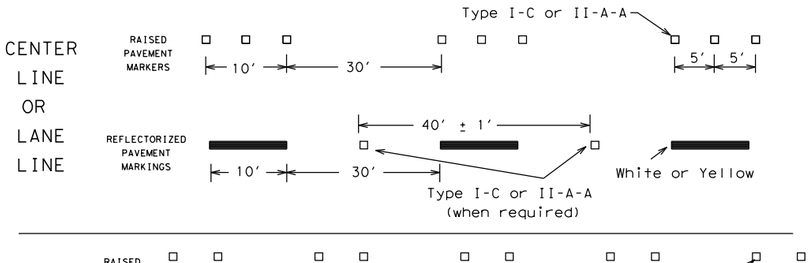
WIDE LINE

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

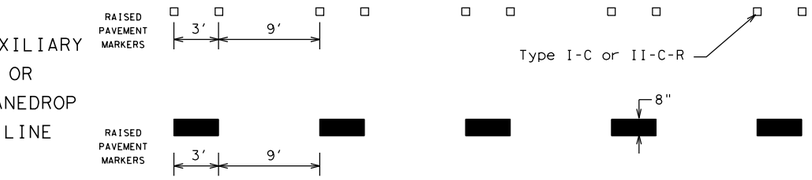


BROKEN LINES

CENTER LINE OR LANE LINE

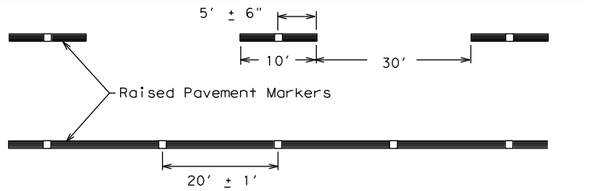


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

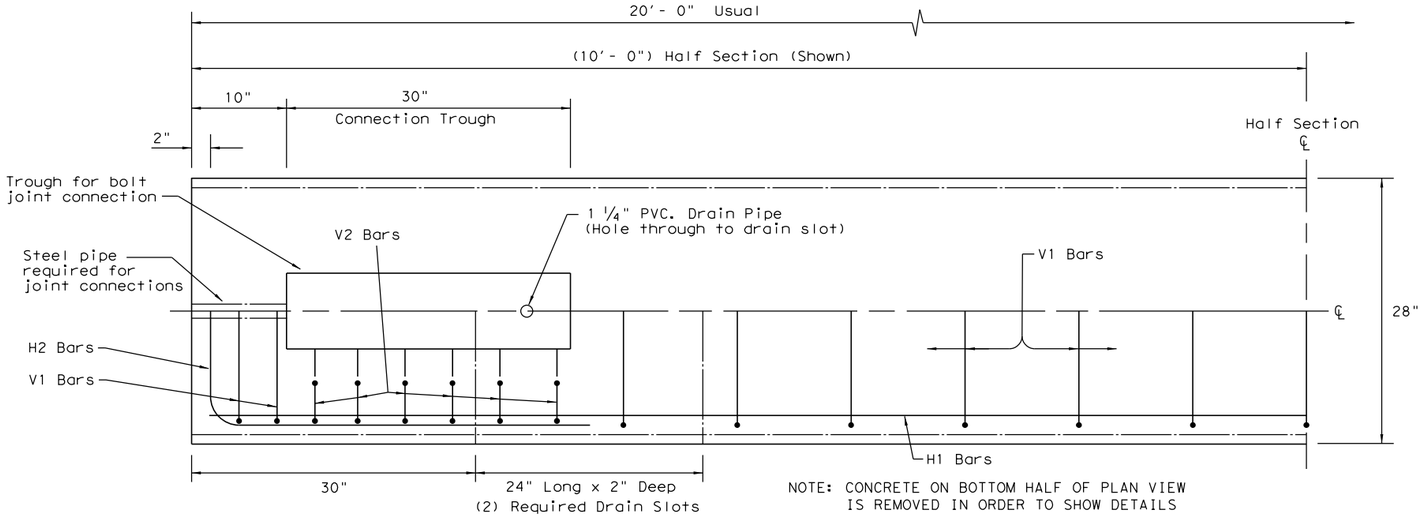
BC(12)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
1-97 9-07	DIST	COUNTY		SHEET NO.
2-98 7-13		COLLIN		49
11-02 8-14				

106

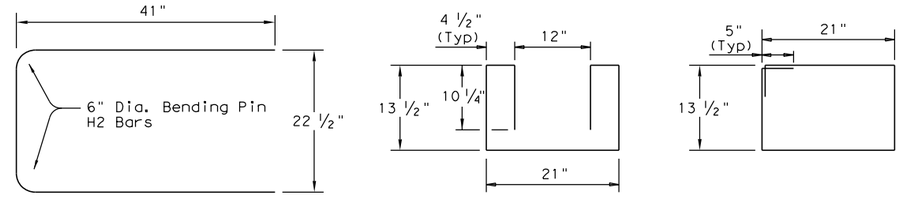
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NOTE: CONCRETE ON BOTTOM HALF OF PLAN VIEW IS REMOVED IN ORDER TO SHOW DETAILS

PLAN
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



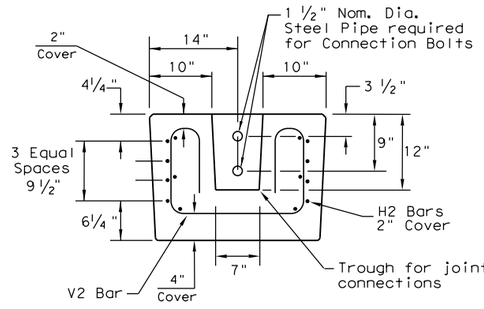
(8)~H2 Bars (#5) Bars

(12)~V2 Bars (#4) Bars

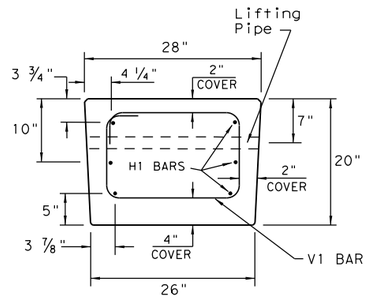
(17)~V1 Bars (#4) Bars

REINFORCING STEEL DETAILS
TYPE 1 - BARRIER SEGMENT

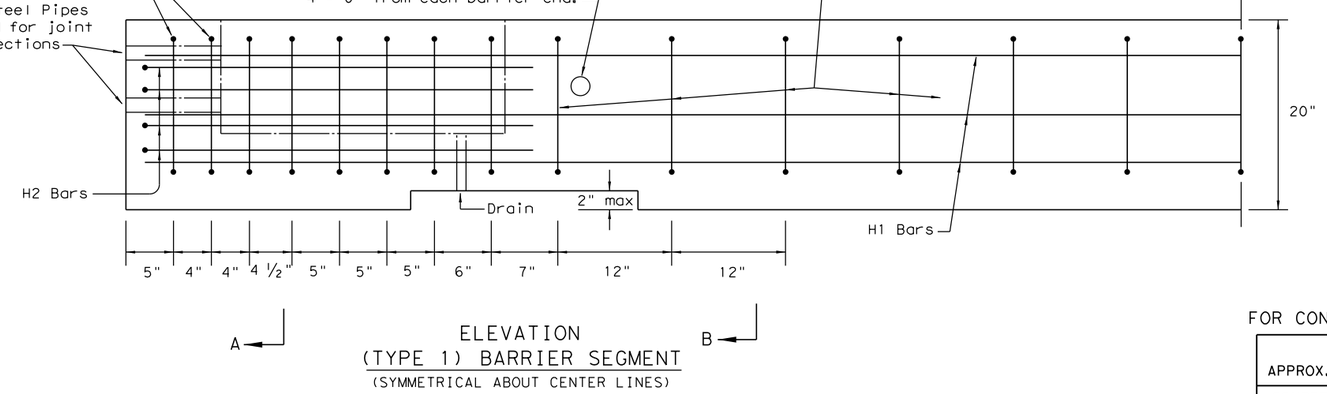
Note: Use 2" Dia. Bending Pin, unless otherwise shown



SECTION A-A



SECTION B-B



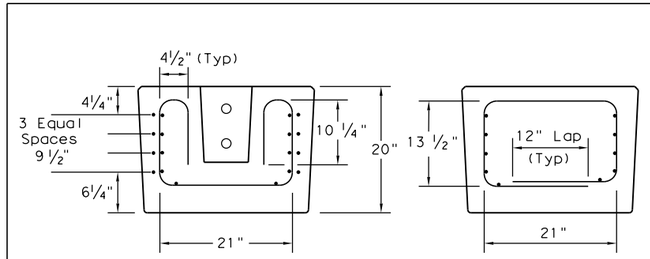
ELEVATION
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)

GENERAL NOTES

1. Low Profile Concrete Barrier (LPCB), is approved for use in temporary work zone locations, where the posted speed is 45 mph, or less.
2. Concrete shall be Class H for precast barrier with a minimum compressive strength of 3,600 psi.
3. Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
4. Precast LPCB barrier length shall be 20 ft.
5. All barrier edges shall have ¾" chamfer or a tooled radius.
6. Joint connection hardware shall be in accordance with Item 449, "Anchor Bolts." and is considered subsidiary.
7. Steel pipe required for joint connection bolts shall be galvanized in accordance with Item 445,"Galvanizing."
8. Welded wire reinforcement (WWR) may be used in lieu of conventional reinforcement for Type 1 barrier, and shall meet the requirements shown.

FOR CONTRACTORS INFORMATION ONLY

(TYPE 1) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	2.6
REINFORCING STEEL	LBS	330
TOTAL BARRIER WT.	LBS	11000



SECTION A-A

SECTION B-B

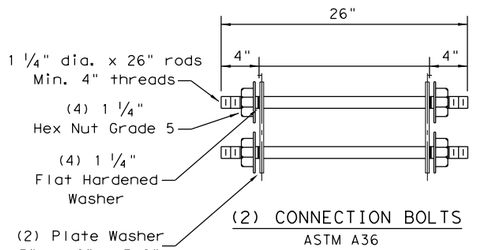
(WWR) GENERAL NOTES

1. Deformed Welded Wire Reinforcement shall conform to ASTM A497.
2. Welded wire cage may be cut or bent, if necessary, but must be approved by the Engineer.
3. Combinations of reinforcing steel and WWR are permitted, as directed by the Engineer. The dimensions from the end of the barrier section to the first wire shall not exceed 3".

REQUIRED (WWR) WIRE DESIGN

8 ~ (D31) Horizontal Wires (Equally spaced)
10 ~ (D20) Horizontal Wires (Equally spaced)
29 ~ (D20) Vertical Wires (Spaced as shown in Elevation View)

WELDED WIRE REINFORCEMENT (WWR)- OPTIONAL REINFORCING



(2) CONNECTION BOLTS
ASTM A36

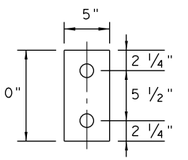


PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

SHEET 1 OF 2

Texas Department of Transportation

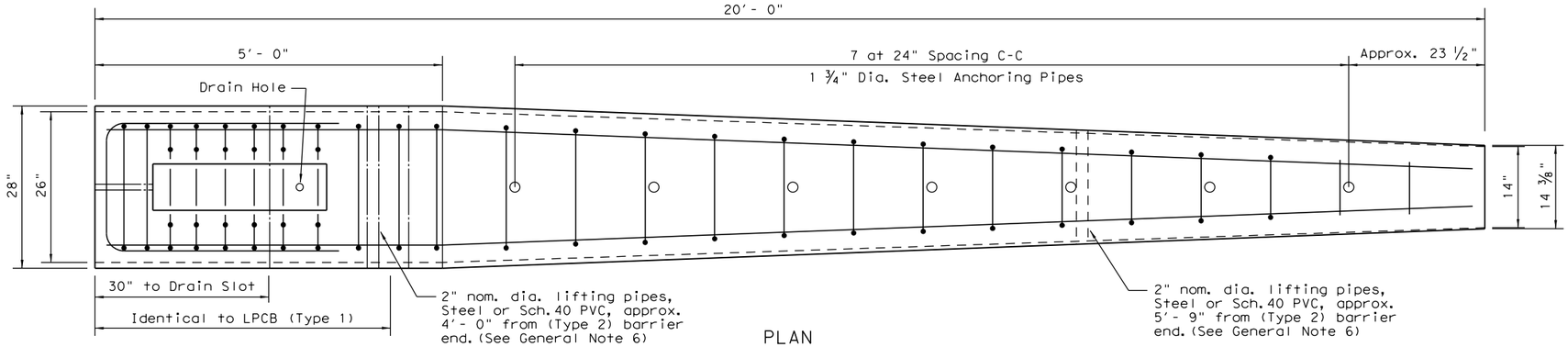
Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 1)
LPCB-13

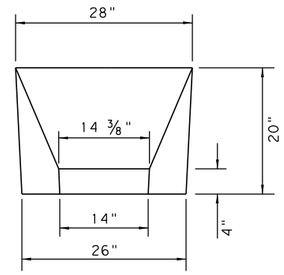
FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		50

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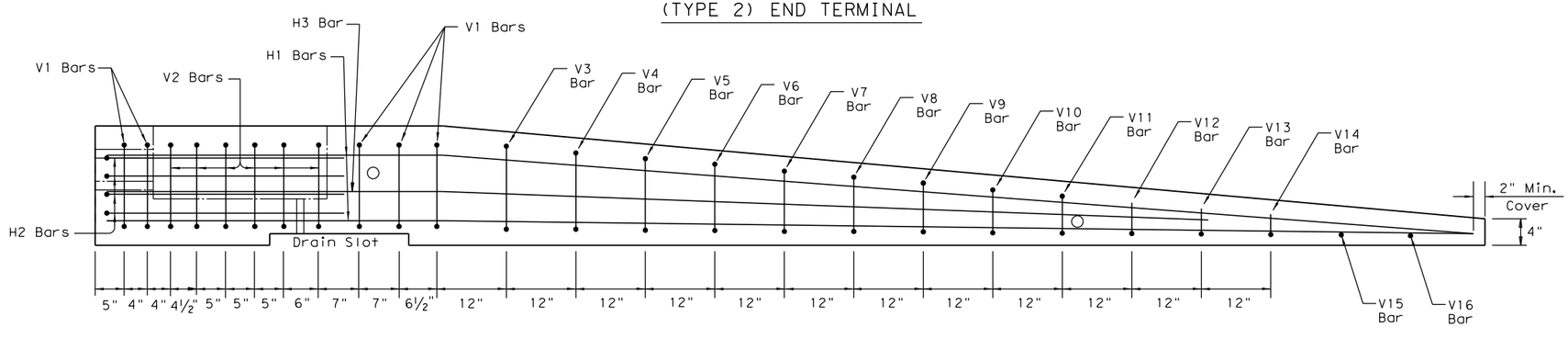
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FILE: i:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\12 STANDARDS\Barriers\lpcb13.dgn



PLAN
(TYPE 2) END TERMINAL



APPROACH VIEW

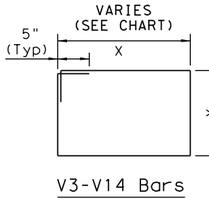


ELEVATION
(TYPE 2) END TERMINAL

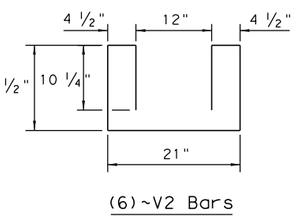
Note:
Anchoring pipes not shown in Elevation View

TYPE 2 - NOTES

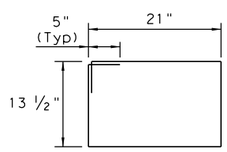
1. Welded wire reinforcment (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4 ft. of lateral displacement of the end treatment. The use of non-pinned end treatment does not affect the performance or the deflection of the Low-Profile barrier system.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bends in the H3 and H1 bars are slight, no formal bend is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.



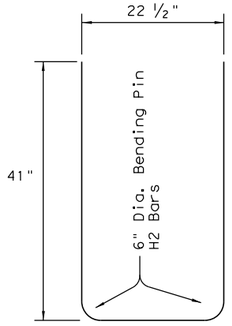
V3-V14 Bars



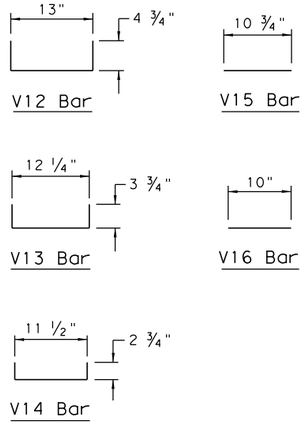
(6)~V2 Bars



(5)~V1 Bars



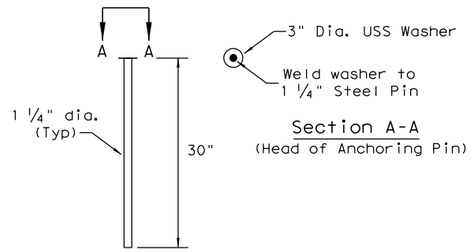
(4)~H2 Bars
(#5) Bars



Note: All V Bars are (#4)

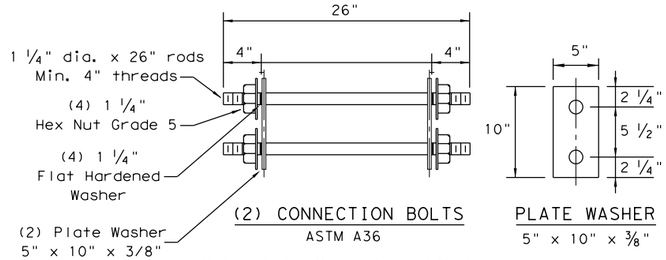
BAR (#4)	X (IN.)	Y (IN.)
V3 BAR	20 ¼	14 ½
V4 BAR	19 ½	13 ½
V5 BAR	18 ½	12 ¼
V6 BAR	17 ½	11 ¼
V7 BAR	17	10 ¼
V8 BAR	16 ¼	9
V9 BAR	15 ½	8
V10 BAR	14 ½	7
V11 BAR	13 ¾	6

REINFORCING STEEL DETAILS
TYPE 2 - END TERMINAL



Section A-A
(Head of Anchoring Pin)

(7) Anchor Pins (See Note 3)
ASTM A36 Steel

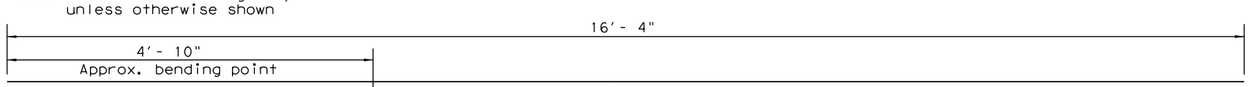


(2) CONNECTION BOLTS
ASTM A36

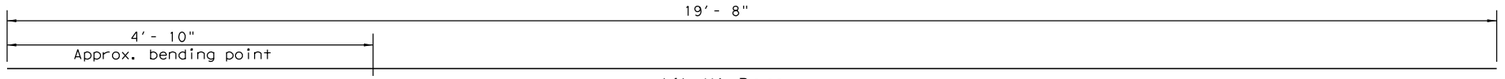
PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

Note: Use 2" Dia. Bending Pin, unless otherwise shown



(2)~H3 Bars
(#5) Bar



Note: Bends on H1 and H3 bars are slight and do not require formal bends.

(4)~H1 Bars
(#5) Bar

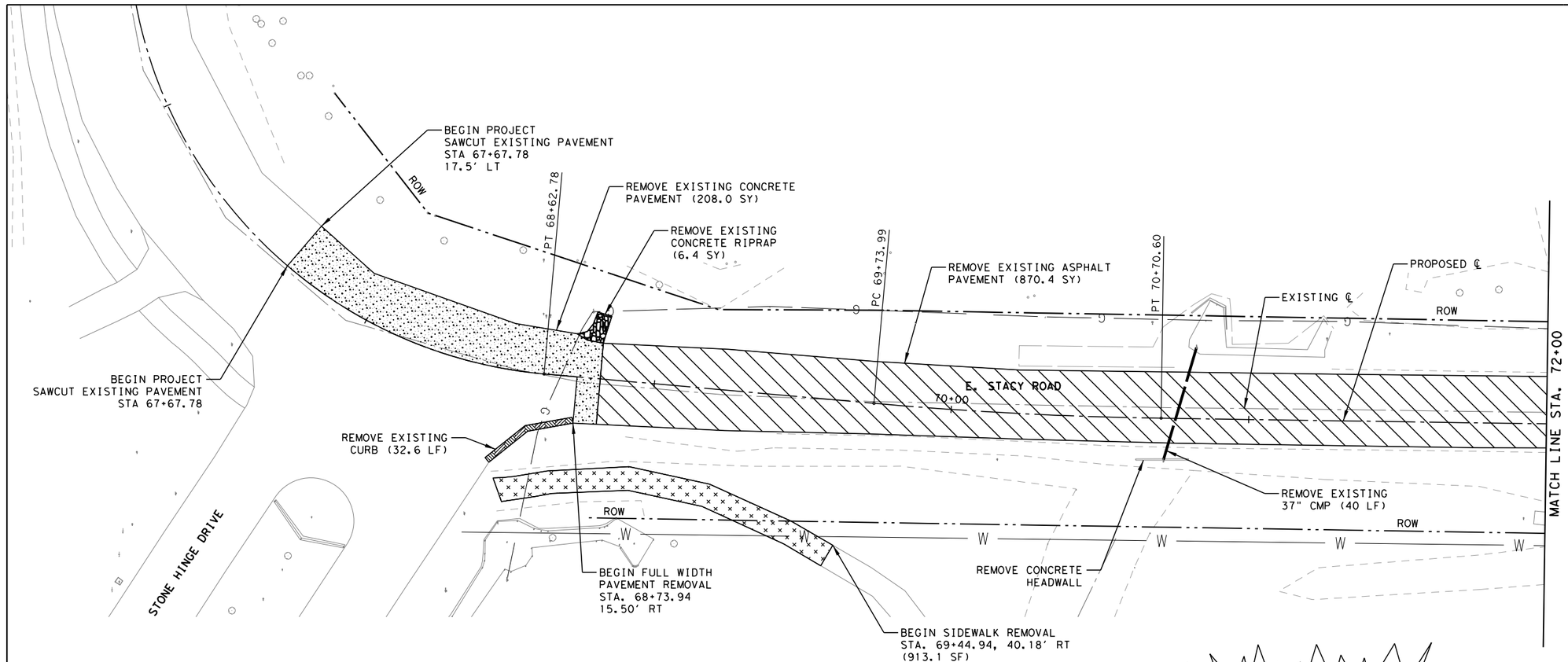
FOR CONTRACTORS INFORMATION ONLY

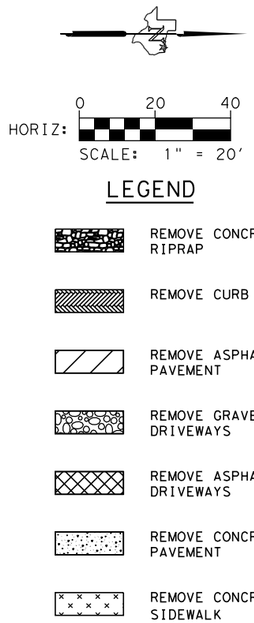
(TYPE 2) APPROX. QUANTITIES		20 FT. SECTION
CONCRETE	CY	1.65
REINFORCING STEEL	LBS	240
TOTAL BARRIER WT.	LBS	7000

Texas Department of Transportation
Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 2)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
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REVISIONS				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		51

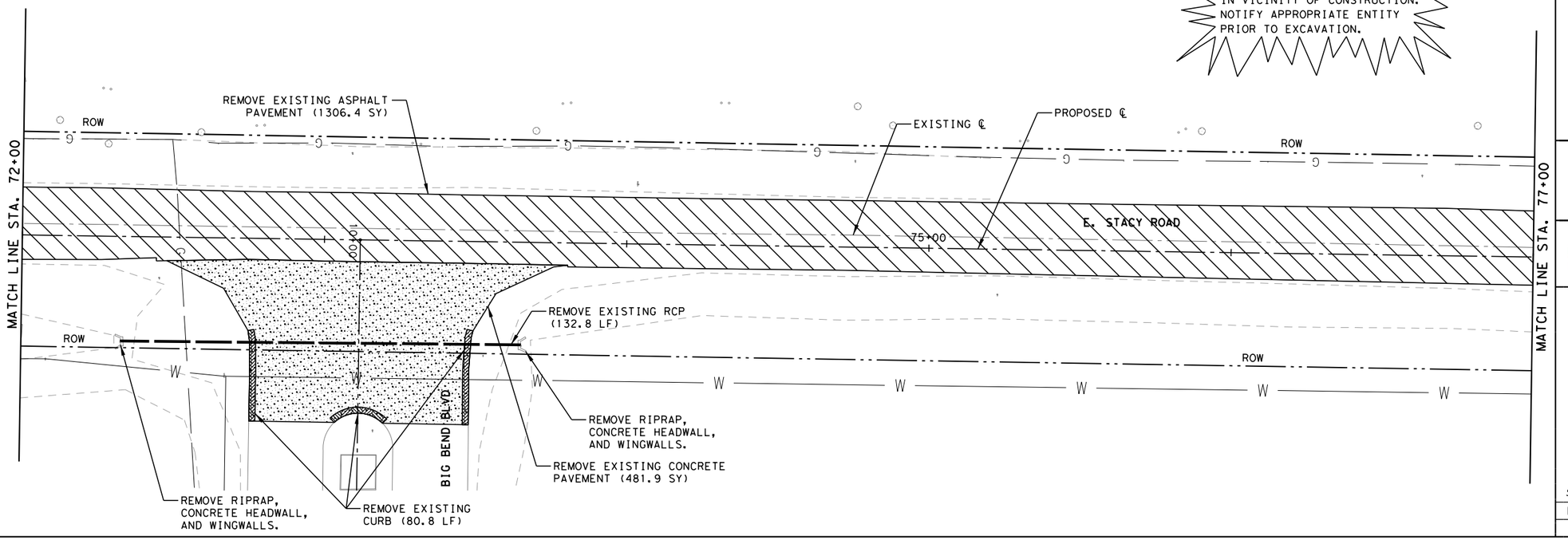




LEGEND

- REMOVE CONCRETE RIPRAP
- REMOVE CURB
- REMOVE ASPHALT PAVEMENT
- REMOVE GRAVEL DRIVEWAYS
- REMOVE ASPHALT DRIVEWAYS
- REMOVE CONCRETE PAVEMENT
- REMOVE CONCRETE SIDEWALK

!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.



CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

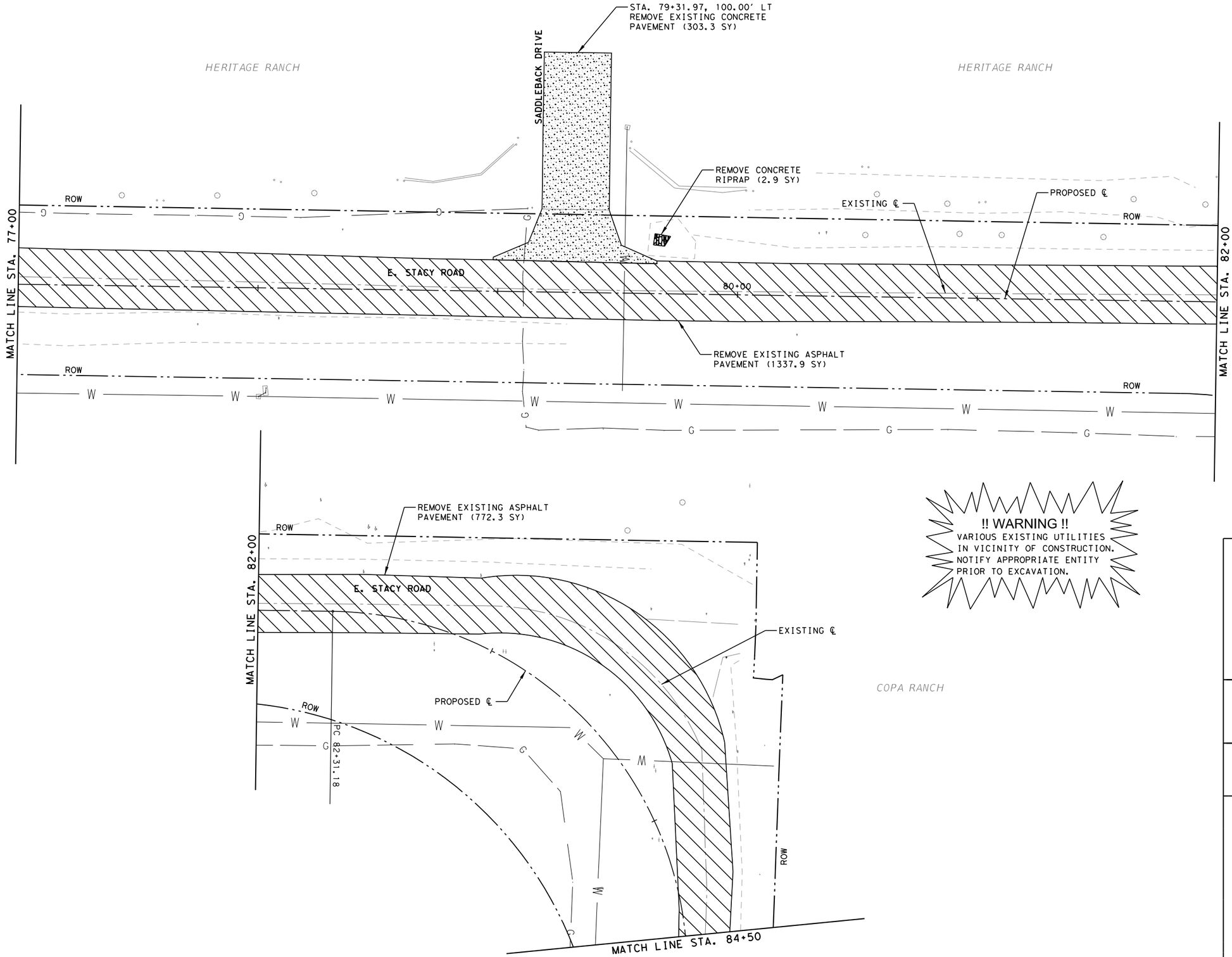
E. STACY ROAD IMPROVEMENTS

REMOVAL PLAN

BEGIN TO STA. 77+00

SCALE: H: 1" = 20'	SHEET 1 OF 7	SHEET NO.
DESIGNED BY: CLM	DRAWN BY: RAW	CHECKED BY: SCW
		52

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1/3/2018 2:37:36 PM cmoorman



HORIZ: 0 20 40

SCALE: 1" = 20'

LEGEND

- REMOVE CONCRETE RIPRAP
- REMOVE CURB
- REMOVE ASPHALT PAVEMENT
- REMOVE GRAVEL DRIVEWAYS
- REMOVE ASPHALT DRIVEWAYS
- REMOVE CONCRETE PAVEMENT

!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED
PROFESSIONAL ENGINEER
January 3, 2018

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

REMOVAL PLAN

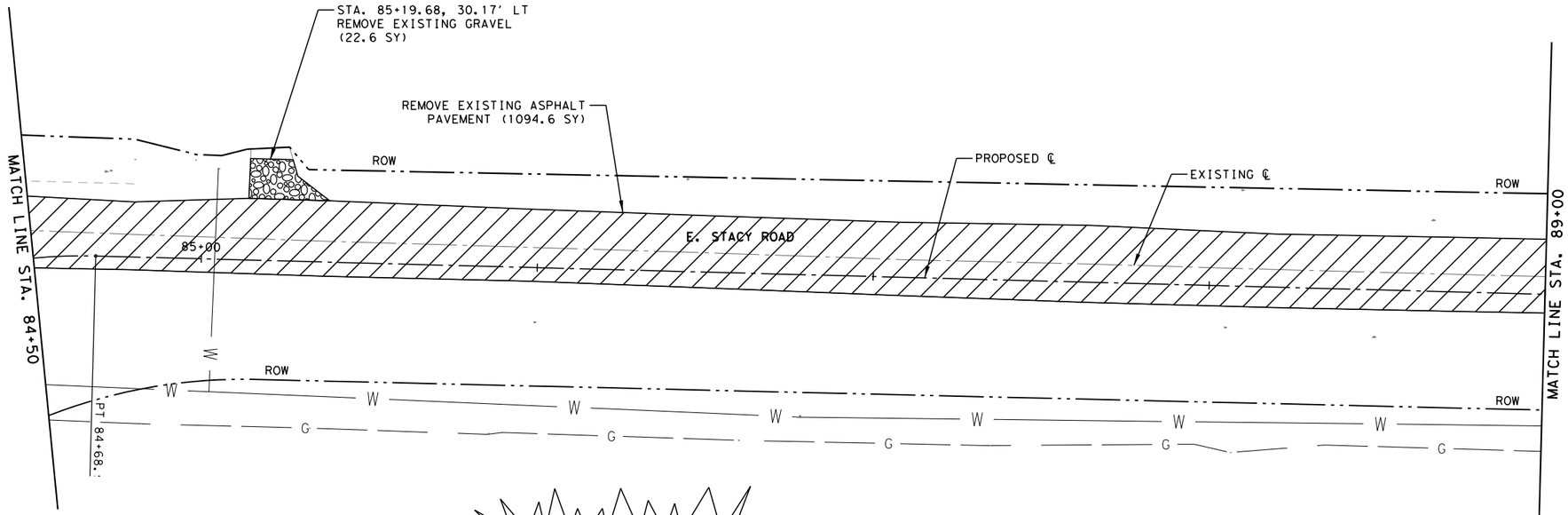
STA. 77+00 TO STA. 84+50

SCALE: H: 1" = 20' SHEET 2 OF 7

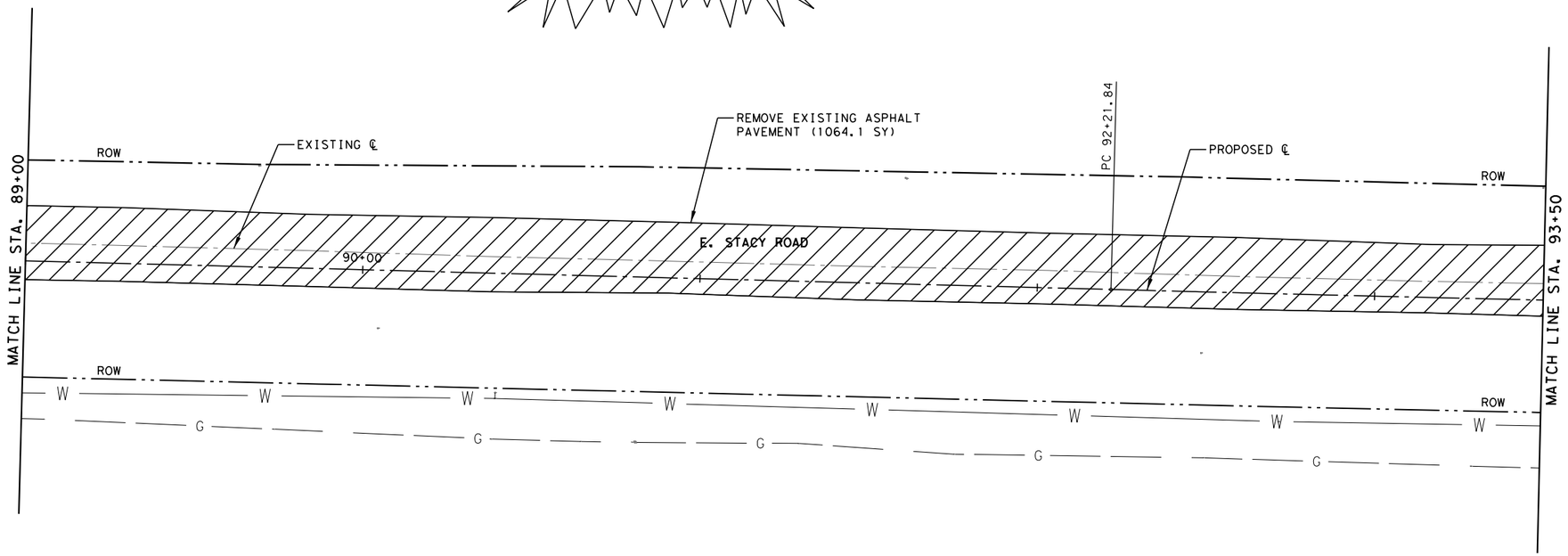
SHEET NO. 53

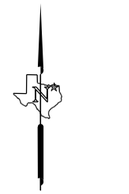
DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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1/3/2018
2:37:38 PM cmoorman



!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCEPTION.





LEGEND

- REMOVE CONCRETE RIPRAP
- REMOVE CURB
- REMOVE ASPHALT PAVEMENT
- REMOVE GRAVEL DRIVEWAYS
- REMOVE ASPHALT DRIVEWAYS
- REMOVE CONCRETE DRIVEWAYS

STATE OF TEXAS
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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

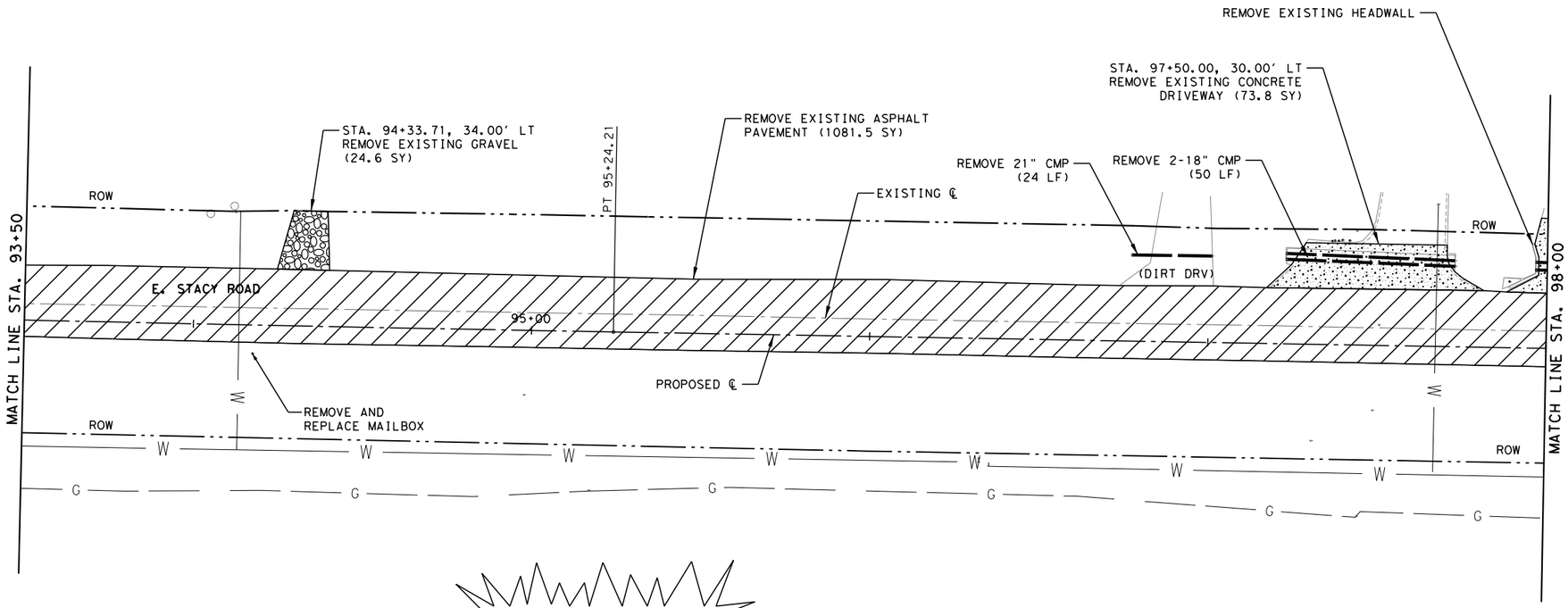
E. STACY ROAD IMPROVEMENTS

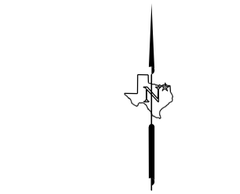
REMOVAL PLAN

STA. 84+50 TO STA. 93+50

SCALE: H: 1" = 20'		SHEET 3 OF 7	SHEET NO.
DESIGNED BY:	DRAWN BY:	CHECKED BY:	54
CLM	RAW	SCW	

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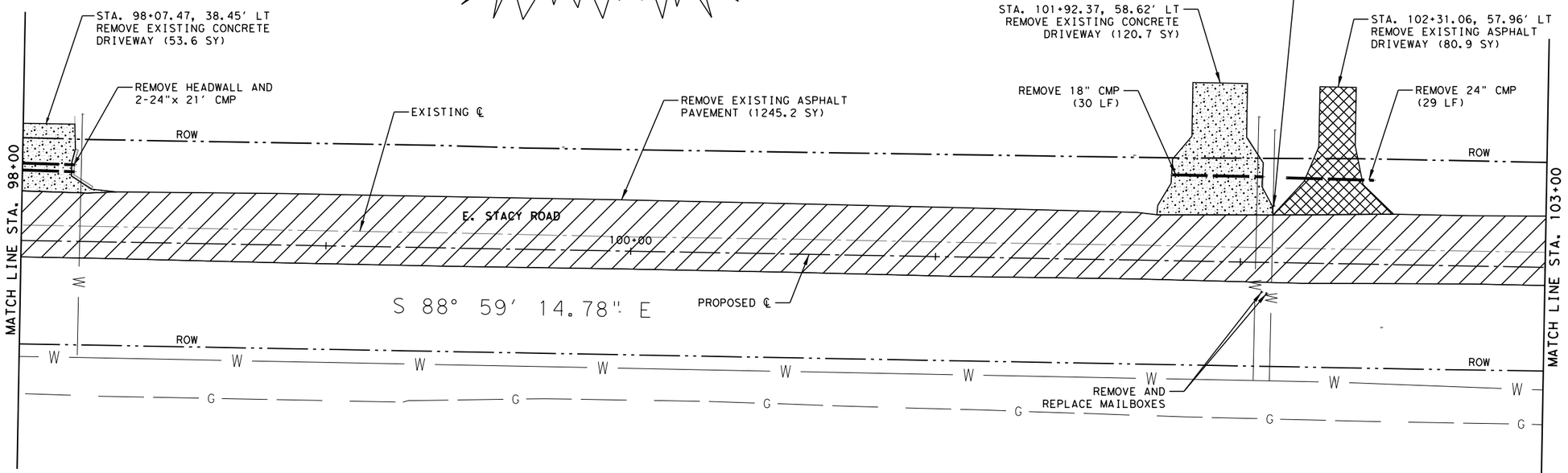




LEGEND

- REMOVE CONCRETE RIPRAP
- REMOVE CURB
- REMOVE ASPHALT PAVEMENT
- REMOVE GRAVEL DRIVEWAYS
- REMOVE ASPHALT DRIVEWAYS
- REMOVE CONCRETE DRIVEWAYS

!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.



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January 3, 2018

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

REMOVAL PLAN

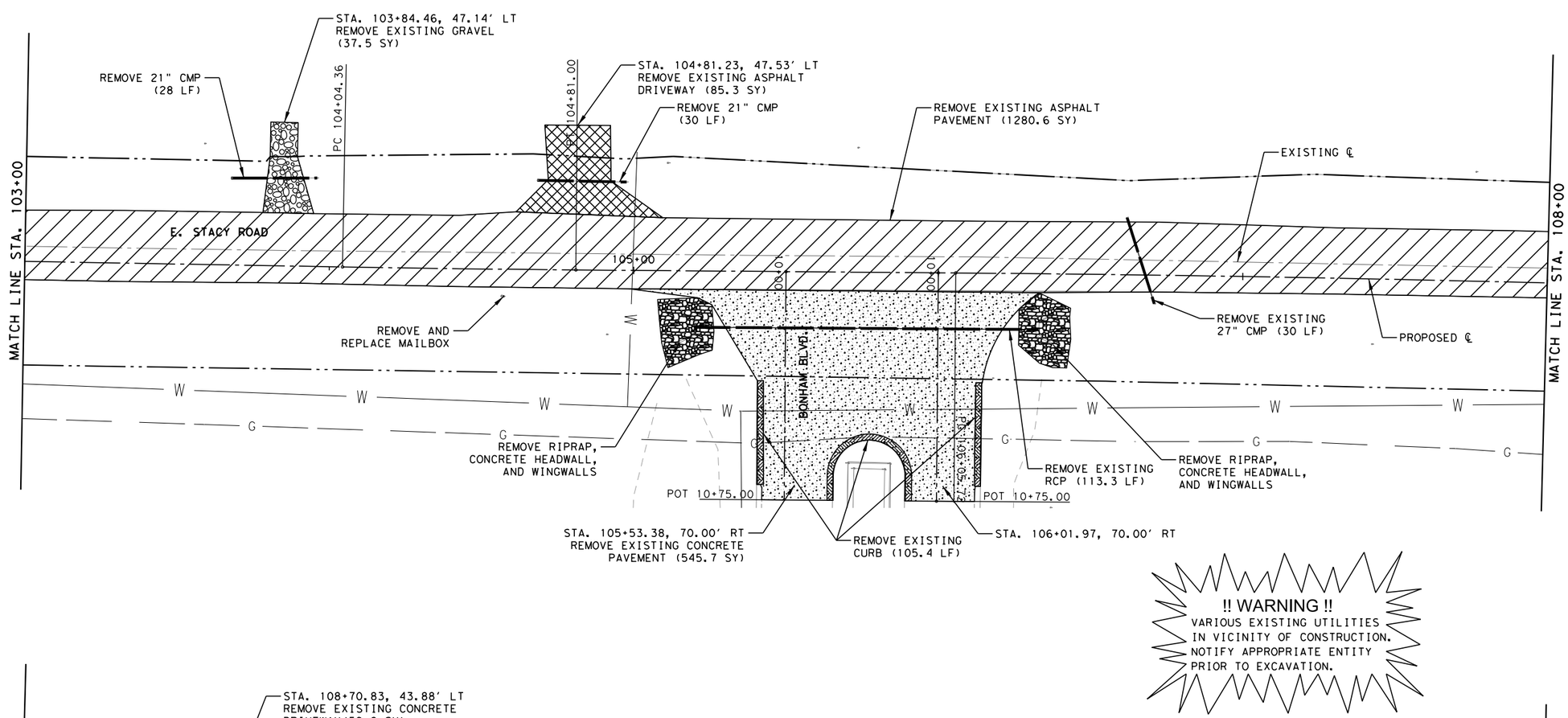
STA. 93+50 TO STA. 103+00

SCALE: H: 1" = 20' SHEET 4 OF 7

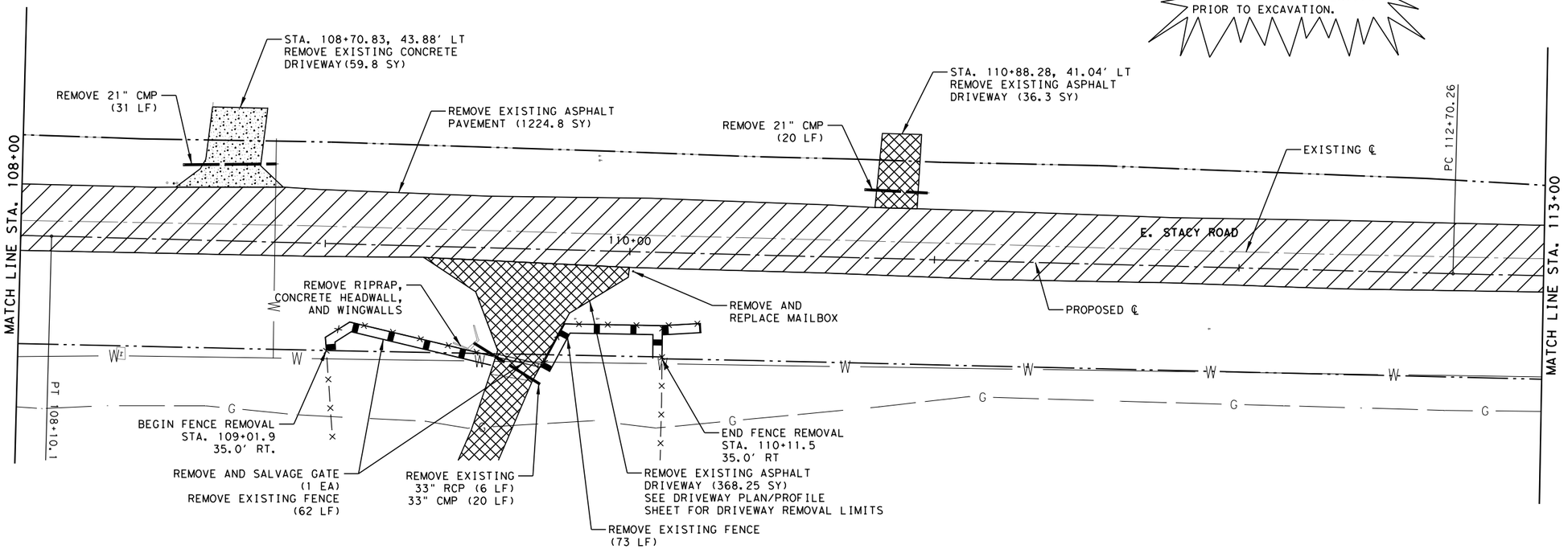
SHEET NO. 55

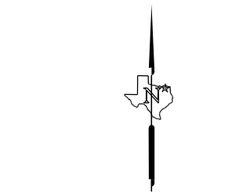
DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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1/3/2018 2:37:42 PM cmoorman



!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.





LEGEND

- REMOVE CONCRETE RIPRAP
- REMOVE CURB
- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE PAVEMENT
- REMOVE GRAVEL DRIVEWAYS
- REMOVE ASPHALT DRIVEWAYS
- REMOVE CONCRETE DRIVEWAYS
- REMOVE EXISTING FENCE

STATE OF TEXAS
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January 3, 2018

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Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

REMOVAL PLAN

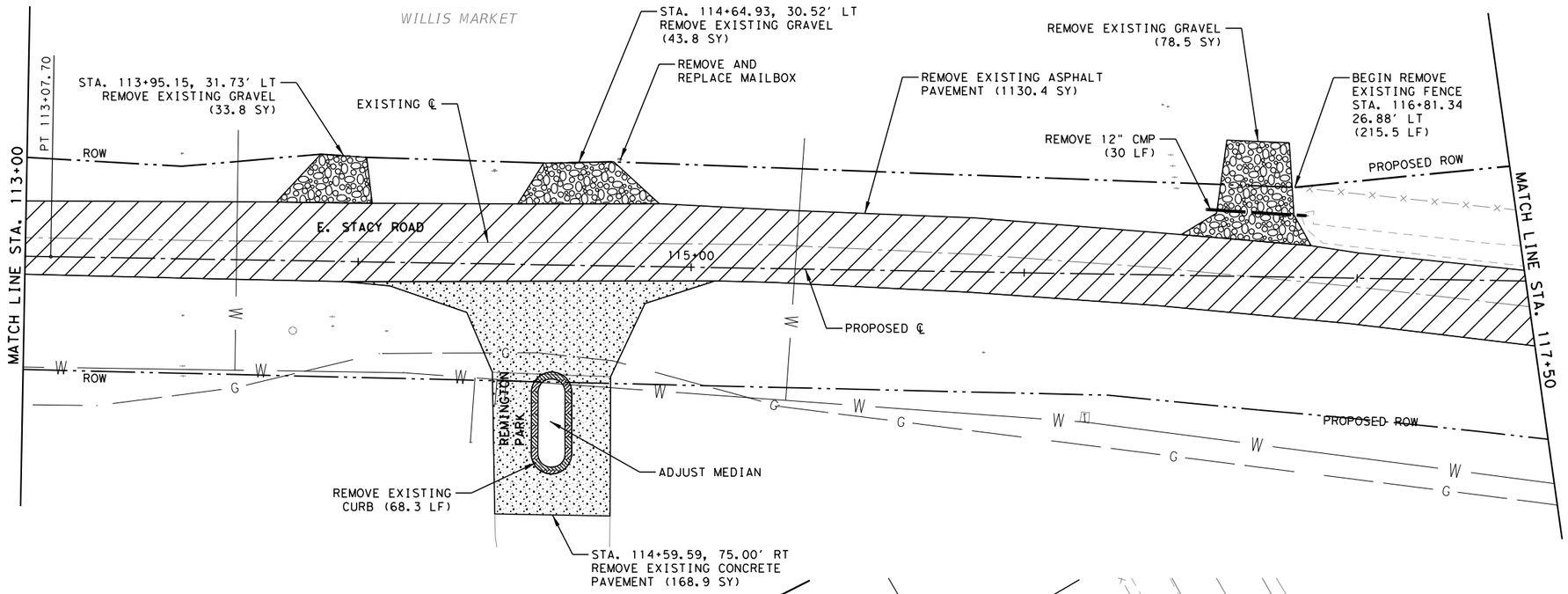
STA. 103+00 TO STA. 113+00

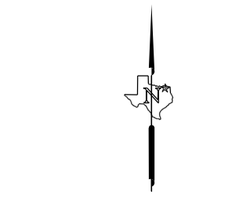
SCALE: H: 1" = 20' SHEET 5 OF 7

SHEET NO. 56

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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LEGEND

- REMOVE CURB
- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE PAVEMENT
- REMOVE GRAVEL DRIVEWAYS

!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 3, 2018

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1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

REMOVAL PLAN

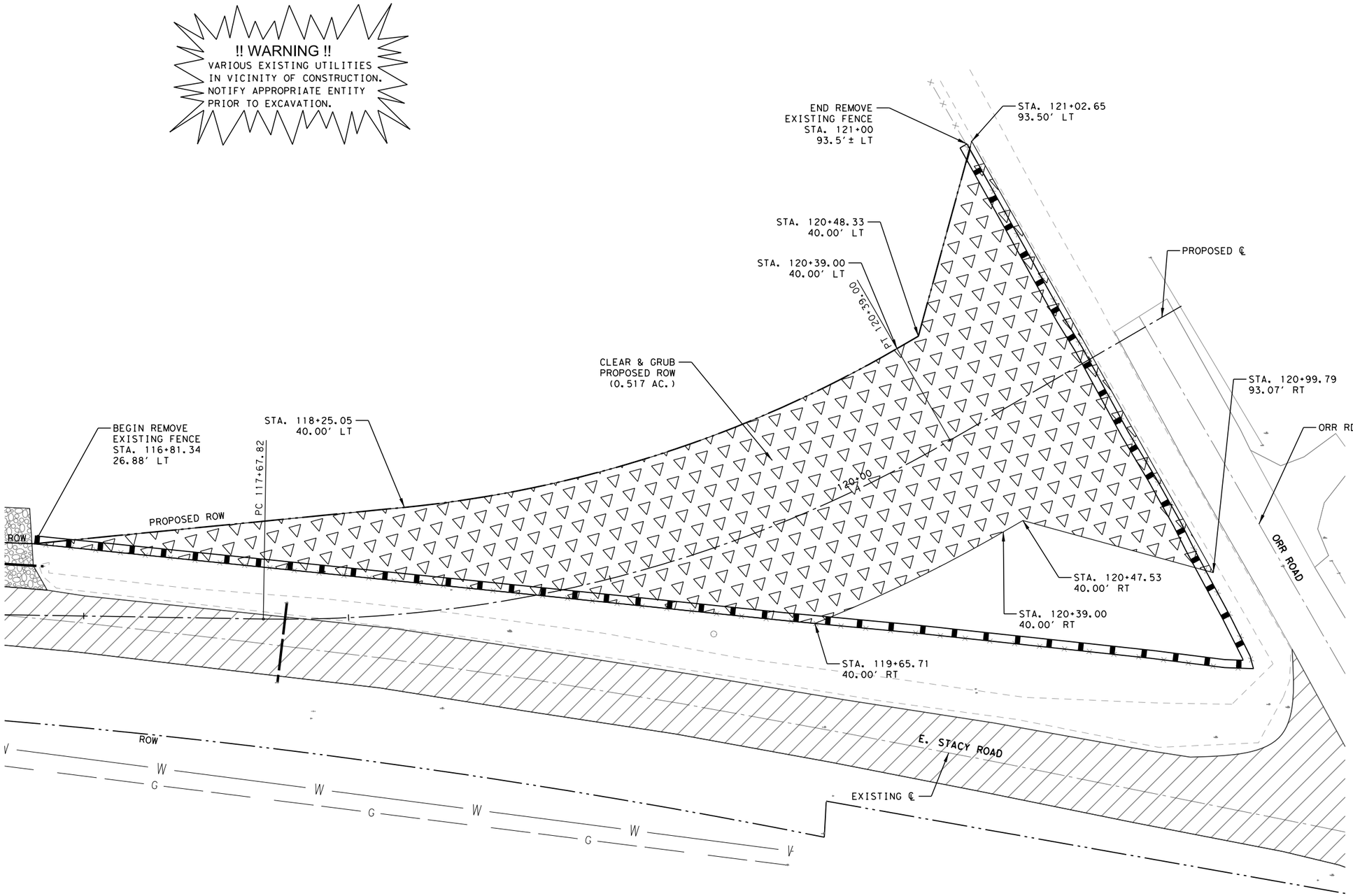
STA. 113+00 TO END

SCALE: H: 1" = 20' SHEET 6 OF 7

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	57

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-REM-06.dgn
1/3/2018 2:37:47 PM cmoorman

!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.



HORIZ: 0 20 40
SCALE: 1" = 20'

LEGEND

- REMOVE ASPHALT PAVEMENT
- REMOVE GRAVEL DRIVEWAYS
- CLEAR AND GRUB PROPOSED ROW
- REMOVE EXISTING FENCE

CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 5, 2018

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1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

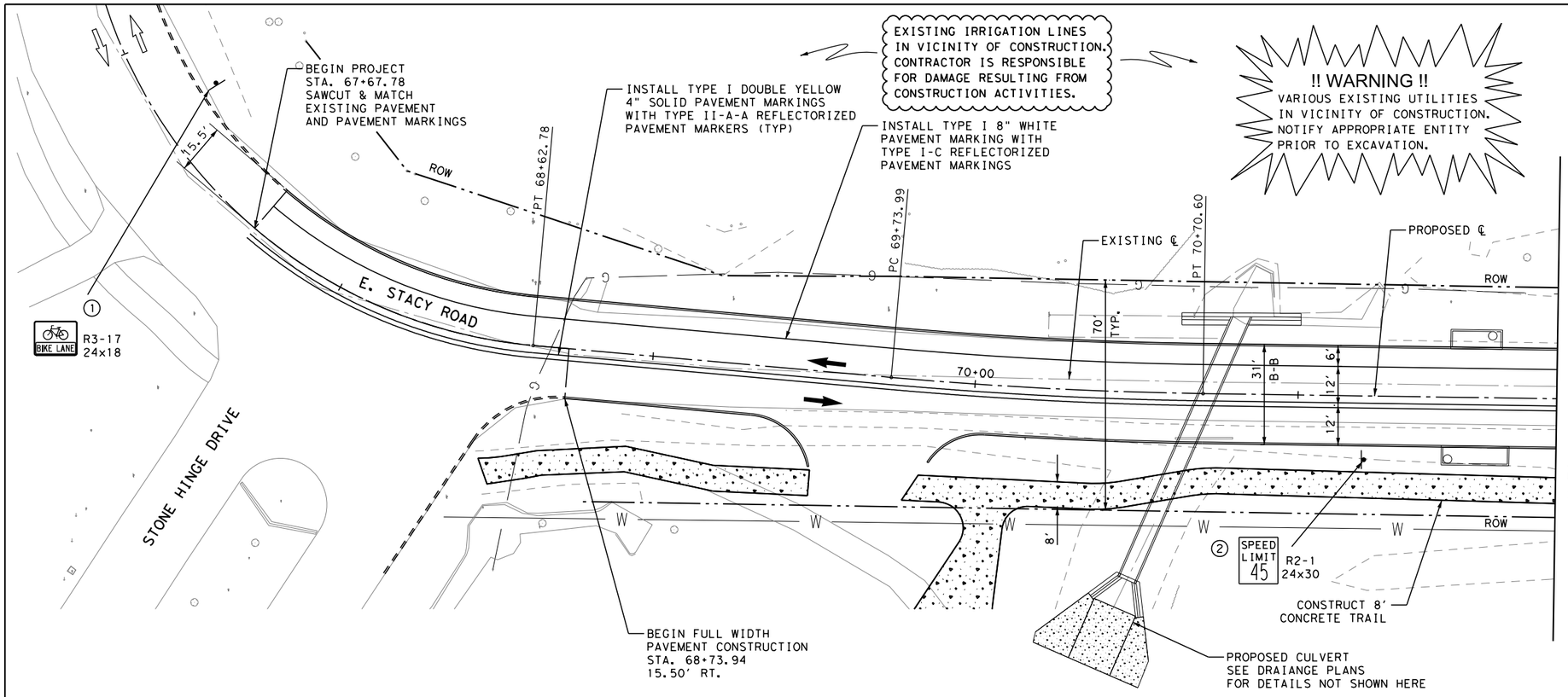
REMOVAL PLAN

PROPOSED RIGHT OF WAY

SCALE: H: 1" = 20' SHEET 7 OF 7

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	CLM	SCW	58

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LEGEND

TRAFFIC FLOW

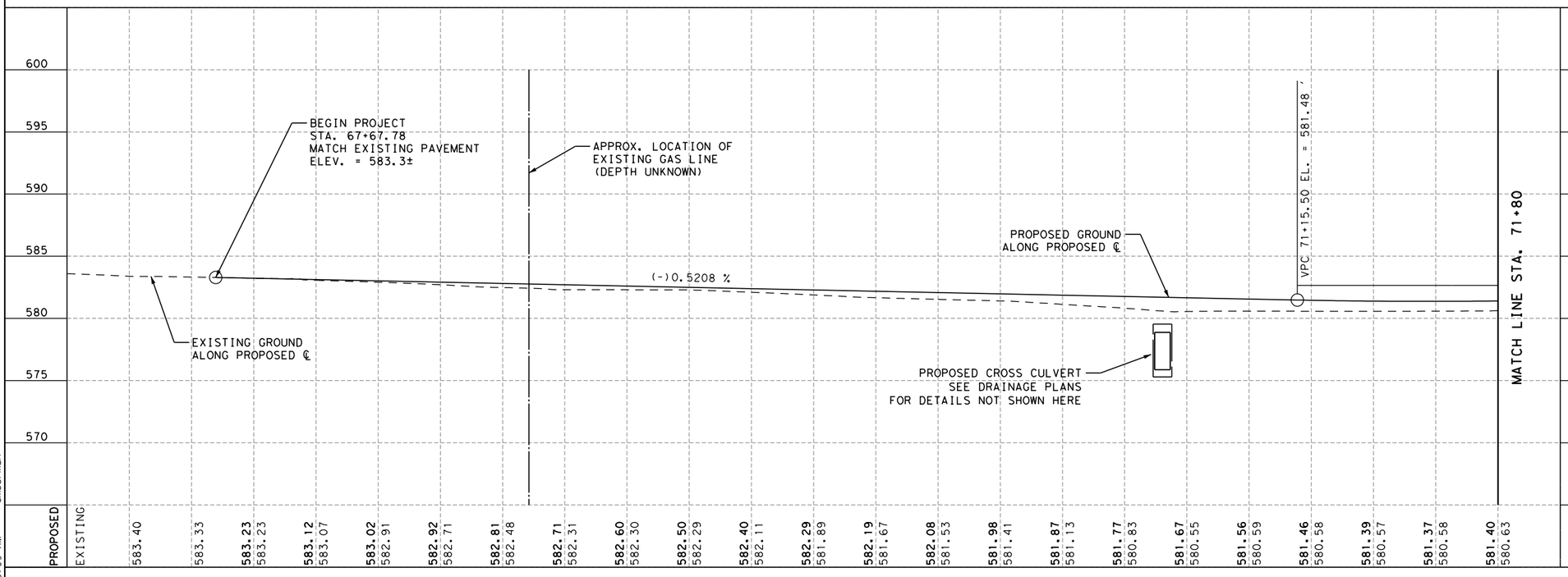
PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40

V: 0 5 10

NOTES:

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2. THE LOCATION OF THE TRAIL IS SHOWN FOR REFERENCE PURPOSES ONLY. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. DRIVEWAY RADII SHALL BE 10' UNLESS NOTED OTHERWISE.
4. SEE PAVING DETAILS SHEET FOR DRIVEWAY DETAILS NOT SHOWN HERE.
5. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
6. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.



CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 5, 2018

HUITT-ZOLLARS

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1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

BEGIN TO STA. 71+80

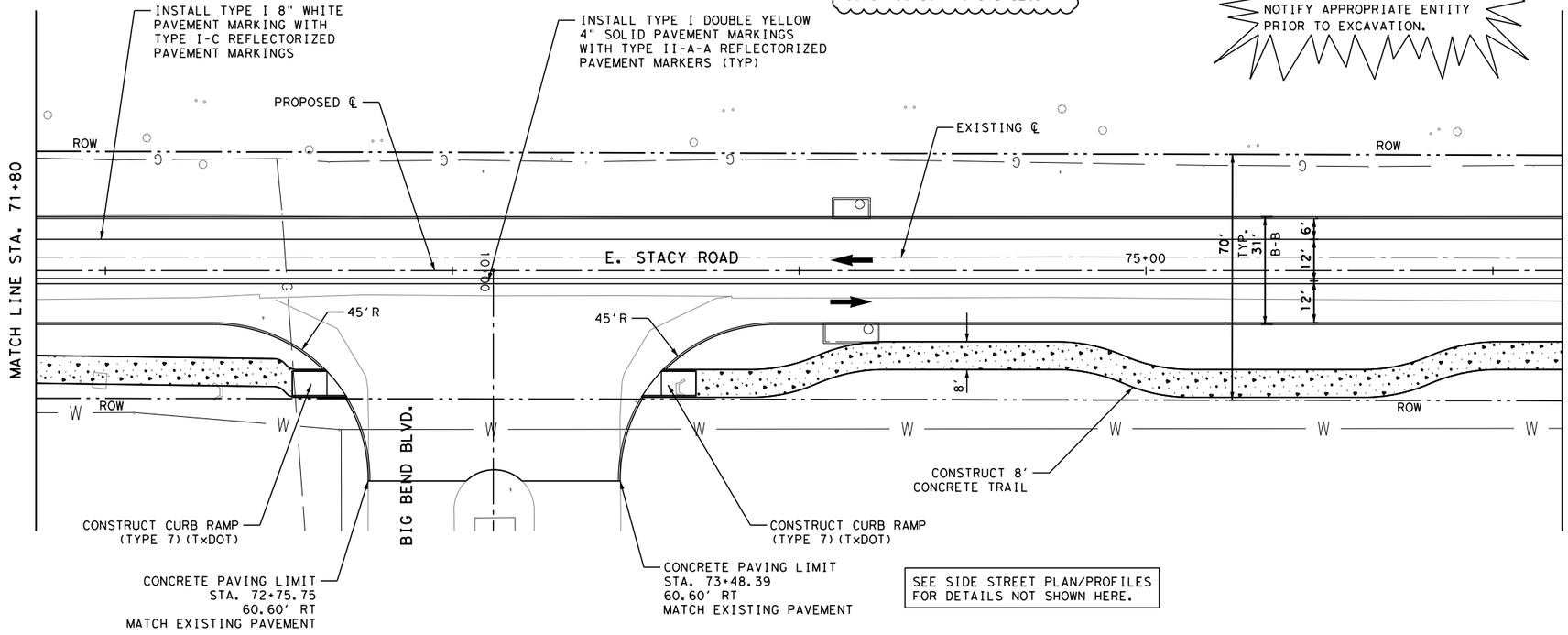
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 1 OF 13

SHEET NO. 59

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-01.dgn
1/4/2018 7:15:09 AM cmoorman



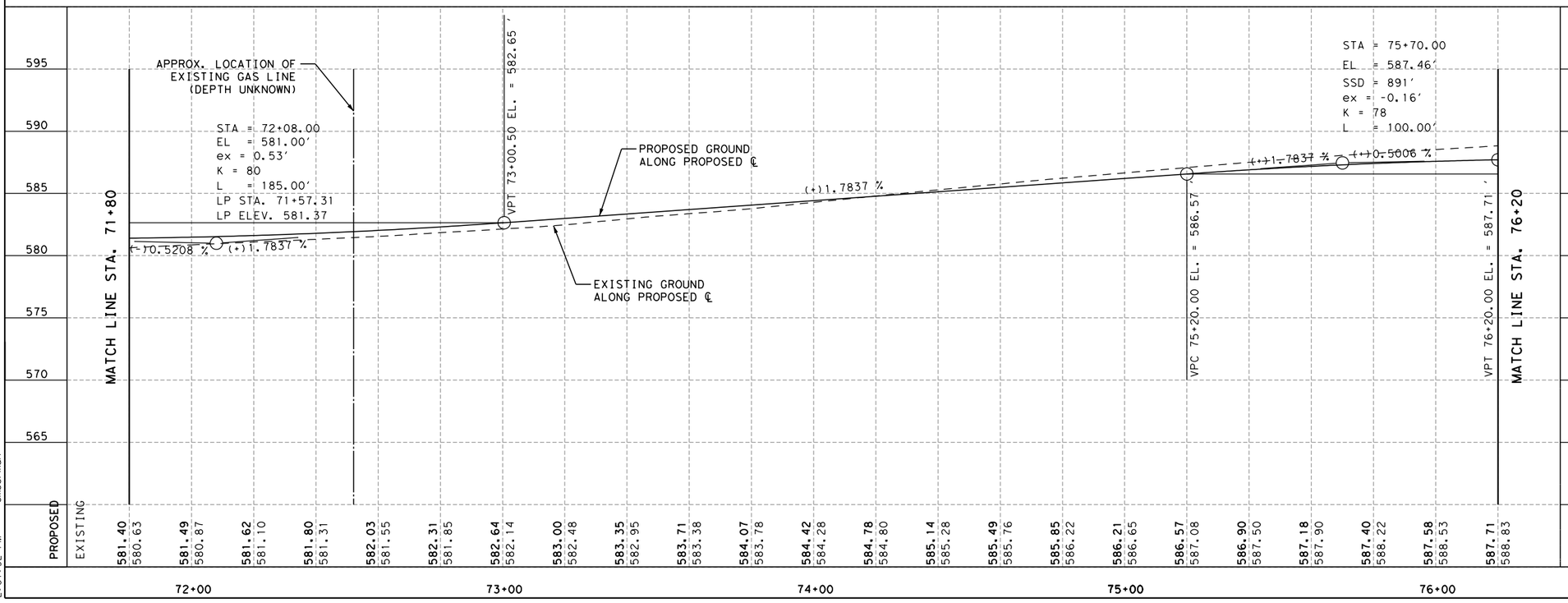
LEGEND

- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

NOTES:

1. THE INFORMATION SHOWN ON THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND PIPELINES, CONDUITS, AND STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES AND BY PROSPECTING IN ADVANCE OF EXCAVATION OPERATIONS.
2. THE LOCATION OF THE TRAIL IS SHOWN FOR REFERENCE PURPOSES ONLY. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. DRIVEWAY RADII SHALL BE 10' UNLESS NOTED OTHERWISE.
4. SEE PAVING DETAILS SHEET FOR DRIVEWAY DETAILS NOT SHOWN HERE.
5. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
6. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.



STATE OF TEXAS
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Firm No. F-761

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372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 71+80 TO STA. 76+20

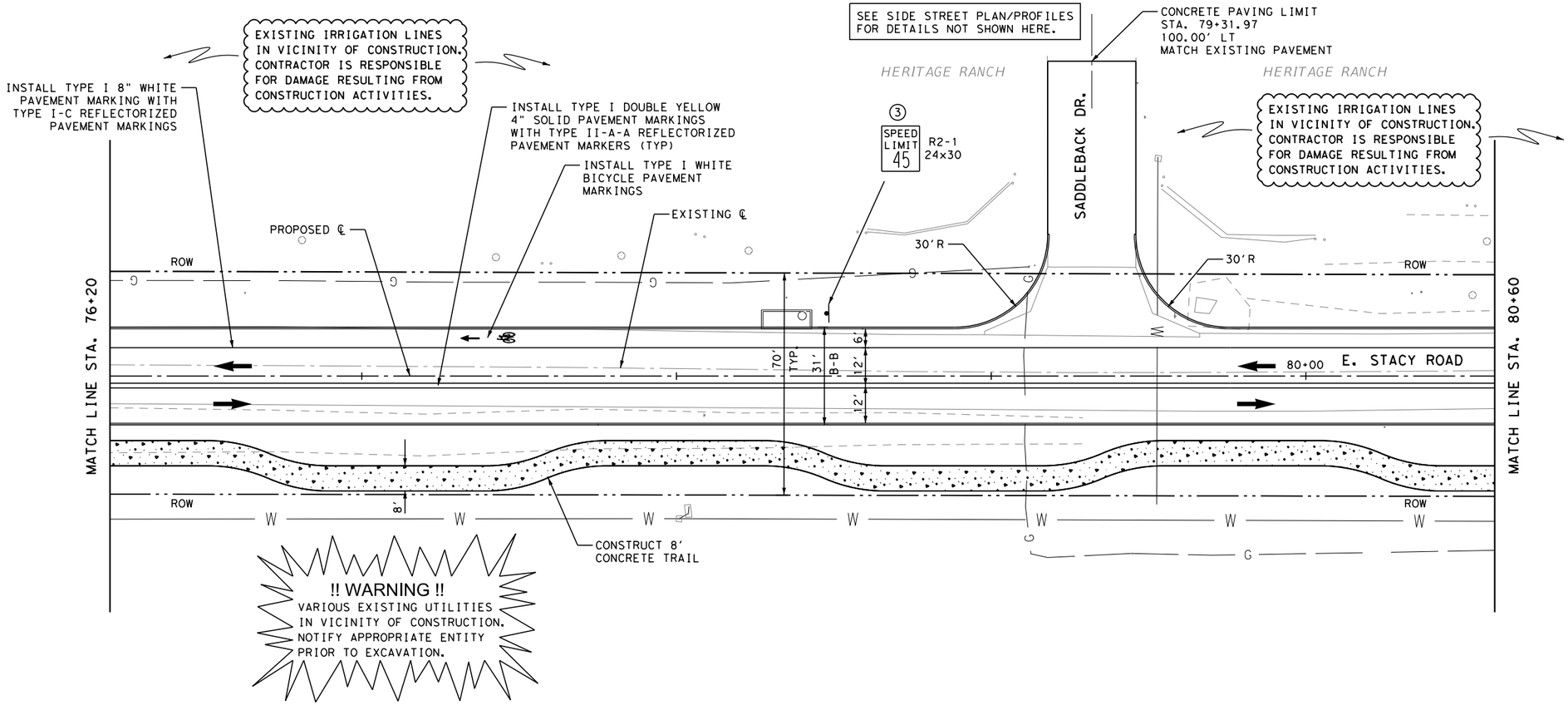
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 2 OF 13

SHEET NO. 60

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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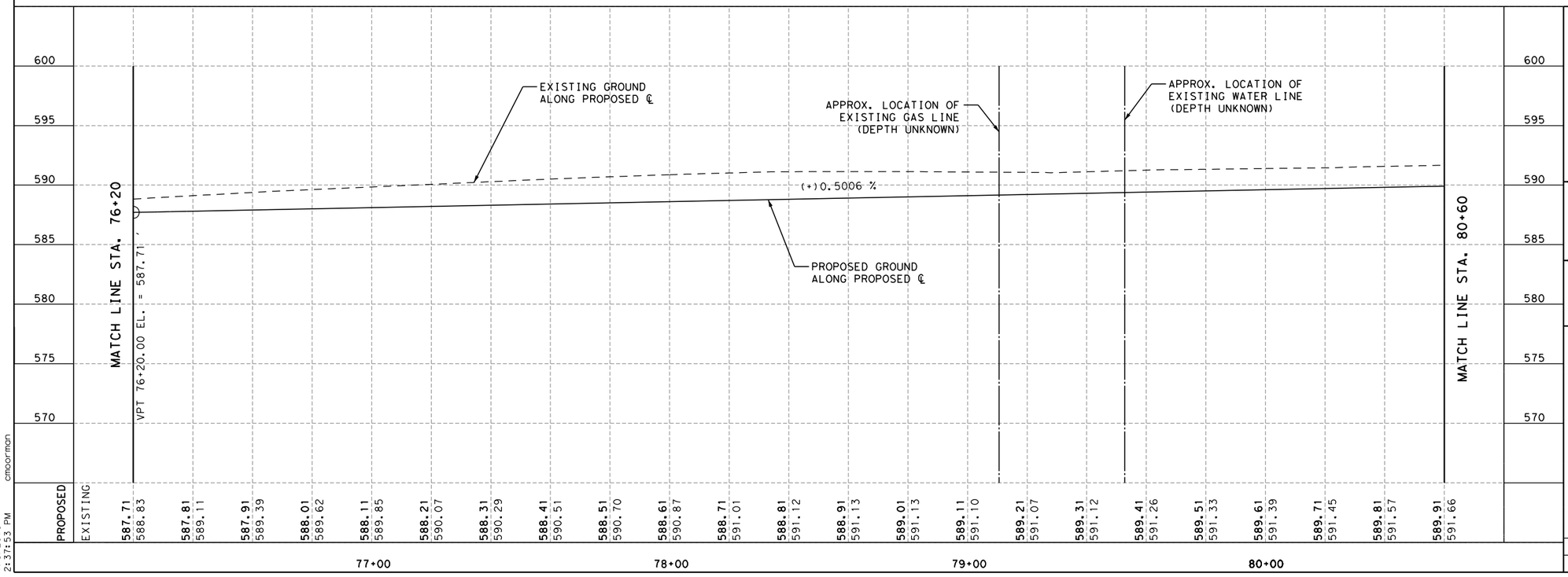
LEGEND

- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

NOTES:

1. THE INFORMATION SHOWN ON THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND PIPELINES, CONDUITS, AND STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES AND BY PROSPECTING IN ADVANCE OF EXCAVATION OPERATIONS.
2. THE LOCATION OF THE TRAIL IS SHOWN FOR REFERENCE PURPOSES ONLY. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. DRIVEWAY RADII SHALL BE 10' UNLESS NOTED OTHERWISE.
4. SEE PAVING DETAILS SHEET FOR DRIVEWAY DETAILS NOT SHOWN HERE.
5. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
6. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.



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TOWN OF FAIRVIEW, TEXAS
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FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 76+20 TO STA. 80+60

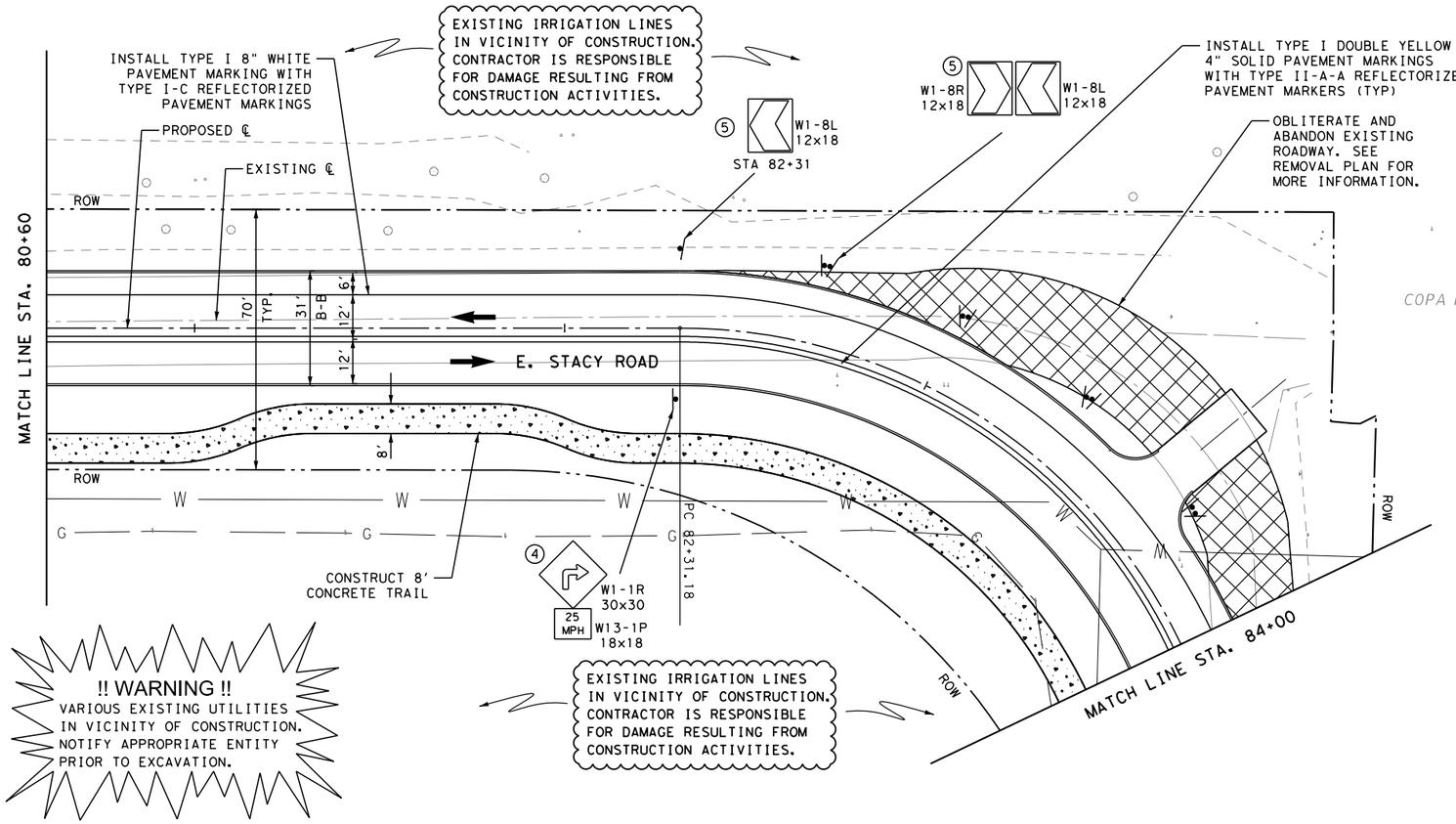
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 3 OF 13

SHEET NO. 61

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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1/3/2018 2:37:53 PM cmoorman



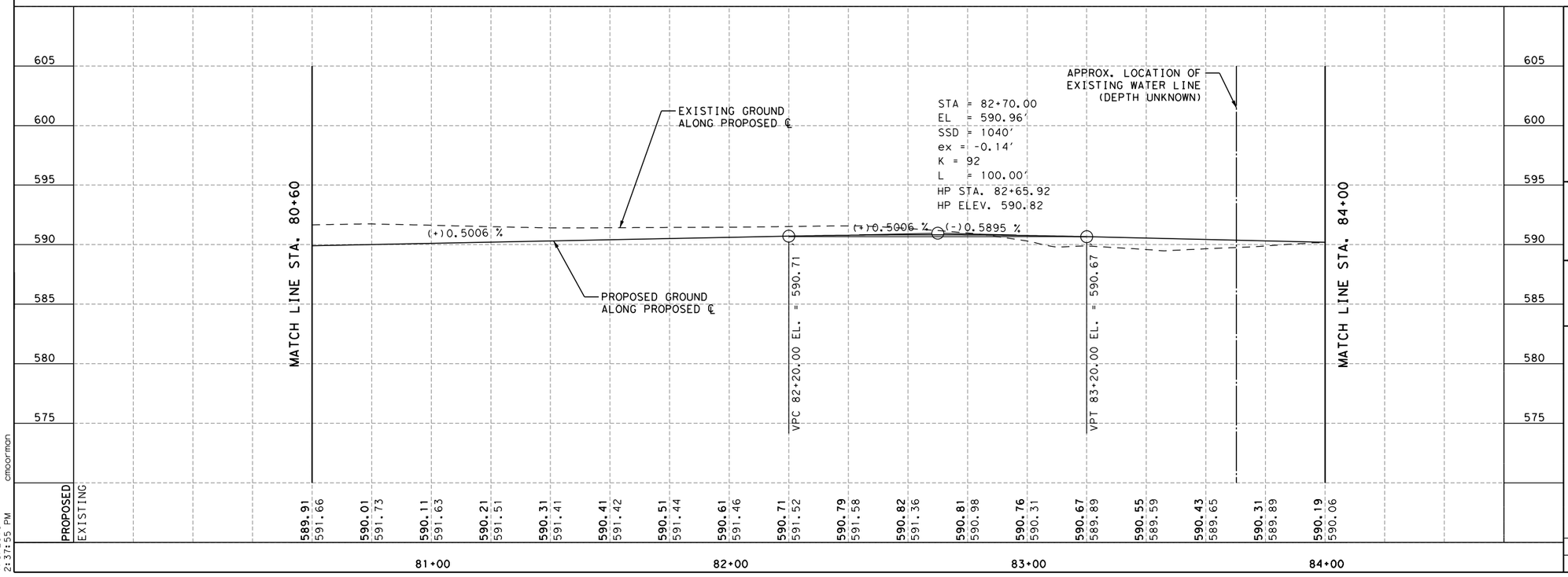
LEGEND

- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL
- EXISTING ROADWAY TO BE ABANDONED

H: 0 20 40
V: 0 5 10

NOTES:

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4. SEE PAVING DETAILS SHEET FOR DRIVEWAY DETAILS NOT SHOWN HERE.
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CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

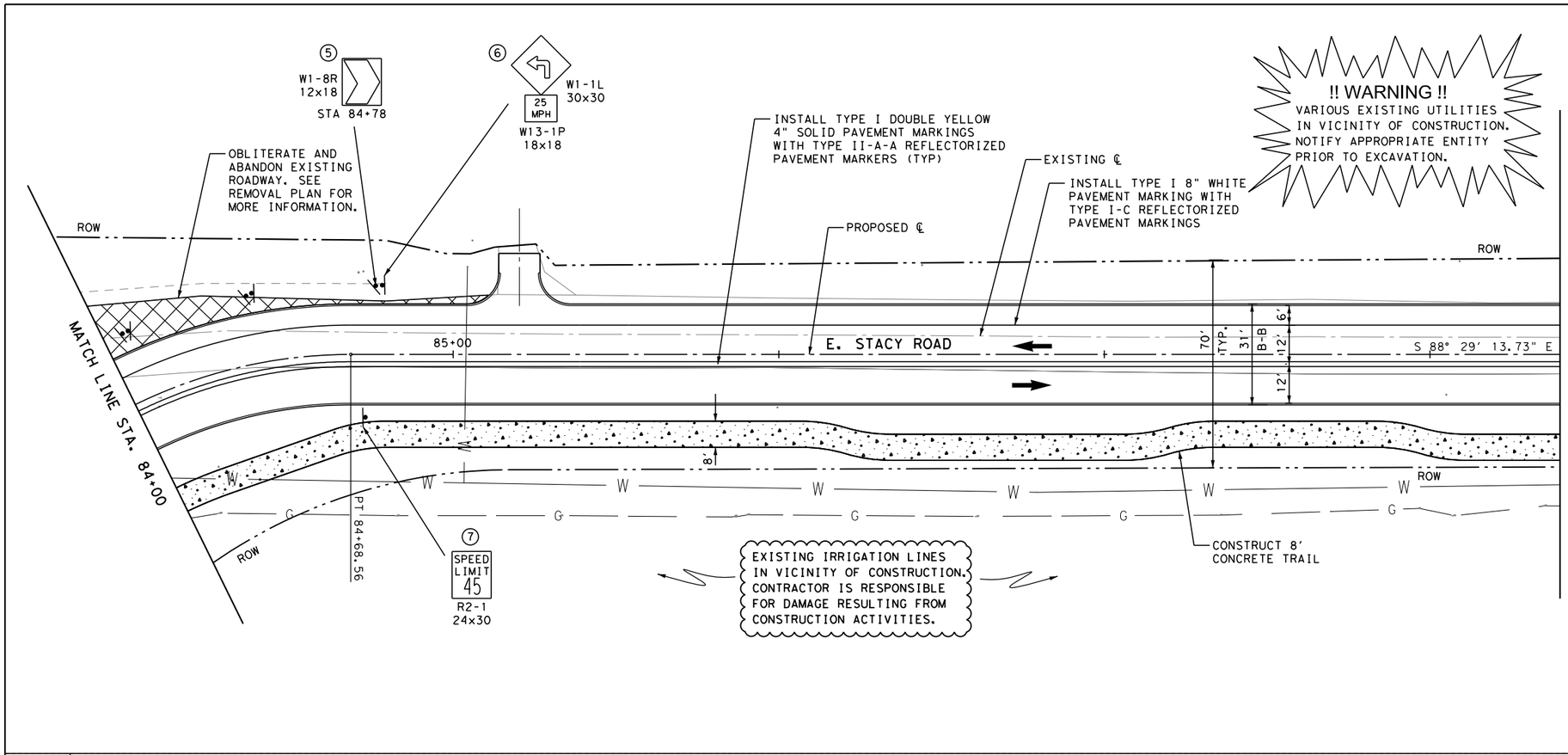
STA. 80+60 TO STA. 84+00

SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 4 OF 13

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	62

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-04.dgn
1/3/2018 2:37:55 PM cmoorman



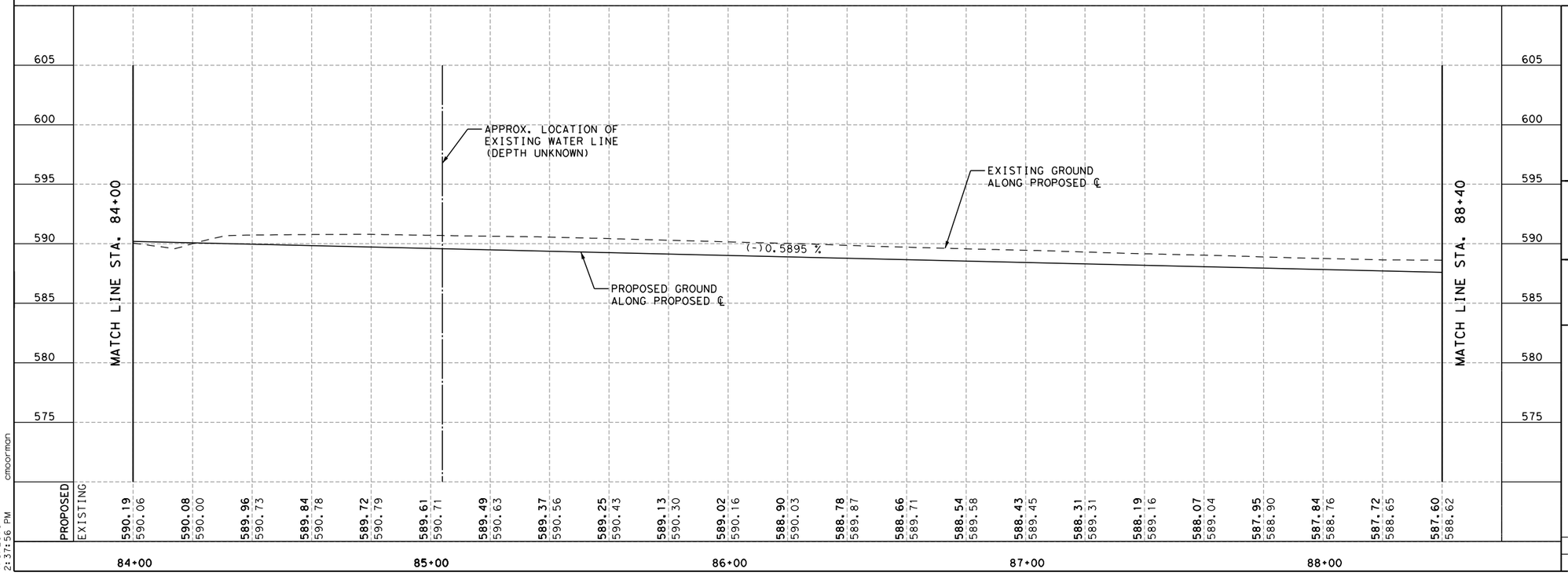
LEGEND

- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL
- EXISTING ROADWAY TO BE ABANDONED

H: 0 20 40
V: 0 5 10

NOTES:

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372 TOWN PLACE
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972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 84+00 TO STA. 88+40

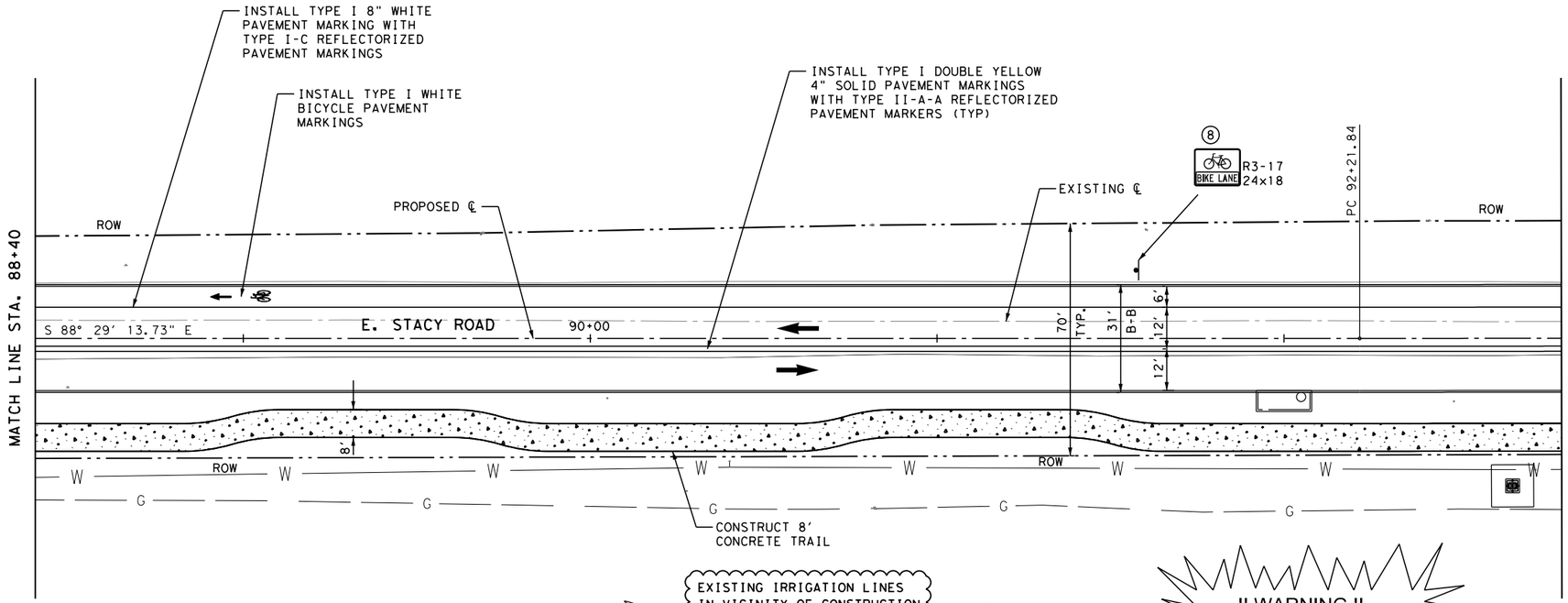
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 5 OF 13

SHEET NO. 63

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-05.dgn
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cmoorman



LEGEND

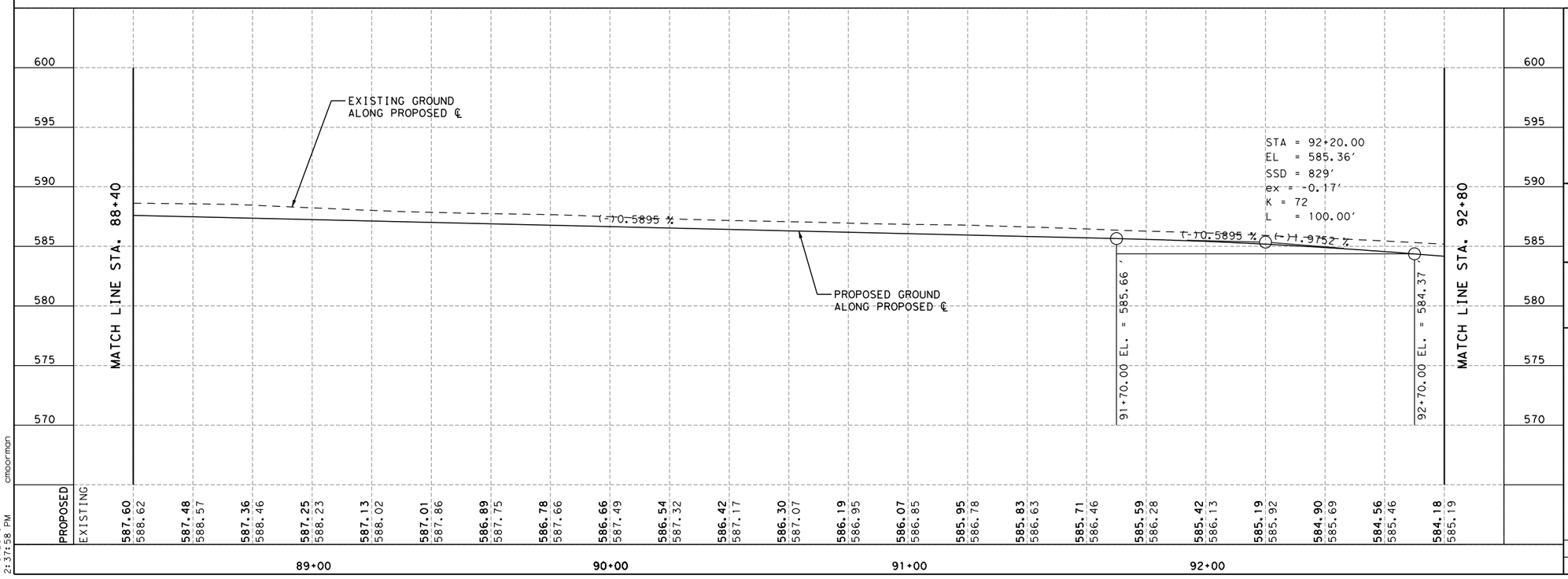
TRAFFIC FLOW

PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

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372 TOWN PLACE
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972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 88+40 TO STA. 92+80

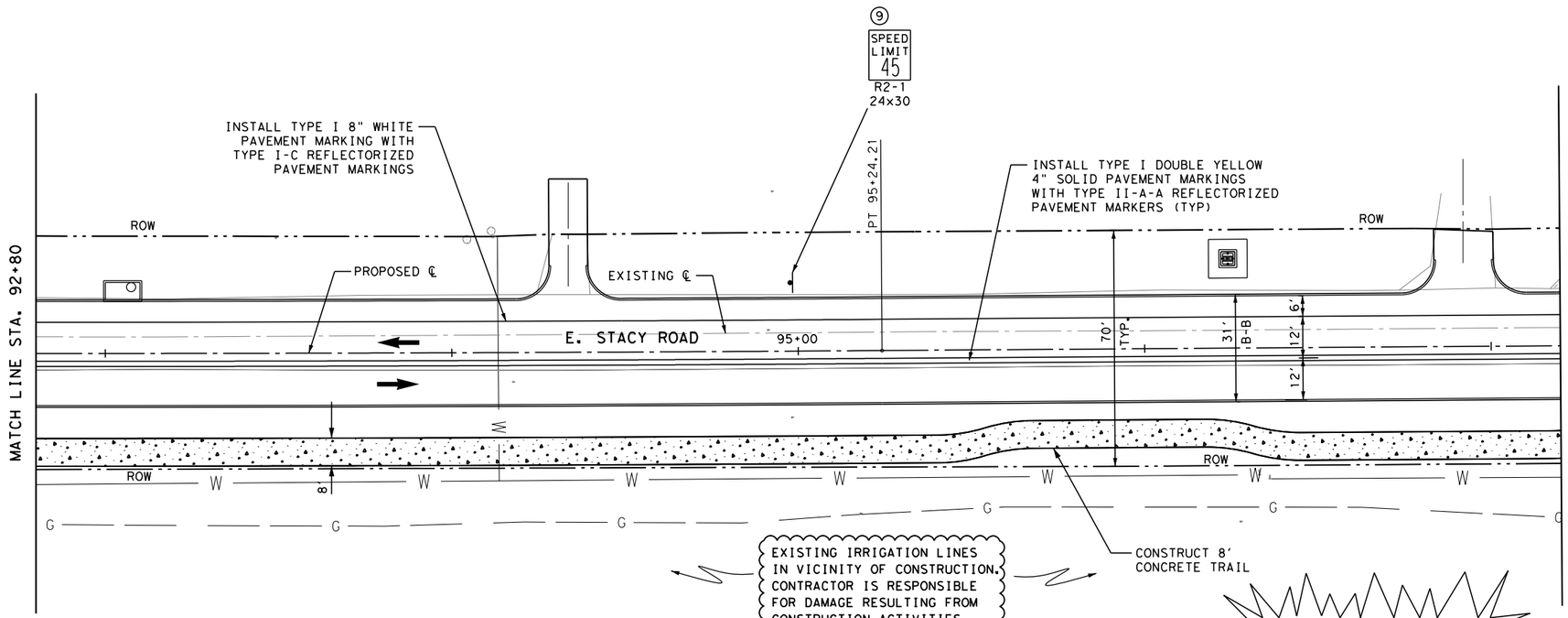
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 6 OF 13

SHEET NO. 64

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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1/3/2018 2:37:58 PM cmoorman



LEGEND

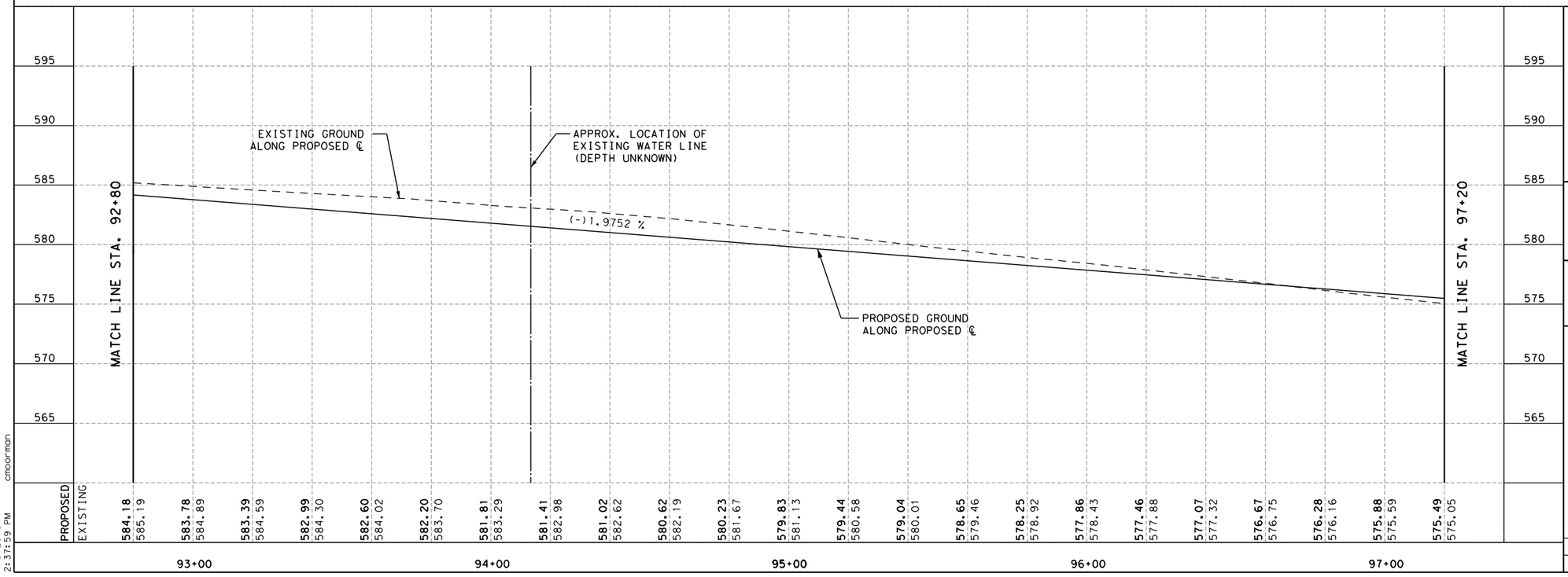
TRAFFIC FLOW

PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

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E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 92+80 TO STA. 97+20

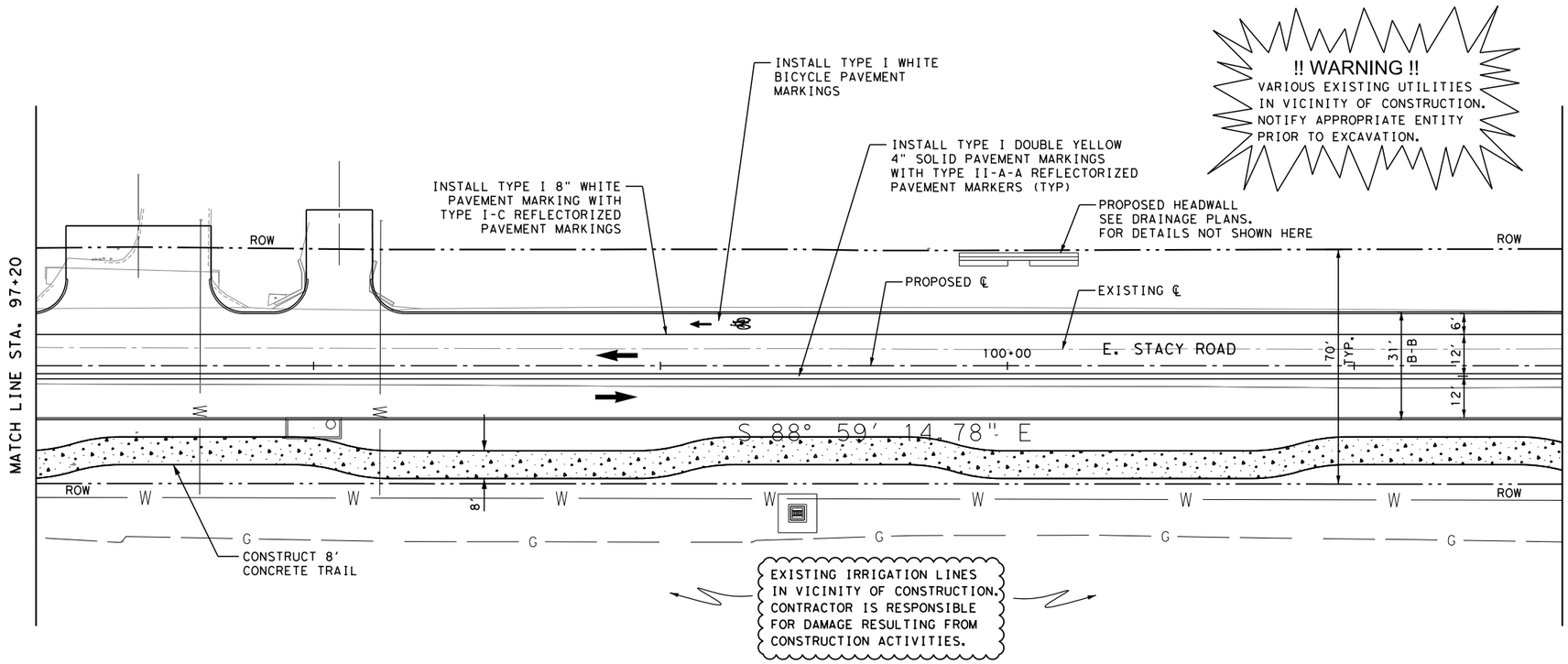
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 7 OF 13

SHEET NO. 65

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-07.dgn
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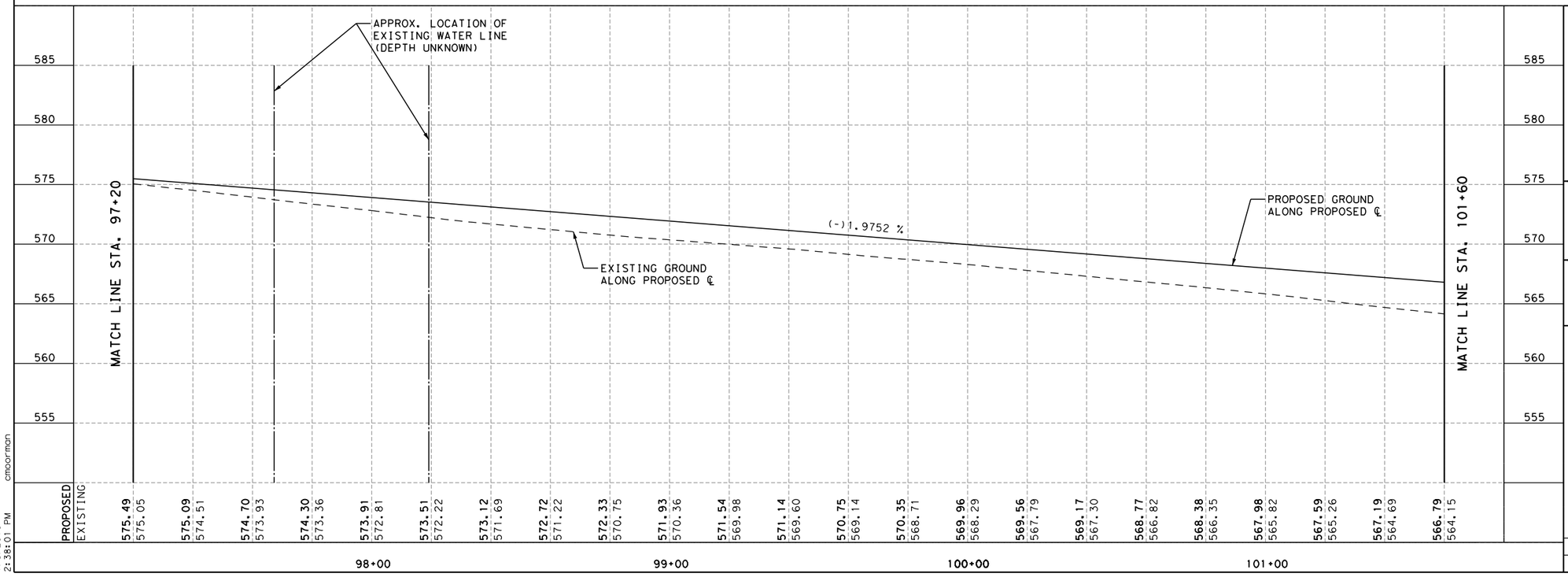
LEGEND

- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

NOTES:

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372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 97+20 TO STA. 101+60

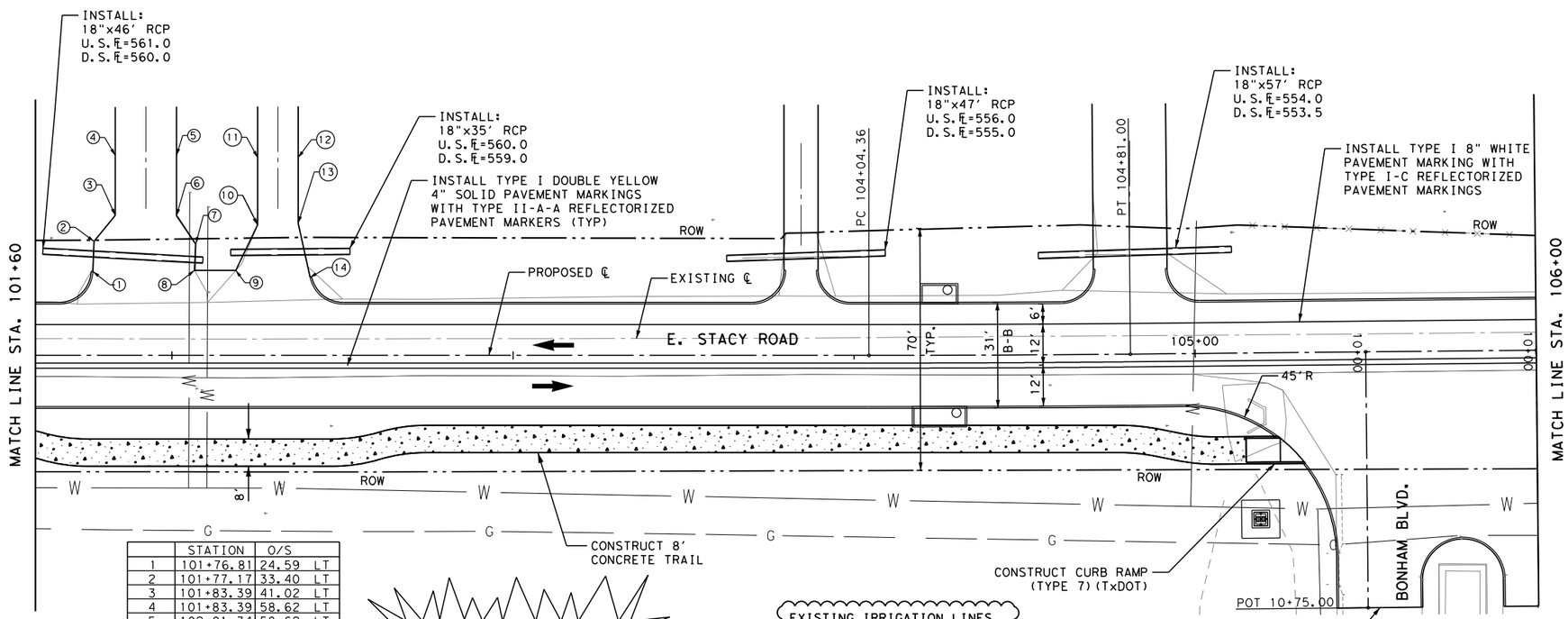
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 8 OF 13

SHEET NO. 66

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-08.dgn
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	STATION	O/S	
1	101+76.81	24.59	LT
2	101+77.17	33.40	LT
3	101+83.39	41.02	LT
4	101+83.39	58.62	LT
5	102+01.34	58.62	LT
6	102+01.34	40.94	LT
7	102+07.00	32.69	LT
8	102+06.62	24.90	LT
9	102+18.72	24.90	LT
10	102+25.09	38.25	LT
11	102+25.09	57.96	LT
12	102+37.03	57.96	LT
13	102+37.03	38.76	LT
14	102+40.48	22.87	LT

!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.

EXISTING IRRIGATION LINES
IN VICINITY OF CONSTRUCTION.
CONTRACTOR IS RESPONSIBLE
FOR DAMAGE RESULTING FROM
CONSTRUCTION ACTIVITIES.

SEE SIDE STREET PLAN/PROFILES
FOR DETAILS NOT SHOWN HERE.

LEGEND

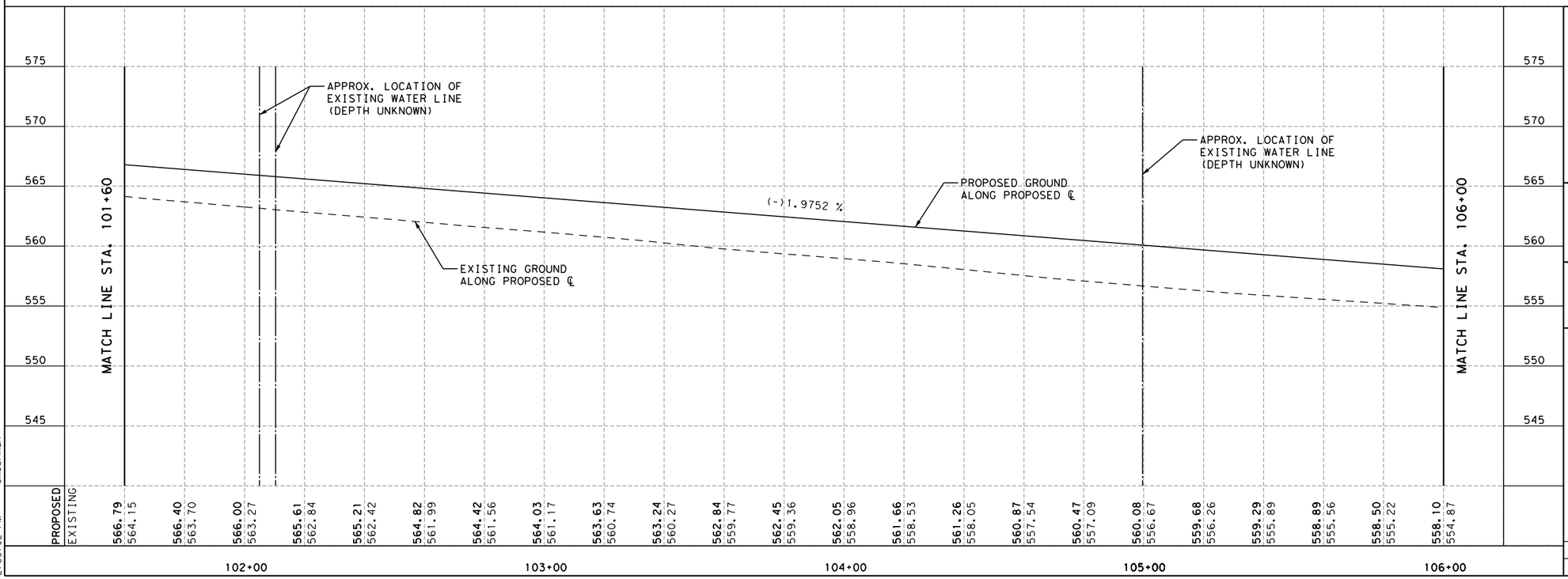
TRAFFIC FLOW

PROPOSED SIDEWALK/
CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

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E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 101+60 TO STA. 106+00

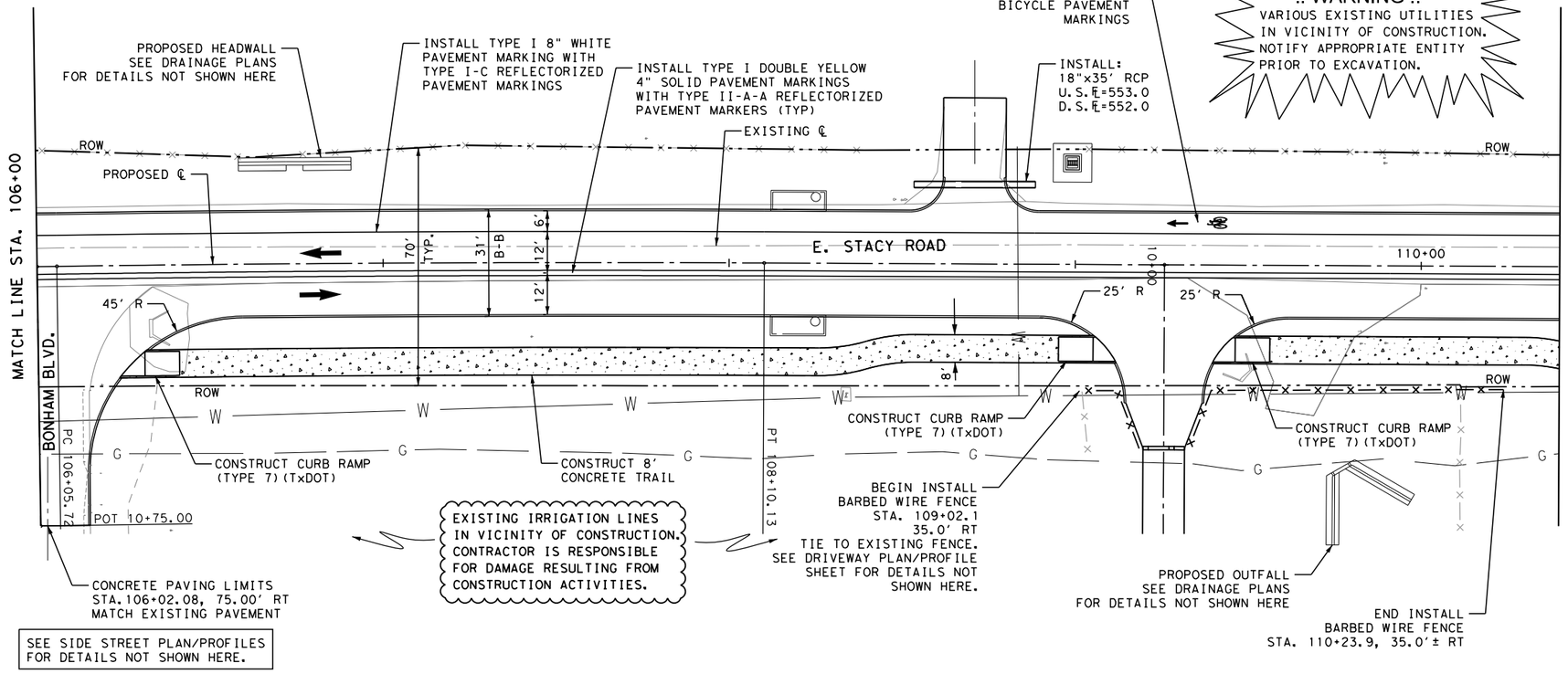
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 9 OF 13

SHEET NO. 67

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-09.dgn
1/3/2018 2:38:02 PM cmoorman



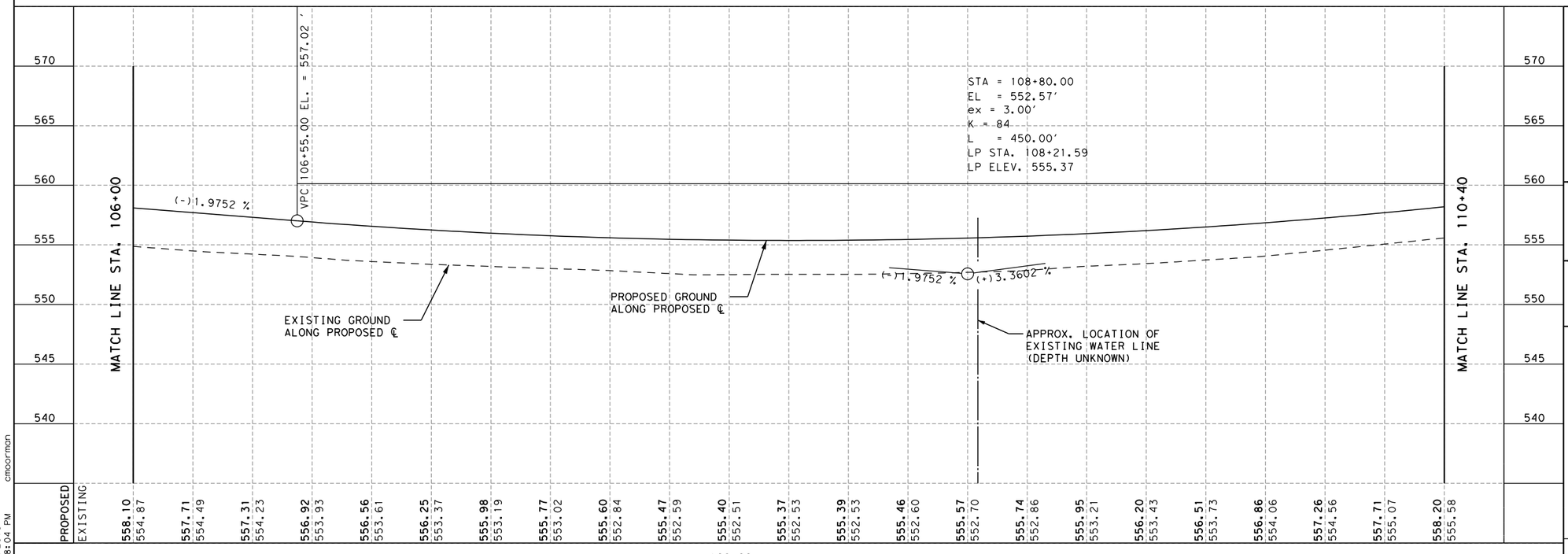
LEGEND

- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

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PLAN & PROFILE

STA. 106+00 TO STA. 110+40

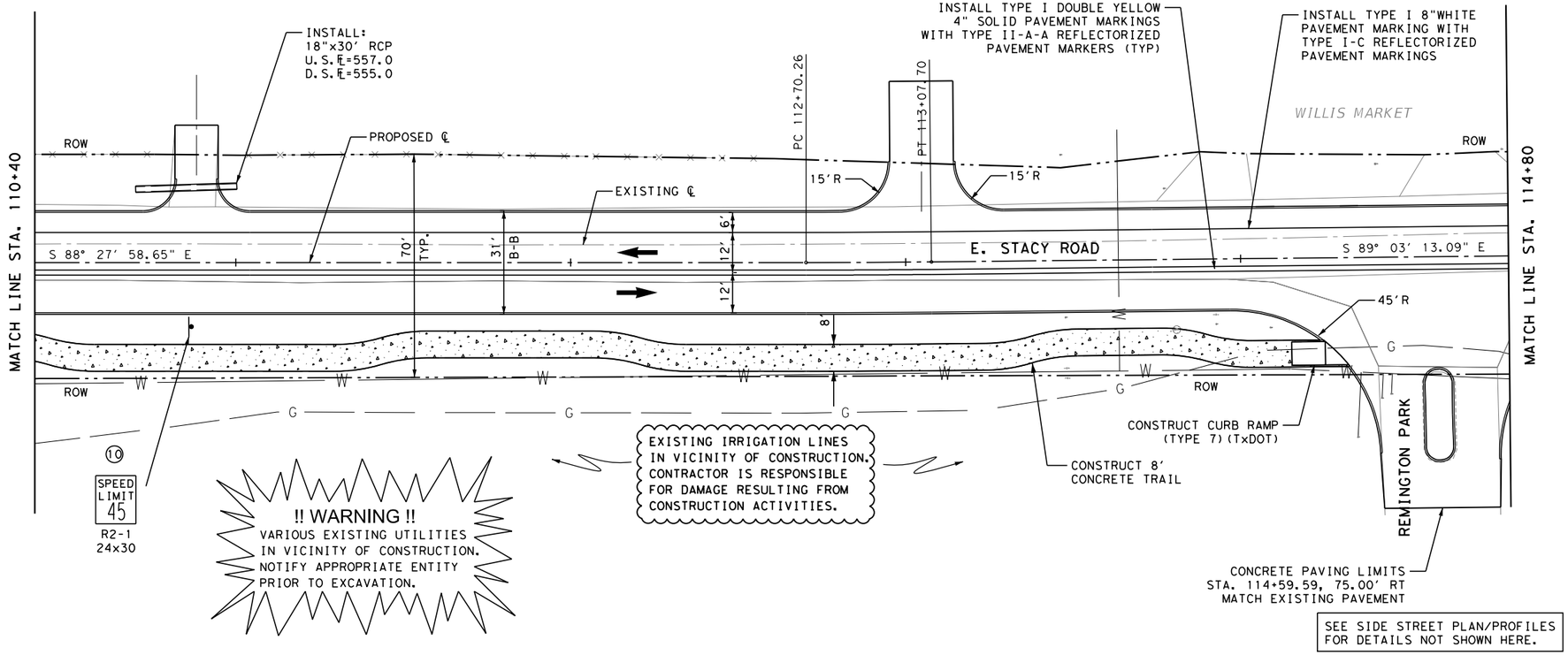
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 10 OF 13

SHEET NO. 68

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-10.dgn
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LEGEND

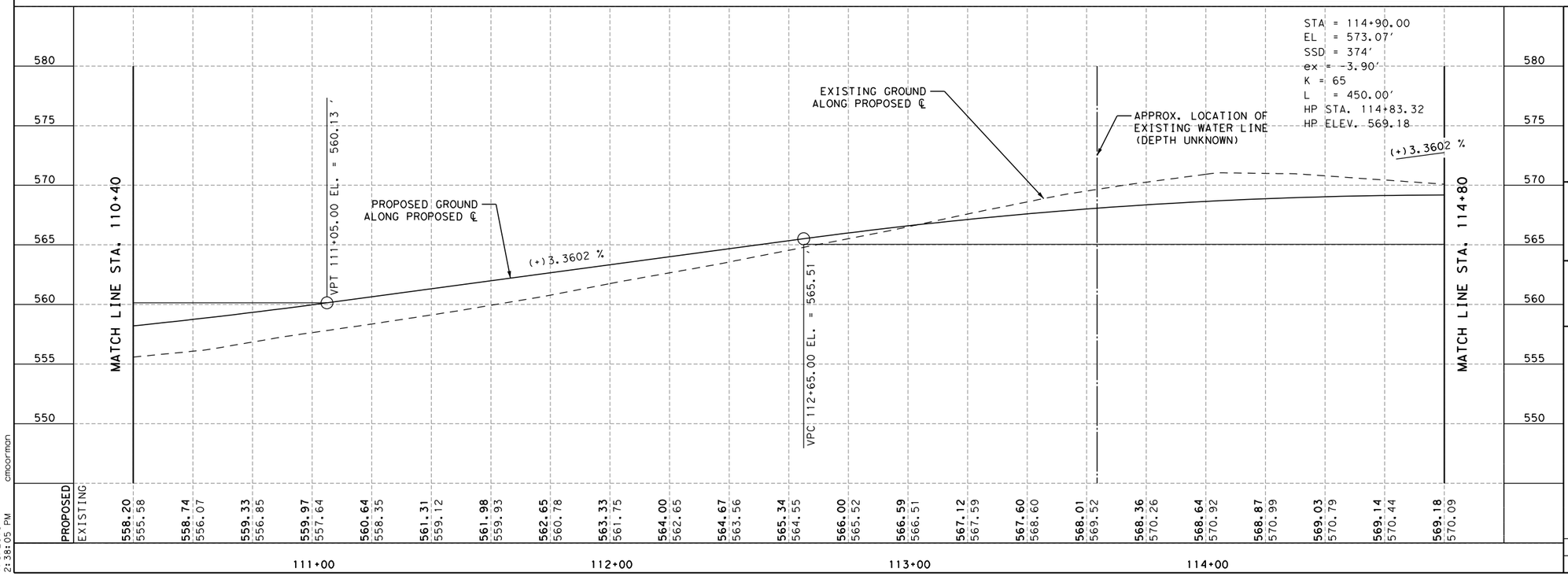
- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL

H: 0 20 40
V: 0 5 10

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PLAN & PROFILE

STA. 110+40 TO STA. 114+80

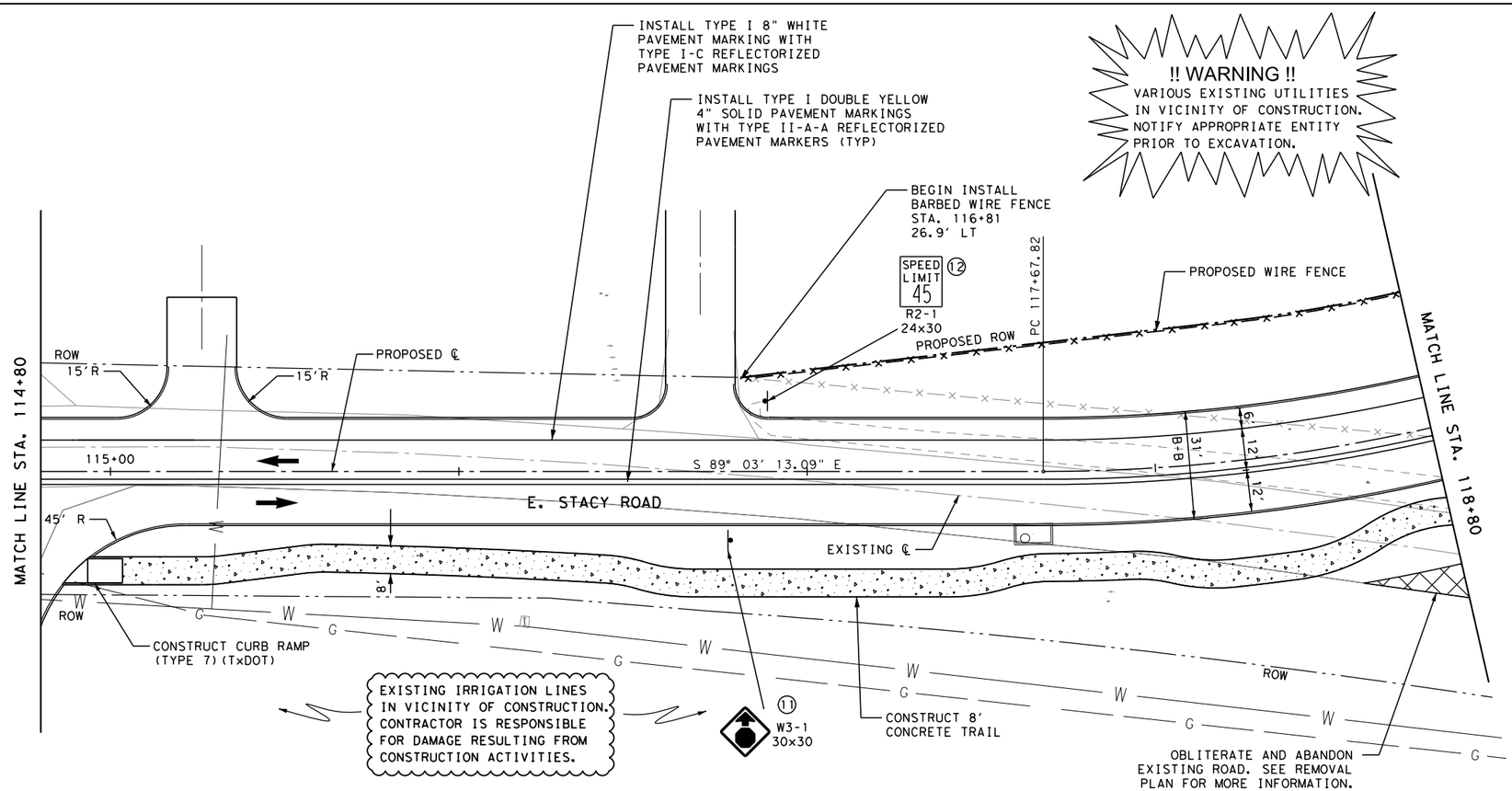
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 11 OF 13

SHEET NO. 69

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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cmoorman



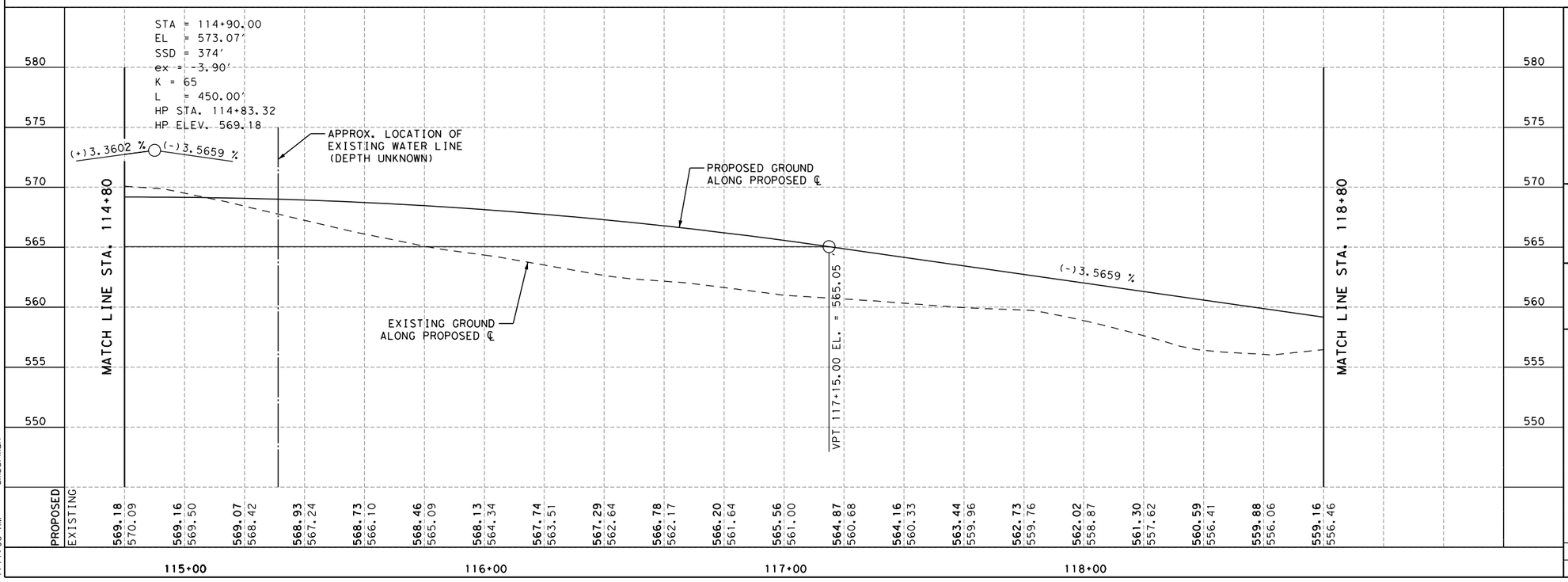
LEGEND

- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL
- EXISTING ROADWAY TO BE ABANDONED

H: 0 20 40
V: 0 5 10

NOTES:

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2. THE LOCATION OF THE TRAIL IS SHOWN FOR REFERENCE PURPOSES ONLY. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. DRIVEWAY RADII SHALL BE 10' UNLESS NOTED OTHERWISE.
4. SEE PAVING DETAILS SHEET FOR DRIVEWAY DETAILS NOT SHOWN HERE.
5. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
6. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.





HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 114+80 TO STA. 118+80

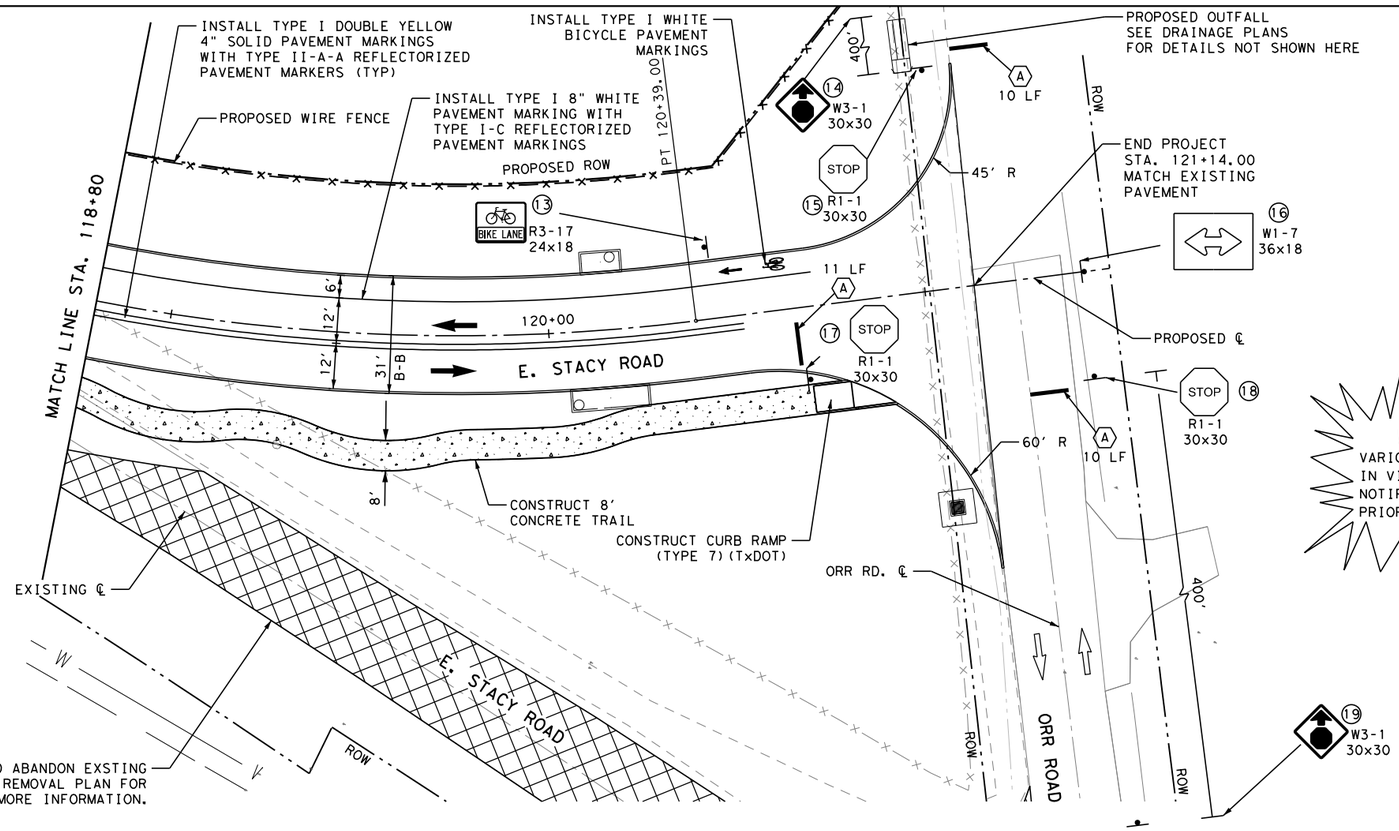
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 12 OF 13

SHEET NO. 70

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\03 RDWY\305245-stacy plprf-12.dgn
1/4/2018 7:17:03 AM cmoorman



LEGEND

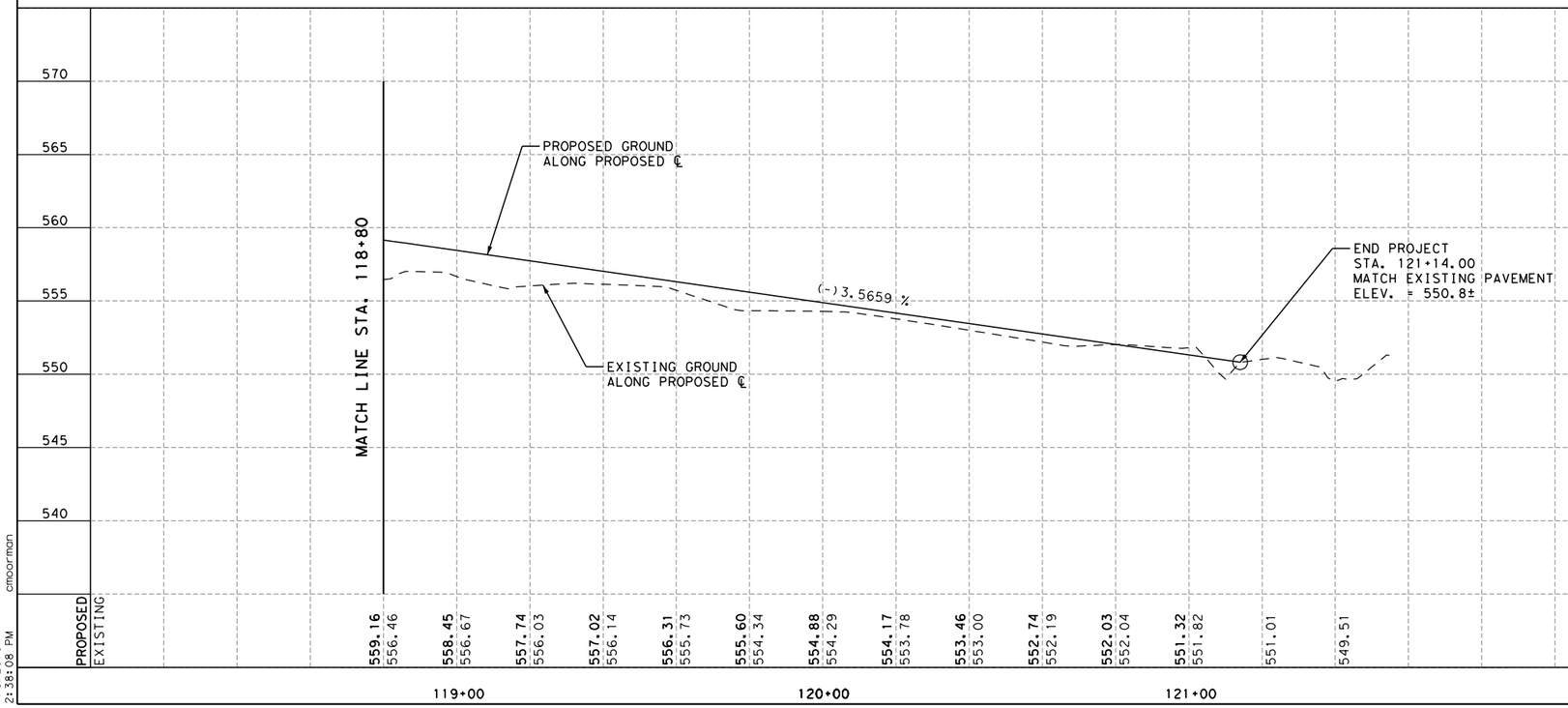
- TRAFFIC FLOW
- PROPOSED SIDEWALK/ CONCRETE TRAIL
- EXISTING ROADWAY TO BE ABANDONED
- (A) 24" WHITE PREFABRICATED STOP BAR

H: 0 20 40
V: 0 5 10

!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

NOTES:

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4. SEE PAVING DETAILS SHEET FOR DRIVEWAY DETAILS NOT SHOWN HERE.
5. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +3 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.
6. EMBANKMENT FILLS AND UTILITY TRENCH FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D 698) IN THE RANGE OF 0 TO +2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.



CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

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Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PLAN & PROFILE

STA. 118+80 TO END

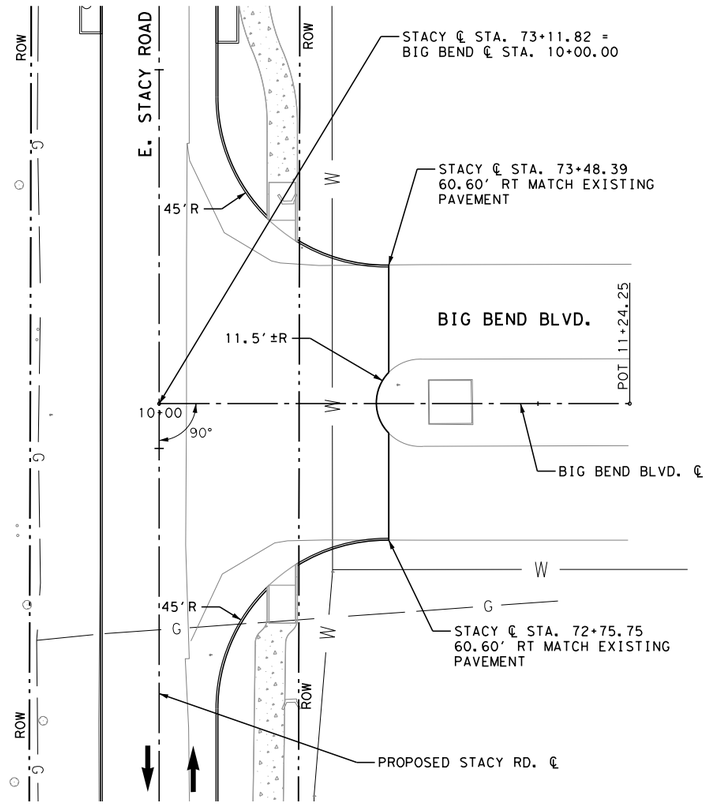
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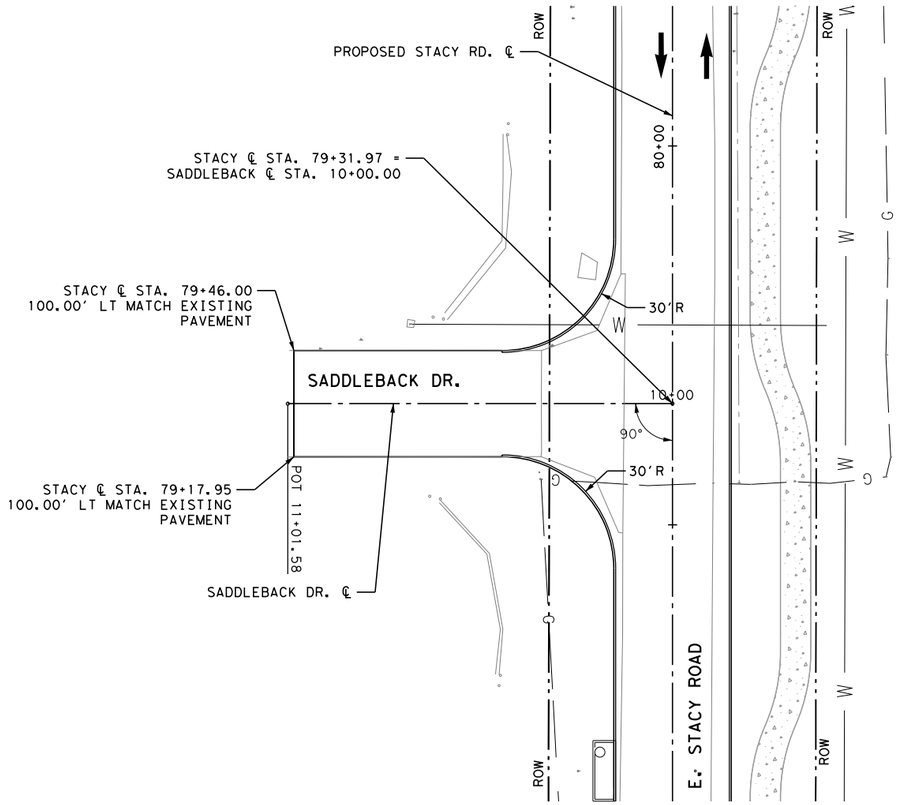
SHEET 13 OF 13

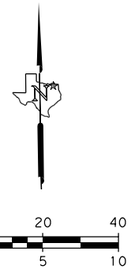
SHEET NO. 71

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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1/3/2018
2:38:08 PM
cmoorman



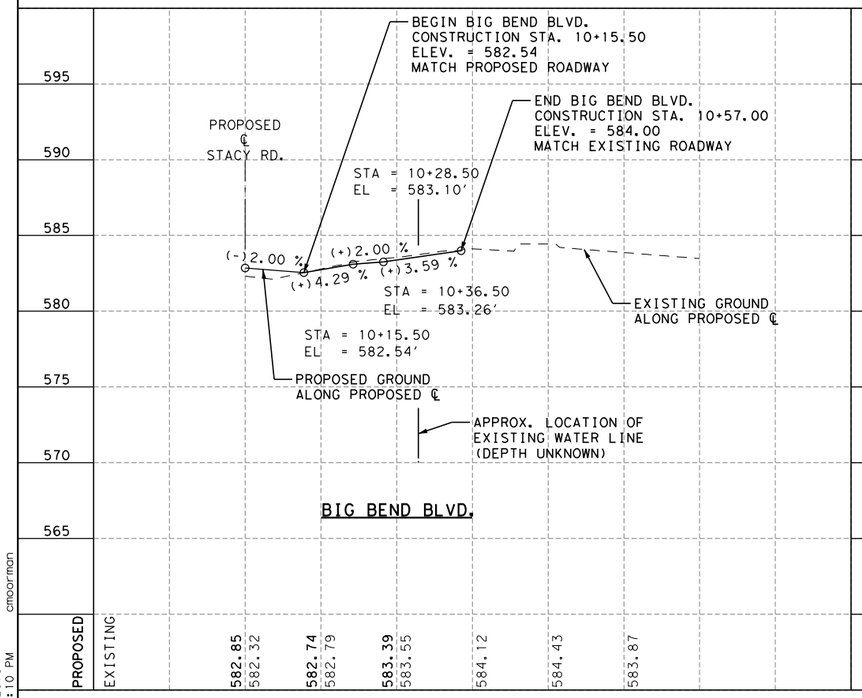




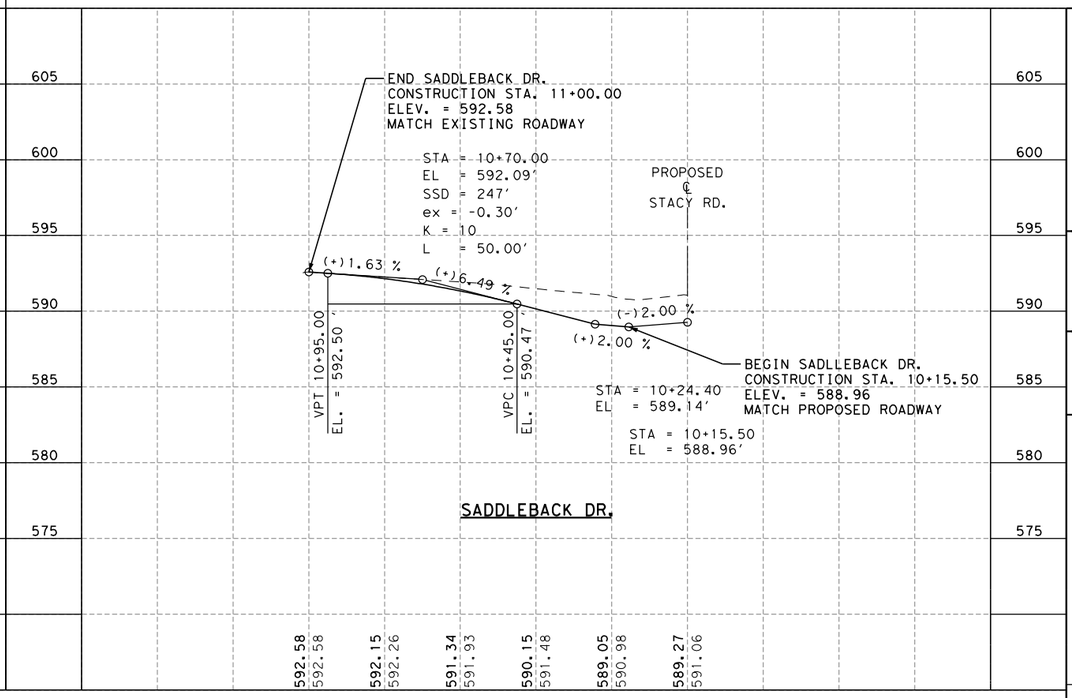
!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

NOTE:

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BIG BEND BLVD.



SADDLEBACK DR.

CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

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1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

SIDE STREET PLAN & PROFILE

BIG BEND BLVD. & SADDLEBACK DR.

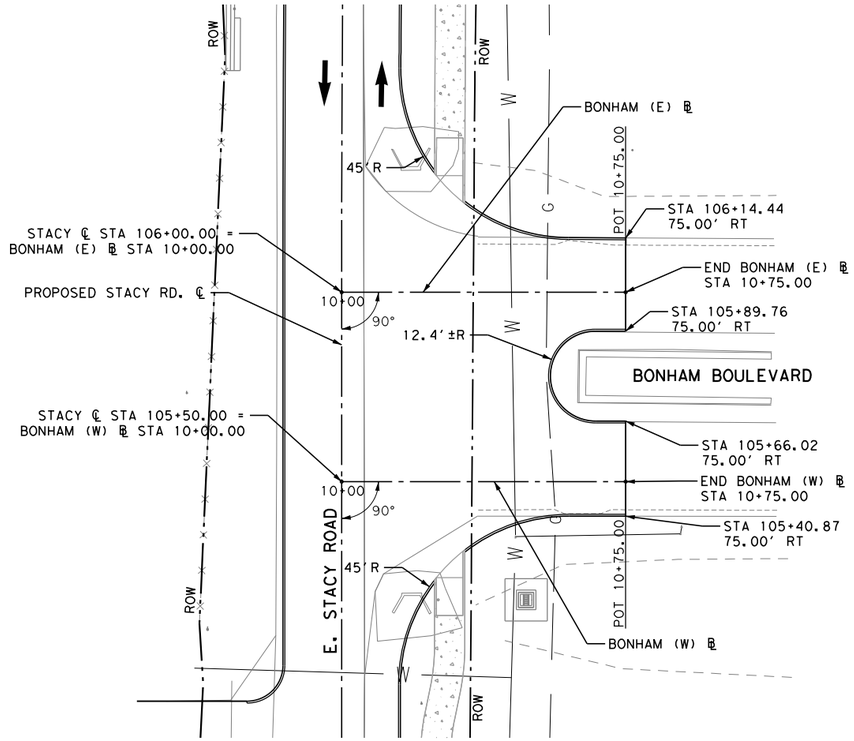
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 1 OF 3

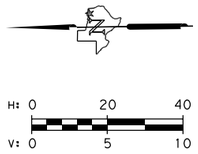
SHEET NO. 72

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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1/3/2018 cmoorman
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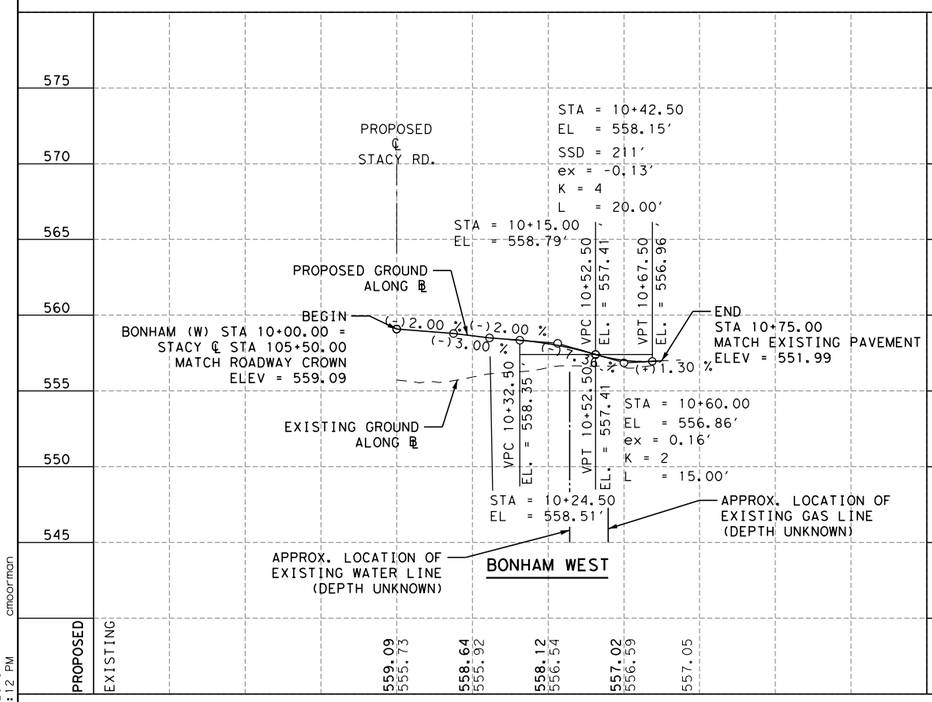


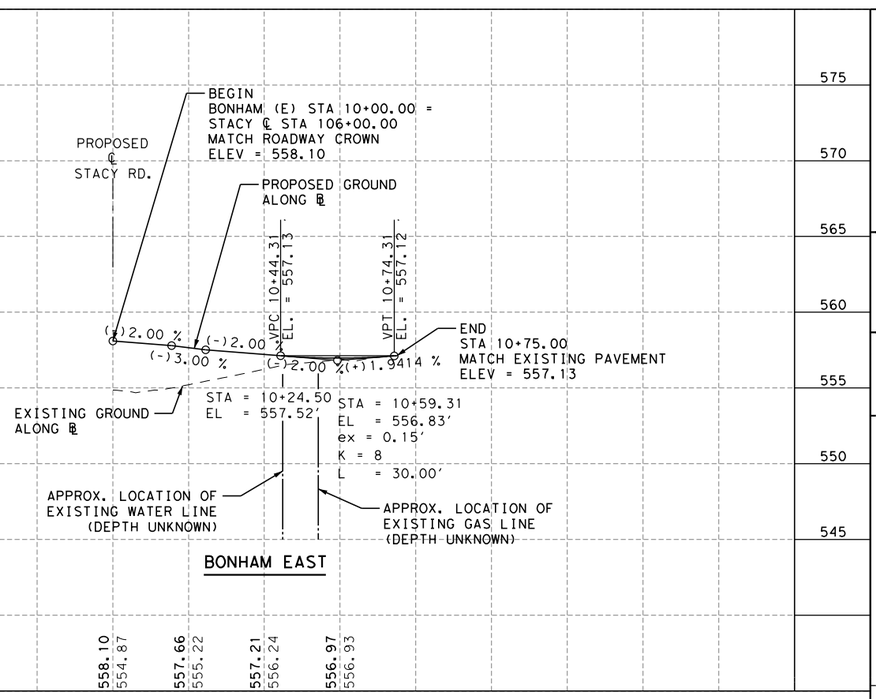
!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.



NOTE:

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93828
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

SIDE STREET PLAN & PROFILE

BONHAM BLVD.

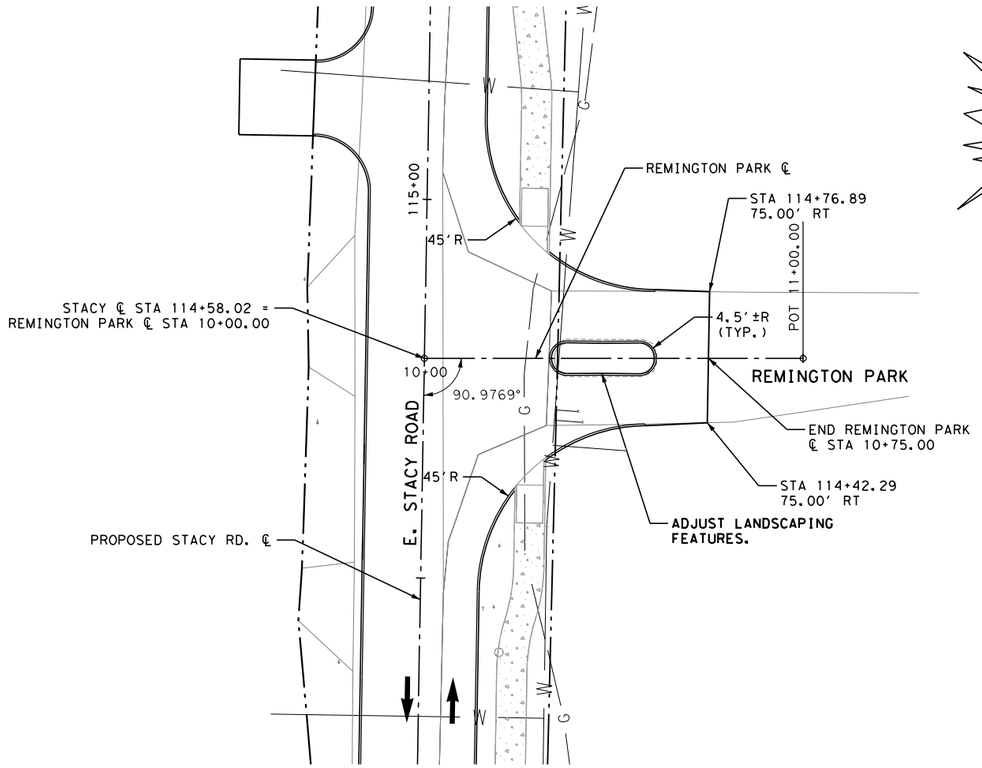
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 2 OF 3

SHEET NO. 73

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	CLM	SCW

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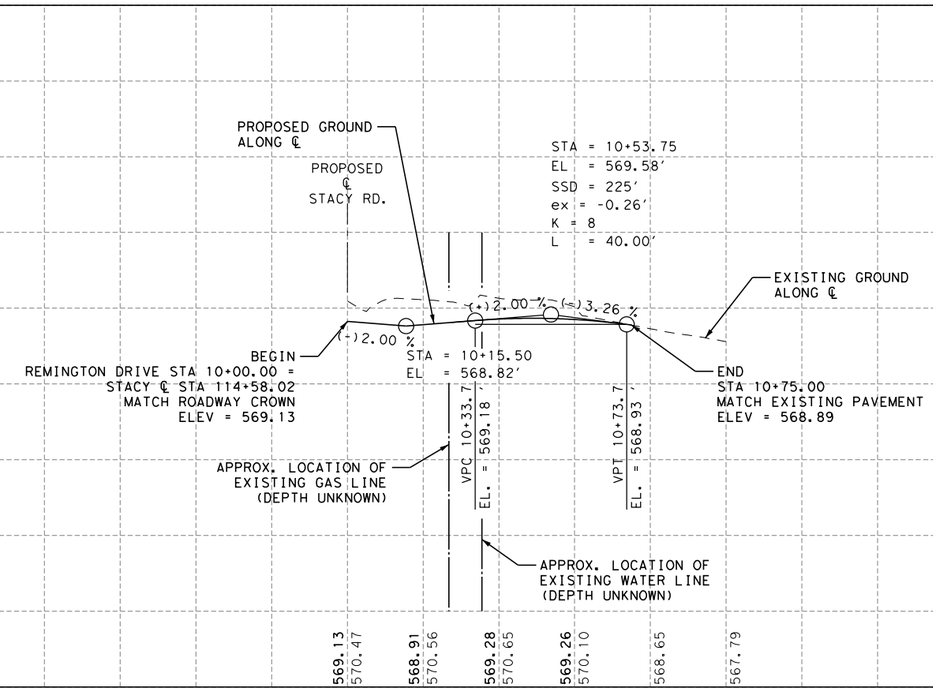


!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.

H: 0 20 40
V: 0 5 10

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STATE OF TEXAS
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HUITT-ZOLLARS

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

SIDE STREET PLAN & PROFILE

REMINGTON PARK

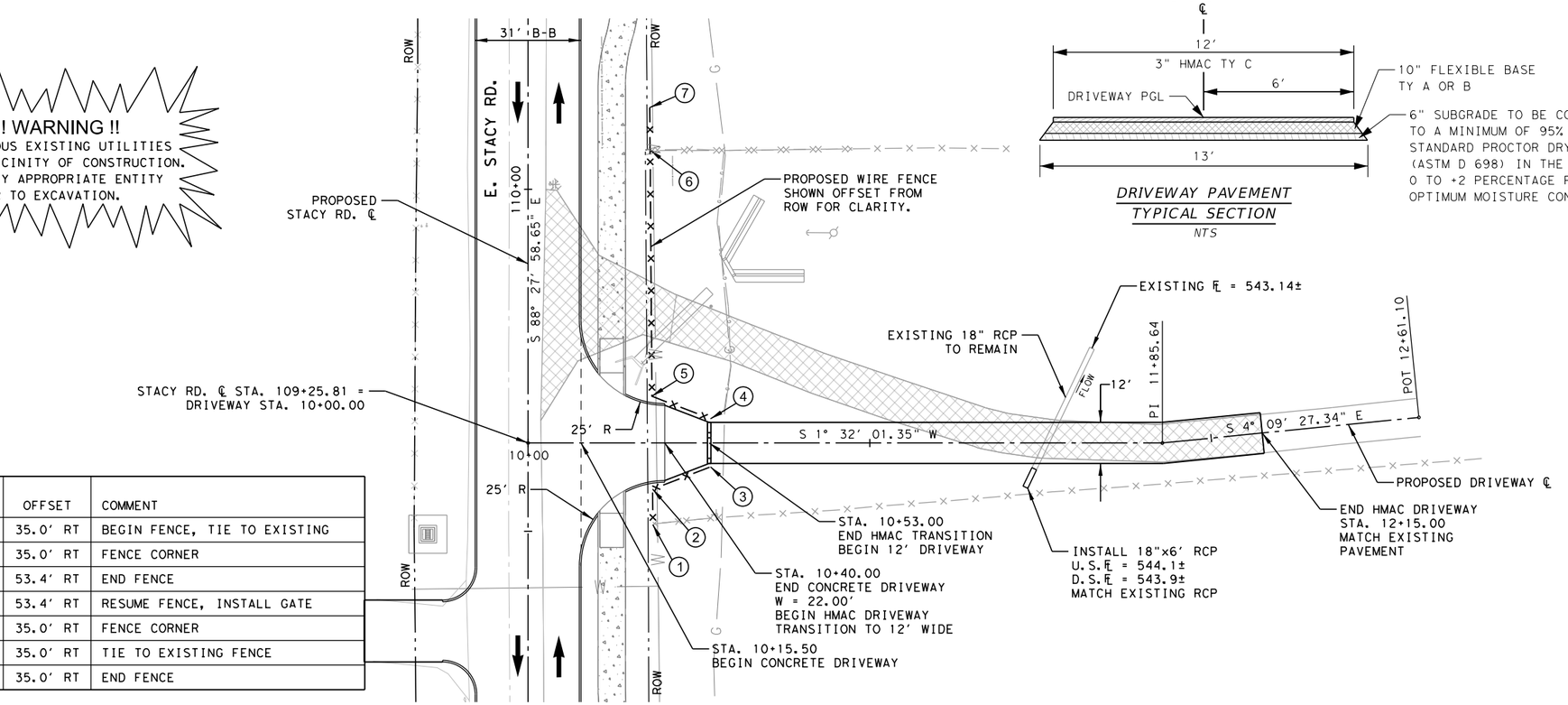
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V: 1" = 5'

SHEET 3 OF 3

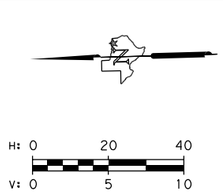
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
RAW	RAW	SCW	74

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1/3/2018 2:38:13 PM cmoorman

!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.



POINT NO.	STACY RD. ℄ STA.	OFFSET	COMMENT
1	109+02.1	35.0' RT	BEGIN FENCE, TIE TO EXISTING
2	109+12.3	35.0' RT	FENCE CORNER
3	109+18.8	53.4' RT	END FENCE
4	109+32.9	53.4' RT	RESUME FENCE, INSTALL GATE
5	109+39.5	35.0' RT	FENCE CORNER
6	110+11.5	35.0' RT	TIE TO EXISTING FENCE
7	110+23.9	35.0' RT	END FENCE



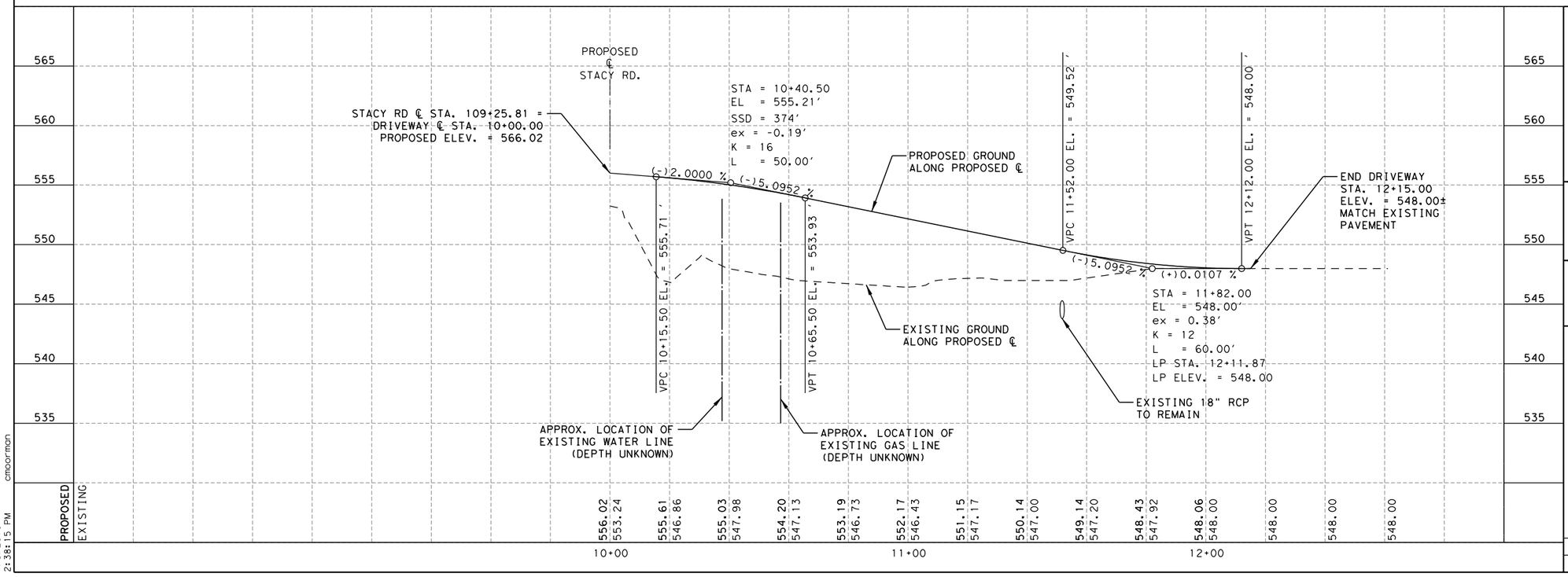
DRIVEWAY PAVEMENT TYPICAL SECTION
NTS

LEGEND

- TRAFFIC FLOW
- ASPHALT DRIVEWAY REMOVAL
- PROPOSED SIDEWALK/ MEANDERING TRAIL

NOTES:

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2. SEE PAVING DETAILS SHEET FOR DRIVEWAY DETAILS NOT SHOWN HERE.





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372 TOWN PLACE
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972-562-0522

E. STACY ROAD IMPROVEMENTS

DRIVEWAY PLAN & PROFILE

STA. 109+25

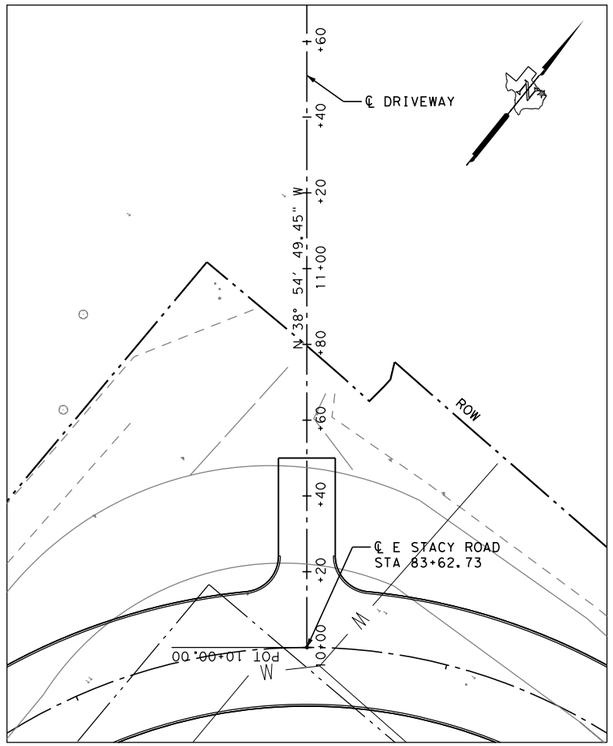
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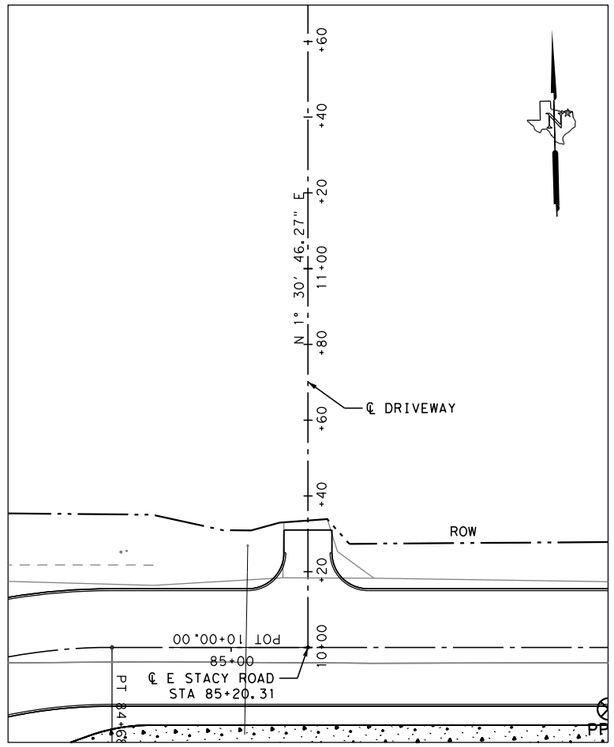
SHEET 1 OF 1

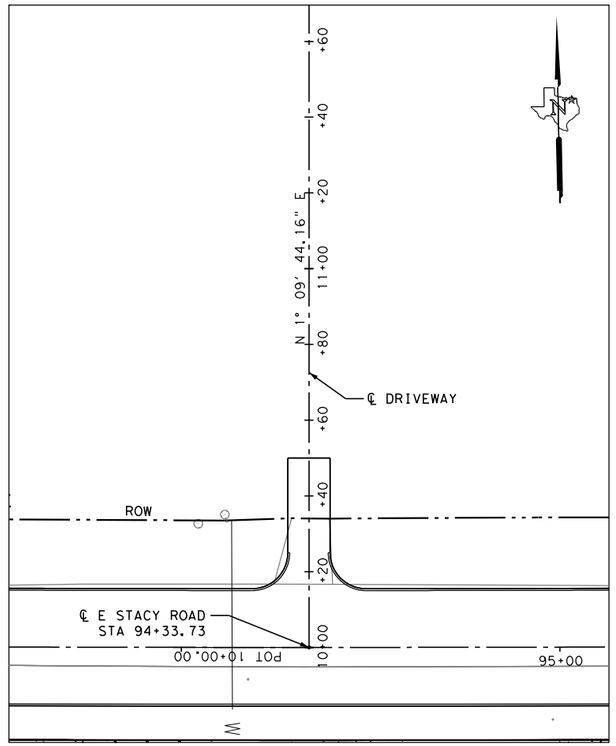
SHEET NO. 75

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	CLM	SCW

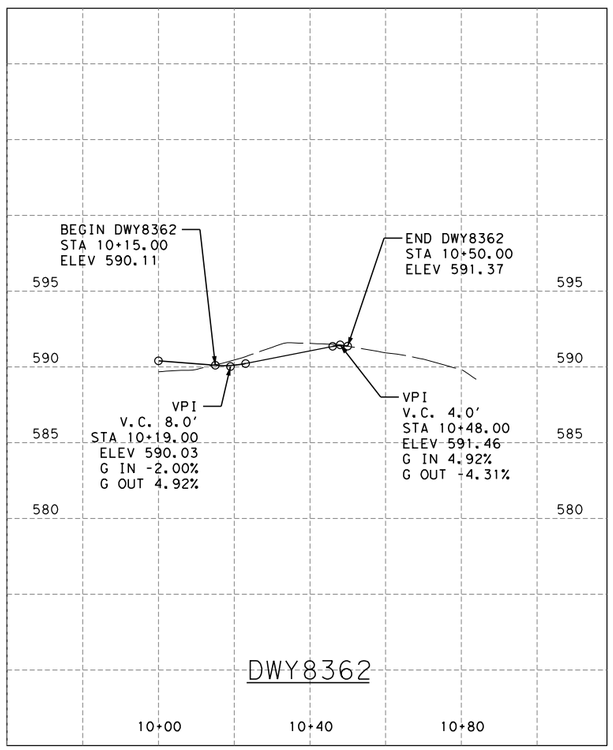
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1/3/2018 2:38:15 PM cmoorman

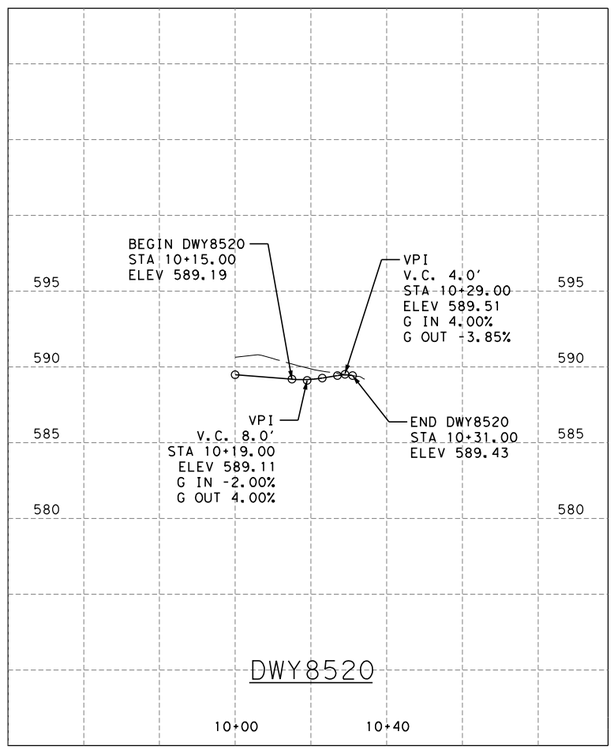


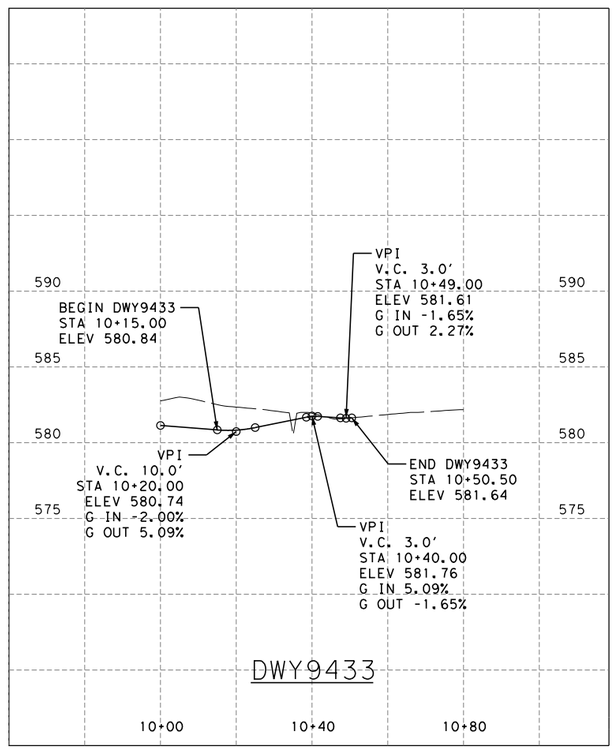




H: 0 20 40
V: 0 5 10







CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
January 3, 2018

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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DRIVEWAY PLAN & PROFILE

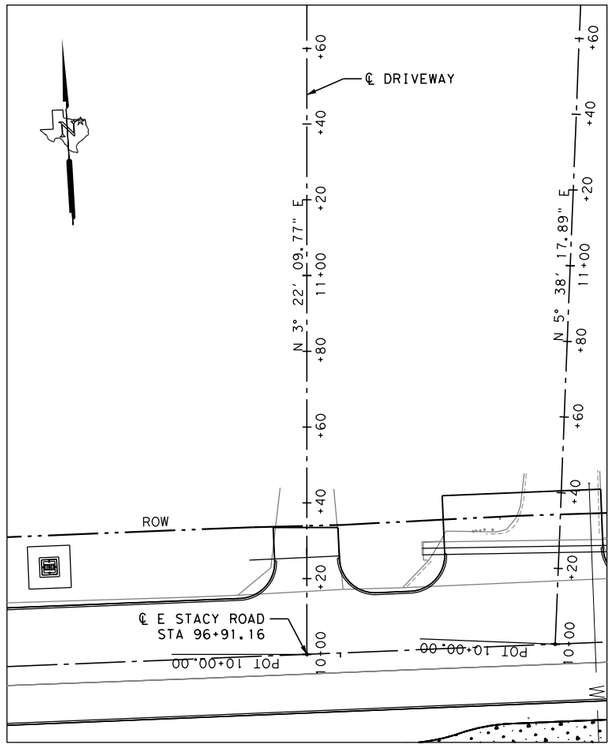
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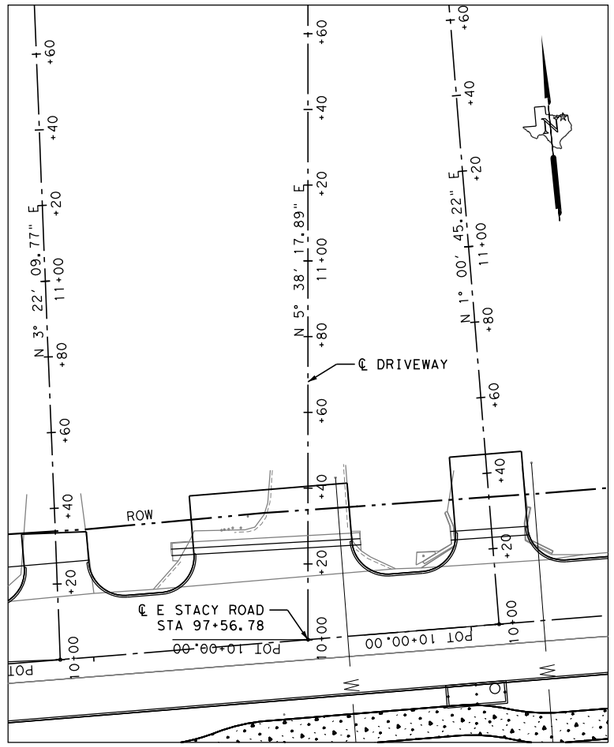
SHEET 1 OF 5

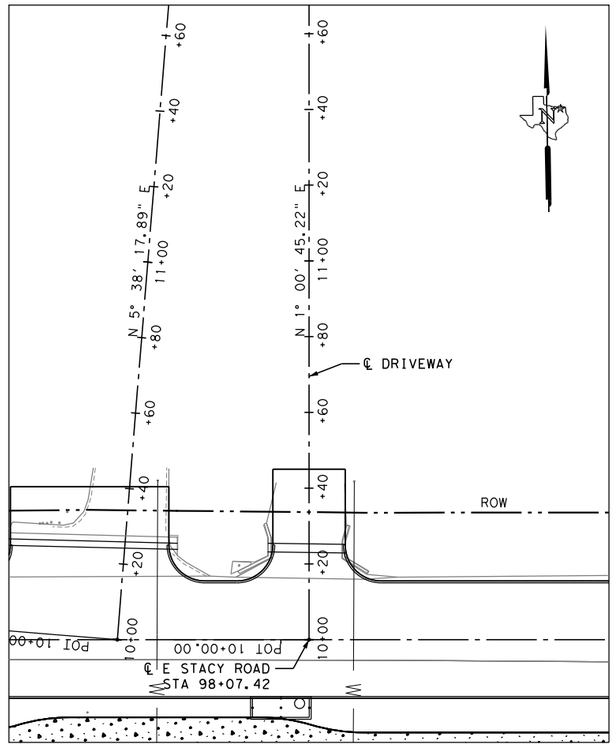
SHEET NO. 76

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	SCW

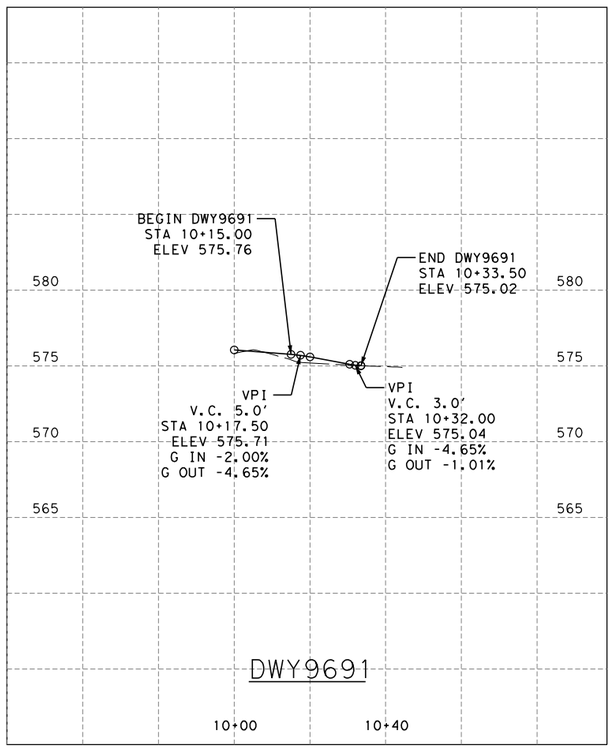
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1/3/2018 2:38:18 PM cmoorman

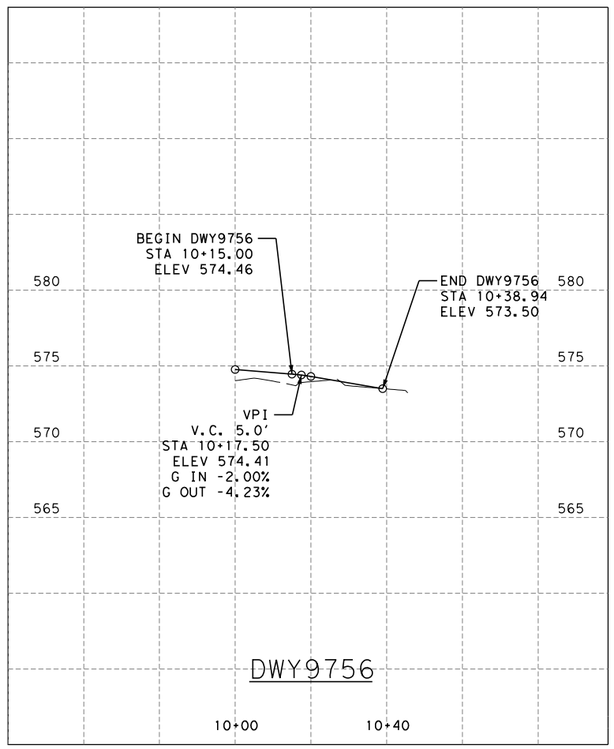


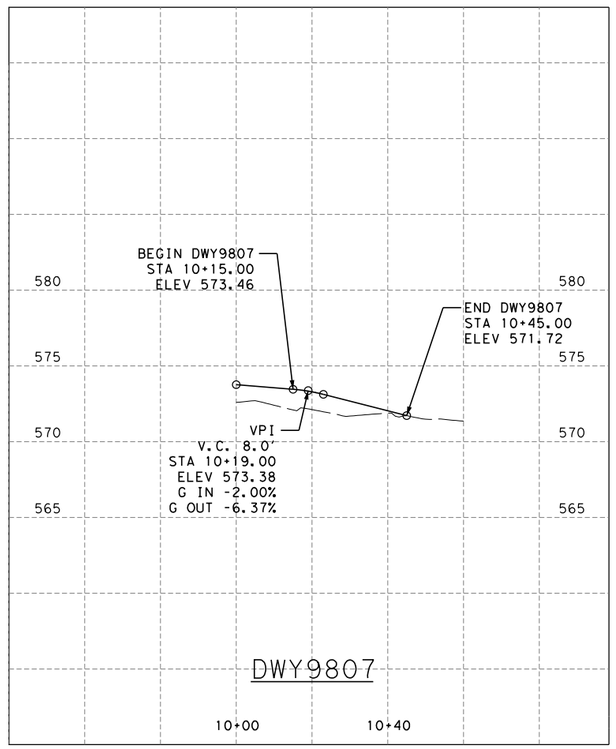




H: 0 20 40
V: 0 5 10







STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED
PROFESSIONAL ENGINEER

January 3, 2018

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DRIVEWAY PLAN & PROFILE

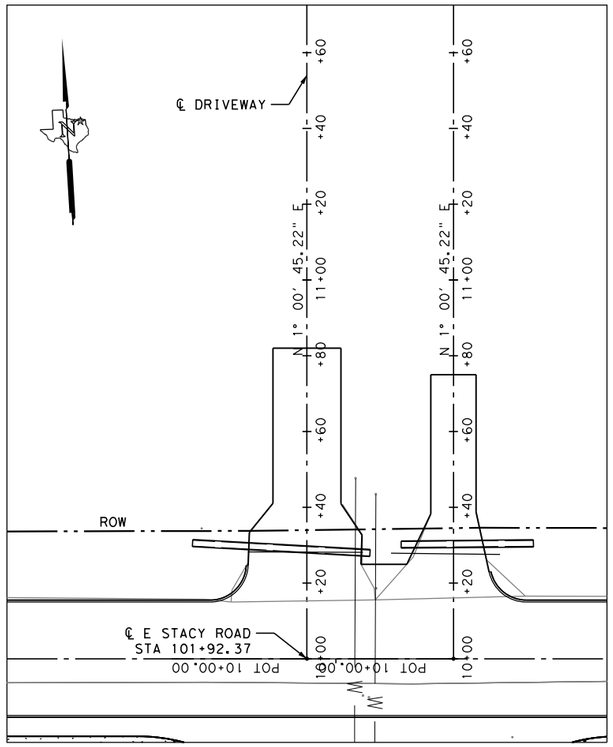
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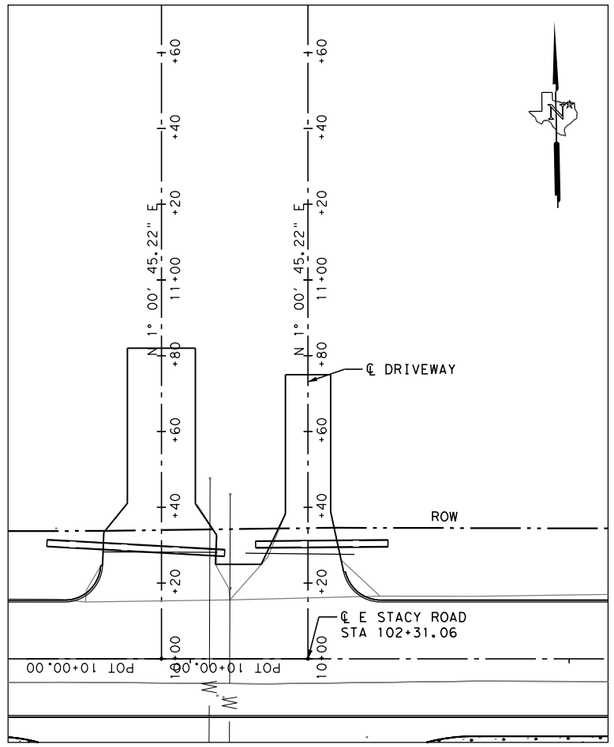
SHEET 2 OF 5

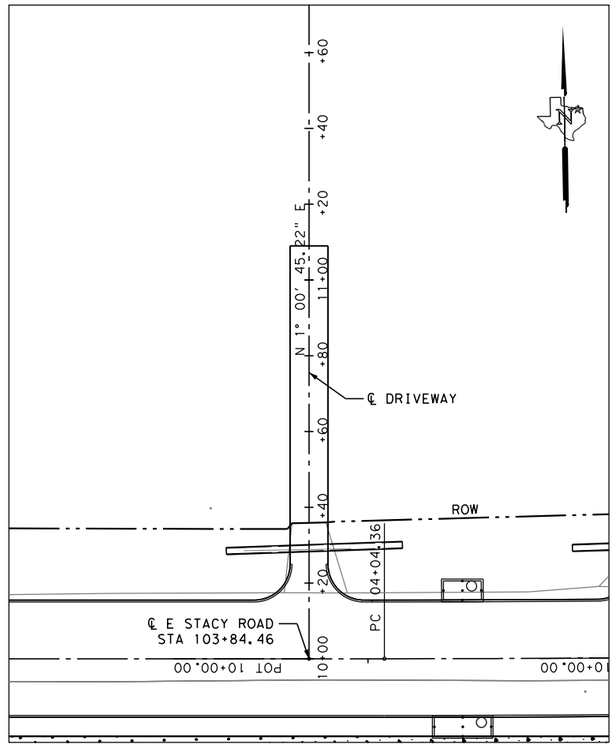
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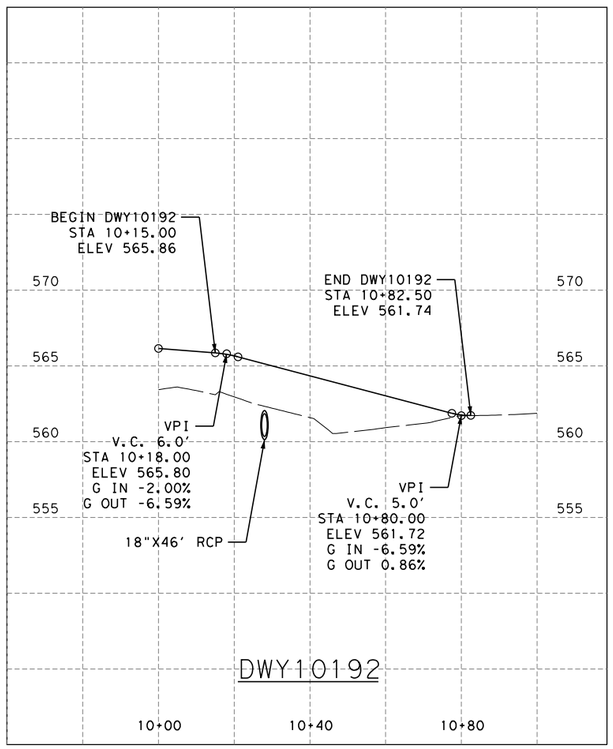
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RAW	RAW	SCW

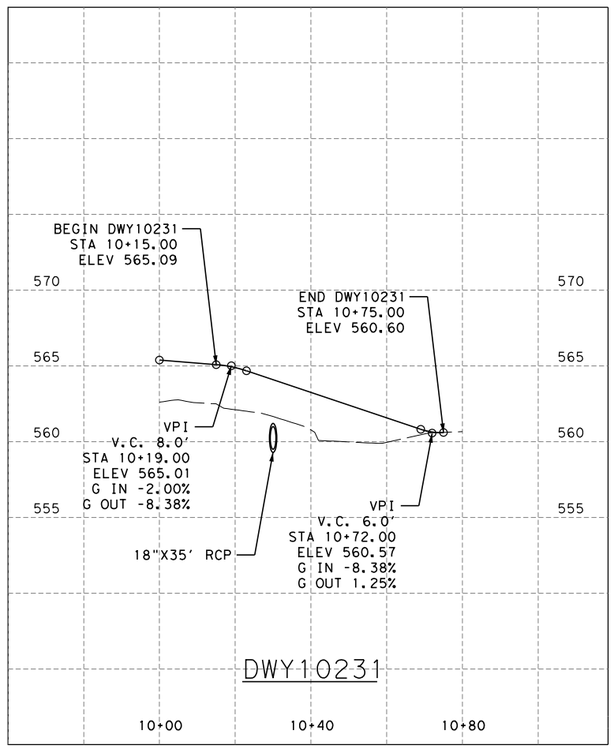
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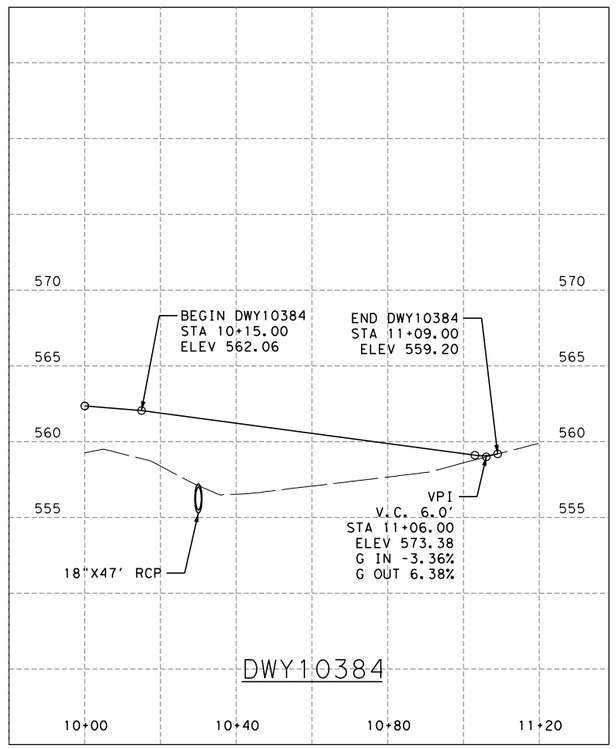












H: 0 20 40
V: 0 5 10

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E. STACY ROAD IMPROVEMENTS

DRIVEWAY PLAN & PROFILE

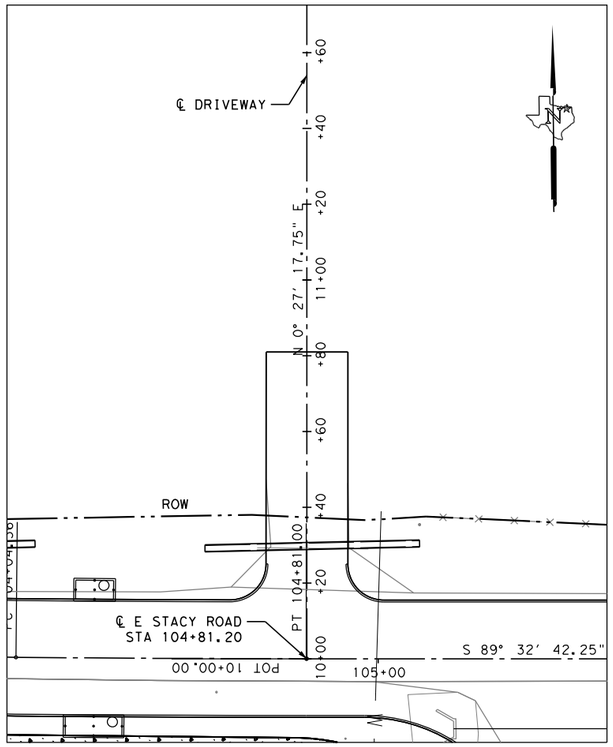
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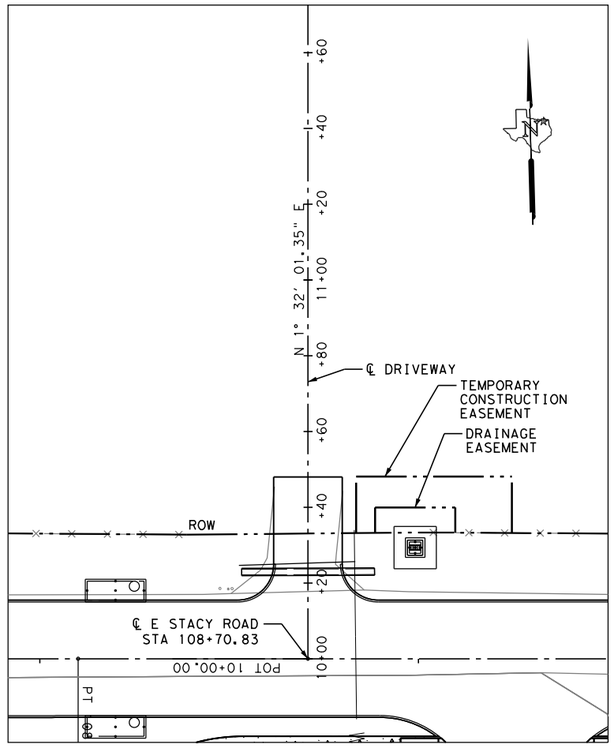
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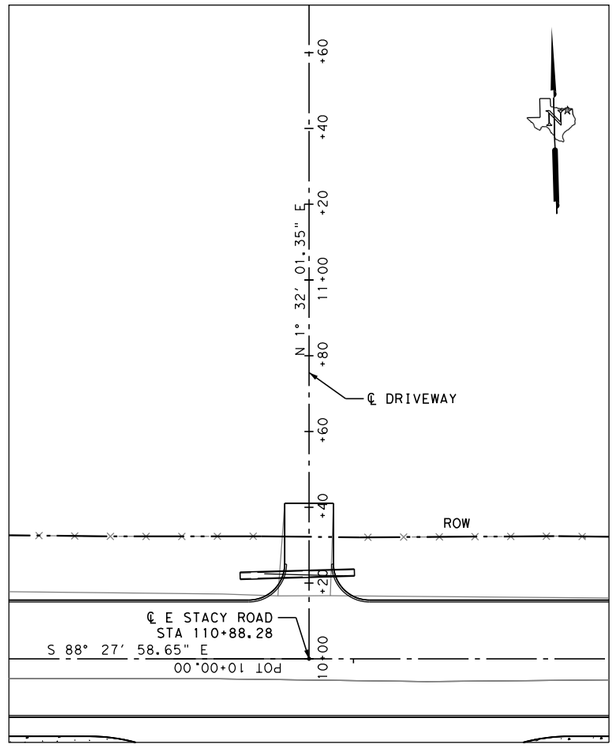
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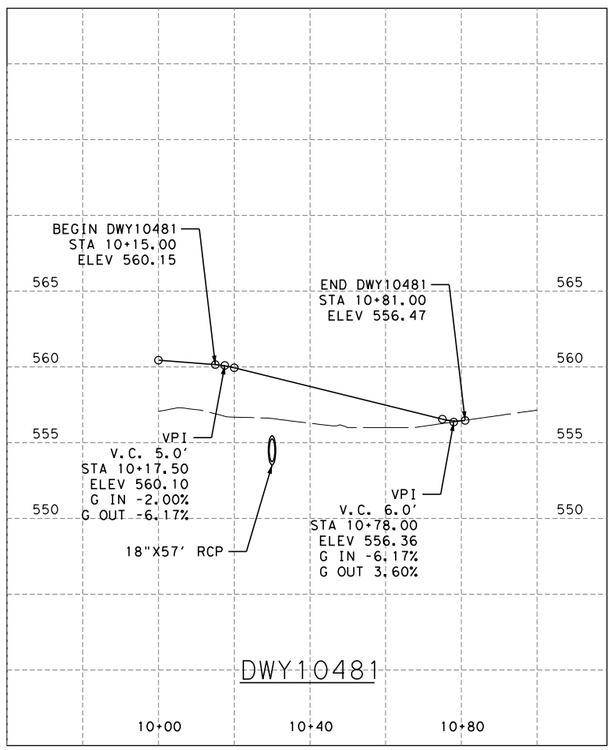
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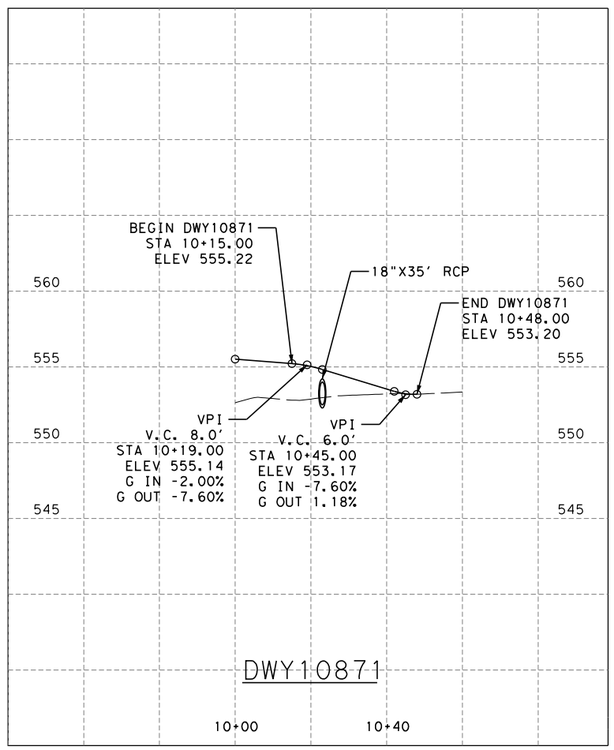
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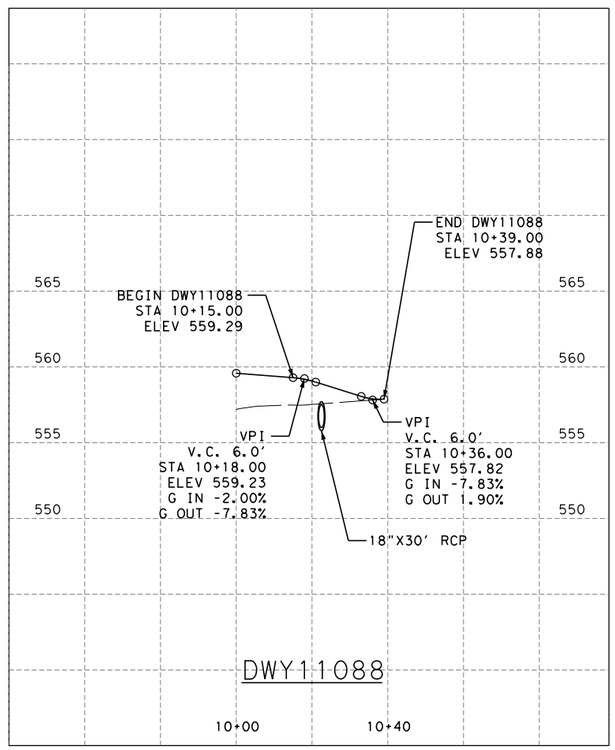












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E. STACY ROAD IMPROVEMENTS

DRIVEWAY PLAN & PROFILE

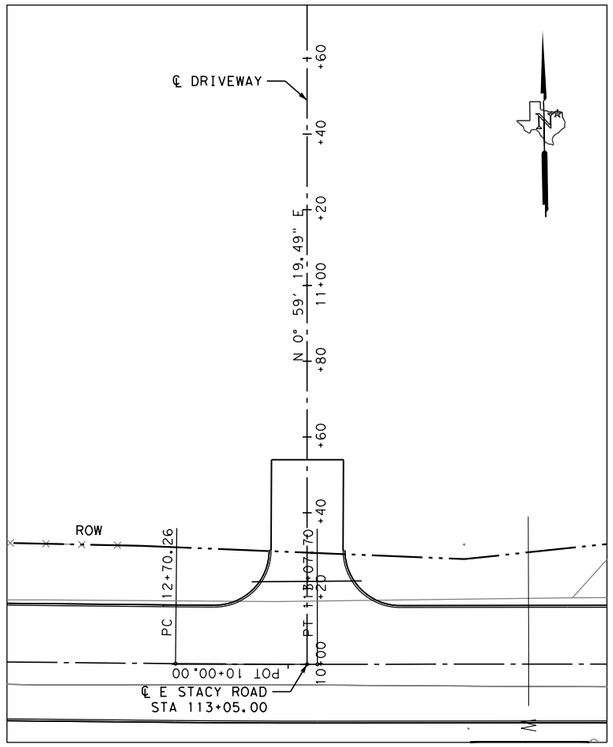
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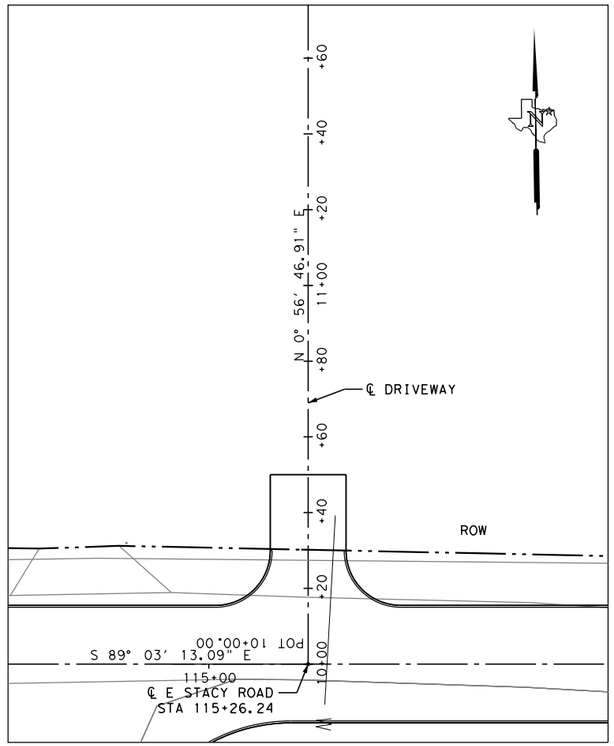
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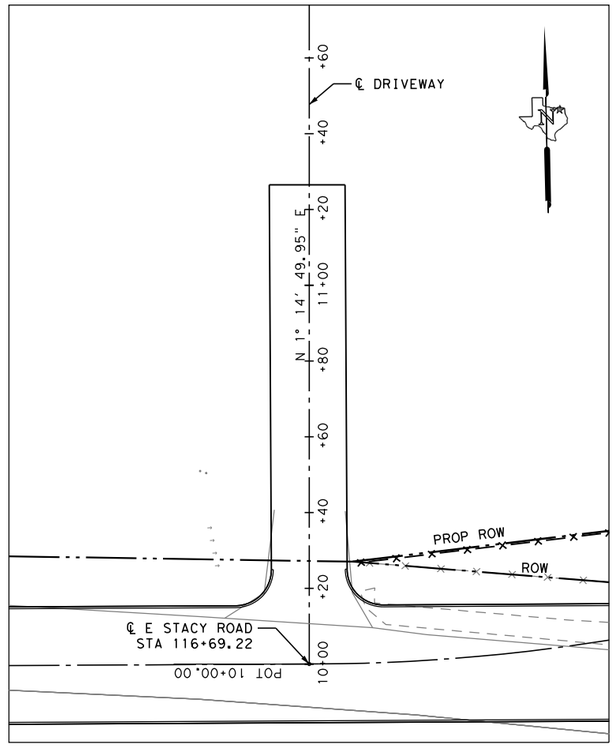
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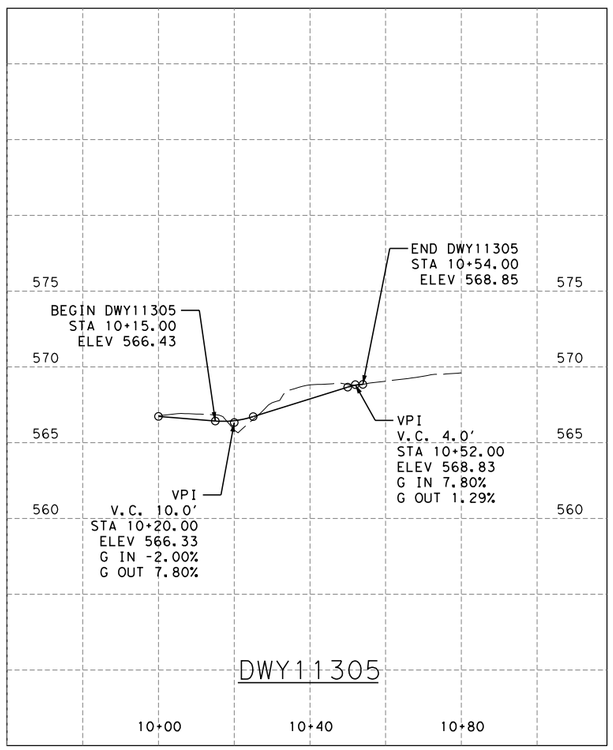
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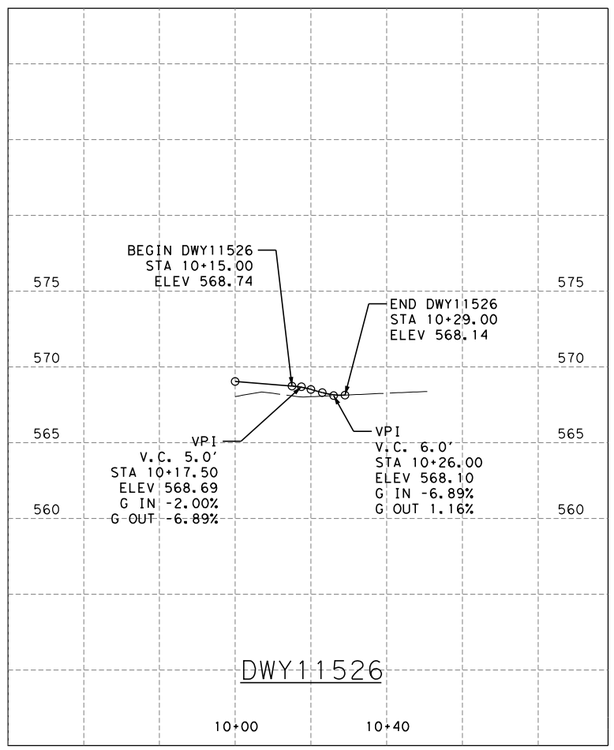
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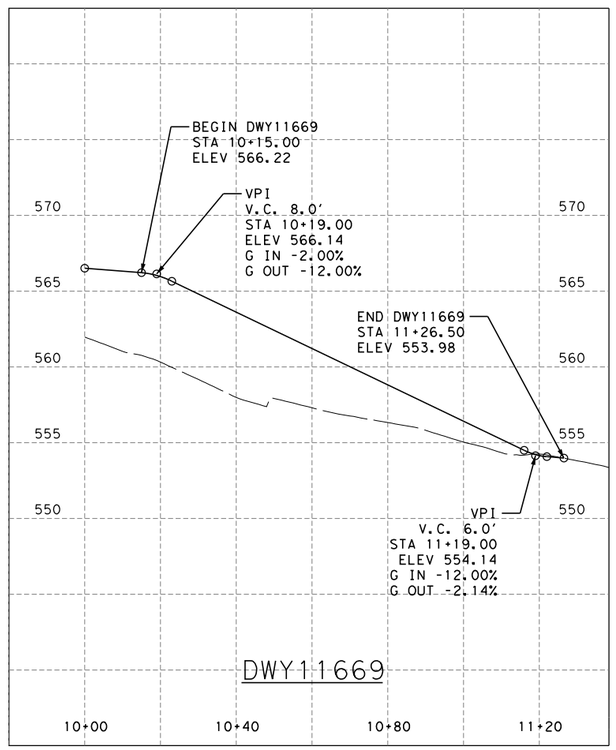












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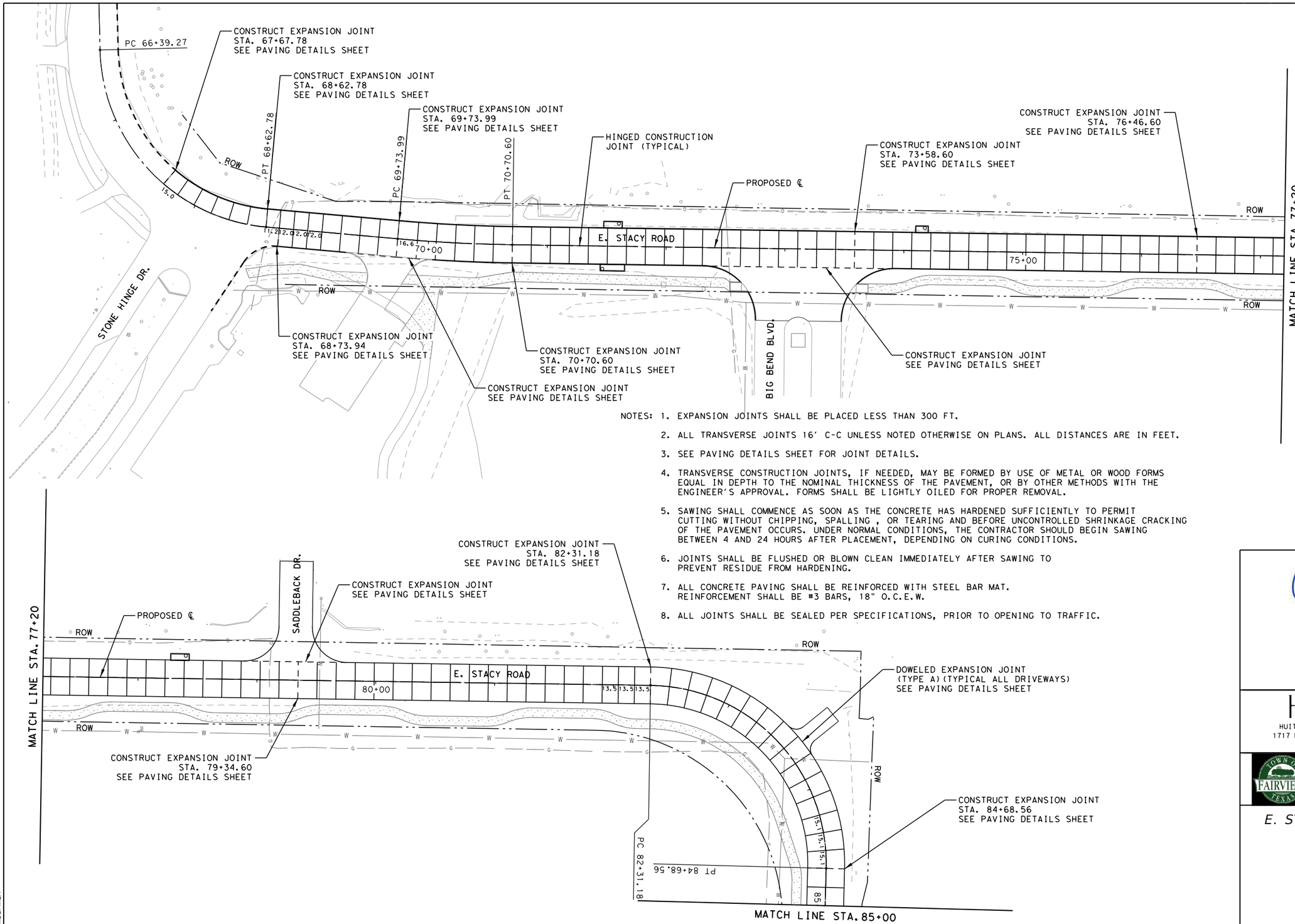
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V: 1" = 5'

SHEET 5 OF 5

SHEET NO. 80

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RAW	RAW	SCW

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1/3/2018 2:38:31 PM cmoorman



NOTES:

1. EXPANSION JOINTS SHALL BE PLACED LESS THAN 300 FT.
2. ALL TRANSVERSE JOINTS 16' C-C UNLESS NOTED OTHERWISE ON PLANS. ALL DISTANCES ARE IN FEET.
3. SEE PAVING DETAILS SHEET FOR JOINT DETAILS.
4. TRANSVERSE CONSTRUCTION JOINTS, IF NEEDED, MAY BE FORMED BY USE OF METAL OR WOOD FORMS EQUAL IN DEPTH TO THE NOMINAL THICKNESS OF THE PAVEMENT, OR BY OTHER METHODS WITH THE ENGINEER'S APPROVAL. FORMS SHALL BE LIGHTLY OILED FOR PROPER REMOVAL.
5. SAWING SHALL COMMENCE AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT CUTTING WITHOUT CHIPPING, SPALLING , OR TEARING AND BEFORE UNCONTROLLED SHRINKAGE CRACKING OF THE PAVEMENT OCCURS. UNDER NORMAL CONDITIONS, THE CONTRACTOR SHOULD BEGIN SAWING BETWEEN 4 AND 24 HOURS AFTER PLACEMENT, DEPENDING ON CURING CONDITIONS.
6. JOINTS SHALL BE FLUSHED OR BLOWN CLEAN IMMEDIATELY AFTER SAWING TO PREVENT RESIDUE FROM HARDENING.
7. ALL CONCRETE PAVING SHALL BE REINFORCED WITH STEEL BAR MAT. REINFORCEMENT SHALL BE #3 BARS, 18" O.C.E.W.
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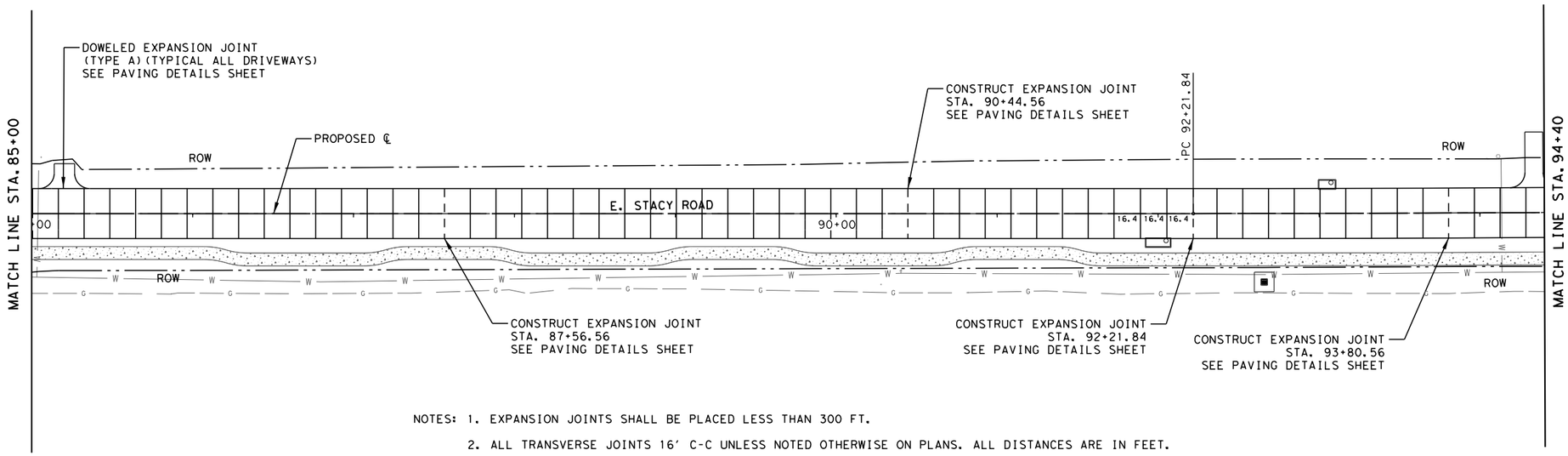
JOINT LAYOUT

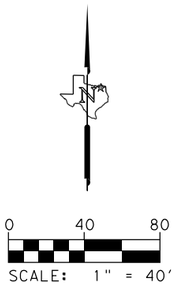
BEGIN TO STA. 85+00

SCALE: 1" = 40'	SHEET 1 OF 3	SHEET NO.
DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	SR	SCW

81

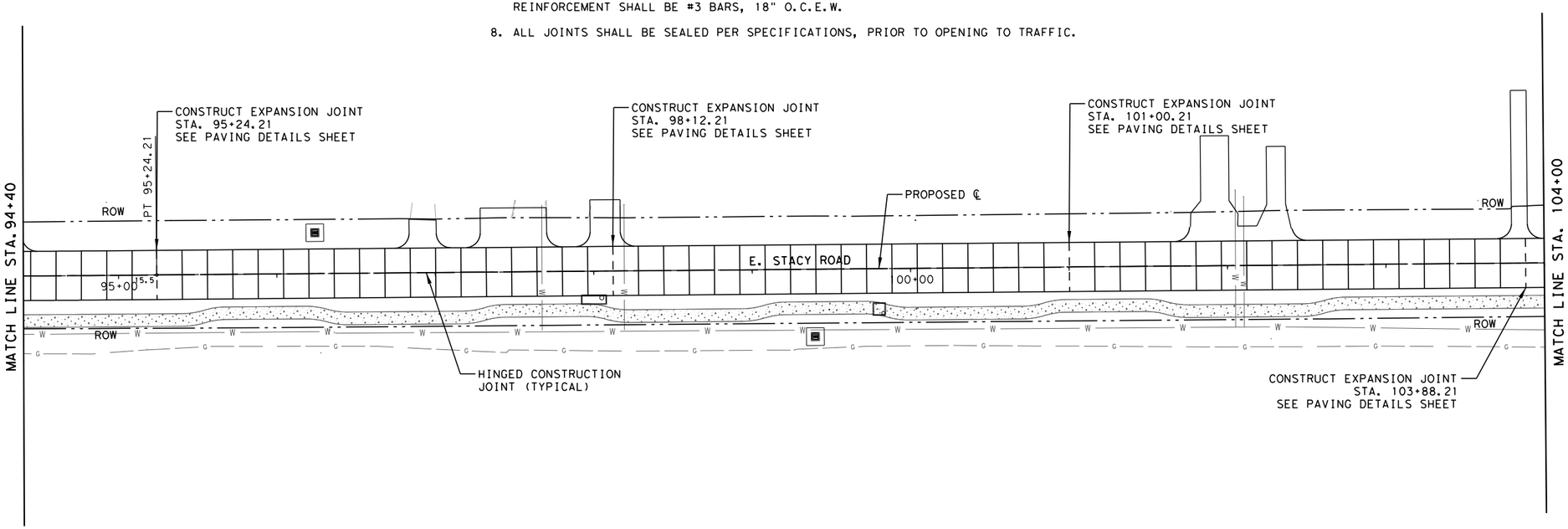
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1/4/2018 7:39:58 AM cmoorman





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E. STACY ROAD IMPROVEMENTS

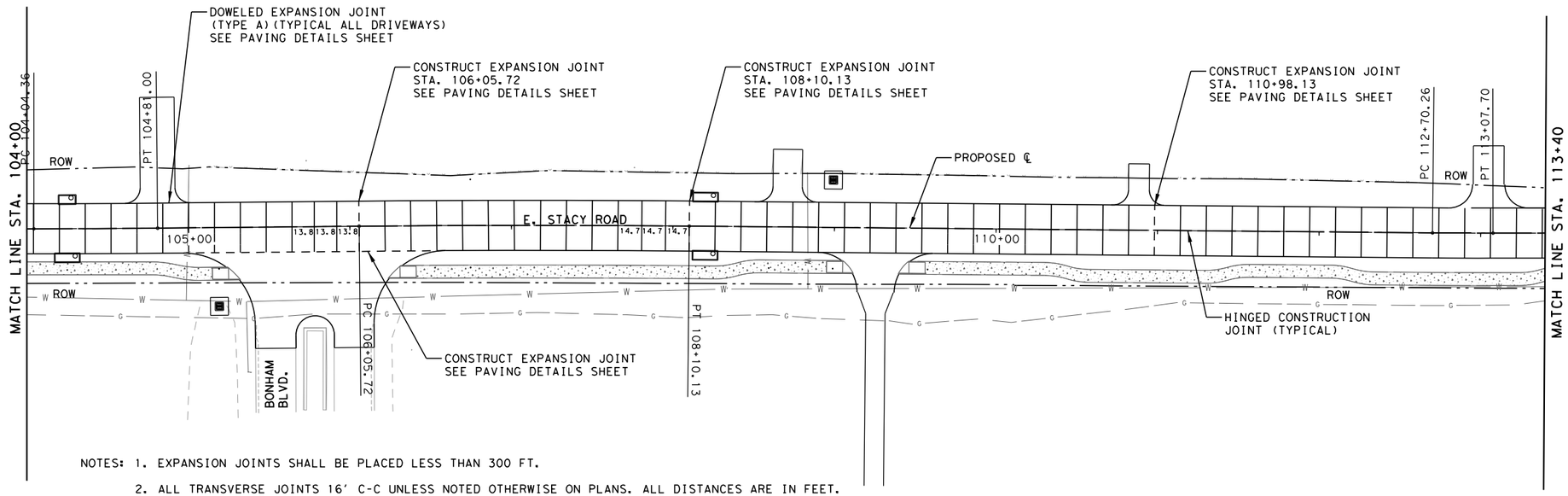
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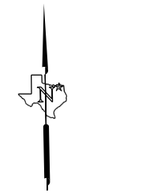
STA. 85+00 TO STA. 104+00

SCALE: 1" = 40' SHEET 2 OF 3

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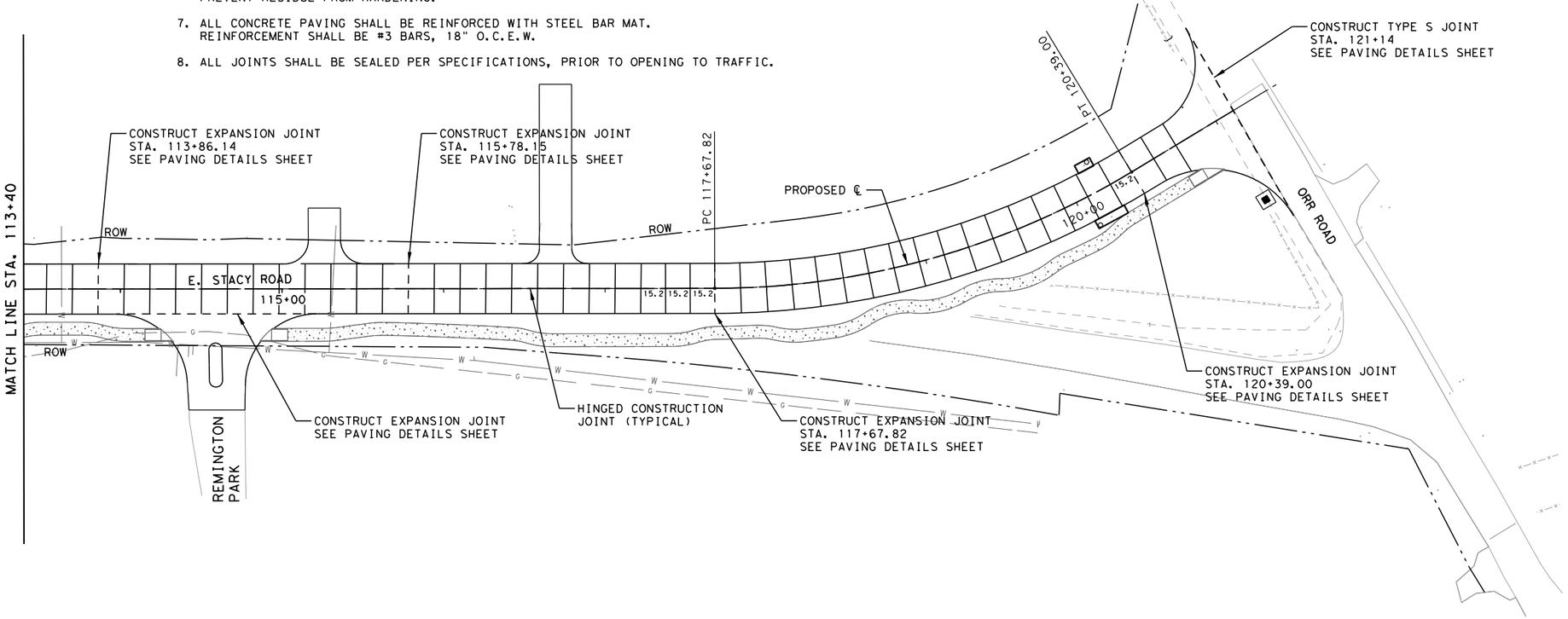
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1/3/2018
2:38:36 PM cmoorman





NOTES:

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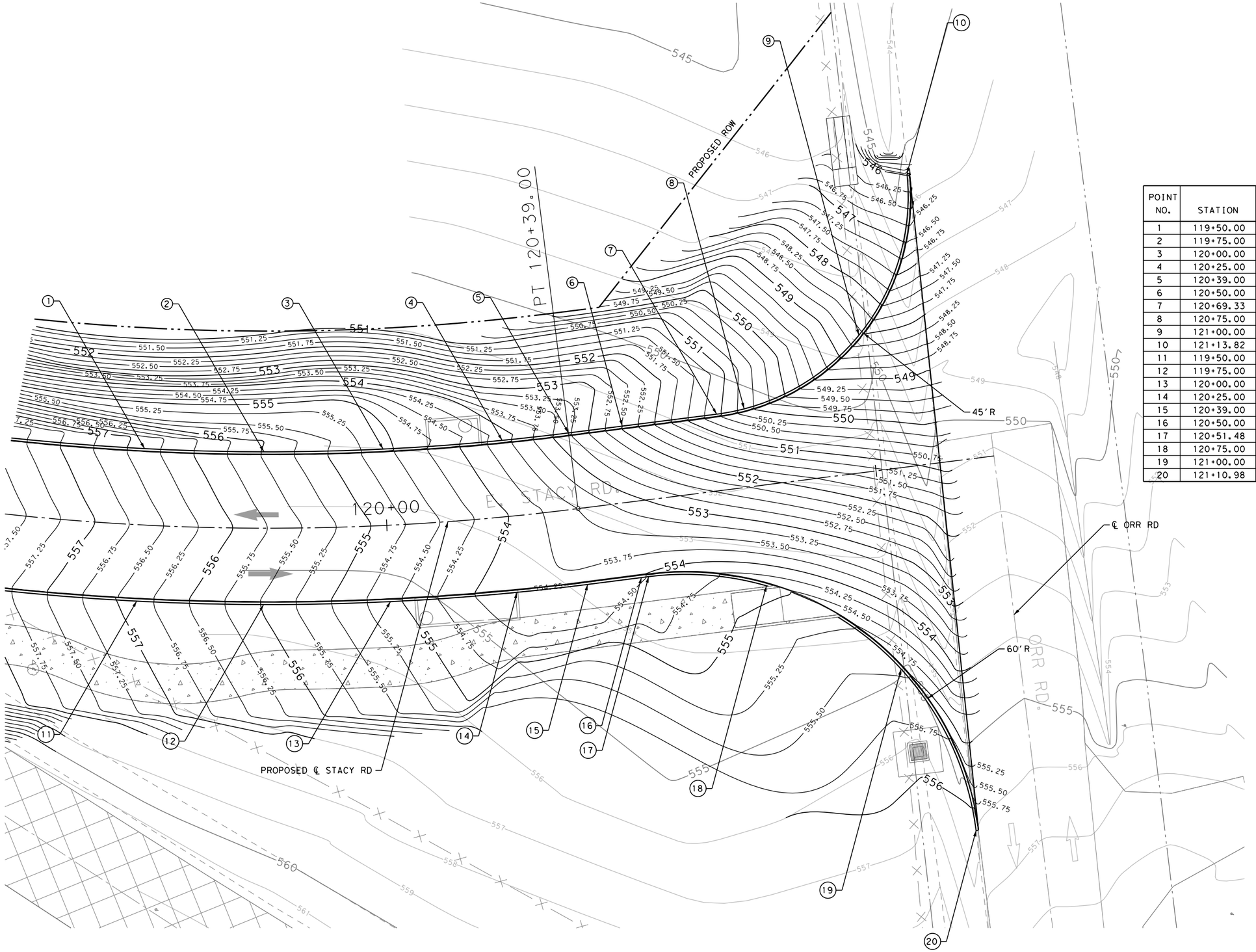
JOINT LAYOUT

STA. 104+00 TO END

SCALE: 1" = 40' SHEET 3 OF 3

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
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1/3/2018
2:38:39 PM cmoorman



0 10 20
FEET

POINT NO.	STATION	OFFSET	ELEV.	COMMENT
1	119+50.00	15.50' LT	556.87	TC
2	119+75.00	15.50' LT	555.98	TC
3	120+00.00	15.50' LT	550.09	TC
4	120+25.00	15.50' LT	554.10	TC
5	120+39.00	15.50' LT	553.29	PT, TC
6	120+50.00	15.50' LT	552.50	TC
7	120+69.33	15.50' LT	551.07	PC, TC
8	120+75.00	15.86' LT	550.65	TC
9	121+00.00	27.76' LT	548.57	TC
10	121+13.82	59.06' LT	545.98	TC
11	119+50.00	15.50' RT	556.87	TC
12	119+75.00	15.50' RT	555.98	TC
13	120+00.00	15.50' RT	555.09	TC
14	120+25.00	15.50' RT	554.32	TC
15	120+39.00	15.50' RT	554.31	PT, TC
16	120+50.00	15.50' RT	554.48	TC
17	120+51.48	15.50' RT	554.51	PC, TC
18	120+75.00	20.35' RT	554.91	TC
19	121+00.00	40.56' RT	555.46	TC
20	121+10.98	75.00' RT	556.08	TC

TC = TOP OF CURB

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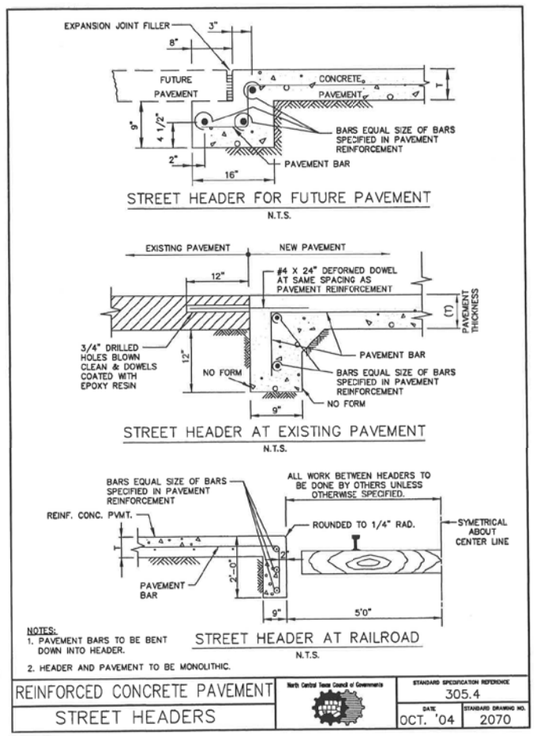
E. STACY ROAD IMPROVEMENTS

INTERSECTION LAYOUT
E. STACY RD. & ORR RD.

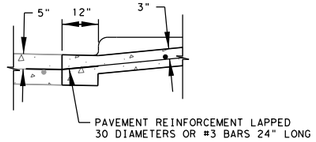
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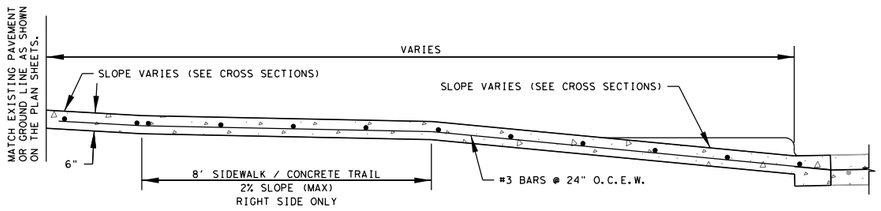
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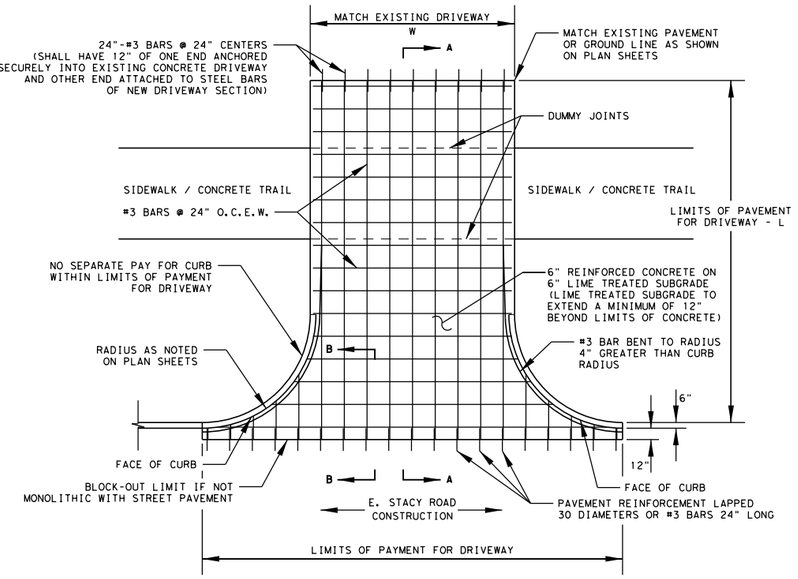
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STREET HEADERS		DATE OCT. '04	STANDARD DRAWING NO. 2070



SECTION B-B



SECTION A-A



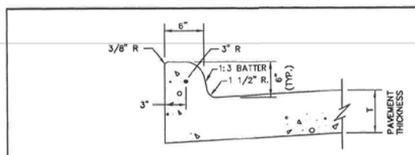
FULL CONCRETE DRIVEWAY DETAILS

NOTE:
PAYMENT FOR CONCRETE DRIVEWAYS BY THE SQUARE YARD WITHIN THE LIMTS FOR PAYMENT AS SHOWN IN THE ABOVE DETAIL SHALL INCLUDE EARTHWORK REQUIRED FOR SUBGRADE PREPARATION, LIME TREATMENT FOR SUBGRADE, LIME FOR TREATMENT, CONCRETE CURB, AND REINFORCED CONCRETE FOR DRIVEWAY PAVEMENT. NO SEPARATE PAY SHALL BE MADE FOR THESE ITEMS WITHIN THE LIMITS OF PAYMENT FOR CONCRETE DRIVEWAYS.

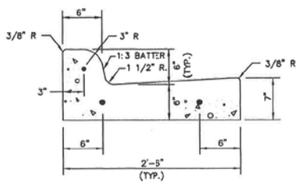
GENERAL NOTES:

1. REINFORCED CONCRETE PAVEMENT:
   A. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT UNLESS OTHERWISE APPROVED BY THE OWNER.
   B. CURBS SHALL MEET THE SAME COMPRESSIVE STRENGTH AS SPECIFIED FOR THE PAVEMENT.
   C. BAR LAPS SHALL BE 30 DIAMETERS.
   D. REINFORCING BARS SHALL BE SUPPORTED BY CHAIRS OR OTHER DEVICES APPROVED BY THE OWNER.
2. SUBGRADE: (UNLESS OTHERWISE SPECIFIED BY OWNER)
   A. SUBGRADE UNDER ALL PAVEMENTS SHALL BE STABILIZED TO A MINIMUM DEPTH OF 6" WITH HYDRATED LIME OR CEMENT WHEN THE P.I. OF THE INPLACE MATERIAL IS GREATER THAN 15. LABORATORY TESTS MUST BE PERFORMED TO DETERMINE THE AMOUNT OF LIME OR CEMENT REQUIRED TO LOWER THE P.I. TO 15 OR BELOW. SATURATION P.I. (PH ≥ 12.4) WILL BE THE LIMIT WHEN A SOIL'S P.I. CANNOT BE BROUGHT TO 15 OR LOWER.
   B. WHERE THE INPLACE MATERIAL HAS A P.I. OF LESS THAN 15, THE SUBGRADE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6" AND RECOMPACTED.
3. IF THE ROADWAY IS A DESIGNATED BIKE ROUTE OR BIKE USAGE IS ANTICIPATED, REFER TO NCTCOG'S REGIONAL BICYCLE AND PEDESTRIAN FACILITIES DESIGN MANUAL FOR DESIGN GUIDANCE.

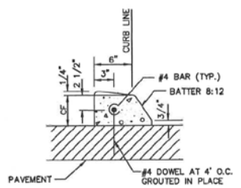
PAVEMENT SYSTEMS	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 302,303	
GENERAL NOTES		DATE OCT. '04	STANDARD DRAWING NO. 2190



INTEGRAL CURB & GUTTER
N.T.S.



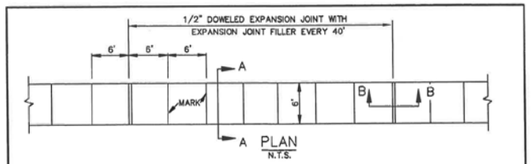
SEPARATE CURB & GUTTER
N.T.S.

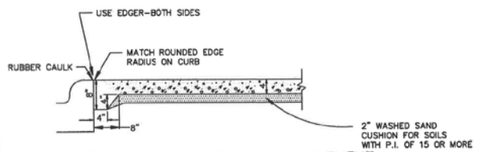


DOWELED CURB
N.T.S.

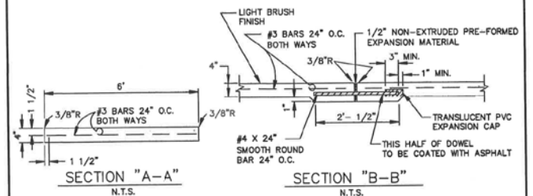
NOTES:
1. REINFORCEMENT SHALL BE NO. 4 BARS, UNLESS OTHERWISE SPECIFIED.
2. CONCRETE SHALL BE CLASS "C" OR "PC".
3. "CF" IS 6" UNLESS OTHERWISE SPECIFIED.
4. ALL CURBS ARE CONSTRUCTED OF PORTLAND CEMENT CONCRETE UNLESS OTHERWISE SHOWN.
5. GRADE SHALL BE MEASURED AT BACK OF CURB.

CONCRETE CURB & GUTTER	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 305.1	
INTEGRAL, SEPARATE, & DOWELED		DATE OCT. '04	STANDARD DRAWING NO. 2120





JOINT LUG DETAIL FOR MEDIAN PAVEMENT OR SIDEWALK ADJACENT TO CURB
N.T.S.



SECTION "A-A"
N.T.S.

SECTION "B-B"
N.T.S.

NOTE:
1. REFER TO STANDARD SPECIFICATION ITEM 305.2 FOR ALTERNATE REINFORCEMENT.
2. CROSS SLOPE OF SIDEWALK SHALL BE ± 1/4" PER FT. MIN. TO ± 3/8" PER FT. MAX.
3. OTHER THAN 6'-0" SIDEWALK WIDTH MAY BE SPECIFIED BY OWNER.
4. SIDEWALK SHALL BE CLASS "A" CONCRETE UNLESS OTHERWISE SPECIFIED BY OWNER.
5. ALL HONEYCOMB IN BACK OF CURB TO BE TROWEL-PLASTERED BEFORE POURING SIDEWALK.
6. LUG MAY BE FORMED BY SHAPING SUBGRADE TO APPROXIMATE DIMENSIONS SHOWN.

REINFORCED CONCRETE SIDEWALKS	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 305.2	
JOINTS AND SPACING		DATE OCT. '04	STANDARD DRAWING NO. 2170

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

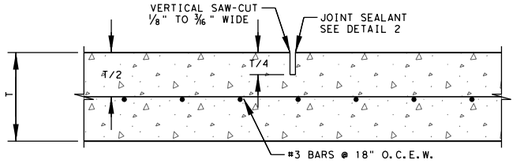
TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PAVING DETAILS

SCALE: NONE		SHEET 1 OF 2	SHEET NO.
DESIGNED BY:	DRAWN BY:	CHECKED BY:	85
NCTCOG		SCW	

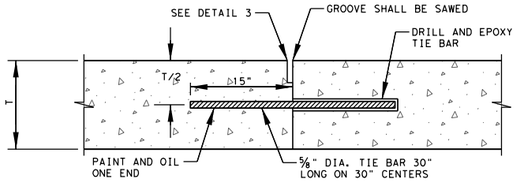
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1/3/2018 2:38:41 PM cmoorman



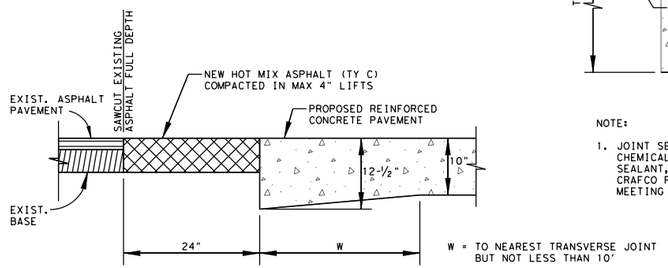
SAWED CONTRACTION JOINT

NOTE:

1. TRANSVERSE SAWED CONTRACTION JOINTS WILL BE SPACED A MAXIMUM OF 12' UNLESS OTHERWISE SHOWN ON THE PLANS.



HINGED CONSTRUCTION JOINT



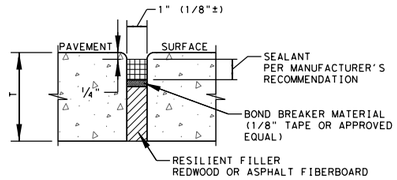
W = TO NEAREST TRANSVERSE JOINT BUT NOT LESS THAN 10'

TYPE S - THICKENED EDGE JOINT

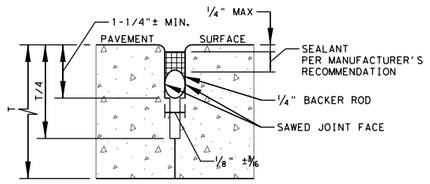
PROPOSED JOINT FOR MATCHING EXISTING ASPHALT PAVEMENT

NOTES:

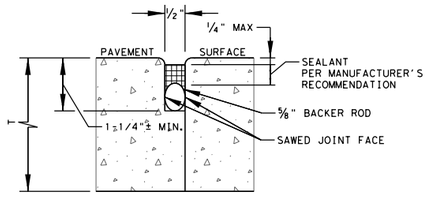
1. CONTRACTOR SHALL REPAIR DAMAGE TO EXISTING ASPHALT PAVEMENT WITH FULL DEPTH HMAC REPAIR TO BOTTOM OF EXISTING BASE.
2. COST OF THICKENED EDGE JOINTS INCLUDING 2' WIDTH OF NEW HOT MIX ASPHALT SHALL BE SUBSIDIARY TO UNIT BID PRICE FOR REINFORCED CONCRETE PAVEMENT.
3. REMOVAL OF EXISTING ASPHALT PAVEMENT SHALL BE SUBSIDIARY TO THE UNIT PRICE BID FOR REINFORCED CONCRETE PAVEMENT.



DETAIL 1



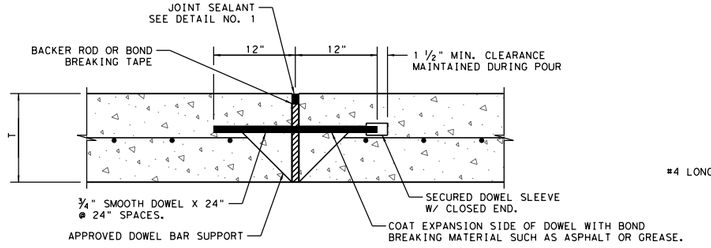
DETAIL 2



DETAIL 3

NOTE:

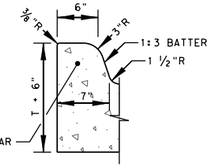
1. JOINT SEALANT SHALL BE SINGLE COMPONENT, CHEMICALLY CURING, SELF-LEVELING SILICONE SEALANT, SUCH AS DOW-CORNING SL-890 OR CRAFCO ROAD SL, OR APPROVED EQUAL AND MEETING THE REQUIREMENTS OF ASTM-5893.



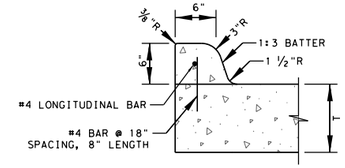
DOWELED EXPANSION JOINT (TYPE A)

NOTES:

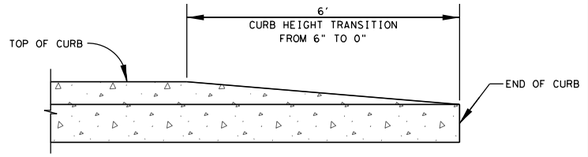
1. EXPANSION JOINT FILLER MATERIAL SHALL BE ACCURATELY NOTCHED OR HOLED TO RECEIVE EACH DOWEL.
2. DOWEL BARS SHALL BE ACCURATELY INSTALLED PARALLEL WITH PAVEMENT SURFACE. EACH DOWEL AND REBAR SHALL BE SECURED AGAINST DISPLACEMENT DURING PLACEMENT OF CONCRETE. DOWELS SHALL BE CLEAN AND FREE OF RUST WHEN INSTALLED.
3. COST OF DOWELED JOINTS AND CONSTRUCTION JOINTS SHALL BE SUBSIDIARY TO THE UNIT PRICE BID FOR REINFORCED CONCRETE PAVEMENT.
4. DOWEL BARS SHALL BE COATED WITH ASPHALT, GREASE OR OTHER APPROVED COATING FOR ½ OF THE LENGTH.



CONCRETE INTEGRAL CURB DETAIL



DOWELED CONCRETE CURB



CURB TAPER

NOTE:

1. TAPER SHALL BE USED ON ALL TERMINI OF CURBS (e.g. AT INTERSECTIONS) UNLESS OTHERWISE NOTED IN THE PLANS.

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 3, 2018

HUITT-ZOLLARS
HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

PAVING DETAILS

SCALE: NONE | SHEET 2 OF 2 | SHEET NO. 86

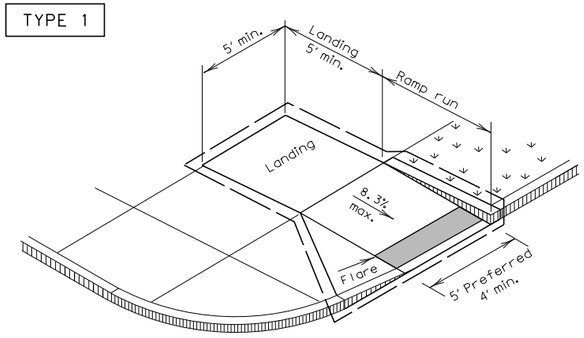
DESIGNED BY:	DRAWN BY:	CHECKED BY:
	CLM	SCW

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1/3/2018 2:38:46 PM cmoorman

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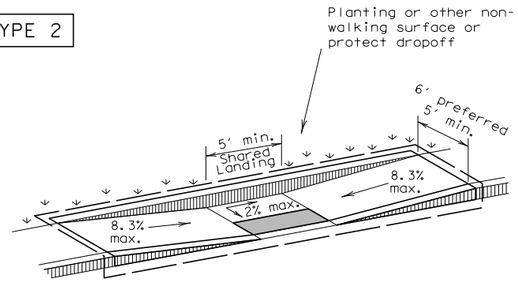
DATE: 1/3/2018
FILE: I:\proj\VR305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\12 STANDARDS\Curb Ramps\ped12a.dgn

TYPE 1



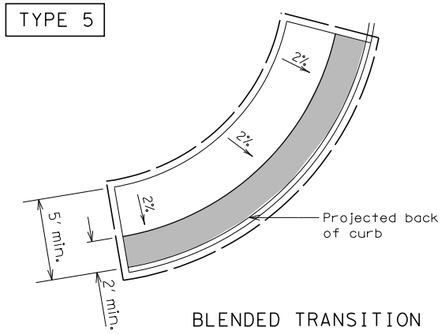
PERPENDICULAR CURB RAMP

TYPE 2



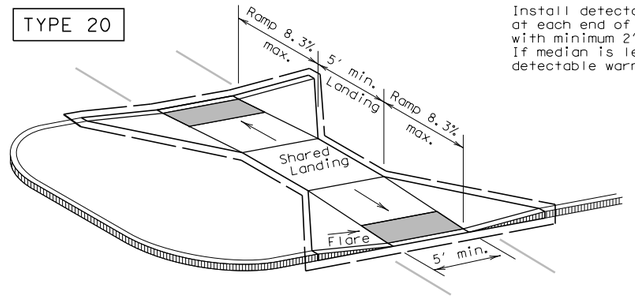
PARALLEL CURB RAMP
(Use only where water will not pond in the landing.)

TYPE 5



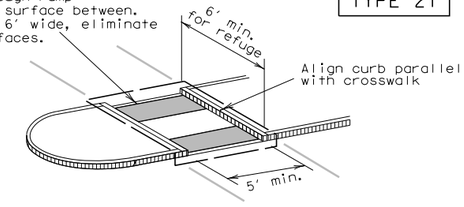
BLENDED TRANSITION

TYPE 20



Install detectable warning surface at each end of cut-through ramp with minimum 2' smooth surface between. If median is less than 6' wide, eliminate detectable warning surfaces.

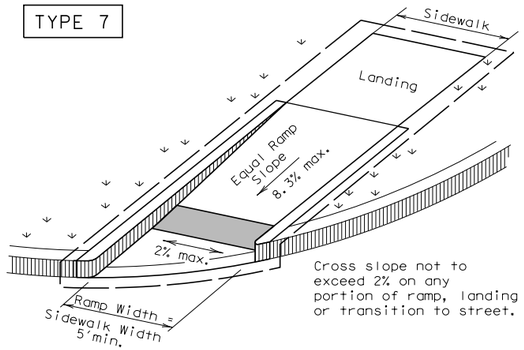
TYPE 21



Curb details are shown elsewhere in the plans.

CURB RAMPS AT MEDIAN ISLANDS

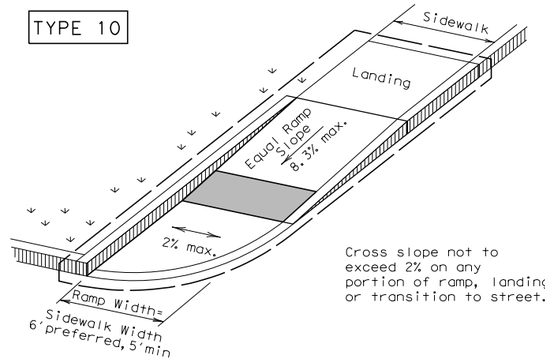
TYPE 7



Cross slope not to exceed 2% on any portion of ramp, landing or transition to street.

(Sidewalk set back from curb)

TYPE 10

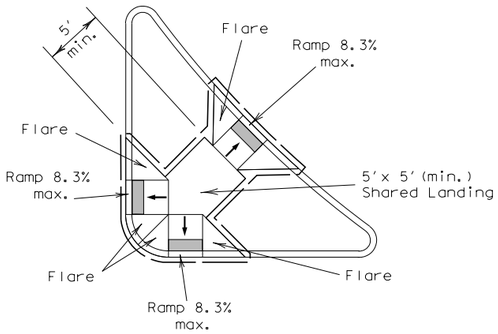


Cross slope not to exceed 2% on any portion of ramp, landing or transition to street.

(Sidewalk adjacent to curb)

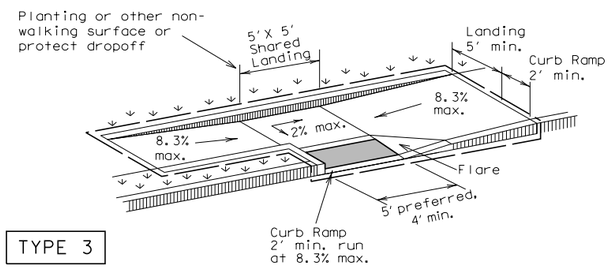
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 22

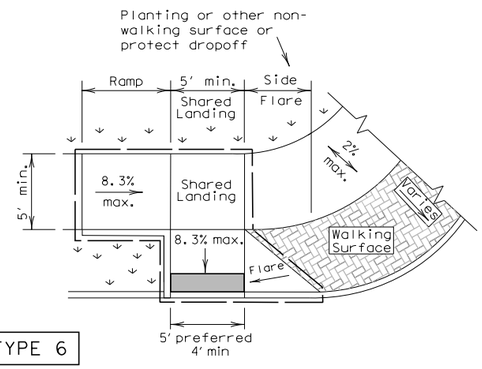


COMBINATION ISLAND RAMPS

TYPE 3

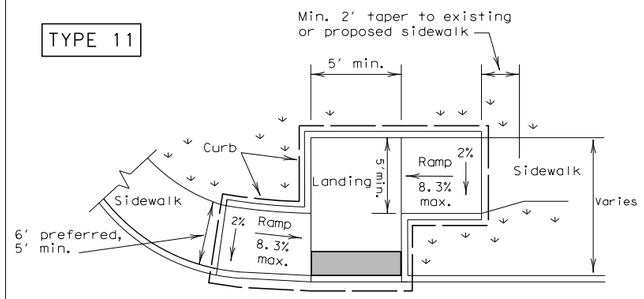


TYPE 6



COMBINATION CURB RAMPS

TYPE 11



OFFSET PARALLEL CURB RAMP

NOTES / LEGEND:

See General Notes on sheet 2 of 4 for more information.

Denotes planting or non-walking surface not part of pedestrian circulation path.

Ramp Limits of Payment

Detectable Warning Surface

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP	
© TxDOT March 2002	CONT	SECT	JOB	HIGHWAY	
REVISIONS				STACY ROAD	
VP June 13, 2012	DIST	COUNTY		SHEET NO.	
		COLLIN		87	

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DATE: 1/3/2018
FILE: I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\12 STANDARDS\Curb Ramps\ped12a.dgn

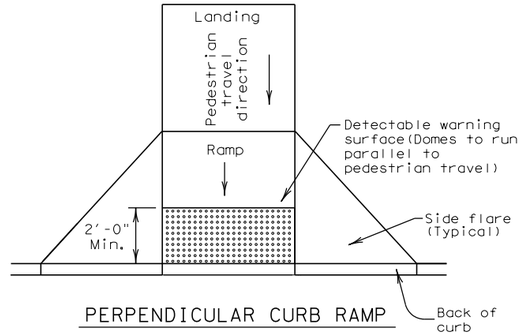
General Notes

Curb Ramps

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. The minimum sidewalk width is 5′. Where the sidewalk is adjacent to the back of curb, a 6′ sidewalk width is desirable. Where a 5′ sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4′ for short distances. 5′x 5′ passing areas at intervals not to exceed 200′ are required.
4. Landings shall be 5′x 5′ minimum with a maximum 2% slope in any direction.
5. Maneuvering space at the bottom of curb ramps shall be a minimum of 4′x 4′ wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
6. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the current edition of the Texas Accessibility Standards (TAS) and 16 TAC 68.102.
9. To serve as a pedestrian refuge area, the median should be a minimum of 6′ wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5′x 5′ landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Handrails are not required on curb ramps. Provide curb ramps wherever on accessible route crosses (penetrates) a curb.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Provide a smooth transition where the curb ramps connect to the street.
16. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
17. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.

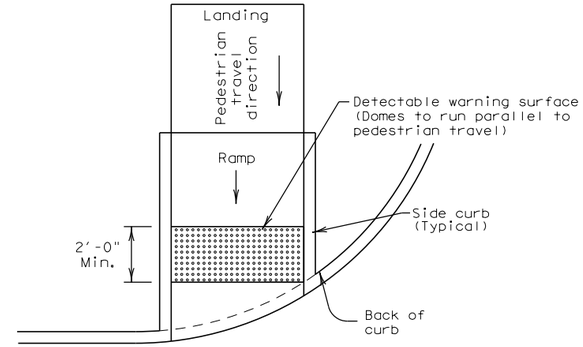
Detectable Warning Material

18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
19. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
22. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. Align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Detectable warning surfaces may be curved along the corner radius.
23. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.



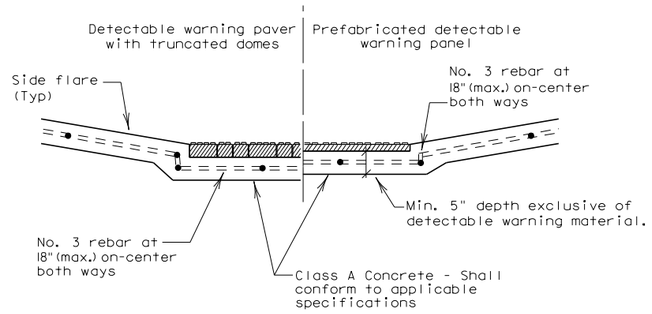
PERPENDICULAR CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.

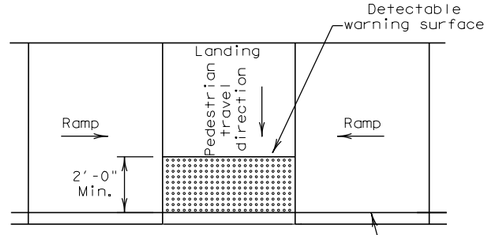


DIRECTIONAL CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.



SECTION: CURB RAMP AT DETECTABLE WARNING



PARALLEL CURB RAMP

Typical placement of detectable warning surface on landing at street edge.

DETECTABLE WARNINGS

Detectable Warning Pavers

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

Sidewalks

26. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
27. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
31. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.

Texas Department of Transportation

Design Division Standard

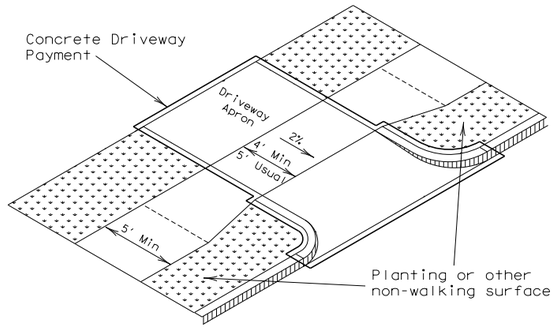
PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

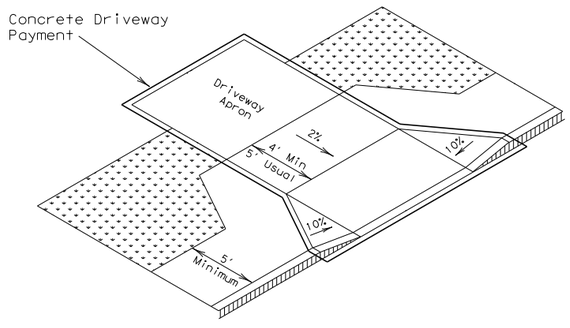
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© TxDOT March 2002	CONT	SECT	JOB		HIGHWAY	
REVISIONS					STACY ROAD	
VP June 13, 2012	DIST	COUNTY			SHEET NO.	
		COLLIN			88	

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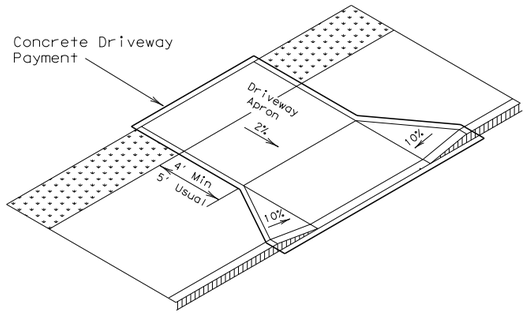
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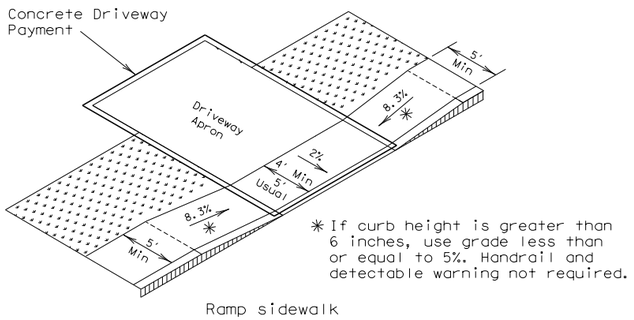
Setback sidewalk



Apron offset sidewalk



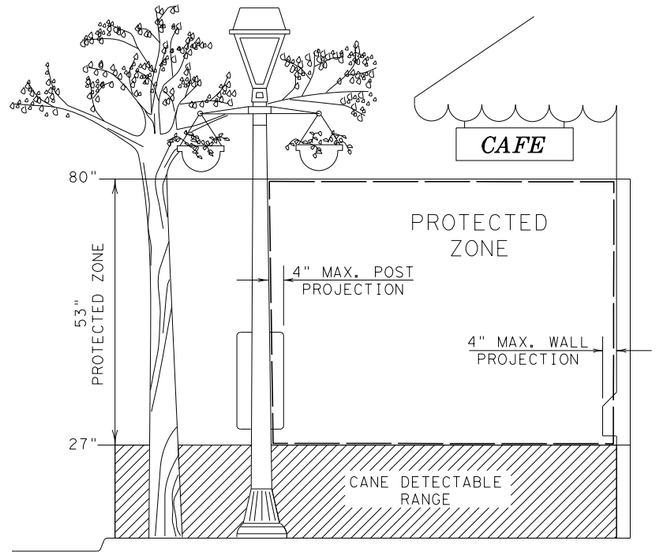
Wide sidewalk



* If curb height is greater than 6 inches, use grade less than or equal to 5%. Handrail and detectable warning not required.

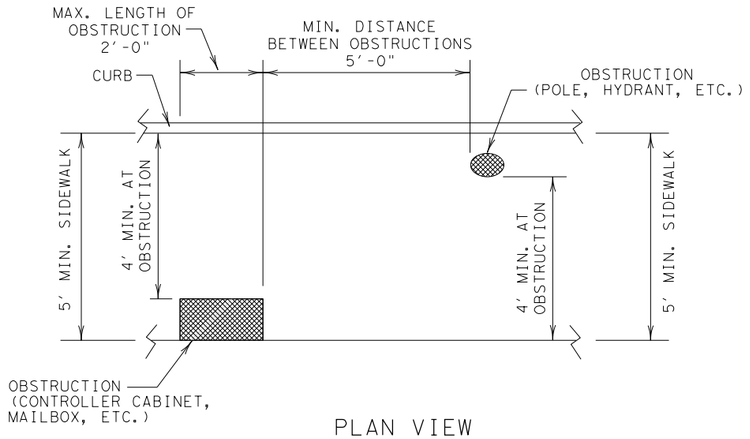
Ramp sidewalk

SIDEWALK TREATMENT AT DRIVEWAYS



PROTECTED ZONE

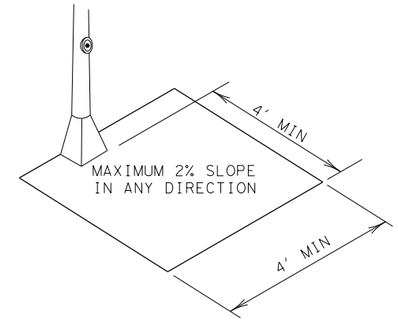
In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27"and 80" above the surface.



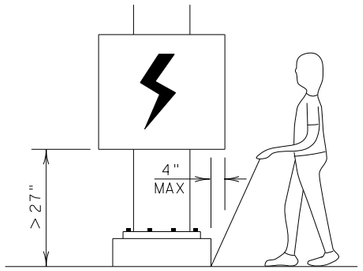
PLAN VIEW

PLACEMENT OF STREET FIXTURES

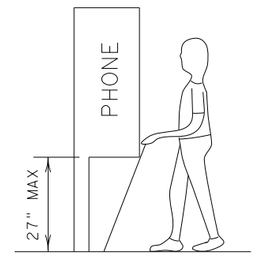
(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)



CLEAR GROUND SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



When an obstruction of a height greater than 27" from the surface would create a protrusion of more than 4" into the pedestrian circulation area, construct additional curb or foundation at the bottom to provide a maximum 4" overhang.



Protruding objects of a height ≤ 27" are detectable by cane and do not require additional treatment.

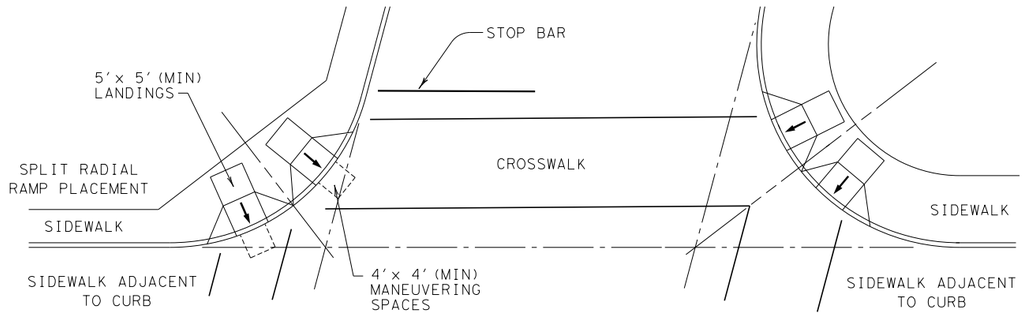
DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation — Design Division Standard

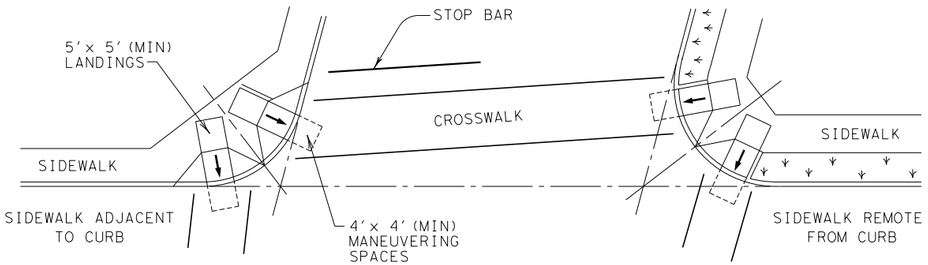
PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

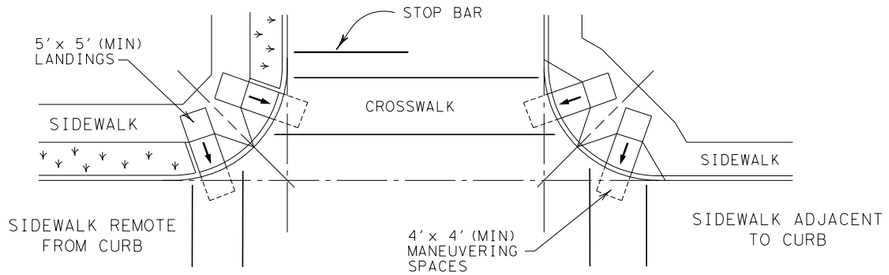
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© TxDOT March 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
VP June 13, 2012	DIST	COUNTY		SHEET NO.
		COLLIN		89



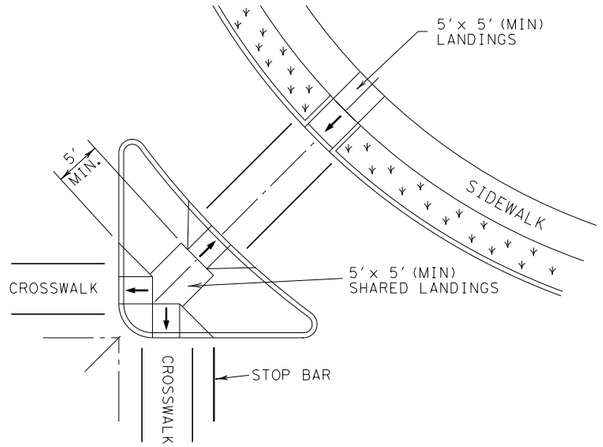
SKEWED INTERSECTION WITH "LARGE" RADIUS



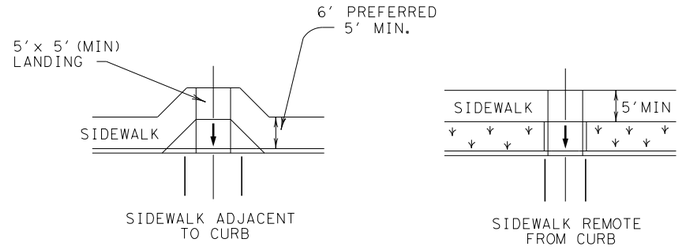
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

TYPICAL CROSSING LAYOUTS

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

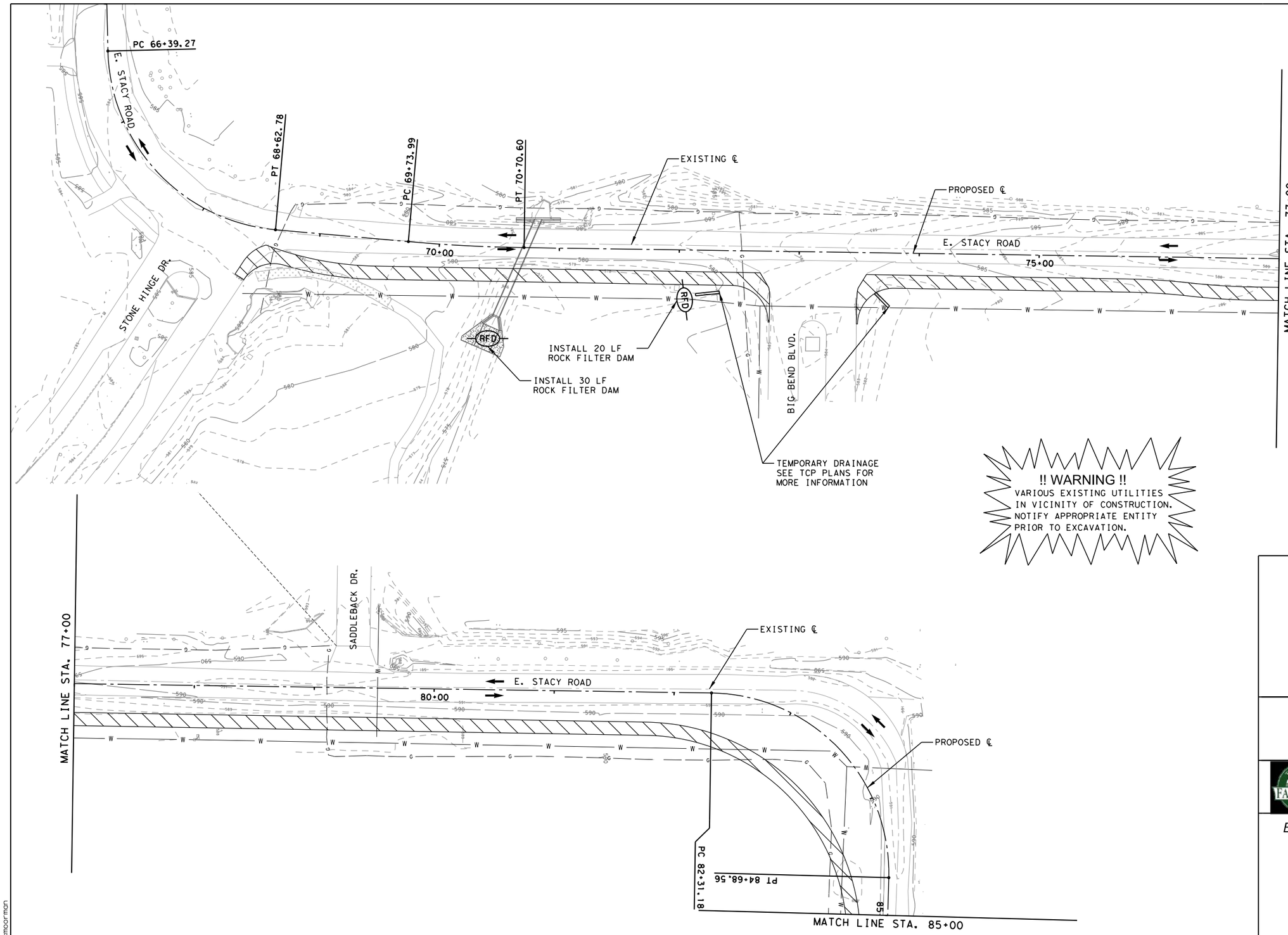
PEDESTRIAN FACILITIES
CURB RAMPS

PED-12A

FILE: ped12a.dgn		DN: TxDOT		CK: RM	DW: TxDOT		CK: VP
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0 40 80

SCALE: 1" = 40'

LEGEND

- TRAFFIC FLOW
- DETOUR CONSTRUCTION THIS PHASE
- CONCRETE REMOVAL SEE REMOVAL PLANS
- (RFD) ROCK FILTER DAM
- (SCF) SILT FENCE

STATE OF TEXAS
CHRISTIAN L. MOORMAN
93828
LICENSED PROFESSIONAL ENGINEER
January 3, 2018

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HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

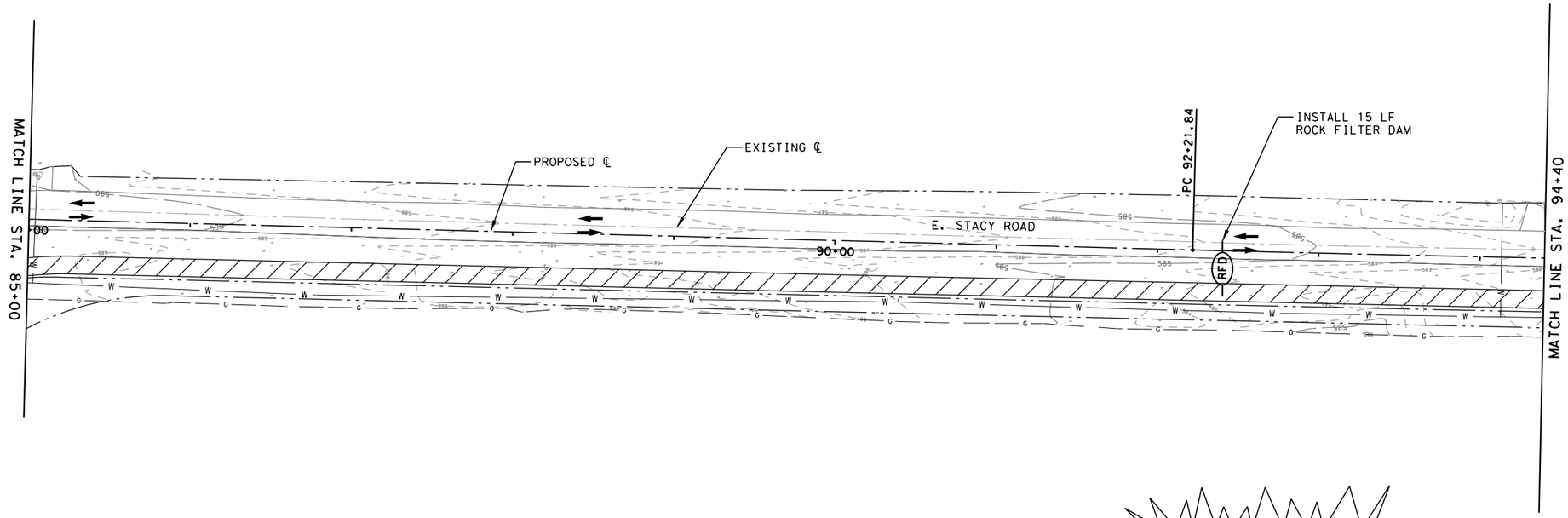
EROSION CONTROL PLAN
PHASE 1

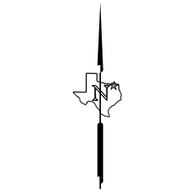
BEGIN TO STA. 85+00

SCALE: 1" = 40' SHEET 1 OF 3

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	CLM	SCW	91

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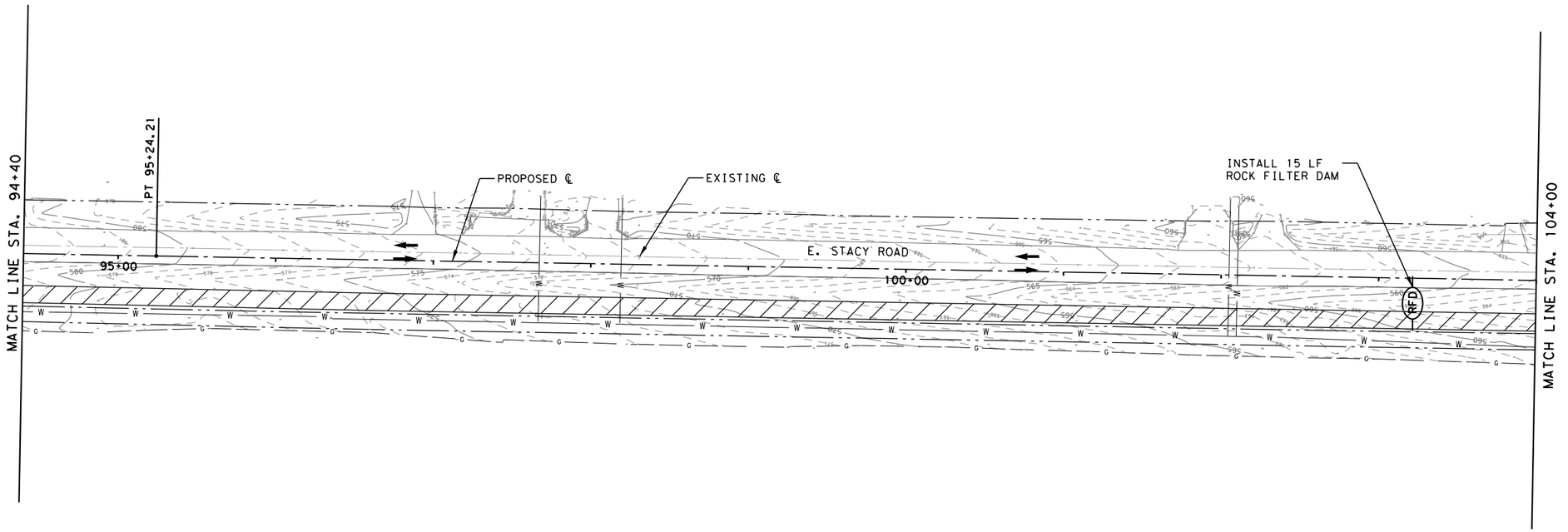




LEGEND

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!! WARNING !!
VARIOUS EXISTING UTILITIES
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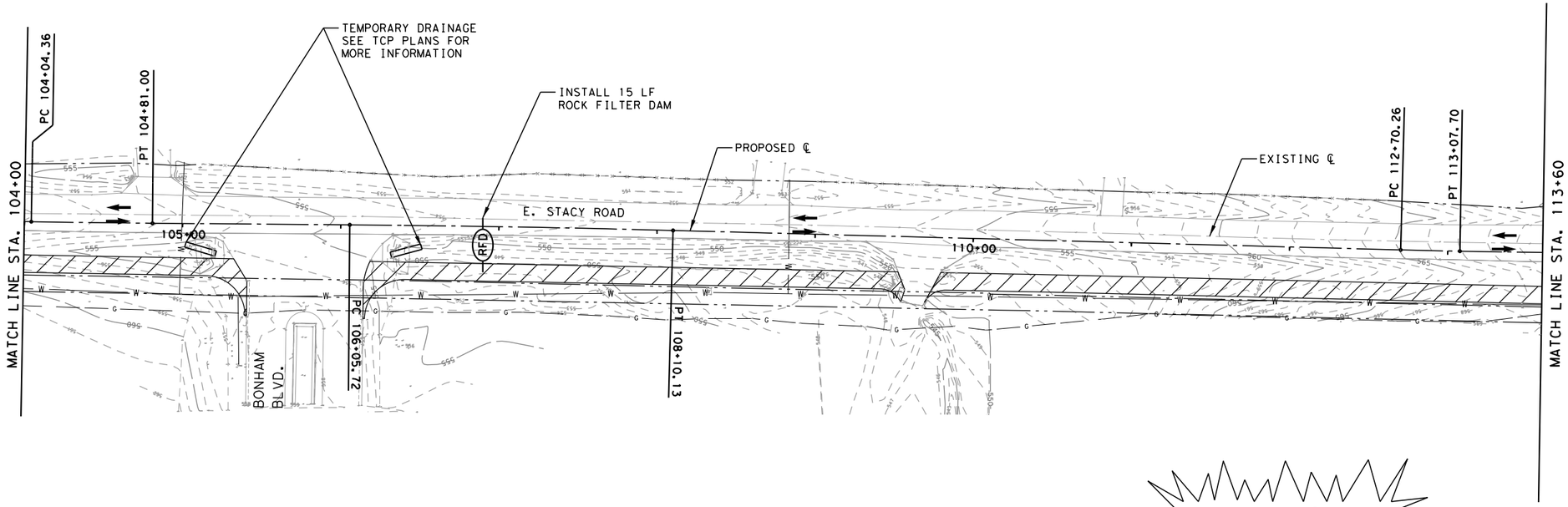
E. STACY ROAD IMPROVEMENTS

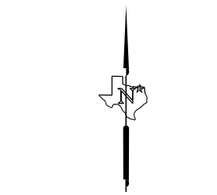
EROSION CONTROL PLAN
PHASE 1

STA. 85+00 TO STA. 104+00

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	92
CLM	CLM	SCW	

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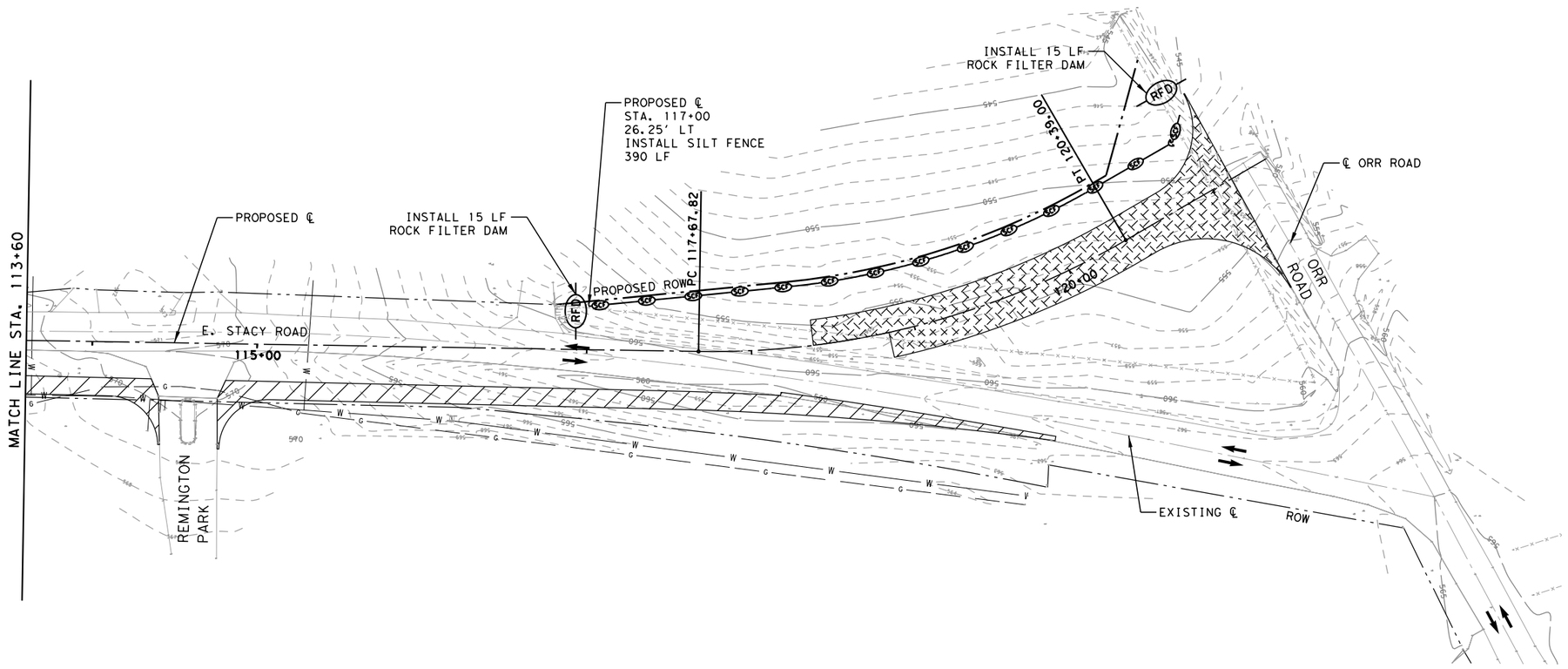




LEGEND

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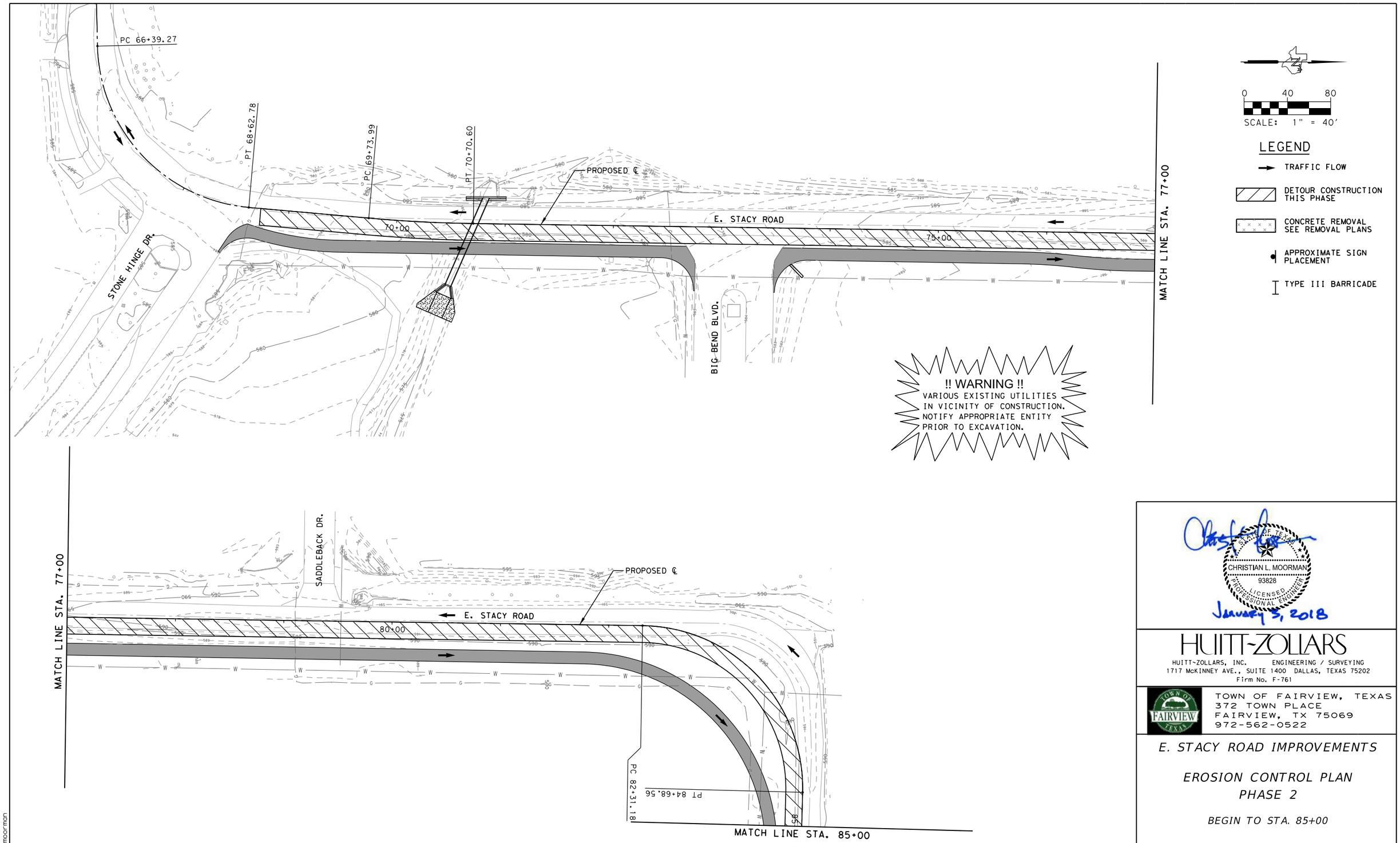
EROSION CONTROL PLAN
PHASE 1

STA. 104+00 TO END

SCALE: 1" = 40'
SHEET 3 OF 3
SHEET NO. 93

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1/3/2018 2:38:55 PM cmoorman



0 40 80

SCALE: 1" = 40'

LEGEND

- TRAFFIC FLOW
- DETOUR CONSTRUCTION THIS PHASE
- CONCRETE REMOVAL SEE REMOVAL PLANS
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE

STATE OF TEXAS
CHRISTIAN L. MOORMAN
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January 3, 2018

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E. STACY ROAD IMPROVEMENTS

EROSION CONTROL PLAN
PHASE 2

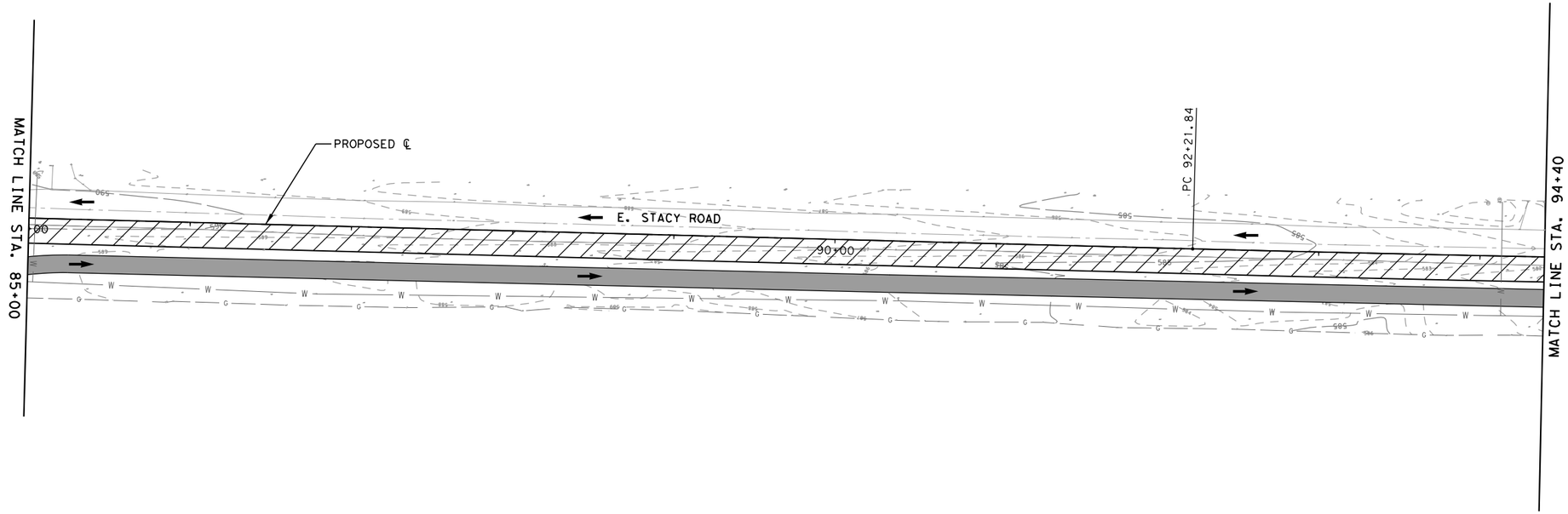
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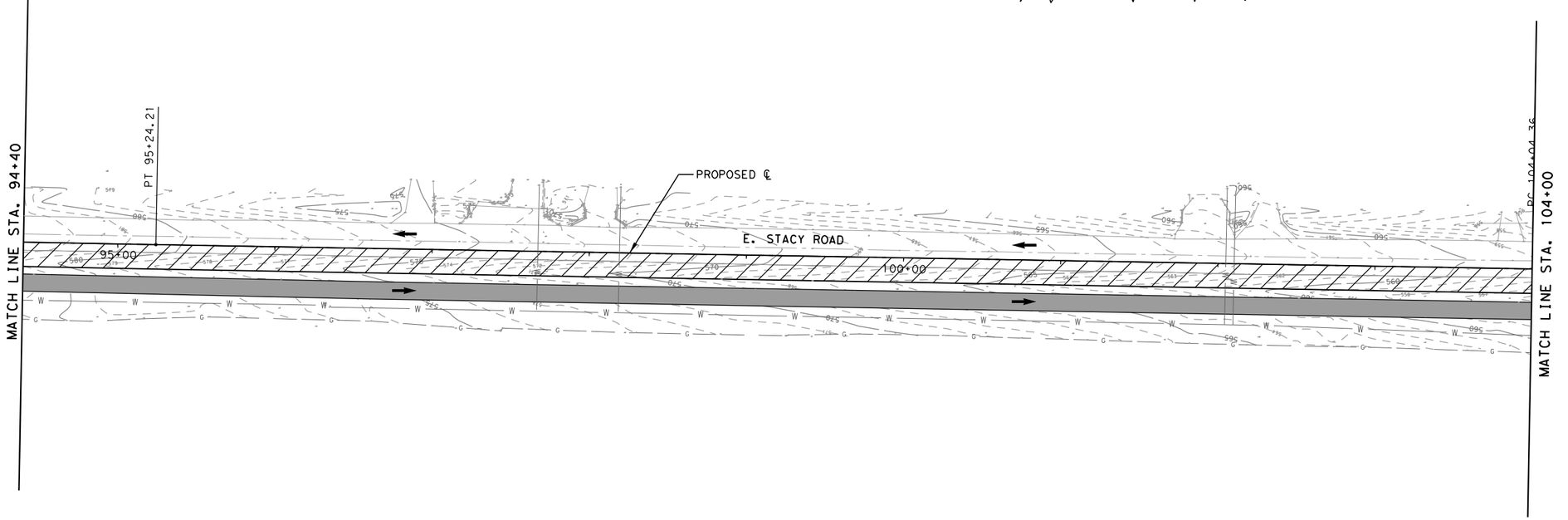
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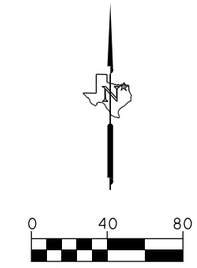
SHEET 1 OF 3

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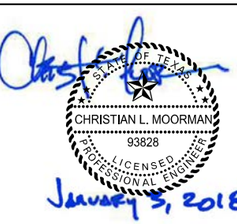




LEGEND

- TRAFFIC FLOW
- PERMANENT CONSTRUCTION THIS PHASE
- DETOUR CONSTRUCTION PREVIOUS PHASE
- APPROXIMATE SIGN PLACEMENT
- TYPE III BARRICADE

!! WARNING !!
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972-562-0522

E. STACY ROAD IMPROVEMENTS

EROSION CONTROL PLAN
PHASE 2

STA. 85+00 TO STA. 104+00

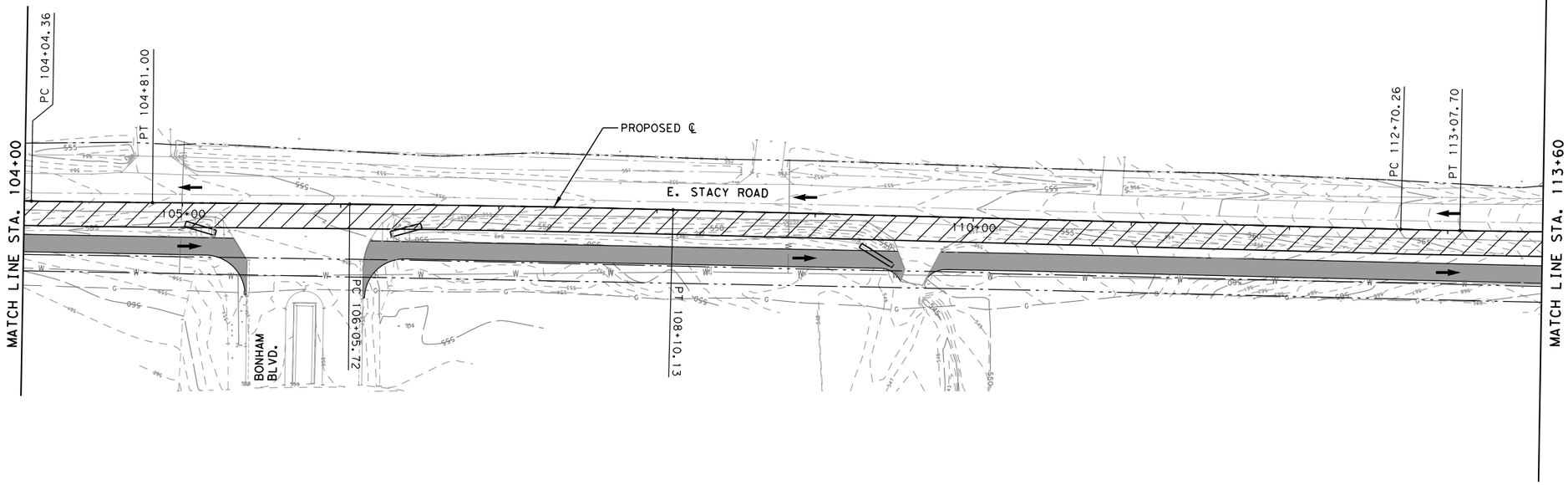
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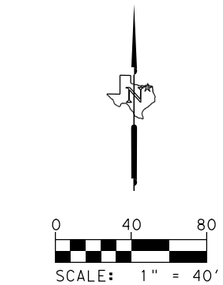
SHEET 2 OF 3

SHEET NO. 95

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CLM	CLM	SCW

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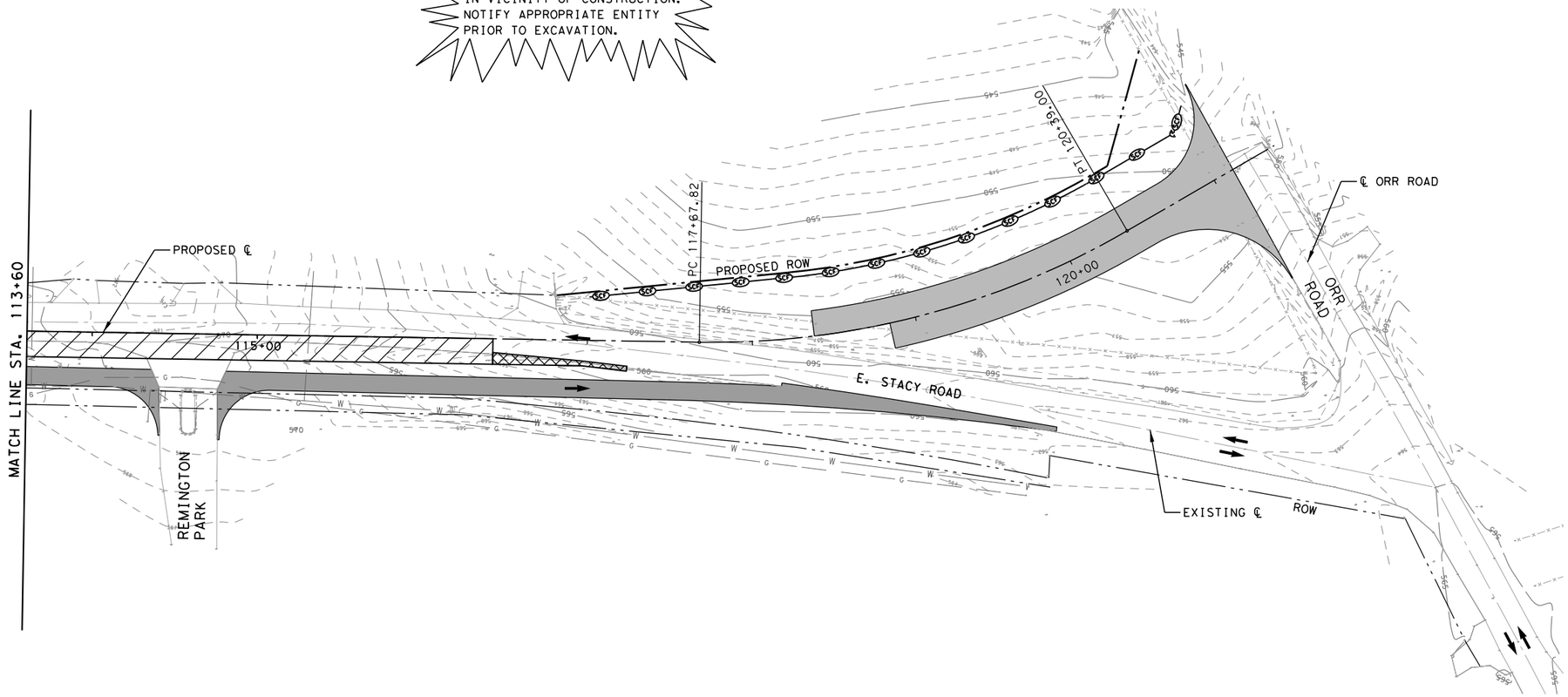




LEGEND

- TRAFFIC FLOW
- PERMANENT CONSTRUCTION THIS PHASE
- DETOUR CONSTRUCTION PREVIOUS PHASE
- PERMANENT CONSTRUCTION PREVIOUS PHASE
- APPROXIMATE SIGN PLACEMENT
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972-562-0522

E. STACY ROAD IMPROVEMENTS

EROSION CONTROL PLAN
PHASE 2

STA. 104+00 TO END

SCALE: 1" = 40'

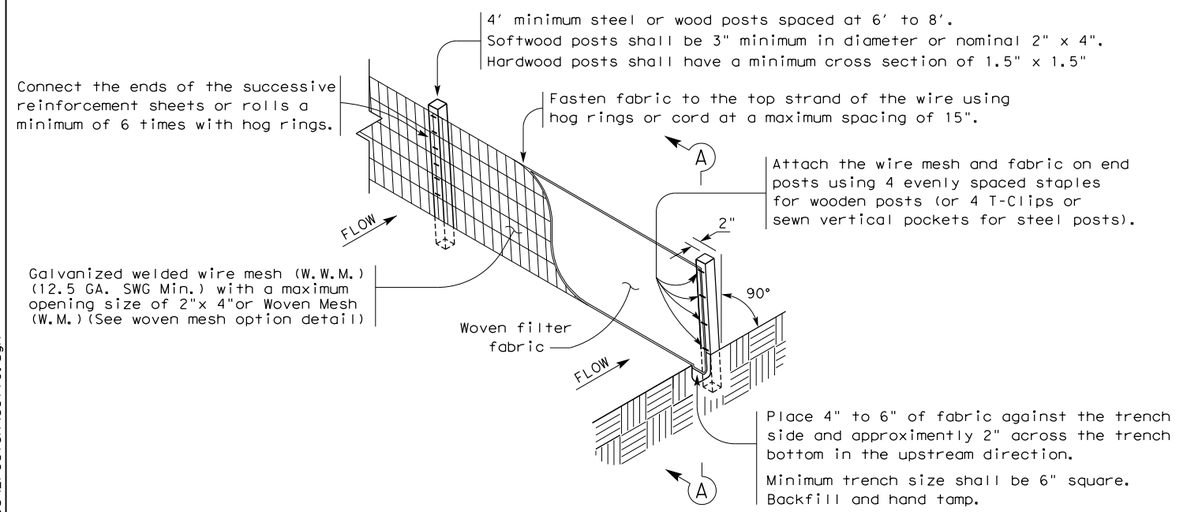
SHEET 3 OF 3

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	CLM	SCW	96

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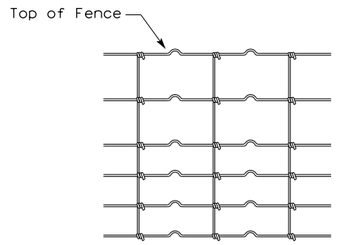
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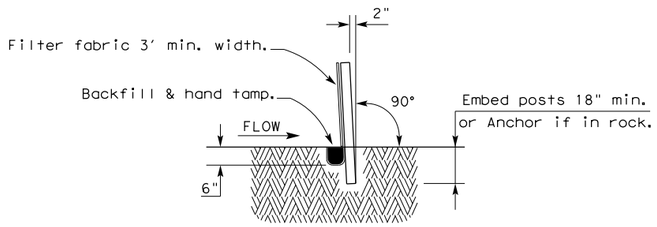
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TEMPORARY SEDIMENT CONTROL FENCE

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.

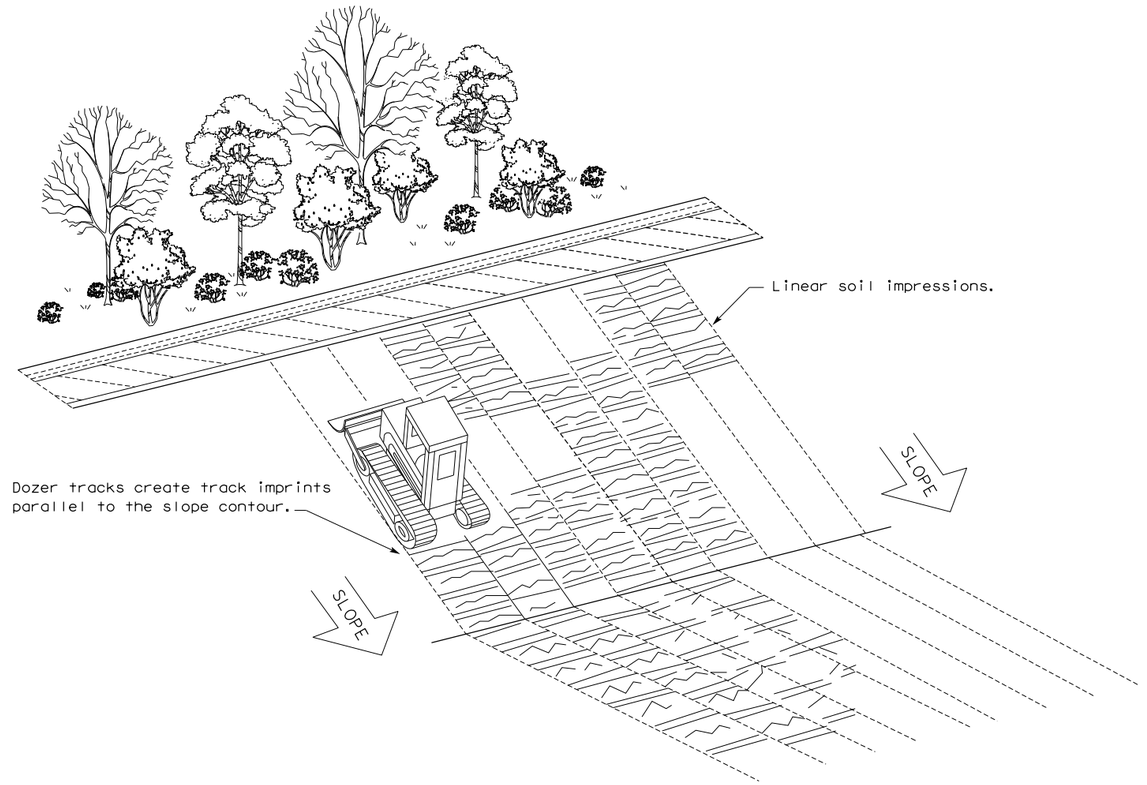
LEGEND

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

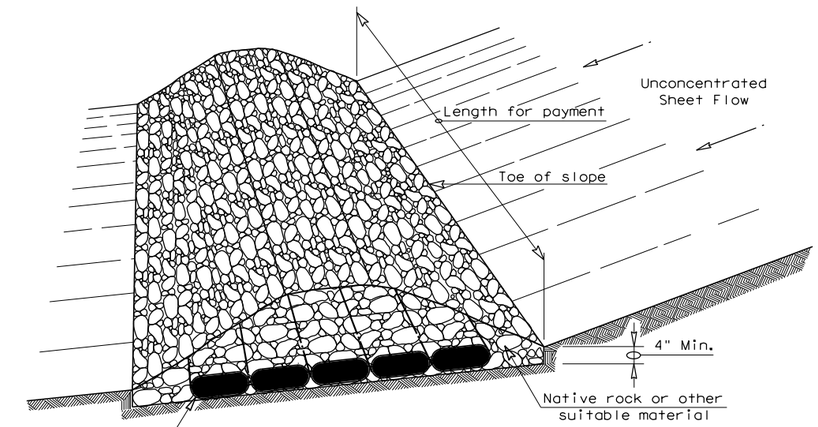
FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		97

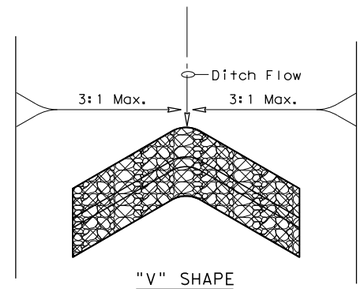
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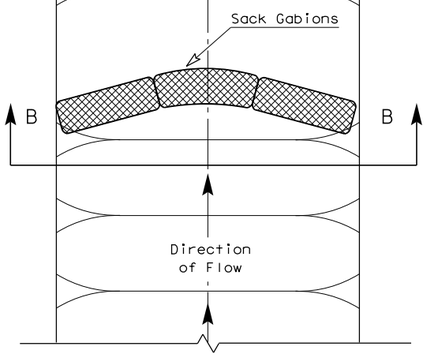


FILTER DAM AT TOE OF SLOPE

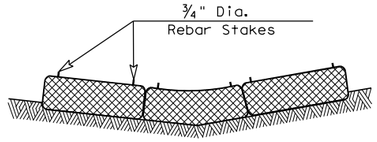
RFD1



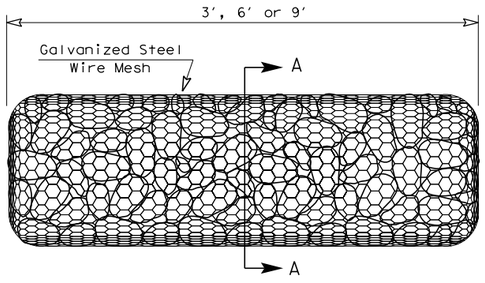
"V" SHAPE
PLAN VIEW



PLAN VIEW

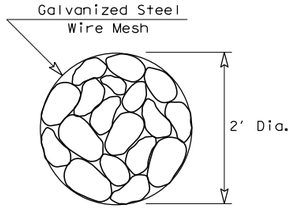


SECTION B-B

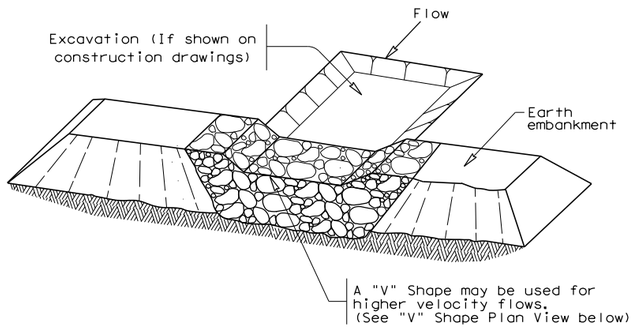


TYPE 4 (SACK GABIONS)

RFD4

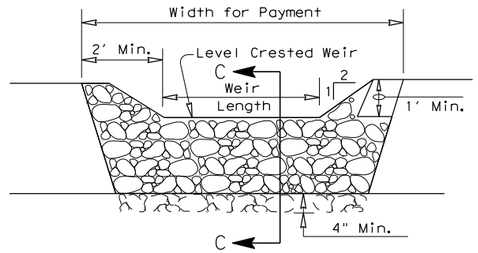


SECTION A-A

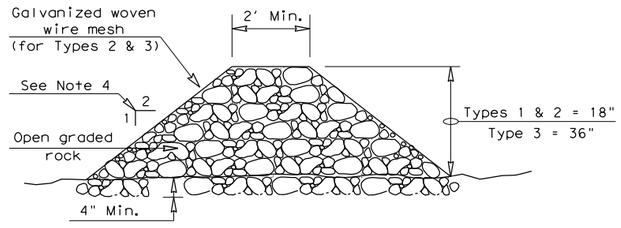


FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2



PROFILE



SECTION C-C

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

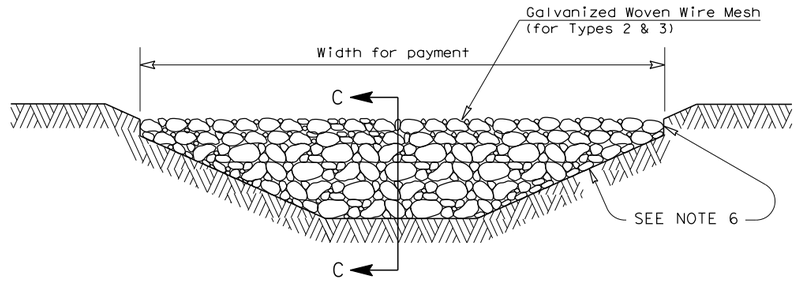
Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity 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.



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

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

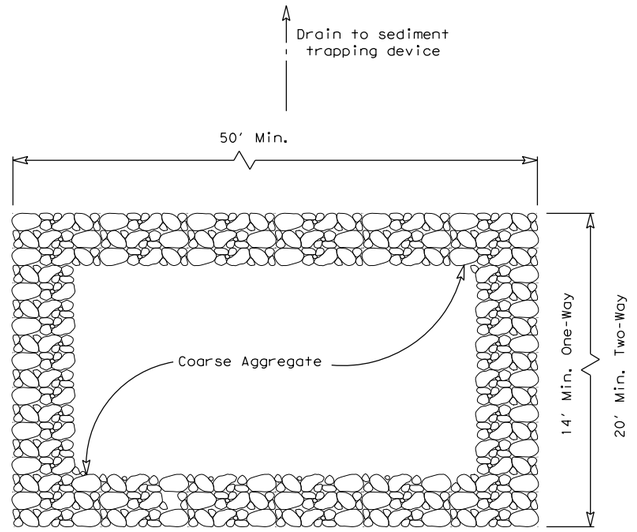
ROCK FILTER DAMS

EC(2)-16

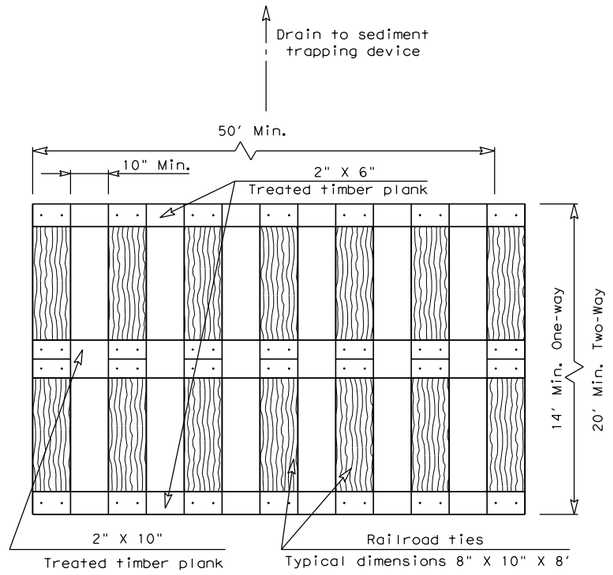
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© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		98

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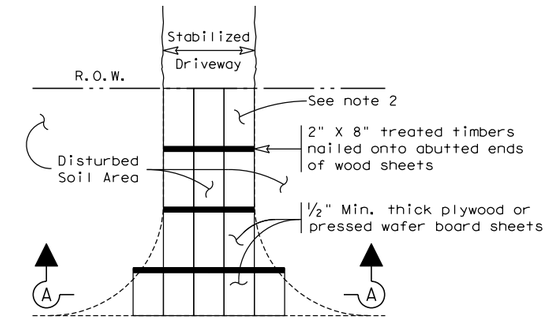
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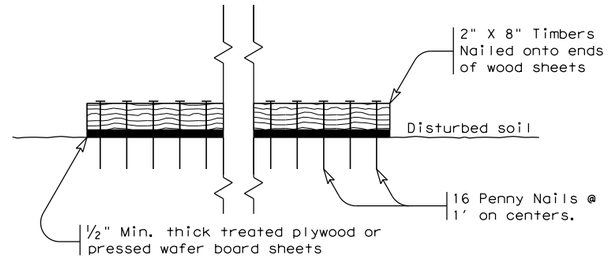
PLAN VIEW



PLAN VIEW



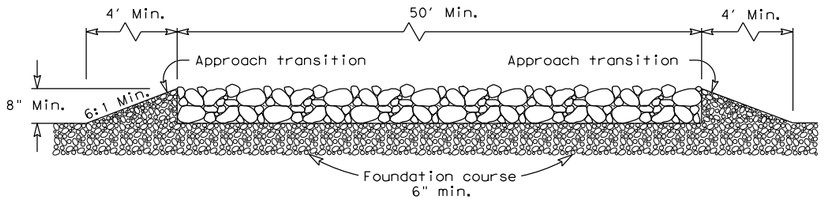
PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

SHORT TERM



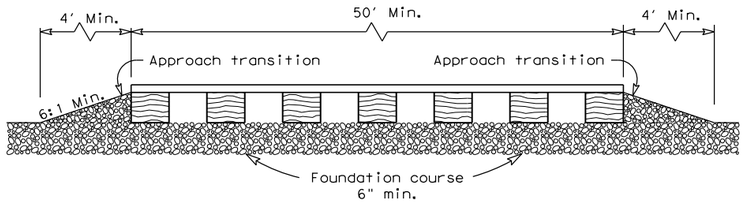
ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)

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.



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

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	
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS				STACY ROAD	
	DIST	COUNTY		SHEET NO.	
		COLLIN		99	



HORIZ: 0 200 400

SCALE: 1" = 200'

LEGEND

- AZ / XXX / XXX — DRAINAGE AREA ID / DRAINAGE AREA IN ACRES / FLOW (CFS)
- MAJOR DRAINAGE BOUNDARY
- MINOR DRAINAGE BOUNDARY

GENERAL NOTES

1. AREAS A3, A12, A16, & A18 ARE BASED ON PARKSIDE (BY DOWDEY, ANDERSOND & ASSOCIATES, INC. DATED 6-8-15) & REMINGTON (BY CRANELL, CRANNEL, & MARTIN (4-1-13) ENGINEERING PLANS.
2. AREA A1 FLOW BASED ON OUTFALL FROM HERITAGE DEVELOPMENT (BY Carter & Burges, Inc. DATED 3-5-02)

STATE OF TEXAS
HAMILTON DALLAGASPERINA
91748
LICENSED PROFESSIONAL ENGINEER
01-02-18

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

DRAINAGE AREA MAP

SCALE: H: 1" = 200' SHEET 1 OF 1

SHEET NO. 100

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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TOWN OF FAIRVIEW - EAST STACY ROAD -
RATIONAL METHOD RUNOFF CALCULATIONS

Structure Name	AREA NAME	AREA (ac.)	Tc	"C"	C*A	C100	C100*A	I100 (in/hr)	Q100 (cfs)	COMMENTS
	STREET EAST STACY ROAD									
A1	A1	-			-	-	-	-	62.20	BASED ON HERITAGE RANCH ENGINEERING PLAN
A2	A2	1.19	15.00	0.69	0.82	0.69	0.82	7.52	6.19	
A3	A3	1.51	15.00	0.74	1.11	0.74	1.11	7.52	8.38	
A4	A4	0.96	15.00	0.55	0.53	0.55	0.53	7.52	3.96	
A5	A5	0.17	15.00	0.90	0.15	0.90	0.15	7.52	1.15	
A6	A6	0.74	15.00	0.90	0.67	0.90	0.67	7.52	5.02	
A7	A7	1.38	15.00	0.59	0.82	0.59	0.82	7.52	6.17	
A8	A8	5.78	15.00	0.45	2.60	0.45	2.60	7.52	19.55	
A9	A9	0.42	15.00	0.90	0.38	0.90	0.38	7.52	2.86	
A10	A10	1.18	15.00	0.79	0.93	0.79	0.93	7.52	6.97	
A11	A11	0.58	15.00	0.87	0.50	0.87	0.50	7.52	3.76	
A12	A12	2.72	15.00	0.55	1.50	0.55	1.50	7.52	11.26	
A16	A16	3.63	15.00	0.55	2.00	0.55	2.00	7.52	15.03	
A17	A17	28.06	35.10	0.45	12.63	0.45	12.63	5.35	67.56	
A18	A18	3.49	15.00	0.55	1.92	0.55	1.92	7.52	14.44	
A19	A19	0.45	15.00	0.90	0.41	0.90	0.41	7.52	3.05	
A20	A20	0.54	15.00	0.90	0.49	0.90	0.49	7.52	3.68	
A21	A21	0.47	15.00	0.88	0.41	0.88	0.41	7.52	3.10	
A22	A22	13.64	22.80	0.45	6.14	0.45	6.14	6.60	40.52	
A23	A23	4.33	15.00	0.45	1.95	0.45	1.95	7.52	14.65	
A24	A24	0.92	15.00	0.84	0.78	0.84	0.78	7.52	5.84	
A25	A25	0.33	15.00	0.45	0.15	0.45	0.15	7.52	1.10	
A26	A26	0.23	15.00	0.90	0.21	0.90	0.21	7.52	1.55	
A27	A27	2.88	15.00	0.49	1.41	0.49	1.41	7.52	10.64	
A28	A28	0.25	15.00	0.90	0.22	0.90	0.22	7.52	1.68	

STATE OF TEXAS
HAMILTON DALLAGASPERINA
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372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

RUNOFF CALCULATIONS

SHEET NO.

SHEET 1 OF 1

101

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	*RAW*	*HD*

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TOWN OF FAIRVIEW - EAST STACY ROAD -

COMPUTATION SHEET FOR DETERMINING CAPACITY OF CURB OPENING INLET ON GRADE (DEPRESSED)

INLET DESIGN POINT	INLET NO.	STATION	DRAINAGE AREA Area ID Area1 Name	%	AREA (ACRES)	RUNOFF COEFF. "c"	CONC. TIME (MIN)	LONG. SLOPE S (FT/FT)	STREET SECTION (TYPE)	MANNING'S COEFFICIENT PAVEMENT "n"	CROSS SLOPE OF PAVEMENT Sx (FT/FT)	CROSS SLOPE OF GUTTER S'x (FT/FT)	100 YEAR INTENSITY (IN/HR)	100 YEAR RUNOFF (CFS)	100 YEAR CARRYOVER FLOW (CFS)	100 YEAR TOTAL GUTTER Q (CFS)	DEPTH OF FLOW Yo, 100 YR (FT)	SPREAD OF FLOW T, 100 YR (FT)	EQUIVALENT CROSS SLOPE Se, 100 YR (FT/FT)	RIGHT-OF-WAY CAPACITY (CFS)	DESIGN STORM***	LENGTH REQUIRED LT, 100 YR (FT)	ACTUAL PROVIDED LENGTH, L (FT)	100 YEAR L/L$_T$	100 YEAR EFFICIENCY "E"	INLET CAPACITY Qi, 100 YR (CFS)	100 YEAR CARRYOVER FLOW "q" (CFS)	COMMENTS
A5	A5	78+25.00	A5	100%	0.17	0.90	15.00	0.0178	ROOFTOP CROWN	0.012	0.020	0.17	7.52	1.15	0.00	1.15	0.123	6.13	0.152		100-YEAR	3.77	10.00	1.00	1.00	1.15	0.00	
A6	A6	74+15.00	A6	100%	0.74	0.90	15.00	0.0178	ROOFTOP CROWN	0.012	0.020	0.17	7.52	5.02	0.00	5.02	0.213	10.65	0.106		100-YEAR	13.33	15.00	1.00	1.00	5.02	0.00	
A7	A7	87+95.00	A7	100%	1.38	0.59	15.00	0.0050	ROOFTOP CROWN	0.012	0.020	0.17	7.52	6.17	0.00	6.17	0.292	14.60	0.082		100-YEAR	13.91	15.00	1.00	1.00	6.17	0.00	

TOWN OF FAIRVIEW - EAST STACY ROAD -

COMPUTATION SHEET FOR DETERMINING CAPACITY OF CURB INLETS IN SUMPS

INLET NO (Sump I.D.)	GUTTER SLOPE So FT./FT.	CROWN SLOPE OF PVMT. θo FT./FT.	CLOGGING FACTOR (%)	CONTRIBUTING AREAS AREA 1	%	AREA (ACRES)	100 YEAR FLOW Qo C.F.S.	100 YEAR DEPTH OF FLOW IN GUTTER Yo FT.	100 YEAR SPREAD OF FLOW "T" (FT)	100 YEAR SPREAD OF FLOW W/N REQ'D WIDTH (YES/NO)	WIDTH OF RDWY Wr (FT)	MAX WIDTH PONDING ALLOWED (FT)	DEPTH OF DEPRESSION a FT.	100 YEAR DEPTH OF FLOW AT SUMP Y FT. 0.5	CAPACITY OF SUMP PER FOOT OF LENGTH Q/L C.F.S/FT.	LENGTH OF SUMP OPENING L OR P FT.	INLET CAPACITY C.F.S.	100 YEAR OVERFLOW C.F.S.	PERCENT Q100 CAPTURED BY SUMP	NOTES
A2	0.0050	0.02	50%	A2	100%	1.19	6.19	0.29	14.60	YES	30.00	15.00	0.25	0.42	0.41	15.00	6.21	0.00	1.00	
A3	0.0050	0.02	50%	A3	100%	1.51	8.38	0.33	16.35	NO	30.00	15.00	0.25	0.43	0.42	20.00	8.40	0.00	1.00	

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FAIRVIEW, TX 75069
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E. STACY ROAD IMPROVEMENTS

DRAINAGE INLET CALCULATIONS

NETWORK 1

SHEET NO.
SHEET 1 OF 3
102

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

TOWN OF FAIRVIEW - EAST STACY ROAD -
COMPUTATION SHEET FOR DETERMINING CAPACITY OF CURB OPENING INLET ON GRADE (DEPRESSED)

INLET DESIGN POINT	INLET NO.	STATION	DRAINAGE AREA Area ID Area1 Name	%	AREA (ACRES)	RUNOFF COEFF. "c"	CONC. TIME (MIN)	LONG. SLOPE S (FT/FT)	STREET SECTION (TYPE)	MANNING'S COEFFICIENT PAVEMENT "n"	CROSS SLOPE OF PAVEMENT Sx (FT/FT)	CROSS SLOPE OF GUTTER S'x (FT/FT)	100 YEAR INTENSITY (IN/HR)	100 YEAR RUNOFF (CFS)	100 YEAR CARRYOVER FLOW (CFS)	100 YEAR TOTAL GUTTER Q (CFS)	DEPTH OF FLOW Yo, 100 YR (FT)	SPREAD OF FLOW T, 100 YR (FT)	EQUIVALENT CROSS SLOPE Se, 100 YR (FT/FT)	RIGHT-OF-WAY CAPACITY (CFS)	DESIGN STORM***	LENGTH REQUIRED LT, 100 YR (FT)	ACTUAL PROVIDED LENGTH, L (FT)	100 YEAR L/L$_T$	100 YEAR EFFICIENCY "E"	INLET CAPACITY Qi, 100 YR (CFS)	100 YEAR CARRYOVER FLOW "q" (CFS)	COMMENTS
A9	A9	87+95.00	A9	100%	0.42	0.90	15.00	0.0198	ROOFTOP CROWN	0.012	0.020	0.17	7.52	2.86	0.00	2.86	0.169	8.46	0.126		100-YEAR	8.38	10.00	1.00	1.00	2.86	0.00	
A10	A10	98+45.00	A10	100%	1.18	0.79	15.00	0.0101	ROOFTOP CROWN	0.012	0.020	0.17	7.52	6.97	0.00	6.97	0.268	13.41	0.088		100-YEAR	16.48	15.00	0.91	0.99	6.88	0.09	
A11	A11	98+45.00	A11	100%	0.58	0.87	15.00	0.0198	ROOFTOP CROWN	0.012	0.020	0.17	7.52	3.76	0.09	3.85	0.189	9.46	0.116		100-YEAR	10.78	15.00	1.00	1.00	3.85	0.00	
A19	A19	111+35.00	A19	100%	0.45	0.90	15.00	0.0198	ROOFTOP CROWN	0.012	0.020	0.17	7.52	3.05	0.00	3.05	0.173	8.67	0.124		100-YEAR	8.85	10.00	1.00	1.00	3.05	0.00	
A20	A20	111+35.00	A20	100%	0.54	0.90	15.00	0.0198	ROOFTOP CROWN	0.012	0.020	0.17	7.52	3.68	0.00	3.68	0.186	9.30	0.118		100-YEAR	10.37	15.00	1.00	1.00	3.68	0.00	

TOWN OF FAIRVIEW - EAST STACY ROAD -
COMPUTATION SHEET FOR DETERMINING CAPACITY OF CURB INLETS IN SUMPS

INLET NO (Sump I.D.)	GUTTER SLOPE So FT./FT.	CROWN SLOPE OF PVMT. θo FT./FT.	CLOGGING FACTOR (%)	CONTRIBUTING AREAS AREA 1	%	AREA (ACRES)	100 YEAR FLOW Qo C.F.S.	100 YEAR DEPTH OF FLOW IN GUTTER Yo FT.	100 YEAR SPREAD OF FLOW "T" (FT)	100 YEAR SPREAD OF FLOW W/N REQ'D WIDTH (YES/NO)	WIDTH OF RDWY Wr (FT)	MAX WIDTH PONDING ALLOWED (FT)	DEPTH OF DEPRESSION a FT.	100 YEAR DEPTH OF FLOW AT SUMP Y FT. 0.5	CAPACITY OF SUMP PER FOOT OF LENGTH Q/L C.F.S/FT.	LENGTH OF SUMP OPENING L OR P FT.	INLET CAPACITY C.F.S.	100 YEAR OVERFLOW C.F.S.	PERCENT Q100 CAPTURED BY SUMP	NOTES
A21	0.0050	0.02	50%	A21	100%	0.47	3.10	0.23	11.26	YES	30.00	15.00	0.25	0.43	0.42	15.00	6.23	0.00	1.00	
A24	0.0050	0.02	50%	A24	100%	0.92	5.84	0.29	14.28	YES	30.00	15.00	0.25	0.41	0.39	15.00	5.84	0.00	1.00	

TOWN OF FAIRVIEW - EAST STACY ROAD -
COMPUTATION SHEET FOR DETERMINING CAPACITY OF DROP INLETS

INLET	DRAINAGE AREA	TYPE	Q100 (CFS)	HEAD (FT)	THROAT WIDTH (FT)	THROAT HEIGHT (FT)	ORIFICE COEFFICIENT	CLOGGING FACTOR (%)	CAPACITY (CFS)
A12	A12	2x2	11.27	1.5	2	0.5	0.67	0.5	13.17
A8	A8	4x4	19.55	1	4	0.5	0.67	0.5	21.51
A16	A16	4x4	15.03	1	4	0.5	0.67	0.5	21.51
A18	A18	4x4	14.44	1	4	0.5	0.67	0.5	21.51
A23	A23	4x4	14.65	1	4	0.5	0.67	0.5	21.51

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E. STACY ROAD IMPROVEMENTS

DRAINAGE INLET CALCULATIONS

NETWORK 2

SHEET NO.
SHEET 2 OF 3
103

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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TOWN OF FAIRVIEW - EAST STACY ROAD -

COMPUTATION SHEET FOR DETERMINING CAPACITY OF CURB OPENING INLET ON GRADE (DEPRESSED)

INLET			DRAINAGE AREA					LONG.		MANNING'S	CROSS SLOPE	CROSS SLOPE														
DESIGN	INLET	STATION	Area ID		AREA	RUNOFF	CONC.	SLOPE	STREET	COEFFICIENT	OF PAVEMENT	OF GUTTER	100 YEAR	100 YEAR	100 YEAR CARRYOVER	100 YEAR TOTAL	DEPTH OF FLOW	SPREAD OF FLOW	EQUIVALENT CROSS SLOPE	RIGHT-OF-WAY	DESIGN	LENGTH REQUIRED	ACTUAL PROVIDED	100 YEAR	100 YEAR EFFICIENCY	INLET CAPACITY	100 YEAR CARRYOVER	
			Area1																								
POINT	NO.		Name	%	(ACRES)	"c"	(MIN)	(FT/FT)	(TYPE)	"n"	(FT/FT)	(FT/FT)	INTENSITY (IN/HR)	RUNOFF (CFS)	FLOW (CFS)	GUTTER Q (CFS)	Yo, 100 YR (FT)	T, 100 YR (FT)	Se, 100 YR (FT/FT)	CAPACITY (CFS)	STORM***	LT, 100 YR (FT)	LENGTH, L (FT)	L/L$_T$	"E"	Qi, 100 YR (CFS)	FLOW "q" (CFS)	COMMENTS
A26	A26	120+45.00	A26	100%	0.23	0.90	15.00	0.0357	ROOFTOP CROWN	0.012	0.020	0.17	7.52	1.55	0.00	1.55	0.120	6.02	0.153		100-YEAR	5.10	10.00	1.00	1.00	1.55	0.00	
A27	A27	120+45.00	A27	100%	2.88	0.49	15.00	0.0357	ROOFTOP CROWN	0.012	0.020	0.17	7.52	10.64	0.00	10.64	0.248	12.40	0.094		100-YEAR	26.22	20.00	0.76	0.92	9.84	0.80	
A28	A28	120+45.00	A28	100%	0.25	0.90	15.00	0.0357	ROOFTOP CROWN	0.012	0.020	0.17	7.52	1.68	0.00	1.68	0.124	6.20	0.151		100-YEAR	5.48	10.00	1.00	1.00	1.68	0.00	

TOWN OF FAIRVIEW - EAST STACY ROAD -

COMPUTATION SHEET FOR DETERMINING CAPACITY OF DROP INLETS

INLET	DRAINAGE AREA	TYPE	Q100	HEAD	THROAT WIDTH	THROAT HEIGHT	ORIFICE COEFFICIENT	CLOGGING FACTOR	CAPACITY
			(CFS)	(FT)	(FT)	(FT)		(%)	(CFS)
A25	A25	2x2	1.10	1	2	0.5	0.67	0.5	10.75

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E. STACY ROAD IMPROVEMENTS

DRAINAGE INLET CALCULATIONS

NETWORK 3

SHEET NO. 104

SHEET 3 OF 3

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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COMPUTATION SHEET - HYDRAULIC COMPUTATIONS FOR STORM DRAINS - STORM DRAIN HYDRAULIC CALCULATIONS TABLE

PIPE	PIPE LENGTH	DRAINAGE AREA								25 YEAR AND 100 YEAR DISCHARGE													HYDRAULIC CALCULATIONS										
		INCREMENTAL						AREA	TOTAL AREA	RATIONAL C*A			TIME OF CONCENTRATION								PIPE D	BOX CULV		n	Sf	PIPE HGL D/S	PIPE HGL U/S	$V^2/2g$	Kj	Kb	H	Design Storm	DESIGN HGL	FROM	TO	OR RIM ELEV	COMMENTS
PIPE	FEET	Area 1	%	Area 2	%	Area 3	%	(ac)	(ac)	C	INCREMENT C*A	TOTAL C*A	INLET TIME	Travel	TOTAL	I100, INTENSITY	Total C100*A	Q100, RUNOFF	100 YR INLET BYPASS	Q100 PIPE	IN	B, FT	D, FT		FT/FT	ELEV	ELEV	FT			FT		ELEV	FT	FT	FT	
NETWORK1 TRUNK																																				
A7	24.00	A7	100%	X	0%	X	0%	1.38	1.38	0.59	0.82	0.82	15.0	0.0	15.0	7.52	0.82	6.17	0.00	6.17	21			0.013	0.001517	585.05	585.09	0.000	1.00		0.60	100 YR	585.68	584.24	584.00	588.98	
Y36	16.97	X	0%	X	0%	X	0%	0.00	1.38	0.00	0.00	0.82	15.0	0.0	15.0	7.52	0.82	6.17	0.00	6.17	21			0.013	0.001517	584.81	584.83	0.596		0.37	0.22	100 YR	585.05	584.00	583.83	585.75	
Y37	408.00	X	0%	X	0%	X	0%	0.00	1.38	0.00	0.00	0.82	15.0	0.0	15.0	7.52	0.82	6.17	0.00	6.17	21			0.013	0.001517	581.67	584.59	0.596		0.37	0.22	100 YR	584.81	583.83	579.75	585.58	
A6	260.00	A6	100%	A5	100%	X	0%	0.91	2.29	0.90	0.82	1.64	15.0	1.1	16.1	7.52	1.64	12.34	0.00	12.34	21			0.013	0.006069	579.25	581.57	0.596	1.00		0.10	100 YR	581.67	579.82	577.22	584.89	
A3	87.70	A3	100%	A2	100%	X	0%	2.71	5.00	0.72	1.94	3.58	15.0	1.8	16.8	7.40	3.58	26.49	0.00	26.49	30			0.013	0.004170	578.78	579.15	0.409	1.00		0.10	100 YR	579.25	576.50	576.28	581.57	
																																578.78				Starting HGL
A5 to A6																																				
A5	36.00	A5	100%	X	0%	X	0%	0.17	0.17	0.90	0.15	0.15	15.0	0.0	15.0	7.52	0.15	1.15	0.00	1.15	21			0.013	0.000053	581.67	582.04	0.00	1.00		0.10	100 YR	582.14	580.29	579.75	584.89	
																																581.67				Starting HGL
A2 to A3																																				
A2	36.00	A2	100%	X	0%	X	0%	1.19	1.19	0.69	0.82	0.82	15.0	0.0	15.0	7.52	0.82	6.19	0.00	6.19	24			0.013	0.000750	579.25	579.33	0.00	1.00		0.10	100 YR	579.43	577.33	576.97	581.57	
																																579.25				Starting HGL

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E. STACY ROAD IMPROVEMENTS

DRAINAGE HYDRAULIC CALCULATIONS

NETWORK 1

SHEET NO.
SHEET 1 OF 4
105

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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COMPUTATION SHEET - HYDRAULIC COMPUTATIONS FOR STORM DRAINS - STORM DRAIN HYDRAULIC CALCULATIONS TABLE

PIPE	PIPE LENGTH	DRAINAGE AREA								25 YEAR AND 100 YEAR DISCHARGE											HYDRAULIC CALCULATIONS													
		INCREMENTAL						AREA	TOTAL AREA	RATIONAL C*A			TIME OF CONCENTRATION								PIPE	BOX CULV				PIPE HGL								
										C	INCREMENT C*A	TOTAL C*A	INLET TIME	Travel	TOTAL	I100, INTENSITY	Total C100*A	Q100, RUNOFF	100 YR INLET BYPASS	Q100 PIPE				n	Sf	D/S	U/S	V1^2/2g	Kj	Kb	H	Design Storm	DESIGN HGL	FROM	TO	OR RIM ELEV	COMMENTS
PIPE	FEET	Area 1	%	Area 2	%	Area 3	%	(ac)	(ac)				MIN	MIN	MIN	IN/HR		CFS	CFS	CFS	IN	B, FT	D, FT		FT/FT	ELEV	ELEV	FT			FT		ELEV	FT	FT	FT	
NETWORK 2 TRUNK																																				
A10	8.28	A10	100%	X	0%	X	0%	1.18	1.18	0.79	0.93	0.93	15.0	0.0	15.0	7.52	0.93	6.97	0.09	6.88	21			0.013	0.001884	582.92	583.02	0.000	1.00		0.13	100 YR	583.15	581.27	581.07	585.62	
Y3	71.95	X	100%	X	0%	X	0%	0.00	1.18	0.00	0.00	0.93	15.0	0.0	15.0	7.52	0.93	6.97	0.00	6.88	21			0.013	0.001884	581.29	582.82	0.127		0.43	0.10	100 YR	582.92	581.07	579.27	582.82	
Y19	53.87	A12	100%	X	0%	X	0%	2.72	3.90	0.55	1.50	2.42	15.0	0.4	15.0	7.52	2.42	18.23	0.00	18.14	27			0.013	0.003432	579.99	581.02	0.127	0.35		0.28	100 YR	581.29	578.77	577.42	581.02	
Y5	324.40	A9	100%	X	0%	X	0%	0.42	4.33	0.90	0.38	2.80	15.0	0.7	15.0	7.52	2.80	21.09	0.00	21.00	27			0.013	0.004599	572.47	579.67	0.323	0.35		0.32	100 YR	579.99	577.42	569.31	579.67	
Y16	149.99	A8	100%	X	0%	X	0%	5.78	10.10	0.45	2.60	5.40	15.0	1.9	15.0	7.52	5.40	40.64	0.00	40.55	30			0.013	0.009774	568.71	571.56	0.433	0.35		0.91	100 YR	572.47	569.06	565.31	571.56	
Y29	145.56	A11	100%	X	0%	X	0%	0.58	10.68	0.87	0.50	5.90	15.0	2.4	15.0	7.52	5.90	44.40	-0.09	44.40	30			0.013	0.011718	564.82	567.81	1.060	0.35		0.90	100 YR	568.71	565.31	561.67	567.81	
Y14	31.55	A16	100%	X	0%	X	0%	3.63	14.31	0.55	2.00	7.90	15.0	2.7	15.0	7.52	7.90	59.43	0.00	59.43	36			0.013	0.007938	563.89	564.17	1.270	0.35		0.65	100 YR	564.82	561.17	560.38	564.17	
Y21	23.32	X	0%	X	0%	X	0%	0.00	14.31	0.00	0.00	7.90	15.0	2.7	15.0	7.52	7.90	59.43	0.00	59.43		4	4	0.013	0.001056	563.76	563.79	1.098	1.00		0.10	100 YR	563.89	559.43	559.08	570.73	
Y20	421.74	A17	100%	X	0%	X	0%	28.06	42.37	0.45	12.63	20.53	35.1	0.0	35.1	5.35	20.53	109.84	0.00	109.84		4	4	0.013	0.003607	557.37	563.08	0.214	0.25		0.68	100 YR	563.76	559.08	552.76	563.08	
Y7	94.00	A19	100%	A20	100%	X	0%	0.99	43.37	0.90	0.90	21.43	35.1	1.9	35.1	5.35	21.43	114.63	0.00	114.63		4	4	0.013	0.003928	556.09	556.76	0.732	0.25		0.61	100 YR	557.37	552.76	551.35	556.76	
Y13	133.71	A18	100%	X	0%	X	0%	3.49	46.86	0.55	1.92	23.35	35.1	2.1	35.1	5.35	23.35	124.90	0.00	124.90		4	4	0.013	0.004664	553.98	555.35	0.797	0.25		0.75	100 YR	556.09	551.35	549.34	555.35	
Y33	21.97	X	0%	X	0%	X	0%	0.00	46.86	0.00	0.00	23.35	35.1	2.1	35.1	5.35	23.35	124.90	0.00	124.90		5	4	0.013	0.002594	553.83	553.88	0.946	1.00		0.10	100 YR	553.98	549.34	549.01	553.34	
Y12	145.02	A22	100%	X	0%	X	0%	13.64	60.50	0.45	6.14	29.48	35.1	2.5	35.1	5.35	29.48	157.74	0.00	157.74		5	4	0.013	0.004137	552.25	553.01	0.606	0.25		0.81	100 YR	553.83	549.01	546.84	553.01	
Y9	39.56	A21	100%	A24	100%	X	0%	1.39	61.89	0.86	1.19	30.67	35.1	2.9	35.1	5.35	30.67	164.10	0.00	164.10		5	4	0.013	0.004477	551.26	551.44	0.966	0.25		0.80	100 YR	552.25	546.84	546.24	550.84	
Y34	39.56	X	0%	X	0%	X	0%	0.00	61.89	0.00	0.00	30.67	35.1	2.9	35.1	5.35	30.67	164.10	0.00	164.10		5	4	0.013	0.004477	550.99	551.16	1.045	1.00		0.10	100 YR	551.26	546.24	545.85	550.24	
Y11	58.82	A23	100%	X	0%	X	0%	4.33	66.22	0.45	1.95	32.62	35.1	3.0	35.1	5.35	32.62	174.52	0.00	174.52		5	4	0.013	0.005064	549.77	550.07	1.045	0.25		0.92	100 YR	550.99	545.85	545.26	549.85	
Y8	39.01	X	0%	X	0%	X	0%	0.00	66.22	0.00	0.00	32.62	35.1	3.0	35.1	5.35	32.62	174.52	0.00	174.52		5	4	0.013	0.005064	548.87	549.26	1.182		0.43	0.51	100 YR	549.77	545.26	544.87	549.26	
																																	548.87				Starting HGL
A12 to Y19																																				
A12	19.40	A12	100%	X	0%	X	0%	2.72	2.72	0.55	1.50	1.50	15.0	0.0	15.0	7.52	1.50	11.26	0.00	11.26	21			0.013	0.005054	581.29	581.39	0.000	1.00		0.34	100 YR	581.73	579.61	579.27	583.60	
																																	581.29				
A9 to Y5																																				
A9	49.83	A9	100%	X	0%	X	0%	0.42	0.42	0.90	0.38	0.38	15.0	0.0	15.0	7.52	0.38	2.86	0.00	2.86	21			0.013	0.000326	579.99	580.17	0.00	1.00		0.10	100 YR	580.27	578.42	577.92	583.88	
																																	579.99				Starting HGL
A8 to Y16																																				
A8	59.00	A8	100%	X	0%	X	0%	5.78	5.78	0.45	2.60	2.60	15.0	0.0	15.0	7.52	2.60	19.55	0.00	19.55	24			0.013	0.007467	572.47	572.91	0.00	1.00		0.60	100 YR	573.51	570.44	569.56	574.85	
																																	572.47				StartIng HGL
A11 to Y29																																				
A11	8.27	A11	100%	X	0%	X	0%	0.58	0.58	0.87	0.50	0.50	15.0	0.0	15.0	7.52	0.50	3.76	-0.09	3.85	21			0.013	0.000591	568.71	568.71	0.00	1.00		0.10	100 YR	568.81	566.22	566.06	574.10	
																																	568.71				Starting HGL
A16 to Y14																																				
A16	19.40	A16	100%	X	0%	X	0%	3.63	3.63	0.55	2.00	2.00	15.0	0.0	15.0	7.52	2.00	15.03	0.00	15.03	21			0.013	0.008992	564.82	565.00	0.00	1.00		0.61	100 YR	565.60	562.78	562.39	570.64	
																																	564.82				Starting HGL
A17 to Y20																																				
A17	55.90	A17	100%	X	0%	X	0%	28.06	28.06	0.45	12.63	12.63	35.1	0.0	35.1	5.35	12.63	67.56	0.00	67.56		5	3	0.013	0.001692	563.76	564.69	0.00	1.00		0.32	100 YR	565.00	561.69	560.01	565.80	
																																	563.76				Starting HGL

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E. STACY ROAD IMPROVEMENTS

DRAINAGE HYDRAULIC CALCULATIONS

NETWORK 2

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

COMPUTATION SHEET - HYDRAULIC COMPUTATIONS FOR STORM DRAINS - STORM DRAIN HYDRAULIC CALCULATIONS TABLE

PIPE	PIPE LENGTH	DRAINAGE AREA								25 YEAR AND 100 YEAR DISCHARGE												HYDRAULIC CALCULATIONS												
		INCREMENTAL						AREA	TOTAL AREA	RATIONAL C*A			TIME OF CONCENTRATION										PIPE HGL											
										C	INCREMENT C*A	TOTAL C*A	INLET TIME	Travel	TOTAL	I100, INTENSITY	Total C100*A	Q100, RUNOFF	100 YR INLET BYPASS	Q100 PIPE	PIPE D	BOX CULV		n	Sf	D/S	U/S	V1^2/2g	Kj	Kb	H	Design Storm	DESIGN HGL	FROM	TO	OR RIM ELEV	COMMENTS
PIPE	FEET	Area 1	%	Area 2	%	Area 3	%	(ac)	(ac)				MIN	MIN	MIN	IN/HR		CFS	CFS	CFS	IN	B, FT	D, FT		FT/FT	ELEV	ELEV	FT			FT		ELEV	FT	FT	FT	
A19 to Y7																																		
A19	36.00	A19	100%	X	0%	X	0%	0.45	0.45	0.90	0.41	0.41	15.0	0.0	15.0	7.52	0.41	3.05	0.00	3.05	21			0.013	0.000371	557.49	557.50	0.00	1.00		0.10	100 YR	557.60	555.66	555.12	561.76	
A20	7.50	A20	100%	X	0%	X	0%	0.54	0.99	0.90	0.49	0.90	15.0	0.0	15.0	7.52	0.90	6.73	0.00	6.73	21			0.013	0.001805	557.37	557.39	0.03		0.55	0.10	100 YR	557.49	555.12	555.01	561.76	
																																557.37				Starting HGL
A18 to Y13																																		
A18	23.20	A18	100%	X	0%	X	0%	3.49	3.49	0.55	1.92	1.92	15.0	0.0	15.0	7.52	1.92	14.44	0.00	14.44	36			0.013	0.000468	556.09	556.11	0.00	1.00		0.10	100 YR	556.21	552.15	551.91	556.77	
																																556.09				Starting HGL
A22 to Y12																																		
A22	54.50	A22	100%	X	0%	X	0%	13.64	13.64	0.45	6.14	6.14	22.8	0.0	22.8	6.60	6.14	40.52	0.00	40.52		4	3	0.013	0.001072	553.83	554.15	0.00	1.00		0.30	100 YR	554.45	551.15	549.52	551.08	
																																553.83				Starting HGL
A21 to Y9																																		
A21	36.00	A21	100%	X	0%	X	0%	0.47	0.47	0.88	0.41	0.41	15.0	0.0	15.0	7.52	0.41	3.10	0.00	3.10	21			0.013	0.000382	552.39	552.40	0.00	1.00		0.10	100 YR	552.50	549.70	549.16	555.57	
A24	7.50	A24	100%	X	0%	X	0%	0.92	1.39	0.84	0.78	1.19	15.0	0.0	15.0	7.52	1.19	8.94	0.00	8.94	21			0.013	0.003182	552.25	552.27	0.03		0.55	0.12	100 YR	552.39	549.20	549.09	555.57	
																																552.25				Starting HGL
A23 to Y11																																		
A23	54.84	A23	100%	X	0%	X	0%	4.33	4.33	0.45	1.95	1.95	15.0	0.0	15.0	7.52	1.95	14.65	0.00	14.65	30			0.013	0.001275	550.99	551.06	0.00	1.00		0.14	100 YR	551.20	547.15	546.60	552.05	
																																550.99				Starting HGL

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E. STACY ROAD IMPROVEMENTS

DRAINAGE HYDRAULIC CALCULATIONS

NETWORK 2

SHEET NO.

SHEET 3 OF 4

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RAW	*RAW*	*HD*

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COMPUTATION SHEET - HYDRAULIC COMPUTATIONS FOR STORM DRAINS - STORM DRAIN HYDRAULIC CALCULATIONS TABLE

PIPE	PIPE LENGTH	DRAINAGE AREA								25 YEAR AND 100 YEAR DISCHARGE													HYDRAULIC CALCULATIONS												
		INCREMENTAL						AREA	TOTAL AREA	RATIONAL C*A			TIME OF CONCENTRATION								PIPE D	BOX CULV		n	Sf	PIPE HGL D/S	PIPE HGL U/S	$V^2/2g$	Kj	Kb	H	Design Storm	DESIGN HGL	FROM	TO	OR RIM ELEV	COMMENTS
PIPE	FEET	Area 1	%	Area 2	%	Area 3	%	(ac)	(ac)	C	INCREMENT C*A	TOTAL C*A	INLET TIME MIN	Travel MIN	TOTAL MIN	I100, INTENSITY IN/HR	Total C100*A	Q100, RUNOFF CFS	100 YR INLET BYPASS CFS	Q100 PIPE CFS	IN	B, FT	D, FT		FT/FT	ELEV	ELEV	FT			FT		ELEV	FT	FT	FT	
NETWORK3 TRUNK																																				
A28	250.13	A28	100%	X	0%	X	0%	0.25	0.25	0.90	0.22	0.22	15.0	0.0	15.0	7.52	0.22	1.68	0.00	1.68	21			0.013	0.000112	549.15	560.06	0.000	1.00		0.10	100 YR	560.16	558.31	545.80	563.50	
A26	70.90	A26	100%	A27	100%	X	0%	3.11	3.36	0.52	1.62	1.84	15.0	0.0	15.0	7.50	1.84	13.83	0.00	13.83	21			0.013	0.007621	548.09	548.63	0.008	0.25		0.51	100 YR	549.15	545.83	545.47	554.59	
Y31	29.17	X	0%	X	0%	X	0%	0.00	3.36	0.00	0.00	1.84	15.0	0.0	15.0	7.50	1.84	13.83	0.00	13.83	21			0.013	0.007621	547.74	547.97	0.514		0.25	0.13	100 YR	548.09	545.47	545.33	547.17	
																																	547.74				Starting HGL
A28 to OUT3A																																				
A25	100.89	A25	100%	X	0%	X	0%	0.33	0.33	0.45	0.15	0.15	15.0	0.0	15.0	7.52	0.15	1.10	0.00	1.10	21			0.013	0.000048	547.74	547.75	0.00	1.00		0.10	100 YR	547.85	545.83	545.33	555.70	
Y35	15.00	A28	100%	A27	100%	A28	100%	3.38	3.70	0.55	1.86	2.01	15.0	0.0	15.0	7.50	2.01	15.06	0.00	15.06	21			0.013	0.009030	547.00	547.14	0.00	0.35		0.61	100 YR	547.74	545.33	545.25	546.08	
																																	547.00				Starting HGL
A27 to A26																																				
A27	36.00	A27	100%	X	0%	X	0%	2.88	2.88	0.49	1.41	1.41	15.0	0.0	15.0	7.52	1.41	10.64	0.00	10.64	21			0.013	0.004506	549.15	550.78	0.00	1.00		0.30	100 YR	551.08	549.03	546.15	554.60	
																																	549.15				Starting HGL

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E. STACY ROAD IMPROVEMENTS

DRAINAGE HYDRAULIC CALCULATIONS

NETWORK 3

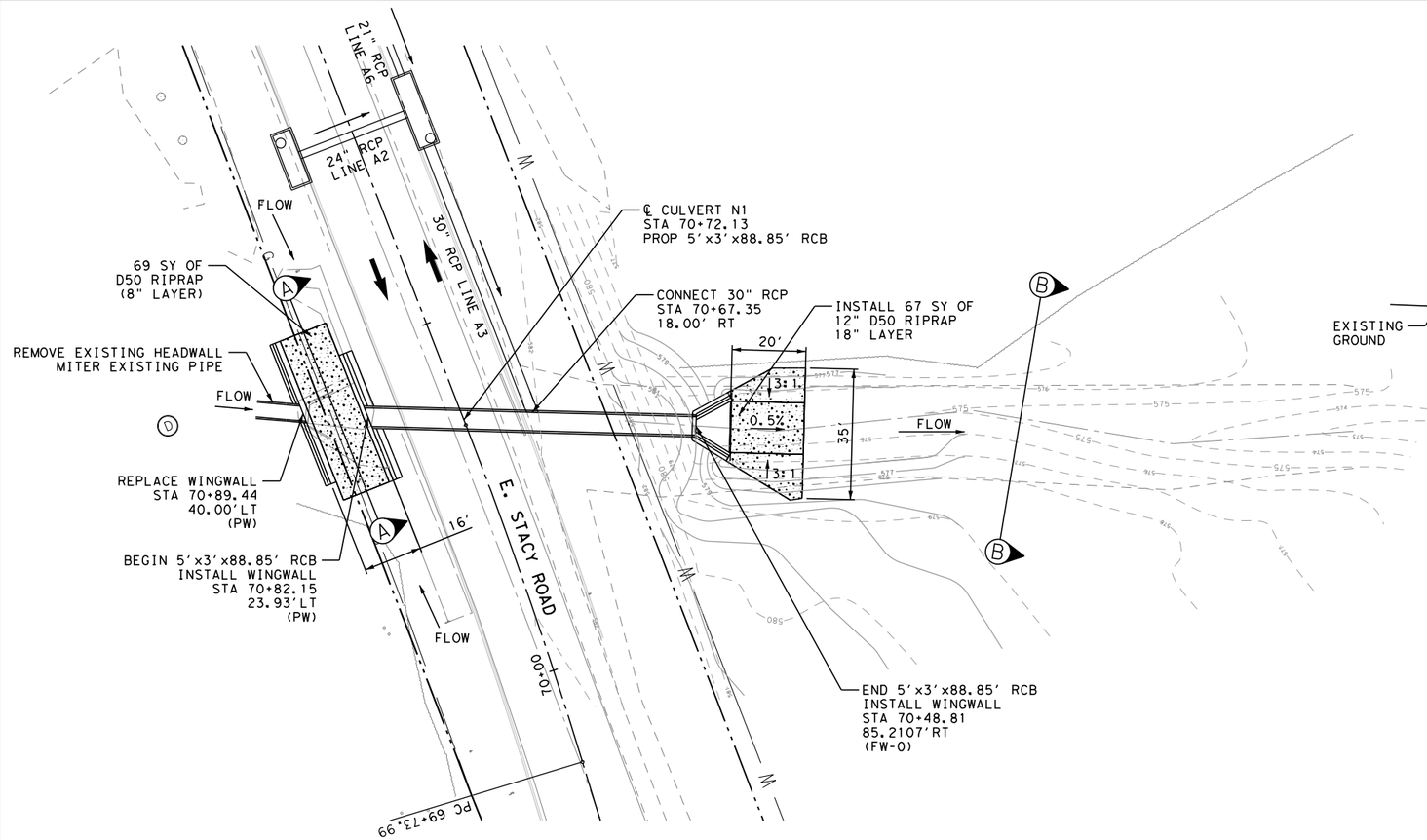
SHEET NO.

SHEET 4 OF 4

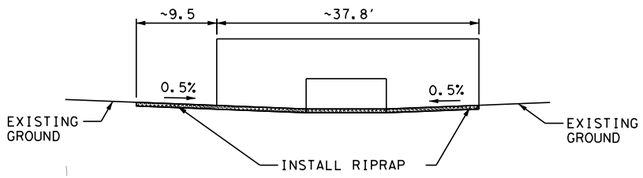
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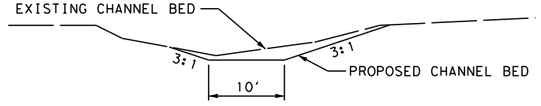
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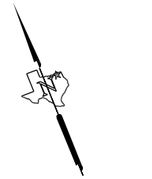


SECTION A-A
REPRESENTATIVE SECITON



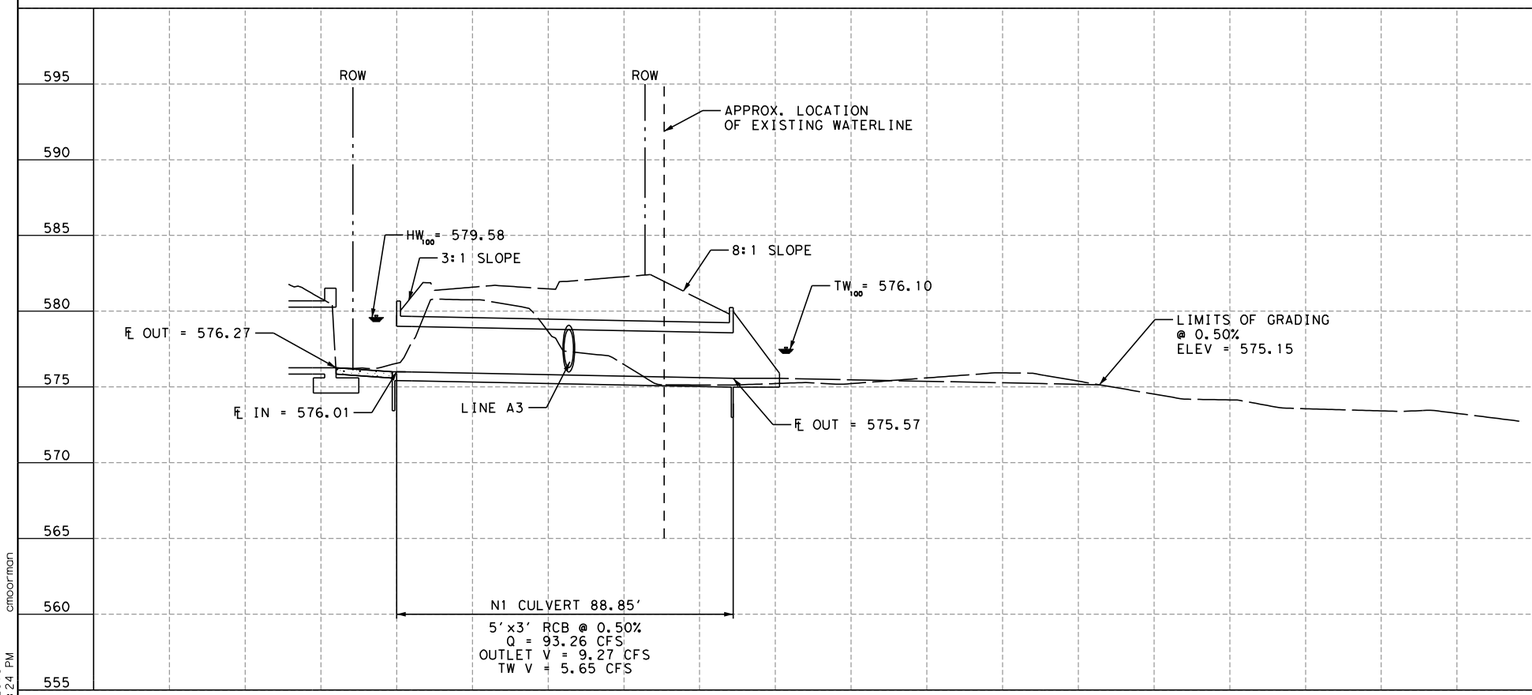
SECTION B-B
REPRESENTAIVE SECTION
SCALE: 10:1





LEGEND
— W — EXISTING WATER LINE
— G — EXISTING GAS LINE

!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.





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E. STACY ROAD IMPROVEMENTS

NETWORK 1 STORM DRAIN
CULVERT N1 PLAN & PROFILE

SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 1 OF 12

SHEET NO. 109

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!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.

BEGIN PROJECT
STA. 67+67.78
SEE ROADWAY PLAN

PT 68+62.78

PC 69+73.99

PT 70+70.60

EXISTING HERITAGE RANCH MANHOLE
RIM ELEV = 583.57
STA 70+99.61
75.36' RT

C.I. A2
STA 71+55.00 (15.00' LT)
INSTALL 10' C.I.
RIM ELEV = 581.58
(NCTCOG STD DWG
6020A-E)

ROW

E. STACY ROAD

70+00

PROPOSED ℄

24" RCP LAT A2

30" RCP LINE A3
OUT1 CONNECT 30" TO 5'x3'
STA 70+67.35
18.00' RT

21" RCP LINE A6

MATCH LINE STA. 71+80

STONE HINGE DRIVE

W

ROW

C.I. A3
STA 71+55.00 (15.00' RT)
INSTALL 20' C.I.
RIM ELEV = 581.58
(NCTCOG STD DWG
6020A-E)

FLOW

H: 0 20 40
V: 0 5 10

LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE

GENERAL NOTES

1. CURB INLET STATION AND OFFSET ARE MEASURED TO THE MIDPOINT OF THE FACE OF THE MAIN INLET

SEE SHEET 103
FOR REST OF NETWORK

OUT1 (CONNECTION)
STA 70+67.35
E = 576.28

PROP ℄
PROFILE

STA 71+45.00
E = 576.47

A3 (CURB INLET)
STA 71+55.00

STA 71+65.00
E = 577.32

MATCH LINE STA. 71+80

100yr HGL

LAT A2-A3

EXIST ℄
PROFILE

A3 78 LF
30" RCP @ 0.25%
Q = 26.49 CFS
C = 49.09 CFS
V = 5.40 FPS
Sf = 0.004170 FT/FT

A6 15LF
21" RCP @ 1.00%
Q = 12.34 CFS
C = 24.05 CFS
V = 5.13 FPS
Sf = 0.006069 FT/FT

600 595 590 585 580 575 570

68+00 69+00 70+00 71+00

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E. STACY ROAD IMPROVEMENTS

NETWORK 1 STORM DRAIN PLAN & PROFILE

BEGIN TO STA. 71+80

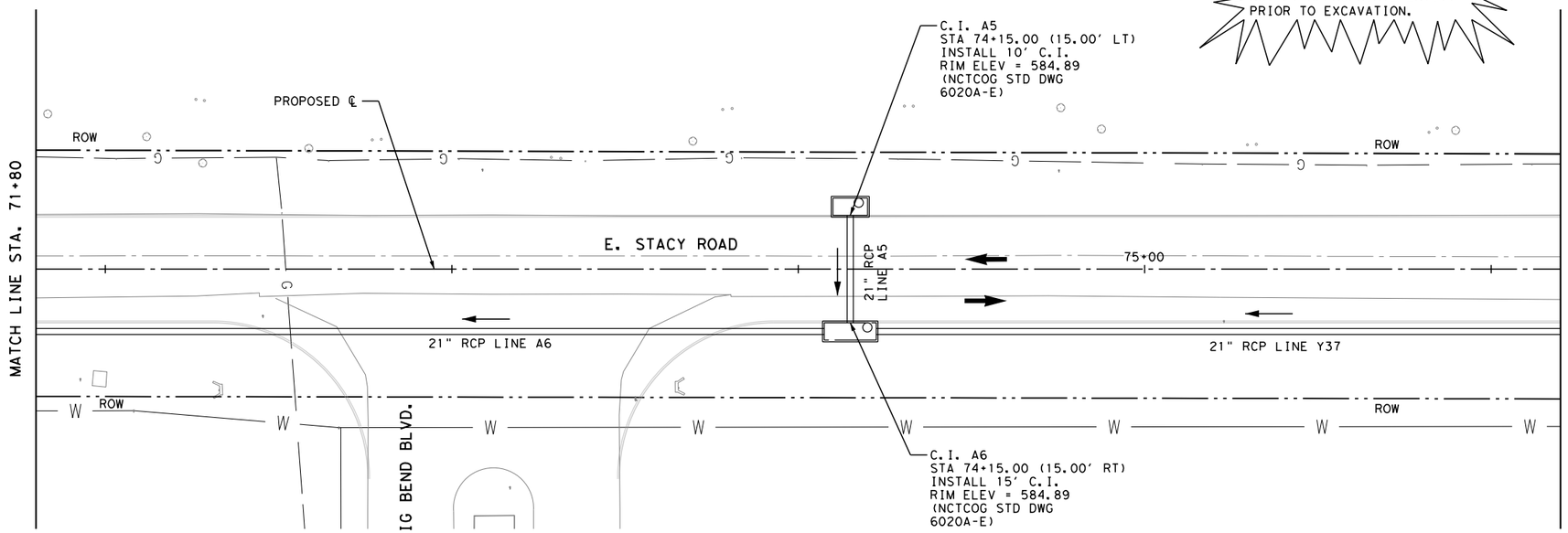
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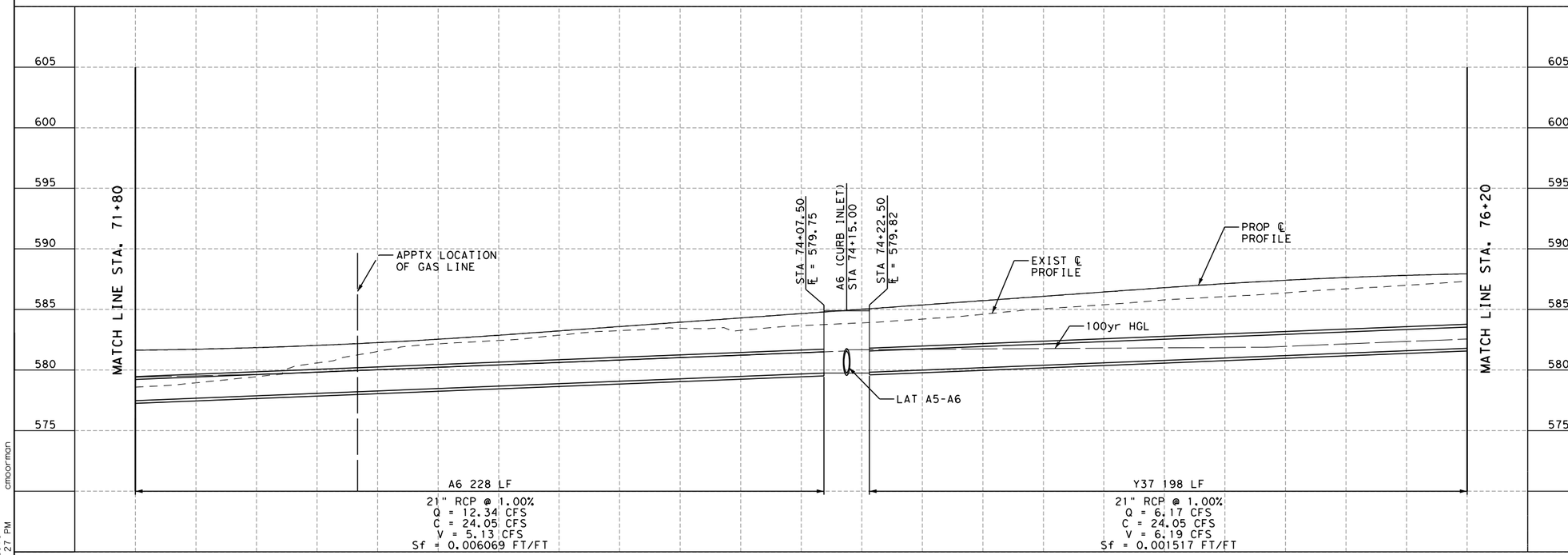
SHEET 2 OF 12

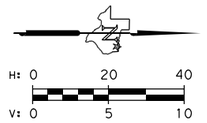
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LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE

GENERAL NOTES

1. CURB INLET STATION AND OFFSET ARE MEASURED TO THE MIDPOINT OF THE FACE OF THE MAIN INLET



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E. STACY ROAD IMPROVEMENTS

NETWORK 1 STORM DRAIN PLAN & PROFILE

STA. 71+80 TO STA. 76+20

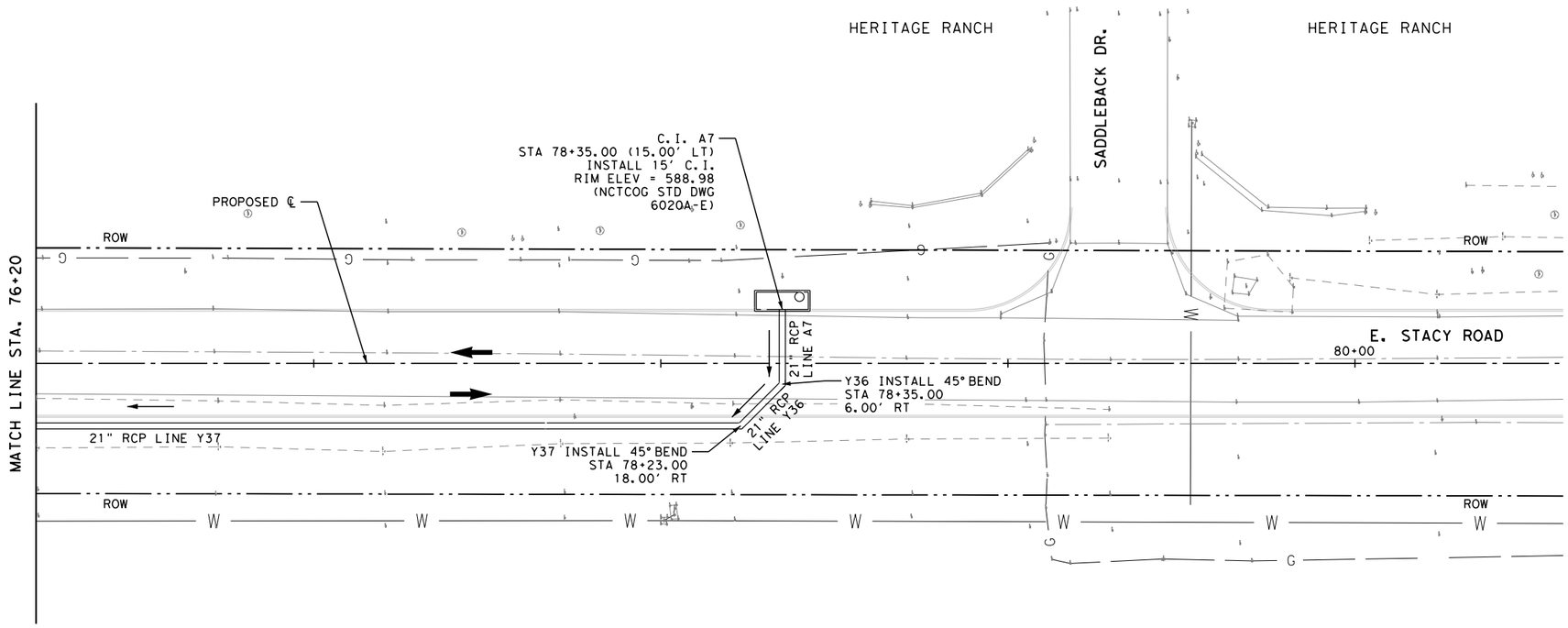
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 3 OF 12

SHEET NO. 111

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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H: 0 20 40
V: 0 5 10

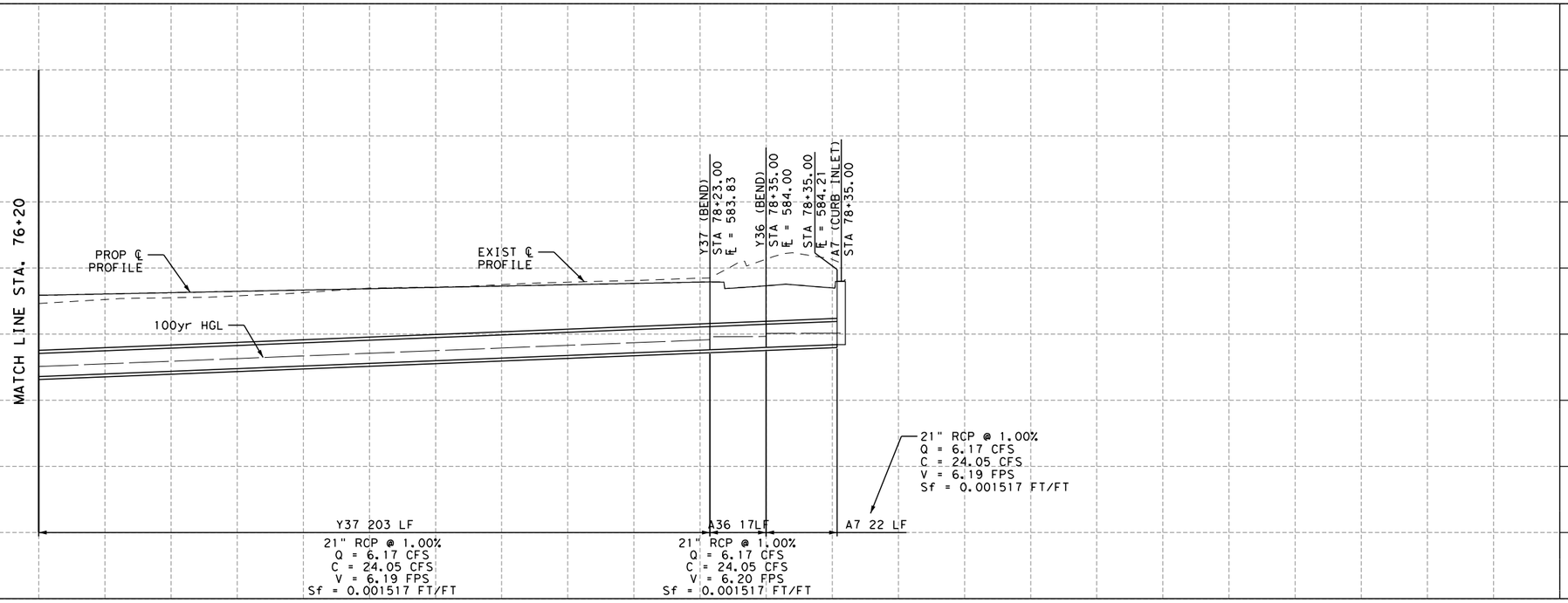
LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE

GENERAL NOTES

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E. STACY ROAD IMPROVEMENTS

NETWORK 1 STORM DRAIN PLAN & PROFILE

STA. 76+20 TO STA. 80+60

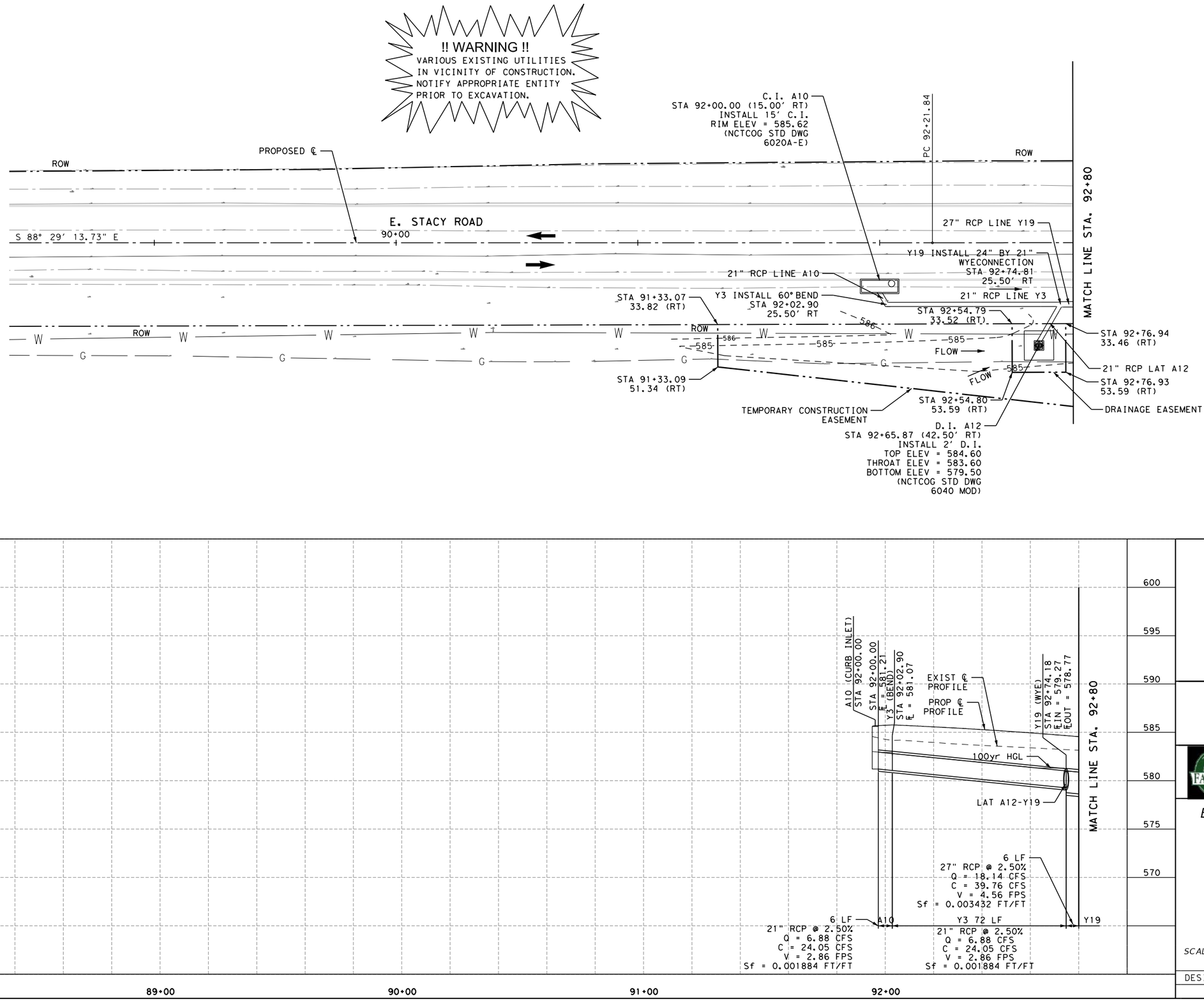
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 4 OF 12

SHEET NO. 112

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RAW	RAW	HD

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STATE OF TEXAS
ADAM HAMILTON DALLAGASPERINA
91748
LICENSED PROFESSIONAL ENGINEER
01 02 18

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

NETWORK 2 STORM DRAIN PLAN & PROFILE

STA. 88+40 TO STA. 92+80

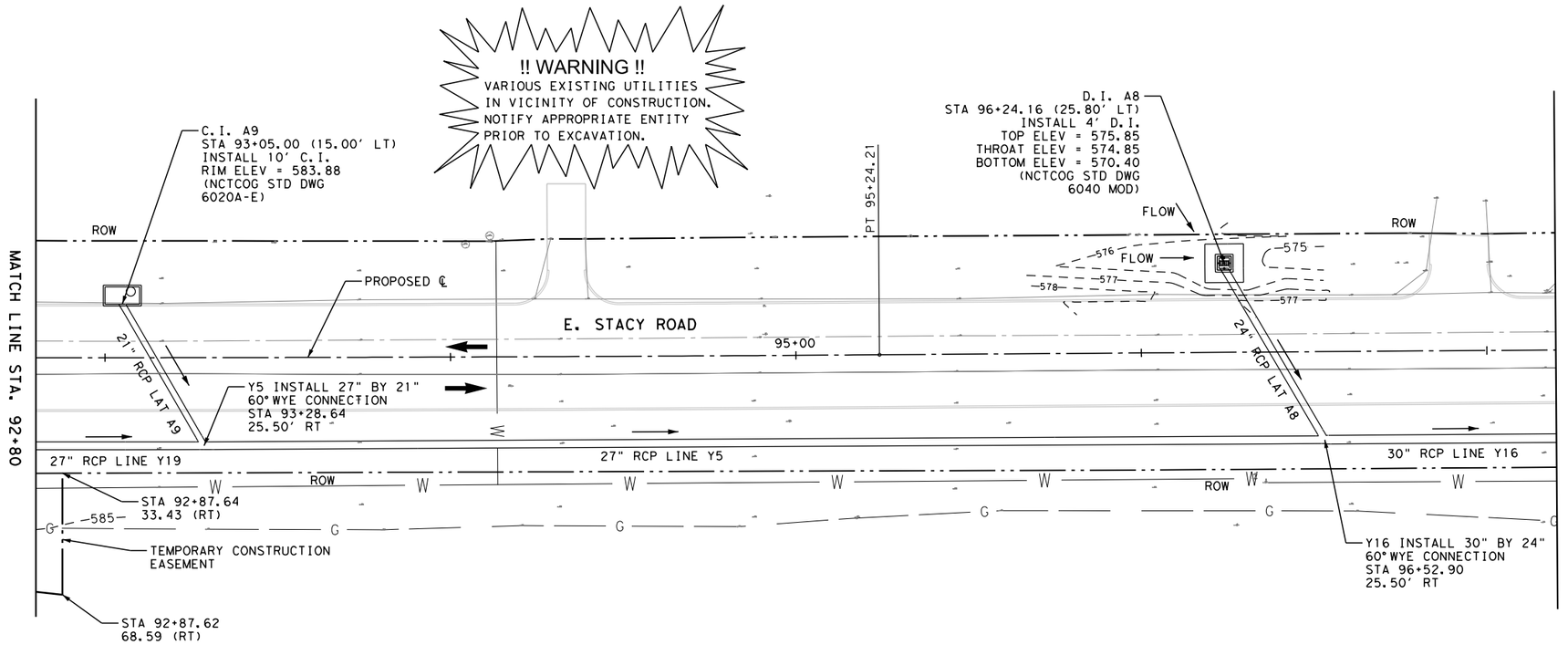
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V: 1" = 5'

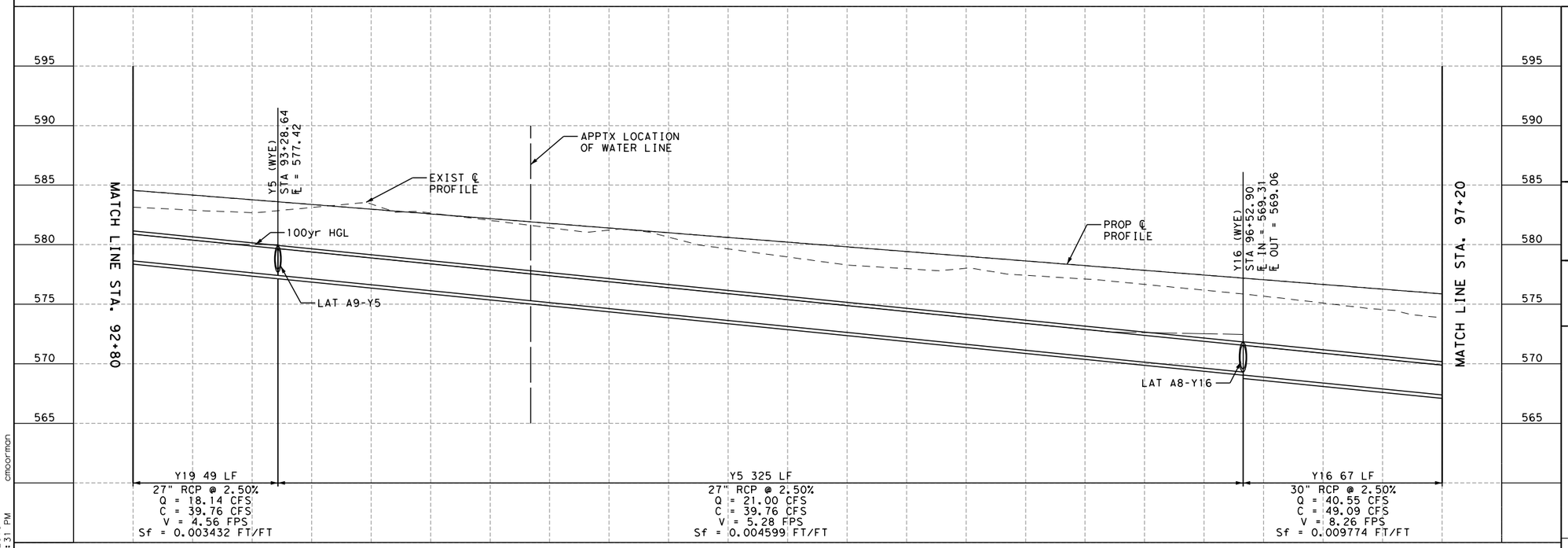
SHEET 5 OF 12

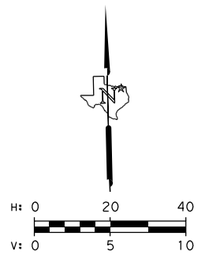
SHEET NO. 113

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE
- PROPOSED CONTOUR

GENERAL NOTES

1. CURB INLET STATION AND OFFSET ARE MEASURED TO THE MIDPOINT OF THE FACE OF THE MAIN INLET. DROP INLET STATION MEASURED TO CENTER.

STATE OF TEXAS
HAMILTON DALLAGASPERINA
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01/03/18

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E. STACY ROAD IMPROVEMENTS

NETWORK 2 STORM DRAIN PLAN & PROFILE

STA. 92+80 TO STA. 97+20

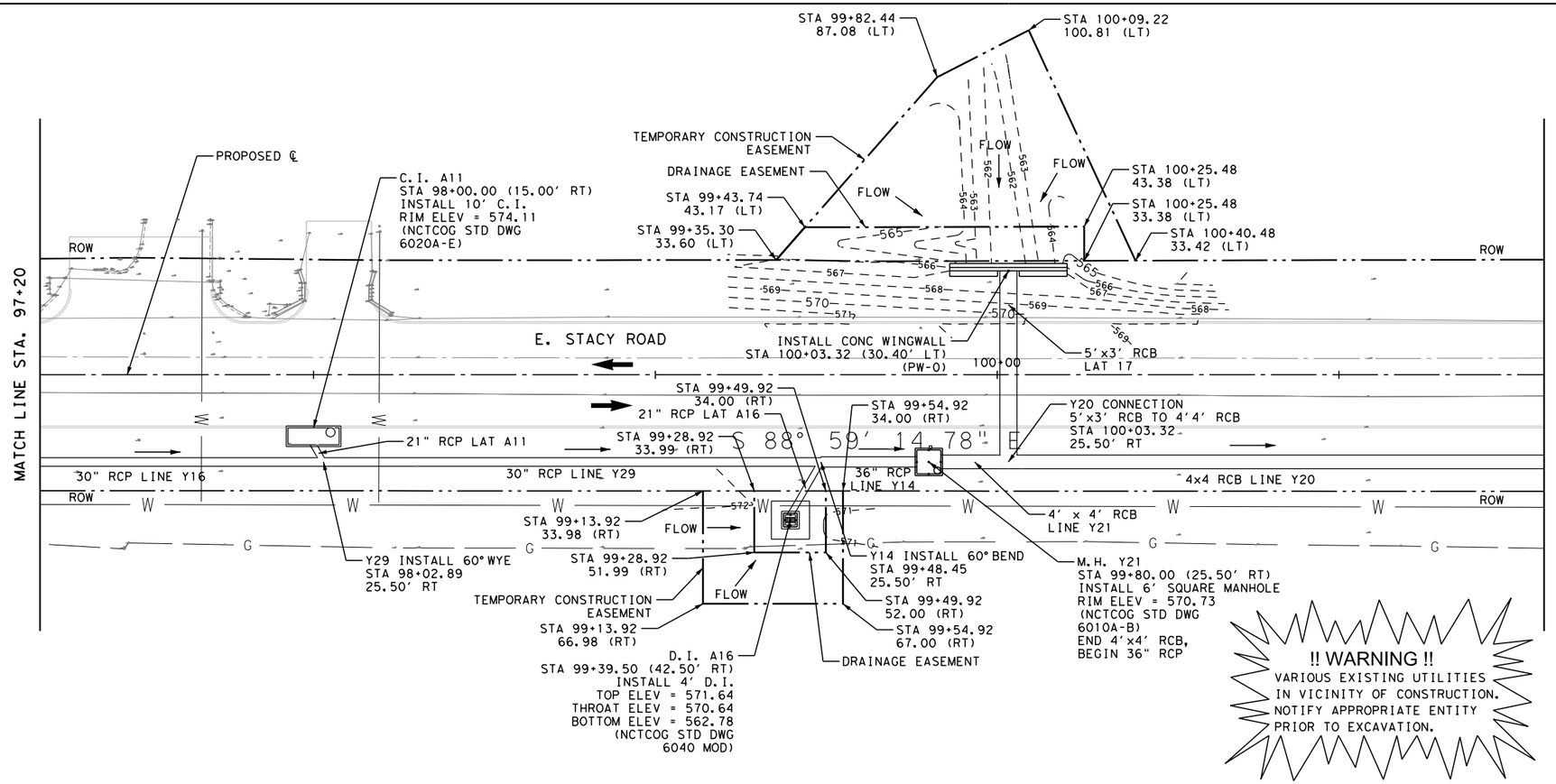
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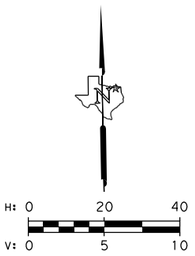
SHEET 6 OF 12

SHEET NO. 114

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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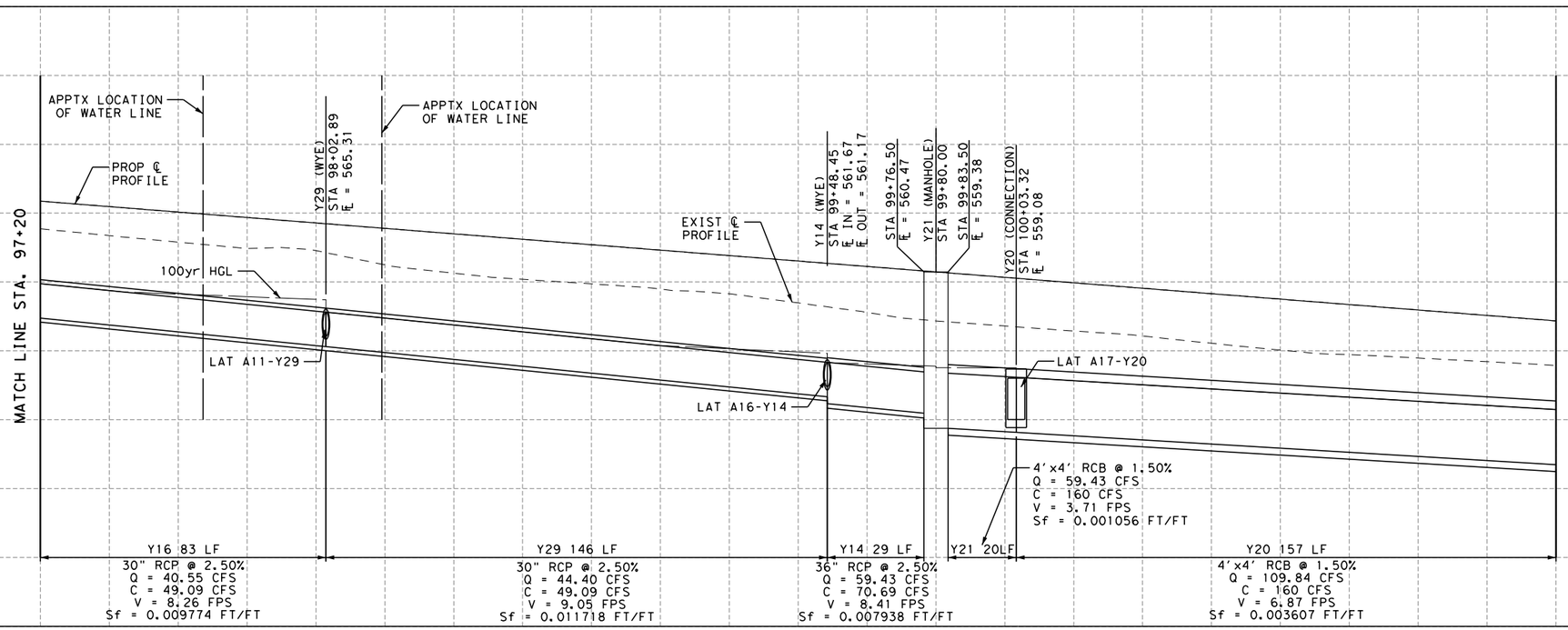


LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE
- PROPOSED CONTOUR

GENERAL NOTES

1. CURB INLET STATION AND OFFSET ARE MEASURED TO THE MIDPOINT OF THE FACE OF THE MAIN INLET. DROP INLET STATION MEASURED TO CENTER.



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HAMILTON DALLAGASPERINA 91748 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 01-02-18

E. STACY ROAD IMPROVEMENTS

NETWORK 2 STORM DRAIN PLAN & PROFILE

STA. 97+20 TO STA. 101+60

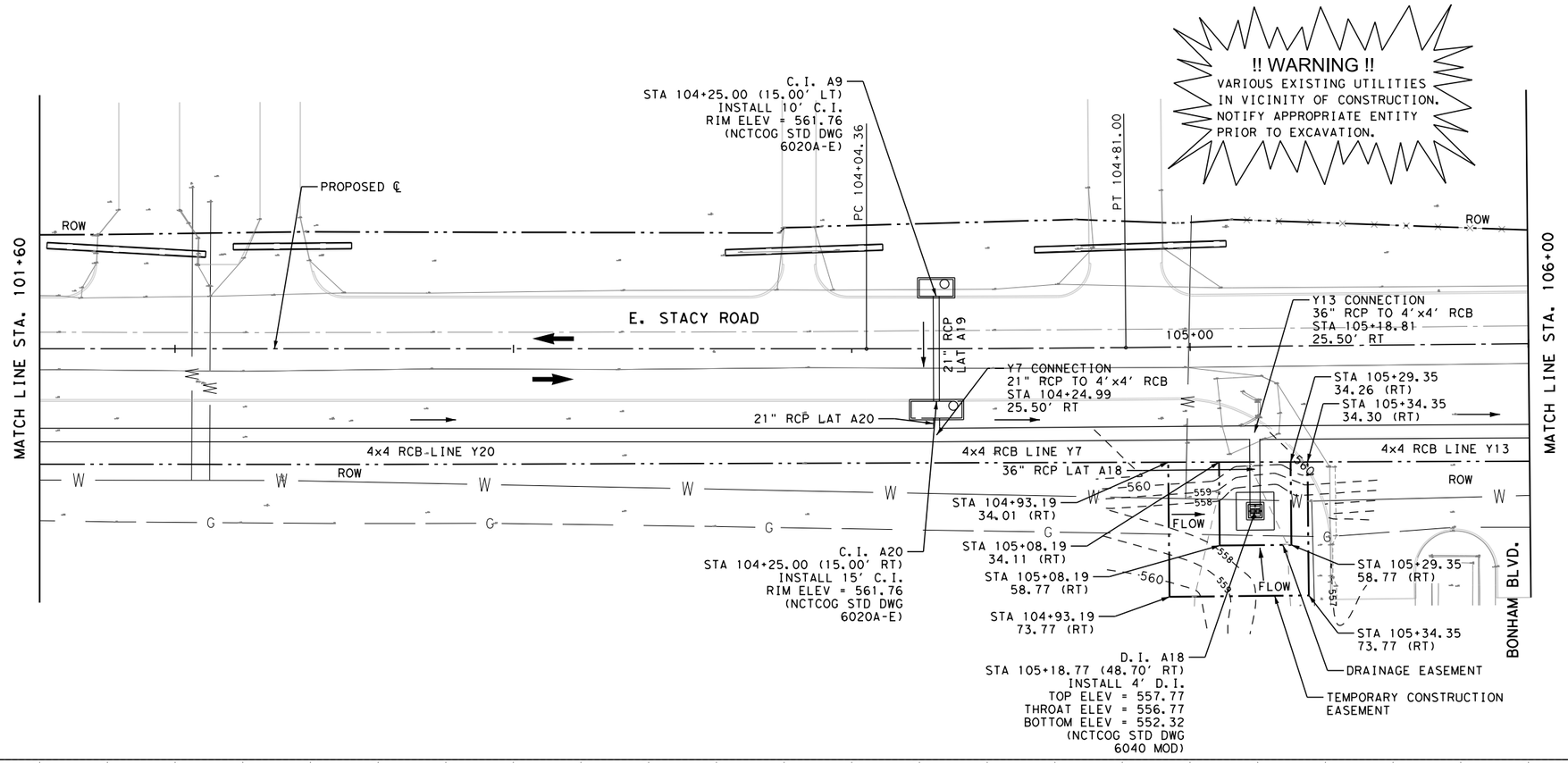
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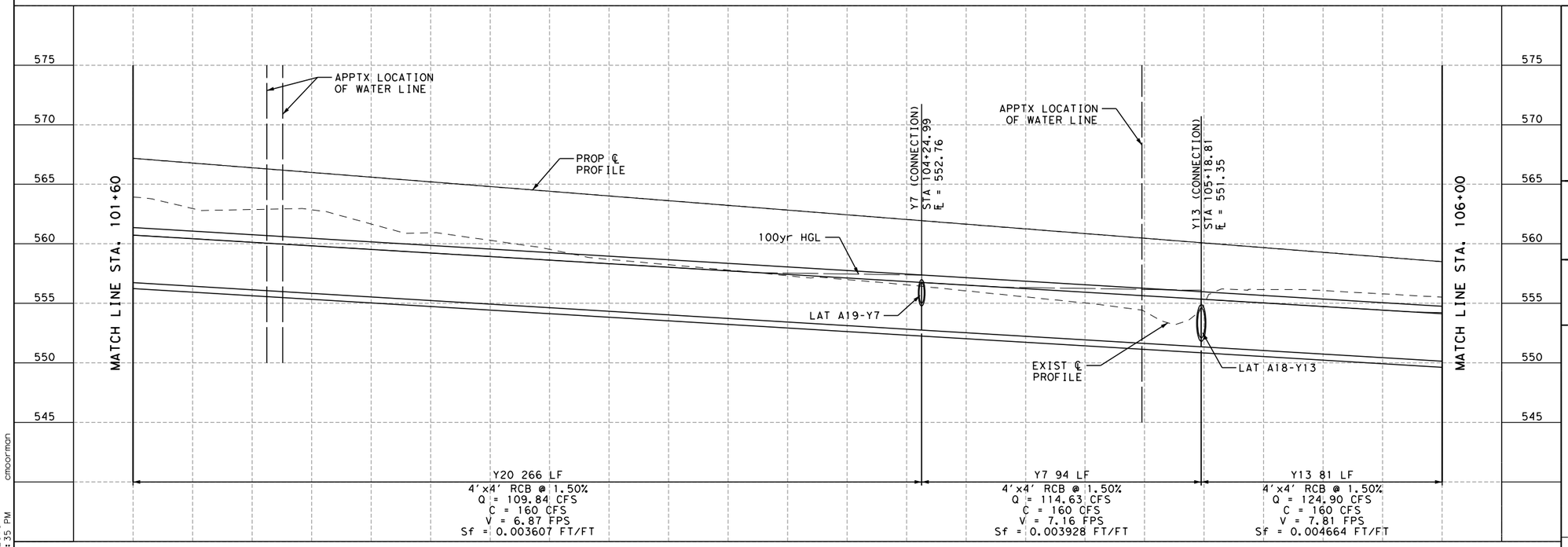
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SHEET NO. 115

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H: 0 20 40
V: 0 5 10

LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE
- PROPOSED CONTOUR

GENERAL NOTES

1. CURB INLET STATION AND OFFSET ARE MEASURED TO THE MIDPOINT OF THE FACE OF THE MAIN INLET. DROP INLET STATION MEASURED TO CENTER.

STATE OF TEXAS
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E. STACY ROAD IMPROVEMENTS

NETWORK 2 STORM DRAIN PLAN & PROFILE

STA. 101+60 TO STA. 106+00

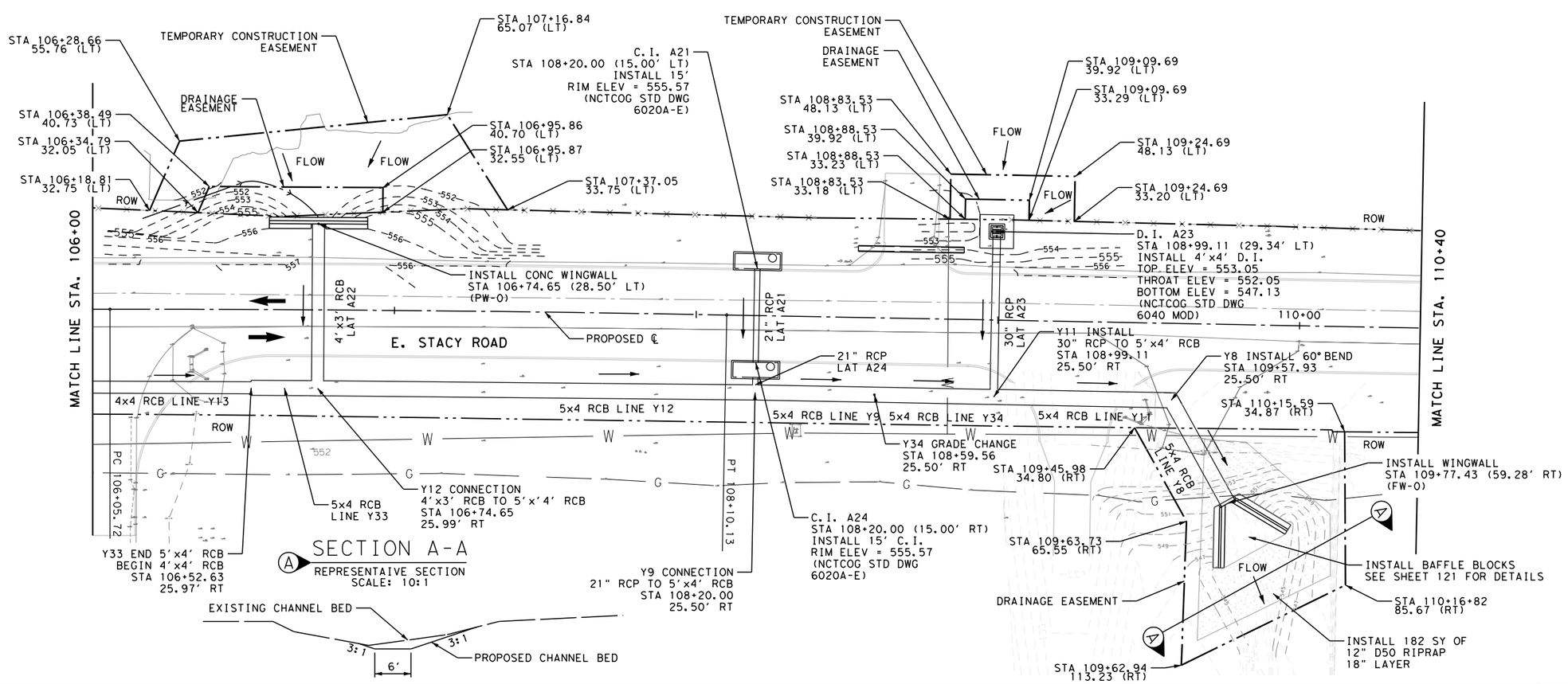
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V: 1" = 5'

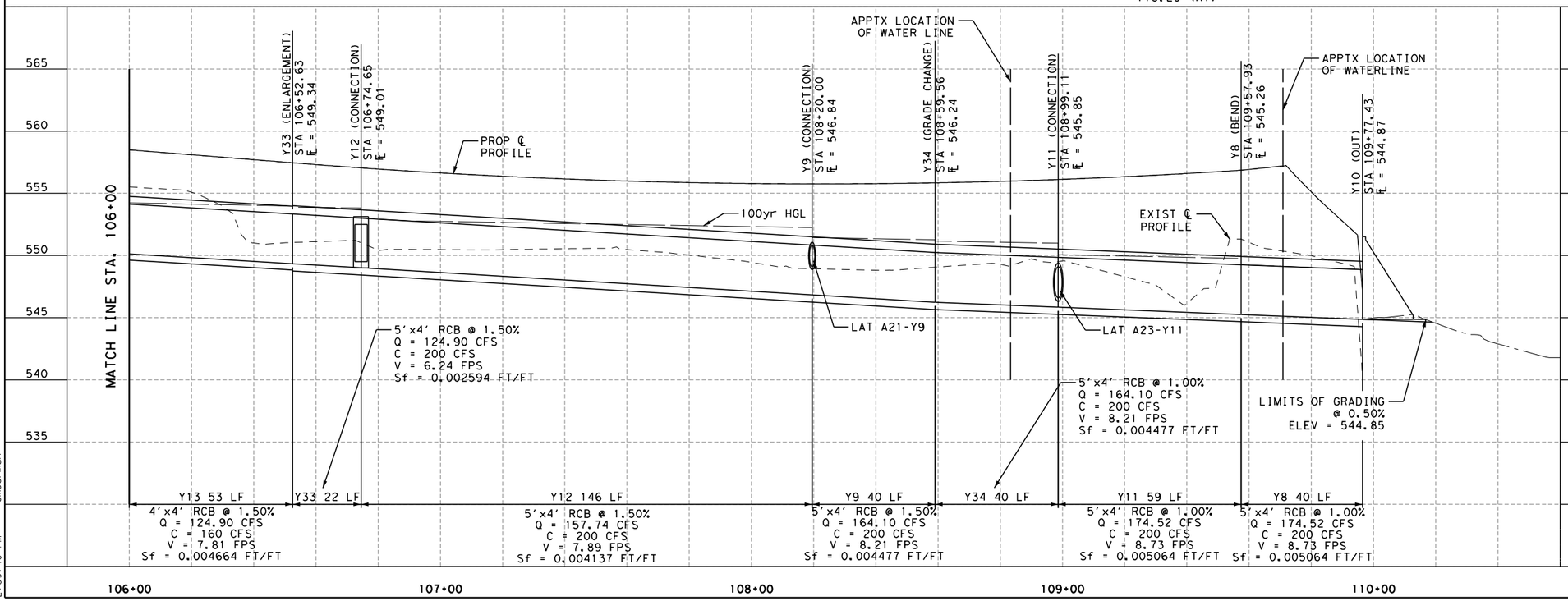
SHEET 8 OF 12

SHEET NO. 116

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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E. STACY ROAD IMPROVEMENTS

NETWORK 2 STORM DRAIN PLAN & PROFILE

STA. 106+00 TO STA. 110+40

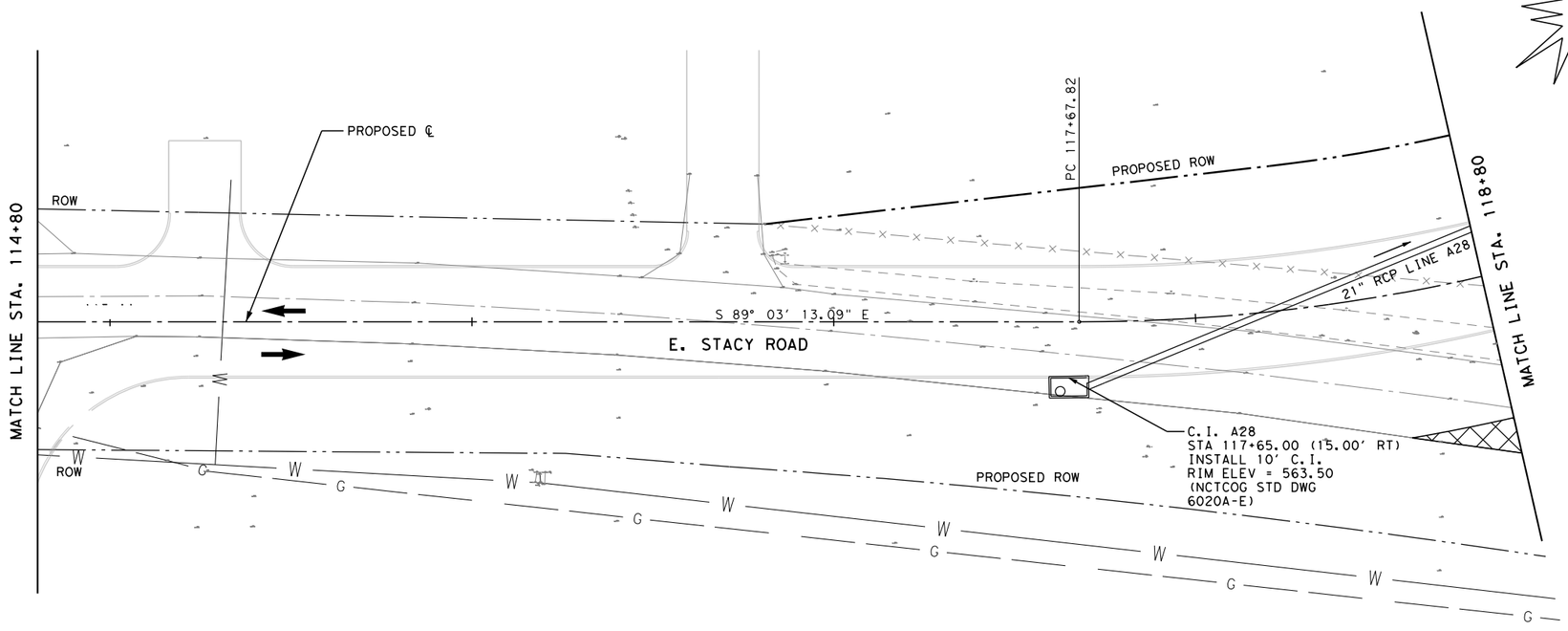
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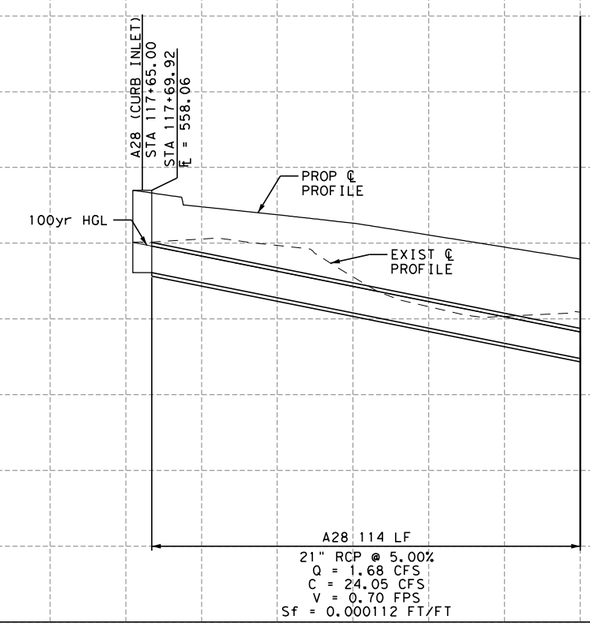
SHEET 9 OF 12

SHEET NO. 117

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.

H: 0 20 40
V: 0 5 10

LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE

GENERAL NOTES

1. CURB INLET STATION AND OFFSET ARE MEASURED TO THE MIDPOINT OF THE FACE OF THE MAIN INLET

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E. STACY ROAD IMPROVEMENTS

NETWORK 3 STORM DRAIN PLAN & PROFILE

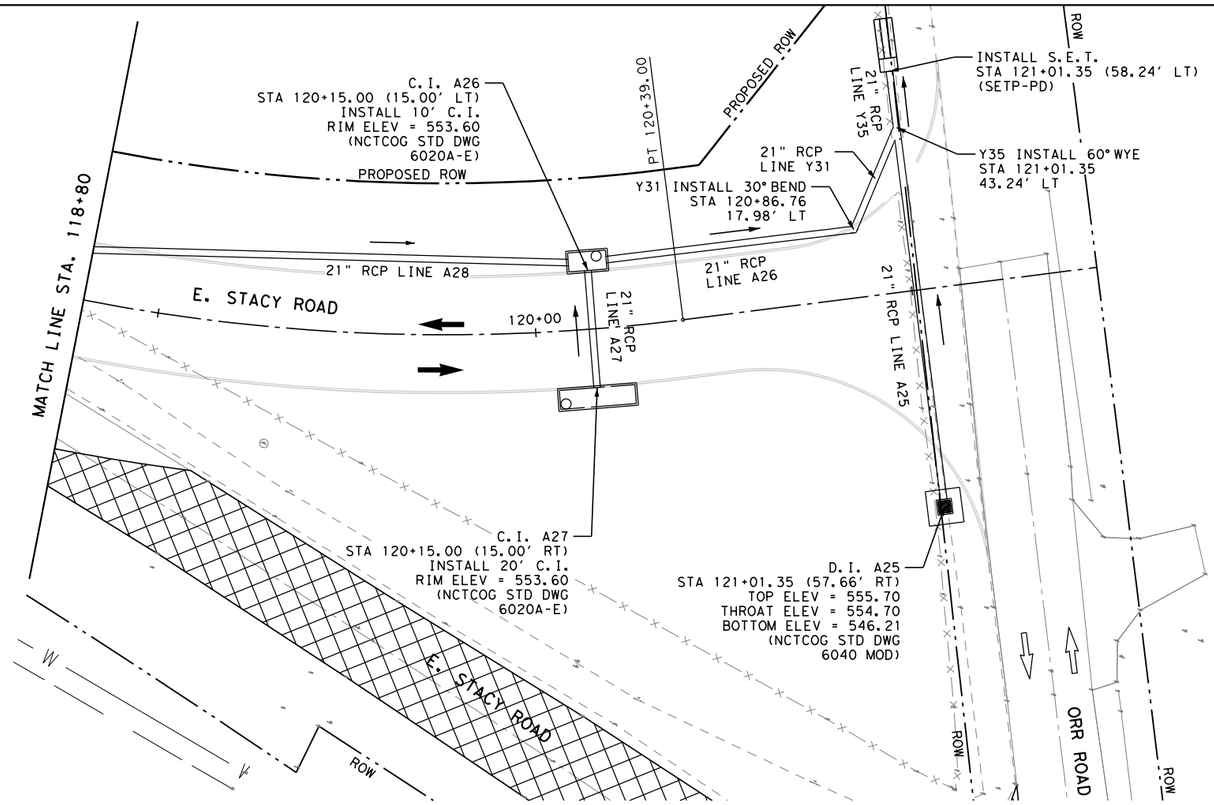
STA. 114+80 TO STA. 118+80

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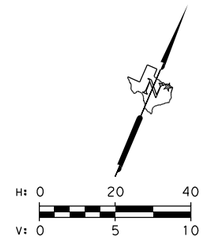
SHEET 10 OF 12

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
RAW	RAW	HD	118

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!! WARNING !!
VARIOUS EXISTING UTILITIES
IN VICINITY OF CONSTRUCTION.
NOTIFY APPROPRIATE ENTITY
PRIOR TO EXCAVATION.

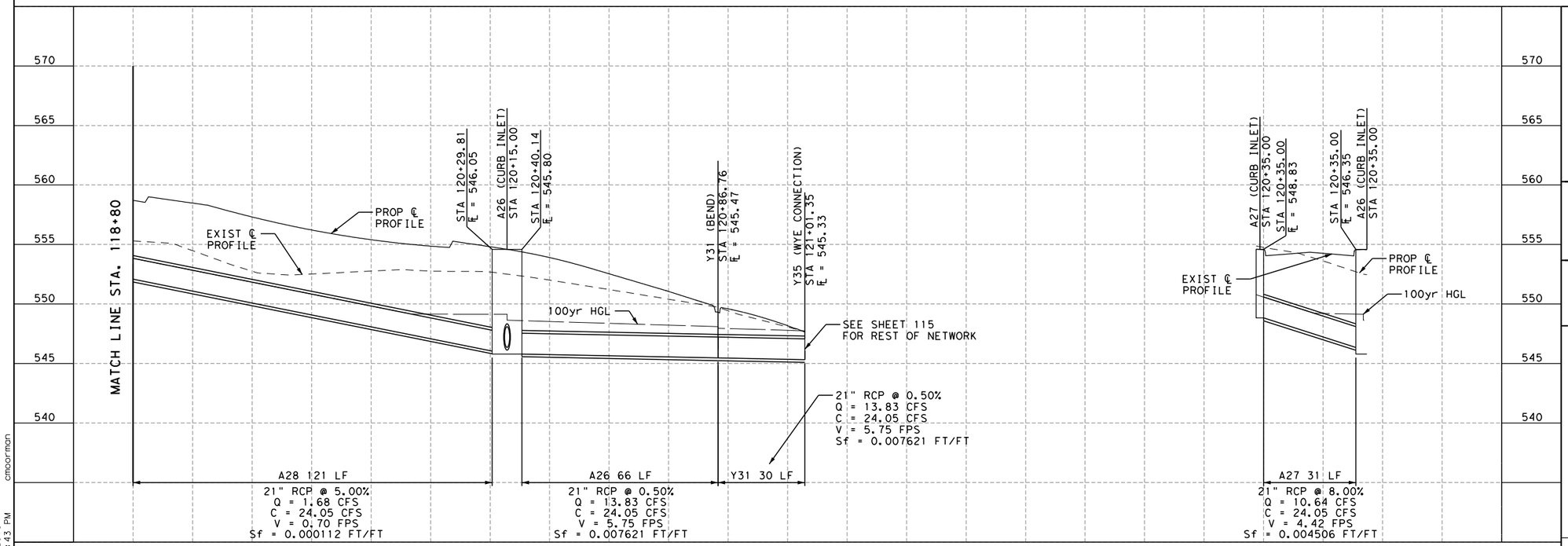


LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE

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FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

NETWORK 3 STORM DRAIN PLAN & PROFILE

STA. 118+80 TO END

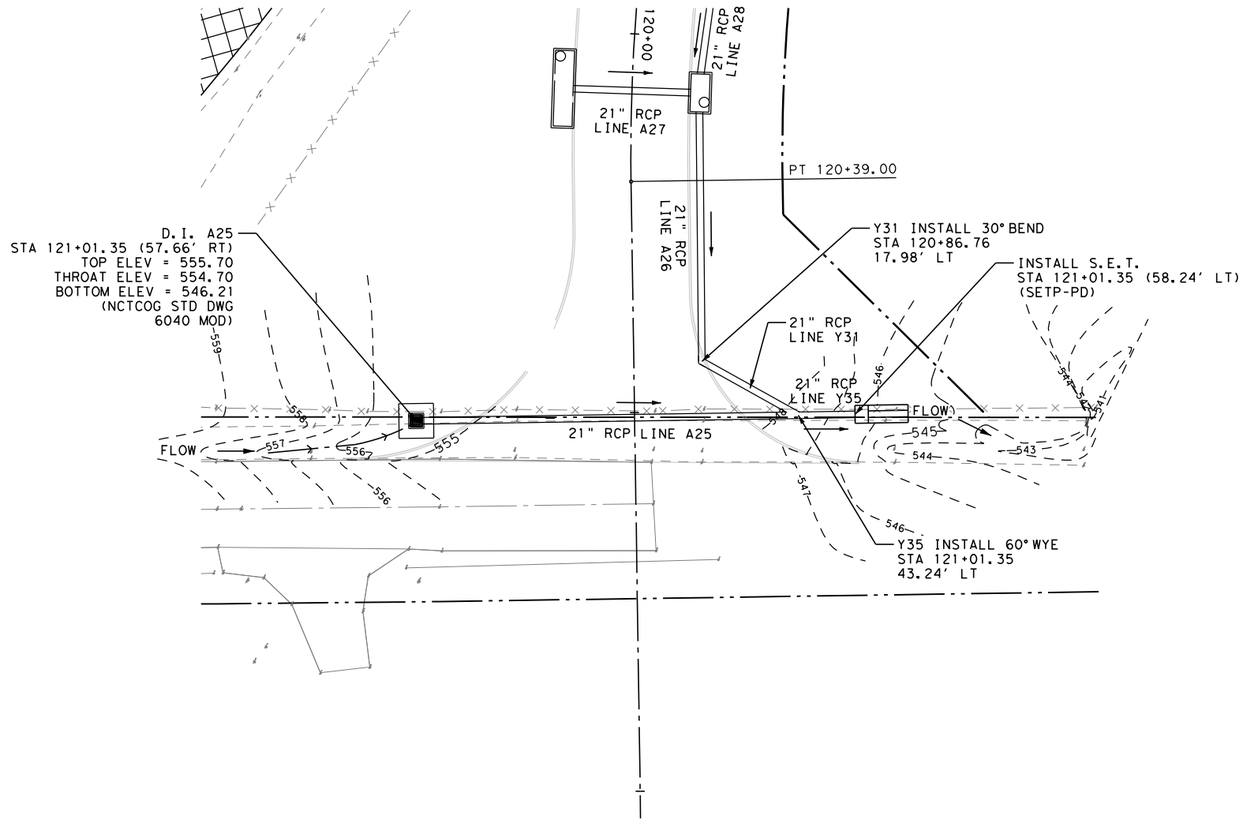
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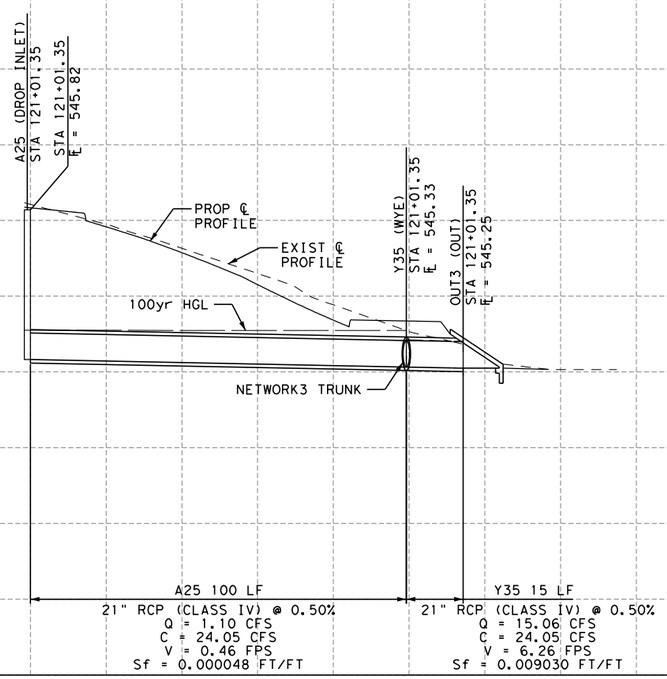
SHEET 11 OF 12

SHEET NO. 119

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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!! WARNING !!
VARIOUS EXISTING UTILITIES IN VICINITY OF CONSTRUCTION. NOTIFY APPROPRIATE ENTITY PRIOR TO EXCAVATION.

H: 0 20 40
V: 0 5 10

LEGEND

- TRAFFIC FLOW
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN
- —W— EXISTING WATER LINE
- —G— EXISTING GAS LINE
- PROPOSED CONTOUR

GENERAL NOTES

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E. STACY ROAD IMPROVEMENTS

NETWORK 3 STORM DRAIN PLAN & PROFILE

END

SCALE: H: 1" = 20'
V: 1" = 5'

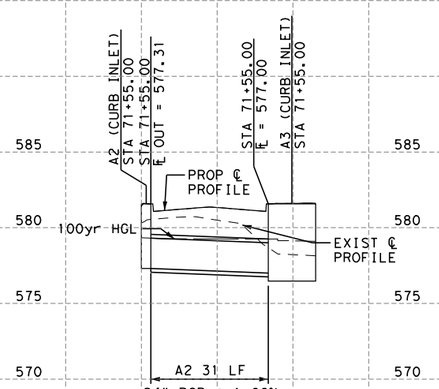
SHEET 12 OF 12

SHEET NO. 120

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RAW	RAW	HD

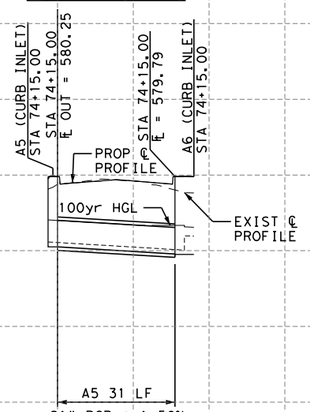
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LAT A2-A3



24" RCP @ 1.00%
Q = 6.19 CFS
C = 31.42 CFS
V = 1.97 FPS
Sf = 0.000750 FT/FT

LAT A5-A6



21" RCP @ 1.50%
Q = 1.15 CFS
C = 24.05 CFS
V = 0.48 FPS
Sf = 0.000053 FT/FT

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972-562-0522

E. STACY ROAD IMPROVEMENTS

NETWORK 1 LATERALS

SCALE: H: 1" = 20'
V: 1" = 5'

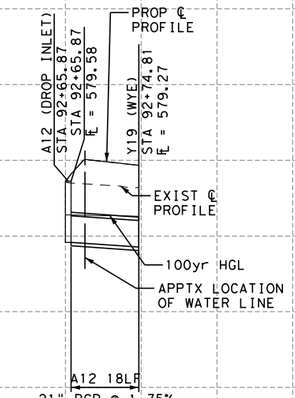
SHEET 1 OF 1

SHEET NO. 121

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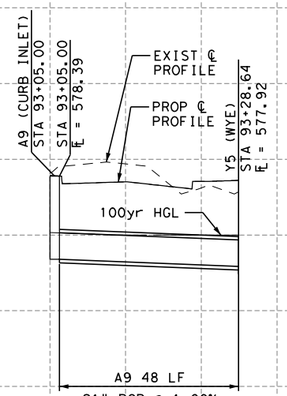
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LAT A12-Y19



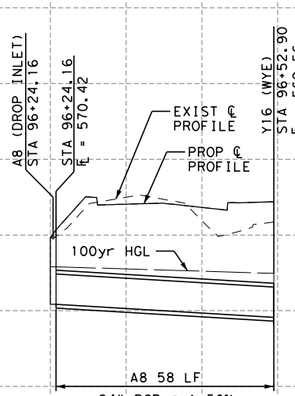
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Q = 11.26 CFS
C = 24.05 CFS
V = 4.68 FPS
Sf = 0.005054 FT/FT

LAT A9-Y5



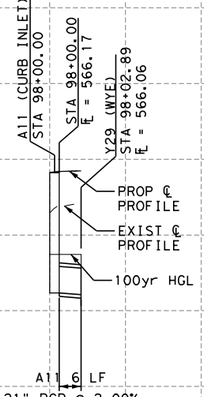
21" RCP @ 1.00%
Q = 2.86 CFS
C = 24.05 CFS
V = 1.19 FPS
Sf = 0.000326 FT/FT

LAT A8-Y16



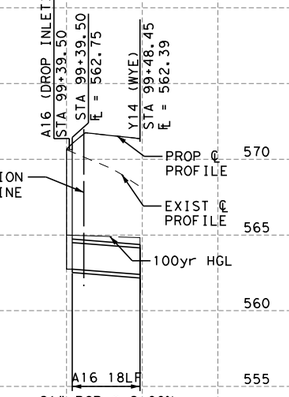
24" RCP @ 1.50%
Q = 19.55 CFS
C = 31.42 CFS
V = 6.22 FPS
Sf = 0.007467 FT/FT

LAT A11-Y29



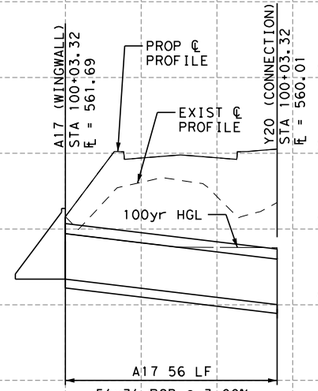
21" RCP @ 2.00%
Q = 3.85 CFS
C = 24.05 CFS
V = 1.60 FPS
Sf = 0.000591 FT/FT

LAT A16-Y14



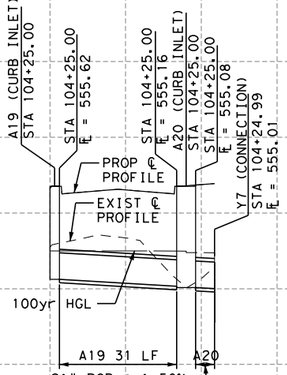
21" RCP @ 2.00%
Q = 15.03 CFS
C = 24.05 CFS
V = 6.25 FPS
Sf = 0.008992 FT/FT

LAT A17-Y20



5'x3' RCB @ 3.00%
Q = 67.56 CFS
C = 150 CFS
V = 4.50 FPS
Sf = 0.001692 FT/FT

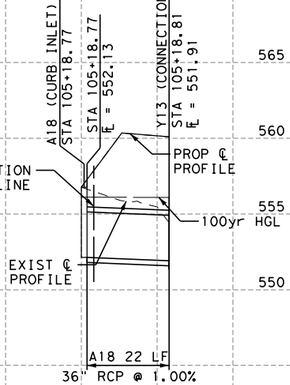
LAT A19-Y7



21" RCP @ 1.50%
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C = 24.05 CFS
V = 1.27 FPS
Sf = 0.000371 FT/FT

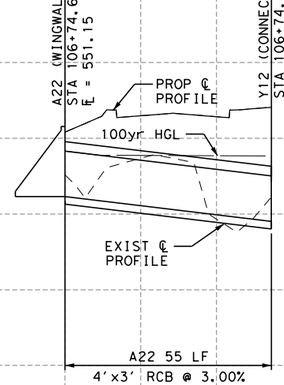
5 LF
21" RCP @ 1.50%
Q = 6.73 CFS
C = 24.05 CFS
V = 2.80 FPS
Sf = 0.001805 FT/FT

LAT A18-Y13



36" RCP @ 1.00%
Q = 14.44 CFS
C = 49.09 CFS
V = 2.04 FPS
Sf = 0.000468 FT/FT

LAT A22-Y12



4'x3' RCB @ 3.00%
Q = 40.52 CFS
C = 120 CFS
V = 3.38 FPS
Sf = 0.001072 FT/FT

STATE OF TEXAS
HAMILTON DALLAGASPERINA
91748
LICENSED
PROFESSIONAL ENGINEER
01-03-18

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

NETWORK 2 LATERALS

SCALE: H: 1" = 20'
V: 1" = 5'

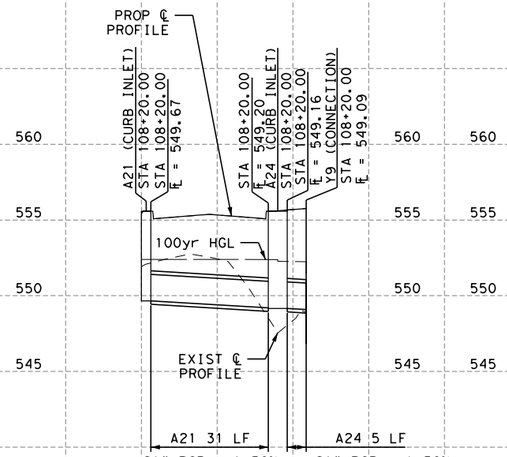
SHEET 1 OF 2

SHEET NO. 122

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

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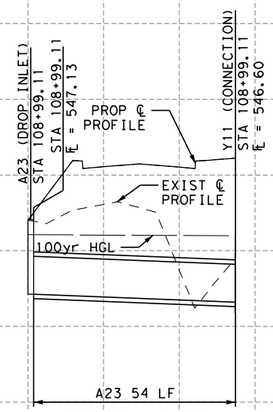
LAT A21-Y9



21" RCP @ 1.50%
Q = 3.10 CFS
C = 24.05 CFS
V = 1.29 FPS
Sf = 0.000382 FT/FT

21" RCP @ 1.50%
Q = 8.94 CFS
C = 24.05 CFS
V = 3.72 FPS
Sf = 0.003182 FT/FT

LAT A23-Y11



30" RCP @ 1.00%
Q = 14.65 CFS
C = 49.09 CFS
V = 2.98 FPS
Sf = 0.001275 FT/FT

STATE OF TEXAS
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TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

NETWORK 2 LATERALS

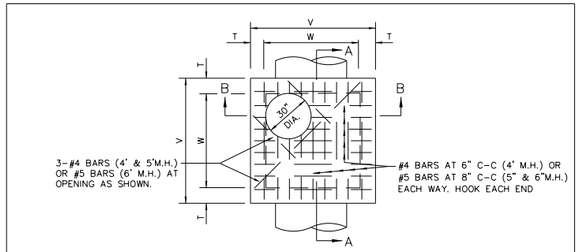
SCALE: H: 1" = 20'
V: 1" = 5'

SHEET 2 OF 2

SHEET NO. 123

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	HD

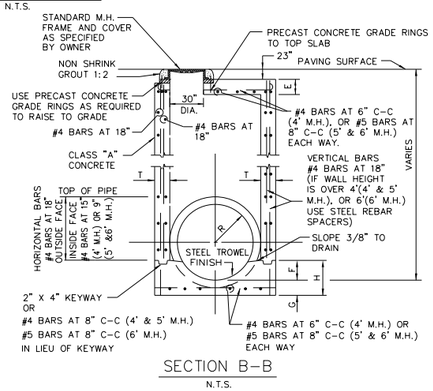
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PLAN
N.T.S.

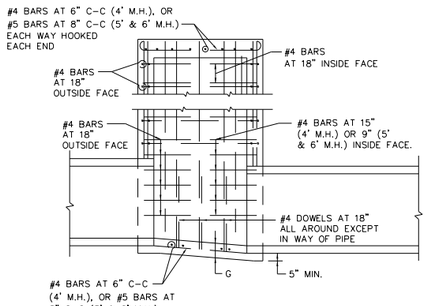
M.H. SIZE(W)	V	T	E	F	G	H
4'	5'-4"	8"	6"	9"	6"	1'-3"
5'	6'-4"	8"	6"	12"	8"	1'-8"
6'	7'-6"	9"	9"	16"	10"	2'-2"

TABLE OF DIMENSIONS
N.T.S.

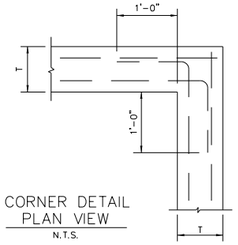


SECTION B-B
N.T.S.

STORMWATER MANHOLE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 502.1	
4', 5', OR 6' SQUARE		DATE OCT. '04	STANDARD DRAWING NO. 6010A



SECTION A-A
N.T.S.

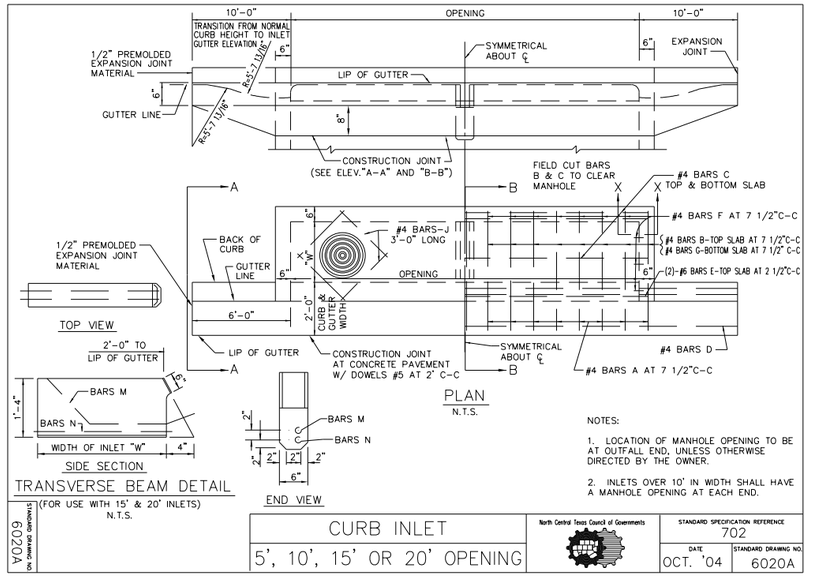


CORNER DETAIL
PLAN VIEW
N.T.S.

NOTES:

1. SLOPE INVERT OF MANHOLE AS INDICATED ON PLAN-PROFILE SHEET.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACE SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
3. CONCRETE SHALL BE CLASS "A".

STORMWATER MANHOLE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 502.1	
4', 5', OR 6' SQUARE		DATE OCT. '04	STANDARD DRAWING NO. 6010B

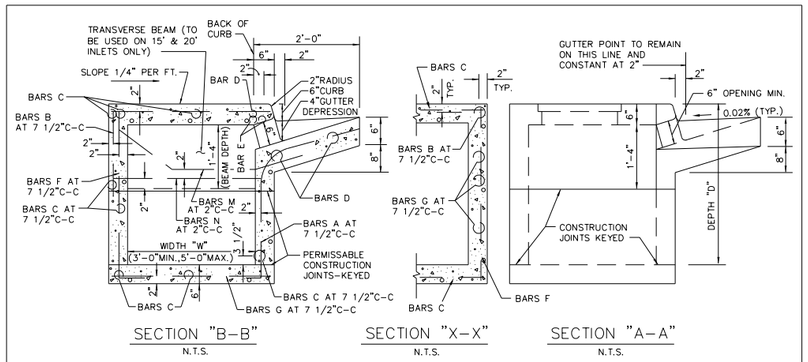


TRANSVERSE BEAM DETAIL
(FOR USE WITH 15' & 20' INLETS)
N.T.S.

NOTES:

1. LOCATION OF MANHOLE OPENING TO BE AT OUTFALL END, UNLESS OTHERWISE DIRECTED BY THE OWNER.
2. INLETS OVER 10' IN WIDTH SHALL HAVE A MANHOLE OPENING AT EACH END.

6020A ON DRAWING REFERENCE	CURB INLET 5', 10', 15' OR 20' OPENING	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 702	
			DATE OCT. '04	STANDARD DRAWING NO. 6020A



SECTION "B-B"
N.T.S.

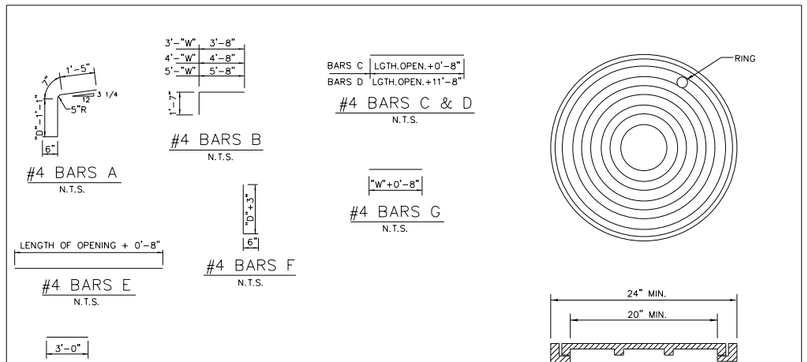
SECTION "X-X"
N.T.S.

SECTION "A-A"
N.T.S.

GENERAL NOTES:

1. ALL CONCRETE SHALL BE CLASS "A" CONCRETE.
2. REINFORCING BARS SHALL BE STANDARD GRADE STEEL, DEFORMED REINFORCING BARS OF A DIAMETER AND LENGTH AS SHOWN.
3. CHAMFER ALL EXPOSED CORNERS 3/4" EXCEPT WHERE OTHERWISE NOTED.
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMODATE STORM SEWER PIPE.
6. RING AND COVER SHALL BE APPROVED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.

6020B ON DRAWING REFERENCE	CURB INLET CROSS SECTION & INLET THROAT	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 702	
			DATE OCT. '04	STANDARD DRAWING NO. 6020B



6020C ON DRAWING REFERENCE	CURB INLET REBAR & M.H. FRAME & COVER	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 702	
			DATE OCT. '04	STANDARD DRAWING NO. 6020C



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Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

NCTCOG DRAINAGE STANDARDS

SCALE: NTS		SHEET 1 OF 2	SHEET NO.
DESIGNED BY: RAW	DRAWN BY: RAW	CHECKED BY: HD	124

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BILL OF REINFORCING STEEL

DEPTH "D"	ALL WIDTHS AND LENGTHS				OPENING LENGTH "L" = 5ft Widths "W"							OPENING LENGTH "L" = 10ft Widths "W"							OPENING LENGTH "L" = 15 ft Widths "W"									OPENING LENGTH "L" = 20 ft Widths "W"							
					3ft	4ft	5ft					3ft	4ft	5ft					3ft	4ft	5ft							3ft	4ft	5ft					
	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS
	C	D	E	J	F	F	F	A	B	G		F	F	F	A	B	G		F	F	F	A	B	G	M	N	F	F	F	A	B	G	M	N
3'-6"	17	3	2	4	20	24	28	10	10	20	28	28	32	36	18	18	28	36	40	44	26	26	36	2	2	44	48	52	34	34	44	2	2	
3'-9"	18	"	"	"	"	"	"	"	"	20	"	"	"	"	"	"	28	"	"	"	"	"	36	"	"	"	"	"	"	"	"	44	"	"	
4'-0"	19	"	"	"	"	"	"	"	"	24	"	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	"	"	"	48	"	"	
4'-3"	19	"	"	"	"	"	"	"	"	24	"	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	"	"	"	48	"	"	
4'-6"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	"	"	"	50	"	"	
4'-9"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	"	"	"	50	"	"	
5'-0"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	"	"	"	50	"	"	
5'-3"	23	"	"	"	"	"	"	"	"	28	"	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	"	"	"	52	"	"	
5'-6"	23	"	"	"	"	"	"	"	"	28	"	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	"	"	"	52	"	"	
5'-9"	25	"	"	"	"	"	"	"	"	30	"	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	"	"	"	54	"	"	
6'-0"	25	"	"	"	"	"	"	"	"	30	"	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	"	"	"	54	"	"	
6'-3"	26	"	"	"	"	"	"	"	"	30	"	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	"	"	"	54	"	"	
6'-6"	27	"	"	"	"	"	"	"	"	32	"	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	"	"	"	56	"	"	
6'-9"	27	"	"	"	"	"	"	"	"	32	"	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	"	"	"	56	"	"	
7'-0"	29	"	"	"	"	"	"	"	"	34	"	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	"	"	"	58	"	"	
7'-3"	29	"	"	"	"	"	"	"	"	34	"	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	"	"	"	58	"	"	
7'-6"	30	"	"	"	"	"	"	"	"	34	"	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	"	"	"	58	"	"	
7'-9"	31	"	"	"	"	"	"	"	"	36	"	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"	"	"	"	60	"	"	
8'-0"	31	"	"	"	"	"	"	"	"	36	"	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"	"	"	"	60	"	"	
8'-3"	32	"	"	"	"	"	"	"	"	36	"	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"	"	"	"	60	"	"	
8'-6"	33	"	"	"	"	"	"	"	"	38	"	"	"	"	"	"	46	"	"	"	"	"	54	"	"	"	"	"	"	"	"	62	"	"	
8'-9"	34	"	"	"	"	"	"	"	"	38	"	"	"	"	"	"	46	"	"	"	"	"	54	"	"	"	"	"	"	"	"	62	"	"	
9'-0"	35	"	"	"	"	"	"	"	"	40	"	"	"	"	"	"	48	"	"	"	"	"	56	"	"	"	"	"	"	"	"	64	"	"	
9'-3"	36	"	"	"	"	"	"	"	"	40	"	"	"	"	"	"	48	"	"	"	"	"	56	"	"	"	"	"	"	"	"	64	"	"	
9'-6"	37	"	"	"	"	"	"	"	"	42	"	"	"	"	"	"	50	"	"	"	"	"	58	"	"	"	"	"	"	"	"	66	"	"	
10'-0"	38	"	"	"	"	"	"	"	"	42	"	"	"	"	"	"	50	"	"	"	"	"	58	"	"	"	"	"	"	"	"	66	"	"	

NOTE:
FOR CONVENIENCE, DEPTHS OF INLETS SHOWN IN ABOVE TABLES ARE IN INCREMENTS OF 3 INCHES BUT ANY DEPTHS OTHER THAN THOSE SHOWN ABOVE MAY BE USED WHEREVER DEEMED NECESSARY. QUANTITIES FOR OTHER DEPTHS FALLING WITHIN THE LIMITS OF THE TABLE MAY BE FOUND BY INTERPOLATION.

STANDARD DRAWING NO. 6020D

CURB INLET
BILL OF REINFORCING STEEL

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE 702

DATE: OCT. '04 | STANDARD DRAWING NO.: 6020D

SUMMARY OF QUANTITIES FOR CURB INLETS

DEPTH "D"	5'-0" OPENING						10'-0" OPENING						15'-0" OPENING						20'-0" OPENING					
	WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"	
	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.
3'-6"	2.62	306	2.95	332	3.28	373	4.12	479	4.64	521	5.20	564	5.69	667	6.40	721	7.10	775	7.20	846	8.11	909	9.03	976
3'-9"	2.70	309	3.04	341	3.39	373	4.25	494	4.78	536	5.34	579	5.87	687	6.58	741	7.30	796	7.42	874	8.34	937	9.27	1010
4'-0"	2.78	328	3.14	364	3.49	399	4.38	518	4.92	565	5.49	610	6.05	718	6.77	776	7.49	835	7.64	909	8.58	976	9.51	1046
4'-3"	2.87	334	3.23	370	3.59	406	4.51	526	5.06	573	5.64	619	6.22	729	6.95	787	7.69	847	7.87	922	8.81	990	9.75	1061
4'-6"	2.95	356	3.32	394	3.69	431	4.64	558	5.20	607	5.79	656	6.40	770	7.14	830	7.88	891	8.09	973	9.04	1043	9.99	1115
4'-9"	3.03	361	3.41	410	3.79	438	4.77	566	5.34	616	5.94	665	6.57	780	7.32	841	8.07	903	8.31	986	9.27	1056	10.23	1129
5'-0"	3.12	367	3.51	416	3.90	445	4.90	574	5.47	624	6.09	674	6.75	791	7.51	853	8.27	915	8.53	999	9.50	1070	10.47	1144
5'-3"	3.20	383	3.60	424	4.00	465	5.03	600	5.61	652	6.23	704	6.93	827	7.69	890	8.46	955	8.76	1044	9.73	1118	10.71	1194
5'-6"	3.28	389	3.69	430	4.10	472	5.16	608	5.75	661	6.38	713	7.11	837	7.88	901	8.66	967	8.98	1057	9.97	1131	10.95	1208
5'-9"	3.37	405	3.78	451	4.20	495	5.29	635	5.89	690	6.53	744	7.28	874	8.07	940	8.85	1007	9.20	1102	10.20	1178	11.19	1258
6'-0"	3.45	415	3.88	460	4.30	504	5.42	646	6.03	702	6.68	757	7.45	888	8.25	954	9.05	1022	9.42	1119	10.43	1196	11.43	1276
6'-3"	3.53	425	3.97	470	4.41	515	5.55	661	6.17	718	6.83	773	7.63	908	8.44	975	9.24	1044	9.64	1147	10.66	1223	11.67	1305
6'-6"	3.62	437	4.06	486	4.51	532	5.68	681	6.31	739	6.97	797	7.81	935	8.62	1005	9.43	1057	9.87	1178	10.89	1258	11.92	1340
6'-9"	3.70	441	4.15	490	4.61	537	5.81	688	6.45	747	7.12	806	7.98	945	8.81	1015	9.63	1066	10.09	1191	11.12	1272	12.15	1355
7'-0"	3.78	460	4.25	510	4.71	560	5.94	716	6.59	777	7.27	837	8.16	981	8.99	1053	9.82	1126	10.31	1237	11.35	1319	12.40	1404
7'-3"	3.86	465	4.34	516	4.81	567	6.07	724	6.72	785	7.42	846	8.33	992	9.18	1065	10.02	1138	10.53	1249	11.59	1333	12.64	1418
7'-6"	3.95	477	4.43	529	4.91	570	6.20	742	6.86	804	7.57	866	8.51	1016	9.36	1089	10.21	1163	10.75	1290	11.82	1365	12.88	1451
7'-9"	4.03	491	4.53	544	5.02	597	6.33	762	7.00	826	7.71	890	8.67	1040	9.55	1116	10.41	1193	10.98	1313	12.05	1399	13.12	1498
8'-0"	4.12	496	4.62	550	5.12	604	6.46	770	7.14	834	7.86	899	8.86	1051	9.73	1129	10.60	1205	11.20	1325	12.28	1412	13.36	1510
8'-3"	4.20	504	4.71	559	5.22	613	6.59	784	7.28	849	8.01	915	9.04	1069	9.92	1149	10.80	1228	11.42	1353	12.51	1440	13.60	1529
8'-6"	4.28	519	4.80	576	5.32	632	6.71	804	7.42	871	8.16	938	9.21	1107	10.10	1176	10.99	1257	11.64	1385	12.74	1474	13.84	1565
8'-9"	4.37	528	4.90	586	5.42	643	6.84	819	7.56	886	8.31	954	9.39	1119	10.29	1199	11.18	1280	11.87	1410	12.97	1500	14.08	1592
9'-0"	4.45	545	4.99	605	5.53	664	6.97	842	7.70	912	8.46	982	9.56	1148	10.47	1231	11.38	1313	12.09	1447	13.21	1539	14.32	1631
9'-3"	4.53	554	5.08	614	5.63	674	7.10	858	7.84	929	8.60	999	9.74	1169	10.66	1252	11.57	1335	12.31	1474	13.44	1563	14.56	1660
9'-6"	4.62	568	5.17	630	5.73	692	7.23	878	7.97	950	8.75	1022	9.92	1195	10.84	1280	11.77	1365	12.53	1505	13.67	1600	14.80	1696
10'-0"	4.78	582	5.36	645	5.93	708	7.49	900	8.11	974	9.05	1048	10.27	1227	11.21	1312	12.16	1399	12.98	1546	14.13	1642	15.29	1739

NOTE:
FOR CONVENIENCE, DEPTHS OF INLETS SHOWN IN ABOVE TABLES ARE IN INCREMENTS OF 3 INCHES BUT ANY DEPTHS OTHER THAN THOSE SHOWN ABOVE MAY BE USED WHEREVER DEEMED NECESSARY. QUANTITIES FOR OTHER DEPTHS FALLING WITHIN THE LIMITS OF THE TABLE MAY BE FOUND BY INTERPOLATION.

STANDARD DRAWING NO. 6020E

CURB INLET
SUMMARY OF QUANTITIES

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE 702

DATE: OCT. '04 | STANDARD DRAWING NO.: 6020E

STATE OF TEXAS
HAMILTON DALLAGASPERINA
91748
LICENSED
PROFESSIONAL ENGINEER
01-02-18

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

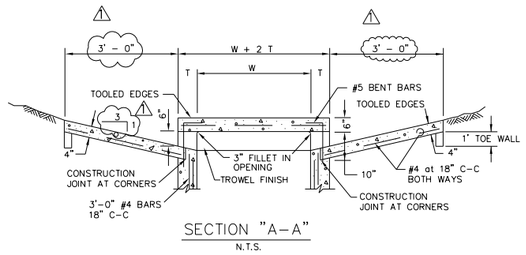
E. STACY ROAD IMPROVEMENTS

NCTCOG DRAINAGE STANDARDS

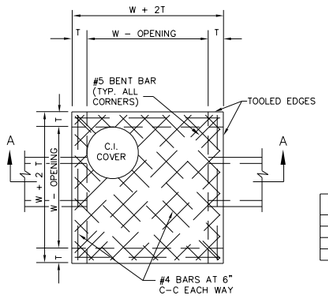
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SECTION "A-A"
N.T.S.



INLET SIZE	T	W
2' SQUARE	7"	2'-0"
4' SQUARE	7"	4'-0"
5' SQUARE	8"	5'-0"
6' SQUARE	9"	6'-0"

PLAN OF TOP SLAB
N.T.S.

NOTES:

1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NCTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLES. MINIMUM CLASS "A" CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
3. FOR DETAILS OF REINFORCING OF LOWER PORTIONS OF INLET SEE APPROPRIATE SQUARE MANHOLE DETAILS.
4. DEPTH OF DROP INLET FROM FINISHED GRADE TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH WILL BE SHOWN ON PLANS AT LOCATION OF INLET.
5. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON PLANS.
6. DECK MAY BE REINFORCED SAME AS 4' SQUARE MANHOLE.

⚠ CHANGED APRON SLOPE FROM 4:1 TO 3:1

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E. STACY ROAD IMPROVEMENTS

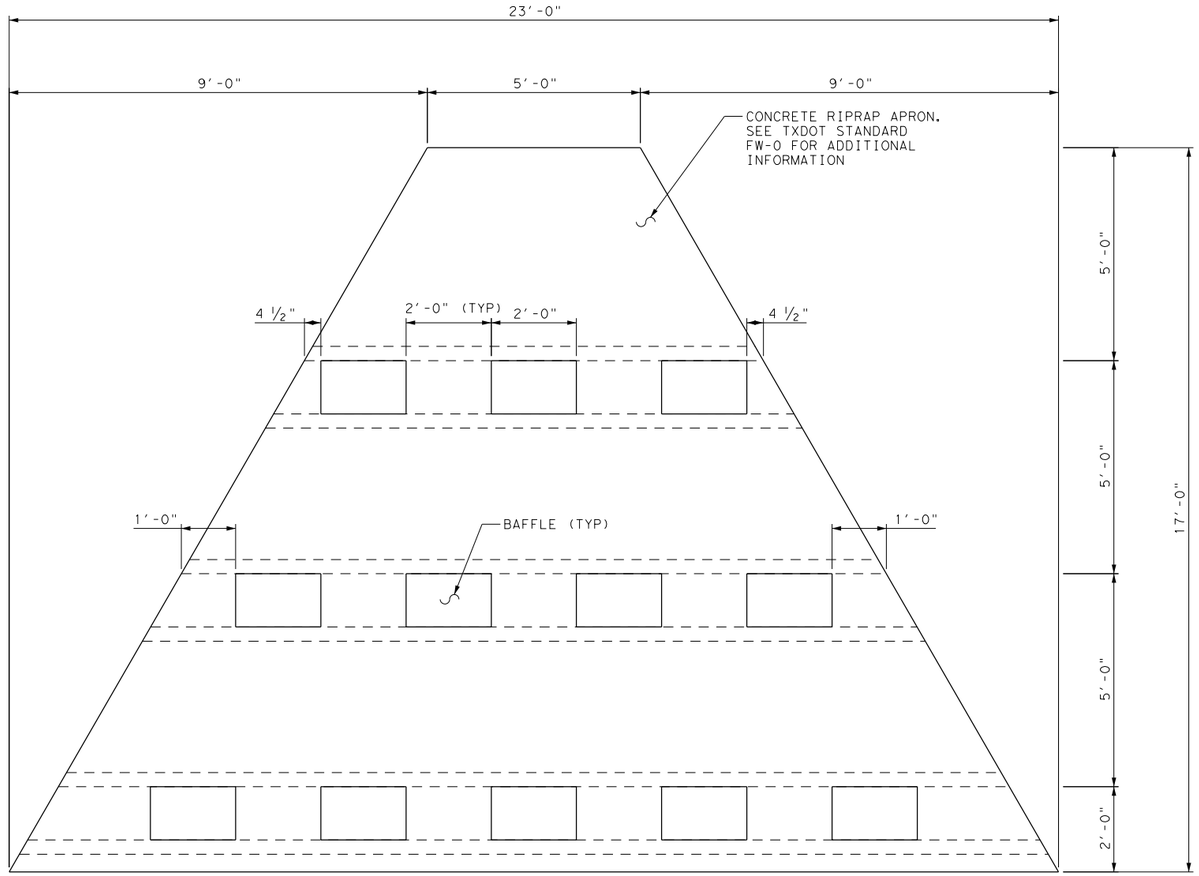
NCTCOG MODIFIED DRAINAGE STANDARDS

SHEET NO. 126

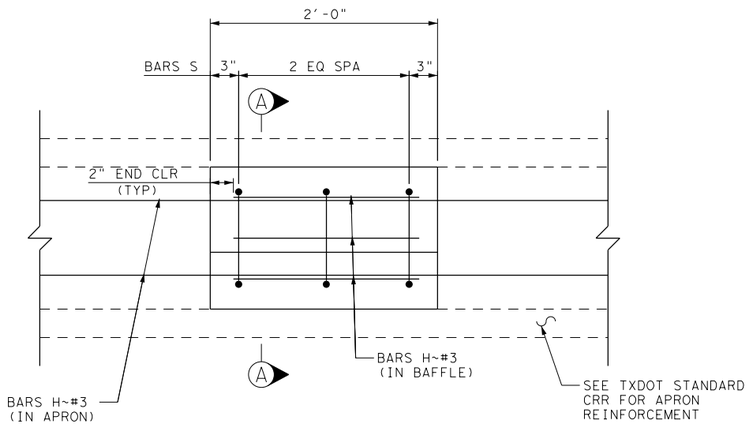
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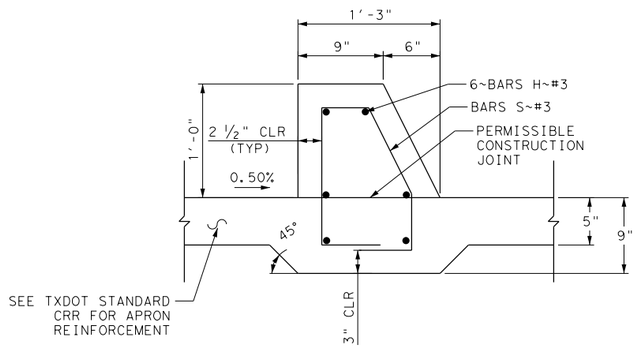
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BAFFLE LAYOUT



BAFFLE PLAN



SECTION A-A

GENERAL NOTES

PROVIDE CLASS "B" CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI. CONCRETE SHALL MEET REQUIREMENTS OF NCTCOG STANDARD SPECIFICATION ITEM 702, "CONCRETE STRUCTURES."

PROVIDE GRADE 60 REINFORCING STEEL. REINFORCEMENT SHALL MEET THE REQUIREMENTS OF NCTCOG STANDARD SPECIFICATION ITEM 702.1.5.

CONCRETE BAFFLE QUANTITY IS INCLUDED IN RIPRAP BID ITEM. PAYMENT FOR CONCRETE BAFFLES SHALL BE AS REQUIRED PER NCTCOG STANDARD SPECIFICATION ITEM 803.3.4.

PROVIDE 3/4" CHAMFER AT ALL EXPOSED EDGES.

REFER TO TXDOT STANDARDS FW-0 AND CRR FOR ADDITIONAL INFORMATION ON CONCRETE WINGWALLS AND CONCRETE APRON.

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E. STACY ROAD IMPROVEMENTS

BAFFLE DETAIL

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DJT	RAW	HD	

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TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Maximum Wingwall Height Hw	W	X	Y	Z	Variable Reinforcing Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Estimated Quantities (3) per ft of wing length (2~Wings) Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'- 8"	3'- 3"	2'- 9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'- 2"	3'- 6"	3'- 0"	1'- 0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'- 8"	4'- 0"	3'- 0"	1'- 1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'- 2"	4'- 6"	3'- 0"	1'- 3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

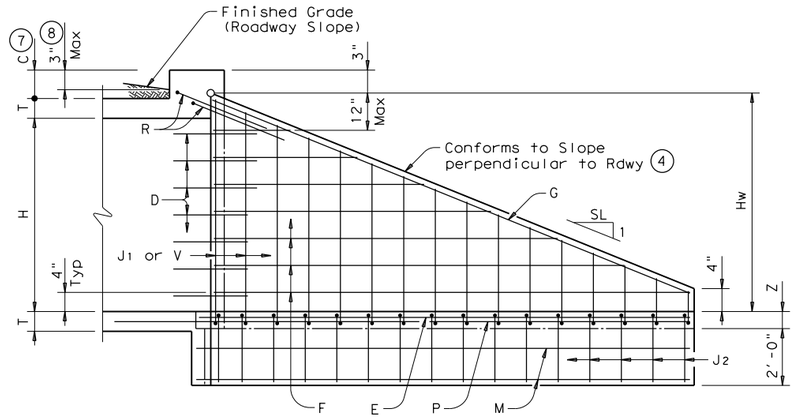
Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)
Hw = H + T + C - 0.250'
A = (Hw - 0.333') (SL)
B = (A) Tangent (30°)
Lw = (A) ÷ Cosine (30°)
For Cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)
For Precast culverts:
Ltw = (N) (2U + S) + (N - 1) (0.500')
Total Wingwall Area (Two Wings ~ S.F.) = (Hw + 0.333') (Lw)

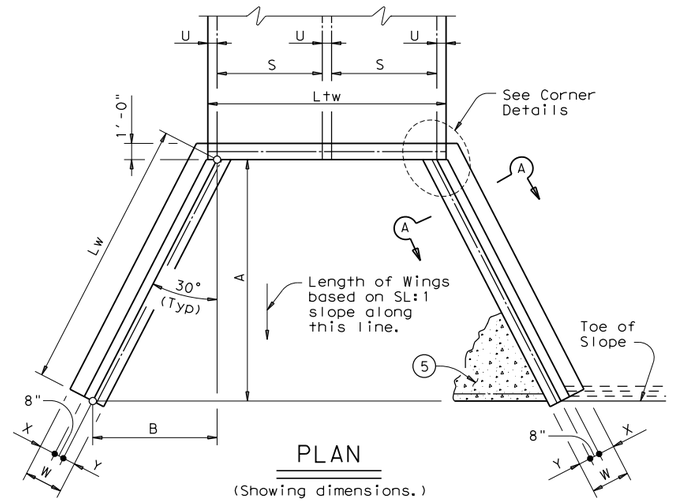
Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans

See applicable box culvert standard for H, S, T, and U values.



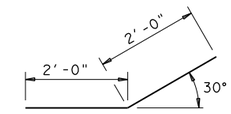
INSIDE ELEVATION

(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)

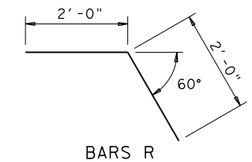


PLAN

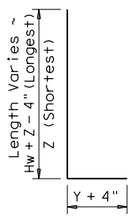
(Showing dimensions.)



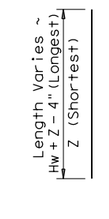
BARS D



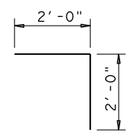
BARS R



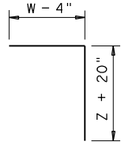
BARS J1



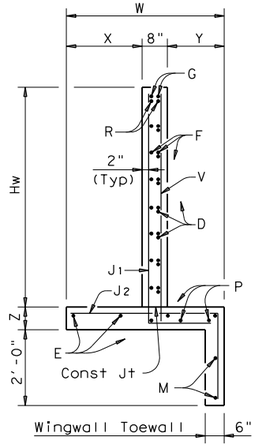
BARS V



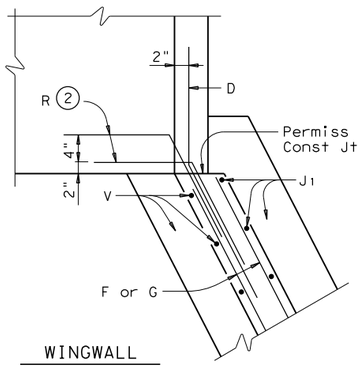
BARS L



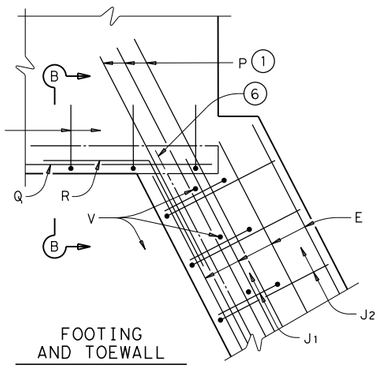
BARS J2



SECTION A-A



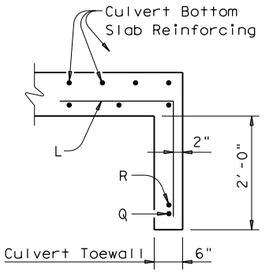
WINGWALL



FOOTING AND TOEWALL

CORNER DETAILS

(Culvert and Culvert Toewall reinforcing not shown for clarity.)



SECTION B-B (5)

(1) Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.

(2) Adjust to fit as necessary to maintain 1 ¼" clear cover and 4" minimum between bars.

(3) Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.

(4) Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.

(5) When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Payment for riprap shall be as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

(6) At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.

(7) 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.

(8) For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

All reinforcing steel shall be Grade 60.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

Texas Department of Transportation

Bridge Division Standard

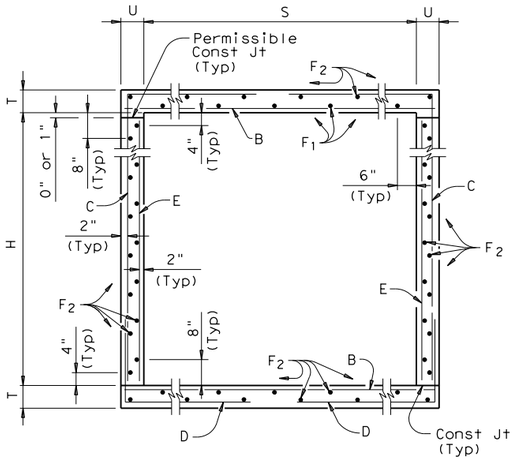
CONCRETE WINGWALLS
WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

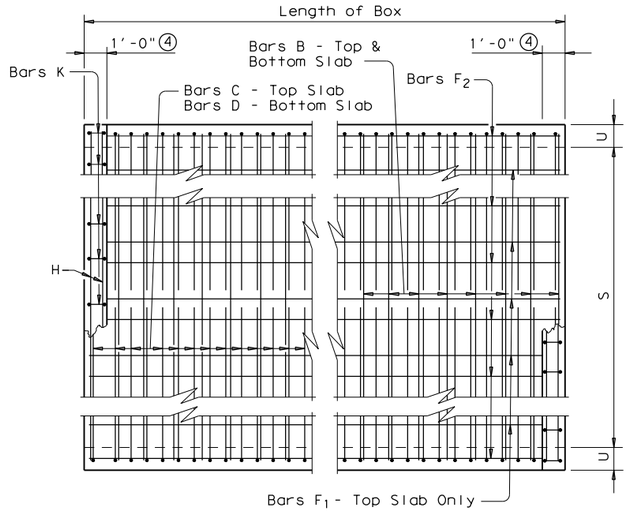
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©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.
		COLLIN		128

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TYPICAL SECTION



PLAN OF REINF STEEL

① 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.

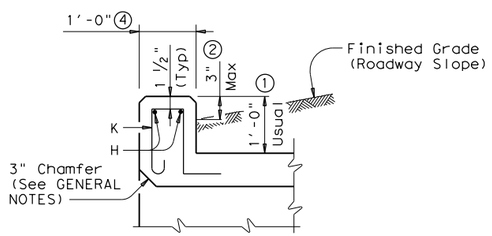
② For vehicle safety, the following requirements must be met:
- For structures without bridge rail, curbs shall project no more than 3" above finished grade.
- For structures with bridge rail, curbs shall be flush with finished grade.
Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

③ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

④ 1'-0" typical. 2'-0" when RAC standard is referred to elsewhere in the plans.

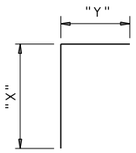
Deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be used to replace conventional reinforcement shown at the Contractor's option. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes.

Example Conversion: Replacement of No. 6 Gr 60 at 6" Spacing with WWR.
WWR required = (0.44 sq in/ 0.5') x (60 ksi/70 ksi) = 0.754 sq in/ft.
If D30.6 wire is used to meet the 0.754 sq in/ft requirement in this example, the required spacing = (0.306 sq in/ 0.754 sq in/ft) x 12 in/ft = 4.87" Max spacing.
Required lap length for the provided D30.6 wire is 2'-2" (Lap required for uncoated No. 5 bars, as shown in Item 440).

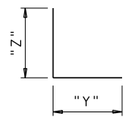


SECTION THRU CURB

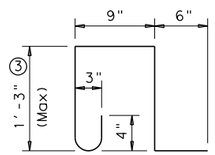
GENERAL NOTES:
Designed according to AASHTO LRFD Specifications.
Designed to the maximum fill height shown.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" with these exceptions: use Class "S" for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.
Class "C" concrete shall have a minimum compressive strength of 3,600 psi. Class "S" concrete shall have a minimum compressive strength of 4,000 psi.
The use of permanent forms is not allowed.
The bottom edge of the top slab shall be chamfered 3" at the entrance.
Reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.
Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars E may be cut off or raised, and Bars C and D may be reversed.
See standard SCC-MD for skewed ends, angle sections and lengthening details.



BARS C



BARS D



BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

FILE: scc34ste.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
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REVISIONS				STACY ROAD
10-12: Added WWR	DIST	COUNTY		SHEET NO.
		COLLIN		129

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BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

SECTION DIMENSIONS				FILL HEIGHT	Bars B					Bars C							Bars D							Bars E~#4 at 18" Max			Bars F_1 ~#4				Bars F_2~#4 at 18" Max			Bars H 4~#4		Bars K		QUANTITIES: Per foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	"X"	"Y"	No.	Size	Spa	Length	Weight	"Y"	"Z"	No.	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
3'-0"	2'-0"	7"	7"	30'	138	#4	7"	3'-11"	361	98	#4	10"	4'- 2"	273	2'- 5"	1'- 9"	98	#4	10"	3'-11"	256	1'- 9"	2'- 2"	56	2'-0"	75	3	13"	39'-9"	80	19	39'-9"	505	3'-11"	10	10	28	0.266	38.8	0.3	38	10.9	1,588
3'-0"	3'-0"	7"	7"	30'	162	#4	6"	3'-11"	424	98	#4	10"	5'- 2"	338	3'- 5"	1'- 9"	98	#4	10"	3'-11"	256	1'- 9"	2'- 2"	56	3'-0"	112	3	12"	39'-9"	80	23	39'-9"	611	3'-11"	10	10	28	0.310	45.5	0.3	38	12.7	1,859
4'-0"	2'-0"	7"	7"	30'	194	#4	5"	4'-11"	637	162	#4	6"	4'- 8"	505	2'- 5"	2'- 3"	162	#4	6"	4'- 5"	478	2'- 3"	2'- 2"	56	2'-0"	75	5	10"	39'-9"	133	21	39'-9"	558	4'-11"	13	12	34	0.310	59.7	0.4	47	12.8	2,433
4'-0"	3'-0"	7"	7"	30'	162	#5	6"	4'-11"	831	162	#4	6"	5'- 8"	613	3'- 5"	2'- 3"	162	#4	6"	4'- 5"	478	2'- 3"	2'- 2"	56	3'-0"	112	6	8"	39'-9"	159	25	39'-9"	664	4'-11"	13	12	34	0.353	71.4	0.4	47	14.5	2,904
4'-0"	4'-0"	7"	7"	30'	162	#5	6"	4'-11"	831	162	#4	6"	6'- 8"	721	4'- 5"	2'- 3"	162	#4	6"	4'- 5"	478	2'- 3"	2'- 2"	56	4'-0"	150	6	8"	39'-9"	159	25	39'-9"	664	4'-11"	13	12	34	0.396	75.1	0.4	47	16.2	3,050

Deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be used to replace conventional reinforcement shown at the Contractor's option. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes.

Example Conversion: Replacement of No. 6 Gr 60 at 6" Spacing with WWR.
WWR required = (0.44 sq in/ 0.5') x (60 ksi/70 ksi) = 0.754 sq in/ft.
If D30.6 wire is used to meet the 0.754 sq in/ft requirement in this example, the required spacing = (0.306 sq in/ 0.754 sq in/ft) x 12 in/ft = 4.87" Max spacing.
Required lap length for the provided D30.6 wire is 2'-2" (Lap required for uncoated No. 5 bars, as shown in Item 440).

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

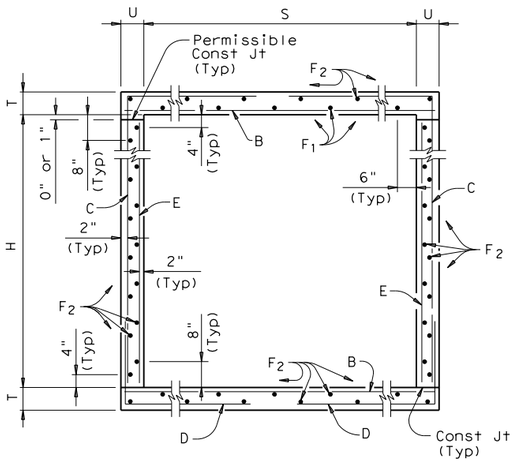
SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

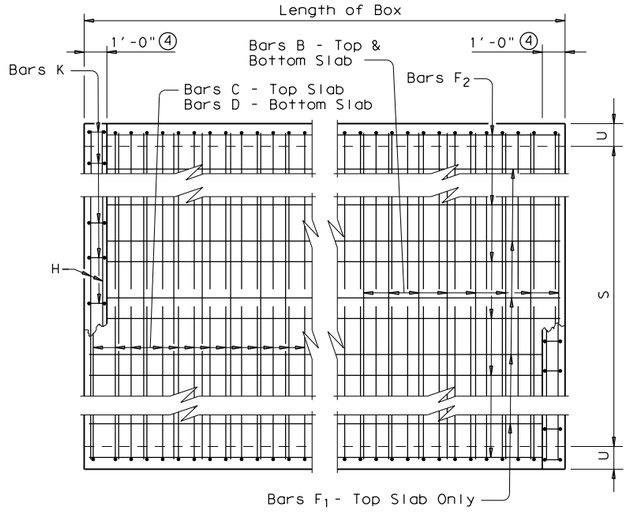
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REVISIONS				STACY ROAD
10-12 Added WWR	DIST	COUNTY		SHEET NO.
		COLLIN		130

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TYPICAL SECTION



PLAN OF REINF STEEL

① 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.

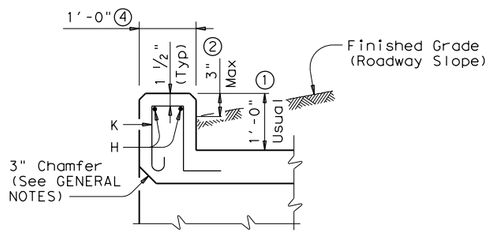
② For vehicle safety, the following requirements must be met:
- For structures without bridge rail, curbs shall project no more than 3" above finished grade.
- For structures with bridge rail, curbs shall be flush with finished grade.
Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

③ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

④ 1'-0" typical. 2'-0" when RAC standard is referred to elsewhere in the plans.

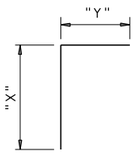
Deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be used to replace conventional reinforcement shown at the Contractor's option. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes.

Example Conversion: Replacement of No. 6 Gr 60 at 6" Spacing with WWR.
WWR required = (0.44 sq in/ 0.5') x (60 ksi/70 ksi) = 0.754 sq in/ft.
If D30.6 wire is used to meet the 0.754 sq in/ft requirement in this example, the required spacing = (0.306 sq in/ 0.754 sq in/ft) x 12 in/ft = 4.87" Max spacing.
Required lap length for the provided D30.6 wire is 2'-2" (Lap required for uncoated No. 5 bars, as shown in Item 440).

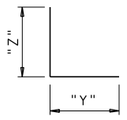


SECTION THRU CURB

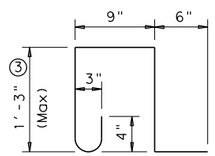
GENERAL NOTES:
Designed according to AASHTO LRFD Specifications.
Designed to the maximum fill height shown.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" with these exceptions: use Class "S" for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.
Class "C" concrete shall have a minimum compressive strength of 3,600 psi. Class "S" concrete shall have a minimum compressive strength of 4,000 psi.
The use of permanent forms is not allowed.
The bottom edge of the top slab shall be chamfered 3" at the entrance.
Reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.
Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars E may be cut off or raised, and Bars C and D may be reversed.
See standard SCC-MD for skewed ends, angle sections and lengthening details.



BARS C



BARS D



BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

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REVISIONS				STACY ROAD
10-12: Added WWR	DIST	COUNTY		SHEET NO.
		COLLIN		131

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BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

SECTION DIMENSIONS				FILL HEIGHT ⑤	Bars B					Bars C							Bars D							Bars E~#4 at 18" Max			Bars F_1 ~#4				Bars F_2~#4 at 18" Max			Bars H 4~#4		Bars K		QUANTITIES: Per foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	"X"	"Y"	No.	Size	Spa	Length	Weight	"Y"	"Z"	No.	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
5'-0"	2'-0"	7"	7"	26'	194	#5	5"	5'-11"	1,197	162	#5	6"	5'- 2"	873	2'- 5"	2'- 9"	162	#5	6"	5'- 4"	901	2'- 9"	2'- 7"	56	2'-0"	75	8	7"	39'-9"	212	22	39'-9"	584	5'-11"	16	14	40	0.353	96.1	0.5	56	14.6	3,898
5'-0"	2'-0"	8"	7"	30'	194	#5	5"	5'-11"	1,197	194	#4	5"	5'- 0"	648	2'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	2'-0"	75	4	18"	39'-9"	106	22	39'-9"	584	5'-11"	16	14	40	0.391	80.7	0.5	56	16.1	3,282
5'-0"	3'-0"	7"	7"	26'	194	#5	5"	5'-11"	1,197	194	#4	5"	5'-11"	767	3'- 5"	2'- 6"	194	#4	5"	4'- 8"	605	2'- 6"	2'- 2"	56	3'-0"	112	8	7"	39'-9"	212	26	39'-9"	690	5'-11"	16	14	40	0.396	89.6	0.5	56	16.3	3,639
5'-0"	3'-0"	8"	7"	30'	194	#5	5"	5'-11"	1,197	194	#4	5"	6'- 0"	778	3'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	3'-0"	112	4	18"	39'-9"	106	26	39'-9"	690	5'-11"	16	14	40	0.434	87.5	0.5	56	17.9	3,555
5'-0"	4'-0"	7"	7"	26'	194	#5	5"	5'-11"	1,197	194	#4	5"	6'-11"	896	4'- 5"	2'- 6"	194	#4	5"	4'- 8"	605	2'- 6"	2'- 2"	56	4'-0"	150	8	7"	39'-9"	212	26	39'-9"	690	5'-11"	16	14	40	0.439	93.8	0.5	56	18.1	3,806
5'-0"	4'-0"	8"	7"	30'	194	#5	5"	5'-11"	1,197	194	#4	5"	7'- 0"	907	4'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	4'-0"	150	4	18"	39'-9"	106	26	39'-9"	690	5'-11"	16	14	40	0.477	91.7	0.5	56	19.6	3,722
5'-0"	5'-0"	7"	7"	26'	194	#5	5"	5'-11"	1,197	194	#4	5"	7'-11"	1,026	5'- 5"	2'- 6"	194	#4	5"	4'- 8"	605	2'- 6"	2'- 2"	56	5'-0"	187	8	7"	39'-9"	212	30	39'-9"	797	5'-11"	16	14	40	0.483	100.6	0.5	56	19.8	4,080
5'-0"	5'-0"	8"	7"	30'	194	#5	5"	5'-11"	1,197	194	#4	5"	8'- 0"	1,037	5'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	5'-0"	187	4	18"	39'-9"	106	30	39'-9"	797	5'-11"	16	14	40	0.521	98.5	0.5	56	21.3	3,996
6'-0"	3'-0"	7"	7"	20'	194	#5	5"	6'-11"	1,400	162	#5	6"	6'- 6"	1,098	3'- 5"	3'- 1"	162	#5	6"	5'- 8"	957	3'- 1"	2'- 7"	56	3'-0"	112	10	7"	39'-9"	266	29	39'-9"	770	6'-11"	18	16	45	0.439	115.1	0.5	63	18.1	4,666
6'-0"	3'-0"	8"	7"	26'	162	#6	6"	6'-11"	1,683	162	#5	6"	6'- 7"	1,112	3'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	3'-0"	112	5	18"	39'-9"	133	29	39'-9"	770	6'-11"	18	16	45	0.484	119.6	0.5	63	19.9	4,845
6'-0"	3'-0"	9"	8"	30'	162	#6	6"	7'- 1"	1,724	162	#5	6"	6'- 8"	1,126	3'- 7"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	3'-0"	112	5	18"	39'-9"	133	29	39'-9"	770	7'- 1"	19	18	51	0.556	121.3	0.5	70	22.7	4,921
6'-0"	4'-0"	7"	7"	20'	194	#5	5"	6'-11"	1,400	194	#4	5"	7'- 3"	940	4'- 5"	2'-10"	194	#4	5"	5'- 0"	648	2'-10"	2'- 2"	56	4'-0"	150	10	7"	39'-9"	266	29	39'-9"	770	6'-11"	18	16	45	0.483	104.4	0.5	63	19.8	4,237
6'-0"	4'-0"	8"	7"	26'	194	#6	5"	6'-11"	2,015	162	#5	6"	7'- 7"	1,281	4'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	4'-0"	150	5	18"	39'-9"	133	29	39'-9"	770	6'-11"	18	16	45	0.527	133.0	0.5	63	21.6	5,384
6'-0"	4'-0"	9"	8"	30'	162	#6	6"	7'- 1"	1,724	162	#5	6"	7'- 8"	1,295	4'- 7"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	4'-0"	150	5	18"	39'-9"	133	29	39'-9"	770	7'- 1"	19	18	51	0.605	126.5	0.5	70	24.7	5,128
6'-0"	5'-0"	7"	7"	20'	194	#5	5"	6'-11"	1,400	194	#4	5"	8'- 3"	1,069	5'- 5"	2'-10"	194	#4	5"	5'- 0"	648	2'-10"	2'- 2"	56	5'-0"	187	10	7"	39'-9"	266	33	39'-9"	876	6'-11"	18	16	45	0.526	111.2	0.5	63	21.5	4,509
6'-0"	5'-0"	8"	7"	26'	194	#6	5"	6'-11"	2,015	162	#5	6"	8'- 7"	1,450	5'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	5'-0"	187	5	18"	39'-9"	133	33	39'-9"	876	6'-11"	18	16	45	0.570	140.8	0.5	63	23.3	5,696
6'-0"	5'-0"	9"	8"	30'	194	#6	5"	7'- 1"	2,064	162	#5	6"	8'- 8"	1,464	5'- 7"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	5'-0"	187	5	18"	39'-9"	133	33	39'-9"	876	7'- 1"	19	18	51	0.654	142.8	0.5	70	26.7	5,780
6'-0"	6'-0"	7"	7"	20'	194	#5	5"	6'-11"	1,400	194	#4	5"	9'- 3"	1,199	6'- 5"	2'-10"	194	#4	5"	5'- 0"	648	2'-10"	2'- 2"	56	6'-0"	224	10	7"	39'-9"	266	37	39'-9"	982	6'-11"	18	16	45	0.569	118.0	0.5	63	23.3	4,782
6'-0"	6'-0"	8"	7"	26'	194	#6	5"	6'-11"	2,015	162	#5	6"	9'- 7"	1,619	6'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	6'-0"	224	5	18"	39'-9"	133	37	39'-9"	982	6'-11"	18	16	45	0.613	148.6	0.5	63	25.0	6,008
6'-0"	6'-0"	9"	8"	30'	194	#6	5"	7'- 1"	2,064	162	#5	6"	9'- 8"	1,633	6'- 7"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	6'-0"	224	5	18"	39'-9"	133	37	39'-9"	982	7'- 1"	19	18	51	0.704	150.6	0.5	70	28.7	6,092

⑤ For each box size, minimum fill height shown shall be used for all culverts with less than 2'-0" of fill.

Deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be used to replace conventional reinforcement shown at the Contractor's option. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes.

Example Conversion: Replacement of No. 6 Gr 60 at 6" Spacing with WWR.
WWR required = (0.44 sq in/ 0.5') x (60 ksi/70 ksi) = 0.754 sq in/ft.
If D30.6 wire is used to meet the 0.754 sq in/ft requirement in this example, the required spacing = (0.306 sq in/ 0.754 sq in/ft) x 12 in/ft = 4.87" Max spacing.
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HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

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REVISIONS				STACY ROAD
10-12: Added WWR	DIST	COUNTY		SHEET NO.
		COLLIN		132

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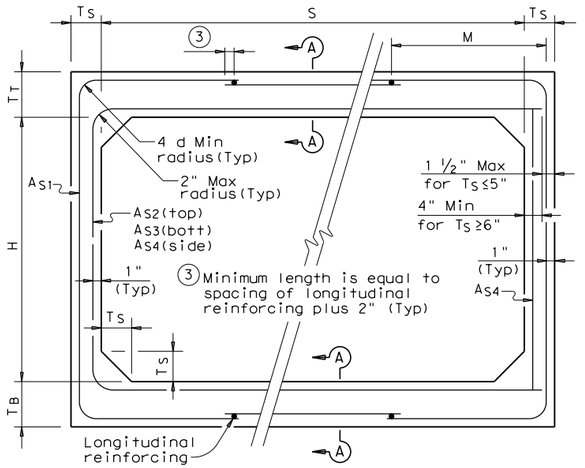
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BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in^2/ft) ②								① Lift Weight (Tons)
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	
4	2	7.5	6	5	<2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.18	0.14	4.5
4	2	5	5	5	2<3	38	0.18	0.19	0.17	0.12	-	-	-	-	3.6
4	2	5	5	5	3-5	38	0.13	0.13	0.13	0.12	-	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	-	3.6
4	3	7.5	6	5	<2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.18	0.14	5.0
4	3	5	5	5	2<3	38	0.15	0.23	0.20	0.12	-	-	-	-	4.1
4	3	5	5	5	3-5	38	0.12	0.16	0.16	0.12	-	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	-	4.1
4	4	7.5	6	5	<2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.18	0.14	5.5
4	4	5	5	5	2<3	38	0.12	0.26	0.23	0.12	-	-	-	-	4.6
4	4	5	5	5	3-5	38	0.12	0.18	0.18	0.12	-	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	-	4.6

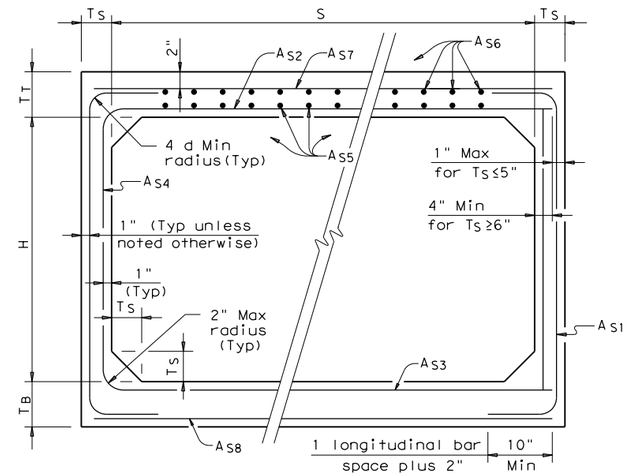
① For Box Length = 8'-0"

② A_{S1} thru A_{S4}, A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S6} and A_{S5} are minimum required areas of reinforcement per linear foot of box width.



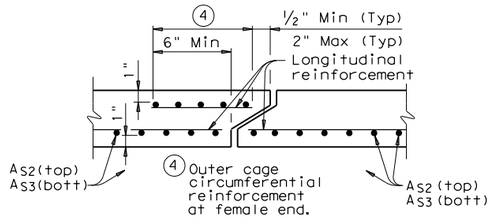
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:

Designs shown conform to ASTM C1577.

Refer to ASTM C1577 for information or details not shown.

All concrete shall be Class "H" Concrete with a minimum compressive strength of 5,000 psi.

See SCP-MD standard sheet for miscellaneous details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Shop plans for alternate designs shall be submitted in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

4'-0" SPAN

SCP-4

FILE: 133	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		133

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BOX DATA

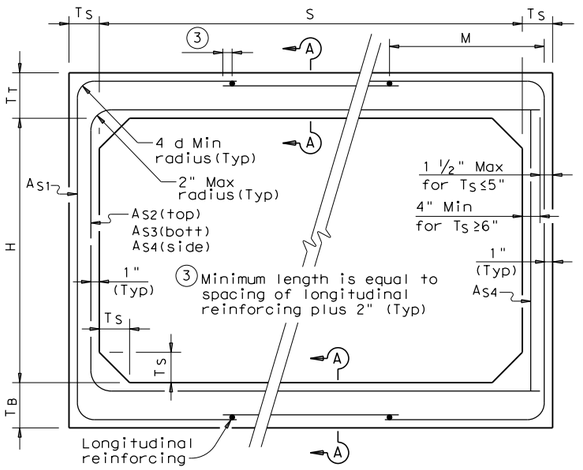
SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in²/ft) ②								① Lift Weight (Tons)
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	
5	3	8	7	6	<2	-	0.19	0.31	0.21	0.14	0.19	0.19	0.19	0.17	6.6
5	3	6	6	6	2<3	45	0.18	0.24	0.19	0.14	-	-	-	-	5.7
5	3	6	6	6	3-5	36	0.14	0.17	0.16	0.14	-	-	-	-	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	-	-	-	-	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	-	-	-	-	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	-	-	-	-	5.7
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	-	-	-	-	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	-	-	-	-	5.7
5	4	8	7	6	<2	-	0.19	0.33	0.24	0.14	0.19	0.19	0.19	0.17	7.2
5	4	6	6	6	2<3	45	0.16	0.27	0.22	0.14	-	-	-	-	6.3
5	4	6	6	6	3-5	45	0.14	0.19	0.18	0.14	-	-	-	-	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	-	-	-	-	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	-	-	-	-	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	-	-	-	-	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	-	-	-	-	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	-	-	-	-	6.3
5	5	8	7	6	<2	-	0.19	0.35	0.26	0.14	0.19	0.19	0.19	0.17	7.8
5	5	6	6	6	2<3	45	0.14	0.29	0.24	0.14	-	-	-	-	6.9
5	5	6	6	6	3-5	45	0.14	0.21	0.20	0.14	-	-	-	-	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	-	-	-	-	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	-	-	-	-	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	-	-	-	-	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	-	-	-	-	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	-	-	-	-	6.9
5	2	8	7	6	<2	-	0.20	0.31	0.20	0.14	0.22	0.19	0.19	0.17	6.0
5	2	6	6	6	30	44	0.39	0.33	0.34	0.14	-	-	-	-	5.1

⑤

① For Box Length = 8'-0"

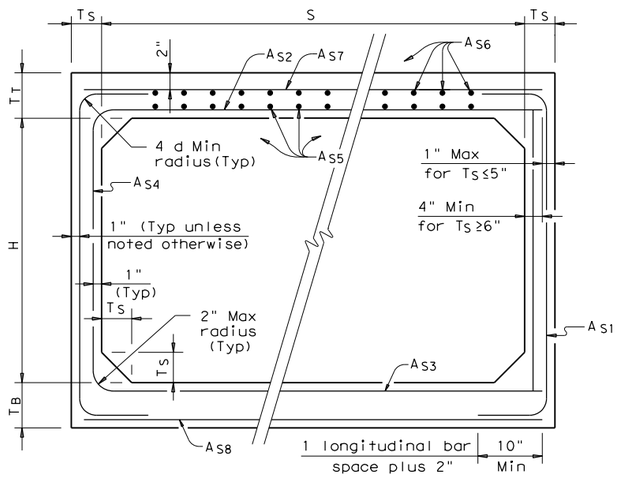
② A_{S1} thru A_{S4}, A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S6} and A_{S5} are minimum required areas of reinforcement per linear foot of box width.

⑤ These designs were created by TxDOT and are not shown in the ASTM Specifications.



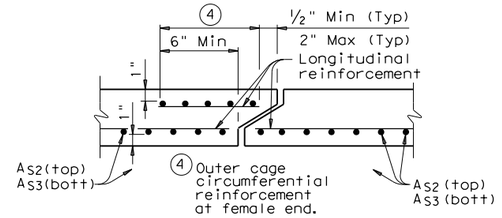
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:

Designs shown conform to ASTM C1577.

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All concrete shall be Class "H" Concrete with a minimum compressive strength of 5,000 psi.

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HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

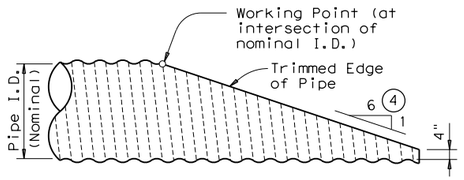
5'-0" SPAN

SCP-5

FILE: 134	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2010 REVISIONS	CONT	SECT	JOB	HIGHWAY
				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		134

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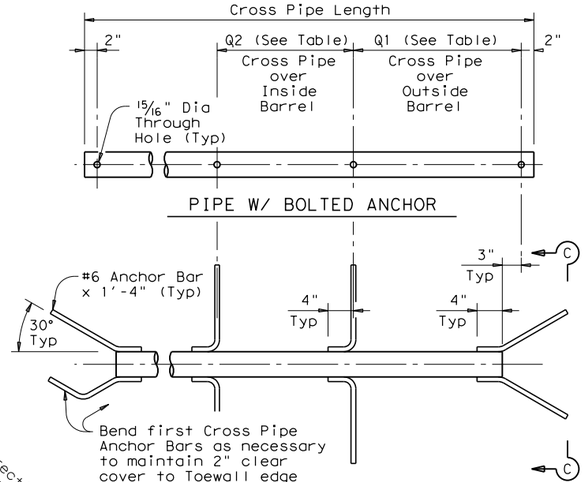
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NOTE: All Cross Pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

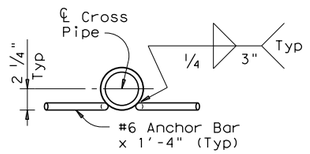
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing Corrugated Metal Pipe Culvert.)
(Details at Concrete Pipe Culvert are similar.)

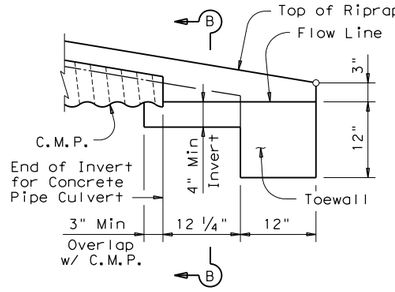


PIPE W/ BOLTED ANCHOR

PIPE W/ ANCHOR BARS

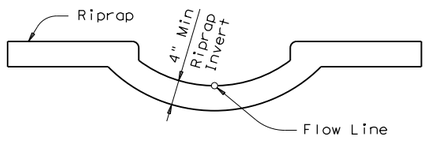


SECTION C-C



DETAIL "A"

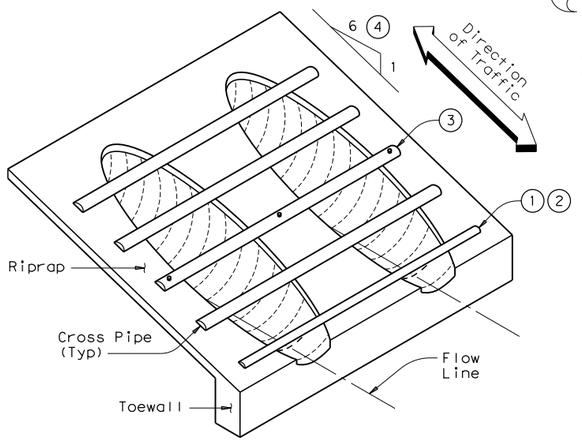
(Showing Invert with Corrugated Metal Pipe Culvert. Concrete Pipe Culvert details are similar. Cross Pipes not shown for clarity.)



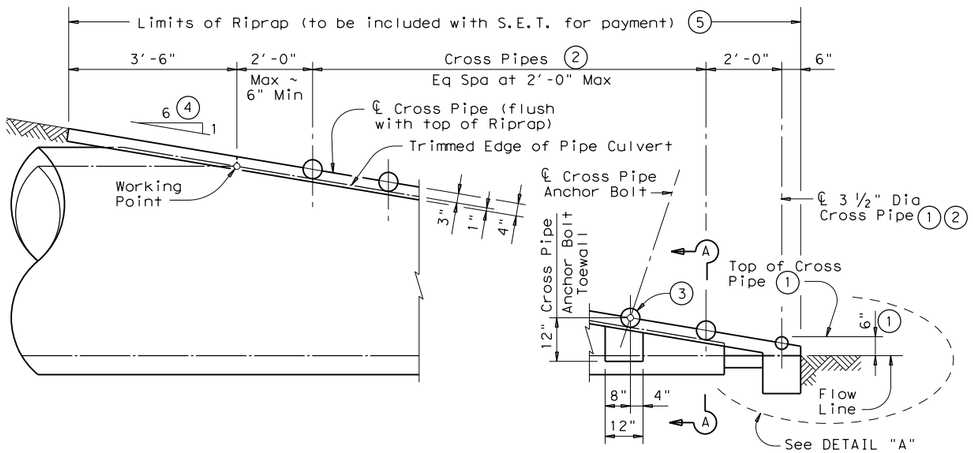
SECTION B-B

(Cross Pipes not shown for clarity.)

CROSS PIPE DETAILS

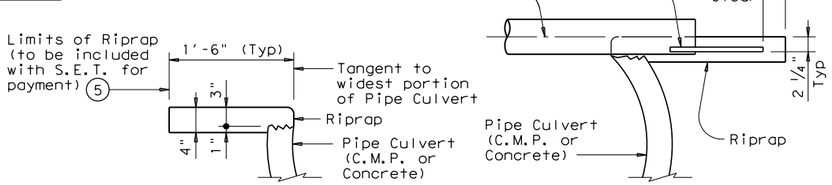


ISOMETRIC VIEW OF TYPICAL INSTALLATION



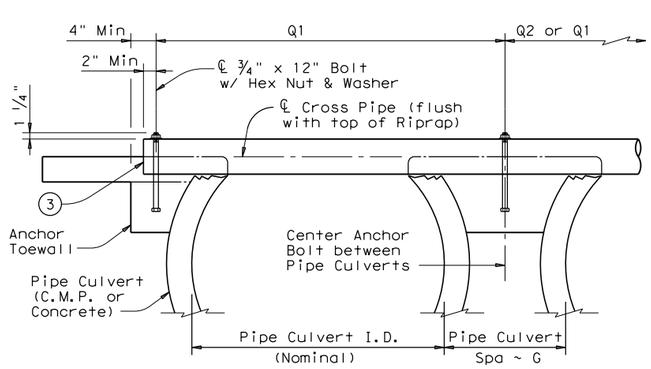
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert.)
(Details at Corrugated Metal Pipe Culvert are similar.)



SHOWING TYPICAL PIPE CULVERT & RIPRAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, & RIPRAP QUANTITIES 2

Nominal Culvert I.D.	Conc Riprap (CY) 6	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for use of Cross Pipes	Cross Pipe Size
12"	0.6	9"	N/A	2'- 1"	1'- 9"	3 or more Pipe Culverts	3" Std (3.500" O.D.)
15"	0.7	11"	N/A	2'- 5"	2'- 2"		
18"	0.8	1'- 2"	N/A	2'-10"	2'- 8"		
21"	0.9	1'- 4"	N/A	3'- 2"	3'- 1"		
24"	0.9	1'- 7"	N/A	3'- 6"	3'- 7"		
27"	1.0	1'- 8"	N/A	3'-10"	3'-11"	3 or more Pipe Culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1'-10"	N/A	4'- 2"	4'- 4"	2 or more Pipe Culverts	
33"	1.2	1'-11"	4'- 2"	4'- 5"	4'- 8"	All Pipe Culverts	
36"	1.3	2'- 1"	4'- 5"	4'- 9"	5'- 1"	All Pipe Culverts	4" Std (4.500" O.D.)
42"	1.5	2'- 4"	4'-11"	5'- 5"	5'-10"		
48"	1.7	2'- 7"	5'- 5"	6'- 0"	6'- 7"	All Pipe Culverts	5" Std (5.563" O.D.)
54"	2.0	3'- 0"	5'-11"	6'- 9"	7'- 6"		
60"	2.2	3'- 3"	6'- 5"	7'- 4"	8'- 3"		
66"	2.4	3'- 3"	6'-11"	7'-10"	8'- 9"		
72"	2.7	3'- 4"	7'- 5"	8'- 5"	9'- 4"		

1. The proper installation of the first Cross Pipe is critical for vehicle safety. The top of the first Cross Pipe must be placed at no more than 6" above the flow line.
2. Size of Cross Pipes, except the first bottom pipe, shall be as shown in the PIPE SIZE table. The first bottom pipe shall be 3 ½" Standard Pipe (4" O.D.).
3. The third Cross Pipe from the bottom of the Culvert shall always be installed using a bolted connection. Care shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, all other Cross Pipes may also be installed using the bolted connection details.
4. Match Cross Slope as shown elsewhere in the plans. Cross Slope of 6:1 or flatter is required for vehicle safety.
5. Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".
6. Quantities shown are for one end of one reinforced Concrete Pipe Culvert. For multiple pipe culverts or for Corrugated Metal Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

GENERAL NOTES:

Cross Pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Cross Pipes.

Riprap and all necessary inverts shall be Concrete Riprap conforming to the requirements of Item 432, "Riprap".

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Cross Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307.

All steel components, except concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA
PIPE CULVERTS
TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: setppdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
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11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.
		COLLIN		135

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TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

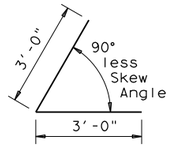
Dimensions					Variable Reinforcing				Estimated ④ Quantities per ft of wing (2~Wings)		Estimated Quantities per ft of Toewall (1~Toewall)	
					Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'- 0"	2'-10"	2'- 2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'- 5"	3'- 0"	2'- 5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'- 2"	3'- 6"	2'- 8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'- 8"	3'- 9"	2'-11"	1'- 0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'- 2"	4'- 0"	3'- 2"	1'- 2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'- 5"	3'- 5"	1'- 4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'- 6"	4'-10"	3'- 8"	1'- 6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'- 0"	3'-11"	1'- 7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2~Wings)

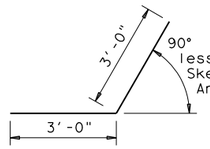
Bar	Size	No.	Spa
D1	#6	~	1'-0"
D2	#6	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	~	8"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

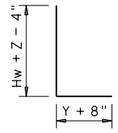
Bar	Size	No	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"



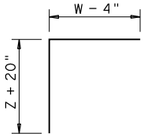
BARS D1



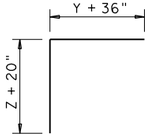
BARS D2



BARS J1



BARS J2



BARS J3



BARS V

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

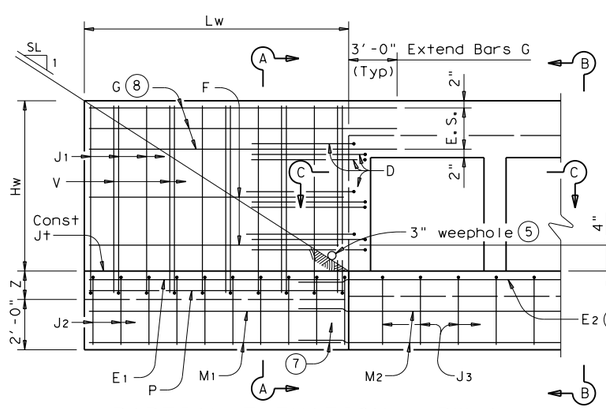
Hw = H + T + C
Lw = (Hw) (SL) ÷ Cosine θ for Ty PW-1
= (Hw - 1') (SL) ÷ Cosine θ for Ty PW-2 and Hw ≥ 4'
= (Hw - 0.5') (SL) ÷ Cosine θ for Ty PW-2 and Hw < 4'

For Cast-in-place culverts:
Ltw = [(N) (S) + (N + 1) (U)] ÷ Cosine θ

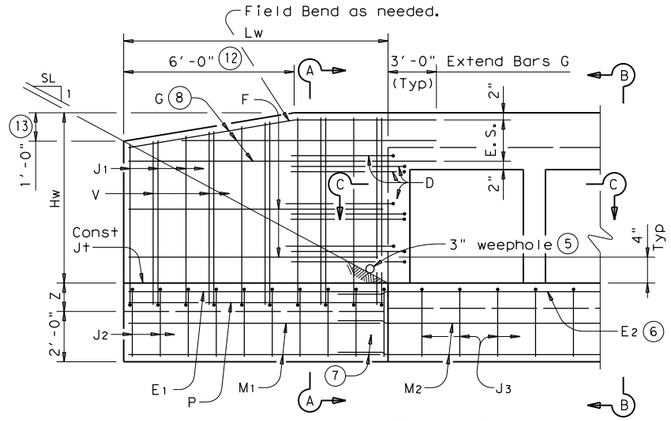
For Precast culverts:
Ltw = [(N) (2 U + S) + (N - 1) (0.5')] ÷ Cosine θ
Total Wingwall Area (Two Wings ~ SF)
= (2)(Hw)(Lw) for Ty PW-1
= (2)(Hw)(Lw) - 6 SF for Ty PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) - 1.5 SF for Ty PW-2 and Hw < 4'

Hw = Height of Wingwall
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
SL:1 = Channel Slope ratio. (Horizontal: 1 Vertical, Usual value is 2:1)
θ = Culvert Skew

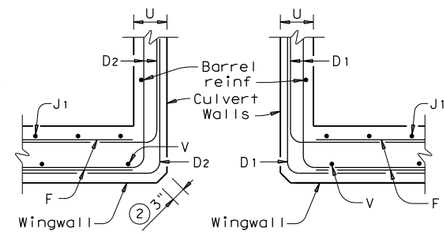
See applicable box culvert standard for S, H, T and U values.



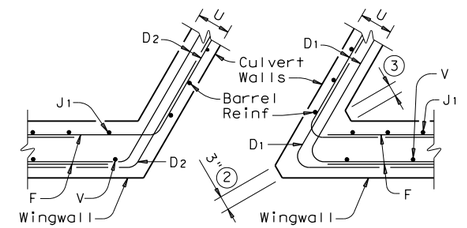
PARTIAL ELEVATION - PW-1



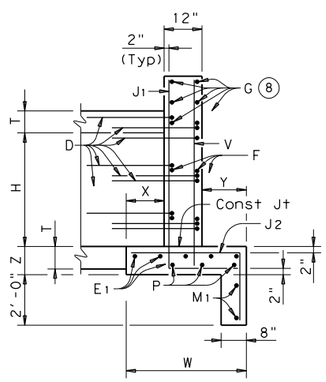
PARTIAL ELEVATION - PW-2



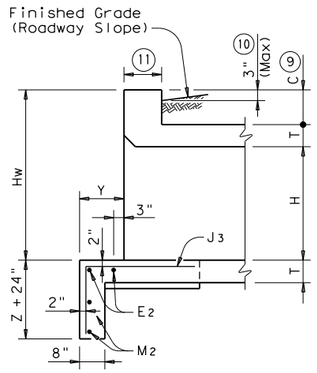
SECTION C-C



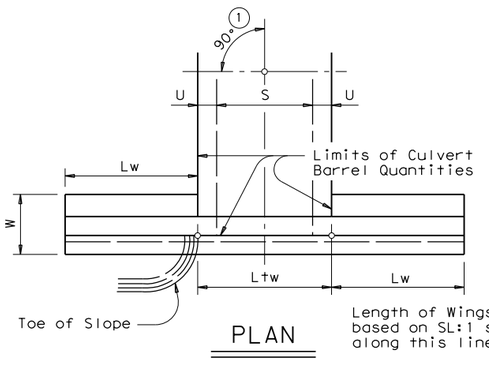
SECTION C-C



SECTION A-A
(Showing Wing Reinf)

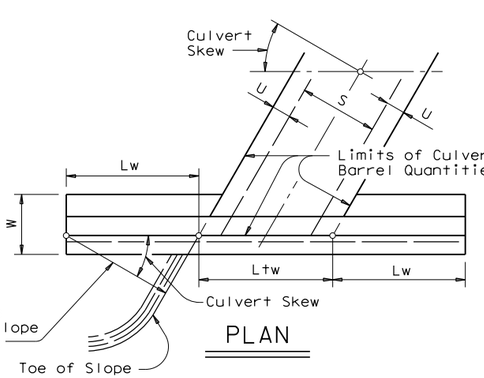


SECTION B-B
(Showing Wing Reinf)



PLAN

DETAILS FOR
NON-SKEWED BOX CULVERTS



PLAN

DETAILS FOR
SKEWED BOX CULVERTS
(Showing 30° Skew)

① Skew Angle = 0°

② At discharge end, chamfer may be ¾".

③ For 15° Skew ~ 1"
For 30° Skew ~ 2"
For 45° Skew ~ 3"

④ Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.

⑤ Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.

⑥ Extend Bars E2 1'-6" minimum into the wingwall footing.

⑦ Lap Bars M1 1'-6" minimum with Bars M2.

⑧ Bars G equally spaced at 8" maximum, place as shown. Provide at least two pair Bars G per wing.

⑨ 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.

⑩ For vehicle safety, the following requirements must be met:
- For structures without bridge rail, curbs cannot project more than 3" above finished grade.
- For structures with bridge rail, build curbs flush with finished grade.
Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

⑪ 1'-0" typical. 2'-0" typical when RAC standard is referenced elsewhere in the plans.

⑫ 3'-0" for Hw < 4'.

⑬ 6" for Hw < 4'.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.

Provide Class "C" Concrete (f'c = 3,600 psi Min) and Grade 60 reinforcing steel.

Provide 1 ¼" Min clear cover to reinforcing steel.

Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.

See BCS sheet for wingwall type and additional dimensions and information.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

DESIGNER NOTES:

Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.

Type PW-2 can only be used for applications without a railing mounted to the wingwall.

Texas Department of Transportation

Bridge Division Standard

CONCRETE WINGWALLS
WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

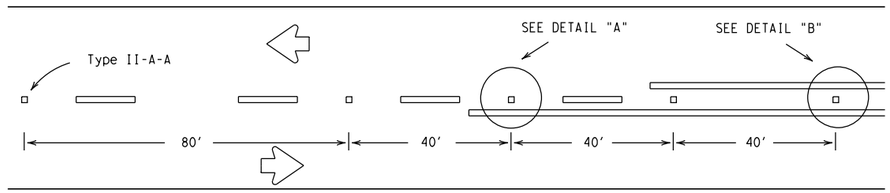
PW

FILE: pwstde01.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				STACY ROAD
11-10: Reinforcing Quantities. 01-12: PW-1 & PW-2.	DIST	COUNTY		SHEET NO.
		COLLIN		136

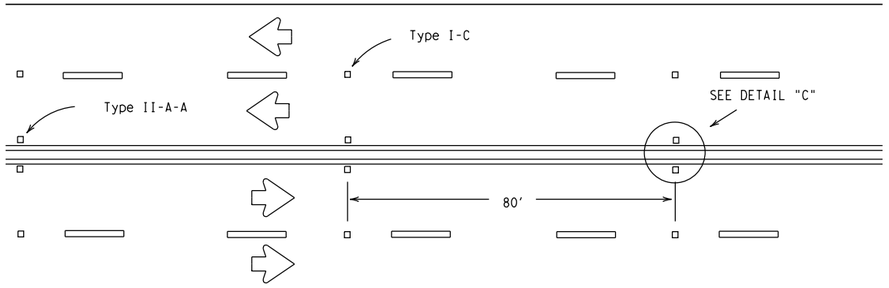
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REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

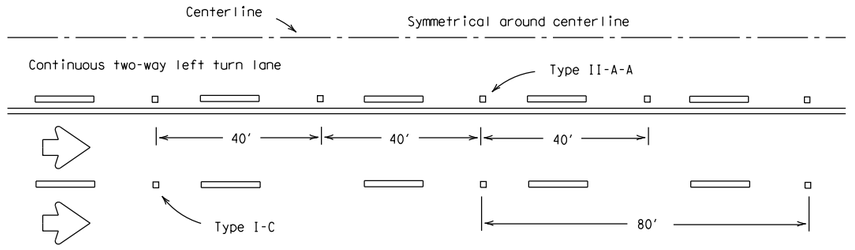


CENTERLINE FOR ALL TWO LANE ROADWAYS

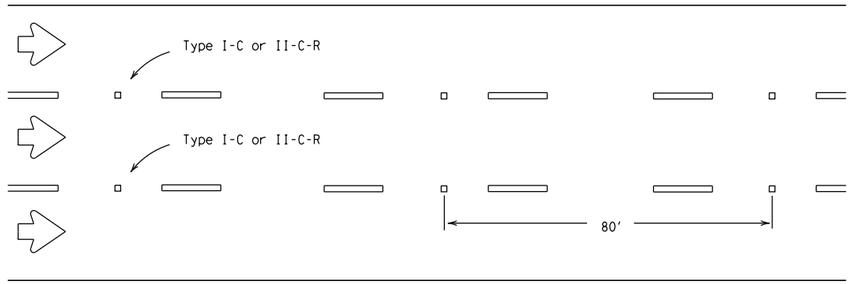


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.

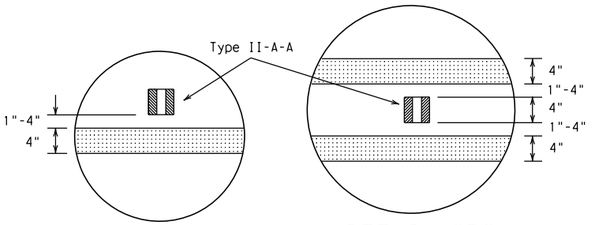


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



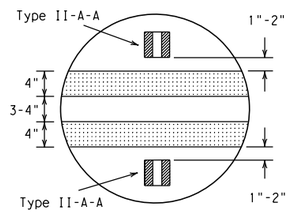
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

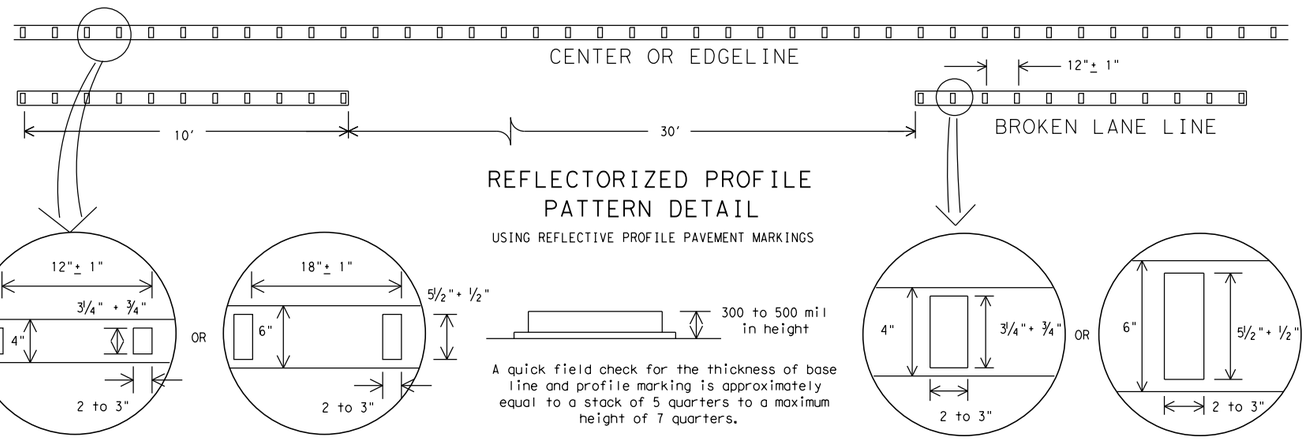


DETAIL "A"

DETAIL "B"



DETAIL "C"



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.

4" EDGE LINE OR CENTERLINE

OPTIONAL 6" EDGE LINE OR CENTERLINE

4" LANE LINE

OPTIONAL 6" LANE LINE

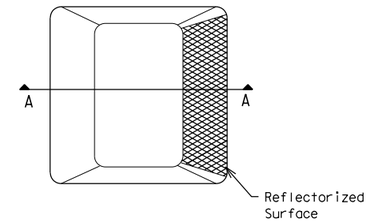
NOTE:
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

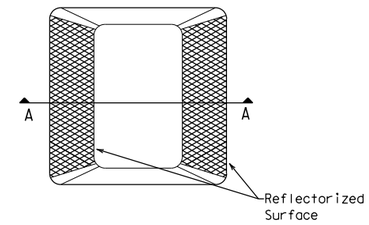
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

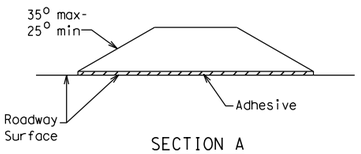
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation
Traffic Operations Division

POSITION GUIDANCE USING RAISED MARKERS

REFLECTORIZED PROFILE MARKINGS

PM(2)-12

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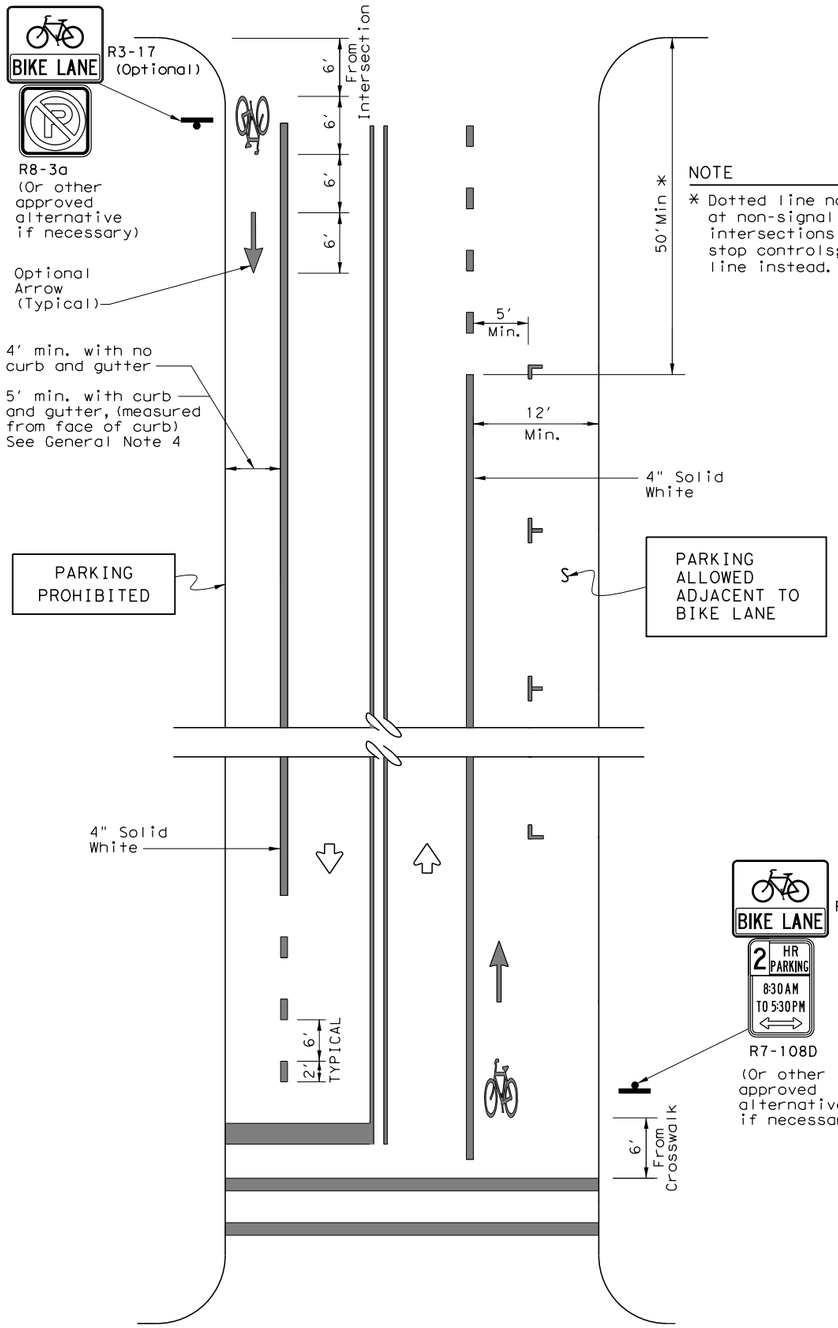
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS	CONT	SECT	JOB	HIGHWAY
4-92 2-10				STACY ROAD
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00		COLLIN		137
2-08				

22B

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NOTE

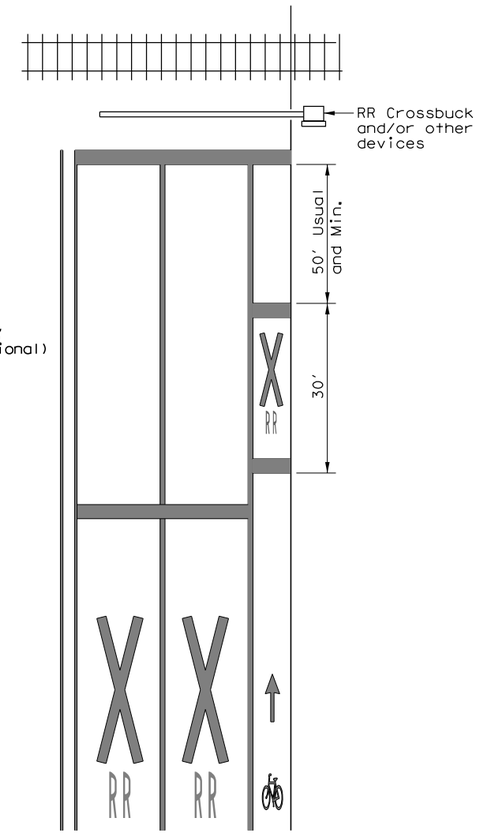
* Dotted line not necessary at non-signalized minor intersections with no stop controls; Use solid line instead.

NOTES

1. Bicycle lane pavement markings typically repeated after each intersection or signalized driveway.
2. On uninterrupted sections of roadway, bicycle lane pavement markings typically repeated as follows:

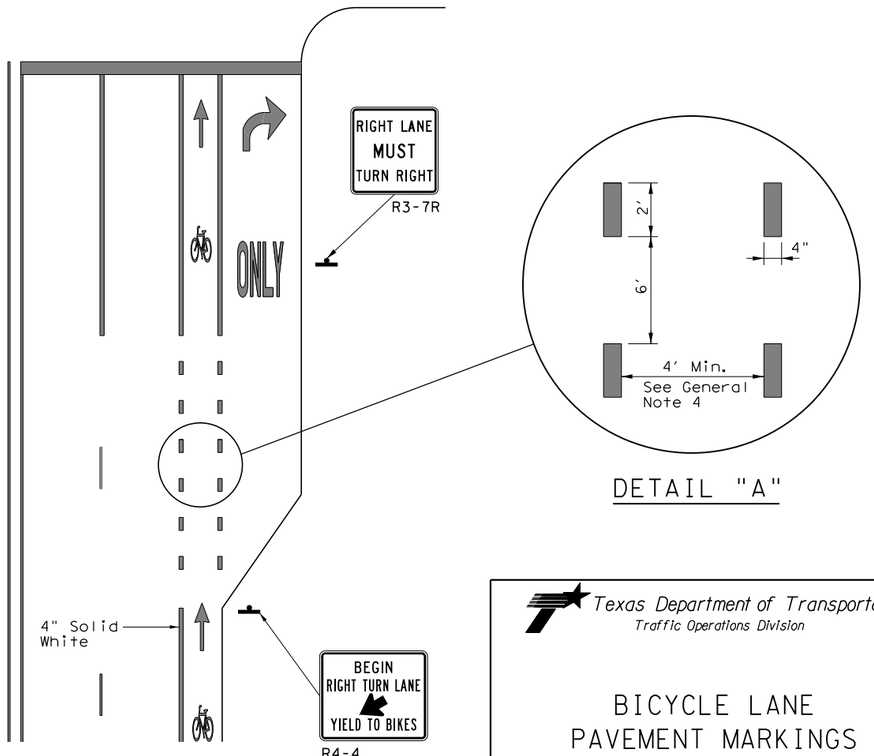
   -1200' for 45 MPH or less roads
   -2500' for 50 MPH and greater roads.

TWO-WAY STREET



(See RCPM Standard for travel lane details)

RAILROAD CROSSING APPROACH



RIGHT TURN ONLY LANE

DETAIL "A"

GENERAL NOTES

1. All bicycle lane pavement markings shall be white unless otherwise noted.
2. All pavement marking materials shall meet the required Department Material Specifications as specified by the plans.
3. Exact sign placement and details are shown elsewhere in the plans.
4. The current edition of AASHTO'S Guide for the Development of Bicycle Facilities should be referenced for variations in design, other geometric conditions, and lane width options.
5. Other bicycle lane symbol or word markings as shown in the Texas Manual on Uniform Traffic Control Devices may be used. Details for words, arrows and symbols as shown in the Standard Highway Sign Designs for Texas.
6. The "BIKE LANE" (R3-17) sign with the "AHEAD" (R3-17a) sign mounted directly below should be installed in advance of the beginning of a marked bike lane.
7. The "BIKE LANE" (R3-17) sign with the "END" (R3-17b) sign mounted directly below should be installed at the end of marked bicycle lane.

LEGEND	
	Sign
	Traffic Flow

SPECIFICATION REFERENCE TABLE	
Traffic Paint	DMS-8200
Hot Applied Thermoplastic	DMS-8220
Permanent Prefabricated Pavement Markings	DMS-8240
Glass Traffic Beads	DMS-8290

Texas Department of Transportation
Traffic Operations Division

BICYCLE LANE PAVEMENT MARKINGS

BLPM-10

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REVISIONS

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

CONT	SECT	JOB	HIGHWAY
			STACY ROAD
DIST	COUNTY		SHEET NO.
	COLLIN		138

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

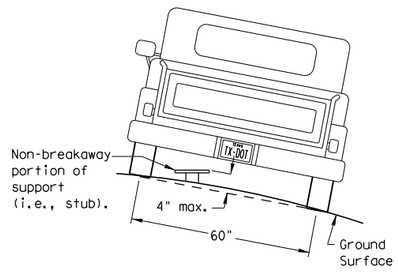
Anchor Type

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

Sign Mounting Designation

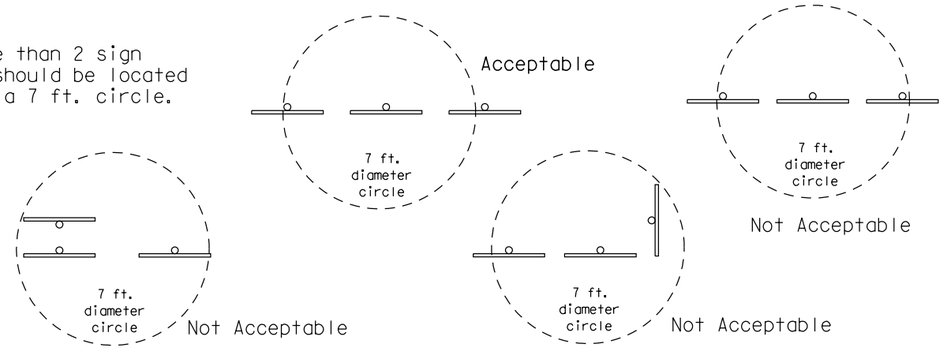
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))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

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



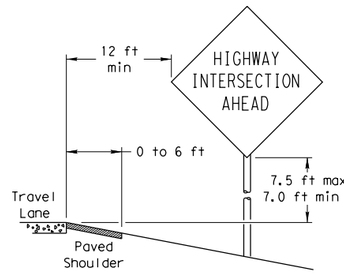
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

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



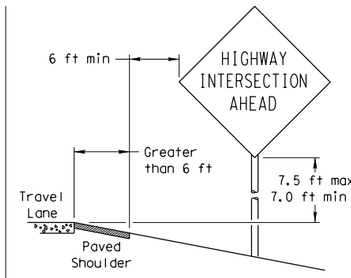
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

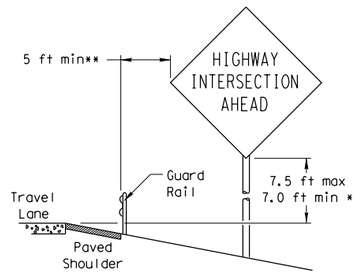
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



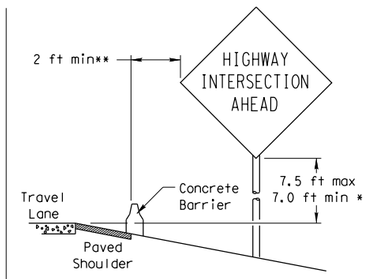
GREATER THAN 6 FT. WIDE

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



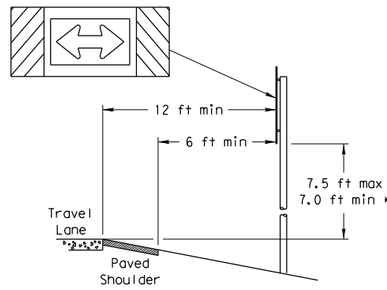
BEHIND GUARDRAIL



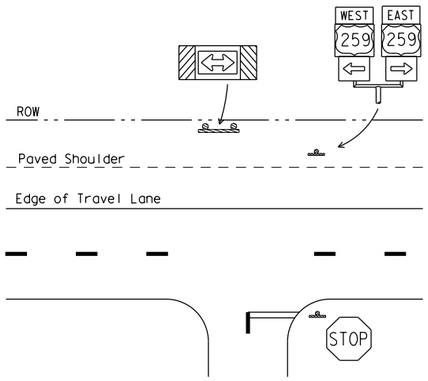
BEHIND CONCRETE BARRIER

**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.

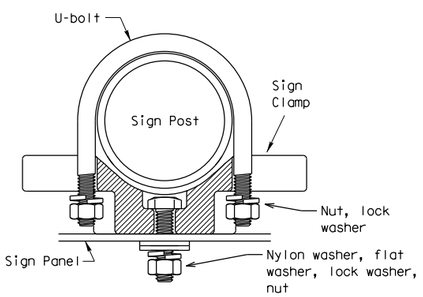
The maximum values may be increased when directed by the Engineer.

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

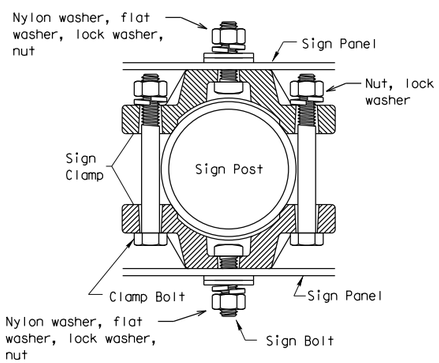


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

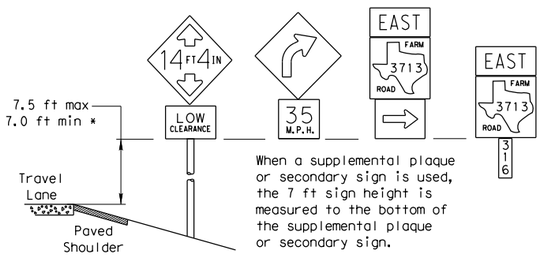
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



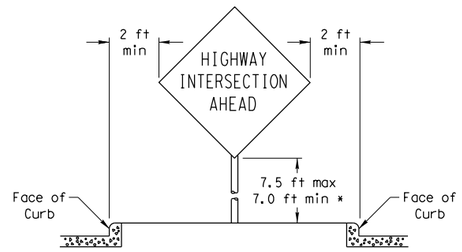
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



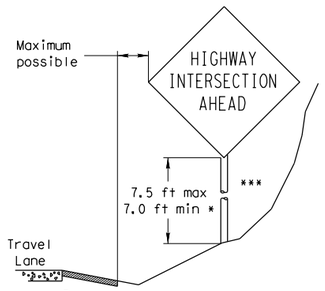
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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

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CONT	SECT	JOB	HIGHWAY
			STACY ROAD
DIST	COUNTY		SHEET NO.
	COLLIN		139

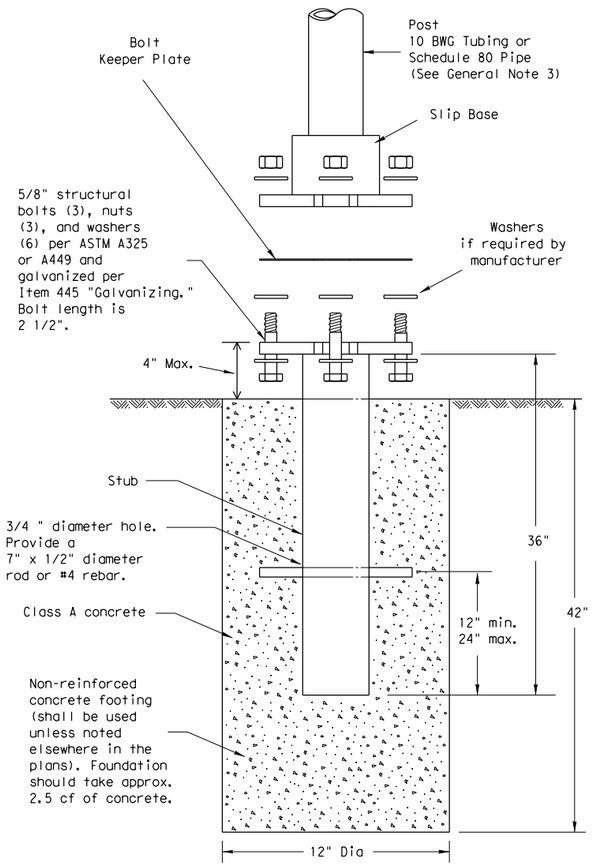
9-08 REVISIONS

26A

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DATE: 1/3/2018 2:39:53 PM
FILE: i:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\12 STANDARDS\Signs\smdsl.dgn

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

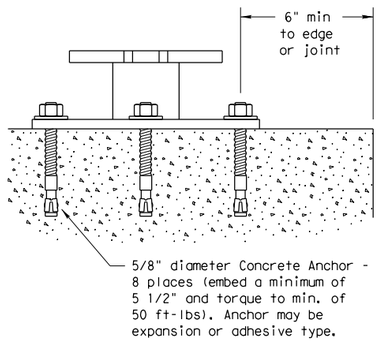
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   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.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

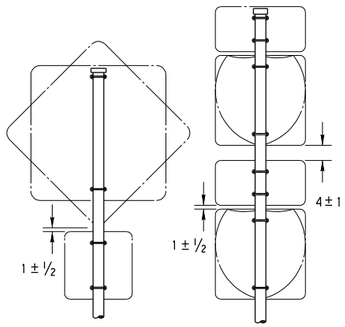
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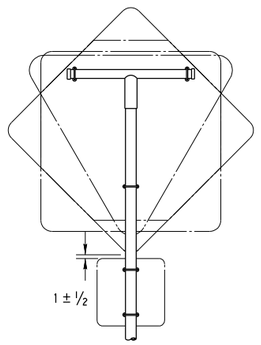
REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08				STACY ROAD
	DIST	COUNTY		SHEET NO.
		COLLIN		140

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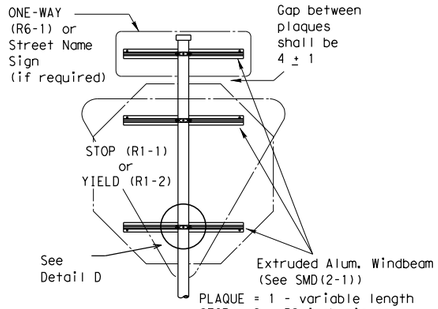
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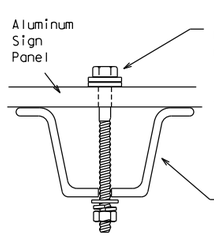
SM RD SGN ASSM TY XXXXX(1)XX(P)



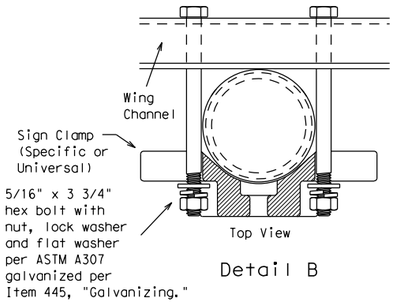
SM RD SGN ASSM TY XXXXX(1)XX(T)



SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



Detail A



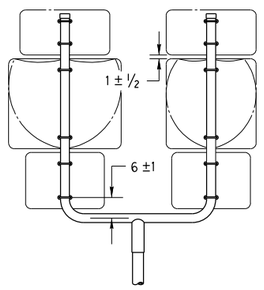
Detail B

GENERAL NOTES:

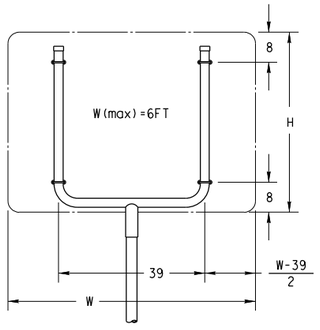
1.

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

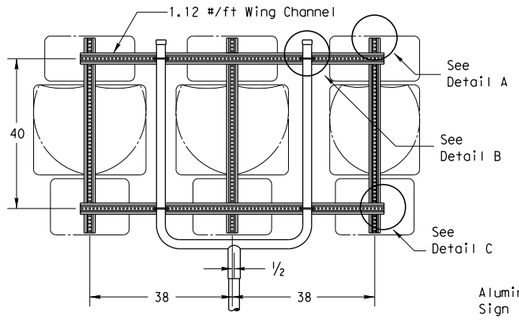
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material 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.



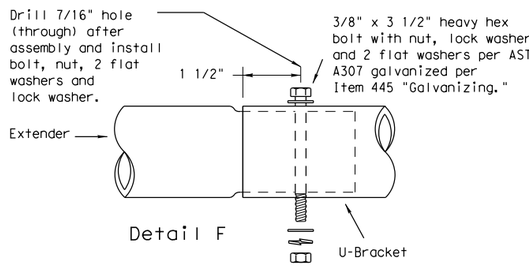
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

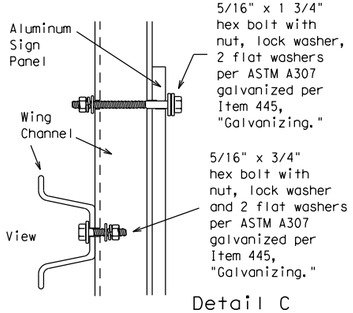


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

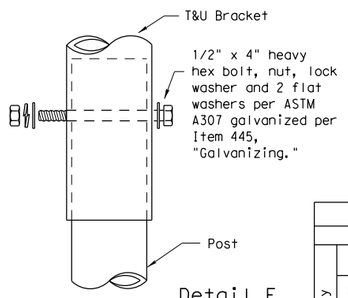


Detail F

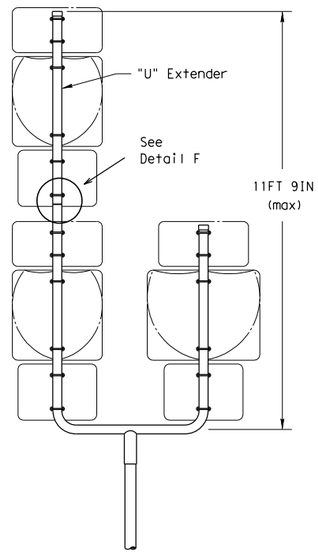
Splices shall only be allowed behind the sign substrate.



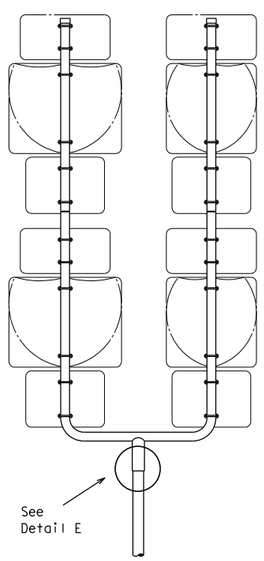
Detail C



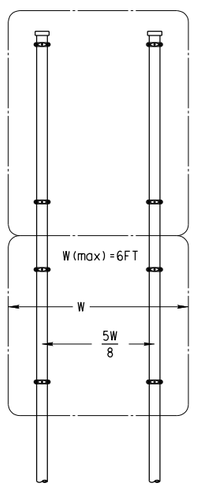
Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)

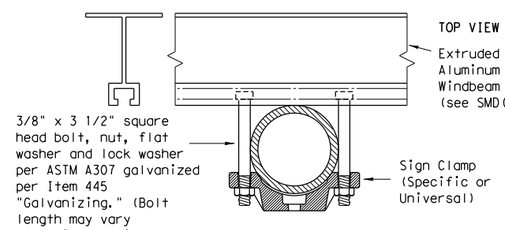


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

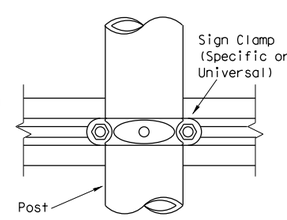


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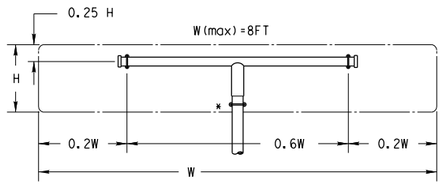
SIDE VIEW



Detail D



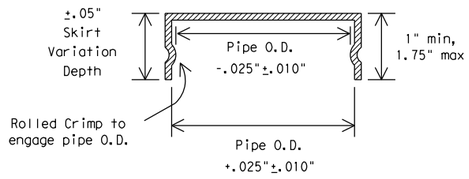
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	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)



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.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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CONT	SECT	JOB	HIGHWAY
			STACY ROAD
DIST	COUNTY		SHEET NO.
	COLLIN		141

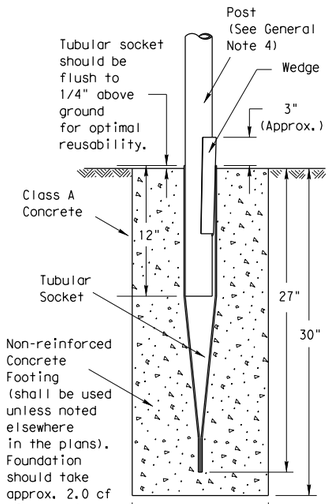
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26C

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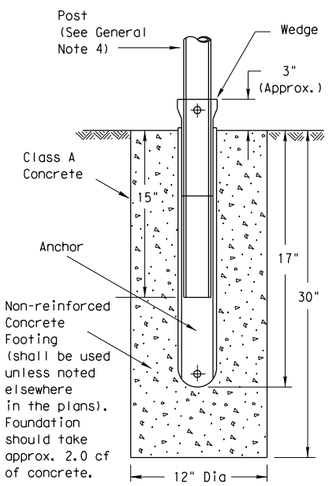
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Wedge Anchor Steel System



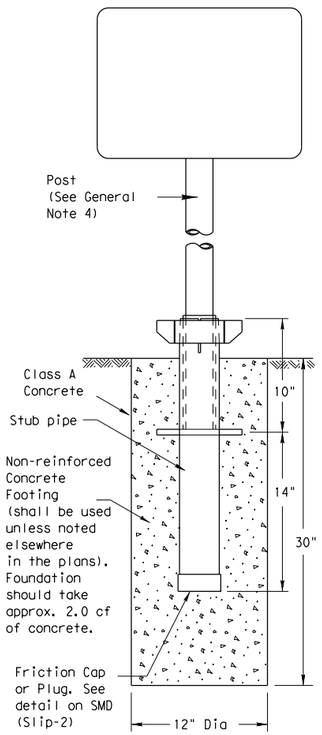
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Wedge Anchor High Density Polyethylene (HDPE) System

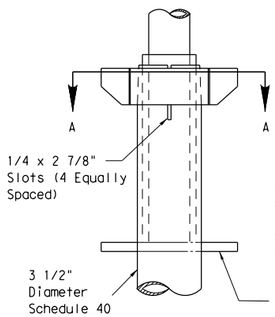


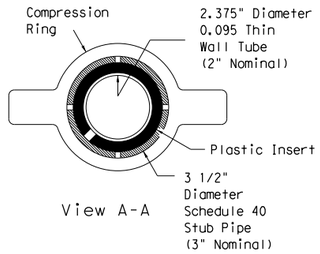
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Universal Anchor System with Thin-Walled Tubing Post



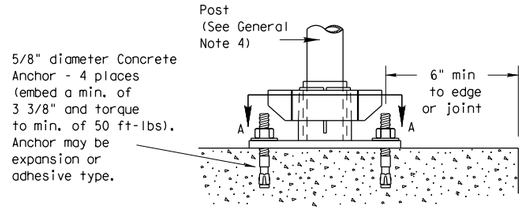
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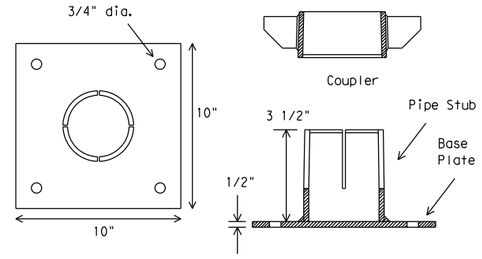


View A-A

Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

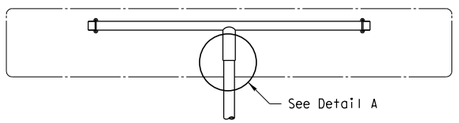


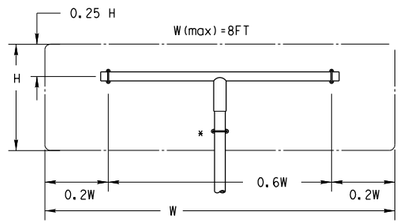
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. 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.



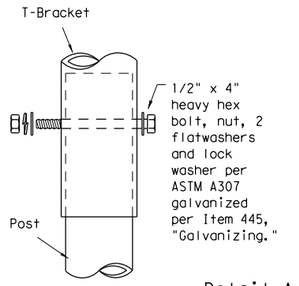
SM RD SGN ASSM TY TWT(X)UB(P)

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post





SM RD SGN ASSM TY TWT(X)XX(T)
(* - See General Note 6)



Detail A

9/16" hole may need to be drilled through post to accommodate bolt.

NOTE

The devices shall be installed per manufacturer's recommendations.
Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   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
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
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. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximaely 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer..
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

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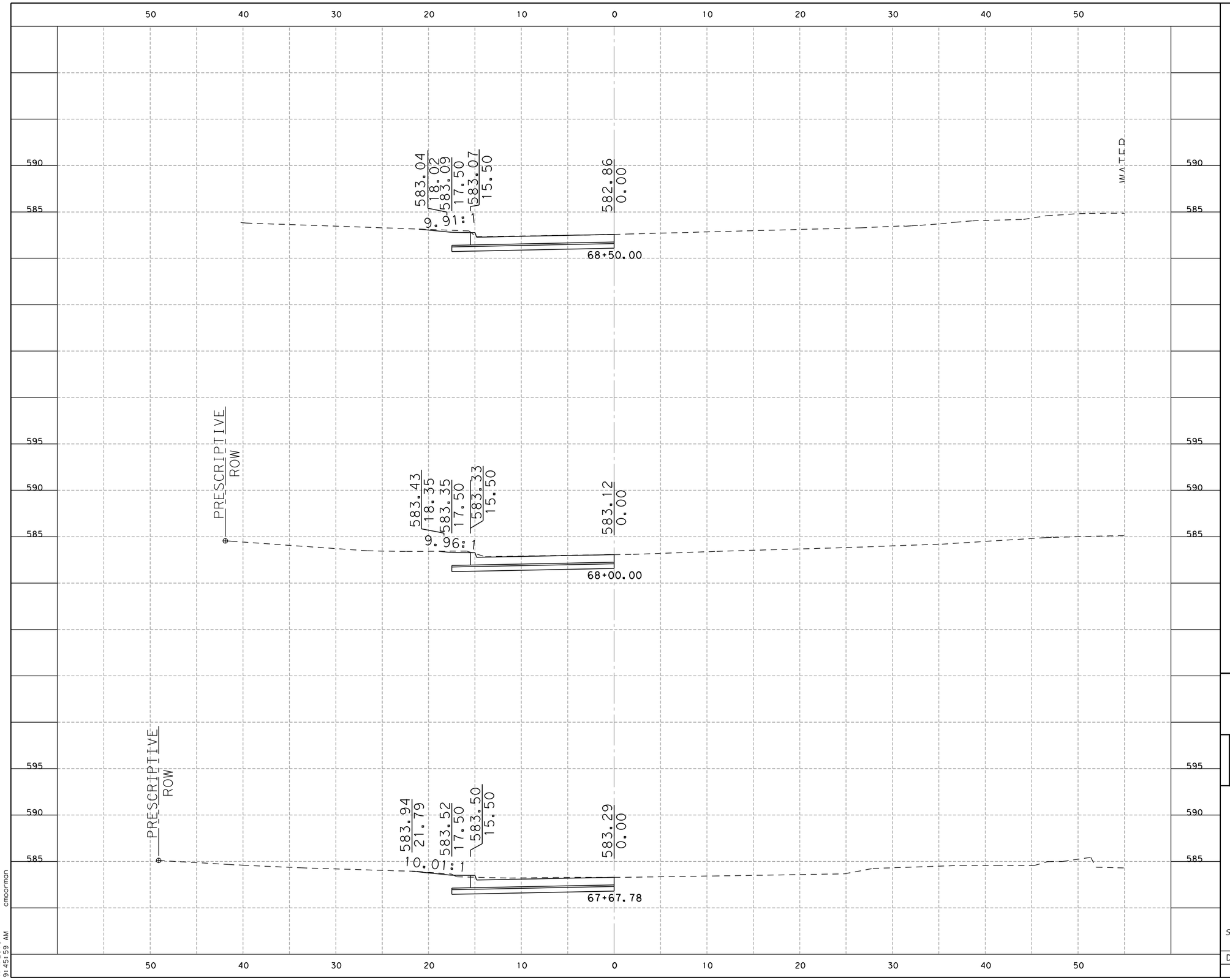
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CONT	SECT	JOB	HIGHWAY
			STACY ROAD

DIST	COUNTY	SHEET NO.
	COLLIN	142

9-08 REVISIONS

26E



0 5 10

SCALE: 1" = 10'

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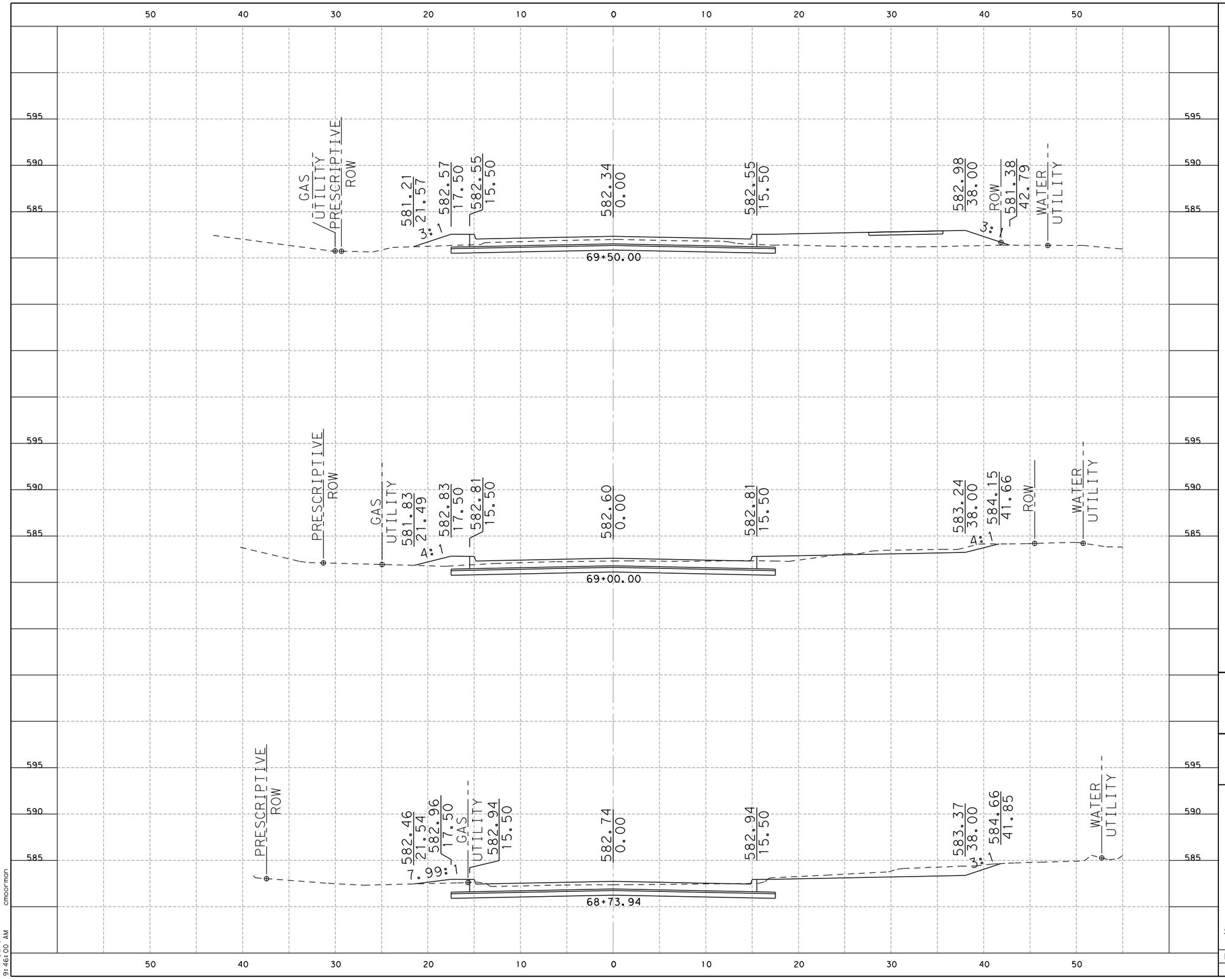
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CROSS SECTIONS

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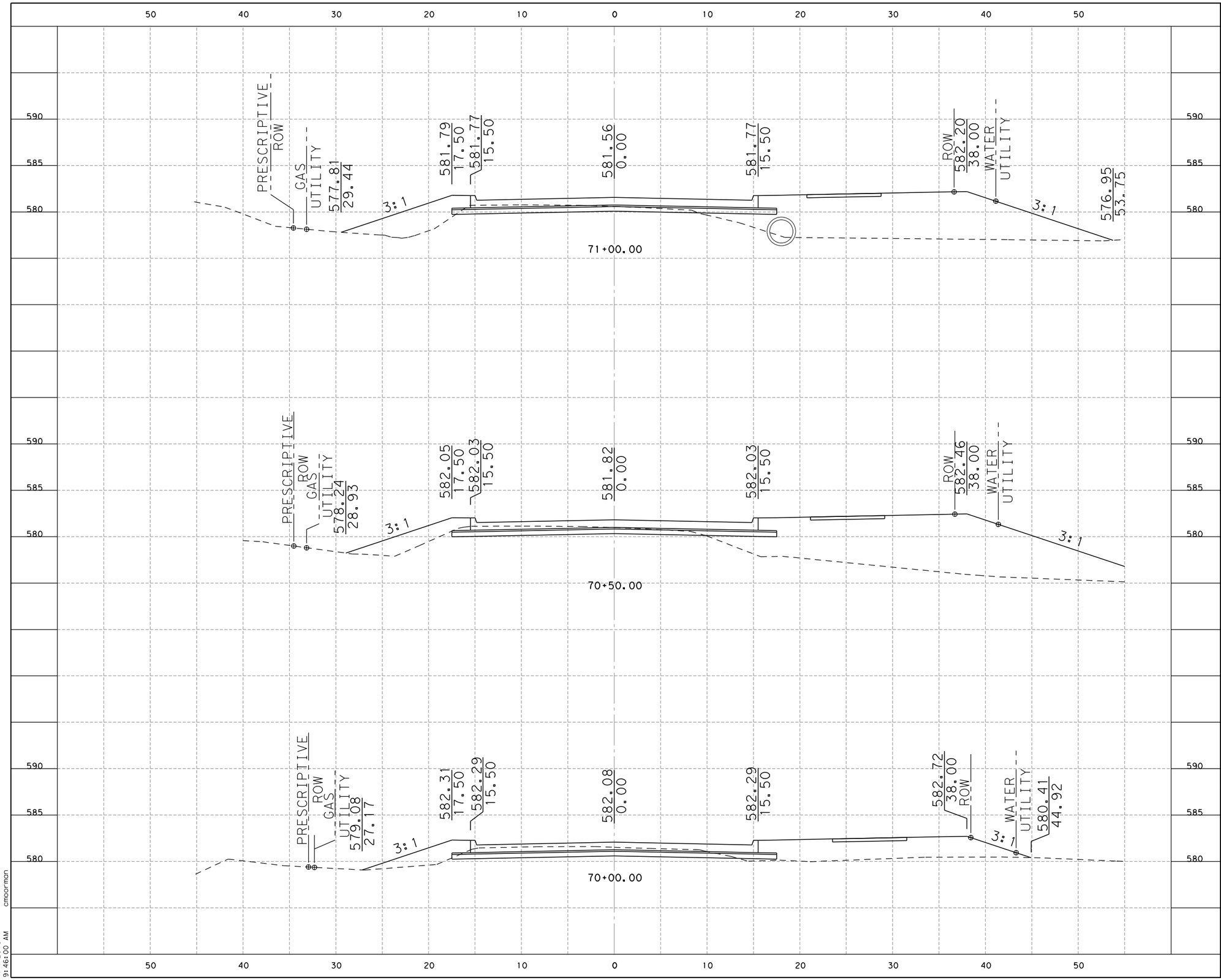
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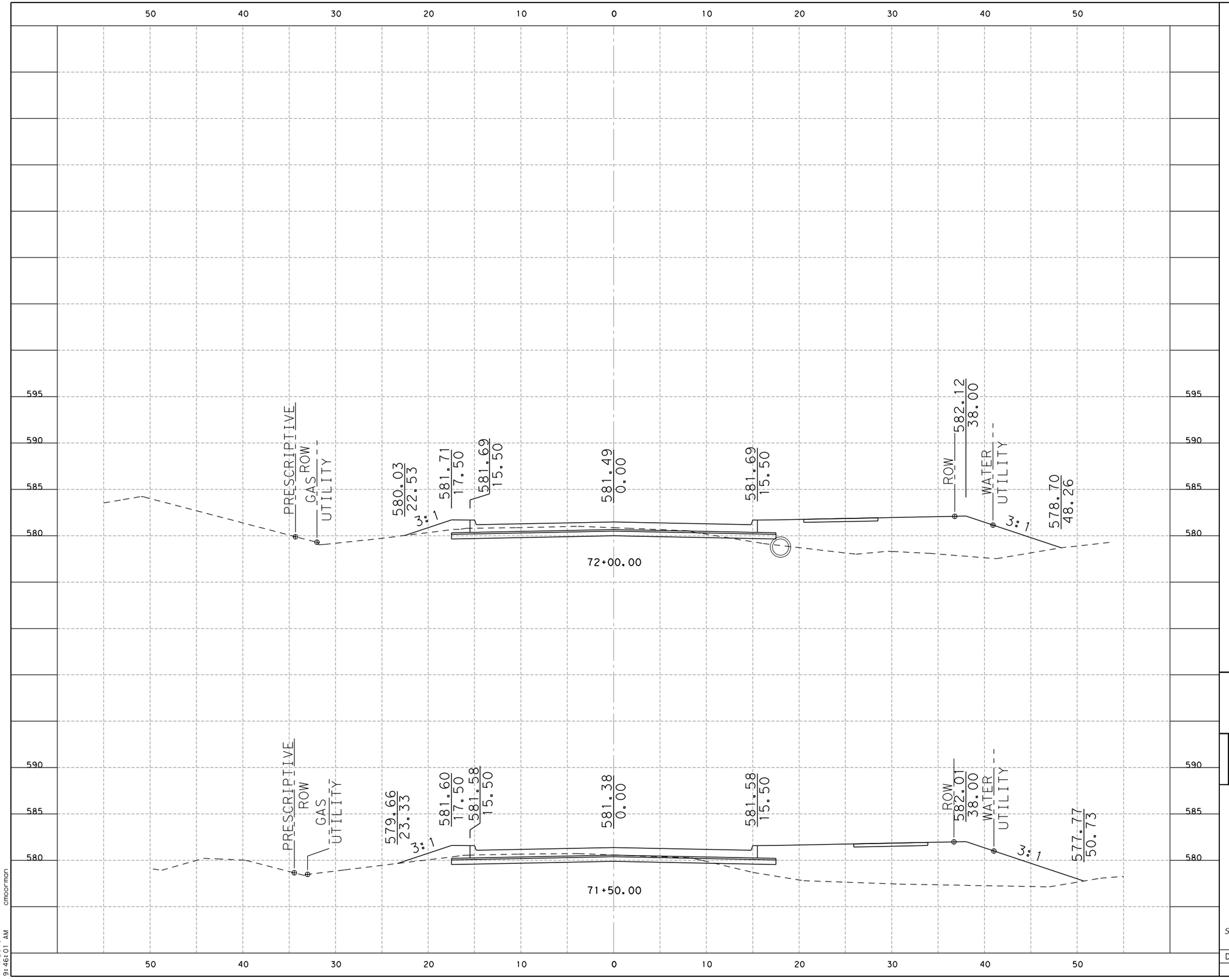
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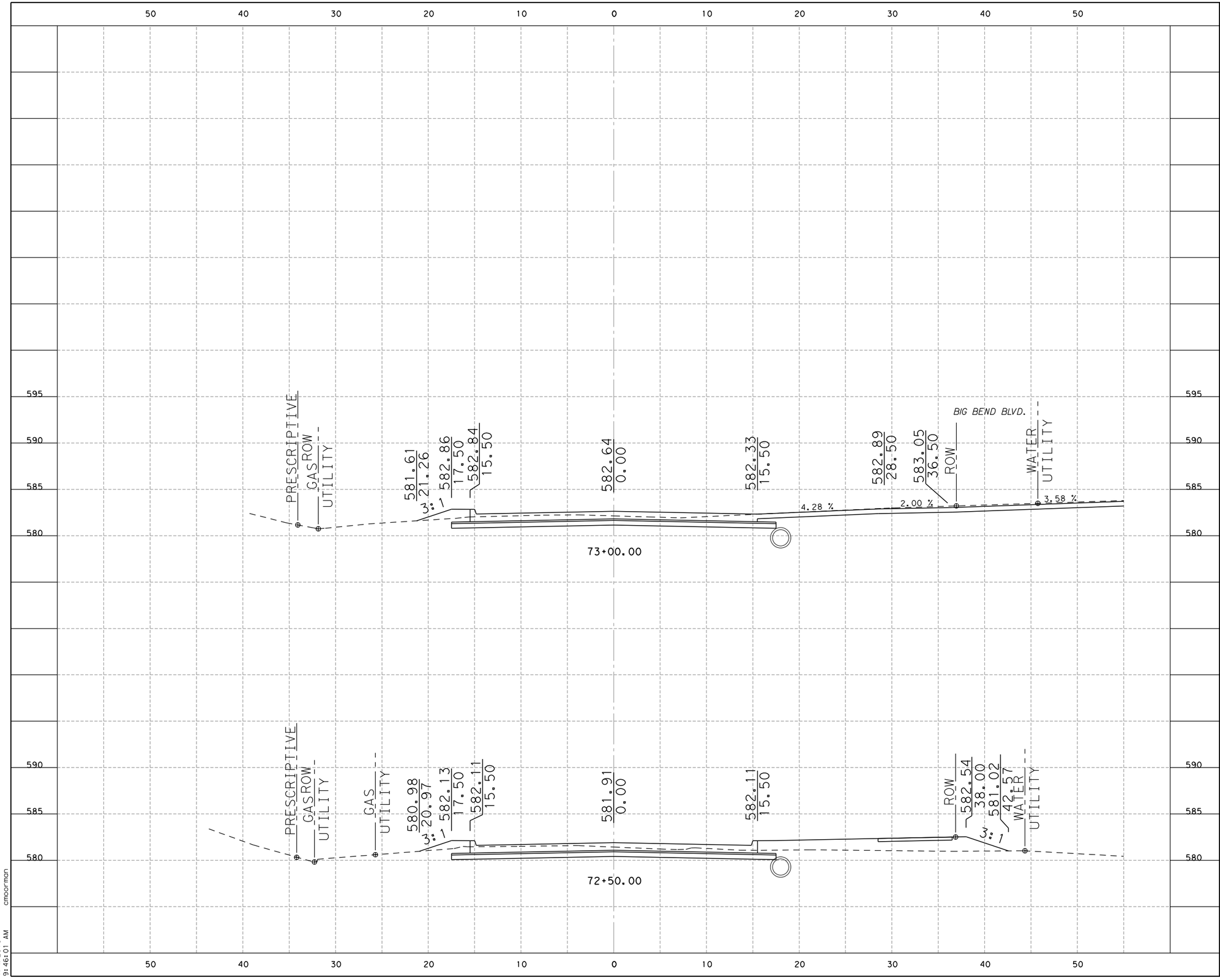
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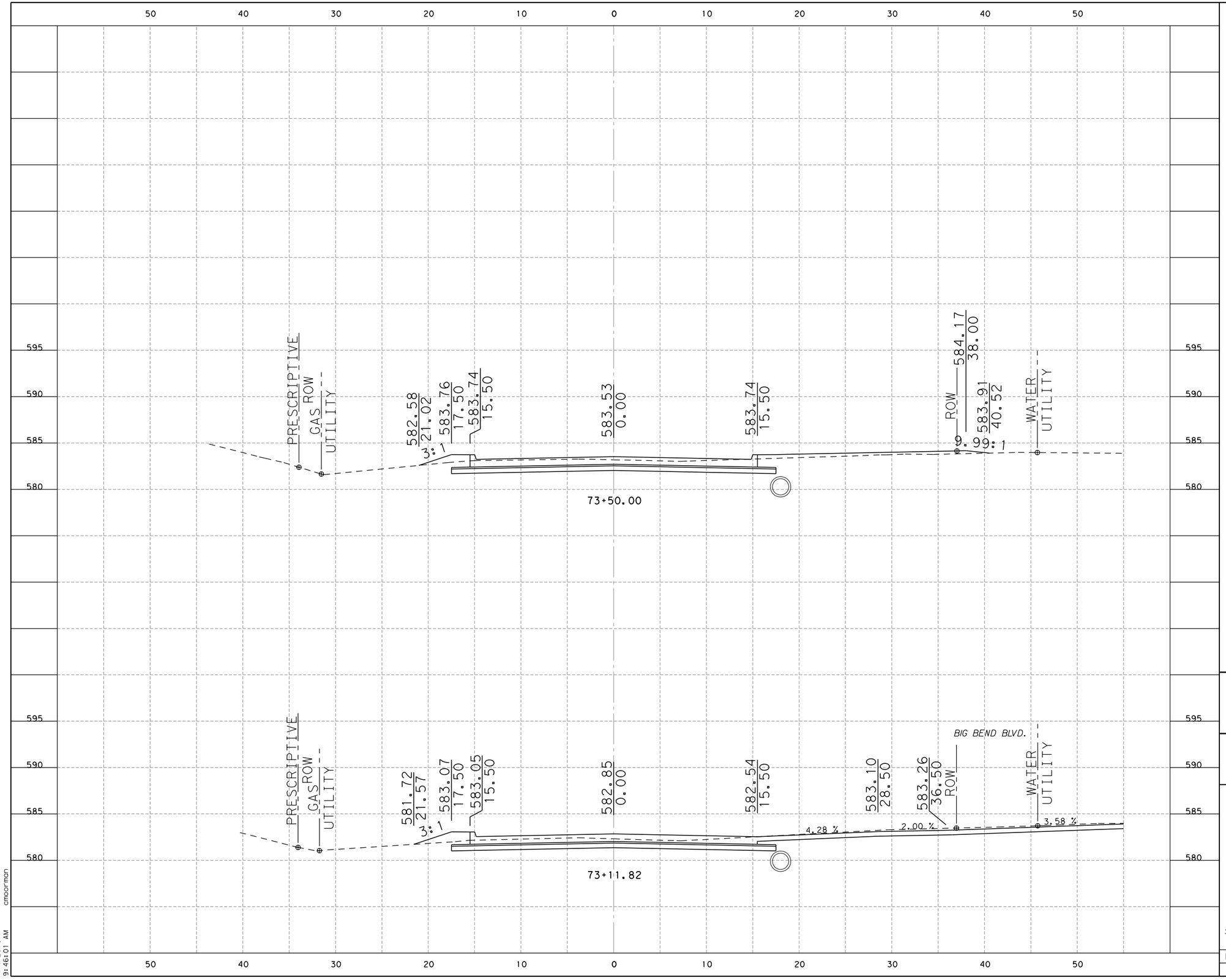
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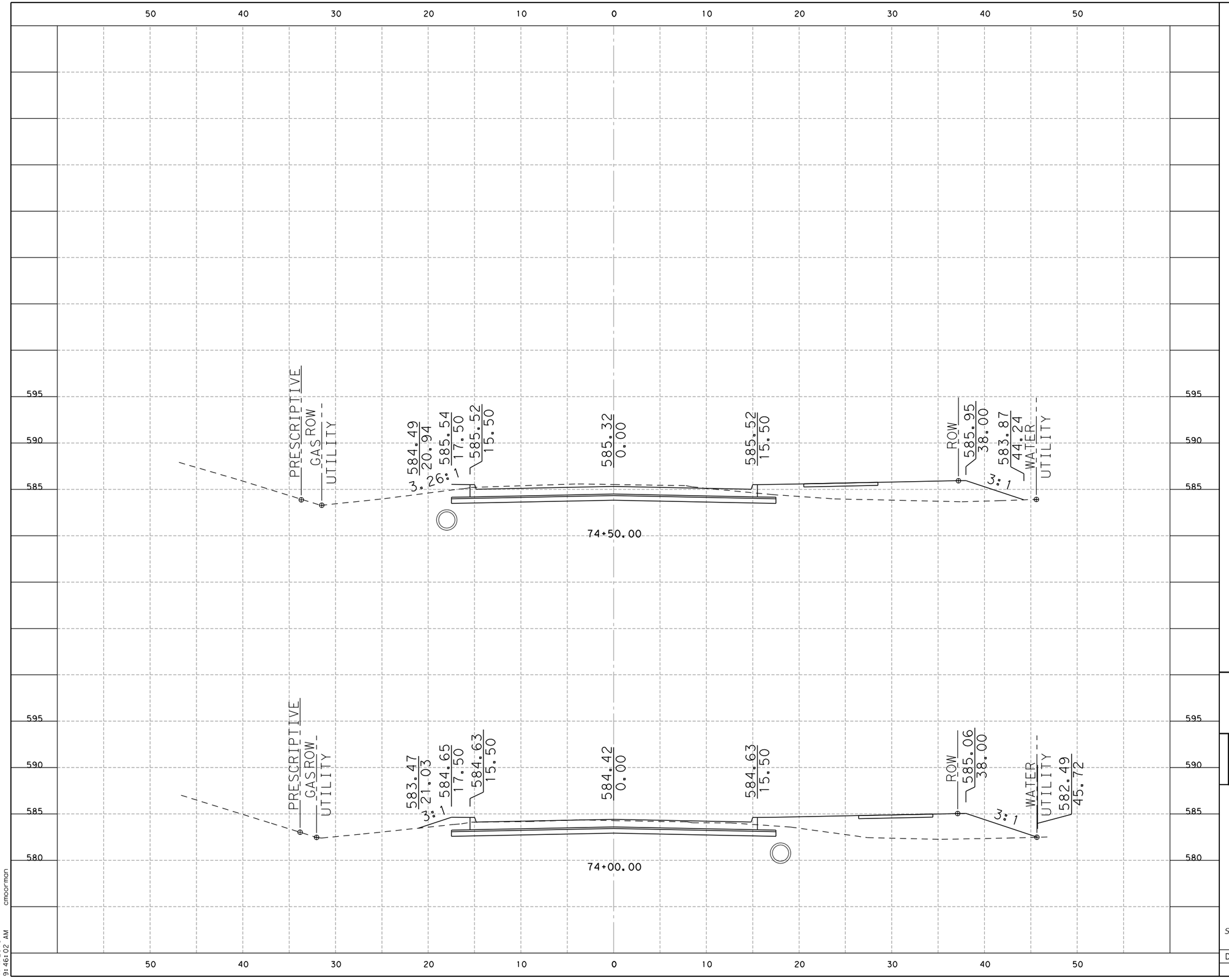
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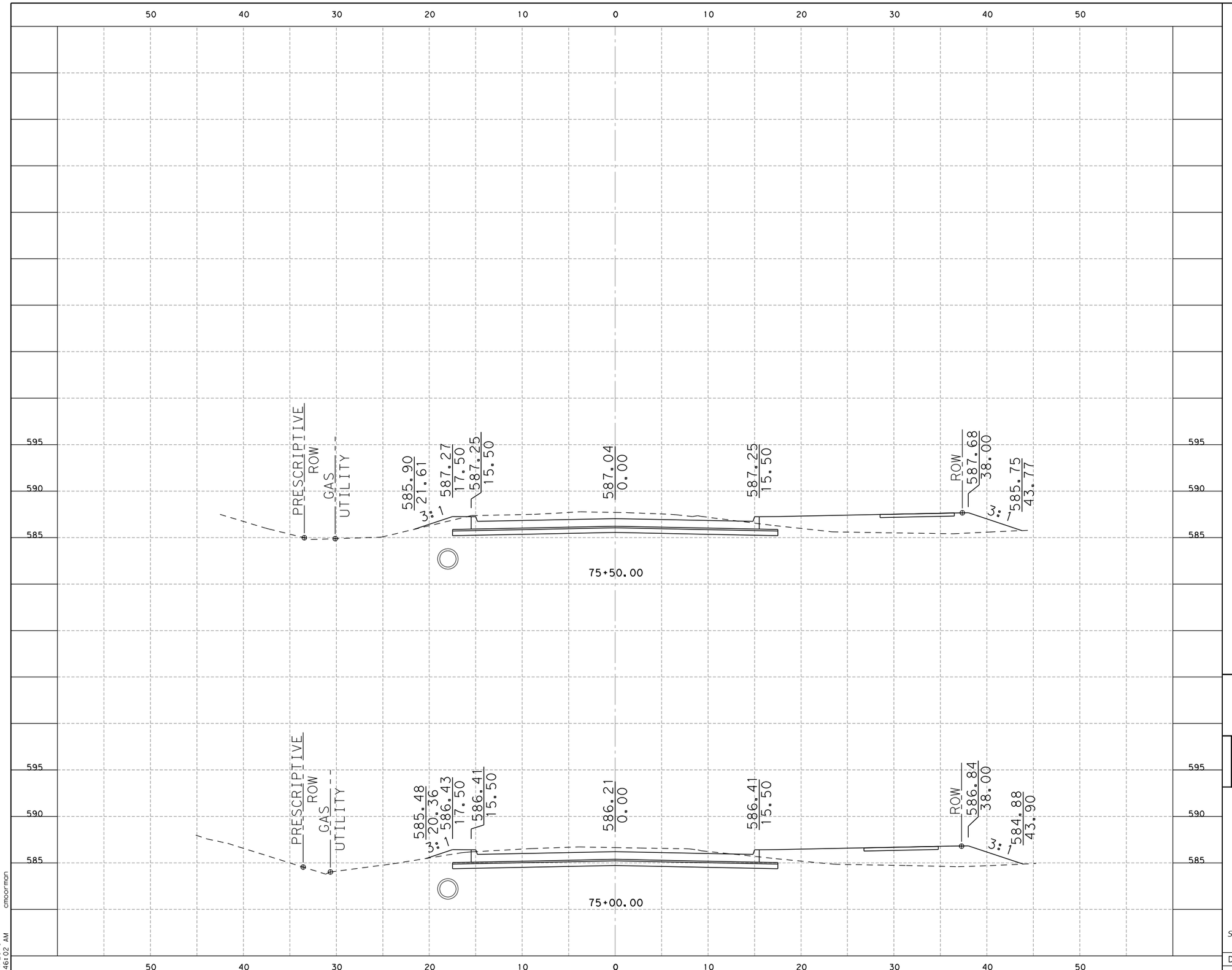
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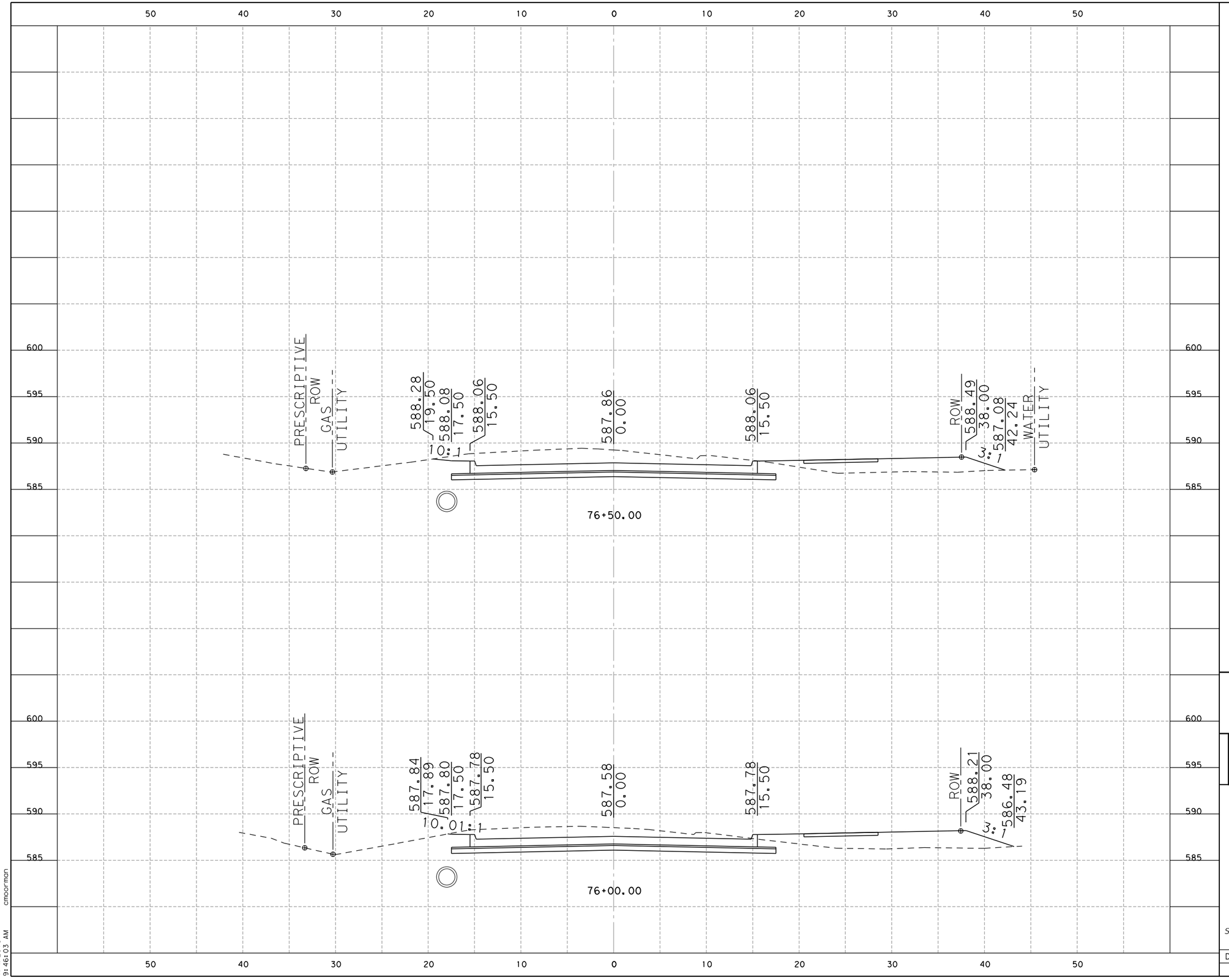
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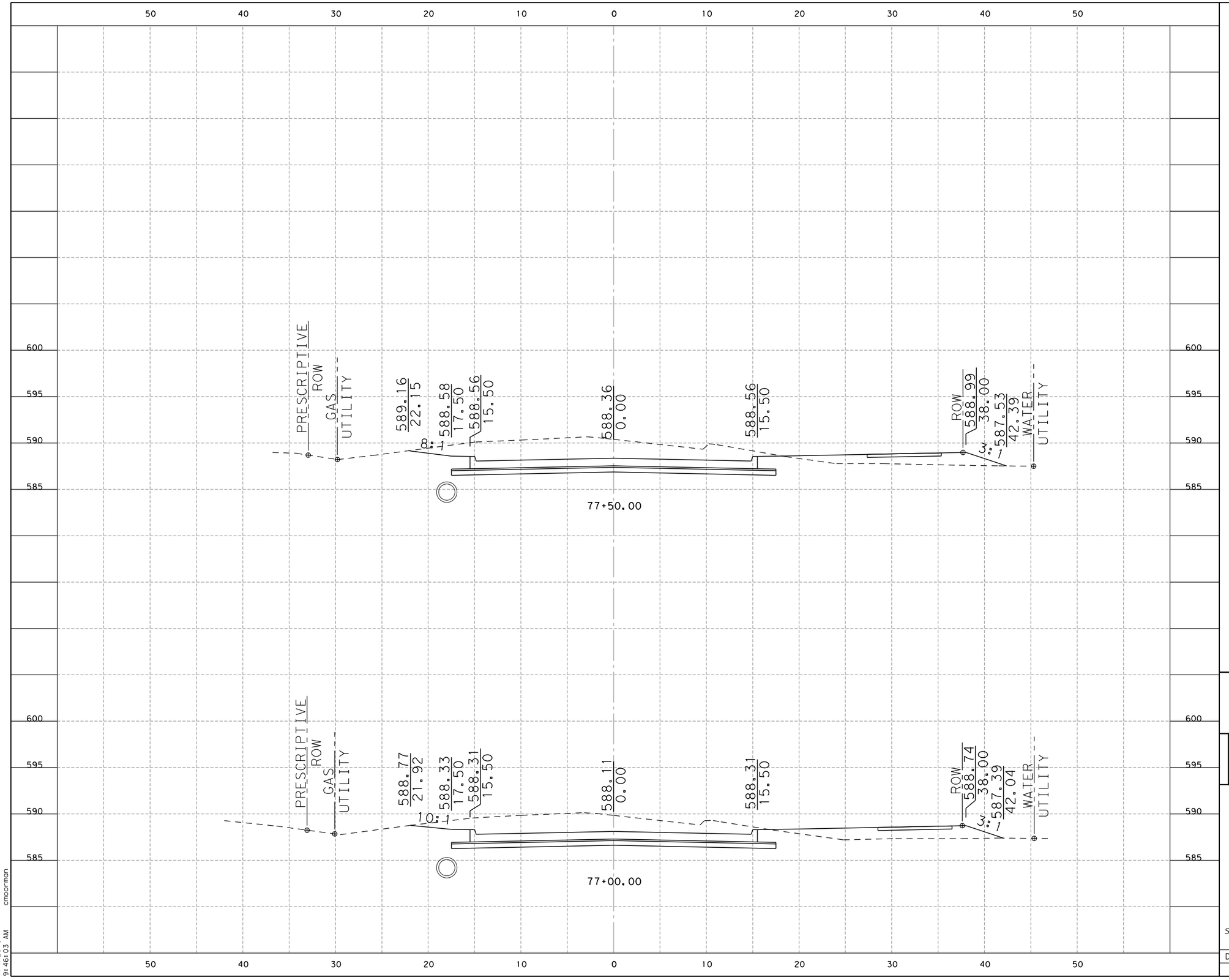
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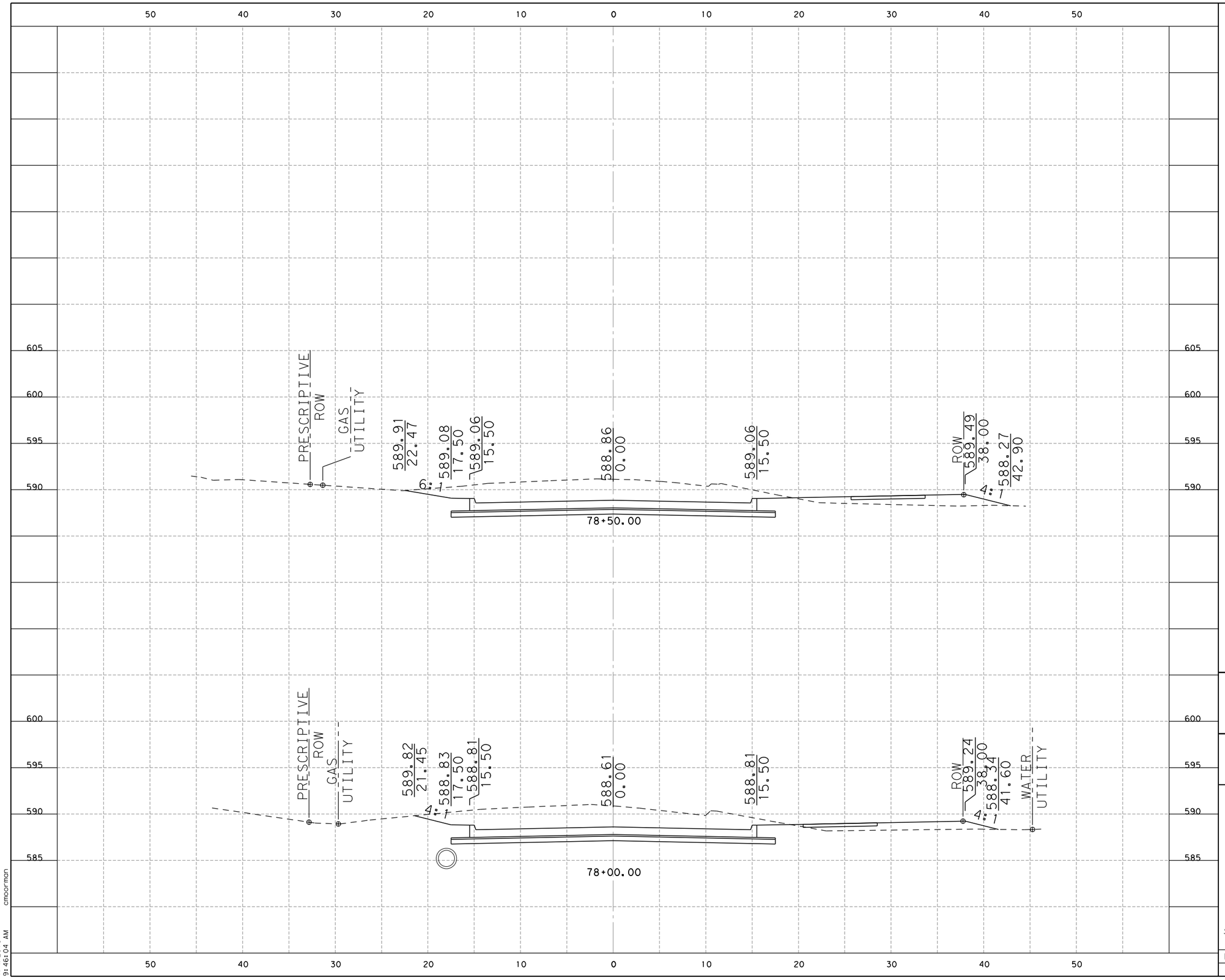
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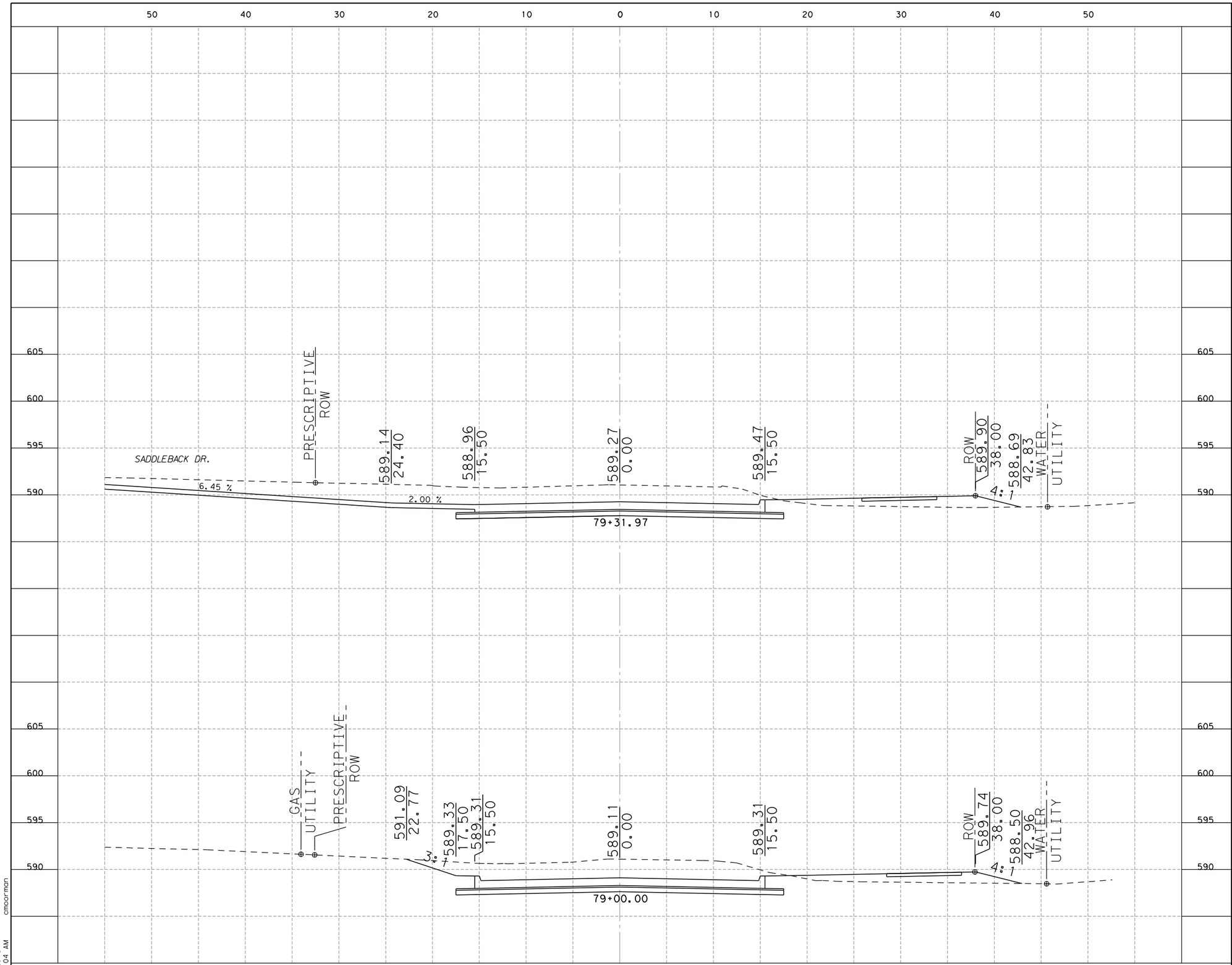
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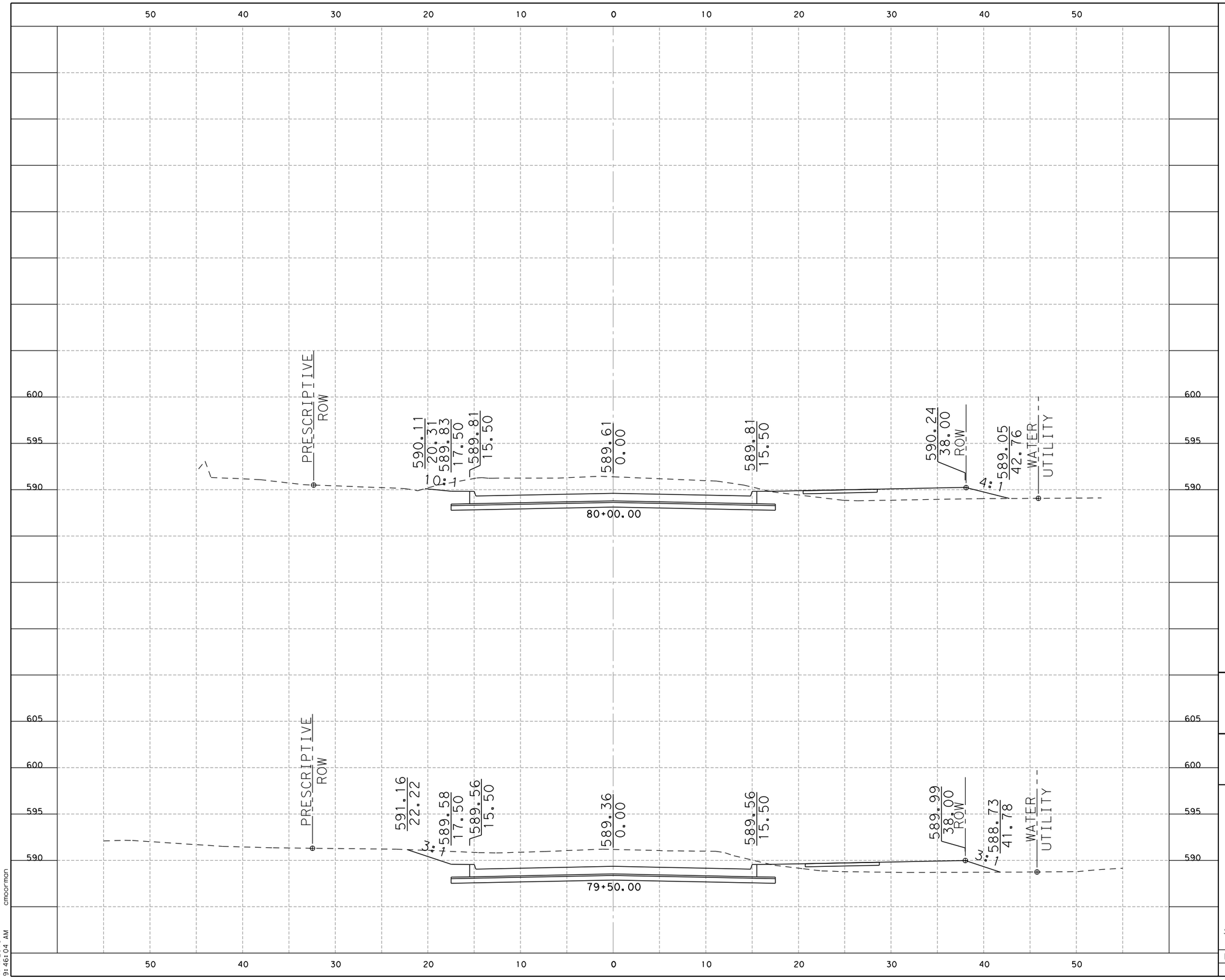
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	154

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\11 XSEC\305245-XS-sheets-10-1030per.dgn
1/4/2018 9:46:04 AM cmoorman



0 5 10

SCALE: 1" = 10'

FOR CONTRACTOR'S INFORMATION ONLY

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

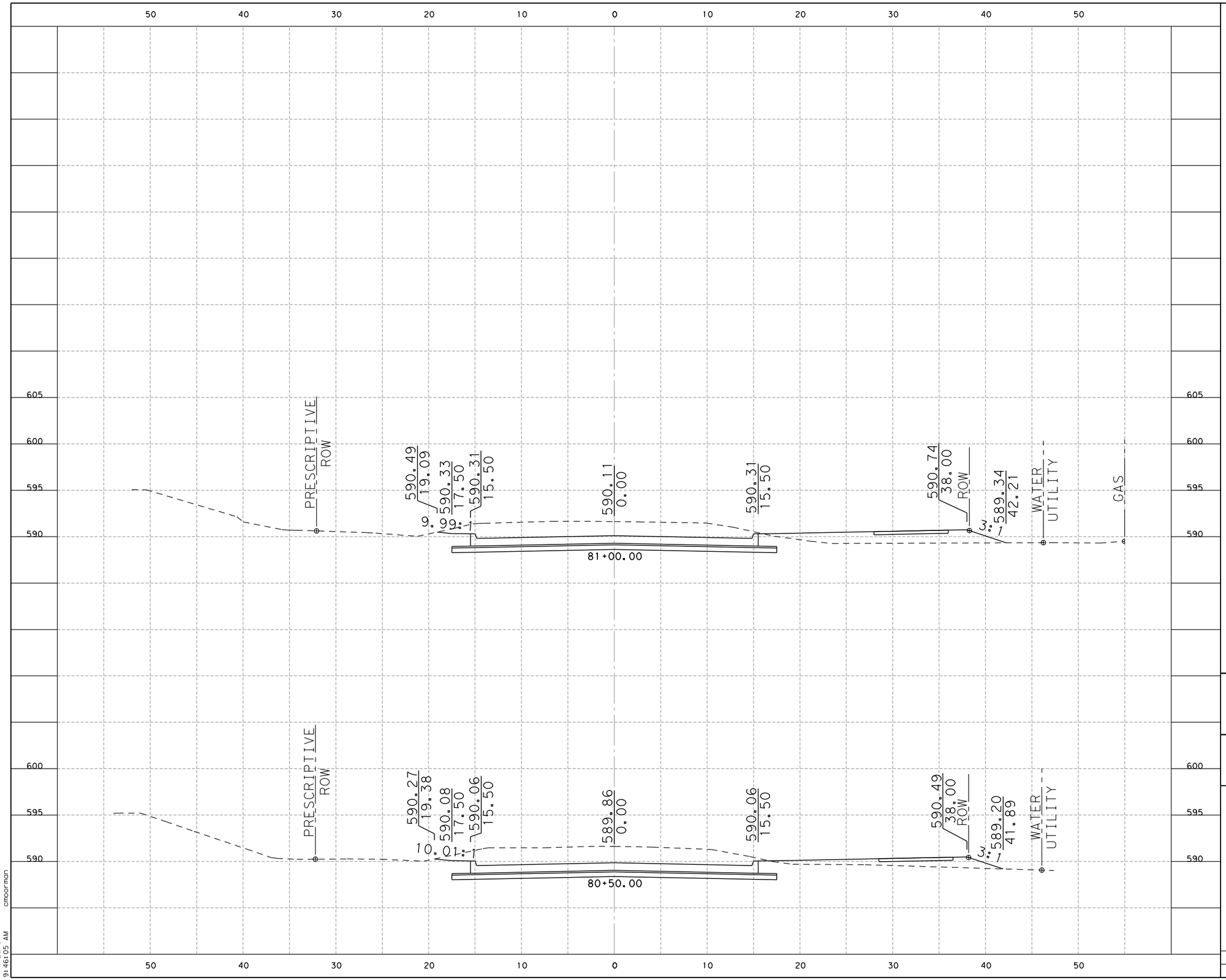
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	155

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\11 XSEC\305245-XS-sheets-10-1030per.dgn
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E. STACY ROAD IMPROVEMENTS

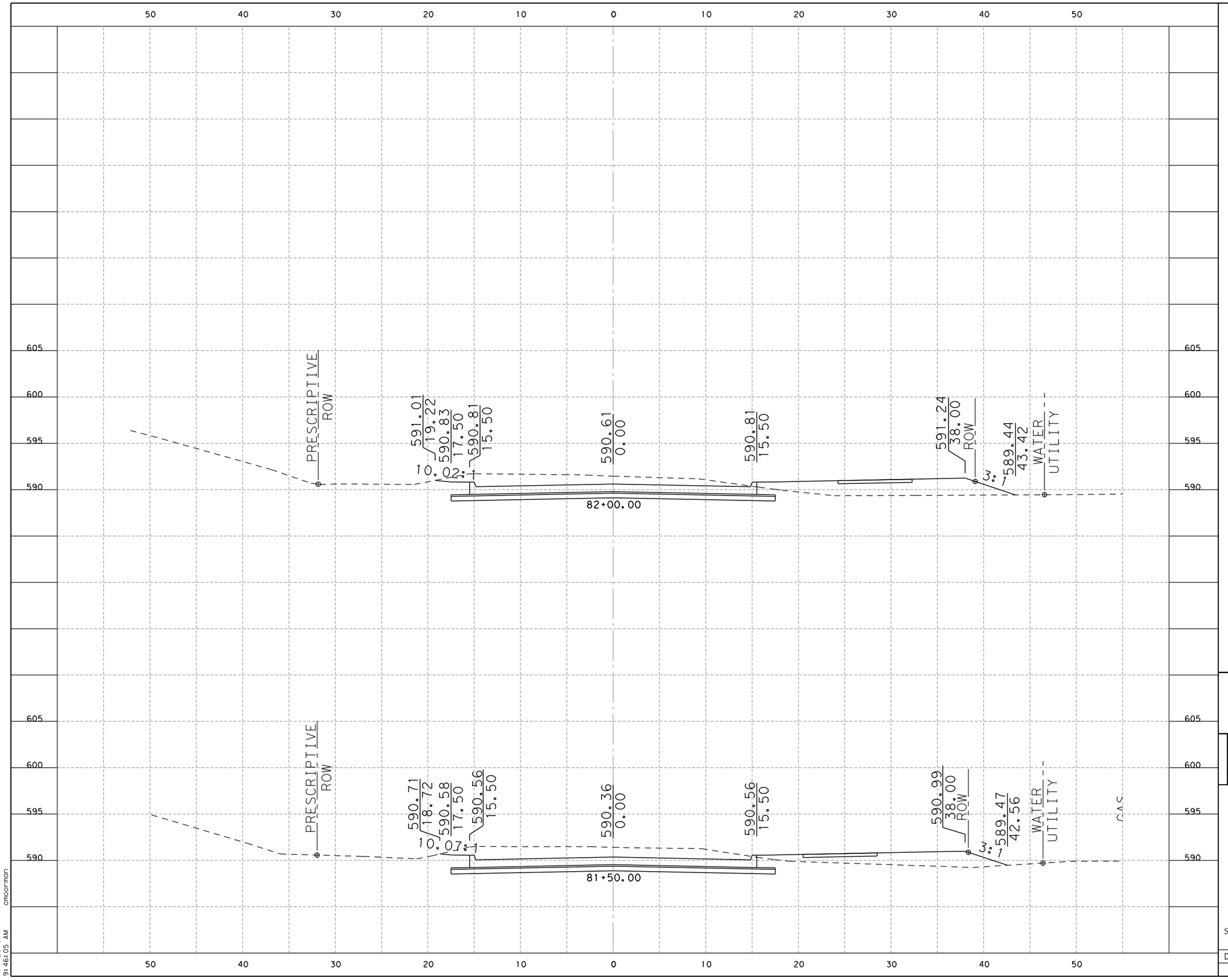
CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

SHEET NO. 156

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0 5 10

SCALE: 1" = 10'

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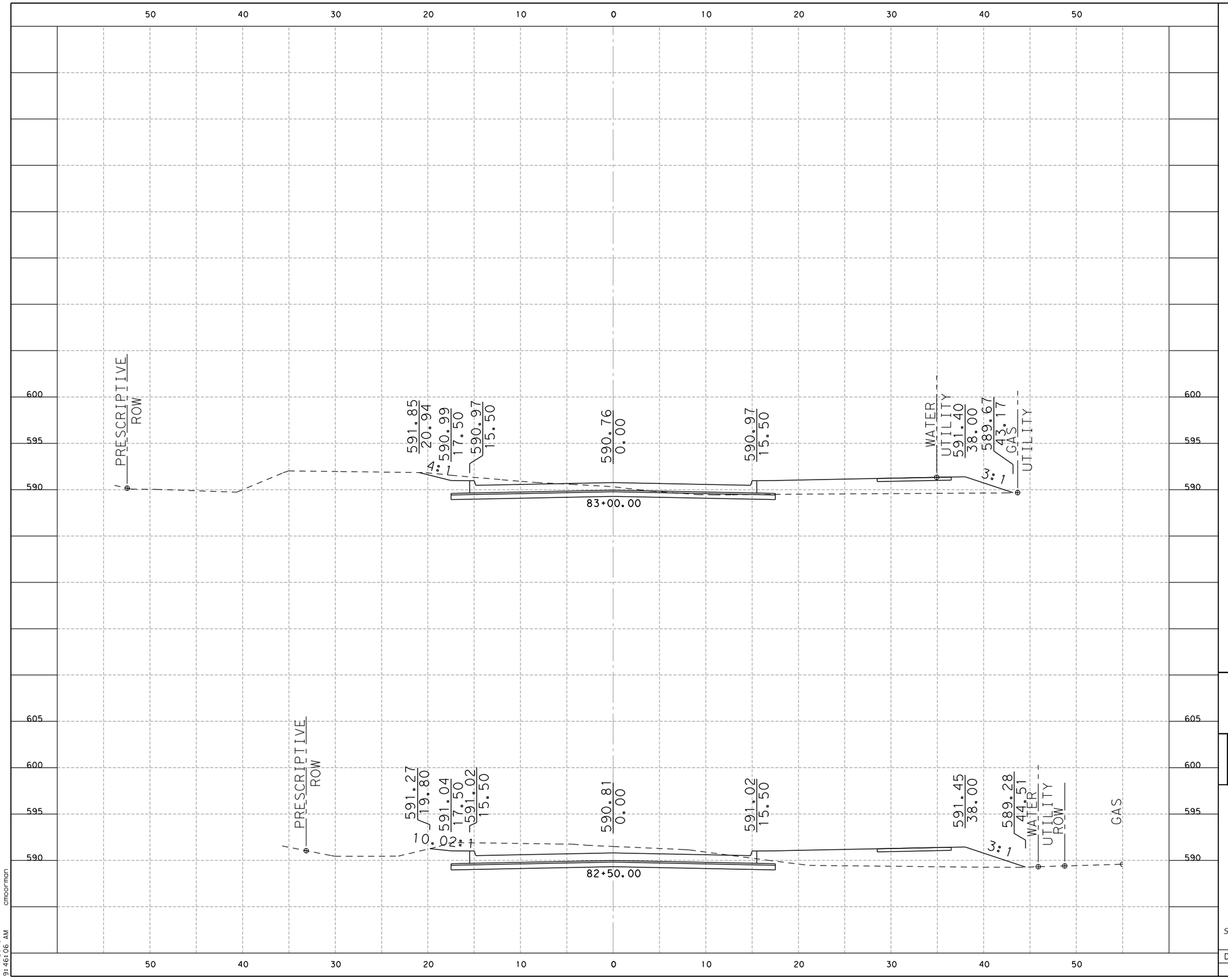
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	157

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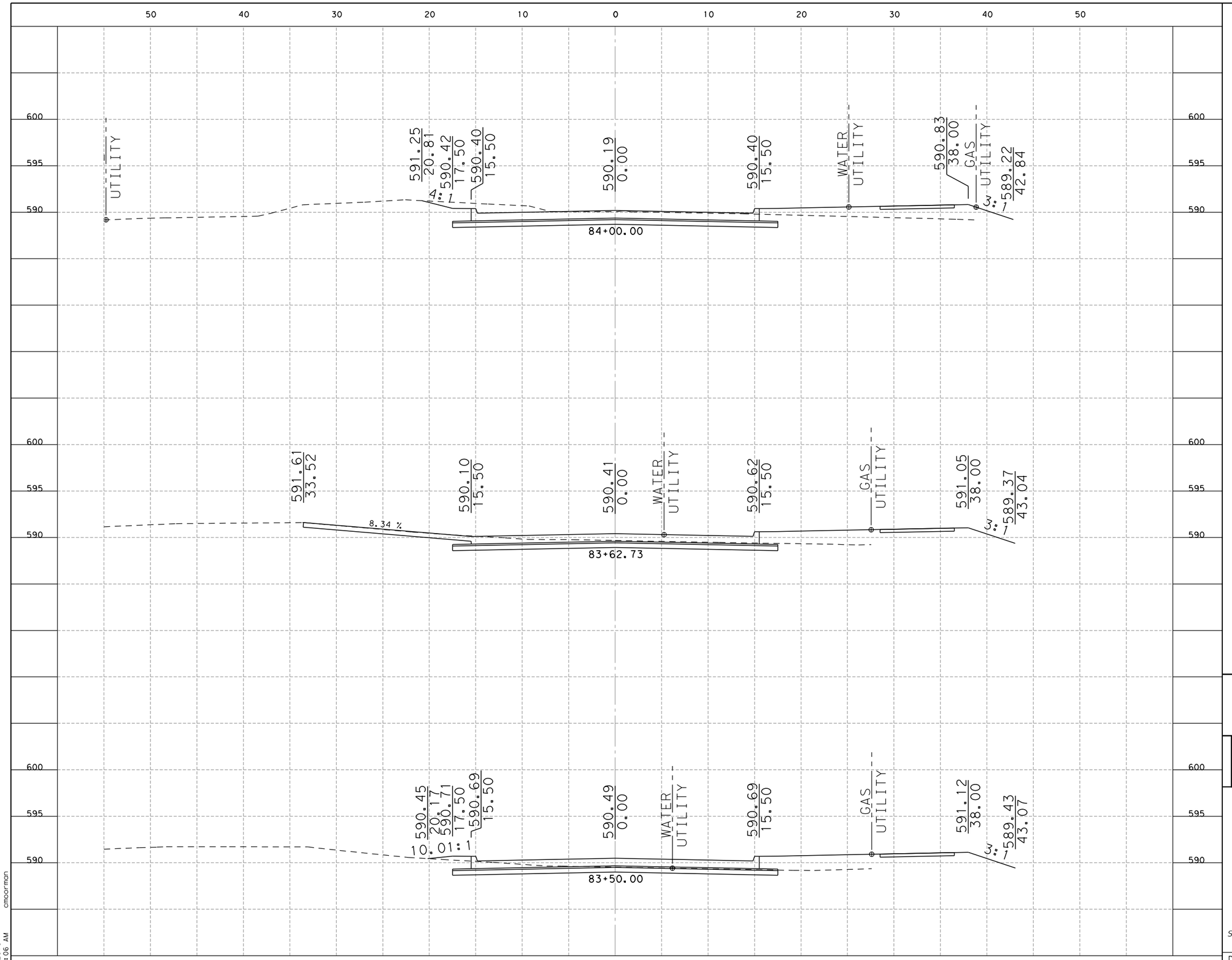
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	158

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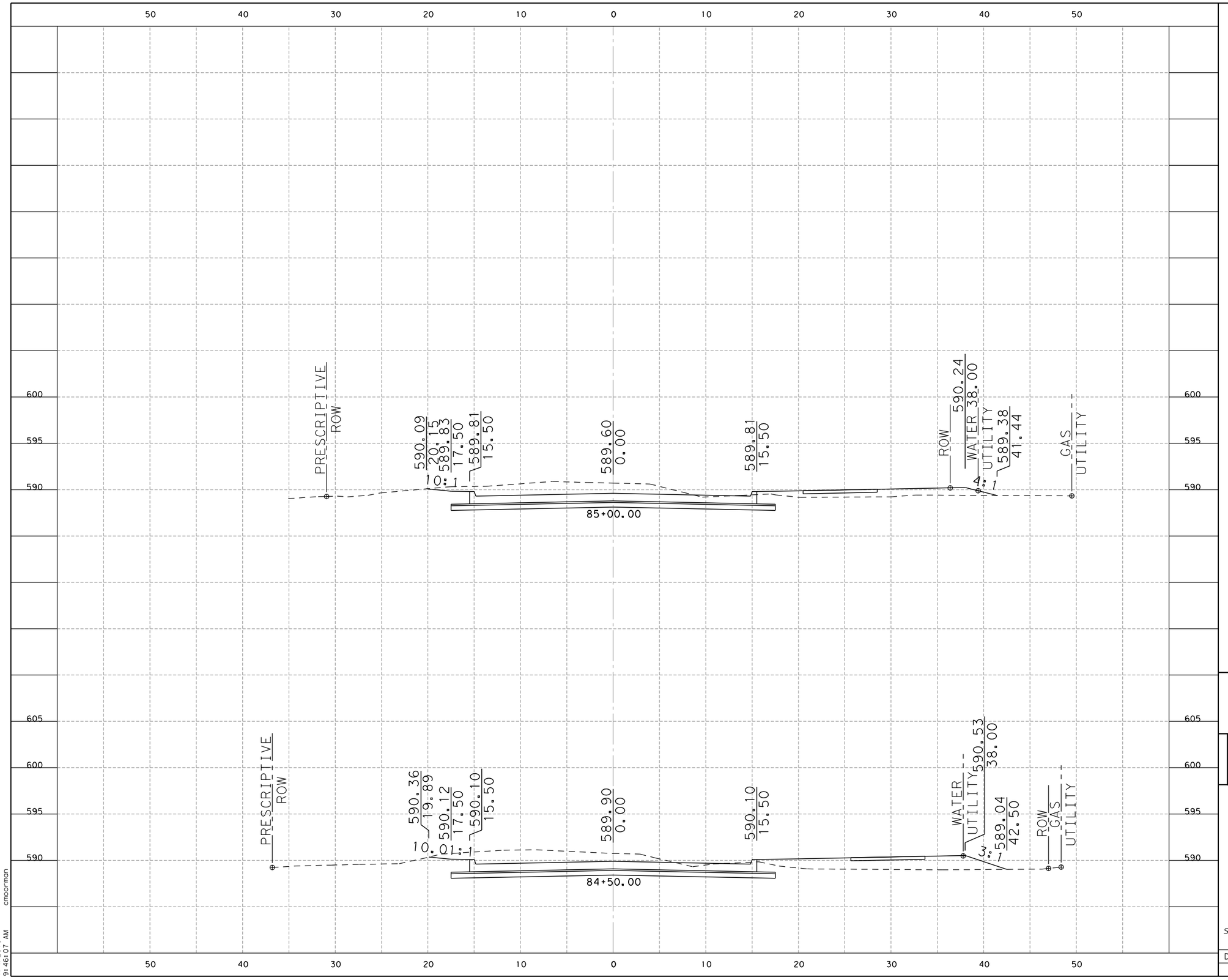
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
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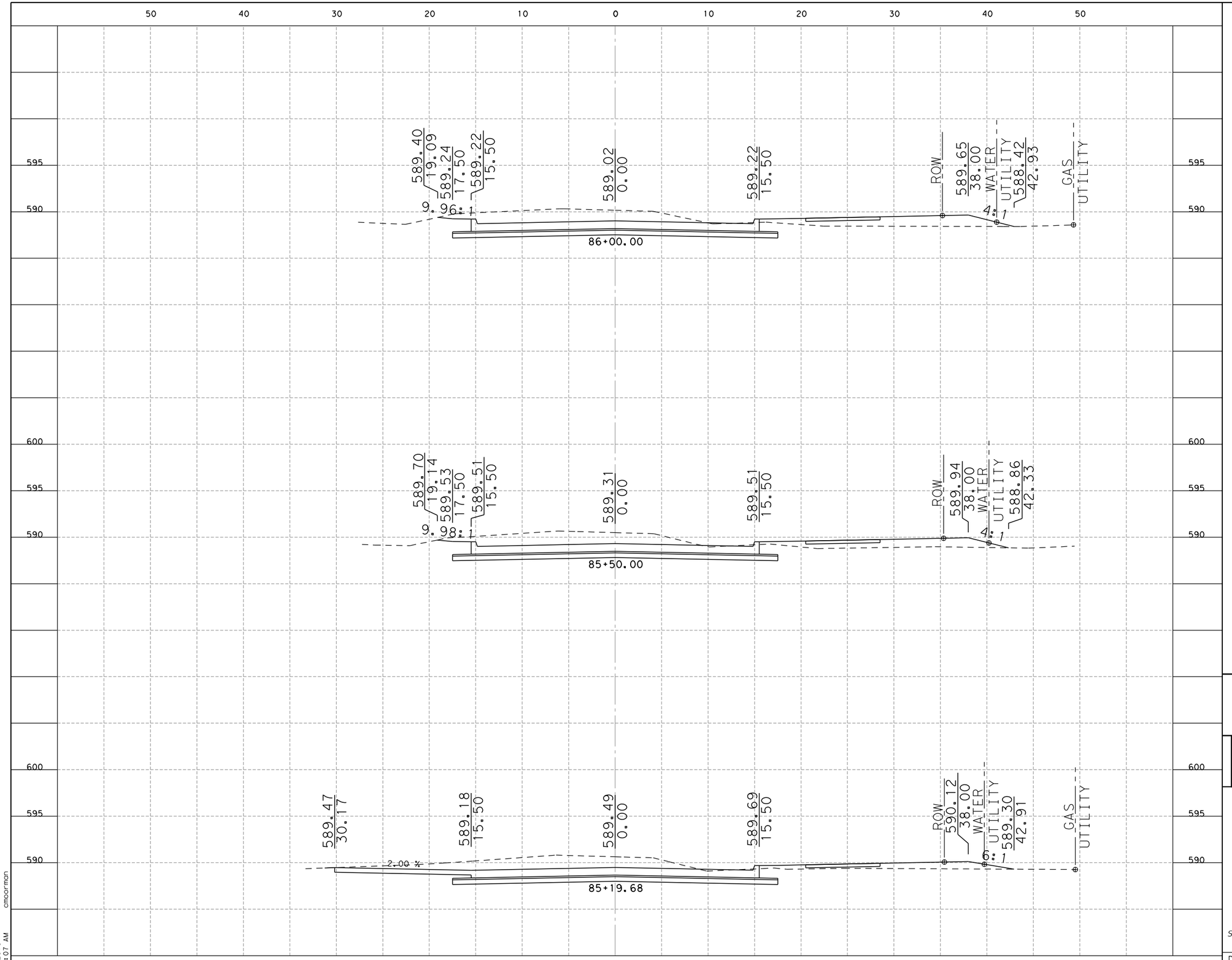
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CROSS SECTIONS

SCALE: H: 1" = 10'
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CLM	RAW	SCW	160

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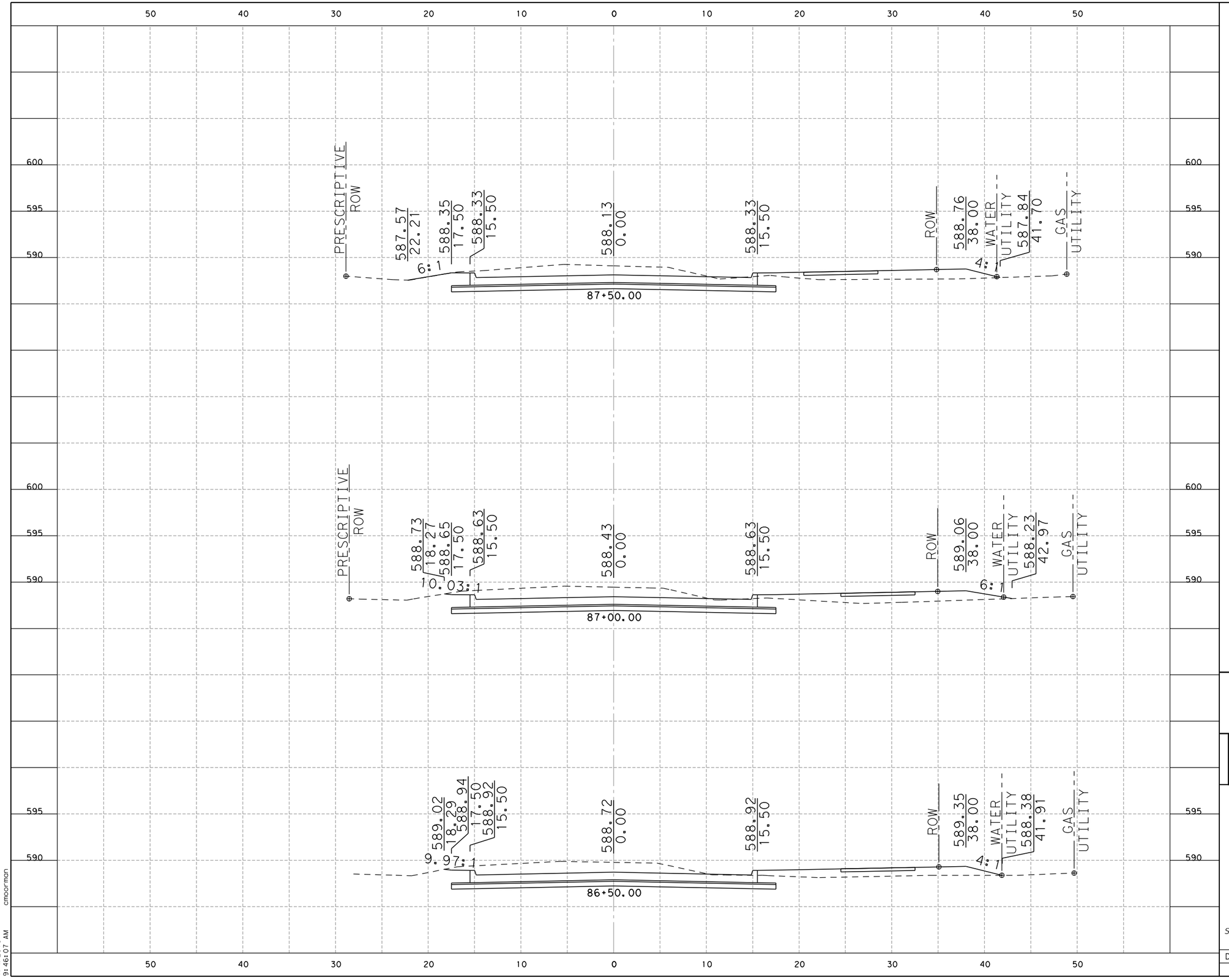
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CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	161

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\11 XSEC\305245-XS-sheets-10-1030per.dgn
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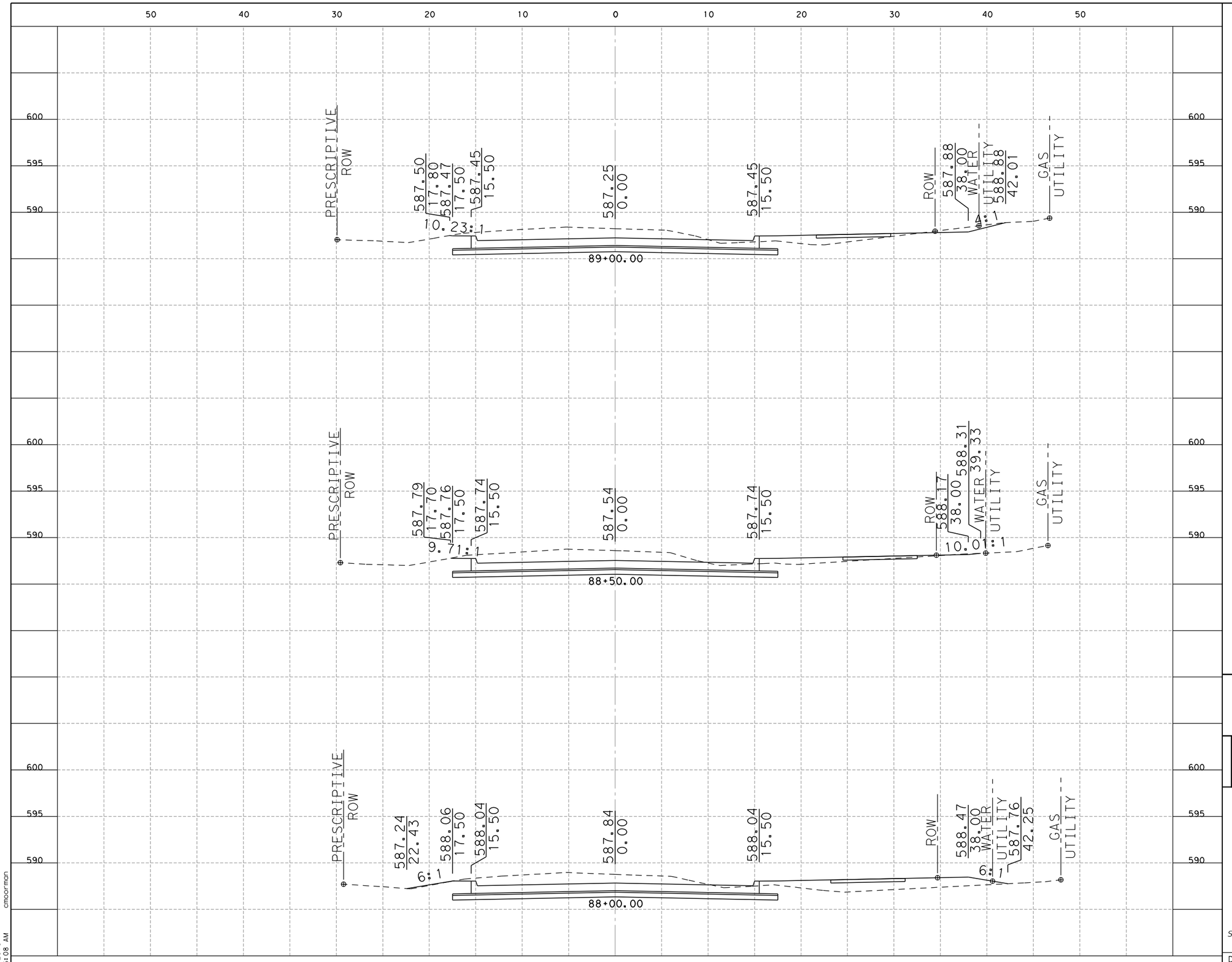
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	162

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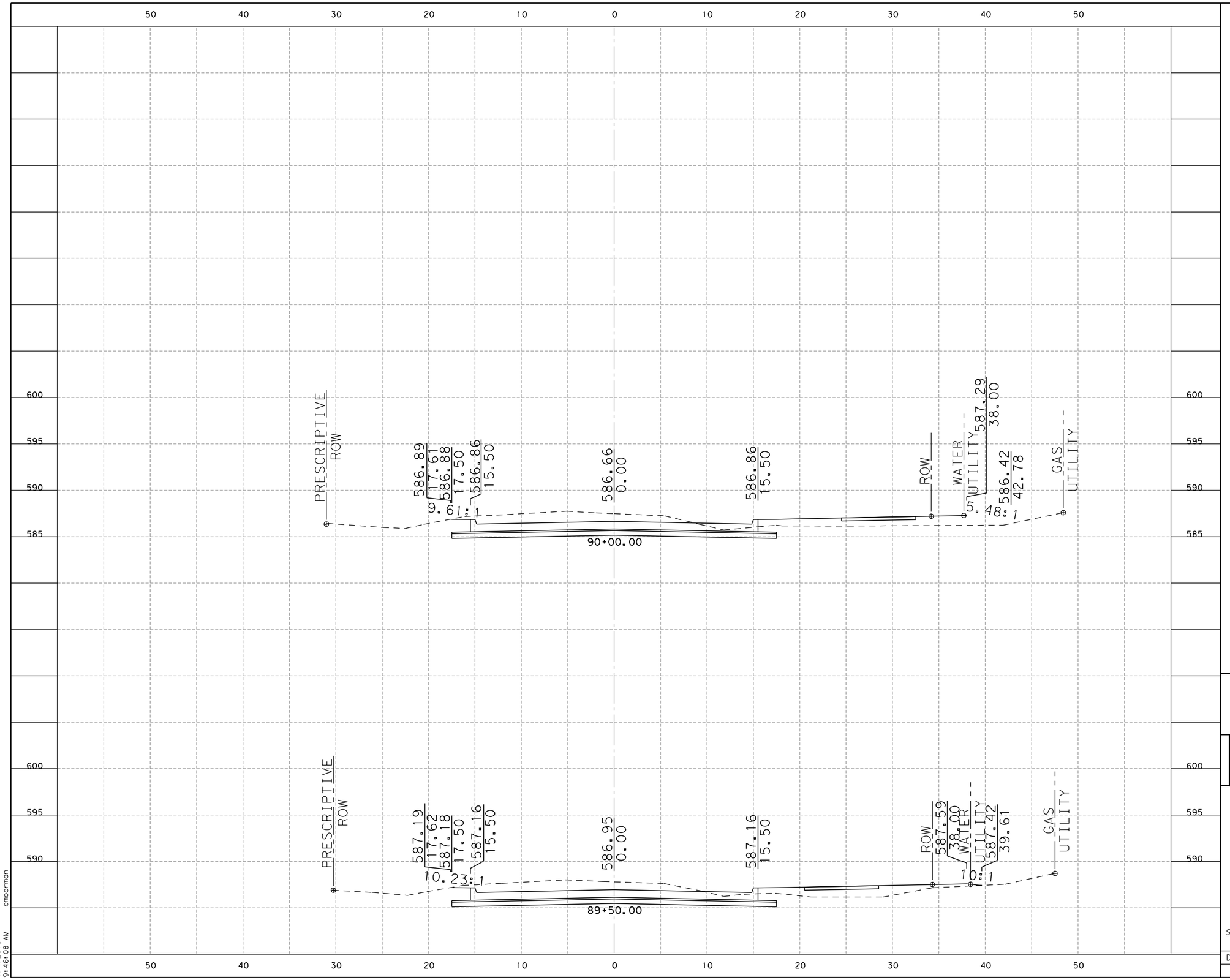
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
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CLM	RAW	SCW	163

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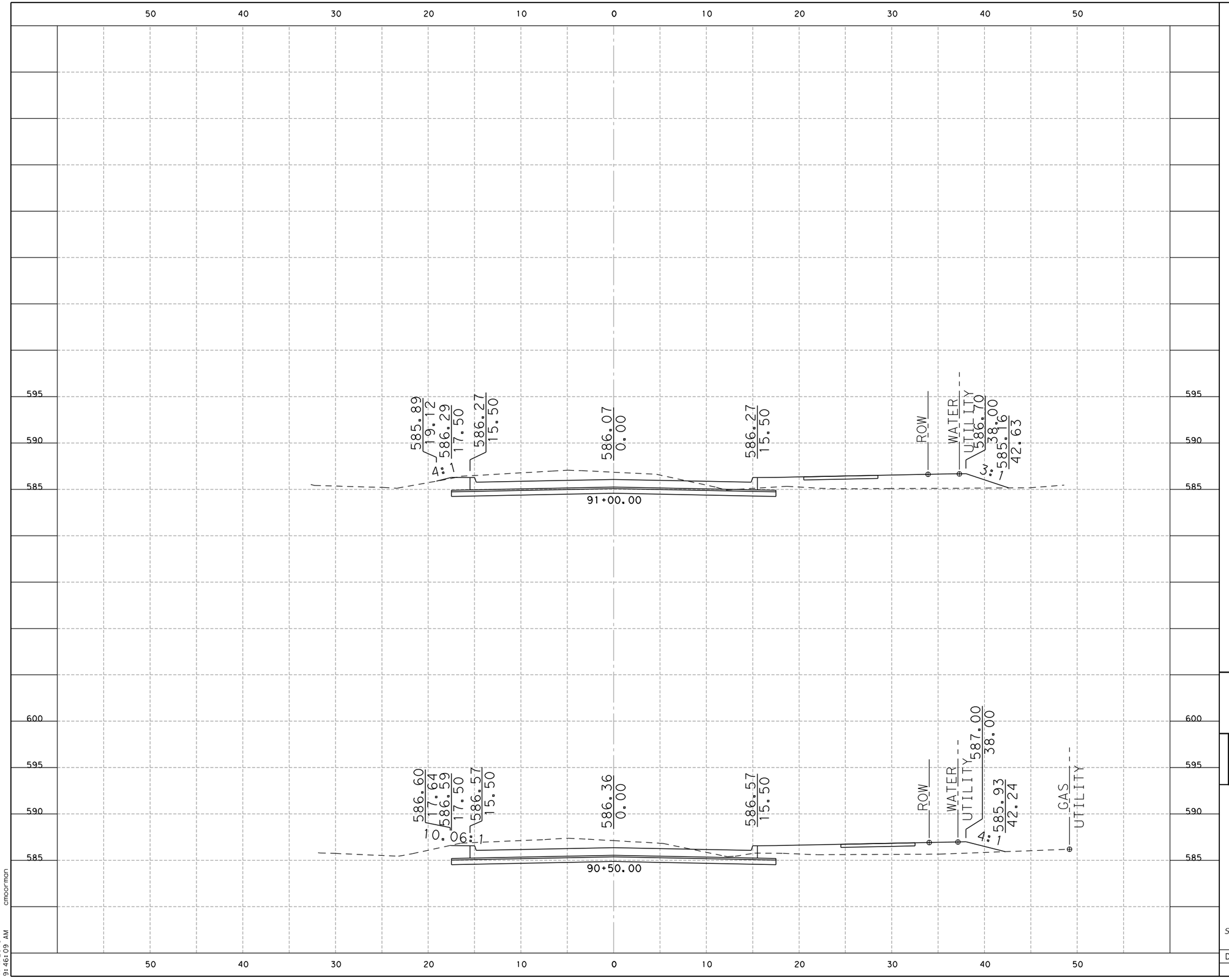
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	164

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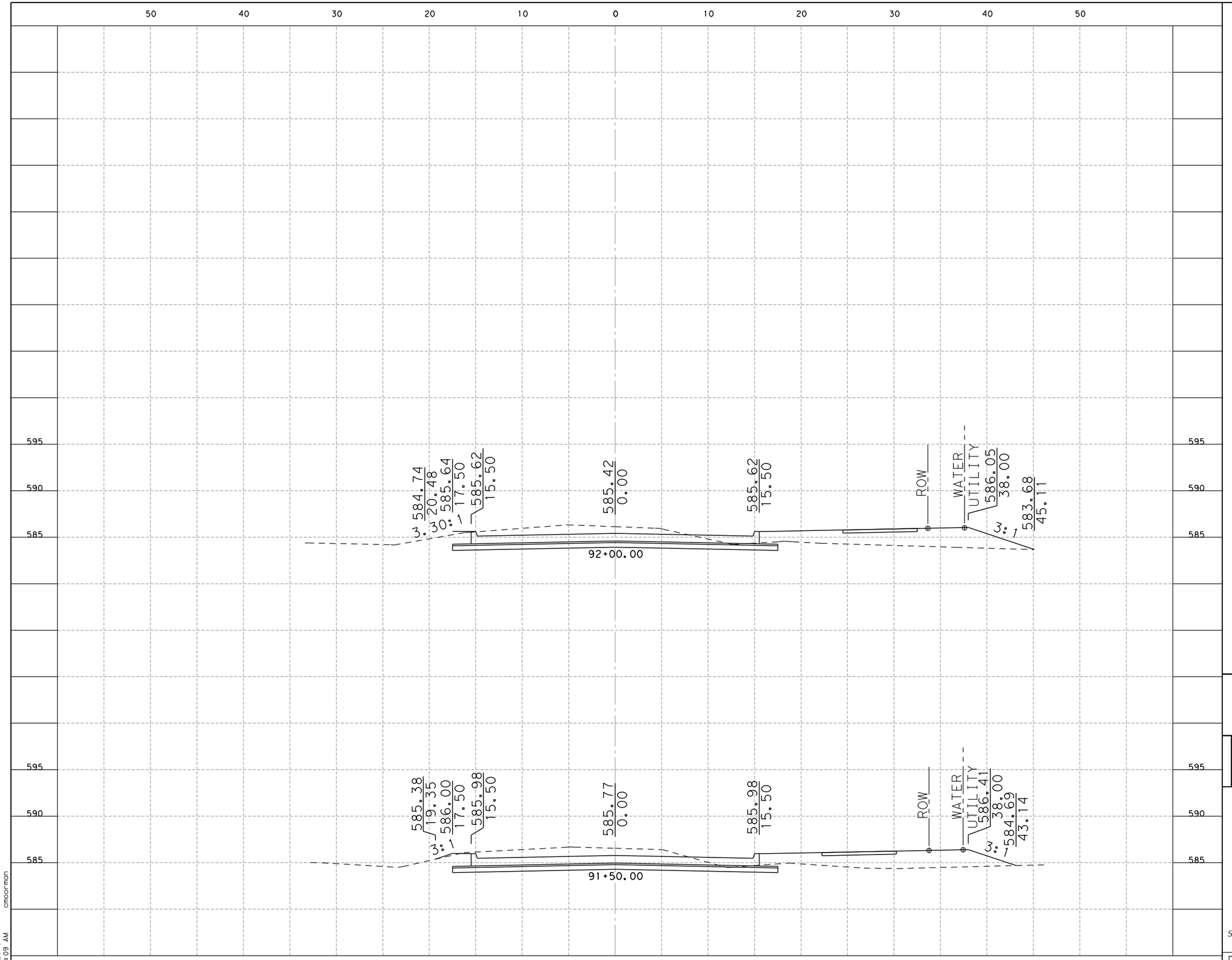
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CROSS SECTIONS

SCALE: H: 1" = 10'
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CLM	RAW	SCW	165

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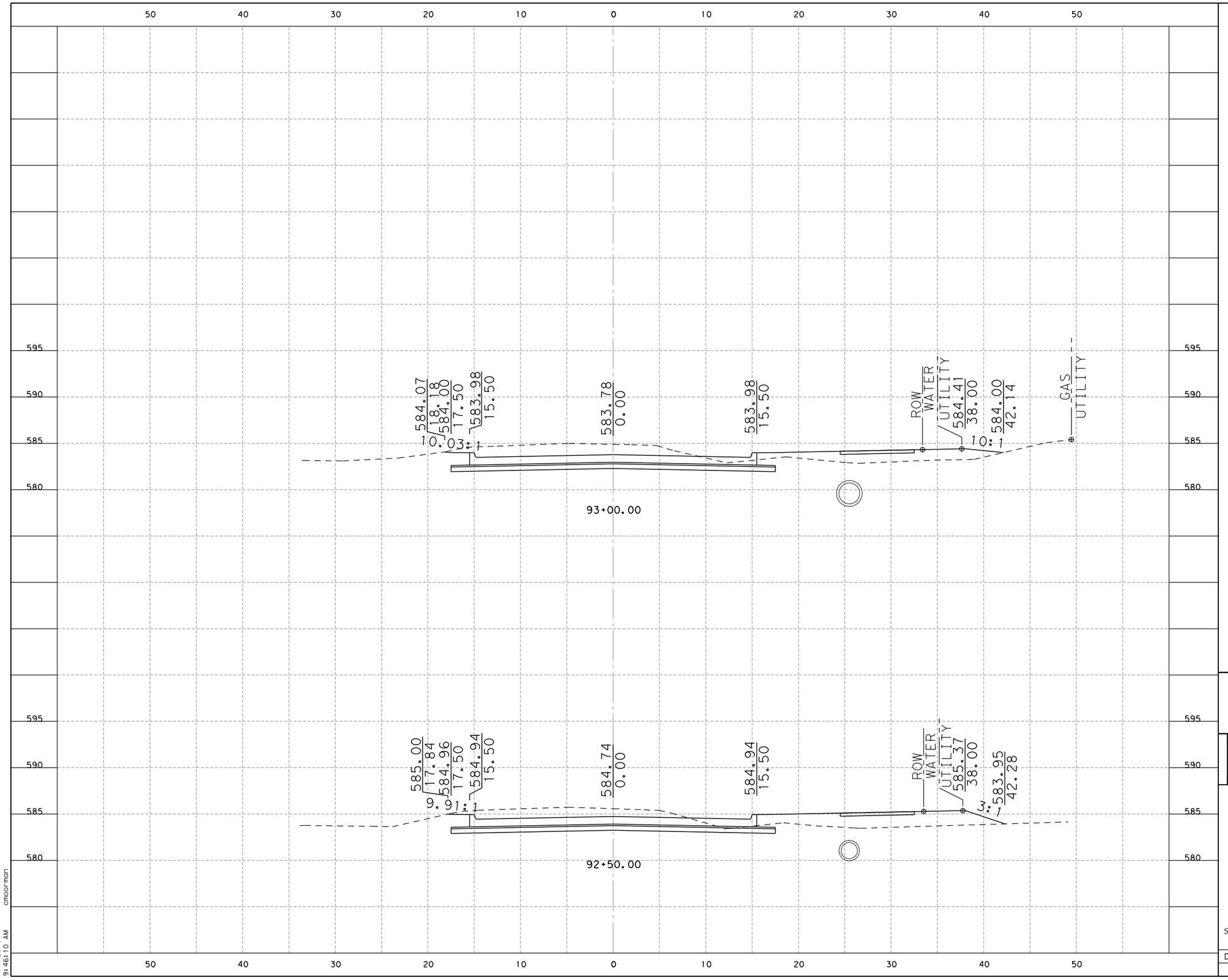
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CROSS SECTIONS

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CLM	RAW	SCW	166

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CROSS SECTIONS

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CLM	RAW	SCW	167

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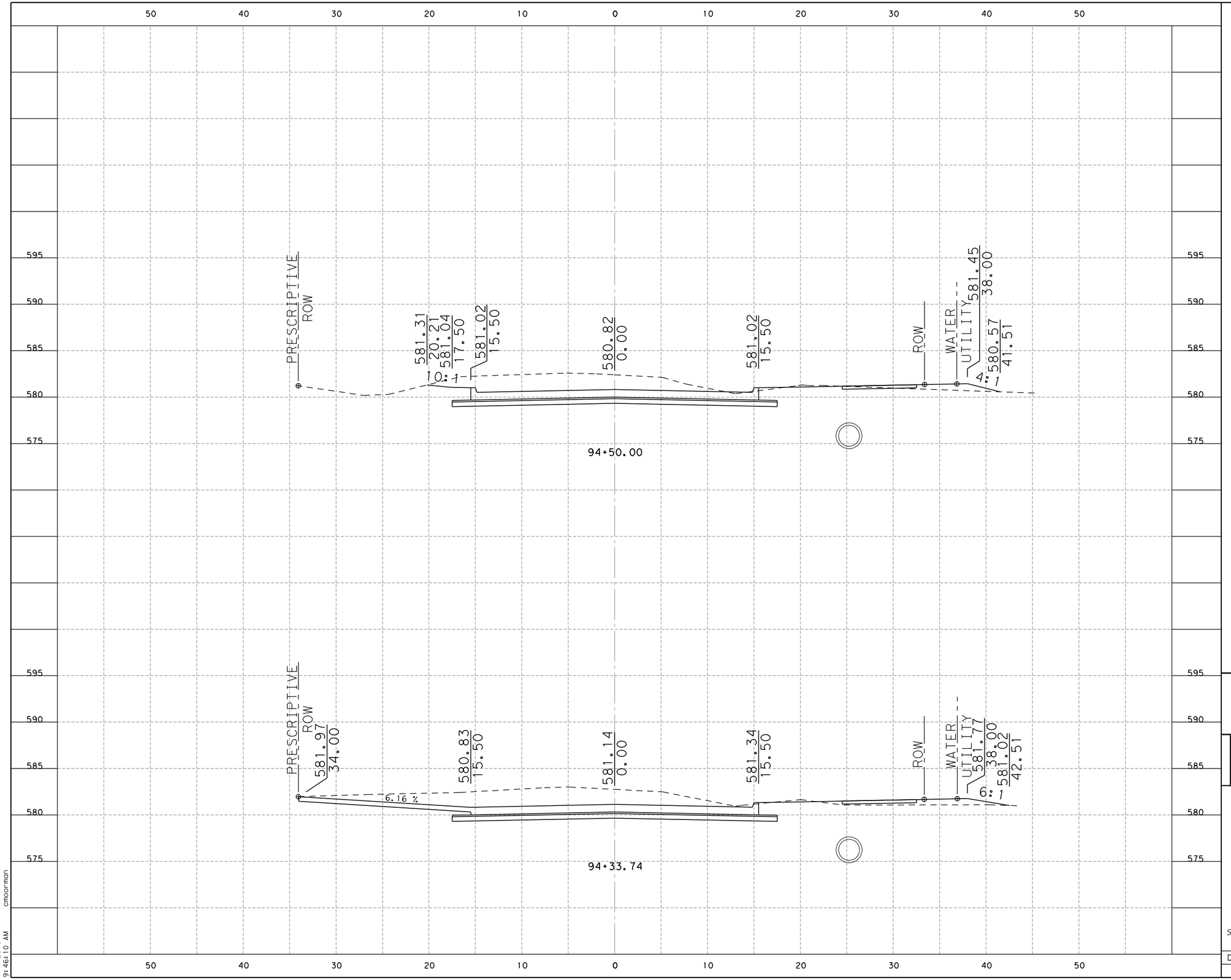
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	168

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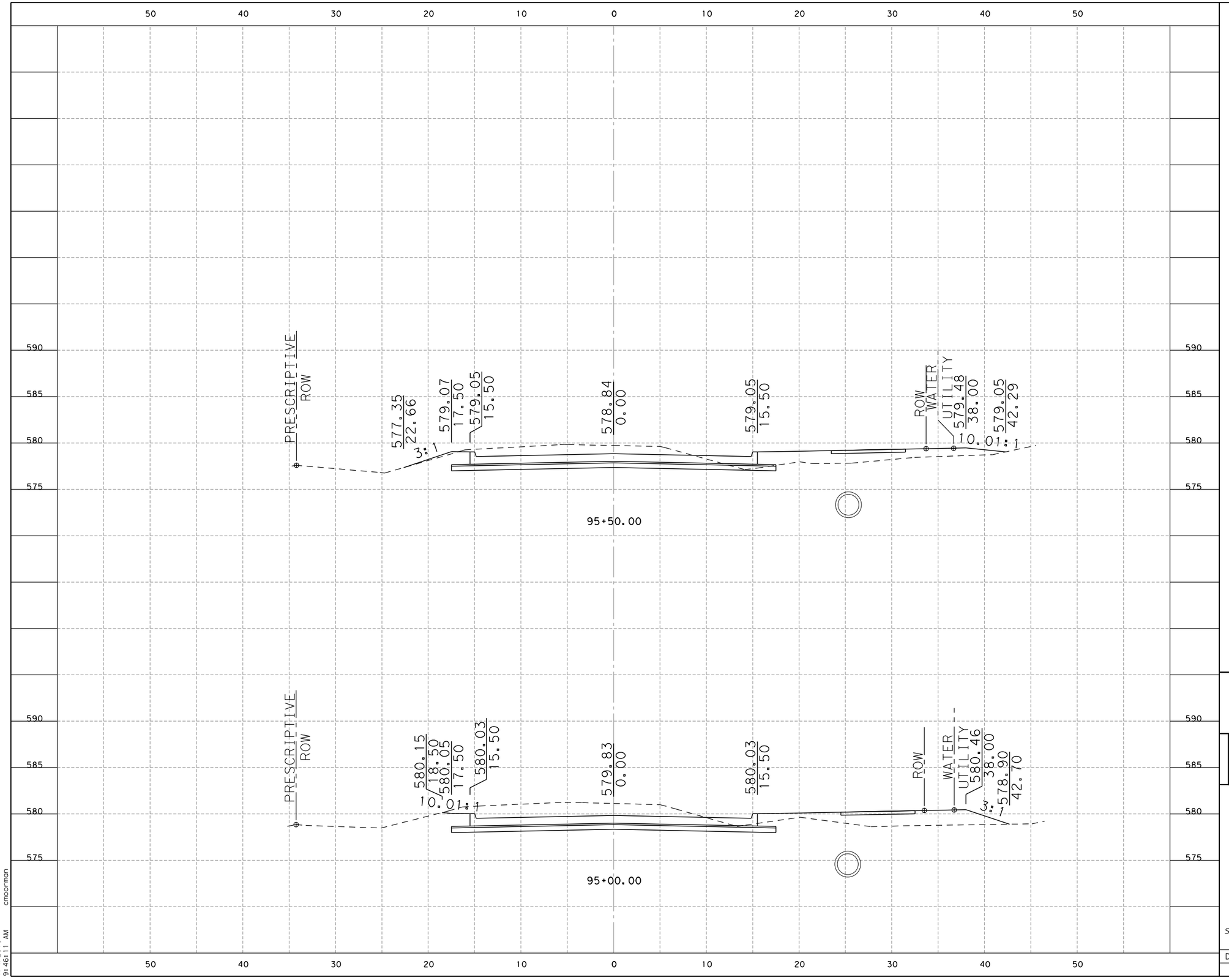
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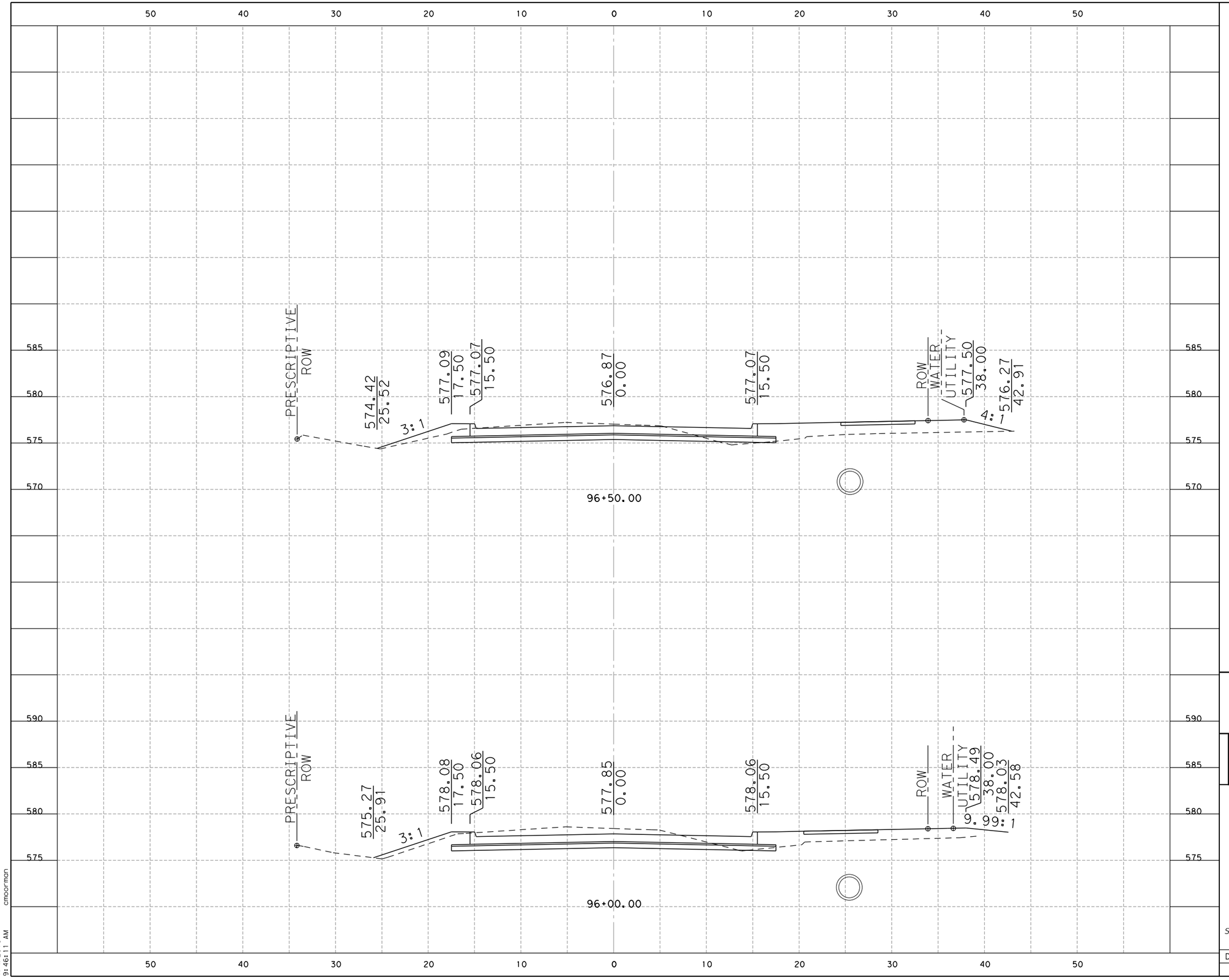
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CROSS SECTIONS

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CLM	RAW	SCW	170

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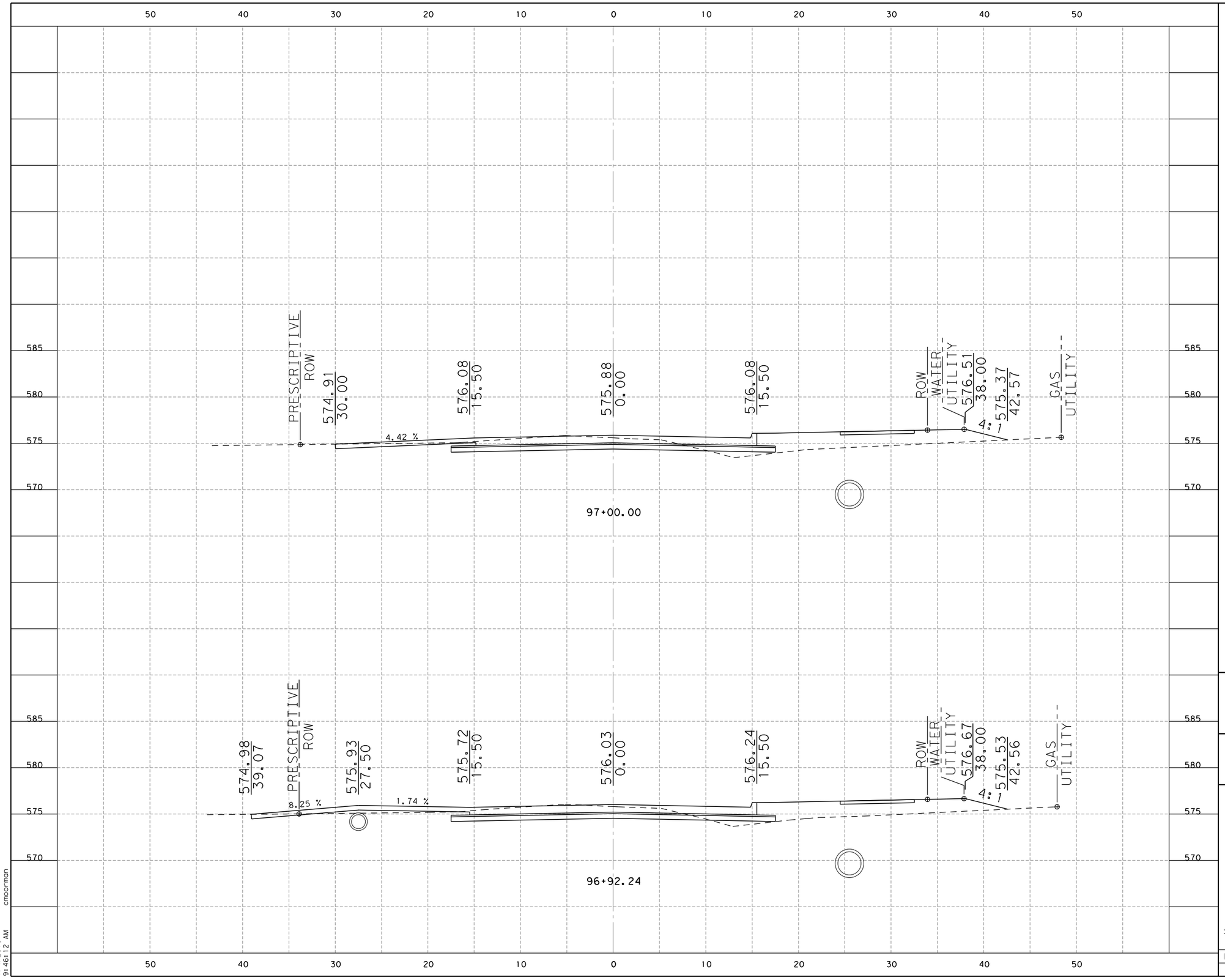
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SCALE: H: 1" = 10'
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	171

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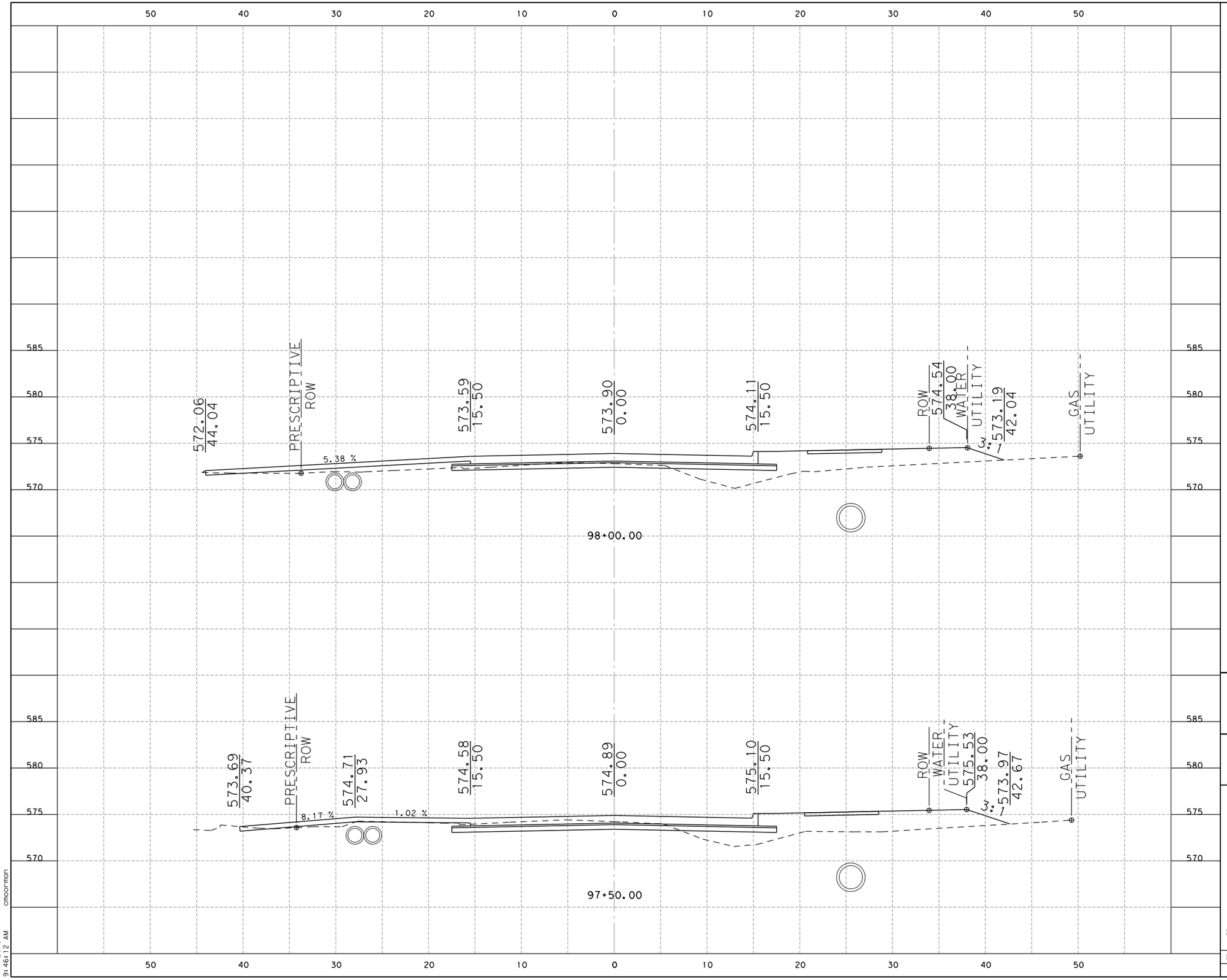
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CROSS SECTIONS

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	172

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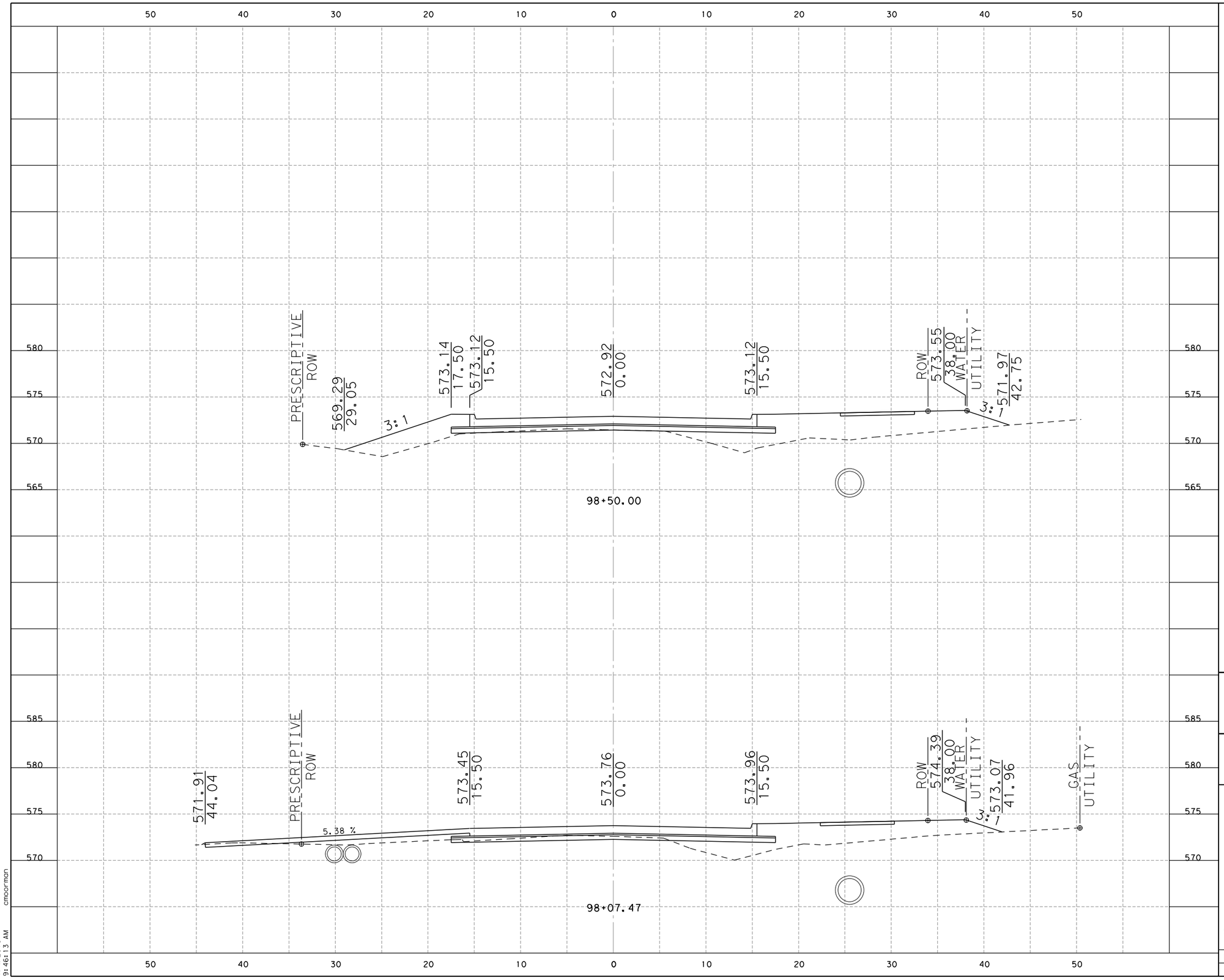
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CROSS SECTIONS

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CLM	RAW	SCW	173

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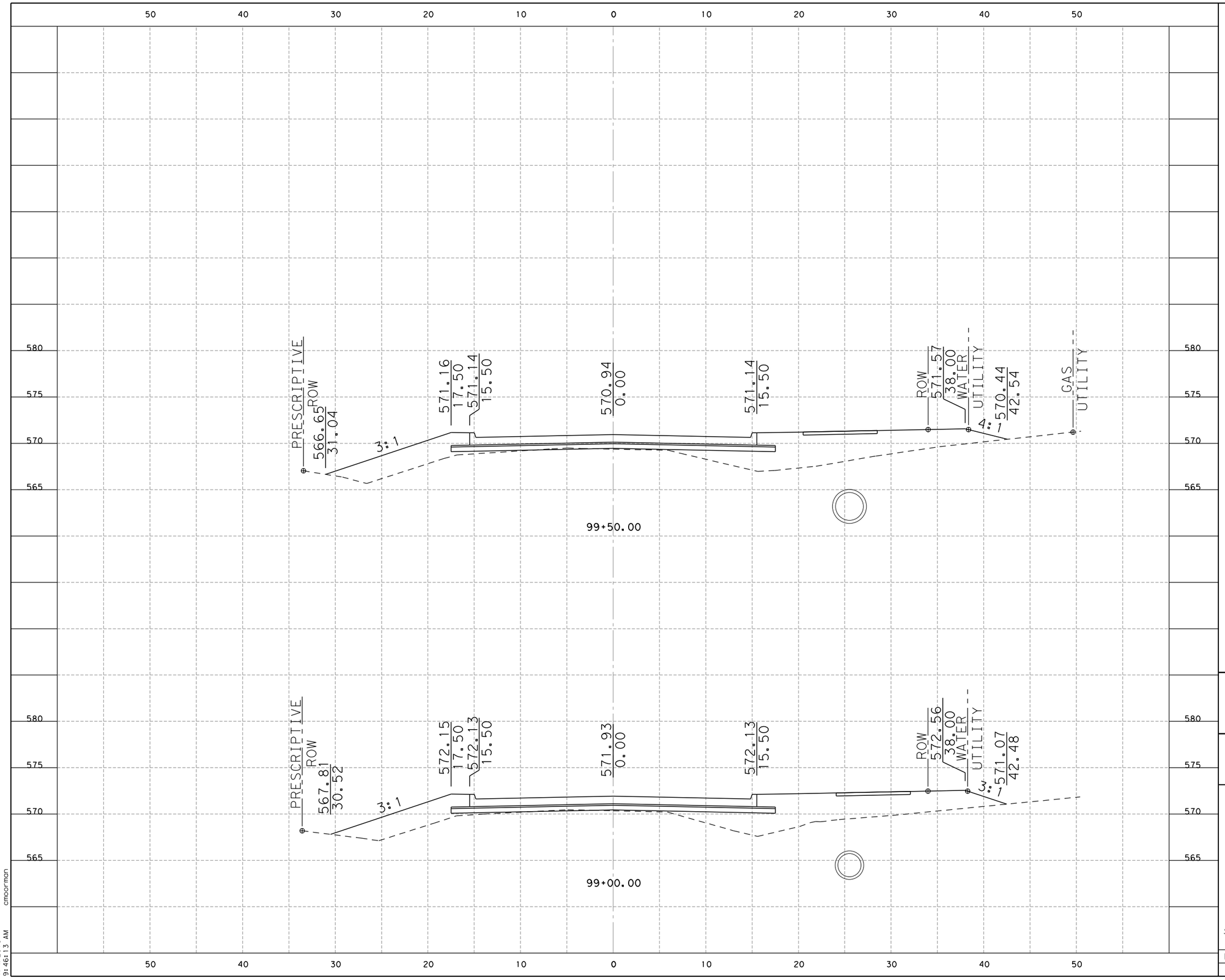
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	174

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\11 XSEC\305245-XS-sheets-10-1030per.dgn
1/4/2018 9:46:13 AM cmoorman



0 5 10

SCALE: 1" = 10'

FOR CONTRACTOR'S INFORMATION ONLY

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

E. STACY ROAD IMPROVEMENTS

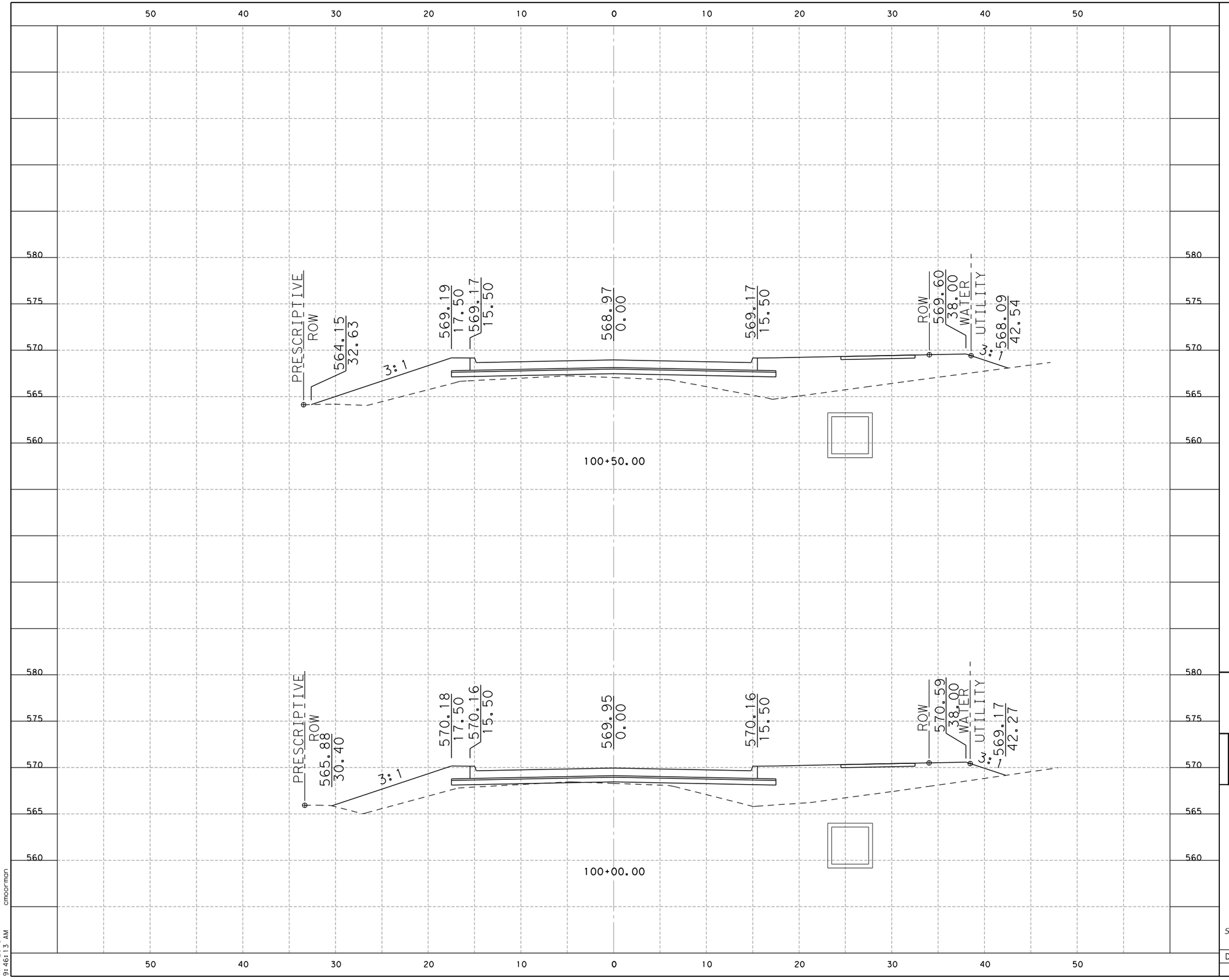
CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

SHEET NO. 175

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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SCALE: 1" = 10'

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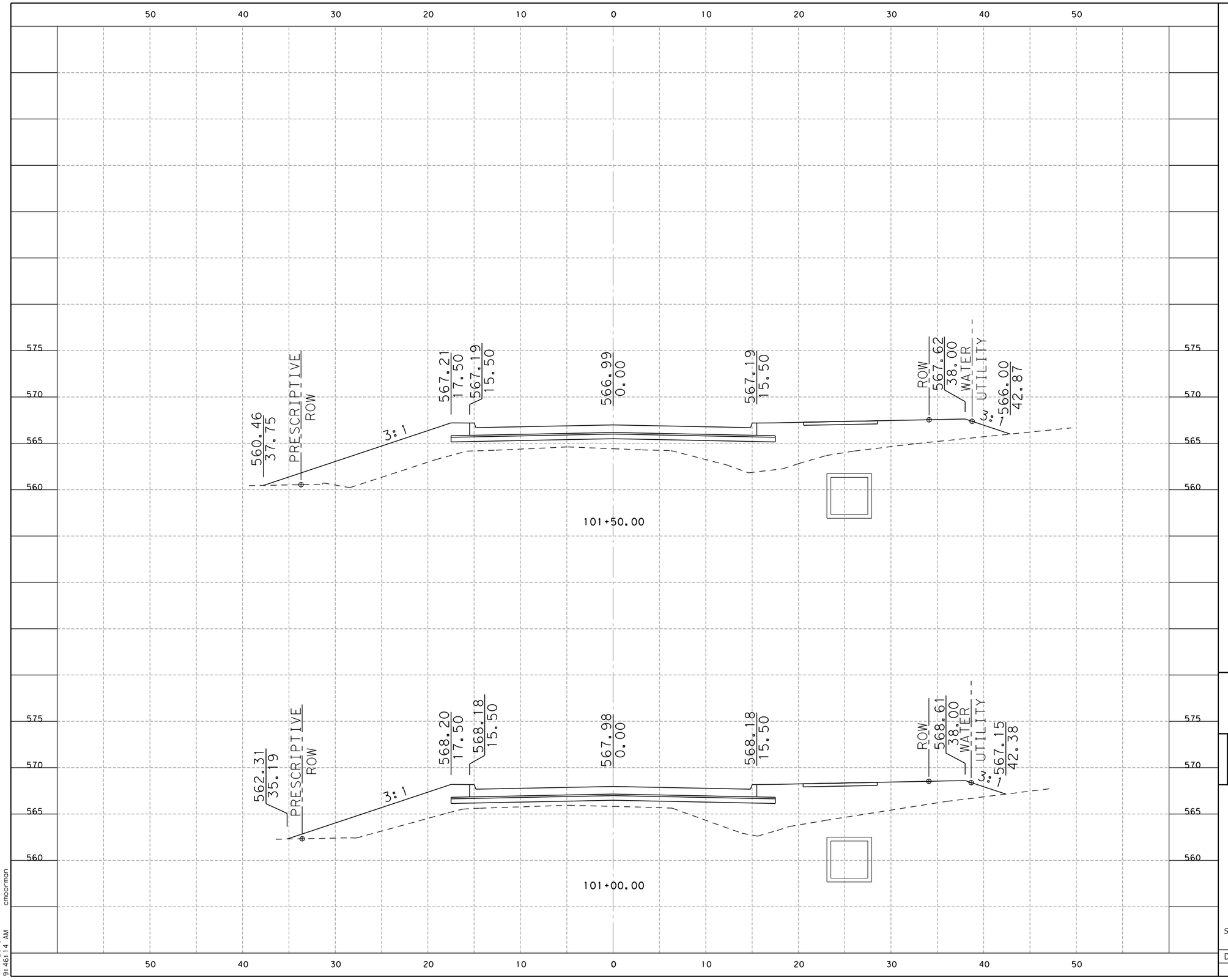
CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

SHEET NO. 176

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\11 XSEC\305245-XS-sheets-10-1030per.dgn
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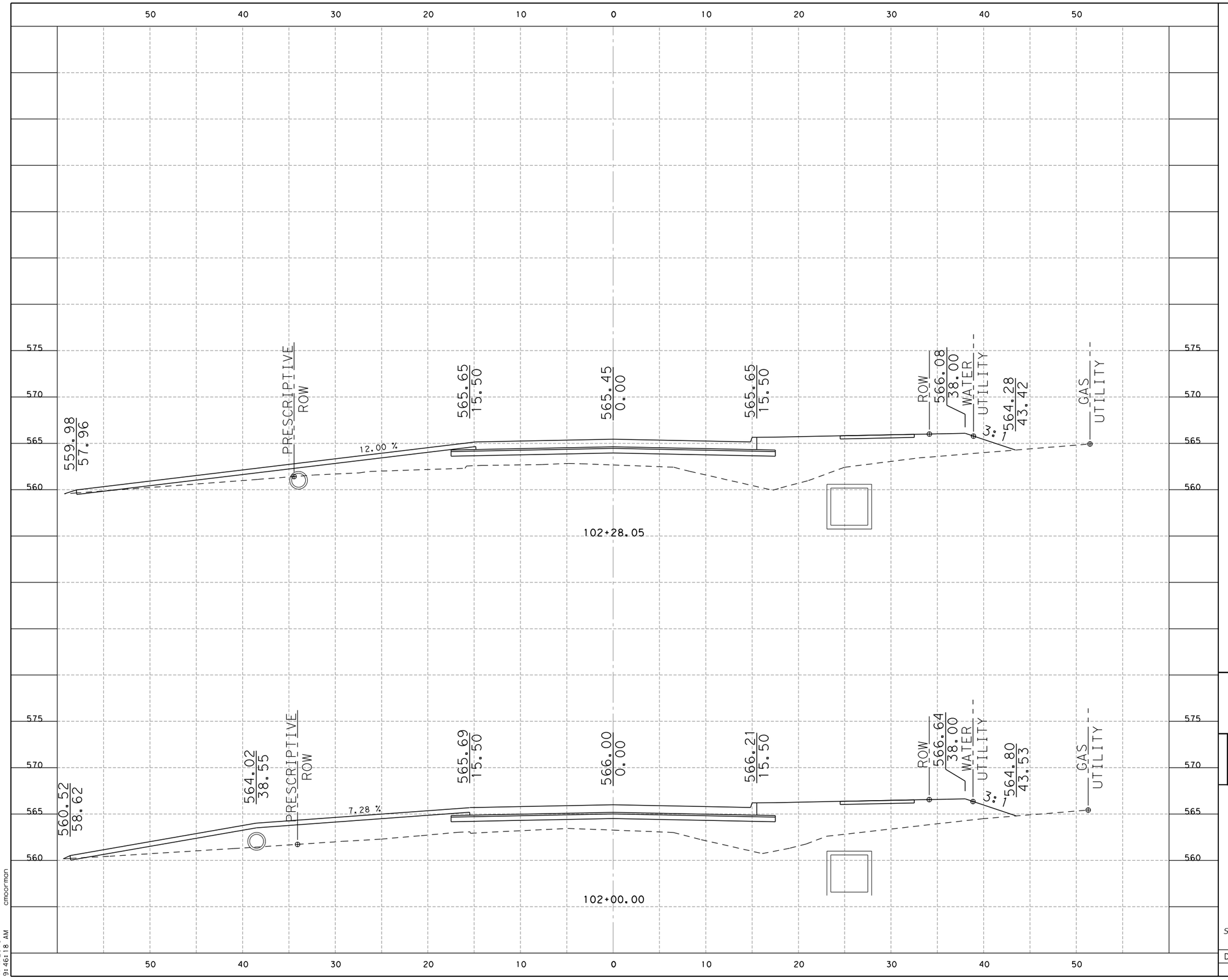
CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

SHEET NO. 177

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\11 XSEC\305245-XS-sheets-10-1030per.dgn
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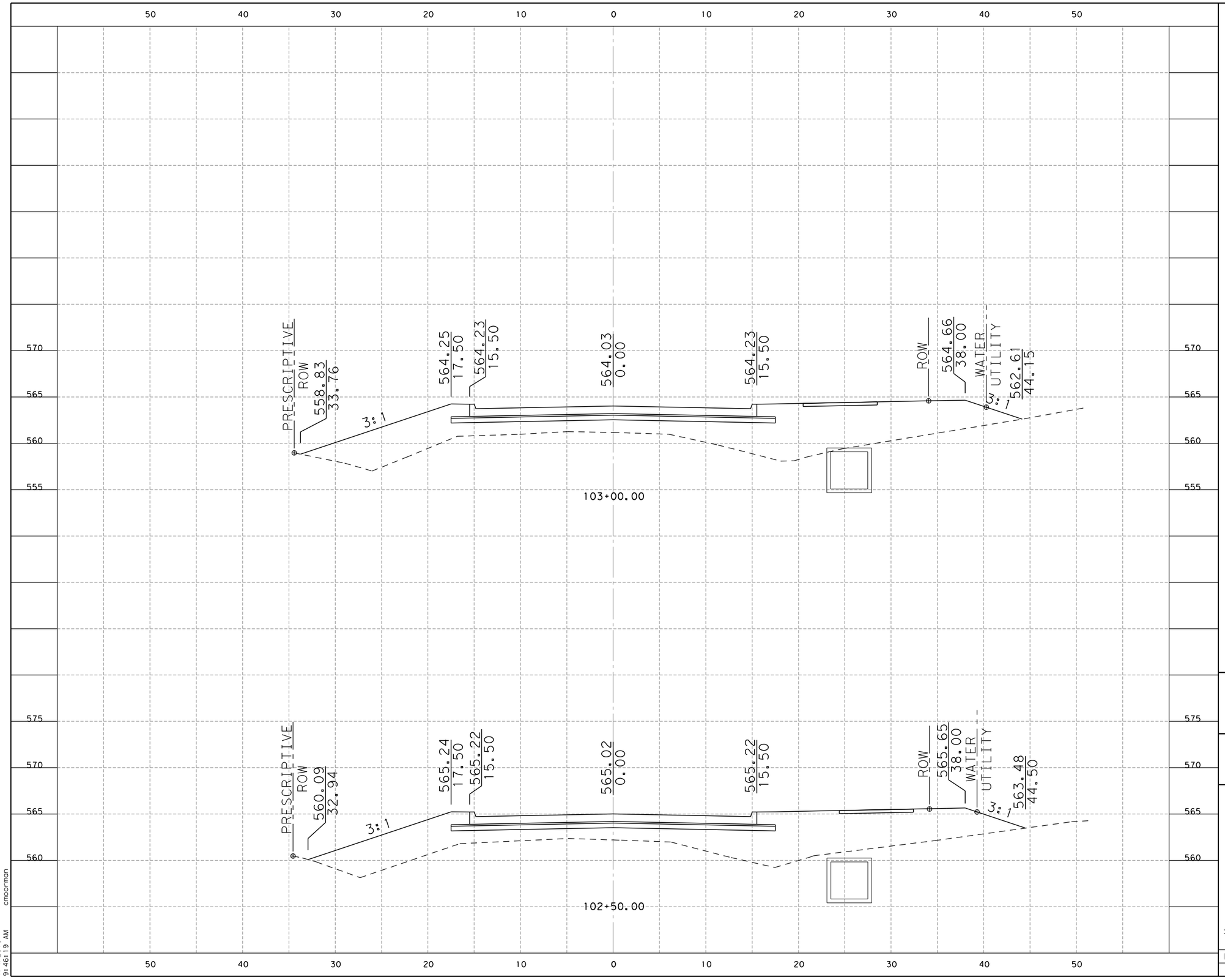
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	178

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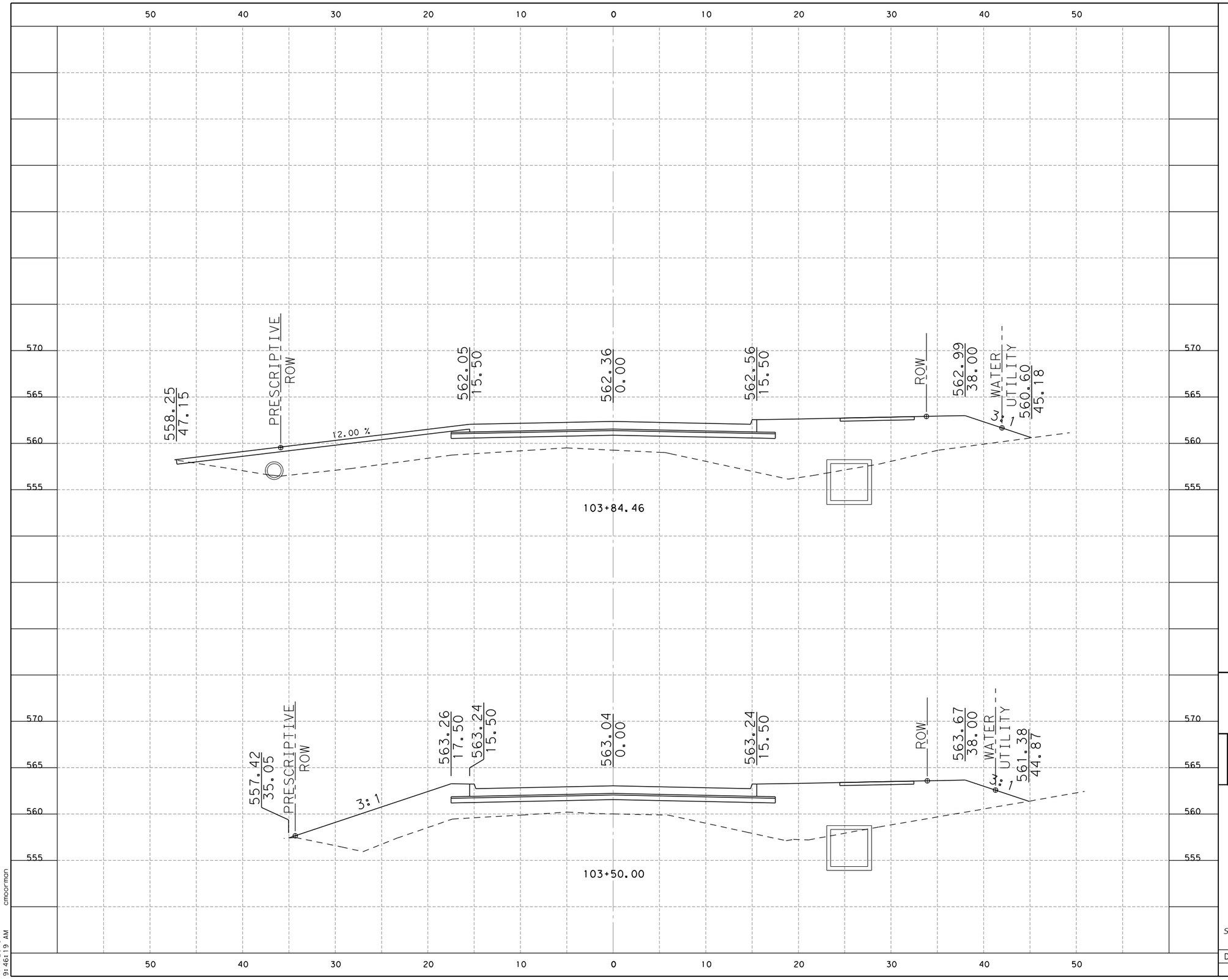
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CROSS SECTIONS

SCALE: H: 1" = 10'
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CLM	RAW	SCW	179

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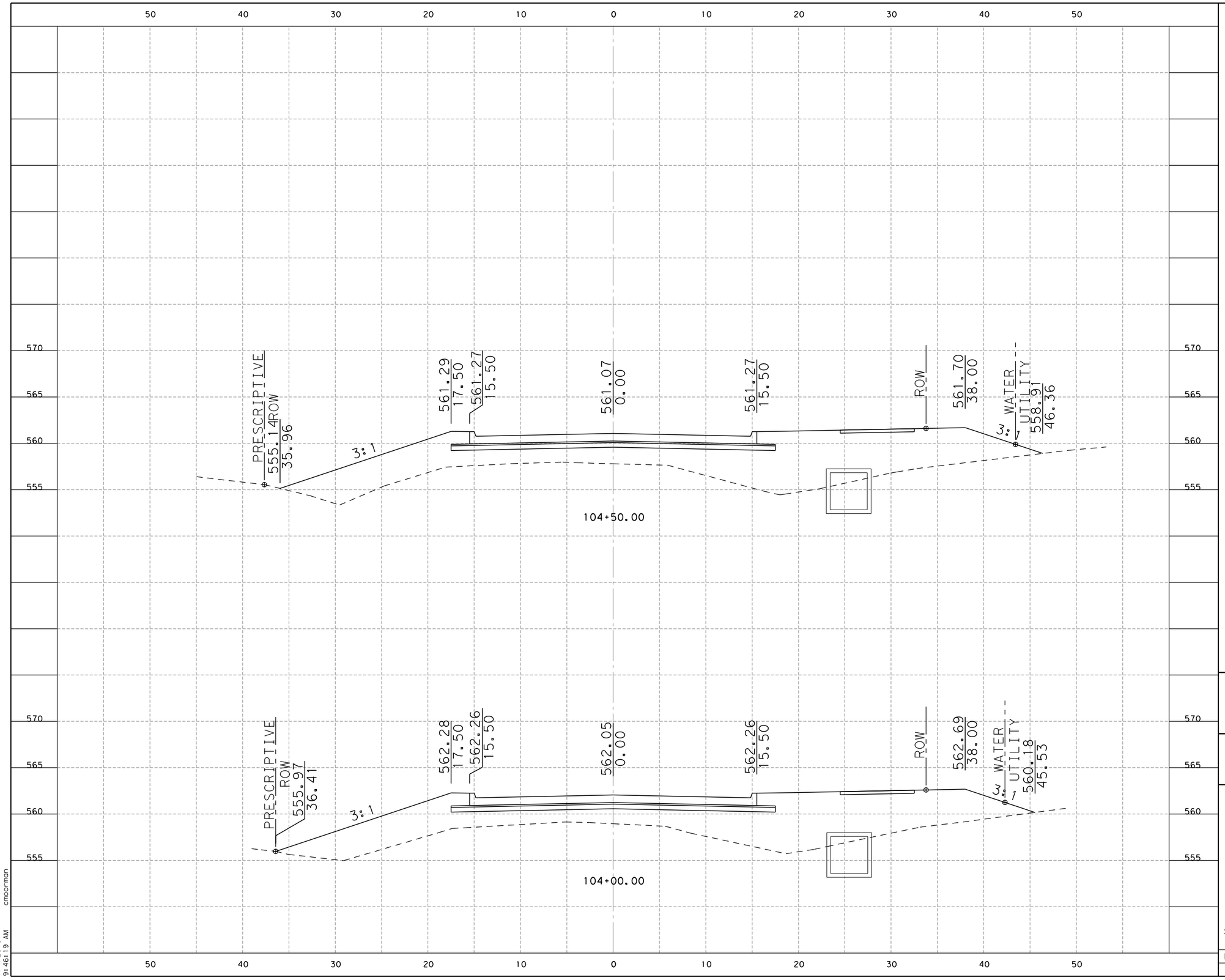
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CROSS SECTIONS

SCALE: H: 1" = 10'
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	180

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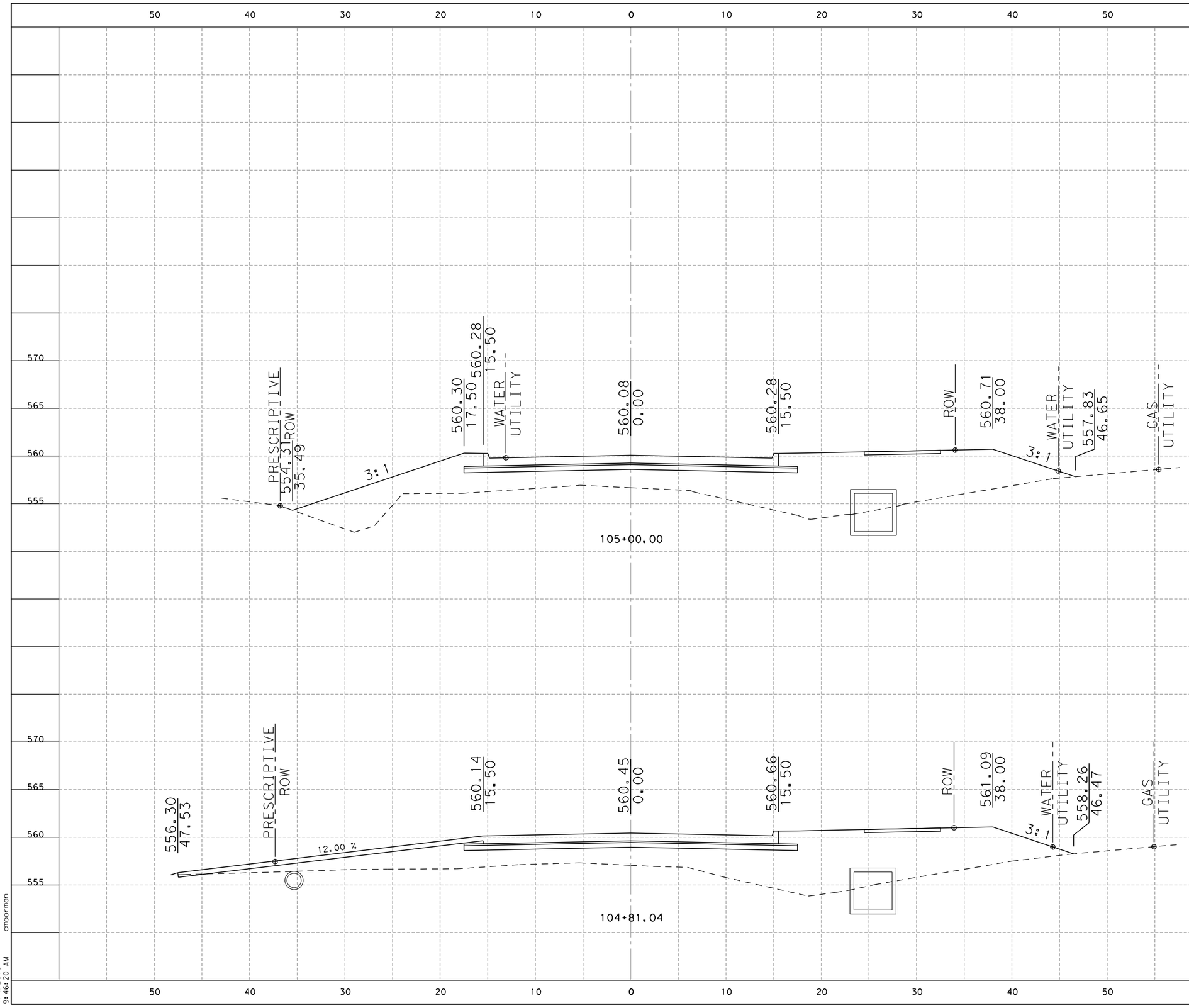
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CROSS SECTIONS

SCALE: H: 1" = 10'
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	181

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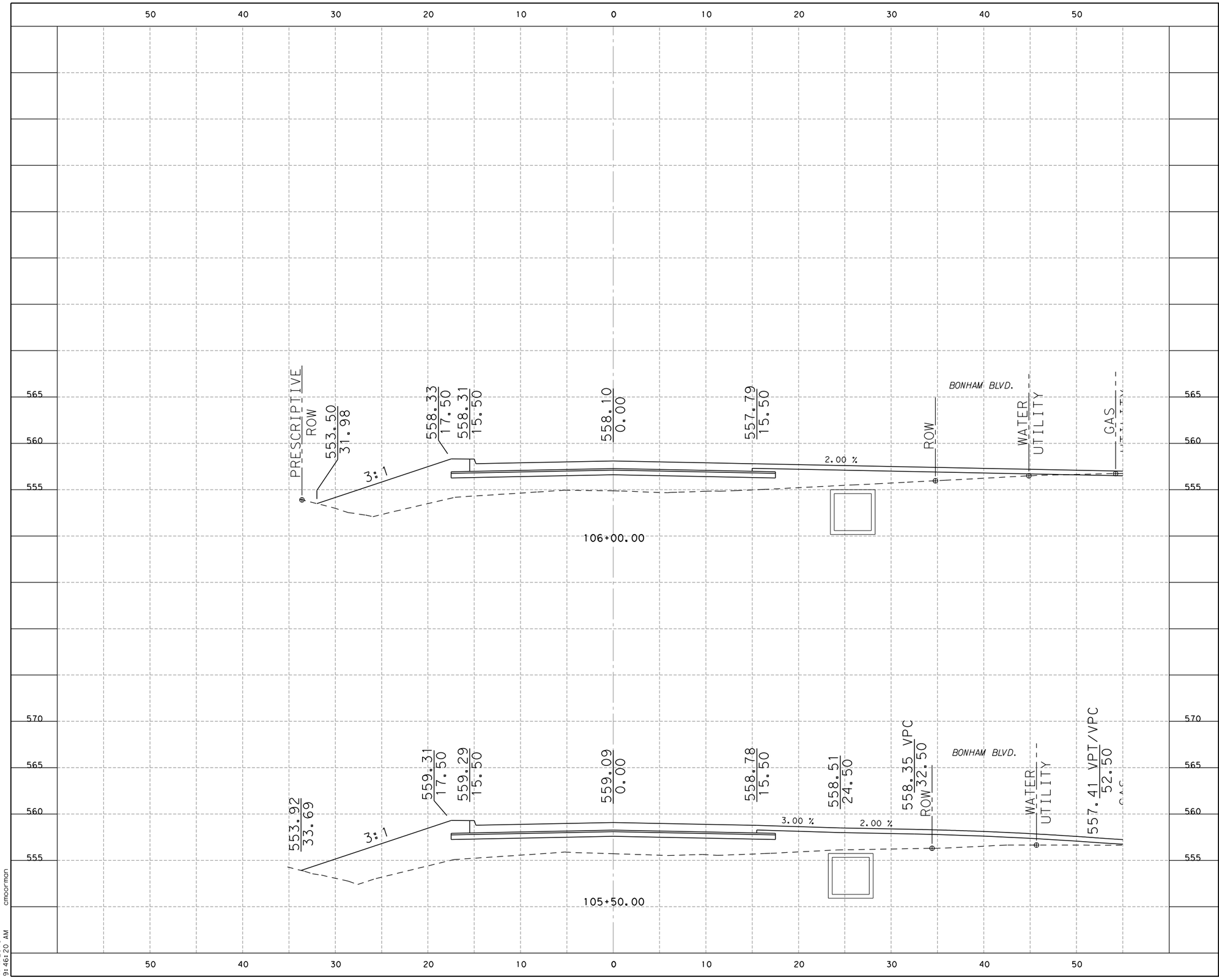
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CROSS SECTIONS

SCALE: H: 1" = 10'
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	182

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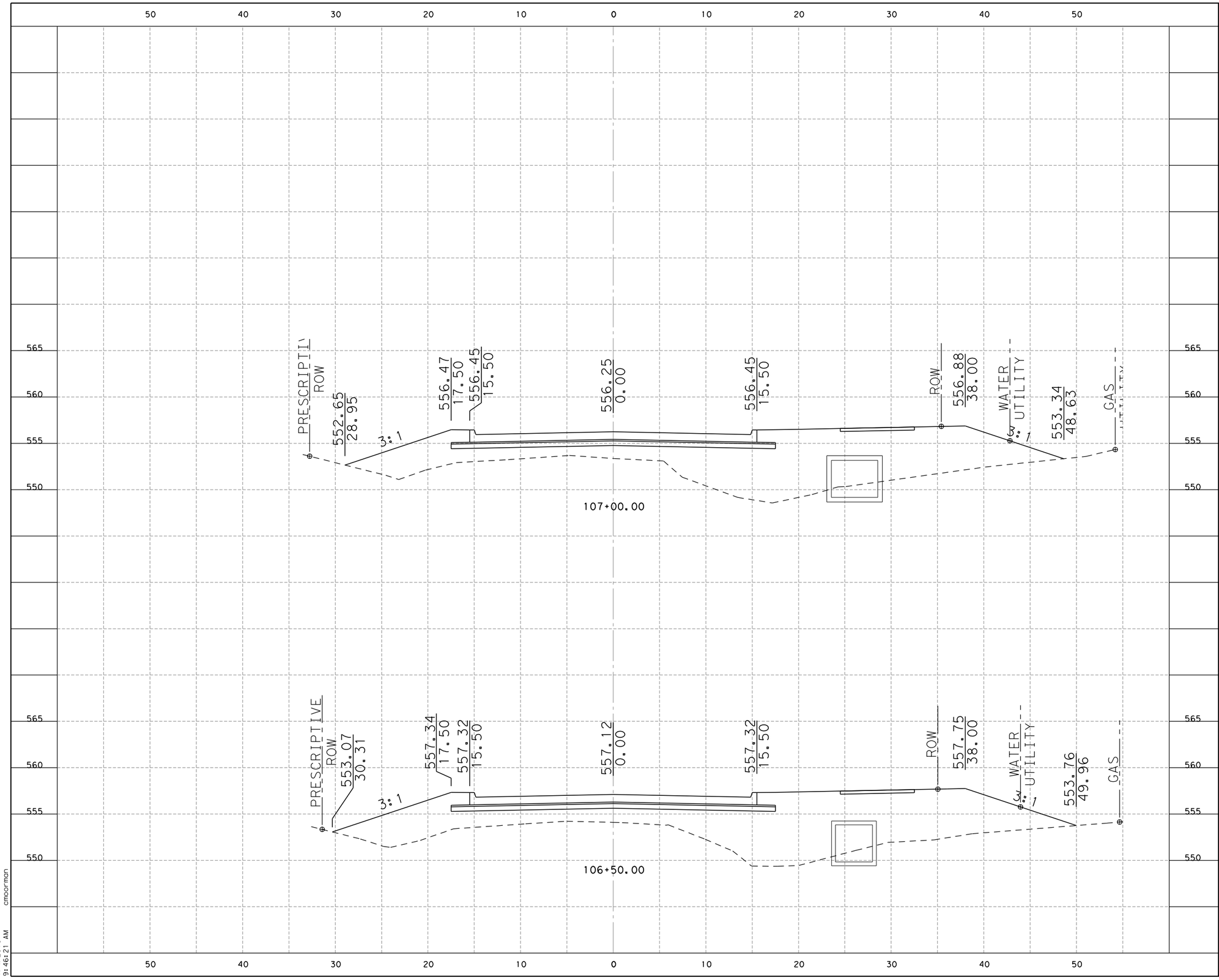
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CROSS SECTIONS

SCALE: H: 1" = 10'
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	183

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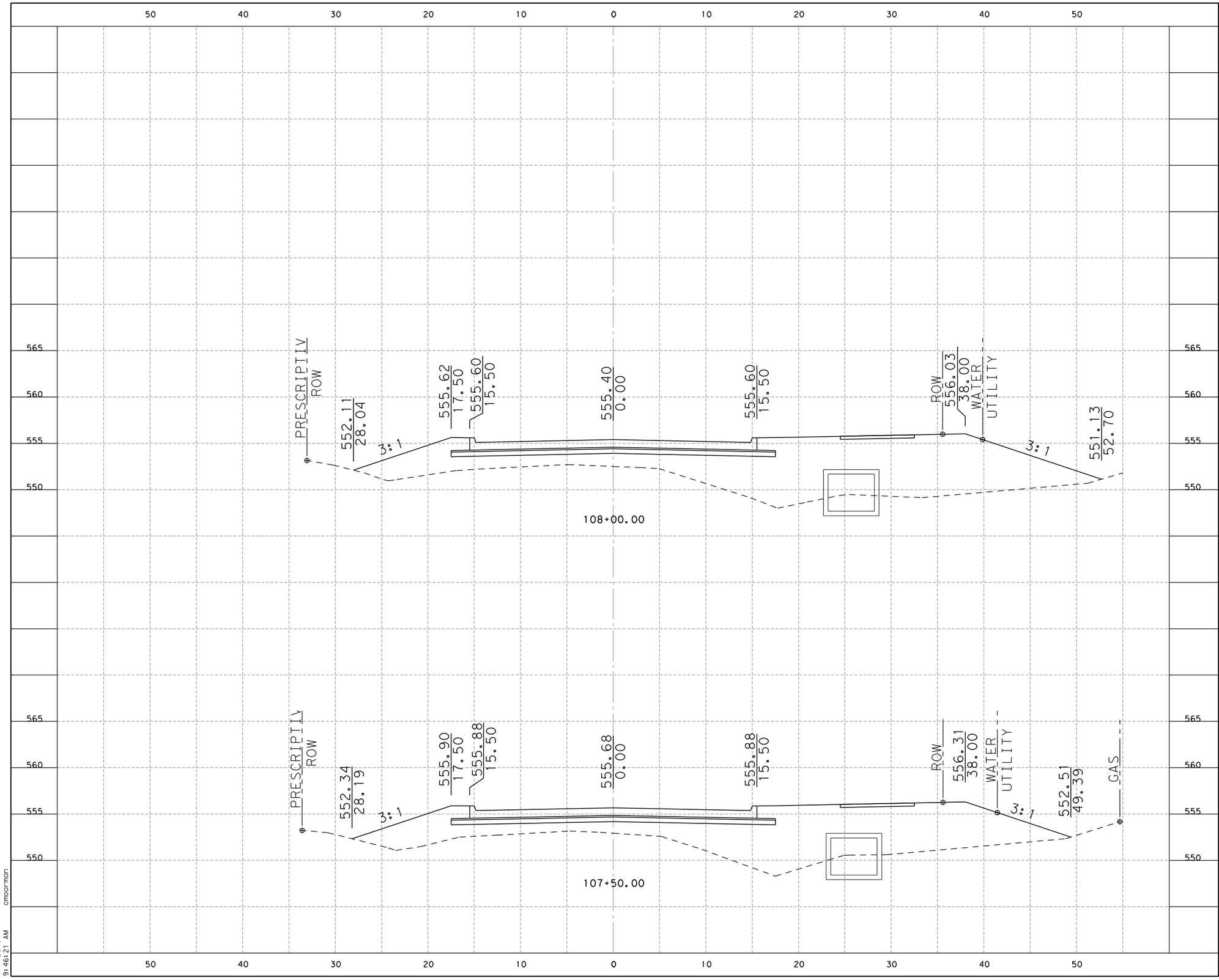
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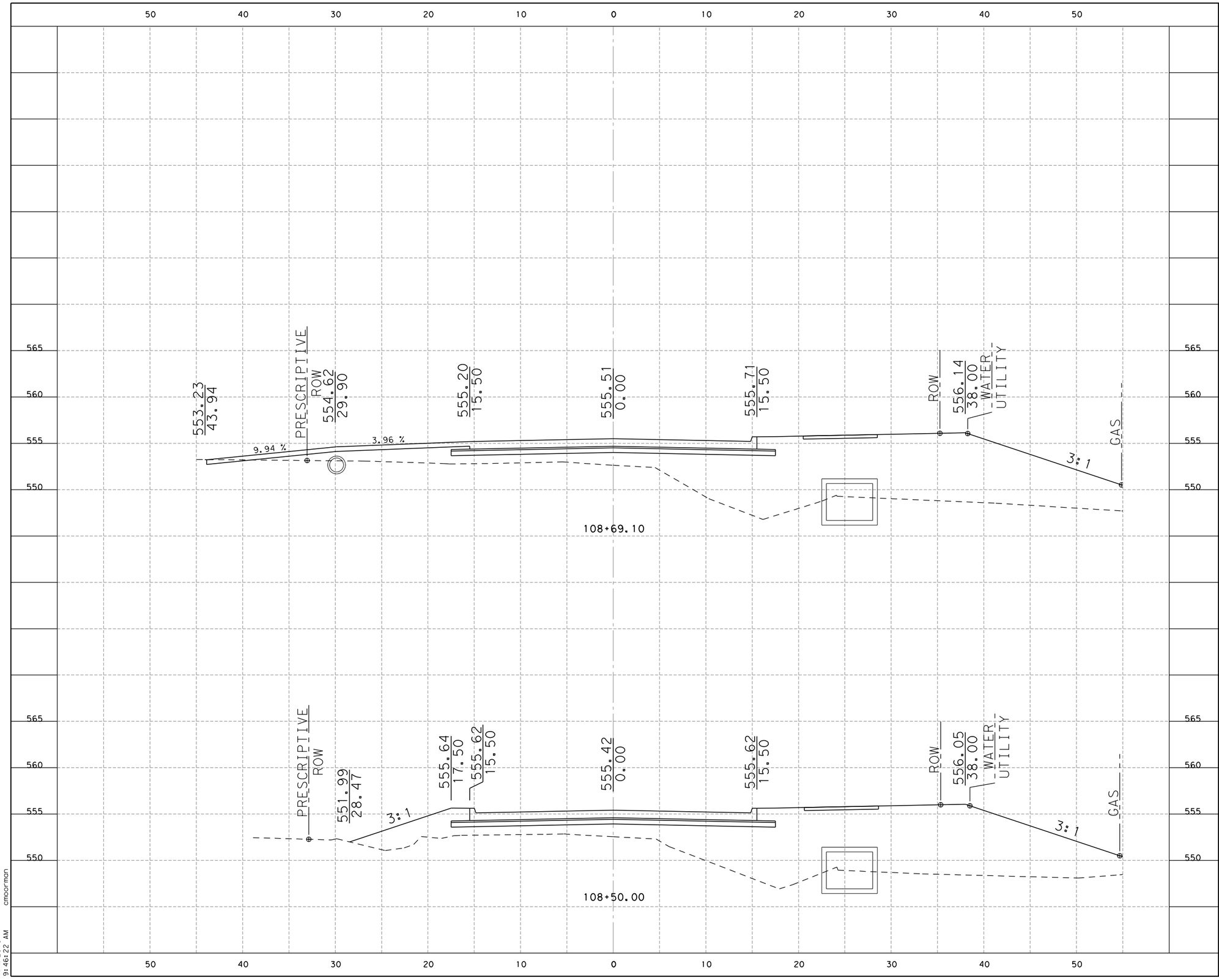
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CROSS SECTIONS

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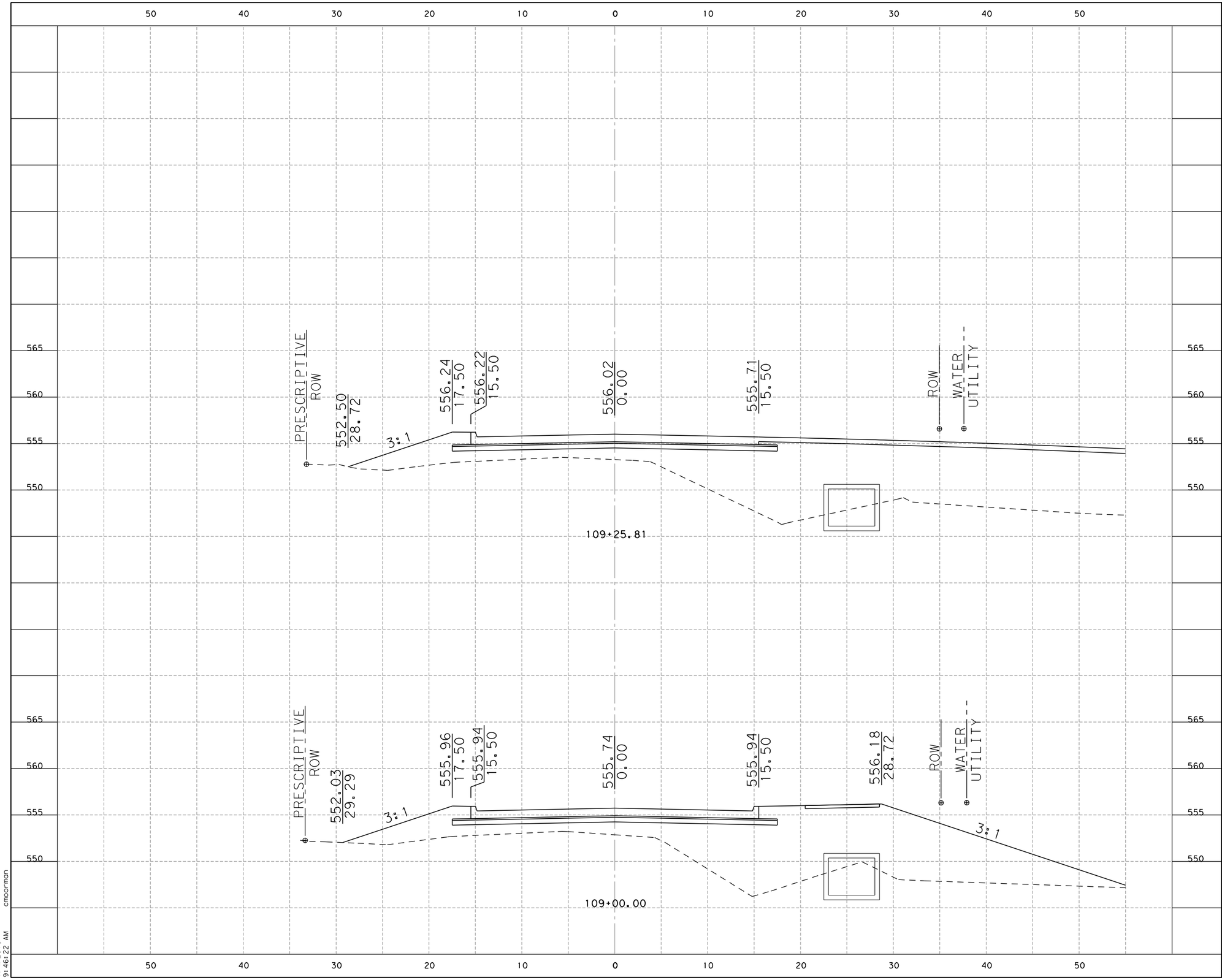
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CROSS SECTIONS

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CLM	RAW	SCW	186

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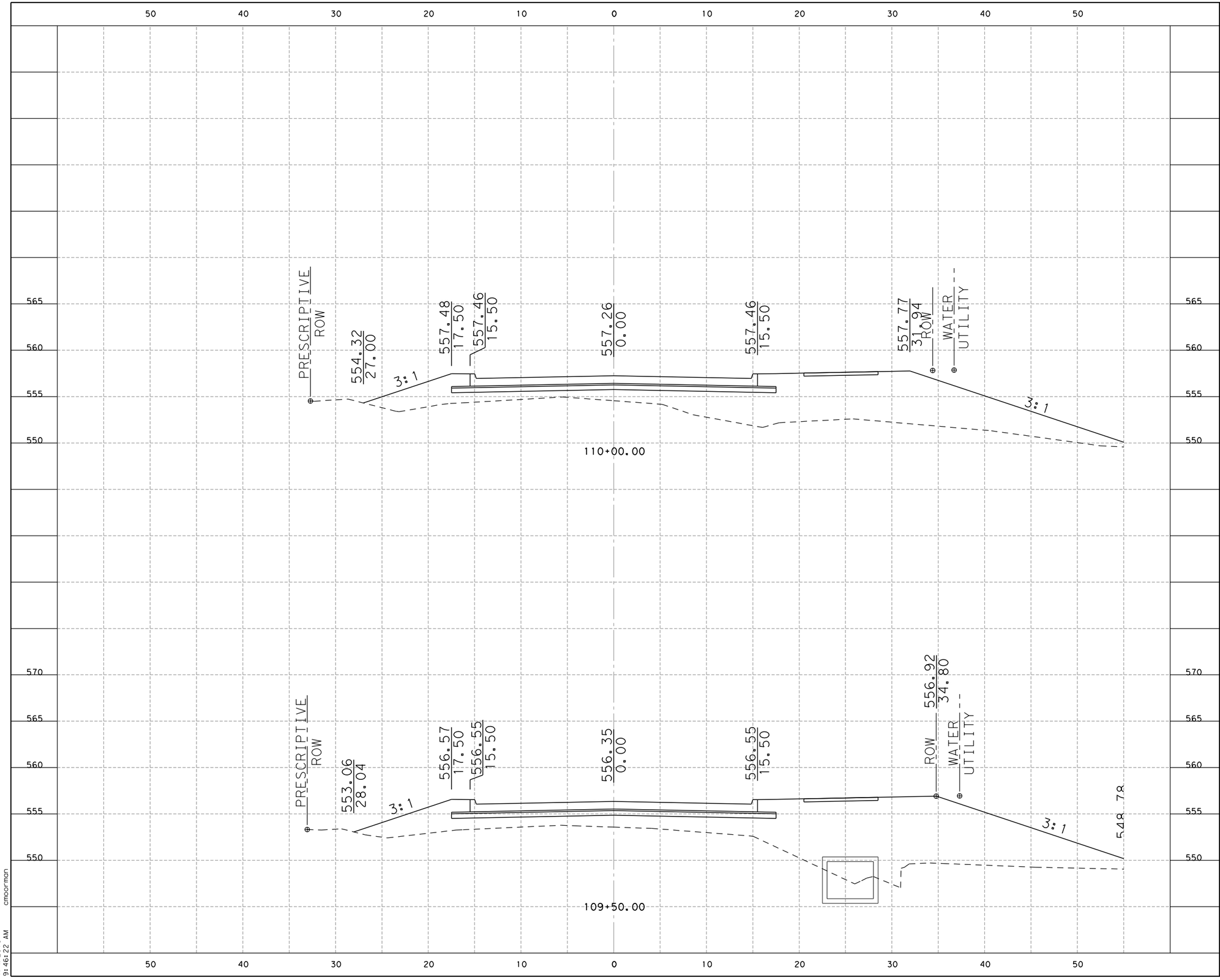
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CLM	RAW	SCW	187

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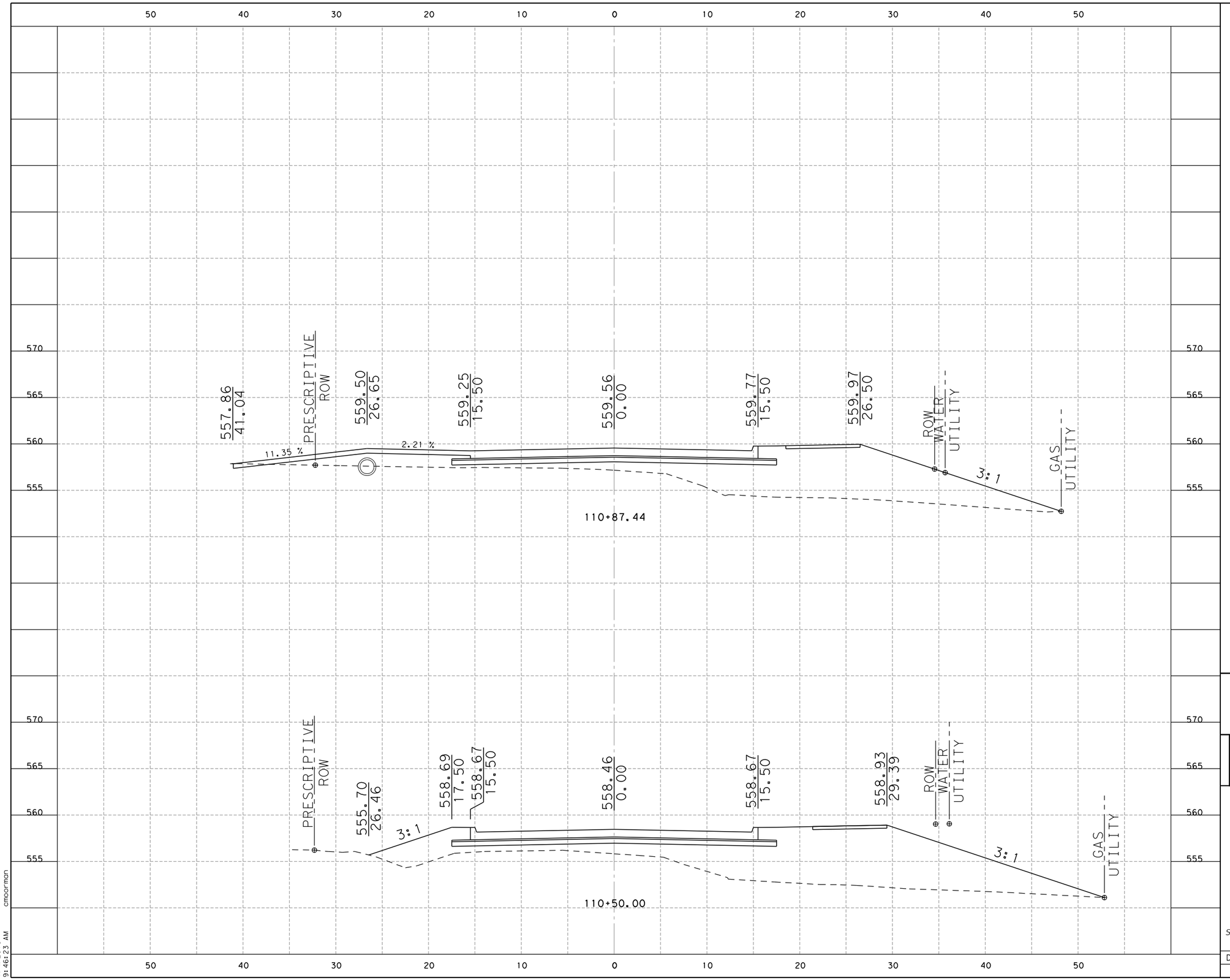
CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

SHEET NO. 188

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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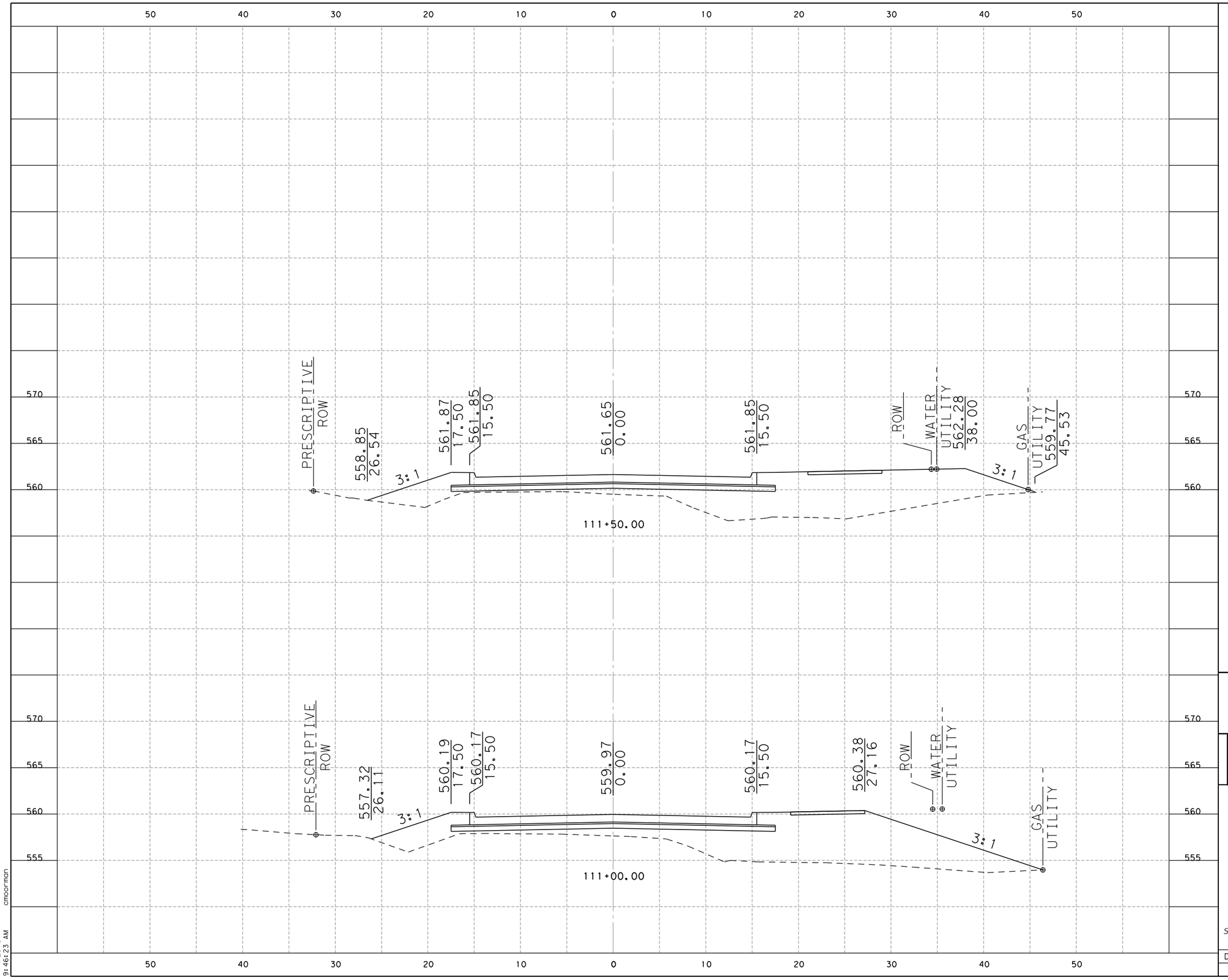
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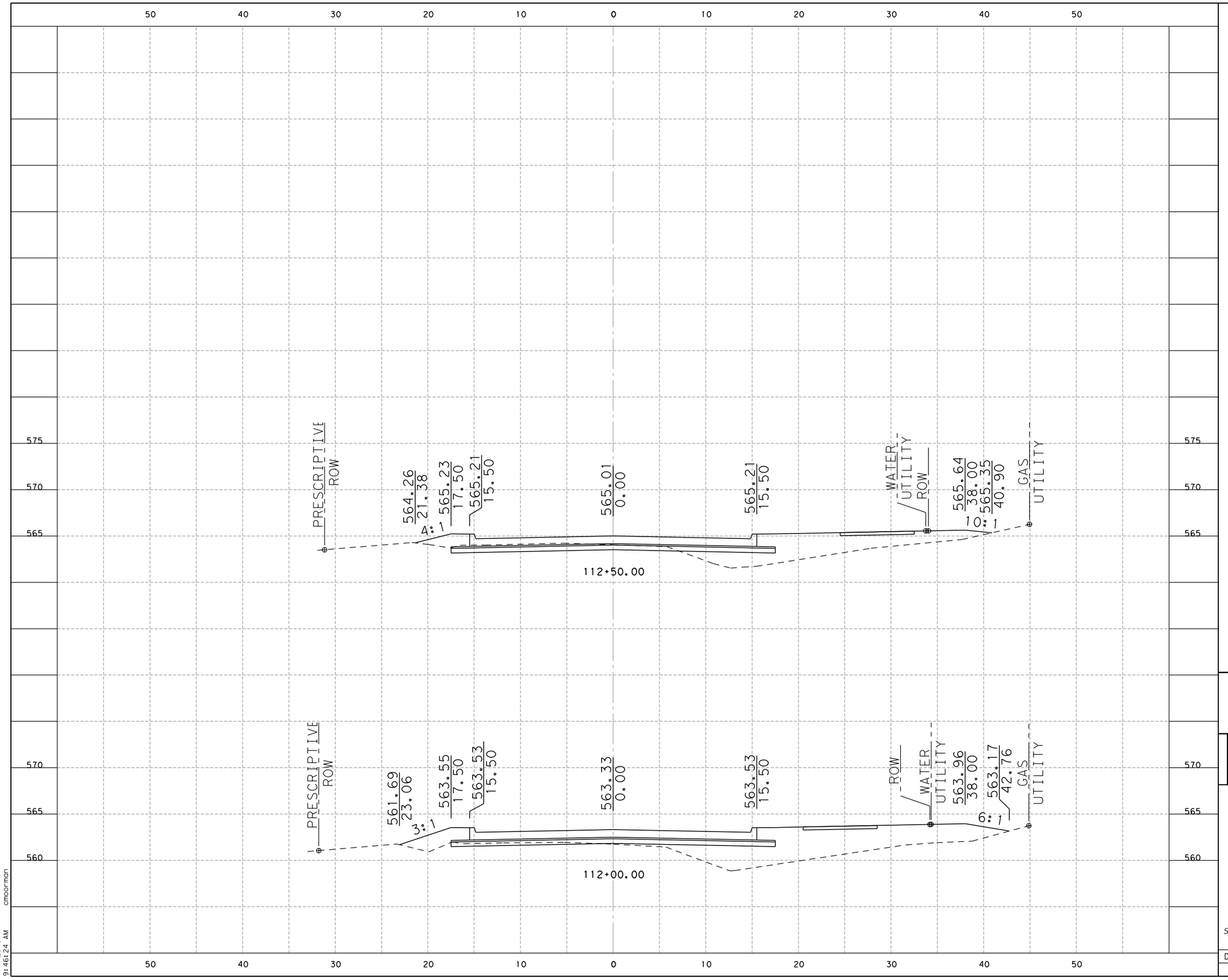
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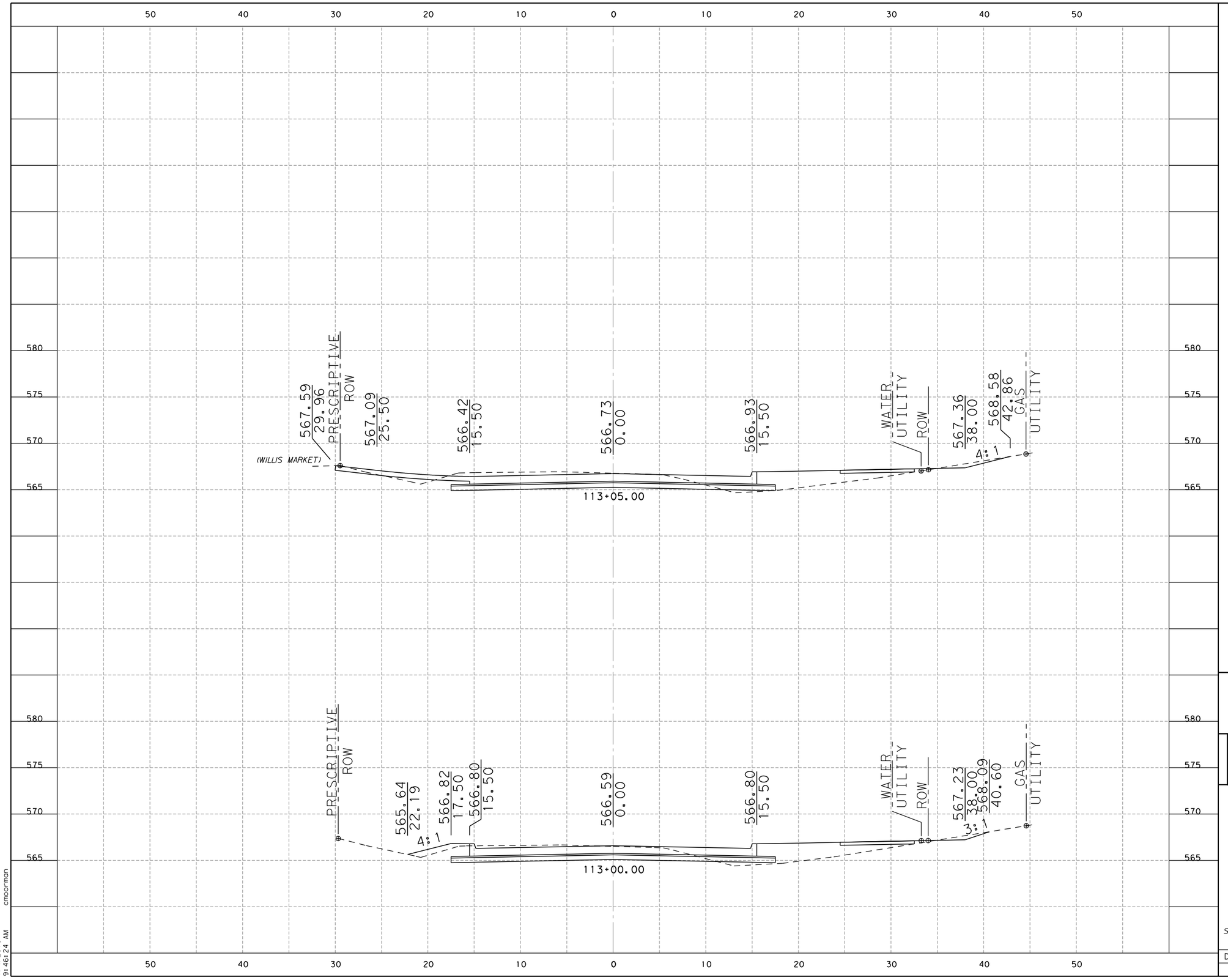
CROSS SECTIONS

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SHEET NO. 191

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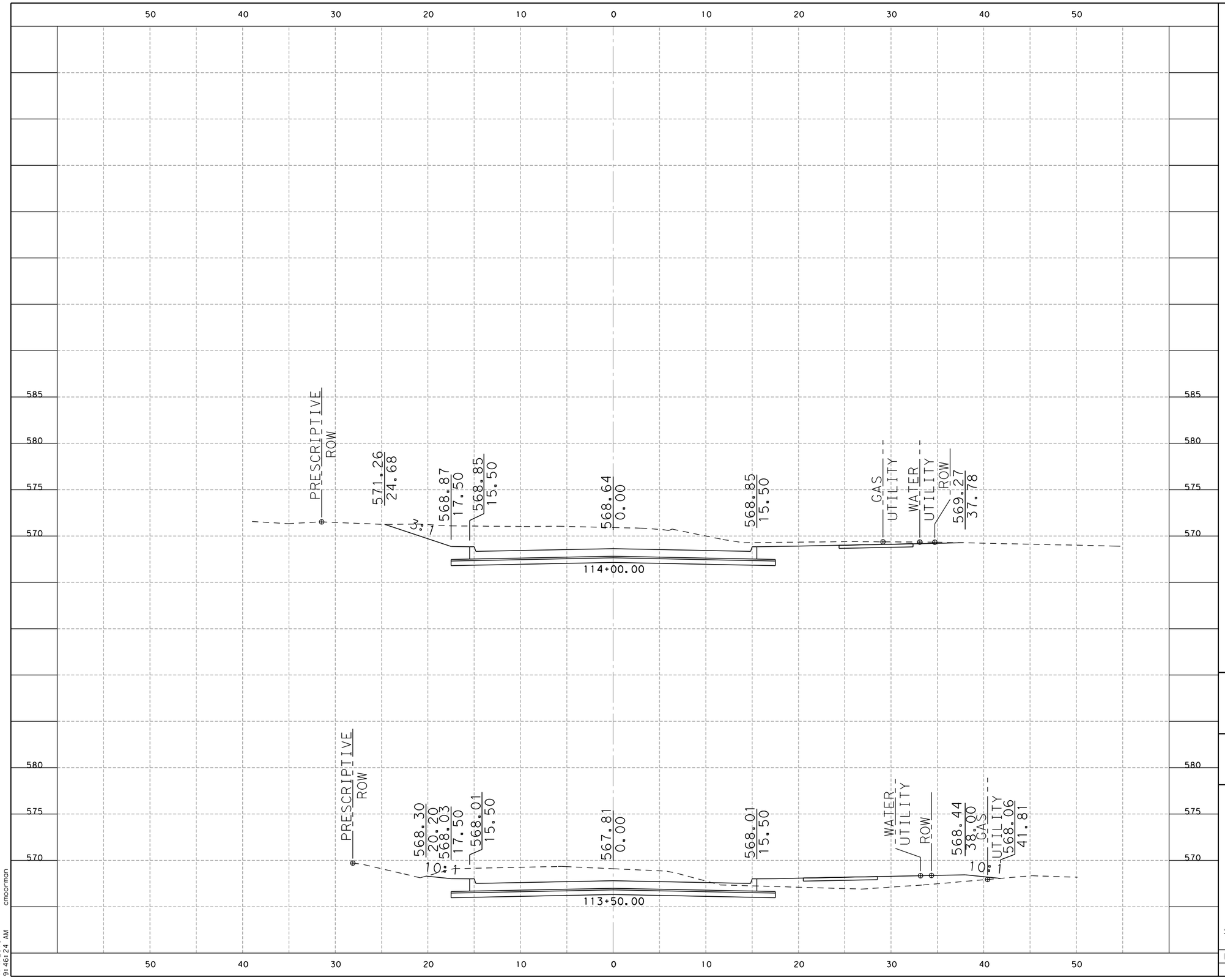
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CROSS SECTIONS

SCALE: H: 1" = 10'
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	192

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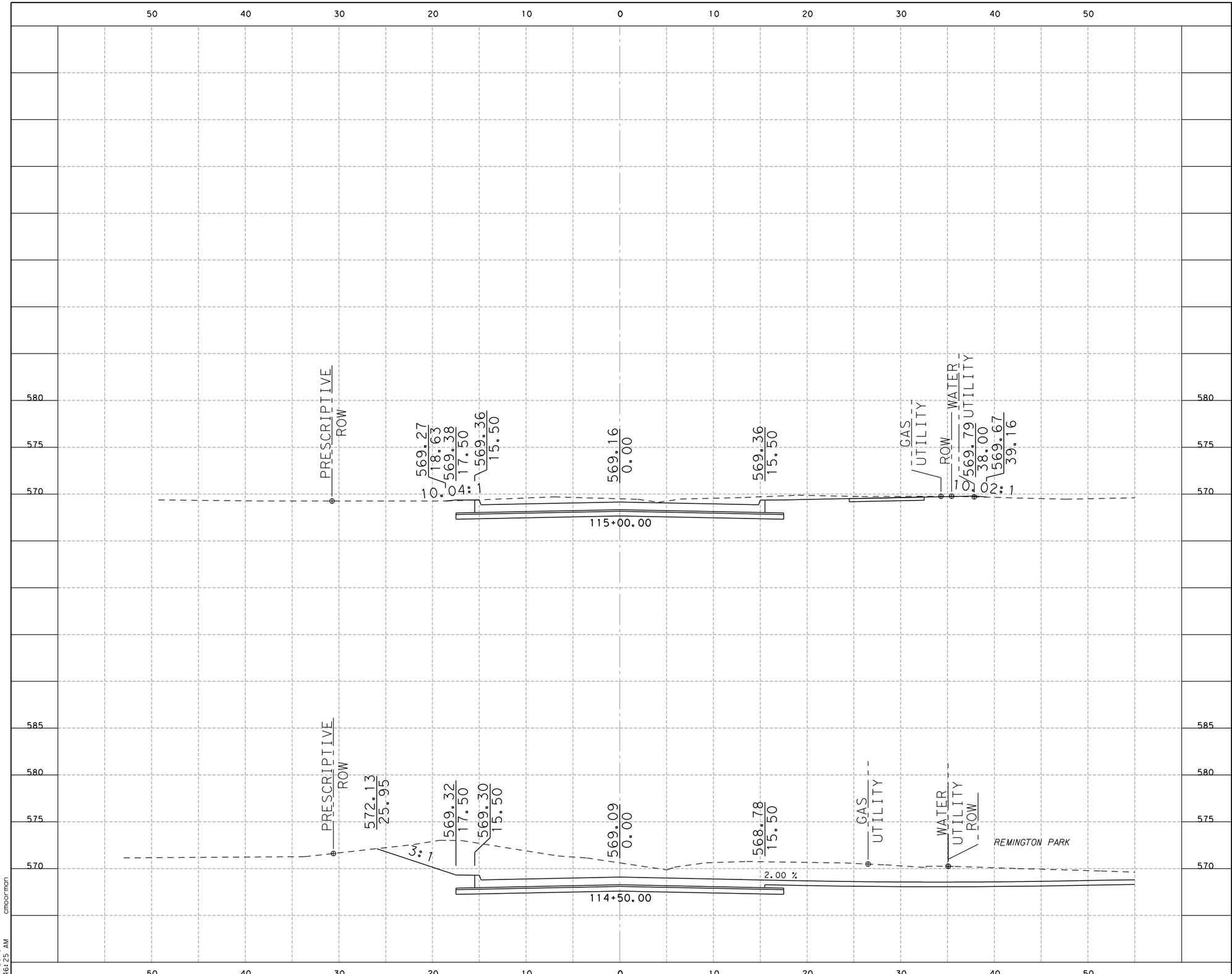
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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	193

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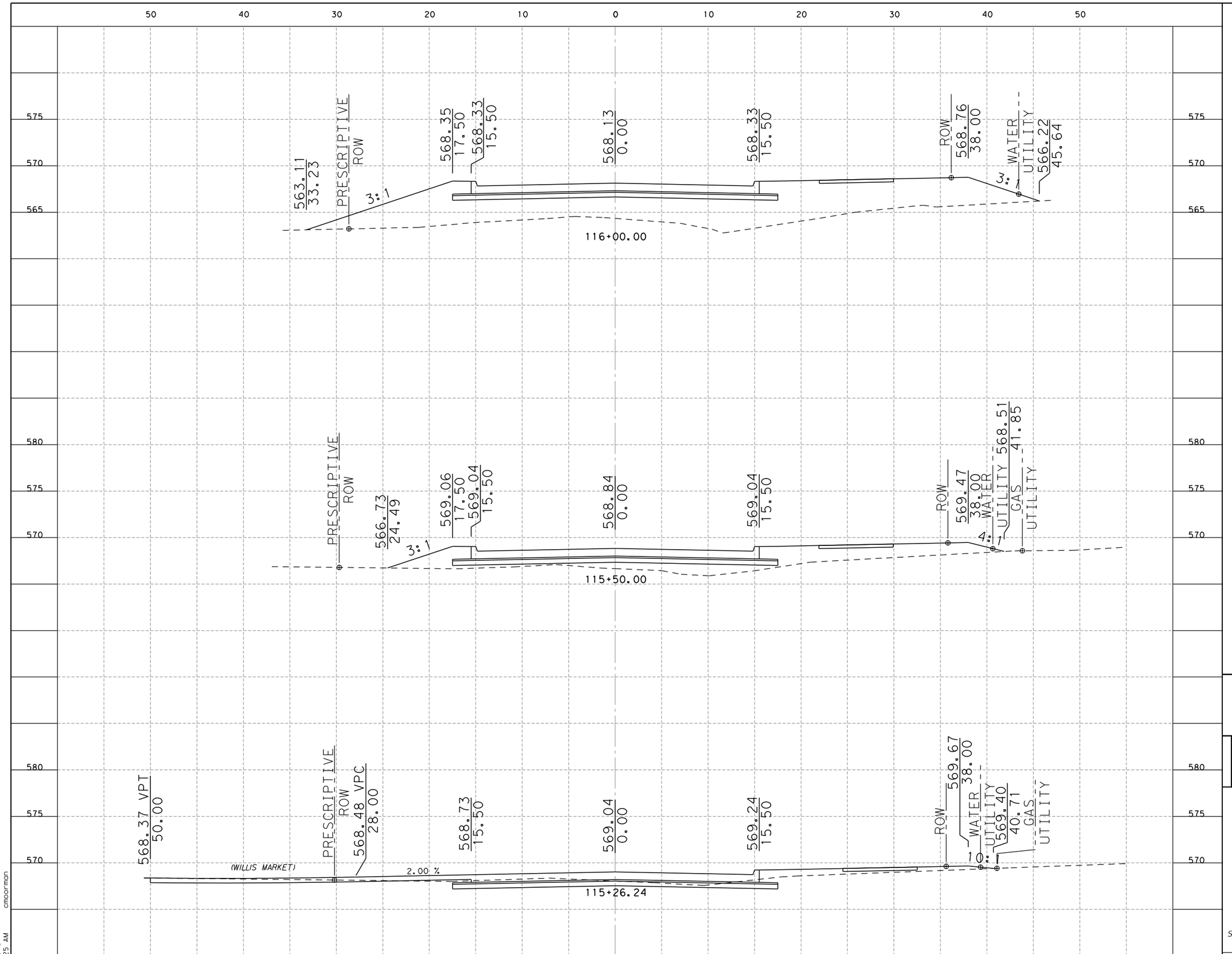
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DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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1/4/2018 9:46:25 AM cmoorman



0 5 10

SCALE: 1" = 10'

FOR CONTRACTOR'S INFORMATION ONLY

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ENGINEERING / SURVEYING
1717 McKINNEY AVE., SUITE 1400 DALLAS, TEXAS 75202
Firm No. F-761

TOWN OF FAIRVIEW, TEXAS
372 TOWN PLACE
FAIRVIEW, TX 75069
972-562-0522

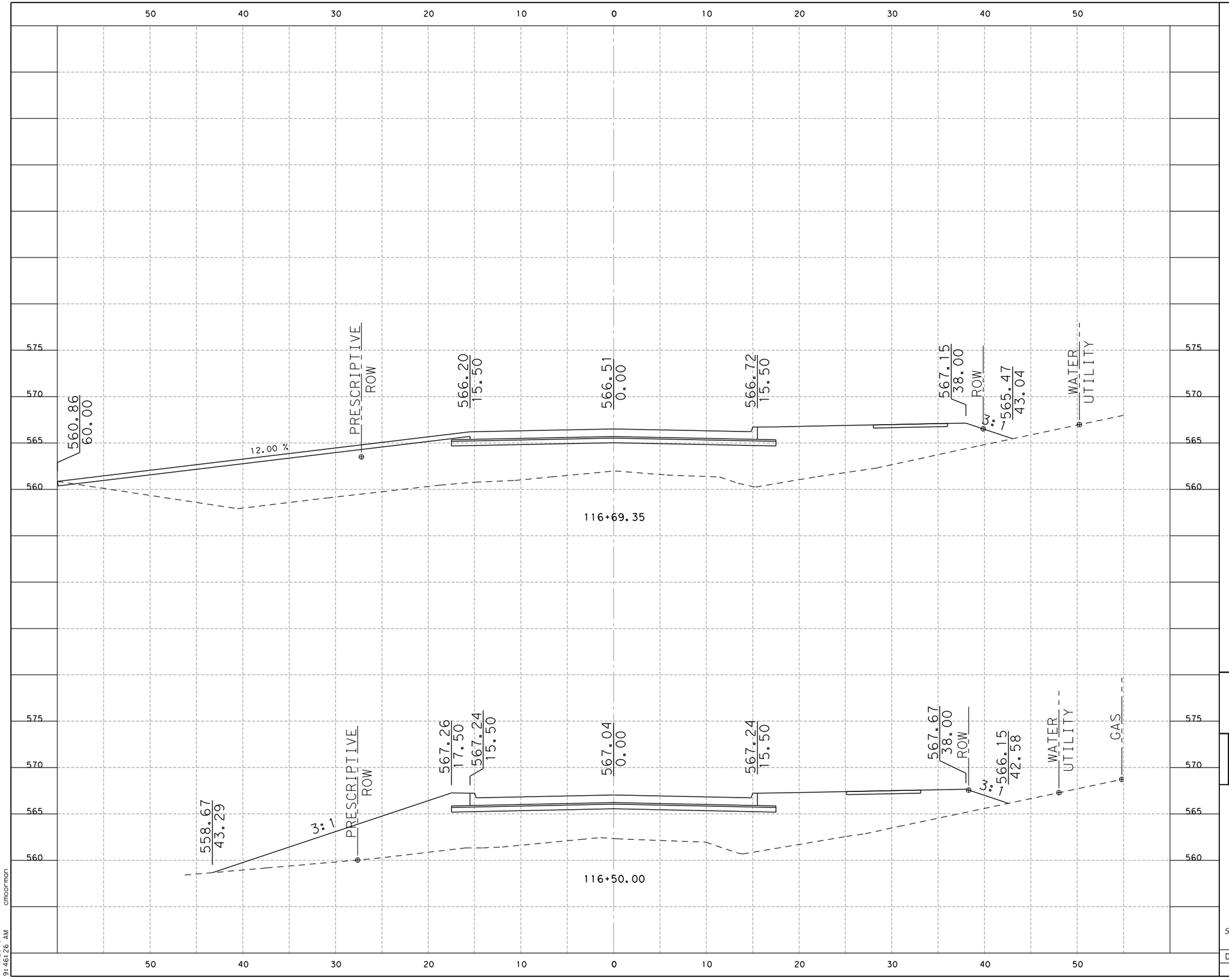
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	195

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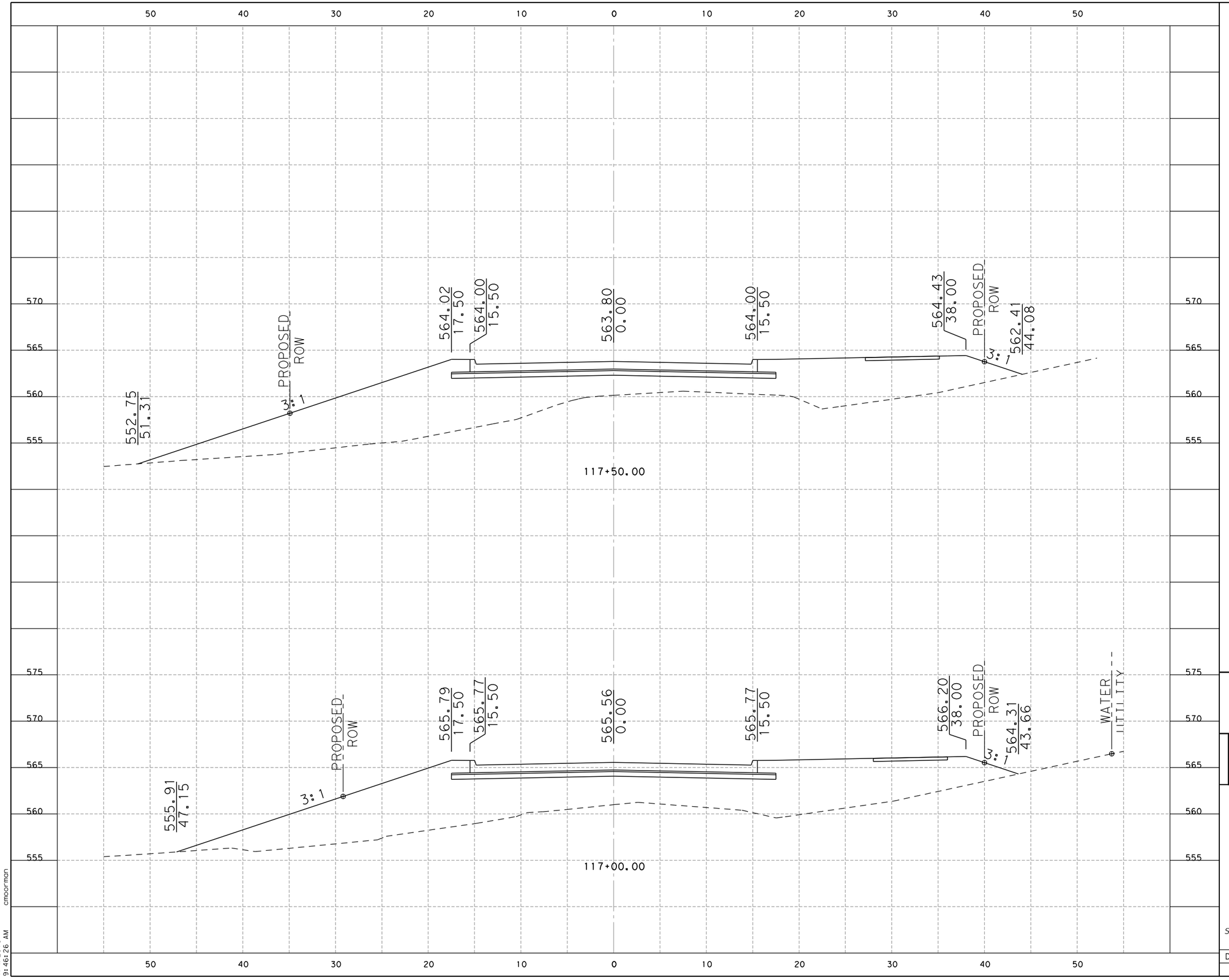
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	*RAW*	*SCW*	196

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0 5 10

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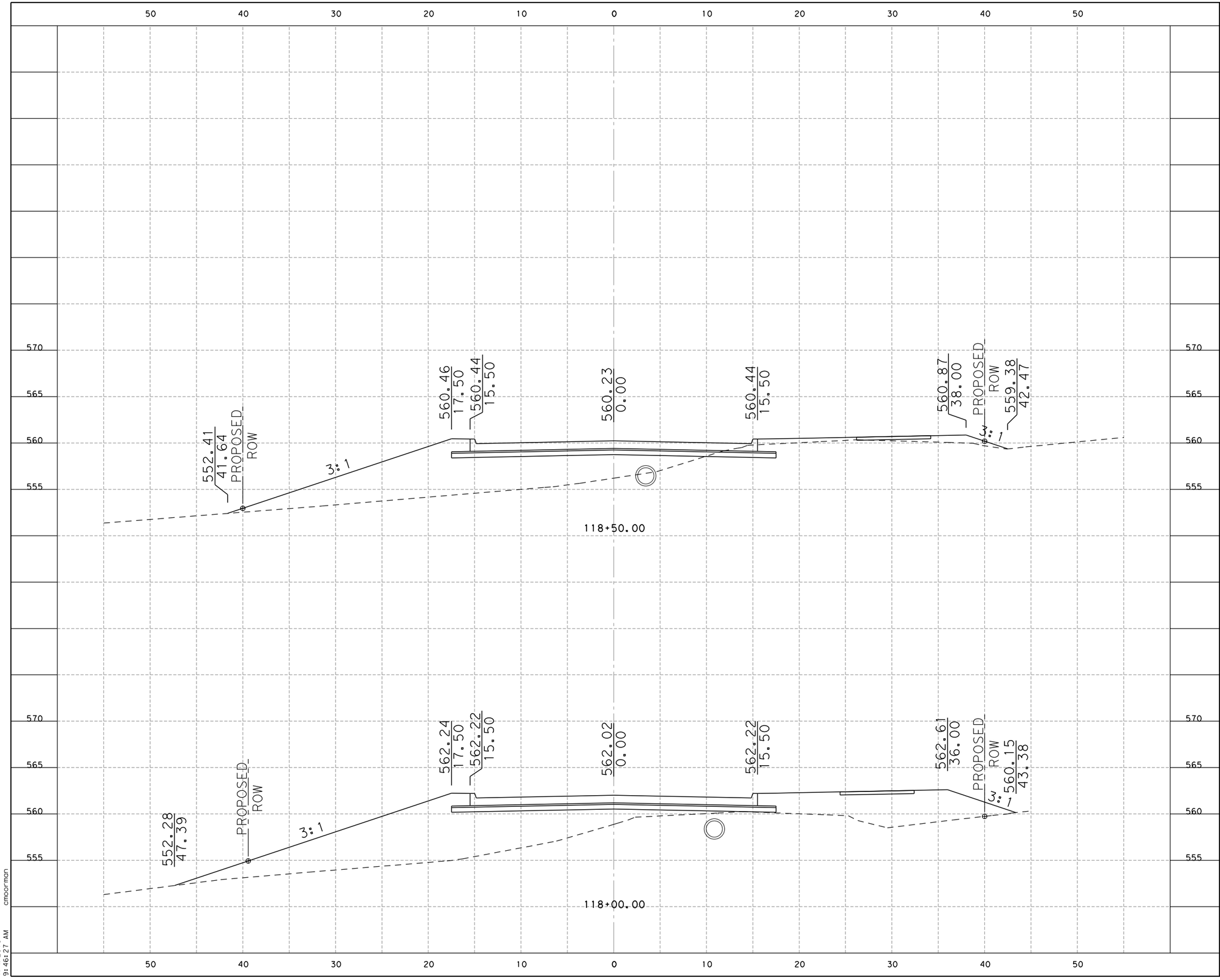
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	197

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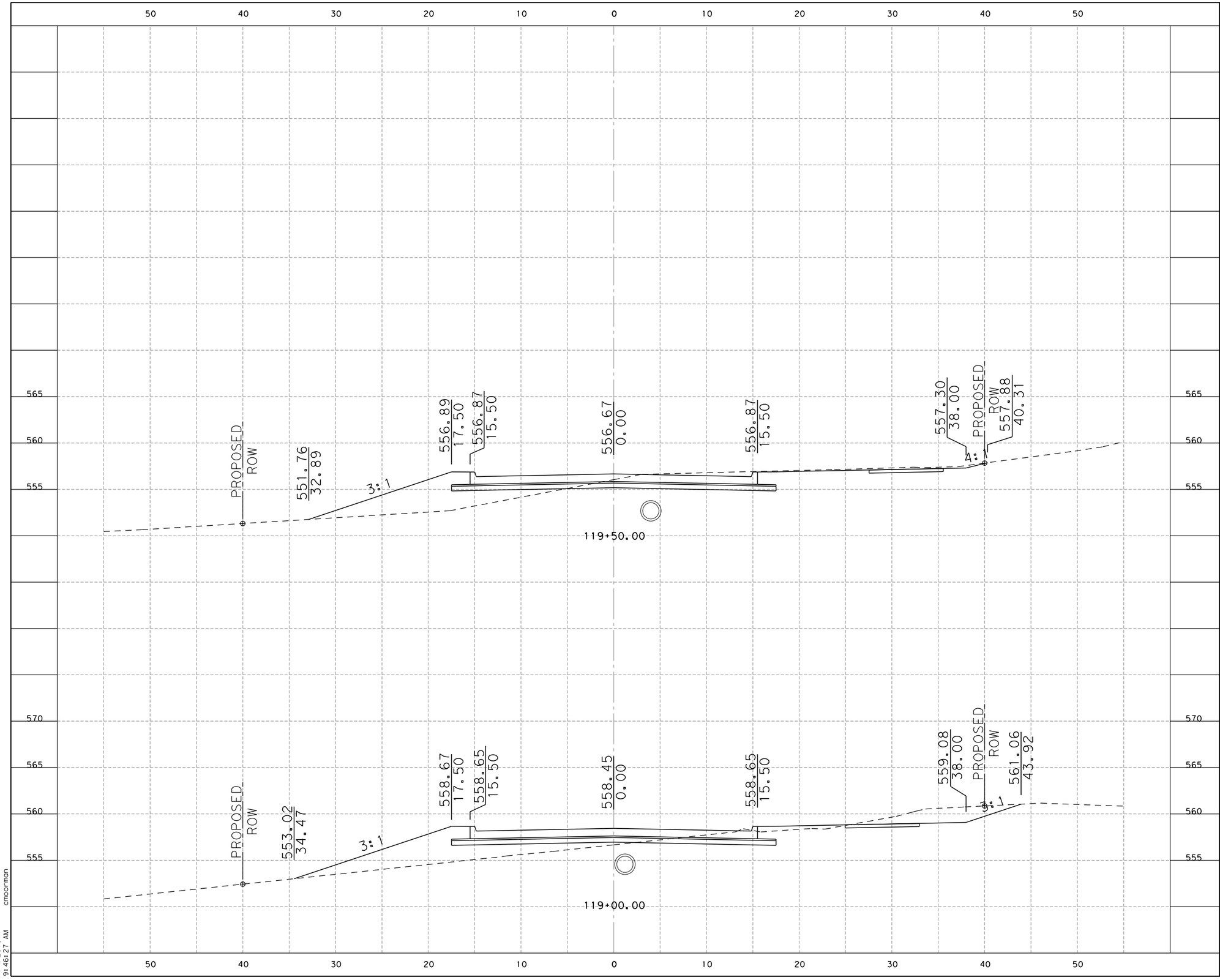
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	198

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0 5 10

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E. STACY ROAD IMPROVEMENTS

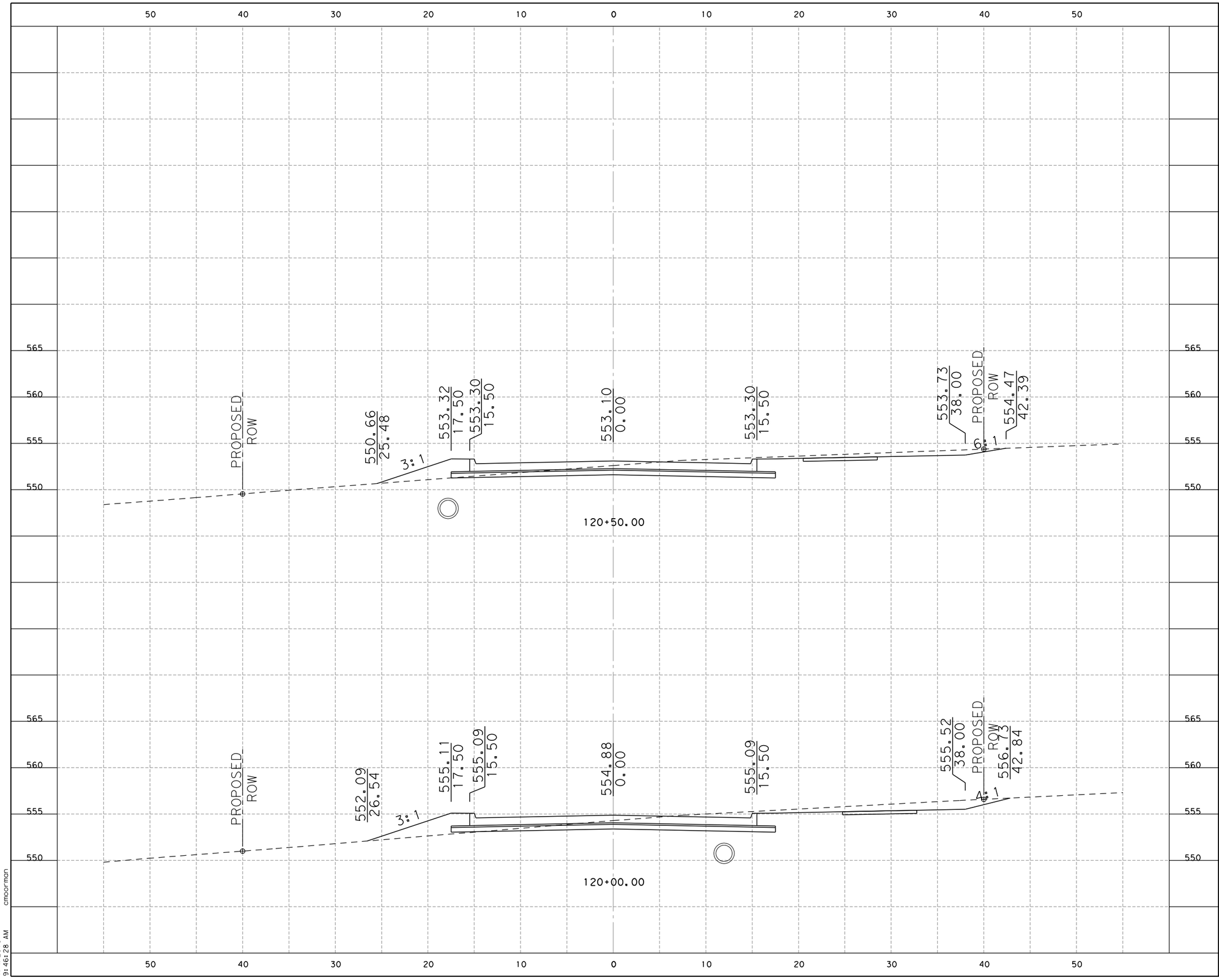
CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

SHEET NO. 199

DESIGNED BY:	DRAWN BY:	CHECKED BY:
CLM	RAW	SCW

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0 5 10

SCALE: 1" = 10'

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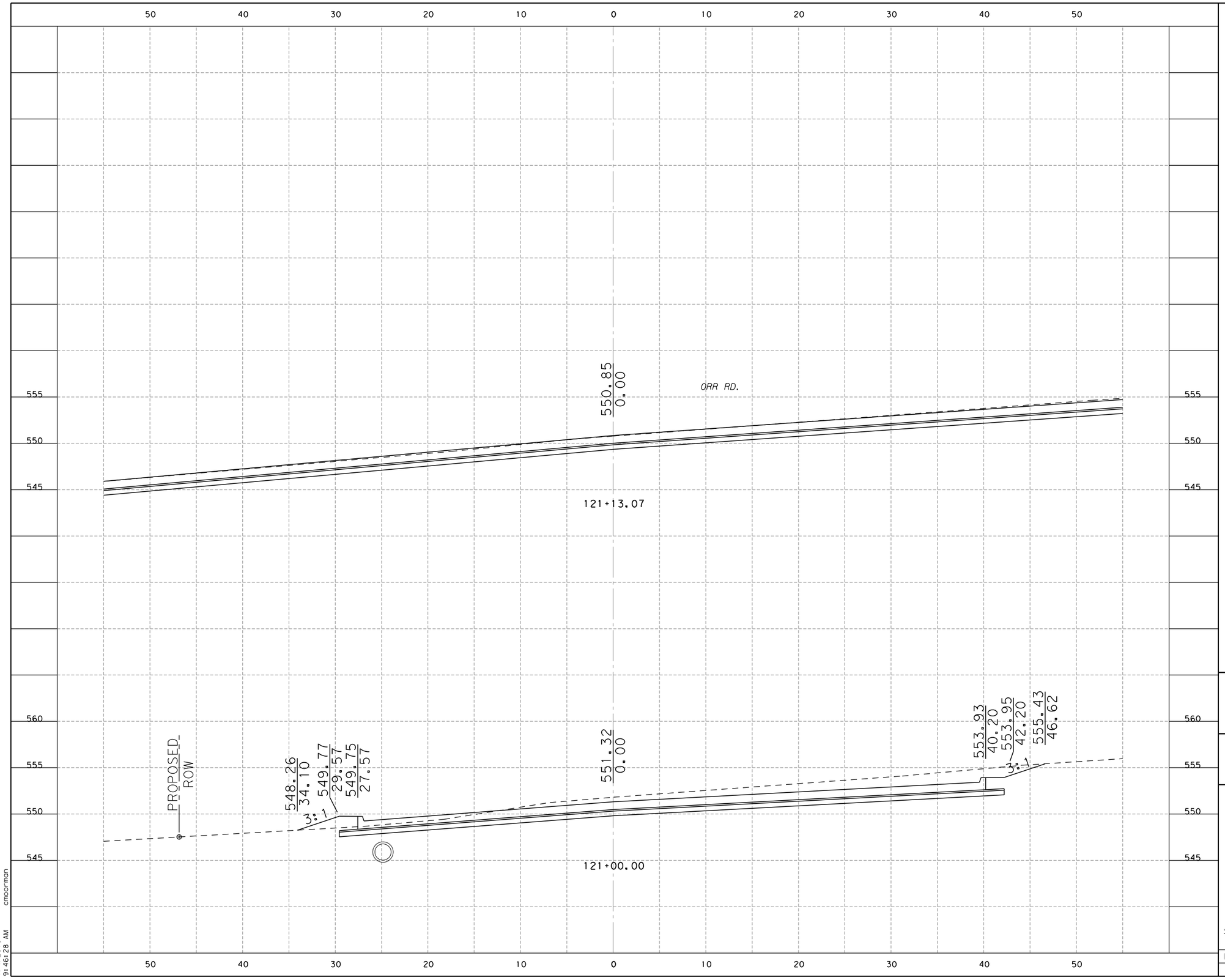
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	*RAW*	*SCW*	200

I:\proj\R305245.01 - Town of Fairview Stacy Road Improvements\10 CADD & BIM\10.6 MicroStation\10.6.5 Sheet\11 XSEC\305245-XS-sheets-10-1030per.dgn
1/4/2018 9:46:28 AM cmoorman



0 5 10

SCALE: 1" = 10'

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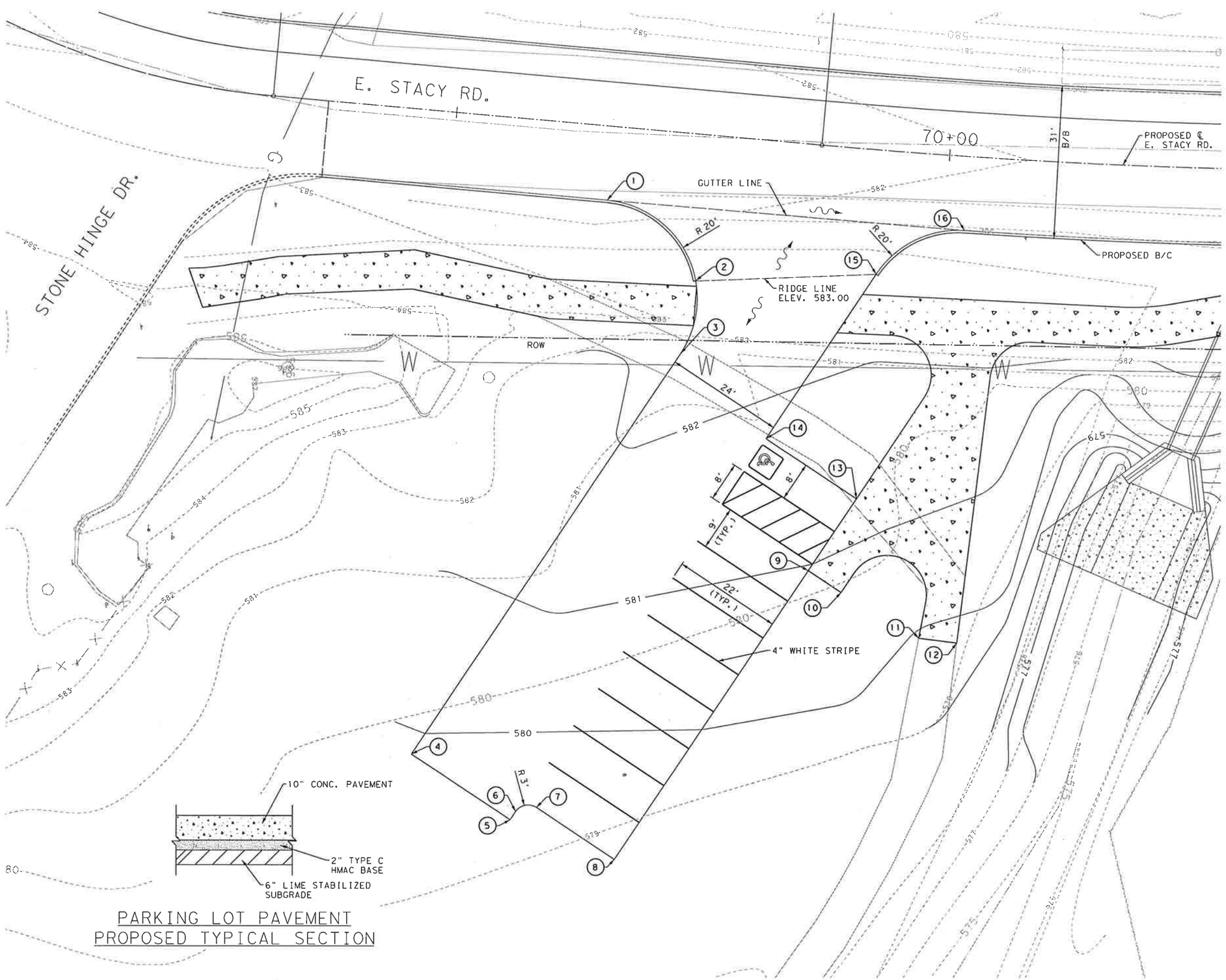
E. STACY ROAD IMPROVEMENTS

CROSS SECTIONS

SCALE: H: 1" = 10'
V: 1" = 10'

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
CLM	RAW	SCW	201

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PARKING LOT PAVEMENT
PROPOSED TYPICAL SECTION

HORIZ: 0 10 20
SCALE: 1" = 20'

LEGEND

EXISTING CONTOUR

PROPOSED CONTOUR

FLOW ARROW

#	STA	Offset	ELEV
1	69+31.78	15.00	582.6
2	69+51.05	29.67	583.1
3	69+49.34	44.56	582.9
4	69+02.57	130.50	579.5
5	69+23.65	141.97	579.4
6	69+24.61	140.21	579.5
7	69+28.68	139.01	579.5
8	69+45.37	148.10	578.9
9	69+78.73	86.22	581.0
10	69+85.29	90.09	580.8
11	70+00.58	98.19	579.9
12	70+07.84	98.04	578.8
13	69+86.74	70.87	581.3
14	69+68.11	60.28	581.7
15	69+87.01	25.15	582.6
16	70+04.03	15.00	582.3

Stephen Woodruff 1.4.18

STATE OF TEXAS
STEPHEN C. WOODRUFF
92733
LICENSED PROFESSIONAL ENGINEER

HUITT-ZOLLARS
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APPENDIX A
BID FORM EXHIBIT "B"

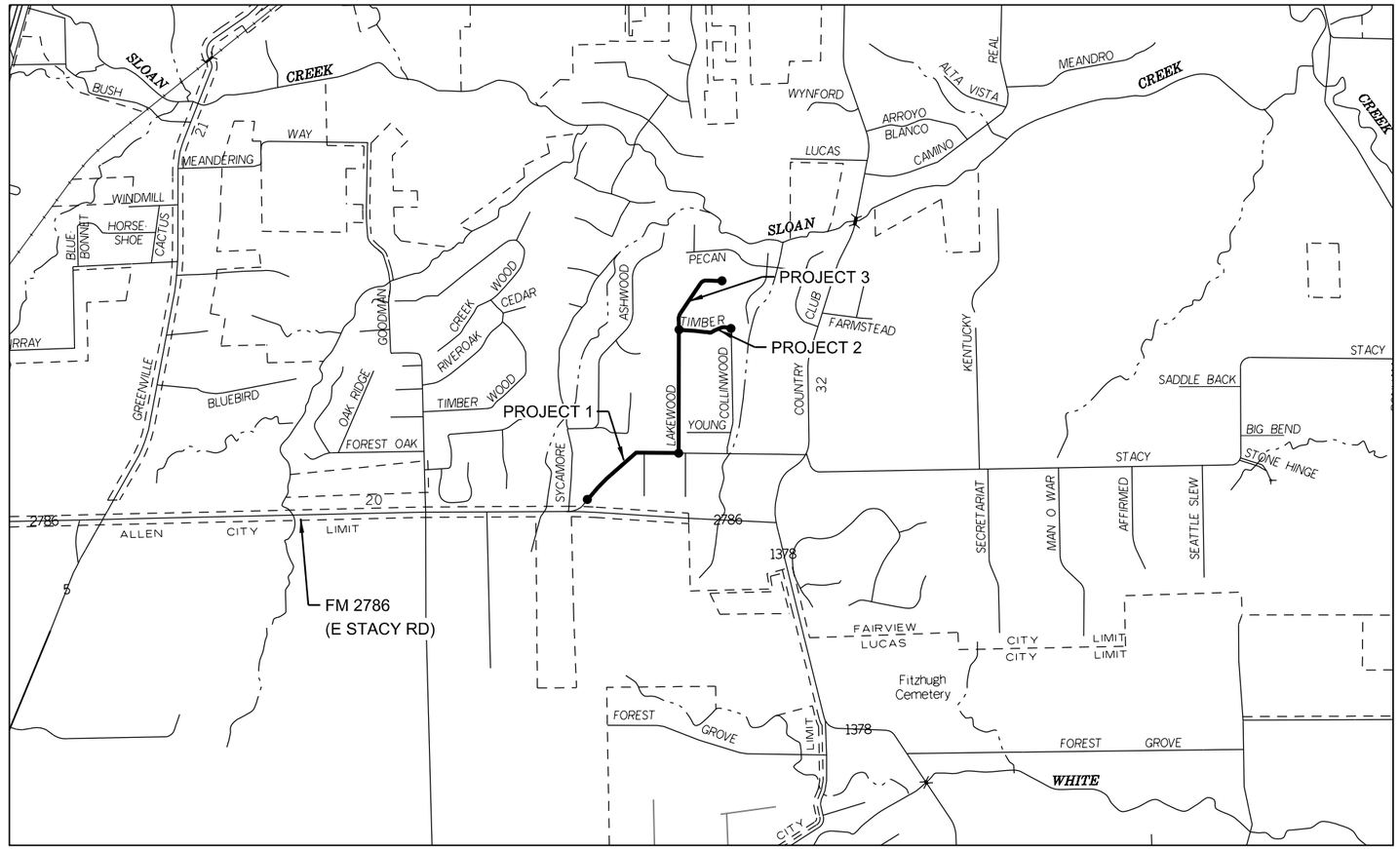
OFF-STREET PARKING LOT
CONSTRUCTION

SCALE: H: 1" = 10' SHEET 1 OF 1 SHEET NO.

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RAW	RAW	SCW

N/A

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PROJECT	STREET NAME	APPROX. LENGTH	APPROX. AREA
1	OLD STACY ROAD	.27 MI	3854 SY
2	TIMBER LANE	.15 MI	1811 SY
3	LAKEWOOD DRIVE	.57 MI	7134 SY

0 5 10
SCALE: 1" = 10'

NOTES:

1. NO STREET CLOSURES ALLOWED
2. INTERSECTING STREETS TO BE MILLED AND OVERLAID FOR 100 FEET FROM THE PROJECT

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APPENDIX B
BID FORM EXHIBIT "C"

RESIDENTIAL STREET REHABILITATION: MILL & OVERLAY

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET NO.
	LAS	SCW	N/A

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