

PROJECT ID: 11111

COUNTY: LA CROSSE

ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings (See Project Manual for Standard Detail Drawings)
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections

TOTAL SHEETS = 28

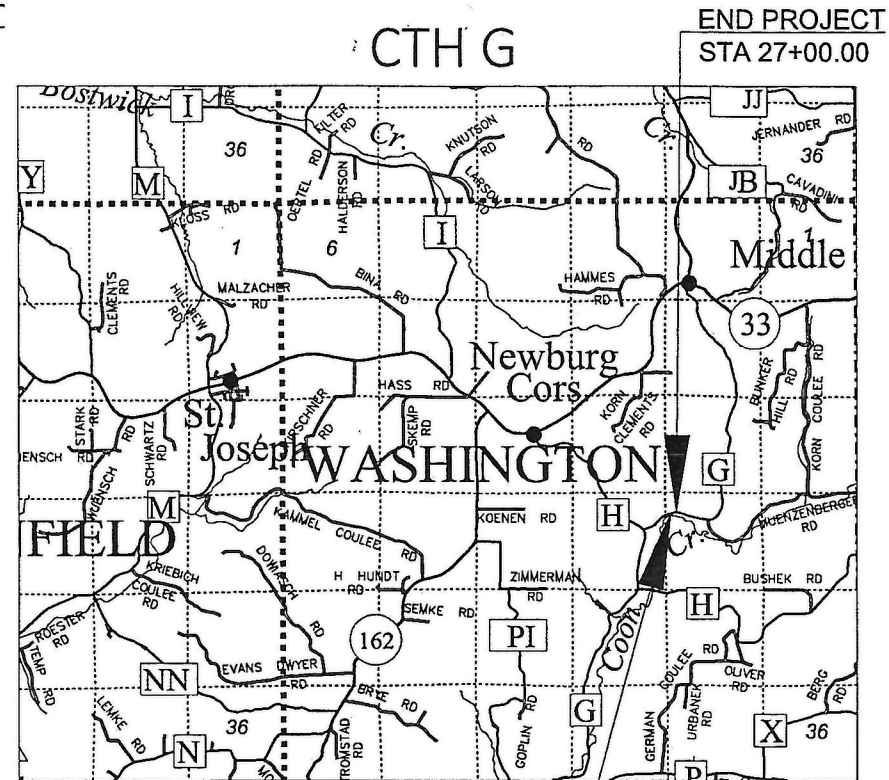
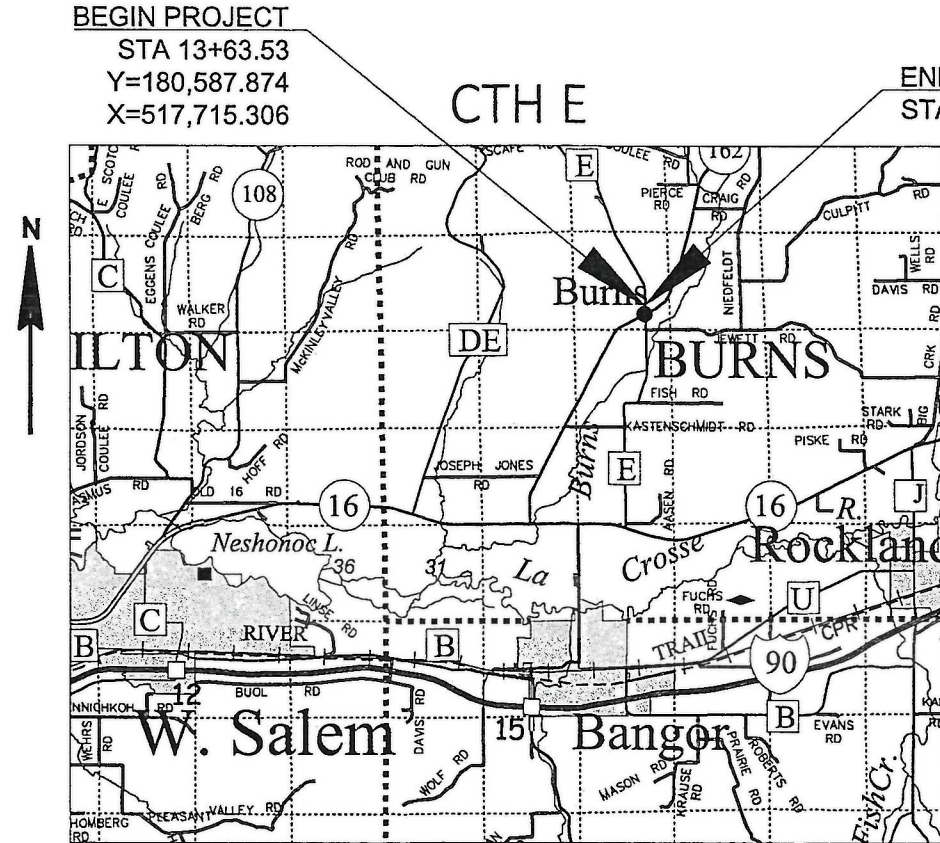
LA CROSSE COUNTY HIGHWAY DEPARTMENT

PLAN OF PROPOSED IMPROVEMENT

CTH G (CTH H TO STH 33)

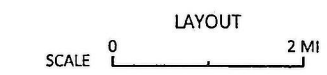
CTH E (STH 162 TO CTH DE)

CULVERT REPLACEMENTS LA CROSSE COUNTY



CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE



TOTAL NET LENGTH OF CENTERLINE = 0.054 MI (CTH E)
0.056 MI (CTH G)

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), LA CROSSE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

ACCEPTED FOR
LA CROSSE COUNTY

Date 1-30-23 
County Highway Commissioner

ORIGINAL PLANS PREPARED BY
origin design
WORKING ON TOMORROW.
800 556-4491
origindesign.com

WISCONSIN
NOAH J. HOFRICHTER
E-46240
DUBUQUE, IOWA
PROFESSIONAL ENGINEER

DATE: 1/27/2023 
(Professional Engineer Signature)

GENERAL NOTES

SEE TITLE SHEET FOR COORDINATE AND ELEVATION REFERENCES. SEE NEXT SHEET FOR BENCHMARK INFORMATION.

THE CONTRACTOR SHALL PROTECT ALL SURVEY MARKERS. REMOVAL OF ANY SURVEY MARKERS IS TO BE WITH THE APPROVAL OF THE ENGINEER.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

THE CONTRACTOR SHALL COORDINATE ALL UTILITY ADJUSTMENTS WITH THE UTILITY.

DETAILS OF CONSTRUCTION NOT SHOWN IN THE PLANS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

ACCESS SHALL BE MAINTAINED TO ALL ADJACENT PROPERTIES.

ALL PERMANENT SIGN REMOVAL AND REPLACEMENT WILL BE PERFORMED BY LA CROSSE COUNTY.

IT IS ANTICIPATED THAT THE MAILBOX ADJACENT TO THE DRIVEWAY AT THE WEST END OF CTH G PROJECT WILL REMAIN. MAINTAIN ACCESS TO THE MAILBOX DURING CONSTRUCTION TO ALLOW MAIL DELIVERY.

WHEN PORTION OF EXISTING ASPHALTIC SURFACES ARE TO BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION, THE LINE OF SUCH REMOVAL SHALL BE NEATLY DELINEATED WITH A SAW CUT JOINT THROUGH THE ASPHALTIC SURFACE SO THAT REMOVAL OF THE ASPHALT SHALL BE ACCOMPLISHED WITHOUT DAMAGE TO REMAINING PORTIONS. PAVEMENT REPLACEMENT LIMITS SHOWN MAY VARY DEPENDING UPON THE CONTRACTOR-DETERMINED METHODS FOR TEMPORARY CREEK FLOW DIVERSION. CONFIRM REMOVAL LIMITS WITH THE ENGINEER PRIOR TO SAWCUT AND PAVEMENT REMOVAL. SAWCUT SHALL BE INCIDENTAL TO ASPHALT REMOVAL. ALL ASPHALT REMOVAL AS PART OF THESE PROJECTS IS CONSIDERED TO BE UNDERLAIN BY EXCAVATION AND THEREFORE NOT MEASURED SEPARATELY FOR PAYMENT.

HMA PAVEMENT NOTES:

- HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 115 LB/SY/IN.
• THE 4" HMA PAVEMENT ITEMS SHALL BE PLACED WITH A 1 3/4 -INCH UPPER LAYER AND A 2 1/4 -INCH LOWER LAYER.
• APPLY TACK COAT BETWEEN LAYERS OF HMA PAVEMENT AT A RATE OF 0.05 GAL/SY.
• HMA DRIVEWAY WIDENINGS ARE NOT MEASURED SEPARATELY BUT SHALL BE MEASURED AND PAID WITH THE HMA ITEMS FOR THE MAINLINE PAVEMENT.

DISTURBED AREAS WITHIN THE RIGHT OF WAY OUTSIDE OF THE FINISHED SHOULDER POINT OR REVETMENT SHALL BE SEEDED AND STABILIZED WITH MULCH OR EROSION MAT AS DIRECTED BY THE ENGINEER.

THE QUANTITY OF THE ITEMS FOR EROSION PROTECTION INCLUDES AN UNDISTRIBUTED AMOUNT FOR PROTECTION, CONTROL AND ABATEMENT OF WATER POLLUTION RESULTING FROM SOIL EROSION. THE DISTRIBUTION AND LOCATION OF THESE MATERIALS ARE TO BE DETERMINED BY THE ENGINEER.

PLACEMENT THICKNESS OF RIPRAP HEAVY IS 18 INCHES UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

SUBGRADE AND FOUNDATION STABILIZATION NOTES:

- THE BID ITEM SPV.0195.01 "SELECT CRUSHED MATERIAL FOR SUBGRADE STABILIZATION" IS INCLUDED FOR USE AS DIRECTED BY THE ENGINEER IF UNSTABLE SUBGRADE IS ENCOUNTERED UNDER THE ROADWAY. THE LIMITS FOR THIS ITEM WILL BE DETERMINED IN THE FIELD BY THE ENGINEER AFTER THE CONTRACTOR COMPLETES GRADING OF THE SUBGRADE BASED ON THE RESULTS OF A PROOFROLL. REFER TO THE ASSOCIATED SPECIAL PROVISION FOR ADDITIONAL DETAILS
• THE BID ITEM SPV.0195.02 "BREAKER RUN FOR CULVERT FOUNDATION STABILIZATION" IS INCLUDED FOR USE AS DIRECTED BY THE ENGINEER IF ADDITIONAL FOUNDATION STABILIZATION IS REQUIRED UNDER THE CULVERT INSTALLATIONS AT EITHER THE CTH G OR CTH E SITE. THE LIMITS FOR THIS ITEM WILL BE DETERMINED IN THE FIELD BY THE ENGINEER WHEN EXCAVATION OCCURS. FOR THE PURPOSES OF THE QUANTITY INDICATED IN THE ESTIMATE OF QUANTITIES, A 12" DEPTH HAS BEEN ASSUMED WITHIN THE LIMITS SHOWN ON THE 8-SERIES STRUCTURE PLAN SHEETS. THE ENGINEER MAY ALTER THE DEPTH OR EXTENTS OF THE PLACEMENT OF THIS MATERIAL DEPENDING UPON THE ACTUAL SOIL CONDITIONS ENCOUNTERED. THE QUANTITY MEASURED WILL BE BASED ON THE TONS OF MATERIAL ACTUALLY PLACED.
• THE BID ITEMS "GEOTEXTILE TYPE C" AND "GEOTEXTILE SR" ARE INCLUDED FOR USE AS DIRECTED BY THE ENGINEER IF DEEMED NECESSARY FOR ADDITIONAL FOUNDATION STABILIZATION UNDER THE CULVERT INSTALLATIONS AT EITHER THE CTH G OR CTH E SITE. THE LIMITS FOR THIS ITEM WILL BE DETERMINED IN THE FIELD BY THE ENGINEER WHEN EXCAVATION OCCURS. IT IS ANTICIPATED THAT ONLY ONE OF THE TWO GEOTEXTILE ITEMS WILL ACTUALLY BE USED AT EACH SITE TO CORRESPOND WITH THE APPROPRIATE APPLICATION FOR THE SPECIFIC SOIL TYPE ENCOUNTERED WITHIN THE BOTTOM OF THE EXCAVATION. FOR THE PURPOSES OF THE QUANTITY INDICATED IN THE ESTIMATE OF QUANTITIES, THE AREA HAS BEEN ESTIMATED AS THE AREA UNDER THE EXTENTS OF THE BREAKER RUN SHOWN ON THE 8-SERIES PLAN SHEETS FOR EACH STRUCTURE. THE ENGINEER MAY ALTER THE DEPTH OR EXTENTS OF THE PLACEMENT OF THIS MATERIAL DEPENDING UPON THE ACTUAL SOIL CONDITIONS ENCOUNTERED. THE QUANTITY MEASURED WILL BE BASED ON THE SY OF MATERIAL ACTUALLY PLACED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EXCAVATION NOTES:

CTH E:

- THE MAJORITY OF GRADING IS WITHIN THE EXPECTED LIMITS OF EXCAVATION NECESSARY FOR REMOVAL AND REPLACEMENT OF THE ROAD STRUCTURE. AS NOTED ON THE 8-SERIES STRUCTURE SHEET NOTES, ALL EARTHWORK ASSOCIATED WITH THE STRUCTURE, SHAPING OF THE ROAD FORESLOPES AND SUBGRADE IN THE AREA OF THE STRUCTURE, ALL FINISHING ITEMS (SALVAGED TOPSOIL, SEED MIXTURE NO 20, FERTILIZER TYPE B, AND MULCHING) OR ANY TEMPORARY STREAM DIVERSION AND/OR STORMWATER HANDLING WITHIN THE LIMITS OF EXCAVATION FOR THE CULVERT OR CONCRETE MASONRY ENDWALL IS CONSIDERED PART OF THE CONTRACT ITEM CMP DUAL CULVERT PIPE INSTALLATION, COMPLETE WITH EXCAVATION AND BACKFILL (CTH E)
• ANY REMAINING WORK OUTSIDE THESE LIMITS IS ASSOCIATED WITH THE INSTALLATION OF THE GUARDRAIL GRADING AND THEREFORE THE EXCAVATION AND ALL FINISHING ITEMS NOT OTHERWISE INCLUDED WITH THE CULVERT ARE CONSIDERED TO BE INCLUDED WITH THE CONTRACT ITEM BARRIER SYSTEM GRADING, SHAPING, AND FINISHING COMPLETE. REFER TO THE ESTIMATE OF QUANTITIES SHEET OF THE PLANS AS WELL AS THE SPECIAL PROVISION AND REFERENCED STANDARD SPECIFICATIONS FOR NOTES DESIGNATING WHICH ITEMS ARE CONSIDERED INCLUDED IN THIS CONTRACT ITEM. NO ADDITIONAL MEASUREMENT AND PAYMENT FOR THESE DESIGNATED ITEMS WILL BE MADE AT THE CTH E SITE UNLESS APPROVED BY THE ENGINEER DUE TO SPECIFICALLY AUTHORIZED CHANGES.

CTH G:

- AS NOTED ON THE 8-SERIES STRUCTURE SHEET NOTES, ALL EXCAVATION BELOW THE SUBGRADE OR FINISHED FORESLOPE ELEVATIONS ASSOCIATED WITH THE NEW ALUMINUM BOX CULVERT STRUCTURE AND ANY TEMPORARY STREAM DIVERSION AND/OR STORMWATER HANDLING IS PAID UNDER THE ASSOCIATED CULVERT BID ITEM.
• AS THE ADDITIONAL GRADING WORK AT THIS SITE IS MORE SIGNIFICANT, CONTRACT ITEMS HAVE BEEN INCLUDED FOR EXCAVATION COMMON AND VARIOUS FINISHING ITEMS ASSOCIATED WITH THIS SITE. REFER TO THE ESTIMATE OF QUANTITIES SHEET OF THE PLANS AS WELL AS THE SPECIAL PROVISION AND REFERENCED STANDARD SPECIFICATIONS FOR THESE ITEMS WHICH WILL BE MEASURED ACCORDING TO THE ASSOCIATED STANDARD SPECIFICATIONS AND/OR SPECIAL PROVISIONS AS APPROPRIATE.
• FOR THE EXCAVATION COMMON BID ITEM, THE AMOUNT OF CUT IS ESTIMATED AS 474 CY, AND THE AMOUNT OF FILL IS ESTIMATED AT 324 CY WITH A 1.3 FILL FACTOR APPLIED. THESE VOLUMES ARE BASED ON THE COMPARISON OF A DESIGN SURFACE REPRESENTING THE PROPOSED TOP OF SUBGRADE SURFACE AND TOP OF FINISHED FORESLOPE (INCLUDING FINISHED SLOPE GRADING/SHAPING AT THE INLET, OUTLET, AND OVERTOP OF THE CULVERT) TO THE EXISTING SURFACE FROM A TOPOGRAPHIC SURVEY. THE QUANTITIES ARE NOT ADJUSTED FOR TOPSOIL, BUT ARE ADJUSTED FOR THE EMBEDMENT OF THE RIPRAP HEAVY.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DISPOSE OF OR PROVIDE WASTE AREAS FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED IN THIS PROJECT.

SITE ACCESS:

LA CROSSE COUNTY WILL OBTAIN TEMPORARY CONSTRUCTION PERMITS FROM THE LANDOWNERS IMMEDIATELY ADJACENT TO EACH SIDE OF THE RIGHT OF WAY AT THE PROJECT SITE TO ALLOW FOR CONTRACTOR ACCESS DURING CONSTRUCTION. IT IS ANTICIPATED THAT A 30' WIDTH PARALLEL TO EACH SIDE OF THE RIGHT OF WAY WILL BE MADE AVAILABLE TO THE CONTRACTOR FOR DURING CONSTRUCTION.

TRAFFIC CONTROL:

TRAFFIC CONTROL SHALL FOLLOW APPROPRIATE STANDARD DETAIL DRAWINGS, STANDARD SPECIFICATION SECTION 643, AND SPECIAL PROVISION REQUIREMENTS. REFER TO SPECIAL PROVISIONS FOR ADDITIONAL NOTES INCLUDING CLOSURE RESTRICTIONS. REFER TO 2-SERIES DETAIL SHEETS FOR DETAILS OF DETOUR SIGNING. FOLLOW THE REQUIREMENTS OF SDD 15C02, 15C03, 15C04, 15C12, 15D28, & 15D45 AND OTHER APPLICABLE STANDARD SPECIFICATION REQUIREMENTS FOR TRAFFIC CONTROL AS APPROPRIATE FOR THE WORK OPERATIONS.

PAVEMENT MARKINGS SHALL REPLICATE EXISTING MARKINGS AT THE PROJECT LOCATION USING 4" YELLOW OR 4" WHITE LINES. IDENTIFY EXISTING NO-PASSING ZONES WITHIN THE PROJECT LIMITS AND ESTABLISH THE SAME LIMITS FOR NO-PASSING ZONES AT THE COMPLETION OF THE PROJECT.

ABBREVIATIONS

Table with 2 columns: Abbreviation and Full Name. Includes AC (ACRE), AADT (ANNUAL AVERAGE DAILY TRAFFIC), ASPH (ASPHALTIC), AEW (APRON END WALL), BEG (BEGINNING), BM (BENCHMARK), BR (BRIDGE), CL (CENTERLINE), CE (COMMERCIAL ENTRANCE), CEN (CENTER), CONC (CONCRETE), CMCP (CORRUGATED METAL CULVERT PIPE), CTH (COUNTY TRUNK HIGHWAY), CR (CREEK), CAB (CRUSHED AGGREGATE BASE COURSE), CY (CUBIC YARD), CULV (CULVERT), CPCR (CULVERT PIPE REINFORCE CONCRETE), D (DEGREE OF CURVE), DHV (DESIGN HOURLY VOLUME), DIA (DIAMETER), DD (DIRECTIONAL DISTRIBUTION), DWY (DRIVEWAY), ELEC (ELECTRIC), EL OR ELV (ELEVATION), ESALS (EQUIVALENT SINGLE AXLE LOADS), EXIST (EXISTING), FE (FIELD ENTRANCE), FL (FLOW LINE), CWT (HUNDREDWEIGHT), HE (HORIZONTAL ELLIPTICAL), INL (INLET), INV (INVERT), LT (LEFT), L (LENGTH OF CURVE), LF (LINEAR FOOT), ME (MATCH EXISTING), PLE (PERMANENT LIMITED EASEMENT), PC (POINT OF CURVATURE), PCC (POINT OF COMPOUND CURVATURE), PI (POINT OF INTERSECTION), PRC (POINT OF REVERSE CURVATURE), PT (POINT OF TANGENCY), PE (PRIVATE ENTRANCE), R/RAD (RADIUS), RL (REFERENCE LINE), REQ'D (REQUIRED), STH (STATE TRUNK HIGHWAY), STA (STATION), SF (SQUARE FEET), SY (SQYARE YARD), SDD (STANDARD DETAIL DRAWINGS), SE (SUPERELEVATION), TLE (TEMPORARY LIMITED EASEMENT), T (TON), VPC (VERTICAL POINT OF CURVE), VPI (VERTICAL POINT OF INTERSECTION), VPT (VERTICAL POINT OF TANGENCY), VCL (VERTICAL CURVE LENGTH), W (WALL).

PROJECT CONTACTS

COUNTY CONTACT

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WISCONSIN DNR LIASON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
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ENVIRONMENTAL ANALYSIS, REVIEW, AND SUSTAINABILITY
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LA CROSSE, WI 54601
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KAREN.KALVELAGE@WISCONSIN.GOV

UTILITIES

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105 CENTRAL AVE
COON VALLEY, WI 54623
BRADLEY PETERS
(608) 452-3101
BRADLEY.PETERS@COONVALLEYTEL.COM

BRIGHTSPEED (CTH E SITE)
1905 WARD AVENUE
LA CROSSE, WI 54601
BRIAN STELPLUGH
(608) 615-4136
BRIAN.STELPLUGH@BRIGHTSPEED.COM

ELECTRICAL

BANGOR MUNICIPAL UTILITIES (CTH E & CTH G SITE)
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BANGOR, WI 54614
PATRICK REILLEY
608-486-2151 EXT 2
PREILLEY@VILLAGEOFBANGOR.COM



Dial 811 or (800)242-8511
www.DiggersHotline.com

CTH G

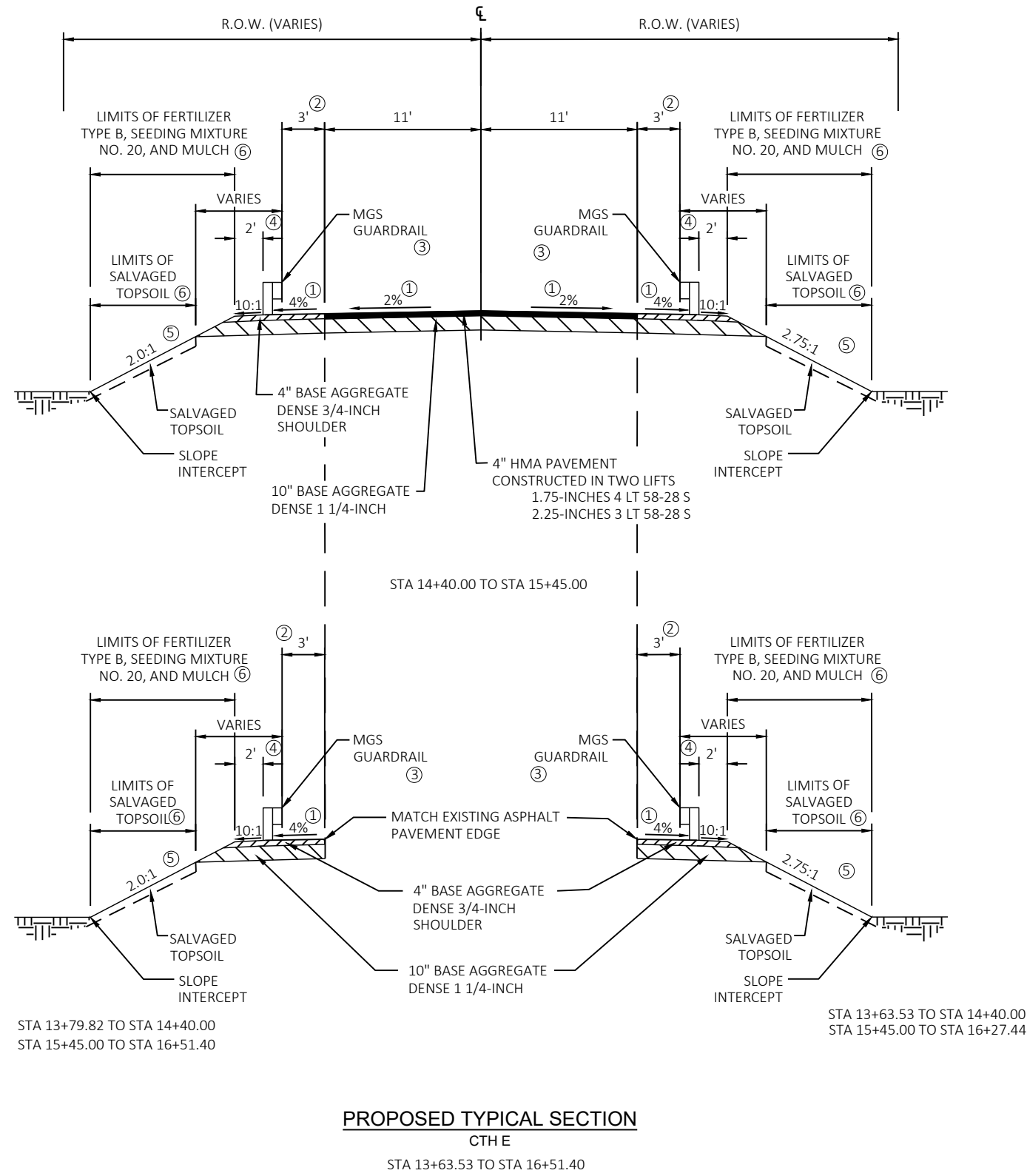
BENCH MARKS				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
70000	114984.70	525318.60	895.29	B.M. 2 CUT X TOP CMP
70001	114965.70	525128.98	889.77	B.M. 1 CUT X SE WINGWALL
70002	114951.20	524931.62	894.88	B.M. 3 RR SPIKE PPOLE

HORIZONTAL CONTROL				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	114949.44	525495.20	901.61	CONTROL POINT REBAR 5/8X24
201	114991.38	525069.86	892.00	CONTROL POINT REBAR 5/8X24
700	114963.53	525242.90	892.00	CONTROL POINT REBAR 5/8
701	114939.49	524941.34	892.46	CONTROL POINT REBAR 5/8
200000	114925.09	525512.73	898.34	CONTROL POINT NAIL

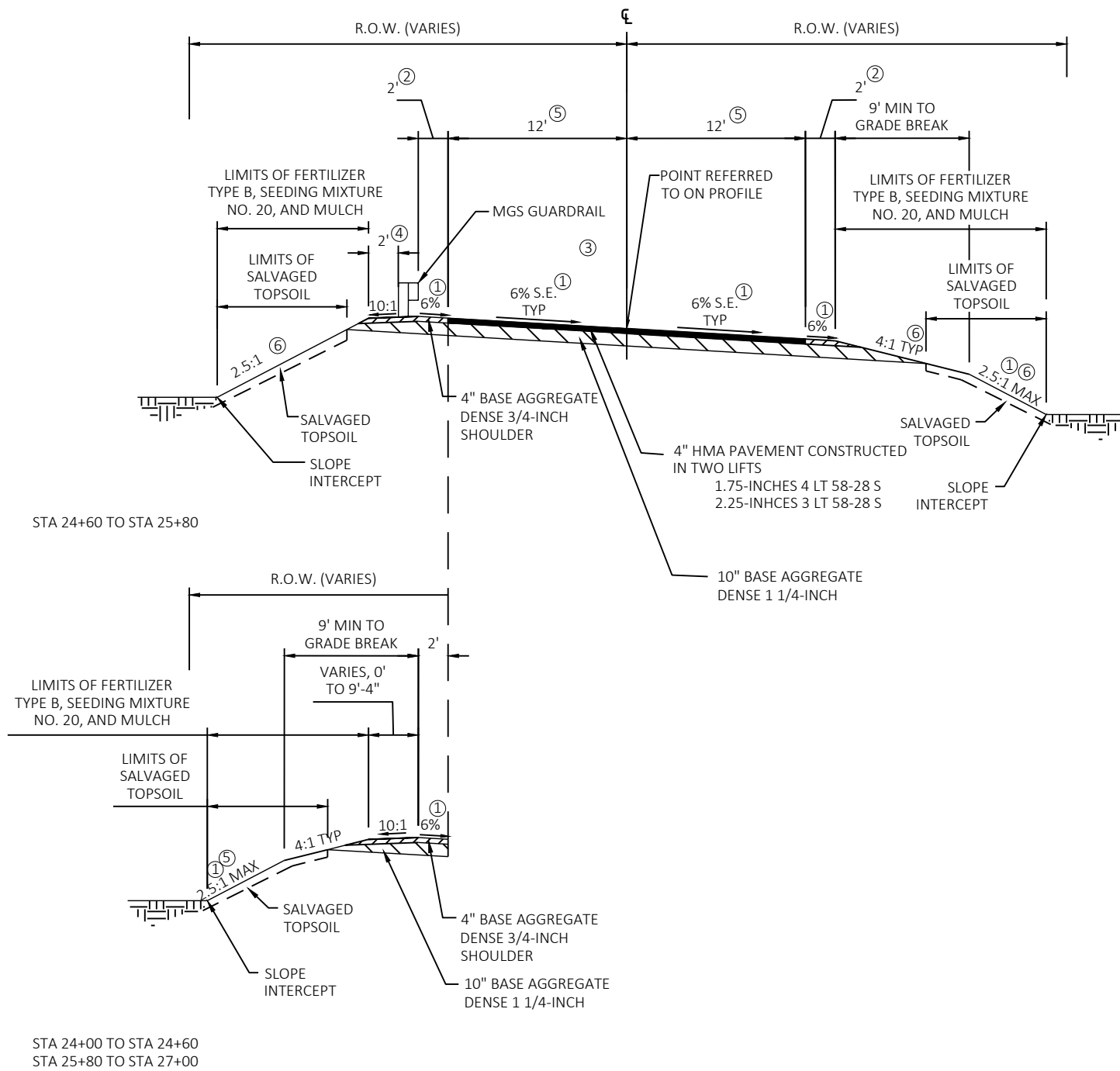
CTH E

BENCH MARKS				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
70000	180949.84	517726.98	777.29	B.M. 1 RR SPIKE NORTH PPOLE
70001	180730.75	517690.94	775.04	B.M. 2 CUT X SW WINGWALL
70002	180495.07	517744.08	774.12	B.M. 3 RR SPIKE SOUTH PPOLE

HORIZONTAL CONTROL				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	180450.48	517740.53	773.32	CONTROL POINT REBAR 5/8X24
201	180684.67	517693.96	774.58	CONTROL POINT REBAR 5/8X24
202	180898.28	517718.42	776.48	CONTROL POINT REBAR 5/8X24
200000	180411.34	517714.25	773.94	CONTROL POINT NAIL MAG

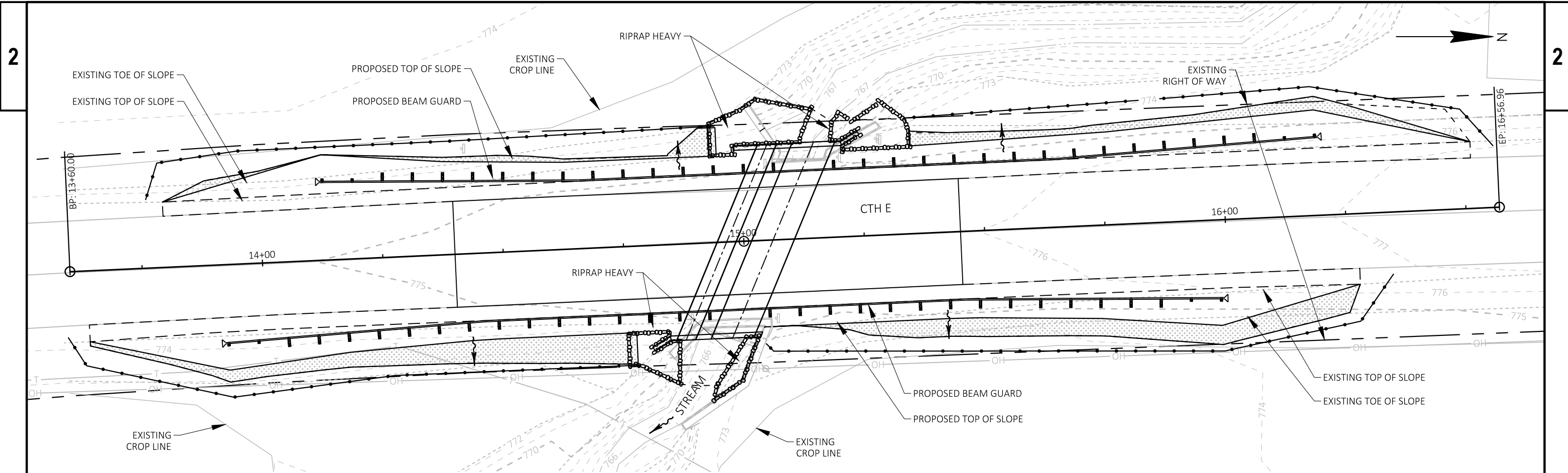


- ① LANE SLOPES AND FORESLOPES VARY AT LOCATION OF MATCH TO EXISTING AT BEGIN AND END OF PROJECT.
- ② WIDTH VARIES TO MATCH EXISTING AT BEGINNING AND END OF PROJECT.
- ③ GUARDRAIL NOT PRESENT AT ALL LOCATIONS. SEE PLAN AND PROFILE SHEET FOR LIMITS OF GUARDRAIL.
- ④ 2' WIDTH BEHIND GUARDRAIL TYPICAL. WIDTH OF 10:1 SLOPE AREA BOTH BEHIND GUARDRAIL AND IN FRONT OF GUARDRAIL VARIES AT EAT FLARE. SEE GRADING DETAIL.
- ⑤ FORESLOPES VARY AT LOCATION OF CULVERT, UP TO A MAXIMUM SLOPE OF 1:1. SEE GRADING DETAIL SHEET.
- ⑥ SALVAGED TOPSOIL, SEEDING, FERTILIZER AND MULCHING ARE INCLUDED IN THE BARRIER SYSTEM GRADING SHAPING AND FINISHING COMPLETE ITEM AT THIS PROJECT SITE AND WILL NOT BE MEASURED SEPARATELY.



- ① LANE SLOPE IS 6% TYPICAL SUPERELEVATION, WITH TRANSITIONS AT EITHER END OF THE PROJECT. FORESLOPES VARIES AT LOCATION OF MATCH TO EXISTING AT BEGIN AND END OF PROJECT.
- ② WIDTH VARIES TO MATCH TO EXISTING AT BEGIN AND END OF PROJECT. BASE AGGREGATE DENSE 3/4-INCH SHOULDER TO BE USED BEYOND PAVING AT DRIVEWAY TIE-IN LOCATIONS.
- ③ GUARDRAIL NOT PRESENT AT ALL LOCATIONS. SEE PLAN AND PROFILE SHEET FOR LIMITS OF GUARDRAIL. MIN. 2' GRANULAR SHOULDER AT ALL OTHER LOCATIONS.
- ④ 2' WIDTH BEHIND GUARDRAIL TYPICAL. WIDTH OF 10:1 SLOPE AREA BOTH BEHIND GUARDRAIL AND IN FRONT OF GUARDRAIL VARIES AT EAT FLARE. SEE GRADING DETAIL.
- ⑤ WIDTH AND SLOPE VARY AT LOCATION OF DRIVEWAYS, SEE GRADING DETAIL SHEET.
- ⑥ FORESLOPES VARY AT LOCATION OF CULVERT, UP TO A MAXIMUM SLOPE OF 1:1. SEE GRADING DETAIL SHEET.

PROPOSED TYPICAL SECTION
 CTH G
 STA 24+00 TO STA 27+00



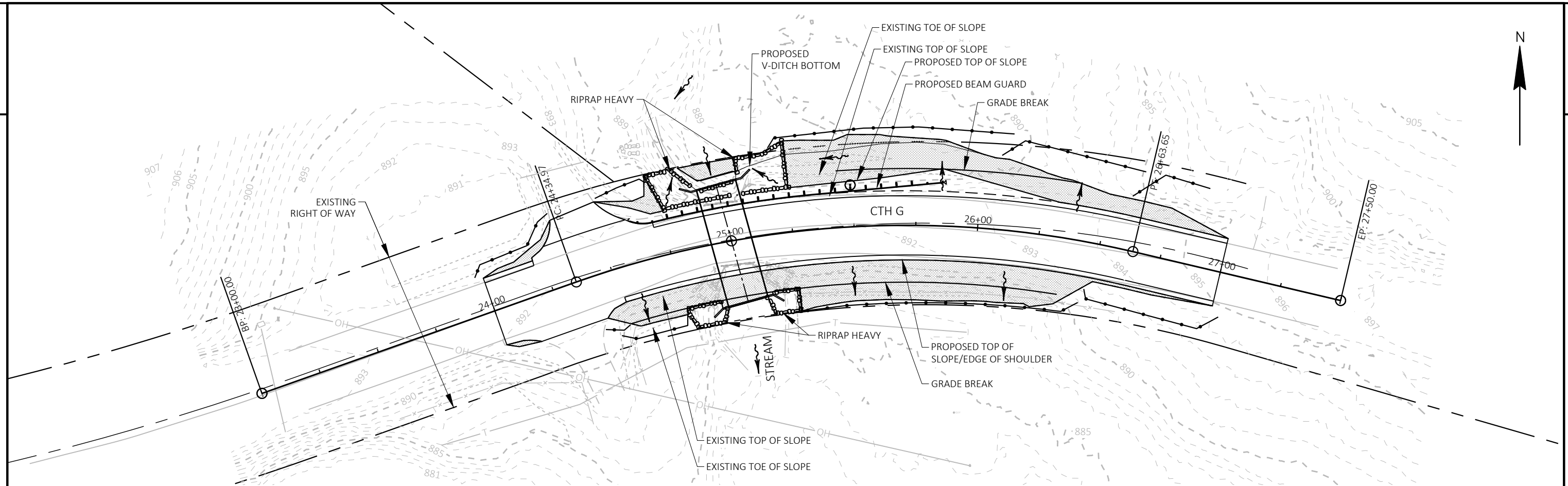
LEGEND

- SILT FENCE
- RIP RAP HEAVY
- SLOPE INTERCEPT
- SURFACE WATER FLOW
- SEEDING NO. 20, FERTILIZER, AND MULCH
(NOTE: NOT MEASURED SEPARATELY FOR PAYMENT AT THIS SITE. SEE GENERAL NOTES SHEET)

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 0.33 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.20 ACRES



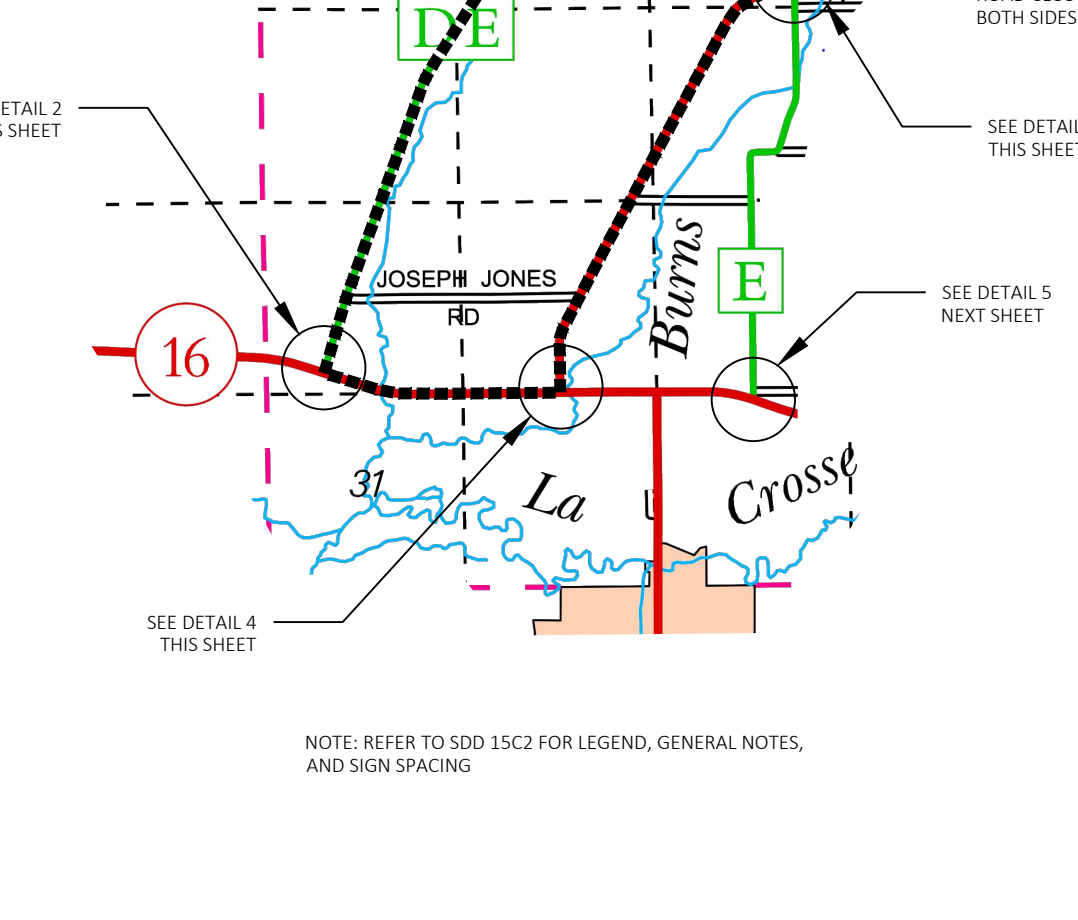
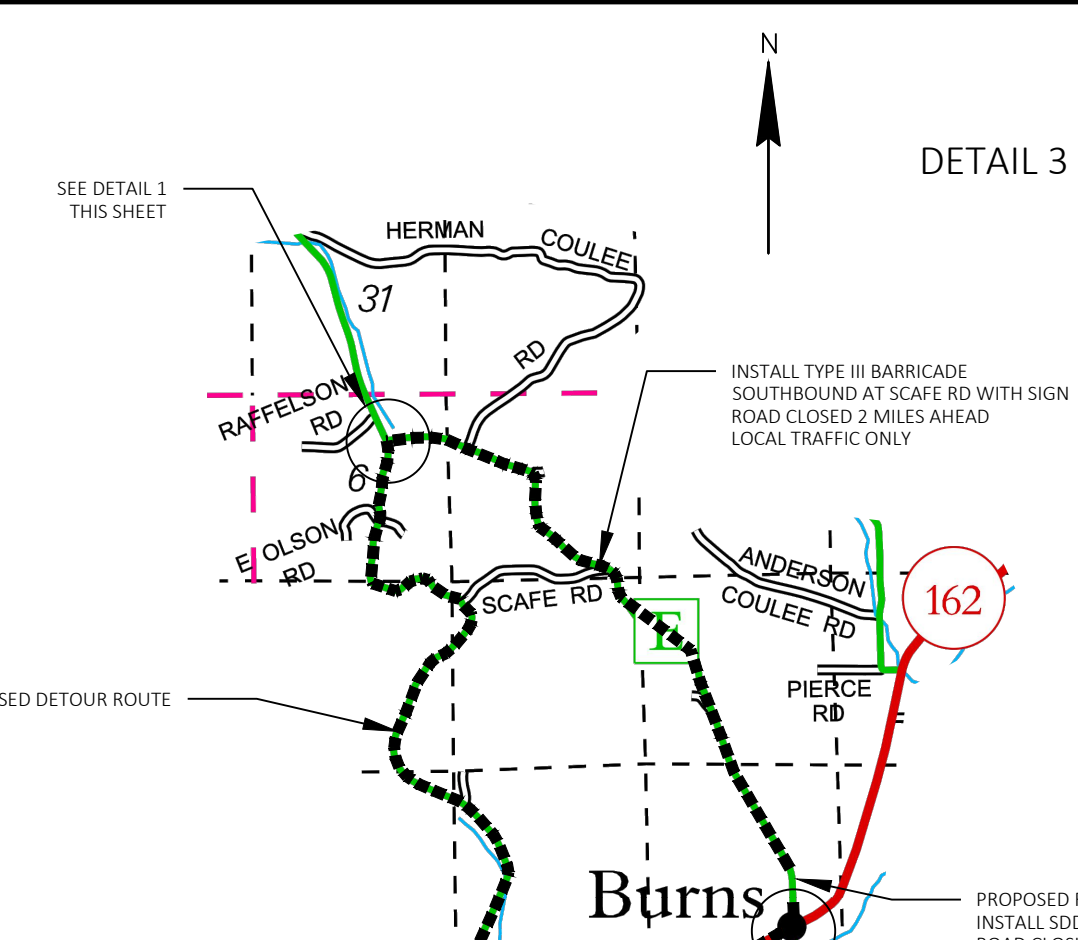
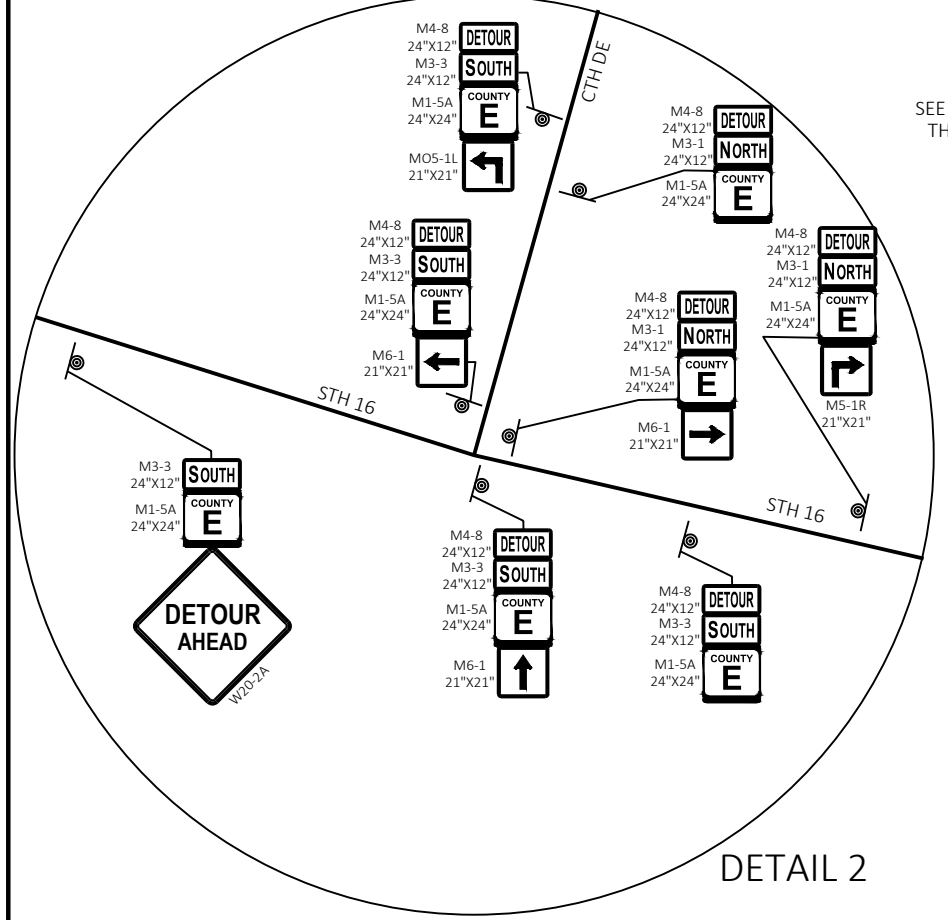
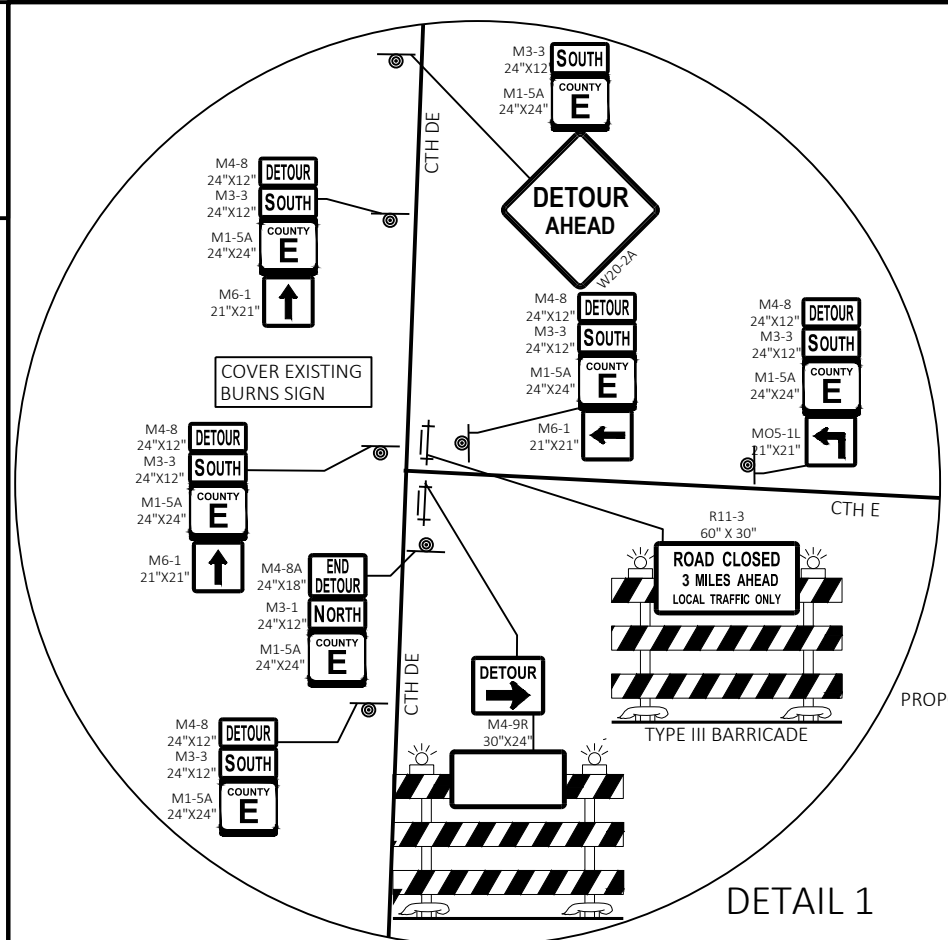
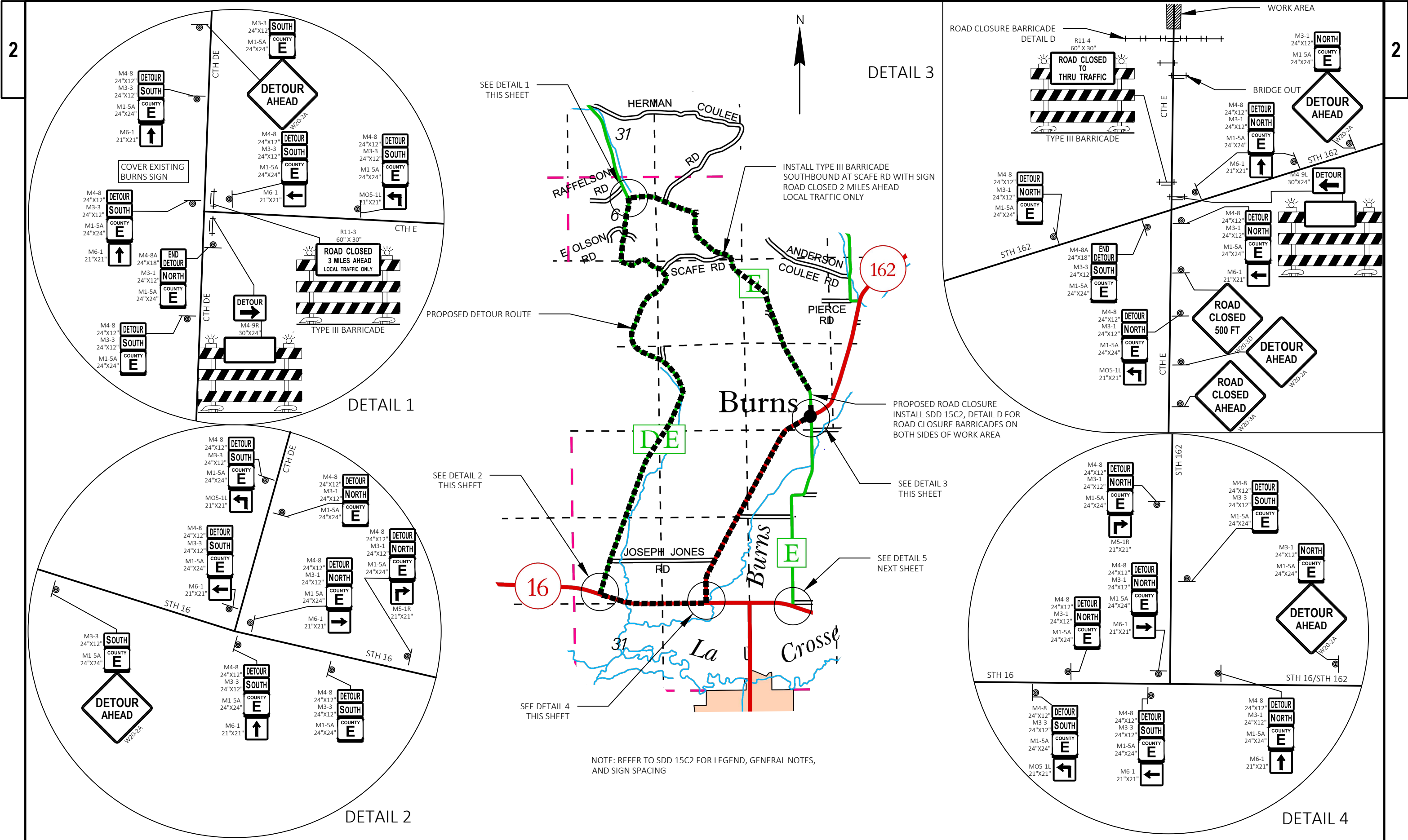
LEGEND

- SILT FENCE
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- SEEDING NO. 20, FERTILIZER, AND MULCH

RUNOFF COEFFICIENT TABLE

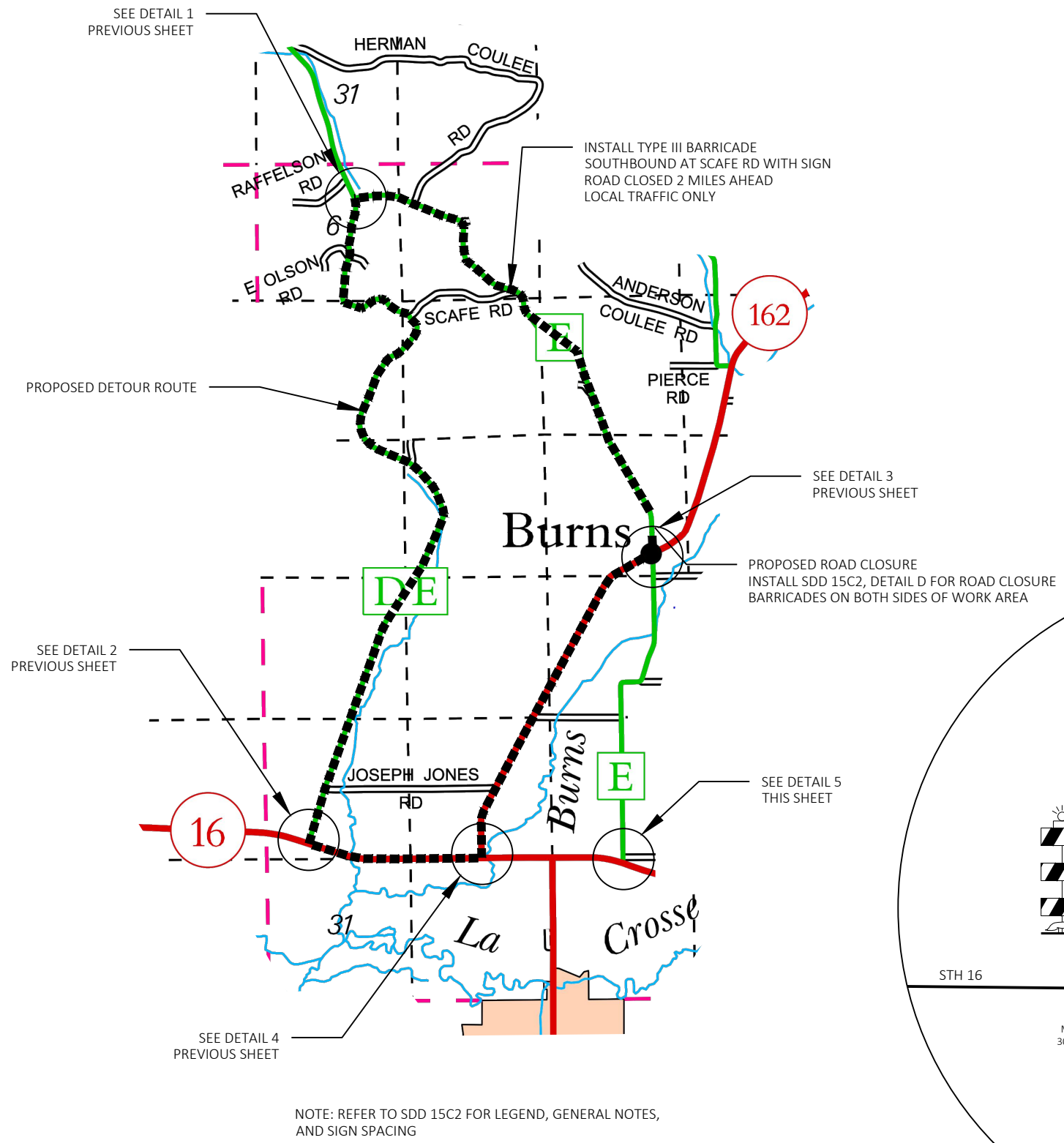
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 0.46 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.36 ACRES

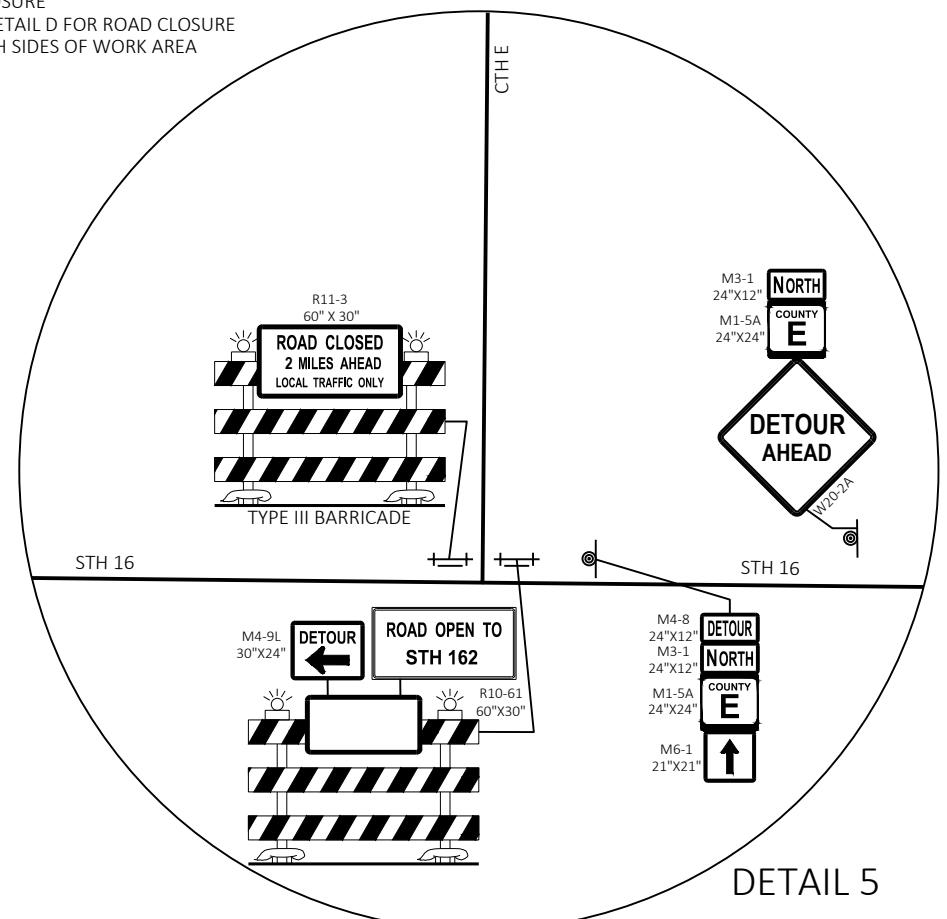


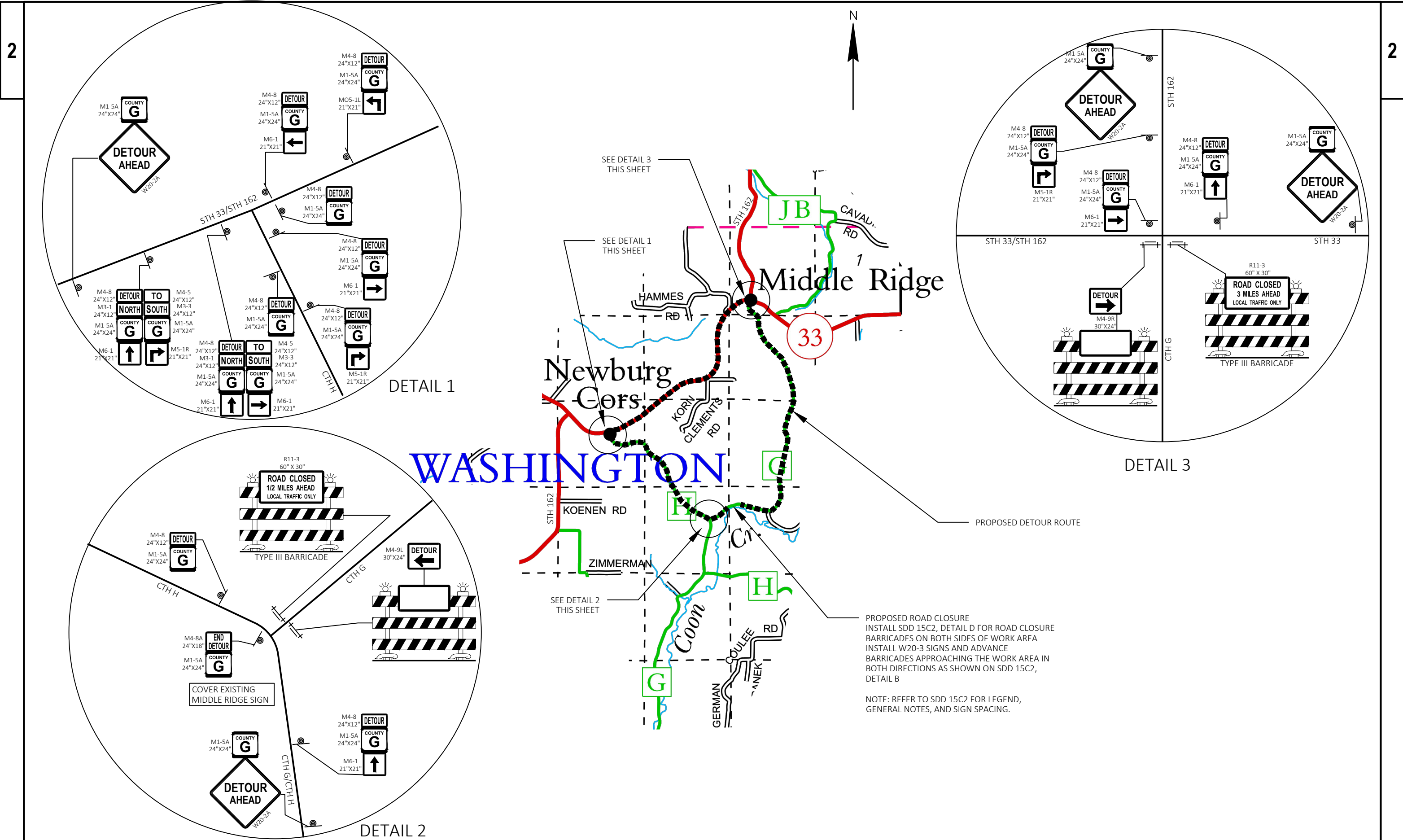
NOTE: REFER TO SDD 15C2 FOR LEGEND, GENERAL NOTES, AND SIGN SPACING

PROJECT NO: ----	HWY: CTH G & CTH E	COUNTY: LA CROSSE	CTH E DETOUR	SHEET 8
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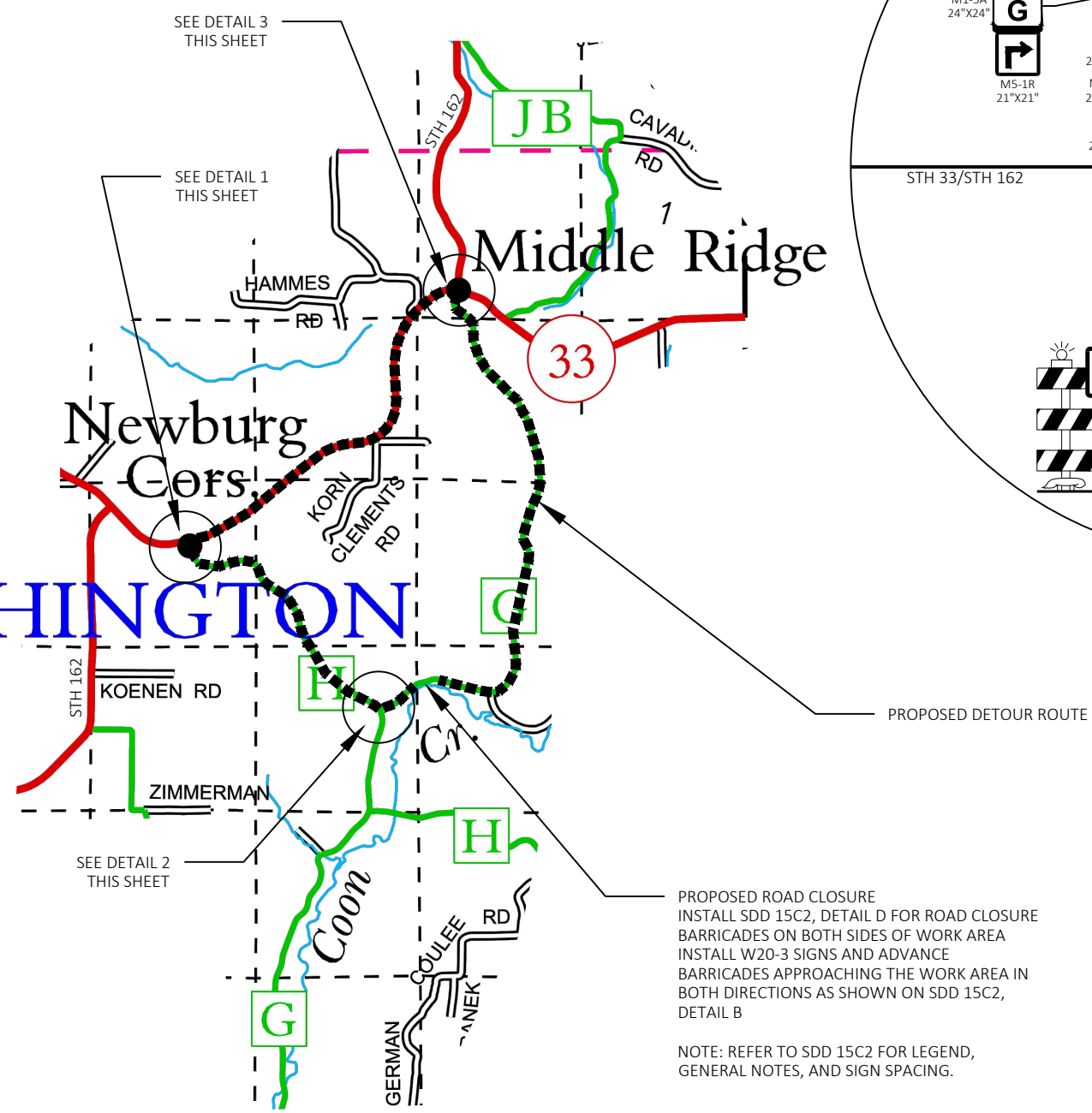
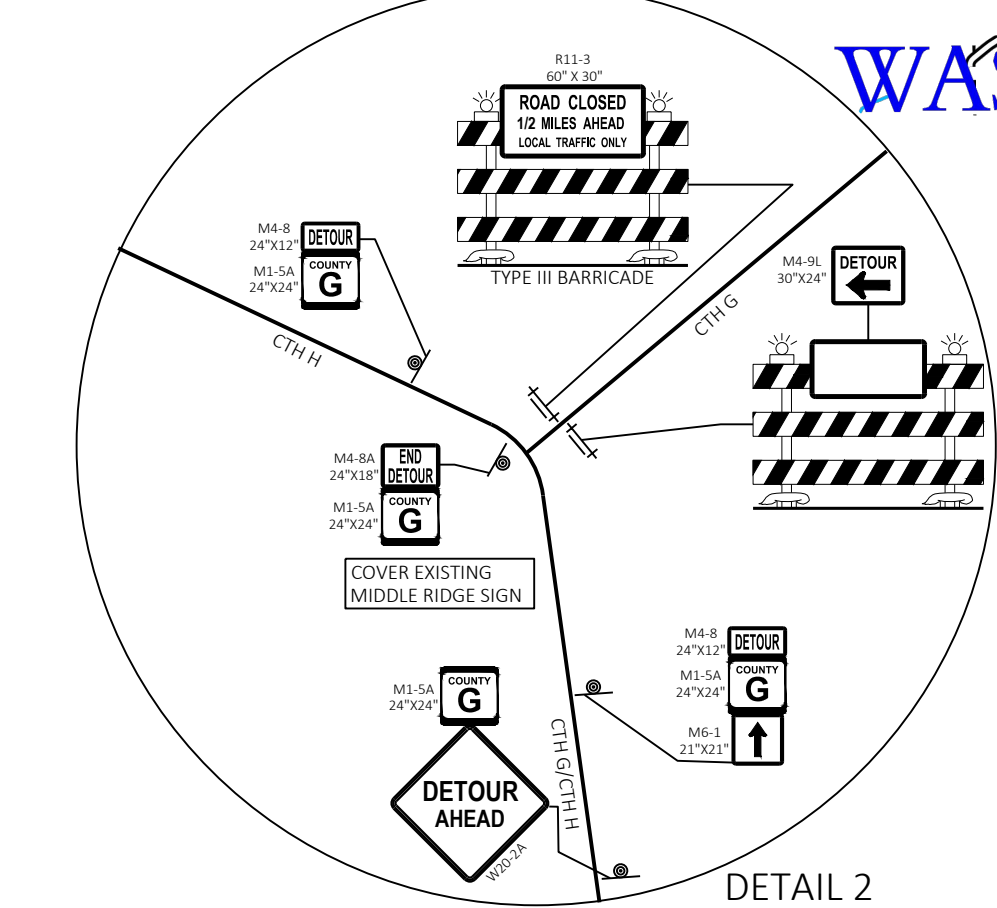
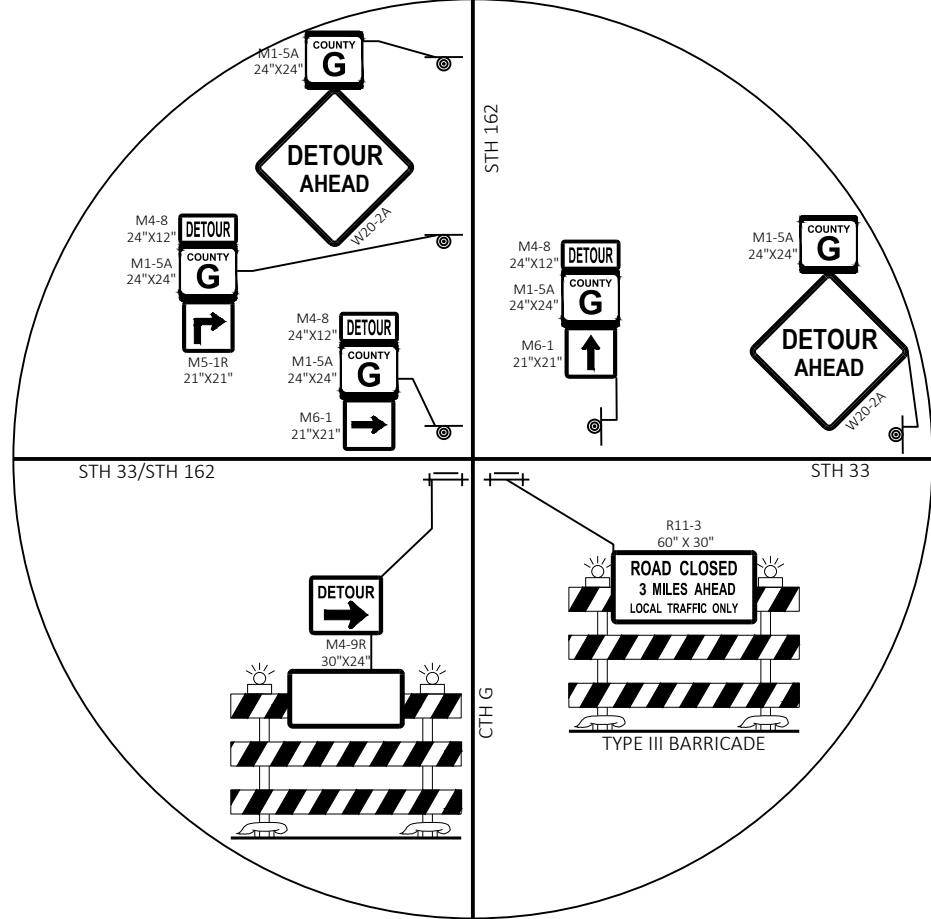
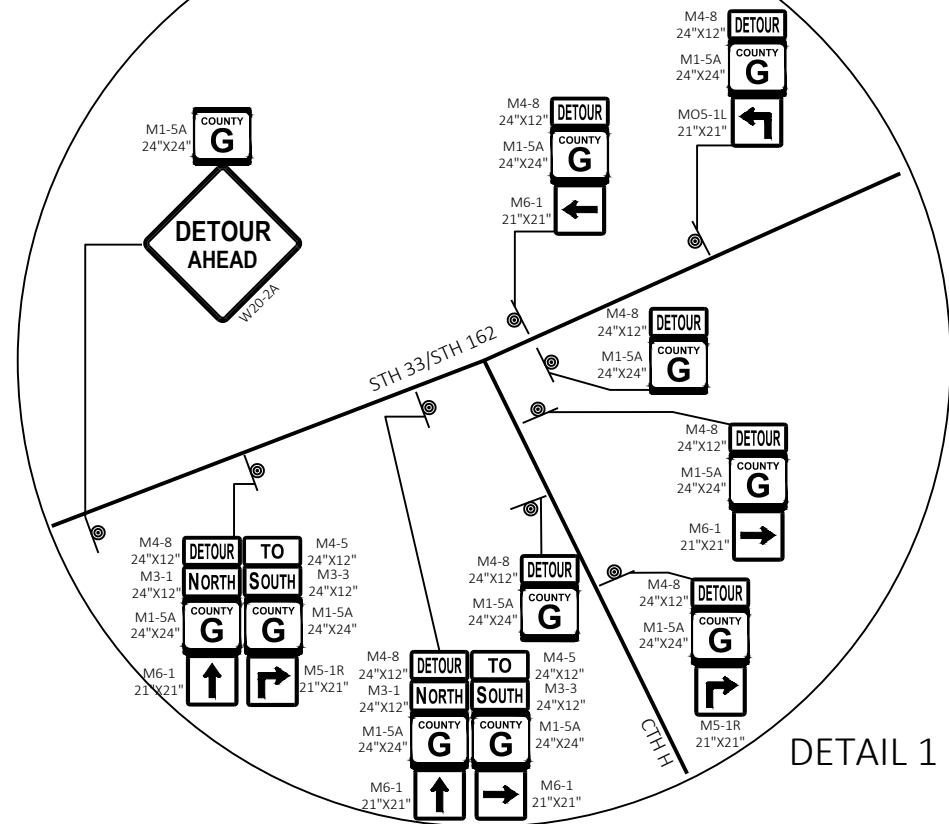


NOTE: REFER TO SDD 15C2 FOR LEGEND, GENERAL NOTES, AND SIGN SPACING





PROJECT NO: ----	HWY: CTH G & CTH E	COUNTY: LA CROSSE	CTH G DETOUR	SHEET 10	E
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SEE DETAIL 3 THIS SHEET

SEE DETAIL 1 THIS SHEET

SEE DETAIL 2 THIS SHEET

PROPOSED DETOUR ROUTE

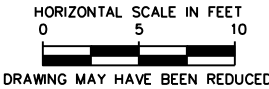
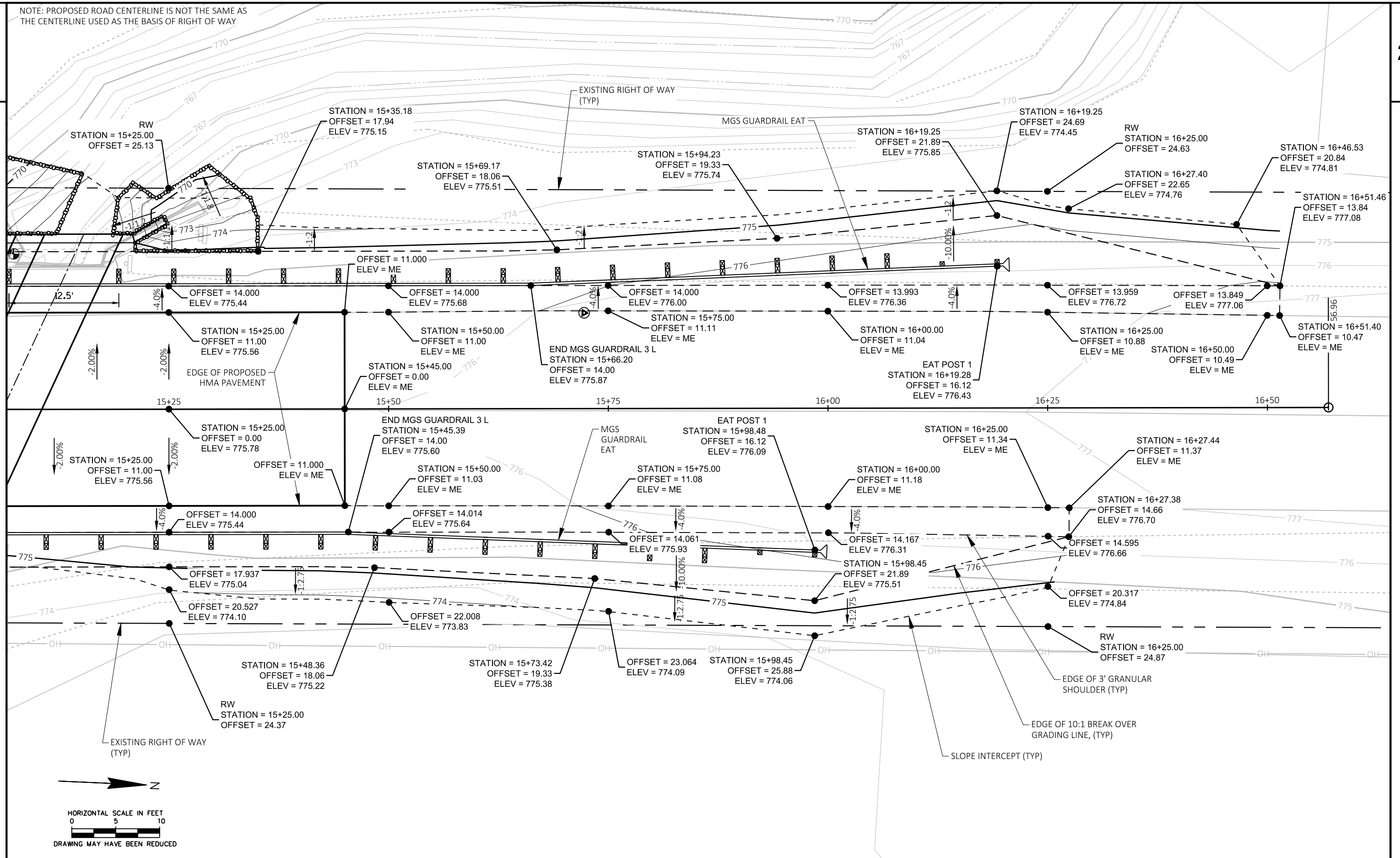
PROPOSED ROAD CLOSURE
 INSTALL SDD 15C2, DETAIL D FOR ROAD CLOSURE
 BARRICADES ON BOTH SIDES OF WORK AREA
 INSTALL W20-3 SIGNS AND ADVANCE
 BARRICADES APPROACHING THE WORK AREA IN
 BOTH DIRECTIONS AS SHOWN ON SDD 15C2,
 DETAIL B

NOTE: REFER TO SDD 15C2 FOR LEGEND,
 GENERAL NOTES, AND SIGN SPACING.

NOTE: PROPOSED ROAD CENTERLINE IS NOT THE SAME AS THE CENTERLINE USED AS THE BASIS OF RIGHT OF WAY

2

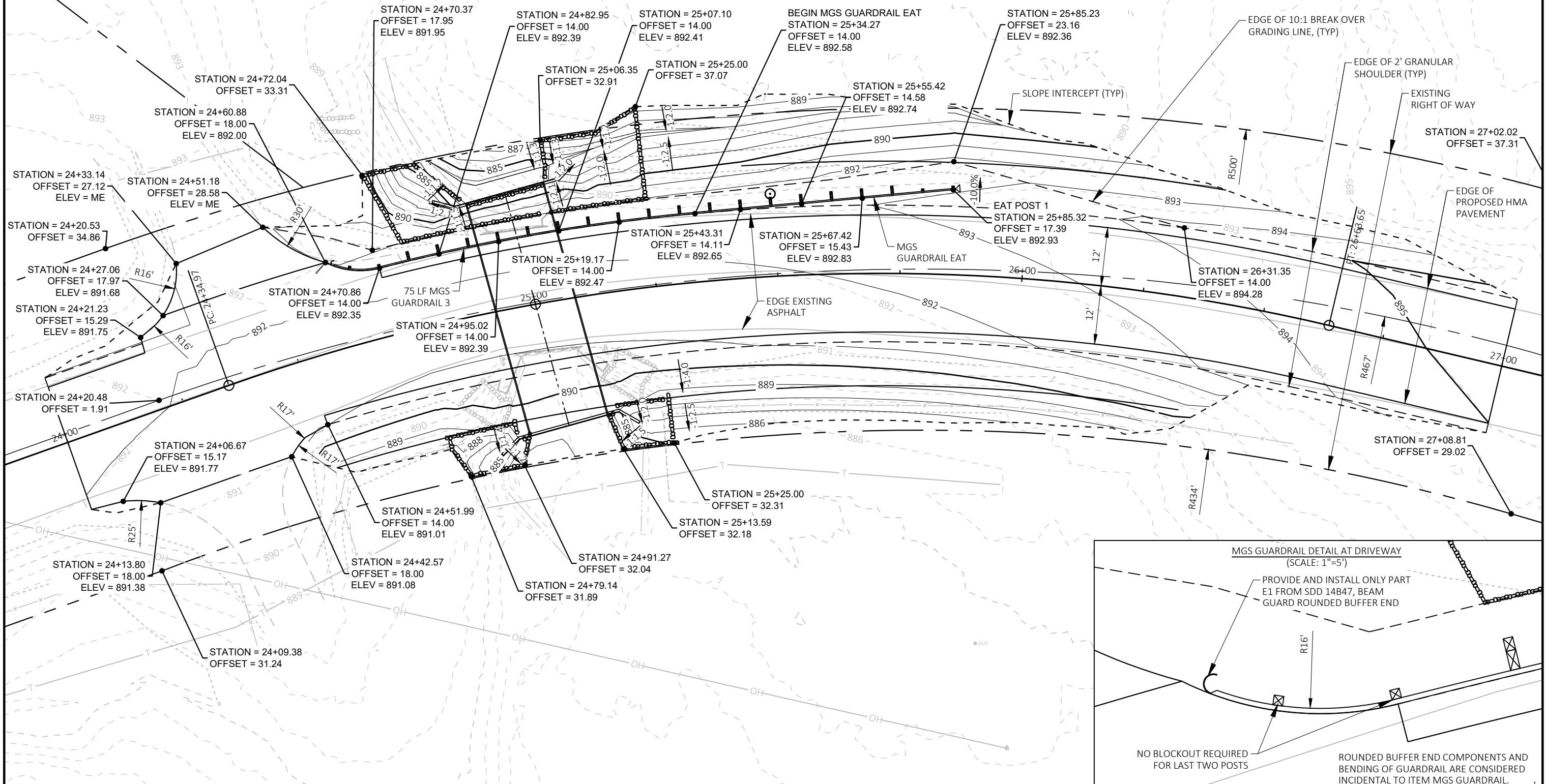
2



NOTE: PROPOSED ROAD CENTERLINE IS NOT THE SAME AS THE CENTERLINE USED AS THE BASIS OF RIGHT OF WAY

REFER TO PLAN AND PROFILE SHEET AND CROSS SECTIONS FOR ADDITIONAL GRADE AND LAYOUT INFORMATION.

GUARDRAIL NOTES:
LAYOUT GUARDRAIL AND FIELD VERIFY THAT POSTS WILL NOT CONFLICT WITH NEW ALUMINUM BOX CULVERT PRIOR TO BEGINNING INSTALLATION.
REFER TO DETAIL VIEW FOR GUARDRAIL AT DRIVEWAY.



PROJECT NO: ----	HWY: CTH G & CTH E	COUNTY: LA CROSSE	CTH G CONSTRUCTION LAYOUT DETAILS	SHEET 13	E
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3

3

Line No.	Item No.	Item Description	Unit	CTH E Category 10	CTH G Category 20	Total
1	201.0105	CLEARING	STA	—	3	3
2	201.0205	GRUBBING	STA	—	3	3
3	203.2060	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS (CTH G)	EACH	—	1	1
4	203.2060	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS (CTH E)	EACH	1	—	1
5	205.0100	EXCAVATION COMMON	CY	*	474	474
6	213.0100	FINISHING ROADWAY (CTH G & CTH E)	EACH	1	1	2
7	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	430	715	1145
8	305.0120	BASE AGGREGATE DENSE 3/4-INCH	TON	110	60	170
9	455.0605	TACK COAT	GAL	20	66	86
10	460.5223	HMA PAVEMENT 3 LT 58-28 S	TON	37	125	162
11	460.5224	HMA PAVEMENT 4 LT 58-28 S	TON	30	100	130
12	504.0900	CONCRETE MASONRY ENDWALL	CY	16.9	—	16.9
13	606.0300.S	RIPRAP HEAVY	TON	40	80	120
14	614.2300	MGS GUARDRAIL 3	LF	—	75	75
15	614.2340	MGS GUARDRAIL 3 L	LF	100	—	100
16	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	4	1	5
17	619.1000	MOBILIZATION	EACH	0.5	0.5	1
18	625.0500	SALVAGED TOPSOIL	SY	*	650	650
19	627.0200	MULCHING	SY	*	650	650
20	628.1504	SILT FENCE	LF	560	475	1035
21	628.1520	SILT FENCE MAINTENANCE	LF	560	475	1035
22	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2	2	4
23	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1	1	2
24	628.7560	TRACKING PAD	EACH	2	2	4
25	629.0210	FERTILIZER TYPE B	CWT	*	0.4	0.4
26	630.0120	SEEDING MIXTURE NO. 20	LB	*	18	18
27	630.0200	SEEDING TEMPORARY	LB	*	18	18
28	645.0105	GEOTEXTILE TYPE C	SY	65	170	235
29	645.0135	GEOTEXTILE TYPE SR	SY	65	170	235
30	646.1005	MARKING LINE PAINT 4-INCH	LF	460	1240	1700
31	SPV.0090.01	REMOVE AND REINSTALL FIELD FENCE	LF	—	143	143
32	SPV.0105.01	CMP DUAL CULVERT PIPE INSTALLATION, COMPLETE WITH EXCAVATION AND BACKFILL (CTH E)	LS	1	—	1
33	SPV.0105.02	ALUMINUM BOX CULVERT, COMPLETE WITH HEADWALLS, EXCAVATION, AND BACKFILL (CTH G)	LS	—	1	1
34	SPV.0105.03	CONSTRUCTION STAKING	LS	1	1	1
35	SPV.0105.04	BARRIER SYSTEM GRADING SHAPING AND FINISHING COMPLETE (CTH E)	LS	1	—	1
36	SPV.0105.05	TRAFFIC CONTROL	LS	0.5	0.5	1
37	SPV.0195.01	SELECT CRUSHED MATERIAL FOR SUBGRADE STABILIZATION	TON	—	180	180
38	SPV.0195.02	BREAKER RUN FOR CULVERT FOUNDATION STABILIZATION	TON	45	110	155

*THESE ITEMS ARE NOT MEASURED SEPARATELY AT THE CTH E SITE BUT ARE INCIDENTAL TO THE ITEM BARRIER SYSTEM GRADING SHAPING AND FINISHING COMPLETE.

PROJECT NO: ----

HWY: CTH G & CTH E

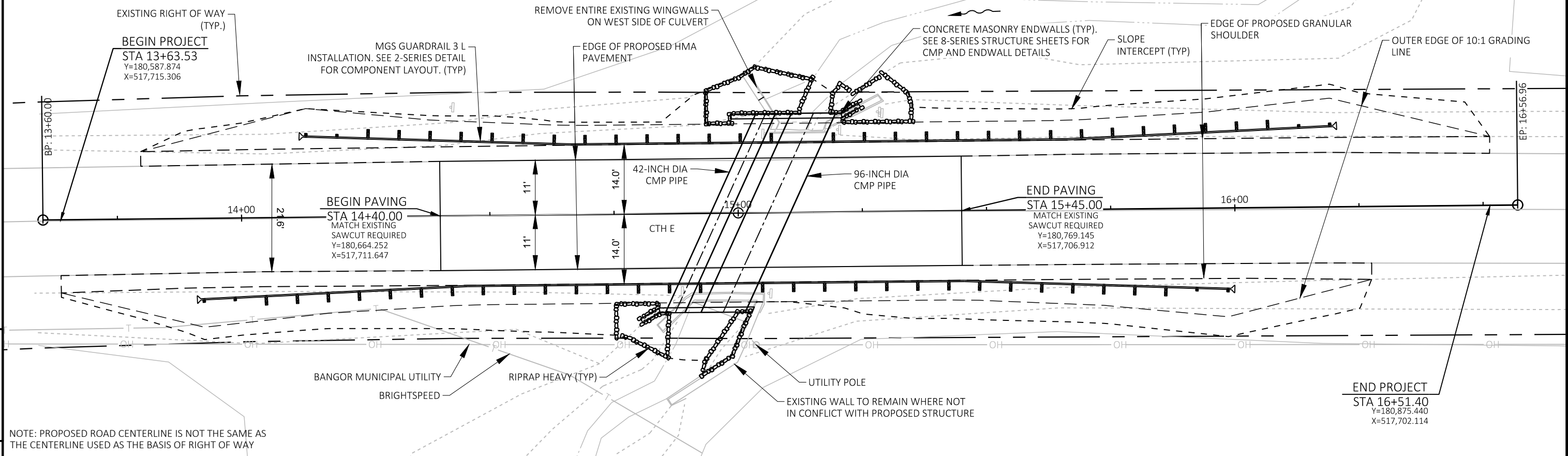
COUNTY: LA CROSSE

ESTIMATE OF QUANTITIES

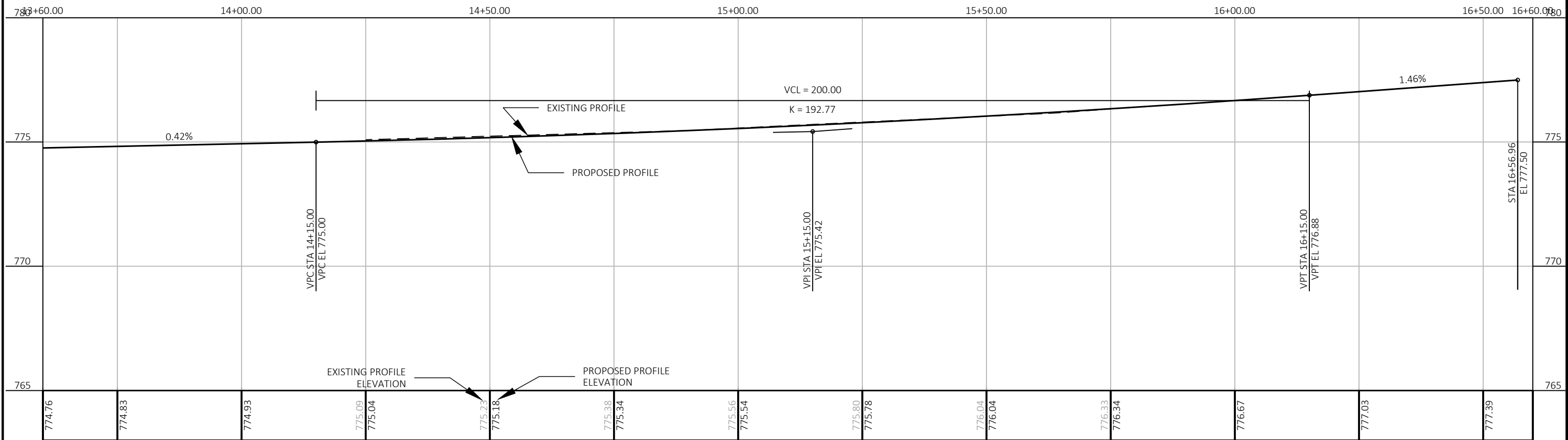
SHEET 14

E

REFER TO 2-SERIES CONSTRUCTION LAYOUT
DETAILS FOR PAVEMENT AND GUARDRAIL LAYOUT
DETAILS AND RIGHT OF WAY INFORMATION



NOTE: PROPOSED ROAD CENTERLINE IS NOT THE SAME AS
THE CENTERLINE USED AS THE BASIS OF RIGHT OF WAY



PROJECT NO: ---- HWY: CTH G & CTH E COUNTY: LA CROSSE PLAN AND PROFILE: CTH E SHEET 15 E

NOTE: PROPOSED ROAD CENTERLINE IS NOT THE SAME AS THE CENTERLINE USED AS THE BASIS OF RIGHT OF WAY
REFER TO 2-SERIES CONSTRUCTION LAYOUT DETAIL FOR PAVEMENT AND GUARDRAIL LAYOUT DETAILS AND RIGHT OF WAY INFORMATION

SURFACE DRIVEWAY WITH BASE AGGREGATE DENSE 3/4-INCH BEYOND 18" HMA WIDTH AS NEEDED

OUTER EDGE OF 10:1 GRADING LINE

PI STA = 25+52.53
DELTA = 32°45'20"
D = 14°19'26"
T = 117.56'
L = 228.68'
R = 400.00'
PC STA = 24+34.97
PT STA = 26+63.65
MAX SUPERELEVATION = 6%

EDGE OF PROPOSED GRANULAR SHOULDER

EDGE OF PROPOSED HMA PAVEMENT

STATION = 27+00.00
OFFSET = 37.36

BEGIN PROJECT
STA 24+00.00
MATCH EXISTING
SAW CUT REQ'D
Y=114,950.564
X=525,019.460

END PROJECT
STA 27+00.00
Y=114,966.205
X=525,313.049

EXISTING RIGHT OF WAY (TYP.)
RIGHT OF WAY CENTERLINE
ROADCENTERLINE

00+00.00:BB
Y = 114917.178
X = 524925.198

Y = 114954.743
X = 525361.717

STATION = 27+00.00
OFFSET = 28.66

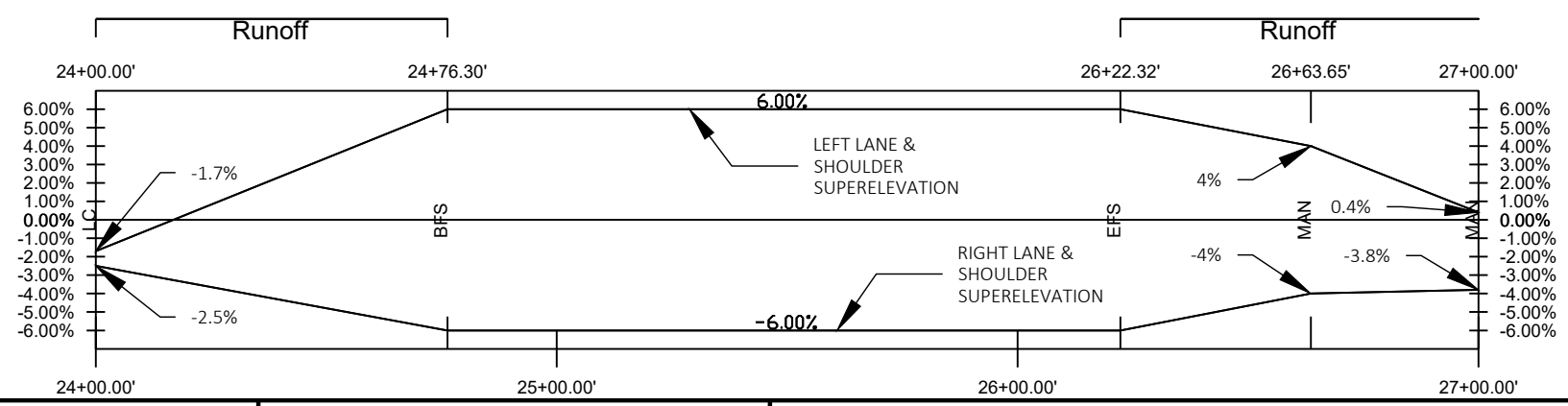
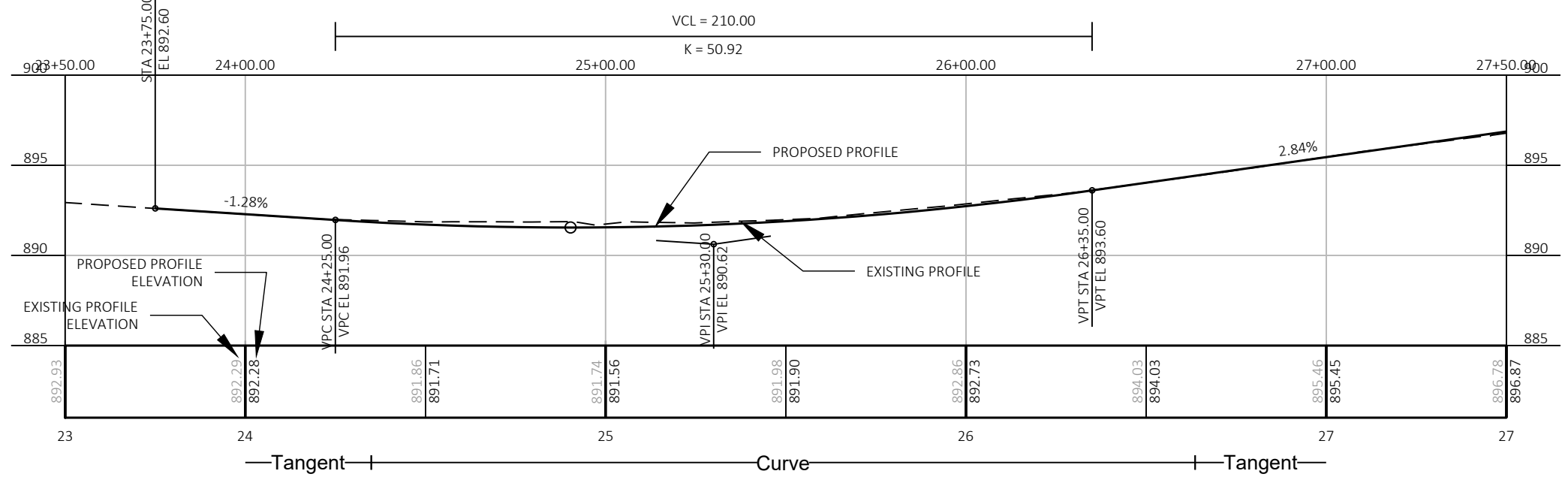
BANGOR MUNICIPAL UTILITY
REMOVE AND REINSTALL FENCE IN CONFLICT WITH PROPOSED GRADING

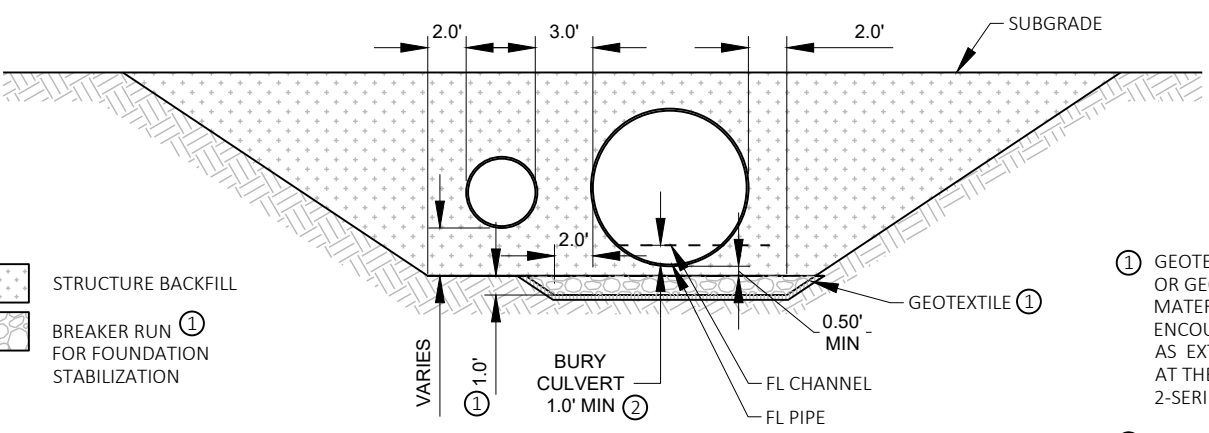
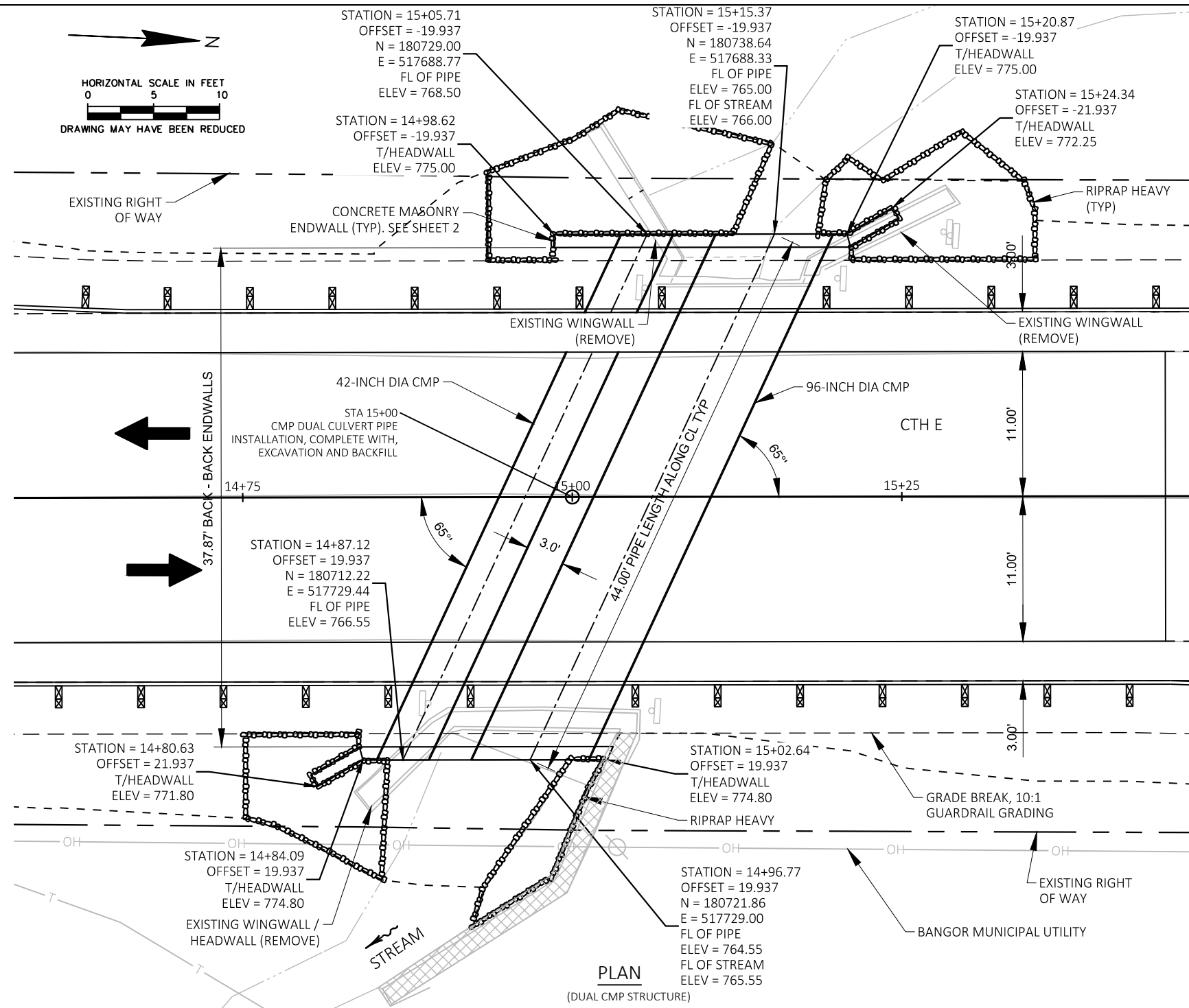
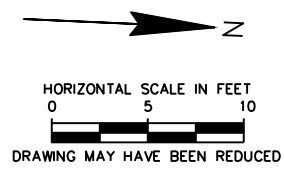
PROPOSED SIDESLOPE GRADE BREAK AT 23' FROM CENTERLINE
16'-2" X 5'-1" ALUMINUM BOX CULVERT. SEE 8-SERIES STRUCTURE SHEETS

REMOVE AND REINSTALL FENCE IN CONFLICT WITH PROPOSED GRADING

5

5





EXCAVATION AND BACKFILL DETAIL
(PERPENDICULAR TO CULVERTS)
LOOKING UPSTREAM

- STRUCTURE BACKFILL
- BREAKER RUN ① FOR FOUNDATION STABILIZATION

- ① GEOTEXTILE REFERS TO THE USE OF EITHER GEOTEXTILE TYPE C OR GEOTEXTILE TYPE SR IN COMBINATION WITH BREAKER RUN MATERIAL DEPENDING ON THE FIELD CONDITIONS ENCOUNTERED. THE USE, TYPE AND EXTENTS OF FABRIC AS WELL AS EXTENTS AND DEPTH OF BREAKER RUN WILL BE DETERMINED AT THE TIME OF EXCAVATION BASED ON FIELD CONDITIONS. SEE 2-SERIES GENERAL PLAN SHEET NOTES FOR ADDITIONAL NOTES.
- ② BOTTOM OF 8' DIA PIPE SHALL BE PLACED 1' BELOW FLOWLINE OF STREAM. PLACE NATIVE STREAM BED MATERIAL TO 1' ABOVE THE PIPE FLOWLINE AT THE INLET AND OUTLET. FILLING WITHIN PIPE IS NOT REQUIRED.

NOTE: BACKFILL SHALL BE PLACED AND COMPACTED IN 6" LIFTS, MAXIMUM

DESIGN DATA

REQUIREMENTS FOR CONTRACT ITEM: CMP DUAL CULVERT PIPE INSTALLATION, COMPLETE WITH EXCAVATION AND BACKFILL (CTH E):
A SHOP DRAWING SUBMITTAL FOR THE CORRUGATED METAL CULVERTS IS REQUIRED TO THE OWNER AND ENGINEER FOR CONFIRMATION OF GENERAL CONFORMANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.

CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PERFORM ALL WORK AND SERVICES NECESSARY TO PROVIDE AND CONSTRUCT THE CMP DUAL CULVERT PIPE INSTALLATION PER THE PLAN DETAILS AND SPECIFICATIONS.

THE STRUCTURE SHALL BE DESIGNED FOR AN HL-93 LIVE LOAD.

MATERIALS AND CONSTRUCTION FOR THE CONTRACT ITEM CMP DUAL CULVERT PIPE INSTALLATION, COMPLETE WITH EXCAVATION AND BACKFILL (CTH E) SHALL BE AS PER THE REQUIREMENTS OF WISCONSIN DOT STANDARD SPECIFICATIONS SECTIONS 520 AND 521 EXCEPT AS NOTED.

CULVERTS SHALL BE CORRUGATED METAL CULVERTS OF THE SIZE AND LENGTH NOTED ON THE PLANS, CULVERTS SHALL HAVE A MINIMUM STEEL THICKNESS OF 0.064 INCHES (16 GAUGE STEEL) OR THICKER AS RECOMMENDED BY THE MANUFACTURER BASED ON COVER AND CORRUGATION SIZE. CULVERTS SHALL HAVE A MANUFACTURED SKEWED END THAT WILL BE PARALLEL TO AND FLUSH TO THE OUTSIDE FACE OF THE CONCRETE MASONRY ENDWALLS.

EXCAVATION, BEDDING AND BACKFILL
TRENCH WIDTH FOR EXCAVATION AND BACKFILL MATERIALS SHALL FOLLOW MANUFACTURER REQUIREMENTS FOR THE SUPPLIED CMP AND STANDARD SPECIFICATIONS SECTIONS 520 AND 521.

AROUND AND UP TO THE SUBGRADE ABOVE THE CULVERT PIPES, WITHIN THE TYPICAL BEDDING AND BACKFILL ZONES DEFINED BY THE STANDARD SPECIFICATIONS, AND AROUND THE CONCRETE MASONRY ENDWALL, BEDDING AND BACKFILL MATERIAL SHALL BE A CLEAN, WELL GRADED GRANULAR MATERIAL FOLLOWING THE REQUIREMENTS OF STANDARD SPECIFICATIONS SECTION 210 FOR STRUCTURE BACKFILL TYPE A MATERIAL. OUTSIDE OF THIS ZONE, IF APPROVED BY THE ENGINEER EXISTING NATIVE SOIL MATERIAL MAY BE USED FOR BACKFILL FOLLOWING APPROPRIATE COMPACTION REQUIREMENTS FOR EMBANKMENTS PER STANDARD SPECIFICATION SECTION 207.

TEMPORARY STREAM DIVERSION
CONTRACTOR SHALL DETERMINE REQUIREMENTS FOR TEMPORARY DIVERSION OR OTHER STREAM FLOW BYPASS HANDLING METHODS TO ALLOW INSTALLATION OF THE CULVERT AND ASSOCIATED IN-WATER ITEMS IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE PROPOSED TEMPORARY DIVERSION MUST FOLLOW ALL APPLICABLE WISCONSIN DNR AND US ARMY CORPS OF ENGINEERS GUIDELINES FOR WORK WITHIN A WATERWAY UNDER THEIR JURISDICTION. AT LEAST 14 DAYS PRIOR TO THE PRECONSTRUCTION CONFERENCE, THE CONTRACTOR SHALL SUBMIT A DESCRIPTION AND/OR DRAWING OF PROPOSED METHODS FOR TEMPORARY STREAM DIVERSION TO THE OWNER. IF ANY IMPACTS TO UTILITIES WILL OCCUR AS A RESULT OF THE STREAM DIVERSION, CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION AND COSTS RESULTING FROM ANY NEEDED UTILITY ADJUSTMENTS.

SITE RESTORATION
SITE RESTORATION AND FINISH GRADING IN THE AREA IMPACTED BY EXCAVATION FOR THE CULVERT, TEMPORARY STREAM DIVERSION, OR CONCRETE MASONRY ENDWALLS IS CONSIDERED INCIDENTAL TO THIS CONTRACT ITEM. THIS SHALL INCLUDE THE FOLLOWING ITEMS OF WORK AND REFERENCED SPECIFICATIONS:

COMMON EXCAVATION AND MATERIAL DISPOSAL	SECTION 205
EMBANKMENT	SECTION 207
TOPSOIL	SECTION 625
MULCHING	SECTION 627
FERTILIZER	SECTION 629
SEEDING AND WATERING	SECTION 630

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

THE CONTRACT ITEM CMP DUAL CULVERT PIPE INSTALLATION, COMPLETE WITH EXCAVATION AND BACKFILL (CTH E) SHALL BE BY THE LUMP SUM. PAYMENT IS FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE WORK, INCLUDING CMP CULVERTS, EXCAVATION AND EMBANKMENT CONSTRUCTION REQUIRED TO CONSTRUCT THE STRUCTURE AND SHAPE THE SLOPES AND SUBGRADE TO FINISH GRADE, STRUCTURE BACKFILL TYPE A MATERIALS, TOPSOIL, SEEDING, FERTILIZER, MULCHING, AND ALL COSTS ASSOCIATED WITH CONSTRUCTING, MAINTAINING, AND REMOVING TEMPORARY STREAM DIVERSION OR BYPASS METHODS.

BREAKER RUN FOR CULVERT FOUNDATION STABILIZATION AND GEOTEXTILE TYPE C OR GEOTEXTILE TYPE SR USED FOR FOUNDATION STABILIZATION WILL BE MEASURED SEPARATELY AS NOTED IN THE 2-SERIES SHEET GENERAL NOTES AND IN THE SPECIAL PROVISIONS.

LIST OF DRAWINGS

- GENERAL PLAN _____ 1
- ENDWALL DETAILS _____ 2

HYDRAULIC DATA

25 YEAR FREQUENCY	
DRAINAGE AREA	1.44 SQ. MI.
Q ₂₅ TOTAL	245 C.F.S.
THROUGH STRUCTURE	245 C.F.S.
OVERTOPPING ROADWAY	0 C.F.S.
VELOCITY - THROUGH STRUCTURE	
3.5' DIAMETER PIPE	4.4 F.P.S.
8' DIAMETER PIPE	5.2 F.P.S.
WATERWAY AREA - THROUGH STRUCTURE	
3.5' DIAMETER PIPE	9.6 SQ. FT.
8' DIAMETER PIPE	39.1 SQ. FT.
HIGH WATER ₂₅ ELEVATION	771.74
OVERFLOW FREQUENCY	>100 YEAR
EROSION CONTROL	
Q ₂ TOTAL	70 C.F.S.
HIGH WATER ₂ ELEVATION	769.15
VELOCITY ₂	
3.5' DIAMETER PIPE	0.4 F.P.S.
8' DIAMETER PIPE	2.8 F.P.S.

EXISTING STRUCTURE REMOVAL



BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS (CTH E)" TO INCLUDE REMOVAL OF ENTIRE EXISTING STRUCTURE (INCLUDING EXISTING CMAP) AND METAL GUARDRAIL EXCEPT PORTION OF NORTHEAST WINGWALL INDICATED TO REMAIN. A FULL-DEPTH SAWCUT SHALL BE USED TO PROVIDE A CLEAN EDGE AT THE REMOVAL LIMIT AND ALLOW THE EXISTING HEADWALL AND PROPOSED CONCRETE MASONRY ENDWALL TO ABUT EACH OTHER.

THE WEST PORTION OF THE EXISTING STRUCTURE IS A CONCRETE BOX CULVERT WITH AN OPENING APPROXIMATELY 9.1' WIDE AND 6.6' HIGH WITH CONCRETE WING WALLS AND A ROOF OF STEEL STRINGERS WITH CONCRETE DECK. THIS IS JOINED TO THE EASTERN PORTION OF THE STRUCTURE WHICH INCLUDES A SEGMENT OF 12' WIDE AND 7'-8 1/2" HIGH CORRUGATED METAL ARCH PIPE WITH MASONRY BLOCK WALLS.

HWY: CTH G & CTH E



CTH E OVER UNNAMED TRIBUTARY TO BURNS CREEK

COUNTY LA CROSSE TOWN BURNS

CTH E
GENERAL PLAN

SHEET 1 OF 2
17

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

FILL SLOPES FLATTER THAN 2½:1 SHALL BE WARPED TO MEET THE TOP OF THE WINGWALLS.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

CONCRETE COMPRESSIVE STRENGTH SHALL BE 4 ksi.

CMP ANCHOR BOLTS SHALL CONFORM TO ASTM A307, GR. A BOLTS AND A563 GR. A NUTS.

REINFORCEMENT SHALL BE NO. 5 BARS SPACED 12" C-C IN BOTH DIRECTIONS AT EACH FACE UNLESS OTHERWISE NOTED. ALL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR. NOT ALL REINFORCEMENT IS SHOWN FOR CLARITY.

PROVIDE (3) FULL LENGTH HORIZONTAL REINFORCEMENT BARS AT EACH FACE ABOVE AND BELOW THE 8' DIAMETER PIPE.

PROVIDE (4) FULL LENGTH VERTICAL REINFORCEMENT BARS AT EACH FACE BETWEEN THE 8' AND 3.5' DIAMETER PIPES.

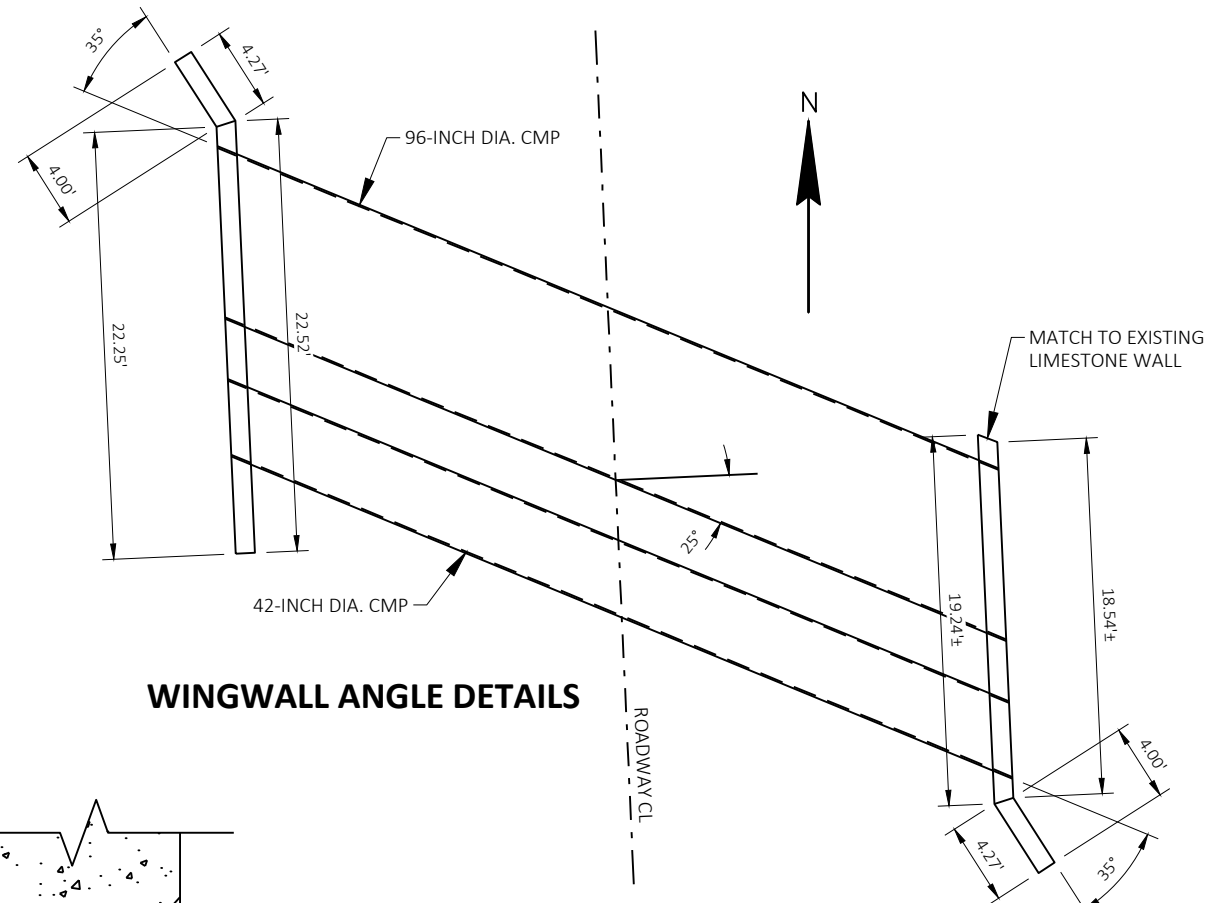
ALL HORIZONTAL REINFORCEMENT BARS EXTENDING BETWEEN ENDWALL AND WINGWALL SHALL HAVE A 1'-6" HOOK AS SHOWN IN WINGWALL REINFORCEMENT DETAIL.

DRILL AND EPOXY #5 x 1'-6" MINIMUM 8" INTO EXISTING LIMESTONE RETAINING WALL AT 12" C-C SPACING STAGGERING FRONT FACE AND BACK FACE REINFORCEMENT AT THE NORTH END OF EAST ENDWALL. SPACING MAY BE ADJUSTED TO PROVIDE 2" CLEAR FROM LIMESTONE JOINTS AS NEEDED. DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

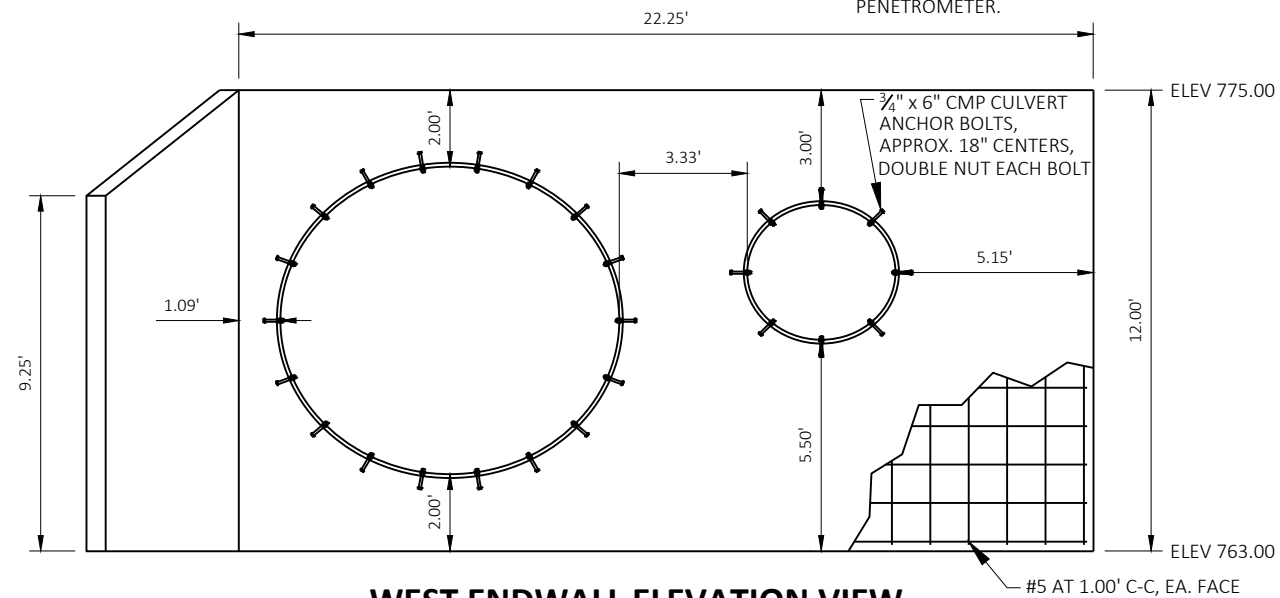
ADDITIONAL REINFORCEMENT BARS SHALL BE PLACED AROUND THE PIPES AT EACH FACE AS SHOWN IN TYPICAL REINFORCEMENT AT PIPE PROTRUSIONS.

EXCAVATION AND TRENCH BACKFILL ARE MATERIAL INCLUDED IN PAYMENT FOR CONCRETE MASONRY ENDWALLS OR CMP DUAL CULVERT INSTALLATION, COMPLETE WITH EXCAVATION AND BACKFILL (CTH E)

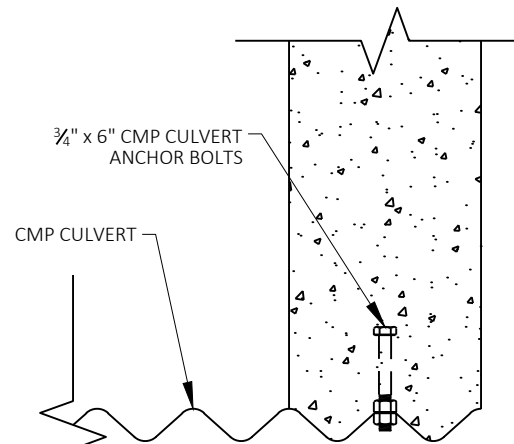
- ① LIMITS OF ROAD AGGREGATE ABOVE SUBGRADE.
- ② LIMITS OF STRUCTURE BACKFILL. SEE SHEET 1 FOR EXTENTS.
- ③ DO NOT PLACE FOUNDATION BACKFILL OR ANY OTHER GRANULAR BACKFILL AROUND OR BELOW CUT OFF WALL. POUR CUT OFF WALL AGAINST NATIVE SOILS WITH A MINIMUM COMPRESSIVE STRENGTH OF 1.5 KSF AS MEASURED BY A HAND PENETROMETER.



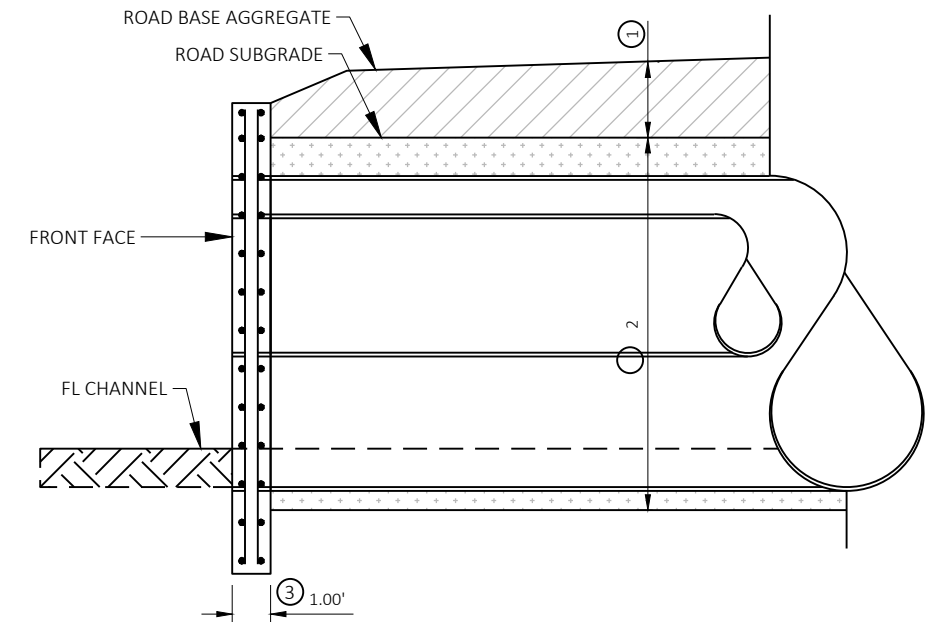
WINGWALL ANGLE DETAILS



WEST ENDWALL ELEVATION VIEW
NOTE: ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL

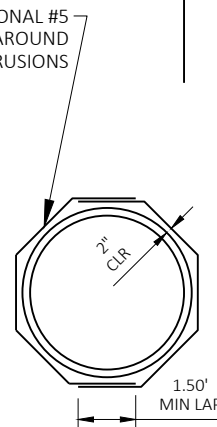


TYPICAL ANCHOR BOLT DETAIL

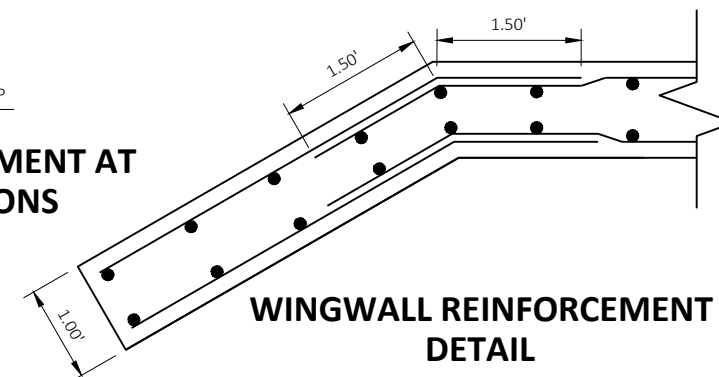


CIRCULAR PIPE SIDE VIEW

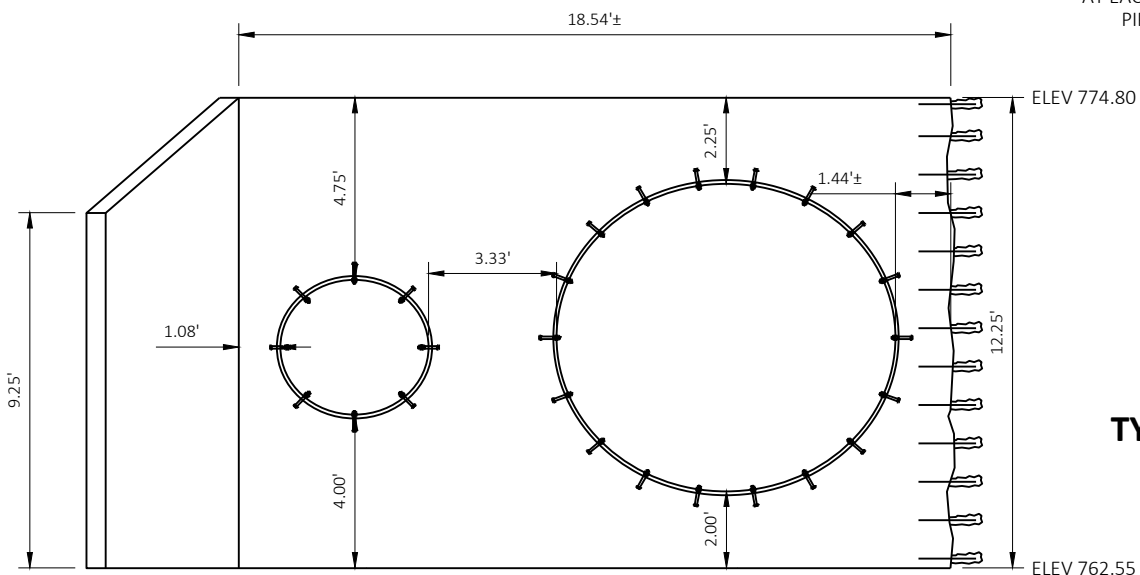
ENDWALL CONCRETE	
LOCATION	QUANTITY
EAST ENDWALL	7.8 CY
WEST ENDWALL	9.1 CY
TOTAL	16.9 CY



TYPICAL REINFORCEMENT AT PIPE PROTRUSIONS



WINGWALL REINFORCEMENT DETAIL



EAST ENDWALL ELEVATION VIEW
NOTE: ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL

HWY: CTH G & CTH E

origin design WORKING ON TOMORROW.
800 556-4491
origindesign.com

CTH E OVER UNNAMED TRIBUTARY TO BURNS CREEK

COUNTY LA CROSSE TOWN BURNS

CTH E ENDWALL DETAILS SHEET 2 OF 2

18

GENERAL NOTES

DESIGN REQUIREMENTS:

A SHOP DRAWING SUBMITTAL IS REQUIRED TO THE OWNER AND ENGINEER FOR CONFIRMATION OF GENERAL CONFORMANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.

CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PERFORM ALL WORK AND SERVICES NECESSARY TO PROVIDE AND CONSTRUCT THE BOX CULVERT PER THE PLANS AND SPECIFICATIONS.

THE ALUMINUM BOX CULVERT SHALL HAVE A DELEGATED DESIGN SUPPLIED BY THE MANUFACTURER OF THE CULVERT.

THE STRUCTURE SHALL BE DESIGNED FOR AN HL-93 LIVE LOAD.

THE STRUCTURE SHALL BE AN ALUMINUM BOX CULVERT DESIGNED TO THE STANDARDS OF ASTM B864 "STANDARD SPECIFICATION FOR CORRUGATED ALUMINUM BOX CULVERTS" (AASHTO DESIGNATION M-219), AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES - SECTION 12 DIVISION I - DESIGN, AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12, AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES - SECTION 26 DIVISION II - CONSTRUCTION, AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS - SECTION 26. ASTM B789, STANDARD PRACTICE FOR INSTALLING CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE.

GEOMETRIC LAYOUT REQUIREMENTS

THE CULVERT SHALL BE DESIGNED BY THE MANUFACTURER TO MEET THE DETAILS OF THE LAYOUT INFORMATION SHOWN ON THE PLANS AS WELL AS THE FOLLOWING GENERAL GEOMETRIC PARAMETERS:

- A SPAN OF 16'-2" BETWEEN INSIDE CORRUGATIONS AT THE BASE WITH A RISE OF 5'-1" AT THE TALLEST HEIGHT TO THE INSIDE CORRUGATIONS.
- A 49'-6" LENGTH MEASURED ALONG THE BARREL CENTERLINE.
- APPROXIMATELY 72 SQUARE FEET OF FLOW AREA.
- A FULL METAL INVERT CONSISTING OF AN ALUMINUM PLATE ACROSS THE BOTTOM TO SERVE AS STRUCTURAL SUPPORT FOR THE FOUNDATION OF THE STRUCTURE.
- A TOE WALL OF A MINIMUM OF 2' IN DEPTH BELOW THE INVERT EXTENDING HORIZONTALLY TO AT LEAST 1' BEYOND THE OUTSIDE OF THE MAIN SPAN, OVERLAPPING WITH EMBEDDED HEADWALL.
- METAL HEADWALLS AND WING WALLS MEETING THE GEOMETRY REQUIREMENTS OF THE GENERAL PLAN ELEVATIONS AND THE GEOMETRIC LAYOUT DETAILS. HEADWALLS AND WINGWALLS SHALL EXTEND AT LEAST 2' BELOW THE INVERT OF THE STRUCTURE. WINGWALLS SHALL INCLUDE A DEADMAN ANCHOR SYSTEM AND HEADWALLS SHALL INCLUDE AN ANCHOR ROD DESIGNED BY THE MANUFACTURER TO PROVIDE ADEQUATE STRUCTURAL SUPPORT.

ROADWAY COVER:

- ANTICIPATED MINIMUM COVER MEASURED FROM THE TOP INSIDE OF THE BOX TO THE UNDERSIDE OF THE PROPOSED ASPHALT PAVEMENT IS 2.8 FEET BASED ON THE PROPOSED ROADWAY ELEVATIONS INCLUDED IN THE PLANS. FOLLOW MANUFACTURER REQUIREMENTS FOR MINIMUM COVER BOTH DURING CONSTRUCTION AND IN THE FINISHED CONDITION.
- THE ANTICIPATED MAXIMUM COVER MEASURED FROM THE TOP INSIDE OF THE BOX TO THE TOP OF THE FINISHED SURFACE AT THE HIGHEST POINT OF FILL (AT THE NORTH ROADWAY SHOULDER GUARDRAIL POINT) IS 4.8 FEET BASED ON THE PROPOSED ROADWAY ELEVATIONS INCLUDED IN THE PLANS.

MATERIAL:

THE ALUMINUM BOX CULVERT SHALL CONSIST OF PLATES, RIBS, AND APPURTENANT ITEMS REQUIRED PER THE MANUFACTURER'S DESIGN AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM B864 AND AASHTO M 219. PLATE THICKNESSES, RIB SPACING, END TREATMENT, AND TYPE OF INVERT AND FOUNDATION SHALL BE DETERMINED BY THE MANUFACTURER TO BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. BOLTS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND/OR ASTM A449 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

CONTRACTOR SHALL CONFIRM MATERIALS USED FOR STRUCTURE BACKFILL FOLLOW ALL MANUFACTURER REQUIREMENTS AND IS IN CONFORMANCE WITH THE REQUIREMENTS OF BEDDING AND BACKFILL BELOW.

ASSEMBLY

THE BOX CULVERT SHALL BE ASSEMBLED IN ACCORDANCE WITH THE SHOP DRAWINGS PROVIDED BY THE MANUFACTURER AND PER THE MANUFACTURER'S RECOMMENDATIONS. ALL PLATES SHALL BE UNLOADED AND HANDLED WITH REASONABLE CARE. PLATES SHALL NOT BE ROLLED OR DRAGGED OVER GRAVEL OR ROCK AND SHALL BE PREVENTED FROM STRIKING ROCK OR OTHER HARD OBJECTS DURING PLACEMENT IN TRENCH OR ON BEDDING. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING ANY DAMAGED COMPONENTS. BOLTS SHALL BE TIGHTENED USING AN APPLIED TORQUE BETWEEN 90 AND 135 FT-LBS DEPENDING ON THE LOCATION OF THE BOLTS IN THE STRUCTURE.

INSTALLATION

THE BOX CULVERT SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, THE MANUFACTURER'S RECOMMENDATIONS AND THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, SECTION 26 (DIVISION II).

EXCAVATION, BEDDING AND BACKFILL

TRENCH WIDTH FOR EXCAVATION AND BACKFILL, AS WELL AS ALL BACKFILL MATERIALS USED, SHALL FOLLOW MANUFACTURER REQUIREMENTS FOR THE STRUCTURE. THE MANUFACTURER SHALL IDENTIFY THE LIMITS OF THE SPECIFIC REGION ADJACENT TO THE CULVERT FOR SELECT GRANULAR BACKFILL PLACEMENT AND ANY SPECIFIC REQUIREMENTS FOR BACKFILL AROUND THE HAUNCH RADIUS OF THE CULVERT. THIS REGION SHALL CONSIDER THE AREA NEEDED TO APPROPRIATELY ENCOMPASS THE TIEBACKS/DEADMAN ANCHORS FOR THE WINGS AS APPROPRIATE.

BEDDING SHOULD BE CONSTRUCTED TO A UNIFORM LINE AND GRADE USING MATERIAL OUTLINED FOR BACKFILL UNDER THE ROAD BELOW AND AS PER MANUFACTURERS REQUIREMENTS.

EXCEPT FOR THE BREAKER RUN FOR FOUNDATION STABILIZATION MATERIAL, WITHIN THE LIMITS OF SELECT GRANULAR BACKFILL PLACEMENT IDENTIFIED BY THE MANUFACTURER, ALL BACKFILL AND BEDDING UNDER THE SUBGRADE AND AROUND CULVERT, HEADWALL AND WINGWALL DEADMAN ANCHORS, SHALL BE A CLEAN, WELL GRADED GRANULAR MATERIAL FOLLOWING THE REQUIREMENTS OF STANDARD SPECIFICATIONS SECTION 210 FOR STRUCTURE BACKFILL TYPE A MATERIAL. OUTSIDE OF THIS ZONE, IF APPROVED BY THE ENGINEER EXISTING NATIVE SOIL MATERIAL MAY BE USED FOR BACKFILL FOLLOWING APPROPRIATE COMPACTION REQUIREMENTS FOR EMBANKMENTS PER STANDARD SPECIFICATION SECTION 207.

ALL SELECT GRANULAR BACKFILL TO BE PLACED IN A BALANCED FASHION IN 8" MAXIMUM LIFTS AND COMPACTED TO 90 PERCENT DENSITY PER AASHTO T-180.

COMPLETE AND REGULAR MONITORING OF THE ALUMINUM BOX CULVERT STRUCTURE IS NECESSARY DURING THE ENTIRE BACKFILL PROCESS.

PREVENT DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT. DURING BACKFILL, ONLY LIGHTWEIGHT TRACKED VEHICLES (D-4 OR LIGHTER) SHOULD BE NEAR THE STRUCTURE AS FILL PROGRESSES ABOVE THE CROWN AND TO THE FINISHED GRADE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF THE MINIMUM COVER NEEDS TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION VEHICLE LOADS (HEAVIER THAN D-4).

TEMPORARY STREAM DIVERSION

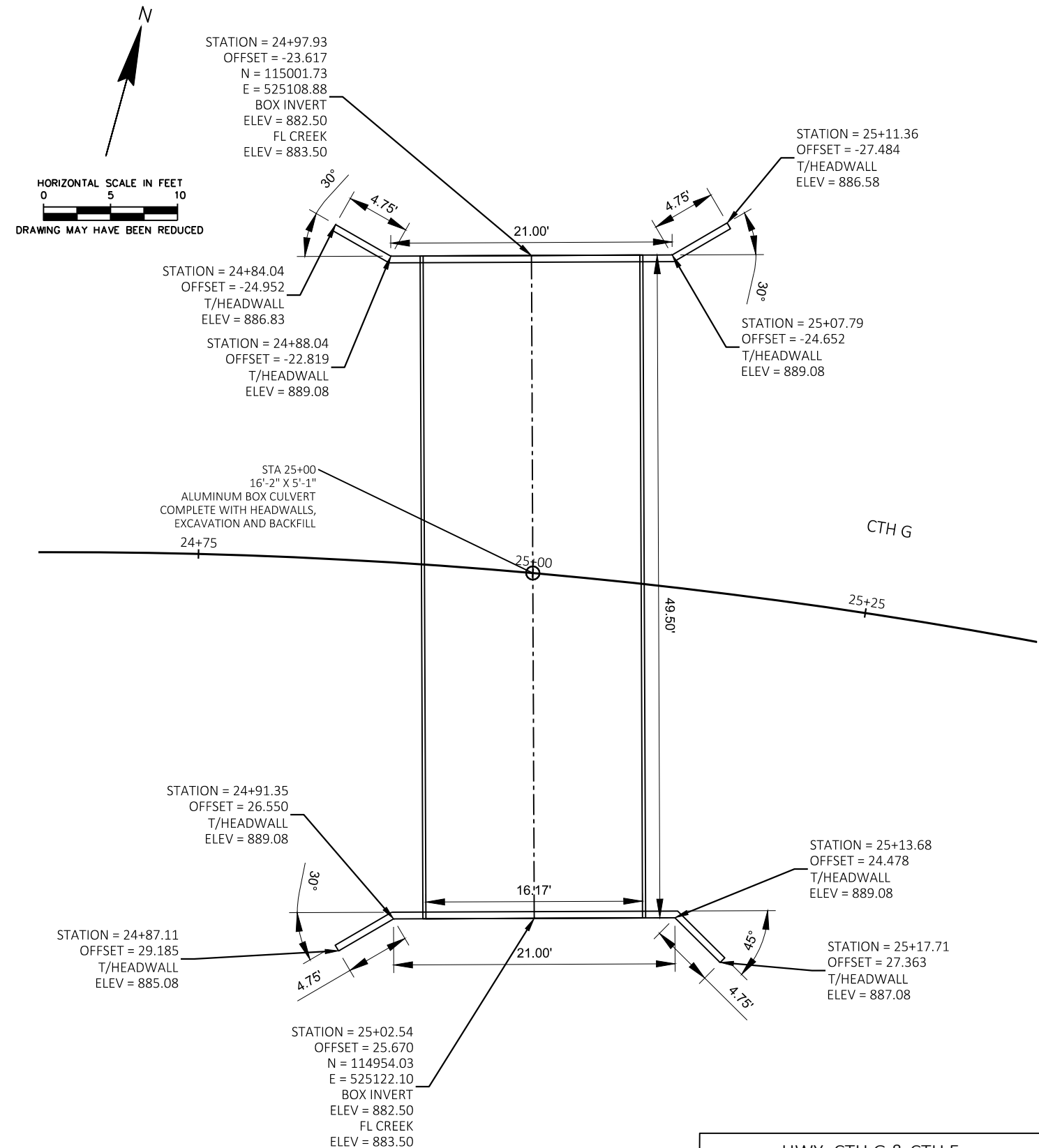
CONTRACTOR SHALL DETERMINE REQUIREMENTS FOR TEMPORARY DIVERSION OR OTHER STREAM FLOW BYPASS HANDLING METHODS TO ALLOW INSTALLATION OF THE CULVERT AND ASSOCIATED IN-WATER ITEMS IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE PROPOSED TEMPORARY DIVERSION MUST FOLLOW ALL APPLICABLE WISCONSIN DNR AND US ARMY CORPS OF ENGINEERS GUIDELINES FOR WORK WITHIN A WATERWAY UNDER THEIR JURISDICTION. AT LEAST 14 DAYS PRIOR TO THE PRECONSTRUCTION CONFERENCE, THE CONTRACTOR SHALL SUBMIT A DESCRIPTION AND/OR DRAWING OF PROPOSED METHODS FOR TEMPORARY STREAM DIVERSION TO THE OWNER.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

THE CONTRACT ITEM ALUMINUM BOX CULVERT, COMPLETE WITH HEADWALLS, EXCAVATION, AND BACKFILL (CTH G) SHALL BE BY THE LUMP SUM. PAYMENT IS FULL COMPENSATION FOR ALL EXCAVATION AND EARTH BACKFILL, STRUCTURE BACKFILL TYPE A MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO PROVIDE, INSTALL, AND BACKFILL THE COMPLETE ALUMINUM BOX CULVERT, HEADWALLS, AND WING WALLS AS SPECIFIED, INCLUDING ALL COSTS ASSOCIATED WITH CONSTRUCTING, MAINTAINING, AND REMOVING TEMPORARY STREAM DIVERSION OR BYPASS METHODS.

BREAKER RUN FOR CULVERT FOUNDATION STABILIZATION AND GEOTEXTILE TYPE C OR GEOTEXTILE TYPE SR USED FOR FOUNDATION STABILIZATION WILL BE MEASURED SEPARATELY AS NOTED IN THE 2-SERIES SHEET GENERAL NOTES AND IN THE SPECIAL PROVISIONS.

AT THIS STRUCTURE LOCATION, EARTHWORK ABOVE THE FINISHED GRADED SLOPES AND ROAD SUBGRADE ELEVATION IS MEASURED SEPARATELY AS PART OF THE COMMON EXCAVATION ITEM, INCLUDING EXCAVATION FOR RIPRAP HEAVY.

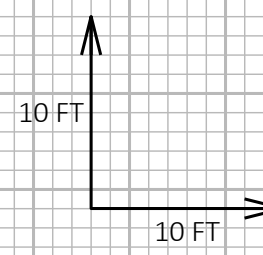
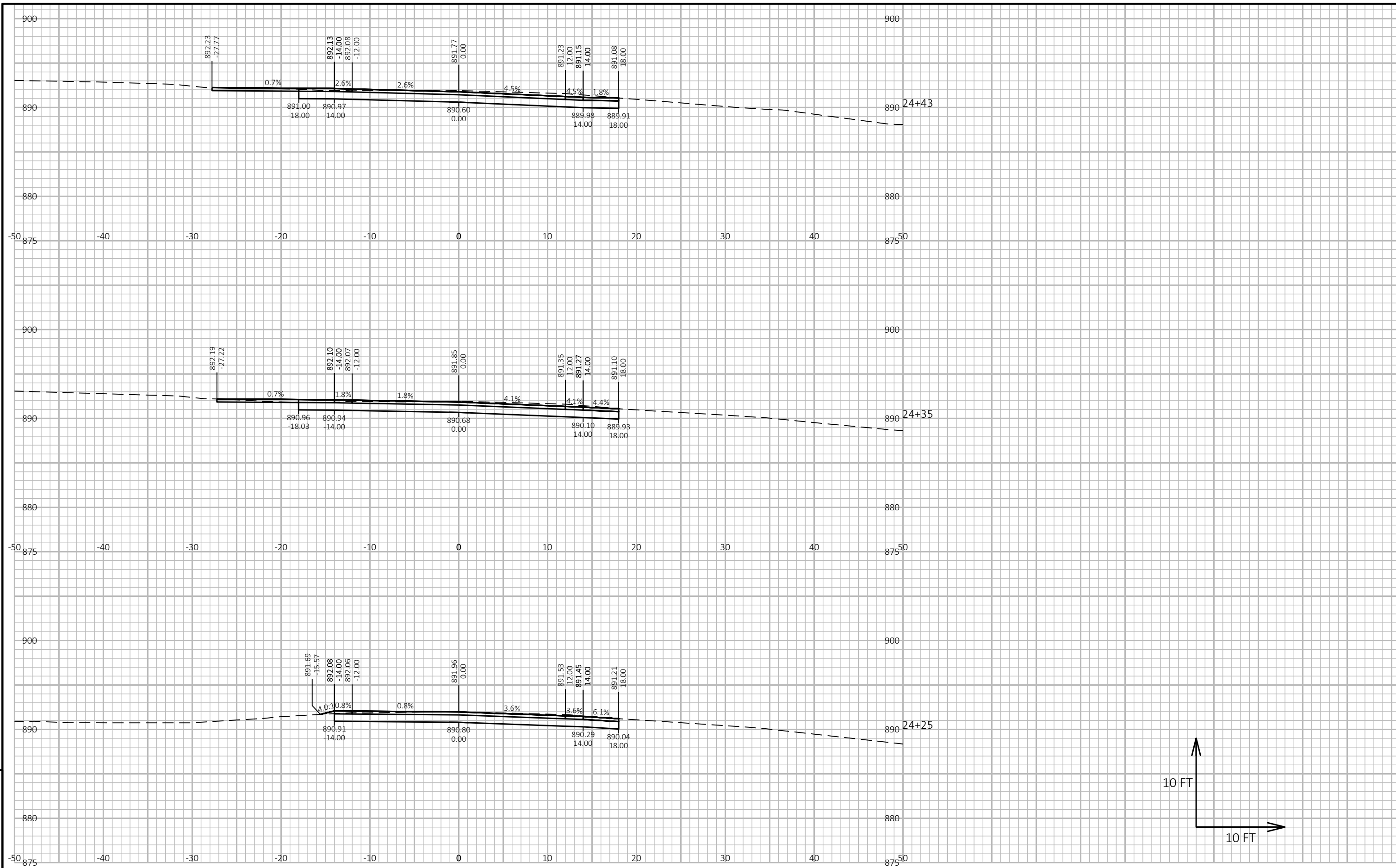


GEOMETRIC PLAN
(16'-2" X 5'-1" ALUMINUM BOX CULVERT)

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HWY: CTH G & CTH E	
WORKING ON TOMORROW. 800 556-4491 origindesign.com	
CTH G OVER UNNAMED TRIBUTARY TO COON CREEK	
COUNTY	TOWN
LA CROSSE	WASHINGTON
CTH G	SHEET 2 OF 2
STRUCTURE DETAILS	20



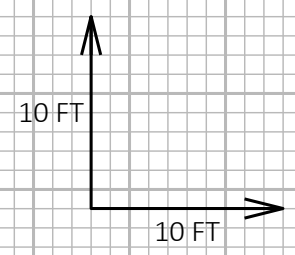
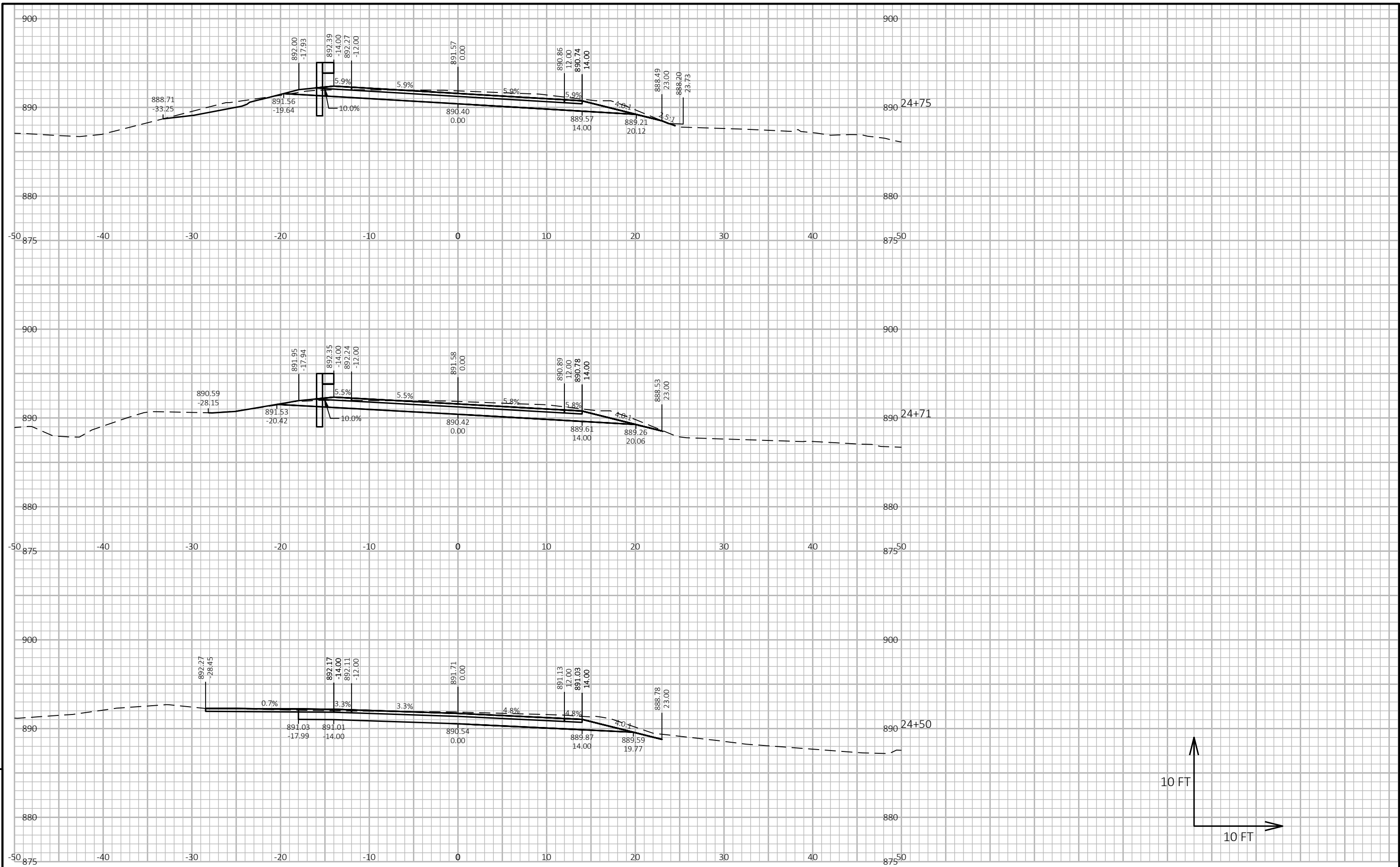
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LAYOUT NAME - 01 CROSS SECTIONS

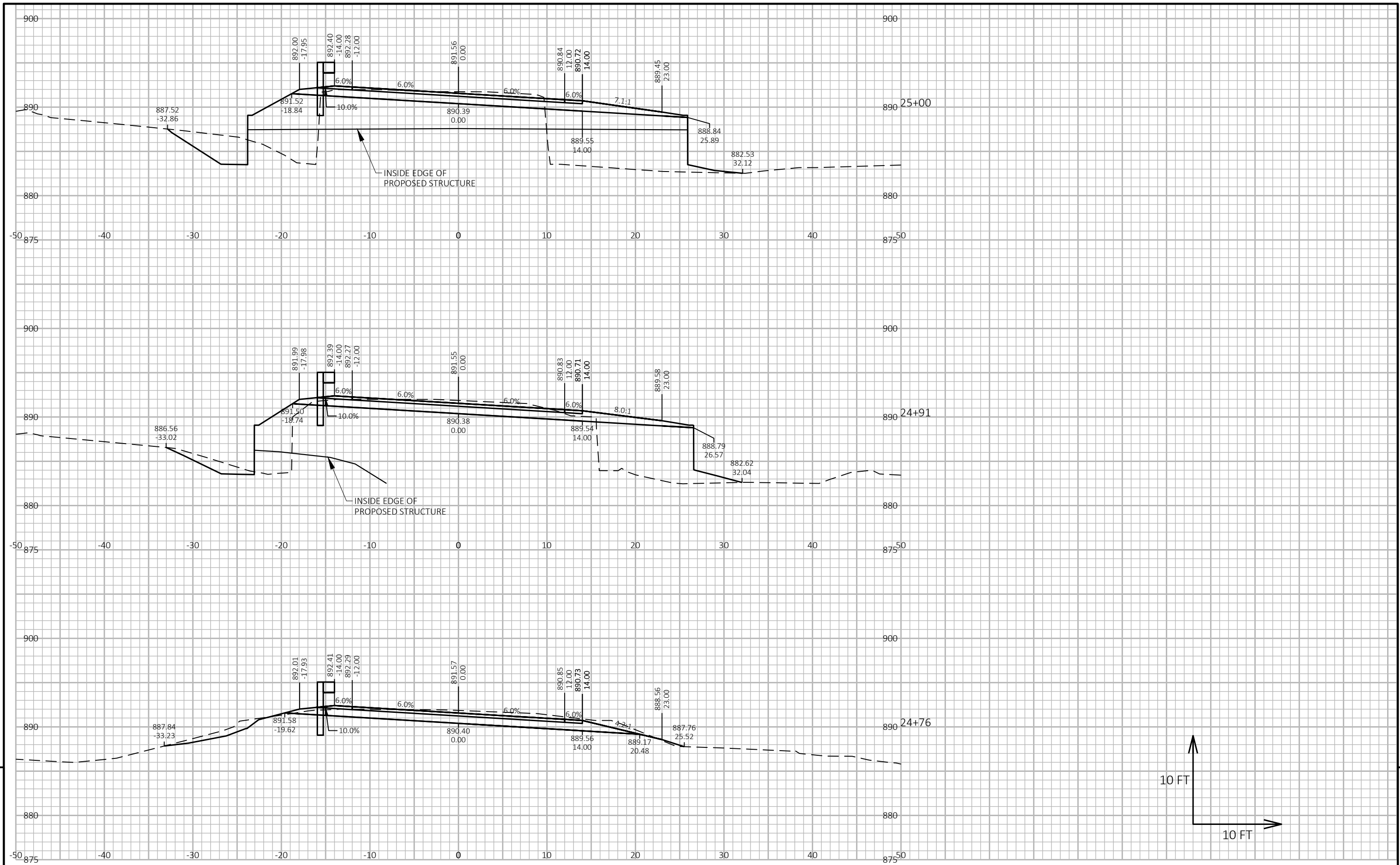


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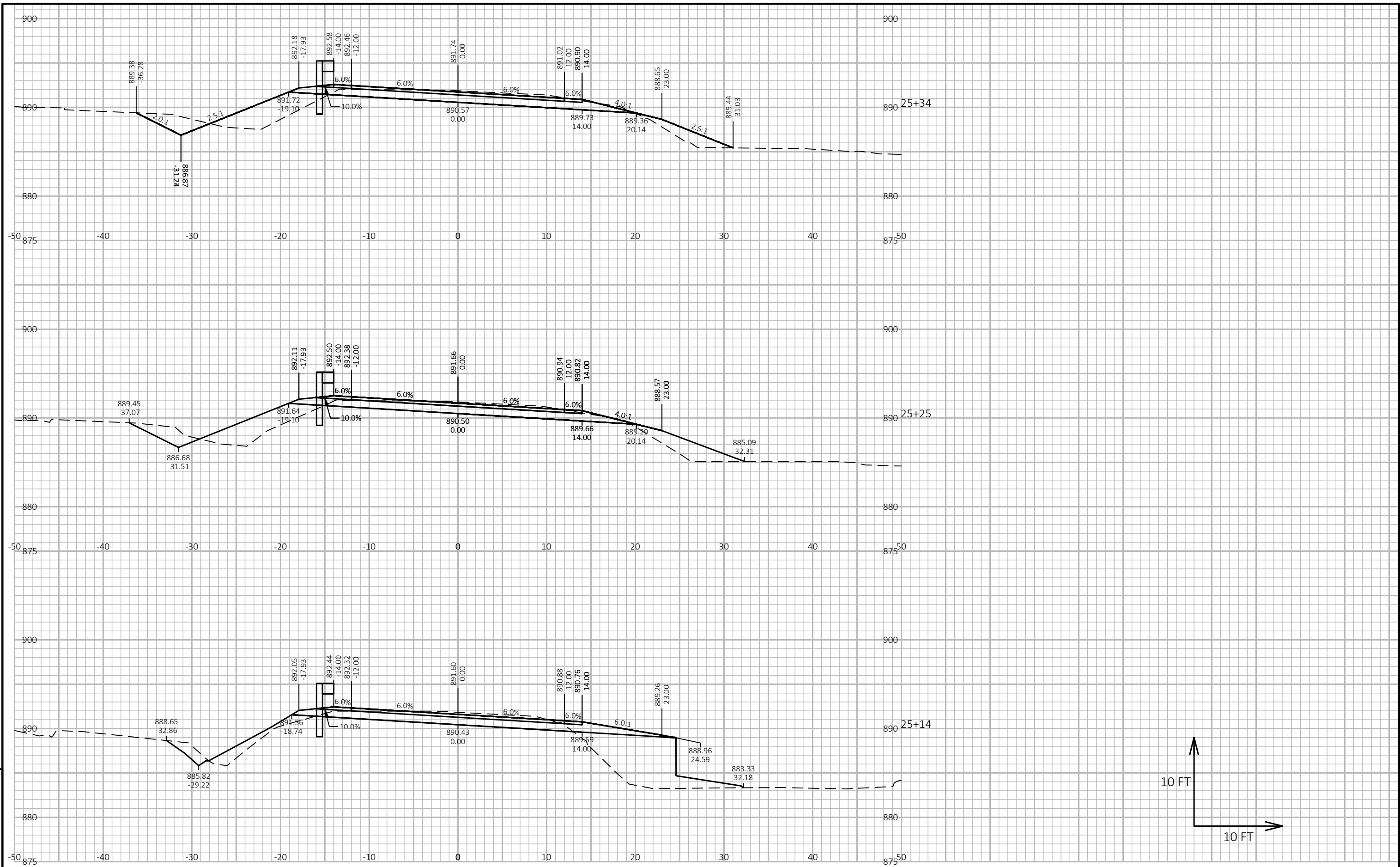


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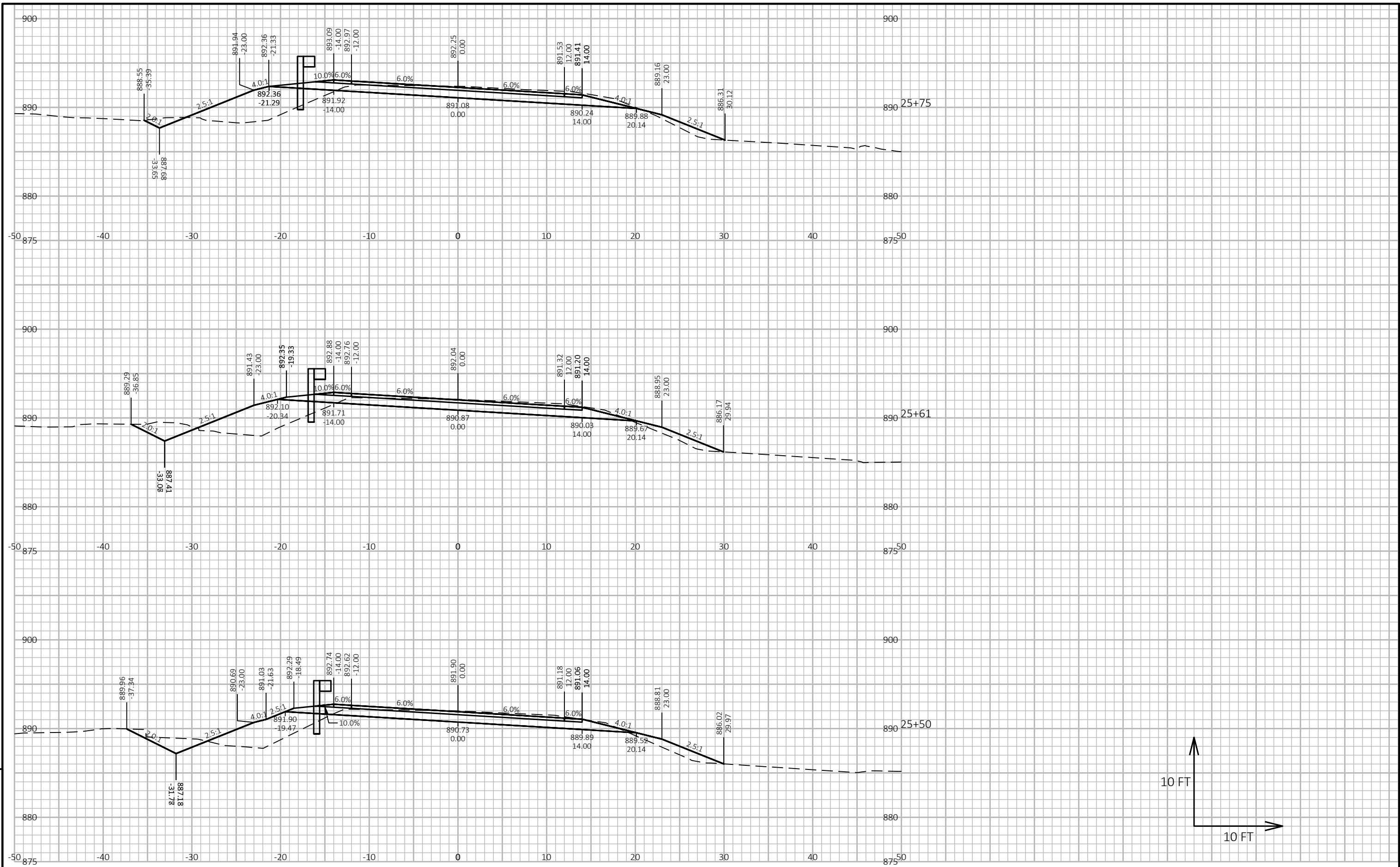
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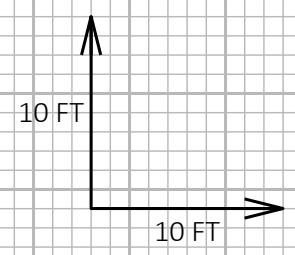
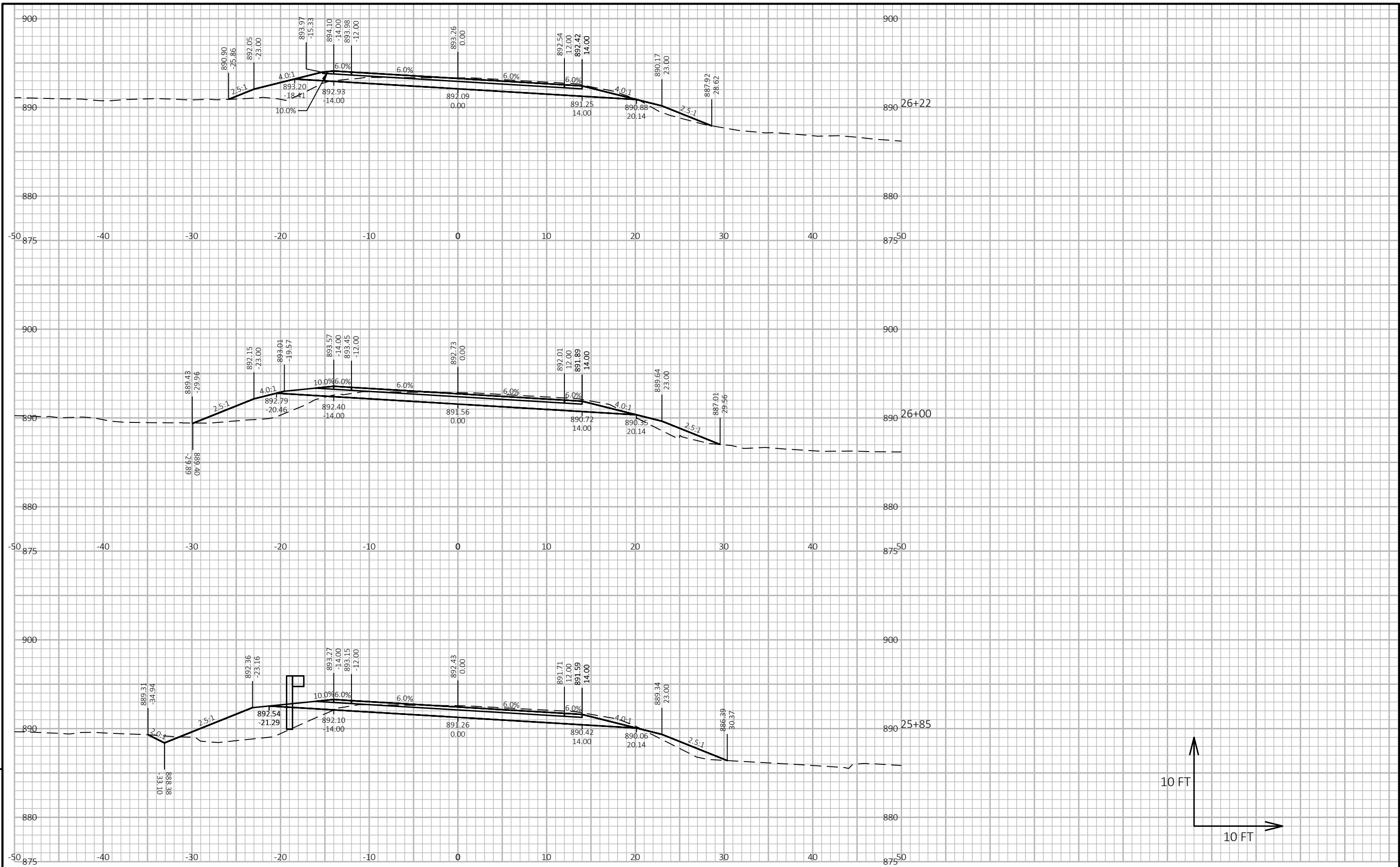
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PROJECT NO: ---- HWY: CTH G & CTH E COUNTY: LA CROSSE CROSS SECTIONS: CTH G SHEET 24 E



PROJECT NO: ---- HWY: CTH G & CTH E COUNTY: LA CROSSE CROSS SECTIONS: CTH G SHEET 25 E



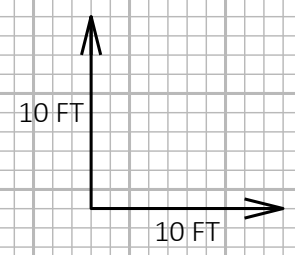
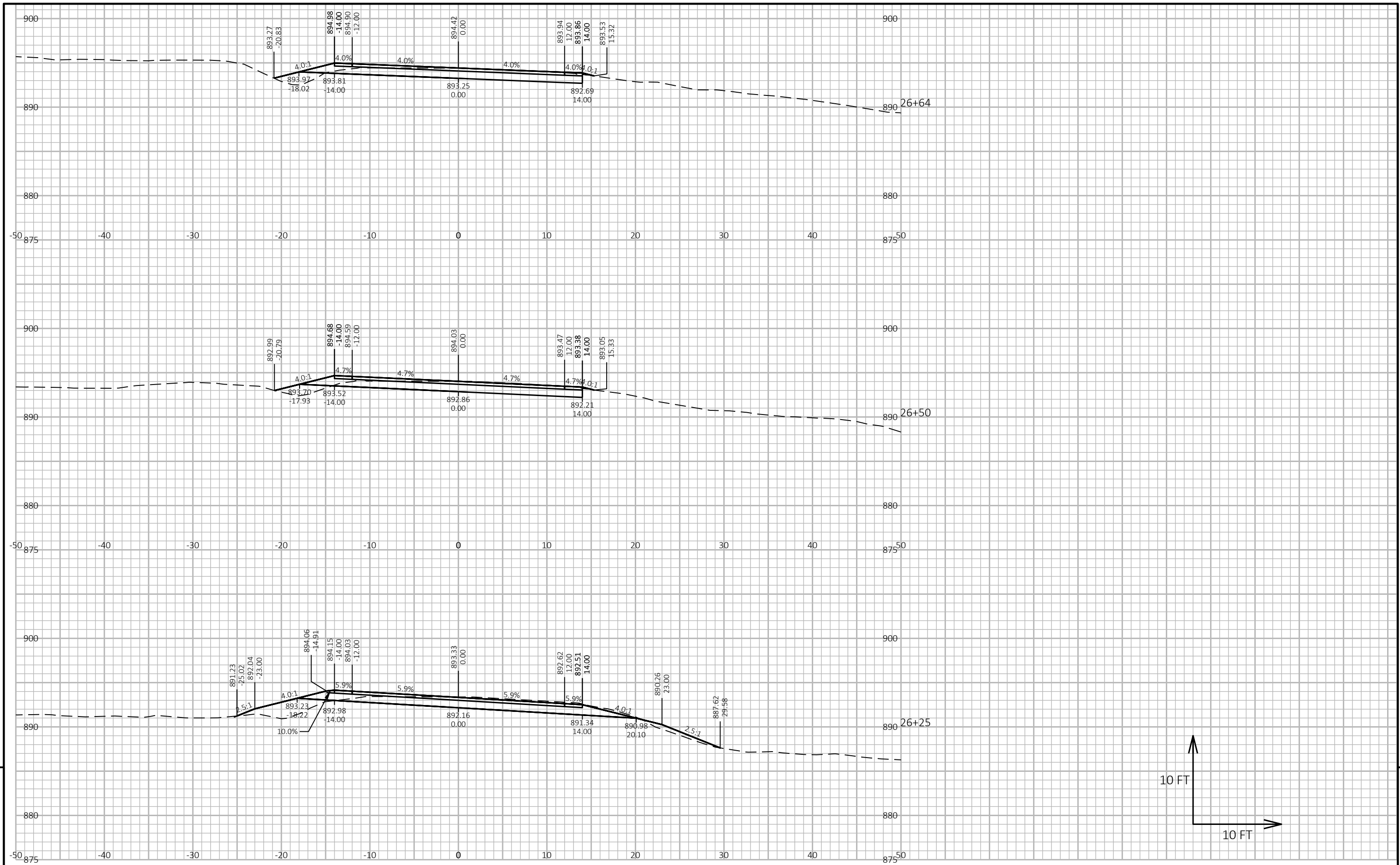
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LAYOUT NAME - 06 CROSS SECTIONS

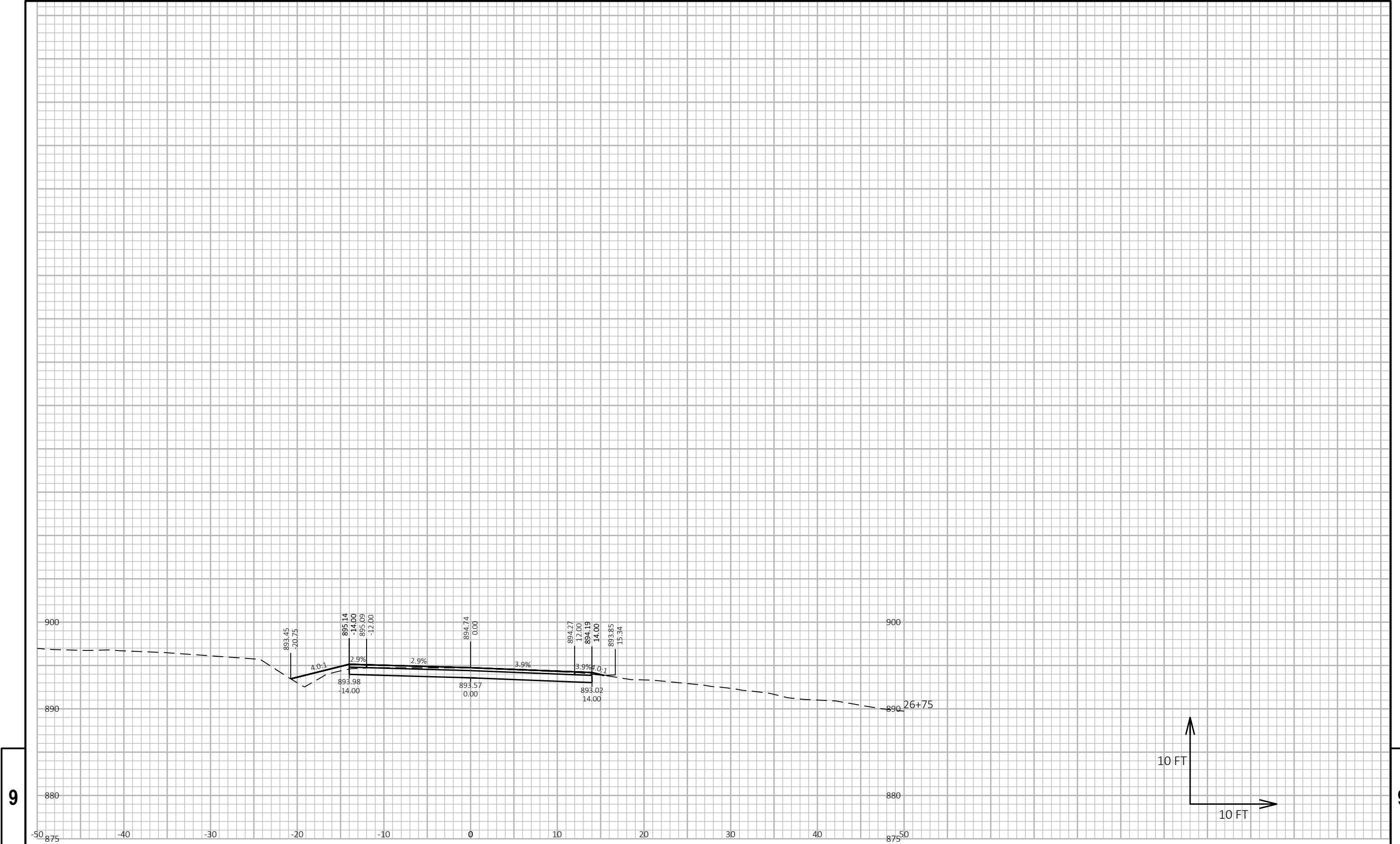


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