

I:\ProjectData\CLE\05393_CLE_WAR-CULVERTS-FY2021\Design\Drainage\Sheets\05393_GG001.dgn Sheet 3/5/2021 10:04:02 AM mbailey5

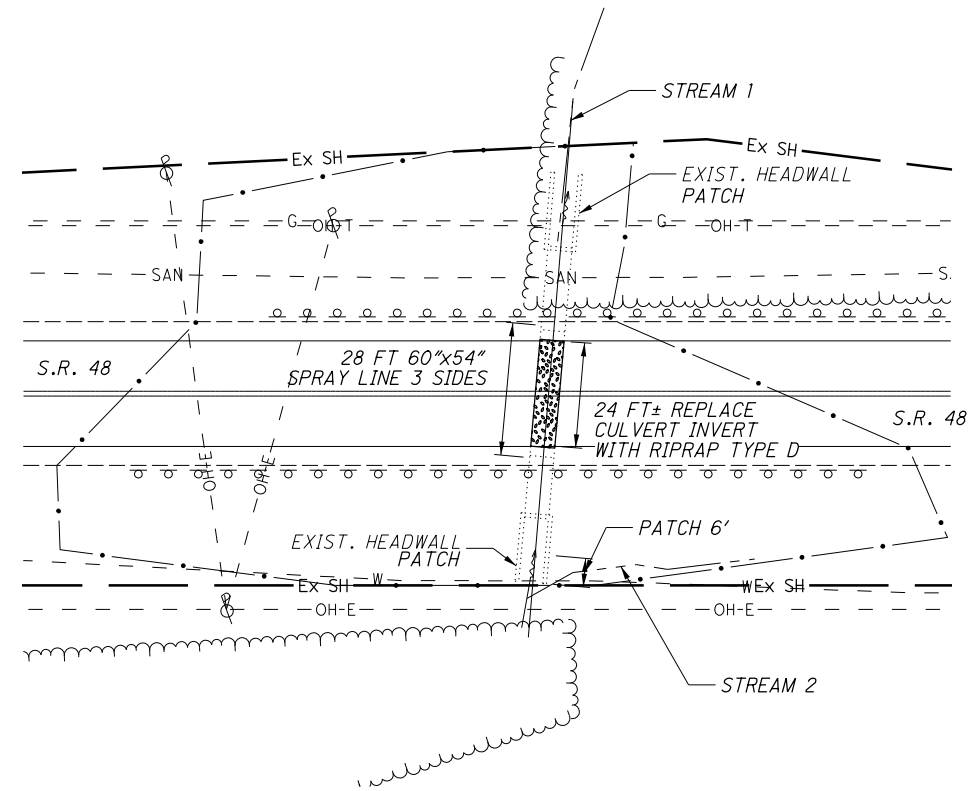
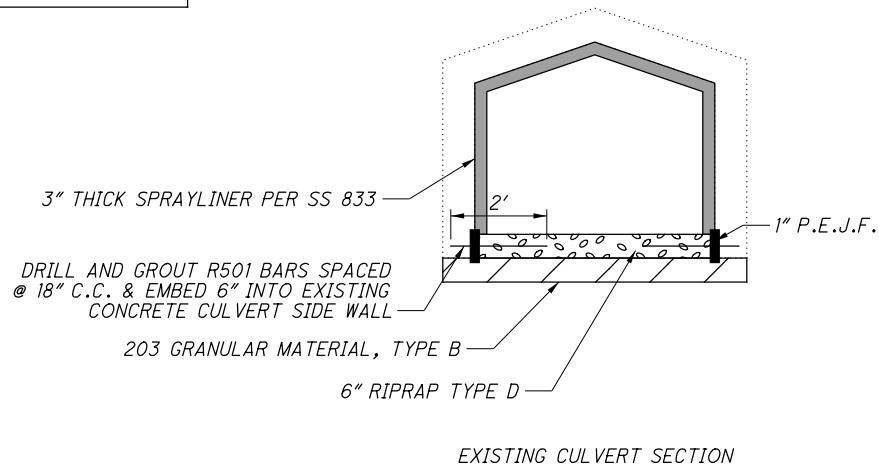
SHEET NUM.												PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
4	5	9	10	11	12	13	14	15	16	18	19	01/SK2/C V	02/NHS/C V	03/NFA/C V							
															ROADWAY						
									LUMP			LUMP	LUMP	LUMP	201	11000	LS	CLEARING AND GRUBBING			
									LUMP			LUMP			202	11000	LS	STRUCTURE REMOVED			
			61								33		61	33	SPECIAL	20270130	94	FT	PIPE CLEANOUT OVER 48"	10	
					102								102		SPECIAL	20270120	102	FT	PIPE CLEANOUT, 27" TO 48"	12,15,19	
						52							52		202	36100	52	FT	PIPE REMOVED, 24" AND UNDER		
									2			2	1		202	20000	3	EACH	HEADWALL REMOVED		
									162			162			202	38000	162	FT	GUARDRAIL REMOVED		
									4			4			202	42010	4	EACH	ANCHOR ASSEMBLY REMOVED, TYPE E		
										44		44			203	20000	44	CY	EMBANKMENT		
			2.8										2.8		203	35110	2.8	CY	GRANULAR MATERIAL, TYPE B		
									375			375			606	15100	375	FT	GUARDRAIL, TYPE MGS WITH LONG POSTS		
									3			3			606	26150	3	EACH	ANCHOR ASSEMBLY, MGS TYPE E, NCHRP 350 OR MASH 2016		
									1			1			606	26550	1	EACH	ANCHOR ASSEMBLY, MGS TYPE T		
16												4		12	623	40520	16	EACH	RIGHT-OF-WAY MONUMENT		
									LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	503	11101	LS	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	4		
															EROSION CONTROL						
			13.3									2,000	2,000	2,000	832	60000	6,000	EACH	EROSION CONTROL		
													13.3		601	11000	13.3	SY	RIPRAP, TYPE D		
														3.5	601	32200	3.5	SY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER		
					1.8	5.6			75			75		7.4	601	32100	82.4	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER		
414												108	161	145	659	00300	414	CY	TOPSOIL		
3,730												973	1,452	1,305	659	10000	3,730	SY	SEEDING AND MULCHING		
					24								24		659	14000	24	SY	REPAIR SEEDING AND MULCHING		
0.51												0.13	0.2	0.18	659	20000	0.51	TON	COMMERCIAL FERTILIZER		
0.77												0.2	0.3	0.27	659	31000	0.77	ACRE	LIME		
20.1												5.3	7.8	7	659	35000	20.1	MGAL	WATER		
															DRAINAGE						
					0.92	0.33	1.52	1.52	31			31	0.92	3.37	602	20000	35.29	CY	CONCRETE MASONRY		
														0.3	602	20000	0.3	CY	CONCRETE MASONRY, AS PER PLAN	19	
						11								11	611	04600	11	FT	12" CONDUIT, TYPE C		
						28								28	611	07400	28	FT	18" CONDUIT, TYPE B		
						22								22	611	08200	22	FT	18" CONDUIT, TYPE F, 707.05 TYPE C OR 707.21		
				5								5			SPECIAL	61196650	5	CY	GROUTING VOIDS AROUND CORRUGATED METAL PIPES	11	
					102								102		611	96550	102	FT	FIELD PAVING OF EXISTING PIPE, 42" ROUND CMP		
						1								1	611	98510	1	EACH	CATCH BASIN, NO. 2-3		
									47			47			611	23600	47	FT	60" CONDUIT, TYPE A, 707.01 ALUMINIZED, 706.02, 707.33		
										LS				LS	611	99920	LS	LS	DRAINAGE STRUCTURE, MISC.: 2"x3/8" STEEL STRAPS	19	
					28								28		833	12000	28	FT	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ARCH, 60"x54" THREE SIDED		
					30								30		843	50000	30	SF	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR		
						46						46			899	10000	46	FT	CURED-IN-PLACE PIPE LINER 15" CMP		
							60	58						118	899	10000	118	FT	CURED-IN-PLACE PIPE LINER, 36" CMP		
															PAVEMENT						
			155									93.6		61.4	202	23000	155	SY	PAVEMENT REMOVED		
			155									93.6		61.4	204	10000	155	SY	SUBGRADE COMPACTION		
			136									87		49	254	01000	136	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 1.25" DEPTH		
			34									21		13	301	46000	34	CY	ASPHALT CONCRETE BASE, PG64-22		
			26									10		16	304	20000	26	CY	AGGREGATE BASE		
			30									18		12	407	10000	30	GAL	TACK COAT		
			18									11		7	441	50000	18	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22		
															TRAFFIC CONTROL						
			40									20		20	614	11110	40	HR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE		
									1			1			621	00100	1	EACH	RPM		
									1			1			621	54000	1	EACH	RAISED PAVEMENT MARKER REMOVED		
									4			4			626	00110	4	EACH	BARRIER REFLECTOR, TYPE 2 BIDIRECTIONAL		
					0.02				0.02			0.02		0.02	642	00104	0.04	MILE	EDGE LINE, 6", TYPE 1		
					0.01				0.01			0.01		0.01	642	00300	0.02	MILE	CENTER LINE, TYPE 1		
															STRUCTURE 20 FOOT SPAN AND UNDER (WAR-48-1682)						
			82										82		509	10000	82	LB	EPOXY COATED REINFORCING STEEL		
			39										39		510	10000	39	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		
			29										29		516	13600	29	SF	1" PREFORMED EXPANSION JOINT FILLER		
															INCIDENTALS						
												LUMP	LUMP	LUMP	624	10000	LS	LS	MOBILIZATION		
												LUMP	LUMP	LUMP	614	11000	LS	LS	MAINTAINING TRAFFIC		
												LUMP	LUMP	LUMP	623	10000	LS	LS	CONSTRUCTION LAYOUT STAKES AND SURVEYING		

GENERAL SUMMARY

CLE / WAR CULVERTS
FY21

PROJECT EARTH DISTURBED AREA: 0.20 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.0 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: NO NOI REQUIRED (ROUTINE MAINTENANCE)

EXISTING STRUCTURE	
CFN	1856021
TYPE:	ARCH
SIZE:	60" x 54", 61' LONG
SKEW:	0°
ALIGNMENT:	TANGENT
DATE BUILT:	1917
CONDITION:	POOR
LATITUDE:	N 39° 27' 49.16"
LONGITUDE:	W 84° 12' 11.46"
STREAM:	STREAM 1 & STREAM 2
OHWM:	STREAM 1 - 873.07 STREAM 2 - 873.50



REHABILITATE CULVERT WAR-48-1682 BY PERFORMING THE FOLLOWING WORK:

1. REMOVE ALL LOOSE CONCRETE AND SANDBLAST EXPOSED REINFORCING REBAR PRIOR TO CONCRETE PLACEMENT.
2. PROVIDE RIPRAP TYPE D WITH WIRE MESH ALONG DETERIORATED CULVERT INVERT.
3. PROVIDE A STRUCTURAL SPRAYLINER WITH A MINIMUM THICKNESS OF 3" ON SIDES AND TOP IN THE MIDDLE SECTION OF CULVERT PER SUPPLEMENTAL SPECIFICATION 833 AND WITH WELDED WIRE FABRIC.
4. REPAIR ALL DETERIORATED WINGWALLS USING TROWELABLE MORTAR PER SUPPLEMENTAL SPECIFICATION 843.

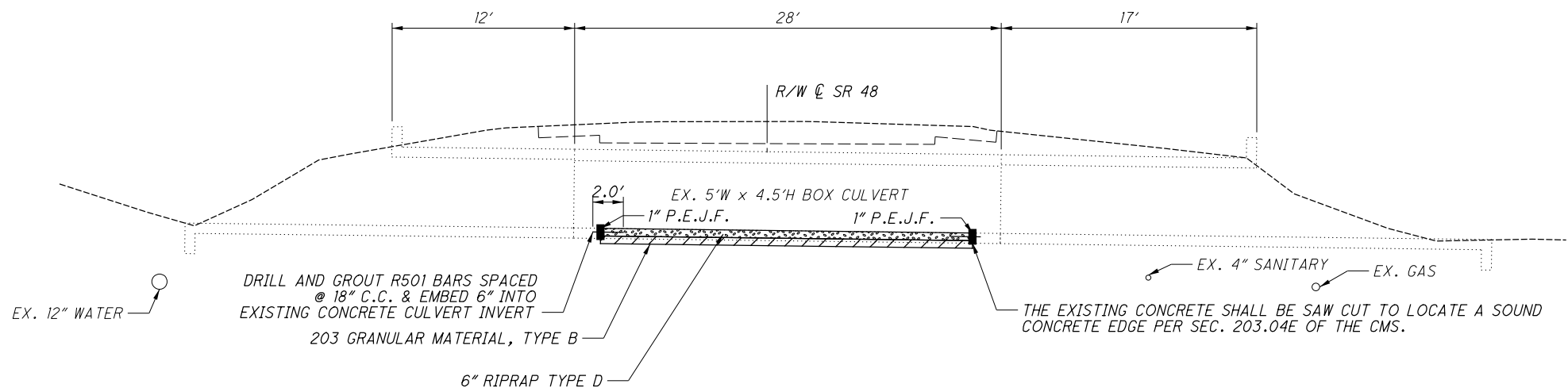
ITEM SPECIAL - PIPE CLEANOUT

THIS ITEM SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM SPECIAL - PIPE CLEANOUT. THIS PRICE SHALL INCLUDE THE COST FOR MATERIAL, EQUIPMENT, LABOR, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE CLEANOUT.

THIS WORK SHALL CONSIST OF REMOVING SEDIMENT AND DEBRIS FROM THE EXISTING DRAINAGE CONDUITS SPECIFIED IN THE PLANS. ALL MATERIAL REMOVED SHALL BE DISPOSED OF AS PER 105.16 AND 105.17. ALL SEWERS SHALL BE CLEANED OUT TO THE SATISFACTION OF THE ENGINEER.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PROPOSED PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, SUCH DETAILS AND DIMENSIONS ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04. BASE THE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.



ESTIMATED QUANTITIES (WAR-48-1682)			
ITEM	GRAND TOTAL	UNIT	DESCRIPTION
202	61	FT	SPECIAL - PIPE CLEANOUT, 48" AND OVER
203	2.8	CY	GRANULAR MATERIAL, TYPE B
503	LUMP	LS	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
509	82	LB	EPOXY COATED REINFORCING STEEL
510	39	EA	DOWEL HOLES WITH NONSHRINK NONMETALLIC GROUT
516	27	SF	1" PREFORMED EXPANSION JOINT FILLER
611	13.3	SY	RIPRAP, TYPE D
833	28	FT	CONDUIT RENEWAL USING SPRAY APPLIED LINER, 60" X 54" THREE SIDED CONCRETE STRUCTURE
843	15	SF	PATCHING CONC. STRUCTURES WITH TROWABLE MORTOR



CALCULATED
MLB
CHECKED
TRB

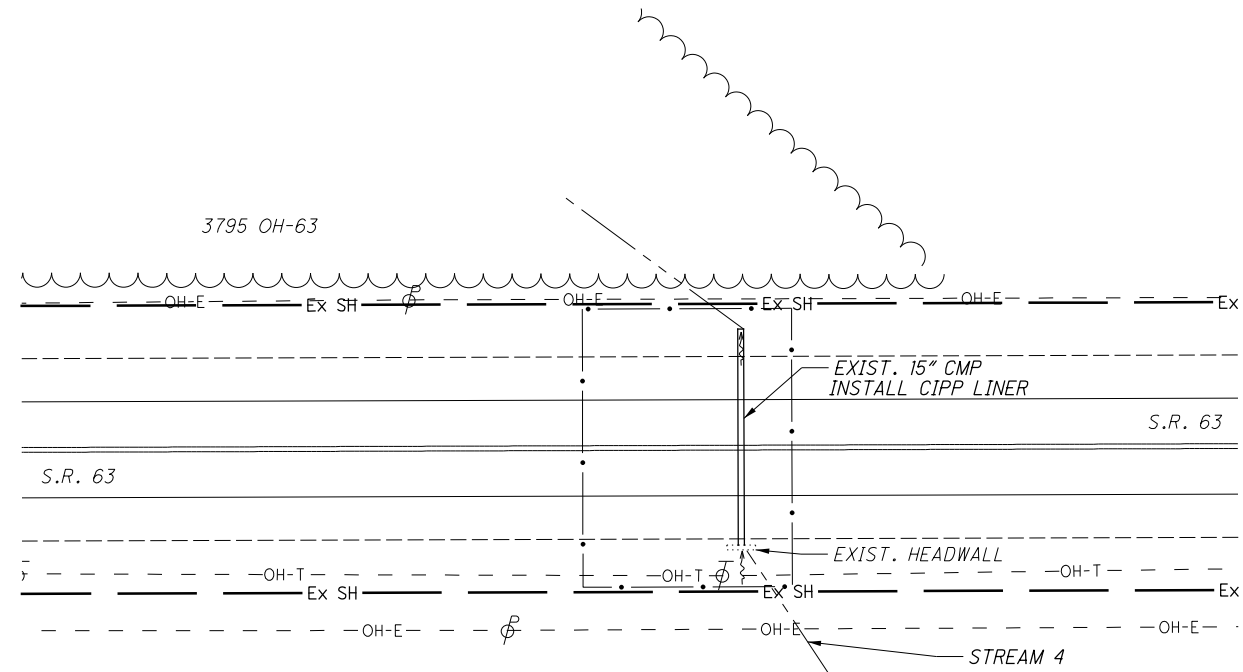
WAR-48-1682
CULVERT PLAN AND DETAILS

CLE / WAR CULVERTS
FY21

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PROJECT EARTH DISTURBED AREA: 0.06 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.0 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: NO NOI REQUIRED
 (ROUTINE MAINTENANCE)

EXISTING STRUCTURE	
CFN	1856048
TYPE:	ROUND CMP
SIZE:	15", 46' LONG
SKEW:	0°
ALIGNMENT:	TANGENT
DATE BUILT:	1939
CONDITION:	CRITICAL
LATITUDE:	N 39° 26' 21.48"
LONGITUDE:	W 84° 18' 5.68"
STREAM:	STREAM 4
OHWM:	757.83 (INVERT ELEVATION)



ITEM SPECIAL - GROUTING VOIDS AROUND CORRUGATED METAL PIPES

FILL VOIDS AROUND THE EXTERIOR OF THE EXISTING CORRUGATED METAL PIPE WITH GROUT.

USE SOUNDING (TAPPING METAL WITH HAMMER) OR OTHER APPROVED METHOD TO DETERMINE THE PROPER LOCATION OF 6"x6" CUT-OUTS ON THE CIRCUMFERENCE. BEFORE BEGINNING CUTTING OPERATIONS, FINAL LOCATIONS OF THE CUT-OUTS SHALL BE APPROVED BY THE ENGINEER. INSTALL GROUT PLUGS IN ALL CUT-OUTS. POUR OR PUMP LEAN GROUT PER ITEM 613 LOW STRENGTH MORTAR BACKFILL, TYPE 1 INTO THE CUT-OUT TO FILL ANY VOIDS. MONITOR THE EXISTING CONDUIT TO ENSURE THAT EXCESSIVE PRESSURE DOES NOT CAUSE DEFORMATION TO THE PIPE. IN AREAS OF SEVERE SECTION LOSS OF THE EXISTING INVERT, PROVIDE BRACING AS NECESSARY TO PREVENT DEFORMATION OF THE EXISTING PIPE. REPAIR ANY DAMAGES TO THE EXISTING PIPE AT NO ADDITIONAL COST.

REUSE AND WELD BACK THE CUT-OUTS AFTER GROUTING OPERATIONS HAVE BEEN COMPLETED. BUTT WELD ALL AROUND THE PERIMETER OF THE 6"x6" CUT-OUT.

PAYMENT FOR THE GROUT/LSM, REMOVAL OF 6"x6" SECTIONS OF EXISTING PIPE, BRACING, REATTACHING CUT-OUTS BY WELDING AND ALL OTHER LABOR, EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE THE WORK SHALL BE INCLUDED IN UNIT PRICE BID FOR ITEM SPECIAL - GROUTING VOIDS AROUND CORRUGATED METAL PIPES.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PROPOSED PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, SUCH DETAILS AND DIMENSIONS ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04. BASE THE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

REHABILITATE CULVERT WAR-63-0199 BY PERFORMING THE FOLLOWING WORK:

- CLEAN CULVERT INTERIOR OF SEDIMENT AND DEBRIS.
- FILL INVERT HOLES AT OUTLET AND INLET WITH MORTAR PRIOR TO LINING.
- INSTALL CURED IN PLACE LINER (CIPP).

ESTIMATED QUANTITIES (WAR-63-0199)			
ITEM	GRAND TOTAL	UNIT	DESCRIPTION
503	1	LS	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
611	5	CY	SPECIAL GROUTING VOIDS AROUND CORRUGATED METAL PIPES
899	46	FT	CURED IN PLACE PIPE LINER, 15" CMP

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WAR-63-0199
 CULVERT PLAN AND DETAILS

CLE / WAR CULVERTS
 FY21

PROJECT EARTH DISTURBED AREA: 0.06 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.0 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: NO NOI REQUIRED

EXISTING STRUCTURE		PROPOSED STRUCTURE	
CFN:	1834566	TYPE:	1985923
TYPE:	ROUND CMP	TYPE:	CMP
SIZE:	24", 52' LONG	SIZE:	18", 52' LONG
SKEW:	45° LF	SKEW:	22° LF
ALIGNMENT:	TANGENT	ALIGNMENT:	BROKEN BACK
DATE BUILT:	1995	STREAM PH:	7
CONDITION:	SERIOUS	DESIGN SERVICE LIFE:	75 YEARS
LATITUDE:	N 38° 54' 8.25"	ABRASION LEVEL:	2
LONGITUDE:	W 84° 12' 13.32"		
STREAM:	STREAM 8		
OHWM:	713.88 (INVERT ELEVATION)		

HYDRAULIC DESIGN DATA	
DRAINAGE AREA:	= 7.3 ACRES
Q ₁₀	= 8.0 CFS
Q ₁₀₀	= 10.8 CFS
HW ₁₀	= 710.58 FT
HW ₁₀₀	= 711.7 FT
ROADWAY	= 713.2 FT
V ₂₅	= 16.7 FPS
V ₁₀₀	= 17.9 FPS

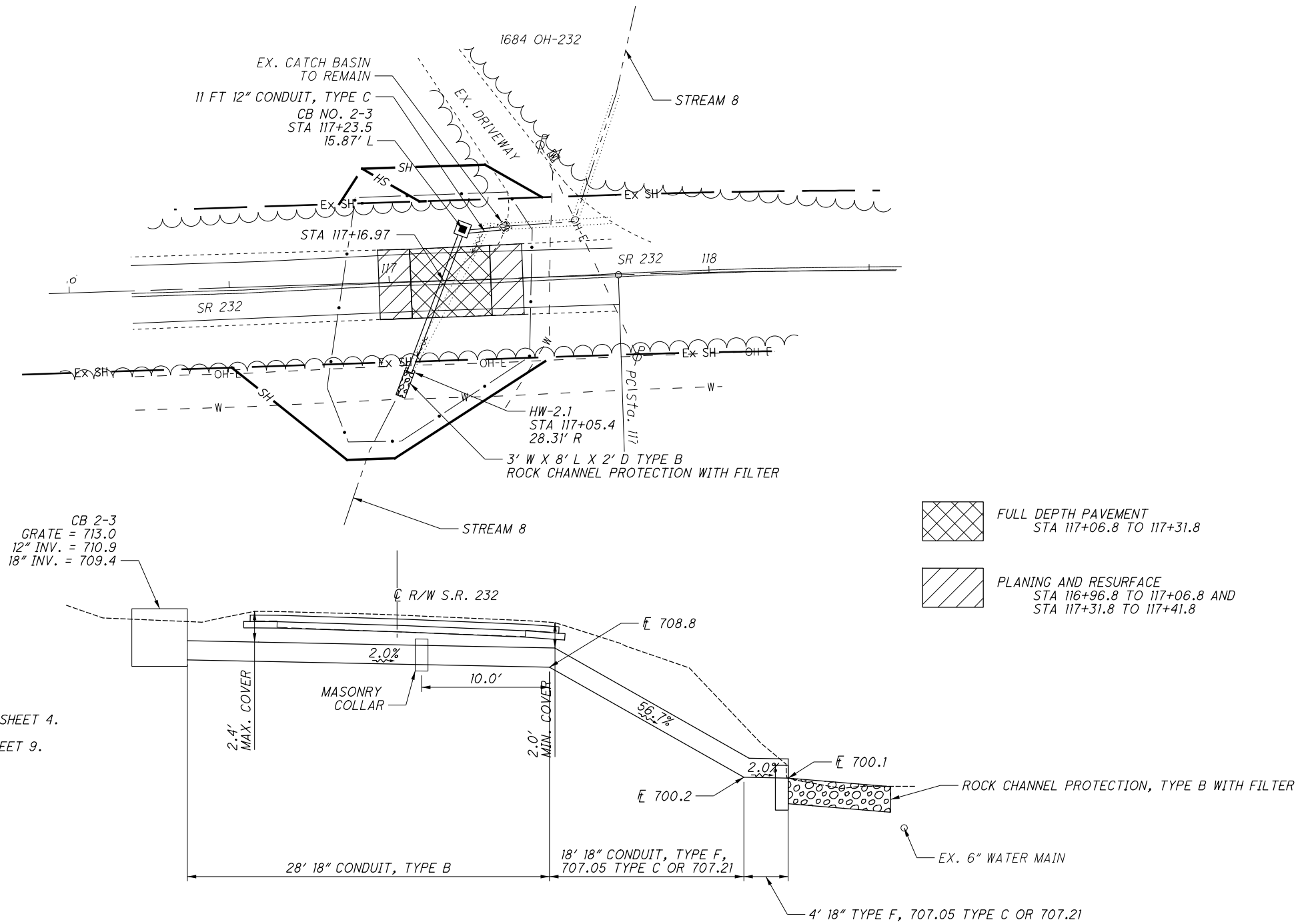
- NOTES:
- FOR SURVEY CONTROL POINTS SEE SHEET 4.
 - FOR PAVEMENT QUANTITIES SEE SHEET 9.

REHABILITATE CULVERT CLE-232-0222 BY PERFORMING THE FOLLOWING WORK:

- REMOVE EXISTING 24" CONDUIT.
- INSTALL CB 2-3 AT INLET AND CONNECT 12" CONDUIT TO EXISTING CB AT PRIVATE DRIVEWAY.
- INSTALL 18" BROKEN BACK CULVERT, HALF-HEIGHT HEADWALL AND RCP AT OUTLET.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PROPOSED PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, SUCH DETAILS AND DIMENSIONS ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04. BASE THE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.



ESTIMATED QUANTITIES (CLE-232-0219)

ITEM	GRAND TOTAL	UNIT	DESCRIPTION
202	52	FT	PIPE REMOVED, 24" AND UNDER
503	1	LS	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
601	1.8	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	0.33	CY	CONCRETE MASONRY
611	11	FT	12" CONDUIT, TYPE C
611	28	FT	18" CONDUIT, TYPE B
611	22	FT	18" CONDUIT, TYPE F, 707.05 TYPE C OR 707.21
611	1	EA	CATCH BASIN, NO. 2-3
642	0.02	MI	EDGE LINE, 6", TYPE 1
642	0.01	MI	CENTER LINE, TYPE 1



CALCULATED
MLB
CHECKED
TRB

CLE-232-0219
CULVERT PLAN AND DETAILS

CLE / WAR CULVERTS
FY21

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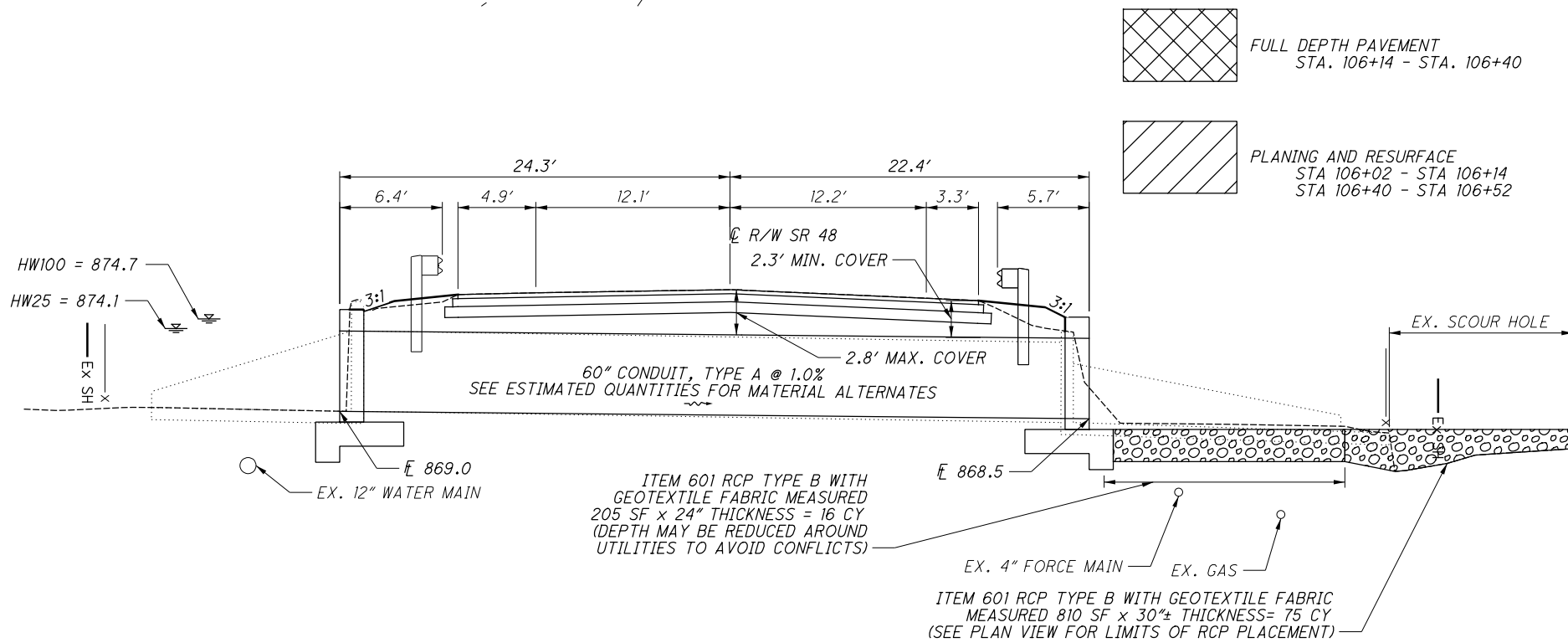
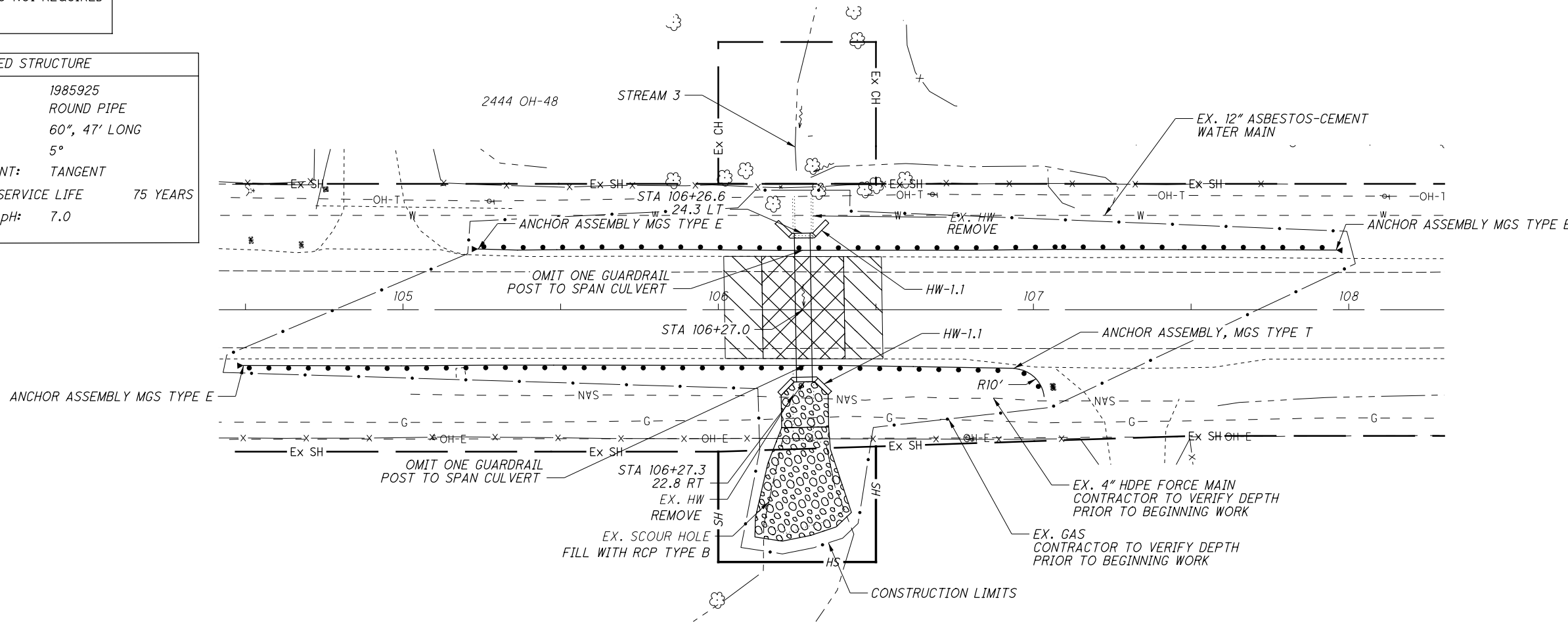
PROJECT EARTH DISTURBED AREA: 0.41 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.0 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: NO NOI REQUIRED

EXISTING STRUCTURE		PROPOSED STRUCTURE	
CFN	1857083	CFN	1985925
TYPE:	SLAB TOP	TYPE:	ROUND PIPE
SIZE:	60"x60", 50' LONG	SIZE:	60", 47' LONG
SKEW:	5°	SKEW:	5°
ALIGNMENT:	TANGENT	ALIGNMENT:	TANGENT
DATE BUILT:	1994	DESIGN SERVICE LIFE	75 YEARS
CONDITION:	POOR	STREAM pH:	7.0
LATITUDE:	N 39° 28' 17.81"		
LONGITUDE:	W 84° 12' 8.62"		
STREAM:	STREAM 3		
OHWM:	873.95 (INVERT ELEVATION)		

HYDRAULIC DESIGN DATA	
DRAINAGE AREA:	= 138.9 ACRES
Q ₂₅	= 106.7 CFS
Q ₁₀₀	= 129.5 CFS
HW ₂₅	= 874.1 FT
HW ₁₀₀	= 874.7 FT
ROADWAY	= 876.5 FT
V ₂₅	= 8.9 FPS
V ₁₀₀	= 9.6 FPS
OHWM	= 869.9

- NOTES:
- FOR SURVEY CONTROL POINTS SEE SHEET 4.
 - FOR PAVEMENT QUANTITIES SEE SHEET 9.

ESTIMATED QUANTITIES (WAR-48-1738)			
ITEM	GRAND TOTAL	UNIT	DESCRIPTION
201	LS	LUMP	CLEARING AND GRUBBING
202	2	EA	HEADWALL REMOVED
202		EX	STRUCTURE REMOVED
202	162	EX	GUARDRAIL REMOVED
202	4	EA	ANCHOR ASSEMBLY REMOVED, TYPE E
503	LS	LS	COFFERDAMS AND EXCAVATION BRACING, AS PE PLAN
601	75	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER FABRIC
602	31	CY	CONCRETE MASONARY
606	369	FT	GUARDRAIL, TYPE MGS WITH LONG POSTS
606	3	EA	ANCHOR ASSEMBLY, MGS TYPE E
606	1	EA	ANCHOR ASSEMBLY, TYPE T
611	47	FT	60" CONDUIT TYPE A, 707.01 ALUMINIZED, 706.02, OR 707.33
621	1	EA	RPM
621	1	EA	RAISED PAVEMENT MARKER REMOVED
642	0.02	MILE	EDGE LINE
642	0.01	MILE	CENTER LINE



CALCULATED
 MLB
 CHECKED
 TRB

WAR-48-1738
 PLAN & PROFILE

FULL DEPTH PAVEMENT
 STA. 106+14 - STA. 106+40

PLANING AND RESURFACE
 STA 106+02 - STA 106+14
 STA 106+40 - STA 106+52

CLE / WAR CULVERTS
 FY21

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