


SHEET NUM.					PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
3	5	6	13	14	01/IMS/06	02/NHS/06	03/STR/06						
												ROADWAY	
			350		300	50		202	38200	350	FT	GUARDRAIL REMOVED FOR REUSE	
			610		310	300		202	75000	610	FT	FENCE REMOVED	
LS			LS		LS	LS		202	98000	LS		REMOVAL MISC.:EXISTING PIPE CLEANOUT, 18" TO 108"	3
							LS	202	98000	LS		REMOVAL MISC.: PRIVATELY OWNED GASLINE	3
			350		300	50		606	16500	350	FT	GUARDRAIL REBUILT, TYPE 5	
			610		310	300		607	15000	610	FT	FENCE, TYPE 47	
												EROSION CONTROL	
			198		97	30	71	601	32000	198	CY	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	
			59		21	38		601	32100	59	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
			3		3			601	32200	3	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
	22,100				15,350	5,250	1,500	659	00510	22,100	SY	SEEDING AND MULCHING, CLASS 2	
	2.97				2.07	0.7	0.2	659	20000	2.97	TON	COMMERCIAL FERTILIZER	
	4.56				3.18	1.08	0.3	659	31000	4.56	ACRE	LIME	
	119				83	28	8	659	35000	119	MGAL	WATER	
					10,000	3,000	3,000	832	30000	16,000	EACH	EROSION CONTROL	
												DRAINAGE	
			LS		LS	LS	LS	503	11100	LS		COFFERDAMS AND EXCAVATION BRACING	
			4,725		4,725			509	25000	4,725	LB	UNCOATED STEEL REINFORCEMENT	
			3.3		1.1	1.2	1	511	47010	3.3	CY	CLASS QC1 CONCRETE, CULVERT	
			214				214	611	96550	214	FT	FIELD PAVING OF EXISTING PIPE, CORRUGATED METAL SECTIONAL PLATE PIPE, 72"	
			1,132		1,132			611	96551	1,132	FT	FIELD PAVING OF EXISTING PIPE, AS PER PLAN, CORRUGATED METAL SECTIONAL PLATE PIPE, 72"	3
			272		272			833	10000	272	FT	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, 54"	
			120				120	833	10000	120	FT	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, 60"	
			115		115			833	10000	115	FT	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, 72"	
			404		404			837	10000	404	FT	LINER PIPE, 42", 707.33, 707.35 OR 707.85	
			315			315		837	10000	315	FT	LINER PIPE, 48", 707.85	
			396		396			837	10000	396	FT	LINER PIPE, 60", 707.33, 707.35 OR 707.85	
			312			312		837	10000	312	FT	LINER PIPE, 72", 707.85	
			66				66	837	10000	66	FT	LINER PIPE, 96", 707.85	
			404		404			837	21000	404	FT	BACKFILL FOR LINER PIPE, 42"	
			315			315		837	21000	315	FT	BACKFILL FOR LINER PIPE, 48"	
			396		396			837	21000	396	FT	BACKFILL FOR LINER PIPE, 60"	
			312			312		837	21000	312	FT	BACKFILL FOR LINER PIPE, 72"	
			66				66	837	21000	66	FT	BACKFILL FOR LINER PIPE, 96"	
			286		286			899	10000	286	FT	CURED-IN-PLACE PIPE LINER, 18" DIAMETER	
			365		365			899	10000	365	FT	CURED-IN-PLACE PIPE LINER, 30" DIAMETER	
			602		602			899	10000	602	FT	CURED-IN-PLACE PIPE LINER, 36" DIAMETER	
			180		180			899	10000	180	FT	CURED-IN-PLACE PIPE LINER, 42" DIAMETER	
												MAINTENANCE OF TRAFFIC	
		100			60	20	20	614	11110	100	HOURL	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
				14	12	2		614	12380	14	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	
				70	60	10		614	13310	70	EACH	BARRIER REFLECTOR, TYPE 1, 1WAY	
				70	60	10		614	13350	70	EACH	OBJECT MARKER, ONE WAY	
		32			20	6	6	614	18601	32	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	6
				2,408	2,064	344		622	41100	2,408	FT	PORTABLE BARRIER, UNANCHORED	
												INCIDENTALS	
				LS	LS	LS	LS	624	10000	LS		MOBILIZATION	
				LS	LS	LS	LS	614	11000	LS		MAINTAINING TRAFFIC	
		LS		LS	LS	LS	LS	623	10001	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	6

GENERAL SUMMARY

DESIGN AGENCY

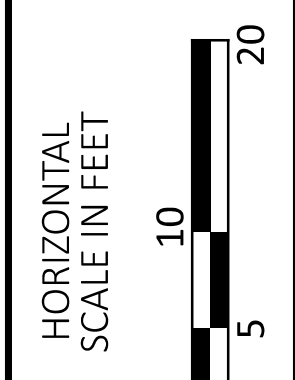
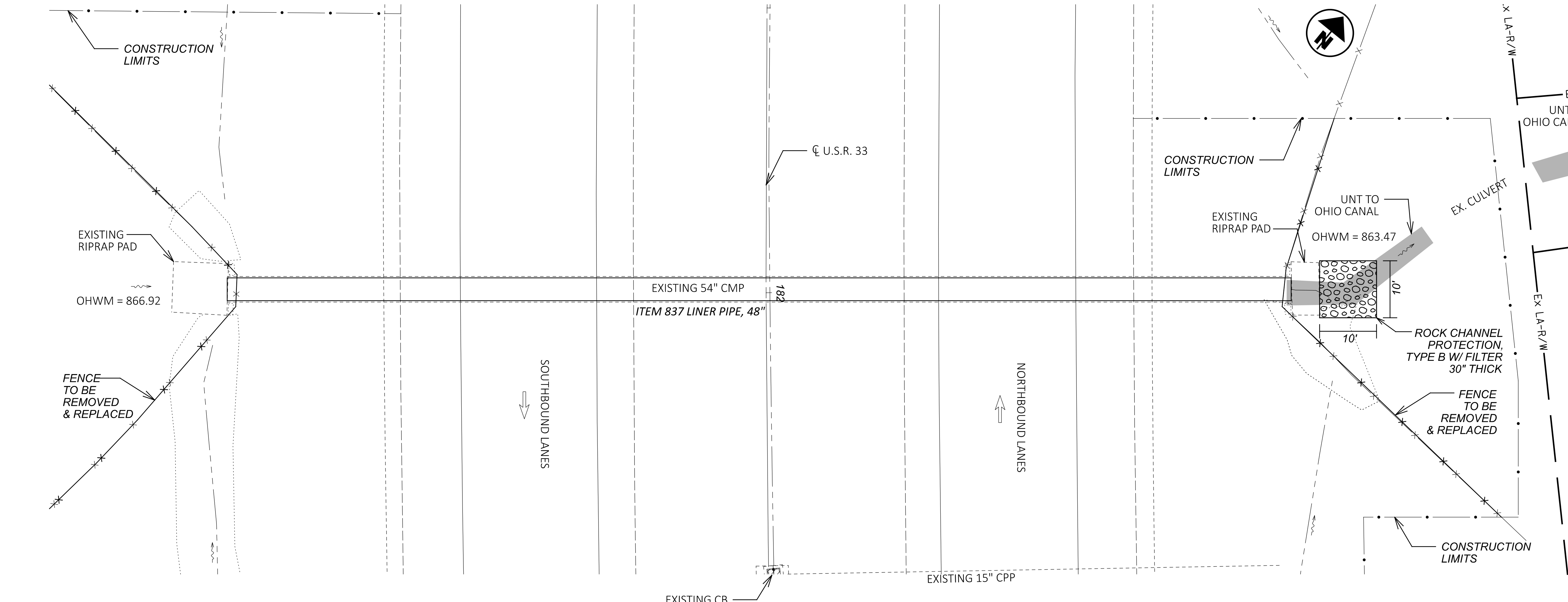


DESIGNER
HG

REVIEWER
HG

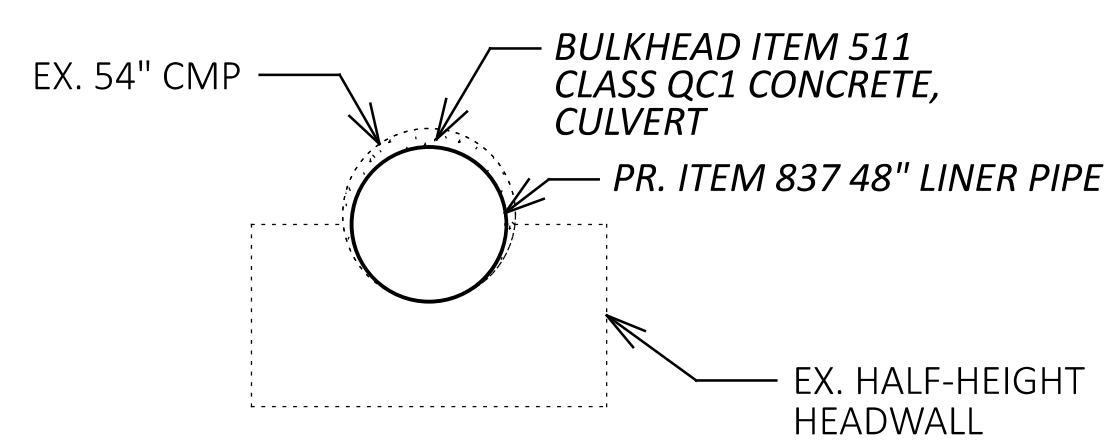
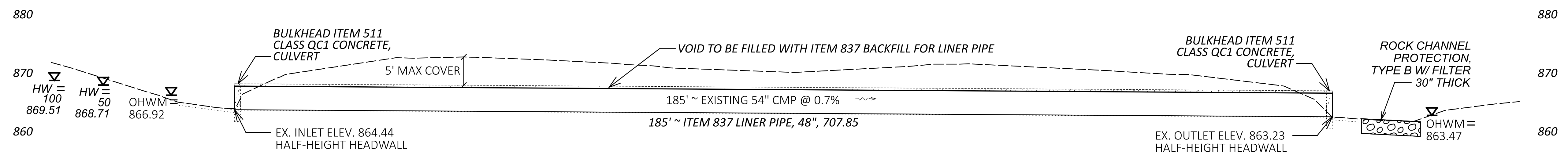
PROJECT ID
107367

SHEET TOTAL
P.12 47



EXISTING STRUCTURE	
CFN: 1883715	
TYPE: CORRUGATED METAL PIPE	
DIAMETER: 54"	
LENGTH: 185'	
SKEW: 0°	
LAT: 39.76472	
LONG: -82.68806	

DRAINAGE AREA = 37 AC	
$Q_{50} = 85 \text{ CFS}$	$V_{50} = 10.7 \text{ FPS}$
$Q_{100} = 106 \text{ CFS}$	$V_{100} = 11.2 \text{ FPS}$

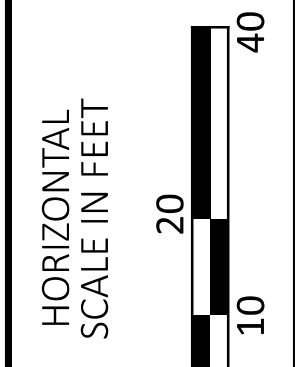
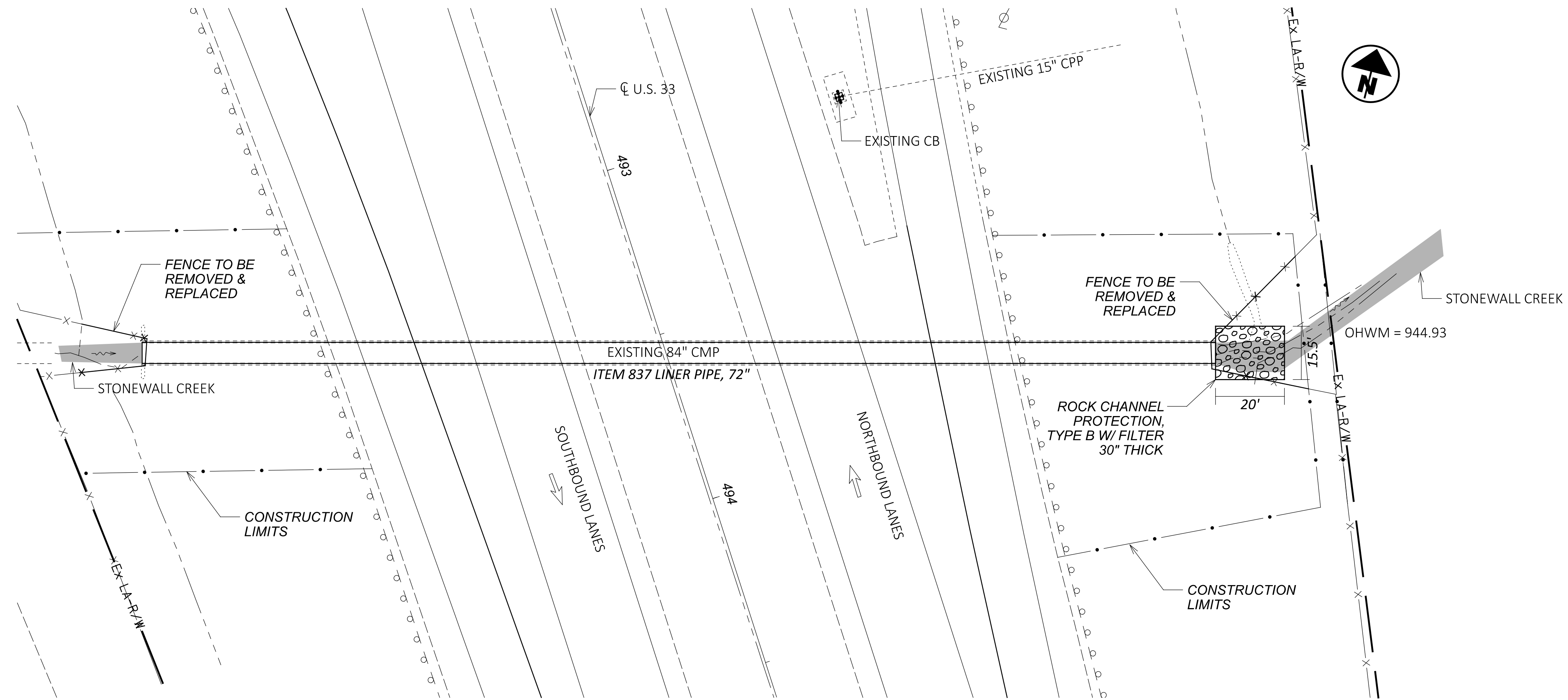


CALCULATIONS	
ITEM 511 CLASS QC1 CONCRETE, CULVERT	
$15.90 \text{ SF} - 12.96 \text{ SF} = 2.94 \text{ SF} \times (2 \times 1 \text{ FT}) = 5.88 \text{ CF} / 27 \text{ CF} = 0.2 \text{ CY}$	
ITEM 601 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
$10 \text{ FT} \times 10 \text{ FT} \times 2.5 \text{ FT} = 250 \text{ CF} / 27 \text{ CF} = 9 \text{ CY}$	

ITEM 202 FENCE REMOVED	180 FT
REMOVAL MISC.: EXISTING PIPE CLEANOUT, 18" TO 108"	LS
ITEM 503 COFFERDAMS AND EXCAVATION BRACING	LS
ITEM 511 CLASS QC1 CONCRETE, CULVERT	0.2 CY
ITEM 601 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	9 CY
ITEM 607 FENCE, TYPE 47	180 FT
ITEM 837 LINER PIPE, 48", 707.85	185 FT
ITEM 837 BACKFILL FOR LINER PIPE, 48"	185 FT
QUANTITIES CARRIED TO SUBSUMMARY	

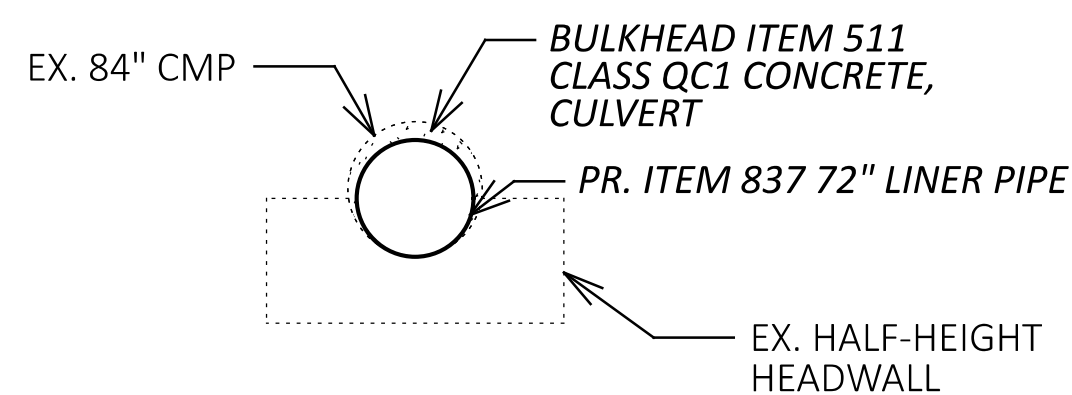
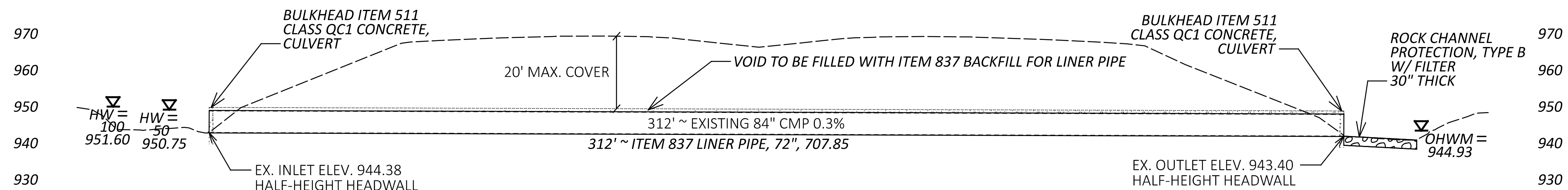
CULVERT DETAIL SHEET (LOCATION 1)
 FAI-33-9.343 (CFN 1883715)

DESIGN AGENCY	
DESIGNER	HG
REVIEWER	XXX MM-DD-YY
PROJECT ID	107367
SHEET	TOTAL
P.31	47



EXISTING STRUCTURE	
CFN: 1884264	
TYPE: CORRUGATED METAL PIPE	
DIAMETER: 84"	
LENGTH: 312'	
SKEW: 18°	
LAT: 39.6854	
LONG: -82.65683	

DRAINAGE AREA = 166 AC	
$Q_{50} = 209 \text{ CFS}$	$V_{50} = 10.6 \text{ FPS}$
$Q_{100} = 256 \text{ CFS}$	$V_{100} = 11.6 \text{ FPS}$



CALCULATIONS	
ITEM 511 CLASS QC1 CONCRETE, CULVERT	$38.47 \text{ SF} - 28.26 \text{ SF} = 10.21 \text{ SF} \times (2 \times 1 \text{ FT}) = 20.42 \text{ CF} / 27 \text{ CF} = 0.8 \text{ CY}$
ITEM 601 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	$20 \text{ FT} \times 15.5 \text{ FT} \times 2.5 \text{ FT} = 775 \text{ CF} / 27 \text{ CF} = 29 \text{ CY}$

ITEM 202 FENCE REMOVED	120 FT
REMOVAL MISC.: EXISTING PIPE CLEANOUT, 18" TO 108"	LS
ITEM 503 COFFERDAMS AND EXCAVATION BRACING	LS
ITEM 511 CLASS QC1 CONCRETE, CULVERT	0.8 CY
ITEM 601 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	29 CY
ITEM 607 FENCE, TYPE 47	120 FT
ITEM 837 LINER PIPE, 72", 707.85	312 FT
ITEM 837 BACKFILL FOR LINER PIPE, 72"	312 FT

QUANTITIES CARRIED TO SUBSUMMARY

CULVERT DETAIL SHEET (LOCATION 2)
 FAI-33-15.271 (CFN 1884264)

DESIGN AGENCY



DESIGNER

REVIEWER

XXX MM-DD-YY

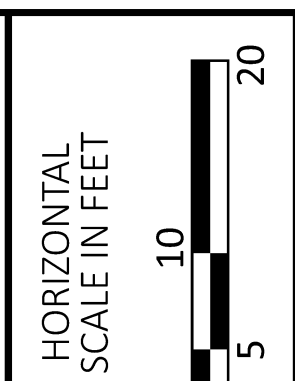
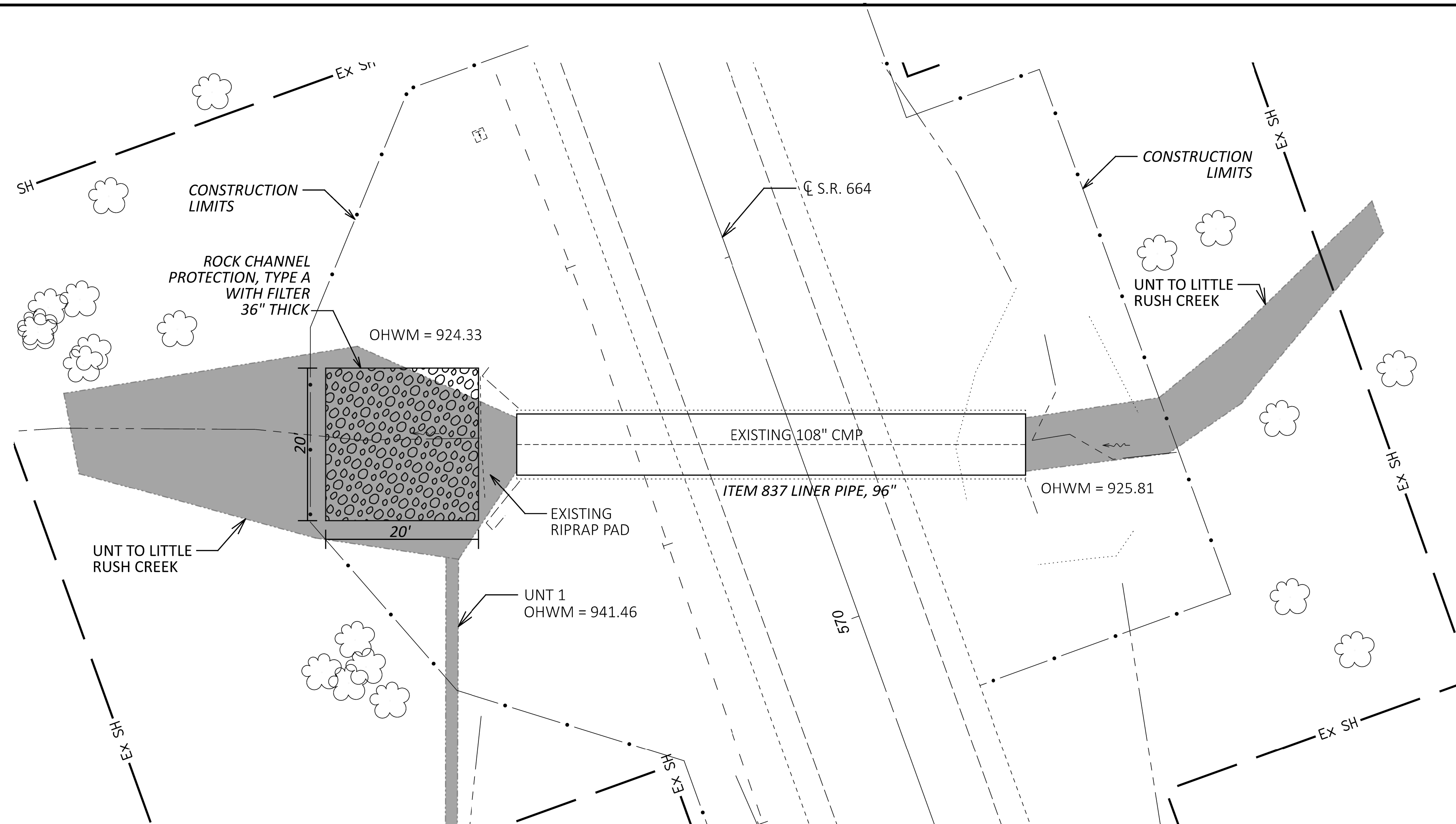
PROJECT ID

107367

SHEET

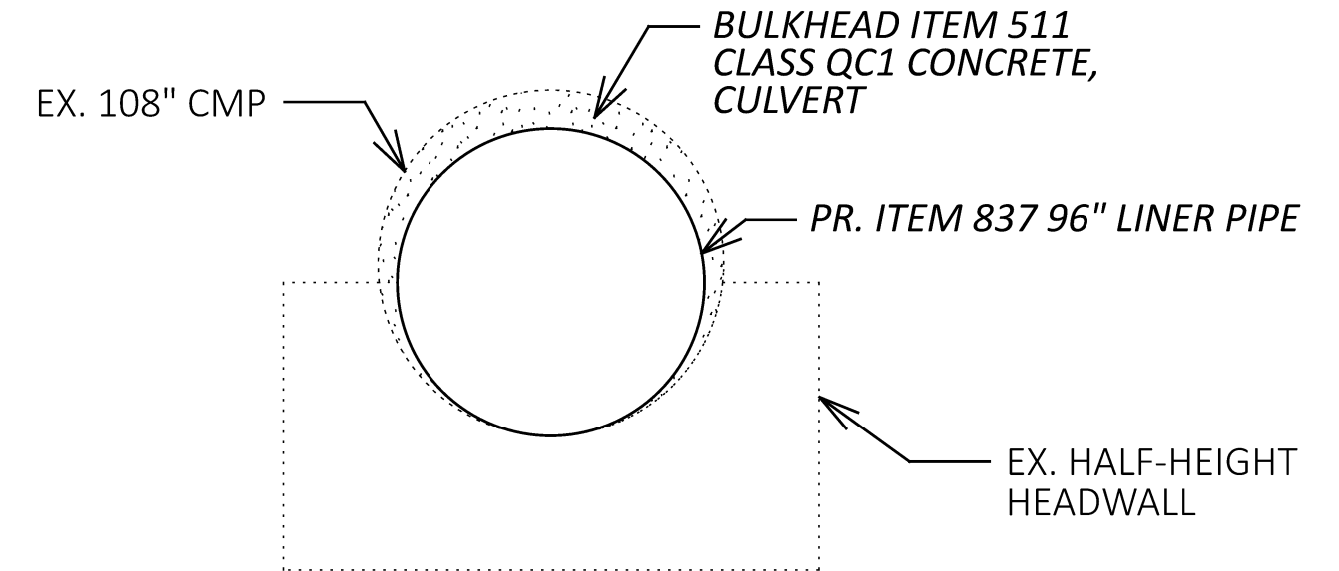
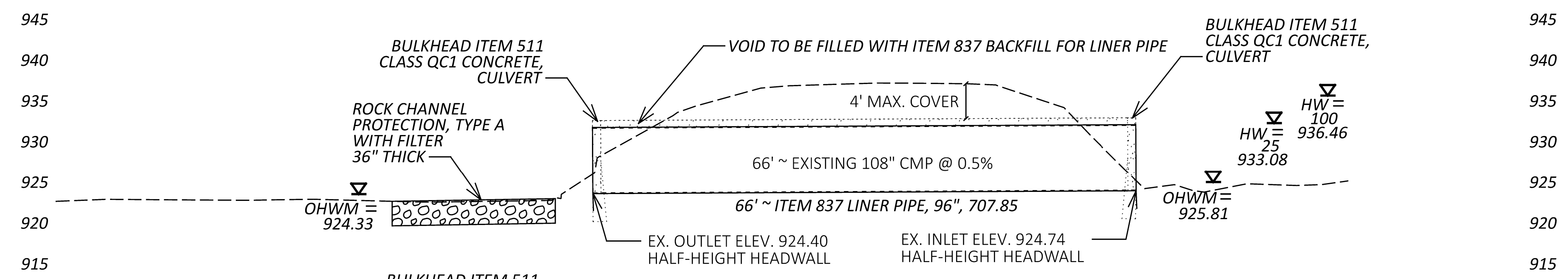
TOTAL

P.32 | 47



EXISTING STRUCTURE	
CFN: 1886369	
TYPE: CORRUGATED METAL PIPE	
DIAMETER: 108"	
LENGTH: 66'	
SKEW: 17°	
LAT: 39.808435	
LONG: -82.426967	

DRAINAGE AREA = 740 AC	
$Q_{25} = 471 \text{ CFS}$	$V_{25} = 15.0 \text{ FPS}$
$Q_{100} = 709 \text{ CFS}$	$V_{100} = 16.0 \text{ FPS}$



CALCULATIONS	
ITEM 511 CLASS QC1 CONCRETE, CULVERT	
$63.59 \text{ SF} - 50.24 \text{ SF} = 13.35 \text{ SF} \times (2 \times 1 \text{ FT}) = 26.70 \text{ CF} / 27 \text{ CF} = 1.0 \text{ CY}$	
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	
$20 \text{ FT} \times 20 \text{ FT} \times 3 \text{ FT} = 1,200 \text{ CF} / 27 \text{ CF} = 44 \text{ CY}$	

REMOVAL MISC.: EXISTING PIPE CLEANOUT, 18" TO 108"	LS
ITEM 503 COFFERDAMS AND EXCAVATION BRACING	LS
ITEM 511 CLASS QC1 CONCRETE, CULVERT	1.0 CY
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	44 CY
ITEM 837 LINER PIPE, 96", 707.85	66 FT
ITEM 837 BACKFILL FOR LINER PIPE, 96"	66 FT

QUANTITIES CARRIED TO SUBSUMMARY

CULVERT DETAIL SHEET (LOCATION 3)
 FAI-664-10.813 (CFN 1886369)

DESIGN AGENCY

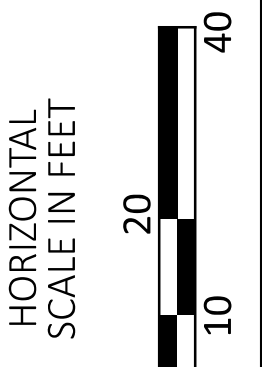
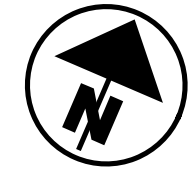
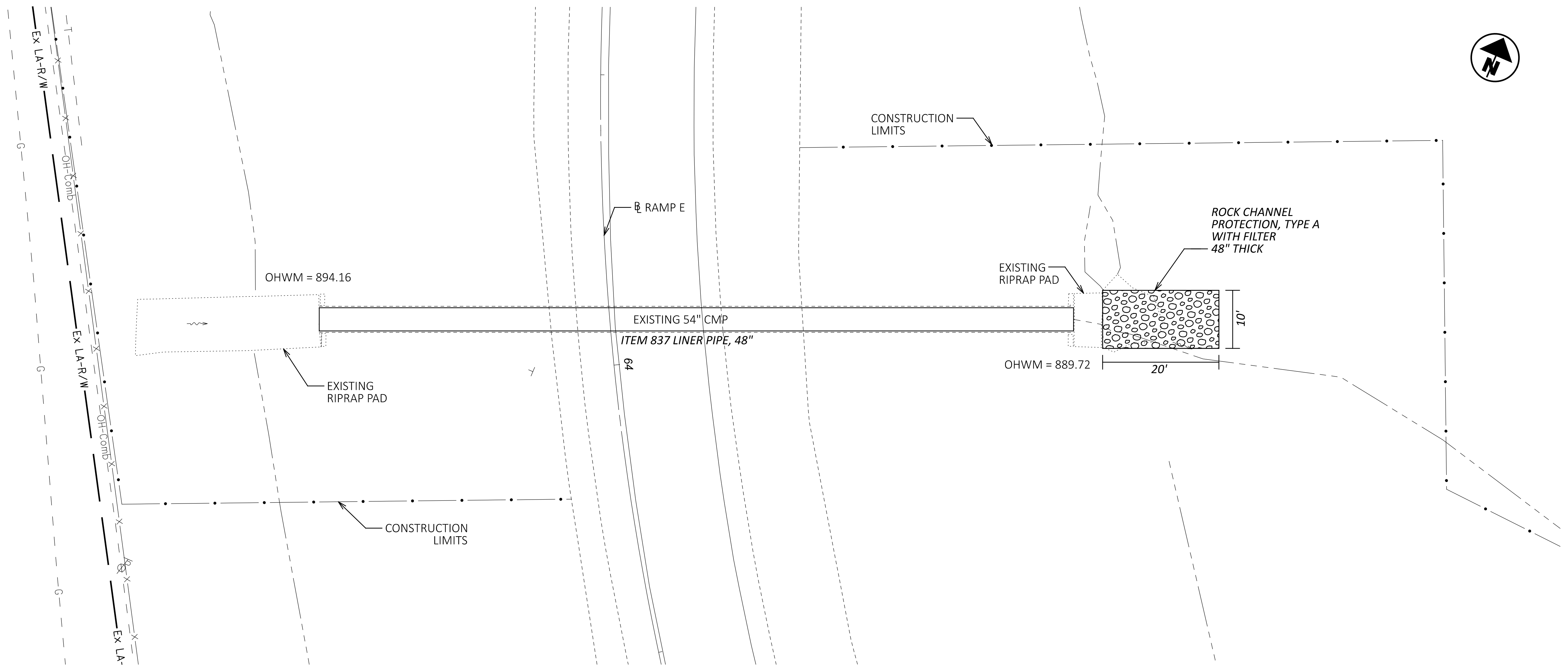


DESIGNER
 HG

REVIEWER
 XXX MM-DD-YY

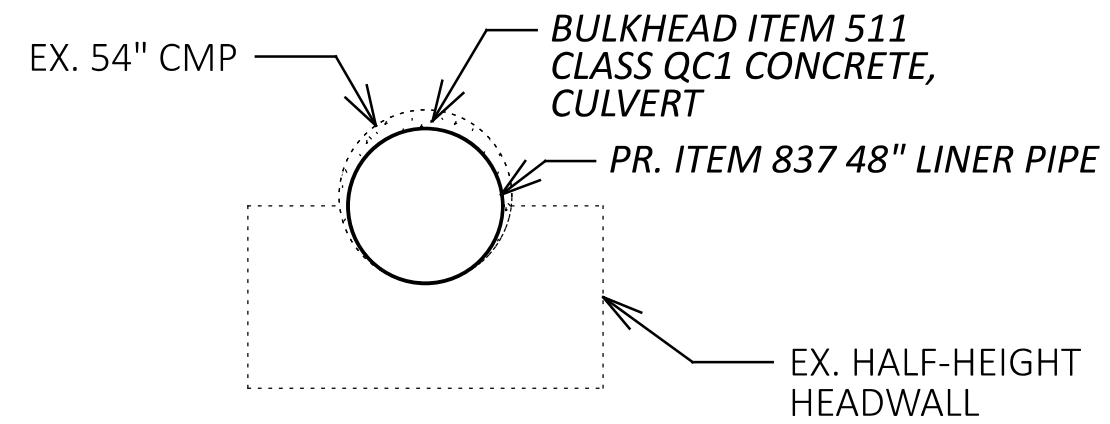
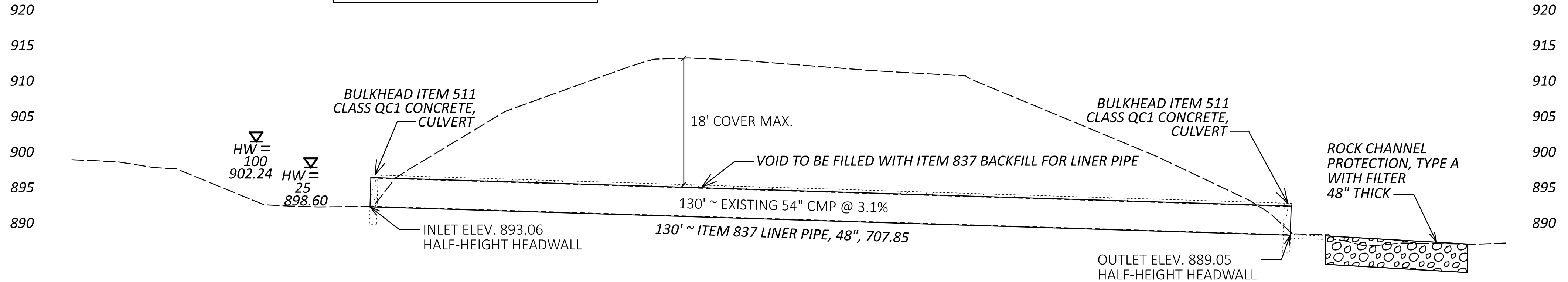
PROJECT ID
 0

SHEET TOTAL
 P.33 47



EXISTING STRUCTURE	
CFN: 1883740	
TYPE: CORRUGATED METAL PIPE	
DIAMETER: 54"	
LENGTH: 130'	
SKEW: 0°	
LAT: 39.71769	
LONG: -82.67586	

DRAINAGE AREA = 109 AC	
$Q_{25} = 117 \text{ CFS}$	$V_{25} = 20.9 \text{ FPS}$
$Q_{100} = 180 \text{ CFS}$	$V_{100} = 23.2 \text{ FPS}$



CALCULATIONS	
ITEM 511 CLASS QC1 CONCRETE, CULVERT	$15.90 \text{ SF} - 12.96 \text{ SF} = 2.94 \text{ SF} \times (2 \times 1 \text{ FT}) = 5.88 \text{ CF} / 27 \text{ CF} = 0.2 \text{ CY}$
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	$20 \text{ FT} \times 10 \text{ FT} \times 4 \text{ FT} = 800 \text{ CF} / 27 \text{ CF} = 30 \text{ CY}$

REMOVAL MISC.: EXISTING PIPE CLEANOUT, 18" TO 108"	LS
ITEM 503 COFFERDAMS AND EXCAVATION BRACING	LS
ITEM 511 CLASS QC1 CONCRETE, CULVERT	0.2 CY
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	30 CY
ITEM 837 LINER PIPE, 48", 707.85	130 FT
ITEM 837 BACKFILL FOR LINER PIPE, 48"	130 FT
QUANTITIES CARRIED TO SUBSUMMARY	

CULVERT DETAIL SHEET (LOCATION 4)
 FAI-RA23016-0.049 (CFN 1883740)

DESIGN AGENCY

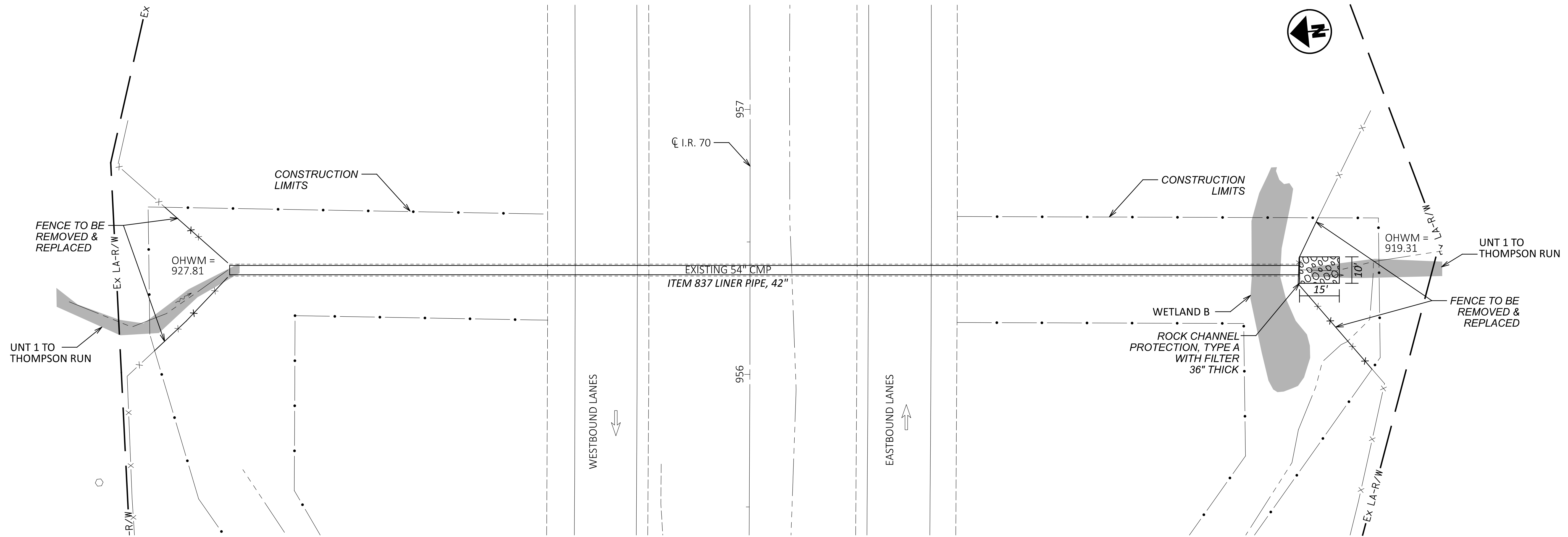


DESIGNER
 HG

REVIEWER
 XXX MM-DD-YY

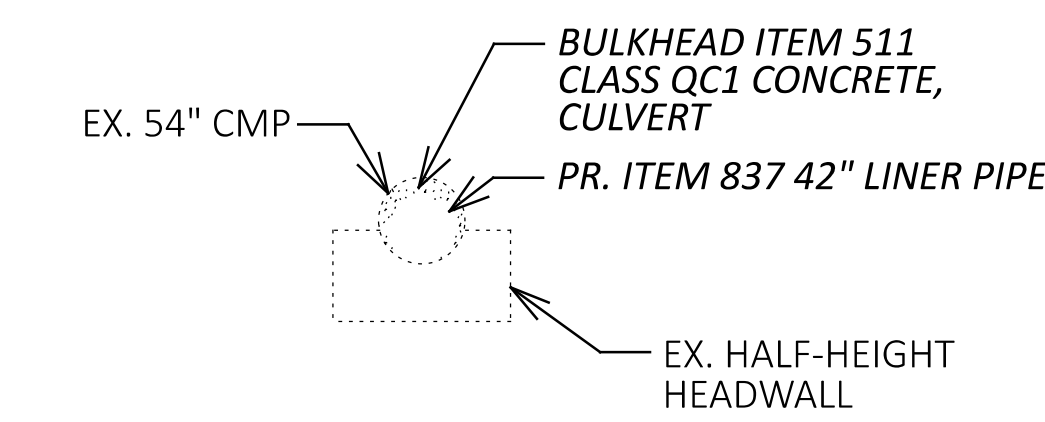
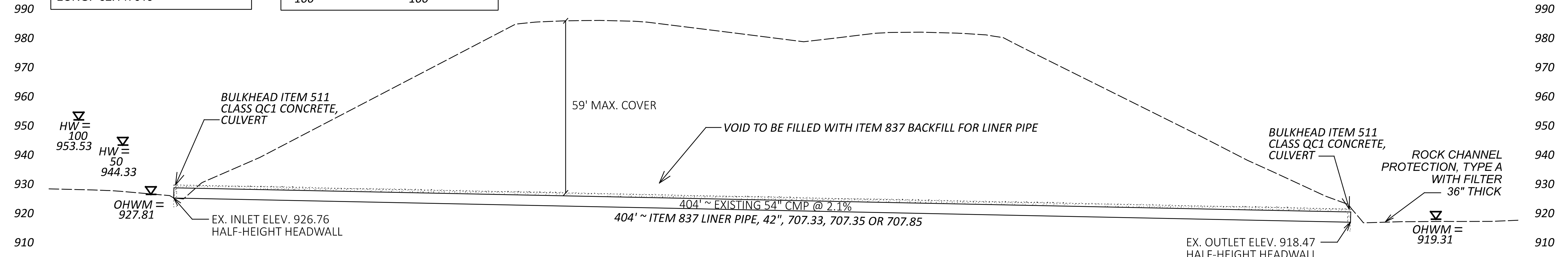
PROJECT ID
 107367

SHEET TOTAL
 P.34 47



EXISTING STRUCTURE	
CFN: 1876224	
TYPE: CORRUGATED METAL PIPE	
DIAMETER: 54"	
LENGTH: 404'	
SKREW: 0°	
LAT: 39.947079	
LONG: -82.147615	

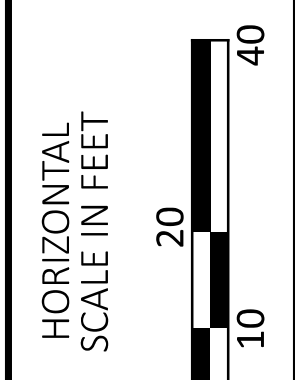
DRAINAGE AREA = 90 AC	
$Q_{50} = 180 \text{ CFS}$	$V_{50} = 18.7 \text{ FPS}$
$Q_{100} = 224 \text{ CFS}$	$V_{100} = 23.3 \text{ FPS}$



CALCULATIONS	
ITEM 511 CLASS QC1 CONCRETE, CULVERT	$15.90 \text{ SF} - 9.62 \text{ SF} = 6.28 \text{ SF} \times (2 \times 1 \text{ FT}) = 12.56 \text{ CF} / 27 \text{ CF} = 0.5 \text{ CY}$
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	$15 \text{ FT} \times 10 \text{ FT} \times 3 \text{ FT} = 450 \text{ CF} / 27 \text{ CF} = 17 \text{ CY}$

ITEM 202 FENCE REMOVED	140 FT
REMOVAL MISC.: EXISTING PIPE CLEANOUT, 18" TO 108"	LS
ITEM 503 COFFERDAMS AND EXCAVATION BRACING	LS
ITEM 511 CLASS QC1 CONCRETE, CULVERT	0.5 CY
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	17 CY
ITEM 607 FENCE, TYPE 47	140 FT
ITEM 837 LINER PIPE, 42", 707.33, 707.35 OR 707.85	404 FT
ITEM 837 BACKFILL FOR LINER PIPE, 42"	404 FT

QUANTITIES CARRIED TO SUBSUMMARY

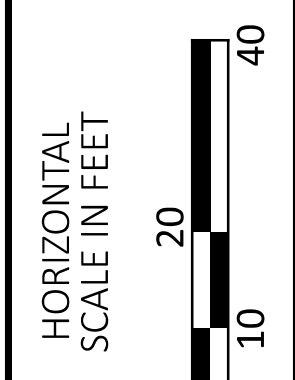
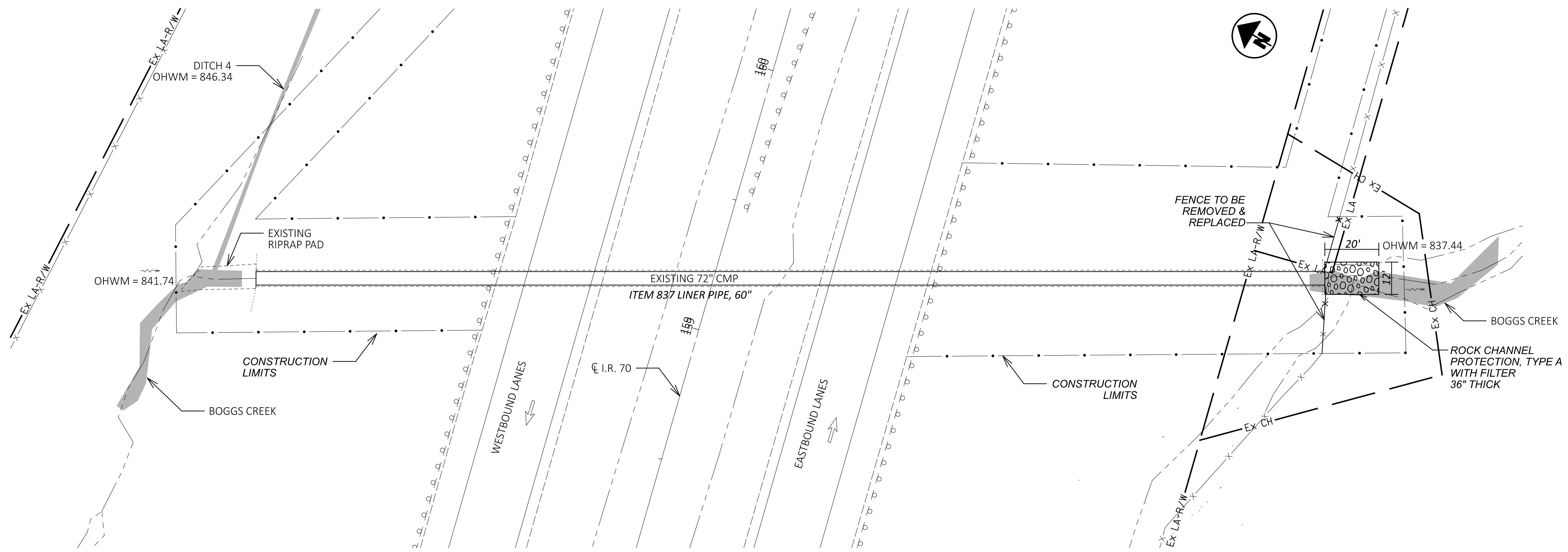


CULVERT DETAIL SHEET (LOCATION 11)
 MUS-70-4.221 (CFN 1876224)

DESIGN AGENCY

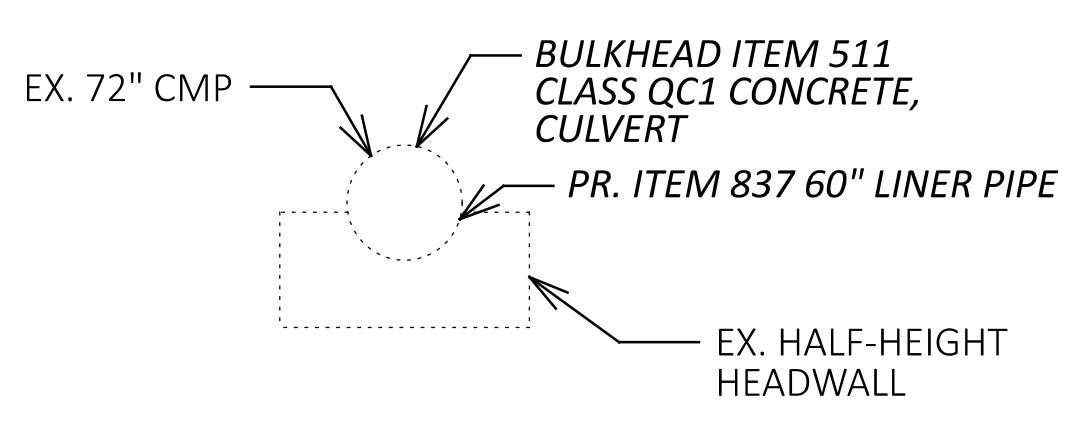
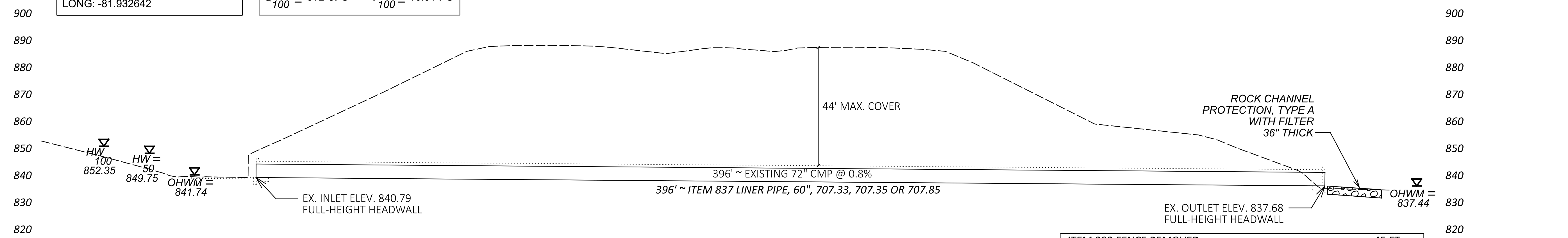


DESIGNER	HG
REVIEWER	XXX MM-DD-YY
PROJECT ID	0
SHEET	TOTAL
P.42	47



CULVERT DETAIL SHEET (LOCATION 14)
MUS-70-15.934 (CFN 1973448)

EXISTING STRUCTURE	
CFN: 1973448	
TYPE: CORRUGATED METAL PIPE	
DIAMETER: 72"	
LENGTH: 396'	
SKEW: 16°	
LAT: 39.958897	
LONG: -81.932642	
DRAINAGE AREA = 250 AC	
$Q_{50} = 257 \text{ CFS}$	$V_{50} = 14.5 \text{ FPS}$
$Q_{100} = 312 \text{ CFS}$	$V_{100} = 16.3 \text{ FPS}$



CALCULATIONS	
ITEM 511 CLASS QC1 CONCRETE, CULVERT	
$28.26 \text{ SF} - 19.63 \text{ SF} = 8.63 \text{ SF} \times (2 \times 1 \text{ FT}) = 17.26 \text{ CF} / 27 \text{ CF} = 0.6 \text{ CY}$	
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	
$20 \text{ FT} \times 12 \text{ FT} \times 3 \text{ FT} = 720 \text{ CF} / 27 \text{ CF} = 27 \text{ CY}$	

ITEM 202 FENCE REMOVED	45 FT
REMOVAL MISC.: EXISTING PIPE CLEANOUT, 18" TO 108"	LS
ITEM 503 COFFERDAMS AND EXCAVATION BRACING	LS
ITEM 511 CLASS QC1 CONCRETE, CULVERT	0.6 CY
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	27 CY
ITEM 607 FENCE, TYPE 47	45 FT
ITEM 837 LINER PIPE, 60", 707.33, 707.35 OR 707.85	396 FT
ITEM 837 BACKFILL FOR LINER PIPE, 60"	396 FT

QUANTITIES CARRIED TO SUBSUMMARY

DESIGN AGENCY	
DESIGNER	HG
REVIEWER	XXX MM-DD-YY
PROJECT ID	107367
SHEET	P.45
TOTAL	47