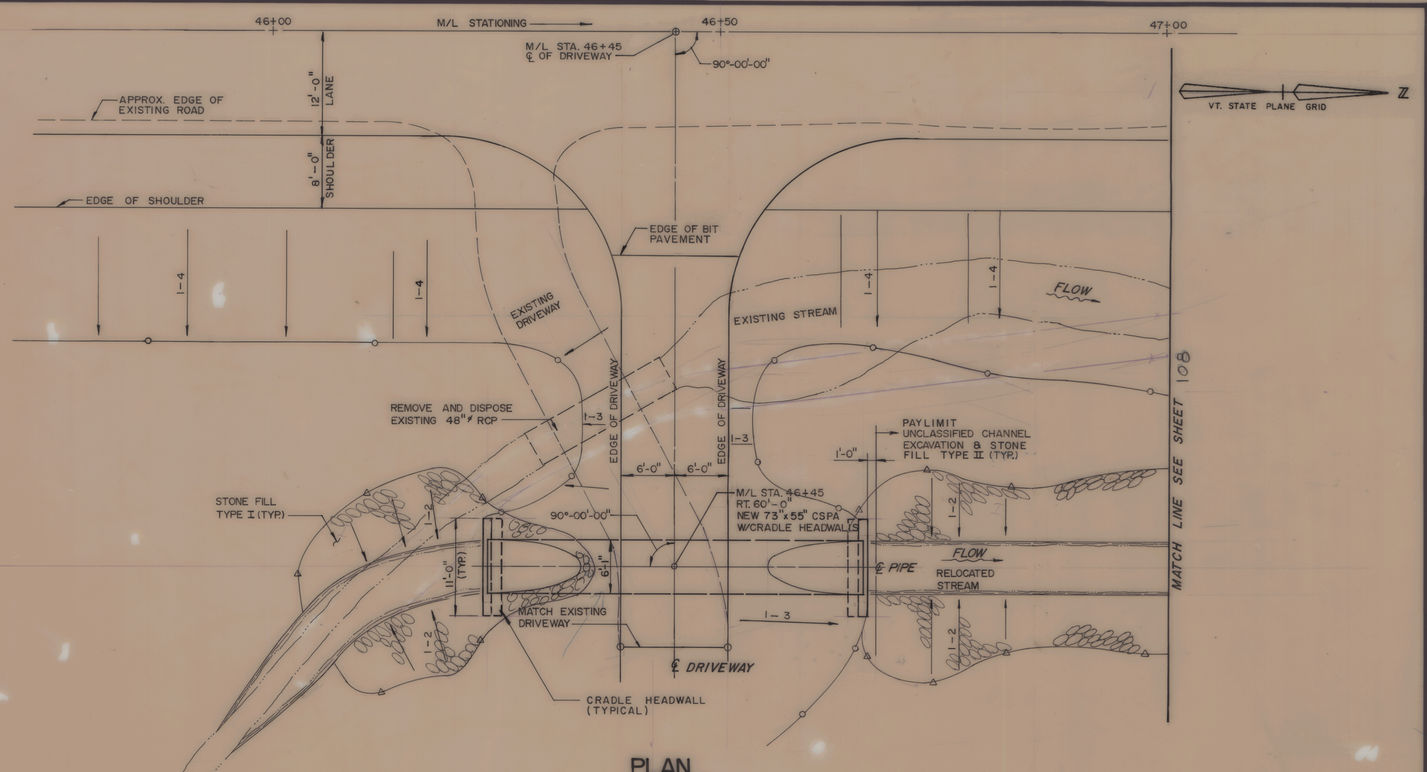
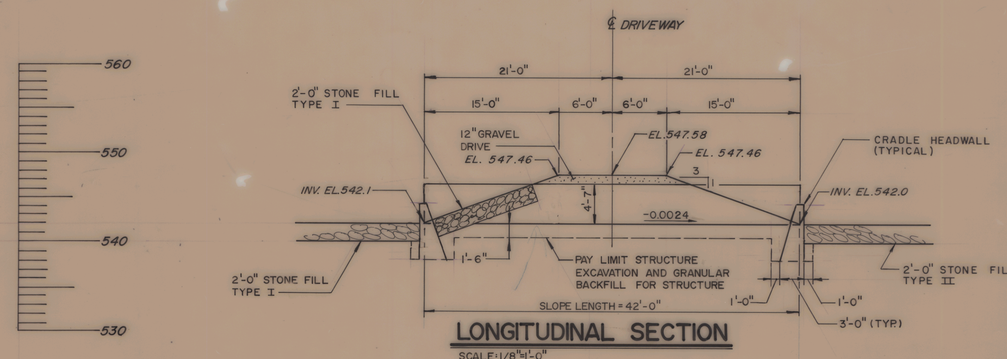


PLAN
SCALE: 1/8"=1'-0"



LONGITUDINAL SECTION
SCALE: 1/8"=1'-0"

PARE ENGINEERING CORPORATION
Engineers — Planners — Landscape Architects
8 Blackstone Valley Place, Lincoln, RI 02865
401/334/4100

HYDRAULIC DATA

DRAINAGE AREA = 0.36 SQ. MI. DESIGN FLOW Q 50

Q_{10} = 98 C.F.S.	Q_{10} HEADWATER ELEVATION = 545..99
Q_{25} = 123 C.F.S.	Q_{25} HEADWATER ELEVATION = 546.61
Q_{50} = 142 C.F.S.	Q_{50} HEADWATER ELEVATION = 547.07
Q_{100} = 160 C.F.S.*	Q_{100} HEADWATER ELEVATION = 547.57

TAILWATER DEPTH AT Q 50 = 3.15 FEET, ELEVATION 545.15

OUTLET VELOCITY AT Q 50 = 8.45 FEET PER SECOND

ORDINARY HIGHWATER DEPTH — FEET

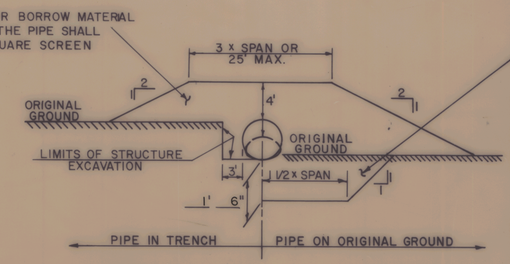
COMMENTS:

DETAILS OF STRUCTURAL PLATE PIPE CULVERTS

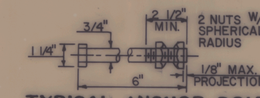
	STEEL	STEEL	ALUMINUM
CORRUGATIONS	3"x1"	3"x1"	
SIZE OF PIPE OR PIPE ARCH	73"x55" CSPA	73"x 55" PCCSPA	
WATERWAY AREA (S.F.)	19.6	19.6	
PLATE THICKNESS (COATED)	0.168"	0.168"	
BOLT SIZE			
WEIGHT PER LINEAR FOOT			
TOTAL WEIGHT			
TOTAL LENGTH	42 LF	42 LF	

NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1986, AND THE LATEST A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES. DESIGN IS FOR HS-20 LIVE LOADING.
2. UNLESS OTHERWISE INDICATED FOUR (4) BOLTS PER LINEAR FOOT FOR STEEL PLATES AND FIVE AND ONE THIRD (5 1/3) BOLTS FOR ALUMINUM PLATES ARE REQUIRED ALONG THE LONGITUDINAL SEAMS. ALL CONNECTIONS FOR STRUCTURAL PLATE SECTIONS SHALL BE MADE WITH GALVANIZED ASTM A-449 BOLTS.
3. WHEN NORMAL CONSTRUCTION OR REGULAR ROADWAY TRAFFIC IS MAINTAINED OVER THE PIPE THE CONTRACTOR SHALL MAINTAIN A MINIMUM COVER OF 3 FEET OF COMPACTED MATERIAL.
4. ALUMINUM PIPE THAT IS TO BE IN CONTACT WITH CONCRETE SHALL HAVE CONTACT SURFACES THOROUGHLY COATED WITH ZINC CHROMATE, OR BITUMINOUS, OR ASPHALTIC PAINT.
5. PIPES SHALL BE FACTORY ELONGATED 5% (PIPE ARCHES SHALL NOT BE ELONGATED).
6. THE ENDS OF THE PIPE SHALL BE CUT SQUARE (NOT BEVELED TO MATCH SLOPES).
7. AT THE OUTLET END INCLUDE A 10 FOOT PIECE OF 6" UNDERDRAIN EACH SIDE ON SAME GRADIENT AS CULVERT CONFORMING TO SECTION 711.07. COST TO BE INCLUDED IN UNIT PRICE BID FOR THE CULVERT PIPE.

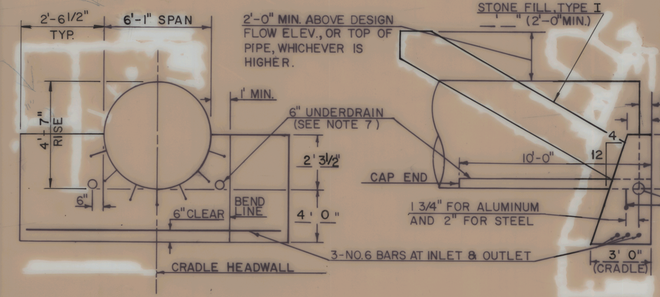


TYPICAL BACKFILL SECTION



TYPICAL ANCHOR BOLT

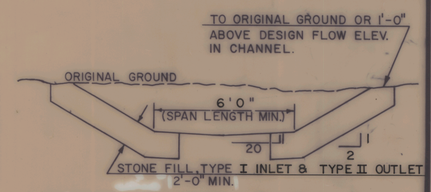
BOLT MATERIAL SHALL CONFORM TO ASTM-A307 & NUTS TO ASTM-A563.



HEADWALL DETAILS

REINFORCING STEEL SCHEDULE

NO. PIECES	SIZE	LENGTH	MARK	TYPE		
6	6	10'-6"	HW 601	STR	CUT TO FIT IN THE FIELD	



TYPICAL CHANNEL SECTION

ESTIMATED QUANTITIES

NO.	ITEM	UNIT	TOTAL	FINAL
203.27	UNCLASSIFIED CHANNEL EXCAV.	CY	149	
203.32	GRANULAR BORROW	CY	24	
204.25	STRUCTURE EXCAVATION	CY	141	
204.30	GRANULAR BACKFILL for STRUCTURE	CY	34	
501.25	CONCRETE CLASS "B"	CY	8	
507.15	REINFORCING STEEL	LBS	95	
601.3136	CORRUGATED STEEL PIPE ARCH (73"x55") (0.079", 2,310 LBS)	LF	42	
601.3536	POLYMERIC COATED CORRUGATED STEEL PIPE ARCH ** (73"x55") (0.079", 3,066 LBS)	LF	42	
613.10	STONE FILL TYPE I	CY	39	
	STONE FILL TYPE II	CY	49	
	** OPTIONAL			

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF POWNAL	Bridge No. 7B
HIGHWAY NO. ROUTE 346	Log Sta. / Surv. Sta. 46+45

73"x 55" STEEL PIPE ARCH
CULVERT DETAILS

Designed by G.F.	Drawn by P.S.
Checked by P.D.M. date 2-10-87	Bridge Design Supervisor date
PROJECT POWNAL	PROJECT NO. RS 0107(7)
Bridge Sheet No.	Sheet 111 of 319

REV. 12/11/85