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15. G-1A Guard Rail, Standard Steel Beam w/ Steel Posts Type I (R 5-23-74)

STATE OF VERMONT DEPARTMENT OF HIGHWAYS



PROPOSED IMPROVEMENT BRIDGE PROJECT

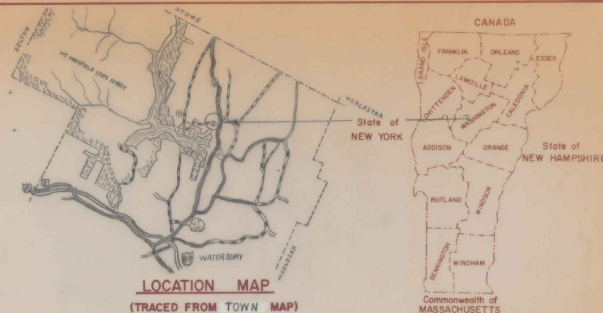
TOWN OF WATERBURY
COUNTY OF WASHINGTON

ROUTE NO: TH 11 - CL 3 BRIDGE NO: 9

PROJECT LOCATION: Beginning at a point on TH 11 approx 0.25 mi west of the TH 11-NT Ave 100 intersection and extending easterly along TH 11 for 0.076 miles.

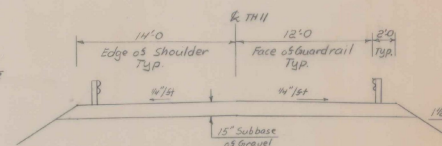
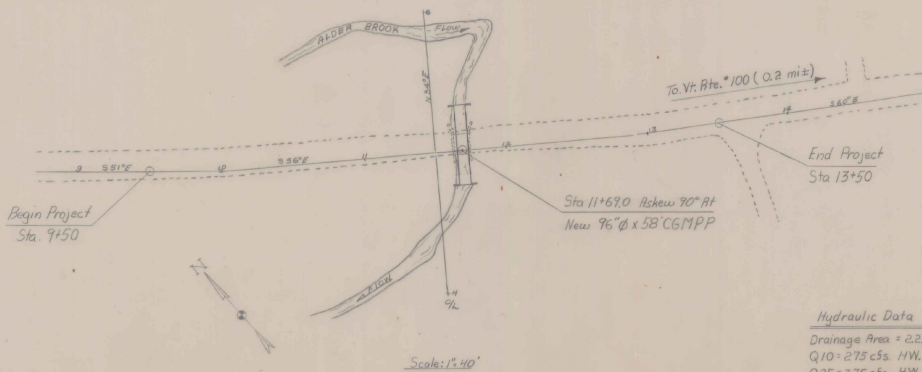
PROJECT DESCRIPTION: Replace existing concrete structure with a New 76" x 55" CGMPP w/ cradle headwalls @ ea. end. Raise existing grade @ structure 2 ft. Widened roadway to 24' Rail to Rail with limited Approach and Channel work.

LENGTH OF STRUCTURE:	8 FEET
LENGTH OF PARTICIPATION ROADWAY:	200 FEET
LENGTH OF NON-PARTICIPATION ROADWAY:	172 FEET
LENGTH OF PROJECT:	400 FEET



GENERAL NOTES:

NOTE TO TOWN OFFICES: DUE TO THE SENSITIVE NATURE OF LARGE DIAMETER PLATE PIPES, AND TO PROTECT THE INVESTMENT OF THE TOWN AND STATE BOTH, THE FOLLOWING CAREFUL PROCEDURE WILL BE REQUIRED FOR THE STRUCTURE SHALL BE BORED IN AN EARTH FOUNDATION OF UNIFORM DENSITY, CAREFULLY SHORED TO FIT THE LOWER FLANGE OR FLANGES OF THE STRUCTURE. FILL MATERIAL SHALL BE DEPOSITED EVENLY ON BOTH SIDES OF THE PIPE, THE LAYERS SHALL NOT EXCEED 6 INCHES IN DEPTH UNTIL AT LEAST THE 3/4 HEIGHT POINT HAS BEEN REACHED. SPECIAL CARE SHALL BE TAKEN TO THOROUGHLY TAMP EACH LAYER BY MEANS OF MECHANICAL TAMPERS UNDER THE HANDLES FOR THE WIDTH OF THE TRENCH AND ABOVE THE TRENCH FOR A DISTANCE EACH SIDE OF THE PIPE EQUAL TO THE DIAMETER OF THE PIPE TO THE DENSITY REQUIRED WHICH IS 90% PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD METHOD OF TEST FOR THE RELATIVE DENSITY RELATIONSHIP FOR SOILS, ASTM D 1557. THE FILL SHALL CONTINUE UNIFORMLY ON BOTH SIDES UNTIL AT LEAST 4 FEET OF COMPACTED MATERIAL IS OBTAINED ABOVE THE TOP OF THE STRUCTURE OR UNTIL SUBGRADE IS REACHED. ANY QUESTIONS WHICH ARISE CONCERNING SOIL TENSURE, ASSEMBLY, BACKFILL MATERIAL, CONSTRUCTION, OR ANY PHASE OF THE PROJECT SHALL BE REFERRED TO THE DISTRICT ENGINEER OR HIS REPRESENTATIVE.



Hydraulic Data

Drainage Area = 2.25 Sq. Mi.
 Q10 = 2.75 cfs. HW. = 6.6 ft
 Q25 = 3.75 cfs. HW. = 8.0 ft
 Q50 = 4.50 cfs. HW. = 9.2 ft
 Q100 = 5.25 cfs. HW. = 10.6 ft
 Tailwater @ Q25 = 3.0 ft.
 Outlet velocity = 11.7 fps.

CONVENTIONAL SIGNS

COUNTY LINE	---
TOWN LINE	---
LIMITS OF ACCESS	---o---
POINT OF ACCESS	X
FENCE LINE	---
STONE WALL	-----
TRAVELED WAY	-----
RAILROAD	-----
SURVEY LINE	---
CULVERT	---
POWER POLE	o
TELEPHONE POLE	o
TREES	o
F.A. CONST. IDENTIFICATION SIGNS	▲
PROPERTY LINE	---
R.O.W. TAKING LINE	---
SLOPE RIGHTS	o SR o
TOP OF CUT	o
TOE OF SLOPE	o

SUBMITTED BY ORDER OF THE STATE HIGHWAY BOARD
 APPROVED: *S. R. Stahney* DATE: 4/21/76
 CHIEF ENGINEER

PROJECT: WATERBURY
 SHEET 1 OF 15
 TH 3633
 SHEETS

EARTHWORK

V.C.	% GRD	STATION	GRADES		CORR. V.C.	DIST.	COMMON EXCAVATION		EMBANKMENT		SUB-BASE OF GRAVEL		AREA	CU. YDS.	
			ELEVATION ON TAN.	ELEVATION ON V.C.			AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.			
APPROACH QUANTITIES															
		8+50	482.54				0	0	0	0	0				
		9+0	479.69				50	0	0	0	0				
		1+50	476.84				50	0	0	0	0				
		1+87.5	474.71	474.71			50	0	0	0	0				
		10+0	474.03	474.03			50	0	0	0	0				
		1+50	471.90				15	0	0	0	10		9		
		1+65					0	0	0	0	18		8		
TOWN FUND PARTICIPATION															
		10+65					0	0	0	18	35				
		11+0	470.74				35	0	8	5	35		35		
		1+50	470.54				50	0	110	110	35		65		
		1+57					7	0	17	17	35		9		
		162.5					0	0	20	18	35		31		
		1+81	464.73				24	0	20	18	35		31		
		12+0	471.31				19	0	119	49	35		25		
		1+50	473.04				50	2	46	154	35		65		
		1+73					23	31	14	31	25		25		
APPROACH QUANTITIES															
		12+73					27	31	48	25	13		16		
		13+0	475.73				65	0	0	0	8		7		
		1+37.5	478.38	478.38			50	0	0	0	0		0		
		1+50	479.4				50	0	0	0	0		0		
		14+0	481.5				0	0	0	0	0		0		
TOTALS															
NON-TOWN FUND APPROACHES							109	13	40						
TOWN FUND PARTICIPATION							14	384	255						
EARTH BORROW REQUIRED TOWN FUND PARTICIPATION															
EMBANKMENT - COMMON EX. - CHANNEL ETC.							384	14	(109-13)	-121	=	153	CY		

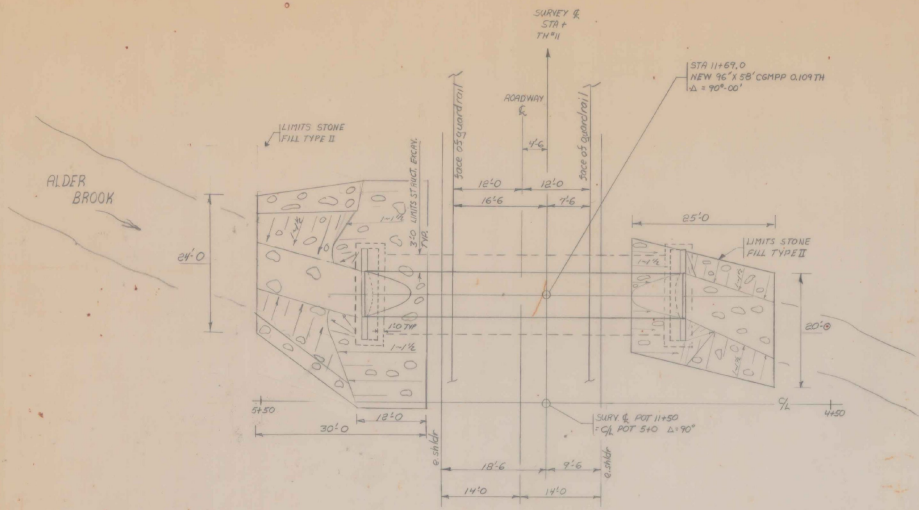
BRIDGE QUANTITY SHEET

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
BRIDGE DIVISION

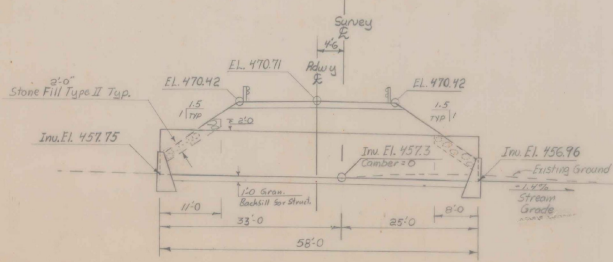
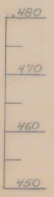
NO.	ITEM	UNIT	QUANTITY BREAKDOWN				Pounds	NON-TOWN FUND TOTAL	TOWN FUND PARTICIPATION TOTAL	TOTAL	FINAL
			TOWN FUND STRUCTURE	TOWN FUND ROADWAY	TOWN FUND CHANNEL	NON-TOWN FUND PARTICIPATION					
202.20	Removal of Existing Superstructure	LS	1						1	1	
203.15	Common Excavation	CY		14		109	7	110	20	130	
203.30	Earth Borrow	CY		153			7		160	160	
203.32	Granular Borrow	CY	384				6	330	330		
203.27	Unclassified Channel Excavation	CY			121		9	130	130		
204.25	Structure Excavation	CY	97				6	100	100		
204.30	Granular Backfill for Structures	CY	24				6	30	30		
301.15	Subbase of Gravel	CY		255		40	5	40	260	300	
501.25	Concrete Class B	CY	20						20	20	
507.15	Reinforcing Steel (Grade 40)	LB	173				7	180	180		
511.10	96# CGRP 240' x 58' (Optional Pipe)	LS	1						1	1	
511.25	96# CGRP 2160' x 58' (2715-16)	LS	0						0	0	
613.11	Stone Fill Type II	CY			126		4	180	130		
621.25	Guard Rail, Standard Steel Beam with Steel Posts, Type I	LF		300					300	300	

BRIDGE (S) AT STATION (S) 11+69.0
LOCATION (S) TH #11 BR #9 over Alder Brook

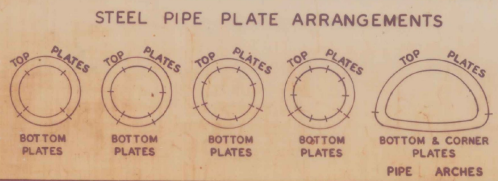
Prepared by E. Betz Checked by E. Betz WATERBURY PROJECT NO. TH 3633
SUPERVISOR: E. Betz BR OF SHEET NO. 2 OF 15



PLAN
Scale: 1 in = 10 ft



ELEVATION
Scale: 1 in = 10 ft

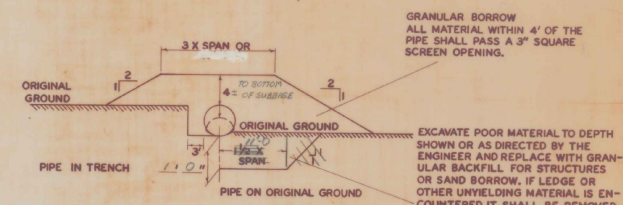


DETAILS OF STRUCTURAL PLATE PIPE CULVERTS

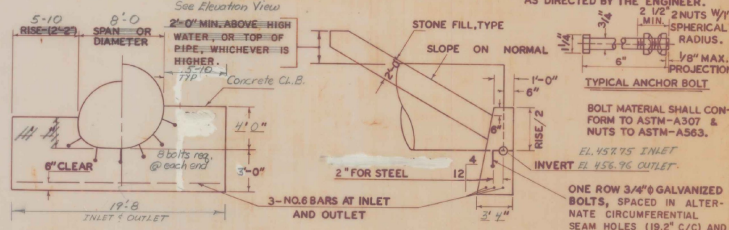
PIPE DATA:	STEEL	ALUMINUM	HYDRAULIC DATA
CORRUGATIONS	8" x 6"	7 1/2"	DRAINAGE AREA
DIAMETER OF PIPE	76"	76"	DESIGN FREQUENCY-Q
PIPE ARCH			DESIGN FLOW & HEADW. DEPTH
PLATE THICKNESS	0.109" (COATED) THICKNESS	0.100"	CHECK DISCHARGE & HEADW. DEPTH
BOLT SIZE	3/4"	3/4"	TAILWATER DEPTH AT DESIGN FLOW
WT. LIN. FT.	165	47	OUTLET VELOCITY AT DESIGN FLOW
TOTAL WEIGHT	7,870	2,715	WATERWAY AREA

NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JAN. 1972 AND THE A.A.S.H.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1973 AND ITS LATEST REVISIONS. 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-325 BOLTS (AASHTO M164).
3. WHEN NORMAL CONSTRUCTION OR REGULAR ROADWAY TRAFFIC IS MAINTAINED OVER THE PIPE THE CONTRACTOR SHALL MAINTAIN A MINIMUM COVER OF 4 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).



TYPICAL BACKFILL SECTION



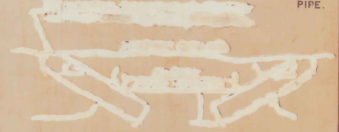
CRADLE HEADWALL DETAILS

REINFORCING STEEL SCHEDULE

NO. OF PIECES	SIZE	LENGTH	MARK	TYPE
6	6	19'-2"	601	STR

ESTIMATED QUANTITIES

NO.	ITEM	UNIT	TOTAL	FINAL
	See Sheet #2			



TYPICAL CHANNEL SECTION

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF WATERBURY Bridge No. 9

HIGHWAY NO. TH 11 S9 Log Sta. 10+00

PLATE PIPE DETAILS TH 11 over ALDER BROOK

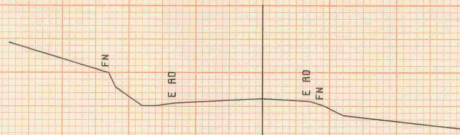
PLAN & ELEVATION

Designed by E. Betz Checked by E. Betz date 3/76

Drawn by R. Hill Bridge Design Supervisor E. Betz date 3/76

PROJECT WATERBURY PROJECT NO. TH 3633

Bridge Sheet No. 4 of 15



8+00

480

7+50

480

7+00

490

6+50

490

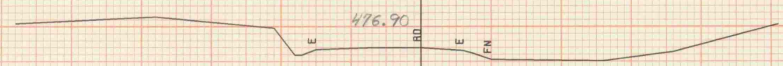
FROM STA. 8+50	TO STA. 8+00
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 5 OF 15 SHEETS	PLOTTED 12/17/75
	10/75

SCALE 1" = 10 FEET



470

10+00



470

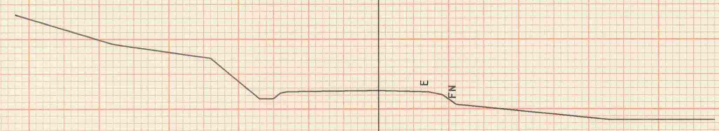
9+50

*Begin Project
Construct Satisfactory
Approach*



480

9+00



480

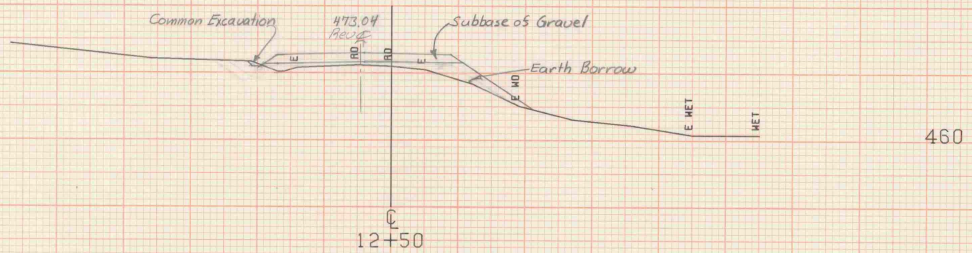
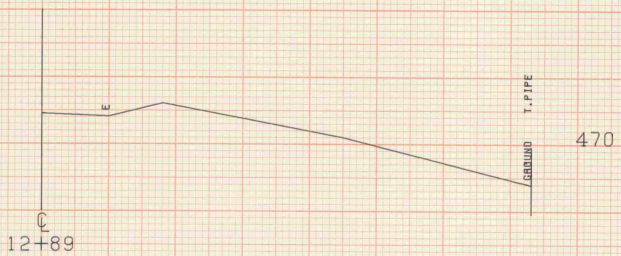
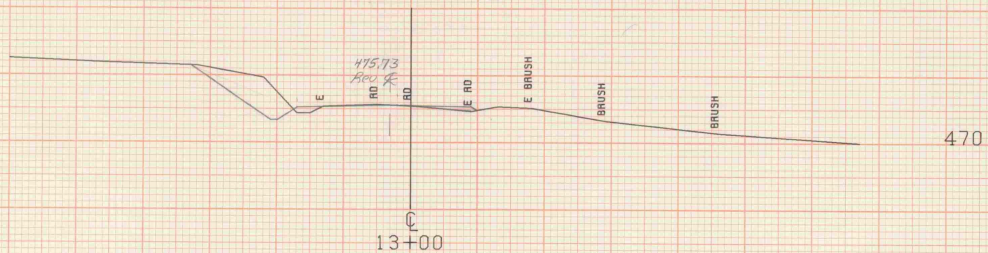
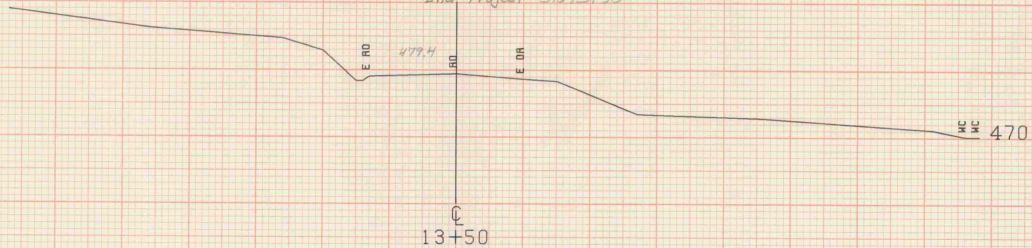
8+50

FROM STA. 8+50	TO STA. 10+00
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 6 OF 15 SHEETS	PLOTTED 12/17/75
	10/75

SCALE 1" = 10 FEET

Construct Satisfactory Approach

End Project Sta. 13+50



Sta. 12+44 to 54 End Guard Rail, Standard Steel Beam Type I

SCALE 1" = 10 FEET

FROM STA. 12+50	TO STA. 13+50
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 2 OF 15	PLOTTED 12/17/75
	10/75
	SHEETS



480

15+00

480

14+57

480

14+50

480

14+00

480

13+73

FROM STA. 13+73	TO STA. 15+00
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 9 OF 15 SHEETS	10/75

SCALE 1" = 10 FEET

16+50
16+00

490

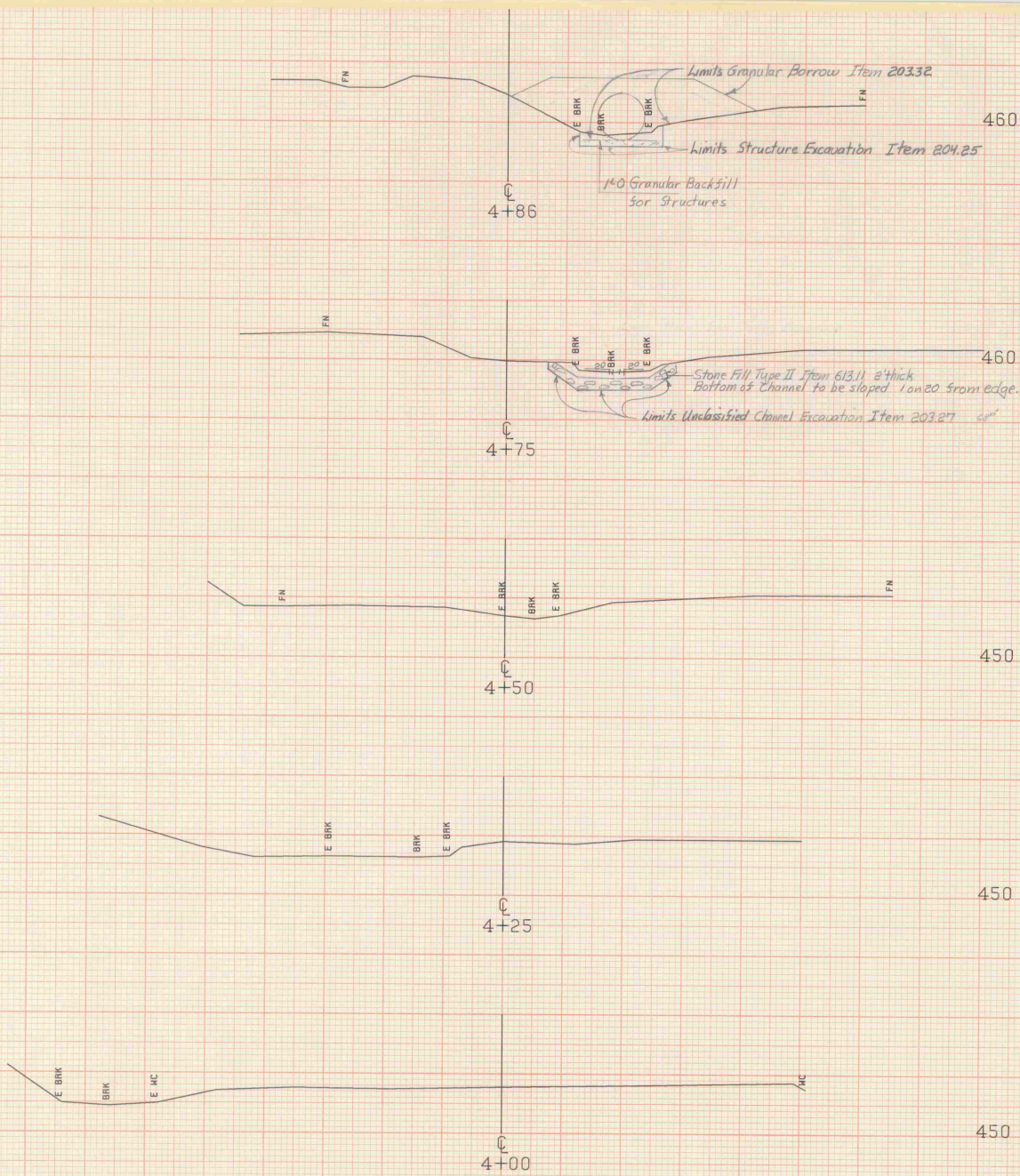
16+00
15+50

480

480

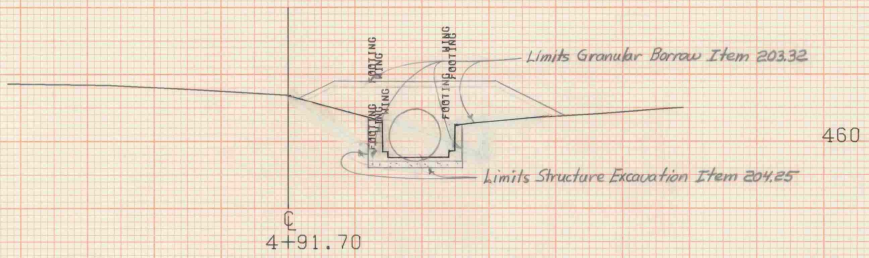
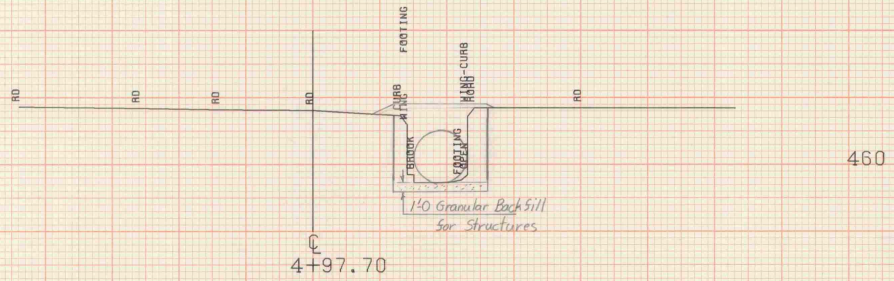
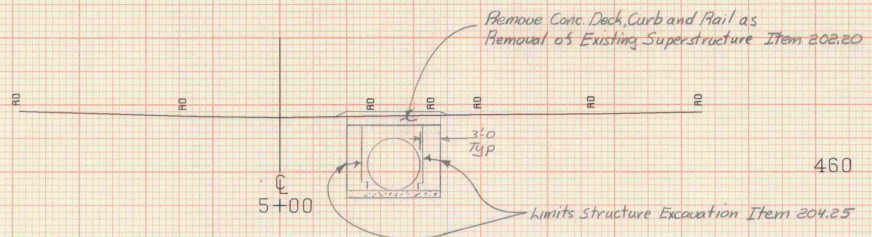
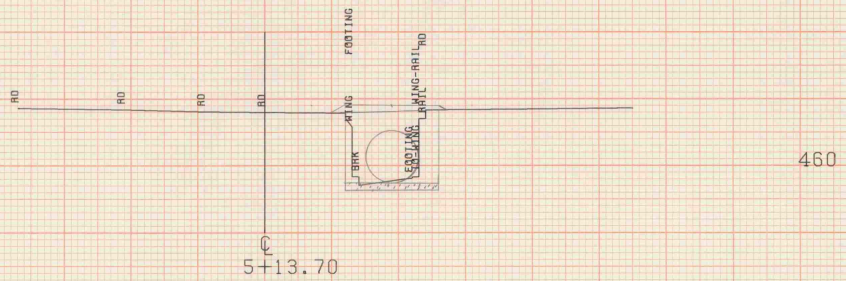
SCALE 1" = 10 FEET

FROM STA. 15+50	TO STA. 16+50
PROJECT NAME	WATERBURY MAIN LINE
NO.	143633
SURVEYED BY	FANTONI
SHEET 70 OF 15	SHEETS
	PLOTTED 12/17/75
	10/75



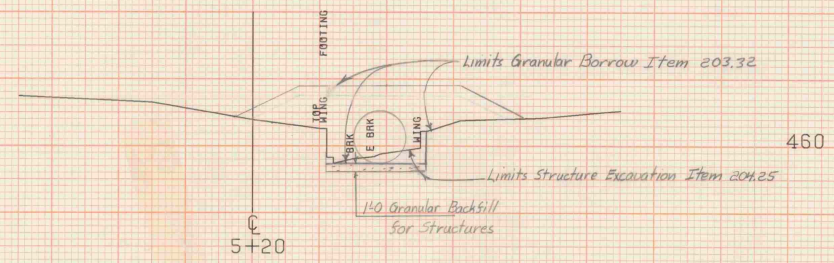
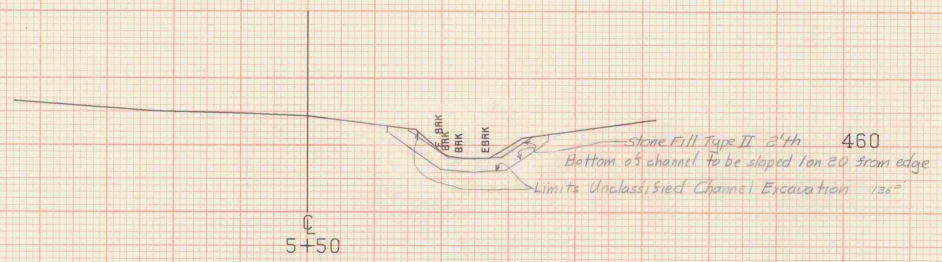
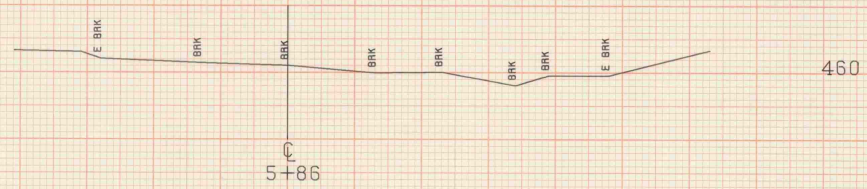
FROM STA. 4+00	TO STA. 4+86
PROJECT NAME WATERBURY CHANNEL LINE	
NO. TH3633	PLOTTED 12/17/75
SURVEYED BY FANTONI	10/75
SHEET 11 OF 15 SHEETS	

SCALE 1" = 10 FEET



FROM STA. 4+91.70 TO STA. 5+13.70
 PROJECT NAME WATERBURY CHANNEL LINE
 NO. TH3633 PLOTTED 12/17/75
 SURVEYED BY FANTONI 10/75
 SHEET 12 OF 15 SHEETS

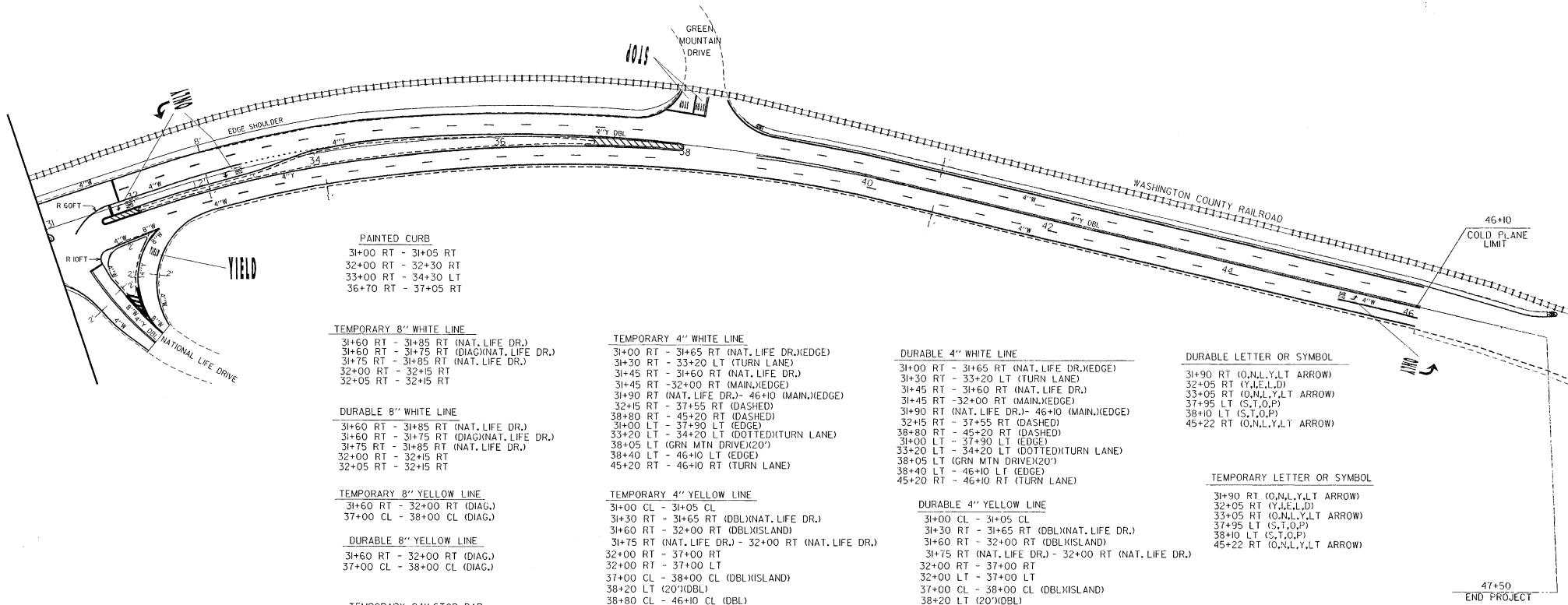
SCALE 1" = 10 FEET



FROM STA. 5+20 TO STA. 5+86
 PROJECT NAME WATERBURY CHANNEL LINE
 NO. TH3633 PLOTTED 12/17/75
 SURVEYED BY FANTONI 10/75
 SHEET 3 OF 15 SHEETS

SCALE 1" = 10 FEET

PAVEMENT MARKINGS



PAINTED CURB
 31+00 RT - 31+05 RT
 32+00 RT - 32+30 RT
 33+00 RT - 34+30 LT
 36+70 RT - 37+05 RT

TEMPORARY 8" WHITE LINE
 31+60 RT - 31+85 RT (NAT. LIFE DR.)
 31+60 RT - 31+75 RT (DIAG\NAT. LIFE DR.)
 31+75 RT - 31+85 RT (NAT. LIFE DR.)
 32+00 RT - 32+15 RT
 32+05 RT - 32+15 RT

DURABLE 8" WHITE LINE
 31+60 RT - 31+85 RT (NAT. LIFE DR.)
 31+60 RT - 31+75 RT (DIAG\NAT. LIFE DR.)
 31+75 RT - 31+85 RT (NAT. LIFE DR.)
 32+00 RT - 32+15 RT
 32+05 RT - 32+15 RT

TEMPORARY 8" YELLOW LINE
 31+60 RT - 32+00 RT (DIAG.)
 37+00 CL - 38+00 CL (DIAG.)

DURABLE 8" YELLOW LINE
 31+60 RT - 32+00 RT (DIAG.)
 37+00 CL - 38+00 CL (DIAG.)

TEMPORARY 24" STOP BAR
 31+30 RT - 31+45 RT (NAT. LIFE DR.)
 31+73 RT - 31+73 LT
 31+84 LT
 37+75 LT - 38+20 LT (GR. MTN. DR.)

TEMPORARY 4" WHITE LINE
 31+00 RT - 31+65 RT (NAT. LIFE DR.)(EDGE)
 31+30 RT - 33+20 LT (TURN LANE)
 31+45 RT - 31+60 RT (NAT. LIFE DR.)
 31+45 RT - 32+00 RT (MAIN.)(EDGE)
 31+90 RT (NAT. LIFE DR.)- 46+10 (MAIN.)(EDGE)
 32+15 RT - 37+55 RT (DASHED)
 38+80 RT - 45+20 RT (DASHED)
 31+00 LT - 37+90 LT (EDGE)
 33+20 LT - 34+20 LT (DOTTED)(TURN LANE)
 38+05 LT (GRN MTN DRIVE)(20')
 38+40 LT - 46+10 LT (EDGE)
 45+20 RT - 46+10 RT (TURN LANE)

TEMPORARY 4" YELLOW LINE
 31+00 CL - 31+05 CL
 31+30 RT - 31+65 RT (DBL)(NAT. LIFE DR.)
 31+60 RT - 32+00 RT (DBL)(ISLAND)
 31+75 RT (NAT. LIFE DR.) - 32+00 RT (NAT. LIFE DR.)
 32+00 RT - 37+00 RT
 32+00 RT - 37+00 LT
 37+00 CL - 38+00 CL (DBL)(ISLAND)
 38+20 LT (20')(DBL)
 38+80 CL - 46+10 CL (DBL)

DURABLE 24" STOP BAR
 31+30 RT - 31+45 RT (NAT. LIFE DR.)
 31+73 RT - 31+73 LT
 31+84 LT
 37+75 LT - 38+20 LT (GR. MTN. DR.)

DURABLE 4" WHITE LINE
 31+00 RT - 31+65 RT (NAT. LIFE DR.)(EDGE)
 31+30 RT - 33+20 LT (TURN LANE)
 31+45 RT - 31+60 RT (NAT. LIFE DR.)
 31+45 RT - 32+00 RT (MAIN.)(EDGE)
 31+90 RT (NAT. LIFE DR.)- 46+10 (MAIN.)(EDGE)
 32+15 RT - 37+55 RT (DASHED)
 38+80 RT - 45+20 RT (DASHED)
 31+00 LT - 37+90 LT (EDGE)
 33+20 LT - 34+20 LT (DOTTED)(TURN LANE)
 38+05 LT (GRN MTN DRIVE)(20')
 38+40 LT - 46+10 LT (EDGE)
 45+20 RT - 46+10 RT (TURN LANE)

DURABLE 4" YELLOW LINE
 31+00 CL - 31+05 CL
 31+30 RT - 31+65 RT (DBL)(NAT. LIFE DR.)
 31+60 RT - 32+00 RT (DBL)(ISLAND)
 31+75 RT (NAT. LIFE DR.) - 32+00 RT (NAT. LIFE DR.)
 32+00 RT - 37+00 RT
 32+00 LT - 37+00 LT
 37+00 CL - 38+00 CL (DBL)(ISLAND)
 38+20 LT (20')(DBL)
 38+80 CL - 46+10 CL (DBL)

DURABLE LETTER OR SYMBOL
 31+90 RT (O,N,L,Y,L,T ARROW)
 32+05 RT (Y,L,E,L,D)
 33+05 RT (O,N,L,Y,L,T ARROW)
 37+95 LT (S,T,O,P)
 38+10 LT (S,T,O,P)
 45+22 RT (O,N,L,Y,L,T ARROW)

TEMPORARY LETTER OR SYMBOL
 31+90 RT (O,N,L,Y,L,T ARROW)
 32+05 RT (Y,L,E,L,D)
 33+05 RT (O,N,L,Y,L,T ARROW)
 37+95 LT (S,T,O,P)
 38+10 LT (S,T,O,P)
 45+22 RT (O,N,L,Y,L,T ARROW)

SURVEYED BY	MOREAU	DATE	9-92
DRAWN BY	SQUAD A	DATE	2-93
SQUAD LEADER	NAP		
DESIGN FILE NO.	/sgdo/db08str.dgn		
IPBM		DATE	11-1996

Bridge
1976

WATERBURY TH 3633

1976