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19. Std. SCB-D6-73 (4/3/78 E)

PRESTRESSED CONCRETE MEMBER-BERKSHIRE CONCRETE CORP., PITTSFIELD, MASS.
BRIDGE RAILING, GUARD RAIL-LAFAYETTE-SHELDON INC., ESSEX JCT, VT.

RECORD PLANS-MATERIAL SUPPLIERS

CONTRACTOR-JOHN NORTON, LUDLOW, VT.
CONTRACT DATED-14 SEPTEMBER 1978
CONSTRUCTION BEGAN-3 OCTOBER 1978

CONSTRUCTION SUSPENDED-9 JANUARY 1979 RESUMED-9 MAY 1979
CONSTRUCTION COMPLETED-11 MAY 1979 ACCEPTED-24 MAY 1979
RESIDENT ENGINEER-EUGENE A. ORVIS RECORD PLANS-GEORGE J. ABRAIR
GRANULAR BACKFILL FOR STRUCTURES, SUB-BASE OF GRAVEL-
ORWELL SAND AND GRAVEL, ORWELL, VT.

CONCRETE-J.P. CARRARA & SONS, WALLINGFORD, VT.
STEEL PILING-BETHLEHEM STEEL CORP., BETHLEHEM, PENNSYLVANIA
REINFORCING STEEL-K. ROSS BUILDING SUPPLY CENTER, LEBANON, N.H.

STATE OF VERMONT DEPARTMENT OF HIGHWAYS



PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF ORWELL
COUNTY OF ADDISON

ROUTE NO: TH #27 CL. III BRIDGE NO: 12

PROJECT LOCATION: PROJECT BEGINS AT A POINT APPROXIMATELY 0.25 MILES WESTERLY OF INTERSECTION OF TH #27 & VT. RTE. 22A AND EXTENDS 150' ALONG TH #27.

PROJECT DESCRIPTION: THE PROJECT SHALL CONSIST OF REMOVAL OF EXISTING STRUCTURE CONSTRUCTION OF A NEW PRESTRESSED CONCRETE VOIDED SLAB BRIDGE AND NECESSARY ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE:	46.0 FEET
LENGTH OF PARTICIPATION ROADWAY:	104.0 FEET
LENGTH OF NON-PARTICIPATION ROADWAY:	— FEET
LENGTH OF PROJECT	150.0 FEET

GENERAL NOTES:

1. See SCB-D1-75 for additional General Notes.
Notes 4, 7, 13, 14, & 16 are applicable.

2. The top portion of the existing stone abutments to be removed that fall within the limits for structure excavation shall be paid for as Structure Excavation & the remainder shall be paid for as Unclassified Channel Excavation. Limits are as shown on X-sections.

3. Where good gravel is encountered in bridge approaches it shall not be excavated & replaced but shimmed to attain finish grade.

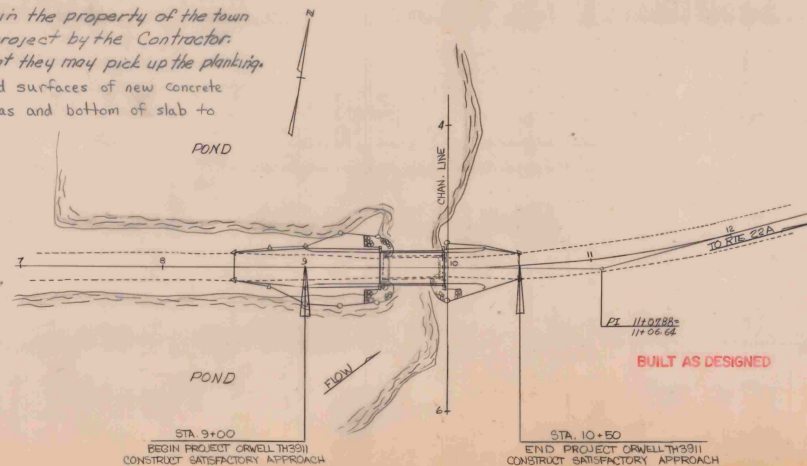
4. Turf establishment shall be as directed by the Engineer & subsidiary to other items.

5. The existing bridge planking shall remain the property of the town & shall be removed & stockpiled near the project by the Contractor. The Contractor shall notify the town so that they may pick up the planking.

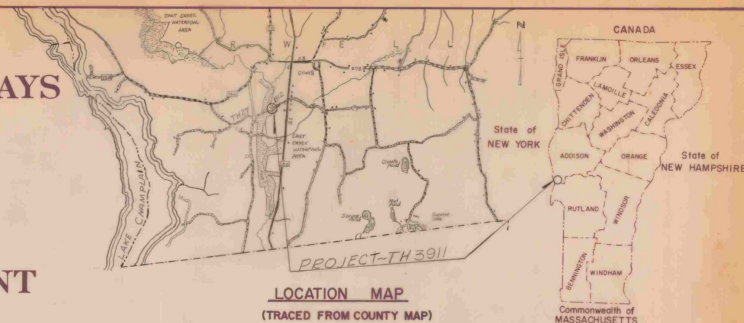
6. Water Repellent shall be applied to all exposed surfaces of new concrete abutments and wingwalls, and to top of deck, fascias and bottom of slab to drip notch.

CONVENTIONAL SIGNS

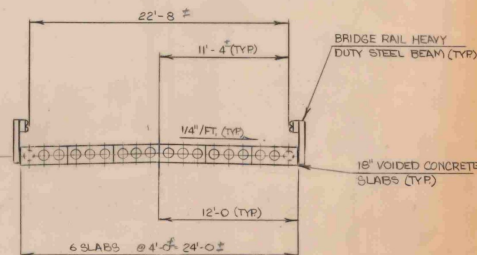
- COUNTY LINE
- TOWN LINE
- LIMITS OF ACCESS
- POINT OF ACCESS
- FENCE LINE
- STONE WALL
- RAVINE
- RAILROAD
- SURVEY LINE
- CULVERT
- POWER POLE
- TELEPHONE POLE
- TREES
- F.A. CONST. IDENTIFICATION SIGNS
- PROPERTY LINE
- R.O.W. TAKING LINE
- SLOPE RIGHTS
- TOP OF CUT
- TOE OF SLOPE



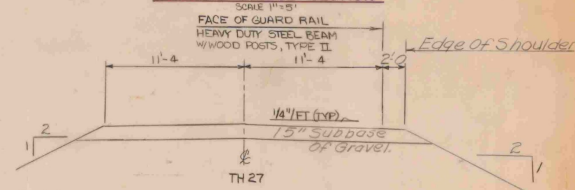
PLAN
SCALE 1" = 40'



LOCATION MAP
(TRACED FROM COUNTY MAP)



TYPICAL BRIDGE SECTION
SCALE 1" = 5'



TYPICAL ROADWAY SECTION
NTS

SUBMITTED BY ORDER OF THE STATE HIGHWAY BOARD	
APPROVED <i>J. J. Gage</i>	DATE 7/31/78
CHIEF ENGINEER	
PROJECT ORWELL TH 3911	
SHEET 1 OF 19 SHEETS	

EARTHWORK

V.C.	STATION	ELEVATION		CORR. V.C.	DIST.	AREA		CU. YDS.		AREA		CU. YDS.		AREA		CU. YDS.	
		ON TAN.	ON V.C.														
	8+50	296.00															
	+75	296.43															
	9+00	296.85															
	+25	297.28															
	+50	297.70															
	+75	297.78															
	+98	298.51															
	10+00	298.55															
	+25	298.98															
	+50	299.40	299.59	+0.19													
	+75	300.60															

BRIDGE QUANTITY SHEET

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
BRIDGE DIVISION

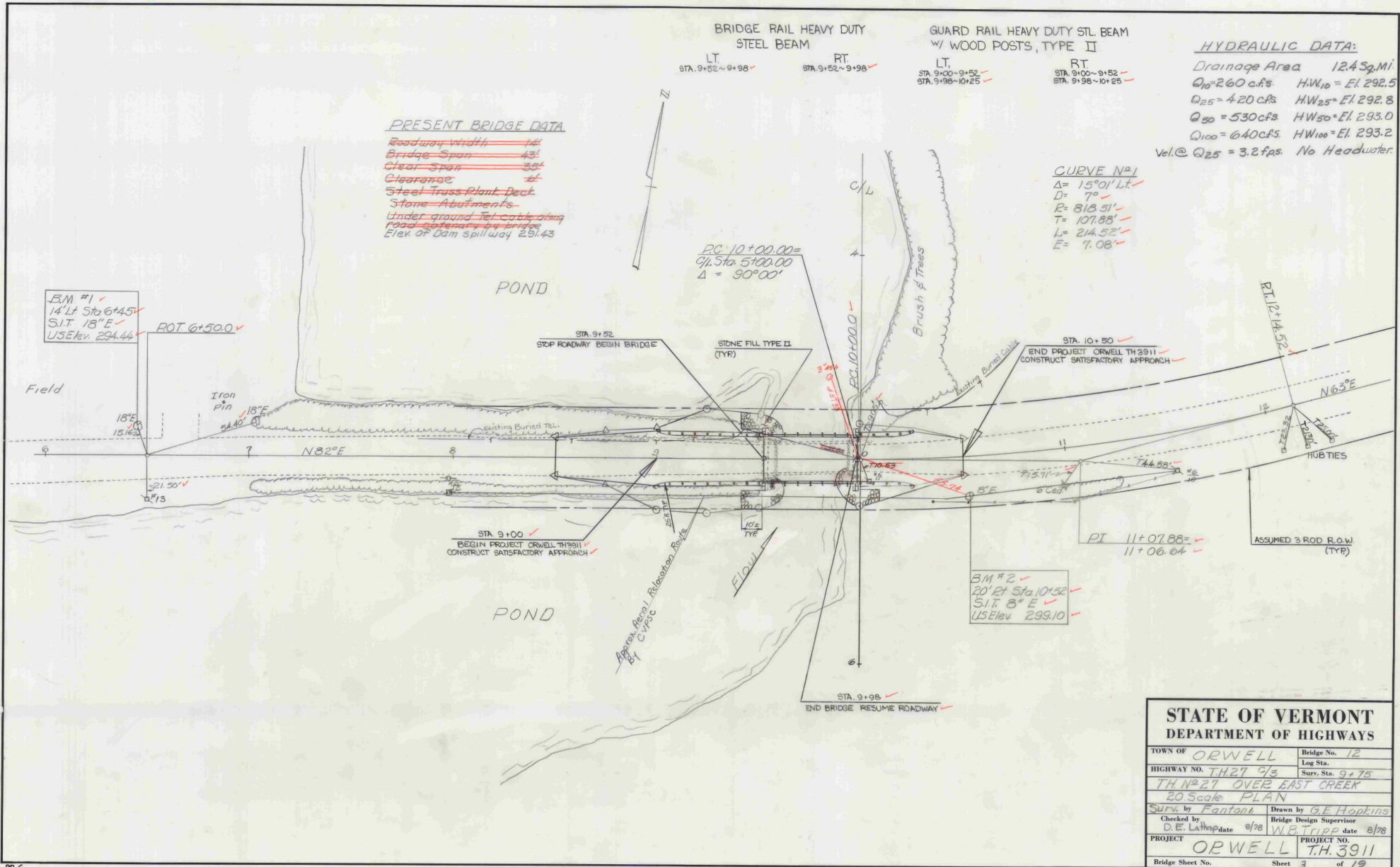
QUANTITY BREAKDOWN										TOTAL	FINAL
NO.	ITEM	UNIT	ABUT. 1	ABUT. 2	SUPER-STRUCTURE	ROADWAY	CHANNEL				
202.20	Removal of Existing Superstructure	Ea.			1					1	1
203.15	Common Excavation (Est.)	Cy				50				50	66
203.27	Unclassified Channel Excavation	Cy					50			50	90
203.30	Earth Borrow (Est.)	Cy				50				50	0
204.25	Structure Excavation	Cy	20	20						40	40
204.30	Granular Backfill for Structures	Cy	15	15						30	23
301.15	Subbase of Gravel	Cy				200				200	196
501.25	Concrete, Class B	Cy	15	15						30	23.88
504.10	Furnishing Equip. for Driving Piles	L.S.	Reg.	Reg.						1	1
505.15	Steel Piling (HP 12 X 53)	Lf	220	200						420	405
507.15	Reinforcing Steel	Lb.	99.5	98.5						1980	1999
510.20	Prestressed Concrete Member (15' x 4' 0" x 46" - 0 Voids Slab)	Ea.			6					6	6
514.10	Water Repellent	Gal.	0.5	0.5	12					13	13
613.11	Stone Fill, Type II	Cy				70				70	73
617.35	Bridge Piling - Heavy Duty St. Bm.	Lf			92					92	92
621.38	Guard Rail, Heavy Duty Steel Beam w/ Wood Posts, Type II (6' x 3 Post Spacing)	Lf				190				190	198

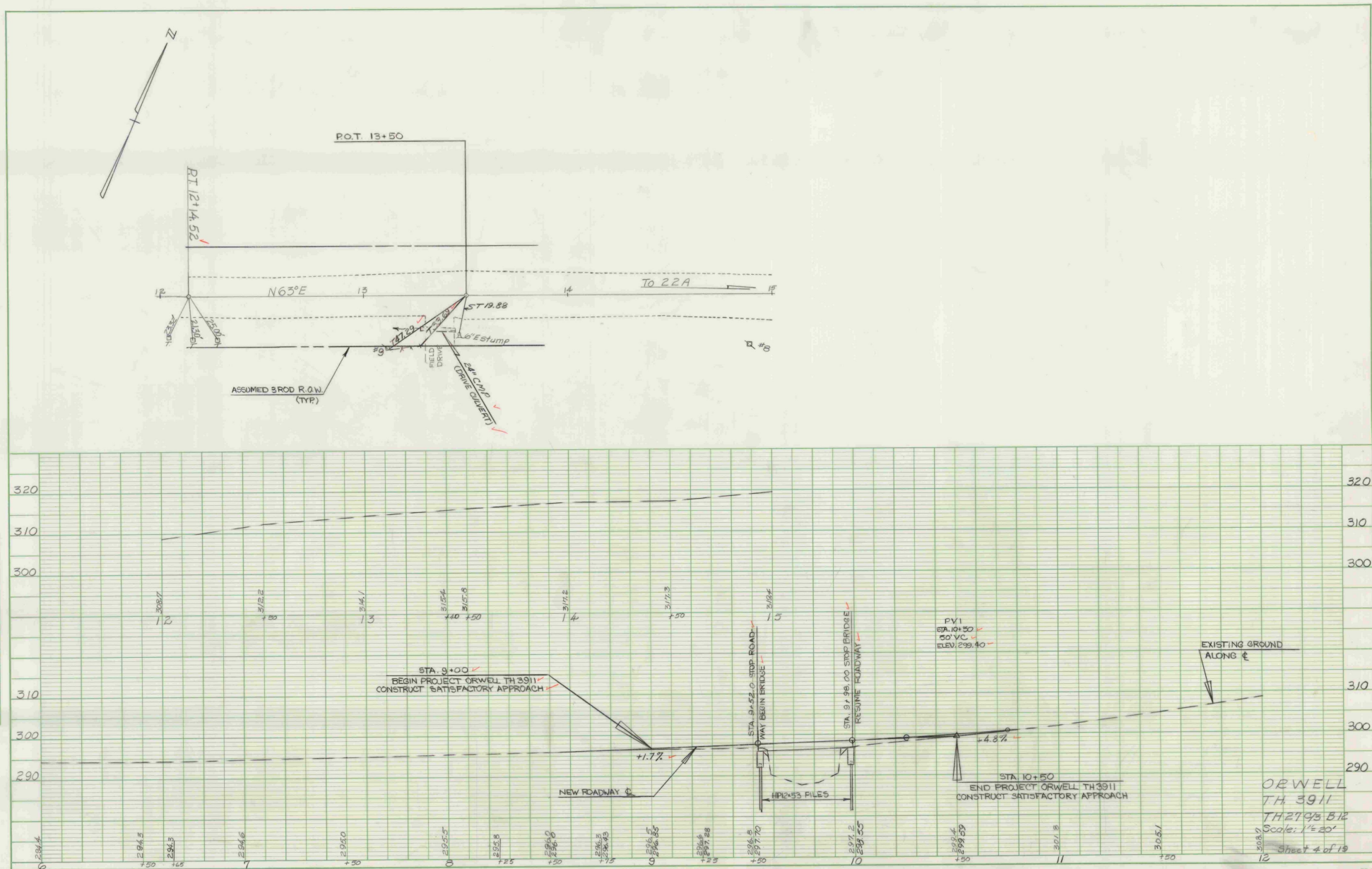
BRIDGE ☒ AT STATION ☒ 9+75
LOCATION ☒ TH 27 OVER EAST

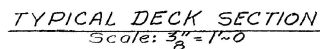
Designed by D. S. LATHROP Checked by G. Hopkins
SUPERVISOR W. TRIPP

ORWELL
BR OF

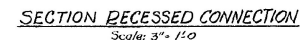
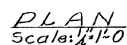
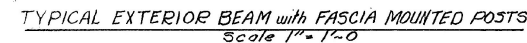
PROJECT NO. TH 3911
SHEET NO. 2 OF 19







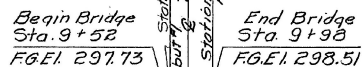
DESIGN DATA: H20 Loading
LL + I Moment = 197.0 k-Ft
LL + I Reaction = 20.5 kips
SDL Moment = 24.8 kips



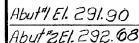
1. For General Notes see sheet No. 1.
2. The tops of prestressed beams shall be screed finished.
3. Reinforcing steel in prestressed units shall be grade 40.
4. 1"x6"x40 bearing pads shall meet requirements for Item 73101 or 73102.
5. Prestressing steel shall be 1/2 in. dia. 270ksi seven wire strand & shall conform to ASTM A416.
6. Design loading - H-20-44.
7. Ends of prestressing strands shall be recessed & grouted as per standard practice.
8. All exposed corners shall be chamfered 3/4".
9. Keys shall be omitted from exterior faces of outside beams.
10. Approximate weight of each prestressed unit is 30,000 lb.
11. 6"x6"x40 bearing pads shall be used as shims if required in order to compensate for a variation in camber of the beams & thereby provide a more uniform riding surface.
12. 2"x8" sleeves in each end of each slab shall be filled with mortar type II or better.

Minimum Concrete Strength- $f'_c = 5000$ psi @ 28 days.
Concrete Strength @ Stress Transfer- $f'_c = 4000$ psi.
Overall Length = 46'-0"
The Fabricator may at his option alter this suggested design to meet his prestressing operation & material availability. All design computations must be furnished to the department in accordance with Item 510.20, Prestressed Concrete Member (3111-481 18 x 48).

TOWN OF	ORWELL	Bridge No.	12
HIGHWAY NO.	TH. 27 3633 3	Log Sta.	
		Surv. Sta.	9+75
TH. 27 OVER EAST CREEK			
SUPERSTRUCTURE DETAILS			
Designed by	G.E. Lathrop		
Checked by	G.E. Hopkins		
O.E. Lathrop	date	8/78	
PROJECT	BRIDGE DESIGN SUPERVISOR		
	W.B. Tripp		
	date	8/78	
	PROJECT NO.		
	ORWELL		
	TH 3911		
Bridge Sheet No.	Sheet	5	of 19

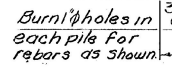


TYPICAL ABUTMENT PLAN
Scale: 3/8" = 1'-0"



TYPICAL ABUTMENT ELEVATION
Scale: $\frac{3}{8}'' = 1'-0$

1. Dowels for anchoring beams to abutments shall be either poured in place or drilled & grouted in after concrete is poured. Exact spacing of dowels is dependant upon how well beams fit together.
2. Wings shall not be poured until after beams are set in position for ease of placing beams & because exact width of finished deck is not known.
3. 1'-0" of Granular Backfill For Structures shall be placed below the bottom of each abutment if deemed necessary by the Engineer in the field. Additional Granular Backfill for Structures & Structure Excavation have been included in Item Quantity.
4. Piling design load is 97 kips per pile.
5. Estimated Pile length for Abutment #A1 is 35' & Abutment #A2 is 50'.



SECTION B-B
Scale: 1" = 1'-0"



SECTION AA
Scale: 1" = 1'-0"



Estimated Pile Penetration

Abut. No 2 Bot. Of Abut. Elev. 292.68

Estimated Pile Penetration

Standard Penetration Borings

Boring No.	Mainline Station	Offset
B1	9+47	2'
B2	10+03	2'

BORING NOMENCLATURE

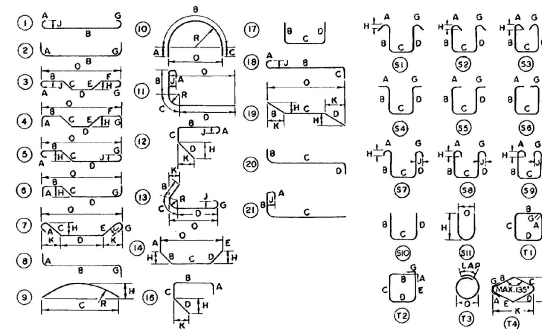
- | | |
|----|--------------------------------|
| SB | STANDARD PENETRATION BORINGS |
| | SAMPLER OUTSIDE DIAMETER 2" |
| | SAMPLER INSIDE DIAMETER 1 3/8" |
| | WEIGHT OF HAMMER 140 LBS |
| | HAMMER FALL 30" |
| AB | AUGER BORINGS |
| SD | RCD SOUNDINGS |
| UP | UNDISTURBED PISTON SAMPLE |
| VS | FIELD VANE SHEAR SAMPLE |

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF	ORWELL	Bridge No. 12
HIGHWAY NO.	TH 27 Clogg 3	Log Sta.
	TH N 27 OVER EAST CREEK	Surv. Sta. 9175
ABUTMENT DETAILS		
Designed by	O. Lathrop	Drawn by G. E. Hopkins
Checked by	DE. Lathrop	Bridge Design Supervisor
PROJECT	date 3/78	WB Trip 2 date 3/78
	ORWELL	PROJECT NO. TH 3911
Bridge Sheet No.	Sheet	6 of 19

BR 6

TYPICAL BAR BENDS



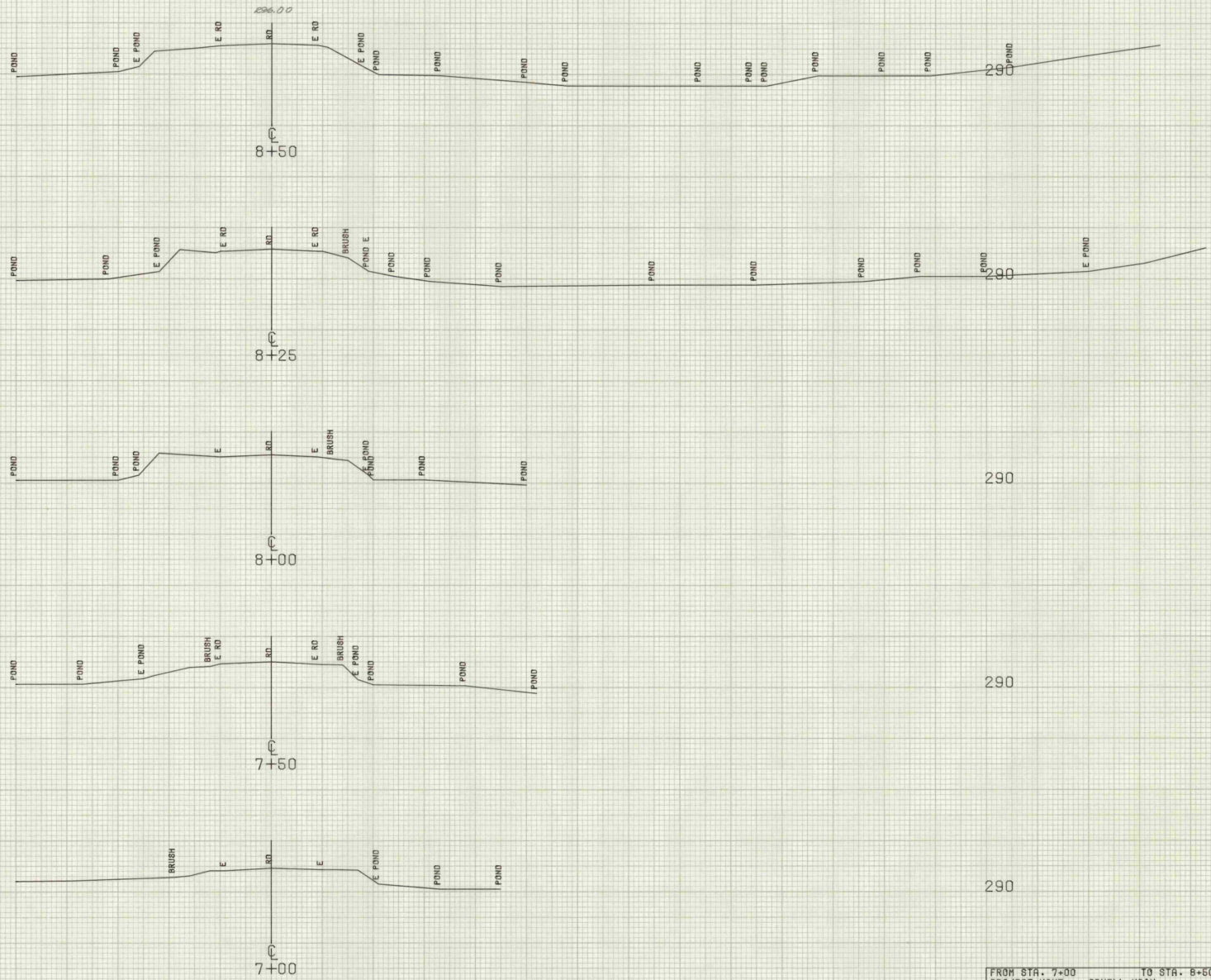
NOTES

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT" AASHTO M 31 (ASTM A 615), GRADE 60.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED MIN DIAMETER "D" OF BENDS AND HOOKS AND OTHER STANDARD PRACTICE SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "X" AND "S" ON STANDARD 180° AND 135° HOOKS.
5. "J" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45° DIMENSIONS "M" AND "N" MUST BE SHOWN

* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.

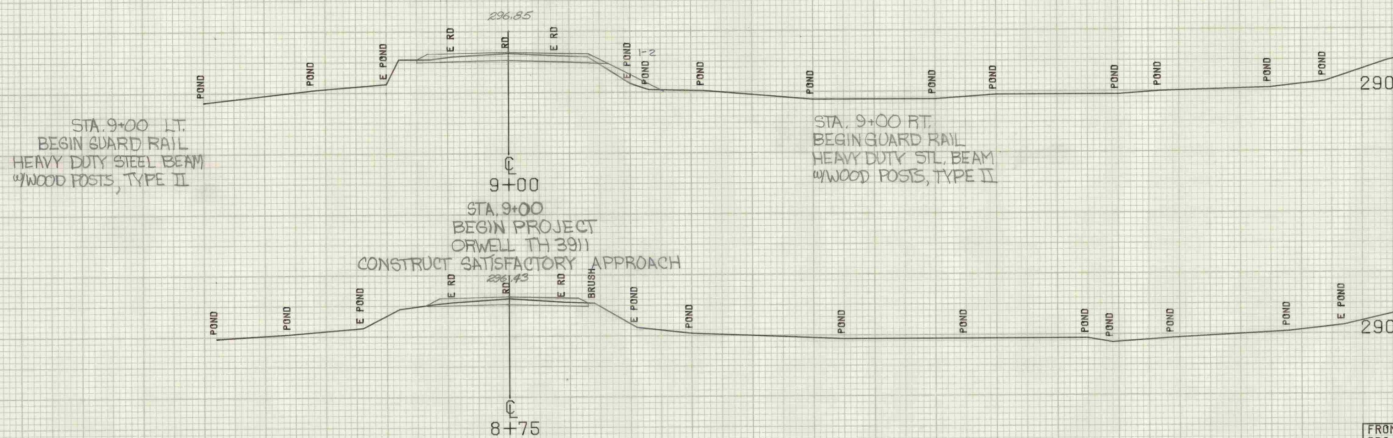
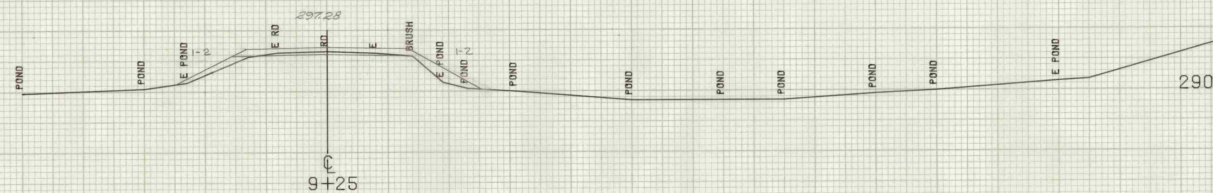
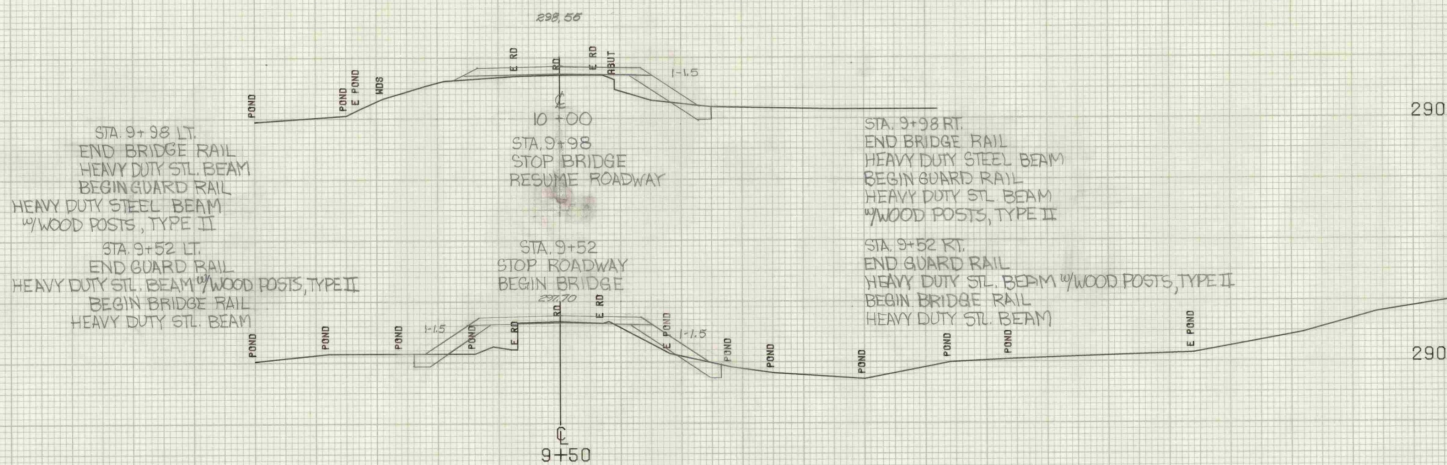
REV NO.	MADE BY	DATE	DESCRIPTION
1	J. WOOD	8/11/75	AASHQ. CHANGED TO AASHQ. AND GRADE 40 CHANGED TO GRADE 60.

STATE OF VERMONT DEPARTMENT OF HIGHWAYS	
TOWN OF	ORWELL
HIGHWAY NO.	TH 27 Cb333
TH N27 OVER EAST CREEK	
REINFORCING STEEL SCHEDULE	
DESIGNED BY	D.E. Lathrop
CHECKED BY	W.B. Tripp
DATE	8/28
PROJECT	BRIDGE DESIGN SUPERVISOR
PROJECT NO.	
TH 3911	
BRIDGE SHEET NO.	SHEET 7 OF 19



FROM STA. 7+00 TO STA. 8+50
 PROJECT NAME ORWELL MAIN
 NO. TH3911
 SURVEYED BY FANTONI
 SHEET 2 OF 19 SHEETS
 PLOTTED 07/11/78
 06/78

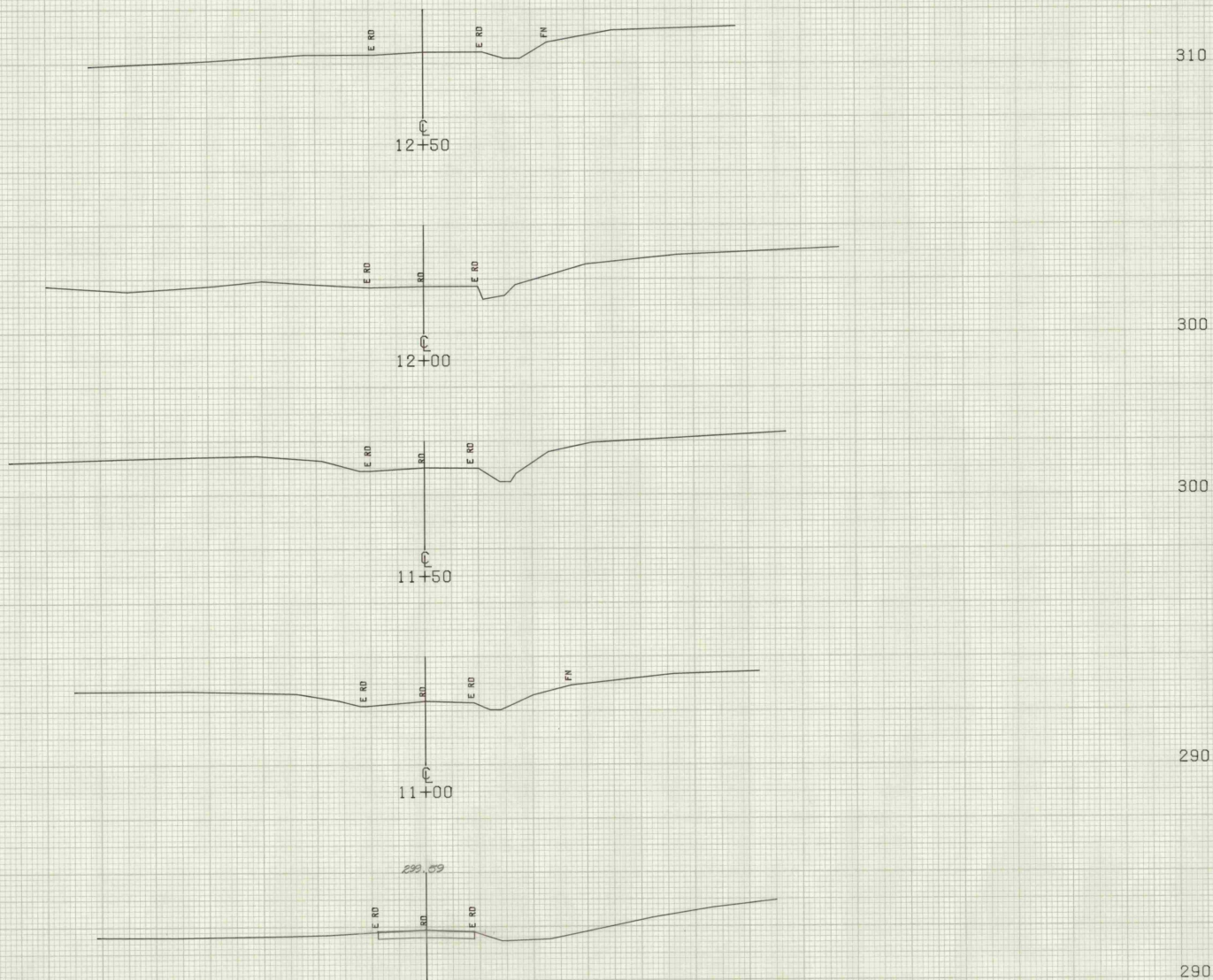
SCALE 1" = 10 FEET



STA. 10+25 LT
END GUARD RAIL
HEAVY DUTY STEEL BEAM
1/2" WOOD POSTS, TYPE II

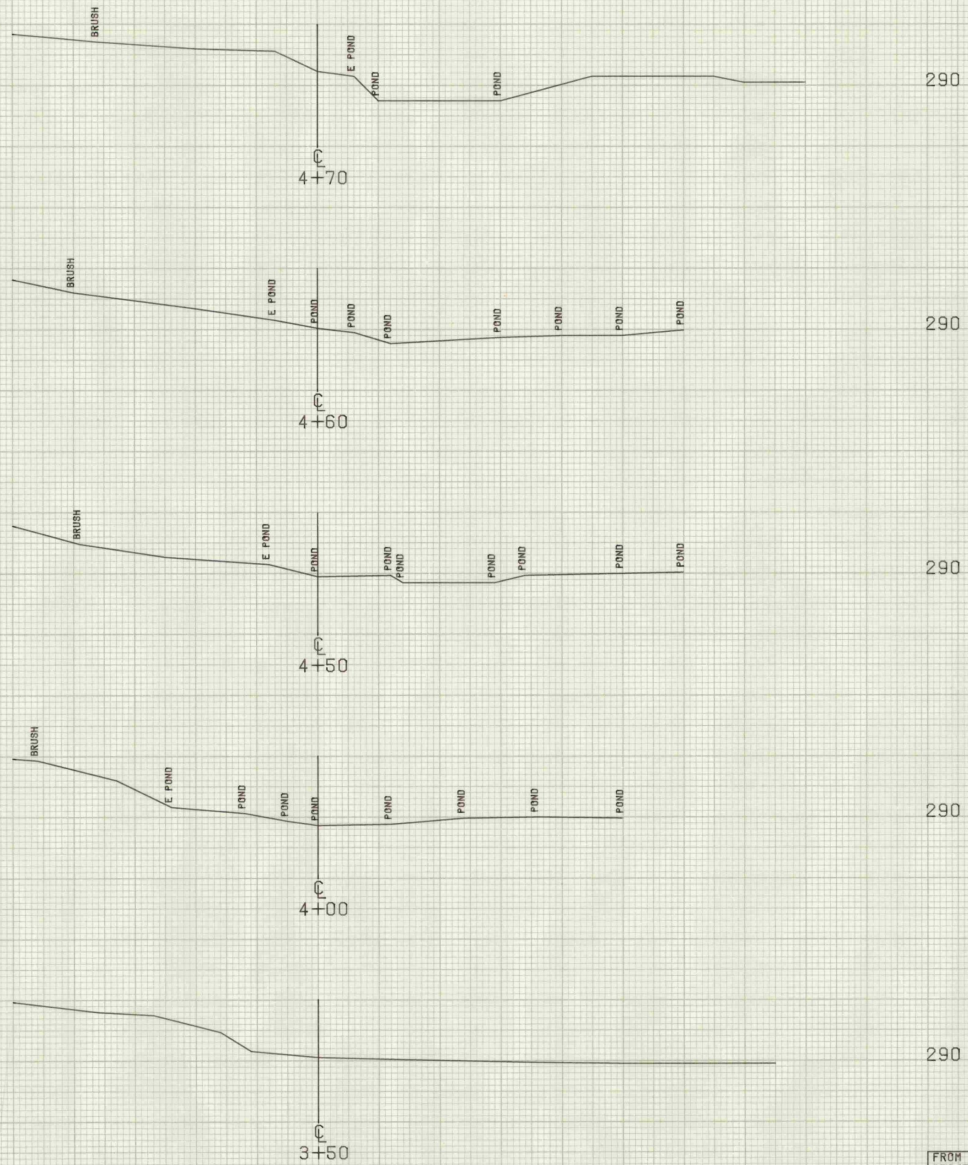
10+50
STA. 10+50
END PROJECT
ORWELL TH3911
CONSTRUCT SATISFACTORY APPROACH

STA. 10+25 RT
END GUARD RAIL
HEAVY DUTY STL. BEAM
1/2" WOOD POSTS, TYPE II



SCALE 1" = 10' FEET

FROM STA. 10+50	TO STA. 12+50
PROJECT NAME ORWELL MAIN	
NO. TH3911	PLOTTED 07/11/78
SURVEYED BY FANTONI	06/78
SHEET 10 OF 19 SHEETS	



FROM STA. 3+50	TO STA. 4+70
PROJECT NAME	DRWELL CHAN
NO.	TH3911
SURVEYED BY	FANTONI
SHEET // OF //	PLOTTED 07/11/78
	06/78
	SHEETS

SCALE 1" = 50' FEET

Sta. 5+25 End Stone Fill, Type II, Abut. No. 152
End Unclassified Channel Excavation, Abut. No. 152

Sta. 5+17 End Structure Excavation, Abut. No. 152
End Granular Backfill for Structures, Abut. No. 152

Sta. 5+05 Begin Stone Fill, Type II, Abut. No. II

Sta. 4+91 Begin Unclassified Channel Excavation, Abut. #2

Sta. 4+83 Begin Structure Excavation, Abut. No. 152
Begin Granular Backfill for Structures, Abut. No. 152

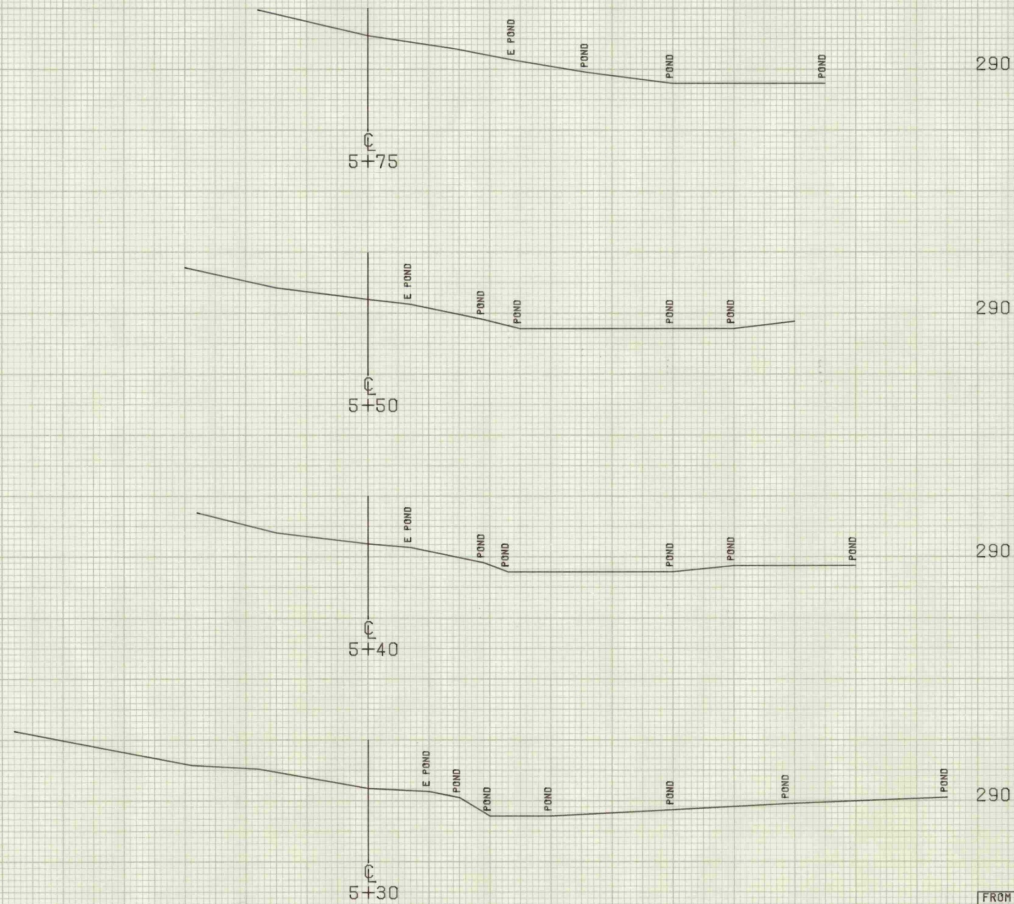
Sta. 5+10 Begin Stone Fill, Type II, Abut. No. 1

Sta. 4+93 End Stone Fill, Type II, Abut. No. 1

Sta. 4+77 Begin Stone Fill, Type II, Abut. No. 1
Begin Unclassified Channel Excavation

FROM STA. 4+80	TO STA. 5+20
PROJECT NAME	ORWELL CHAN
NO.	TH9911
SURVEYED BY	FANTONI
SHEET 12 OF 19	SHEETS
	PLOTTED 07/11/78
	06/78

SCALE 10 FEET

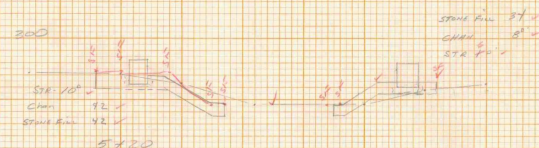


FROM STA. 5+30	TO STA. 6+75
PROJECT NAME	ORWELL CHAN
NO.	TA3911
SURVEYED BY	FANTONI
SHEET 3 OF 19 SHEETS	PLOTTED 07/11/78
	06/78

SCALE 1" = 10 FEET

ORIGINAL	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	TEMPLATE		
	AREAS		
	AREAS CHECKED		

4493 BUTT STONE FIRE ALARMS 182



5+17 BUTT STRUCTURE EXCAVATION

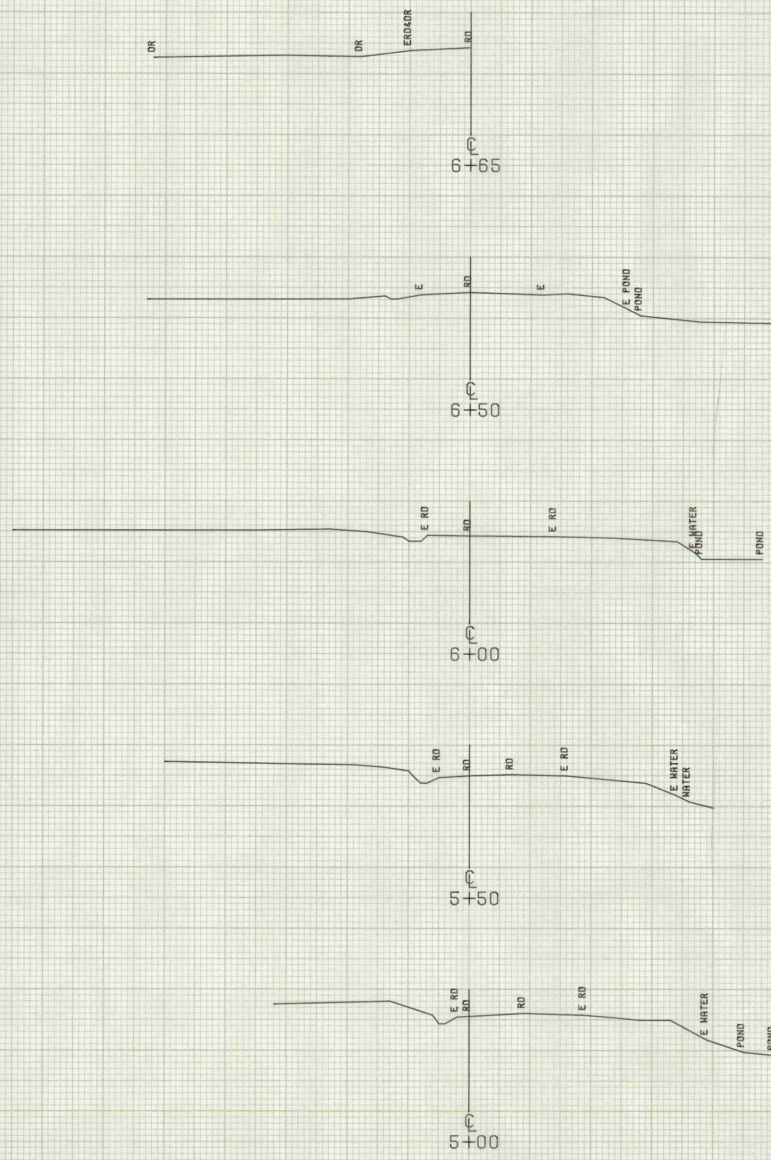
Time	Lat	Long	Alt	Mag	Notes
9:58	4	16	1		
10:07	5	22	1	7.6	
10:21	5	23	1	18.7	
10:25	5	53	1	9.8	
10:30	7	53	1	29.2	
10:37	3	53	✓		
10:40	3	53	✓	18.9	
10:42	3	53	✓	17.2	
10:43	3	53	✓	18.2	
10:45	3	53	✓	18.2	
10:47	3	53	✓	18.2	
10:48	3	53	✓	18.2	
10:50	3	53	✓	18.2	
10:52	3	53	✓	18.2	
10:54	3	53	✓	18.2	
10:56	3	53	✓	18.2	
10:58	3	53	✓	18.2	
11:00	3	53	✓	18.2	
11:02	3	53	✓	18.2	
11:04	3	53	✓	18.2	
11:06	3	53	✓	18.2	
11:08	3	53	✓	18.2	
11:10	3	53	✓	18.2	
11:12	3	53	✓	18.2	
11:14	3	53	✓	18.2	
11:16	3	53	✓	18.2	
11:18	3	53	✓	18.2	
11:20	3	53	✓	18.2	
11:22	3	53	✓	18.2	
11:24	3	53	✓	18.2	
11:26	3	53	✓	18.2	
11:28	3	53	✓	18.2	
11:30	3	53	✓	18.2	
11:32	3	53	✓	18.2	
11:34	3	53	✓	18.2	
11:36	3	53	✓	18.2	
11:38	3	53	✓	18.2	
11:40	3	53	✓	18.2	
11:42	3	53	✓	18.2	
11:44	3	53	✓	18.2	
11:46	3	53	✓	18.2	
11:48	3	53	✓	18.2	
11:50	3	53	✓	18.2	
11:52	3	53	✓	18.2	
11:54	3	53	✓	18.2	
11:56	3	53	✓	18.2	
11:58	3	53	✓	18.2	
12:00	3	53	✓	18.2	



6105 BUTT STONE FILL

4/83 BUTT STRUCTURE EXAMINATION

SHEET # 1 OF 1



290

280

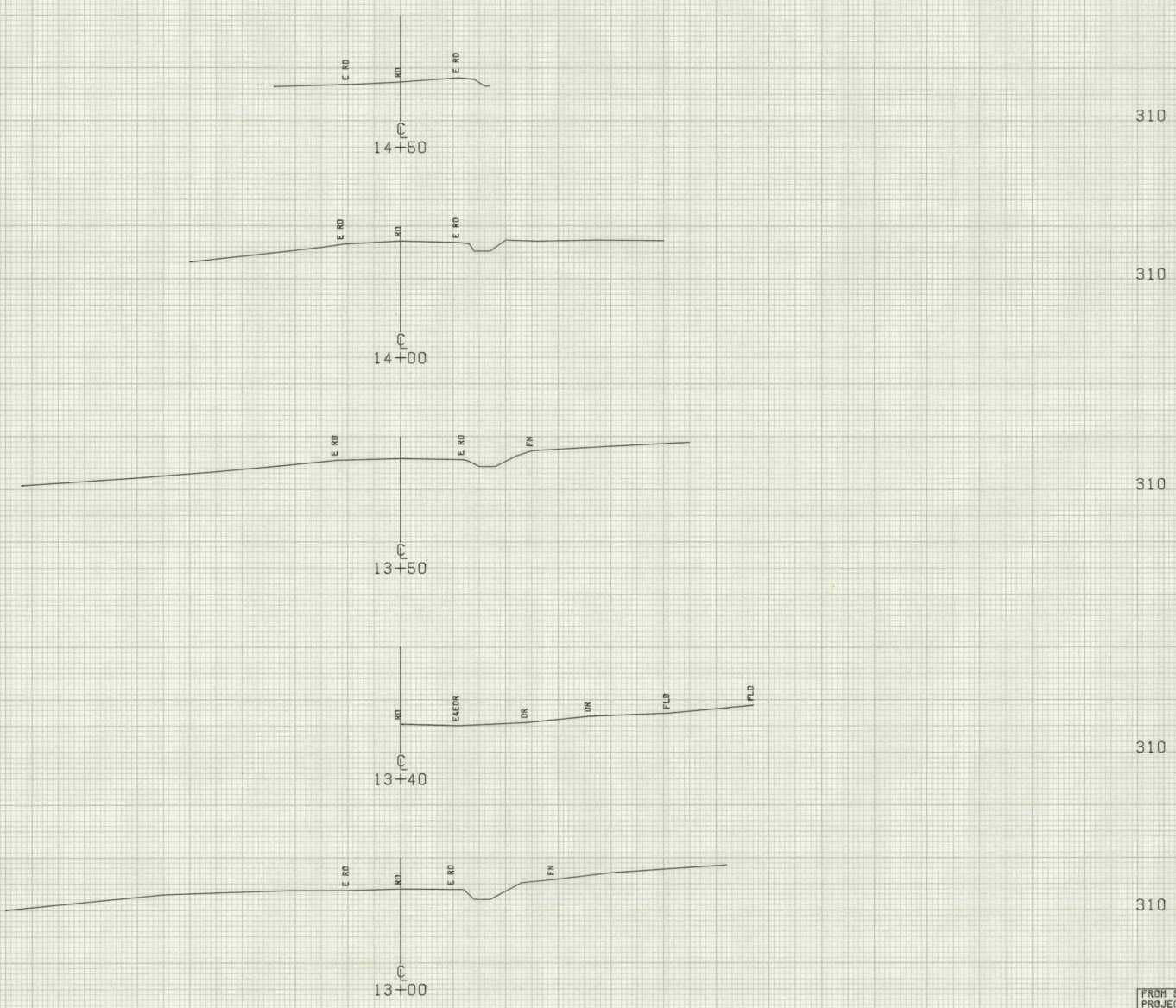
290

290

290

SCALE 1" = 10 FEET

FROM STA. 5+00	TO STA. 6+86
PROJECT NAME	ORWELL RAIN
NO.	TH3911
SURVEYED BY	FANTONI
SHEET OF	SHEETS
	PLOTTED 07/11/76
	06/76



SCALE 10 FEET

FROM STA. 13+00	TO STA. 14+50
PROJECT NAME	ORWELL MAIN
NO.	TH3911
SURVEYED BY	FANTONI
SHEET OF	06/78
	PLOTTED 07/11/78
	SHEETS

E RD
15+00
C
E RD

310

SCALE 1" = 10 FEET

FROM STA. 15+00	TO STA. 16+00
PROJECT NAME	ORWELL MAIN
NO.	FH3911
SURVEYED BY	FANTONI
SHEET OF	PLOTTED 07/11/78 06/78 SHEETS

Vermont Agency of
Transportation
PHASE 2-INTERSTATE
#122302-01



INITIALS

Hanger 2963

DONE

DONE

Bridge
1979

Orwell
TH 39 11

1979