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Dated JUN 6 1984

Winterset Inc
Contractor

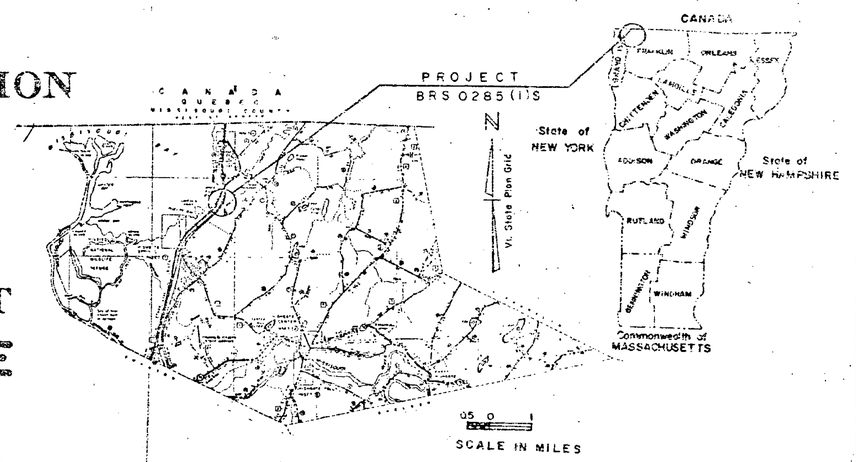
Gerard Bailey
Signature

President
Title

D. H. Remick 6-6-84
ACTING Transportation Secretary's Signature

STATE OF VERMONT
AGENCY OF TRANSPORTATION





PROPOSED IMPROVEMENT
TOWN OF HIGHGATE
COUNTY OF FRANKLIN
U.S. ROUTE NO. 7 (F.A.S.)

BURLINGTON—HIGHGATE ROAD

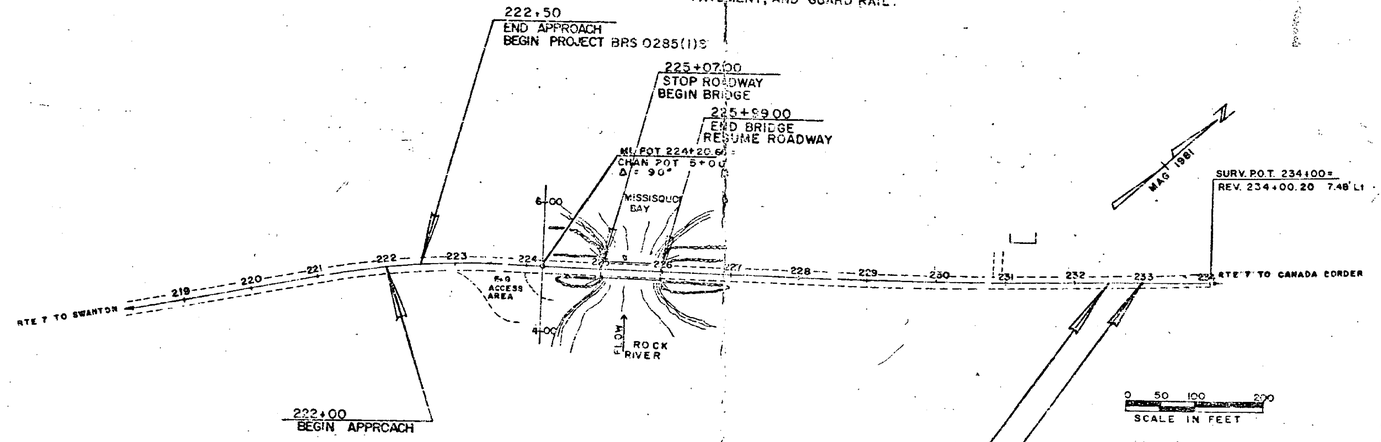
BEGINNING AT A POINT 4.204 MILES NORTHERLY FROM THE SWANTON-HIGHGATE TOWN LINE AND EXTENDING NORTHERLY 0.189 MILES

LENGTH OF ROADWAY	908.00 FEET =	0.172	MILES
LENGTH OF BRIDGE	92.00 FEET =	0.017	MILES
LENGTH OF PROJECT	1000.00 FEET =	0.189	MILES

TRAFFIC DATA	
1982 ADT	320
2002 ADT	460
2002 DHV	65
T	1%
D	55%
V	50 MPH

PROJECT DESCRIPTION

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REMOVAL OF EXISTING BRIDGE AND CONSTRUCTION OF A NEW BRIDGE AND APPROACHES ON IMPROVED GRADE. APPROACH WORK CONSISTS OF GRADING, DRAINAGE, SUBBASE, PAVEMENT, AND GUARD RAIL.



CONTRACT PLANS

THESE PLANS DO NOT REFLECT CHANGES MADE ON THE PROJECT.

CONVENTIONAL SIGNS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS SR
TOP OF CUT
TOE OF SLOPE

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

These plans are subject to such engineering changes as may be required by the Federal Highway Administration or the Director of Engineering and Construction.

Construction is to be carried on in accordance with these plans and the Standard Specifications for Highway and Bridge Construction dated March, 1976, as approved by the Federal Highway Administration on October 27, 1976 for use on this project, including all subsequent revisions and such revised specifications and special provisions as are incorporated in these plans.

PROJECT PROCESSED UNDER SECONDARY ROAD PLAN

SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD

APPROVED [signature] P.E. DATE 4-2-84
DIRECTOR OF ENGINEERING AND CONSTRUCTION

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

HIGHGATE
PROJECT BRS № 0285 (1)S

SHEET 1 OF 64 SHEETS

0-10 SRS 12/17/79

TYPICAL SECTIONS

1½" BITUMINOUS CONCRETE PAVEMENT, ITEM 406.25 (TYPE II SINGLE LIFT)
18" SUBBASE OF DENSE GRADED CRUSHED STONE, ITEM 301.35
1 1/2" SHOULDERS; GRAVEL ITEM 402.10 { DENSE GRADED CRUSHED STONE ITEM 301.35 MAY BE AUTHORIZED FOR SHOULDERS IF DIRECTED BY THE ENGINEER
0-24" SAND BORROW, ITEM 203.31 — TO BE PLACED AS NOTED ON THE PLANS
0-12" GRANULAR BORROW, ITEM 203.32 — OR AS DIRECTED BY THE ENGINEER

ALLOWABLE THICKNESS TOLERANCES

SUBBASE	± 1"
CONTROLLED MATERIAL	± 1"
PAVEMENT	± 1/4"

SEEDING FORMULA, ITEM 651.10

RURAL AREAS

% WT.	LBS/A.	NAME	PUR. %	GERM %
3.33	2	CROWN VETCH	97	75
50.00	30	CREEPING RED FESCUE	98	85
8.33	5	TIMOTHY	99	85
16.67	10	PERENNIAL RYE GRASS (VAR. PENNFINE)	95	85
8.34	5	ALFALFA (VAR. SARANAC)	99	85
8.33	5	BIRDSFOOT TREFOIL (VAR. EMPIRE)	98	85
5.00	3	HIGHLAND BENT GRASS	92	85
100.00	80			

THE SEED MIXTURE SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE FROM ALL NOXIOUS WEED SEED.

HAY MULCH, ITEM 651.25, TO BE PLACED ON ALL EARTH SLOPES AT THE RATE OF TWO TONS PER ACRE.

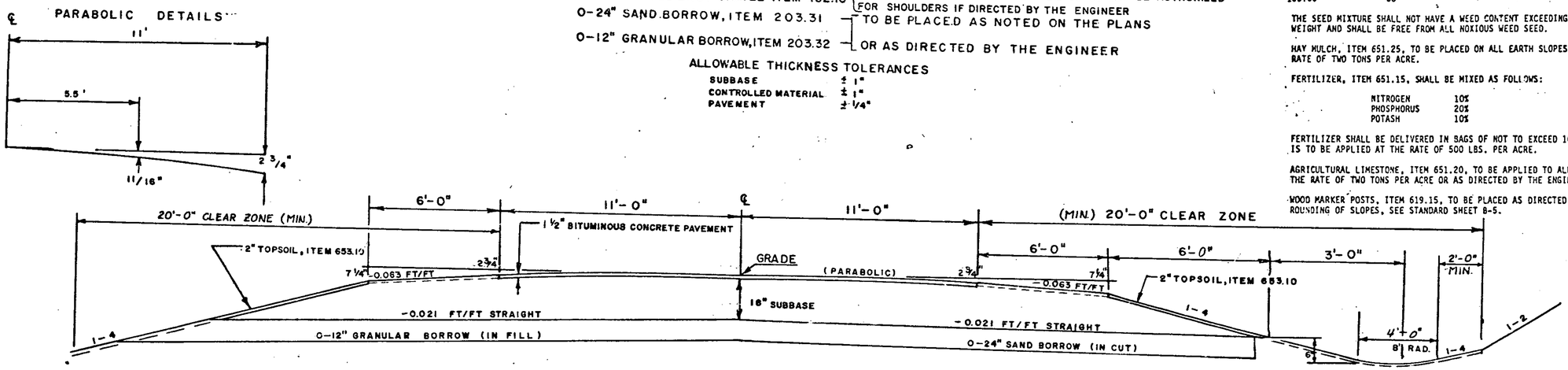
FERTILIZER, ITEM 651.15, SHALL BE MIXED AS FOLLOWS:

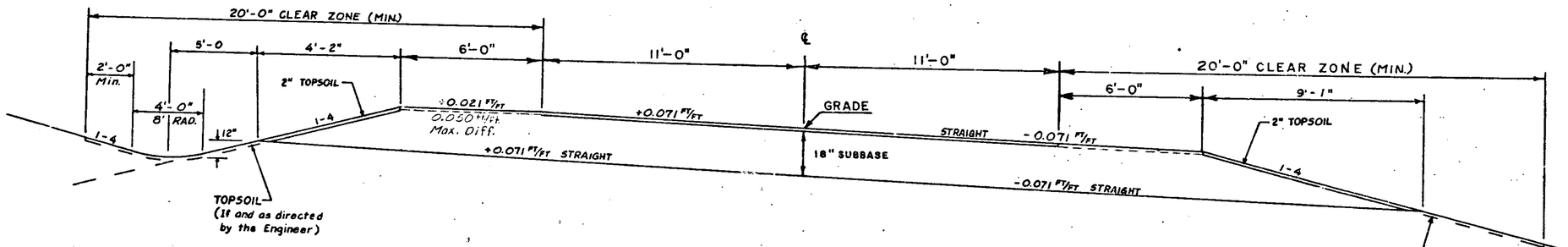
NITROGEN	10%
PHOSPHORUS	20%
POTASH	10%

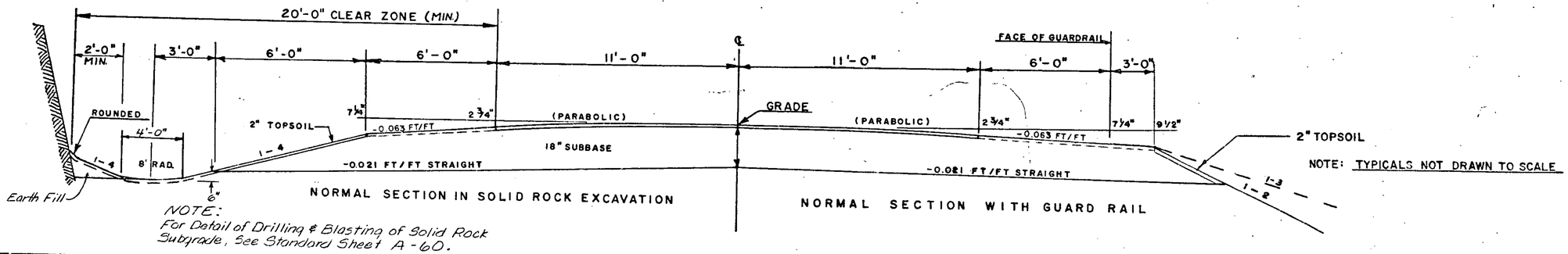
FERTILIZER SHALL BE DELIVERED IN BAGS OF NOT TO EXCEED 100 LBS. EACH AND IS TO BE APPLIED AT THE RATE OF 500 LBS. PER ACRE.

AGRICULTURAL LIMESTONE, ITEM 651.20, TO BE APPLIED TO ALL EARTH SLOPES AT THE RATE OF TWO TONS PER ACRE OR AS DIRECTED BY THE ENGINEER.

WOOD MARKER POSTS, ITEM 619.15, TO BE PLACED AS DIRECTED BY THE ENGINEER FOR ROUNDING OF SLOPES, SEE STANDARD SHEET B-5.







NOTE:
For Detail of Drilling & Blasting of Solid Rock Subgrade, See Standard Sheet A-60.

NOTE:
For Additional Detail
See Standard Sheet, A-24

NOTE: TYPICALS NOT DRAWN TO SCALE

SURVEYED BY FANTONI DATE OCT 81
DRAWN BY CARPENTER DATE DEC 81
TRACED BY CARPENTER DATE JAN 82

HIGHGATE
PROJ. BRS NO. 0285 (1)
SHEET 2 OF 64

DRAINAGE AND ITEM QUANTITY SHEET

STATE OF VERMONT AGENCY OF TRANSPORTATION

PROJECT HIGHGATE NO. BRS 0285(1) S

APPROXIMATE SUMMARY OF QUANTITIES

GRAND TOTAL	UNIT	ITEM	RNDG	ITEM NO.
1	LS	CLEARING & GRUBBING PLUS IND. TREES AND STUMPS		201.10
1	EA	REMOVAL OF EXISTING SUPERSTRUCTURE		202.20
615	LF	REMOVAL & DISPOSAL OF EXISTING GUARD RAIL		202.40
2160	CY	COMMON EXCAVATION		203.15
102	CY	SOLID ROCK EXCAVATION		203.16
500	CY	UNCLASSIFIED CHANNEL EXCAVATION	8	203.27
300	CY	EARTH BORROW	EST	203.30
1220	CY	SAND BORROW		203.31
640	CY	GRANULAR BORROW	EST	203.32
14400	SY	FINE GRADING - SUBGRADE		203.40
310	CY	TRENCH EXCAVATION OF EARTH		204.20
30	CY	TRENCH EXCAVATION OF ROCK	EST	204.21
1055	CY	GRANULAR BACKFILL FOR STRUCTURES		204.30
70	CY	SUBBASE OF GRAVEL	4	301.15
2300	CY	SUBBASE OF DENSE GRADED CRUSHED STONE		301.35
50	CY	GRAVEL SHOULDERS		402.10
6	GAL	EMULSIFIED ASPHALT		404.66
300	TON	BITUMINOUS CONCRETE PAVEMENT		406.25
115	CY	CONCRETE CLASS A		501.20
416	CY	CONCRETE CLASS B		501.25
1	LS	FURNISHING EQUIPMENT FOR DRIVING PILES		501.10
2400	LF	STEEL PILING - HP 14X73 (PLUS 30 SHOES)		505.17
	EA	PILE LOADING TESTS		505.40
	LS	STRUCTURAL STEEL		506.94
10	EA	BEARING DEVICE ASSEMBLY		506.99
1960	LB	REINFORCING STEEL		507.15
	LS	SHEAR CONNECTORS (1080 EA 7/8"X7" STUDS)		508.15
9	GAL	WATER REPELLENT		514.10
34	SY	SHEET MEMBRANE WATERPROOFING		519.20
	LS	COFFERDAM		530.10
20	LF	6" UNDERDRAIN		605.10
50	LF	6" UNDERDRAIN CARRIER PIPE		605.15
	EA	UNDERDRAIN FLUSHING BASINS		605.95
	HR	ROADWAY PATROL MAINTENANCE	EST	607.10
	HR	BULLDOZER RENTAL, TYPE I (NOT A BID ITEM)	EST	608.10
	HR	ALL PURPOSE EXCAVATOR RENTAL TYPE I (NOT A BID ITEM)	EST	608.25
	HR	TRUCK RENTAL (NOT A BID ITEM)	EST	608.37
3	M/GAL	DUST CONTROL WITH WATER	EST	609.10
	TON	DUST CONTROL W/CALCIUM CHLORIDE	EST	609.15
2.5	CY	STONE FILL TYPE II	2	613.11
5	CY	STONE FILL TYPE III	3	613.12

DETAILED SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM
		COMMON EXCAVATION
1684	CY	MAINLINE - PLANIMETERED
112	CY	REMOVAL OF BIT. CONC. PVMT. BELOW SUBGRADE
26	CY	DRIVES
335	CY	ESTIMATED SAND BORROW
3	CY	ROUNDING
2160	CY	TOTAL
		SAND BORROW
877	CY	DESIGNED
343	CY	ESTIMATED
1220	CY	TOTAL
		GRANULAR BORROW
76	CY	DESIGNED (BRIDGE APPROACHES)
474	CY	ESTIMATED FOR CAPPING FILLS
83	CY	FACTOR (0.15X550)
7	CY	ROUNDING
640	CY	TOTAL
		TRENCH EXCAVATION OF EARTH
161	CY	DESIGNED (UNDERDRAIN)
122	CY	ESTIMATED (UNDERDRAIN)
7	CY	ROUNDING
290	CY	TOTAL
		SUBBASE OF GRAVEL
66	CY	DRIVES
4	CY	ROUNDING
70	CY	TOTAL
		SUBBASE OF DENSE GRADED CRUSHED STONE
1964	CY	MAINLINE
49	CY	ROADWAY APPROACHES
75	CY	EXTRA DEPTH FOR BRIDGE APPROACHES
12	CY	ROUNDING
2100	CY	TOTAL
		GRAVEL SHOULDERS
40	CY	MAINLINE
5	CY	APPROACHES
5	CY	ROUNDING
50	CY	TOTAL
		BITUMINOUS CONCRETE PAVEMENT
186	TON	MAINLINE
6	TON	DRIVES
20	TON	APPROACHES
38	TON	EXTRA DEPTH & WIDTH @ BRIDGE APPROACHES
3	TON	ROUNDING
253	TON	TOTAL
		TEMPORARY EROSION CONTROL ITEMS (UNCLUDED W/EROSION CONTROL)
20	CY	TRENCH EXCAVATION OF EARTH
200	CY	SUBBASE OF DENSE GRADED CRUSHED STONE
10	CY	STONE FILL TYPE II
25	LBS	SEED, WINTER RYE
1	TON	HAY MULCH
40	SY	EROSION MATTING

DRAINAGE STRUCTURES

STA.	POS	OLD CULVERT	TYPE IN	TYPE OUT	A.C.C.G.M.P. D	A.C.C.G.M.P. L	A.C.C.G.M.P. TH.	C.G.M.P. D	C.G.M.P. L	C.G.M.P. TH.	C.A.A.C.P. D	C.A.A.C.P. L	C.A.A.C.P. TH.	R.C.P. D	R.C.P. L	R.C.P. CL.	M.E.S.	STONE FILL TYPE I	C.R.M	TRENCH EXCAV. EARTH	TRENCH EXCAV. ROCK	MARKER POSTS LT	MARKER POSTS RT	ASKEW LT	ASKEW RT	CONC. B	REINF. STEEL	DI GRATE	DEPTH DI	DITCHES IN	DITCHES OUT	REMARKS

GUARD RAIL STANDARD STEEL BEAM W/WOOD POSTS, TYPE II

STA.	STA.	POS	MEAS LENGTH	FAC	POST SPACING	PAY LENGTH	BCT 621.77
222+07	222+32	LT					1
222+32	224+28	LT	200'	1.0	6'-3"	200'	
223+28	223+53	RT					1
223+53	224+28	RT	75'	1.0	6'-3"	75'	
226+78	229+28	LT	250'	1.0	6'-3"	250'	
229+28	229+53	LT					1
226+78	228+03	RT	125'	1.0	6'-3"	125'	
228+03	228+28	RT					1
			650'			650'	4

GUARD RAIL APPROACH SECTION TYPE I

STA	STA	POS	QUANTITY EACH
224+28	224+78	LT	1
226+28	226+78	LT	1
224+28	224+78	RT	1
226+28	226+78	RT	1
TOTAL			4

6" UNDERDRAIN

STA.	STA.	TYPE	POS.		LEN	TRENCH E	TRENCH R	CRM	FLUSHING BASINS	MARKER POSTS
224+50	232+50	U	LT		310'	133			1	1
ESTIMATED		U			90'	68			1	1
TOTALS		U			400'				2	2
232+50	CL	C			78'	28			1	1
ESTIMATED		C			72'	54			1	1
TOTALS		C			150'				2	2
TOTAL DESIGNED						161			2	2
TOTAL ESTIMATED						122			2	2

TYPE OF CONSTRUCTION: APPROACHES, NEW BRIDGE, GRADING, PAVEMENT, SUBBASE, DRAINAGE AND GUARD RAIL

STATIONS FROM	STATIONS TO	PAVEMENT WIDTHS 20'-22'	22'	22'-32.67'	32.67	22'-24'	REMARKS
222+00	222+50	50'					APPROACH
222+50	223+79		129'				ROADWAY
223+79	224+79			100'			PAVEMENT WIDENING
224+79	225+07				28'		BRIDGE APPROACH
225+07	225+99				92'		BRIDGE
225+99	226+27				28'		BRIDGE APPROACH
226+27	227+27			100'			PAVEMENT WIDENING
227+27	232+50		523'				ROADWAY
232+50	233+00					50'	APPROACH

LENGTH OF PROJECT

STA.	STA.	FEET	MILES	REMARKS
222+50	225+07	257.00	0.049	ROADWAY
225+07	225+99	92.00	0.017	BRIDGE
225+99	232+50	651.00	0.123	ROADWAY
TOTALS		1000.00	0.189	

HIGHGATE PROJECT BRS NO. 0285(1) S

SHEET 3 OF 64

DRAINAGE AND ITEM QUANTITY SHEET

STATE OF VERMONT AGENCY OF TRANSPORTATION

PROJECT HIGHGATE NO. BRS 0285(1) S

APPROXIMATE SUMMARY OF QUANTITIES

GRAND TOTAL	UNIT	ITEM	RNDG.	ITEM NO.
16	LF	GRANITE BRIDGE CURB		616.11
10	LF	BRIDGE RAILING - GALV. BOX BEAM		617.30
	EA	BOUNDARY MARKERS	EST	619.10
	EA	WOOD MARKER POSTS		619.15
0m	LF	G.R. STD. STEEL BEAM W/WOOD POSTS TYPE II		621.28
	EA	BREAKAWAY CABLE TERMINAL FOR G.R. STL. BEAM W/WOOD POSTS, TYPE II		621.77
-	EA	G.R. APPROACH SECTION TYPE I		621.90
0	HR	UNIFORMED TRAFFIC OFFICERS	EST	630.10
0	HR	FLAGPERSONS	EST	630.15
	LS	FIELD OFFICE - ENGINEERS		631.10
40	HRS	EMPLOYEE TRAINEESHIP		634.10
	LS	MOBILIZATION		635.10
00	LF	4" REFLECTORIZED WHITE LINES		646.10
00	LF	4" REFLECTORIZED YELLOW LINES		646.11
	LB	SEED		651.10
	LB	SEED, WINTER RYE	EST	651.12
)	LB	FERTILIZER		651.15
	TON	AGRICULTURAL LIMESTONE		651.20
	TON	HAY MULCH		651.25
	CY	TOPSOIL	3	653.10
	SY	EROSION MATTING	EST	654.20
	LS	REMOVING SIGNS (FISH & GAME)		675.50
5	SF	REMOVING SIGNS (NARROW BRIDGE)		675.51
	EA	SETTING SALVAGED POSTS (FISH & GAME)		675.56

DETAILED SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM

DRAINAGE STRUCTURES

STA.	POS	OLD CULVERT	TYPE IN	TYPE OUT	A.C.C.G.M.P. D	A.C.C.G.M.P. L	A.C.C.G.M.P. TH	C.G.M.P. D	C.G.M.P. L	C.G.M.P. TH	C.A.A.C.P. D	C.A.A.C.P. L	C.A.A.C.P. TH	R.C.P. D	R.C.P. L	R.C.P. CL	M.E.S.	STONE FILL TYPE I	C.R.M.	TRENCH EXCAV. EARTH	TRENCH EXCAV. ROCK	MARKER POSTS LT	MARKER POSTS RT	ASKEW L.T.	ASKEW R.T.	CONC. B	REINF. STEEL	DI GRATE	DEPTH DI	DITCHES IN	DITCHES OUT	REMARKS

REMOVAL AND DISPOSAL OF EXISTING GUARD RAIL

STA.	STA.	POS	LENGTH
222+15	225+79	LT	264'
225+96	226+80	LT	84'
224+00	225+09	RT	109'
225+96	227+54	RT	158'
TOTAL			615'

TYPE	POS	CRM	FLUSHING BASINS	MARKER POSTS

TYPE OF CONSTRUCTION:

STATIONS FROM	STATIONS TO	PAVEMENT WIDTHS	EQUATIONS +	EQUATIONS −	REMARKS

LENGTH OF PROJECT

STA.	STA.	FEET	MILES	REMARKS

HIGHGATE PROJECT BRS NO. 0285(1) S

SHEET 4 OF 64

D-15

EARTHWORK

V.C.	% GRADE	STATION	GRADES ELEVATION ON TANGENT	GRADES ELEVATION ON V. CURVES	GRADES CORR. V.C.	DIST.	TOTAL EXCAVATION EARTH AND ROCK EXCAVATION AREA	TOTAL EXCAVATION EARTH AND ROCK EXCAVATION CU. YDS.	SOLID ROCK EXCAVATION AREA	SOLID ROCK EXCAVATION CU. YDS.	EMBANKMENT * AREA	EMBANKMENT * CU. YDS.	BASE AREA	BASE CU. YDS.
	March EVSH	222+00	103.8	BEGIN APPROACH			0							
		+50	104.40	BEGIN PROJECT BRS 0285(1) S		50	45	42	13					
		223+00	105.00			50	46	84	13	24	0		R	102
		+50	105.60	105.60	0.00	50	18	59	13	24	7	6	C	263
		224+00	106.20	106.13	-0.07	50	13	29	13	24	50	53	F	146
		+50	106.80	106.52	-0.28	50	19	30	13	24	25	69	FACT	1.15
		+62	106.94	106.60	-0.31	12				6			EXC	145
		+75	107.10	106.67	-0.43	25	22	19	13		13	18		
		+85	107.22	106.72	-0.50		BUTT		BUTT		BUTT			
		225+00	107.40	106.78	-0.62									
		+07	107.48	106.81	-0.67		STOP ROADWAY - BEGIN BRIDGE							
		+50	108.00	106.90	-1.10									
		+99	107.51	106.89	-0.62		END BRIDGE - RESUME ROADWAY							
		226+00	107.50	106.88	-0.62									
		+20	107.30	106.84	-0.46									
		+31	107.19	106.80	-0.39									
		+50	107.00	106.72	-0.28	19					60	53		
		227+00	106.50	106.43	-0.07	50					90	256	C	289
		+50	106.00	106.00	0.00	50					187	318	F	1257
		228+00	105.50			50					156	251	FAC	1.15
		+50	105.00			50					115	190	EXF	1157
		229+00	104.50			50	0				90	134		
		+25	104.25	104.25	0.00						55			
		+50	104.00	104.02	+0.02	50.01	95					53		
		+50.01	104.00	104.02	+0.02		103				2			
		+75	103.75	103.81	+0.06									
		+75.02	103.75	103.81	+0.06	50.01	194				2			
		230+00	103.63	103.65	+0.02									
		+00.02	103.63	103.65	+0.02		106				0			
		+25	103.50	103.50	0.00									
		+25.03	103.50			50.01	205							
		+50	103.38											
		+50.03	103.38				115							
		+85	103.21										C	1234
		+85.03	103.21			50	223						F	0
		231+00	103.14										FAC	1.15
		+00.03	103.14				126						EXC	1234
		+50	102.89			50.01	232							
		+50.04	102.89				125							
		232+00	102.65			50.01	227							
		+00.05	102.65				120							
		+50	102.40			50.01	229	REV 232+50 END PROJECT - BEGIN APPROACH BRS 0285(1) S						
		+50.09					127							
	Match EXISTING	233+00				50.03	118	END APPROACH						
		+00.12					0							
		CARRIED FORWARD COLUMN FOOTINGS					1786		102		1403			

+1.2000% (400' V.C.) -1.0000% (100' V.C.) -0.4909%

EARTHWORK

V.C.	% GRADE	STATION	GRADES ELEVATION ON TANGENT	GRADES ELEVATION ON V. CURVES	GRADES CORR. V.C.	DIST.	TOTAL EXCAVATION EARTH AND ROCK AREA	TOTAL EXCAVATION EARTH AND ROCK CU. YDS.	EMBANKMENT AREA	EMBANKMENT CU. YDS.	BASE AREA	BASE CU. YDS.
		CARRIED FORWARD COLUMN FOOTINGS										

EARTHWORK SUMMARY

STATE OF VERMONT
AGENCY OF
TRANSPORTATION

STATION TO STATION		TOTAL EXCAV. EARTH & ROCK CUBIC YARDS	ROCK EXCAV. CUBIC YARDS	EMBANKMENT CUBIC YARDS	SUMMARY OF BALANCES EXCESSES CUT	EXCESSES FILL	ACCUMULATIVE EXCESSES CUT	ACCUMULATIVE EXCESSES FILL	BASE CUBIC YARDS
222+50	225+00	263	102	146	145		145		
225+00	230+00.02	289		1257		1157		1012	
230+00.02	233+00.12	1234			1234		222		
DRIVES		26			26		248		
REMOVAL OF BIT CONC PAV'T BELOW SUBGRADE									
226+31	229+95	115		115		17	231		
TOTALS		1927	102	1518	1405	1174	231		

SHEET NO.	COL. NO.	SUMMARY BY COLUMNS EXCAVATION TOTAL CU. YDS.	EXCAVATION ROCK CU. YDS.	EMBANKMENT CUBIC YARDS	BASE CUBIC YARDS

REMARKS	
EARTH AND ROCK EXCAVATION	1927
SOLID ROCK EXCAVATION (Fort.Cem.Conc.Pvmt.)	102
EARTH EXCAVATION	1825
PLANIMETERED FILL	1518
LESS FACTORED SOLID ROCK 102X1.3	133
LESS DISPLACEMENT OF ANY LARGE STRUCTURES	
NET PLANIMETERED FILL	1385
FACTOR 0.15	208
PLANIMETERED FILL INCLUDING FACTOR	1593
MATERIALS AVAILABLE FOR FILLS	
EARTH EXCAVATION	1825
CHANNEL EXCAVATION 60?X460	276
UNDERDRAIN EXCAVATION 50?X161	81
STRUCTURE EXCAVATION	
TOTAL MATERIAL AVAILABLE FOR FILL	2182
TOTAL FILL INCLUDING FACTOR	1593
TOTAL MATERIAL FOR FILL	2182
BORROW	
EXCESS EXCAVATION	589
PLUS FACTORED GRANULAR BORROW	640
TOTAL EXCESS EXCAVATION	1229

PROJECT HIGHGATE

PROJECT BRS NO 0285(1) S

SHEET 5 OF 64 SHEETS

D-2

STATE OF VERMONT
AGENCY OF TRANSPORTATION
RIGHT-OF-WAY PLANS
DETAIL SHEET

TABLE OF PROJECT PROPERTY ACQUISITION

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS	TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS
1	STATE OF VERMONT AGENCY OF ENVIRONMENTAL CONSERVATION FISH & GAME DEPT.	4,5	223+57 LT. 224+55 LT. 223+10 RT.	226+26 LT. 224+97 LT.			CONST. EASE. (T) (0.11 A±) CHANNEL (T) (120 S.F.±) DRIVE (T)	LETTER OF AUTH.					24' GRAVEL M.P. 04.22 DRIVE PERMIT DATE:
			223+22 RT. 223+90 RT. 224+00 RT. 224+50 RT. 225+95 RT.	226+34 RT. 224+50 RT. 225+12 RT. 226+24 RT.			CONST. EASE. (T) (0.10 A±) REMOVE & RESET (T) SLOPE (T) (125 S.F.±) CHANNEL (T) (0.01 A±) CHANNEL (T) (250 S.F.±)						SIGN 530 S.F.±
2A	JOHNSON, ARTHUR L. & JEANNE H. TALMADGE, ROGER P. & NAOMI H. GLEASON, KENNETH E. & MARY LOUISE JOHNSON, DAVID H. JOHNSON, DAVID H., POWER OF ATTORNEY	5,6	225+86 LT. 225+86 LT. 225+90 LT. 226+00 LT. 226+50 LT. REV. 229+69 LT.	REV. 229+79 LT. REV. 229+79 LT. 226+50 LT. REV. 229+62 LT. 228+05 LT.	0.04 A±		ALL R.T.& I. (0.21 A±) CHANNEL (P) (0.02 A±) CONST. EASE. (T) (0.08 A±) SLOPE (T) (0.02 A±) DRIVE (T)	W.D.		HIGHGATE			1850 S.F.± HIGHWAY EASE. U.S. 7 1026 S.F.± 3420 S.F.± 1050 S.F.± 12' GRAVEL M.P. 04.34 DRIVE PERMIT DATE:
2B			226+06 RT. 226+06 RT. 226+11 RT. 226+23 RT. 226+85 RT. REV. 232+38 RT. REV. 232+50 RT.	REV. 231+85 RT. REV. 232+93 RT. 226+85 RT. REV. 230+00 RT. 228+80 RT. REV. 232+62 RT. TOTAL	0.08 A± 0.12 A±		ALL R.T.& I. (0.44 A±) CHANNEL (P) (0.01 A±) CONST. EASE. (T) (0.07 A±) SLOPE (T) (0.02 A±) CONST. EASE. (T) (0.01 A±) CULVERT, DITCH, & DRAINAGE (P)						3360 S.F.± HIGHWAY EASE. U.S. 7 650 S.F.± 3000 S.F.± 730 S.F.± 550 S.F.±
3	LEMOINE, CLARENCE & LILA	6	REV. 229+79 LT. REV. 229+79 LT. REV. 230+64 LT.	REV. 230+79 LT. REV. 230+79 LT.	0.01 A±		ALL R.T.& I. (0.06 A±) DRIVE (T)	W.D.		HIGHGATE			400 S.F.± HIGHWAY EASE. U.S. 7 2500 S.F.± 12' GRAVEL M.P. 04.36 DRIVE PERMIT DATE:
4	GILCRIS, EDMUND & DORIS	6	REV. 230+79 REV. 230+79	REV. 231+79 LT. REV. 231+79 LT.	0.01 A±		ALL R.T.& I. (0.08 A±)	W.D.		HIGHGATE			334 S.F.± HIGHWAY EASE. U.S. 7 2600 S.F.±
5	VILLAGE OF SWANTON ELECTRIC												UTILITY
6	NEW ENGLAND TELEPHONE & TELEGRAPH												UTILITY

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY

MADE BY: N.W.H. DATE 5-13-83

CHECKED BY: R.L.S. DATE 5-13-83

DR. RT. — DRAINAGE RIGHT
DIT. RT. — DITCHING RIGHT
CH. RT. — CHANNEL RIGHT
DRIVE RT. — DRIVE RIGHT
CUL. RT. — CULVERT RIGHT
(D) — DEMOLITION OR REMOVAL
[W] — WATER SOURCES

PRESENT R.O.W.
TAKING WITHOUT ACCESS
TAKING WITHOUT ACCESS ALONG PROPERTY LINES
TAKING WITH ACCESS
(P) PERMANENT EASEMENT
(T) TEMPORARY EASEMENT

LEGEND
CONST. EASE — CONST. EASEMENT
SR — SR — SLOPE RIGHTS
P/L — P/L — PROPERTY LINE
TOP OF CUT
TOE OF SLOPE

APPROVED _____ DATE 5-16-83
CHIEF OF PLANS & TITLES

PROJECT HIGHGATE
NO. BRS 0285(1)S
SHEET 3 OF 6

STD ST BEGIN GUARD RAIL W/ WOOD POSTS TYPE II
LT. 221+37 ~ 223+00
RT.

BGT FOR G.R. STD ST BEGIN W/ WOOD POSTS TYPE II
LT. 222+12 ~ 222+37

REMOVAL & DISPOSAL OF EXISTING GUARD RAIL
LT. 221+45 ~ 222+00
RT.

REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT
(PAID FOR AS SOLID ROCK EXCAVATION)
222+50 ~ 223+00 ℄

THIS SHEET TO BE USED
FOR R.O.W. INFORMATION ONLY

TBM #1
SIT 30" M
ELEV 98.57

BEGIN R.O.W. PROJECT
BRS 0285(1)S STA. 222+00 ℄

PI 222+43.08 =
222+42.00

MAG 1981

POT 218+41.31

30" M T59.46
8' M T53.82
30" M T60.67
30" M
T: 44.47 18" M
T: 31.66 18" M
T: 34.53 24" M

STONE FILL

N 35° E
N 47° 51' E

218 219 220 221 222

U.S. ROUTE 7

SIGN

NOTE: Sta. 219+05 ± 30' Rt. ~ 222+17 ± 30' Rt.
Removal Of Roadside Brush As
Directed By The Engineer

I-91 I 180

STATE OF VERMONT
AGENCY OF ENVIRONMENTAL CONSERVATION
FISH & GAME DEPT
I 181

222+00
BEGIN APPROACH

222+50
END APPROACH-BEGIN PROJECT
BRS 0285(1)S

BANK .071 ft/ft

MATCH LINE SEE SHEET 5 OF 6

CURVE #1 DATA
Δ 12°-51' RT
D 5°
R 1145.92
T 129.04
L 257.00
E 7.24

0 10 20 40
SCALE IN FEET

PLAN
SURVEYED
PLOTTED
NOTE BOOK
No.
ALIGNMENT CHECKED
ST. OF WAY CHECKED

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
No.
CROSS SECTIONS CHECKED

110
105
100
95

222+50
END APPROACH-BEGIN
PROJECT BRS 0285(1)S

222+00
BEGIN APPROACH

-1.2000 ft.

218 219 220 221 222 223

0 20 40
SCALE IN FEET

R.O.W. PLANS

218+00 — 223+00

HIGHGATE BRS 0285(1)S

SURVEYED BY	FANTONI	10-81	
DRAWN BY	GLEASON	12-81	
TRACED BY	GLEASON	12-81	
SHEET 4 OF 6 SHEETS			

7 OF 64

PLATE 1, PLAN-PROFILE

Construct Drive

LT.	RT.
223+10	

STATE OF VERMONT
AGENCY OF ENVIRONMENTAL CONSERVTION
FISH & GAME DEPT.

Bridge Railing, Galv. Box Beam
224+82 ~ 226+24 Lt. & Rt.

Removal & Disposal of Existing Guard Rail

LT.	RT.
223+00 ~ 225+09	224+00 ~ 225+09
225+96 ~ 226+80	225+96 ~ 227+54

Sta St Begin G.R. w/ Wood Posts Type II

LT.	RT.
222+00 ~ 224+32	223+57 ~ 224+32
226+74 ~ 229+00	226+74 ~ 228+00

JOHNSON, ARTHUR L. & JEANNE H.
TALMADGE, ROGER P. & NAOMI H.
GLEASON, KENNETH E. & MARY LOUISE
JOHNSON, DAVID H.
JOHNSON, DAVID H., POWER OF ATTORNEY

P.O.T. 224+20.66 =
CHAN P.O.T. 5+00
Δ = 90°

225+06.67 STOP ROADWAY
BEGIN BRIDGE

225+99.33 END BRIDGE
RESUME ROADWAY

CONST. EASE. (T)

MISSISQUOI BAY

CH. RT. (T)

CH. RT. (P)

225+90
31' LT.

225+86
24' LT.

STONE FILL

MATCH LINE SEE SHEET 4 OF 6

N 47°-51' E

GRAVEL DRIVE

T61.19

SIGN EASE. TO REMOVE & RESET (T)

STONE FILL

SR(T)

4+50

4" POP
T34.44

T21.80

182

4+00

DRIVE
RT. (T)
F & G.
ACCESS
AREA

P.T. 223+71.04

BOAT LAUNCH

STATE OF VERMONT
AGENCY OF ENVIRONMENTAL CONSERVATION
FISH & GAME DEPT.

CHAN. P.O.T. 4+22.53

CONST. EASE. (T)

TBM #2
CHIS D
ELEV 105.10

Stone Fill Type II
223+75 ~ 224+83 Lt.
224+50 ~ 224+83 Rt.
226+23 ~ 226+80 Lt.
226+23 ~ 226+85 Rt.

NOTE: For Pavement Transition at ends of Bridge, See Sheet 53 of 64 Sheets

Removal of Portland Cement Concrete Pavement.
(To be Paid For As Solid Rock Excavation)
223+00 ~ 224+626

FLOW

ROCK RIVER

226+06
26' RT.

226+11
31' RT.

CH. RT. (T)

CH. RT. (P)

2A

2B

STONE FILL

389'

391'

543'

576'

SR(T)

U.S. ROUTE 7

223

224

225

226

227

228

MATCH LINE SEE SHEET 6 OF 6

CONST. EASE. (T)

1
183

BCT For G.R. Sta St Begin w/ Wood Posts Type II

LT.	RT.
Guard Rail, Approach Section, Type I	223+32 ~ 223+57
224+32 ~ 224+82 Lt.	228+00 ~ 228+25
226+24 ~ 226+74 Lt.	
224+32 ~ 224+82 Rt.	
226+24 ~ 226+74 Rt.	

JOHNSON, ARTHUR L. & JEANNE H.
TALMADGE, ROGER P. & NAOMI H.
GLEASON, KENNETH E. & MARY LOUISE
JOHNSON, DAVID H.
JOHNSON, DAVID H., POWER OF ATTORNEY

MAG 1981

SWK PC 228+54.23

18" POP (Save)
15" POP (Save)
12" POP (Save)

0 20 40
SCALE IN FEET

PLAN
SURVEYED
NOTE BOOK
No.

PROFILE
SURVEYED
NOTE BOOK
No.

PVI 225+50
Elev 102.00
VC 400
K = 182
SD = 198
E = 11

+2.000%

-2.000%

Subgrade

Extra Depth Subbase 50'

Approx. Water Line Sept. 1981

Extra Depth Subbase 50'

Subgrade

225+99.33 End Bridge
Resume Roadway

THIS SHEET TO BE USED
FOR ROW INFORMATION ONLY

110
105
100
95

223
224
225
226
227
228

0 10 20 30
SCALE IN FEET

ROW PLANS
223+00 — 229+00
HIGHGATE BRS 0285(I)S

SURVEYED BY	FANTONI	10-81
DRAWN BY	GLEASON	12-81
TRACED BY	GLEASON	12-81

SHEET 5 OF 16 SHEETS

PLATE I, PLAN-PROFILE

JOHNSON, ARTHUR L. & JEANNE H.
TALMADGE, ROGER P. & NAOMI H.
GLEASON, KENNETH E. & MARY LOUISE
JOHNSON, DAVID H.
JOHNSON, DAVID H., POWER OF ATTORNEY

Surv. Curve Data
Δ = 2°13' 30" Lt.
D = 1°00'
R = 5729.58'
T = 111.27'
L = 222.50'
E = 1.08'
BK. .021 Ft./Ft.

Rev. Curve Data
Δ = 4°13' Lt.
D = 1°30'
R = 3819.71
T = 140.62
L = 281.11
E = 2.59
BK .030 Ft./Ft.

Rev. P.C. 229+28.56

TBM #3
SIR 18 POP
ELEV. 101.794

LEMOINE, CLARENCE & LILA

GILCRIS, EDMUND & DORIS

Construct Drive
℄
229 + 69
230 + 64

Std. Steel Beam Guard Rail w/ Wood Posts, Type II
229+00 ~ 229+24 Lt.

Breakaway Cable Terminal for Std. Steel Beam Guard Rail w/ Wood Post, Type II
229+24 ~ 229+49 Lt.

SAND BORROW
229+25 ~ 232+50 ℄

END R.O.W. PROJECT
BRS 0285(1)S REV. STA. 233+00 ℄

Rev. 234+00.20 =
Surv. P.O.T. 234+00 7.48' Rt.

MATCH LINE SEE SHEET 5 OF 6

DRIVE RT. (T)
12'
(Remove) 16" POP T 35.25
2-18" POP T 39.82
8" ASH (Save)
10" M (Save)
6" POP (Save)
6" M T 40.65 (Save)
5" POP (Save)
6" POP (Save)
8" M T 49.65
30" POP T 70.22
4" M T 78.49
TRAILER
W
S
2A
2B
3
4
(Save) CONST. EASE.
12" M (T)
2-15" POP T 47.93
(389')
(391')
(543')
(576')
CONST. EASE. (T)
100'
67'
33'
114'
111'
40'
52'
N 47° 51' E
N 45° 38' E
U.S. ROUTE 7
231
232
233
T 25.57
ON PIN
SIGN
6" Treated
REV. 229+79
31' LT.
REV. 230+79
31' LT.
REV. 231+79
31' LT.
REV. 229+79
27' LT.
REV. 230+79
27' LT.
REV. 231+46
27' LT.
REV. 231+79
℄
REV. 232+93
℄
REV. 231+45
24' LT.
REV. 231+85
31' RT.
REV. 232+93
52' RT.
#1
184
T 52.30
#1
185
(103.68')
CUL., DIT. & DR. RT. (P)
CONST. EASE. (T)
232+50 New 6'x6' Underdrain Trench w/ F.E.B. Inlet
Rev. P.T. 232+09.67
Surv. P.T. 230+76.79
Rev. P.O.T. 229+65.50
Surv. P.T. 229+65.50 = 229+65.46
Rev. P.T. 230+69.18 = 230+69.05
Δ = 4°13' Lt.
Rev. 232+50
End Project BRS 0285(1)S
Begin Approach
Rev. 233+00
END APPROACH

JOHNSON, ARTHUR L. & JEANNE H.
TALMADGE, ROGER P. & NAOMI H.
GLEASON, KENNETH E. & MARY LOUISE
JOHNSON, DAVID H.
JOHNSON, DAVID H., POWER OF ATTORNEY

THIS SHEET TO BE USED FOR R.O.W. INFORMATION ONLY

0 20 40
SCALE IN FEET

Surv. P.O.T. 234+00

-10.00%
-0.49091%
-0.5%
DVI 229+75
Elev 103.75
V.C. = 100
K = 196
E = 2.06
Underdrain Profile

Rev. 234+00.20 = Surv. P.O.T. 234+00 7.48' Rt.

0 20 40
SCALE IN FEET

ROW PLANS
229+00 — 234+00
HIGHGATE
BRS 0285(1)S

SURVEY	BY	FANTONI	10-81
DRAWN	BY	GLEASON	12-81
TRACED	BY	GLEASON	12-81

SHEET 6 OF 6 SHEETS
9 OF 64

PLAN: SURVEYED, PLOTTED, NOTE BOOK, No., DATE, BY, ALIGNMENT CHECKED, LT. OF WAY CHECKED

PROFILE: SURVEYED, PLOTTED, NOTE BOOK, No., GRADES CHECKED, DATE, BY, PROFILE QUANTITIES CHECKED

PLATE 1, PLAN-PROFILE

Sto St. Beam Guard Rail w/ Wood Posts Type II
Lt. 222+32 ~ 223+00 Rt.

BCT for G.R. Sto St. Beam w/ Wood Posts Type II
Lt. 222+07 ~ 222+32

Removal & Disposal of Existing Guard Rail
Lt. 222+45 ~ 223+00 Rt.

4" Reflectorized Yellow Lines
℄
221+50, Match to existing ~ 223+00 (DBL)

4" Reflectorized White Lines
Lt. 221+50, Match existing ~ 223+00 11' Lt.
Rt. 221+50 Match existing ~ 223+00 11' Rt.

Removal Of Portland Cement Concrete Pavement
(Paid For As Solid Rock Excavation)
222+50 ~ 223+00 ℄

Sign Summary

STA.	TEXT	SIZE	AREA(SF)	MUT.CD.#
221+65 Rt.	NARROW BRIDGE	30"x30"	6.25	W5-2
232+00 Lt.	NARROW BRIDGE	30"x30"	6.25	W5-2

Total S.F. (Removals) 12.5 S.F.

TBM #1
SIT 30" M
ELEV 98.57

POT 218+41.31

PC 221+14.04

PI 222+43.08 = 222+42.00

I: 44.47 18" M
T: 31.66 18" M
T: 34.53 24" M

30" M T59.46
8" M T53.82
30" M T60.67
30" M

EDGE OF WOODS

NARROW BRIDGE Remove

STONE FILL

218 N 35° E 219 220 221 222 N35° E N47°51'E 223

U.S. ROUTE 7

BRUSH

NOTE: Sta. 219+05 ± 30' Rt. ~ 222+17 ± 30' Rt.
Removal Of Roadside Brush As Directed By The Engineer

F & G. ACCESS AREA

CURVE #1 DATA
Δ 12°-51' RT
D 5°
R 1145.92
T 129.04
L 257.00
E 7.24
BANK .071 Ft/Ft.

Guide Posts

℄ 180

℄ 181

222+00 BEGIN APPROACH

222+50 END APPROACH-BEGIN PROJECT BRS 0285(1)S

0 10 20 40
SCALE IN FEET

MAG 1981

PLAN — DRAFTED, PLOTTED, NOTE BOOK, No., ALIGNMENT CHECKED, R/W CHECKED, DATE, BY

PROFILE — DRAFTED, PLOTTED, NOTE BOOK, No., GRADES CHECKED, P.I. NOTED, STRUCTURE EXCAVATION CHECKED, DATE, BY

110 105 100 95

+1.2000%

218 219 220 221 222 223

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200

0 20 40
SCALE IN FEET

218+00 — 223+00
HIGHGATE BRS 0285(1)S
SURVEYED BY FANTONI 10-81
DRAWN BY GLEASON 12-81
TRACED BY GLEASON 12-81
SHEET 10 OF 64 SHEETS

K&E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
48 7025 Made in U.S.A.

CONSTRUCT DRIVE
LT. 223+10 RT.

BRIDGE RAILING, GALV. BOX BEAM
224+78 ~ 226+28 Lt. & Rt.

4" Reflectorized Yellow Lines ℄
223+00 ~ 229+00 (DBL)

4" Reflectorized White Lines
LT. 223+00 ~ 229+00 11' Lt.
RT. 223+00 ~ 229+00 11' Rt.

REMOVAL & DISPOSAL OF EXISTING GUARD RAIL
LT. 223+00 ~ 225+09, 225+96 ~ 226+80
RT. 224+00 ~ 225+09, 225+96 ~ 227+54

STD. ST. BEAM G.R. W/ WOOD POSTS TYPE II
LT. 223+00 ~ 224+28, 226+78 ~ 229+00
RT. 223+53 ~ 224+28, 226+78 ~ 228+03

GUARD RAIL, APPROACH SECTION, TYPE I
224+28 ~ 224+78 Lt.
226+28 ~ 226+78 Lt.
224+28 ~ 224+78 Rt.
226+28 ~ 226+78 Rt.

P.O.T. 224+20.66 = CHAN P.O.T. 5+00 Δ=90°

225+07.00 STOP ROADWAY BEGIN BRIDGE

225+99.00 END BRIDGE RESUME ROADWAY

MISSISQUOI BAY

EXISTING STONE FILL

223 N 47°-51' E

GRAVEL DRIVE

T6119 SIGN (Fish & Game)

F & G ACCESS AREA 24'

STONE FILL (EXISTING)

4" POP T34.44

T21.80 182

BOAT LAUNCH

Rt. 223+71.04

CHAN. P.O.T. 4+22.53

TBM #2 CHIS D ELEV 105.10

FLOW

ROCK RIVER

U.S. ROUTE 7

BRUSH WOODS

1 183

SAN'Y. P.C. 225+54.23

MAG 1981

(Saved) 16" POP, 18" POP, 12" POP, 18" POP (Saved), 15" POP (Saved)

REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT (To Be Paid For As Solid Rock Excavation)
223+00 ~ 224+62 ℄

STONE FILL, TYPE II (Roadway)
226+50 ~ 226+85 Rt

STONE FILL, TYPE III (Roadway)
223+75 ~ 224+50 Lt
226+50 ~ 228+50 Lt
See Sheet 13 of 64 for Limits of Bridge Stone Fill

NOTE:
For Pavement Transition at Ends of Bridge, See Sheet 53 of 64 Sheets

BCT For G.R. STD. ST. BEAM W/ WOOD POSTS TYPE II
LT. 223+28 ~ 223+53
RT. 228+03 ~ 228+28

REMOVING SIGNS
223+89 Rt. (Fish & Game)

SETTING SALVAGED POSTS
223+89 Rt. 35'± (Fish & Game)
See note Sheet 52 of 64

DRIVES TO BE PAVED WITH 1½" OF BIT. CONC. PVMT. ITEM 406.25 THROUGH THE MAINLINE SHOULDER AREA (6' ONLY)

SCALE IN FEET 20 0 20

PLAN — SURVEYED, PLOTTED, DRAWN, TRACED, CHECKED, ST. OF WAY CHECKED, NOTE BOOK, No., DATE, BY

PROFILE — SURVEYED, PLOTTED, DRAWN, TRACED, CHECKED, E.W.L. NOTES, STRUCTURE SOLUTIONS CHECKED, NOTE BOOK, No., DATE, BY

225+07.00 Stop Roadway Begin Bridge

225+99.00 End Bridge Resume Roadway

P.V.T. 225+50
Elev. 108.00
V.C. 4.00'
K = 182
SSD = 50'
E = 1.1'

+1.2000%

-1.0000%

Granular Borrow Limits

Subgrade

Extra Depth Subbase

Granular Borrow

Existing Profile

Approx. water line Sept. 1981

110 105 100 95

223 224 -50 +75 225 226 +31 227 228

SCALE IN FEET 0 20 40 — 0 5 10

223+00 — 229+00

HIGHGATE BRS 0285(1)S

SURVEYED BY FANTONI 10-81
DRAWN BY GLEASON 12-81
TRACED BY GLEASON 12-81

SHEET 11 OF 64 SHEETS

PLATE 1, PLAN-PROFILE

K&E 46 7024 Made in U.S.A.

Surv. Curve Data
Δ = 2°13' 30" Lt.
D = 1°00'
R = 5729.58'
T = 111.27'
L = 222.50'
E = 1.08'

Rev. Curve Data
Δ = 4°13' Lt
D = 1°30'
R = 3819.71
T = 140.62
L = 281.11
E = 2.59'
BK .030 Ft/Ft.

Rev. P.C. 229+28.56

TBM #3
SIR 18 POP
ELEV. 101.794

Surv. P.T. 230+78.73

Rev. P.T. 232+09.67

CONSTRUCT DRIVE
Lt. 229+69
Rt. 230+64

Std. Steel Beam Guard Rail w/ Wood Posts, Type II
229+00 ~ 229+28 Lt.

SAND BORROW
229+25 ~ 232+50 ℄

Breakaway Cable Terminal for Std. Steel Beam Guard Rail w/ Wood Post, Type II
229+28 ~ 229+53 Lt.

MAG 1981

Rev. 234+00.20 = Surv. P.O.T. 234+00 7.48' Rt.

(Save) 12" M
(Save) 2-15" POP
T 47.93
18" POP
T 35.26
12" (Remove)
2-18" POP (Save)
T 39.82
8" ASH (Save)
10" M (Save)
LAWN
TRAILER
(Save) 18" POP
6" M
T 40.65
(Remove)
12"
15" POP (Save)
T 25.57
IRON ⊙ PIN
LAWN
6" POP (Save)
TRAILER
BARROW BRIDGE (Remove)
8" M
T 49.65
30" POP
T 70.22
4" M
T 78.49

232+50 ~ 233+50 Lt. 18" Underdrain New C & G + Carrier Pipe w/ F.E.B. Inlet

100' R.

229
230
231
232
233
234

N 47° 51' E
(103.68')
N 43° 38' E
U.S. ROUTE 7

6" TREATED (EXISTING)
6" TREATED (EXISTING)

BRUSH & WOODS
BRUSH & WOODS

1
184
T 52.30

1
185

Rev. P.O.T. 229+65.50
Surv. P.T. 229+65.50 = 229+65.46

Rev. P.I. 230+69.18 = 230+69.05
Δ = 4°13' Lt.

Rev. 232+50
End Project ERS 0285(1)S
Begin Approach

Rev. 233+00
END APPROACH

Surv. P.O.T. 234+00

4" Reflectorized Yellow Lines
℄
229+00 ~ 233+50 Match existing (DOL)

4" Reflectorized white Lines

Lt	Rt.
229+00 ~ 233+50, 11' Lt	229+00 ~ 233+50, 11' Rt
Match Existing	Match Existing

0 20 40
SCALE IN FEET

PLAN
SURVEYED
PLOTTED
NOTE BOOK
ALIGNMENT CHECKED
GRADES CHECKED
R. W.'s NOTED
STRUCTURE DEFINITIONS CHECKED
No.
BY
DATE

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
GRADES CHECKED
R. W.'s NOTED
STRUCTURE DEFINITIONS CHECKED
No.
BY
DATE

110
105
100
95

-1.0000%
-0.49091%
-0.59%
Underdrain Profile

PVI 229+75
Elev. 103.75
V.C. = 100'
K = 196
E = 0.06

Rev. 232+50
End Project ERS 0285(1)S
Begin Approach

Rev. 233+00
END APPROACH

Rev. 234+00.20 = Surv. P.O.T. 234+00 7.48' Rt.

0 20 40
SCALE IN FEET
0 5 0

229 230 231 232 233 234

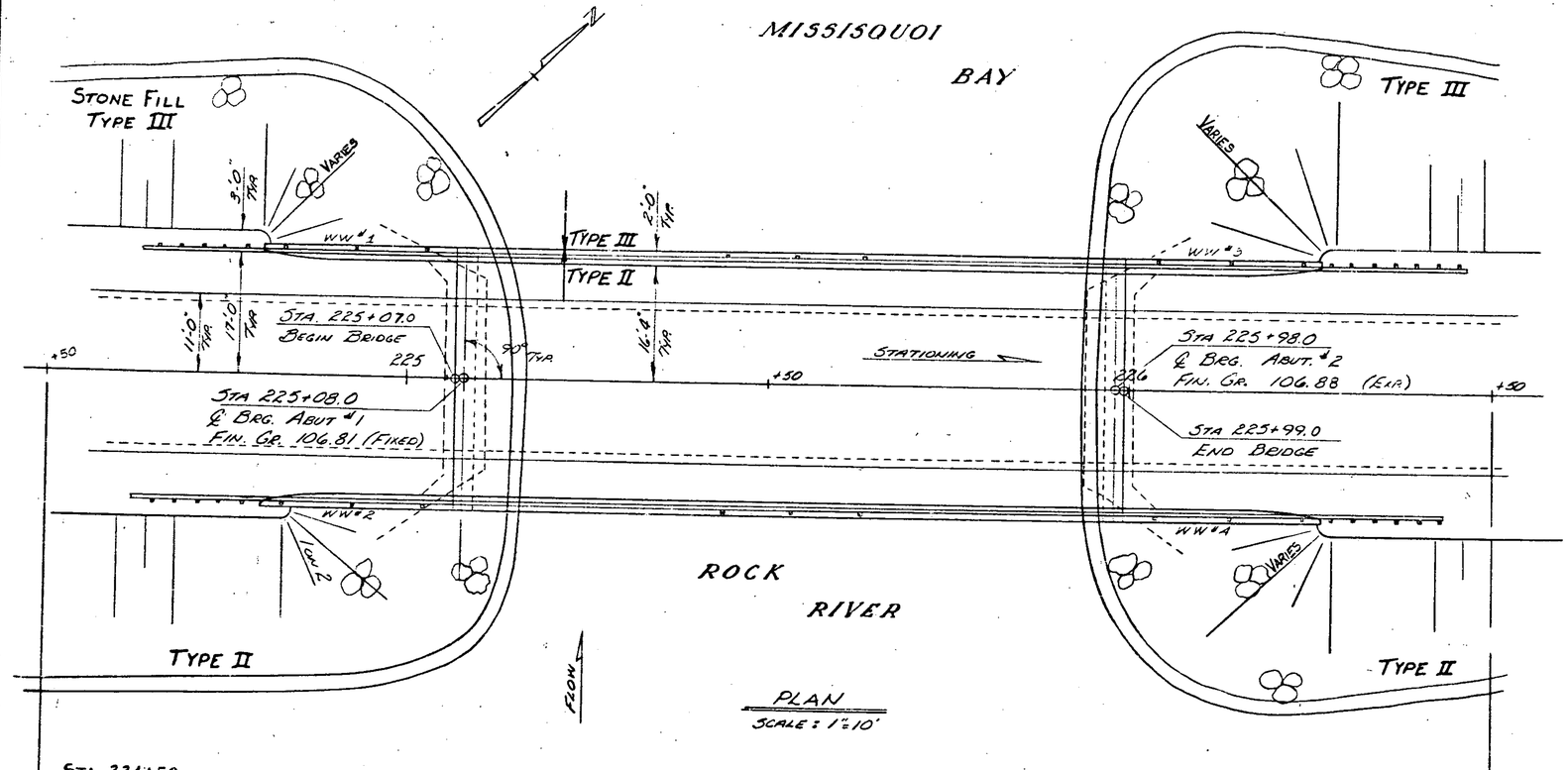
229+00 — 234+00

HIGHGATE
BRS 0285(1)S

SURVEY	BY	FANTONI	10-81
DRAWN	BY	GLEASON	12-81
TRACED	BY	GLEASON	12-81

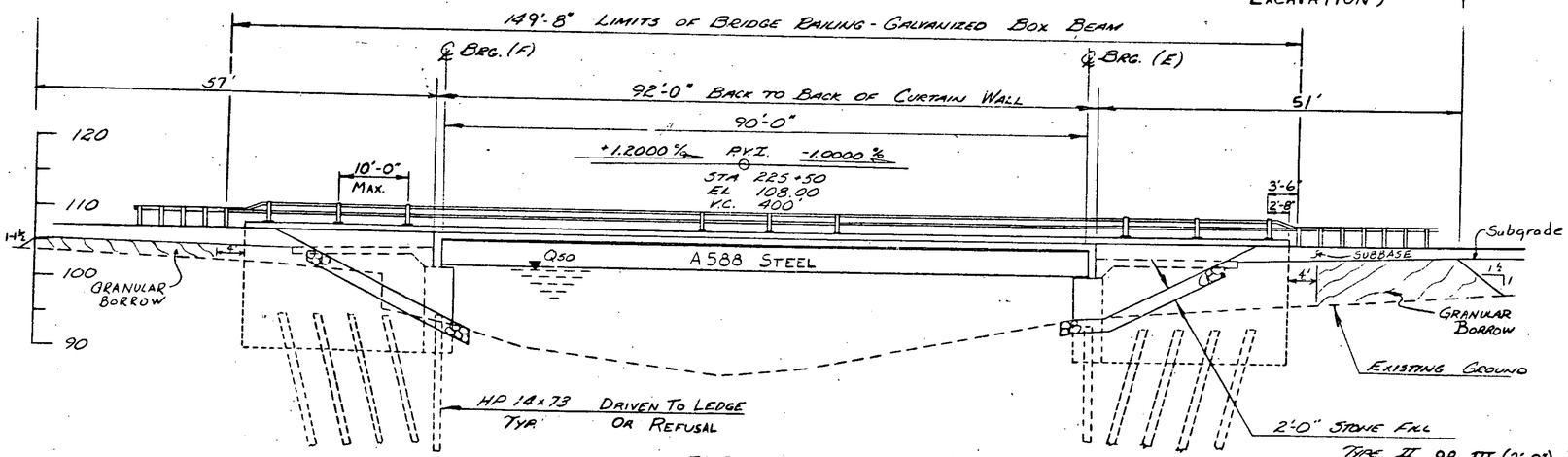
SHEET 12 OF 64 SHEETS

K&E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
45 7006 Made in U.S.A.



STA. 224+50
BEGIN BRIDGE QUANTITY
(STONE FILL TYPE II & III & UNCLASSIFIED CHANNEL EXCAVATION)

STA. 226+50
END BRIDGE QUANTITY
(STONE FILL TYPE II & III & UNCLASSIFIED CHANNEL EXCAVATION)



ELEVATION (AT FASCIA)
SCALE: 1"=10'

EXISTING STRUCTURE

1. STRUCTURE TYPE THRU STEEL TRUSS OVERALL LENGTH 90.0 INVENTORY RATING H 15
2. SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS 86.8'
3. CLEAR SPAN LENGTH(S) NORMAL TO STREAM 83'
4. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM) 1052 SQ.FT. VERTICAL CLEARANCE ABOVE STREAMBED 12'
5. WATER SURFACE ELEVATION @ Q 2.33 224' WATER SURFACE ELEVATION @ Q 50 101.9
6. WATER SURFACE ELEVATION AT FLOOD OF RECORD ____ YEAR 1927 ESTIMATED DISCHARGE UNKNOWN
7. DOES ALL WATER PASS THROUGH EXISTING STRUCTURE? NO IF NOT, AT WHAT FREQUENCY AND ELEVATION DOES RELIEF OCCUR? Q100 102.0
   ADDITIONAL WATERWAY AREA PROVIDED BY RELIEF UNLIMITED
8. TYPE OF SUBSTRUCTURE FOUNDATION MATERIAL SILT & SAND
9. DISPOSITION OF STRUCTURE REMOVE (PROPERTY OF CONTRACTOR)

NEW STRUCTURE

STRUCTURE GEOMETRY:

1. STRUCTURE TYPE SINGLE SPAN STEEL BEAM OVERALL LENGTH 92'-0"
2. SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS 90'
3. VERTICAL CLEARANCE ABOVE STREAMBED OR ROAD UNDER 13 FT TO OHW.
4. CLEAR SPAN LENGTH(S) NORMAL TO STREAM 83'
5. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM) 1088 SQ. FT.
6. ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES? NO

HYDRAULIC DATA:

1. Q 2.33 2000 cfs WATER ELEVATION 99.4 VELOCITY 2.3
   Q 10 3650 cfs WATER ELEVATION 101.0 VELOCITY 3.6
   Q 25 5000 cfs WATER ELEVATION 101.6 VELOCITY 4.7
   Q 50 6220 cfs WATER ELEVATION 101.9 VELOCITY 5.5
   Q 100 7300 cfs WATER ELEVATION 102.0 VELOCITY 6.7
2. DRAINAGE AREA 52.2 Sq. MI. CHARACTER OF TERRAIN ROLLING TO HILLY
3. ARE THERE OBJECTIONS TO A PIER IN THE STREAM? YES
4. DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? NO IS ORDINARY RISE RAPID? NO
5. NATURE OF NATURAL STREAMBED SILTY
6. ESTIMATED SCOUR DEPTH 2'- 3' COMMENT ON: DRIFT MOD. ICE HEAVY
7. WILL ALL WATER PASS THROUGH NEW STRUCTURE? YES IF NOT, WHAT FREQUENCY AND ELEVATION WILL RELIEF OCCUR? GREATER THAN Q100
   ADDITIONAL WATERWAY AREA PROVIDED BY RELIEF UNLIMITED
8. VERTICAL CLEARANCE ABOVE Q 50 0.5' TYPE ____
9. ALLOWABLE WATER SURFACE ELEVATION 102 LIMITED BY LOW STEEL
10. IS DESIGN STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? YES IF YES, DESCRIBE LAKE CHAMPLAIN
11. AVERAGE DAILY LOW FLOW 70 cfs DEPTH Est. 92.3 AVERAGE DAILY HIGH FLOW 1700 cfs. DEPTH 99.4
12. STREAMBANK OR CHANNEL PROTECTION REQUIRED STONE FILL TYPE ____
13. DISTANCE TO EXISTING UPSTREAM STRUCTURE 500' SPAN 3 @ 95' WATERWAY AREA OF FULL OPENING ____ Q ____
14. DISTANCE TO EXISTING DOWNSTREAM STRUCTURE ____ SPAN ____ WATERWAY AREA OF FULL OPENING ____ Q ____

ALLOWABLE STRESSES:

1. DESIGN LIVE LOAD AASHTO HS 25 - 44
2. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
3. ALLOWABLE LOAD FOR PILING 16 TON TYPE HP 14x73 ESTIMATED LENGTH 80 ft
4. ALLOWABLE STRESS FOR STRUCTURAL STEEL ASTM A 588 TENSION 27 KSI
5. ALLOWABLE STRESS FOR REINFORCING STEEL GRADE 60 TENSION 24,000 PSI COMPRESSION 20,000 PSI
6. ALLOWABLE STRESS FOR CONCRETE CLASS A f'_c 3500 PSI f_c 1400 PSI
   CLASS B f'_c 3500 PSI f_c 1400 PSI

TRAFFIC MAINTENANCE:

1. IS TRAFFIC TO BE MAINTAINED? NO IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE NO
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED NO
   MINIMUM CLEAR SPAN N/A MINIMUM CLEAR HEIGHT N/A MINIMUM WATERWAY AREA N/A
   ARE SIDEWALKS REQUIRED? N/A IF SO, ON WHAT SIDE? N/A

ESTIMATED PILE LENGTHS:
ABUTMENT #1 - 80 ft
ABUTMENT #2 - 80 ft

ADDITIONAL DESIGN CONSIDERATIONS

LIST OF STANDARDS

SCB-D1-75	9-14-81R
SCB-D4-76	1-8-76A
SCB-D6-73	1-3-79R
SCB-D7-71	12-15-76R
SCB-D9-71	1-27-75R
SB-R4A-82	9-7-83R
SB-R4B-82	9-7-83R

INDEX OF SHEETS

BR 100	PRELIMINARY INFORMATION
BR 101	BRIDGE QUANTITY SHEET
BR 102	BORING SHEET
BR 103	BORING SHEET
BR 104	TYPICAL SECTION / SLAB REINF.
BR 105	FRAMING PLAN / GIRDER DETAILS
BR 106	BEARING DEVICE DETAILS
BR 107	ABUTMENT 1/2 DETAILS
BR 108	CURTAIN WALL & TIE BEAM DETAILS
BR 109	COFFERDAM DETAILS & GENERAL NOTES
BR 110	REINFORCING STEEL SCHEDULE

LOAD RATING (TONS)

STRESS LEVELS	TRUCK						
	H	HS	332	6 AXLE	3A STR	4A STR	5A SEMI
INVENTORY 0.55 Fy =	41	47					
POSTED 0.67 Fy =	65	74	87		63	69	70
OPERATING 0.75 Fy =			106	126			

RECOMMENDED FOR APPROVAL K M Smith STRUCTURES ENGINEER 10/28/82 DATE

RECOMMENDED FOR APPROVAL CHIEF OF DESIGN 10/29/82 DATE

APPROVED BY DIRECTOR OF ENGINEERING & CONSTRUCTION DATE

REVISIONS

NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF HIGHGATE	Bridge No. 192
	Log Sta. 223+52.0
HIGHWAY NO. U.S. RTE. 7	Surv. Sta. 225+33.0
U.S. RTE. 7 OVER ROCK RIVER	
PRELIMINARY INFORMATION	
Designed by G.V. SPILAR	Drawn by M. GARCIA
Checked by A. ELWOOD date 9-83	Bridge Design Supervisor R.S. HAUPT date
PROJECT HIGHGATE	PROJECT NO. BRS 0285(11)S
Bridge Sheet No. BR 100	Sheet 13 of 64

BRUNING 44-131 40151

EARTHWORK

V.C.	% GRD	STATION	GRADES ELEVATION ON TAN.	GRADES ELEVATION ON V.C.	CORR. V.C.	DIST.	AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.

BRIDGE QUANTITY SHEET

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
BRIDGE DIVISION

NO.	ITEM	UNIT	QUANTITY BREAKDOWN: SUPER STRUCTURE		ABUTMENT #1	ABUTMENT #2		APPROACH SLAB #1	APPROACH SLAB #2		ROADWAY		CHANNEL			TOTAL	FINAL
202.200	REMOVAL OF EXISTING SUPERSTRUCTURE	EA.	1													1	
203.270	UNCLASSIFIED CHANNEL EXCAVATION	CY			230	150							20			400	
204.300	GRANULAR BACKFILL FOR STRUCTURES	CY			525	530										1055	
404.6660	EMULSIFIED ASPHALT	GAL.	6													6	
406.250	BITUMINOUS CONCRETE PAVEMENT	TN	47													47	
501.200	CONCRETE, CLASS A	CY	115													115	
501.250	CONCRETE, CLASS B	CY			181	181		27	27							416	
501.100	FURNISHING EQUIPMENT FOR DRIVING PILES	L.S.			1/2	1/2										1	
505.170	STEEL PILING - HP 14 x 73 (PLUS 30 SHOES)	LF			1200	1200										2400	
505.40	PILE LOADING TESTS	EA														1	
506.940	STRUCTURAL STEEL	LS	1													1	
506.990	BEARING DEVICE ASSEMBLY	EA			5	5										10	
507.150	REINFORCING STEEL	LB	27100		13600	13600		3830	3930							61960	
508.150	SHEAR CONNECTORS (1080 EA 5/8" x 7" STUDS)	LS.	1													1	
514.100	WATER REPELLENT	GAL	7		6	6										19	
519.200	SHEET MEMBRANE WATERPROOFING	SY	331													331	
530.100	COFFERDAM	L.S.			1/2	1/2										1	
613.110	STONE FILL - TYPE II	CY											230			230	
613.120	STONE FILL - TYPE III	CY											315			315	
616.170	GRANITE BRIDGE CURB	LF	296													296	
617.300	BRIDGE RAILING - GALVANIZED & EPOXY COAT	LF	300													300	

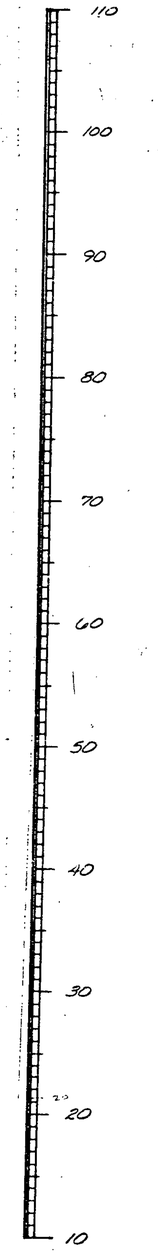
BRIDGE (S) AT STATION (S) HIGGATE
LOCATION (S) U.S. RTE. 7 OVER ROCK RIVER

Prepared by: M.J. DeCapite | Checked by: E. Egmond
SUPERVISOR: P.S. Haupt

BR 101 OF _____

PROJECT NO. BRS-0285(1)S
SHEET NO. 14 OF 64

BR-1



BORING NO. B-1

ELEV. 103.5

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL	LL	PI
	3			W	Br	No Sample		
10								
	19			M	Br.	A-4 Sandy Silt		
	3			"	Gr	No Sample		
20	1			M to W	"	A-6 Silty Clay	39	19
	0			"	"	A-6 Silty Clay	40	19
	1			"	"	A-4 Silt	25	NV
30	0			"	"	A-4 Silt	26	NV
	1			"	"	A-4 Clayey Silt	25	8
40	1			"	"	A-4 Clayey Silt	27	8
	3			"	"	A-6 Silty Clay	31	11
	1			"	"	A-7-6 Clay	55	34
60	25			"	"	A-4 Silt	NL	NV
	R			"	"	A-1-a Sandy Gravel		
	--			M	"	No Sample		
	95			"	"	Boulders		
70	100 for 0.5			"	"	A-1-a Sandy Gravel		
	100 for 0.5			"	"	Boulders		
	100 for 0.5			"	"	Boulders		
80	100 for 0.2			"	"	A-2-4 Silty Sand		

Hole Stopped at 80.3' in silty sand & boulders

NLTD

BORING NO. B-2

ELEV. 105.8

BOTTOM OF WING #2

ELEV 90.0

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL	LL	PI
						Boulders		
						Boulders		
						Boulders		
10	7			M	Br	A-7-6 Clay	44	24
	1			"	Gr	A-7-6 Clay	43	24
20	2			"	"	A-7-6 Clay	42	27
	2			W	"	A-4 Silt	28	5
30	1			"	"	No Sample		
	3			M to W	"	A-4 Clayey Silt	26	8
40	2			"	"	A-4 Clayey Silt	27	7
	3			"	"	A-6 Silty Clay	38	16
	5			"	"	No Sample		
50	63			W	Br	A-4 Silt		
	--			M	Gr	A-2-4 Silty Sand		
60	65			"	"	A-2-4 Silty Sand		
	--			"	"	A-2-4 Silty Sand		
	--			"	"	A-2-4 Silty Sand		
70								

Hole stopped at 72.5' in silty sand

BORING NO. B-3

ELEV. 105.2

BOTTOM OF WING #3

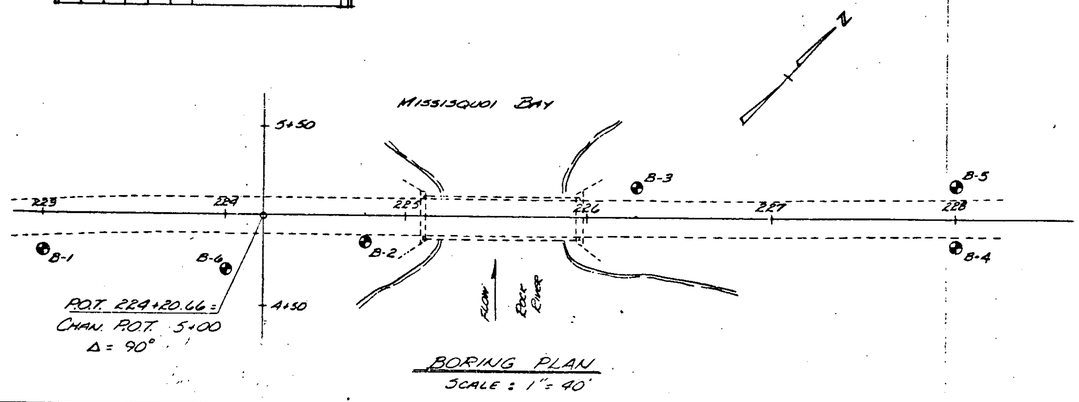
ELEV. 90.0

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL	LL	PI
						No Samples		
10	5			M	Gr	A-6 Silty Clay	37	19
	5			"	"	A-6 Silty Clay	39	18
	1			M to W	"	A-4 Silt	24	4
20	2			W	"	A-7-6 Clay	47	27
	1			"	"	No Sample		
30	1			"	"	A-4 Clayey Silt	30	10
	2			"	"	No Sample		
40	27			M to W	"	A-2-4 Silty Gravel		
	28			"	"	A-1-b Silty Gravel		
50	R			M	"	No Sample		
	98			"	"	A-2-4 Silty Sand		
60						Hole stopped at 57.5 in silty Sand HP		

BORING NOMENCLATURE

- STANDARD PENETRATION BORINGS:
  - SAMPLER OUTSIDE DIAMETER 2"
  - SAMPLER INSIDE DIAMETER 1 3/8"
  - WEIGHT OF HAMMER 140 LBS
  - HAMMER FALL 30"

No.	Station	Offset	Ground Elevation
B-1	223+0	Rt. 20'	103.5
B-2	224+78	Rt. 15'	105.8
B-3	226+26	Lt. 17'	105.2
B-4	228+0	Rt. 15'	103.8
B-5	228+0	Lt. 18'	103.5
B-6	224+0	Rt. 30'	100.8



BORING PLAN

SCALE : 1" = 40'

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF HIGHGATE	Bridge No. 182
HIGHWAY NO. U.S. RTE. #7	Log Sta. 225+52.0
	Surv. Sta. 225+53.0
U.S. RTE #7 OVER ROCK RIVER	
BORING LOGS	
Designed by G.V. SPILAR	Drawn by M. GARCIA
Checked by A. EVANS date 10/83	Bridge Design Supervisor R.S. HAUPT date
PROJECT HIGHGATE	PROJECT NO. BRS 0285(1)S
Bridge Sheet No. 3.2.102	Sheet 15 of 64

BRUNING 44-131 40151

BR-6



BORING NO. B-4

ELEV. 103.8

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL	LL	PI
						No Sample		
	4			M	Br	A-4 Silt		
10	3			"	Gr	A-7-5 Clay	60	24
	3			"	Br	Muck 10.0% Organic		
20	1			"	"	A-4 Silt		
	3			"	"	Muck 10.0% organic		
	21			W	Gr	A-4 Silt		
30	34			M to W	"	No Sample		
	36			"	"	A-4 Sandy Silt		
40	25			"	"	A-1-b Silty Gravel		
	22			W	"	A-4 Silt		
	25			M to W	"	A-4 Silt		
50	43			" M	"	A-2-4 Silty Gravel		
	40			"	"	A-4 Silt		
60	27			W	"	A-4 Sandy Silt		
	32			"	Br	A-2-4 Silty Gravel		
70	54			M	"	A-4 Sandy Silt		
	31			"	"	A-4 Sandy Silt		
	16			M to W	"	No Sample		
80	--			M	"	A-4 Gravelly Silt		
	85 for 0.3					A-4 Sandy Silt		
90						Hole Sopped @ 88.5' in sandy silt NLTD		
100								

BORING NO. B-5

ELEV. 103.5

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
						No Sample
	7			W	Br	No Sample
10	9			"	Gr	No Sample
	8			"	"	A-4 Silt
20	22			"	"	No Sample A-1-a Gravel
	20			"	"	No Sample
	70			"	"	A-1-a Gravel
30	20			M to W	"	A-4 Sandy Silt
	10			"	"	A-4 Silt
40	14			W	"	No Sample
	39			M	"	A-4 Sandy Silt
	44			"	"	A-4 Silt
50	70			"	"	A-1-a Gravel
	83			"	"	A-1-a Gravel
60	67			"	"	A-1-b Silty Gravel
						Hole stopped at 61.5' in silty gravel NLTD
70						

BORING NO. B-6

ELEV. 100.8

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL	LL	PI
				W	Br	A-2-4 Silty Gravel		
	2			M to W	Gr	A-7-6 Clay	39	23
10	4			W	"	No Sample		
	3			"	"	No Sample		
20	1			"	"	A-7-6 Clay	53	27
	--			"	"	A-6 Silty Clay	31	11
	--			S	"			
30	2			W	"	A-6 Silty Clay	35	13
	3			"	"	A-4 Clayey Silt	28	10
40	--			"	"	A-6 Silty Clay	33	12
	3			"	"	A-7-6 Clay	50	26
	20			M to W	"	A-4 Silt		
50	46			M	"	No Sample		
	43			M to W	"	A-1-b Silty Gravel		
60						Hole stopped at 57.5' in silty gravel NLTD		

GENERAL NOTES

THE SUBSURFACE EXPLORATIONS SHOWN HEREON WERE MADE BETWEEN 5/4/82 AND 6/2/82 BY THE VERMONT AGENCY OF TRANSPORTATION.

1. SOIL AND ROCK (WHERE ENCOUNTERED) CLASSIFICATION, PROPERTIES AND DESCRIPTIONS ARE BASED ON ENGINEERING INTERPRETATION OF AVAILABLE SUBSURFACE INFORMATION BY THE VERMONT AGENCY OF TRANSPORTATION AND MAY NOT NECESSARILY REFLECT ACTUAL VARIATIONS IN SUBSURFACE CONDITIONS THAT MAY BE ENCOUNTERED BETWEEN INDIVIDUAL BORING OR SAMPLE LOCATIONS.

2. OBSERVED WATER LEVELS AND/OR WATER CONDITIONS INDICATED ARE AS RECORDED AT THE TIME OF EXPLORATION AND MAY VARY ACCORDING TO THE PREVAILING RAINFALL, METHODS OF EXPLORATION AND OTHER FACTORS.

3. SOUND ENGINEERING JUDGEMENT WAS EXERCISED IN PREPARING THE SUBSURFACE INFORMATION PRESENTED HEREON. ANALYSIS AND INTERPRETATION OF SUBSURFACE DATA WAS PERFORMED AND INTENDED FOR AGENCY DESIGN AND ESTIMATE PURPOSES ONLY. PRESENTATION OF THE INFORMATION ON THE PLANS OR ELSEWHERE IS FOR THE PURPOSE OF PROVIDING INTENDED USERS WITH ACCESS TO THE SAME DATA AVAILABLE TO THE AGENCY. THE SUBSURFACE INFORMATION IS PRESENTED IN GOOD FAITH AND IS NOT INTENDED AS A SUBSTITUTE FOR PERSONAL INVESTIGATION, INDEPENDENT INTERPRETATIONS, INDEPENDENT ANALYSIS OR JUDGEMENT OF THE CONTRACTOR.

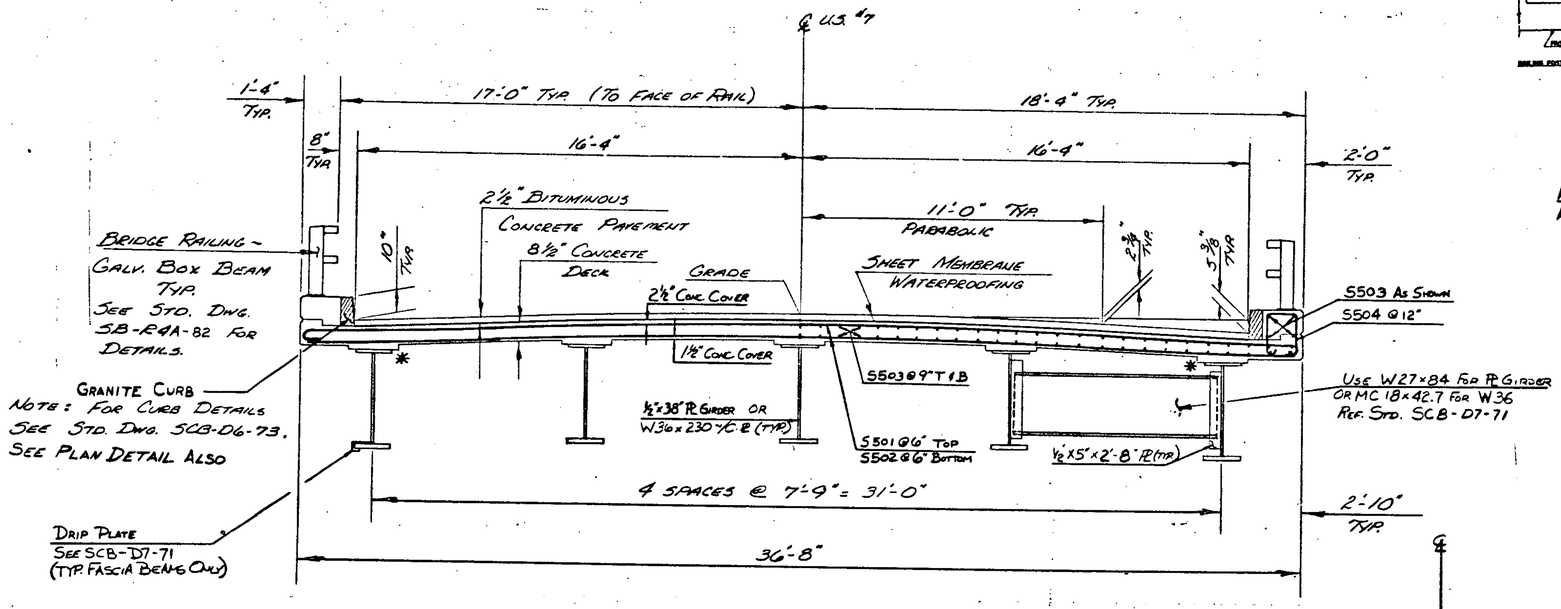
4. PICTORIAL STRUCTURE DETAILS SHOWN HEREON ARE FOR ILLUSTRATIVE PURPOSES ONLY AND MAY NOT BE INDICATIVE OF THE FINAL DESIGN CONDITIONS SHOWN IN THE CONTRACT PLANS.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF HIGHGATE	Bridge No. 182
HIGHWAY NO. US. RTE. #7	Log Sta. 225+52.0
	Surv. Sta. 225+53.0
US. RTE #7 over ROCK RIVER	
BORING LOGS	
Designed by G.V. SPICAR	Drawn by M. GARCIA
Checked by A. ELWOOD date 10/83	Bridge Design Supervisor R.S HAUPT date
PROJECT HIGHGATE	PROJECT NO. BRS 0285(1)S
Bridge Sheet No. BR 103	Sheet 10 of 64

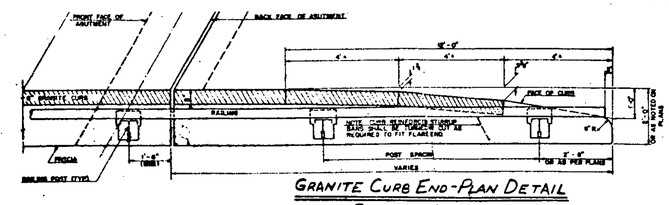
BRUNING 44-131 40151

BR-6



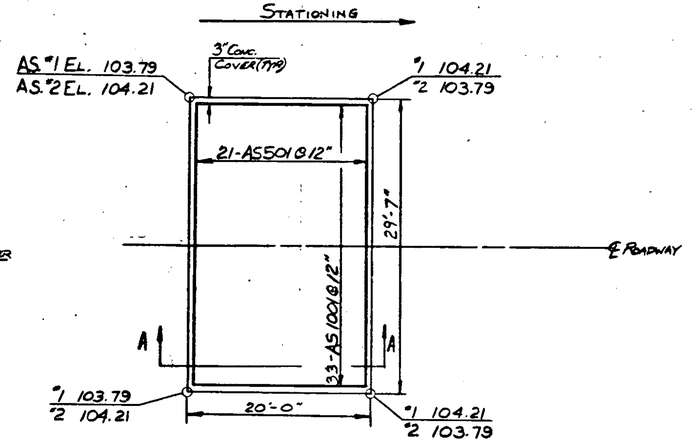
Typical Bridge Section

Scale: 3/8" = 1'-0"



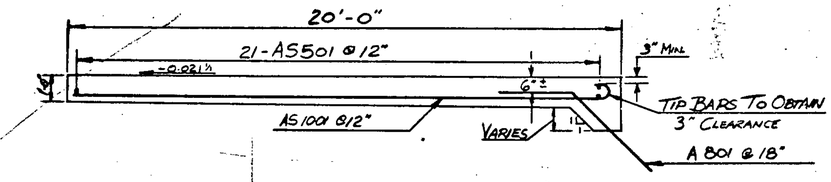
Granite Curb End-Plan Detail

Scale: N.T.S.



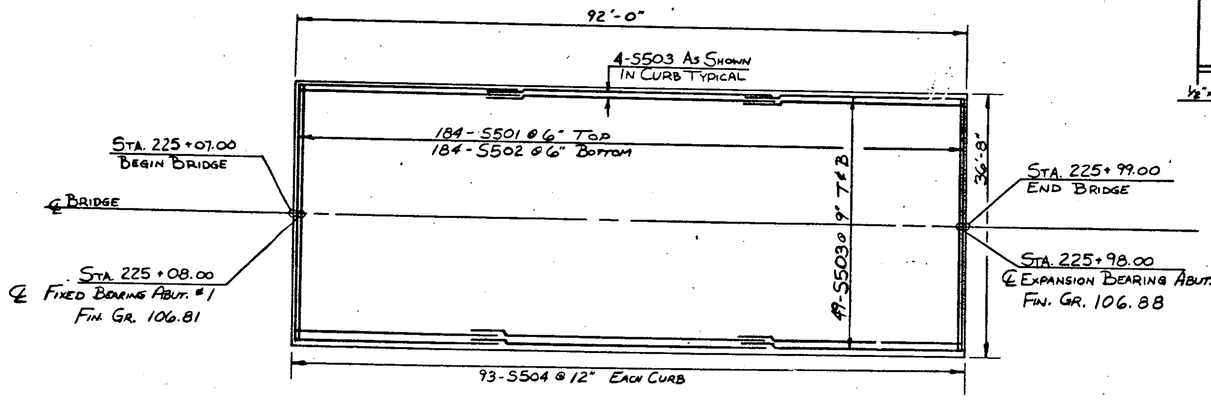
Approach Slab - Plan

Typ. @ Both Abutments
Scale: 1/8" = 1'-0"



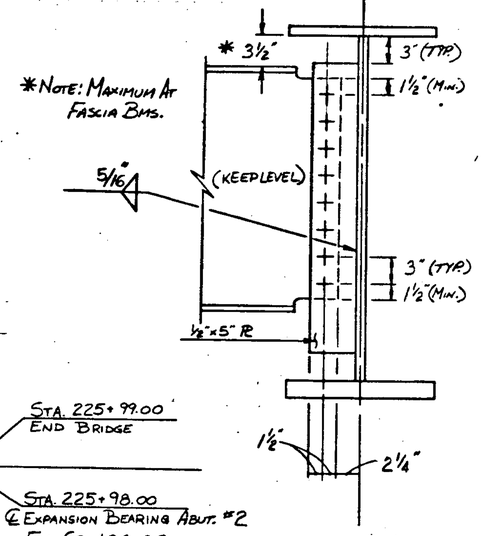
Section "A-A" - A.S. #1 Shown (#2 Opp. Hand)

Scale: 3/8" = 1'-0"



Slab Reinforcing

Scale: 1" = 10'-0"



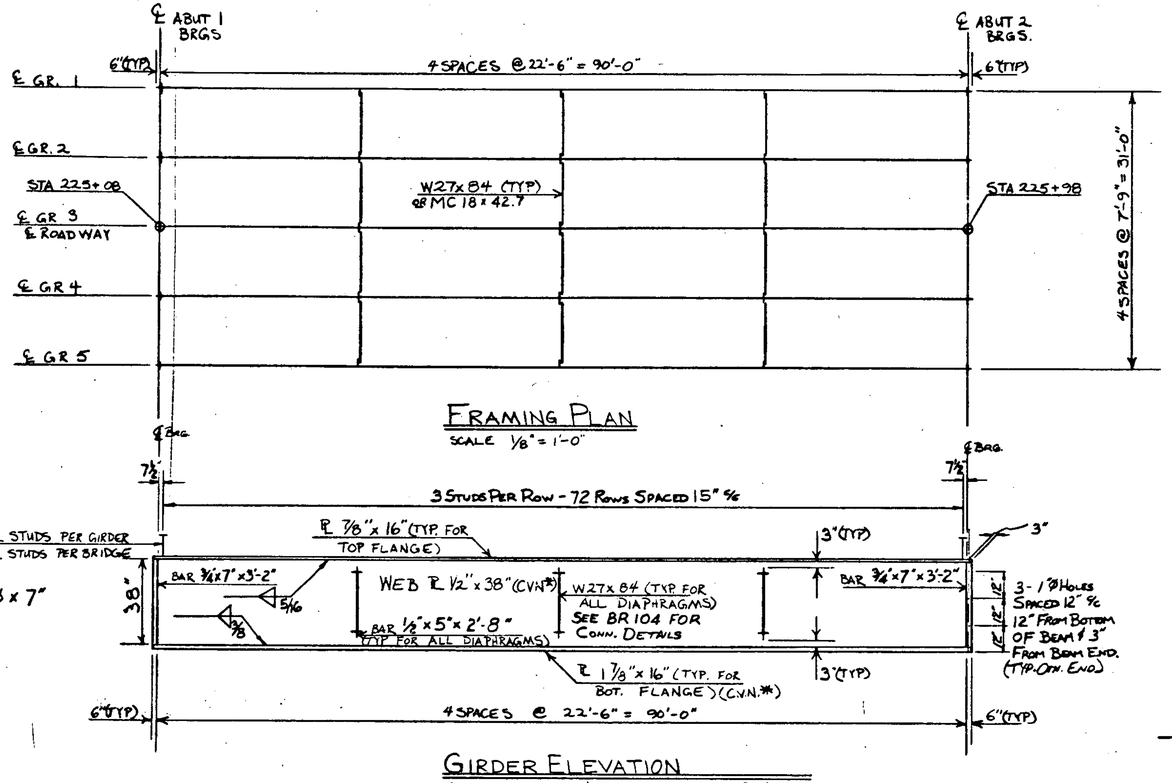
Diaphragm Conn. PL Detail

(Typ. Except *)
Scale: 1½" = 1'-0"

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF HIGHGATE	Bridge No. 182
	Log Sta. 225+52.0
HIGHWAY NO. U.S. Rte. 7	Surv. Sta. 225+53.0
U.S. Rte. 7 over Rock River	
Typical Sections - Slab Reinforcement	
Designed by G.V. Spicak	Drawn by M. Garcia
Checked by A. Elwood date 9-83	Bridge Design Supervisor R.S. Haupt date
PROJECT HIGHGATE	PROJECT NO. BRS 0285(11)S
Bridge Sheet No. BR 104	Sheet 17 of 64

DRWING 44-131-60181
BR-6

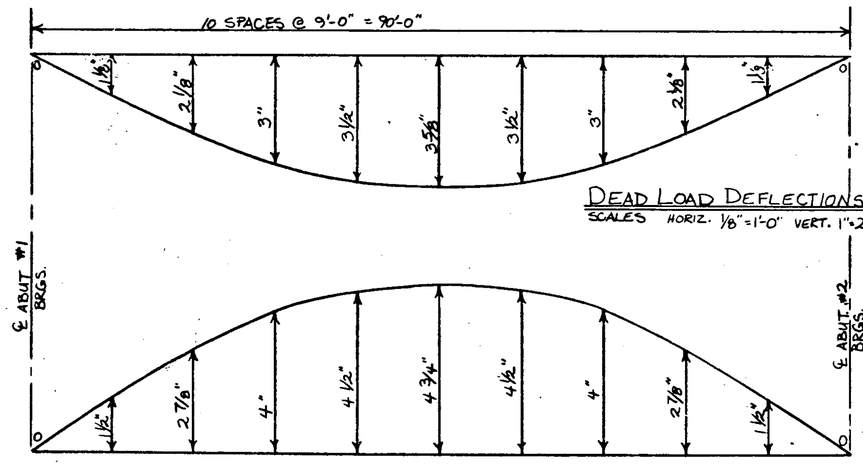


FRAMING PLAN

SCALE 1/8" = 1'-0"

GIRDER ELEVATION

SCALES HORIZ. 1/8" = 1'-0" VERT. 3/8" = 1'-0"

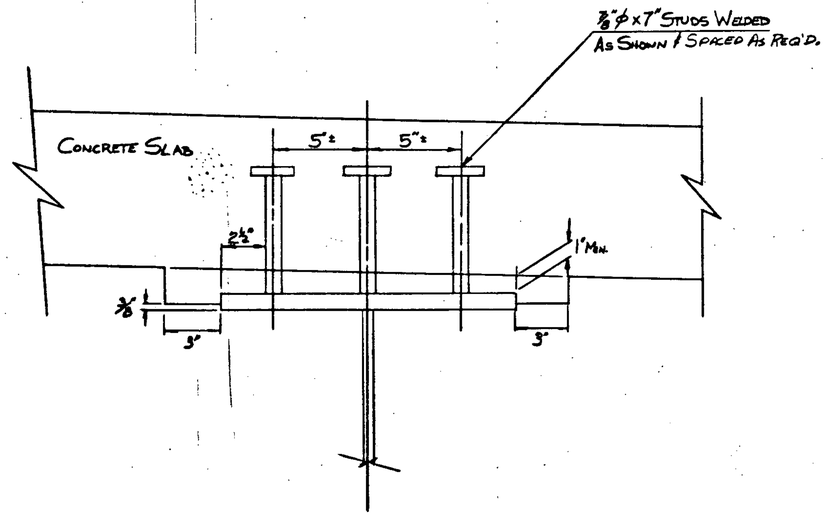


DEAD LOAD DEFLECTIONS DIAGRAM

SCALES HORIZ. 1/8" = 1'-0" VERT. 1" = 2"

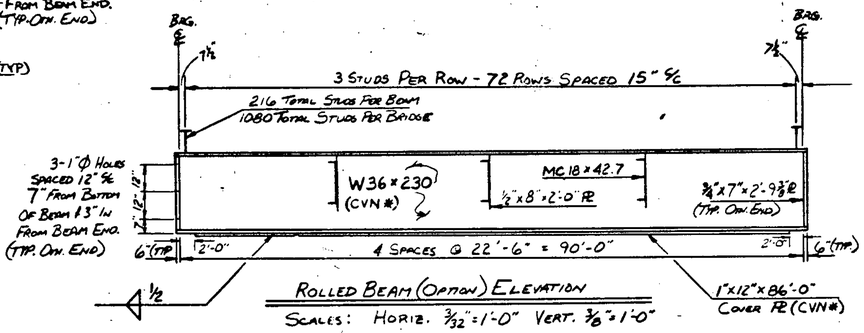
CAMBER DIAGRAM

SCALES HORIZ. 1/8" = 1'-0" VERT. 1" = 2"



SHEAR STUD DETAIL

SCALE: 3" = 1'-0"



ROLLED BEAM (OPTION) ELEVATION

SCALES: HORIZ. 3/32" = 1'-0" VERT. 3/8" = 1'-0"

INCLUDES: WEIGHT OF BEAM, DIAPHRAGMS, DECK, PAVEMENT, CURBS & RAILING FOR EITHER PLATE GIRDER OR ROLLED BEAM.

* PLATES MARKED BY "CVN" SHALL BE TESTED BY THE CHARPY V-NOTCH TEST AS SPECIFIED IN STD. SPECIFICATION 714.03

APPROX. WT. OF STRUCTURAL STEEL - BMS. & DIAPHRAGMS CONN. & BRS. RS

PL GIRDER OPTION - 106 690 #

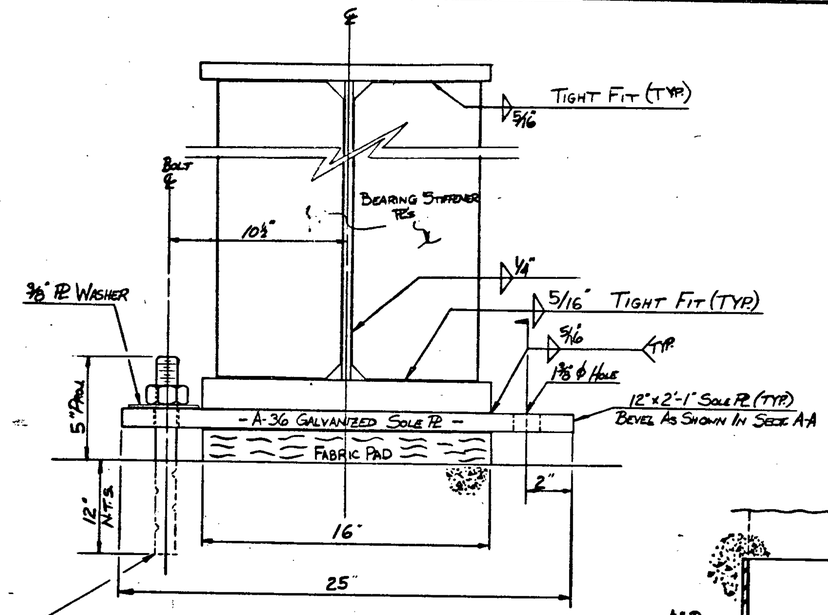
ROLLED BM. OPTION - 127 620 #

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF HIGHGATE	Bridge No. 182
	Log Sta. 225+52.0
HIGHWAY NO. U.S. RTE. 7	Surv. Sta. 225+53.0
FRAMING PLAN - GIRDER DETAILS	
US 7 BR. 182 OVER ROCK RIVER	
Designed by M.J. POLOGRUTO	Drawn by S. JUNG
Checked by A. ELWOOD date 9-83	Bridge Design Supervisor R.S. HAUPT date
PROJECT HIGHGATE	PROJECT NO. BRS 0285 (1)S
Bridge Sheet No. BR 105	Sheet 18 of 64

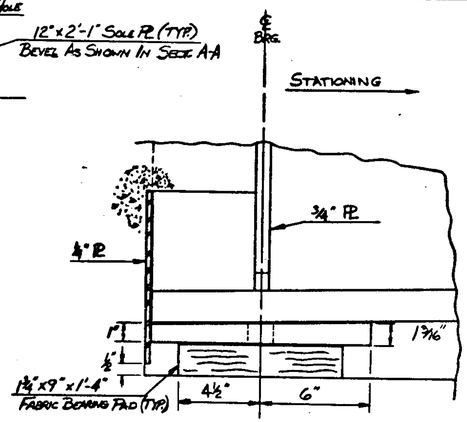
BRUNING 44-131 58284

BR-6-'83



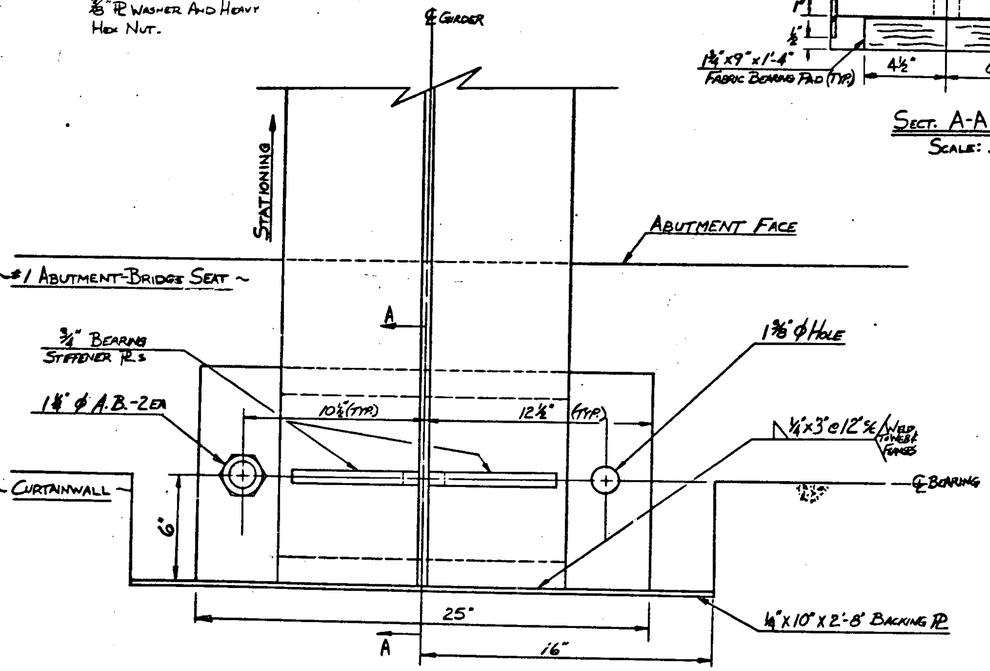
Fixed End Bearing - Elevation

Scale: 3" = 1'-0"



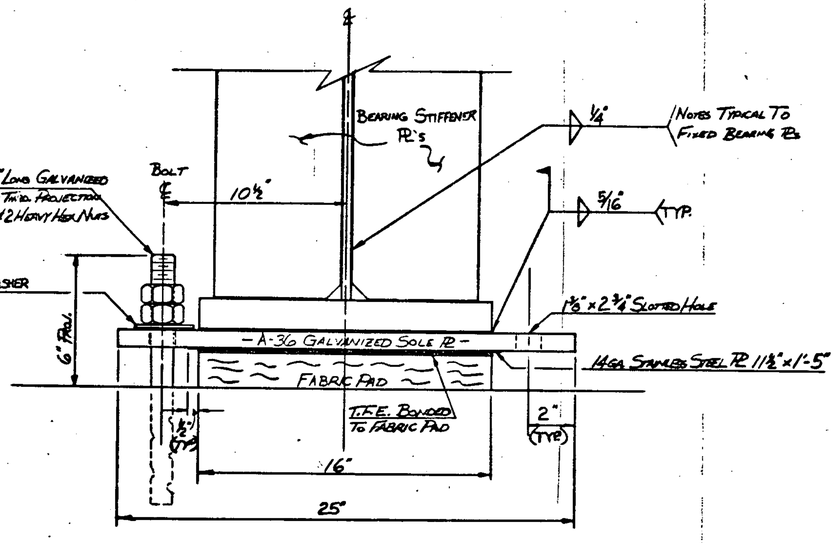
Sect. A-A - Fixed End

Scale: 3" = 1'-0"



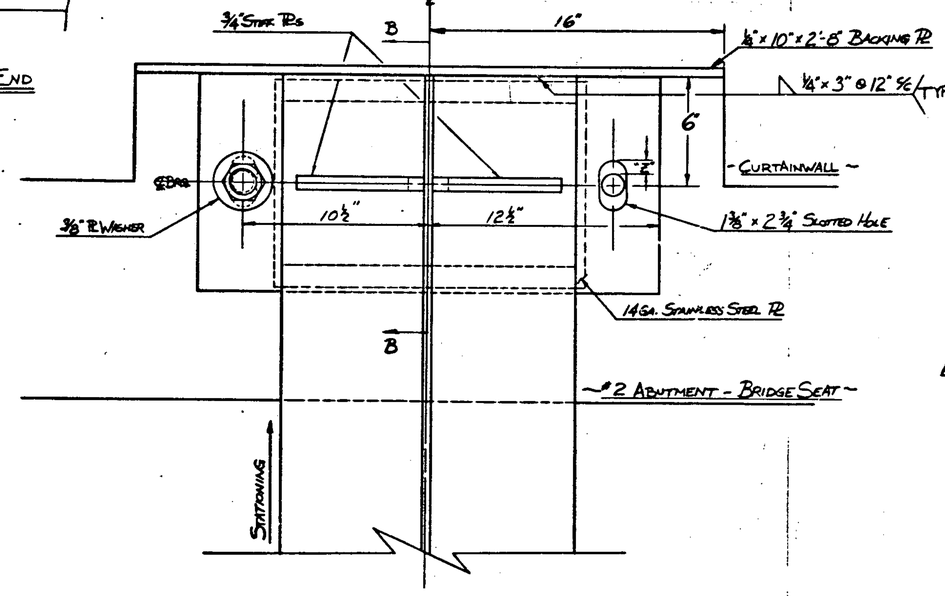
Fixed End Bearing - Plan

Scale: 3" = 1'-0"



Expansion End Bearing - Elevation

Scale: 3" = 1'-0"



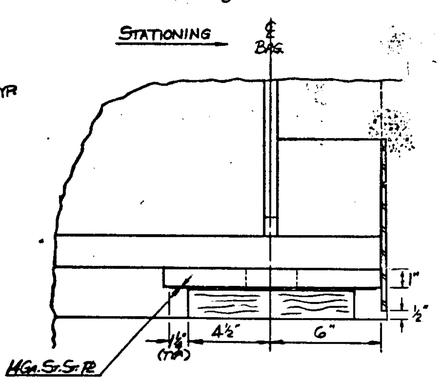
Expansion End Bearing - Plan

Scale: 3" = 1'-0"

Note: Details For Plate Girder Shown. Rolled Beam Similar.

Expansion Correction Table

Erection Temp. (°F)	Z (Dead Load) E	°Δ	"Z" Distance @ Erection Temp.
15	¾" - ⅜"	- ⅜" = 0"	(Prior To Deck Pour)
30		- ¼ = ⅛	
45		- ⅛ = ¼	
60		- 0 = ⅜	
75		+ ⅛ = ½	
90		+ ¼ = ⅝	
105	¾ - ⅜	+ ⅜ = ¾	



Sect. B-B - Expansion End

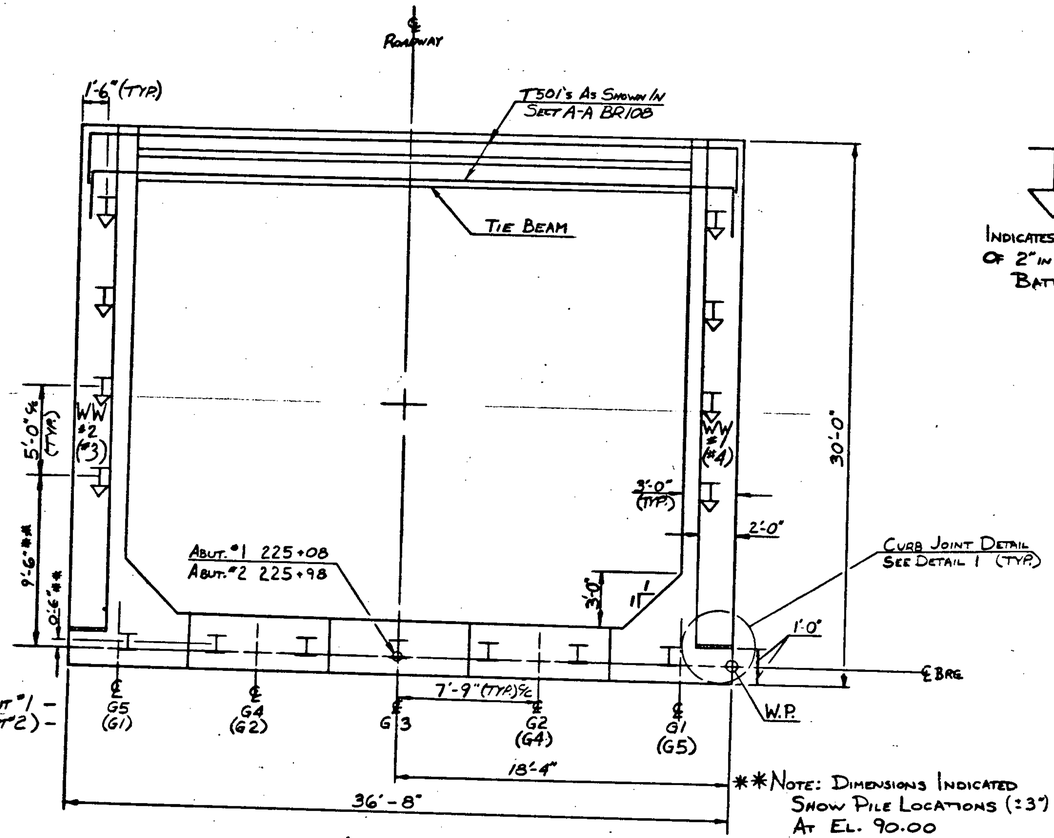
Scale: 3" = 1'-0"

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF Highgate	Bridge No. 182
	Log Sta. 225+52
HIGHWAY NO. U.S. Rte. 7	Surv. Sta. 225+53
U.S. Rte. 7 over Rock River	
Bearing Details	
Designed by M.J. Pelogruto	Drawn by M.J. Pelogruto
Checked by A. Edwood date 9-83	Bridge Design Supervisor R.S. Hauft date
PROJECT Highgate	PROJECT NO. BRS-0285(1) S
Bridge Sheet No. BR 106	Sheet 19 of 64

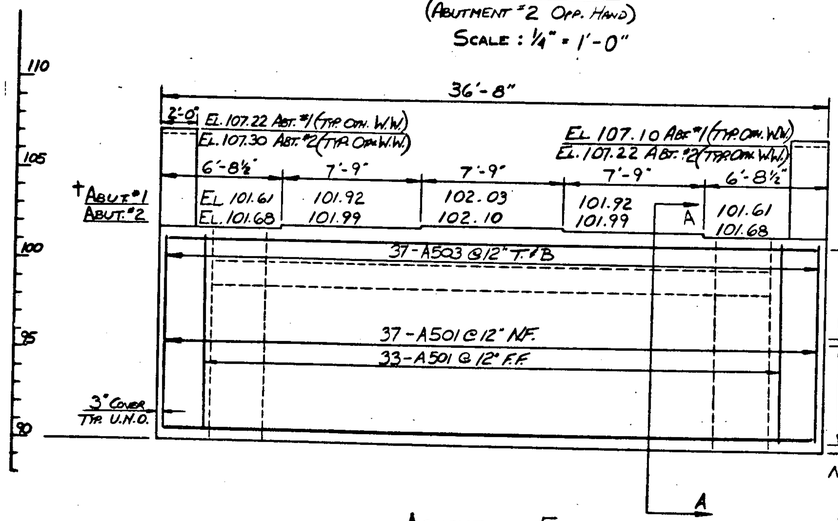
BRUNING 44-131 58564

BR-6-'83



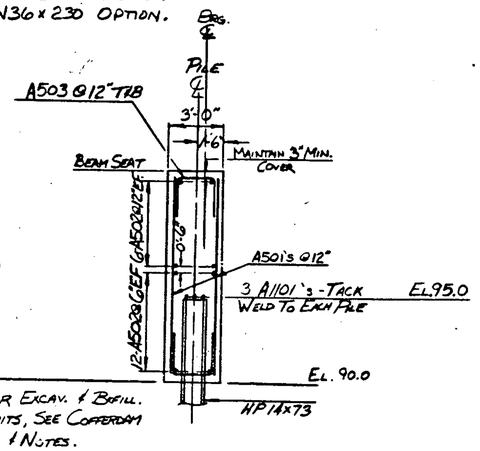
**Note: Dimensions Indicated Show Pile Locations (±3") At El. 90.00

Abutment #1 - Plan
(Abutment #2 Opp. Hand)
Scale: 1/4" = 1'-0"



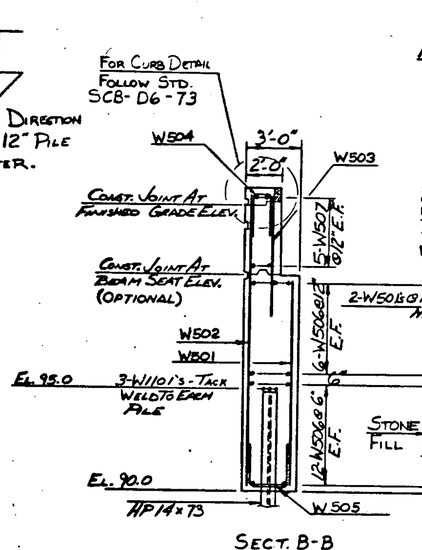
Abutment - Elevation
Scale: 1/4" = 1'-0"

†Note: Increase By 0.39' Beam Seat Elevations For W36x230 Option.

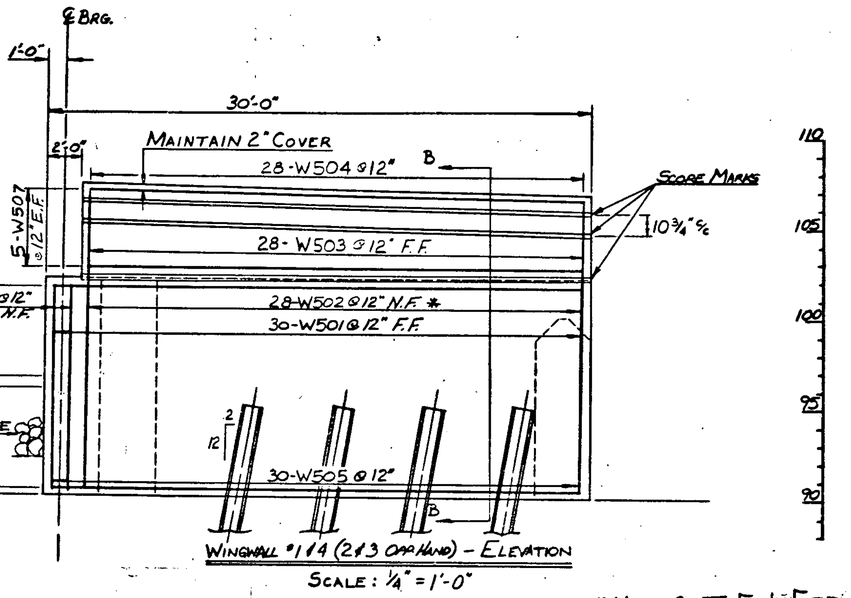


Note: For Excav. & Backfill. Pay Limits, See Cofferdam Details & Notes.

Sect. A-A
Scale: 1/4" = 1'-0"

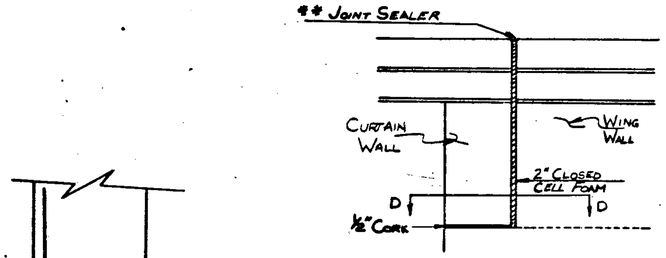


Sect. B-B
Scale: 1/4" = 1'-0"

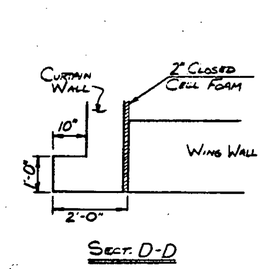


Wingwall #1 & 4 (2 & 3 Opp Hand) - Elevation
Scale: 1/4" = 1'-0"

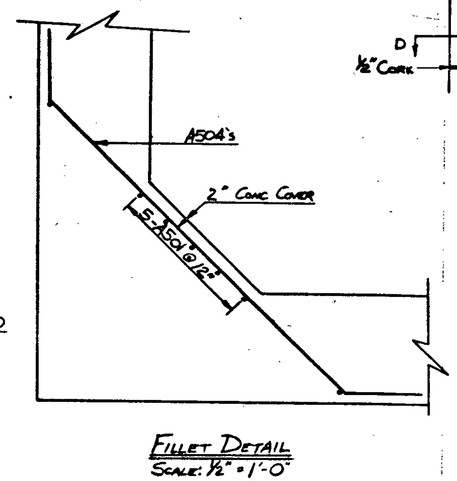
*Note: Cut To Fit In Field



Detail 1
Scale: ½" = 1'-0"



Sect. D-D



Fillet Detail
Scale: ½" = 1'-0"

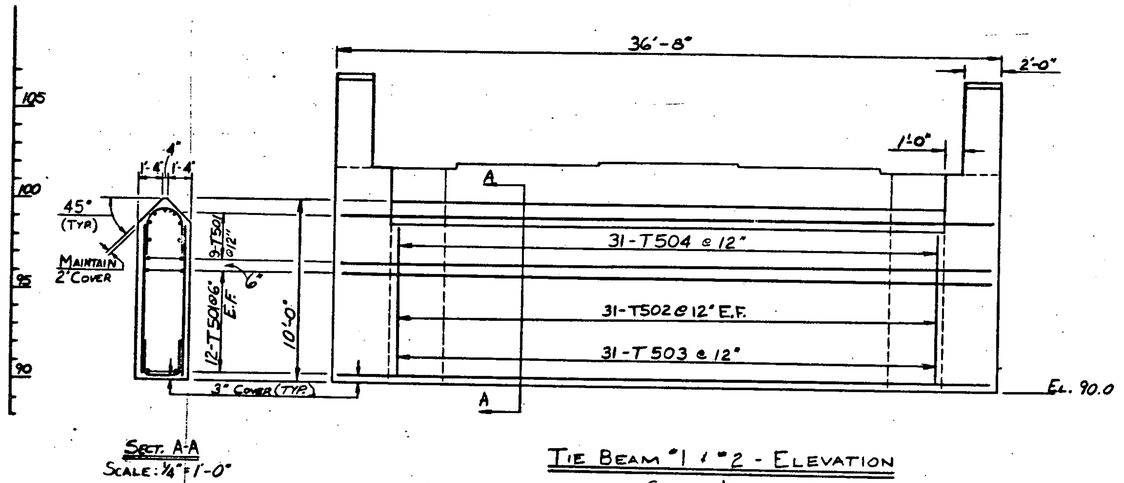
**Note: Item 614.25 Joint Sealer To Be Bid Subsidiary To Concrete Class "A".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF Highgate	Bridge No. 182
HIGHWAY NO. U.S. Rte. 7	Log Sta. 225+52.0
	Surv. Sta. 225+53.0
U.S. Rte. 7 over Rock River	
Abutments #1 & #2 - Plans And Elevations	
Designed by M.J. Pologruto	Drawn by M.J. Pologruto
Checked by A. Elwood date 9-83	Bridge Design Supervisor R.S. Haupt date
PROJECT Highgate	PROJECT NO. BRS-0285(1)S
Bridge Sheet No. BR107	Sheet 20 of 64

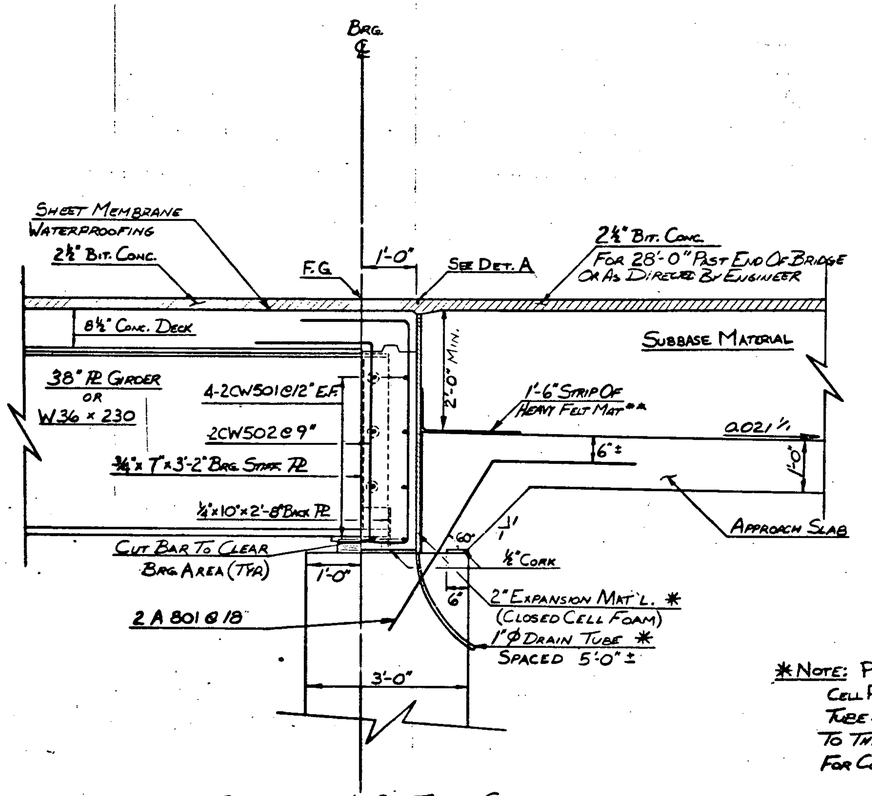
BRUNING 44-131 58364

BR-4-'83



SECT. A-A
SCALE: 1/4" = 1'-0"

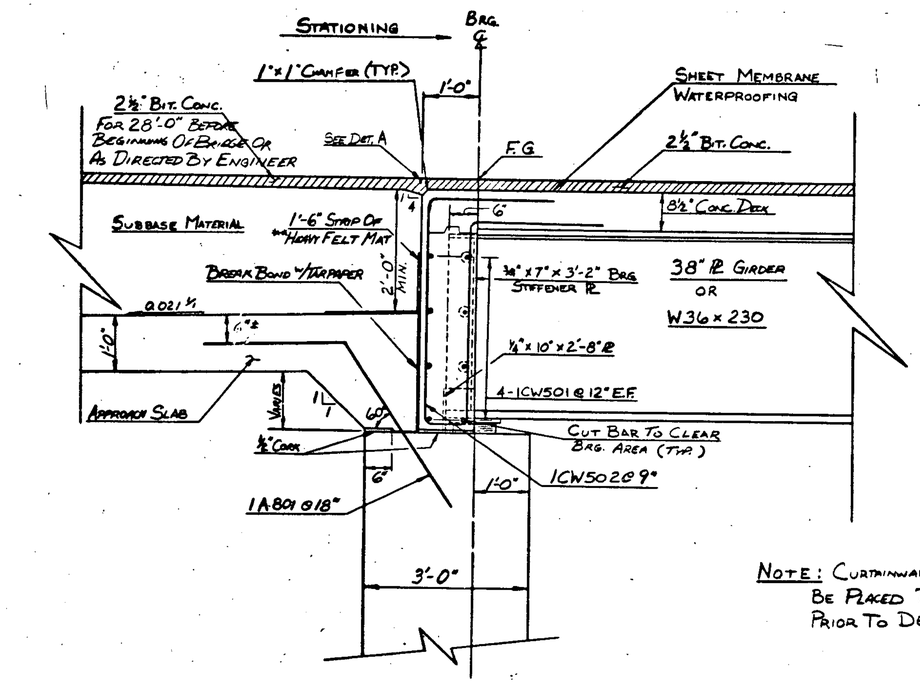
TIE BEAM "1" & "2" - ELEVATION
SCALE: 1/4" = 1'-0"



CURTAINWALL NO. 2 - TYPICAL SECTION
(ABUTMENT NO. 2)
SCALE: 3/4" = 1'-0"

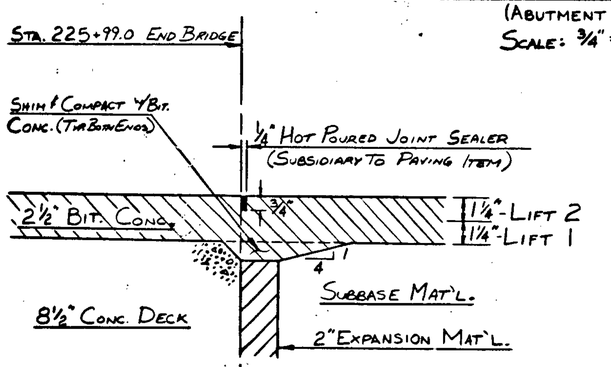
*NOTE: PAYMENT FOR CLOSED CELL FOAM & PLASTIC DRAIN TUBE SHALL BE SUBSIDIARY TO THE UNIT BID PRICE FOR CONCRETE CLASS "A".

**NOTE: HEAVY FELT MAT TYP. AT BOTH ABUTMENTS. SEE ASTM D 2178-TYPE III. PAYMENT SHALL BE SUBSIDIARY TO UNIT BID PRICE FOR CONCRETE CLASS "B".



CURTAINWALL NO. 1 - TYPICAL SECTION
(ABUTMENT NO. 1)
SCALE: 3/4" = 1'-0"

NOTE: CURTAINWALLS ARE TO BE PLACED 72 HOURS PRIOR TO DECK SLAB.

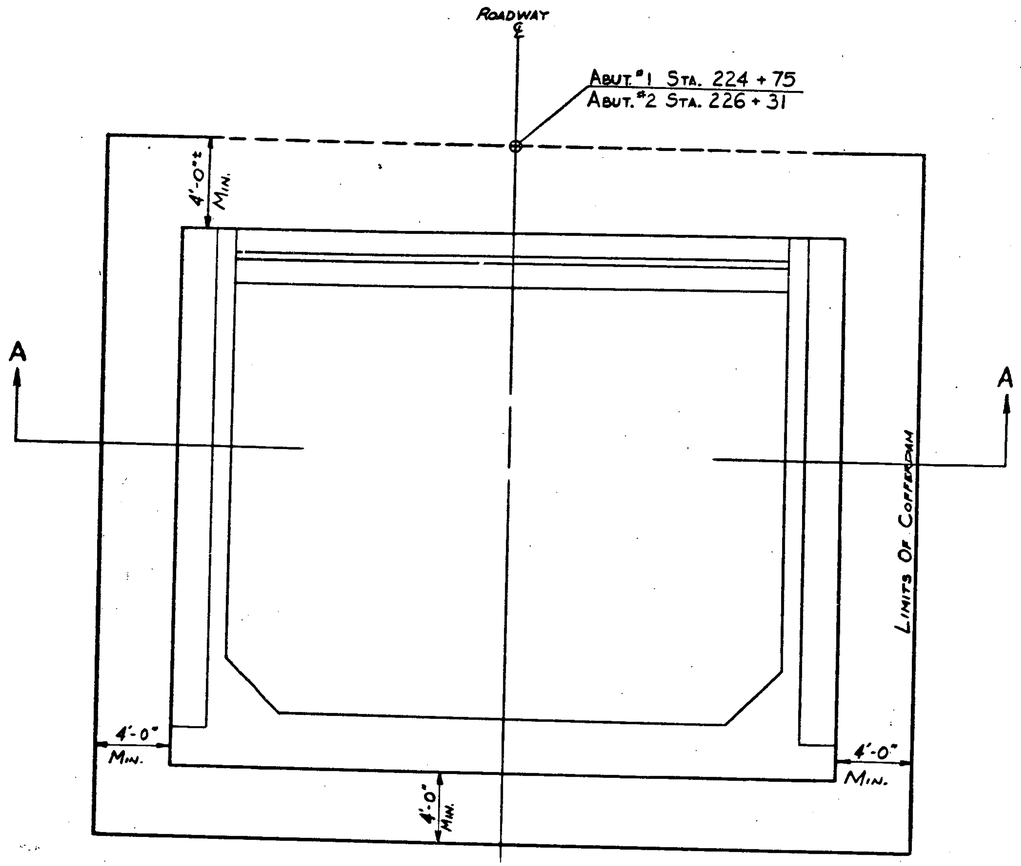


SAWED JOINT - DETAIL "A"
SCALE: 3" = 1'-0"

STATE OF VERMONT
AGENCY OF TRANSPORTATION

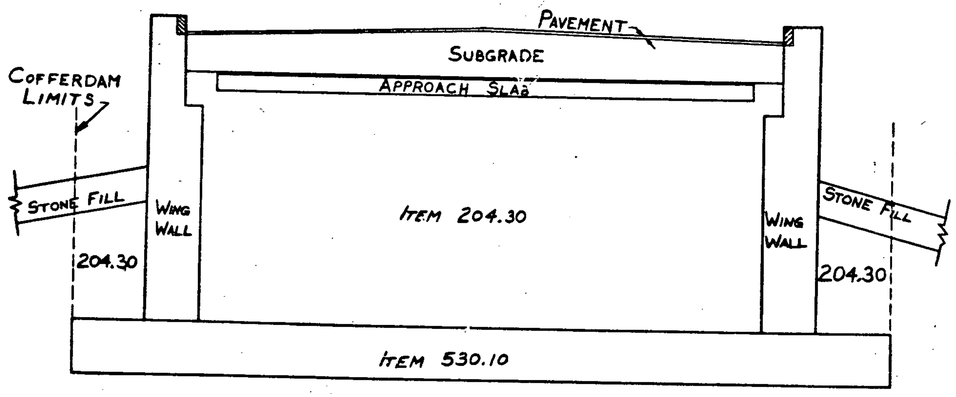
TOWN OF HIGHGATE	Bridge No. 182
	Log Sta. 225+52
HIGHWAY NO. U.S. RTE. 7	Surv. Sta. 225+53
U.S. RTE 7 OVER ROCK RIVER	
CURTAINWALL & TIE BEAM DETAILS	
Designed by M.J. PELOGRITO	Drawn by M.J. PELOGRITO
Checked by A. ELWOOD date 9-83	Bridge Design Supervisor R.S. HAUPT date
PROJECT HIGHGATE	PROJECT NO. BRS-0285(1)S
Bridge Sheet No. BR 108	Sheet 21 of 64

BRUNING 44-131 58384
BR-6-83



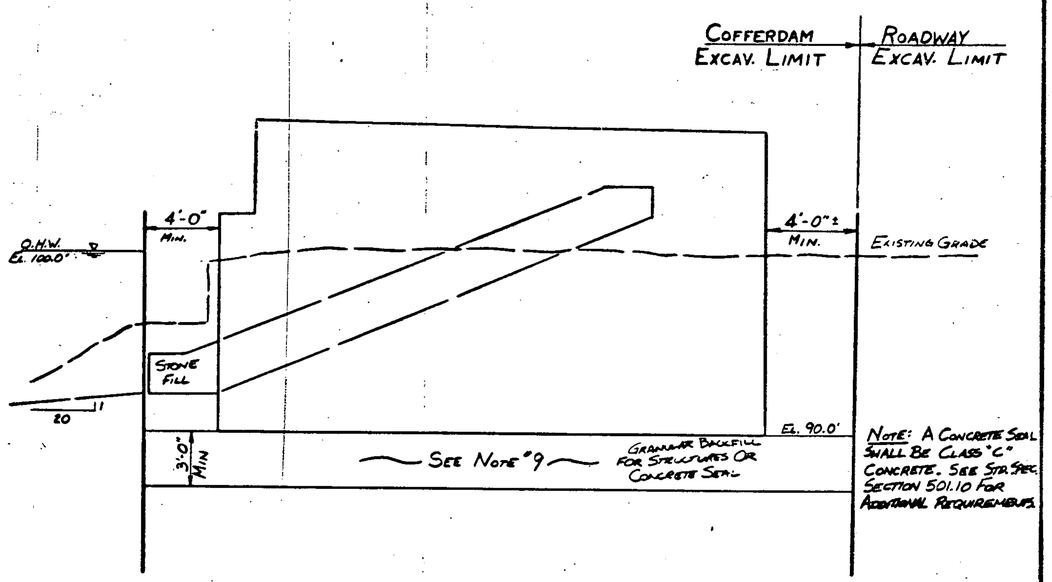
PLAN - COFFERDAM LIMITS

SCALE : 1/4" = 1'-0"



TYPICAL SECTION A-A - ITEM LIMITS

SCALE : 1/4" = 1'-0"



ELEVATION - COFFERDAM LIMITS

SCALE : 1/4" = 1'-0"

1. FOR ADDITIONAL GENERAL NOTES, SEE SCB-01-75, NOTES 1-16.
2. DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EVERY REASONABLE PRECAUTION TO PREVENT POLLUTION, INCLUDING THE DISCHARGE OF RAW CONCRETE OR DEBRIS INTO THE STREAM, AS DIRECTED BY STANDARD SPECIFICATION SECTION 104.11.
3. IN-STREAM CONSTRUCTION SHALL BE LIMITED TO JUNE 1 THRU OCTOBER 1. THE CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS TO THE BOAT LAUNCH SITE AND PARKING AREA AT ALL TIMES.
4. THE EXISTING SUPERSTRUCTURE SHALL BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR.
5. THE CLOSED CELL EXPANSION MATERIAL SHALL BE SEMI-RIGID GRADE AND SHALL MEET THE REQUIREMENTS OF SUBSECTION 707.23. PAYMENT SHALL BE INCLUDED IN THE UNIT BID PRICE FOR CONCRETE, CLASS A.
6. ALL CONCRETE IN ABUTMENTS SHALL BE CONCRETE, CLASS B. ALL CONCRETE SHALL BE PLACED IN THE DRY.
7. PAY LIMITS FOR GRANULAR BACKFILL FOR STRUCTURES SHALL BE:

   HORIZONTAL - COFFERDAM LIMITS OR 4'-0" FROM FACE OF ABUTMENT.
   VERTICAL - UPPER LIMIT: BOTTOM OF APPROACH SLAB, SUBGRADE, OR BOTTOM OF STONE FILL
   LOWER LIMIT: ELEVATION 90.0
8. PILING AT ABUTMENTS SHALL BE HP 14 X 73'S WITH AN ESTIMATED LENGTH OF 80 LF. SPLICES IN PILES SHALL NOT BE ALLOWED BETWEEN ELEVATIONS 70.0 THRU 92.0. PILES SHALL BE DRIVEN TO A DESIGN CAPACITY OF 95 TONS. ALL PILES SHALL HAVE REINFORCED TIPS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE COST OF PILE TIPS SHALL BE INCLUDED IN THE UNIT BID PRICE OF THE STEEL PILING ITEM.
9. PAY ITEM 530.10 - COFFERDAM, SHALL CONSIST OF THE FOLLOWING WORK:
   - ALL LABOR AND INCIDENTALS REQUIRED TO INSTALL AND REMOVE COFFERDAM.
   - EXCAVATION OF ALL MATERIAL TO CONSTRUCT EACH ABUTMENT.
   - A MINIMUM 3' OF GRANULAR BACKFILL FOR STRUCTURES MEETING SPECIFICATION 704.11 BELOW ELEVATION 90.0' OR A CONCRETE SEAL BELOW ELEVATION 90.0' AT CONTRACTOR'S OPTION.
10. SPECIFICATION ITEM 530.02 SHALL BE MODIFIED BY THE ADDITION OF THE FOLLOWING: THE CONTRACTOR SHALL PREPARE DETAILED PLANS AND A SCHEDULE OF HIS OPERATION FOR EACH COFFERDAM SPECIFIED IN THE CONTRACT. THE DESIGN AND STRUCTURAL DETAILS OF THE COFFERDAM SHALL BE APPROVED AND SIGNED BY A QUALIFIED PROFESSIONAL ENGINEER (STRUCTURAL OR CIVIL BRANCH) REGISTERED IN THE STATE OF VERMONT. FOUR COPIES OF THE PLANS AND SCHEDULE OF OPERATIONS SHALL BE SUBMITTED TO THE STRUCTURES DIVISION, VERMONT AGENCY OF TRANSPORTATION, 133 STATE STREET, MONTPELIER, VERMONT 05602, FOR REVIEW AND APPROVAL FOR CONFORMANCE WITH SPECIFICATIONS.

    DETAILS PRESENTED SHALL INCLUDE: PLAN, ELEVATION AND SECTIONS INDICATING COFFERDAM DETAILS; SUBSTRUCTURE CONSTRUCTION DETAILS; DEPTH OF GRANULAR MATERIAL OR SEAL BELOW ELEVATION 90.0'; DETAILS FOR PUMPING, SCREENING AND FILTERING DEWATERING DISCHARGE AND A SCHEDULE OR SEQUENCE OF OPERATIONS.
11. THIS STRUCTURE WAS DESIGNED USING A PLATE GIRDER. HOWEVER, AT THE CONTRACTOR'S DISCRETION, A ROLLED BEAM MAY BE USED INSTEAD OF A PLATE GIRDER. ANY ADDITIONAL INFORMATION AND/OR CHANGES REQUIRED FOR THE ROLLED BEAM OPTION ARE NOTED ON THE PLANS. THE PAY ITEM 506.940 SHALL BE BID LUMP SUM AND SHALL INCLUDE ALL STEEL COSTS FOR EITHER OPTION CHOSEN BY CONTRACTOR.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF HIGHGATE	Bridge No. 182
	Log Sta. 225+52
HIGHWAY NO. U.S. RTE. 7	Surv. Sta. 225+53
U.S RTE. 7 OVER ROCK RIVER	
COFFERDAM DETAILS AND GENERAL NOTES	
Designed by M.J. PELOQUIN	Drawn by M.J. PELOQUIN
Checked by date	Bridge Design Supervisor date
PROJECT HIGHGATE	PROJECT NO. BRS-0285(1)S
Bridge Sheet No. 3R109	Sheet 22 of 64

DRAWING 44-131 SCB04

BR-6-83

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
1					SUPERSTRUCTURE												
2	184	5	36'-2"	S502	STR.				GRADE 60								
3	318	5	32'-0"	S503	STR.												
4	8	5	36'-2"	1CW501	STR.												
5	8	5	36'-2"	2CW501	STR.												
6																	
7	184	5	37'-4"	S501	1	0'-7	36'-2					0'-7					
8																	
9									GRADE 40								
10																	
11	186	5	4'-5"	S504	53	0'-5½	1'-3	1'-0	1'-3			0'-5½	0'-3¾				
12	40	5	10'-11"	1CW502	55	1'-6	3'-10	0'-7	3'-6			1'-6					
13	40	5	10'-11"	2CW502	55	1'-6	3'-10	0'-7	3'-6			1'-6					
14																	
15																	
16					ABUTMENT #1												
17																	
18 *	80	5	11'-3"	1A501	STR.												
19	36	5	36'-4"	1A502	STR.												
20 *	4	11	35'-0"	1A1101	STR.												
21																	
22	74	5	7'-11"	1A503	17		2'-9	2'-5	2'-9								
23	36	5	15'-5"	1A504	14		2'-0	11'-5	2'-0				1'-5				14'-3
24 *	23	8	6'-0"	1A801	19		2'-6	3'-6					2'-3		1'-4		5'-0
25																	
26					WINGWALL #1												
27	32	5	11'-4"	1W501	STR.												
28	28	5	16'-5"	1W502	STR.				— CUT TO LENGTH —								
29	28	5	7'-6"	1W503	STR.												
30	37	5	29'-0"	1W506	STR.												
31	10	5	27'-8"	1W507	STR.												
32	3	11	29'-0"	1W1101	STR.												
33																	
34									GRADE 40								
35	28	5	4'-0"	1W504	17		1'-6	1'-0	1'-6								
36	30	5	15'-6"	1W505	17		1'-6	2'-6	1'-6								
37																	
38																	
39					WINGWALL #2												
40			REBAR & QUANTITIES ARE SIMILAR TO WW#1 EXCEPT PIECEMARK IS														
41			PREFIXED BY "2W"														
42																	
43																	
44					TIE BEAM #1												
45																	
46	62	5	17'-5"	1T502	STR.												
47																	
48	32	5	41'-6"	1T501	2	2'-9	36'-0					2'-9					
49																	
50									GRADE 40								
51																	
52	31	5	7'-11"	1T503	17		2'-9	2'-5	2'-9								
53	31	5	6'-9"	1T504	10	1'-6	3'-9	1'-6								1'-2	2'-4½
54																	
55					ABUTMENT #2												
56			REBAR & QUANTITIES ARE SIMILAR TO ABUT. #1 EXCEPT PIECEMARK IS														
57			PREFIXED BY "2A"														
58																	
59																	
60					WINGWALLS #3 & #4												
61			REBAR & QUANTITIES ARE SIMILAR TO WW#1 EXCEPT PIECEMARKS ARE														
62			PREFIXED BY "3W" & "4W" RESPECTIVELY														
63																	
64																	
65					TIE BEAM #2												
66			REBAR & QUANTITIES ARE SIMILAR TO TIE BEAM #1 EXCEPT PIECEMARK IS														
67			PREFIXED BY "2T"														
68																	
69																	
70					APPROACH SLAB #1												
71																	
72	21	5	29'-2"	1AS501	STR.												
73																	
74																	
75 *	24	10	21'-4"	1AS1001	1	1'-10	19'-6										
76																	
77																	
78					APPROACH SLAB #2												
79			REBAR & QUANTITIES ARE SIMILAR TO APPROACH SLAB #1 EXCEPT PIECEMARK														
80			IS PREFIXED BY "2AS"														

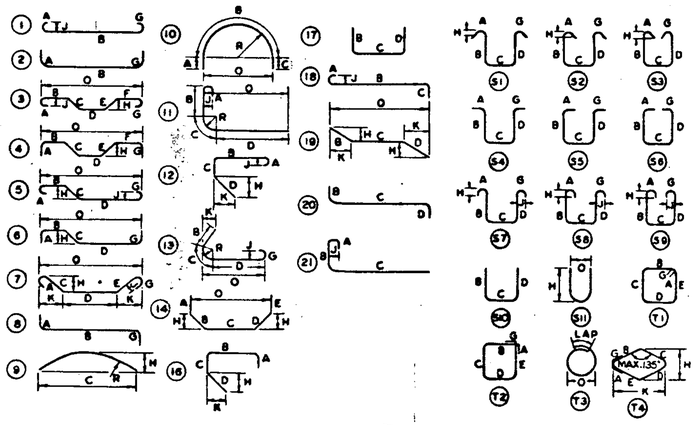
ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
81																	
82																	
83																	
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ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
161																	
162																	
163																	
164																	
165																	
166																	
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177																	
178																	
179																	
180																	

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES	PERIMETER INCHES
#3	.376	.375	.11	1.178
#4	.668	.500	.20	1.571
#5	1.043	.625	.31	1.963
#6	1.502	.750	.44	2.356
#7	2.044	.875	.60	2.749
#8	2.670	1.000	.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

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 615-51), GRADE 60.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN 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 "A" AND "G" 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 "H" AND "K" MUST BE SHOWN.

* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.

REV. NO.	MADE BY	DATE	DESCRIPTION

STATE OF VERMONT
AGENCY OF TRANSPORTATION

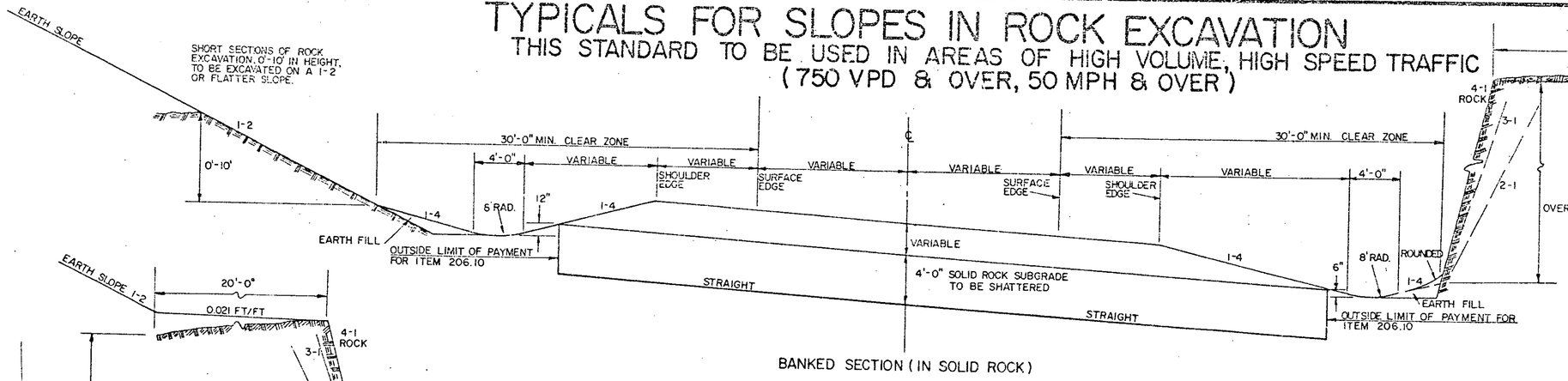
TOWN OF HIGHGATE	BRIDGE NO. 182
HIGHWAY NO. U.S. RTE. 7	LOG STA. 225+52
	SURV. STA. 225+53
U.S. RTE. 7 OVER ROCK RIVER	
REINFORCING STEEL SCHEDULE	
DESIGNED BY M.J. POLGRUTO	DRAWN BY M.J. POLGRUTO
CHECKED BY A. ELWOOD DATE 7-83	BRIDGE DESIGN SUPERVISOR R.S. HAUFT DATE
PROJECT HIGHGATE	PROJECT NO. BRS 0285(1)S
BRIDGE SHEET NO. BR110	SHEET 23 OF 64

BRUNING 44-131 40151

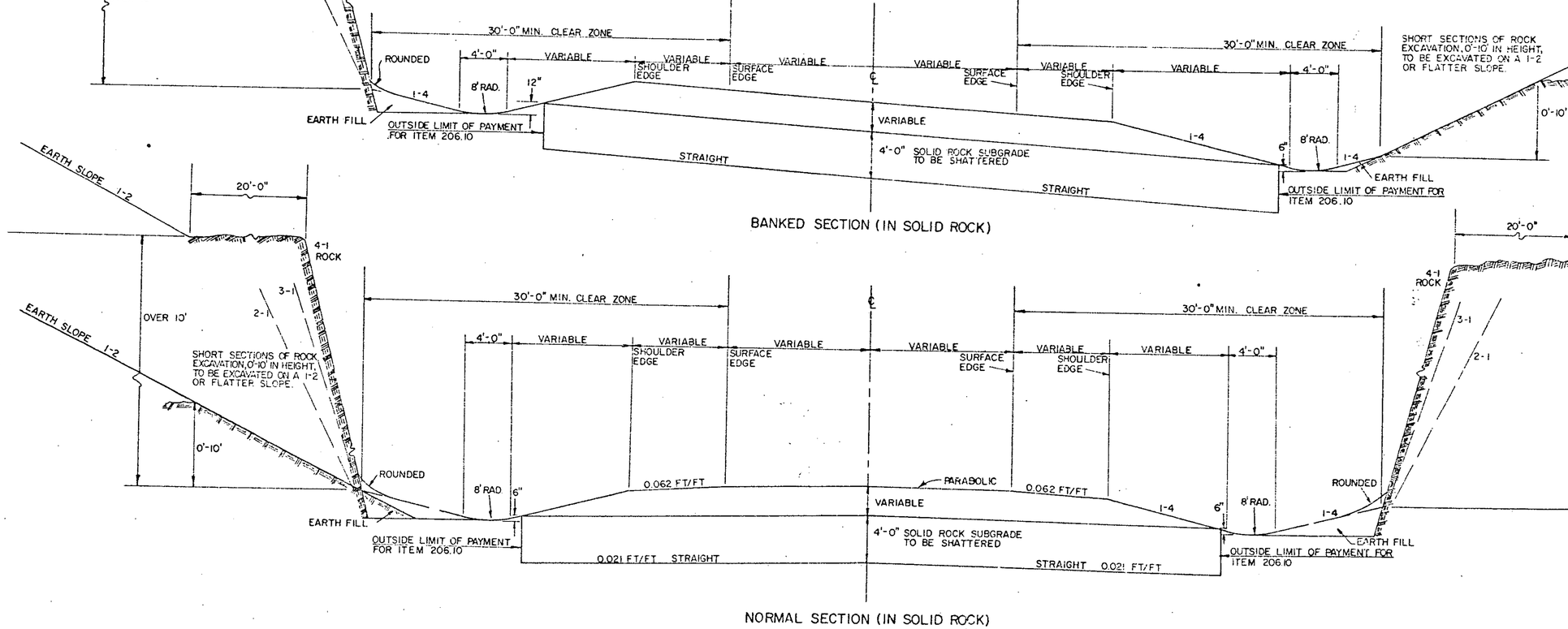
BR-5

TYPICALS FOR SLOPES IN ROCK EXCAVATION

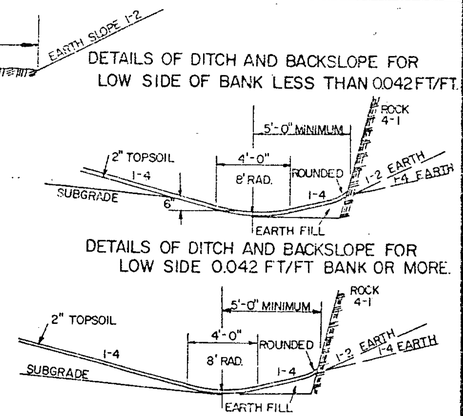
THIS STANDARD TO BE USED IN AREAS OF HIGH VOLUME, HIGH SPEED TRAFFIC (750 VPD & OVER, 50 MPH & OVER)



BANKED SECTION (IN SOLID ROCK)



NORMAL SECTION (IN SOLID ROCK)



THE CONTRACTOR SHOULD USE CARE IN BLASTING SOLID ROCK, SO THAT NO OVERHANGING LEDGE WILL RESULT. ANY OVERHANGING LEDGE, OUTSIDE THE NEAT LINE, SHALL BE REMOVED AT THE CONTRACTORS EXPENSE.

FOR ROADWAY DETAILS INSIDE BACK OF DITCH, SEE STANDARD TYPICAL FOR PARTICULAR CLASS OF ROADWAY INVOLVED.

TEST TRENCHES WILL BE EXCAVATED AS ORDERED BY THE ENGINEER TO ASSURE REQUIRED RESULTS ARE BEING OBTAINED ACCORDING TO SECTION 206 TEST TRENCHES TO BE PAID AS TRENCH EXCAVATION OF EARTH, ITEM 204.20.

NORMALLY THE DISTANCE BETWEEN THE EDGE OF SURFACE AND THE FACE OF SOLID ROCK WILL NOT BE LESS THAN 30 FEET.

ACCELERATION AND DECELERATION LANES IN SOLID ROCK EXCAVATION TO BE CONSTRUCTED WITH A MINIMUM 4'-0" RECOVERY AREA (EARTH FILL IN BACK OF DITCH) TO FEASIBLE LOCATION OF LESS THAN 50 MPH DESIGN.

TRUCK LANES IN SOLID ROCK EXCAVATION ON PROJECTS OF 50 MPH AND OVER ARE TO BE CONSTRUCTED WITH A MINIMUM 4'-0" RECOVERY AREA.

SELECTION OF APPROPRIATE ROCK SLOPE TO BE DETERMINED FOR EACH ROCK EXCAVATION LOCATION.

REVISIONS AND CORRECTIONS

APRIL 20, 1973 BENCHES REMOVED AND VARIABLE SLOPES ADDED.

AUGUST 31, 1981 CHANGED CRITERION FOR USE OF STANDARD TO INCLUDE HIGH VOLUME CONDITION.

APPROVED: DATE Dec. 6, 1971

R. N. Arnold
CHIEF ENGINEER

E. H. Dickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

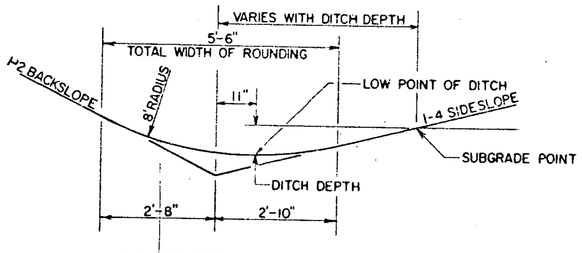
STANDARD TYPICAL FOR SLOPES IN SOLID ROCK EXCAVATION DRILLING AND BLASTING OF SOLID ROCK SUBGRADE

VERMONT AGENCY OF TRANSPORTATION

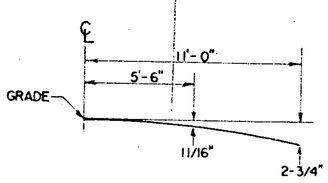
STANDARD A-60

TYPICAL SECTIONS

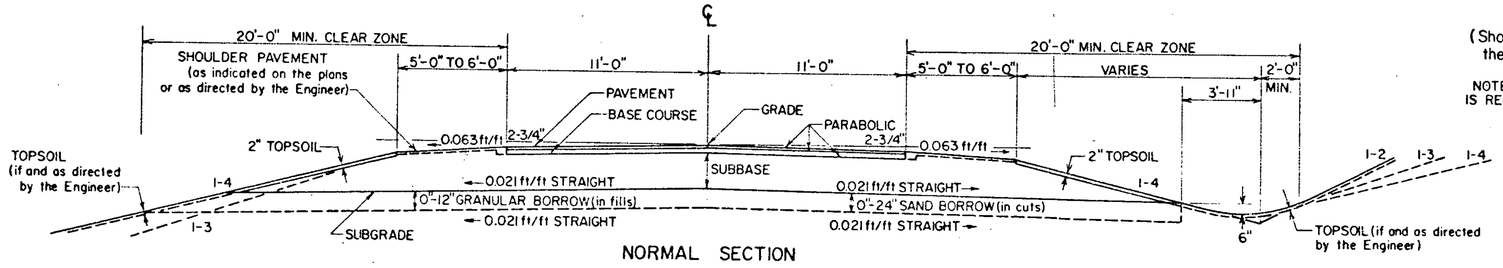
1-1/2" BITUMINOUS CONCRETE PAVEMENT
3" PLANT MIXED BASE COURSE
18" to 24" SUBBASE
SHOULDERS: 1-1/2" BITUMINOUS CONCRETE PAVEMENT (as indicated on the plans or as directed by the Engineer)
0"-12" GRANULAR BORROW (in Fills) } as indicated on the plans or as directed by the Engineer
0"-24" SAND BORROW (in Cuts) }



TYPICAL DITCH DETAILS

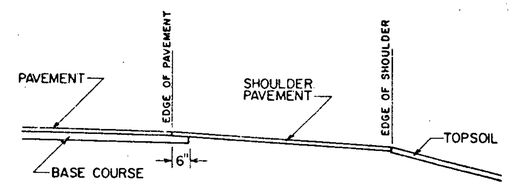


PARABOLIC DETAIL



NORMAL SECTION

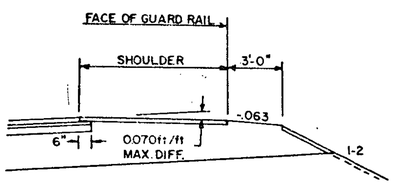
NOTE: SHOULDER PAVING WILL BE SPECIFIED WHERE ℄ GRADE EXCEEDS 5%.



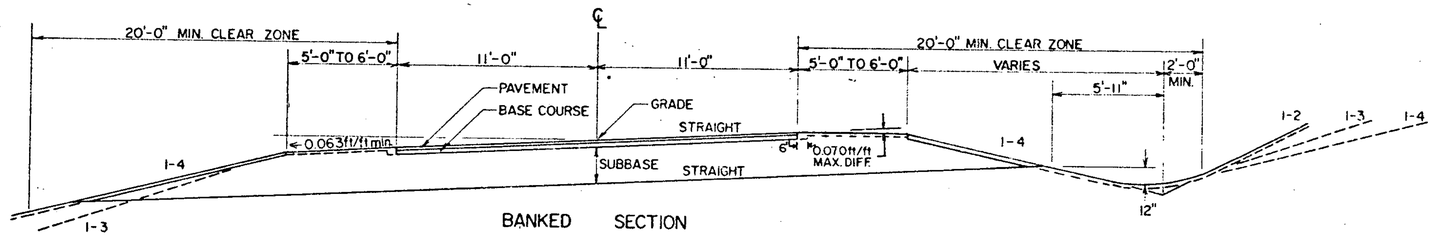
DETAIL OF SHOULDER PAVING
(Shoulders to be paved only where indicated on the plans or as directed by the Engineer)

NOTE THAT 6" ADDITIONAL WIDTH OF BASE COURSE IS REQUIRED ONLY WHERE SHOULDERS ARE TO BE PAVED.

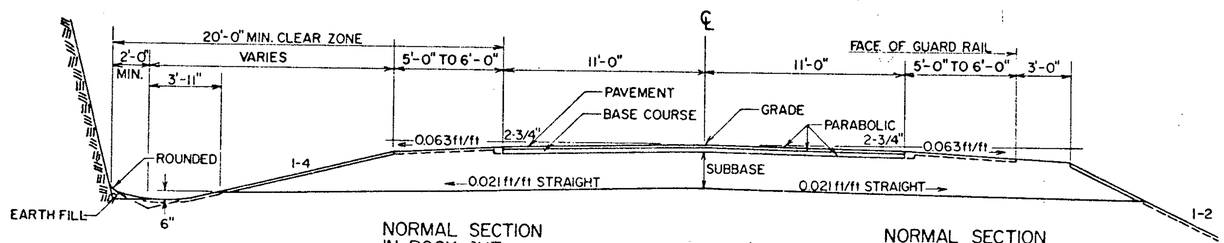
MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT	± 1/4"
BASE COURSE	± 1/2"
SUBBASE	± 1"
GRANULAR BORROW	± 1"
SAND BORROW	± 1"



DETAIL OF GUARD RAIL ON HIGH SIDE OF BANKED SECTION



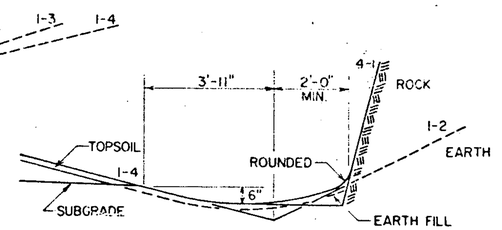
BANKED SECTION



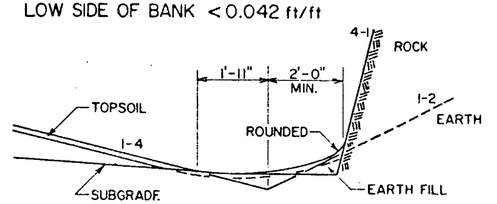
NORMAL SECTION IN ROCK CUT

NORMAL SECTION WITH GUARD RAIL

FOR SLOPES IN SOLID ROCK EXCAVATION AND DRILLING AND BLASTING OF SOLID ROCK SUBGRADE, SEE STANDARD SHEET A-62.



DETAILS OF DITCH AND BACKSLOPE FOR LOW SIDE OF BANK < 0.042 ft/ft



DETAILS OF DITCH AND BACKSLOPE FOR LOW SIDE OF BANK ≥ 0.042 ft/ft

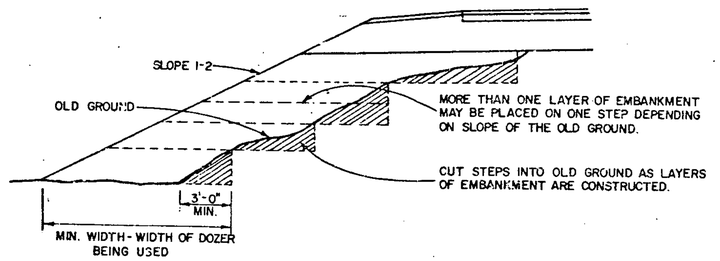
REVISIONS AND CORRECTIONS

APPROVED JUNE 17, 1982
DATE
DIRECTOR OF ENGINEERING AND CONSTRUCTION
CHIEF OF DESIGN
SURVEY AND PLANS ENGINEER

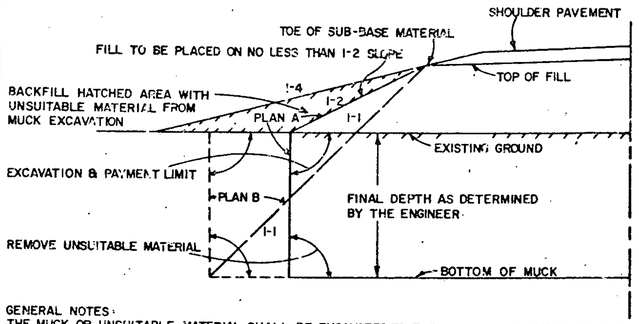
RURAL HIGHWAY TYPICAL SECTIONS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
A-24



METHOD FOR CONSTRUCTING AN EMBANKMENT ON EARTH SLOPE

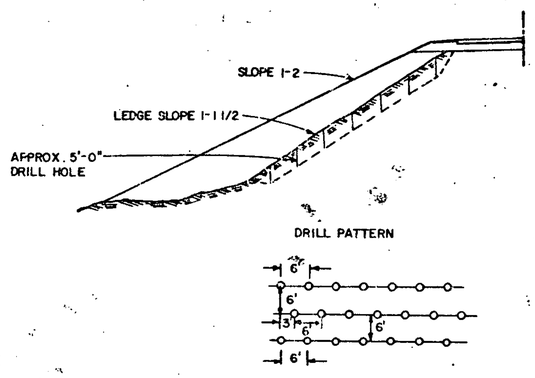


GENERAL NOTES:
THE MUCK OR UNSUITABLE MATERIAL SHALL BE EXCAVATED TO THE NEAT LINES SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER.

EXCAVATION AND PAYMENT LIMIT WILL BE DETERMINED FROM EITHER PLAN "A" OR PLAN "B", WHICHEVER PRODUCES THE GREATER WIDTH IN A GIVEN MUCK AREA.

BACKFILL MATERIAL MUST MEET THE REQUIREMENTS SET FORTH UNDER MUCK EXCAVATION, SECTION 203.

TYPICAL NEAT PAY LINES FOR MUCK EXCAVATION

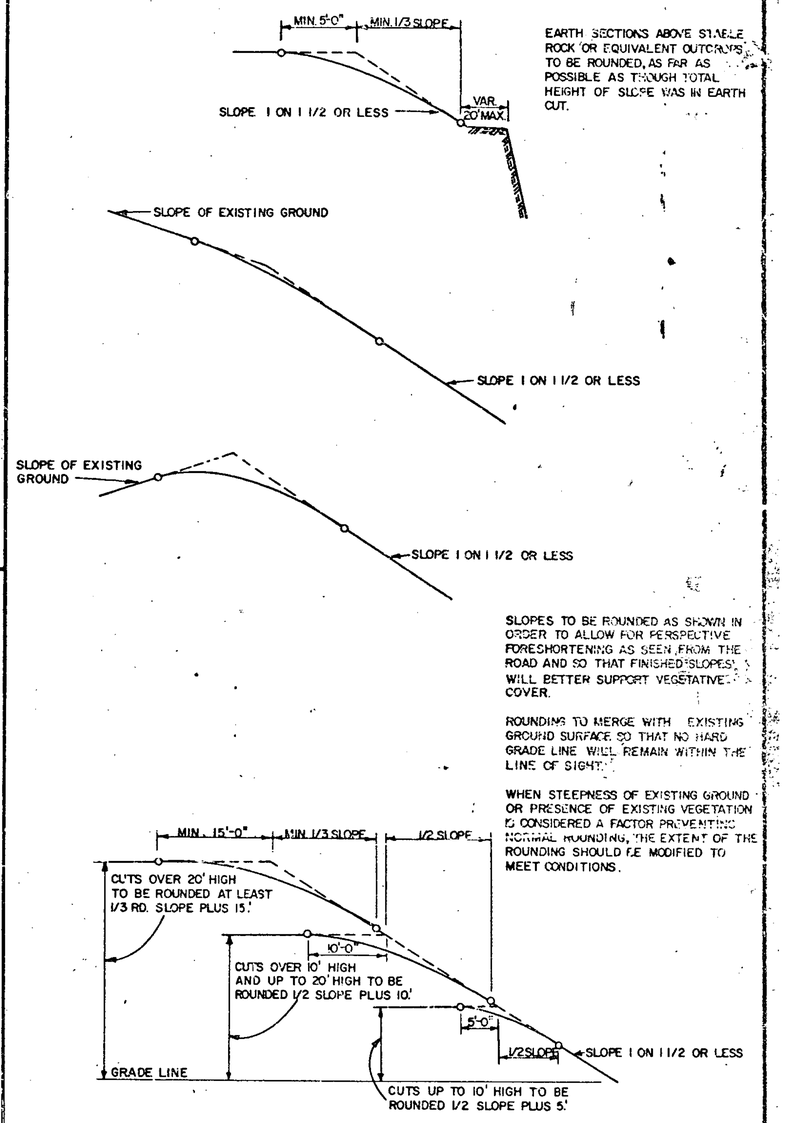


DRILLING AND BLASTING OF SOLID ROCK.

PROCEDURE TO BE FOLLOWED WHEN LEDGE SLOPE ON OLD GROUND IS BETWEEN A 1 ON 1 AND A 1 ON 5 SLOPE.

ALL HOLES TO BE APPROXIMATELY 5'-0" DEEP. HOLES TO BE IN ROWS, SPACED AND STAGGERED AS SHOWN IN DRILL PATTERN, OR AS DIRECTED BY THE ENGINEER, SEE SECTION 205.

A METHOD FOR PREPARING LEDGE SLOPE BEFORE CONSTRUCTING AN EMBANKMENT



EARTH SECTIONS ABOVE STABLE ROCK OR EQUIVALENT OUTCROPS TO BE ROUNDED, AS FAR AS POSSIBLE AS THOUGH TOTAL HEIGHT OF SLOPE WAS IN EARTH CUT.

SLOPES TO BE ROUNDED AS SHOWN IN ORDER TO ALLOW FOR PERSPECTIVE FORESHORTENING AS SEEN FROM THE ROAD AND SO THAT FINISHED SLOPES WILL BETTER SUPPORT VEGETATIVE COVER.

ROUNDING TO MERGE WITH EXISTING GROUND SURFACE SO THAT NO HARD GRADE LINE WILL REMAIN WITHIN THE LINE OF SIGHT.

WHEN STEEPNESS OF EXISTING GROUND OR PRESENCE OF EXISTING VEGETATION IS CONSIDERED A FACTOR PREVENTING NORMAL ROUNDING, THE EXTENT OF THE ROUNDING SHOULD BE MODIFIED TO MEET CONDITIONS.

TYPICAL SLOPE ROUNDING

REVISIONS AND CORRECTIONS

APPROVED:

DATE: Dec. 6, 1971

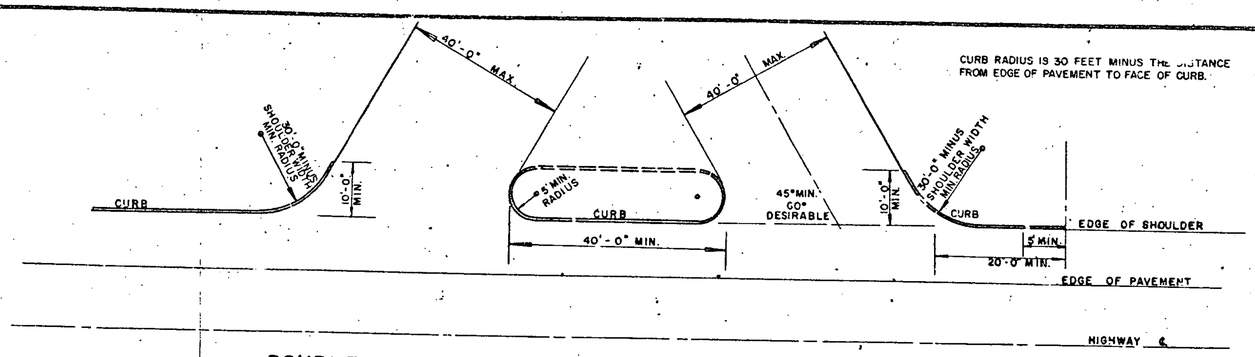
R.N. Arnold
CHIEF ENGINEER

E.H. Hickney
ASST. CHIEF ENGINEER

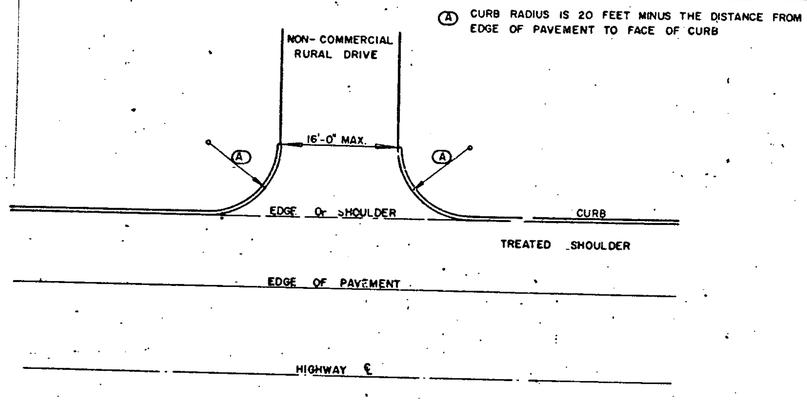
G.M. Lane
HIGHWAY ENGINEER

EMBANKMENT ON EARTH SLOPE
EMBANKMENT ON ROCK SLOPE
MUCK EXCAVATION
TYPICAL SLOPE ROUNDING

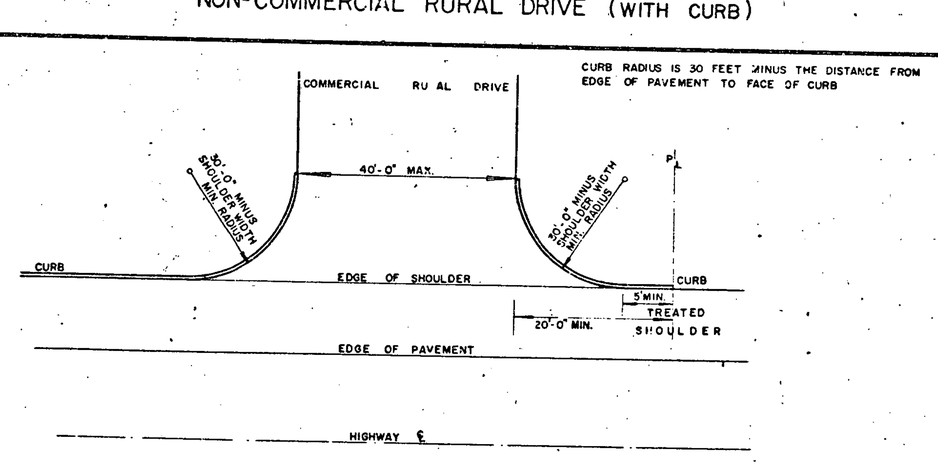
VERMONT DEPARTMENT OF HIGHWAYS STANDARD B-5



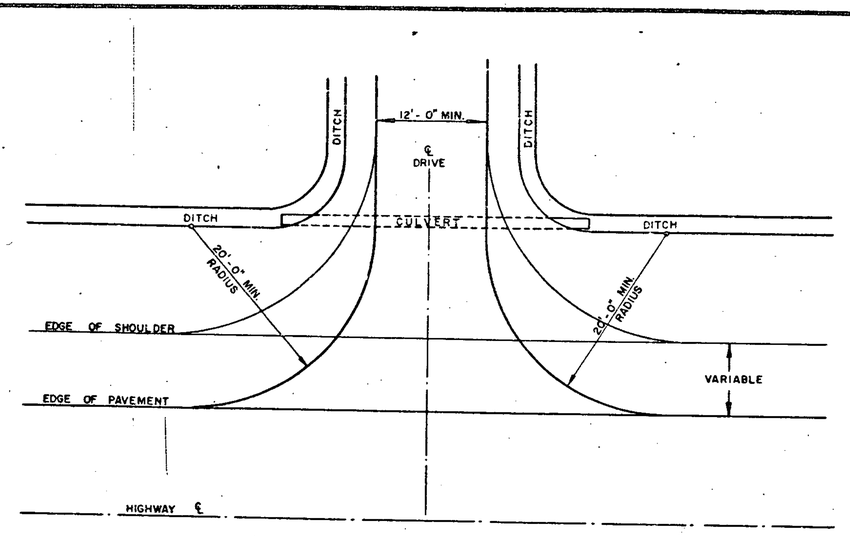
DOUBLE COMMERCIAL RURAL DRIVE (WITH CURB)



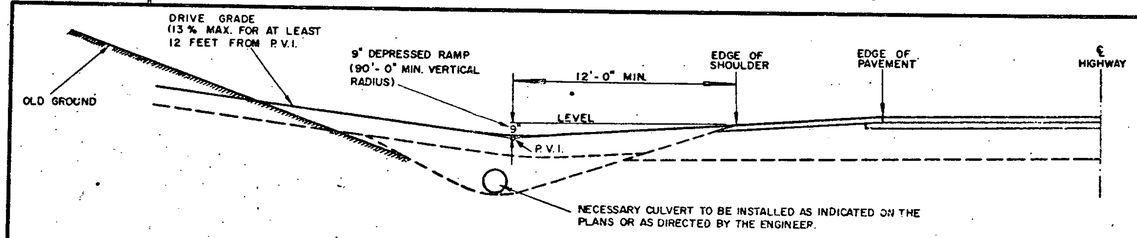
NON-COMMERCIAL RURAL DRIVE (WITH CURB)



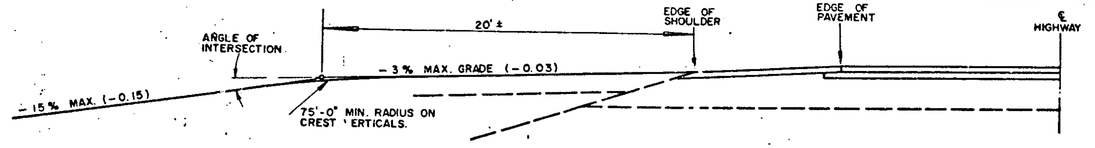
COMMERCIAL RURAL DRIVE (WITH CURB)



PLAN OF DRIVE INTERSECTION



PROFILE OF DRIVE INTERSECTION SHOWING 9" DEPRESSED RAMP (CUT SECTION)



LENGTH OF VERTICAL CURVE WILL BE NO LESS THAN 1.309 TIMES THE ANGLE OF INTERSECTION OF THE GRADES (THE TANGENT OF THE ANGLE OF INTERSECTION IS THE ALGEBRAIC DIFFERENCE OF THE GRADES.)

SAMPLE COMPUTATION:
- 0.15
- 0.03
TANGENT = 0.12
ANGLE = 6° 50'
= 6.83
6.83 X 1.309 = 8.94
MIN. LENGTH OF V.C. WILL BE 9 FEET

PROFILE OF DRIVE AND SIDE ROAD INTERSECTION (FILL SECTION)

REVISIONS AND CORRECTIONS

APPROVED: DATE December 11, 1970

R N Arnold
CHIEF ENGINEER

E. B. Stuchney
ASST. CHIEF ENGINEER

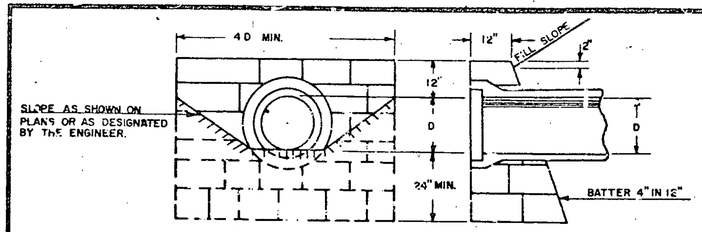
Q. M. Love
HIGHWAY ENGINEER

DRAWN: B.F.H.
TRACED: A.J.A.

DRIVE INTERSECTION SHOWING DEPRESSED RAMP (CUT SECTION)
DRIVE INTERSECTION SHOWING CREST RAMP (FILL SECTION)
COMMERCIAL RURAL DRIVE (WITH CURB)
NON-COMMERCIAL RURAL DRIVE (WITH CURB)

VERMONT
DEPARTMENT OF HIGHWAYS STANDARD

B-13

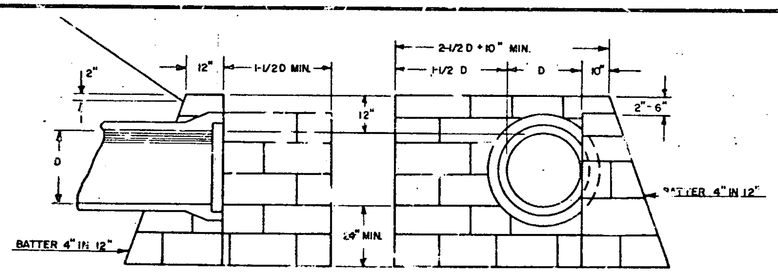


QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
C.R.M. QUANTITY	1.0	1.3	1.8	2.7	3.5	4.9	6.4	8.0	10.0	12.3

C.R.M. QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER.
SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS FOR METAL PIPE.

CEMENT RUBBLE MASONRY STRAIGHT HEADWALL



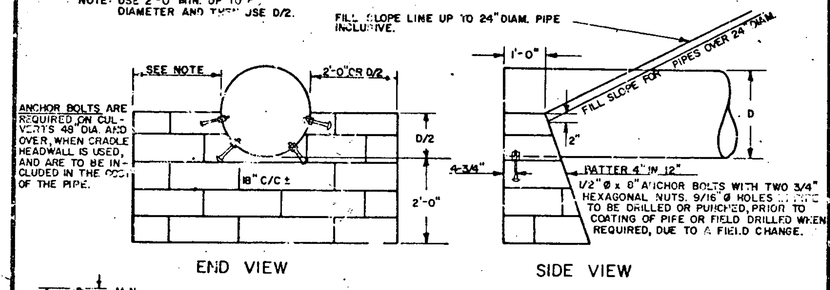
QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

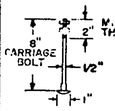
PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"
C.R.M. QUANTITY	1.3	1.7	2.1	3.2	4.1	5.5	7.1	8.9

C.R.M. QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER.
SAME DEDUCTION MADE FOR CONCRETE PIPE AS FOR METAL PIPE.

CEMENT RUBBLE MASONRY "L" TYPE HEADWALL

NOTE: USE 2'-0" MIN. UP TO 24" DIAMETER AND THEN USE D/2.





GALV ANCHOR BOLTS TO BE PLACED 18" C/C.

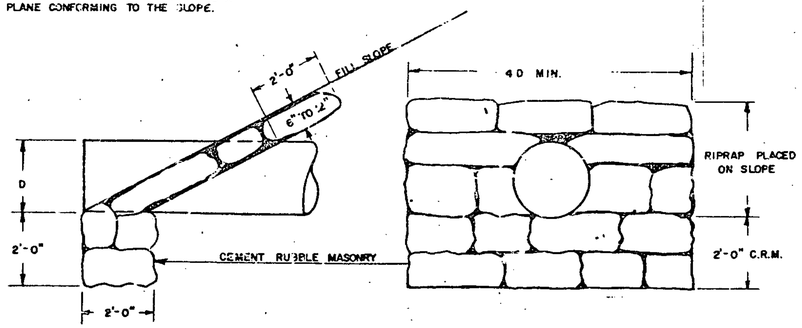
QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

PIPE DIAMETER	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"
C.R.M. QUANTITY	0.8	1.0	1.2	1.4	1.5	1.7	2.0	2.4	2.8	3.3

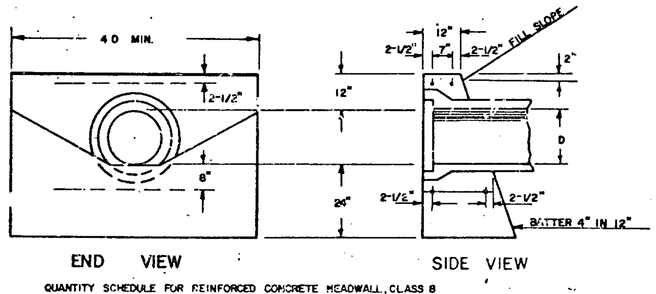
C.R.M. QUANTITIES ARE DEDUCTED WHEN PIPE DIAMETER 42" OR LARGER
SAME DEDUCTION MADE FOR CONCRETE PIPE AS FOR METAL PIPE.
WHEN CONCRETE CLASS B IS USED, TWO PIECES OF REINFORCING STEEL WILL BE PLACED BELOW THE CULVERT SIMILAR TO THOSE SHOWN ON REINFORCED CONCRETE STRAIGHT HEADWALL.

CEMENT RUBBLE MASONRY CRADLE HEADWALL

EXPOSED SURFACE OF RIPRAP TO BE A PLANE CONFORMING TO THE SLOPE.



RIPRAP LIGHT TYPE SLOPE HEADWALL WITH CEMENT RUBBLE MASONRY FOOTING



QUANTITY SCHEDULE FOR REINFORCED CONCRETE HEADWALL, CLASS B

PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
CONCRETE QUANTITY	1.0	1.3	1.8	2.7	3.5	4.9	5.4	8.0	10.0	12.3

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL

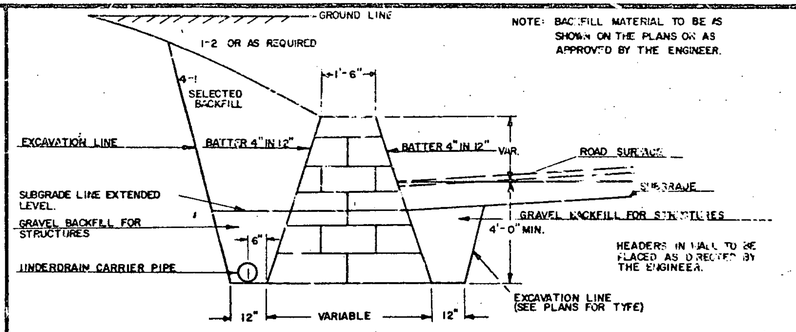
PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
NUMBER	4	4	4	4	4	4	4	4	4	4
LENGTH OF BARS	3'-0"	3'-0"	3'-0"	3'-0"	4'-0"	4'-0"	5'-0"	5'-0"	6'-0"	6'-0"

ALL REINFORCING STEEL TO BE 5/8" DIAMETER DEFORMED BARS.
CONCRETE QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER.
SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS MADE FOR METAL PIPE.

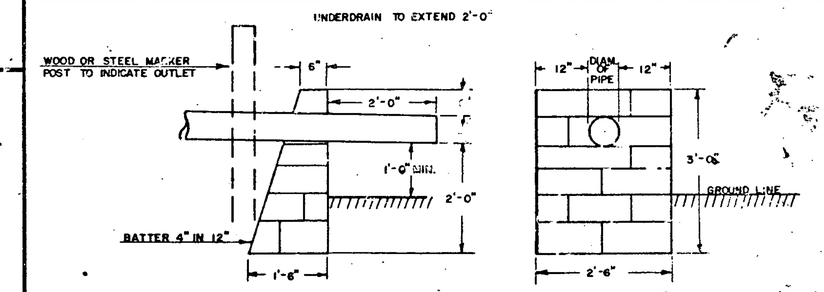
REINFORCED CONCRETE STRAIGHT HEADWALL

GENERAL NOTES – HEADWALLS:

1. THE HEIGHT OF HEADWALLS ON DRIVEWAY PIPES IS TO BE REDUCED TO 6" ABOVE THE TOP OF PIPE.
2. BELL AND SPIGOT PIPE IS TO BE LAID WITH THE BELL UPSTREAM.
3. HEADWALL QUANTITIES, FOR THE SAME TYPE HEADWALLS ON PIPES OF EQUAL DIAMETER, ARE THE SAME FOR BOTH CONCRETE AND METAL PIPE. LENGTH OF HEADWALLS ARE BASED ON INSIDE DIAMETER OF PIPES.
4. THE NECESSITY OF CONSTRUCTING A FLOOR AT THE ENTRANCE TO AN L TYPE HEADWALL SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER AND ANY INSTALLATION THEREOF SHALL BE AT HIS DIRECTION.



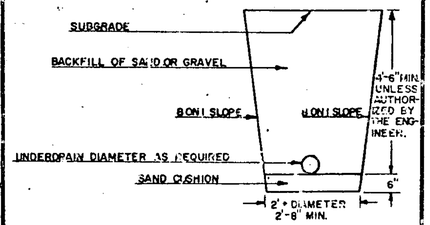
CEMENT RUBBLE MASONRY RETAINING WALL

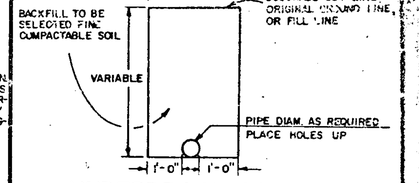


UNDERDRAIN OUTLET TO CLEAR GROUND LINE BY A MINIMUM OF 1'-0" TO HELP PREVENT CLOGGING.

CEMENT RUBBLE MASONRY UNDERDRAIN OUTLET CONSTRUCTION

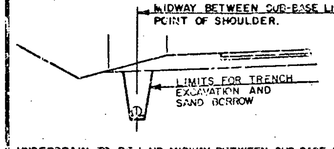
UNDERDRAIN CONSTRUCTION





UNDERDRAIN CARRIER PIPE CONSTRUCTION

UNDERDRAIN LOCATION



UNDERDRAIN TO BE LAID MIDWAY BETWEEN SUB-BASE LINE AND POINT OF SHOULDER OR AS DIRECTED BY THE ENGINEER.

GENERAL NOTES – UNDERDRAIN:

1. GRADE FOR UNDERDRAIN PIPE SHALL BE PARALLEL WITH THE GRADE OF THE ROAD UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. A FLUSHING BASIN IS TO BE INSTALLED AT INLET WHEN LESS THAN 3% GRADE IS USED OR AS ORDERED BY THE ENGINEER.
3. THE UNDERDRAIN SHALL BE TAKEN TO A PROPER OUTLET AND PROTECTED WITH A HEADWALL OF CEMENT RUBBLE MASONRY IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.
4. ELBOWS, TEES, AND OTHER JUNCTION UNITS NECESSARY FOR PROPER INSTALLATION OF UNDERDRAIN, AS DIRECTED BY THE ENGINEER, ARE TO BE INCLUDED IN THE UNIT BID PRICE FOR UNDERDRAIN OR CARRIER PIPE.

REVISIONS AND CORRECTIONS

MAR 8, 1972	CHANGED ANCHOR BOLTS FROM 10" "L" TO 8" CARRIAGE BOLTS
DEC. 16, 1976	NOTE ADDED ON REINFORCING STEEL FOR CRADLE HEADWALLS.

APPROVED:

DATE: Dec. 6, 1971

R.W. Arnold
CHIEF ENGINEER

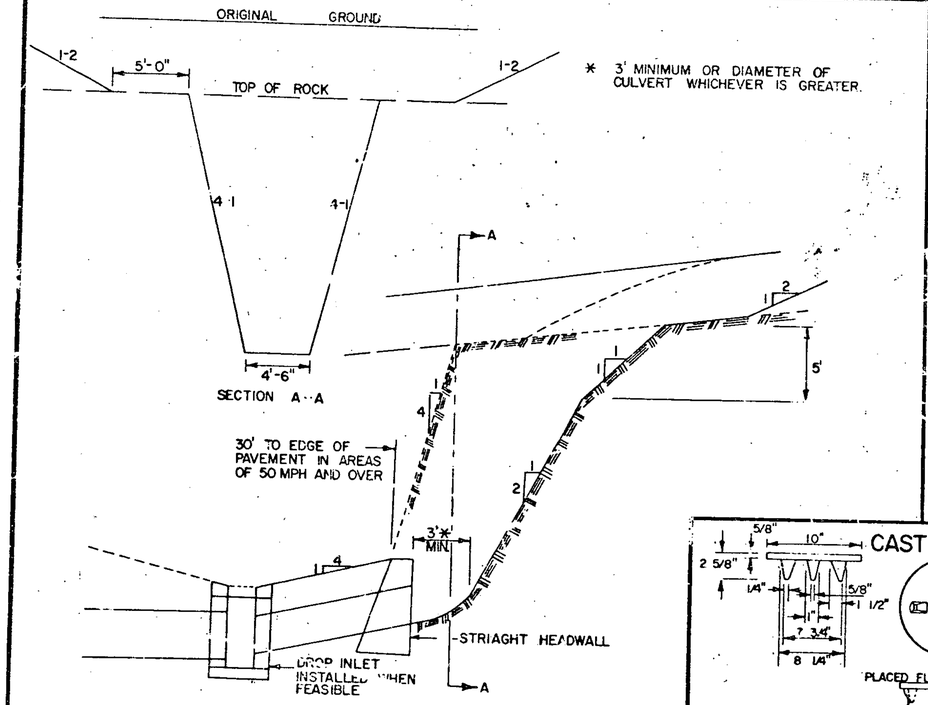
E.H. Stickney
ASST. CHIEF ENGINEER

G.M. Lane
HIGHWAY ENGINEER

CEMENT RUBBLE MASONRY HEADWALLS & RETAINING WALL
RIPRAP LIGHT TYPE SLOPE HEADWALL
REINFORCED CONCRETE HEADWALL
UNDERDRAIN & CARRIER PIPE CONSTRUCTION DETAILS

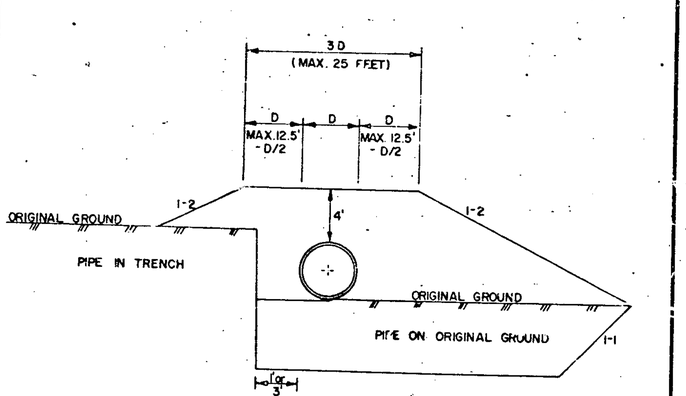
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

D-2



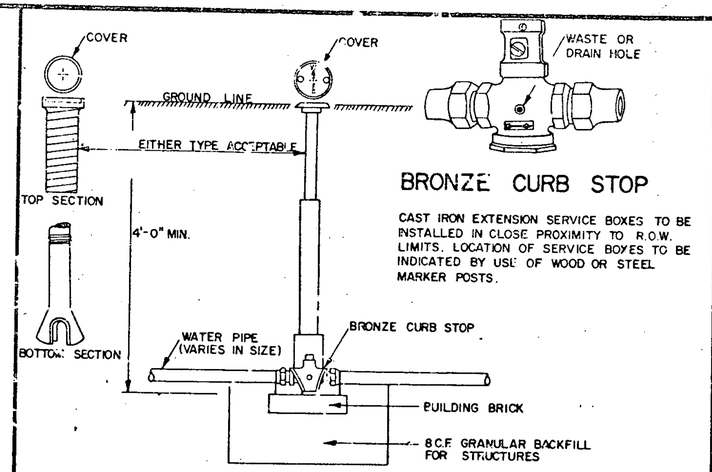
* 3' MINIMUM OR DIAMETER OF CULVERT WHICHEVER IS GREATER.

TYPICAL WATERFALL FOR CULVERTS UP TO AND INCLUDING 48" DIAMETER



EXCAVATE POOR MATERIAL AND REPLACE WITH GRANULAR BACKFILL FOR STRUCTURES, OR SAND BORROW AS DIRECTED BY THE ENGINEER.

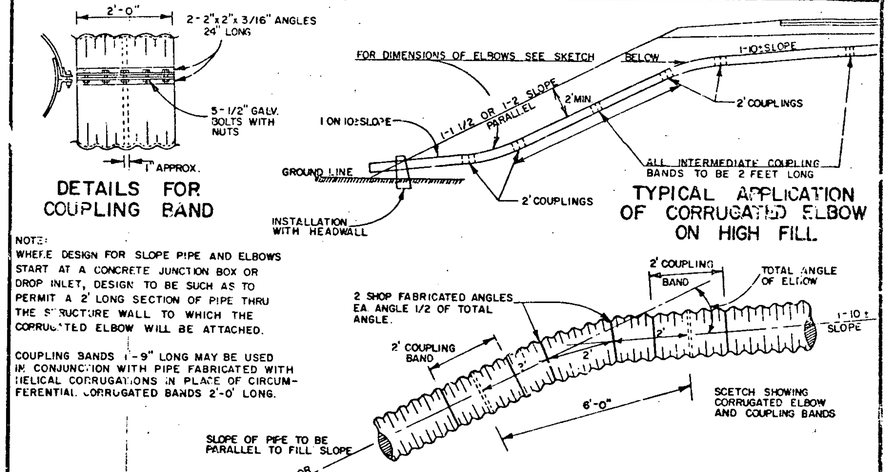
GRANULAR MATERIAL AT CULVERT LOCATIONS



BRONZE CURB STOP

CAST IRON EXTENSION SERVICE BOXES TO BE INSTALLED IN CLOSE PROXIMITY TO R.O.W. LIMITS. LOCATION OF SERVICE BOXES TO BE INDICATED BY USE OF WOOD OR STEEL MARKER POSTS.

EXTENSION SERVICE BOX AND CURB STOP



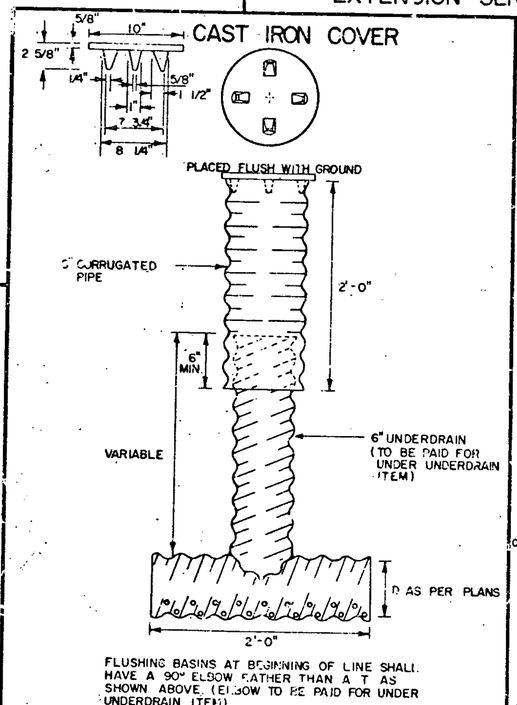
DETAILS FOR COUPLING BAND

TYPICAL APPLICATION OF CORRUGATED ELBOW ON HIGH FILL

NOTE:
WHERE DESIGN FOR SLOPE PIPE AND ELBOWS START AT A CONCRETE JUNCTION BOX OR DROP INLET, DESIGN TO BE SUCH AS TO PERMIT A 2' LONG SECTION OF PIPE THRU THE STRUCTURE WALL TO WHICH THE CORRUGATED ELBOW WILL BE ATTACHED.

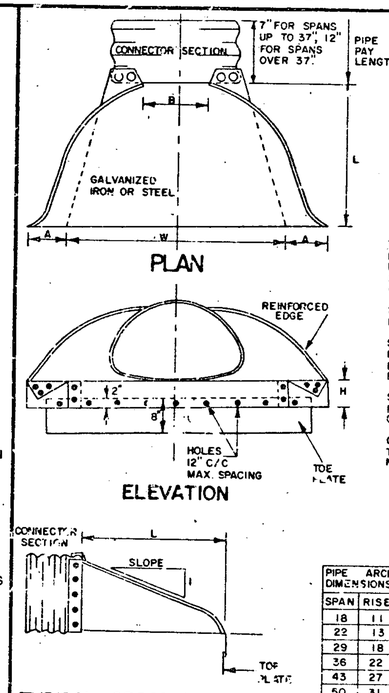
COUPLING BANDS 1'-9" LONG MAY BE USED IN CONJUNCTION WITH PIPE FABRICATED WITH HELICAL CORRUGATIONS IN PLACE OF CIRCUMFERENTIAL CORRUGATED BANDS 2'-0" LONG.

CORRUGATED PIPE ELBOW

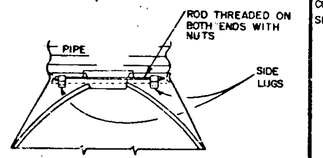


FLUSHING BASINS AT BEGINNING OF LINE SHALL HAVE A 90° ELBOW RATHER THAN A T AS SHOWN ABOVE. (ELBOW TO BE PAID FOR UNDER UNDERDRAIN ITEM)

UNDERDRAIN FLUSHING BASIN



ALTERNATE CONNECTION



FOR 18"x11" THRU 58"x36" ONLY

TOE PLATE TO BE PUNCHED TO MATCH HOLES IN SKIRT LIP. 3/8" GALV. BOLTS TO BE FURNISHED. LENGTH OF TOE PLATE W+10 FOR PIPE-ARCHES WITH RISE 11" TO 27" INCL AND W+18" MIN. FOR PIPE-ARCHES WITH RISE OF 31" TO 44" INCL.

SKIRT SECTION FOR PIPE-ARCHES WITH RISE OF 11" TO 27" INCL. TO BE MADE IN ONE PIECE.

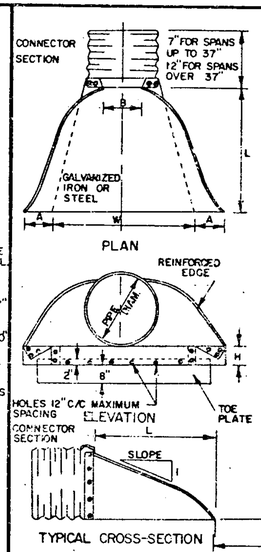
SKIRT SECTION FOR PIPE-ARCHES WITH RISE OF 31" TO 40" INCL. MAY BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTERLINE WITH 3/8" GALV. BOLTS OR RIVETS.

SKIRT SECTIONS FOR PIPE-ARCHES WITH RISE OF 44 INCHES MAY BE MADE FROM THREE SHEETS JOINED BY RIVETING OR BOLTING AT EQUAL DISTANCES FROM CENTERLINE.

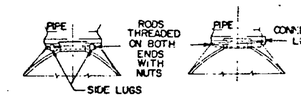
CONNECTOR SECTION, CORNER PLATE, AND TOE PLATE TO BE SAME GAGE AS SKIRT AND EACH TO BE GALVANIZED.

PIPE ARCH DIMENSIONS SPAN	RISE	THICK	DIMENSIONS A (1" ±)	B (MAX.)	H (1" ±)	L (1 1/2" ±)	W (2" ±)	APPROX SLOPE	BODY
18	11	.064	7	9	6	19	30	2 1/2	1 Pc
22	13	.064	7	10	6	23	36	2 1/2	1 Pc
29	18	.064	9	14	6	32	49	2 1/2	1 Pc
36	22	.079	10	16	6	39	60	2 1/2	1 Pc
43	27	.079	12	18	8	46	75	2 1/2	1 Pc
50	31	.109	13	21	9	53	85	2 1/2	2 Pc
58	36	.109	18	26	12	63	90	2 1/2	2 Pc
65	40	.109	18	30	12	70	102	2 1/2	2 Pc
72	44	.109	18	33	12	77	114	2 1/4	2 Pc

METAL END SECTION FOR C.G.M.P. ARCH



ALTERNATE CONNECTIONS



TOE PLATE TO BE PUNCHED TO MATCH HOLES IN SKIRT LIP. 3/8" GALVANIZED BOLTS TO BE FURNISHED. LENGTH OF TOE PLATE IS W+10 FOR 12" TO 30" DIAM. PIPE INCL. AND W+22" FOR 36" TO 48" DIAMETER PIPE INCL.

SKIRT SECTION FOR 12" TO 24" DIAMETER PIPE INCL. TO BE MADE IN ONE PIECE.

SKIRT SECTION FOR 30" TO 48" DIAMETER PIPE INCL. MAY BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTERLINE WITH 3/8" GALVANIZED RIVETS OR BOLTS.

CONNECTOR SECTION, CORNER PLATE, AND TOE PLATE TO BE SAME GAGE AS SKIRT AND EACH TO BE GALVANIZED.

PIPE DIAM.	THICK	DIMENSIONS A (1" ±)	B (MAX.)	H (1" ±)	L (1 1/2" ±)	W (2" ±)	APPROX SLOPE	BODY
12	.064	6	6	6	21	24	2 1/2	1 Pc
15	.064	7	8	6	26	30	2 1/2	1 Pc
18	.064	8	10	6	31	36	2 1/2	1 Pc
21	.064	9	12	6	36	42	2 1/2	1 Pc
24	.064	10	13	6	41	48	2 1/2	1 Pc
30	.079	12	16	8	51	60	2 1/2	1 Pc
36	.079	14	19	9	60	72	2 1/2	2 Pc
42	.109	16	22	11	69	84	2 1/2	2 Pc
48	.109	18	27	12	78	90	2 1/4	2 Pc

METAL END SECTION FOR C.G.M.P. (ROUND)

REVISIONS AND CORRECTIONS

JULY 17, 1972 HELICAL CORRUGATED COUPLING BAND NOTE ADDED

JULY 24, 1975 GRANULAR MATERIAL AT CULVERT LOCATIONS CORRECTED

APPROVED:

DATE: Dec 6, 1971

R H Crandall
CHIEF ENGINEER

E H Stuckney
ASST CHIEF ENGINEER

G M Lane
HIGHWAY ENGINEER

TYPICAL WATERFALL FOR CULVERTS UP TO AND INCLUDING 48" DIAMETER
EXTENSION SERVICE BOX AND CURB STOP
CORRUGATED PIPE ELBOW
GRANULAR BORROW AT CULVERT LOCATIONS
UNDERDRAIN FLUSHING BASIN
METAL END SECTION FOR CORRUGATED GALVANIZED METAL PIPE
METAL END SECTION FOR CORRUGATED GALVANIZED METAL PIPE ARCH

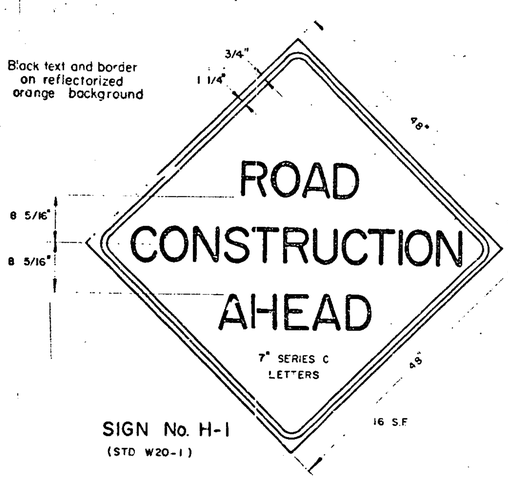
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

D-4

SIGN H-3 IS TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES, OR AS REQUESTED BY THE RESIDENT ENGINEER. THE TEXT MAY BE AS SHOWN OR MAY READ AS FOLLOWS "CONSTRUCTION AREA NEXT ___ MILES"

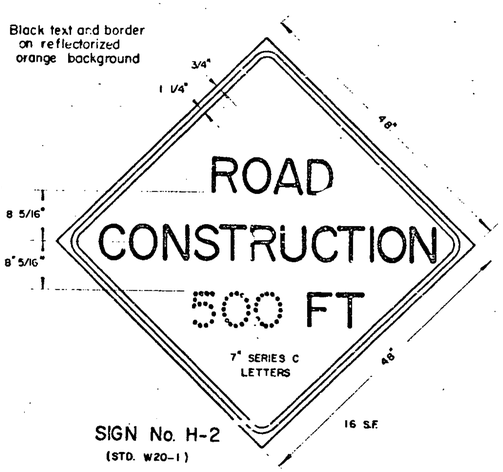
* Show mileage to nearest 1/4 mile

Black text and border on reflectorized orange background



SIGN No. H-1
(STD W20-1)

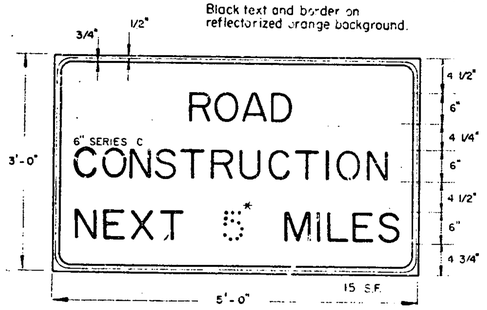
Black text and border on reflectorized orange background



SIGN No. H-2
(STD. W20-1)

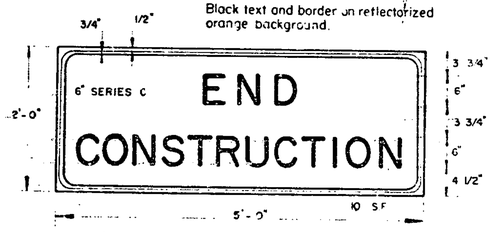
The road construction approach signs shown on this sheet are intended for use in providing advance warning and information on construction projects over which traffic will be maintained. When additional approach signs or other types of advance signing or control are necessary, the Plans and/or the Specifications for that project will give the details of the signs and devices required.

Black text and border on reflectorized orange background.



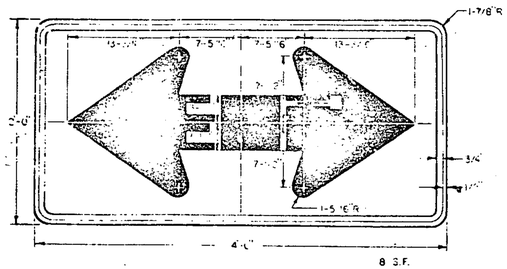
SIGN No. H-3 (STD. G20-1)

Black text and border on reflectorized orange background.

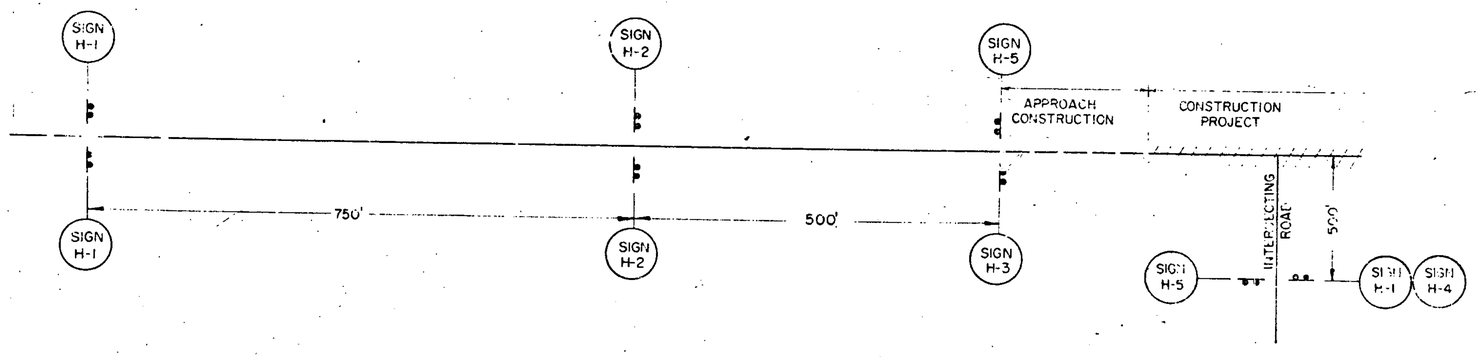


SIGN No. H-5 (STD. G20-2)

Black arrow and border on reflectorized orange background.



SIGN No. H-4 (STD. W1-7)



NOTES

LOCATION

Construction approach signs shall be located as detailed on this sheet or otherwise shown on the Plans. They shall appear at each end of the highway under construction, and on all intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsulated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs shall be subject to approval of the Engineer. In urban areas, the bottom of the sign shall be at least 7' above the sidewalk.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (See Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs).

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 - REVISED PER ORDER OF FHWA, SEPT. 11, 1973
OCT. 19, 1973 - SIGN H-4 REMOVED
MAY 14, 1974 - REFLECTIVE MATERIAL CHANGE
JUNE 7, 1977 - REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 - ILLUMINATION DELETED.
DEC. 17, 1979 - SIGN H-2 REVISED, SIGN H-5 ADDED
MAR. 4, 1981 - SIGN H-3 TEXT CHANGED, NOTE ADDED.

APPROVED

Dec. 14, 1971 — DATE

R. H. Arnold — CHIEF ENGINEER

E. W. Stuckney — ASST. CHIEF ENGINEER

G. M. Lane — HIGHWAY ENGINEER

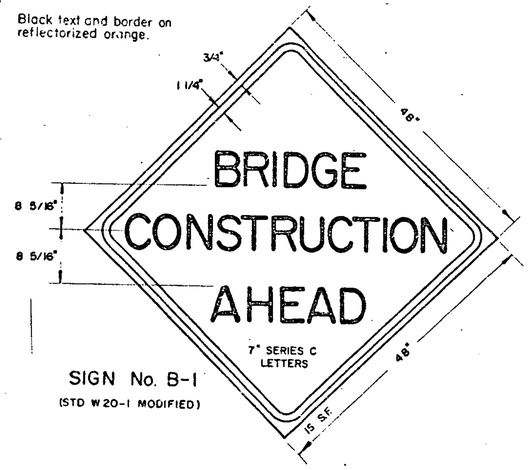
TRAFFIC SIGNS

ROAD CONSTRUCTION APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

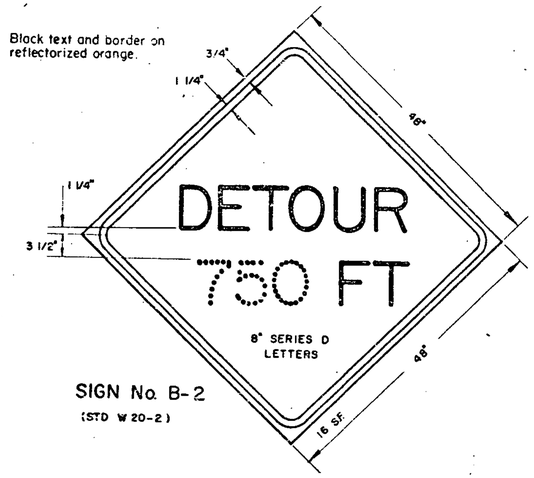
STANDARD E-2

Black text and border on reflectorized orange.



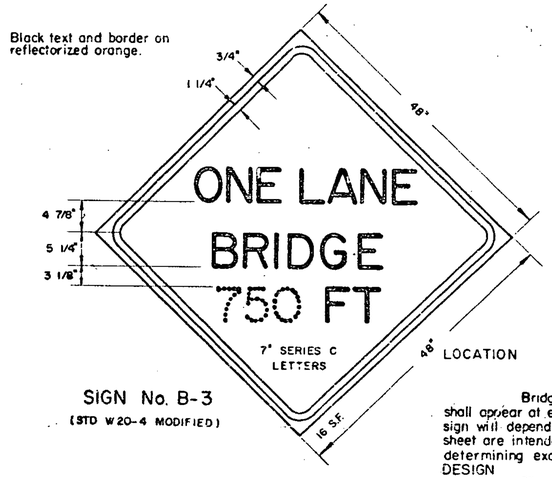
SIGN No. B-1
(STD W 20-1 MODIFIED)

Black text and border on reflectorized orange.



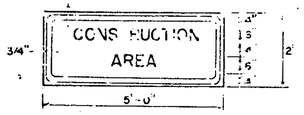
SIGN No. B-2
(STD W 20-2)

Black text and border on reflectorized orange.



SIGN No. B-3
(STD W 20-4 MODIFIED)

SIGN B-4

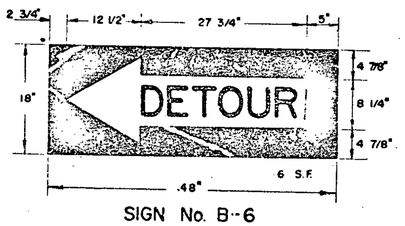


Black text and border on reflectorized orange background.

6" SERIES D LETTERS

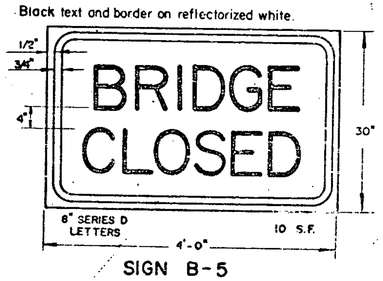
Black text and border with reflectorized orange arrow

Arrow left or right as required



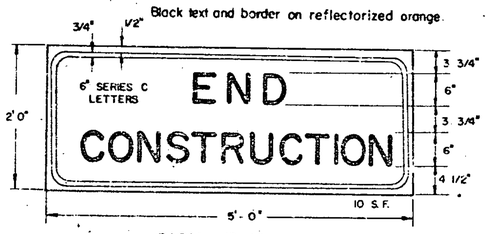
SIGN No. B-6
(STD. M 4-10)

Black text and border on reflectorized white.



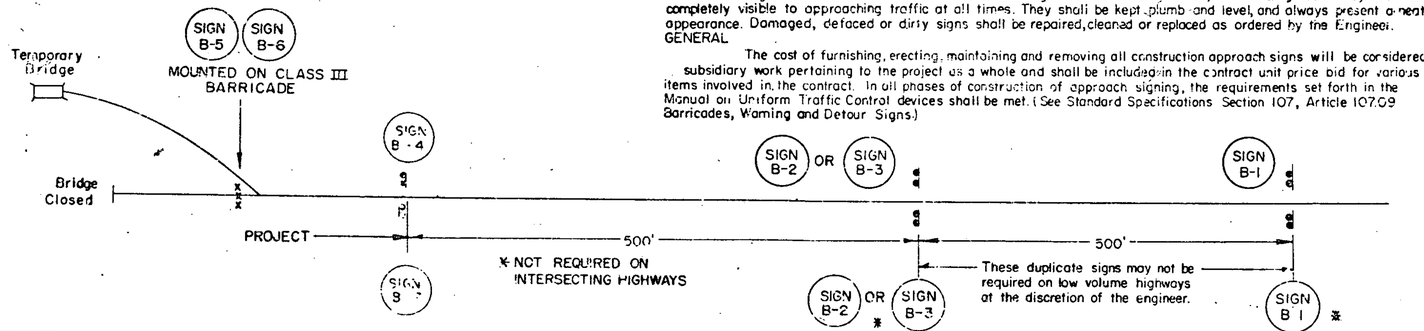
SIGN B-5
(STD. R 11-2 MODIFIED)

Black text and border on reflectorized orange.



SIGN B-7
(STD. G 20-2)

The bridge construction approach signs shown on this sheet are intended for use in providing warning and information at isolated bridge projects, although they may be ordered by the Engineer at bridge work on a road construction project. When additional approach signs or other types of signing or control are necessary, the plans and/or the Special Provisions for that project will give the details of the signs and controls required.



LOCATION

Bridge construction approach signs shall be located as detailed on this sheet or otherwise shown on the plans. They shall appear at each end of the project under construction, and on intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsolated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside the guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs and barricades shall be subject to the approval of the Engineer.

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control devices shall be met. (See Standard Specifications Section 107, Article 107.09 Barricades, Warning and Detour Signs.)

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 – REVISED PER ORDER OF FHWA, SEPT. 11, 1973.
NOV. 7, 1973 – REVISED PER ORDER OF FHWA.
MAY 14, 1974 – REFLECTORIZATION MATERIAL CHANGE
DEC. 12, 1975 – REVISED TO CONFORM TO STANDARD E-2.
JULY 20, 1976 – REVISED PER ORDER OF FHWA.
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 – ILLUMINATION DELETED.

APPROVED Dec 14 1979
DATE

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

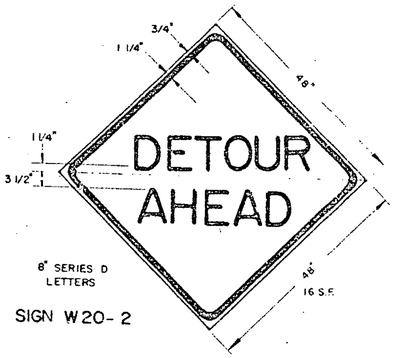
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

BRIDGE CONSTRUCTION APPROACH SIGNS

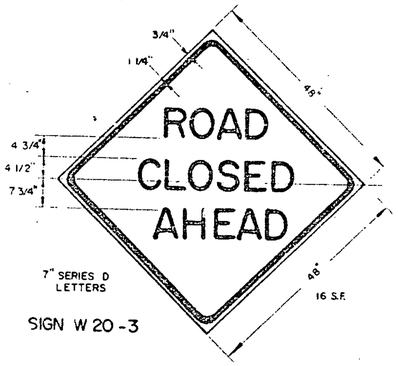
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-3



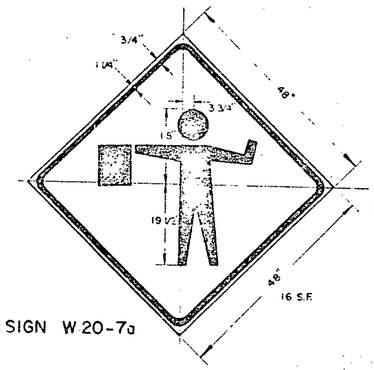
8" SERIES D LETTERS

SIGN W 20-2

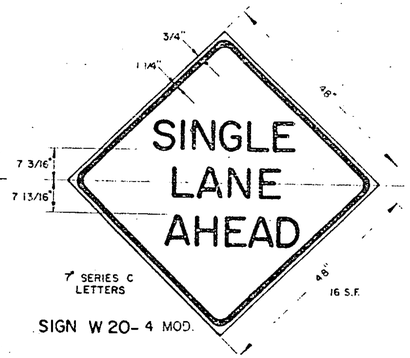


7" SERIES D LETTERS

SIGN W 20-3

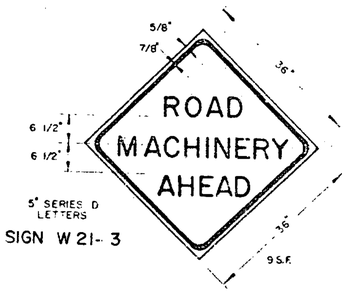


SIGN W 20-7a



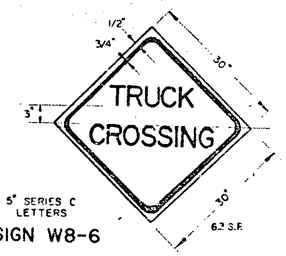
7" SERIES C LETTERS

SIGN W 20-4 MOD.



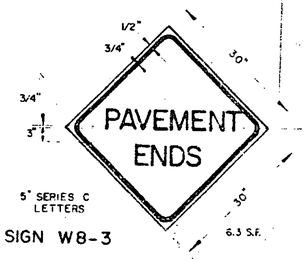
5" SERIES D LETTERS

SIGN W 21-3



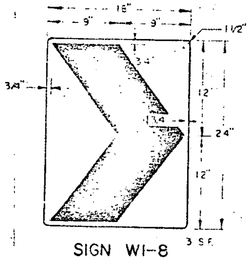
5" SERIES C LETTERS

SIGN W8-6

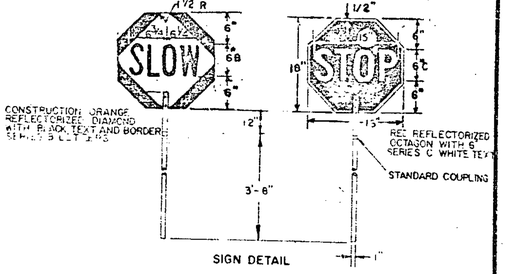


5" SERIES C LETTERS

SIGN W8-3



SIGN W1-8



SIGN DETAIL



STAFF DETAIL

MATERIALS

The sign materials shall be 0.063 aluminum with colors as indicated on details.

The staff shall be 1" ridged aluminum conduit or tubing with a wall thickness of 1/8 inch.

COLORS

The colors shall conform with the standard colors adopted by the American Association Of State Highway and Transportation Officials and approved by the U.S. Department Of Transportation, Federal Highway Administration.

MOUNTING

The staff shall be mounted with either 2-1/4" aluminum bolts or 2-1/4" aluminum rivets.

SIGN PADDLE FOR FLAGPERSON

NOTES

APPLICATION OF STANDARDS

Since it is not possible to prescribe detailed standards of application for all of the situations that may conceivably arise on a construction project, reference must be made to the Manual on Uniform Traffic Control Devices for the principles, procedures and standards that will be required in connection with on-project construction signs and barricades. The signs here shown represent a sample of those that probably will be most used.

DESIGN

The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual. Deviations will not be permitted.

MATERIALS

The signs shall be of metal, wood, plywood, hardwood or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION AND COLORS

All signs except sign R11-2 and the sign paddle shall have black texts and borders on an encapsolated lens reflective orange background. Sign R11-2 shall have black text and border on an encapsolated lens reflective white background.

INSTALLATION

Signs and barricades shall be in place prior to the start of the construction operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.

MAINTENANCE

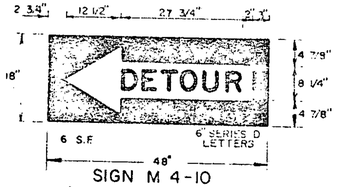
Signs shall be kept in a clean and legible condition at all times with the reflective quality completely unimpaired. Signs, sign supports, and barricades shall be repaired, cleaned, repainted or replaced whenever necessary.

Weeds, shrubbery, construction materials, equipment, and snow shall not be allowed to obscure any sign or barricade.

The maintenance of all traffic control devices shall be subject to the orders of the Engineer.

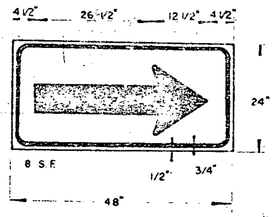


SIGN R 11-2



SIGN M 4-10

ARROW LEFT OR RIGHT AS REQUIRED.



SIGN W 1-6

ARROW RIGHT OR LEFT AS REQUIRED

The on-project construction signs covered by this sheet are intended to be used as the situations apply within normal two-lane highway construction areas, for the protection of the public and workmen and for the guidance of traffic through or around construction operations. When messages other than those shown here are needed, the signs and their applications shall conform with the standards set forth in the Manual on Uniform Traffic Control Devices.

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered as subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract.

REVISIONS AND CORRECTIONS

DEC. 14, 1973 – BEADS ON PAINT FOR BACKGROUND MATERIAL REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE.
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 – SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
APR. 20, 1978 – FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 15, 1978 – ILLUMINATION DELETED.
FEB. 27, 1980 – SIGN W1-8 AND SIGN PADDLE ADDED. SIGN DETAILS REVISED.
APR. 1, 1980 – SIGN PADDLE SIGN REVISED

APPROVED

Dec. 14, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

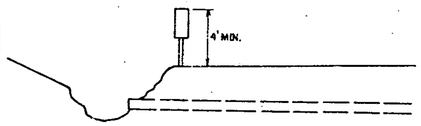
TRAFFIC SIGNS

ON-PROJECT CONSTRUCTION SIGNS

VERMONT AGENCY OF TRANSPORTATION

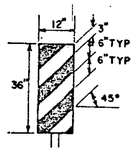
STANDARD E-6

DELINEATOR AND HAZARD MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



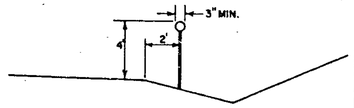
HAZARD MARKER TYPICAL

OBJECTS ADJACENT TO THE ROADWAY SHALL REQUIRE A HAZARD MARKER TO MARK THE OBSTRUCTION. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED BUT OTHER ROADSIDE CONDITONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS OR ABRUPT CHANGE IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE HAZARD MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.



VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPS (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION OR SHOULDER BARRICADING WHERE SPACE IS AT A MINIMUM.



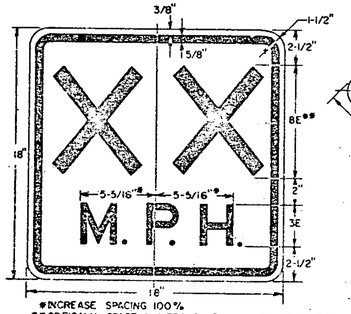
SYMBOL

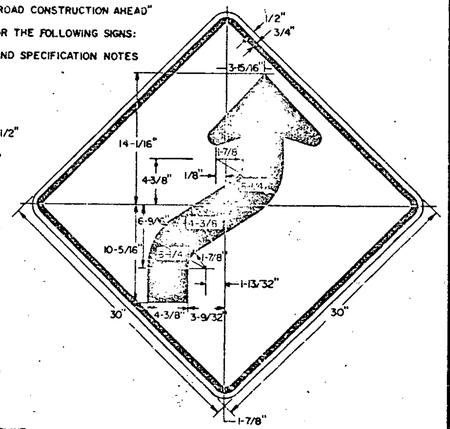
DELINEATOR TYPICAL

DELINEATORS SHALL BE OF A REFLECTORIZED WHITE COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG. THEY SHALL BE OF THE FOLLOWING:

1- REFLECTORIZED TAPE WITH METAL BACKING.
2-REFLECTORIZED TAPE APPLIED DIRECTLY TO POSTS.
3-REFLECTORIZED PAINT APPLIED DIRECTLY TO POSTS WHEN PAINT OR TAPE IS APPLIED DIRECTLY TO POST, A SURFACE OF 3' MINIMUM WIDTH FACING TRAFFIC IS REQUIRED.

SEE STANDARD SHEET E-2 FOR SIGN DETAILS FOR "ROAD CONSTRUCTION AHEAD" AND "END CONSTRUCTION" SIGNS.
SEE STANDARD SHEET E-6 FOR SIGN DETAILS FOR THE FOLLOWING SIGNS: "DETOUR AHEAD," "ROAD CLOSED," "DETOUR" ARROW.
SEE STANDARD SHEET E-6 FOR SIGN MATERIAL AND SPECIFICATION NOTES FOR ALL SIGNS DETAILED ON THIS SHEET.





*INCREASE SPACING 100%
**OPTICALLY SPACE NUMERALS ABOUT VERT. CENTERLINE.

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES ARE TO BE USED ON CONVENTIONAL ROADS OR URBAN STREET AND ARTERIALS TO MARK A SPECIFIC HAZARD TO CHANNELIZE TRAFFIC.

TYPE II BARRICADES ARE TO BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS THE TYPE I BARRICADES.

TYPE III (SEE STANDARD E-7A) SHALL ONLY BE USED WHEN A ROAD SECTION IS CLOSED TO TRAFFIC TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET NORMALLY WILL BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY.

1. WOODEN BARRICADES (TYPES I AND II)
   A. SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 MILES PER HOUR ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B. MAY BE USED IF OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED WITHIN THE CLEAR ZONE OF ANY HIGHWAY REGARDLESS OF THE TRAFFIC OPERATING SPEED.

DESIGN

THE DESIGN OF THE BARRICADES SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND THE MARKINGS ON THE BARRICADES SHALL BE ALTERNATE ORANGE AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS.

COLORS

THE BARRICADES PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE EXCEPT THAT UNPAINTED METAL OR ALUMINUM MAY BE USED.

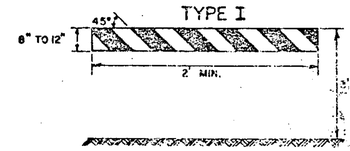
REFLECTORIZATION

THE BARRICADES SHALL BE REFLECTORIZED WITH REFLECTIVE SHEETING.

LOCATION

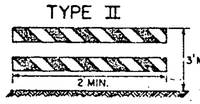
THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, OR AS OTHERWISE NOTED.

TYPE I

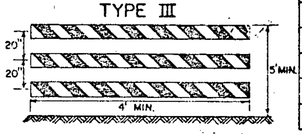


STRIPPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT.

TYPE II



TYPE III



BARRICADE CHARACTERISTICS	I	II
WIDTH OF RAIL	8" MIN. 12" MAX.	8" MIN. 12" MAX.
LENGTH OF RAIL	2' MIN.	2' MIN.
WIDTH OF STRIPS*	6"	6"
HEIGHT	3' MIN.	3' MIN.
TYPE OF FRAME	DEMOUNTABLE OR 'A' FRAME	LIGHT 'A' FRAME NO STAY BRACE
FLEXIBILITY	ESSENTIALLY MOVEABLE	PORTABLE
ANGLE OF STRIPE	45°	45°
COLOR OF STRIPS	ORANGE AND WHITE	ORANGE AND WHITE

* FOR RAILS LESS THAN 3 FEET LONG, 4" WIDE STRIPS SHALL BE USED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE ENGINEER.

LIGHTING

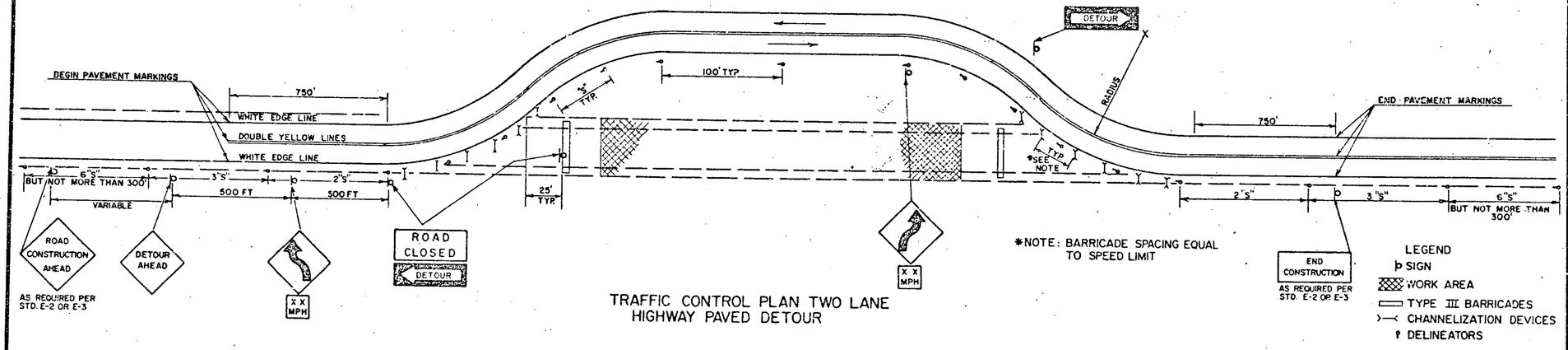
FOR NIGHTTIME USE ADD FLASHING WARNING LIGHTS WHEN BARRICADES ARE USED SINGLY AND STEADY BURN LIGHTS WHEN BARRICADES ARE USED IN A SERIES FOR CHANNELIZATION. THE LIGHTING DEVICES SHALL CONFORM TO THOSE SPECIFIED IN THE MUTCD.

DELINEATOR SPACING

DESIGN SPEED MPH	REQUIRED RADIUS FT	SPACING - "S" FT
25	150	30
30	250	40
40	460	60
50	760	75

NOTES

1. SIGNS & DELINEATION SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. CHANNELIZING DEVICES SHALL CONSIST OF TYPE II BARRICADES WITH STEADY BURN LIGHTS EXCEPT ON THE FIRST AND LAST BARRICADES WHICH SHALL HAVE A FLASHING LIGHT.
3. FLASHING WARNING LIGHTS MAY BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.
4. CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
5. ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS ON EXISTING PAVEMENT.



*NOTE: BARRICADE SPACING EQUAL TO SPEED LIMIT

LEGEND
- SIGN
- WORK AREA
- TYPE III BARRICADES
- CHANNELIZATION DEVICES
- DELINEATORS

TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR

REVISIONS AND CORRECTIONS

FEB. 12, 1982 MATERIALS NOTE CLARIFIED, SIGN ADDITIONS.
FEB. 2, 1983 NOTE # 6 RE: UNPAVED DETOURS ADDED.

APPROVED:

SEPT. 22, 1981
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

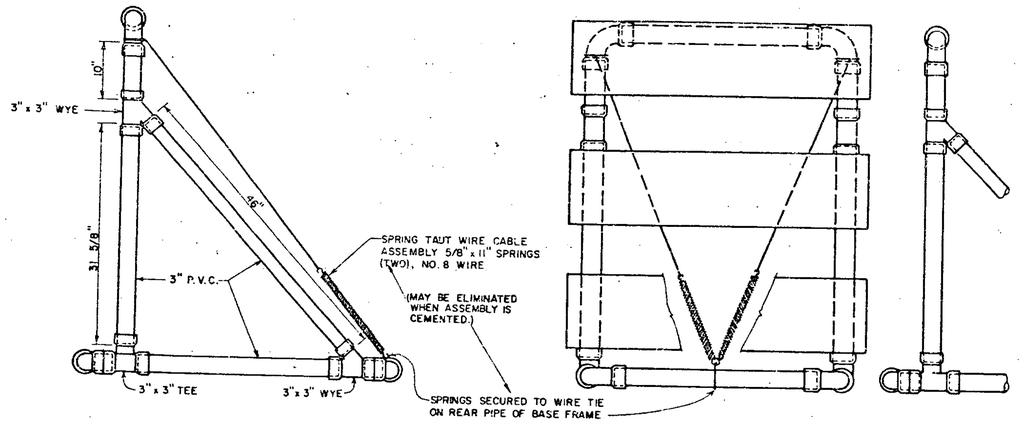
TRANSPORTATION DESIGN ENGINEER

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-7

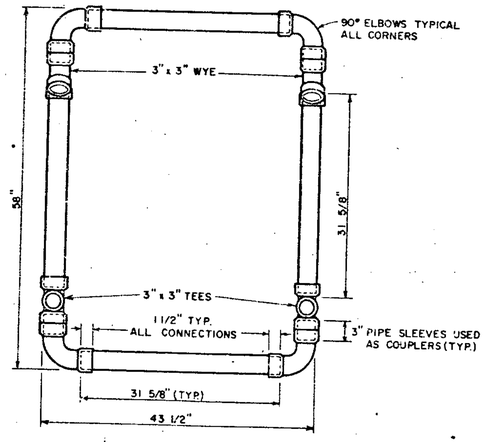


SIDE VIEW

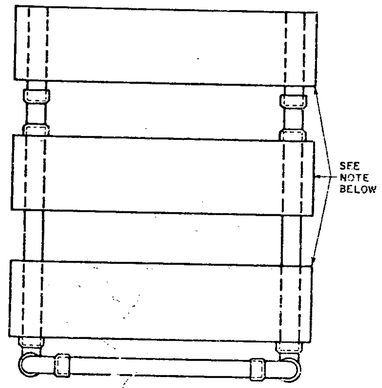
BARRICADES SHALL BE STABILIZED WITH SAND BAGS OR FLEXIBLE CONTAINERS OF SAND WHICH WILL NOT CONSTITUTE A HAZARD WHEN BARRICADE IS HIT.

STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.

IF BARRICADE REPLACEMENT COSTS CAN BE CONSIDERED NEGLIGIBLE, GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.



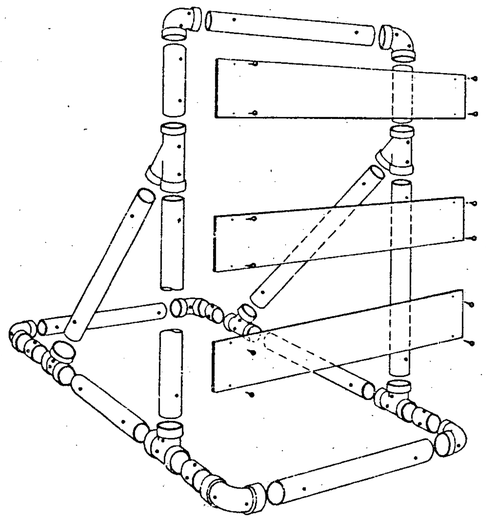
TOP VIEW OF BASE



NOTE - 9" x 48" BARRICADE HAZARD PANELS ORANGE AND WHITE RIGHT OR LEFT. (.025 ANODIZED ALUMINUM).

PANELS ATTACHED WITH 1" NO. 14 PAN HEAD METAL SCREW.

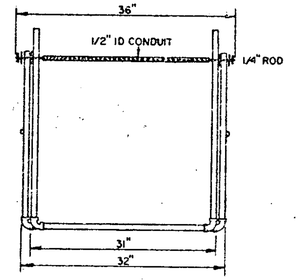
FRONT VIEW

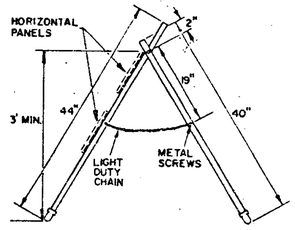


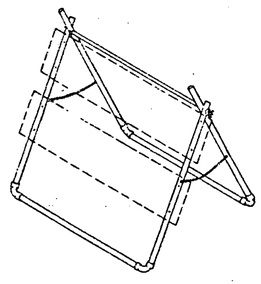
BARRICADE ASSEMBLY

MATERIALS LIST
FOR ONE BARRICADE

3" Diameter Pipe	30 LF
3" 1/4 Bend Elbow	6 EA
3" Tees	2 EA
3" Wyes	4 EA
9" x 48" x.0.25 Barricade Panels	3 EA
5/8" x 11" No. 8 Spring	2 EA
1" No. 14 Pan Head Metal Screws	12 EA
No. 14 Black Annealed Tie Wire	15 LF







TYPE I & II BARRICADE DETAILS

MATERIALS

The pipe, wyes, tees and elbows used to construct Barricades shall conform to the requirements of ASTM designation D 2241 for P.V.C. 1120 or 1220 SDR-21, pressure rating 200 p.s.i. The Wyes, tees and elbows shall conform to the requirements of ASTM Designation D 2466, Type II, Grade 1. All joints shall be slip-fit and may be lightly cemented.

The 9" x 48" barricade rails shall be fabricated from 0.025" anodized aluminum and shall have reflectorized alternating, orange and white strines (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

The barricades shown on the sheet shall have reflectorized orange and white strines.
The orange shall conform with the standard color adopted by by the American Association of State Highway And Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

LOCATION

The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

MAINTENANCE

Barricades shall be maintained in clean and legible conditions satisfactory to the Engineer.
They shall be completely visible to approaching traffic at all times. Damages, defaced, or dirty barricades shall be repaired cleaned or replaced as ordered by the Engineer.

The P.V.C.Pipe and fittings shall be white in color
If the fittings are not available, other colors may be substituded
At least two (2) holes shall be drilled (3/16" to 1/4") in each section of pipe and fittings if the assembly is not cemented.

MATERIALS FOR TYPE I & II BARRICADES

20'-1" PVC
4-1" PVC 90° ELBOWS
30"-1/2" ID THINWALL CONDUIT
36"-1/4" STEEL ROD
4-1" WASHERS
24"- LIGHT DUTY CHAIN
4-METAL SCREWS
2-3/4" COTTER PINS

TYPE I BARRICADES SHALL CONSIST OF ONE HORIZONTAL PANEL.

TYPE II BARRICADES SHALL CONSIST OF AN ADDITIONAL HORIZONTAL PANEL MOUNTED BELOW THE OTHER.

SEE STD E-7 FOR USE REQUIREMENTS.

REVISIONS & CORRECTIONS

JAN. 11, 1977 - REVISED ACCORDING TO FHWA REQUIREMENTS.
JUNE 8, 1977 - MATERIALS LIST ADDED.
APR. 8, 1982 - CEMENTING NOTE AND BARRICADES TYPE I & II ADDED.

APPROVED

Dec 30, 1976
DATE

E. H. Stickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

Loren C Jones
HIGHWAY ENGINEER

TRAFFIC SIGNS

BREAKAWAY BARRICADE DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-7A

BEAM	MIN. GAGE	TENSILE STRENGTH LBS	RAIL OR JOINT BEAM STRENGTH			
			TRAFFIC FACE UP		TRAFFIC FACE DOWN	
			LOAD (LBS)	MAXIMUM DEFLECTION(INCHES)	LOAD (LBS)	MAXIMUM DEFLECTION(INCHES)
STANDARD	12	80,000	1500	2"	1200	2"
			2000	3"	1600	3"
HEAVY DUTY	10	100,000	2000	2"	1600	3"
			3000	3"	2400	3"

STRENGTH - THE RAIL ELEMENT SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE ABOVE TABLE. THE POST CONNECTION SHALL WITHSTAND A 5,000 POUND SIDE PULL IN EITHER DIRECTION. STANDARD STEEL BEAM TO BE 12 GAUGE AND THE HEAVY DUTY TO BE 10 GAUGE.

FOR STEEL BEAM GUARD RAIL WITH STEEL, LIGHT STEEL, OR WOOD POSTS, ANCHOR TO BE PLACED AT BOTH ENDS OF GUARD RAIL.

PLAN

ELEVATION

CUT THREE 6"X 1"X 1/4" SLOTS IN STEEL BEAMS PRIOR TO GALVANIZING, WHEN TRANSITIONING TO GUARD RAIL, THREE CABLE WITH LIGHT STEEL POSTS.

PAY LIMIT - GUARD RAIL, THREE CABLE WITH LIGHT STEEL POSTS

PAY LIMIT - GUARD RAIL, STEEL BEAM WITH STEEL POSTS, TYPE II

18'-0" END ANCHORAGE SECTION (SEE STD. SHEET G-6)

25'-0" END ANCHORAGE SECTION (SEE DETAILS, THIS SHEET)

GUARD RAIL, THREE CABLE WITH LIGHT STEEL POSTS (SEE STD. SHEET G-6)

GUARD RAIL, STEEL BEAM WITH STEEL POSTS, TYPE II

NOTE: CUT THREE SLOTS IN BEAM RAIL TO ALLOW CABLE GUARD RAIL TO PASS THROUGH

ONE WAY TRAFFIC

PLAN OF GUARD RAIL TRANSITION BETWEEN GUARD RAIL, STEEL BEAM, AND GUARD RAIL, THREE CABLE WITH LIGHT STEEL POSTS

ALTERNATE POST

USE A 12" LONG FORMED BACK-UP PLATE OF STEEL BEAM GUARD RAIL AT EACH POST WHERE THERE IS A SINGLE THICKNESS OF BEAM RAIL.

REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.09 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.

THIS REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH FIFTH POST. WASHER SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B 209 ALLOY 5052 - H32.

ELEVATIONS OF CONCRETE ANCHORS

ALTERNATE ANCHOR ROD CONNECTOR

ANCHOR ROD

TURNBUCKLE

POST WASHER "A"

WITH 6"X8" WOOD POST

ANCHOR ROD CONNECTOR (MALLEABLE IRON CASTING OR EQUAL)

ANCHOR SPIDER (WELDMENT)

OFFSET BLOCK

ELEVATION OF GUARD RAIL AT POST

CROSS-SECTION THRU GUARD RAIL SPLICE

SIDE ELEVATIONS OF POSTS FOR SHOULDER INSTALLATION

THIS ANCHOR TO BE USED AS SHOWN ON STANDARDS G-1d AND G-8A.

ANCHORS FOR STEEL BEAM GUARD RAIL WITH STEEL OR WOOD POSTS, AT OPENINGS.

REVISIONS AND CORRECTIONS

APR. 10, 1972	POST HEIGHT INCREASED
JULY 9, 1973	NEW TRANSITION DETAIL ADDED
JUNE 4, 1974	TRANSITION REVISED, ALTERNATE ANCHOR ROD CONNECTOR AND ALTERNATE POST ADDED.
NOV. 29, 1977	ANCHOR DETAIL FOR STEEL BEAM GUARD RAIL WITH STEEL OR WOOD POSTS REMOVED.
JAN. 17, 1978	REVISED ANCHOR DETAIL.
JUNE 1, 1978	CHANNEL ANCHOR DETAILS CHANGED.
MAY. 28, 1979	NOTE ON REFLECTIVE MATERIAL CHANGED
DEC. 16, 1980	INCREASED SHOULDER WIDENING FOR GUARD RAIL.
MAR 12, 1984	REVISED ANCHOR-SPIDER DETAILS

APPROVED: DATE: Dec 8, 1971

R. W. Arnold, CHIEF ENGINEER

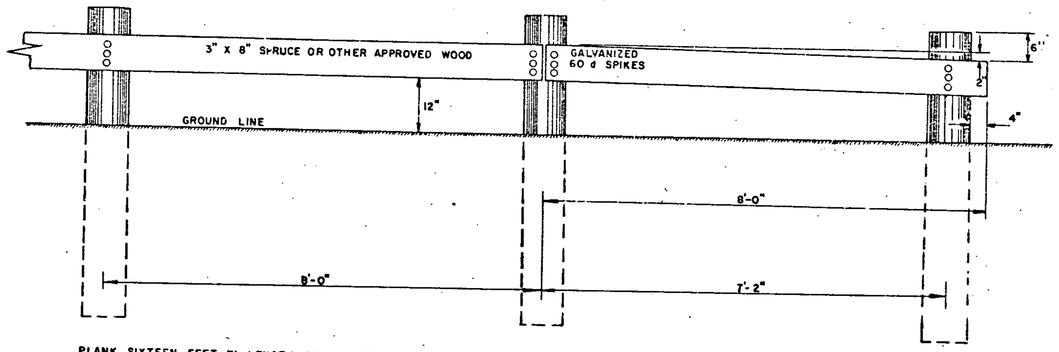
E. H. Stickney, ASST. CHIEF ENGINEER

G. M. Lane, HIGHWAY ENGINEER

GUARD RAIL, STANDARD STEEL BEAM, WITH STEEL POSTS, TYPE II
GUARD RAIL, STANDARD STEEL BEAM, WITH WOOD POSTS, TYPE II
GUARD RAIL, HEAVY DUTY STEEL BEAM, WITH STEEL POSTS, TYPE II
GUARD RAIL, HEAVY DUTY STEEL BEAM, WITH WOOD POSTS, TYPE II
ANCHOR FOR STEEL BEAM GUARD RAIL, WITH STEEL OR WOOD POSTS AT OPENINGS
ANCHOR FOR STEEL BEAM GUARD RAIL, WITH STEEL, LIGHT STEEL, OR WOOD POSTS

VERMONT AGENCY OF TRANSPORTATION

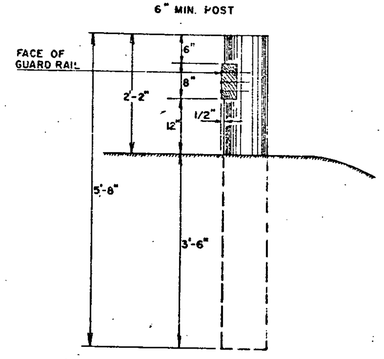
STANDARD G-1



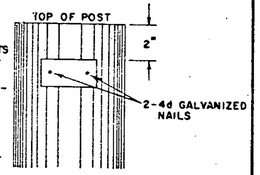
PLANK SIXTEEN FEET IN LENGTH TO BE USED WHEREVER POSSIBLE.
POSTS SIX (6) INCHES SQUARE MAY BE USED IN PLACE OF ROUND POSTS.
FIRST AND LAST POSTS OF EACH SECTION TO BE SET BACK TWELVE INCHES FROM THE GENERAL LINE OF POSTS, WHEN FOUR OR MORE POSTS ARE REQUIRED.
REFLECTIVE MATERIAL TO BE PLACED AS DIRECTED BY THE ENGINEER.
ALL WOOD MEMBERS SHALL BE GIVEN A PRESERVATIVE TREATMENT.

GUARD RAIL, PLANK WITH WOOD POSTS
TO BE USED AS A BARRICADE OFF THE HIGHWAY

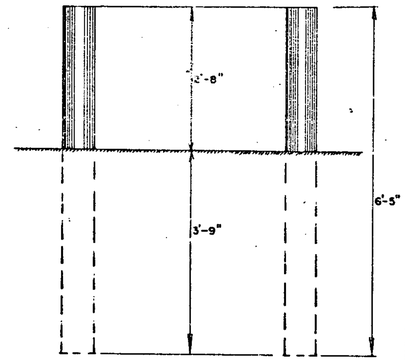
NOTCH TO BE TREATED WITH PRESERVATIVE BEFORE ERECTING PLANK.



3" X 1 1/2" REFLECTIVE ALUMINUM STRIP TO BE PLACED ON EVERY OTHER WOOD POST IN A LINE OF POSTS AND CLEARLY VISIBLE TO APPROACHING TRAFFIC.
STRIPS TO BE ATTACHED TO THE DESIGNATED GUARD RAIL POSTS ON BOTH SIDES OF THE ROAD AND VISIBLE TO TRAFFIC IN BOTH DIRECTIONS.
REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.09 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.



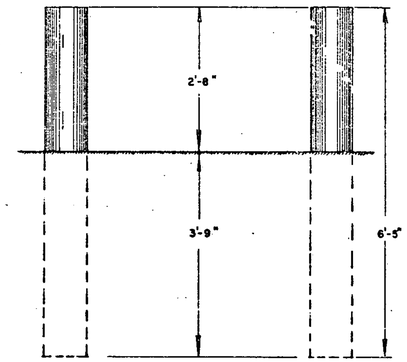
DELINEATION OF WOOD GUARD RAIL AND GUIDE POSTS



MARKER POSTS ARE TO BE 4" TO 5 1/2" IN DIAMETER AND ARE TO BE PLACED AS DIRECTED BY THE ENGINEER.

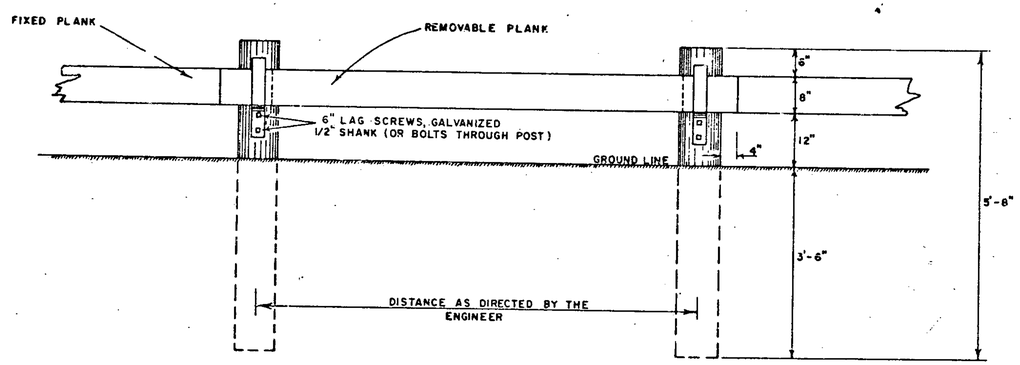
POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT.

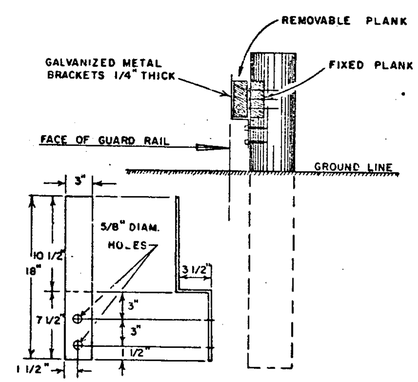
WOOD MARKER POSTS



REFLECTIVE MATERIAL TO BE PLACED AS DIRECTED BY THE ENGINEER.
POSTS ARE TO BE 4" TO 5 1/2" IN DIAMETER AND ARE TO BE PLACED AS DIRECTED BY THE ENGINEER.
POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT.

WOOD GUIDE POSTS

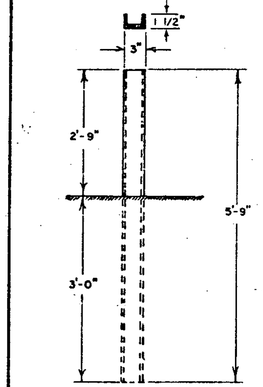




BRACKET DETAIL

GALVANIZED METAL BRACKETS ARE TO BE INCLUDED IN THE UNIT BID PRICE FOR GUARD RAIL, PLANK WITH WOOD POSTS.

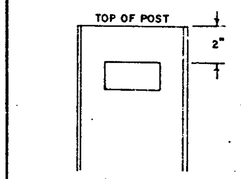
ENTRANCE THROUGH GUARD RAIL, PLANK WITH WOOD POSTS



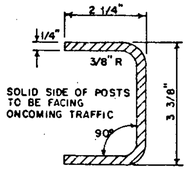
ALL STEEL MARKER POSTS TO BE GALVANIZED.
STEEL MARKER POSTS TO BE PLACED AS DIRECTED BY THE ENGINEER.

POSTS ARE TO BE AMERICAN STANDARD CHANNEL 5'-9" X 3" (4.1 LBS PER FT.)

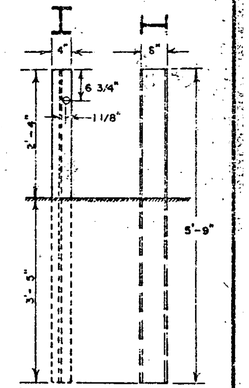
STEEL MARKER POSTS



3" X 1 1/2" REFLECTIVE STRIP TO BE APPLIED TO EVERY OTHER POST IN A LINE OF POSTS AND CLEARLY VISIBLE TO APPROACHING TRAFFIC.
STRIPS TO BE APPLIED TO THE DESIGNATED POSTS ON BOTH SIDES OF THE ROAD AND VISIBLE TO TRAFFIC IN BOTH DIRECTIONS.
REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.09 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.



ALTERNATE POST



ALL STEEL GUIDE POSTS TO BE GALVANIZED.
REFLECTIVE MATERIAL TO BE PLACED AS DIRECTED BY THE ENGINEER.
POSTS ARE TO BE 5'-9" x 6" x 4" (8.5 LBS PER FT.)

ALL POSTS IN A GIVEN RUN OF BARRIER TO BE UNIFORM.

STEEL GUIDE POSTS

REVISIONS AND CORRECTIONS

MAY 23, 1974	ALTERNATE POST ADDED
MAY 29, 1979	NOTE ON REFLECTIVE MATERIAL CHANGED
JULY 23, 1980	CHANGED DIAMETER OF WOOD MARKER POST AND WOOD GUIDE POST
MAY 25, 1982	REMOVED ALTERNATE POST DETAIL.

APPROVED DATE Dec. 6, 1971

R.H. Arnold
CHIEF ENGINEER

E.H. Hickway
ASST. CHIEF ENGINEER

G.M. Lane
HIGHWAY ENGINEER

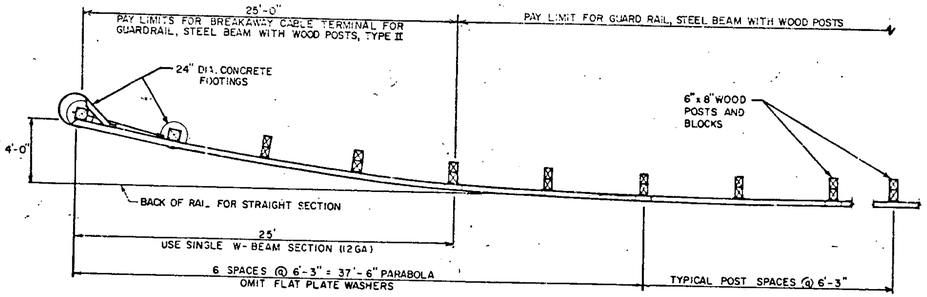
GUARD RAIL, PLANK WITH WOOD POSTS
WOOD GUIDE POSTS
STEEL GUIDE POSTS
WOOD MARKER POSTS
STEEL MARKER POSTS

VERMONT AGENCY OF TRANSPORTATION

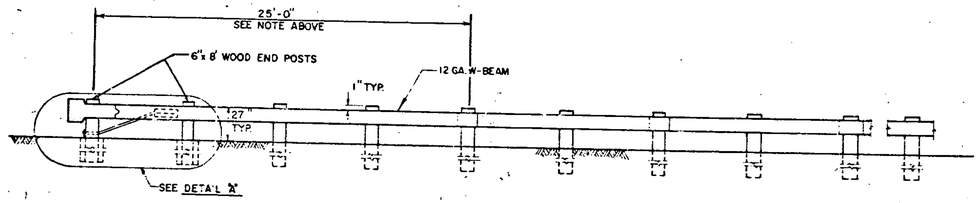
STANDARD G-4

D-7

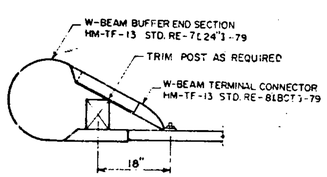
BRUNING 44-131 40592



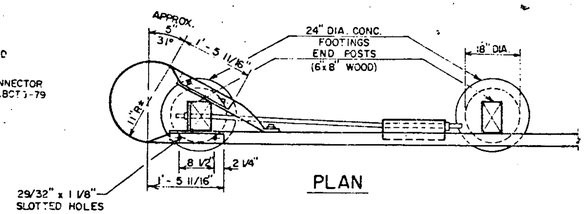
PLAN



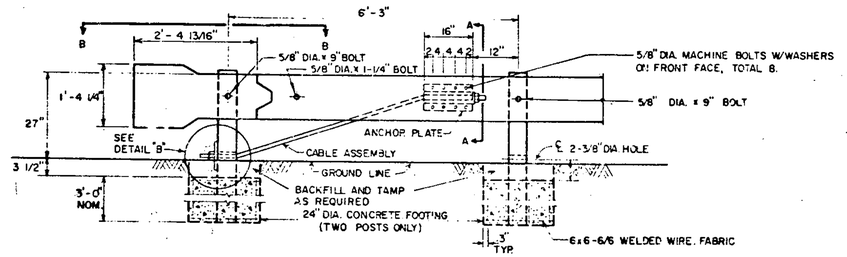
ELEVATION



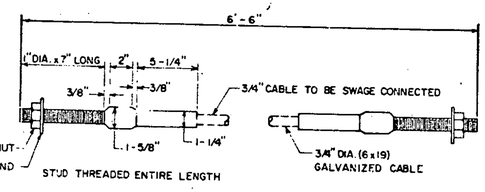
VIEW B-B



PLAN



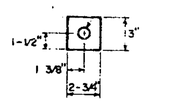
ELEVATION
DETAIL "A"



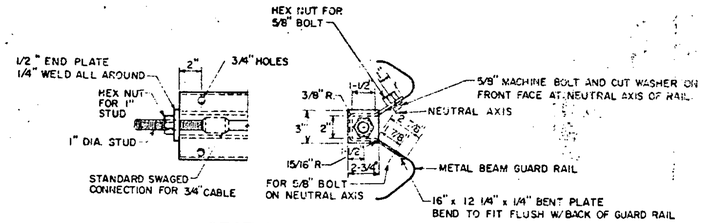
CABLE ASSEMBLY

NOTES :

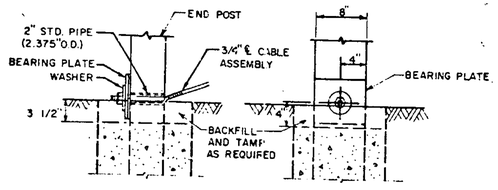
1. OTHER ANCHOR CABLE ASSEMBLIES MAY BE USED. MINIMUM BREAKING STRENGTH OF ASSEMBLY SHOULD BE 40,000 LBS
2. CONCRETE FOOTINGS ARE CLASS B. IN SANDY FILL AREAS, CONSIDERATION TO INCREASING SIZE OF END FOOTING IS SUGGESTED.
3. A DOUBLE WRAP OF ASPHALT TREATED FELT AROUND END POSTS BEFORE CONCRETE PLACEMENT WILL FACILITATE REPLACEMENT OF DAMAGED POSTS.
4. STANDARD SHEET G-1 WILL BE USED IN CONJUNCTION WITH THIS STANDARD.
5. USE 12" LONG W-BEAM BACK-UP PLATE AT POSTS WHERE W-BEAM SPLICE DOES NOT OCCUR.



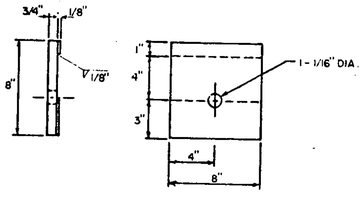
END PLATE



SECTION A-A

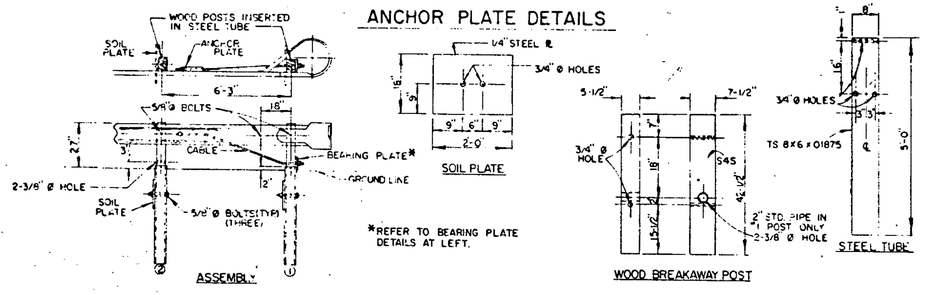


DETAIL "B"



BEARING PLATE DETAILS

ANCHOR PLATE DETAILS



ALTERNATE FOUNDATION DETAILS

REVISIONS AND CORRECTIONS

APR 21, 1977 – BREAKAWAY DETAIL LOWERED TO GROUND LINE.

JAN 19 1981 – ALTERNATE FOUNDATION DETAILS ADDED, MISCELLANEOUS CLARIFICATION OF NOTES AND DETAILS

AUG 12, 1981 – REMOVED BEARING PLATE DETAIL FROM ALTERNATE FOUNDATION DETAILS.

APPROVED: DATE July 21, 1976

E H Blackney
CHIEF ENGINEER

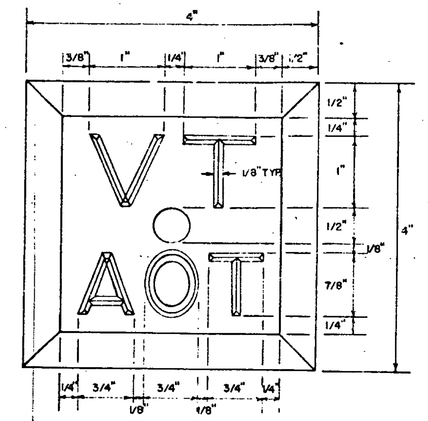
R O Munn
ASST. CHIEF ENGINEER

Loren C Jones
HIGHWAY ENGINEER

BREAKAWAY CABLE TERMINAL FOR GUARDRAIL, STEEL BEAM WITH WOOD POSTS, TYPE II

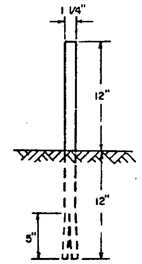
VERMONT AGENCY OF TRANSPORTATION

STANDARD
G-14



LETTERING DETAIL
(ALL LETTERS TO BE COUNTERSUNK 1/8")
SCALE: FULL SIZE

1¼" STEEL ROD 2'-0" LONG TO BE USED IN AREAS OF LEDGE.

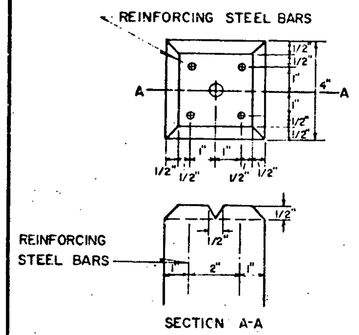


2" HOLE TO BE DRILLED IN LEDGE.

SPACE AROUND HOLE TO BE FILLED WITH MORTAR, TYPE I.



ROD TO BE SPLIT WITH IRON WEDGE.



SECTION A-A



BOUNDARY MARKERS TO BE CONSTRUCTED OF CONCRETE CLASS A.
4 REINFORCING STEEL BARS ARE No. 3 DEFORMED BARS 4'-4" LONG.
BOUNDS ARE TO BE SET WITH 6" ABOVE GROUND, OR AS DIRECTED BY THE ENGINEER.
IN AREAS WHERE MOWING OPERATIONS ARE REQUIRED, BOUNDS SHALL BE SET FLUSH WITH THE GROUND.

BOUNDARY MARKERS

REVISIONS AND CORRECTIONS

APPROVED: _____ DATE

_____ DIR. OF ENGINEERING AND CONSTRUCTION

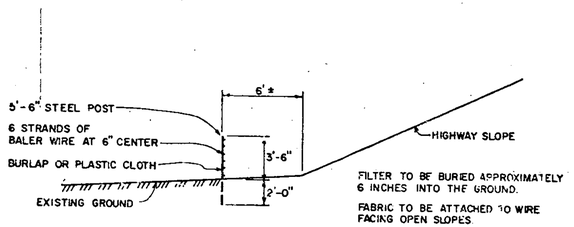
_____ CHIEF OF DESIGN

_____ TRANSPORTATION DESIGN ENGINEER

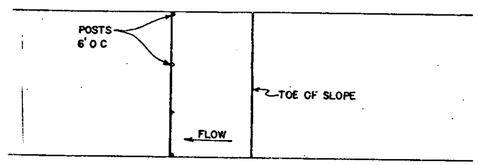
BOUNDARY MARKERS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
J-1

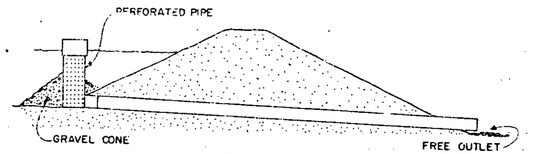


ELEVATION

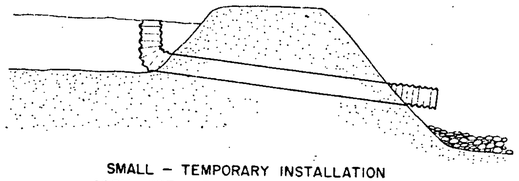


PLAN

SILT FENCE

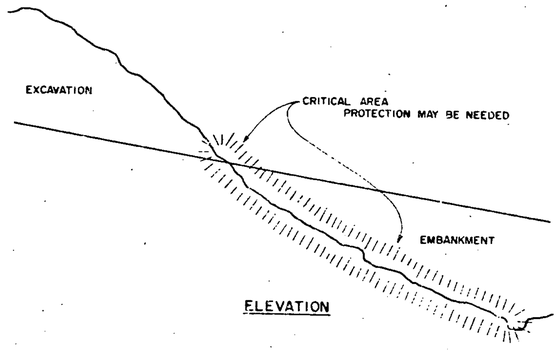


LARGE – PERMANENT INSTALLATION
PIPE RISER – STONE CUTLET

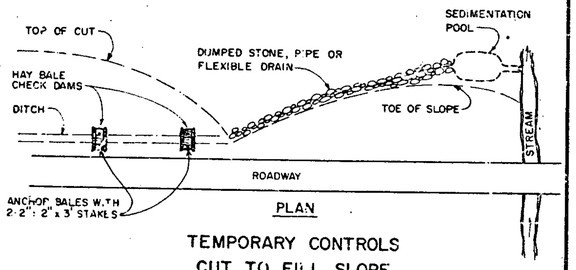


SMALL – TEMPORARY INSTALLATION
ACCM PIPE WITH RISER – STONE OUTLET

SEDIMENT DAMS

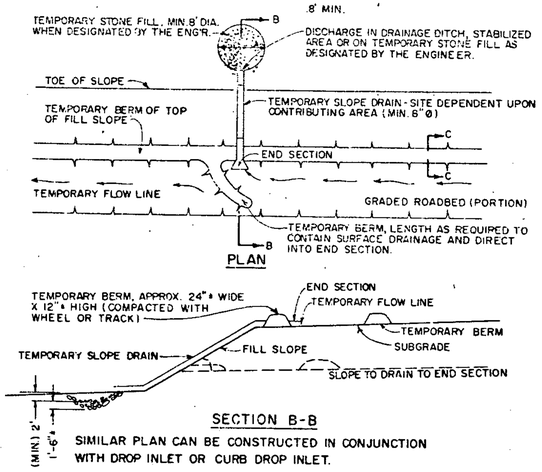


ELEVATION



PLAN

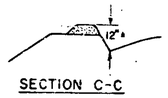
TEMPORARY CONTROLS
CUT TO FILL SLOPE



PLAN

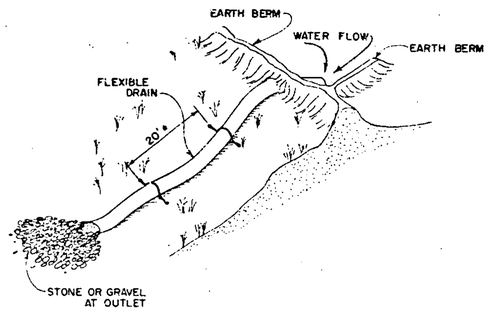
SECTION B-B

SIMILAR PLAN CAN BE CONSTRUCTED IN CONJUNCTION WITH DROP INLET OR CURB DROP INLET.

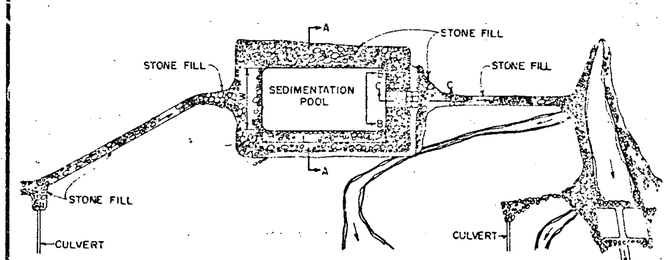


SECTION C-C

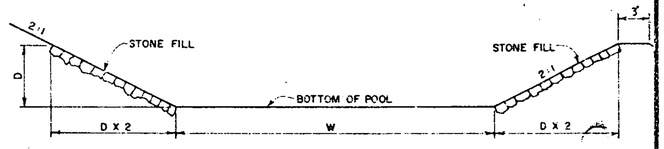
TEMPORARY BERMS AND SLOPE DRAINS
FOR FILL SLOPES



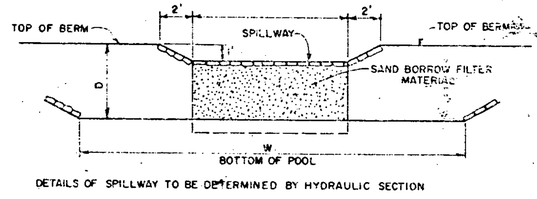
TEMPORARY FLEXIBLE SLOPE DRAIN



SEDIMENTATION POOL

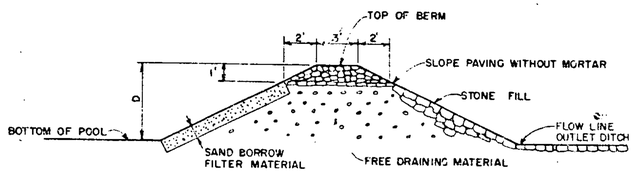


SECTION A-A



DETAILS OF SPILLWAY TO BE DETERMINED BY HYDRAULIC SECTION

SECTION B-B



SECTION C-C

CORRECTIONS & REVISIONS

JUNE 14, 1973 - SEDIMENT TRAPS REMOVED FROM TEMPORARY BERMS AND SLOPE DRAINS FOR FILL SLOPES
FEB. 26, 1976 - SILT FENCE ADDED.
DEC. ?, 1976 - HAY BALE ANCHOR NOTE ADDED.

APPROVED: July 5, 1972
DATE

R. H. Arnold
CHIEF ENGINEER

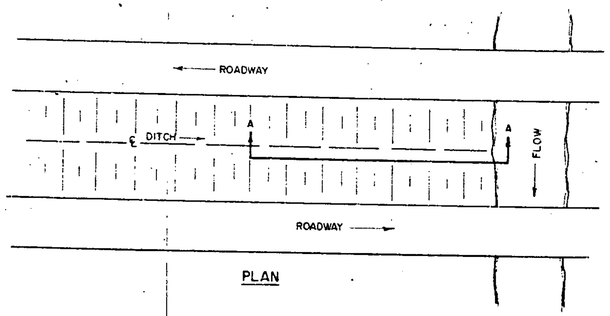
E. H. Dickhey
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

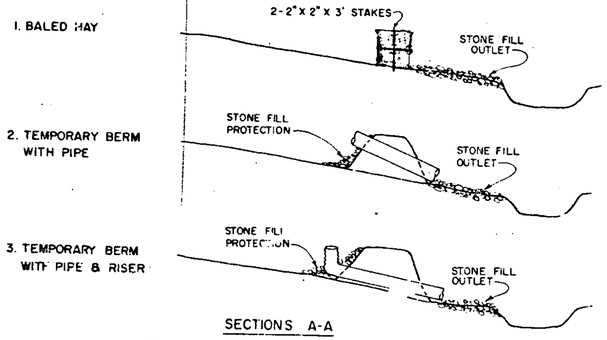
TEMPORARY EROSION CONTROL DETAILS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

T-1

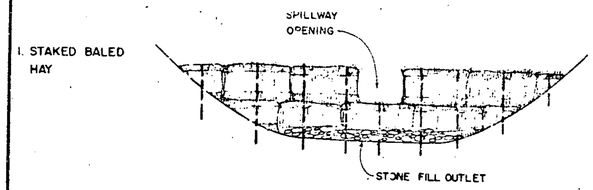


PLAN



SECTIONS A-A

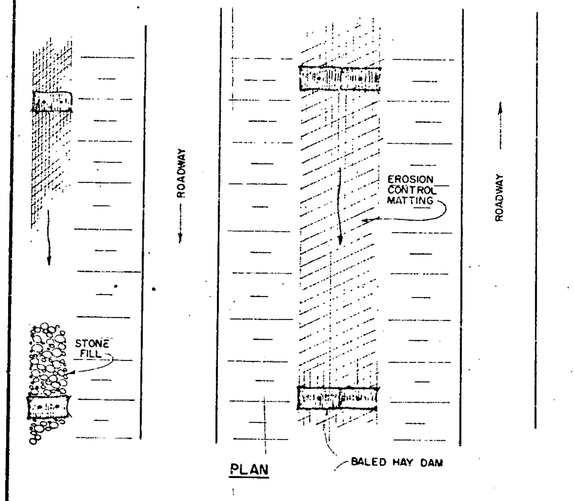
PROTECTION AT STREAM CROSSING
MEDIAN AND SIDE DITCHES

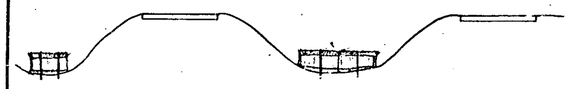


ELEVATIONS

TYPES OF TEMPORARY DAMS

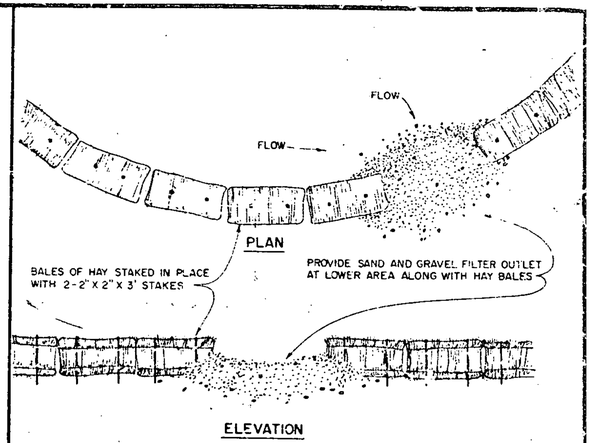
DAM SHOULD EXTEND FAR ENOUGH UP DITCH SIDE SLOPES TO EFFECTIVELY POND THE RUNOFF AND PREVENT EROSION AND WASHOUT.





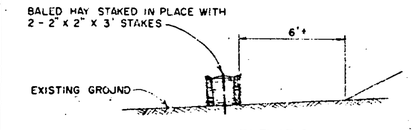
ELEVATION

BALED HAY DAMS USED IN DITCHES

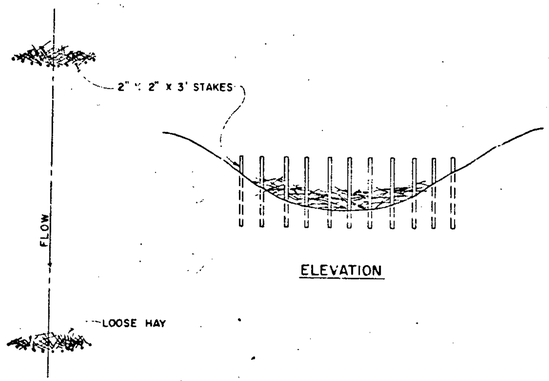


ELEVATION

BALED HAY DAMS ALONG TOE OF SLOPE



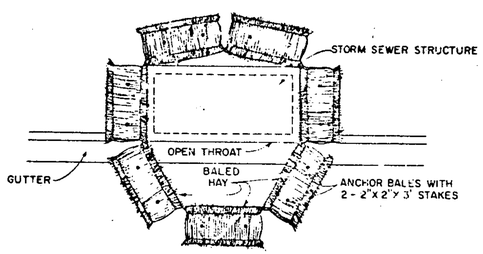
ELEVATION



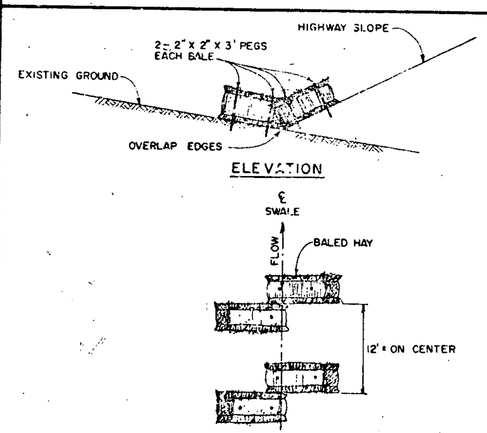
ELEVATION

PLAN

SEDIMENT TRAP
LOOSE HAY BACKED BY STAKES

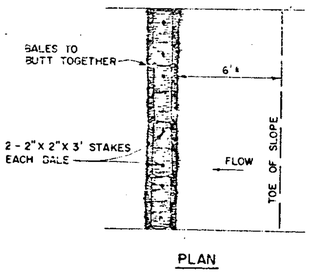


INLET PROTECTION
TEMPORARY BARRIER - HAY BALES



TO BE USED IN LOCATIONS WHERE THE EXISTING GROUND SLOPES IN TOWARD THE EMBANKMENT.
BALES WILL BE ALLOWED TO ROT IN PLACE.

BALED HAY EROSION CHECKS



TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE HIGHWAY EMBANKMENT.

BALED HAY EROSION CHECKS

CORRECTIONS & REVISIONS

APPROVED:

DATE July 5, 1972

R N Cawood
CHIEF ENGINEER

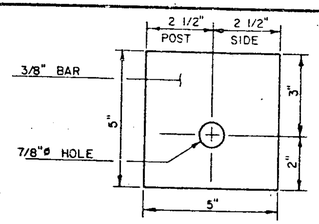
ASST. CHIEF ENGINEER

G. W. Lowe
HIGHWAY ENGINEER

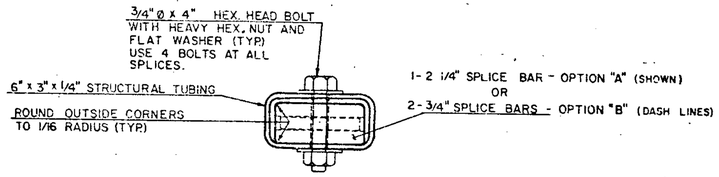
TEMPORARY EROSION CONTROL DETAILS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

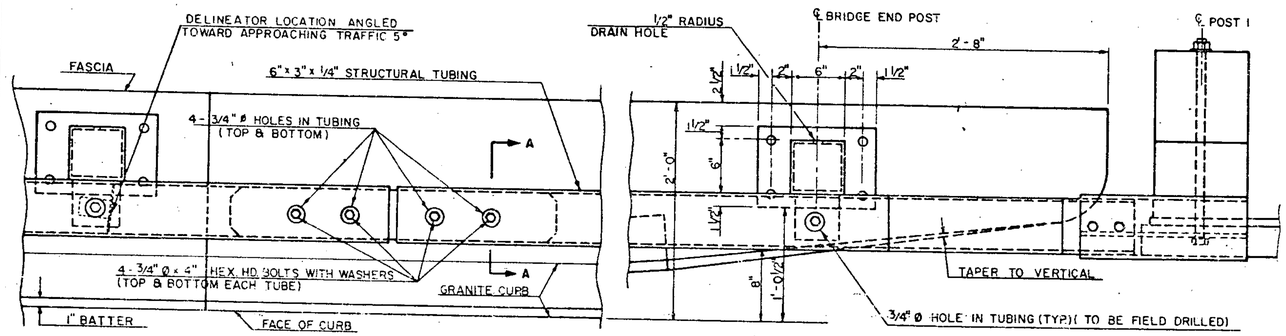
T - 2



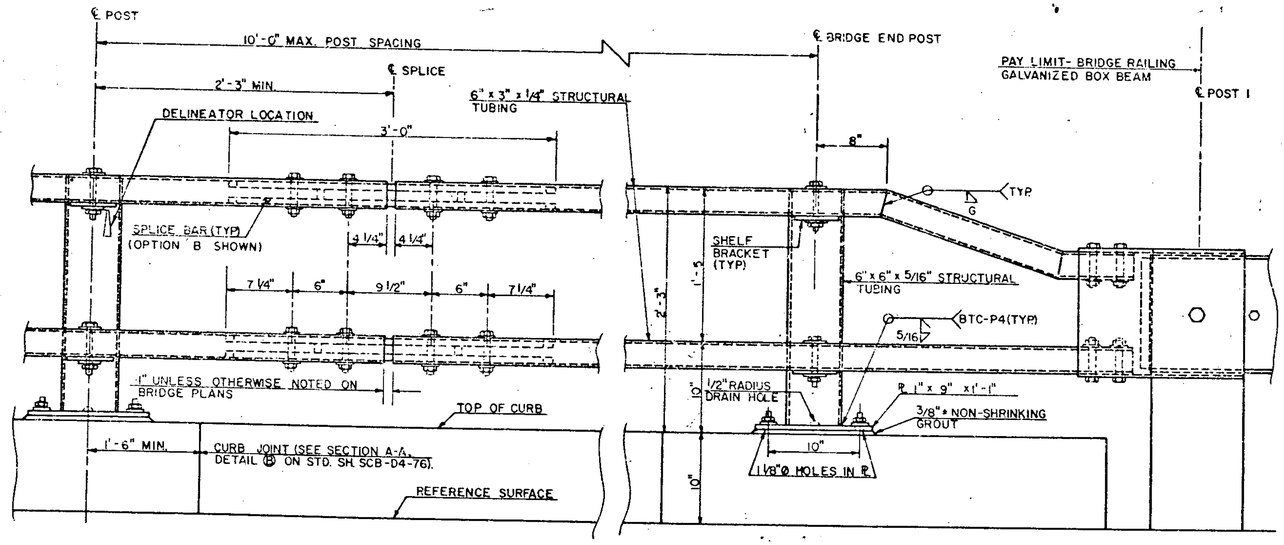
SHELF BRACKET DETAIL



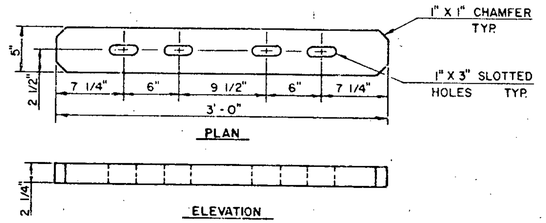
SECTION A-A



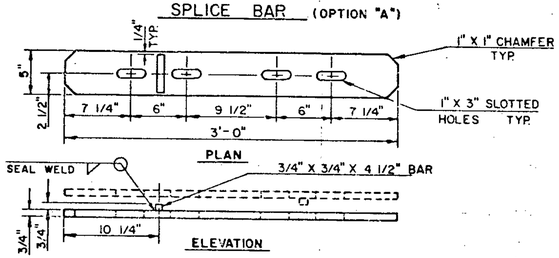
PLAN OF BOX BEAM BRIDGE RAIL



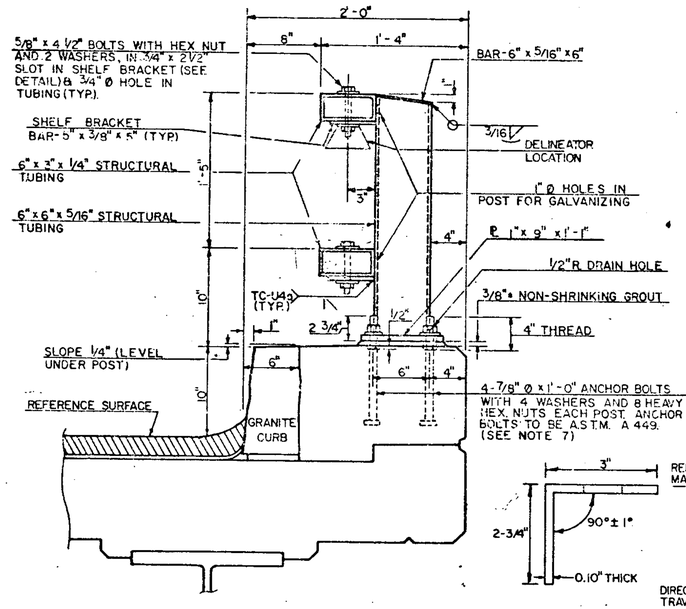
ELEVATION OF BOX BEAM BRIDGE RAIL



SPLICE BAR (OPTION "A")



SPLICE BAR (OPTION "B")



TYPICAL SECTION OF BOX BEAM BRIDGE RAIL

THIS REFLECTORIZED ALUMINUM DELINEATOR IS TO BE ERECTED EVERY 30 FEET OR CLOSEST POST. DELINEATOR SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.

NOTES

1. RAILING IS DESIGNED IN ACCORDANCE WITH THE 1981 AASHTO SPECIFICATIONS.
2. ALL PLATES, BARS, AND ANGLES SHALL BE ASTM A 36 STEEL. UNLESS OTHERWISE SPECIFIED, ALL BOLTS SHALL BE ASTM A 307. STRUCTURAL STEEL TUBING SHALL BE ASTM A 500 COLD-FORMED GRADE B AS MODIFIED IN SECTION 732.04(a).
3. ALL BOX BEAM BRIDGE RAILING, COMPONENTS, ANCHOR BOLTS AND ATTACHMENT HARDWARE SHALL BE GALVANIZED TO ASTM A 123 AFTER FABRICATION.
4. THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING WELDING PROCEDURES, TO THE STRUCTURES DIVISION FOR APPROVAL IN ACCORDANCE WITH THE PROVISIONS OF SECTION 506.04 - SHOP DRAWINGS. ALL WELDING SHALL CONFORM WITH SECTION 506.24.
5. PROCEDURE QUALIFICATION FOR ALL WELDS SHALL BE PERFORMED AND APPROVED PRIOR TO FABRICATION. WELDER QUALIFICATION WILL BE REQUIRED FOR EACH PROCEDURE. PROCEDURE AND WELDER QUALIFICATION ACCEPTANCE SHALL BE APPROVED BY RADIOGRAPHIC TESTING.
6. THE RAIL SYSTEM SHALL BE CONTINOUS WITH EACH TUBE SECTION ATTACHED TO A MINIMUM OF TWO POSTS. ALL JOINTS SHALL BE SPLICED AS DETAILED, WITH ALL SPLICE CONNECTIONS IN THE SAME PANEL LOCATED ONE DIRECTLY ABOVE THE OTHER.
7. ALL POSTS SHALL BE SET NORMAL TO GRADE. NUTS PLACED IN CONCRETE ARE TO BE ROTATED WITHIN 24 HOURS AFTER CONCRETE IS PLACED TO BREAK BOND BETWEEN NUT AND CONCRETE. NUTS SHALL THEN BE USED TO ALIGN THE POSTS BOTH HORIZONTALLY AND VERTICALLY. AFTER FINAL POSITION HAS BEEN APPROVED, ALL VOIDS BETWEEN THE BASE PLATE AND CONCRETE SURFACE SHALL BE GROUTED WITH NON-SHRINK GROUT CONFORMING WITH SECTION 707.04, MORTAR, TYPE IV.
8. ANCHOR BOLTS SHALL BE PRECAST IN THE CURB SECTION, AND CONFORM WITH THE REQUIREMENTS OF SECTION 714.15.
9. FOR RADII LESS THAN 950 FEET, THE BEAM RAIL SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
10. RAILING JOINT SPLICES SHALL BE PROVIDED FOR ALL SUPERSTRUCTURE JOINTS. THE RAIL JOINT OPENING SHALL BE 1 INCH OR CAPABLE OF PROVIDING THE MOVEMENT SPECIFIED. SPLICE PLATE DETAILS SHALL BE MODIFIED AS REQUIRED FOR JOINTS REQUIRING MORE THAN 2 INCHES OF TOTAL MOVEMENT.
11. REFER TO STANDARD SCB-D4-76 AND SCB-D6-73 FOR CURB DETAILS.
12. REFER TO STANDARD SB-R4B-82 FOR GUARD RAIL APPROACH SECTION - TYPE I & TYPE II DETAILS.
13. DELINEATORS SHALL BE MOUNTED AS SHOWN ON DETAILS. PAYMENT SHALL BE SUBSIDIARY TO OTHER ITEMS.

REVISIONS AND CORRECTIONS

1 REVISION DELINEATORS ADDED D.A.R. 6-18-82
2 REVISION CHANGED LOCATION OF DELINEATORS D.A.R. 8-22-83
3 REVISED NOTE # 12 TO INCLUDE TYPE II AND REVISED ANCHORAGE CONNECTOR AND SPLICE BAR. R.HAUPT 9/7/83

APPROVED:

DECEMBER 28, 1981
DATE

CHIEF OF DESIGN

STRUCTURES ENGINEER

DIRECTOR OF ENGINEERING AND CONSTRUCTION

BRIDGE RAILING GALVANIZED BOX BEAM

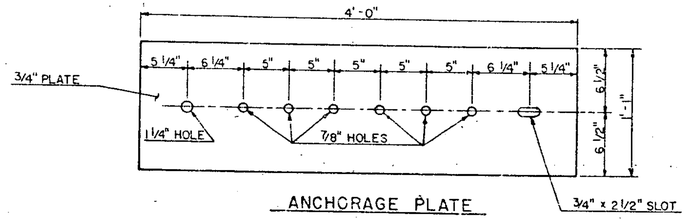
VERMONT AGENCY OF TRANSPORTATION

STANDARD

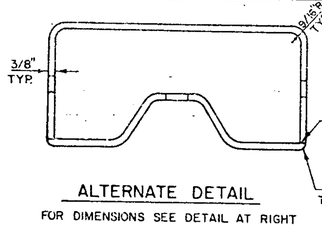
SB-R4A-82

BRUNING 44131 43151

BR-4

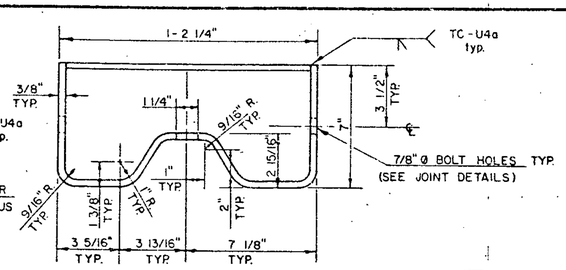


ANCHORAGE PLATE



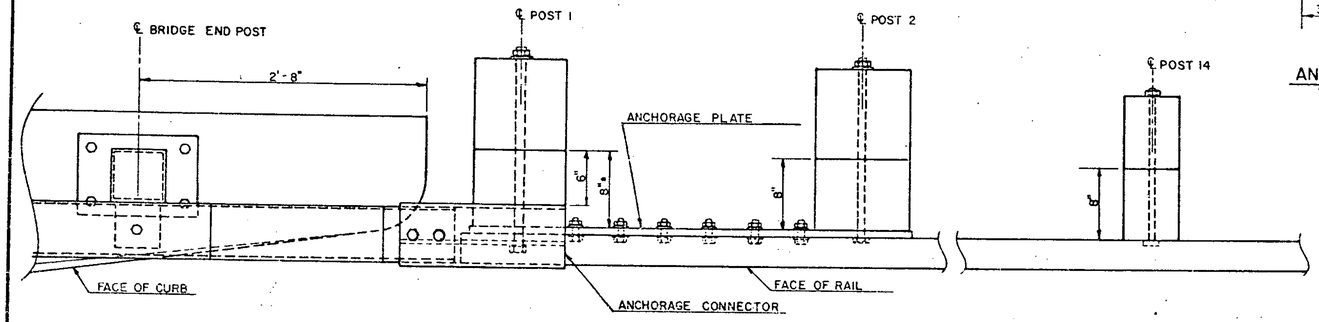
ALTERNATE DETAIL

FOR DIMENSIONS SEE DETAIL AT RIGHT

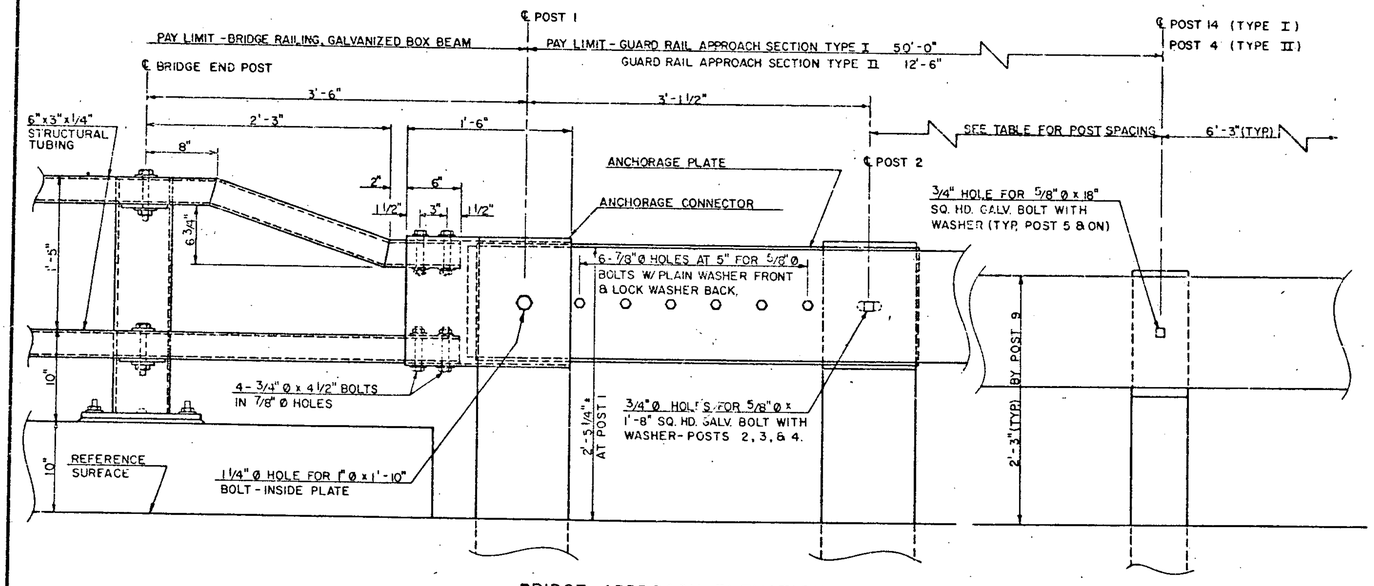


NOTES

1. REFER TO STANDARD G-1 FOR DETAILS OF APPROACH GUARD RAIL.
2. APPROACH RAIL SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
3. ANCHORAGE CONNECTOR AND ANCHORAGE PLATE SHALL BE ASTM A 36 STEEL GALVANIZED TO ASTM A 123 AFTER FABRICATION.
4. REFER TO STANDARD SB-R4A-82 FOR NOTES AND DETAILS OF BRIDGE RAILING.
5. GUARD RAIL APPROACH SECTION-TYPE I & II SHALL INCLUDE ANCHORAGE PLATE, ANCHORAGE CONNECTOR, RAIL, POSTS, BLOCKS, AND ATTACHMENT HARDWARE.
6. APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM FOR 50'-0" FROM THE ℄ OF POST 1 FOR TYPE I AND 12'-6" FROM THE ℄ OF POST 1 FOR TYPE II.
7. ALLOWABLE DIMENSIONAL TOLERANCE FOR BENT SECTIONS IS ± 1/16 OF AN INCH.



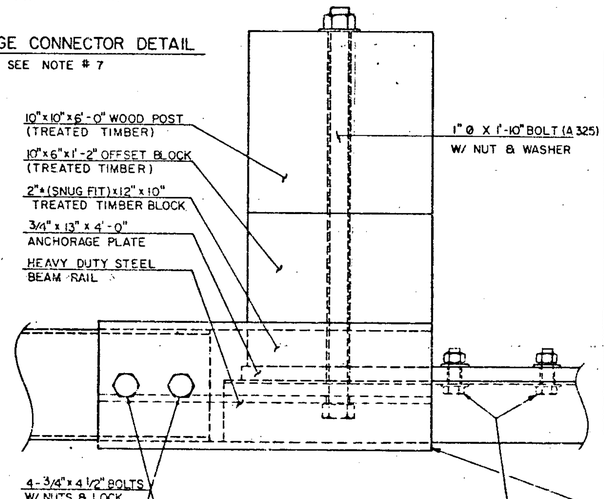
BRIDGE APPROACH PLAN



BRIDGE APPROACH ELEVATION

ANCHORAGE CONNECTOR DETAIL

SEE NOTE # 7



JOINT DETAILS

GUARD RAIL APPROACH SECTION TYPE I

POST NO.	POST SIZE	OFFSET BLOCK	SPACING	
END POST			3'-6"	
1	10" x 10"	10" x 6"	3'-1 1/2"	GUARD RAIL APPROACH SECTION TYPE I, 50'-0"
2	10" x 10"	10" x 8"	3'-1 1/2"	
3	10" x 10"	10" x 8"	3'-1 1/2"	
4	10" x 10"	10" x 8"	3'-1 1/2"	
5	8" x 8"	8" x 8"	3'-1 1/2"	
6	8" x 8"	8" x 8"	3'-1 1/2"	
7	8" x 8"	8" x 8"	3'-1 1/2"	
8	8" x 8"	8" x 8"	3'-1 1/2"	
9	6" x 8"	6" x 8"	4'-2"	
10	6" x 8"	6" x 8"	4'-2"	
11	6" x 8"	6" x 8"	4'-2"	
12	6" x 8"	6" x 8"	4'-2"	
13	6" x 8"	6" x 8"	6'-3"	
14	6" x 8" (TYP.)	6" x 8" (TYP.)	6'-3"	
			6'-3" (TYP.)	

GUARD RAIL APPROACH SECTION TYPE II

END POST			3'-6"	
1	10" x 10"	10" x 5"	3'-1 1/2"	GUARD RAIL APPROACH SECTION TYPE II, 12'-6"
2	10" x 10"	10" x 8"	4'-8 1/4"	
3	8" x 8"	8" x 8"	4'-6 1/4"	
4	8" x 8"	8" x 8"	6'-3" (TYP.)	

REVISIONS AND CORRECTIONS

1. ADDED TYPE II APPROACH DETAILS, AND REVISED ANCHORAGE CONNECTOR DETAILS. R. HAUPT 9/7/83

APPROVED:

DECEMBER 28, 1981
DATE

CHIEF OF DESIGN

STRUCTURES ENGINEER

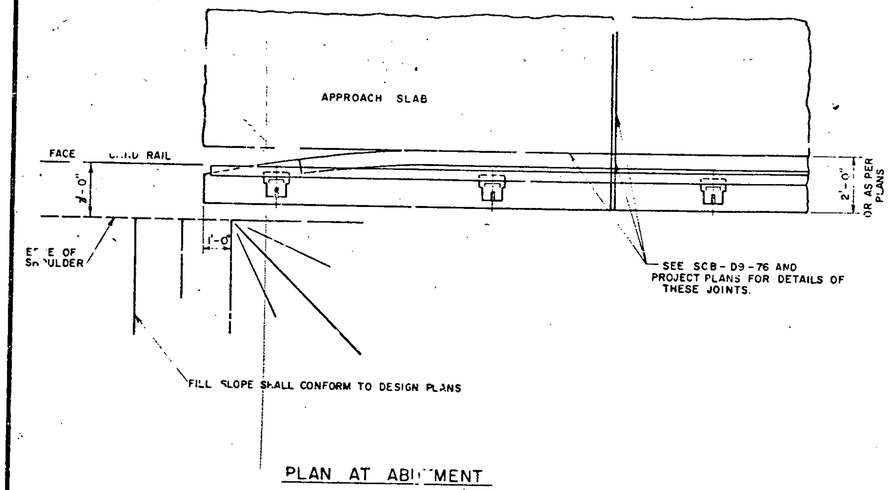
DIRECTOR OF ENGINEERING AND CONSTRUCTION

GUARD RAIL APPROACH SECTION-TYPE I & TYPE II

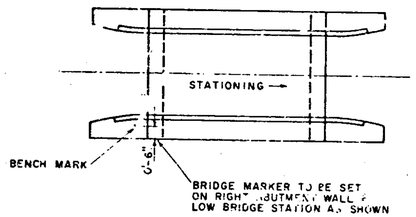
VERMONT AGENCY OF TRANSPORTATION

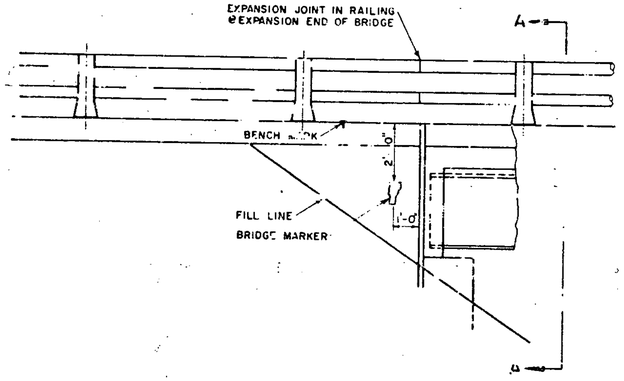
STANDARD

SB-R4B-82

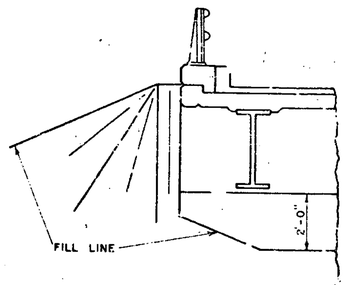


PLAN AT ABUTMENT





ELEVATION AT ABUTMENT



SECTION A-A

GENERAL NOTES

ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, DATED MARCH 1, 76 AND ITS LATEST REVISIONS AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 1977 AND ITS LATEST REVISIONS. DESIGN IS FOR HS-20-44 LOADING MODIFIED FOR THE NATIONAL SYSTEM OF INTERSTATE HIGHWAYS, APPLIED IN ACCORDANCE WITH THE PROVISIONS OF AASHTO STANDARD SPECIFICATIONS.

THE FOLLOWING NOTES SHALL APPLY UNLESS OTHERWISE NOTED ON PROJECT PLANS.

1. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM DESIGNATION A-588 (UNPAINTED). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" Ø ASTM A-325, TYPE III BOLTS IN 15/16" Ø HOLES. WHERE CONNECTIONS ARE NOT DETAILED ON THE PLANS THEY SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STATE FOR APPROVAL.

2. WHEN NOT DETAILED ON THE PLANS, SIMPLE SPAN BEAMS SHALL BE CAMBERED FOR THE DEAD LOAD DEFLECTION PLUS ONE-EIGHTH (1/8) INCH FOR EACH TEN FEET OF SPAN OR FRACTION THEREOF. THE CAMBER SHALL APPROXIMATE A SIMPLE CIRCULAR CURVE FROM END TO END OF BEAM. TOLERANCES IN CAMBER SHALL BE AS INDICATED IN THE AISC HANDBOOK FOR ROLLED BEAMS AND AS INDICATED IN THE AWS SPECIFICATION FOR WELDED GIRDERS.

3. ALL WELDING AND DIMENSIONAL TOLERANCES OF WELDED MEMBERS SHALL CONFORM TO AWS D1.1-80 STRUCTURAL WELDING CODE AND ITS LATEST REVISIONS EXCEPT AS MODIFIED BY THE AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES, DATED 1981 AND ITS LATEST REVISIONS.

4. ALLOWABLE DESIGN STRESSES *

CONCRETE	CLASS A	f'_c 3,000 psi	f_c 1400 psi
	CLASS B	f'_c 2500 psi	f_c 1000 psi
STRUCTURAL STEEL			
	A-588 MAX. DESIGN STRESS	27,000 psi (or as per AASHTO Specs.)	
REINFORCING STEEL			
		GRADE 40	GRADE 60
	DESIGN STRESS (TENSION)	20,000 psi	24,000 psi
	DESIGN STRESS (COMPRESSION)	16,000 psi	20,000 psi

5. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF ERECTED BEAMS SHALL BE TAKEN UNDER THE DIRECTION OF THE ENGINEER FOR USE IN DETERMINING THE FINAL GRADE.

6. MINIMUM COVER FOR REINFORCING STEEL (EXCEPT IN DECKS) SHALL BE 2" IN BACK FACES OF WALLS AGAINST EARTH AND 3" ELSEWHERE.

7. ALL EXPOSED EDGES OF CONCRETE IN THE SUBSTRUCTURE AND SUPERSTRUCTURE SHALL BE CHAMFERED 1" x 1".

8. DECK CONCRETE SHALL BE CONCRETE CLASS A. ALL OTHER CONCRETE SHALL BE CONCRETE CLASS B.

9. BRIDGE SEATS OF ALL PIERS AND ABUTMENTS SHALL BE SLOPED 1/2" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACES SHALL BE LEVEL. ABUTMENTS SHALL BE SLOPED FULL WIDTH, PIERS SHALL BE SLOPED EACH WAY FROM CENTER. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE SMOOTH STEEL TROWEL FINISHED.

10. ABUTMENT CONCRETE ABOVE THE ADJACENT BRIDGE SEAT ELEVATIONS SHALL PREFERABLY NOT BE PLACED UNTIL FINAL FINISHED GRADE OF DECK IS ESTABLISHED BY THE ENGINEER.

11. ANY FORM BRACKET HOLES IN FASCIA BEAMS OR GIRDER WEBS SHALL BE FILLED WITH BUTTON-HEAD OR HEX-HEAD BOLTS (TYPE III ON A-588 STEEL).

12. GRANULAR BORROW USED IN AREAS THROUGH WHICH PILES ARE TO BE DRIVEN SHALL HAVE A MAXIMUM STONE SIZE OF NINE INCHES.

13. BORINGS INDICATED ON THE DRAWINGS HAVE BEEN MADE FOR DESIGN PURPOSES ONLY AND DO NOT WARRANT ACTUAL SUB-SURFACE CONDITIONS.

14. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68° F.

* NOTE: SPECIFICATIONS CALL FOR A CLASS "A" CONCRETE WHICH WILL PRODUCE 4000 PSI AT 28 DAYS. HOWEVER, SUPERSTRUCTURE CONCRETE IS DESIGNED ON THE BASIS OF f'_c = 3500 THUS PROVIDING AN ADDITIONAL FACTOR OF SAFETY IN BRIDGE SLABS.

15. IF ALL DECK CONCRETE IS NOT PLACED IN ONE WORKING DAY, A MINIMUM DELAY PERIOD OF 96 HOURS (FOLLOWING END OF PLACEMENT OF THE PREVIOUS CONCRETE) WILL BE REQUIRED BEFORE PLACING ADDITIONAL CONCRETE. THE MINIMUM DELAY PERIOD SHALL BE INCREASED WHEN SO ORDERED BY THE ENGINEER. IN ALL CASES THE PLACEMENT SEQUENCE INDICATED ON THE PLANS SHALL BE FOLLOWED.

16. REINFORCING PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
SPACING TOLERANCE: ±1"
CLEARANCE TOLERANCE ± 1/4"

REVISIONS AND CORRECTIONS
1. Added word seat in line 3 of Note #9 J. WOOD 4-23-75
2. CHANGED VERMONT SPEC. DATE, GEN. NOTE, AND ADDED NOTE NO. 15, W. TRIPP 4-26-76.
3. REVISED NOTES, W. TRIPP, 12-15-76.
4. REVISED DATES, NOTE NO. 3. W. TRIPP 4-25-77
5. REVISED NOTES W. TRIPP 7-3-79
6. REVISED NOTE NO. 3, DATES W. TRIPP 9-14-81

APPROVED

DATE

CHIEF ENGINEER

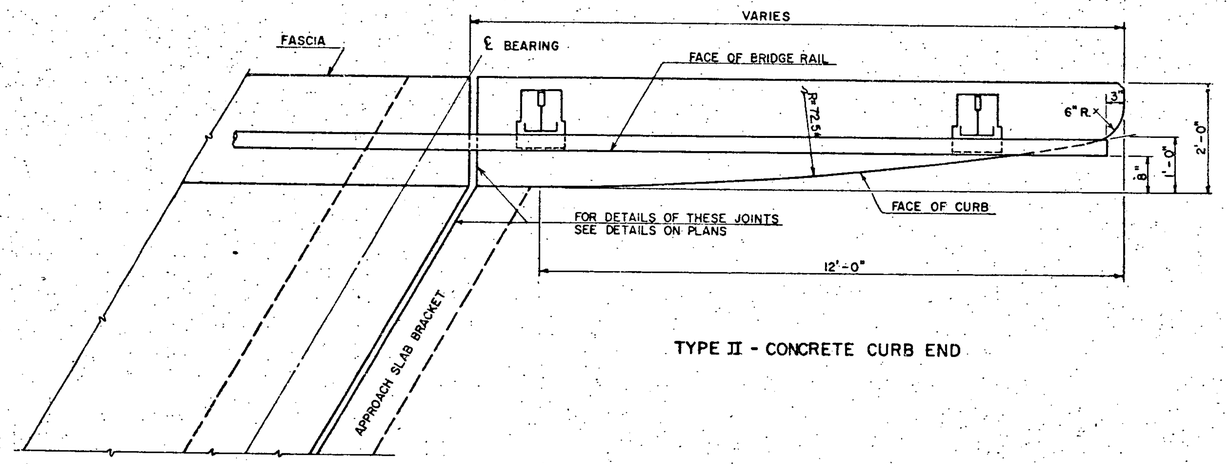
ASST. CHIEF ENGINEER

BRIDGE ENGINEER

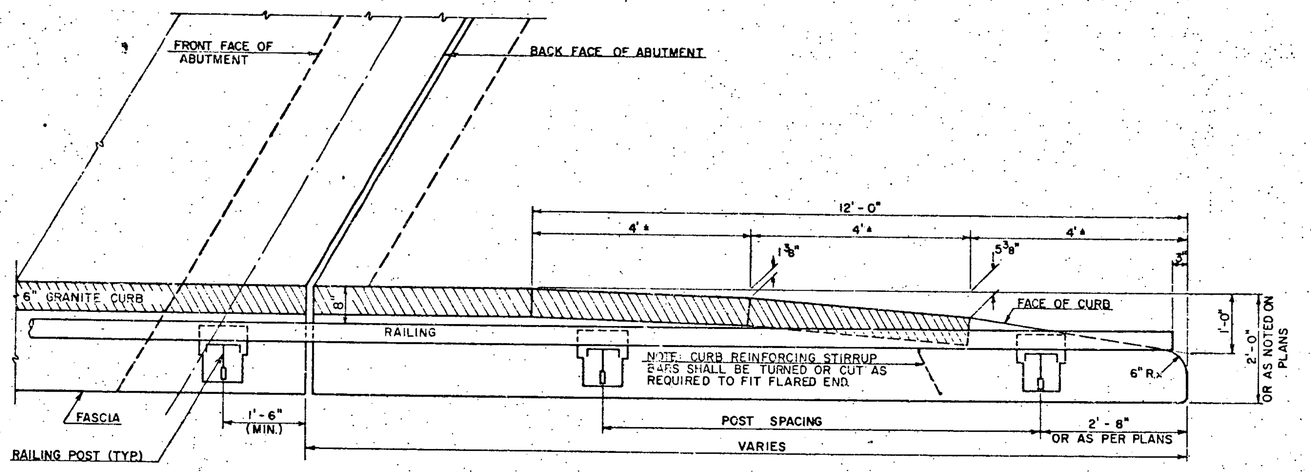
DETAILS OF W BEAM BRIDGES GENERAL INFORMATION AND GENERAL NOTES

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

SCB-D1-75



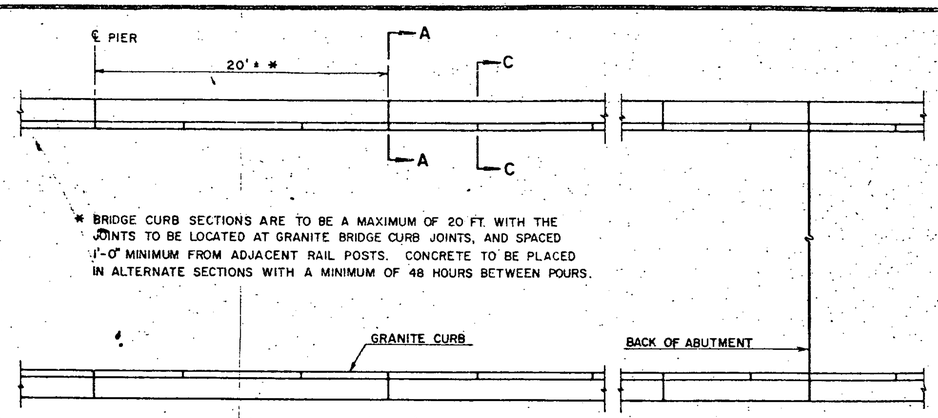
TYPE II - CONCRETE CURB END



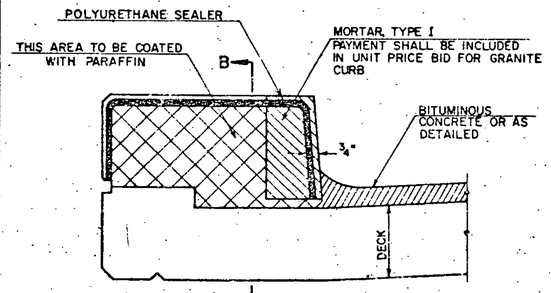
TYPE I - GRANITE CURB END

—PLAN AT ABUTMENT—

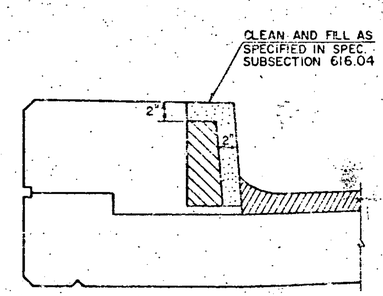
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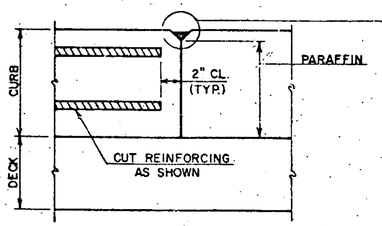
—TYPICAL PLAN—



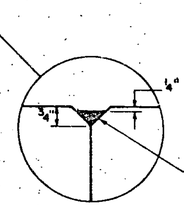
—SECTION A-A—



—SECTION C-C—



— SECTION B-B —



FORM SLOT IN CONCRETE CURB JOINTS AND SEAL WITH POLYURETHANE JOINT SEALER AS SPECIFIED IN SECTION 707.11. (COLOR TO MATCH CONCRETE.) PAYMENT FOR POLYURETHANE JOINT SEALER AND PARAFFIN SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ADJACENT CONCRETE.

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REVISIONS AND CORRECTIONS

APPROVED:

JAN 8 1976
DATE

E. H. Dickerson
CHIEF ENGINEER

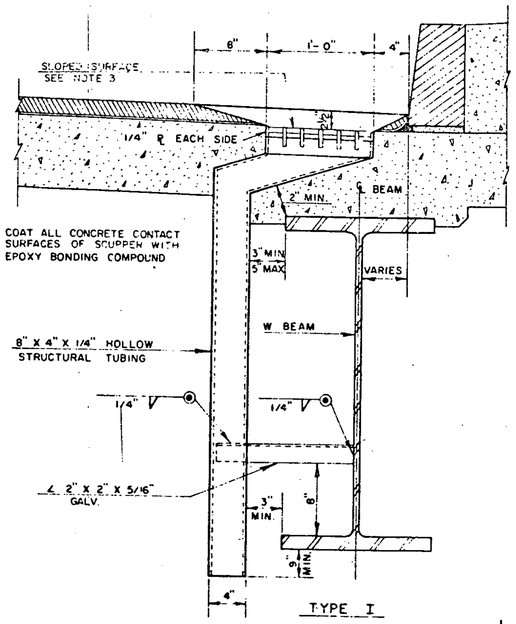
R. O. Munn
ASST. CHIEF ENGINEER

V. M. Smith
BRIDGE ENGINEER

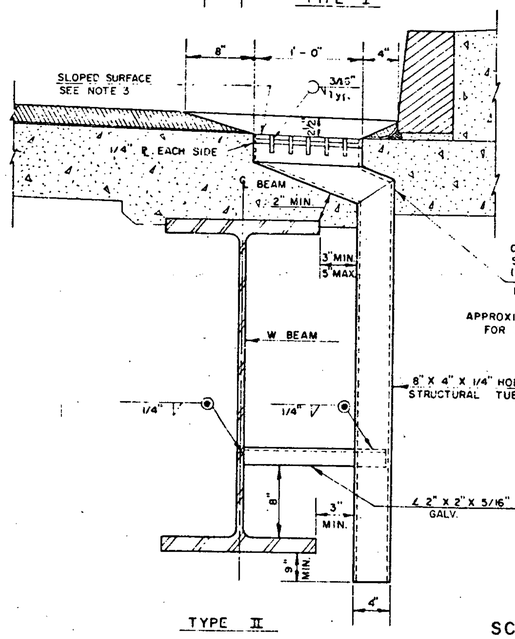
DETAILS OF W BEAM BRIDGES
Ⓐ CURB LAYOUT DETAILS
Ⓑ CURB JOINT DETAILS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

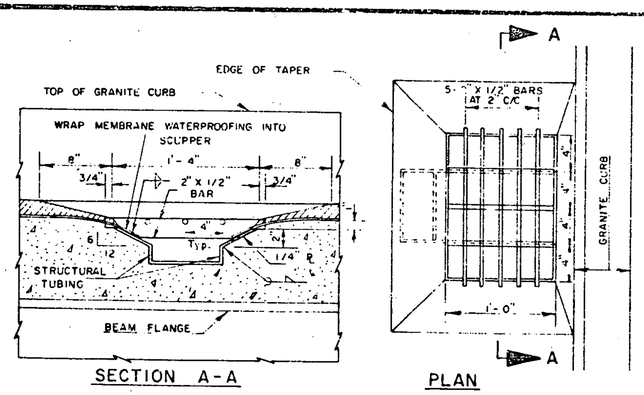
SCB-D4-76



TYPE I



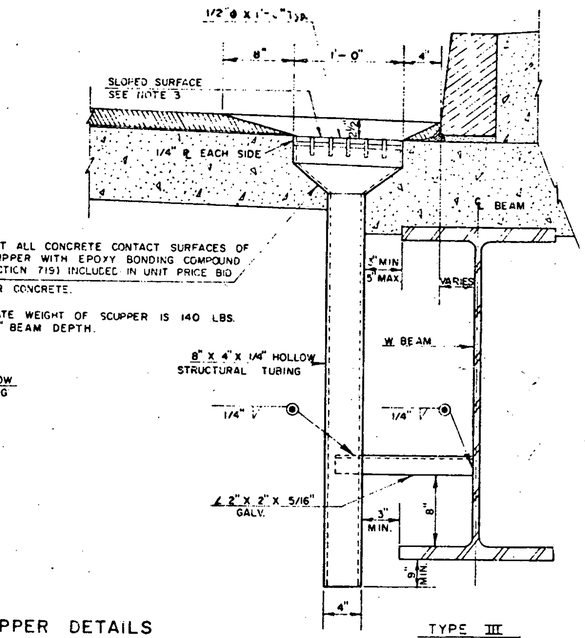
TYPE II



NOTES -
THE FOLLOWING NOTES APPLY TO ALL SCUPPERS UNLESS OTHERWISE DETAILED ON PROJECT PLANS:

1. HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A-500 OR A-501.
   ALL PLATES, BARS AND ANGLES SHALL CONFORM TO ASTM A-36
2. ALL SCUPPERS SHALL BE GALVANIZED ACCORDING TO ASTM A-123 AFTER FABRICATION.
3. TOP SURFACE OF SCUPPERS MUST BE SLOPED TO MATCH ROADWAY CROSS SLOPE AND GRADE.
4. END SCUPPERS ARE TO BE PLACED MIDWAY BETWEEN ℄ BRG. AND FIRST DIAPHRAGM ASSEMBLY.
5. INTERMEDIATE SCUPPERS ARE TO BE PLACED MIDWAY BETWEEN DIAPHRAGM ASSEMBLIES.
6. ON PROJECTS WITH NO BITUMINOUS WEARING SURFACE, SET SCUPPERS 3/4" BELOW TOP OF CONCRETE SLAB.

APPROXIMATE WEIGHT OF SCUPPER IS 140 LBS. FOR 36" BEAM DEPTH.



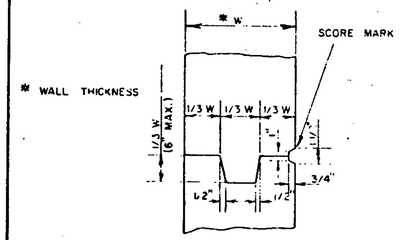
TYPE III

SCUPPER DETAILS

Ⓐ

CONSTRUCTION JOINTS SHALL BE PLACED AS INDICATED ON THE PLANS.

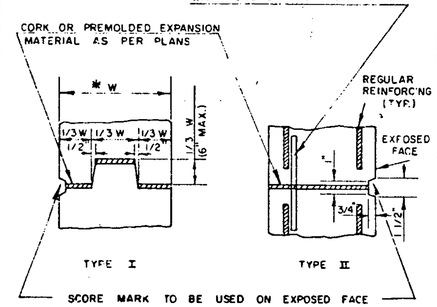
HORIZONTAL SCORE MARKS SHALL BE PLACED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.



TYPICAL DETAIL OF CONSTRUCTION JOINT AND SCORE MARKS

Ⓑ

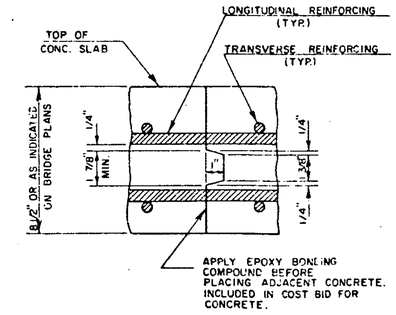
4" LONG DEFORMED BAR (TO BE PAID FOR AS REINFORCING STEEL). WRAP ONE END TO PREVENT BOND.



* WALL THICKNESS

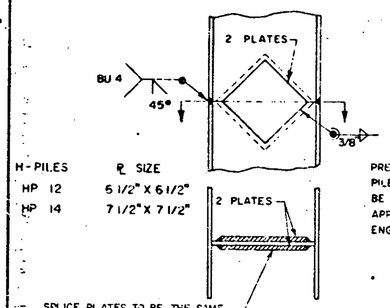
DETAILS OF VERTICAL EXPANSION JOINTS

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TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS

Ⓓ

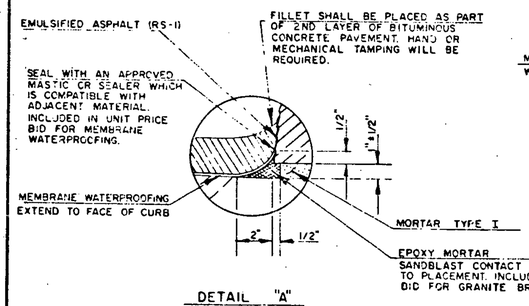


H-PILES	℄ SIZE
HP 12	6 1/2" X 6 1/2"
HP 14	7 1/2" X 7 1/2"

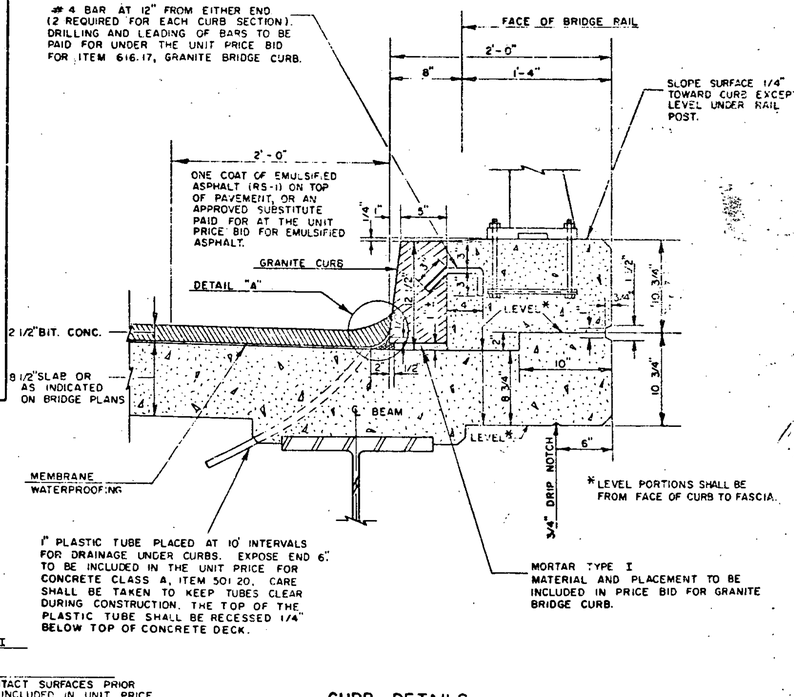
PREFABRICATED PILE SPLICE MAY BE USED WITH THE APPROVAL OF THE ENGINEER.

DETAIL OF PILE SPLICE

Ⓔ



DETAIL "A"



CURB DETAILS

Ⓕ

REVISIONS AND CORRECTIONS

1.-Added 1/2" ϕ bars to scupper details	J. WOOD	1-27-75
2.-Added to note on 1" plastic tubes	J. WOOD	1-27-75
3.-Revised pile splice weld.	W. Tripp	12-29-75
4.-Revised scupper length and pile splice detail	W. Tripp	12-15-76
5.-Revised slab and pavement thicknesses	W. Tripp	4-3-78
6.-Revised scupper notes.	W. Tripp	1-3-79

APPROVED DATE: Nov. 28 1973

E. W. Stickney
CHIEF ENGINEER

R. O. Nunn
ASST. CHIEF ENGINEER

W. M. Smith
BRIDGE ENGINEER

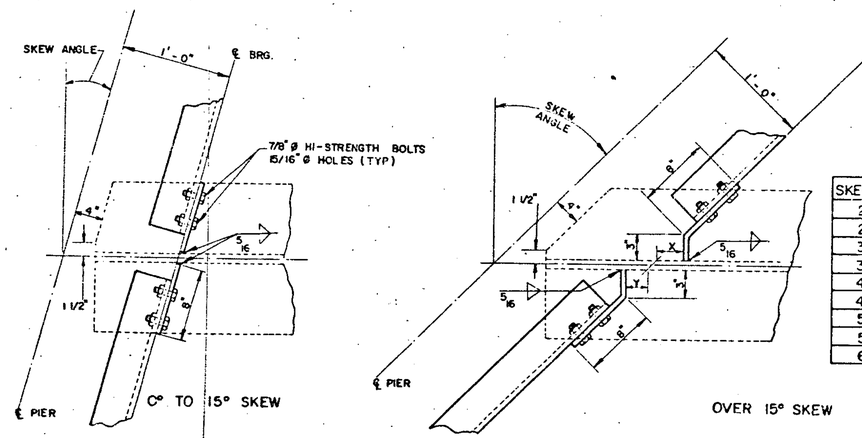
DETAILS OF W BEAM BRIDGES

Ⓐ SCUPPER DETAILS
ⒷⒸⒹ CONSTRUCTION DETAILS
Ⓔ PILE DETAILS
Ⓕ CURB DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

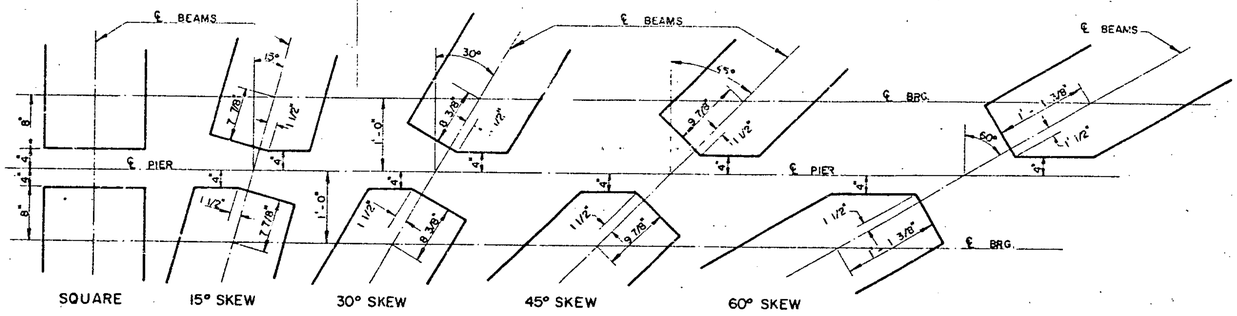
SCB-D6-73



SKEW	X	Y
20°	1"	1/2"
25°	1 1/2"	3/4"
30°	1 3/4"	1 1/4"
35°	2"	1 1/2"
40°	2 1/2"	1 3/4"
45°	3"	2 1/4"
50°	3 1/2"	2 3/4"
55°	4 1/4"	3 1/2"
60°	5 1/4"	4 1/4"

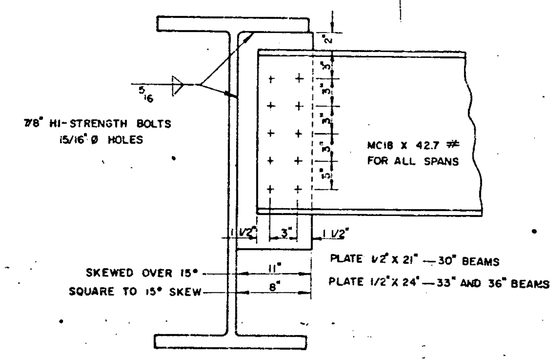
DETAILS OF PIER DIAPHRAGM CONNECTIONS

Ⓐ

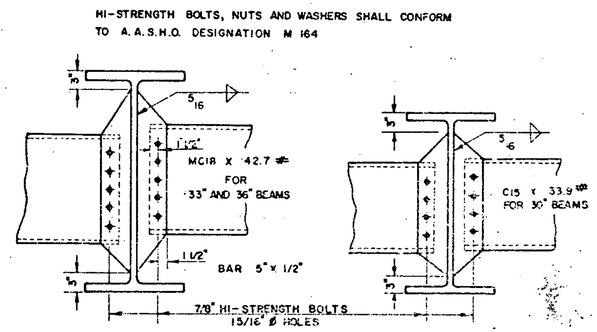


INTERIOR W BEAM CUT-OFFS AT PIER

Ⓑ

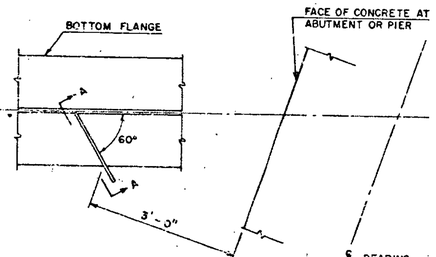


PIER DIAPHRAGMS

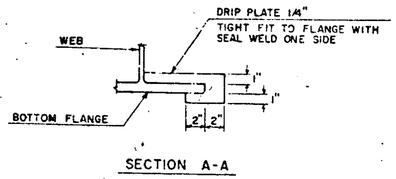


INTERMEDIATE DIAPHRAGMS

Ⓓ



PLAN

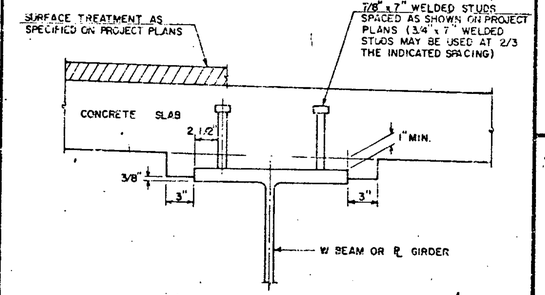


SECTION A-A

NOTE : DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.

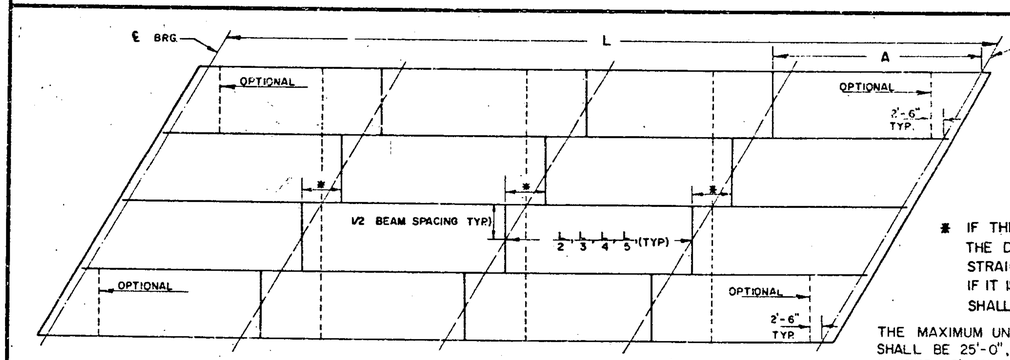
DRIP PLATE DETAILS

Ⓒ



BEAM HAUNCH AND SHEAR CONNECTOR DETAILS

Ⓕ



DIAPHRAGM LOCATION PLAN

SPAN LENGTH	SETS OF DIAPH. REQUIRED
28'-0" THROUGH 43'-0"	1
44'-0" 69'-0"	2
70'-0" 84'-0"	3
85'-0" 99'-0"	4

* IF THIS DIMENSION IS LESS THAN 1'-0" THE DIAPHRAGMS MAY BE PLACED IN A STRAIGHT LINE AS INDICATED BY DASH LINE. IF IT IS GREATER THAN 1'-0" THE DIAPHRAGMS SHALL BE STAGGERED AS SHOWN.

THE MAXIMUM UNBRACED LENGTH OF BEAM IN ALL CASES SHALL BE 25'-0", EXCEPT DIMENSION "A" SHALL NOT EXCEED 15' ON FASCIA BEAMS UNLESS DIAPHRAGMS ARE USED AT ℄ OF BEARINGS, OR UNLESS OPTIONAL DIAPHRAGMS ARE USED AS SHOWN.

Ⓔ

REVISIONS AND CORRECTIONS

1. REMOVED DETAIL "C". J. WOOD 1-22-73
2. NOTE CONCERNING DIMENSION "A" ADDED TO DETAIL "E". J. WOOD 1-22-73
3. ADDED DETAILS "C" AND "F". W. TRIPP 12-19-76

APPROVED: DATE: 12/13/71

CHIEF ENGINEER

ASST. CHIEF ENGINEER

BRIDGE ENGINEER

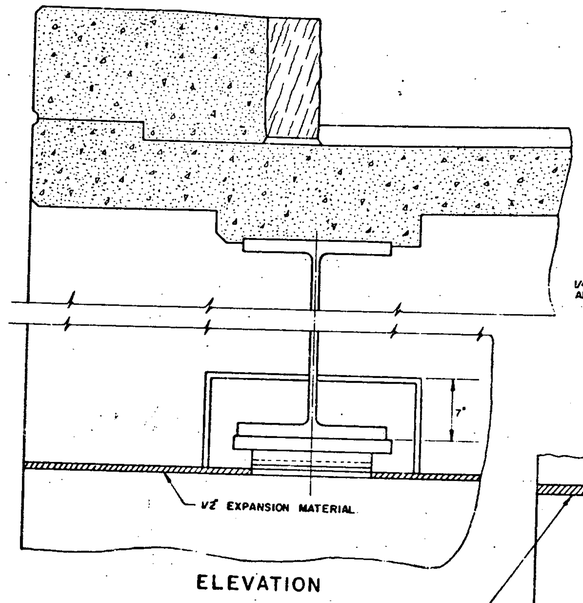
DETAILS OF W BEAM BRIDGES

STRUCTURAL STEEL DETAILS

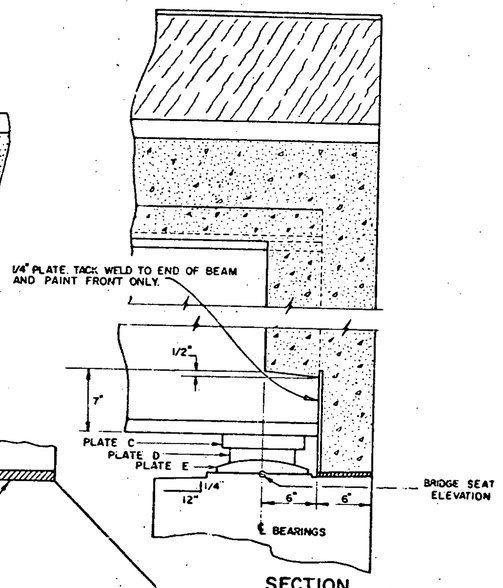
Ⓐ Ⓓ Ⓔ DIAPHRAGM DETAILS
Ⓑ W BEAM CUT-OFFS
Ⓒ DRIP PLATE DETAILS
Ⓕ BEAM HAUNCH & SHEAR CONNECTOR DETAILS

VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS

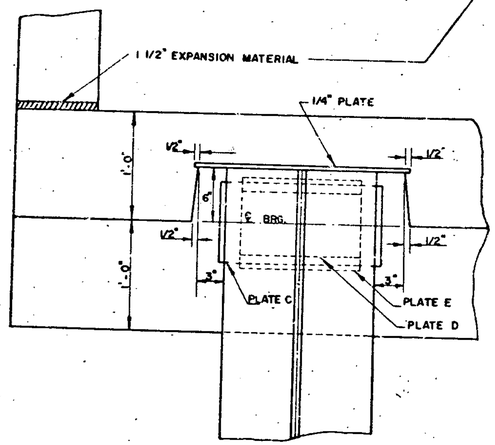
SCB-D7-71



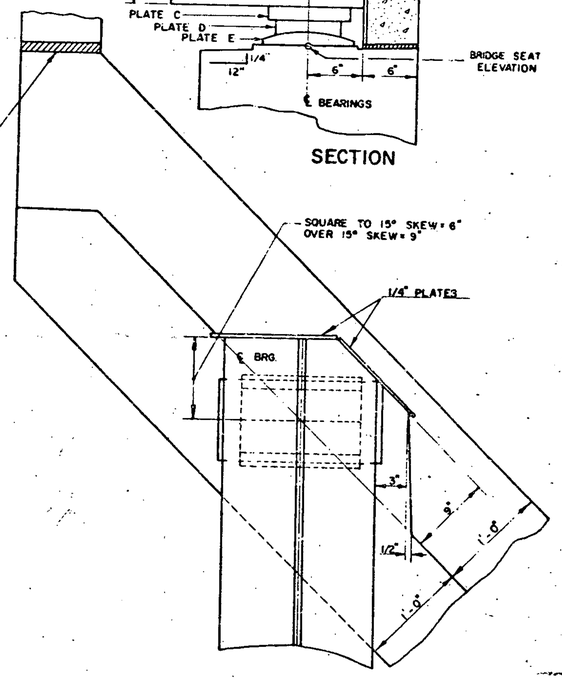
ELEVATION



SECTION

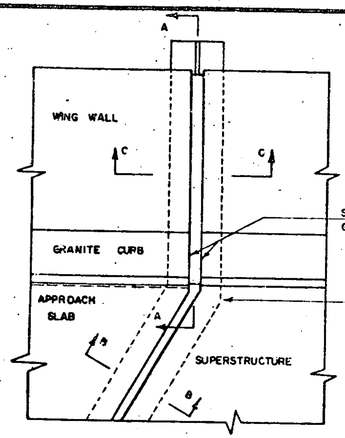


PLAN FOR SQUARE BRIDGES



PLAN FOR SKEWED BRIDGES

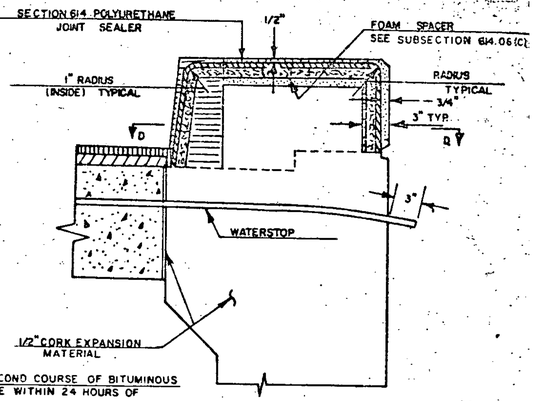
(DETAILS SHOWN FOR EXP END; FIXED END SIMILAR EXCEPT ℄s A AND B IN LIEU OF ℄s C, D AND E; SEE SCB-08-71) Ⓐ



PLAN

SAWED ENDS ON GRANITE CURB

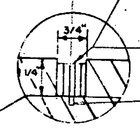
WATERSTOP MATERIAL SHALL BE CUT AT THE CURB LINE ON SKEWED BRIDGES, AND JOINED AS SPECIFIED IN SUBSECTION 501.12(E).



SECTION A-A

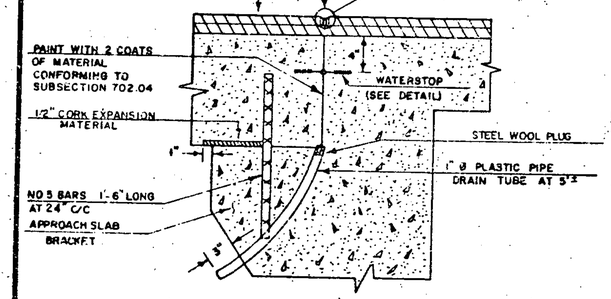
1/4" DEEP SAW CUT, IN SECOND COURSE OF BITUMINOUS CONCRETE. TO BE MADE WITHIN 24 HOURS OF PLACEMENT.

JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUT WILL BE MADE DIRECTLY OVER THE JOINT.

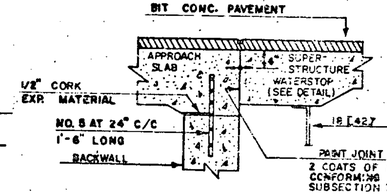


SAW CUT IN BITUMINOUS CONC. FILL WITH JOINT SEALER - HOT POURED, SUBSECTION 614.06.

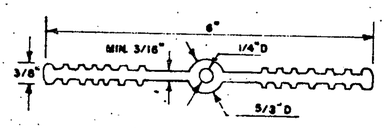
1/4" DEEP SAW CUT, IN FIRST COURSE OF BITUMINOUS CONCRETE TO BE MADE WITHIN 24 HOURS OF PLACEMENT



SECTION B-B



SECTION B-B
WITH BACKWALL

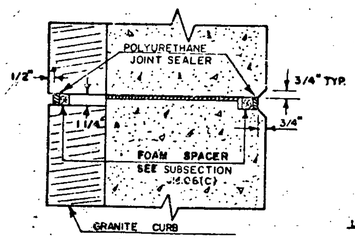


WATERSTOP DETAIL

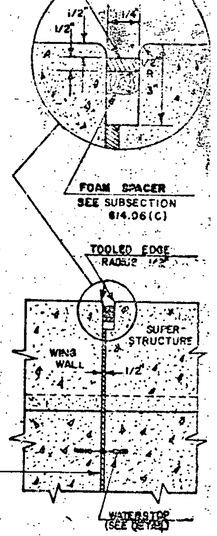
MATERIAL TO BE POLYVINYLCHLORIDE, AS SPECIFIED IN SUBSECTION 707.30, OTHER CONFIGURATIONS, WITH MINOR DIMENSION VARIATIONS, MAY BE USED WITH THE APPROVAL OF THE BRIDGE ENGINEER.

COST OF THE WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 501.20 CONCRETE.

THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT TO MAINTAIN PROPER ALIGNMENT OF WATERSTOP DURING CONSTRUCTION.



SECTION D-D



SECTION C-C Ⓑ

REVISIONS AND CORRECTIONS

1. Added notes to saw cut 1st. & 2nd. courses of Bit. Conc. - J.WOOD 1-27-75

APPROVED: DATE: 12/14/71

R.H. Crumb
CHIEF ENGINEER

C.H. Stebbins
ASST. CHIEF ENGINEER

Leon Green
BRIDGE ENGINEER

DETAILS OF W BEAM BRIDGES

Ⓐ CURTAIN WALL AT BEARING DEVICES

Ⓑ FIXED END JOINT DETAILS

VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS

SCB-D9-71

222+32 Lt.
Begin Std. Steel Beam Guard Rail w/ Wood Posts, Type II

222+07 ~ 222+32 Lt.
Breakaway Cable Terminal for Std. Steel Beam Guard Rail w/ Wood Posts, Type II

T. 44.47'
18" M

Existing Shld.
Shoulder Flare
109.00
E
+.080
EP
-.080
E
BRUSH
E. WET
E. STONE
STONE
18" M
Lt. Edge Lane 2
+.071
-.071
Existing +.080
Existing -.080
Rt. Edge Lane 2
Existing
Existing
P.C. 221+14.04
222+00
BEGIN APPROACH

Shoulder Break
+44.50
3'
6'
11'
+50
11'
6'
Begin Project
17'
3'
32' Face of G.R.
25'-0" B.C.
See Std. Sheet G-14
Std. Steel Beam Guard Rail w/ Wood Posts, Type II
+.07
4'
17'
Existing Edge Shoulder
Existing Edge Pavement
Shoulder Flare
4'
10'
222+0
95'
4'
Begin Approach
8° Max.
+50
℄

GUARD RAIL & PAVEMENT TRANSITION
Scale 0 5 10 FEET

Lt. Profile
SCALE
0 .025 20 10 0 FT./FT.
P.C. 221+14.04
221+00
222+00

Banking Transition

Match Existing @ Sta. 222+00
Transition to .071 1/2 @ Sta. 222+50

E. STONE
STONE
E
EP
E. EP
BRUSH
YTS
100
221+50

NOTE:
Sta. 219+05 ~ 30' Rt. ~ 222+17 ~ 30' Rt.
Removal of Roadside Brush As Directed By The Engineer.

P.C. 221+14.04
D = 5°00' Rt.
Bank ~ Match Existing @ Sta. 222+00
Transition to .071 @ Sta. 222+50

WOOD
E
EP
E
BRUSH
WOOD
100
221+00

SCALE 10 FEET

FROM STA. 221+00	TO STA. 222+00	
PROJECT NAME	HIGHGATE	
NO.	BRS0285(1)S	PLOTTED 11/24/81
SURVEYED BY	FANTONI	SEPT. 1981
SHEET 51 OF 64 SHEETS		

T-61.19

Fish & Game Sign

-t 89

223+89 Rt.
Removing Signs (Fish & Game Sign Post and Sign if attached)

223+89 Rt. 35'±
Setting Salvaged Posts
(This item shall be used to reset the Fish and Game Sign Post. This will include a new concrete footing of the same size that exists and any hardware necessary. Sign shall also be erected if it was attached at the time of removal.)

223+33 Rt.
Begin Std. Steel Beam Guard Rail w/ Wood Posts, Type II

Face of G.R.

Shoulder Flare

9'-11" ± 3"

106.60

WET WET E. STAKE WET STONE

1:2 +.063 DR +.054 RD -.054 E 4 EDR -.063 DR 1:4 DR DR 100

SE-13'
C-18'
E-7'

223+50

223+28 ~ 223+53 Rt.
Breakaway Cable Terminal for Std. Steel Beam Guard Rail w/ Wood Posts, Type II

12'-0" 12'-0"

-.021 ft/ft -.021 ft/ft 1:8

Exist. Ground

Scale 0 5 10 Feet

12" Subbase of Gravel

Drive Typical (Sect A-A)

223+10 Rt.
Construct Drive
Section A-A

105.00

Shoulder Flare 10'

1:3 STONE DR -.050 ③ +.020 E +.070 RD -.070 E DR DR DR 150

1:5 Sa Grd. A-1-b Mod

A A

Existing Concrete Slab

SE-13'
C-46'

150 - Sl. Sa. A-2-4 NMW
150 - Sl. Cl. A-6 Wet
170 - Sl. A-4 wet (Trace Organic):

223+00

300 - Sl. Cl. A-6 Wet
NLTD.

222+50
Begin Removal of Portland Cement Concrete Pavement (To be Paid for as Solid Rock Excavation.)

222+45 Lt
Begin Removal & Disposal of Existing Guard Rail

T-34.53

24" M

t 61

Face of G.R.

9' 6' 11' 104.40 11' 6'

WET WOB E. STONE 1:3 STONE DR S -.062 +.021 E +.071 RD -.071 E 1:4 100 WOB

T-31.66

Pt

+47

222+50

END APPROACH - BEGIN PROJECT BRS 0285(1) S

SE-13'
C-45'

Guard Rail Details

Scale 0 5 10 Feet

Edge of Pavement

Edge of Shoulder

Shoulder Break

Shoulder Flare

Boat Launch Access

Shoulder Flare

224+78

+53 11' 6' 3' ±50

+28

284+10

+65.30

7'11" 4"

+33

+50

+28

223+10

Bridge Rail

Galvanized Box Beam

For Position of Posts See Std. Sheet G-1

75'-0"

See Std. Sheet G-1 Standard Steel Beam Guard Rail w/ Wood Posts, Type II

B.G.T. 25'-0" Parabola

37'-6" ± Equal

20'

2'

4'

24'

FROM STA. 222+50	TO STA. 223+50
PROJECT NAME	HIGHGATE
NO.	BRS0285(1)S
SURVEYED BY	FANTONI
SHEET 32 OF 64 SHEETS	

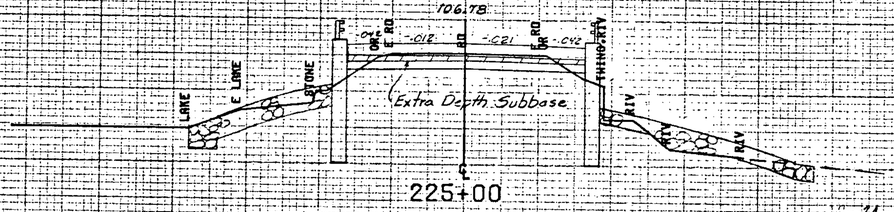
PLOTTED 11/24/81

SEPT. 1981

SCALE 1" = 10 FEET

For Guard Rail Details @
End of Bridge.
See Sheet 55 of 64 Sheets

STA. 225+07.00
STOP ROADWAY
BEGIN BRIDGE



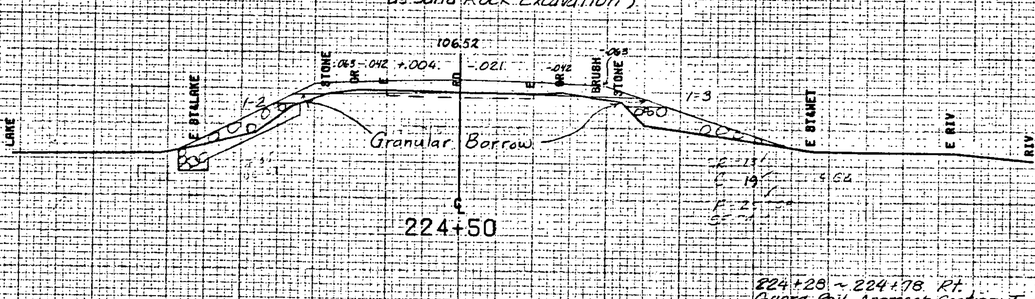
STA. 224+50 Lt.
STONE FILL, TYPE III & Unclassified Channel Exc.
END ROADWAY QUANTITY
BEGIN BRIDGE QUANTITY

224+50 ~ 225+07
Extra Depth Subbase
For Bridge Approach
Depth varies
See Sht 11 of 64

STA. 224+50 Rt.
Begin Stone Fill, Type II (Bridge Quantity)
Begin Unclassified Channel Excavation
(For Stone Fill Bridge Quantity)

224+50 ~ 224+75
Granular borrow
for bridge approach

224+62
End Removal of Portland Cement
Concrete Pavement (To Be Paid for
as Solid Rock Excavation).



224+28 ~ 224+78 Lt.
Guard Rail, Approach Section, Type I

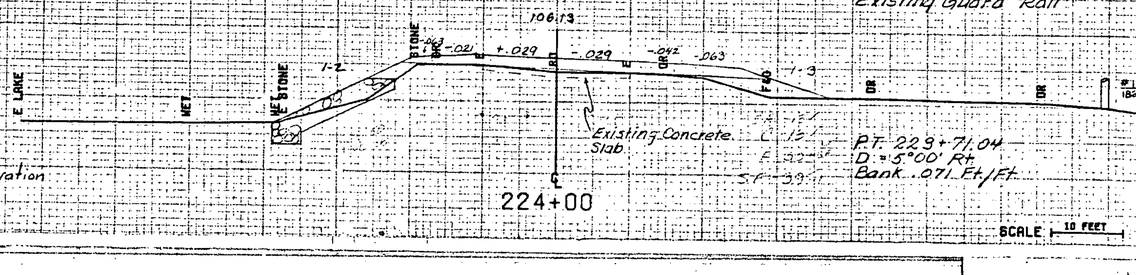
224+28 ~ 224+78 Rt.
Guard Rail, Approach Section, Type I

224+28 Lt.
End Std. Steel Beam Guard Rail
W/ Wood Posts, Type II

224+28 Rt.
End Std. Steel Beam Guard Rail
W/ Wood Posts, Type II

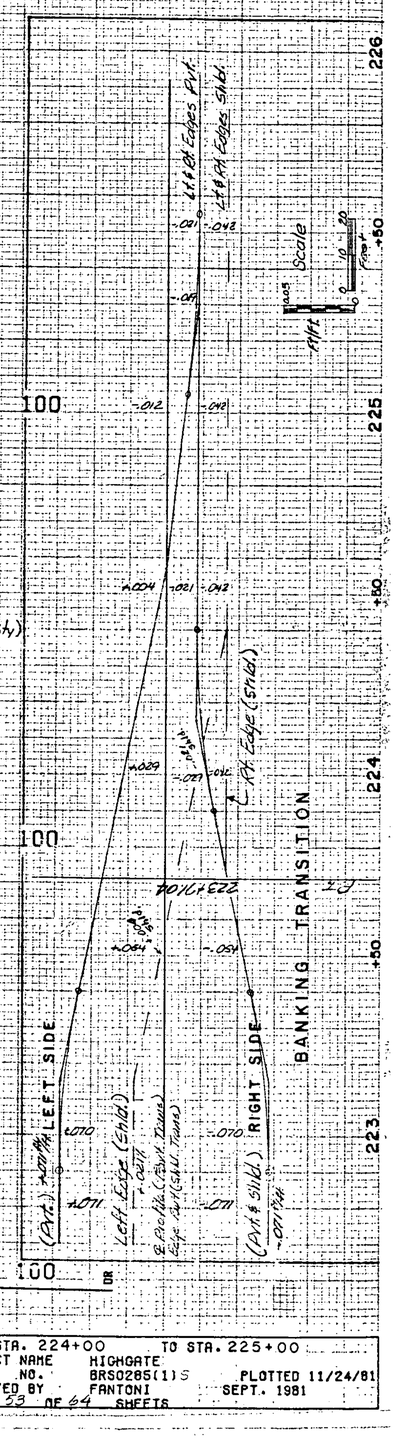
Shoulder Flair
Face of G.R.

224+00 ~ 225+09 Rt.
Removal and Disposal of
Existing Guard Rail



223+75 Lt.
Begin Stone Fill, Type III
Begin Unclassified Channel Excavation
(For Stone Fill)

P.T. 223+71.04
D = 5°00' Rt
Bank .071 Ft./Ft.



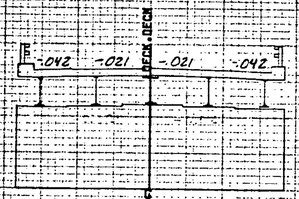
Horizontal & Vertical
PAVEMENT TRANSITION
SCALE 10 0 10 20 Feet

Approach Slab
Wing Wall
25'00
100'
Edge Shoulder
Gravel
Edge Pavement
Curb
2½" Pavement on Bridge Deck
225+07.00 Begin Bridge
This Area Will Have 2½" Pavement Depth, Curb to Curb
224+79 ~ 225+07.00
16'-4"
17'
+79
+50
224+00
6'
11'
223+50
225+00
223+79 to 224+79 Pavement Width Varies From 22'-8 3/4" to 34'-0" @ 223+79, Depth Varies From 2½" @ 223+79 to 21" @ 224+79
USE THIS TRANSITION FOR BOTH ENDS OF BRIDGE

FROM STA. 224+00	TO STA. 225+00
PROJECT NAME	HIGHGATE
NO.	BRS0285(1)S
SURVEYED BY	FANTONI
SHEET 53 OF 64	SHEETS
PLOTTED 11/24/81	
SEPT. 1981	

SCALE 10 FEET

STA. 225+99.00
END BRIDGE
RESUME ROADWAY



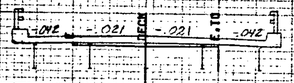
225+97

225+96 Lt.
Begin Removal and Disposal
of Existing Guard Rail

225+96 Rt.
Begin Removal and Disposal
of Existing Guard Rail

100

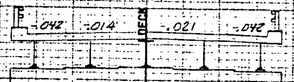
100.90



225+50

100

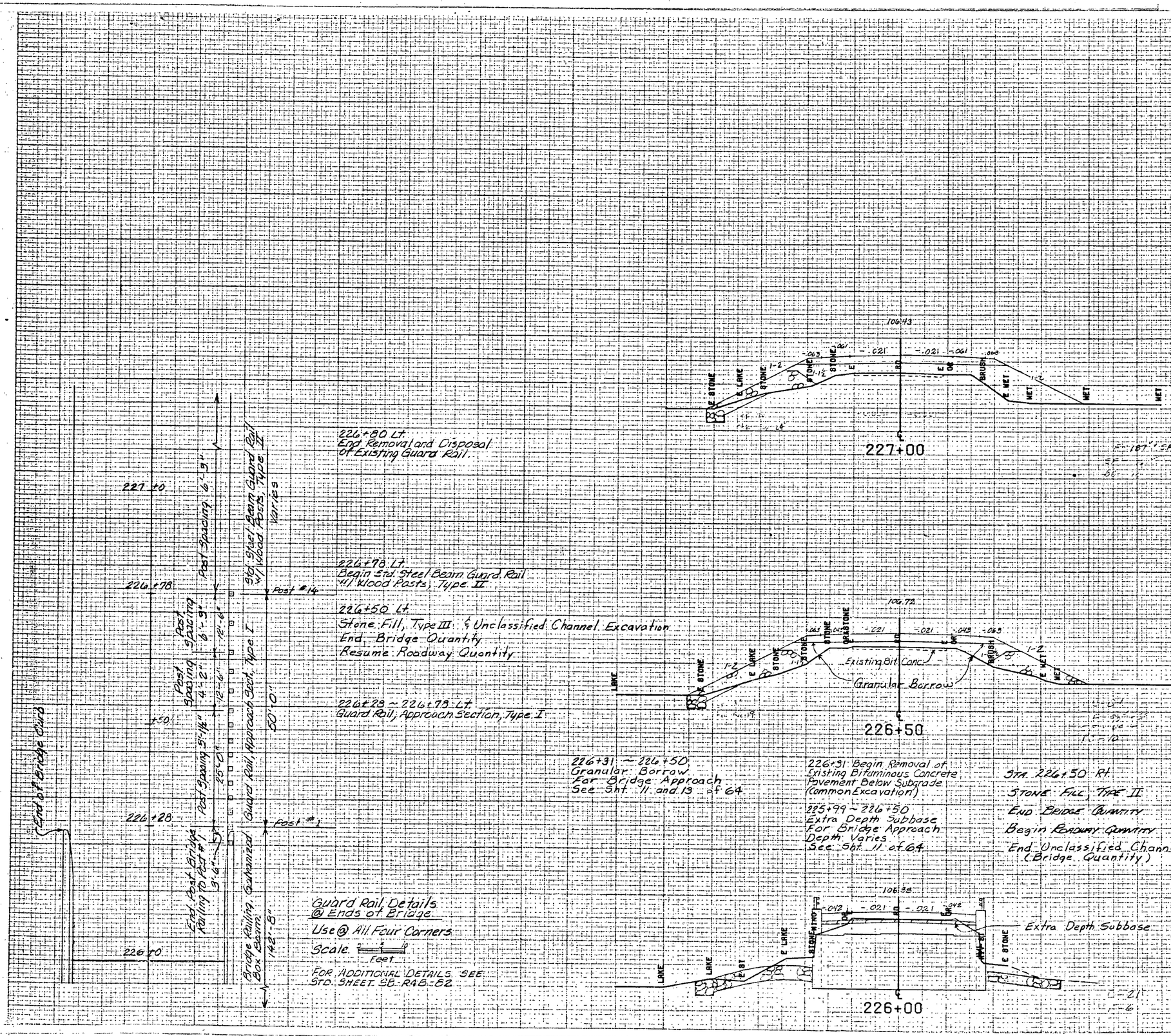
225+09 Lt.
End Removal & Disposal
of Existing Guard Rail



225+08

SCALE 10 FEET

FROM STA. 225+08	TO STA. 225+97	
PROJECT NAME	HIGHGATE	
NO.	BRS0285(1)S	PLOTTED 11/24/81
SURVEYED BY	FANTONI	SEPT. 1981
SHEET 24 OF 64 SHEETS		


(End of Bridge Curb)
227+00
226+80 Lt.
End Removal and Disposal
of Existing Guard Rail.
227+0
226+78
226+50
226+28
226+0
End Post Bridge
Railing to Post #1
3'-4"
Post Spacing
4'-2½"
Post Spacing
5'-1¾"
Post Spacing
6'-3"
Post #1
Post #14
Guard Rail, Approach Sect. Type I
60'-0"
Bridge Railing, Galvanized
Box Beam
142'-8"
3 6" Steel Beam Guard Rail
w/ Wood Posts, Type II
Varies
226+78 Lt.
Begin Std. Steel Beam Guard Rail
w/ Wood Posts, Type II
226+50 Lt.
Stone Fill, Type III & Unclassified Channel Excavation
End Bridge Quantity
Resume Roadway Quantity
226+28 ~ 226+78 Lt.
Guard Rail, Approach Section, Type I
226+31 ~ 226+50
Granular Borrow
For Bridge Approach
See Sht. 11 and 13 of 64
Guard Rail Details
@ Ends of Bridge
Use @ All Four Corners
Scale
Feet
FOR ADDITIONAL DETAILS SEE
STD. SHEET SB-R46-82
106.43
227+00
STONE
LAKE
STONE
STONE
STONE
E
RD
E
OR
BRUSH
WET
WET
WET
WET
226+85 Rt.
End Stone Fill, Type II
(Roadway Quantity)
S. Profile
Lt. & Rt. Edges Pvt.
LEAN Edges Shld.
100
Banking Transition
Scale
Feet
226+78 Rt.
Begin Std. Steel Beam Guard Rail
w/ Wood Posts, Type II
106.72
226+50
LAKE
STONE
E LAKE
STONE
STONE
STONE
STONE
E
OR
BRUSH
WET
WET
Existing Bit. Conc.
Granular Borrow
100
226+28 ~ 226+78 Rt.
Guard Rail, Approach Section, Type I
226+31 Begin Removal of
Existing Bituminous Concrete
Pavement Below Subgrade
(Common Excavation)
225+99 ~ 226+50
Extra Depth Subbase
For Bridge Approach
Depth Varies
See Sht. 11 of 64
Sta. 226+50 Rt.
Stone Fill, Type II
End Bridge Quantity
Begin Roadway Quantity
End Unclassified Channel Excavation
(Bridge Quantity)
NOTE:
FOR PAVEMENT TRANSITION
AT END OF BRIDGE
SEE SHEET 53 OF 64 SHEETS
106.38
226+00
LAKE
LAKE
E LAKE
E ST
LEDGE ROCK
E
OR
E
OR
ASPH. ST.
E STONE
Extra Depth Subbase
100
SCALE 10 FEET
FROM STA. 226+00 TO STA. 227+00
PROJECT NAME HIGHGATE
NO. BRS0285(1)S PLOTTED 11/24/81
SURVEYED BY FANTONI SEPT. 1981
SHEET 55 OF 64 SHEETS

Rev. PT. 232+09.67

End Proj.

Rt. Edge (Pvt.)

Rt. Edge (Shld.)

Lt. & Rt. Edges (Pvt.)

Lt. & Rt. Edges (Shld.)

Lt. Edge (Pvt.)

Lt. Edge (Shld.)

Exist. Rt. Edges (Pvt. & Shld.)

Exist. Lt. Edges (Pvt. & Shld.)

End App. (Match Exist.)

Rev. PT. 229+28.56

Banking Transition

Scale 0 5 10 FEET

232

231

230

229

228

227

228+50 Lt.
End Stone Fill, Type III
End Unclassified Channel Excavation
(For Stone Fill)

C (Save)
13" POP.
162

105.00

4a' Shoulder Flare

E LAKE
STONE
STONE
STONE
STONE
RD
E
E
BRUSH
MOD

1:2
1:1½
1:4

-.063 -.221 +.002 -.043

228+50

C (Save)
12" POP.
196

C (Save)
19" POP.
124

C (Save)
15" POP.
109

105.50

Face of G.R.

11' 6' 3'

-.063 -.021 -.008 -.058

E LAKE
STONE
STONE
RD
BRUSH

1:2
1:1½
1:3

228+00

C (Remove)
18" POP.
174

106.00

-.063 -.021 -.018 -.063

E STONE
E LAKE
STONE
STONE
E STONE
RD
OK
BRUSH
MET
MET
MET

1:2
1:1½
1:2

Existing Bit. Cone.

227+50

228+03 - 228+28 Rt.
Breakaway Cable Terminal for
Std. Steel Beam Guard Rail w/
Wood Posts, Type II

228+03 Rt.
End Std. Steel Beam Guard Rail
w/ Wood Posts, Type II

227+54 Rt.
End Removal & Disposal of
Existing Guard Rail

Edge of Pavement ℄

Edge of Shoulder ℄

11'

228+50

Shoulder Flare

4a

3'

+28

11'

+03

228+00

+30.50

Edge of Pvt. ℄

Face of G.R.

Shoulder Drop 2"

Std. Steel Beam Guard Rail w/ Wood Posts, Type II

Guard Rail Transition
Scale 0 5 10 FEET

227+50 ℄

+70

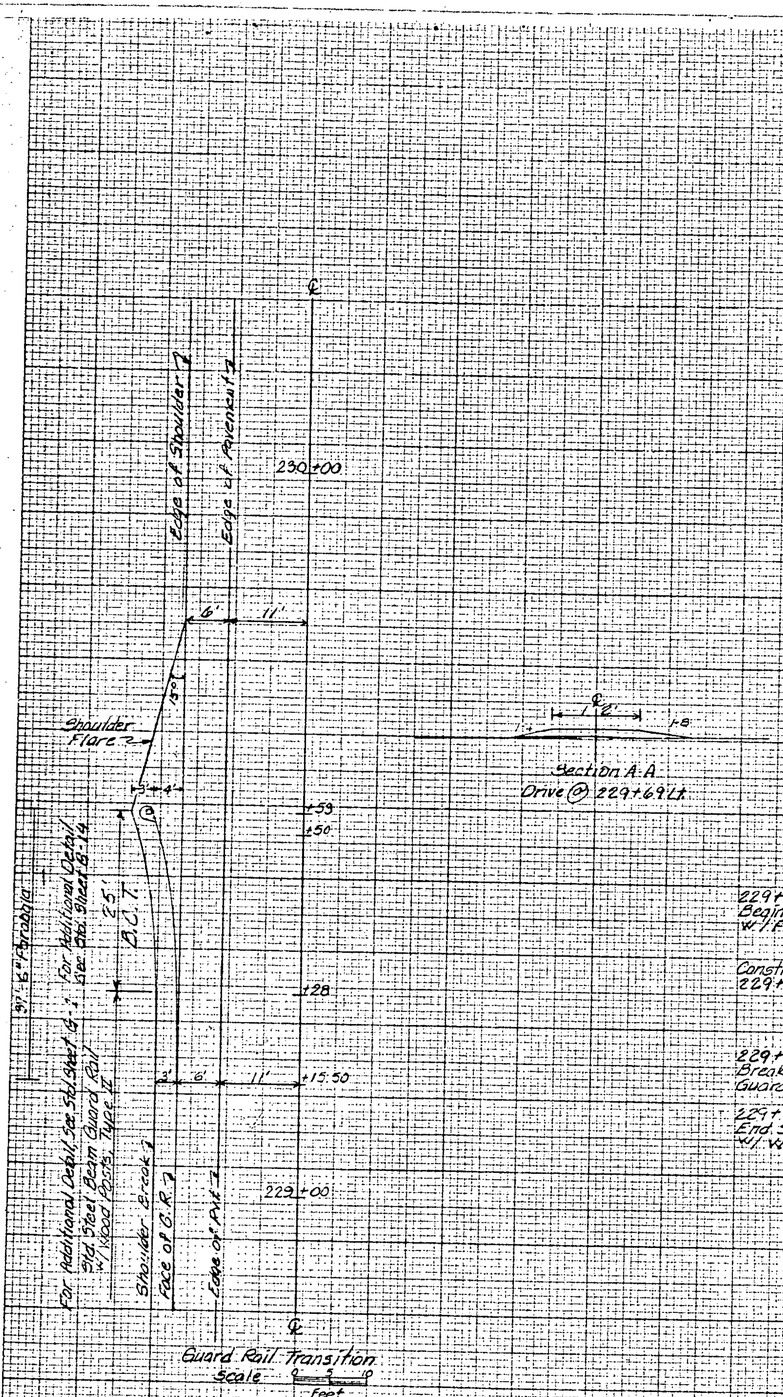
183

100

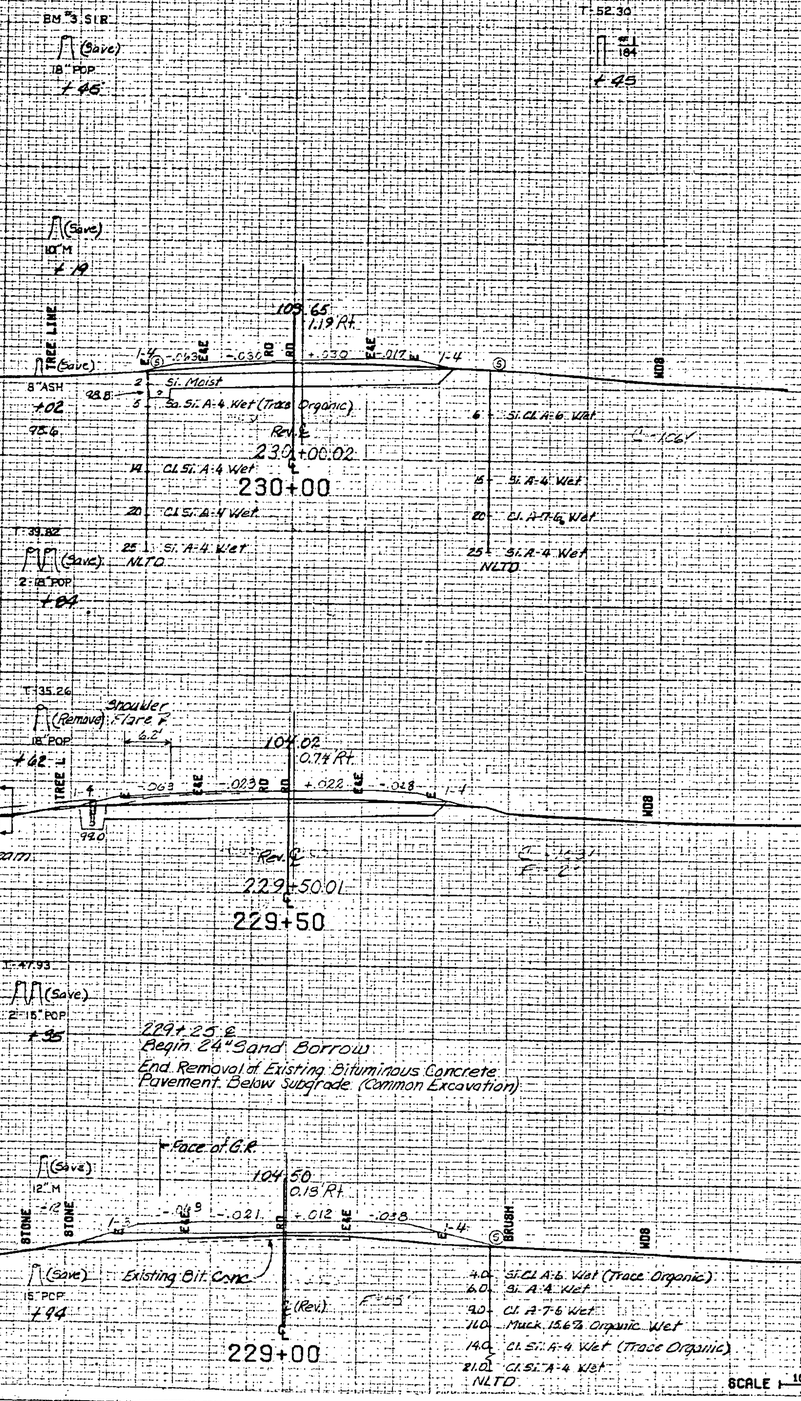
100

SCALE 10 FEET

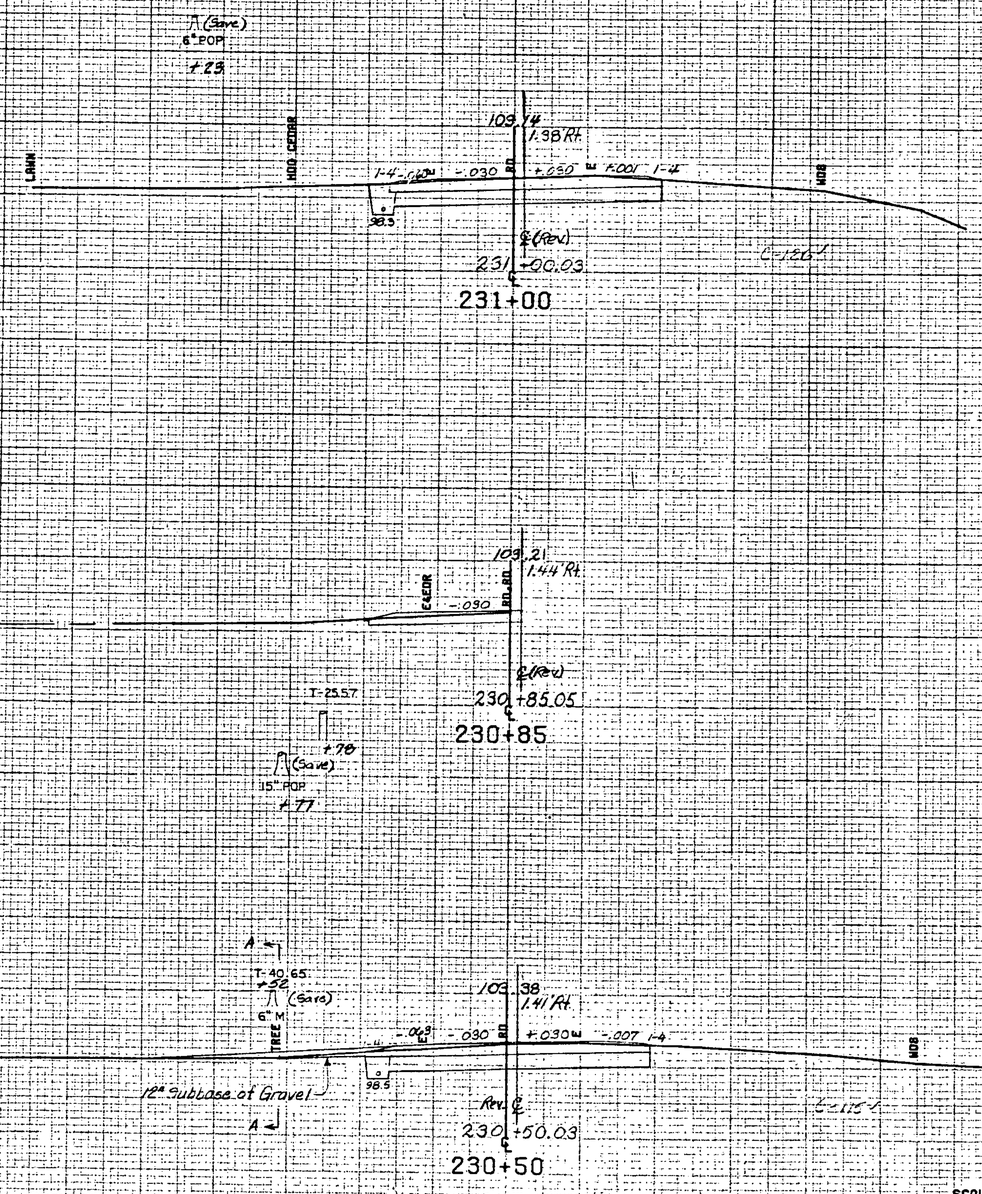
FROM STA. 227+50		TO STA. 228+50	
PROJECT NAME	HIGHGATE		
NO.	BRS0285(1)S		PLOTTED 11/24/81
SURVEYED BY	FANTONI		SEPT. 1981
SHEET 56 OF 64 SHEETS			



Section A-A
Drive @ 229+69 Lt.



FROM STA. 229+00	TO STA. 230+00
PROJECT NAME	HIGHGATE
NO.	BRS0285(1)S
PLOTTED	11/24/81
SURVEYED BY	FANTONI
SEPT. 1981	
SHEET 57 OF 64	SHEETS



230+64 Lt.

CONSTRUCT DRIVE



SECTION A-A

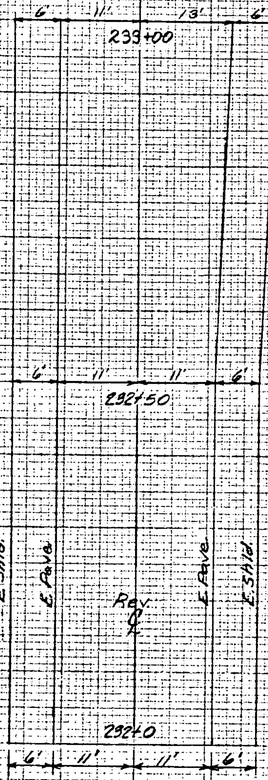
DRIVE TYPICAL

SCALE: 0 5 10 FEET

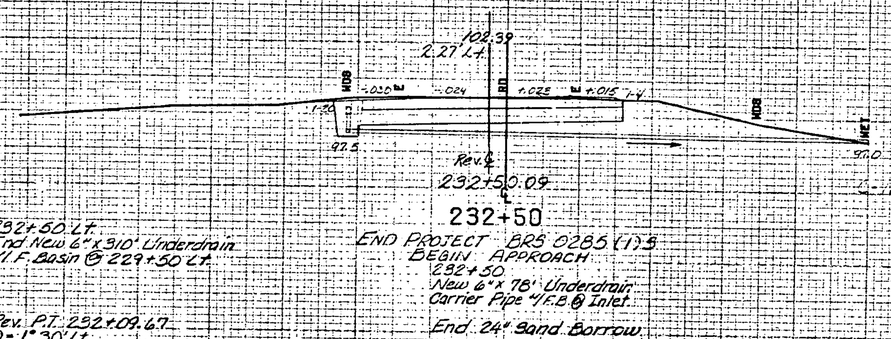
For Banking Transition
See Sheet 56 of 64 Sheets

SCALE 10 FEET

FROM STA. 230+50 TO STA. 231+00
PROJECT NAME HIGHGATE
NO. BRS0285(1)S PLOTTED 11/24/81
SURVEYED BY FANTONI SEPT. 1981
SHEET 55 OF 64 SHEETS



PAVEMENT TRANSITION
SCALE: 0 5 10 FEET

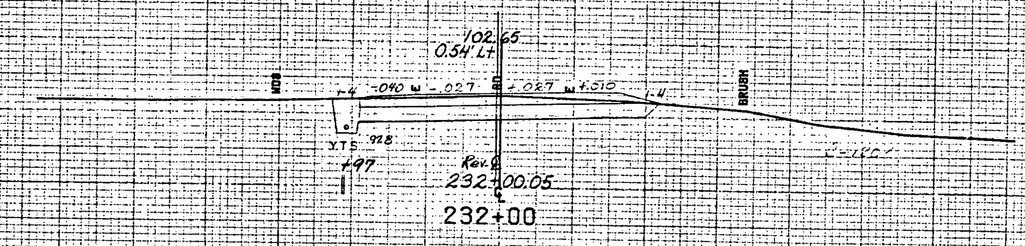


232+50 Lt.
End New 6"x 310' Underdrain
W/ F.B. Basin @ 229+50 Lt.

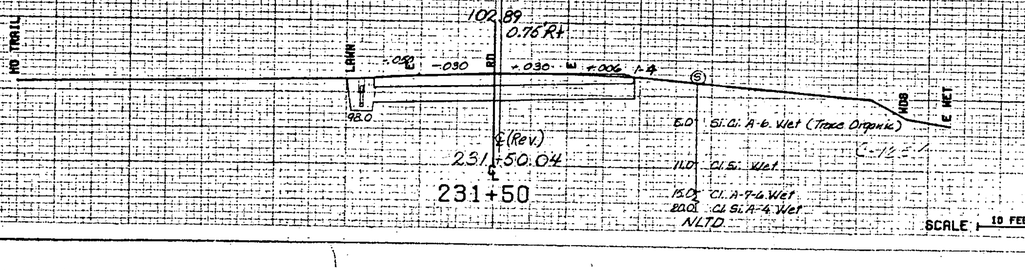
Rev. P.T. 232+09.67
D-1°30' Lt.
Banking 0.030 ft/ft.

END PROJECT BRS 0285(1)S
BEGIN APPROACH
232+50
New 6"x 78' Underdrain
Carrier Pipe W/ F.B. & Inlet.

End 24" Sand Borrow



IRON PIN
1.79'

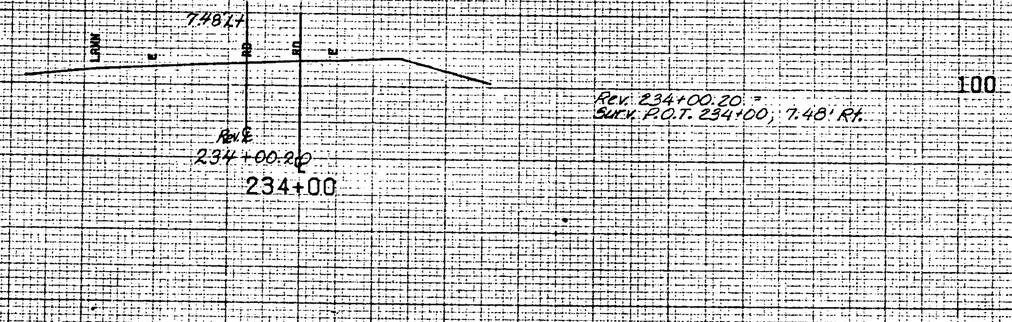


FROM STA. 231+50	TO STA. 232+50
PROJECT NAME	HIGHGATE
NO.	BRS0285(1)S
SURVEYED BY	FANTONI
SHEET 59 OF 64 SHEETS	
PLOTTED 11/24/81	
SEPT. 1981	

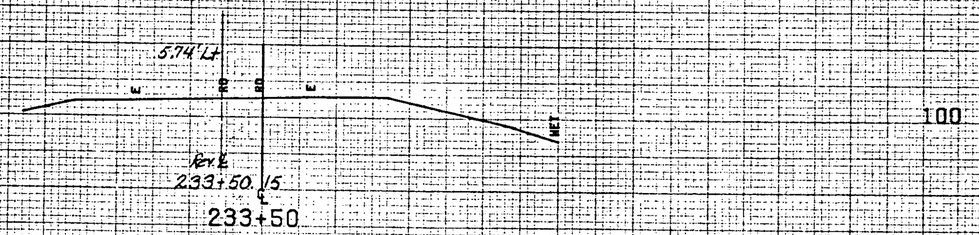
SCALE: 10 FEET

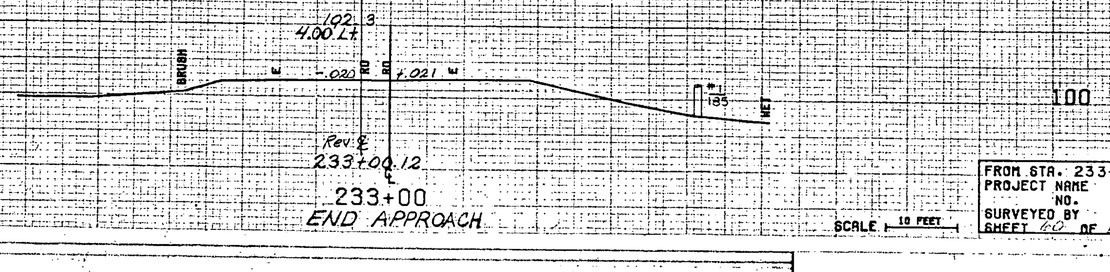
T- 78.49
4"M

T- 70.22
30" POP



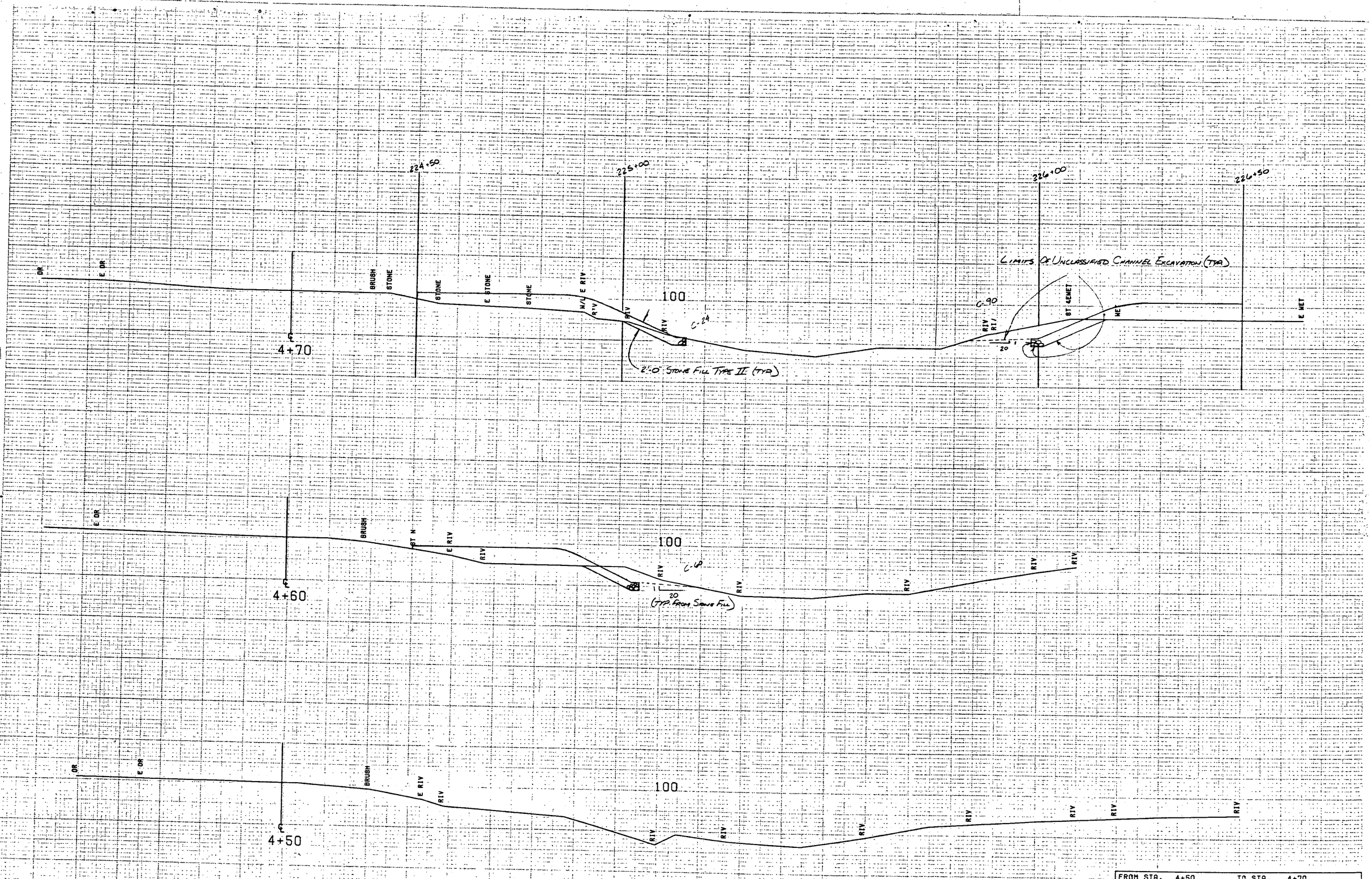
T- 49.65
8"M





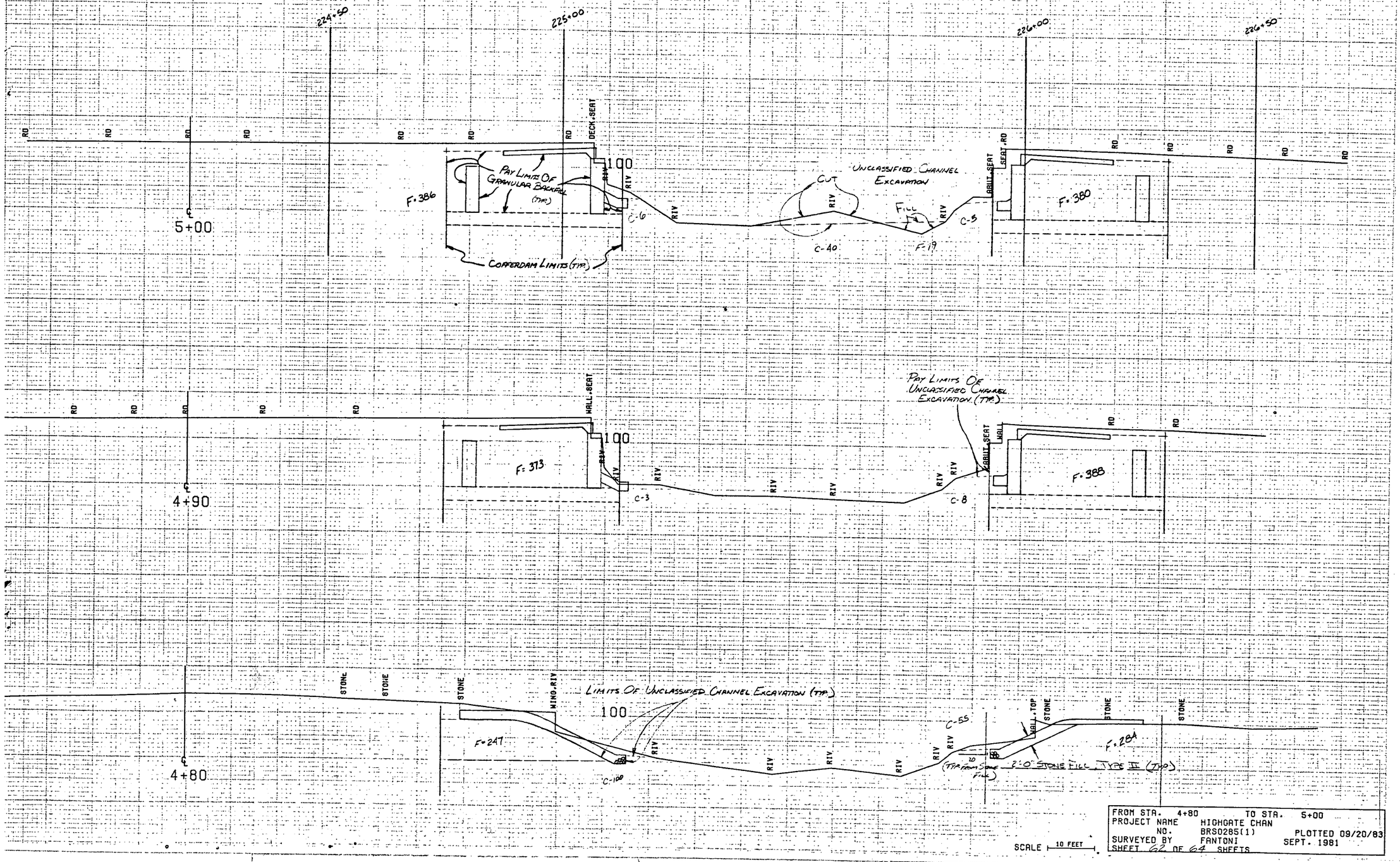
SCALE 10 FEET

FROM STA. 233+00	TO STA. 234+00	
PROJECT NAME	HIGHGATE	
NO.	BRS0285(1)S	PLOTTED 11/24/81
SURVEYED BY	FANTONI	SEPT. 1981
SHEET 60 OF 64 SHEETS		



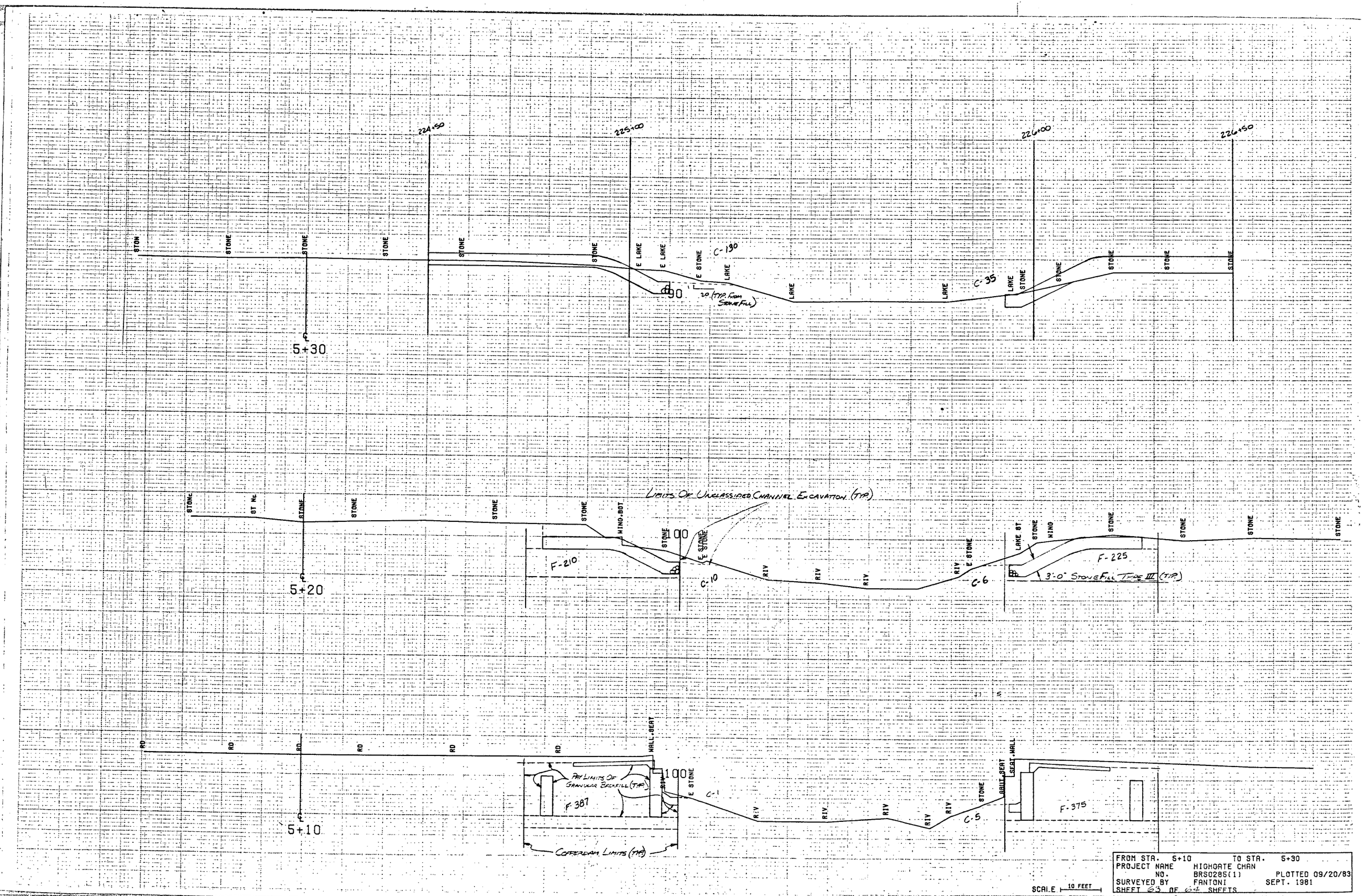
FROM STA.	4+50 TO STA. 4+70
PROJECT NAME	HIGHGATE CHAN
NO.	BRS0285(1) PLOTTED 09/20/83
SURVEYED BY	FANTONI SEPT. 1981
SHEET	61 OF 64 SHEETS

SCALE 10 FEET

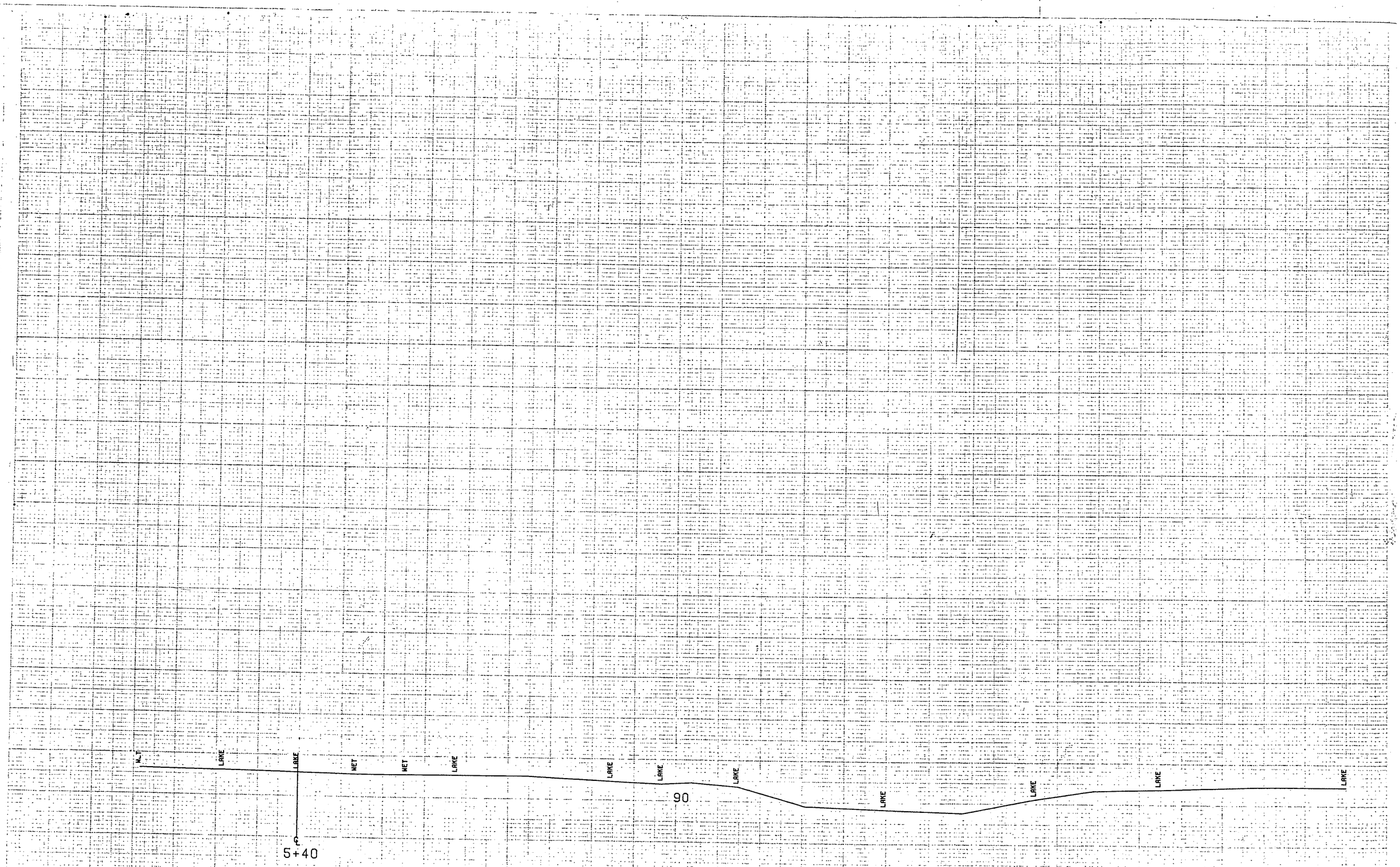


SCALE 10 FEET

FROM STA.	4+80	TO STA.	5+00
PROJECT NAME	HIGHGATE CHAN		
NO.	BRS0285(1)	PLOTTED	09/20/83
SURVEYED BY	FANTONI		SEPT. 1981
SHEET 62 OF 64 SHEETS			



FROM STA. 5+10 TO STA. 5+30
PROJECT NAME HIGHGATE CHAN
NO. BRS0285(1) PLOTTED 09/20/83
SURVEYED BY FANTONI SEPT. 1981
SHEET 83 OF 84 SHEETS



FROM STA. 5+40 TO STA. 5+40
PROJECT NAME HIGHGATE CHAN
NO. BRS0285(1) PLOTTED 09/20/83
SURVEYED BY FANTONI SEPT. 1981
SHEET 64 OF 64 SHEETS

SCALE 10 FEET